Project No.: TCS/00658/13

HIGHWAY CONTRACT NO. HY/2011/13 – IMPROVEMENT TO POK OI INTERCHANGE

ENVIRONMENTAL MONITORING AND AUDIT (EM&A) MONTHLY REPORT (NO.14) – APRIL 2014

PREPARED FOR
Leader Civil Engineering Corporation Limited

Quality Index Date	Reference No.	Prepared By	Certified by
		(Environmental Consultant)	(Environmental Team Leader)
14 May 2014	TCS00658/13/600/R0105v2		
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Version	Date	Description
1	13 May 2014	First submission
2	14 May 2014	Site information updated

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Our ref. : LES/J2013-01/CS/L23
Date : 16 May 2014

BY Fax (3188 3418) & Email

Highway Department
Works Division
16th Floor, Skyline Tower,
39 Wang Kwong Road,
Kowloon Bay, Kowloon, H.K.

Attn: Engineer, Mr. Ian Wan

RE: Contract No. HY/2011/13
Improvement to Pok Oi Interchange (Sub-Contract No. 1205/5003)
EM&A Monthly Report – April 2014

Dear Sir,

Referring to the Environmental Team's submission of the EM&A Monthly Report (document reference: TCS00658/13/600/R0105v2) received via email dated 15 May 2014, please be informed that we have no further comment on the captioned report.

We write to verify the captained submission in accordance with Condition 3.6 in the captioned Environmental Permits

Thank you for your kind attention and please do not hesitate to contact the undersigned at 2839 5666 should you have any queries.

Yours truly,
For and On Behalf Of
Lam Environmental Services Limited

Raymond Dai
Independent Environmental Checker

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EXECUTIVE SUMMARY

ES.01. Leader Civil Engineering Corporation Limited (hereinafter 'Leader') has been awarded by the Highways Department (HyD) of the Government of the Hong Kong Special Administrative Region (HKSAR) the Contract No. ***HY/2011/13 – Improvement to Pok Oi Interchange*** (hereinafter "the Project') in November 2012. The Project is a designated project under Environmental Permit No. ***EP-411-2011***. The total project time is expected to be 33 months.

ES.02. Action-United Environmental Services and Consulting (AUES) has been appointed as the independent environmental team (ET) to implement the relevant Environmental Monitoring and Audit (EM&A) program of the Project. Lam Environmental Services Limited as an Independent Environmental Checker (IEC), and Highways Department's representative engineers (the Engineer) directly manage the Project.

ES.03. The scope of monitoring works and requirements of the EM&A program implemented by the ET is guided by the requirements of the Particular Specification and the EM&A Manual. As part of the EM&A programmes, baseline noise monitoring was carried out in accordance with the EM&A Manual and the EP requirements between ***22 January 2013*** and ***6 February 2013.*** Moreover, Landscape & Visual survey was undertaken on ***28th*** and ***29th January 2013***. The Baseline Report was submitted on ***15 February 2013*** which verified by IEC and for EPD endorsement. Fourteenth

ES.04. A set of A/L Levels serve as the yardsticks for assessing the acceptability of the environmental impact construction noise level. They are statistical in nature and derived according to the criteria set out in EM&A Manual and is given in the following table.

Monitoring Location	**Action Level**	**Limit Level of Construction Noise**	**Maximum Acceptable Impact Noise Level**
	0700-1900 hours on normal weekdays		
NM1 - Kwong Ming Ying Loi School	When one documented complaint is received	70 dB(A) / 65dB(A)*	73 dB(A) / 72dB(A)*
NM2 - Jockey Club Care & Attention Home		75 dB(A)	75 dB(A)
Remarks: (*) *during school examination periods.* *Note: 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.*			

ES.05. The Project works commenced on 1 March 2013. This is the **14th** month of EM&A report presenting the monitoring results and inspection findings. The period of reporting is from **1** to **30 April 2014** (hereinafter 'the Reporting Period').

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES.06. Environmental monitoring activities under the EM&A program in this Reporting Period are summarized in the following table.

Issues	**Environmental Monitoring Parameters / Inspection**	**Occasions**
Construction Noise	$L_{eq(30min)}$ Daytime	**10**
Regular Weekly Site Inspection	ET, the Contractor and HyD Representative joint site Environmental Inspection and Auditing	**4**

ES.07. The Reporting Period, the site inspection and audit by IEC was performed on ***29 April 2014***.

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES.08. No exceedance of construction noise level was detected in this Reporting Period. Furthermore, no noise complaint (Action Level) was received. No Notifications of Exceedances (NOEs) was issued to the Project Manager, IEC and Leader. The statistics of environmental exceedance, NOE

issued and investigation of exceedance are summarized in the following table.

Environmental Issues	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Construction Noise	$L_{eq(30min)}$ Daytime	0	0	0	0	0

ENVIRONMENTAL COMPLAINT

ES.09. No public complaint was received by either Leader or HyD in this Reporting Period. The statistics of environmental complaint are summarized in the following table.

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 April 2014	0	0	NA

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.10. No environmental summons or successful prosecutions were recorded in this Reporting Period. The statistics of environmental complaint are summarized in the following tables.

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 April 2014	0	0	NA

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 April 2014	0	0	NA

REPORTING CHANGE

ES.11. There are no reporting changes in this Reporting Period.

SITE INSPECTION BY EXTERNAL PARTIES

ES.12. No joint site inspection was undertaken by external parties i.e. EPD or AFCD within the Reporting Period.

FUTURE KEY ISSUES

ES.13. As wet season is approaching, muddy water or other water pollutants from site surface runoff into the public area will be key environment issue. Therefore, water mitigation measures to prevent surface runoff should be paid on special attention. Moreover, mitigation measures should be properly maintained to avoid fugitive dust emissions from loose soil surface or haul road.

ES.14. In addition, water quality mitigation measures such as prevention of muddy water and other water quality pollutants via site surface water runoff get into public area should be avoided especially. Mitigation measures for water quality should be properly implemented.

ES.15. Construction noise should be a key environmental impact during the works. The noise mitigation measures such as use of quiet plants and installation of temporary noise barrier at the construction noise predominate area should be fully implemented as accordance with the EM&A requirement.

ES.16. Since the currently working areas are located at public road, site tidiness should be undertaken after every day work completion. Mosquito control should be keep to maintain.

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1 INTRODUCTION

Project Background

1.01 Leader Civil Engineering Corporation Limited (hereinafter 'Leader') has been awarded by the Highways Department (HyD) of the Government of the Hong Kong Special Administrative Region (HKSAR) the Contract No. ***HY/2011/13 – Improvement to Pok Oi Interchange*** (hereinafter "the Project') in November 2012. The Project location is shown ***Appendix A***. The total project time is expected to be 33 months.

1.02 The Project is a designated project under Environmental Permit No. ***EP-411-2011***. Construction works of the Project under Environmental Permit are as follows:

- provision of a single lane flyover (approximately 140m in length) adjacent to the northbound carriageway of Pok Oi Flyover (POF);
- construction of a slip road (approximately 410m in length) connecting the northbound carriageway of the ground level road of Yuen Long Highway (YLH) on the southern arm of POR to the proposed flyover;
- construction of a slip road (approximately 100m in length) connecting the proposed flyover to the northbound carriageway of the ground level section of YLH on the northern arm of POR;
- construction of a slip road (approximately 280m in length) connecting the southbound carriageway of POF to the southbound carriageway of the ground level section of YLH on the southern arm of POF;
- resurfacing and re-marking of a stretch of the southbound carriageway (approximately 280m in length) of the ground level section of YLH on the northern arm of POF to increase the number of traffic lanes on the carriageway from three to four;
- resurfacing and re-marking of a stretch of the northbound carriageway (approximately 470m in length) of the ground level section of YLH on the northern arm of POF;
- construction of a segregated left-turn lane (approximately 110m in length) at the northern arm of POF; and
- associated ancillary works.

1.03 In the Project, Action-United Environmental Services and Consulting (AUES) is the independent environmental team (ET) to implement the relevant EM&A programme, Lam Environmental Services Limited is an Independent Environmental Checker (IEC), and Highways Department's representative engineers (the Engineer) is directly manage the Project.

1.04 According to the project EM&A Manual stipulation, baseline noise monitoring at the designated locations to determine the ambient environmental condition of background noise was carried out from ***22 January 2013*** to ***6 February 2013***. After the baseline report submitted to EPD on 15 February 2013, the major construction works of the Project was commenced on ***1 March 2013***.

1.05 This is the **14th** month of EM&A report presenting the monitoring results and inspection findings. The period of reporting is from **1** to **30 April 2014** (hereinafter 'the Reporting Period').

Report Structure

1.06 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 Monitoring Requirements*
Section 4	*Construction Noise Monitoring Results*
Section 5	*Air Quality Audit and Site Inspection*
Section 6	*Water Quality*
Section 7	*Landscape & Visual*
Section 8	*Waste Management*

Section 9 *Site Inspections*
Section 10 *Environmental Complaints and Non-Compliance*
Section 11 *Mitigation Measures Implementation and Impact Forecast*
Section 12 *Conclusions and Recommendations*

2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

Project Organization and Management Structure

2.01 Organization structure and contact details of relevant parties with respect to on-site environmental management are shown in ***Appendix B***.

Construction Progress

2.02 The master construction program is enclosed in ***Appendix C*** and the major construction activities undertaken in the Reporting Period are listed below:-

- Construction of base slab and side wall for Retaining Wall C1
- Construction of base slab for retaining wall A at slip road A
- Construction of side wall for retaining wall (Bay 5 to Bay 7) at left turn lane
- Construction of auger pile at Pier 3 and north abutment
- Excavation of retaining wall A at slip road A

Summary of Environmental Submissions

2.03 In Reporting Month, new construction noise permit is now under application. Summary of currently relevant permits, licenses, and/or notifications on environmental protection for this Project in this Reporting Month is presented in ***Table 2-1***.

Table 2-1 Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Air pollution Control (Construction Dust) Regulation	Ref. Number: 1218-055-AGE-1
2	Chemical Waste Producer Registration	Waste Producers Number (WPN): 5213-5260-L2544-14
3	Water Pollution Control Ordinance	License No.: 352636
4	Waste Disposal Regulation	Billing Account for Disposal of Construction Waste Account No. 7016423

2.04 ***15 February 2013***, a Baseline Monitoring Report (Report Ref: *TCS00658/13/600/R0013v3*) also has been submitted to EPD for approval.

2.05 In accordance with Condition 2.14 of Environmental Permit EP-411-2011 stipulation, the landscape plans has been submitted on ***9 July 2013*** for EPD endorsement.

3 SUMMARY OF IMPACT MONITORING REQUIREMENTS

3.01 The EM&A requirements under the Project are set out in the EM&A Manual. Construction noise has been identified to be the key issues during the construction phase of the Project. A summary of the Impact EM&A requirements are presented in the sub-sections below.

Monitoring Parameters

3.02 According to the Project EM&A Manual, the Impact monitoring program covers the following environmental issues:

- Construction noise;
- Air Quality;
- Water Quality; and
- Landscape & Visual

3.03 A summary of the monitoring parameters is presented in ***Table 3-1*** as below.

Table 3-1 Summary of EM&A Impact Monitoring Requirements

Environmental Issue	Parameters
Construction Noise	• A-weighted equivalent continuous sound pressure level (30min) (hereinafter '$L_{eq(30min)}$' during the normal working hours; and • A-weighted equivalent continuous sound pressure level (5min) (hereinafter '$L_{eq(5min)}$' for construction work during the Restricted Hours.
Air Quality	Regular environmental audits and site inspections
Water Quality	Regular environmental audits and site inspections
landscape & visual	Regular site inspections

Monitoring Locations

3.04 According to the EM&A Manual, the designated locations for construction noise monitoring is listed in ***Table 3-2*** and illustrated in ***Appendix D***.

Table 3-2 Designated Noise Monitoring Locations

Location ID	Address
NM1	Fifth floor of Kwong Ming Ying Loi School
NM2	Roof of Jockey Club Care & Attention Home

Monitoring Frequency

3.05 The requirement of impact noise monitoring as specified in the EM&A Manual *Section 4.6* are presented below.

Parameter: $L_{eq(30min)}$ & $L_{eq(5min)}$, L_{10} and L_{90}.

Frequency: 6 consecutive $L_{eq(5min)}$ for once a week during 0700-1900 hours on normal weekdays

If the construction work is undertake at Restrict Hour, the frequency of noise monitoring will be conducted in accordance with the related Construction Noise Permit requirement issued by EPD as follow

- 3 consecutive Leq5min at restrict hour from 1900 – 2300;
- 3 consecutive Leq5min for restrict hour from 2300 – 0700 next day;
- 3 consecutive Leq5min for Sunday or public holiday from 0700 – 1900

Duration: Throughout the Construction Period

3.06 During the operational phase of the Project, traffic noise monitoring should be carried out during the first year to ensure noise compliance. The traffic noise levels should be measured twice at 6-month intervals within the first year upon completion of the Project. Measurements should be made in terms of the A-weighted L_{10} over 3 half hour periods during the peak traffic hour; other parameters including L_{eq} should also be taken for reference. At least 6 months before the

operation of the works under the Project, a monitoring plan should prepare and deposit to EPD.

3.07 Two designated monitoring stations are selected for the operational noise monitoring. The location of operational noise monitoring is listed in ***Table 3-3*** and illustrated in ***Appendix D***.

Table 3-3 Designated Operational Noise Monitoring Locations

Location ID	Address
ONM-01	Kwong Ming Ying Loi School
ONM-02	Jockey Club Care & Attention Home

Monitoring Equipment

3.08 Construction noise monitoring equipment for impact EM&A Programme are listed in ***Table 3-4***.

Table 3-4 Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	B&K Type 2238
Calibrator	B&K Type 4231
Portable Wind Speed Indicator	Anemometer AZ Instrument 8908

Monitoring Procedure

3.09 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 Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO).

3.10 All noise measurements will be performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq). Leq(30 min) in six consecutive $L_{eq(5\ min)}$ measurements will be used as the monitoring parameter for the time period between 0700-1900 hours on weekdays throughout the construction period. Leq(15 min) in three consecutive $L_{eq(5\ min)}$ measurements for other time periods (e.g. during restricted hours) will only be conducted for monitoring the construction noise during restricted hours as necessary.

3.11 The sound level meter will be mounted on a tripod at a height of 1.2 m and placed at the assessment point and oriented such that the microphone is pointed to the site with the microphone facing perpendicular to the line of sight. The windshield will be fitted for all measurements. Where a measurement is to be carried out at a building, the assessment point would normally be at a position 1 m from the exterior of the building façade. Where a measurement is to be made for noise being received at a place other than a building, the assessment point would be at a position 1.2 m above the ground in a free-field situation, i.e. at least 3.5 m away from reflective surfaces such as adjacent buildings or walls.

3.12 Immediately prior to and following each noise measurement the accuracy of the sound level meter will be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements will be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0dB. Noise measurements will not be made in fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed will be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

3.13 An acoustic calibrator and sound level meter will be calibrated yearly. A valid of calibration certificates shown in ***Appendix G*** this Report.

Other EM&A Requirements

Air Quality

3.14 No adverse air quality impact is anticipated during the construction phase, the EIA Report has identified that construction dust is the only concern as the construction scale is relatively small,

and dust emission from the site could be audited during the regular site inspection.

3.15 In order to ensure no adverse air quality impact will arise from the construction of the Project, it is necessary to undertake regular environmental audits and site inspections to ensure those recommended mitigation measures were properly implemented.

Water Quality

3.16 No adverse water quality impact is anticipated during the construction phase with the implementation of good site practices and appropriate mitigation measures in accordance with the *Practice Note for Professional Persons* on *Construction Site Drainage* (*ProPECC PN 1/94*) and other relevant guidelines.

3.17 In order to ensure no adverse water quality impact will arise from the construction of the Project, it is necessary to undertake regular environmental audits and site inspections to ensure those recommended mitigation measures were properly implemented.

Landscape & Visual

3.18 In order to ensure landscape and visual impact is controlled and mitigated during construction phase of the Project, regular site inspections should undertake to ensure those recommended mitigation measures were properly implemented.

3.19 Moreover, a competent Landscape Architect should be conducted the regular landscape audit during both construction and operational stage. For the operational phase, all landscape and visual mitigation measures should be monitored monthly during the first year of the operational phase to ensure that the effectiveness of the mitigations.

Site Environmental Inspection and Audit

3.20 Site surveillance shall be undertaken regularly and routinely by the independent ET to inspection the construction activities of the Contractor. It provides a direct means to trigger and enforce the specified environmental protection and pollution control measures. With well-defined environmental pollution control and mitigation specifications and a well-established environmental site inspection, deficiency and action reporting system, environmental site inspection is one of the most effective tools to enforce environmental protection requirements on the construction site.

3.21 The independent ET Leader responsible for formulate of the environmental site inspection, deficiency and remedial action reporting system, and for carrying out the site inspection works. A stand-alone document of procedure for site inspection, deficiency and remedial action reporting requirements will be submitted to Leader for agreement and to the Project Manager for approval.

Quality Assurance Procedures and Data Management

Documentation of the Environmental Monitoring

3.22 Field data including noise monitoring results, weather conditions and observation will be recorded in corresponding Field Data Sheets, which will be signed and dated by the respective environmental technician prior to submission to the ETL for validation and endorsement at the end of the monitoring day.

Data Management and Analysis

3.23 All impact monitoring data will be processed by the AUES data recording and management system, which complies with in-house Quality (ISO 9001:2000) Management System. Monitoring results recorded in the monitoring equipment e.g. Noise Meters will be downloaded directly from the equipment at the end of the monitoring period. The downloaded monitoring data will be input into a computerized database maintained by the ET.

Quality Assurance Procedures

3.24 Appropriate and standard QA/QC measures will be adopted for the environmental monitoring to ensure the scientific integrity of the data produced. Sources of error in the impact monitoring will be properly controlled with the following QA/QC procedures:

a. Appropriate field monitoring and techniques, including monitoring equipment;

b. Well organized systematic field-data system e.g. all baseline monitoring information, field observation, results and weather conditions, etc. will be recorded in the field monitoring record sheets.

Determination of Action/Limit (A/L) Levels

3.25 According to the EM&A Manual, construction noise criteria was set up, namely Action and Limit levels is listed in ***Tables 3-5*** as below.

Table 3-5 Action and Limit Levels for Construction Noise

Monitoring Location	Action Level	Limit Level of Construction Noise	Maximum Acceptable Impact Noise Level
	0700-1900 hours on normal weekdays		
NM1 - Kwong Ming Ying Loi School	When one documented complaint is received	70 dB(A) / 65dB(A)*	73 dB(A) / 72dB(A)*
NM2 - Jockey Club Care & Attention Home		75 dB(A)	75 dB(A)
Remarks: (*) *during school examination periods.* *Note: 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.*			

Event Action Plan

3.26 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan enclosed in ***Appendix E***.

Environmental Mitigation Measures

3.27 The Environmental Mitigation Implementation Schedule (EMIS) such as air quality, construction noise, water quality and landscape & visual, as recommended by the EIA Study has been shown in ***Appendix F***.

3.28 In the event of complaints, or non-compliance / area of improvement is observed, the ET and the Contractor should be responsible for reviewing the effectiveness of these mitigation measures and for proposing to the Project Manager for approval, designing and implementing alternative or additional mitigation measures as appropriate.

4 CONSTRUCTION NOISE IMPACT MONITORING RESULTS

4.01 In this Report Period, a total of **10** events of construction noise monitoring have been carried out by the ET. The sound measurement at all monitoring locations were set at the position 1 m from the exterior of the building façade. Therefore, no façade correction has been added accordingly.

Noise Monitoring Location

4.02 The noise monitoring results are tabulated in ***Table 4-1 and Table 4-2*** and the graphical plots are shown in ***Appendix I***.

Table 4-1 Summarized of Construction Noise Monitoring Results at NM1, dB(A)

Date	Start Time	1st L_{eq5min}	2nd L_{eq5min}	3rd L_{eq5min}	4th L_{eq5min}	5th L_{eq5min}	6th L_{eq5min}	$L_{eq30min}$
2-Apr-14	13:10	61.1	65.6	66.3	66.1	66.1	66.3	65.6
8-Apr-14	14:25	61.8	59.9	60.4	60.0	60.2	60.5	60.5
14-Apr-14	13:34	60.7	62.0	61.7	60.5	61.1	60.8	61.2
25-Apr-14	11:25	60.9	59.4	59.5	59.9	58.7	59.2	59.7
30-Apr-14	10:49	66.7	66.0	66.9	66.5	67.8	67.6	67.0
Limit Level of Construction Noise								**70dB(A)**
Maximum Acceptable Impact Noise Level at Monitoring Location								**73dB(A)**

Table 4-2 Summarized of Construction Noise Monitoring Results at NM2, dB(A)

Date	Start Time	1st L_{eq5min}	2nd L_{eq5min}	3rd L_{eq5min}	4th L_{eq5min}	5th L_{eq5min}	6th L_{eq5min}	$L_{eq30min}$
2-Apr-14	13:55	69.1	67.4	68.0	69.0	65.8	67.3	67.9
8-Apr-14	13:39	67.2	66.6	66.2	63.2	63.6	62.8	65.3
14-Apr-14	14:51	65.8	64.2	64.1	64.2	64.2	64.5	64.5
25-Apr-14	12:16	61.4	61.2	60.9	60.7	61.2	61.2	61.1
30-Apr-14	9:59	63.8	64.5	64.3	65.5	65.9	64.9	64.9
Limit Level of Construction Noise								**75dB(A)**
Maximum Acceptable Impact Noise Level at Monitoring Location								**75dB(A)**

4.03 In the Reporting Period, no school examination was undertaken at NM1 Kwong Ming Ying Loi School.

4.04 As shown in ***Table 4-1 and 4-2***, no noise measurement event was found to exceed "*Limit Level of Construction Noise*" or "*Maximum Acceptable Impact Noise Level*" at Monitoring Locations during the Reporting Period. No Notification of Exceedance (NOE) of construction noise criteria or corrective action was therefore required.

4.05 During the Reporting period, the meteorological information extracted from the Hong Kong Observatory (Lau Fau Shan Station) is summarized in ***Appendix J.***

Noise Complaint Status in this Reporting Period

4.06 Noise complaint is an indication of Action Level for construction noise performance criteria. In this Reporting Period, no noise complaint was received by the EPD, HyD, the Project Manager, Leader and ET.

Construction Noise Mitigation Measures provided in this Reporting Month

4.07 In this reporting month, noise mitigation measures as provided by Leader is listed below:

- Regularly to maintain all plants, so only the good condition plants are used on-site ;
- If possible, all mobile plants onsite operation has located far from NSRs;
- When machines and plants (such as trucks) is not in using, it was switched off;
- Wherever possible, plant was prevent oriented directly the nearby NSRs;
- Provided quiet powered mechanical equipment to use onsite;
- Moveable noise barriers were temporary used for construction work; and
- Weekly noise monitoring was conducted to ensure construction noise meet the criteria.

4.08 In the coming month, ET will be regular to audit and inspection and reporting the status of construction noise of the Project.

5 AIR QUALITY AUDIT AND SITE INSPECTION

5.01 The Reporting Period, no construction dust emission observed as from the Project during site inspection.

5.02 In this reporting month, dust mitigation measures as provided by Leader is listed below:

- Any stockpile of dusty material was covered entirely with impervious sheeting or sprayed with water so as to maintain the entire surface wet;
- The construction plants regularly maintained to avoid the emissions of black smoke;
- The construction plants switched off when it not in use;
- Where a vehicle leaving the works site is carrying a load of dusty materials, the load has covered entirely with clean impervious sheeting; and
- Before any vehicle leaving the works site, wheel watering has been performed.

5.03 In the coming month, ET will be regular to audit and inspection and reporting the status of construction dust of the Project.

6 WATER QUALITY

6.01 During the site inspection in reporting month, no site surface water observed runoff get into public area

6.02 In this reporting month, water quality mitigation measures as provided by Leader is listed below:

- Impervious sheeting was paved on exposed soil surfaces to reduce the potential of soil erosion;
- Debris and refuse generated on-site collected daily;
- Stockpiles of the cement and other construction materials were covered when not being used;
- Oils and fuels are stored in designated areas with locks;
- The chemical waste storage as sealed area provided with locks;
- Sedimentation facilities was provided to remove silt particles from groundwater;
- Sand bags were provided surrounding the boundary of working site to prevent wastewater or site surface water runoff get into public areas; and
- Portable chemical toilets are provided on-site. A licensed contractor is regularly disposal and maintenance of these facilities.

6.03 In the coming month, ET will be regular to audit and inspection and reporting the status of water quality mitigation measures of the Project.

7 LANDSCAPE AND VISUAL

7.01 In this Reporting Month, construction activities undertaken on work areas are included the excavation, concreting and watermains installation. During site inspections in this reporting month, no issue was observed and currently mitigation measures implemented on-site is considered satisfactory.

8 WASTE MANAGEMENT

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

Records of Waste Quantities

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

- Construction & Demolition (C&D) material;
- Chemical waste;
- General refuse; and
- Excavated soil.

8.03 The quantities of waste for disposal in this Reporting Period are summarized in ***Tables 8-1*** and ***8-2*** and the Monthly Summary Waste Flow Table is shown in ***Appendix K***. Whenever possible, materials were reused on-site as far as practicable.

Table 8-1 Summary of Quantities of Inert C&D Materials in Reporting Month

Type of Waste	Quantity	Cumulate	Disposal Location
C&D Materials (Inert) ('000m^3)	0.18525	5.18378	Tuen Mun 38
Reused in this Contract (Inert) ('000m^3)	0	0	Nil
Reused in other Projects (Inert) ('000m^3)	0	0	Nil
Disposal as Public Fill (Inert) ('000m^3)	0.183015	5.147495	Tuen Mun 38

Remark: The cumulate waste quantity has been updated in this reporting month.

Table 8-2 Summary of Quantities of C&D Wastes in Reporting Month

Type of Waste	Quantity	Cumulate	Disposal Location
Metals ('000kg)	0	0	Nil
Paper / Cardboard Packing ('000kg)	0	0	Nil
Plastics ('000kg)	0	0	Nil
Chemical Wastes ('000kg)	0	0	Nil
General Refuses ('000m^3)	0.002235	0.019555	WENT

Remark: The cumulate waste quantity has been updated in this reporting month.

8.04 There was no site effluent discharged but the estimated volume of surface runoff was less than 50m^3 in this monthly period.

9 SITE INSPECTIONS

9.01 According to EM&A Manual stipulation, the regular weekly site inspections on **1**, **9**, **15**, and **22 April 2014** were carried out by ET, the Contractor and HyD Representative to ensure the environmental performance. Moreover, IEC performed site inspection together with ET, the Contractor and HyD Representative was on **29 April 2014**. During site inspection No non-compliance was noted.

9.02 Observations and findings are summarized in ***Table 9-1*** and the inspection checklist in this reporting month is attached in ***Appendix L***.

Table 9-1 Site Observations in the Reporting Month

Date	Findings / Deficiencies	Follow-Up Status
1 Apr 2014	• No non-compliance and observed deficiencies	NA
9 Apr 2014	• No non-compliance and observed deficiencies	NA
15 Apr 2014	• No non-compliance and observed deficiencies •	NA
22 Apr 2014	• The Contractor was reminded to cover the open slope with impervious tarpaulin to prevent dust nuisance.	• Tarpaulin was provided to prevent dust nuisance.
29 Apr 2014	• The Contractor was reminded to plug the plughole of the drip tray found in the work area to prevent leakage. • Free standing chemical containers were observed in the work area, the Contractor was reminded to provide drip tray for all chemical containers and fulfill the chemical storage requirement.	To be follow up in the next reporting month.

9.03 As general reminder, dust control measures to avoid fugitive dust in the construction site should be properly provided and maintained during the dry season. Moreover, mitigation measures for water quality should be properly implemented, and good housekeeping practice should be keep to maintain. Moreover, mosquito control should be performed to prevent mosquito breeding on site. In addition, the Contractor was recommended to provide tool box for chemical storage on site as requirement.

10 ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE

Environmental Complaint, Summons and Prosecution

10.01 No environmental complaint, summons and prosecution was received in this reporting period. The statistical summary table of environmental complaint is presented in ***Tables 10-1, 10-2*** and ***10-3***.

Table 10-1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 April 2014	0	0	NA

Table 10-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 April 2014	0	0	NA

Table 10-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 30 April 2014	0	0	NA

11 IMPLEMENTATION STATUS OF MITIGATION MEASURES

11.01 The environmental mitigation measures that recommended in the Environmental Monitoring and Audit Manual covered the issues of dust, noise, water and waste and they are summarized as following:

Dust Mitigation Measure

11.02 Implementation of the requirements stipulated in the Air Pollution Control (Construction Dust) Regulation and the following good site practices are recommended to control dust emission from the site:

- Any stockpile of dusty material will be covered entirely with impervious sheeting or sprayed with water so as to maintain the entire surface wet;
- Where a site boundary adjoins a road, or other area accessible to the public, hoarding shall be provided along the entire length of that portion of the site boundary;
- All dusty materials will be sprayed with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet;
- Where a vehicle leaving the works site is carrying a load of dusty materials, the load will be covered entirely with clean impervious sheeting to ensure that the dusty materials do not leak from the vehicles;
- The working area of any demolition, excavation or earth moving operation will be sprayed with water or dust suppression chemicals immediately after the operation so as to maintain the entire surface wet;
- The construction plants will be regularly maintained to avoid the emissions of black smoke; and
- The construction plants will be switched off when not in use to avoid gaseous emissions.

Noise Mitigation Measure

11.03 The mitigation measures recommended in the EM&A Manual are summarised below:

- Only well-maintained plant will be operated on-site and plant should be serviced regularly during the construction program;
- Silencers or mufflers on construction equipment should be utilized and will be properly maintained during the construction program;
- Mobile plant, if any, will be sited as far from NSRs as possible
- Machines and plant (such as trucks) that may be in intermittent use will be shut down between work periods or should be throttled down to a minimum;
- Plant known to emit noise strongly in one direction will, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and
- Material stockpiles and other structures will be effectively utilised, wherever practicable, in screening noise from on-site construction activities.
- Noisy construction activities, including piling excavation and earth-breaking works, will be carried out outside the examination periods of Kwong Ming Ying Loi School.
- Use of quiet powered mechanical equipment
- Use of acoustic enclosure
- Adoption of Movable Noise Barriers. The barrier material shall have a surface mass of not less than 7 kg/m2 on skid footing.

Water Quality Mitigation Measure

11.04 During the construction phase, the Contractor should be responsible implementation of the following mitigation measures.

- Silt removal facilities such as silt traps or sedimentation facilities should be provided to remove silt particles from runoff to meet the requirements of the WPCO-TM standard. The design of silt removal facilities should be based on the guidelines provided in *ProPECC PN 1/94*. All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during

rainstorms.

- Careful programming of the works to minimize surface excavations for the Project during the wet season. If excavation of soil cannot be avoided during the wet season, exposed slope surfaces should be covered by tarpaulin or other means. Other measures that need to be implemented before, during, and after rainstorms are summarised in *ProPECC PN 1/94*.
- Exposed soil surfaces should be protected by paving or fill material as soon as possible to reduce the potential of soil erosion.
- Open stockpiles of construction materials or construction wastes on-site of more than 50m3 should be covered with tarpaulin or similar fabric during rainstorms. These materials should not be placed near water courses.
- A Drainage Management Plan (DMP) should be prepared by the Contractor and submitted to EPD before the commencement of any construction works to detail the procedures for control of construction site runoff. No site run-off or drainage should be allowed enter the nearby WSRs
- Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering the nearby WSRs. Stockpiles of cement and other construction materials should be kept covered when not being used;
- Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. 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 container or 20% by volume of the chemical waste stored in that area, whichever is the greatest. The bund should be drained of rainwater after a rain event.
- Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site. A licensed contractor would be responsible for appropriate disposal and regular maintenance of these facilities.
- Silt removal facilities such as silt traps or sedimentation facilities should be provided to remove silt particles from groundwater to meet the requirements of the *WPCO-TM* standard. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected and maintained on a regular basis to ensure proper and efficient operation at all times and particularly during rainstorms.

Construction Waste Mitigation Measure

11.05 It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are strictly followed. Recommendations for good site practices for the construction waste arising include:

- All the necessary waste disposal permits are obtained prior to the commencement of construction work.
- The construction contractor will open a billing account with the EPD. Every construction waste or public fill load to be transferred to the Government waste disposal facilities such as public fill reception facilities, sorting facilities, landfills will required a valid "chit" which contains the information of the account holder to facilitate waste transaction recording and billing to the waste producer. A trip-ticket system will also be established to monitor the disposal of construction waste at the Landfill and to control fly-tipping. The trip-ticket system will be included as one of the contractual requirements and implemented by the contractor.
- A recording system for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established.
- Inert and non-inert construction waste will be segregated and stored in different containers or skips to facilitate reuse or recycling of the inert waste and proper disposal of the non-inert construction waste. Specific areas of the work site will be designated for such segregation and storage if immediate use is not practicable.
- The construction contractor will open a billing account with the EPD. Every construction waste or public fill load to be transferred to the Tuen Mun Area 38 Public Filling Area or other approved designated public fill facilities will require a valid "chit".
- The construction contractor will register as a chemical waste producer with the EPD. Chemical waste will be handled in accordance with the *Code of Practice on the Packaging, Handling and*

Storage of Chemical Wastes.

Landscape & Visual Mitigation Measure

11.06 Mitigation measures recommended in the EM&A Manual for landscape and visual impacts during the construction stage are summarised below.

- *LMM 5 – Early Planting Works.* Where technically feasible, new plantings are to be installed as early as possible during the construction works.
- *LMM 6 – Site hoardings to be compatible with the surrounding environment.* Where possible site hoardings to be coloured to complement the surrounding areas. Colours such as green and light brown are recommended.

11.07 The Contractor had been implementing the required environmental mitigation measures according to the Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by the Contractor in this Reporting Month are summarized in ***Table 11-1***.

Table 11-1 Environmental Mitigation Measures in the Reporting Month

Issues	Environmental Mitigation Measures
Construction Noise	• Regularly to maintain all plants, so only the good condition plants are used on-site ; • If possible, all mobile plants onsite operation has located far from NSRs; • When machines and plants (such as trucks) is not in using, it was switched off; • Wherever possible, plant was prevent oriented directly the nearby NSRs; • Provided quiet powered mechanical equipment to use onsite; • Moveable noise barriers were temporary used for construction work; and • Weekly noise monitoring was conducted to ensure construction noise meet the criteria.
Air Quality	• Any stockpile of dusty material was covered entirely with impervious sheeting or sprayed with water so as to maintain the entire surface wet; • The construction plants regularly maintained to avoid the emissions of black smoke; • The construction plants switched off when it not in use; • Where a vehicle leaving the works site is carrying a load of dusty materials, the load has covered entirely with clean impervious sheeting; and • Before any vehicle leaving the works site, wheel watering has been performed.
Water Quality	• Impervious sheeting was paved on exposed soil surfaces to reduce the potential of soil erosion; • Debris and refuse generated on-site collected daily; • Stockpiles of the cement and other construction materials were covered when not being used; • Oils and fuels are stored in designated areas with locks; • The chemical waste storage as sealed area provided with locks; • Sedimentation facilities was provided to remove silt particles from groundwater; • Sand bags were provided surrounding the boundary of working site to prevent wastewater or site surface water runoff get into public areas; and • Portable chemical toilets are provided on-site. A licensed contractor is regularly disposal and maintenance of these facilities.
Waste and Chemical Management	• Excavated material reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment should be recycled if possible; • Waste arising kept to a minimum and be handled, transported and disposed of in a suitable manner; • Disposal of C&D wastes to any designed public filling facility and/or landfill followed a trip ticket system; and • Chemical waste handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.

Issues	Environmental Mitigation Measures
General	• The site is generally kept tidy and clean. • Mosquito control is performed to prevent mosquito breeding on site.

Impact Forecast

11.08 Construction activities to be undertaken in **May 2014** should be included below:-

- Construction of concrete surround for protection work of 1400mm watermains.
- Construction of retaining wall (Bay 5) at Segregated Left Turn Lane.
- Excavation for Retaining Wall C1 at Slip Road C.
- Concreting for Retaining Wall C1 at Slip Road C.
- Construction of road widening at Slip Road B (Stage 2).
- Construction of piles at Pier 3.
- Construction of 3rd preliminary piles at South Abutment.
- Excavation for temporary watermain by pass at Noise Barrier B.
- Install temporary bypass at Noise Barrier B.

11.09 Potential environmental impacts arising from the works include:

- Construction waste
- Air quality
- Construction noise
- Water quality (particularly site runoff during rainy seasons)

11.10 Environmental mitigation measures will be properly implemented and maintained as per the Mitigation Implementation Schedule to ensure site environmental performance is acceptable.

12 CONCLUSIONS AND RECOMMENTATIONS

Conclusions

12.01 This is the **14th** monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from **1** to **30 April 2014**.

12.02 No construction noise monitoring results that triggered the Limit Level was recorded. No NOE or the associated corrective actions were therefore issued. Moreover, no noise complaint (which is an Action Level exceedance) was received by the HyD, EPD and the contractor.

12.03 Furthermore, no notification of summons or successful prosecution was received in this Reporting Period.

12.04 The weekly site inspection to evaluate the site environmental performance has been undertaken on **1, 9, 15,** and **22 April 2014**. The joint site inspection with IEC is carried out on **29 April 2014**. No non-compliance was found in this reporting month. In general, it was reminded that good housekeeping practice should be maintained and noise mitigation measures should be implemented in accordance with EMIS requirements. Moreover, site surface water runoff get into public area should be avoided and mitigation measures for water quality should be properly implemented. In the reporting period, environmental performance of the Project was therefore considered satisfactory.

12.05 No joint site inspection was undertaken with any external party in this Reporting Period.

Recommendations

12.06 During the wet season, muddy water or other water pollutants from site surface runoff into the public area will be key environment issue. Therefore, water mitigation measures to prevent surface runoff should be paid on special attention. Moreover, mitigation measures should be properly maintained to avoid fugitive dust emissions from loose soil surface or haul road.

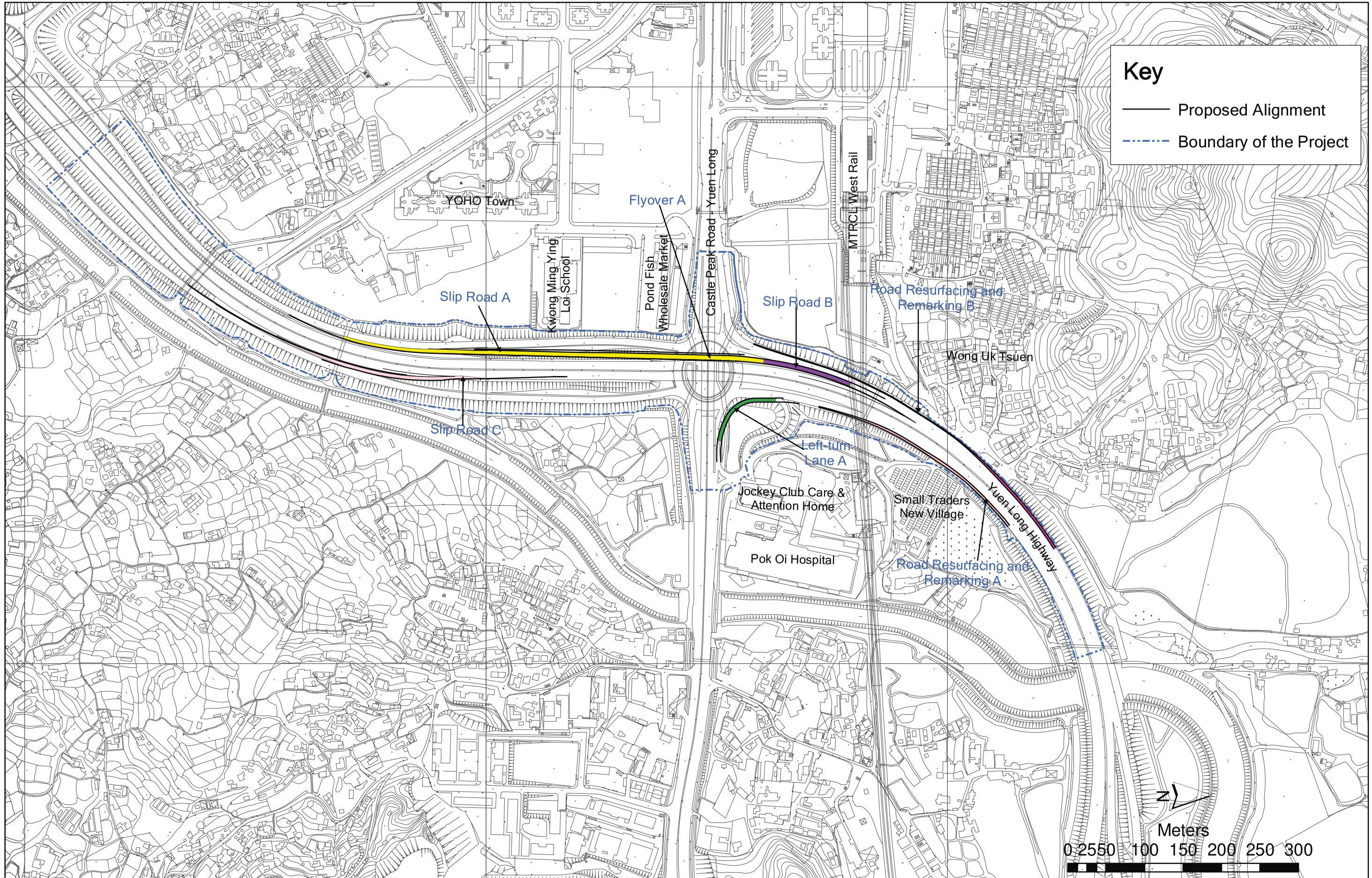
12.07 Construction noise should be a key environmental impact during the works. The noise mitigation measures such as use of quiet plants and installation of temporary noise barrier at the construction noise predominate area should be fully implemented as accordance with the EM&A requirement.

12.08 As a general reminder, housekeeping of the site and site tidiness should be undertaken after every day work completion. Addition, mosquito control should be keep to prevent mosquito breeding on site.

END OF TEXT

Appendix A

Project Site Layout Plan



Highways Department The Government of the Hong Kong Special Administrative Region	Consultant Environmental Resources Managment ERM Halcrow Halcrow China Ltd. As Engineering Sub-consultant	Agreement No. : WD 6/2007	Environmental Monitoring and Audit Manual	FIGURE 1.1
		Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: BOUNDARY AND THE PROPOSED ALIGNMENT OF THE PROJECT	Checked: PS; Scale: -; Rev.: Designed: TF; Drawn: AM; Date: 1/11/2007

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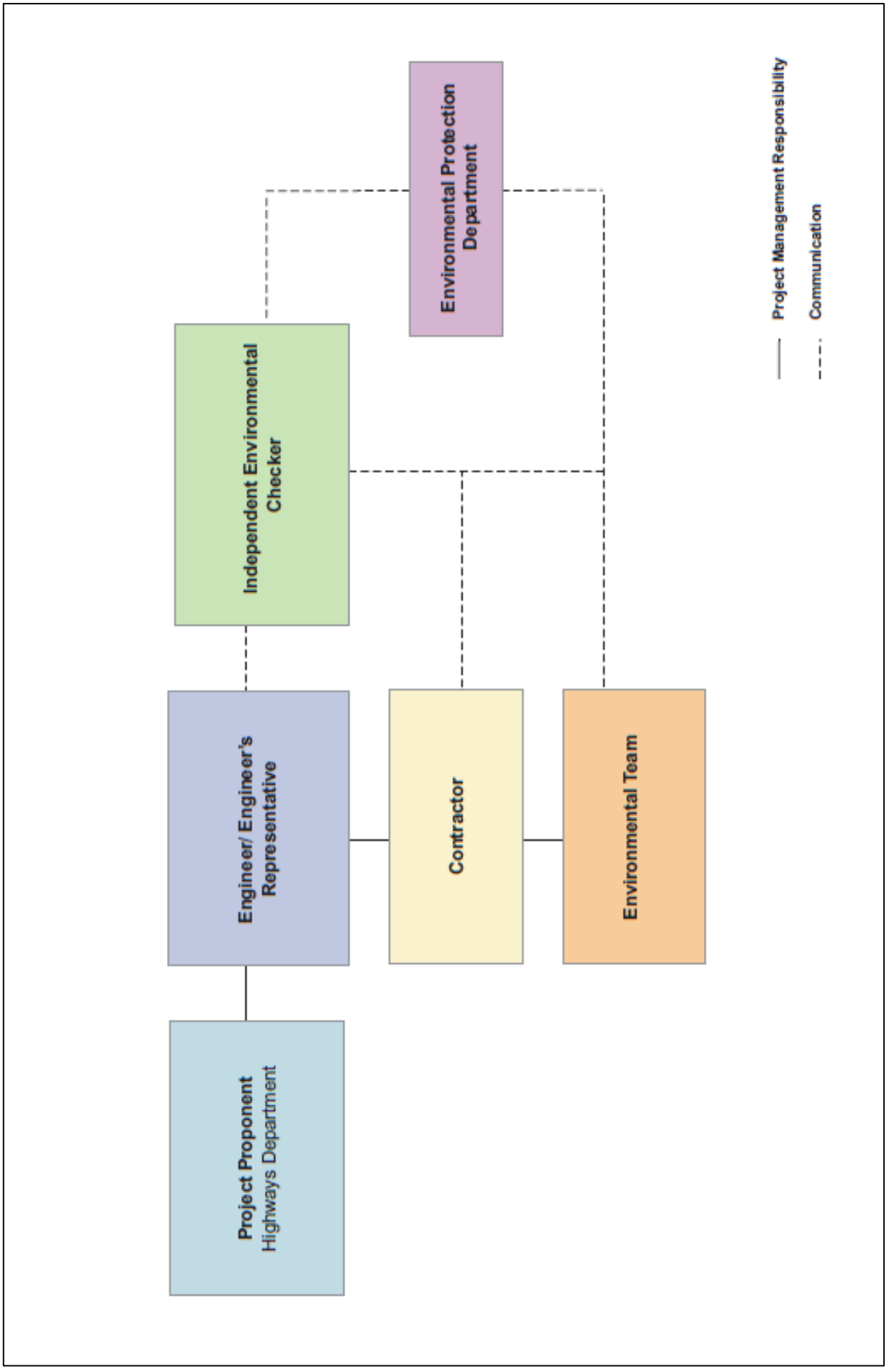
Appendix B

Project Organization Structure and Contact Details of Relevant Parties


Environmental Protection Department
Independent Environmental Checker
Engineer/ Engineer's Representative
Contractor
Environmental Team
Project Proponent
Highways Department
Project Management Responsibility
Communication

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
HyD	*Engineer / Engineer's Representative*	Mr. Alex Y. K. Liu	3188 3311	3188 3418
HyD	*Engineer / Engineer's Representative*	Mr. Ian C. K. Wan	3188 3281	3188 3418
HyD	*Engineer / Engineer's Representative*	Mr. Daniel K. Chow	3188 3358	3188 3418
Lam	Independent Environmental Checker	Mr. Raymond Dai	2839 5666	2882 3331
Leader	Production Project Manager	Mr. Jackie Leung	2272 3113	2336 5076
Leader	Site Agent / Environmental Officer	Mr. Chris Lam	2473 8422	2336 5076
Leader	Safety Officer	Mr. Tong Choi	6131 3575	2336 5076
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959 6059	2959 6079
AUES	Team Supervisor	Mr. Ben Tam	2959 6059	2959 6079

Legend:

HyD (the Employer and the Engineer/Engineer's Representative) – Highways Department

Leader (Main Contractor) – Leader Civil Engineering Corporation Limited

Lam (IEC) – Lam Environmental Services Limited

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

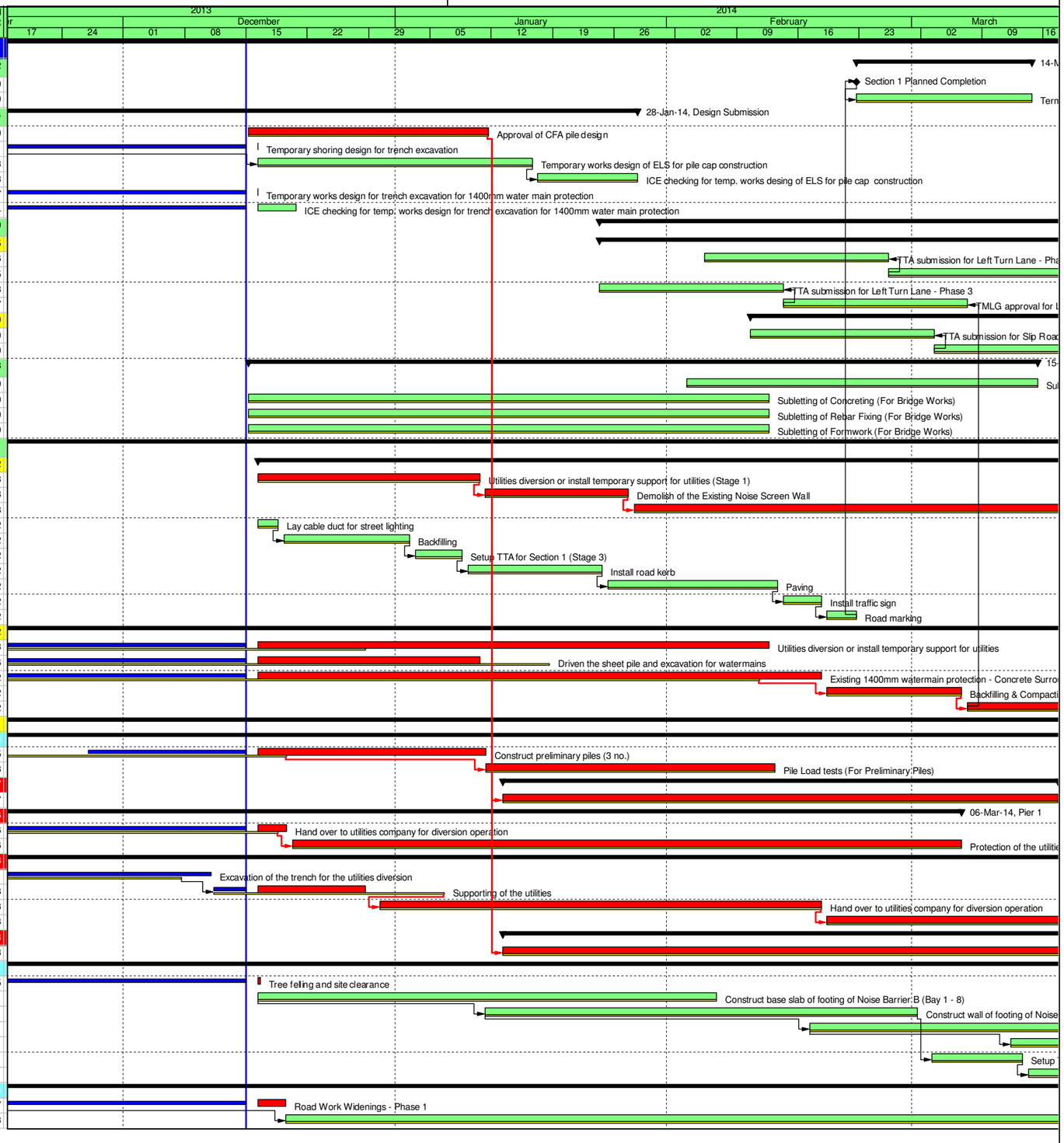
Appendix C

Master Construction Program and Three Months Roll Program

HY/2011/13 Improvement to Pok Oi Interchange

3 Month Rolling Programme

Activity ID	Activity Name	Actual Duration	Actual Start	Actual Finish	Original Duration	Original Start	Original Finish	Activity % Complete	Total Float
HY/2011/13 Improvement to Pok Oi Interchange		191	29-Apr-13		279	24-May-13	02-May-14		691
Completion Date		0			17	22-Feb-14	14-Mar-14		162
KD1010	Section 1 Planned Completion	0			0		22-Feb-14	0%	200
KD1011	Terminal float of Section 1	0			20	22-Feb-14	14-Mar-14	0%	200
Design Submission		191	29-Apr-13		206	24-May-13	28-Jan-14		764
DS1050	Approval of CFA pile design	0			28	15-Dec-13	11-Jan-14	0%	-120
DS1060	Temporary shoring design for trench excavation	191	29-Apr-13		25	24-May-13	22-Jun-13	100%	-171
DS1080	Temporary works design of ELS for pile cap cons	0			25	16-Dec-13	16-Jan-14	0%	63
DS1090	ICE checking for temp. works desing of ELS for p	0			10	17-Jan-14	28-Jan-14	0%	63
DS1100	Temporary works design for trench excavation fo	189	02-May-13		25	24-May-13	22-Jun-13	100%	-107
DS1110	ICE checking for temp. works design for trench e	107	09-Aug-13		10	14-Aug-13	24-Aug-13	50%	794
Statutory Submission		0			48	24-Jan-14	24-Mar-14		720
Section 2 TTA		0			43	24-Jan-14	19-Mar-14		725
TTA2030	TTA submission for Left Turn Lane - Phase 2	0			21	05-Feb-14	26-Feb-14	0%	916
TTA2040	TMLG approval for Left Turn Lane - Phase 2	0			21	26-Feb-14	19-Mar-14	0%	895
TTA2050	TTA submission for Left Turn Lane - Phase 3	0			21	24-Jan-14	14-Feb-14	0%	928
TTA2060	TMLG approval for Left Turn Lane - Phase 3	0			21	14-Feb-14	07-Mar-14	0%	907
Section 3 TTA		0			36	10-Feb-14	24-Mar-14		720
TTA3070	TTA submission for Slip Road B - Phase 2	0			21	10-Feb-14	03-Mar-14	0%	910
TTA3080	TMLG approval for Slip Road B - Phase 2	0			21	03-Mar-14	24-Mar-14	0%	889
Subletting and Procurement		0			71	15-Dec-13	15-Mar-14		728
SUB1180	Subletting of Landscape Works	0			40	03-Feb-14	15-Mar-14	0%	899
SUB1220	Subletting of Concreting (For Bridge Works)	0			60	15-Dec-13	12-Feb-14	0%	929
SUB1230	Subletting of Rebar Fixing (For Bridge Works)	0			60	15-Dec-13	12-Feb-14	0%	929
SUB1240	Subletting of Formwork (For Bridge Works)	0			60	15-Dec-13	12-Feb-14	0%	929
Construction		189	02-May-13		261	15-Jun-13	02-May-14		651
Section 1 - Slip Road C		0			74	16-Dec-13	18-Mar-14		142
SRC1019	Utilities diversion or install temporary support for u	0			20	16-Dec-13	10-Jan-14	0%	-348
SRC1020	Demolish of the Existing Noise Screen Wall	0			14	11-Jan-14	27-Jan-14	0%	-348
SRC1030	Install drainage (Stage 1)	0			40	28-Jan-14	18-Mar-14	0%	-348
SRC1250	Lay cable duct for street lighting	0			3	16-Dec-13	18-Dec-13	0%	162
SRC1260	Backfilling	0			10	19-Dec-13	02-Jan-14	0%	162
SRC1270	Setup TTA for Section 1 (Stage 3)	0			5	03-Jan-14	08-Jan-14	0%	162
SRC1280	Install road kerb	0			14	09-Jan-14	24-Jan-14	0%	162
SRC1290	Paving	0			14	25-Jan-14	13-Feb-14	0%	162
SRC1300	Install traffic sign	0			4	14-Feb-14	18-Feb-14	0%	162
SRC1310	Road marking	0			4	19-Feb-14	22-Feb-14	0%	162
Section 2 - Segregated Left Turn Lane		81	09-Sep-13		154	10-Sep-13	18-Mar-14		-92
SLL1020	Utilities diversion or install temporary support for u	80	10-Sep-13		90	10-Sep-13	28-Dec-13	50%	-88
SLL1030	Driven the sheet pile and excavation for waterma	81	09-Sep-13		100	18-Sep-13	18-Jan-14	80%	-66
SLL1040	Existing 1400mm watermain protection - Concret	56	10-Oct-13		100	10-Oct-13	11-Feb-14	50%	-92
SLL1050	Backfilling & Compacting to the formation level	0			14	19-Feb-14	06-Mar-14	0%	-92
SLL1060	Setup TTA at Left Turn Lane - Phase 2	0			10	07-Mar-14	18-Mar-14	0%	-92
Section 3 - Flyover, Slip Road A, Slip Road B		189	02-May-13		261	15-Jun-13	02-May-14		651
Flyover		37	02-Nov-13		127	02-Nov-13	07-Apr-14		-38
FO1030	Construct preliminary piles (3 no.)	16	27-Nov-13		30	15-Nov-13	19-Dec-13	33%	-155
FO1040	Pile Load tests (For Preliminary Piles)	0			25	11-Jan-14	13-Feb-14	0%	-108
South Abutment		0			52	13-Jan-14	17-Mar-14		-97
FO2010	Construct piles at South Abutment (First 26 Nos.)	0			52	13-Jan-14	17-Mar-14	0%	-97
Pier 1		37	02-Nov-13		101	02-Nov-13	06-Mar-14		-36
FO4030	Hand over to utilities company for diversion opera	37	02-Nov-13		40	02-Nov-13	18-Dec-13	90%	-36
FO4040	Protection of the utilities	0			60	20-Dec-13	06-Mar-14	0%	-36
Pier 2		26	15-Nov-13		116	15-Nov-13	07-Apr-14		-38
FO5010	Excavation of the trench for the utilities diversion	22	15-Nov-13	11-Dec-13	20	15-Nov-13	07-Dec-13	100%	
FO5020	Supporting of the utilities	4	11-Dec-13		20	11-Dec-13	06-Jan-14	50%	-38
FO5030	Hand over to utilities company for diversion opera	0			40	30-Dec-13	18-Feb-14	0%	-38
FO5040	Protection of the utilities	0			40	19-Feb-14	07-Apr-14	0%	-38
Pier 3		0			60	13-Jan-14	26-Mar-14		-73
FO6010	Construct piles at Pier 3 (30 No.)	0			60	13-Jan-14	26-Mar-14	0%	-73
Slip Road A		189	02-May-13		190	07-Sep-13	02-May-14		651
SRA1020	Tree felling and site clearance	189	02-May-13		10	07-Sep-13	19-Sep-13	90%	-115
SRA1050	Construct base slab of footing of Noise Barrier B	0			40	16-Dec-13	06-Feb-14	0%	11
SRA1060	Construct wall of footing of Noise Barrier B (Bay '	0			40	11-Jan-14	01-Mar-14	0%	11
SRA1061	Construct base slab of footing of Noise Barrier B	0			40	17-Feb-14	03-Apr-14	0%	651
SRA1062	Construct wall of footing of Noise Barrier B (Bay 9	0			40	12-Mar-14	02-May-14	0%	651
SRA1090	Setup TTA at Slip Road A - Phase 2	0			10	03-Mar-14	13-Mar-14	0%	11
SRA1100	Tree felling and site clearance	0			10	14-Mar-14	25-Mar-14	0%	11
Slip Road B		153	15-Jun-13		232	15-Jun-13	24-Mar-14		53
SRB1050	Road Work Widenings - Phase 1	153	15-Jun-13		75	15-Jun-13	11-Sep-13	95%	-197
SRB1060	Road Work Widenings - Phase 2	0			75	19-Dec-13	24-Mar-14	0%	53



Remaining Level of Effort
Primary Baseline
Actual Work
Remaining Work
Critical Remaining Work
Milestone

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15-Oct-13	9		
15-Nov-13	10		
15-Dec-13	11		

HY/2011/13 Improvement to Pok Oi Interchange

3 Month Rolling Programme

Activity ID	Activity Name	Actual Duration	Actual Start	Actual Finish	Original Duration	Original Start	Original Finish	Activity % Complete	Total Float
HY/2011/13 Improvement to Pok Oi Interchange		256	29-Apr-13		283	24-May-13	12-Jun-14		596
Design Submission		256	29-Apr-13		35	24-May-13	12-Jul-13		674
DS1030	Review CFA pile design with ground investigation	218	25-Jun-13		30	05-Jun-13	12-Jul-13	100%	709
DS1060	Temporary shoring design for trench excavation	256	29-Apr-13		25	24-May-13	22-Jun-13	100%	106
DS1080	Temporary works design of ELS for pile cap cons	0			30	24-May-13	28-Jun-13	0%	106
DS1090	ICE checking for temp. works desing of ELS for p	0			10	29-Jun-13	11-Jul-13	0%	106
DS1100	Temporary works design for trench excavation fo	255	02-May-13		25	24-May-13	22-Jun-13	100%	709
DS1110	ICE checking for temp. works design for trench e	190	09-Aug-13		10	30-May-13	10-Jun-13	50%	704
Statutory Submission		0			60	02-Oct-13	12-Dec-13		635
Section 2 TTA		0			45	02-Oct-13	25-Nov-13		635
TTA2030	TTA submission for Left Turn Lane - Phase 2	0			21	14-Oct-13	04-Nov-13	0%	802
TTA2040	TMLG approval for Left Turn Lane - Phase 2	0			21	04-Nov-13	25-Nov-13	0%	781
TTA2050	TTA submission for Left Turn Lane - Phase 3	0			21	02-Oct-13	23-Oct-13	0%	813
TTA2060	TMLG approval for Left Turn Lane - Phase 3	0			21	23-Oct-13	13-Nov-13	0%	792
Section 3 TTA		0			36	31-Oct-13	12-Dec-13		643
TTA3070	TTA submission for Slip Road B - Phase 2	0			21	31-Oct-13	21-Nov-13	0%	811
TTA3080	TMLG approval for Slip Road B - Phase 2	0			21	21-Nov-13	12-Dec-13	0%	790
Subletting and Procurement		78	09-Jan-14		194	21-Jun-13	15-Mar-14		679
SUB1180	Subletting of Landscape Works	0			40	03-Feb-14	15-Mar-14	0%	835
SUB1220	Subletting of Concreting (For Bridge Works)	96	09-Jan-14		60	21-Jun-13	20-Aug-13	80%	863
SUB1230	Subletting of Rebar Fixing (For Bridge Works)	96	09-Jan-14		60	21-Jun-13	20-Aug-13	80%	863
SUB1240	Subletting of Formwork (For Bridge Works)	96	09-Jan-14		60	21-Jun-13	20-Aug-13	80%	863
Construction		255	02-May-13		272	07-Jun-13	12-Jun-14		596
Section 1 - Slip Road C		219	21-Jun-13		0				622
SRC1350	PM accept quotation	219	21-Jun-13		0			90%	35
SRC1360	Procurement of watermain material	0			0			0%	35
SRC1490	Install drainage	0			0			0%	671
SRC1505	Remove existing 250mm water main	33	06-Mar-14		0			60%	50
SRC1510	Construct wall stem RW-C1 (Bay C1-16,14,12,1(	24	17-Mar-14		0			60%	671
SRC1530	Construct wall stem RW-C1 (Bay C1 - 15,13,11,9	32	07-Mar-14		0			100%	709
SRC1550	Construct base slab RW-C1 (Bay C1-7,5,3,1)	9	03-Apr-14		0			25%	0
SRC1560	Construct wall stem RW-C1 (Bay C1-7,5,3,1)	0			0			0%	0
SRC1570	Construct base slab RW-C1 (Bay C1-6,4,2)	0			0			0%	2
SRC1580	Construct wall stem RW-C1 (Bay C1-6,4,2)	0			0			0%	0
SRC1620	Demolish existing noise screen wall base slab	0			0			0%	0
SRC1630	Construct base slab RW-C3 (Bay C3 5,3,1)	0			0			0%	0
Section 2 - Segregated Left Turn Lane		176	09-Sep-13		272	07-Jun-13	12-Jun-14		632
SLL1020	Utilities diversion or install temporary support for (	175	10-Sep-13		90	07-Jun-13	23-Sep-13	50%	664
SLL1030	Driven the sheet pile and excavation for waterma	176	09-Sep-13		100	17-Jun-13	15-Oct-13	80%	689
SLL1040	Existing 1400mm watermain protection - Concret	165	24-Sep-13		100	28-Jun-13	26-Oct-13	50%	23
SLL1050	Backfilling & Compacting to the formation level	0			14	28-Oct-13	12-Nov-13	0%	23
SLL1060	Setup TTA at Left Turn Lane - Phase 2	0			10	13-Nov-13	23-Nov-13	0%	23
SLL1140	Construction of base slab of retaining wall (Bay 5-	70	18-Jan-14		20	27-Mar-14	23-Apr-14	70%	703
SLL1150	Construction of wall of retaining wall (Bay 5-7)	61	29-Jan-14		20	24-Apr-14	19-May-14	66%	0
SLL1160	Backfilling	0			20	20-May-14	12-Jun-14	0%	0
SLL1161	Construction of base slab of planter wall (Bay 1-5	0			0			0%	0
SLL1162	Construction of base slab of plater wall (Bay 1-5)	0			0			0%	0
SLL1163	Backfilling	0			0			0%	0
Section 3 - Flyover, Slip Road A, Slip Road B		255	02-May-13		197	15-Jun-13	13-Mar-14		596
Flyover		179	31-Aug-13		170	24-Jul-13	12-Mar-14		621
FO1060	Contractor to provide quotation	227	31-Aug-13		0			100%	854
FO1070	PM accept the quotation	0			0			0%	854
FO1170	Carry out preliminary design for relocation of Sou	0			0			0%	688
FO1220	TGC to construct jacking and receiving pits at Sou	0			0			0%	25
FO1230	TGC to construct jacking and receiving pits at Sou	0			0			0%	0
FO1240	TGC to install gas main by open trench at South A	0			0			0%	34
FO1250	TGC to install gas main outside site boundary and	0			0			0%	0
South Abutment		0			51	14-Sep-13	18-Nov-13		0
FO2000	Construct preliminary pile at South Abutment	0			0			0%	0
FO2005	Load test for preliminary pile at South Abutment	0			0			0%	0
FO2006	Slope modification for piling works	0			0			0%	0
FO2010	Construct piles at South Abutment (First 10 Nos.)	0			52	14-Sep-13	18-Nov-13	0%	0
North Abutment		0			30	21-Jan-14	28-Feb-14		152
FO3015	Excavation for pile cap at North Abutment	0			0			0%	152
FO3020	Formwork erection of the pile caps at North Abutr	0			10	21-Jan-14	05-Feb-14	0%	152
FO3030	Rebar Fixing of the pile caps at North Abutment	0			20	05-Feb-14	28-Feb-14	0%	152
Pier 1		133	02-Nov-13		170	24-Jul-13	12-Mar-14		39
FO4030	Hand over to utilities company for diversion opera	133	02-Nov-13		40	24-Jul-13	09-Sep-13	90%	39
FO4040	Erect temporary platform for piling	0			60	09-Sep-13	21-Nov-13	0%	39
FO4044	Construct preliminary pile at Pier 1	0			0			0%	39
FO4045	Load test for preliminary pile at Pier 1	0			0			0%	39
FO4050	Construct piles at Pier 1 (First 16 Nos.)	0			40	21-Jan-14	12-Mar-14	0%	39
Pier 2		62	28-Jan-14		61	24-Jul-13	29-Oct-13		48
FO5030	Hand over to utilities company for diversion opera	62	28-Jan-14		40	24-Jul-13	09-Sep-13	80%	48

Remaining Level of Effort
Primary Baseline
Actual Work
Remaining Work
Critical Remaining Work
Milestone

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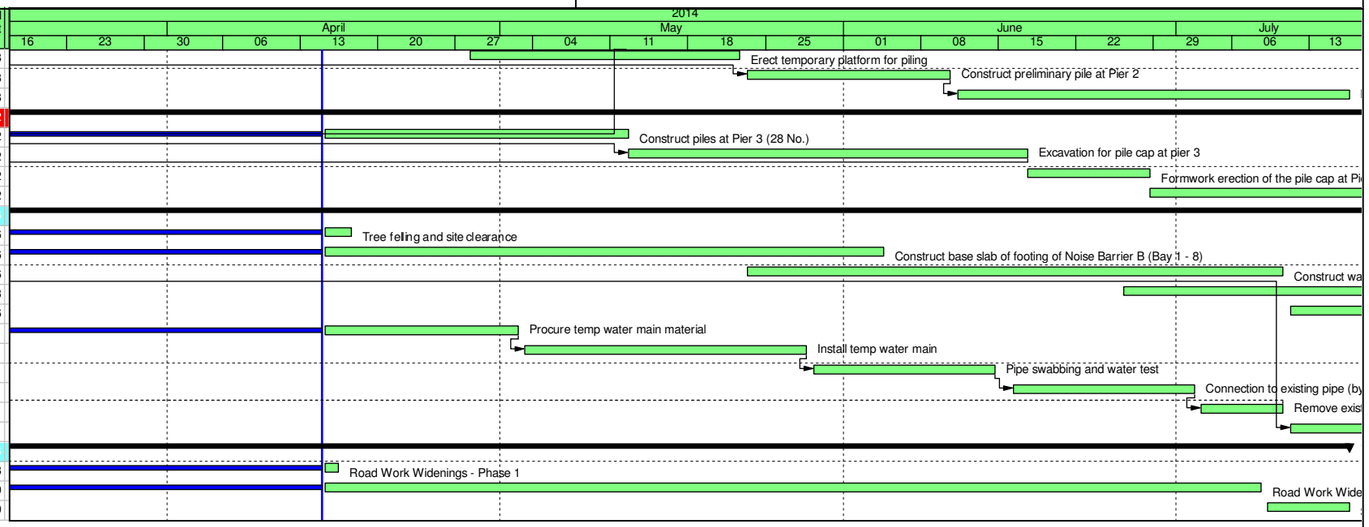
15-Feb-14	13		
15-Mar-14	14		
15-Apr-14	15		

HY/2011/13 Improvement to Pok Oi Interchange

3 Month Rolling Programme

Activity ID	Activity Name	Actual Duration	Actual Start	Actual Finish	Original Duration	Original Start	Original Finish	Activity % Complete	Total Float
FO5040	Erect temporary platform for piling	0			40	09-Sep-13	29-Oct-13	0%	48
FO5044	Construct preliminary pile at Pier 2	0			0			0%	48
FO5045	Load test for preliminary pile at Pier 2	0			0			0%	48
Pier 3		56	07-Feb-14		114	14-Sep-13	06-Feb-14		92
FO6010	Construct piles at Pier 3 (28 No.)	56	07-Feb-14		60	14-Sep-13	27-Nov-13	55%	92
FO6016	Excavation for pile cap at pier 3	0			0			0%	92
FO6020	Formwork erection of the pile cap at Pier 3	0			10	28-Dec-13	10-Jan-14	0%	92
FO6030	Rebar Fixing of the pile cap at Pier 3	0			20	10-Jan-14	06-Feb-14	0%	92
Slip Road A		255	02-May-13		138	25-Sep-13	13-Mar-14		596
SRA1020	Tree felling and site clearance	255	02-May-13		10	25-Sep-13	07-Oct-13	70%	706
SRA1050	Construct base slab of footing of Noise Barrier B	88	27-Dec-13		40	25-Nov-13	13-Jan-14	5%	46
SRA1060	Construct wall of footing of Noise Barrier B (Bay '	0			40	18-Dec-13	08-Feb-14	0%	46
SRA1061	Construct base slab of footing of Noise Barrier B	0			40	23-Jan-14	13-Mar-14	0%	593
SRA1090	Setup TTA at Slip Road A - Phase 2	0			10	10-Feb-14	20-Feb-14	0%	46
SRA1320	Procure temp water main material	95	17-Dec-13		0			85%	641
SRA1330	Install temp water main	0			0			0%	641
SRA1340	Pipe swabbing and water test	0			0			0%	641
SRA1350	Connection to existing pipe (by WSD)	0			0			0%	641
SRA1450	Remove existing water main	0			0			0%	641
SRA1460	Install new water main	0			0			0%	281
Slip Road B		223	15-Jun-13		131	15-Jun-13	19-Dec-13		636
SRB1050	Road Work Widenings - Phase 1	223	15-Jun-13		75	15-Jun-13	11-Sep-13	98%	708
SRB1060	Road Work Widenings - Phase 2	71	17-Jan-14		75	12-Sep-13	11-Dec-13	12%	109
SRB1070	Setup TTA for Retaining Wall B	0			7	12-Dec-13	19-Dec-13	0%	109



Remaining Level of Effort
Primary Baseline
Actual Work
Remaining Work
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Data Date: 15-Apr-14

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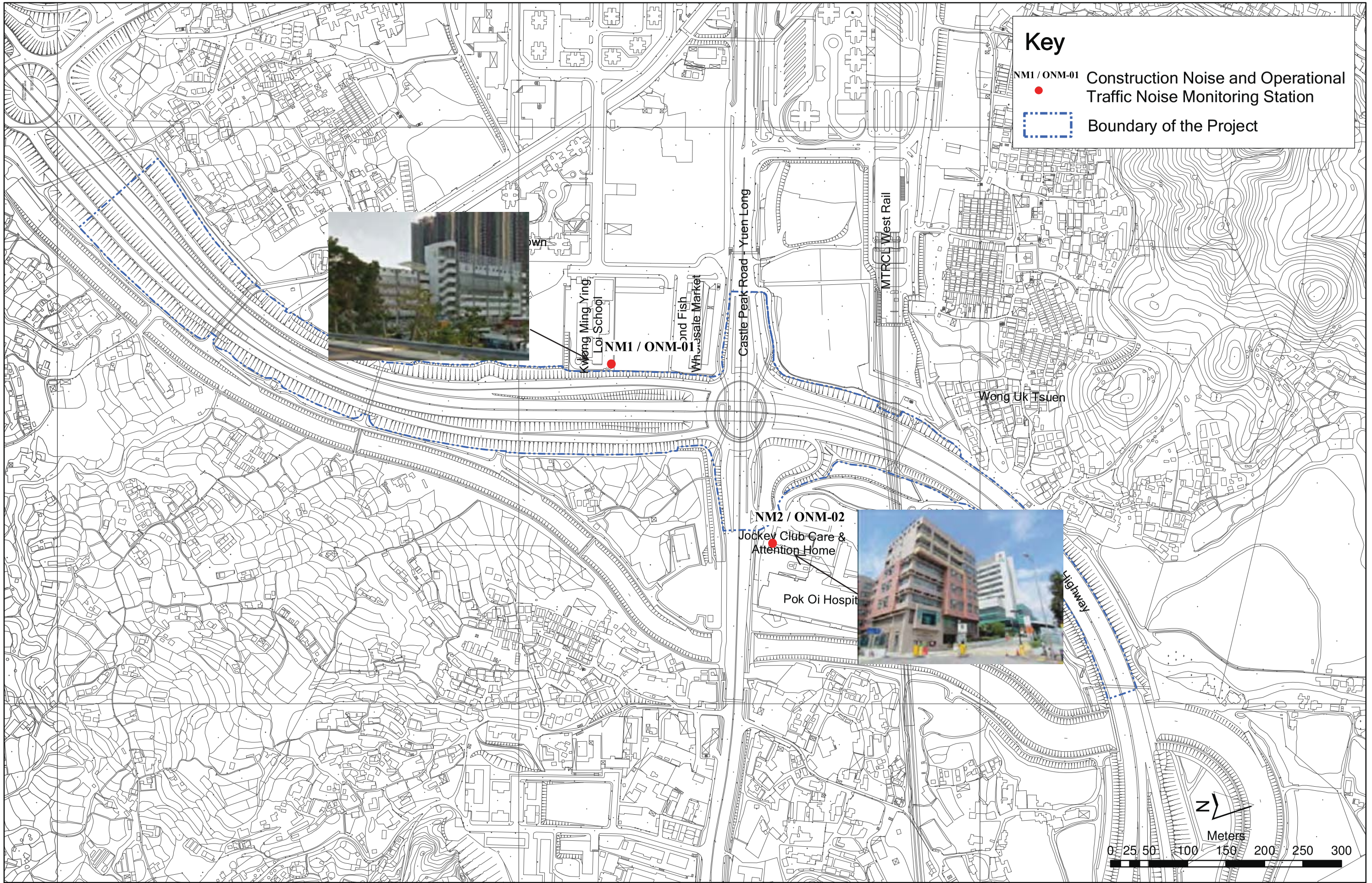
Date	Revision	Checked	Approved
15-Feb-14	13		
15-Mar-14	14		
15-Apr-14	15		

Appendix D

Designated Locations for Construction Noise Monitoring and Operational Noise Monitoring



Highways Department The Government of the Hong Kong Special Administrative Region	Consultant Environmental Resources Managment ERM Halcrow Halcrow China Ltd. As Engineering Sub-consultant	Agreement No. : WD 6/2007	Environmental Monitoring and Audit Manual	FIGURE 4.1
		Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: LOCATIONS OF NOISE MONITORING STATIONS	Checked: PS; Scale: -; Rev.: ; Designed: TF; Drawn: AM; Date: 1/11/2007

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Appendix E

Event Action Plan

Event and Action Plan for Construction Noise

Event	Action			
	ET	IEC	ER	Contractor
Action Level	1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analyzed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level	1. Identify source; 2. Inform IEC and ER: 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 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.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure remedial measures properly implemented; 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.	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 under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix F

Environmental Mitigation Implementation Schedule (EMIS)

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	When to implement the measure? (1)			What requirements or standards for the measure to achieve?
						D	C	O	
Noise – Construction Phase									
4.7.1	N1	Adopt good site practice listed below: • Only well-maintained plant will be operated on-site and plant should be serviced regularly during the construction program; • Silencers or mufflers on construction equipment should be utilized and will be properly maintained during the construction program; • Mobile plant, if any, will be sited as far from NSRs • as possible; • Machines and plant (such as trucks) that may be in intermittent use will be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction will, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • Material stockpiles and other structures will be effectively utilised, wherever practicable, in screening noise from on-site construction activities. • Noisy construction activities, including piling, excavation and earth-breaking works, will be carried out outside the examination periods of Kwong Ming Ying Loi School.	To minimise potential construction noise nuisance.	All construction work areas	Contractor		√		*Noise Control Ordinance (NCO) and EIAO-TM Annex 5*
4.7.1	N2	Use of quiet powered mechanical equipment	To minimise potential construction noise nuisance.	All construction work areas	Contractor		√		*Noise Control Ordinance (NCO) and EIAO-TM Annex 5*
4.7.1	N3	Use of acoustic enclosure	To minimise potential construction noise nuisance.	All construction work areas	Contractor		√		*Noise Control Ordinance (NCO) and EIAO-TM Annex 5*
4.7.1	N4	Adoption of Movable Noise Barriers. The barrier material shall have a surface mass of not less than 7 kg/m^2 on skid footing.	To minimise potential construction noise nuisance.	At locations shown in *Figure 4.7* of the *EIA Report*	Contractor		√		*Noise Control Ordinance (NCO) and EIAO-TM Annex 5*
4.9.1	N5	Weekly noise monitoring	Ensure noise generated from the Project meets the criteria	At monitoring locations shown in *Figure 4.1* of the *EM&A Manual*	ET		√		*Noise Control Ordinance (NCO) and EIAO-TM Annex 5*

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	When to implement the measure? (1)			What requirements or standards for the measure to achieve?
						D	C	O	
Noise – Operation Phase									
4.9.2	N6	Traffic noise monitoring - twice at 6-month intervals within the first year upon completion of the Project.	Ensure noise generated from the Project meets the criteria	At monitoring locations shown in *Figure 4.1* of the *EM&A Manual*	ET			√	*Noise Control Ordinance (NCO) and EIAO-TM Annex 5*
Air Quality – Construction Phase									
5.7.1	AQ1	Adopt good site practices and dust control measures listed below: • Any stockpile of dusty material will be covered entirely with impervious sheeting or sprayed with water so as to maintain the entire surface wet; • Where a site boundary adjoins a road, or other area accessible to the public, hoarding shall be provided along the entire length of that portion of the site boundary; • All dusty materials will be sprayed with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet; • Where a vehicle leaving the works site is carrying a load of dusty materials, the load will be covered entirely with clean impervious sheeting to ensure that the dusty materials do not leak from the vehicles; • The working area of any demolition, excavation or earth moving operation will be sprayed with water or dust suppression chemicals immediately after the operation so as to maintain the entire surface wet; • The construction plants will be regularly maintained to avoid the emissions of black smoke; and • The construction plants will be switched off when not in use to avoid gaseous emissions	To minimise potential dust nuisance	All construction work areas	Contractor		√		*Air Pollution Control (Construction Dust) Regulations* *HKAQO and EIAO-TM Annex 4*
Water Quality – Construction Phase									
6.6.1	WQ1	***Construction Site Run-off and Drainage*** • Silt removal facilities such as silt traps or sedimentation facilities should be provided to remove silt particles from runoff to meet the requirements of the WPCO-TM standard. The design of silt removal facilities should be based on the guidelines provided in *ProPECC PN 1/94*. All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during	To minimise potential water quality impacts arising from the construction works	All construction work areas	Contractor		√		*ProPECC PN 1/94 Water Pollution Control Ordinance (WPCO) EIAO-TM Annex 6*

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	When to implement the measure? (1)			What requirements or standards for the measure to achieve?
						D	C	O	
		rainstorms. • Careful programming of the works to minimize surface excavations for the Project during the wet season. If excavation of soil cannot be avoided during the wet season, exposed slope surfaces should be covered by tarpaulin or other means. Other measures that need to be implemented before, during, and after rainstorms are summarised in *ProPECC PN 1/94*. • Exposed soil surfaces should be protected by paving or fill material as soon as possible to reduce the potential of soil erosion. • Open stockpiles of construction materials or construction wastes on-site of more than 50m3 should be covered with tarpaulin or similar fabric during rainstorms. These materials should not be placed near water courses. • A Drainage Management Plan (DMP) should be prepared by the Contractor and submitted to EPD before the commencement of any construction works to detail the procedures for control of construction site runoff. No site run-off or drainage should be allowed enter the nearby WSRs.							
6.6.1	WQ2	***General Construction Activities*** • Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering the nearby WSRs. Stockpiles of cement and other construction materials should be kept covered when not being used. • Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. 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 container or 20% by volume of the chemical waste stored in that area, whichever is the greatest. The bund should be drained of rainwater after a rain event	To minimise potential water quality impacts arising from the construction works	All construction work areas	Contractor		√		*ProPECC PN 1/94 Water Pollution Control Ordinance (WPCO) EIAO-TM Annex 6*
6.6.1	WQ3	***Sewage generated from On-site Workforce*** • Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site. A licensed contractor would be responsible for appropriate disposal and regular maintenance of these facilities.	To minimise potential water quality impacts arising from the construction works	All construction work areas	Contractor		√		*ProPECC PN 1/94 Water Pollution Control Ordinance (WPCO) EIAO-TM Annex 6*

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	When to implement the measure? (1)			What requirements or standards for the measure to achieve?
						D	C	O	
6.6.1	WQ4	***Piling Activities*** • Silt removal facilities such as silt traps or sedimentation facilities should be provided to remove silt particles from groundwater to meet the requirements of the *WPCO-TM* standard. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected and maintained on a regular basis to ensure proper and efficient operation at all times and particularly during rainstorms.	To minimise potential water quality impacts arising from the construction works	All construction work areas	Contractor		√		*ProPECC PN 1/94 Water Pollution Control Ordinance (WPCO) EIAO-TM Annex 6*
Water Quality – Operation Phase									
6.6.2	WQ5	Standard HyD road gullies will be installed along the road drainage system to trap any silt and grit in the first flush of runoff.	To minimise potential water quality impacts on surface water.	All construction work areas	HyD / Contractor	√	√	√	*WPCO Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Inshore Waters (Water-TM) EIAO-TM Annex 6*
Waste Management – Construction Phase									
7.5.1	WM1	All the necessary waste disposal permits are obtained prior to the commencement of construction work.	To ensure compliance with relevant statutory requirements	Before construction works commence	Contractor	√	√		*WDO*
7.5.1	WM2	***Management of Waste Disposal*** • The construction contractor will open a billing account with the EPD. Every construction waste or public fill load to be transferred to the Government waste disposal facilities such as public fill reception facilities, sorting facilities, landfills will required a valid "chit" which contains the information of the account holder to facilitate waste transaction recording and billing to the waste producer. A trip-ticket system will also be established to monitor the disposal of construction waste at the Landfill and to control fly-tipping. The trip-ticket system will be included as one of the contractual requirements and implemented by the contractor.	To ensure that adverse environmental impacts are prevented	All construction work areas	Contractor		√		*WDO* *Waste Disposal (Charges for Disposal of Construction Waste) Regulation;* *Works Bureau Technical Circular No.31/2004; and* *Annex 5 and Annex 6 of Appendix G of ETWBTC No.*

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	When to implement the measure? (1)			What requirements or standards for the measure to achieve?
						D	C	O	
		• A recording system for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established.							*19/2005*
7.5.1	WM3	***Measures for the Reduction of Construction Waste Generation*** Inert and non-inert construction waste will be segregated and stored in different containers or skips to facilitate reuse or recycling of the inert waste and proper disposal of the non-inert construction waste. Specific areas of the work site will be designated for such segregation and storage if immediate use is not practicable.	To reduce construction waste generation	All construction work areas	Contractor		√		*WDO* *EIAO-TM Annex 7*
7.5.1	WM4	***Management of Waste Disposal*** The construction contractor will open a billing account with the EPD. Every construction waste or public fill load to be transferred to the Tuen Mun Area 38 Public Filling Area or other approved designated public fill facilities will require a valid "chit". A trip-ticket system will also be established to monitor the disposal of construction waste at the Tuen Mun Area 38 Public Filling Area or other approved designated public fill facilities, and to control fly tipping.	To reduce construction waste generation	All construction work areas	Contractor		√		*WDO* *Waste Disposal (Charges for Disposal of Construction Waste) Regulation & Works Bureau Technical Circular No.31/2004*
7.5.1	WM5	***Chemical Waste*** The construction contractor will register as a chemical waste producer with the EPD. Chemical waste will be handled in accordance with the *Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.*	To ensure proper handling of chemical waste	All construction work areas	Contractor		√		*WDO* *Code of Practice on the Packaging, Handling and Storage of Chemical Wastes*
7.5.1	WM6	***Staff Training*** At the commencement of the construction works, training will be provided to workers on the concepts of site cleanliness and on appropriate waste management procedures, including waste reduction, reuse and recycling.	To ensure that adverse environmental impacts are prevented	All construction work areas	ET		√		NA
7.5.1	WM7	***Environmental Monitoring & Audit Requirements*** Monthly audits of the waste management practices will be carried out during the construction phase to determine if wastes are being managed in accordance with the good site practices described in this *EIA Report*. The audits examine all aspects of waste management including waste generation, storage, recycling, transport and disposal.	To ensure that adverse environmental impacts are prevented	All construction work areas	Contractor		√		*WDO*

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	When to implement the measure? (1)			What requirements or standards for the measure to achieve?
						D	C	O	
Landscape and Visual – Construction Phase									
8.7.11	LV1	*LMM 5 – Early Planting Works.* Where technically feasible, new plantings are to be installed as early as possible during the construction works	To reduce construction impacts on Landscape	Where technically feasible	Contractor	√	√		*EIAO-TM Annexes 10, 18,* *ETWB TCW 2/2004, ETWB TCW 3/200*
8.7.11	LV2	*LMM 6 – Site hoardings to be compatible with the surrounding environment.* Where possible site hoardings to be coloured to complement the surrounding areas. Colours such as green and light brown are recommended.	To reduce construction impacts on Landscape	All construction work areas	Contractor		√		*EIAO-TM Annexes 10, 18,* *ETWB TCW 2/2004, ETWB TCW 3/200*
Landscape and Visual –Operation Phase									
8.7.11	LV3	*Cultivation of areas compacted during construction.* Areas compacted during the construction phase that are not required during the operation phase, are to be cultivated to a depth of up to 300mm in accordance with the future Landscape Specification.	To assist in establishment of vegetation to reduce landscape impacts	All construction work areas where new plantings are to be installed	HyD / Contractor	√	√	√	*EIAO-TM Annexes 10, 18,* *ETWB TCW 2/2004, ETWB TCW 3/200*
8.7.11	LV4	*Soil stabilisation and planting.* During the design phase, a soil stabilisation and embankment planting strategy will be developed to ensure that land affected by slope excavation can be replanted. Soil preparation and the selection and provision of suitable growing medium is to be completed in accordance with the relevant best practice guidelines.	To reduce visual impacts	All construction work areas in slope areas	HyD / Contractor	√	√	√	*EIAO-TM Annexes 10, 18,* *ETWB TCW 2/2004, ETWB TCW 3/200*
8.7.11	LV5	*Tree and Shrub Planting.* All planting of trees and shrubs is to be carried out in accordance with the relevant best practice guidelines. Plant densities are to be provided in future detailed design documents and are to be selected so as to achieve a finished landscape that matches the surrounding, undisturbed, equivalent landscape types	To reduce visual impacts	All available following construction	HyD / Contractor	√	√	√	*EIAO-TM Annexes 10, 18,* *ETWB TCW 2/2004, ETWB TCW 3/200*
8.7.11	LV6	*LMM 4 - Relocation.* Landscape Resources of value to be re-located where practically feasible.	To reduce landscape impacts and retain valuable LRs	As required	HyD / Contractor	√	√	√	*EIAO-TM Annexes 10, 18,* *ETWB TCW 2/2004, ETWB TCW 3/200*
8.7.11	LV7	*Design of Structures.* Built structures, in particular noise barriers that will be setback and reprovisioned will be utilise appropriate designs to complement the surrounding landscape. Materials and finishes will also be considered during detailed design.	To reduce visual impacts	Noise barriers	HyD / Contractor	√	√	√	*EIAO-TM Annexes 10, 18,* *ETWB TCW 2/2004, ETWB TCW 3/200*
8.7.11	LV8	*Design of noise barriers*. The 2.5m high vertical noise barrier	To reduce visual	Noise barriers	HyD /	√	√	√	*EIAO-TM Annexes*

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	When to implement the measure? (1)			What requirements or standards for the measure to achieve?
						D	C	O	
		for the planned schools will be in the form of concrete structure installed with barrier panels to align with the existing provision in the vicinity and to integrate into the landscape.	impacts		Contractor				*10, 18, ETWB TCW 2/2004, ETWB TCW 3/200*
8.7.11	LV9	*Plantings* In addition to the landscape mitigation plantings proposed, appropriate new plantings will be installed as appropriate to help integrate the new structures into the surrounding landscape.	To reduce visual impacts	All construction work areas	HyD / Contractor	√	√	√	*EIAO-TM Annexes 10, 18, ETWB TCW 2/2004, ETWB TCW 3/200*

Appendix G

Valid Calibration Certificates of Monitoring Equipment

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C132567
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0878)

Description / 儀器名稱	:	Integrating Sound Level Meter (EQ010)
Manufacturer / 製造商	:	Brüel & Kjær
Model No. / 型號	:	2238
Serial No. / 編號	:	2285721
Supplied By / 委託者	:	Action-United Environmental Services and Consulting Unit A, 20/F., Gold King Industrial Building, 35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 27 April 2013

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested By 測試 : H C Chan

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 30 April 2013

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
新創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C132567
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C130019
CL281	Multifunction Acoustic Calibrator	DC110233

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L_{AFP}	A	F	94.00	1	94.7

6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L_{AFP}	A	F	94.00	1	94.1	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L_{AFP}	A	F	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.0

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Certificate of Calibration
校正證書

Certificate No. : C132567
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L_{AFP}	A	F	94.00	1	94.1	Ref.
	L_{ASP}		S			94.1	± 0.1
	L_{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L_{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L_{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L_{ASP}		S		Continuous	106.0	Ref.
	L_{ASMax}				500 ms	102.0	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{AFP}	A	F	94.00	31.5 Hz	54.7	-39.4 ± 1.5
					63 Hz	67.9	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.0
					250 Hz	85.4	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.8	-4.3 (+3.0 ; -6.0)

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Certificate of Calibration
校正證書

Certificate No. : C132567
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{CFP}	C	F	94.00	31.5 Hz	91.2	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.1	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.9	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L_{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
						$1/10^2$		90	90.0	± 0.5
			60 sec.			$1/10^3$		80	79.9	± 1.0
			5 min.			$1/10^4$		70	69.7	± 1.0

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB	: 31.5 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
Burst equivalent level		: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142224
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-0853) Date of Receipt / 收件日期 : 28 March 2014

Description / 儀器名稱 : Sound Level Meter (EQ013)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00921191
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 8 April 2014

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee, Project Engineer

Certified By 核證 : K M Wu, Engineer

Date of Issue 簽發日期 : 10 April 2014

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Certificate of Calibration
校正證書

Certificate No. : C142224
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.7	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	93.7 (Ref.)
				104.00		103.7
				114.00		113.7

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.7	Ref.
			Slow			93.7	± 0.3

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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Certificate of Calibration
校正證書

Certificate No. : C142224
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.4	-26.2 ± 1.5
					125 Hz	77.5	-16.1 ± 1.5
					250 Hz	85.0	-8.6 ± 1.4
					500 Hz	90.4	-3.2 ± 1.4
					1 kHz	93.7	Ref.
					2 kHz	94.9	+1.2 ± 1.6
					4 kHz	94.7	+1.0 ± 1.6
					8 kHz	92.6	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.3	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	C	Fast	94.00	63 Hz	92.8	-0.8 ± 1.5
					125 Hz	93.5	-0.2 ± 1.5
					250 Hz	93.7	0.0 ± 1.4
					500 Hz	93.7	0.0 ± 1.4
					1 kHz	93.7	Ref.
					2 kHz	93.5	-0.2 ± 1.6
					4 kHz	92.9	-0.8 ± 1.6
					8 kHz	90.7	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.3	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 04223

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C132565
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0878)

Description / 儀器名稱 : Acoustical Calibrator (EQ082)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 4231
Serial No. / 編號 : 2713428
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 27 April 2013

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested By 測試 : H C Chan

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 30 April 2013

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C132565
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
TST150A	Measuring Amplifier	C120886

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.2	± 0.2
114 dB, 1 kHz	114.0		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
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Sun Creation Engineering Limited – Calibration & Testing Laboratory
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輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142220
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-0853) Date of Receipt / 收件日期 : 28 March 2014

Description / 儀器名稱 : Sound Level Calibrator (EQ085)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-73
Serial No. / 編號 : 10655561
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 8 April 2014

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification & user's specified acceptance criteria.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee
Project Engineer

Certified By 核證 : K M Wu
Engineer

Date of Issue 簽發日期 : 10 April 2014

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Certificate of Calibration
校正證書

Certificate No. : C142220
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C133632
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.8	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	User's Spec.	Uncertainty of Measured Value (Hz)
1	0.963	1 kHz ± 4 %	± 1

Remarks : - The user's specified acceptance criteria (user's spec.) is a customer pre-defined operating tolerance of the UUT, suitable for one's own intended use.

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
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Appendix H

Monitoring Schedule of the Reporting Month and Coming Month

IMPACT MONITORING SCHEDULE IN THE REPORTING MONTH – APRIL 2014

DATE		$L_{EQ\ 30MIN}$ NOISE MONITORING
Tue	1-Apr-14	
Wed	2-Apr-14	√
Thu	3-Apr-14	
Fri	4-Apr-14	
Sat	5-Apr-14	
Sun	6-Apr-14	
Mon	7-Apr-14	
Tue	8-Apr-14	√
Wed	9-Apr-14	
Thu	10-Apr-14	
Fri	11-Apr-14	
Sat	12-Apr-14	
Sun	13-Apr-14	
Mon	14-Apr-14	√
Tue	15-Apr-14	
Wed	16-Apr-14	
Thu	17-Apr-14	
Fri	18-Apr-14	
Sat	19-Apr-14	
Sun	20-Apr-14	
Mon	21-Apr-14	
Tue	22-Apr-14	
Wed	23-Apr-14	
Thu	24-Apr-14	
Fri	25-Apr-14	√
Sat	26-Apr-14	
Sun	27-Apr-14	
Mon	28-Apr-14	
Tue	29-Apr-14	
Wed	30-Apr-14	√

Monitoring Locations:

NM1 Fifth floor of Kwong Ming Ying Loi School

NM2 Roof of Jockey Club Care & Attention Home

TENTATIVE MONITORING SCHEDULE IN COMING MONTH – MAY 2014

DATE		$L_{EQ\ 30MIN}$ NOISE MONITORING
Thu	1-May-14	
Fri	2-May-14	
Sat	3-May-14	
Sun	4-May-14	
Mon	5-May-14	
Tue	6-May-14	
Wed	7-May-14	√
Thu	8-May-14	
Fri	9-May-14	
Sat	10-May-14	
Sun	11-May-14	
Mon	12-May-14	
Tue	13-May-14	√
Wed	14-May-14	
Thu	15-May-14	
Fri	16-May-14	
Sat	17-May-14	
Sun	18-May-14	
Mon	19-May-14	√
Tue	20-May-14	
Wed	21-May-14	
Thu	22-May-14	
Fri	23-May-14	
Sat	24-May-14	
Sun	25-May-14	
Mon	26-May-14	
Tue	27-May-14	
Wed	28-May-14	
Thu	29-May-14	
Fri	30-May-14	√
Sat	31-May-14	

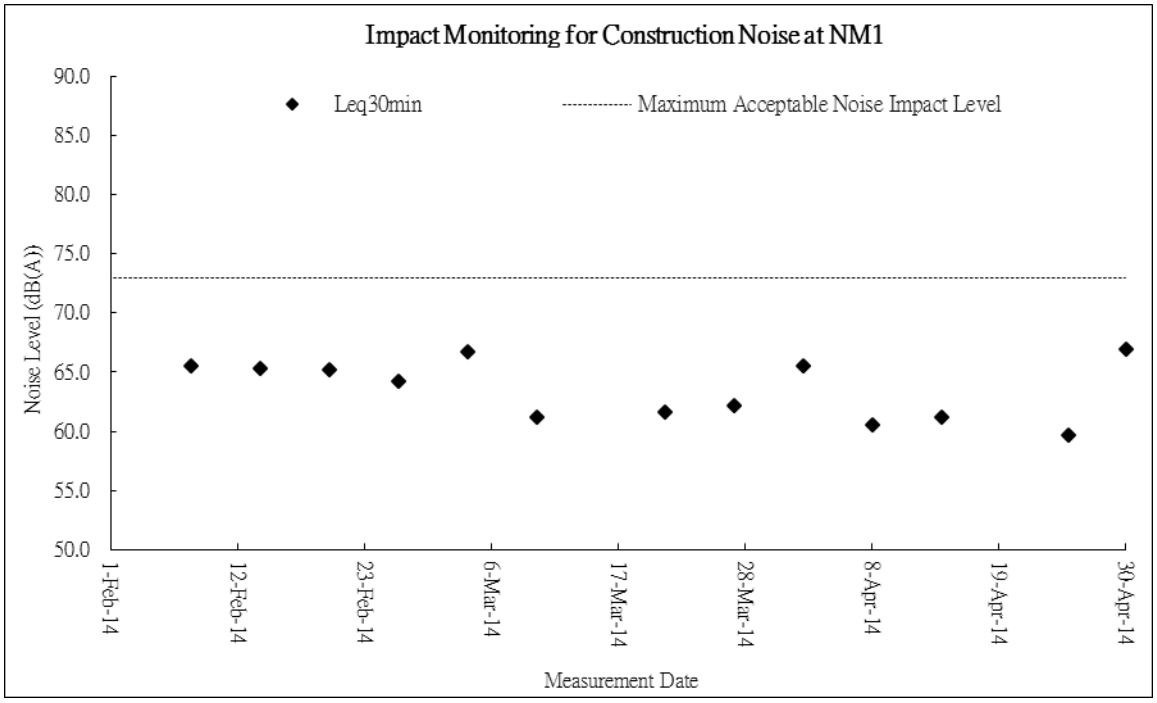
Monitoring Locations:

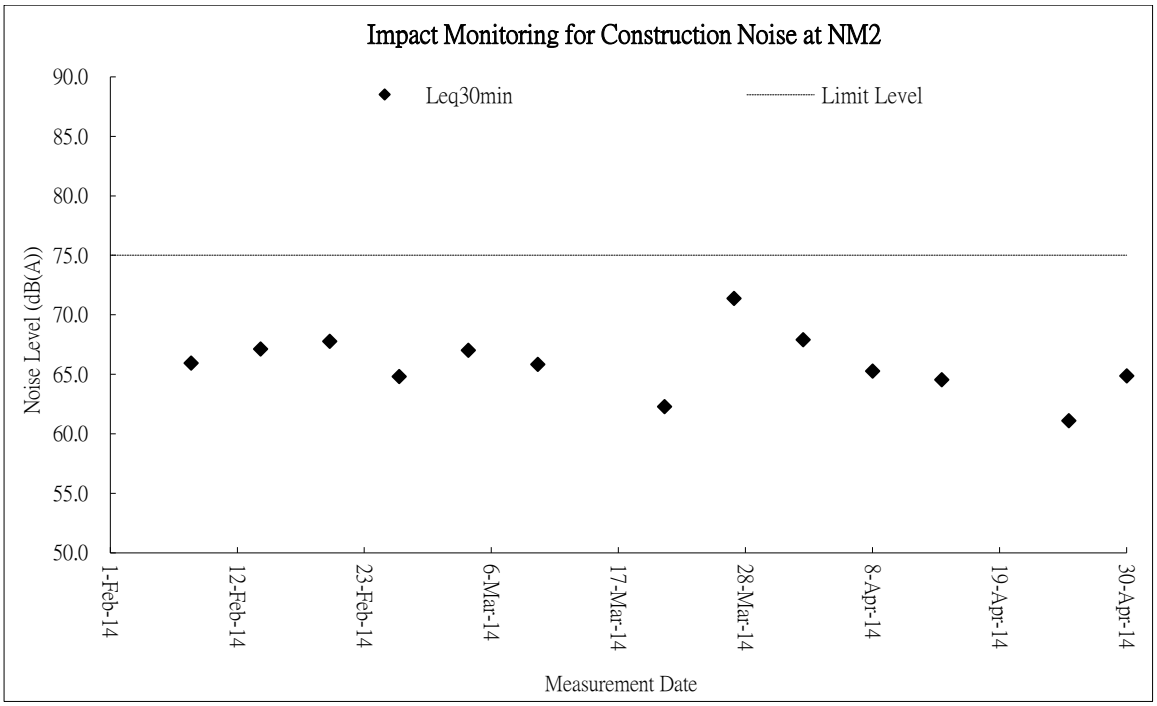
NM1 Fifth floor of Kwong Ming Ying Loi School

NM2 Roof of Jockey Club Care & Attention Home

Appendix I

Graphical Plot of Noise Monitoring Results


Impact Monitoring for Construction Noise at NM1
Leq30min
Maximum Acceptable Noise Impact Level
Noise Level (dB(A))
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
1-Feb-14
12-Feb-14
23-Feb-14
6-Mar-14
17-Mar-14
28-Mar-14
8-Apr-14
19-Apr-14
30-Apr-14
Measurement Date


Impact Monitoring for Construction Noise at NM2
Leq30min
Limit Level
Noise Level (dB(A))
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
1-Feb-14
12-Feb-14
23-Feb-14
6-Mar-14
17-Mar-14
28-Mar-14
8-Apr-14
19-Apr-14
30-Apr-14
Measurement Date

Appendix J

Meteorological Information in the Reporting Month

Date		Weather	Total Rainfall (mm)	Lau Fau Shan Station			
				Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Apr-14	Tue	Cloudy with rain and squally thunderstorms. Moderate east to northeasterly winds.	8	20.2	11.7	94.5	E/NE
2-Apr-14	Wed	Cloudy with rain and squally thunderstorms. Moderate east to northeasterly winds.	24.4	19.9	17.4	93.5	E/NE
3-Apr-14	Thu	Cloudy, rain. Moderate east to northeasterly winds	42.3	20.2	20.7	94	E/SE
4-Apr-14	Fri	Mainly fine. Moderate east to northeasterly winds.	0	21.2	17.5	76.5	E/NE
5-Apr-14	Sat	Cloudy, rain, thunderstorms later. Fresh easterly winds, strong offshore at first.	0	22.1	11.1	65.5	E/NE
6-Apr-14	Sun	Cloudy, rain, thunderstormslater. Fresh easterly winds, strong offshore at first.	9.3	20.3	15.1	80	E/NE
7-Apr-14	Mon	Mainly cloudy, rain. Fresh easterly winds. Moderate easterly winds.	Trace	21.2	17.9	79	E/NE
8-Apr-14	Tue	Cloudy, a few showers, sunny intervals. Moderate easterly winds.	27.5	21.6	8.4	87.5	E/NE
9-Apr-14	Wed	Cloudy, fog, rain. Moderate easterly winds, fresh offshore tomorrow.	Trace	24.5	10.5	78.2	E/NE
10-Apr-14	Thu	Mainly cloudy with bright periods. Moderate easterly winds, fresh offshore.	Trace	23.9	15.3	74	E/NE
11-Apr-14	Fri	Cloudy, fine, warm, mist. Light to moderate easterly winds.	Trace	24.2	12	77.5	SE
12-Apr-14	Sat	Cloudy, fog, mainly fine. Light winds.	0	25.9	12.7	74.2	SE
13-Apr-14	Sun	Fine, fog, cloudy, rain. Moderateto fresh easterly winds.	0	25.7	10.3	80	W/SW
14-Apr-14	Mon	Cloudy, bright. Moderate to fresh easterly winds	0.4	24	16.2	78	E/NE
15-Apr-14	Tue	Sunny periods. Moderate to fresh easterly winds.	0	23.7	14.5	65.7	E/NE
16-Apr-14	Wed	Mainly cloudy, sunny periods, mist patches. Moderate easterly winds.	0	23.8	16.5	77.5	E/NE
17-Apr-14	Thu	Mainly fine, fog, hot, Light to moderate east to southeasterly winds.	0	25.3	12	76.2	E/NE
18-Apr-14	Fri	Mainly fine, fog, hot, Light to moderate east to southeasterly winds.	0	24.5	13.2	78	E/SE
19-Apr-14	Sat	Mainly cloudy, sunny periods, mist patches. Moderate easterly winds.	0	25	9.6	80	SE
20-Apr-14	Sun	Cloudy, rain, fog, light winds. Moderate to fresh easterlies.	0	25.7	8.3	80.7	W/SW
21-Apr-14	Mon	Cloudy, rain, fog, light winds. Moderate to fresh easterlies.	0.6	23.8	13.5	83	E/SE
22-Apr-14	Tue	Cloudy, rain, mist. Moderate to fresh easterly winds.	Trace	Maintenance	11	Maintenance	W/NW
23-Apr-14	Wed	Cloudy, fog, rain. Moderate to fresh easterly winds.	13.3	23.8	12.7	83.5	E/NE
24-Apr-14	Thu	Cloudy, fog, rain. Moderate to fresh easterly winds.	1.5	23.5	16	84.5	E/NE
25-Apr-14	Fri	Cloudy and misty with light rain patches. Moderate to fresh easterly winds.	1.7	25.6	16.3	81	SE
26-Apr-14	Sat	Cloudy and misty with light rain patches. Moderate to fresh easterly winds.	2.7	25.6	15	78.5	SE
27-Apr-14	Sun	Dry with sunny periods during the day. Mainly cloudy tonight. Moderate to fresh north to northeasterly winds.	0	25	20.7	70	W/NW
28-Apr-14	Mon	Dry with sunny periods during the day. Mainly cloudy tonight. Moderate to fresh north to northeasterly winds.	0	25.4	10.2	67	SE
29-Apr-14	Tue	Mainly cloudy. Visibility relatively low in some areas. Showers and a few thunderstorms later. Light to moderate easterly winds.	0	24.7	7.5	76.2	E/SE
30-Apr-14	Wed	Mainly cloudy. Visibility relatively low in some areas. Showers and a few thunderstorms later. Light to moderate easterly winds.	0.7	22.3	27	90	E/NE

Appendix K

Monthly Summary Waste Flow Table

Accumulated Monthly Waste Flow Table from Project Commencement

Month	Actual Quantities of Inert C & D Materials Generated Monthly						Actual Quantities of C & D Materials Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the contract	Reused in other project	Disposal 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 '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Dec 2012	0.017045	0.0000	0.0000	0.0000	0.017045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Jan 2013	0.108	0.0000	0.0000	0.0000	0.108	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Feb 2013	0.000655	0.0000	0.0000	0.0000	0.000655	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mar 2013	0.11393	0.0000	0.0000	0.0000	0.113355	0.0000	0.0000	0.0000	0.0000	0.0000	0.000575
Apr 2013	0.0835	0.0000	0.0000	0.0000	0.0835	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
May 2013	0.1356	0.0000	0.0000	0.0000	0.1356	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Jun 2013	0.95039	0.0000	0.0000	0.0000	0.95039	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
July 2013	0.45198	0.0000	0.0000	0.0000	0.44821	0.0000	0.0000	0.0000	0.0000	0.0000	0.00377
Aug 2013	0.12848	0.0000	0.0000	0.0000	0.127345	0.0000	0.0000	0.0000	0.0000	0.0000	0.001135
Sep 2013	0.21137	0.0000	0.0000	0.0000	0.210905	0.0000	0.0000	0.0000	0.0000	0.0000	0.000465
Oct 2013	0.28919	0.0000	0.0000	0.0000	0.28618	0.0000	0.0000	0.0000	0.0000	0.0000	0.00301
Nov 2013	0.091525	0.0000	0.0000	0.0000	0.08998	0.0000	0.0000	0.0000	0.0000	0.0000	0.001545
Dec 2013	0.2086	0.0000	0.0000	0.0000	0.208045	0.0000	0.0000	0.0000	0.0000	0.0000	0.000555
Jan 2014	0.6436	0.0000	0.0000	0.0000	0.637965	0.0000	0.0000	0.0000	0.0000	0.0000	0.005635

Feb 2014	0.89931	0.0000	0.0000	0.0000	0.88665	0.0000	0.0000	0.0000	0.0000	0.0000	0.01266
Mar 2014	0.665355	0.0000	0.0000	0.0000	0.66097	0.0000	0.0000	0.0000	0.0000	0.0000	0.004385
Apr 2014	0.18525	0.0000	0.0000	0.0000	0.183015	0.0000	0.0000	0.0000	0.0000	0.0000	0.002235
Total	5.18378	0.0000	0.0000	0.0000	5.147495	0.0000	0.0000	0.0000	0.0000	0.0000	0.019555

Notes: 1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

2) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging material

3) Broken concrete for recycle into aggregates

4) ( )-Estimated remaining quantity Construction Waste Generated (tones)

Appendix L

Inspection Checklist Reports

Environmental Team –Site Inspection and Environmental Audit Checklist

Project:	**Highway Contract No. HY/2011/13 – Improvement to Pok Oi Interchange**	**Checklist No.**	TCS00658/13/2014/04/01
Date:	***01 April 2014***	**Inspected by**	
Time:	14:00	**IEC**	NA
Environmental Permit	**EP- *411-2011***	**RE**	K.Y. Tam
		ET	Donald Kwok
		EO	Chris Lam
		Contractor's	

PART A: GENERAL INFORMATION

Weather:	Sunny	☐	Fine	☐	Cloudy	☑	Rainy	☐	Temperature: 20.2 ^{0}C
Humidity:	High	☐	Moderate	☑	Low	☐			
Wind:	Strong	☐	Breeze	☑	Light	☐	Calm	☐	

PART B: SITE AUDIT

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
Section 1: Water Quality							
1.01	Is effluent discharge licence for the Contract obtained?	☐	☑	☐	☐	☐	
1.02	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.03	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.04	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.05	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☑	☐	☐	☐	☐	
1.06	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.07	Are earthworks final surfaces well compacted or protected?	☐	☐	☐	☐	☑	
1.08	Are manholes adequately covered or temporarily sealed?	☐	☐	☐	☐	☑	
1.09	Are there any procedures and equipment for rainstorm protection?	☐	☐	☐	☐	☑	
1.10	Are there any wheel washing facilities?	☐	☐	☐	☐	☑	
1.11	Are there wheel washing facilities well maintained?	☐	☐	☐	☐	☑	
1.12	Is runoff from wheel washing facilities avoided?	☐	☐	☐	☐	☑	
1.13	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.14	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.15	Are there any vehicles and plant within the site?	☐	☑	☐	☐	☐	
1.16	Is the oil leakage or spillage from vehicle or plant avoided?	☑	☐	☐	☐	☐	
1.17	Are there any measures to prevent leaked oil from entering the drainage system?	☑	☐	☐	☐	☐	
1.19	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☐	☐	☐	☑	
1.20	Are mobile toilets provided on site and located away from the stream course?	☐	☑	☐	☐	☐	
1.21	Is licensed collector employed for handling the waste generated from mobile toilet?	☐	☑	☐	☐	☐	
Section 2: Air Quality							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	☑	☐	☐	☐	☐	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	☑	☐	☐	☐	☐	
2.03	Are the excavated materials sprayed with water during handling?	☑	☐	☐	☐	☐	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	☑	☐	☐	☐	☐	
2.05	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	☑	☐	☐	☐	☐	
2.06	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	☐	☑	☐	☐	☐	
2.07	Is the load on vehicles covered entirely by clean impervious sheeting?	☐	☑	☐	☐	☐	

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
2.08	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	☑	☐	☐	☐	☐	
2.09	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	☑	☐	☐	☐	☐	
2.10	Is dark smoke emission from plant/equipment avoided?	☑	☐	☐	☐	☐	
2.11	Are site vehicles travelling within the speed limit not more than 15km/hour?	☐	☑	☐	☐	☐	
2.13	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	☐	☐	☐	☐	☑	
2.14	Is open burning avoided?	☑	☐	☐	☐	☐	
Section 3: Noise							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	☑	☐	☐	☐	☐	
3.02	Is silenced equipment adopted?	☐	☑	☐	☐	☐	
3.03	Is idle equipment turned off or throttled down?	☐	☑	☐	☐	☐	
3.04	Are all plant and equipment well maintained and in good condition?	☐	☑	☐	☐	☐	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	☑	☐	☐	☐	☐	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	☑	☐	☐	☐	☐	
3.07	Are air compressors fitted with valid noise emission labels during operation?	☑	☐	☐	☐	☐	
3.08	Are flaps and panels of mechanical equipment closed during operation?	☐	☑	☐	☐	☐	
3.09	Are Construction Noise Permit(s) applied for percussive piling works or construction activities out of restricted hours?	☐	☐	☐	☐	☑	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☐	☑	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☐	☑	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☐	☑	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☐	☑	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☑	☐	☐	☐	
4.14	Are designated areas identified for storage and sorting of construction wastes?	☐	☑	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☐	☑	☐	☐	☐	
4.16	Are construction wastes reused?	☑	☐	☐	☐	☐	
4.17	Is construction waste disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☐	☐	☐	☑	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	☐	☑	☐	☐	☐	

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-up actions **N/A**: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
5.02	Are retained and transplanted trees properly protected?	☐	☑	☐	☐	☐	
5.03	Are surgery works carried out for the damaged trees?	☑	☐	☐	☐	☐	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	☑	☐	☐	☐	☐	
Section 6: Others							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☑	☐	☐	☐	

Follow-up the last site inspection

Follow Up

Photo 1

No free standing chemical containers were observed, drip tray was provided for chemical on site.

Finding Non-compliance in this weekly site inspection:

NA

Observed Deficiencies in site inspection

NA

General Reminder

- The Contractor was reminded to maintain mitigation measure to prevent run-off water during rainy days.
- The Contractor was recommended to provide dust screen at the piling works area.
- The Contractor was reminded that any wastewater shall be treated before discharge.

IEC's representative	*RE's representative*	*ET's representative*	*Contractor's representative*
Date:	Date:	Date: 01 April 2014	Date:

Environmental Team –Site Inspection and Environmental Audit Checklist

Project:	**Highway Contract No. HY/2011/13 – Improvement to Pok Oi Interchange**	**Checklist No.**	TCS00658/13/2014/04/09
Date:	***09 April 2014***	**Inspected by**	
Time:	14:00	**IEC**	NA
Environmental Permit	**EP- *411-2011***	**RE**	K.Y. Tam
		ET	Donald Kwok
		EO	Chris Lam
		Contractor's	

PART A: GENERAL INFORMATION

Weather:	Sunny	☐	Fine	☑	Cloudy	☐	Rainy	☐	Temperature: 22.3 ^{0}C
Humidity:	High	☐	Moderate	☑	Low	☐			
Wind:	Strong	☐	Breeze	☑	Light	☐	Calm	☐	

PART B: SITE AUDIT

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
Section 1: Water Quality							
1.01	Is effluent discharge licence for the Contract obtained?	☐	☑	☐	☐	☐	
1.02	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.03	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.04	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.05	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☑	☐	☐	☐	☐	
1.06	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.07	Are earthworks final surfaces well compacted or protected?	☐	☐	☐	☐	☑	
1.08	Are manholes adequately covered or temporarily sealed?	☐	☐	☐	☐	☑	
1.09	Are there any procedures and equipment for rainstorm protection?	☐	☐	☐	☐	☑	
1.10	Are there any wheel washing facilities?	☐	☐	☐	☐	☑	
1.11	Are there wheel washing facilities well maintained?	☐	☐	☐	☐	☑	
1.12	Is runoff from wheel washing facilities avoided?	☐	☐	☐	☐	☑	
1.13	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.14	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.15	Are there any vehicles and plant within the site?	☐	☑	☐	☐	☐	
1.16	Is the oil leakage or spillage from vehicle or plant avoided?	☑	☐	☐	☐	☐	
1.17	Are there any measures to prevent leaked oil from entering the drainage system?	☑	☐	☐	☐	☐	
1.19	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☐	☐	☐	☑	
1.20	Are mobile toilets provided on site and located away from the stream course?	☐	☑	☐	☐	☐	
1.21	Is licensed collector employed for handling the waste generated from mobile toilet?	☐	☑	☐	☐	☐	
Section 2: Air Quality							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	☑	☐	☐	☐	☐	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	☑	☐	☐	☐	☐	
2.03	Are the excavated materials sprayed with water during handling?	☑	☐	☐	☐	☐	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	☑	☐	☐	☐	☐	
2.05	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	☑	☐	☐	☐	☐	
2.06	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	☐	☑	☐	☐	☐	
2.07	Is the load on vehicles covered entirely by clean impervious sheeting?	☐	☑	☐	☐	☐	

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
2.08	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	☑	☐	☐	☐	☐	
2.09	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	☑	☐	☐	☐	☐	
2.10	Is dark smoke emission from plant/equipment avoided?	☑	☐	☐	☐	☐	
2.11	Are site vehicles travelling within the speed limit not more than 15km/hour?	☐	☑	☐	☐	☐	
2.13	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	☐	☐	☐	☐	☑	
2.14	Is open burning avoided?	☑	☐	☐	☐	☐	
Section 3: Noise							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	☑	☐	☐	☐	☐	
3.02	Is silenced equipment adopted?	☐	☑	☐	☐	☐	
3.03	Is idle equipment turned off or throttled down?	☐	☑	☐	☐	☐	
3.04	Are all plant and equipment well maintained and in good condition?	☐	☑	☐	☐	☐	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	☑	☐	☐	☐	☐	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	☑	☐	☐	☐	☐	
3.07	Are air compressors fitted with valid noise emission labels during operation?	☑	☐	☐	☐	☐	
3.08	Are flaps and panels of mechanical equipment closed during operation?	☐	☑	☐	☐	☐	
3.09	Are Construction Noise Permit(s) applied for percussive piling works or construction activities out of restricted hours?	☐	☐	☐	☐	☑	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☐	☑	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☐	☑	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☐	☑	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☐	☑	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☑	☐	☐	☐	
4.14	Are designated areas identified for storage and sorting of construction wastes?	☐	☑	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☐	☑	☐	☐	☐	
4.16	Are construction wastes reused?	☑	☐	☐	☐	☐	
4.17	Is construction waste disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☐	☐	☐	☑	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	☐	☑	☐	☐	☐	

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
5.02	Are retained and transplanted trees properly protected?	☐	☑	☐	☐	☐	
5.03	Are surgery works carried out for the damaged trees?	☑	☐	☐	☐	☐	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	☑	☐	☐	☐	☐	
Section 6: Others							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☑	☐	☐	☐	

Follow-up the last site inspection

NA

Finding Non-compliance in this weekly site inspection:

NA

Observed Deficiencies in site inspection

NA

General Reminder

- The Contractor was reminded to maintain mitigation measure to prevent run-off water during rainy days.
- The Contractor was reminded that any wastewater shall be treated before discharge.
- Any open stockpile should be covered by impervious sheeting or water spraying to prevent dust generation.
- The Contractor was reminded to maintain the cleanliness on the public area regularly.

IEC's representative	*RE's representative*	*ET's representative*	*Contractor's representative*
Date:	Date:	Date: 09 April 2014	Date:

Environmental Team –Site Inspection and Environmental Audit Checklist

Project:	**Highway Contract No. HY/2011/13 – Improvement to Pok Oi Interchange**	**Checklist No.**	TCS00658/13/2014/04/15
Date:	***15 April 2014***	**Inspected by**	
Time:	14:00	**IEC**	NA
Environmental Permit	**EP- *411-2011***	**RE**	K.Y. Tam
		ET	Nicola Hon
		EO	Chris Lam
		Contractor's	

PART A: GENERAL INFORMATION

Weather:	Sunny	☐	Fine	☑	Cloudy	☐	Rainy	☐	Temperature: 21.9	^{0}C
Humidity:	High	☐	Moderate	☐	Low	☑				
Wind:	Strong	☐	Breeze	☑	Light	☐	Calm	☐		

PART B: SITE AUDIT

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
Section 1: Water Quality							
1.01	Is effluent discharge licence for the Contract obtained?	☐	☑	☐	☐	☐	
1.02	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.03	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.04	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.05	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☑	☐	☐	☐	☐	
1.06	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.07	Are earthworks final surfaces well compacted or protected?	☐	☐	☐	☐	☑	
1.08	Are manholes adequately covered or temporarily sealed?	☐	☐	☐	☐	☑	
1.09	Are there any procedures and equipment for rainstorm protection?	☐	☐	☐	☐	☑	
1.10	Are there any wheel washing facilities?	☐	☐	☐	☐	☑	
1.11	Are there wheel washing facilities well maintained?	☐	☐	☐	☐	☑	
1.12	Is runoff from wheel washing facilities avoided?	☐	☐	☐	☐	☑	
1.13	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.14	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.15	Are there any vehicles and plant within the site?	☐	☑	☐	☐	☐	
1.16	Is the oil leakage or spillage from vehicle or plant avoided?	☑	☐	☐	☐	☐	
1.17	Are there any measures to prevent leaked oil from entering the drainage system?	☑	☐	☐	☐	☐	
1.19	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☐	☐	☐	☑	
1.20	Are mobile toilets provided on site and located away from the stream course?	☐	☑	☐	☐	☐	
1.21	Is licensed collector employed for handling the waste generated from mobile toilet?	☐	☑	☐	☐	☐	
Section 2: Air Quality							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	☑	☐	☐	☐	☐	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	☑	☐	☐	☐	☐	
2.03	Are the excavated materials sprayed with water during handling?	☑	☐	☐	☐	☐	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	☑	☐	☐	☐	☐	
2.05	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	☑	☐	☐	☐	☐	
2.06	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	☐	☑	☐	☐	☐	
2.07	Is the load on vehicles covered entirely by clean impervious sheeting?	☐	☑	☐	☐	☐	

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
2.08	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	☑	☐	☐	☐	☐	
2.09	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	☑	☐	☐	☐	☐	
2.10	Is dark smoke emission from plant/equipment avoided?	☑	☐	☐	☐	☐	
2.11	Are site vehicles travelling within the speed limit not more than 15km/hour?	☐	☑	☐	☐	☐	
2.13	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	☐	☐	☐	☐	☑	
2.14	Is open burning avoided?	☑	☐	☐	☐	☐	
Section 3: Noise							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	☑	☐	☐	☐	☐	
3.02	Is silenced equipment adopted?	☐	☑	☐	☐	☐	
3.03	Is idle equipment turned off or throttled down?	☐	☑	☐	☐	☐	
3.04	Are all plant and equipment well maintained and in good condition?	☐	☑	☐	☐	☐	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	☑	☐	☐	☐	☐	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	☑	☐	☐	☐	☐	
3.07	Are air compressors fitted with valid noise emission labels during operation?	☑	☐	☐	☐	☐	
3.08	Are flaps and panels of mechanical equipment closed during operation?	☐	☑	☐	☐	☐	
3.09	Are Construction Noise Permit(s) applied for percussive piling works or construction activities out of restricted hours?	☐	☐	☐	☐	☑	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☐	☑	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☐	☑	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☐	☑	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☐	☑	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☑	☐	☐	☐	
4.14	Are designated areas identified for storage and sorting of construction wastes?	☐	☑	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☐	☑	☐	☐	☐	
4.16	Are construction wastes reused?	☑	☐	☐	☐	☐	
4.17	Is construction waste disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☐	☐	☐	☑	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	☐	☑	☐	☐	☐	

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
5.02	Are retained and transplanted trees properly protected?	☐	☑	☐	☐	☐	
5.03	Are surgery works carried out for the damaged trees?	☑	☐	☐	☐	☐	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	☑	☐	☐	☐	☐	
Section 6: Others							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☑	☐	☐	☐	

Follow-up the last site inspection

NA

Finding Non-compliance in this weekly site inspection:

NA

Observed Deficiencies in site inspection

NA

General Reminder

- The Contractor was reminded to maintain mitigation measure to prevent run-off water during rainy days.
- The Contractor was reminded that any wastewater shall be treated before discharge.
- Any open stockpile should be covered by impervious sheeting or water spraying to prevent dust generation.
- The Contractor was reminded to maintain site cleanliness in a regular basis.

IEC's representative	*RE's representative*	*ET's representative*	*Contractor's representative*
Date:	Date:	Date: 15 April 2014	Date:

Environmental Team –Site Inspection and Environmental Audit Checklist

Project:	**Highway Contract No. HY/2011/13 – Improvement to Pok Oi Interchange**	**Checklist No.**	TCS00658/13/2014/04/22
Date:	***22 April 2014***	**Inspected by**	
Time:	14:00	**IEC**	NA
Environmental Permit	**EP- *411-2011***	**RE**	K.Y. Tam
		ET	Donald Kwok
		EO	Chris Lam
		Contractor's	

PART A: GENERAL INFORMATION

Weather:	Sunny	☐	Fine	☐	Cloudy	☑	Rainy	☐	Temperature: 24.8 ^{0}C
Humidity:	High	☐	Moderate	☐	Low	☑			
Wind:	Strong	☐	Breeze	☑	Light	☐	Calm	☐	

PART B: SITE AUDIT

		Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable						
Section 1: Water Quality							
1.01	Is effluent discharge licence for the Contract obtained?	☐	☑	☐	☐	☐	
1.02	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.03	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.04	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.05	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☑	☐	☐	☐	☐	
1.06	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.07	Are earthworks final surfaces well compacted or protected?	☐	☐	☐	☐	☑	
1.08	Are manholes adequately covered or temporarily sealed?	☐	☐	☐	☐	☑	
1.09	Are there any procedures and equipment for rainstorm protection?	☐	☐	☐	☐	☑	
1.10	Are there any wheel washing facilities?	☐	☐	☐	☐	☑	
1.11	Are there wheel washing facilities well maintained?	☐	☐	☐	☐	☑	
1.12	Is runoff from wheel washing facilities avoided?	☐	☐	☐	☐	☑	
1.13	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.14	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.15	Are there any vehicles and plant within the site?	☐	☑	☐	☐	☐	
1.16	Is the oil leakage or spillage from vehicle or plant avoided?	☑	☐	☐	☐	☐	
1.17	Are there any measures to prevent leaked oil from entering the drainage system?	☑	☐	☐	☐	☐	
1.19	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☐	☐	☐	☑	
1.20	Are mobile toilets provided on site and located away from the stream course?	☐	☑	☐	☐	☐	
1.21	Is licensed collector employed for handling the waste generated from mobile toilet?	☐	☑	☐	☐	☐	
Section 2: Air Quality							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	☑	☐	☐	☐	☐	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	☑	☐	☐	☐	☐	
2.03	Are the excavated materials sprayed with water during handling?	☑	☐	☐	☐	☐	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	☑	☐	☐	☐	☐	
2.05	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	☑	☐	☐	☐	☐	
2.06	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	☐	☑	☐	☐	☐	
2.07	Is the load on vehicles covered entirely by clean impervious sheeting?	☐	☑	☐	☐	☐	

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
2.08	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	☑	☐	☐	☐	☐	
2.09	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	☑	☐	☐	☐	☐	
2.10	Is dark smoke emission from plant/equipment avoided?	☑	☐	☐	☐	☐	
2.11	Are site vehicles travelling within the speed limit not more than 15km/hour?	☐	☑	☐	☐	☐	
2.13	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	☐	☐	☐	☐	☑	
2.14	Is open burning avoided?	☑	☐	☐	☐	☐	
Section 3: Noise							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	☑	☐	☐	☐	☐	
3.02	Is silenced equipment adopted?	☐	☑	☐	☐	☐	
3.03	Is idle equipment turned off or throttled down?	☐	☑	☐	☐	☐	
3.04	Are all plant and equipment well maintained and in good condition?	☐	☑	☐	☐	☐	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	☑	☐	☐	☐	☐	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	☑	☐	☐	☐	☐	
3.07	Are air compressors fitted with valid noise emission labels during operation?	☑	☐	☐	☐	☐	
3.08	Are flaps and panels of mechanical equipment closed during operation?	☐	☑	☐	☐	☐	
3.09	Are Construction Noise Permit(s) applied for percussive piling works or construction activities out of restricted hours?	☐	☐	☐	☐	☑	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☐	☑	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☐	☑	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☐	☑	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☐	☑	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☑	☐	☐	☐	
4.14	Are designated areas identified for storage and sorting of construction wastes?	☐	☑	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☐	☑	☐	☐	☐	
4.16	Are construction wastes reused?	☑	☐	☐	☐	☐	
4.17	Is construction waste disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☐	☐	☐	☑	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	☐	☑	☐	☐	☐	

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
5.02	Are retained and transplanted trees properly protected?	☐	☑	☐	☐	☐	
5.03	Are surgery works carried out for the damaged trees?	☑	☐	☐	☐	☐	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	☑	☐	☐	☐	☐	
Section 6: Others							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☑	☐	☐	☐	

Follow-up the last site inspection

NA

Finding Non-compliance in this weekly site inspection:

NA

Observed Deficiencies in site inspection

Photo 1

The Contractor was reminded to cover the open slope with impervious tarpaulin to prevent dust nuisance.

General Reminder

- The Contractor was reminded to maintain mitigation measure to prevent run-off water during rainy days.
- The Contractor was reminded that any wastewater shall be treated before discharge.
- Any open stockpile should be covered by impervious sheeting or water spraying to prevent dust generation.
- The Contractor was reminded to maintain site cleanliness in a regular basis.

IEC's representative	*RE's representative*	*ET's representative*	*Contractor's representative*
Date:	Date:	Date: 22 April 2014	Date:

Environmental Team –Site Inspection and Environmental Audit Checklist

Project:	**Highway Contract No. HY/2011/13 – Improvement to Pok Oi Interchange**	**Checklist No.**	TCS00658/13/2014/04/29
Date:	***29 April 2014***	**Inspected by**	
Time:	14:00	**IEC**	LAM ENV.
Environmental Permit	**EP- *411-2011***	**RE**	K.Y. Tam
		ET	Ben Tam
		EO	Chris Lam
		Contractor's	

PART A: GENERAL INFORMATION

Weather:	Sunny	☐	Fine	☐	Cloudy	☑	Rainy	☐	Temperature: 23.3 ^{0}C
Humidity:	High	☐	Moderate	☐	Low	☑			
Wind:	Strong	☐	Breeze	☑	Light	☐	Calm	☐	

PART B: SITE AUDIT

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
Section 1: Water Quality							
1.01	Is effluent discharge licence for the Contract obtained?	☐	☑	☐	☐	☐	
1.02	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.03	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.04	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.05	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☑	☐	☐	☐	☐	
1.06	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.07	Are earthworks final surfaces well compacted or protected?	☐	☐	☐	☐	☑	
1.08	Are manholes adequately covered or temporarily sealed?	☐	☐	☐	☐	☑	
1.09	Are there any procedures and equipment for rainstorm protection?	☐	☐	☐	☐	☑	
1.10	Are there any wheel washing facilities?	☐	☐	☐	☐	☑	
1.11	Are there wheel washing facilities well maintained?	☐	☐	☐	☐	☑	
1.12	Is runoff from wheel washing facilities avoided?	☐	☐	☐	☐	☑	
1.13	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.14	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.15	Are there any vehicles and plant within the site?	☐	☑	☐	☐	☐	
1.16	Is the oil leakage or spillage from vehicle or plant avoided?	☑	☐	☐	☐	☐	
1.17	Are there any measures to prevent leaked oil from entering the drainage system?	☑	☐	☐	☐	☐	
1.19	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☐	☐	☐	☑	
1.20	Are mobile toilets provided on site and located away from the stream course?	☐	☑	☐	☐	☐	
1.21	Is licensed collector employed for handling the waste generated from mobile toilet?	☐	☑	☐	☐	☐	
Section 2: Air Quality							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	☑	☐	☐	☐	☐	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	☑	☐	☐	☐	☐	
2.03	Are the excavated materials sprayed with water during handling?	☑	☐	☐	☐	☐	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	☑	☐	☐	☐	☐	
2.05	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	☑	☐	☐	☐	☐	
2.06	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	☐	☑	☐	☐	☐	
2.07	Is the load on vehicles covered entirely by clean impervious sheeting?	☐	☑	☐	☐	☐	

Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
2.08	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	☑	☐	☐	☐	☐	
2.09	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	☑	☐	☐	☐	☐	
2.10	Is dark smoke emission from plant/equipment avoided?	☑	☐	☐	☐	☐	
2.11	Are site vehicles travelling within the speed limit not more than 15km/hour?	☐	☑	☐	☐	☐	
2.13	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	☐	☐	☐	☐	☑	
2.14	Is open burning avoided?	☑	☐	☐	☐	☐	
Section 3: Noise							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	☑	☐	☐	☐	☐	
3.02	Is silenced equipment adopted?	☐	☑	☐	☐	☐	
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3.08	Are flaps and panels of mechanical equipment closed during operation?	☐	☑	☐	☐	☐	
3.09	Are Construction Noise Permit(s) applied for percussive piling works or construction activities out of restricted hours?	☐	☐	☐	☐	☑	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
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4.10	Are incompatible chemical wastes stored in different areas?	☐	☑	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☐	☑	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☐	☑	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☑	☐	☐	☐	
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4.17	Is construction waste disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☐	☐	☐	☑	
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Section 5: Landscape & Visual							
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Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
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5.03	Are surgery works carried out for the damaged trees?	☑	☐	☐	☐	☐	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	☑	☐	☐	☐	☐	
Section 6: Others							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☑	☐	☐	☐	

Follow-up the last site inspection

Photo 1
Tarpaulin was provided to prevent dust nuisance.

Finding Non-compliance in this weekly site inspection:

NA

Observed Deficiencies in site inspection

Photo 2
The Contractor was reminded to plug the plughole of the drip tray found in the works area to prevent leakage.

Photo 3

Free standing chemical containers were observed in the works area, the Contractor was reminded to provide drip tray for all chemical containers and fulfil the chemical storage requirement.

General Reminder

- The Contractor was reminded to maintain mitigation measure to prevent run-off water during rainy days.
- The Contractor was reminded that any wastewater shall be treated before discharge.
- Stagnant water was observed in the site area, the Contractor was reminded to drain away or apply larvicidal oil to prevent mosquitoes breeding.

IEC's representative	*RE's representative*	*ET's representative*	*Contractor's representative*
Date:	Date:	Date: 29 April 2014	Date: