Civil Engineering and Development Department

EP-344/2009 – New Sewage Pumping Stations Serving KTD and
EP-337/2009 – New Distributor Roads Serving the Planned KTD

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area

Quarterly EM&A Summary Report

March 2018 – May 2018

(Version 1.0)

Approved By	(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties

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AECOM
8/F, Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
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New Territories
Hong Kong

Your reference:

Our reference: HKCEDD11/50/105114

Date: 19 July 2018

Attention: Mr Stanley Chan

BY EMAIL & POST
(email: RE1@ktd-5a.com)

Dear Sirs

Agreement No. EDO 08/2018
Independent Environmental Checker (IEC) for CEDD Contract No. KL/2012/03
Kai Tak Development – Stage 4 infrastructure at former north apron area
Verification of Quarterly EM&A Report (March 2018 - May 2018)

We refer to emails of 17 and 19 July 2018 attaching a Quarterly EM&A Report (March 2018 – May 2018) prepared by the ET.

We have no further comment and hereby verify the Report in accordance with Clause 3.3 of the Environmental Permit nos. EP-337/2009 and EP-344/2009.

Please do not hesitate to contact the undersigned or our Mr Jack Wong on 2618 2831 should you have any queries.

Yours faithfully
ANEWR CONSULTING LIMITED

Adi Lee
Independent Environmental Checker

LYMA/LHHN/WCKJ/lhmh

cc CEDD – Mr C K Choi (email: ckchoi@cedd.gov.hk)
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EXECUTIVE SUMMARY

Introduction

1. This is the 18th Quarterly Environmental Monitoring and Audit Report prepared by Cinotech Consultants Ltd. for "Contract No. KL/2012/03 - Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area" (Hereafter referred to as "the Project"). This summary report presents the EM&A works performed in the period between March 2018 to May 2018.

Environmental Monitoring Works

2. Environmental monitoring for the Project was performed in accordance with the EM&A Manual and the monitoring results were checked and reviewed. Site Inspections/Audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

3. Summary of the non-compliance in the reporting quarter for the Project is tabulated in Table I.

Table I Non-compliance Record for the Project in the Reporting Quarter

Parameter	No. of Exceedance		Action Taken
	Action Level	Limit Level	
March 2017			
1-hr TSP	0	0	N/A
24-hr TSP	0	0	N/A
Noise	0	0	N/A
April 2018			
1-hr TSP	0	0	N/A
24-hr TSP	0	0	N/A
Noise	0	0	N/A
May 2018			
1-hr TSP	0	0	N/A
24-hr TSP	0	0	N/A
Noise	0	0	N/A

4. No exceedance was recorded at any air quality or noise monitoring station during the reporting period.

Key Information in the Reporting Quarter

5. Summary of key information in the reporting quarter is tabulated in Table II.

Table II Summary Table for Key Information in the Reporting Quarter

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Reporting Changes	0	---	N/A	N/A	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---

6. Environmental monitoring works for the Project are considered effective and are generating data to categorically identify the environmental impacts from the works and influencing factors in the vicinity of monitoring stations.

1. INTRODUCTION

Background

1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. Stage 4 Infrastructure at Former North Apron Area is one of the construction stages of KTD. The general layout of the Project is shown in **Figure 1.**

1.2 The construction activities undertaken in the reporting quarter were:

- Daily Cleaning;
- Finishing works, E&M work, Access Road Construction in PS2;
- Road widening work, Pavement Construction in Sung Wong Toi Road;
- Installation of Drainage pipe, Pressure test for Water Main, UU laying works and Road works in Road D2;
- Finishing works, E&M works and Access Road Construction in Portion 4 (NPS & Sewerage);
- Refer construction works of NPS in portion 4 sewerage;
- Removal of excavated material in Portion 6; and
- Site Clearance Works in DCS.

1.3 Cinotech Consultants Limited (Cinotech) was commissioned by Kwan On Construction Co., Ltd. (the Contractor) to undertake the role of the Environmental Team (ET) for the Contract No. KL/2012/03 - Stage 4 Infrastructure at Former North Apron Area. The construction work under KL/2012/03 comprises the construction of Road D2 & Sewage Pumping Station PS2 and PS NPS which forms a part of the works under two EPs (EP-337/2009 and EP-344/2009).

1.4 The construction commencement of this Contract was on 1st December 2013 for Road D2, Sewage Pumping Station PS2 and PS NPS. This summary report presents the EM&A works performed in the period between March 2018 to May 2018.

Project Organizations

1.5 Different parties with different levels of involvement in the project organization include:

- Project Proponent – Civil Engineering and Development Department (CEDD).
- The Engineer and the Engineer's Representative (ER) – AECOM.
- Environmental Team (ET) – Cinotech Consultants Limited (CCL).
- Independent Environmental Checker (IEC) – Arcadis Design & Engineering Limited. (Arcadis). (IEC services under the Contract have been terminated since 17 May 2018)
- Independent Environmental Checker (ANewR) – ANewR Consulting Limited. (ANewR)
- Contractor –Kwan On Construction Co., Ltd. (Kwan On).

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

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Position	Phone No.	Fax No.
CEDD	Project Proponent	Mr. C. K. Choi	Senior Engineer	2301 1174	2301 1277
AECOM	Engineer's Representative	Mr. John Yam	SRE	2798 0771	3013 8864
		Mr. Stanley Chan	RE		
Cinotech	Environmental Team	Dr. Priscilla Choy	Environmental Team Leader	2151 2089	3107 1388
		Ms. Ivy Tam	Project Coordinator and Audit Team Leader	2151 2090	
Arcadis	Independent Environmental Checker	Mr. Wong Fu Nam	Independent Environmental Checker	2911 2744	2805 5028
ANewR	Independent Environmental Checker	Mr. Adi Lee	Independent Environmental Checker	2618 2831	3007 8648
Kwan On	Contractor	Mr. Albert Ng	Site Agent	3689 7752	3689 7726
				6146 6761 (Hotline telephone number)	

2. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Monitoring Parameters and Monitoring Locations

2.1 The EM&A Manual designates locations for the ET to monitor environmental impacts in terms of air quality, noise, landscape and visual due to the Project. The Project area and monitoring locations are depicted in **Figures 2 and 3**. **Appendix A** gives details of monitoring requirements.

Environmental Quality Performance Limits (Action and Limit Levels)

2.2 The environmental quality performance limits, i.e. Action and Limit Levels were derived from the baseline monitoring results. Should the measured environmental quality parameters exceed the Action/Limit Levels, the respective action plans would be implemented. The Action/Limit Levels for each environmental parameter are given in **Appendix B**.

Implementation Status of Environmental Mitigation Measures

2.3 Relevant mitigation measures as recommended in the project EIA report have been stipulated in the EM&A Manual for the Contractor to implement. The implementation status of environmental mitigation measures (EMIS) is given in **Appendix E**.

Site Audit Summary

2.4 During site inspections in the reporting period, no non-conformance was identified. The observations and recommendations made during the reporting period are summarized in **Appendix F**.

Status of Waste Management

2.5 The amount of wastes generated by the major site activities of this Project during the reporting quarter is shown in **Appendix G**.

3. MONITORING RESULTS AND NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS)

3.1 Environmental monitoring works were performed in the reporting period and all monitoring results were checked and reviewed. A summary of exceedances is attached in **Appendix H**.

Weather Conditions

3.2 The detail of weather conditions for each individual monitoring session was presented in monthly EM&A report.

Air Quality

1-hour TSP Monitoring

3.3 1-hour TSP monitoring was conducted as scheduled in the reporting quarter. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

3.4 24-hour TSP monitoring was conducted as scheduled in the reporting quarter. No Action/Limit Level exceedance was recorded.

3.5 The graphical presentations of the air quality monitoring results are shown in Appendix C.

Construction Noise

3.6 All construction noise monitoring was conducted as scheduled in the reporting quarter. No Action and Limit Level exceedance was recorded.

3.7 The graphical presentations of the noise monitoring results are shown in **Appendix D**.

Landscape and Visual

3.8 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of landscape and visual mitigation measures of this project. No non-compliance of the landscape and visual impact was recorded in the reporting quarter.

Influencing Factors on the Monitoring Results

3.9 During the reporting period, the major dust and noise sources identified at the designated monitoring stations are as follows:

Table 3.1 Major Dust Sources in the Reporting Period

Station	Major Dust Source
AM2 – Lee Kau Yan Memorial School	Road traffic dust Exposed site area and open stockpiles Site vehicle movement
AM3(A) – Holy Trinity Bradbury Centre	Road traffic dust Exposed site area Excavation works Site vehicle movement
AM4(C) – New Pumping Station under Contract No. KL/2012/03	Site vehicle movement
AM5 – CCC Kei To Secondary School	Site vehicle movement
AM5(A) – Po Leung Kuk Ngan Po Ling College	Road traffic dust Excavation works at the site (Contract No.: 1/WSD/14(K)) facing Po Leung Kuk Ngan Po Ling College

Table 3.2 Major Noise Sources during the Monitoring in the Reporting Period

Monitoring Stations	Locations	Major Noise Source
M6(A)	Oblate Primary School	Road and marine traffic noise
M7	CCC Kei To Secondary School	Road and marine traffic noise Excavation works at the site (Contract No.: 1/WSD/14(K)) facing Po Leung Kuk Ngan Po Ling College
M8	Po Leung Kuk Ngan Po Ling College	
M9	Tak Long Estate	Road paving and asphalt paving works

Comparison of EM&A results with EIA predictions

3.10 According to Section 16.7.1 (viii) of the EM&A Manual, the EM&A data are compared with the EIA predictions and summarized in **Annex I**.

3.11 The average 1-hour and 24-hour TSP concentrations in the reporting period were generally well below the prediction in the approved Environmental Impact Assessment (EIA) Report. No Action/Limit Level exceedance was recorded.

3.12 The noise monitoring results in most of the reporting month were within the range of predicted mitigated construction noise levels in the EIA report. No Action/Limit Level exceedance was recorded.

4. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

Review of the Reasons for and the Implications of Non-compliance

4.1 No Action/Limit Level exceedance was recorded at all air quality and noise monitoring stations in the reporting quarter.

Effectiveness of Mitigation Measures

4.2 The mitigation measures recommended in the EIA report are considered effective in minimizing environmental impacts.

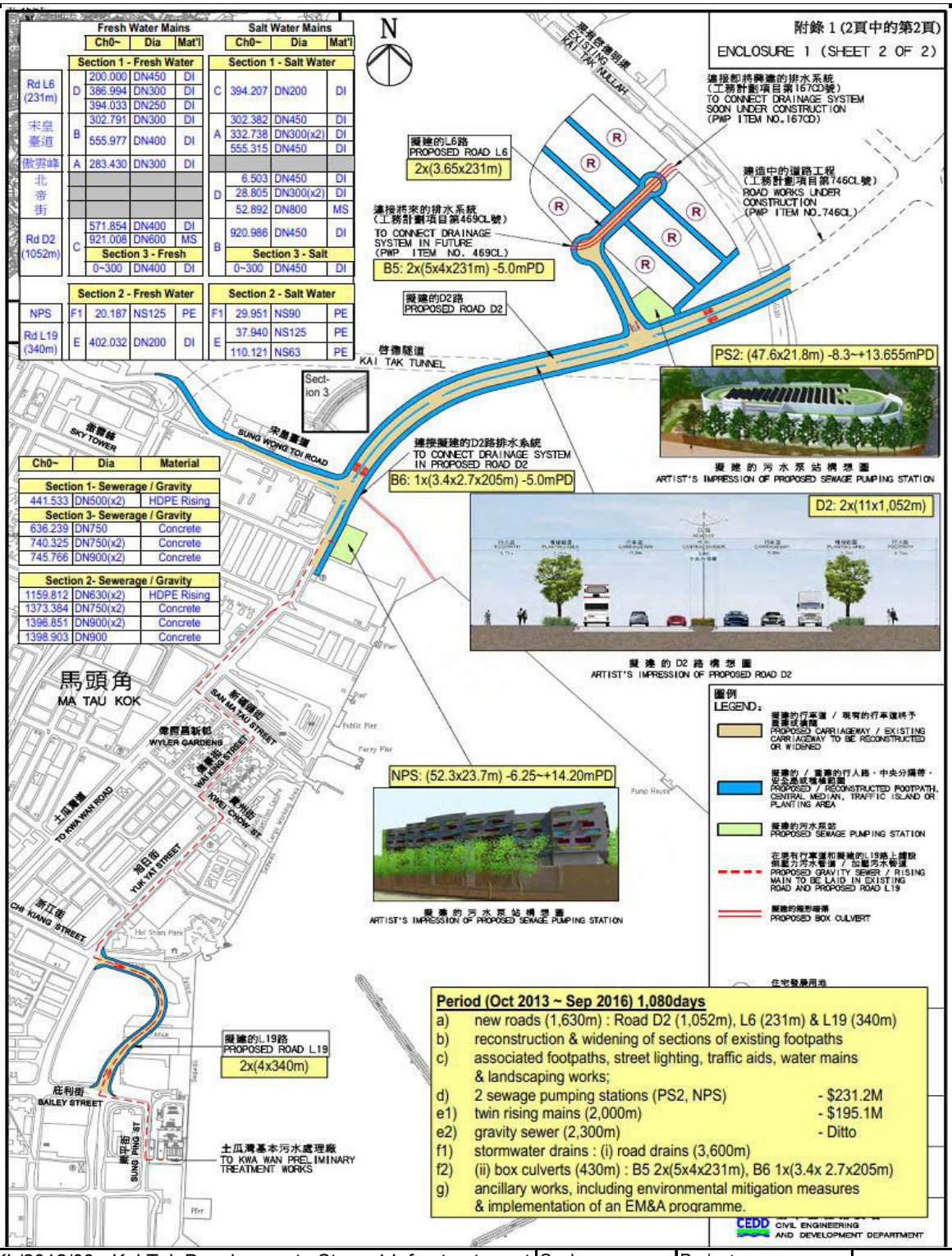
4.3 The Contractor has implemented the recommended mitigation measures.

4.4 Environmental monitoring works performed in the reporting quarter and all monitoring results were checked and reviewed. No non-compliance (exceedances) of Action/Limit Level was recorded.

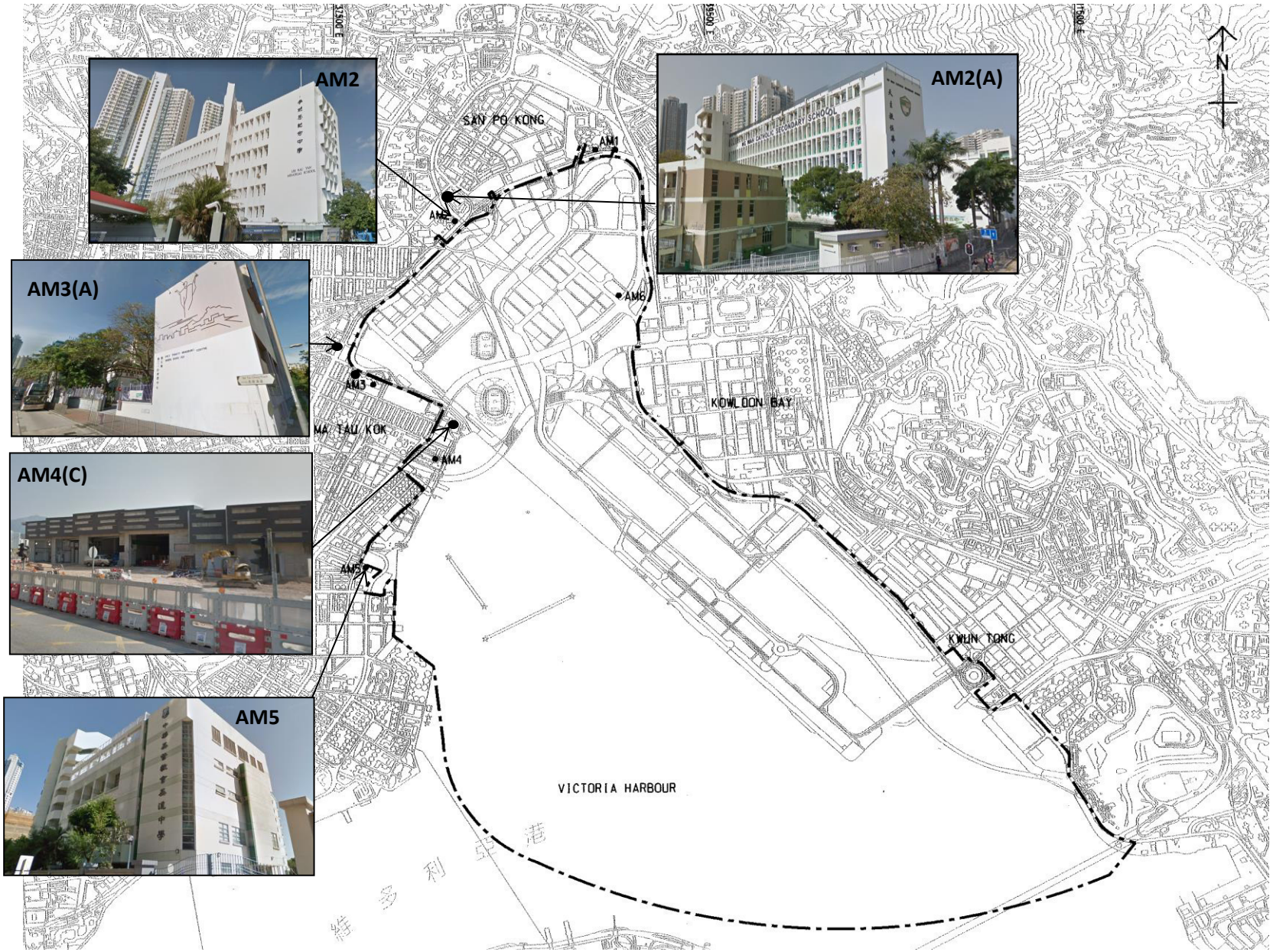
4.5 No environmental complaints and environmental prosecution were received in the reporting quarter.

4.6 The effectiveness of environmental management is satisfactory given that the recommendations given in the site inspections performed in the reporting period (as shown in **Appendix F**) are met.

FIGURES

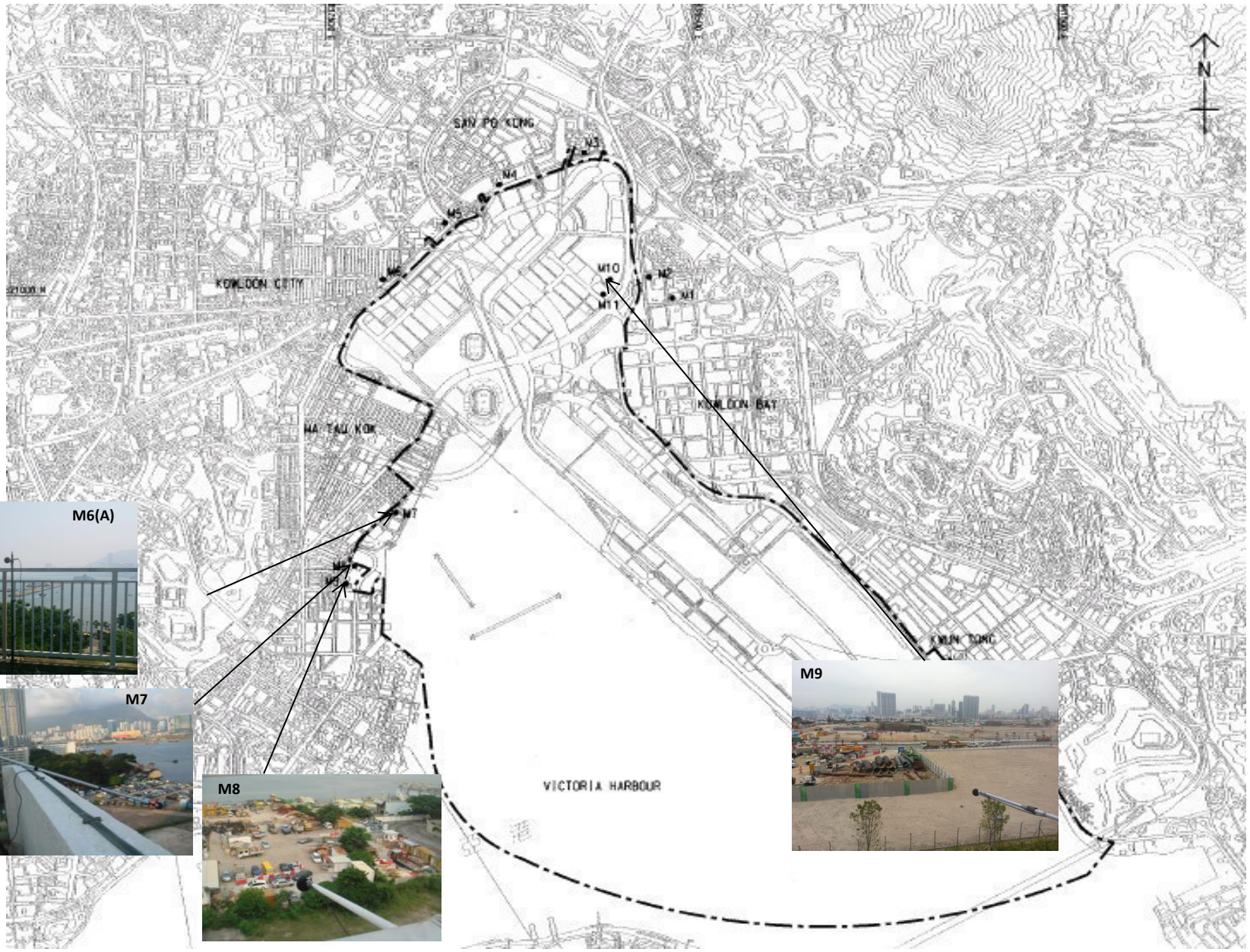


Title	KL/2012/03 - Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area	Scale N.T.S	Project No. MA13056	CINOTECH
	Site Layout Plan	Date Sep-13	Figure 1	



Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Air Quality Monitoring Stations under this Project	Scale: N.T.S Date: Aug-17	Project No.: MA13056 Figure: 2

CINOTECH



Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Noise Monitoring Stations under this Project	Scale: N.T.S Date: Dec-16	Project No.: MA13056 Figure: 3

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APPENDIX A
MONITORING REQUIREMENTS

Appendix A - Environmental Impact Monitoring Requirements

Type of Monitoring	Parameter	Frequency	Location	Measurement Conditions
Air Quality	1 hour TSP	Three times / 6 days	• AM2 – Lee Kau Yan Memorial School • AM3(A) – Holy Trinity Bradbury Centre • AM4(A) – EMSD Workshop • AM5(A) – Po Leung Kuk Ngan Po Ling College • #AM6 – PA 15	• AM2 – Rooftop (about 8/F) Area • AM3(A) - Rooftop (about 8/F) Area • AM4(A) - Rooftop (about 6/F) Area • AM5(A) - Rooftop (about 10/F) Area • #AM6 – Site 1B4 (Planned)
	24 hour TSP	Once / 6 days		

Remarks: # The impact monitoring at these locations will only be carried out until existence of the sensitive receiver at the building.

Type of Monitoring	Parameter	Frequency	Location	Measurement Conditions
Construction Noise	L_{eq}, L_{90} & L_{10} at 30 minute intervals during (0700 to 1900 on normal weekdays)	Once per week	• M6(A) - Oblate Primary School • M7 – CCC Kei To Secondary School • M8 – Po Leung Kuk Ngan Po Ling College • M9 – Tak Long Estate (from April 2014 onward) • #M10 (Site 1B4 (Planned))	• M6(A) – Free-field measurement at Rooftop (about 7/F) Area • M7 - Facade measurement at Rooftop (about 8/F) Area • M8 - Facade measurement at Staircase Area (about 9/F) • M9 – Façade measurement at 2/F Podium • #M10 (Site 1B4 (Planned))

Remarks: # The impact monitoring at these locations will only be carried out until existence of the sensitive receiver at the building.

APPENDIX B
ACTION AND LIMIT LEVELS FOR AIR QUALITY AND NOISE

Appendix B - Action and Limit Levels

Table B-1 Action and Limit Levels for 1-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM2	346	500
AM3(A)	351	
AM4(A)	371	
AM5(A)	345	

Table B-2 Action and Limit Levels for 24-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM2	157	260
AM3(A)	167	
AM4(A)	187	
AM5(A)	156	

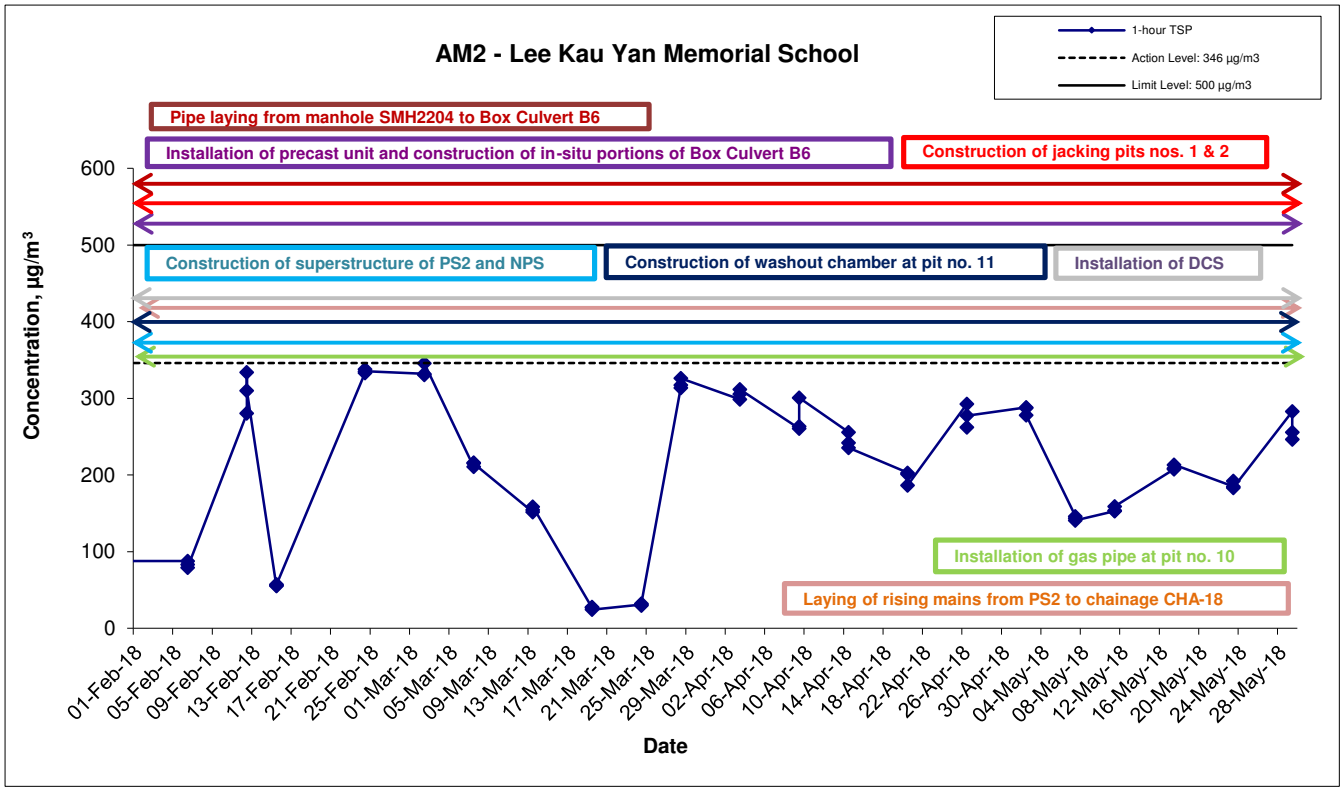
Table B-3 Action and Limit Levels for Construction Noise

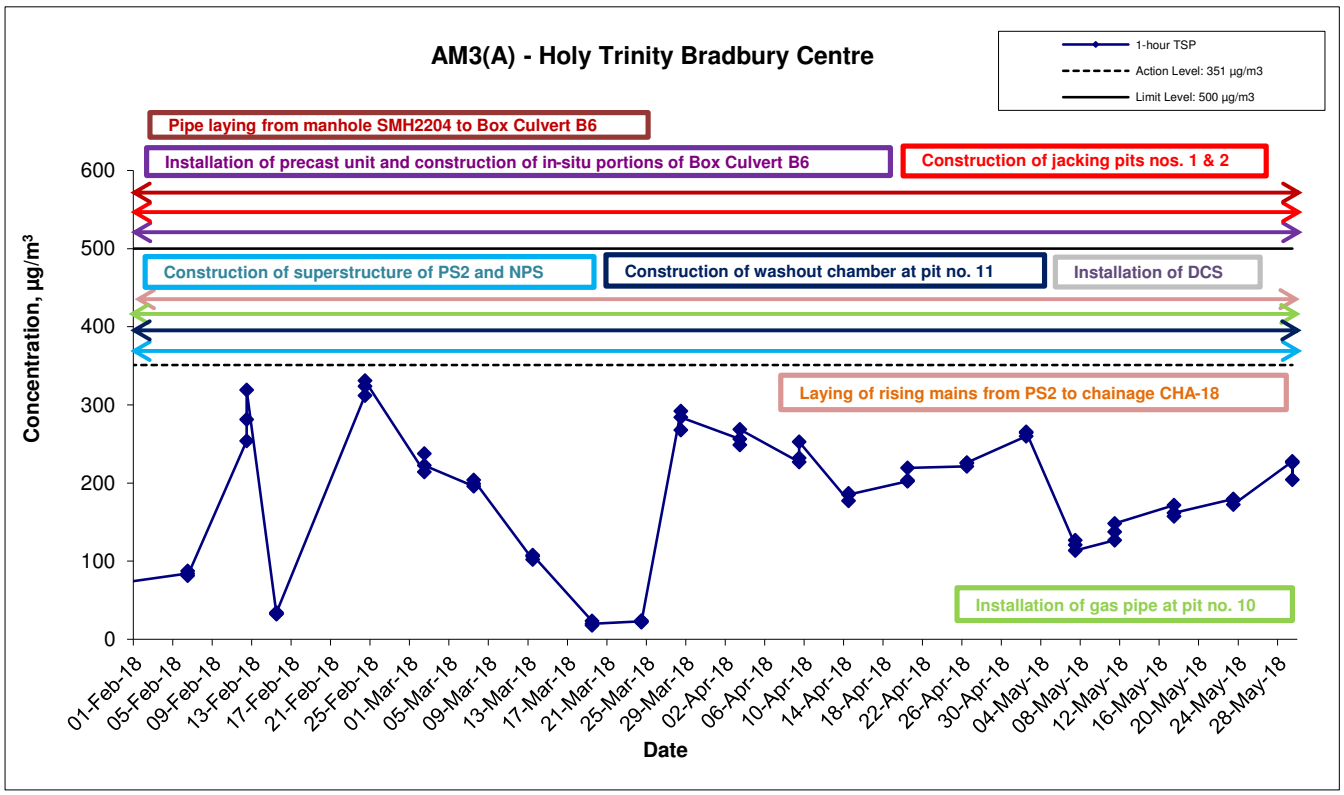
Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) 70dB(A)/65dB(A)*

Remarks: If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed. *70dB(A) and 65dB(A) for schools during normal teaching periods and school examination periods, respectively.

APPENDIX C
GRAPHICAL PRESENTATION OF AIR QUALITY MONITORING RESULTS

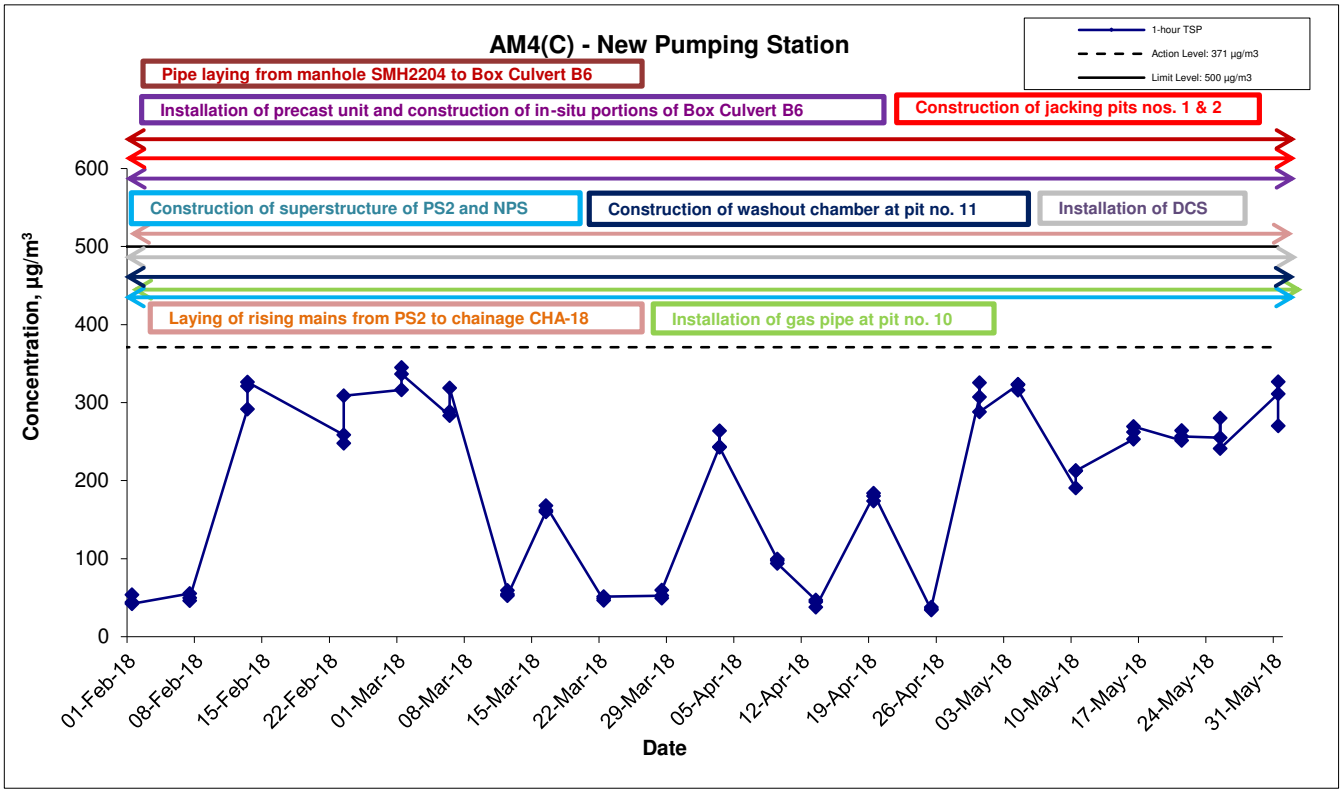
1-hr TSP Concentration Levels

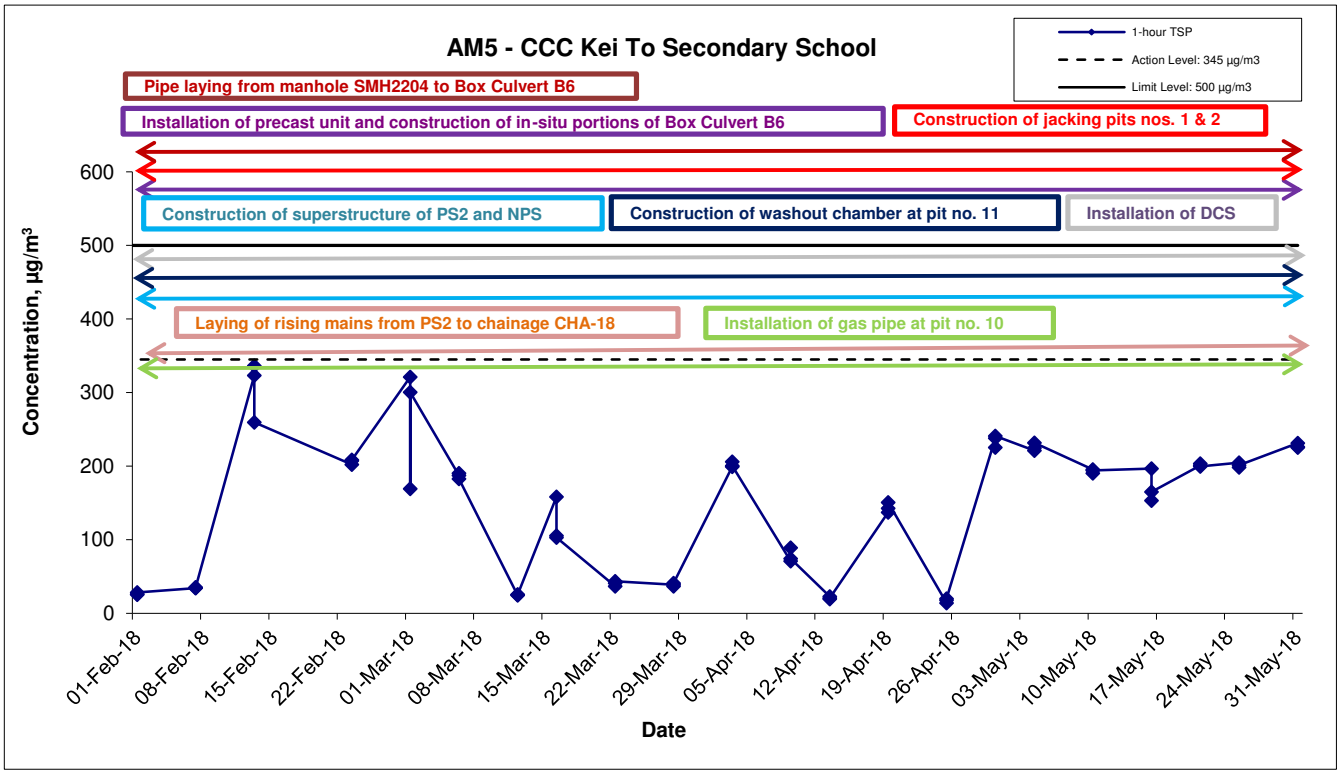




Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA13056	CINOTECH
	Date: May 18	Appendix: C	

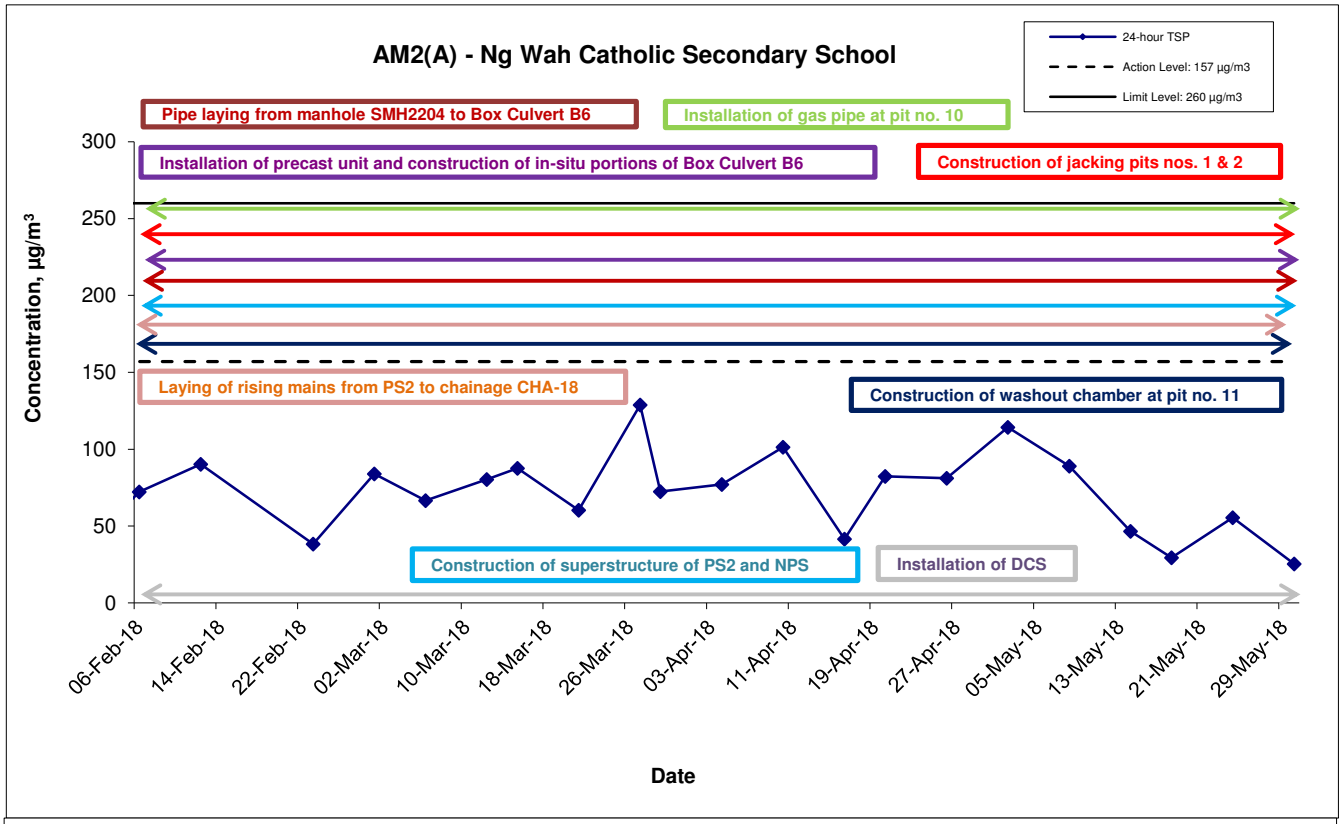
1-hr TSP Concentration Levels

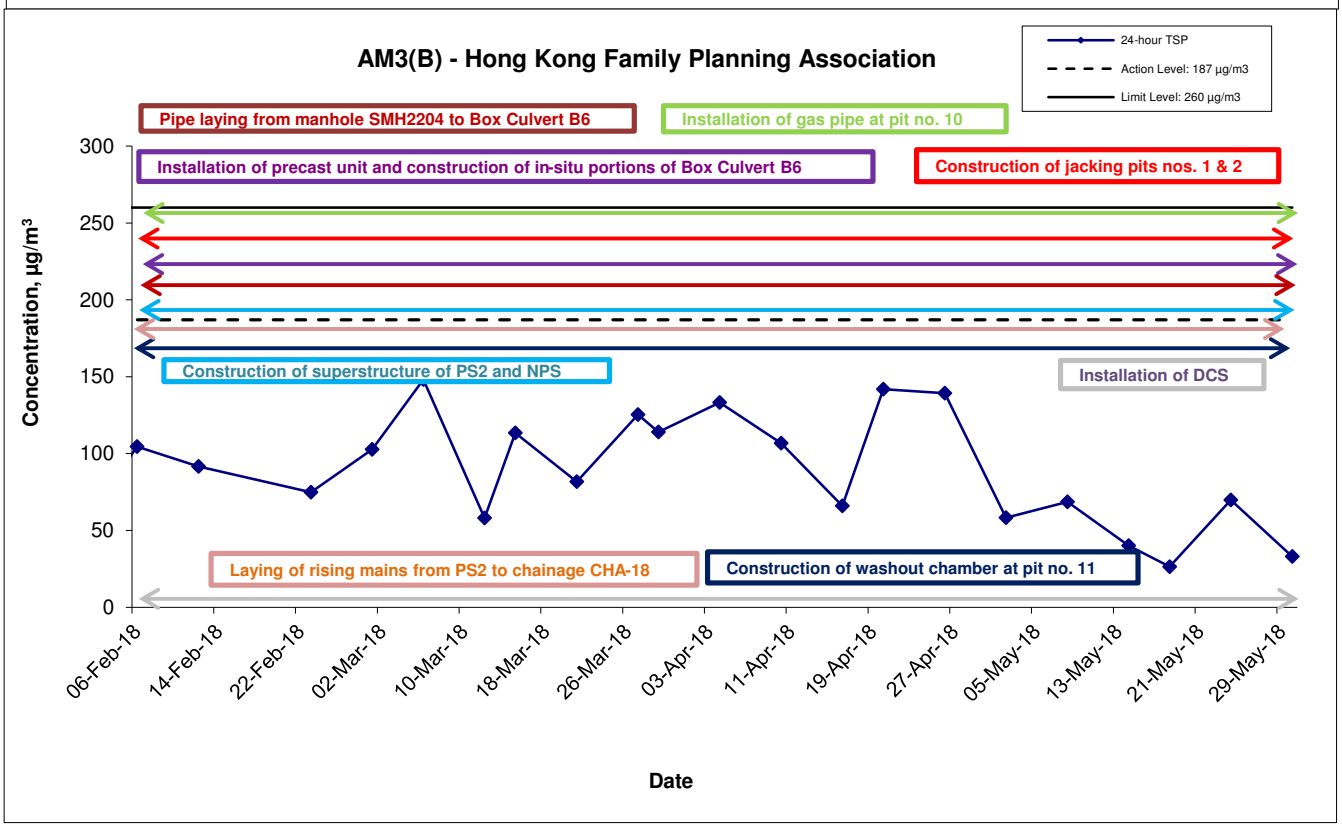




Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA13056	CINOTECH
	Date: May 18	Appendix: C	

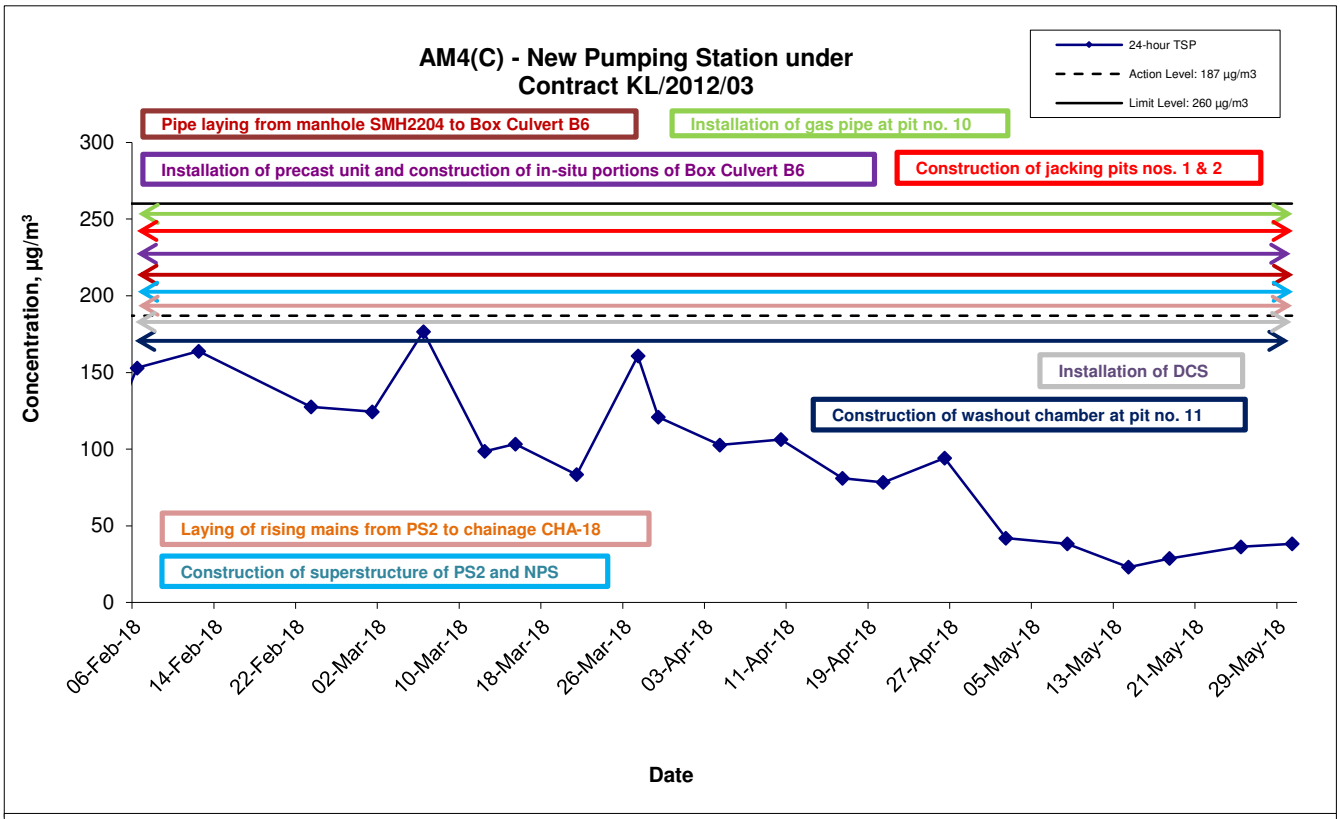
24-hr TSP Concentration Levels

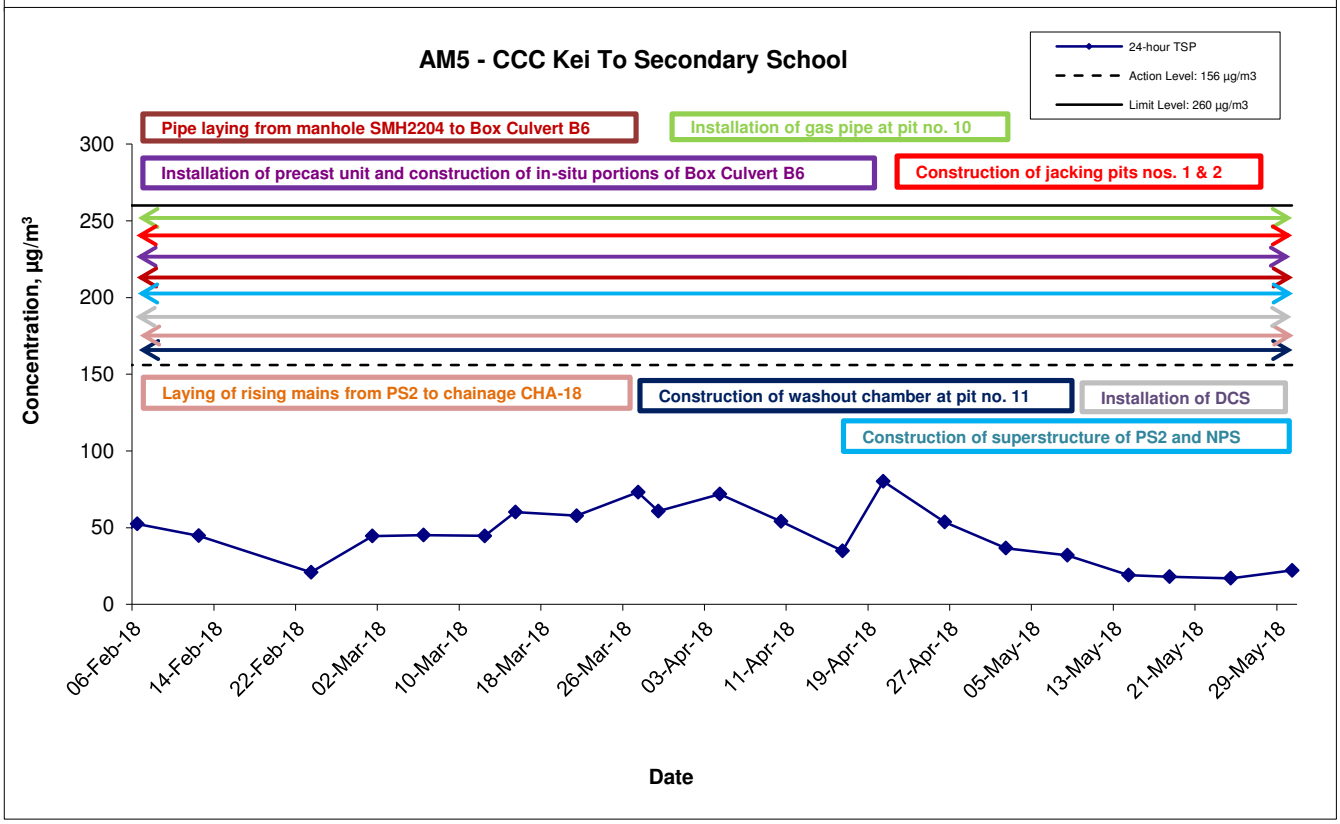




Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S Date: May 18	Project No.: MA13056 Appendix: C	CINOTECH

24-hr TSP Concentration Levels

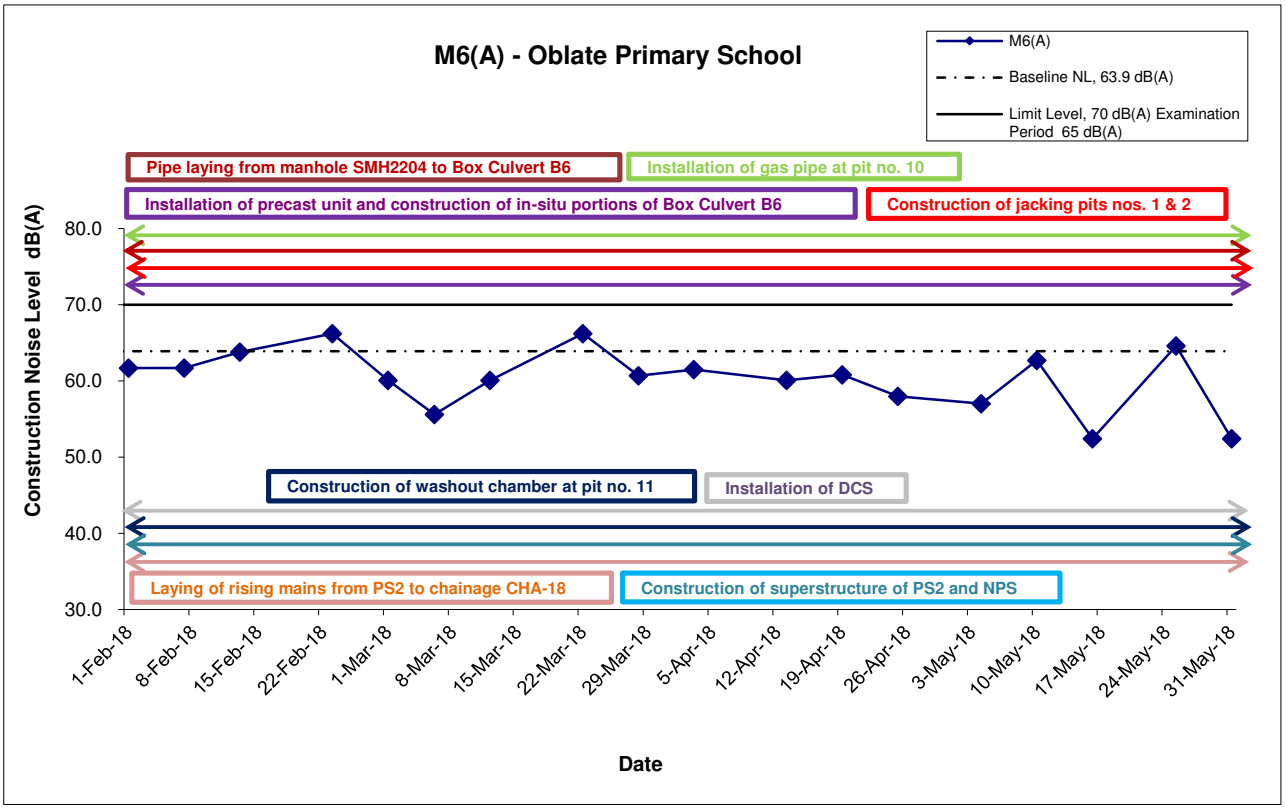


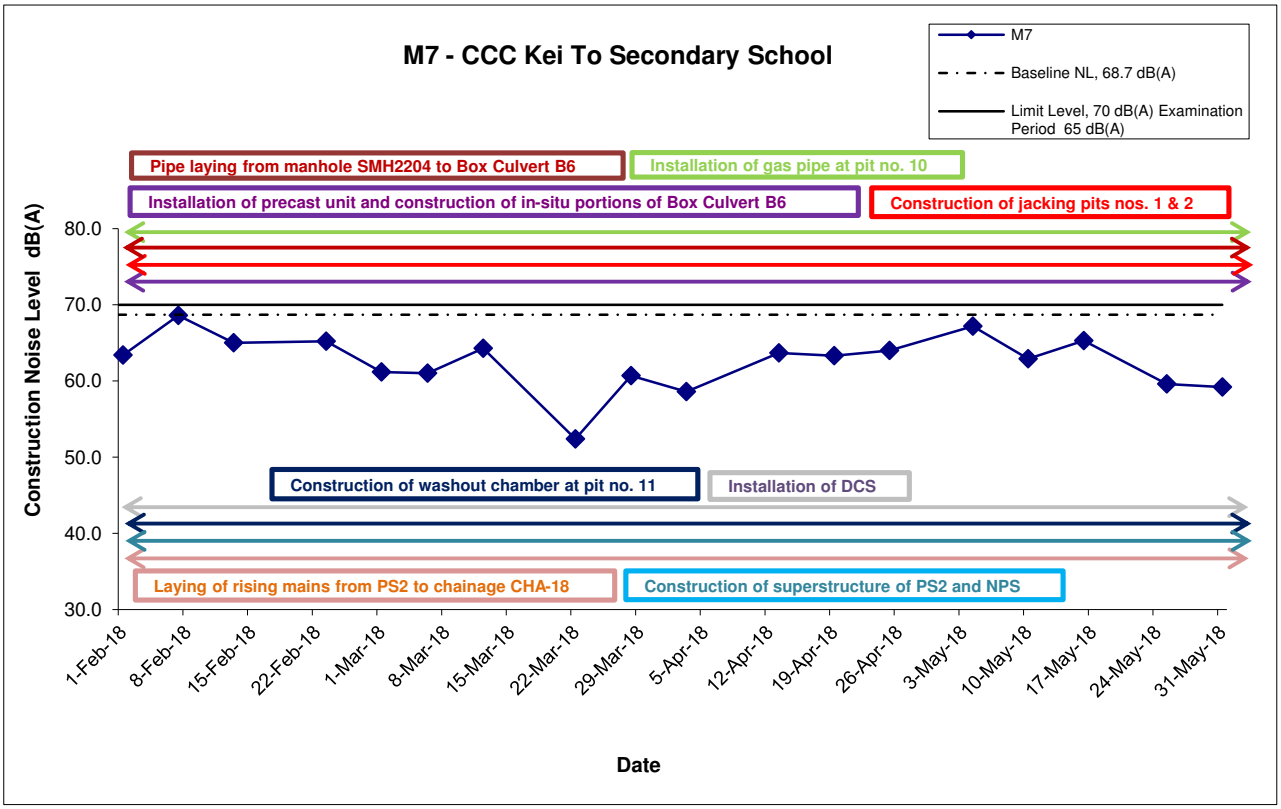


Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA13056	CINOTECH
	Date: May 18	Appendix: C	

APPENDIX D
GRAPHICAL PRESENTATION OF NOISE MONITORING RESULTS

Noise Levels

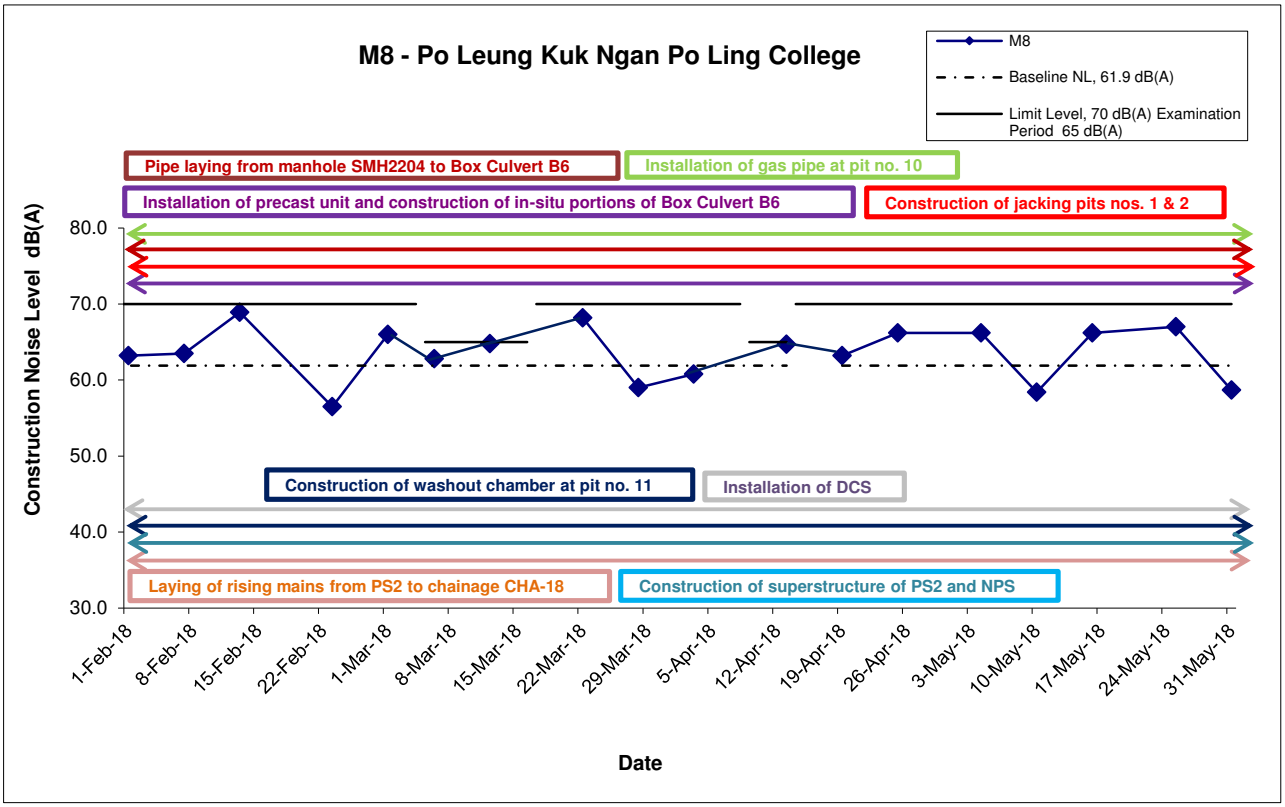


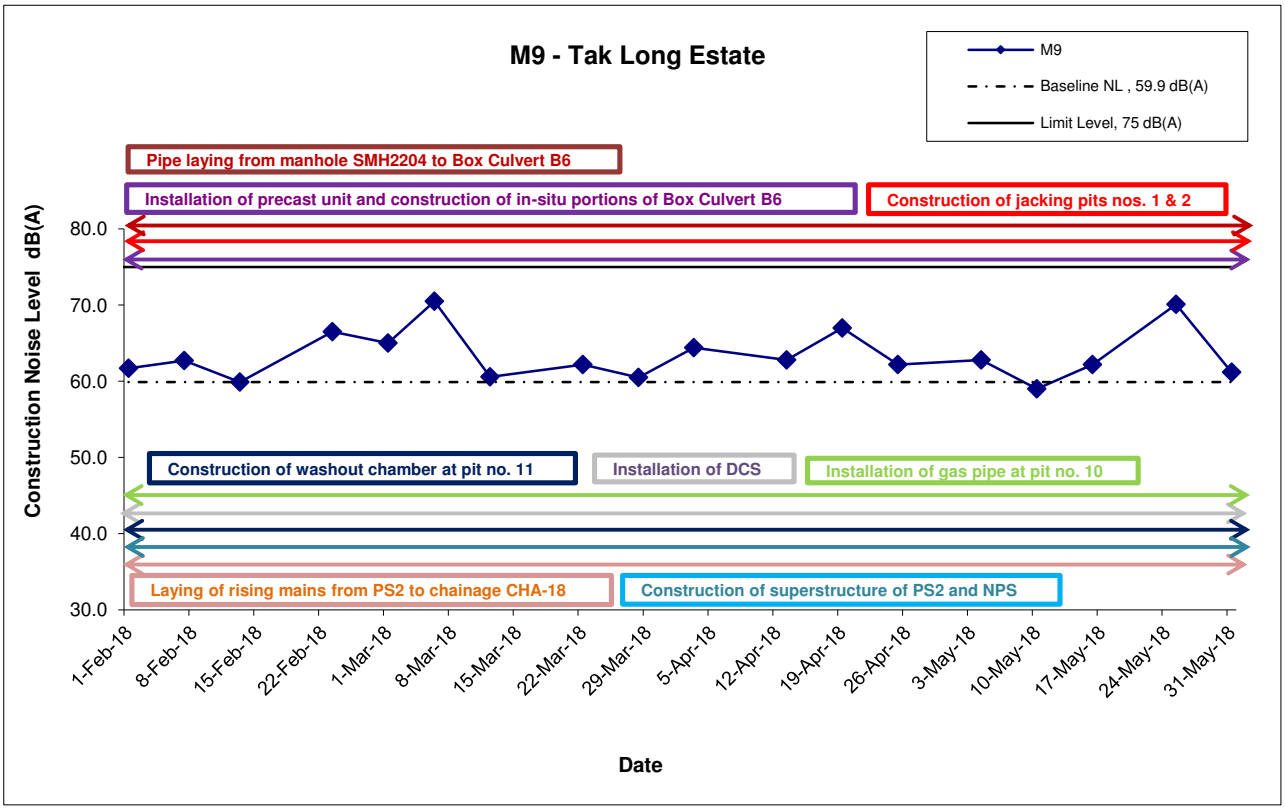


Remarks: The construction noise levels in the Tables in Appendix G were adopted for plotting the graphs

Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: May 18	Project No.: MA13056 Appendix: D	CINOTECH

Noise Levels





Remarks: The construction noise levels in the Tables in Appendix G were adopted for plotting the graphs

Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: May 18	Project No.: MA13056 Appendix: D	CINOTECH

APPENDIX E
ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

Appendix K - Summary of Implementation Schedule of Mitigation Measures for Construction Phase

Types of Impacts	Mitigation Measures	Status
Construction Dust	8 times daily watering of the work site with active dust emitting activities.	^
	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.	
	• Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	*
	• Misting for the dusty material should be carried out before being loaded into the vehicle.	^
	• Any vehicle with an open load carrying area should have properly fitted side and tail boards.	^
	• Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	^
	• The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	^
	• The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. On-site unpaved roads should be compacted and kept free of lose materials.	^
	• Vehicle washing facilities should be provided at every vehicle exit point.	^
	• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	^
	• Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	*
	• Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides.	^
	• Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^

Construction Noise	Use of quiet PME, movable barriers barrier for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump	^
	Good Site Practice: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.	^
	• Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.	N/A(1)
	• Mobile plant, if any, should be sited as far away from NSRs as possible.	^
	• Machines and plant (such as trucks) that may be in intermittent use should be shut down between works 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.	^
	• Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	^
	Scheduling of Construction Works during School Examination Period	^
	(i) Provision of low noise surfacing in a section of Road L2; and	N/A
	(ii) Provision of structural fins	N/A
	(i) Avoid the sensitive façade of class room facing Road L2 and L4; and	N/A
	(ii) Provision of low noise surfacing in a section of Road L2 & L4	N/A
	(i) Provision of low noise surfacing in a section of Road L4 before occupation of Site 1I1; and	N/A
	(ii) Setback of building about 5m from site boundary.	N/A
	Setback of building about 35m to the northwest direction at 1L3 and 5m at Site 1L2.	N/A
	(i) avoid any sensitive façades with openable window facing the existing Kowloon City Road network; and	N/A
	(ii) for the sensitive facades facing the To Kwa Wan direction, either setback the facades by about 5m to the northeast direction or do not provide the facades with openable window.	N/A

	(i) avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or (ii) provision of 17.5m high noise tolerant building fronting To Kwa Wan Road and restrict the height of the residential block(s) located at less than 55m away from To Kwa Wan Road to no more than 25m above ground. (i) avoid any sensitive facades with openable window facing the slip road connecting Prince Edward Road East and San Po Kong or other alternative mitigation measures and at-source mitigation measures for the surrounding new local roads to minimise the potential traffic noise impacts from the slip road	N/A N/A N/A
	All the ventilation fans installed in the below will be provided with silencers or acoustics treatment. (i) SPS (ii) ESS (iii) Tunnel Ventilation Shaft (iv) EFTS depot Installation of retractable roof or other equivalent measures	N/A N/A N/A N/A N/A
Construction Water Quality	The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including: • Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply; • Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps; • An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and • For all unmanned SPSs, a remote monitor system connecting SPSs with the control station through telemetry system should be provided so that swift actions could be taken in case of malfunction of unmanned facilities. <u>Land-based Construction</u> *Construction Runoff* Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow	N/A N/A N/A N/A ^ ^ ^

	Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	^
	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	^
	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	^
	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 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 always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	^
	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.	^
	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	^

	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 located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	^
	Drainage	
	It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	^
	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	^
	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ.	^
	Sewage Effluent	
	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	^
	Stormwater Discharges	
	Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	N/A

	Debris and Litter	*
	In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials. litter or wastes to marine waters does not occur	
	Construction Works at or in Close Proximity of Storm Culvert or Seafront	^
	The proposed works should preferably be carried out within the dry season where the flow in the drainage channel /storm culvert/ nullah is low.	
	The use of less or smaller construction plants may be specified to reduce the disturbance to the bottom sediment at the drainage channel /storm culvert / nullah.	^
	Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works.	^
	Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.	^
	Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers.	^
	Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.	^
	Mitigation measures to control site runoff from entering the nearby water environment should be implemented to minimize water quality impacts. Surface channels should be provided along the edge of the waterfront within the work sites to intercept the runoff.	^
	Construction effluent, site run-off and sewage should be properly collected and/or treated.	^
	Any works site inside the storm water courses should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props to prevent adverse impact on the storm water quality.	^
	Silt curtain may be installed around the construction activities at the seafront to minimize the potential impacts due to accidental spillage of construction materials.	^
	Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert/drainage channel/sea.	^

	Supervisory staff should be assigned to station on site to closely supervise and monitor the works	^
	Marine water quality monitoring and audit programme shall be implemented for the proposed sediment treatment operation.	^
	Good Site Practices It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during construction activities include:	
	• 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 waste handling procedures	^
	• Provision of sufficient waste disposal points and regular collection for disposal	^
	• Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers	^
	• A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites)	^
	Waste Reduction Measures 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:	
	• Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals	^
	• 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, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force	^
	• Any unused chemicals or those with remaining functional capacity should be recycled	^
	• Proper storage and site practices to minimise the potential for damage or contamination of construction materials	^

Construction and Demolition Material

Mitigation measures and good site practices should be incorporated into contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include:

- Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for disposal, the transient stockpiles should be located away from waterfront or storm drains as far as possible ^
- Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric ^
- Skip hoist for material transport should be totally enclosed by impervious sheeting ^
- Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site ^
- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores ^
- The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle ^
- All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet ^
- The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading ^

When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Materials" should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system. ^

Chemical Waste

After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation* *

	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem	*
Landscape and Visual	CM1 All existing trees should be carefully protected during construction. CM2 Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work. CM3 Control of night-time lighting. CM4 Erection of decorative screen hoarding.	^ N/A ^ ^

Remarks:	^ Compliance of mitigation measure;
	X Non-compliance of mitigation measure;
	N/A Not Applicable at this stage; N/A(1) Not observed;
	• Non-compliance but rectified by the contractor;
	* Recommendation was made during site audit but improved/rectified by the contractor.

APPENDIX F
SITE AUDIT SUMMARY

Appendix F Summary of Observation and Recommendation Made during Site Inspection

Summary of Observation and Recommendation Made during Site Inspection in March 2018

Observations and Recommendations of Site Inspections for EP-337/2009

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	**--**
Air Quality			
Noise	--	--	**--**
Waste/Chemical Management	9 March 2018	Reminder: General refuse near EMSD Workshop should be removed and avoided.	General refuse was observed removed on 16 March 2018.
Landscape and Visual	--	--	**--**
Permits /Licences	--	--	**--**

Observations and Recommendations of Site Inspections for EP-344/2009

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	**--**
Air Quality	--	--	**--**
Noise	--	--	**--**
Waste/Chemical Management	2 March 2018	Reminder: Drip tray should be provided to chemical containers near PS2.	Chemical containers were observed removed on 9 March 2018.
	20 March 2018	Reminder: Drip tray should be provided to chemical containers near PS2.	Chemical containers were observed removed on 29 March 2018.
Landscape and Visual	--	--	**--**
Permits /Licences	--	--	**--**

Summary of Observation and Recommendation Made during Site Inspection in April 2018

Observations and Recommendations of Site Inspections for EP-337/2009

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	**--**
Air Quality	6 April 2018	Reminder: Water spraying should be provided more frequently to haul roads for dust suppression.	Water spraying was provided on haul roads on 13 April 2018.
	13 April 2018	Reminder: Dark smoke emitted from PMEs on haul rod near PS2 should be avoided.	No dark smoke emitted from PMEs was observed on 18 April 2018.
Noise	--	--	**--**
Waste/Chemical Management	--	--	**--**
Landscape and Visual	--	--	**--**
Permits /Licences	--	--	**--**

Observations and Recommendations of Site Inspections for EP-344/2009

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	**--**
Air Quality	--	--	**--**
Noise	--	--	**--**
Waste/Chemical Management	13 April 2018	Reminder: General refuse should be avoided near PS2.	General refuse near PS2 was removed on 18 April 2018.
Landscape and Visual	--	--	**--**
Permits /Licences	--	--	**--**

Summary of Observation and Recommendation Made during Site Inspection in May 2018

Observations and Recommendations of Site Inspections for EP-337/2009

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	**--**
Air Quality	4 May 2018	Reminder: To cover dusty stockpile near Sung Wong Toi Road With impervious materials.	The dusty stockpile was observed to be covered properly on 11 May 2018.
	11 May 2018	Reminder: The NRMM label should be display at a conspicuous position of the PME.	The NRMM label was provided on 16 May 2018.
Noise	--	--	**--**
Waste/Chemical Management	--	--	**--**
Landscape and Visual	--	--	**--**
Permits /Licences	--	--	**--**

Observations and Recommendations of Site Inspections for EP-344/2009

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	16 May 2018	Reminder: Debris and rubbish should be removed within the U-channel. Boarding should be provided as obstruction of drainage system.	Debris and rubbish were removed and boarding was observed to be provided as obstruction of drainage on 25 May 2018.
Air Quality	25 May 2018	Reminder: Dusty stockpile should be covered properly by impervious sheeting.	This item will be followed up in the next reporting month.
Noise	--	--	**--**
Waste/Chemical Management	--	--	**--**
Landscape and Visual	--	--	**--**
Permits /Licences	--	--	**--**

APPENDIX G
MONTHLY SUMMARY
WASTE FLOW TABLE

APPENDIX IV

Monthly Summary Waste Flow Table

(PS Clause 1.86)

Name of Department: CEDD

Contract No. : KL/2012/03

Monthly Summary Waste Flow Table for May 2018 (year) (in tons)

Month	Total Disposal Loads	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
			Hard Rock & 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)	Chemicals Waste	Others, e.g. general refuse
	(No.s)	(in tons)	0	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)
2013 (Oct - Dec) Sub-Total	108	463.69	0	0	0	0	0	0	0	0	0	463.69
2014 (Jan – Dec) Sub-Total	24	16925.7	0	0	16798.93	83.66	1804.27	0	0	0	0	43.11
2015 (Jan – Dec) Sub-Total	284	81859.97	0	0	38291.91	43457.21	19920	0	0	0	0	310.26
2016 (Jan – Dec) Sub-Total	3369	50762.64	0	0	0	49894.67	4020	0	0	0	0	867.95
2017 (Jan – Dec) Sub-Total	2737	39615.16	0	0	0	38996.26	0	0	0	0	0	603.11
Jan-18	48	575.23	0	0	0	497.91	0	0	0	0	0	77.32
Feb-18	10	81.78	0	0	0	30.34	0	0	0	0	0	51.44
Mar-18	59	869.93	0	0	0	817.87	0	0	0	0	0	52.06
Apr-18	14	136.71	0	0	0	91.67	0	0	0	0	0	45.04
May-18	327	5176.05	0	0	0	5125.76	0	0	0	0	0	50.29
Jun-18												
Jul-18												
Aug-18												
Sep-18												
Oct-18												
Nov-18												
Dec-18												
Total	6980	196466.86	0	0	55090.84	138995.4	25744.27	0	0	0	0	2564.27

APPENDIX H
SUMMARY OF EXCEEDANCES

Contract No. KL/2012/03
Kai Tak Development – Stage 4 Infrastructure at Former North Apron Area

Appendix H – Summary of Exceedance

Exceedance Report for Contract No. KL/2012/03

(A) Exceedance Report for Air Quality
(NIL in the reporting period)

(B) Exceedance Report for Construction Noise
(NIL in the reporting period)

(C) Exceedance Report for Landscape and Visual
(NIL in the reporting period)

ANNEX I
COMPARISON OF EM&A DATA AND EIA PREDICTIONS

Annex I – Comparison of EM&A Data and EIA Predictions

Comparison of 1-hr TSP data with EIA predictions

Station	Predicted 1-hr TSP conc.							
	Scenario1 (Mid 2009 to Mid 2013), $\mu g/m^3$	Scenario2 (Mid 2013 to Late 2016), $\mu g/m^3$	Reporting Month (Mar 18), $\mu g/m^3$		Reporting Month (Apr 18), $\mu g/m^3$		Reporting Month (May 18), $\mu g/m^3$	
			Average	Range	Average	Range	Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	180.2	24.4 – 345.6	259.8	186.5 – 311.7	207.0	140.6 – 288.3
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	217	247	142.3	17.7 – 292.2	222.1	177.0 – 268.4	180.1	113.7 – 265.5
AM4(C) – New Pumping Station	N/A	N/A	158.5	46.6 – 345.0	152.1	34.3 – 325.4	267.8	190.6 – 326.8
AM5 – CCC Kei To Secondary School	159	221	112.9	24.4 – 321.1	116.2	14.2 – 241.0	203.6	153.3 – 231.6

Comparison of 24-hr TSP data with EIA predictions

Station	Predicted 24-hr TSP conc.							
	Scenario1 (Mid 2009 to Mid 2013), $\mu g/m^3$	Scenario2 (Mid 2013 to Late 2016), $\mu g/m^3$	Reporting Month (Mar 18), $\mu g/m^3$		Reporting Month (Apr 18), $\mu g/m^3$		Reporting Month (May 18), $\mu g/m^3$	
			Average	Range	Average	Range	Average	Range
AM2(A) – Ng Wah Catholic Secondary School	N/A	N/A	82.9	60.4 – 128.8	76.7	41.5 – 101.3	60.0	25.4 – 114.2
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	106	138	106.2	58.2 – 148.2	117.4	66.0 – 141.8	49.4	26.5 – 69.7
AM4(C) – New Pumping Station (Alternative station for Grand Waterfront)	143	152	124.0	83.4 – 176.5	92.5	78.3 – 106.3	34.4	23.0 – 42.0
AM5 – CCC Kei To Secondary School	103	128	55.1	44.6 – 73.1	58.9	34.8 – 80.2	24.1	17.0 – 36.6

Comparison of Noise Monitoring Data with EIA predictions

Stations	Predicted Mitigated Construction Noise Levels during Normal Working Hour ($L_{eq\ (30min)}$ dB(A))	Reporting Month (Mar 18), $L_{eq\ (30min)}$ dB(A)	Reporting Month (Apr 18), $L_{eq\ (30min)}$ dB(A)	Reporting Month (May 18), $L_{eq\ (30min)}$ dB(A)
M6(A) - Oblate Primary School ^	N/A	55.6 – 66.2	58.0 – 61.5	52.4 – 64.6
M7 - CCC Kei To Secondary School	45 – 68	52.4 – 64.3	58.6 – 64.0	59.6 – 67.2
M8 - Po Leung Kuk Ngan Po Ling College	44 – 70	59.0 – 68.2	60.8 – 66.2	58.4 – 67.0
M9 - Tak Long Estate	Not predicted in EIA Report	60.5 – 70.5	62.2 – 67.0	59.0 – 70.1

(^) Construction noise monitoring at Station M6 – Holy Carpenter Primary School was carried out on 3rd and 8th October 2014 as it was rejected by the premise owner afterwards. An alternative noise monitoring station – M6(A) – Oblate Primary School replaced M6 – Holy Carpenter Primary School from 10th October 2014 onwards.