

JOB NO.: TCS00670/13

**AGREEMENT NO. CE 45/2008 (CE)
LIANTANG/HEUNG YUEN WAI
BOUNDARY CONTROL POINT AND ASSOCIATED
WORKS**

**4th QUARTERLY ENVIRONMENTAL MONITORING &
AUDIT SUMMARY REPORT –
(May to July 2014)**

PREPARED FOR

**CIVIL ENGINEERING AND DEVELOPMENT
DEPARTMENT (CEDD)**

Quality Index

Date	Reference No.	Prepared By	Certified By
23 October 2014	TCS00670/13/600/R0243v2	 Nicola Hon (Environmental Consultant)	 T.W. Tam (Environmental Team Leader)

Version	Date	Description
1	7 October 2014	First Submission
2	23 October 2014	Amended against the IEC's comments on 17 October 2014

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23 October 2014

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By Email & Post

Attention: Mr Simon LEUNG

Dear Sirs

**Agreement No. CE 45/2008 (CE)
Liantang/Heung Yuen Wai Boundary Control Point and Associated Works
Independent Environmental Checker – Investigation
Quarterly EM&A Summary Report (No. 4) – May to July 2014**

With reference to the Quarterly EM&A Report No. 4 for May to July 2014 (Version 2) certified by the ET Leader we received on 23 October 2014, please be noted that we have no adverse comments on the captioned submission. We herewith verify the captioned submission in accordance with Section 13.4 of the EM&A Manual.

Thank you for your attention and please do not hesitate to contact the undersigned on tel. 3995 8120 or by email to antony.wong@smec.com; or our Mr Francis LEE on tel. 3995 8144 or by email to francis.lee@smec.com.

Yours faithfully
For and on behalf of
SMEC Asia Limited



Antony WONG

Independent Environmental Checker

cc	CEDD/BCP	-	Mr Pui Sang LI / Mr Eric CHAN / Mr William CHEUNG / Mr CM OR	by fax: 3547 1659
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EXECUTIVE SUMMARY

ES.01. This is the 4th Quarterly EM&A Summary Report for the “Liantang/Heung Yuen Wai Boundary Control Point and Associated Works” under Environmental Permit No. EP-404/2011/A (hereinafter “the EP”), covering the period from **1 May to 31 July 2014** (hereinafter “Reporting Period”).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES.02. Environmental monitoring activities under the EM&A programme in the Reporting Period are summarized in the following table.

Environmental Aspect	Environmental Monitoring Parameters / Inspection	Reporting Period	
		Number of Monitoring Locations to undertake	Total Occasions
Air Quality	1-hour TSP	6	282
	24-hour TSP	6	88
Construction Noise	L _{eq(30min)} Daytime	8	124
Water Quality	Water sampling	3 (Contract 3)	39*
		2 (Contract 5)	39*
Joint Site Inspection / Audit	IEC, ET, the Contractor and RE joint site Environmental Inspection and Auditing	Contract 2	10
		Contract 3	13
		Contract 5	13

(*) number of sampling day

BREACHES OF ACTION/LIMIT LEVELS

ES.03. In the Reporting Period, no exceedance of air quality and construction noise was registered. However, twenty-two (22) Action / Limit Level exceedances were recorded for water quality monitoring. The summary of breach of environmental performance is shown below.

Environmental Aspect	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	0	0	0		-
	24-hour TSP	0	0	0	-	-
Construction Noise	L _{eq(30min)} Daytime	0	0	0	-	-
Water Quality	DO	0	0	0	-	-
	Turbidity	1	9	10	Not project related	NA
	SS	2	10	12	Not project related	NA

ENVIRONMENTAL COMPLAINT

ES.04. In this Reporting Period, environmental complaints lodged for the Project are lists below:

Contract	Date of receive	Aspect
2	16 May 2014	Direct discharge of muddy water
	27 June 2014	Muddy water discharge to Ng Tung River.
	17 July 2014.	Dust generation from site haul road (TA01) at North Portal Site
3	27 June 2014	Water spray applied onto the road but excessive cleansing water was found accumulated on the public road which made the public road looks dirty when vehicles passed by
5	Nil	

ES.05. Remedial measures have been taken to resolve the complaints and investigation reports for the complaint have been submitted to relevant parties.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.06. No environmental summons or successful prosecutions were recorded in the Reporting Period.

REPORTING CHANGES

ES.07. The construction work for Contract 2 under the Project was commenced on 19 May 2014 and monitoring work at relevant monitoring locations including **2** air quality and **3** noise have been activated on 20 May 2014. Moreover, proposal for the change of air quality monitoring location from AM7a to AM7b was submitted to EPD on 4 June 2014 after verified by the IEC and it has approved by the EPD (EPD's ref.: (7) in EP 2/N7/A/52 Pt.12 dated 9 Jun 2014).

FUTURE KEY ISSUES

ES.08. During wet season, muddy water or other water pollutants from site surface runoff into Kong Yiu Channel and Ma Wat Channel will be key environment issue. Water quality mitigation measures to prevent surface runoff into nearby water bodies should be fully implemented.

ES.09. Special attention should also be paid on the potential construction dust impact since most of the construction sites are adjacent to villages. The Contractor should fully implement the construction dust mitigation measures properly.

ES.10. Construction noise should be a key environmental impact during the works. The noise mitigation measures such as use of quiet plants or temporary noise barrier installation at the construction noise predominate area should be implemented as accordance with the EM&A requirement.

ES.11. To control the site performance on waste management, the Contractor shall ensure that all solid and liquid waste management works are fully in compliance with the relevant license/permit requirements, such as the effluent discharge license and the chemical waste producer registration. The Contractor is also reminded to implement the recommended environmental mitigation measures according to the Environmental Monitoring and Audit Manual.

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

- 1.1.1. Civil Engineering and Development Department is the Project Proponent and the Permit Holder of *Agreement No. CE 45/2008 (CE) Liantang / Heung Yuen Wai Boundary Control Point and Associated Works*, which is a Designated Project to be implemented under Environmental Permit number EP-404/2011/A issued on 28 October 2013.
- 1.1.2. The Project consists of two main components: Construction of a Boundary Control Point (hereinafter referred as “BCP”); and Construction of a connecting road alignment. Layout plan of the Project is shown in [Appendix A](#).
- 1.1.3. The proposed BCP is located at the boundary with Shenzhen near the existing Chuk Yuen Village, comprising a main passenger building with passenger and cargo processing facilities and the associated customs, transport and ancillary facilities. The connecting road alignment consists of six main sections:
- 1) Lin Ma Hang to Frontier Closed Area (FCA) Boundary – this section comprises at-grade and viaducts and includes the improvement works at Lin Ma Hang Road;
 - 2) Ping Yeung to Wo Keng Shan – this section stretches from the Frontier Closed Area Boundary to the tunnel portal at Cheung Shan and comprises at-grade and viaducts including an interchange at Ping Yeung;
 - 3) North Tunnel – this section comprises the tunnel segment at Cheung Shan and includes a ventilation building at the portals on either end of the tunnel;
 - 4) Sha Tau Kok Road – this section stretches from the tunnel portal at Wo Keng Shan to the tunnel portal south of Loi Tung and comprises at-grade and viaducts including an interchange at Sha Tau Kok and an administration building;
 - 5) South Tunnel – this section comprises a tunnel segment that stretches from Loi Tung to Fanling and includes a ventilation building at the portals on either end of the tunnel as well as a ventilation building in the middle of the tunnel near Lau Shui Heung;
 - 6) Fanling – this section comprises the at-grade, viaducts and interchange connection to the existing Fanling Highway.
- 1.1.4. Action-United Environmental Services & Consulting has been commissioned as an Independent ET to implement the relevant EM&A program in accordance with the approved EM&A Manual, as well as the associated duties.
- 1.1.5. This is the 4th Quarterly EM&A Summary Report for the “*Liantang/Heung Yuen Wai Boundary Control Point and Associated Works*” under Environmental Permit No. EP-404/2011/A, covering the period from **1 May to 31 July 2014**.

1.2 REPORT STRUCTURE

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

Section 1	Introduction
Section 2	Project Organization and Construction progress
Section 3	Summary of Impact monitoring Requirements
Section 4	Air Quality Monitoring
Section 5	Construction Noise Monitoring
Section 6	Water Quality Monitoring
Section 7	Waste Management
Section 8	Non-compliance, Complaints, Notifications of Summons and Successful Prosecutions
Section 9	Implementation Status of Mitigation Measures
Section 10	Conclusions and Recommendations

2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

2.1 CONSTRUCTION CONTRACT PACKAGING

2.1.1 To facilitate the project management and implementation, the Project would be divided by the following contracts:

- Contract 2 (CV/2012/08)
- Contract 3 (CV/2012/09)
- Contract 4 (TCSS)
- Contract 5 (CV/2013/03)
- Contract 6 (CV/2013/08)

2.1.2 The details of each contracts is summarized below and the delineation of each contracts is shown in [Appendix A](#).

Contract 2 (CV/2012/08)

2.1.3 Contract 2 has awarded in December 2013 and construction work was commenced on 19 May 2014. Major Scope of Work of the Contract 2 is listed below:

- construction of an approximately 5.2km long dual two-lane connecting road (with about 0.4km of at-grade road and 4.8km of tunnel) connecting the Fanling Interchange with the proposed Sha Tau Kok Interchange;
- construction of a ventilation adit tunnel and the mid-ventilation building;
- construction of the north and south portal buildings of the Lung Shan Tunnel and their associated slope works;
- provision and installation of ventilation system, E&M works and building services works for Lung Shan tunnel and Cheung Shan tunnel and their portal buildings;
- construction of Tunnel Administration Building adjacent to Wo Keng Shan Road and the associated E&M and building services works; and
- construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 3 (CV/2012/09)

2.1.4 Contract 3 was awarded in July 2013 and construction work was commenced on 5 November 2013. Major Scope of Work of the Contract 3 is listed below:

- construction of four link roads connecting the existing Fanling Highway and the south portal of the Lung Shan Tunnel;
- realignment of the existing Tai Wo Service Road West and Tai Wo Service Road East;
- widening of the existing Fanling Highway (HyD's entrustment works);
- demolishing existing Kiu Tau vehicular bridge and Kiu Tau footbridge and reconstruction of the existing Kiu Tau Footbridge (HyD's entrustment works); and
- construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 4 (Contract number to be assigned)

2.1.5 Contract 4 has not yet awarded. The work of the Contract 4 includes provision and installation of Traffic Control and Surveillance System and the associated electrical and mechanical works for the Project.

Contract 5 (CV/2013/03)

2.1.6 Contract 5 has awarded in April 2013 and construction work was commenced in August 2013. Major Scope of Work of the Contract 5 is listed below:

- site formation of about 23 hectares of land for the development of the BCP;

- construction of an approximately 1.6 km long perimeter road at the BCP including a 175m long depressed road;
- associated diversion/modification works at existing local roads and junctions including Lin Ma Hang Road;
- construction of pedestrian subway linking the BCP to Lin Ma Hang Road;
- provision of resite area with supporting infrastructure for reprovisioning of the affected village houses; and
- construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 6 (CV/2013/08)

- 2.1.7 Contract 6 has not yet awarded. Major Scope of Work of the Contract 6 will be included below:
- construction of an approximately 4.6km long dual two-lane connecting road (with about 0.6km of at-grade road, 3.3km of viaduct and 0.7km of tunnel) connecting the BCP with the proposed Sha Tau Kok Road Interchange and the associated ventilation buildings;
 - associated diversion/modification works at access roads to the resite of Chuk Yuen Village;
 - provision of sewage collection, treatment and disposal facilities for the BCP and the resite of Chuk Yuen Village;
 - construction of a pedestrian subway linking the BCP to Lin Ma Hang Road;
 - provisioning of the affected facilities including Wo Keng Shan Road garden; and
 - construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

2.2 PROJECT ORGANIZATION

- 2.2.1 The project organization is shown in [Appendix B](#). The responsibilities of respective parties are:

Civil Engineering and Development Department (CEDD)

- 2.2.2 CEDD is the Project Proponent and the Permit Holder of the EP of the development of the Project and will assume overall responsibility for the project. An Independent Environmental Checker (IEC) shall be employed by CEDD to audit the results of the EM&A works carried out by the ET.

Environmental Protection Department (EPD)

- 2.2.3 EPD is the statutory enforcement body for environmental protection matters in Hong Kong.

Engineer or Engineers Representative (ER)

- 2.2.4 The ER is responsible for overseeing the construction works and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the ER with respect to EM&A are:
- Monitor the Contractors' compliance with contract specifications, including the implementation and operation of the environmental mitigation measures and their effectiveness
 - Monitor Contractors's, ET's and IEC's compliance with the requirements in the Environmental Permit (EP) and EM&A Manual
 - Facilitate ET's implementation of the EM&A programme
 - Participate in joint site inspection by the ET and IEC
 - Oversee the implementation of the agreed Event / Action Plan in the event of any exceedance
 - Adhere to the procedures for carrying out complaint investigation
 - Liaison with DSD, Engineer/Engineer's Representative, ET, IEC and the Contractor of the "Construction of the DSD's Regulation of Shenzhen River Stage 4 (RSR 4)" Project discussing regarding the cumulative impact issues.

The Contractor(s)

2.2.5 There will be one contractor for each individual works contract. The Contractor(s) should report to the ER. The duties and responsibilities of the Contractor are:

- Comply with the relevant contract conditions and specifications on environmental protection
- Employ an Environmental Team (ET) to undertake monitoring, laboratory analysis and reporting of EM & A. Facilitate ET's monitoring and site inspection activities
- Participate in the site inspections by the ET and IEC, and undertake any corrective actions
- Provide information / advice to the ET regarding works programme and activities which may contribute to the generation of adverse environmental impacts
- Submit proposals on mitigation measures in case of exceedances of Action and Limit levels in accordance with the Event / Action Plans
- Implement measures to reduce impact where Action and Limit levels are exceeded
- Adhere to the procedures for carrying out complaint investigation

Environmental Team (ET)

2.2.6 One ET will be employed for this Project. The ET shall not be in any way an associated body of the Contractor(s), and shall be employed by the Project Proponent/Contractor to conduct the EM&A programme. The ET should be managed by the ET Leader. The ET Leader shall be a person who has at least 7 years' experience in EM&A and has relevant professional qualifications. Suitably qualified staff should be included in the ET, and resources for the implementation of the EM&A programme should be allocated in time under the Contract(s), to enable fulfillment of the Project's EM&A requirements as specified in the EM&A Manual during construction of the Project. The ET shall report to the Project Proponent and the duties shall include:

- Monitor and audit various environmental parameters as required in this EM&A Manual
- Analyse the environmental monitoring and audit data, review the success of EM&A programme and the adequacy of mitigation measures implemented, confirm the validity of the EIA predictions and identify any adverse environmental impacts arising
- Carry out regular site inspection to investigate and audit the Contractors' site practice, equipment/plant and work methodologies with respect to pollution control and environmental mitigation, and effect proactive action to pre-empt problems
- Monitor compliance with conditions in the EP, environmental protection, pollution prevention and control regulations and contract specifications
- Audit environmental conditions on site
- Report on the environmental monitoring and audit results to EPD, the ER, the IEC and Contractor(s) or their delegated representatives
- Recommend suitable mitigation measures to the Contractor in the case of exceedance of Action and Limit levels in accordance with the Event and Action Plans
- Liaise with the IEC on all environmental performance matters and timely submit all relevant EM&A proforma for approval by IEC
- Advise the Contractor(s) on environmental improvement, awareness, enhancement measures etc., on site
- Adhere to the procedures for carrying out complaint investigation
- Liaison with the client departments, Engineer/Engineer's Representative, ET, IEC and the Contractor(s) of the concurrent projects as listed under Section 2.3 below regarding the cumulative impact issues.

Independent Environmental Checker (IEC)

2.2.7 One IEC will be employed for this Project. The Independent Environmental Checker (IEC) should not be in any way an associated body of the Contractor(s) or the ET for the Project. The IEC should be employed by the Permit Holder (i.e., CEDD) prior to the commencement of the construction of the Project. The IEC should have at least 10 years' experience in EM&A and have relevant professional qualifications. The duty of IEC should be:

- Provide proactive advice to the ER and the Project Proponent on EM&A matters related to the project, independent from the management of construction works, but empowered to audit the environmental performance of construction
- Review and audit all aspects of the EM&A programme implemented by the ET
- Review and verify the monitoring data and all submissions in connection with the EP and EM&A Manual submitted by the ET
- Arrange and conduct regular, at least monthly site inspections of the works during construction phase, and ad hoc inspections if significant environmental problems are identified
- Check compliance with the agreed Event / Action Plan in the event of any exceedance
- Check compliance with the procedures for carrying out complaint investigation
- Check the effectiveness of corrective measures
- Feedback audit results to ET by signing off relevant EM&A proforma
- Check that the mitigation measures are effectively implemented
- Report the works conducted, the findings, recommendation and improvement of the site inspections, after reviewing ET's and Contractor's works, and advices to the ER and Project Proponent on a monthly basis
- Liaison with the client departments, Engineer/Engineer's Representative, ET, IEC and the Contractor(s) of the concurrent projects as listed under Section 2.3 below regarding the cumulative impact issues.

2.3 CONCURRENT PROJECTS

2.3.1 The concurrent construction works that may be carried out include, but not limited to, the following:

- (a) Regulation of Shenzhen River Stage;
- (b) Building works and road works by contractors of ArchSD;
- (c) Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange – Contract No. HY/2012/06;
- (d) Construction of cross-boundary vehicular and pedestrian bridges (total 5 numbers) across the Shenzhen River; and
- (e) Construction of BCP facilities in Shenzhen.

2.4 CONSTRUCTION PROGRESS

2.4.1 In the Reporting Period, the major construction activity conducted under the Project is located in Contract 2, Contract 3 and Contract 5. They are summarized in below. Moreover, the master construction program of the Contract 2, Contract 3 and Contract 5 is enclosed in [Appendix C](#).

Contract 2 (CV/2012/08)

2.4.2 Construction work of Contract 2 was commenced on 19 May 2014, the following activities were conducted in the Reporting Period.

- **Project wide including:**
 - minor structures demolition
 - asbestos inspection; and
 - decontamination of structures with asbestos
- **North Portal including:**
 - excavation works
 - temporary access road
 - site formation works
 - slope stabilization
 - tree transplantation and felling work
 - erection of hoarding; and
 - site investigation
- **Mid Vent Portal including:**

- soil nails installation
- excavation works
- erection of Workshop
- slope stabilization
- archaeological survey
- land contamination survey
- site formation work
- tunnel excavation; and
- top heading canopies
- **South Portal including:**
 - instrumentation and monitoring works for temporary steel bridge construction
 - foundation works of bridge construction
 - mini piling works
 - trial pit for water mains inspection
 - site investigation works; and
 - tree transplanting and felling work
- **Others**
 - erection of Project Office at SA01
 - site office and workshop containers installation at CR6A
 - hoarding and fencing erection
 - road Improvement at Lau Shui Heung Road
 - removal of boulders

Contract 3 (CV/2012/09)

2.4.3 Contract commenced in November 2013, the following activities were conducted in the Reporting Period.

- Cable detection and trial trenches
- Tree Felling Works
- Pre-drilling works and piling works
- Bored pile and bored pile wall construction
- Construction of haul road and temporary soil platform for geotechnical works
- Slope upgrading works
- Noise barrier installation
- Waterworks
- Mini pile construction
- Extension of box culvert ID04, ID05 & BC01
- Diversion of DN1400
- Filling Works to existing stream
- Lay Dia.1050 storm drains
- Pile Cap
- Piling works for Bridge E
- Receiving & Jacking Pit
- Retaining Structure
- Road works at Fanling Highway
- Sewer works
- Soil nail construction

Contract 4 (Contract number to be assigned)

2.4.4 The contract has not yet awarded.

Contract 5 (CV/2013/03)

2.4.5 Contract awarded in April 2013 and commenced in August 2013, the following activities were conducted in the Reporting Period.

- Construction of Western pedestrian subway and staircase at Lin Ma Hang
- Construction of Eastern pedestrian subway and pump room at Lin Ma Hang

- Western lift shaft's construction
- Pile cap construction works at Bridge J
- Construction of retaining wall No.1
- Drainage works at existing / proposed Lin Ma Hang Road
- Water works at existing / proposed Lin Ma Hang Road
- Transplantation, Pruning/felling of existing tree
- Formation Works at BCP Area
- Preparation works and Pipe Jacking for CLP cable ducting of 3 nos. of steel sleeve pipe across Kong Yuen River
- Preparation works for Depressed Road at BCP3
- Drainage works at BCP area
- Pruning/ felling/ transplanting of existing tree
- Environmental impact monitoring

Contract 6 (CV/2013/08)

2.4.6 The contract has not yet awarded.

2.5 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.5.1 In according to the EP, the required documents have submitted to EPD for retention which listed in below:

- Project Layout Plans of Contracts 2, 3 and 5
- Landscape Plan
- Topsoil Management Plan
- Environmental Monitoring and Audit Programme
- Baseline Monitoring Report (TCS00690/13/600/R0030v3) for the Project
- Waste Management Plan of the Contracts 3 and 5
- Contamination Assessment Plan (CAP) for Po Kat Tsai, Loi Tung and the workshops in Fanling
- Vegetation Survey Report

2.5.2 Summary of the relevant permits, licenses, and/or notifications on environmental protection for the Project of each contracts are presented in **Table 2-1**.

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

Item	Description	License/Permit Status	
Contract 2			
1	Air pollution Control (Construction Dust) Regulation	Ref No.: 368864	31 Dec 2013
2	Chemical Waste Producer Registration	North Portal Waste Producers Number: No. 5213-652-D2523-01 Mid-Vent Portal Waste Producers Number: No. 5213-634-D2524-01 South Portal Waste Producers Number: No. 5213-634-D2526-01	Valid from 25 Mar 2014 Valid from 25 Mar 2014 Valid from 9 Apr 2014
3	Water Pollution Control Ordinance - Discharge License	No. WT00018374-2014 No.: W5/11389 No.: W5/11390	Valid from 3 Mar 2014 to 28 Feb 2019 Valid from 28 Mar 2014 to 31 Mar 2019 Valid from 24 Mar 2014 to 31 Mar 2019 Surrendered, effective

Item	Description	License/Permit Status	
		No.: W5/1I391	19 June 2014 Valid from 28 Mar 2014 to 31 Mar 2019
		No.: W5/1I392	Valid from 28 Mar 2014 to 31 Mar 2019
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7019105	Valid from 8 Jan 2014
5	Construction Noise Permit	GW-RN0268-14	Valid 24 Apr 2014 - 22 Oct 2014
		GW-RN0303-14	Valid 21 May 2014 - 6 Nov 2014
		GW-RN0432-14	Valid 11 Jul 2014 - 6 Jan 2015
		GW-RN0430-14	Valid 8 Jul 2014 - 29 Dec 2014
Contract 3			
1	Air pollution Control (Construction Dust) Regulation	Ref. No: 362101	Notification received by EPD on 17 Jul 2013
2	Chemical Waste Producer Registration	Waste Producers Number: No.:5113-634-C3817-01	Valid form 7 Oct 2013 till the end of Contract
3	Water Pollution Control Ordinance - Discharge License	No.:WT00016832 – 2013	Valid from 28 Aug 13 to 31 Aug 2018
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7017914	Valid form 2 Aug 13 till the end of Contract
5	Construction Noise Permit	GW-RN0397-14	Valid on 29 Jun 2014 till 28 Dec 2014
		GW-RN0445-14	Valid on 28 Jul 2014 till 25 Jan 2015
Contract 5			
1	Air pollution Control (Construction Dust) Regulation	Ref. No: 359338	Notified EPD on 13 May 2013
2	Chemical Waste Producer Registration	Waste Producers Number No.: 5213-642-S3735-01	Valid form 8 Jun 2013 till the end of Contract
3	Water Pollution Control Ordinance - Discharge License	No.: W5/1G44/1	Valid from 8 Jun 13 to 30 Jun 2018
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7017351	Valid form 29 Apr 13 till the end of Contract
5	Construction Noise Permit	NA	NA

3 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

3.1 GENERAL

3.1.1 The Environmental Monitoring and Audit requirements are set out in the Approved EM&A manual. Environmental issues such as air quality, construction noise and water quality were identified as the key issues during the construction phase of the Project.

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

3.2 MONITORING PARAMETERS

3.2.1 The EM&A program of construction phase monitoring shall cover the following environmental issues:

- Air quality;
- Construction noise; and
- Water quality

3.2.2 A summary of the monitoring parameters is presented in *Table 3-1*.

Table 3-1 Summary of EM&A Requirements

Environmental Issue	Parameters
Air Quality	<ul style="list-style-type: none"> • 1-hour TSP by Real-Time Portable Dust Meter; and • 24-hour TSP by High Volume Air Sampler.
Noise	<ul style="list-style-type: none"> • $L_{eq(30min)}$ in normal working days (Monday to Saturday) 07:00-19:00 except public holiday; and • 3 sets of consecutive $L_{eq(5min)}$ on restricted hours i.e. 19:00 to 07:00 next day, and whole day of public holiday or Sunday • Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.
Water Quality	In-situ Measurements <ul style="list-style-type: none"> • Dissolved Oxygen Concentration (mg/L); • Dissolved Oxygen Saturation (%); • Turbidity (NTU); • pH unit; • Water depth (m); and • Temperature (°C).
	Laboratory Analysis <ul style="list-style-type: none"> • Suspended Solids (mg/L)

3.3 MONITORING LOCATIONS

3.3.1 The designated monitoring locations as recommended in the *EM&A Manual* are shown in [Appendix D](#). As the access to some of the designated monitoring locations was questionable due to safety reason or denied by the landlords, alternative locations therefore have had proposed. The proposed alternative monitoring locations has updated in the revised EM&A Programme which verified by IEC and certified by ET Leader prior submitted to EPD on 10 July 2013. *Table 3-2*, *Table 3-3* and *Table 3-4* are respectively listed the air quality, construction noise and water quality monitoring locations for the Project and a map showing these monitoring stations is presented in [Appendix E](#).

Table 3-2 Impact Monitoring Stations - Air Quality

Station ID	Description	Works Area	Related to the Work Contract
AM1	Tsung Yuen Ha Village House No. 63	BCP	Contract 5
AM1a*	Garden Farm, Tsung Yuen Ha Village	BCP	Contract 5
AM2	Village House near Lin Ma Hang Road	LMH to Frontier Closed Area	Contract 5, Contract 6

Station ID	Description	Works Area	Related to the Work Contract
AM3	Ta Kwu Ling Fire Service Station of Ta Kwu Ling Village.	LMH to Frontier Closed Area	Contract 5, Contract 6
AM4a	A village house located at about 160m east side of the original point AM4	LMH to Frontier Closed Area	Contract 6
AM5	Ping Yeung Village House	Ping Yeung to Wo Keng Shan	Contract 6
AM6	Wo Keng Shan Village House	Ping Yeung to Wo Keng Shan	Contract 6
AM7a	Another village (nameless) aligns to Sha Tau Kok Road – Wo Hang Section proximity to Tai Tong Wu Village. The location is about 140m away from the original point AM7	Sha Tau Kok Road	Contract 2
AM8	Po Kat Tsai Village No. 4	Po Kat Tsai	Contract 2
AM9b	Nam Wa Po Village House No. 80	Fanling	Contract 3

* Proposal for the change of air quality monitoring location from AM1 to AM1a was submitted to EPD on 24 March 2014 after verified by the IEC.

Table 3-3 Impact Monitoring Stations - Construction Noise

Station ID	Description	Works Area	Related to the Work Contract
NM1	Tsung Yuen Ha Village House No. 63	BCP	Contract 5
NM2	Village House near Lin Ma Hang Road	Lin Ma Hang to Frontier Closed Area	Contract 5, Contract 6
NM3	Ping Yeung Village House (facade facing northeast)	Ping Yeung to Wo Keng Shan	Contract 6
NM4	Wo Keng Shan Village House	Ping Yeung to Wo Keng Shan	Contract 6
NM5	Village House, Loi Tung	Sha Tau Kok Road	Contract 2, Contract 6
NM6	Tai Tong Wu Village House 2	Sha Tau Kok Road	Contract 2, Contract 6
NM7	Po Kat Tsai Village	Po Kat Tsai	Contract 2
NM8	Village House, Tong Hang	Fanling	Contract 2, Contract 3
NM9	Village House, Kiu Tau Village	Fanling	Contract 3
NM10	Nam Wa Po Village House No. 78	Fanling	Contract 3

Table 3-4 Impact Monitoring Stations - Water Quality

Station ID	Description	Designated / Alternative Location		Nature of the location	Related to the Work Contract
		Coordinates			
		Easting	Northing		
WM1	Downstream of Kong Yiu Channel	833679	845421	Alternative location located at upstream 51m of the designated location	Contract 5
WM1-Control	Upstream of Kong Yiu Channel	834185	845917	NA	Contract 5
WM2A	Downstream of River Ganges	834204	844471	Alternative location located at	Contract 6

Station ID	Description	Designated / Alternative Location		Nature of the location	Related to the Work Contract
		Coordinates			
		Eastings	Northing		
				downstream 81m of the designated location	
WM2A-Control	Upstream of River Ganges	835270	844243	Alternative location located at upstream 78m of the designated location	Contract 6
WM2B	Downstream of River Ganges	835433	843397	NA	Contract 6
WM2B-Control	Upstream of River Ganges	835835	843351	Alternative location located at downstream 31m of the designated location	Contract 6
WM3	Downstream of River Indus	836324	842407	NA	Contract 6
WM3-Control	Upstream of River Indus	836763	842400	Alternative location located at downstream 26m of the designated location	Contract 6
WM4	Downstream of Ma Wat Channel	833850	838338	Alternative location located at upstream 11m of the designated location	Contract 3
WM4-Control A	Kau Lung Hang Stream	834028	837695	Alternative location located at downstream 28m of the designated location	Contract 3
WM4-Control B	Upstream of Ma Wat Channel	833760	837395	Alternative location located at upstream 15m of the designated location	Contract 3

3.4 MONITORING FREQUENCY AND PERIOD

3.4.1 The requirements of impact monitoring are stipulated in *Sections 2.1.6, 3.1.5 and 4.1.6* of the approved *EM&A Manual* and presented as follows.

Air Quality Monitoring

3.4.2 Frequency of impact air quality monitoring is as follows:

- 1-hour TSP 3 times every six days during course of works
- 24-hour TSP Once every 6 days during course of works.

Noise Monitoring

3.4.3 One set of $L_{eq(30min)}$ as 6 consecutive $L_{eq(5min)}$ between 0700-1900 hours on normal weekdays and once every week during course of works. If construction work necessary to carry out at other time periods, i.e. restricted time period (19:00 to 07:00 the next morning and whole day on public holidays) (hereinafter referred as “the restricted hours”), 3 consecutive $L_{eq(5min)}$ measurement will depended CNP requirements to undertake. Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.

Water Quality Monitoring

3.4.4 The water quality monitoring frequency shall be 3 days per week during course of works. The interval between two sets of monitoring shall not be less than 36 hours.

3.5 MONITORING EQUIPMENT

Air Quality Monitoring

3.5.1 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (*Part 50*), *Appendix B*. If the ET proposes to use a direct reading dust meter to measure 1-hour TSP levels, it shall submit sufficient information to the IEC to approve.

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

3.5.3 All equipment to be used for air quality monitoring is listed in *Table 3-5*.

Table 3-5 Air Quality Monitoring Equipment

Equipment	Model
<i>24-Hr TSP</i>	
High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170
Calibration Kit	TISCH Model TE-5025A
<i>1-Hour TSP</i>	
Portable Dust Meter	Sibata LD-3B Laser Dust monitor Particle Mass Profiler & Counter

Wind Data Monitoring Equipment

3.5.4 According to the approved EM&A Manual, wind data monitoring equipment shall also be provided and set up for logging wind speed and wind direction near the dust monitoring locations. The equipment installation location shall be proposed by the ET and agreed with the IEC. For installation and operation of wind data monitoring equipment, the following points shall be observed:

- 1) The wind sensors should be installed 10 m above ground so that they are clear of obstructions or turbulence caused by buildings.
- 2) The wind data should be captured by a data logger. The data shall be downloaded for analysis at least once a month.
- 3) The wind data monitoring equipment should be re-calibrated at least once every six months.
- 4) Wind direction should be divided into 16 sectors of 22.5 degrees each.

3.5.5 ET has liaised with the landlords of the successful granted HVS installation premises. However, the owners rejected to provide premises for wind data monitoring equipment installation.

3.5.6 Under this situation, the ET proposed alternative methods to obtain representative wind data. Meteorological information as extracted from “the Hong Kong Observatory Ta Kwu Ling Station” is alternative method to obtain representative wind data. For Ta Kwu Ling Station, it is located nearby the Project site. Moreover, this station is located at 15m above mean sea level while its anemometer is located at 13m above the existing ground which in compliance with the general setting up requirement. Furthermore, this station also can be to provide the humidity, rainfall, and air pressure and temperature etc. meteorological information. In Hong Kong of a lot development projects, weather information extracted from Hong Kong Observatory is common alternative method if weather station installation not allowed.

Noise Monitoring

3.5.7 Sound level meter in compliance with the International Electrotechnical Commission Publications

651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m s⁻¹.

3.5.8 Noise monitoring equipment to be used for monitoring is listed in *Table 3-6*.

Table 3-6 Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	B&K Type 2238 or Rion NL-14 or Rion NL-31 or Rion NL-52
Calibrator	B&K Type 4231
Portable Wind Speed Indicator	Testo Anemometer

3.5.9 Sound level meters listed above comply with the *International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1)* specifications, as recommended in TM issued under the NCO. The acoustic calibrator and sound level meter to be used in the impact monitoring will be calibrated yearly.

Water Quality Monitoring

3.5.10 DO and water temperature should be measured in-situ by a DO/temperature meter. The instrument should be portable and weatherproof using a DC power source. It should have a membrane electrode with automatic temperature compensation complete with a cable. The equipment should be capable of measuring:

- DO level in the range of 0-20 mg/l and 0-200% saturation; and
- temperature of between 0 and 45 degree Celsius.

3.5.11 A portable pH meter capable of measuring a range between 0.0 and 14.0 should be provided to measure pH under the specified conditions accordingly to the APHA Standard Methods.

3.5.12 The instrument should be portable and weatherproof using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU.

3.5.13 A portable, battery-operated echo sounder or tape measure will be used for the determination of water depth at each designated monitoring station as appropriate.

3.5.14 A water sampler e.g. Kahlsico Water Sampler, which is a transparent PVC cylinder with capacity not less than 2 litres, will be used for water sampling if water depth over than 0.5m. For sampling from very shallow water depths e.g. <0.5 m, water sample collection will be directly from water surface below 100mm use sampling plastic bottle to avoid inclusion of bottom sediment or humus. Moreover, Teflon/stainless steel bailer or self-made sampling buckets maybe used for water sampling. The equipment used for sampling will be depended the sampling location and depth situations.

3.5.15 Water samples for laboratory measurement of SS will be collected in high density polythene bottles, packed in ice (cooled to 4 °C without being frozen), and delivered to the laboratory in the same day as the samples were collected.

3.5.16 Analysis of suspended solids should be carried out in a HOKLAS or other accredited laboratory. Water samples of about 1L should be collected at the monitoring stations for carrying out the laboratory suspended solids determination. The SS determination work should start within 24 hours after collection of the water samples. The SS analyses should follow the *APHA Standard Methods 2540D* with Limit of Reporting of 2 mg/L.

3.5.17 Water quality monitoring equipment used in the impact monitoring is listed in *Table 3-7*. Suspended solids (SS) analysis is carried out by a local HOKLAS-accredited laboratory, namely *ALS Technichem (HK) Pty Ltd*.

Table 3-7 Water Quality Monitoring Equipment

Equipment	Model
Water Depth Detector	Eagle Sonar or tape measures
Water Sampler	A 2-litre transparent PVC cylinder with latex cups at both ends or teflon/stainless steel bailer or self-made sampling bucket
Thermometer & DO meter	YSI PRO20 Handheld Dissolved Oxygen Instrument
pH meter	The EcoSense [®] pH10A pen-style instrument or AZ8685 pH pen-style meter
Turbidimeter	Hach 2100Q
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-liter plastic cool box with Ice pad

3.6 MONITORING METHODOLOGY

1-hour TSP Monitoring

- 3.6.1 The 1-hour TSP monitor was a brand named "Sibata LD-3B Laser Dust monitor Particle Mass Profiler & Counter" which is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consists of the following:
- A pump to draw sample aerosol through the optic chamber where TSP is measured;
 - A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and
 - A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.
- 3.6.2 The 1-hour TSP meter is used within the valid period as follow manufacturer's Operation and Service Manual.

24-hour TSP Monitoring

- 3.6.3 The equipment used for 24-hour TSP measurement is Thermo Andersen Model GS2310 TSP high volume air sampling system, which complied with *EPA Code of Federal Regulation, Appendix B to Part 50*. The High Volume Air Sampler (HVS) consists of the following:
- An anodized aluminum shelter;
 - A 8"x10" stainless steel filter holder;
 - A blower motor assembly;
 - A continuous flow/pressure recorder;
 - A motor speed-voltage control/elapsed time indicator;
 - A 7-day mechanical timer, and
 - A power supply of 220v/50 Hz
- 3.6.4 The HVS is operated and calibrated on a regular basis in accordance with the manufacturer's instruction using Tisch Calibration Kit Model TE-5025A. Calibration would carry out in two month interval.
- 3.6.5 24-hour TSP is collected by the ET on filters of HVS and quantified by a local HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (ALS), upon receipt of the samples. The ET keep all the sampled 24-hour TSP filters in normal air conditioned room conditions, i.e. 70% RH (Relative Humidity) and 25°C, for six months prior to disposal.

Noise Monitoring

- 3.6.6 Noise measurements were taken in terms of the A-weighted equivalent sound pressure level (L_{eq}) measured in decibels dB(A). Supplementary statistical results (L_{10} and L_{90}) were also obtained for reference.

- 3.6.7 During the monitoring, all noise measurements were performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (L_{eq}). $L_{eq(30min)}$ in six consecutive $L_{eq(5min)}$ measurements were used as the monitoring parameter for the time period between 0700-1900 hours on weekdays; and also $L_{eq(15min)}$ in three consecutive $L_{eq(5min)}$ measurements is used as monitoring parameter for other time periods (e.g. during restricted hours), if necessary.
- 3.6.8 Prior of noise measurement, the accuracy of the sound level meter is checked using an acoustic calibrator generating a known sound pressure level at a known frequency. The checking was performed before and after the noise measurement.

Water Quality

- 3.6.9 Water quality monitoring is conducted at the designated locations. The sampling produce with the in-situ monitoring are presented as below:

Sampling Procedure

- 3.6.10 A Digital Global Positioning System (GPS) is used to identify the designated monitoring stations prior to water sampling. A portable, battery-operated echo sounder is used for the determination of water depth at each station. At each station, water sample would be collected from 0.1m below water surface or the water surface to prevent the river bed sediment for stirring.
- 3.6.11 The sample container will be rinsed with a portion of the water sample. The water sample then will be transferred to the high-density polythene bottles as provided by the laboratory, labeled with a unique sample number and sealed with a screw cap.
- 3.6.12 Before sampling, general information such as the date and time of sampling, weather condition as well as the personnel responsible for the monitoring would be recorded on the field data sheet.
- 3.6.13 A 'Willow' 33-liter plastic cool box packed with ice will be used to preserve the water samples prior to arrival at the laboratory for chemical determination. The water temperature of the cool box is maintained at a temperature as close to 4^oC as possible without being frozen. Samples collected are delivered to the laboratory upon collection.

In-situ Measurement

- 3.6.14 YSI PRO20 Handheld Dissolved Oxygen Instrument is used for water in-situ measures, which automates the measurements and data logging of temperature, dissolved oxygen and dissolved oxygen saturation. Before each round of monitoring, the dissolved oxygen probe would be calibrated by the wet bulb method.
- 3.6.15 A portable EcoSense[®] pH10A pen-style meter or AZ8685 pH pen-style meter is used for in-situ pH measurement. The pH meter is capable of measuring pH in the range of 0 – 14 and readable to 0.1.
- 3.6.16 A portable Hach 2100Q Turbidimeter is used for in-situ turbidity measurement. The turbidity meter is capable of measuring turbidity in the range of 0 – 1000 NTU. StablCal[®] Standards of known NTU are used for calibration of the instrument before and after measurement.
- 3.6.17 All in-situ measurement equipment are calibrated by HOKLAS accredited laboratory of three month interval.

Laboratory Analysis

- 3.6.18 All water samples are analyzed with Suspended Solids (SS) as specified in the *EM&A Manual* by a local HOKLAS-accredited testing laboratory (ALS Technichem (HK) Pty Ltd HOKLAS registration no. 66). SS analysis is determined by the laboratory upon receipt of the water

samples using *APHA Standard Methods 2540D* (namely ALS Method EA-025 as accredited HOKLAS Scheme) started within 48 hours of water sample receipt.

3.7 EQUIPMENT CALIBRATION

- 3.7.1 Calibration of the HVS is performed upon installation and thereafter at bimonthly intervals in accordance with the manufacturer’s instruction using the certified standard calibrator (TISCH Model TE-5025A). Moreover, the Calibration Kit would be calibrated annually. The calibration data are properly documented and the records are maintained by ET for future reference.
- 3.7.2 The 1-hour TSP meter was calibrated by the supplier prior to purchase. Zero response of the equipment would be checked before and after each monitoring event. Annually calibration with the High Volume Sampler (HVS) in same condition would be undertaken by the Laboratory.
- 3.7.3 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis.
- 3.7.4 All water quality monitoring equipment is calibrated by HOKLAS accredited laboratory of three month intervals.
- 3.7.5 The calibration certificates of all monitoring equipment used for the impact monitoring program in the Reporting Period and the HOKLAS accredited certificate of laboratory are presented in the relevant monthly EM&A reports.

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

- 3.8.1 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. According to the approved Environmental Monitoring and Audit Manual, the air quality, construction noise and water quality criteria were set up, namely Action and Limit levels are listed in *Tables 3-8, 3-9* and *3-10*.

Table 3-8 Action and Limit Levels for Air Quality Monitoring

Monitoring Station	Action Level (µg /m ³)		Limit Level (µg/m ³)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
AM1/ AM1a	265	143	500	260
AM2	268	149		
AM3	269	145		
AM4a	267	148		
AM5	268	143		
AM6	269	148		
AM7a	275	156		
AM8	269	144		
AM9a	271	151		

Table 3-9 Action and Limit Levels for Construction Noise

Monitoring Location	Action Level	Limit Level in dB(A)
	Time Period: 0700-1900 hours on normal weekdays	
NM1, NM2, NM3, NM4, NM5, NM6, NM7, NM8, NM9, NM10	When one or more documented complaints are received	75 dB(A) ^{Note 1 & Note 2}

Note 1: Acceptable Noise Levels for school should be reduced to 70 dB(A) and 65 dB(A) during examination period

Note 2: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the NCA have to be followed.

Table 3-10 Action and Limit Levels for Water Quality

Parameter	Performance criteria	Monitoring Location				
		WM1	WM2A	WM2B	WM3	WM4
DO (mg/L)	Action Level	(*)4.23	(**)4.00	(*)4.74	(**)4.00	(*)4.14
	Limit Level	(#)4.19	(**)4.00	(#)4.60	(**)4.00	(#)4.08
Turbidity (NTU)	Action Level	51.3	24.9	11.4	13.4	35.2
		AND 120% of upstream control station of the same day				
	Limit Level	67.6	33.8	12.3	14.0	38.4
SS (mg/L)	Action Level	54.5	14.6	11.8	12.6	39.4
		AND 120% of upstream control station of the same day				
	Limit Level	64.9	17.3	12.4	12.9	45.5
		AND 130% of upstream control station of the same day				

Remarks:

- (*) The Proposed **Action Level** of Dissolved Oxygen is adopted to be used 5%-ile of baseline data
- (**) The Proposed **Action & Limit Level** of Dissolved Oxygen is used 4mg/L
- (#) The Proposed **Limit Level** of Dissolved Oxygen is adopted to be used 1%-ile of baseline data

3.8.2 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan which presented in [Appendix F](#).

3.9 DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.9.1 All monitoring data will be handled by the ET’s in-house data recording and management system. The monitoring data recorded in the equipment will be downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data will input into a computerized database properly maintained by the ET. The laboratory results will be input directly into the computerized database and checked by personnel other than those who input the data.
- 3.9.2 For monitoring parameters that require laboratory analysis, the local laboratory shall follow the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.

4 AIR QUALITY MONITORING

4.1 GENERAL

4.1.1 In the Reporting Period, Contract 2 was commenced on 19 May 2014 and the active Contract under the Project included Contracts 2, 3 and 5. Therefore, 6 related air quality monitoring locations were performed as listed below:

- AM1a - Garden Farm, Tsung Yuen Ha Village;
- AM2 - Village House near Lin Ma Hang Road;
- AM3 - Ta Kwu Ling Fire Service Station of Ta Kwu Ling Village;
- AM7b – Loi Tung Village;
- AM8 - Po Kat Tsai Village;
- AM9b - Nam Wa Po Village House No. 80

4.2 SUMMARY OF MONITORING RESULTS

4.2.1 Summary of air quality monitoring results during the Reporting Period are tabulated in *Table 4-1*. The relevant graphical plots throughout the Reporting Period are presented in *Appendix G*.

Table 4-1 Summary of Air Quality Monitoring Results

Monitoring Location	1-hour TSP ($\mu\text{g}/\text{m}^3$)			24-hour TSP ($\mu\text{g}/\text{m}^3$)		
	Max	Min	Mean	Max	Min	Mean
AM1a	130	19	57	110	21	54
Record Date	25-Jul-14	14-Jul-14 25-Jul-14	Total 51 events	22-Jul-14	30-Jun-14	Total 15 events
AM2	134	17	55	116	15	69
Record Date	8-Jul-14	14-Jul-14	Total 51 events	28-Jul-14	9-May-14	Total 16 events
AM3	113	19	53	139	15	54
Record Date	14-Jun-14	2-May-14	Total 51 events	31-May-14	9-May-14	Total 16 events
AM7b	176	12	57	134	23	83
Record Date	23-Jul-14	30-Jun-14	Total 39 events	22-Jul-14	30-Jun-14	Total 12 events
AM8	128	15	38	98	23	45
Record Date	23-Jul-14	30-Jun-14	Total 39 events	21-May-14	27-May-14	Total 12 events
AM9b	152	14	47	91	19	38
Record Date	6-Jun-14	31-May-14 25-Jul-14	Total 51 events	22-Jul-14	9-May-14	Total 16 events

4.2.2 In the Reporting Period, power failure incident of HVS of 24-hour TSP monitoring only happened at AM1a on 18 June 2014. The power supply was immediately rectified by the Contractor before the next monitoring event.

4.2.3 Breaches of air quality A/L levels and statistical analysis of compliance for the air quality monitoring results are summarized in *Table 4-2*.

Table 4-2 Summaries of Breaches of Air Quality A/L Levels

Location	Exceedance	1-hour TSP	24- hour TSP	Total
AM1	Action Level	0	0	0
	Limit Level	0	0	0
AM2	Action Level	0	0	0
	Limit Level	0	0	0
AM3	Action Level	0	0	0
	Limit Level	0	0	0

Location	Exceedance	1-hour TSP	24- hour TSP	Total
AM7b	Action Level	0	0	0
	Limit Level	0	0	0
AM8	Action Level	0	0	0
	Limit Level	0	0	0
AM9b	Action Level	0	0	0
	Limit Level	0	0	0

- 4.2.4 In this Reporting Period, all 1-hour TSP and 24-hour TSP monitoring results were below the Action Level. No Notification of Exceedances (NOE) of air quality criteria or corrective action was therefore required. The summary of weather conditions during the Reporting Period is presented in [Appendix H](#).

5 CONSTRUCTION NOISE MONITORING

5.1 GENERAL

5.1.1 In the Reporting Period, Contract 2 was commenced on 19 May 2014 and the active Contract under the Project included Contracts 2, 3 and 5. Therefore, 8 related noise monitoring locations were performed as listed below:

- NM1 - Tsung Yuen Ha Village House No. 63
- NM2 - Village House near Lin Ma Hang Road
- NM5 - Village House, Loi Tung
- NM6 - Tai Tong Wu Village House 2
- NM7 - Po Kat Tsai Village
- NM8 - Village House, Tong Hang
- NM9 - Village House, Kiu Tau Village; and
- NM10 - Nam Wa Po Village House No. 80

5.2 SUMMARY OF MONITORING RESULTS

5.2.1 The sound level meter was set in 1m from the exterior of the building façade including noise monitoring locations NM1, NM2, NM5, NM6, NM7, NM8 and NM9. No façade correction (+3 dB(A)) is added according to acoustical principles and EPD guidelines. However, free-field status is performed at NM10 and façade correction (+3 dB(A)) has added according to the requirement.

5.2.2 Summary of noise monitoring results during the Reporting Period are tabulated in **Table 5-1**. The relevant graphical plots throughout the Reporting Period are presented in **Appendix G**.

Table 5-1 Summary of Construction Noise Monitoring Results

Monitoring Location	Leq, 30min (dB(A))	
	Max	Min
NM1	57	49
Record Date	22-May-14, 03-Jun-14 and 08-Jul-14	19-Jul-14 and 25-Jul-14
NM2	64	56
Record Date	5-May-14	10-May-14
NM5	72	56
Record Date	20-May-14	6-Jun-14 and 12-Jun-14
NM6	65	53
Record Date	5-Jul-14	31-Jul-14
NM7	72	59
Record Date	5-Jul-14	24-Jun-14 and 31-Jul-14
NM8	63	53
Record Date	8-May-14 and 30-Jun-14	29-Jul-14
NM9	70	55
Record Date	24-Jun-14	26-May-14
NM10 ^(*)	72	58
Record Date	31-May-14	8-May-14

^(*) façade correction (+3 dB(A)) is added according to acoustical principles and EPD guidelines

5.2.3 Breaches of construction noise A/L levels and statistical analysis of compliance for construction noise monitoring results are summarized in **Table 5-2**.

Table 5-2 Summaries of Breaches of Construction Noise A/L Levels

Station	Limit Level	Action Level	Received Date
NM1	0	Noise complaint	NA
NM2	0		
NM5	0		
NM6	0		
NM7	0		
NM8	0		
NM9	0		
NM10	0		

5.2.4 In this Reporting Period, the noise level measured at the eight (8) designated monitoring locations were below 75dB(A). Furthermore, there was no noise complaint (which is an Action Level exceedance) received by the RE, Contractors or CED.

5.2.5 The summary of weather conditions during the Reporting Period is presented in [Appendix H](#).

6 WATER QUALITY MONITORING

6.1 GENERAL

6.1.1 Although Contract 2 was commenced on 19 May 2014, no designated water quality monitoring location is relevant this contract. In the Reporting Period, water quality monitoring was performed at 5 designated locations which related the Contract 3 and Contract 5 as below:

- WM1 – Contract 5 working site downstream at Kong Yiu Channel;
- WM1-Control – Contract 5 working site upstream at Kong Yiu Channel;
- WM4 – Contract 3 working site Downstream of Ma Wat Channel;
- WM4-Control A – Contract 3 working site Kau Lung Hang Stream; and
- WM4-Control B – Contract 3 working site Upstream of Ma Wat Channel

6.2 SUMMARY OF MONITORING RESULTS

6.2.1 Summary of monitoring results during the Reporting Period are tabulated in *Tables 6-1 and 6-2*. The relevant graphical plots throughout the Reporting Period are presented in *Appendix G*.

Table 6-1 Summary of the Water Quality Monitoring Results – Contract 5

Statistics	DO (mg/L)		Turbidity (NTU)		SS (mg/L)	
	WM1	WM1-Control	WM1	WM1-Control	WM1	WM1-Control
Min	5.31	5.17	17.7	7.6	11.5	2
Max	8.26	8.56	<1000	<1000	984	712
Average	6.96	6.92	84.0	40.7	99.2	58.0

Table 6-2 Summary of the Water Quality Monitoring Results – Contract 3

Statistics	DO (mg/L)			Turbidity (NTU)			SS (mg/L)		
	WM4	WM4 - CA	WM4 - CB	WM4	WM4 - CA	WM4 - CB	WM4	WM4 - CA	WM4 - CB
Min	5.66	6.25	3.11	6.1	3.4	6.4	3.5	<2	5
Max	9.38	8.52	8.21	153	59.9	262	115.5	57.5	215
Average	7.34	7.33	6.10	29.8	10.8	26.5	21.8	7.5	20.8

Noted:

WM4-CA = WM4-Control A; WM4-CB = WM4-Control B

6.2.2 Breaches of water quality A/L levels and statistical analysis of compliance for the water quality monitoring results are summarized in *Tables 6-3*.

Table 6-3 Summaries of Breaches of the Existing Water Quality A/L Levels

Reporting Period	No. of sampling day	Location	DO (mg/L)		Turbidity (NTU)		SS (mg/L)	
			Action	Limit	Action	Limit	Action	Limit
May-14	13	WM1	0	0	0	5	0	5
		WM4	0	0	0	0	0	0
Jun-14	13	WM1	0	0	1	2	0	3
		WM4	0	0	0	1	0	0
Jul-14	13	WM1	0	0	0	1	1	1
		WM4	0	0	0	0	1	1
Total	39	WM1	0	0	1	8	1	9
		WM4	0	0	0	1	1	1

6.2.3 In view of the monitoring results of Dissolved Oxygen (DO), all the measured results in the

- Reporting Period were higher than Action Level exceedance and no exceedances were therefore triggered. However, a total of twenty-two (22) exceedance, namely 10 exceedances in Turbidity and 12 exceedances in SS were recorded at WM1 and WM4.
- 6.2.4 In May 2014, no exceedances were recorded at WM4. However, a total of ten (10) Limit Level exceedances, namely 5 in turbidity and 5 in SS, were recorded at WM1 on 10, 12, 14, 16 and 22 May 2014. According to investigation result, it was concluded that the exceedances were not due to the works under the project.
- 6.2.5 In June 2014, one (1) Limit Level exceedance in turbidity was recorded at WM4 on 18 June 2014. Furthermore, a total of 6 Action/ Limit Level exceedances, namely 3 Action/ Limit Level in turbidity and 3 Limit Levels in SS were recorded at WM1 on 16, 18 and 30 June 2014. According to investigation result, it was concluded that the exceedances were not due to the works under the project.
- 6.2.6 In July 2014, a total of 3 Action/ Limit Level exceedances, namely 1 Limit Level in turbidity and 2 Action/ Limit Level in SS exceedance were recorded on 10, 12 and 25 July 2014. For WM4, 1 Action and 1 Limit Level in SS were recorded on 10 and 12 July 2014. According to investigation result, it was concluded that the exceedances were not due to the works under the project.
- 6.2.7 To According EM&A Manual stipulation, NOEs were issued to relevant parties upon confirmation of the results. The detailed investigation findings have been presented in the relevant monthly EM&A reports.
- 6.2.8 The summary of weather conditions during the Reporting Period is presented in [Appendix H](#).

7 WASTE MANAGEMENT

7.1 GENERAL WASTE MANAGEMENT

7.1.1 Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time.

7.2 RECORDS OF WASTE QUANTITIES

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

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

7.2.2 Whenever possible, materials were reused on-site as far as practicable. The quantities of waste for disposal in the Reporting Period are summarized in *Tables 7-1* and *7-2* and the Waste Flow Table is presented in *Appendix I*.

Table 7-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Contract No	Quantity				Disposal Location
		May 14	Jun 14	Jul 14	Total	
C&D Materials (Inert) (in '000m ³)	2	0	0	0	8.551	-
	3	2.740	2.215	3.596		-
	5	0	0	0		-
Reused in this Project (Inert) (in '000m ³)	2	0.0643	0.0348	0.0069	1.475	-
	3	0.192	0.675	0.502		-
	5	0	0	0		-
Reused in other Projects (Inert) (in '000m ³)	2	14.4032	22.1289	37.1170	73.6491	C5
	3	0	0	0		-
	5	0	0	0		-
Disposal as Public Fill (Inert) (in '000m ³)	2	0.1094	3.9183	12.3368	23.5465	Tuen Mun 38
	3	2.548	1.540	3.094		Tuen Mun 38
	5	0	0	0		-

Table 7-2 Summary of Quantities of C&D Wastes

Type of Waste	Contract No	Quantity				Disposal Location
		May 14	Jun 14	Jul 14	Total	
Recycled Metal (in '000m ³)	2	0	0	0	2.01	By licensed collector
	3	0	0	0		
	5	0	0	2.01		
Recycled Paper / Cardboard Packing (in '000m ³)	2	0	0	0	0	-
	3	0	0	0		-
	5	0	0	0		
Recycled Plastic (in '000m ³)	2	0	0	0	0.005	-
	3	0	0	0.005		-
	5	0	0	0		
Chemical Wastes (in '000m ³)	2	0	0	0	0.021	By licensed collector
	3	0.02	0.001	0		
	5	0	0	0		
General Refuses (in '000m ³)	2	0.0887	1.1851	0.0558	2.2096	NENT
	3	0.195	0.180	0.165		
	5	0.23	0	0.11		

7.2.3 To control the site performance on waste management, the Contractor shall ensure that all solid and liquid waste management works are fully in compliance with the relevant license/permit requirements, such as the effluent discharge license and the chemical waste producer registration. The Contractor is also reminded to implement the recommended environmental mitigation measures according to the Environmental Monitoring and Audit Manual.

8 SITE INSPECTIONS

8.1 REQUIREMENTS

8.1.1 According to the approved EM&A Manual, the environmental site inspection shall be formulation by ET Leader. Weekly environmental site inspections should carry out to confirm the environmental performance.

Contract 2

8.1.2 During the Reporting Period, **10** events of the joint site inspections were undertaken at Contract 2 to evaluate the site environmental performance. The summaries of the findings during site inspection are presented in **Table 8-1** and the details of site inspection can be found in relevant EM&A monthly report.

Table 8-1 Summary of Reminders/Observations of Site Inspection – Contract 2

Reporting Period	Date of site inspection	Nos. of findings / reminders	Follow-Up Status
May 2014	23 and 30 May 2014	7	Completed
June 2014	6, 13, 20 and 25 June 2014	13	Completed
July 2014	4, 11, 18, and 25 July 2014	6	Completed

8.1.3 In the Reporting Period, no non-compliance was recorded; however, **26** observations/ reminders were recorded during the site inspections. Minor deficiencies found in the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

Contract 3

8.1.4 During the Reporting Period, **13** events of the joint site inspections were undertaken at Contract 3 to evaluate the site environmental performance. The summaries of the findings during site inspection are presented in **Table 8-2** and the details of site inspection can be found in relevant EM&A monthly report.

Table 8-2 Summary of Reminders/Observations of Site Inspection – Contract 3

Reporting Period	Date of site inspection	Nos. of findings / reminders	Follow-Up Status
May 2014	9, 14, 19 and 26 May 2014	8	Completed
June 2014	3, 9, 18, 23 and 30 June 2014	11	Completed
July 2014	7, 16, 21 and 28 July 2014	9	Completed

8.1.5 In the Reporting Period, no non-compliance was recorded; however, **28** observations/ reminders were recorded during the site inspections. Minor deficiencies found in the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

Contract 5

8.1.6 During the Reporting Period, **13** events of the joint site inspections were undertaken at Contract 5 to evaluate the site environmental performance. The summaries of the findings during site inspection are presented in **Table 8-3** and the details of site inspection can be found in relevant EM&A monthly report.

Table 8-3 Summary of Reminders/Observations of Site Inspection – Contract 5

Reporting Period	Date of site inspection	Nos. of findings / reminders	Follow-Up Status
May 2014	8, 15, 22 and 29 May 2014	10	Completed
June 2014	5, 12, 19 and 26 June 2014	10	Completed
July 2014	3, 9, 17, 24 and 31 July 2014	7	Completed

- 8.1.7 In the Reporting Period, no non-compliance was recorded; however, 27 observations/ reminders were recorded during the site inspections. Minor deficiencies found in the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

Other Contracts

- 8.1.8 Since the construction works at the Contract 4 and Contract 6 are not yet commenced, no site inspection is performed for these Contracts.

9 NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

9.1 NON-COMPLIANCE

9.1.1 No environmental non-compliance was recorded in the Reporting Period.

9.2 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

9.2.1 No environmental summons and prosecution was received in the Reporting Period. No environmental complaint was received by Contract 5 in the Reporting Period. However, three (3) environmental complaints were received for Contract 2 which related to muddy water discharge and construction dust emission. Moreover, one complaint was received for Contract 3 regarding muddy water discharge. The details of environmental complaints lodged for the Project lists below and also can be found in relevant EM&A monthly report.

Table 9-1 Details of complaint lodged for the Project in the Reporting Period

Contract	Date of receive	Aspect
2	16 May 2014	Regarding direct discharge of muddy water
	27 June 2014	Regarding muddy water discharge to Ng Tung River.
	17 July 2014.	Regarding dust generation from site haul road (TA01) at North Portal Site
3	27 June 2014	Water spray applied onto the road but excessive cleansing water was found accumulated on the public road which made the public road looks dirty when vehicles passed by

9.2.2 Mitigation measures including air quality and water quality has been enhanced by the Contractors to resolve complaint issues. All relevant investigation reports have been submitted to relevant parties.

9.2.3 The statistical summary table of environmental complaint, summons and prosecution are presented in **Tables 9-2, 9-3 and 9-4.**

Table 9-2 Statistical Summary of Environmental Complaints

Contract No	Reporting Period	Environmental Complaint Statistics				
		Frequency	Cumulative	Complaint Nature		
				Water	Air	Noise
2	May 2014	1	3	1	0	0
	June 2014	1		1	0	0
	July 2014	1		0	1	0
3	May 2014	0	2	0	0	0
	June 2014	1		1	0	0
	July 2014	0		0	0	0
5	May 2014	0	1	0	0	0
	June 2014	0		0	0	0
	July 2014	0		0	0	0

Table 9-3 Statistical Summary of Environmental Summons

Contract No	Reporting Period	Environmental Summons Statistics				
		Frequency	Cumulative	Complaint Nature		
				Water	Air	Noise
2	May 2014	0	0	0	0	0
	June 2014	0		0	0	0
	July 2014	0		0	0	0
3	May 2014	0	0	0	0	0

Contract No	Reporting Period	Environmental Summons Statistics				
		Frequency	Cumulative	Complaint Nature		
				Water	Air	Noise
	June 2014	0		0	0	0
	July 2014	0		0	0	0
5	May 2014	0	0	0	0	0
	June 2014	0		0	0	0
	July 2014	0		0	0	0

Table 9-4 Statistical Summary of Environmental Prosecution

Contract No	Reporting Period	Environmental Prosecution Statistics				
		Frequency	Cumulative	Complaint Nature		
				Water	Air	Noise
2	May 2014	0	0	0	0	0
	June 2014	0		0	0	0
	July 2014	0		0	0	0
3	May 2014	0	0	0	0	0
	June 2014	0		0	0	0
	July 2014	0		0	0	0
5	May 2014	0	0	0	0	0
	June 2014	0		0	0	0
	July 2014	0		0	0	0

9.2.4 Since the construction works at the Contract 4 and Contract 6 are not yet commenced, no environmental complaint, summons and prosecution are received in the Reporting Period accordingly.

10 IMPLEMENTATION STATUS OF MITIGATION MEASURES

10.1 GENERAL REQUIREMENTS

10.1.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved EM&A Manual covered the issues of dust, noise, water and waste and they are summarized presented in *Appendix J*.

10.1.2 All contracts under the Project shall be implementing the required environmental mitigation measures according to the approved EM&A Manual as subject to the site condition. Environmental mitigation measures generally implemented by Contract 5 in this Reporting Period are summarized in *Table 10-1*.

Table 10-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Water Quality	<ul style="list-style-type: none"> Wastewater to be treated by filtration system; such as, silt curtain or sedimentation tank before discharge.
Air Quality	<ul style="list-style-type: none"> Maintain damp / wet surface on access road Keep slow speed in the sites All vehicles must use wheel washing facility before off site Sprayed water during breaking works
Noise	<ul style="list-style-type: none"> Restrain operation time of plants from 07:00 to 19:00 on any working day except for Public Holiday and Sunday. Keep good maintenance of plants Place noisy plants away from residence or school Provide noise barriers or hoarding to enclose the noisy plants or works Shut down the plants when not in used.
Waste and Chemical Management	<ul style="list-style-type: none"> On-site sorting prior to disposal Follow requirements and procedures of the “Trip-ticket System” Predict required quantity of concrete accurately Collect the unused fresh concrete at designated locations in the sites for subsequent disposal
General	<ul style="list-style-type: none"> The site was generally kept tidy and clean.

11 CONCLUSIONS AND RECOMMENDATIONS

11.1 CONCLUSIONS

- 11.1.1 This is the 4th Quarterly EM&A Summary Report presenting the monitoring results and inspection findings for the Reporting Period from **1 May to 31 July 2014**. In this Reporting Period, construction works of Contract 2 is commenced on 19 May 2014.
- 11.1.2 No 1-hour TSP and 24-hour TSP monitoring results that triggered the Action or Limit Level was recorded in this Reporting Period.
- 11.1.3 No noise complaint (which is an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period.
- 11.1.4 For water quality monitoring, no Action/Limit Levels exceedance was triggered according to the set out water quality criteria in Dissolved Oxygen. However, a total of one (1) Action Level exceedance and eighteen (18) Limit Level exceedances of the parameters of turbidity and SS were recorded from water samples collected at WM1 during the Reporting Period, specifically on 10, 12, 14, 16 and 22 May, 16, 18 and 30 June, and 10, 12 and 25 July 2014. A total of one (1) Action Level and two (2) Limit Level exceedances of the parameters of turbidity and SS were recorded from water samples collected at WM4 during the Reporting Period, specifically on 18 June 2014, and 10 and 12 July 2014. NOEs were issued to relevant parties upon confirmation of the results. The investigation for the causes of exceedances was completed and it concluded that the exceedances were not related to works under the Project.
- 11.1.5 During the Reporting Period, 10 events of joint site inspections conducted for Contract 2, and 13 events of joint site inspections for Contract 3 and Contract 5 were undertaken to evaluate the site environmental performance. No adverse environmental impacts were observed during the weekly site inspection and environmental audit of the Reporting Period, indicating the implemented mitigation measures for air quality, construction noise and water quality were effective. Minor deficiencies found in the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.
- 11.1.6 In the Reporting Period, no notification of summons or successful prosecution under the Project was received. Furthermore, no environmental complaint was received as for Contract 5. However, three (3) and one (1) complaints respectively for Contract 2 and Contract 3 were received in this Reporting Period. The Contractors have been undertaken correct action and mitigation measures to resolve the complaints. Investigation reports have been submitted to relevant parties. The details of environmental complaints lodged in this Reporting Period can be found in relevant EM&A monthly report.

11.2 RECOMMENDATIONS

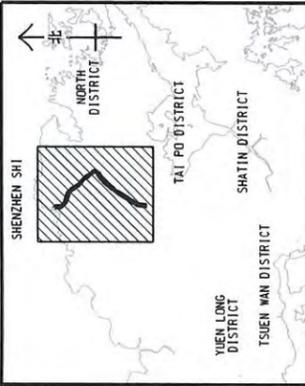
- 11.2.1 During wet season, muddy water or other water pollutants from site surface runoff into Kong Yiu Channel and Ma Wat Channel will be key environment issue. Water quality mitigation measures to prevent surface runoff into nearby water bodies should be fully implemented.
- 11.2.2 Special attention should also be paid on the potential construction dust impact since most of the construction sites are adjacent to villages. The Contractor should fully implement the construction dust mitigation measures properly.
- 11.2.3 Construction noise should be a key environmental impact during the works. The noise mitigation measures such as use of quiet plants or temporary noise barrier installation at the construction noise predominate area should be implemented as accordance with the EM&A requirement.
- 11.2.4 To control the site performance on waste management, the Contractor shall ensure that all solid and liquid waste management works are fully in compliance with the relevant license/permit requirements, such as the effluent discharge license and the chemical waste producer registration.

The Contractor is also reminded to implement the recommended environmental mitigation measures according to the Environmental Monitoring and Audit Manual.

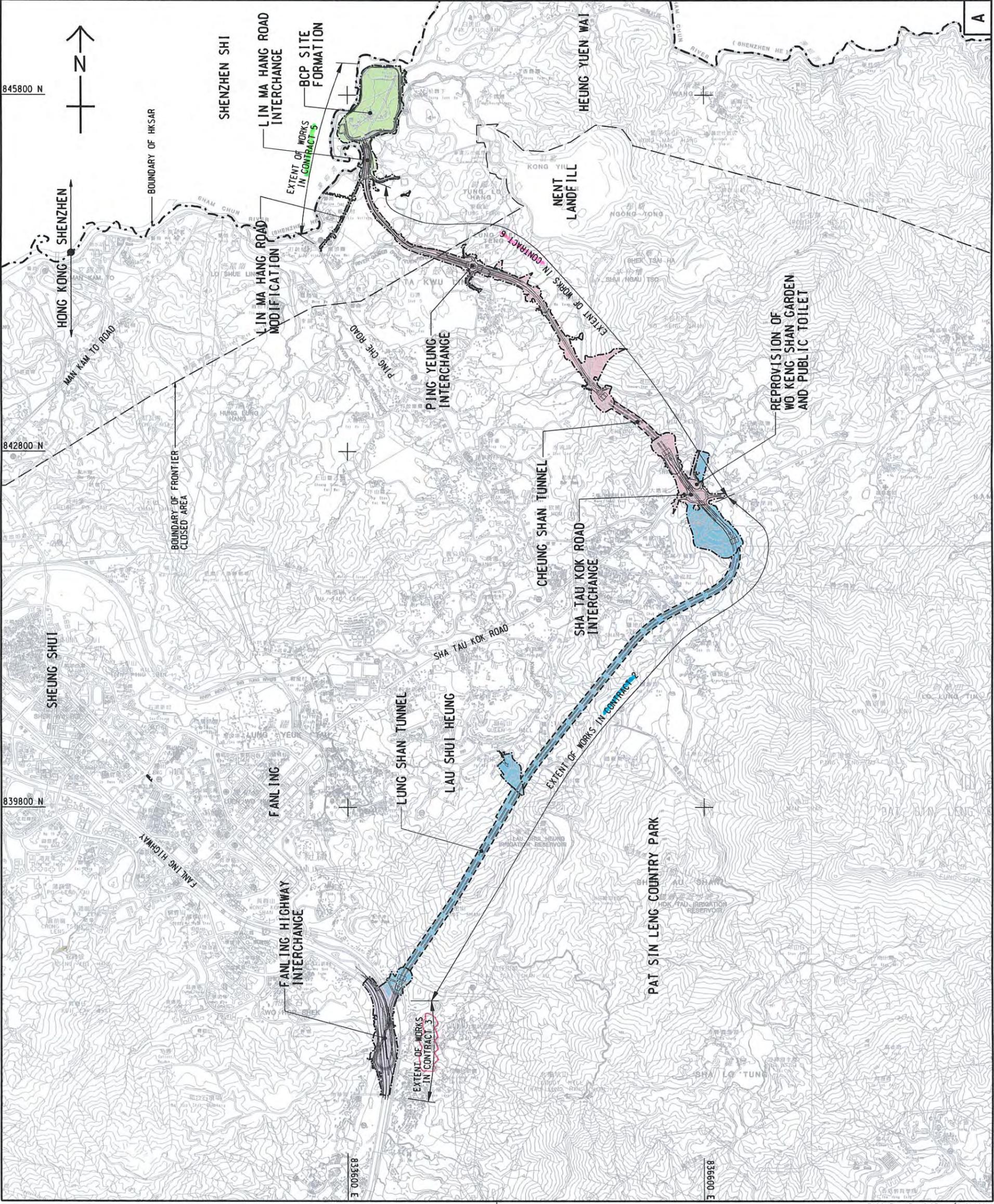
11.2.5 Furthermore, mosquito control should be kept to prevent mosquito breeding on site.

Appendix A

Layout plan of the Project



土木工程拓展署 Civil Engineering and Development Department	
LANTIAN/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS (SITE FORMATION AND INFRASTRUCTURES) - DESIGN AND CONSTRUCTION	
PROJECT LAYOUT PLAN	
DRGNO. 60212563/PLP/001 圖號編號	CONTRACT NO. P.C.P. - 00000 合約編號
DRAWN BY ZJ 繪圖員	CHECKED BY 校核員
SCALE 1 : 15000 縮尺	DATE 日期
© COPYRIGHT RESERVED 版權保留	

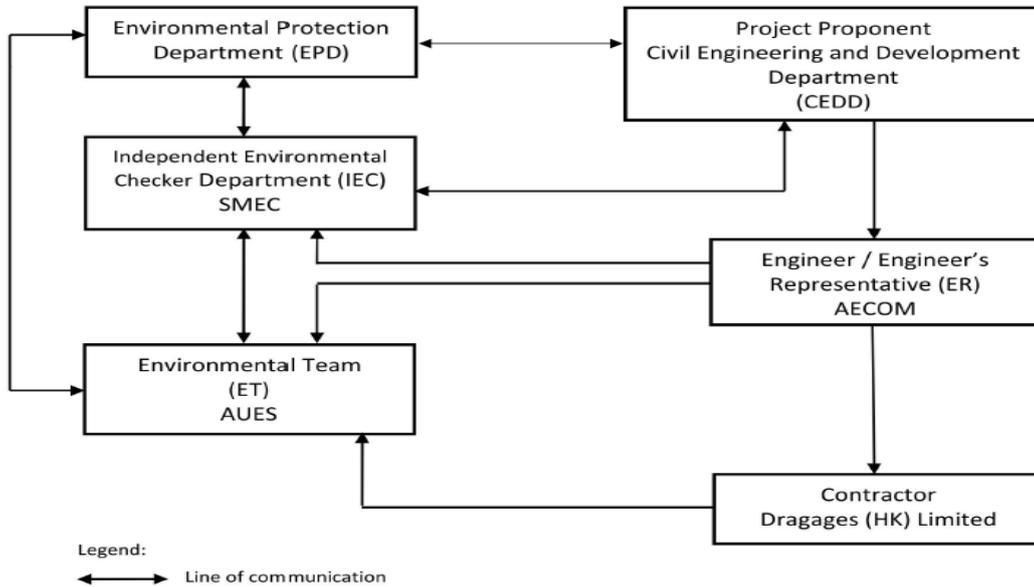


Appendix B

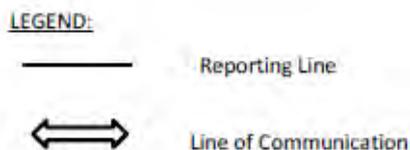
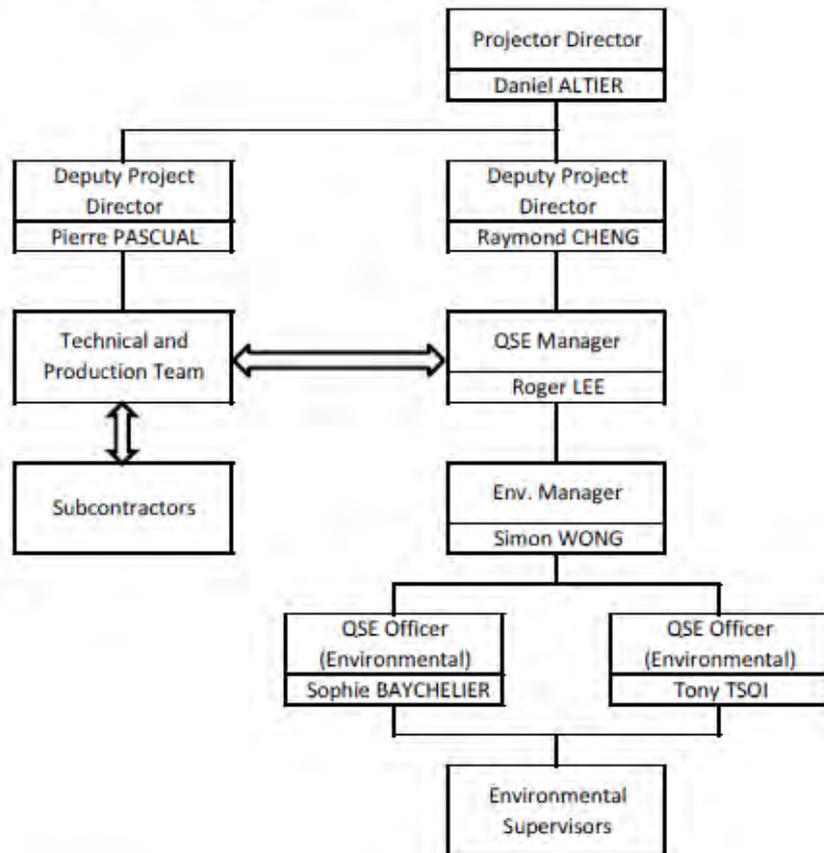
Environmental Management Organization Chart

Environmental Management Organization for Contract 2 - (CV/2012/08)

Project Organization Structure



Structure Within Dragages (HK) Limited



Contact Details of Key Personnel for Contract 2 - CV/2012/08

Organization	Project Role	Name of Key Staff	Tel No	Fax No.
AECOM	Engineer's Representative	Gregory Lo	2659 8810	2685 1155
SMEC	Independent Environmental Checker	Antony Wong	3995 8120	3995 8101
DHK	Project Director	Daniel Altier	2171 3004	2171 3299
DHK	Deputy Project Manager	Raymond Cheng / Pierre Pascual	2171 3004	2171 3299
DHK	QSE Manager	Roger Lee	6293 8726	2171 3299
DHK	Environmental Manager (Environmental Officer)	Simon Wong	9281 4346	2171 3299
DHK	QSE Officer (Environmental)	Sophie Baycheuer	6321 5001	2171 3299
DHK	QSE Officer (Environmental)	Tony Tsoi	6028 5623	2171 3299
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079

Legend:

CEDD (Employer) – Civil Engineering and Development Department

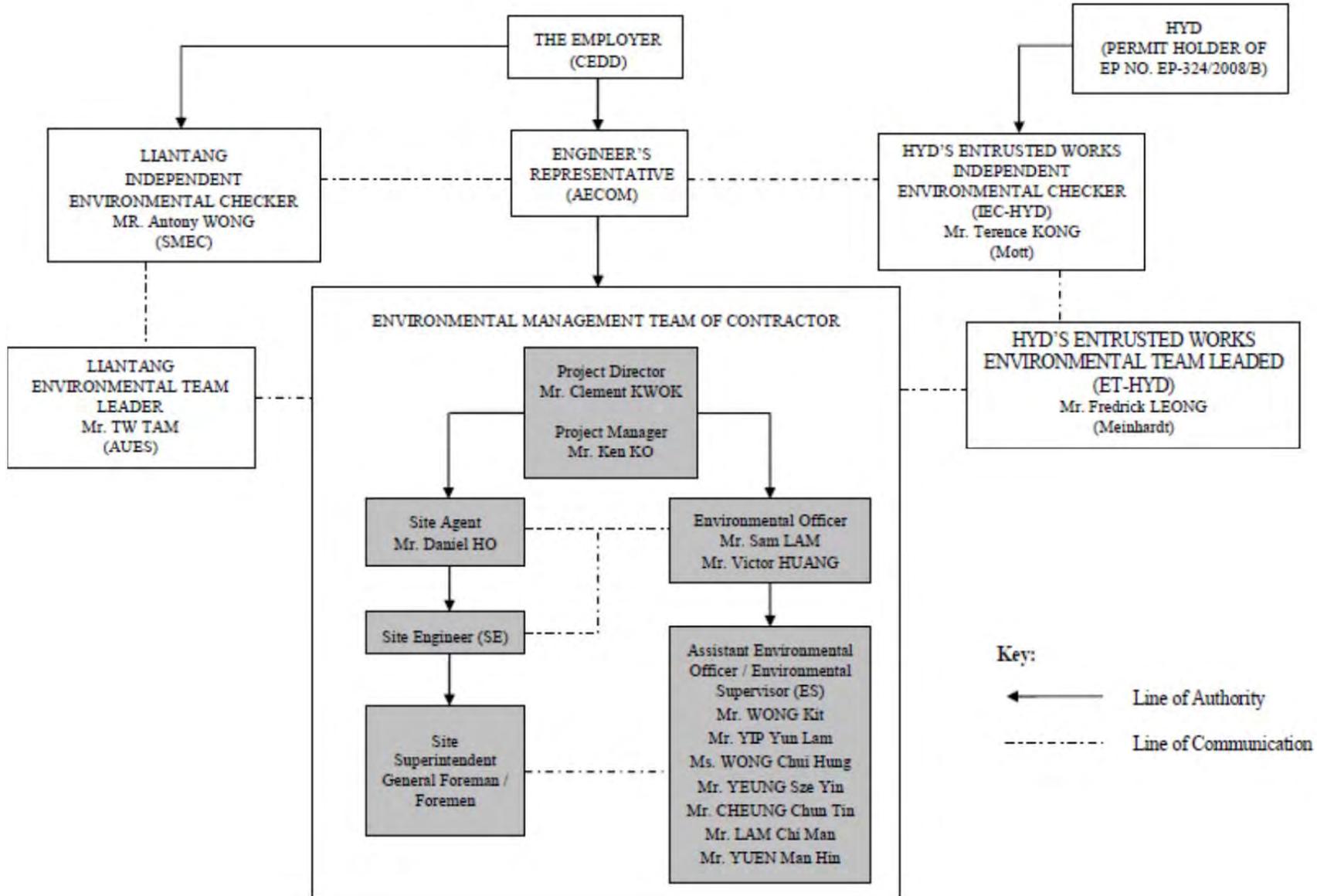
AECOM (Engineer) – AECOM Asia Co. Ltd.

DHK(Main Contractor) –Dragages Hong Kong Ltd.

SMEC (IEC) – SMEC Asia Limited

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

Environmental Management Organization for Contract 3 - (CV/2012/09)



Contact Details of Key Personnel for Contract 3 - CV/2012/09

Organization	Project Role	Name of Key Staff	Tel No	Fax No.
AECOM	Engineer's Representative	Alan Lee	2472 0212	2472 0132
SMEC	Independent Environmental Checker	Antony Wong	3995 8120	3995 8101
Chun Wo	Project Director	Clement Kwok	3758 8735	2638 7077
Chun Wo	Project Manager	Ken Ko	2638 6136	2638 7077
Chun Wo	Site Agent	Daniel Ho	2638 6144	2638 7077
Chun Wo	Environmental Officer	Sam Lam/ Victor Huang	2638 6115	2638 7077
Chun Wo	Environmental Supervisor	Wong Kit	2638 6125	2638 7077
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079

Legend:

CEDD (Employer) – Civil Engineering and Development Department

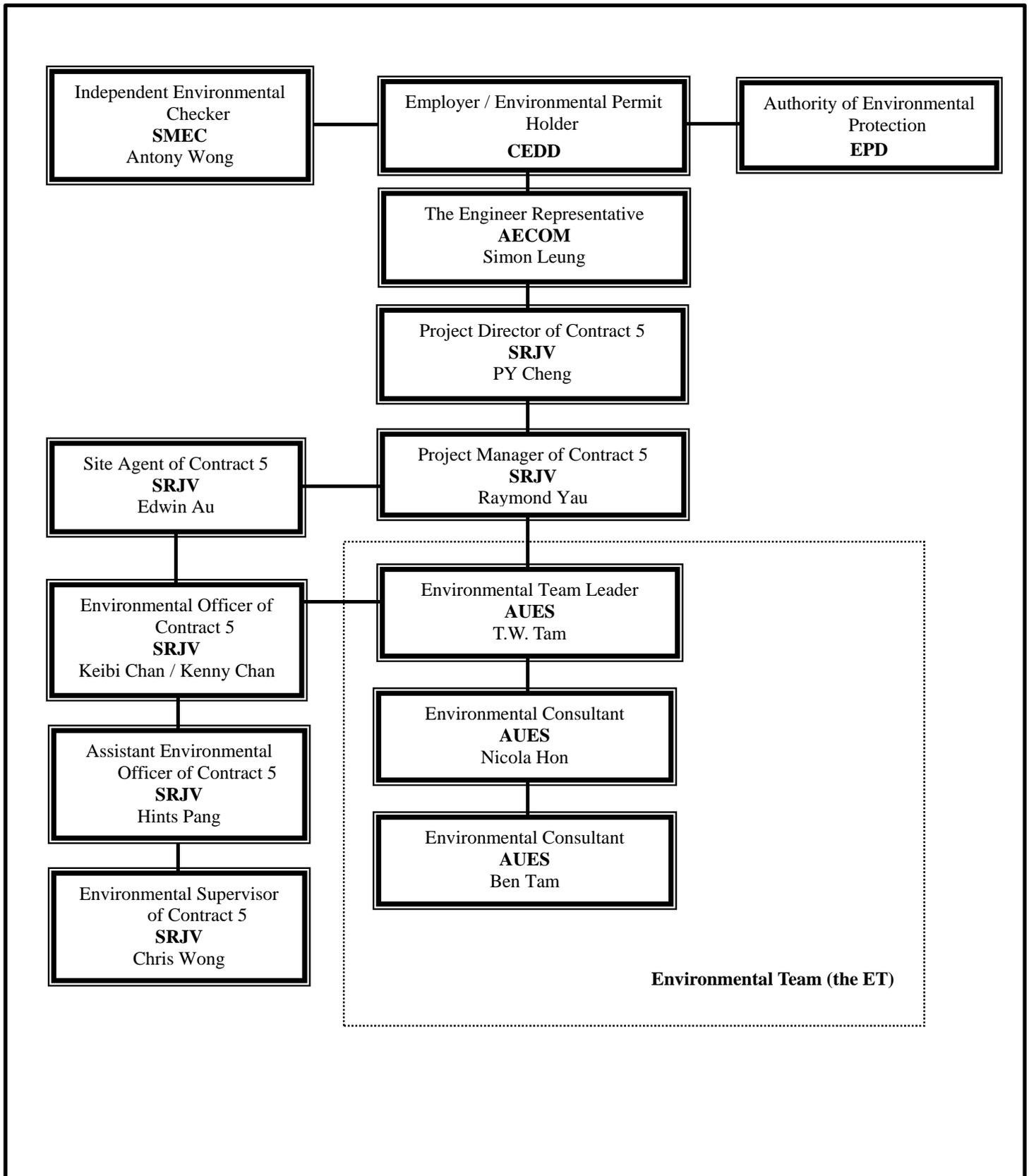
AECOM (Engineer) – AECOM Asia Co. Ltd.

Chun Wo (Main Contractor) – Chun Wo Construction Ltd.

SMEC (IEC) – SMEC Asia Limited

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

Environmental Management Organization for Contract 5 - (CV/2013/03)



Contact Details of Key Personnel for Contract 5 - CV/2013/03

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
AECOM	Engineer's Representative	Simon Leung	2674 2273	3922 9797
SMEC	Independent Environmental Checker	Antony Wong	3995 8120	3995 8101
SRJV	Project Director	PY Cheng	9023 4821	2403 1162
SRJV	Contract Manager	Raymond Yu	9041 1620	2403 1162
SRJV	Project Manager	Aaron Mak	9464 7095	2403 1162
SRJV	Site Agent	Edwin Au	9208 7329	2403 1162
SRJV	Environmental Officer	Chan Ng jhon-keibi / Kenny Chan	6090 0183	2403 1162
SRJV	Environmental Supervisor	Chris Wong	6387 4683	2403 1162
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079

Legend:

CEDD (Employer) – Civil Engineering and Development Department

AECOM (Engineer) – AECOM Asia Co. Ltd.

SRJV (Main Contractor) – Sang Hing Civil – Richwell Machinery JV

SMEC (IEC) – SMEC Asia Limited

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

Appendix C

Master Construction Programme

Contract 2

Activity ID	Activity Name	BL Project Start	BL Project Finish	2014		
				Jun 6	Jul 7	Aug 8
Total		13-Dec-13	18-May-15			
LT/ HW Initial Works Programme - Revision B_WPR 20-MAY-2014		13-Dec-13	18-May-15			
1 Contract Dates		18-May-14	20-Nov-14			
Dates for Achievement of Stages/ Completion of Sections		18-May-14	20-Nov-14			
CD1010	KD9A - Stage IA(Completion of Further Archaeological Survey Works atAS7-1, AS7-2,AS7-3 & AS8)		18-May-14	Stage IA(Completion of Further Archaeological Survey Works atAS7-1, AS7-2,AS7-3 & AS8)		
CD1020	KD1 - Sect.I (Road Improvement at LSH Rd.)		15-Sep-14			
CD1040	KD11 - Stage III (Completion of Strengthening works inside Nam Chung Water Tunnel)		20-Nov-14			
2 General		13-Dec-13	13-Nov-14			
Submission under PS		13-Dec-13	09-Apr-14			
A24640c	Re-submission for (GroupA)	21-Mar-14	30-Mar-14			
A24640d	Engineer Review & Comments for Re-submission (Group A)	31-Mar-14	09-Apr-14			
A24760	List of Calibrated Equipment	13-Dec-13	26-Dec-13			
A24790b	Engineer Review & Comments (Nth.Vent)	18-Feb-14	03-Mar-14			
A24820b	Engineer Review & Comments (Mid Vent)	18-Feb-14	03-Mar-14			
A24840d	Mobilization for Survey	28-Jan-14	06-Feb-14			
A24840f	Engineer Agree Master Controls	14-Feb-14	06-Mar-14			
A24840g	Carryout Initial Survey	07-Mar-14	18-Mar-14			
A24840h	Submit Initial Survey Record (within 3 Mths fr.LOA)		18-Mar-14			
A24850	Contract of Technician Apprentice & Engineering Graduates	13-Dec-13	14-Mar-14			
A24870	Site Samples for weather Protection System	20-Dec-13	18-Feb-14			
Programme		19-Jan-14	09-May-14			
Detailed Works Programme		19-Jan-14	09-May-14			
A24050	*Detailed Initial Works Programme	19-Jan-14	19-Mar-14			
A24060	Engineer's Approval of Initial Works Programme	20-Mar-14	18-Apr-14			
A24065	Engineer's Comment for Detailed Initial Works Programme	19-Apr-14	09-May-14	Works Programme		
Ground Investigation		13-Mar-14	13-Nov-14			
GI Works		13-Mar-14	13-Nov-14			
DSN018605	GI Field Work For 80No. BHs	13-Mar-14	13-Nov-14			
Tree Submission		13-Dec-13	11-Jan-14			
Submission		13-Dec-13	11-Jan-14			
A24380	Demonstrate Transplanted Trees Protection	13-Dec-13	11-Jan-14			
A24540	Tree Survey & Record	20-Dec-13	02-Jan-14			
Archeological Survey Submission		21-Jan-14	20-Mar-14			
Archeological Survey & Submission		21-Jan-14	20-Mar-14			
N21545	Response by AMO/ ER	21-Jan-14	20-Mar-14			
Condition Survey		12-Feb-14	05-Jul-14			
A25250	Carryout Condition Survey & Submit Survey Record	12-Feb-14	05-Jul-14	Carryout Condition Survey & Submit Survey Record		
Interface Management Plan		13-Dec-13	10-Feb-14			
A24350	Interface Management Plan	13-Dec-13	10-Feb-14			
Project Design Plan		16-Dec-13	15-Jan-14			
SC01790	Project Design Plan	16-Dec-13	15-Jan-14			
Security System		20-Dec-13	02-Jan-14			
A24340	Propose Security System	20-Dec-13	02-Jan-14			
Geotechnical Interpretative Report 1st Revision		11-Mar-14	12-Jun-14			
DDA Submission		11-Mar-14	12-Jun-14			
GIR2021940	IPs/ ER's Advance Comments/ ICE Comments	11-Mar-14	12-Apr-14			
GIR2021950	Comments Received		12-Apr-14			
GIR2021960	Designer to Reply RIC + Update Submission	14-Apr-14	13-May-14	Update Submission to ER/ ICE/ IPs		
GIR2021970	Submit Updated DDA to ER/ ICE/ IPs	14-May-14				
GIR2021980	ICE Approval & Issue Check Cert	14-May-14	27-May-14	ICE Approval & Issue Check Cert		
GIR2021990	Submit ICE Check Cert to ER	28-May-14	04-Jun-14	Submit ICE Check Cert to ER		
GIR2022000	IPs Review	14-May-14	10-Jun-14			
GIR2022010	IPs No Objection Received		10-Jun-14			
GIR2022050	ER Review	16-May-14	12-Jun-14			
GIR2022060	ER Approval with Condition Received		12-Jun-14			
3 South Portal Area		20-Dec-13	18-May-15			
3.0 South Portal Site Possession		20-Apr-14	20-Apr-14			
A2470	LS2 (near South Vent Demolition & Noise Barrier)	20-Apr-14				
3.1 South Portal Subcontract & Procurement		21-Jan-14	20-Jun-14			
South Portal: Temporary Bridge		18-Mar-14	20-Jun-14			
A01020	Award Subcontract for Temp. Bridge Piling works	08-Apr-14	24-Apr-14			

- Primary Baseline
- Critical Activity
- ◆ Milestone

3-Months Rolling Programme - MPR5



Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
20-May-14	Monthly Report No.5		

Activity ID	Activity Name	BL Project Start	BL Project Finish	2014		
				Jun 6	Jul 7	Aug 8
A01025	Liaise with MTR	01-Apr-14	15-Apr-14			
A01030	Mobilization for Temp.Bridge Piling works	25-Apr-14	10-May-14	works		
A01100	Award Subcontract for Temp.Bridge Structural Steelworks	18-Mar-14	31-Mar-14			
A01110	Procurement for Temp.Bridge Structural Steelworks	16-Apr-14	20-Jun-14	Procurement for Temp.Bridge Structural Steelworks		
South Portal: Site Clearance & Hoarding						
A2435	Subcontracts Tender for Site Clearance & Hoarding (Sth.Vent)	04-Feb-14	17-Feb-14			
A2445	Award Subcontract for Site Clearance & Hoarding (Sth.Vent)	18-Feb-14	03-Mar-14			
South Portal: Demolition						
SV2955	Preparation of Subcontract for Demolition in Sth.Portals	10-Apr-14	26-Apr-14			
SV2965	Subcontract Tender for Demolition	28-Apr-14	13-May-14	demolition		
SV2975	Award Subcontract for Demolition	14-May-14	27-May-14	Award Subcontract for Demolition		
SV2985	Mobilization for Demolition	28-May-14	11-Jun-14	Mobilization for Demolition		
South Portal: Archaeological Survey						
N21420	Response by AMO/ER	21-Jan-14	20-Mar-14			
3.2 South Portal Design Submission						
South Portal: Temp. Bridge at LS1						
DDA Submission						
DSN01430	ICE Approval & Issue Check Cert	11-Mar-14	15-Apr-14			
DSN01440	Submit ICE Check Cert to ER	11-Mar-14	24-Mar-14			
DSN01460	IPs No Objection Received					
DSN01500	ER Review	19-Mar-14	15-Apr-14			
DSN01510	ER Approval with Condition Received		15-Apr-14			
South Portal: South Portal Site Formation						
DDA Submission						
DSN019800	Preparation of DDA Submission	17-Feb-14	25-Jun-14			
DSN019810	Review & Comment by DHK	17-Feb-14	17-Mar-14			
DSN019820	Designer prepare DDA	18-Mar-14	08-Apr-14			
DSN019820	Designer prepare DDA	09-Apr-14	25-Apr-14			
DSN019830	Formal Submission of DDA to ICE/IPs		25-Apr-14			
DSN019840	Advanced Submission to ER		25-Apr-14			
DSN019850	IPs/ER's Advance Comments/ICE Comments	26-Apr-14	30-May-14	IPs/ER's Advance Comments/ICE Comments		
DSN019860	Comments Received		30-May-14	Comments Received		
DSN019870	Designer to Reply RIC + Update Submission	31-May-14	25-Jun-14	Designer to Reply RIC + Update Submission		
South Portal: Temp Support For Retaining Wall						
DDA Submission						
DSN03140	Preparation of DDA Submission for Temp Support (Sth.Portals) Retaining Wall	01-Mar-14	10-Jul-14			
DSN03150	Review & Comment by DHK	01-Mar-14	28-Mar-14			
DSN03160	Designer prepare DDA	29-Mar-14	23-Apr-14			
DSN03160	Designer prepare DDA	24-Apr-14	12-May-14			
DSN03170	Formal Submission of DDA to ICE/IPs		12-May-14	to ICE/IPs		
DSN03180	Advanced Submission to ER		12-May-14	ER		
DSN03190	IPs/ER's Advance Comments/ICE Comments	13-May-14	14-Jun-14	IPs/ER's Advance Comments/ICE Comments		
DSN03200	Comments Received		14-Jun-14	Comments Received		
DSN03210	Designer to Reply RIC + Update Submission	16-Jun-14	10-Jul-14	Designer to Reply RIC + Update Submission		
South Portal: Permanent Retaining Wall						
DDA Submission						
DSN019440	Preparation of DDA Submission for Retaining Wall (Sth.Portals)	30-Jun-14	23-Aug-14			
DSN019450	Review & Comment by DHK	30-Jun-14	28-Jul-14			
DSN019450	Review & Comment by DHK	29-Jul-14	11-Aug-14			
DSN019460	Designer prepare DDA	12-Aug-14	23-Aug-14			
South Portal: Ventilation Buildings - Foundation Design						
AIP Submission						
DSN07640	Preparation of AIP Submission for Foundation Design (Sth.Vent.Bldg.)	10-Apr-14	16-Aug-14			
DSN07640	Preparation of AIP Submission for Foundation Design (Sth.Vent.Bldg.)	10-Apr-14	26-Apr-14			
DSN07650	Review & Comment by DHK	28-Apr-14	13-May-14	HK		
DSN07660	Designer Prepare AIP	14-May-14	19-May-14	Designer Prepare AIP		
DSN07670	Formal Submission of AIP to ICE/IPs (except GEO)		19-May-14	Formal Submission of AIP to ICE/IPs (except GEO)		
DSN07680	Advanced Submission of AIP to ER		19-May-14	Advanced Submission of AIP to ER		
DSN07690	Review & Comment by ER/ICE/IPs	20-May-14	21-Jun-14	Review & Comment by ER/ICE/IPs		
DSN07700	Advance Comments from ER/ Comments from ICE/IPs Received		21-Jun-14	Advance Comments from ER/ Comments from ICE/IPs Received		
DSN07710	Designer to Prepare RIC & Updated AIP	23-Jun-14	14-Jul-14	Designer to Prepare RIC & Updated AIP		
DSN07720	Submission of AIP to ER/ICE together with Reply To Comment (RTC)		14-Jul-14	Submission of AIP to ER/ICE together with Reply To Comment (RTC)		
DSN07730	Reply to IPs Comments in RTC		14-Jul-14	Reply to IPs Comments in RTC		
DSN07740	ICE Approval & Issue of Design Check Cert.	15-Jul-14	04-Aug-14	ICE Approval & Issue of Design Check Cert.		
DSN07800	ER Review (35 Days)	20-Jul-14	16-Aug-14	ER Review		
DDA Submission						
DSN07820	Preparation of DDA Submission for Foundation Design (Sth.Vent.Bldg.)	10-Jul-14	30-Jul-14	Preparation of DDA Submission for Foundation Design (Sth.Vent.Bldg.)		
South Portal: Temp CLP Room						

- Primary Baseline
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3-Months Rolling Programme - MPR5



Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
20-May-14	Monthly Report No.5		

Activity ID	Activity Name	BL Project Start	BL Project Finish	2014		
				Jun 6	Jul 7	Aug 8
AIP Submission						
SCLP207640	Preparation & Approval For CLP Room	18-Feb-14	27-Jun-14	Preparation & Approval For CLP Room		
SCLP207810	ER Approval with Condition Received	18-Feb-14	27-Jun-14	ER Approval with Condition Received		
DDA Submission						
SCLP207820	Preparation of DDA Submission for South Portal Temp CLP Room	28-Jun-14	26-Aug-14	Preparation of DDA Submission for South Portal Temp CLP Room		
SCLP207830	Review & Comment by DHK	28-Jun-14	19-Jul-14	Review & Comment by DHK		
SCLP207840	Designer prepare DDA	21-Jul-14	09-Aug-14	Designer prepare DDA		
South Portal: Temp Works For Mined Tunnelling						
DDA Submission						
DSN010510	Preparation of DDA Submission	29-Mar-14	02-Aug-14	Preparation of DDA Submission		
DSN010520	Review & Comment by DHK	29-Mar-14	30-Apr-14	Review & Comment by DHK		
DSN010530	Designer prepare DDA	02-May-14	21-May-14	Designer prepare DDA		
DSN010540	Formal Submission of DDA b ICE/IPs	22-May-14	05-Jun-14	Formal Submission of DDA b ICE/IPs		
DSN010550	Advanced Submission to ER	05-Jun-14	05-Jun-14	Advanced Submission to ER		
DSN010560	IPs/ER's Advance Comments/ICE Comments	05-Jun-14	09-Jun-14	IPs/ER's Advance Comments/ICE Comments		
DSN010570	Comments Received	06-Jun-14	09-Jul-14	Comments Received		
DSN010580	Designer to Reply RIC + Update Submission	09-Jul-14	02-Aug-14	Designer to Reply RIC + Update Submission		
South Portal: Temp Works For D&B Tunnelling						
DDA Submission						
DSN010150	Preparation of DDA Submission	23-Jul-14	10-Sep-14	Preparation of DDA Submission		
DSN010160	Review & Comment by DHK	23-Jul-14	19-Aug-14	Review & Comment by DHK		
South Tunnel Permanent Lining						
AIP Submission						
STPL1023340	Preparation of AIP Submission for South Tunnel Permanent Lining	14-Apr-14	18-Aug-14	Preparation of AIP Submission for South Tunnel Permanent Lining		
STPL1023350	Review & Comment by DHK	14-Apr-14	16-May-14	Review & Comment by DHK		
STPL1023360	Designer Prepare AIP	17-May-14	30-May-14	Designer Prepare AIP		
STPL1023370	Formal Submission of AIP to ICE/IPs (except GEO)	31-May-14	07-Jun-14	Formal Submission of AIP to ICE/IPs (except GEO)		
STPL1023380	Advanced Submission of AP to ER	07-Jun-14	07-Jun-14	Advanced Submission of AP to ER		
STPL1023390	Review & Comment by ER/ICE/IPs	07-Jun-14	07-Jul-14	Review & Comment by ER/ICE/IPs		
STPL1023400	Advance Comments from ER/ Comments from ICE/IPs Received	07-Jun-14	07-Jul-14	Advance Comments from ER/ Comments from ICE/IPs Received		
STPL1023410	Designer to Prepare RIC & Updated AIP	09-Jun-14	07-Jul-14	Designer to Prepare RIC & Updated AIP		
STPL1023420	Submission of AIP to ER/ICE together with Reply To Comment (RTC)	07-Jul-14	28-Jul-14	Submission of AIP to ER/ICE together with Reply To Comment (RTC)		
STPL1023430	Reply to IPs Comments in RTC	08-Jul-14	28-Jul-14	Reply to IPs Comments in RTC		
STPL1023440	ICE Approval & Issue of Design Check Cert.	28-Jul-14	18-Aug-14	ICE Approval & Issue of Design Check Cert.		
South Tunnel Internal Structures						
AIP Submission						
STIS1L1023340	Preparation of AIP Submission for South Tunnel Internal Structure (Cast Insitu)	16-May-14	29-Aug-14	Preparation of AIP Submission for South Tunnel Internal Structure (Cast Insitu)		
STIS1L1023350	Review & Comment by DHK	16-May-14	13-Jun-14	Review & Comment by DHK		
STIS1L1023360	Designer Prepare AIP	14-Jun-14	03-Jul-14	Designer Prepare AIP		
STIS1L1023370	Formal Submission of AIP to ICE/IPs (except GEO)	04-Jul-14	11-Jul-14	Formal Submission of AIP to ICE/IPs (except GEO)		
STIS1L1023380	Advanced Submission of AP to ER	11-Jul-14	11-Jul-14	Advanced Submission of AP to ER		
STIS1L1023390	Review & Comment by ER/ICE/IPs	11-Jul-14	08-Aug-14	Review & Comment by ER/ICE/IPs		
STIS1L1023400	Advance Comments from ER/ Comments from ICE/IPs Received	12-Jul-14	08-Aug-14	Advance Comments from ER/ Comments from ICE/IPs Received		
STIS1L1023410	Designer to Prepare RIC & Updated AIP	09-Aug-14	29-Aug-14	Designer to Prepare RIC & Updated AIP		
CBAR South Tunnel Sump, Cross Passages & Mid Vent Junction						
A26040a	Preparation of CBAR	18-Jul-14	14-Aug-14	Preparation of CBAR		
A26040b	Review & Comments for CBAR	18-Jul-14	08-Sep-14	Review & Comments for CBAR		
3.3 South Portal Method Statement Submission						
South Portal: Utilities & Footpath Diversions / TTMs						
A23860	Re-submit Method Statement for Utilities/Footpath Diversion Works	11-Feb-14	27-Mar-14	Re-submit Method Statement for Utilities/Footpath Diversion Works		
A23870	Engineer's Approval for Utilities/Footpath Diversion Works	11-Feb-14	27-Feb-14	Engineer's Approval for Utilities/Footpath Diversion Works		
South Portal: Temporary Road						
FL430	Prepare Method Statement for South Temp Road	13-May-14	14-Oct-14	Prepare Method Statement for South Temp Road		
FL440	Engineer's Comment	13-May-14	09-Jul-14	Engineer's Comment		
FL450	Re-submission Method Statement	10-Jul-14	11-Aug-14	Re-submission Method Statement		
FL460	Engineer's Approval	12-Aug-14	08-Sep-14	Engineer's Approval		
South Portal: Temporary Bridge						
FL560	Engineer's Approval	10-Sep-14	14-Oct-14	Engineer's Approval		
South Portal: Site Installation						
N21570	Prepare Method Statement of Site Installation	28-Apr-14	31-May-14	Prepare Method Statement of Site Installation		
N21580	ER's Comment for Site Installation	28-Apr-14	25-Feb-14	ER's Comment for Site Installation		
South Portal: Demolition						
SV2770	Engineer's Comment for Demolition Plan & Method Statement	17-Mar-14	11-Jun-14	Engineer's Comment for Demolition Plan & Method Statement		
SV2780	Prepare & Re-submit Demolition Plan & Method Statement	17-Mar-14	15-Apr-14	Prepare & Re-submit Demolition Plan & Method Statement		

- Primary Baseline
- Critical Activity
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3-Months Rolling Programme - MPR5



Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B_BL		
20-May-14	Monthly Report No.5		

Activity ID	Activity Name	BL Project Start	BL Project Finish	2014		
				Jun 6	Jul 7	Aug 8
SV2790	Engineer's Approval for Demolition & Method Statement	13-May-14	11-Jun-14	Engineer's Approval for Demolition & Method Statement		
3.4 South Portal General Submission						
South Portal: Condition Survey						
SC01480	Mobilization for Condition Survey (Sth.Portals)	07-Mar-14	10-Mar-14			
SC01490	Carryout Condition Survey (Sth.Portals)	11-Mar-14	17-Mar-14			
SC01500	Submit Condition Survey (Sth.Portals) (within 8 weeks before GEO works)		17-Mar-14			
3.5 South Portal Works						
South Portal: CLP Substation						
SCLP2075	Procurement of Transformers & Cable Laying (by CLP)	23-Jul-14	18-May-15			
South Portal: Site Clearance & Hoarding						
SV2160	Mobilization for Hoarding (Sth.Vent)	04-Mar-14	10-Mar-14			
SV2165	Site Clearance & Hoarding	11-Mar-14	08-Apr-14			
South Portal: Site Installation						
SC01630	Site Installation	26-Feb-14	26-Apr-14			
South Portal: Demolition						
SV2840	Precautionary Measures	12-Jun-14	12-Jul-14	Precautionary Measures		
South Portal: Tree Transplant & Felling						
SV2135	Tree Transplant	21-Jan-14	22-Apr-14			
SV2145	Tree Felling for Bridge	21-Jan-14	04-Mar-14			
SV2155	Tree Felling Remaining	05-Mar-14	01-Apr-14			
South Portal: Utilities & Footpath Diversion						
SV2252	Mobilization for Utility Detection	13-Feb-14	26-Feb-14			
SV2585	Trial Trench	07-Mar-14	27-Mar-14			
SV2590	Utilities (PCCW/LV Cable/ Street Lighting) Diversion	28-Mar-14	22-Apr-14			
South Portal: Temp.Bridge (South Portal)						
SV2620	Foundation works (East)	03-Jun-14	03-Jul-14	Foundation works (East)		
SV2630	Foundation works (West)	26-May-14	04-Jul-14	Foundation works (West)		
4 Middle Portal Area						
4.1 Middle Portal Subcontract & Procurement						
Middle Portal: Portal Formation						
A25350	Subcontract Tender for Mid Portal	04-Feb-14	03-Mar-14			
A25360	Award Subcontract for Mid Portal	18-Feb-14	03-Mar-14			
Middle Portal: Archaeological Survey						
N21160	Response by AMO/ER	21-Jan-14	20-Mar-14			
4.2 Middle Portal Design Submission						
Middle Portal: Site & Portal Formation						
DDA Submission						
DSN017070	ICE Approval & Issue Check Cert	07-Mar-14	20-Mar-14			
DSN017080	Submit ICE Check Cert to ER+ ER forward to GEO	21-Mar-14	27-Mar-14			
DSN017090	IPs Review	07-Mar-14	03-Apr-14			
DSN017100	IPs No Objection Received		03-Apr-14			
DSN017120	ER forward DDA to GEO (w/o ICE Cert.)	07-Mar-14	09-Mar-14			
DSN017130	GEO Review	10-Mar-14	06-Apr-14			
DSN017140	GEO Comments Received		07-Apr-14			
DSN017150	ER Review	17-Mar-14	13-Apr-14			
DSN017160	ER Approval with Condition Received		14-Apr-14			
Mid Vent Building - ELS						
DDA Submission						
DSN022850	IPs/ER's Advance Comments/ ICE Comments	12-Mar-14	14-Apr-14			
DSN022860	Comments Received		14-Apr-14			
DSN022870	Designer to Reply RIC + Update Submission	15-Apr-14	14-May-14			
DSN022880	Submit Updated DDA to ER/ ICE/ IPs	15-May-14				
DSN022890	ICE Approval & Issue Check Cert	15-May-14	28-May-14			
DSN022900	Submit ICE Check Cert to ER+ ER forward to GEO	29-May-14	05-Jun-14			
DSN022910	IPs Review	15-May-14	11-Jun-14			
DSN022920	IPs No Objection Received		11-Jun-14			
DSN022930	ER forward DDA to GEO (w/o ICE Cert.)	15-May-14	17-May-14			
DSN022940	GEO Review	18-May-14	14-Jun-14			
DSN022950	GEO Comments Received		14-Jun-14			
DSN022960	ER Review	22-May-14	18-Jun-14			
DSN022970	ER Approval with Condition Received		18-Jun-14			
Mid Vent Building - Foundation						
AIP Submission						
		01-Apr-14	23-Oct-14			
		01-Apr-14	18-Aug-14			

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3-Months Rolling Programme - MPR5



Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B_BL		
20-May-14	Monthly Report No.5		

Activity ID	Activity Name	BL Project Start	BL Project Finish	2014		
				Jun 6	Jul 7	Aug 8
DSN011770	Preparation of AIP Submission for Ventilation Buildings Foundation Design	01-Apr-14	03-May-14			
DSN011780	Review & Comment by DHK	05-May-14	17-May-14			
DSN011790	Designer Prepare AIP	19-May-14	24-May-14			
DSN011800	Formal Submission of AIP to ICE/IPs (except GEO)		24-May-14			
DSN011810	Advanced Submission of AP to ER		24-May-14			
DSN011820	Review & Comment by ER/ICE/IPs	26-May-14	23-Jun-14			
DSN011830	Advance Comments from ER/ Comments from ICE/ IPs Received		23-Jun-14			
DSN011840	Designer to Prepare RIC & Updated AIP	24-Jun-14	15-Jul-14			
DSN011850	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		15-Jul-14			
DSN011860	Reply to IPs Comments in RTC		15-Jul-14			
DSN011870	ICE Approval & Issue of Design Check Cert.	16-Jul-14	05-Aug-14			
DSN011930	ER Review (35 Days)	22-Jul-14	18-Aug-14			
DDA Submission						
DSN011950	Preparation of DDA Submission for Ventilation Buildings Foundation Design	03-Jul-14	30-Jul-14			
DSN011960	Review & Comment by DHK	31-Jul-14	23-Oct-14			
Mid Vent Temp CLP Switch Room						
AIP Submission						
TSS3P207640	Preparation & Approval For CLP Room	17-Jan-14	29-May-14			
TSS3P207810	ER Approval with Condition Received		29-May-14			
DDA Submission						
TSS3P207820	Preparation of DDA Submission for Mid Vent Temp CLP Switch Room	09-May-14	09-Aug-14			
TSS3P207830	Review & Comment by DHK	30-May-14	20-Jun-14			
TSS3P207840	Designer prepare DDA	21-Jun-14	08-Jul-14			
TSS3P207850	Formal Submission of DDA to ICE/ IPs		08-Jul-14			
TSS3P207860	Advanced Submission to ER		08-Jul-14			
TSS3P207870	IPs/ER's Advance Comments/ ICE Comments	09-Jul-14	09-Aug-14			
Middle Portal: Temp Support for Mined and D&B Tunnelling						
DDA Submission						
DSN026980	Designer Prepare DDA	29-Mar-14	07-Apr-14			
DSN026990	Submission of DDA to ICE/ IPs		07-Apr-14			
DSN027000	ICE Approval & Issue Check Cert	08-Apr-14	24-Apr-14			
DSN027010	Submit ICE Check Cert to ER+ ER forward to GEO	25-Apr-14	02-May-14			
DSN027020	IPs Review	08-Apr-14	05-May-14			
DSN027030	IPs No Objection Received		05-May-14			
DSN027040	Submission to ER		07-Apr-14			
DSN027050	ER forward DDA to GEO (w/o ICE Cert)	08-Apr-14	10-Apr-14			
DSN027060	GEO Review	11-Apr-14	08-May-14			
DSN027070	GEO Comments Received		08-May-14			
DSN027080	ER Review	15-Apr-14	12-May-14			
DSN027090	ER Approval with Condition Received		12-May-14			
Mid Vent Adit Permanent Lining						
AIP Submission						
TSS3P207660	Designer Prepare AIP	08-Apr-14	18-Jul-14			
TSS3P207670	Formal Submission of AIP to ICE/IPs (except GEO)	08-Apr-14	14-Apr-14			
TSS3P207680	Advanced Submission of AP to ER		14-Apr-14			
TSS3P207690	Review & Comment by ER/ICE/IPs	15-Apr-14	22-May-14			
TSS3P207700	Advance Comments from ER/ Comments from ICE/ IPs Received		22-May-14			
TSS3P207710	Designer to Prepare RIC & Updated AIP	23-May-14	13-Jun-14			
TSS3P207720	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		13-Jun-14			
TSS3P207730	Reply to IPs Comments in RTC		13-Jun-14			
TSS3P207740	ICE Approval & Issue of Design Check Cert.	14-Jun-14	05-Jul-14			
TSS3P207750	Check Cert to ER, ER Forwards to GEO		05-Jul-14			
TSS3P207760	No Objection or Further Minor Comments from IPs Received		05-Jul-14			
TSS3P207800	ER Review (35 Days)	21-Jun-14	18-Jul-14			
TSS3P207810	ER Approval with Condition Received		18-Jul-14			
Mid Vent Adit Internal Structure						
AIP Submission						
MVPIS13P207	Preparation of AIP Submission for Mid Vent Permanent Internal Structure (Cast Insitu)	22-May-14	05-Jun-14			
MVPIS13P207	Review & Comment by DHK	06-Jun-14	19-Jun-14			
MVPIS13P207	Designer Prepare AIP	20-Jun-14	04-Jul-14			
MVPIS13P207	Formal Submission of AIP to ICE/IPs (except GEO)		04-Jul-14			
MVPIS13P207	Advanced Submission of AP to ER		04-Jul-14			
MVPIS13P207	Review & Comment by ER/ICE/IPs	05-Jul-14	06-Aug-14			
MVPIS13P207	Advance Comments from ER/ Comments from ICE/ IPs Received		06-Aug-14			
MVPIS13P207	Designer to Prepare RIC & Updated AIP	07-Aug-14	27-Aug-14			
MVPIS13P207	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		27-Aug-14			

- Primary Baseline
- Critical Activity
- ◆ Milestone

3-Months Rolling Programme - MPR5



Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
20-May-14	Monthly Report No.5		

Activity ID	Activity Name	BL Project Start	BL Project Finish	2014		
				Jun 6	Jul 7	Aug 8
MVPIS13P207	Reply to IPs Comments in RTC		27-Aug-14			
MVPIS13P207	ICE Approval & Iss ue of Design Check Cert.	28-Aug-14	18-Sep-14			
Mid Vent Adit/Junction - Temp Works For D&B Tunnelling						
DDA Submission						
DSN024240	Preparation of DDA Submission	05-Jul-14	01-Aug-14			
DSN024250	Review & Comment by DHK	02-Aug-14	22-Aug-14			
Mid Vent Adit/Junction Permanent Lining & Backfill						
AIP Submission						
MVPIL13P207	Preparation of AIP Submission for Mid Vent Junction Permanent Lining & Backfill	15-Apr-14	02-May-14			
MVPIL13P207	Review & Comment by DHK	03-May-14	23-May-14			
MVPIL13P207	Designer Prepare AIP	24-May-14	30-May-14			
MVPIL13P207	Formal Submission of AIP to ICE/IPs (except GEO)		30-May-14			
MVPIL13P207	Advanced Submission of AP to ER		30-May-14			
MVPIL13P207	Review & Comment by ER/ICE/IPs	31-May-14	04-Jul-14			
MVPIL13P207	Advance Comments from ER/ Comments from ICE/IPs Received		04-Jul-14			
MVPIL13P207	Designer to Prepare RIC & Updated AIP	05-Jul-14	25-Jul-14			
MVPIL13P207	Submission of AIP to ER/ ICE together with Reply To Comment (RTC)		25-Jul-14			
MVPIL13P207	Reply to IPs Comments in RTC		25-Jul-14			
MVPIL13P207	ICE Approval & Iss ue of Design Check Cert.	26-Jul-14	15-Aug-14			
Mid Vent Junction Internal Structure						
AIP Submission						
MVJIS13P207	Preparation of AIP Submission for Mid Vent Junction Internal Structure (Cast In-Situ)	28-Mar-14	11-Jul-14			
MVJIS13P207	Review & Comment by DHK	12-Apr-14	09-May-14			
MVJIS13P207	Designer Prepare AIP	10-May-14	16-May-14			
MVJIS13P207	Formal Submission of AIP to ICE/IPs (except GEO)		16-May-14			
MVJIS13P207	Advanced Submission of AP to ER		16-May-14			
MVJIS13P207	Review & Comment by ER/ICE/IPs	17-May-14	19-Jun-14			
MVJIS13P207	Advance Comments from ER/ Comments from ICE/IPs Received		19-Jun-14			
MVJIS13P207	Designer to Prepare RIC & Updated AIP	20-Jun-14	11-Jul-14			
CBAR Mid Vent Adit						
A26020d	Engineer & IP's Approval for CBAR (Mid Vent)	18-Feb-14	31-Mar-14			
4.3 Middle Portal Method Statement Submission						
Middle Portal: Temp.CLP Substation						
TSS332020	Prepare & Submit CLP Sub-station Proposal	28-Jun-14	26-Jul-14			
TSS332030	CLP Review & Approval	28-Jul-14	23-Aug-14			
Middle Portal: Pipe Pile Works						
A2290	Prepare Method Statement for Pipe Pile Works	20-Jan-14	19-Mar-14			
A2300	Engineer's Comment	20-Mar-14	25-Apr-14			
A2310	Re-submission Method Statement for Pipe Pile Works	26-Apr-14	26-May-14			
Middle Portal: Road Improvement						
A25400	Engineer's Approval	08-Feb-14	07-Mar-14			
Middle Portal: Site Clearance/ Hoarding/ Site Installation						
A25430	Re-submission Method Statement for Site Clearance/ Hoarding	21-Jan-14	27-Jan-14			
A25440	Engineer's Approval	28-Jan-14	27-Feb-14			
Middle Portal: Portal Formation						
A25450	Prepare Method Statement for Portal Formation	13-Dec-13	27-Jan-14			
A25460	Engineer's Comment	28-Jan-14	27-Feb-14			
A25470	Re-submission Method Statement for Portal Formation	28-Feb-14	15-Mar-14			
A25480	Engineer's Approval	17-Mar-14	14-Apr-14			
4.4 Middle Portal General Submission						
Middle Portal: Tree Transplant & Felling						
N21100	Tree Survey and Labeling	07-Jan-14	20-Jan-14			
N21110	Tree Transplant/Felling Plan Submission & Approval (if necessary)	21-Jan-14	03-Apr-14			
4.5 Middle Portal Works						
Middle Portal: CLP Substation						
TSS3P2075	Procurement of Transformers & Cable Laying (by CLP)	07-Feb-14	03-Dec-14			
Middle Portal: Archaeological Survey						
MV2160	Archaeological Survey (ASB)	21-Mar-14	03-Apr-14			
Middle Portal: Road Improvement works at Lau Shui Heung Rd.						
DSN018410	Road Improvement work [Temporary Passing Bays Construction]	01-Apr-14	30-Jun-14			
DSN018420	Completion of Road Improvement works		30-Jun-14			
Middle Portal: Site Formation						
MV2170	Site Hoarding / Fencing	11-Mar-14	08-Apr-14			

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Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _ BL		
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Activity ID	Activity Name	BL Project Start	BL Project Finish	2014		
				Jun 6	Jul 7	Aug 8
MV2180	Tree Protection works	04-Apr-14	30-Apr-14			
MV2800	Permanent Slope Stabilization	04-Mar-14	21-May-14	Permanent Slope Stabilization		
Middle Portal: Portal Construction						
MV2480	Portal Formation	15-Apr-14	28-Jun-14	Portal Formation		
Adit Construction - Mid Portal						
MV2490	Top Heading Canopies Ch3-Ch70	03-Jul-14	11-Nov-14			
5 North Portal Area						
5.1 North Portal Subcontract & Procurement						
North Portal: Archaeological Survey						
N20490	Response by AMO/ER	21-Jan-14	20-Mar-14			
North Portal: TBM Procurement & Delivery						
DSN027980	TBM Procurement, Fabrication & Delivery	20-Jan-14	28-Feb-14			
N21400	Precast Segment Mould Fabrication	02-May-14	10-Sep-14			
5.2 North Portal Design Submission						
Engineer and Contractor Site Offices						
N21345	Engineer's Approval for Site Office	11-Feb-14	24-Feb-14			
North Portal Site Formation						
DDA Submission						
DSN020710	Designer prepare DDA	08-Mar-14	28-Mar-14			
DSN020720	Formal Submission of DDA to ER/ICE/IPs		28-Mar-14			
DSN020730	Advanced Submission to ER		28-Mar-14			
DSN020740	IPs/ER's Advance Comments/ICE Comments	29-Mar-14	07-May-14			
DSN020750	Comments Received		07-May-14			
DSN020760	Designer to Reply RIC + Update Submission	08-May-14	19-May-14	Designer to Reply RIC + Update Submission		
DSN020770	Submit Updated DDA to ER/ICE/IPs	20-May-14		Submit Updated DDA to ER/ICE/IPs		
DSN020780	ICE Approval & Issue Check Cert	20-May-14	03-Jun-14	ICE Approval & Issue Check Cert		
DSN020790	Submit ICE Check Cert to ER+ ER forward to GEO	04-Jun-14	10-Jun-14	Submit ICE Check Cert to ER+ ER forward to GEO		
DSN020800	IPs Review	20-May-14	16-Jun-14	IPs Review		
DSN020810	IPs No Objection Received		16-Jun-14	IPs No Objection Received		
DSN020860	ER Approval with Condition Received		18-Jun-14	ER Approval with Condition Received		
North Portal: Temp Support for Retaining Wall						
DDA Submission						
DSN020130	Designer Prepare DDA	13-Feb-14	05-Mar-14			
DSN020140	Submission of DDA to ICE/IPs		05-Mar-14			
DSN020150	ICE Approval & Issue Check Cert	06-Mar-14	19-Mar-14			
DSN020160	Submit ICE Check Cert to ER+ ER forward to GEO	20-Mar-14	26-Mar-14			
DSN020170	IPs Review	06-Mar-14	02-Apr-14			
DSN020180	IPs No Objection Received		02-Apr-14			
DSN020190	Submission to ER		05-Mar-14			
DSN020200	ER forward DDA to GEO (w/o ICE Cert)	06-Mar-14	08-Mar-14			
DSN020210	GEO Review	09-Mar-14	05-Apr-14			
DSN020220	GEO Comments Received		07-Apr-14			
DSN020230	ER Review	15-Mar-14	11-Apr-14			
DSN020240	ER Approval with Condition Received		11-Apr-14			
North Portal: Permanent Retaining Wall						
DDA Submission						
DSN028940	Designer Prepare DDA	12-Mar-14	27-Mar-14			
DSN028950	Submission of DDA to ICE/IPs		27-Mar-14			
DSN028960	ICE Approval & Issue Check Cert	28-Mar-14	11-Apr-14			
DSN028970	Submit ICE Check Cert to ER+ ER forward to GEO	12-Apr-14	22-Apr-14			
DSN028980	IPs Review	28-Mar-14	24-Apr-14			
DSN028990	IPs No Objection Received		24-Apr-14			
DSN029000	Submission to ER		27-Mar-14			
DSN029010	ER forward DDA to GEO (w/o ICE Cert)	28-Mar-14	30-Mar-14			
DSN029020	GEO Review	31-Mar-14	27-Apr-14			
DSN029030	GEO Comments Received		28-Apr-14			
DSN029040	ER Review	03-Apr-14	30-Apr-14			
DSN029050	ER Approval with Condition Received		30-Apr-14			
North Portal: Ventilation Building - Foundation Design						
AIP Submission						
DSN013260	Review & Comment by ER/ICE/IPs	18-Feb-14	21-Mar-14			
DSN013270	Advance Comments from ER/ Comments from ICE/IPs Received		21-Mar-14			
DSN013280	Designer to Prepare RIC & Updated AIP	22-Mar-14	29-Mar-14			
DSN013290	Submission of AIP to ER/ICE together with Reply To Comment (RTC)		29-Mar-14			

- Primary Baseline
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3-Months Rolling Programme - MPR5



Date	Revision	Checked	Approved
28-Feb-14	Initial Works Programme Rev B _BL		
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Activity ID	Activity Name	BL Project Start	BL Project Finish	2014		
				Jun 6	Jul 7	Aug 8
DSN013300	Reply to IPs Comments in RTC		29-Mar-14			
DSN013320	Check Cert to ER, ER Forwards to GEO		08-Apr-14			
DSN013330	No Objection or Further Minor Comments from IPs Received		24-Apr-14			
DSN013370	ER Review (35 Days)	12-Apr-14	09-May-14			
DSN013380	ER Approval with Condition Received		09-May-14			
DDA Submission						
DSN013390	Preparation of DDA Submission for Foundation Design (Nth.Vent.Bldg.)	08-Mar-14	04-Apr-14			
DSN013400	Review & Comment by DHK	07-Apr-14	25-Apr-14			
DSN013410	Designer prepare DDA	26-Apr-14	14-May-14			
DSN013420	Formal Submission of DDA to ER/ICE/IPs		14-May-14			
DSN013430	Advanced Submission to ER		14-May-14			
DSN013440	IPs/ER's Advance Comments/ICE Comments	15-May-14	17-Jun-14			
DSN013450	Comments Received		17-Jun-14			
DSN013460	Designer to Reply RIC + Update Submission	18-Jun-14	12-Jul-14			
DSN013470	Submit Updated DDA to ER/ICE/IPs	14-Jul-14				
DSN013480	ICE Approval & Issue Check Cert	14-Jul-14	26-Jul-14			
DSN013500	IPs Review	14-Jul-14	10-Aug-14			
DSN013520	ER forward DDA to GEO (w/o ICE Cert.)	14-Jul-14	16-Jul-14			
DSN013530	GEO Review	17-Jul-14	13-Aug-14			
DSN013550	ER Review	14-Jul-14	17-Aug-14			
North Portal: Temp.CLP Substation (near Sha Tau Kok interchange)						
AIP Submission						
DSN029060	Preparation of AIP Submission for Temp.CLP Substation (Near STK interchange)	13-Dec-13	03-May-14			
DSN029230	ER Approval with Condition Received		03-May-14			
DDA Submission						
DSN029240	Preparation of DDA Submission for Temp.CLP Substation (Near STK interchange)	05-May-14	03-Jun-14			
DSN029250	Review & Comment by DHK	04-Jun-14	24-Jun-14			
DSN029260	Designer prepare DDA	25-Jun-14	11-Jul-14			
DSN029270	Formal Submission of DDA to ER/ICE/IPs		11-Jul-14			
DSN029280	Advanced Submission to ER		11-Jul-14			
DSN029290	IPs/ER's Advance Comments/ICE Comments	12-Jul-14	13-Aug-14			
North Tunnel Curved Section - Northbound - Temp Works for Mine						
DDA Submission						
CPTTS11265	Review & Comment by DHK	15-Mar-14	17-Jul-14			
CPTTS11275	Designer prepare DDA	01-Apr-14	12-Apr-14			
CPTTS11285	Formal Submission of DDA to ER/ICE/IPs		12-Apr-14			
CPTTS11295	Advanced Submission to ER		12-Apr-14			
CPTTS11305	IPs/ER's Advance Comments/ICE Comments	14-Apr-14	16-May-14			
CPTTS11315	Comments Received		16-May-14			
CPTTS11325	Designer to Reply RIC + Update Submission	17-May-14	11-Jun-14			
CPTTS11335	Submit Updated DDA to ER/ICE/IPs	12-Jun-14				
CPTTS11345	ICE Approval & Issue Check Cert	12-Jun-14	25-Jun-14			
CPTTS11355	Submit ICE Check Cert to ER+ ER forward to GEO	26-Jun-14	03-Jul-14			
CPTTS11365	IPs Review	12-Jun-14	09-Jul-14			
CPTTS11375	IPs No Objection Received		09-Jul-14			
CPTTS11415	ER Review	20-Jun-14	17-Jul-14			
North Tunnel Curved Section - Southbound - Temp Works for Mine						
DDA Submission						
DSN1265	Review & Comment by DHK	15-Mar-14	18-Jul-14			
DSN1275	Designer prepare DDA	01-Apr-14	14-Apr-14			
DSN1285	Formal Submission of DDA to ER/ICE/IPs		14-Apr-14			
DSN1295	Advanced Submission to ER		14-Apr-14			
DSN1305	IPs/ER's Advance Comments/ICE Comments	15-Apr-14	17-May-14			
DSN1315	Comments Received		17-May-14			
DSN1325	Designer to Reply RIC + Update Submission	19-May-14	12-Jun-14			
DSN1335	Submit Updated DDA to ER/ICE/IPs	13-Jun-14				
DSN1345	ICE Approval & Issue Check Cert	13-Jun-14	26-Jun-14			
DSN1355	Submit ICE Check Cert to ER+ ER forward to GEO	27-Jun-14	04-Jul-14			
DSN1365	IPs Review	13-Jun-14	10-Jul-14			
DSN1375	IPs No Objection Received		10-Jul-14			
DSN1415	ER Review	21-Jun-14	18-Jul-14			
North Tunnel Curved Section Southbound Temp Segmental Lining						
DDA Submission						
FL2013390	Preparation of DDA Submission	25-Jul-14	11-Sep-14			
FL2013400	Review & Comment by DHK	25-Jul-14	21-Aug-14			
Bored Tunnel Space Proofing & Sight Assessment						
		05-Mar-14	07-Apr-14			

- █ Primary Baseline
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28-Feb-14	Initial Works Programme Rev B _ BL		
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Activity ID	Activity Name	BL Project Start	BL Project Finish	2014		
				Jun 6	Jul 7	Aug 8
AIP Submission						
DSN023750	Review & Comment by ER/ICE/IPs	05-Mar-14	07-Apr-14			
DSN023760	Approval from ER/Comments from ICE/IPs Received	05-Mar-14	07-Apr-14			
Bored Tunnel Segmental Lining						
AIP Submission						
DSN05530	Review & Comment by ER/ICE/IPs	19-Mar-14	21-Jun-14			
DSN05540	Advance Comments from ER/Comments from ICE/IPs Received	19-Mar-14	24-Apr-14			
DSN05550	Designer to Prepare RIC & Updated AIP	25-Apr-14	17-May-14			
DSN05560	Submission of AIP to ER/ICE together with Reply To Comment (RTC)	17-May-14	17-May-14	Prepare RIC & Updated AIP Submission of AIP to ER/ICE together with Reply To Comment (RTC)		
DSN05570	Reply to IPs Comments in RTC		17-May-14	Reply to IPs Comments in RTC		
DSN05580	ICE Approval & Issue of Design Check Cert.	19-May-14	09-Jun-14	ICE Approval & Issue of Design Check Cert.		
DSN05590	Check Cert to ER, ER Forwards to GEO		09-Jun-14	Check Cert to ER, ER Forwards to GEO		
DSN05600	No Objection or Further Minor Comments from IPs Received		09-Jun-14	No Objection or Further Minor Comments from IPs Received		
DSN05640	ER Review (35 Days)	25-May-14	21-Jun-14	ER Review (35 Days)		
DSN05650	ER Approval with Condition Received		21-Jun-14	ER Approval with Condition Received		
DDA Submission						
DSN05660	Preparation of DDA Submission	23-Jun-14	21-Jul-14	Preparation of DDA Submission		
DSN05670	Review & Comment by DHK	22-Jul-14	11-Aug-14	Review & Comment by DHK		
Bored Tunnel OHVD Slab						
AIP Submission						
BTIS2LR10132	Preparation of AIP Submission for Bored Tunnel OHVD Slab Design	13-Feb-14	24-Jun-14			
BTIS2LR10132	Review & Comment by DHK	13-Feb-14	12-Mar-14			
BTIS2LR10132	Designer Prepare AIP	27-Mar-14	02-Apr-14			
BTIS2LR10132	Formal Submission of AIP to ICE/IPs (except GEO)		02-Apr-14			
BTIS2LR10132	Advanced Submission of AP to ER		02-Apr-14			
BTIS2LR10132	Review & Comment by ER/ICE/IPs	03-Apr-14	12-May-14	Review & Comment by ER/ICE/IPs		
BTIS2LR10132	Advance Comments from ER/Comments from ICE/IPs Received		12-May-14	Advance Comments from ER/Comments from ICE/IPs Received		
BTIS2LR10132	Designer to Prepare RIC & Updated AIP	13-May-14	20-May-14	Designer to Prepare RIC & Updated AIP		
BTIS2LR10132	Submission of AIP to ER/ICE together with Reply To Comment (RTC)		20-May-14	Submission of AIP to ER/ICE together with Reply To Comment (RTC)		
BTIS2LR10132	Reply to IPs Comments in RTC		20-May-14	Reply to IPs Comments in RTC		
BTIS2LR10132	ICE Approval & Issue of Design Check Cert.	21-May-14	28-May-14	ICE Approval & Issue of Design Check Cert.		
BTIS2LR10132	Check Cert to ER, ER Forwards to GEO		28-May-14	Check Cert to ER, ER Forwards to GEO		
BTIS2LR10132	No Objection or Further Minor Comments from IPs Received		11-Jun-14	No Objection or Further Minor Comments from IPs Received		
BTIS2LR10132	ER Review (35 Days)	28-May-14	24-Jun-14	ER Review (35 Days)		
Bored Tunnel Internal Structure (except OHVD Slab)						
AIP Submission						
BTIS1LR10132	Preparation of AIP Submission for Bored Tunnel Internal Structure (except OHVD Slab)	13-Feb-14	24-Jun-14			
BTIS1LR10132	Review & Comment by DHK	13-Feb-14	12-Mar-14			
BTIS1LR10132	Designer Prepare AIP	27-Mar-14	02-Apr-14			
BTIS1LR10132	Formal Submission of AIP to ICE/IPs (except GEO)		02-Apr-14			
BTIS1LR10132	Advanced Submission of AP to ER		02-Apr-14			
BTIS1LR10132	Review & Comment by ER/ICE/IPs	03-Apr-14	12-May-14	Review & Comment by ER/ICE/IPs		
BTIS1LR10132	Advance Comments from ER/Comments from ICE/IPs Received		12-May-14	Advance Comments from ER/Comments from ICE/IPs Received		
BTIS1LR10132	Designer to Prepare RIC & Updated AIP	13-May-14	20-May-14	Designer to Prepare RIC & Updated AIP		
BTIS1LR10132	Submission of AIP to ER/ICE together with Reply To Comment (RTC)		20-May-14	Submission of AIP to ER/ICE together with Reply To Comment (RTC)		
BTIS1LR10132	Reply to IPs Comments in RTC		20-May-14	Reply to IPs Comments in RTC		
BTIS1LR10132	ICE Approval & Issue of Design Check Cert.	21-May-14	28-May-14	ICE Approval & Issue of Design Check Cert.		
BTIS1LR10132	Check Cert to ER, ER Forwards to GEO		28-May-14	Check Cert to ER, ER Forwards to GEO		
BTIS1LR10132	No Objection or Further Minor Comments from IPs Received		11-Jun-14	No Objection or Further Minor Comments from IPs Received		
BTIS1LR10132	ER Review (35 Days)	28-May-14	24-Jun-14	ER Review (35 Days)		
Bored Tunnel/ D&B Tunnel Transition - Headwall Structure (Northb						
AIP Submission						
FL2LR105480	Preparation of AIP Submission	09-May-14	25-Aug-14			
FL2LR105490	Review & Comment by DHK	09-May-14	04-Jun-14			
FL2LR105500	Designer Prepare AIP	05-Jun-14	24-Jun-14	Preparation of AIP Submission		
FL2LR105510	Formal Submission of AIP to ICE/IPs (except GEO)	25-Jun-14	02-Jul-14	Review & Comment by DHK		
FL2LR105520	Advanced Submission of AP to ER		02-Jul-14	Designer Prepare AIP		
FL2LR105530	Review & Comment by ER/ICE/IPs	03-Jul-14	04-Aug-14	Formal Submission of AIP to ICE/IPs (except GEO)		
FL2LR105540	Advance Comments from ER/Comments from ICE/IPs Received		04-Aug-14	Advanced Submission of AP to ER		
FL2LR105550	Designer to Prepare RIC & Updated AIP	05-Aug-14	25-Aug-14	Review & Comment by ER/ICE/IPs		
Northbound TBM Dismantling Cavern Temporary Works						
DDA Submission						
NDCSTSS1TS11	Preparation of Northbound TBM Dismantling Cavern Temporary Works	11-Jul-14	10-Sep-14			
NDCSTSS1TS11	Review & Comment by DHK	11-Jul-14	11-Aug-14			
NDCSTSS1TS11	Preparation of Northbound TB	12-Aug-14	10-Sep-14			
North Tunnel Curved Section Cross Passages - Temp Works						

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28-Feb-14	Initial Works Programme Rev B _ BL		
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Activity ID	Activity Name	BL Project Start	BL Project Finish	2014		
				Jun 6	Jul 7	Aug 8
DDA Submission						
CPETDBTS1TI	Preparation of DDA	23-May-14	10-Sep-14	Preparation of DDA		
CPETDBTS1TI	Review & Comment by DHK	23-May-14	13-Jun-14	Review & Comment by DHK		
CPETDBTS1TI	Designer prepare DDA	14-Jun-14	04-Jul-14	Designer prepare DDA		
CPETDBTS1TI	Formal Submission of DDA to ICE/IPs	05-Jul-14	18-Jul-14	Formal Submission of DDA to ICE/IPs		
CPETDBTS1TI	Advanced Submission to ER		18-Jul-14	Advanced Submission to ER		
CPETDBTS1TI	IPs/ER's Advance Comments/ICE Comments	19-Jul-14	15-Aug-14	IPs/ER's Advance Comments/ICE Comments		
CPETDBTS1TI	Comments Received		15-Aug-14	Comments Received		
CPETDBTS1TI	Designer to Reply RIC + Update Submission	16-Aug-14	10-Sep-14	Designer to Reply RIC + Update Submission		
Bored Tunnel Confinement Pressure/ Settlement/ Front Face Stabi						
FL2360	Draft Report	10-Jul-14	08-Sep-14	Draft Report		
Temp Pre-Cast Reinforced Box for TBM Segment Del in Curved Se						
DDA Submission						
FL2TDBTS1TP	Preparation of DDA	23-May-14	08-Sep-14	Preparation of DDA		
FL2TDBTS1TP	Review & Comment by DHK	23-May-14	13-Jun-14	Review & Comment by DHK		
FL2TDBTS1TP	Designer prepare DDA	14-Jun-14	03-Jul-14	Designer prepare DDA		
FL2TDBTS1TP	Formal Submission of DDA to ICE/IPs	04-Jul-14	17-Jul-14	Formal Submission of DDA to ICE/IPs		
FL2TDBTS1TP	Advanced Submission to ER		17-Jul-14	Advanced Submission to ER		
FL2TDBTS1TP	IPs/ER's Advance Comments/ICE Comments	18-Jul-14	14-Aug-14	IPs/ER's Advance Comments/ICE Comments		
FL2TDBTS1TP	Comments Received		14-Aug-14	Comments Received		
FL2TDBTS1TP	Designer to Reply RIC + Update Submission	15-Aug-14	08-Sep-14	Designer to Reply RIC + Update Submission		
Confinement Pressure Report						
DDA Submission						
FL2021890	Preparation of DDA Submission for Confinement Pressure Report	12-Aug-14	08-Sep-14	Preparation of DDA Submission for Confinement Pressure Report		
CBAR North Tunnels						
A26030a	Preparation of CBAR	17-May-14	14-Jun-14	Preparation of CBAR		
A26030b	Engineer & IP Review & Comments for CBAR	15-Jun-14	10-Jul-14	Engineer & IP Review & Comments for CBAR		
A26030c	submit Revised CBAR		10-Jul-14	submit Revised CBAR		
A26030d	Engineer & IP's Approval for CBAR	11-Jul-14	21-Aug-14	Engineer & IP's Approval for CBAR		
Construction Impact Assessment - North Portal & North D&B Tunne						
SC01090	Draft Report	13-Apr-14	13-May-14	Draft Report		
SC01115	*Final Report	14-May-14	15-Jun-14	*Final Report		
5.3 North Portal Method Statement Submission						
Engineer and Contractor Site Offices						
A25330	ER's Comment	10-Jan-14	24-Feb-14	ER's Comment		
AD3750	Re-submission Method Statement for Site Offices	10-Jan-14	30-Jan-14	Re-submission Method Statement for Site Offices		
AD3760	ER's Approval	04-Feb-14	10-Feb-14	ER's Approval		
AD3760	ER's Approval	11-Feb-14	24-Feb-14	ER's Approval		
North Portal: Portal - Main Cut						
FL2310	Prepare Construction of North Portal	08-Mar-14	21-Mar-14	Prepare Construction of North Portal		
FL2320	ER's Comment for Construction of North Portal	22-Mar-14	28-Apr-14	ER's Comment for Construction of North Portal		
North Portal: TBM Installation						
N21550	Prepare Method Statement of TBM Installation	22-Aug-14	19-Sep-14	Prepare Method Statement of TBM Installation		
North Portal: TBM Assembly						
FL4875	Prepare & Submit Method Statement	13-Nov-14	10-Dec-14	Prepare & Submit Method Statement		
North Portal: Demolition						
SV2880	ER's Comment for Demolition Plan & Method Statement	21-Jan-14	19-Feb-14	ER's Comment for Demolition Plan & Method Statement		
SV2885	Prepare & Re-submit Demolition Plan & Method Statement	20-Feb-14	12-Mar-14	Prepare & Re-submit Demolition Plan & Method Statement		
SV2890	ER's Approval for Demolition & Method Statement	13-Mar-14	11-Apr-14	ER's Approval for Demolition & Method Statement		
North Portal: Temp.CLP Substation						
N21020	Prepare & Submit CLP Sub-station Proposal	14-Aug-14	11-Sep-14	Prepare & Submit CLP Sub-station Proposal		
5.4 North Portal General Submission						
North Portal: Condition Survey						
SC01620	Submit Condition Survey (Nth Portal) (within 8 weeks before GEO works)	17-Feb-14	17-Feb-14	Submit Condition Survey (Nth Portal) (within 8 weeks before GEO works)		
North Portal: Egress/Ingress (TTMs)						
N20255	XP Application & Approval	04-Feb-14	10-Mar-14	XP Application & Approval		
N20265	Notification to RMO	04-Mar-14	10-Mar-14	Notification to RMO		
5.5 North Portal Works						
CLP Substation						
N21075	Procurement of Transformers & Cable Laying (by CLP)	04-May-14	27-Feb-15	Procurement of Transformers & Cable Laying (by CLP)		
North Portal: Engineer's Principal Site Office & Contractor's Site O						
N21355	Site Office Procurement & Erection	25-Feb-14	28-Jun-14	Site Office Procurement & Erection		
North Portal: Site Establishment						

- Primary Baseline
- Critical Activity
- ◆ Milestone

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Activity ID	Activity Name	BL Project Start	BL Project Finish	2014		
				Jun 6	Jul 7	Aug 8
N20530	Hoarding/Fencing Erection & Site Installation	11-Feb-14	24-Feb-14			
N20537	Site Clearance for TA-1	11-Mar-14	14-Jun-14	Site Clearance for TA-1		
N20540	Tree Fell	08-Apr-14	12-May-14			
N20550	Tree Transplant	25-Feb-14	15-May-14			
N20560	Temp Access Ramp	26-Mar-14	14-Jun-14	Temp Access Ramp		
North Portal: Demolition						
SV2900	Demolish Existing Building (L11 - GLL T12383/T14370/T11274/T13970)	24-May-14	26-Jul-14	Demolish Existing Building (L11 - GLL T12383/T14370/T11274/T13970)		
North Portal: Archaeological Survey						
NV3240	Site Mobilization	20-Dec-13	11-Mar-14			
NV3250	Archaeological Survey (AS7-2)	21-Mar-14	07-Apr-14			
NV3345	Archaeological Survey (AS7-1)	08-Apr-14	28-Apr-14			
North Portal: Strengthening Works for WSD Tunnel						
DSN018320	Strengthening Works	10-Mar-14	28-Apr-14			
North Portal: Site Formation						
N20495	Permanent Slope/Slip Road Slope Cut (for TBM Installation)	29-Apr-14	07-Nov-14			
N20515	SB: Stage 1 Open Cut to +30mPD	19-Jun-14	17-Jul-14	SB: Stage 1 Open Cut to +30mPD		
N20695	Site Clearance for CR6A [Interface to C6]	16-Jun-14	16-Oct-14			
5.6 Administration Building						
5.62 Administration Building: Design Submission						
Admin. Building - Foundation Design						
AIP Submission						
DSN015010	Preparation of AIP Submission for Foundation Design (Admin.Bldg.)	07-Apr-14	15-Aug-14			
DSN015020	Review & Comment by DHK	02-May-14	15-May-14			
DSN015030	Designer Prepare AIP	16-May-14	22-May-14			
DSN015040	Formal Submission of AIP to ICE/IPs (except GEO)	22-May-14	22-May-14			
DSN015050	Advanced Submission of AP to ER		22-May-14			
DSN015060	Review & Comment by ER/ICE/IPs	23-May-14	20-Jun-14			
DSN015070	Advance Comments from ER/ Comments from ICE/ IPs Received		20-Jun-14			
DSN015080	Designer to Prepare RIC & Updated AIP	21-Jun-14	12-Jul-14			
DSN015090	Submission of AIP to ER/ICE together with Reply To Comment (RTC)		12-Jul-14			
DSN015100	Reply to IPs Comments in RTC		12-Jul-14			
DSN015110	ICE Approval & Issue of Design Check Cert.	14-Jul-14	02-Aug-14			
DSN015170	ER Review	19-Jul-14	15-Aug-14			
DDA Submission						
DSN015190	Preparation of DDA Submission for Foundation Design (Admin.Bldg.)	20-Jun-14	12-Jul-14			
DSN015200	Review & Comment by DHK	12-Jul-14	24-Sep-14			
5.64 Administration Building: General Submission						
Administration Building: Tree Transplant & Felling						
N21205	Tree Transplant/Felling Plan Submission & Approval	21-Jan-14	08-Apr-14			
N21215	Tree Transplant/ Felling Permit Available	08-Apr-14				
Administration Building: Condition Survey						
SC01355	Mobilization for Condition Survey (Admin.Bldg)	18-Jun-14	24-Jun-14			
SC01365	Carryout Condition Survey (Admin.Bldg)	21-Jun-14	24-Jun-14			
SC01375	Submit Condition Survey (Admin.Bldg) (within 8 weeks before GEO works)		24-Jun-14			
5.65 Administration Building: Works						
Administration Building: Archaeological Survey						
AD1970	Archaeological Survey (AS7-3)	16-Feb-15	07-Mar-15			
Administration Building: Site Formation						
AD2010	Tree Protection & Felling	08-Apr-14	15-Jul-14			
6 Project Wide E&M Works						
CS1030	Design Development	20-Jan-14	21-Nov-14			
CS1040	Procurement Process	06-Mar-14	27-Feb-15			

- █ Primary Baseline
- █ Critical Activity
- ◆◆ Milestone

3-Months Rolling Programme - MPR5



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Contract 3

Contract 5

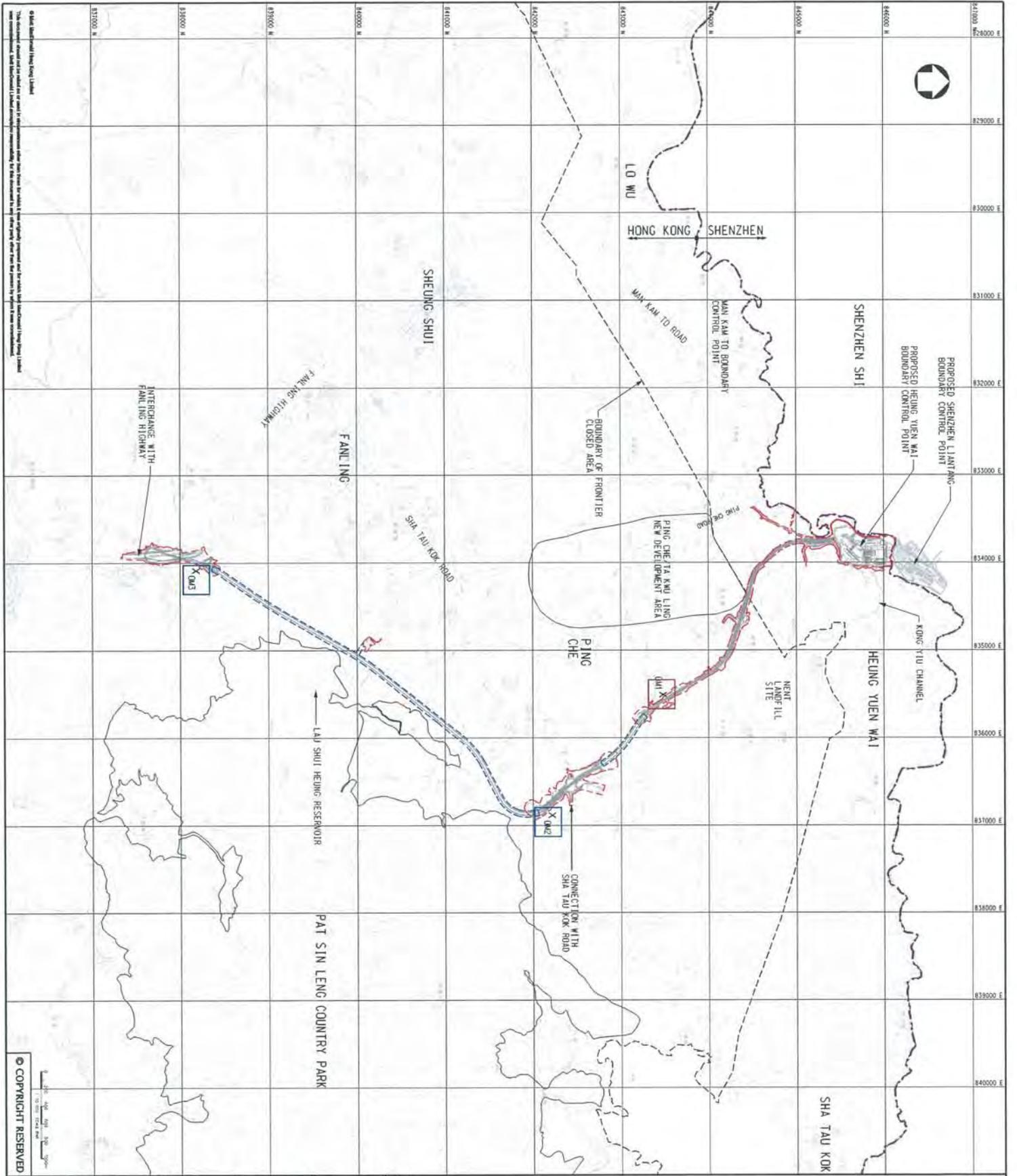
ID	WBS	Task Name	Duration	Start	Finish	% Complete	2013					2014					20								
							1st Half		2nd Half			1st Half		2nd Half				1st Half							
							Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun		
1	1	Key Dates	1110 days	28/3/2013	10/4/2016	0%																			
2	1.1	Contract Award & Commencement	15 days	28/3/2013	11/4/2013	100%																			
3	1.1.1	Letter of Acceptance	0 days	28/3/2013	28/3/2013	100%																			
4	1.1.2	Commencement of Works	0 days	11/4/2013	11/4/2013	100%																			
5	1.2	Site Possession Date	330 days	11/4/2013	7/3/2014	0%																			
6	1.2.1	Portion BCP 1 (partial only)(30/4, 19/7/2013)	0 days	11/5/2013	11/5/2013	100%																			
7	1.2.2	Portion BCP 2 (partial only)(16/4,30/5,17/7,19/7,24/7,2/9/2013)	0 days	10/6/2013	10/6/2013	100%																			
8	1.2.3	Portion BCP 3 (30/7, 2/9/2013, 22/10/2013)	0 days	8/9/2013	8/9/2013	100%																			
9	1.2.4	Portion BCP 4	0 days	7/3/2014	7/3/2014	0%																			
10	1.2.5	Portion BCP 5 (19/7/2013)	0 days	8/9/2013	8/9/2013	100%																			
11	1.2.6	Portion BCP 6 (18/9/2013)	0 days	8/9/2013	8/9/2013	100%																			
12	1.2.7	Portion BCP 7 (3/10/2013)	0 days	8/9/2013	8/9/2013	100%																			
13	1.2.8	Portion CR 2 (29/11/2013)	0 days	7/12/2013	7/12/2013	100%																			
14	1.2.9	Portion CR 40	0 days	7/3/2014	7/3/2014	0%																			
15	1.2.10	Portion CR 41	0 days	7/3/2014	7/3/2014	0%																			
16	1.2.11	Portion CR 42	0 days	7/3/2014	7/3/2014	0%																			
17	1.2.12	Portion CR 44 (28/2/2014)	0 days	5/2/2014	5/2/2014	100%																			
18	1.2.13	Area LMH 0 (11/4/2013)	0 days	11/4/2013	11/4/2013	100%																			
19	1.2.14	Area LMH 1 (19/7/2013)	0 days	8/9/2013	8/9/2013	100%																			
20	1.2.15	Area LMH 2 (partial)(30/4/2013, 30/5/2013)	0 days	11/5/2013	11/5/2013	100%																			
21	1.2.16	Area LMH 3 (18/9/2013)	0 days	7/3/2014	7/3/2014	0%																			
22	1.2.17	Area LMH 4 (18/9/2013)	0 days	8/9/2013	8/9/2013	100%																			
23	1.2.18	Area LMH 5 (24/9/2013)	0 days	8/10/2013	8/10/2013	100%																			
24	1.2.19	Area RS 1 (30/4/2013)	0 days	11/5/2013	11/5/2013	100%																			
25	1.2.20	Area RS 2 (Omitted)	0 days	11/5/2013	11/5/2013	0%																			
26	1.2.21	Area RS 3 (30/4/2013)	0 days	11/5/2013	11/5/2013	100%																			
27	1.2.22	Area RS 4 (8/5/2013)	0 days	11/5/2013	11/5/2013	100%																			
28	1.3	Section Completion Date	976 days	8/8/2013	10/4/2016	0%																			
29	1.3.1	KD-1 Section I of the Works - G.I. field works	0 days	4/2/2014	4/2/2014	100%																			
30	1.3.2	KD-2 Section II of the Works - All laboratory tests for Section I	0 days	6/3/2014	6/3/2014	100%																			
31	1.3.3	KD-3 Section III of the Works - Site formation works for portion RS1, RS2 & RS3	0 days	8/8/2013	8/8/2013	100%																			
32	1.3.4	KD-4 Section IV of the Works - Village house within portion RS4	0 days	5/1/2014	5/1/2014	100%																			
33	1.3.5	KD-5 Section V of the Works - All works within portion RS4 exclude Section IV	0 days	5/1/2014	5/1/2014	100%																			
34	1.3.6	KD-7 Section VII of the Works - All works within Area CRD	0 days	15/5/2014	15/5/2014	0%																			
35	1.3.7	KD-8 Section VIII of the Works - All works within Area BCPA	0 days	12/10/2014	12/10/2014	0%																			
36	1.3.8	KD-8 Section IX of the Works - All works within Area BCPB	0 days	11/4/2015	11/4/2015	0%																			
37	1.3.9	KD-10 Section X of the Works - All works within Area BCPC	0 days	4/6/2014	4/6/2014	0%																			
38	1.3.10	KD-11 Section XI of the Works - All works within Area BCPD	0 days	11/4/2015	11/4/2015	0%																			
39	1.3.11	KD-12 Section XII of the Works - All works within Area LMH	0 days	1/12/2014	1/12/2014	0%																			
40	1.3.12	KD-13 Section XIII of the Works - Works not covered in any other Sections	0 days	11/4/2015	11/4/2015	0%																			
41	1.3.13	KD-14 Section XIV of the Works - Trees preservation and protection	0 days	11/4/2015	11/4/2015	0%																			
42	1.3.14	KD-15 Section XV of the Works - Landscape soft works	0 days	11/4/2015	11/4/2015	0%																			
43	1.3.15	KD-16 Section XVI of the Works - Establishment works for landscape soft works	0 days	10/4/2016	10/4/2016	0%																			
44	1.4	Stage Completion Date	60 days	8/8/2013	7/10/2013	100%																			
45	1.4.1	KD-17 Stage I of the Works - Temporary vehicular bridge J and temporary Lin Ma Hang Road	0 days	7/10/2013	7/10/2013	100%																			
46	1.4.2	KD-18 Stage II of the Works - Temporary ArchSD Depot	0 days	8/8/2013	8/8/2013	100%																			
47	2	Preliminaries and Statuary / Contractual Submissions	424 days	11/4/2013	9/6/2014	92%																			
48	2.1	Site Establishment	399 days	11/4/2013	15/5/2014	89%																			
49	2.1.1	Take over of the Engineer Accommodation	0 days	11/4/2013	11/4/2013	100%																			
50	2.1.3	Initial Survey (to be extended until handover of BCP4, CR40-42)	399 days	12/4/2013	15/5/2014	86%																			
51	2.1.5	Setup and Management of TMLG	60 days	12/4/2013	10/6/2013	100%																			
52	2.1.6	Setup and Management of ULG	60 days	12/4/2013	10/6/2013	100%																			

ID	WBS	Task Name	Duration	Start	Finish	% Complete	2013						2014						20																
							1st Half			2nd Half			1st Half			2nd Half				1st Half															
							Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
53	2.2	Applications to Government Department	89 days	12/4/2013	9/7/2013	100%																													
54	2.2.1	Application of excavation permit	89 days	12/4/2013	9/7/2013	100%																													
55	2.2.2	Application of Waste water discharge license	44 days	12/4/2013	25/5/2013	100%																													
56	2.2.3	Application of chemical waste producer permit	44 days	12/4/2013	25/5/2013	100%																													
57	2.2.4	Application of trip ticket system	44 days	12/4/2013	25/5/2013	100%																													
58	2.3	Temporary Traffic Arrangement (TTA) Scheme for temp. LMH Rd	131 days	12/4/2013	20/8/2013	100%																													
59	2.3.1	Submission / approval of traffic consultant	6 days	12/4/2013	17/4/2013	100%																													
60	2.3.2	Preparation of TTA scheme	45 days	18/4/2013	1/6/2013	100%																													
61	2.3.3	Comment & approval of TTA scheme by TD & RMO	66 days	2/6/2013	6/8/2013	100%																													
62	2.3.4	Obtain roadwork advice from RMO	14 days	7/8/2013	20/8/2013	100%																													
63	2.4	Liaison with Utility Undertakers	363 days	12/4/2013	9/4/2014	95%																													
64	2.4.1	Obtain most update utility drawings from various utility undertakers	29 days	12/4/2013	10/5/2013	100%																													
65	2.4.2	Liaise with various utility undertakers (to be extended)	363 days	12/4/2013	9/4/2014	94%																													
66	2.5	Environmental Baseline & Impact Monitoring	132 days	11/4/2013	21/8/2013	100%																													
67	2.5.1	Obtain Environmental Permit (EP) -- EP-404/2011	0 days	11/4/2013	11/4/2013	100%																													
68	2.5.2	Appointment of ET	0 days	11/4/2013	11/4/2013	100%																													
69	2.5.3	Approval of ET from EPD	6 days	13/4/2013	18/4/2013	100%																													
70	2.5.4	Preparation of method statement for baseline monitoring by ET	20 days	19/4/2013	8/5/2013	100%																													
71	2.5.5	Submission of relevant management plans & reports by Others	35 days	12/4/2013	16/5/2013	100%																													
72	2.5.6	Certify the method statement, management plans & reports by ET	15 days	17/5/2013	31/5/2013	100%																													
73	2.5.7	Verify the EM&A manual, management plans & reports by IEC	20 days	22/5/2013	10/6/2013	100%																													
74	2.5.8	Management plans & reports submitted to EPD three month before commencement of Construction works	97 days	17/5/2013	21/8/2013	100%																													
75	2.5.9	Carry out the baseline monitoring and preparation of report	35 days	11/6/2013	15/7/2013	100%																													
76	2.5.10	Baseline monitoring report submitted to EPD one month before commencement of Construction works	36 days	16/7/2013	20/8/2013	100%																													
77	2.6	General Site Clearance (to be extended until handover of BCP4, CR40-42)	424 days	12/4/2013	9/6/2014	81%																													
78	3	Stage of the Works	180 days	11/4/2013	7/10/2013	100%																													
79	3.1	Stage I of the Works - Temporary vehicular bridge B and temporary Lin Ma Hang Road	179 days	12/4/2013	7/10/2013	100%																													
80	3.1.1	Submissions	69 days	12/4/2013	19/6/2013	100%																													
81	3.1.2	Approval of Submissions	69 days	14/6/2013	21/8/2013	100%																													
82	3.1.3	Construction of temporary vehicular bridge "B"	47 days	22/8/2013	7/10/2013	100%																													
83	3.1.3.1	Preparation of UBs	9 days	22/8/2013	30/8/2013	100%																													
84	3.1.3.2	Construct concrete footings	24 days	24/8/2013	16/9/2013	100%																													
85	3.1.3.3	construct main beam for bridge	17 days	17/9/2013	3/10/2013	100%																													
86	3.1.3.4	backfill with general fill adjacent to pile caps to form access roads	4 days	4/10/2013	7/10/2013	100%																													
87	3.1.4	Construction of temporary Lin Ma Hang Road	47 days	22/8/2013	7/10/2013	100%																													
88	3.1.4.1	Section 1 : chainage 100 - 730	47 days	22/8/2013	7/10/2013	100%																													
89	3.1.4.2	Section 2 : Chuk Yuen Tsuen (South) Sewage Pumping Station to Existing Lin Ma Hang Road Bridge	47 days	22/8/2013	7/10/2013	100%																													
90	3.2	Stage II of the Works - Temporary ArchSD Depot (LMH2)	78 days	11/4/2013	27/6/2013	100%																													
91	3.2.1	Liaison with ArchSD	49 days	11/4/2013	29/5/2013	100%																													
92	3.2.2	Construction of Temporary ArchSD Depot	29 days	30/5/2013	27/6/2013	100%																													
93	3.2.3	Handover of Temporary ArchSD Depot	0 days	27/6/2013	27/6/2013	100%																													
94	4	Section of the Works	1095 days	12/4/2013	10/4/2016	27%																													
95	4.1	Section I of the Works - Ground Investigation field works (Drg. 7101A-7111A)	251 days	30/5/2013	4/2/2014	100%																													
96	4.1.1	Submit method statement and specialist	48 days	30/5/2013	16/7/2013	100%																													
97	4.1.2	Approve method statement and specialist from ER	45 days	17/7/2013	30/8/2013	100%																													
98	4.1.3	56nrs. Inspection pits (IP) & 56nrs. Boreholes (BO)	154 days	22/8/2013	22/1/2014	100%																													
99	4.1.4	G.I works including installation of Settlement Plate (SP84 nrs.), Extensometer (EX16 nrs.), Ground Settlement Marker (GSM18nrs.)	167 days	22/8/2013	4/2/2014	100%																													
100	4.2	Section II of the Works - All laboratory tests for Section I	188 days	31/8/2013	6/3/2014	100%																													
101	4.2.1	Propose laboratory	45 days	31/8/2013	14/10/2013	100%																													
102	4.2.2	Approve laboratory from ER	42 days	15/10/2013	25/11/2013	100%																													
103	4.2.3	Laboratory preparation and Carry out laboratory tests	93 days	26/11/2013	26/2/2014	100%																													

ID	WBS	Task Name	Duration	Start	Finish	% Complete	2013						2014						20																	
							1st Half			2nd Half			1st Half			2nd Half				1st Half																
							Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
544	4.12.10	Access road to be re-constructed / upgraded at RS3 (Drg/1203)	111 days	20/11/2014	10/3/2015	0%	[Gantt bar for 544: 20/11/2014 to 10/3/2015]																													
545	4.13	Section XIV of the Works - Trees preservation and protection	730 days	12/4/2013	11/4/2015	44%	[Gantt bar for 545: 12/4/2013 to 11/4/2015]																													
546	4.13.1	Submissions	69 days	12/4/2013	19/6/2013	100%	[Gantt bar for 546: 12/4/2013 to 19/6/2013]																													
547	4.13.2	Approval of Submissions	70 days	20/6/2013	28/8/2013	100%	[Gantt bar for 547: 20/6/2013 to 28/8/2013]																													
548	4.13.3	Tree felling/removal works and tree transplanting works	499 days	6/9/2013	17/1/2015	39%	[Gantt bar for 548: 6/9/2013 to 17/1/2015]																													
549	4.13.4	Preservation and Protection of Existing Trees in all Portion of the Site	591 days	29/8/2013	11/4/2015	35%	[Gantt bar for 549: 29/8/2013 to 11/4/2015]																													
550	4.14	Section XV of the Works - Landscape soft works (including transplant trees to permanent locations)	332 days	15/5/2014	11/4/2015	0%	[Gantt bar for 550: 15/5/2014 to 11/4/2015]																													
551	4.14.1	tree & shrub planting at re-aligned Lin Ma Hang Road (west) for Section XIII of the Works	58 days	10/12/2014	5/2/2015	0%	[Gantt bar for 551: 10/12/2014 to 5/2/2015]																													
552	4.14.2	tree & shrub planting at re-aligned Lin Ma Hang Road (east) for Section XIII of the Works	65 days	6/2/2015	11/4/2015	0%	[Gantt bar for 552: 6/2/2015 to 11/4/2015]																													
553	4.14.3	shrub planting at BCPC for Section X of the Works	21 days	15/5/2014	4/6/2014	0%	[Gantt bar for 553: 15/5/2014 to 4/6/2014]																													
554	4.14.4	tree & shrub planting at BCPD Section XI of the Works	55 days	16/2/2015	11/4/2015	0%	[Gantt bar for 554: 16/2/2015 to 11/4/2015]																													
555	4.15	Section XVI of the Works - Establishment works for landscape soft works	365 days	12/4/2015	10/4/2016	0%	[Gantt bar for 555: 12/4/2015 to 10/4/2016]																													

Appendix D

Designated Monitoring Locations as Recommended in the Approved EM&A Manual



- LEGEND:**
- BOUNDARY OF HKSAR
 - WORKS AREA (ARBOE GROUND)
 - WORKS AREA (TUNNEL)
 - X OPERATIONAL NOISE MONITORING STATIONS

Rev	Date	Drawn	Description	DC	HT
P1	DEC 10	WING	FIRST ISSUE		

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CEDD

CIVIL ENGINEERING
 AND DEVELOPMENT
 DEPARTMENT

Project: AGREEMENT NO. CE45/2008(CE)
 LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

Proposed Location of Operational Noise Monitoring Stations

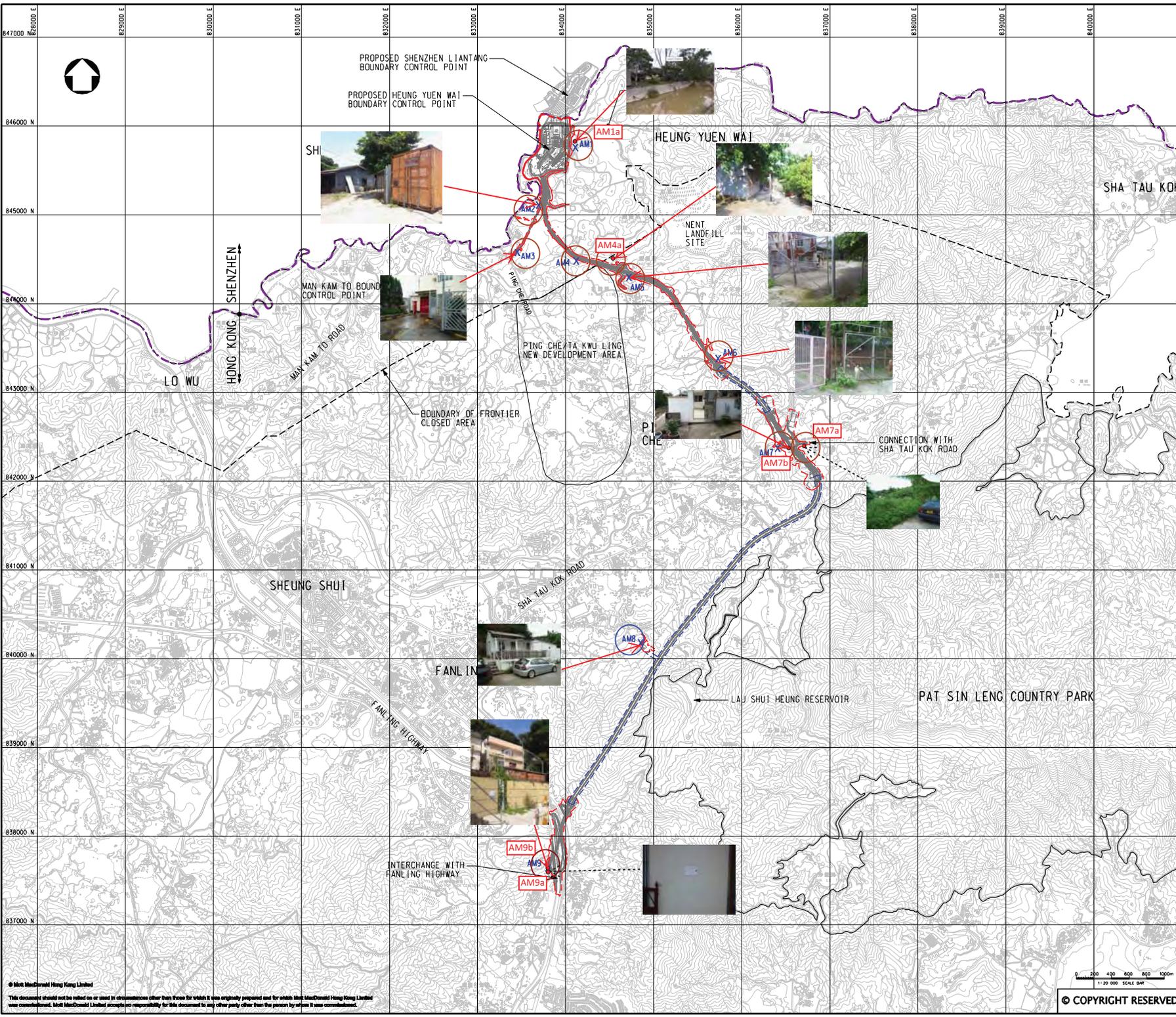
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Design				
Eng/CHK	DC	HT	Approved	HT
Scale of A1	1:20000			
Drawing No.	FIDLINE 3.2			
Sheet No.	P1			

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Appendix E

Monitoring Locations for Impact Monitoring



- LEGEND:
- BOUNDARY OF HK SAR
 - WORKS AREA (ABOVE GROUND)
 - WORKS AREA (TUNNEL)
 - X AIR MONITORING STATIONS

P1	AUG 10	MING	FIRST ISSUE	DC	HT
Rev	Date	Drawn	Description	CH'kd	App'd

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Project
 AGREEMENT NO. CE45/2008(CE)
 LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

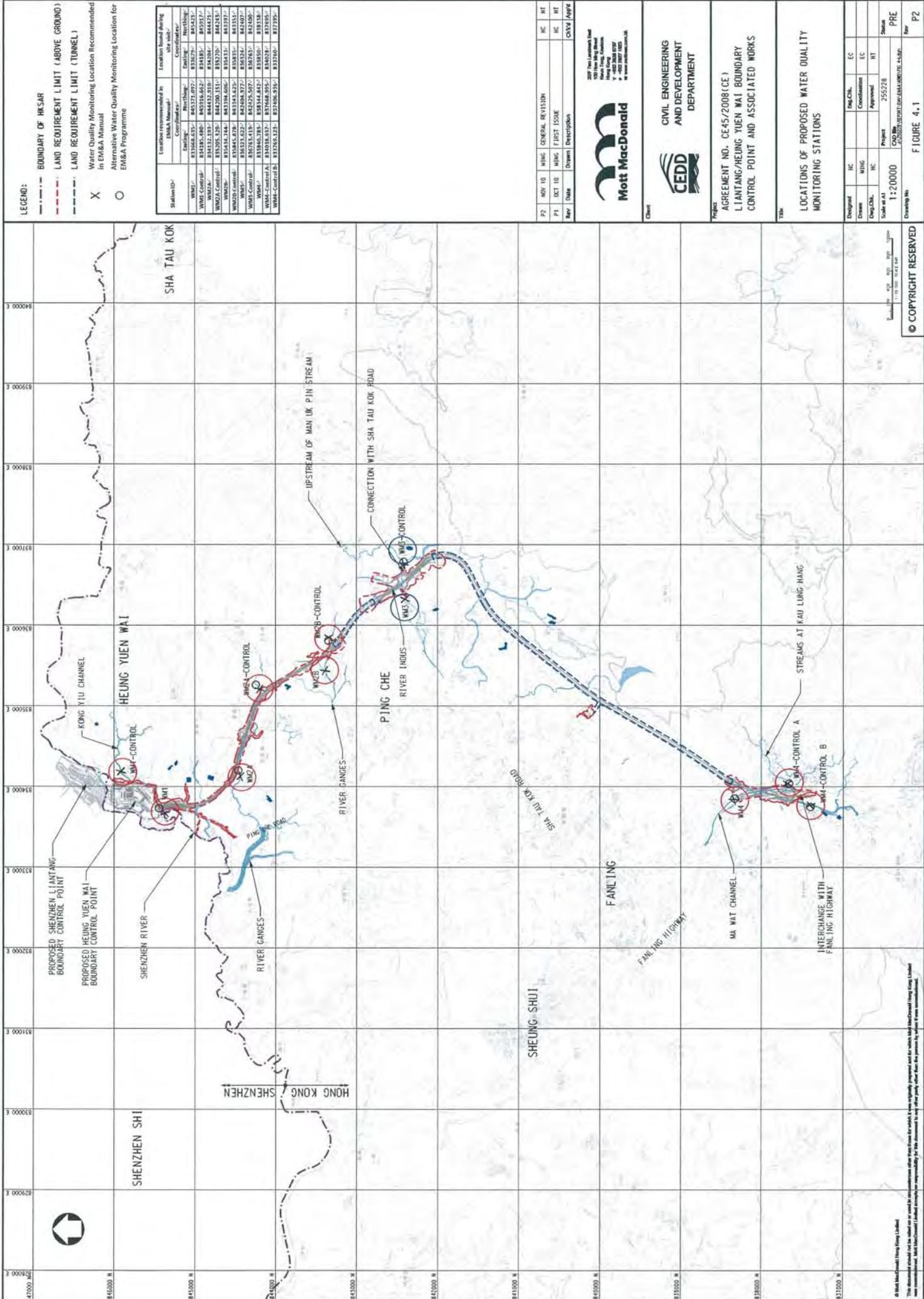
Title
 PROPOSED LOCATION OF CONSTRUCTION AIR QUALITY MONITORING STATIONS

Designed	DC	Eng.Chk.	EC	
Drawn	MING	Coordination	EC	
Disp.Chk.	DC	Approved	HT	
Scale at A1	1:20000	Project	255228	Status
		CAD file	255228\report\env\lanta\00831\FE_21.dgn	PRE
Drawing No				Rev
				P1

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0 200 400 600 800 1000m
 1:20 000 SCALE BM
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FIGURE 2.1



LEGEND:

- BOUNDARY OF HK SAR
- - - LAND REQUIREMENT LIMIT (ABOVE GROUND)
- - - LAND REQUIREMENT LIMIT (TUNNEL)
- X Water Quality Monitoring Location Recommended in EM&A Manual
- O Alternative Water Quality Monitoring Location for EM&A Programme

Station ID	Location recommended in EM&A Manual		Location based on the site visit	
	Easting	Northing	Easting	Northing
WMA1	83366.433	845372.097	83367	845373
WMA2	84412.183	844452.816	84412	84445
WMA3	85205.326	844200.331	85205	84420
WMA4	83743.744	843334.606	83743	84333
WMA5	83545.478	843343.625	83545	84334
WMA6	83765.415	842528.507	83765	84252
WMA7	83846.283	838144.842	83846	83814
WMA8	83403.837	837649.295	83403	83764
WMA9	83765.427	837649.316	83765	83764

P2	REV 10	HWG	GENERAL REVISION	HC	HT
P1	001	HWG	FIRST ISSUE	HC	HT
Rev	Date	Drawn	Description	Checked	App'd



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Civil Engineering and Development Department

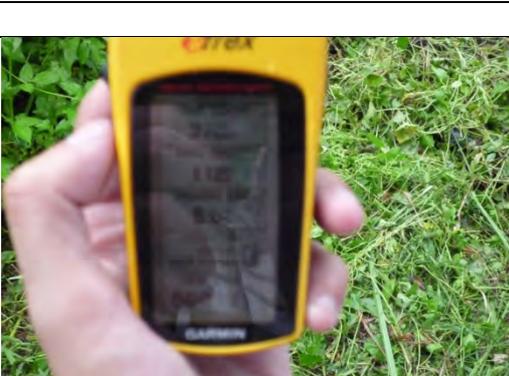
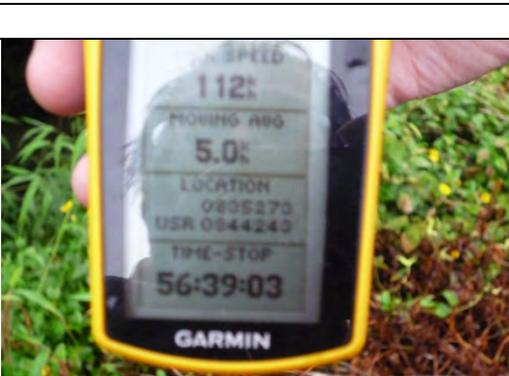
Project Agreement No. CE45/2008(CE)
Liantang/Heung Yuen Wai Boundary Control Point and Associated Works

Locations of Proposed Water Quality Monitoring Stations

Designed	HC	HWG	EC	EC
Drawn	MHC	HC	Approved	HT
Scale at A1	1:20000			
Project No.	CE45/2008(CE) LIA/TANG/HUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS			
Drawing No.	FIGURE 4_1			
Rev	P2			

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Photographic Records for Water Quality Monitoring Location

	
<p>Alternative Location of WM1</p>	<p>Co-ordinates of Alternative Location of WM1</p>
	
<p>Alternative Location of WM1 - Control</p>	<p>Co-ordinates of Alternative Location of WM1 - Control</p>
	
<p>Alternative Location of WM2A</p>	<p>Co-ordinates of Alternative Location of WM2A</p>
	
<p>Alternative Location of WM2-Control A</p>	<p>Co-ordinates of Alternative Location of WM2 - Control</p>



Location of WM2B-Control



Co-ordinates of WM2B-Control



Location of WM2B



Co-ordinates of WM2B



Location of WM3-Control



Co-ordinates of WM3-Control



Location of WM3



Co-ordinates of WM3



Location of WM4-Control A



Co-ordinates of WM4-Control A



Location of WM4-Control B



Co-ordinates of WM4-Control B



Location of WM4



Co-ordinates of WM4

Appendix F

Event and Action Plan

Event and Action Plan for Air Quality

Event	ET	IEC	ER	Action Contractor
Action Level				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Monitor the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
Limit Level				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Monitor the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented;	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not
	and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	the ER accordingly; 5. Monitor the implementation of remedial measures.	5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Construction Noise

Event		ET	IEC	ER	Action Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. 	
Limit Level	<ol style="list-style-type: none"> 1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated. 	

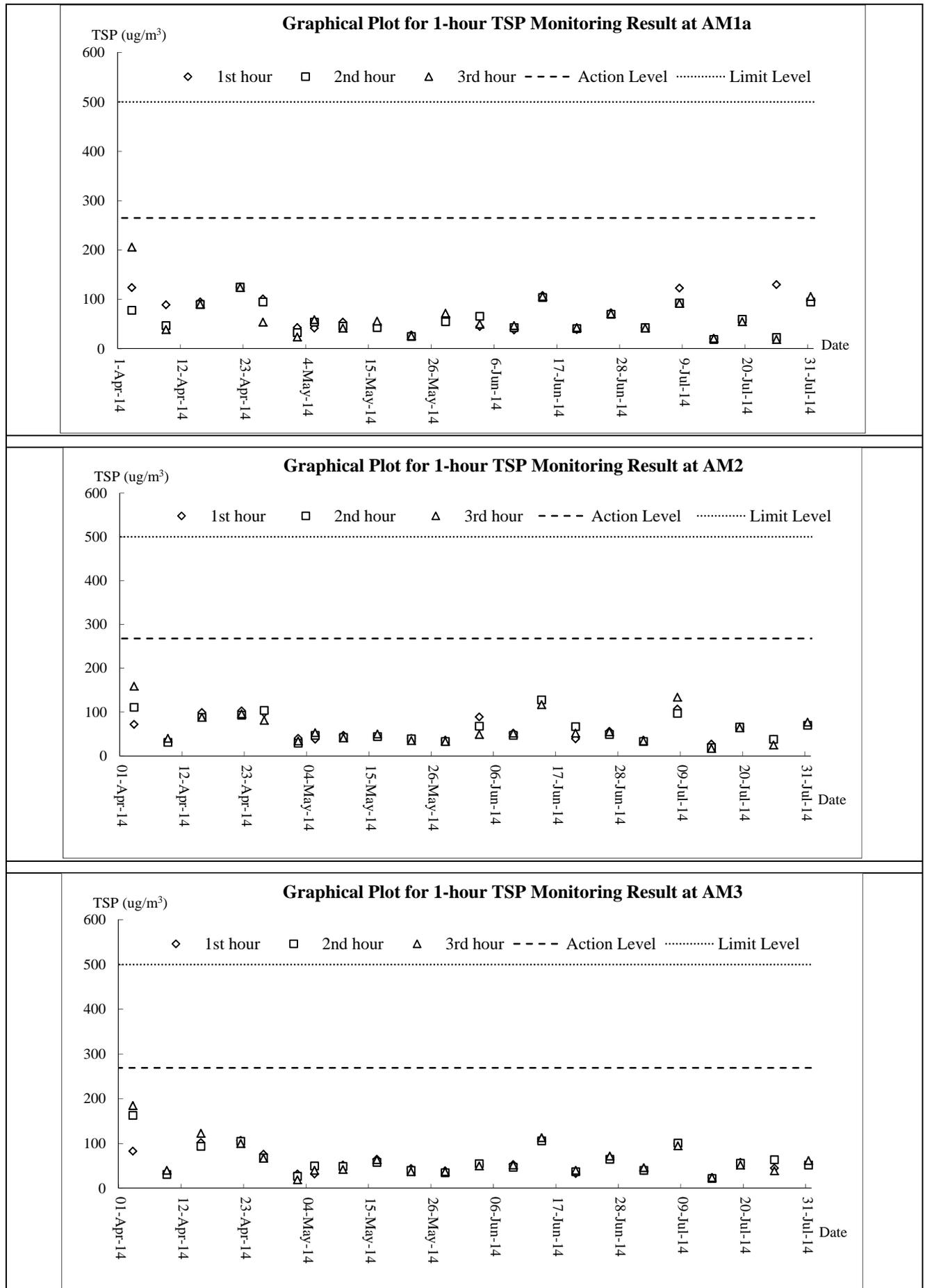
Event and Action Plan for Water Quality

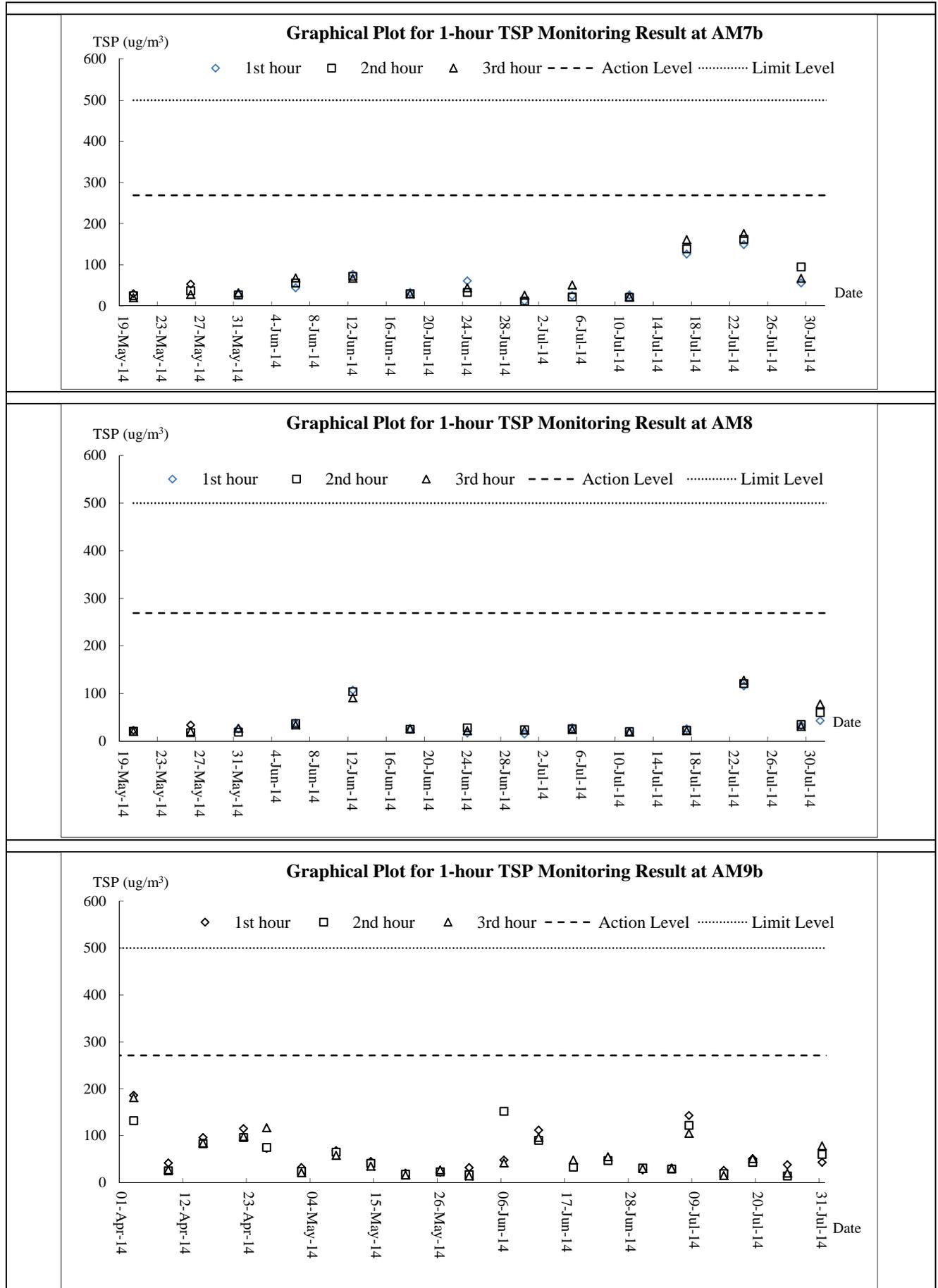
EVENT	ET	IEC	ER	ACTION CONTRACTOR
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings; Identify reasons for non-compliance and sources of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and ER; Implement the agreed mitigation measures.
Action Level being exceeded by more than two consecutive sampling days	<ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings; Identify reasons for non-compliance and sources of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures.
Limit Level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings; Identify reasons for non-compliance and sources of impact; Inform IEC, Contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit Level. 	<ol style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures.
Limit level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings; Identify reasons for non-compliance and sources of impact; Inform IEC, Contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days. 	<ol style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures; Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit Level. 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures; As directed by the ER, to slow down or to stop all or part of the construction activities.

Appendix G

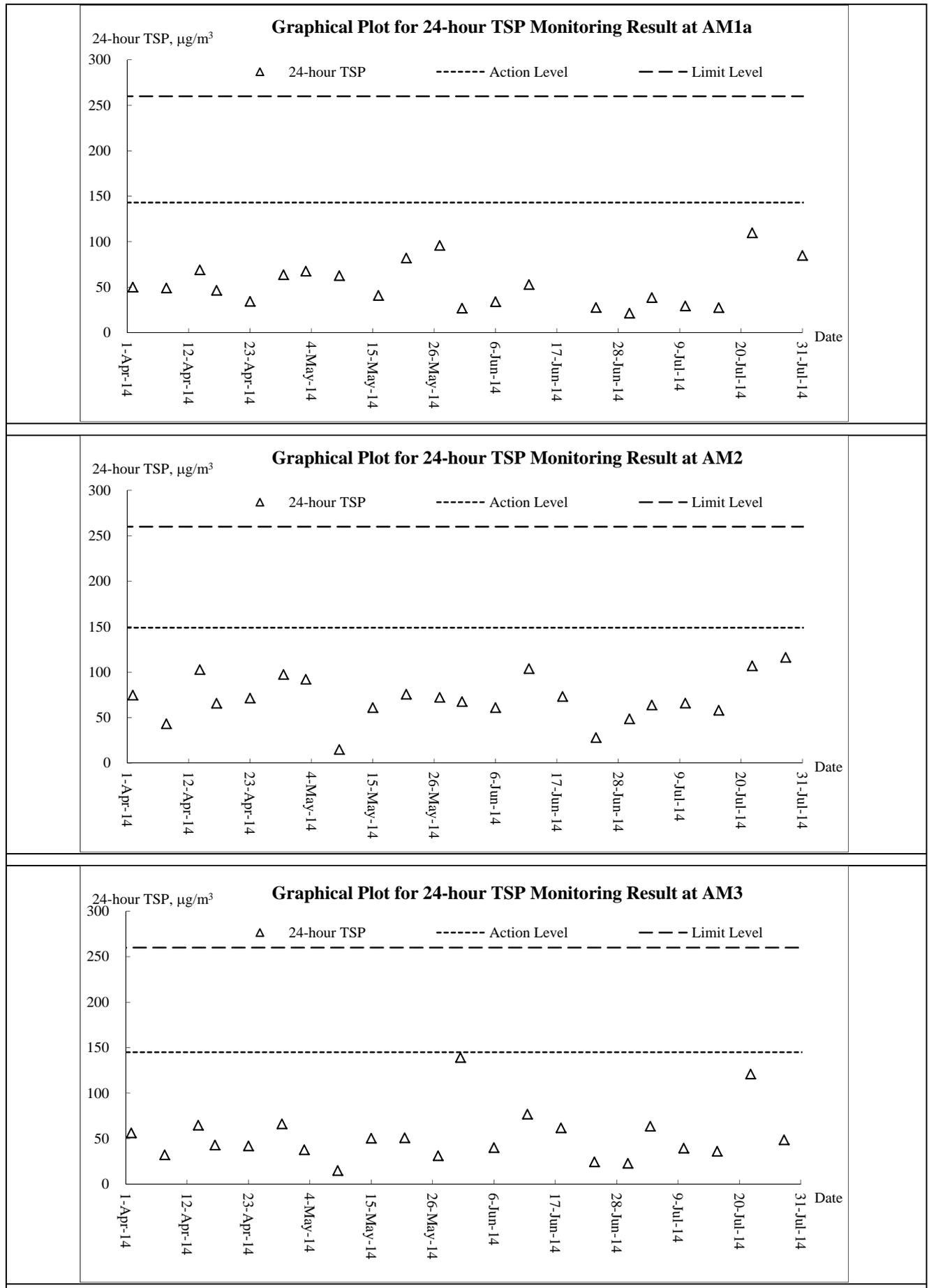
Graphical Plots for Monitoring Result

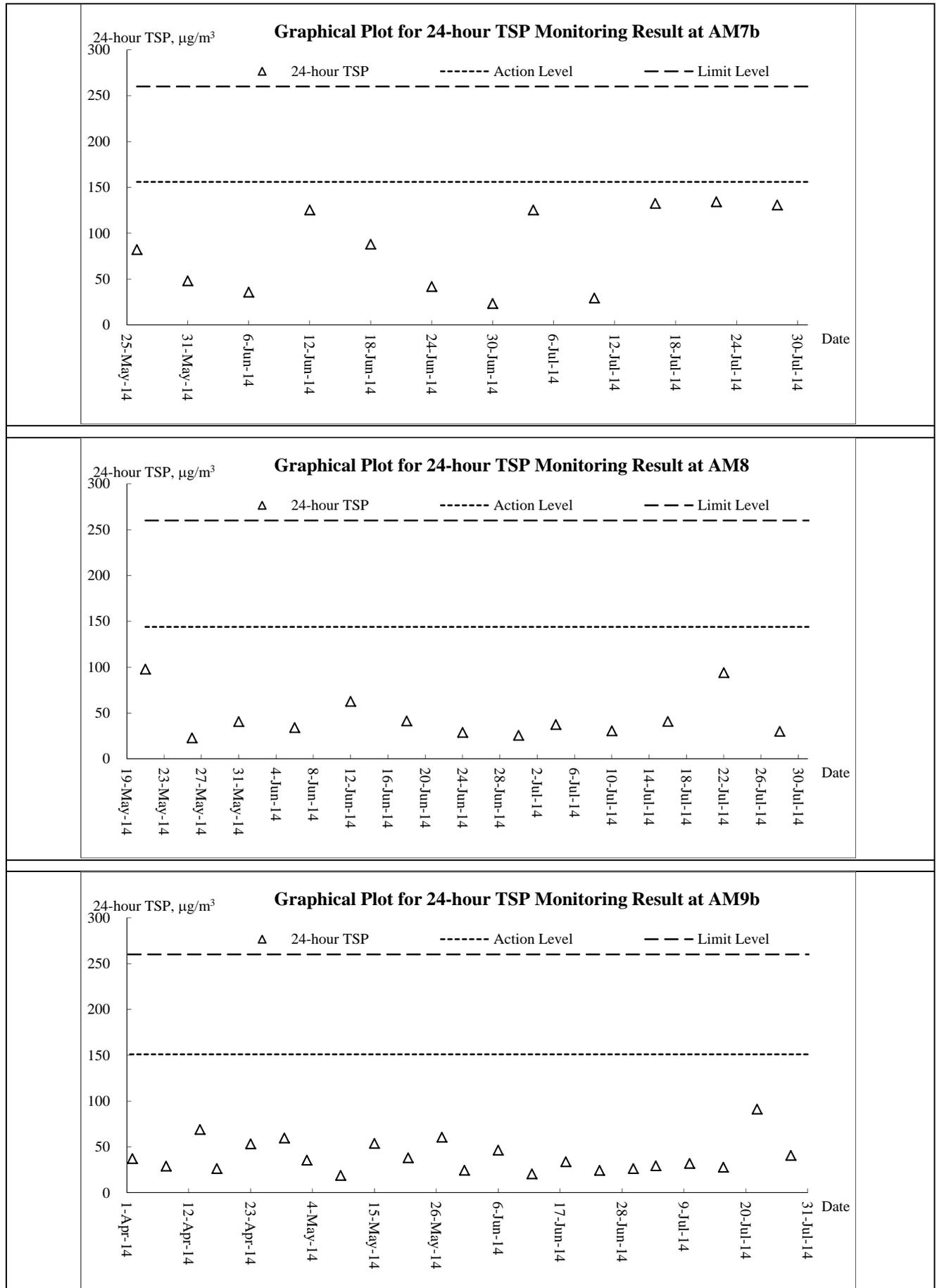
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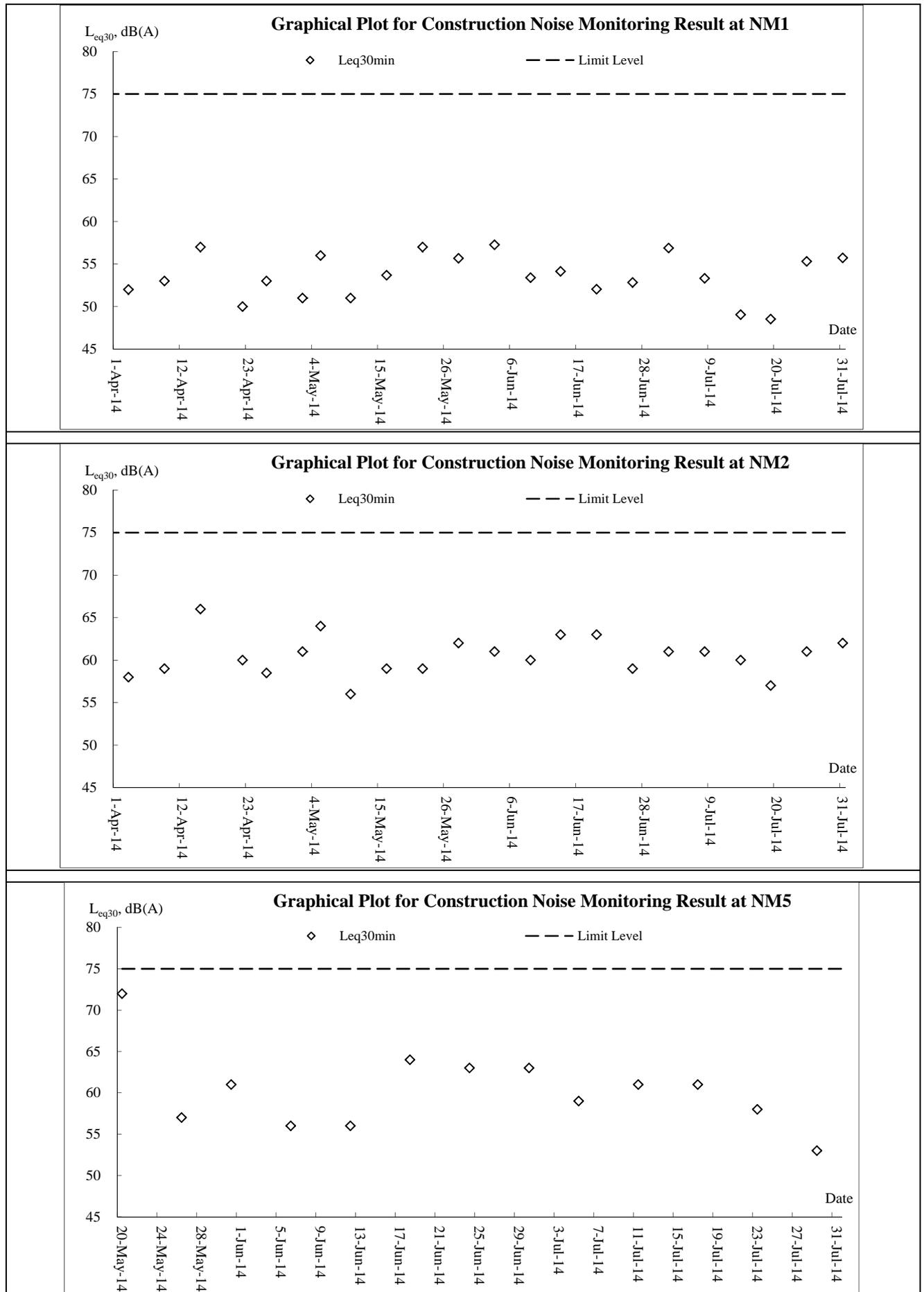


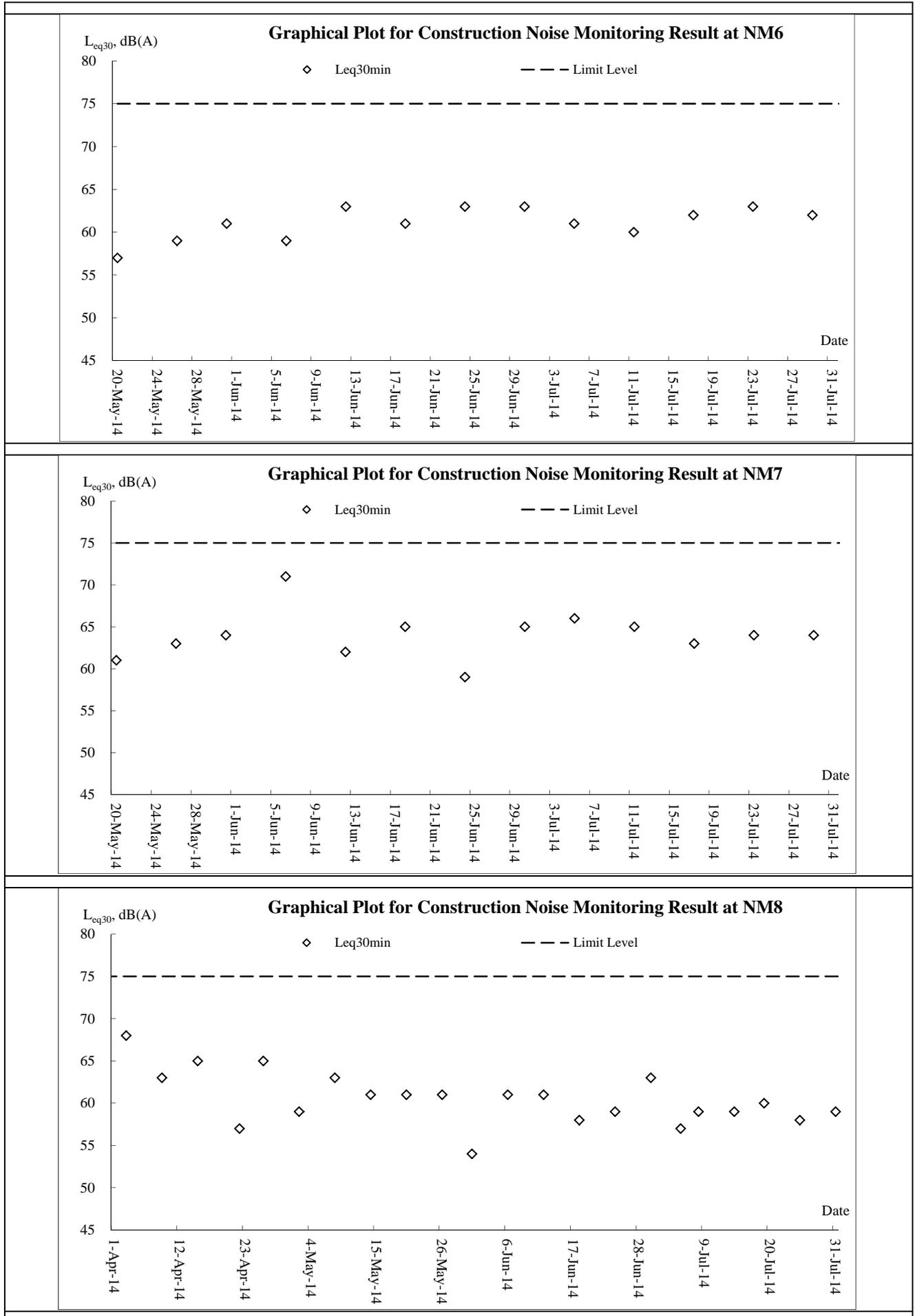
Air Quality – 24-hour TSP

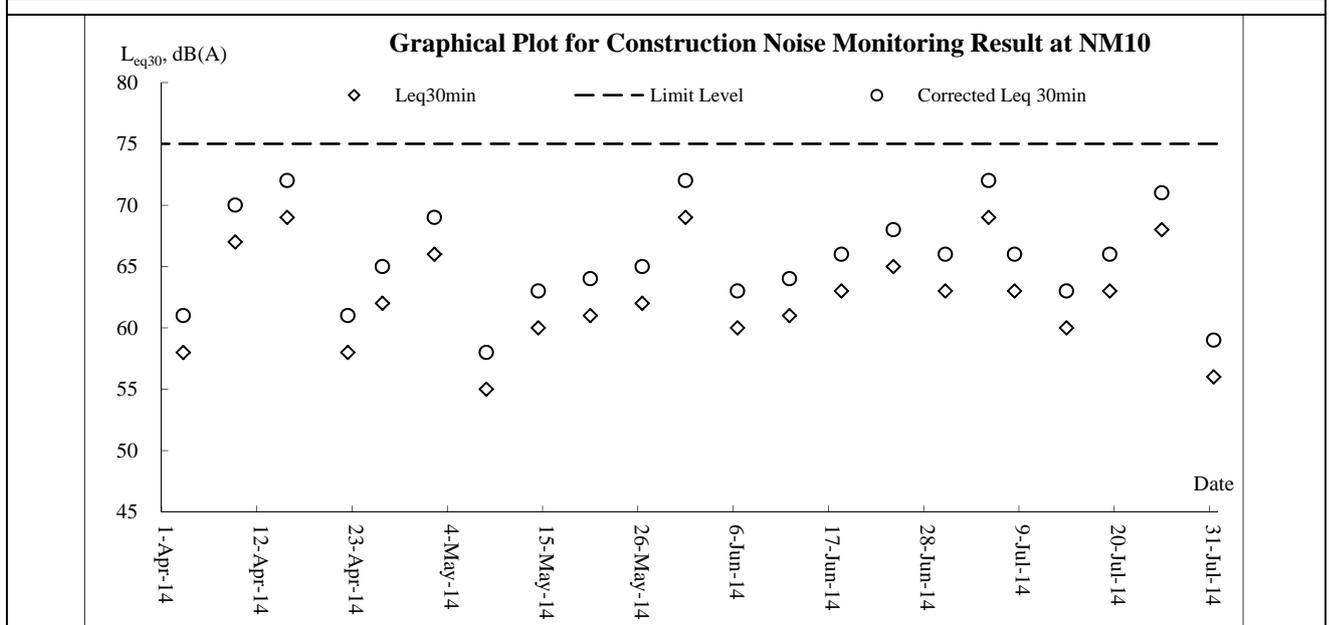
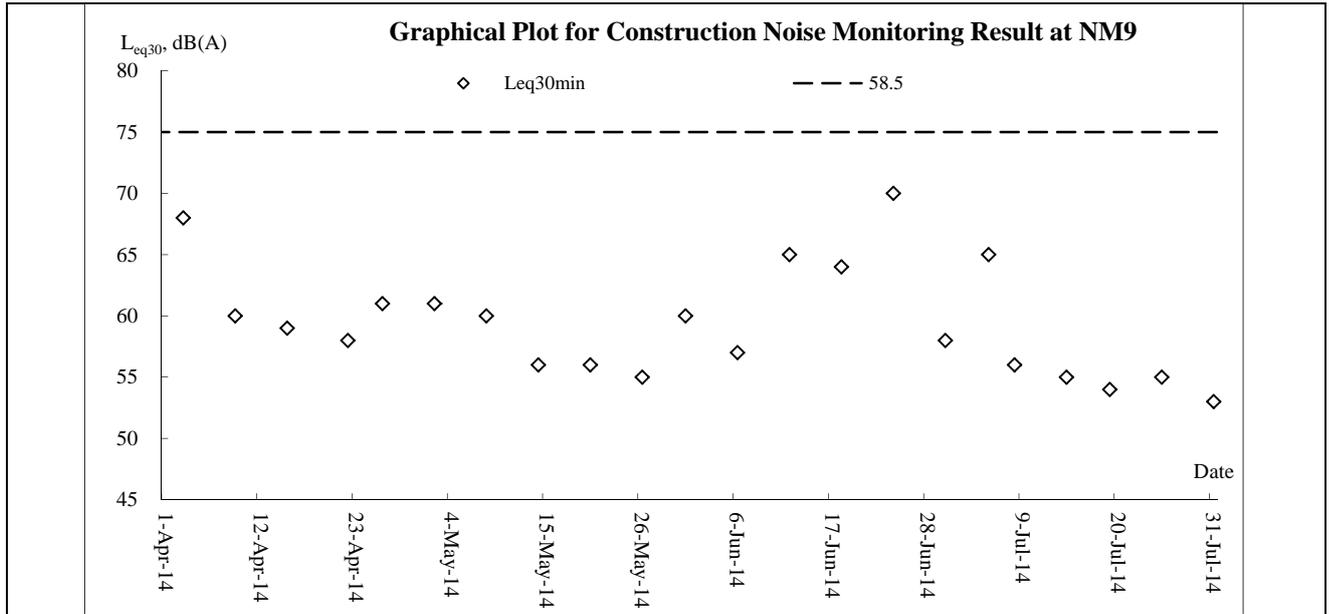




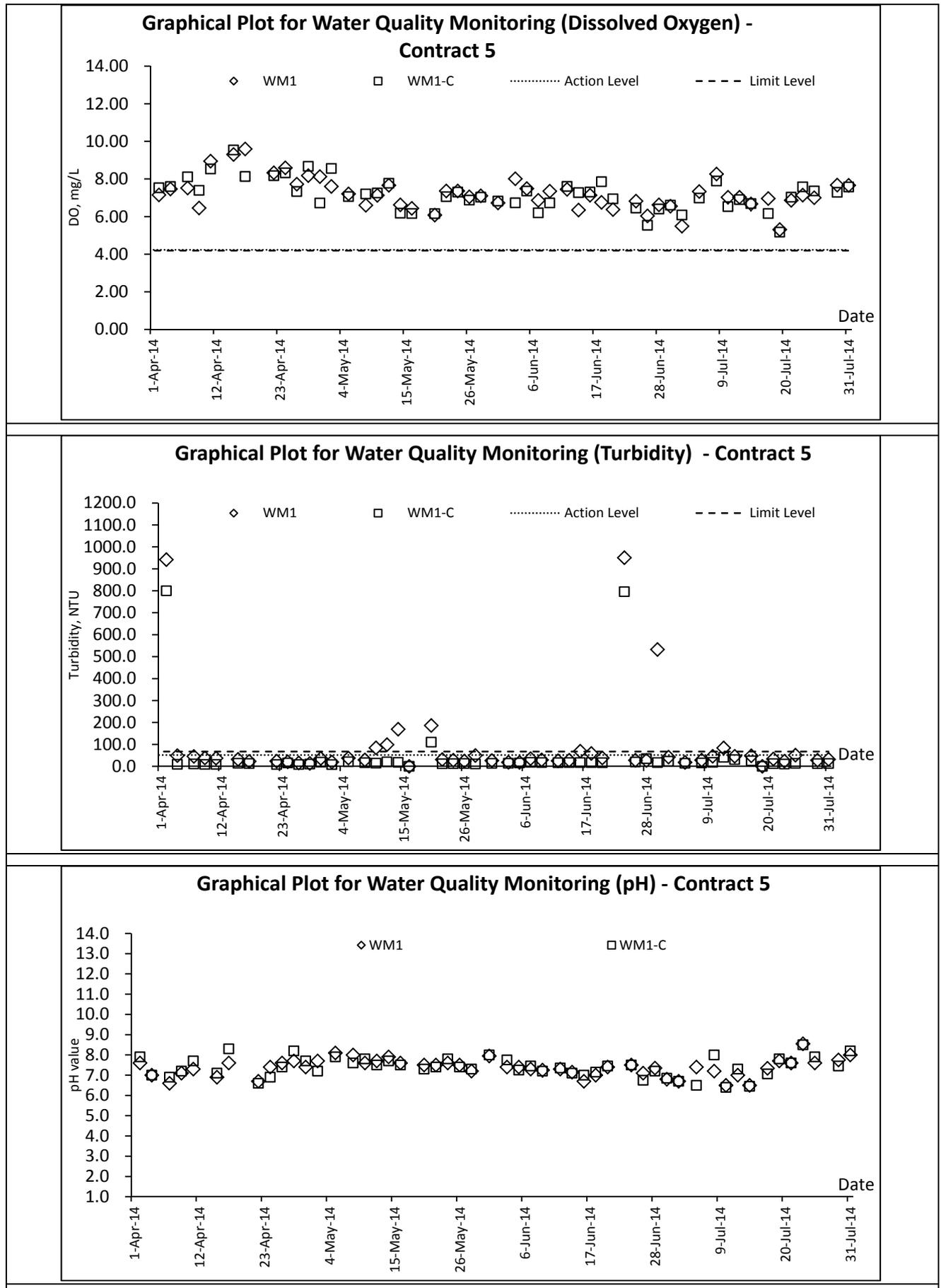
Noise

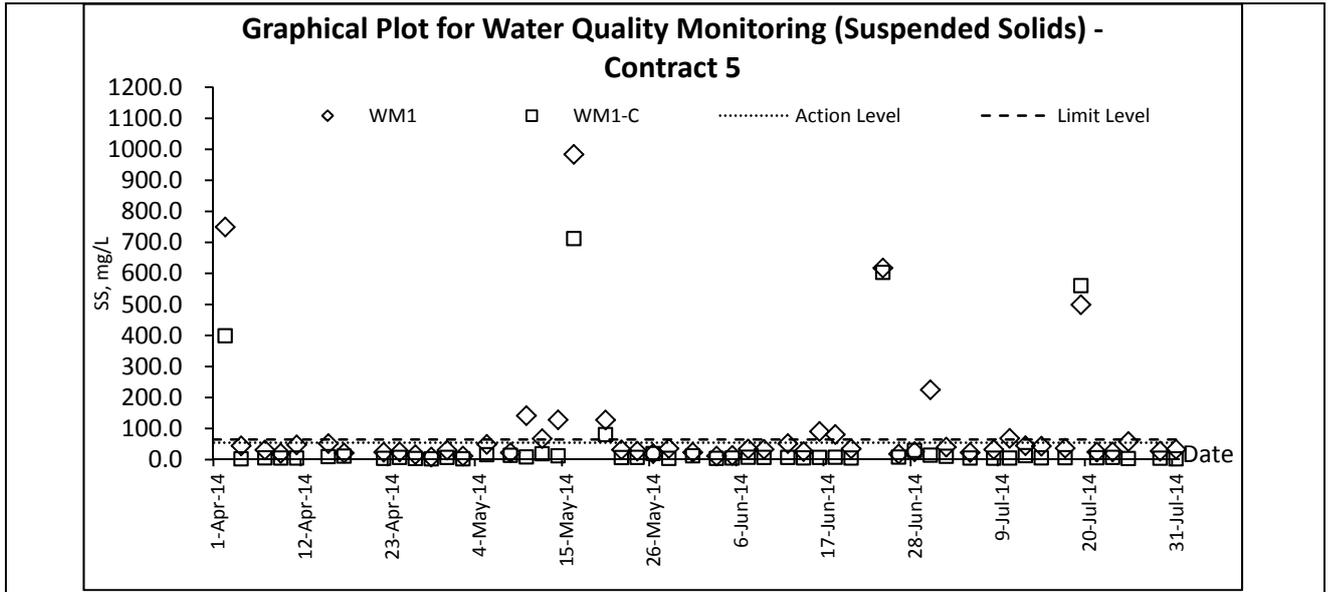




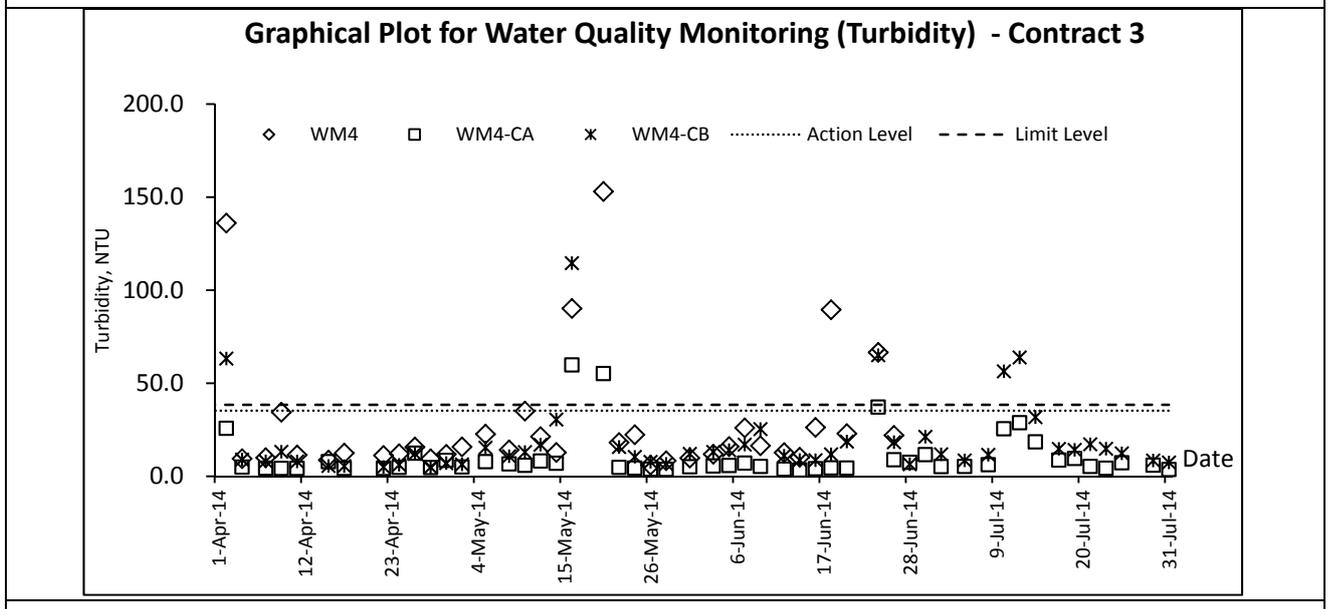
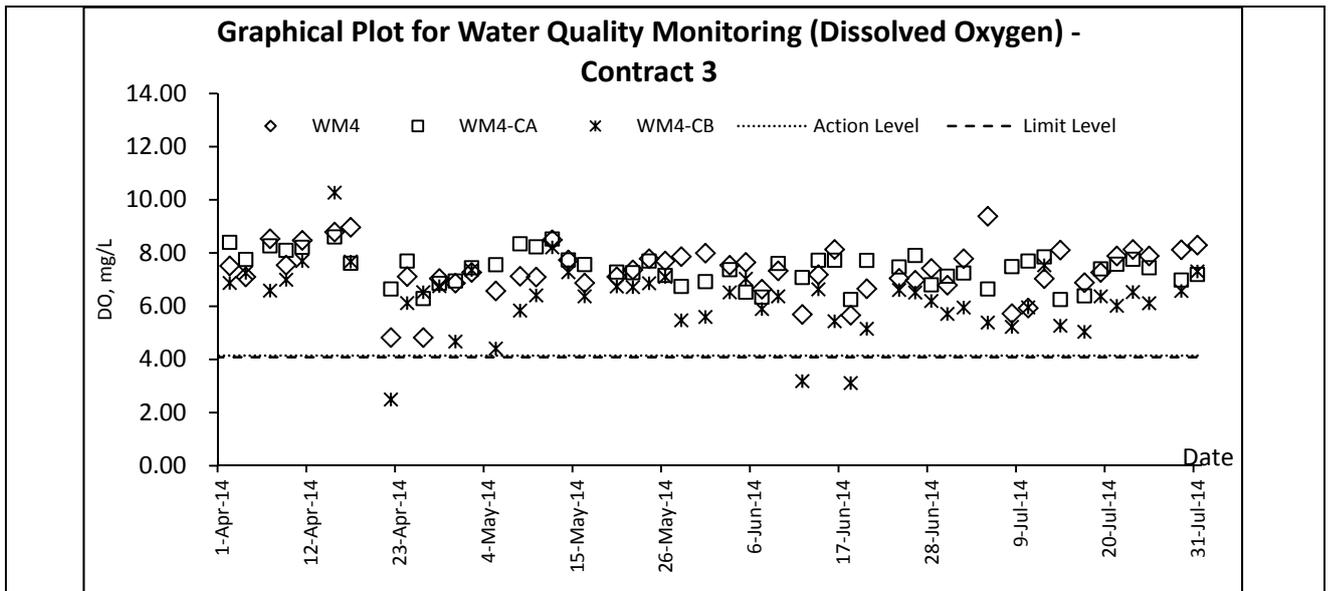


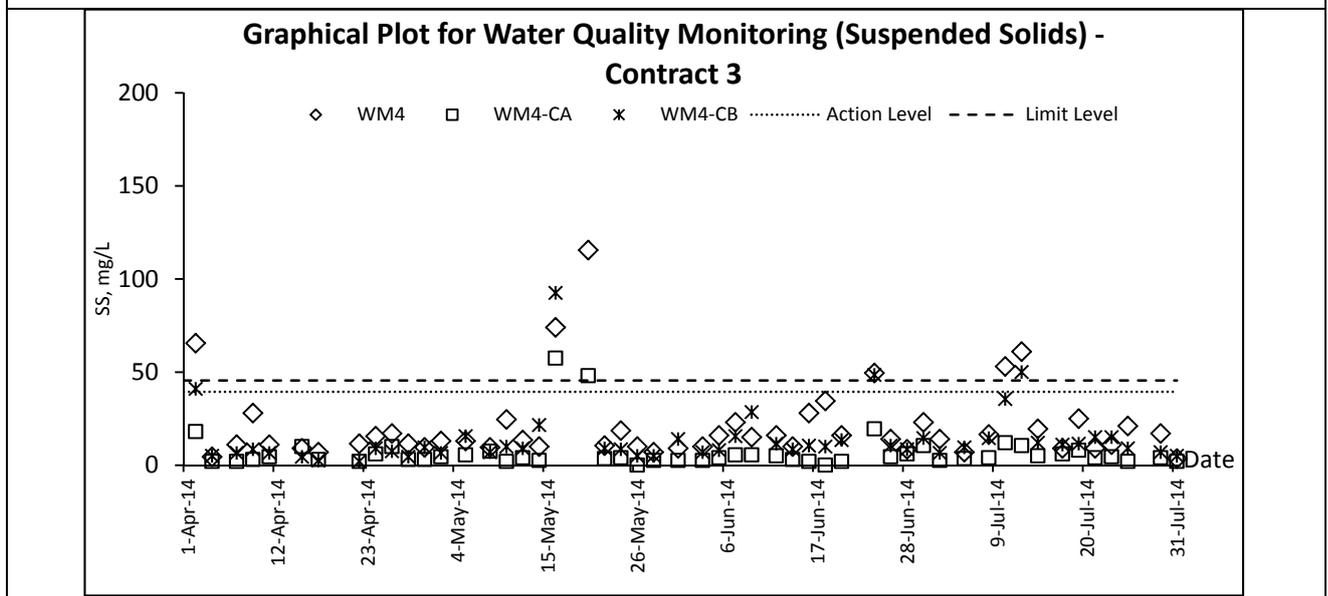
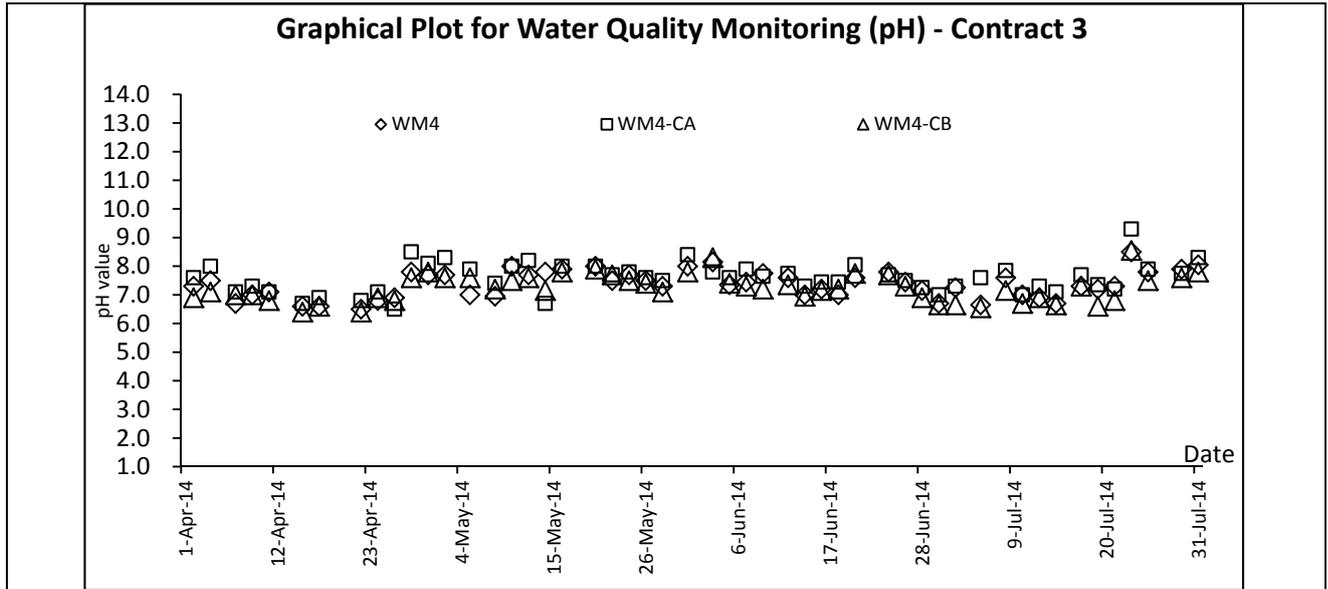
Water Quality - Contract 5





Water Quality - Contract 3





Appendix H

Weather information

Weather Condition Extracted from HKO

The weather of May 2014

May 2014 was characterized by gloomy and rainy conditions during the first part of the month and persistent hot weather in the latter part. The total rainfall of 687.3 millimetres was more than double the normal amount for May and the seventh highest May rainfall on record. The accumulated rainfall since 1 January of 1066.8 millimetres was about 67 percent above the normal figure of 640.7 millimetres for the same period. With about three quarters of the sunshine occurring in the second half of the month, the total duration of bright sunshine of the month was 107.8 hours, about 23 percent below the normal figure of 140.4 hours. Sunny and hot weather in the last week of the month also brought the average temperature for the month up to 26.4 degrees, half a degree above the normal figure of 25.9 degrees.

The weather in the early part of the month was dominated by late-season northeast monsoon. With a cloud band covering Guangdong and the northern part of the South China Sea, it was cloudy with a few showers in Hong Kong on 1 May. The clouds thinned out gradually and there were sunny periods in the next two days. A trough of low pressure over southern China edged towards the coast on 4 May, moving across the coastal areas of Guangdong the next morning and bringing thunderstorms and heavy showers to the territory. More than 30 millimetres of rainfall were recorded on 5 May over widespread areas in Hong Kong, and rainfall over Sha Tin, Tai Po, Tsuen Wan and Yuen Long even exceeded 50 millimetres. Rain patches continued to affect Hong Kong in the next couple of days. With replenishment of cooler air brought by the northeast monsoon, temperatures at the Hong Kong Observatory fell to a minimum of 18.8 degrees on the morning of 6 May, the lowest of the month.

The weather of June 2014

With the monthly mean temperature reaching 29.0 degrees, June 2014 was the hottest June in Hong Kong since records began in 1884. The monthly mean minimum temperature of 27.0 degrees and maximum temperature of 31.5 degrees were respectively one of the second and the third highest for June. Such high temperatures were attained despite the facts that sunshine duration and rainfall for the month were not far from normal. The total rainfall of the month was 436.6 millimetres, about 4 percent below the normal figures of 456.1 millimetres. The accumulated rainfall since 1 January of 1503.4 millimetres was about 37 percent above the normal figure of 1096.9 millimetres for the same period.

Under the dominance of an anticyclone aloft, the weather in Hong Kong was mainly fine and very hot for the first two days of the month. Affected by a trough of low pressure, it turned cloudy with some showers and isolated thunderstorms on 3 June. With the trough of low pressure pushed back towards the mainland areas of Guangdong, fine and hot weather returned on 4 June apart from a few morning showers. However, the lingering presence of the trough continued to bring a mixture of sunshine and thundery showers to the territory in the next four days.

The weather of July 2014

Under the dominance of a subtropical ridge over southern China for most part of the month, and with episodes of continental air flow brought by passages of tropical cyclones over the East China Sea, July 2014 emerged as the hottest July in Hong Kong with a record-breaking monthly mean temperature of 29.8 degrees. The monthly mean minimum temperature of 27.6 degrees equalled the July record, while the monthly mean maximum temperature of 32.6 degrees also ranked as one of the second highest for July. The month was relatively sunny and drier than usual with a monthly rainfall amount of 260.5 millimetres, about 31 percent below the July normal of 376.5 millimetres. The accumulated rainfall since 1 January was 1763.9 millimetres, about 20 percent above the normal of 1473.3 millimetres for the same period.

The weather started off with mainly cloudy weather and isolated thundery showers in Hong Kong. As a moderate southwest monsoon prevailed over the south China coast, the weather was a mixture of sunshine and showers up to 16 July. On days with more sunshine, daytime conditions became very hot with temperatures exceeding 33 degrees.

Remark: The meteorological data during the Reporting Period is presented in the relevant monthly EM&A report.

Appendix I

Waste Flow Table

Name of Department : CEDD Contract No./ Work Order No. : CV/2012/08

Appendix J - Monthly Summary Waste Flow Table for 2014

(All quantities shall be rounded off to 3 decimal places)

Month	Actual Quantities of Inert C&D Materials Generated / Imported (in '000 m3)						Actual Quantities of Other C&D Materials / Wastes Generated				
	Total Quantities Generated [a+b+c+d]	Broken Concrete (including rock for recycling into aggregates) (a)	Reused in the Contract (b)	Reused in Other Projects (c)	Disposed as Public Fill (d)	Imported C&D Material (e)	Metal (in '000kg)	Paper/ Cardboard Packaging (in '000kg)	Plastic (bottles/containers, plastic sheets/ foams from package material) (in '000kg)	Chemical Waste (in '000kg)	Others (e.g. General Refuse etc.) (in '000m3)
January	0.0045	0.0000	0.0045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1773
February	0.9869	0.0000	0.9869	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1102
March	0.1366	0.0000	0.1366	0.0000	0.0000	0.2282	0.0000	0.0000	0.0000	3.2400	0.1825
April	0.2063	0.0000	0.1217	0.0269	0.0577	0.5536	0.0000	0.0000	0.0000	4.2800	0.2069
May	14.5769	0.0000	0.0643	14.4032	0.1094	2.0126	0.0000	0.0000	0.0000	0.0000	0.0887
June	26.0821	0.0000	0.0348	22.1289	3.9183	0.6915	0.0000	0.0000	0.0000	0.0000	1.1851
Half-year total	41.9932	0.0000	1.3487	36.5590	4.0855	3.4859	0.0000	0.0000	0.0000	7.5200	1.9508
July	49.4606	0.0000	0.0069	37.1170	12.3368	0.4385	0.0000	0.0000	0.0000	0.0000	0.0558
August	0.0000										
September	0.0000										
October	0.0000										
November	0.0000										
December	0.0000										
Yearly Total	91.4538	0.0000	1.3556	73.6760	16.4222	3.9244	0.0000	0.0000	0.0000	7.5200	2.0066

Remark:

- 1) Density of C&D material to be 2.2 metric ton/m3
- 2) Density of General Refuse to be 1.6 metric ton/m3

Monthly Summary Waste Flow Table for 2014 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	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 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)
Jan	0.409	0.084	0	0	0.409	0.200	0	0	0.010	0	0.110
Feb	1.697	0.356	0.380	0	1.473	0	0.002	0	0	0.019	0.040
Mar	3.954	0.506	1.092	0	2.862	0	0	0	0	0	0.265
Apr	1.600	0.054	0.672	0	0.928	0.200	0	0	0	0.020	0.135
May	2.740	0.450	0.192	0	2.548	0.500	0	0	0	0.020	0.195
Jun	2.215	0.258	0.675	0	1.540	1.075	0	0	0	0.001	0.180
Sub-total	12.615	1.708	3.011	0.000	9.760	1.975	0.002	0.000	0.010	0.060	0.925
Jul	3.596	0.233	0.502	0	3.094	0.747	0	0	0.005	0	0.165
Aug											
Sep											
Oct											
Nov											
Dec											
Total	16.211	1.941	3.513	0.000	12.854	2.722	0.002	0.000	0.015	0.060	1.090

- Note:**
1. Assume the density of soil fill is 2 ton/m³.
 2. Assume the density of rock and broken concrete is 2.5 ton/m³.
 3. Assume each truck of C&D wastes is 5m³.
 4. The inert C&D materials except slurry and bentonite are disposed at Tuen Mun 38.
 5. The slurry and bentonite are disposed at Tseung Kwun O 137.
 6. The non-inert C&D wastes are disposed at NENT.
 7. Assume the density of metal is 7,850 kg/m³.

Name of Department: CEDD

Monthly Summary Waste Flow Table for 2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	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	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
JAN	0	0	0	0	0	16.571	0	0	0	0	0.85
FEB	0	0	0	0	0	18.672	0	0	0	0	0.005
MAR	0	0	0	0	0	2.968	0	0	0	6	0.01
APRIL	0	0	0	0	0	1.664	0.87	0.051	0	0	0.245
MAY	0	0	0	0	0	18.352	0	0	0	0	0.23
JUN	0	0	0	0	0	33.381	0	0.14	0	0	0
Sub Total	0	0	0	0	0	91.608	0.87	0.191	0	6	1.34
JUL	0	0	0	0	0	16.04	2.01	0	0	0	0.11
AUG											
SEP											
OCT											
NOV											
DEC											
Total	0	0	0	0	0	107.65	2.88	0.191	0	6	1.45

Notes:

Name of Department: CEDD

Forecast of Total Quantities of C&D Materials to be Generated from the Contract (see Note 4)										
Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metal	Paper / cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
0	0	0	0	0	350	30	4	2	1	4

Notes:

- (1) The performance targets are given in PS clause 6(14) above.
- (2) The waste flow table shall also include C&D materials that are specified in the Contractor to be imported for use at the Site.
- (3) Plastic refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- (4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature
 - Hard Rocks and Large Broken Concrete = Cannot be defined at this stage
 - Imported Fill = Estimated by the Contractor = 1 loading = 8m³
 - Metal = Estimated by the Contractor
 - Paper/cardboard packaging = Estimated by the Contractor
 - Plastics = Estimated by the Contractor
 - Chemical Waste = Estimated by the Contractor (Spent lubricating oil, assume density 0.9kg/L)
 - Other, e.g. general refuse = Estimated by the Contractor

Appendix J

Implementation Schedule for Environmental Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
Air Quality Impact (Construction)							
3.6.1.1	2.1	<p>General Dust Control Measures</p> <p>The following dust suppression measures should be implemented:</p> <ul style="list-style-type: none"> ■ Frequent water spraying for active construction areas (4 times per day for active areas in Po Kak Tsai and 8 times per day for all other active areas), including areas with heavy construction and slope cutting activities ■ 80% of stockpile areas should be covered by impervious sheets ■ Speed of trucks within the site should be controlled to about 10 km/hr ■ All haul roads within the site should be paved to avoid dust emission due to vehicular movement 	To minimize adverse dust emission generated from various construction activities of the works sites	Contractor	Construction Works Sites	During Construction	EIA Recommendation and Air Pollution Control (Construction Dust) Regulation
3.6.1.2	2.1	<p>Best Practice for Dust Control</p> <p>The relevant best practices for dust control as stipulated in the Air Pollution Control (Construction Dust) Regulation should be adopted to further reduce the construction dust impacts of the Project. These best practices include:</p> <p><i>Good site management</i></p> <ul style="list-style-type: none"> ■ The Contractor should maintain high standard of housekeeping to prevent emission of fugitive dust. ■ Loading, unloading, handling and storage of raw materials, wastes or by-products should be carried out in a manner so as to minimize the release of visible dust emission. ■ Any piles of materials accumulated on or around the work areas should be cleaned up regularly. ■ Cleaning, repair and maintenance of all plant facilities within the work areas should be carried out in a manner minimizing generation of fugitive dust emissions. ■ The material should be handled properly to prevent fugitive dust emission before cleaning. <p><i>Disturbed Parts of the Roads</i></p> <ul style="list-style-type: none"> ■ Each and every main temporary access should be paved with 	To minimize adverse dust emission generated from various construction activities of the works sites	Contractor	Construction Works Sites	During Construction	EIA Recommendation and Air Pollution Control (Construction Dust) Regulation

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		<p>concrete, bituminous hardcore materials or metal plates and kept clear of dusty materials; or</p> <ul style="list-style-type: none"> Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet. <p><i>Exposed Earth</i></p> <ul style="list-style-type: none"> Exposed earth should be properly treated by compaction, hydroseeding, vegetation planting or seeding with latex, vinyl, bitumen within six months after the last construction activity on the site or part of the site where the exposed earth lies. <p><i>Loading, Unloading or Transfer of Dusty Materials</i></p> <ul style="list-style-type: none"> All dusty materials should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet. <p><i>Debris Handling</i></p> <ul style="list-style-type: none"> Any debris should be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the three sides. Before debris is dumped into a chute, water should be sprayed so that it remains wet when it is dumped. <p><i>Transport of Dusty Materials</i></p> <ul style="list-style-type: none"> Vehicle used for transporting dusty materials/spoils should be covered with tarpaulin or similar material. The cover should extend over the edges of the sides and tailboards. <p><i>Wheel washing</i></p> <ul style="list-style-type: none"> Vehicle wheel washing facilities should be provided at each construction site exit. Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels. <p><i>Use of vehicles</i></p> <ul style="list-style-type: none"> Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels. Where a vehicle leaving the construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle. 					

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		<p><i>Site hoarding</i></p> <ul style="list-style-type: none"> Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit. <p><i>Blasting</i></p> <ul style="list-style-type: none"> The areas within 30m from the blasting area should be wetted with water prior to blasting. 					
<u>Air Quality Impact (Operation)</u>							
3.5.2.2	2.2	<p>The following odour containment and control measures will be provided for the proposed sewage treatment work at the BCP site:</p> <ul style="list-style-type: none"> The treatment work will be totally enclosed. Negative pressure ventilation will be provided within the enclosure to avoid any fugitive odorous emission from the treatment work. Further odour containment will be achieved by covering or confining the sewage channels, sewage tanks, and equipment with potential odour emission. Proper mixing will be provided at the equalization and sludge holding tanks to prevent sewage septicity. Chemical or biological deodorisation facilities with a minimum odour removal efficiency of 90% will be provided to treat potential odorous emissions from the treatment plant including sewage channels / tanks, filter press and screening facilities so as to minimize any potential odour impact to the nearby ASRs. 	To minimize potential odour impact from operation of the proposed sewage treatment work at BCP	DSD	BCP	Operation Phase	EIA recommendation
<u>Noise Impact (Construction)</u>							
4.4.1.4	3.1	<p>Adoption of Quieter PME</p> <p>Use of the recommended quieter PME such as those given in the BS5228: Part 1:2009 and presented in Table 4.14, which can be found in Hong Kong.</p>	To minimize the construction air-borne noise impact	Contractors	Construction Work Sites	During Construction	EIA recommendation, EIAO and Noise Control Ordinance (NCO)

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
4.4.1.4	3.1	<p>Use of Movable Noise Barrier</p> <p>The use of movable barrier for certain PME can further alleviate the construction noise impacts. In general, a 5 dB(A) reduction for movable PME and 10 dB(A) for stationary PME can be achieved depending on the actual design of the movable noise barrier. The Contractor shall be responsible for design of the movable noise barrier with due consideration given to the size of the PME and the requirement for intercepting the line of sight between the NSRs and PME. Barrier material with surface mass in excess of 7 kg/m² is recommended to achieve the predicted screening effect.</p>	To minimize the construction air-borne noise impact	Contractors	Construction Work Sites	During Construction	EIA recommendation, EIAO and NCO
4.4.1.4	3.1	<p>Use of Noise Enclosure/ Acoustic Shed</p> <p>The use of noise enclosure or acoustic shed is to cover stationary PME such as air compressor and concrete pump. With the adoption of the noise enclosure, the PME could be completely screened, and noise reduction of 15 dB(A) can be achieved according to the GW-TM.</p>	To minimize the construction air-borne noise impact	Contractors	Construction Work Sites	During Construction	EIA recommendation, EIAO and NCO
4.4.1.4	3.1	<p>Use of Noise Insulating Fabric</p> <p>Noise insulating fabric can be adopted for certain PME (e.g. drill rig, pilling auger etc). The insulating fabric should be lapped such that there are no openings or gaps on the joints. Technical data from manufacturers state that by using the Fabric, a noise reduction of over 10 dB(A) can be achieved on noise level.</p>	To minimize the construction air-borne noise impact	Contractors	Construction Work Sites	During Construction	EIA recommendation, EIAO and NCO

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
4.4.1.4	3.1	<p>Good Site Practice</p> <p>The good site practices listed below should be followed during each phase of construction:</p> <ul style="list-style-type: none"> • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction programme; • Mobile plant, if any, should be sited as far from NSRs as possible; • Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	To minimize the construction air-borne noise impact	Contractors	Construction Work Sites	During Construction	EIA recommendation, EIAO and NCO
Noise Impact (Operation)							
<u>Road Traffic Noise</u>							
Table 4.42 and Figure 4.20.1 to 4.20.4	3.2	Erection of noise barrier/ enclosure along the viaduct section.	To minimize the road traffic noise along the connecting road of BCP	Contractor	Loi Tung and Fanling Highway Interchange	Before Operation	EIAO and NCO
<u>Fixed Plant Noise</u>							
Table 4.46	3.2	Specification of the maximum allowable sound power levels of the proposed fixed plants during daytime and night-time.	To minimize the fixed plant noise impact	Managing Authority of the buildings / Contractor	BCP, Administration Building and all ventilation buildings	Before Operation	EIA recommendation, EIAO and NCO

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
4.5.2.4	3.2	<p>The following noise reduction measures shall be considered as far as practicable during operation:</p> <ul style="list-style-type: none"> Choose quieter plant such as those which have been effectively silenced; Include noise levels specification when ordering new plant (including chillier and E/M equipment); Locate fixed plant/louver away from any NSRs as far as practicable; Locate fixed plant in walled plant rooms or in specially designed enclosures; Locate noisy machines in a basement or a completely separate building; Install direct noise mitigation measures including silencers, acoustic louvers and acoustic enclosure where necessary; and Develop and implement a regularly scheduled plant maintenance programme so that equipment is properly operated and serviced in order to maintain a controlled level of noise. 	To minimize the fixed plant noise impact	Managing Authority of the buildings / Contractor	BCP, Administration Building and all ventilation buildings	Before Operation	EIAO and NCO
Water Quality Impact (Construction)							
5.6.1.1	4.1	<p>Construction site runoff and drainage</p> <p>The site practices outlined in ProPECC Note PN 1/94 should be followed as far as practicable in order to minimise surface runoff and the chance of erosion. The following measures are recommended to protect water quality and when properly implemented should be sufficient to adequately control site discharges so as to avoid water quality impacts:</p> <ul style="list-style-type: none"> At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system should be undertaken by the Contractor prior to the commencement of construction. The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. 	To control site runoff and drainage; prevent high sediment loading from reaching the nearby watercourses	Contractor	Construction Works Sites	Construction Phase	Practice Note for Professional Persons on Construction Site Drainage (ProPECC Note PN 1/94)

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		<p>Temporary ditches should be provided to facilitate the runoff discharge into stormwater drainage system through a sediment/silt trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates, if practical.</p> <ul style="list-style-type: none"> ▪ Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the TM standards under the WPCO. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC Note PN 1/94. Sizes may vary depending upon the flow rate. The detailed design of the sand/silt traps should be undertaken by the Contractor prior to the commencement of construction. ▪ All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times. ▪ Measures should be taken to minimize the ingress of site drainage into excavations. If excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from foundation excavations should be discharged into storm drains via silt removal facilities. ▪ If surface excavation works cannot be avoided during the wet season (April to September), temporarily exposed slope/soil surfaces should be covered by tarpaulin or other means, as far as practicable, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Interception channels should be provided (e.g. along the crest/edge of the excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. Other measures that need to be implemented before, during and after rainstorms are summarized in ProPECC Note PN 1/94. ▪ The overall slope of the site should be kept to a minimum to reduce 					

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		<p>the erosive potential of surface water flows.</p> <ul style="list-style-type: none"> ▪ All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facility should be provided at construction site exit where practicable. Wash-water should have sand and silt settled out and removed regularly 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. ▪ Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. ▪ Manholes (including newly constructed ones) should be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and stormwater runoff being directed into foul sewers. ▪ Precautions should be taken at any time of the year when rainstorms are likely. Actions should be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC Note PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. ▪ Bentonite slurries used in piling or slurry walling should be reconditioned and reused wherever practicable. Temporary enclosed storage locations should be provided on-site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC Note PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 					
5.6.1.1	4.1	<p>Good site practices for works within water gathering grounds</p> <p>The following conditions should be complied, if there is any works to be carried out within the water gathering grounds:</p>	To minimize water quality impacts to the water gathering grounds	Contractor	Construction Works Sites within the water gathering	Construction Phase	ProPECC Note PN 1/94

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		<ul style="list-style-type: none"> ▪ Adequate measures should be implemented to ensure no pollution or siltation occurs to the catchwaters and catchments. ▪ No earth, building materials, oil or fuel, soil, toxic materials or any materials that may possibly cause contamination to water gathering grounds are allowed to be stockpiled on site. ▪ All surplus spoil should be removed from water gathering grounds as soon as possible. ▪ Temporary drains with silt traps should be constructed at the site boundary before the commencement of any earthworks. ▪ Regular cleaning of silt traps should be carried out to ensure proper operation at all time. ▪ All excavated or filled surfaces which have the risk of erosion should always be protected form erosion. ▪ Facilities for washing the wheels of vehicles before leaving the site should be provided. ▪ Any construction plant which causes pollution to catchwaters or catchments due to the leakage of oil or fuel should be removed off site immediately. ▪ No maintenance activities which may generate chemical wastes should be undertaken in the water gathering grounds. Vehicle maintenance should be confined to designated paved areas only and any spillages should be cleared up immediately using absorbents and waste oils should be collected in designated tanks prior to disposal off site. All storm water run-off from these areas should be discharged via oil/petrol separators and sand/silt removal traps. ▪ Any soil contaminated with fuel leaked from plant should be removed off site and the voids arising from removal of contaminated soil should be replaced by suitable material approved by the Director of Water Supplies. ▪ Provision of temporary toilet facilities and use of chemicals or insecticide of any kind are subject to the approval of the Director of Water Supplies. ▪ Drainage plans should be submitted for approval by the Director of 			grounds		

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		<p>Water Supplies.</p> <ul style="list-style-type: none"> An unimpeded access through the waterworks access road should always be maintained. Earthworks near catchwaters or streamcourses should only be carried out in dry season between October and March, Advance notice must be given before the commencement of works on site quoting WSD's approval letter reference. 					
5.6.1.2	4.1	<p>Good site practices of general construction activities</p> <p>Construction solid waste, debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering any nearby stormwater drain. Stockpiles of cement and other construction materials should be kept covered when not being used.</p> <p>Oils and fuels should only be stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to any nearby stormwater drain, 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. The bund should be drained of rainwater after a rain event.</p>	To minimize water quality impacts	Contractor	All construction works sites	Construction phase	EIA Recommendation
5.6.1.3	4.1	<p>Sewage effluent from construction workforce</p> <p>Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</p>	To minimize water quality impacts	Contractor	All construction works sites with on-site sanitary facilities	Construction phase	EIA Recommendation and Water Pollution Control Ordinance (WPCO)
5.6.1.4	4.1	<p>Hydrogeological Impact</p> <p>Grout injection works would be conducted before blasting, for sealing a limited area around the tunnel with a grout of a suitable strength for controlling the potential groundwater inflows. The pre-injection grouting method would be supplemented by post-injection grouting where necessary to further enhance the groundwater inflow control. On-site treatment for the groundwater ingress pumped out would be required to remove any contamination by grouting materials before discharge off-site.</p>	To minimize water quality impacts	Contractor	Construction works sites of the drill and blast tunnel	Construction phase	EIA Recommendation and WPCO
Water Quality Impact (Operation)							
No mitigation measure is required.							

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
<u>Sewage and Sewerage Treatment Impact (Construction)</u>							
6.7	5	The sewage generated by the on-site workforce should be collected in chemical toilets and disposed of off-site by a licensed waste collector.	To minimize water quality impacts	Contractor	All construction works sites with on-site sanitary facilities	Construction phase	EIA recommendation and WPCO
<u>Sewage and Sewerage Treatment Impact (Operation)</u>							
6.6.3	5	Sewage generated by the BCP and Chuk Yuen Village Resite will be collected and treated by the proposed on-site sewage treatment facility using Membrane Bioreactor treatment with a portion of the treated wastewater reused for irrigation and flushing within the BCP.	To minimize water quality impacts	DSD	BCP	Operation phase	EIA recommendation and WPCO
6.5.3	5	Sewage generated from the Administration Building will be discharged to the existing local sewerage system.	To minimize water quality impacts	DSD	Administration Building	Operation phase	EIA recommendation and WPCO
<u>Waste Management Implication (Construction)</u>							
7.6.1.1	6	<p>Good Site Practices</p> <p>Adverse impacts related to waste management such as potential hazard, air, odour, noise, wastewater discharge and public transport as mentioned in section 3.4.7.2 (ii)(c) of the Study Brief are not expected to arise, provided that good site practices are strictly followed. Recommendations for good site practices during the construction activities include:</p> <ul style="list-style-type: none"> ▪ Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site ▪ Training of site personnel in proper waste management and chemical handling procedures ▪ Provision of sufficient waste disposal points and regular collection of waste ▪ Dust suppression measures as required under the Air Pollution Control (Construction Dust) Regulation should be followed as far as practicable. Appropriate measures to minimise windblown litter and dust/odour during transportation of waste by covering trucks or in enclosed containers ▪ General refuse shall be removed away immediately for disposal. As 	To minimize adverse environmental impact	Contractor	Construction works sites (general)	Construction Phase	EIA recommendation; Waste Disposal Ordinance; Waste Disposal (Chemical Wastes) (General) Regulation; and ETWB TC(W) No. 19/2005, Environmental Management on Construction Site

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		<p>such odour is not anticipated to be an issue to distant sensitive receivers</p> <ul style="list-style-type: none"> ▪ Provision of wheel washing facilities before the trucks leaving the works area so as to minimise dust introduction from public road ▪ Covers and water spraying system should be provided for the stockpiled C&D material to prevent dust impact or being washed away ▪ Designate different locations for storage of C&D material to enhance reuse ▪ Well planned programme for transportation of C&D material to lessen the off-site traffic impact. Well planned delivery programme for offsite disposal and imported filling material such that adverse noise impact from transporting of C&D material is not anticipated ▪ Site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” should be adopted as far as practicable, such as cleaning and maintenance of drainage systems regularly ▪ Provision of cover for the stockpile material, sand bag or earth bund as barrier to prevent material from washing away and entering the drains 					
7.6.1.2	6	<p>Waste Reduction Measures</p> <p>Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> ▪ 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 ▪ Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force ▪ Proper storage and site practices to minimise the potential for damage or contamination of construction materials ▪ Plan and stock construction materials carefully to minimise amount 	To reduce the quantity of wastes	Contractor	Construction works sites (General)	Construction Phase	EIA recommendation and Waste Disposal Ordinance

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
		<p>of waste generated and avoid unnecessary generation of waste</p> <ul style="list-style-type: none"> In addition to the above measures, specific mitigation measures are recommended below for the identified waste arising to minimise environmental impacts during handling, transportation and disposal of these wastes. 					
7.6.1.3	6	<p>C&D Materials</p> <p>In order to minimise impacts resulting from collection and transportation of C&D material for off-site disposal, the excavated materials should be reused on-site as backfilling material as far as practicable. The surplus rock and other inert C&D material would be disposed of at the Government's Public Fill Reception Facilities (PFRFs) at Tuen Mun Area 38 for beneficial use by other projects in the HKSAR as the last resort. C&D waste generated from general site clearance and tree felling works would require disposal to the designated landfill site. Other mitigation requirements are listed below:</p> <ul style="list-style-type: none"> A Waste Management Plan should be prepared and implemented in accordance with ETWB TC(W) No. 19/2005 Environmental Management on Construction Site; and In order to monitor the disposal of C&D material and solid wastes at public filling facilities and landfills, and to control fly-tipping, a trip-ticket system (e.g. ETWB TCW No. 31/2004) should be included. 	To minimize impacts resulting from C&D material	Contractor	Construction Works Sites (General)	Construction Phase	EIA recommendation; Waste Disposal Ordinance; and ETWB TCW No. 31/2004
7.6.1.4	6	<p>General refuse</p> <p>General refuse should be stored in enclosed bins or compaction units separated from other C&D material. A reputable waste collector is to be employed by the Contractor to remove general refuse from the site separately. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' litter.</p>	To minimize impacts resulting from collection and transportation of general refuse for off-site disposal	Contractor	Construction works sites (General)	Construction phase	Waste Disposal Ordinance and Public Health and Municipal Services Ordinance - Public Cleansing and Prevention of Nuisances Regulation
7.6.1.5	6	<p>Chemical waste</p> <p>If chemical wastes are produced at the construction site, the Contractor will be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</i>. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical</p>	To minimize impacts resulting from collection and transportation of chemical waste for off-site disposal	Contractor	Construction works sites (General)	Construction phase	Waste Disposal (Chemical Waste) (General) Regulation and Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes