

# MATERIALAB CONSULTANTS LIMITED

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# MaterialLab

## QUARTERLY EM&A REPORT

March 2016 – May 2016

**Client** : Civil Engineering and Development  
Department, HKSAR

**Contract No.** : KLN/2015/07

**Contract Name** : Environmental Monitoring Works for  
Contract KL/2014/03 – Kai Tak Development  
– Stage 3 Infrastructure Works for Developments  
at the Southern Part of the Former Runway

**Report No.** : 0405/15/ED/0491B


EP-337/2009 New Distributor Roads Serving the Planned Kai Tak  
Development Area

EP-339/2009/A Decommissioning of the Remaining Parts (Ex-GFS  
Building, Radar Station and Hong Kong Aviation Club)  
of the former Kai Tak Airport

EP-451/2013 Trunk Road T2

**Prepared by** : Alfred Y. S. Lam

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Ref.: CEDKTDS3EM00\_0\_0090L.16

13 July 2016

Hyder-Meinhardt Joint Venture  
20/F., AXA Tower,  
Landmark East,  
100 How Ming Street,  
Kwun Tong,  
Kowloon, Hong Kong

By Post and Email

Attention: Mr. Wong W K, Chris

Dear Mr. Wong,

**Re: Contract No. KL/2014/03 – Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway Quarterly EM&A Report for March to May 2016**

Reference is made to the Environmental Team's submission of the Quarterly EM&A Report for March to May 2016 (Report No. 0405/15/ED/0491B) we received by e-mail on 12 July 2016.

Please be informed that we have no adverse comment on the captioned report.

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

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



F. C. Tsang  
Independent Environmental Checker

c.c. CEDD	Attn.: Ms. Amy Chu	Fax: 2369 4980
MateriaLab	Attn.: Mr. Colin K. L. Yung	Fax: 2450 8032
CRBC	Attn.: Mr. Arnold Chan	Fax: 2283 1689

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**EXECUTIVE SUMMARY**

- i. The Civil Engineering and Development Department HKSAR has appointed MaterialLab Consultants Limited (MCL) to undertake the Environmental Team services for the Project and implement the EM&A works.
- ii. This is the First Quarterly EM&A Report presents the environmental monitoring and audit works for the period between 26 February 2016 and 31 May 2016. As informed by the Contractor, major activities in the reporting period included:

February - March 2016	April 2016	May 2016
<ul style="list-style-type: none"> <li>• Setting up RE site office at Portion WA1;</li> <li>• Carrying out ground investigation and pre-drilling;</li> <li>• Carrying out Condition Survey;</li> <li>• Construction of guide walls at Zone 1;</li> <li>• Setting up Silo Tanks and Bentonite Pools for SUS;</li> <li>• Construction of H piles at Zone 1;</li> <li>• Installation of ground monitoring instruments at Zone 1;</li> <li>• Demolition of foundation at Zone 4;</li> <li>• Construction of hoarding along Shing Fung Road &amp; Shing Cheong Road;</li> <li>• Setting up stockpiling area for drying of slurry and Bentonite at Portion E; and</li> <li>• Tree felling at Portion X.</li> </ul>	<ul style="list-style-type: none"> <li>• Carrying out ground investigation and pre-drilling;</li> <li>• Construction of guide walls and D-walls at Zone 1;</li> <li>• Construction of H piles at Zone 1;</li> <li>• Construction of hoarding along Shing Fung Road &amp; Shing Cheong Road;</li> <li>• Construction of garden at Portion WA1;</li> <li>• Construction of temporary manhole at Zone 1 as discharge point;</li> <li>• Implementation of Temporary Traffic Arrangement (TTA) along Cheung Yip Street and Shing Cheong Road;</li> <li>• Setting up wheel washing bay near portion E; and</li> <li>• Setting up waste water treatment system at Zone 1.</li> </ul>	<ul style="list-style-type: none"> <li>• Carrying out ground investigation and pre-drilling;</li> <li>• Construction of guide walls and D-walls at Zone 1 &amp; Zone 2;</li> <li>• Construction of H piles at Zone 1;</li> <li>• Demolition of foundation at Zone 4;</li> <li>• Demolition of guard house at Zone 4;</li> <li>• Construction of temporary drainage system at Zone 1;</li> <li>• Construction of subway B;</li> <li>• Construction of hoarding along Shing Fung Road, Shing Cheong Road &amp; Cheung Yip Street;</li> <li>• Implementation of Temporary Traffic Arrangement (TTA) along Cheung Yip Street and Shing Cheong Road;</li> <li>• Erection of scaffolding at Radar Tower; and</li> <li>• Setting up waste water treatment system at Zone 4.</li> </ul>

**Breaches of the Action and Limit Levels**

- iii. Total 3 no. of Action Level exceedances were recorded in the reporting period. Exceedances were recorded for 24-hr TSP Action Levels at KTD1a and KTD2a on 1 March 2016 and at KTD2a on 30 March 2016. No Limit Level exceedance for 24-hr TSP and no Action and Limit Level exceedance for construction noise were recorded in the reporting period.

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The logo for MaterialLab, featuring the word "MaterialLab" in a bold, sans-serif font. The text is white and is set against a black rectangular background that has horizontal bars extending to the left and right, resembling a stylized bar chart or a graphic element.

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

- iv. No environmental complaint and no notification of summons and successful prosecution were received in the reporting period.

## 1. INTRODUCTION

### 1.1 Background

1.1.1 The Kai Tak Development is located in the south-eastern part of Kowloon Peninsula of the HKSAR, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling.

1.1.2 Contract No. KL/2014/03 is the works package to construct an approximately 420m long supporting underground structure (SUS) underneath Shing Cheong Road and Cheung Yip Street. The EM&A programme under this Contract is governed by three EPs (EP-337/2009, EP-339/2009/A and EP-451/2013) and two EM&A Manuals (AEIAR-130/2009 and AEIAR-174/2013). The Works to be executed under this Contract and corresponding EPs include but not be limited to the following main items:

#### **EP-451/2013 – Trunk Road T2**

(i) Construction of approximately 420m long supporting underground structure (SUS) including diaphragm walls, barrettes, piled foundation, top and bottom slabs, end wall and adits underneath Shing Cheong Road and Cheung Yip Street;

#### **EP-337/2009 – New Distributor Roads Serving the Planned Kai Tak Development**

- (ii) Widening and re-alignment of Cheung Yip Street of approximately 330m long and associated footpaths;
- (iii) Demolition, reconstruction and widening of Shing Cheong Road of approximately 410m long and associated footpaths;
- (iv) Construction of drainage outfall and modification of existing seawall;
- (v) Construction of ancillary works including surface drainage, sewerage, water, fire fighting, street lighting, street furniture, road marking, road signage, utilities and services, irrigation and landscape works.

#### **EP-339/2009/A – Decommissioning of the Remaining Parts (Ex-GFS Building, Radar Station and Hong Kong Aviation Club) of the former Kai Tak Airport**

(vi) Demolition of RADAR Tower and guard house;

#### **Other works not covered by any EP**

- (vii) Construction of two subways between Phase II of New Acute Hospital (Site A) and Hong Kong Children's Hospital (Site C), and between Phase I of New Acute Hospital (Site B) and Site C;
- (viii) Construction of District Cooling System (DCS) along Cheung Yip Street and Shing Cheong Road

1.1.3 The location and boundary of the site is shown in **Figure 1**.

1.1.4 This Quarterly EM&A report is required under Section 16.1.2 and 16.7.1 of the EM&A Manual AEIAR-130/2009. It is to report the results and findings of the EM&A programme required in the EM&A Manual.

1.1.5 This is the first quarterly EM&A Report which summaries the impact monitoring results and audit findings for the Project within the period between 26 February 2016 and 31 May 2016.

## 1.2 Project Organization

1.2.1 The project proponent was the Civil Engineering and Development Department, HKSAR (CEDD). Hyder Meinhardt Joint Venture (HMJV) was commissioned by CEDD as the Engineer for the Project. Ramboll Environ Hong Kong Limited was commissioned as the Independent Environmental Checker (IEC). China Road and Bridge Corporation (Hong Kong) (CRBC) was appointed as the main contractor for the construction works under the contract KL/2014/03. MaterialLab Consultants Limited (MCL) was appointed as the Environmental Team (ET) by CEDD to implement the EM&A programme for the Project.

1.2.2 The organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarized in **Table 1.1**.

**Table 1.1 Contact Information of Key Personnel**

Party	Position	Name	Telephone	Fax
Project Proponent (CEDD)	Co-ordinator	Ms. Amy Chu	3106 3172	2369 4980
Engineer's Representative (HMJV)	Chief Resident Engineer	Mr. W. K., Chris Wong	2911 2233	2805 5028
IEC (Ramboll Environ Hong Kong Limited)	Independent Environmental Checker	Mr. F. C. Tsang	3465 2888	3465 2899
Main Contractor (CRBC)	Site Agent	Mr. Chan See Wai, Arnold	9380 4110	2283 1689
	Environmental Officer	Mr. Wong Tan Tat	9492 5918	2283 1689
ET (MCL)	Environmental Team Leader	Mr. Colin Yung	3565 4114	3565 4160

## 1.3 Construction Programme and Activities

1.3.1 The construction of the Project commenced in February 2016 and is expected to complete in 2020. The construction programme is shown in **Appendix A**.

1.3.2 A summary of the major construction activities undertaken in the reporting period were:

February - March 2016	April 2016	May 2016
<ul style="list-style-type: none"> <li>• Setting up RE site office at Portion WA1;</li> <li>• Carrying out ground investigation and pre-drilling;</li> <li>• Carrying out Condition Survey;</li> <li>• Construction of guide walls at Zone 1;</li> <li>• Setting up Silo Tanks and Bentonite Pools for SUS;</li> <li>• Construction of H piles at Zone 1;</li> <li>• Installation of ground monitoring instruments at Zone 1;</li> <li>• Demolition of foundation at Zone 4;</li> <li>• Construction of hoarding along Shing Fung Road &amp; Shing Cheong Road;</li> <li>• Setting up stockpiling area for drying of slurry and Bentonite at Portion E; and</li> <li>• Tree felling at Portion X.</li> </ul>	<ul style="list-style-type: none"> <li>• Carrying out ground investigation and pre-drilling;</li> <li>• Construction of guide walls and D-walls at Zone 1;</li> <li>• Construction of H piles at Zone 1;</li> <li>• Construction of hoarding along Shing Fung Road &amp; Shing Cheong Road;</li> <li>• Construction of garden at Portion WA1;</li> <li>• Construction of temporary manhole at Zone 1 as discharge point;</li> <li>• Implementation of Temporary Traffic Arrangement (TTA) along Cheung Yip Street and Shing Cheong Road;</li> <li>• Setting up wheel washing bay near portion E; and</li> <li>• Setting up waste water treatment system at Zone 1.</li> </ul>	<ul style="list-style-type: none"> <li>• Carrying out ground investigation and pre-drilling;</li> <li>• Construction of guide walls and D-walls at Zone 1 &amp; Zone 2;</li> <li>• Construction of H piles at Zone 1;</li> <li>• Demolition of foundation at Zone 4;</li> <li>• Demolition of guard house at Zone 4;</li> <li>• Construction of temporary drainage system at Zone 1;</li> <li>• Construction of subway B;</li> <li>• Construction of hoarding along Shing Fung Road, Shing Cheong Road &amp; Cheung Yip Street;</li> <li>• Implementation of Temporary Traffic Arrangement (TTA) along Cheung Yip Street and Shing Cheong Road;</li> <li>• Erection of scaffolding at Radar Tower; and</li> <li>• Setting up waste water treatment system at Zone 4.</li> </ul>



## 2. SUMMARY OF EM&A REQUIREMENTS AND MONITORING RESULTS

### 2.1 Monitoring Requirement

In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level and Leq (30min) at the designated monitoring stations is required. Impact 24-hour TSP monitoring should be carried out at least once every 6 days. In case of complaints, 1-hour TSP monitoring should be carried out at least 3 times per 6 days when the highest dust impacts are likely to occur. Leq (30min) monitoring is conducted for at least once a week during the construction phase between 0700 and 1900 on normal weekdays. The Action and Limit Levels of the air quality monitoring and noise monitoring are given in **Appendix C**

### 2.2 Monitoring Locations

- 2.2.1 According to the EM&A Manual, three monitoring locations for air quality monitoring and noise monitoring, namely KTD1, KTD2 and KER1, are covered by this Contract within the South Apron Area of Former Kai Tak Airport. The other two air quality monitoring locations and two noise monitoring locations which are identified in Cha Kwo Ling area, are farther than 500m and 300m away from the site boundary respectively and thus not covered by this Contract. The monitoring works in Cha Kwo Ling area are covered by other Contract(s) respectively.
- 2.2.2 According to the approved alternative baseline air quality and noise monitoring locations (EPD reference: EP2/K19/A/21 Pt.5), the original monitoring locations (KTD1, KTD2 and KER1) are proposed to be replaced by alternative monitoring locations (KTD1a, KTD2a and KER1a), they are summarized in **Table 2.1** and shown in **Figure 2**.

**Table 2.1 Location of Air Quality Monitoring and Noise Monitoring Station**

Monitoring Station	Location
KTD1a	Centre of Excellence in Paediatrics (Children's Hospital)
KTD2a	G/IC Zone next to Kwun Tong Bypass (Future Hospital at Site 3C1)
KER1a	Site Boundary at Cheung Yip Street

### 2.3 Results and Observations

- 2.3.1 Total 3 no. of Action Level exceedances were recorded in the reporting period. Exceedances were recorded for 24-hr TSP Action Levels at KTD1a and KTD2a on 1 March 2016 and at KTD2a on 30 March 2016. No Limit Level exceedance for 24-hr TSP and no Action and Limit Level exceedance for construction noise were recorded.
- 2.3.2 On 1 March 2016, at KTD1a, non-project related construction activities were observed next to the monitoring location, also traffic was observed along Shing Fung Road. Thus, it is considered that this exceedance is not project related. No exceedance is recorded in the following monitoring conducted on 7 March 2016.
- 2.3.3 On 1 March 2016, at KTD2a, non-project related traffic was observed along Kwun Tong Bypass, and dust generation was also observed from non-project related construction activities. Within the Project site, loading and unloading of C&D wastes in Portion E and vehicular movement in Portion B were observed. Mitigation measures, including watering and cover of stockpiles of dusty materials were implemented and thus the project impact on the exceedance is not considered significant. Thus the exceedance is considered not related to project. No exceedance is recorded in the following monitoring conducted on 7 March 2016.

- 2.3.4 On 30 March 2016, exceedance was found at KTD2a but not at KTD1a and KER1a, however significant increase of 24-hr TSP results were observed when comparing with the data collected on 24 March 2016 at KTD1a and KER1a. According to the Contractor and ER, similar construction activities were undertaken on 24 and 30 March 2016. KER1a is located far away (approx. 500m) from the major construction works conducted during monitoring, and thus considered less affected by the construction works. The significant increase at KER1a from 24 to 30 March 2016 indicated the change of ambient air condition may contribute to the high level of monitoring results. Though ambient air condition and weather condition may contribute to the exceedance and Contractor had provided some photos records showing mitigation measures on dust suppression control, including watering the haul road and covering the open stockpiles, however according to the observation in the site inspections on 31 March 2016 and 7 April 2016, watering and washing can be enhanced at the haul road and vehicles to further suppress fugitive dust. Therefore, the result was considered to be combined effect of poor ambient air conditions and the works of this project and other construction sites nearby. Under the scope of impact monitoring, it is still defined as project related. Contractor was reminded to strictly follow all the EP conditions and provide sufficient mitigation measures as recommended in approved EIA Reports.
- 2.3.5 No Action / Limit Level exceedance was recorded for construction noise in the reporting period.
- 2.3.6 No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted in the reporting period.
- 2.3.7 No raining and wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation..
- 2.3.8 During the reporting period, major dust sources including loading and unloading of C&D wastes, vehicles movement were observed in the site. Major noise sources including noise emission from plant & PME and some other construction activities, travel of vehicles, loading and unloading of C&D waste were observed in the site. Non-project related construction activities at the nearby construction site and road traffic along Shing Cheong Road, Cheung Yip Street and the Kwun Tong By-pass were observed. The above factors may affect the monitoring results.
- 2.3.9 Graphical presentation of the monitoring data in the reporting period is presented in **Appendix D**.
- 2.4 Comparison of Monitoring Results with EIA Predictions**
- 2.4.1 The monitoring data was compared with the EIA predictions as summarized in **Table 2.4** and **Table 2.5**.

**Table 2.4 Comparison of 24-hr TSP data with EIA predictions**

Monitoring Station	Receiver Reference	Predicted Maximum 24-hour TSP Concentration ( $\mu\text{g}/\text{m}^3$ )	24-hour TSP concentration in Reporting Period ( $\mu\text{g}/\text{m}^3$ )			Average 24-hour TSP concentration in Reporting Period ( $\mu\text{g}/\text{m}^3$ )		
			February -March 2016	April 2016	May 2016	February -March 2016	April 2016	May 2016
KTD1a	KTD3	126	44 – 208	61 – 105	47 – 106	110	79	64
KTD2a	-	-	51 – 205	39 – 138	23 – 79	119	86	45
KER1a	KTD6	169	53 – 150	38 – 83	47 – 110	88	62	85

Note:

For KTD2a, there was no receiver reference in the EIA report, EIAR-174/2013.

Predicted Maximum TSP Concentration extracted from Table 4.14 of EIA Report, EIAR-174/2013.

**Table 2.5 Comparison of Noise Monitoring data with EIA predictions**

Monitoring Station	Receiver Reference	Maximum Predicted Mitigated Construction Noise Level, dB(A)	Leq <sub>(30min)</sub> dB(A) in Reporting Period		
			February-March 2016	April 2016	May 2016
KTD1a	KTD1	74	54 - 73	66 - 71	65 - 71
KTD2a	KTD2	75	53 - 70	56 - 64	58 - 63
KER1a	KER1	75	60 - 74	60 - 74	68 - 69

Note:

Maximum Predicted Mitigated Construction Noise Level extracted from Table 5.13 of EIA Report, EIAR-174/2013.

- 2.4.2 The 24-hour TSP concentration of KER1a was below the Predicted Maximum 24-hr TSP concentration. However for the the 24-hour TSP monitoring results of KTD1a, two monitoring results, on 1 March 2016 and 30 March 2016, exceeded the prediction in the approved Environmental Impact Assessment (EIA) Report and the Action Level exceedance was found on 1 March 2016, but based on the finding from the investigation, the recorded exceedance case was not related to the project.
- 2.4.3 The discrepancy between the 24-hour TSP concentration and EIA Prediction in KTD1a is considered due to dust source from the non-project related construction activities near the monitoring location and the road travel along Shing Fung Road.
- 2.4.4 The impact noise monitoring results in the reporting month were below the Maximum Predicted Mitigated Construction Noise Level in the approved Environmental Impact Assessment (EIA) Report and no Action / Limit Level exceedance was recorded in the reporting period.

## 2.5 Quarterly Review of Constructional Impacts on Air Quality and Noise

- 2.5.1 As no exceedance was found in construction noise monitoring during the reporting period, statistical analysis was performed only on the 24-hour TSP monitoring. The construction impact on air quality was assessed by comparing the quarterly mean values of 24-hour TSP results with the their relative baseline mean values. Monitoring stations with higher quarterly impact data are statistically compared to its baseline levels to assess the constructional impacts. Results are summarized in **Table 2.6**.

**Table 2.6 Comparison of Quarterly Mean to Baseline Mean**

Monitoring Station	Average 24hr TSP $\mu\text{g}/\text{m}^3$		
	Baseline	March 2016 - May 2016	Quarterly Impact Larger than Baseline
KTD1a	73	86	yes
KTD2a	42	85	yes
KER1a	65	79	yes

2.5.2 Quarterly means of 24-hour TSP at KTD1a, KTD2a and KER1a are compared to their baseline level respectively. Results show no significant difference between the quarterly means of KTD1a and KER1a with their baseline means respectively ( $p \geq 0.05$ ). The quarterly mean of KTD2a is significantly larger than its baseline mean ( $p < 0.05$ ), but far below than its Action Level ( $157 \mu\text{g}/\text{m}^3$ ), indicate that the quarterly construction impact is not significant. Details of key statistical analysis results are provided in **Appendix H**.

### **3. LANDSCAPE AND VISUAL**

#### **3.1 Results and Observations**

3.1.1 To monitor and audit the implementation of landscape and visual mitigation measures, 13 weekly Landscape and Visual Site audits were carried out and 7 of them were carried out by a Registered Landscape Architect. The weekly Landscape and Visual Impact reports were counter-signed by IEC as according to the requirement of EM&A Manual (AEIAR-130/2009).

3.1.2 Total 1 no. of non-compliance was recorded in the weekly Landscape and Visual Site audits in the reporting period. Open stockpile was found to not being covered properly during the landscape and visual impact site inspection on 24 March 2016. The case was rectified on 30 March 2016 and during the site inspection on 31 March 2016. Other than this, no non-compliance of the landscape and visual impact was recorded in the reporting period.

## **4. WASTE MANAGEMENT**

### **4.1 Results and Observations**

- 4.1.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 4.1.2 The amount of wastes generated by the site activities in the reporting period is shown in **Appendix E**.
- 4.1.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.
- 4.1.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

**5. SITE INSPECTION**

**5.1 Site Inspection**

- 5.1.1 Site inspections were carried out weekly to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix F**.
- 5.1.2 In the reporting month, 13 site inspections were carried out on. Five of them were the joint inspections with the IEC, ER, the Contractor and the ET.
- 5.1.3 No outstanding issues were reported during the reporting period.
- 5.1.4 All the follow-up actions requested by Contractor's ET and IEC during the site inspections were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting month.
- 5.1.5 Details of observations recorded during the site inspections are presented in **Table 5.1**.

**Table 5.1 Observations and Recommendations of Site Audit**

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	16 March 2016	Watering shall be provided in haul road area and in the stockpile storage area in portion E.	The item was rectified by the Contractor and inspected on 24 March 2016.
	24 March 2016	Open stockpile shall be covered properly with impermeable sheeting in Portion B	The item was rectified by the Contractor and inspected on 31 March 2016.
	31 March 2016	Dusty haul road was observed when vehicle was passing near Portion E. Watering shall be applied to maintain the entire haul road surface wet.	The item was rectified by the Contractor and inspected on 6 April 2016.
	31 March 2016	The Contractor is reminded that the excavated materials should not be loaded from a level higher than the side in Portion Q and tail boards and should be covered by tarpaulin.	The item was rectified by the Contractor and inspected on 6 April 2016.
	7 April 2016	Watering spraying frequency shall be increased to keep the entire haul road surface wet in Portion B, E and Portion N.	The item was rectified by the Contractor and inspected on 14 April 2016.
Noise	10 March 2016	Instead of the impermeable sheeting, acoustic fabric shall be used for the piling system or breaker, etc. in Portion X	The item was rectified by the Contractor and inspected on 16 March 2016.
	14 April 2016	Appropriate and effective acoustic fabric should be used for the breaker machine in Portion X.	The item was rectified by the Contractor and inspected on 21 April 2016.
	21 April 2016	Appropriate and effective	The item was rectified by the

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Parameters	Date	Observations and Recommendations	Follow-up
		acoustic fabric should be used for the breaker machine in Portion Q.	Contractor and inspected on 28 April 2016.
	5 May 2016	Noise absorbing material shall be provided to wrap the breaker which operating in Portion N.	The item was rectified by the Contractor and inspected on 12 May 2016.
	18 May 2016	Noise absorbing material shall be provided to wrap the breaker which operating in Portion C.	The item was rectified by the Contractor and inspected on 26 May 2016.
	26 May 2016	Noise absorbing material shall be provided to wrap the breaker which operating in Portion Q.	The item was rectified by the Contractor and inspected on 2 June 2016.
Water Quality	10 March 2016	Construction runoff and overflow to the public access road shall be avoided by using sediment traps or sand bags in Portion B.	The item was rectified by the Contractor and inspected on 16 March 2016.
	10 March 2016	Silt retention pond, sediment basins, and baffles should be incorporated with temporary ditches or permanent drainage in Portion Q to facilitate runoff discharge and enhance deposition rate. The facilities shall be provided before storm season.	The item was rectified by the Contractor and inspected on 24 March 2016.
	16 March 2016	Silt retention pond, sediment basins, and baffles should be incorporated with temporary ditches or permanent drainage in Zone 4 to facilitate runoff discharge and enhance deposition rate. The facilities shall be provided before storm season.	The item was rectified by the Contractor and inspected on 24 March 2016.
	16 March 2016	Stagnant water in the drip tray of the power generator shall be removed in Portion B	The item was rectified by the Contractor and inspected on 24 March 2016.
	24 March 2016	Stagnant water shall be removed in Portion E and M	The item was rectified by the Contractor and inspected on 31 March 2016.
	7 April 2016	Stagnant water on the ground and inside the drip tray shall be removed regularly in Portion N.	The items were rectified by the Contractor and inspected on 14 April 2016.
	21 April 2016	Stagnant water inside the drip tray shall be removed regularly in Portion N.	The items were rectified by the Contractor and inspected on 28 April 2016.
	28 April 2016	Stagnant water on the ground shall be removed properly and regularly in Portion M.	The items were rectified by the Contractor and inspected on 5 May 2016.



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Parameters	Date	Observations and Recommendations	Follow-up
	5 May 2016	Stagnant water in the drip tray shall be removed regularly in Portion N.	The items were rectified by the Contractor and inspected on 12 May 2016.
Chemical and Waste Management	3 March 2016	The used oil/fuel shall be stored properly in Portion F.	The item was rectified by the Contractor and inspected on 10 March 2016.
	31 March 2016	Oil spillage was observed from the idling machinery at Portion B.	The item was rectified by the Contractor and inspected on 6 April 2016.
	14 April 2016	General refuse should be stored in enclosed bins or compaction units separate from C&D material. Effective collection and storage methods of site wastes would be required to prevent creating odour nuisance or pest problem. The skip should be covered in Portion Q.	The item was rectified by the Contractor and inspected on 21 April 2016.
	21 April 2016	C&D wastes stored in the skip should be collected regularly to prevent overload in Portion B.	The item was rectified by the Contractor and inspected on 28 April 2016.
	26 May 2016	Bags of general refuse were observed without appropriated container in Portion A next to the site office. General refuse should be stored in enclosed bins. Effective collection and storage methods shall be provided to prevent waste materials from being blown around by wind or creating odour nuisance or pest and vermin problem.	The item was rectified by the Contractor and inspected on 2 June 2016.
	26 May 2016	No sorting of wastes was observed in the recycling bin in Portion A next to the site office. Contractor was reminded to segregate different types of waste in different containers to enhance reuse or recycling of materials and their proper disposal.	The item was rectified by the Contractor and inspected on 2 June 2016.
Land Contamination	NA		
Landscape and Visual Impact	24 March 2016	Open stockpile was not covered properly in Portion B.	The item was rectified by the Contractor and inspected on 31 March 2016.
General Condition	NA		

**6. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE**

**6.1 Environmental Exceedance**

6.1.1 Total 3 no. of Action Level exceedances were recorded in the reporting period. Exceedances were recorded for 24-hr TSP Action Levels at KTD1a and KTD2a on 1 March 2016 and at KTD2a on 30 March 2016. No Limit Level exceedance for 24-hr TSP and no Action and Limit Level exceedance for construction noise were recorded in the reporting period. Number of exceedance in the reporting period was summarized in **Table 6.1**.

**Table 6.1 Summary of Exceedance in Reporting Period**

Monitoring Station		Number of exceedance in the reporting period						Total
		24hr TSP µg/m <sup>3</sup>			Leq (30min) dB(A)			
		February-March 2016	April 2016	May 2016	February-March 2016	April 2016	May 2016	
KTD1a	AL	1	0	0	0	0	0	1
	LL	0	0	0	0	0	0	0
KTD2a	AL	2	0	0	0	0	0	2
	LL	0	0	0	0	0	0	0
KER1a	AL	0	0	0	0	0	0	0
	LL	0	0	0	0	0	0	0
Total	AL	3	0	0	0	0	0	3
	LL	0	0	0	0	0	0	0

**6.2 Complaints, Notification of Summons and Prosecution**

6.2.1 No complaint, inspection notice, notification of summons or prosecution was received in this reporting period. Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Table 6.2, 6.3 and 6.4**.

**Table 6.2 Environmental Complaints Log**

Complaint Log No.	Date of Receipt	Received From and Received By	Nature of Complaint	Date Investigated	Outcome	Date of Reply
Nil	-	-	-	-	-	-

**Table 6.3 Cumulative Statistics on Complaints**

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Reporting Period			Cumulative Project-to-Date
		February-March 2016	April 2016	May 2016	
Air	0	0	0	0	0
Noise	0	0	0	0	0
Water	0	0	0	0	0
Waste	0	0	0	0	0
Total	0	0	0	0	0

**Table 6.4 Cumulative Statistics on Successful Prosecutions**

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Reporting Period			Cumulative Project-to-Date
		February-March 2016	April 2016	May 2016	
Air	0	0	0	0	0
Noise	0	0	0	0	0
Water	0	0	0	0	0
Waste	0	0	0	0	0
Total	0	0	0	0	0

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## 7. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

### 7.1 Implementation Status

7.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and the EM&A Manuals. The implementation status of the mitigation measures during the reporting period is summarized in **Appendix F**.

## 8. CONCLUSIONS

- 8.1.1 Total 3 no. of Action Level exceedances were recorded in the reporting period. Exceedances were recorded for 24-hr TSP Action Levels at KTD1a and KTD2a on 1 March 2016 and at KTD2a on 30 March 2016. No Limit Level exceedance for 24-hr TSP and no Action and Limit Level exceedance for construction noise were recorded.
- 8.1.2 No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted in the reporting period.
- 8.1.3 Thirteen no. of environmental site inspections were carried out in the reporting period. Recommendations on mitigation measures on air quality, water quality, noise, waste management and landscape and visual impact were given to the Contractor for remediating the deficiencies identified during the site inspections.
- 8.1.4 Thirteen weekly Landscape and Visual Site audits were carried out on in the reporting period and 7 of them were carried out by a Registered Landscape Architect in the reporting period. The weekly Landscape and Visual Impact reports were counter-signed by IEC as according to the requirement of EM&A Manual (AEIAR-130/2009). Total 1 no. of non-compliance was recorded in the weekly Landscape and Visual Site audits in the reporting period.
- 8.1.5 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting period.

## 8.2 Comment and Recommendations

- 8.2.1 The recommended environmental mitigation measures, as proposed in the EIA reports and EM&A Manuals shall be effectively implemented to minimize the potential environmental impacts from the Project. The EM&A programme would effectively monitor the environmental impacts generated from the construction activities and ensure the proper implementation of mitigation measures.
- 8.2.2 According to the environmental audit performed in the reporting period, the following recommendations were made:

### Air Quality Impact

- Fugitive dust preventive measures shall be implemented.

### Construction Noise Impact

- Effective noise mitigation measures shall be implemented to minimize construction noise impact

### Water Quality Impact

- Implement effective/preventive measures to prevent accumulation of stagnant water and to avoid site runoff from the site;
- Provide proper drainage system management.

### Chemical and Waste Management

- Chemical and Waste Management shall be provided properly.

### Landscape and Visual Impact

- Proper covering of the open stockpiles.

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### Permit / Licenses

- No specific observation was identified in the reporting period.

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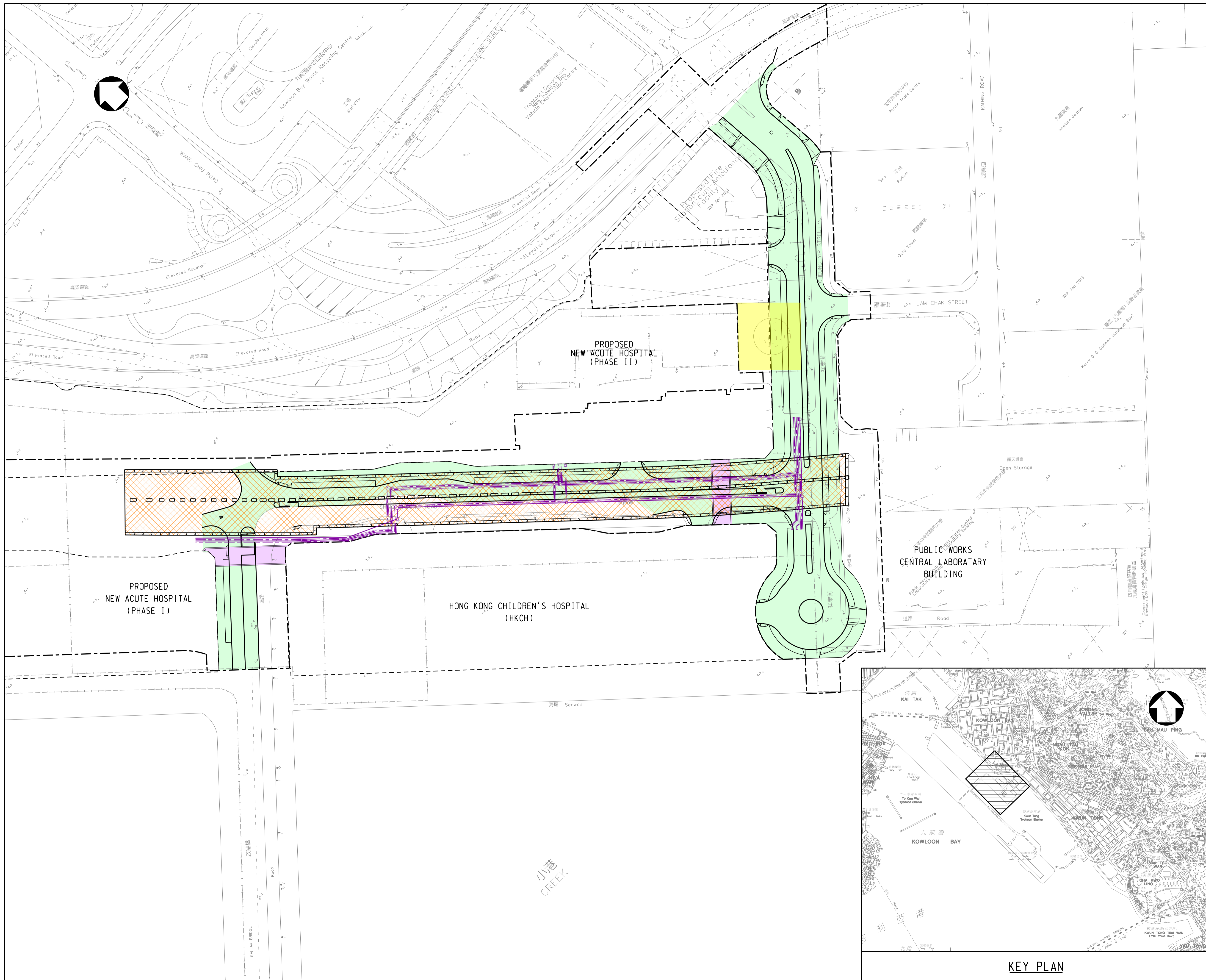
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### **Figure 1**

### **Project General Layout**



**LEGENDS:**

- SITE BOUNDARY
- HOSPITAL SITE BOUNDARY
- PROPOSED SUPPORTING UNDERGROUND STRUCTURE
- PROPOSED SUBWAYS
- PROPOSED ROADWORKS
- PROPOSED DISTRICT COOLING SYSTEM
- DEMOLITION OF RADAR TOWER

Rev.	Date	Drawn	Description	Checked	Approved

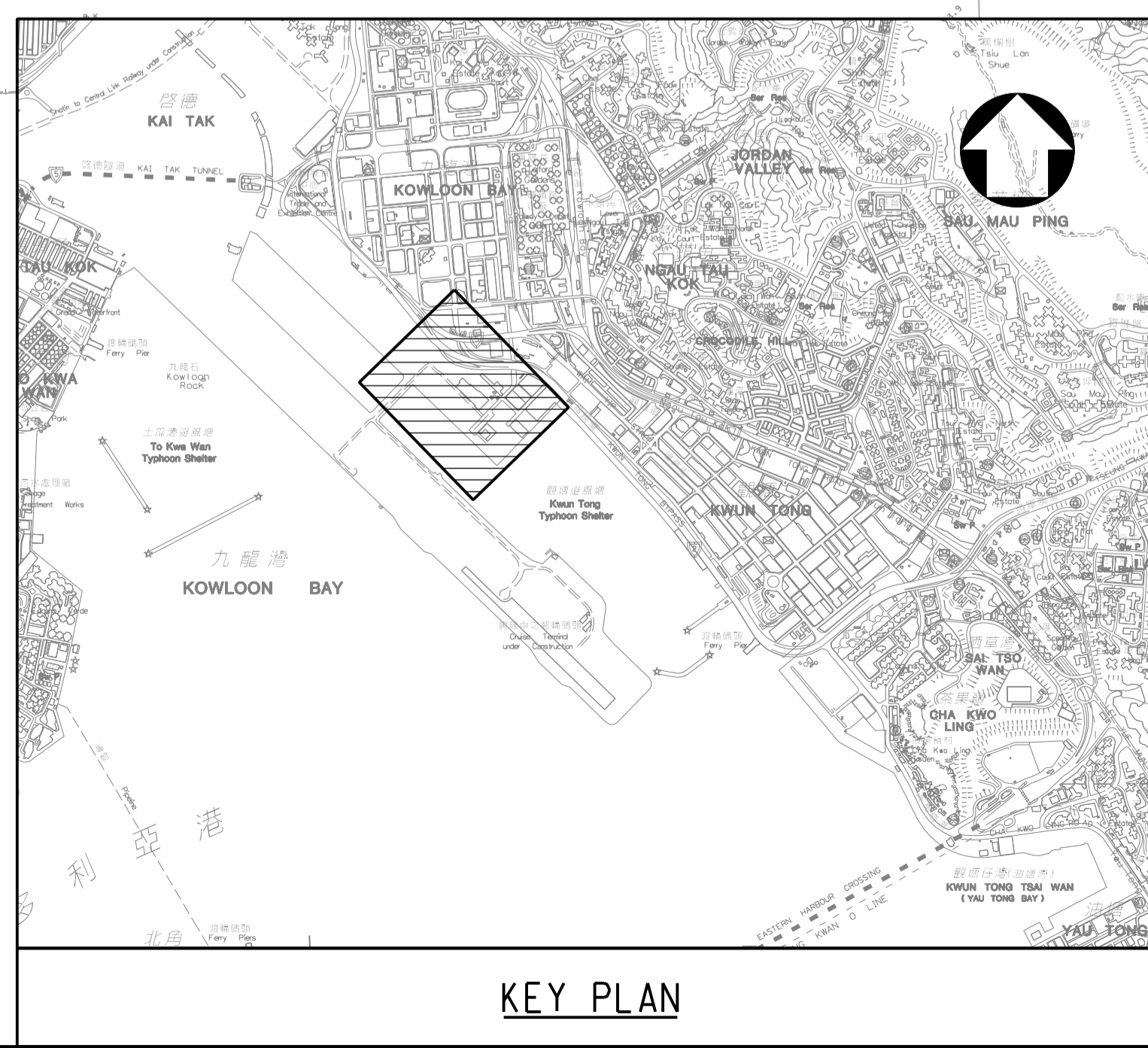


PROJECT  
 CONTRACT NO. KL/2014/03  
 KAI TAK DEVELOPMENT - STAGE 3  
 INFRASTRUCTURE WORKS FOR  
 DEVELOPMENTS AT THE SOUTHERN PART OF  
 THE FORMER RUNWAY

TITLE  
**GENERAL LAYOUT PLAN**

DESIGNED		ENG. CHECK	
DRAWN		COORDINATION	
DWG. CHECK		APPROVED	
SCALE AT A1 <b>1 : 1000</b>	STATUS	REV	<b>A</b>

Drawing No. **FIGURE 1.0**  
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**KEY PLAN**

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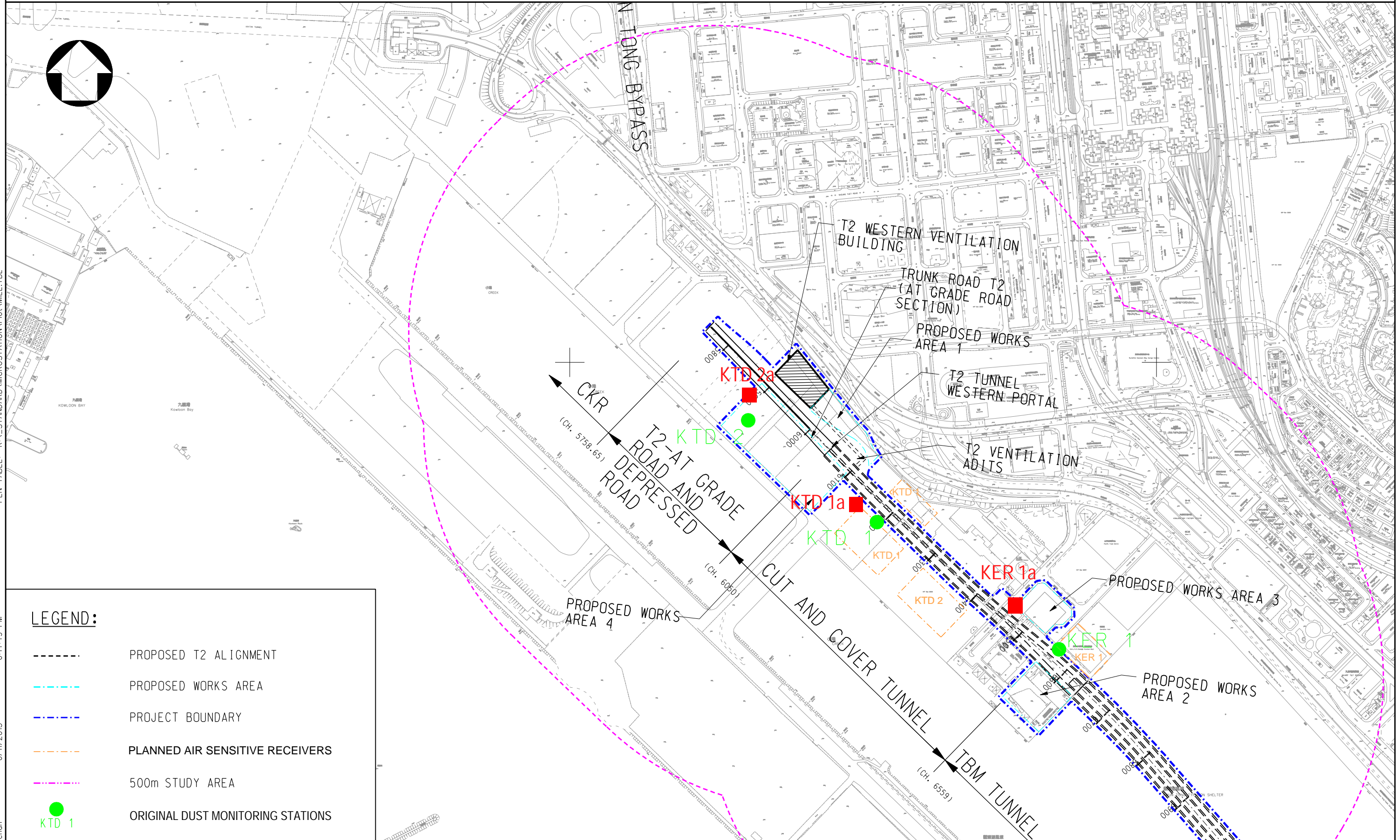
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### **Figure 2**

#### **Air and Noise Monitoring Locations**



**LEGEND:**

-  PROPOSED T2 ALIGNMENT
-  PROPOSED WORKS AREA
-  PROJECT BOUNDARY
-  PLANNED AIR SENSITIVE RECEIVERS
-  500m STUDY AREA
-  ORIGINAL DUST MONITORING STATIONS

-  PROPOSED DUST MONITORING STATIONS

Drawing title

IDENTIFIED DUST MONITORING STATIONS AT SOUTH APRON OF FORMER KAI TAK AIRPORT

Original Size

A3

Scale 1 : 6000

Date 30/01/2012

File name

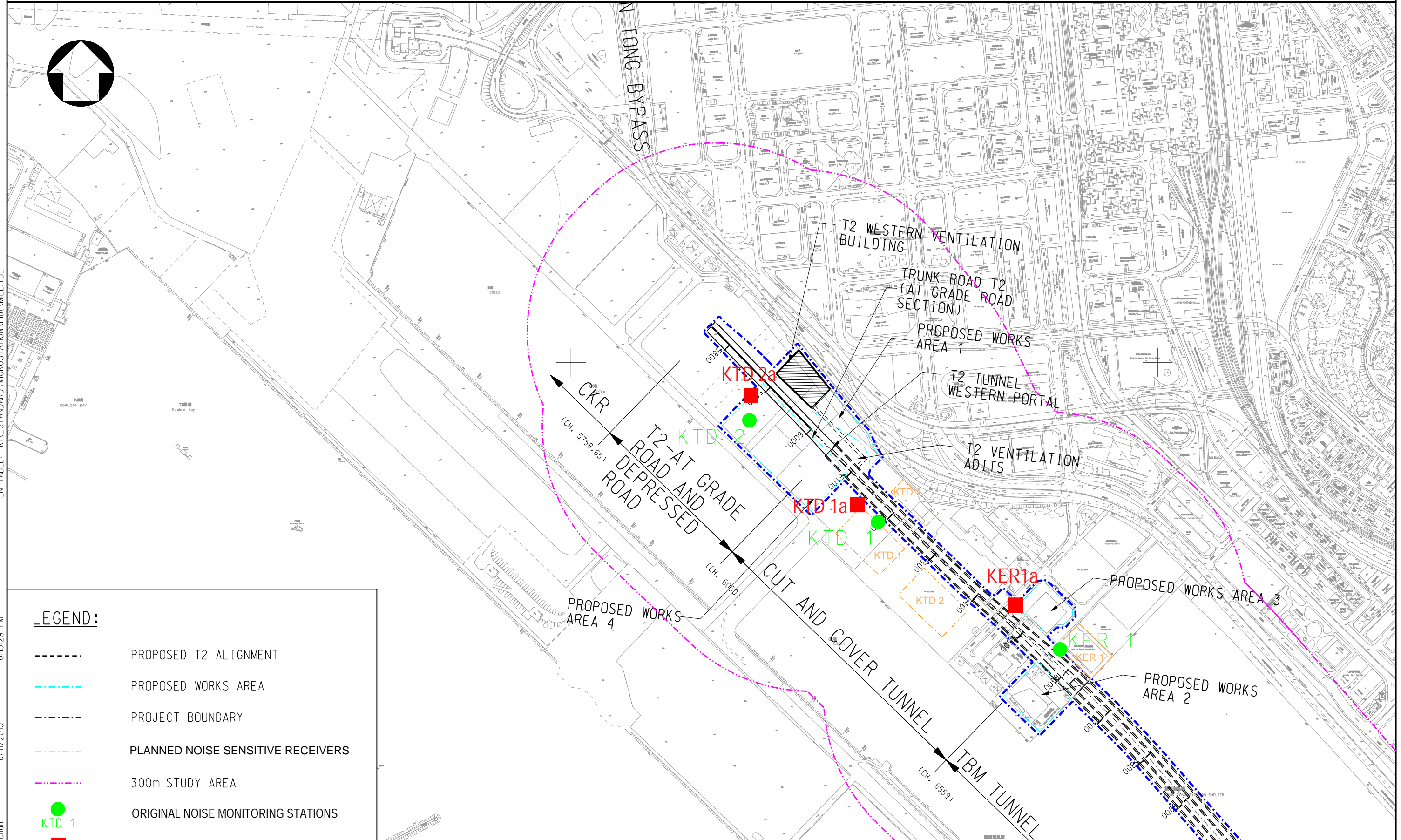
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Drawing No.








FIGURE 2.1a(revised)

Rev.

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**LEGEND:**

-  PROPOSED T2 ALIGNMENT
-  PROPOSED WORKS AREA
-  PROJECT BOUNDARY
-  PLANNED NOISE SENSITIVE RECEIVERS
-  300m STUDY AREA
-  ORIGINAL NOISE MONITORING STATIONS
-  PROPOSED NOISE MONITORING STATIONS

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Rev.	Description	Date

Drawing title  
**IDENTIFIED NOISE MONITORING STATIONS AT SOUTH APRON OF FORMER KAI TAK AIRPORT**

Original Size	A3	Scale	1 : 6000	Date	30/01/2012
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		Drawing No.	FIGURE 3.1a (revised)		
		Rev.	--		

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### **Appendix A**

### **Construction Programme**

KL/2014/03 Kai Tak Development-Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

Activity ID	Activity Name	Original Duration	Start	Finish	Predecessors	Total Float	March 2016							April 2016							May 2016							June 2016							July 2016													
							28	06	13	20	27	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17	24							
<b>KL/2014/03-Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway</b>		<b>1294</b>	<b>23-Nov-15 A</b>	<b>12-Jun-19</b>		<b>8</b>																																										
<b>Project Key Dates</b>		<b>0</b>	<b>02-May-16</b>	<b>02-May-16</b>		<b>0</b>	▼ Project Key Dates																																									
<b>Site Possession Date</b>		<b>0</b>	<b>02-May-16</b>	<b>02-May-16</b>		<b>0</b>	▼ Site Possession Date																																									
K-PK-SPD-100	Portion A	0	02-May-16*		K-PK-PCC-100	0	◆ Portion A																																									
<b>Preliminaries, Alternative Design, Submission and Approval</b>		<b>317</b>	<b>23-Nov-15 A</b>	<b>27-Oct-16</b>		<b>553</b>																																										
<b>Alternative Design for Supporting Underground Structure(SUS)</b>		<b>210</b>	<b>24-Dec-15 A</b>	<b>24-Jul-16</b>		<b>115</b>	▼ Alter																																									
K-PA-ADS-100	AIP Submission and approval	35	24-Dec-15 A	20-Apr-16	K-PA-ADS-090	39	AIP Submission and approval																																									
K-PA-ADS-110	DDA Submission and approval- Tunnel box from CH6+150 to CH6+227	35	20-Jun-16	24-Jul-16	K-PA-ADS-100	115	DDA																																									
K-PA-ADS-115	DDA Submission and approval- SUS D-Wall from CH6+227 to CH6+568	35	26-Feb-16 A	25-May-16	K-PA-ADS-100	41	DDA Submission and approval- SUS D-Wall from CH6+227 to CH6+568																																									
K-PA-ADS-125	DDA Submission and approval- Socketted H-Pile foundation from CH6+150 to CH6+227	35	19-Jan-16 A	22-Apr-16	K-PA-ADS-100	65	DDA Submission and approval- Socketted H-Pile foundation from CH6+150 to CH6+227																																									
K-PA-ADS-130	DDA Submission and approval- Socketted H-Pile foundation from CH6+227 to CH6+568	35	21-Mar-16 A	11-May-16	K-PA-ADS-125	90	DDA Submission and approval- Socketted H-Pile foundation from CH6+227 to CH6+568																																									
<b>General Submission Under PS</b>		<b>264</b>	<b>23-Nov-15 A</b>	<b>27-Oct-16</b>		<b>553</b>																																										
<b>Programming / Reporting</b>		<b>60</b>	<b>19-Mar-16 A</b>	<b>16-May-16</b>		<b>156</b>	▼ Programming / Reporting																																									
<b>Works Programme</b>		<b>60</b>	<b>19-Mar-16 A</b>	<b>16-May-16</b>		<b>156</b>	▼ Works Programme																																									
K-PA-GSP-420	Prepare & submit Works Programme	60	19-Mar-16 A	16-May-16	K-PA-GSP-410	156	Prepare & submit Works Programme																																									
<b>Major Temporary Works Design</b>		<b>70</b>	<b>07-Jan-16 A</b>	<b>26-Jul-16</b>		<b>645</b>	▼ Ma																																									
K-PA-GSP-680	ELS design for construction of SUS and ventilation adit from CH6+150 to CH6+227 in Zone 1	35	07-Jan-16 A	04-May-16	K-PA-GSP-665, 1	196	ELS design for construction of SUS and ventilation adit from CH6+150 to CH6+227 in Zone 1																																									
K-PA-GSP-686	ELS design for construction of subway B (Bay 3&4)	35	22-Jun-16	26-Jul-16	K-PA-GSP-885	645	ELS																																									
K-PA-GSP-687	Temporary vehicular and pedestrian access for HKCH	35	21-May-16	24-Jun-16	K-PK-SPD-260, 1	145	Temporary vehicular and pedestrian ac																																									
K-PA-GSP-694	Temporary work design for demoliton of the existing radar tower	35	21-May-16	24-Jun-16	K-PK-PCC-100	241	Temporary work design for demoliton c																																									
K-PA-GSP-835	Temporary work design for construction of subway structure	35	21-May-16	24-Jun-16	K-PK-PCC-100	27	Temporary work design for construction																																									
K-PA-GSP-885	Pumping Test for SUS Cofferdam in Zone 2 to 4	35	18-May-16	21-Jun-16	K-PA-GSP-875	247	Pumping Test for SUS Cofferdam in Zone																																									
<b>Major Construction Works Method Statement</b>		<b>111</b>	<b>14-Mar-16 A</b>	<b>19-Jul-16</b>		<b>121</b>	▼ Major Con																																									
K-PA-GSP-714	Method statement of Excavation and ELS	60	21-May-16	19-Jul-16	K-PK-PCC-100	120	Method sta																																									
K-PA-GSP-732	Method statement for Demolition of Rader Tower	60	14-Mar-16 A	17-Apr-16	K-PK-SPD-230	214	Method statement for Demolition of Rader Tower																																									
<b>Temporary Utility Diversion/ Relocation</b>		<b>223</b>	<b>23-Nov-15 A</b>	<b>27-Oct-16</b>		<b>19</b>																																										
K-PA-GSP-666	Submission and approval utility diversion scheme in Zone 1	30	12-Jan-16 A	02-Apr-16	K-PK-PCC-100	2	Submission and approval utility diversion scheme in Zone 1																																									
K-PA-GSP-667	Submission and approval utility diversion scheme in Zone 2,3&4	45	25-Jan-16 A	22-Apr-16	K-PA-GSP-665	52	Submission and approval utility diversion scheme in Zone 2,3&4																																									
K-PA-GSP-668	Utility coordination and liasion	90	09-Dec-15 A	02-May-16	K-PA-GSP-666, 1	19	Utility coordination and liasion																																									
K-PA-GSP-860	Temporary utility diversion work in Zone 1	105	03-May-16	15-Aug-16	K-PA-GSP-666	2																																										
K-PA-GSP-865	Temporary utility diversion work in Zone 2,3&4	120	01-Jun-16	29-Sep-16	K-PA-GSP-860, 1	47																																										
<b>Utility Diversion Works</b>		<b>90</b>	<b>01-Jun-16</b>	<b>15-Sep-16</b>		<b>4</b>																																										
K-PA-GSP-861	Laying DN600 MS fresh watermain at Zone 1	50	01-Jun-16	30-Jul-16	K-PA-GSP-860	4																																										
K-PA-GSP-866	Laying DN300 D.I fresh watermain at Zone 4	90	01-Jun-16	15-Sep-16	K-PA-GSP-861	4																																										
K-PA-GSP-867	Laying DN250 D.I salt watermain at Zone 4	90	01-Jun-16	15-Sep-16	K-PA-GSP-861, 1	4																																										
K-PA-GSP-868	Construction of 900 covered rectangular channel (E/B) at Zone 3 & 4	75	01-Jun-16	29-Aug-16	K-PA-GSP-861	19																																										
<b>Utility Works by Others</b>		<b>223</b>	<b>23-Nov-15 A</b>	<b>27-Oct-16</b>		<b>19</b>																																										
K-1A-UDN-120	Diversion of existing 132kv CLP cable at Cheung Yip Street by others	223	23-Nov-15 A	02-Jul-16	K-PK-PCC-100	50	Diversion of existing 132kv CL																																									
K-PA-GSP-845	Utility laying for HGC, HKBN, CT, PCCW, NWT, TGT, MP & LPB by others	155	25-May-16	27-Oct-16	K-PA-GSP-667, 1	19																																										
<b>Temporary Traffic Management</b>		<b>130</b>	<b>22-Feb-16 A</b>	<b>18-Aug-16</b>		<b>49</b>																																										
<b>Temp Traffic Arrangement</b>		<b>130</b>	<b>22-Feb-16 A</b>	<b>18-Aug-16</b>		<b>49</b>																																										
K-PA-GSP-805	Submission and approval of TTA schemes-TTA stage 1A for D-wall W/B and End wall	90	22-Feb-16 A	20-May-16	K-PA-GSP-800	49	Submission and approval of TTA schemes-TTA stage 1A for D-wall W/B and I																																									
K-PA-GSP-810	Submission and approval of TTA schemes-TTA stage 2 for D-wall W/B at Zone 2	90	20-May-16	18-Aug-16	K-PA-GSP-805, 1	49																																										
<b>Prelimiaries</b>		<b>169</b>	<b>23-Nov-15 A</b>	<b>15-Sep-16</b>		<b>62</b>																																										
K-DR-PRE-140	Submit temporary works design and method statement for barging point	35	27-Apr-16	31-May-16	K-DR-PRE-135	62	Submit temporary works design and method statement for bargin																																									
K-DR-PRE-145	Set up temporary barging point	100	08-Jun-16	15-Sep-16	K-PK-SPD-220, 1	62																																										
K-DR-PRE-170	Site clearance and erection of hoarding & fencing	70	23-Nov-15 A	10-Apr-16	K-PK-PCC-100	70	Site clearance and erection of hoarding & fencing																																									
<b>Section 1A of the Works -Construction of Supporting Underground Structure(Alternative Design)</b>		<b>182</b>	<b>15-Dec-15 A</b>	<b>07-Nov-16</b>		<b>79</b>																																										
<b>SUS and Ventilation Adits from CH6+150 to CH6+224 in Zone 1</b>		<b>151</b>	<b>15-Dec-15 A</b>	<b>29-Sep-16</b>		<b>32</b>																																										
<b>Preparation Works</b>		<b>151</b>	<b>15-Dec-15 A</b>	<b>29-Sep-16</b>		<b>32</b>																																										
K-1A-SV1-007	Additional Ground investigation work	60	15-Dec-15 A	05-Apr-16	K-PA-GSP-665	55	Additional Ground investigation work																																									
K-1A-SV1-008	Fabrication and delivery of ELS strut/waling	110	21-May-16	29-Sep-16	K-PA-ADS-100	32																																										

█ Remaining Level of Effort    █ Remaining Work  
█ Actual Work                      █ Critical Remaining Work

3 MRP (April to June)

Date	Revision	Checked	Approved
31-Mar-16	2		

Activity ID	Activity Name	Original Duration	Start	Finish	Predecessors	Total Float	March 2016					April 2016					May 2016					June 2016					July 2016				
							28	06	13	20	27	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17	24			
<b>Temporary D-Wall and Piling Works</b>							Temporary D-Wall and Piling Works																								
K-1A-SV1-120	Construction of temporary D-wall eastbound and End Wall (CH6+150 - CH6+224)	80	12-Mar-16 A	06-May-16	K-1A-SV1-110, F	55	Construction of temporary D-wall eastbound and End Wall (CH6+150 - CH6+224)																								
K-1A-SV1-130	Construction of temporary D-wall westbound (CH6+150 - CH6+224)	65	11-Mar-16 A	04-May-16	K-1A-SV1-120	63	Construction of temporary D-wall westbound (CH6+150 - CH6+224)																								
K-1A-SV1-135	Installation of temporary bulkhead wall at CH6+224	21	27-Apr-16	24-May-16	K-1A-SV1-120	55	Installation of temporary bulkhead wall at CH6+224																								
K-1A-SV1-140	Installation of socketted H-piles for Intermediate Wall	70	26-Feb-16 A	27-May-16	K-PA-ADS-125, I	52	Installation of socketted H-piles for Intermediate Wall																								
K-1A-SV1-340	Installation of socketted H-piles for Eastbound and Westbound	70	31-Mar-16	24-Jun-16	K-PA-GSP-713, I	31	Installation of socketted H-piles for Eastbound and Westbound																								
K-1A-SV1-462	Loading test for socketted H-Piles	8	25-Jun-16	05-Jul-16	K-1A-SV1-140, F	65	Loading test for socketted H-Piles																								
<b>Tunnel Box Structure</b>							Tunnel Box Structure																								
K-1A-SV1-200	Installation of dewatering well, observation well and recharging well in Zone 1	30	08-Jun-16	14-Jul-16	K-1A-SV1-340, F	43	Installation of dewatering well, observation well and recharging well in Zone 1																								
<b>SUS and Ventilation Adits from CH6+224 to CH6+348 in Zone 2</b>							SUS and Ventilation Adits from CH6+224 to CH6+348 in Zone 2																								
<b>D-Wall and Piling Works</b>							D-Wall and Piling Works																								
<b>E/B D-Wall and Socketted H-Piles(CH6+224 to CH6+348) in TTA Stage 1</b>							E/B D-Wall and Socketted H-Piles(CH6+224 to CH6+348) in TTA Stage 1																								
K-1A-SV2-110	Predrilling works	32	18-Feb-16 A	01-Apr-16	K-1A-SV1-100, F	55	Predrilling works																								
K-1A-SV2-125	Construction of guide wall	25	19-Apr-16	20-May-16	K-PA-GSP-712, I	55	Construction of guide wall																								
K-1A-SV2-128	Plant mobilization and set up for D-wall	5	04-May-16	10-May-16	K-1A-SV2-110, F	63	Plant mobilization and set up for D-wall																								
K-1A-SV2-130	Construction of D-wall eastbound(CH6+254 to CH6+348)	72	26-May-16	19-Aug-16	K-1A-SV2-128, F	51	Construction of D-wall eastbound(CH6+254 to CH6+348)																								
K-1A-SV2-300	Installation of socketted H-piles (CH6+227 to CH6+348)	112	02-Jun-16	17-Oct-16	K-PA-ADS-130, I	56	Installation of socketted H-piles (CH6+227 to CH6+348)																								
<b>SUS Structure from CH6+348 to 6+467 in Zone 3</b>							SUS Structure from CH6+348 to 6+467 in Zone 3																								
<b>D-Wall and Piling Works</b>							D-Wall and Piling Works																								
<b>E/B D-Wall and Socketted H-Piles in TTA Stage 1</b>							E/B D-Wall and Socketted H-Piles in TTA Stage 1																								
K-1A-SV3-130	Predrilling works	74	19-Feb-16 A	27-Apr-16	K-PA-GSP-665, I	74	Predrilling works																								
K-1A-SV3-132	Construction of guide wall	21	27-Apr-16	24-May-16	K-1A-SV3-130	131	Construction of guide wall																								
K-1A-SV3-133	Plant mobilization and set up for D-wall	5	06-May-16	12-May-16	K-1A-SV3-130, F	66	Plant mobilization and set up for D-wall																								
K-1A-SV3-136	Construction of D-wall eastbound(CH6+348 to CH6+467)	62	24-May-16	06-Aug-16	K-1A-SV3-132, F	131	Construction of D-wall eastbound(CH6+348 to CH6+467)																								
K-1A-SV3-150	Installation of socketted H-piles (CH6+348 to CH6+467)	112	25-Jun-16	07-Nov-16	K-1A-SV1-140, F	31	Installation of socketted H-piles (CH6+348 to CH6+467)																								
<b>W/B D-Wall in TTA Stage 1A</b>							W/B D-Wall in TTA Stage 1A																								
K-1A-SV3-320	Construction of temporary diversion road for TTA stage 1A	80	16-Jun-16	19-Sep-16	K-PA-GSP-860	2	Construction of temporary diversion road for TTA stage 1A																								
<b>SUS Structure from CH6+467 to 6+568 in Zone 4</b>							SUS Structure from CH6+467 to 6+568 in Zone 4																								
<b>D-Wall and Piling Works</b>							D-Wall and Piling Works																								
<b>E/B D-Wall and Socketted H-Piles in TTA Stage 1</b>							E/B D-Wall and Socketted H-Piles in TTA Stage 1																								
K-1A-SV3-100	Predrilling works	35	18-Jan-16 A	04-May-16	K-PK-SPD-200, I	3	Predrilling works																								
K-1A-SV3-110	Plant mobilization and set up for D-wall	30	23-May-16	27-Jun-16	K-1A-SV3-100	3	Plant mobilization and set up for D-wall																								
K-1A-SV3-120	Construction of guide wall	21	06-Jun-16	30-Jun-16	K-PA-GSP-712, I	3	Construction of guide wall																								
K-1A-SV3-152	Installation of socketted H-piles(CH6+467 to CH6+550)	112	25-Jun-16	07-Nov-16	K-1A-SV3-150	79	Installation of socketted H-piles(CH6+467 to CH6+550)																								
<b>Section 2 of the Works-Demolition of Radar Tower and Guard House</b>							Section 2 of the Works-Demolition of Radar Tower and Guard House																								
K-02-DRG-110	Condition survey and installation of monitoring point	30	31-Mar-16	06-May-16	K-PK-SPD-230	161	Condition survey and installation of monitoring point																								
<b>Demolition of Radar Tower</b>							Demolition of Radar Tower																								
K-02-DRT-110	Erection of temporary scaffolding/proping	75	07-May-16	05-Aug-16	K-02-DRG-110, I	161	Erection of temporary scaffolding/proping																								
<b>Demolition of Guard House</b>							Demolition of Guard House																								
K-02-DGH-130	Trial trenches of before demolition of foundation	30	31-Mar-16	06-May-16	K-PA-GSP-734	344	Trial trenches of before demolition of foundation																								
K-02-DGH-135	Demolition of foundation of ex-GFS building	60	07-May-16	19-Jul-16	K-PA-GSP-734, I	344	Demolition of foundation of ex-GFS building																								
<b>Section 4B of the Works- Construction of Subway B(Subject to Excision)</b>							Section 4B of the Works- Construction of Subway B(Subject to Excision)																								
<b>Bay 1&amp;2</b>							Bay 1&2																								
K-4B-BAY-200	ELS for Bay 1&2	42	10-Jun-16	29-Jul-16	K-4B-BAY-100, I	22	ELS for Bay 1&2																								
<b>Section 7 of the Works-Preservation and Protection of Existing Trees</b>							Section 7 of the Works-Preservation and Protection of Existing Trees																								
K-07-001-001	Section 7 of the Works-Preservation and Protection of Existing Trees	1200	29-Feb-16 A	12-Jun-19	K-DR-PRE-175,	8	Section 7 of the Works-Preservation and Protection of Existing Trees																								

█ Remaining Level of Effort    █ Remaining Work  
█ Actual Work                    █ Critical Remaining Work

### 3 MRP (April to June)

Date	Revision	Checked	Approved
31-Mar-16	2		

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### **Appendix B**

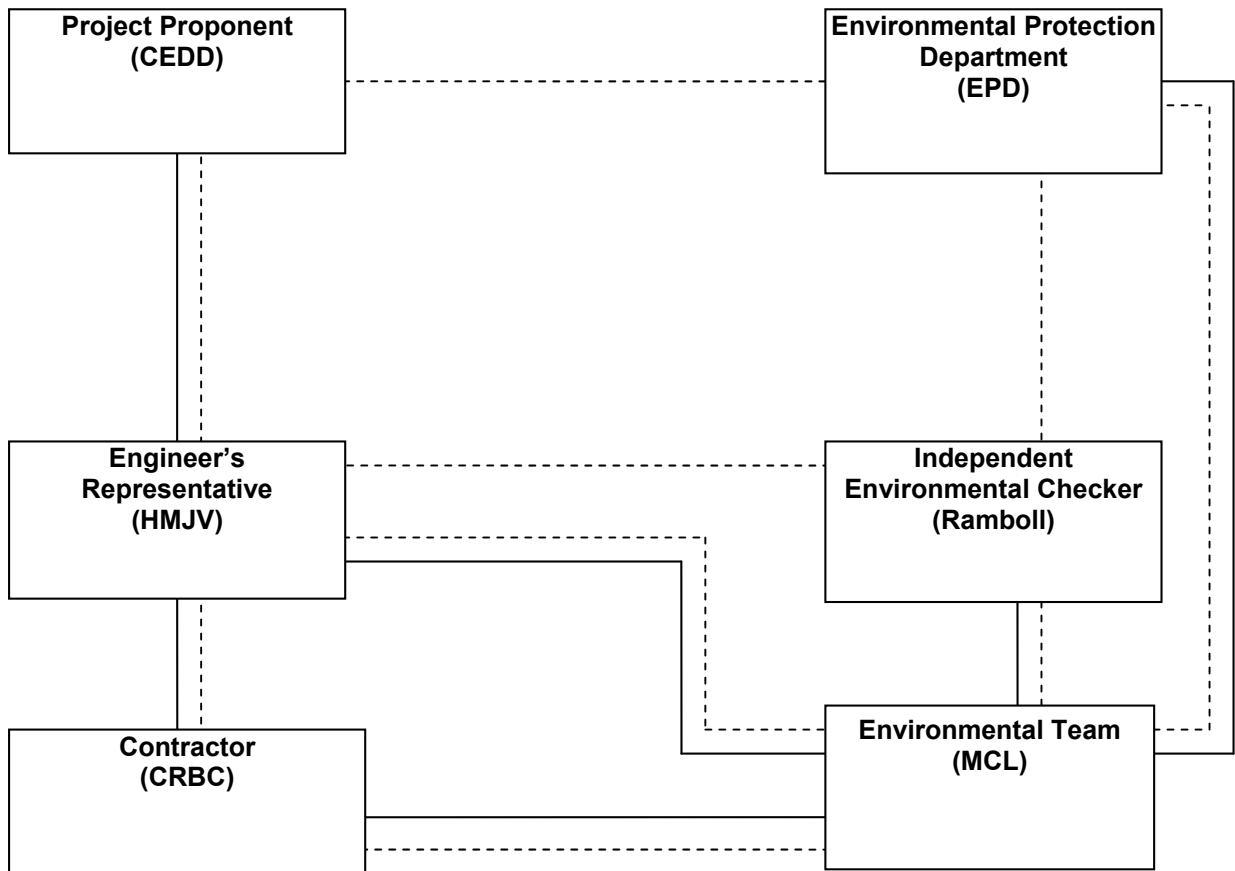
#### **Project Organization Chart**

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### Legend:

- Line of Reporting
- - - Line of Communication



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### **Appendix C**

#### **Action and Limit Levels for Air Quality and Noise**

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### Action and Limit Levels for 24-hr TSP and 1-hr TSP

Parameter	Monitoring Station	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
24-hr TSP ( $\mu\text{g}/\text{m}^3$ )	KTD1a	177	260
	KTD2a	157	
	KER1a	172	
*1-hr TSP ( $\mu\text{g}/\text{m}^3$ )	KTD1a	285	500
	KTD2a	279	
	KER1a	295	

Note:

1-hr TSP monitoring should be required in case of complaints.

### Action and Limit Levels for Construction Noise, Leq (30min), dB(A)

Time Period	Location	Action	Limit
0700-1900 hrs on normal weekdays	KTD1a KTD2a KER1a	When one documented complaint is received	75 dB(A)

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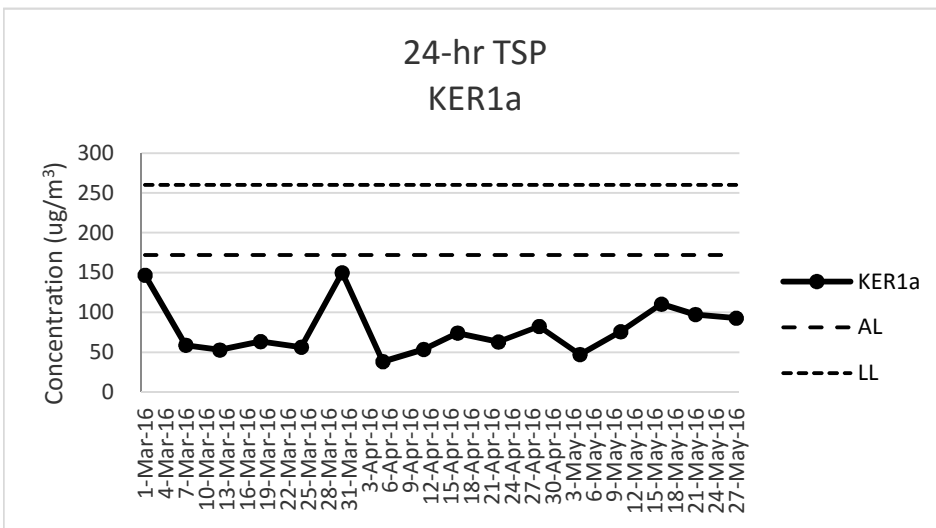
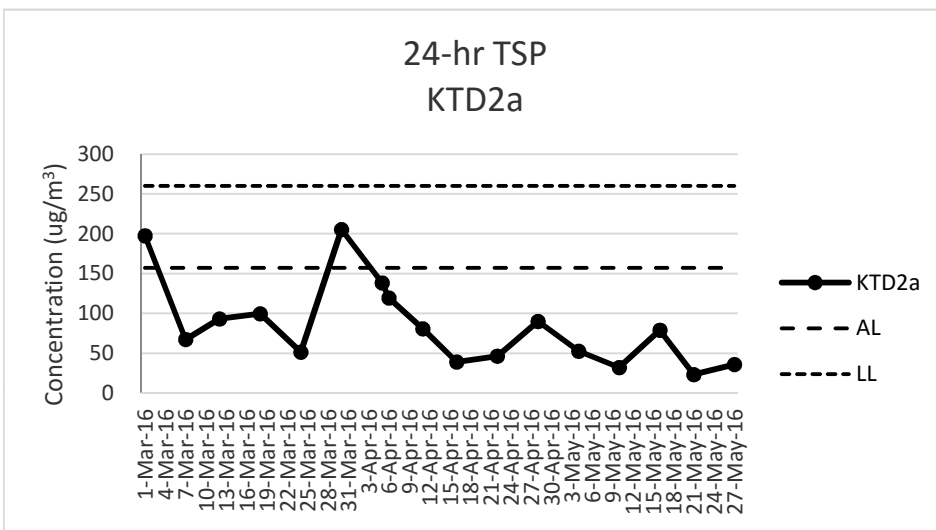
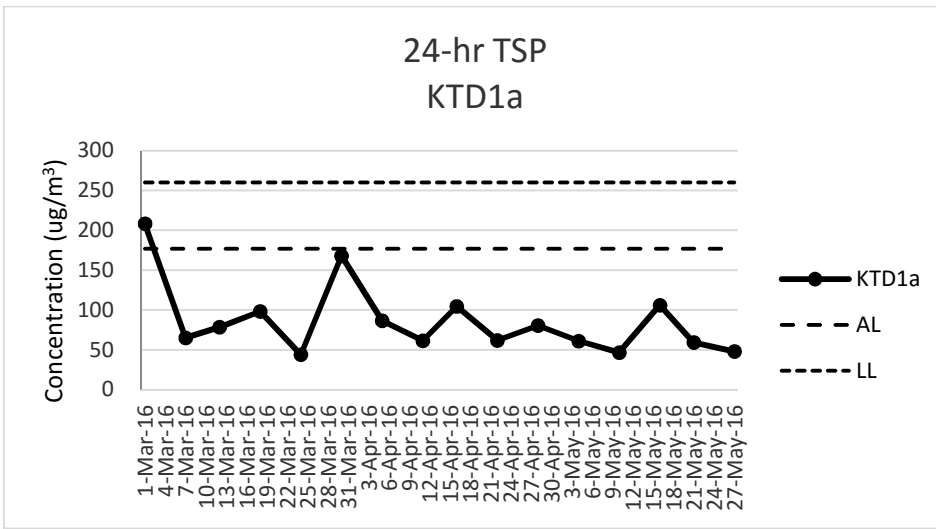
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### **Appendix D**

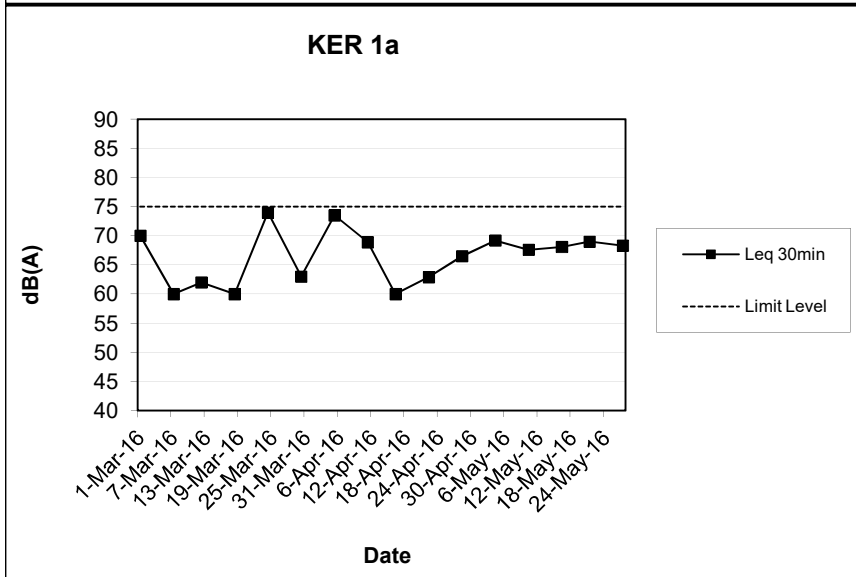
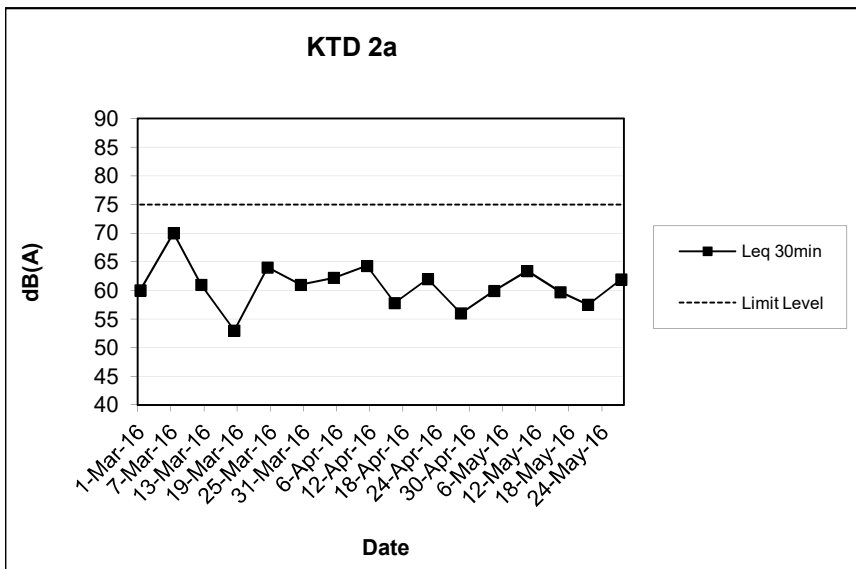
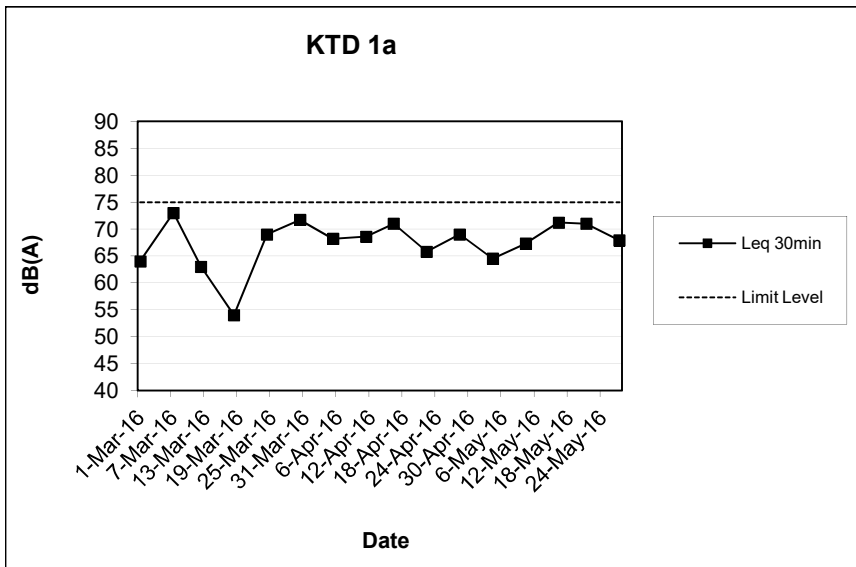
#### **Graphical Presentation of Monitoring Data**

## Graphical Presentation on 24-hr TSP Monitoring Results



Note:

- 1) The major activities being carried out on site during the reporting period can be referred to Section 1.3.2.
- 2) The weather conditions during monitoring in the reporting period was range from cloudy, fine and sunny.
- 3) Any other factors which might affect the monitoing results can be referred to Section 2.3.8.



**Note:**

- 1) The major activities being carried out on site during the reporting period can be referred to Section 1.3.2.
- 2) The weather conditions during monitoring in the reporting period was range from cloudy, fine and sunny. No raining or wind with speed over 5 m/s was observed during monitoring in the reporting period.
- 3) Any other factors which might affect the monitoing results can be referred to Section 2.3.8.

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### **Appendix E**

#### **Waste Flow Table**

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Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
2016 Jan	0.159	0.101	0.058	Nil	Nil	Nil	Nil	0.023	0.00002	0.0158	0.0335
2016 Feb	0.291	0.050	0.241	Nil	Nil	Nil	1.34	0.023	0.00002	0.0158	0.0335
2016 Mar	2.7389	0.0407	0.0662	Nil	2.632	Nil	5.92	0.023	0.00002	0.0158	0.0571
2016 Apr	4.1718	0.0578	0.462	Nil	3.652	Nil	12.5	0.023	0.00002	0.0158	0.0426
2016 May	3.592	Nil	0.299	Nil	3.293	Nil	5.23	0.023	0.00002	0.0158	0.0621
2016 June											
2016 July											
2016 Aug											
2016 Sept											
2016 Oct											
2016 Nov											
2016 Dec											
<b>Total</b>	<b>10.9527</b>	<b>0.2495</b>	<b>1.1262</b>	<b>Nil</b>	<b>9.577</b>	<b>Nil</b>	<b>24.99</b>	<b>0.115</b>	<b>0.0001</b>	<b>0.079</b>	<b>0.2288</b>

Note:

- 1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.

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### **Appendix F**

#### **Environmental Mitigation Implementation Schedule (EMIS)**



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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
<u>Air Quality Measures</u>					
New Distributor Roads Serving the Planned KTD					
AEIAR-130/2009 S3.2	AEIAR 130/2009 EM&A Manual S2.2	8 times daily watering of the work site with active dust emitting activities.	Contractor	All relevant worksites	Implemented
Decommissioning of the Radar Station of the former Kai Tak Airport					
AEIAR-130/2009 S5.2.19	AEIAR 130/2009 EM&A Manual S4.2.4	The excavation area should be limited to as small in size as possible and backfilled with clean and/or treated soil shortly after excavation work.  The exposed excavated area should be covered by the tarpaulin during night time.  The top layer soils should be sprayed with fine misting of water immediately before the excavation.	Contractor	All relevant worksites	Not Applicable
Trunk Road T2					
AEIAR-174/2013 S4.9.2.1	AEIAR-174/2013 EM&A Manual S2.3.1.1	Watering of the construction areas 12 times per day to reduce dust emissions by 91.7%, with reference to the "Control of Open Fugitive Dust Sources" (USEPA AP-42). The amount of water to be applied would be 0.91L/m <sup>2</sup> for the respective watering frequency.	Contractor	All relevant worksites	Implemented
		Dust enclosures with watering would be provided along the loading ramps and conveyor belts for unloading the C&D materials to the barge for dust suppression.	Contractor	All relevant worksites	Not Applicable
		8 km per hour is the recommended limit of the speed for vehicles on unpaved site roads.	Contractor	All relevant worksites	Implemented
<u>Good Site Practices</u>					
AEIAR-130/2009 S3.2, S5.2.19, AEIAR-174/2013 S4.9.2.2	AEIAR 130/2009 EM&A Manual S2.2, S4.2, AEIAR- 174/2013 EM&A Manual S2.3.1.2	Stockpiling site(s) should be lined with impermeable sheeting and banded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	Contractor	All relevant worksites	Partially Implemented
		Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. Use of frequent watering for particularly dusty construction areas and areas close to ASRs.	Contractor	All relevant worksites	Partially Implemented
		Misting for the dusty material should be carried out before being loaded into the vehicle. Any vehicle with an open load carrying area should have properly fitted side and tail boards.	Contractor	All relevant worksites	Implemented
		Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	Contractor	All relevant worksites	Partially Implemented
		Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; The tarpaulin should be properly secured and should extend at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before	Contractor	All relevant worksites	Partially Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		transportation.			
		The vehicles should be restricted to maximum speed of 10 km per hour. Confined haulage and delivery vehicle to designated roadways insider the site. Onsite unpaved roads should be compacted and kept free of lose materials.	Contractor	All relevant worksites	Implemented
		Vehicle washing facilities should be provided at every vehicle exit point. Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	Contractor	All relevant worksites	Implemented
		The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.			
		Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	Contractor	All relevant worksites	Partially Implemented
		Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.	Contractor	All relevant worksites	Implemented
		Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed.	Contractor	All relevant worksites	Implemented
		Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system.	Contractor	All relevant worksites	Implemented
		Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.	Contractor	All relevant worksites	Implemented
		Open stockpiles shall be avoided or covered. Prevent placing dusty material storage piles near ASRs.	Contractor	All relevant worksites	Partially Implemented
		Routing of vehicles and position of construction plant should be at the maximum possible distance from ASRs.	Contractor	All relevant worksites	Not Applicable
		<u>Dark smoke</u>			
		Dark smoke emission shall be control in accordance with the Air Pollution Control (Smoke) Regulation and ETWB TCW 19/2005.	Contractor	All relevant worksites	Implemented
		Plant and equipment should be well maintained to prevent dark smoke emission.	Contractor	All relevant worksites	Implemented
<u>Noise Measures</u>					
Trunk Road T2					

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
AEIAR-174/2013 S5.9.2.1	AEIAR-174/2013 EM&A Manual S3.4.1.1	The use of quieter plant, including Quality Powered Mechanical Equipment (QPME) is specified for the list of equipment: <ul style="list-style-type: none"> <li>• Concrete lorry mixer</li> <li>• Dump Truck, 5.5 tonne &lt; gross vehicle weight &lt;= 38 tonne</li> <li>• Generator, Super Silenced, 70 dB(A) at 7m</li> <li>• Poker, vibratory, Hand-held (electric)</li> <li>• Water Pump, Submersible (Electric)</li> <li>• Mobile Crane - KOBELCO CKS900</li> <li>• Excavator, wheeled/tracked - HYUNDAI R80CR-9</li> </ul>	Contractor	All relevant worksites	Implemented
		Use of temporary or fixed noise barriers with a surface density of at least 10kg/m <sup>2</sup> to screen noise from movable and stationary plant.	Contractor	All relevant worksites	Not Applicable
		Use of enclosures with covers at top and three sides and a surface density of at least 10kg/m <sup>2</sup> to screen noise from generally static noisy plant such as air compressors.	Contractor	All relevant worksites	Not Applicable
		Use of acoustic fabric for the silent piling system, drill rigs, rock drills etc.	Contractor	All relevant worksites	Partially Implemented
		<u>Good Site Practices</u>			
AEIAR-130/2009 S3.3, S5.3.10, AEIAR-174/2013 S5.9.2.1	AEIAR 130/2009 EM&A Manual S2.3, S4.3.2, AEIAR-174/2013 EM&A Manual S3.4.1.1	Only well-maintained plant should be operated on-site and plant shall be serviced regularly during the construction/ decommissioning program.	Contractor	All relevant worksites	Implemented
		Silencers or mufflers on construction equipment should be utilized and shall be properly maintained during the construction/ decommissioning program.	Contractor	All relevant worksites	Not Applicable
		Mobile plant, if any, should be sited as far away from NSRs as possible.	Contractor	All relevant worksites	Implemented
		Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or should be throttled down to a minimum.	Contractor	All relevant worksites	Implemented
		Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	Contractor	All relevant worksites	Implemented
		Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction/ decommissioning activities.	Contractor	All relevant worksites	Implemented
		Use of site hoarding as a noise barrier to screen noise at low level NSRs.	Contractor	All relevant worksites	Implemented
		For the use of hand held percussive breakers (with mass of above 10kg) and portable air compressors (supply air at 500 kPa or above), the noise level of such PME shall comply with a stringent noise emission standard and a noise emission label shall be obtained from the DEP before use at any time in construction site.	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Quiet powered mechanical equipment (PME) shall be used for the construction of the Project.	Contractor	All relevant worksites	Implemented
		Full enclosures shall be used to screen noise from relatively static PMEs (including air compressor, bar bender, concrete pump, generator and water pump) from sensitive receiver(s).	Contractor	All relevant worksites	Not Applicable
		Movable cantilevered noise barriers shall be used to screen noise from mobile PMEs (including asphalt paver, breaker, excavator and hand-held breaker) from sensitive receiver(s). These movable cantilevered noise barriers shall be located close to the mobile PMEs and shall be moved/adjusted iteratively in step with each movement of the corresponding mobile PMEs in order to maximize their noise reduction effects.	Contractor	All relevant worksites	Not Applicable
		Only approved or exempted Non-road Mobile Machineries (NRMMS) including regulated machines and non-road vehicles with proper labels are allowed to be used in specified activities on-site.	Contractor	All relevant worksites	Implemented
<u>Water Quality Measures</u>					
Trunk Road T2					
		<u>Accidental Spillage</u>			
AEIAR-174/2013 S6.4.8.5	AEIAR-174/2013 EM&A Manual S4.2.1.1	All bentonite slurry should be stored in a container that resistant to corrosion, maintained in good conditions and securely closed; The container should be labelled in English and Chinese and note that the container is for storage of bentonite slurry only.	Contractor	All relevant worksites	Implemented
		The storage container should be placed on an area of impermeable flooring and bunded with capacity to accommodate 110% of the volume of the container size or 20% by volume stored in the area and enclosed with at least 3 sides.	Contractor	All relevant worksites	Implemented
		The storage container should be sufficiently covered to prevent rainfall entering the container or bunded area (water collected within the bund must be tested and disposed of as chemical waste, if necessary). An emergency clean up kit shall be readily available where bentonite fluid will be stored or used.	Contractor	All relevant worksites	Implemented
		The handling and disposal of bentonite slurries should be undertaken in accordance within ProPECC PN 1/94. Surplus bentonite slurries used in construction works shall be reconditioned and reused wherever practicable. Residual bentonite slurry shall be disposed of from the site as soon as possible as stipulated in Clause 8.56 of the General Specification for Civil Engineering Works. The Contractor should explore alternative disposal outlets for the residual bentonite slurry (dewatered bentonite slurry to be disposed to a public filling area and liquid bentonite slurry, if mixed with inert fill material, to be disposed to a public filling area) and disposal at landfill should be the last resort.	Contractor	All relevant worksites	Implemented
AEIAR-174/2013 S6.4.8.8	AEIAR-174/2013 EM&A Manual	In order to protect against impacts to the surrounding marine waters of the KTTS and Victoria Harbour in the event of an accidental spillage of fuel or oil, the Contractor will be required to	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
	S4.2.1.1	prepare a spill response plan to the satisfaction of AFCD, EPD, FSD, Police, TD and WSD to define procedures for the control, containment and clean-up of any spillage that could occur on the construction site.			
		<u>Dredging, Reclamation and Filling</u>			
		No dredging, reclamation or filling in the marine environment shall be carried out.	Contractor	All relevant worksites	Implemented
<b>Decommissioning of the Radar Station of the former Kai Tak Airport</b>					
		<u>Building Demolition</u>			
AEIAR-130/2009 S5.4	AEIAR 130/2009 EM&A Manual S4.4	The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be followed as far as practicable in order to minimise surface runoff and the chance of erosion.	Contractor	All relevant worksites	Not Applicable
		There is a need to apply to EPD for a discharge licence under the WPCO for discharging effluent from the construction site. The discharge quality is required to meet the requirements specified in the discharge licence. All the runoff, wastewater or extracted groundwater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. It is anticipated that the wastewater generated from the works areas would be of small quantity. Monitoring of the treated effluent quality from the works areas should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD.	Contractor	All relevant worksites	Implemented
		<u>General Construction Works</u>			
		<u>Construction Runoff</u>			
AEIAR-130/2009 S3.4, S5.4/ AEIAR-174/2013 S6.4.8.1	AEIAR 130/2009 EM&A Manual S2.4, S4.4/ AEIAR-174/2013 EM&A Manual S4.2.1.1	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include the use of sediment traps and adequate maintenance of drainage systems to prevent flooding and overflow.	Contractor	All relevant worksites	Partially Implemented
		Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	Contractor	All relevant worksites	Implemented
		Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.			
		Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m <sup>3</sup> capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Contractor	All relevant worksites	Implemented
		Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m <sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Contractor	All relevant worksites	Partially Implemented
		Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	Contractor	All relevant worksites	Implemented
		Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.	Contractor	All relevant worksites	Not Applicable
		Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	Contractor	All relevant worksites	Not Applicable
		An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	Contractor	All relevant worksites	Implemented
		<u>Drainage</u>			
		It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	Contractor	All relevant worksites	Implemented
		All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient	Contractor	All relevant worksites	Implemented

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		operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.			
		<u>Stormwater Discharges</u>			
		Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes.	Contractor	All relevant worksites	Not Applicable
		<u>Sewage Effluent</u>			
		Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	Contractor	All relevant worksites	Implemented
		<u>Debris and Litter</u>			
		In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials, litter or wastes to marine waters does not occur. Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering into the adjacent harbour waters. Stockpiles of cement and other construction materials should be kept covered when not being used.	Contractor	All relevant worksites	Implemented
		<u>Accidental Spillage</u>			
		Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to the nearby harbour waters, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ. The bund should be drained of rainwater after a rain event.	Contractor	All relevant worksites	Implemented
<u>Waste Management Measures</u>					
		<u>Waste Management Plan</u>			
AEIAR-174/2013 S11.4.8.1	AEIAR-174/2013 EM&A Manual S9.2.1.2	Contractor should be requested to submit an outline Waste Management Plan (WMP) prior to the commencement of construction work, in accordance with the ETWB TC(W) No.19/2005 so as to provide an overall framework of waste management and reduction.	Contractor	All relevant worksites	Implemented
		<u>Good Site Practices</u>			
AEIAR-130/2009	AEIAR 130/2009	Nomination of an approved person, such as a site manager, to be responsible for good site	Contractor	All relevant	Implemented

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S3.5, S5.5	EM&A Manual S2.5, S4.5	practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.		worksites	
		Training of site personnel in proper waste management and chemical waste handling procedures.	Contractor	All relevant worksites	Partially Implemented
		Provision of sufficient waste disposal points and regular collection for disposal.	Contractor	All relevant worksites	Partially Implemented
		Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	Contractor	All relevant worksites	Implemented
		A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	Contractor	All relevant worksites	Implemented
		<u>Waste Reduction Measures</u>			
		Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals.	Contractor	All relevant worksites	Not Applicable
		Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.	Contractor	All relevant worksites	Partially Implemented
		Encourage collection of aluminum cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force.	Contractor	All relevant worksites	Implemented
		Any unused chemicals or those with remaining functional capacity should be recycled.	Contractor	All relevant worksites	Implemented
		Proper storage and site practices to minimize the potential for damage or contamination of construction materials.	Contractor	All relevant worksites	Implemented
		<u>Construction and Demolition Materials</u>			
		Where it is unavoidable to have transient stockpiles of C&D material within the work site pending collection for disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible.	Contractor	All relevant worksites	Implemented
		Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric.	Contractor	All relevant worksites	Partially Implemented
		Skip hoist for material transport should be totally enclosed by impervious sheeting.	Contractor	All relevant worksites	Implemented
Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site.	Contractor	All relevant worksites	Implemented		
The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	Contractor	All relevant worksites	Implemented		



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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle.	Contractor	All relevant worksites	Partially Implemented
		All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.	Contractor	All relevant worksites	Partially Implemented
		The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading.	Contractor	All relevant worksites	Implemented
		When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Materials" should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	Contractor	All relevant worksites	Implemented
		<b>Chemical Waste</b> After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Contractor	All relevant worksites	Partially Implemented
		<b>General Refuse</b> General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem.	Contractor	All relevant worksites	Partially Implemented
<b>Land Contamination Measures</b>					
		<b>For any excavation works conducted at Radar Station</b>			
AEIAR-130/2009 S3.6.57	AEIAR 130/2009 EM&A Manual S4.6	As the risk due to dermal contact with groundwater by site workers is uncertain, it is recommended that personnel protective equipment (PPE) be used by site workers as a mitigation measure.	Contractor	All relevant worksites	Not Applicable
<b>Landscape and Visual Impact</b>					

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
<b>New Distributor Roads Serving the Planned KTD</b>					
		<u>Construction Phase</u>			
AEIAR-130/2009 S3.8.12	AEIAR 130/2009 EM&A Manual S2.8	All existing trees should be carefully protected during construction.	Contractor	All relevant worksites	Not Applicable
		Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.	Contractor	All relevant worksites	Not Applicable
		Control of night-time lighting.	Contractor	All relevant worksites	Not Applicable
		Erection of decorative screen hoarding.	Contractor	All relevant worksites	Implemented
<b>Trunk Road T2</b>					
		<u>Construction Phase</u>			
AEIAR-174/2013 S9.9.1.1	AEIAR-174/2013 EM&A Manual S7.2.1.2	All works shall be carefully designed to minimize impacts on existing landscape resources and visually sensitive receivers. Existing trees within works area shall be retained and protected.	Contractor	All relevant worksites	Not Applicable
		Existing trees of good quality and condition that are unavoidably affected by the works should be transplanted.	Contractor	All relevant worksites	Not Applicable
		Large temporary stockpiles of excavated material shall be covered with unobtrusive sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance.	Contractor	All relevant worksites	Partially Implemented
		Construction plant and building material shall be orderly and carefully stored in order to create a neat and tidy visual appearance.	Contractor	All relevant worksites	Implemented
		Erection of decorative screen hoarding should be designed to be compatible with the existing urban context.	Contractor	All relevant worksites	Implemented
		All lighting in construction site shall be carefully controlled to minimize light pollution and night-time glare to nearby residences and GIC user. The contractor shall consider other security measures, which shall minimize the visual impacts.	Contractor	All relevant worksites	Not Applicable
<b>General Condition</b>					
		The Permit Holder shall display conspicuously a copy of this Permit on the Project site(s) at all vehicular site entrances/exits or at a convenient location for public's information at all times. The Permit Holder shall ensure that the most updated information about the Permit, including	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		any amended Permit, is displayed at such locations. If the Permit Holder surrenders a part or the whole of the Permit, the notice he sends to the Director shall also be displayed at the same locations as the original Permit. The suspended, varied or cancelled Permit shall be removed from display at the Project site(s).			

Implementation status: Implemented / Partially Implemented / Not Implemented / Not Applicable

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### **Appendix G**

#### **Quarterly Assessment on Construction Impacts**

Baseline 24hr TSP vs Impact 24hr TSP at KTD1a

Date	Baseline 24 hr TSP (ug/m3)
20-Jan-16	42
22-Jan-16	25
23-Jan-16	95
24-Jan-16	19
25-Jan-16	144
26-Jan-16	184
27-Jan-16	68
28-Jan-16	12
29-Jan-16	61
30-Jan-16	53
31-Jan-16	35
1-Feb-16	60
2-Feb-16	103
3-Feb-16	124

Date	Impact 24 hr TSP (ug/m3)
1-Mar-16	208
7-Mar-16	65
12-Mar-16	79
18-Mar-16	98
24-Mar-16	44
30-Mar-16	168
5-Apr-16	87
11-Apr-16	61
16-Apr-16	105
22-Apr-16	62
28-Apr-16	81
4-May-16	61
10-May-16	47
16-May-16	106
21-May-16	59
27-May-16	48

Baseline 24hr TSP vs Impact 24hr TSP at KTD1a

Baseline 24 hour TSP (ug/m3)		Quarterly 24 hour TSP (ug/m3)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	14	Number of Valid Observations	16
Number of Distinct Observations	14	Number of Distinct Observations	16
Minimum	12	Minimum	44.07
Maximum	184	Maximum	208.4
Mean of Raw Data	73.21	Mean of Raw Data	86.14
Standard Deviation of Raw Data	50.71	Standard Deviation of Raw Data	45.01
Kstar	1.704	Kstar	4.217
Mean of Log Transformed Data	4.038	Mean of Log Transformed Data	4.356
Standard Deviation of Log Transformed Data	0.791	Standard Deviation of Log Transformed Data	0.44
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.966	Correlation Coefficient R	0.889
Shapiro Wilk Test Statistic	0.927	Shapiro Wilk Test Statistic	0.798
Shapiro Wilk Critical (0.95) Value	0.874	Shapiro Wilk Critical (0.95) Value	0.887
Approximate Shapiro Wilk P Value	0.301	Approximate Shapiro Wilk P Value	0.00196
Lilliefors Test Statistic	0.184	Lilliefors Test Statistic	0.204
Lilliefors Critical (0.95) Value	0.237	Lilliefors Critical (0.95) Value	0.222
Data appear Normal at (0.05) Significance Level		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs			
User Selected Options			
From File			
Full Precision	OFF		
Confidence Coefficient	95%		
Substantial Difference	0		
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)		
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median		
Area of Concern Data: Quarterly 24 hour TSP (ug/m3)			
Background Data: Baseline 24 hour TSP (ug/m3)			
Raw Statistics			
	Site	Background	
Number of Valid Observations	16	14	
Number of Distinct Observations	16	14	
Minimum	44.07	12	
Maximum	208.4	184	
Mean	86.14	73.21	
Median	71.8	60.5	
SD	45.01	50.71	
SE of Mean	11.25	13.55	
Wilcoxon-Mann-Whitney (WMW) Test			
H0: Mean/Median of Site or AOC <= Mean/Median of Background			
Site Rank Sum W-Stat	275		
WMW Test U-Stat	139		
WMW Critical Value (0.050)	152		
Approximate P-Value	1.35E-01		
Conclusion with Alpha = 0.05			
Do Not Reject H0, Conclude Site <= Background			

Baseline 24hr TSP vs Impact 24hr TSP at KTD2a

Date	Baseline 24 hr TSP (ug/m3)
20-Jan-16	39
22-Jan-16	27
23-Jan-16	25
24-Jan-16	75
25-Jan-16	52
26-Jan-16	75
27-Jan-16	62
28-Jan-16	36
29-Jan-16	17
30-Jan-16	24
31-Jan-16	66
1-Feb-16	40
2-Feb-16	17
3-Feb-16	39

Date	Impact 24 hr TSP (ug/m3)
1-Mar-16	198
7-Mar-16	67
12-Mar-16	93
18-Mar-16	100
24-Mar-16	51
30-Mar-16	205
5-Apr-16	138
6-Apr-16	119
11-Apr-16	81
16-Apr-16	39
22-Apr-16	47
28-Apr-16	90
4-May-16	53
10-May-16	32
16-May-16	79
21-May-16	23
27-May-16	36

Baseline 24hr TSP vs Impact 24hr TSP at KTD2a

Baseline 24 hour TSP (ug/m3)		Quarterly 24 hour TSP (ug/m3)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	14	Number of Valid Observations	17
Number of Distinct Observations	11	Number of Distinct Observations	17
Minimum	17	Minimum	23.27
Maximum	75	Maximum	205.3
Mean of Raw Data	42.43	Mean of Raw Data	85.42
Standard Deviation of Raw Data	20.38	Standard Deviation of Raw Data	53.96
Kstar	3.594	Kstar	2.456
Mean of Log Transformed Data	3.633	Mean of Log Transformed Data	4.268
Standard Deviation of Log Transformed Data	0.509	Standard Deviation of Log Transformed Data	0.624
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.965	Correlation Coefficient R	0.941
Shapiro Wilk Test Statistic	0.91	Shapiro Wilk Test Statistic	0.879
Shapiro Wilk Critical (0.95) Value	0.874	Shapiro Wilk Critical (0.95) Value	0.892
Approximate Shapiro Wilk P Value	0.222	Approximate Shapiro Wilk P Value	0.033
Lilliefors Test Statistic	0.19	Lilliefors Test Statistic	0.161
Lilliefors Critical (0.95) Value	0.237	Lilliefors Critical (0.95) Value	0.215
Data appear Normal at (0.05) Significance Level		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs			
User Selected Options			
From File			
Full Precision	OFF		
Confidence Coefficient	95%		
Substantial Difference	0		
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)		
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median		
Area of Concern Data: Quarterly 24 hour TSP (ug/m3)			
Background Data: Baseline 24 hour TSP (ug/m3)			
Raw Statistics			
	Site	Background	
Number of Valid Observations	17	14	
Number of Distinct Observations	17	11	
Minimum	23.27	17	
Maximum	205.3	75	
Mean	85.42	42.43	
Median	79.02	39	
SD	53.96	20.38	
SE of Mean	13.09	5.446	
Wilcoxon-Mann-Whitney (WMW) Test			
H0: Mean/Median of Site or AOC <= Mean/Median of Background			
Site Rank Sum W-Stat	340		
WMW Test U-Stat	187		
WMW Critical Value (0.050)	160		
Approximate P-Value	3.69E-03		
Conclusion with Alpha = 0.05			
Reject H0, Conclude Site > Background			



Baseline 24hr TSP vs Impact 24hr TSP at KER1a

Date	Baseline 24 hr TSP (ug/m3)
20-Jan-16	71
22-Jan-16	49
23-Jan-16	34
24-Jan-16	94
25-Jan-16	17
26-Jan-16	129
27-Jan-16	113
28-Jan-16	64
29-Jan-16	27
30-Jan-16	59
31-Jan-16	99
1-Feb-16	38
2-Feb-16	40
3-Feb-16	80

Date	Impact 24 hr TSP (ug/m3)
1-Mar-16	147
7-Mar-16	59
12-Mar-16	53
18-Mar-16	64
24-Mar-16	56
30-Mar-16	150
5-Apr-16	38
11-Apr-16	54
16-Apr-16	74
22-Apr-16	63
28-Apr-16	83
4-May-16	47
10-May-16	76
16-May-16	110
21-May-16	97
27-May-16	93

Baseline 24hr TSP vs Impact 24hr TSP at KER1a

Baseline 24 hour TSP (ug/m3)		Quarterly 24 hour TSP (ug/m3)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	14	Number of Valid Observations	16
Number of Distinct Observations	14	Number of Distinct Observations	16
Minimum	17	Minimum	38.37
Maximum	129	Maximum	149.8
Mean of Raw Data	65.29	Mean of Raw Data	79.01
Standard Deviation of Raw Data	33.98	Standard Deviation of Raw Data	33.23
Kstar	2.891	Kstar	5.63
Mean of Log Transformed Data	4.034	Mean of Log Transformed Data	4.295
Standard Deviation of Log Transformed Data	0.586	Standard Deviation of Log Transformed Data	0.391
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.986	Correlation Coefficient R	0.941
Shapiro Wilk Test Statistic	0.961	Shapiro Wilk Test Statistic	0.88
Shapiro Wilk Critical (0.95) Value	0.874	Shapiro Wilk Critical (0.95) Value	0.887
Approximate Shapiro Wilk P Value	0.786	Approximate Shapiro Wilk P Value	0.0418
Lilliefors Test Statistic	0.129	Lilliefors Test Statistic	0.179
Lilliefors Critical (0.95) Value	0.237	Lilliefors Critical (0.95) Value	0.222
Data appear Normal at (0.05) Significance Level		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs			
User Selected Options			
From File			
Full Precision	OFF		
Confidence Coefficient	95%		
Substantial Difference	0		
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)		
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median		
Area of Concern Data: Quarterly 24 hour TSP (ug/m3)			
Background Data: Baseline 24 hour TSP (ug/m3)			
Raw Statistics			
	Site	Background	
Number of Valid Observations	16	14	
Number of Distinct Observations	16	14	
Minimum	38.37	17	
Maximum	149.8	129	
Mean	79.01	65.29	
Median	68.89	61.5	
SD	33.23	33.98	
SE of Mean	8.308	9.082	
Wilcoxon-Mann-Whitney (WMW) Test			
H0: Mean/Median of Site or AOC <= Mean/Median of Background			
Site Rank Sum W-Stat	272		
WMW Test U-Stat	136		
WMW Critical Value (0.050)	152		
Approximate P-Value	1.64E-01		
Conclusion with Alpha = 0.05			
Do Not Reject H0, Conclude Site <= Background			