

**Central Kowloon Route  
Buildings, Electrical and  
Mechanical Works  
Contract No. HY/2019/13  
(Kai Tak East Area)**


**Gammon Construction Limited**

**Contract No. HY/2019/13**  
**Central Kowloon Route – Buildings,  
Electrical and Mechanical Works**

**Monthly EM&A Report No. 25**  
**(October 2022)**

Version 1

Date of Report: 9 November 2022

|              |  |
|--------------|--|
| Certified By | <br>_____<br>(Environmental Team Leader:<br>Ms. Betty Choi) |
|--------------|--|

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

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## Environmental Permit No. EP-457/2013/D

### Central Kowloon Route

### Independent Environmental Checker Verification

|                 |   |
|-----------------|---|
| Works Contract: | Buildings, Electrical and Mechanical Works (HY/2019/13) |
|-----------------|---|


#### Reference Document/Plan

|  |                             |
|--|-----------------------------|
| Document/Plan to be Certified/ Verified: | Monthly EM&A Report No.25   |
| Date of Report:                          | 9 November 2022 (Version 1) |
| Date received by IEC:                    | 9 November 2022             |

#### Reference EP Condition

|  |     |
|--|-----|
| Environmental Permit Condition:  | 3.4 |
| Submission of Monthly EM&A Report of the Project   |     |
| 3.4 Four hard copies and one electronic copy of monthly EM&A Report shall be submitted to the Director within 2 weeks after the end of each reporting month throughout the entire construction period. The EM&A Reports shall include a summary of all non-compliance. The submissions shall be certified by the ET Leader and verified by the IEC as complying with the requirements as set out in the EM&A Manual before submission to the Director. Additional copies of the submission shall be provided to the Director upon request by the Director. |     |

#### IEC Verification

|  |                       |
|--|-----------------------|
| I hereby verify that the above referenced <del>document</del> /plan complies with the above referenced condition of EP-457/2013/D. |                       |
|   |                       |
| Ms Mandy To  | Date: 9 November 2022 |
| Independent Environmental Checker  |                       |

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## EXECUTIVE SUMMARY

### Introduction

1. This is the 25<sup>th</sup> Monthly Environmental Monitoring and Audit (EM&A) Report prepared by the Environmental Team (ET), Cinotech Consultants Ltd., for Contract No. HY/2019/13 “Central Kowloon Route – Buildings, Electrical and Mechanical Works”. This report summarized the monitoring results and audit findings of the EM&A programme under the issued EP No. EP-457/2013/D, and in accordance with the EM&A programme in Kai Tak East Area during the reporting period from 1<sup>st</sup> October 2022 – 31<sup>st</sup> October 2022.
2. The major site activities undertaken in Kai Tak East Area in the reporting month included:
  - Excavation & sub-structure works.

### Environmental Monitoring Works

3. Environmental monitoring for the Project was performed in accordance with the EM&A Manual and the monitoring results were checked and reviewed. Joint weekly site inspections with the representative of ET, Engineer Representative and the Contractor were conducted on 5, 11, 18, 25 October 2022, whereas joint site inspection with the representative of IEC was conducted on 11 October 2022. The implementation of the environmental mitigation measures, Event and Action Plans and environmental complaint handling procedures were also checked.
4. A summary of the non-compliance (exceedance) during the reporting month (October 2022) and the investigation results and/or follow-up actions is provided below:

#### *Air Quality Monitoring*

- No Action/Limit Level exceedance for 1-hour TSP was recorded.
- No Action/Limit Level exceedance for 24-hour TSP was recorded.

#### *Landscape and Visual Monitoring*

- No non-conformity for landscape and visual was recorded.

**Complaint Handling, Prosecution and Public Engagement**

5. Summary of complaint/summons/prosecution in the reporting month is tabulated in **Table I**.

**Table I Summary of Complaint/Summons/Prosecution in the Reporting Month**

| Event   | Event Details |                   | Follow-up/ Remedial Actions | Status/ Remarks |
|---|---------------|-------------------|-----------------------------|-----------------|
|   | Number        | Brief Description |                             |                 |
| Complaints Received                               | 0             | -                 | -                           | -               |
| Notification of Summons and Prosecutions Received | 0             | -                 | -                           | -               |

**Reporting Changes**

6. There were no reporting changes during the reporting month.

**Future Key Issues**

7. The key works or activities will be anticipated in the coming two months are as follows:
- Excavation & sub-structure works.

## 1 INTRODUCTION

### Background

- 1.1 Central Kowloon Route (CKR) is a 4.7km long dual 3-lane trunk road across Central Kowloon linking Yau Ma Tei Interchange in West Kowloon and the road network at Kai Tak Development and Kowloon Bay in East Kowloon. The underground tunnel section will be about 3.9km long. In particular, an underground tunnel of about 370m long in Kowloon Bay to the north of To Kwa Wan Typhoon Shelter will be constructed.
- 1.2 The Environmental Impact Assessment Report for Central Kowloon Route – Design and Construction (Register No.: AEIAR-171/2013) was approved under the Environmental Impact Assessment Ordinance (EIAO) on 11 July 2013. An Environmental Permit (EP No.: EP-457/2013) was issued on 9 August 2013. Variations of Environmental Permit (VEP) was subsequently applied and an EP (EP No. EP-457/2013/C) was issued on 16 January 2017. The latest EP (EP No. EP-457/2013/D) was issued by Environmental Protection Department (EPD) on 15 June 2021.
- 1.3 The construction of the CKR had been divided into different sections. This Contract No. HY/2019/13 – Central Kowloon Route – Buildings, Electrical and Mechanical Works (“The Project”) will include the architectural, civil and structural construction works of Yau Ma Tei Ventilation Building (YVB), Ho Man Tin Ventilation Building (HVB), Kai Tak Ventilation Building (KVB) and Central Kowloon Route Administration Building (ADB) for the CKR. The landscaping and electrical and mechanical (E&M) works within the building sites will be involved as well.
- 1.4 Cinotech Consultants Limited was assigned as the Environmental Team (ET) to undertake the EM&A works for the Project. The construction of this Contract was commenced on 12<sup>th</sup> December 2020.

### Purpose of the Report

- 1.5 This is the 25<sup>th</sup> Monthly EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme in Kai Tak East Area during the reporting period from 1<sup>st</sup> October 2022 – 31<sup>st</sup> October 2022. The Kai Tak East Area site layout plan for the Project is shown in **Figure 1.1**.

### Project Organizations

- 1.6 Different Parties with different levels of involvement in the project organization include:
  - Project Proponent – Highways Department (HyD)
  - Engineer Representative (ER) – Arup – Mott MacDonald Joint Venture (AMMJV)
  - Environmental Team (ET) – Cinotech Consultants Limited (Cinotech)
  - Independent Environmental Checker (IEC) – Environmental Resources Management - Hong Kong Limited (ERM)
  - Contractor – Gammon Construction Limited (GCL)



1.7 The key contacts of the Project are shown in **Table 1.1**.

**Table 1.1 Key Project Contacts**

| <b>Party</b> | <b>Role</b>                       | <b>Contact Person</b> | <b>Phone No.</b> |
|--------------|-----------------------------------|-----------------------|------------------|
| AMMJV        | Engineer Representative           | Mr. Dennis Yu         | 3695 0419        |
| Cinotech     | Environmental Team                | Ms. Betty Choi        | 2151 2072        |
| ERM          | Independent Environmental Checker | Ms. Mandy To          | 2271 3113        |
| GCL          | Contractor                        | Mr. Harry Lam         | 9353 6141        |

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

### **Construction Activities undertaken during the Reporting Month**

1.9 The construction programme is presented in **Appendix A**.

1.10 The major site activities undertaken in the reporting month included:

- Excavation & sub-structure works.

### **Summary of EM&A Requirements**

1.11 The EM&A programme requires air quality monitoring, landscape and visual monitoring and environmental site audit. The EM&A requirements for each parameter are described in the following sections, including:

- Environmental requirements and mitigation measures, as recommended in the EM&A Manual under the EP.

1.12 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.

**Statuses of Environmental Licensing and Permitting**

1.13 All permits/licenses obtained for the Project are summarized in **Table 1.2**.

**Table 1.2 Summary of Environmental Licensing and Permit Status**

| Permit / License No.   | Valid Period |                | Status |
|--|--------------|----------------|--------|
|  | From         | To             |        |
| <b>Environmental Permit (EP)</b>   |              |                |        |
| EP-457/2013/D  | 15 Jun 2021  | N/A            | Valid  |
| <b>Notification of Construction Works under Air Pollution Control Ordinance (APCO)</b> |              |                |        |
| 457346   | 18 Jun 2020  | End of Project | Valid  |
| <b>Billing Account for Construction Waste Disposal</b>                                 |              |                |        |
| 7037679  | 26 Jun 2020  | N/A            | Valid  |
| <b>Registration of Chemical Waste Producer – Kai Tak</b>                               |              |                |        |
| 5211-286-G2347-54  | 13 Jul 2020  | N/A            | Valid  |
| <b>Wastewater Discharge Licence - Kai Tak</b>  |              |                |        |
| WT00037178-2020  | 18 Dec 2020  | 31 Dec 2025    | Valid  |
| <b>Construction Noise Permit - Kai Tak Site (General Works [grouting, piling])</b>     |              |                |        |
| GW-RE0968-22   | 30 Sep 2022  | 29 Mar 2023    | Valid  |
| <b>Construction Noise Permit for Works at 2nd office</b>                               |              |                |        |
| GW-RE0739-22   | 2 Aug 2022   | 1 Dec 2022     | Valid  |
| <b>Wastewater Discharge Licence at 2nd office</b>                                      |              |                |        |
| WT00041796-2022  | 21 Sep 2022  | 30 Sep 2027    | Valid  |

## 2 AIR QUALITY

### Monitoring Requirements

- 2.1 As all of the air quality (1-hour TSP and 24-hour TSP) monitoring works in Kai Tak East Area are currently covered under the Contract No. HY/2018/02 (Central Kowloon Route - Kai Tak East), the corresponding monitoring parameters, equipment, methodology, results and established Action and Limit Levels could be referred to Section 3 of the EM&A report for Contract No. HY/2018/02 during this reporting month.

### Observations

- 2.2 No Action/Limit Level exceedance was recorded for all 1-hour TSP and 24-hour TSP monitoring in the reporting month.
- 2.3 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of air quality mitigation measures within the site boundaries of this Project. The summary of site audits is shown in **Table 6.1** of this report.

## 3 NOISE

### Monitoring Requirements

- 3.1 As no Noise Sensitive Receiver (NSR) is located within 300m from the boundary of Kai Tak East Area, no construction noise monitoring is required in Kai Tak East Area for this Project.

### Observations

- 3.2 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of construction noise mitigation measures within the site boundaries of this Project. The summary of site audits is shown in **Table 6.1** of this report.

## 4 WASTE MANAGEMENT

### Monitoring Requirements

- 4.1 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Inert C&D waste includes soil, broken rock, broken concrete and building debris, while non-inert C&D materials are made up of C&D waste which cannot be reused or recycled and has to be disposed of at the designated landfill sites.

### Results and Observations

- 4.2 The quantities of different types of waste generated in the reporting month are summarised in Table 4.1. Details of the amount of wastes generated by the major site activities of this Project during the reporting month is shown in **Appendix B**.

**Table 4.1 Quantities of Waste Generated from the Project**

| Reporting Period | Quantity  |  |  |                    |                                       |                      |                            |
|------------------|---|--|--|--------------------|---------------------------------------|----------------------|----------------------------|
|                  | Inert C&D Materials                               |  | Non-inert C&D Materials                              |                    |                                       |                      |                            |
|                  | Total Quantity Generated (in '000m <sup>3</sup> ) | Disposed as Public Fill (in '000m <sup>3</sup> ) | Others, e.g. general refuse (in '000m <sup>3</sup> ) | Metals (in '000kg) | Paper/cardboard Packaging (in '000kg) | Plastics (in '000kg) | Chemical waste (in '000kg) |
| October 2022     | 6.025   | 6.025  | 0.026  | 0                  | 0                                     | 0                    | 0                          |

- 4.3 Site audits were carried out on a weekly basis to monitor and audit to ensure that proper storage, transportation and disposal practices of waste materials generated during construction activities, such as construction and demolition (C&D) materials and general refuse are being implemented. The summary of site audits is shown in **Table 6.1** of this report. The implementation status of the waste/chemical management measures in the reporting period are summarized in **Appendix C**.

## 5 LANDSCAPE AND VISUAL

### Monitoring Requirements

- 5.1 According to the EM&A Manual, site audits would be undertaken during the construction phase of the Project to check that the proposed landscape and visual mitigation measures are properly implemented and maintained as per their intended objectives. Site inspections of the implementation of landscape and visual mitigation measures would be undertaken at least once every two weeks during the construction period.

### Results and Observations

- 5.2 Bi-weekly inspection of the implementation of landscape and visual mitigation measures within the site boundaries of this Project was conducted on 11 & 25 October 2022. The implementation status of the landscape and visual mitigation measures in the reporting period are summarized in **Appendix C**. The summary of observations and recommendations made for landscape and visual mitigation measures during site audits are shown in **Table 6.1** of this report.
- 5.3 No non-compliance of the landscape and visual impact was recorded in the reporting month.

## 6 ENVIRONMENTAL AUDIT

### Site Audits

- 6.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.
- 6.2 Site audits were conducted on 5, 11, 18 & 25 October 2022 in the reporting month. Joint site inspection with the representative of IEC was conducted on 11 October 2022. No non-compliance was observed during the site audit.

### Implementation Status of Environmental Mitigation Measures

- 6.3 According to Environmental Permit, the approved EIA Report (Register No.: AEIAR-171/2013), and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix C**.
- 6.4 The ET weekly site inspections were carried out during the reporting month and the observations and follow-up actions in Kai Tak East Area are summarized in **Table 6.1**.

**Table 6.1 Observations and Recommendations of Site Inspections**

| Parameters                         | Date        | Observations  | Follow-up Actions                           |
|------------------------------------|-------------|---|---|
| <i>Water Quality</i>               | 11 Oct 2022 | Ponding water should be removed at KVB site                         | Ponding water has been removed at KVB site. |
| <i>Air Quality</i>                 | N/A         | No environmental deficiency was identified in the reporting period. | N/A   |
| <i>Noise</i>                       | N/A         | No environmental deficiency was identified in the reporting period. | N/A   |
| <i>Waste / Chemical Management</i> | N/A         | No environmental deficiency was identified in the reporting period. | N/A   |
| <i>Land Contamination</i>          | N/A         | No environmental deficiency was identified in the reporting period. | N/A   |
| <i>Landscape and Visual</i>        | N/A         | No environmental deficiency was identified in the reporting period. | N/A   |
| <i>Permits /Licences</i>           | N/A         | No environmental deficiency was identified in the reporting period. | N/A   |

### Implementation Status of Event and Action Plans

- 6.5 The Event and Action Plans for noise could be referred to Appendix D of the EM&A report in Contract No. HY/2018/02.

*Air Quality Monitoring*

- No Action/Limit Level exceedance for 1-hour TSP was recorded.
- No Action/Limit Level exceedance for 24-hour TSP was recorded.

*Landscape and Visual Monitoring*

- No non-conformity for landscape and visual was recorded.

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

- 6.6 No environmental complaints, warning, notifications of summons and successful prosecutions was received in the reporting month. The summary of environmental complaint, warning, summon and notification of successful prosecution for the Project is presented in **Appendix D**.

**Status of Required Submission under Environmental Permit**

- 6.7 Status of required submission under EP-457/2013/D during the reporting period are summarized in **Table 6.2**.

**Table 6.2 Status of Required Submission under Environmental Permit**

| <b>EP Condition<br/>(EP-457/2013/D)</b> | <b>Submission</b>                    | <b>Submission Date</b> |
|---|--------------------------------------|------------------------|
| Condition 3.4                           | Monthly EM&A Report (September 2022) | 14 October2022         |

## 7 FUTURE KEY ISSUES

7.1 Major site activities undertaken for the coming two months include:

- Excavation & Sub-structure Works.

7.2 Key environmental issues in the coming two months include:

- Stockpile accumulation on-site;
- Water spraying for dust generating activities and on haul road;
- Wastewater and runoff discharge from site;
- Coverage of open manholes to avoid dirty runoff to drainage system;
- Noise from operation of the equipment, especially for excavation works and machinery onsite;
- Accumulation of general refuse and construction waste on-site;
- Proper storage of construction materials on-site; and
- Storage of chemicals/fuel and chemical waste/waste oil on-site.



## 8 CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

- 8.1 This is the 25<sup>th</sup> Monthly EM&A Report which presents the EM&A works undertaken in Kai Tak East Area during the reporting month from 1<sup>st</sup> October 2022 – 31<sup>st</sup> October 2022 in accordance with the EM&A Manual and the requirements under the EP.

#### Air Quality Monitoring

- 8.2 No Action/Limit Level exceedance was recorded for all 1-hour and 24-hour TSP monitoring in the reporting month.

#### Landscape and visual

- 8.3 No non-compliance was recorded in the reporting month.

#### Site Audit

- 8.4 4 ET joint weekly environmental site inspections were conducted in the reporting month. Joint weekly site inspections with the representative of ET, Engineer Representative and the Contractor were conducted on 5, 11, 18 & 25 October 2022, whereas joint site inspection with the representative of IEC was conducted on 11 October 2022. All environmental deficiencies observed during site inspections were rectified by the Contractor.

#### Complaint, Notification of Summons and Successful Prosecution

- 8.5 No environmental complaints, notifications of summons and successful prosecutions were received in the reporting month.

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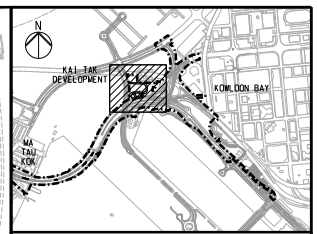
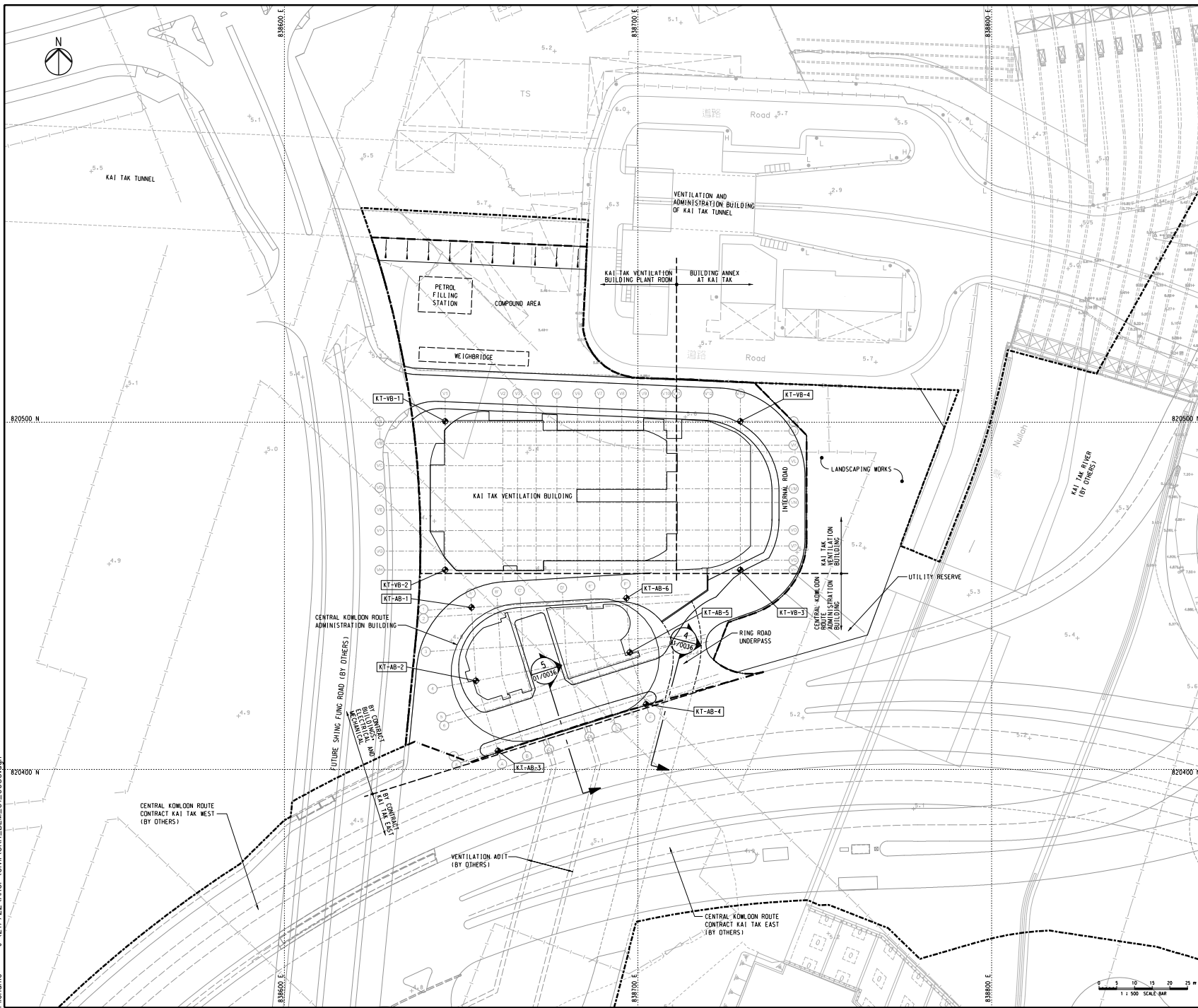
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## FIGURES

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**KEY PLAN**

**NOTES**  
 1. FOR NOTES AND LEGEND, REFER TO DRAWING NO. CR/BEM/01/0011.

**LEGEND**  
 - - - - - BOUNDARIES OF THE SITE  
 - - - - - BUILDING SITE BOUNDARY

**SETTING OUT TABLE OF BUILDING GRID LINES**

| SETTING OUT POINT | CO-ORDINATES |            |
|-------------------|--------------|------------|
|                   | EASTING      | NORTHING   |
| KT-VB-1           | 838645.490   | 820500.230 |
| KT-VB-2           | 838645.490   | 820458.230 |
| KT-VB-3           | 838728.940   | 820458.230 |
| KT-VB-4           | 838728.940   | 820500.230 |
| KT-AB-1           | 838652.940   | 820447.607 |
| KT-AB-2           | 838654.192   | 820426.883 |
| KT-AB-3           | 838660.424   | 820407.065 |
| KT-AB-4           | 838702.302   | 820420.233 |
| KT-AB-5           | 838697.487   | 820434.911 |
| KT-AB-6           | 838696.760   | 820450.255 |

| Rev. | Issue For Tender | Description | By  | Date  |
|------|------------------|-------------|-----|-------|
| 00   | ISSUE FOR TENDER |             | LFM | 09/19 |

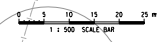
**ARUP MOTT MACDONALD**  
 Arup-Mott MacDonald Joint Venture

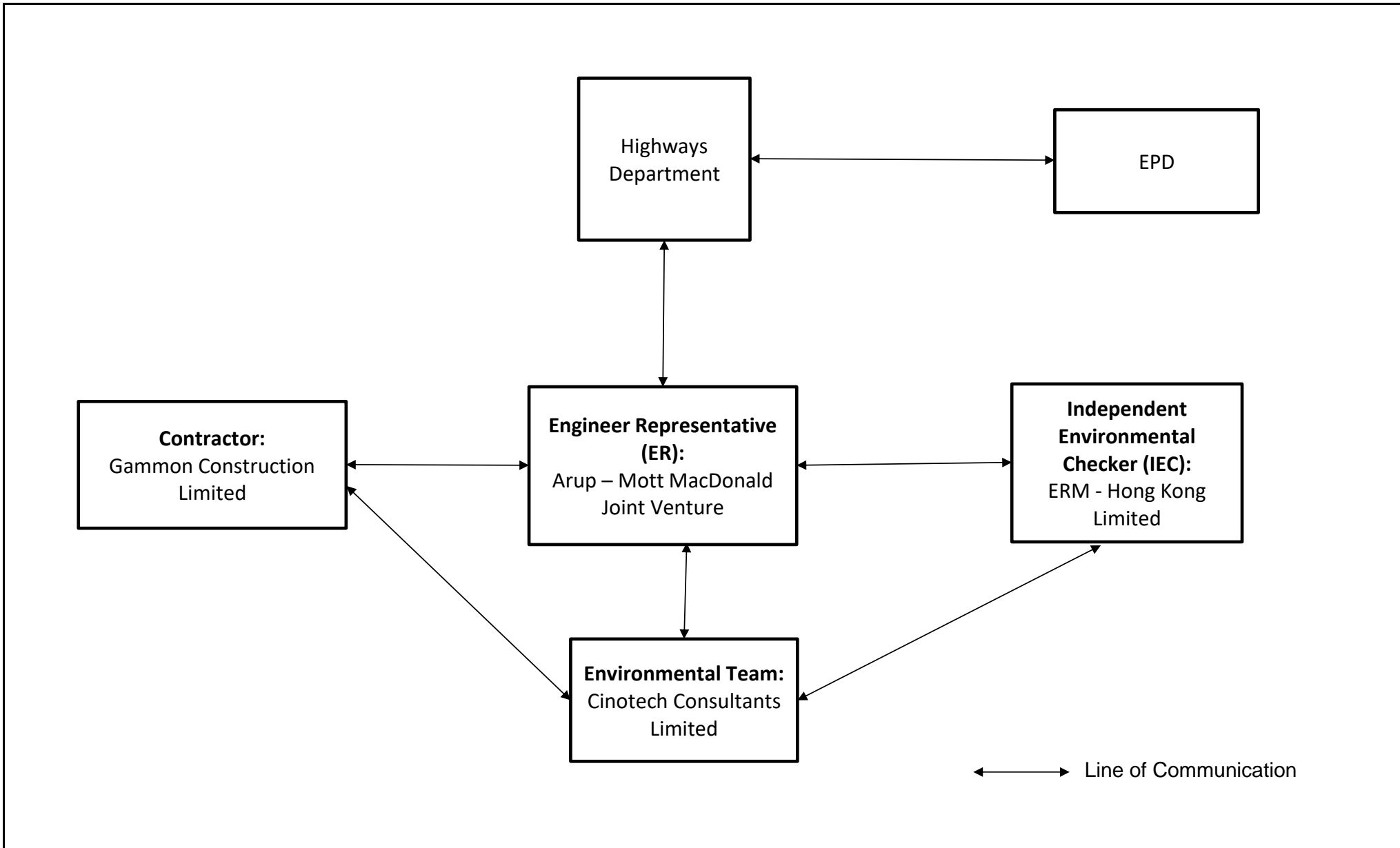
Project title  
 Contract No. HY/2019/13  
 Central Kowloon Route - Buildings, Electrical and Mechanical

Drawing title  
**GENERAL LAYOUT PLAN  
 KAI TAK VENTILATION BUILDING  
 AND CENTRAL KOWLOON ROUTE  
 ADMINISTRATION BUILDING**

|                   |            |                   |        |
|-------------------|------------|-------------------|--------|
| Drawing no.<br>圖號 | 1.1        | Rev.<br>修訂        | 00     |
| Drawn By<br>繪圖    | RY         | Checked By<br>校核  | KJC    |
| Scale<br>比例       | 1:500 @ A1 | Approved By<br>批准 | EC     |
|                   |            | Status<br>狀態      | TENDER |

路政署  
**HIGHWAYS DEPARTMENT**  
 主要工程管理局  
 MAJOR WORKS PROJECT MANAGEMENT OFFICE





Contract No. HY/2019/13  
 Central Kowloon Route – Buildings, Electrical and Mechanical Works  
**Project Organisation For Environmental Monitoring and Audit**

|                |         |                   |          |
|----------------|---------|-------------------|----------|
| <b>SCALE</b>   | N.T.S.  | <b>DATE</b>       | Nov 2020 |
| <b>CHECK</b>   | BC      | <b>DRAWN</b>      | EH       |
| <b>JOB NO.</b> | MA20024 | <b>FIGURE NO.</b> | 1.2      |

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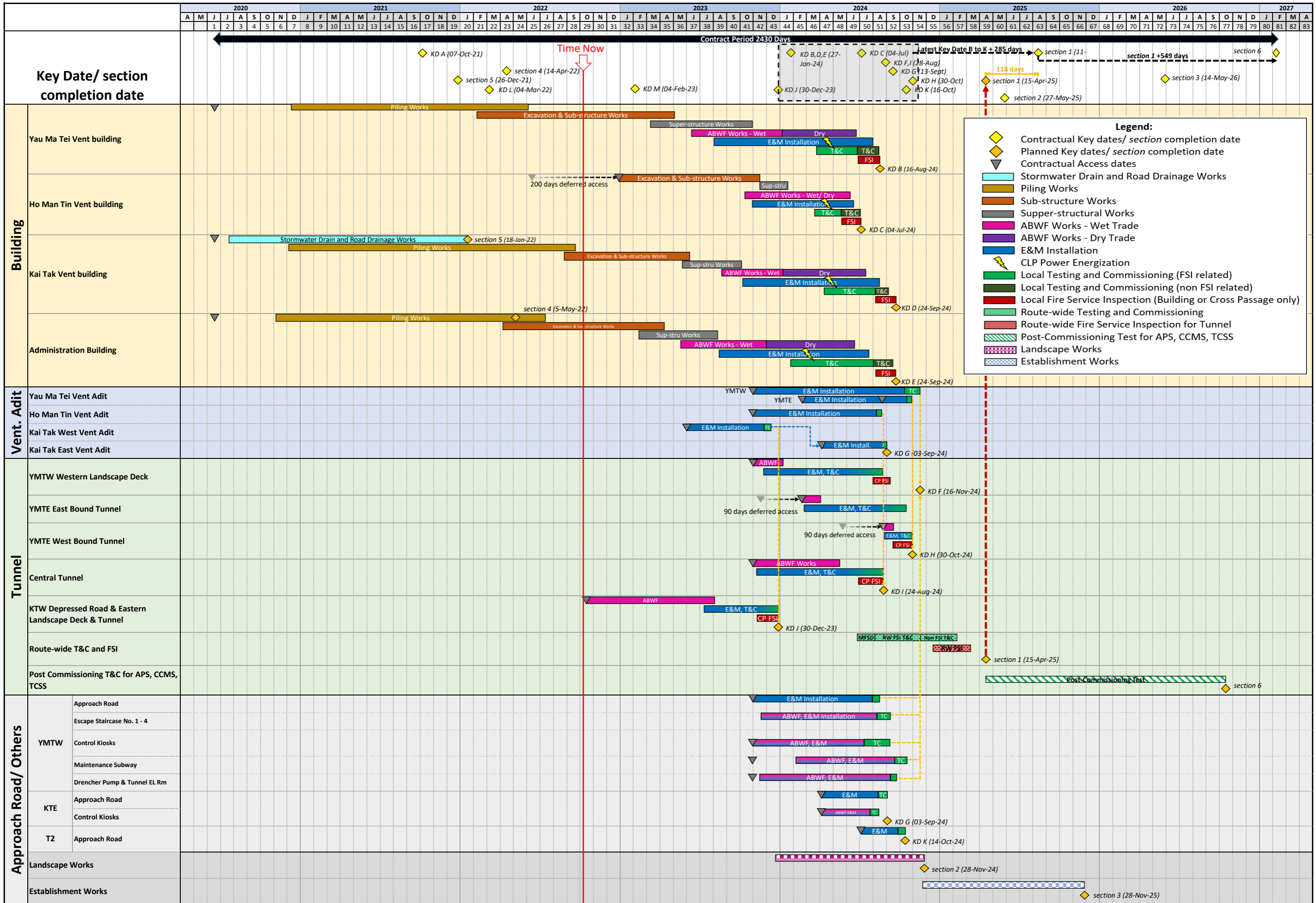
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**APPENDIX A**  
**CONSTRUCTION PROGRAMME**

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Contract No. HY/2019/13  
 Central Kowloon Route – Buildings, Electrical and Mechanical Works  
 Summary Programme



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**APPENDIX B  
SUMMARY OF WASTE GENERATION  
AND DISPOSAL RECORDS**

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## Monthly Summary Waste Flow Table

[PS Clauses 25.24(11)S & 25.34(16)(a)]

Annex 4 to Appendix C

Name of Department: HyD

Contract No.: HY/2019/13

Central Kowloon Route - Buildings, Electrical and Mechanical Works

Kai Tak Site Area

### Monthly Summary Waste Flow Table for 2022 (year)

| Month                | Actual Quantities of Inert C&D Materials Generated Monthly |   |   |   |  |                               | Actual Quantities of C&D Waste Generated Monthly |                                   |                          |                                   |                                    |  |
|----------------------|--|---|---|---|--|-------------------------------|--|-----------------------------------|--------------------------|-----------------------------------|------------------------------------|--|
|                      | Total Quantity<br>Generated                                | Hard Rock and<br>Large Broken<br>Concrete<br>(see Note 5) | Reused in the<br>Contract<br>(see Note 5) | Reused in<br>other Projects<br>(see Note 5) | Disposed as<br>Public Fill<br>(see Note 5) | Imported Fill<br>(see Note 5) | Metals   | Paper /<br>cardboard<br>packaging | Plastics<br>(see Note 3) | Chemical<br>Waste<br>(see Note 5) | Marine<br>Sediment<br>(see Note 7) | Others, e.g.<br>general refuse<br>(see Note 5) |
|                      | (in '000m3)  | (in '000m3)   | (in '000m3)                               | (in '000m3)                                 | (in '000m3)                                | (in '000m3)                   | (in '000kg)                                      | (in '000kg)                       | (in '000kg)              | (in '000kg)                       | (in '000m3)                        | (in '000m3)                                    |
| Jan                  | 1.451  | 0.000   | 0.000                                     | 0.000                                       | 1.451                                      | 0.000                         | 0.000  | 0.000                             | 0.000                    | 0.000                             | 0.000                              | 0.017  |
| Feb                  | 1.121  | 0.000   | 0.000                                     | 0.000                                       | 1.121                                      | 0.000                         | 0.000  | 0.000                             | 0.000                    | 0.000                             | 0.000                              | 0.029  |
| Mar                  | 1.462  | 0.000   | 0.000                                     | 0.000                                       | 1.462                                      | 0.000                         | 0.000  | 0.000                             | 0.000                    | 0.000                             | 0.000                              | 0.033  |
| Apr                  | 2.606  | 0.000   | 0.000                                     | 0.000                                       | 2.606                                      | 0.000                         | 0.000  | 0.000                             | 0.000                    | 0.000                             | 0.000                              | 0.042  |
| May                  | 2.446  | 0.000   | 0.000                                     | 0.821                                       | 1.625                                      | 0.000                         | 0.000  | 0.000                             | 0.000                    | 0.000                             | 0.000                              | 0.037  |
| Jun                  | 1.888  | 0.000   | 0.000                                     | 0.495                                       | 1.393                                      | 0.000                         | 0.000  | 0.000                             | 0.000                    | 0.000                             | 0.000                              | 0.014  |
| <b>Sub-Total</b>     | <b>10.976</b>  | <b>0.000</b>  | <b>0.000</b>                              | <b>1.317</b>                                | <b>9.659</b>                               | <b>0.000</b>                  | <b>0.000</b>                                     | <b>0.000</b>                      | <b>0.000</b>             | <b>0.000</b>                      | <b>0.000</b>                       | <b>0.171</b>                                   |
| Jul                  | 1.932  | 0.000   | 0.000                                     | 0.000                                       | 1.932                                      | 0.000                         | 0.000  | 0.000                             | 0.000                    | 0.000                             | 0.000                              | 0.042  |
| Aug                  | 7.567  | 0.000   | 0.000                                     | 0.208                                       | 7.359                                      | 0.000                         | 0.000  | 0.000                             | 0.000                    | 0.000                             | 0.000                              | 0.047  |
| Sep                  | 10.133   | 0.000   | 0.000                                     | 1.027                                       | 9.106                                      | 0.000                         | 0.000  | 0.000                             | 0.000                    | 0.000                             | 0.000                              | 0.068  |
| Oct                  | 6.025  | 0.000   | 0.000                                     | 0.000                                       | 6.025                                      | 0.000                         | 0.000  | 0.000                             | 0.000                    | 0.000                             | 0.000                              | 0.026  |
| Nov                  |  |   |   |   |  |                               |  |                                   |                          |                                   |                                    |  |
| Dec                  |  |   |   |   |  |                               |  |                                   |                          |                                   |                                    |  |
| <b>Total (2022)</b>  | <b>36.632</b>  | <b>0.000</b>  | <b>0.000</b>                              | <b>2.552</b>                                | <b>34.080</b>                              | <b>0.000</b>                  | <b>0.000</b>                                     | <b>0.000</b>                      | <b>0.000</b>             | <b>0.000</b>                      | <b>0.000</b>                       | <b>0.354</b>                                   |
| <b>Total (whole)</b> | <b>55.840</b>  | <b>0.000</b>  | <b>0.000</b>                              | <b>2.552</b>                                | <b>53.289</b>                              | <b>0.000</b>                  | <b>0.000</b>                                     | <b>0.000</b>                      | <b>0.000</b>             | <b>1.080</b>                      | <b>0.000</b>                       | <b>0.623</b>                                   |

Note:

- (1) The performance targets are given in PS Clause 25.24
- (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Sites.
- (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials, and water barriers
- (4) The summary table shall be submitted to the Project Manager monthly together with the Waste Flow Table for review and monitoring in accordance with the PS Clause 25.24
- (5) Density values and Bulk Factors adopted:

|   |                     |                   |
|---|---------------------|-------------------|
| Hard Rock and Large Broken Concrete:    | 2.4 T/m3 (in-situ)  | Bulk Factor: 1.25 |
| Soil / Fill:                            | 2.0 T/m3 (in-situ)  | Bulk Factor: 1.1  |
| Marine Sediment:                        | 1.7 T/m3 (in-situ)  | Bulk Factor: 1.3  |
| General Refuse:                         | 400 kg/m3           |                   |
| Chemical Waste (mainly used lubricant): | 900 kg/m3           |                   |
| Tree Trunk / Tree Stump:                | 850 kg/m3 (in-situ) | Bulk Factor: 1.1  |
- (6) The reported and forecast volume figures are in "bulk" volume, with Bulk Factor applied as per Note (5)
- (7) This figure refers to marine sediment disposed via dumping at sea. Treated Sediment for Reuse on-site will be categorized into "Reused in the Contract"



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

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| EIA Ref.                        | EM&A Ref. | Recommended Mitigation Measures   | Objectives of the Recommended Measures & Main Concern to Address | Implementation Agent | Location / Timing      | Implementation Stage | Requirements and/or standards to be achieved                             | Implementation Status |
|---------------------------------|-----------|---|--|----------------------|------------------------|----------------------|--|-----------------------|
| <b>Construction Dust Impact</b> |           |   |  |                      |                        |                      |  |                       |
| S4.3.10                         | D1        | The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation   | Minimize dust impact at the nearby sensitive receivers           | Contractor           | All construction sites | Construction stage   | - APCO<br>- To control the dust impact to meet HKAQO and TM-EIA criteria | ^                     |
| S4.3.10                         | D2        | Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.3 L/m <sup>2</sup> to achieve the dust removal efficiency. | Minimize dust impact at the nearby sensitive receivers           | Contractor           | All construction sites | Construction stage   | - APCO<br>- To control the dust impact to meet HKAQO and TM-EIA criteria | ^                     |
| S4.3.10                         | D3        | Proper watering at exposed spoil should be undertaken throughout the construction phase.  | Minimize dust impact at the nearby sensitive receivers           | Contractor           | All construction sites | Construction stage   | - APCO<br>- To control the dust impact to meet HKAQO and TM-EIA criteria | ^                     |
|                                 |           | Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading.  |  |                      |                        |                      |  | ^                     |
|                                 |           | Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads.   |  |                      |                        |                      |  | ^                     |
|                                 |           | A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones.  |  |                      |                        |                      |  | ^                     |
|                                 |           | The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle.   |  |                      |                        |                      |  | ^                     |
|                                 |           | Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.  |  |                      |                        |                      |  | ^                     |

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures   | Objectives of the Recommended Measures & Main Concern to Address | Implementation Agent | Location / Timing | Implementation Stage | Requirements and/ or standards to be achieved | Implementation Status |
|----------|-----------|---|--|----------------------|-------------------|----------------------|---|-----------------------|
|          |           | When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period. |  |                      |                   |                      |   | ^                     |
|          |           | The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials.   |  |                      |                   |                      |   | ^                     |
|          |           | Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously.  |  |                      |                   |                      |   | ^                     |
|          |           | Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet   |  |                      |                   |                      |   | ^                     |
|          |           | Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding.  |  |                      |                   |                      |   | N/A                   |
|          |           | Any skip hoist for material transport should be totally enclosed by impervious sheeting.  |  |                      |                   |                      |   | ^                     |
|          |           | 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   |  |                      |                   |                      |   | ^                     |
|          |           | Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed.  |  |                      |                   |                      |   | N/A                   |
|          |           | Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system.  |  |                      |                   |                      |   | N/A                   |

| EIA Ref.                             | EM&A Ref. | Recommended Mitigation Measures   | Objectives of the Recommended Measures & Main Concern to Address                         | Implementation Agent | Location / Timing                     | Implementation Stage | Requirements and/ or standards to be achieved | Implementation Status |
|--------------------------------------|-----------|---|--|----------------------|---------------------------------------|----------------------|---|-----------------------|
|                                      |           | Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. |  |                      |                                       |                      |   | N/A                   |
| S4.3.10                              | D6        | Implement regular dust monitoring under EM&A programme during the construction stage.   | Monitoring of dust impact  | Contractor           | Selected rep. dust monitoring station | Construction stage   | - TM-EIA                                      | ^                     |
| <b>Construction Noise (Airborne)</b> |           |   |  |                      |                                       |                      |   |                       |
| S5.4.1                               | N1        | Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme.   | Control construction airborne noise  | Contractor           | All construction sites                | Construction stage   | - Annex 5, TM-EIAO                            | ^                     |
|                                      |           | Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.  |  |                      |                                       |                      |   | ^                     |
|                                      |           | Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs.   |  |                      |                                       |                      |   | ^                     |
|                                      |           | Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works.   |  |                      |                                       |                      |   | ^                     |
|                                      |           | Mobile plant should be sited as far away from NSRs as possible and practicable.   |  |                      |                                       |                      |   | ^                     |
|                                      |           | Material stockpiles, mobile container site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.   |  |                      |                                       |                      |   | N/A                   |
| S5.4.1                               | N2        | Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of hoardings shall be properly maintained throughout the construction period.  | Reduce the construction noise levels at low-level zone of NSRs through partial screening | Contractor           | All construction sites                | Construction stage   | - Annex 5, TM-EIAO                            | ^                     |

| EIA Ref.                                  | EM&A Ref. | Recommended Mitigation Measures  | Objectives of the Recommended Measures & Main Concern to Address                                       | Implementation Agent | Location / Timing                        | Implementation Stage | Requirements and/or standards to be achieved                                      | Implementation Status |
|---|-----------|--|--|----------------------|--|----------------------|---|-----------------------|
| S5.4.1                                    | N3        | Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressors, generators and handheld breakers, etc.   | Screen the noisy plant items to be used at all construction sites                                      | Contractor           | All construction sites where practicable | Construction stage   | - Annex 5, TM-EIAO  | N/A                   |
| S5.4.1                                    | N4        | Use 'Quiet plants'   | Reduce the noise levels of plant items   | Contractor           | All construction sites where practicable | Construction stage   | - Annex 5, TM-EIAO  | ^                     |
| S5.4.1                                    | N5        | Loading/ unloading activities should be carried out inside the full enclosure of mucking out points.   | Reduce the noise levels of loading/ unloading activities   | Contractor           | Mucking out locations                    | Construction stage   | - Annex 5, TM-EIAO  | ^                     |
| S5.4.1                                    | N6        | Sequencing operation of construction plants where practicable.   | Operate sequentially within the same work site to reduce the construction airborne noise               | Contractor           | All construction sites where practicable | Construction stage   | - Annex 5, TM-EIAO  | ^                     |
| S5.4.1                                    | N7        | Implement a noise monitoring programme under EM&A programme.   | Monitor the construction noise levels at the selected representative locations                         | Contractor           | Selected rep. noise monitoring station   | Construction stage   | - TM-EIAO   | N/A                   |
| <b>Water Quality (Construction Phase)</b> |           |  |  |                      |  |                      |   |                       |
| S6.9.1.1                                  | W1        | <u>Construction Runoff</u><br>At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. | To minimize water quality impact from the construction site runoff and general construction activities | Contractor           | All construction sites where practicable | Construction stage   | - Water Pollution Control Ordinance<br>- ProPECC PN 1/94<br>- TM-EIAO<br>- TM-DSS | ^                     |

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures  | Objectives of the Recommended Measures & Main Concern to Address | Implementation Agent | Location / Timing | Implementation Stage | Requirements and/ or standards to be achieved | Implementation Status |
|----------|-----------|--|--|----------------------|-------------------|----------------------|---|-----------------------|
|          |           | <p>The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a silt/ sediment trap. The sediment/ silt traps should be incorporated in the permanent drainage channels to enhance deposition rates.</p>   |  |                      |                   |                      |   | ^                     |
|          |           | <p>The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/ sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m<sup>3</sup>/s a sedimentation basin of 30 m<sup>3</sup> would be required and for a flow rate of 0.5 m<sup>3</sup>/s the basin would be 150 m<sup>3</sup>. The detailed design of the sand/ silt traps shall be undertaken by the contractor prior to the commencement of construction.</p> |  |                      |                   |                      |   | ^                     |
|          |           | <p>All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means.</p>  |  |                      |                   |                      |   | N/A                   |
|          |           | <p>The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</p>  |  |                      |                   |                      |   | N/A                   |
|          |           | <p>All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.</p>   |  |                      |                   |                      |   | *                     |
|          |           | <p>Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.</p>   |  |                      |                   |                      |   | ^                     |

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures   | Objectives of the Recommended Measures & Main Concern to Address | Implementation Agent | Location / Timing | Implementation Stage | Requirements and/ or standards to be achieved | Implementation Status |
|----------|-----------|---|--|----------------------|-------------------|----------------------|---|-----------------------|
|          |           | Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m3 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.  |  |                      |                   |                      |   | ^                     |
|          |           | Manholes 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.   |  |                      |                   |                      |   | ^                     |
|          |           | Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarized 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.   |  |                      |                   |                      |   | ^                     |
|          |           | 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 site wheel washing facilities should be provided at every construction site exit where practicable. Wash-water 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 wheel wash 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. |  |                      |                   |                      |   | ^                     |
|          |           | Oil interceptors should be provided in the drainage system downstream of any oil/ fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.   |  |                      |                   |                      |   | ^                     |
|          |           | Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.  |  |                      |                   |                      |   | ^                     |

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures   | Objectives of the Recommended Measures & Main Concern to Address   | Implementation Agent | Location / Timing                        | Implementation Stage | Requirements and/ or standards to be achieved                                     | Implementation Status |
|----------|-----------|---|--|----------------------|--|----------------------|---|-----------------------|
|          |           | All fuel tanks and storage areas should be provided with locks and sited 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 water sensitive receivers nearby.   |  |                      |  |                      |   | ^                     |
|          |           | Adopt best management practices.  |  |                      |  |                      |   | ^                     |
|          |           | All earth works should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.  |  |                      |  |                      |   | ^                     |
| S6.9.1.2 | W2        | <u>Tunneling Works and Underground Works</u><br>Cut-&-cover tunneling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.   | To minimize construction water quality impact from tunneling works | Contractor           | All tunneling portion                    | Construction stage   | - Water Pollution Control Ordinance<br>- ProPECC PN 1/94<br>- TM-EIAO<br>- TM-DSS | N/A                   |
|          |           | Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge.   |  |                      |  |                      |   | N/A                   |
|          |           | The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater.   |  |                      |  |                      |   | N/A                   |
|          |           | Direct discharge of the bentonite slurry (as a result of D-wall) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities area completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. |  |                      |  |                      |   | N/A                   |
| S6.9.1.3 | W3        | <u>Sewage Effluent</u><br>Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.  | To minimize water quality from sewage effluent                     | Contractor           | All construction sites where practicable | Construction stage   | - Water Pollution Control Ordinance<br>- TM-DSS                                   | ^                     |





| EIA Ref.                                     | EM&A Ref. | Recommended Mitigation Measures   | Objectives of the Recommended Measures & Main Concern to Address  | Implementation Agent | Location / Timing                       | Implementation Stage | Requirements and/ or standards to be achieved                                     | Implementation Status |
|--|-----------|---|---|----------------------|---|----------------------|---|-----------------------|
| S6.9.1.6                                     | W6        | <u>Accidental Spillage</u><br>All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains.  | To minimize water quality impact from accidental spillage   | Contractor           | All construction site where practicable | Construction stage   | - Water Pollution Control Ordinance<br>- ProPECC PN 1/94<br>- TM-EIAO<br>- TM-DSS | ^                     |
|  |           | The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings.   |   |                      |   |                      |   | ^                     |
|  |           | Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste Disposal (Chemical Waste) (General) Regulation.  |   |                      |   |                      |   | ^                     |
| <b>Waste Management (Construction Waste)</b> |           |   |   |                      |   |                      |   |                       |
| S7.4.1                                       | WM1       | <u>On-site sorting of C&amp;D material</u><br>Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc.). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile area preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractor for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc. should be explored. | Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use | Contractor           | All construction sites                  | Construction stage   | · DEVB (W) No. 6/2010   | ^                     |

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures   | Objectives of the Recommended Measures & Main Concern to Address  | Implementation Agent | Location / Timing      | Implementation Stage | Requirements and/ or standards to be achieved   | Implementation Status |
|----------|-----------|---|---|----------------------|------------------------|----------------------|---|-----------------------|
| S7.5.1   | WM2       | <u>Construction and Demolition Material</u><br>Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement.   | Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal | Contractor           | All construction sites | Construction stage   | · Land (Miscellaneous Provisions) Ordinance<br>· Waste Disposal Ordinance<br>· ETWB TCW No. 19/2005 | ^                     |
|          |           | Carry out on-site sorting.  |   |                      |                        |                      |   | ^                     |
|          |           | Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate   |   |                      |                        |                      |   | ^                     |
|          |           | Adopt 'selective demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible.  |   |                      |                        |                      |   | N/A                   |
|          |           | Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified.   |   |                      |                        |                      |   | ^                     |
|          |           | Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction.  |   |                      |                        |                      |   | ^                     |
| S7.5.1   | WM3       | <u>C&amp;D Waste</u><br>Standard formwork or pre-fabrication should be used as far as practicable in order to minimize the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. | Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal | Contractor           | All construction sites | Construction stage   | · Land (Miscellaneous Provisions) Ordinance<br>· Waste Disposal Ordinance<br>· ETWB TCW No. 19/2005 | ^                     |
|          |           | The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.   |   |                      |                        |                      |   | N/A                   |

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures  | Objectives of the Recommended Measures & Main Concern to Address | Implementation Agent | Location / Timing   | Implementation Stage  | Requirements and/ or standards to be achieved  | Implementation Status |
|----------|-----------|--|--|----------------------|---------------------|---|--|-----------------------|
| S7.5.1   | WM4       | <u>Excavated Contaminated Soils</u><br>Details of the mitigation measures on handling of the contaminated soil shall be referred to Section on Land Contamination below.   | The contaminated soil will be excavated for on-site reuse        | Contractor           | PBH4                | Prior to commencement of construction works within the contaminated | · Practice Guide (PG) for Investigation and Remediation of Contaminated Land<br>· GN/GM for land contamination | ^                     |
| S7.5.1   | WM5       | <u>Land-based and Marine-based Sediment</u><br>All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location.  | To control pollution due to marine sediment                      | Contractor           | Along CKR alignment | Construction stage  | · ETWB TCW No. 34/2002   | ^                     |
|          |           | All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.  |  |                      |                     |   |  | N/A                   |
|          |           | Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations.  |  |                      |                     |   |  | N/A                   |
|          |           | Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action.   |  |                      |                     |   |  | N/A                   |
|          |           | The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers. |  |                      |                     |   |  | N/A                   |
|          |           | The Contractors shall comply with the conditions in the dumping licence.   |  |                      |                     |   |  | ^                     |
|          |           | All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material.  |  |                      |                     |   |  | N/A                   |
|          |           | The material shall be placed into the disposal pit by bottom dumping.  |  |                      |                     |   |  | N/A                   |

| EIA Ref. | EM&A Ref. | Recommended Mitigation Measures   | Objectives of the Recommended Measures & Main Concern to Address            | Implementation Agent | Location / Timing      | Implementation Stage | Requirements and/or standards to be achieved   | Implementation Status |
|----------|-----------|---|---|----------------------|------------------------|----------------------|--|-----------------------|
|          |           | Contaminated marine mud shall be transported by spit barge of not less than 750m <sup>3</sup> capacity and capable of rapid opening and discharge at the disposal site.   |   |                      |                        |                      |  | N/A                   |
|          |           | Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site.  |   |                      |                        |                      |  | N/A                   |
|          |           | For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping designated mud pit would be a possible arrangement. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, 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 at the disposal site, thereby fulfilling the requirements for fully confined mud disposal.   |   |                      |                        |                      |  | N/A                   |
| S7.5.1   | WM6       | <p><u>Chemical Waste</u><br/>Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</p> <p>Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed, have a capacity of less than 450 L unless the specification has been approved by EPD, and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation.</p> <p>The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste, enclosed on at least 3 sides, have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest, have adequate ventilation, covered to prevent rainfall entering, and arranged so that incompatible materials are adequately separated.</p> | Control the chemical waste and ensure proper storage, handling and disposal | Contractor           | All construction sites | Construction stage   | <ul style="list-style-type: none"> <li>Waste Disposal (Chemical Waste) (General) Regulation</li> <li>Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</li> </ul> | ^                     |
|          |           |   |   |                      |                        |                      |  | ^                     |
|          |           |   |   |                      |                        |                      |  | ^                     |

| EIA Ref.                  | EM&A Ref. | Recommended Mitigation Measures   | Objectives of the Recommended Measures & Main Concern to Address                   | Implementation Agent | Location / Timing      | Implementation Stage   | Requirements and/or standards to be achieved   | Implementation Status |
|---------------------------|-----------|---|--|----------------------|------------------------|--|--|-----------------------|
|                           |           | Disposal of chemical waste should be via a licensed waste collector, be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers, or be to a reuser of the waste, under approval from EPD. |  |                      |                        |  |  | ^                     |
| S7.5.1                    | WM7       | <u>General Refuse</u><br>General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.   | Minimize production of the general refuse and avoid odour, pest and litter impacts | Contractor           | All construction sites | Construction stage   | Waste Disposal Ordinance   | ^                     |
|                           |           | A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.   |  |                      |                        |  |  | ^                     |
|                           |           | Aluminum cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.  |  |                      |                        |  |  | ^                     |
|                           |           | Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.   |  |                      |                        |  |  | ^                     |
| <b>Land Contamination</b> |           |   |  |                      |                        |  |  |                       |
| S8.9 & Appendix 8.4       | LC2       | <u>Excavation of the Contaminated Soil</u><br>Prior to commencement of the excavation works at the contamination zone, the zone should be clearly marked out on site and the surface levels recorded. Excavation of contaminated material should be undertaken using dedicated earth-moving plant.                                    | The contaminated soil will be excavated for on-site reuse                          | Contractor           | PBH4                   | Prior to commencement of construction works within the contaminated area | Practice Guide (PG) for Investigation and Remediation of Contaminated Land - Guidance Notes for Contaminated Land Assessment and Remediation<br>Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management | N/A                   |
|                           |           | The excavated contaminated soils would be stockpiled at designated area on site and covered by sheet to prevent dispersion of contamination during stockpiling.   |  |                      |                        |  |  | N/A                   |
|                           |           | The Contractor should pay attention to the selection of suitable groundwater lowering schemes and discharge points if the groundwater table is higher than the contaminated soils during excavation. The Contractor should also obtain a valid Water Pollution Control Ordinance (WPCO) discharge licence from EPD where applicable.  |  |                      |                        |  |  | N/A                   |

| EIA Ref.                    | EM&A Ref. | Recommended Mitigation Measures   | Objectives of the Recommended Measures & Main Concern to Address | Implementation Agent | Location / Timing                             | Implementation Stage | Requirements and/ or standards to be achieved | Implementation Status |
|-----------------------------|-----------|---|--|----------------------|---|----------------------|---|-----------------------|
| <b>Hazard to Life</b>       |           |   |  |                      |   |                      |   |                       |
| S9.18                       | H8        | The driver and his assistant should be physically healthy, experienced and have good safe driving records. The driver should hold a proper driving licence for the approved transport truck. Dedicated training programme and regular road safety briefing sessions/ workshops should be provided to enhance their safe driving attitude and practice. Smoking should be strictly prohibited. | To reduce the risk during explosives transport                   | Contractor           | Works areas at which explosives would be used | Construction stage   | /   | ^                     |
| S9.18                       | H9        | Emergency response plans in case of road accident should be prepared and implemented. The driver and his assistant should be familiar with the emergency procedures including evacuation, and proper communication/ fire-fighting equipment should be provided to the driver and his assistant.   | To reduce the risk during explosives transport                   | Contractor           | Works areas at which explosives would be used | Construction stage   | /   | ^                     |
| <b>Landscape and Visual</b> |           |   |  |                      |   |                      |   |                       |
| S10.10.1<br>Table 10.11     | LV3       | <u>Good Site Management</u><br>Large temporary stockpiles of excavated material shall be covered with unobtrusive sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance.  | Minimize visual impact   | Contractor           | Within Project site                           | Construction Phase   | /   | ^                     |
|                             |           | Construction plant and building material shall be orderly and carefully stored in order to create a neat and tidy visual appearance.  |  |                      |   |                      |   | ^                     |
| S10.10.1<br>Table 10.11     | LV4       | <u>Screen Hoarding</u><br>Decorative screen hoarding should be erected to screen the public from the construction area. It should be designed to be compatible with the existing urban context.   | Minimize visual impact   | Contractor           | Within Project site                           | Construction Phase   | /   | ^                     |
| S10.10.1<br>Table 10.11     | LV5       | <u>Lighting Control during Construction</u><br>All lighting in the construction site shall be carefully controlled to minimize light pollution and night-time glare to nearby residences and GIC. The Contractor shall consider other security measures, which shall minimize the visual impacts.   | Minimize visual impact   | Contractor           | Within Project site                           | Construction Phase   | /   | ^                     |
| S10.10.1<br>Table 10.11     | LV6       | <u>Erosion Control</u><br>The potential for soil erosion shall be reduced by minimizing the extent of vegetation disturbance on site and by providing a protective cover over newly exposed soil.   | Minimize landscape impact  | Contractor           | Within Project site                           | Construction Phase   | /   | ^                     |

| EIA Ref.                | EM&A Ref. | Recommended Mitigation Measures   | Objectives of the Recommended Measures & Main Concern to Address | Implementation Agent | Location / Timing                                     | Implementation Stage        | Requirements and/ or standards to be achieved  | Implementation Status |
|-------------------------|-----------|---|--|----------------------|---|-----------------------------|--|-----------------------|
| S10.10.1<br>Table 10.11 | LV7       | <u>Tree Protection &amp; Preservation</u><br>Carefully protected during construction. Tree protection measures will be detailed at the Tree Removal Application stage and plans submitted to the relevant Government Department for approval in due course in accordance with ETWB TC no. 3/2006.   | Minimize landscape and visual impact                             | Contractor           | Within Project site                                   | Construction Phase          | · 'Guidelines for Tree Risk Management and Assessment Arrangement on an Area Basis and on a Tree Basis', Greening, Landscape and Tree Management (GLTM) Section, DEVB<br>· Latest recommended horticultural practices from GLTM Section, | N/A                   |
| S10.10.1<br>Table 10.11 | LV8       | <u>Tree Transplantation</u><br>For trees unavoidably affected by the Project that have to be removed, where practical transplantation will be chosen as the top priority method of removal. If this is not possible or practical compensatory planting will be provided for trees unavoidably felled (See LV10). For trees unavoidably affected by the Project works that are transplanted, transplantation must be carried out in accordance with ETWB TCW 2/2004 and 3/2006.  | Minimize landscape and visual impact                             | Contractor           | Within Project site and designated off-site locations | Prior to Construction Phase | · ETWB TCW 3/2006<br>· Latest recommended horticultural practices from Greening, Landscape and Tree Management (GLTM) Section, DEVB<br>· ETWB TCW 2/2004   | N/A                   |
| S10.10.1<br>Table 10.11 | LV9       | <u>Compensatory Planting</u><br>For trees unavoidably affected by the Project that have to be removed, where practical transportation will be chosen as the top priority method of removal but if this is not possible or practical compensatory planting will be provided for trees unavoidably felled. All felled trees shall be compensated for by planting trees to the satisfaction of relevant Government projects. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006. | Minimize visual impact and also enhance landscape                | Contractor           | Within Project site                                   | Construction Phase          | · ETWB TCW 3/2006<br>· Latest recommended horticultural practices from Greening, Landscape and Tree Management (GLTM) Section, DEVB<br>· ETWB TCW 2/2004   | N/A                   |



| EIA Ref.   | EM&A Ref. | Recommended Mitigation Measures  | Objectives of the Recommended Measures & Main Concern to Address                           | Implementation Agent | Location / Timing                                   | Implementation Stage          | Requirements and/or standards to be achieved  | Implementation Status |
|--|-----------|--|--|----------------------|---|-------------------------------|---|-----------------------|
| S10.10.1<br>Table 10.11                              | LV10      | <u>Screen Planting</u><br>Tall screen/buffer trees, shrubs and climbers should be planted, in so far as is possible, to soften and screen proposed structures such as roads and central strip, vertical edges and buildings and to enhance streetscape greening effect where appropriate. Indiscriminate use of trees for screening must be avoided and the principle of 'right tree for the right place' must be followed. This detail will be provided at the Detailed Design stage. This measure may additionally form part of the compensatory planting and will improve and create a pleasant pedestrian environment. | Minimize visual impact and also enhance landscape  | Contractor           | Within Project site                                 | Construction Phase            | Guidelines on Greening of Noise Barriers, issued April 2012, GLTMS, DevB<br>ETWB TCW 2/2004 | N/A                   |
| S10.10.1<br>Table 10.11                              | LV11      | <u>Green Roof</u><br>Roof greening will be established on ventilation and administration buildings to reduce exposure to untreated concrete surfaces and particularly mitigate visual impact to VSRs at high levels.   | Minimize landscape and visual impact   | Contractor           | Within Project site                                 | Construction Phase            | /   | N/A                   |
| S10.10.1<br>Table 10.11                              | LV12      | <u>Reinstatement</u><br>All works areas, excavated areas and disturbed areas for tunnel construction and temporary road diversion or any other proposed works shall be reinstated to former conditions or better, with reasonable landscape treatment and to the satisfaction of the relevant Government departments. (Specific mitigation for disturbance to public open space is detailed separately under LV14)   | Minimize landscape impact  | Contractor           | Within Project site                                 | Construction Phase            | /   | N/A                   |
| S10.10.1<br>Table 10.11                              | LV13      | <u>Reprovisioning of Public Open Space</u><br>All areas of public open space affected by the Project will be re-provisioned either at the same location following the completion of temporary works, or at a separate site, as agreed with relevant Government departments. Open space should be re-provisioned in an enhanced manner.   | Minimize landscape impact  | Contractor           | Within Project site                                 | Construction Phase            | Open space should be re-provided in an enhanced manner.                                     | N/A                   |
| <b>Cultural Heritage Impact (Construction Phase)</b> |           |  |  |                      |   |                               |   |                       |
| S11.4.4  | CH1       | The contractor should be alerted during the construction on the possibility of locating archaeological remains and as a precautionary measure, AMO shall be informed immediately in case of discovery of antiquities or supposed antiquities in the subject sites.   | To preserve any cultural heritage items which may be removed and damaged by the excavation | Contractor           | During construction works for cut and cover tunnels | During the Construction Phase | AMOs requirements   | N/A                   |

| EIA Ref.                | EM&A Ref. | Recommended Mitigation Measures   | Objectives of the Recommended Measures & Main Concern to Address | Implementation Agent               | Location / Timing      | Implementation Stage | Requirements and/ or standards to be achieved | Implementation Status |
|-------------------------|-----------|---|--|------------------------------------|------------------------|----------------------|---|-----------------------|
| <b>EM&amp;A Project</b> |           |   |  |                                    |                        |                      |   |                       |
| S13.2                   | EM1       | An Independent Environmental Checker needs to be employed as per the EM&A Manual  | Control EM&A Performance   | Highways Department                | All construction sites | Construction stage   | · EIAO Guidance Note No. 4/2010<br>· TM-EIAO  | ^                     |
| S13.2-13.4              | EM2       | An Environmental Team needs to be employed as per the EM&A Manual.  | Perform environmental monitoring & auditing                      | Highways Department/<br>Contractor | All construction sites | Construction stage   | · EIAO Guidance Note No. 4/2010<br>· TM-EIAO  | ^                     |
|                         |           | Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures;   |  |                                    |                        |                      |   | ^                     |
|                         |           | An environmental impact monitoring needs to be implemented by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with. |  |                                    |                        |                      |   | ^                     |

|   |  |
|---|--|
| Remarks: EM&A Programme under EP-457/2013/D |  |
| ^   | Compliance of mitigation measure;  |
| N/A   | Not applicable at this stage;  |
| N/A(1)                                      | Not observed;  |
| *   | Recommendation was made during site audit but improved/retified by the contractor;         |
| #   | Recommendation was made during site audit but not yet improved/retified by the contractor; |
| X   | Non-compliance of mitigation measure;  |
| ●   | Non-compliance but rectified by the contractor.  |

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

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**Contract No. HY/2019/13**  
**Central Kowloon Route – Buildings, Electrical and Mechanical Works**

**Appendix D – Summary of Environmental Complaint, Warning, Summon and Notification of Successful Prosecution**

**Reporting Month:** October 2022

| <b>Log Ref.</b> | <b>Location</b> | <b>Received Date</b> | <b>Details of Complaint/<br/>warning/<br/>summon and<br/>prosecution</b> | <b>Investigation/<br/>Mitigation Action</b> | <b>Status</b> |
|-----------------|-----------------|----------------------|--|---|---------------|
| N/A             | N/A             | N/A                  | N/A  | N/A   | N/A           |

**Remarks:** No environmental complaint, warning/summon and prosecution was received in the reporting period.