

**Civil Engineering and Development Department**

**Contract No. ED/2018/04**

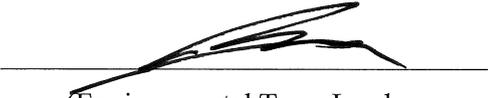
**Trunk Road T2 and Infrastructure Works for  
Developments at the Former South Apron**

**Quarterly Environmental Monitoring and Audit  
Report**

**(under EP-458/2013/C)**

August 2023 - October 2023

(Version 1)

Approved By   
(Environmental Team Leader:  
Mr. KS Lee)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties

**CINOTECH CONSULTANTS LTD**

Room 1710, Technology Park,  
18 On Lai Street,

Shatin, NT, Hong Kong

Tel: (852) 2151 2083 Fax: (852) 3107 1388

Email: [info@cinotech.com.hk](mailto:info@cinotech.com.hk)

Ref.: CEDKTD2EM00\_0\_0507L.23

14 November 2023

Hyder-Meinhardt Joint Venture  
1605-12, 16/F., Two Harbour Square  
180 Wai Yip Street, Kwun Tong  
Kowloon, Hong Kong

By Post and Email

Attention: Mr. Edwin Ching

Dear Mr. Ching,

**Re: Agreement No. EDO 01/2019  
Independent Environmental Checker for  
Contract No. ED/2018/04 – Trunk Road T2 and Infrastructure Works for  
Developments at the Former South Apron  
(Environmental Permit: EP-458/2013/C)**

**Quarterly EM&A Summary Report (August 2023 to October 2023)**

Reference is made to the Environmental Team's submission of the Quarterly EM&A Summary Report for August 2023 to October 2023 (Version 1) certified by the ET Leader and provided to us via email on 14 November 2023.

We are pleased to inform you that we have no adverse comment on the captioned submission.

Thank you for your attention. Please do not hesitate to contact the undersigned should you have any queries.

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



Y H Hui  
Independent Environmental Checker

c.c.	CEDD	Attn.: Mr. Tommy Wong	Fax: 2739 0076
	BTP	Attn.: Mr. Ivan Chau	By email
	Cinotech	Attn.: Mr. K. S. Lee	Fax: 3107 1388

Q:\Projects\CEDKTD2EM00\02 Proj\_Mgt\02 Corr\CEDKTD2EM00\_0\_0507L.23.doc

## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	1
Introduction.....	1
Summary of Main Works Undertaken and Key Measures Implemented.....	1
Environmental Monitoring Works.....	1
Summary of Complaint, Warning, Notification of Summons and Successful Prosecution ....	3
Reporting Changes in the Reporting Quarter .....	3
<b>1. INTRODUCTION .....</b>	<b>4</b>
Background.....	4
Purpose of the Report .....	5
Project Organizations.....	5
Construction Activities undertaken during the Report Quarter .....	6
<b>2. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS.....</b>	<b>6</b>
Monitoring Parameters and Monitoring Locations.....	7
Monitoring Methodology and Calibration Details .....	7
Environmental Quality Performance Limits (Action and Limit Levels).....	7
Implementation Status of Environmental Mitigation Measures .....	7
Site Audit Summary .....	7
Status of Waste Management .....	7
<b>3. MONITORING RESULTS.....</b>	<b>8</b>
Weather Conditions .....	8
Air Quality .....	8
Construction Noise .....	8
Water Quality.....	8
Ecological Monitoring .....	9
Monitoring on Cultural Heritage .....	9
Landscape and Visual Monitoring and Audit.....	9
Landfill Gas Monitoring .....	9
Waste Management .....	10
Fisheries .....	10
Influencing Factors on the Monitoring Results .....	10
<b>4. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS).....</b>	<b>11</b>
Summary of Exceedances.....	11
Summary of Environmental Complaints and Prosecutions .....	11
<b>5. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>12</b>
Review of Monitoring Methodology and the Practicality and Effectiveness of EM&A Programme.....	12
Effectiveness of Mitigation Measures .....	12
Recommendations.....	12

## **LIST OF TABLE**

Table I	Summary Table for Non-compliance Recorded in the Reporting Quarter
Table II	Summary Table for Key Information in the Reporting Quarter
Table 1.1	Key Project Contacts
Table 3.1	Summary of Weather Conditions in the Reporting Period
Table 3.2	Major Dust Sources during the Monitoring in the Reporting Period
Table 3.3	Major Noise Sources during the Monitoring in the Reporting Period

## **LIST OF FIGURES**

Figure 1	Site Layout Plan
Figure 1.2	Project Organisation for Environmental Monitoring and Audit
Figure 2	Locations of Air Quality and Construction Noise Monitoring Stations

## **LIST OF APPENDICES**

A	Monitoring Requirements
B	Action and Limit Levels
C	Graphical Presentation of Air Quality Monitoring Results
D	Graphical Presentation of Noise Monitoring Results
E	Graphical Presentation of Landfill Gas Monitoring Results ( <i>Not used</i> )
F	Site Audit Summary
G	Environmental Mitigation Implementation Schedule (EMIS)
H	Waste Generated Quantity
I	Summary of Exceedances
J	Summaries of Environmental Complaint, Warning, Summon and Notification of Successful Prosecution
K	Event and Action Plan
L	Construction Programme

## EXECUTIVE SUMMARY

### Introduction

1. This is the 14<sup>th</sup> Quarterly Environmental Monitoring and Audit (EM&A) Report prepared by the Environmental Team (ET), Cinotech Consultants Ltd., for “Trunk Road T2 and Infrastructure Works at the Former South Apron”. This report summarized the monitoring results and audits findings of the EM&A programme under the issued Environmental Permit (EP) No. EP-458/2013/C and in accordance with the EM&A Manual (AEIAR-173/2013) during the reporting period from August 2023 to October 2023.

### Summary of Main Works Undertaken and Key Measures Implemented

2. The construction activities undertaken in the reporting quarter were as follows:

#### *August 2023*

- East Bound – RC Structure Construction.
- East Ventilation Building – RC Structure
- West Bound – RC Structure Construction, Pilot Tunnel Excavation

#### *September 2023*

- East Bound – RC Structure Construction, Lining.
- East Ventilation Building – RC Structure.
- West Bound – RC Structure Construction, Pilot Tunnel Excavation, Lining.

#### *October 2023*

- East Bound – RC Structure Construction, Lining
- East Ventilation Building – RC Structure.
- West Bound – RC Structure Construction, Pilot Tunnel Excavation, Lining

3. Implementation of the key mitigation measures during the reporting period are as follows:

#### *Construction Noise*

- Construction activities were scheduled to minimize noise nuisance to the nearby sensitive receiver.
- Use of Quality Powered Mechanical Equipment (QPME) on site.
- Erected the noise barrier on site.

#### *Air Quality*

- Regularly watering on site to avoid dust generation.

#### *Landscape and Visual*

- Tree protection zones were fenced off to protect the existing trees on site.

### Environmental Monitoring Works

4. Environmental monitoring for the Project was performed in accordance with the EM&A Manual and the monitoring results were checked and reviewed. Site Inspections/Audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

5. Summary of the non-compliance in the reporting quarter for the Project is tabulated in **Table I**. Details of the environmental monitoring results is presented in **Section 3**.

**Table I Non-compliance (Exceedance) Record for the Project in the Reporting Quarter**

Parameter	No. of Exceedance		No. of Exceedance due to Construction Activities of this Project		Action Taken
	Action Level	Limit Level	Action Level	Limit Level	
<b>August 2023</b>					
Air Quality	0	0	0	0	N/A
Noise	2	0	0	0	Detail refer to App J
Marine Water Quality	N/A	N/A	N/A	N/A	N/A
Groundwater Level Monitoring (Piezometer Monitoring)	N/A	N/A	N/A	N/A	N/A
Ecological	N/A	N/A	N/A	N/A	N/A
Cultural Heritage	N/A	N/A	N/A	N/A	N/A
Landfill Gas	N/A	N/A	N/A	0	N/A
<b>September 2023</b>					
Air Quality	0	0	0	0	N/A
Noise	1	0	0	0	Detail refer to App J
Marine Water Quality	N/A	N/A	N/A	N/A	N/A
Groundwater Level Monitoring (Piezometer Monitoring)	N/A	N/A	N/A	N/A	N/A
Ecological	N/A	N/A	N/A	N/A	N/A
Cultural Heritage	N/A	N/A	N/A	N/A	N/A
Landfill Gas	N/A	N/A	N/A	0	N/A
<b>October 2023</b>					
Air Quality	0	0	0	0	N/A
Noise	0	0	0	0	N/A
Marine Water Quality	N/A	N/A	N/A	N/A	N/A
Groundwater Level Monitoring (Piezometer Monitoring)	N/A	N/A	N/A	N/A	N/A
Ecological	N/A	N/A	N/A	N/A	N/A
Cultural Heritage	N/A	N/A	N/A	N/A	N/A
Landfill Gas	N/A	N/A	N/A	0	N/A

Note:

N/A - Not Applicable.

**Summary of Complaint, Warning, Notification of Summons and Successful Prosecution**

6. Summary of key information in the reporting quarter is tabulated in **Table II**.

**Table II Summary Table for Key Information in the Reporting Quarter**

Event	Event Details		Action Taken	Status
	Number	Nature		
Complaints Received	3	Noise	Detail refer to App J	Closed
Notifications of any summons & prosecutions received	0	---	N/A	N/A

N/A – Not Applicable

7. Environmental monitoring works for the Project are considered effective and is generating data to categorically identify the environmental impacts from the works and influencing factors in the vicinity of monitoring stations.

**Reporting Changes in the Reporting Quarter**

8. No reporting change in the reporting quarter.

## 1. INTRODUCTION

### Background

- 1.1 In 2009, Civil Engineering and Development Department (CEDD) commissioned a Kai Tak Development (KTD) – Trunk Road T2 and Infrastructure at South Apron Investigation. The assignment covers the provision of the Trunk Road T2 and its connections with the Central Kowloon Route (CKR) at the north apron area and the Tseung Kwan O – Lam Tin Tunnel (TKOLTT) to the south in the Cha Kwo Ling area.
- 1.2 The Trunk Road T2 Project is one of the designated Projects under Schedule 2 of the EIAO proposed in the KTD. CEDD submitted the Project Profile (No. PP-379/2009) on 24 March 2009 for application for an EIA study brief for the Trunk Road T2 Project under the EIAO. Accordingly, an EIA Study Brief (ESB-203/2009) for the Trunk Road T2 Project was issued on 30 April 2009. The Environmental Impact Assessment (EIA) Report for the Trunk Road T2 Project was approved under the Environmental Impact Assessment Ordinance (EIAO) on 19 September 2013. The corresponding Environmental Permit (EP) was issued on 19 September 2013 (EP no.: EP-451/2013).
- 1.3 The Contract No. ED/2018/04 is the main contract of Trunk Road T2 (“T2 Main Works”) which comprises mainly the design and construction of a dual two-lane trunk road of approximately 3.0km long with about 2.7km of the trunk road in form of tunnel; ventilation and administration buildings, environmental protection and mitigation works and etc. The EM&A programme under this Contract is governed by the two EPs (EP-451/2013 and EP-458/2013/C) and two EM&A Manuals (AEIAR-174/2013 and AEIAR-173/2013). The work areas of the T2 Main Works are shown in **Figure 1** and the works to be executed under this Contract and corresponding EPs are summarized as follows:

Environmental Permit	Works Description
EP-451/2013 – Trunk Road T2	<u>Trunk Road T2</u> <ul style="list-style-type: none"> <li>• Construction of highway and sub-sea tunnel connecting between Central Kowloon Route and Cha Kwo Ling Tunnel</li> <li>• Western &amp; Eastern Ventilation Buildings</li> </ul>
EP-458/2013/C – Tseung Kwan O – Lam Tin Tunnel (TKOLTT) and Associated Works	<u>Cha Kwo Ling Tunnel</u> Construction of Cha Kwo Ling Tunnel from the end of Trunk Road T2 to the TKOLTT at the Eastern Ventilation Building

### Monitoring Works in Lam Tin under EP-458/2013/C

- 1.4 Under Agreement No. CE 59/2015 (EP) – Tseung Kwan O – Lam Tin Tunnel (TKOLTT) and Associated Works, the baseline monitoring works in Lam Tin under the EM&A Manual (AEIAR-173/2013) were conducted by the Environmental Team (ET) for the Agreement No. CE 59/2015 (EP) at the approved monitoring locations, namely AM1, AM2, AM3, AM4, AM4 (A) CM1, CM2, CM3, CM4 and CM5. Impact monitoring within the Lam Tin area shall be conducted by the ET of Contract No. ED/2018/04 upon cessation of Agreement No. CE 59/2015 (EP). The data obtained from the impact monitoring works completed by the ET of Agreement No. CE 59/2015 (EP) will be adopted in this report
- 1.5 Cinotech Consultants Ltd. was designated as the Environmental Team (ET) to undertake the EM&A works for “Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron” (hereinafter called the “Project”).

### Purpose of the Report

- 1.6 This is the 14<sup>th</sup> Quarterly EM&A Summary Report summarizing the EM&A works for the Project in between August 2023 and October 2023.

### Project Organizations

- 1.7 Different parties with different levels of involvement in the project organization include:
- Permit Holder – Civil Engineering and Development Department (CEDD)
  - Supervisor Representative – Hyder-Meinhardt Joint Venture (HMJV)
  - Environmental Team (ET) – Cinotech Consultants Limited (Cinotech)
  - Independent Environmental Checker (IEC) – Ramboll Hong Kong Limited (Ramboll)
  - Contractor – Bouygues Travaux Publics (BTP)
- 1.8 The key contacts of the Project are shown in **Table 1.1**.

**Table 1.1 Key Project Contacts**

Party	Role	Contact Person	Phone No.
CEDD	Permit Holder	Mr. Wong Chi Wai, Tommy	3842 7111
HMJV	Supervisor Representative	Ms. Hazel Tang	2149 8524
Cinotech	Environmental Team	Mr. KS Lee (ETL)	2151 2091
		Ms. Karina Chan	2157 3880
Ramboll	Independent Environmental Checker	Mr. YH Hui	3465 2850
BTP	Contractor	Mr. Roy Leung	6628 2685

- 1.9 The Organizational Structure for Environmental Management is shown in **Figure 1.2**.

**Construction Activities undertaken during the Report Quarter**

1.10 The major site activities undertaken in the reporting quarter are shown as follow:

*August 2023*

- East Bound – RC Structure Construction.
- East Ventilation Building – RC Structure
- West Bound – RC Structure Construction, Pilot Tunnel Excavation

*September 2023*

- East Bound – RC Structure Construction, Lining.
- East Ventilation Building – RC Structure.
- West Bound – RC Structure Construction, Pilot Tunnel Excavation, Lining.

*October 2023*

- East Bound – RC Structure Construction, Lining
- East Ventilation Building – RC Structure.
- West Bound – RC Structure Construction, Pilot Tunnel Excavation, Lining

---

## **2. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS**

### **Monitoring Parameters and Monitoring Locations**

- 2.1 The EM&A Manual designates locations for environmental monitoring in terms of air quality, noise, and landfill gas due to the Project. The Project area and monitoring locations are depicted in **Figures 2. Appendix A** gives details of monitoring requirements.

### **Monitoring Methodology and Calibration Details**

- 2.2 Monitoring works/equipment were conducted/calibrated regularly in accordance with the EM&A Manual. Copies of calibration certificates are attached in the appendices of the corresponding Monthly EM&A Reports.

### **Environmental Quality Performance Limits (Action and Limit Levels)**

- 2.3 The environmental quality performance limits, i.e. Action and Limit Levels were derived from the baseline monitoring results. Should the measured environmental quality parameters exceed the Action/Limit Levels, the respective action plans would be implemented. The Action/Limit Levels for each environmental parameter are given in **Appendix B**.
- 2.4 Should the monitoring results of the environmental monitoring parameters at any designated monitoring stations indicate that the Action / Limit Levels are exceeded, the actions in accordance with the Event and Action Plans in **Appendix K** was carried out.

### **Implementation Status of Environmental Mitigation Measures**

- 2.5 Relevant mitigation measures as recommended in the project EIA report have been stipulated in the EM&A Manual for implementation by the Contractor. The implementation status of environmental mitigation measures (EMIS) is given in **Appendix G**.

### **Site Audit Summary**

- 2.6 During site inspections in the reporting period, no non-compliances was recorded. The observations and recommendations made during the reporting period are summarized in **Appendix F**.

### **Status of Waste Management**

- 2.7 The amount of wastes generated by the construction activities during the reporting period is shown in **Appendix H**.

**3. MONITORING RESULTS****Weather Conditions**

3.1 The weather during monitoring sessions was summarized in **Table 3.1**.

**Table 3.1 Summary of Weather Conditions in the Reporting Period**

<b>Reporting Month</b>	<b>General Weather Conditions</b>
August 2023	Sunny, Cloudy, Fine, Rainy
September 2023	Sunny, Cloudy
October 2023	Sunny, Fine

3.2 The detail of weather conditions for each individual monitoring session was presented in the corresponding monthly EM&A report.

**Air Quality**

3.3 All 1-hour TSP monitoring was conducted as scheduled in the reporting quarter. No Action/Limit Level exceedance was recorded.

3.4 All 24-hour TSP monitoring was conducted as scheduled in the reporting quarter. No Action Level exceedance was recorded in the reporting quarter. No Limit Level exceedance was recorded in the reporting quarter.

3.5 The graphical presentations of the air quality monitoring results are shown in **Appendix C**.

**Construction Noise**

3.6 All noise monitoring was conducted as scheduled in the reporting month. Three (3) Action Level exceedance were recorded in this reporting quarter and no Limit Level exceedance were recorded in this reporting quarter. The graphical presentations of the noise monitoring results are shown in **Appendix D**.

**Water Quality***Groundwater Quality*

3.7 The existing groundwater quality monitoring programme has been suspended as the monitoring results had been deemed non-representative of the impact from the project justified by two major factors: (1) influence on the monitoring results from non-project related factors, such as anthropogenic activities and natural phenomenon; and (2) large separation between the monitoring stations and works area. In addition, as no alternative locations for the groundwater quality monitoring were available, the groundwater quality monitoring has been suspended since October 2019 upon the agreement by EPD

### *Marine Water Quality*

- 3.8 According to Section 4.4.3 of EM&A Manual (AEIAR-173/2013), marine water quality impact monitoring stations is carried out during marine construction for TKOLTT reclamation. Since the construction of Cha Kwo Ling Tunnel from the end of Trunk Road T2 to the TKOLTT at the Eastern Ventilation Building does not involve reclamation, the marine water quality monitoring programme stated in Section 4.4 of the EM&A Manual (AEIAR-173/2013) is therefore not applicable to Contract No. ED/2018/04.

### *Groundwater Level Monitoring (Piezometer Monitoring)*

- 3.9 According to Section 4.1.2 of EM&A Manual (AEIAR-173/2013), daily piezometer monitoring will be carried out on a daily basis when any tunnel construction activities are carried out within +/- 50m of the piezometer gate in plan. As the construction works of Cha Kwo Ling Tunnel from the end of Trunk Road T2 to the TKOLTT at the Eastern Ventilation Building is approximately 120m away from the piezometer gate in plan, the piezometer monitoring programme stated in Section 4.2 of the EM&A Manual (AEIAR-173/2013) is therefore not applicable to Contract No. ED/2018/04

### **Ecological Monitoring**

- 3.10 Post-translocation monitoring survey is recommended in Section 6.2.5 of the EM&A Manual (AEIAR-173/2013), to audit the success of coral translocation. Since the construction of Cha Kwo Ling Tunnel from the end of Trunk Road T2 to the TKOLTT at the Eastern Ventilation Building does not involve any marine works in the concerned area mentioned in Section 6.1.2 of the EM&A Manual (AEIAR-173/2013), the post-translocation monitoring survey stated in Section 6.2.5 of the EM&A Manual (AEIAR-173/2013) is therefore not applicable to Contract No. ED/2018/04.. .

### **Monitoring on Cultural Heritage**

- 3.11 As the construction works of Cha Kwo Ling Tunnel from the end of Trunk Road T2 to the TKOLTT at the Eastern Ventilation Building are located more than 100m away from the Cha Kwo Ling Tin Hau temple, the vibration impact monitoring stated in Section 8.3.1 of the EM&A Manual (AEIAR-173/2013) is not applicable to Contract No. ED/2018/04.

### **Landscape and Visual Monitoring and Audit**

- 3.12 The implementation of landscape and visual mitigation measures was checked during the environmental site inspections. Recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in **Appendix F**.

### **Landfill Gas Monitoring**

- 3.13 Since no excavation activity for this Project was carried out within the Sai Tso Wan Landfill Consultation Zone in this reporting quarter, therefore, no landfill gas monitoring was required.

**Waste Management**

- 3.14 Site audits were carried out on a weekly basis to monitor and ensures that proper storage, transportation and disposal practices of wastes generated from this Project include inert construction and demolition (C&D) materials, non-inert C&D materials. Details of waste management data is presented in **Appendix H**.

**Fisheries**

- 3.15 According to Section 7.1.3 of EM&A Manual (AEIAR-173/2013), no specific fisheries monitoring programme is required during the construction phase.

**Influencing Factors on the Monitoring Results**

- 3.16 During the reporting period, the major dust and noise source identified at the designated monitoring stations are as follows:

**Table 3.2 Major Dust Sources during the Monitoring in the Reporting Period**

Station	Major Dust Source
AM1 – Tin Hau Temple	Road Traffic at Cha Kwo Ling Road
AM2 – Sai Tso Wan Recreation Ground	Road Traffic along Sin Fat Road
AM3 – Yau Lai Estate Bik Lai House	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
AM4 - Sitting-out Area at Cha Kwo Ling Village	Road Traffic at Cha Kwo Ling Road
AM4(B) - Cha Kwo Ling Public Cargo Working Area Administrative Office *	Road Traffic at Cha Kwo Ling Road

\*: AM4(A) is not available for conducting monitoring due to the demolition of administrative office, the relocation of monitoring station from AM4(A) to AM4(B) has been approved by EPD on 11 July 2022.

**Table 3.3 Major Noise Sources during the Monitoring in the Reporting Period**

Monitoring Stations	Locations	Major Noise Source
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
CM4	Tin Hau Temple, Cha Kwo Ling	Road Traffic at Cha Kwo Ling Road
CM5	CCC Kei Faat Primary School, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza

---

#### **4. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS)**

##### **Summary of Exceedances**

- 4.1 Environmental monitoring works were performed in the reporting period and all monitoring results were checked and reviewed. A summary of exceedances is attached in **Appendix I**.

##### *Air Quality*

- 4.2 No Action Level exceedance was recorded in the reporting quarter. No Limit Level exceedance was recorded in the reporting quarter

##### *Construction Noise*

- 4.3 Three (3) Action Level exceedance was recorded due to the documented complaint in the reporting quarter.

No Limit Level exceedance for construction noise monitoring was recorded in the reporting quarter.

##### **Review of the Reasons for and the Implications of Non-compliance**

- 4.4 During site audits in the reporting quarter, no non-compliance was recorded. Recommendations made in each individual site audit session were attached in the **Appendix F**.

##### *Landscape and Visual*

- 4.5 No non-compliance of the landscape and visual impact was recorded in the reporting quarter.

##### **Summary of Environmental Complaints and Prosecutions**

- 4.6 Three (3) environmental complaint on this Project was received in the reporting quarter.
- 4.7 No environmental warning, prosecution and notification of summons were received in the reporting quarter.

## 5. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

### **Review of Monitoring Methodology and the Practicality and Effectiveness of EM&A Programme**

The EM&A methodology has been effective in monitoring the environmental impacts of the Project and the effectiveness of the mitigation measures. The data collected were useful in determining whether the Project had caused unacceptable impacts on the sensitive receivers. Analysis of all EM&A data collected throughout the baseline and the impact periods demonstrated the environmental acceptability of the Project

### **Effectiveness of Mitigation Measures**

The mitigation measures recommended in the EIA report are considered effective in minimizing environmental impacts.

The Contractor has implemented the recommended mitigation measures except those mitigation measures not applicable at this stage.

Environmental monitoring works were performed in the reporting quarter and all monitoring results were checked and reviewed.

The summary record of non-compliance (exceedances) of Action/Limit Level for environmental monitoring in the reporting quarter has been presented in **Table I** above and in **Appendix I**.

Three (3) environmental complaint was received in the reporting quarter. The details were attached in the **Appendix J**.

No warning, notification of summon and environmental prosecution was received in the reporting quarter. The details were attached in the **Appendix J**.

### **Recommendations**

Joint weekly site audits by the representatives of the Engineer, Contractor and the ET were conducted in the reporting quarter. The following recommendations was made to the Contractor for the coming reporting month:

#### *Air quality:*

- The valid NRMM label should be displayed on the machinery.
- Water spraying should be applied when conducting dust-generating activities.

#### *Noise:*

- The noise barriers should erected properly in the construction site.

#### *Water quality:*

- Regular clean the stagnant water on the drip tray after raining to avoid water ponding
- The stagnant water in the tray should be removed regularly, make sure the

drainage system should be well maintenance and avoid water ponding.

*Waste / Chemical Management*

- Drip tray should be provided for the chemical containers to avoid chemical leakage.

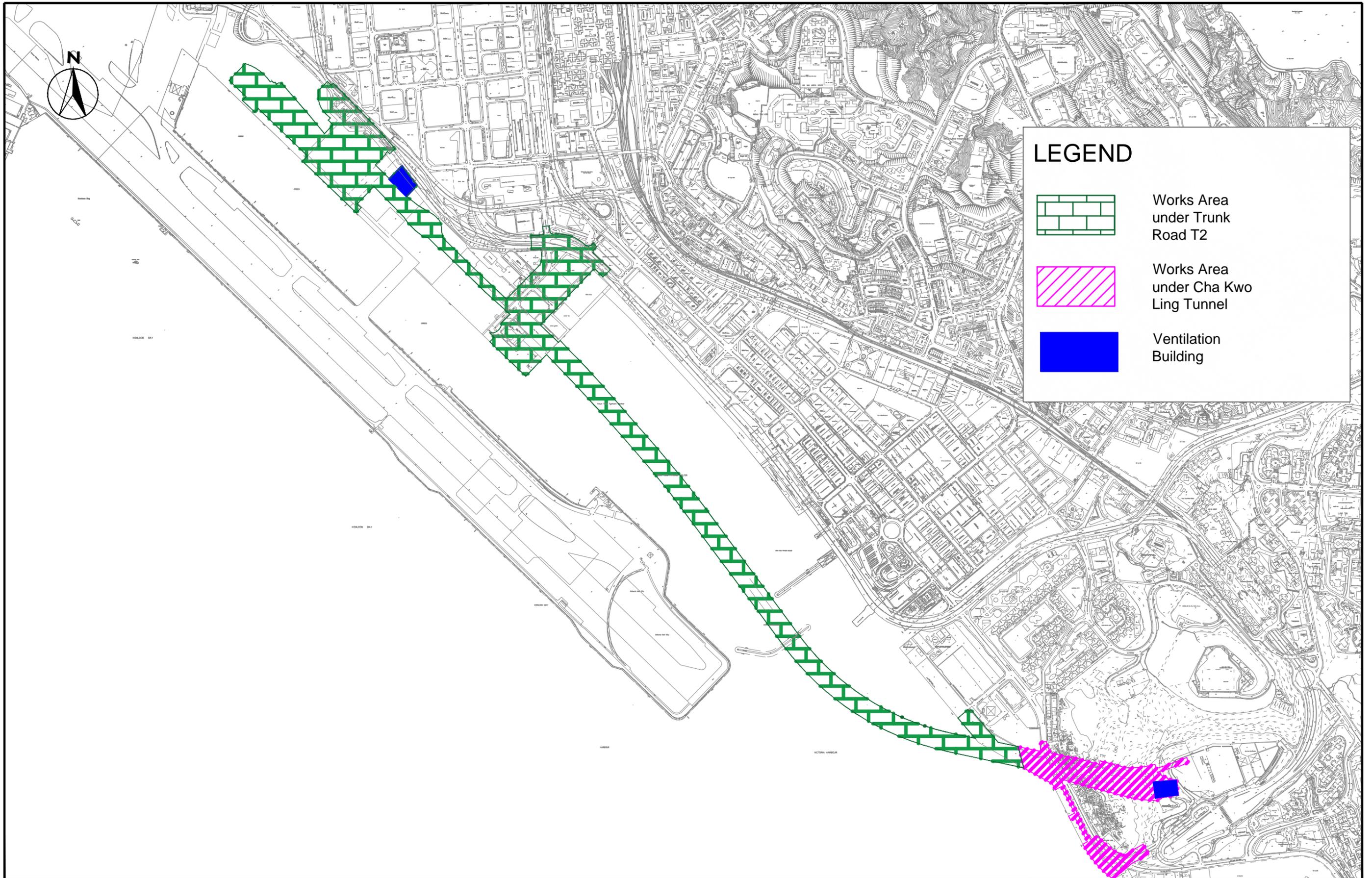
---

---

## FIGURES

---

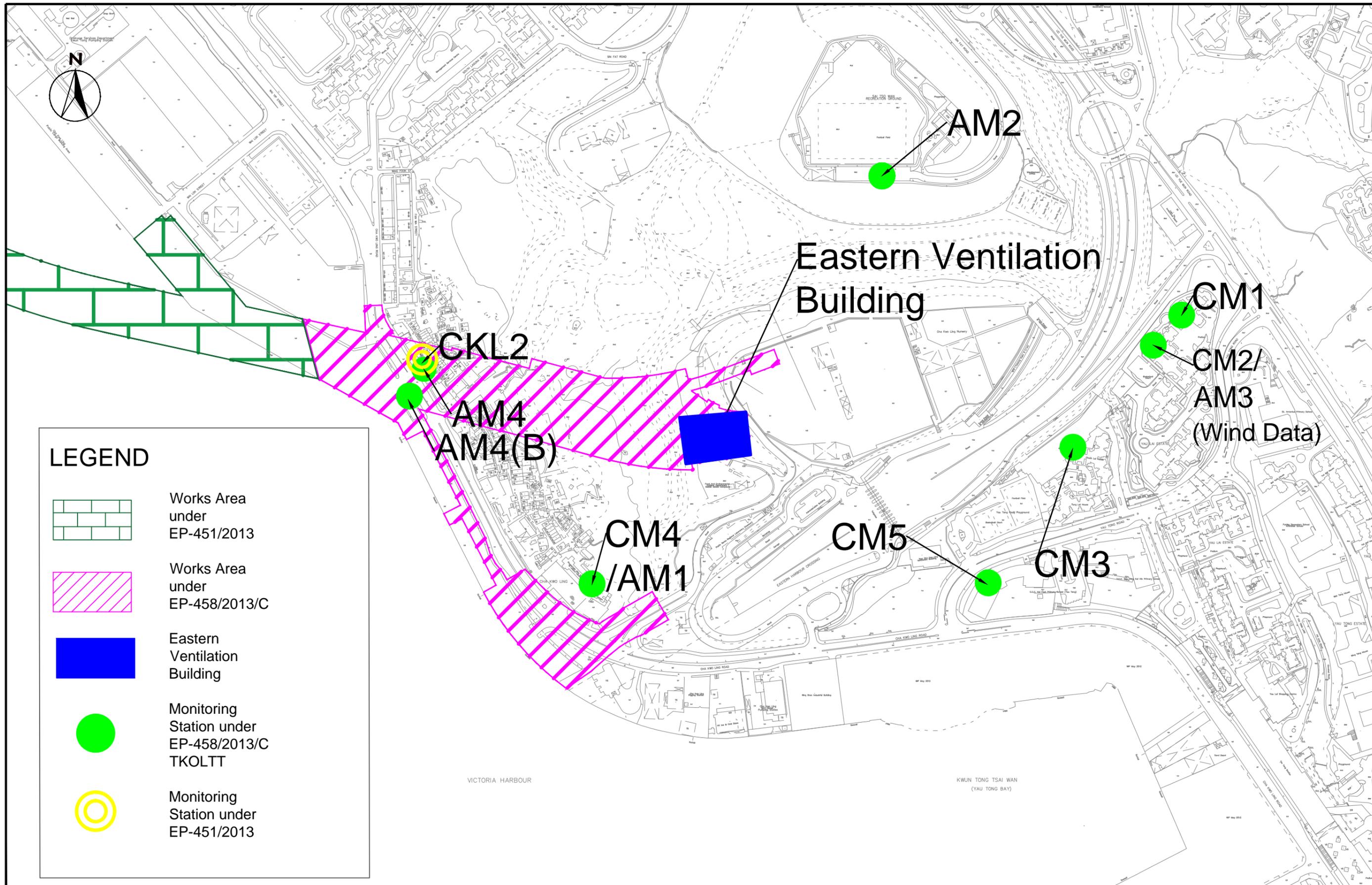
---



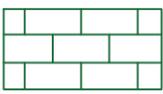
**LEGEND**

-  Works Area under Trunk Road T2
-  Works Area under Cha Kwo Ling Tunnel
-  Ventilation Building

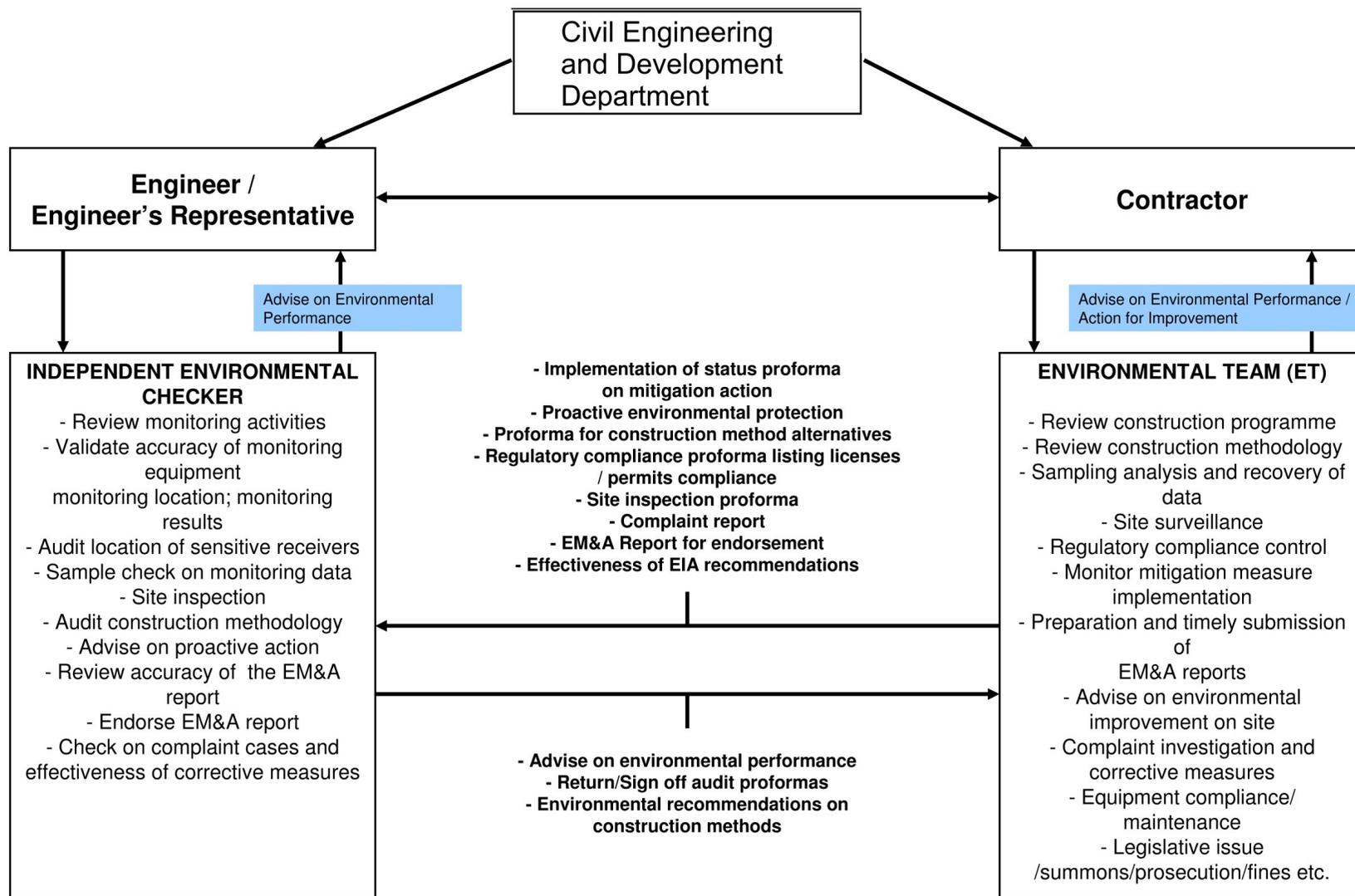
SCALE	1:10000@A3	DATE	March 20
CHECK	KC	DRAWN	TL
JOB No.	MA20003	FIGURE No.	Fig 1
		REV	-



**LEGEND**

-  Works Area under EP-451/2013
-  Works Area under EP-458/2013/C
-  Eastern Ventilation Building
-  Monitoring Station under EP-458/2013/C TKOLTT
-  Monitoring Station under EP-451/2013

SCALE	1:4000@A3	DATE	Jul 22
CHECK	KC	DRAWN	TL
JOB No.	MA20003	FIGURE No.	Fig 2b
		REV	-



PLOT.DWG: K:\91164 Trunk Road T2\Cad Admin\A3\_colour.plt  
 PRINTED BY: JACOB  
 1/17/2013 10:53:36 AM

Drawing title			Original Size	A3	Scale	N.T.S	Date	18/JAN/2013
PROJECT ORGANISATION AND LINES OF COMMUNICATION			© Copyright reserved		Drawing No.		FIGURE 1.2	
Rev.	Description	Date				Rev.		-

---

---

**APPENDIX A**  
**MONITORING REQUIREMENTS**

---

---

## Appendix A - Environmental Impact Monitoring Requirements

**Table I – Air Quality Monitoring**

Type of Monitoring	Parameter	Frequency	Location	Measurement Conditions
Air Quality	1 hour TSP	Three times / 6 days	<ul style="list-style-type: none"> <li>• AM1 – Tin Hau Temple</li> <li>• AM2 – Sai Tso Wan Recreation Ground</li> <li>• AM3 – Yau Lai Estate Bik Lai House</li> <li>• AM4<sup>(1)</sup> – Sitting-out Area at Cha Kwo Ling Village</li> <li>• AM4(B)<sup>(2)(*)(**)</sup> – Flat 103 Cha Kwo Ling Village</li> </ul>	<ul style="list-style-type: none"> <li>• AM1 – Ground Level</li> <li>• AM2 – Ground Level</li> <li>• AM3 – Rooftop (41/F)</li> <li>• AM4<sup>(1)</sup> – Ground Level</li> <li>• AM4(B)<sup>(2)(**)</sup> – Ground Level</li> </ul>
	24 hour TSP	Once / 6 days		

Remarks: (1) For 1-hour TSP monitoring; (2) For 24-hour TSP monitoring

(\*) Air quality monitoring at designated station AM4(24-hr TSP) was rejected by the premise owners. Therefore, baseline and impact air quality monitoring works were carried out at alternative air quality monitoring stations AM4(A) (24-hr TSP only).

(\*\*)AM4(A) is not available for conducting monitoring due to the demolition of administrative office. EPD had been approved the relocation of monitoring station from AM4(A) to AM4(B).

Detail refer to E.S.8 of this report.

**Table II – Noise Monitoring**

Type of Monitoring	Parameter	Frequency	Location	Measurement Conditions
Construction Noise	L <sub>eq</sub> , L <sub>90</sub> & L <sub>10</sub> at 30 minute intervals during 0700 to 1900 on normal weekdays	Once per week	<ul style="list-style-type: none"> <li>• CM1 – Nga Lai House, Yau Lai Estate Phase 1, Yau Tong</li> <li>• CM2 – Bik Lai House, Yau Lai Estate Phase 1, Yau Tong</li> <li>• CM3 – Block S, Yau Lai Estate Phase 5, Yau Tong</li> <li>• CM4 – Tin Hau Temple, Cha Kwo Ling</li> <li>• CM5 – CCC Kei Faat Primary School, Yau Tong</li> </ul>	<ul style="list-style-type: none"> <li>• CM1 – Rooftop (41/F)</li> <li>• CM2 – Rooftop (41/F)</li> <li>• CM3 – Rooftop (40/F)</li> <li>• CM4 – Ground Level</li> <li>• CM5 – Rooftop (6/F)</li> </ul>

**Table III –Landfill Gas Monitoring**

<b>Type of Monitoring</b>	<b>Parameter</b>	<b>Frequency</b>	<b>Location</b>
Landfill Gas	Methane, Carbon dioxide and Oxygen	at least daily before starting the work of the day	<ul style="list-style-type: none"><li>• Excavation Locations</li><li>• Manholes and Chambers</li><li>• Relocation of monitoring wells</li><li>• Any other Confined Spaces</li></ul>

---

---

**APPENDIX B**  
**ACTION AND LIMIT LEVELS**

---

---

**APPENDIX B – Action and Limit Levels****Air Quality*****1-hr TSP***

Monitoring Stations	Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM1	Tin Hau Temple	275	500
AM2	Sai Tso Wan Recreation Ground	273	
AM3	Yau Lai Estate Bik Lai House	271	
AM4	Sitting-out Area at Cha Kwo Ling Village	278	

***24-hr TSP***

Monitoring Stations	Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM1	Tin Hau Temple	173	260
AM2	Sai Tso Wan Recreation Ground	192	
AM3	Yau Lai Estate Bik Lai House	167	
AM4(B)	Flat 103 Cha Kwo Ling Village	210	

**Noise**

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received from any one of the monitoring stations	75 dB(A) <sup>(1)</sup>

<sup>1</sup> 70 dB(A) for schools and 65 dB(A) for schools during examination period.

**Landfill Gas Monitoring**

Parameter	Limit Level
Oxygen	<19%
	<18%
Methane	>10% LEL (i.e. > 0.5% by volume)
	>20% LEL (i.e. > 1% by volume)
Carbon Dioxide	>0.5%
	>1.5%

---

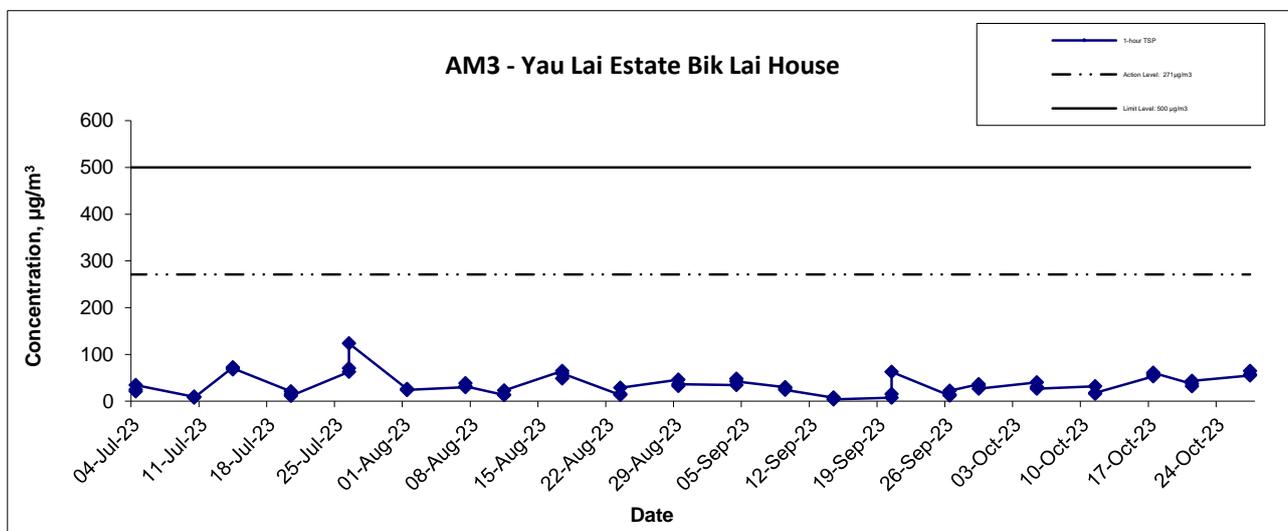
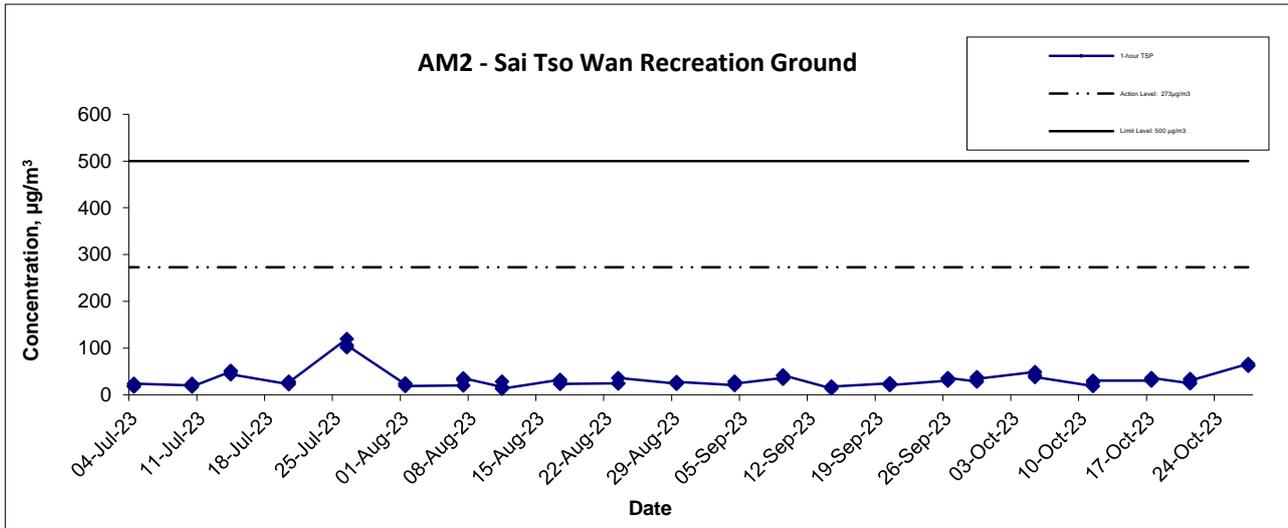
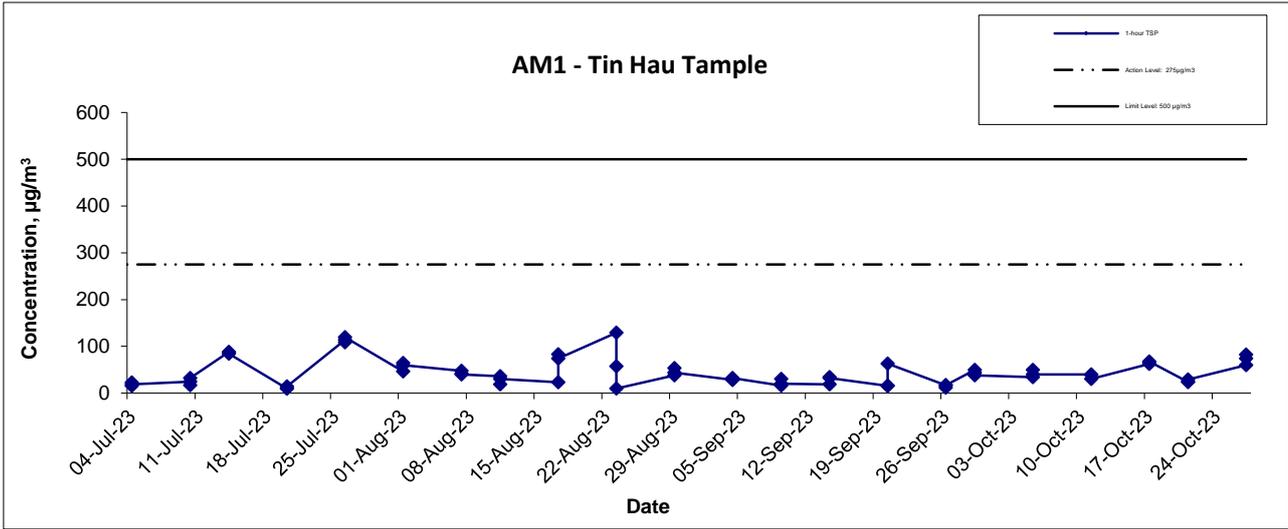
---

**APPENDIX C  
GRAPHICAL PRESENTATION OF AIR  
QUALITY MONITORING RESULTS**

---

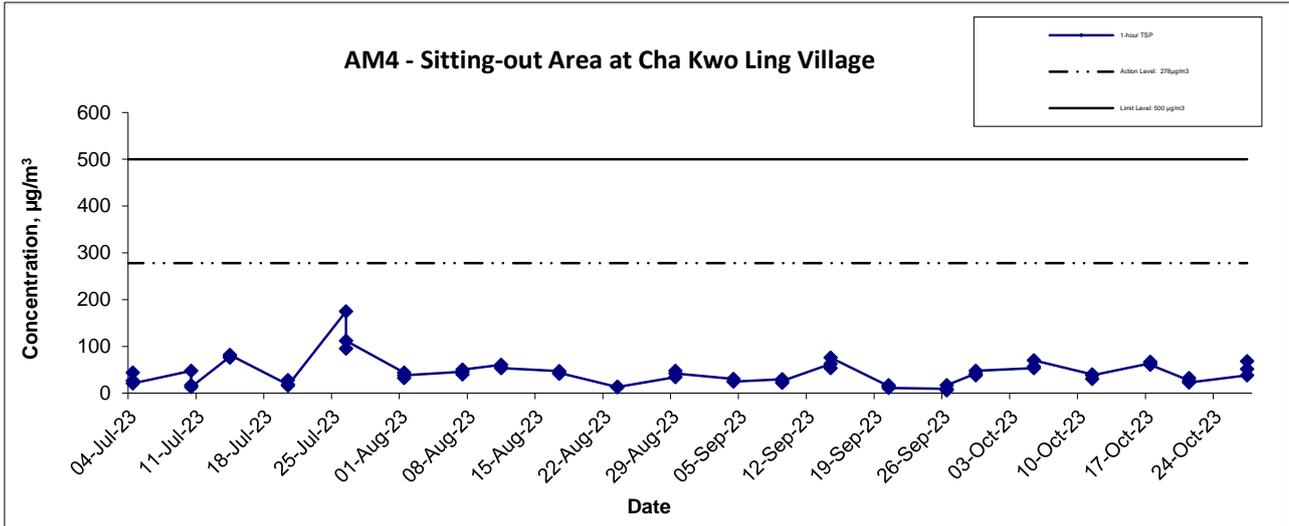
---

### 1-hr TSP Concentration Levels



Contract No. ED/2018/04 Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron  Graphical Presentation of 1-hour TSP Monitoring Results	Scale	Project No.	
	Date	Appendix	
	N.T.S	MA20003	C

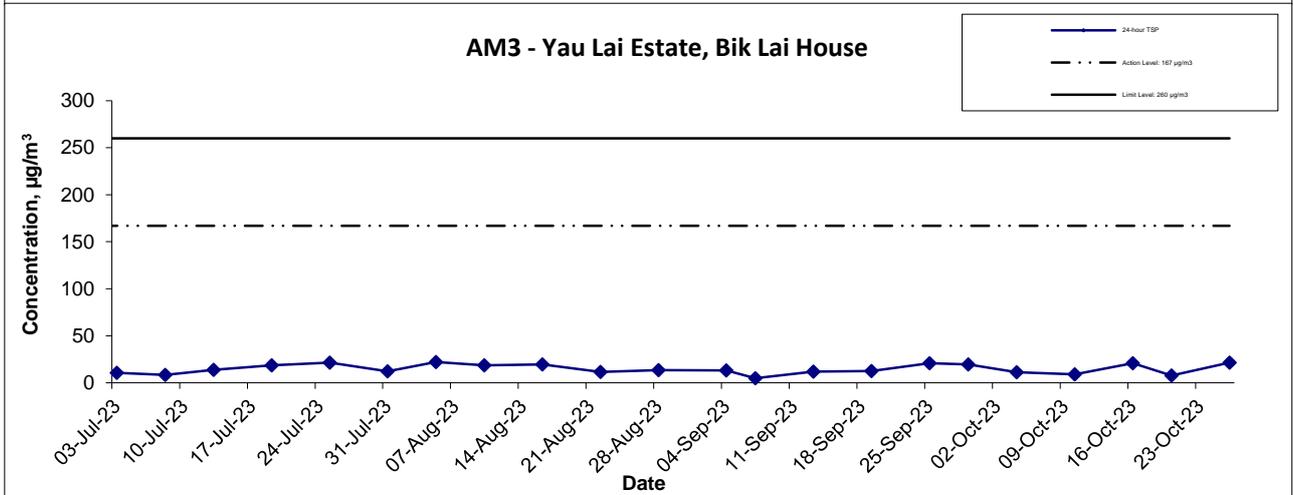
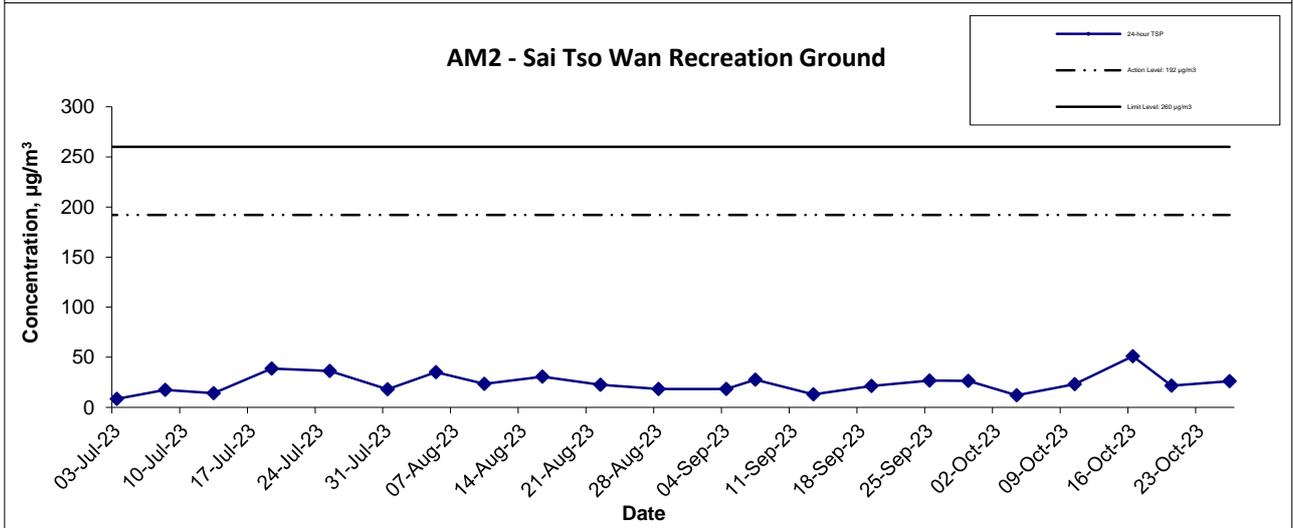
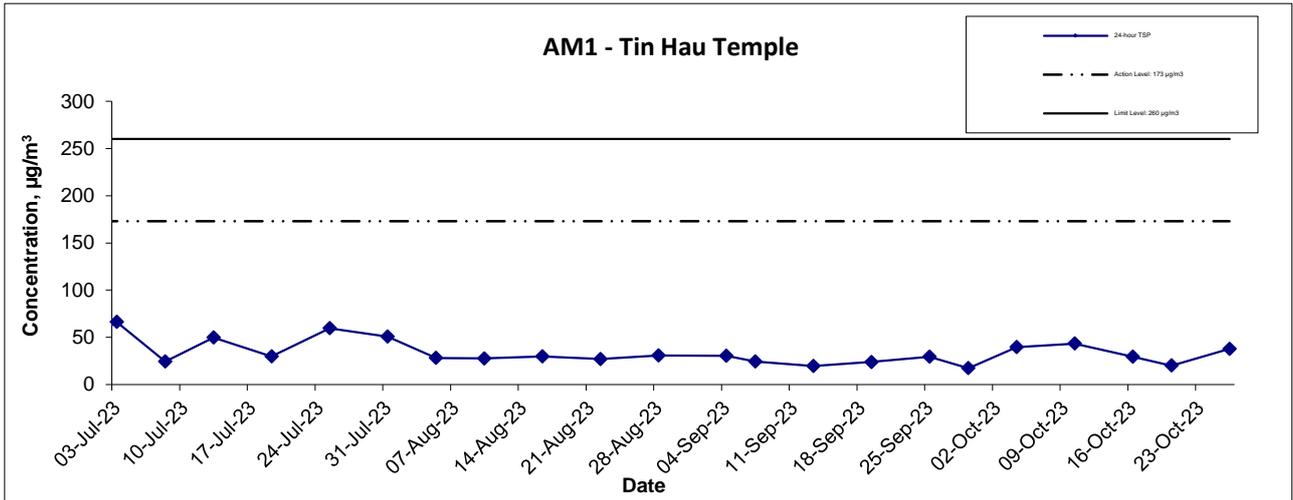
### 1-hr TSP Concentration Levels



**Notes:**

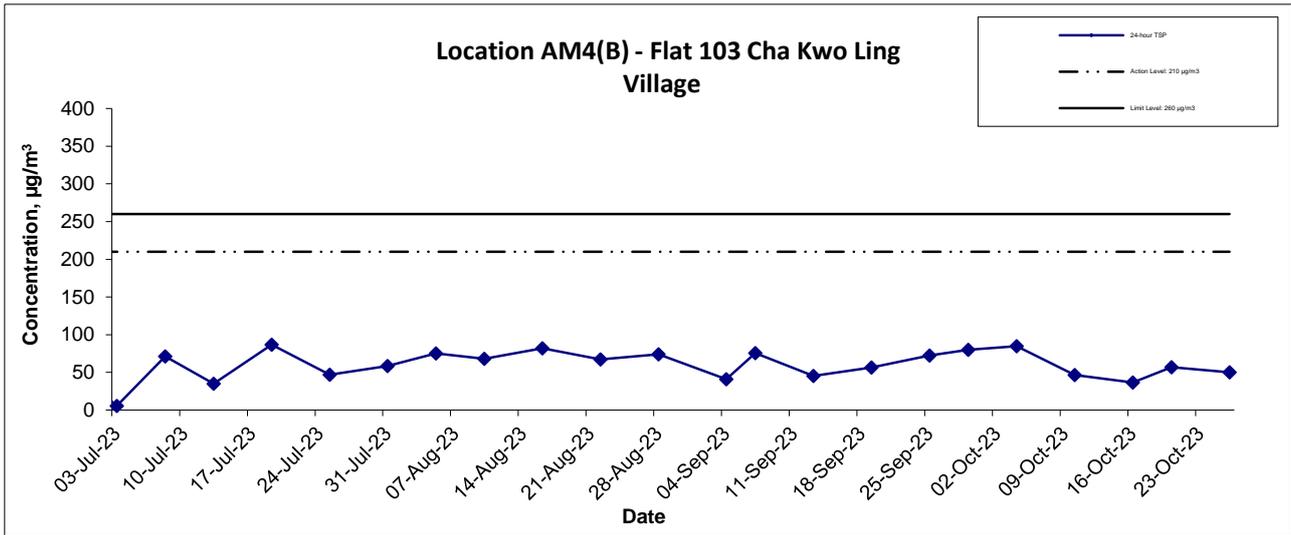
1. The major activitie(s) being carried out on site during the reporting period is/are presented in Section 1.10
2. The weather conditions during the reporting month are presented in Appendix C.
3. Other factors which might affect the monitoring results are presented in Section 2.18.

Contract No. ED/2018/04 Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron  Graphical Presentation of 1-hour TSP Monitoring Results	Scale	Project No.	
	Date	Appendix	
	N.T.S	MA20003	
	Oct-23	C	



Contract No. ED/2018/04 Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron  Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA20003	CINOTECH
	Date Oct-23	Appendix C	

### 24-hr TSP Concentration Levels



**Notes:**

- 1) The major activitie(s) being carried out on site during the reporting period is/are presented in Section 1.10
- 2) The weather conditions during the reporting month are presented in Appendix C.
- 3) Other factors which might affect the monitoring results are presented in Section 2.18.

Contract No. ED/2018/04 Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron	Scale N.T.S	Project No. MA20003	CINOTECH
Graphical Presentation of 24-hour TSP Monitoring Results	Date Oct-23	Appendix C	

---

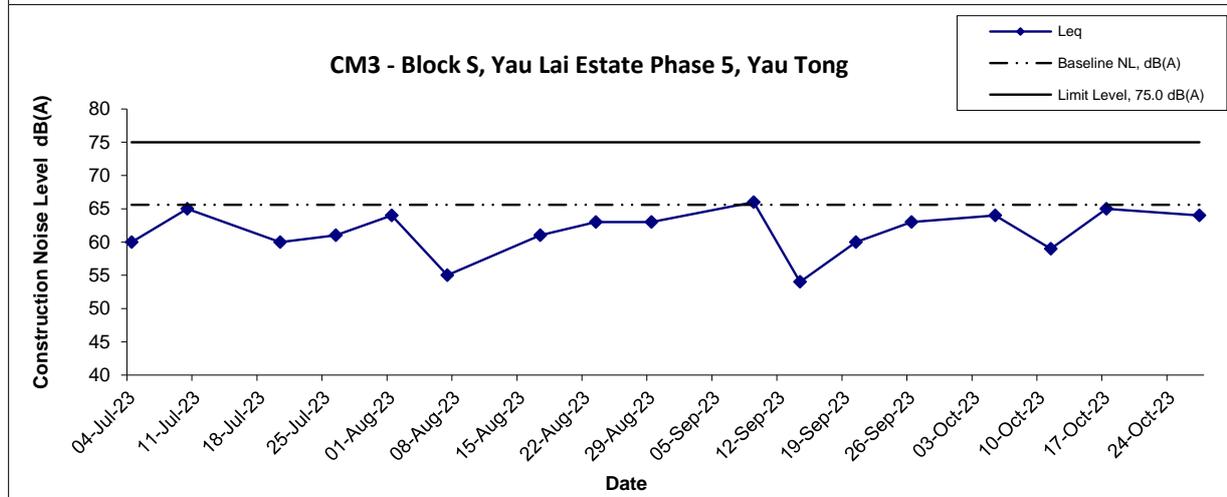
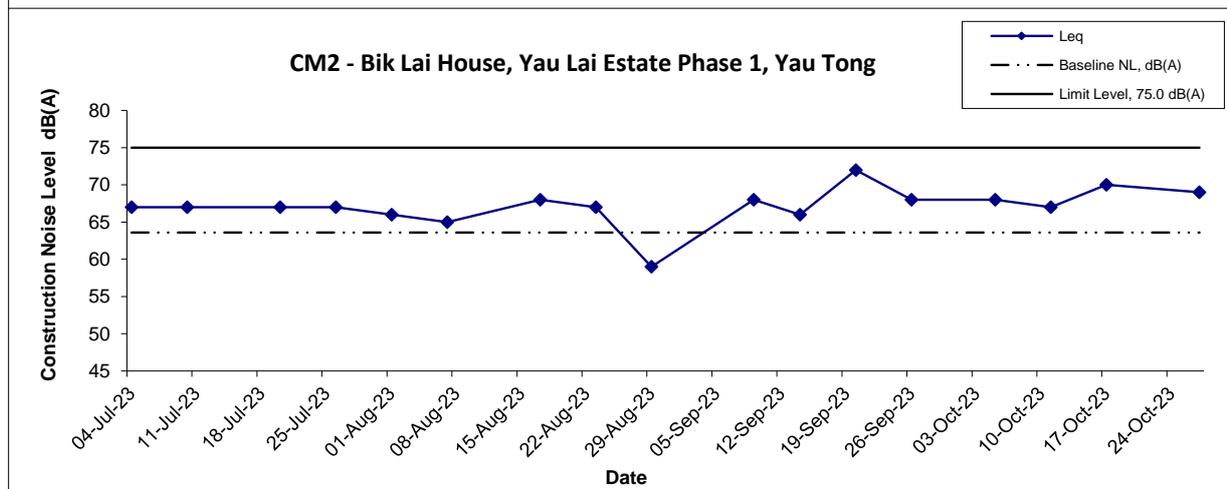
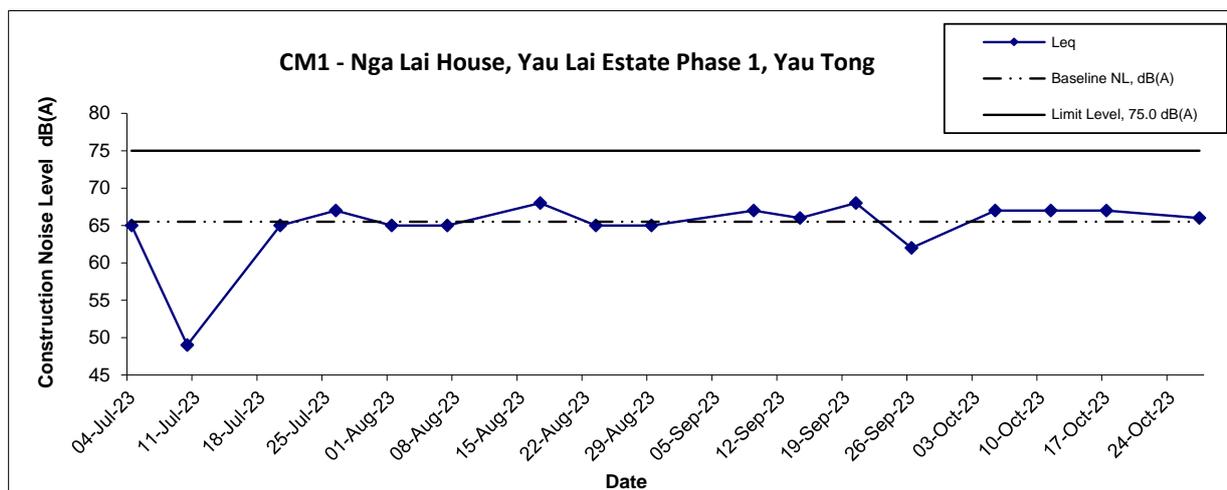
---

**APPENDIX D  
GRAPHICAL PRESENTATION OF  
NOISE MONITORING RESULTS**

---

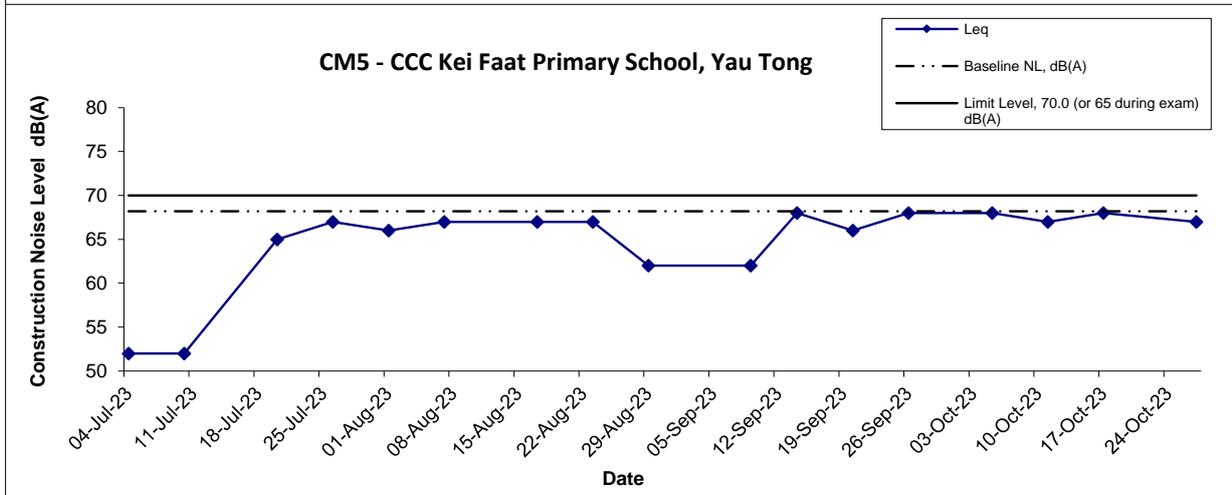
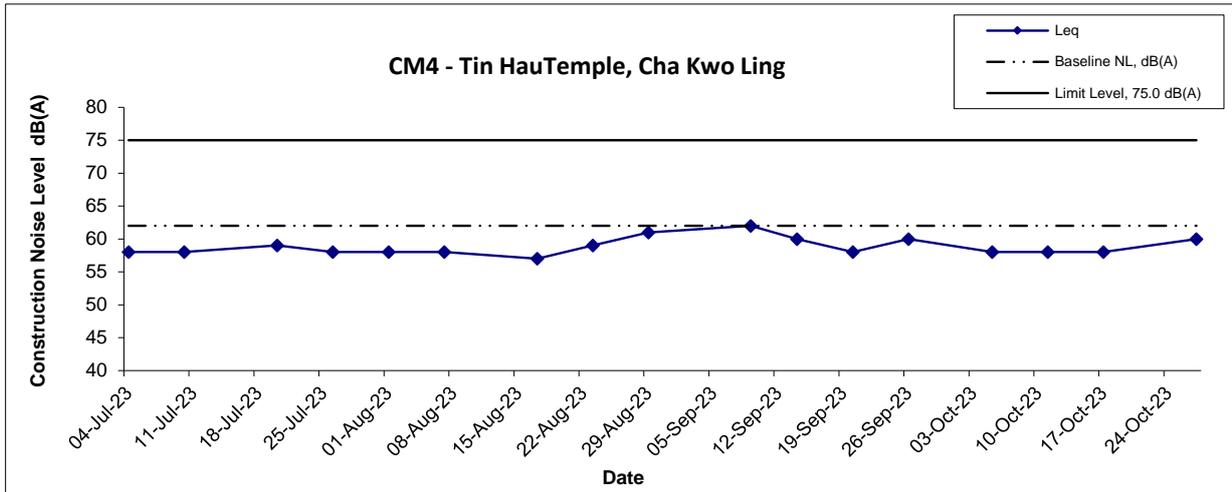
---

## Noise Levels



Title Contract No. ED/2018/04 Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron  Graphical Presentation of Construction Noise Monitoring Results	Scale	Project	CINOTECH
	N.T.S	No. MA20003	
	Date	Appendix	
	Oct 23	D	

## Noise Levels



**Notes:**

- 1) The major activitie(s) being carried out on site during the reporting period is/are presented in Section 1.10
- 2) The weather conditions during the reporting month are presented in Appendix C.
- 3) Other factors which might affect the monitoring results are presented in Section 3.13.

Title Contract No. ED/2018/04 Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron  Graphical Presentation of Construction Noise Monitoring Results	Scale	N.T.S	Project No.	MA20003	CINOTECH
	Date	Oct 23	Appendix	D	

---

---

**APPENDIX F**  
**SITE AUDIT SUMMARY**

---

---

**Contract No. ED/2018/04  
Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron  
Quarterly EM&A Report**

**Appendix F - Site Audit Summary**

**August 2023**

<b>Items</b>	<b>Date</b>	<b>Status*</b>	<b>Follow up Action</b>
<b><i>Water Quality</i></b>			
Stagnant water was observed in the tray at the site entrance.	10 Aug 2023	✓	Item was rectified on 17 Aug 2023.
<b><i>Ecology</i></b>			
--	--	--	--
<b><i>Noise</i></b>			
--	--	--	--
<b><i>Landscape and Visual</i></b>			
--	--	--	--
<b><i>Air Quality</i></b>			
The NRMM label was damaged.	17 Aug 2023	✓	Item was rectified on 24 Aug 2023.
The haul road was dried.	31 Aug 2023	#	Follow up in the next reporting month.
<b><i>Waste / Chemical Management</i></b>			
--	--	--	--
<b><i>Impact on Cultural Heritage</i></b>			
--	--	--	--
<b><i>Permits / Licenses</i></b>			
--	--	--	--

- ✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
- ✘ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
- # Follow up action will be reported in next reporting month
- \* Non-compliance of mitigation measure
- Non-compliance but improved by the contractor

Appendix F - Site Audit Summary

September 2023

Items	Date	Status*	Follow up Action
<b>Water Quality</b>			
The chemical containers were stored without the drip tray.	21 Sep 2023	✓	Item was rectified on 28 Sep 2023.
<b>Noise</b>			
--	--	--	--
<b>Landscape and Visual</b>			
--	--	--	--
<b>Air Quality</b>			
The haul road was dried.	31 Aug 2023	✓	Item was rectified on 7 Sep 2023.
The working area near the PTBM was full of dust.	7 Sep 2023	✓	Item was rectified on 14 Sep 2023.
The haul road was dried.	28 Sep 2023	#	Follow up in the next reporting month.
<b>Waste / Chemical Management</b>			
--	--	--	--
<b>Impact on Cultural Heritage</b>			
--	--	--	--
<b>Permits / Licenses</b>			
--	--	--	--

- ✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
- ✘ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
- # Follow up action will be reported in next reporting month
- \* Non-compliance of mitigation measure
- Non-compliance but rectified by the contractor

Appendix F - Site Audit Summary

October 2023

Items	Date	Status*	Follow up Action
<b>Water Quality</b>			
--	--	--	--
<b>Noise</b>			
Noise barriers is not erected properly on th steel deck.	26 Oct 2023	#	Follow up in the next reporting month.
<b>Landscape and Visual</b>			
--	--	--	--
<b>Air Quality</b>			
The haul road was dried.	28 Sep 2023	✓	Item was rectified on 5 Oct 2023.
<b>Waste / Chemical Management</b>			
The chemical containers are not stored with the drip tray.	19 Oct 2023	✓	Item was rectified on 26 Oct 2023.
The chemical containers are not stored with the drip tray.	26 Oct 2023	#	Follow up in the next reporting month
<b>Impact on Cultural Heritage</b>			
--	--	--	--
<b>Permits / Licenses</b>			
--	--	--	--

- ✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
- ✘ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
- # Follow up action will be reported in next reporting month
  
- \* Non-compliance of mitigation measure
- Non-compliance but rectified by the contractor

---

---

**APPENDIX G  
ENVIRONMENTAL MITIGATION  
IMPLEMENTATION SCHEDULE (EMIS)**

---

---

## App G - ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

Table I - Recommended Mitigation Measures stipulated in EM&A Manual for the Project

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
<b>Air Quality</b>						
S3.8.1	Watering eight times a day on active works areas, exposed areas and paved haul roads	To minimize the dust impact	Contractor	All Active Work Sites	Construction phase	APCO
S3.8.1	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall / mixing area in Work Area A, provision of water spraying and flexible dust curtains	To minimize the dust impact	Contractor	Barging Points	Construction phase	APCO
S3.8.7	<p>Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.</p> <ul style="list-style-type: none"> <li>• Use of frequent watering for particularly dusty construction areas and areas close to ASRs..</li> <li>• Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.</li> <li>• Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.</li> <li>• Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.</li> <li>• Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.</li> <li>• Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods.</li> <li>• Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit.</li> <li>• Imposition of speed controls for vehicles on site haul roads.</li> <li>• Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs</li> <li>• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.</li> <li>• Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.</li> </ul>	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation
/	<p>Emission from Vehicles and Plants</p> <ul style="list-style-type: none"> <li>• All vehicles shall be shut down in intermittent use.</li> <li>• Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.</li> <li>• All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)</li> </ul>	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	APCO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
	Valid No-road Mobile Machinery (NRMM) labels should be provided to regulated machines	Reduce air pollution emission from construction vehicles and plants	--			APCO
Noise Mitigation Plan	Use of Temporary Noise Barriers (i.e Acoustic box, SilentUp and etc.) or Full Enclosure for PME according to the approved Noise Mitigation Plan	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO
S4.9	<p><b>Good Site Practice</b></p> <ul style="list-style-type: none"> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program</li> <li>Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.</li> <li>Mobile plant, if any, should be sited as far away from NSRs as possible.</li> <li>Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.</li> <li>Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.</li> <li>Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.</li> </ul>	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO
S4.9	Scheduling of Construction Works during School Examination Period	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work site near school	Construction phase	EIAO-TM, NCO
<b>Water Quality Impact (Construction Phase)</b>						
S5.6.24	The dry density of filling material for the TKO-LT Tunnel reclamation should be 1,900kg/m <sup>3</sup> , with fine content of 25% or less	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO
S5.8.1	Non-dredged method by constructing steel cellular caisson structure with stone column shall be adopted for construction of seawall foundation. During the stone column installation (also including the installation of steel cellular caisson), silt curtain shall be employed around the active stone column installation points.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO
S5.8.2	Formation of seawall enclosing the reclamation for Road P2 (notwithstanding an opening of about 50m for marine access) shall be completed prior to the filling activities. The seawall opening of about 50m wide for marine access shall be selected at a location as indicatively shown in Appendix 5.10. No more than 3 filling barge trips per day shall be made with a maximum daily rate of 3,000m <sup>3</sup> (i.e. 1,000 m <sup>3</sup> per trip) for the filling operation at the reclamation area for Road P2. All filling works shall be carried out behind the seawall with the use of single silt curtain at the marine access.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO
Silt Curtain Deployment Plan	<ul style="list-style-type: none"> <li>Silt curtains should be deployed properly to surround the works area.</li> <li>Maintenance of silt curtain should be provided.</li> <li>Sufficient stock of silt curtain should be provided on site.</li> </ul>	Control potential impacts from marine works	Contractor	NE/2015/01	Construction stage	EIAO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S5.8.3	<p>Other good site practices should be undertaken during filling operations include:</p> <ul style="list-style-type: none"> <li>• all marine works should adopt the environmental friendly construction methods as far as practically possible including the use of cofferdams to cover the construction area to separate the construction works from the sea;</li> <li>• floating single silt curtain shall be employed for all marine works;</li> <li>• all vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</li> <li>• all hopper barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material;</li> <li>• excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved;</li> <li>• adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action;</li> <li>• loading of barges and hoppers should be controlled to prevent splashing of filling material into the surrounding water. Barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation;</li> <li>• any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;</li> <li>• construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds; and</li> <li>• before commencement of the reclamation works, the holder of Environmental Permit has to submit plans showing the phased construction of the reclamation, design and operation of the silt curtain.</li> </ul>	Control potential impacts from filling activities and marine-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal Ordinance (WDO)
S5.8.4	Site specific mitigation plan for reclamation areas using public fill materials should be submitted for EPD agreement before commencement of construction phase with due consideration of good site practices.	Control potential impacts from filling activities and marine based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
ERR S5.6.1	<p>To minimize water quality impact arising from the dredging and filling works for Reclamation for Road P2, the following mitigation measures shall be implemented:</p> <ul style="list-style-type: none"> <li>- Before carrying out any dredging and underwater filling works, a temporary barrier shall first be constructed to a height above the high water mark to completely enclose the works site (without any opening at the barrier wall)</li> <li>- The temporary barrier fully enclosing the dredging and underwater filling works site shall not be removed before completion of all dredging and underwater filling works.</li> <li>- Water quality sampling and testing shall be carried out to demonstrate that the water quality inside the enclosed barrier is comparable to the ambient or baseline levels prior to the removal of the fully enclosed barrier.</li> <li>- Silt curtains shall be deployed for the installation and removal of the temporary barrier and at the double water gates marine access opening during its operation.</li> </ul>	Control potential impacts from dredging and filling works for Reclamation for Road P2	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S5.8.5	It is important that appropriate measures are implemented to control runoff and drainage and prevent high loading of SS from entering the marine environment. Proper site management is essential to minimise surface water runoff, soil erosion and sewage effluents.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.6	Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents discharged into the corresponding WCZ under the TM-DSS.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.8	<ul style="list-style-type: none"> <li>• use of sediment traps; and</li> </ul>					
S5.8.8	<ul style="list-style-type: none"> <li>• adequate maintenance of drainage systems to prevent flooding and overflow.</li> </ul>					
S5.8.9	Construction site should be provided with adequately designed perimeter channel and pretreatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.10	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.11	Sedimentation tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m <sup>3</sup> capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.12	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.13	Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.14	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50m <sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S5.8.15	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.16	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S5.8.17	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.18	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and washwater should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheelwash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.19	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.20	It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There shall be no direct discharge of effluent from the site into the sea.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.21	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.22	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.23	Minimum distances of 100m shall be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes during construction and operational phases	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS
S5.8.24	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction, and groundwater seepage pumped out of tunnels or caverns under construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.25 - S5.8.27 & Table 5.18	Grouting would be adopted as measure to reduce the groundwater inflow into the tunnel. During the tunnel excavation, the inflow rate of groundwater into the tunnel will be measured during the excavation. The groundwater levels above the tunnel will also be monitored by piezometers. If the inflow rate exceeds the pre-determined groundwater control criteria or the groundwater drawdown exceeds the required limit, pre-excavation grouting will be required to reduce the groundwater inflow. No significant change of groundwater levels would therefore be expected. Any chemicals/ foaming agents which would be entrained to the groundwater should be biodegradable and non-toxic throughout the tunnel construction. Potential groundwater quality impact would be minimal as the used material is non-toxic and biodegradable. No adverse groundwater quality would therefore be expected. Prescriptive measures in the form of an Action Plan with pre-emptive and re-active to preserve the groundwater levels at all times during the tunnel construction are set out in Table 5.18.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, Buildings Ordinance
S5.8.28	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be recirculated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phas	ProPECC PN 1/94, EIAOTM, WPCO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S5.8.29 - S5.8.31	Wastewater generated from the washing down of mixing trucks and drum mixers and similar equipment should whenever practicable be recycled. The discharge of wastewater should be kept to a minimum. To prevent pollution from wastewater overflow, the pump sump of any water recycling system should be provided with an online standby pump of adequate capacity and with automatic alternating devices. Under normal circumstances, surplus wastewater may be discharged into foul sewers after treatment in silt removal and pH adjustment facilities (to within the pH range of 6 to 10). Disposal of wastewater into storm drains will require more elaborate treatment.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.32	All vehicles and plant should be cleaned before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.33	Bentonite slurries used in diaphragm wall and borepile construction should be reconditioned and reused wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.34	If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.35	Water used in water testing to check leakage of structures and pipes should be reused for other purposes as far as practicable. Surplus unpolluted water could be discharged into storm drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.36	Sterilization is commonly accomplished by chlorination. Specific advice from EPD should be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water should be reused wherever practicable.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.37	Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.38	Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.39	Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater should be tinkered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S5.8.40	Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewer via grease traps capable of providing at least 20 minutes retention during peak flow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.41	Drainage serving an open oil filling point should be connected to storm drains via a petrol interceptor with peak storm bypass.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.42	Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor. Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.43	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.44	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO
S5.8.45	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO
S5.8.46	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> <li>• suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport;</li> <li>• chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and</li> <li>• storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.</li> </ul>	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO
S5.8.47	Collection and removal of floating refuse should be performed at regular intervals on a daily basis. The contractor should be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Control potential impacts from floating refuse and debris	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO,
<b>Ecological Impact</b>						
	<b>Measures to Minimize Disturbance</b> <ul style="list-style-type: none"> <li>• Use of Quiet Mechanical Plant during the construction phase should be adopted wherever possible.</li> </ul>					

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S6.8.4	<ul style="list-style-type: none"> <li>Hoarding or fencing should be erected around the works area boundaries during the construction phase. The hoarding would screen adjacent habitats from construction phase activities, reduce noise disturbance to these habitats and also to restrict access to habitats adjacent to works areas by site workers;</li> <li>Regular spraying of haul roads to minimize impacts of dust deposition on adjacent vegetation and habitats during the construction activities</li> </ul>	Minimize noise, human and traffic disturbance to terrestrial habitat and wildlife; and reduce dust generation	Design Team / Contractor	Land-based works are	Construction Phase	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S6.8.5	<p><b>Standard Good Site Practice</b></p> <ul style="list-style-type: none"> <li>Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats.</li> <li>Construction activities should be restricted to works areas that should be clearly demarcated. The works areas should be reinstated after completion of the works.</li> <li>Waste skips should be provided to collect general refuse and construction wastes. The wastes should be properly disposed off-site in a timely manner.</li> <li>General drainage arrangements should include sediment and oil traps to collect and control construction site run-off.</li> <li>Open burning on works sites is illegal, and should be strictly prohibited.</li> <li>Measures should also be put into place so that litter, fuel and solvents do not enter the nearby watercourses.</li> </ul>	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A
S6.8.6	<p><b>Measure to Minimize Groundwater Inflow</b></p> <ul style="list-style-type: none"> <li>The drained tunnel construction method with groundwater inflow control measures would generally be adopted.</li> <li>During the tunnel excavation, pre-excavation grouting could be adopted to reduce the groundwater inflow and ensure that the tunnel would meet the long term water tightness requirements.</li> </ul>	Minimize groundwater inflow	Contractor	Tunnel	Construction Phase	N/A
S6.8.8	<p><b>Measure to Minimize Impact on Corals</b></p> <p><u>Coral translocation</u></p> <ul style="list-style-type: none"> <li>It is recommended to translocate the affected coral colonies, except the locally common <i>Oulastrea crispata</i>, within the reclamation area and bridge footprint to the other suitable locations as far as practicable.</li> <li>The coral translocation should be conducted during the winter months (November-March) in order to avoid disturbance during their spawning period (i.e. July to October).</li> <li>A detailed coral translocation plan with a description on the methodology for pretranslocation coral survey, translocation methodology, identification/proposal of coral recipient site, monitoring methodology for posttranslocation should be prepared during the detailed design stage.</li> <li>The coral translocation plan should be subject to approval by relevant authorities (e.g. EPD and AFCDC) before commencement of the coral translocation. All the translocation exercises should be conducted by experienced marine ecologist(s) who is/are approved by AFCDC prior to commencement of coral translocation.</li> </ul> <p><u>Post translocation Monitoring</u></p> <ul style="list-style-type: none"> <li>A coral monitoring programme is recommended to assess any adverse and unacceptable impacts to the translocated coral communities</li> <li>Information gathered during each posttranslocation monitoring survey should include observations on the presence, survival, health condition and growth of the translocated coral colonies. These parameters should then be compared with the baseline results collected from the pre-translocation survey.</li> </ul>	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S6.8.9 S6.8.10	<b>Measure to Control Water Quality Impact</b> <ul style="list-style-type: none"> <li>Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area.</li> <li>Diverting of the site runoff to silt trap facilities before discharging into storm drain;</li> <li>Proper waste and dumping management; and</li> <li>Standard good-site practice for land-based construction.</li> </ul>	Control water quality impact, especially on suspended solid level; minimize the contamination of wastewater discharge, accidental chemical spillage and construction site runoff to the receiving water bodies	Design Team, contractor	Marine and landbased works area	Construction phase	WQO
S6.8.11	<b>Compensation for Vegetation Loss</b> <ul style="list-style-type: none"> <li>Felling of mature trees should be compensated by planting of standard or heavy standard trees within or in vicinity of the affected area as far as practicable. Such compensatory planting for trees should be provided with at least a 1:1 ratio. In addition, vegetation at the temporarily affected area should be reinstated with species similar to the existing condition.</li> </ul>	Compensate for the vegetation loss	Design Team, contractor	Land-based works area	Construction phase	N/A
<b>Fisheries Impact</b>						
S7.7.3	<b>Measure to Control Water Quality Impact</b> <ul style="list-style-type: none"> <li>Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area.</li> </ul>	Control water quality impact, especially on suspended solid level	Design Team / Contractor	Marine work area	Construction phase	WQO
<b>Waste Management (Construction Phase)</b>						
S8.6.3	<b>Good Site Practices and Waste Reduction Measures</b> <ul style="list-style-type: none"> <li>Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;</li> <li>Training of site personnel in site cleanliness, proper waste management and chemical handling procedures;</li> <li>Provision of sufficient waste disposal points and regular collection of waste;</li> <li>Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; and</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.</li> </ul>	To reduce waste management impacts	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354)  Land (Miscellaneous Provisions) Ordinance (Cap. 28)
S8.6.4	<b>Good Site Practices and Waste Reduction Measures (con't)</b> <ul style="list-style-type: none"> <li>Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce;</li> <li>Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and</li> <li>Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.</li> </ul>	To achieve waste reduction	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354)  Land (Miscellaneous Provisions) Ordinance (Cap. 28)
	<b>Good Site Practices and Waste Reduction Measures (con't)</b>					

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S8.6.5	<p>The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan should incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP should be submitted to the Engineer for approval. The Contractor should implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated by the Contractor.</p>	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S8.6.6	<p><b>Good Site Practices and Waste Reduction Measures (con't)</b></p> <ul style="list-style-type: none"> <li>C&amp;D materials would be reused in the project and other local concurrent projects as far as possible.</li> </ul>	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005
S8.6.7	<p><b>Storage, Collection and Transportation of Waste</b></p> <p>Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include:</p> <ul style="list-style-type: none"> <li>Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution;</li> <li>Maintain and clean storage areas routinely;</li> <li>Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and</li> <li>Different locations should be designated to stockpile each material to enhance reuse.</li> </ul>	To minimize potential adverse environmental impacts arising from waste storage	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005
S8.6.8/ Waste Management Plan	<p><b>Storage, Collection and Transportation of Waste (con't)</b></p> <ul style="list-style-type: none"> <li>Remove waste in timely manner;</li> <li>Waste collectors should only collect wastes prescribed by their permits;</li> <li>Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers;</li> <li>Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28);</li> <li>Waste should be disposed of at licensed waste disposal facilities/ alternative disposal ground approved by RE and DEP; and</li> <li>Maintain records of quantities of waste generated, recycled and disposed.</li> </ul>	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005
S8.6.9/ Waste Management Plan	<p><b>Storage, Collection and Transportation of Waste (con't)</b></p> <ul style="list-style-type: none"> <li>Implementation of trip ticket system with reference to DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction &amp; Demolition Materials, to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) should be proposed.</li> </ul>	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010
S8.6.11 - S8.6.13/ Waste Management Plan	<p><b>Sorting of C&amp;D Materials</b></p> <ul style="list-style-type: none"> <li>Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site.</li> <li>Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials.</li> <li>The C&amp;D materials should at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled in the reclamation as far as practicable before delivery to PFRFs. While opportunities for reusing the non-inert portion should be investigated before disposal of at designated landfills</li> </ul>	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010 ETWB TCW No. 33/2002 ETWB TCW No. 19/2005
	<p><b>Sediments (con't)</b></p> <ul style="list-style-type: none"> <li>Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, shall be adhered to during boring, excavation, transportation and disposal of sediments or cement stabilization of sediment.</li> </ul>					

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S8.6.17 – S8.6.20	<ul style="list-style-type: none"> <li>• A treatment area should be confined for carrying out the cement stabilization mixing and temporary stockpile. The area should be designed to prevent leachate from entering the ground. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO).</li> <li>• In order to minimise the potential odour / dust emissions during boring, excavation and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges/trucks. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.</li> <li>• In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site.</li> </ul>	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	Construction Phase	ETWB TCW No. 19/2005

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S8.6.24 - S8.6.28/ Waste Management Plan	<p><b>Sediments (con't)</b></p> <ul style="list-style-type: none"> <li>The excavated sediments is expected to be loaded onto the barge and transported to the designated disposal sites allocated by the MFC. The excavated sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002.</li> <li>Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO).</li> <li>In order to minimise the potential odour / dust emissions during boring and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.</li> <li>The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP.</li> <li>In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site.</li> <li>Another possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal.</li> </ul>	To ensure handling of sediments are in accordance to statutory requirements	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance
	Chemical Wastes.					

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S8.6.26/ Waste Management Plan	<ul style="list-style-type: none"> <li>If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</li> </ul>	To ensure proper management of chemical waste	Contractor	All works sites	Construction Phase	<p>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</p> <p>Waste Disposal (Chemical Waste) (General) Regulation</p>

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S8.6.27/ Waste Management Plan	<b>General Refuse</b> <ul style="list-style-type: none"> <li>General refuse should be stored in enclosed bins or compaction units separate from C&amp;D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&amp;D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.</li> </ul>	To ensure proper management of general refuse	Contractor	All works sites	Construction Phase	Public Health and Municipal Services Ordinance (Cap. 132)
<b>Impact on Cultural Heritage (Construction Phase)</b>						
S9.6.4	<b>Dust and visual impacts</b> <ul style="list-style-type: none"> <li>Temporarily fenced off buffer zone with allowance for public access (minimum 1 m) should be provided;</li> <li>The open yard in front of the temple should be kept as usual for annual Tin Hau festival;</li> <li>Monitoring of vibration impacts should be conducted when the construction works are less than 100m from the temple.</li> </ul>	To prevent dust and visual impacts	Contractors	Work areas	Construction Phase	EIAO; GCHIA; AMO
S9.6.4	<b>Indirect vibration impact</b> <ul style="list-style-type: none"> <li>Vibration level is suggest to be controlled within a peak particle velocity (ppv) limit of 5mm/s measured inside the historical buildings;</li> <li>Monitoring of vibration should be carried out during construction phase.</li> <li>Tilting and settlement monitoring should will be applied on the Cha Kwo Ling Tin Hau Temple as well.</li> <li>A proposal with details for the mitigation measures and monitoring of impacts on built heritage shall be submitted to AMO for comments before commencement of work.</li> </ul>	To prevent indirect vibration impact	Contractors	Work areas	Construction Phase	Vibration Limits on Heritage Buildings by CEDD; GCHIA; AMO.
Built Heritage Mitigation Plan	<ul style="list-style-type: none"> <li>Established Alert, Alarm and Action Level for the monitoring parameters.</li> <li>To increase the instrumentation monitoring and reporting frequency.</li> <li>To propose detailed action plan or contingency plan for the Engineer's approval when AAA Level is reached or exceeded.</li> </ul>	To prevent vibration impacts	NE/2015/01	Tin Hau Temple	Construction Phase	Vibration Limits on Heritage Buildings by CEDD; GCHIA; AMO.
<b>Landscape and Visual Impact (Construction Phase)</b>						
Table 10.8.1/ Landscape Mitigation Plan	CM1 - Construction area and contractor's temporary works areas to be minimised to avoid impacts on adjacent landscape.	Avoid impact on adjacent landscape areas	CEDD (via Contractor)	General	Construction planning and during construction period	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM2 - Reduction of construction period to practical minimum.	Minimise duration of impact	CEDD (via Contractor)	N/A	Construction planning	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM3 - Topsoil, where the soil material meets acceptable criteria and where practical, to be stripped and stored for re-use in the construction of the soft landscape works. The Contract Specification shall include storage and reuse of topsoil as appropriate.	To allow re-use of topsoil	CEDD (via Contractor)	General	Site clearance	As per the Particular Specification

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
Table 10.8.1/ Landscape Mitigation Plan	CM4 - Existing trees at boundary of site and retained trees within site boundary to be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification, under which 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, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).	To minimize tree loss	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance and throughout construction period	ETWB TC 3/2006 and as per tree protection measures in Particular Specification

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
Table 10.8.1/ Landscape Mitigation Plan	CM5 - Trees unavoidably affected by the works shall be transplanted where practicable. Where possible, trees should be transplanted direct to permanent locations rather than temporary holding nurseries. A detailed tree transplanting specification shall be provided in the Contract Specification and sufficient time for preparation shall be allowed in the construction programme.	To maximize preservation of existing trees	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance	ETWB TC 3/2006 and as per tree protection measures in Particular Specification
Table 10.8.1/ Landscape Mitigation Plan	CM6 - Advance screen planting of fast growing tree and shrub species to noise barriers and hoardings. Trees shall be capable of reaching a height >10m within 10 years.	To maximize screening of the works	CEDD (via Contractor)	At Lam Tin Interchange and edge of Road P2 landscape deck, TKO	Beginning of construction period	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM7 - Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	As per Particular Specification
Table 10.8.1/ Landscape Mitigation Plan	CM8 - Control of night-time lighting by hooding all lights and through minimisation of night working periods.	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM9 - Screening of works areas with hoardings with appropriate colours compatible with the surrounding area	Reduction of visual intrusion	CEDD (via Contractor)	Project site Boundary	Excretion of site hoarding	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM10 - Avoidance of excessive height and bulk of site buildings and structure	Reduction of visual intrusion and integration with environment	CEDD (via Contractor)	Built structures	Design and construction stage	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM11 - Limitation of run-off into freshwater streams, ponds and sea areas	Avoidance of contamination of water courses and water bodies	CEDD (via Contractor)	TKO reclamation, TKO tunnel portal, Cha Kwo Ling roadworks	Throughout construction period	N/A
Table 10.8.1	CM12 - Minimise area of reclamation and design the edges sensitively to tie in with adjacent coastline character	Minimise loss of Junk Bay and integration with existing coastline	CEDD (via Contractor)	Temporary reclamation for barging points at TKO and Lam Tin and permanent reclamation for TKO Interchange slip roads and Road P2	Construction planning and reclamation stages	N/A
<b>Landfill Gas Hazard (Design and Construction Phase)</b>						
S11.5.9	A Safety Officer, trained in the use of gas detection equipment and landfill gas-related hazards, should be present on site throughout the groundworks phase. The Safety Officer should be provided with an intrinsically safe portable instrument, which is appropriately calibrated and able to measure the following gases in the ranges indicated below: Methane 0-100% LEL and 0100% v/v Carbon dioxide 0-100% Oxygen 0-21%	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S11.5.10 S11.5.25	<p><b>Safety Measures</b></p> <ul style="list-style-type: none"> <li>For staff who work in, or have responsibility for “at risk” area, such as all excavation workers, supervisors and engineers working within the Consultation Zone, should receive appropriate training on working in areas susceptible to landfill gas, fire and explosion hazards.</li> <li>An excavation procedure or code of practice to minimize landfill gas related risk should be devised and carried out.</li> <li>No worker should be allowed to work alone at any time in or near to any excavation. At least one other worker should be available to assist with a rescue if needed.</li> <li>Smoking, naked flames and all other sources of ignition should be prohibited within 15m of any excavation or ground-level confined space. “No smoking” and “No naked flame” notices should be posted prominently on the construction site and, if necessary, special areas should be designed for smoking.</li> <li>Welding, flame-cutting or other hot works should be confined to open areas at least 15m from any trench or excavation.</li> <li>Welding, flame-cutting or other hot works may only be carried out in trenches or confined spaces when controlled by a “permit to work” procedure, properly authorized by the Safety Officer (or, in the case of small developments, other appropriately qualified person).</li> <li>The permit to work procedure should set down clearly the requirements for continuous monitoring for methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The procedure should also require the presence of an appropriately qualified person, in attendance outside the 'confined area', who should be responsible for reviewing the gas measurements as they are made, and who should have executive responsibility for suspending the work in the event of unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise should be permitted to carry out hot works in confined areas.</li> <li>Where there are any temporary site offices, or any other buildings located within the Sai Tso Wan Landfill Consultation Zone which have enclosed spaces with 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 (by survey using portable gas detectors); or be raised clear of the ground by a minimum of 500mm. This aims to create a clear void under the structure which is ventilated by natural air movement such that emission of gas from the ground are mixed and diluted by air.</li> <li>Any electrical equipment, such as motors and extension cords, should be intrinsically safe. During piping assembly or conduiting construction, all valves/seals should be closed immediately after installation. As construction progresses, all valves/seals should be closed to prevent the migration of gases through the pipeline/conduit. All piping /conduiting should be capped at the end of each working day.</li> <li>During construction, adequate fire extinguishing equipment, fire-resistant clothing and breathing apparatus (BA) sets should be made available on site.</li> <li>Fire drills should be organized at not less than six monthly intervals.</li> </ul>	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD’s Landfill Gas Hazard Assessment Guidance Note Labour Department’s Code of Practice for Safety and Health at Work in Confined Space

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S11.5.10 S11.5.25	<ul style="list-style-type: none"> <li>The contractor should formulate a health and safety policy, standards and instructions for site personnel to follow.</li> <li>All personnel who work on the site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of excavations. Safety notices (in Chinese and English) should be posted at prominent position around the site warning danger of the potential hazards.</li> <li>Service runs within the Consultation Zone should be designated as “special routes”; utilities companies should be informed of this and precautionary measures should be implemented. Precautionary measures should include ensuring that staff members are aware of the potential hazards of working in confined spaces such as manholes and service chambers, and that appropriate monitoring procedures are in place to prevent hazards due to asphyxiating atmospheres in confined spaces. Detailed guidance on entry into confined spaces is given in Code of Practice on Safety and Health at Work in Confined Spaces (Labour Department, Hong Kong).</li> <li>Periodically during ground-works construction within the 250m Consultation Zone, the works area should be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. 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 appropriately qualified person.</li> </ul>					
S11.5.26 - S11.5.31	<p><b>Monitoring</b></p> <ul style="list-style-type: none"> <li>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 into the area.</li> <li>For excavations <b>deeper than 1m</b>, measurements should be carried out: <ul style="list-style-type: none"> <li>at the ground surface before excavation commences;-</li> <li>immediately before any worker enters the excavation;</li> <li>at the beginning of each working day for the entire period the excavation remains open; and</li> <li>periodically throughout the working day whilst workers are in the excavation.</li> </ul> </li> <li>For excavations <b>between 300mm and 1m deep</b>, measurements should be carried out: <ul style="list-style-type: none"> <li>directly after the excavation has been completed; and</li> <li>periodically whilst the excavation remains open.</li> </ul> </li> <li>For excavations less than 300mm deep, monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person.</li> <li>Depending on the results of the measurements, actions required will vary and should be set down by the Safety Officer or other appropriately qualified person.</li> <li>The exact frequency of monitoring should be determined prior to the commencement of works, but should be at least once per day, and be carried out by a suitably qualified or qualified person before starting the work of the day. Measurements shall be recorded and kept as a record of safe working conditions with copies of the site diary and submitted to the Engineer for approval. The Contractor may elect to carry out monitoring via an automated monitoring system.</li> </ul>	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note
The hazards from landfill gas during the construction stage within the Sai Tso Wan Landfill		construction stage within the Sai Tso Wan		Project sites within the Sai		

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S11.5.32	The hazards from landfill gas during the construction stage within the SA Tso Wan Landfill Consultation Zone should be minimized by suitable precautionary measures recommended in Chapter 8 of the Landfill Gas Hazard Assessment Guidance Note.	Protect the workers from landfill gas hazards	Contractor	Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note

**Table II - Observation / Reminder / Non-compliance made during Site Audit (Aug 2023)**

- Key:
- ✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
  - ✗ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
  - # Follow up action will be reported in next reporting month
  - \* Non-compliance of mitigation measure
  - Non-compliance but improved by the contractor

EIA Ref	Recommended Mitigation Measures	Details of Reminder/Observation	Recorded Date	Status
<b>Air Quality</b>				
--	The NRMM label should be replaced.	The NRMM label was damaged.	17 Aug 2023	✓
S3.8.1	Water spraying should be provided to the haul road to avoid dust generation.	The haul road was dried.	31 Aug 2023	#
<b>Construction Noise Impact</b>				
--	--	--		
<b>Water Quality Impact</b>				
S5.8.7	The stagnant water in the tray should be removed.	Stagnant water was observed in the tray at the site entrance.	10 Aug 2023	✓
<b>Ecological Impact</b>				
--	--	--		
<b>Fisheries Impact</b>				
--	--	--		
<b>Waste Management</b>				
--	--	--		
<b>Landscape and Visual Impact</b>				
--	--	--		
<b>Landfill Gas Hazards</b>				
--	--	--		

**Table II - Observation / Reminder / Non-compliance made during Site Audit (Sep 2023)**

- Key:
- ✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
  - ✗ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
  - # Follow up action will be reported in next reporting month
  - \* Non-compliance of mitigation measure
  - Non-compliance but improved by the contractor

EIA Ref	Recommended Mitigation Measures	Details of Reminder/Observation	Recorded Date	Status
<b>Air Quality</b>				
S3.8.1	Water spraying should be provided to the haul road to avoid dust generation.	The haul road was dried.	31 Aug 2023	✓
S3.8.1	Water spraying should be applied when conducting dust-generating activities.	The working area near the PTBM was full of dust.	7 Sep 2023	✓
S3.8.1	Water spraying should be applied along the haul road near the site entrance (Westbound tunnel).	The haul road was dried.	28 Sep 2023	#
<b>Construction Noise Impact</b>				
--	--	--		
<b>Water Quality Impact</b>				
--	Drip tray should be provided for chemical containers to prevent chemical leakage.	The chemical containers were stored without the drip tray.	21 Sep 2023	✓
<b>Ecological Impact</b>				
--	--	--		
<b>Fisheries Impact</b>				
--	--	--		
<b>Waste Management</b>				
--	--	--		
<b>Landscape and Visual Impact</b>				
--	--	--		
<b>Landfill Gas Hazards</b>				
--	--	--		

**Table II - Observation / Reminder / Non-compliance made during Site Audit (Oct 2023)**

- Key:
- ✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
  - ✗ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
  - # Follow up action will be reported in next reporting month
  - \* Non-compliance of mitigation measure
  - Non-compliance but improved by the contractor

EIA Ref	Recommended Mitigation Measures	Details of Reminder/Observation	Recorded Date	Status
<b>Air Quality</b>				
S3.8.1	Water spraying should be applied along the haul road near the site entrance (Westbound tunnel).	The haul road was dried.	28 Sep 2023	✓
<b>Construction Noise Impact</b>				
--	Noise barrier should properly be installed (steel deck).	Noise barriers is not erected properly on th steel deck.	26 Oct 2023	#
<b>Water Quality Impact</b>				
--	--	--		
<b>Ecological Impact</b>				
--	--	--		
<b>Fisheries Impact</b>				
--	--	--		
<b>Waste Management</b>				
--	A drip tray should be provided for chemical containers to prevent leakage.	The chemical containers are not stored with the drip tray.	19 Oct 2023	✓
--	A drip tray should be provided for chemical containers to prevent leakage.	The chemical containers are not stored with the drip tray.	26 Oct 2023	#
<b>Landscape and Visual Impact</b>				
--	--	--		
<b>Landfill Gas Hazards</b>				
--	--	--		

---

---

**APPENDIX H**  
**WASTE GENERATED QUANTITY**

---

---



Name of Department: CEDD

Monthly Summary Waste Flow Table for 2023 (CKL)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	a.Total Quantity Generated (a=c+d+e)	b. Hard Rock and Large Broken Concrete	c. Reused in the Contract	d. Reused in Other Projects	e. Disposed as Public Fill	f. Imported Fill	g. Metals	h. Paper / Cardboard Packaging	i. Plastics	j. Chemical Waste	k. Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
January	1.520	1.520	0.000	1.520	0.000	0.000	0.000	0.000	0.000	0.000	0.016
February	1.147	1.147	0.000	1.147	0.000	0.000	0.000	0.000	0.000	0.000	0.014
March	0.786	0.786	0.000	0.786	0.000	0.000	0.000	0.000	0.000	0.000	0.025
April	0.946	0.946	0.000	0.946	0.000	0.000	0.000	0.000	0.000	0.000	0.012
May	1.414	1.414	0.000	1.414	0.000	0.000	0.000	0.000	0.000	0.000	0.032
June	4.366	2.058	0.000	2.058	2.309	0.000	0.000	0.000	0.000	4.600	0.022
Sub-total	10.180	7.871	0.000	7.871	2.309	0.000	0.000	0.000	0.000	4.600	0.121
July	1.556	0.930	0.000	0.930	0.626	0.000	0.000	0.000	0.000	0.000	0.033
August	3.996	0.905	0.000	0.905	3.091	0.000	0.000	0.000	0.000	0.000	0.031
September	4.483	0.829	0.000	0.829	3.655	0.000	0.000	0.000	0.000	0.000	0.023
October	5.557	0.134	0.000	4.748	0.809	0.000	0.000	0.000	0.000	0.000	0.032
November											
December											
Total	25.771	10.669	0.000	15.283	10.488	0.000	0.000	0.000	0.000	4.600	0.240

Monthly Summary Waste Flow Table

Notes:

- (1)The performance targets are given in ER Appendix 8I Clause 14 and the EM&A Manual(s).
- (2)The waste flow table shall also include C&D materials to be imported for use at the Site.
- (3)Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- (4)The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m<sup>3</sup>. (ER Part 8 Clause 8.8.5 (d) (ii) refers).

---

---

**APPENDIX I  
SUMMARY OF EXCEEDANCES**

---

---

**Contract No. ED/2018/04**

**Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron**

**Appendix I – Summary of Exceedance**

**Reporting Quarter: August 2023 – October 2023**

**(A) Exceedance Report for Air Quality**

No Action and no Limit Level exceedance of 24hr TSP monitoring were recorded in this reporting quarter.

No Action/ Limit Level exceedance of 1hr TSP monitoring was recorded in this reporting quarter.

**(B) Exceedance Report for Construction Noise**

Three (3) Action Level exceedance was recorded due to the documented complaint in the reporting quarter.

No Limit Level exceedance for construction noise monitoring was recorded in the reporting quarter.

**(C) Exceedance Report for Landfill Gas**

(NIL in the reporting quarter)

---

---

**APPENDIX J  
SUMMARIES OF ENVIRONMENTAL  
COMPLAINT, WARNING, SUMMON  
AND NOTIFICATION OF SUCCESSFUL  
PROSECUTION**

---

---

**Contract No. ED/2018/04**

**Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron**

**Appendix J – Summary of environmental complaint, warning, summon and notification of successful prosecution**

**Reporting Quarter:** August 2023 – October 2023

Log Ref.	Location	Received Date	Details of Complaint/warning/summon and prosecution	Investigation/Mitigation Action	Status
Complaint #N11	Portion T1 & Portion V	11th August 2023	Complainant informed that there was a noise nuisance from construction work between 8 am and 7 pm, causing an impact on the residents. -	<ul style="list-style-type: none"> <li>• A valid CNP was hold and construction activities being taken were complied with the relevant CNP</li> <li>• The contractor has taken steps to address noise concerns by implementing noise control measures such as erecting noise barriers and using a hydraulic breaker equipped with a noise muffler.</li> <li>• In addition, the Contractor should still maintain good site practices, such as schedule noisy work to the less sensitive hours and provide regularly maintenance for PMEs.</li> <li>• Contractor is recommended to continue to strictly follow the requirements in the relevant CNP and the approved CNMP.</li> <li>• According to the condition 3.d point 5 of the CNP (GW-RE0603-23), the immediate remedial action shall be implemented in case adverse ground-borne noise impact on any noise sensitive receiver is received</li> </ul>	Closed

**Contract No. ED/2018/04**

**Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron**

**Appendix J – Summary of environmental complaint, warning, summon and notification of successful prosecution**

		23rd August 2023	The complainant informed that there were vibrations caused by the works in CKL Tunnel on 21 August 2023. They stated that their units are temporary housing with certain risks involved and requested an explanation for the project as well as appropriate actions to be taken	<ul style="list-style-type: none"><li>• A valid CNP was hold and construction activities being taken were complied with the relevant CNP</li><li>• The contractor has taken steps to address noise concerns by implementing noise control measures such as erecting noise barriers and using a hydraulic breaker equipped with a noise muffler.</li><li>• In addition, the Contractor should still maintain good site practices, such as schedule noisy work to the less sensitive hours and provide regularly maintenance for PMEs.</li><li>• Contractor is recommended to continue to strictly follow the requirements in the relevant CNP and the approved CNMP.</li><li>• According to the condition 3.d point 5 of the CNP (GW-RE0603-23), the immediate remedial action shall be implemented in case adverse ground-borne noise impact on any noise sensitive receiver is received</li></ul>	Closed
--	--	---------------------	---	--	--------

**Contract No. ED/2018/04**

**Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron**

**Appendix J – Summary of environmental complaint, warning, summon and notification of successful prosecution**

		<p>6th September 2023</p>	<p>EPD received a complaint from a resident of Cha Kwo Ling Village regarding vibrations caused by the construction works of the T2 project on 5 September 2023. The complainant stated that these vibrations are affecting House No. 78 in the village.</p>	<ul style="list-style-type: none"> <li>• A valid CNP was hold and construction activities being taken were complied with the relevant CNP</li> <li>• The weekly noise monitoring and additional noise assessments have verified that the noise levels remain within the set limits. Moreover, the groundborne noise measurements data suggests that the noise levels are well within the criteria outlined in the TM.</li> <li>• The contractor has taken steps to address noise concerns by implementing noise control measures such as erecting noise barriers and using a hydraulic breaker equipped with a noise muffler.</li> <li>• In addition, the Contractor should still maintain good site practices, such as schedule noisy work to the less sensitive hours and provide regularly maintenance for PMEs.</li> <li>• Contractor is recommended to continue to strictly follow the requirements in the relevant CNP and the approved CNMP.</li> <li>• According to the condition 3.d point 5 of the CNP (GW-RE0973-23), the immediate remedial action shall be implemented in case adverse ground-borne noise impact on any noise sensitive receiver is received</li> </ul>	<p>Closed</p>
--	--	-----------------------------------	--	--	---------------

**Contract No. ED/2018/04**

**Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron**

**Appendix J – Summary of environmental complaint, warning, summon and notification of successful prosecution**

**Remarks:** One (1) environmental complaint and two (2) follow up complaint were received in the reporting quarter, no warning/summon and prosecution were received in the reporting quarter

---

---

**APPENDIX K  
EVENT AND ACTION PLAN**

---

---

**Event and Action Plan for Air Quality (Dust)**

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action level being exceeded by one sampling	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of complaint and propose remedial measures;</li> <li>2. Inform IEC and ER;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practice;</li> <li>2. Amend working methods if appropriate.</li> </ol>
Action level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC and ER;</li> <li>3. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>4. Repeat measurements to confirm findings;</li> <li>5. Increase monitoring frequency to daily;</li> <li>6. Discuss with IEC and Contractor on remedial actions required;</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ET on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>2. Implement the agreed proposals;</li> <li>3. Amend proposal if appropriate.</li> </ol>

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring.			
Limit level being exceeded by one sampling	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit level being exceeded by two or more consecutive sampling	1. Notify IEC, ER, Contractor and EPD; 2. Identify source;	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification;

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	<p>3. Repeat measurement to confirm findings;</p> <p>4. Increase monitoring frequency to daily;</p> <p>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</p> <p>6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</p> <p>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p>	<p>assure their effectiveness and advise the ER accordingly;</p> <p>3. Supervise the implementation of remedial measures.</p>	<p>remedial measures to be implemented;</p> <p>4. Ensure remedial measures properly implemented;</p> <p>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</p>	<p>3. Implement the agreed proposals;</p> <p>4. Resubmit proposals if problem still not under control;</p> <p>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</p>

**Event and Action Plan for Construction Noise**

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> <li>1. Notify IEC and Contractor;</li> <li>2. Carry out investigation;</li> <li>3. Report the results of investigation to the IEC, ER and Contractor;</li> <li>4. Discuss with the Contractor and formulate remedial measures;</li> <li>5. Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the analysed results submitted by the ET;</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IEC;</li> <li>2. Implement noise mitigation proposals.</li> </ol>
Limit Level	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC, ER, EPD and Contractor;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

**Limit Levels and Action Plan for Landfill Gas**

<b>Parameter</b>	<b>Limit Level</b>	<b>Action</b>
Oxygen	<19%	<ul style="list-style-type: none"> <li>• Ventilate to restore oxygen to &gt;19%</li> </ul>
	<18%	<ul style="list-style-type: none"> <li>• Stop works</li> <li>• Evacuate personnel/prohibit entry</li> <li>• Increase ventilation to restore oxygen to &gt;19%</li> </ul>
Methane	>10% LEL (i.e. > 0.5% by volume)	<ul style="list-style-type: none"> <li>• Prohibit hot works</li> <li>• Ventilate to restore methane to &lt;10% LEL</li> </ul>
	>20% LEL (i.e. > 1% by volume)	<ul style="list-style-type: none"> <li>• Stop works</li> <li>• Evacuate personnel / prohibit entry</li> <li>• Increase ventilation to restore methane to &lt;10% LEL</li> </ul>
Carbon Dioxide	>0.5%	<ul style="list-style-type: none"> <li>• Ventilate to restore carbon dioxide to &lt; 0.5%</li> </ul>
	>1.5%	<ul style="list-style-type: none"> <li>• Stop works</li> <li>• Evacuate personnel / prohibit entry</li> <li>• Increase ventilation to restore carbon dioxide to &lt;0.5%</li> </ul>

---

---

**APPENDIX L**  
**CONSTRUCTION PROGRAMME**

---

---





Activity Name	Dur	Start	Finish	2023												2024											
				October				November				December				January				February				March			
				01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04	11	18	25	03	10
SUS - EB - Fire Board - Tunnel crown	39	24-Oct-23*	07-Dec-23	SUS - EB - Fire Board - Tunnel crown																							
SUS - EB - Fire Board - Road Level	39	24-Nov-23	11-Jan-24	SUS - EB - Fire Board - Road Level																							
<b>C&amp;C TUNNEL / LAUNCHING SHAFT [C&amp;C / LS]</b>	147	22-Sep-23	21-Mar-24																								
<b>Cell 1/2 Permanent Works</b>	147	22-Sep-23	21-Mar-24																								
<b>Above Road Level Wall</b>	15	22-Sep-23	11-Oct-23																								
<b>ARL Middle + External Wall</b>	15	22-Sep-23	11-Oct-23																								
Scaffolding Erection	3	22-Sep-23	25-Sep-23	Scaffolding Erection																							
Steel Fixing	5	26-Sep-23	03-Oct-23	Steel Fixing																							
Formworks	3	04-Oct-23	06-Oct-23	Formworks																							
Concreting	1	07-Oct-23	07-Oct-23	Concreting																							
Gainstrength + Formworks removal	3	09-Oct-23	11-Oct-23	Gainstrength + Formworks removal																							
<b>Overall Top Slab / OHVD</b>	132	12-Oct-23	21-Mar-24																								
C&C/LS OHVD Slab Construction	24	12-Oct-23	09-Nov-23	C&C/LS OHVD Slab Construction																							
C&C/LS Top Slab Construction	33	10-Nov-23	18-Dec-23	C&C/LS Top Slab Construction																							
C&C/LS Waterproofing + Backfilling TS to -10.5mPD @ rate 1.0m / day	24	19-Dec-23	18-Jan-24	C&C/LS Waterproofing + Backfilling TS to -10.5mPD @ rate 1.0m / day																							
C&C/LS Late stich / Headwall construction	36	19-Jan-24	04-Mar-24	C&C/LS Late stich / Headwall construction																							
C&C/LS Dwall trimming & backfilling to +4.0mPD (FGL)	15	05-Mar-24	21-Mar-24	C&C/LS Dwall trimming & backfilling to +4.0mPD (FGL)																							
<b>SUB-SEA TBM TUNNEL - WESTBOUND</b>	177	21-Aug-23	24-Mar-24																								
<b>Precast Fabrication</b>	96	21-Aug-23	13-Dec-23																								
<b>OHVD Slab</b>	96	21-Aug-23	13-Dec-23																								
Precast OHVD Slab - 70%	24	21-Aug-23	16-Sep-23	Slab - 70%																							
Precast OHVD Slab - 80%	24	18-Sep-23	17-Oct-23	Precast OHVD Slab - 80%																							
Precast OHVD Slab - 90%	24	18-Oct-23	15-Nov-23	Precast OHVD Slab - 90%																							
Precast OHVD Slab - 100%	24	16-Nov-23	13-Dec-23	Precast OHVD Slab - 100%																							
<b>TBM Tunnelling</b>	85	31-Dec-23	24-Mar-24																								
WB TBM Excavation re-start	0	31-Dec-23*		WB TBM Excavation re-start																							
WB TBM Tunnelling CH8577-8603	13	31-Dec-23	12-Jan-24	WB TBM Tunnelling CH8577-8603																							
WB TBM Tunnelling CH8603-8747	72	13-Jan-24	24-Mar-24	WB TBM Tunnelling CH8603-8747																							
<b>SUB-SEA TBM TUNNEL - EASTBOUND</b>	124	30-Oct-23	29-Mar-24																								
<b>TBM Tunnelling</b>	124	30-Oct-23	29-Mar-24																								
EB TBM Excavation re-start	0	30-Oct-23*		EB TBM Excavation re-start																							
WB TBM Tunnelling CH8609-8738	65	30-Oct-23	02-Jan-24	WB TBM Tunnelling CH8609-8738																							
EB TBM Tunnelling CH8738-8863	39	03-Jan-24	10-Feb-24	EB TBM Tunnelling CH8738-8863																							
EB TBM Tunnelling Break-out	0		29-Mar-24													EB TBM Tunnelling Break-out											

- ◆ Milestone
- Planned Bar
- Critical Activity

**ED/2018/04 Trunk Road T2 and Infrastructure Works  
 for Developments at South Apron**  
**Three Months Rolling Programme (Oct-23)**



Date	Revision	Checked	Approved
10-Mar-21	03V0 Rev. B	SPa	ICH
21-Jun-23	03V0 Rev. C	SPa	ICH



Activity Name	Dur	Start	Finish	2023												2024												
				October					November				December			January				February				March				
				01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04	11	18	25	03	10	17
EB - TBM Tunnel - Fire board - Tunnel Crown up to CP16	55	06-Nov-23	11-Jan-24													EB - TBM Tunnel - Fire board - Tunnel Crown up to CP16												
EB - TBM Tunnel - Fire board - Tunnel Crown up to CP25	50	12-Jan-24	13-Mar-24																									EB - TBM Tunnel
<b>OHVD Slab / Damper Installation</b>	117	05-Sep-23	25-Jan-24																									
<b>Westbound</b>	40	05-Sep-23	24-Oct-23																									
WB - TBM Tunnel - OHVD Slab/ Damper up to CH8392	40	05-Sep-23	24-Oct-23						WB - TBM Tunnel - OHVD Slab/ Damper up to CH8392																			
<b>Eastbound</b>	77	25-Oct-23	25-Jan-24																									
EB - ISSG Transfer & Reassembly	12	25-Oct-23	07-Nov-23													EB - ISSG Transfer & Reassembly												
EB - TBM Tunnel - OHVD Slab/ Damper Phase 1	65	08-Nov-23	25-Jan-24													EB - TBM Tunnel - OHVD Slab/ Damper Phase 1												
<b>Fire Board - OHVD Soffit</b>	147	15-Aug-23	08-Feb-24																									
<b>Westbound</b>	96	15-Aug-23	07-Dec-23																									
WB - TBM Fire Board OHVD Soffit up to CH7512	48	15-Aug-23	11-Oct-23						WB - TBM Fire Board OHVD Soffit up to CH7512																			
WB - TBM Fire Board OHVD Soffit up to CH8392	48	12-Oct-23	07-Dec-23													WB - TBM Fire Board OHVD Soffit up to CH8392												
<b>Eastbound</b>	65	22-Nov-23	08-Feb-24																									
EB - TBM Fire Board OHVD Soffit Phase 1	65	22-Nov-23	08-Feb-24													EB - TBM Fire Board OHVD Soffit Phase 1												
<b>Fire Board - Road Level Wall</b>	46	06-Sep-23	01-Nov-23																									
<b>Westbound</b>	46	06-Sep-23	01-Nov-23																									
WB - TBM Tunnel - Fire Board - Wall CPS up to CP21	23	06-Sep-23	04-Oct-23													WB - TBM Tunnel - Fire Board - Wall CPS up to CP21												
WB - TBM Tunnel - Fire Board - Wall CPS up to CP24	23	05-Oct-23	01-Nov-23													WB - TBM Tunnel - Fire Board - Wall CPS up to CP24												
<b>Eastbound</b>	46	06-Sep-23	01-Nov-23																									
EB - TBM Tunnel - Fire Board - Wall CPS up to CP21	23	06-Sep-23	04-Oct-23													EB - TBM Tunnel - Fire Board - Wall CPS up to CP21												
EB - TBM Tunnel - Fire Board - Wall CPS up to CP24	23	05-Oct-23	01-Nov-23													EB - TBM Tunnel - Fire Board - Wall CPS up to CP24												
<b>Road Barrier, Parapet &amp; Utility Trough</b>	143	19-Jun-23	07-Dec-23																									
<b>Westbound</b>	143	19-Jun-23	07-Dec-23																									
WB - TBM Tunnel - Road Barrier, Parapet & Utility Trough CPS up to CP14	87	19-Jun-23*	29-Sep-23	WB - TBM Tunnel - Road Barrier, Parapet & Utility Trough CPS up to CP14																								
WB - TBM Tunnel - Road Barrier, Parapet & Utility Trough CPS up to CP21	40	03-Oct-23	18-Nov-23													WB - TBM Tunnel - Road Barrier, Parapet & Utility Trough CPS up to CP21												
WB - TBM Tunnel - Road Barrier, Parapet & Utility Trough CPS up to CP24	16	20-Nov-23	07-Dec-23													WB - TBM Tunnel - Road Barrier, Parapet & Utility Trough CPS up to CP24												
<b>Eastbound</b>	120	12-Jul-23	01-Dec-23																									
EB - TBM Tunnel - Road Barrier, Parapet & Utility Trough CPS up to CP14	80	12-Jul-23*	14-Oct-23													EB - TBM Tunnel - Road Barrier, Parapet & Utility Trough CPS up to CP14												
EB - TBM Tunnel - Road Barrier, Parapet & Utility Trough CPS up to CP21	40	16-Oct-23	01-Dec-23													EB - TBM Tunnel - Road Barrier, Parapet & Utility Trough CPS up to CP21												
<b>DRILL &amp; BLAST TUNNEL [D&amp;BI]</b>	240	05-Jun-23	22-Mar-24																									
<b>Tunnel Structure WB Type A</b>	137	21-Aug-23	02-Feb-24																									
WB - Type A Lining Formwork Assembly	24	21-Aug-23	16-Sep-23	Lining Formwork Assembly																								
WB - Type A Lining before Pilot TBM Arrival	44	18-Sep-23	10-Nov-23													WB - Type A Lining before Pilot TBM Arrival												
WB - Blast Door SG Excavation (24m, 0.5m/d)	48	15-Nov-23	12-Jan-24													WB - Blast Door SG Excavation (24m, 0.5m/d)												

- Milestone
- Planned Bar
- Critical Activity

## ED/2018/04 Trunk Road T2 and Infrastructure Works for Developments at South Apron

### Three Months Rolling Programme (Oct-23)



Date	Revision	Checked	Approved
10-Mar-21	03V0 Rev. B	SPa	ICH
21-Jun-23	03V0 Rev. C	SPa	ICH



Activity Name	Dur	Start	Finish	2023												2024											
				October				November				December				January				February				March			
				01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04	11	18	25	03	10
EB - Pilot TBM Bulkhead	24	28-Oct-23*	24-Nov-23	EB - Pilot TBM Bulkhead																							
EB - Cavem Excavaton & Rails Footing installation	18	25-Nov-23	15-Dec-23	EB - Cavem Excavaton & Rails Footing installation																							
<b>Pilot TBM Tunnel - WB</b>	94	22-Aug-23	12-Dec-23																								
WB TBM - 2nd drive to CH8+900 151m	34	22-Aug-23	29-Sep-23	WB TBM - 2nd drive to CH8+900 151m																							
WB TBM - 2nd drive to CH8+778 122m	18	03-Oct-23	24-Oct-23	WB TBM - 2nd drive to CH8+778 122m																							
WB TBM dismantling & removal	18	25-Oct-23	14-Nov-23	WB TBM dismantling & removal																							
WB - Pilot TBM Bulkhead	24	15-Nov-23	12-Dec-23	WB - Pilot TBM Bulkhead																							
<b>EAST VENTILATION BUILDING [EVB]</b>	378	28-Dec-22	10-Apr-24																								
<b>Overall</b>	281	01-Mar-23	07-Feb-24																								
Portal Wall	175	01-Mar-23	29-Sep-23	Portal Wall																							
Mezzanine Slab	36	03-Oct-23	14-Nov-23	Mezzanine Slab																							
Mezzanine Wall	48	15-Nov-23	12-Jan-24	Mezzanine Wall																							
Ground Floor Slab	32	02-Jan-24	07-Feb-24	Ground Floor Slab																							
<b>ABWF</b>	95	29-Nov-23	25-Mar-24																								
<b>B1</b>	53	29-Nov-23	01-Feb-24																								
Plastering	23	29-Nov-23	27-Dec-23	Plastering																							
Overall Painting works	30	28-Dec-23	01-Feb-24	Overall Painting works																							
Floor Screading & Waterproofing	12	28-Dec-23	11-Jan-24	Floor Screading & Waterproofing																							
Floor, Wall Tiles installation	18	12-Jan-24	01-Feb-24	Floor, Wall Tiles installation																							
<b>LG</b>	72	28-Dec-23	25-Mar-24																								
Plastering	36	28-Dec-23	08-Feb-24	Plastering																							
Overall Painting works	36	09-Feb-24	25-Mar-24	Overall Painting works																							
Floor Screading & Waterproofing	12	09-Feb-24	26-Feb-24	Floor Screading & Waterproofing																							
Floor, Wall Tiles installation	18	27-Feb-24	18-Mar-24	Floor, Wall Tiles installation																							
<b>PL</b>	36	09-Feb-24	25-Mar-24																								
Plastering	36	09-Feb-24	25-Mar-24	Plastering																							
<b>E&amp;M</b>	60	13-Jan-24	26-Mar-24																								
EVB - E&M Installation SG Level	60	13-Jan-24	26-Mar-24	EVB - E&M Installation SG Level																							
<b>OTHERS</b>	378	28-Dec-22	10-Apr-24																								
EVB - Genset Flue procurement & delivery	322	28-Dec-22	27-Jan-24	EVB - Genset Flue procurement & delivery																							
EVB - Genset delivery arrival to site	0		27-Jan-24	EVB - Genset delivery arrival to site																							
EVB - Genset Installation	56	29-Jan-24	10-Apr-24	EVB - Genset Installation																							
<b>TUNNEL E&amp;M INSTALLATION &amp; COMMISSIONING</b>	69	22-Dec-23	18-Mar-24																								
<b>AGR / DPR / SUS</b>	54	12-Jan-24	18-Mar-24																								

- ◆ Milestone
- Planned Bar
- Critical Activity

**ED/2018/04 Trunk Road T2 and Infrastructure Works**  
**for Developments at South Apron**  
**Three Months Rolling Programme (Oct-23)**



Date	Revision	Checked	Approved
10-Mar-21	03V0 Rev. B	SPa	ICH
21-Jun-23	03V0 Rev. C	SPa	ICH

