

By Post

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Date : 8<sup>th</sup> November 2024

Binnies Hong Kong Limited  
43/F, AIA Kowloon Tower,  
100 How Ming Street,  
Kwun Tong, Kowloon, Hong Kong

Attn: Wilson CK Lam

**Agreement No. DHSR/IEC/001**

**Consultancy Service of Independent Environmental Checker (IEC) for Relocation of Diamond Hill Fresh Water and Salt  
Water Service Reservoirs to Caverns under Contract No. 21/WSD/21**

**Monthly EM&A Report for October 2024**

Dear Sir,

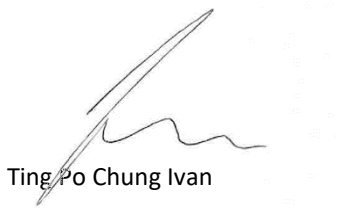
Pursuant to Condition 3.4 of Environmental Permit (EP) No. EP-602/2021, please note the Monthly Environmental and Audit Report for October 2024, dated 6 November 2024 submitted under the EP, certified by the Environmental Team Leader on 6 November 2024, had been reviewed and is hereby verified.

Should you have any query, please feel free to contact the undersigned at 3756 9590 or [ivanting@umwelt.consulting](mailto:ivanting@umwelt.consulting).

Your faithfully,

For and on behalf of:

Umwelt Consulting Limited



Ting Po Chung Ivan  
Independent Environmental Checker





**Contract No. 21/WSD/21**

**Relocation of Diamond Hill Fresh Water and  
Salt Water Service Reservoirs to Caverns**

**Monthly Environmental and Audit Report  
October 2024**

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	Prepared by:	Certified by:
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Signature		
Date	6 November 2024	6 November 2024

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## EXECUTIVE SUMMARY

This is the 19<sup>th</sup> Monthly Environment Monitoring and Audit (EM&A) Report for Relocation of Diamond Hill Fresh Water and Salt Water Service Reservoirs to Caverns (the Project). This report was prepared by Acuity Sustainability Consulting Limited under Contract No. 21/WSD/21 (hereafter called “the Contract”). This report documents the findings of EM&A works during the reporting period from 1 October 2024 to 31 October 2024.

### *Key Construction Works in the Reporting Period*

A summary of construction activities undertaken during the reporting period is presented below:

#### Portion 3:

- PAB Pipe Pile Installation (Ø355)
- PAB Excavation & Tie Back Installation
- C/C Tunnel construction
- Steel work for raking strut
- Pump house E&M provision
- C/C ELS Backfill to +77mPD
- Jumbo Lifting
- Tunnel Pre-support

#### Portion 5:

- Open trench main laying works
- ELS for Receiving Pit
- Reinstatement works
- Backfilling works
- Trial Pit Works

### *Environmental Monitoring and Audit Programme*

The monthly EM&A programme was undertaken by the Environmental Team in accordance with the EM&A Manual. A summary of the monitoring and audit activities during the reporting period is presented below:

**Table I Summary of EM&A Activities in the Reporting Period**

EM&A Activities	Date
1-hour TSP Monitoring	3, 7, 12, 18, 24 and 30 October 2024
Construction Noise Monitoring	3, 7, 18, 24 and 30 October 2024
Weekly Environmental Site Inspection	4, 10, 16 and 25 October 2024

### *Breaches of Action and Limit Levels*

A summary of the environmental monitoring exceedance of the reporting period is tabulated in **Table II**.

**Table II Summary of Exceedance in the Reporting Period**

Environmental Monitoring	Parameter	No. of non-project related exceedances		Total no. of non-project related exceedances	No. of exceedances related to the project		Total no. of exceedances related to the project
		AL	LL		AL	LL	
Air Quality	1-hour TSP	0	0	0	0	0	0
Noise	$L_{eq}(30\text{-min})$	0	0	0	0	0	0

Note:

1. AL refers to Action Level and LL refers to Limit Level.

### Air Quality

No exceedance of Action Level or Limit Level was recorded for 1-hour TSP monitoring during the reporting period.

### Construction Noise

No Action Level exceedance was recorded for construction noise monitoring during the reporting period.

No Limit Level exceedance was recorded for construction noise monitoring during the reporting period.

### Complaint Log

No environmental complaint was received in the reporting period.

### Notification of Summons and Successful Prosecutions

No notification of summons or successful prosecutions was received in the reporting period.

### Reporting Change

There was no reporting change in the reporting period.

### Future Key Construction Activities

Key construction activities to be considered in the next two months included:

#### Portion 1:

- Prepare for Mined Tunnel Work Force and Machines
- Within shaft, install and remove some strutting

#### Portion 3:

- PAB Pipe Pile Installation (Ø355)
- PAB Excavation & Tie Back Installation
- C/C Tunnel construction
- Steel work for raking strut
- Pump house E&M provision
- Tunnel Pre-support

#### Portion 5:

- Open trench main laying works
- ELS for Receiving Pit
- Reinstatement works
- Backfilling works
- Trial Pit Works

Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water pollution control, waste management and landscape and visual.

## **1. INTRODUCTION**

### **1.1 Project Background**

- 1.1.1 The relocated Diamond Hill Fresh Water and Salt Water Service Reservoirs (DHSRs) will be constructed in a series of caverns linked by access tunnels and adits. The relocated Diamond Hill Fresh Water Service Reservoirs (DHFWSR) and Diamond Hill Salt Water Service Reservoirs (DHSWSR) will be compartmented while the existing Diamond Hill Pumping Station (DHPS) will be split into two (2) pump houses for fresh and salt water supply when relocated.
- 1.1.2 Ancillary facilities to be constructed near the tunnel portal may include transformer room, switch room, emergency generator room, control room, ventilation building, and pumping station control room, which will be constructed in an above-ground building outside the tunnel.
- 1.1.3 The scope of the Project comprises the following:
- a) Construction of the relocated DHSRs and associated pumping stations and water main laying works;
  - b) Construction of tunnels, adits, ventilation system and caverns for accommodating the relocated DHSRs and the associated facilities;
  - c) Terminating the operation of the existing DHSRs and the associated facilities; and
  - d) All other associated works that are incidental to and necessary for the completion of the Project.
- 1.1.4 The major construction activities of the Project include earthworks, drilling and blasting, construction of concrete structures, handling and transportation of excavated materials, water mains laying, installation of electrical and mechanical (E&M) equipment and material transportation. The operation of the existing DHSRs and the associated facilities will be terminated after the completion of the testing and commissioning of the relocated DHSRs. Under the Project, the existing DHSRs and associated facilities will be retained after termination of the operation. The subsequent demolition works will be carried out by other government departments/project proponents.
- 1.1.5 The Project construction was commenced on 31 March 2023 and the completion date for the construction works would be on 12 April 2027.
- 1.1.6 The Project is a Designated Project under Item Q.2, Part I of Schedule 2 of the Environmental Impact Assessment Ordinance, "Underground Rock Caverns", which requires an environmental permit from the Environmental Protection Department (EPD) for its construction and operation.
- 1.1.7 Pursuant to the Environmental Impact Assessment Ordinance (EIAO), the Director of EPD granted the Environmental Permits (EP-602/2021) to the Water Supplies Department (WSD) for the Project.

1.1.8 Acuity Sustainability Consulting Limited (ASCL) is commissioned by Chun Wo – Sinohydro Joint Venture to undertake the role of Environmental Team under the Environmental Permit (EP) EP-602/2021, and to carry out the EM&A programme in fulfilment of the EM&A Manual, and other requirements stipulated in the associated EIA Report.

1.1.9 This is the 19<sup>th</sup> Monthly EM&A Report summarizing the key findings of the construction phase EM&A programme from 1 October to 30 October 2024 (the reporting period) and is submitted to fulfil the requirements under Condition 3.4 of EP-602/2021 and Section 13.3 of the EM&A Manual of the Project.

## 1.2 Construction Works Programme

1.2.1 The construction works of the Project was commenced on 31 March 2023. The construction works programme, and the location of construction works of the Project are shown in **Appendix A** and **Figure 1.1**, respectively. A summary of construction activities undertaken during the reporting period is presented below:

Portion 3:

- PAB Pipe Pile Installation (Ø355)
- PAB Excavation & Tie Back Installation
- C/C Tunnel construction
- Steel work for raking strut
- Pump house E&M provision
- C/C ELS Backfill to +77mPD
- Jumbo Lifting
- Tunnel Pre-support

Portion 5:

- Open trench main laying works
- ELS for Receiving Pit
- Reinstatement works
- Backfilling works
- Trial Pit Works

1.2.2 **Table 1.1** summarise the status of temporary traffic sections near the works sites.

**Table 1.1 Status of the Temporary Traffic Arrangement (TTA) Sections**

Name of TTA	Status
Section 1 – Lion Rock Road	Implemented
Section 1 - Chuk Yuen Road (Westbound) near Tin Ma Court	Implemented
Section 1 - Chuk Yuen Road (Eastbound) near Tin Wang Court	Implemented
Section 2 - Chuk Yuen Road near Pang Ching Court	Implemented
Section 2 – Chuk Yuen Road near Pang Ching Court (eastbound)	Implemented
Section 2 - Chuk Yuen Road near Chuk Yuen South Estate (westbound)	Implemented
Section 2 - Chuk Yuen Road near Chuk Yuen Estate Bus Terminus (westbound)	Implemented
Section 2 - Chuk Yuen Road near Chuk Yuen Estate Bus Terminus (eastbound)	Implemented
Section 3 - Chuk Yuen Road near Bus Terminus (eastbound)	Implemented
Section 3 - Chuk Yuen Road near Market (westbound)	Implemented
Section 3 - Shatin Pass Road Top	Removed
Section 3 - Shatin Pass Road Middle	To be implemented
Section 3 - Tsz Wan Shan Road stage 2	To be implemented
Section 3 - Lung Fung Street (Combine TTA with CSCE)	To be implemented
Section 3 – Sheung Fung Street	Implemented

### 1.3 Project Organization

1.3.1 Different parties with different levels of involvement in the Project organization include:

- Project Proponent: Water Supplies Department (WSD)
- Supervisor/ Engineer’s Representative (ER): Binnies Hong Kong Limited

- Contractor: Chun Wo - Sinohydro Joint Venture
- Environmental Team (ET): Acuity Sustainability Consulting Limited
- Independent Environmental Checker (IEC): Umwelt Consulting Limited

1.3.2 The key personnel contact names and telephone number are presented in **Appendix B**.

## 1.4 License, Notification and Permits

1.4.1 A summary of the relevant permit, licences, and/ or notifications on environmental protection for this Project are presented in **Table 1.2**.

**Table 1.2 Status of Environmental License, Notifications and Permits**

Permit / License No.	Valid Period		Status
	From	Expired On	
Environmental Permit			
EP-602/2021	14/12/2021	-	Valid
Notification Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation			
Ref. No.: 487301	09/12/2022	-	Valid
Billing Account for Disposal of Construction Waste			
7046085	04/01/2023	-	Valid
Registration of Chemical Waste Producer			
WPN 5213-282-C4760-0	30/12/2022	-	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00043965-2023	31/05/2023	31/05/2028	Valid
WT10002621-2023	08/04/2024	30/04/2029	Valid
Construction Noise Permit			
GW-RE0141-24	21/02/2024	20/07/2024	Expired
GW-RE0773-24	02/07/2024	29/10/2024	Valid
GW-RE0550-24	06/05/2024	06/10/2024	Valid
GW-RE0823-24	17/07/2024	19/11/2024	Valid
GW-RE1199-24	07/10/2024	05/04/2025	Valid
GW-RE0982-24	02/11/2024	22/12/2024	To be enforced
GW-RE1223-24	14/10/2024	27/03/2025	Valid

1.4.2 The submission status of the EP and the implementation status of the mitigation measures stated in the EP had been reviewed, all submission were submitted/



deposited to the Director of Environmental Protection (DEP) on schedule, no non-compliance of EP conditions was recorded during the reporting period. The summary of submission status under Environmental Permit EP-602/2021 are summarized in **Table 1.3**.

**Table 1.3 Summary of Status of Submission under EP-602/2021**

<b>EP Condition</b>	<b>Title of Submission</b>	<b>Submission Status</b>
1.11	Commencement Date of Construction	Notified the DEP on 22 Feb 2023
2.9	Management Organization(s)	Informed the DEP on 20 Feb 2023
2.10	Environmental Permit (EP) Submission Schedule	22 Feb 2022 (1st Submission)
2.11	Construction Works Schedule and Location Plan	28 Feb 2023 (Deposited)
2.12	Construction Noise Management Plan (CNMP)	<ul style="list-style-type: none"> <li>• 28 Feb 2023 (1st submission)</li> <li>• The EPD's comments were issued on 8 Mar 2023</li> <li>• The revised CNMP was submitted to the EPD for comment on 31 Jul 2023.</li> <li>• The EPD issued further comments on 16 Aug 2023.</li> <li>• The CNMP was further revised, certified by the ET Leader, verified by the IEC, and issued to the EPD on 22 Aug 2023.</li> <li>• The revised CNMP was submitted to the EPD for comment on 15 Sept 2023.</li> <li>• The EPD had no further comment on 5 Oct 2023.</li> </ul>
2.13	Waste Management Plan (WMP)	<ul style="list-style-type: none"> <li>• 28 Feb 2023 (1st submission)</li> <li>• The EPD's comments were issued on 3 Apr 2023.</li> <li>• The revised WMP was submitted to the EPD for comment on 26 July 2023.</li> <li>• The WMP was further updated and submitted to the EPD on 16 Aug 2023.</li> <li>• The EPD had no further comment on 19 Sep 2023.</li> </ul>

EP Condition	Title of Submission	Submission Status
2.14	Landscape and Visual Mitigation Plan (LVMP)	<ul style="list-style-type: none"> <li>• 28 Feb 2022 (1st Submission)</li> <li>• The EPD's comments were issued on 29 Mar 2023.</li> <li>• The revised LVMP was certified by the ET Leader, verified by the IEC, and issued to the EPD on 22 Aug 2023.</li> <li>• The EPD issued further comments on 11 Sep 2023.</li> <li>• The revised LVMP was certified by the ET Leader, verified by the IEC, and issued to the EPD on 15 Jan 2024.</li> <li>• The EPD issued further comments on 31 Jan 2024.</li> <li>• The revised LVMP was certified by the ET Leader, verified by the IEC, and issued to the EPD on 19 Apr 2024</li> <li>• The EPD had no further comment on 29 Apr 2024.</li> </ul>
3.3	Baseline Monitoring Report	<ul style="list-style-type: none"> <li>• 17 Mar 2023 (1st Submission)</li> <li>• 27 Apr 2023 (2nd Submission)</li> <li>• 1 June 2023 (3rd Submission)</li> <li>• 13 July 2023 (Formal submission)</li> <li>• 3 Aug 2023 (accepted by the EPD)</li> </ul>
3.4	Monthly EM&A Report (September 2024)	8 October 2024
4.2	Dedicated Internet Website	2 May 2023

1.4.3 Following the EPD's comments on the Baseline Monitoring Report (Ref. No. BMR-3.1, dated 17 March 2023), updating of air quality and noise monitoring locations were proposed, including cancellation of noise monitoring station at Tower 1, Meridian Hill (NM-1), resumption of air quality and noise monitoring stations at Block 6, Tsui Chuk Garden (i.e. DM-4 and NM-4) and proposal of new noise monitoring locations at Wo Tin House, Shatin Pass Estate (NM-5) and Sheung Fung Street Customs Staff Quarter (NM-6).

1.4.4 Additional baseline monitoring for air quality monitoring station DM-4, and noise monitoring stations NM-4, NM-5 and NM-6 was carried out between 2 May and 16 May 2023. The Baseline Monitoring Report was updated with all baseline monitoring results included, certified by the ET Leader, and verified by the IEC on 30 May 2023. The updated Baseline Monitoring Report was submitted to the EPD

on 1 June 2023. A minor comment was received from the EPD on 26 June 2023. Following the advice from the EPD, the Report was formally submitted to the EPD on 13 July 2023 after amendment. The Report was accepted by the EPD on 3 August 2023.

## 1.5 Brief Summary of EM&A Requirements

### Air Quality

- 1.5.1 In accordance with the EM&A Manual, the ET shall carry out impact monitoring during construction phase of the project. For 1-hour Total Suspended Particulates (TSP) monitoring, the sampling frequency of at least three times every six days should be undertaken when the highest dust impact occurs.
- 1.5.2 Action and Limit Levels for the 1-hour TSP monitoring works are discussed in **Section 2.4**. Should non-compliance of the criteria occur, action in accordance with the Event and Action Plan presented in **Appendix C** shall be carried out.
- 1.5.3 The air quality mitigation measures detailed in the EM&A Manual were recommended to be implemented during the construction phase. The implementation statuses of these measures are presented in **Appendix D**.

### Noise Monitoring

- 1.5.4 Construction noise monitoring should be carried out at the designated monitoring stations directly affected by the construction works once every week after the commencement of construction. During construction works, one set of  $L_{eq(30-min)}$  measurement at each station between 0700 and 1900 hours on normal weekdays shall be taken. If construction works are extended to include works during the period between 1900 and 0700 hours, additional weekly impact monitoring shall be carried out during evening and night-time works.
- 1.5.5 Action and Limit Levels for the noise monitoring are discussed in **Section 3.5**. Should non-compliance of the criteria occur, action in accordance with the Event and Action Plan presented in **Appendix C** shall be carried out.
- 1.5.6 The noise mitigation measures detailed in the EM&A Manual are recommended to be implemented during the construction phase. The implementation statuses of these measures are presented in **Appendix D**.

### Environmental Requirements in Contract Documents

- 1.5.7 According to *Particular Specification (PS)*, the Contractor shall undertake environmental protection measures to reduce the environmental impacts arising from the execution of the works. The Contractor shall also observe and comply with relevant environmental protection and pollution control ordinances. The Contractor shall design, construct, operate and maintain pollution control measures to ensure compliance with the contract provisions as well as the environmental ordinances and their regulations.
- 1.5.8 The Contractor shall also:

- Implement air pollution and noise abatement practices as specified in *PS*;
- Minimise generation of wastewater from the Site;
- On-site sorting of Construction and Demolition (C&D) materials;
- Establish a mechanism to record the quantities of C&D materials generated each month, using the monthly summary “Waste Flow Table”;
- Control the use of timbers;
- Implement a trip ticket system (TTS) for tracking the removal of C&D materials from the Site to the disposal grounds;
- Prepare an Environmental Management Plan (EMP) in accordance with GS Section 25 and *PS* for implementation on the Site to reduce environmental nuisance and C&D materials arising from Works, throughout the construction period;
- Arrange weekly environmental walk to inspect the Site, checking that the environmental performance of the Site is satisfactory and in compliance with the requirements under the contract and EMP; and
- Carry out site specific induction training about environmental management as well as safety for all staffs and workers, and provide toolbox talks for workers on environmental nuisance abatement and waste management.

## 2. AIR QUALITY MONITORING

### 2.1 Monitoring Locations

2.1.1 The air quality monitoring locations for impact monitoring during the reporting period are listed in **Table 2.1** and presented in **Figure 2.1**.

**Table 2.1 Air Quality Monitoring Stations for Construction Phase**

ID	Description	Coordinates	
		Northing	Easting
DM-1	Tennis Court near Tin Ma Court	822705	837047
DM-2	Chun Sing House, Tin Ma Court	822673	837143
DM-3	Grace Methodist Church Kindergarten	822782	837227
DM-4	Block 6, Tsui Chuk Garden	822926	837246
DM-4a <sup>(1)</sup>	Road pavement near Wang King House, Tin Wang Court	822854	837340

Notes:

1. An additional air quality monitoring station DM-4a was proposed by the ET and agreed by the ER, IEC and EPD.

### 2.2 Air Quality Monitoring Parameter, Frequency and Duration

2.2.1 **Table 2.2** summarized the monitoring parameter, duration, and frequency of impact air quality monitoring.

**Table 2.2 Impact Air Quality Monitoring Parameter, Duration and Frequency**

Parameter	Frequency	Duration
1-hour TSP	3 times every 6 days	Throughout the construction phase

### 2.3 Monitoring Equipment and Methodology and QA/ QC Procedure

#### Proposal of Using Portable Direct Reading Dust Meter

- 2.3.1 Direct reading dust meters were used for measuring 1-hour TSP levels during the impact air quality monitoring. According to Section 4.4.1 of the EM&A Manual, the proposed use of direct reading dust meters was submitted to and agreed by the IEC.
- 2.3.2 Sufficient number of monitoring instruments was prepared by the ET for carrying out the impact monitoring. All equipment and associated instrumentation were clearly labelled.

- 2.3.3 Wind data were collected from the records of Hong Kong Observatory Kai Tak Wind Station (22.30966N, 114.21336E), which is located at the south-eastern side of runway of the former Kai Tak Airport about 4.5 km south-east from the project site.
- 2.3.4 Equipment used in the impact air quality monitoring programme is summarised in **Table 2.3**. Calibration certificates for the impact air quality monitoring equipment are attached in **Appendix E**.

**Table 2.3 Impact Air Quality Monitoring Equipment**

Equipment	Brand and Model	Serial No.	Calibration Due Date
Direct Reading Dust Meter	Sibata LD-5R	0Z4545	28/11/2024
		882106	28/11/2024
		942532	28/11/2024

#### Maintenance and Calibration

- 2.3.5 Direct reading dust meters have been calibrated against high volume samplers (HVSs) annually. A 2-day, three 3-hour measurement results per day from direct reading dust meters were taken to compare with the sampling results from the HVSs. The correlation between the direct reading dust meters and the HVSs were then concluded. By accounting for the correlation factor, the direct reading dust meters are considered to achieve comparable results as that of the HVSs.
- 2.3.6 The 1-hour TSP measurement follows the instruction provided in the manufacturer's manual. Before initiating a measurement, zeroing the portable dust meter was carried out to ensure the accuracy of each measurement.

## **2.4 Action and Limit Levels**

- 2.4.1 The action and limit levels were established in accordance with the EM&A Manual. **Table 2.4** presents the action and limits levels for 1-hour TSP monitoring. Should non-compliance of the criteria occur, action in accordance with the Event and Action Plan presented in **Appendix C** shall be carried out.

**Table 2.4 Action and Limit Levels for 1-hour TSP**

Monitoring Station	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
DM-1	300.1	500
DM-2	289.0	
DM-3	289.7	
DM-4	294.9	
DM-4a	291.6	

## **2.5 Results and Observation**

- 2.5.1 The impact air quality monitoring was conducted on 2, 7, 12, 18, 24 and 30 October 2024. The impact air quality monitoring schedule for the reporting period is shown in **Appendix F**.

- 2.5.2 The monitoring results and graphical presentation of impact air quality monitoring are shown in **Appendix G**. No action or limit levels exceedance was recorded in the reporting period.

**Table 2.5 Summary of Impact 1-hour TSP Monitoring Results**

Monitoring Station	TSP Concentration, $\mu\text{g}/\text{m}^3$			Action Level	Limit Level
	Average	Minimum	Maximum		
DM-1	59	54	62	300.1	500
DM-2	55	43	60	289.0	
DM-3	37	23	41	289.7	
DM-4	42	37	51	294.9	
DM-4a	40	35	57	291.6	

- 2.5.3 During the impact air quality monitoring, the major dust sources at each monitoring stations were summarized in **Table 2.6**.

**Table 2.6 Influencing Factors at/ near Air Quality Monitoring Stations**

Monitoring Stations	Influencing Factors
DM-1	Not identified
DM-2	Not identified
DM-3	Not identified
DM-4	Not identified
DM-4a	Not identified

- 2.5.4 Weather conditions during impact monitoring are presented in **Appendix G** and extracts of wind data recorded at Kai Tak Wind Station available from the Hong Kong Observatory are presented in **Appendix H**.



### 3. NOISE MONITORING

#### 3.1 Monitoring Locations

- 3.1.1 The monitoring locations for construction noise monitoring are listed in **Table 3.1** and shown in **Figure 3.1**.

**Table 3.1 Noise Monitoring Stations during Construction Phase**

ID	Description	Measurement	Coordinates	
			Northing	Easting
NM-2	Chun Sing House, Tin Ma Court	Façade	822668	837143
NM-3	Grace Methodist Church Kindergarten	Façade	822782	837227
NM-4	Block 6, Tsui Chuk Garden	Façade	822926	837246
NM-4a <sup>(1)</sup>	Road pavement near Wang King House, Tin Wang Court	Free field	822854	837340
NM-5 <sup>(2)</sup>	Wo Tin House, Shatin Pass Estate	Façade	823360	838143
NM-6 <sup>(2)</sup>	Sheung Fung Street Customs Staff Quarters	Free field	823134	838412

Notes:

The noise monitoring station proposed in the EM&A Manual (NM-1) was not available for baseline and impact monitoring. Therefore, impact monitoring at NM-1 was cancelled and agreed by the ER, IEC and EPD.

(1) An additional noise monitoring station NM-4a was proposed by the ET and agreed by the ER, IEC and EPD.

(2) Main laying works near NM-5 and NM-6 were commenced in early September 2023. Noise monitoring at NM-5 and NM-6 was commenced on 7 September 2023.

#### 3.2 Noise Monitoring Parameter, Frequency and Duration

- 3.2.1 Construction noise level was measured by the ET and measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ).  $L_{eq(30-min)}$  was adopted as the monitoring parameter for the construction noise monitoring.
- 3.2.2 As supplementary information for data auditing, statistical results such as  $L_{10}$  and  $L_{90}$  were also obtained for reference.
- 3.2.3 **Table 3.2** summarized the monitoring parameters, duration, and frequency of construction noise monitoring.

**Table 3.2 Construction Noise Monitoring Parameter, Frequency and Duration**

Parameters	Time	Frequency	Duration
$L_{eq(30-min)}$	0700 and 1900 hours on normal weekdays	Once every week	Throughout the construction phase



### 3.3 Monitoring Equipment, Methodology and QA / QC Procedure

- 3.3.1 As referred to the technical memorandum (TM) issued under the NCO, sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications were used for carrying out the construction noise monitoring.
- 3.3.2 Noise measurements were not made in fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed was checked with a portable wind speed meter capable of measuring the wind speed in m/s.
- 3.3.3 Sufficient number of noise measuring equipment and associated instrumentation was prepared by the Environmental Team. All the equipment and associated instrumentation were clearly labelled.
- 3.3.4 Wind data were collected from the records of Hong Kong Observatory Kai Tak Wind Station (22.30966N, 114.21336E), which is located at the south-eastern side of runway of the former Kai Tak Airport about 4.5 km south-east from the project site.
- 3.3.5 The monitoring procedures are as follows:
- For façade measurement, the monitoring station was set at a point 1 m from the exterior of the sensitive receiver building façade and set at a position 1.2 m above the ground. For free-field measurement, the monitoring station was set at a position 1.2 m above ground.
  - The battery condition was checked to ensure good functioning of the meter.
  - Parameters such as frequency weighting, the time weighting and the interval were set as follows:
    - Frequency weighting: A
    - Time weighting: Fast
    - Interval: 30 minutes ( $L_{eq(30-min)}$ ) would be determined for daytime noise by calculating the logarithmic average of six consecutive  $L_{eq(5-min)}$  data
  - Prior to and after each noise measurement, the meter was calibrated using an acoustic calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement will be required after re-calibration or repair of the equipment.
  - At the end of the monitoring period, the values of  $L_{eq}$ ,  $L_{90}$  and  $L_{10}$  were recorded. In addition, noise sources were recorded on a standard record sheet.
- 3.3.6 **Table 3.3** summarized the noise monitoring equipment used during the construction noise monitoring. Calibration certificates for the impact noise monitoring equipment are attached in **Appendix E**.

**Table 3.3 Construction Noise Monitoring Equipment**

Equipment	Model (Serial Number)	Calibration Due Date
Sound Level Meter	NTi-XL2 (A2A-09696-E0)	01/03/2025
Sound Calibrator	Rion NC 74 (34615222)	26/03/2025

### 3.4 Maintenance and Calibration

3.4.1 Maintenance and calibration procedures are as follows:

- The microphone head of the sound level meter and calibrator were regularly cleaned with a soft cloth; and
- The sound level meter and acoustic calibrator were calibrated annually by a HOKLAS accredited laboratory or the manufacturer.

### 3.5 Action and Limit Levels

3.5.1 The Action and Limit Levels were established in accordance with the EM&A Manual. **Table 3.4** presents the Action and Limit Levels for construction noise. Should non-compliance of the criteria occur, action in accordance with the Event and Action Plan presented in **Appendix C** shall be carried out.

**Table 3.4 Action and Limit Levels for Construction Noise Monitoring**

Monitoring Stations	Action Level	Limit Level	Time Period
NM-2	When one documented complaint is received	75 dB(A)	0700 - 1900 hours on normal weekdays
NM-3		70/ 65 dB(A) *	
NM-4		75 dB(A)	
NM-4a		75 dB(A)	
NM-5		75 dB(A)	
NM-6		75 dB(A)	

Notes:

If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

\* 70 dB(A) for school and 65 dB(A) during school examination period.

### 3.6 Results and Observations

3.6.1 The construction noise monitoring was conducted on 2, 7, 18, 24 and 30 October 2024. The monitoring schedule is presented in **Appendix F**.

3.6.2 The construction noise monitoring results are summarized in **Table 3.5**. No Action Level or Limit Level exceedance was recorded in the reporting period. Details of the results and graphical presentation are shown in **Appendix I**.

**Table 3.5 Summary of Construction Noise Monitoring Results**

Monitoring Station	Noise Level, dB(A)			Limit Level
	<i>L<sub>eq</sub></i> (30-min)			
	Mean	Minimum	Maximum	
NM-2	70.3	69.6	71.4	75 dB(A)
NM-3	58.3	56.2	59.2	70/ 65 dB(A) <sup>(1)</sup>
NM-4	56.0	53.8	62.8	75 dB(A)
NM-4a	71.1	69.1	72.2	75 dB(A)
NM-5 <sup>(2)</sup>	67.6	63.1	69.8	75 dB(A)
NM-6 <sup>(2)</sup>	71.3	70.8	72.2	75 dB(A)

Note:

(1) 70 dB(A) for school and 65 dB(A) during school examination period.

(2) Impact monitoring at NM-5 and NM-6 was commenced on 7 September 2023.

3.6.3 Weather conditions during impact monitoring are presented in **Appendix I** and extracts of wind data recorded at Kai Tak Wind Station available from the Hong Kong Observatory are presented in **Appendix H**.

3.6.4 During the construction noise monitoring period, the influencing factors which may affect the results are summarized in **Table 3.6**.

**Table 3.6 Influencing Factors at Noise Monitoring Stations**

Monitoring Stations	Influencing Factors
NM-2	Road traffic noise, construction noise from 76 Broadcast Drive project
NM-3	Road traffic noise
NM-4	Road traffic noise
NM-4a	Road traffic noise
NM-5	Road traffic noise
NM-6	Road traffic noise

## 4. WASTE MANAGEMENT

- 4.1.1 Waste generated from the Project includes inert construction and demolition (C&D) materials and non-inert C&D wastes in the reporting period. The amount of waste generated by the construction works of the Project during the reporting period is shown in **Table 4.1** and the cumulative waste flow table was presented in **Appendix J**.

**Table 4.1 Summary of Waste Generated in the Reporting Period**

Month	Actual Quantalities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					Actual Quantities of C&D Wastes Recycled				
	Total Quantity Generated	Broken Concrete (including rock for recycling into aggregates)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Chemical Waste	Others e.g., general refuse	Metals	Paper/ cardboard packaging	Plastics (bottles/ containers, plastic sheets/foam package material)	Yard Waste	Others
	(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> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
October 2024	1.2245	0.00000	0.2358	0.00000	0.9887	1.0876	0.00000	0.00000	0.00000	0.00000	0.0493	0.0026	0.0830	0.0004	0.00000	0.00000

- 4.1.2 Construction and demolition (C&D) materials sorting was carried out on site. Sufficient receptacles were provided for general refuse collection and sorting. Excavated inert C&D materials were reused to minimize the disposal of C&D waste to public fill.
- 4.1.3 The Contractor was advised to minimize the amount of waste through recycling or reusing. All applicable mitigation measures stipulated in the EM&A Manual and waste management plans shall be fully implemented.

## 5. ENVIRONMENTAL SITE INSPECTION AND AUDIT

- 5.1.1 Site inspections were carried out by the ET on a weekly basis to monitor the implementation of proper environmental pollution control mitigation measures for the Project. During the reporting period, site inspections were carried out on 4, 10, 16 and 25 October 2024. A joint site inspection with the ER, the Contractor and the IEC was carried out on 16 October 2024
- 5.1.2 During the site inspections in the reporting period, no non-conformance was identified. Key observations and reminders during the site inspections are described in **Table 5.1**.

**Table 5.1 Summary of Site Inspection Observations and Recommendations**

Inspection Date	Key Observations/ Reminders	Follow-up Action
4 October 2024	Portion 3 Reminder: 1. Lubricant oil applied to equipment should not be overdosed which may cause land contamination	N/A
10 October 2024	No major environmental deficiency was observed.	N/A
16 October 2024	Portion 3 & work area at Pang Ching Court Reminder: 1. Water spraying should be performed more frequently especially in dry season	N/A
25 October 2024	No major environmental deficiency was observed.	N/A

- 5.1.3 According to the EIA Report, EP and the EM&A Manual, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. A summary of the Project Implementation Schedule is provided in **Appendix D**.

## **6. ENVIRONMENTAL NON-COMPLIANCE**

### **6.1 Summary of Exceedance**

- 6.1.1 No Action Level or Limit Level exceedance was recorded for 1-hour TSP monitoring in the reporting period.
- 6.1.2 No Action Level or Limit Level exceedance was recorded for construction noise monitoring in the reporting period.
- 6.1.3 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 C** would be carried out.

### **6.2 Summary of Environmental Non-Compliance**

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

### **6.3 Summary of Environmental Complaint**

- 6.3.1 No environmental complaint was received in the reporting period. The Cumulative Complaint Log is presented in **Appendix K**.

### **6.4 Summary of Environmental Summon and Successful Prosecution**

- 6.4.1 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Cumulative Log for environmental summon and successful prosecution is presented in **Appendix K**.

## **7. FUTURE KEY ISSUE**

### **7.1 Construction Works and Potential Environmental Issues in the next Reporting Period**

7.1.1 The construction programme for the Project for the next reporting period is presented in **Appendix A**.

7.1.2 Works to be undertaken in the next two months are summarized below:

Portion 1:

- Prepare for Mined Tunnel Work Force and Machines
- Within shaft, install and remove some strutting

Portion 3:

- PAB Pipe Pile Installation (Ø355)
- PAB Excavation & Tie Back Installation
- C/C Tunnel construction
- Steel work for raking strut
- Pump house E&M provision
- Tunnel Pre-support

Portion 5:

- Open trench main laying works
- ELS for Receiving Pit
- Reinstatement works
- Backfilling works
- Trial Pit Works

7.1.3 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust impact, noise impact, water quality impact, waste management and landscape and visual.

### **7.2 Recommendation**

7.2.1 The key environmental mitigation measures for the Project in the coming reporting period associated with the above construction activities will include:

### Dust

- Regular watering to reduce dust emissions from the exposed site surface;
- Stockpile of dusty materials shall be covered entirely by impervious sheeting;
- Provide vehicles washing facilities at all site exits to wash away any dusty materials from vehicle body;
- NRMM Labels should be displayed on the applicable equipment on site by the Contractor;
- All vehicle and plant should be cleaned before they leave a construction site.

### Noise

- Only well-maintained plant should be operated on-site, and plant should be maintained regularly during the construction programme;
- Quality Powered Mechanical Equipment (QPME) should be adopted as far as possible.

### Water Quality

- No effluent discharge would be allowed before the effluent discharge license is acquired.
- Surface run-off from construction sites should be discharged into dedicated discharge point via adequately designed sand/ silt removal facilities;
- Channels/ earth bunds/ sandbags barriers should be provided on site to properly direct stormwater to silt removal facilities;
- Silt removal facilities, channels and manholes should be maintained, and the deposited silt and grit should be removed regularly;
- Open stockpiles of construction materials on sites should be covered with tarpaulin or similar fabric during rainstorms;
- Perimeter channels should be provided on site boundaries where necessary to intercept stormwater run-off from outside the site so that it will not wash across the site;
- Bare slope should be covered completely by using canvas to reduce muddy surface runoff during typhoons and rainstorms.

### Waste Management

- Provision of sufficient waste disposal points and regular collection of waste;



- Regular cleaning and maintenance programme for drainage system;
- Chemical containers shall be stored with drip tray underneath;
- Storage, handling, transport, and disposal of chemical waste should be arranged in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published by EPD, and collected by a licensed chemical waste collector.

#### Ecology

- Minimize loss of habitats and associated wildlife;
- Using directional lighting to prevent excessive light spill into adjacent natural habitat and disturbance to nocturnal fauna.

#### Landscape and Visual

- Adequate tree protection measures shall be provided for the trees to be retained on site.

## **8. CONCLUSION, COMMENTS AND RECOMMENDATION**

### **8.1 Conclusion**

- 8.1.1 This is the 19<sup>th</sup> Monthly EM&A Report presenting the EM&A works during the reporting period from 1 October 2024 to 31 October 2024 in accordance with the EM&A Manual.
- 8.1.2 No Action Level or Limit Level exceedance was recorded for 1-hour TSP monitoring in the reporting period.
- 8.1.3 No Action Level or Limit Level exceedance was recorded for construction noise monitoring in the reporting period.
- 8.1.4 Environmental site inspections were conducted on 4, 10, 16 and 25 October 2024 by the ET in the reporting period.
- 8.1.5 No environmental complaint was received in the reporting period.
- 8.1.6 No notification of summons and prosecution was received in the reporting period.
- 8.1.7 The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.
- 8.1.8 No change to the EM&A programme was made in this reporting period.

### **8.2 Comments and Recommendations**

- 8.2.1 The proposed mitigation measures were properly implemented and were considered effective and efficient in pollution control.
- 8.2.2 The ET had no recommendation following the completion of EM&A in the reporting period.

## Figures

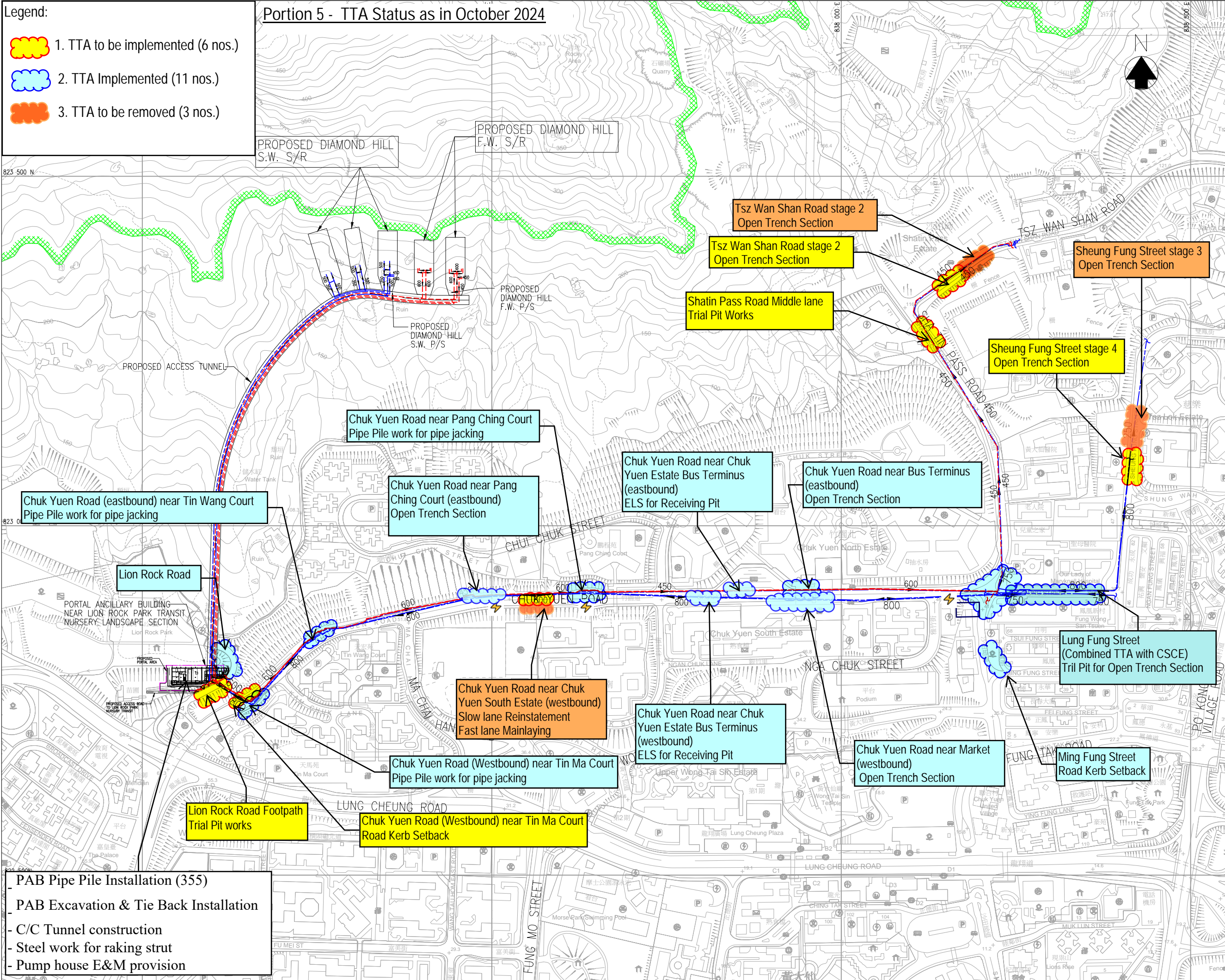
## **Figure 1.1 Project Layout Plan**



Legend:

- 1. TTA to be implemented (6 nos.)
- 2. TTA Implemented (11 nos.)
- 3. TTA to be removed (3 nos.)

Portion 5 - TTA Status as in October 2024



NOTES:  
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1. ALL DIMENSION ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.  
2. THE BASE PLAN IS EXTRACTED FROM SURVEY SHEET NOS. 11-NE-A & 11-NW-B.

- LEGEND:
- COUNTRY PARK BOUNDARY
  - PROPOSED FRESH WATER MAINS
  - PROPOSED SALT WATER MAINS

Revision	Date	Description	Initial
Initial	Designed	Checked	Drawn
Initial	KMF	YHP	SZ
Date	03/21	03/21	03/21
Approved			

Contract No. 21/WSD/21

Project Title  
RELOCATION OF DIAMOND HILL FRESH WATER AND SALT WATER SERVICE RESERVOIRS TO CAVERNS

Drawing Title  
GENERAL LAYOUT OF RELOCATED DHSRS

Drawing No. 401049/B&V/AT/005

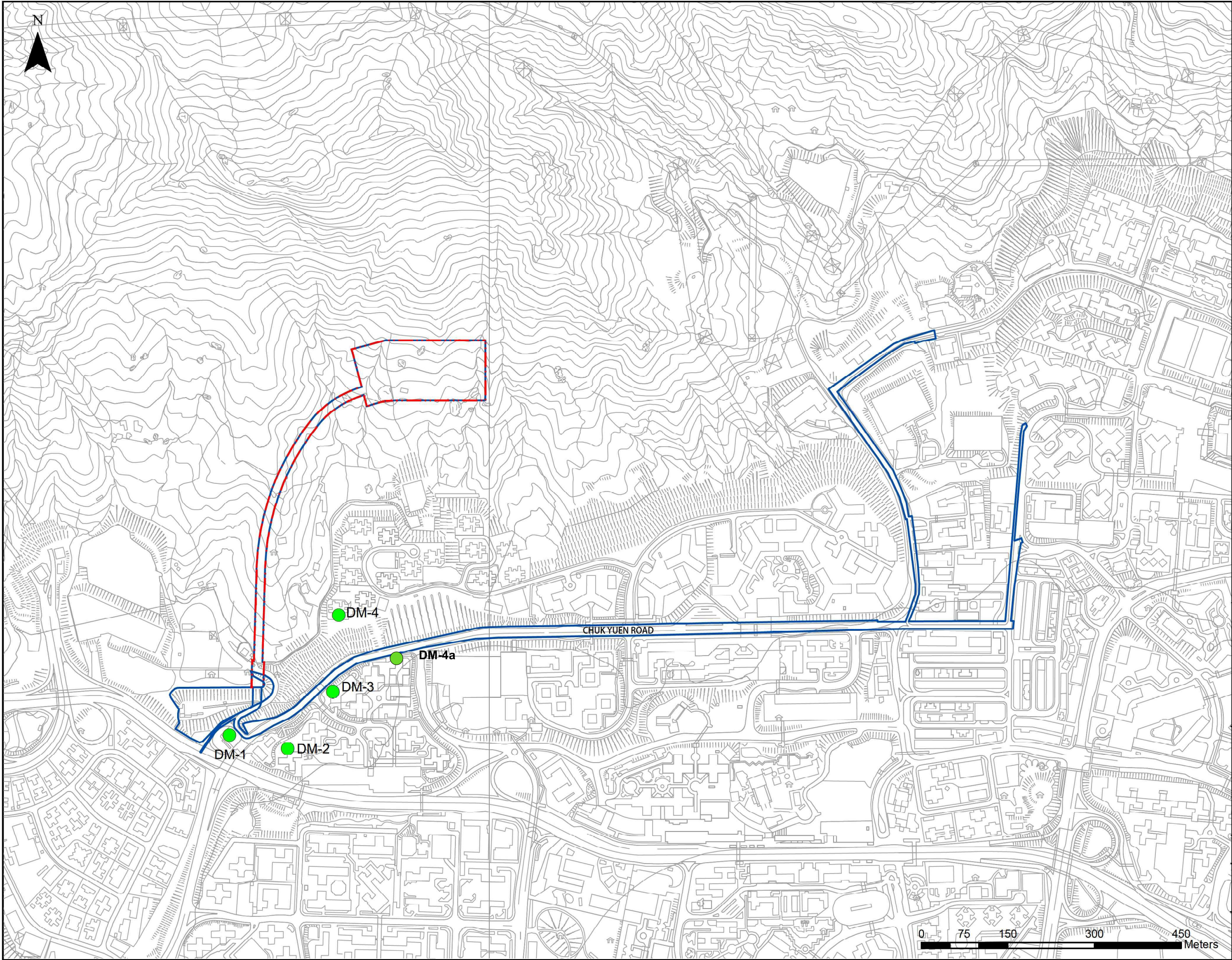
Scale A1 1 : 2500 A3 1 : 5000



- PAB Pipe Pile Installation (355)
- PAB Excavation & Tie Back Installation
- C/C Tunnel construction
- Steel work for raking strut
- Pump house E&M provision

## **Figure 2.1 Air Quality Monitoring Stations**





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**Legend**

- PROJECT SITE BOUNDARY
- CAVERN AND TUNNEL (UNDERGROUND)
- CONSTRUCTION DUST MONITORING STATION

Revision	Description			
	Designed	Reviewed	Drawn	Checked
Initial	Wing	ET	Wing	ET
Date	05/21	05/21	05/21	05/21
Approved				

Agreement No. **CE15/2018 (WS)**

Project Title  
**RELOCATION OF DIAMOND HILL  
FRESH WATER AND SALT WATER  
SERVICE RESERVOIRS TO CAVERNS  
- INVESTIGATION, DESIGN AND  
CONSTRUCTION**

Figure Title  
**Location of Air Quality  
Monitoring Stations**

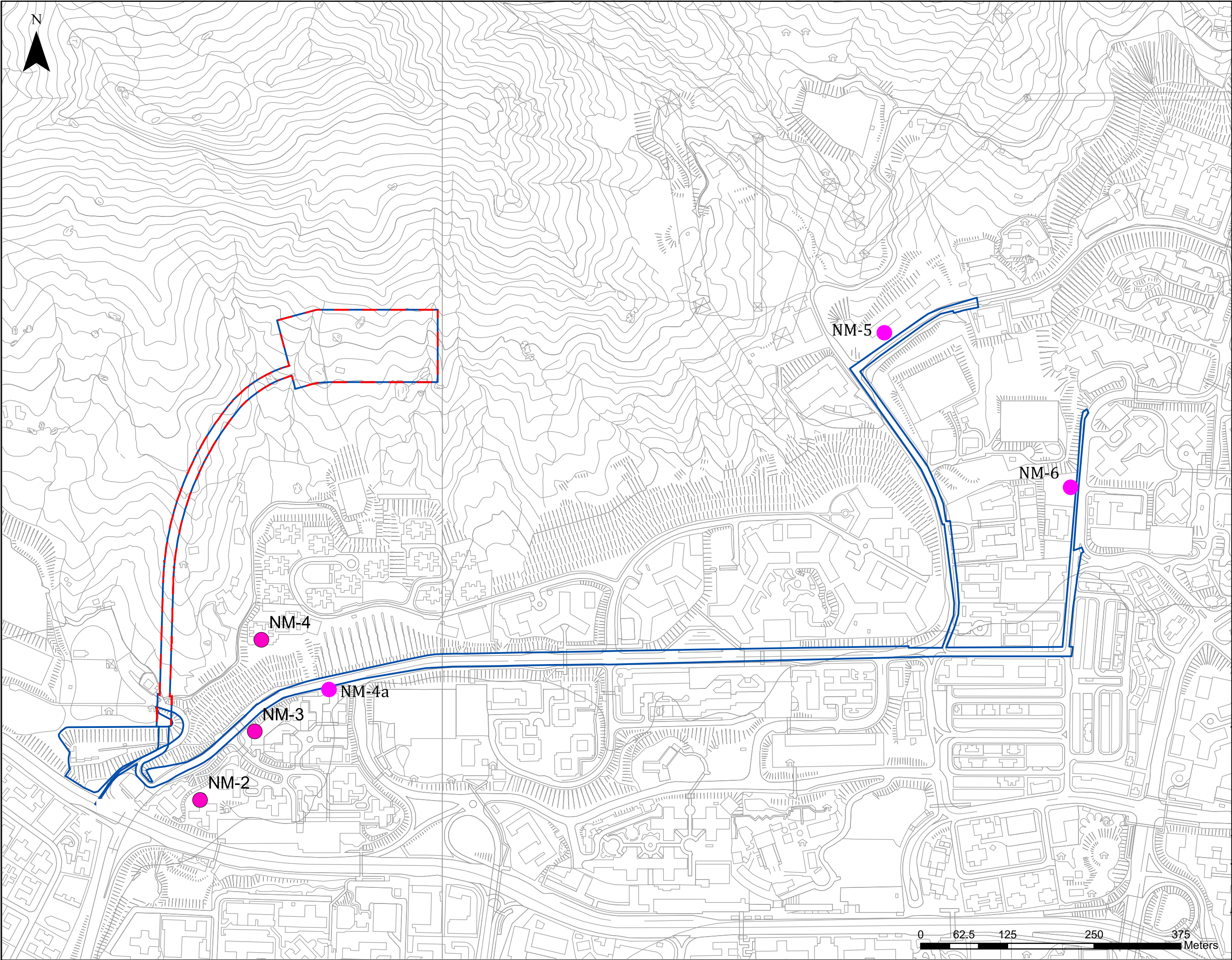
Drawing No.	Figure 2.1	Revision
Scale	A3: 1:6,000	
Client	水務署 Water Supplies Department	
Consultant	binnies BINNIES HONG KONG LIMITED 賓尼新工程顧問有限公司	

0 75 150 300 450 Meters



## **Figure 3.1 Construction Noise Monitoring Stations**





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**Legend**

- PROJECT SITE BOUNDARY
- CAVERN AND TUNNEL (UNDERGROUND)
- CONSTRUCTION NOISE MONITORING STATION

Revision	Description			
	Designed	Reviewed	Drawn	Checked
Initial	Wing	ET	Wing	ET
Date	03/21	03/21	03/21	03/21
Approved				


Agreement No. **CE15/2018 (WS)**


Project Title  
**RELOCATION OF DIAMOND HILL  
FRESH WATER AND SALT WATER  
SERVICE RESERVOIRS TO CAVERNS  
- INVESTIGATION, DESIGN AND  
CONSTRUCTION**

Figure Title  
**Locations of Noise  
Monitoring Station**

Drawing No.	Figure 3.1	Revision	<b>B</b>
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Scale  
A3: 1:5,000

Client  
 水務署  
Water Supplies  
Department

Consultant  
  
BINNIES HONG KONG LIMITED  
賓尼士工程顧問有限公司

## **Appendix A**

### **Master Construction Programme for the Project**



ID	Activity ID	Task Name	Complete	%	Duration	Start	Finish	Total Slack	2023				2024		2025				2026		2027		
									Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
1		Relocation of Diamond Hill Fresh Water and Salt Water Service Reservoirs to Cav	28%	1958 days	Mon 13/12/21	Tue 4/7/28	0.2 days																
2		Contract Date	0%	1384 days	Tue 29/11/22	Sun 18/7/27	-76.9 days																
3	CD-1000	Contract Date (CD)	100%	0 days	Tue 29/11/22	Tue 29/11/22	0 days																
4	CD-1010	Starting date (SD, within 2weeks from the CD)	100%	0 days	Fri 9/12/22	Fri 9/12/22	0 days																
5		Contract Completion Date	0%	3 days	Mon 12/4/27	Thu 15/4/27	-0.1 days																
6	KD-1000	Completion date for the whole of the works (1585d)	0%	0 days	Mon 12/4/27	Mon 12/4/27	0 days																
7	CE-019	Delay of Work Due to Inclement Weather in May 2023	0%	3 days	Tue 13/4/27	Thu 15/4/27	-0.1 days																
8	KD-1100	Completion date for the whole of the works after CE Implementation	0%	0 days	Thu 15/4/27	Thu 15/4/27	-0.1 days																
9		Anticipated Completion Date	0%	0 days	Sun 18/7/27	Sun 18/7/27	-79.8 days																
10	KD-2100	Planned Completion date for the whole of the works (1585d)	0%	0 days	Sun 18/7/27	Sun 18/7/27	-97 days																
11		Access Date	100%	70 days	Fri 9/12/22	Tue 7/3/23	0 days																
17		Sub-letting / Procurement	77%	137.6 days	Mon 13/12/21	Sat 4/10/25	820.6 days																
18		Works Sub-letting	77%	137.6 days	Mon 13/12/21	Sat 4/10/25	820.6 days																
19	21.SUB.G.100	Subletting for Initial Survey Works (WO001)	100%	26 days	Tue 29/11/22	Thu 29/12/22	0 days																
20	21.SUB.G.100	Subletting for Boulder Survey Works (SC049)	100%	7 days	Fri 21/4/23	Fri 28/4/23	0 days																
21	21.SUB.G.100	Subletting for Temporary Supply of Water (WO002)	100%	26 days	Tue 29/11/22	Thu 29/12/22	0 days																
22	21.SUB.G.100	Subletting for Temporary Supply of Electricity (WO003)	100%	26 days	Tue 29/11/22	Thu 29/12/22	0 days																
23	21.SUB.G.100	Subletting for Tree Survey Works (WO004)	100%	40 days	Fri 9/12/22	Mon 30/1/23	0 days																
24	21.SUB.G.100	Subletting for Construction of New Shed and Miscellaneous Works (WO005)	100%	42 days	Tue 29/11/22	Wed 18/1/23	0 days																
25	21.SUB.G.100	Subletting for Traffic Consultancy Services Stage 1 (WO006)	100%	34 days	Fri 9/12/22	Thu 19/1/23	0 days																
26	21.SUB.G.100	Subletting for Condition Survey & Pre-Construction Condition Survey (WO007)	100%	64 days	Mon 6/2/23	Tue 25/4/23	0 days																
27	21.SUB.G.100	Subletting for UU Detection Works (SC002)	100%	24 days	Fri 9/12/22	Sat 7/1/23	0 days																
28	21.SUB.G.100	Subletting for ICE Consultant - Temp Works for Site Formation for PAB (WO008)	100%	8 days	Mon 6/2/23	Tue 14/2/23	0 days																
29	21.SUB.G.100	Subletting for ICE Consultant - Portion 4 (WO007)	100%	37 days	Fri 9/12/22	Thu 26/1/23	0 days																
30	21.SUB.G.101	Subletting for Design Consultant	100%	112 days	Fri 9/12/22	Fri 28/4/23	0 days																
31	21.SUB.G.101	Subletting for ICE Consultant - Civil & Structure (WO019)	100%	43 days	Thu 18/5/23	Mon 10/7/23	0 days																
32	21.SUB.G.101	Subletting for Ground Investigation & Monitoring Works for Tunnel (SC003)	100%	12 days	Tue 10/10/23	Tue 24/10/23	0 days																
33	21.SUB.G.101	Subletting for Design Services for Pemanent/CSD (SC045a)	100%	63 days	Mon 6/2/23	Mon 24/4/23	0 days																
34	21.SUB.G.101	Subletting for Demolition Works (WO011)	100%	8 days	Sat 1/4/23	Fri 14/4/23	0 days																
35	21.SUB.G.101	Subletting for Site Clearance (SC005)	100%	15 days	Fri 31/3/23	Fri 21/4/23	0 days																
36	21.SUB.G.101	Subletting for Environmental Monitoring Works and Appointment of Environmental Team (SC001)	100%	34 days	Fri 9/12/22	Thu 19/1/23	0 days																
37	21.SUB.G.101	Subletting for Drainage and Ducts for Tunneling and Caverns (SC040)	0%	66 days	Wed 11/12/24	Tue 4/3/25	325.2 days																
38	21.SUB.G.101	Subletting for Landscape Softworks for Slope Works	0%	63 days	Tue 7/1/25	Mon 24/3/25	562.2 days																
39	21.SUB.G.101	Subletting for Pipe Pile Wall for PAB / VAT (SC008)	100%	52 days	Mon 6/2/23	Tue 11/4/23	0 days																
40	21.SUB.G.101	Subletting for ELS Earthworks, Shoring & Tie back for PAB (SC007)	100%	65 days	Mon 4/12/23	Thu 22/2/24	0 days																
41	21.SUB.G.102	Subletting for Earthwork and ELS Works - Open Trench - Package 1 (SC048a)	100%	102 days	Tue 29/11/22	Sat 1/4/23	0 days																
42	21.SUB.G.102	Subletting for Earthwork and ELS Works - Open Trench and Jacking Pits - Package 2 (SC048b)	100%	19 days	Tue 29/8/23	Tue 19/9/23	0 days																
43	21.SUB.G.102	Subletting for Earthwork and ELS Works - Open Trench and Jacking Pits - Package 3 (SC048c)	100%	20 days	Thu 16/11/23	Fri 8/12/23	0 days																
44	21.SUB.G.102	Subletting for Mainlaying (Open Trench) (SC047A)	100%	135 days	Wed 1/3/23	Mon 14/8/23	0 days																
45	21.SUB.G.102	Subletting for Land Survey (SC014)	100%	44 days	Tue 28/2/23	Mon 24/4/23	0 days																
46	21.SUB.G.102	Subletting for Traffic Consultancy Services Stage 2 (SC015)	100%	41 days	Thu 9/3/23	Sat 29/4/23	0 days																
47	S-220	Subletting for Site Investigation Works incl. Borehole, Trial Trench, Manhole Survey	100%	51 days	Tue 2/5/23	Mon 3/7/23	0 days																
48	S-200A	Subletting for Consultants ICE, Traffic consultant	100%	133 days	Fri 9/12/22	Wed 24/5/23	0 days																
49	21.SUB.G.102	Subletting for Reinstatement of Existing Road and Paving (SC004A)	100%	21 days	Fri 12/5/23	Tue 6/6/23	0 days																
50	21.SUB.G.102	Subletting for Cathodic Protection of Watermains (SC020)	100%	21 days	Mon 29/5/23	Wed 21/6/23	0 days																
51	21.SUB.G.102	Subletting for Temporary Power Supply for Tunnel and Caverns (SC043)	100%	23 days	Mon 13/12/21	Mon 10/1/22	0 days																
52	21.SUB.G.102	Subletting for Supply & Installation of E&M System in New Pumping Station (SC011A)	100%	7 days	Thu 18/1/24	Thu 25/1/24	0 days																
53	21.SUB.G.103	Subletting for Waterproofing works for C/C Tunnel (SC0xx)	0%	21 days	Thu 2/5/24	Mon 27/5/24	-57 days																
54	21.SUB.G.103	Subletting for Base Slab for Cut and Cover Tunnel and Structural Blinding (SC019)	4%	21 days	Tue 30/4/24	Sat 25/5/24	-54 days																
55	21.SUB.G.103	Subletting for Excavation for C/C Tunnel (SC016)	100%	21 days	Fri 25/8/23	Mon 18/9/23	0 days																
56	21.SUB.G.103	Subletting for Construction of Capping Beam for C/C Tunnel (SC016A)	100%	21 days	Fri 25/8/23	Mon 18/9/23	0 days																
57	21.SUB.G.103	Subletting for Remedial Works for Boulder (SC017)	100%	7 days	Wed 24/1/24	Wed 31/1/24	0 days																
58	21.SUB.G.103	Subletting for Pipe Jacking with Pipe Laying at Portion 5 (Package 1) (SC046)	85%	21 days	Wed 10/4/24	Sat 4/5/24	84.4 days																
59	21.SUB.G.103	Subletting for Timber Platform for Constuction of 355 DIA Pipe Pile (SC054)	100%	5 days	Thu 20/7/23	Wed 26/7/23	0 days																
60	21.SUB.G.103	Subletting for Provision of Tunnel Data Management System (TDMS)	100%	21 days	Sat 8/7/23	Tue 1/8/23	0 days																
61	21.SUB.G.103	Subletting for Supply and Installation of 273mm dia. Pipe pile wall for PAB and VAT (SC060)	100%	22 days	Wed 18/10/23	Mon 13/11/23	0 days																
62	21.SUB.G.103	Subletting for Design, Supply and Maintainance of the Tunnel Temporary Ventilation Fans (SC061)	100%	7 days	Mon 18/12/23	Wed 27/12/23	0 days																
63	21.SUB.G.104	Subletting for Supply and Installation of 355mm dia. Pipe pile wall for PAB and VAT (SC065)	100%	21 days	Wed 29/11/23	Sat 23/12/23	0 days																
64	21.SUB.G.104	Subletting for Supply and installation of 355mm dia. Pipe Pile for Jacking Pit (WO041)	100%	21 days	Wed 29/11/23	Fri 22/12/23	0 days																
65	21.SUB.G.104	Subletting for RC work for Transformer Room (SC067a)	0%	21 days	Tue 7/5/24	Fri 31/5/24	1219.2 d...																
66	21.SUB.G.104	Subletting for RC work for Pump House (SC067b)	100%	7 days	Thu 18/1/24	Thu 25/1/24	0 days																

Project: 21/WSD/21

Revised Programme (Apr 2024)

Date: 1 May 2024

Task

Split

Milestone

◆

Summary

Project Summary

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

◆

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

External Tasks

External Milestone

Deadline

Critical

◆

↓

Critical Split

Progress

Manual Progress

Page 1



Activity ID	Task Name	% Complete	Duration	Start	Finish	Total Slack	2023												2024				2025				2026			2027		
							Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3						
122	21.DES.WM.8	Prepare and Submit Temporary Work Design for Pit 8 to Binnies for Acceptance	100%	24 days	Thu 28/3/24	Tue 30/4/24	0 days																									
123	21.DES.WM.8	Binnies Review Design and Comment on Temporary Work Design for Pit	0%	18 days	Tue 30/4/24	Thu 23/5/24	-19.5 days																									
124	21.DES.WM.8	Revise and Resubmit the Temporary Work Design for Pit 8	0%	12 days	Thu 23/5/24	Thu 6/6/24	-19.5 days																									
125	21.DES.WM.8	Binnies Review and Accept the Temporary Work Design for Pit 8	0%	18 days	Thu 6/6/24	Fri 28/6/24	-19.5 days																									
126	Contractor's Design - Portal Ancillary Building (PAB) and Cut and Cover Tunnel		75%	795.8 days	Fri 9/12/22	Mon 11/8/25	867.2 days																									
127	Reprovision of Structures		100%	124 days	Thu 25/5/23	Sat 21/10/23	0 days																									
128	D-S1000	Prepare & Submit Design Works for Reprovision of Structures at PAB	100%	59 days	Thu 25/5/23	Fri 4/8/23	0 days																									
129	D-S1020	Binnies include LCSD, EMSD and ASD Review and Accept Design for Reprovision of Structures at PAB	100%	28 days	Mon 18/9/23	Sat 21/10/23	0 days																									
130	Temporary Work Design for PAB ELS Works		93%	315.8 days	Mon 8/5/23	Tue 28/5/24	430 days																									
131	21.DES.PAB.1	Prepare and Submit PAB ELS Design to Binnies for Acceptance	100%	90 days	Mon 8/5/23	Wed 23/8/23	0 days																									
132	21.DES.PAB.1	Binnies Review Design and Comment on PAB ELS Design	100%	18 days	Thu 24/8/23	Wed 13/9/23	0 days																									
133	21.DES.PAB.1	Revise and Resubmit the PAB ELS Design	100%	114 days	Thu 14/9/23	Wed 31/1/24	0 days																									
134	21.DES.PAB.1	Binnies Review and Comment the PAB ELS Design	100%	40 days	Thu 1/2/24	Wed 20/3/24	0 days																									
135	21.DES.PAB.1	Revise and Resubmit the PAB ELS Design	89%	36 days	Wed 20/3/24	Mon 6/5/24	430 days																									
136	21.DES.PAB.1	Binnies Review and Accept the PAB ELS Design	0%	18 days	Tue 7/5/24	Tue 28/5/24	430 days																									
137	Temporary Work Design for Cut and Cover Tunnel ELS Works		97%	428.8 days	Fri 9/12/22	Wed 22/5/24	0 days																									
138	21.DES.PAB.1	Preperation of Cut and Cover Tunnel ELS Works	100%	112 days	Fri 9/12/22	Fri 28/4/23	0 days																									
139	21.DES.PAB.1	ICE Check on Cut and Cover Tunnel ELS Works	100%	56 days	Fri 9/12/22	Fri 17/2/23	0 days																									
140	21.DES.PAB.1	PM Comment on Cut and Cover Tunnel ELS Works	100%	24 days	Sat 18/2/23	Fri 17/3/23	0 days																									
141	21.DES.PAB.1	Incorporate PM Comment on Cut and Cover Tunnel ELS Works	100%	48 days	Sat 18/3/23	Thu 18/5/23	0 days																									
142	21.DES.PAB.1	Prepare & Submit to GEO & Binnies Cut and Cover Tunnel ELS Works	100%	24 days	Fri 19/5/23	Fri 16/6/23	0 days																									
143	21.DES.PAB.1	Review & Comments from GEO & Binnies on Cut and Cover Tunnel ELS \	100%	80 days	Sat 17/6/23	Mon 4/9/23	0 days																									
144	21.DES.PAB.1	Prepare & Resubmit to GEO & Binnies Cut and Cover Tunnel ELS Works (1st Amendment)	100%	20 days	Tue 5/9/23	Wed 27/9/23	0 days																									
145	21.DES.PAB.1	Review & Comments from GEO & Binnies on Cut and Cover Tunnel ELS \	100%	28 days	Thu 28/9/23	Thu 2/11/23	0 days																									
146	21.DES.PAB.1	Revise & Submit to GEO & Binnies Cut and Cover Tunnel ELS Works 2nd Amendment)	100%	17 days	Fri 3/11/23	Wed 22/11/23	0 days																									
147	21.DES.PAB.1	Review & Comments from GEO & Binnies on Cut and Cover Tunnel ELS \	100%	4 days	Thu 23/11/23	Mon 27/11/23	0 days																									
148	21.DES.PAB.1	Revise & Submit to GEO & Binnies Cut and Cover Tunnel ELS Works (3rd Amendment)	100%	21 days	Tue 28/11/23	Thu 21/12/23	0 days																									
149	21.DES.PAB.1	Review & Comments from GEO & Binnies on Cut and Cover Tunnel ELS \	100%	78 days	Fri 22/12/23	Fri 8/3/24	0 days																									
150	21.DES.PAB.1	Revise & Submit to GEO & Binnies Cut and Cover Tunnel ELS Works (4th Amendment)	100%	40 days	Sat 9/3/24	Mon 29/4/24	0 days																									
151	21.DES.PAB.1	Review & Comments from GEO & Binnies on Cut and Cover Tunnel ELS \	5%	18 days	Tue 30/4/24	Wed 22/5/24	-51 days																									
152	Design for PAB Raft Footing		100%	221.8 days	Tue 1/8/23	Sat 27/4/24	0 days																									
153	21.DES.PAB.1	Prepare and Submit PAB Raft Footing Design to Binnies for Acceptance	100%	105 days	Tue 1/8/23	Mon 4/12/23	0 days																									
154	21.DES.PAB.1	Binnies Review Design and Comment on PAB Raft Footing Design	100%	18 days	Tue 5/12/23	Wed 27/12/23	0 days																									
155	21.DES.PAB.1	Revise and Resubmit the PAB Raft Footing Design	100%	46 days	Thu 28/12/23	Thu 22/2/24	0 days																									
156	21.DES.PAB.1	Binnies Review and Comment the PAB Raft Footing Design	100%	17 days	Fri 23/2/24	Wed 13/3/24	0 days																									
157	21.DES.PAB.1	Revise and Resubmit the PAB Raft Footing Design	100%	36 days	Wed 13/3/24	Sat 27/4/24	0 days																									
158	Design Submission for E&M Works		0%	84 days	Fri 2/5/25	Mon 11/8/25	271 days																									
159	21.DES.PAB.1	Prepare and Submit for Acceptance	0%	24 days	Fri 2/5/25	Fri 30/5/25	271 days																									
160	21.DES.PAB.1	Binnies Review Design and Comment	0%	18 days	Mon 2/6/25	Sat 21/6/25	271 days																									
161	21.DES.PAB.1	Revise and Resubmit	0%	24 days	Mon 23/6/25	Mon 21/7/25	271 days																									
162	21.DES.PAB.1	Binnies Review and Accept	0%	18 days	Mon 21/7/25	Mon 11/8/25	271 days																									
163	Design Submission for Fire Engineering Report		0%	84 days	Fri 2/5/25	Mon 11/8/25	271 days																									
164	21.DES.PAB.1	Prepare and Submit for Acceptance	0%	24 days	Fri 2/5/25	Fri 30/5/25	271 days																									
165	21.DES.PAB.1	Binnies Review Design and Comment	0%	18 days	Mon 2/6/25	Sat 21/6/25	271 days																									
166	21.DES.PAB.1	Revise and Resubmit	0%	24 days	Mon 23/6/25	Mon 21/7/25	271 days																									
167	21.DES.PAB.1	Binnies Review and Accept	0%	18 days	Mon 21/7/25	Mon 11/8/25	271 days																									
168	Design Submission for Plumbing		0%	84 days	Fri 2/5/25	Mon 11/8/25	271 days																									
169	21.DES.PAB.1	Prepare and Submit for Acceptance	0%	24 days	Fri 2/5/25	Fri 30/5/25	271 days																									
170	21.DES.PAB.1	Binnies Review Design and Comment	0%	18 days	Mon 2/6/25	Sat 21/6/25	271 days																									
171	21.DES.PAB.1	Revise and Resubmit	0%	24 days	Mon 23/6/25	Mon 21/7/25	271 days																									
172	21.DES.PAB.1	Binnies Review and Accept	0%	18 days	Mon 21/7/25	Mon 11/8/25	271 days																									
173	Design Submission for Ventilation		0%	84 days	Fri 2/5/25	Mon 11/8/25	867.2 days																									
174	21.DES.PAB.1	Prepare and Submit for Acceptance	0%	24 days	Fri 2/5/25	Fri 30/5/25	860.2 days																									
175	21.DES.PAB.1	Binnies Review Design and Comment	0%	18 days	Mon 2/6/25	Sat 21/6/25	860.2 days																									
176	21.DES.PAB.1	Revise and Resubmit	0%	24 days	Mon 23/6/25	Mon 21/7/25	860.2 days																									
177	21.DES.PAB.1	Binnies Review and Accept	0%	18 days	Mon 21/7/25	Mon 11/8/25	860.2 days																									
178	Contractor's Design - Tunnel & Cavern Design		53%	619.8 days	Tue 2/5/23	Tue 27/5/25	258.4 days																									
179	Construction Impact Assessment Report - Tunnel		100%	270.7 days	Fri 2/6/23	Sat 27/4/24	0 days																									
180	21.DES.TC.10	Prepare and Submit Construction Impact Assessment Report - Tunnel to GEO & Binnies for Acceptance	100%	67 days	Fri 2/6/23	Mon 21/8/23	0 days																									
181	21.DES.TC.10	GEO & Binnies Review and Comment on Construction Impact Assessment Report - Tunnel	100%	18 days	Tue 22/8/23	Mon 11/9/23	0 days																									
182	21.DES.TC.10	Revise and Resubmit the Construction Impact Assessment Report - Tunnel	100%	167.7 days	Tue 12/9/23	Sat 6/4/24	0 days																									
183	21.DES.TC.10	GEO & Binnies Review and Accept the Construction Impact Assessment Report - Tunnel	100%	18 days	Sat 6/4/24	Sat 27/4/24	0 days																									
Project: 21/WSD/21 Revised Programme (Apr 2024) Date: 1 May 2024		Task Split Milestone	Summary Project Summary Inactive Task	Inactive Milestone Inactive Summary Manual Task	Duration-only Manual Summary Rollup Manual Summary	Start-only Finish-only External Tasks	External Milestone Deadline Critical	Critical Split Progress Manual Progress																								
Page 3																																

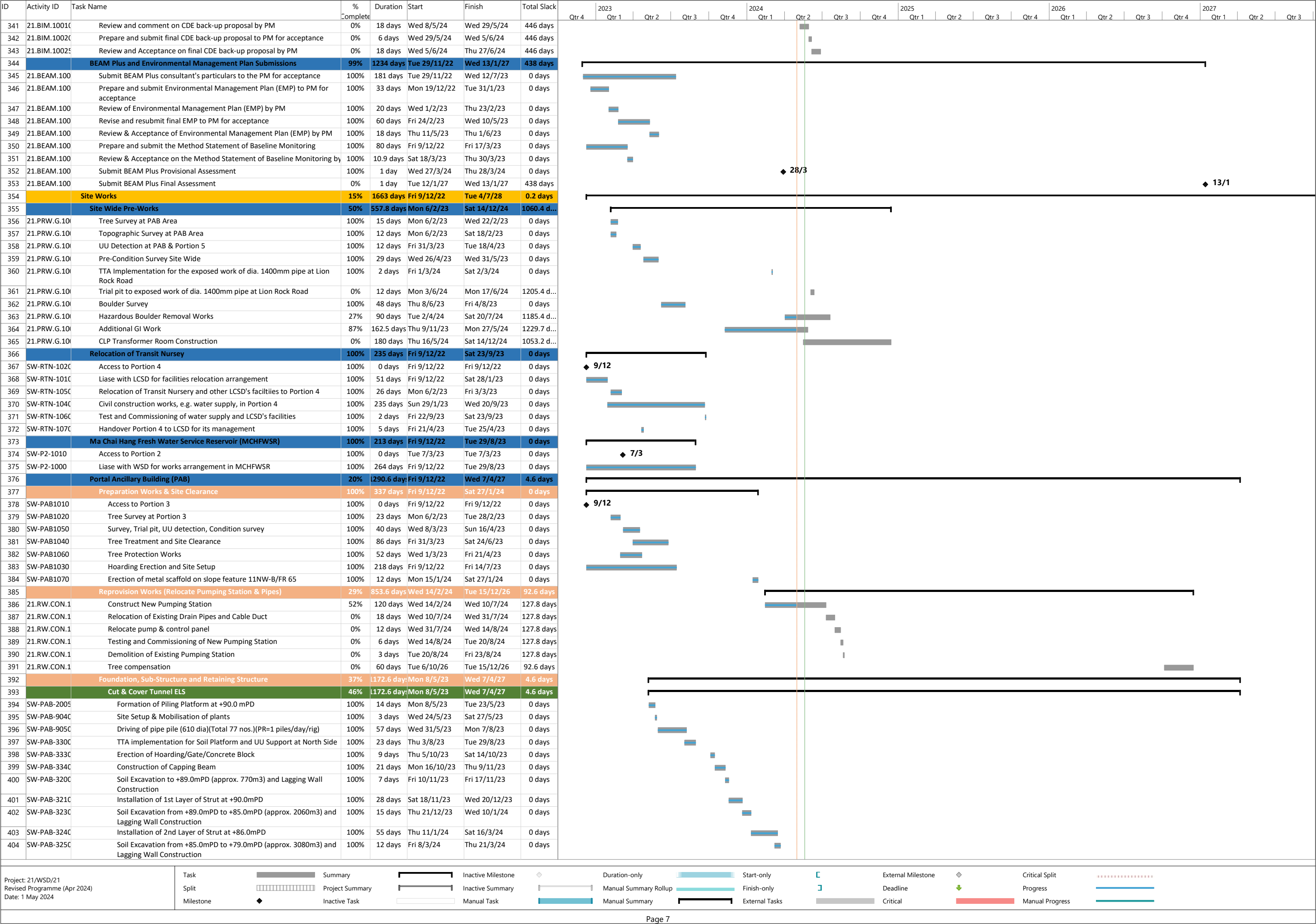
ID	Activity ID	Task Name	% Complete	Duration	Start	Finish	Total Slack	2023																2024				2025				2026				2027		
								Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3											
184		Construction Impact Assessment Report - Caverns	72%	200.8 days	Mon 6/11/23	Wed 10/7/24	381 days																															
185	21.DES.TC.10	Prepare and Submit Construction Impact Assessment Report - Caverns to GEO & Binnies for Acceptance	100%	120.8 days	Mon 6/11/23	Tue 2/4/24	0 days																															
186	21.DES.TC.10	GEO & Binnies Review and Comment on Construction Impact Assessment Report - Caverns	95%	24 days	Wed 3/4/24	Thu 2/5/24	381 days																															
187	21.DES.TC.10	Revise and Resubmit the Construction Impact Assessment Report - Caverns	0%	38 days	Fri 3/5/24	Tue 18/6/24	381 days																															
188	21.DES.TC.10	GEO & Binnies Review and Accept the Construction Impact Assessment Report - Caverns	0%	18 days	Tue 18/6/24	Wed 10/7/24	381 days																															
189		Soft Ground Tunnel (Type 1) Temporary Support and Sequence (CH24 to CH276 + CH337.15 to CH415.19)	100%	204.7 days	Tue 1/8/23	Mon 8/4/24	0 days																															
190	21.DES.TC.10	Prepare and Submit Soft Ground Tunnel (Type 1) Temporary Support and Sequence to GEO & Binnies for Acceptance	100%	67 days	Tue 1/8/23	Thu 19/10/23	0 days																															
191	21.DES.TC.10	GEO & Binnies Review Design and Comment on Soft Ground Tunnel (Type 1) Temporary Support and Sequence	100%	12 days	Thu 19/10/23	Fri 3/11/23	0 days																															
192	21.DES.TC.10	Revise and Resubmit the Soft Ground Tunnel (Type 1) Temporary Support and Sequence	100%	36 days	Fri 10/11/23	Fri 22/12/23	0 days																															
193	21.DES.TC.10	GEO & Binnies Review and Comment the Soft Ground Tunnel (Type 1) Temporary Support and Sequence	100%	11 days	Fri 22/12/23	Mon 8/1/24	0 days																															
194	21.DES.TC.10	Revise and Resubmit the Soft Ground Tunnel (Type 1) Temporary Support and Sequence	100%	7 days	Mon 8/1/24	Tue 16/1/24	0 days																															
195	21.DES.TC.10	GEO & Binnies Review and Comment the Soft Ground Tunnel (Type 1) Temporary Support and Sequence	100%	11 days	Tue 16/1/24	Mon 29/1/24	0 days																															
196	21.DES.TC.10	Revise and Resubmit the Soft Ground Tunnel (Type 1) Temporary Support and Sequence	100%	3 days	Mon 29/1/24	Thu 1/2/24	0 days																															
197	21.DES.TC.10	GEO & Binnies Review and Comment the Soft Ground Tunnel (Type 1) Temporary Support and Sequence	100%	6 days	Thu 1/2/24	Thu 8/2/24	0 days																															
198	21.DES.TC.10	Revise and Resubmit the Soft Ground Tunnel (Type 1) Temporary Support and Sequence	100%	21.8 days	Thu 8/2/24	Wed 6/3/24	0 days																															
199	21.DES.TC.10	GEO & Binnies Review and Comment the Soft Ground Tunnel (Type 1) Temporary Support and Sequence	100%	24 days	Wed 6/3/24	Mon 8/4/24	0 days																															
200		Soft Ground Tunnel (Type 1) Temporary Support and Sequence (CH75 to CH276 + CH337.15 to CH415.19)	96%	190.7 days	Sat 16/9/23	Thu 9/5/24	92.1 days																															
201	21.DES.TC.10	Prepare and Submit Soft Ground Tunnel (Type 1) Temporary Support and Sequence to GEO & Binnies for Acceptance	100%	103.9 days	Sat 16/9/23	Mon 22/1/24	0 days																															
202	21.DES.TC.10	GEO & Binnies Review Design and Comment on Soft Ground Tunnel (Type 1) Temporary Support and Sequence	100%	26 days	Mon 22/1/24	Fri 23/2/24	0 days																															
203	21.DES.TC.10	Revise and Resubmit the Soft Ground Tunnel (Type 1) Temporary Support and Sequence	100%	36.8 days	Fri 23/2/24	Wed 10/4/24	0 days																															
204	21.DES.TC.10	GEO & Binnies Review and Accept the Soft Ground Tunnel (Type 1) Temporary Support and Sequence	71%	24 days	Wed 10/4/24	Thu 9/5/24	92.1 days																															
205		Soft Ground Tunnel (Type 1) Permanent Lining	100%	122.9 days	Sat 11/11/23	Fri 12/4/24	0 days																															
206	21.DES.TC.10	Prepare and Submit Soft Ground Tunnel (Type 1) Permanent Lining to GEO & Binnies for Acceptance	100%	36 days	Sat 11/11/23	Sat 23/12/23	0 days																															
207	21.DES.TC.10	GEO & Binnies Review Design and Comment Soft Ground Tunnel (Type 1) Permanent Lining	100%	18 days	Sat 23/12/23	Wed 17/1/24	0 days																															
208	21.DES.TC.10	Revise and Resubmit the Soft Ground Tunnel (Type 1) Permanent Lining	100%	20 days	Wed 17/1/24	Fri 9/2/24	0 days																															
209	21.DES.TC.10	GEO & Binnies Review and Comment the Soft Ground Tunnel (Type 1) Permanent Lining	100%	20.8 days	Sat 10/2/24	Wed 6/3/24	0 days																															
210	21.DES.TC.10	Revise and Resubmit the Soft Ground Tunnel (Type 1) Permanent Lining	100%	10 days	Thu 7/3/24	Mon 18/3/24	0 days																															
211	21.DES.TC.10	GEO & Binnies Review and Accept the Soft Ground Tunnel (Type 1) Permanent Lining	100%	18 days	Tue 19/3/24	Fri 12/4/24	0 days																															
212		Temporary Blast Door & Blast Curtain Design	0%	84 days	Thu 1/8/24	Sat 9/11/24	82.2 days																															
213	21.DES.TC.10	Prepare and Submit Temporary Blast Door & Blast Curtain Design to GEO & Binnies for Acceptance	0%	24 days	Thu 1/8/24	Wed 28/8/24	82.2 days																															
214	21.DES.TC.10	GEO & Binnies Review Design and Comment on Temporary Blast Door & Blast Curtain Design	0%	18 days	Wed 28/8/24	Thu 19/9/24	82.2 days																															
215	21.DES.TC.10	Revise and Resubmit the Temporary Blast Door & Blast Curtain Design	0%	24 days	Thu 19/9/24	Sat 19/10/24	82.2 days																															
216	21.DES.TC.10	GEO & Binnies Review and Accept the Temporary Blast Door & Blast Curtain Design	0%	18 days	Sat 19/10/24	Sat 9/11/24	82.2 days																															
217		Cavern Layout and Tunnel Alignment for 4 Finger Cavern Arrangement - Draft	100%	202 days	Tue 2/5/23	Tue 2/1/24	0 days																															
218	21.DES.TC.10	Prepare and Submit Cavern Layout and Tunnel Alignment for 4 Finger Cavern Arrangement - Draft to GEO & Binnies for Acceptance	100%	37 days	Tue 2/5/23	Wed 14/6/23	0 days																															
219	21.DES.TC.10	GEO & Binnies Review Design and Comment on Cavern Layout and Tunnel Alignment for 4 Finger Cavern Arrangement - Draft	100%	34 days	Sat 10/6/23	Fri 21/7/23	0 days																															
220	21.DES.TC.10	Revise and Resubmit the Cavern Layout and Tunnel Alignment for 4 Finger Cavern Arrangement - Draft	100%	72 days	Sat 22/7/23	Mon 16/10/23	0 days																															
221	21.DES.TC.10	GEO & Binnies Review and Accept Cavern Layout and Tunnel Alignment for 4 Finger Cavern Arrangement - Draft	100%	17 days	Tue 17/10/23	Mon 6/11/23	0 days																															
222	21.DES.TC.10	Revise and Resubmit the Cavern Layout and Tunnel Alignment for 4 Finger Cavern Arrangement - Draft	100%	19 days	Tue 7/11/23	Tue 28/11/23	0 days																															
223	21.DES.TC.10	GEO & Binnies Review and Accept Cavern Layout and Tunnel Alignment for 4 Finger Cavern Arrangement - Draft	100%	27 days	Wed 29/11/23	Tue 2/1/24	0 days																															
224		Cavern Layout and Tunnel Alignment for 4 Finger Cavern Arrangement - Draft	69%	192.8 days	Fri 17/11/23	Fri 12/7/24	-13 days																															
225	21.DES.TC.10	Prepare and Submit Cavern Layout and Tunnel Alignment for 4 Finger Cavern Arrangement - DDA to GEO & Binnies for Acceptance	100%	120.8 days	Fri 17/11/23	Mon 15/4/24	0 days																															
226	21.DES.TC.10	GEO & Binnies Review Design and Comment on Cavern Layout and Tunnel Alignment for 4 Finger Cavern Arrangement - DDA	54%	24 days	Tue 16/4/24	Tue 14/5/24	-13 days																															
227	21.DES.TC.10	Revise and Resubmit the Cavern Layout and Tunnel Alignment for 4 Finger Cavern Arrangement - DDA	0%	24 days	Thu 16/5/24	Thu 13/6/24	-13 days																															
228	21.DES.TC.10	GEO & Binnies Review and Accept the Cavern Layout and Tunnel Alignment for 4 Finger Cavern Arrangement - DDA	0%	24 days	Thu 13/6/24	Fri 12/7/24	-13 days																															
229		Temporary Rock Support System for Tunnel Type T2	100%	190 days	Fri 19/5/23	Fri 5/1/24	0 days																															
Project: 21/WSD/21		Task		Summary		Inactive Milestone		Duration-only		Start-only		External Milestone		Critical Split																								
Revised Programme (Apr 2024)		Split		Project Summary		Inactive Summary		Manual Summary Rollup		Finish-only		Deadline		Progress																								
Date: 1 May 2024		Milestone		Inactive Task		Manual Task		Manual Summary		External Tasks		Critical		Manual Progress																								
Page 4																																						



Activity ID	Task Name	% Complete	Duration	Start	Finish	Total Slack	Timeline																								
							Qtr 4	2023	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2024	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2025	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2026	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2027	Qtr 1	Qtr 2	Qtr 3
230	21.DES.TC.10	Prepare and Submit Temporary Rock Support System for Tunnel to GEO & Binnies for Acceptance	100%	91 days	Fri 19/5/23	Tue 5/9/23	0 days																								
231	21.DES.TC.10	GEO & Binnies Review Design and Comment on Temporary Rock Support System for Tunnel Type T2	100%	18 days	Wed 6/9/23	Tue 26/9/23	0 days																								
232	21.DES.TC.10	Revise and Resubmit the Temporary Rock Support System for Tunnel	100%	40 days	Wed 27/9/23	Wed 15/11/23	0 days																								
233	21.DES.TC.10	GEO & Binnies Review and Accept the Temporary Rock Support System for Tunnel Type T2	100%	41 days	Thu 16/11/23	Fri 5/1/24	0 days																								
234		Permanent Rock Support System for Tunnel Type T2	100%	190 days	Fri 19/5/23	Fri 5/1/24	0 days																								
235	21.DES.TC.10	Prepare and Submit Permanent Rock Support System for Tunnel to GEO & Binnies for Acceptance	100%	67 days	Fri 19/5/23	Tue 8/8/23	0 days																								
236	21.DES.TC.10	GEO & Binnies Review Design and Comment on Permanent Rock Support System for Tunnel Type T2	100%	42 days	Wed 9/8/23	Tue 26/9/23	0 days																								
237	21.DES.TC.10	Revise and Resubmit the Permanent Rock Support System for Tunnel	100%	40 days	Wed 27/9/23	Wed 15/11/23	0 days																								
238	21.DES.TC.10	GEO & Binnies Review and Accept the Permanent Rock Support System for Tunnel Type T2	100%	41 days	Thu 16/11/23	Fri 5/1/24	0 days																								
239		Temporary Rock Support System for Caverns	0%	96 days	Sat 1/6/24	Tue 24/9/24	80.6 days																								
240	21.DES.TC.10	Prepare and Submit Temporary Rock Support System for Caverns to GEO & Binnies for Acceptance	0%	36 days	Sat 1/6/24	Mon 15/7/24	80.6 days																								
241	21.DES.TC.10	GEO & Binnies Review Design and Comment on Temporary Rock Support System for Caverns	0%	18 days	Tue 16/7/24	Mon 5/8/24	80.6 days																								
242	21.DES.TC.10	Revise and Resubmit the Temporary Rock Support System for Caverns	0%	24 days	Tue 6/8/24	Mon 2/9/24	80.6 days																								
243	21.DES.TC.10	GEO & Binnies Review and Accept the Temporary Rock Support System for Caverns	0%	18 days	Mon 2/9/24	Tue 24/9/24	80.6 days																								
244		Permanent Rock Support System for Caverns	0%	96 days	Tue 2/7/24	Thu 24/10/24	56.6 days																								
245	21.DES.TC.10	Prepare and Submit Permanent Rock Support System for Caverns to GEO & Binnies for Acceptance	0%	36 days	Tue 2/7/24	Mon 12/8/24	56.6 days																								
246	21.DES.TC.10	GEO & Binnies Review Design and Comment on Permanent Rock Support System for Caverns	0%	18 days	Tue 13/8/24	Mon 2/9/24	56.6 days																								
247	21.DES.TC.10	Revise and Resubmit the Permanent Rock Support System for Caverns	0%	24 days	Mon 2/9/24	Wed 2/10/24	56.6 days																								
248	21.DES.TC.10	GEO & Binnies Review and Accept the Permanent Rock Support System for Caverns	0%	18 days	Wed 2/10/24	Thu 24/10/24	56.6 days																								
249		Temporary Rock Support System for Junction between Caverns and Tunnel	0%	96 days	Sat 1/6/24	Tue 24/9/24	80.6 days																								
250	21.DES.TC.10	Prepare and Submit Temporary Rock Support System for Junction between Caverns and Tunnel to GEO & Binnies for Acceptance	0%	36 days	Sat 1/6/24	Mon 15/7/24	80.6 days																								
251	21.DES.TC.10	GEO & Binnies Review Design and Comment on Temporary Rock Support System for Junction between Caverns and Tunnel	0%	18 days	Tue 16/7/24	Mon 5/8/24	80.6 days																								
252	21.DES.TC.10	Revise and Resubmit the Temporary Rock Support System for Junction between Caverns and Tunnel	0%	24 days	Tue 6/8/24	Mon 2/9/24	80.6 days																								
253	21.DES.TC.10	GEO & Binnies Review and Accept the Temporary Rock Support System for Junction between Caverns and Tunnel	0%	18 days	Mon 2/9/24	Tue 24/9/24	80.6 days																								
254		Permanent Rock Support System for Junction between Caverns and Tunnel	0%	96 days	Tue 2/7/24	Thu 24/10/24	56.6 days																								
255	21.DES.TC.10	Prepare and Submit Permanent Rock Support System for Junction between Caverns and Tunnel to GEO & Binnies for Acceptance	0%	36 days	Tue 2/7/24	Mon 12/8/24	56.6 days																								
256	21.DES.TC.10	GEO & Binnies Review Design and Comment on Permanent Rock Support System for Junction between Caverns and Tunnel	0%	18 days	Tue 13/8/24	Mon 2/9/24	56.6 days																								
257	21.DES.TC.10	Revise and Resubmit the Permanent Rock Support System for Junction between Caverns and Tunnel	0%	24 days	Mon 2/9/24	Wed 2/10/24	56.6 days																								
258	21.DES.TC.10	GEO & Binnies Review and Accept the Permanent Rock Support System for Junction between Caverns and Tunnel	0%	18 days	Wed 2/10/24	Thu 24/10/24	56.6 days																								
259		Internal Structures - Tunnels	0%	140 days	Wed 2/10/24	Thu 20/3/25	311.8 days																								
260	21.DES.TC.10	Prepare and Submit Internal Structures - Tunnels to GEO & Binnies for Acceptance	0%	56 days	Wed 2/10/24	Fri 6/12/24	311.8 days																								
261	21.DES.TC.10	GEO & Binnies Review Design and Comment on Internal Structures - Tunnels	0%	24 days	Fri 6/12/24	Tue 7/1/25	311.8 days																								
262	21.DES.TC.10	Revise and Resubmit the Internal Structures - Tunnels	0%	36 days	Tue 7/1/25	Thu 20/2/25	311.8 days																								
263	21.DES.TC.10	GEO & Binnies Review and Accept the Internal Structures - Tunnels	0%	24 days	Thu 20/2/25	Thu 20/3/25	311.8 days																								
264		Internal Structures - Caverns	0%	140 days	Wed 2/10/24	Thu 20/3/25	255.4 days																								
265	21.DES.TC.10	Prepare and Submit Internal Structures - Caverns Design to GEO & Binnies for Acceptance	0%	56 days	Wed 2/10/24	Fri 6/12/24	255.4 days																								
266	21.DES.TC.10	GEO & Binnies Review Design and Comment on Internal Structures - Caverns	0%	24 days	Fri 6/12/24	Tue 7/1/25	255.4 days																								
267	21.DES.TC.10	Revise and Resubmit the Internal Structures - Caverns	0%	36 days	Tue 7/1/25	Thu 20/2/25	255.4 days																								
268	21.DES.TC.10	GEO & Binnies Review and Accept the Internal Structures - Caverns	0%	24 days	Thu 20/2/25	Thu 20/3/25	255.4 days																								
269		Temporary Ventilation for Tunnel and Cavern Construction	68%	204.8 days	Fri 10/11/23	Fri 19/7/24	-19 days																								
270	21.DES.TC.10	Prepare and Submit Temporary Ventilation Design for Tunnel and Cavern Construction to Binnies for Acceptance	100%	120.8 days	Fri 10/11/23	Mon 8/4/24	0 days																								
271	21.DES.TC.10	Binnies Review Design and Comment on Temporary Ventilation for Tunnel and Cavern Construction	79%	24 days	Tue 9/4/24	Tue 7/5/24	-19 days																								
272	21.DES.TC.10	Revise and Resubmit the Temporary Ventilation for Tunnel and Cavern Construction	0%	36 days	Wed 8/5/24	Thu 20/6/24	-19 days																								
273	21.DES.TC.10	GEO & Binnies Review and Accept the Temporary Ventilation for Tunnel and Cavern Construction	0%	24 days	Thu 20/6/24	Fri 19/7/24	-19 days																								
274		Tunnel Temporary Drainage Plan	0%	80 days	Sat 1/6/24	Wed 4/9/24	-6.8 days																								
275	21.DES.TC.10	Prepare and Submit Tunnel Temporary Drainage Plan to GEO & Binnies for Acceptance	0%	24 days	Sat 1/6/24	Sat 29/6/24	-6.8 days																								
276	21.DES.TC.10	GEO & Binnies Review Design and Comment on Tunnel Temporary Drainage Plan	0%	24 days	Tue 2/7/24	Mon 29/7/24	-6.8 days																								
277	21.DES.TC.10	Revise and Resubmit the Tunnel Temporary Drainage Plan	0%	8 days	Tue 30/7/24	Wed 7/8/24	-6.8 days																								
278	21.DES.TC.10	GEO & Binnies Review and Accept the Tunnel Temporary Drainage Plan	0%	24 days	Thu 8/8/24	Wed 4/9/24	-6.8 days																								
Project: 21/WSD/21 Revised Programme (Apr 2024) Date: 1 May 2024		Task Split Milestone	<div></div> <div></div> <div>◆</div>	Summary Project Summary Inactive Task	<div></div> <div></div> <div></div>	Inactive Milestone Inactive Summary Manual Task	<div>◆</div> <div></div> <div></div>	Duration-only Manual Summary Rollup Manual Summary	<div></div> <div></div> <div></div>	Start-only Finish-only External Tasks	<div>[</div> <div>]</div> <div></div>	External Milestone Deadline Critical	<div>◆</div> <div>⬇</div> <div></div>	Critical Split Progress Manual Progress	<div>.....</div> <div></div> <div></div>																
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Activity ID	Task Name	% Complete	Duration	Start	Finish	Total Slack																									
							Qtr 4	2023	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2024	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2025	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2026	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2027	Qtr 1	Qtr 2	Qtr 3
405	SW-PAB-326C	Installation of 3rd Layer of Strut at +80.75mPD and Portal Frame	100%	33.9 days	Fri 22/3/24	Wed 24/4/24	0 days																								
406	SW-PAB-327C	Soil Excavation from +79.0mPD to +75.0mPD (approx. 2052m3) and Lagging Wall Construction	68%	22 days	Tue 16/4/24	Tue 7/5/24	-7.1 days																								
407	SW-PAB-328C	Installation of 4th Layer of Strut at +76.25mPD and Portal Frame	0%	22 days	Wed 8/5/24	Wed 29/5/24	-99 days																								
408	SW-PAB-329C	Soil Excavation from +75.0mPD to +71.1mPD F.E.L. (approx. 1590m3) and Lagging Wall Construction	0%	11 days	Thu 30/5/24	Sun 9/6/24	-99 days																								
409	SW-PAB-329S	Installation of 5th Layer of Strut at +71.5mPD (northern side only)	0%	11 days	Mon 10/6/24	Thu 20/6/24	-99 days																								
410	SW-PAB-330C	Casting of blinding	0%	1 day	Fri 21/6/24	Fri 21/6/24	-99 days																								
411	SW-PAB-3302	Installation of Waterproof Membrane underneath Base Slab	0%	3 days	Sat 22/6/24	Mon 24/6/24	-99 days																								
412	SW-PAB-3304	Construction of Base Slab and Wing Slab	0%	15 days	Tue 25/6/24	Tue 9/7/24	-99 days																								
413	SW-PAB-3305	Construction of Corbels	0%	3 days	Wed 10/7/24	Fri 12/7/24	-99 days																								
414	SW-PAB-3306	Installation of vertical post of supporting frame of Noise Enclosure and Ventilation Fan onto Base Slab	0%	6 days	Sat 13/7/24	Thu 18/7/24	-99 days																								
415	SW-PAB-3311	Installation of King Posts and Raking Struts and Bracings	0%	6 days	Fri 19/7/24	Wed 24/7/24	-99 days																								
416	SW-PAB-331C	Casting of lean concrete at the northern side of the Base Slab	0%	1 day	Fri 19/7/24	Fri 19/7/24	817.6 days																								
417	SW-PAB-3312	Construction of mass concrete at eastern and western side of the Base Slab	0%	6 days	Thu 25/7/24	Tue 30/7/24	-99 days																								
418	SW-PAB-332C	Backfilling on Base Slab to +77.0mPD (approx. 4m high)	0%	6 days	Wed 31/7/24	Mon 5/8/24	-99 days																								
419	SW-PAB-334C	Installation of Flying Struts	0%	6 days	Thu 26/9/24	Fri 4/10/24	637.6 days																								
420	SW-PAB-3341	Installation of sheet pile wall at the south of Cut & Cover Tunnel ELS to form access road	0%	18 days	Thu 25/7/24	Thu 15/8/24	661.2 days																								
421	SW-PAB-3342	Excavation down to +77mPD to form access road	0%	18 days	Thu 26/9/24	Sat 19/10/24	625.6 days																								
422	SW-PAB-335C	Cutting of Southern Pipe Pile Walls for Opening	0%	4 days	Sat 19/10/24	Thu 24/10/24	625.6 days																								
423	SW-PAB-336C	Construction of Noise Enclosure and Installation of Ventilation Fans	0%	72 days	Tue 3/12/24	Mon 3/3/25	630.6 days																								
424	SW-PAB-339C	Completely Remove the Compacted Soil down to +73.10mPD	0%	5 days	Fri 19/12/25	Sat 27/12/25	276.6 days																								
425	SW-PAB-340C	Construction of Structural Wall	0%	48 days	Sat 20/6/26	Sat 15/8/26	134.6 days																								
426	SW-PAB-341C	Construction of Roof Slab	0%	36 days	Sat 15/8/26	Fri 25/9/26	134.6 days																								
427	SW-PAB-342C	Backfilling to +86.0mPD	0%	9 days	Mon 28/9/26	Thu 8/10/26	134.6 days																								
428	SW-PAB-343C	Removal of 2nd Layer of Struts	0%	3 days	Fri 9/10/26	Mon 12/10/26	134.6 days																								
429	SW-PAB-344C	Backfilling to +88.50mPD	0%	9 days	Tue 13/10/26	Fri 23/10/26	134.6 days																								
430	SW-PAB-345C	Removal of 1st Layer of Struts	0%	3 days	Sat 24/10/26	Tue 27/10/26	134.6 days																								
431	SW-PAB-346C	Construction of Internal Wall	0%	20 days	Wed 10/3/27	Wed 7/4/27	4.6 days																								
432		Northern Side of PAB	100%	54 days	Mon 21/8/23	Wed 25/10/23	0 days																								
433	SW-PAB-906C	Site Setup & Mobilisation of Plants	100%	3 days	Mon 21/8/23	Wed 23/8/23	0 days																								
434	SW-PAB-907C	Driving of Pipe Pile (610 DIA) (Total: 53 nos.)(PR=2 piles/day/rig)	100%	53 days	Tue 22/8/23	Wed 25/10/23	0 days																								
435		Western Side of PAB (Zone A)	34%	495.6 days	Sat 9/12/23	Wed 6/8/25	71.2 days																								
436	SW-PAB-425C	Erection of Timber Platform for Western Pipe Pile	100%	12 days	Sat 9/12/23	Fri 22/12/23	0 days																								
437	SW-PAB-426C	Site Setup & Mobilisation of Plants	100%	5 days	Sat 23/12/23	Sat 30/12/23	0 days																								
438	SW-PAB-427C	Driving of Pipe Pile (273 DIA) (Total 36 nos, PR=1pp/day/rig)	100%	20 days	Tue 2/1/24	Wed 24/1/24	0 days																								
439	SW-PAB-428C	Installation of inclinometers	100%	15 days	Thu 25/1/24	Sat 10/2/24	0 days																								
440	SW-PAB-437C	Excavation to +87.5mPD and Lagging Wall Construction	100%	20 days	Wed 14/2/24	Thu 7/3/24	0 days																								
441	SW-PAB-438C	Installation of 1st Layer of Tie-back at +88.0mPD	57%	75 days	Thu 7/3/24	Sat 8/6/24	112.8 days																								
442	SW-PAB-439C	Excavation to +85.0mPD and Lagging Wall Construction	0%	15 days	Sat 8/6/24	Thu 27/6/24	112.8 days																								
443	SW-PAB-440C	Installation of 2nd Layer of Tie-back at +85.5mPD	0%	23 days	Thu 27/6/24	Thu 25/7/24	112.8 days																								
444	SW-PAB-441C	Excavation to +81.5mPD and Lagging Wall Construction	0%	10 days	Thu 25/7/24	Tue 6/8/24	112.8 days																								
445	SW-PAB-442C	Installation of 3rd Tie-back at +82.0mPD	0%	15 days	Tue 6/8/24	Thu 22/8/24	112.8 days																								
446	SW-PAB-443C	Excavation to +78.0mPD and Lagging Wall Construction	0%	6 days	Thu 22/8/24	Thu 29/8/24	112.8 days																								
447	SW-PAB-444C	Installation of 4th Layer Tie-back at +78.5mPD	0%	10 days	Thu 29/8/24	Tue 10/9/24	112.8 days																								
448	SW-PAB-444S	Excavation of the remaining soilmass to +78.0mPD with lateral support to facilitate the opening of southern side of Cut & Cover	0%	55 days	Fri 1/11/24	Tue 7/1/25	71.2 days																								
449	SW-PAB-445C	Excavation to +74.5 mPD (FEL) and Lagging Wall Construction	0%	12 days	Fri 30/5/25	Sat 14/6/25	71.2 days																								
450	SW-PAB-446C	Installation of 5th Layer Tie-back at +75.0mPD	0%	30 days	Sat 14/6/25	Sun 20/7/25	71.2 days																								
451	SW-PAB-447C	Excavation to +73.4 mPD (FEL), Blinding and Lagging Wall Constructic	0%	15 days	Mon 21/7/25	Wed 6/8/25	71.2 days																								
452		Eastern Side of PAB (Zone B)	22%	473.6 days	Sat 23/12/23	Fri 25/7/25	81.2 days																								
453	SW-PAB-422C	Formation of soil platform for Eastern Pipe Pile	100%	12 days	Sat 23/12/23	Tue 9/1/24	0 days																								
454	SW-PAB-423C	Site Setup & Mobilisation of Plants	100%	5 days	Thu 25/1/24	Tue 30/1/24	0 days																								
455	SW-PAB-424C	Driving of Pipe Pile (355 DIA) (Total 27 nos, PR= 1pp/day/rig)	100%	54 days	Wed 31/1/24	Tue 9/4/24	0 days																								
456	SW-PAB-428C	Excavation to +87.5mPD and Lagging Wall Construction	0%	8 days	Thu 26/9/24	Mon 7/10/24	71.2 days																								
457	SW-PAB-429C	Installation of 1st Layer of Tie-back at +88.0mPD	0%	12 days	Mon 7/10/24	Tue 22/10/24	71.2 days																								
458	SW-PAB-430C	Excavation to +85.5mPD and Lagging Wall Construction	0%	9 days	Tue 22/10/24	Fri 1/11/24	71.2 days																								
459	SW-PAB-431C	Installation of 2nd Layout of Tie-back at +86.0mPD	0%	14 days	Fri 1/11/24	Sat 16/11/24	81.2 days																								
460	SW-PAB-432C	Excavation to +83.5mPD and Lagging Wall Construction	0%	10 days	Sat 16/11/24	Thu 28/11/24	81.2 days																								
461	SW-PAB-433C	Installation of 3rd Layer of Wailing and Strut at +84mPD	0%	16 days	Thu 28/11/24	Tue 17/12/24	81.2 days																								
462	SW-PAB-434C	Excavation to +81.9 mPD and Lagging Wall Construction	0%	11 days	Tue 17/12/24	Thu 2/1/25	81.2 days																								
463	SW-PAB-435C	Installation of 4th Layer of Tie-back at +82.4mPD	0%	18 days	Thu 2/1/25	Thu 23/1/25	81.2 days																								
464	SW-PAB-436C	Excavation to +79.75 mPD and Lagging Wall Construction	0%	12 days	Thu 23/1/25	Sat 8/2/25	81.2 days																								
465	SW-PAB-437C	Installation of 5th Layer of Wailing and Strut at +80.25mPD	0%	20 days	Sat 8/2/25	Tue 4/3/25	81.2 days																								
466	SW-PAB-438C	Excavation to +77.75 mPD and Lagging Wall Construction	0%	13 days	Tue 4/3/25	Wed 19/3/25	81.2 days																								
467	SW-PAB-439C	Installation of 6th Layer of Tie-back at +78.25mPD	0%	22 days	Wed 19/3/25	Tue 15/4/25	81.2 days																								

Project: 21/WSD/21  
Revised Programme (Apr 2024)  
Date: 1 May 2024

Task

Split

Milestone

Summary

Project Summary

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

External Tasks

External Milestone

Deadline

Critical

Critical Split

Progress

Manual Progress

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Activity ID	Task Name	%	Complete	Duration	Start	Finish	Total Slack																				
								Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
468	SW-PAB-4394	Site Setup & Mobilisation of Plants	0%	3 days	Tue 15/4/25	Tue 22/4/25	81.2 days																				
469	SW-PAB-4395	Driving of Pipe Pile (355 DIA) (Total: 28 nos.)(PR=1 piles/day/rig)	0%	28 days	Tue 22/4/25	Mon 26/5/25	81.2 days																				
470	SW-PAB-4400	Soil Excavation to +75.75 mPD and Lagging Wall Construction	0%	12 days	Mon 26/5/25	Tue 10/6/25	81.2 days																				
471	SW-PAB-4410	Installation of 7th Layer of Wailing and Strut at +76.25mPD	0%	24 days	Tue 10/6/25	Wed 9/7/25	81.2 days																				
472	SW-PAB-4420	Soil Excavation to +73.4 mPD (FEL), Blinding and Lagging Wall Construction	0%	15 days	Wed 9/7/25	Fri 25/7/25	81.2 days																				
473		Southern Side of PAB (Zone C)	0%	98 days	Tue 7/1/25	Fri 9/5/25	71.2 days																				
474		Site Setup & Mobilisation of plants	0%	5 days	Tue 7/1/25	Mon 13/1/25	71.2 days																				
475	SW-PAB-4050	Driving of Pipe Pile (610 DIA) (Total: 75 nos.)(PR=1 piles/day/rig)	0%	75 days	Mon 13/1/25	Mon 14/4/25	71.2 days																				
476	SW-PAB-4060	Excavation to +73.4 mPD (FEL), Blinding and Lagging Wall Constructio	0%	18 days	Mon 14/4/25	Fri 9/5/25	71.2 days																				
477		Structure Works	0%	309.4 days	Fri 9/5/25	Tue 19/5/26	71.2 days																				
478		Foundation Works	0%	111 days	Fri 9/5/25	Wed 17/9/25	71.2 days																				
479	SW-PAB-4270	Construction of Raft Footing Slab (Southern) (Zone C)	0%	18 days	Fri 9/5/25	Fri 30/5/25	71.2 days																				
480	SW-PAB-4280	Construction of Retaining Wall RW1 and RW2	0%	30 days	Fri 30/5/25	Mon 7/7/25	98.2 days																				
481	SW-PAB-4290	Construction of Raft Footing Slab (Western) (Zone A)	0%	36 days	Thu 7/8/25	Wed 17/9/25	71.2 days																				
482	SW-PAB-4300	Construction of Raft Footing Slab (Eastern) (Zone B)	0%	30 days	Sat 26/7/25	Fri 29/8/25	81.2 days																				
483		Building Structure - Grid No. U - BB (Western)	0%	198.4 days	Thu 18/9/25	Tue 19/5/26	71.2 days																				
484	SW-PAB-S300	Commencement of Building Superstructure	0%	0 days	Tue 23/9/25	Tue 23/9/25	85.4 days																				
485	SW-PAB-S200	Installation of Tower Crane	0%	5 days	Thu 18/9/25	Tue 23/9/25	71.2 days																				
486	SW-PAB-S301	Column, Beam & Floor Slab @ Ground Floor +78mPD (from Pile Cap @ +75mPD) incl. scaffold erection	0%	35 days	Wed 24/9/25	Tue 28/10/25	85.4 days																				
487	SW-PAB-S302	RC Column and RC Wall @ above Ground Floor	0%	26 days	Wed 29/10/25	Sun 23/11/25	85.4 days																				
488	SW-PAB-S303	RC Beam & Floor Slab @ First Floor +84.25mPD incl. scaffold erection	0%	35 days	Mon 24/11/25	Sun 28/12/25	85.4 days																				
489	SW-PAB-S304	RC Column and RC Wall @ above First Floor	0%	26 days	Mon 29/12/25	Fri 23/1/26	85.4 days																				
490	SW-PAB-S305	RC Beam & Floor Slab @ Roof +91.5mPD incl. scaffold erection	0%	35 days	Sat 24/1/26	Fri 27/2/26	85.4 days																				
491	SW-PAB-S306	RC Column and RC Wall @ above Roof	0%	14 days	Sat 28/2/26	Fri 13/3/26	85.4 days																				
492	SW-PAB-S308	RC Stairs	0%	21 days	Sat 28/2/26	Fri 20/3/26	145.4 days																				
493	SW-PAB-S307	Roof Canopy @ +95.8mPD incl. scaffold erection	0%	21 days	Sat 14/3/26	Fri 3/4/26	85.4 days																				
494	SW-PAB-S309	Waterproofing works on roof	0%	18 days	Sat 2/5/26	Tue 19/5/26	85.4 days																				
495		Building Structure - Grid No. BB - EE (Eastern)	0%	214.4 days	Sat 30/8/25	Tue 19/5/26	71.2 days																				
496	SW-PAB-S400	Column, Beam & Floor Slab @ Ground Floor +78mPD (from Pile Cap @ +75mPD) incl. scaffold erection	0%	35 days	Sat 30/8/25	Fri 3/10/25	97.4 days																				
497	SW-PAB-S401	RC Column and RC Wall @ above Ground Floor	0%	26 days	Sat 4/10/25	Wed 29/10/25	97.4 days																				
498	SW-PAB-S402	RC Beam & Floor Slab @ First Floor +84.25mPD incl. scaffold erection	0%	35 days	Thu 30/10/25	Wed 3/12/25	97.4 days																				
499	SW-PAB-S403	RC Column and RC Wall @ above First Floor	0%	26 days	Thu 4/12/25	Mon 29/12/25	97.4 days																				
500	SW-PAB-S404	RC Beam & Floor Slab @ Roof +91.5mPD incl. scaffold erection	0%	35 days	Tue 30/12/25	Mon 2/2/26	97.4 days																				
501	SW-PAB-S405	RC Column and RC Wall @ above Roof	0%	14 days	Tue 3/2/26	Mon 16/2/26	97.4 days																				
502	SW-PAB-S407	RC Stairs	0%	21 days	Tue 3/2/26	Mon 23/2/26	170.4 days																				
503	SW-PAB-S406	Roof Canopy @ +95.8mPD incl. scaffold erection	0%	21 days	Thu 12/2/26	Wed 4/3/26	97.4 days																				
504	SW-PAB-S408	Installation of Photovoltaic Panel	0%	18 days	Thu 2/4/26	Sun 19/4/26	97.4 days																				
505	SW-PAB-S409	Waterproofing works on roof	0%	18 days	Mon 20/4/26	Thu 7/5/26	97.4 days																				
506	SW-PAB-S410	Complete RC Structure	0%	0 days	Tue 19/5/26	Tue																					



Activity ID		Task Name	% Complete	Duration	Start	Finish	Total Slack	2023					2024					2025					2026					2027				
								Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3					
533		G/F - FS Water Tank & FS Pump Room	0%	103.6 days	Thu 4/12/25	Sat 11/4/26	184.4 days																									
534	SW-PAB-A601	FS Water Tank & Pump Rm - Falsework Removal/ Preparation for ABWF & MEP Works	0%	35 days	Thu 4/12/25	Wed 7/1/26	227 days																									
535	SW-PAB-A602	FS Water Tank & Pump Rm - Waterproofing & Testing	0%	14 days	Thu 8/1/26	Wed 21/1/26	227 days																									
536	SW-PAB-A603	FS Water Tank & Pump Rm - Plastering Works Inside Tank	0%	14 days	Thu 22/1/26	Wed 4/2/26	227 days																									
537	SW-PAB-A604	FS Water Tank & Pump Rm - Wall and Floor Tiling Works	0%	21 days	Thu 5/2/26	Wed 25/2/26	227 days																									
538	SW-PAB-A605	FS Water Tank & Pump Rm - Install Equipment	0%	45 days	Thu 26/2/26	Sat 11/4/26	227 days																									
539	SW-PAB-A606	FS Water Tank & Pump Rm - Install Cat Ladder & Hatch Cover	0%	10 days	Thu 2/4/26	Sat 11/4/26	227 days																									
540		Other Rooms	0%	132.6 days	Thu 4/12/25	Sun 17/5/26	186.4 days																									
541	SW-PAB-A611	G/F - Falsework Removal/ Preparation for ABWF & MEP Works	0%	42 days	Thu 4/12/25	Wed 14/1/26	260 days																									
542	SW-PAB-A612	G/F - ABWF Deg1 - Deg3	0%	70 days	Thu 15/1/26	Wed 25/3/26	260 days																									
543	SW-PAB-A613	G/F - BS 1st Fix - 3rd Fix	0%	70 days	Thu 29/1/26	Wed 8/4/26	260 days																									
544	SW-PAB-A614	1/F - Falsework Removal/ Preparation for ABWF & MEP Works	0%	30 days	Tue 3/2/26	Wed 4/3/26	221 days																									
545	SW-PAB-A615	1/F - ABWF Deg1 - Deg3	0%	60 days	Thu 5/3/26	Sun 3/5/26	221 days																									
546	SW-PAB-A616	1/F - BS 1st Fix - 3rd Fix	0%	60 days	Thu 19/3/26	Sun 17/5/26	221 days																									
547		External Works	0%	280 days	Wed 4/2/26	Tue 12/1/27	71.2 days																									
548	SW-PAB-E100	Underground Utilities Works, Drainage Works, Watermain Works & Testing at the Periphery of PAB	0%	100 days	Wed 4/2/26	Tue 9/6/26	71.2 days																									
549	SW-PAB-E101	Backfilling to Ground Level	0%	30 days	Wed 10/6/26	Thu 16/7/26	117.2 days																									
550	SW-PAB-E102	Site preparation and erect external falsework around building	0%	12 days	Thu 16/7/26	Thu 30/7/26	117.2 days																									
551	SW-PAB-E103	Extenal wall plastering/ painting works	0%	24 days	Thu 30/7/26	Thu 27/8/26	165.2 days																									
552	SW-PAB-E104	Extenral wall tiles	0%	24 days	Thu 30/7/26	Thu 27/8/26	117.2 days																									
553	SW-PAB-E105	Install Metal Doors, Roller Shutter, Cat-Ladder and Metal Railings	0%	20 days	Thu 27/8/26	Fri 18/9/26	165.2 days																									
554	SW-PAB-E106	Install Steel Claddings, Ventilation Louvres, External Ceiling	0%	20 days	Thu 27/8/26	Fri 18/9/26	117.2 days																									
555	SW-PAB-E107	Construction of vehicular road	0%	45 days	Fri 18/9/26	Fri 13/11/26	120.2 days																									
556	SW-PAB-E108	Install Bi-folding gate, security fenece, footpath, boundary wall	0%	48 days	Fri 18/9/26	Tue 17/11/26	117.2 days																									
557	SW-PAB-E109	Underground Utilities Works, Drainage Works, Watermain Works & Testing along Lion Rock Park Access Road	0%	180 days	Wed 10/6/26	Tue 12/1/27	71.2 days																									
558	SW-PAB-E110	Complete External Works	0%	0 days	Tue 12/1/27	Tue 12/1/27	71.2 days																									
559		Testing and Commisioning	0%	70.8 days	Thu 30/7/26	Thu 22/10/26	98.8 days																									
560	SW-PAB-T100	1A - West Fire Sta - Testing and Commissioning (FS - Related)	0%	18 days	Thu 30/7/26	Sun 16/8/26	118 days																									
561	SW-PAB-T200	1A - West Fire Sta - Testing and Commissioning (Non FS - Related)	0%	67 days	Mon 17/8/26	Thu 22/10/26	130 days																									
562		Landscaping and Architectural Roof	0%	161.4 days	Wed 4/3/26	Mon 14/9/26	169.2 days																									
563	A1000	Construction of Gabion Wall	0%	51 days	Wed 4/3/26	Wed 6/5/26	242.6 days																									
564	A1030	Tree Transplant near Gabion Wall	0%	52 days	Tue 31/3/26	Fri 5/6/26	242.6 days																									
565	A1040	Installation of Landscape Fence	0%	12 days	Fri 5/6/26	Sat 20/6/26	242.6 days																									
566	A1050	Architectural Roof hardwork	0%	99 days	Wed 20/5/26	Mon 14/9/26	169.2 days																									
567	A1060	Architectural Roof softwork and Tree transplant	0%	50 days	Thu 18/6/26	Mon 17/8/26	194.2 days																									
568		Statutory Approval & Inspection	0%	191.4 days	Fri 1/5/26	Tue 15/12/26	91.8 days																									
569		WSD Inspection	0%	154.6 days	Fri 1/5/26	Tue 3/11/26	96.6 days																									
570	SW-PAB-800C	Submit WWO 46 Part IV (PD) and Wait for Inspection by WSD	0%	35 days	Fri 1/5/26	Thu 4/6/26	200 days																									
571	SW-PAB-801C	Inspection and Re-inspection by WSD (PD) (including water																														

ID	Activity ID	Task Name	% Complete	Duration	Start	Finish	Total Slack	2023				2024		2025				2026				2027		
								Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	
596	SW-VAT-20C	Installation of remaining raking struts	0%	6 days	Sun 18/8/24	Sat 24/8/24	786.6 d...																	
597	SW-VAT-2003	Flame Cut Slots in Pipe Piles for Canopy Tube Installation	0%	5 days	Sat 24/8/24	Fri 30/8/24	-81.8 days																	
598	SW-VAT-2004	Double Layer Canopy Tube (18m length) Installation & Grouting	0%	22 days	Fri 30/8/24	Thu 26/9/24	-81.8 days																	
599	SW-VAT-20C	Removal of 3rd Layer of Struts	0%	6 days	Thu 19/9/24	Thu 26/9/24	759.6 d...																	
600	SW-VAT-2005	Installation of Portal Frame	0%	1 day	Thu 26/9/24	Fri 27/9/24	-81.8 days																	
601	SW-VAT-2006	Part Removal of Pipe Piles for TL & Shotcreting for Quadrant 1	0%	3 days	Fri 27/9/24	Wed 2/10/24	-81.8 days																	
602		Tunnel Works CH24 to CH74 by Initial Mechanical Excavation	0%	266 days	Wed 2/10/24	Thu 21/8/25	-81.8 days																	
603	SW-VAT-320C	Initial Mechanical Excavation - Top Heading Left - CH24 to CH74 (1m/day) (incl. 2d for Double Layer Canopy Tube (6m) Installation at Part Removal of Pipe Piles for TL & Shotcreting for Quadrant 2	0%	52 days	Wed 2/10/24	Mon 2/12/24	-81.8 days																	
604	SW-VAT-3205		0%	3 days	Sat 26/10/24	Wed 30/10/24	623.6 days																	
605	SW-VAT-321C	Initial Mechanical Excavation - Top Heading Right - CH24 to CH74 (1m/day)	0%	50 days	Wed 30/10/24	Sat 28/12/24	623.6 days																	
606	SW-VAT-322C	Excavation of Backfill Material inside the Cut and Cover Tunnel Cofferdam - Bottom Bench Left	0%	34 days	Wed 21/5/25	Wed 2/7/25	530.6 days																	
607	SW-VAT-3215	Excavation of Backfill Material inside the Cut and Cover Tunnel Cofferdam - Bottom Bench Left	0%	3 days	Wed 2/7/25	Sat 5/7/25	530.6 days																	
608	SW-VAT-323C	Initial Mechanical Excavation - Bottom Bench Right - CH74 to CH24 (1.5m/day)	0%	34 days	Thu 10/7/25	Mon 18/8/25	489.6 days																	
609	SW-VAT-3225	Excavation of Backfill Material inside the Cut and Cover Tunnel Cofferdam - Bottom Bench Right	0%	3 days	Tue 19/8/25	Thu 21/8/25	489.6 days																	
610		Tunnel Works CH74 to CH276 by Mechanical Excavation & Drill & Blast	0%	314 days	Mon 2/12/24	Fri 19/12/25	-81.8 days																	
611	SW-VAT-3235	Pre-excavation Grouting at CH74 to CH104	0%	1 day	Mon 2/12/24	Tue 3/12/24	-81.8 days																	
612	SW-VAT-324C	Mechanical Excavation - Top Heading Left - CH74 to CH133 (1m/day)	0%	59 days	Tue 3/12/24	Sat 15/2/25	-81.8 days																	
613	SW-VAT-325C	Mechanical Excavation - Top Heading Right - CH74 to CH133 (1m/day)	0%	59 days	Sat 28/12/24	Tue 11/3/25	623.6 days																	
614	SW-VAT-390C	Mechanical Excavation - Full Heading - CH133 to CH175 (1.2m/day)	0%	35 days	Sat 15/2/25	Fri 28/3/25	-81.8 days																	
615	SW-VAT-391C	Mechanical Excavation - Full Heading - CH175 to CH276 (1.2m/day)	0%	85 days	Fri 28/3/25	Mon 14/7/25	-81.8 days																	
616	SW-VAT-326C	Mechanical Excavation - Bottom Bench Left - CH133 to CH110 (1m/day)	0%	23 days	Fri 28/3/25	Mon 28/4/25	489.6 days																	
617	SW-VAT-327C	Mechanical Excavation - Bottom Bench Left - CH110 to CH74 (2m/day)	0%	18 days	Mon 28/4/25	Wed 21/5/25	489.6 days																	
618	SW-VAT-328C	Mechanical Excavation - Bottom Bench Right - CH133 to CH110 (1m/day)	0%	23 days	Wed 21/5/25	Wed 18/6/25	489.6 days																	
619	SW-VAT-329C	Mechanical Excavation - Bottom Bench Right - CH110 to CH74 (2m/day)	0%	18 days	Wed 18/6/25	Thu 10/7/25	489.6 days																	
620	SW-VAT-392C	D&B Excavation - Bottom Bench Left - CH276 to CH133 (3.5m/day)	0%	41 days	Fri 12/9/25	Sat 1/11/25	85.6 days																	
621	SW-VAT-393C	D&B Excavation - Bottom Bench Right - CH276 to CH133 (3.5m/day)	0%	41 days	Sat 1/11/25	Fri 19/12/25	85.6 days																	
622		Tunnel Works CH276 to CH286 by Drill & Blast Excavation (Initial)	0%	97 days	Fri 28/3/25	Sat 26/7/25	-32.8 days																	
623	SW-VAT-308C	Blast Door - Erect Steel Frame	0%	21 days	Fri 28/3/25	Fri 18/4/25	-37.8 days																	
624	SW-VAT-309C	Blast Door - Install Blast Door	0%	14 days	Fri 18/4/25	Fri 2/5/25	-37.8 days																	
625	SW-VAT-310C	Blast Door - Inspection by Mines Dept.	0%	7 days	Fri 2/5/25	Fri 9/5/25	-37.8 days																	
626	SW-VAT-328C	D&B Excavation - Top Heading Left - CH276 to CH286 (3m/day)	0%	4 days	Mon 14/7/25	Fri 18/7/25	-81.8 days																	
627	SW-VAT-329C	D&B Excavation - Top Heading Right - CH276 to CH286 (3m/day)	0%	4 days	Mon 14/7/25	Fri 18/7/25	85.6 days																	
628	SW-VAT-330C	D&B Excavation - Bottom Bench Left - CH276 to CH286 (3m/day)	0%	4 days	Fri 18/7/25	Tue 22/7/25	85.6 days																	
629	SW-VAT-331C	D&B Excavation - Bottom Bench Right - CH276 to CH286 (3m/day)	0%	4 days	Wed 23/7/25	Sat 26/7/25	137.6 days																	
630		Tunnel Works CH286 to CH337.15 by Drill & Blast Excavation	0%	26 days	Fri 18/7/25	Sat 16/8/25	-81.8 days																	
631	SW-VAT-332C	D&B Excavation - Top Heading Left - CH286 to CH337.15 (3m/day)	0%	18 days	Fri 18/7/25	Thu 7/8/25	-81.8 days																	
632	SW-VAT-333C	D&B Excavation - Top Heading Right - CH286 to CH337.15 (3m/day)	0%	18 days	Fri 18/7/25	Thu 7/8/25	145.6 days																	
633	SW-VAT-334C	D&B Excavation - Bottom Bench Left - CH286 to CH337.15 (3m/day)	0%	18 days	Wed 23/7/25	Tue 12/8/25	99.6 days																	
634	SW-VAT-335C	D&B Excavation - Bottom Bench Right - CH286 to CH337.15 (3m/day)	0%	18 days	Mon 28/7/25	Sat 16/8/25	137.6 days																	
635		Tunnel Works CH337.15 to CH387.15 by Mechanical Excavation	0%	88 days	Fri 8/8/25	Fri 21/11/25	-81.8 days																	
636	SW-VAT-3355	Pre-excavation Grouting at CH360 to CH390	0%	1 day	Fri 8/8/25	Fri 8/8/25	-81.8 days																	
637	SW-VAT-336C	Mechanical Excavation - Top Heading Left - CH337.15 to CH387.15 (1.2m/day)	0%	42 days	Sat 9/8/25	Fri 26/9/25	-81.8 days																	
638	SW-VAT-337C	Mechanical Excavation - Top Heading Right - CH337.15 to CH387.15 (1.2m/day)	0%	42 days	Fri 8/8/25	Thu 25/9/25	145.6 days																	
639	SW-VAT-338C	Mechanical Excavation - Bottom Bench Left - CH337.15 to CH387.15 (1.2m/day)	0%	42 days	Wed 13/8/25	Tue 30/9/25	99.6 days																	
640	SW-VAT-339C	Mechanical Excavation - Bottom Bench Right - CH337.15 to CH387.15 (1.2m/day)	0%	42 days	Thu 2/10/25	Fri 21/11/25	99.6 days																	
641		Tunnel Works CH387.15 to CH416 by Mechanical Excavation	0%	71 days	Fri 26/9/25	Sat 20/12/25	-80.8 days																	
642	SW-VAT-3395	Pre-excavation Grouting at CH410 to CH440	0%	1 day	Sat 27/9/25	Sat 27/9/25	-81.8 days																	
643	SW-VAT-340C	Mechanical Excavation - Top Heading Left - CH387.15 to CH416 (1.2m/day)	0%	25 days	Mon 29/9/25	Thu 30/10/25	-81.8 days																	
644	SW-VAT-341C	Mechanical Excavation - Top Heading Right - CH387.15 to CH416 (1.2m/day)	0%	25 days	Fri 26/9/25	Mon 27/10/25	145.6 days																	
645	SW-VAT-342C	Mechanical Excavation - Bottom Bench Left - CH387.15 to CH416 (1.2m/day)	0%	25 days	Thu 2/10/25	Sat 1/11/25	141.6 days																	
646	SW-VAT-343C	Mechanical Excavation - Bottom Bench Right - CH387.15 to CH416 (1.2m/day)	0%	25 days	Fri 21/11/25	Sat 20/12/25	99.6 days																	
647		Tunnel Works CH416 to CH456 by Drill & Blast Excavation	0%	12 days	Thu 30/10/25	Thu 13/11/25	-81.8 days																	
648	SW-VAT-344C	D&B Excavation - Top Heading Expanding to Full Width and Height - CH416 to CH456 (3.5m/day)	0%	12 days	Thu 30/10/25	Thu 13/11/25	-81.8 days																	
649		Tunnel Works CH456 to CH506 by Drill & Blast Excavation	0%	15 days	Thu 13/11/25	Mon 1/12/25	-81.8 days																	
650	SW-VAT-347C	D&B Excavation - Full Width and Height - CH456 to CH506 (3.5m/day)	0%	15 days	Thu 13/11/25	Mon 1/12/25	-81.8 days																	
651		Tunnel Works CH506 to CH557 by Drill & Blast Excavation	0%	16 days	Mon 1/12/25	Fri 19/12/25	-81.8 days																	
652	SW-VAT-3475	Pre-excavation Grouting at CH510 to CH540	0%	1 day	Mon 1/12/25	Tue 2/12/25	-81.8 days																	
653	SW-VAT-349C	D&B Excavation - Full Width and Height - CH506 to CH557 (3.5m/day)	0%	15 days	Tue 2/12/25	Fri 19/12/25	-81.8 days																	

Project: 21/WSD/21

Revised Programme (Apr 2024)

Date: 1 May 2024

Task

Split

Milestone

Summary

Project Summary

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

External Tasks

External Milestone

Deadline

Critical

Critical Split

Progress

Manual Progress

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Activity ID	Task Name	% Complete	Duration	Start	Finish	Total Slack	2023				2024		2025				2026				2027		
							Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	
654	Tunnel Works CH557 to CH607 by Drill & Blast Excavation	0%	15 days	Fri 19/12/25	Thu 8/1/26	-81.8 days																	
655	SW-VAT-3510 D&B Excavation - Full Width and Height - CH557 to CH607 (3.5m/day)	0%	15 days	Fri 19/12/25	Thu 8/1/26	-81.8 days																	
656	Tunnel Works CH607 to CH645 by Drill & Blast Excavation	0%	11 days	Thu 8/1/26	Wed 21/1/26	-81.8 days																	
657	SW-VAT-3530 D&B Excavation - Full Width and Height - CH607 to CH645 (3.5m/day)	0%	11 days	Thu 8/1/26	Wed 21/1/26	-81.8 days																	
658	Tunnel Works Cavern A (SWSR1) by Drill & Blast Excavation (CH527.03)	0%	115 days	Fri 12/12/25	Tue 5/5/26	-81.8 days																	
659	SW-VAT-3800 Junction Pre-support	0%	5 days	Fri 12/12/25	Thu 18/12/25	-42.8 days																	
660	SW-VAT-3570 D&B Excavation - Cavern A Top Heading - CHA00 to CHA22 (3.5m/day) (J2, Drained)	0%	7 days	Mon 29/12/25	Tue 6/1/26	-49.8 days																	
661	SW-VAT-3580 D&B Excavation - Cavern A Top Heading - CHA22.0 to CHA92.0 (3.5m	0%	20 days	Tue 6/1/26	Thu 29/1/26	-49.8 days																	
662	SW-VAT-3585 D&B Excavation - Cavern A Top Heading - CHA92.0 to CHA125.428 (3.5m/2 day cycle)	0%	20 days	Thu 29/1/26	Wed 25/2/26	-81.8 days																	
663	SW-VAT-3600 D&B Excavation - Cavern A Bottom Bench - CHA22 to CHA125.428 (25m/3 day cycle)	0%	24 days	Wed 11/3/26	Fri 10/4/26	-81.8 days																	
664	SW-VAT-3610 D&B Excavation - Cavern A Bottom Bench - CHA6.774 to CHA22 (25m/3 day cycle) (J2, Drained)	0%	6 days	Fri 10/4/26	Fri 17/4/26	-81.8 days																	
665	SW-VAT-3615 Mucking Out	0%	14 days	Fri 17/4/26	Tue 5/5/26	-81.8 days																	
666	Tunnel Works Cavern B (SWSR2) by Drill & Blast Excavation (CH567.52)	0%	140 days	Tue 30/12/25	Sat 20/6/26	-67.8 days																	
667	SW-VAT-3810 Junction Pre-support	0%	5 days	Tue 30/12/25	Mon 5/1/26	-67.8 days																	
668	SW-VAT-3630 D&B Excavation - Cavern B Top Heading - CHB00 to CHB23 (3.5m/day) (J2, Drained)	0%	7 days	Wed 21/1/26	Thu 29/1/26	-81.8 days																	
669	SW-VAT-3640 D&B Excavation - Cavern B Top Heading - CHB23 to CHB121.595 (3.5m/2 day cycle)	0%	57 days	Fri 30/1/26	Mon 13/4/26	-51 days																	
670	SW-VAT-3650 D&B Excavation - Cavern B Bottom Bench - CHB23 to CHB121.595 (25m/3 day cycle)	0%	24 days	Mon 27/4/26	Wed 27/5/26	-51 days																	
671	SW-VAT-3660 D&B Excavation - Cavern B Bottom Bench - CHB8.057 to CHB23 (25m/3 day cycle) (J2, Drained)	0%	6 days	Wed 27/5/26	Wed 3/6/26	-51 days																	
672	SW-VAT-3665 Mucking Out	0%	14 days	Wed 3/6/26	Sat 20/6/26	-51 days																	
673	Tunnel Works Cavern C (FWSR1) by Drill & Blast Excavation (CH620.61)	0%	105 days	Sat 17/1/26	Thu 28/5/26	-34.8 days																	
674	SW-VAT-3820 Junction Pre-support	0%	5 days	Sat 17/1/26	Fri 23/1/26	-29.8 days																	
675	SW-VAT-3710 D&B Excavation - Cavern C Top Heading - CHC00 to CHC21 (3.5m/2 day cycle) (J2, Drained)	0%	12 days	Thu 29/1/26	Thu 12/2/26	-34.8 days																	
676	SW-VAT-3720 D&B Excavation - Cavern C Top Heading - CHC21 to CHC85.453 (3.5m/2 day cycle)	0%	37 days	Thu 12/2/26	Mon 30/3/26	-34.8 days																	
677	SW-VAT-3730 D&B Excavation - Cavern C Bottom Bench - CHC21 to CHC85.453 (20m/3 day cycle)	0%	18 days	Thu 16/4/26	Fri 8/5/26	-34.8 days																	
678	SW-VAT-3740 D&B Excavation - Cavern C Bottom Bench - CHC6.680 to CHC21 (20m/3 day cycle) (J2, Drained)	0%	6 days	Fri 8/5/26	Fri 15/5/26	-34.8 days																	
679	SW-VAT-3745 Mucking Out	0%	10 days	Fri 15/5/26	Thu 28/5/26	-34.8 days																	
680	Tunnel Works Cavern D (FWSR2) by Drill & Blast Excavation (CH645)	0%	103 days	Wed 21/1/26	Fri 29/5/26	-48 days																	
681	SW-VAT-3830 Junction Pre-support	0%	5 days	Wed 21/1/26	Tue 27/1/26	-45 days																	
682	SW-VAT-3750 D&B Excavation - Cavern D Top Heading - CHD00 to CHD16 (3.5m/2 day cycle) (J2, Drained)	0%	10 days	Fri 30/1/26	Wed 11/2/26	-48 days																	
683	SW-VAT-3760 D&B Excavation - Cavern D Top Heading - CHD16 to CHD82.750 (3.5m/2 day cycle)	0%	39 days	Wed 11/2/26	Tue 31/3/26	-48 days																	
684	SW-VAT-3770 D&B Excavation - Cavern D Bottom Bench - CHD16 to CHD82.750 (20m/3 day cycle)	0%	18 days	Fri 17/4/26	Sat 9/5/26	-48 days																	
685	SW-VAT-3780 D&B Excavation - Cavern D Bottom Bench - CHD00 to CHD16 (20m/3 day cycle) (J2, Drained)	0%	6 days	Sat 9/5/26	Sat 16/5/26	-48 days																	
686	SW-VAT-3785 Mucking Out	0%	10 days	Sat 16/5/26	Fri 29/5/26	-48 days																	
687	Remaining Works	0%	493 days	Mon 1/9/25	Mon 26/4/27	-11.4 days																	
688	SW-VAT-3000 Manufacture of DfMA for compartment construction	0%	150 days	Mon 1/9/25	Tue 3/3/26	153.6 days																	
689	SW-VAT-3001 Delivery of DfMA for compartment construction	0%	120 days	Tue 28/10/25	Tue 24/3/26	153.6 days																	
690	SW-VAT-3010 [CH24-337.15] Construction of drainage layer, base slab, lower part (276m from exc.) 313.15m, PR=12m/wk (157d)	0%	157 days	Fri 19/12/25	Thu 2/7/26	85.6 days																	
691	SW-VAT-3020 [CH24-337.15] Construction of RC Lining (min 24m from base slab + 2wk erection) 313.15m, PR=2m/d	0%	169 days	Mon 19/1/26	Thu 13/8/26	85.6 days																	
692	SW-VAT-3030 [CH24-337.15] Construction of compartment RHS (min 24m from Lining), 313.15m, PR=2m/d	0%	157 days	Mon 16/2/26	Thu 27/8/26	85.6 days																	
693	SW-VAT-3035 [CH24-337.15] Construction of compartment LHS (min 24m from RHS Lining), 313.15m, PR=2m/d	0%	157 days	Thu 12/3/26	Wed 16/9/26	85.6 days																	
694	SW-VAT-3010 [CH337.15-644.3] Construction of drainage layer, base slab, lower part (after all excavation) 307.15m, PR=12m/wk (154d)	0%	154 days	Wed 3/6/26	Thu 3/12/26	-32.4 days																	
695	SW-VAT-3020 [CH337.15-644.3] Construction of RC Lining (min 24m from base slab + 2wk erection) 307.153m, PR=2m/d	0%	166 days	Thu 2/7/26	Mon 18/1/27	-32.4 days																	
696	SW-VAT-3035 [CH337.15-644.3] Construction of compartment RHS (min 24m from Lining), 307.153, PR=2m/d	0%	154 days	Thu 27/8/26	Wed 3/3/27	-32.4 days																	
697	SW-VAT-3030 [CH337.15-644.3] Construction of compartment LHS (min 24m from Lining), 307.15m, PR=2m/d	0%	154 days	Thu 3/9/26	Wed 10/3/27	-32.4 days																	





ID	Activity ID	Task Name	% Complete	Duration	Start	Finish	Total Slack	2023				2024				2025				2026				2027		
								Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
760	SW-C5-1040	Caverns D - Construction of Slab 1.6m thk for water tank area (Total: 1961m3, 12bays (11x9), PR= 15d/bay, 3workfronts)	0%	60 days	Tue 28/7/26	Wed 7/10/26	-49.2 days																			
761	SW-C5-1060	Caverns D - Construction of Slab 1.0m thk for pump/plant room area (Total:986m3, 9bays (11x9), PR=12d/bay, 3 workfront)	0%	36 days	Wed 7/10/26	Thu 19/11/26	-49.2 days																			
762	SW-C5-1050	Caverns D - Construction of wall, beam & slab up to 91.35mPD for water tank area	0%	48 days	Wed 7/10/26	Tue 24/11/26	-30.2 days																			
763	SW-C5-1070	Caverns D - Construction of soil filling, pipeworks and at-grade slab for pump/ plant room area	0%	24 days	Thu 19/11/26	Sun 13/12/26	-61.2 days																			
764	SW-C5-1080	Caverns D - Construction of wall, beam & slab up to cavern soffit for pump/ plant room area	0%	48 days	Sun 13/12/26	Sat 30/1/27	-61.2 days																			
765	SW-C5-1090	Caverns D - Construction of remaining works incl. staircase, partition wall and other civil works for E&M plant	0%	48 days	Tue 12/1/27	Mon 1/3/27	-61.2 days																			
766	SW-C5-1100	Caverns D - FS, BS, E&M works and ABWF	0%	90 days	Fri 25/12/26	Thu 25/3/27	-61.2 days																			
767	SW-C5-1110	Caverns D - Connect power cable from SWSR1 Transformer Room & Switchboard Room to FWSR2	0%	60 days	Fri 19/2/27	Mon 19/4/27	-97 days																			
768	SW-C5-1120	Caverns D - Energization of FWSR2	0%	0 days	Mon 19/4/27	Mon 19/4/27	-97 days																			
769	SW-C5-1125	Caverns D - FS Inspection	0%	6 days	Tue 20/4/27	Mon 26/4/27	355.8 days																			
770	SW-C5-1130	Caverns D - Testing and Commissioning	0%	90 days	Tue 20/4/27	Sun 18/7/27	-97 days																			
771		Revised Watermain Works @ Portion 5	14%	1648 days	Wed 28/12/22	Tue 4/7/28	0 days																			
772	A1070	XP Application	100%	167 days	Wed 28/12/22	Mon 12/6/23	0 days																			
773		Alignment A	15%	1208.8 days	Tue 13/6/23	Fri 25/6/27	-61.6 days																			
774		Alignment A - Chuk Yuen Road	15%	1208.8 days	Tue 13/6/23	Fri 25/6/27	-61.6 days																			
775		Alignment A - Chuk Yuen Road - Trenchless	20%	1131.8 days	Mon 3/7/23	Mon 12/4/27	0.4 days																			
776		Alignment A - Chuk Yuen Road - Trenchless A1 (CHA70 Pit 2 to CHA0) - 7th Drive	0%	201 days	Thu 8/1/26	Wed 9/9/26	0 days																			
777	SW-JPA-1080	Plant mobilization and set-up at Launching pit 2 (CHA70)	0%	12 days	Thu 21/5/26	Fri 5/6/26	36 days																			
778	SW-JPA-1085	Construction of Receiving Pit 0 at PAB	0%	180 days	Thu 8/1/26	Sat 15/8/26	0 days																			
779	SW-JPA-1090	Excavation (70m) by Pipe Jacking method, PR=3m/d (7th drive)	0%	24 days	Fri 5/6/26	Sat 4/7/26	36 days																			
780	SW-JPA-1110	Plant demobilisation	0%	6 days	Sun 16/8/26	Fri 21/8/26	0.4 days																			
781	SW-JPA-1120	Pipe Installation (70m x 3nos.) (12m/d for pipe)	0%	6 days	Sat 22/8/26	Fri 28/8/26	48.4 days																			
782	SW-JPA-5200	Pressure Test (70m x 3nos.) Trenchless A1	0%	10 days	Sat 29/8/26	Wed 9/9/26	48.4 days																			
783		Alignment A - Chuk Yuen Road - Trenchless A2 (CHA70 Pit 2 to CHA190 Pit 3) - 5th Drive	12%	1088.8 days	Tue 22/8/23	Mon 12/4/27	0.4 days																			
784	SW-JPA-2000	TTA implementation at CHA190, site clearance, road modification and site setup	100%	1 day	Tue 22/8/23	Tue 22/8/23	0 days																			
785	SW-JPA-5290	UU Detection, Trial Pit at CHA190	100%	62 days	Wed 23/8/23	Mon 6/11/23	0 days																			
786	SW-JPA-2040	Installation of instrumentation and monitoring device and condition survey	100%	7 days	Wed 23/8/23	Wed 30/8/23	0 days																			
787	SW-JPA-2045	TTA implementation at CH70, site clearance, road modification and site setup and UU Detection	100%	25 days	Wed 22/11/23	Thu 21/12/23	0 days																			
788	SW-JPA-2046	Trial sheet piling work to verify the obstruction by boulders at F	100%	1 day	Thu 21/12/23	Fri 22/12/23	0 days																			
789	SW-JPA-2050	Construction of launching pit 2 (CHA70) (Common pit with B2)	0%	180 days	Sat 8/2/25	Mon 15/9/25	18.4 days																			
790	SW-JPA-2051	Trial sheet piling work to verify the obstruction by boulders at F	100%	1 day	Tue 7/11/23	Tue 7/11/23	0 days																			
791	SW-JPA-2060	Construction of receiving pit 3 (CHA190) (Common pit with B2)	0%	180 days	Mon 25/11/24	Mon 7/7/25	18.4 days																			
792	SW-JPA-2080	Plant mobilization and set-up at Launching pit 2 (CHA70)	0%	12 days	Tue 30/12/25	Tue 13/1/26	-68.6 days																			
793	SW-JPA-2090	Excavation (120m) by Pipe Jacking method, PR=3m/d (5th drive	0%	40 days	Tue 13/1/26	Wed 4/3/26	-68.6 days																			
794	SW-JPA-2110	Plant demobilization	0%	6 days	Wed 4/3/26	Wed 11/3/26	-68.6 days																			
795	SW-JPA-2120	Pipe Installation (120m x 3nos.; 12m/d for pipe)	0%	10 days	Thu 21/5/26	Wed 3/6/26	-59.6 days																			
796	SW-JPA-5240	Pressure Test (120m) Trenchless A2	0%	10 days	Wed 3/6/26	Mon 15/6/26	-59.6 days																			
797	SW-JPA-5210	Construction of Valve Chamber 2 (CHA70) - Alignment A	0%	89 days	Thu 10/9/26	Thu 24/12/26	48.4 days																			
798	SW-JPA-2130	Reinstatement of Jacking Pit (CHA70)	0%	36 days	Thu 25/2/27	Mon 12/4/27	0.4 days																			
799	SW-JPA-5230	Construction of Valve Chamber 3 (CHA190) after Trenchless B2	0%	89 days	Fri 26/6/26	Sat 10/10/26	-68.6 days																			
800	SW-JPA-1130	Reinstatement of Receiving Pit (CHA190) after Trenchless B2	0%	36 days	Sat 10/10/26	Mon 23/11/26	112.4 days																			
801		Alignment A - Chuk Yuen Road - Trenchless A3 (CHA610 Pit 6 to CHA780 Pit 8) - 1st Drive	33%	777 days	Thu 3/8/23	Fri 6/3/26	328.2 days																			
802	SW-JPB-4000	TTA implementation at CHA610, site clearance, road modification and site setup	100%	23 days	Thu 3/8/23	Tue 29/8/23	0 days																			
803	SW-CCEN-206	Delay due to KMB Company's requirement on bus shelter removal (EWN-0010)	100%	38 days	Tue 8/8/23	Wed 20/9/23	0 days																			
804	SW-JPA-5330	UU Detection, Trial Pit	100%	30 days	Tue 15/8/23	Mon 18/9/23	0 days																			
805	SW-JPB-4040	Installation of instrumentation and monitoring device and condition survey	100%	14 days	Wed 30/8/23	Thu 14/9/23	0 days																			
806	SW-JPB-4041	Trial sheet piling work to verify the obstruction by boulders at F	100%	1 day	Wed 11/10/23	Wed 11/10/23	0 days																			
807	SW-CCEN-207	Delay due to encountering boulder (unable to drive sheetpile, design amendment to suit)	100%	85 days	Fri 15/9/23	Thu 28/12/23	0 days																			
808	SW-JPB-4060	Construction of launching pit 6 (CHA610)	40%	248 days	Fri 29/12/23	Sat 26/10/24	-60.8 days																			
809	SW-JPA-3040	TTA implementation at CHA780 (Pit 8), site clearance, road modification and site setup	100%	6 days	Tue 9/4/24	Mon 15/4/24	0 days																			
810	SW-JPA-3050	Construction of receiving pit 8 (CHA780)	0%	180 days	Thu 6/6/24	Thu 9/1/25	-19.5 days																			
811	SW-JPA-3080	Plant mobilization and set-up at Launching pit 6 (CHA610)	0%	18 days	Sat 26/10/24	Fri 15/11/24	-60.8 days																			
812	SW-JPA-3090	Excavation (170m) by Pipe Jacking method, PR=2m/d (1st drive	0%	85 days	Fri 15/11/24	Fri 28/2/25	-60.8 days																			
813	SW-JPA-3110	Plant demobilization	0%	12 days	Sat 1/3/25	Fri 14/3/25	-60.8 days																			
814	SW-JPA-3120	Pipe Installation (170m x 3nos.) (12m/d for pipe)	0%	15 days	Sat 15/3/25	Tue 1/4/25	135.2 days																			
815	SW-JPA-5220	Pressure Test (170m x 3nos.) Trenchless A3	0%	10 days	Wed 2/4/25	Mon 14/4/25	135.2 days																			

Project: 21/WSD/21

Revised Programme (Apr 2024)

Date: 1 May 2024

Task

Split

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Summary

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Inactive Summary

Manual Task

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Duration-only

Manual Summary Rollup

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External Tasks

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Activity ID	Task Name	% Complete	Duration	Start	Finish	Total Slack																									
							Qtr 4	2023	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2024	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2025	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2026	Qtr 1	Qtr 2	Qtr 3	Qtr 4	2027	Qtr 1	Qtr 2	Qtr 3
816	SW-JPA-5230	Construction of Valve Chamber 8 (CHA780)	0%	100 days	Tue 15/4/25	Fri 15/8/25	135.2 days																								
817	SW-JPA-3130	Reinstatement of Receiving Pit (CHA780)	0%	36 days	Tue 20/1/26	Fri 6/3/26	328.2 days																								
818		Alignment A - Chuk Yuen Road - Trenchless A4 (CHA1080 Pit 10 to CHA1190 Pit 11) - 9th Drive	19%	1114 days	Mon 3/7/23	Wed 17/3/27	18.2 days																								
819		Time allowed for CLP cable diversion at Chuk Yuen Road / Shatin Pass Road	34%	736 days	Mon 3/7/23	Thu 11/12/25	11.2 days																								
820	SW-JPA-4000	TTA implementation at CHA1080, site clearance, road modification and site setup	0%	7 days	Thu 11/12/25	Fri 19/12/25	11.2 days																								
821	SW-JPA-5300	UU Detection, Trial Pit	0%	14 days	Thu 18/12/25	Tue 6/1/26	11.2 days																								
822	SW-JPA-4040	Installation of instrumentation and monitoring device and condition survey	0%	14 days	Tue 6/1/26	Thu 22/1/26	11.2 days																								
823	SW-JPA-4060	Construction of launching pit 10 (CHA1080)	0%	180 days	Thu 22/1/26	Mon 31/8/26	11.2 days																								
824	SW-JPA-4070	Construction of receiving pit 11 (CHA1190)	0%	180 days	Mon 2/3/26	Tue 6/10/26	152.2 days																								
825	SW-JPA-4080	Plant mobilization and set-up at launching pit	0%	12 days	Mon 31/8/26	Sun 13/9/26	11.2 days																								
826	SW-JPA-4090	Excavation (110m) by Pipe Jacking method, PR=3m/d (9th drive	0%	37 days	Sun 13/9/26	Thu 29/10/26	11.2 days																								
827	SW-JPA-4110	Plant demobilization	0%	6 days	Thu 29/10/26	Thu 5/11/26	11.2 days																								
828	SW-JPA-4120	Pipe Installation (110m x 3nos.; 12m/d for pipe)	0%	10 days	Thu 5/11/26	Tue 17/11/26	11.2 days																								
829	SW-JPA-5260	Pressure Test (110m x 3nos.) Trenchless A4	0%	10 days	Tue 17/11/26	Sat 28/11/26	11.2 days																								
830	SW-JPA-5130	Reinstatement of Receiving Pit (CHA1190)	0%	36 days	Sat 28/11/26	Tue 12/1/27	71.2 days																								
831	SW-JPA-5270	Construction of Valve Chamber 11 (CHA1080)	0%	89 days	Sat 28/11/26	Wed 17/3/27	11.2 days																								
832		Alignment A - Chuk Yuen Road - Open Trench	8%	1208.8 days	Tue 13/6/23	Fri 25/6/27	-61.6 days																								
833		Alignment A - Chuk Yuen Road - Open Trench between A2 and A3 (CHA200 to CHA610)	4%	1040.8 days	Thu 4/1/24	Fri 25/6/27	-61.6 days																								
834	21.PRW.POS.	Coordination with SLG, ULG, Stakeholders and Obtain Approval	100%	24 days	Thu 4/1/24	Wed 31/1/24	0 days																								
835	SW-OTA-2000	TTA implementation, site clearance, road modification and site setup	100%	6 days	Thu 1/2/24	Wed 7/2/24	0 days																								
836	SW-OTA-2190	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (40m long)~CHA190 to CHA230	14%	133 days	Tue 9/4/24	Fri 13/9/24	-68.6 days																								
837	SW-OTA-2180	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (20m long)~CHA230 to CHA250	0%	60 days	Fri 13/9/24	Mon 25/11/24	-68.6 days																								
838	SW-OTA-2170	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (50m long)~CHA250 to CHA300	0%	150 days	Wed 19/11/25	Fri 22/5/26	265.4 days																								
839	SW-OTA-2160	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (40m long)~CHA300 to CHA340	0%	100 days	Sat 10/10/26	Thu 11/2/27	-68.6 days																								
840	SW-OTA-2150	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (40m long)~CHA340 to CHA380	0%	100 days	Thu 11/2/27	Mon 14/6/27	-68.6 days																								
841	SW-OTA-2140	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (40m long)~CHA380 to CHA420	0%	120 days	Sat 19/10/24	Thu 13/3/25	621.6 days																								
842	SW-OTA-2145	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (30m long)~CHA420 to CHA450	0%	90 days	Thu 23/10/25	Mon 9/2/26	347.4 days																								
843	SW-OTA-2130	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (40m long)~CHA450 to CHA490	0%	120 days	Tue 28/5/24	Sat 19/10/24	621.6 days																								
844	SW-OTA-2120	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (50m long)~CHA490 to CHA540	0%	150 days	Fri 20/3/26	Thu 17/9/26	-60.6 days																								
845	SW-OTA-2110	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (20m long)~CHA540 to CHA560	0%	60 days	Thu 17/9/26	Mon 30/11/26	-60.6 days																								
846	SW-OTA-2100	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (50m long)~CHA560 to CHA610	0%	150 days	Mon 30/11/26	Thu 3/6/27	-60.6 days																								
847	SW-OTA-6200	Pressure Test (400m) Open Trench A2 to A3	0%	10 days	Mon 14/6/27	Fri 25/6/27	-68.6 days																								
848	SW-OTA-6300	Pressure Test (300m) Open Trench A3 to A4	0%	10 days	Mon 14/6/27	Fri 25/6/27	-68.6 days																								
849		Alignment A - Chuk Yuen Road - Open Trench between A3 and A4 (CHA780 to CHA1060)	13%	1012 days	Tue 13/6/23	Tue 27/10/26	135.2 days																								
850	21.PRW.POS.	Coordination with SLG, ULG, Stakeholders and Obtain Approval	100%	64 days	Tue 13/6/23	Mon 28/8/23	0 days																								
851	SW-OTA-1020	TTA implementation, site clearance, road modification and site setup	100%	6 days	Wed 20/9/23	Tue 26/9/23	0 days																								
852	SW-OTA-3080	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (50m long)~CHA780 to CHA830	0%	150 days	Fri 15/8/25	Wed 11/2/26	135.2 days																								
853	SW-OTA-3070	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (50m long)~CHA830 to CHA880	0%	150 days	Wed 11/2/26	Sat 15/8/26	135.2 days																								
854	SW-OTA-3060	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (20m long)~CHA880 to CHA900	0%	60 days	Sat 15/8/26	Tue 27/10/26	135.2 days																								
855	SW-OTA-3050	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (80m long)~CH900 to CH980	23%	248 days	Wed 21/2/24	Sat 14/12/24	41.2 days																								
856	SW-OTA-3030	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (40m long)~CH980 to CH1020	0%	120 days	Sat 14/12/24	Fri 16/5/25	41.2 days																								
857	SW-OTA-3020	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (40m long)~CH1020 to CH1060	0%	120 days	Fri 16/5/25	Mon 6/10/25	41.2 days																								
858	SW-OTA-3010	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (20m long)~CH1060 to CH1080	0%	60 days	Mon 6/10/25	Tue 16/12/25	41.2 days																								
859	SW-OTA-3000	Pressure Test (180m) Open Trench A3 to A4	0%	10 days	Tue 16/12/25	Tue 30/12/25	375.2 days																								
860		Alignment A - Shatin Pass Road	12%	1057.8 days	Fri 15/9/23	Tue 30/3/27	10.4 days																								
861		Alignment A - Shatin Pass Road - Trenchless	13%	1057.8 days	Fri 15/9/23	Tue 30/3/27	10.4 days																								
862		Alignment A - Shatin Pass Road - Trenchless C1 (CH1210 to CH1610)	13%	1057.8 days	Fri 15/9/23	Tue 30/3/27	10.4 days																								
863	SW-JPA-5000	TTA implementation at CH1210, site clearance, road modification and site setup	100%	1 day	Fri 15/9/23	Fri 15/9/23	0 days																								
864	SW-JPA-5310	Maximum allowed time for CLP's Cable diversion at junction of Shatin Pass Road / Chuk Yuen Road	32%	550.8 days	Fri 22/9/23	Mon 28/7/25	10.4 days																								

Project: 21/WSD/21

Revised Programme (Apr 2024)

Date: 1 May 2024

Task

Split

Milestone

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Project Summary

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

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External Tasks

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ID	Activity ID	Task Name	% Complete	Duration	Start	Finish	Total Slack	2023												2024				2025				2026				2027		
								Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3							
865	SW-JPA-5040	Installation of instrumentation and monitoring device and condition survey	100%	14 days	Sat 16/9/23	Wed 4/10/23	0 days																											
866	SW-JPA-5050	Construction of launching pit (CHB1210)	0%	150 days	Mon 28/7/25	Fri 23/1/26	10.4 days																											
867	SW-JPA-5055	TTA implementation at CH1390, site clearance, road modification and site setup	0%	6 days	Thu 3/7/25	Wed 9/7/25	95.4 days																											
868	SW-JPA-5060	Construction of intermediate pit (CHB1390)	0%	150 days	Mon 28/7/25	Fri 23/1/26	79.4 days																											
869	SW-JPA-5065	TTA implementation at CH1600, site clearance, road modification and site setup	0%	6 days	Thu 3/7/25	Wed 9/7/25	180.4 days																											
870	SW-JPA-5070	Construction of receiving pit (CHB1600)	0%	150 days	Mon 28/7/25	Fri 23/1/26	164.4 days																											
871	SW-JPA-5080	Plant mobilization and set-up at Launching pit (CH1210) (TBM 2	0%	12 days	Fri 23/1/26	Fri 6/2/26	10.4 days																											
872	SW-JPA-5090	Excavation (170m) by Pipe Jacking method 1st Section, PR=3m/	0%	57 days	Fri 6/2/26	Mon 20/4/26	10.4 days																											
873	SW-JPA-5110	Plant demobilization	0%	6 days	Mon 20/4/26	Mon 27/4/26	10.4 days																											
874	SW-JPA-5115	Plant mobilization and set-up at Intermediate pit (CH1390)	0%	12 days	Mon 27/4/26	Tue 12/5/26	10.4 days																											
875	SW-JPA-5135	Excavation (200m) by Pipe Jacking method 2nd Section, PR=3m	0%	67 days	Tue 12/5/26	Fri 31/7/26	10.4 days																											
876	SW-JPA-5110	Plant demobilization	0%	6 days	Sat 1/8/26	Fri 7/8/26	10.4 days																											
877	SW-JPA-5120	Pipe Installation (380m x 2nos.; 12m/d for pipe)	0%	32 days	Sat 8/8/26	Mon 14/9/26	10.4 days																											
878	SW-JPA-5250	Pressure Test (380m) Trenchless C1	0%	10 days	Mon 14/9/26	Fri 25/9/26	10.4 days																											
879	SW-JPA-5280	Construction of Valve Chamber (CH1210)	0%	89 days	Fri 25/9/26	Wed 13/1/27	10.4 days																											
880	SW-JPA-5285	Construction of Valve Chamber (CH1600)	0%	89 days	Fri 25/9/26	Wed 13/1/27	10.4 days																											
881	SW-JPA-5360	Connection Works	0%	24 days	Wed 13/1/27	Sat 13/2/27	10.4 days																											
882	SW-JPA-5190	Reinstatement of Launching Pit (CH1210), intermediate pit (CH1390) and receiving pit (CH1600)	0%	36 days	Sat 13/2/27	Tue 30/3/27	10.4 days																											
883		Alignment A - Shatin Pass Road - Open Trench	0%	93 days	Mon 2/2/26	Fri 29/5/26	261 days																											
884		Alignment A - Shatin Pass Road - Open Trench A4 to C1 (CH1190 to CH1210) to CP	0%	93 days	Mon 2/2/26	Fri 29/5/26	261 days																											
885	21.PRW.PO5.	Implementation of TTA	0%	1 day	Mon 2/2/26	Mon 2/2/26	261 days																											
886	SW-OTA-1000	Trial Pit works at CH1190 and CH1210	0%	12 days	Tue 3/2/26	Mon 16/2/26	261 days																											
887	SW-OTA-5000	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (20m long)~CH1190 to CH1210	0%	60 days	Fri 20/2/26	Tue 5/5/26	261 days																											
888	SW-OTA-6170	Pressure Test (20m) Open Trench A4 to C1	0%	10 days	Tue 5/5/26	Sat 16/5/26	261 days																											
889	SW-OTA-6180	Backfilling & Road Reinstatement A4 to C1	0%	10 days	Sat 16/5/26	Fri 29/5/26	261 days																											
890		Alignment A - Tsz Wan Shan Road	29%	1106.4 days	Thu 3/8/23	Wed 14/4/27	-1.2 days																											
891		Alignment A - Tsz Wan Shan Road - Open Trench	29%	1106.4 days	Thu 3/8/23	Wed 14/4/27	-1.2 days																											
892		Alignment A - Tsz Wan Shan Road - Open Trench C1 to CP (CH1610 to CH1800)	29%	1106.4 days	Thu 3/8/23	Wed 14/4/27	-1.2 days																											
893	21.PRW.PO5.	Coordinate with SLG, ULG, Stakeholders and Obtain Approval	100%	4 days	Thu 3/8/23	Mon 7/8/23	0 days																											
894	SW-OTA-6080	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (40m long)~CH1610 to CH1650	0%	120 days	Thu 27/2/25	Thu 24/7/25	434.2 days																											
895	SW-OTA-6070	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (40m long)~CH1650 to CH1690	0%	120 days	Thu 3/10/24	Wed 26/2/25	434.2 days																											
896	SW-OTA-6060	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (68m long)~CH1690 to CH1758	31%	187 days	Tue 20/2/24	Thu 3/10/24	434.2 days																											
897	SW-OTA-6050	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (24m long)~CH1758 to CH1782	100%	120 days	Fri 15/9/23	Fri 9/2/24	0 days																											
898	SW-OTA-6090	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (18m long)~CH1782 to CH1800 & CP	0%	60 days	Mon 4/1/27	Wed 17/3/27	-1.2 days																											
899	SW-OTA-6170	Pressure Test (190m) Open Trench C1 to CP	0%	10 days	Wed 17/3/27	Thu 1/4/27	-1.2 days																											
900	SW-OTA-6180	Backfilling & Road Reinstatement C1 to CP	0%	10 days	Thu 1/4/27	Wed 14/4/27	-1.2 days																											
901		Alignment B	12%	1183.8 days	Mon 3/7/23	Mon 14/6/27	-51.6 days																											
902		Alignment B - Chuk Yuen Road	5%	1106.8 days	Sun 1/10/23	Mon 14/6/27	-51.6 days																											
903		Alignment B - Chuk Yuen Road - Trenchless	0%	828.2 days	Mon 8/7/24	Mon 12/4/27	0.4 days																											
904		Alignment B - Chuk Yuen Road - Trenchless B1 (CHB70 Pit 2 to CHB0) - 8th Drive	0%	64 days	Sat 22/8/26	Sat 7/11/26	0.4 days																											
905	SW-JPB-1080	Plant mobilization and set-up at Launching pit 2 (CHB70)	0%	12 days	Sat 22/8/26	Fri 4/9/26	0.4 days																											
906	SW-JPB-1090	Excavation (70m) by Pipe Jacking method, PR=3m/d (8th drive)	0%	24 days	Sat 5/9/26	Mon 5/10/26	0.4 days																											
907	SW-JPB-1110	Plant demobilization	0%	6 days	Mon 5/10/26	Mon 12/10/26	0.4 days																											
908	SW-JPB-1120	Pipe Installation (70m) (6m/d for pipe)	0%	12 days	Mon 12/10/26	Tue 27/10/26	0.4 days																											
909	SW-JPB-6160	Pressure Test (80m) Trenchless B1	0%	10 days	Tue 27/10/26	Sat 7/11/26	0.4 days																											
910		Alignment B - Chuk Yuen Road - Trenchless B2 (CHB70 Pit 2 to CHB190 Pit 3) - 6th Drive	0%	324 days	Wed 11/3/26	Mon 12/4/27	-68.6 days																											
911	SW-JPB-2080	Plant mobilization and set-up at Launching pit 2 (CHB70)	0%	12 days	Wed 11/3/26	Wed 25/3/26	-68.6 days																											
912	SW-JPB-2090	Excavation (120m) by Pipe Jacking method, PR=3m/d (6th drive)	0%	40 days	Wed 25/3/26	Thu 14/5/26	-68.6 days																											
913	SW-JPB-2110	Plant demobilization	0%	6 days	Thu 14/5/26	Thu 21/5/26	-68.6 days																											
914	SW-JPB-2120	Pipe Installation (110m; 6m/d for pipe)	0%	19 days	Thu 21/5/26	Sat 13/6/26	-68.6 days																											
915	SW-JPB-2130	Pressure Test (110m) Trenchless B2	0%	10 days	Sat 13/6/26	Thu 25/6/26	-68.6 days																											
916	SW-JPB-6170	Construction of Valve Chamber 2A (CH70) Alignment B	0%	89 days	Sat 7/11/26	Thu 25/2/27	0.4 days																											
917	SW-JPB-1130	Reinstatement of Receiving Pit (CH190)	0%	36 days	Thu 25/2/27	Mon 12/4/27	0.4 days																											
918		Alignment B - Chuk Yuen Road - Trenchless B3 (CHB190 Pit 3 to CHB420 Pit 5) - 3rd Drive	0%	548.2 days	Mon 8/7/24	Tue 5/5/26	50.6 days																											
919	SW-JPB-3000	TTA implementation at CH190, site clearance, road modification and site setup	0%	6 days	Mon 8/7/24	Sat 13/7/24	92.2 days																											
920	SW-JPA-5320	UU Detection, Trial Pit	0%	14 days	Sat 9/11/24	Mon 25/11/24	0 days																											
921	SW-JPB-3040	Installation of instrumentation and monitoring device and condition survey	0%	14 days	Sat 9/11/24	Mon 25/11/24	0 days																											

Project: 21/WSD/21  
Revised Programme (Apr 2024)  
Date: 1 May 2024

Task

Split

Milestone

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Inactive Milestone

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Critical Split

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ID	Activity ID	Task Name	% Complete	Duration	Start	Finish	Total Slack	2023												2024				2025				2026				2027		
								Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3							
922	SW-JPB-3060	Construction of launching pit 3 (CH190)	0%	180 days	Mon 25/11/24	Mon 7/7/25	-68.6 days																											
923	SW-JPB-3055	TTA implementation at CH420, site clearance, road modification and site setup	0%	6 days	Sat 5/10/24	Sat 12/10/24	42.8 days																											
924	SW-JPB-3050	Construction of receiving pit 5 (CH410)	0%	180 days	Thu 2/1/25	Mon 11/8/25	-24.6 days																											
925	SW-JPB-3080	Plant mobilization and set-up at Launching pit 3	0%	12 days	Tue 8/7/25	Mon 21/7/25	-68.6 days																											
926	SW-JPB-3090	Excavation (220m) by Pipe Jacking method, PR=3m/d (3rd drive)	0%	74 days	Mon 21/7/25	Thu 16/10/25	-68.6 days																											
927	SW-JPB-3110	Plant demobilization	0%	6 days	Thu 16/10/25	Thu 23/10/25	-68.6 days																											
928	SW-JPB-3120	Pipe Installation (130m) (6m/d for pipe)	0%	22 days	Thu 23/10/25	Wed 19/11/25	-60.6 days																											
929	SW-JPB-6180	Pressure Test (130m)	0%	10 days	Wed 19/11/25	Mon 1/12/25	-60.6 days																											
930	SW-JPB-6240	Construction of Valve Chamber 5 (CH410)	0%	89 days	Mon 1/12/25	Fri 20/3/26	-60.6 days																											
931	SW-JPB-3130	Reinstatement of Receiving Pit & Launching Pit	0%	36 days	Fri 20/3/26	Tue 5/5/26	273.4 days																											
932		Alignment B - Chuk Yuen Road - Trenchless B4 (CHB610 Pit 6 to CHB740 Pit 7) - 2nd Drive	0%	442 days	Fri 2/8/24	Tue 20/1/26	0 days																											
933	SW-JPB-4040	TTA implementation at CH760, site clearance, road modification and site setup	0%	6 days	Fri 2/8/24	Fri 9/8/24	0 days																											
934	SW-JPB-4050	Construction of receiving pit 7 (CHB760)	0%	180 days	Fri 9/8/24	Fri 14/3/25	0 days																											
935	SW-JPB-4070	Plant mobilization and set-up at Launching pit 6 (CHB610)	0%	12 days	Sat 15/3/25	Fri 28/3/25	-60.8 days																											
936	SW-JPB-4080	Excavation (130m) by Pipe Jacking method, PR=3m/d (2nd drive)	0%	65 days	Sat 29/3/25	Fri 20/6/25	-60.8 days																											
937	SW-JPB-4100	Plant demobilization	0%	6 days	Fri 20/6/25	Fri 27/6/25	-60.8 days																											
938	SW-JPB-4110	Pipe Installation (130m x 2nos.) (6m/d for pipe)	0%	22 days	Fri 27/6/25	Wed 23/7/25	328.2 days																											
939	SW-JPB-6190	Pressure Test (130m)	0%	10 days	Wed 23/7/25	Mon 4/8/25	328.2 days																											
940	SW-JPB-6195	Construction of Air Valve Chamber 7 (CHB760)	0%	89 days	Mon 4/8/25	Tue 18/11/25	380.2 days																											
941	SW-JPB-4120	Reinstatement of Receiving Pit (CHB760)	0%	36 days	Tue 18/11/25	Fri 2/1/26	380.2 days																											
942	SW-JPB-6200	Construction of Valve Chamber 6 (CHB610)	0%	105 days	Mon 4/8/25	Sat 6/12/25	328.2 days																											
943	SW-JPB-6140	Reinstatement of Launching Pit (CH610) after Pipe Installation at Alignment A Trenchless A3	0%	36 days	Sat 6/12/25	Tue 20/1/26	328.2 days																											
944		Alignment B - Chuk Yuen Road - Trenchless B5 (CHB990 Pit 9 to CHB1100 Pit 11) - 4th Drive	0%	466.6 days	Tue 24/12/24	Sat 18/7/26	-27 days																											
945	SW-JPB-5000	TTA implementation at CHB990, site clearance, road modification and site setup	0%	1 day	Tue 24/12/24	Tue 24/12/24	-27 days																											
946	SW-JPA-5340	UU Detection, Trial Pit	0%	14 days	Fri 27/12/24	Mon 13/1/25	-27 days																											
947	SW-JPB-5040	Installation of instrumentation and monitoring device and condition survey	0%	14 days	Fri 27/12/24	Mon 13/1/25	-27 days																											
948	SW-JPB-5060	Construction of launching pit 9 (CHB990)	0%	180 days	Tue 14/1/25	Thu 21/8/25	-27 days																											
949	SW-JPB-5045	TTA implementation at CH1180, site clearance, road modification and site setup	0%	6 days	Thu 20/3/25	Wed 26/3/25	-26.8 days																											
950	SW-JPB-5050	Construction of receiving pit 11 (CHB1180)	0%	180 days	Thu 27/3/25	Sat 1/11/25	-27 days																											
951	SW-JPB-5080	Plant mobilization and set-up at Launching pit 9	0%	12 days	Thu 23/10/25	Fri 7/11/25	-68.6 days																											
952	SW-JPB-5090	Excavation (110m) by Pipe Jacking method, PR=3m/d (4th drive)	0%	37 days	Fri 7/11/25	Sat 20/12/25	-68.6 days																											
953	SW-JPB-5110	Plant demobilization	0%	6 days	Sat 20/12/25	Tue 30/12/25	-68.6 days																											
954	SW-JPB-5120	Pipe Installation (110m x 2nos.; 6m/d for pipe)	0%	29 days	Tue 30/12/25	Mon 2/2/26	218.4 days																											
955	SW-JPB-5130	Reinstatement of Receiving Pit (CHB1170)	0%	36 days	Fri 13/2/26	Mon 30/3/26	271.4 days																											
956	SW-JPB-6150	Reinstatement of Launching Pit (CHB990)	0%	36 days	Fri 5/6/26	Sat 18/7/26	218.4 days																											
957	SW-JPB-6210	Pressure Test (110m) Trenchless B5	0%	10 days	Mon 2/2/26	Fri 13/2/26	218.4 days																											
958	SW-JPB-6220	Construction of Valve Chamber 9 (CHB990)	0%	89 days	Fri 13/2/26	Fri 5/6/26	218.4 days																											
959		Alignment B - Chuk Yuen Road - Open Trench	12%	1106.8 days	Sun 1/10/23	Mon 14/6/27	-51.6 days																											
960		Alignment B - Chuk Yuen Road - Open Trench between B3 and B4 (CH420 to CH610)	0%	913.2 days	Tue 28/5/24	Mon 14/6/27	-51.6 days																											
961	SW-OTB-309C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (30m long)~CHB420 to CHB450	0%	90 days	Thu 23/10/25	Mon 9/2/26	347.4 days																											
962	SW-OTB-308C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (40m long)~CHB450 to CHB490	0%	120 days	Tue 28/5/24	Sat 19/10/24	741.6 days																											
963	SW-OTB-307C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (50m long)~CHB490 to CHB540	0%	150 days	Fri 20/3/26	Thu 17/9/26	-51.6 days																											
964	SW-OTB-301C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (20m long)~CHB540 to CHB560	0%	60 days	Thu 17/9/26	Mon 30/11/26	-51.6 days																											
965	SW-OTB-302C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (50m long)~CHB560 to CHB610	0%	150 days	Mon 30/11/26	Thu 3/6/27	-51.6 days																											
966	SW-OTB-811C	Pressure Test (190m) Open Trench B3 to B4	0%	8 days	Thu 3/6/27	Mon 14/6/27	-51.6 days																											
967		Alignment B - Chuk Yuen Road - Open Trench B4 to B5 (CH770 to CH990)	21%	820.8 days	Sun 1/10/23	Mon 29/6/26	227.4 days																											
968	21.PRW.PO5.	TTA implementation	100%	16 days	Sun 1/10/23	Fri 20/10/23	0 days																											
969	SW-OTB-411C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (20m long)~CH770 to CH790	0%	60 days	Fri 6/2/26	Thu 23/4/26	227.4 days																											
970	SW-OTB-410C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (60m long)~CH790 to CH850	0%	180 days	Tue 8/7/25	Fri 6/2/26	227.4 days																											
971	SW-OTB-409C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (60m long)~CH850 to CH910	0%	180 days	Mon 25/11/24	Mon 7/7/25	227.4 days																											
972	SW-OTB-408C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (48m long)~CH910 to CH958	6%	186 days	Wed 17/4/24	Mon 25/11/24	227.4 days																											
973	SW-OTB-407C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (15m long)~CH958 to CH973	100%	143.8 days	Sat 21/10/23	Tue 16/4/24	0 days																											
974	SW-OTB-406C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (15m long)~CH973 to CH990	0%	45 days	Thu 23/4/26	Wed 17/6/26	227.4 days																											
975	SW-OTB-813C	Pressure Test (220m) Open Trench B4 to B5	0%	10 days	Wed 17/6/26	Mon 29/6/26	227.4 days																											

Project: 21/WSD/21

Revised Programme (Apr 2024)

Date: 1 May 2024

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								Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
976		Alignment B - Lung Fung Street	24%	110.1 days	Mon 3/7/23	Fri 12/3/27	22.1 days																			
977		Alignment B - Lung Fung Street - Open Trench	24%	110.1 days	Mon 3/7/23	Fri 12/3/27	22.1 days																			
978		Alignment B - Lung Fung Street - Open Trench B5 to D1 (CH1180 to CH1410)	24%	110.1 days	Mon 3/7/23	Fri 12/3/27	22.1 days																			
979	21.PRW.POS.	TTA implementation	100%	13 days	Mon 3/7/23	Mon 17/7/23	0 days																			
980	SW-CCEN-201	Work area occupied by CSCE stage 1a	66%	147.5 days	Tue 2/1/24	Sat 29/6/24	23.7 days																			
981	SW-OTB-501C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (40m long)~CH1180 to CH1200	0%	120 days	Wed 2/9/26	Mon 25/1/27	60.1 days																			
982	SW-CCEN-202	Work area occupied by CSCE stage 1b	0%	152 days	Wed 3/7/24	Tue 31/12/24	22.1 days																			
983	SW-OTB-501E	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (20m long)~CH1200 to CH1230	0%	60 days	Sat 29/6/24	Mon 9/9/24	205.7 days																			
984	SW-OTB-502C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (20m long)~CH1230 to CH1250	0%	60 days	Tue 31/12/24	Sat 15/3/25	112.1 days																			
985	SW-CCEN-203	Work area occupied by CSCE stage 2	0%	150 days	Tue 31/12/24	Mon 7/7/25	22.1 days																			
986	SW-CCEN-204	Work area occupied by CSCE stage 3	0%	50 days	Mon 7/7/25	Tue 2/9/25	22.1 days																			
987	SW-OTB-503C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (30m long)~CH1250 to CH1280	0%	150 days	Tue 2/9/25	Wed 4/3/26	22.1 days																			
988	SW-OTB-500C	Sheet piling, excavation, Exc., ELS, Pipe Laying, Backfilling & Road reinstatement, (20m long)~CHB1280 to CHB1300	61%	113 days	Tue 23/1/24	Tue 11/6/24	850.2 days																			
989	SW-OTB-501C	WSD's removal of AC pipes (CHB1280 - CHB1300)	90%	21 days	Tue 9/4/24	Fri 3/5/24	0 days																			
990	SW-OTB-504C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (12m long)~CH1300 to CH1312	100%	157 days	Mon 3/7/23	Mon 8/1/24	0 days																			
991	SW-OTB-504E	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (48m long)~CH1312 to CH1360	0%	150 days	Wed 4/3/26	Wed 2/9/26	22.1 days																			
992	SW-OTB-505C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement, (52m long)~CH1360 to CH1412	0%	150 days	Wed 2/9/26	Wed 3/3/27	22.1 days																			
993	SW-OTB-819C	Pressure Test (230m) Open Trench B5 to D1	0%	8 days	Wed 3/3/27	Fri 12/3/27	22.1 days																			
994		Alignment B - Sheung Fung Street	16%	1095.1 days	Tue 8/8/23	Sat 3/4/27	6.1 days																			
995		Alignment B - Sheung Fung Street - Trenchless	0%	423.2 days	Sun 1/9/24	Thu 29/1/26	157.6 days																			
996		Alignment B - Sheung Fung Street - Trenchless D1 (CH1410 to CH1550) to CP	0%	423.2 days	Sun 1/9/24	Thu 29/1/26	157.6 days																			
997	SW-JPB-6000	TTA implementation at CH1410, site clearance, road modification and site setup	0%	1 day	Sun 1/9/24	Sun 1/9/24	193 days																			
998	SW-JPA-5350	UU Detection, Trial Pit	0%	7 days	Mon 2/9/24	Mon 9/9/24	163.6 days																			
999	SW-JPB-6040	Installation of instrumentation and monitoring device and condition survey	0%	14 days	Mon 2/9/24	Sun 15/9/24	193 days																			
1000	SW-JPB-6050	Construction of launching pit (CH1410)	0%	150 days	Mon 16/9/24	Wed 12/2/25	193 days																			
1001	SW-JPB-6060	TTA implementation at CH1550, site clearance, road modification and site setup	0%	6 days	Thu 6/2/25	Wed 12/2/25	158.6 days																			
1002	SW-JPB-6070	Construction of receiving pit (CH1540)	0%	150 days	Thu 13/2/25	Sat 12/7/25	193 days																			
1003	SW-JPB-6080	Plant mobilization and set-up at Launching pit (TBM 2)	0%	21 days	Thu 13/2/25	Wed 5/3/25	272.8 days																			
1004	SW-JPB-6090	Excavation (120m) by Pipe Jacking method, PR=3m/d	0%	40 days	Mon 26/5/25	Sat 12/7/25	161.4 days																			
1005	SW-JPB-6110	Plant demobilization	0%	14 days	Sun 13/7/25	Sat 26/7/25	193 days																			
1006	SW-JPB-6120	Pipe Installation (120m) (6m/d for pipe)	0%	20 days	Mon 28/7/25	Tue 19/8/25	356.6 days																			
1007	SW-JPB-6230	Pressure Test (120m) Trenchless D1	0%	10 days	Wed 20/8/25	Sat 30/8/25	356.6 days																			
1008	SW-JPB-6250	Reinstatement of Launching Pit (CH1410)	0%	36 days	Mon 1/9/25	Tue 14/10/25	445.6 days																			
1009	SW-JPB-6260	Construction of Valve Chamber (CH1540)	0%	89 days	Mon 1/9/25	Tue 16/12/25	356.6 days																			
1010	SW-JPB-6270	Connection Works	0%	24 days	Mon 1/9/25	Sat 27/9/25	421.6 days																			
1011	SW-JPB-6130	Reinstatement of Receiving Pit (CH1540)	0%	36 days	Tue 16/12/25	Thu 29/1/26	356.6 days																			
1012		Alignment B - Sheung Fung Street - Open Trench	30%	1095.1 days	Tue 8/8/23	Sat 3/4/27	6.1 days																			
1013		Alignment B - Sheung Fung Street - Open Trench D1 to CP (CH1550 to CH1730)	30%	1095.1 days	Tue 8/8/23	Sat 3/4/27	6.1 days																			
1014	21.PRW.POS.	Coordination with SLG, ULG, Stakeholders and Obtain Approva	100%	4 days	Tue 8/8/23	Fri 11/8/23	0 days																			
1015	SW-OTB-805C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatement (60m long)~CH1550 to CH1610	0%	180 days	Wed 21/8/24	Thu 27/3/25	459.2 days																			
1016	SW-OTB-806C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatementt, (50m long)~CH1610 to CH1662	40%	158 days	Sat 10/2/24	Wed 21/8/24	459.2 days																			
1017	SW-OTB-817C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatementt, (50m long)~CH1662 to CH1674	100%	150 days	Sat 12/8/23	Fri 9/2/24	0 days																			
1018	SW-OTB-817E	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatementt, (50m long)~CH1674 to CH1710	0%	150 days	Fri 28/3/25	Fri 26/9/25	459.2 days																			
1019	SW-OTB-808C	Sheet piling, Excavation, ELS, Pipe Laying, Backfilling & Road reinstatementt, (20m long)~CH1710 to CH1730	0%	60 days	Tue 15/12/26	Mon 1/3/27	6.1 days																			
1020	SW-OTB-817C	Pressure Test (180m) Open Trench D1 to CP	0%	8 days	Mon 1/3/27	Wed 10/3/27	6.1 days																			
1021	SW-OTB-818C	Backfilling and Road Reinstatement D1 to CP	0%	18 days	Wed 10/3/27	Sat 3/4/27	6.1 days																			
1022		Test & Commissioning and Connection	0%	319.8 days	Tue 9/6/26	Mon 5/7/27	-68.6 days																			
1023	SW-CPA-208C	Alignment A Ready for Connection with PAB	0%	0 days	Fri 25/6/27	Fri 25/6/27	-68.6 days																			
1024	SW-CPB-209C	Alignment B Ready for Connection with PAB	0%	0 days	Wed 10/3/27	Wed 10/3/27	17.1 days																			
1025	SW-CPA-209C	PAB Water Main Ready for Connection with Alignment A	0%	0 days	Tue 9/6/26	Tue 9/6/26	244.2 days																			
1026	SW-CPB-210C	PAB Water Main Ready for Connection with Alignment B	0%	0 days	Tue 9/6/26	Tue 9/6/26	244.2 days																			
1027	SW-TC-2060	Swabbing & Pressure Test for Alignment A	0%	7 days	Fri 25/6/27	Mon 5/7/27	-68.6 days																			
1028	SW-TC-2070	Swabbing & Pressure Test for Alignment B	0%	7 days	Wed 10/3/27	Thu 18/3/27	17.1 days																			
1029		Establishment Period	0%	299.2 days	Mon 5/7/27	Tue 4/7/28	0 days																			
1030	21.EST.GEN.1	Establishment Works	0%	365 days	Mon 5/7/27	Tue 4/7/28	0 days																			

Project: 21/WSD/21  
Revised Programme (Apr 2024)  
Date: 1 May 2024

Task

Split

Milestone

◆

Summary

Project Summary

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

◇

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

External Tasks

External Milestone

Deadline

Critical

◇

↓

Critical Split

Progress

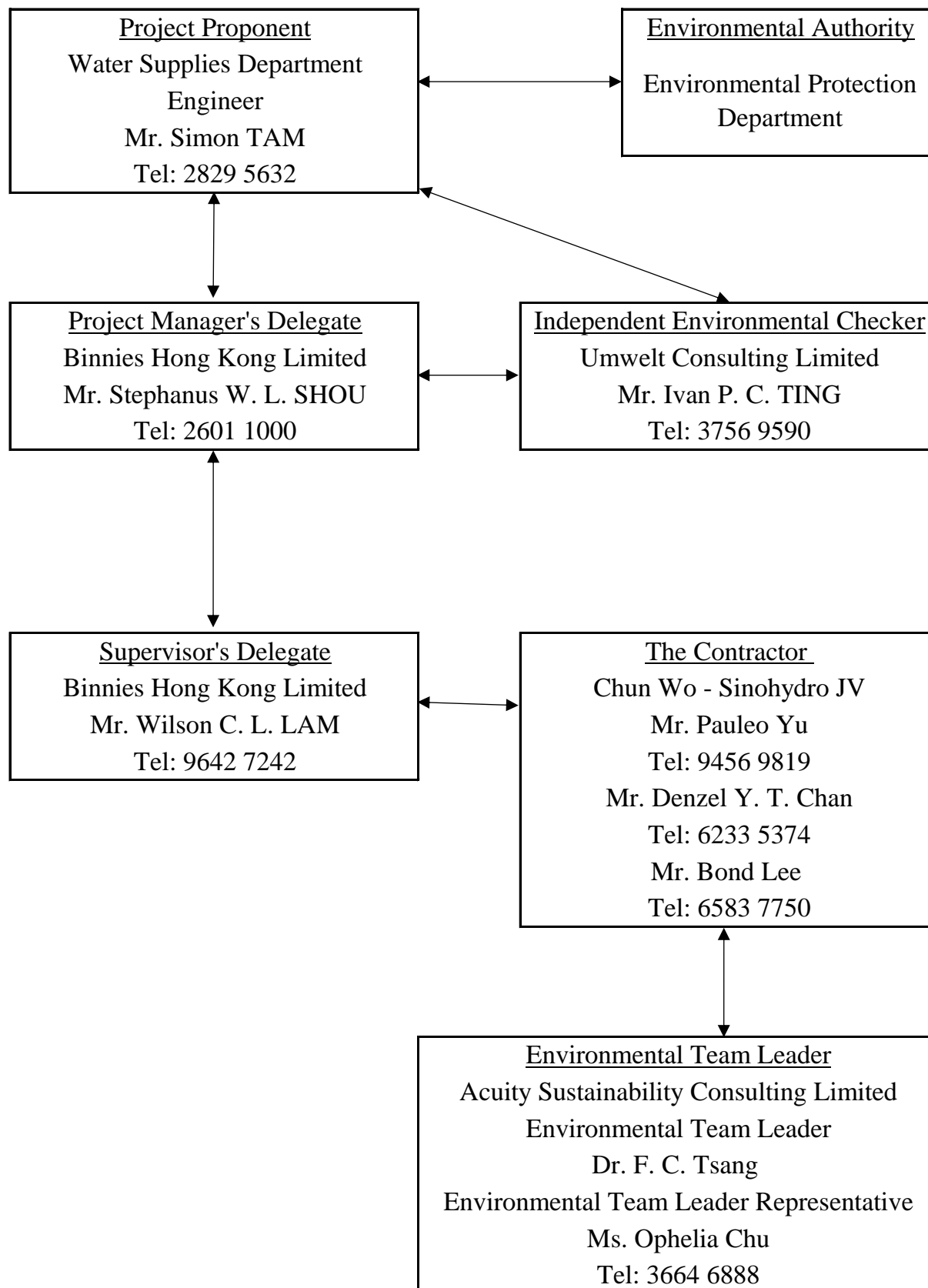
Manual Progress

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## **Appendix B**

### **Project Organization Chart and Key Personnel Contact**

## Project Organization Chart



## **Appendix C**

### **Event and Action Plans**

**Table C1 Event and Action Plan for Air Quality (Dust)**

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level exceedance for one sample	<ul style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC and ER;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily.</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check contractor's working method.</li> </ul>	<ul style="list-style-type: none"> <li>Notify Contractor.</li> </ul>	<ul style="list-style-type: none"> <li>Rectify any unacceptable practice;</li> <li>Amend working methods if appropriate.</li> </ul>
Action level exceedance for two or more consecutive samples	<ul style="list-style-type: none"> <li>Identify source;</li> <li>Inform IEC and ER;</li> <li>Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Discuss with IEC and Contractor on remedial actions required;</li> <li>If exceedance continues, arrange meeting with IEC and ER;</li> <li>If exceedance stops, cease additional monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ET on the effectiveness of the proposed remedial measures;</li> <li>Supervise Implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Submit proposals for remedial actions to ER within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ul>
Limit level exceedance for one sample	<ul style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of failure in writing;</li> </ul>	<ul style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> </ul>



Event	Action			
	ET Leader	IEC	ER	Contractor
	<ul style="list-style-type: none"> <li>• Inform ER, Contractor and EPD;</li> <li>• Repeat measurement to confirm finding;</li> <li>• Increase monitoring frequency to daily;</li> <li>• Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> </ul>	<ul style="list-style-type: none"> <li>• Check Contractor's working method;</li> <li>• Discuss with ET and Contractor on possible remedial measures;</li> <li>• Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>• Supervise implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>• Notify Contractor;</li> <li>• Ensure remedial measures properly implemented.</li> </ul>	<ul style="list-style-type: none"> <li>• Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>• Implement the agreed proposals;</li> <li>• Amend proposal if appropriate.</li> </ul>
Limit level exceedance for two or more consecutive samples	<ul style="list-style-type: none"> <li>• Notify IEC, ER, Contractor and EPD;</li> <li>• Identify source;</li> <li>• Repeat measurement to confirm findings;</li> <li>• Increase monitoring frequency to daily;</li> <li>• Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>• Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>• Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>• If exceedance stops, cease additional monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>• Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>• Supervise the implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>• Confirm receipt of notification of failure in writing;</li> <li>• Notify Contractor;</li> <li>• In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>• Ensure remedial measures properly implemented;</li> <li>• 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> </ul>	<ul style="list-style-type: none"> <li>• Take immediate action to avoid further exceedance;</li> <li>• Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>• Implement the agreed proposals;</li> <li>• Resubmit proposals if problem still not under control;</li> <li>• Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ul>

**Table C2 Event/Action Plan for Construction Noise**

Event	Action			
	ET	IEC	ER	Contractor
Action Level Exceedance	<ol style="list-style-type: none"> <li>1. Notify IEC, ER 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 and ER;</li> <li>2. Implement noise mitigation proposals.</li> </ol>
Limit Level Exceedance	<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 the IEC within three 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>

**Table C3 Event/Action Plan for Landscape and Visual**

Event	Action			
	ET	IEC	ER	Contractor
Action Level Exceedance	<ol style="list-style-type: none"> <li>1. Inform the IEC, ER and the Contractor;</li> <li>2. Discuss remedial actions with IEC, ER and Contractor; and</li> <li>3. Monitor remedial actions until rectification has been completed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET, ER and Contractor on possible remedial measures;</li> <li>4. Advise ER on effective of proposed remedial measures; and</li> <li>5. Check implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-conformity in writing;</li> <li>2. Review and agree on the remedial measures proposed by the Contractor; and</li> <li>3. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the non-conformity;</li> <li>2. Amend working methods agreed with ER as appropriate; and</li> <li>3. Rectify damage and undertake any necessary replacement.</li> </ol>
Limit Level Exceedance	<ol style="list-style-type: none"> <li>1. Identify sources;</li> <li>2. Inform the Contractor, IEC and ER;</li> <li>3. Discuss inspection frequency;</li> <li>4. Discuss remedial actions with IEC, ER and Contractor;</li> <li>5. Monitor remedial actions until rectification has been completed; and</li> <li>6. If non-conformity stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET, ER and Contractor on possible remedial measures; and</li> <li>4. Advise ER on effectiveness of proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify the Contractor;</li> <li>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; and</li> <li>3. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the non-conformity;</li> <li>2. Implement remedial measures;</li> <li>3. Amend working methods agreed with ER as appropriate;</li> <li>4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by ER until the non-conformity is abated.</li> </ol>

Notes:

ET – Environmental Team; IEC – Independent Environmental Checker; ER – Engineer's Representative

## **Appendix D**

### **Project Implementation Schedule**

## Environmental Mitigation Implementation Schedule (EMIS)

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
<b>Air Quality</b>							
D1	Dust suppression measures, including watering once per hour, will be incorporated in accordance with the requirements of the Air Pollution Control (Construction Dust) Regulation. Dust filter shall be installed at the ventilation system of the emission source at the tunnel portal chimney. The proposed dust control measures presented in Table 3.11 of the EIA report shall be followed.	Minimize dust impact at the nearby sensitive receivers	Contractor	Tunnel Portal	Construction Phase	<ul style="list-style-type: none"> <li>• Air Pollution Control Ordinance</li> <li>• To control the dust impact to meet HKAQO and EIAO-TM criteria</li> </ul>	Implemented
D2	<p>The following dust suppression measures should be incorporated into contract document. The standard dust suppression measures as stipulated in the Air Pollution Control (Construction Dust) Regulation to control the dust nuisance shall be implemented throughout the construction phase:</p> <ul style="list-style-type: none"> <li>• The contractor shall observe and comply with Air Pollution Control (Construction Dust) Regulation and implement all the required mitigation measures.</li> <li>• The contractor shall undertake precautions at all times to prevent dust nuisance and smoke as a result of his activities.</li> <li>• The contractor shall ensure a highly efficient dust filter (at least 80% efficiency) to be installed at the ventilation exhaust to treat the exhausting air from cavern.</li> <li>• The contractor shall frequently clean and water the site to minimize fugitive dust emissions.</li> <li>• The contractor shall ensure that there will be adequate water supply/storage for dust suppression.</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction sites	Construction Stage	<ul style="list-style-type: none"> <li>• Air Pollution Control Ordinance</li> <li>• To control the dust impact to meet HKAQO and EIAO-TM criteria</li> </ul>	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	<ul style="list-style-type: none"> <li>The working area of any pavement breaking, excavation or earth moving operation should be sprayed with water immediately before, during and after the operation to avoid dust generation.</li> <li>Any stockpile of dusty material should be properly covered by tarpaulin or other impervious sheeting.</li> <li>Vehicles leaving a site loaded with dusty materials should be covered by tarpaulin or other impervious sheeting.</li> <li>Wheel washing facilities shall be installed and used by all vehicles leaving the site. No earth, mud, debris, dust and the like shall be deposited on public roads. Water in the wheel cleaning facility shall be changed at frequent intervals and sediments shall be removed regularly. The contractor shall submit details of proposals for the wheel cleaning facility. Such wheel washing facilities shall be usable prior to any earthworks excavating activity on the site. The Contractor shall also provide a hard-surfaced road between any washing facility and the public road.</li> <li>Any materials dropped on paved roads shall be cleaned up immediately to prevent dust nuisance.</li> <li>The contractor shall devise, arrange methods of working and carrying out the works in such a manner so as to minimize dust impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.</li> </ul>						
D3	The contractor shall also implement specific dust mitigation measures for excavation, drilling and blasting activities during the construction of tunnel portal. These include the use of blast nets / canvas covers and ensure portal door is properly closed.	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction sites	Construction Stage	<ul style="list-style-type: none"> <li>Air Pollution Control Ordinance</li> <li>To control the dust impact to meet</li> </ul>	To be Implemented



EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
						HKAQO and EIAO-TM criteria	
D4	Before the commencement of any works, the Engineer may require the contractor to submit the methods of working, construction plant or equipment and air pollution control measures to be used on the site to be made available for inspection and approval.	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction sites	Construction Stage	<ul style="list-style-type: none"> <li>• Air Pollution Control Ordinance</li> <li>• To control the dust impact to meet HKAQO and EIAO-TM criteria</li> </ul>	Implemented
D5	<p>The following precautionary measures shall be incorporated into contract document and implemented throughout the construction.</p> <ul style="list-style-type: none"> <li>• The contractor shall ensure the use of electricity power equipment is connected to the main electricity supply for better emission estimation.</li> <li>• The contractor shall avoid the use of diesel power machines and generators as far as practicable.</li> <li>• The contractor shall avoid the use of non-road mobile machineries which exempt by the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, and seek the ones with proper label issued by EPD.</li> <li>• The contractor shall observe the requirement of DEVB TC(W) No. 13/2020, to apply a temporary electricity and water supply with a target that the necessary cables/water mains laying works could be completed before the commencement of the works contract.</li> </ul>	Avoid burdening the surrounding NO <sub>2</sub> concentration	Contractor	All Construction sites	Construction Stage	<ul style="list-style-type: none"> <li>• Air Pollution Control Ordinance</li> <li>• To control the dust impact to meet HKAQO and EIAO-TM criteria</li> <li>• DEVB TC(W) No. 13/2020</li> </ul>	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
<b>Construction Noise</b>							
N1	The contractor should limit the pipe section to be constructed by open cut method in a length of no more than 30 m at any one time when works are in close proximity to NSRs. Each work front along the proposed watermain laying should be separated by a clearance distance of at least 60 m.	Control construction noise impacts	Contractor	All construction area for watermain laying works	Construction stage	• EIAO-TM	To be implemented
N2	Use of quiet PME is considered to be a practicable means to mitigate the construction noise impact. Quiet plant is defined as a PME having actual SWL lower than the value specified in the GW-TM.	Control construction noise impacts	Contractor	All construction area for watermain laying works	Construction stage	• EIAO-TM • A Practical Guide for the Reduction of Noise from construction works	Implemented
N3	The use of noise barrier for certain PME could generally provide a 5 dB(A) reduction for movable PME and 10 dB(A) for stationary PME. The barrier material shall have a superficial surface density of not less than 10 kg/m <sup>2</sup> and have no opening or gaps. Sound absorbent lining inside the enclosure should be at least 25 mm thick.	Control construction noise impacts	Contractor	All construction area for watermain laying works	Construction stage	• EIAO-TM	Implemented
N4	Provision of movable noise barriers of 3m or above in height and with a short-cantilevered section on the top with skid footing should be used and located within a few metres of stationary plant and mobile plant such that the line of sight to the NSR is blocked by the barriers.	Control construction noise impacts	Contractor	All construction area for watermain laying works	Construction stage	• EIAO-TM	To be implemented
N5	Noise enclosure lined with absorptive materials shall be provided at the tunnel portal to mitigate the noise from tunnel/cavern construction. The enclosure is a gap free enclosure with acoustic doors for vehicular access purpose. The acoustic doors shall remain closed throughout the construction period. The sheet material mass of the noise enclosure should be at least 10 kg/m <sup>2</sup> and sound-absorbent lining inside the enclosure should be at least 25 mm thick.	Control construction noise impacts	Contractor	Tunnel Portal	Construction stage	• EIAO-TM • A Practical Guide for the Reduction of Noise from construction works	To be implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
N6	Noise barrier/enclosure should be inspected and maintained regularly. The contractor should design and provide details of the temporary noise barriers and noise enclosure to the Engineer for approval.	Control construction noise impacts	Contractor	All Construction sites	Construction stage	• EIAO-TM	Implemented
N7	For NSR5, NSR14, NSR19 and NSR 22, the construction works of Fresh Water/Salt Water Mainlaying (Reinstatement Works) shall be arranged and carried out during School Holidays (i.e., the section of the mainlaying alignment is 20m measured from the school site boundary).	Control construction noise impacts	Contractor	All Construction area for watermain laying works	Construction stage	• EIAO-TM	To be Implemented
N8	During examination period, no mainlaying works will be carried out within 30m (for NSR 14, NSR 19 and NSR 22) or 50m (for NSR 5) from the school site boundary.	Control construction noise impacts	Contractor	All Construction area for watermain laying works	Construction stage	• EIAO-TM	To be Implemented
N9	For NSR13, NSR20 and P1, the concrete lorry mixer shall be located 10 m away from the residential site boundary during the construction works of Fresh Water/Salt Water Mainlaying (Reinstatement Works).	Control construction noise impacts	Contractor	All Construction area for watermain laying works	Construction stage	• EIAO-TM	To be Implemented
N10	<u>Good Site Management Practices</u> <ul style="list-style-type: none"> <li>Only well-maintained plant should be operated on-site, and plant will be serviced regularly during the construction phase;</li> <li>Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction phase;</li> <li>Mobile plant, if any, should be sited away from NSRs;</li> <li>Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or will be throttled down to a minimum;</li> <li>Plant known to emit noise strongly in one direction should be orientated so that the noise is directed away from the nearby NSRs;</li> </ul>	Control construction noise impacts	Contractor	All Construction sites	Construction stage	• EIAO-TM	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	<ul style="list-style-type: none"> <li>Material stockpiles and other structures should be effectively utilised in screening noise from on-site construction activities;</li> <li>The contractor should devise, arrange methods of working and carrying out the works in such manner as to minimise noise impacts on the surrounding environment, and should provide experience personnel with suitable training to ensure that all these measures are implemented properly; and;</li> <li>The contractor should minimise construction noise exposure to the school (especially during examination periods) as much as possible. The contractor should liaise with the school and Examination Authority to ascertain the exact dates and times of all examination periods during the course of the contract and to avoid noisy activities during these periods.</li> </ul>						
<b>Operation Noise</b>							
N11	<ul style="list-style-type: none"> <li>Choose quieter plant;</li> <li>Include noise levels specification when ordering new mechanical equipment such as pumps and ventilation systems;</li> <li>Locate fixed plant, louvres or openings away from NSRs;</li> <li>Locate fixed plant in walled plant rooms or in specially designed enclosures;</li> <li>Ensure pump room doors and tunnel portal doors are kept closed;</li> <li>Silencers, acoustic louvres or acoustic doors should be used where necessary; and</li> <li>Develop and implement a regularly scheduled plant maintenance programme so that equipment is properly</li> </ul>	Reduce the operation noise	Project Proponent	Tunnel Portal / Ancillary building / SRs in carven	Prior to operation of the Project for planned NSRs	<ul style="list-style-type: none"> <li>EIAO-TM</li> </ul>	To be implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	operated and serviced in order to maintain controlled level of noise. The programme should be implemented by properly trained personnel.						
<b>Water Quality (Construction Phase)</b>							
W1	<b><u>General Construction Site Practice</u></b> The Contractor should observe and comply with the Water Pollution Control Ordinance and its subsidiary regulations and obtain a discharge license under the Ordinance for discharge of effluent from the construction site. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. The Contractor should carry out the Project works in such a manner as to minimise adverse impacts on the water quality during execution of the works. In particular, the Contractor should arrange the working method to minimise the effects on the water quality within and outside the Project Site and on the transport routes. In addition, the management of construction site drainage from the Project will follow guidelines provided in ProPECC PN 1/94 – “Construction Site Drainage”. The mitigation measures described in ETWB TC(W) No. 5/2005 shall also be followed where necessary for construction activities in close vicinity to inland watercourses.	To minimise water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where applicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • ETWB TC(W) No. 5/2005 • EIAO-TM • TM-DSS	Implemented
W2	<b><u>Construction Site Runoff and General Construction Activities</u></b> Proper site management measures should be implemented to control site runoff and drainage, and thereby prevent high sediment loadings from reaching	To minimize water quality impact from construction site runoff and general	Contractor	All construction sites where applicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • ETWB TC(W) No. 5/2005 • EIAO-TM	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	<p>downstream sections of the river/stream. The mitigation measures shall include the following practices:</p> <ul style="list-style-type: none"> <li>• Provision of perimeter channels to intercept storm-runoff from outside the site. These should be constructed in advance of the construction works.</li> <li>• Temporary ditches such as channels, earth bunds or sandbag barriers should be included to facilitate runoff discharge into the stormwater drain, via a sand/silt basin/trap.</li> <li>• Works programme should be designed to minimise works areas at any one time, thus minimizing exposed soil areas and reducing the potential for increased siltation and site runoff.</li> <li>• Sand/silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove the sand/silt particles from run-off where necessary. These facilities should be properly and regularly cleaned and maintained. These facilities should be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site.</li> <li>• Careful programming of the works to avoid excavation works during the rainy season (April to September).</li> <li>• Temporary access roads (if any) should be protected by crushed gravel and exposed slope surfaces shall be protected (e.g. by tarpaulin) when rainstorms are likely;</li> <li>• Open stockpiles of construction materials on-site should be covered with tarpaulin or similar fabric during rainstorms to prevent erosion. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system</li> </ul>	construction activities				<ul style="list-style-type: none"> <li>• TM-DSS</li> </ul>	



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	<ul style="list-style-type: none"> <li>Earthwork 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.</li> <li>Measures should be taken to minimise 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.</li> <li>Manholes should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.</li> <li>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.</li> <li>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 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</li> </ul>						

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	paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.						
W3	Reuse of treated site runoff shall be considered as far as practicable for onsite activities such as dust suppression, wheel washing and general cleaning, etc.	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where applicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN1/94</li> <li>• ETWB TC(W) No. 5/2005</li> <li>• EIAO-TM</li> <li>• TM-DSS</li> </ul>	N/A
W4	<u>Sewage Generated by Construction Workforce</u> No discharge of sewage to the storm drains and inland watercourse will be allowed. Domestic sewage /wastewater generated by workforce on-site should be collected in a suitable storage facility such as portable chemical toilets. An adequate number of portable toilets will be provided during the construction phase, with a licensed collector employed to clean the chemical toilets on a regular basis and be responsible for collection and disposal of the sewage. According to the Reference Materials on Construction Site Welfare, Health and Safety Measures that issued by the Construction Industry Council, the number of toilet facilities provided on site shall be at a ratio of not less than one for every 25 workers. These toilets should be maintained in a state that will not deter the workers from using them.	To minimise water quality impact from sewage effluent in construction phase	Contractor	All construction sites where applicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN1/94</li> <li>• ETWB TC(W) No. 5/2005</li> <li>• EIAO-TM</li> <li>• TM-DSS</li> </ul>	Implemented
W5	<u>Accidental Spillage of Chemicals</u> The following mitigation measures should be implemented to avoid adverse impacts of chemical spillage:	To prevent water quality impact due to chemical spillage	Contractor	All construction sites where applicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• Waste Disposal (Chemical Waste) (General) Regulation</li> <li>• ProPECC PN1/94</li> </ul>	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	<ul style="list-style-type: none"> <li>Waste streams classifiable as chemical wastes should be properly stored, collected and treated for compliance with the requirements set out in the Waste Disposal Ordinance and its subsidiary Waste Disposal (Chemical Waste) (General) Regulation.</li> <li>All fuel tanks and chemical storage areas should be provided with locks and be sited on paved areas.</li> <li>The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled oil, fuel and chemicals from reaching the receiving waters.</li> <li>Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.</li> <li>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.</li> </ul>					<ul style="list-style-type: none"> <li>ETWB TC(W) No. 5/2005</li> <li>EIAO-TM</li> <li>TM-DSS</li> </ul>	
W6	<p><u>Groundwater infiltration and Groundwater Drawdown</u></p> <p>To minimize the groundwater infiltration, the following groundwater control measures are recommended:</p> <ul style="list-style-type: none"> <li>The Contractor shall undertake rigorous probing of the ground ahead of excavation works to identify zones of significant water inflow that could occur as a result of discrete, permeable features. In such zones of significant water inflow, the overall inflow would be reduced by means of cut-off grouting executed ahead of the tunnel/cavern advance.</li> <li>Where water inflow quantities are excessive, pre-grouting will be required to reduce the water inflow into the tunnel/cavern.</li> </ul>	To minimise water quality impact from groundwater infiltration	Contractor	All construction sites where applicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN1/94</li> <li>ETWB TC(W) No. 5/2005</li> <li>EIAO-TM</li> <li>TM-DSS</li> </ul>	To be Implemented

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	<ul style="list-style-type: none"> <li>In case of excessive infiltration being observed as a result of the tunnelling or excavation works even after pre-</li> <li>grouting measures, post-grouting should be applied as far as practicable.</li> <li>Waterproof lining will be installed after the formation of the tunnels and caverns.</li> <li>In the event of seepage of groundwater occurs, groundwater should be pumped out from works areas and discharged to the storm drains via silt removal facilities. The discharges during construction phase shall comply with WPCO requirements</li> </ul>						
W7	<p><u>Construction Works in Close Proximity of Inland Watercourses</u></p> <p>The mitigation measures proposed for “General Construction Site Practice” and “Construction Site Runoff and General Construction Activities” in Sections 5.8.2 and 5.8.3 of the EIA report shall be implemented properly to minimize the water quality impacts during to the construction works in close proximity of inland watercourse.</p>	To minimise water quality impact from construction site near watercourses	Contractor	All construction sites where applicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN1/94</li> <li>ETWB TC(W) No. 5/2005</li> <li>EIAO-TM</li> <li>TM-DSS</li> </ul>	To be Implemented
W8	<p>The practices outlined in ETWB TC(W) No. 5/2005 shall also be adopted where applicable to minimise the water quality impacts upon any natural streams or other inland watercourses. Relevant mitigation measures are listed below:</p> <ul style="list-style-type: none"> <li>The use of less or smaller construction plants may be specified in areas close to the inland watercourses to reduce the disturbance to the surface water.</li> <li>Temporary storage of materials (e.g. equipment, chemicals and fuel) and temporary stockpile of</li> </ul>	To minimise water quality impact from construction site near watercourses	Contractor	The relocated DHSRs	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN1/94</li> <li>ETWB TC(W) No. 5/2005</li> <li>EIAO-TM</li> <li>TM-DSS</li> </ul>	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	<p>construction debris and spoil should be located well away from any watercourses.</p> <ul style="list-style-type: none"> <li>• Stockpiling of construction materials and dusty materials should be covered and located away from any watercourses.</li> <li>• Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby inland watercourses.</li> <li>• Adequate lateral support may need to be erected in order to prevent soil/mud from slipping into the watercourses.</li> <li>• Construction works close to the inland watercourses should be carried out in dry season as far as practicable where the flow in the surface channel or stream is low.</li> </ul>						
W9	<p><u>Cleansing Effluent Generated from Washing of Interior of Structures</u></p> <p>The cleaning effluent containing SS and residual chlorine should be settled out through the sedimentation tank and dechlorinated by the de-chlorination plant. The discharge quality of the cleansing effluent generated from washing of interior of structures after the construction shall meet the requirements specified in the discharge licence and the cleaning effluent should be treated properly so that it satisfies all the standards listed in the TM-DSS</p>	To minimise water quality impact from construction site effluent	Contractor	The relocated DHSRs	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN1/94</li> <li>• ETWB TC(W) No. 5/2005</li> <li>• EIAO-TM</li> <li>• TM-DSS</li> </ul>	To be Implemented
<b>Water Quality (Operation Phase)</b>							
W10	The ProPECC PN 5/93 "Drainage Plans subject to Comments by Environmental Protection Department" provides guidelines and practices for handling, treatment and disposal of various effluent discharges to stormwater drains and foul sewers. The design of site drainage and disposal of various site effluents generated within the	To control operational site effluents	Further Operator	The relocated DHSRs	Operation stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN5/93</li> </ul>	To be Implemented

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	development area should follow the relevant guidelines and practices as given in the ProPECC PN 5/93.						
W11	<u>Effluents from Cleaning of Service Reservoir</u> Treatment and disposal of cleansing water during annual cleaning and maintenance of the service reservoirs shall follow the WSD's current normal practice with reference to Sections 23.24 – 23.25 of the General Specification for Civil Engineering Works. Portable water incorporated with a mixture of sterilizing chemicals shall be used for washing water retaining structures. The cleansing effluent shall be settled out through the sedimentation tank and dechlorinated by a dechlorination unit before being discharged to drainage system. Agreement of DSD and discharge license from EPD shall be obtained before commencing any of the discharges during operation phase	To control operational site effluents	Further Operator	The relocated DHSRs	Operation stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• Sections 23.23-23.24 of the General Specification for Civil Engineering Works</li> <li>• TM-DSS</li> </ul>	To be Implemented
W12	<u>Non-point Source Surface Runoff</u> Best Management Practices (BMPs) to reduce non-point source surface water pollution are proposed as follows: <ul style="list-style-type: none"> <li>• Exposed surface shall be avoided within access road and portal/ancillary building areas to minimise soil erosion. The access road and the portal/ancillary building areas shall be either hard paved or covered by landscaping area where appropriate.</li> <li>• Screening facilities such as standard gully grating and trash grille, with spacing which is capable of screening off large substances such as fallen leaves and rubbish should be provided at the inlet of drainage system.</li> <li>• Road gullies with standard design and silt traps should be provided to remove particles present in stormwater runoff, where appropriate.</li> <li>• Good management measures such as regular cleaning and sweeping of road surface/ open areas are suggested. The road surface/ open area cleaning</li> </ul>	To minimize water quality impact from non-point source surface run-off	Further Operator	The relocated DHSRs	Design and Operation stages	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN5/93</li> </ul>	To be Implemented



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	<p>should also be carried out prior to occurrence of rainstorm.</p> <ul style="list-style-type: none"> <li>Manholes, as well as storm water gullies, ditches provided at the Project site should be regularly inspected and cleaned (e.g. monthly). Additional inspection and cleansing should be carried out before forecast heavy rainfall.</li> </ul>						
<b>Waste Management (Construction Phase)</b>							
WM1	The waste management hierarchy shall apply to the construction waste management (i.e. in order of desirability: avoidance, minimization, recycling, treatment and safe disposal of waste).	Minimize waste generation during construction	Contractor	All construction sites	Design and Construction stages	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>EIAO</li> </ul>	Implemented
WM2	The contractor should develop and provide toolbox talk for on-site sorting of C&D materials to enhance workers' awareness in handling, sorting, reuse and recycling of C&D materials. Requirements for staff training should be included in the contractor's Environmental Management Plan (EMP). The EMP shall be submitted to the Architect/Engineer for approval before construction works in accordance with ETWB TC(W) No.19/2005.	Minimize waste generation during construction	Contractor	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>EIAO</li> <li>ETWB TC(W) No. 19/2005</li> <li>DEVB TC(W) No. 6/2010</li> </ul>	Implemented
WM3	Good planning and site management practice should be employed to eliminate over-ordering or mixing of construction materials to reduce wastage. Proper storage and site practices will minimise the damage or contamination of construction materials.	Ensure proper waste management system throughout the construction	Contractor	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>EIAO</li> <li>ETWB TC(W) No. 19/2005</li> <li>DEVB TC(W) No. 6/2010</li> </ul>	Implemented
WM4	Where waste generation is unavoidable, the potential for recycling or reuse should be rigorously explored. If waste cannot be recycled, disposal routes described in the EMP should be followed. A recording system for the amount of wastes generated, recycled and disposed (including the	Reduce waste generation	Contractor	All Construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>EIAO</li> <li>ETWB TC(W) No. 19/2005</li> </ul>	Implemented

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	disposal sites) should be implemented. In order to monitor the disposal of C&D material and solid wastes at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be included. One may make reference to DEVB TC(W) No. 6/2010 for details.					<ul style="list-style-type: none"> <li>• DEVB TC(W) No. 6/2010</li> </ul>	
WM5	Regular cleaning and maintenance of the waste storage area should be provided.	Avoid odour, pest, and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• DEVB TC(W) No.8/2010</li> <li>• ETWB TC(W) No. 19/2005</li> </ul>	Implemented after observation
WM6	<p><u>Best Management Practice</u></p> <ul style="list-style-type: none"> <li>• An on-site environmental co-ordinator should be identified at the outset of the works. The co-ordinator shall prepare an Environmental Management Plan (EMP) incorporating waste management in accordance with the requirements set out in the ETWB TCW No. 19/2005, Environmental Management on Construction Sites. The EMP shall include monthly and yearly Waste Flow Tables (WFT) that indicate the amounts of waste generated, recycled and disposed of (including final disposal site), and which should be regularly updated. WFT will be provided in the WMP which will form part of the EMP in accordance with ETWB TCW No.19/2005;</li> <li>• The reuse/recycling of all materials on site shall be investigated prior to treatment/ disposal off- site;</li> <li>• Good site practices shall be adopted from the commencement of works to avoid the generation of waste, reduce cross contamination of waste and to promote waste minimisation;</li> <li>• All waste materials shall be sorted onsite into inert and non-inert C&amp;D materials, and where the materials can be recycled or reused, they shall be further segregated.</li> </ul>	Ensure proper waste management system throughout the construction	Contractor	All construction sites	• Construction stage	<ul style="list-style-type: none"> <li>• EIAO</li> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> <li>• DEVB TCW No.6/2010</li> <li>• DEVB TCW No. 8/2010</li> <li>• WBTC No.12/2000</li> </ul>	Implemented after reminder

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	<ul style="list-style-type: none"> <li>The contractor shall be responsible for identifying what materials can be recycled/ reused, whether on-site or offsite. In the event of the latter, the contractor shall make arrangements for the collection of the recyclable materials. Any remaining non-inert C&amp;D materials shall be collected and disposed of to the landfills whilst any inert C&amp;D materials shall be re-used on site as far as possible. Alternatively, if inert C&amp;D materials cannot be reused on-site, the materials would be delivered to public fill reception facilities for beneficial reuse after obtaining the appropriate licence;</li> <li>With reference to DEVB TCW No.6/2010, Trip-ticket System for Disposal of Construction and Demolition Material, a trip ticket system should be established at the outset of the construction to monitor the disposal of C&amp;D materials and solid wastes from the site to public filling facilities and landfills;</li> <li>Under the Waste Disposal (Chemical Waste) (General) Regulation, the Contractor shall register as a Chemical Waste Producer if chemical wastes such as spent lubricants and paints are generated on site. Only licensed chemical waste collectors shall be employed to collect any chemical waste generated at site. The handling, storage, transportation and disposal of chemical wastes shall be conducted in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes and A Guide to the Chemical Waste Control Scheme both published by EPD;</li> <li>A sufficient number of covered bins shall be provided on site for the containment of general refuse. These bins shall be cleared daily and the collected waste disposed of to the refuse transfer station. Further to the</li> </ul>						

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	<p>issue of DEVB TCW No. 8/2010, Enhanced Specification for Site Cleanliness and Tidiness, the contractor is required to maintain a clean and hygienic site throughout the Project works;</p> <ul style="list-style-type: none"> <li>• Tool-box talks should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse, and recycling; and</li> <li>• The contractor shall comply with all relevant statutory requirements and guidelines and their updated versions that may be issued during the course of Project construction.</li> </ul>						
WM7	<p><u>On-site Sorting, Reuse and Recycling</u> All waste materials should be segregated into categories covering:</p> <ul style="list-style-type: none"> <li>• Inert C&amp;D materials suitable for reuse on-site;</li> <li>• Inert C&amp;D materials suitable for public fill reception facilities;</li> <li>• Recyclable C&amp;D materials for recycling;</li> <li>• Remaining C&amp;D materials for landfill;</li> <li>• Chemical waste; and</li> <li>• General refuse for landfill.</li> </ul>	Reduce waste generation	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> </ul>	Implemented
WM8	Proper segregation and disposal of construction waste should be implemented. Separate containers should be provided for inert and non-inert materials.	Reduce waste generation	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> </ul>	Implemented

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WM9	Specific area should be allocated for on-site sorting of C&D materials and to provide a temporary storage area for those sorted materials. If area is limited, all C&D materials should at least be sorted on-site into inert and non-inert components. Non-inert C&D materials such as bamboo, timber, vegetation, packaging waste and other organic materials should be reused and recycled to local recycler wherever possible and disposed to the designated landfill only as a last resort. Inert C&D materials such as concrete, stone, clay, brick, soil, asphalt and the like should be separated and reused in this or other projects (subject to approval by the relevant parties in accordance with the DEVB TC(W) No. 6/2010) before disposed of at a public filling facility operated by CEDD. Steel and other metals should be recovered from demolition waste stream and recycled	Ensure proper waste management system throughout the construction in order to reduce waste generation	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> <li>DEVB TCW No.6/2010</li> <li>DEVB TCW No.8/2010</li> </ul>	Implemented
WM10	The reuse of inert C&D materials such as soil, rock and broken concrete should be maximised. Waste should be separated into fine, soft and hard materials. With the use of a crusher, coarse materials can be crushed to make it suitable for use as fill materials where fill is required in the works. This minimises the use of imported materials and maximises the use of the C&D materials produced. Approval from CEDD and EPD shall be obtained for the use of site crusher in accordance with WBTC No. 11/2002.	Ensure proper waste management system throughout the construction in order to reduce waste generation	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>WBTC No. 11/2002</li> </ul>	Implemented
WM11	<u>Excavated Materials</u> Excavated materials should be temporarily stored on-site for use as backfill as far as possible. It should be properly covered with tarpaulin or similar impervious sheeting to prevent dust nuisance and site runoff. Surplus excavated materials should be disposed of to public fill reception facilities.	Minimize dust, site runoff and waste impacts from excavated and C&D materials	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>Air Pollution Control Ordinance</li> <li>To control the dust impact to meet HKAQO and EIAO-TM criteria</li> </ul>	Implemented



EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
WM12	Control measures for temporary stockpiles on-site should be taken, which include: <ul style="list-style-type: none"> <li>• Surface of stockpiled soil should be regularly wetted with water especially during dry season;</li> <li>• Disturbance of stockpiled soil should be minimized;</li> <li>• Stockpiled soil should be properly covered with tarpaulin especially when heavy rainstorms are predicted;</li> <li>• Stockpiling areas should be enclosed where space is available;</li> <li>• Stockpiling location should be away from the water bodies; and</li> <li>• An independent surface water drainage system equipped with silt traps should be installed at the stockpiling area.</li> </ul>	Minimize the noise, generation of dust, pollution of water and visual impact from excavated and C&D materials	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Waste Disposal Ordinance</li> <li>• Air Pollution Control Ordinance</li> <li>• To control the dust impact to meet HKAQO and EIAO-TM criteria.</li> <li>• ETWB TC(W) No.19/2005</li> </ul>	Implemented
WM13	The Public Fill Committee of CEDD should be consulted for disposal of inert C&D materials to public fill reception facilities while EPD should be consulted for disposal of non-inert C&D materials to landfill. Disposal of C&D waste to landfill must not have more than 50% (by weight) inert material. The C&D waste delivered for landfill disposal should contain no free water and the liquid content should not exceed 70% by weight.	Minimise waste impacts from C&D materials	Contractor	All construction sites	Design and Construction stages	<ul style="list-style-type: none"> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> <li>• DEVB TCW No.6/2010</li> <li>• DEVB TCW No.8/2010</li> </ul>	Implemented
WM14	In order to avoid dust impacts, any vehicle leaving a works area carrying C&D waste or public fill should have their load covered up before leaving the construction site.	Minimize the dust impact from transferring C&D materials	Contractor	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>• Air Pollution Control Ordinance</li> <li>• ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> </ul>	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
						<ul style="list-style-type: none"> <li>• DEVB TCW No.6/2010</li> <li>• DEVB TCW No.8/2010</li> </ul>	
WM15	C&D materials should be disposed of at designated public fill reception facilities or landfills. Disposal of these materials for the use at other construction projects is subject to the approval of the Engineer and/or other relevant reception authorities. Furthermore, unauthorised disposal of C&D materials in particular on private agricultural land is prohibited and may be subject to relevant enforcement and regulating actions. The disposal of public fill and C&D materials will be controlled through trip-ticket system in accordance with DEVB TC(W) No. 6/2010.	Minimise waste impacts from C&D materials	Contractor	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> <li>• DEVB TCW No.6/2010</li> <li>• DEVB TCW No.8/2010</li> </ul>	Implemented
WM16	<u>Chemical Waste</u> Where the construction processes produce chemical waste, the contractor must register with EPD as a chemical waste producer. Wastes classified as chemical wastes are listed in the Waste Disposal (Chemical Waste) (General) Regulation. These wastes are subject to stringent disposal routes. EPD requires information on the particulars of the waste generation processes including the types of waste produced, their location, quantities and generation rates. A nominated contact person must be registered with EPD. An updated list of licensed chemical waste collector can be obtained from EPD.	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	<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>	Implemented
WM17	Storage, handling, transport, and disposal of chemical waste should be arranged in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published by EPD, and collected by a licensed chemical waste collector.	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>• Waste Disposal (Chemical Waste) (General) Regulation</li> <li>• Code of Practice on the Packaging Labelling and</li> </ul>	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
						Storage of Chemical Waste	
WM18	Suitable containers should be used for specific types of chemical wastes. The containers should be properly labelled (in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations), resistance to corrosion, stored safely and closely secured. Stored volume should not be kept more than 450 liters unless the specification has been approved by the EPD. Storage area should be enclosed by three sides by a wall, partition of fence that is at least 2 m height or height of tallest container with adequate ventilation and space.	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	<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>	Implemented
WM19	Hard standing, impermeable surfaces draining via oil interceptors should be provided in works area compounds. Interceptors should be regularly emptied to prevent release of oils and grease into the surface water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain. Oil and fuel bunkers should be bunded and/or enclosed on three sides to prevent discharge due to accidental spillages or breaches of tanks. Bunding should be of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste, whichever is largest. Waste collected from any oil interceptors should be collected and disposed of by a licensed collector.	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> <li>Waste Disposal (Chemical Waste) (General) Regulation</li> <li>EIAO-TM criteria</li> </ul>	Implemented
WM20	Lubricants, waste oils and other chemical wastes are likely to be generated during the maintenance of vehicles and mechanical equipment. Used lubricants should be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>Waste Disposal (Chemical Waste) (General) Regulation</li> <li>Code of Practice on the Packaging</li> </ul>	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	designated secure place. The chemical waste shall be collected by licensed chemical waste collectors.					Labelling and Storage of Chemical Waste	
WM21	The registered chemical waste producer (i.e. the contractor) has to arrange for the chemical waste to be collected by licensed collectors. The licensed collector should regularly take chemical waste to a licensed chemical waste treatment facility (such as the CWTC in Tsing Yi). A trip ticket system operates to control the movement of chemical wastes.	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	• Waste Disposal (Chemical Waste) (General) Regulation	Implemented
WM22	No lubricants, oils, solvents or paint products should be allowed to discharge into water courses, either by direct discharge, or as contaminants carried in surface water runoff from the construction site.	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	• Waste Disposal (Chemical Waste) (General) Regulation	Implemented
WM23	<u>General Refuse</u> General refuse should be disposed of to landfill as designated by EPD only after recyclable materials (e.g. paper, metals, aluminium cans, etc.) have been sorted out.	Minimise production of the general refuse and avoid odour, pest and litter impacts	Contractors	All construction sites	Construction stage	• Waste Disposal Ordinance • Public Health and Municipal Services Ordinance (Cap.132)	Implemented
WM24	The contractor should nominate approved site personnel to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the site. Training of site personnel about site cleanliness, proper waste management and chemical handling procedures should be provided. Recyclable materials such as papers and aluminium cans should be separated and delivered to the local recyclers. An adequate number of waste containers should be provided to avoid spillage of waste.	Minimise production of the general refuse and avoid odour, pest and litter impacts	Contractors	All construction sites	Construction stage	• Waste Disposal Ordinance • Public Health and Municipal Services Ordinance (Cap.132)	Implemented
WM25	General refuse generated on-site should be stored in enclosed bins or skips and collected separately from other construction and chemical wastes and disposed of at	Minimise production of the general refuse and	Contractors	All construction sites	Construction stage	• Waste Disposal Ordinance	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	designated landfills by reputable waste collectors. The removal of waste from the site should be arranged on a daily basis or at least on every second day by the contractor to minimise any potential odour impacts, minimise the presence of pests, vermin and other scavengers and prevent unsightly accumulation of waste.	avoid odour, pest and litter impacts				• Public Health and Municipal Services Ordinance (Cap.132)	
<b>Waste Management (Operation Phase)</b>							
WM26	The general refuse and chemical waste generated during the operation phase would follow the same handling procedures and disposal method presented in Sections 6.6.16 to 6.6.25 of the EIA report. It is expected that there would be limited quantities of general refuse and chemical waste to be generated from the operation of the Project and will be properly handled by licensed chemical waste collectors and reputable waste collector. Waste monitoring and audit programme for the operation phase of the Project would not be required.	Minimise production of the general refuse and avoid odour, pest and litter impacts	Relevant Operators	All construction sites	Operation Stage	<ul style="list-style-type: none"> <li>• Waste Disposal Ordinance</li> <li>• Waste Disposal (Chemical Waste) (General) Regulation</li> <li>• Code of Practice on the Packaging Labelling and Storage of Chemical Waste</li> <li>• Public Health and Municipal Services Ordinance (Cap.132)</li> </ul>	To be implemented
<b>Ecology</b>							
E1	Direct impact to the recognised site of conservation importance (Lion Rock Country Park)/habitats with high ecological values (e.g. watercourse, woodland, species of conservation interest shall be avoided.	Avoid any direct impacts to these sites of conservation importance /habitats with high ecological value	Detailed Design Consultant	Sites of conservation importance/ habitats with high ecological value	Design Stage	TM-EIAO	To be implemented



EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
E2	To minimise habitat loss to the nearby habitats and associated wildlife, the following mitigation measures should be implemented: <ul style="list-style-type: none"> <li>• Confining the works within the Project Boundary;</li> <li>• Controlling access of site staff to avoid damage to the vegetation in surrounding areas; and</li> <li>• Placement of equipment or stockpile in the existing disturbed / urbanised area within the Project Boundary of the Project to minimise disturbance to vegetated area.</li> </ul>	Minimise habitat loss to the nearby habitats and associated wildlife	Contractor	All construction sites	Construction Stage	TM-EIAO	Implemented
E3	<u>Reinstatement and enhancement of temporarily affected habitats.</u> Minor ecological impacts may arise from the temporary loss of plantation and developed area during construction phase. In general, replanting would be implemented upon the completion of the construction works to reinstate the temporarily affected areas to condition similar to original status.	Enhance the temporarily affected habitats	Contractor	All construction sites	Construction stage	TM-EIAO	To be implemented
E4	<u>Minimizing Disturbance from Construction Activities</u> Mitigation measures including, but not limited to, erection of site hoarding, use of Quality Powered Mechanical Equipment (QPME), noise and dust reduction tarpaulin sheeting and good site practices throughout construction phase are shown as followings: <ul style="list-style-type: none"> <li>• Site hoarding would be established around the proposed tunnel portal and E&amp;M building prior to the commencement of construction works to prevent construction activities from encroaching adjacent habitats as well as prevent unnecessary human activities in the surrounding habitats;</li> <li>• QPME, noise and dust reduction tarpaulin sheeting could be used during construction phase to reduce noise disturbance and dust emission. Temporary</li> </ul>	To minimise disturbance from construction activities	Contractor	All construction sites	Construction stage	TM-EIAO	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	<p>barriers such as movable noise barrier, temporary noise screening structures and site hoardings could further reduce the noise impact;</p> <ul style="list-style-type: none"> <li>• Good site practices such as regular water spraying at dusty operation, provision of waste skips and timely collection of general refuse and construction waste are also recommended.</li> </ul>						
E5	Reduction of lighting can be achieved using directional lighting to prevent excessive light spill into adjacent natural habitat and disturbance to nocturnal fauna. .	To minimize disturbance from construction activities	Contractor	All construction sites	Construction stage	TM-EIAO	Implemented
E6	<p><u>Control of Site Runoff</u></p> <p>Best management practices should be implemented on site in accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94) as far as practicable to control site runoff and drainage at all work sites during construction phase, so that the treated runoff will be discharged to public drainage system in compliance with the WPCO. Construction effluent, site run-off and sewage should be properly collected and/or treated.</p> <p>Wastewater from a construction site should be managed. Proper locations for discharge outlets of wastewater treatment facilities well away from the natural watercourses should be identified. Effluent monitoring should be incorporated to make sure that the discharged effluent from construction sites meets the effluent discharge guidelines. The practices outlined in ETWB TC (Works) No. 5/2005 “Protection of natural streams/rivers from adverse impacts arising from construction works” should also be adopted where applicable to minimise the water quality impacts upon the channalised/semi-natural</p>	To control site runoff and drainage at all work sites, thus, the aquatic ecosystem is protected.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN. 1/94</li> </ul>	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	watercourses, in order to better protect the aquatic ecosystem.						
E7	<u>Control of Groundwater Infiltration</u> In order to minimise groundwater infiltration or avoid potential impacts on watercourses, water table and groundwater drawdown, minimization approach was adopted during design stage and would be adopted during construction and operation phase.	To minimize groundwater infiltration / avoid potential impacts on watercourses	Contractor	Works area at Cavern and tunnel portal	Design stage / Construction stage / Operation Stage	EIAO-TM	To be implemented
E8	The proposed cavern would be constructed under the measured groundwater table. Water inflow would be controlled to an acceptable level by implementing pre-grouting and post-grouting measures, thus the impact of the proposed cavern on the groundwater table is considered to be limited.	To minimize groundwater infiltration / avoid potential impacts on watercourses	Contractor	Works area at Cavern and tunnel portal	Design stage / Construction stage / Operation Stage	EIAO-TM	To be implemented
E9	The permanent tunnel structure of the proposed access tunnel would be designed as drained type at the locations with adequate rock cover and designed as undrained type at locations with mix ground conditions. The water inflow would also be controlled to an acceptable level with pre-grouting and postgrouting measures.	To minimize groundwater infiltration / avoid potential impacts on watercourses	Contractor	Works area at Cavern and tunnel portal	Design stage / Construction stage / Operation Stage	EIAO-TM	To be implemented
E10	During operation phase, waterproof lining would be installed to prevent water seepage and water droplets (if any) would be discharged into the sewage system	To minimize groundwater infiltration / avoid potential impacts on watercourses	Contractor	Works area at Cavern and tunnel portal	Design stage / Construction stage / Operation Stage	EIAO-TM	To be implemented
E11	All the mitigation measures regarding potential groundwater infiltration concern that has been proposed in Section 5.8.7 shall be followed.	To minimize groundwater infiltration / avoid potential impacts on watercourses	Contractor	Works area at Cavern and tunnel portal	Design stage / Construction stage / Operation Stage	EIAO-TM	To be implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
<b><i>Landscape and Visual (Construction Phase)</i></b>							
CM1	<u>Careful Site Planning and Management</u> <ul style="list-style-type: none"> <li>The site layout and works area including temporary access road(s), stockpiling area(s), temporary construction storage shall be carefully planned to preserve existing landscape resources and trees as far as practicable.</li> <li>Good site practices shall be enforced to eliminate eyesores from unappealing stockpiling/ storage areas and/or construction activities.</li> </ul>	To minimize site clearance, tree removal and disturbance to existing Landscape Resources, and visual obstruction to VSRs	Project Proponent (via Contractor)	All construction areas	Construction stage	N/A	Implemented
CM2	<u>Careful Design of Slope Works</u> <ul style="list-style-type: none"> <li>Slope stabilization methods (i.e., insertion of soil nails and establishment of grillage, etc.) shall be carefully formulated to minimise the loss of tree and landscape cover as far as practicable.</li> </ul>	To minimize tree removal and to create a slope surface better blending with the surrounding environment	Project Proponent (via Contractor)	Works area at Cavern and tunnel portal	Construction stage	N/A	Implemented
CM3	<u>Tree Preservation</u> <ul style="list-style-type: none"> <li>In accordance with DEVB TC (W) No.4/2020 – Tree Preservation or its latest version, existing vegetation shall be retained on site as far as practicable.</li> <li>Adequate tree protection measures shall be provided for the Trees to be retained on site. Relevant guidelines on tree care and protection promulgated by Greening, Landscape and Tree Management Section of Development Bureau shall be observed and followed.</li> </ul>	To minimize tree removal	Project Proponent (via Contractor)	All construction areas	Construction stage	N/A	Implemented after observation
CM4	<u>Tree Transplanting/ Compensatory Tree Planting</u> <ul style="list-style-type: none"> <li>Trees unavoidably affected by the project shall be transplanted as far as practicable in accordance with DEVB TC (W) No.4/2020 – Tree Preservation or its latest version and the latest guidelines promulgated by</li> </ul>	To minimize the loss of trees To compensate for the loss of tree	Project Proponent (via Contractor)	All construction areas	Construction stage	DEVB TC(W) No. 4/2020- Tree Reservation	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	<p>Greening, Landscape and Tree Management Section of Development Bureau.</p> <ul style="list-style-type: none"> <li>Affected trees that are not suitable for transplantation and to be felled shall be compensated in not less than 1:1 in quantity and in accordance with DEVB TC (W) No.4/2020 – Tree Preservation or its latest version.</li> <li>Onsite compensation has been prioritized. However, due to land status issues, area of onsite compensatory planting locations are insufficient to compensate for the loss of trees and near site compensatory locations managed by WSD are adopted, as shown in Figure 9.9, Figure 9.10A, Figure 9.10B and Figure 9.11 of the EIA report.</li> <li>Tree species selected shall be compatible with surrounding existing vegetation.</li> </ul>	To provide quality and sustainable landscape that is compatible with the site context					
CM5	<p><u>Inspection of Tree Works</u></p> <ul style="list-style-type: none"> <li>Regular site inspection shall be conducted by tree specialist.</li> </ul>	To closely monitor the site activities in order to avoid or minimize any possible adverse impact to the retained trees	Project Proponent (via Contractor)	All construction areas	Construction stage	N/A	Implemented
CM6	<p><u>Minimization of Light Impact</u></p> <ul style="list-style-type: none"> <li>Lighting at construction sites shall be carefully controlled at night</li> </ul>	To avoid disturbance to nearby VSRs	Project Proponent (via Contractor)	All construction areas and temporary works areas	Construction stage	N/A	Implemented
CM7	<p><u>Erection of Decorative Site Hoarding</u></p> <ul style="list-style-type: none"> <li>Decorative hoarding that is compatible with the surrounding environment shall be erected during construction.</li> </ul>	To enhance the visual amenity of construction hoarding	Project Proponent (via Contractor)	All construction areas and temporary work areas	Construction stage	N/A	To be implemented



EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
CM8	<u>Reinstatement of Temporarily Disturbed Areas</u> <ul style="list-style-type: none"> <li>Temporarily disturbed landscape areas shall be reinstated.</li> </ul>	To reinstate the disturbed landscape	Project Proponent (via Contractor)	All construction areas and temporary work areas	Construction stage	N/A	To be implemented
<b><i>Landscape and Visual (Operation Phase)</i></b>							
OM1	<u>Landscape Planting</u> <ul style="list-style-type: none"> <li>Landscape planting shall be provided in accordance with DEVB TCW No.3/2012 – Site Coverage of Greenery for Government Building Projects or its latest version.</li> <li>Planting species shall be compatible with the nearby existing vegetation cover as far as practicable.</li> <li>Not less than 12-month establishment after completion shall be provided for the landscape planting.</li> </ul>	To soften the hard edges of the structure and make it more compatible with the surrounding environment	Project Proponent (via Contractor)	Ancillary building	Operation stage	DEVB TCW No.3/2012	To be implemented
OM2	<u>Rooftop Greening</u> Rooftop greening shall be implemented with reference to the references on skyrise greenery provided by the Greening, Landscape & Tree Management Section, Development Bureau.	To make the ancillary facilities more compatible with the surrounding woodland landscape and to mitigate the potential adverse visual impact on adjacent residential VSRs viewing from an elevated vantage point	Project Proponent (via Contractor)	Ancillary building	Operation stage	N/A	To be implemented
OM3	<u>Vertical Greening</u> Vertical greening shall be provided.	To enhance the visual amenity of the ancillary	Project Proponent	Ancillary building	Operation stage	N/A	To be implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
		facilities and to blend in with the surrounding landscape	(via Contractor)				
OM4	<u>Careful Design of Ancillary Facilities</u> <ul style="list-style-type: none"> <li>The orientation and location of the ancillary facilities shall be carefully designed. Its finish shall be non-reflective and dull in colour.</li> <li>The ancillary facilities are unmanned structures that merely require minimal security services during daytime. There shall be nobody and no lighting illuminating from the buildings at night, except essential street lighting for the portal access road.</li> </ul>	To avoid glare impact to surrounding VSRs	Project Proponent (via Contractor)	Ancillary building	Operation stage	N/A	To be implemented

## **Appendix E**

### **Air Quality and Noise Monitoring Equipment Calibration Certification**

## Sibata LD-5R K-Factor Verification Test by Total Suspended Particulates HVS Test Report

### Information of Calibrated Equipment

Verification Test Date:	28-Nov-23	to	30-Nov-23	Next Verification Test Date:	28-Nov-24
Unit-under-Test- Model No.:	Sibata LD-5R				
Unit-under-Test Serial No.:	0Z4545				
Our Report Reference No.:	RPT-23-HVS-0065				
Calibration Location:	AM2, location near the Leachate Treatment Works within the NENTX Landfill				

### Standard Equipment Information

Verification Equipment Type:	Tisch TSP HVS	Tisch HVS Calibrator
Standard Equipment Model No.:	TE-5170X	TE-5025A
Equipment serial no.:	1106	4166
Last Calibration Date:	4-Nov-23	19-Jun-23
Next Calibration Date:	3-Jan-24	19-Jun-24

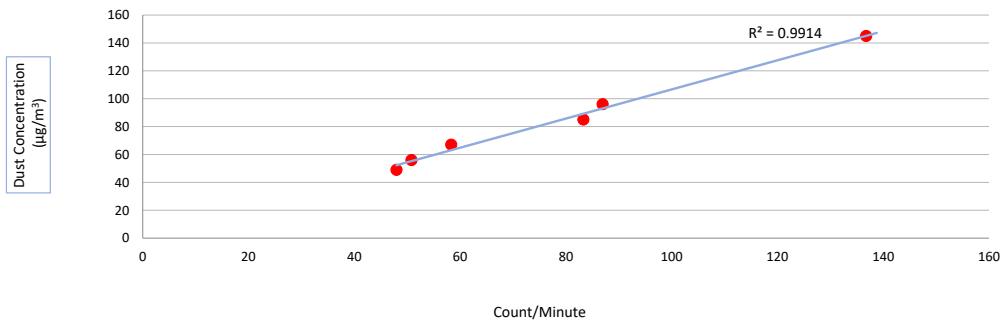
### Equipment Verification Result

Verification Test No.	Date	Duration			Results from Calibrated Equipment		Results from Standard Equipment
		Start-time	End-time	Elapsed Time (in min)	Total Counts	Counts/ Minute x-axis	Dust Concentration ( $\mu\text{g}/\text{m}^3$ ) y-axis
1	28/11/2023	8789.68	8792.68	180.00	15648	87	96
2	28/11/2023	8792.68	8795.68	180.00	14993	83	85
3	28/11/2023	8795.68	8798.68	180.00	8635	48	49
4	30/11/2023	8798.68	8801.68	180.00	10501	58	67
5	30/11/2023	8801.68	8804.68	180.00	24622	137	145
6	30/11/2023	8804.68	8807.68	180.00	9145	51	56

### Linear Regression of y on x

Slope, K factor:	1.0451	Intercept:	2.1545	*Correlation Coefficient,R:	0.9957
Verification Test Result:	Strong Correlation, Results were accepted.				* If the Correlation Coefficient, R is <0.5. Checking and Re-verification are required.

Verification Curve



Operated By:

Andy Li

Project Technician, Environmental

Date: 30-11-2023

Checked By:

Tandy Tse

Senior Consultant, Environmental

Date: 30-11-2023

## Sibata LD-5R K-Factor Verification Test by Total Suspended Particulates HVS Test Report

### Information of Calibrated Equipment

Verification Test Date:	28-Nov-23	to	30-Nov-24	Next Verification Test Date:	28-Nov-24
Unit-under-Test- Model No.:	Sibata LD-5R				
Unit-under-Test Serial No.:	882106				
Our Report Reference No.:	RPT-23-HVS-0068				
Calibration Location:	AM2, location near the Leachate Treatment Works within the NENTX Landfill				

### Standard Equipment Information

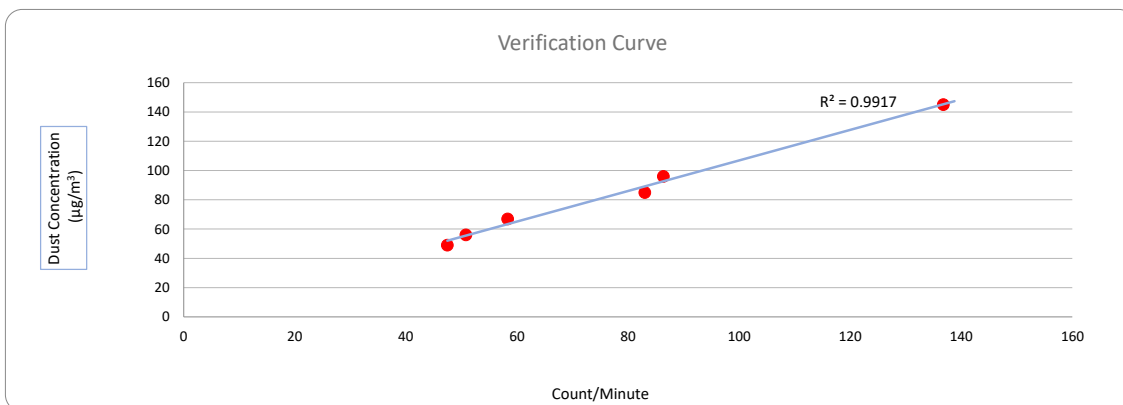
Verification Equipment Type:	Tisch TSP HVS	Tisch HVS Calibrator
Standard Equipment Model No.:	TE-5170X	TE-5025A
Equipment serial no.:	1106	4166
Last Calibration Date:	4-Nov-23	19-Jun-23
Next Calibration Date:	3-Jan-24	19-Jun-24

### Equipment Verification Result

Verification Test No.	Date	Duration			Results from Calibrated Equipment		Results from Standard Equipment
		Start-time	End-time	Elapsed Time (in min)	Total Counts	Counts/ Minute x-axis	Dust Concentration ( $\mu\text{g}/\text{m}^3$ ) y-axis
1	28/11/2023	8789.68	8792.68	180.00	15546	86	96
2	28/11/2023	8792.68	8795.68	180.00	14944	83	85
3	28/11/2023	8795.68	8798.68	180.00	8543	47	49
4	30/11/2023	8798.68	8801.68	180.00	10499	58	67
5	30/11/2023	8801.68	8804.68	180.00	24622	137	145
6	30/11/2023	8804.68	8807.68	180.00	9145	51	56

### Linear Regression of y on x

Slope, K factor:	<u>1.0437</u>	Intercept:	<u>2.4993</u>	*Correlation Coefficient, R:	<u>0.9958</u>
Verification Test Result:	<u>Strong Correlation, Results were accepted.</u>			* If the Correlation Coefficient, R is <0.5. Checking and Re-verification are required.	



Operated By:

Andy Li

Project Technician, Environmental

Date:

30-11-2023

Checked By:

Tandy Tse

Senior Consultant, Environmental

Date:

30-11-2023



## Sibata LD-5R K-Factor Verification Test by Total Suspended Particulates HVS Test Report

### Information of Calibrated Equipment

Verification Test Date:	<b>28-Nov-23</b>	to	<b>30-Nov-23</b>	Next Verification Test Date:	<b>28-Nov-24</b>
Unit-under-Test- Model No.:	Sibata LD-5R				
Unit-under-Test Serial No.:	942532				
Our Report Reference No.:	RPT-23-HVS-0071				
Calibration Location:	AM2, location near the Leachate Treatment Works within the NENTX Landfill				

### Standard Equipment Information

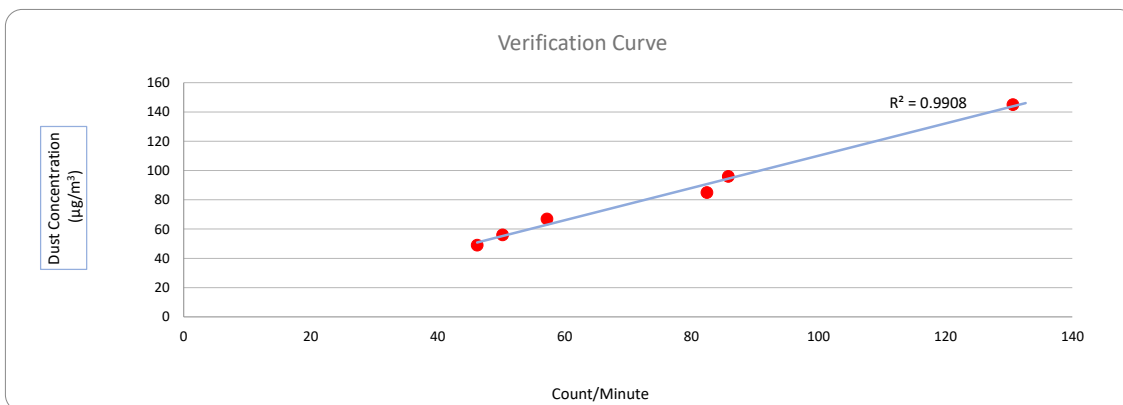
Verification Equipment Type:	Tisch TSP HVS	Tisch HVS Calibrator
Standard Equipment Model No.:	TE-5170X	TE-5025A
Equipment serial no.:	1106	4166
Last Calibration Date:	4-Nov-23	19-Jun-23
Next Calibration Date:	3-Jan-24	19-Jun-24

### Equipment Verification Result

Verification Test No.	Date	Duration			Results from Calibrated Equipment		Results from Standard Equipment
		Start-time	End-time	Elapsed Time (in min)	Total Counts	Counts/ Minute x-axis	Dust Concentration ( $\mu\text{g}/\text{m}^3$ ) y-axis
1	28/11/2023	8789.68	8792.68	180.00	15446	86	96
2	28/11/2023	8792.68	8795.68	180.00	14835	82	85
3	28/11/2023	8795.68	8798.68	180.00	8320	46	49
4	30/11/2023	8798.68	8801.68	180.00	10303	57	67
5	30/11/2023	8801.68	8804.68	180.00	23517	131	145
6	30/11/2023	8804.68	8807.68	180.00	9043	50	56

### Linear Regression of y on x

Slope, K factor:	<b><u>1.1020</u></b>	Intercept:	<b><u>-0.1223</u></b>	*Correlation Coefficient, R:	<b><u>0.9954</u></b>
Verification Test Result:	<b><u>Strong Correlation, Results were accepted.</u></b>				* If the Correlation Coefficient, R is <0.5. Checking and Re-verification are required.



Operated By:

Andy Li

Project Technician, Environmental

Date:

30-11-2023

Checked By:

Tandy Tse

Senior Consultant, Environmental

Date:

30-11-2023

# *Certificate of Calibration*

*for*

*Description:* *Sound Level Calibrator*

*Manufacturer:* *RION*

*Type No.:* *NC-74*

*Serial No.:* *34615222*

***Submitted by:***

*Customer:* *Aurecon Hong Kong Limited*

*Address:* *Unit 1608, 16/F, Tower B, Manulife Financial Centre,  
223-231 Wai Yip Street, Kwun Tong,  
Kowloon, Hong Kong*

**Upon receipt for calibration, the instrument was found to be:**

☒ **Within**

☐ **Outside**

**the allowable tolerance.**

The test equipments used for calibration are traceable to National Standards via:

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

**Date of receipt: 21 March 2024**

**Date of calibration: 27 March 2024**

**Date of NEXT calibration: 26 March 2025**

*Calibrated by:* \_\_\_\_\_  
*Calibration Technician*

*Certified by:* \_\_\_\_\_  
*Mr. Ng Yan Wa*  
*Laboratory Manager*

**Date of issue: 27 March 2024**



*Certificate No.: APJ23-154-CC001*

Page 1 of 2

**1. Calibration Precautions:**

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

**2. Calibration Specifications:**

Calibration check

**3. Calibration Conditions:**

Air Temperature: 22.5 °C  
Air Pressure: 1005 hPa  
Relative Humidity: 69.8 %

**4. Calibration Equipment:**

Test Equipment	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV220061	HOKLAS
Sound Level Meter	RION NA-28	30721812	AV220120	HOKLAS

**5. Calibration Results****5.1 Sound Pressure Level**

Nominal value dB	Accept lower level dB	Accept upper level dB	Measured value dB
94.0	93.6	94.4	94.2

Note:

The values given in this certification only related to the values measured at the time of the calibration.



Certificate No.: APJ23-154-CC001

Page 2 of 2

# *Certificate of Calibration*

*for*

**Description:** *Sound Level Meter*  
**Manufacturer:** *NTi Audio*  
**Type No.:** *XL2 (Serial No.: A2A-09696-E0)*  
**Microphone:** *ACO 7052 (Serial No.:73780)*  
**Preamplifier:** *NTi Audio MA220 (Serial No.:6282)*

***Submitted by:***

**Customer:** *Aurecon Hong Kong Limited*  
**Address:** *Unit 1608, 16/F, Tower B,  
Manulife Financial Centre,  
223-231 Wai Yip Street, Kwun Tong,  
Kowloon, Hong Kong.*

**Upon receipt for calibration, the instrument was found to be:**

☒ **Within (31.5Hz – 8kHz)**  
☐ **Outside**  
**the allowable tolerance.**

The test equipment used for calibration are traceable to National Standards via:

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

**Date of receipt:** 28 February 2024

**Date of calibration:** 02 March 2024

**Date of NEXT calibration:** 01 March 2025

**Calibrated by:**   
*Calibration Technician*

**Certified by:**   
*Mr. Ng Yan Wa*  
**Laboratory Manager**

**Date of issue:** 02 March 2024

**Certificate No.:** APJ23-146-CC003



Page 1 of 4



**1. Calibration Precaution:**

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

**2. Calibration Conditions:**

Air Temperature: 22.9°C  
Air Pressure: 1005 hPa  
Relative Humidity: 61.2 %

**3. Calibration Equipment:**

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV220061	HOKLAS

**4. Calibration Results**

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA SPL	Fast	94	1000	94.1	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA SPL	Fast	94	1000	94.1	Ref
			104		104.1	±0.3
			114		114.1	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA SPL	Fast	94	1000	94.1	Ref
		Slow			94.1	±0.3

Certificate No.: APJ23-146-CC003



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## Frequency Response

## Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dB	SPL	94	31.5	94.0	±2.0
				63	94.1	±1.5
				125	94.1	±1.5
				250	94.1	±1.4
				500	94.1	±1.4
				1000	94.1	Ref
				2000	94.4	±1.6
				4000	95.2	±1.6
				8000	94.5	+2.1; -3.1

## A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA	SPL	94	31.5	54.6	-39.4 ±2.0
				63	67.9	-26.2 ±1.5
				125	78.0	-16.1 ±1.5
				250	85.4	-8.6 ±1.4
				500	90.9	-3.2 ±1.4
				1000	94.1	Ref
				2000	95.6	+1.2 ±1.6
				4000	96.2	+1.0 ±1.6
				8000	93.4	-1.1 ±2.1; -3.1

## C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBC	SPL	94	31.5	91.0	-3.0 ±2.0
				63	93.3	-0.8 ±1.5
				125	93.9	-0.2 ±1.5
				250	94.1	-0.0 ±1.4
				500	94.2	-0.0 ±1.4
				1000	94.1	Ref
				2000	94.2	-0.2 ±1.6
				4000	94.4	-0.8 ±1.6
				8000	91.5	-3.0 ±2.1; -3.1

Certificate No.: APJ23-146-CC003



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## 5. Calibration Results Applied

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.10
	63 Hz	± 0.05
	125 Hz	± 0.05
	250 Hz	± 0.05
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:

The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)\*L shall not be liable for any loss or damage resulting from the use of the equipment.

Certificate No.: APJ23-146-CC003



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## **Appendix F**

### **Environmental Monitoring Schedule**

Contract No. 21/WSD/21

Relocation of Diamond Hill Fresh Water and Salt Water Service Reservoirs to Caverns

Tentative Impact Environmental Monitoring Schedule						
October 2024						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		1	2 Impact Air Quality and Noise Monitoring (DM-1, DM-2, DM-3, DM-4, DM-4a, NM-2, NM-3, NM-4, NM-4a, NM-5, NM-6)	3	4 Site inspection	5
6	7 Impact Air Quality and Noise Monitoring (DM-1, DM-2, DM-3, DM-4, DM-4a, NM-2, NM-3, NM-4, NM-4a, NM-5, NM-6)	8	9	10 Site inspection	11	12 Impact Air Quality Monitoring (DM-1, DM-2, DM-3, DM-4, DM-4a, NM-2, NM-3, NM-4, NM-4a, NM-5, NM-6)
13	14	15	16	17	18 Site inspection Impact Air Quality and Noise Monitoring (DM-1, DM-2, DM-3, DM-4, DM-4a, NM-2, NM-3, NM-4, NM-4a, NM-5, NM-6)	19
20	21	22	23	24 Impact Air Quality and Noise Monitoring (DM-1, DM-2, DM-3, DM-4, DM-4a, NM-2, NM-3, NM-4, NM-4a, NM-5, NM-6)	25 Site inspection	26
27	28	29	30 Impact Air Quality and Noise Monitoring (DM-1, DM-2, DM-3, DM-4, DM-4a, NM-2, NM-3, NM-4, NM-4a, NM-5, NM-6)	31		
The schedule may be changed due to unforeseen circumstances (e.g. adverse weather, etc.)						
Air Quality Monitoring Stations: DM-1 - Tennis Court near Tin Ma Court DM-2 - Chun Sing House, Tin Ma Court DM-3 - Grace Methodist Church Kindergarten DM-4 - Block 6, Tsui Chuk Garden DM-4a - Road pavement near Wang King House, Tin Wang Court			Noise Monitoring Stations: NM-2 - Chun Sing House, Tin Ma Court NM-3 - Grace Methodist Church Kindergarten NM-4 - Block 6, Tsui Chuk Garden NM-4a - Road pavement near Wang King House, Tin Wang Court NM-5 - Wo Tin House, Shatin Pass Estate NM-6 - Sheung Fung Street Customs Staff Quarters			

## **Appendix G**

### **Air Quality Monitoring Results and Graphical Presentation**

## Appendix G - 1-hour TSP Monitoring Results

DM-1 - Tennis Court near Tin Ma Court			
Date	Time	Weather	Particulate Concentration (µg/m³)
2 Oct 2024	8:00	Fine	60
	9:00		59
	10:00		62
7 Oct 2024	8:05	Fine	58
	9:05		60
	10:05		62
12 Oct 2024	8:00	Fine	58
	9:00		60
	10:00		62
18 Oct 2024	8:10	Fine	57
	9:10		58
	10:10		58
24 Oct 2024	8:03	Fine	57
	9:03		60
	10:03		59
30 Oct 2024	8:00	Fine	58
	9:00		56
	10:00		54
		Minimum	54
		Maximum	62
		Average	59

DM-2 - Chun Sing House, Tin Ma Court			
Date	Time	Weather	Particulate Concentration (µg/m³)
2 Oct 2024	8:30	Fine	58
	9:30		56
	10:30		57
7 Oct 2024	8:35	Fine	55
	9:35		57
	10:35		59
12 Oct 2024	8:20	Fine	59
	9:20		57
	10:20		58
18 Oct 2024	8:35	Fine	60
	9:35		57
	10:35		59
24 Oct 2024	8:23	Fine	56
	9:23		57
	10:23		57
30 Oct 2024	8:30	Fine	43
	9:30		45
	10:30		47
		Minimum	43
		Maximum	60
		Average	55



## Appendix G - 1-hour TSP Monitoring Results

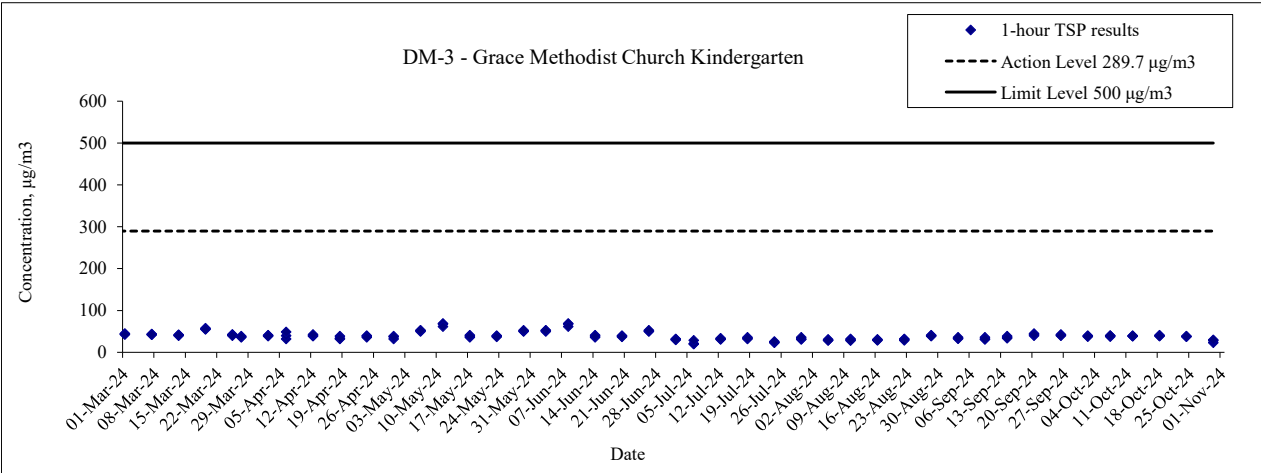
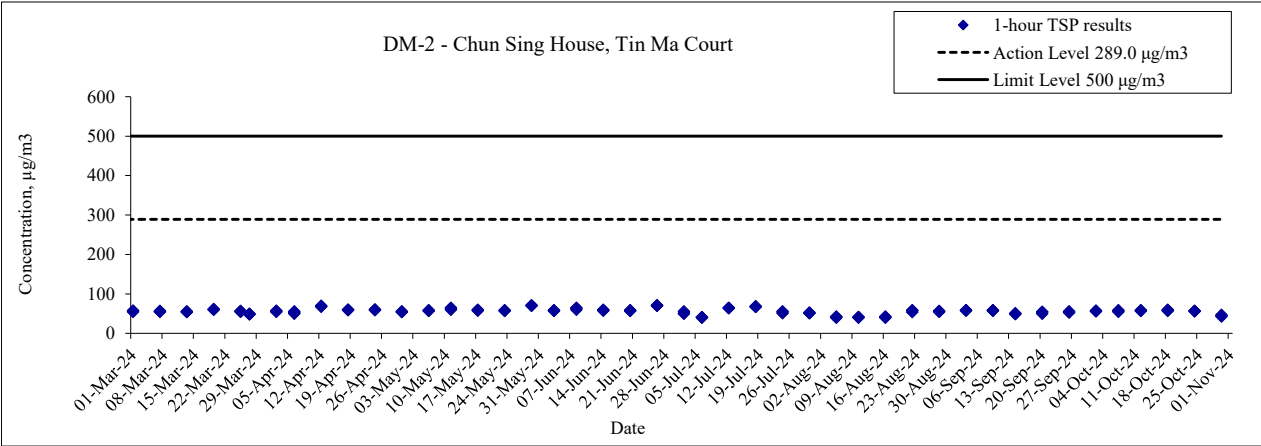
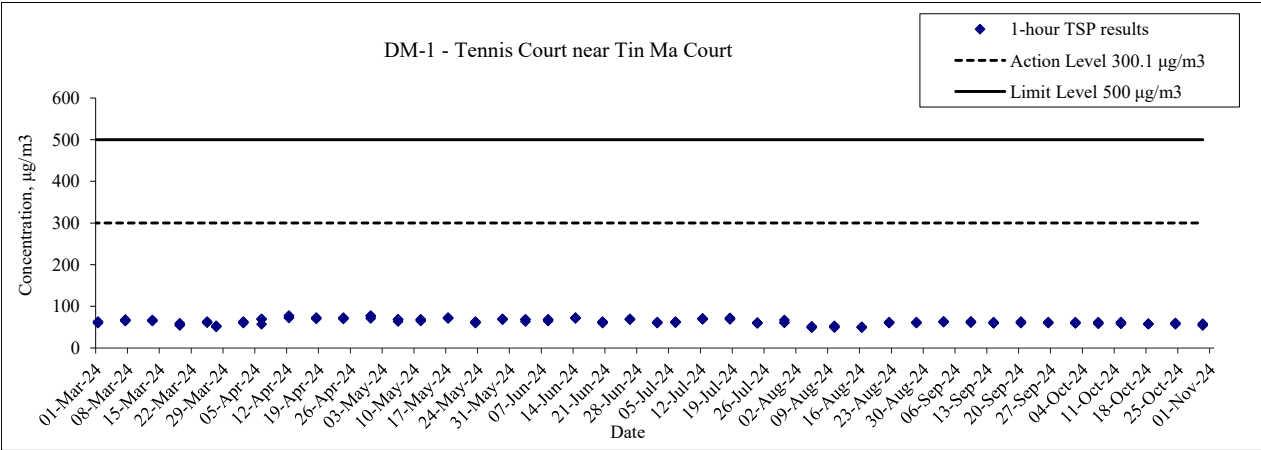
DM-3 - Grace Methodist Church Kindergarten			
Date	Time	Weather	Particulate Concentration (µg/m³)
2 Oct 2024	9:00	Fine	40
	10:00		39
	11:00		38
7 Oct 2024	9:00	Fine	38
	10:00		40
	11:00		40
12 Oct 2024	8:50	Fine	39
	9:50		39
	10:50		40
18 Oct 2024	9:02	Fine	40
	10:02		41
	11:02		39
24 Oct 2024	8:45	Fine	38
	9:45		38
	10:45		39
30 Oct 2024	8:45	Fine	23
	9:45		28
	10:45		30
		Minimum	23
		Maximum	41
		Average	37

DM-4 - Block 6, Tsui Chuk Garden			
Date	Time	Weather	Particulate Concentration (µg/m³)
2 Oct 2024	13:00	Fine	41
	14:00		42
	15:00		39
7 Oct 2024	13:00	Fine	43
	14:00		38
	15:00		39
12 Oct 2024	13:05	Fine	42
	14:05		45
	15:05		39
18 Oct 2024	13:11	Fine	40
	14:11		41
	15:11		40
24 Oct 2024	13:00	Fine	41
	14:00		43
	15:00		37
30 Oct 2024	13:00	Fine	51
	14:00		48
	15:00		46
		Minimum	37
		Maximum	51
		Average	42

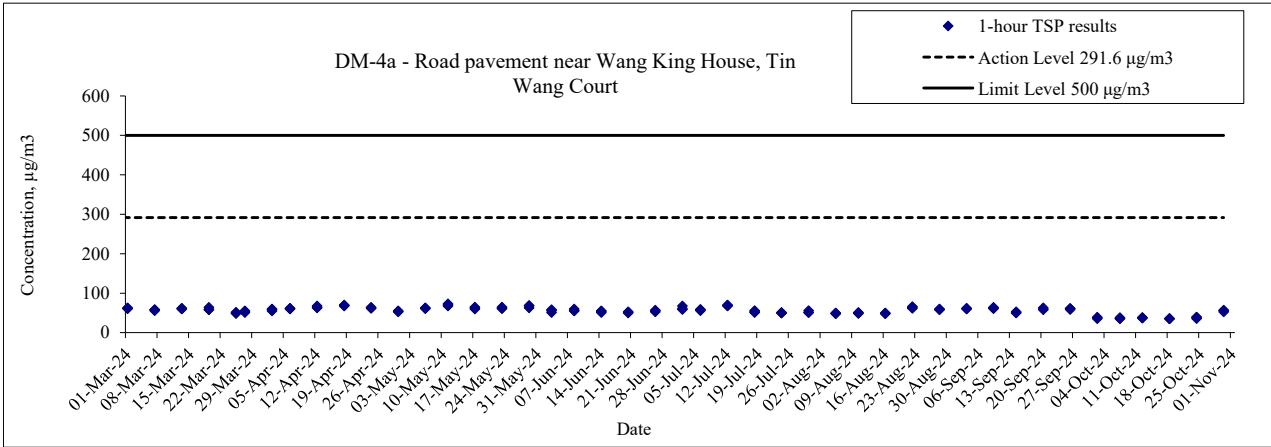
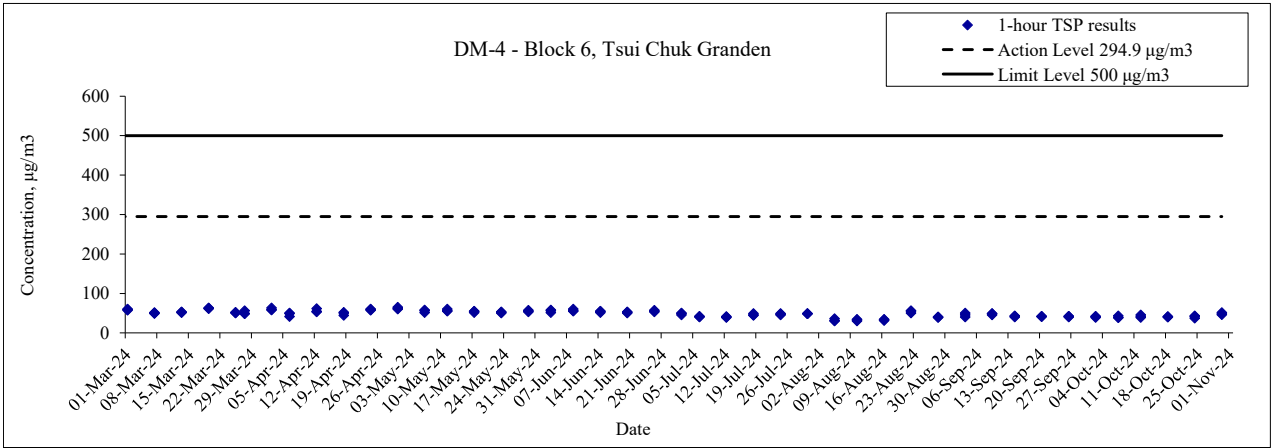
## Appendix G - 1-hour TSP Monitoring Results

DM-4a - Road pavement near Wang King House, Tin Wang Court			
Date	Time	Weather	Particulate Concentration (µg/m³)
2 Oct 2024	13:20	Fine	37
	14:20		39
	15:20		36
7 Oct 2024	13:25	Fine	36
	14:25		38
	15:25		36
12 Oct 2024	13:15	Fine	37
	14:15		38
	15:15		38
18 Oct 2024	13:30	Fine	35
	14:30		36
	15:30		36
24 Oct 2024	13:20	Fine	39
	14:20		36
	15:20		39
30 Oct 2024	13:15	Fine	57
	14:15		56
	15:15		53
		Minimum	35
		Maximum	57
		Average	40

1-hour TSP Concentration Level



1-hour TSP Concentration Level



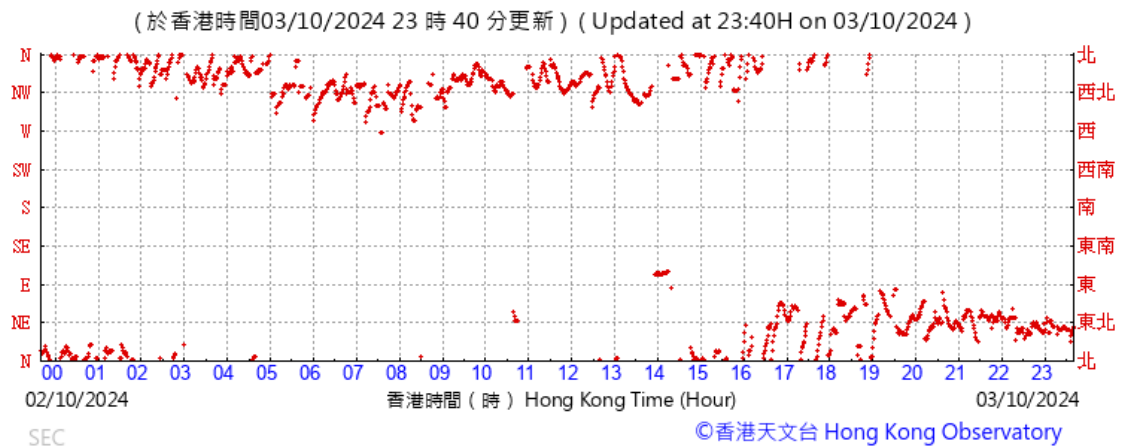
## **Appendix H**

### **Extract of Meteorological Observations for Hong Kong (Kai Tak)**



## Appendix H - Extract of Meteorological Observations for Hong Kong (Kai Tak Wind Station)

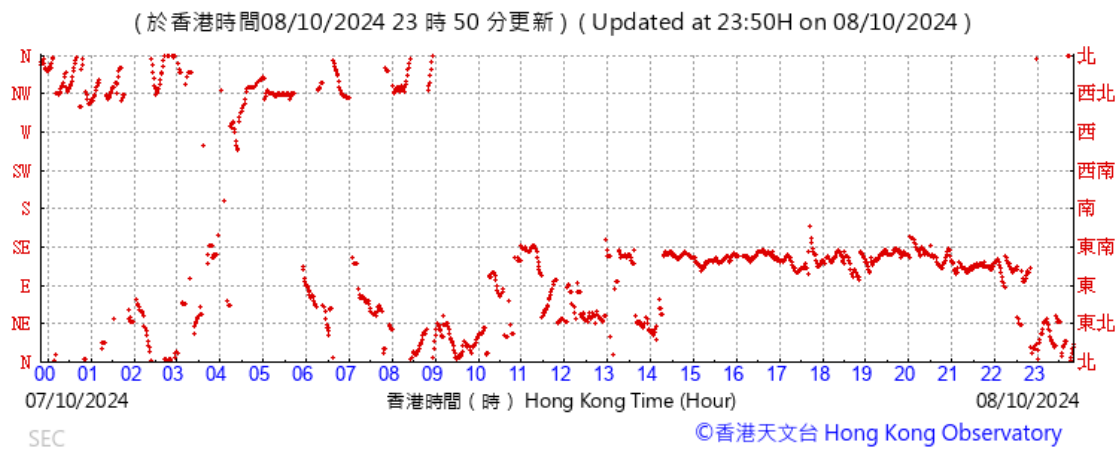
### Wind Direction



### Wind Speed



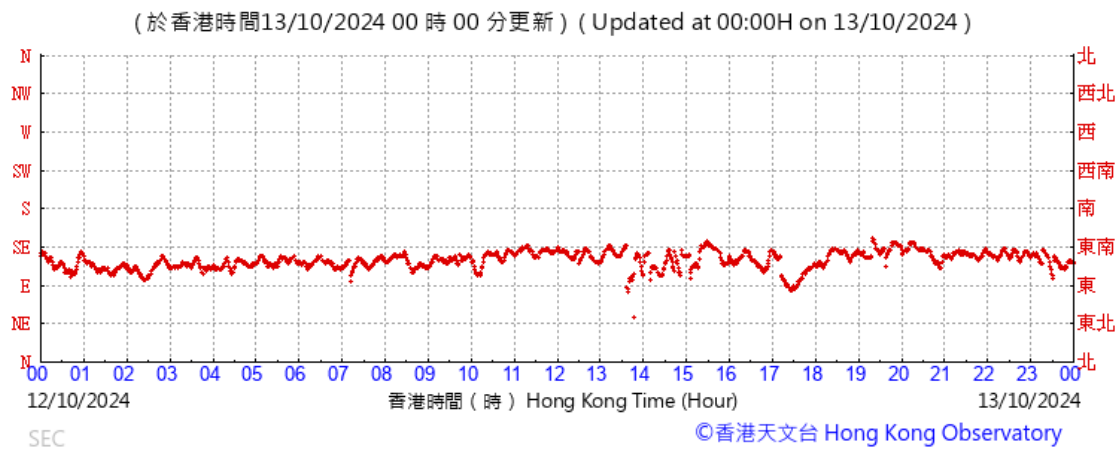
## Wind Direction



## Wind Speed



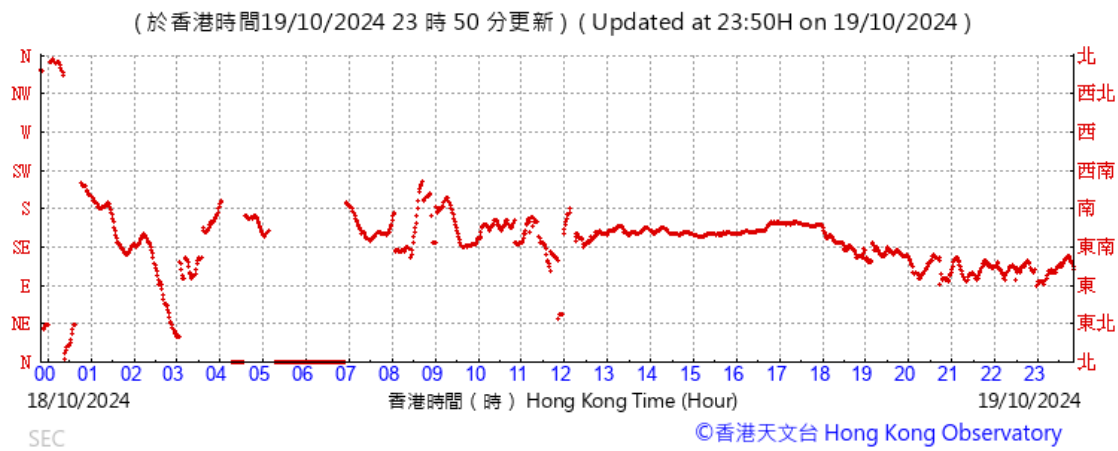
## Wind Direction



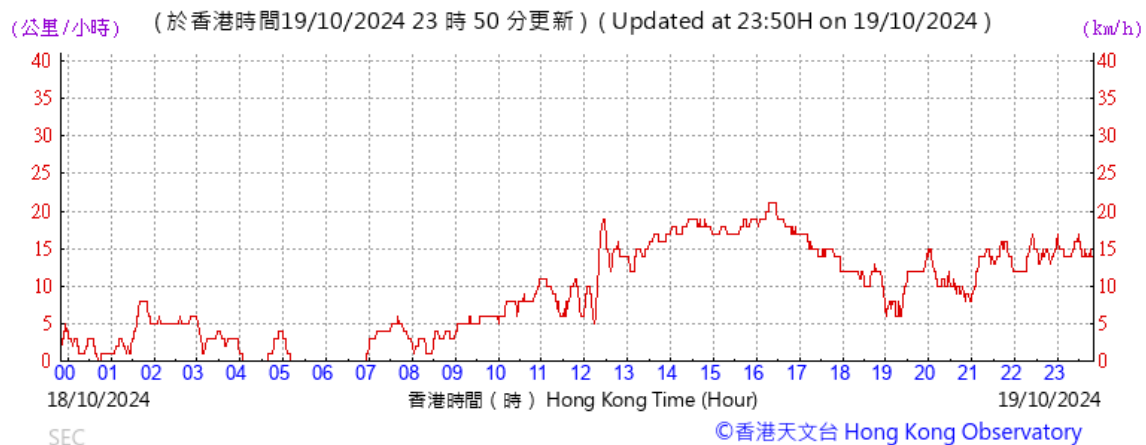
## Weed Speed



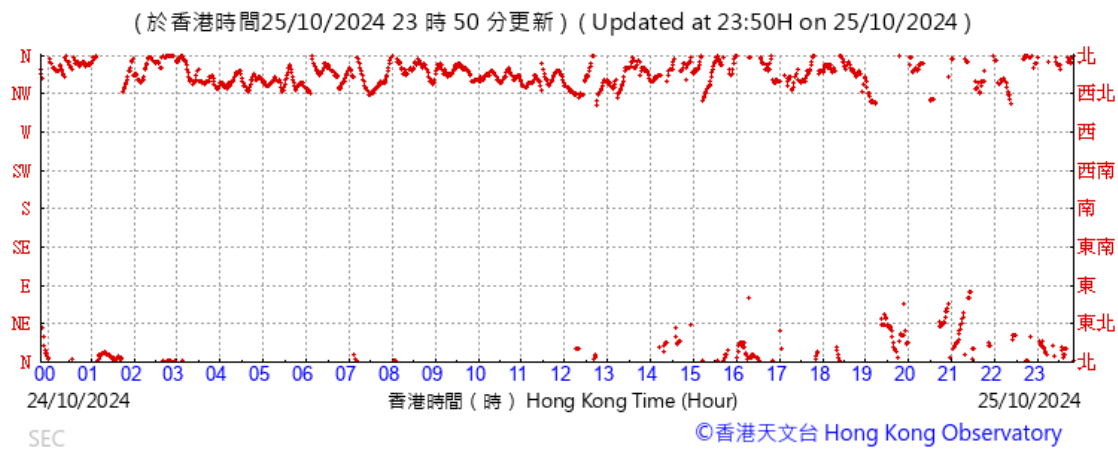
## Wind Direction



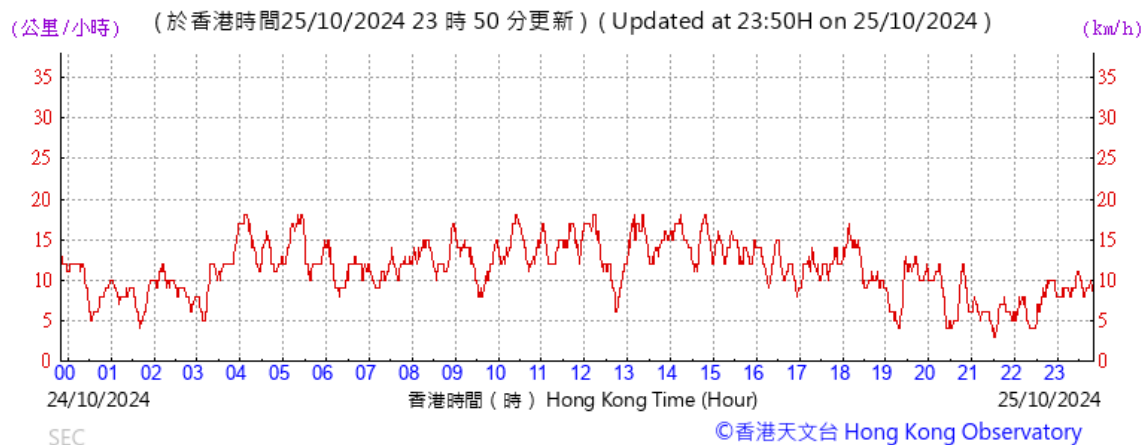
## Wind Speed



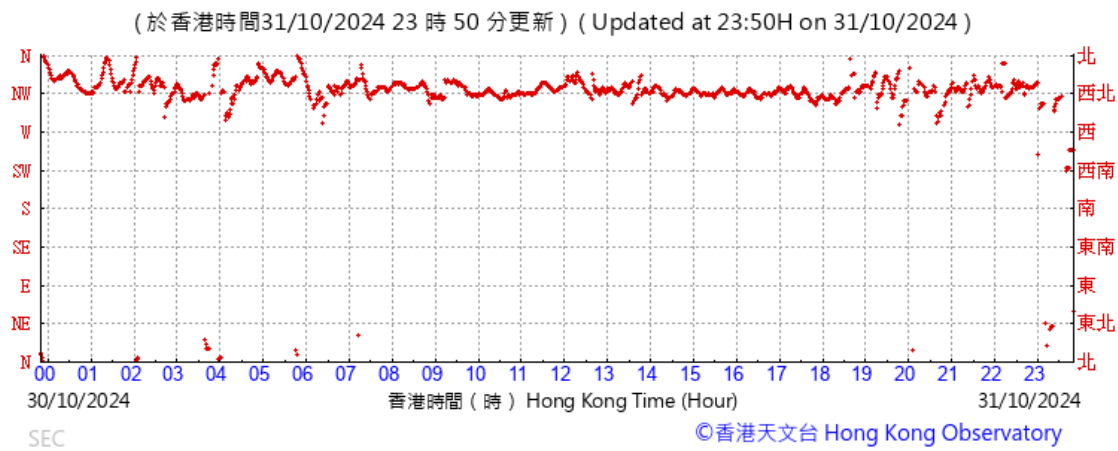
## Wind Direction



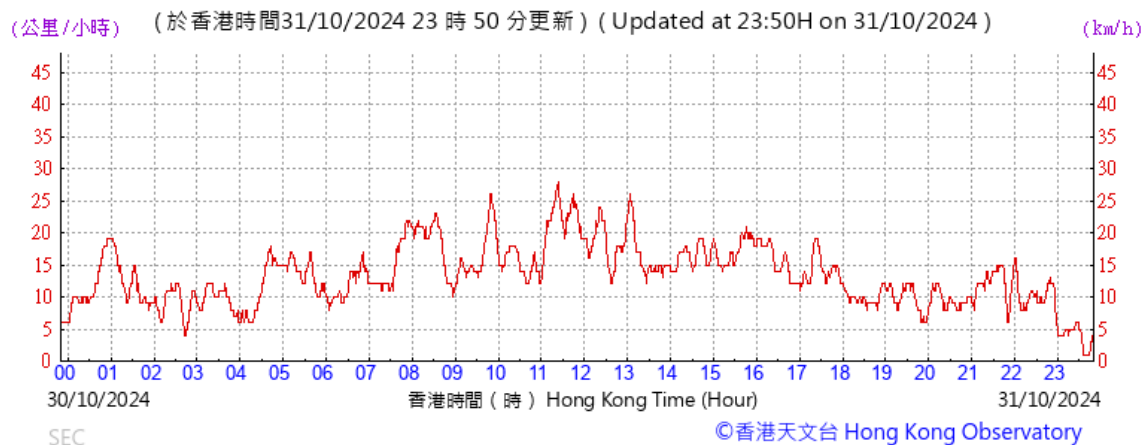
## Wind Speed



## Wind Direction



## Wind Speed





## **Appendix I**

### **Noise Monitoring Results and Graphical Presentation**

## Appendix I - Construction Noise Monitoring Results

### Construction Noise Monitoring Stations: Chun Sing House, Tin Ma Court (NM-2)

Date	Weather	Start Time	dB(A)			
			Leq	L10	L90	Leq(30min)
2 Oct 2024	Fine	15:00	70.5	71.1	69.0	69.6
		15:05	70.1	71.6	68.6	
		15:10	69.8	71.3	68.3	
		15:15	69.5	71.0	68.0	
		15:20	68.7	70.2	67.2	
		15:25	69.0	70.5	67.5	
7 Oct 2024	Fine	15:05	71.3	72.8	70.8	70.3
		15:10	69.5	71.0	68.0	
		15:15	70.5	72.0	69.0	
		15:20	69.8	70.3	68.3	
		15:25	70.9	71.4	69.4	
		15:30	69.1	70.6	68.6	
18 Oct 2024	Fine	14:25	71.9	73.4	70.4	70.5
		14:30	71.8	73.3	70.3	
		14:35	70.5	72.0	68.0	
		14:40	69.5	71.0	67.0	
		14:45	69.8	71.3	68.3	
		14:50	68.5	71.0	66.0	
24 Oct 2024	Fine	13:30	72.0	73.5	70.5	71.4
		13:35	71.8	73.3	70.3	
		13:40	71.6	73.1	70.1	
		13:45	70.9	72.4	69.4	
		13:50	70.5	73.0	69.0	
		13:55	71.7	73.2	70.2	
30 Oct 2024	Fine	14:00	69.2	70.2	68.3	69.7
		14:05	70.1	71.3	69.2	
		14:10	68.9	69.4	67.1	
		14:15	70.2	71.6	69.1	
		14:20	70.0	71.0	68.2	
		14:25	69.9	70.2	68.1	
					Min:	69.6
					Max:	71.4
					Average:	70.3

### Construction Noise Monitoring Stations: Grace Methodist Church Kindergarten (NM-3)

Date	Weather	Start Time	dB(A)			
			Leq	L10	L90	Leq(30min)
2 Oct 2024	Fine	14:15	58.3	59.8	56.8	59.0
		14:20	59.6	61.1	58.1	
		14:25	59.2	60.7	57.7	
		14:30	58.5	60.0	57.0	
		14:35	58.6	60.1	57.1	
		14:40	59.7	61.2	58.2	
7 Oct 2024	Fine	14:25	57.9	59.4	56.4	58.2
		14:30	58.3	59.8	56.8	
		14:35	58.6	59.1	57.1	
		14:40	57.8	58.3	56.3	
		14:45	58.5	59.0	57.0	
		14:50	57.9	59.4	56.4	
18 Oct 2024	Fine	13:40	58.5	60.0	56.0	59.2
		13:45	59.5	61.0	57.0	
		13:50	58.7	60.2	57.2	
		13:55	59.6	61.1	58.1	
		14:00	58.9	60.4	57.4	
		14:05	59.7	61.2	58.2	
24 Oct 2024	Fine	14:16	59.5	61.0	58.0	59.0
		14:21	58.9	60.4	57.4	
		14:26	59.6	61.1	58.1	
		14:31	58.7	60.2	57.2	
		14:36	59.5	61.0	57.0	
		14:41	57.5	59.0	56.0	
30 Oct 2024	Fine	14:56	57.8	58.8	56.7	56.2
		15:01	58.1	59.4	57.1	
		15:06	55.2	56.2	54.2	
		15:11	55.1	56.3	54.2	
		15:16	54.1	55.4	53.1	
		15:21	55.0	56.5	54.2	
					Min:	56.2
					Max:	59.2
					Average:	58.3

## Appendix I - Construction Noise Monitoring Results

### Construction Noise Monitoring Stations: Block 6, Tsui Chuk Garden (NM-4)

Date	Weather	Start Time	dB(A)			
			Leq	L10	L90	Leq(30min)
2 Oct 2024	Fine	11:00	53.1	54.6	51.6	53.8
		11:05	53.5	55.0	52.0	
		11:10	54.6	56.1	53.1	
		11:15	53.5	55.0	52.0	
		11:20	54.0	55.5	52.5	
		11:25	54.1	55.6	52.6	
7 Oct 2024	Fine	10:35	54.6	56.1	53.1	54.4
		10:40	53.5	55.0	52.0	
		10:45	54.5	56.0	53.0	
		10:50	54.9	56.4	53.4	
		10:55	54.6	56.1	53.1	
		11:00	54.4	55.9	52.9	
18 Oct 2024	Fine	10:45	54.9	56.4	53.4	54.5
		10:50	54.5	56.0	52.0	
		10:55	53.9	55.4	52.4	
		11:00	54.9	56.4	53.4	
		11:05	53.6	55.1	52.1	
		11:10	54.9	56.4	53.4	
24 Oct 2024	Fine	10:30	54.6	56.1	53.1	54.3
		10:35	54.7	56.2	53.2	
		10:40	54.9	56.4	53.4	
		10:45	53.8	55.3	52.3	
		10:50	53.1	54.6	51.6	
		10:55	54.6	56.1	53.1	
30 Oct 2024	Sunny	10:45	62.5	64.1	61.5	62.8
		10:50	63.5	65.5	62.1	
		10:55	63.0	65.9	62.0	
		11:00	64.1	67.6	63.2	
		11:05	62.5	64.5	61.1	
		11:10	60.0	62.6	58.1	
					Min:	53.8
					Max:	62.8
					Average:	56.0

### Construction Noise Monitoring Stations: Road pavement near Wang King House, Tin Wang Court (NM-4a)

Date	Weather	Start Time	dB(A)				With Free-Field Correction
			Leq	L10	L90	Leq(30min)	
2 Oct 2024	Fine	13:25	67.3	68.8	65.8	67.6	70.6
		13:30	66.9	68.4	65.3		
		13:35	67.5	69.0	66.0		
		13:40	68.7	70.2	67.2		
		13:45	66.8	68.0	65.2		
		13:50	67.9	69.4	66.4		
7 Oct 2024	Fine	13:35	67.8	69.3	66.3	68.6	71.6
		13:40	68.8	70.3	67.3		
		13:45	69.8	71.3	68.3		
		13:50	68.5	70.0	67.0		
		13:55	67.5	69.0	66.0		
		14:00	68.9	70.4	67.4		
18 Oct 2024	Fine	12:45	69.5	71.0	68.0	68.9	71.9
		12:50	68.5	70.0	67.0		
		12:55	67.8	69.3	66.3		
		13:00	68.9	70.4	67.4		
		13:05	69.6	71.1	68.1		
		13:10	68.7	70.2	67.2		
24 Oct 2024	Fine	11:30	70.5	73.0	69.0	69.2	72.2
		11:35	69.8	71.3	68.3		
		11:40	68.1	69.6	66.6		
		11:45	68.5	70.0	67.0		
		11:50	69.5	71.0	68.0		
		11:55	68.3	69.8	66.8		
30 Oct 2024	Fine	11:30	66.5	68.5	64.5	66.1	69.1
		11:35	67.1	69.4	65.4		
		11:40	65.5	67.6	65.0		
		11:45	65.1	67.9	64.1		
		11:50	66.3	68.9	64.5		
		11:55	66.0	68.0	64.2		
					Min:	66.1	69.1
					Max:	69.2	72.2
					Average:	68.1	71.1

## Appendix I - Construction Noise Monitoring Results

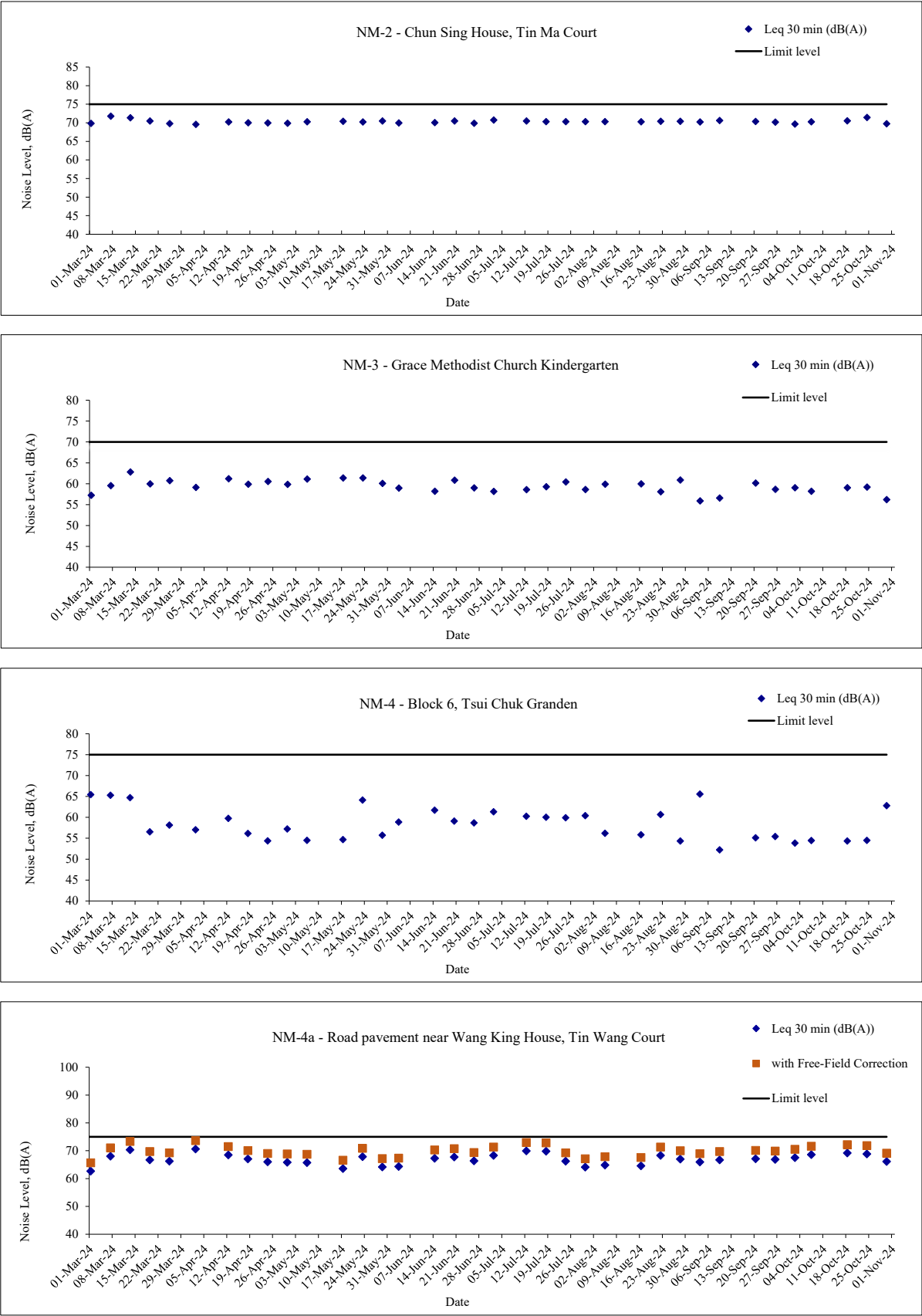
### Construction Noise Monitoring Stations: Wo Tin House, Shatin Pass Estate (NM-5)

Date	Weather	Start Time	dB(A)			
			Leq	L10	L90	Leq(30min)
2 Oct 2024	Fine	9:20	67.5	69.0	66.0	67.9
		9:25	68.9	69.4	67.4	
		9:30	67.3	68.8	66.8	
		9:35	68.4	69.9	67.9	
		9:40	67.7	68.3	66.2	
		9:45	67.6	68.1	66.1	
7 Oct 2024	Fine	9:15	69.5	71.0	68.0	68.7
		9:20	68.9	70.4	67.4	
		9:25	68.6	70.1	67.7	
		9:30	67.8	69.3	66.3	
		9:35	69.0	70.5	67.5	
		9:40	68.5	70.0	67.0	
18 Oct 2024	Fine	9:15	69.7	71.2	68.2	69.8
		9:20	68.9	70.4	67.3	
		9:25	69.2	70.4	67.7	
		9:30	69.5	71.0	67.0	
		9:35	70.2	71.7	68.7	
		9:40	70.9	72.4	69.4	
24 Oct 2024	Fine	9:00	68.7	70.2	67.2	68.6
		9:05	68.3	69.8	66.8	
		9:10	68.5	70.0	67.0	
		9:15	69.3	70.8	67.8	
		9:20	68.7	70.2	67.2	
		9:25	68.2	69.7	66.7	
30 Oct 2024	0 Jan 1900	9:00	64.5	66.0	63.1	63.1
		9:05	63.1	64.6	62.4	
		9:10	62.1	63.4	60.1	
		9:15	62.2	64.1	61.2	
		9:20	64.1	66.2	63.2	
		9:25	62.1	64.2	60.1	
					Min:	63.1
					Max:	69.8
					Average:	67.6

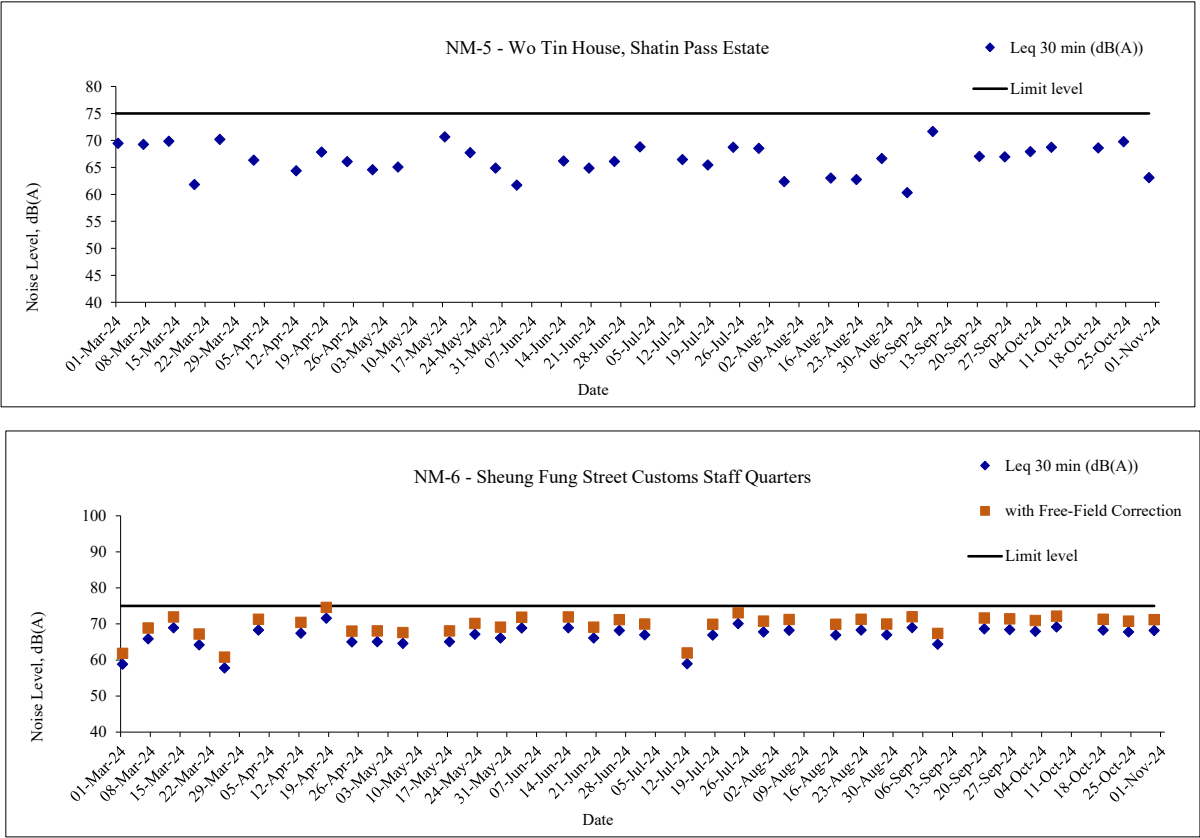
### Construction Noise Monitoring Stations: Sheung Fung Street Customs Staff Quarters (NM-6)

Construction Noise Monitoring Station: Street Corner Customs Barr Quarters (M16)							
Date	Weather	Start Time	dB(A)			Leq(30min)	With Free-Field Correction
			Leq	L10	L90		
2 Oct 2024	Fine	10:05	67.0	68.5	66.5	68.0	71.0
		10:10	68.5	70.0	67.0		
		10:15	67.9	68.4	66.4		
		10:20	67.7	68.3	66.2		
		10:25	68.2	69.7	67.8		
		10:30	68.3	69.8	67.9		
7 Oct 2024	Fine	9:45	70.6	72.1	69.1	69.2	72.2
		9:50	69.6	71.1	68.1		
		9:55	69.1	70.6	67.6		
		10:00	68.7	70.2	67.2		
		10:05	68.5	70.0	67.0		
		10:10	67.9	69.4	66.4		
18 Oct 2024	Fine	10:00	67.8	69.2	66.3	68.3	71.3
		10:05	67.9	69.4	66.4		
		10:10	68.1	69.6	66.6		
		10:15	68.5	70.0	67.0		
		10:20	68.5	70.0	67.0		
		10:25	68.9	71.4	67.4		
24 Oct 2024	Fine	9:45	67.3	68.8	65.8	67.8	70.8
		9:50	67.5	69.0	66.0		
		9:55	67.9	69.4	66.4		
		10:00	68.5	70.0	67.0		
		10:05	67.1	68.6	65.6		
		10:10	68.2	69.7	66.7		
30 Oct 2024	Fine	9:45	67.9	69.1	65.9	68.2	71.2
		9:50	68.1	70.1	66.4		
		9:55	69.1	72.1	67.1		
		10:00	67.8	69.3	65.4		
		10:05	68.2	70.5	66.5		
		10:10	68.0	70.6	66.8		
					Min:	67.8	70.8
					Max:	69.2	72.2
					Average:	68.3	71.3

Construction Noise Monitoring Results



Construction Noise Monitoring Results





## **Appendix J**

### **Waste Generation in the Reporting Month**

Monthly Summary Waste Flow Table for 2023

Contract No.: 21/WSD/21

Contract Title: Relocation of Diamond Hill Fresh Water and Salt Water Service Reservoirs to Caverns

Month	Actual Quantities of Inert C&D Materials Generated / Imported (in '000m <sup>3</sup> )						Actual Quantities of C&D Wastes Generated					Actual Quantities of C&D Wastes Recycled				
	Total Quantity Generated	Broken Concrete (including rock for recycling into aggregates)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported C&D Material	Metals	Paper/ cardboard packaging	Plastics (bottles/containers,pla stic sheets/foam package material)	Chemical Waste	Others, e.g. general refuse	Metals	Paper/ cardboard packaging	Plastics (bottles/co ntainers,pl astic sheets/foa m package material)	Yard Waste	Others
	(a+b+c+d)	(a)	(b)	(c)	(d)		(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )
Jan-23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Feb-23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mar-23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Apr-23	0.0571	0.0000	0.0000	0.0000	0.0571	0.0000	0.0000	0.0000	0.0000	0.0000	0.2006	0.0000	0.0000	0.0000	0.0069	0.0000
May-23	0.9598	0.0000	0.0000	0.0000	0.9598	0.0000	0.0000	0.0000	0.0000	0.0000	0.0241	0.0000	0.0000	0.0000	0.0000	0.0000
Jun-23	0.1485	0.0000	0.0000	0.0000	0.1485	0.0000	0.0000	0.0000	0.0000	0.0000	0.0380	0.0000	0.0000	0.0000	0.0000	0.0000
Sub-total	1.1655	0.0000	0.0000	0.0000	1.1655	0.0000	0.0000	0.0000	0.0000	0.0000	0.2628	0.0000	0.0000	0.0000	0.0069	0.0000
Jul-23	0.0672	0.0000	0.0000	0.0000	0.0672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0062	0.0072	0.0034	0.0098	0.0000	0.0000
Aug-23	0.1859	0.0000	0.0000	0.0000	0.1859	0.0000	0.0000	0.0000	0.0000	0.0000	0.0166	0.0058	0.0258	0.0055	0.0000	0.0000
Sep-23	0.2556	0.0000	0.0077	0.0000	0.2479	0.0000	0.0000	0.0000	0.0000	0.0000	0.0140	0.0054	0.0092	0.0042	0.0000	0.0000
Oct-23	0.1288	0.0000	0.0559	0.0000	0.0729	0.0000	0.0000	0.0000	0.0000	0.0000	0.0109	0.0057	0.0175	0.0096	0.0000	0.0000
Nov-23	0.7188	0.0000	0.1095	0.5769	0.0324	0.0000	0.0000	0.0000	0.0000	0.0000	0.0067	0.0010	0.0043	0.0089	0.0000	0.0000
Dec-23	1.4268	0.0000	0.0655	0.8576	0.5037	0.0000	0.0000	0.0000	0.0000	0.0000	0.0067	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.9486	0.0000	0.2386	1.4344	2.2755	0.0000	0.0000	0.0000	0.0000	0.0000	0.3238	0.0251	0.0601	0.0380	0.0069	0.0000
Jan-24	0.6490	0.0000	0.0182	0.2782	0.3526	0.0000	0.0000	0.0000	0.0000	0.0000	0.0042	0.0000	0.0000	0.0000	0.0000	0.0000
Feb-24	0.2876	0.0000	0.0655	0.1308	0.0913	0.0000	0.0000	0.0000	0.0000	0.0000	0.0233	0.0000	0.0000	0.0000	0.0000	0.0000
Mar-24	2.2947	0.0000	0.0585	0.9391	1.2971	0.0000	0.0000	0.0000	0.0000	0.0000	0.0126	0.0000	0.0000	0.0000	0.0000	0.0000
Apr-24	1.0091	0.0000	0.0182	0.6731	0.3178	0.0000	0.0000	0.0000	0.0000	0.0000	0.0141	0.0000	0.0000	0.0000	0.0000	0.0000
May-24	2.0728	0.0000	0.2505	0.5572	1.2651	0.0000	0.0000	0.0000	0.0000	0.0000	0.0226	0.0002	0.0111	0.0009	0.0000	0.0000
Jun-24	1.7085	0.0000	0.6745	0.6509	0.3831	0.0000	0.0000	0.0000	0.0000	0.0000	0.0166	0.0032	0.0208	0.0011	0.0000	0.0000
Jul-24	0.6157	0.0000	0.0821	0.3131	0.2205	0.0000	0.0000	0.0000	0.0000	0.0000	0.0116	0.0012	0.0146	0.0016	0.0000	0.0000
Aug-24	0.5297	0.0000	0.1241	0.1820	0.2236	0.0000	0.0000	0.0000	0.0000	0.0000	0.0281	0.0023	0.0160	0.0017	0.0000	0.0000
Sep-24	0.8956	0.0000	0.0169	0.2998	0.5789	0.0000	0.0000	0.0000	0.0000	0.0000	0.0229	0.0032	0.0133	0.0008	0.0000	0.0000
Oct-24	1.2245	0.0000	0.2358	0.0000	0.9887	1.0876	0.0000	0.0000	0.0000	0.0000	0.0493	0.0026	0.0830	0.0004	0.0000	0.0000
Nov-24																
Dec-24																
Total	11.2871	0.0000	1.5442	4.0242	5.7187	1.0876	0.0000	0.0000	0.0000	0.0000	0.2052	0.0127	0.1588	0.0065	0.0000	0.0000

Note:

1. Assume the density of soil fill is 2 ton/m<sup>3</sup>.
2. Assume the density of rock and broken concrete is 2.5 ton/m<sup>3</sup>.
3. Assume the density of non-inert C&D waste is 0.9 ton/m<sup>3</sup>.

## **Appendix K**

### **Summary of Complaint, Notification of Summons and Prosecution and Cumulative Complaint Log**

#### Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 September 2024 – 30 September 2024	0	0	N/A
1 October 2024 – 31 October 2024	0	0	N/A

#### Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Details
1 September 2024 – 30 September 2024	0	0	N/A
1 October 2024 – 31 October 2024	0	0	N/A

#### Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Details
1 September 2024 – 30 September 2024	0	0	N/A
1 October 2024 – 31 October 2024	0	0	N/A

Cumulative statistics on Non-compliance (exceedances)

Reporting Period	Environmental Monitoring	Parameter	No. of non-project related exceedances		Total no. of non-project related exceedances	No. of exceedances related to the project		Total no. of exceedances related to the project
			AL	LL		AL	LL	
This Reporting Period (1 – 30 September 2024)	Air Quality	1-hour TSP	0	0	0	0	0	0
	Noise	$L_{eq(30-min)}$	0	0	0	0	0	0
Total no. recorded since project commencement	Air Quality	1-hour TSP	0	0	0	0	0	0
	Noise	$L_{eq(30-min)}$	0	1	1	0	0	0

Cumulative Complaint Log

EPD Complaint Ref No.	Date of Complaint	Complaint Location	Complaint Details	Investigation / Mitigation Action	Status
-	-	-	-	-	-