

JOB NO.: TCS00670/13



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

**8th QUARTERLY ENVIRONMENTAL MONITORING &
AUDIT SUMMARY REPORT –
(May to July 2015)**

PREPARED FOR

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

Quality Index

Date	Reference No.	Prepared By	Certified By
19 October 2015	TCS00670/13/600/R0479v2	 Nicola Hon (Environmental Consultant)	 T.W. Tam (Environmental Team Leader)

Version	Date	Description
1	24 September 2015	First Submission
2	19 October 2015	Amended against the IEC's comments on 7 October 2015

This report has been prepared by Action-United Environmental Services & Consulting with all reasonable skill, care and diligence within the terms of the Agreement with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.



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20 October 2015

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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. 8) – May 2015 to July 2015**

With reference to the Quarterly EM&A Report No. 8 for May 2015 to July 2015 (Version 2) certified by the ET Leader and received by us on 19 October 2015, 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	-	Messrs Karl KL KWAN / William CHEUNG / CM OR	by fax: 3547 1659
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EXECUTIVE SUMMARY

ES.01. This is the 8th Quarterly EM&A Summary Report for the “Liantang/Heung Yuen Wai Boundary Control Point and Associated Works” under Environmental Permit No. EP-404/2011/C (hereinafter “the EP”), covering the period from **1 May to 31 July 2015** (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	288
	24-hour TSP	6	102(#)
Construction Noise	L _{eq(30min)} Daytime	8	113
Water Quality	Water sampling	Contract 3 (3)	39(*)
		Contract 5 (2)	39(*)
Joint Site Inspection / Audit	IEC, ET, the Contractor and RE joint site Environmental Inspection and Auditing	Contract 2	13
		Contract 3	13
		Contract 5	13

(*) number of sampling day

(#) included 5 failure events

BREACHES OF ACTION/LIMIT LEVELS

ES.03. In the Reporting Period, no air quality and noise exceedances were registered. For water quality monitoring, a total of twenty (20) Action/ Limit Level exceedances including the parameter of DO, turbidity and SS were recorded at location WM1 and WM4. 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	--	N/A
Construction Noise	L _{eq(30min)} Daytime	0	0	0	--	--
Water Quality	DO	0	2	2	Not project related	N/A
	Turbidity	0	8	8		
	SS	0	10	10		

ENVIRONMENTAL COMPLAINT

ES.04. In this Reporting Period, two (2) documented environmental complaints were received and lodged for Contract 2 on 15 May 2015 and 6 July 2015. Follow up actions have been undertaken by the Contractor to resolve the deficiencies. According to the investigation findings by the ET, the complaints were not related to the Contract and investigation report had submitted to all relevant parties.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.05. No environmental summons or successful prosecutions were recorded in the Reporting Period.

REPORTING CHANGES

ES.06. No reporting changes were made in the Reporting Period.

FUTURE KEY ISSUES

- ES.07. During raining season, muddy water or other water pollutants from site surface flow to local stream such as Kong Yiu Channel and Ma Wat Channel or public area will be key environment issue. Water quality mitigation measures to prevent surface runoff into nearby water bodies or public areas should paid attention and fully implement.
- ES.08. Construction noise would be a key environmental issue during construction work of the Project. Noise mitigation measures such as using quiet plants should be implemented in accordance with the EM&A requirement.
- ES.09. Since most of construction sites under the Project are located adjacent to villages, the Contractors should fully implement air quality mitigation measures to reduce construction dust emission.
- ES.10. 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.

TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	PROJECT BACKGROUND	1
1.2	REPORT STRUCTURE	1
2	PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS	2
2.1	CONSTRUCTION CONTRACT PACKAGING	2
2.2	PROJECT ORGANIZATION	3
2.3	CONCURRENT PROJECTS	5
2.4	CONSTRUCTION PROGRESS	5
2.5	SUMMARY OF ENVIRONMENTAL SUBMISSIONS	7
3	PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS	10
3.1	GENERAL	10
3.2	MONITORING PARAMETERS	10
3.3	MONITORING LOCATIONS	10
3.4	MONITORING FREQUENCY AND PERIOD	12
3.5	MONITORING EQUIPMENT	12
3.6	MONITORING METHODOLOGY	15
3.7	EQUIPMENT CALIBRATION	16
3.8	DERIVATION OF ACTION/LIMIT (A/L) LEVELS	17
3.9	DATA MANAGEMENT AND DATA QA/QC CONTROL	18
4	AIR QUALITY MONITORING	19
4.1	GENERAL	19
4.2	SUMMARY OF MONITORING RESULTS	19
5	CONSTRUCTION NOISE MONITORING	21
5.1	GENERAL	21
5.2	SUMMARY OF MONITORING RESULTS	21
6	WATER QUALITY MONITORING	23
6.1	GENERAL	23
6.2	SUMMARY OF MONITORING RESULTS	23
7	WASTE MANAGEMENT	25
7.1	GENERAL WASTE MANAGEMENT	25
7.2	RECORDS OF WASTE QUANTITIES	25
8	SITE INSPECTIONS	26
8.1	REQUIREMENTS	26
9	NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS	28
9.1	NON-COMPLIANCE (EXCEEDANCES)	28
9.2	ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION	28
10	IMPLEMENTATION STATUS OF MITIGATION MEASURES	30
10.1	GENERAL REQUIREMENTS	30
11	CONCLUSIONS AND RECOMMENDATIONS	31
11.1	CONCLUSIONS	31
11.2	RECOMMENDATIONS	31

LIST OF TABLES

TABLE 2-1	STATUS OF ENVIRONMENTAL LICENSES AND PERMITS OF THE CONTRACTS
TABLE 3-1	SUMMARY OF EM&A REQUIREMENTS
TABLE 3-2	IMPACT MONITORING STATIONS - AIR QUALITY
TABLE 3-3	IMPACT MONITORING STATIONS - CONSTRUCTION NOISE
TABLE 3-4	IMPACT MONITORING STATIONS - WATER QUALITY
TABLE 3-5	AIR QUALITY MONITORING EQUIPMENT
TABLE 3-6	CONSTRUCTION NOISE MONITORING EQUIPMENT
TABLE 3-7	WATER QUALITY MONITORING EQUIPMENT
TABLE 3-8	ACTION AND LIMIT LEVELS FOR AIR QUALITY MONITORING
TABLE 3-9	ACTION AND LIMIT LEVELS FOR CONSTRUCTION NOISE
TABLE 3-10	ACTION AND LIMIT LEVELS FOR WATER QUALITY
TABLE 4-1	SUMMARY OF AIR QUALITY MONITORING RESULTS
TABLE 4-2	SUMMARIES OF BREACHES OF AIR QUALITY A/L LEVELS
TABLE 5-1	SUMMARY OF CONSTRUCTION NOISE MONITORING RESULTS
TABLE 5-2	SUMMARIES OF BREACHES OF CONSTRUCTION NOISE A/L LEVELS
TABLE 6-1	SUMMARY OF THE WATER QUALITY MONITORING RESULTS – CONTRACT 5
TABLE 6-2	SUMMARY OF THE WATER QUALITY MONITORING RESULTS – CONTRACT 3
TABLE 6-3	SUMMARIES OF BREACHES OF THE EXISTING WATER QUALITY A/L LEVELS – CONTRACT 5
TABLE 6-4	SUMMARIES OF BREACHES OF THE EXISTING WATER QUALITY A/L LEVELS – CONTRACT 3
TABLE 7-1	SUMMARY OF QUANTITIES OF INERT C&D MATERIALS
TABLE 7-2	SUMMARY OF QUANTITIES OF C&D WASTES
TABLE 8-1	SUMMARY OF REMINDERS/OBSERVATIONS OF SITE INSPECTION – CONTRACT 2
TABLE 8-2	SUMMARY OF REMINDERS/OBSERVATIONS OF SITE INSPECTION – CONTRACT 3
TABLE 8-3	SUMMARY OF REMINDERS/OBSERVATIONS OF SITE INSPECTION – CONTRACT 5
TABLE 9-1	STATISTICAL SUMMARY OF ENVIRONMENTAL COMPLAINTS
TABLE 9-2	STATISTICAL SUMMARY OF ENVIRONMENTAL SUMMONS
TABLE 9-3	STATISTICAL SUMMARY OF ENVIRONMENTAL PROSECUTION
TABLE 10-1	ENVIRONMENTAL MITIGATION MEASURES

LIST OF ANNEXES

APPENDIX A	LAYOUT PLAN OF THE PROJECT
APPENDIX B	ENVIRONMENTAL MANAGEMENT ORGANIZATION CHART
APPENDIX C	MASTER CONSTRUCTION PROGRAMME FOR THE CONTRACTS,
APPENDIX D	DESIGNATED MONITORING LOCATIONS AS RECOMMENDED IN THE APPROVED EM&A MANUAL
APPENDIX E	MONITORING LOCATIONS FOR IMPACT MONITORING
APPENDIX F	EVENT AND ACTION PLAN
APPENDIX G	GRAPHICAL PLOTS FOR MONITORING RESULT
APPENDIX H	WEATHER INFORMATION
APPENDIX I	WASTE FLOW TABLE
APPENDIX J	IMPLEMENTATION SCHEDULE FOR ENVIRONMENTAL MITIGATION MEASURES

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/C granted on 12 March 2015.
- 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 8th Quarterly EM&A Summary Report for the “*Liantang/Heung Yuen Wai Boundary Control Point and Associated Works*” under Environmental Permit No. EP-404/2011/C, covering the period from **1 May to 31 July 2015**.

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 (NE/2014/02)

2.1.5 The works of Contract 4 are scheduled to commence in the 3rd quarter of 2015. The work of this Contract 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 was awarded in June 2015 and construction work was expected to be commenced on 23 October 2015. 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.

- | | |
|-----------------|---|
| Mid-Vent Portal | <ul style="list-style-type: none"> • Tunnel excavation • Upgrade wastewater treatment system • Cavern excavation • Adit invert slab |
| North Portal | <ul style="list-style-type: none"> • Permanent slope formation (soil nailing works) and composite wall • Conveyor Belt System Construction • South Bound Tunnel Bench excavation • Slab cradle for Tunnel Boring Machine (TBM) shifting way • TBM onsite assembly and cradle construction • Associated PME installation for operation of TBM (mortar plant, |

cooling system etc.)

- | | |
|----------------|---|
| South Portal | <ul style="list-style-type: none"> • Temporary Slope Cut with Soil Nails Installation • Northbound and Southbound tunnel excavation and Ventilation Building Formation • Drill and Blast Set Up + Site installation • Rock Excavation to Vent. Bldg. Formation • Northbound excavation, bored piles works & pile tests • Southbound excavation and foundation works |
| Admin Building | <ul style="list-style-type: none"> • Backfilling for surcharge • Drainage works • Site hoarding |

Contract 3 (CV/2012/09)

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

- Abutment construction for Bridge E
- Cable detection and trial trenches
- Catch fence erection
- E&M work for new valve control & Telemetry House
- Filling works at Tong Hang East
- Lagging wall for bored pile wall
- Laying storm drains
- Noise barrier construction
- Pier construction
- Pier table construction
- Pile cap works
- Pile works
- Road works at Fanling Highway
- Sewer works at Tai Wo Service Road West (TWSRW)
- Tree felling works
- Utilities duct laying
- Viaduct segment erection
- Decking construction for Bridge E
- Pre-drilling
- Retaining Wall construction
- Socket H-pile installation
- Portal beam construction

Contract 4 (NE/2014/02)

2.4.4 The contract has not yet awarded.

Contract 5 (CV/2013/03)

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

- Laying additional rising mains at LMH road
- Construction of secondary boundary fencing
- Construction of Depressed Road at BCP3
- Construction of retaining wall No.2a
- Parapet installation at Bridge J
- Construction of chain link fence and trapezoidal channel at BCPA and BCPB
- Drainage works at existing/proposed LMH Road

- Drainage works (Connection to Box 3) at BCP Area
- Brick laying at footpath of proposed LMH road
- Water works at proposed LMH Road
- Formation works at BCPB Area
- Installation of underground utilities at proposed and existing LMH road
- Road works (kerb laying) for proposed and existing LMH road
- Bituminous laying at existing LMH road
- Additional works for Village House at RS4
- Diversion of UU at existing LMH Road

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 2, 3 and 5
- Contamination Assessment Plan (CAP) for Po Kat Tsai, Loi Tung and the workshops in Fanling
- Contamination Assessment Report (CAR) 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	Valid from 3 Mar 2014 to 28 Feb 2019
		No.: W5/1I389	Valid from 28 Mar 2014 to 31 Mar 2019
		No.: W5/1I390	Valid from 24 Mar 2014 to 31 Mar 2019 Surrendered, effective 19 June 2014
		No.: W5/1I391	Valid from 28 Mar

Item	Description	License/Permit Status	
			2014 to 31 Mar 2019
		No.: W5/II392	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-RN0693-14	Valid 11 Nov 2014 - 10 May 2015
		GW-RN0092-15	Valid 23 Feb 2015 - 22 May 2015
		GW-RN0091-15	Valid 23 Feb 2015 - 22 May 2015
		GW-RN0778-14	Valid 29 Dec 2014 - 28 Jun 2015
		GW-RN0087-15	Valid 23 Feb 2015 - 22 May 2015
		GW-RN0195-15	Valid 30 Mar 2015 - 30 May 2015
		GW-RN0279-15	Valid 12 May 2015 - 29 Aug 2015
		GW-RN0305-15	Valid 19 May 2015 - 18 Aug 2015
		GW-RN0304-15	Valid 19 May 2015 - 14 Nov 2015
		GW-RN0298-15	Valid 30 May 2015 - 29 Aug 2015
		GW-RN0299-15	Valid 23 May 2015 - 22 Aug 2015
		GW-RN0315-15	Valid 3 Jun 2015 - 28 Jun 2015
		GW-RN0479-15	Valid 31 Jul 2015 - 29 Jan 2016
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-RN0095-15 (cancelled on 6 May 15)	Valid on 24 Feb 2015 till 18 Jul 2015
		GW-RN0120-15	Valid on 8 Mar 2015

Item	Description	License/Permit Status	
			till 1 Jul 2015
		GW-RN0230-15	Valid on 15 Apr 2015 till 14 Oct 2015
		GW-RN0129-15	Valid on 3 Mar 2015 till 30 May 2015
		GW-RN0270-15	Valid on 6 May 2015 till 18 Jul 2015
		GW-RN0275-15	Valid on 6 May 2015 till 15 Aug 2015
		GW-RN0295-15	Valid on 31 May 2015 till 30 Aug 2015
		GW-RN0326-15	Valid on 2 Jun 2015 till 29 Aug 2015
		GW-RN0334-15	Valid on 8 Jun 2015 till 7 Dec 2015
		GW-RN0404-15	Valid on 21 Jul 2015 till 4 Dec 2015
		GW-RN0430-15	Valid on 9 Jul 2015 till 22 Aug 2015
		GW-RN0428-15	Valid on 9 Jul 2015 till 31 Dec 2015
		GW-RN0473-15	Valid on 29 Jul 2015 till 17 Dec 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 from 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 from 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	<p>In-situ Measurements</p> <ul style="list-style-type: none"> • Dissolved Oxygen Concentration (mg/L); • Dissolved Oxygen Saturation (%); • Turbidity (NTU); • pH unit; • Water depth (m); and • Temperature (°C).
	<p>Laboratory Analysis</p> <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
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
AM3	Ta Kwu Ling Fire Service Station of Ta	LMH to Frontier	Contract 5,

Station ID	Description	Works Area	Related to the Work Contract
	Kwu Ling Village.	Closed Area	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
AM7b [@]	Loi Tung Village House	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 AM9a to AM9b was submitted to EPD on 4 Nov 2013 after verified by the IEC and it was approved by EPD (EPD's ref.: (15) in EP 2/N7/A/52 Pt.10 dated 8 Nov 2013).

* 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. It was approved by EPD (EPD's ref.: (6) in EP 2/N7/A/52 Pt.12 dated 9 Jun 2014).

@ 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. It was approved by EPD (EPD's ref.: (7) in EP 2/N7/A/52 Pt.12 dated 9 Jun 2014).

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 downstream 81m of the designated location	Contract 6

Station ID	Description	Designated / Alternative Location		Nature of the location	Related to the Work Contract
		Coordinates			
		Easting	Northing		
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 depend on 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
24-Hour TSP	
High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170
Calibration Kit	TISCH Model TE-5025A
1-Hour TSP	
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 Professional Plus / YSI 6820/650MDS / YSI PRO20 Handheld Dissolved Oxygen Instrument / YSI 550A Multifunctional Meter
pH meter	AZ8685 pH pen-style meter / YSI Professional Plus / YSI 6820/650MDS
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.) A pump to draw sample aerosol through the optic chamber where TSP is measured;
 - (b.) A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and
 - (c.) 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:
- (a.) An anodized aluminum shelter;
 - (b.) A 8”x10” stainless steel filter holder;
 - (c.) A blower motor assembly;
 - (d.) A continuous flow/pressure recorder;
 - (e.) A motor speed-voltage control/elapsed time indicator;
 - (f.) A 7-day mechanical timer, and
 - (g.) 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 4⁰C as possible without being frozen. Samples collected are delivered to the laboratory upon collection.

In-situ Measurement

- 3.6.14 Instrument including YSI Professional Plus or YSI 6820/650MDS or YSI PRO20 Handheld Dissolved Oxygen Instrument or YSI 550A Multifunctional Meter 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 AZ8685 pH pen-style meter or YSI Professional Plus or YSI 6820/650MDS 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 or YSI Professional Plus or YSI 6820/650MDS 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 / AM7b	275	156		
AM8	269	144		
AM9a / AM9b	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
	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
	Limit Level	64.9	17.3	12.4	12.9	45.5

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, construction works under the project have been commenced in Contracts 2, 3 and 5 and air quality monitoring was performed at 6 relevant designated locations as 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 In this Reporting Period, power failure of HVS was occurred at Location AM9b on 18 May, 3, 9, 19 and 29 June 2015. Since 24-hour TSP results in these events were not completed, these results were accounted as invalidated.

4.2.2 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	85	18	43	42	18	34
Record Date	6-Jul-15	6-Jun-15	48 events	12-May-15	13-Jul-15	17 events
AM2	123	21	45	146	23	67
Record Date	6-Jul-15	18-Jun-15	48 events	12-May-15	23-May-15	17 events
AM3	112	21	46	67	20	43
Record Date	22-Jul-15	10-Jul-15	48 events	3-Jun-15	23-May-15	17 events
AM7b	126	16	45	94	27	62
Record Date	6-May-15	16-Jun-15	48 events	29-May-15	23-May-15	17 events
AM8	98	7	34	46	18	33
Record Date	8-Jul-15	31-Jul-15	48 events	6-May-15	23-May-15	17 events
AM9b	118	12	47	132	26	51
Record Date	6-Jul-15	8-May-15	48 events	4-Jul-15	23-May-15	17 events (5 failure)

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
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 the Reporting Period, no exceedances were recorded for 1-hour and 24-hour TSP. No corrective measures were therefore required.
- 4.2.5 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, construction works under the project have been commenced in Contracts 2, 3 and 5 and noise monitoring was performed at 8 relevant designated locations as 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	60	49
Record Date	20-May-15	24-Jun-15
NM2	61	55
Record Date	6, 12, 18 and 30 Jun 15	22-Jul-15
NM5	64	51
Record Date	18- May-15	20-Jul-15
NM6	64	58
Record Date	10-Jun-15	22 and 27 Jun 15
NM7	67	58
Record Date	14-Jul-15	20-Jul-15
NM8	67	57
Record Date	26-May-15	1 and 24 Jun15
NM9	61	57
Record Date	26-May-15 24-Jun-15 6, 16 and 22 Jul-15	14-May-15 18-Jun-15
NM10 ^(*)	67	60
Record Date	26-May-15 24-Jun-15	14-May-15

^(*) 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	0	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 complaints (Action Level exceedance) received by the RE, Contractors or CEDD in the Reporting Period. Therefore, no Action or Limit Level exceedance was triggered and no corrective action was required.

6 WATER QUALITY MONITORING

6.1 GENERAL

6.1.1 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	3.12 #	2.85	16.60 #	9.53	17.50 #	4.00
Max	8.31 #	8.24	>999 #	>999	1530.00 #	794.00
Average	6.16 #	5.79	193.16 #	88.88	177.13 #	79.38

the value is for reference.

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	3.54	4.11	2.30	9.53	3.03	5.34	9.50	2.00	5.50
Max	8.05	7.99	7.41	402.00	263.90	200.65	314.50	254.50	131.50
Average	6.28	6.62	5.41	43.40	16.82	29.84	35.83	14.13	23.60

Noted:

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

6.2.2 During water monitoring on 2, 5, 7, 9, 14, 16, 18, 20, 28 and 30 May 2015 and 1, 6, 8, 10, 12, 17, 19, 22 and 27 June 2015 and entire July 2015, very shallow water was observed at the proposed water monitoring location and water sampling at WM1 was unable to carry out. Water sampling was then carried out near the box culvert 2 at close downstream and the data is served as reference only. Moreover, water monitoring was unable to carry out at WM1 and downstream box culvert 2 on 15 June 2015 due to shallow water.

6.2.3 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-15	13	WM1	0	0	0	2	0	3
		WM4	0	2	0	2	0	2
Jun-15	13	WM1	0	0	0	1	0	1
		WM4	0	0	0	2	0	2

Reporting Period	No. of sampling day	Location	DO (mg/L)		Turbidity (NTU)		SS (mg/L)	
			Action	Limit	Action	Limit	Action	Limit
Jul-15	13	WM1	0	0	0	0	0	0
		WM4	0	0	0	1	0	2
Total	35	WM1	0	0	0	3	0	4
	37	WM4	0	2	0	5	0	6

In the Reporting Period, a total of twenty (20) Action/ Limit Level exceedances namely 2 exceedances of DO, 8 exceedances of turbidity and 10 exceedances of SS were recorded. NOEs were issued to relevant parties upon confirmation of the results. According to investigation result, it was concluded that the exceedances were not due to the works under the project. The detailed investigation findings have been presented in the relevant monthly EM&A reports.

6.2.4 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

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
		Feb 15	Mar 15	Apr 15	Total	
C&D Materials (Inert) (in '000m ³)	2	41.7957	32.4389	19.5844	98.868	-
	3	1.357	2.515	1.177		-
	5	0	0	0		-
Reused in this Project (Inert) (in '000m ³)	2	8.7663	5.2132	0.5171	15.7956	-
	3	0.108	0.84	0.351		-
	5	0	0	0		-
Reused in other Projects (Inert) (in '000m ³)	2	32.6095	26.7733	18.2752	77.658	C5
	3	0	0	0		-
	5	0	0	0		-
Disposal as Public Fill (Inert) (in '000m ³)	2	0.4199	0.4524	0.7922	5.4145	Tuen Mun 38
	3	1.249	1.675	0.826		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
		Feb 15	Mar 15	Apr 15	Total	
Recycled Metal ('000kg)	2	0	0	0	0	-
	3	0	0	0		
	5	0	0	0		
Recycled Paper / Cardboard Packing ('000kg)	2	0.13	0.54	0.25	1.074	By licensed collector
	3	0	0	0		
	5	0.154	0	0		
Recycled Plastic ('000kg)	2	0	0	0	#0.042	By licensed collector
	#3	0.012	0.03	0		
	5	0	0	0		
Chemical Wastes ('000kg)	2	2.64	0.528	0.88	4.048 + #0.9	By licensed collector
	3	0	0.8	0		
	5	0	0	0		
General Refuses ('000m ³)	2	0.0511	0.1703	0.0496	0.496	NENT
	3	0.065	0.06	0.065		
	5	0	0.015	0.02		

Remark #: Unit of recycled metal, recycled paper/ cardboard packing, recycled plastic and chemical waste for Contractor 3 was in ('000m³).

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, **13** 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 2015	8, 15, 22 and 28 May 2015	7	Completed
June 2015	5, 12, 19 and 26 June 2015	4	Completed
July 2015	3, 10, 17, 24 and 31 July 2015	3	Completed

8.1.3 In the Reporting Period, no non-compliance was recorded; however, **14** 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 2015	4, 13, 18 and 26 May 2015	6	Completed
June 2015	1, 8, 17, 22 and 29 June 2015	9	Completed
July 2015	6, 15, 20 and 27 July 2015	4	Completed

8.1.5 In the Reporting Period, no non-compliance was recorded; however, **19** 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 2015	7, 14, 21 and 28 May 2015	1	Completed
June 2015	4, 11, 18 and 25 June 2015	6	Completed
July 2015	2, 9, 16, 23 and 30 July 2015	8	Completed

8.1.7 In the Reporting Period, no non-compliance was recorded; however, 15 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 In the Reporting Period, no summons and prosecution under the EM&A Programme was lodged for Contracts 2, 3 and 5. However, two (2) documented environmental complaint was received and lodged for Contracts 2 on 15 May and 6 July 2015. Follow up actions have been undertaken by the Contractor to resolve the deficiencies. The details of complaint are listed below:-

- 15 May 2015 - A complaint was received from the EPD on 15 May 2015. The complainant complained that muddy water was generated and discharged from a construction site near Po Kat Tsai. The muddy water seriously polluted the water environment and complainant unable to use the river water to irrigate their cropping. This situation has been happening a month ago and complainant requested the related department to follow up.
- 6 July 2015 - A complaint was lodged by the DSD on 6 July 2015 and another verbal complaint was received on 8 July 2015 regards to the blocked surface channel with rubbish at Po Kat Tsai Village. A site inspection was carried out by DSD on 8 July 2015 and the covered surface channel concerned was found blocked with mud and siltation. Debris was found near a natural watercourse in the vicinity. According to the complainant, it was suspected that mud water had been discharged to the existing village drains from the construction site (Contract No. CV/2012/08). Also, the debris found was dumped by the workers working in the construction site.

9.2.2 The statistical summary table of environmental complaint, summons and prosecution are presented in **Tables 9-1, 9-2 and 9-3**.

Table 9-1 Statistical Summary of Environmental Complaints

Contract No	Reporting Period	Environmental Complaint Statistics				
		Frequency	Cumulative since commencement of project	Complaint Nature		
				Water	Air	Noise
2	May 2015	1	13	1	0	0
	Jun 2015	0		0	0	0
	Jul 2015	1		1	0	0
3	May 2015	0	3	0	0	0
	Jun 2015	0		0	0	0
	Jul 2015	0		0	0	0
5	May 2015	0	2	0	0	0
	Jun 2015	0		0	0	0
	Jul 2015	0		0	0	0

Table 9-2 Statistical Summary of Environmental Summons

Contract No	Reporting Period	Environmental Summons Statistics				
		Frequency	Cumulative since commencement of project	Complaint Nature		
				Water	Air	Noise
2	May 2015	0	0	0	0	0
	Jun 2015	0		0	0	0
	Jul 2015	0		0	0	0
3	May 2015	0	0	0	0	0
	Jun 2015	0		0	0	0

Contract No	Reporting Period	Environmental Summons Statistics				
		Frequency	Cumulative since commencement of project	Complaint Nature		
				Water	Air	Noise
5	Jul 2015	0	0	0	0	0
	May 2015	0		0	0	0
	Jun 2015	0		0	0	0
	Jul 2015	0		0	0	0

Table 9-3 Statistical Summary of Environmental Prosecution

Contract No	Reporting Period	Environmental Prosecution Statistics				
		Frequency	Cumulative since commencement of project	Complaint Nature		
				Water	Air	Noise
2	May 2015	0	0	0	0	0
	Jun 2015	0		0	0	0
	Jul 2015	0		0	0	0
3	May 2015	0	0	0	0	0
	Jun 2015	0		0	0	0
	Jul 2015	0		0	0	0
5	May 2015	0	0	0	0	0
	Jun 2015	0		0	0	0
	Jul 2015	0		0	0	0

9.2.3 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 Contracts 2, 3 and 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 the filtration systems i.e. sedimentation tank or AquaSed before to 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 A cleaning truck was regularly performed on the public road to prevent fugitive dust emission
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

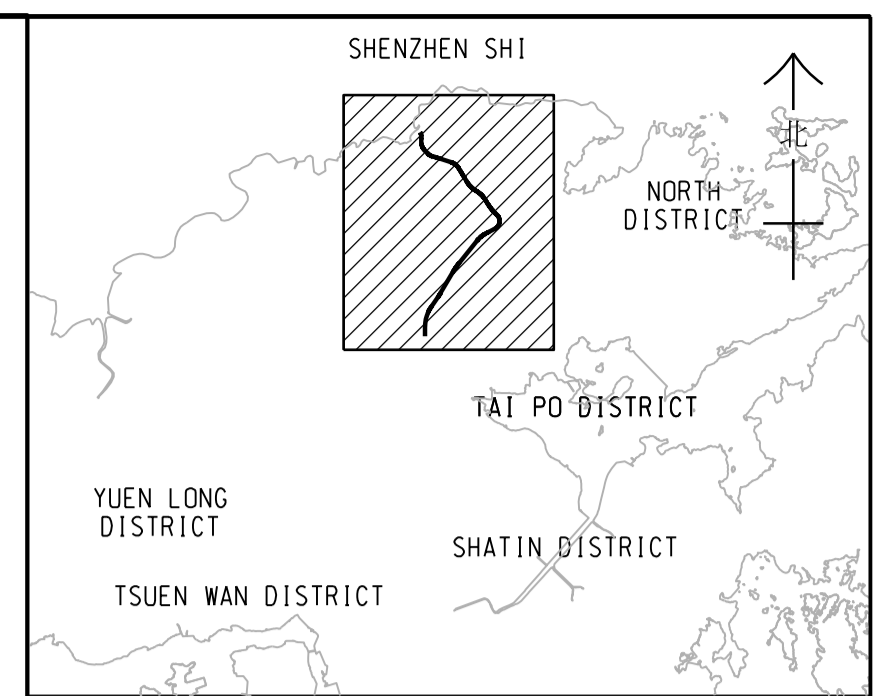
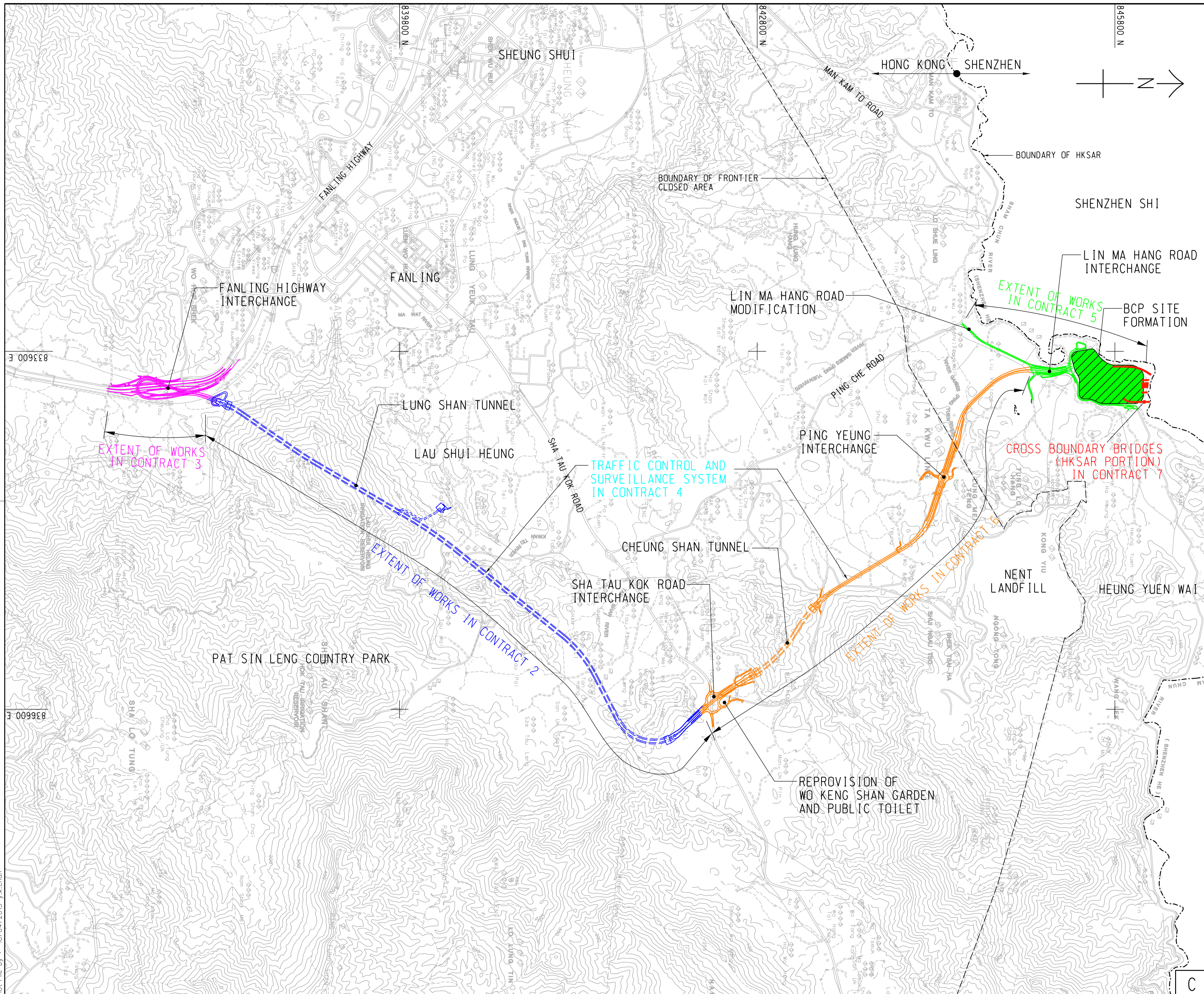
- 11.1.1 This is the 8th Quarterly EM&A Summary Report presenting the monitoring results and inspection findings for the Reporting Period from 1 May to 31 July 2015.
- 11.1.2 For air quality monitoring, no 1-hour and 24-hour TSP monitoring results triggered the Action or Limit Levels were recorded. No NOEs or the associated corrective actions were therefore issued.
- 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 the Reporting Period. No NOEs or the associated corrective actions were therefore issued.
- 11.1.4 For water quality monitoring, a total of twenty (20) Action/ Limit Level exceedances including the parameter of DO, turbidity and SS were recorded at location WM1 and WM4. 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, 13 events of joint site inspections for Contract 2, 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 this Reporting Period, no environmental complaint, summons or successful prosecutions related to the EM&A programme were recorded.

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 and public areas should be paid on special attention. The Contractors should fully implement the water quality mitigation measures.
- 11.2.2 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.
- 11.2.3 Since most of construction sites under the Project are adjacent to villages, the contractors should be paid attention on the construction dust emission. The Contractor should fully implement the construction dust mitigation measures properly.
- 11.2.4 Furthermore, daily cleaning and weekly tidiness shall be properly performed and maintained. In addition, mosquito control should be kept to prevent mosquito breeding on site.

Appendix A

Layout plan of the Project



LOCATION PLAN
SCALE 1 : 30000

LEGEND:
----- UNDERGROUND WORKS

REV. 修訂	DESCRIPTION 修訂摘要	D.C. 核准	C.K. 校核	DATE 日期

CEDD 土木工程拓展署
Civil Engineering and Development Department

L'ANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS (SITE FORMATION AND INFRASTRUCTURES) - DESIGN AND CONSTRUCTION

PROJECT LAYOUT PLAN

AECOM

DRG.NO. 圖紙編號 60212563/PLP/001

DESIGNED BY 設計	CONTRACT NO. 合約編號	P. D.C. APPROVED 核准

DRAWN BY 繪圖	STATUS 階段
ZJ	

SCALE 比例 A1 1 : 15000 A3 1 : 30000
DIMENSIONS ARE IN 尺寸單位 METRES
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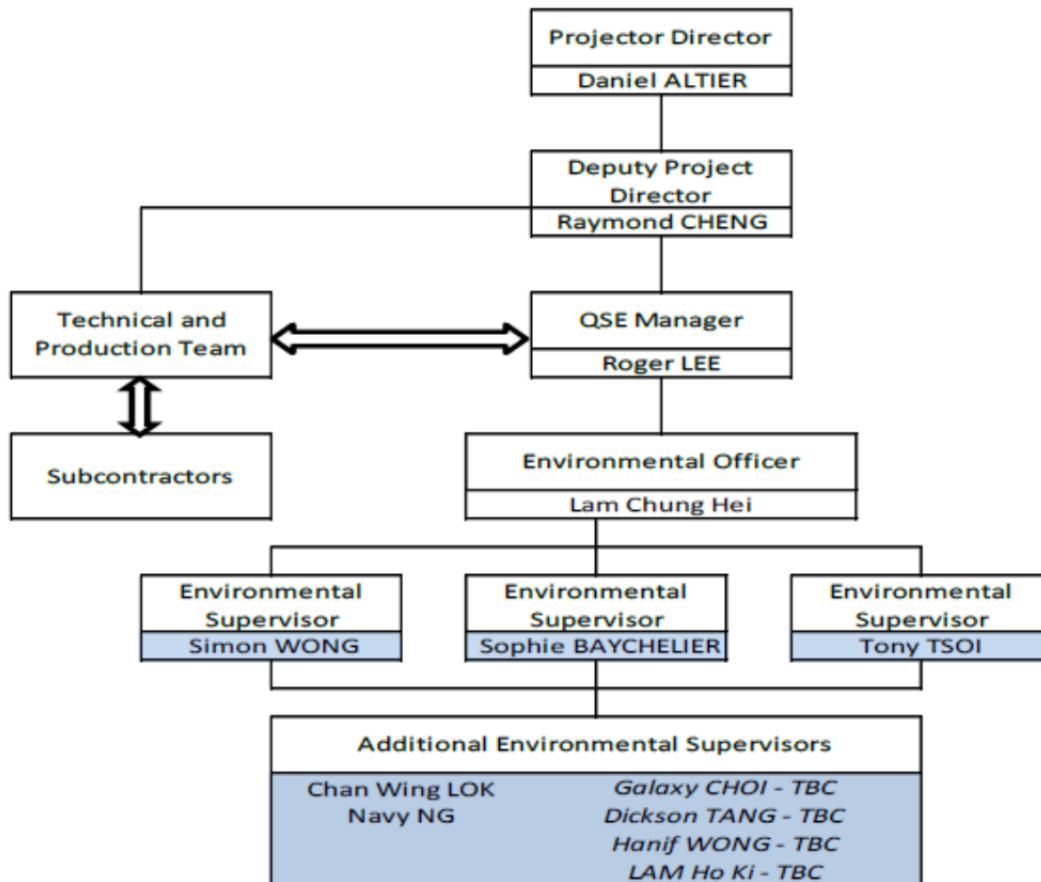
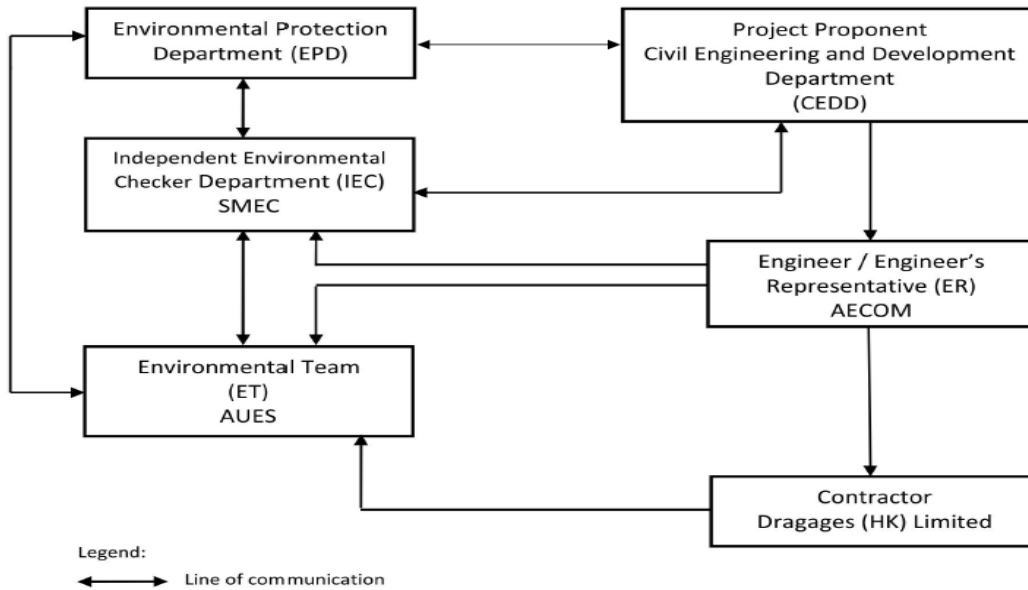
Plot File by : 10/04/2015 y.k.chan

Appendix B

Environmental Management Organization Chart

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

Project Organization Structure



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	2171 3300	2171 3498
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 Officer	Lam Chung Hei	2171 3004	2171 3299
DHK	QSE Officer (Environmental)	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

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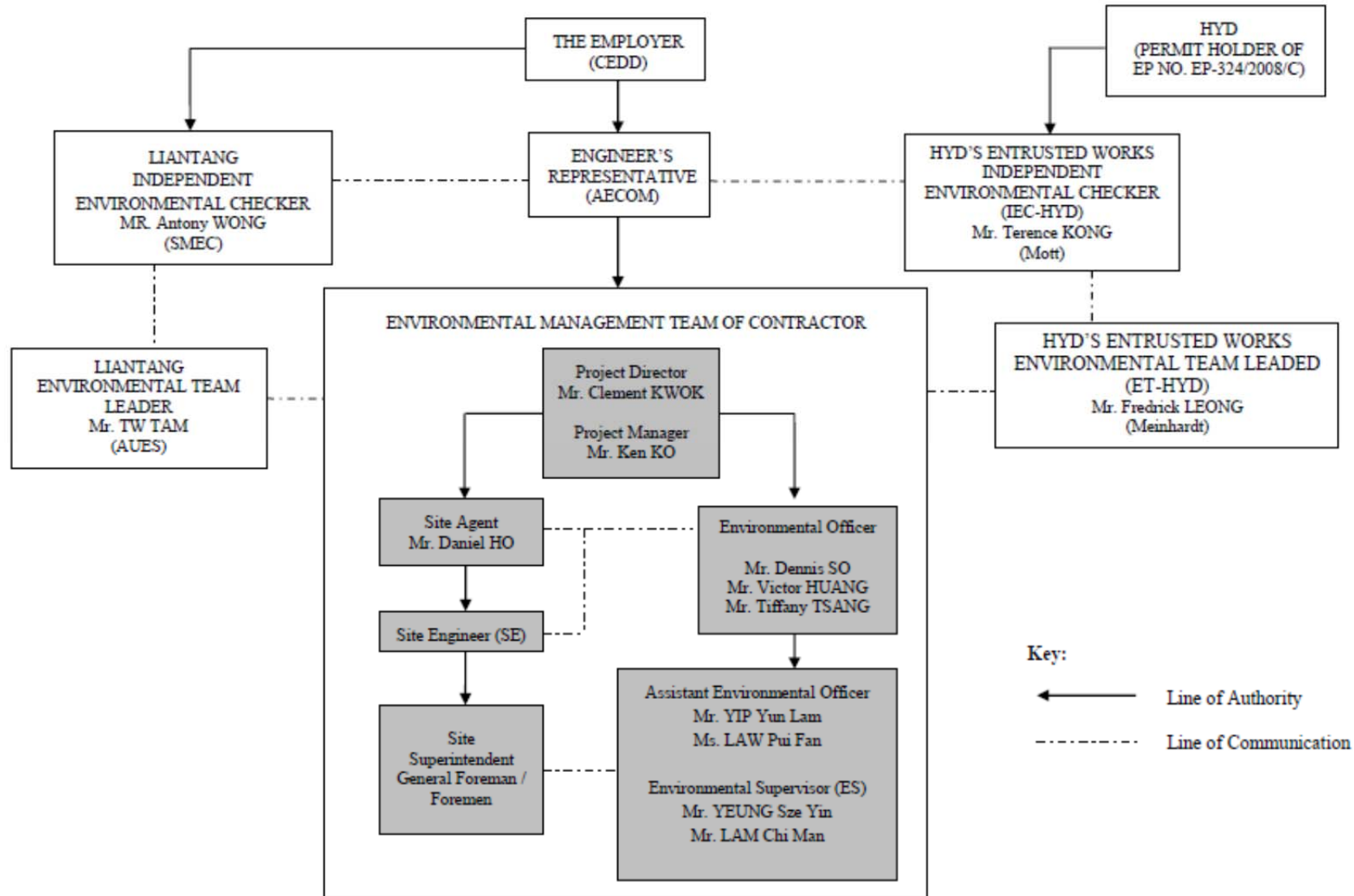
CEDD (Employer) – Civil Engineering and Development Department

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	2171 3300	2171 3498
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	Victor Huang Tiffany Tsang Dennis So	2638 6115	2638 7077
Chun Wo	Assistant Environmental Officer	Yip Yun Lam Law Pui Fan	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

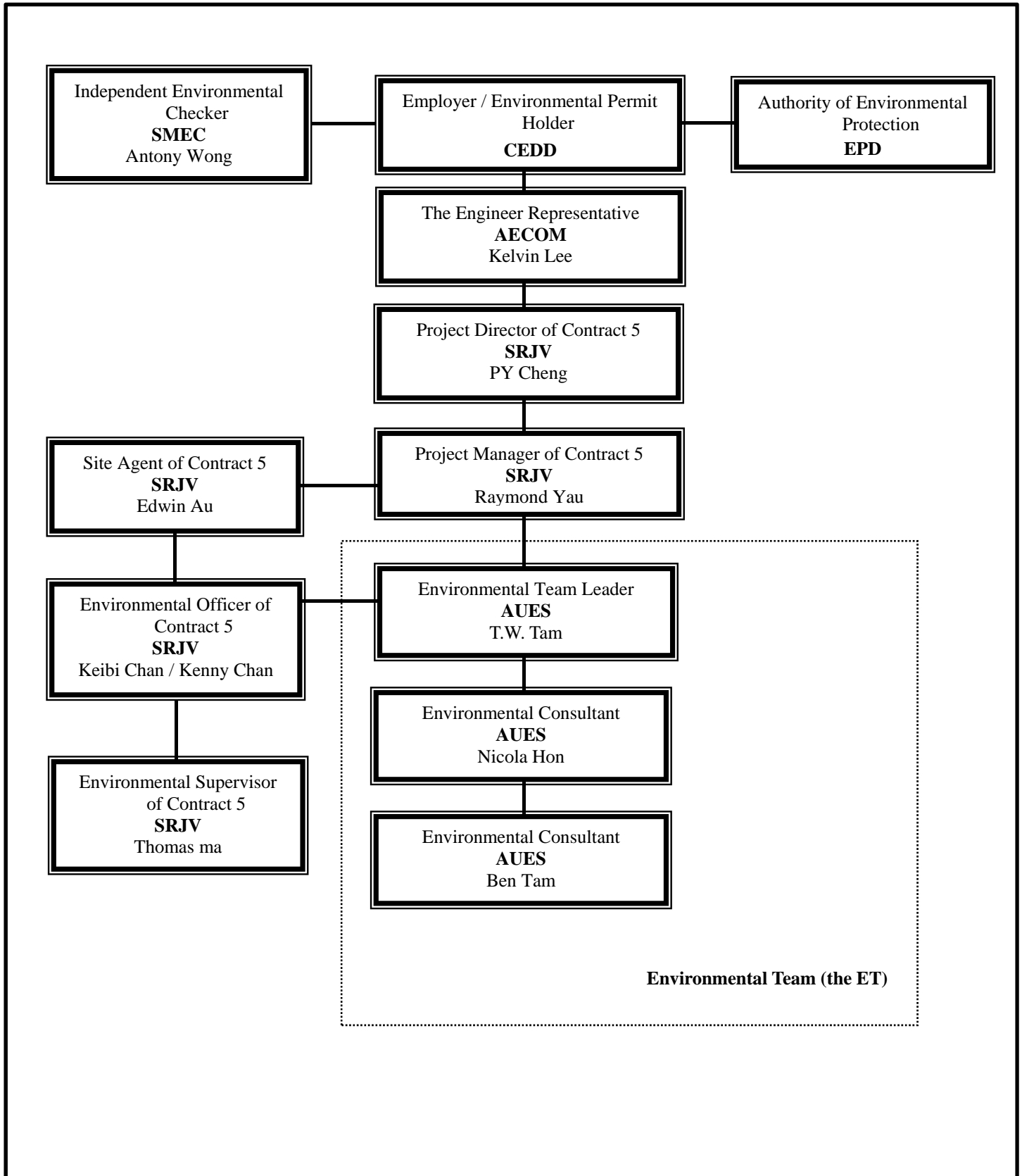
AECOM (Engineer) – AECOM Asia Co. Ltd.

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	Kelvin Lee	2674 2273	2674 7732
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	Thomas Ma	-	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	Working Duration	BL Project Start	BL Project Finish	2015			
					May	Jun	Jul	Aug
Total		1041	20-Jan-14	10-Jul-17				
HKLTH Works Programme update 20-May-2015 [wpd]		1041	20-Jan-14	10-Jul-17				
2 General		970	17-Apr-14	10-Jul-17				
Geotechnical Interpretative Report 2nd Revision		38	09-Dec-14	25-Feb-15				
DDA Submission		38	09-Dec-14	25-Feb-15				
GIR21021940	IPs/ER's Review	28	09-Dec-14	13-Jan-15				
GIR21021960	Preparation of DDA with ICE Certification for resubmission to ER/ICE/IP	13	14-Jan-15	28-Jan-15				
GIR21022050	ER/IP's Approval	28	29-Jan-15	25-Feb-15				
Noise Barriers		45	03-Jul-15	28-Aug-15				
DDA Submission		45	03-Jul-15	28-Aug-15				
CONTDS1090	Preparation of DDA for formal submission to ER/ICE/IP	45	03-Jul-15	28-Aug-15				
Project Wide E&M		970	17-Apr-14	10-Jul-17				
E&M Design Works for Civil Design Interface		180	29-Aug-14	18-Feb-15				
PD.AE.1130	E&M Spatial Study and Structural Provisions Check for Ventilation Buildings	110	29-Aug-14	10-Jan-15				
PD.AE.1140	E&M Spatial Study and Structural Provisions Check for Administration Building	125	20-Sep-14	18-Feb-15				
E&M Design & Engineering Works		460	17-Apr-14	29-Aug-15				
Engineering Design Submission		340	17-Apr-14	12-Jun-15				
PD.FS.DS	Fire Service System Submission and Approval by the Engineer	230	21-Jul-14	30-Apr-15				
PD.CM.DS	CMCS System Submission and Approval by the Engineer	230	21-Jul-14	30-Apr-15				
PD.EC.DS	Tunnel Ventilation System Submission and Approval by the Engineer	340	17-Apr-14	12-Jun-15				
PD.EC.DS.a	Environmental Control System Submission and Approval by the Engineer	230	21-Jul-14	30-Apr-15				
PD.EL.DS	Electrical System Submission and Approval by the Engineer	230	21-Jul-14	30-Apr-15				
PD.EV.DS	ELV System Submission and Approval by the Engineer	230	21-Jul-14	30-Apr-15				
PD.PD.DS	Plumbing & Drainage System Submission and Approval by the Engineer	230	21-Jul-14	30-Apr-15				
Shop Drawing & Builder's Drawing Submission		179	17-Dec-14	29-Aug-15				
PD.DW.1000	Shop Drawings & Builder's Drawings Preparation	176	17-Dec-14	27-Jul-15				
PD.DW.1010	Shop Drawings & Builder's Drawings Submission & Approval	177	22-Jan-15	29-Aug-15				
Equipment Selection & Submission		509	01-Aug-14	17-Mar-16				
PD.PQ.1480	ELV System Submission and Approval by the Engineer	294	01-Aug-14	29-Jul-15				
PD.PQ.1910	P&D System Submission and Approval by the Engineer	169	01-Nov-14	30-May-15				
PD.PQ.2260	ECS System Submission and Approval by the Engineer	263	02-May-15	17-Mar-16				
Manufacturing & Delivery of Major Equipment		649	02-Mar-15	10-Jul-17				
PD.FS.MD	Manufacturing and Delivery of FS System	398	19-May-15	17-Sep-16				
PD.PD.MD	Manufacturing and Delivery of P&D System	409	28-Mar-15	15-Aug-16				
PD.PQ.1040	Manufacturing and Delivery of ELV/CMCS/LAN/TEL System	588	02-Mar-15	23-Feb-17				
PD.PQ.1070	Manufacturing and Delivery of Tunnel Ventilation System	581	29-Jun-15	14-Jun-17				
PD.PQ.1410	Manufacturing and Delivery of Electrical Services System	649	02-May-15	10-Jul-17				
3 South Portal Area		390	13-Oct-14	09-Jan-16				
3.1 South Portal Subcontract & Procurement		217	29-Jan-15	09-Jan-16				
SPS&P0060	Subcontract : Ventilation Building Foundation Works	60	29-Jan-15	16-Apr-15				
SPS&P0070	Subcontract : Retaining Wall Structure Works	60	17-Apr-15	29-Jun-15				
SPS&P0080	Subcontract : Ventilation Building Structure Works	60	30-Jun-15	08-Sep-15				
SPS&P0090	Subcontract : Tunnel Lining Works	60	13-Jul-15	19-Sep-15				
SPS&P0100	Subcontract : Tunnel Lining Formworks (Design, Fabrication, Delivery, & On-Site Assembly)	150	13-Jul-15	09-Jan-16				
3.2 South Portal Design Submission		282	15-Dec-14	22-Aug-15				

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									TITLE Monthly Report No.17 3-Months Rolling Programme (Approved Works Programme Rev. D)		PAPER SIZE A3	SCALE N/A	PAGE 1 of 8		
REV	DESCRIPTION	DATE	PREPARED	CHECKED	APPROVED										
A	Monthly Report No.17	20/05/2015	RAN	RBS/SJO	DAL										

Activity ID	Activity Name	Working Duration	BL Project Start	BL Project Finish	2015				
					May	Jun	Jul	Aug	
South Portal: Ventilation Buildings - Foundation Design									
DDA Submission									
DSN07990	ER/IP's Approval	28	01-Jan-15	28-Jan-15					
South Portal: Temp Works For D&B Tunneling									
DDA Submission									
DSN010320	ER/IP's Approval	28	28-Dec-14	24-Jan-15					
South Tunnel Permanent Lining									
DDA Submission									
STPL1023520	Preparation for formal submission to ER/ICE/IP	48	18-Feb-15	22-Apr-15					
STPL1023570	IPs/ER's Review	24	23-Apr-15	21-May-15					
STPL1023590	Preparation for resubmission to ER/ICE/IP with ICE Certification	19	22-May-15	13-Jun-15					
STPL1023690	ER/IP's Approval	28	14-Jun-15	11-Jul-15					
South Tunnel Internal Structures									
DDA Submission									
STIS1L1023520	Preparation for formal submission to ER/ICE/IP	45	30-Mar-15	27-May-15					
STIS1L1023570	IPs/ER's Review	24	28-Mar-15	25-Jun-15					
STIS1L1023590	Preparation for resubmission to ER/ICE/IP with ICE Certification	25	26-Jun-15	25-Jul-15					
STIS1L1023690	ER/IP's Approval	28	26-Jul-15	22-Aug-15					
Cross Passages -Temp Works D&B Tunnel - Soft Ground									
DDA Submission									
DSN26930	Preparation for formal submission to ER/ICE/IP	50	27-Jan-15	28-Mar-15					
DSN26980	IPs/ER's Review	28	30-Mar-15	06-May-15					
DSN27000	Preparation for resubmission to ER/ICE/IP with ICE Certification	27	07-May-15	08-Jun-15					
DSN27100	ER/IP's Approval	28	09-Jun-15	06-Jul-15					
Cross Passages -Temp Works D&B Tunnel - Rock									
DDA Submission									
FL326930	Preparation for formal submission to ER/ICE/IP	18	15-Jun-15	07-Jul-15					
FL326980	IPs/ER's Review	28	08-Jul-15	08-Aug-15					
CIA- South Portal & South D&B Tunnels inc Mid Vent Junction & CP									
SC01175	*Final CIA Report (14d)	21	15-Dec-14	04-Jan-15					
3.3 South Portal Method Statement Submission									
South Portal: Tunnel Mechanical Excavation									
FL2022093	Prepare Method Statement	48	24-Jan-15	24-Mar-15					
FL2022094	Engineer's Comment	28	25-Mar-15	30-Apr-15					
FL2022095	Re-submission Method Statement	24	02-May-15	30-May-15					
FL2022096	Engineer's Approval	28	01-Jun-15	04-Jul-15					
South Tunnels: Blasting Method Statement									
FL2022101	Preparation and Submission of Blasting Method Statement	135	13-Oct-14	25-Mar-15					
FL2022104	Engineer's/IP's Review & Approval	113	06-Dec-14	28-Apr-15					
South Portal: Bored Piling Works									
A25485	Prepare Method Statement	48	24-Jan-15	24-Mar-15					
A25486	Engineer's Comment	28	25-Mar-15	30-Apr-15					
A25487	Re-submission Method Statement	24	02-May-15	30-May-15					
A25488	Engineer's Approval	28	01-Jun-15	04-Jul-15					
South Portal: Pilecap, Footings & Tie beams									
A2340	Engineer's Comment	28	22-Dec-14	26-Jan-15					
A2350	Re-submission Method Statement	24	27-Jan-15	26-Feb-15					
A2360	Engineer's Approval	28	27-Feb-15	31-Mar-15					
South Portal: Permanent Retaining Walls									

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A Monthly Report No.17 20/05/2015 RAN RBS/SJO DAL									DOC. STATUS FOR INFO.		CREATION DATE 20/05/2015	REVISION A			
REV DESCRIPTION DATE PREPARED CHECKED APPROVED									TITLE Monthly Report No.17 3-Months Rolling Programme (Approved Works Programme Rev. D)		PAPER SIZE A3	SCALE N/A	PAGE 2 of 8		

Activity ID	Activity Name	Working Duration	BL Project Start	BL Project Finish	2015			
					May	Jun	Jul	Aug
A25481	Prepare Method Statement	48	08-Dec-14	04-Feb-15				
A25482	Engineer's Comment	28	05-Feb-15	12-Mar-15				
A25483	Re-submission Method Statement	24	13-Mar-15	14-Apr-15				
A25484	Engineer's Approval	28	15-Apr-15	18-May-15				
3.5 South Portal Works		296	18-Oct-14	04-Sep-15				
South Portal: CLP Substation		170	18-Oct-14	28-Feb-15				
SCLP2060	Sub-station Construction + CLP Installation	106	18-Oct-14	28-Feb-15				
SCLP2090	Energization	1	28-Feb-15	28-Feb-15				
South Portal: Slopeworks		107	05-Nov-14	06-Jul-15				
SV2690	Permanent Cut Slope (+68.0 to apprx +45.0mPD)	55	05-Nov-14	10-Jan-15				
SV2700	Temporary Slope Cut below +45.0mPD (soft) w/Soil Nails	48	12-Jan-15	14-Mar-15				
SV2701dwp	Temporary Slope Cut below +45.0mPD (soft) w/Soil Nails	48	16-Mar-15	18-May-15				
SV2702dwp	Temporary Soil Nails between +44.6mPd to +26.7mPD	71	16-Feb-15	23-May-15				
SV2710	Rock Excavation to Vent. Bldg. Formation	36	19-May-15	06-Jul-15				
South Portal: Foundation & Substructure		87	29-Jun-15	04-Sep-15				
SV2180	South Bound Foundation	54	29-Jun-15	04-Sep-15				
SV2210	NB Bored Piles 4nos & Pile Test	48	07-Jul-15	04-Sep-15				
South Tunnels: Southbound Tunnel		101	06-May-15	04-Sep-15				
DB6300	D&B Setup / Site Installation	101	06-May-15	04-Sep-15				
4 Middle Portal Area		383	26-Sep-14	10-Oct-15				
4.1 Middle Portal Subcontract & Procurement		211	05-Feb-15	22-Sep-15				
MPS&P0040	Subcontract : Tunnel Lining Works	60	05-Feb-15	23-Apr-15				
MPS&P0050	Subcontract : Tunnel Lining Formworks (Design, Fabrication, Delivery, & On-Site Assembly)	150	05-Feb-15	11-Aug-15				
MPS&P0060	Subcontract : Ventilation Building Foundation Works	60	12-Feb-15	30-Apr-15				
MPS&P0070	Subcontract : Ventilation Building Structure Works	60	02-May-15	14-Jul-15				
MPS&P0080	Subcontract : Ventilation Building ABWF Works	60	15-Jul-15	22-Sep-15				
4.2 Middle Portal Design Submission		288	03-Dec-14	29-Aug-15				
Mid Vent Building - Foundation		26	12-Dec-14	11-Feb-15				
DDA Submission		26	12-Dec-14	11-Feb-15				
DSN29064	Preparation for resubmission to ER/ICE/IP with ICE Certification	26	12-Dec-14	14-Jan-15				
DSN29065	ER/IP's Approval	28	15-Jan-15	11-Feb-15				
Mid Vent Adit Permanent Lining		28	03-Dec-14	04-Feb-15				
DDA Submission		28	03-Dec-14	04-Feb-15				
DSN29076	Preparation for resubmission to ER/ICE/IP with ICE Certification	28	03-Dec-14	07-Jan-15				
DSN29077	ER/IP's Approval	28	08-Jan-15	04-Feb-15				
Mid Vent Adit Internal Structure		67	16-Apr-15	28-Aug-15				
DDA Submission		67	16-Apr-15	28-Aug-15				
DSN29082	Preparation for formal submission to ER/ICE/IP	49	16-Apr-15	13-Jun-15				
DSN29083	IPs/ER's Review	28	15-Jun-15	18-Jul-15				
DSN29084	Preparation for resubmission to ER/ICE/IP with ICE Certification	35	20-Jul-15	28-Aug-15				
Mid Vent Adit/Junction - Temp Works For D&B Tunnelling		53	29-Dec-14	28-Feb-15				
DDA Submission		53	29-Dec-14	28-Feb-15				
DSN29088	Preparation for resubmission to ER/ICE/IP with ICE Certification	29	29-Dec-14	31-Jan-15				
DSN29089	ER/IP's Approval	28	01-Feb-15	28-Feb-15				
Mid Vent Adit/Junction Permanent Lining & Backfill		174	23-Feb-15	28-Jul-15				
DDA Submission		174	23-Feb-15	28-Jul-15				
DSN29094	Preparation for formal submission to ER/ICE/IP	49	23-Feb-15	24-Apr-15				
DSN29095	IPs/ER's Review	28	25-Apr-15	29-May-15				
DSN29096	Preparation for resubmission to ER/ICE/IP with ICE Certification	26	30-May-15	30-Jun-15				

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REV DESCRIPTION DATE PREPARED CHECKED APPROVED											PAPER SIZE A3	SCALE N/A	PAGE 3 of 8		

Activity ID	Activity Name	Working Duration	BL Project Start	BL Project Finish	2015				
					May	Jun	Jul	Aug	
DSN29097	ER/IP's Approval	28	01-Jul-15	28-Jul-15					
Mid Vent Junction Internal Structure		109	21-Apr-15	29-Aug-15					
DDA Submission		109	21-Apr-15	29-Aug-15					
DSN29102	Preparation for formal submission to ER/ICE/IP	49	21-Apr-15	18-Jun-15					
DSN29103	IPs/ER's Review	28	19-Jun-15	23-Jul-15					
DSN29104	Preparation for resubmission to ER/ICE/IP with ICE Certification	32	24-Jul-15	29-Aug-15					
4.3 Middle Portal Method Statement Submission		311	14-Oct-14	29-Aug-15					
Cavern Blasting Method Statement		267	14-Oct-14	03-Mar-15					
FL2022107	Preparation and Submission of Blasting Method Statement	90	14-Oct-14	29-Jan-15					
FL2022108	Engineer's/IP's Review & Approval	90	12-Nov-14	03-Mar-15					
Middle Ventilation Adit Lining Works		168	05-Feb-15	16-Jul-15					
A25513	Prepare Method Statement	48	05-Feb-15	09-Apr-15					
A25514	Engineer's Comment	28	10-Apr-15	13-May-15					
A25515	Re-submission Method Statement	24	14-May-15	11-Jun-15					
A25516	Engineer's Approval	28	12-Jun-15	16-Jul-15					
Cavern Permanent Lining		56	01-Jun-15	29-Aug-15					
A25521	Prepare Method Statement	48	01-Jun-15	28-Jul-15					
A25522	Engineer's Comment	28	29-Jul-15	29-Aug-15					
Mid Vent Bldg. Foundation		128	12-Feb-15	23-Jul-15					
A25509	Prepare Method Statement	48	12-Feb-15	16-Apr-15					
A25510	Engineer's Comment	28	17-Apr-15	20-May-15					
A25511	Re-submission Method Statement	24	21-May-15	18-Jun-15					
A25512	Engineer's Approval	28	19-Jun-15	23-Jul-15					
Mid Vent Building Construction		128	14-Jan-15	23-Jun-15					
FL5900	Prepare Method Statement for Mid Vent Building Construction	48	14-Jan-15	13-Mar-15					
FL5910	Engineer's Comment	28	14-Mar-15	20-Apr-15					
FL5920	Re-submission Method Statement for Mid Vent Building Construction	24	21-Apr-15	19-May-15					
FL5930	Engineer's Approval	28	20-May-15	23-Jun-15					
4.5 Middle Portal Works		282	26-Sep-14	10-Oct-15					
Middle Portal: CLP Substation		222	26-Sep-14	07-Feb-15					
TSS3P2060	Sub-station Construction + CLP Installation	110	26-Sep-14	06-Feb-15					
TSS3P2090	Energization	1	07-Feb-15	07-Feb-15					
Adit Construction - Mid Portal		269	14-Oct-14	10-Oct-15					
MV2490dwp2a	Top Heading Canopies & Bench Excavation Ch24>Ch70	91	14-Oct-14	29-Jan-15					
MV2490dwp3	Blast door installation + Noise Measurement and 24Hr permit approval	30	30-Jan-15	05-Mar-15					
MV2490dwp4	D&B Full Face Ch70>Ch133; 63m	41	06-Mar-15	23-Apr-15					
MV2490dwp5	D&B Full Face Ch133>Ch302 169m	70	24-Apr-15	17-Jul-15					
MV2530	Cavern Excavation Ch302>Ch371	70	18-Jul-15	10-Oct-15					
5 North Portal Area		680	20-Jan-14	02-Dec-15					
5.1 North Portal Subcontract & Procurement		680	20-Jan-14	02-Dec-15					
NPS&P0070	Subcontract: Tunnel Lining Works	60	05-Jun-15	15-Aug-15					
NPS&P0080	Subcontract: Tunnel Concreting Works	60	05-Jun-15	15-Aug-15					
NPS&P0090	Subcontract: Tunnel Lining Formworks (Design, Fabrication, Delivery, & On-Site Assembly)	150	05-Jun-15	02-Dec-15					
North Portal: TBM Procurement & Delivery		395	20-Jan-14	23-May-15					
DSN027980	TBM Procurement, Fabrication & Delivery	405	20-Jan-14	28-Feb-15					
DSN027981	Conveyor Belt System Procurement & Delivery	90	03-Nov-14	31-Jan-15					
N21410a	Precast Segment Fabrication (1.6m Ring) - Temporary Segments	190	30-Sep-14	23-May-15					
5.2 North Portal Design Submission		336	25-Nov-14	15-Sep-15					
North Tunnel Curved Section Southbound Temp Support For Enlargement		221	25-Nov-14	06-May-15					

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A Monthly Report No.17 20/05/2015 RAN RBS/SJO DAL									TITLE Monthly Report No.17 3-Months Rolling Programme (Approved Works Programme Rev. D)		DOC. STATUS FOR INFO.	CREATION DATE 20/05/2015	REVISION A		
REV DESCRIPTION DATE PREPARED CHECKED APPROVED											PAPER SIZE A3	SCALE N/A	PAGE 4 of 8		

Activity ID	Activity Name	Working Duration	BL Project Start	BL Project Finish	2015					
					May	Jun	Jul	Aug		
DDA Submission										
FL2022145	Preparation for formal submission to ER/ICE/IP	56	25-Nov-14	06-May-15						
FL2022146	IPs/ER's Review	28	02-Feb-15	09-Mar-15						
FL2022147	Preparation for resubmission to ER/ICE/IP with ICE Certification	22	10-Mar-15	08-Apr-15						
FL2022148	ER/IP's Approval	28	09-Apr-15	06-May-15	■					
Bored Tunnel OHVD Slab										
DDA Submission										
FL2022165	Preparation for formal submission to ER/ICE/IP	42	13-Jan-15	05-Mar-15						
FL2022166	IPs/ER's Review	28	06-Mar-15	11-Apr-15						
FL2022167	Preparation for resubmission to ER/ICE/IP with ICE Certification	21	13-Apr-15	07-May-15	■					
FL2022168	ER/IP's Approval	28	08-May-15	04-Jun-15		■				
Bored Tunnel Internal Structure (except OHVD Slab)										
DDA Submission										
FL2022173	Preparation for formal submission to ER/ICE/IP	42	13-Jan-15	05-Mar-15						
FL2022174	IPs/ER's Review	28	06-Mar-15	11-Apr-15						
FL2022175	Preparation for resubmission to ER/ICE/IP with ICE Certification	21	13-Apr-15	07-May-15	■					
FL2022176	ER/IP's Approval	28	08-May-15	04-Jun-15		■				
Bored Tunnel/ D&B Tunnel Transition - Headwall Structure (N/B & S/B)										
DDA Submission										
FL2022181	Preparation for formal submission to ER/ICE/IP	95	17-Mar-15	14-Jul-15	■	■	■	■	■	■
FL2022182	IPs/ER's Review	28	15-Jul-15	15-Aug-15				■	■	■
Northbound TBM Dismantling Cavern Temporary Works										
DDA Submission										
FL2022185	Preparation for formal submission to ER/ICE/IP	42	03-Jan-15	24-Feb-15						
FL2022186	IPs/ER's Review	28	25-Feb-15	28-Mar-15						
FL2022187	Preparation for resubmission to ER/ICE/IP with ICE Certification	22	30-Mar-15	28-Apr-15	■					
FL2022188	ER/IP's Approval	28	29-Apr-15	26-May-15		■				
North Tunnel Curved Section Cross Passages - Temp Works										
DDA Submission										
FL2022189	Preparation for formal submission to ER/ICE/IP	42	29-May-15	18-Jul-15			■	■	■	■
FL2022190	IPs/ER's Review	28	20-Jul-15	20-Aug-15				■	■	■
Bored Tunnel Cross Passages Temp Works (Soft Ground)										
DDA Submission										
FL2022197	Preparation for formal submission to ER/ICE/IP	50	27-Jan-15	28-Mar-15						
FL2022198	IPs/ER's Review	28	30-Mar-15	06-May-15	■					
FL2022199	Preparation for resubmission to ER/ICE/IP with ICE Certification	27	07-May-15	08-Jun-15		■				
FL2022200	ER/IP's Approval	28	09-Jun-15	06-Jul-15			■			
Bored Tunnel Cross Passages Temp Works (Rock)										
DDA Submission										
FL2022201	Preparation for formal submission to ER/ICE/IP	50	27-Jan-15	28-Mar-15						
FL2022202	IPs/ER's Review	28	30-Mar-15	06-May-15	■					
FL2022203	Preparation for resubmission to ER/ICE/IP with ICE Certification	27	07-May-15	08-Jun-15		■				
FL2022204	ER/IP's Approval	28	09-Jun-15	06-Jul-15			■			
Bored Tunnel Cross Passages Permanent Lining (Soft Ground)										
AIP Submission										
FL2022207	Preparation for resubmission to ER/ICE/IP with ICE Certification	12	20-Dec-14	06-Jan-15						
FL2022208	ER/IP's Approval	28	07-Jan-15	03-Feb-15						
DDA Submission										
FL2022209	Preparation for formal submission to ER/ICE/IP	72	24-Mar-15	23-Jun-15	■	■	■	■	■	■
FL2022210	IPs/ER's Review	28	24-Jun-15	27-Jul-15				■	■	■

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REV DESCRIPTION					DATE		PREPARED		CHECKED		APPROVED		FOR INFO.	20/05/2015	A
													PAPER SIZE	SCALE	PAGE
													A3	N/A	5 of 8

Activity ID	Activity Name	Working Duration	BL Project Start	BL Project Finish	2015			
					May	Jun	Jul	Aug
FL2022211	Preparation for resubmission to ER/ICE/IP with ICE Certification	43	28-Jul-15	15-Sep-15				
Bored Tunnel Cross Passages Permanent Lining (Rock)		150	20-Dec-14	19-Aug-15				
AIP Submission		36	20-Dec-14	03-Feb-15				
FL2022215	Preparation for resubmission to ER/ICE/IP with ICE Certification	12	20-Dec-14	06-Jan-15				
FL2022216	ER/IP's Approval	28	07-Jan-15	03-Feb-15				
DDA Submission		150	24-Mar-15	19-Aug-15				
FL2022217	Preparation for formal submission to ER/ICE/IP	92	24-Mar-15	17-Jul-15				
FL2022218	IPs/ER's Review	28	18-Jul-15	19-Aug-15				
Bored Tunnel Cross Passages Internal Structures		316	27-Nov-14	15-Aug-15				
AIP Submission		214	27-Nov-14	16-Apr-15				
FL2022221	Preparation for formal submission to ER/ICE/IP	42	27-Nov-14	17-Jan-15				
FL2022222	IPs/ER's Review	28	19-Jan-15	23-Feb-15				
FL2022223	Preparation for resubmission to ER/ICE/IP with ICE Certification	21	24-Feb-15	19-Mar-15				
FL2022224	ER/IP's Approval	28	20-Mar-15	16-Apr-15				
DDA Submission		75	18-May-15	15-Aug-15				
FL2022225	Preparation for formal submission to ER/ICE/IP	75	18-May-15	15-Aug-15				
Temp Gallery for TBM Segment Del in Curved Section		214	03-Dec-14	25-Apr-15				
DDA Submission		214	03-Dec-14	25-Apr-15				
FL2022229	Preparation for formal submission to ER/ICE/IP	42	03-Dec-14	23-Jan-15				
FL2022230	IPs/ER's Review	28	24-Jan-15	28-Feb-15				
FL2022231	Preparation for resubmission to ER/ICE/IP with ICE Certification	24	02-Mar-15	28-Mar-15				
FL2022232	ER/IP's Approval	28	29-Mar-15	25-Apr-15				
5.3 North Portal Method Statement Submission		230	13-Nov-14	21-Sep-15				
North Tunnel (D&B Section) Blasting Method Statement		60	13-Nov-14	24-Jan-15				
FL2022110	Engineer's/IP's Review & Approval	60	13-Nov-14	24-Jan-15				
North Tunnel (Cross Passages) Blasting Method Statement		95	01-Jun-15	21-Sep-15				
FL2022111	Preparation and Submission of Blasting Method Statement	70	01-Jun-15	22-Aug-15				
FL2022112	Engineer's/IP's Review & Approval	60	14-Jul-15	21-Sep-15				
MS for TBM On-Site Assembly		43	23-Dec-14	14-Feb-15				
FL4885	Prepare & Re-submit Method Statement	18	23-Dec-14	15-Jan-15				
FL4890	ER's Approval for Method Statement	30	16-Jan-15	14-Feb-15				
MS for TBM Launching		222	02-Dec-14	13-Apr-15				
FL2022061	Prepare & Submit Method Statement	40	02-Dec-14	20-Jan-15				
FL2022062	ER's Comment for Method Statement	30	21-Jan-15	19-Feb-15				
FL2022063	Prepare & Re-submit Method Statement	18	23-Feb-15	14-Mar-15				
FL2022064	ER's Approval for Method Statement	30	15-Mar-15	13-Apr-15				
MS for TBM Excavation		66	01-Jan-15	26-Mar-15				
FL2880	ER's Comment for Method Statement	30	01-Jan-15	30-Jan-15				
FL2885	Prepare & Re-submit Method Statement	18	31-Jan-15	24-Feb-15				
FL2890	ER's Approval for Method Statement	30	25-Feb-15	26-Mar-15				
North Portal: MS for Cross Passage Ground Treatment		97	04-May-15	08-Aug-15				
FL2022065	Prepare & Submit Method Statement	40	04-May-15	19-Jun-15				
FL2022066	ER's Comment for Method Statement	30	20-Jun-15	19-Jul-15				
FL2022067	Prepare & Re-submit Method Statement	18	20-Jul-15	08-Aug-15				
North Portal: WSD Tunnel Instrumentation		30	07-Dec-14	05-Jan-15				
FL2022494	ER's Approval for Method Statement	30	07-Dec-14	05-Jan-15				
5.5 North Portal Works		399	07-Oct-14	03-Oct-15				
CLP Substation		151	07-Oct-14	14-Feb-15				
N21060	Sub-station Construction	110	07-Oct-14	14-Feb-15				

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A Monthly Report No.17 20/05/2015 RAN RBS/SJO DAL									DOC. STATUS FOR INFO. CREATION DATE 20/05/2015 REVISION A		PAPER SIZE A3 SCALE N/A PAGE 6 of 8				
REV	DESCRIPTION	DATE	PREPARED	CHECKED	APPROVED					TITLE Monthly Report No.17 3-Months Rolling Programme (Approved Works Programme Rev. D)					

Activity ID	Activity Name	Working Duration	BL Project Start	BL Project Finish	2015			
					May	Jun	Jul	Aug
N21090	Energization	1	14-Feb-15	14-Feb-15				
North Portal: Site Formation		366	23-Oct-14	30-Sep-15				
N20505	Permanent Slope Formation (Remaining)	200	08-Nov-14	25-Jul-15	[Bar spanning May to Jul]			
N20635	NB: Stage 2 Excavation from +38mPD to +18mPD w/10 rows Soil Nail	74	23-Oct-14	20-Jan-15				
N20655	NB: Stage 3 Permanent Slope from +75mPD to +30mPD	192	21-Jan-15	30-Sep-15	[Bar spanning May to Aug]			
North Portal: Site Installation for TBM		122	08-Nov-14	06-May-15				
SC01310	Site Installation and Logistics for TBM Works	60	08-Nov-14	20-Jan-15				
TD1000	Conveyor Belt System Construction	75	26-Jan-15	06-May-15	[Bar spanning May]			
Southbound Tunnel (Mined Excavation) inc Enlargement		325	06-Dec-14	03-Oct-15				
DB6370c	Top Heading Excavation (Canopies) (Ch6,415>Ch6,355) (60m) [P21: 4815 to 4755]	72	06-Dec-14	02-Mar-15				
DB6370d	Platform excavation for bench excavation	22	12-Feb-15	09-Mar-15				
DB6370e	Bench Excavation (Ch6,450>Ch6,355) (95m) [P21: 4850 to 4755]	48	10-Mar-15	06-May-15	[Bar spanning May]			
DB6372	RC Slab Cradle for TBM Shifting way	10	07-May-15	18-May-15	[Bar spanning May]			
TD0910	SB - Invert Grouting	60	23-Jul-15	03-Oct-15			[Bar spanning Jul to Aug]	
Northbound Tunnel (Mined Excavation)		152	02-Mar-15	31-Aug-15				
DB6400a	Top Heading Canopies (Ch6446>Ch6410); 36m; [P20: 4824 to 4788]	76	02-Mar-15	30-May-15	[Bar spanning May]			
DB6400a1	Blast door installation + Noise Measurement and 24Hr permit approval	30	04-May-15	08-Jun-15	[Bar spanning May to Jun]			
DB6400a2	Top Heading Canopies (Ch6410>Ch6350); 60m; [P20: 4788 to 4728]	70	09-Jun-15	31-Aug-15	[Bar spanning Jun to Aug]			
TBM On-Site Assembly		65	02-Mar-15	18-May-15				
TD0990	TBM On-site Assembly and T&C	65	02-Mar-15	18-May-15	[Bar spanning May]			
Southbound Tunnel (TBM Tunneling)		119	19-May-15	16-Sep-15				
TD0995	TBM Sliding to Face	6	19-May-15	25-May-15	[Bar spanning May]			
TD0995a	Erection of Thrust Frame / Preparation to Start TBM Launch	12	26-May-15	09-Jun-15	[Bar spanning May to Jun]			
TD1000a	TBM DT (Ch6,355>Ch6,077) 278m	82	10-Jun-15	16-Sep-15	[Bar spanning Jun to Aug]			
TD1000a10	TBM DT (Ch6,355>Ch6,268) 87m	26	10-Jun-15	10-Jul-15	[Bar spanning Jun]			
TD1000a20	TBM DT (Ch6,268>Ch6,148) 120m - WSD Restriction Zone	35	11-Jul-15	21-Aug-15			[Bar spanning Jul to Aug]	
5.6 Administration Building:		227	20-Dec-14	15-Aug-15				
5.62 Administration Building: Design Submission		174	20-Dec-14	12-May-15				
Admin. Building - Foundation Design		174	20-Dec-14	12-May-15				
DDA Submission		174	20-Dec-14	12-May-15				
DSN29107	Preparation for formal submission to ER/ICE/IP	35	20-Dec-14	02-Feb-15				
DSN29108	IPs/ER's Review	28	03-Feb-15	10-Mar-15				
DSN29109	Preparation for resubmission to ER/ICE/IP with ICE Certification	21	11-Mar-15	08-Apr-15				
DSN29110	ER/IP's Approval	28	09-Apr-15	12-May-15	[Bar spanning May]			
5.63 Administration Building: Method Statement Submission		203	09-Jan-15	28-May-15				
Method Statement for Admin. Building Construction		108	14-Jan-15	28-May-15				
A1990	Prepare Method Statement for Administration Building Construction	24	14-Jan-15	10-Feb-15				
A2000	ER's Comment	28	11-Feb-15	18-Mar-15				
AD2190	Re-submission Method Statement for Building Construction	24	19-Mar-15	20-Apr-15				
AD2200	ER's Approval	28	21-Apr-15	28-May-15	[Bar spanning May]			
MS for Administration Building: Demolition		120	09-Jan-15	27-Apr-15				
SV2905	Prepare & Submit Demolition Plan & Method Statement	24	09-Jan-15	05-Feb-15				
SV2910	ER's Comment for Demolition Plan & Method Statement	30	06-Feb-15	07-Mar-15				
SV2915	Prepare & Re-submit Demolition Plan & Method Statement	18	09-Mar-15	28-Mar-15				
SV2920	ER's Approval for Demolition & Method Statement	30	29-Mar-15	27-Apr-15	[Bar spanning Apr]			
5.64 Administration Building: General Submission		55	02-Jan-15	09-Mar-15				
Administration Building: Egress/Ingress		55	02-Jan-15	09-Mar-15				
N21275	Appoint Consultant for TTMs	12	02-Jan-15	15-Jan-15				
N21285	Prepare & Submit Temp. Traffic Management Scheme	12	16-Jan-15	29-Jan-15				
N21295	TMLG Meeting	12	30-Jan-15	12-Feb-15				

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A Monthly Report No.17 20/05/2015 RAN RBS/SJO DAL									DOC. STATUS FOR INFO. CREATION DATE 20/05/2015 REVISION A						
REV DESCRIPTION DATE PREPARED CHECKED APPROVED									TITLE Monthly Report No.17 3-Months Rolling Programme (Approved Works Programme Rev. D)		PAPER SIZE A3 SCALE N/A PAGE 7 of 8				

Activity ID	Activity Name	Working Duration	BL Project Start	BL Project Finish	2015			
					May	Jun	Jul	Aug
N21305	TTMS Reviewed & Comment	12	13-Feb-15	02-Mar-15				
N21315	Notification to RMO	6	03-Mar-15	09-Mar-15				
5.65 Administration Building: Works								
Administration Building: Demolition								
SV2925	Precautionary Measures	24	01-Jun-15	02-Jul-15				
SV2940	Demolish Existing Building (AB1 - GLL T11742)	18	03-Jul-15	23-Jul-15				
SV2945	Demolish Existing Building (AB3 - GLL 36508)	18	24-Jul-15	15-Aug-15				
Administration Building: Site Formation								
AD2000	Site Hoarding	24	31-Mar-15	04-May-15				
AD2050	UU Diversion & Drainage Diversion (if required)	36	10-Mar-15	24-Apr-15				

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REV	DESCRIPTION	DATE	PREPARED	CHECKED	APPROVED						
A	Monthly Report No.17	20/05/2015	RAN	RBS/SJO	DAL						

Contract 3

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2015				
							May	Jun	Jul	Aug	Sep
3-Month Rolling Programme 2015-05-21											
Major Milestones and Events											
MS-0220	Commissioning of the diverted twin DN1400 Dong Jiang Watermains (Stage 1)	0	0		02-Jun-15	264	◆ Commissioning of the diverted twin DN1400 Dong Jiang Watermains (Stage 1)				
MS-2000B	T2: TTA to shift FLHS NB eastward	1	1	20-Jun-15	20-Jun-15	-20	I T2: TTA to shift FLHS NB eastward				
Major Procurement & Delivery											
Water Supply Pipeworks											
MM-1060	E&M equipment for the re-provisioned WSD Valve Control House	60	35	27-Apr-15 A	02-Jul-15	0	E&M equipment for the re-provisioned WSD				
Precast Bridge Segment Lifting Frames and Precast Yard											
MM-2050	Certification of lifting frame	12	0	17-Apr-15 A	08-May-15 A		Certificati				
Design and Submissions											
Statutory Approval											
PRE-1050	Submission & approval of CDIA report for construction of temporary platform for segment erection works	185	137	27-Nov-14 A	02-Nov-15	27					
PRE-1210	Consent for Dong Jiang watermians connection for DN1400 - WSD	0	0		20-May-15	1259	◆ Consent for Dong Jiang watermians connection for DN1400 - WSD				
Design Confirmation											
PRE-1220	Confirmation of Noise Barrier Footing Design (NB1a) near WSD Tau Pass Restricted Zone	45	5	09-Apr-14 A	26-May-15	-17	◆ Confirmation of Noise Barrier Footing Design (NB1a) near WSD Tau Pass Restricted Zone, Confirmation of Noise Barr				
PRE-1500	Confirmation of Noise Barrier Footing Design (NB71) (CH7150 to CH7290)	70	14	17-Apr-14 A	05-Jun-15	36	◆ Confirmation of Noise Barrier Footing Design (NB71) (CH7150 to CH7290), Confirmation of Noise Barrier F				
PRE-1510	Confirmation of Revised Retaining Structure along Slope no. 3SW-C/C898	0	0		20-May-15*	99	◆ Confirmation of Revised Retaining Structure along Slope no. 3SW-C/C898				
Method Statement and Design (Major) Approved by AECOM											
PRE-2020	Submission of noise barrier design for absorptive panels, transparent panels and associated fixing details	60	14	11-Mar-14 A	05-Jun-15	-15	◆ Submission of noise barrier design for absorptive panels, transparent panels and associated fixing details, St				
PRE-2050	Submission of Shop Drawing for fabrication of Kiu Tau Footbridge Steelworks	60	60	08-Jun-15	18-Aug-15	97	◆ Submission of Shop Draw				
PRE-2030	Submission of E&M design for lighting of Kiu Tau Footbridge	60	60	31-Jul-15	10-Oct-15	245					
Section IA & IB - Fanling Highway Widening (KD-1 & KD-2)											
Fanling Highway South Portion between CH6935 and CH7470											
Fanling Highway Zone 1 between CH6935 and CH7130 (within SBZ2)											
At-Grade Roadworks (195m)											
FHW-1130*	Pipe Laying - DN1200 Watermains (CHC) along Fanling Highway (80m long, 4m depth)	182	35	20-Feb-14 A	02-Jul-15	255	◆ Pipe Laying - DN1200 Watermains (CHC) along Fanling Highway (80m long,				
Fanling Highway Zone 2 between CH7130 and CH7290											
At-Grade Roadworks (160m)											
FHW-2110B	Noise Barrier NB71 - Footing adjacent to SB lane (96m) (affected due to design change)	341	127	26-Jul-14 A	10-Nov-15	36					



- Actual Work
- Remaining Work
- Summary Bar
- Critical Remaining Work
- ◆ Milestone
- Project Baseline Bar

CEDD Contract No. CV/2012/09
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3
3-Month Rolling Programme
3MPR022 Page 1 of 9 **27-May-15**

3-Month Rolling Programme updated to 2015-05-20			
Date	Revision	Checked	Approved
20-May-15	Rev.0	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2015				
							May	Jun	Jul	Aug	Sep
Fanling Highway Zone 3 between CH7290 and CH7380											
At-Grade Roadworks (130m)											
FHW-3130	Noise Barrier NB71 - Footing adjacent to SB lane (130m) Including pile cap	324	60	23-May-14 A	31-Jul-15	155	Noise Barrier NB71 - Footing				
FHW-3150*	Pipe Laying - DN600, DN1200 Watermains (CHB &CHC) along Fanling Highway (90m long, 3m depth)	150	120	07-Jun-14 A	12-Oct-15	170	Pipe Laying - DN600 & DN1200 Watermains (CHB &CHC) along Fanling Highway (90m long, 3m depth)				
FHW-3210	Noise Barrier NB69 - Mini-Piling adjacent to NB lane (CSD: 32nos)	74	74	22-Jun-15	16-Sep-15	-17	Noise Barrier NB69 - Mini-Piling adjacent to NB lane (CSD: 32nos)				
FHW-3160	Road Formation, Kerb and Pavement (Eastern Side: FLH SB Slow lane and hard shoulder)	90	90	26-Jun-15	12-Oct-15	155	Road Formation, Kerb and Pavement (Eastern Side: FLH SB Slow lane and hard shoulder)				
Miscellaneous Works for Facilitating Traffic Diversion of Fanling Highway											
FHW-M-1040	Demolition of a certain section of Central Barrier & Make Good of Road Pavement for further Traffic Diversion	54	26	23-Mar-15 A	19-Jun-15	-17	Demolition of a certain section of Central Barrier & Make Good of Road Pavement for further Traffic Diversion				
Fanling Highway North Portion between CH7470 and CH7925											
Fanling Highway Zone 4 between CH7380 and CH7470											
At-Grade Roadworks (90m)											
FHW-4130*	Pipe Laying - DN600 & DN1200 Watermains (CHB &CHC) along Fanling Highway (90m long, 3m depth)	60	12	27-Nov-14 A	03-Jun-15	278	Pipe Laying - DN600 & DN1200 Watermains (CHB &CHC) along Fanling Highway (90m long, 3m depth)				
Fanling Highway Zone 5 between CH7470 and CH7600 (Provision of Kiu Tau Footbridge)											
At-Grade Road Works (130m)											
FHW-5120A	Preparation Works for Implementation of TTA Scheme E2	51	18	11-Apr-15 A	10-Jun-15	3	Preparation Works for Implementation of TTA Scheme E2				
FHW-5120B	Implementation of TTA - Scheme E2 (shifting TWSR East towards Pier AA4 for pipe laying works at crossing)	0	0	11-Jun-15		3	◆ Implementation of TTA - Scheme E2 (shifting TWSR East towards Pier AA4 for pipe laying works at crossing)				
FHW-5120C	Preparation Works for Implementation of TTA Scheme E3	45	45	18-Jul-15	08-Sep-15	3	Preparation Works for Implementation of TTA Scheme E3				
Fanling Highway Zone 7 between CH7660 and CH7925											
At-Grade Roadworks (265m)											
FHW-7100	Site Formation, Preparation Works & Tree Transplant	127	140	30-Aug-13 A	05-Nov-15	1	Site Formation, Preparation Works & Tree Transplant				
Section II - Remainder of the Works (KD-3)											
At Grade Link Road at Fanling Highway Interchange											
Link Road 3 (near Abutment AD1)											
FHI-LR3-3000	Completion of WSD works incl. DN600, DN1200 & DN1400	0	0		02-Jul-15	626	◆ Completion of WSD works incl. DN600, DN1200 & DN1400				
WSD Works											
DN450 Fire Mains (CHA)											
WA-1050	Pipe Laying - CHA 420 - 520 (DN450) near Realigned TWSR West (Re-TWSRW: CH530 - 640), 100m long & 2m depth	70	70	28-May-15	19-Aug-15	14	Pipe Laying - CHA 420 - 520 (DN450) near Realigned TWSR West (Re-TWSRW: CH530 - 640), 100m long & 2m depth				
DN600 Water Mains (CHB)											
WB-1090	Pipe Laying - CHB 756 - 849 (DN600) near Realigned TWSR East (along Access Road A), 93m long & GL	40	13	03-Mar-15 A	04-Jun-15	19	Pipe Laying - CHB 756 - 849 (DN600) near Realigned TWSR East (along Access Road A), 93m long & GL				



- Actual Work
- Remaining Work
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CEDD Contract No. CV/2012/09
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3
3-Month Rolling Programme

3MPR022

Page 2 of 9

27-May-15

3-Month Rolling Programme updated to 2015-05-20

Date	Revision	Checked	Approved
20-May-15	Rev.0	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2015								
							May	Jun	Jul	Aug	Sep				
WB-1030A	Pipe Laying - CHB 335 - 350 (DN600) near crossing TWSRE 15m long & 3m depth	30	30	11-Jun-15	17-Jul-15	3									
WB-1070	Pipe Laying - CHB 635 - 700 (DN600) near Realigned TWSR East (TWSRE: CH380-456), 65m long & GL	78	78	14-Jul-15	14-Oct-15	17									
WB-1030C	Pipe Laying - CHB 350 - 450 (DN600) from Portal AB7/AD9/AC12 to Portal AB8	85	85	18-Jul-15	28-Oct-15	627									
WB-1010	Pipe Laying - CHB 153 - 245 (DN600) near Fanling Highway S/B (FHW: CH7290-7380), 92m long (common trench with NB)	60	60	01-Aug-15	12-Oct-15	170									
WB-1080	Pipe Laying - CHB 700 - 756 (DN600) near Realigned TWSR East (along Roundabout), 56m long & GL	66	66	10-Aug-15	28-Oct-15	9									
DN1200 Water Mains (CHC)															
WC-1050A	Pipe Laying - CHC 155 - 200 (DN1200) near Fanling Highway S/B (FHW: CH6935-7130), 45m long, 4m depth	120	35	15-Oct-14 A	02-Jul-15	255									
WC-1080	Pipe Laying - CHC 510 - 600 (DN1200) near Fanling Highway S/B (FHW: CH7380-7470), 90m long (common trench with NB)	60	12	27-Nov-14 A	03-Jun-15	278									
WC-1150	Pipe Laying - CHC 1030 - 1123 (DN1200) near Realigned TWSR East (along Access Road A), 93m long & GL	40	23	03-Mar-15 A	16-Jun-15	9									
WC-1090A	Pipe Laying - CHC 600 - 615 (DN1200) near crossing TWSRE 15m long & 3m depth	30	30	11-Jun-15	17-Jul-15	3									
WC-1130	Pipe Laying - CHC 910 - 980 (DN1200) near Realigned TWSR East (TWSRE: CH380-456), 70m long & GL	78	78	14-Jul-15	14-Oct-15	17									
WC-1090C	Pipe Laying - CHC 615 - 720 (DN1200) from Portal AB7/AD9/AC12 to Portal AB8	85	85	18-Jul-15	28-Oct-15	268									
WC-1140	Pipe Laying - CHC 980 - 1030 (DN1200) near Realigned TWSR East (along Roundabout), 50m long & GL	66	66	10-Aug-15	28-Oct-15	9									
Twin DN1400 Water Mains (CHE & CHG)															
WE-2000A	Pressure Test, for CHE (Stage 1 Diversion)	5	0	06-May-15 A	11-May-15 A										
WE-2020A	Installation of Connecting Pipe for Connection to Existing Mains (CHE)	10	2	12-May-15 A	21-May-15	264									
WE-2010A	Cleaning & CCTV Inspection for CHE (Stage 1 Diversion)	10	2	12-May-15 A	21-May-15	1257									
WE-2030A	Sterilization and Sampling for CHE (Stage 1 Diversion)	3	3	22-May-15	26-May-15	264									
WE-2050A	Connection to Existing Mains (CHE) (Stage 1 Diversion)	6	6	27-May-15	02-Jun-15	264									
WE-1030	Pipe Laying - CHE & CHG 225 - 240 (Twins DN1400) near crossing TWSRE 15m long & 3m depth	30	30	11-Jun-15	17-Jul-15	3									
WE-1050	Pipe Laying - CHE & CHG (Twins DN1400) from Portal AB7/AD9/AC12 to Portal AB8	85	85	18-Jul-15	28-Oct-15	98									
DN2300 Water Mains and Leakage Collection System (CHJ & CHKA/CHK)															
WJ-1010A	Pipe Laying - CHJ 0 - 10 (DN2200) near existing TWSR East, 10m long & 6m depth	90	21	13-Oct-14 A	09-Jun-15	12									
WJ-1050	Pipe Laying - CHJ 200 - 292 (DN2300) near Realigned TWSR East (along Access Road A), 92m long & GL	68	10	02-Jan-15 A	01-Jun-15	46									
WJ-1100	DN300 Washout at around CHJ 268	65	65	02-Jun-15	18-Aug-15	46									
WJ-1010C	Pipe Laying - CHJ 50 - 100 (DN2200) near existing TWSR East, 50m long & 6m depth	75	75	03-Jun-15	31-Aug-15	0									
WJ-1000	Implementation of TTA - Scheme E2 (Shifting TWSRE toward newly formation area beside Fanling Highway)	17	17	10-Jun-15	30-Jun-15	9									
WJ-1020B	Pipe Laying - CHKA 0 - 73 (DN1400) near Realigned TWSR East, 73m long & 4m depth	55	55	14-Jun-15	07-Aug-15	0									
WJ-1010B	Pipe Laying - CHJ 10 - 50 (DN2200) crossing existing TWSR East, 40m long & 6m depth	78	78	02-Jul-15	02-Oct-15	9									



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- Summary Bar
- Critical Remaining Work
- Milestone
- Project Baseline Bar

CEDD Contract No. CV/2012/09
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3
3-Month Rolling Programme
3MPR022 **Page 3 of 9** **27-May-15**

3-Month Rolling Programme updated to 2015-05-20			
Date	Revision	Checked	Approved
20-May-15	Rev.0	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2015					
							May	Jun	Jul	Aug	Sep	
WJ-1110	DN300 Washout at CHJ 155	65	65	28-Jul-15	13-Oct-15	0						
WJ-1020A	Pipe Laying - CHK 0 - 80 (DN1400) near Realigned TWSR East, 80m long & 4m depth	55	55	08-Aug-15	13-Oct-15	0						
Kau Lung Hang Valve Control & Telemetry House Reprovision												
VCTH-1040	ABWF Works	70	25	06-Jan-15 A	18-Jun-15	0						
VCTH-1010	BS and E&M Works	90	90	19-Jun-15	06-Oct-15	0						
Existing Nam Wa Po Trunk Sewage Pumping Station (PST3)												
PS-1000	Demolition of Existing Boundary Wall of Pumping Station (PST3)	50	50	07-Aug-15*	06-Oct-15	591						
Stage 1A - Realignment of Tai Wo Service Road West (KD-7)												
Preliminary Works												
TWSRW-1100	Tree Survey, Tree Felling and Transplanting	81	0	16-Oct-13 A	08-May-15 A							
TWSRW Zone 1 between CH100 and CH155												
At-Grade Roadworks												
TWSRW-1150	Installation of Cable Ducts for Utilities Diversion Works at Zone 1 & Zone 2 (Approx. 100m) (by utilities undertakers)	167	33	22-Oct-14 A	21-Jun-15	205						
TWSRW-1160	Road Formation, Road Drainage, Kerb, Planter & Pavement	286	166	15-Nov-14 A	05-Dec-15	33						
TWSRW Zone 2 between CH155 and CH280												
At-Grade Roadworks												
TWSRW-2120	Road Formation, Road Drainage, Kerb, Planter and Pavement	165	166	16-Oct-14 A	05-Dec-15	33						
TWSRW Zone 3 between CH280 and CH315												
At-Grade Roadworks												
TWSRW-3100	Noise Barrier NB1a - Footing adjacent Realigned TWSR West	60	60	27-May-15	06-Aug-15	-17						
TWSRW-3110	Installation of Cable Ducts for Utilities Diversion Works at Zone 2 (Approx. 120m) (by utilities undertakers)	130	130	07-Aug-15*	14-Dec-15	-20						
TWSRW-3120	Road Formation, Road Drainage, Kerb, Planter and Pavement	151	151	07-Aug-15	05-Feb-16	-17						
TWSRW Zone 4 between CH315 and CH376												
Construction of Bridge E												
TWSRW-4050A	Pile Cap for AE1	55	11	11-Feb-15 A	02-Jun-15	48						
TWSRW-4070	Bridge Segment (North Bay & Middle Bay)	80	60	01-Apr-15 A	31-Jul-15	13						
TWSRW-4080	Bridge Segment (South Bay)	40	40	16-Jul-15	31-Aug-15	13						
TWSRW Zone 5 between CH376 and CH520												
Construction of Retaining Structures												



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- Remaining Work
- Summary Bar
- Critical Remaining Work
- Milestone
- Project Baseline Bar

CEDD Contract No. CV/2012/09
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3
3-Month Rolling Programme

3MPR022 Page 4 of 9 27-May-15

3-Month Rolling Programme updated to 2015-05-20			
Date	Revision	Checked	Approved
20-May-15	Rev.0	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2015				
							May	Jun	Jul	Aug	Sep
TWSRW-5090	Lagging Wall Construction and Capping Beam	160	21	06-Nov-14 A	13-Jun-15	8	Lagging Wall Construction and Capping Beam, Lagging Wall Construction and Capping				
TWSRW-5070	Construction of Mass Concrete Wall (FL/RW4)	70	70	15-Jun-15	05-Sep-15	8	Cons				
TWSRW Zone 6 between CH520 and CH530											
Box Culvert Extension - BC01											
TWSRW-6080	Backfilling to existing road level after completion of inlet structure	72	30	20-Mar-15 A	25-Jun-15	-5	Backfilling to existing road level after completion of inlet structure, Backfilling to existing				
At-Grade Roadworks											
TWSRW-6110	Slope Upgrading Works for unregistered feature beside Slope 3SW-D/C80 (to be Covered by VO. 68)	65	65	26-Jun-15	10-Sep-15	-5					
TWSRW Zone 7 between CH530 and CH640											
At-Grade Roadworks											
TWSRW-7140	Installation of Cable Ducts for Utilities Diversion Works at Area 4 (Approx. 150m) (by utilities undertakers)	233	115	28-Jan-15 A	11-Sep-15	16	Installation of Cable Ducts for Utilities Diversion Works at Area 4 (Approx. 150m) (by utilities undertakers)				
TWSRW-7120*	Pipe Laying - DN450 Watermains (CHA)	70	70	28-May-15	19-Aug-15	14	Pipe Laying - DN450 Wa				
TWSRW Zone 8 between CH640 and CH695											
Kiu Tau Footbridge Reprovision (West)											
TWSRW-8010A	Working Platform for Piling Work of Proposed Kiu Tau Footbridge	24	18	11-May-15 A	10-Jun-15	-43	Working Platform for Piling Work of Proposed Kiu Tau Footbridge, Working Platform for Piling				
TWSRW-8010B	Installation of Socket H-Pile for Proposed Kiu Tau Footbridge (13 nos of Pile)	75	75	11-Jun-15	08-Sep-15	-43	In				
Remainder of the Works											
TWSRW-9010*	Utilities Diversion in Area 1 (along Re-aligned TWSRW CH100 - CH280)	167	33	22-Oct-14 A	21-Jun-15	205	Utilities Diversion in Area 1 (along Re-aligned TWSRW CH100 - CH280)				
TWSRW-9040*	Utilities Diversion in Area 4 (along Re-aligned TWSRW CH530 - CH640)	233	115	28-Jan-15 A	11-Sep-15	16					
TWSRW-9030	Utilities Diversion in Area 3 (along existing TWSRW, Approx. 150m) (by utilities undertakers)	217	217	10-Jun-15*	12-Jan-16	0					
TWSRW-9020*	Utilities Diversion in Area 2 (along Re-aligned TWSRW CH 280 - CH315)	130	130	07-Aug-15	14-Dec-15	-20					
Stage N4A & N4B - Realignment of Tai Wo Service Road East (KD-13 & KD-14)											
Preliminary Works											
TWSRE-4000	Site Formation, Preparation Works & Tree Transplant	65	11	15-Apr-14 A	02-Jun-15	0	Site Formation, Preparation Works & Tree Transplant, Site Formation, Preparation Works & Tree Transplant				
TWSRW Zone 1 between CH100 and CH270											
At-Grade Roadworks											
TWSRE-1120	Noise Barrier NB3 - Footing adjacent to Realigned TWSR East (96m)	110	50	29-Dec-14 A	20-Jul-15	0					
TWSRE-1150	Construct no fine concrete, U-channel and filling to required level for pipe laying works	30	21	06-Jan-15 A	13-Jun-15	0	Construct no fine concrete, U-channel and filling to required level for pipe laying works, Construct n				
TWSRE-1110	Noise Barrier NB3 - PC01 & PC02 Pile Cap Construction	55	21	19-Jan-15 A	13-Jun-15	29	Noise Ba				
TWSRE-1140*	Pipe laying - DN1400 Watermains (CHKA) along Realigned TWSR East	55	55	14-Jun-15	07-Aug-15	0	Pipe laying - DN1400 Watermains (C				



- █ Actual Work
- █ Remaining Work
- █ Summary Bar
- █ Critical Remaining Work
- ◆ Milestone
- Project Baseline Bar

CEDD Contract No. CV/2012/09
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

3MPR022

Page 5 of 9

27-May-15

3-Month Rolling Programme updated to 2015-05-20

Date	Revision	Checked	Approved
20-May-15	Rev.0	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2015					
							May	Jun	Jul	Aug	Sep	
TWSRE Zone 2 between CH270 and CH380												
At-Grade Roadworks												
TWSRE-2010	Noise Barrier NB3 - Footing adjacent to Realigned TWSR East (48m)	110	100	03-Mar-15 A	16-Sep-15	89	[Gantt bar: May to Sep]					
TWSRE-2030B*	Pipe laying - DN1400 Watermains (CHK) along Realigned TWSR East	55	55	08-Aug-15	13-Oct-15	0				[Gantt bar: Aug to Oct]		
TWSRE Zone 3 between CH380 and CH456												
At-Grade Roadworks												
TWSRE-3010	Noise Barrier NB3 - Footing adjacent to Realigned TWSR East (62m)	85	58	19-Mar-15 A	29-Jul-15	17	[Gantt bar: Mar to Jul]					
TWSRE-3020A*	Pipe Laying - DN600 & DN1200 Watermains (CHB & CHC) along Realigned TWSR East	78	78	14-Jul-15	14-Oct-15	17				[Gantt bar: Jul to Oct]		
Roundabout A, Slip Road and Access Road												
TWSRE-4050A*	Pipe laying - DN2300 Watermains (CHJ) along Access Road A	68	10	02-Jan-15 A	01-Jun-15	46		[Gantt bar: Jan to Jun]				
TWSRE-4040A*	Pipe laying - DN600 & DN1200 Watermains (CHB & CHC) along Access Road A	58	23	03-Mar-15 A	16-Jun-15	9		[Gantt bar: Mar to Jun]				
TWSRE-4060B	Access Road A - Road Formation, Kerb, Planter and Pavement	44	44	17-Jun-15	08-Aug-15	9			[Gantt bar: Jun to Aug]			
TWSRE-4080	Preparation Works for Implementation of TTA Scheme E1	42	42	19-Jun-15	08-Aug-15	9			[Gantt bar: Jun to Aug]			
TWSRE-4040B*	Pipe laying - DN600 & DN1200 Watermains (CHB & CHC) along Roundabout A	66	66	10-Aug-15	28-Oct-15	9				[Gantt bar: Aug to Oct]		
TWSRE-4090	Implementation of TTA - Scheme E1	0	0	10-Aug-15		9					◆ Implementation of TTA - Scheme E1	
TWSRE-4030B	Slip Road Y (CH100-CH230) - Road Formation, Remaining Road Drainage, Kerb, Planter and Pavement	60	60	10-Aug-15	20-Oct-15	9				[Gantt bar: Aug to Oct]		
Stage 1C - Viaduct Structure & TCSS Civil Provisions (KD-9)												
Preliminaries												
B-4050	Erection of Catch Fence at Portion FH9 for AB11 and AD12	45	15	13-Apr-15 A	06-Jun-15	-26	[Gantt bar: Apr to Jun]					
Foundation & Pier Construction												
Bridge A												
BA-13-1030	Pier AA13 - Pier Construction (Twin Pier)	38	16	06-Nov-14 A	08-Jun-15	0	[Gantt bar: Nov to Jun]					
BA-14-1030	Pier AA14 - Pier Construction	31	0	20-Nov-14 A	02-May-15 A		[Gantt bar: Nov to May]					
BA-17-1030	Pier AA17 - Pier Construction	24	85	05-Feb-15 A	29-Aug-15	1	[Gantt bar: Feb to Aug]					
BA-15-1030	Pier AA15 - Pier Construction	31	25	14-Feb-15 A	04-Jul-15	2	[Gantt bar: Feb to Jul]					
BA-03-1020	Pier AA3 - Pile Cap	30	19	27-Apr-15 A	11-Jun-15	138	[Gantt bar: Apr to Jun]					
BA-16-1030	Pier AA16 - Pier Construction	35	35	29-Apr-15 A	02-Jul-15	27	[Gantt bar: Apr to Jul]					
BA-02-1020A	Pier AA2E - Pile Cap	30	30	04-May-15 A	25-Jun-15	86	[Gantt bar: May to Jun]					
BA-09-1000	Pier AA9 - Piling Works	36	36	18-Jun-15	31-Jul-15	95	[Gantt bar: Jun to Jul]					



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- █ Critical Remaining Work
- ◆ Milestone
- Project Baseline Bar

CEDD Contract No. CV/2012/09
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3
3-Month Rolling Programme
 3MPR022 Page 6 of 9 27-May-15

3-Month Rolling Programme updated to 2015-05-20			
Date	Revision	Checked	Approved
20-May-15	Rev.0	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2015					
							May	Jun	Jul	Aug	Sep	
BA-18-1030	Pier AA18 - Pier Construction	56	56	03-Jul-15	05-Sep-15	95						
BA-07-1000	Pier AA7 - Piling Works	36	36	06-Jul-15	15-Aug-15	22						
BA-10-1000	Pier AA10 - Piling Works	36	36	01-Aug-15	11-Sep-15	126						
BA-11-1000	Pier AA11 - Piling Works	36	36	17-Aug-15	26-Sep-15	64						
BA-09-1010	Pier AA9 - Pile Test	7	7	18-Aug-15	25-Aug-15	95						
Bridge B												
BB-08-1030	Pier AB8W - Pier Construction	24	0	15-Dec-14 A	18-May-15 A							
BB-12-1000A	Abutment AB12/AD14 - Piling Works	70	15	06-Feb-15 A	06-Jun-15	65						
BB-10-1020	Pier AB10 - Pile Cap	60	6	23-Mar-15 A	27-May-15	-14						
BB-09-1020	Pier AB9 - Pile Cap	48	14	26-Mar-15 A	05-Jun-15	-36						
BB-07-1030	Pier AB7 - Pier Construction	32	32	09-Apr-15 A	27-Jun-15	105						
BB-05-1030	Pier AB5 - Pier Construction	35	35	29-Apr-15 A	22-Aug-15	75						
BB-08-1050	Portal AB8 - Portal Beam Construction together with Kicker	26	26	22-May-15	23-Jun-15	-25						
BB-09-1030	Pier AB9 - Pier Construction	24	24	06-Jun-15	06-Jul-15	-36						
BB-11-1000	Pier AB11 - Piling Works	24	24	08-Jun-15	07-Jul-15	-26						
BB-10-1030	Pier AB10 - Pier Construction	25	25	18-Jun-15	18-Jul-15	-32						
BB-12-1010	Abutment AB12/AD14 - Pile Test	7	7	25-Jun-15	03-Jul-15	217						
BB-11-1010	Pier AB11 - Pile Test	7	7	24-Jul-15	31-Jul-15	-26						
BB-11-1020	Pier AB11 - Pile Cap	30	30	01-Aug-15	04-Sep-15	-26						
BB-03-1000	Pier AB3 - Piling Works	36	36	17-Aug-15	26-Sep-15	72						
Bridge C												
BC-05-1030	Pier AC5 - Pier Construction (Twin Pier)	38	54	22-Dec-14 A	07-Sep-15	35						
BC-12-1020	Pier AC12 - Pile Cap	30	0	26-Jan-15 A	15-May-15 A							
BC-09-1030	Pier AC9 - Pier Construction	28	28	02-Mar-15 A	10-Sep-15	6						
BC-01-1000	Abutment AC1 - Piling Works	36	24	06-May-15 A	17-Jun-15	95						
BC-03-1000	Pier AC3 - Piling Works	36	36	06-Jul-15	15-Aug-15	64						
BC-01-1010	Abutment AC1 - Pile Test	7	7	07-Jul-15	14-Jul-15	326						
BC-12-1030	Pier AC12 - Pier Construction	28	28	20-Jul-15	20-Aug-15	33						
BC-11-1030	Pier AC11 - Pier Construction (Twin Pier)	55	55	24-Jul-15*	25-Sep-15	19						

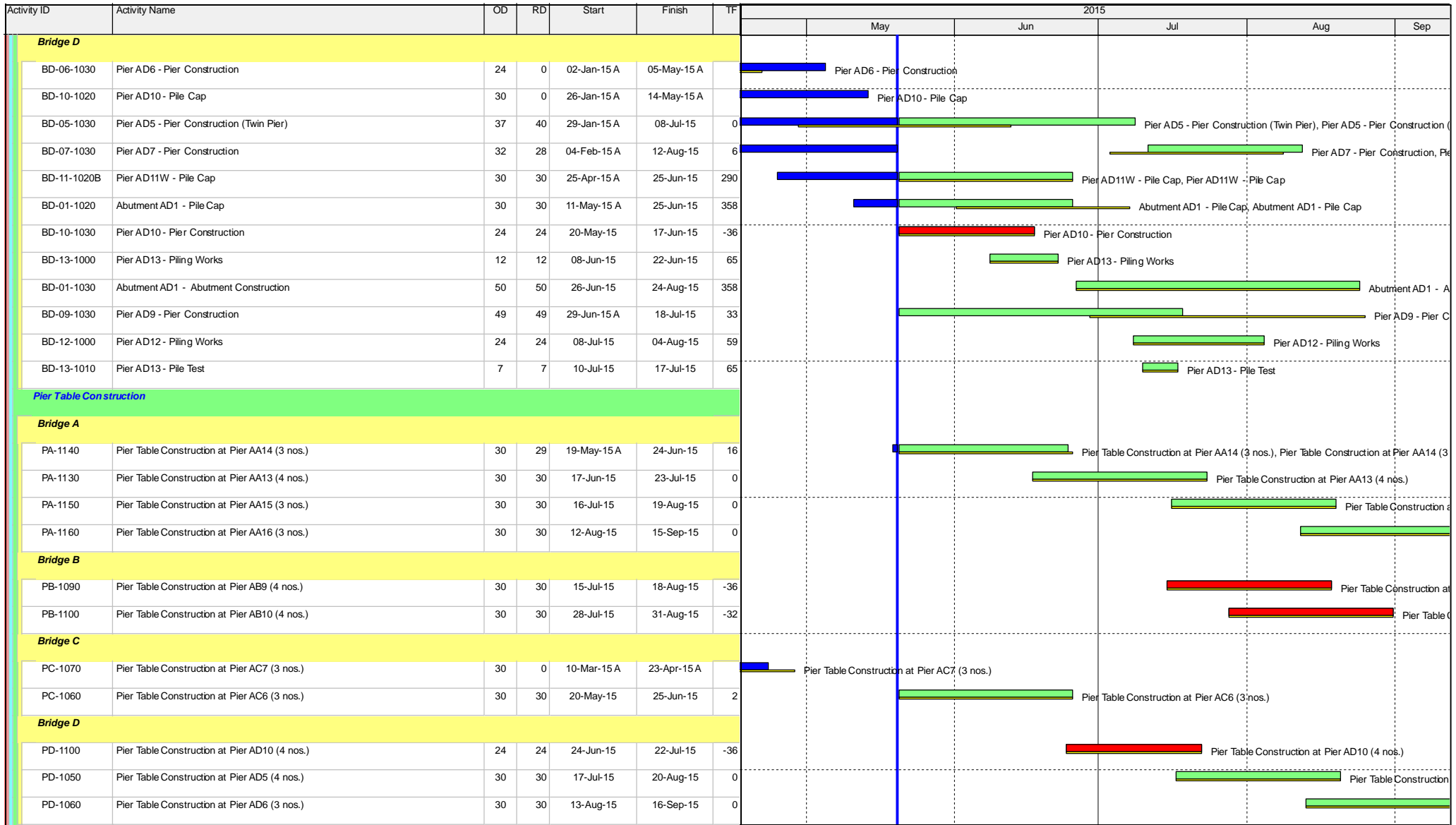


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- Project Baseline Bar

CEDD Contract No. CV/2012/09
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3
3-Month Rolling Programme

3MPR022 Page 7 of 9 27-May-15

3-Month Rolling Programme updated to 2015-05-20			
Date	Revision	Checked	Approved
20-May-15	Rev.0	SL	




俊和建築工程有限公司
CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

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- ◆ Milestone
- Project Baseline Bar

CEDD Contract No. CV/2012/09
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3
3-Month Rolling Programme

3MPR022 Page 8 of 9 27-May-15

3-Month Rolling Programme updated to 2015-05-20			
Date	Revision	Checked	Approved
20-May-15	Rev.0	SL	

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							May	Jun	Jul	Aug	Sep
Viaduct Bridge Segment Erection											
Bridge A											
EA-1140	Bridge Deck Construction at Pier AA14 by Typical Lifting Frame (17 nos)	10	10	21-Jul-15	31-Jul-15	2					
EA-1130	Bridge Deck Construction at Pier AA13 by Typical Lifting Frame (23 nos)	23	23	01-Aug-15	27-Aug-15	2					
Bridge B											
EB-1080	Bridge Deck Construction at Portal AB8 by Special Lifting Frame (26 nos)	13	13	29-Jun-15	14-Jul-15	-25					
Bridge C											
EC-1080	Bridge Deck Construction at Pier AC8 by Typical Lifting Frame (18 nos)	25	12	08-May-15 A	03-Jun-15	15					
EC-1070	Bridge Deck Construction at Pier AC7 by Typical Lifting Frame (25 nos)	12	12	04-Jun-15	17-Jun-15	15					
EC-1060	Bridge Deck Construction at Pier AC6 by Typical Lifting Frame (15 nos)	13	13	06-Jul-15	20-Jul-15	2					
Bridge D											
ED-1100	Bridge Deck Construction at Portal AD10 by Special Lifting Frame (56 nos)	23	23	28-Jul-15	22-Aug-15	-36					
Section VI - Works in Portion FH9 (KD-6A)											
Major Works											
S6-2000	Construction of Abutment AB12/AD14 (including Piling, Pile Cap & Abutment construction)	276	290	06-Feb-15 A	16-May-16	123					



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CEDD Contract No. CV/2012/09
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3
3-Month Rolling Programme

3-Month Rolling Programme updated to 2015-05-20			
Date	Revision	Checked	Approved
20-May-15	Rev.0	SL	

Contract 5

ID	WBS	Task Name	Duration	Start	Finish
1	1	Key Dates	1110 days	Thu 28/3/13	Sun 10/4/16
47	2	Preliminaries and Statutory / Contractual Submissions	424 days	Thu 11/4/13	Mon 9/6/14
48	2.1	Site Establishment	399 days	Thu 11/4/13	Thu 15/5/14
53	2.2	Applications to Government Department	89 days	Fri 12/4/13	Tue 9/7/13
58	2.3	Temporary Traffic Arrangement (TTA) Scheme for temp. LMH Rd	131 days	Fri 12/4/13	Tue 20/8/13
63	2.4	Liaison with Utility Undertakers	363 days	Fri 12/4/13	Wed 9/4/14
66	2.5	Environmental Baseline & Impact Monitoring	132 days	Thu 11/4/13	Wed 21/8/13
77	2.6	General Site Clearance	424 days	Fri 12/4/13	Mon 9/6/14
78	3	Stage I of the Works	180 days	Thu 11/4/13	Mon 7/10/13
79	3.1	Stage I of the Works - Temporary vehicular bridge B and temporary Lin Ma Hang Road	179 days	Fri 12/4/13	Mon 7/10/13
90	3.2	Stage II of the Works - Temporary ArchSD Depot (LMH2)	78 days	Thu 11/4/13	Thu 27/6/13
94	4	Section of the Works	1382 days	Fri 12/4/13	Sun 22/1/17
95	4.1	Section I of the Works - Ground Investigation field works (Drg. 7101A-7111A)	251 days	Thu 30/5/13	Tue 4/2/14
100	4.2	Section II of the Works - All laboratory tests for Section I	188 days	Sat 31/8/13	Thu 6/3/14
105	4.3	Section III of the Works - Site formation works for Portions RS1, RS2 & RS3 (week for certificate of completion in letter ref. SRV/W47/SO/501308/00416 dated 23/8/2013)	89 days	Sun 12/5/13	Thu 8/8/13
111	4.4	Section IV of the Works - Village house within portion RS4 - EOTF3 completion 15/5/2015	399 days	Fri 12/4/13	Thu 15/5/14
123	4.5	Section V of the Works - All works within portion RS4 exclude Section IV - EOTF3 completion 28/4/2015	747 days	Fri 12/4/13	Tue 28/4/15
140	4.6	Section VII of the Works - All works within Area CRD	249 days	Mon 9/9/13	Thu 15/5/14
177	4.7	Section VIII of the Works - All works within Area BCPA - EOT6 completion 2/1/2015	571 days	Tue 11/6/13	Fri 21/1/15
211	4.8	Section IX of the Works - All works within Area BCPB - EOT07 completion 19 October 2015	669 days	Fri 20/12/13	Mon 19/10/15
212	4.8.1	Claim No. 009 - Delays due to Delayed Possession of Portion BCP4 of the Site - Original 7/3/2014 and possessed on 25/9/2014	0 days	Fri 26/9/14	Fri 26/9/14
213	4.8.2	Submission for demolition of existing building structures	37 days	Fri 20/12/13	Sat 25/1/14
214	4.8.3	Approval of submission for demolish existing building structures	41 days	Sun 26/1/14	Fri 7/3/14
215	4.8.4	Demolition of existing building structures UPON instruction (included Asbestos Investigation, Report & Asbestos Abatement Plan)	76 days	Fri 3/10/14	Wed 17/12/14
216	4.8.5	Tree felling/removal works and tree transplanting works at BCP4 (include tree survey etc)	139 days	Fri 26/9/14	Wed 11/2/15
217	4.8.6	Claim No. 007 - Delay due to Non-Possession of Parts of Portion BCP3 due to Resistant by Local Resident (NOT YET)	0 days	Wed 14/1/15	Wed 14/1/15
218	4.8.7	Site formation works	330 days	Sun 21/1/14	Sun 27/9/15
219	4.8.7.1	site formation works (surrounding areas B1-3,B5-6, B9)	200 days	Sat 7/3/15	Tue 22/9/15
220	4.8.7.2	site formation works (area BCP4 - B4,7,8,10-B17)	330 days	Sun 21/1/14	Sun 27/9/15
221	4.8.7.3	site formation works (B18-B22)	200 days	Sat 7/3/15	Tue 22/9/15
222	4.8.8	chain link fence (Drg.1002C, 1032B, 1033B)	27 days	Wed 23/9/15	Mon 19/10/15
223	4.9	Section X of the Works - All works within Area BCPG - (Outstanding Works for SBF)	454 days	Thu 5/6/14	Tue 1/9/15
234	4.9.7	VO for Secondary Boundary Fencing extend to BCPG (not yet)	125 days	Thu 30/4/15	Tue 1/9/15
235	4.9.7.1	Handing over from CLP for the extended area	0 days	Thu 30/4/15	Thu 30/4/15
236	4.9.7.2	Construction of Retaining Wall 24	41 days	Sat 2/5/15	Thu 11/6/15
237	4.9.7.3	Construction of soil cement / general fill slope adjacent to CLP Substation	90 days	Sat 2/5/15	Thu 30/7/15
238	4.9.7.4	Secondary Boundary Fencing CH4+125 to CH4+250 (bay 17 to 32)	33 days	Fri 31/7/15	Tue 1/9/15
239	4.10	Section XI of the Works - All works within Area BCPD	459 days	Mon 14/7/14	Thu 15/10/15
240	4.10.1	South West Works for additional 132kV (at Areas D1 & D2) at BCPD fill platform for CLP (132kV) from +12.8 to +15.3	421 days	Fri 15/8/14	Fri 9/10/15
241	4.10.1.1	UU for erection of overhead post & termination of electricity by CLP(132kV)(Area D2)	47 days	Fri 15/8/14	Tue 30/9/14
242	4.10.1.2	Construction of soil cement / general fill slope adjacent to CLP Substation	28 days	Tue 14/10/14	Mon 10/11/14
243	4.10.1.3	Claim No. 007 - Delay due to Non-Possession of Parts of Portion BCP3 due to Resistant by Local Resident - confirmed to possess on 14/1/2015	1 day	Wed 14/1/15	Wed 14/1/15
244	4.10.1.4	site clearance, take initial survey	10 days	Thu 15/1/15	Sat 24/1/15
245	4.10.1.5	tree felling / transplant	14 days	Sun 25/1/15	Sat 7/2/15
246	4.10.1.6	assume filling party areas D1 & D2 to +13.5 for drain	20 days	Sun 8/2/15	Fri 27/2/15
247	4.10.1.7	DN2100 to Box Culvert No. 3 (assume cut from +10)	30 days	Sat 28/2/15	Sun 29/3/15
248	4.10.1.8	lay sewer FHM513, 514, 515, SMH9937 (backfill with laying of irrigation pipe)	20 days	Mon 30/3/15	Sat 18/4/15
249	4.10.1.9	lay sewer STP-FMH520-515	20 days	Sun 19/4/15	Fri 8/5/15
250	4.10.1.10	fill trench from laid sewer to drainage formation	5 days	Sat 9/5/15	Wed 13/5/15
251	4.10.1.11	lay drainage SMH9961 to 9966 & 9936 to 9937	14 days	Thu 14/5/15	Wed 27/5/15
252	4.10.1.12	filling of areas D1 & D2 to +15.3 with D2 soil cement slope	14 days	Mon 30/3/15	Sun 12/4/15
253	4.10.1.13	Confirmation of Alignment for Secondary Boundary Fencing	35 days	Mon 29/12/14	Sun 12/2/15

Revision 1
Thu 28/5/15

Task Split

Milestone Summary

Project Summary Critical

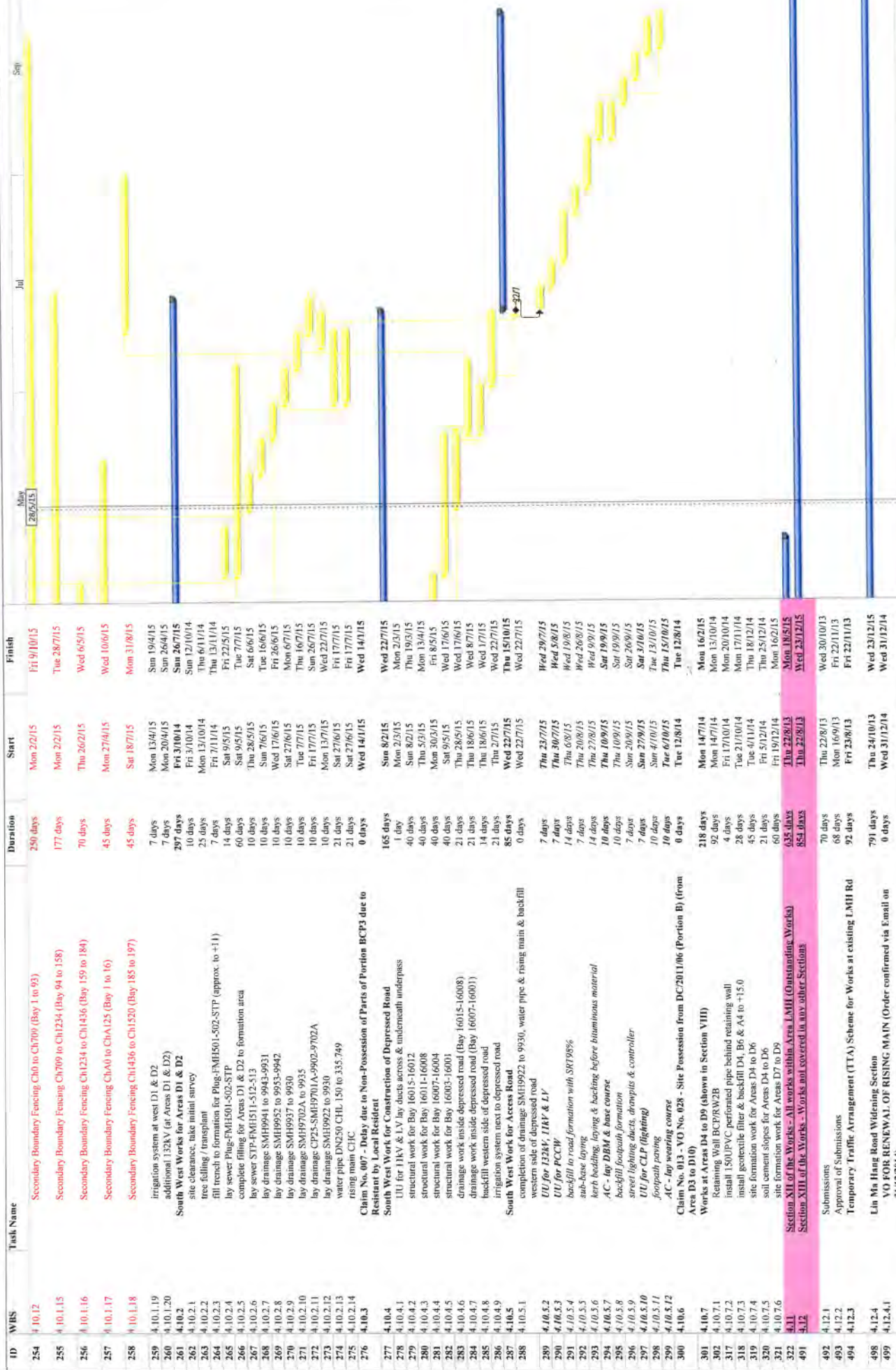
Critical Split Progress

Deadline

Sang Hing Civil - Richwell Machinery JV

Page 1 of 6

20150528 - Updated Submitted WP(06) - 3 months rolling



ID	WBS	Task Name	Duration	Start	Finish
254	4.10.12	Secondary Boundary Fencing Ch0 to Ch700 (Bay 1 to 93)	250 days	Mon 22/15	Fri 9/10/15
255	4.10.115	Secondary Boundary Fencing Ch709 to Ch1234 (Bay 94 to 158)	177 days	Mon 22/15	Tue 28/7/15
256	4.10.116	Secondary Boundary Fencing Ch1234 to Ch1436 (Bay 159 to 184)	70 days	Thu 26/2/15	Wed 6/5/15
257	4.10.117	Secondary Boundary Fencing Ch1436 to Ch1625 (Bay 1 to 16)	45 days	Mon 27/4/15	Wed 10/6/15
258	4.10.118	Secondary Boundary Fencing Ch1436 to Ch1520 (Bay 185 to 197)	45 days	Sat 18/7/15	Mon 31/8/15
259	4.10.119	irrigation system at west D1 & D2	7 days	Mon 13/4/15	Sun 19/4/15
260	4.10.120	additional 13KV (at Areas D1 & D2)	7 days	Mon 20/4/15	Sun 26/4/15
261	4.10.2	South West Works for Areas D1 & D2	297 days	Fri 3/10/14	Sun 26/7/15
262	4.10.2.1	site clearance, take initial survey	10 days	Fri 3/10/14	Sun 12/10/14
263	4.10.2.2	tree felling / transplant	25 days	Mon 13/10/14	Thu 6/11/14
264	4.10.2.3	fill trench to formation for Plug-FM1501-502-STP (approx. to +1.1)	7 days	Fri 7/11/14	Thu 22/5/15
265	4.10.2.4	lay sewer Plug-FM1501-502-STP	14 days	Sat 9/5/15	Tue 7/7/15
266	4.10.2.5	complete filling for Areas D1 & D2 to formation area	60 days	Thu 28/5/15	Sat 6/6/15
267	4.10.2.6	lay sewer STP-FM1511-512-513	10 days	Sun 7/6/15	Tue 16/6/15
268	4.10.2.7	lay drainage SMH0941 to 0943-0931	10 days	Tue 27/6/15	Fri 26/6/15
269	4.10.2.8	lay drainage SMH0952 to 0953-0942	10 days	Wed 17/6/15	Mon 6/7/15
270	4.10.2.9	lay drainage SMH0937 to 0930	10 days	Thu 7/7/15	Mon 16/7/15
271	4.10.2.10	lay drainage SMH9702A to 9935	10 days	Fri 17/7/15	Sun 26/7/15
272	4.10.2.11	lay drainage CP25-SMH9701A-9902-9702A	10 days	Mon 13/7/15	Wed 22/7/15
273	4.10.2.12	lay drainage SMH9922 to 9930	10 days	Sat 27/6/15	Fri 17/7/15
274	4.10.2.13	water pipe DN250 CHL 150 to 335.749	21 days	Sat 27/6/15	Fri 17/7/15
275	4.10.2.14	rising main CHC	21 days	Sat 27/6/15	Fri 17/7/15
276	4.10.3	Claim No. 007 - Delay due to Non-Possession of Parts of Portion BCP3 due to Resistant by Local Resident	0 days	Wed 14/1/15	Wed 14/1/15
277	4.10.4	South West Work for Construction of Depressed Road	165 days	Sun 8/2/15	Wed 22/7/15
278	4.10.4.1	UV for 11KV & LV lay ducts across & underneath underpass	1 day	Mon 2/3/15	Mon 2/3/15
279	4.10.4.2	structural work for Bay 16015-16012	40 days	Sun 8/2/15	Thu 19/3/15
280	4.10.4.3	structural work for Bay 16011-16008	40 days	Thu 5/3/15	Mon 13/4/15
281	4.10.4.4	structural work for Bay 16007-16004	40 days	Mon 30/3/15	Fri 8/5/15
282	4.10.4.5	structural work for Bay 16003-16001	40 days	Sat 9/5/15	Wed 17/6/15
283	4.10.4.6	drainage work inside depressed road (Bay 16015-16008)	21 days	Thu 28/5/15	Wed 17/6/15
284	4.10.4.7	drainage work inside depressed road (Bay 16011-16004)	21 days	Thu 18/6/15	Wed 8/7/15
285	4.10.4.8	backfill western side of depressed road	14 days	Thu 2/7/15	Wed 22/7/15
286	4.10.4.9	irrigation system next to depressed road	21 days	Wed 2/7/15	Thu 15/10/15
287	4.10.5	South West Work for Access Road	85 days	Wed 22/7/15	Wed 22/7/15
288	4.10.5.1	completion of drainage SMH10922 to 9930, water pipe & rising main & backfill western side of depressed road	0 days	Wed 22/7/15	Wed 22/7/15
289	4.10.5.2	UV for 12KV, 11KV & LV	7 days	Thu 23/7/15	Wed 29/7/15
290	4.10.5.3	UV for FCCW	7 days	Thu 30/7/15	Wed 5/8/15
291	4.10.5.4	backfill to road formation with SRT98% sub-base laying	14 days	Thu 6/8/15	Wed 19/8/15
292	4.10.5.5	kerb bedding, laying & backing before bituminous material	7 days	Thu 20/8/15	Wed 26/8/15
293	4.10.5.6	AC - top DBM & base course	14 days	Thu 27/8/15	Wed 9/9/15
294	4.10.5.7	backfill footpath formation	10 days	Thu 10/9/15	Sat 19/9/15
295	4.10.5.8	street lighting ducts, dropcups & controller	10 days	Thu 10/9/15	Sat 19/9/15
296	4.10.5.9	UV for CLP (lighting)	7 days	Sun 20/9/15	Sat 26/9/15
297	4.10.5.10	footpath paving	7 days	Sun 27/9/15	Sat 3/10/15
298	4.10.5.11	AC - top wearing course	10 days	Sun 4/10/15	Tue 13/10/15
299	4.10.5.12	Claim No. 013 - VO No. 028 - Site Possession from DC/2011/06 (Portion B) (from Area D3 to D10)	0 days	Thu 6/10/15	Thu 15/10/15
300	4.10.6	Works at Areas D4 to D9 (shown in Section VIII)	0 days	Tue 12/8/14	Tue 12/8/14
301	4.10.7	Retaining Wall BCP/RW2B	218 days	Mon 14/7/14	Mon 16/2/15
302	4.10.7.1	install 1500PVC perforated pipe behind retaining wall	92 days	Mon 14/7/14	Mon 13/10/14
317	4.10.7.2	install geotextile filter & backfill D4, B6 & A4 to +15.0	4 days	Fri 17/10/14	Mon 20/10/14
318	4.10.7.3	site formation work for Areas D4 to D6	28 days	Tue 21/10/14	Mon 17/11/14
319	4.10.7.4	soil cement slopes for Areas D4 to D6	45 days	Tue 4/11/14	Thu 18/12/14
320	4.10.7.5	soil cement slopes for Areas D4 to D6	21 days	Fri 5/12/14	Thu 25/12/14
321	4.10.7.6	site formation work for Areas D4 to D9	60 days	Fri 19/12/14	Mon 16/2/15
322	4.11	Section XII of the Works - All works within Area LMH (Outstanding Works)	635 days	Thu 22/8/13	Mon 18/5/15
491	4.12	Section XIII of the Works - Works not covered in any other Sections	854 days	Thu 22/8/13	Wed 23/12/15
492	4.12.1	Submissions	70 days	Thu 22/8/13	Wed 30/10/13
493	4.12.2	Approval of Submissions	68 days	Mon 16/9/13	Fri 22/11/13
494	4.12.3	Temporary Traffic Arrangement (TTA) Scheme for Works at existing LMH Rd	92 days	Fri 23/8/13	Fri 22/11/13
498	4.12.4	Lin Ma Hang Road Widening Section	791 days	Thu 24/10/13	Wed 23/12/15
499	4.12.4.1	VO FOR RENEWAL OF RISING MAIN (Order confirmed via Email on 31/12/2014)	0 days	Wed 31/12/14	Wed 31/12/14

Revision 1
Thu 28/5/15

Task Split

Milestone Summary

Project Summary Critical

Critical Split Progress

Deadline

Sung Hing Civil - Richwell Machinery JV

Page 2 of 6

20150528 ++Updated Submitted WIP(05) - 3 months rolling

ID	WBS	Task Name	Duration	Start	Finish
500	4.12.4.2	place order for HDPE pipes	0 days	Tue 6/1/15	Tue 6/1/15
501	4.12.4.3	arrival of HDPE pipes	80 days	Tue 6/1/15	Thu 26/3/15
502	4.12.4.4	RECEIVE VO 053 ADDITIONAL CROSS ROAD DUCTS FOR EXISTING IRRIGATION PIPES	0 days	Tue 7/10/14	Tue 7/10/14
503	4.12.4.5	RECEIVE VO 062 CABLE DUCTS LAYING FOR PUBLIC LIGHTING SYSTEM AT LIN MA HANG ROAD	0 days	Tue 14/10/14	Tue 14/10/14
504	4.12.4.6	1 Works from chainage 190 to chainage 380 (west side carriageway & footpath)	231 days	Sun 24/08/14	Sun 11/4/15
505	4.12.4.6.1	TTA for ch 310-380(west)	0 days	Sun 24/08/14	Sun 24/08/14
506	4.12.4.6.2	earthwork to lay drainage & waterwork	21 days	Sun 24/08/14	Sat 13/9/14
507	4.12.4.6.3	drainage & waterwork + backfill for CLP	45 days	Sun 14/9/14	Tue 28/10/14
508	4.12.4.6.4	VO053 - crossing no. 1 (whole), 2 (west)	18 days	Wed 29/10/14	Sat 15/11/14
509	4.12.4.6.5	UU for ch 190-380 (132M, 114V, LV)	19 days	Sun 16/11/14	Thu 4/12/14
510	4.12.4.6.6	filling works to formation of road (include SRT98%)	7 days	Fri 5/12/14	Thu 11/12/14
511	4.12.4.6.7	street lighting, drainage & crossroads	7 days	Fri 19/12/14	Thu 18/12/14
512	4.12.4.6.8	kerb bedding, laying & backing before bituminous material	9 days	Fri 19/12/14	Sat 27/12/14
513	4.12.4.6.9	filling works to formation of footpath	4 days	Sun 28/12/14	Wed 3/1/15
514	4.12.4.6.10	UU for CLP (lighting)	5 days	Thu 1/1/15	Mon 5/1/15
515	4.12.4.6.11	UU for ch 190-380 (PCCW)	7 days	Tue 6/1/15	Mon 12/1/15
516	4.12.4.6.12	irrigation system	7 days	Tue 13/1/15	Mon 19/1/15
517	4.12.4.6.13	preparation works to formation of footpath	3 days	Mon 19/1/15	Wed 21/1/15
518	4.12.4.6.14	footpath paving	9 days	Thu 22/1/15	Fri 30/1/15
519	4.12.4.6.15	VO for renewal of rising main	6 days	Fri 27/3/15	Wed 14/4/15
520	4.12.4.6.16	sub-base laying for road	5 days	Thu 24/4/15	Mon 6/4/15
521	4.12.4.6.17	AC - lay DBM & base course	5 days	Thu 24/4/15	Sat 11/4/15
522	4.12.4.7	1 Works from chainage 380 to chainage 580 (west side carriageway & footpath)	402 days	Fri 22/11/13	Mon 29/12/14
523	4.12.4.7.1	TTA for ch 380-580(west)	0 days	Fri 22/11/13	Fri 22/11/13
524	4.12.4.7.2	waterman (include issue of alignment and laying)	120 days	Sat 23/11/13	Sat 22/3/14
525	4.12.4.7.3	drainage (pipe, manholes & gullies)	155 days	Sun 23/3/14	Sun 24/8/14
526	4.12.4.7.4	Received Variation Order Nos. 040 & 042	0 days	Mon 28/4/14	Mon 28/4/14
527	4.12.4.7.5	construct DN450mm pipe with concrete surround	28 days	Mon 12/5/14	Sun 8/6/14
528	4.12.4.7.5.1	low stream pipe & catchpit at western side	28 days	Mon 12/5/14	Mon 12/5/14
529	4.12.4.7.6	construct 1900x950 box culvert with manholes SMH18052A & B	49 days	Mon 9/6/14	Sun 27/7/14
530	4.12.4.7.6.1	support existing DN150mm sewer pipe & watermain	7 days	Mon 9/6/14	Sun 15/6/14
531	4.12.4.7.6.2	construct box culvert	14 days	Mon 16/6/14	Sun 29/6/14
532	4.12.4.7.6.3	construct manholes	28 days	Mon 30/6/14	Sun 27/7/14
533	4.12.4.7.7	found existing cables affected construction of gullies & discuss with CLP	18 days	Sat 26/7/14	Tue 12/8/14
534	4.12.4.7.8	complete preparation work & fill footpath for 132KV, 11KV & LV	8 days	Wed 13/8/14	Wed 20/8/14
535	4.12.4.7.9	UU - 132KV-11KV & LV	35 days	Thu 21/8/14	Wed 24/9/14
536	4.12.4.7.10	temporary connection of cables	3 days	Thu 25/9/14	Sat 27/9/14
537	4.12.4.7.11	900x650 box culvert (low stream & west catchpit)	7 days	Sun 28/9/14	Sat 4/10/14
539	4.12.4.7.12	construct outstanding drainage & gullies	7 days	Wed 1/10/14	Tue 7/10/14
540	4.12.4.7.13	filling work to formation of road (include SRT98%)	5 days	Wed 8/10/14	Sun 12/10/14
541	4.12.4.7.14	VO053 - crossing no. 3, 4 (west)	10 days	Mon 13/10/14	Wed 22/10/14
542	4.12.4.7.15	complete filling work to formation of road (include SRT98%)	5 days	Thu 23/10/14	Mon 27/10/14
543	4.12.4.7.16	street lighting, drainage & crossing at ch 523	4 days	Mon 27/10/14	Thu 30/10/14
544	4.20.4.2.19	UU for CLP (lighting)	5 days	Fri 31/10/14	Tue 4/11/14
545	4.12.4.7.18	sub-base laying for road	4 days	Wed 5/11/14	Sat 8/11/14
546	4.12.4.7.19	kerb bedding, laying & backing before bituminous material	12 days	Sat 8/11/14	Wed 19/11/14
547	4.12.4.7.20	filling works to formation of footpath	5 days	Thu 20/11/14	Mon 24/11/14
548	4.12.4.7.21	UU for ch 380-580 (PCCW)	14 days	Tue 25/11/14	Mon 8/12/14
549	4.12.4.7.22	irrigation system	4 days	Fri 9/12/14	Fri 12/12/14
550	4.12.4.7.23	preparation works to formation of footpath	3 days	Sat 13/12/14	Mon 15/12/14
551	4.12.4.7.24	footpath paving	14 days	Tue 16/12/14	Mon 29/12/14
552	4.12.4.7.25	AC - lay DBM & base course	5 days	Thu 20/11/14	Mon 24/11/14
553	4.12.4.8	2 Works from ch 380-580 (east side carriageway)	153 days	Wed 26/11/14	Tue 28/4/15
554	4.12.4.8.1	TTA for ch 380-580 (east)	0 days	Wed 26/11/14	Wed 26/11/14
555	4.12.4.8.2	remove existing pavement	4 days	Thu 27/11/14	Sat 30/11/14
556	4.12.4.8.3	middle stream box culvert 900x650	14 days	Mon 1/12/14	Sun 14/12/14
557	4.12.4.8.4	middle stream DN450mm pipe	12 days	Mon 8/12/14	Fri 19/12/14
558	4.12.4.8.5	VO053 - crossing no. 2, 3, 4, 5 (east)	20 days	Sat 20/12/14	Thu 8/1/15
559	4.12.4.8.6	street light crossing at ch 523	4 days	Fri 9/1/15	Mon 12/1/15
560	4.12.4.8.7	VO for renewal of rising main	18 days	Fri 27/3/15	Mon 13/4/15

Revision 1
Thu 28/5/15

Task Split

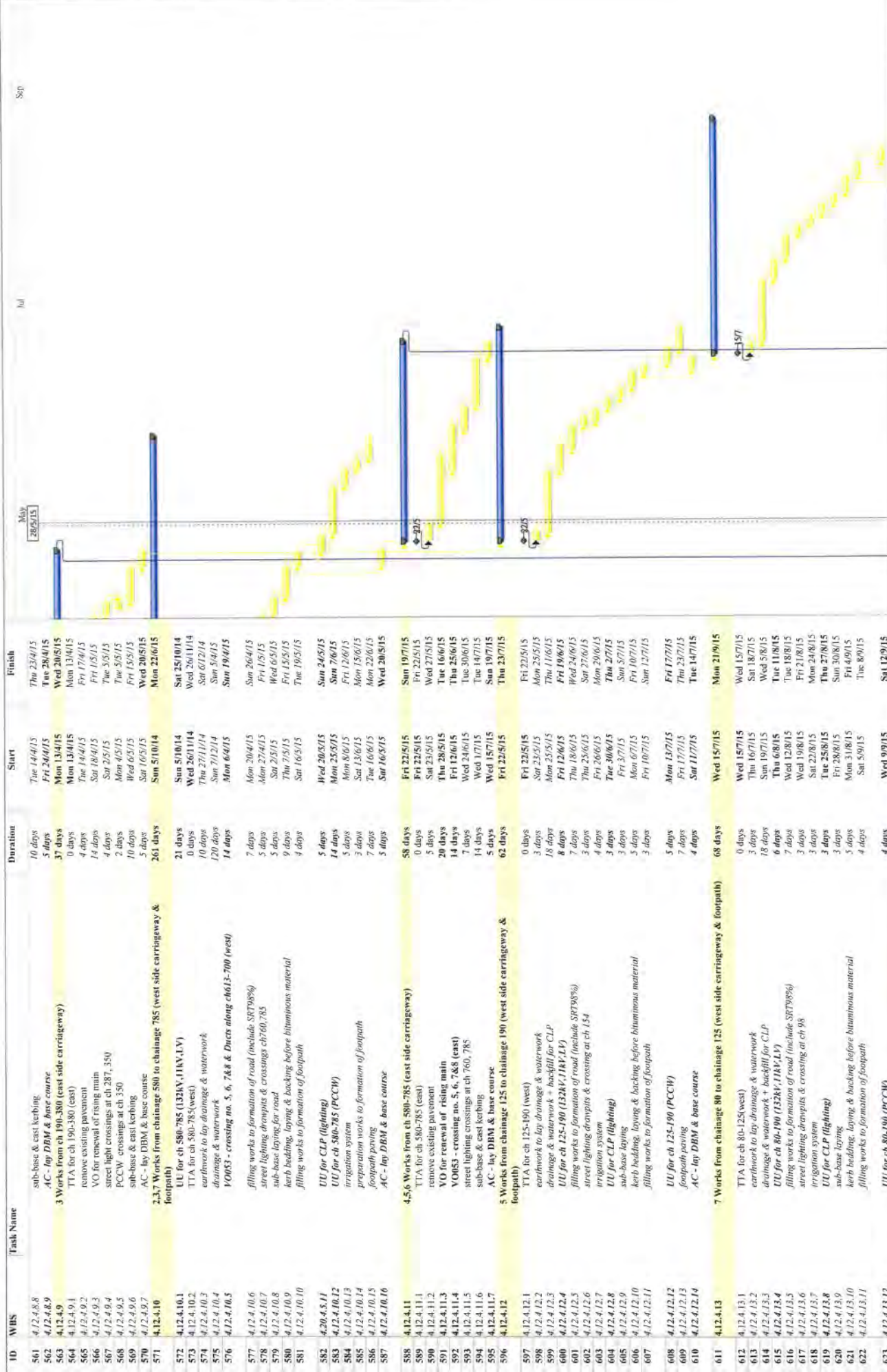
Milestone Summary

Project Summary Critical

Critical Split Progress

Deadline

20150528 --Updated Submitted WP(05) - 3 months rolling
Page 3 of 6



ID	WBS	Task Name	Duration	Start	Finish
624	4.12.4.13.13	footpath paving	9 days	Sun 13/9/15	Mon 21/9/15
625	4.12.4.13.14	AC - lay DBM & base course	4 days	Sat 5/9/15	Tue 8/9/15
626	4.12.4.14	4 Works from chainage 125 to chainage 190 (east side carriageway & footpath)	43 days	Wed 9/9/15	Thu 22/10/15
627	4.12.4.14.1	TTA for ch 125-190 (east)	0 days	Wed 9/9/15	Wed 9/9/15
628	4.12.4.14.2	VO for renewal of rising main	7 days	Thu 10/9/15	Wed 16/9/15
629	4.12.4.14.3	filling works to formation of road (include SRT98%)	4 days	Wed 16/9/15	Sat 19/9/15
630	4.12.4.14.4	street lighting, drainage & crossing at ch 134	3 days	Sun 20/9/15	Tue 22/9/15
631	4.12.4.14.5	irrigation system	3 days	Wed 23/9/15	Fri 25/9/15
632	4.12.4.14.6	UU for CLP (lighting)	3 days	Mon 28/9/15	Mon 28/9/15
633	4.12.4.14.7	sub-base laying	2 days	Tue 29/9/15	Wed 30/9/15
634	4.12.4.14.8	kerb bedding, laying & backing before bituminous material	5 days	Thu 1/10/15	Mon 5/10/15
635	4.12.4.14.9	filling works to formation of footpath	3 days	Tue 6/10/15	Thu 8/10/15
636	4.12.4.14.10	UU for ch 125-200 (PCCW/HGC)	5 days	Fri 9/10/15	Tue 13/10/15
637	4.12.4.14.11	footpath paving	9 days	Wed 14/10/15	Thu 22/10/15
638	4.12.4.14.12	AC - lay DBM & base course	4 days	Tue 6/10/15	Fri 9/10/15
639	4.12.4.15	6 Works from chainage 80 to chainage 125 (east side carriageway & footpath)	40 days	Sat 10/10/15	Thu 19/11/15
640	4.12.4.15.1	TTA for ch 80-125 (east)	0 days	Sat 10/10/15	Sat 10/10/15
641	4.12.4.15.2	VO for renewal of rising main	7 days	Sun 11/10/15	Sat 17/10/15
642	4.12.4.15.3	filling works to formation of road (include SRT98%)	3 days	Fri 16/10/15	Tue 20/10/15
643	4.12.4.15.4	street lighting, drainage & crossing at ch 98	3 days	Thu 20/10/15	Thu 22/10/15
644	4.12.4.15.5	irrigation system	3 days	Fri 23/10/15	Sun 25/10/15
645	4.12.4.15.6	UU for CLP (lighting)	3 days	Mon 26/10/15	Wed 28/10/15
646	4.12.4.15.7	sub-base laying	3 days	Thu 29/10/15	Sat 31/10/15
647	4.12.4.15.8	kerb bedding, laying & backing before bituminous material	5 days	Sun 1/11/15	Thu 5/11/15
648	4.12.4.15.9	filling works to formation of footpath	3 days	Fri 6/11/15	Sun 8/11/15
649	4.12.4.15.10	UU for ch 80-125 (PCCW/HGC)	4 days	Mon 9/11/15	Thu 12/11/15
650	4.12.4.15.11	footpath paving	7 days	Fri 13/11/15	Thu 19/11/15
651	4.12.4.15.12	AC - lay DBM & base course	3 days	Fri 6/11/15	Sun 8/11/15
652	4.12.4.16	Rising manholes & drawpit covers & Lay wearing course (with TTA)	44 days	Tue 10/11/15	Wed 23/12/15
653	4.12.4.16.1	Chainage 80 to Chainage 180 (west side)	4 days	Tue 10/11/15	Fri 13/11/15
654	4.12.4.16.2	Chainage 80 to Chainage 180 (east side)	2 days	Sat 14/11/15	Sun 15/11/15
655	4.12.4.16.3	Chainage 180 to Chainage 280 (west side)	4 days	Mon 16/11/15	Thu 19/11/15
656	4.12.4.16.4	Chainage 180 to Chainage 280 (east side)	4 days	Fri 20/11/15	Mon 23/11/15
657	4.12.4.16.5	Chainage 280 to Chainage 380 (west side)	4 days	Tue 24/11/15	Fri 27/11/15
658	4.12.4.16.6	Chainage 280 to Chainage 380 (east side)	2 days	Sat 28/11/15	Sun 29/11/15
659	4.12.4.16.7	Chainage 380 to Chainage 480 (west side)	4 days	Mon 30/11/15	Thu 3/12/15
660	4.12.4.16.8	Chainage 380 to Chainage 480 (east side)	2 days	Fri 8/12/15	Sat 9/12/15
661	4.12.4.16.9	Chainage 480 to Chainage 580 (west side)	4 days	Sun 9/12/15	Wed 12/12/15
662	4.12.4.16.10	Chainage 480 to Chainage 580 (east side)	2 days	Thu 10/12/15	Fri 11/12/15
663	4.12.4.16.11	Chainage 580 to Chainage 680 (west side)	4 days	Sat 12/12/15	Tue 15/12/15
664	4.12.4.16.12	Chainage 580 to Chainage 680 (east side)	2 days	Wed 16/12/15	Thu 17/12/15
665	4.12.4.16.13	Chainage 680 to Chainage 785 (west side)	4 days	Fri 18/12/15	Mon 21/12/15
666	4.12.4.16.14	Chainage 680 to Chainage 785 (east side)	2 days	Tue 22/12/15	Wed 23/12/15
667	4.12.4.17	Eastern Footpath from ch 380-580	98 days	Wed 29/11/15	Tue 4/8/15
668	4.12.4.17.1	remove existing pavement	3 days	Wed 29/11/15	Fri 15/1/15
669	4.12.4.17.2	upper stream box culvert 900x600	14 days	Sat 25/1/15	Fri 15/5/15
670	4.12.4.17.3	filling works to formation of road (include SRT98%)	12 days	Sun 1/2/15	Wed 27/5/15
671	4.12.4.17.4	VO053 - crossing no. 2, 3, 4, 5 (east footpath)	5 days	Thu 16/5/15	Mon 1/6/15
672	4.12.4.17.5	filling works to formation of footpath	5 days	Tue 2/6/15	Sat 6/6/15
673	4.12.4.17.6	street light crossing at ch 523	5 days	Sun 7/6/15	Thu 11/6/15
674	4.12.4.17.7	UU for CLP (lighting)	5 days	Wed 17/6/15	Sun 21/6/15
675	4.12.4.17.8	sub-base & edging	6 days	Mon 22/6/15	Sat 27/6/15
676	4.12.4.17.9	UU for ch 380-580 (PCCW/HGC)	14 days	Sun 28/6/15	Sat 11/7/15
677	4.12.4.17.10	construct edging	10 days	Sun 12/7/15	Tue 21/7/15
678	4.12.4.17.11	footpath paving	14 days	Wed 22/7/15	Thu 30/7/15
679	4.12.4.18	Eastern Footpath from ch 190-380	71 days	Thu 21/5/15	Thu 30/7/15
680	4.12.4.18.1	remove existing pavement	3 days	Thu 21/5/15	Thu 23/5/15
681	4.12.4.18.2	VO053 - crossing no. 2 (east footpath)	3 days	Sun 24/5/15	Tue 26/5/15
682	4.12.4.18.3	filling works to formation of footpath	5 days	Wed 27/5/15	Sun 31/5/15

Revision 1
Thu 28/5/15

Task Split

Milestone Summary

Project Summary Critical

Task Split

Critical Split

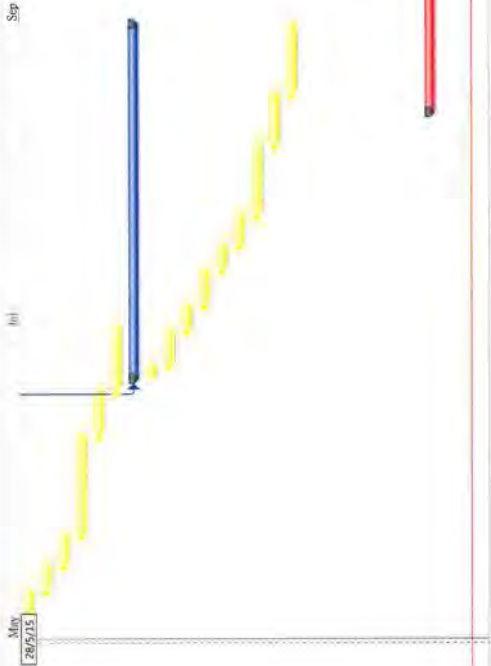
Progress

Deadline

Page 5 of 6

20150528 - Updated Submitted Wp(06) - 3 months rolling

ID	WBS	Task Name	Duration	Start	Finish
683	4.12.4.18.4	street light crossings at ch:287.350	7 days	Mon 1/6/15	Sun 7/6/15
684	4.12.4.18.5	UU for CLP (lighting)	5 days	Mon 8/6/15	Fri 12/6/15
685	4.12.4.18.6	sub-base & edging	6 days	Sat 13/6/15	Thu 18/6/15
686	4.12.4.18.7	UU for ch 190-380 (PCCW/HGC)	20 days	Fri 19/6/15	Wed 8/7/15
687	4.12.4.17.10	construct edging	9 days	Thu 9/7/15	Fri 17/7/15
688	4.12.4.17.11	footpath paving	13 days	Sat 18/7/15	Thu 30/7/15
689	4.12.4.19	Eastern Footpath from ch 580-785	71 days	Mon 20/7/15	Mon 28/9/15
690	4.12.4.19.1	remove existing pavement	3 days	Mon 20/7/15	Wed 22/7/15
691	4.12.4.19.2	V0053 - crossing no. 5, 6, 7&8 (east footpath)	7 days	Thu 23/7/15	Wed 29/7/15
692	4.12.4.19.3	filling works to formation of footpath	5 days	Thu 30/7/15	Mon 3/8/15
693	4.12.4.19.4	street light crossings at ch:760,785	7 days	Tue 4/8/15	Mon 10/8/15
694	4.12.4.19.5	UU for CLP (lighting)	5 days	Tue 11/8/15	Sat 15/8/15
695	4.12.4.19.6	sub-base & edging	6 days	Sun 16/8/15	Fri 21/8/15
696	4.12.4.19.7	UU for ch 580-785 (PCCW/HGC)	14 days	Sat 22/8/15	Fri 4/9/15
697	4.20.4.11.10	construct edging	10 days	Sat 5/9/15	Mon 14/9/15
698	4.12.4.19.9	footpath paving	14 days	Tue 15/9/15	Mon 28/9/15
699	4.12.4.20	Construction of retaining wall RW8 - CH10 to 22 (3 bays)	70 days	Tue 30/12/14	Mon 9/3/15
700	4.12.4.20.1	Bay 8001 to Bay 8003 (3 bays)	70 days	Tue 30/12/14	Mon 9/3/15
701	4.12.4.21	Site Formation works for ArchSD Depot (Drg. 1001B)	60 days	Tue 10/3/15	Fri 8/5/15
702	4.12.4.22	Archaeological survey (Sections T1 to T3)(Drp. 6403A)	147 days	Thu 24/10/13	Wed 19/3/14
708	4.13	Section XIV of the Works - Trees preservation and protection.	730 days	Fri 12/4/13	Sat 11/4/15
716	4.14	Section XV of the Works - Landscape soft works (including transplant trees to permanent locations)	135 days	Fri 11/9/15	Sat 23/1/16
720	4.15	Section XVI of the Works - Establishment works for landscape soft works	365 days	Sun 24/1/16	Sun 22/1/17



Appendix D

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

LEGEND:

- BOUNDARY OF HKSAR
- - - WORKS AREA (ABOVE GROUND)
- - - WORKS AREA (TUNNEL)
- X AIR MONITORING STATIONS

PA	REV TO	REV	FIRST ISSUE	DC	WT



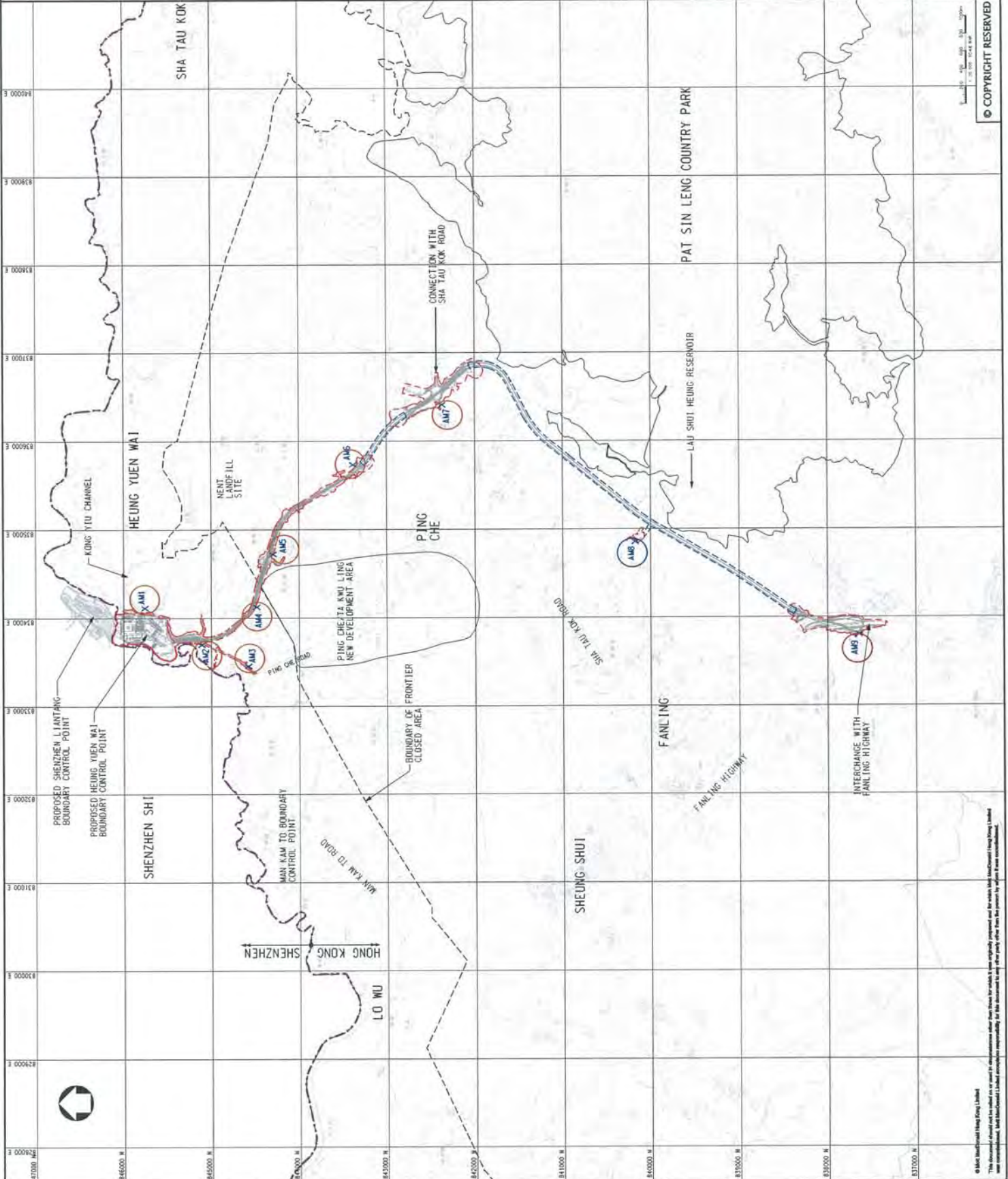
CIVIL ENGINEERING
AND DEVELOPMENT
DEPARTMENT

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

PROPOSED LOCATION OF CONSTRUCTION
AIR QUALITY MONITORING STATIONS

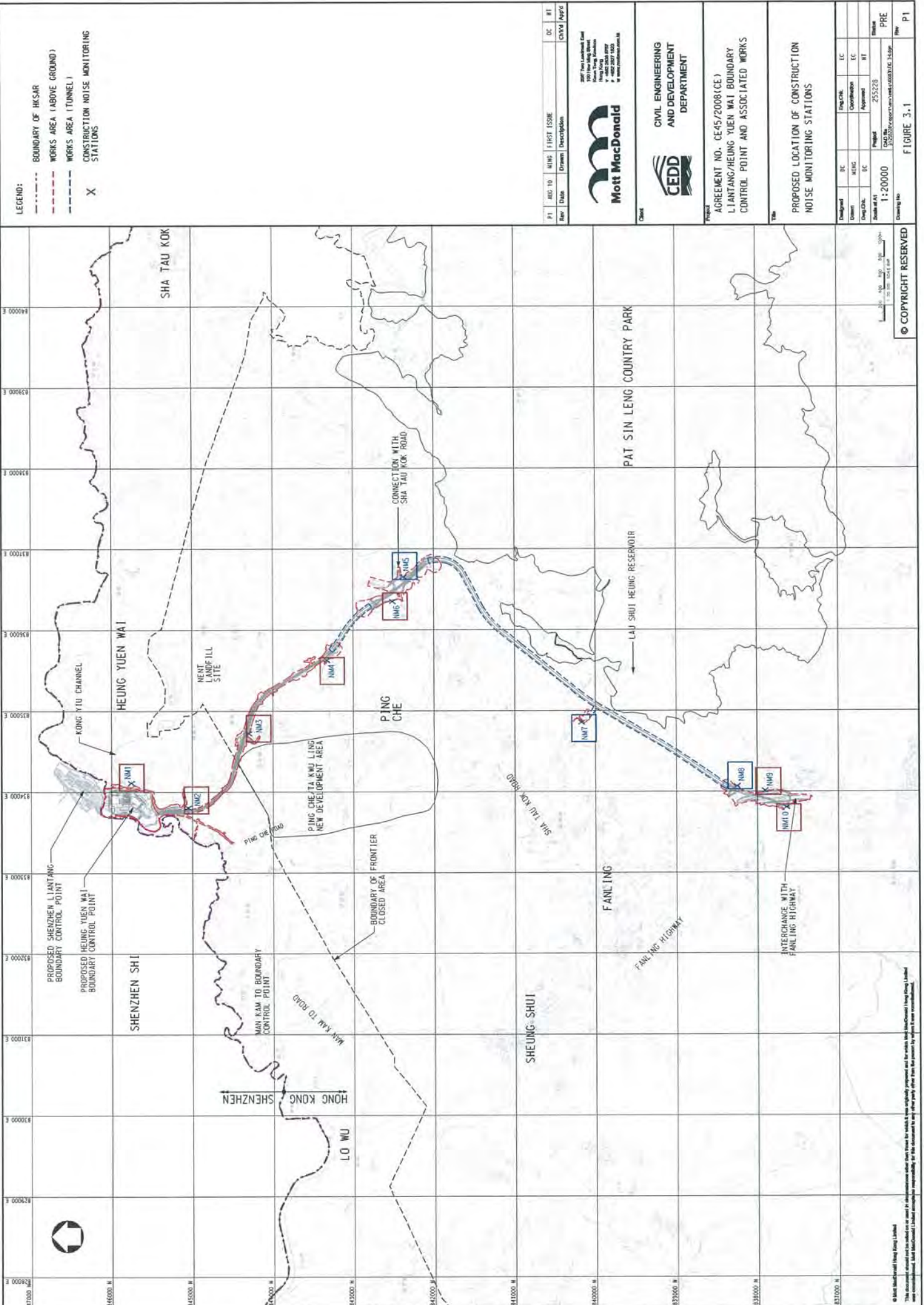
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Drawing No.	CE45/2008(CE)001/002/003/004/005/006/007/008/009/010/011/012/013/014/015/016/017/018/019/020/021/022/023/024/025/026/027/028/029/030/031/032/033/034/035/036/037/038/039/040/041/042/043/044/045/046/047/048/049/050/051/052/053/054/055/056/057/058/059/060/061/062/063/064/065/066/067/068/069/070/071/072/073/074/075/076/077/078/079/080/081/082/083/084/085/086/087/088/089/090/091/092/093/094/095/096/097/098/099/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000		

FIGURE 2-1



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LEGEND:

- BOUNDARY OF HKSR
- - - WORKS AREA (ABOVE GROUND)
- - - WORKS AREA (TUNNEL)
- X CONSTRUCTION NOISE MONITORING STATIONS

PI	ADD TO	DATE	BY	DESCRIPTION	DC	RT



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 100 The Ring Road
 Causeway Bay, Hong Kong
 Tel: +852 2500 8222
 Fax: +852 2500 8223
 www.mottmacdonald.com.hk



 CIVIL ENGINEERING
 AND DEVELOPMENT
 DEPARTMENT

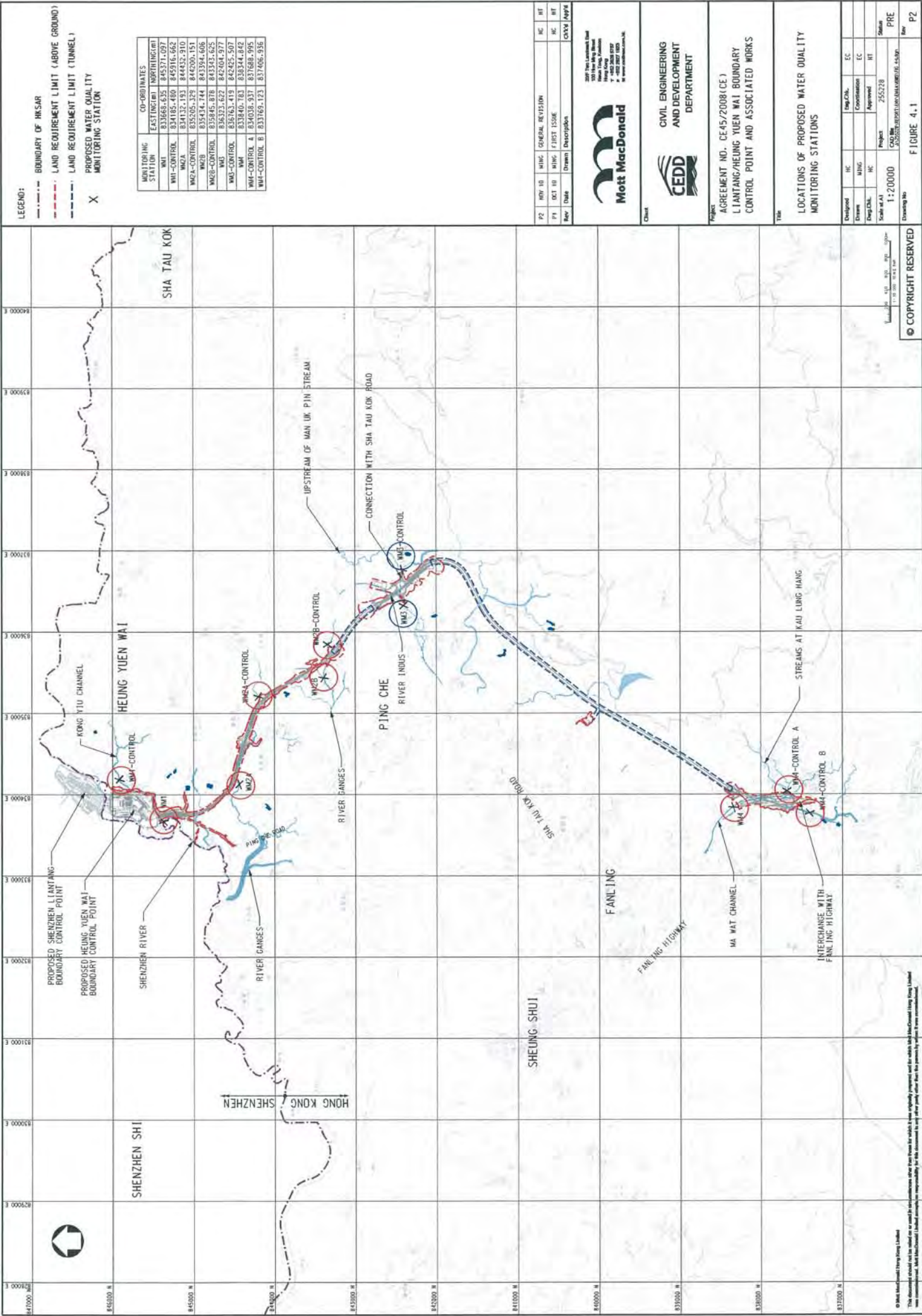
Project:
 AGREEMENT NO. CE-45/2008(CE)
 LIANTANG/HEUNG YUEN WAI BOUNDARY
 CONTROL POINT AND ASSOCIATED WORKS

Title:
 PROPOSED LOCATION OF CONSTRUCTION
 NOISE MONITORING STATIONS

Designated	DC	M/DC	DC	Project	DC/DC	EC
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Drawn						
Scale at A1	1:20000			Scale at A2		
Drawing No.	CE45/08/CP/CONSTRUCTION/NOISE/03/01/01			Revision	PRE	
				Drawn	P1	

FIGURE 3-1

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LEGEND:

- BOUNDARY OF HKSAR
- LAND REQUIREMENT LIMIT (ABOVE GROUND)
- LAND REQUIREMENT LIMIT (TUNNEL)
- PROPOSED WATER QUALITY MONITORING STATION
- X

MONITORING STATION	CO-ORDINATES	
	EASTING (M)	NORTHING (M)
WMA	837683.635	845371.097
WMA-CONTROL 1	834185.460	845916.662
WMA-CONTROL 2	834132.193	844432.910
WMA-CONTROL 3	835505.329	844200.151
WMA-CONTROL 4	835534.744	843394.606
WMA-CONTROL 5	835945.878	843343.625
WMA-CONTROL 6	836323.622	842404.977
WMA-CONTROL 7	836763.419	842425.507
WMA-CONTROL 8	834038.937	837688.995

REV	DATE	BY	CHKD	DESCRIPTION
P1	DEC 10	MING		FIRST ISSUE
P2	NOV 10	MING		GENERAL REVISION



CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

PROJECT AGREEMENT NO. CE-45/2008(CE)
LIANTANG/HUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

TITLE LOCATIONS OF PROPOSED WATER QUALITY MONITORING STATIONS

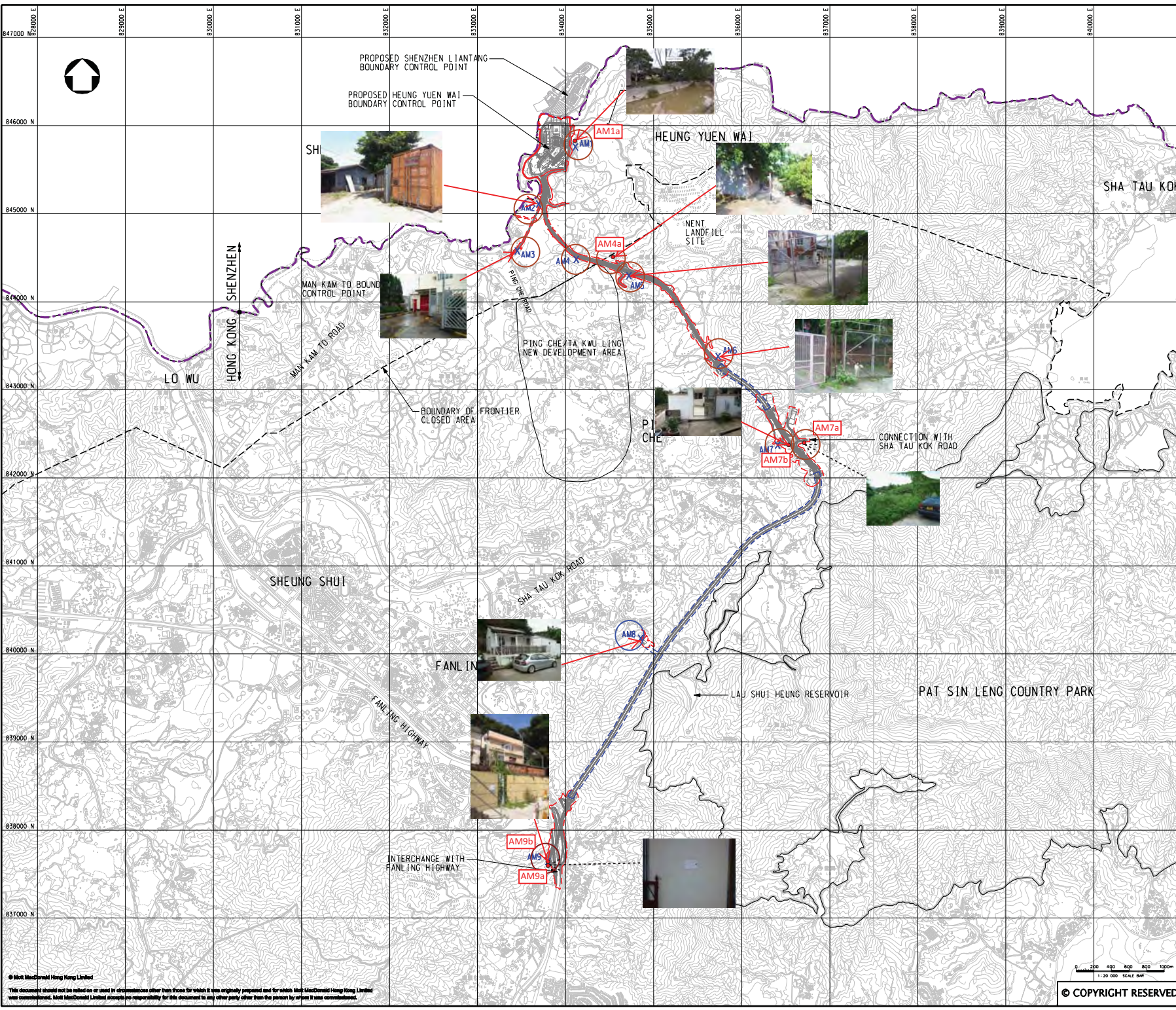
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Drawn	HC	WHG	EC
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Drawn No.	PRE		
Sheet No.	P2		

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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	Chk'd	App'd

20F Two Landmark East
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W www.mottmac.com.hk

Client

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

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

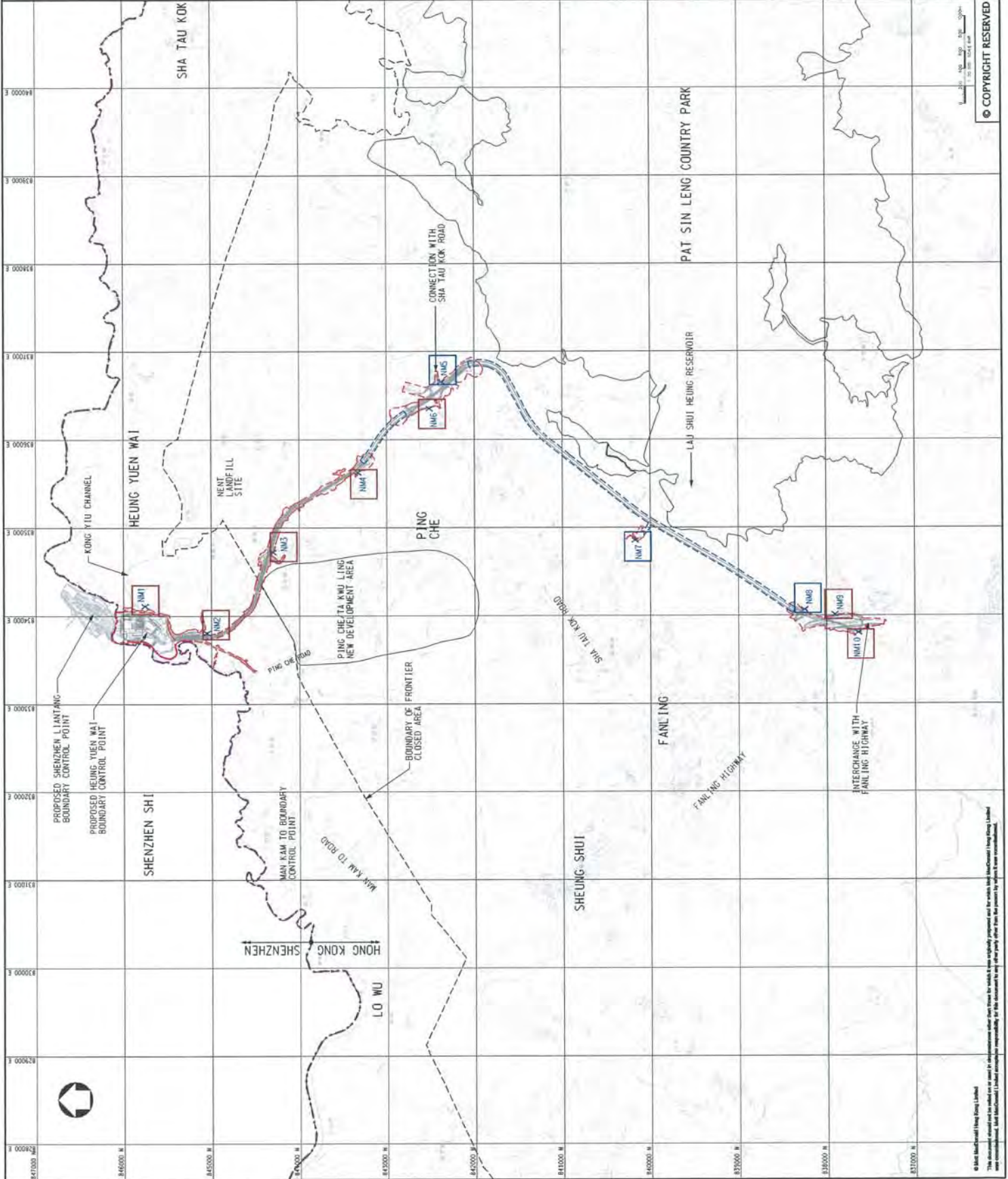
Title
 PROPOSED LOCATION OF CONSTRUCTION AIR QUALITY MONITORING STATIONS

Designed	DC	Eng.Chk.	EC	
Drawn	MING	Coordination	EC	
Draw.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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LEGEND:

- BOUNDARY OF HKSAR
- WORKS AREA (ABOVE GROUND)
- WORKS AREA (TUNNEL)
- X CONSTRUCTION NOISE MONITORING STATIONS



PI	ADD TO	NO	DATE	DESCRIPTION	DC	BT



CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

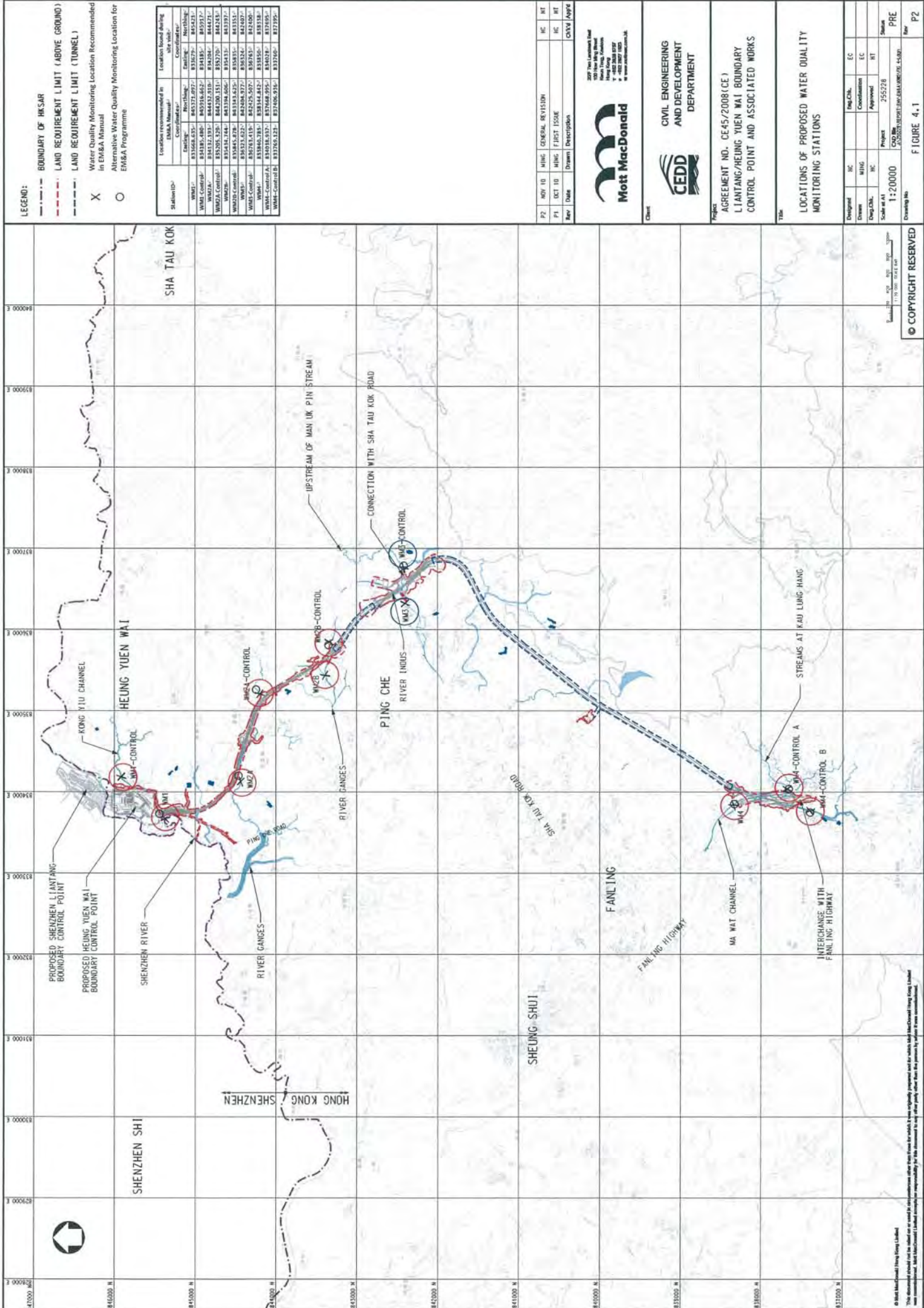
AGREEMENT NO. CE-45/2008(CE)
LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

PROPOSED LOCATION OF CONSTRUCTION NOISE MONITORING STATIONS

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Scale at A1	1:20000		Scale at A2	1:20000	
Drawing No.	CE45/2008(CE)S003/001/001/001/001		Sheet No.	PRE	
Checked by	P1		Drawn by	P1	

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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	837668.435	935772.097	837670	935770
WMA2	841312.183	934452.816	841310	934450
WMA3	852051.326	934200.151	852050	934200
WMA4	837484.744	934358.606	837480	934360
WMA5	835845.878	934348.625	835850	934350
WMA6	837652.415	934258.507	837650	934260
WMA7	837846.783	934144.842	837850	934150
WMA8	834038.937	937668.995	834040	937670
WMA9	837765.427	937668.916	837770	937670

Rev	Date	Drawn	Description	CHKD	Appd
P2		HWG	GENERAL REVISION	HC	HT
P1		HWG	FIRST ISSUE	HC	HT

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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	Drawn	Eng. Chk.	Scale at A1	Project No.	Revision No.	Sheet
HC	HWG	HC	1:20000	CE45/2008(CE)	1	PRE

Drawing No. **FIGURE 4_1**

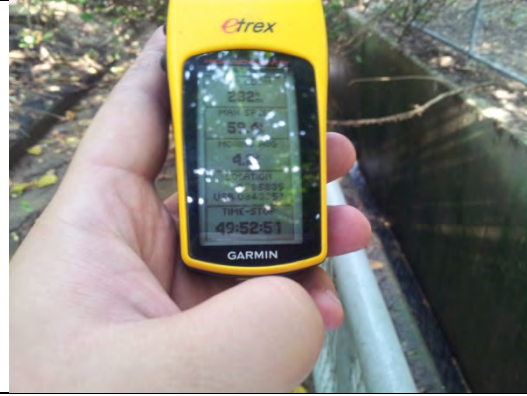
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Photographic Records for Water Quality Monitoring Location

	
<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



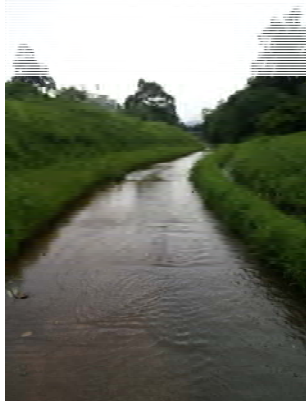
Co-ordinates of WM2B



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. 	

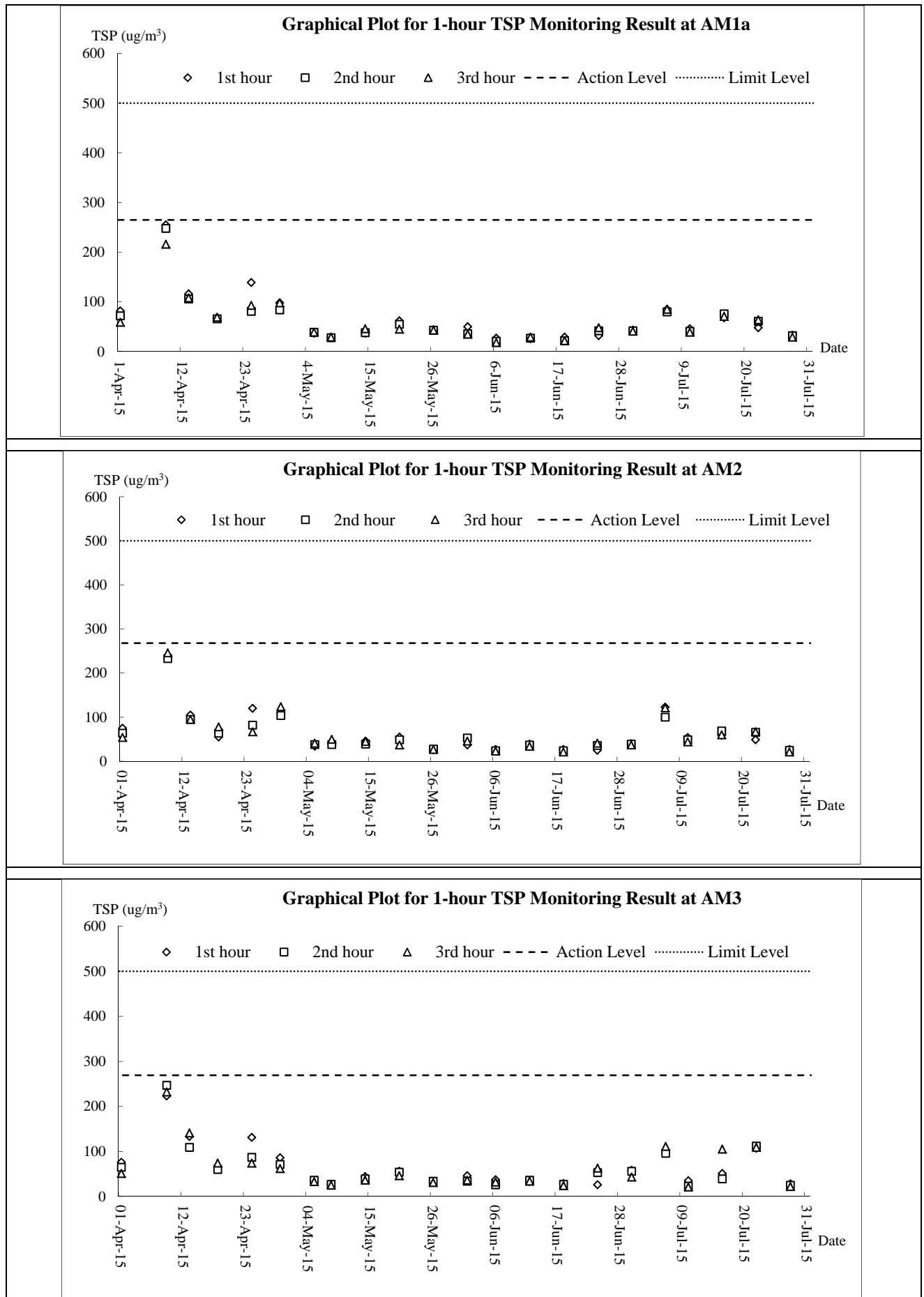
Event and Action Plan for Water Quality

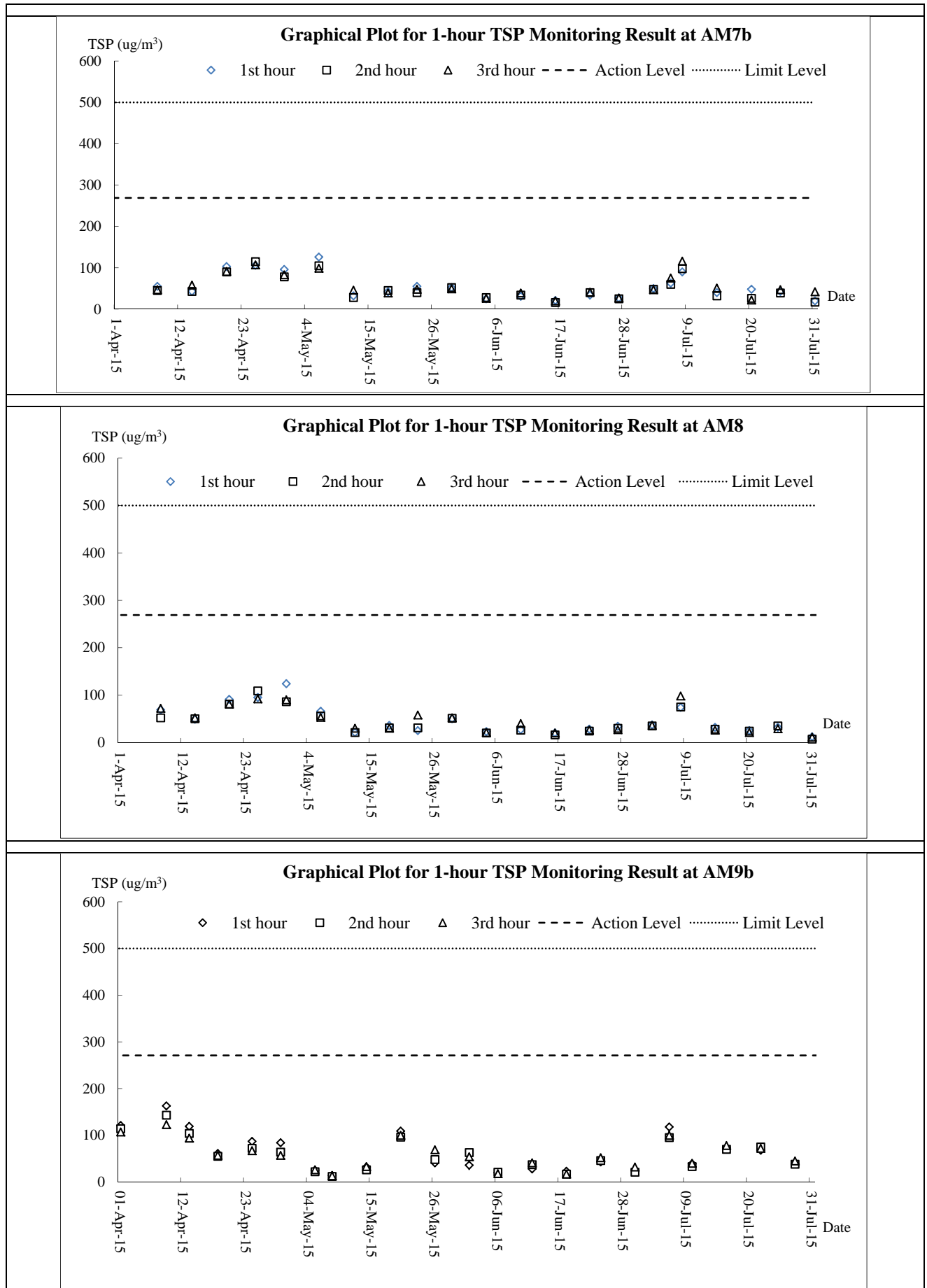
EVENT	ET	IEC	ER	ACTION CONTRACTOR
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings; Identify reasons for non-compliance and sources of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's 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

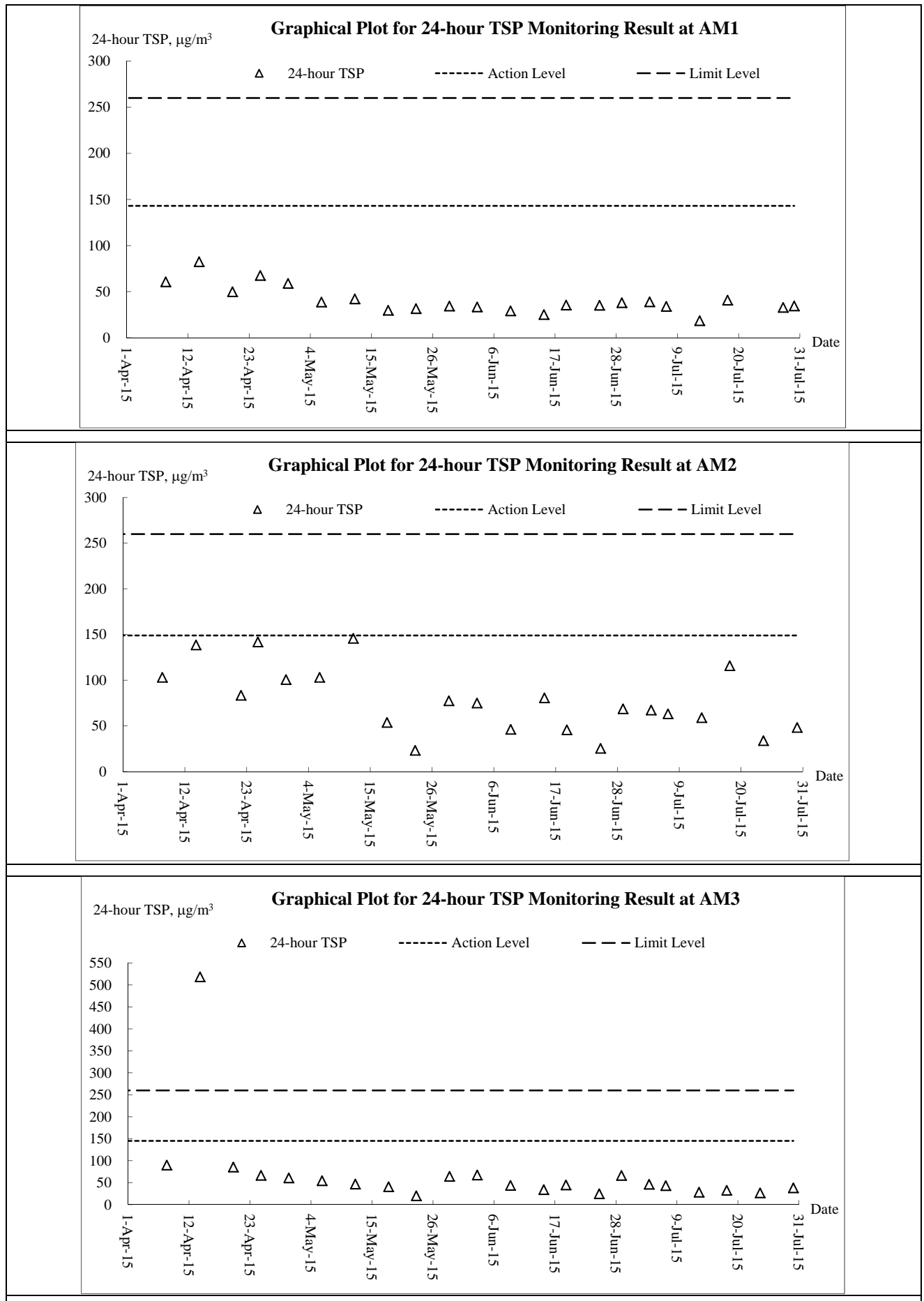
Graphical Plots for Monitoring Result

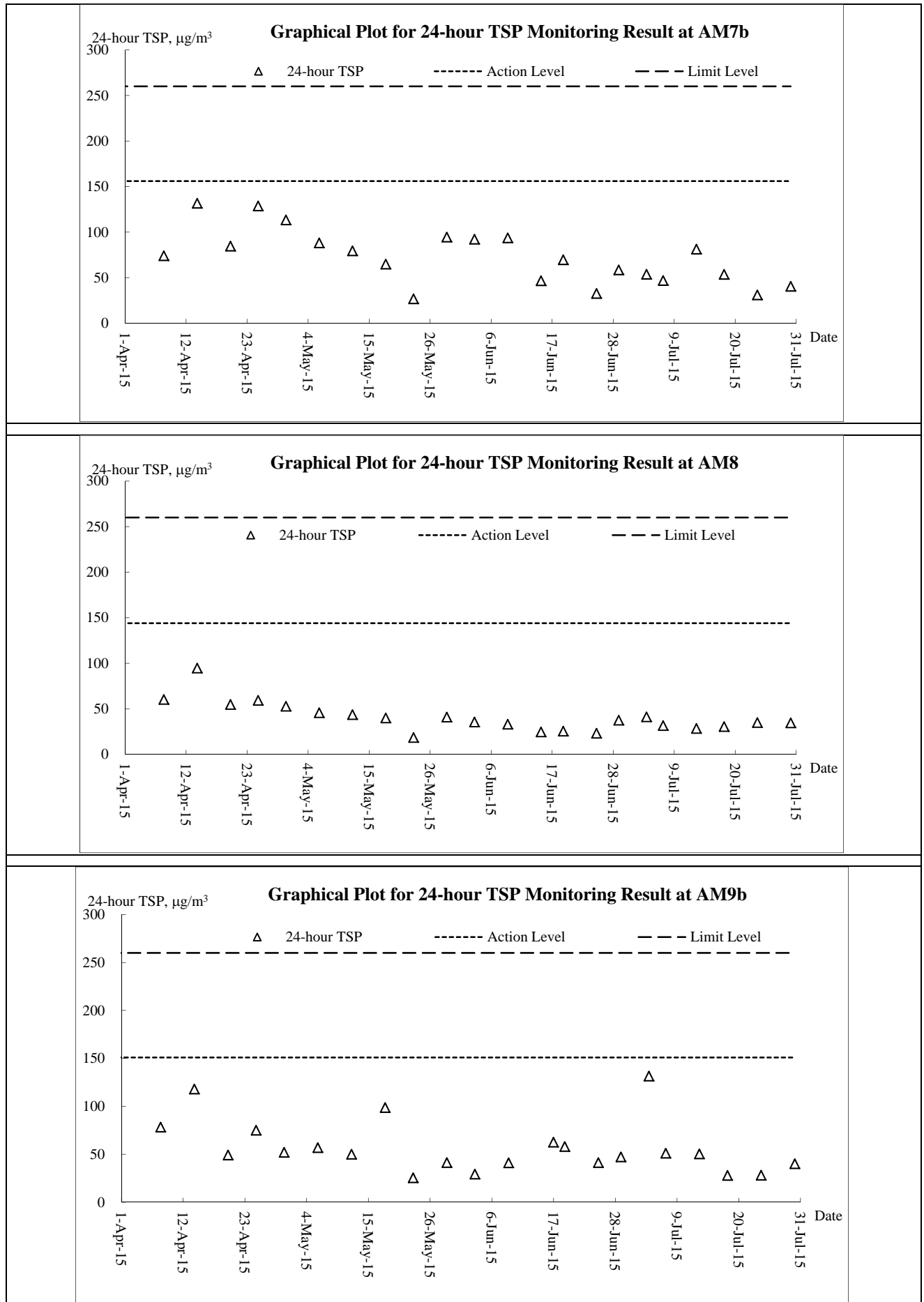
Air Quality – 1-hour TSP



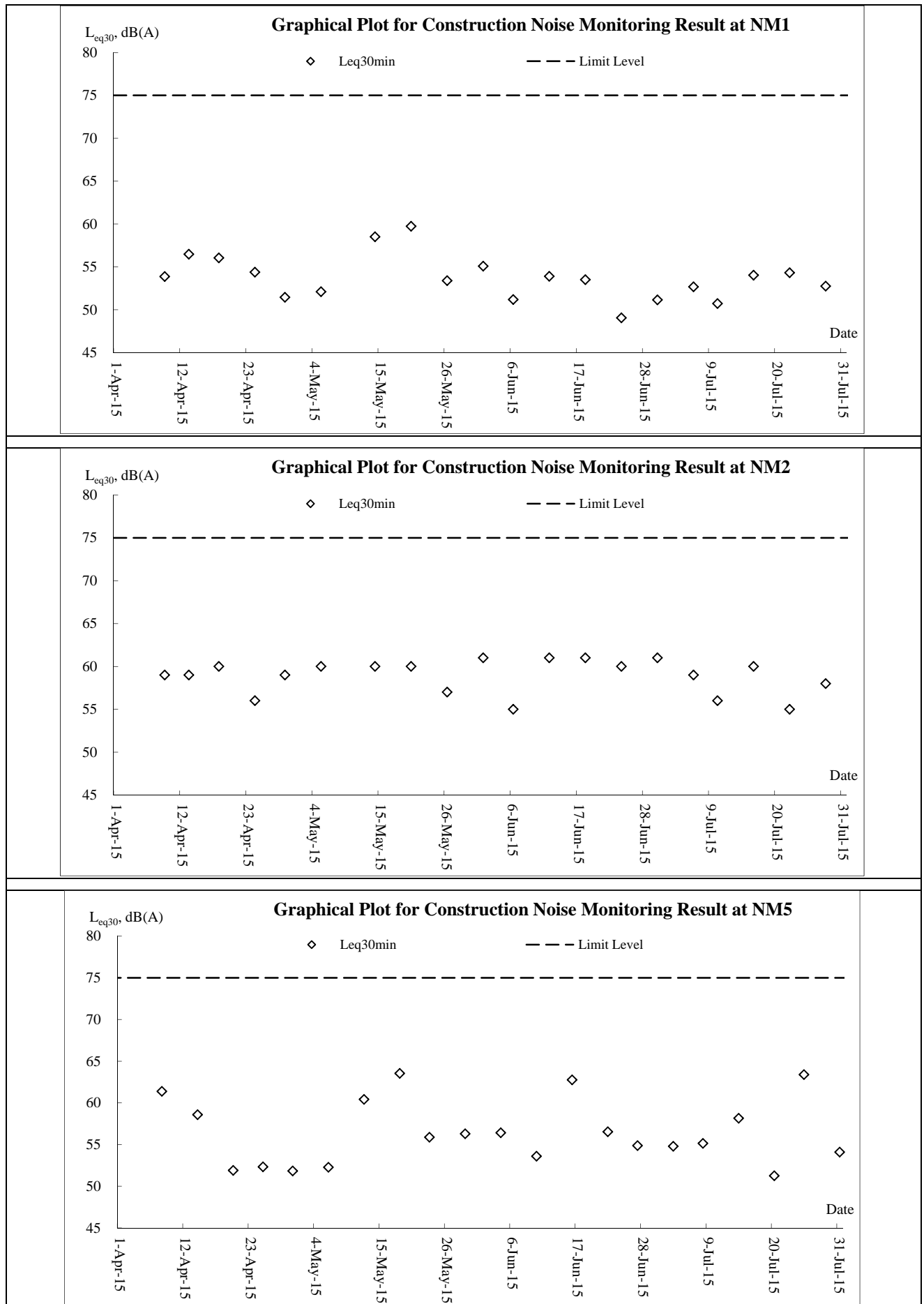


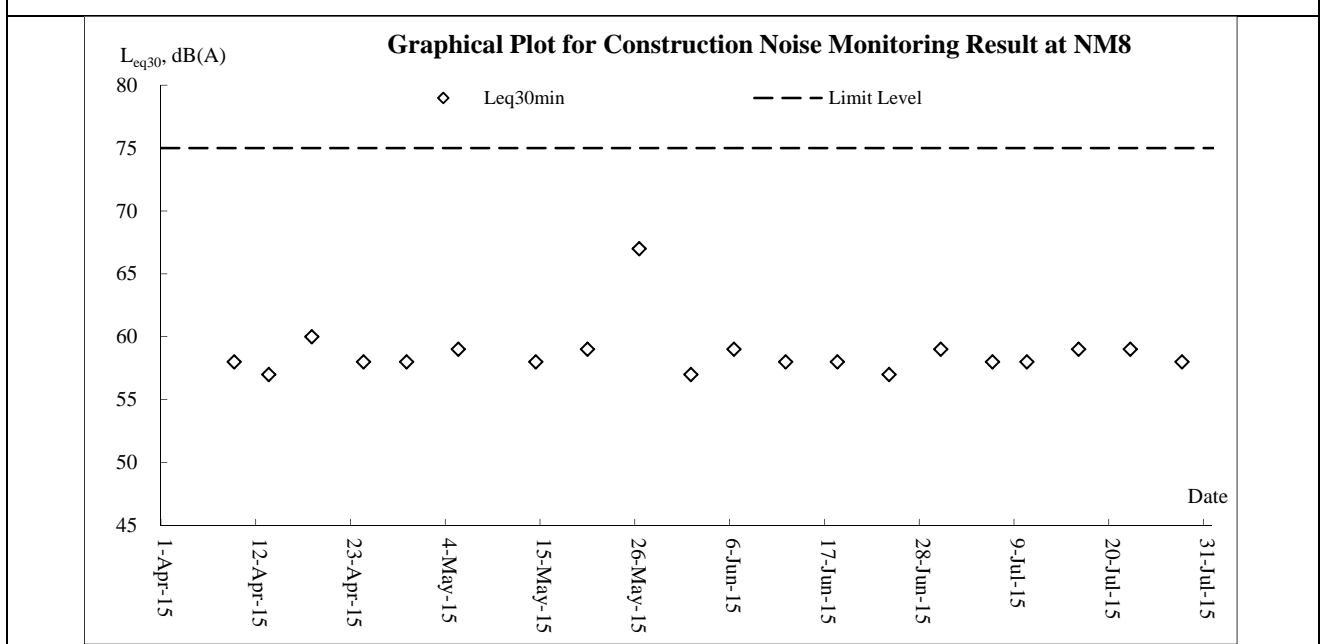
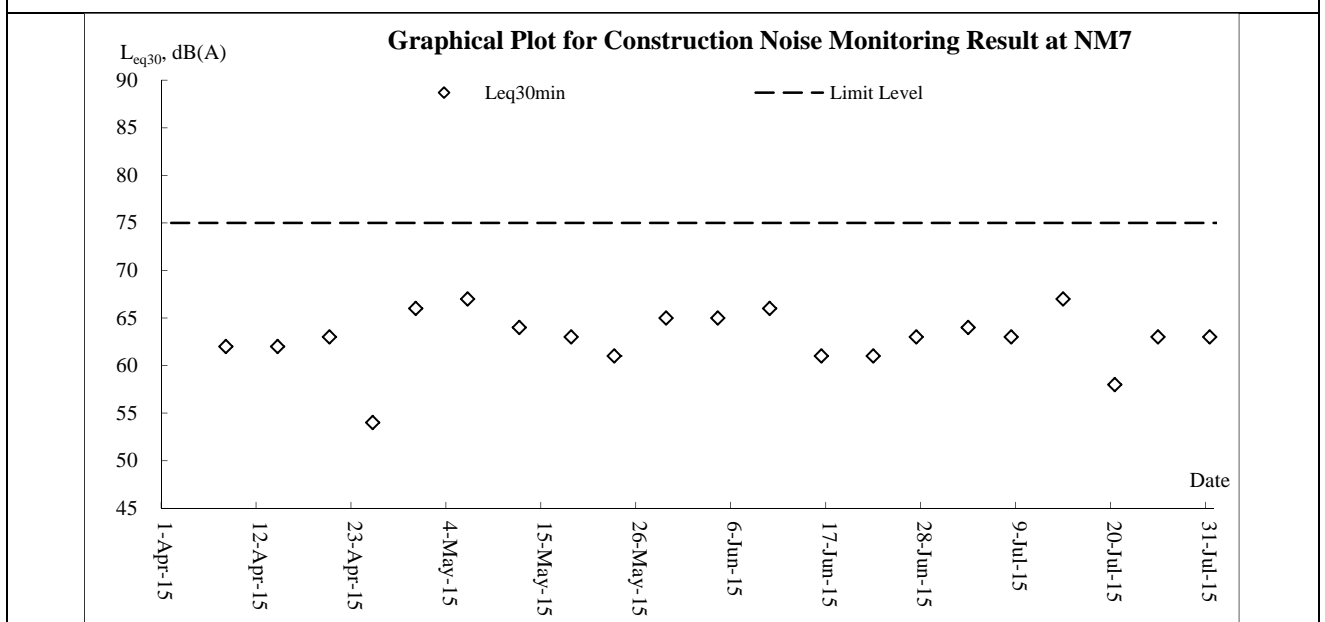
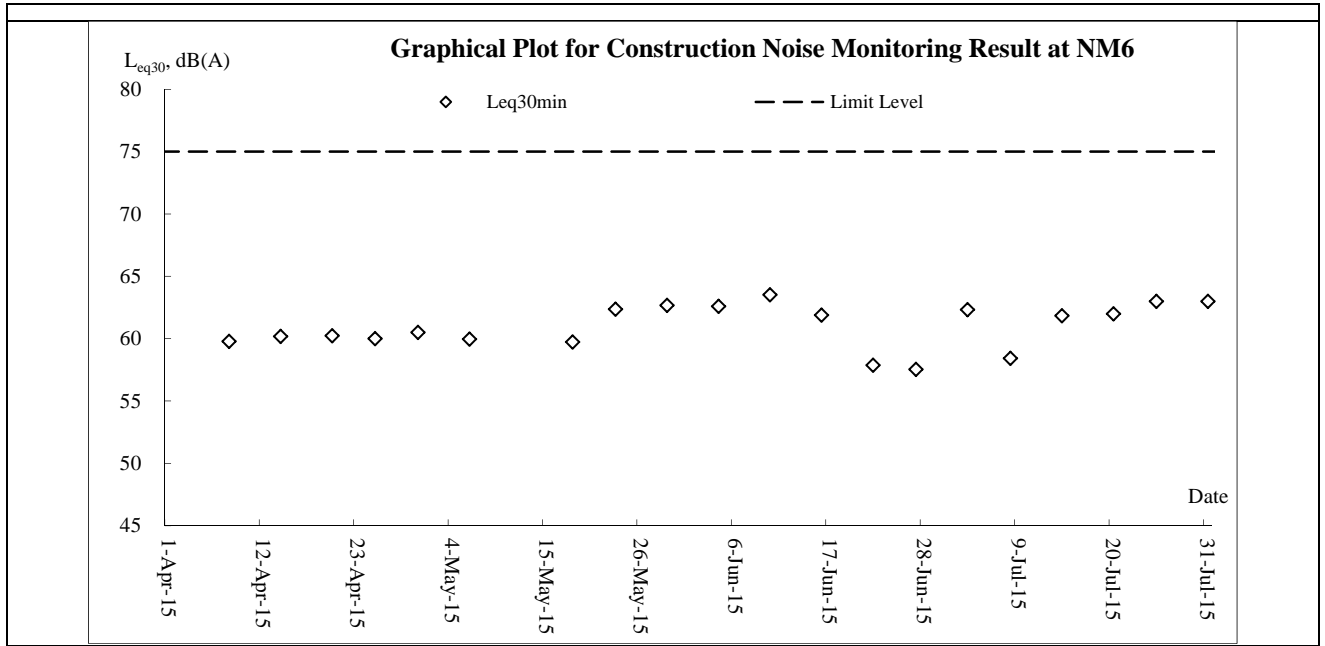
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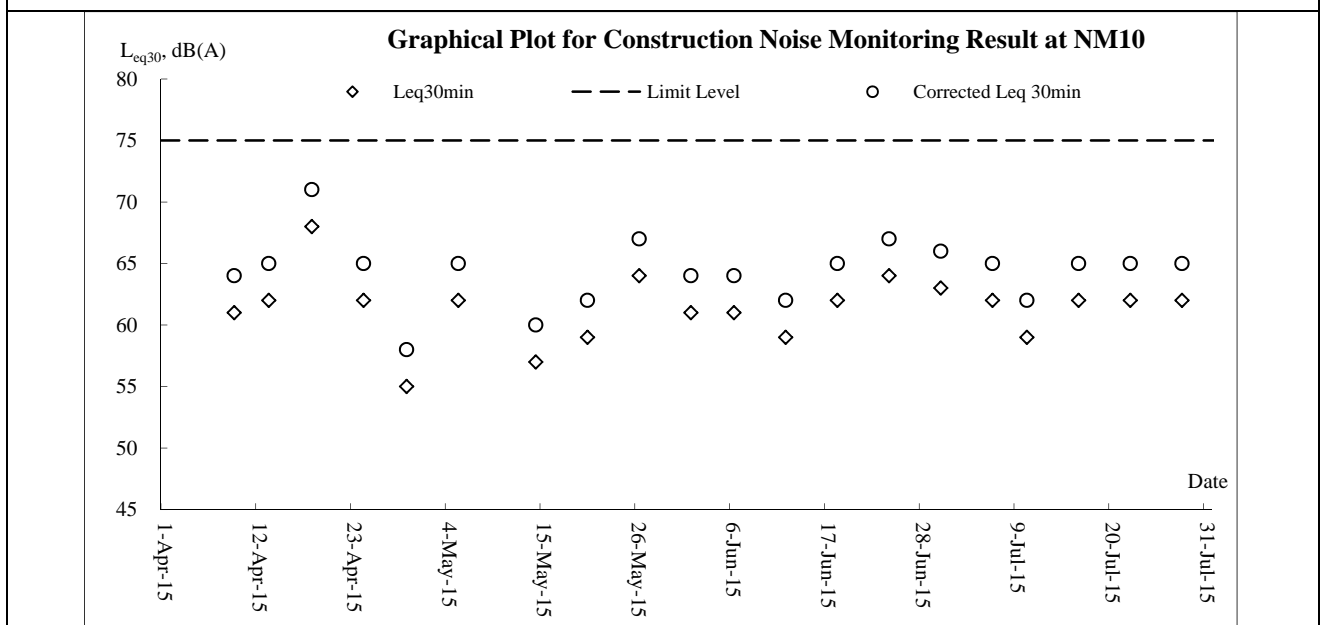
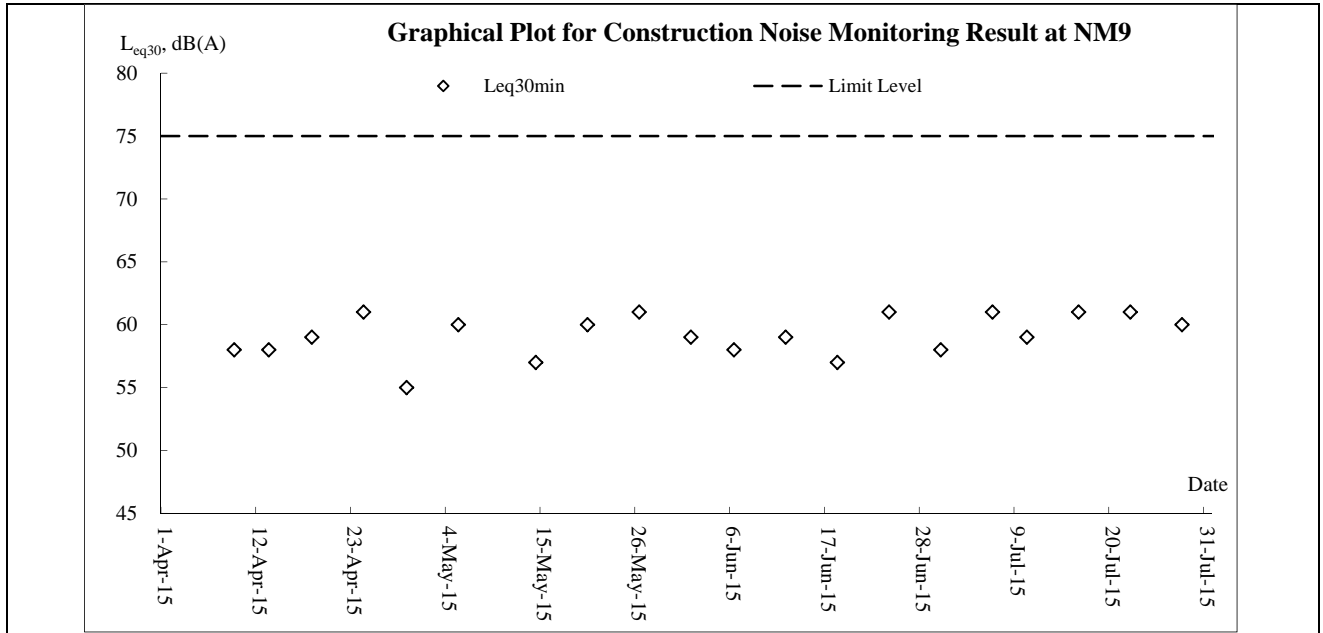




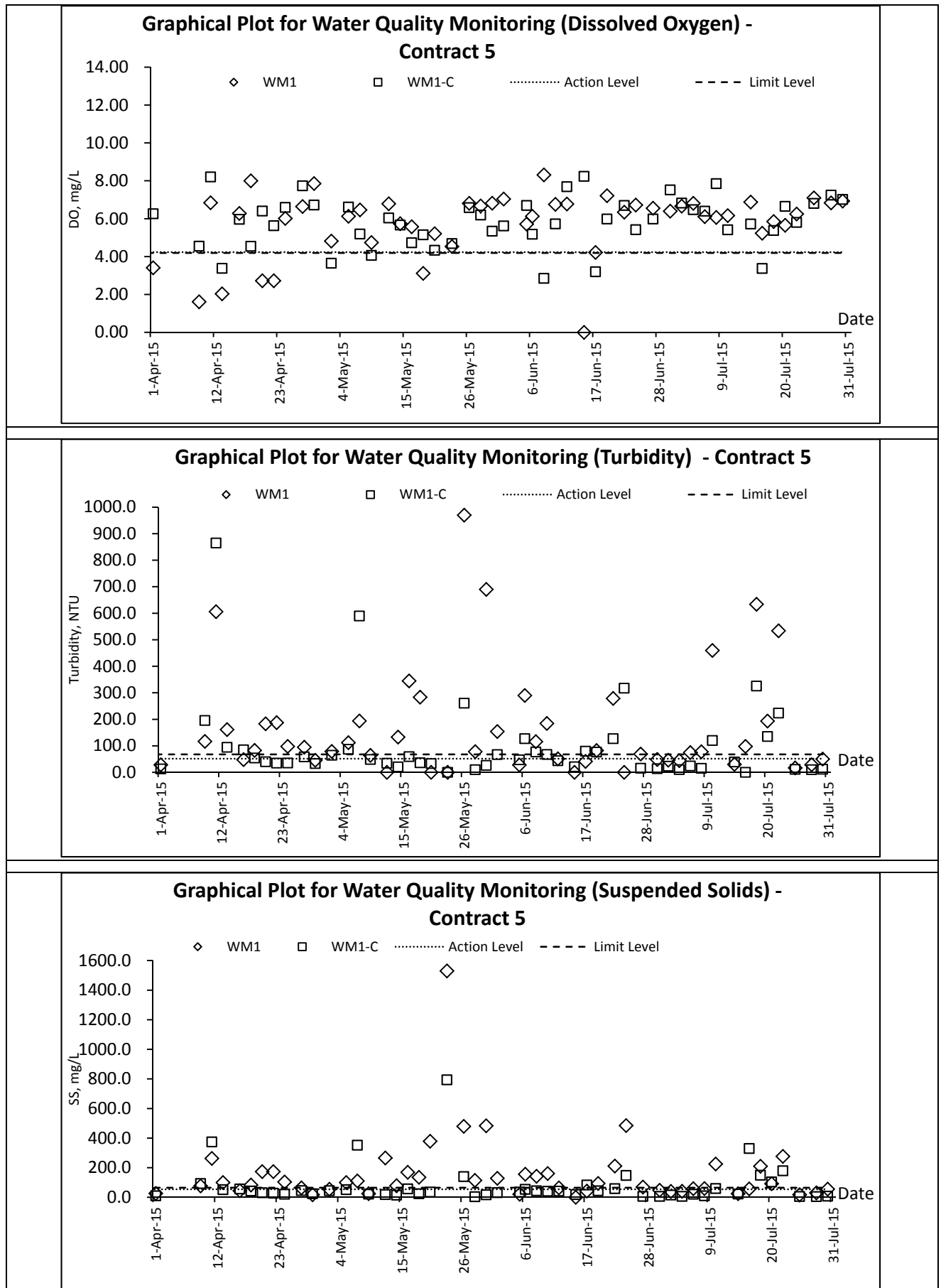
Noise



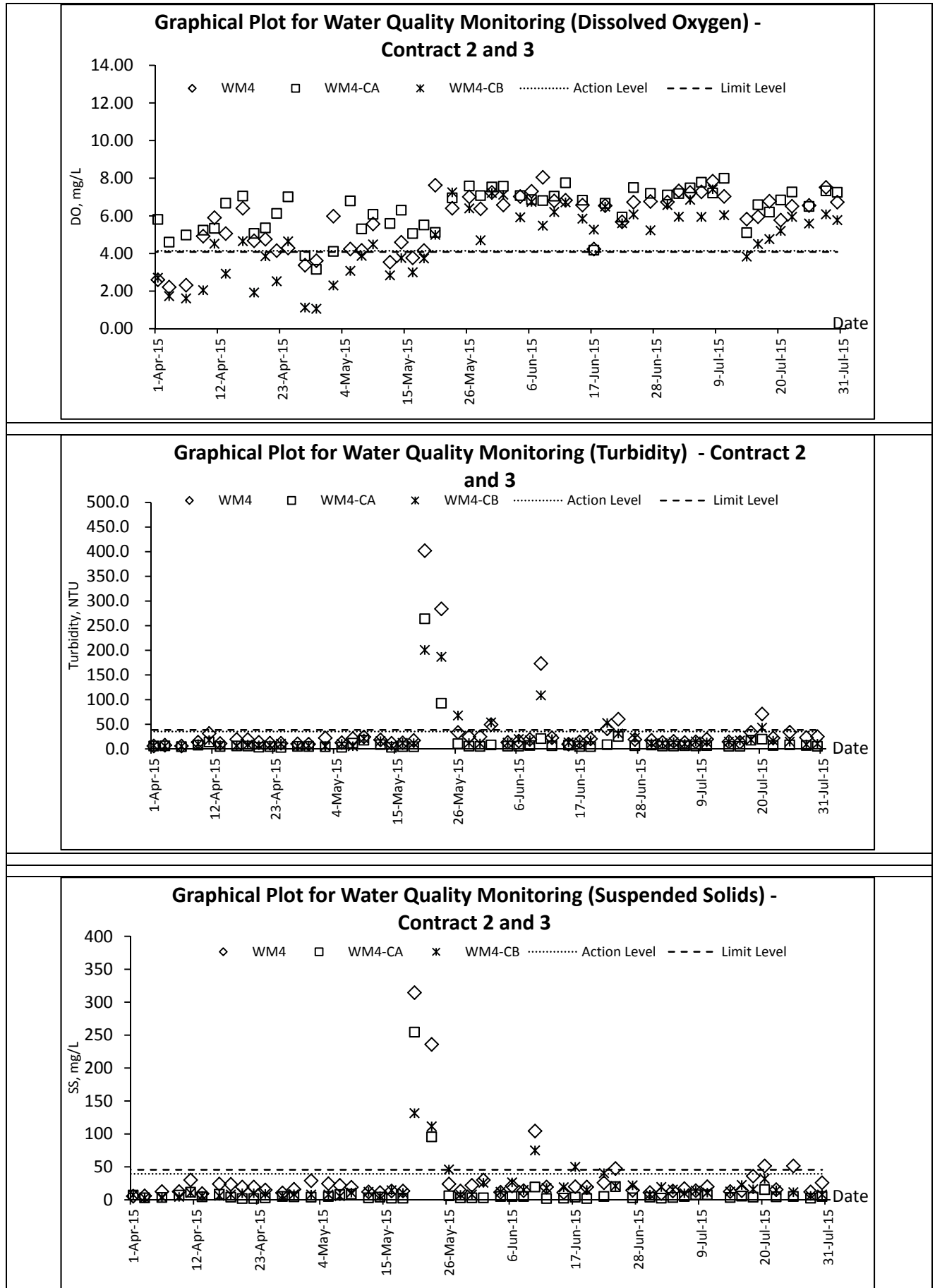




Water Quality - Contract 5



Water Quality – Contract 2 and 3



Appendix H

Weather information

Weather Condition Extracted from HKO

The weather of May 2015

May 2015 was the fourth hottest May since records began in 1884. Its monthly mean temperature of 27.5 degrees was 1.6 degrees higher than the normal figure of 25.9 degrees. Affected by active troughs of low pressure in the second half of the month, May 2015 was actually cloudier than usual and rather rainy as well. Bright sunshine during the month amounted to 93.5 hours only, about 33 percent below the normal figure of 140.4 hours, the seventh lowest for May on record. The monthly total rainfall was 513.0 millimetres, a surplus of 68 percent against the normal figure of 304.7 millimetres. The accumulated rainfall of 679.6 millimetres since 1 January was about 6 percent above the normal figure of 640.8 millimetres for the same period.

The weather of June 2015

June 2015 was the hottest June in Hong Kong since records began in 1884. The monthly mean temperature of 29.7 degrees was 1.8 degrees above the normal figure of 27.9 degrees and broke the previous record of 29.0 degrees set in 2014 by a wide margin of 0.7 degree. Both the monthly mean minimum temperature of 27.7 degrees and the monthly mean maximum temperature of 32.3 degrees ranked the highest for June. The extremely hot weather in June 2015 in Hong Kong was partly attributed to the westward extension of the subtropical ridge of high pressure from the western North Pacific to southern China during the month. The prevailing southerly flow and the above-normal sea surface temperature over the northern part of the South China Sea also contributed to the sweltering weather.

The weather of July 2015

July 2015 was warmer and cloudier than usual. The mean temperature in the month was 29.1 degrees, 0.3 degrees above the normal figure of 28.8 degrees. The monthly mean cloud amount of 75 percent was 6 percent above the normal figure of 69 percent. With the increase in cloudiness, the total sunshine duration recorded in July 2015 was only 164.9 hours, about 22 percent below normal. The month was also wetter than usual with a monthly total rainfall of 406.2 millimetres, 8 percent above the normal figure of 376.5 millimetres. The accumulated rainfall of 1376.8 millimetres since 1 January was about 7 percent below the normal figure of 1473.3 millimetres for the same period

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 I - Monthly Summary Waste Flow Table for 2015

(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	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	66.2666	0.0000	0.0670	65.6529	0.5467	0.1150	0.0000	0.2500	0.0000	0.0000	0.0617
February	57.9980	0.0000	0.0000	57.3858	0.6121	0.3505	3.3200	0.3900	0.0000	0.5280	0.0908
March	66.0198	0.0000	0.3614	65.3359	0.3225	0.0729	0.0000	0.2920	0.0000	0.7040	0.1293
April	49.2562	0.0000	0.2770	48.7725	0.2066	0.1928	0.0000	0.2300	0.0000	0.0000	0.2423
May	41.7957	0.0000	8.7663	32.6095	0.4199	0.8683	0.0000	0.1300	0.0000	2.6400	0.0511
June	32.4389	0.0000	5.2132	26.7733	0.4524	0.9260	0.0000	0.5400	0.0000	0.5280	0.1703
Half-year total	313.7751	0.0000	14.6850	296.5299	2.5602	2.5255	3.3200	1.8320	0.0000	4.4000	0.7454
July	19.5844	0.0000	0.5171	18.2752	0.7922	0.9991	0.0000	0.2500	0.0000	0.8800	0.0496
August	0.0000										
September	0.0000										
October	0.0000										
November	0.0000										
December	0.0000										
Yearly Total	333.3596	0.0000	15.2021	314.8051	3.3524	3.5246	3.3200	2.0820	0.0000	5.2800	0.7950

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

Year	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	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)
2013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2014	425.4406	0.0000	2.7362	376.3945	46.3099	5.6245	3.2100	0.4390	0.0070	10.8800	2.2609
2015											
2016											
2017											
2018											
Total	425.4406	0.0000	2.7362	376.3945	46.3099	5.6245	3.2100	0.4390	0.0070	10.8800	2.2609

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

3) Density of Spent Oil to be 0.88 metric ton/m3

Monthly Summary Waste Flow Table for 2015 (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 m ³)	(in '000m ³)
Jan	3.864	0.105	0.648	0.000	3.216	0.118	0.000	0.000	0.000	0.040	0.080
Feb	2.429	0.049	1.518	0.000	0.911	0.100	0.000	0.000	0.003	0.900	0.070
Mar	3.713	0.029	0.270	0.000	3.443	0.100	0.000	0.000	0.006	0.000	0.080
Apr	3.597	0.115	2.308	0.000	1.289	0.090	0.003	0.000	0.000	0.000	0.065
May	1.357	0.197	0.108	0.000	1.249	0.100	0.000	0.000	0.012	0.000	0.065
Jun	2.515	0.053	0.840	0.000	1.675	0.125	0.000	0.000	0.030	0.800	0.060
Sub-total	17.475	0.547	5.692	0.000	11.783	0.633	0.003	0.000	0.051	1.740	0.420
Jul	1.177	0.030	0.351	0.000	0.826	1.564	0.000	0.000	0.000	0.000	0.065
Aug											
Sep											
Oct											
Nov											
Dec											
Total	18.652	0.578	6.043	0.000	12.609	2.197	0.003	0.000	0.051	1.740	0.485

- 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 2015

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	33.3285	4.16	0.24	0	0	0.42
FEB	0	0	0	0	0	11.82	0.99	0	0	0	0.18
MAR	0	0	0	0	0	8.592	0	0	0	0	0.375
APRIL	0	0	0	0	0	12.81	0	0	0	0	0.04
MAY	0	0	0	0	0	16.609	0	0.154	0	0	0
JUN	0	0	0	0	0	13.676	0	0	0	0	0.015
Sub Total	0	0	0	0	0	96.8355	5.15	0.394	0	0	1.03
JUL	0	0	0	0	0	10.285	0	0	0	0	0.02
AUG											
SEP											
OCT											
NOV											
DEC											
Total	0	0	0	0	0	107.12	5.15	0.394	0	0	1.05

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

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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 					

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		<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
<u>Water Quality Impact (Operation)</u>							
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

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		<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

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		<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