AUES JOB NO.: TCS00715/14

TUEN MUN - CHEK LAP KOK LINK
CONTRACT NO. HY/2013/12 –
NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS

73RD MONTHLY ENVIRONMENTAL MONITORING AND AUDIT (EM&A) REPORT – NOVEMBER 2020

PREPARED FOR
CRBC AND KADEN JOINT VENTURE

Date	Reference No.	Prepared By	Certified By
14 December 2020	TCS00715/14/600/R0719v1	 Ben Tam (Environmental Consultant)	 T.W. Tam (Environmental Team Leader)

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Ref.: HYDHZMBEEM00_0_8313L.20.doc

14 December 2020

By Fax (2218 7299) and By Post

AECOM Asia Company Limited
Supervising Officer's Representative Office
No. 8 Mong Fat Street, Tuen Mun, New Territories, Hong Kong

Attention: Mr. Roger Man

Dear Mr. Man,

Re: Agreement No. CE 48/2011 (EP)
Environmental Project Office for the
HZMB Hong Kong Link Road, HZMB Hong Kong Boundary Crossing Facilities, and
Tuen Mun-Chek Lap Kok Link – Investigation

Contract No. HY/2013/12
TM-CLKL – Northern Connection Toll Plaza and Associated Works
73rd Monthly EM&A Report for November 2020

Reference is made to the Environmental Team's submission of the monthly EM&A report for November 2020 (ET's ref.: "TCS00715/14/600/R0719v1" dated 14 December 2020) certified by the ET Leader and provided to us via e-mail on 14 December 2020.

Please be informed that we have no adverse comments on the captioned submission. We write to verify the captioned submission in accordance with Condition 4.4 of EP-354/2009/D.

Thank you for your attention. Please feel free to contact the undersigned or the ENPO Leader, Mr. Y H Hui, should you require further information.

Yours sincerely,
For and on behalf of
Ramboll Hong Kong Limited

Manson Yeung
Independent Environmental Checker
Tuen Mun-Chek Lap Kok Link

c.c.

HyD	Mr. Patrick Ng	(By Fax: 3188 6614)
HyD	Mr. Francis Chan	(By Fax: 3188 6614)
AECOM	Mr. Conrad Ng	(By Fax: 3922 9797)
AUES	Mr. T. W. Tam	(By Fax: 2959 6079)
CRBC-Kaden JV	Mr. John Wong	(By Fax: 2253 8399)

Internal: DY, YH, ENPO Site

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EXECUTIVE SUMMARY

ES01 This is the **73rd** Monthly EM&A Report presenting the monitoring results and inspection findings for the period from **1 to 30 November 2020** (hereinafter 'the Reporting Period').

SUMMARY OF EM&A ACTIVITIES FOR THE REPORTING PERIOD

ES02 The EM&A activities conducted in the Reporting Period are summary in below:-

- 24-hours TSP of Air Quality Monitoring **–25 events**
- 1-hour TSP of Air Quality Monitoring – **75 events**
- Cultural Heritage Inspection – **5 events**
- Landfill Gas Monitoring **– 0 day**
- Landscape & Visual Monitoring (Establishment period) – **1 events**
- Environmental Site Inspection – **5 events**

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES03 In the Reporting Period, 1 Action Level exceedance of 24-hour TSP was recorded at ASR1 on 2 November 2020; 1 Action Level exceedance of 24-hour TSP and 1 Limit Level exceedance of 1-hour TSP were recorded at ASR1 on 6 November 2020 and 3 Action Level exceedances of 1-hour TSP were recorded at ASR1, ASR5 and ASR6 on 12 November 2020 respectively according to the measurement results by the ET of Contract HY/2012/08. The summary of breach of air quality performance is shown below.

Environmental Aspect	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	**3**	**1**	**2**	**2**	**NA**
	24-hour TSP	**2**	**0**	**2**	**2**	**NA**

ES04 In the Reporting Period, no noise complaint was received by RE, the Contractor, ENPO or HyD. No Action Level exceedances were therefore triggered and no NOE or the associated corrective actions were required.

ES05 No landfill gas monitoring was conducted in this reporting month due to the excavation works at the landfill consultation zone was temporarily completed. Moreover part of landfill gas monitoring zone at TD1 was handover to the Contract No. HY/2017/10 since 7 May 2018.

ES06 According to the approved planting plan, most of the planting works under the contract were completed and the substantial completion certificate had been issued by RE. Therefore, the establishment period monitoring for planting works was commenced on 1 June 2020 under the EM&A manual requirement. The **2nd** quarter **(September to November 2020)** of the establishment period joint site inspection by the RE, IEC, ET and the Contractor was conducted on **30 November 2020** to review the status of tree planting under the Contract.

SITE INSPECTION

ES07 In the Reporting Period, joint site inspection by the RE, ET and the Contractor was carried out on **4th, 11th, 17th, 27th and 30th November 2020** and the IEC has attended the joint site inspection on **4th November 2020**. No non-compliance was recorded during the site inspection but **1** observation was recorded.

ES08 Inspection for Pitcher Plants of ecology and grave of culture heritage were also carried out during the weekly site inspection. It was observed that the transplanted pitcher plants were properly protected. Establishment period for the pitcher plants was completed at the end of September 2016 and the final pitcher plants report was submitted to AFCD on early December 2016. Since then only the integrity of the protection fence was checked to fulfill the EIA requirement.

ENVIRONMENTAL COMPLAINT

ES09 In the Reporting Period, no environmental complaint was received.

ES10 The statistical summary of environmental complaints is summarized in the following table.

Reporting Period	Environmental Complaint Statistics	
	Frequency	Cumulative
Since the Contract commencement	**11**	**11**
November 2020	**0**	**11**

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES11 No environmental summons or successful prosecutions were recorded in the Reporting Period.

REPORTING CHANGE

ES12 No reporting changes were made in the Reporting Period.

FUTURE KEY ISSUES

ES13 During dry season, air quality mitigation measures such as watering of site area for at least 12 times per day and covering of exposed slopes should be fully implemented to reduce construction dust impact as recommended in the EMIS.

ES14 Moreover, muddy water or other water pollutants from site surface runoff into the public areas will be key environment issue. Special attention should be paid on the water quality mitigation measures to prevent surface runoff flow to public area.

ES15 It was reminded that good housekeeping practice should be maintained. Mosquito control measures should be properly implemented to prevent mosquito breeding on site especially after rain.

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1 INTRODUCTION

1.1 CONTRACT BACKGROUND

1.1.1 CRBC-Kaden Joint Venture (hereafter "CRBC-Kaden JV") is commissioned by the Highways Department (HyD) as the Main Contractor of the Contract No. HY/2013/12 – Northern Connection Toll Plaza and Tunnel Section ((hereafter "the Contract") and this Contract is part of the Tuen Mun – Chek Lap Kok Link (TM-CLK Link Project). TM-CLK Link Project is a Designated Project under Environmental Permit number EP-354/2009/D issued on 13 March 2015. The layout Plan of the Project and the Contract are showed in ***Appendix A*** and ***B*** respectively.

1.1.2 The construction works of the Contract mainly include:-

a. construction of an approximately 5.4 hectares toll plaza and an associated footbridge;
b. construction of associated carriageways including approximately 0.74 kilometre land viaducts, and an approximately 230 metres vehicular underpass to connect the toll plaza and the roundabout at Lung Mun Road/Lung Fu Road;
c. site formation for the construction of the toll plaza, including associated slope works and natural terrain hazard mitigation measures;
d. modification and realignment of the existing Lung Mun Road and Lung Fu Road; and
e. associated waterworks, drainage, sewerage and landscaping works, etc..

1.1.3 This is **73rd** monthly EM&A report presenting the monitoring results and inspection findings for period from **1 to 30 November 2020**.

1.2 REPORT STRUCTURE

1.2.1 The Monthly Environmental Monitoring and Audit (EM&A) Report is structured into the following sections:-

Section 1 *Introduction*
Section 2 *Contract Organization and Construction Progress and Environmental Submissions*
Section 3 *Summary of Impact Monitoring Requirements under the Contract*
Section 4 *Air Quality Monitoring*
Section 5 *Ecology Monitoring*
Section 6 *Cultural Heritage*
Section 7 *Landscape and Visual*
Section 8 *Landfill gas hazard Monitoring*
Section 9 *Waste Management*
Section 10 *Inspections and Audit*
Section 11 *Environmental Complaints and Non-Compliance*
Section 12 *Implementation Status of Mitigation Measures*
Section 13 *Conclusions and Recommendations*

2 CONTRACT ORGANIZATION AND CONSTRUCTION PROGRESS AND ENVIRONMENTAL SUBMISSIONS

2.1 CONTRACT ORGANIZATION

2.1.1 The Contract organization and contact details of key personnel are shown in ***Appendix C***.

2.2 CONSTRUCTION PROGRESS

2.2.1 In the Reporting Period, the major construction activity conducted under the Contract is summarized in below. The three-months rolling programme of the Contract is enclosed in ***Appendix D***.

- Road and Drainage Works at LMR and Butterfly Beach;
- Landscape planting works on slopes, Lung Mun Road and Butterfly Beach.

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.3.1 The environmental submissions under the EP requirement had been submitted to the EPD and they are listed in below:

- Monitoring Plan on Construction Dust (submission refer to Contract HY/2012/08)
- Landscape and Visual Plan (not yet endorsed by EPD)
- Waste Management Plan (endorsed by EPD on 16 March 2015)
- Baseline Monitoring Report (not yet endorsed by EPD)

2.3.2 Summary of environmental permits, licenses and notifications for the Contract is presented in ***Table 2-1***.

Table 2-1 Status of Environmental Licenses and Permits of the Contract

No.	Type of Permit/ License	Reference/ License No.	Date of Issue	Date of Expiry
1	Air pollution Control (Construction Dust) Regulation	377719	06-08-2014	N/A
2	Chemical Waste Producer Registration - Waste Producers Number	5117422C389301	03-09-2014	N/A
3	Water Pollution Control Ordinance -Variation of Effluent Discharge License	WT00034613-2019	29-08-2019	30-09-2024
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	7020460	01-08-2014	N/A
5	Extended CNP for Multiple Task	GW-RW0202-20	24-05-2020	23-11-2020
		GW-RW0532-20	24-11-2020	23-05-2021
6	Extended CNP for Portion H	GW-RW0201-20	18-05-2020	16-11-2020
7	Extended CNP for Lung Mun Road	GW-RW0382-20	04-09-2020	13-11-2020
		GW-RW0506-20	13-11-2020	18-12-2020
8	Extended CNP for Lung Fu Road	GW-RW0423-20	22-09-2020	06-11-2020

3 SUMMARY OF IMPACT MONITORING REQUIREMENTS UNDER THE CONTRACT

3.1 GENERAL

3.1.1 The major construction activities under the Contract are land-based and no marine work will be involved. In accordance with the Project EM&A Manual requirements, the environmental aspects under the Contract shall be included air quality, ecological, cultural heritage, landscape and visual, landfill gas and site inspection during construction period. In addition, audit of the contractor's implementation of the construction noise and land-based water quality pollution control measures are also required for the Contract.

3.1.2 A summary of construction phase EM&A requirements are presented in the sub-sections below.

3.2 AIR QUALITY MONITORING

3.2.1 The construction phase air quality monitoring shall cover the following parameters:

- 1-hour TSP; and
- 24-hour TSP

3.3 MONITORING LOCATION

3.3.1 The air quality monitoring stations for impact monitoring are listed in ***Table 3-1*** and illustrated in ***Appendix E*****.**

Table 3-1 Air Quality Monitoring Stations under the Contract

ID	Location	Air monitoring station Description
ASR1	Tuen Mun Fireboat Station	EM&A Manual
ASR5	Pillar Point Fire Station	EM&A Manual
AQMS1	Previous River Trade Golf	Enhanced TSP Level under EP condition 2.4
ASR6	Butterfly Beach Laundry	Enhanced TSP Level under EP condition 2.4
ASR10	Butterfly Beach Park	Enhanced TSP Level under EP condition 2.4

3.4 MONITORING FREQUENCY

3.4.1 As per Condition 2.4 of the EP of TM-CLKL, an enhanced monitoring plan on TSP level at Tuen Mun ("the Enhanced TSP Monitoring Plan") is required to be submitted to the DEP for approval at least 1 month before the commencement of construction of the Project. Details of the Enhanced TSP Monitoring Plan under Contract No. HY/2012/08 could be found from the project website. The air quality monitoring work under this Contract will follow the monitoring requirement of enhanced TSP monitoring under the project.

3.4.2 The air quality monitoring requirements for the Contract is summarized in ***Table 3-2***.

Table 3-2 Enhanced TSP Monitoring Plan – Construction Phase

Condition	Monitoring Parameter	Monitoring Location	Frequency	Monitoring Requirement
General	1-hour TSP	ASR1, ASR5, AQMS1, ASR6, ASR10	3 times per day every six days	Throughout the Northern Connection, toll plaza and tunnel buildings construction works
	24-hour TSP	ASR1, ASR5, AQMS1, ASR6, ASR10	Daily every six days	
Special	1-hour TSP	ASR1, ASR5, AQMS1, ASR6, ASR10	3 times per day every three days	**Northern Connection** During excavation works for launching shaft, excavation work for Cut and Cover Tunnel and Cut and Cover Tunnel Construction **Toll Plaza**
	24-hour TSP	ASR1, ASR5, AQMS1, ASR6, ASR10	Daily every three days	

Condition	Monitoring Parameter	Monitoring Location	Frequency	Monitoring Requirement
				During excavation, slope works, construction of road and superstructures and wind erosion from open sites and stockpiling areas **Tunnel Buildings** During excavation, foundation works, construction of superstructures and wind erosion from open sites and stockpiling areas

3.5 MONITORING EQUIPMENT

3.5.1 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B.*

3.5.2 A high volume sampler in compliance with the following specifications shall be used for carrying out the 1-hr and 24-hr TSP monitoring:

(i) 0.6-1.7 m^3/min (20-60 SCFM) adjustable flow range;
(ii) equipped with a timing/control device with +/- 5 minutes accuracy for 24 hours operation;
(iii) installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation;
(iv) capable of providing a minimum exposed area of 406 cm^2 (63 in^2);
(v) flow control accuracy: +/- 2.5% deviation over 24-hr sampling period;
(vi) equipped with a shelter to protect the filter and sampler;
(vii) incorporated with an electronic mass flow rate controller or other equivalent devices;
(viii) equipped with a flow recorder for continuous monitoring;
(ix) provided with a peaked roof inlet;
(x) equipped with a manometer;
(xi) able to hold and seal the filter paper to the sampler housing in a horizontal position;
(xii) easy to change the filter; and
(xiii) capable of operating continuously for 24-hr period.

3.5.3 Calibration of dust monitoring equipment shall be conducted by the ET upon installation and in bi-monthly intervals during construction phase. The transfer standard shall be traceable to the internationally recognized primary standard and be calibrated annually. The calibration data shall be properly documented for future reference by concerned parties, such as the IEC. All the data shall be converted into standard temperature and pressure condition.

3.5.4 The filter paper of 1-hour and 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory.

3.5.5 According to the Project EM&A Manual, wind data monitoring equipment shall also be provided and set up for logging wind speed and wind direction near the dust monitoring locations. The equipment installation location shall be proposed by the ET Leader and agreed with the IEC (wind data monitoring equipment was setting up at ASR5 by the ET of Contract HY/2012/08). For installation and operation of wind data monitoring equipment, the following points shall be observed:

(i) the wind sensors should be installed on masts at an elevated level 10 m above ground so that they are clear of obstructions or turbulence caused by the buildings;
(ii) the wind data should be captured by a data logger to be down-loaded for processing at least once a month;

(iii) the wind data monitoring equipment should be re-calibrated at least once every six months; and

(iv) wind direction should be divided into 16 sectors of 22.5 degrees each.

3.6 DERIVATION OF ACTION/LIMIT (A/L) LEVELS

3.6.1 The baseline monitoring results formed the basis for determining the air quality criteria for the impact monitoring. The ET shall compare the impact monitoring results with air quality criteria set up for 24-hour TSP and 1-hour TSP. Based on results of the approved Baseline Monitoring Report of HyD Contract HY/2012/08, the Action and Limit Levels for impact dust monitoring are shown in ***Table 3-3***.

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

Air Quality Monitoring Stations	24-hour TSP (μg/m^3)		1-hour TSP (μg/m^3)	
	Action Level	Limit Level	Action Level	Limit Level
ASR1	213	260	331	500
ASR5	238	260	340	500
AQMS1	213	260	335	500
ASR6	238	260	338	500
ASR10	214	260	337	500

3.6.2 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan which presented in ***Appendix F.***

3.7 OTHER ENVIRONMENTAL ASPECTS

Noise

3.7.1 The TM-CLKL EIA study stated that no existing noise sensitive receiver (NSR) was identified within the Study Area at Tuen Mun. Therefore, no noise monitoring is required for the construction phase of the Contract.

3.7.2 Regular site inspections and audits will be carried out during the construction phase in order to confirm the construction works under the Contract comply with the regulatory noise requirements.

Water Quality

3.7.3 No marine works will be undertaken under the Contract. Therefore, no water quality monitoring is required for the construction phase of the Contract.

Ecology

3.7.4 No marine works will be undertaken under the Contract and generated marine ecological impact, no dolphin monitoring is required for the construction phase of the Contract.

3.7.5 During construction phase, the ET will perform Pitcher Plants inspection at least once every week to report the growth condition (only undertaken at Establishment period) and protection measures.

Landscape and Visual

3.7.6 Measures to mitigate landscape and visual impact during construction should be checked and monitored by a Registered Landscape Architect to ensure compliance with the intended aims of the mitigation measures in accordance with the EM&A Manual.

Cultural Heritage

3.7.7 Grave G1 as a heritage resource is situated near the proposed toll plaza in Tuen Mun. Site inspections should be undertaken at least once per week throughout the construction period to ensure compliance with the intended aims of recommended mitigation measures.

Landfill Gas

3.7.8 During EIA study, landfill gas hazards are likely to be generated from the Pillar Point Valley (PPV) Landfill. Landfill gas monitoring is recommended during construction of the Contract to ensure the works area is free of landfill gas before the worker entered the concerned area.

3.8 MONITORING SCHEDULE

3.8.1 The monitoring schedule for landscape &visual and landfill gas for the present and next reporting period are presented in ***Appendix G***.

4 AIR QUALITY MONITORING

4.1 GENERAL

4.1.1 The air quality impact monitoring and enhanced Total Suspended Particulates (TSP) level monitoring at five proposed locations are currently carried out by the ET of Contract HY/2012/08. Sharing of impact air quality monitoring data between HY/2012/08 and HY/2013/12 is agreed by all relevant parties. The Contract is not required to conduct its own dust monitoring exercise until the Contract HY/2012/08 ends.

4.2 AIR QUALITY MONITORING RESULTS IN REPORTING PERIOD

4.2.1 In the Reporting Period, 1-hour and 24-hour TSP monitoring at the five proposed locations are continued to perform by the ET of Contract HY/2012/08. Therefore, no air quality monitoring was conducted by the ET of Contract HY/2013/12. Details information of air quality monitoring results could be referred to the Monthly EM&A Reports of the Contract HY /2012 /08 (**November 2020**).

4.3 ACTION AND LIMIT (A/L) LEVELS EXCEEDANCE

4.3.1 According to the air quality monitoring result provided by Contract HY/2012/08, 1 Action Level exceedance of 24-hour TSP was recorded at ASR1 on 2 November 2020; 1 Action Level exceedance of 24-hour TSP and 1 Limit Level exceedance of 1-hour TSP were recorded at ASR1 on 6 November 2020 and 3 Action Level exceedances of 1-hour TSP were recorded at ASR1, ASR5 and ASR6 on 12 November 2020 respectively. The summary of air quality exceedances in the Reporting Period is shown in ***Table 4-1***.

Table 4-1 Summary of Air Quality Monitoring Exceedance

Date of Exceedance	Monitoring Station	Air Quality Parameter	Result	Exceed
2 November 2020	ASR1	24Hr TSP	244 μg/m^3	Action Level
6 November 2020	ASR1	1Hr TSP	887 μg/m^3	Limit Level
6 November 2020	ASR1	24Hr TSP	214 μg/m^3	Action Level
12 November 2020	ASR1	1Hr TSP	474 μg/m^3	Action Level
12 November 2020	ASR5	1Hr TSP	433 μg/m^3	Action Level
12 November 2020	ASR6	1Hr TSP	358 μg/m^3	Action Level

4.4 AIR QUALITY EXCEEDANCE INVESTIGATION

4.4.1 Investigation reports (IRs) for the exceedances on 2, 6 and 12 November 2020 prepared by the ET were endorsed by IEC and the IRs revealed that the exceedances were not contract related. The completed investigation report is included in ***Appendix J***.

5 ECOLOGY MONITORING

5.1 GENERAL

5.1.1 According to the EM&A Manual requirements, regularly inspection for Pitcher Plants shall be conducted at least once every week to report the protection measure of the Pitcher Plants during construction period.

5.1.2 A total of 181 pitcher plants were transplanted to final receptor site and the rest of the Pitcher Plant individuals (certified dead by the specialist) were not transplanted and were treated as general refuse. All the transplantation of pitcher plant from the nursery site to final receptor site was completed on 10th September 2015. The location for pitcher plants final receptor site is illustrated in ***Appendix E***.

5.2 PITCHER PLANTS INSPECTION

5.2.1 Inspection for the mitigation measures implementation status of the Pitcher Plant at the final receptor area were performed on **4th, 11th, 17th, 27th and 30th November 2020** by the ET in the Reporting Period.

5.2.2 Establishment period for the pitcher plants was completed at the end of September 2016, the join site completion of Establishment period visit with AFCD was undertaken on 23 September 2016 and the final pitcher plants report was submitted to AFCD on early December 2016. Therefore after 23 September 2016, only the integrity of the protection fence was checked to fulfil the EIA requirement. During each inspection, the protection mitigation measures were checking at the final receptor area to make sure no site activities was undertaken inside the protection zone. Besides, no construction activities were observed to be carried out at the surrounding of the final receptor area. The condition of chain link fence is good and no repair or maintenance is required.

5.2.3 No matters the completion of Establishment period, the Contractor should properly maintain the fencing along the receptor area to avoid disturbance to the pitcher plants under the EIA requirement.

6 CULTURAL HERITAGE

6.1 GENERAL

6.1.1 According to the EM&A Manual requirements, regular inspection for heritage resource, Grave G1, shall be audited by the ET at least once every week to ensure recommended mitigation measures implemented during construction period. The aim of the survey is to prevent any possible damage to the grave and to ensure the proposed mitigation measures are implemented. The broad scope of the audit will involve supervision of the following:

- Non-contact effects of the engineering works, such as vibration from pneumatic drills which could cause damage, such as foundation or wall cracks and loosening of tiles or fixtures; and
- Contact between the historic structures and equipment and materials associated with the engineering works.

6.1.2 Specifically, the monitoring programme will entail the following tasks:

- The extent of the agreed works areas should be regularly checked during the construction phase to ensure the buffer is being maintained; and
- Ensure no stockpiling or equipment storage is affecting the structure.

6.1.3 In the event of non-compliance the responsibilities of the relevant parties is detailed in the Event/ Action Plan in ***Appendix F***.

6.2 GRAVE INSPECTION

6.2.1 In the Reporting Period, Grave G1 of inspection was undertaken on **4th, 11th, 17th, 27th and 30th November 2020**. During these inspections, buffer zone was maintained between the working area and the Grave. The nearby areas were clean, and no construction materials or mechanical equipment were stored within or close to the buffer zone.

6.2.2 Since construction works very close to buffer zone of the Grave G1, cultural heritage mitigation measures and protection measures as provided by the Contractor, therefore has fully implemented in accordance with EM&A Manual requirements.

7 LANDSCAPE AND VISUAL

7.1 GENERAL

7.1.1 According to EM&A Manual requirements, monitoring of Contractor's operations during construction period to report on Contractor's compliance should be carried out on weekly basis. Measure to mitigate landscape and visual impact during construction should be checked and monitored by a Registered Landscape Architect to ensure compliance with the intended aims of the mitigation measures. Moreover, the progress of the engineering works shall be regularly reviewed on site to identify the earliest practical opportunities for the landscape works to be undertaken.

7.2 LANDSCAPE AND VISUAL INSPECTION (CONSTRUCTION PHASE)

7.2.1 According to the approved planting plan, most of the planting works under the contract were completed and the substantial completion certificate had been issued by RE. Therefore, the establishment period monitoring for planting works was commenced on 1 June 2020 under the EM&A manual requirement and no site inspection for landscape and visual mitigation measures under construction phase was undertaken.

7.3 ESTABLISHMENT WORKS INSPECTION

7.3.1 According to EM&A Manual requirements, monitoring of the planting works during the 24-month Establishment period after completion of the construction works should be carried out. Establishment Works Inspection should be carried out once every 3 months to make sure the establishment planting works is complied with EMIS requirement.

7.3.2 In the Reporting Period, the **2nd** quarter (**September - November 2020**) site inspection for establishment planting works was conducted on **30 November 2020** by the ET and supervised by the Registered Landscape Architect of RE. The detailed inspection checklists were provided in ***Appendix K***.

8 LANDFILL GAS HAZARD MONITORING

8.1 GENERAL

8.1.1 During EIA study, landfill gas hazards are likely to be generated from the Pillar Point Valley (PPV) Landfill. Hence, regular landfill gas monitoring is recommended during construction of the proposed toll plaza.

8.1.2 During construction, a Safety Officer should be appointed to carry out the monitoring works. The monitoring frequency and areas to be monitored should be set down prior to commencement of ground-works either by the Safety Officer or an approved and appropriated qualified person. The routine monitoring should be carried out in all excavations, manholes, chambers, relocation of monitoring wells and any other confined spaces that may have been created. All measurements in excavations should be made with the extended monitoring tube located not more than 10 mm from the exposed ground surface. Monitoring should be performed properly to make sure that the area is free of landfill gas before any man enters in the area.

8.1.3 For excavations deeper than 1m, measurements should be carried out:

- at the ground surface before excavation commences;
- immediately before any worker enters the excavation;
- at the beginning of each working day for the entire period the excavation remains open; and
- periodically through the working day whilst workers are in the excavation.

8.1.4 For excavations between 300mm and 1m deep, measurements should be carried out:

- directly after the excavation has been completed; and
- periodically whilst the excavation remains open

8.1.5 For excavations less than 300mm deep, monitoring may be omitted, at the discretion of the Safety Officer (SO) or other appropriately qualified person.

8.1.6 To ensure the accuracy of the monitoring data, zeroing of the gas analyser shall be undertaken at the start of each day's monitoring. As advised by the SO, the gas analyser would be optimally calibrated by the self-test function to provide the most accurate result. The gas analyser is calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis.

8.1.7 The landfill consultation zone was divided into 6 monitoring zones. The landfill gas monitoring zones are summarized in ***Table 8-1***. Moreover part of landfill gas monitoring zone at TD1 was handover to the Contract No. HY/2017/10 since 7 May 2018. The layout plan for the monitoring zone is illustrated in ***Appendix E***.

Table 8-1 Landfill Gas Monitoring Zone

ID	Location	Excavation >300mm deep undertaken in this reporting period
TD1	TD1, Retaining Wall A, Grave G1 and Subway	No
RW-B	Retaining Wall B	No
RW-F	Retaining Wall F	No
S&U	Slope and Underpass	No
BW	Bridge Works (G2, H1)	No
LMR	Lung Mun Road	No

8.2 LANDFILL GAS MONITORING RESULT

8.2.1 In the Reporting Period, no landfill gas monitoring was conducted at the consultation zone.

8.2.2 The excavation works within the landfill consultation zone was temporarily completed on 25 September 2019. Therefore, the landfill gas monitoring will be temporarily suspended until the excavation works within the consultation zone resume.

9 WASTE MANAGEMENT

9.1 GENERAL WASTE MANAGEMENT

9.1.1 Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time. The effective management of waste arising during the construction phase will be monitored through the site audit programme. The aims of the waste audit are:

- to ensure the waste arising from the works are handled, stored, collected, transferred and disposed of in an environmentally acceptable manner; and
- to encourage the reuse and recycling of material.

9.1.2 In addition to the site inspections, the ET shall review the documentation procedures prepared by the Waste Coordinator once a week to ensure proper records are being maintained and procedures undertaken in accordance with the Waste Management Plan.

9.2 RECORDS OF WASTE QUANTITIES

9.2.1 All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil.

9.2.2 The quantities of wastes generated under the Contract in this Reporting Period are summarized in ***Tables 9-1*** and ***9-2*** and the Monthly Summary Waste Flow Table is shown in ***Appendix L***. Whenever possible, materials were reused on-site as far as practicable.

Table 9-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Quantity	Disposal Location
Reused in this Contract (Inert) (`000m^3)	0.000	-
Reused in other Projects (Inert) (`000m^3)	0.000	1. Lam Tei Quarry 2. Eco Park K.Wah Recycle Facilities 3. Lung Kwu Tan Tailor Recycled Aggregates 4. Liantang BCP Project 5. TM-CLKL Contract 2 - Northern Connection Sub-sea Tunnel Section Project
Disposal as Public Fill (Inert) (`000m^3)	0.662	Tuen Mun Area 38

Table 9-2 Summary of Quantities of C&D Wastes

Type of Waste	Quantity	Disposal Location
Recycled Metal (`000kg)	0	-
Recycled Paper / Cardboard Packaging (`000kg)	0	-
Recycled Plastic (`000kg)	0	-
Chemical Wastes (`000kg)	0	-
General Refuses (`000m^3)	0.115	WENT

10 INSPECTION AND AUDIT

10.1 SITE INSPECTION

10.1.1 According to the approved EM&A Manual, the environmental site inspection shall be formulated by ET Leader on weekly basis to confirm the environmental performance of the construction site.

Findings / Deficiencies During Reporting Period

10.1.2 In the Reporting Period, joint site inspections to evaluate site environmental performance were carried out by the RE, ET and the Contractor on **4th, 11th, 17th, 27th and 30th November 2020**. No non-compliance was noted but **1** observation was recorded during site inspection. Moreover, ENPO/IEC has attended joint site inspection on **4th November 2020**.

10.1.3 The findings / deficiencies observed during the weekly site inspection in the Reporting Period are listed in ***Table 10-1***.

Table 10-1 Site Observations for the Contract

Date	Findings / Deficiencies	Follow-Up Status
4 November 2020	• Nil	• NA
11 November 2020	• Drip tray should be provided for chemical storage on-site. (+10 Platform)	• Chemical container without drip tray was removed.
17 November 2020	• Nil	• NA
27 November 2020	• Nil	• NA
30 November 2020	• Nil	• NA

10.1.4 No outstanding deficiency remained to be rectified in previous Reporting Period which presented in ***Table 10-2***.

Table 10-2 Outstanding Items in Site Inspection of previous Reporting Period

Date	Findings / Deficiencies	Follow-Up Status
--	• NA	• NA

10.1.5 Air quality mitigation measures such as watering of site area for at least 12 times per day and covering of exposed slopes should be implemented during the construciton period to reduce construction dust impact as recommended in the EMIS.

10.1.6 Good site practice for daily housekeeping is reminded. In addition, clean-up of the waste skips and wastewater treatment system should be increased to ensure these facilities functional and effective.

10.1.7 In addition, muddy water or other water pollutants from site surface runoff shall not be discharged into public areas. Water quality mitigation measures to prevent surface runoff into the public areas should be paid on special attention.

10.1.8 Stagnant water should be removed as soon as possible after rain to prevent mosquito breeding on site.

Inspection Checklist for Vulnerable to Contaminated Water Discharge

10.1.9 Following the complaint about discharge of milky water to Bufferfuly Beach on 2 September 2015. The Contractor proposed to carry out daily inspection of wastewater treatment facilities, concerned discharge points, drainage inlets and outlets during typhoon or wet season.

10.1.10 In addition, specific inspections would also be conducted before and after adverse weather to ensure necessary remedial works would be carried out timely. Should incidental contaminated water discharge be found at the inlet of the associated drainage system, a specific inspection of the relevant drainage pipes would be conducted for traces of deposit, and follow up actions would be taken when necessary.

10.1.11 Following the EPD's site inspection on 22 February 2019, the contractor was advised to carry on the temporary drainage inspection until the completion of the construction of permanent drainage system. As the permanent drainage system was fully commissioned in July 2019, the temporary drainage inspection has been terminated since then.

11 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

11.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

11.1.1 In the Reporting Period, no environmental complaint, summons and prosecution under the EM&A Programme was lodged. However, 6 exceedance of the environmental performance limit (5 Action Level and 1 Limit level) were recorded for monitoring programme.

11.1.2 The statistical summary table of environmental exceedance, complaint, summons and prosecution are presented in ***Tables 11-1, 11-2, 11-3 and 11-4***.

Table 11-1 Statistical Summary of Environmental Exceedance

Reporting Period	Environmental Aspect / Parameter	Environmental Performance	Event Exceedance		
			Reporting Month	Previous Months	Cumulative
November 2020	Air Quality - 1-hr TSP	Action Level	**3**	**90**	**93**
		Limit Level	**1**	**12**	**13**
	Air Quality - 24-hr TSP	Action Level	**2**	**5**	**7**
		Limit Level	0	**3**	**3**

Table 11-2 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics					
	Frequency	Cumulative	Complaint Nature			
			Air	Noise	Water	Others
November 2020	0	**11**	**4**	**1**	**6**	**2**

Table 11-3 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics				
	Frequency	Cumulative	Complaint Nature		
			Air	Noise	Water
November 2020	0	0	NA	NA	NA

Table 11-4 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics				
	Frequency	Cumulative	Complaint Nature		
			Air	Noise	Water
November 2020	0	0	NA	NA	NA

11.1.3 In the Reporting Period, no warning letter related to environmental issue was received from the EPD or HyD.

12 IMPLEMENTATION STATUS OF MITIGATION MEASURES

12.1 GENERAL REQUIREMENTS

12.1.1 The environmental mitigation measures that recommended in the Environmental Mitigation and Enhancement Measures Implementation Schedule (EMIS) for in the Project EM&A Manual covered the issues of air quality, cultural heritage, ecology, landfill gas hazard, landscape & visual, noise, water and waste. The updated EMIS for the Contract is shown in ***Appendix M***.

12.1.2 The Contractor shall implement the required environmental mitigation measures according to the EM&A Manual as subject to the site condition. The environmental mitigation measures implemented by the Contractor in this Reporting Period are summarized in ***Table 12-1*** and ***Appendix M***.

Table 12-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Air Quality	• Maintain damp / wet surface on access road • Keep slow speed in the sites • All vehicles must use wheel washing facility before off site • Sprayed water during rock breaking works • During transportation by truck, materials loaded lower than the side and tail boards, and covered before transport • Compacted all soil stockpiles • Part of the exposed slopes covered geotextile net
Cultural Heritage	• Set a buffer zone between the working area and the Grave • All construction materials and equipment store far from the Grave • Inspection the Grave to ensure provision mitigation measures effective
Ecology	• Wire fencing provided for temporary protect Pitcher Plants • Undertake weekly inspection of Pitcher Plants
Landfill Gas Hazard	• Nil
Water Quality	• Temporary drainage system provide for surface runoff prevent discharge to public area • Wastewater to be treated by sedimentation tank before discharge.
Noise	• No operation of powered mechanical equipment is allowed during restricted hours from 19:00 to 07:00 on the following day and whole day during Sunday and public holiday without construction noise permit (CNP) • Keep good maintenance of plants • The noisy plants or works provide mobile noise barriers • Shut down the plants when not in use
Waste and Chemical Management	• On-site sorting prior to disposal • Follow requirements and procedures of the “Trip-ticket System” • Predict required quantity of concrete accurately • Collect the unused fresh concrete at designated locations in the sites for subsequent disposal
General	• The site was generally kept tidy and clean.

12.2 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

12.2.1 Construction activities as undertaken in the coming month for the Contract lists below:

- Planting works at Butterfly Beach and Lung Mun Road;
- Road and Drainage Works at LMR and Butterfly Beach.

12.3 KEY ENVIRONMENTAL ISSUES FOR THE COMING MONTH

12.3.1 Key environmental issues to be considered in the coming month include:

- Implementation of dust suppression measures at all times;
- Potential wastewater quality impact due to surface runoff;
- Potential fugitive dust impact due to the dry/loose/exposure soil surface/dusty material;
- Ensure dust suppression measures are implemented properly;
- Sediment catch-pits and silt removal facilities should be regularly maintained;
- Management of chemical wastes;
- Site effluent discharge to the nearby nullah is prohibited;
- Follow-up of improvement on general waste management issues; and
- Implementation of construction noise preventative control measures

13 CONCLUSIONS AND RECOMMENDATIONS

13.1 CONCLUSIONS

13.1.1 This is **73rd** monthly EM&A report presenting the monitoring results and inspection findings for the period of **1** to **30 November 2020**.

13.1.2 There was 1 Action Level exceedance of 24-hour TSP was recorded at ASR1 on 2 November 2020; 1 Action Level exceedance of 24-hour TSP and 1 Limit Level exceedance of 1-hour TSP were recorded at ASR1 on 6 November 2020 and 3 Action Level exceedances of 1-hour TSP were recorded at ASR1, ASR5 and ASR6 on 12 November 2020 respectively. NOEs were issued to notify all relevant parties. Investigation reports (IRs) for the exceedancses prepared by the ET was endorsed by IEC and the IR revealed that the exceedances were not contract related.

13.1.3 According to the approved planting plan, most of the planting works under the contract were completed and the substantial completion certificate had been issued by RE. Therefore, the establishment period monitoring for planting works was commenced on 1 June 2020 under the EM&A manual requirement and no site inspection for landscape and visual mitigation measures under construction phase was undertaken. The **2nd** quarter **(September to November 2020)** of the establishment period joint site inspection by the RE, IEC, ET and the Contractor was conducted on **30 November 2020** to review the status of tree planting under the Contract.

13.1.4 In the Reporting Period, no noise complaint was received by RE, the Contractor, ENPO or HyD. No Action Level exceedances were therefore triggered and no NOE or the associated corrective actions were required.

13.1.5 Establishment period for the pitcher plants was completed at the end of September 2016, the join site completion of Establishment period visit with AFCD was undertaken on 23 September 2016 and the final pitcher plants report was submitted to AFCD on early December 2016. Therefore after 23 September 2016, only the integrity of the protection fence was checked to fulfil the EIA requirement. During each inspection, the protection mitigation measures were checking at the final receptor area to make sure no site activities was undertaken inside the protection zone. Besides, no construction activities were observed to be carried out at the surrounding of the final receptor area. The condition of chain link fence is good and no repair or maintenance is required.

13.1.6 No landfill gas monitoring was conducted in the consultation zone in this reporting month due to the excavation works within the zone was temporarily completed.

13.1.7 In the Reporting Period, no environmental complaint was received.

13.1.8 No notifications of summons, or successful prosecution were received by the Contractor during the Reporting Period.

13.1.9 In the Reporting Period, joint site inspection by the RE, ET and the Contractor was carried out on **4th, 11th, 17th, 27th and 30th November 2020** and the IEC has attended the joint site inspection on **4th November 2020**. No non-compliance was recorded during the site inspection but **1** observation was recorded.

13.1.10 In the Reporting Period, Grave G1 of inspection was undertaken on **4th, 11th, 17th, 27th and 30th November 2020.** Based on the inspection findings, the cultural heritage mitigation measures as implemented by the Contractor are fully complied with the EM&A Manual requirements.

13.2 RECOMMENDATIONS

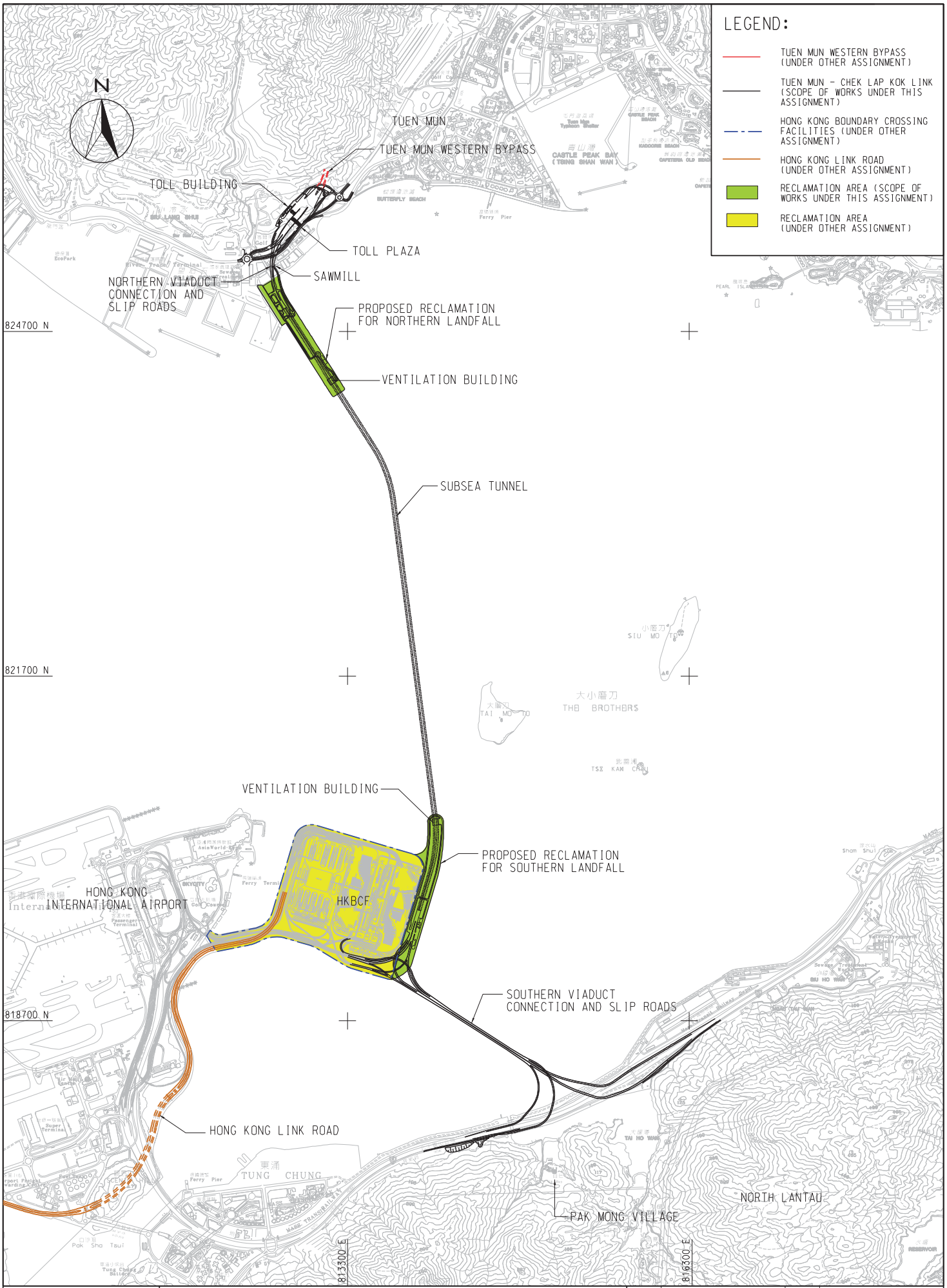
13.2.1 During dry season, air quality mitigation measures such as watering of site area for at least 12 times per day and covering of exposed slopes should be fully implemented to reduce construction dust impact as recommended in the EMIS.

13.2.2 Moreover, muddy water or other water pollutants from site surface runoff into the public areas will be key environment issue. Special attention should be paid on the water quality mitigation measures to prevent surface runoff flow to public area.

13.2.3 Stagnant water should be removed as soon as possible after rain to prevent mosquito breeding on site.

Appendix A

Project Layout Plan



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AGREEMENT NO. CE 52/2007(HY)
TUEN MUN - CHEK LAP KOK LINK - INVESTIGATION

GENERAL LAYOUT OF TM-CLKL

SCALE	A3 1:30000	DATE	JUL. 2009
CHECK	--	DRAWN	WYP
JOB No.	60044963	DRAWING No.	Fig 2.1
		REV	A

Plotting By: 2009-8-6 CHENCA
PLOT SCALE: 1:1

p:\PROJECTS\60044963\DRAWING\FIGURE\EIA REPORT\CH3\FIGURE 3-1.dgn

Appendix B

Layout Plan of the Contract

Project Management Initials: PI | Designer: | Checked: | ALCF Approved: | CWN | ISO A1 594mm x 841mm

CUT LINE A-A
SEE INSET 'A'
INSET 'A'
CUT LINE B-B
SEE SHEET NO. 60240249/C3/1052
EXISTING FOOTPATHS EXCLUDED FROM LIMIT OF SITE BOUNDARY
BOUNDARY OF PILLAR POINT VALLEY LANDFILL CONSULTATION ZONE
EXISTING GRAVE EXCLUDED FROM LIMIT OF SITE BOUNDARY
EXISTING GRAVE
CLP OVERHEAD CABLE PYLON
UNDERPASS
TOLL BOOTH
TOLL CONTROL BUILDING (BY OTHERS)
TOLL COLLECTOR SUBWAY
BOUNDARY OF PORTION FOLLOWS THE EDGE OF SEAWALL
826200 N
826300 N
826000 N
825800 N
812800 E
813000 E
813200 E
N
蝴蝶灣 BUTTERFLY

LEGEND:

- LIMIT OF SITE BOUNDARY
- PORTION X
- PORTION X1
- PORTION X2
- PORTION A
- PORTION B
- PORTION C
- PORTION D
- PORTION E
- PORTION F
- PORTION G
- PORTION H
- PORTION H1
- PORTION I
- PORTION J
- PORTION K
- AREA 'A'
- AREA 'B' OF PORTION X

NOTES:

1. THE DRAWING SHALL BE READ IN CONJUNCTION WITH SHEET NOS. 60240249/C3/1052 TO 1053.
2. ALL COORDINATES ARE IN HONG KONG (1980) GRID SYSTEM UNLESS OTHERWISE SPECIFIED.
3. THE CONTRACTOR SHALL COORDINATE WITH HY/2012/08 CONTRACTOR FOR THE ACCESS (INCLUDING AIRSPACE OVER AREA 'A') TO CONSTRUCT THE ELEVATED STRUCTURE ABOVE AREA A OF THE SITE.
4. THE CONTRACTOR SHALL NOTE THAT ONLY THE AIRSPACE OF THE EXISTING FIRE STATION (AREA 'B') IS AVAILABLE FOR THE CONTRACTOR TO CONSTRUCT THE ELEVATED STRUCTURE. THE CONTRACTOR SHALL OBTAIN FSD'S APPROVAL ON ACCESS, CONSTRUCTION METHODS, DURATIONS AND ANY WORKS AT AREA 'B'.

Plot File by: LXQ2 20140319
PATH: P:\Projects\60240249\DRAWING\CONTRACT\C31000IC3_1051.dgn

AECOM

PROJECT 項目

TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE

TUEN MUN - CHEK LAP KOK LINK - NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS

CLIENT 業主

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

CONSULTANT 工程顧問公司

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ISSUE/REVISION 修訂

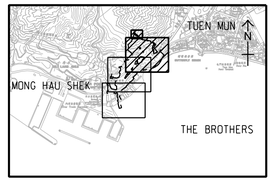
I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核
			CWN
B	MAR. 14	TENDER ADDENDUM NO. 2	CWN
A	FEB. 14	TENDER ADDENDUM NO. 1	CWN
-	JAN. 14	TENDER DRAWING	CWN

STATUS 階段

SCALE 比例
A1 1 : 1000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖 1 : 50000



PROJECT NO. 項目編號
60240249

CONTRACT NO. 合約編號
HY/2013/12

SHEET TITLE 圖紙名稱

PORTIONS OF SITE AND SITE BOUNDARY SETTING OUT PLAN

SHEET 1 OF 3

SHEET NUMBER 圖紙編號

60240249/C3/1051B

Project Management Initials: PI Designer: CWN Checked: ALCF Approved: CWN ISO A1 594mm x 841mm

SETTING OUT COORDINATES OF SITE BOUNDARY

SETTING OUT POINT	COORDINATES	
	EASTING	NORTHING
101	812900.000	826328.165
102	812907.687	826292.657
103	812932.657	826271.462
104 B	812959.255	826248.939
105	812967.809	826241.968
106	812978.687	826233.842
107	812979.543	826231.975
108	812992.172	826225.845
109	812998.046	826220.987
110	813008.394	826210.180
111	813013.551	826203.523
112	813019.680	826195.595
113	813028.256	826190.669
114 B	813039.418	826188.327
115	813051.242	826188.103
116	813057.382	826187.067
117	813069.235	826183.229
118	813075.914	826180.992
119	813090.821	826180.083
120	813104.589	826180.783
121	813119.757	826173.560
122	813128.170	826171.228
123	813131.357	826170.082
124	813149.404	826169.990
125	813162.041	826166.283
126	813168.123	826163.136
127	813159.825	826156.924
128	813170.488	826137.774
129	813189.868	826150.598
130	813194.079	826148.129

812600 E 812800 E 813000 E 825800 N 825600 N

CUT LINE B-B
SEE SHEET NO. 60240249/C3/1051

CUT LINE D-D
SEE SHEET NO. 60240249/C3/1053

TOLL BOOTH

TOLL CONTROL BUILDING (BY OTHERS)

TOLL COLLECTOR SUBWAY

TOLL BOOTH B

EXISTING GRAVE

ALONG THE EDGE OF SEAWALL

FOOTBRIDGE WITH PASSENGER LIFT

BOUNDARY OF PILLAR POINT VALLEY LANDFILL CONSULTATION ZONE

BOUNDARY OF PORTION FOLLOWS THE OUTER EDGE OF U-CHANNEL

NOTE:
1. ALL NOTES AND LEGEND REFER TO SHEET NO. 60240249/C3/1051.

SETTING OUT COORDINATES OF SITE BOUNDARY

SETTING OUT POINT	COORDINATES	
	EASTING	NORTHING
131	813202.581	826144.813
132	813213.267	826140.161
133	813227.316	826130.203
134	813230.053	826128.229
135	813243.269	826116.824
136	813244.416	826107.110
137	813235.174	826094.376
138	813224.150	826079.379
139	813221.454	826066.353
140	813226.182	826053.564
141	813234.301	826041.085
142	813241.586	826026.075
143	813254.346	826009.289
144	813268.811	825992.544
380	813021.776	825830.065
381	813051.421	825821.086
382	813113.037	825792.637
383	813004.964	825736.089
384	812969.105	825800.746
385	812862.862	825562.048
386	812875.894	825548.359
390	812787.003	825451.257
391	812784.914	825452.505
392	812822.089	825504.327
393	812810.554	825491.858
394	812854.412	825514.644

Plot File by: LUOMQ 2014/3/18
PATH : P:\Projects\60240249\DRAWING\CONTRACT\C3\1000\C3_1052.dgn

AECOM

PROJECT 項目
TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK - NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS

CLIENT 業主
路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

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			CWN
			CWN
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A	FEB. 14	TENDER ADDENDUM NO. 1	CWN
-	JAN. 14	TENDER DRAWING	CWN

STATUS 階段

SCALE 比例
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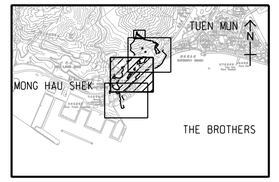
DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖引圖 1 : 50000



PROJECT NO. 項目編號
60240249

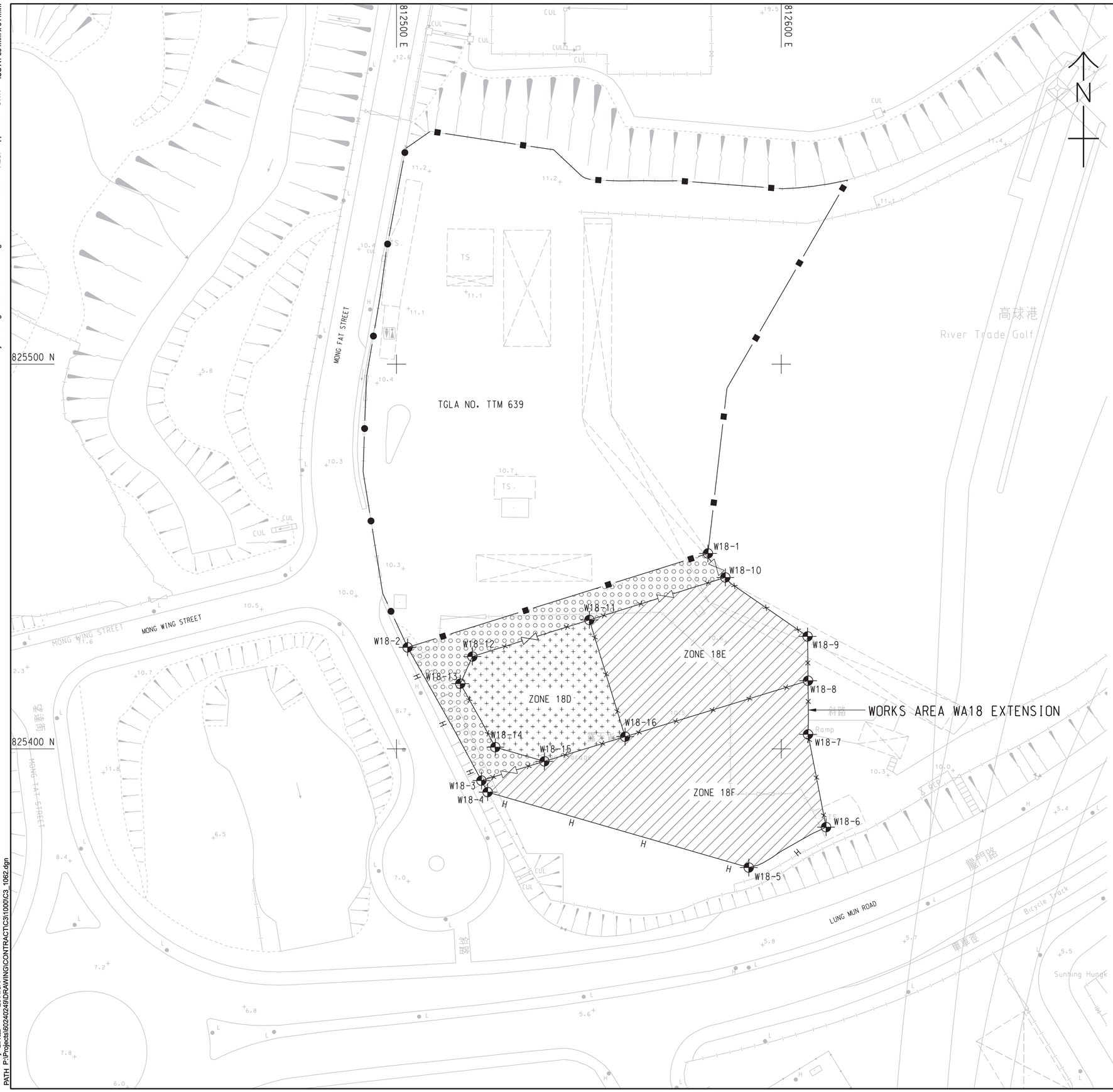
CONTRACT NO. 合約編號
HY/2013/12

SHEET TITLE 圖紙名稱
PORTIONS OF SITE AND SITE BOUNDARY SETTING OUT PLAN

SHEET 2 OF 3

SHEET NUMBER 圖紙編號
60240249/C3/1052B

Project Management Initials: PI | Designer: | Checked: ALCF | Approved: CWN | ISO A1 594mm x 841mm



NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE WORKS AREA KEY PLAN IN SHEET NO. 60240249/C3/1000.
2. DEMARCATION OF THE WORKS AREA SHALL BE DETERMINED ON SITE.
3. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NOS. H6110 AND H6111 FOR DETAILS OF HOARDING.
4. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NOS. H6121 AND H6122 FOR DETAILS OF CHAIN LINK FENCE.
5. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NO. H6121 FOR DETAILS OF GATE.
6. CHAIN LINK FENCE SHALL BE ERECTED ALONG THE WORKS AREA BOUNDARY. THE ALIGNMENT AND EXTENT OF HOARDING AND CHAIN LINK FENCE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE ENGINEER.
7. THE LOCATION AND WIDTH OF GATE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE ENGINEER.
8. THE SETTING OUT INFORMATION AND WORKS AREA CONDITIONS SHOWN IN THIS DRAWING ARE FOR REFERENCE ONLY. THE WORKS AREA BOUNDARY SHALL BE IN ACCORDANCE WITH THE ENGINEERING CONDITIONS FOR TEMPORARY GOVERNMENT LAND ALLOCATION NO. GLA-TTM 639. IN CASE OF DISCREPANCY BETWEEN THE BOUNDARY SHOWN ON THIS DRAWING AND THE BOUNDARY INDICATED ON THE ENGINEERING CONDITIONS, THE LATTER SHALL PREVAIL.
9. THE WORKS AREAS SHOWN ON THIS DRAWING ARE TO BE SHARED-USED AMONG THE TM-CLKL RELATED CONTRACTS. THE AREAS HATCHED WITH [////] ARE TENTATIVELY ALLOCATED FOR THE USE BY THE CONTRACT.
10. THE COMMON AREA SHALL BE CONCRETE PAVED BY THE CONTRACTOR.
11. ZONE 18F SHALL BE USED FOR THE SITE ACCOMMODATION OF THE ENGINEER. ZONE 18E SHALL BE USED FOR SITE ACCOMMODATION OF THE CONTRACTOR.
12. ZONE 18D IS TO BE USED BY THE CONTRACTOR OF CONTRACT NO. HY/2012/08-TUEN MUN-CHEK LAP KOK LINK-NORTHERN CONNECTION SUB-SEA TUNNEL SECTION TO STORE PLANT AND EQUIPMENT ASSOCIATED WITH THE TBM TUNNELS FROM THE DATE FOR COMMENCMENT OF THE WORKS TO 126 DAYS FROM THE DATE FOR COMMENCMENT OF THE WORKS. THE CONTRACTOR SHALL LIAISE AND PROVIDE FREE AND UNOBSTRUCTED 24-HOUR ACCESS FOR THE CONTRACTOR OF CONTRACT NO. HY/2012/08 TO ZONE 18D. THE CONTRACTOR SHALL BE GIVEN THE POSSESSION OF ZONE 18D IN ACCORDANCE WITH APPENDIX TO FORM OF TENDER-P.3. B

LEGEND:

- WORKS AREA FOR THE CONTRACT
- COMMON AREA (MAINTAINED UNDER THE CONTRACT) TO BE SHARED-USED WITH OTHER CONTRACTS
- AREA TO BE USED BY THE CONTRACTOR OF CONTRACT NO. HY/2012/08 AND WORKS AREA FOR THIS CONTRACT TO BE EARLY HANDED OVER BY THE CONTRACTOR (SEE NOTES NO. 12 ABOVE)
- H — HOARDING AND GATE (TO BE ERECTED AND MAINTAINED UNDER THIS CONTRACT)
- EXISTING CHAIN LINK FENCE MAINTAINED BY OTHERS
- CHAIN LINK FENCE AND GATE (TO BE ERECTED AND MAINTAINED UNDER THIS CONTRACT)
- EXISTING HOARDING AND GATE MAINTAINED BY OTHERS

SETTING OUT CO-ORDINATES OF WORKS AREA WA18 EXTENSION

POINT	CO-ORDINATES	
	EASTING	NORTHING
W18-1	812580.934	825450.791
W18-2	812502.880	825426.380
W18-3	812522.068	825391.750
W18-4	812523.679	825388.756
W18-5	812591.556	825369.151
W18-6	812611.638	825379.647
W18-7	812606.954	825403.769
W18-8	812606.951	825417.705
W18-9	812606.832	825429.231
W18-10	812585.456	825444.557
W18-11	812550.126	825433.508
W18-12	812519.715	825423.997
W18-13	812516.580	825416.947
W18-14	812525.682	825400.438
W18-15	812538.435	825396.754
W18-16	812559.404	825403.166

AECOM

PROJECT 項目

TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE

TUEN MUN - CHEK LAP KOK LINK - NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS

CLIENT 業主

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處
Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

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A	FEB. 14	TENDER ADDENDUM NO. 1	CWN
-	JAN. 14	TENDER DRAWING	CWN

STATUS 階段

SCALE 比例 A1 1 : 500

DIMENSION UNIT 尺寸單位 METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號 60240249

CONTRACT NO. 合約編號 HY/2013/12

SHEET TITLE 圖紙名稱

WORKS AREA AND HOARDING PLAN

SHEET 2 OF 2

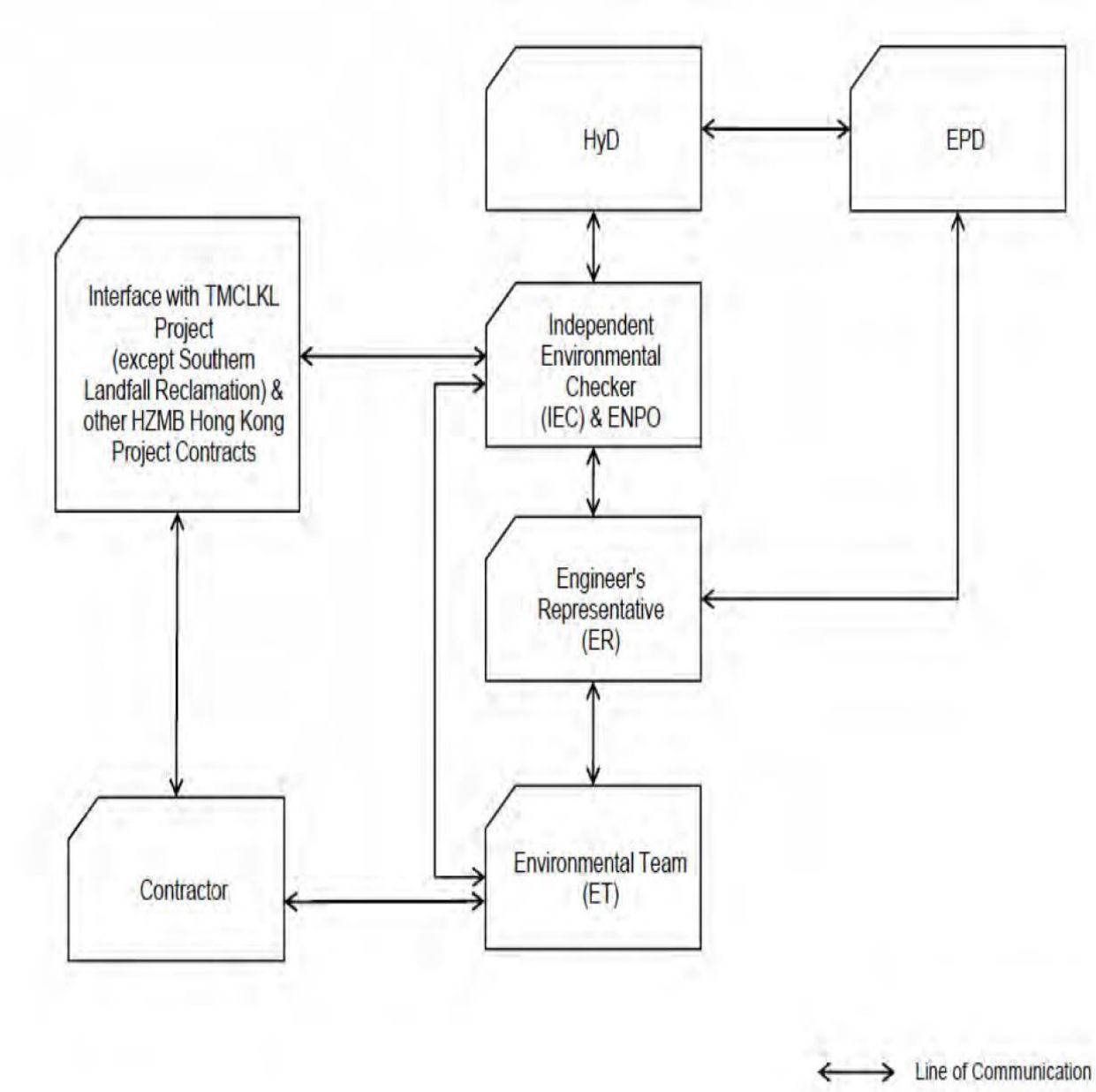
SHEET NUMBER 圖紙編號

60240249/C3/1062B

Plot File by: LIXQ2 2014/3/4
PATH P:\Projects\60240249\DRAWING\CONTRACT\C3\1000\C3_1062.dgn

Appendix C

Organization of the Contract



Project Organization chart

Contact Details of Key Personnel for the Contract HY/2013/12

Organization	Project Role	Name of Key Staff	Tel No	Fax No.
HyD	Employer	Mr. Joseph Chung	2762 4986	3188 6614
AECOM	Principal Resident Engineer	Mr. S.W. Fok	2218 7209	2218 7399
AECOM	Chief Resident Engineer	Mr. Roger Man	2293 6388	2218 7399
AECOM	Resident Engineer (S&E)	Mr. Kelvin Yeung	22187289	2218 7399
Ramboll	Environmental Project Office Leader (ENPO Leader)	Mr. YH Hui	3465 2850	3465 2899
Ramboll	Independent Environmental Checker (IEC)	Mr. Manson Yeung	3465 2851	3465 2899
CKJV	Deputy Project Manager	Mr. Raymond Suen	2253 8309	2253 8399
CKJV	Site Agent	Mr. Wilson Lau	2253 8300	2253 8399
CKJV	Safety and Environmental Manager	Mr. Winson Chung	2273 3185	2375 3655
CKJV	Environmental Officer	Mr. Thomas Tang	2253 8300	2253 8399
CKJV	Environmental Supervisor	Mr. Tommy Law	2253 8300	2253 8399
CKJV	Environmental Supervisor	Mr. Alex Li	2253 8300	2253 8399
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Miss Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Mr. Ben Tam	2959 6059	2959 6079
HKL	Registered Landscape Architect	Kenneth Ng	2866 3903	--

Legend:

HyD (Employer) –Highways Department

AECOM (Engineer) – AECOM Asia Co. Ltd.

CKJV (Main Contractor) – CRBC-Kaden Joint Venture

Ramboll (ENPO and IEC) – Ramboll Hong Kong Limited

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

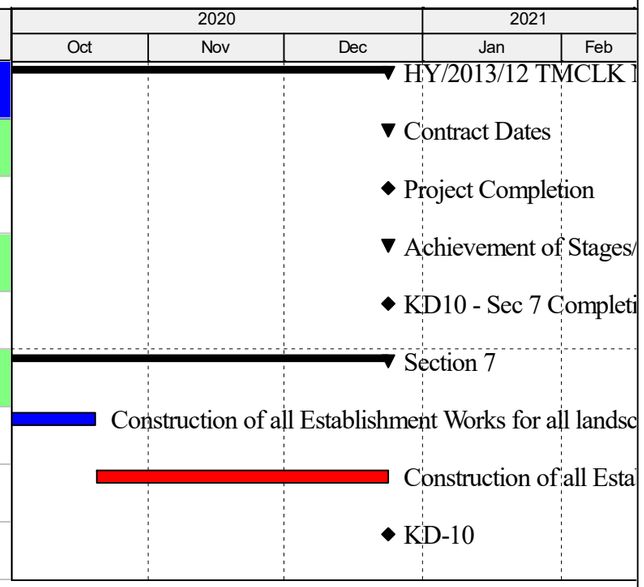
HKL(RLA) – Hong Kong Landscape

Appendix D

Three-Months Rolling Programme

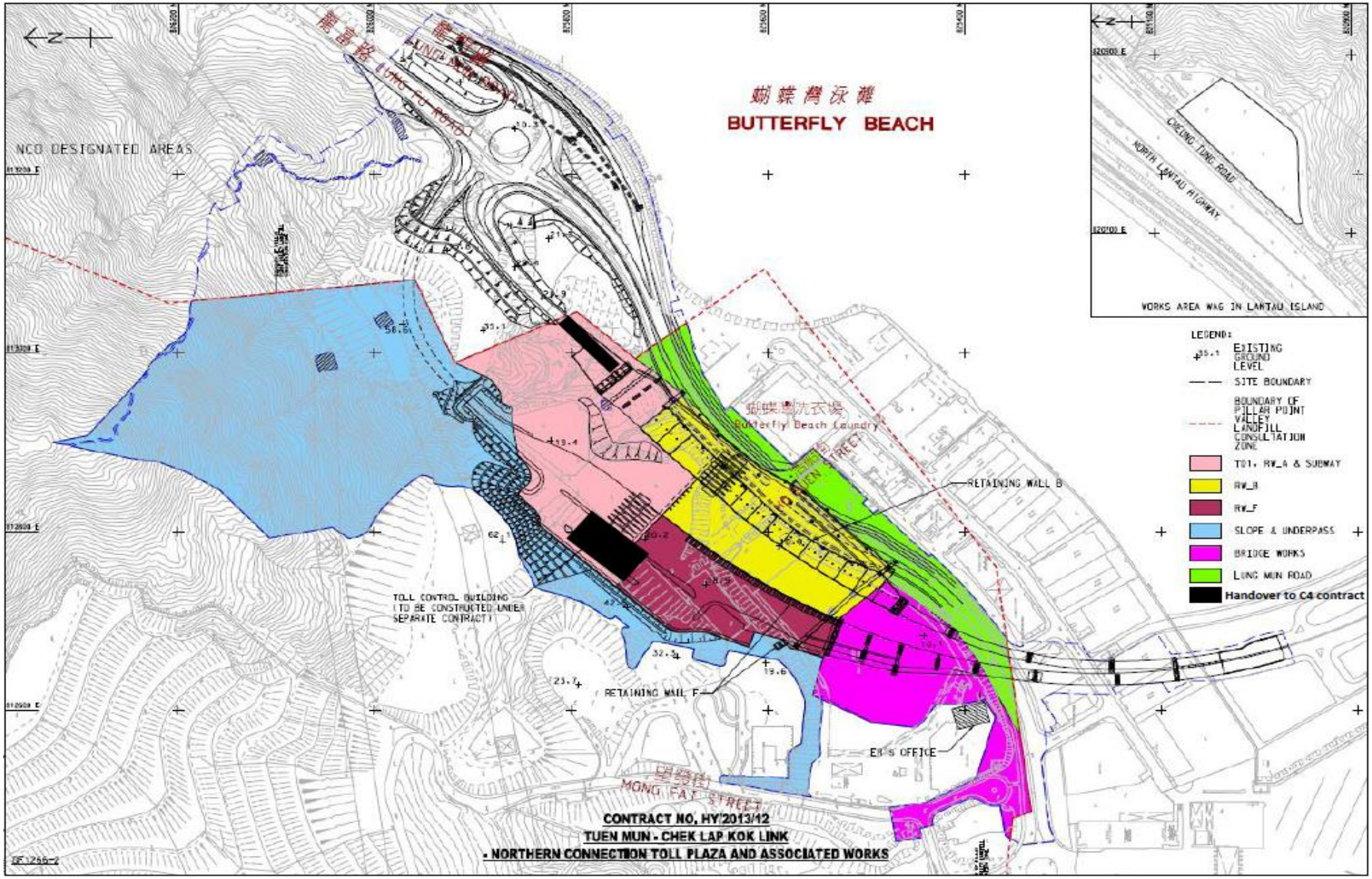
HY/2013/12 TM-CLKL Northern Connection Toll Plaza and Associated Works

Activity ID	Activity Name
HY/2013/12 TMCLK Northern Connection Toll Plaza and Associated-Works Programme-Rev.4A Monthly Update	
Contract Dates	
CND1020	Project Completion
Achievement of Stages/ Completion of Sections	
KD10200	KD10 - Sec 7 Completion All Establishment Works for All Landscape Softworks
Section 7	
SEC71020	Construction of all Establishment Works for all landscape works-3rd batch
SEC71030	Construction of all Establishment Works for all landscape works-4th batch
SEC71040	KD-10

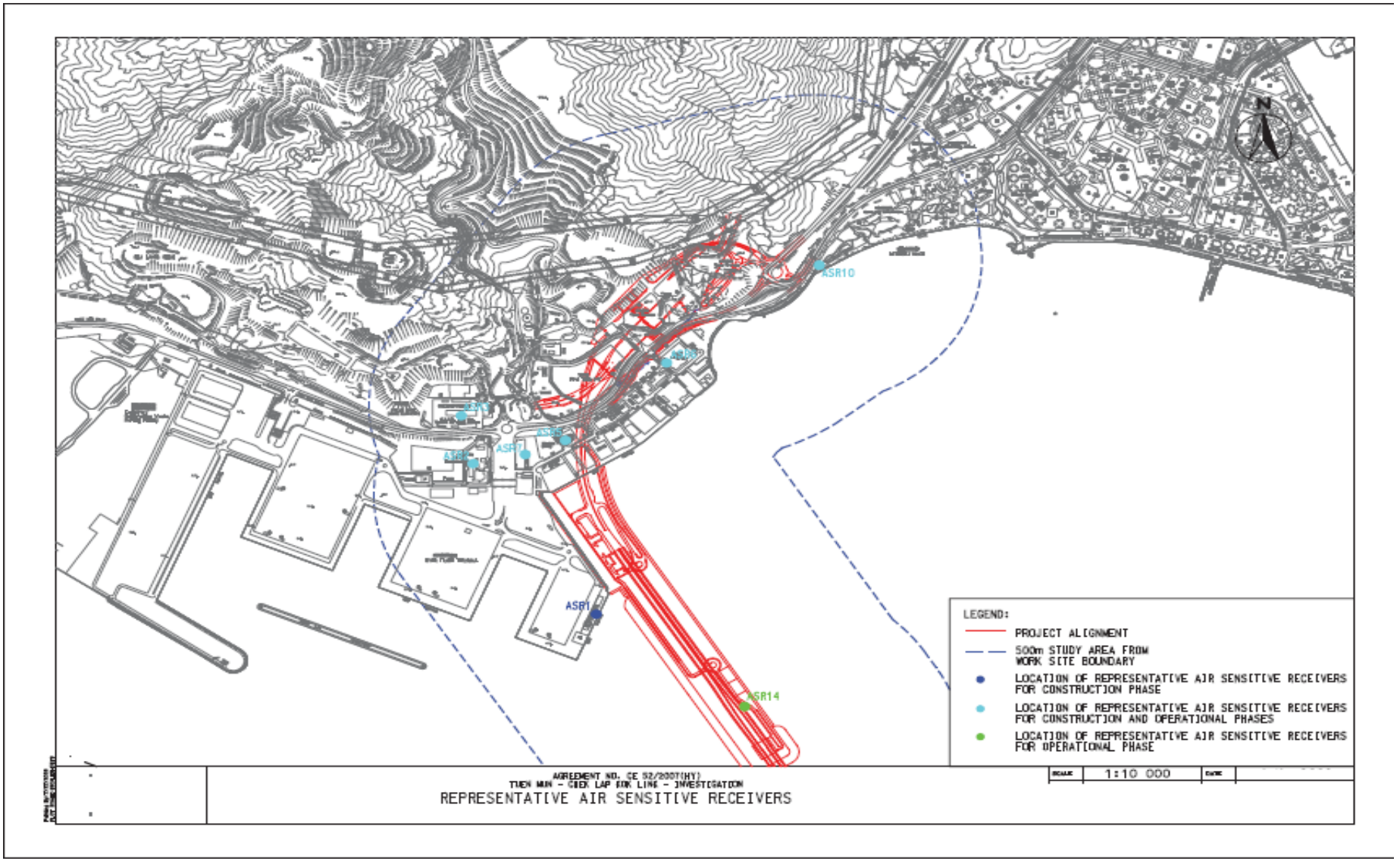


Appendix E

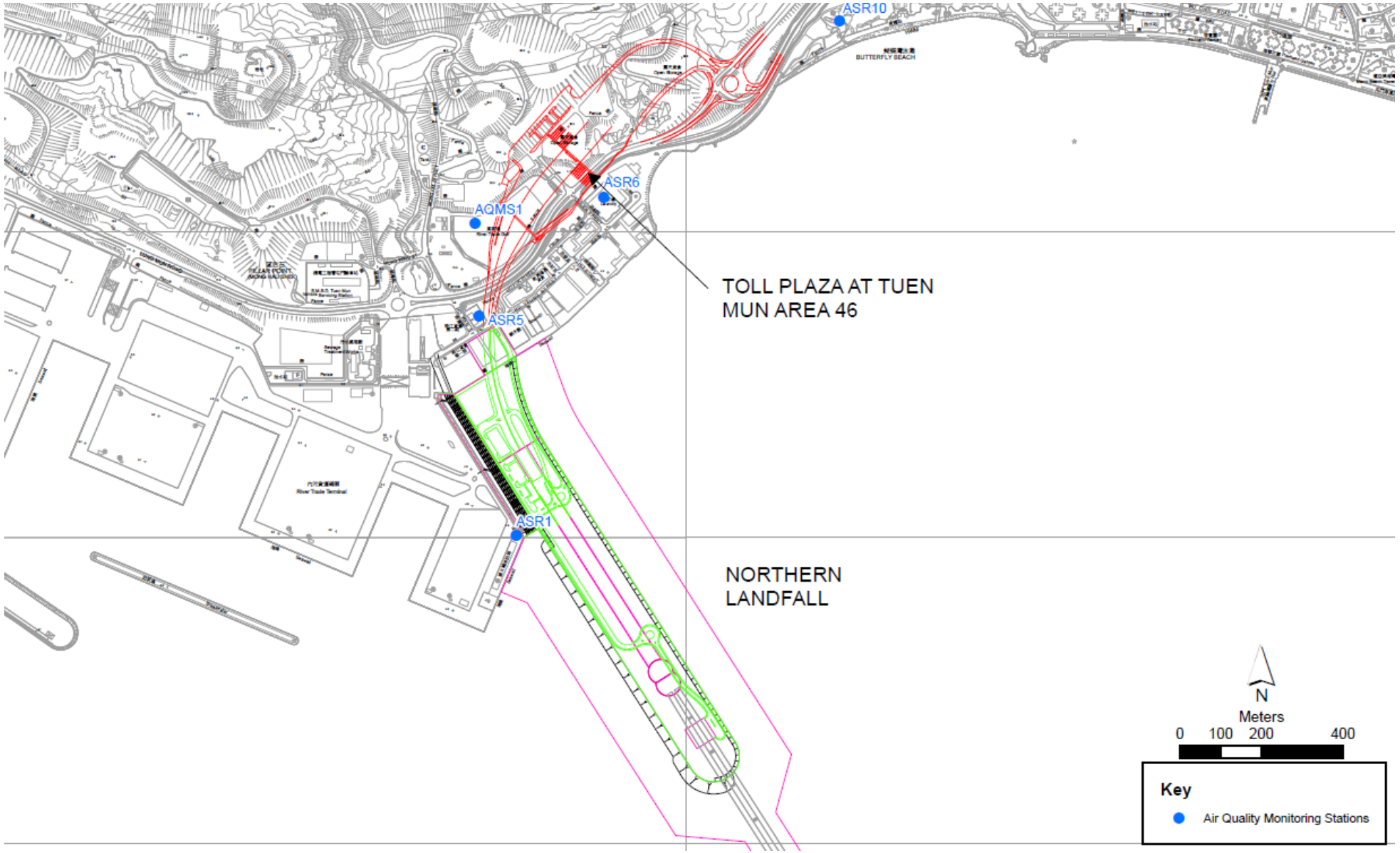
Monitoring Locations / Sensitive Receivers for the Contract



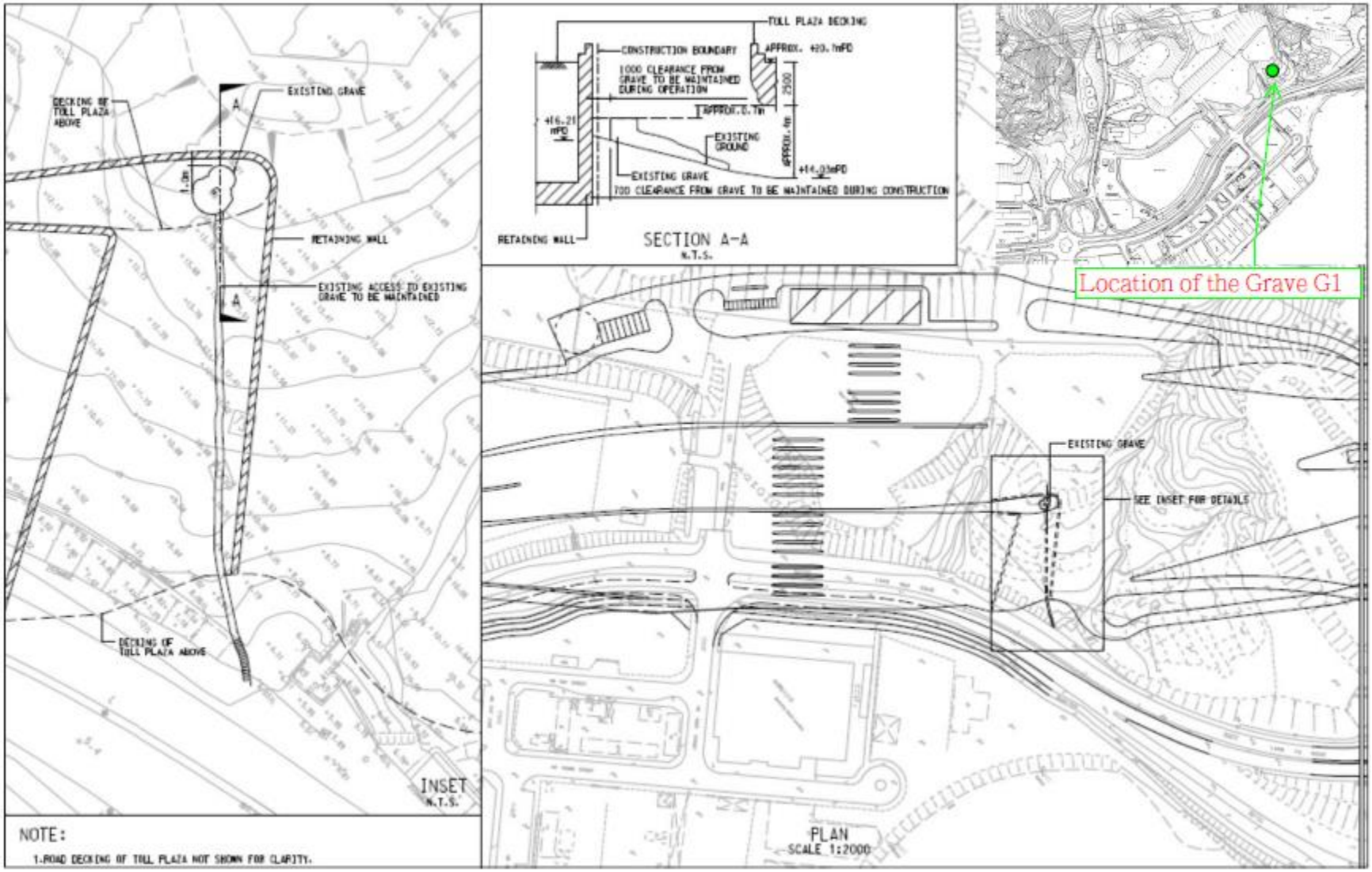
Layout of landfill gas monitoring zone



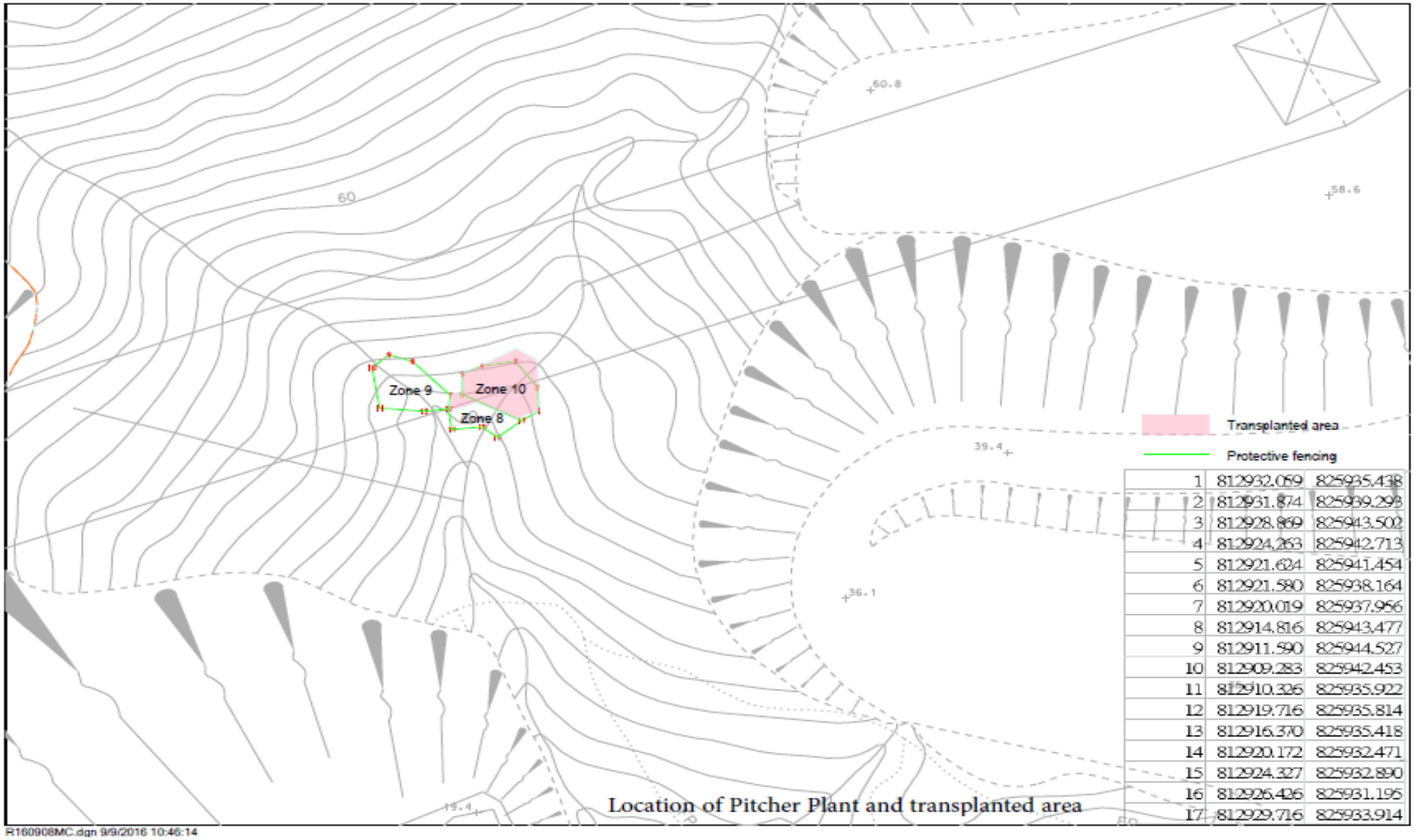
Representative Air Sensitive Receivers



Air Quality Monitoring Location for the Contract



Location of the Grave G1



Location of the pitcher plants final receptor site

Appendix F

Event and Action Plan

Event and Action Plan for Air Quality

EVENT	ACTION			
	ET(1)	**IEC(1)**	**SOR(1)**	**Contractor(s)**
Action Level				
Exceedance recorded	1 Identify the source. 2 Repeat measurements to confirm findings. If two consecutive measurements exceed Action Level, the exceedance is then confirmed. 3 Inform the IEC and the SOR 4 Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented. 5 If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily. 6 Discuss with the IEC and the Contractor on remedial actions required. 7 If exceedance continues, arrange meeting with the IEC and the SOR. 8 If exceedance stops, cease additional monitoring.	1 Check monitoring data submitted by the ET. 2 Check the Contractor's working method. 3 If the exceedance is confirmed to be Project related after investigation, discuss with the ET and the Contractor on possible remedial measures. 4 Advise the SOR on the effectiveness of the proposed remedial measures. 5 Supervisor implementation of remedial measures.	1 Confirm receipt of notification of failure in writing. 2 Notify the Contractor. 3 Ensure remedial measures properly implemented.	1 Rectify any unacceptable practice. 2 Amend working methods if appropriate 3 If the exceedance is confirmed to be Project related, submit proposals for remedial actions to IEC within 3 working days of notification 4 Implement the agreed proposals 5 Amend proposal if appropriate.
Limit Level				
Exceedance recorded	1. Identify the source. 2. Repeat measurement to confirm finding. If two consecutive measurements exceed Limit Level, the exceedance is then confirmed. 3. Inform the IEC, the SOR, the DEP and the Contractor. 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented. 5. If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily. 6. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented. 7. Arrange meeting with the IEC and the SOR to discuss the remedial actions to be taken. 8. Assess effectiveness of the Contractor's remedial actions and keep the IEC, the DEP and the SOR informed of the results. 9. If exceedance stops, cease additional monitoring.	1 Check monitoring data submitted by the ET. 2 Check Contractor's working method. 3 If the exceedance is confirmed to be Project related after investigation, discuss with the ET and the Contractor on possible remedial measures. 4 Advise the SOR on the effectiveness of the proposed remedial measures. 5 Supervisor implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. If the exceedance is confirmed to be Project related after investigation, in consultation with the IEC, agree with the Contractor on the remedial measures to be implemented. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	1 Take immediate action to avoid further exceedance. 2 If the exceedance is confirmed to be Project related after investigation, submit proposals for remedial actions to IEC within 3 working days of notification. 3 Implement the agreed proposals. 4 Amend proposal if appropriate. 5 Stop the relevant activity of works as determined by the SOR until the exceedance is abated.

Event and Action Plan for Landscape and Visual Impact

EVENT ACTION LEVEL	ACTION			
	ET	**IEC**	**ER**	**Contractor**
Design Check	• Check final design conforms to the requirements of EP and prepare report.	• Check report. • Recommend remedial design if necessary	• Undertake remedial design if necessary	
Non- conformity on one occasion	• Identify Source • Inform IEC and ER • Discuss remedial actions with IEC, ER and Contractor • Monitor remedial actions until rectification has been completed	• Check report • Check Contractor's working method • Discuss with ET and Contractor on possible remedial measures • Advise ER on effectiveness of proposed remedial measures. • Check implementation of remedial measures	• Notify Contractor • Ensure remedial measures are properly implemented	• Amend working methods • Rectify damage and undertake any necessary replacement
Repeated Non-conformity	• Identify Source • Inform IEC and ER • Increase monitoring frequency • Discuss remedial actions with IEC, ER and Contractor • Monitor remedial actions until rectification has been completed • If nonconformity stops, cease additional monitoring	• Check monitoring report • Check Contractor's working method • Discuss with ET and Contractor on possible remedial measures • Advise ER on effectiveness of proposed remedial measures • Supervise implementation of remedial measures	• Notify Contractor • Ensure remedial measures are properly implemented	• Amend working methods • Rectify damage and undertake any necessary replacement

Event / Action Plan for Cultural Heritage

Action Level	ET	IC (E)	ER	Contractor
Non- conformity on one occasion	1. Identify Source 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial actions until rectification has been completed	1. Check report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 5. Check implementation of remedial measures.	1. Notify Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source 2. Inform the IC(E) and the ER 3. Increase monitoring frequency 4. Discuss remedial actions with the IC(E), the ER and the Contractor 5. Monitor remedial actions until 6. rectification has been completed 7. If exceedance stops, cease additional monitoring	1. Check monitoring report 2. Check the Contractor's working method 3. Discuss with the ES and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures.	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement

Note:
ET – Environmental Specialist, IEC – Independent Environmental Checker, ER – Engineer's Representative

Event / Action Plan for General Ecology

Action Level	ET	IEC	ER	Contractor
Non-conformity on one occasion	• Identify Source • Inform the IEC and the ER • Discuss remedial actions with the IEC, the ER and the Contractor • Monitor remedial actions until rectification has been completed	• Check report • Check the Contractor's working method • Discuss with the ET and the Contractor on possible remedial measures • Advise the ER on effectiveness of proposed remedial measures. • Check implementation of remedial measures.	• Notify Contractor • Ensure remedial measures are properly implemented • Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the works in the case of a serious nonconformity until situation rectified.	• Amend working methods • Rectify damage and undertake any necessary replacement
Repeated Non conformity	• Identify Source • Inform the IC(E) and the ER • Increase monitoring frequency • Discuss remedial actions with the • IC(E), the ER and the Contractor • Monitor remedial actions until rectification has been completed • If exceedance stops, cease additional monitoring	• Check monitoring report • Check the Contractor's working method • Discuss with the ES and the Contractor on possible remedial measures • Advise the ER on effectiveness of proposed remedial measures • Supervise implementation of remedial measures	• Notify the Contractor • Ensure remedial measures are properly implemented • Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the works in the case of a serious nonconformity until situation rectified.	• Amend working methods • Rectify damage and undertake any necessary replacement

Note:
ET – Environmental Specialist, IC(E) – Independent Checker (Environmental), ER – Engineer's Representative

Actions in the Event of Landfill Gas being Detected in Excavation / Confined Area

Parameter	Measurement	Action
Oxygen	< 19%	- Ventilate to restore oxygen to > 19%
	< 18%	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to > 19%
Methane	> 10% LEL (> 0.5% v/v)	- Prohibit hot work - Ventilate to restore methane to < 10% LEL
	> 20% LEL (>1% v/v)	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to < 10%
Carbon Dioxide	> 0.5%	- Ventilate to restore oxygen to < 0.5%
	> 1.5%	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to < 0.5%

Appendix G

Monitoring Schedule

Impact Monitoring Schedule for November 2020

Date		Landfill Gas Monitoring	Landscape and Visual Monitoring
Sun	1-November-20		
Mon	2-November-20		
Tue	3-November-20		
Wed	4-November-20		
Thu	5-November-20		
Fri	6-November-20		
Sat	7-November-20		
Sun	8-November-20		
Mon	9-November-20		
Tue	10-November-20		
Wed	11-November-20		
Thu	12-November-20		
Fri	13-November-20		
Sat	14-November-20		
Sun	15-November-20		
Mon	16-November-20		
Tue	17-November-20		
Wed	18-November-20		
Thu	19-November-20		
Fri	20-November-20		
Sat	21-November-20		
Sun	22-November-20		
Mon	23-November-20		
Tue	24-November-20		
Wed	25-November-20		
Thu	26-November-20		
Fri	27-November-20		
Sat	28-November-20		
Sun	29-November-20		
Mon	30-November-20		✓ 2nd quarter of establishment period monitoring for planting works

✓	Monitoring Day
	Sunday or Public Holiday

Remarks:
The excavation works within the landfill consultation zone was temporarily completed on 25 September 2019. Therefore, the landfill gas monitoring will be temporarily suspended until the excavation works within the consultation zone resume.

According to the approved planting plan, most of the planting works under the contract were completed and the substantial completion certificate had been issued by RE. Therefore, the establishment period monitoring for planting works was commenced on 1 June 2020 under the EM&A manual requirement and no L&V monitoring were required under construction phase. The inspection for 2nd quarter of establishment period monitoring for planting works was scheduled in November 2020.

Impact Monitoring Schedule for December 2020

Date		Landfill Gas Monitoring	Landscape and Visual Monitoring
Tue	1-December-20		
Wed	2-December-20		
Thu	3-December-20		
Fri	4-December-20		
Sat	5-December-20		
Sun	6-December-20		
Mon	7-December-20		
Tue	8-December-20		
Wed	9-December-20		
Thu	10-December-20		
Fri	11-December-20		
Sat	12-December-20		
Sun	13-December-20		
Mon	14-December-20		
Tue	15-December-20		
Wed	16-December-20		
Thu	17-December-20		
Fri	18-December-20		
Sat	19-December-20		
Sun	20-December-20		
Mon	21-December-20		
Tue	22-December-20		
Wed	23-December-20		
Thu	24-December-20		
Fri	25-December-20		
Sat	26-December-20		
Sun	27-December-20		
Mon	28-December-20		
Tue	29-December-20		
Wed	30-December-20		
Thu	31-December-20		

✓	Monitoring Day
	Sunday or Public Holiday

Remarks:
The excavation works within the landfill consultation zone was temporarily completed on 25 September 2019. Therefore, the landfill gas monitoring will be temporarily suspended until the excavation works within the consultation zone resume.

According to the approved planting plan, most of the planting works under the contract were completed and the substantial completion certificate had been issued by RE. Therefore, the establishment period monitoring for planting works was commenced on 1 June 2020 under the EM&A manual requirement and no L&V monitoring were required under construction phase. The inspection for 3rd quarter of establishment period monitoring for planting works will be scheduled in February 2021.

Appendix H

Calibration Certificates of Monitoring Equipment

(Not Use)

Appendix I

Landfill Gas Monitoring Results and Graphical Plots

(Not Use)

Appendix J

Investigation Report for Exceedance

Contract No. HY/2013/12
Tuen Mun - Chek Lap Kok Link - Northern Connection Toll Plaza and Associated Works

Investigation Report on Action or Limit Level Non-compliance

Date	2 November 2020
Environmental Aspect	Air Quality
Parameter	24-hour TSP
Monitoring Location	ASR1 (Tuen Mun Fireboat Station)
Measurement Period	11:43-11:43 (Next Day)
Action Level (ug/m^3)	213
Limit Level (ug/m^3)	260
Measured Level (ug/m^3)	**244**
Exceedance	Action Level
Possible reason for Action or Limit Level Non-compliance	1. According to site information provided by CRBC-Kaden JV, only remedial works at Portion H were conducted on 2 November 2020. 2. To reduce dust impact arising from the construction, mitigation measures for construction dust control were implemented. They include the followings:- • all the access road under the contract were hard paved (refer to photo 1) • water spraying for construction works (refer to photo 2) • Hydro seeding or covered part of the exposed slopes and stockpile by tarpaulin sheet (refer to Photo 3 to 6) • to set speed control at 8 km/hr for all vehicles using the haul road (refer to photo 7) 3. According to the weather station setting up at ASR5 under Contract No. HY/2012/08, north-easterly to north-westerly wind at 1.3 to 4.5 m/s between 11:00 and 11:59 (Next Day). 4. Although the works area was located at the upstream of the monitoring station ASR1 during the time of the exceedance was record, only remedial works at Portion H were undertaken under the Contract. Another, most construction site areas under the contract were hard paved and the monitoring station ASR1 was located more than 500m form major works area. It is unlikely to create heavy construction dust impact. Furthermore, review the monitoring result at other monitoring stations ASR6 which was located more closely to the major works area Portion H no exceedence was recorded at similar time. 5. During the weekly joint site inspection with ER, Contractor and ET on 27 October 2020 and monthly joint site inspection with ER, IEC, Contractor and ET on 4 November 2020, no dust emitted from the works area was observed during the inspection and all construction areas under the contract were hard paved. Also ER agreed that dust mitigation measures were implemented properly at those works area during the

	time of monitoring. The ET observed that the contractor had properly implemented the dust mitigation measure under EMIS requirement and no environmental issue related to dust aspect was observed. (Ref. to Photo 8, 9) 6. Therefore the exceedance of Air Quality Monitoring at ASR1 was due to other pollutant source rather than the construction site. 7. Based on the investigation as above, the exceedance is unlikely related to the Contract work and no corrective action was required accordingly.
Action to be taken	The contractor had been reminded to implement dust mitigation measures under the EMIS requirement. Another, ET will conduct audit and inspection regularly for the implemented dust mitigation measures during the construction period.

Prepared By : T.W. Tam

Designation : Environmental Team Leader

Signature : 

Date : 14 December 2020

Photo Record

Photo 1 All access road within the Contract had been hard paved

Photo 2 Water spraying by worker for construction activities.

Photo 3 Hydro seeding for the exposed slope at Platform 10.

Photo 4 Covered stockpile by tarpaulin sheet.

Photo 5 Hydro seeding for the exposed slope at Platform 19.

Photo 6 Hydro seeding for the exposed slope at Slope 170.

Photo 7 All vehicles using the haul road had enhanced to control the speed below 8km/hr to reduce dust emission.

Photo 8 During the joint site inspection on 27 October 2020, no dusty activites was observed from the site near the monitoring station.

Photo 9 During the joint site inspection on 4 November 2020, no dusty activites was observed from the site near the monitoring station.

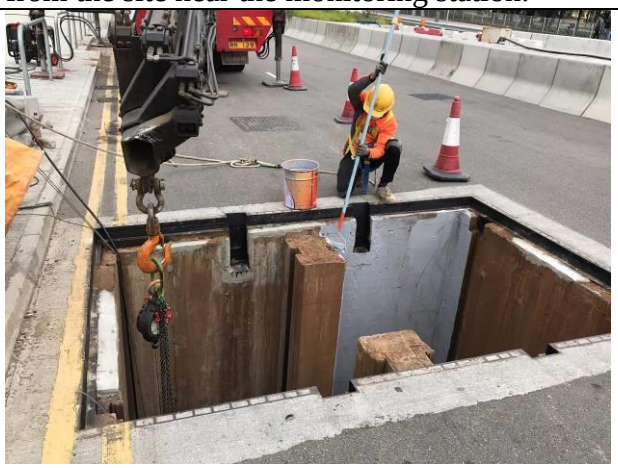


Photo 10 Remedial works at Portion H

Photo 11 Remedial works at Portion H

Photo 12 Most of the site area were hard paved

Photo 13 Most of the site area were hard paved

Photo 14 All of the site area at Portion F were hard paved

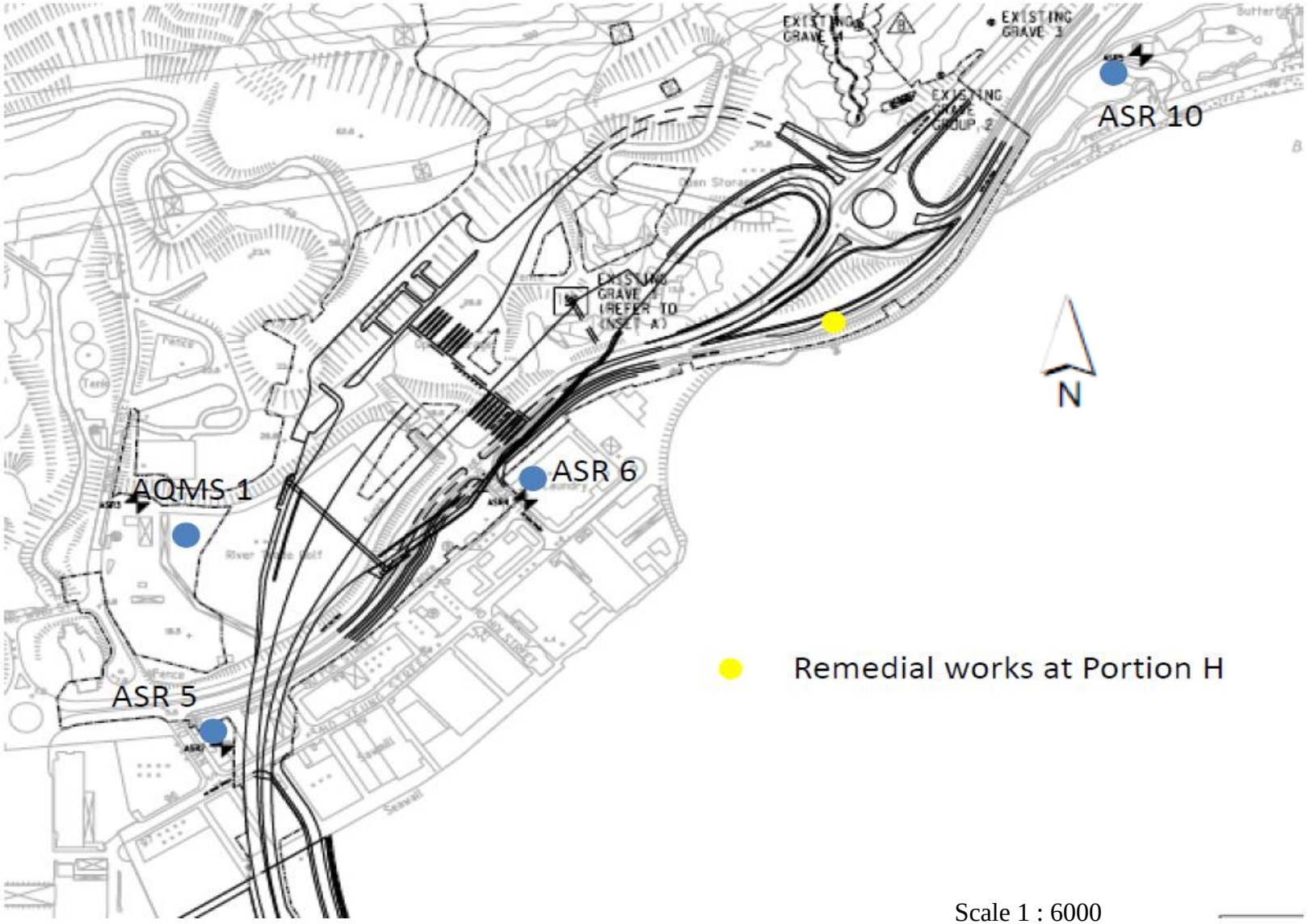


Figure 1. Location Plan

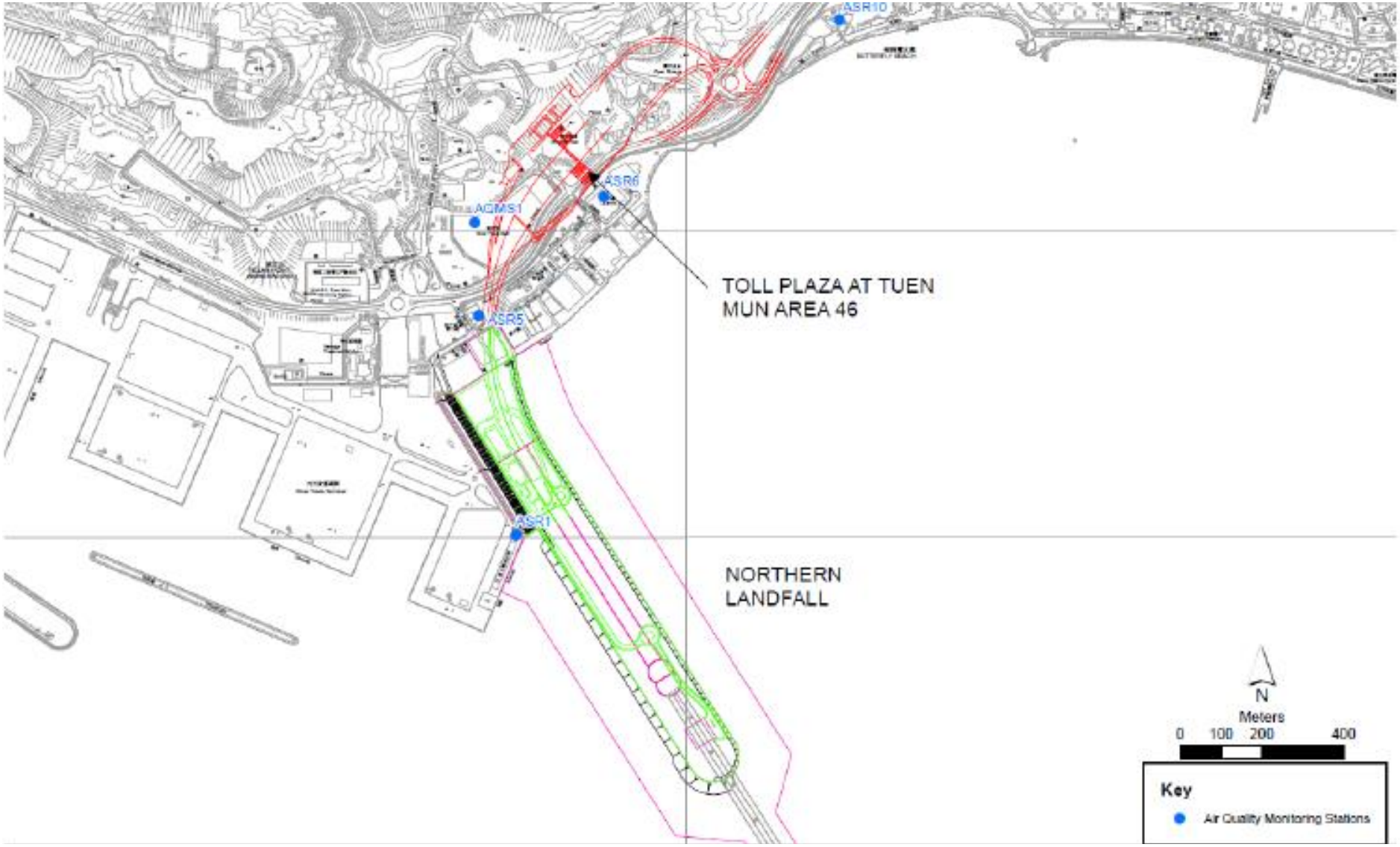


Figure 2. Air Monitoring Loaction

Table 1. 1-Hr TSP Monitoring Result of 2 November 2020

Air quality monitoring results on 2/11/2020								
Project	Contract	Date	Station	Weather	Start time	Parameters	Results	Unit
TMCLKL	HY/2012/08	2020-11-02	ASR10	Hazy	8:02:00	1-hour TSP	85	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR10	Hazy	9:04:00	1-hour TSP	102	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR10	Hazy	10:06:00	1-hour TSP	123	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR6	Hazy	8:13:00	1-hour TSP	184	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR6	Hazy	9:15:00	1-hour TSP	174	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR6	Hazy	10:17:00	1-hour TSP	152	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR5	Hazy	8:24:00	1-hour TSP	283	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR5	Hazy	9:26:00	1-hour TSP	262	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR5	Hazy	10:28:00	1-hour TSP	214	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR1	Hazy	8:37:00	1-hour TSP	249	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR1	Hazy	9:39:00	1-hour TSP	196	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR1	Hazy	10:41:00	1-hour TSP	222	ug/m3
TMCLKL	HY/2012/08	2020-11-02	AQMS1	Hazy	8:48:00	1-hour TSP	109	ug/m3
TMCLKL	HY/2012/08	2020-11-02	AQMS1	Hazy	9:50:00	1-hour TSP	139	ug/m3
TMCLKL	HY/2012/08	2020-11-02	AQMS1	Hazy	10:52:00	1-hour TSP	140	ug/m3
TMCLKL	HY/2012/08	2020-11-02	AQMS1	Hazy	11:54:00	24-hour TSP	95	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR1	Hazy	11:43:00	24-hour TSP	244	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR10	Hazy	11:08:00	24-hour TSP	108	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR5	Hazy	11:30:00	24-hour TSP	154	ug/m3
TMCLKL	HY/2012/08	2020-11-02	ASR6	Hazy	11:19:00	24-hour TSP	121	ug/m3

Table 2. Wind Direction and Speed data during Air Quality Monitoring

Date	Time	Average of Wind Speed (m/s)	Average of Wind Direction (degree)
2/11/2020	11:00	2.2	034
2/11/2020	12:00	2.2	030
2/11/2020	13:00	2.2	011
2/11/2020	14:00	1.8	011
2/11/2020	15:00	2.7	324
2/11/2020	16:00	2.7	310
2/11/2020	17:00	2.2	327
2/11/2020	18:00	2.2	343
2/11/2020	19:00	2.7	342
2/11/2020	20:00	4.5	344
2/11/2020	21:00	4.5	328
2/11/2020	22:00	4.0	333
2/11/2020	23:00	2.7	337
3/11/2020	0:00	1.8	019
3/11/2020	1:00	1.3	002
3/11/2020	2:00	2.2	332
3/11/2020	3:00	2.2	346
3/11/2020	4:00	1.8	346
3/11/2020	5:00	1.8	339
3/11/2020	6:00	2.7	326
3/11/2020	7:00	2.2	358
3/11/2020	8:00	2.2	027
3/11/2020	9:00	2.7	024
3/11/2020	10:00	2.7	034
3/11/2020	11:00	2.2	022

Remarks:
Wind speed and direction data was extracted from the weather station located at ASR5 set up by ET of Contract HY/2012/08

Contract No. HY/2013/12
Tuen Mun - Chek Lap Kok Link - Northern Connection Toll Plaza and Associated Works

Investigation Report on Action or Limit Level Non-compliance

Date	6 November 2020	
Environmental Aspect	Air Quality	
Parameter	1-hour TSP	24-hour TSP
Monitoring Location	ASR1 (Tuen Mun Fireboat Station)	
Measurement Period	8:36-9:36	11:42-11:42 (Next Day)
Action Level (ug/m^3)	331	213
Limit Level (ug/m^3)	500	260
Measured Level (ug/m^3)	**887**	**214**
Exceedance	Limit Level	Action Level
Possible reason for Action or Limit Level Non-compliance	1. According to site information provided by CRBC-Kaden JV, only remedial works at Roundabout were conducted on 6 November 2020. 2. To reduce dust impact arising from the construction, mitigation measures for construction dust control were implemented. They include the followings:- • all the access road under the contract were hard paved (refer to photo 1) • water spraying for construction works (refer to photo 2) • Hydro seeding or covered part of the exposed slopes and stockpile by tarpaulin sheet (refer to Photo 3 to 6) • to set speed control at 8 km/hr for all vehicles using the haul road (refer to photo 7) 3. According to the weather station setting up at ASR5 under Contract No. HY/2012/08, mainly north-easterly to north-westerly wind at 0.4 to 2.7 m/s between 8:00 and 11:59 (Next Day). 4. Although the works area was located at the upstream of the monitoring station ASR1 during the time of the exceedances were record, only remedial works at Roundabout were undertaken under the Contract. Another, most construction site areas under the contract were hard paved and the monitoring station ASR1 was located more than 500m form major works area. It is unlikely to create heavy construction dust impact. Furthermore, review the monitoring result at other monitoring stations ASR6 which was located more closely to the major works area Roundabout no exceedence was recorded at similar time. 5. During the weekly joint site inspection with ER, Contractor and ET on 11 November 2020 and monthly joint site inspection with ER, IEC, Contractor and ET on 4 November 2020, no dust emitted from the works area was observed during the inspection and all construction areas under the contract were hard paved. Also ER agreed that dust mitigation	

	measures were implemented properly at those works area during the time of monitoring. The ET observed that the contractor had properly implemented the dust mitigation measure under EMIS requirement and no environmental issue related to dust aspect was observed. (Ref. to Photo 8, 9) 6. Therefore the exceedances of Air Quality Monitoring at ASR1 were due to other pollutant source rather than the construction site. 7. Based on the investigation as above, the exceedance is unlikely related to the Contract work and no corrective action was required accordingly.
Action to be taken	The contractor had been reminded to implement dust mitigation measures under the EMIS requirement. Another, ET will conduct audit and inspection regularly for the implemented dust mitigation measures during the construction period.

Prepared By : T.W. Tam

Designation : Environmental Team Leader

Signature : 

Date : 14 December 2020

Photo Record

Photo 1 All access road within the Contract had been hard paved

Photo 2 Water spraying by worker for construction activities.

Photo 3 Hydro seeding for the exposed slope at Platform 10.

Photo 4 Covered stockpile by tarpaulin sheet.

Photo 5 Hydro seeding for the exposed slope at Platform 19.

Photo 6 Hydro seeding for the exposed slope at Slope 170.

Photo 7 All vehicles using the haul road had enhanced to control the speed below 8km/hr to reduce dust emission.

Photo 8 During the joint site inspection on 4 November 2020, no dusty activites was observed from the site near the monitoring station.

Photo 9 During the joint site inspection on 11 November 2020, no dusty activites was observed from the site near the monitoring station.

Photo 10 Remedial works at Roundabout

Photo 11 Remedial works at Roundabout

Photo 12 All of the site area under the contract were hard paved

 **Photo 13** All of the site area under the contract were hard paved	 **Photo 14** All of the site area at Portion F were hard paved

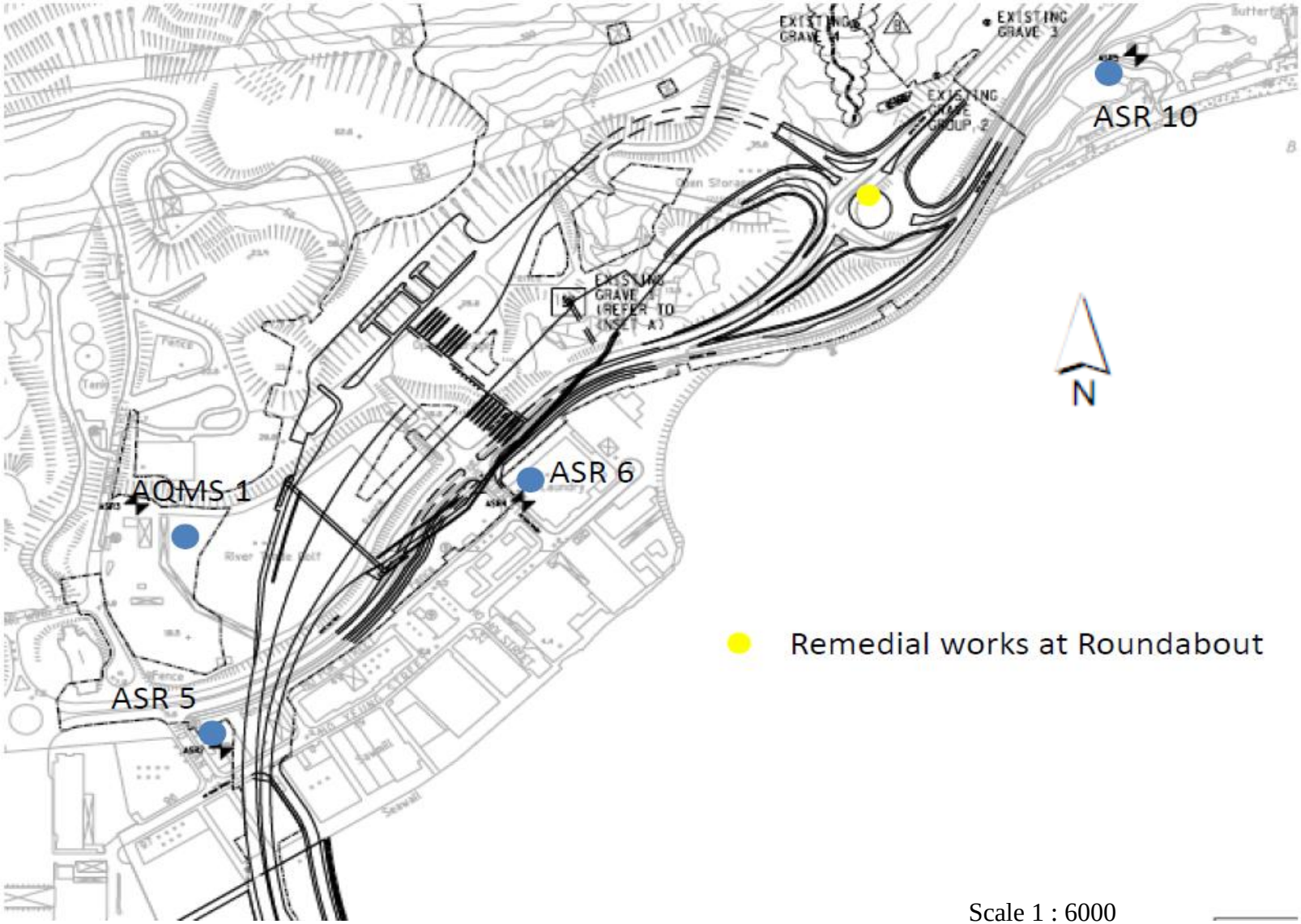


Figure 1. Location Plan

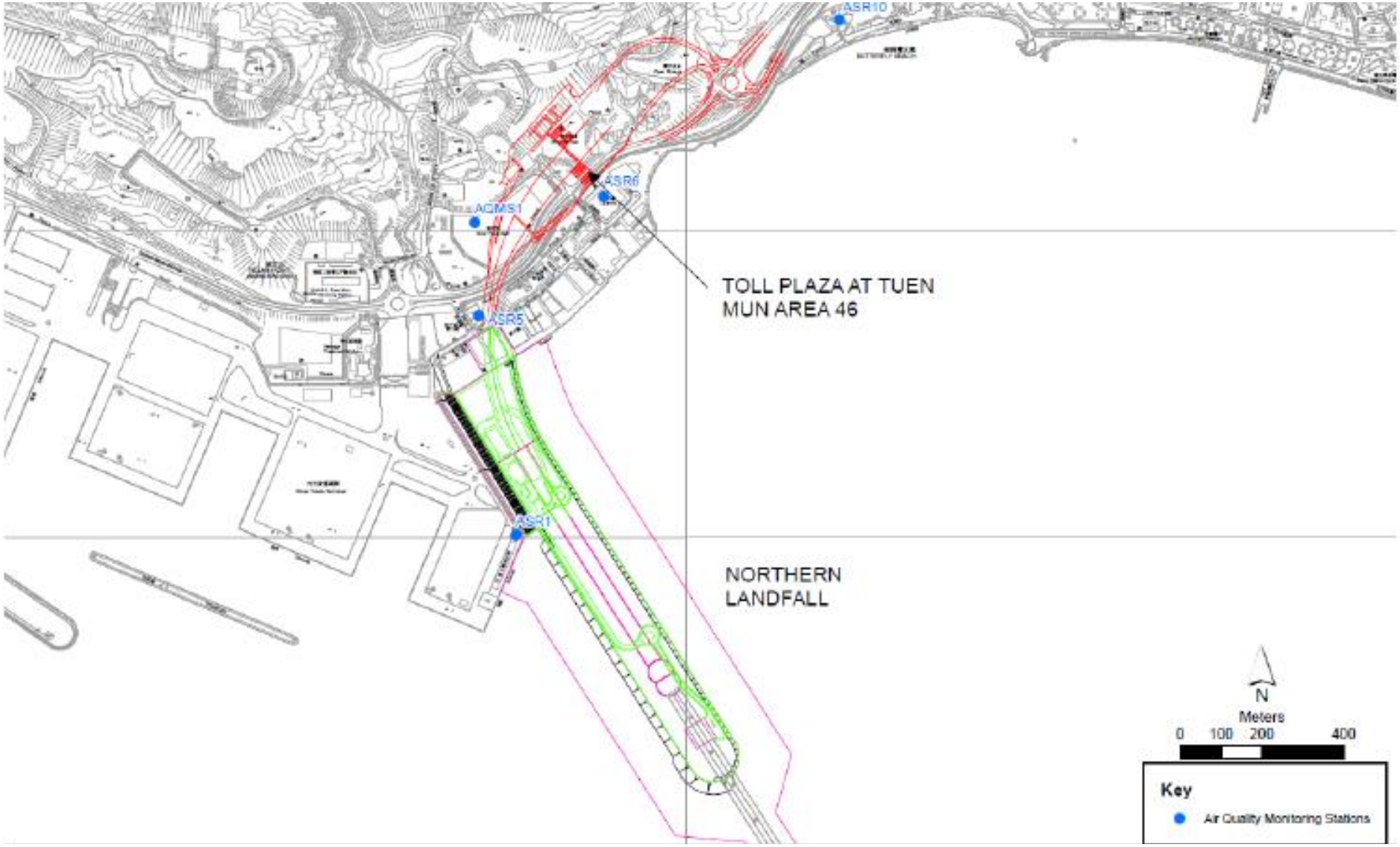


Figure 2. Air Monitoring Loaction

Table 1. 1-Hr TSP Monitoring Result of 6 November 2020

Air quality monitoring results on 6/11/2020								
Project	Contract	Date	Station	Weather	Start time	Parameters	Results	Unit
TMCLKL	HY/2012/08	2020-11-06	ASR10	Hazy	8:00:00	1-hour TSP	89	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR10	Hazy	9:02:00	1-hour TSP	165	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR10	Hazy	10:04:00	1-hour TSP	135	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR6	Hazy	8:13:00	1-hour TSP	126	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR6	Hazy	9:15:00	1-hour TSP	175	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR6	Hazy	10:17:00	1-hour TSP	180	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR5	Hazy	8:25:00	1-hour TSP	247	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR5	Hazy	9:27:00	1-hour TSP	163	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR5	Hazy	10:29:00	1-hour TSP	229	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR1	Hazy	8:36:00	1-hour TSP	887	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR1	Hazy	9:38:00	1-hour TSP	311	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR1	Hazy	10:40:00	1-hour TSP	237	ug/m3
TMCLKL	HY/2012/08	2020-11-06	AQMS1	Hazy	8:47:00	1-hour TSP	182	ug/m3
TMCLKL	HY/2012/08	2020-11-06	AQMS1	Hazy	9:49:00	1-hour TSP	150	ug/m3
TMCLKL	HY/2012/08	2020-11-06	AQMS1	Hazy	10:51:00	1-hour TSP	222	ug/m3
TMCLKL	HY/2012/08	2020-11-06	AQMS1	Hazy	11:53:00	24-hour TSP	141	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR1	Hazy	11:42:00	24-hour TSP	214	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR10	Hazy	11:06:00	24-hour TSP	120	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR5	Hazy	11:31:00	24-hour TSP	176	ug/m3
TMCLKL	HY/2012/08	2020-11-06	ASR6	Hazy	11:19:00	24-hour TSP	185	ug/m3

Table 2. Wind Direction and Speed data during Air Quality Monitoring

Date	Time	Average of Wind Speed (m/s)	Average of Wind Direction (degree)
6/11/2020	8:00	0.4	054
6/11/2020	9:00	2.7	304
6/11/2020	10:00	1.3	079
6/11/2020	11:00	1.3	111
6/11/2020	12:00	1.8	260
6/11/2020	13:00	2.7	275
6/11/2020	14:00	2.7	273
6/11/2020	15:00	2.2	263
6/11/2020	16:00	1.3	266
6/11/2020	17:00	1.3	286
6/11/2020	18:00	0.9	301
6/11/2020	19:00	1.8	320
6/11/2020	20:00	0.9	310
6/11/2020	21:00	0.4	323
6/11/2020	22:00	0.9	312
6/11/2020	23:00	0.4	321
7/11/2020	0:00	0.4	325
7/11/2020	1:00	1.8	307
7/11/2020	2:00	0.4	105
7/11/2020	3:00	0.4	315
7/11/2020	4:00	0.9	306
7/11/2020	5:00	1.3	315
7/11/2020	6:00	1.3	315
7/11/2020	7:00	2.2	027
7/11/2020	8:00	2.7	030
7/11/2020	9:00	2.2	018
7/11/2020	10:00	1.8	013
7/11/2020	11:00	1.3	307

Remarks:
Wind speed and direction data was extracted from the weather station located at ASR5 set up by ET of Contract HY/2012/08

Contract No. HY/2013/12
Tuen Mun - Chek Lap Kok Link - Northern Connection Toll Plaza and Associated Works

Investigation Report on Action or Limit Level Non-compliance

Date	12 November 2020		
Environmental Aspect	Air Quality		
Parameter	1-hour TSP		
Monitoring Location	ASR1 (Tuen Mun Fireboat Station)	ASR5 (Pillar Point Fire Station)	ASR6 (Butterfly Beach Laundry)
Measurement Period	13:41-14:41	13:29-14:29	13:18–14:18
Action Level (ug/m^3)	331	340	338
Limit Level (ug/m^3)	500	500	500
Measured Level (ug/m^3)	**474**	**433**	**358**
Exceedance	Action Level	Action Level	Action Level
Possible reason for Action or Limit Level Non-compliance	1. According to site information provided by CRBC-Kaden JV, only remedial works at Lung Mun Road were conducted on 12 November 2020. 2. To reduce dust impact arising from the construction, mitigation measures for construction dust control were implemented. They include the followings:- • all the access road under the contract were hard paved (refer to photo 1) • water spraying for construction works (refer to photo 2) • Hydro seeding or covered part of the exposed slopes and stockpile by tarpaulin sheet (refer to Photo 3 to 6) • to set speed control at 8 km/hr for all vehicles using the haul road (refer to photo 7) 3. According to the weather station setting up at ASR5 under Contract No. HY/2012/08, south-westerly wind at 1.8 to 2.2 m/s between 13:00 and 14:59. 4. The works area was located at the downstream of the monitoring station ASR1, ASR5 and ASR6 during the time of the exceedances were record. Moreover, only remedial works at Lung Mun Road were undertaken under the Contract. Another, all construction site areas under the contract were hard paved. It is unlikely to create heavy construction dust impact. Furthermore, review the monitoring result at other monitoring stations ASR10 which was located at the downstream of the major works area at Lung Mun Road no exceedence was recorded at similar time. 5. During the weekly joint site inspection with ER, Contractor and ET on 11 & 17 November 2020, no dust emitted from the works area was observed during the inspection and all construction areas under the contract were hard paved. Also ER agreed that dust mitigation measures were implemented properly at those works area during the time of monitoring. The ET observed that the contractor had properly		

	implemented the dust mitigation measure under EMIS requirement and no environmental issue related to dust aspect was observed. (Ref. to Photo 8, 9) 6. Therefore the exceedances of Air Quality Monitoring at ASR1, ASR5 & ASR6 were due to other pollutant source rather than the construction site. 7. Based on the investigation as above, the exceedances are unlikely related to the Contract work and no corrective action was required accordingly.
Action to be taken	The contractor had been reminded to implement dust mitigation measures under the EMIS requirement. Another, ET will conduct audit and inspection regularly for the implemented dust mitigation measures during the construction period.

Prepared By : T.W. Tam

Designation : Environmental Team Leader

Signature : 

Date : 14 December 2020

Photo Record

Photo 1 All access road within the Contract had been hard paved

Photo 2 Water spraying by worker for construction activities.

Photo 3 Hydro seeding for the exposed slope at Platform 10.

Photo 4 Covered stockpile by tarpaulin sheet.

Photo 5 Hydro seeding for the exposed slope at Platform 19.

Photo 6 Hydro seeding for the exposed slope at Slope 170.

Photo 7 All vehicles using the haul road had enhanced to control the speed below 8km/hr to reduce dust emission.

Photo 8 During the joint site inspection on 11 November 2020, no dusty activites was observed from the site near the monitoring station.

Photo 9 During the joint site inspection on 11 November 2020, no dusty activites was observed from the site near the monitoring station.

Photo 10 Remedial works at Lung Mun Road

Photo 11 Remedial works at Lung Mun Road

Photo 12 All of the site area under the contract were hard paved

 **Photo 13** All of the site area under the contract were hard paved	 **Photo 14** All of the site area at Portion F were hard paved

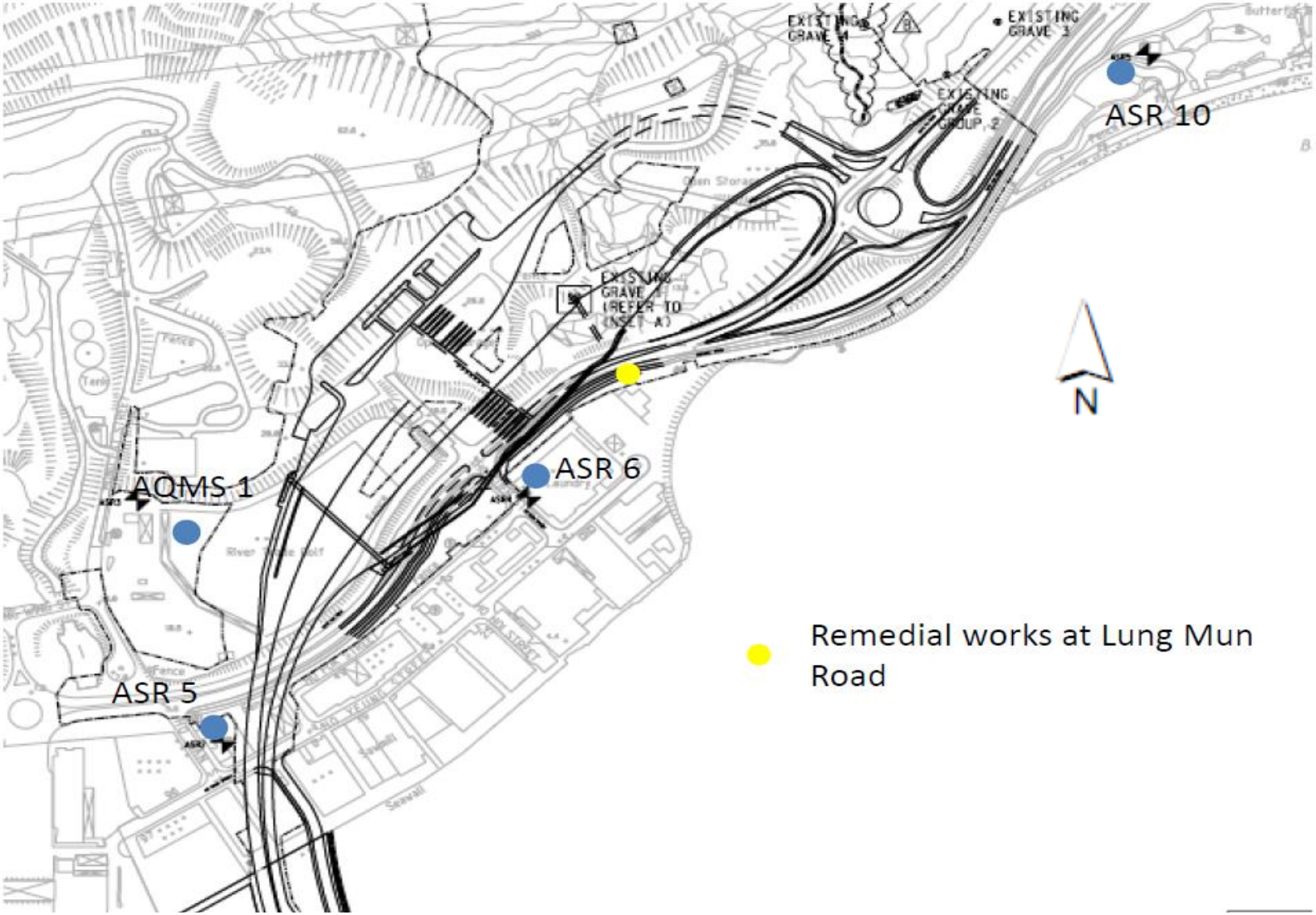


Figure 1. Location Plan

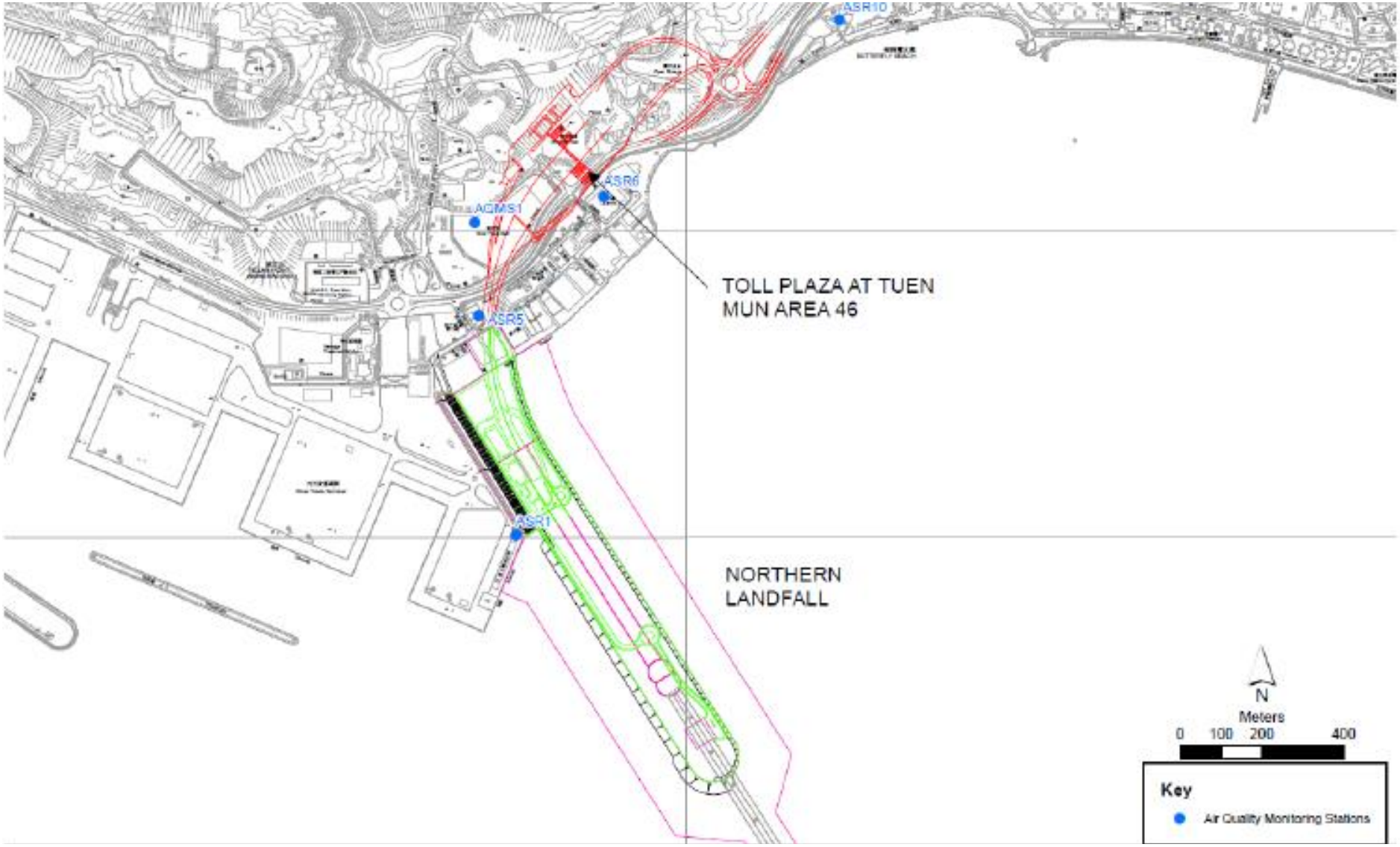


Figure 2. Air Monitoring Loaction

Table 1. 1-Hr TSP Monitoring Result of 12 November 2020

Air quality monitoring results on 12/11/2020								
Project	Contract	Date	Station	Weather	Start time	Parameters	Results	Unit
TMCLKL	HY/2012/08	2020-11-12	ASR10	Hazy	13:07:00	1-hour TSP	230	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR10	Hazy	14:09:00	1-hour TSP	171	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR10	Hazy	15:11:00	1-hour TSP	148	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR6	Hazy	13:18:00	1-hour TSP	358	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR6	Hazy	14:20:00	1-hour TSP	126	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR6	Hazy	15:22:00	1-hour TSP	182	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR5	Hazy	13:29:00	1-hour TSP	433	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR5	Hazy	14:31:00	1-hour TSP	195	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR5	Hazy	15:33:00	1-hour TSP	249	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR1	Hazy	13:41:00	1-hour TSP	474	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR1	Hazy	14:43:00	1-hour TSP	186	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR1	Hazy	15:45:00	1-hour TSP	213	ug/m3
TMCLKL	HY/2012/08	2020-11-12	AQMS1	Hazy	13:52:00	1-hour TSP	175	ug/m3
TMCLKL	HY/2012/08	2020-11-12	AQMS1	Hazy	14:54:00	1-hour TSP	145	ug/m3
TMCLKL	HY/2012/08	2020-11-12	AQMS1	Hazy	15:56:00	1-hour TSP	231	ug/m3
TMCLKL	HY/2012/08	2020-11-12	AQMS1	Hazy	16:58:00	24-hour TSP	91	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR1	Hazy	16:47:00	24-hour TSP	126	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR10	Hazy	16:13:00	24-hour TSP	86	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR5	Hazy	16:35:00	24-hour TSP	168	ug/m3
TMCLKL	HY/2012/08	2020-11-12	ASR6	Hazy	16:24:00	24-hour TSP	108	ug/m3

Table 2. Wind Direction and Speed data during Air Quality Monitoring

Date	Time	Average of Wind Speed (m/s)	Average of Wind Direction (degree)
12/11/2020	13:00	1.8	228
12/11/2020	14:00	2.2	192

Remarks:
Wind speed and direction data was extracted from the weather station located at ASR5 set up by ET of Contract HY/2012/08

Appendix K

Checklist for Establishment Works Monitoring

Inspection Date: **30 November 2020** **Inspected By:** **AUES**

Time: **10:00 – 12:30** **Weather Condition:** **Sunny**

Participants: **AECOM (RSS), Ramboll (IEC) & AUES (ET) Rep.**

1	**Zone: Area along Lung Mun Road and Lung Fu Road**	**N/A or not observed**	**Yes**	**No**	**Remarks / Photo**
1.1	Is watering provided to plants to ensure satisfactory growth and health (manual and automatic irrigation)?	☐	☑	☐	
1.2	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?	☐	☑	☐	
1.3	Are trees or limb overhanging branches pruned?	☑	☐	☐	
1.4	Are pest and disease observed?	☐	☐	☑	
1.5	Are litter and debris removed?	☐	☑	☐	
1.6	Are plants/ grasses overgrown?	☐	☐	☑	
1.7	After inclement weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	☐	☑	☐	
1.8	Are planting locations and tree spacing matched with the approved planting plans?	☐	☑	☐	
1.9	Are the planting species on site matched with the approved planting schedules (Annex B)?	☐	☑	☐	
		Good	**Fair**	**Poor**	
1.10	Overall health condition of the plants?	☑	☐	☐	

2	**Zone: Area along cycling track near Butterfly Bay Beach and Raised Planter at Abutment Sides of Bridge H1 and G1**	**N/A or not observed**	**Yes**	**No**	**Remarks / Photo**
2.1	Is watering provided to plants to ensure satisfactory growth and health (manual and automatic irrigation)?	☐	☑	☐	
2.2	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?	☐	☑	☐	
2.3	Are trees or limb overhanging branches pruned?	☐	☐	☑	
2.4	Are pest and disease observed?	☐	☐	☑	
2.5	Are litter and debris removed?	☐	☑	☐	
2.6	Are plants/ grasses overgrown?	☐	☐	☑	
2.7	After inclement weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	☐	☑	☐	
2.8	Are planting locations and tree spacing matched with the approved planting plans?	☐	☑	☐	
2.9	Are the planting species on site matched with the approved planting schedules (Annex B)?	☐	☑	☐	
		Good	**Fair**	**Poor**	

				Establishment	Inspection	Checklist
2.10	Overall health condition of the plants?	☑	☐	☐		

3	Zone: Area on Toll Plaza	N/A or not observed	Yes	No	Remarks / Photo
3.1	Is watering provided to plants to ensure satisfactory growth and health (manual and automatic irrigation)?	☐	☑	☐	
3.2	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?	☐	☑	☐	
3.3	Are trees or limb overhanging branches pruned?	☑	☐	☐	
3.4	Are pest and disease observed?	☐	☐	☑	
3.5	Are litter and debris removed?	☐	☑	☐	
3.6	Are plants/ grasses overgrown?	☐	☐	☑	
3.7	After inclement weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	☐	☑	☐	
3.8	Are planting locations and tree spacing matched with the approved planting plans?	☐	☑	☐	
3.9	Are the planting species on site matched with the approved planting schedules (Annex B)?	☐	☑	☐	
		Good	**Fair**	**Poor**	
3.10	Overall health condition of the plants?	☑	☐	☐	

4	Zone: Slopes on Toll Plaza near the East and West Portals	N/A or not observed	Yes	No	Remarks / Photo
4.1	Is watering provided to plants to ensure satisfactory growth and health (manual and automatic irrigation)?	☐	☑	☐	
4.2	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?	☐	☑	☐	
4.3	Are trees or limb overhanging branches pruned?	☑	☐	☐	
4.4	Are pest and disease observed?	☐	☐	☑	
4.5	Are litter and debris removed?	☐	☑	☐	
4.6	Are plants/ grasses overgrown?	☐	☐	☑	
4.7	After inclement weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	☐	☑	☐	
4.8	Are planting locations and tree spacing matched with the approved planting plans?	☐	☑	☐	
4.9	Are the planting species on site matched with the approved planting schedules (Annex B)?	☐	☑	☐	
		Good	**Fair**	**Poor**	
4.10	Overall health condition of the plants?	☐	☑	☐	

5	Zone: Slopes along Lung Mun Road and Lung Fu Road	N/A or not observed	Yes	No	Remarks / Photo
5.1	Is watering provided to plants to ensure satisfactory growth and health (manual and automatic irrigation)?	☐	☑	☐	
5.2	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?	☐	☑	☐	
5.3	Are trees or limb overhanging branches pruned?	☑	☐	☐	
5.4	Are pest and disease observed?	☐	☐	☑	
5.5	Are litter and debris removed?	☐	☑	☐	
5.6	Are plants/ grasses overgrown?	☐	☐	☑	
5.7	After inclement weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	☐	☑	☐	
5.8	Are planting locations and tree spacing matched with the approved planting plans?	☐	☑	☐	
5.9	Are the planting species on site matched with the approved planting schedules (Annex B)?	☐	☐	☑	Please refer to the attached comment
		Good	**Fair**	**Poor**	
5.10	Overall health condition of the plants?	☐	☑	☐	

6	General Document	N/A or not observed	Yes	No	Remarks / Photo
6.1	Are the records of watering, fertilizing, weeding, pruning and mowing kept for checking?	☐	☑	☐	

Follow up actions for previous Site Audit: **NA**
Observations: **Refer to the attachment**
Corrective Actions (if any): **1. Incorrect species of tree should be replaced according to the approved planting plan in zone 5** **2. Some missing or poor health condition planting should be replaced ASAP** **3. Some fallen tree should be fixed properly**
General Conclusion: **The establishment planting for the contract is generally in fair and good condition. Regularly watering, fertilizing, weeding, pruning and mowing had been provided by Contractor. Some tree planting species are different from the approved tree planting plan should be rectified.**

Inspected by (ET's Representative):	**Ben Tam**	Title:	**Environmental Consultant**
Signature:		Date:	**30 November 2020**
Reviewed by (RSS Landscape Representative):	Candy Lau	Title:	Senior Resident Landscape Architect
Signature:	Candy	Date:	1 December 2020
Contractor's Representative:	Tommy	Title:	Environmental Officer
Signature:		Date:	7 Dec 2020
Checked by (IEC's Representative):	Manson Yeung	Title:	Independent Environmental Checker
Signature:		Date:	7 December 2020

Zone 1

<u>Lung Mun Road/Lung Fu Road Roundabout area</u>

One missing heavy standard *Tabebuia impetiginosa* inspected at last quarter was replaced.

	
General View	General View
	
General View	Replaced *Tabebuia impetiginosa*

Lung Mun Road

Two missing light standard *Garcinia subelliptica* inspected at last quarter was replaced.

	
General View	General View
	
General View	Replaced *Garcinia subelliptica*

Zone 2

<u>Lung Mun Road</u>

	
General View	General View
	
General View	General View

Zone 3

Toe planter at Slope TP_A and TP_B

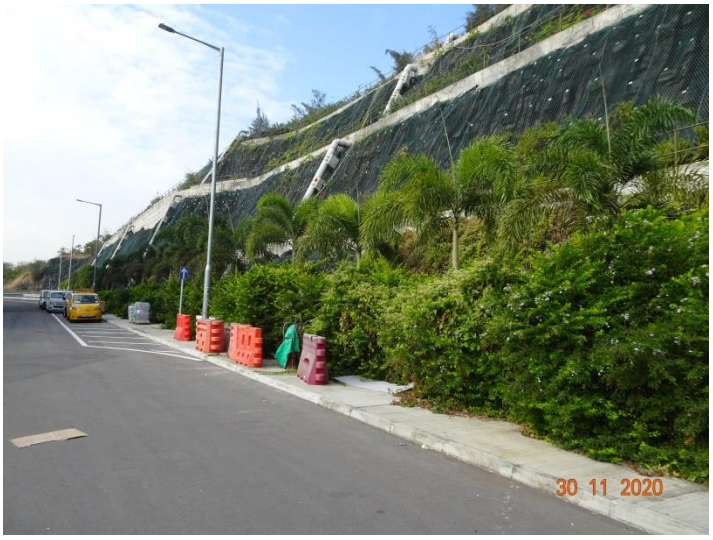
General View

Toe planter and toll plaza

Some leaning *Tabebuia chrysantha* were re-staked.

One missing *Melaleuca cajuputi* subsp. *Cumingiana* (T2820) was replaced.

General View



General View

	
General View	General View
	
Leaning tree were re-staked	Replaced *Melaleuca cajuputi* subsp. *Cumingiana*

Zone 4

<u>Slope TP_A and TP_B</u>

One missing light standard *Sterculia lanceolata* was replaced.

Some trees that in poor health condition was replaced.

Some dead whips were replaced.

Weed covered on whips had been removed.

	
General View	General View
	
Replacement works for poor health tree	Missing light standard *Sterculia lanceolata* was replaced.

Slope TP_D

Some dead whips (Gordonia axillaris) were replaced.

Weed covered on whips had been removed.

	
General View	General View

Zone 5

5SE-D/C170

Four light standard *Bauhinia variegata* was missing. Aecom said the trees were fallen and removed and there will be a replacement.

Fifteen *Schima superba* have been changed to *Sterculia lanceolata*, please review the planting plan and schedule.

Some trees were in poor health condition and dead and Aecom said there will be a replacement.

Some dead whips (*Sapium discolor*) were replaced.

	
General View	General View
	
General View	General View

	
Tree with poor health	Fallen tree
	
Dead whips (*Sapium discolor*) were replaced	

TP C

	
General View	General View

5SE-D/C171

	
General View	

5SE-D/C21

 General View	

5SE-D/C215

 General View	 General View

5SE-D/C16

	
General View	General View

5SE-D/C18

	
General View	

Appendix A
Zoning Plan for Contract No. HY/2013/12

Annex A

Zoning Plan

- Zone 1
- Zone 2
- Zone 3
- Zone 4
- Zone 5

East Portal
SLOPE TP_A
SLOPE TP_B
VEHICULAR UNDERPASS
West Portal
SLOPE TP_D
SLOPE TP_E
RETAINING STRUCTURE TP_G
SEWERAGE CULVERT
SLOPE TP_C
RETAINING STRUCTURE RW_A
TOLL PLAZA DECKING TD2
RETAINING STRUCTURE RW_B
TOLL PLAZA DECKING TD1
TOLL CONTROL BUILDING
RETAINING STRUCTURE TP_F
BRIDGE H1
BRIDGE G2
BRIDGE G1
ER's OFFICE
RETAINING STRUCTURE RW_E

826200 N 826000 N 825800 N 825600 N 825400 N 821100 N 820900 N
813200 E 813000 E 812800 E 812600 E

CONTRACT NO. HY/2013/12
TUEN MUN - CHEK LAP KOK LINK
- NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS

DF0035

Appendix B
Summary of Compensatory Planting Area for Contract No. HY/2013/12

Contract No. HY/2013/12 (C3) Landscape Area Summary for EP Condition 2.9

Area Code	Location	Plan Area (sq.m.) Approx.	Average Slope Angle	Plane Area (sq.m.) Approx.
N1	Lung Fu Road	1276	0	1276
N2	Lung Mun Road	126	0	126
N3	Lung Mun Road	221	0	221
N4	Lung Mun Road	1416	0	1416
N5	Lung Mun Road - cycle track	578	0	578
N6	Lung Mun Road - cycle track	91	0	91
N7	Lung Mun Road - cycle track	792	0	792
N8	Lung Mun Road	1059	0	1059
N9	Lung Mun Road/ Lung Fu Road	1124	0	1124
N10	Lung Mun Road - under deck	346	0	346
N11	Lung Mun Road	673	0	673
N12	Deck - Parapet Planter	300	0	300
N13	Lung Mun Road - under deck	129	0	129
N14	Lung Mun Road	79	0	79
N15	Lung Mun Road - under deck	487	0	487
N16	Lung Mun Road	794	0	794
N17	Lung Mun Road - cycle track	606	0	606
N18	Lung Mun Road	379	0	379
N19	Lung Mun Road	536	0	536
N20	Near Footbridge	325	0	325
N21	Toe of Slope TP_E	450	0	450
	Toe of Slope TP_E (PDA)	-281	0	-281
N22	Toe of Slope TP_E	151	0	151
N23	Toll Plaza - roadside	36	0	36
N24	Toll Plaza - roadside	820	0	820
N25	Toe of 5SE-D/C116	53	0	53
N26	Toe of Slope TP_A & Slope TP_B	89	0	89
N27	Toe of Slope TP_B	210	0	210
N28	Lung Fu Road	113	0	113
N29	Island near Roundabout	334	0	334
N30	Island near Roundabout	530	0	530
N31	Toe of 5SE-D/C170	1940	0	1940
N32	Lung Fu Road	169	0	169
N33	Roundabout	1018	0	1018
N34	Retaining Structure RW_E	272	0	272
S1	5SE-D/C215	3103	14	3198
S2	5SE-D/C165	471	30	544
S3	5SE-D/C171	799	35	975
S4	5SE-D/C21	483	35	590
S5	5SE-D/C170 (PART 1)	5035	17	5265
S6	5SE-D/C170 (PART 2)	622	28	704
S7	5SE-D/C18	89	30	103
S8	5SE-D/C209 (Slope TP_C)	1655	30	1911
S9	5SE-D/C210 (Slope TP_B)	5424	35	6621
S10	5SE-D/C211 (Slope TP_A)	1874	37	2347
S11	5SE-D/C214 (Slope TP_D)	1867	50	2905
S12	5SE-D/C116	1515	35	1849
S13	5SE-D/C212 (Slope TP_E)	8134	60	16268
	5SE-D/C212 (Slope TP_E) (PDA)	-4132	60	-8264
S14	5SE-D/C16 (Non-PDA)	1150	32	1356
Sub-Total				53613

ABBREVIATIONS

PDA Potential Development Area (not counted towards landscape area for EP Condition 2.9)

SLOPE TP_A
SLOPE TOE PLANTER
VEHICULAR UNDERPASS
SLOPE TP_D
SLOPE TOE PLANTER UNDER TM-CLKL CONTRACT 4 37m² (C4)
SLOPE TOE PLANTER 53m² N25
SLOPE TP_B
SLOPE TP_E
AT-GRADE PLANTER UNDER TM-CLKL CONTRACT 4
SLOPE TP_C
TOLL CONTROL BUILDING
SLOPE TOE PLANTER
RETAINING STRUCTURE TP_G
蝴蝶灣泳灘
BUTTERFLY BEACH
RETAINING STRUCTURE RW_A
TOLL PLAZA DECKING TD2
RETAINING STRUCTURE RW_B
TOLL PLAZA DECKING TD1
TOLL PLAZA DECKING PARAPET PLANTER 300m² N12
RETAINING STRUCTURE TP_F
TOLL PLAZA FOOTBRIDGE 102m²
LUNG FU ROAD
LUNG MUN ROAD
龍門路
龍富路
MONG FAT STREET
BRIDGE G2
BRIDGE H1
BRIDGE G1
HO YEUNG STREET
浩洋街
LUNG MUN ROAD
香港內河碼頭 River Trade Terminal
望后石污水處理廠
Pillar Point Sewage Treatment Works
珠江貨倉
RETAINING STRUCTURE RW_E

N1 1276m² | N2 126m² | N3 221m² | N4 416m² | N5 578m² | N6 91m² | N7 792m² | N8 1059m² | N9 1124m²
N10 346m² (UNDER DECK) + 673m² (OPEN) N11 — 1628m²
N13 129m² (UNDER DECK) + 79m² (OPEN) N14
N15 487m² (UNDER DECK) + 794m² (OPEN) N16
N17 506m²
N18 379m²
N19 345m² — 478m² — 522m²
N20 375m²
N21 450m²
N22 151m² | N23 360m² | N24 625m²
N25 53m² | N26 89m² | N27 210m² | N28 113m² | N29 134m²
N30 530m² | N31 940m² | N32 69m² | N33 101m²
N34 272m²

LEGEND:

SITE BOUNDARY

LANDSCAPE AREA (NON-SLOPE)

APPROVED AND CONFIRMED BY
TITLE
AECOM_C3 (RLS)
NAME
SAMMY TSOI
SIGNATURE

FOR INFORMATION

REV.	DATE	DESCRIPTION	CHK.	PREP.	DRAWN
-	SEP. 20	FOR INFORMATION	CL	CHT	JL

CLIENT
路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

AECOM Imagine it. Delivered.

PROJECT
TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK - NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS

PROJECT NO.	CONTRACT NO.
60240249	HY/2013/12
SCALE: A3 N.T.S	DATE: 09 SEP 2020

AMENDMENT TO WORKING DRAWING NO.
60240249/C3/DF2210

CHECKED	PREPARED	DRAWN
CL	CHT	JL/TMC

TITLE
LANDSCAPE AREA (NON-SLOPE)

SKETCH NO.
IR-1736A

Plot File by: rssoe1 9/9/2020 9:50:02 AM
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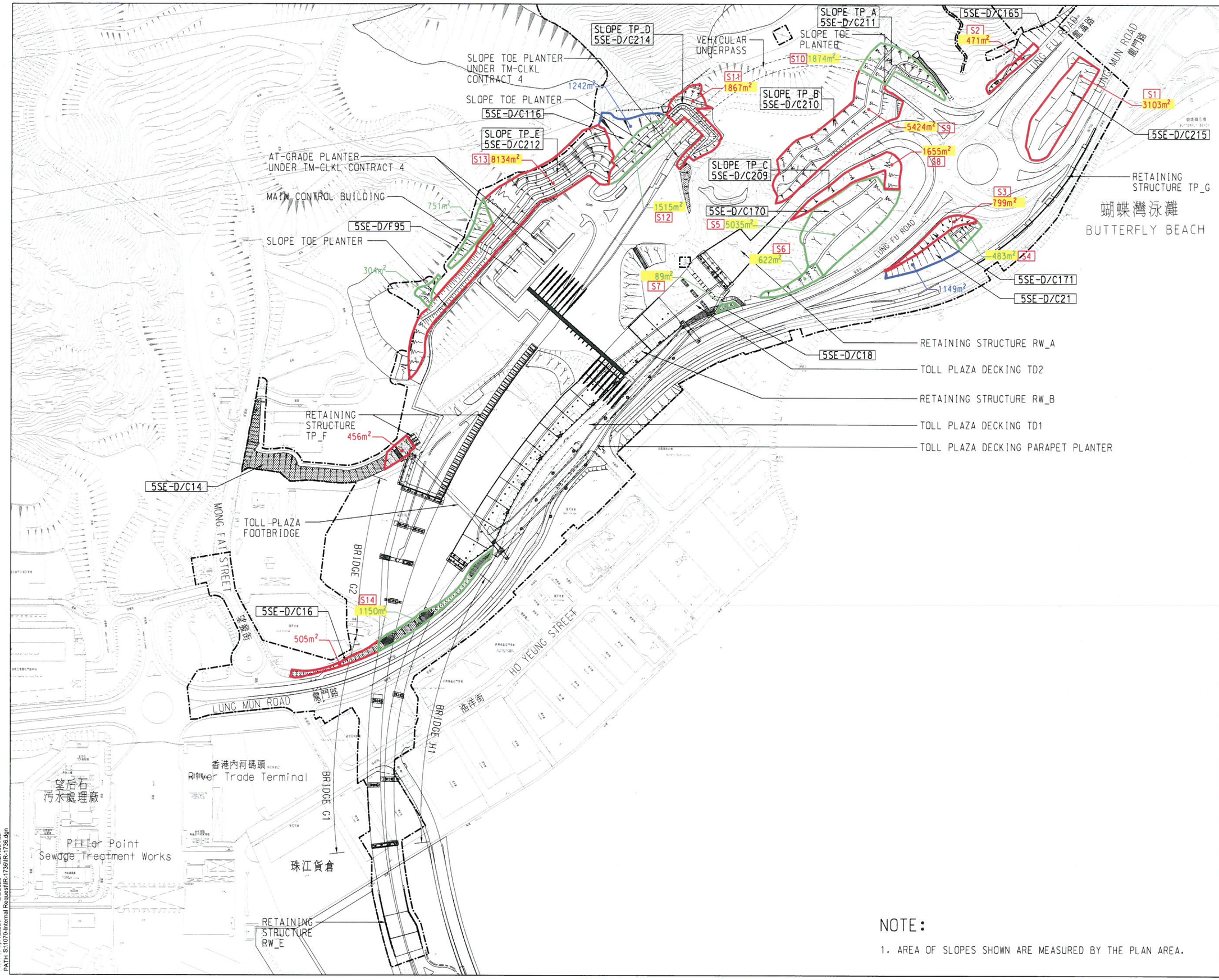

NOTE:

1. AREA OF SLOPES SHOWN ARE MEASURED BY THE PLAN AREA.

APPROVED AND CONFIRMED BY
TITLE
AECOM_C3 (RLS)
NAME
SAMMY TSOI
SIGNATURE

FOR INFORMATION

REV.	DATE	DESCRIPTION	CHK.	PREP.	DRAWN
-	SEP. 20	FOR INFORMATION	CL	CHT	JL

CLIENT
路政署
HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處
Hong Kong - Zhuhai - Macao Bridge
Hong Kong Project Management Office

AECOM Imagine it. Delivered.

PROJECT
TUEN MUN -
CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK -
NORTHERN CONNECTION TOLL
PLAZA AND ASSOCIATED WORKS

PROJECT NO.	CONTRACT NO.
60240249	HY/2013/12
SCALE: A3 N.T.S	DATE: 09 SEP 2020

AMENDMENT TO WORKING DRAWING NO.
60240249/C3/DF2208

CHECKED	PREPARED	DRAWN
CL	CHT	JL/TMC

TITLE
LANDSCAPE AREA
(SLOPE)

SKETCH NO.
IR-1736

Plot File by: rssce1 9/9/2020 9:27:30 AM
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Appendix C
Approved Planting Schedule for Contract No. HY/2013/12

Slope Planting

CODE	BOTANCIAL NAME	CHINESE NAME	SIZE (mm) HEIGHT (H) x SPREAD (S)	SPACING (mm)
WHIP				
BAU.VAR.	*Bauhinia variegata*	宮粉羊蹄甲	WHIP	1000
BRI.TOM.	*Bridelia tomentosa* *	土密樹	WHIP	1000
GOR.AXI.	*Gordonia axillaris* *	大頭茶	WHIP	1000
LIT.GLU.	*Litsea glutinosa* *	潺槁樹	WHIP	1000
MAL.PAN.	*Mallotus paniculatus* *	白楸	WHIP	1000
PHY.EMB.	*Phyllanthus emblica* *	餘甘子	WHIP	1000
SAP.DIS.	*Sapium discolor* *	山烏桕	WHIP	1000
TREE				
BAU.VAR.(L)	*Bauhinia variegata*	宮粉羊蹄甲	LIGHT STANDARD	3000
BAU.VAR.(H)	*Bauhinia variegata*	宮粉羊蹄甲	HEAVY STANDARD	4000-4500
BRI.TOM.	*Bridelia tomentosa* *	土密樹	LIGHT STANDARD	3000
BOM.CEI.(L)	*Bombax ceiba*	木棉	LIGHT STANDARD	3000
BOM.CEI.(H)	*Bombax ceiba*	木棉	HEAVY STANDARD	4500-5000
CIN.BUR.	*Cinnamomum burmannii* *	陰香	LIGHT STANDARD	3000
CIN.BUR.	*Cinnamomum burmannii* *	陰香	HEAVY STANDARD	4500-5000
LIQ.FOR.	*Liquidambar formosana* *	楓香	LIGHT STANDARD	3000
LIT.GLU.(L)	*Litsea glutinosa* *	潺槁木	LIGHT STANDARD	3000
MAC.CHE.	*Machilus chekiangensis* *	浙江潤楠	LIGHT STANDARD	3000
REE.THY.	*Reevesia thyrsoidea* *	梭羅樹	LIGHT STANDARD	3000
SCH.SUP.	*Schima superba* *	木荷（荷樹）	LIGHT STANDARD	3000
STE.LAN.	*Sterculia lanceolata* *	假蘋婆	LIGHT STANDARD	3000
STE.LAN.	*Sterculia lanceolata* *	假蘋婆	HEAVY STANDARD	4500-5000
VIB.ODO.	*Viburnum odoratissimum* *	珊瑚樹	LIGHT STANDARD	3000
SHRUB				
DES. CHI.	*Desmos chinensis* *	假鷹爪	300(H) X 300(S)	500
ILE.ASP.	*Ilex asprella* *	梅葉冬青	300(H) X 300(S)	500
ILE.PUB.	*Ilex pubescens* *	毛冬青	300(H) X 300(S)	500
LIG.SIN.	*Ligustrum sinense*	山指甲	300(H) X 300(S)	350-500
MEL.CAN.	*Melastoma candidum* *	野牡丹	300(H) X 300(S)	500
MEL.SAN.	*Melastoma sanguineum* *	毛蕊	300(H) X 300(S)	350-500
NER.OLE.	*Nerium oleander*	夾竹桃	300(H) X 300(S)	350
PSY.ASI.	*Psychotria asiatica* *	九節	300(H) X 300(S)	500
RHA.IND.	*Rhaphiolepis indica* *	車輪梅	300(H) X 300(S)	350-500
RHO.PUL.	*Rhododendron pulchrum*	紫杜鵑	300(H) X 300(S)	500
RHO.SIM.	*Rhododendron simsii* *	紅杜鵑	300(H) X 300(S)	500
SCH.ARB.	*Schefflera arboricola*	八葉木	300(H) X 300(S)	500
SCH.VAR.	*Schefflera arboricola 'variegata'*	花葉八葉木	300(H) X 300(S)	500
GROUNDCOVER				
NEP.AUR.	*Nephrolepis auriculata* *	腎蕨	300(H) X 300(S)	100-300
NEP.HIR.	*Nephrolepis hirsutula* *	毛葉腎蕨	300(H) X 300(S)	100-300
CLIMBER				
BAU.COR.	*Bauhinia corymbosa*	首冠藤	MIN. 5 SHOOTS PER PLANT, 600mm LONG	300-1000
BOU.SPE.	*Bougainvillea spectabilis*	簕杜鵑	MIN. 5 SHOOTS PER PLANT, 600mm LONG	300-500
FIC.PUM.	*Ficus pumila* *	薜荔	MIN. 3 SHOOTS PER PLANT, 1000mm LONG	300
LON.JAP.	*Lonicera japonica* *	忍冬(金銀花)	MIN. 5 SHOOTS PER PLANT, 600mm LONG	300-1000
PAR.DAL.	*Parthenocissus dalzielii*	爬墻虎	MIN. 3 SHOOTS PER PLANT, 1000mm LONG	300-1000
WED.TRI.	*Wedelia trilobata*	蟛蜞菊	MIN. 5 SHOOTS PER PLANT, 600mm LONG	300

Roadside Planting

CODE	BOTANCIAL NAME	CHINESE NAME	SIZE (mm) HEIGHT (H) x SPREAD (S)	SPACING (mm)
TREE				
BRA.ACE.	*Brachychiton acerifolius*	槭葉蘋婆	HEAVY STANDARD	4500-5000
DEL.REG.	*Delonix regia*	鳳凰木	HEAVY STANDARD	N/A
GAR.SUB.	*Garcinia subelliptica*	福木	LIGHT STANDARD	3000
MEL.CUM.	*Melaleuca cajuputi subsp. cumingiana*	白千層	HEAVY STANDARD	4000
STE.LAN.	*Sterculia lanceolata* *	假蘋婆	HEAVY STANDARD	5000
TAB.CHR.	*Tabebuia chrysantha*	黃花風鈴木	HEAVY STANDARD	5000
TAB.IMP.	*Tabebuia impetiginosa*	風鈴木	HEAVY STANDARD	5000
TER.MAN.	*Terminalia mantaly*	小葉欖仁	HEAVY STANDARD	5000
PALM				
ARC.ALE.	*Archontophoenix alexandrae*	假檳榔	3500(H) x 1500(S)	4000
CHR.LHT.	Chrysalidocarpus lutescens	散尾葵	1500(H)	2000
LIV.CHI.	*Livistona chinensis*	蒲葵	2000(H) x 1500(S)	2500
PHO.ROE.	*Phoenix roebelenii*	日本葵	2000(H) x 1500(S)	2500-3000
WOD.BIF.	*Wodyetia bifurcata*	狐尾椰子	2500(H) x 1500(S)	3500
SHRUB				
DUR.GOL.	*Duranta repens 'goldern'*	金連翹	300(H) X 300(S)	300
IXO.CHI.	*Ixora chinensis* *	龍船花	300(H) X 300(S)	300
IXO.COC.	*Ixora coccinea*	橙紅龍船花	300(H) X 300(S)	300
IXO.LUT.	*Ixora coccinea 'lutea'*	黃花龍船花	300(H) X 300(S)	300
RHA.IND.	*Rhaphiolepis indica* *	車輪梅	300(H) X 300(S)	300
RHO.PUL.	*Rhododendron pulchrum*	紫杜鵑	300(H) X 300(S)	300
RHO.SIM.	*Rhododendron simsii* *	紅杜鵑	300(H) X 300(S)	300
SCH.ARB.	*Schefflera arboricola*	八葉木	300(H) X 300(S)	300
SCH.VAR.	*Schefflera arboricola 'variegata'*	花葉八葉木	300(H) X 300(S)	300
GROUNDCOVER				
ASP.DEN.	*Asparagus densiflorus 'myersii'*	狐尾天冬	300(H) X 300(S)	250
ARA.DUR.	*Arachis duranensis*	金花生	100(H) X 200(S)	200
ASP.SPR.	*Asparagus densiflorus 'sprengeri'*	天冬	100(H) X 200(S)	200
CUP.HYS.	*Cuphea hyssopifolia*	細葉雪茄花	250(H) X 300(S)	250-300
DIA.VAR.	*Dianella tasmanica 'variegata'*	花葉山菅蘭	250(H) X 250(S)	250
LAN.FLA.	*Lantana camara 'flava'*	黃花馬纓丹	200(H) X 200(S)	200
LAN.MON.	*Lantana montevidensis*	小葉馬纓丹(紫花)	200(H) X 200(S)	200
NEP.AUR.	*Nephrolepis auriculata* *	腎蕨	300(H) X 300(S)	150-250
OPH.JAP.	*Ophiopogon japonicus* *	沿階草	200(H) X 200(S)	200

NOTE:

1. ALL PROPOSED PLANT SPECIES AND SPECIFICATIONS ARE SUBJECT TO CHANGE DURING CONSTRUCTION TO SUIT THE SITE CONDITIONS.
2. SHRUB / GROUNDCOVER SHOULD BE PLANTED IN A STAGGERED PATTERN.
3. GRASS SEED AS CEDD GENERAL SPECIFICATION 3.26(3).
4. * SPECIES NATIVE TO HONG KONG ACCORDING TO THE HONG KONG HERBARIUM WEBSITE.

Status: Planting Schedule is a consolidated list of plant species based on the planting plans as commented/ approved by the relevant Government departments, i.e. LCSD or HyD/ Landscape Division.

Appendix D
Summary of tree Quantity for Contract No. HY/2013/12

Summary of tree Quantity for Contract No. HY/2013/12

Trees				Planting Plan Information						1st Quarter Site Checking						
				Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Total quantity to be planted as required in contract	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Total quantity observed on site	Remarks
CODE	BOTANCIAL NAME	CHINESE NAME	SIZE (mm) HEIGHT (H) x SPREAD (S)													
Whip Tree																
BAU.VAR.(L)	Bauhinia variegata	宮粉羊蹄甲	WHIP	-	-	-	-	52	52	-	-	-	-	52	52	
BRI.TOM.	Bridelia tomentosa	土密樹	WHIP	-	-	-	68	25	93	-	-	-	68	25	93	
GOR.AXI	Gordonia axillaris	大頭茶	WHIP	-	-	-	88	52	140	-	-	-	88	52	140	
LIT.GLU.	Litsea glutinosa	潺槁樹	WHIP	-	-	-	-	38	38	-	-	-	-	38	38	
MAL.PAN.	Mallotus paniculatus	白楸	WHIP	-	-	-	-	38	38	-	-	-	-	38	38	
PHY.EMB.	Phyllanthus emblica	餘甘子	WHIP	-	-	-	-	38	38	-	-	-	-	38	38	
SAP.DIS.	Sapium discolor	山烏桕	WHIP	-	-	-	-	12	12	-	-	-	-	12	12	
Tree (Light Standard, Heavy Standard)																
BAU.VAR.(L)	Bauhinia variegata	宮粉羊蹄甲	LIGHT STANDARD	-	-	-	34	191	225	-	-	-	34	187	221	4 missing in zone 5
BOM.CEI.(L)	Bombax ceiba	木棉	LIGHT STANDARD	-	-	-	-	32	32	-	-	-	-	32	32	
BRI.TOM.	Bridelia tomentosa	土密樹	LIGHT STANDARD	-	-	-	15	66	81	-	-	-	15	66	81	
CIN.BUR.	Cinnamomum burmannii	陰香	LIGHT STANDARD	-	-	-	-	51	51	-	-	-	-	51	51	
GAR.SUB	Garcinia subelliptica	福木	LIGHT STANDARD	16	4	10	-	-	30	16	4	10	-	-	30	
LIQ.FOR.	Liquidambar formosana	楓香	LIGHT STANDARD	-	-	-	-	32	32	-	-	-	-	32	32	
LIT.GLU.(L)	Litsea glutinosa	潺槁木	LIGHT STANDARD	-	-	-	19	-	19	-	-	-	19	-	19	
MAC.CHE.	Machilus chekiangensis	浙江潤楠	LIGHT STANDARD	-	-	-	17	44	61	-	-	-	17	44	61	
REE.THY.	Reevesia thyrsoidea	梭羅樹	LIGHT STANDARD	-	-	-	7	29	36	-	-	-	7	29	36	
SCH.SUP.	Schima superba	木荷（荷樹）	LIGHT STANDARD	-	-	-	-	32	32	-	-	-	-	17	17	15 missing
STE.LAN.	Sterculia lanceolata	假蘋婆	LIGHT STANDARD	-	-	-	6	47	53	-	-	-	6	62	68	15 additional in zone 5
VIB.ODO.	Viburnum odoratissimum	珊瑚樹	LIGHT STANDARD	-	-	-	16	58	74	-	-	-	16	58	74	
BAU.VAR.(L)	Bauhinia variegata	宮粉羊蹄甲	HEAVY STANDARD	-	-	-	-	41	41	-	-	-	-	41	41	
BOM.CEI.(L)	Bombax ceiba	木棉	HEAVY STANDARD	-	-	-	-	16	16	-	-	-	-	16	16	
BRA. ACE	Brachychiton acerifolius	槭葉蘋婆	HEAVY STANDARD	-	-	18	-	-	18	-	-	18	-	-	18	
CIN.BUR.	Cinnamomum burmannii	陰香	HEAVY STANDARD	-	-	-	-	23	23	-	-	-	-	23	23	
STE.LAN.	Sterculia lanceolata	假蘋婆	HEAVY STANDARD	-	-	3	-	10	13	-	-	3	-	10	13	
DEL.REG	Delonix regia	鳳凰木	HEAVY STANDARD	1	-	-	-	-	1	1	-	-	-	-	1	
MEL.CUM	Melaleuca cajuputi Subsp.	白千層	HEAVY STANDARD	35	16	-	-	-	51	35	16	-	-	-	51	
TAB.CHR	Tabebuia chrysantha	黃花風鈴木	HEAVY STANDARD	-	-	4	-	-	4	-	-	4	-	-	4	
TAB.IMP	Tabebuia impetiginosa	風鈴木	HEAVY STANDARD	66	-	3	-	-	69	66	-	3	-	-	69	
TER.MAN	Terminalia mantaly	小葉欖仁	HEAVY STANDARD	-	8	-	-	-	8	-	8	-	-	-	8	
Palm																
ARC.ALE	Archontophoenix alexandrae	假檳榔	3500(H) x 1500(S)	-	58	-	-	-	58	-	58	-	-	-	58	
LIV.CHI	Livistona chinensis	蒲葵	2000(H) x 1500(S)	24	-	-	-	-	24	24	-	-	-	-	24	
PHO.ROE	Phoenix roebelenii	日本葵	2000(H) x 1500(S)	50	-	4	-	-	54	50	-	4	-	-	54	
WOD.BIF	Wodyetia bifurcata	狐尾椰子	2500(H) x 1500(S)	-	-	26	-	-	26	-	-	26	-	-	26	
				192	86	68	270	927	1543	192	86	68	270	923	1539	

Appendix L

Monthly Summary Waste Flow Table

Appendix A –Monthly Waste Flow Table

Monthly Summary Waste Flow Table for 2020 (year)

Month		Annual Quantities of Inert C&D Materials Generated Monthly					Annual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals (see note 4)	Paper / cardboard packaging (see note 4)	Plastics & Rubber (see note 2)	Chemical Waste	Others (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	0.316	0.000	0.000	0.000	0.271	0.000	0.000	0.000	0.000	0.000	0.045
Feb	0.129	0.000	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.038
Mar	0.807	0.000	0.000	0.000	0.624	0.000	0.000	0.000	0.000	0.000	0.183
Apr	1.108	0.000	0.000	0.000	1.016	0.000	0.000	0.000	0.000	0.000	0.092
May	6.168	0.000	0.000	0.000	6.044	0.000	0.000	0.000	0.000	0.000	0.124
June	1.375	0.000	0.000	0.000	1.264	0.000	0.000	0.000	0.000	0.000	0.111
Sub-total	9.903	0.000	0.000	0.000	9.310	0.000	0.000	0.000	0.000	0.000	0.593
July	1.360	0.000	0.000	0.000	1.213	0.000	0.000	0.000	0.000	0.000	0.147
Aug	0.309	0.000	0.000	0.000	0.224	0.000	0.000	0.000	0.000	0.000	0.085
Sep	0.504	0.000	0.000	0.000	0.481	0.000	0.000	0.000	0.000	0.000	0.023
Oct	0.313	0.000	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.013
Nov	0.777	0.000	0.000	0.000	0.662	0.000	0.000	0.000	0.000	0.000	0.115
Dec											
Total											

Notes:

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

2 Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.

3 Broken concrete for recycling into aggregates.

Appendix M

Environmental Mitigation and Enhancement Measures Implementation Schedule (EMIS)

CONTRACT NO. HY/2013/12
TUEN MUN – CHECK LAP KOK LINK – NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS
ENVIORNMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Air Quality									
EIA reference	**EM&A Manual reference**	**Environmental Protection Measures**	**Location/ Timing**	**Implementation Agent**	**Relevant Standard or Requirement**	**Implementation Stages**			**Status ***
						D	**C**	**O**	
4.8.1	3.8	An effective watering programme of twice daily watering with complete coverage, is estimated to reduce by 50%. This is recommended for all areas in order to reduce dust levels to a minimum;	All areas / throughout construction period	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		✓
4.8.1	3.8	Watering of the construction sites in Lantau for 8 times/day and in Tuen Mun for 12 times/day to reduce dust emissions by 87.5% and 91.7% respectively and shall be undertaken.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	The Contractor shall, to the satisfaction of the Engineer, install effective dust suppression measures and take such other measures as may be necessary to ensure that at the Site boundary and any nearby sensitive receiver, dust levels are kept to acceptable levels.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	The Contractor shall not burn debris or other materials on the works areas.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	In hot, dry or windy weather, the watering programme shall maintain all exposed road surfaces and dust sources wet.	All unpaved haul roads / throughout construction period in hot, dry or windy weather	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		✓
4.8.1	3.8	Where breaking of oversize rock/concrete is required, watering shall be implemented to control dust. Water spray shall be used during the handling of fill material at the site and at active cuts, excavation and fill sites where dust is likely to be created.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	Open dropping heights for excavated materials shall be controlled to a maximum height of 2m to minimise the fugitive dust arising from unloading.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓

4.8.1	3.8	During transportation by truck, materials shall not be loaded to a level higher than the side and tail boards, and shall be dampened or covered before transport.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	No earth, mud, debris, dust and the like shall be deposited on public roads. Wheel washing facility shall be usable prior to any earthworks excavation activity on the site.	construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	Areas of exposed soil shall be minimized to areas in which works have been completed shall be restored as soon as is practicable.	All exposed surfaces / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	All stockpiles of aggregate or spoil shall be enclosed or covered and water applied in dry or windy condition.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.11	Section 3	EM&A in the form of 1 hour and 24 hour dust monitoring and site audit	All representative existing ASRs / throughout construction period	Contractor	EM&A Manual		Y		✓ Monitoring for 1 hour and 24 hour dust monitoring were undertaken by the ET of Contract HY/2012/08
Cultural Heritage									
EIA reference	**EM&A Manual reference**	**Environmental Protection Measures**	**Location/ Timing**	**Implementation Agent**	**Relevant Standard or Requirement**	**Implementation Stages**			**Status**
						D	**C**	**O**	
11.8	Section 9	EM&A in the form of audit of the mitigation measures	All areas / throughout construction period	Highways Department	EIAO-TM		Y		✓

CONTRACT NO. HY/2013/12
TUEN MUN – CHECK LAP KOK LINK – NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS
ENVIORNMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE

Ecology									
EIA reference	**EM&A Manual reference**	**Environmental Protection Measures**	**Location/ Timing**	**Implementation Agent**	**Relevant Standard or Requirement**	**Implementation Stages**			**Status**
						D	**C**	**O**	
7.13#	6.3, 6.5#	Fencing or other physical barriers for protection of Pitcher Plant around Zones 8, 9 and 10 and the temporary nursery site	Tuen Mun Area 46 shrubland/ Detailed/ Prior to construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
7.13	6.5	Audit Pitcher Plant protection measures	Tuen Mun Area 46	Contractor	TMEIA		Y		✓
7.13	6.5	The loss of habitat shall be supplemented by enhancement planting in accordance with the landscape mitigation schedule.	All areas / As soon as accessible	Contractor	TMEIA		Y		✓
7.13	6.5	Spoil heaps shall be covered at all times.	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Avoid damage and disturbance to the remaining and surrounding natural habitat	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Placement of equipment in designated areas within the existing disturbed land	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Disturbed areas to be reinstated immediately after completion of the works.	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Construction activities should be restricted to the proposed works boundary	All areas / Throughout construction	Contractor	TMEIA		Y		✓
Landfill Gas Hazard Assessment									
EIA reference	**EM&A Manual reference**	**Environmental Protection Measures**	**Location/ Timing**	**Implementation Agent**	**Relevant Standard or Requirement**	**Implementation Stages**			**Status**
						D	**C**	**O**	
14.12.2	14.2	*Appointment of Safety Officer* Appoint a properly trained safety officer and provide with appropriate equipment to measure and monitor LFG hazard. The monitoring frequency and areas to	Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment		Y		✓

		be monitored should be set down prior to commencement of ground-works either by the Safety Officer or an approved and appropriately qualified person.			Guidance Note				
14.12.2	-	*Safety Measures - Excavation* Staff should receive appropriate training on working in areas susceptible to landfill gas, fire and explosion hazards. Excavation procedures and code of practice should be implemented.	Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓
14.12.2	-	*Safety Measures – Welding, Flame- Cutting and Hot works* Hot works should be confined to open areas away from any trench or excavation. Should hot works must be carried out in trenches or confined space, "permit to work" procedures should be followed.	Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓
14.12.2	-	*Safety Measures – Enclosed Spaces* Site offices or buildings located within PPV Landfill Consultation Zone which have the capacity to accumulate landfill gas, then they should either be located in an area which has been proven to be free of landfill gas; or be raised clear of the ground by a minimum of 500mm.	Site office, building, tunnel, subway, confined area / Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓
14.12.2	-	*Safety Measures – Electrical Equipment* Any electrical equipment, such as motors and extension cords, should be intrinsically safe.	Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓
14.12.2	-	*Safety Measures – Piping* During piping assembly or conduiting construction, all valves/seals should be closed immediately after installation. As construction progresses, all valves/seals should be closed as installed to prevent the migration of gases through the pipeline/conduit. All piping/conduiting should be capped at the end of	Services & utilities / Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓

		each working day.							
14.12.2	-	*Safety Measures – Fire Safety* Adequate fire safety equipments should be provided on site. Workers and visitors should be notified of the potential fire hazards. Safety notices should be posted around the site warning the anger and potential hazards.	Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓
14.12.1	-	*Safety Measures – Confined Spaces* Precautionary measures should include ensuring that staff members are aware of the potential hazards of working in confined spaces, and that appropriate monitoring procedures are in place to prevent hazards in confined spaces.	Confined space / Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		N/A
14.12.1	-	*Monitoring* Periodically during ground-works within the Consultation Zone, the works area should be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. Depending on the results of the measurements, actions required will vary. As a minimum these should encompass those actions specified in Table 14.8 of the EIA Report or Table 14.1 of the EM&A Manual.	Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		N/A

Landscape and Visual

EIA reference	EM&A Manual reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
10.9	7.6	Existing trees on boundary of the Project Area shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees,	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A

		including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage) (CM1)							
10.9	7.6	Trees unavoidably affected by the works shall be transplanted where practical. Trees will be transplanted straight to their final receptor site and not held in a temporary nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme (CM2)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Hillside and roadside screen planting to proposed roads, associated structures and slope works (CM3)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone) (CM4)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works (CM5)	All areas/detailed design/ during Construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Control night-time lighting and glare by hooding all lights (CM6)	All areas/detailed design/ during Construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Ensure no run-off into water body adjacent to the Project Area (CM7)	All areas/detailed design/ during Construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Avoidance of excessive height and bulk of buildings and structures (CM8)	All areas/detailed design/ during Construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Recycle/Reuse all felled trees and vegetation, e.g. mulching (CM9)	All areas/detailed design/ during Construction	Design Consultant/ Contractor	TMEIA	Y	Y		N/A
10.9	7.6	Compensatory tree planting shall be provided to the satisfaction of relevant Government departments.	All areas/detailed design/ during	Design Consultant/	TMEIA	Y	Y		✓

		Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006 (CM10)	Construction	Contractor					
10.9	7.6	Re-vegetation of affected woodland/shrubland with native species (OM1)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	✓* maintenance agent : HyD
10.9	7.6	Tall buffer screen tree / shrub / climber planting where appropriate should be incorporated to soften hard engineering structures and facilities (OM2)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	✓* maintenance agent : HyD & LCSD
10.9	7.6	Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context, and minimises potential negative landscape and visual impacts. Lighting units should be directional and minimize unnecessary light spill (OM3)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	✓* maintenance agent : HyD
10.9	7.6	Structure, ornamental tree / shrub / climber planting should be provided along roadside amenity strips, central dividers and newly formed slopes to enhance the townscape quality and further greenery enhancement (OM4)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	✓* maintenance agent : HyD & LCSD
10.9	7.6	Aesthetically pleasing design (visually unobtrusive and non-reflective) as regard to the form, material and finishes shall be incorporated to all buildings, engineering structures and associated infrastructure facilities (OM5)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	✓* maintenance agent : HyD & ArchSD
10.9	7.6	Avoidance of excessive height and bulk of buildings and structures (OM6)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	✓* maintenance agent : HyD & ArchSD
Waste									
EIA reference	**EM&A Manual**	**Environmental Protection Measures**	**Location/ Timing**	**Implementation Agent**	**Relevant Standard or**	**Implementation Stages**			**Status**

	reference				Requirement	D	C	O	
12.6		The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation	Contractor	TMEIA		Y		✓
12.6		The Contractor shall prepare and implement a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. A recording system for the amount of waste generated, recycled and disposed (locations) should be established.	Contract mobilisation	Contractor	TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material		Y		✓
12.6		The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation	Contractor	TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste	Contract mobilisation	Contractor	TMEIA		Y		✓

		management procedures including waste reduction, reuse and recycling							
12.6	8.1	The extent of cutting operation should be optimised where possible. Earth retaining structures and bored pile walls should be proposed to minimize the extent of cutting.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Inert C&D materials from the toll plaza cut slopes shall be reused for construction of the raised platform for the toll plaza where possible.	Tol Plaza / toll plaza construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The site and surroundings shall be kept tidy and litter free.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	No waste shall be burnt on site.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The Contractor shall be prohibited from disposing of C&D materials at any sensitive locations. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust/ surface run off.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage and dust generation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Standard formwork or pre-fabrication should be used as far as practicable so as to minimise the C&D materials arising. The use of more durable formwork/ plastic facing for construction works should be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction	All areas / throughout construction period	Contractor	TMEIA		Y		✓

		materials should avoid over-ordering and wastage.							
12.6	8.1	The Contractor should recycle as many C&D materials (this is a waste section) as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	All falsework will be steel instead of wood.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows: • suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed; • Having a capacity of <450L unless the specifications have been approved by the EPD; and • Displaying a label in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations. • Clearly labelled and used solely for the storage of chemical wastes; • Enclosed with at least 3 sides; • Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest; • Adequate ventilation;	All areas / throughout construction period	Contractor	TMEIA		Y		✓

		• Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and • Incompatible materials are adequately separated.							
12.6	8.1	Waste oils, chemicals or solvents shall not be disposed of to drain,	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Night soil should be regularly collected by licensed collectors.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes. Sufficient dustbins shall be provided for storage of waste as required under the Public Cleansing and Prevention of Nuisances By-laws. In addition, general refuse shall be cleared daily and shall be disposed of to the nearest licensed landfill or refuse transfer station. Burning of refuse on construction sites is prohibited.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	All waste containers shall be in a secure area on hardstanding;	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated. Waste separation facilities for paper, aluminum cans, plastic bottles, etc should be provided on-site.	Site Offices/ throughout construction period	Contractor	TMEIA		Y		✓
12.6	Section 8	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the	All areas / throughout construction period	Contractor	EM&A Manual		Y		✓

		site audit programme shall be undertaken.							
Water Quality									
EIA reference	**EM&A Manual reference**	**Environmental Protection Measures**	**Location/ Timing**	**Implementation Agent**	**Relevant Standard or Requirement**	**Implementation Stages**			**Status**
						D	**C**	**O**	
Land Works									
6.10	-	Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Sewage effluent and discharges from onsite kitchen facilities shall be directed to Government sewer in accordance with the Requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Temporary access roads should be surfaced with crushed stone or gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓

6.10	-	Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	5.8	Manholes (including any newly constructed ones) should 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.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	All vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	The Contractor shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.	All areas/ throughout construction period	Contractor	TM-EIAO Waste Disposal Ordinance		Y		✓

6.10	-	All fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		△
6.10	Section 5	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	All areas/ throughout construction period	Contractor	EM&A Manual		Y		✓

Remarks:

✓	Compliance of Mitigation Measures
< >	Compliance of Mitigation Measures but need improvement.
×	Non-compliance of Mitigation Measures
▲	Non-compliance of Mitigation Measures but rectified by Contractor
△	Deficiency of Mitigation Measures but rectified by Contractor
N/A	Not Applicable in Reporting Period
#	Amended against condition 3.13 of EP-354/2009/C
*	In Progress and subject to approved L&V Plan

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

Appendix N

Cumulative Statistics on Exceedance and Complaint

Table N-1 Statistical Summary of Environmental Exceedance

Reporting Period	Environmental Aspect / Parameter	Environmental Performance	Event Exceedance	
			Reporting Period	Cumulative since contract commencement
November 2020	Air Quality – 1-hour TSP	Action Level	**3**	**93**
		Limit Level	**1**	**13**
	Air Quality – 24-hour TSP	Action Level	**2**	**7**
		Limit Level	0	**3**

Table N-2 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics					
	Frequency	Cumulative	Complaint Nature			
			Air	Noise	Water	Others
November 2020	0	**11**	**4**	**1**	**6**	**2**
Cumulative since contract commencement	**11**	**11**	**4**	**1**	**6**	**2**

Table N-3 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics				
	Frequency	Cumulative	Complaint Nature		
			Air	Noise	Water
November 2020	0	0	NA	NA	NA
Cumulative since contract commencement	0	0	NA	NA	NA

Table N-4 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics				
	Frequency	Cumulative	Complaint Nature		
			Air	Noise	Water
November 2020	0	0	NA	NA	NA
Cumulative since contract commencement	0	0	NA	NA	NA

Appendix O

Investigation Report for the Complaint

(Not Use)

Appendix P

Inspection Checklist for Vulnerable to Contaminated Water Discharge

(Not Use)