



PROJECT No.: TCS/00512/09

**DSD CONTRACT NO. DC/2009/13
CONSTRUCTION OF SEWAGE TREATMENT WORKS AT
YUNG SHUE WAN AND SOK KWU WAN**

**YUNG SHUE WAN PORTION AREA
MONTHLY ENVIRONMENTAL MONITORING AND AUDIT
(EM&A) REPORT (No.45) – MAY 2014**

PREPARED FOR
LEADER CIVIL ENGINEERING CORPORATION LIMITED

Quality Index

Date	Reference No.	Prepared By	Approved By
20 June 2014	TCS00512/09/600/R0788v2	 Martin Li Assistant Environmental Consultant	 T.W. Tam Environmental Team Leader

Version	Date	Description
1	10 June 2014	First Submission
2	20 June 2014	Amended against IEC's comment on 19 June 2014

URS CDM Joint Venture

Chief Engineer/Harbour Area Treatment Scheme
Drainage Services Department
5/F, Western Magistracy
2A, Pok Fu Lam Road
Hong Kong

Your reference:

Our reference: 05117/6/16/430299

Date: 23 June 2014

Attention: Mr Y.F. Tang

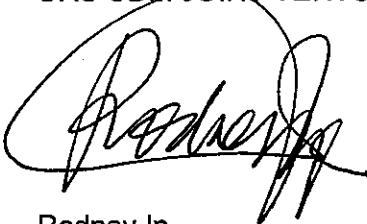
BY FAX

Dear Sir,

Contract No. DC/2009/13
Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan
Yung Shue Wan Portion Area
Monthly Environmental Monitoring and Audit (EM&A) Report No. 45 (May 2014)

We refer to the Monthly EM&A Monitoring Report No. 45 for May 2014 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated on 17 June 2014. We have no comment and have verified the captioned report.

Yours faithfully
URS CDM JOINT VENTURE



Rodney Ip
Independent Environmental Checker

ICWR/CKCH/lykl

Encl

cc	Leader Civil Engineering	(Attn: Mr Ron Hung)
	AUES	(Attn: Mr T.W. Tam)
	ER/LAMMA	(Attn: Mr Kenneth Kwong)
	CDM	(Attn: Mr Sylvester Hsu)

EXECUTIVE SUMMARY

ES.01. This is the 45th monthly Environmental Monitoring and Audit (EM&A) for Yung Shue Wan (hereinafter ‘this Report’) for the designated works under Environmental Permit [EP-282/2007], covering a period from 26 April 2014 to 25 May 2014 (hereinafter ‘the Reporting Period’).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

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

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Air Quality	1-hour TSP	30
	24-hour TSP	9
Construction Noise	L _{eq} (30min) Daytime	5
Inspection / Audit	ET Regular Environmental Site Inspection	4

ES.03. According to the construction information provided by the Contractor, the marine works in Yung Shue Wan has been completed on 22 April 2013. As agreed by the Contractor, IEC and RE, the ecology was ceased in May 2013 due to no ecological impact and concern since the completion of marine work, whereas impact marine water quality monitoring was terminated in July 2013. In this regards, an associated letter ref. TCS00512/10/300/L0656 dated 28 June 2013 has been issued to EPD for approval and no comment was received.

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES.04. No exceedance in air quality and construction noise monitoring was recorded in this Reporting Period. 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
Air Quality	1-hour TSP	0	0	0	--	--
	24-hour TSP	0	0	0	--	--
Construction Noise	L _{eq} (30min) Daytime	0	0	0	--	--

Note: NOE – Notification of Exceedance

SITE INSPECTION

ES.05. In this Reporting Period, 4 events of weekly joint inspection by the RE, the Contractor and ET were carried out on 2, 6, 13, and 20 May 2014.

ENVIRONMENTAL COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.06. No written or verbal complaint, environmental summons or successful prosecutions were recorded in this Reporting Period.

REPORTING CHANGE

ES.07. In this Reporting Period, no reporting changes were made.

FUTURE KEY ISSUES

ES.01. As wet season is approaching, the Contractor shall pay attention on the potential water impact as the construction site is adjacent to the coastline. Muddy water and other water quality pollutants via site surface water runoff into the coral zones of Yung Shue Wan seawall, Shek Kok Tsui and O Tsai should be avoided. Mitigation measures for water quality should be fully implemented.

ES.02. Nevertheless, the Contractor shall keep paying attention on the potential water impact as the construction site is adjacent to the coastline. Muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan should be avoided. Therefore, mitigation measures for water quality should be fully implemented.

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1. INTRODUCTION

PROJECT BACKGROUND

- 1.01 The Leader Civil Engineering Corporation Limited (Leader) has been awarded the *Contract DC/2009/13 - Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan* (the Project) by the Drainage Services Department (DSD) on 4 May 2010. The Project is part of an overall plan approved under a statutory EIA for Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection and Treatment (Register No. AEIAR-075/2003) and Disposal Facilities and Outlying Islands Sewerage Stage 1 Phase 1 Package C – Yung Shue Wan Sewage Treatment Works and Outfall (Register No. EIA-124/BC). The Environmental Permit (EP) No. EP-281/2007 and EP-282/2007 for the Project have been obtained by the DSD on 29 June 2007 for the relevant works. After July 2009, EP-281/2007/A instead EP-281/2007 is EP for Sok Kwu Wan relevant Works.
- 1.02 The Project involves construction of sewage treatment works at Sok Kwu Wan and Yung Shue Wan with a capacity of 1,430m³/day and 2,850m³/day respectively to provide secondary treatment, construction of 2 pumping stations at Sok Kwu Wan and 1 pumping station at Yung Shue Wan, construction of submarine outfall from the coastline and laying of underground sewerage pipeline. The site layout plan for the captioned work under the Project is showing in **Appendix A**
- 1.03 According to the Particular Specification (PS) and **Appendix 25** of the Project, Leader should establish an Environmental Team (ET) to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the EM&A Manual. This EM&A Manual is referred to the Appendix D of the Review Report on EIA Study – Yung Shue Wan (Final) in January 2007 (Agreement No. CE 20/2005(DS)).
- 1.04 Action-United Environmental Services and Consulting (AUES) has been commissioned by Leader as the ET to implement the relevant EM&A programme. Organization chart of the Environmental Team for the Project is shown in **Appendix B**. For ease of reporting, the proposed EM&A programme for baseline and impact monitoring is split to following two stand-alone parts:
- (a) Proposed EM&A Programme for Baseline and Impact Monitoring – Sok Kwu Wan (under EP No. 281/2007/A varied on 23 September 2009)
- (b) Proposed EM&A Programme for Baseline and Impact Monitoring – Yung Shue Wan (under EP No. 282/2007)
- 1.05 This is the 45th monthly EM&A Report for Yung Shue Wan Portion Area which presenting the monitoring results and inspection findings in the Reporting Period from **26 April 2014** to **25 May 2014**.

REPORT STRUCTURE

- 1.06 The Monthly Environmental Monitoring and Audit (EM&A) Report – Yung Shue Wan is structured into the following sections:-
- | | |
|-------------------|---|
| SECTION 1 | INTRODUCTION |
| SECTION 2 | PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS |
| SECTION 3 | SUMMARY OF MONITORING REQUIREMENTS |
| SECTION 4 | AIR QUALITY MONITORING RESULTS |
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| SECTION 11 | IMPLEMENTATION STATUES OF MITIGATION MEASURES |
| SECTION 12 | IMPACT FORECAST |
| SECTION 13 | CONCLUSIONS AND RECOMMENDATION |

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 three month rolling construction programme are enclosed in [Appendix C](#) and the major construction activities undertaken in this Reporting Period are listed below:-

- Construction of drainage works in yard area
- Construction of concrete pavements
- Rebar fixing, formwork erection/ removal
- Excavation, Backfilling and soil compaction
- E&M installation
- Plumb and Drain installation
- Plastering, painting, placing wall tiles and 5 legged concrete tiles
- Construction of boundary wall
- Installation of steel work, FRP covers and cat ladders

SUMMARY OF ENVIRONMENTAL SUBMISSIONS

- 2.03 Summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this Reporting Period 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	Notified 19/5/2010 Case No: 317486
2	Chemical Waste Producer Registration	Issued on 8/6/2010 WPN 5213-912-L2720-01
3	Water Pollution Control Ordinance	Issued on 22/9/2010 WT00007566-2010
4	Billing Account for Disposal of Construction Waste	Issued on 26 May 2010 A/C No: 7010815

- 2.04 Summary of the report submission for EM&A Programme is presented in [Table 2-2](#).

Table 2-2 Status of EM&A Programme Submission

Item	EM&A Programme Submission	Status
1	Proposed EM&A Programme for Baseline / Impact Monitoring – Yung Shue Wan (TCS00512/09/600/R0011 Ver.5)	Verified by IEC and submitted to EPD on 8 July 2010
2	Method Statement for Coral Monitoring – Yung Shue Wan (TCS00512/09/600/R0071 Ver.3)	Verified by IEC and submitted to EPD on 25 November 2010
3	Baseline Air and Noise Monitoring Report - Volume 1 (TCS00512/09/600/R0061 Ver.3)	Verified by IEC and submitted to EPD on 31 August 2010
4	Baseline Monitoring Report Volume 2 - Water Quality (TCS00512/09/600/R0158 Ver.2)	Verified by IEC and submitted to EPD on 10 March 2011
5	Baseline Survey for Coral Monitoring – Yung Shue Wan (TCS00512/09/600/R0132 Ver.3)	Verified by IEC and submitted to EPD on 17 February 2011
6	Methodology of Coral Tagging for Impact Monitoring – Yung Shue Wan	Verified by IEC and submitted to EPD on 28 March 2011
7	Coral Tagging Report (TCS00512/09/600/R0214 Ver.4)	Verified by IEC and submitted to EPD on 3 August 2011

3. SUMMARY OF BASELINE MONITORING REQUIREMENTS

ENVIRONMENTAL ASPECT

- 3.01 The EM&A baseline monitoring programme cover the following environmental issues:
- Air quality;
 - Construction noise;
 - Marine water quality; and
 - Ecology monitoring
- 3.02 The ET implements the EM&A programme in accordance with the aforementioned requirements. Detailed air quality, construction noise, water quality and ecology of the EM&A programme are presented in the following sub-sections.
- 3.03 A summary of the air, noise, marine water and ecology monitoring parameters is presented in **Table 3-1**:

Table 3-1 Summary of the EM&A Requirements

Environmental Issue	Parameters
Air Quality	<ul style="list-style-type: none"> • 1-hour TSP Monitoring by Real-Time Portable Dust Meter; and • 24-hour TSP Monitoring by High Volume Air Sampler.
Noise	<ul style="list-style-type: none"> • $L_{eq(30min)}$ during normal working hours; and • $L_{eq(15min)}$ during Restricted Hours.
Marine Water Quality	<p><i>In-situ Measurements</i></p> <ul style="list-style-type: none"> • Dissolved Oxygen Concentration (DO) (mg/L); • Dissolved Oxygen Saturation (%); • Turbidity (NTU); • pH unit; • Salinity (ppt); • Water depth (m); and • Temperature (°C). <p><i>Laboratory Analysis</i></p> <ul style="list-style-type: none"> • Suspended Solids (SS) (mg/L)
Ecology	<ul style="list-style-type: none"> • Coral Monitoring

MONITORING LOCATIONS

Air Quality

- 3.04 Two designated monitoring stations, AC02a located at Yung Shue Wan Refuse Transfer Station and AC04 located at residential area nearby Yung Shue Wan football pitch, were recommended in the *EM&A Manual Section 2.5*. In order to identify and seek for the access of the air monitoring locations designated in the EM&A Manual, site visit was conducted by Leader and ET.
- 3.05 At the site visit, all designated monitoring locations were identified however the premises for high volume sampler installation were objected by the owner or the residents of nearby. So, alternative air monitoring locations were proposed in accordance with the criteria set out in *EM&A manual Section 2.5.2 and 2.5.3*. The proposed alternative air monitoring stations were accepted by the Engineer Representative (ER) and Independent Environmental Checker (IEC) and EPD for endorsement. Details of renewed air monitoring stations are described in **Table 3-2**. The graphical of air monitoring stations is shown in **Appendix D**.

Table 3-2 Location of Air Quality Monitoring Station

Sensitive Receiver	Location
AC02b	The entrance of RE's site office
AC04c	Next to a power transformer station TP208 Yung Shue Wan and adjacent to the road direct to the construction site

Construction Noise

- 3.06 According to *EM&A Manual Section 3.4*, one noise sensitive receivers (NC05) designated for the construction noise monitoring was recommended at Yung Shue Wan Portion Area of the Project. The designated monitoring station is identified and successfully granted the premises. The detailed construction noise monitoring station is described in *Table 3-3* and graphical is shown in *Appendix D*.

Table 3-3 Location of Construction Noise Monitoring Station

Sensitive Receiver	Location
NC05	North Lamma Clinic

Marine Water Quality

- 3.07 Two control stations (CY1 and CY2) and three impact stations (WY1-WY3) were recommended in the *EM&A Manual Section 4.5*. Impact stations WY1-WY3 were identified close to the sensitive receivers (the coral colonies in the vicinity of Yung Shue Wan, and secondary contact recreation subzone). It is proposed to monitor the impacts from the construction of the submarine outfall as well as the effluent discharge from the proposed STW on water quality. Two control stations: CY1 and CY2 were recommended at locations representative of the project site in its undisturbed condition and located at upstream and downstream of the works area. The marine water quality monitoring stations to be performed under the Project is described in *Table 3-4* and shown in *Appendix D*.

Table 3-4 Location of Marine Water Quality Monitoring Station

Station	Description	Coordinates	
		Easting	Northing
WY1	Coral colonies on seawall at STW site	829 170	809 550
WY2	Coral colonies at Shek kok Tsui	829 000	810 400
WY3	Coral colonies at O Tsai (headland N at SW ferry pier)	829 200	809 850
CY1 (flood)	Control Station	828 400	810 800
CY2 (ebb)	Control Station	828 000	808 800

Coral Monitoring

- 3.08 The coral monitoring stations to be performed under the Project is show in *Appendix D*. The ecology monitoring was ceased since the completion of marine work on 22 April 2013.

MONITORING FREQUENCY AND PERIOD

- 3.09 The Impact monitoring carried out in the EM&A programme is basically in accordance with the requirements in *EM&A Manual Sections 2.7, 3.6, 4.7, 4.8, 7.3 and 7.4*. The monitoring requirements are listed as follows:

Air Quality Monitoring

Parameters: 1-hour TSP and 24-hour TSP

Frequency: Once in every six days for 24-hour TSP and three times in every six days for 1-hour TSP

Duration: Throughout the construction period

Noise Monitoring

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

$L_{eq(15min)}$ & $L_{eq(5min)}$, L_{10} and L_{90} during the construction undertaken during Restricted hours (19:00 to 07:00 hours next of normal working day and full day of public holiday and Sunday)

Frequency: Once per week during 0700-1900 hours on normal weekdays. Restricted hour monitoring should depend on conditions stipulated in Construction Noise Permit

Duration: Throughout the construction period

Marine Water Quality Monitoring

Parameters: Duplicate in-situ measurements: water depth, temperature, dissolved oxygen, pH, turbidity and salinity
HOKLAS-accredited laboratory analysis: suspended solids

Frequency: Three days a week, at mid ebb and mid flood tides. The interval between 2 sets of monitoring will be more than 36 hours

Sampling Depth (i.) Three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m.
(ii.) If the water depth is between 3m and 6m, two depths: 1m below water surface and 1m above sea bottom
(iii.) If the water depth is less than 3m, 1 sample at mid-depth is taken

Duration: During the course of marine works

Coral Monitoring

Parameters: Presence and coverage of hard and soft corals such as diversity, abundance and health status of the corals in the general area, plus other physical and biological condition at the underwater environment

Frequency: One per week for the first three months of the marine works. If no exceedances are reported during the first three months, the frequency may be reduced to twice every month

Duration: During the course of marine works

Post-Construction Monitoring – Marine Water

- 3.10 Upon the marine works (dredging and HDD pipe installation) completion, 4 weeks of post-construction monitoring would be undertaken in accordance with the *Section 4.8 of EM&A Manual*. The requirements of post-construction monitoring such as the parameter, frequency, location and sampling depth is same as the impact monitoring.

Post-Construction Monitoring – Ecology Monitoring

- 3.11 Following completion of the marine works, post project monitoring should be carried out within two weeks of completion of the marine works (HDD and dredging), and should comprise the same two-tier Rapid Assessment Ecological Assessment (REA) method adopted for the baseline survey.

MONITORING EQUIPMENT

Air Quality Monitoring

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

1-hour TSP

- 3.13 The 1-hour TSP monitor, a TSI Dust Track Aerosol Monitor Model 8520 or Sibata LD-3 Laser Dust Meter is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consisted of the following:
- a. A pump to draw sample aerosol through the optic chamber where TSP is measured;

- b. A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and
- c. A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.

24-hour TSP

- 3.14 The equipment used for 24-hour TSP measurement will be a TISCH High Volume Air Sampler, HVS Model TE-5170, which complied with EPA Code of Federal Regulation, Appendix B to Part 50. The HVS consists of the following:
 - a. An anodized aluminum shelter;
 - b. A 8"x10" stainless steel filter holder;
 - c. A blower motor assembly;
 - d. A continuous flow/pressure recorder;
 - e. A motor speed-voltage control/elapsed time indicator;
 - f. A 7-day mechanical timer, and
 - g. A power supply of 220v/50 hz
- 3.15 For HVS for 24-hour TSP monitoring, the HVS is mounted in a metallic cage with a top for protection and also it is sat on the existing ground. The flow rate of the HVS between 0.63m³/min and 1.7m³/min will be properly set in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50. Glass Fiber Filter 8" x 10" of TE-653 will be used for 24-hour TSP monitoring and would be supplied by laboratory. The general procedures of sampling are described as below:-
 - A horizontal platform with appropriate support to secure the samples against gusty wind should be provided;
 - No two samplers should be placed less than 2 meters apart;
 - The distance between the sampler and an obstacle, such as building, must be at least twice the height that the obstacle protrudes above the sample;
 - A minimum of 2 meters of separation from any supporting structure, measured horizontally is required;
 - Before placing any filter media at the HVS, the power supply will be checked to ensure the sampler work properly;
 - The filter paper will be set to align on the screen of HVS to ensure that the gasket formed an air tight seal on the outer edges of the filter. Then filter holder frame will be tightened to the filter hold with swing bolts. The holding pressure should be sufficient to avoid air leakage at the edge.
 - The mechanical timer will be set for a sampling period of 24 hours (00:00 mid-night to 00:00 mid-night next day). Information will be recorded on the field data sheet, which would be included the sampling data, starting time, the weather condition at current and the filter paper ID with the initial weight;
 - After sampling, the filter paper will be collected to transfer from the filter holder of the HVS to a sealed in the envelope and sent to a local HOKLAS accredited laboratory for quantifying.
- 3.16 All the sampled 24-hour TSP filters will be kept in normal air conditioned room conditions, i.e. 70% HR (Relative Humidity) and 25°C, for six months prior to disposal.
- 3.17 The HVS used for 24-hour TSP monitoring will be calibrated before the commencement for sampling, and after in two months interval for 1 point checking of maintenance and six months interval for five points calibrate in accordance with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5028A) to establish a relationship between the follow recorder meter reading in cfm (cubic feet per minute) and the standard flow rate, Qstd, in m³/min.

Noise Monitoring

- 3.18 Sound level meter in compliance with the *International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1)* specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s.
- 3.19 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 Leq(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 Leq(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.
- 3.20 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.
- 3.21 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 level from before and after the noise measurement agrees to within 1.0dB.
- 3.22 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. An acoustic calibrator and sound level meter will be calibrated yearly. A valid of Calibration certificates will be shown in the Environmental Monitoring Report accordingly.

Water Quality Monitoring

- 3.23 Marine water quality monitoring will be conducted at the designated locations in accordance with EM&A Manual. The operating and analytical of sampling procedures are described as below:
- A Global Positioning System (GPS) will be used to ensure that the correct location was selected prior to sample collection. A portable, battery-operated echo sounder will be used for the determination of water depth at each designated monitoring station.
 - The marine water sampler will be lowered into the water body at a predetermined depth. The trigger system of the sampler is activated with a messenger and opening ends of the sampler are closed accordingly then the sample of water is collected.
 - During the sampling, the sampling container will be rinsed to use a portion of the marine water sample before the water sample is transferred to the container. Upon sampling completion, the container is sealed with a screw cap.
 - Before the sampling process, general information such as the date and time of sampling, weather condition and tidal condition as well as the personnel responsible for the monitoring will be recorded on the monitoring field data sheet.
 - In-situ measurement including water temperature, turbidity, dissolved oxygen, salinity, pH and water depth undertake at the identified monitoring point. At each station, marine water samples are collected at three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m. Samples at 1m below water surface and 1m above sea bottom are collected when the water depth is between 3m and 6m. Only 1 sample at mid-depth is taken when the water depth is below 3m.

- For the in-situ measurement, two consecutive measurements of sampling depth, temperature, dissolved oxygen, salinity, turbidity and pH concentration will be measured at the sea. The YSI Model 6820 Multi-parameter Water Quality Sonde is retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set is more than 25% of the value of the first reading, the reading is discarded and further readings is taken.
 - Water sample collection would be used the water sampler. During the water sample collected from the sea, it is fill in high-density polythene bottles. Before the water sample storage, the sampling bottles will be pre-rinsed with the same water sample. The sample bottles then is packed in cool-boxes (cooled at 4°C without being frozen), and delivered to HOKLAS accredited laboratory for the chemical analysis as followed APHA *Standard Methods for the Examination of Water and Wastewater* 19ed 2540D, unless otherwise specified.
 - The laboratory has be comprehensive quality assurance and quality control programmes. For QA/QC procedures, one duplicate samples of every batch of 20 samples is analyzed as followed the HOKLAS accredited requirement.
- 3.24 For the marine water sampling period, the Multi-parameter Water Quality Monitoring System will be calibrated by three month interval accordingly. The available calibration certificate will be issued to ensure the performance of Multi-parameter Water Quality Monitoring System to use for in-situ measurement.
- 3.25 All water samples will be analyzed with various chemical tests as specified in the EM&A Manual by a local HOKLAS-accredited testing laboratory (ALS Technichem (HK) Pty Ltd HOKLAS registration no. 66). Duplicate samples from each independent sampling event are required for all parameters and the samples will be mixed and analyzed in one set of laboratory analysis. The mixed process would be carried by the laboratory. The determination works should start within 24 hours after collection of the water samples or within the holding time as advised by the laboratory. The laboratory analysis result will be input in our computer database upon received from the laboratory.

Coral Monitoring

- 3.26 The monitoring equipments used for the coral monitoring could be referred to ***Impact Coral Monitoring report***.

EQUIPMENT CALIBRATION

- 3.27 Calibration of the High Volume Sampler (HVS) is performed upon installation in accordance with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A). The calibration data are properly documented and the records are maintained by ET for future reference.
- 3.28 The 1-hour TSP meter was calibrated by the supplier prior to purchase. Zero response of the equipment was checked before and after each monitoring event. In-house calibration with the High Volume Sampler (HVS) in same condition was undertaken in yearly basis.
- 3.29 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis.
- 3.30 The Multi-parameter Water Quality Monitoring System will be calibrated by HOKLAS accredited laboratory of three month intervals. The available calibration certificate will be issued to ensure the performance of Multi-parameter Water Quality Monitoring System to use for in-situ measurement.
- 3.31 All updated calibration certificates of the monitoring equipment used for the impact monitoring programme in the Reporting Period would be attached in ***Appendix E***.

METEOROLOGICAL INFORMATION

- 3.32 The meteorological information during the construction phase is obtained from the Wong Chuk Hang Station of the Hong Kong Observatory (HKO) due to it nearby the Project site.

DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.33 The impact monitoring data are handled by the ET's systematic data recording and management, which complies with in-house Quality Management System. Standard Field Data Sheets (FDS) are used in the impact monitoring programme.
- 3.34 The monitoring data recorded in the equipment e.g. 1-hour TSP meter, sound level meter and Multi-parameter Water Quality Monitoring System, are downloaded directly from the equipments at the end of each monitoring day. The downloaded monitoring data are input into a computerized database properly maintained by the ET. The laboratory results are input directly into the computerized database and QA/QC checked by personnel other than those who input the data. For monitoring activities require laboratory analysis, the local laboratory follows the QA/QC requirements as set out under the HOKLAS scheme for all laboratory testing.

REPORTING

- 3.35 It was agreed among the ER, IEC, Contractor and ET that, in order to streamline the EM&A report submission and to cater for the occasional delay in obtaining laboratory analysis results, the cutoff day for each month is the 25th i.e. the first day of each report is the 26th of the last month and the end day, the 25th of that month.

DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

- 3.36 According to the Yung Shue Wan Environmental Monitoring and Audit Manual, the air quality, construction noise, marine water quality and coral monitoring were established, namely Action and Limit levels are listed in *Tables 3-5 to 3-8* as below.

Table 3-5 Action and Limit Levels for Air Quality

Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
AC02b	288	161	500	260
AC04c	290	176	500	260

Table 3-6 Action and Limit Levels for Construction Noise

Recommended Action & Limit Levels of Construction Noise		
Monitoring Location	Action Level	Limit Level
	0700-1900 hours on normal weekdays	
NC05	When one or more documented complaints are received	75 dB(A) *

Note: * Reduces to 70dB(A) for schools and 65dB(A) during the school examination periods.

Table 3-7 Action and Limit Levels for Marine Water Quality

Parameter	Performance Criteria	Impact Station		
		WY1	WY2	WY3
DO Concentration (Surface and Middle) (mg/L)	Action Level	3.63	3.53	3.61
	Limit Level	3.32	3.47	3.42
DO Concentration (Bottom) (mg/L)	Action Level	3.33	2.92	3.36
	Limit Level	3.23	2.63	3.14
Turbidity (Depth-Average) (NTU)	Action Level	10.94	14.16	14.99
	Limit Level	17.35	15.20	16.21

Parameter	Performance Criteria	Impact Station		
		WY1	WY2	WY3
Suspended Solids (Depth-Average) (mg/L)	Action Level	17.52	14.04	14.52
	Limit Level	25.62	16.51	16.88

Table 3-8 Action and Limit Levels for Coral Monitoring

Step	Action
1	Commence tagged coral monitoring at the impact site. If no increase in sedimentation cover/bleaching/partial mortality is observed on the hard corals or partial mortality on the soft/black corals, no action is required. If an increase in sedimentation cover/bleaching/partial mortality is observed on the hard corals or partial mortality on the soft/black corals at one or more impact monitoring stations Step 3 should be enacted, if not, Step 2.
2	If non actions are triggered a formal report should be issued along with evidentiary photographs following completion of the survey. Meanwhile monitoring work and construction works should continue uninterrupted.
3	If during the impact monitoring a 15% increase in the percentage of sedimentation on the hard corals occurs at more than 20% of the tagged coral colonies at the Impact Monitoring Station that is not reported at the Control Monitoring Station, then the Action Level is exceeded (Step 4).
4	If the Action Level is exceeded the IC(E) should inform all parties. The data from the water quality monitoring should also be reviewed. If the water quality monitoring shows no attributable effects of the installation works, then the Action Level is not triggered. If the water quality data indicate exceedances (for SS and/or turbidity) the IC(E) should discuss with the Contractor the most appropriate method of reducing suspended solids during construction (e.g. reduce rate of dredging). The water quality data reviewed should then be enacted on the next working day.
5	Monitoring should proceed the following day as per Step 1. If during the Impact Monitoring a 25% increase in the percentage of sedimentation on the hard corals at more than 20% of the tagged coral colonies at the Impact Monitoring Station that is not reported at the Control Monitoring Station, then the Limit Level is exceeded (Step 6). If the Limit Level is not exceeded Step 2 is enacted and work continues according to the mitigated method.
6	If the Limit Level is exceeded the Inspector Officer should inform all parties immediately. Should the Limit Level be exceeded, the Contractor should stop works immediately and work out a solution to the satisfaction of the IC(E), EPD and AFCD. The IC(E) should inform the Contractor to suspend marine construction works until an effective solution is identified. Once the solution has identified and agreed with all parties, backfilling works may re-commence.

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

4. IMPACT MONITORING RESULTS - AIR QUALITY

4.01 As informed by the Contractor, the construction of relevant land works at Yung Shue Wan was commenced on 14 September 2010. The impact EM&A programme was begun as compliance with the contract Particular Specification, Yung Shue Wan EM&A Manual and the EP. The impact monitoring schedule for the Reporting Period and next Reporting Period are presented in [Appendix G](#).

Result

4.02 In this Reporting Period, the results for 24-hour and 1-hour TSP monitoring are tabulated in [Tables 4-1 and 4-2](#). The 24-hour TSP monitoring data are shown in [Appendix H](#) and the graphical plots are shown in [Appendix I](#).

Table 4-1 Summary of 24-hour and 1-hour TSP Monitoring Results at AC02b

Date	24-hour TSP ($\mu\text{g}/\text{m}^3$)	1-hour TSP ($\mu\text{g}/\text{m}^3$)				
		Date	Start Time	1 st hour measured	2 nd hour measured	3 rd hour measured
26-Apr-14	NA*	28-Apr-14	12:50	75	61	61
2-May-14	63	2-May-14	11:07	73	66	68
8-May-14	66	8-May-14	14:02	47	38	33
14-May-14	79	14-May-14	9:08	52	66	58
20-May-14	26	20-May-14	11:15	54	41	47
Average (Range)	58 (26-79)	Average (Range)		56 (33 – 75)		

*No data collected due to power failure.

Remark: Underlined indicated Action Level exceedance.

Table 4-2 Summary of 24-hour and 1-hour TSP Monitoring Results at AC04c

Date	24-hour TSP ($\mu\text{g}/\text{m}^3$)	1-hour TSP ($\mu\text{g}/\text{m}^3$)				
		Date	Start Time	1 st hour measured	2 nd hour measured	3 rd hour measured
26-Apr-14	48	28-Apr-14	12:54	78	70	67
2-May-14	36	2-May-14	11:04	82	67	78
8-May-14	52	8-May-14	14:07	52	36	44
14-May-14	43	14-May-14	9:12	73	69	54
20-May-14	46	20-May-14	11:12	51	38	46
Average (Range)	45 (36-52)	Average (Range)		60 (36 – 82)		

Remark: Underlined indicated Action Level exceedance.

4.01 As shown in [Tables 4-1 and 4-2](#), the 1-hour and 24-hour TSP monitoring results fluctuated below the Action Level during this Reporting Period. No Notification of Exceedance (NOE) of air quality criteria or corrective action was therefore required.

4.02 The meteorological information during the impact monitoring days are summarized in [Appendix J](#).

5. IMPACT MONITORING RESULTS – CONSTRUCTION NOISE

5.01 The noise monitoring results are presented in the following sub-sections. The impact monitoring schedule for the Reporting Period and next Reporting Period are presented in [Appendix G](#).

Result

5.02 In this report period, 5 construction noise monitoring events were undertaken at designated location NC05. The results for $L_{eq(30min)}$ are tabulated in [Tables 5-1](#) and the graphical plots are shown in [Appendix I](#).

Table 5-1 Summarized of Construction Noise Monitoring Results at NC05

Date	Start Time	End Time	1 st set L_{eq5}	2 nd set L_{eq5}	3 rd set L_{eq5}	4 th set L_{eq5}	5 th set L_{eq5}	6 th set L_{eq5}	L_{eq30}	Corrected L_{eq30}^*
28-Apr-14	14:07	14:37	59.3	61.0	57.6	58.0	59.9	61.8	59.9	62.9
2-May-14	11:13	11:43	56.2	59.5	57.0	57.3	58.2	56.4	57.6	60.6
8-May-14	14:16	14:46	56.5	54.3	54.7	51.6	52.7	51.8	54.0	57.0
14-May-14	9:21	9:51	56.9	51.9	52.5	52.9	56.6	50.4	54.2	57.2
20-May-14	11:19	11:49	59.8	55.3	55.6	57.2	54.2	55.1	56.6	59.6
Limit Level									-	75 dB(A)

* A façade correction of +3dB(A) has been added according to acoustical principles and EPD guidelines.

5.03 It was noted that no noise complaint (which is an Action Level exceedance) was received. In view of the results shown in [Table 5-1](#), all the values are well below 75dB(A), therefore, no Action or Limit Level exceedance was triggered during this Reporting Period.

6. IMPACT MONITORING RESULTS – WATER QUALITY

- 6.01 According to the EM&A Manual of Yung Shue Wan, water quality monitoring should be carried out during the course of marine work. As informed by the Contractor in June 2013, the marine works in Yung Shue Wan has been completed on 22 April 2013. Marine water quality monitoring was therefore terminated in July 2013 after consent was obtained with IEC. In this regards, an associated letter ref. TCS00512/10/300/L0656 dated 28 June 2013 has been issued to EPD for approval and no comment was received.

7. IMPACT MONITORING RESULTS – ECOLOGY MONITORING

- 7.01 According to the EM&A Manual of Yung Shue Wan, ecology monitoring should be carried out during the course of marine work. As informed by the Contractor in June 2013, the marine works in Yung Shue Wan has been completed on 22 April 2013. Ecology monitoring was therefore terminated in June 2013 after consent was obtained with IEC. In this regards, an associated letter ref. TCS00512/10/300/L0656 dated 28 June 2013 has been issued to EPD for approval and no comment was received.

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

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) ('000m ³)	0	-
Reused in this Contract (Inert) ('000m ³)	0	-
Reused in other Projects (Inert) ('000m ³)	0	-
Disposal as Public Fill (Inert) ('000m ³)	0	-

Table 8-2 Summary of Quantities of C&D Wastes

Type of Waste	Quantity	Disposal Location
Metals (kg)	0	-
Paper / Cardboard Packing (kg)	0	-
Plastics (kg)	0	-
Chemical Wastes (kg)	0	-
General Refuses (tonne)	35.810	Yung Shue Wan RTS

8.04 There was no site effluent discharged but the estimated volume of surface runoff was less than 50m³ in this monthly period.

9. SITE INSPECTION

- 9.01 According to the Environmental Monitoring and Audit Manual, the environmental site inspection should be formulated by ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. In this Reporting Period, weekly joint-site visits by RE, the Contractor and ET were carried out on **2, 6, 13** and **20 May 2014**.
- 9.02 The findings/ deficiencies that were observed during the weekly site inspection are listed in *Table 9-1* and the relevant checklists are attached in *Appendix L*.

Table 9-1 Site Observations

Date	Findings / Deficiencies	Follow-Up Status
2 May 2014	<ul style="list-style-type: none">The Contractor was reminded to clean all obstacles in the U-channel to prevent overflow of the runoff in construction site.	The U-channel was clean and well covered to avoid obstacles.
6 May 2014	<ul style="list-style-type: none">No environmental issue was observed during the site inspection	NA
13 May 2014	<ul style="list-style-type: none">No environmental issue was observed during the site inspection	NA
20 May 2014	<ul style="list-style-type: none">No environmental issue was observed during the site inspection	NA

10. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

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
14 Sep – 30 September 2011	0	0	NA
October – December 2011	0	0	NA
January –December 2012	0	0	NA
January - December 2013	0	0	NA
January – February 2014	0	0	NA
March 2014	0	0	NA
April 2014	0	0	NA
May 2014	0	0	NA

Table 10-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
14 Sep – 30 September 2011	0	0	NA
October – December 2011	0	0	NA
January –December 2012	0	0	NA
January - December 2013	0	0	NA
January – February 2014	0	0	NA
March 2014	0	0	NA
April 2014	0	0	NA
May 2014	0	0	NA

Table 10-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
14 Sep – 30 September 2011	0	0	NA
October – December 2011	0	0	NA
January –December 2012	0	0	NA
January – December 2013	0	0	NA
January – February 2014	0	0	NA
March 2014	0	0	NA
April 2014	0	0	NA
May 2014	0	0	NA

11. IMPLEMENTATION STATUS OF MITIGATION MEASURES

11.01 The environmental mitigation measures that recommended in the Yung Shue Wan 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 Installation of 2m high solid fences around the construction site of Pumping Station P2 is recommended. 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:

- Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather;
- Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses;
- Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like.
- Any vehicle used for moving sands, aggregates and construction waste shall have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin.

Noise Mitigation Measure

11.03 As detailed in the EIA report, concreting work of the Pumping Station P1a and sewer alignment construction activities would likely cause adverse noise impacts on some of the noise sensitive receivers. Appropriate mitigation measures have therefore been recommended. The mitigation measures recommended in the EIA report are summarised below:

- (a) Use of quiet equipment for the construction activities of the Pumping Stations and sewer alignment;
- (b) Use of temporary noise barrier around the site boundary of Pumping Station P1a;
- (c) Use of kick ripper (saw and lift) method to replace the breaker for pavement removal during sewer alignment construction;
- (d) Restriction on the number of plant during sewer alignment construction;
- (e) Use of noise screening structures in the form of acoustic shed or movable barrier wherever practicable and feasible in areas with sufficient clearance and headroom during the construction of sewer alignment;
- (f) Adoption of manual working method wherever practicable and feasible in areas where the worksites of the proposed sewer alignment are located less than 20m from the residential noise sensitive receivers and less than 30m from the temple and the public library; and
- (g) Implementation of the following good site practices:
 - Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme.
 - Mobile plant, if any, should be sited as far away from NSRs as possible.
 - Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.
 - Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.
 - Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.

Water Quality Mitigation Measure

11.04 No-dig method using Horizontal Directional Drilling (HDD) would be used for the installation of outfall pipe of about 480 m from shore to minimize the potential water quality impacts arising from the dredging works required for the submarine outfall construction. For the remaining outfall pipe of about 240m and the diffuser section, open trench dredging would still be required.

- 11.05 During the dredging works, the Contractor should be responsible for the design and implementation of the following mitigation measures.
- Dredging should be undertaken using closed grab dredgers with a total production rate of 55m³/hr;
 - Deployment of 2-layer silt curtains with first layer enclosing the grab and the second layer at around 50, from the dredging area while dredging works are in progress;
 - all vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;
 - all pipe leakages should be repaired promptly and plant shall not be operated with leaking pipes;
 - excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved;
 - adequate freeboard (i.e. minimum of 200m) should be maintained on barges to ensure that decks are not washed by wave action;
 - all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material;
 - loading of barges and hoppers should be controlled to prevent splashing of dredged material to the surrounding water, and barges and hoppers should not be filled to a level which would cause the overflow of materials or sediment laden water during loading or transportation; and
 - the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.

Construction Run-off and Drainage

- 11.06 The Contractor should observe and comply with the Water Pollution Control Ordinance and the subsidiary regulations. The Contractor should follow the practices, and be responsible for the design, construction, operation and maintenance of all the mitigation measures as specified in ProPECC PN 1/94 “Construction Site Drainage”. The design of the mitigation measures should be submitted by the Contractor to the Engineer for approval. These mitigation measures should include the following practices to minimise site surface runoff and the chance of erosion, and also to retain and reduce any suspended solids prior to discharge:
- Provision of perimeter channels to intercept storm-runoff from outside the site. These should be constructed in advance of site formation works and earthworks.
 - Works programmes should be designed to minimize works areas at any one time, thus minimising exposed soil areas and reducing the potential for increased siltation and runoff.
 - Sand/silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove the sand/silt particles from run-off. These facilities should be properly and regularly maintained. These facilities shall be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site.
 - Careful programming of the works to minimise soil excavation works during rainy seasons.
 - Exposed soil surface should be protected by paving or hydroseeding as soon as possible to reduce the potential of soil erosion.
 - Trench excavation should be avoided in the wet season, and if necessary, these should be excavated and backfilled in short sections.
 - Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric.

General Construction Activities

- 11.07 Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby coastal waters and stormwater drains. All fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. Open drainage channels and culverts near the works areas should be covered to block the entrance of large debris and refuse.

Wastewater Arising from Workforce

- 11.08 Portable toilets shall be provided by the Contractors, where necessary, to handle sewage from the workforce. The Contractor shall also be responsible for waste disposal and maintenance practices

Sediment Contamination Mitigation Measure

- 11.09 The basic requirements and procedures for dredged mud disposal are specified under the WBTC No. 34/2002. The management of the dredging, use and disposal of marine mud is monitored by the MFC, while the licensing of marine dumping is the responsibility of the Director of Environmental Protection (DEP).
- 11.10 The uncontaminated dredged sediment will be loaded onto barges and transported to the designated marine disposal site. Appropriate dredging methods have been incorporated into the recommended water quality mitigation measures including the use of closed-grab dredgers and silt curtains. Category L sediment would be suitable for disposal at a gazetted open sea disposal ground.
- 11.11 During transportation and disposal of the dredged marine sediments, the following measures should be taken to minimize potential impacts on water quality:
- Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.
 - Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the DEP.

Construction Waste Mitigation Measure

Good Site Practices and Waste Reduction Measures

- 11.12 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:
- Nomination of an approved person, such as a site manager, to be responsible for the implementation of good site practices, arranging for collection and effective disposal to an appropriate facility, of all wastes generated at the site.
 - Training of site personnel in proper waste management and chemical handling procedures.
 - Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.
 - Provision of sufficient waste disposal points and regular collection for disposal.
 - Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility.
 - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.
 - Maintain records of the quantities of wastes generated, recycled and disposed.
- 11.13 In order to monitor the disposal of C&D waste at landfills and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.
- 11.14 Good management and control can prevent the generation of significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:
- segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;

- to encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated by the work force;
- any unused chemicals or those with remaining functional capacity should be recycled;
- use of reusable non-timber formwork to reduce the amount of C&D material;
- prior to disposal of C&D waste, it is recommended that wood, steel and other metals should be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;
- proper storage and site practices to minimise the potential for damage or contamination of construction materials; and
- plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.

General Site Wastes

- 11.15 A collection area should be provided where waste can be stored prior to removal from site. An enclosed and covered area is preferred for the collection of the waste to reduce 'wind blow' of light material.

Chemical Wastes

- 11.16 After use, chemical waste (eg. cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Any unused chemicals or those with remaining functional capacity should be recycled. Spent chemicals should be properly stored on site within suitably designed containers, and should be collected by an approved operator for disposal at the Chemical Waste Treatment Facility or other licenced facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordinance.
- 11.17 Any service shop and minor maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakages and spillage should only be undertaken with the areas appropriately equipped to control these discharges.

Construction and Demolition Material

- 11.18 The C&D material should be separated on-site into three categories: (i) public fill, the inert portion of the C&D material (e.g. concrete and rubble), which should be re-used on-site or disposed of at a public filling area; (ii) C&D waste for re-use and/or recycling, the non-inert portion of the C&D material, (e.g. steel and other metals, wood, glass and plastic); (iii) C&D waste which cannot be re-used and/or recycled. The waste producers are responsible for its disposal at strategic landfills.
- 11.19 In order to minimise the impact resulting from collection and transportation of material for off-site disposal, it was recommended that inert material should be re-used on-site where possible. Prior to disposal of C&D material, it was also recommended that steel and other metals should be separated for re-use and/or recycling where practicable to minimise the quantity of waste to be disposed of to landfill.

Ecology Mitigation Measure

- 11.20 The following general good practice measures should be adopted to mitigate ecological impacts during marine works (including dredging and HOD);
- Excess material from vessel loading should be cleaned from the decks and exposed fittings before vessels are moved to the backfilling location;
 - Dredging should cause no foam, oil, grease, scum, litter or other objectionable matter to be present on the water;
 - Adequate freeboard should be maintained to ensure that decks are not washed by wave action;
 - All pie leakages should be repaired promptly and plant Should not be operated with leaking pipes; and

- All banges and other vessels should maintain adequate clearance between vessels and the seabed at all states of the tide and reduce operational speeds to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.
- 11.21 In the event of exceedances of ecological action or limit level, the Contractor will be required to revise his operations as a further mitigation measure. Revisions to the operation method may include (but not be limited to):
- Reduction in dredging rate
 - Restriction of dredging in particular areas to specific periods in the tidal cycle
- 11.22 Should repeated non-compliances with limit level(s) occur the Contractor shall modify his working method until he is able to achieve the required compliances with the limit levels to the satisfaction of the IC(E)

Fisheries Mitigation Measure

- 11.23 Closed grab dredger, deployment of silt curtains around the immediate dredging area and low dredging rate have been recommended in Water Quality of the EIA report in order to minimise sediment release into the water column.

Landscape & Visual Mitigation Measure

- 11.24 Mitigation measures recommended in the EIA Report for landscape and visual impacts during the construction stage are summarised below.
- Screening of site construction works by use of hoarding that is appropriate to its site context;
 - Retaining existing trees and minimising damage to vegetation where possible by close co-ordination and on site alignment adjusted of rising main and gravity sewer pipelines. Tree protective measures should be implemented to ensure trees identified as to be retained are satisfactorily protected during the construction phase;
 - Short excavation and immediate backfilling of sections upon completion of works to reduce active site area;
 - Conservation of top-soil for reuse;
 - Night-time light source from marine fleets should be directed away from the residential units
- 11.25 The implementation schedule of mitigation measures is presented in [Appendix M](#).
- 11.26 Leader had been implementing the required environmental mitigation measures according to the Yung Shue Wan Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by Leader in this Reporting Period are summarized in [Table 11-1](#).

Table 11-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Water Quality	<ul style="list-style-type: none"> • Drainage channels were provided to convey run-off into the treatment facilities; and • Drainage systems were regularly and adequately maintained.
Air Quality	<ul style="list-style-type: none"> • Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet; • Public roads around the site entrance/exit had been kept clean and free from dust; and • Tarpaulin covering of any dusty materials on a vehicle leaving the site.
Noise	<ul style="list-style-type: none"> • Good site practices to limit noise emissions at the sources; • Use of quiet plant and working methods; • Use of site hoarding or other mass materials as noise barrier to screen noise at ground level of NSRs; and • To minimize plant number use at the worksite.

Issues	Environmental Mitigation Measures
Waste and Chemical Management	<ul style="list-style-type: none">• Excavated material should be reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment should be recycled if possible;• Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner;• The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designed public filling facility and/or landfill; and• Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.
General	<ul style="list-style-type: none">• The site was generally kept tidy and clean.

12. IMPACT FORECAST

12.01 Key issues to be considered in the coming month include:

Water Quality

- Erect of sand bag in proper area to avoid any muddy surface runoff from the loose soil surface or haul road during the rainy days; and
- The accumulated stagnant water should be drained away.

Air Quality

- Vehicles shall be cleaned of mud and debris before leaving the site;
- Stockpile and loose soil surface shall be covered with tarpaulin sheet or other means to eliminate the fugitive dust;
- Water spaying on the dry haul road and exit/entrance of the site in regular basis is reminded; and
- Public roads around the site entrance/exit had been kept clean and free from dust.

Noise

- Works and equipment should be located to minimize noise nuisance from the nearest sensitive receiver; and
- Idle equipments should be either turned off or throttled down;

Waste and Chemical Management

- Housekeeping on site shall be improved;
- The Contractor is advised to fence off the construction waste at a designated area in order to maintain the tidiness of the site;
- Drip tray and proper label should be provided for all chemical containers.
- C&D waste should be disposed in regular basis.

13. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

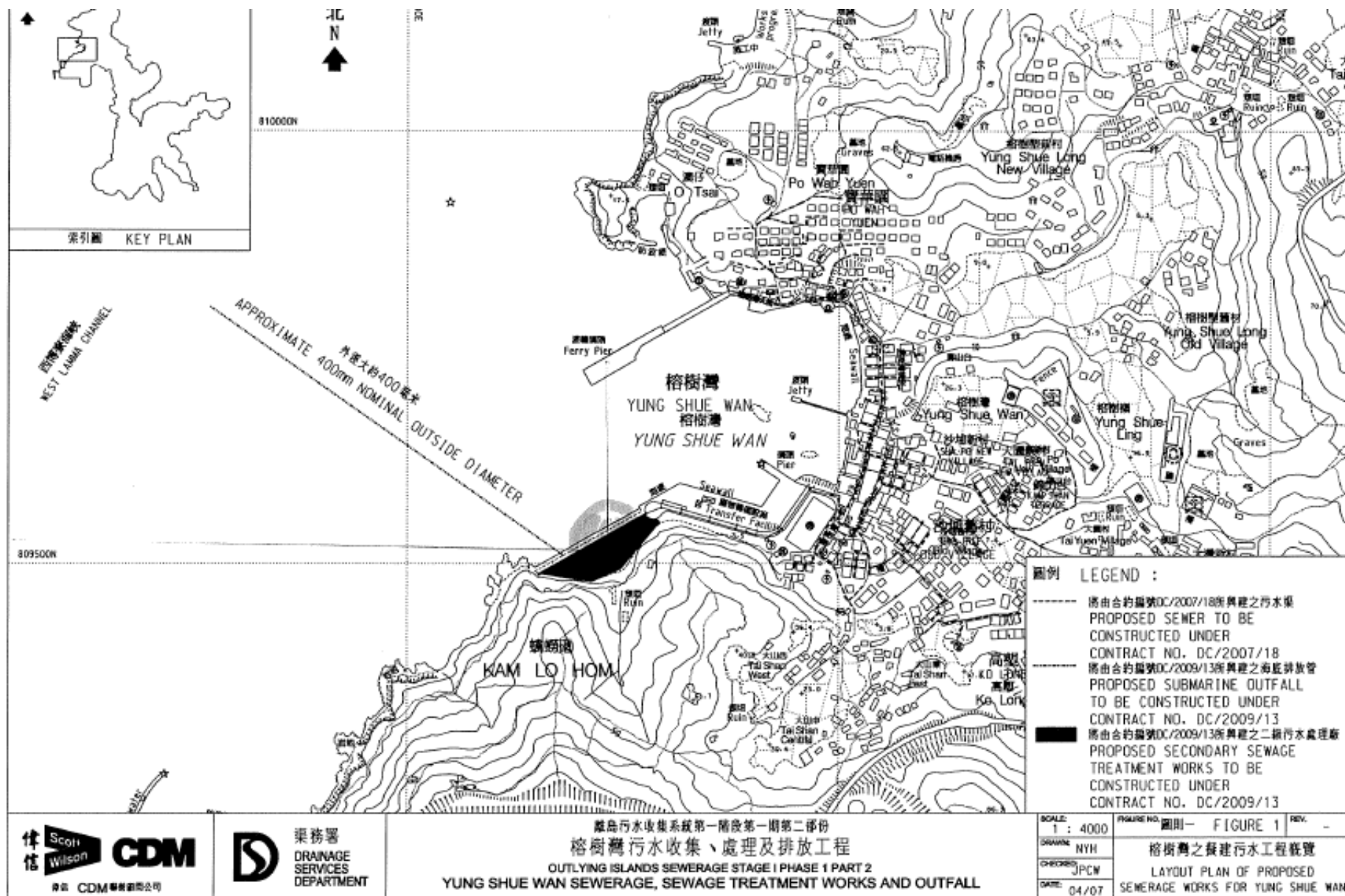
- 13.01 This is the **45th** Monthly EM&A Report covering the construction period from **26 April 2014** to **25 May 2014**.
- 13.01 No 1-hour and 24-hour TSP result was found to be triggered the Action or Limit Level in this Reporting Period.
- 13.02 No noise complaint (an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period.
- 13.03 According to the construction information provided by the Contractor, the marine works in Yung Shue Wan has been completed on 22 April 2013. As agreed by the Contractor, IEC and RE, the ecology was ceased in May 2013 due to no ecological impact and concern since the completion of marine work, whereas impact marine water quality monitoring was terminated in July 2013.
- 13.04 No documented complaint, notification of summons or successful prosecution was received.
- 13.05 In this Reporting Period, joint-site visit by RE, the Contractor and ET was carried out on **2, 6, 13,** and **20 May 2014**. The environmental performance of the Project was considered as satisfactory.

RECOMMENDATIONS

- 13.06 During wet season, the Contractor shall pay attention on the potential water impact as the construction site is adjacent to the coastline. Muddy water and other water quality pollutants via site surface water runoff into the coral zones of Yung Shue Wan seawall, Shek Kok Tsui and O Tsai should be avoided. Mitigation measures for water quality should be fully implemented.
- 13.07 Nevertheless, the Contractor shall keep paying attention on the potential water impact as the construction site is adjacent to the coastline. Muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan should be avoided. Therefore, mitigation measures for water quality should be fully implemented.

Appendix A

Site Layout Plan – Yung Shue Wan Portion Area



Appendix B

Organization Structure and Contact Details of Relevant Parties

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Mr. F K Pong	2159-3550	2833-9162
UCJV	Engineer's Representative	Mr. Kenneth W K Kwong	2982 0240	2982 4129
URS	Independent Environmental Checker	Mr. Rodney Ip	2410 3750	2428 9922
Leader	Director	Mr. Wilfred So	2982 1750	2982 1163
Leader	Contracts Manager	Mr. Vincent Chan	2982 1750	2982 1163
Leader	Site Agent	Mr. Ron Hung	2982 1750	2982 1163
Leader	Environmental Officer	Mr. Leung Man Kin	2982 8652	2982 8650
Leader	Sub-Agent	Mr. Leung Man Kin	2982 1750	2982 1163
Leader	Senior Safety Officer	Mr. Andy Lau	2982 1750	2982 1163
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
AUES	Coral Specialist	Mr. Keith Kei	2959 6059	2959 6079

Legend:

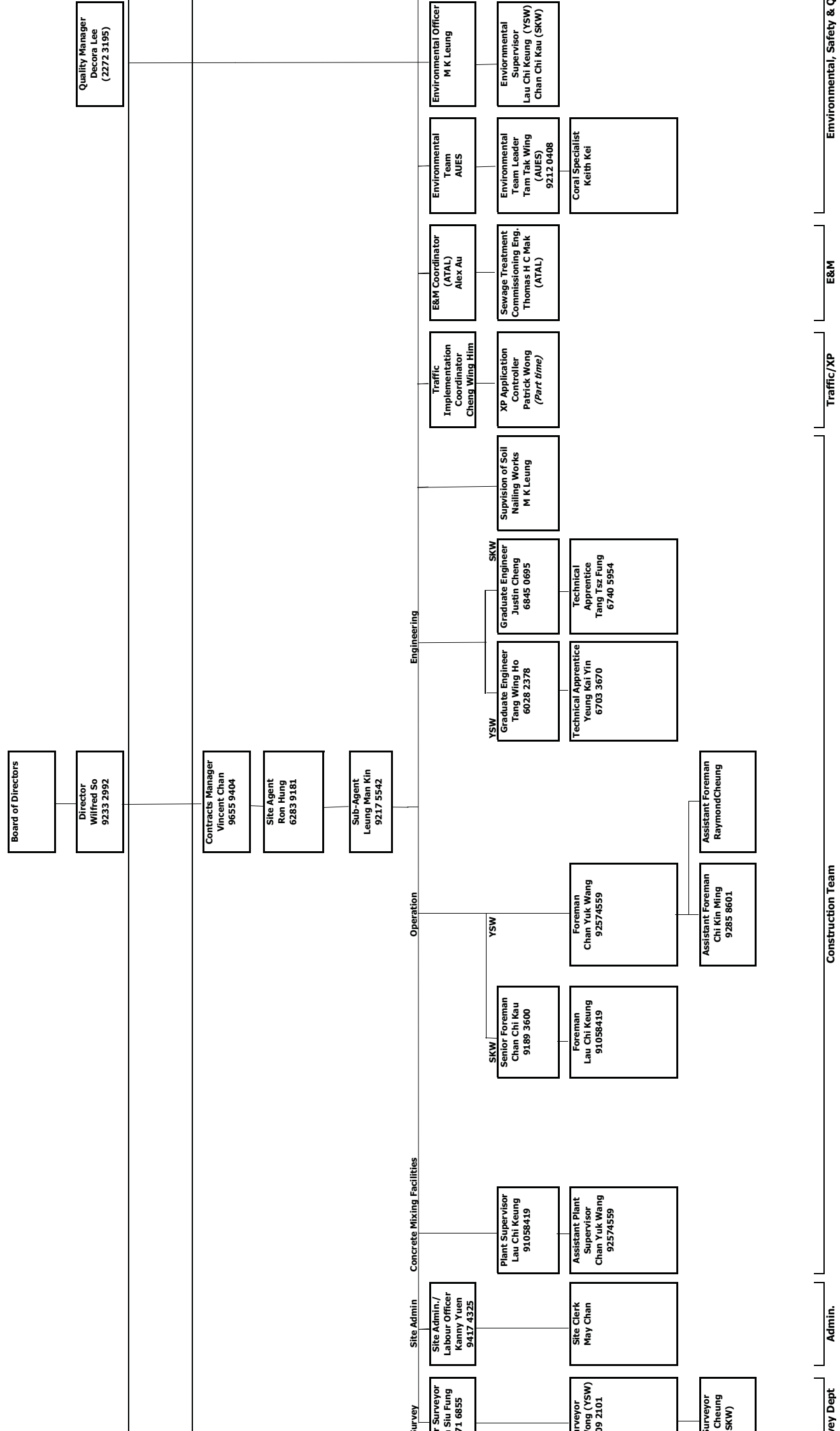
DSD (Employer) – Drainage Services Department

UCJV (Engineer) – URS CDM Joint Venture

Leader (Main Contractor) – Leader Civil Engineering Corporation Limited

URS (IEC) – URS Hong Kong Limited

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



Survey Dept Admin. Construction Team Traffic/XP E&M Environmental, Safety & Q

Appendix C

Three Months Rolling Construction Programme

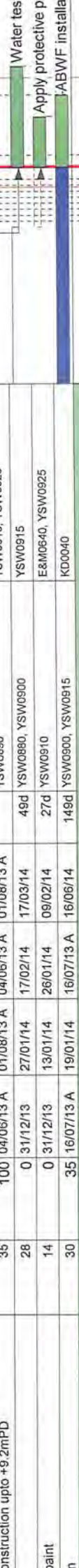
Activity	Start Date	End Date	Duration (Days)	Resources	Notes
Survey	17/05/10 A	15/07/10 A	60	SKW0593B, SKW059416	KD0125, KD0135, SKW05941
Operator's Site Accommodation at YSW	17/05/10 A	15/07/10 A	60	SKW0741	KD0125
Secondary Engineer's Site Accommodation from Marine Department	17/05/10 A	30/07/10 A	75	SKW0971	KD0125
Consent from Marine Department	17/05/10 A	15/07/10 A	60	E&M3360, SKW1221, SKW1291, SKW1431, SKW1441, SKW1521, SKW1611, SKW1621	KD0125, KD0165, SKW0491
Feeling for Outfall Construction	17/05/10 A	13/09/10 A	120	SKW1631	KD0125
Consent of XP from Hyd (Mo Tat Rd) for EM&A Reporting	17/05/10 A	14/08/10 A	90	0 * SKW1631	
YSWSTW	15/01/13 A	17/01/14	90	0 * SKW1631	
Submission by ER	17/05/10 A	23/06/10 A	38	0 * KD0010, KD0020, KD0030, KD0040, KD0050, KD0060, KD0070, KD0080, KD0090, KD0110, SKW0541	E&M0630, E&M0640
Submission	24/06/10 A	14/07/10 A	21	0 * KD0010, KD0020, KD0030, KD0040, KD0050, KD0060, KD0070, KD0080, KD0090, KD0110, SKW0541	E&M0020, E&M0040, E&M0235
Engineer	15/07/10 A	16/11/10 A	125	0 * E&M3360, SKW1221, SKW1291, SKW1431, SKW1441, SKW1521, SKW1611, SKW1621	E&M0030, E&M0040
Engineer	17/11/10 A	30/11/10 A	14	-269d * SKW1611, SKW1621	E&M0080
Engineer	15/07/10 A	04/08/10 A	21	0 * SKW1631	E&M0295
Engineer	05/08/10 A	18/08/10 A	14	0 * SKW1631	YSW1538
Engineer	19/08/10 A	10/10/10 A	97	0 * KD0010, KD0020, KD0030, KD0040, KD0050, KD0060, KD0070, KD0080, KD0090, KD0110, SKW0541	E&M0050, E&M0101, E&M0240, E&M0060
Engineer	24/11/10 A	30/11/10 A	7	0 * KD0010, KD0020, KD0030, KD0040, KD0050, KD0060, KD0070, KD0080, KD0090, KD0110, SKW0541	E&M0430
Engineer	12/08/13 A	26/08/13 A	40	-269d * SKW1611, SKW1621	E&M0295
Engineer	17/05/10 A	05/07/10 A	50	0 * SKW1631	YSW1500
Engineer	06/07/10 A	19/07/10 A	14	0 * SKW1631	E&M0090
Engineer	20/07/10 A	24/02/11 A	14	0 * SKW1631	E&M0100
Engineer	05/08/10 A	30/11/11 A	90	0 * SKW1631	E&M0160
Engineer	03/11/10 A	30/11/11 A	60	0 * SKW1631	E&M0102
Engineer	01/02/11 A	30/11/11 A	60	0 * SKW1631	E&M0103
Engineer	25/05/11 A	25/05/11 A	30	0 * SKW1631	E&M0110, E&M0120, E&M0130, E&M0390
Engineer	12/09/11 A	12/09/11 A	30	0 * SKW1631	E&M0400, E&M3060
Engineer	22/06/11 A	22/06/11 A	30	0 * SKW1631	E&M0410, E&M3070

30	100	15/11/11 A	15/11/11 A	08/03/12 A	21/06/11 A	08/03/12 A	15/11/11 A	E&M0103	E&M0470, E&M3130
30	100	21/06/11 A	08/03/12 A	01/01/14	19/11/11 A	11/09/11	-843d	E&M0103	E&M0480, E&M3140
30	95	19/11/11 A	01/01/14	04/02/14	30/11/11 A	10/05/12	-635d	E&M0103, E&M0280	E&M0490, E&M3150
30	85	30/11/11 A	04/02/14	16/02/14	30/11/11 A	20/11/11	-819d	E&M0103, E&M0290	E&M0285, E&M0320, E&M0500,
30	85	30/11/11 A	16/02/14						
100	75	24/06/10 A	24/01/14	04/08/10 A	04/08/10 A	28/10/11	-819d	E&M0010	E&M0250
45	68	04/08/10 A	14/01/14	04/08/10 A	04/08/10 A	28/10/11	-808d	E&M0040	E&M0250, E&M0280, E&M0290
15	100	04/08/10 A	31/01/13 A	04/08/10 A	04/08/10 A	31/01/13 A		E&M0235, E&M0240, E&M0260,	
60	70	27/09/10 A	17/01/14	27/09/10 A	27/09/10 A	28/10/11	-812d	E&M0040	E&M0250
60	75	27/09/10 A	14/01/14	27/09/10 A	27/09/10 A	28/10/11	-809d	E&M0040	E&M0250, E&M0280
120	95	27/09/10 A	30/01/14	27/09/10 A	27/09/10 A	06/05/12	-635d	E&M0240, E&M0250, E&M0270	E&M0220
120	85	13/11/11 A	11/02/14	13/11/11 A	13/11/11 A	15/11/11	-819d	E&M0240, E&M0250	E&M0230
39	100	01/11/11 A	30/11/11 A	01/11/11 A	01/11/11 A	30/11/11 A		E&M0080, E&M0230, E&M0430	E&M0300
150	90	01/11/11 A	03/03/14	03/03/14	01/11/11 A	22/11/12	-466d	E&M0295	E&M0305
180	0	03/03/14	30/08/14	30/08/14	22/11/12	21/05/13	-466d	E&M0300	E&M0680
14	0	16/02/14	02/03/14	02/03/14	07/05/13	21/05/13	-285d	E&M0230	E&M0325, E&M0670
14	100	01/11/11 A	29/02/12 A	29/02/12 A	01/11/11 A	29/02/12 A		E&M0320	E&M0670, E&M0680
28	0	11/11/15	09/12/15	09/12/15	14/11/13	11/12/13	-728d	E&M0500	E&M0700
28	0	06/08/14	03/09/14	03/09/14	11/06/14	08/07/14	-57d	E&M3160	E&M3360
28	0	28/01/14	25/02/14	25/02/14	14/11/12	11/12/12	-441d	E&M2016	E&M11800, E&M2180
0	100		17/05/10 A	17/05/10 A	17/05/10 A	17/05/10 A			
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59	100	02/06/10 A	30/07/10 A	30/07/10 A	02/06/10 A	30/07/10 A		YSW0020	YSW0030
23	100	31/07/10 A	22/08/10 A	22/08/10 A	31/07/10 A	22/08/10 A		YSW0020, YSW00201	YSW0035
16	100	23/08/10 A	07/09/10 A	07/09/10 A	23/08/10 A	07/09/10 A		YSW0030	YSW0120, YSW01545, YSW0500,
58	100	02/06/10 A	29/07/10 A	29/07/10 A	02/06/10 A	29/07/10 A		YSW0020	YSW0040
155	100	30/07/10 A	31/12/10 A	31/12/10 A	30/07/10 A	31/12/10 A		YSW0020, YSW00351	YSW0350
60	100	19/05/10 A	17/07/10 A	17/07/10 A	19/05/10 A	17/07/10 A		KD0020	YSW0155
30	100	17/05/10 A	15/06/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0080, YSW0100
30	100	16/06/10 A	15/07/10 A	15/07/10 A	16/06/10 A	15/07/10 A		YSW0075	YSW0085, YSW0090, YSW0120
14	100	02/07/10 A	15/07/10 A	15/07/10 A	02/07/10 A	15/07/10 A		YSW0080	YSW0120
249	100	16/07/10 A	21/03/11 A	16/07/10 A	16/07/10 A	21/03/11 A		YSW0080	YSW0100, YSW0110
257	100	20/09/10 A	03/06/11 A	03/06/11 A	20/09/10 A	03/06/11 A		YSW0075, YSW0080	KD0030
35	100	16/07/11 A	19/08/11 A	16/07/11 A	16/07/11 A	19/08/11 A		YSW0090	KD0030
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14	100	12/09/10 A	25/09/10 A	25/09/10 A	12/09/10 A	25/09/10 A		YSW0120	YSW0132
2	100	26/09/10 A	27/09/10 A	27/09/10 A	26/09/10 A	27/09/10 A		YSW0131	YSW0133
45	100	28/09/10 A	11/11/10 A	28/09/10 A	11/11/10 A	11/11/10 A		YSW0132	YSW0134
43	100	19/10/10 A	30/11/10 A	30/11/10 A	19/10/10 A	30/11/10 A		YSW0133	YSW0135
12	100	01/12/10 A	12/12/10 A	12/12/10 A	01/12/10 A	12/12/10 A		YSW0134	YSW0136
3	100	13/12/10 A	15/12/10 A	15/12/10 A	13/12/10 A	15/12/10 A		YSW0135	YSW01361

Quantity	Unit	Description	Start Date	End Date	Notes	Material / Equipment
125	100	09/06/11 A	11/10/11 A	09/06/11 A	11/10/11 A	YSW0155
76	100	09/06/11 A	23/08/11 A	09/06/11 A	23/08/11 A	KD0030
7	100	12/10/11 A	08/02/12 A	12/10/11 A	08/02/12 A	YSW0153, YSW0155
14	100	06/12/12 A	31/12/12 A	06/12/12 A	31/12/12 A	KD0030, YSW01800
87	100	03/09/12 A	28/11/12 A	03/09/12 A	28/11/12 A	YSW01755, YSW01810
14	100	02/03/13 A	02/03/13 A	02/03/13 A	02/03/13 A	KD0130
30	100	29/11/12 A	22/12/12 A	29/11/12 A	22/12/12 A	KD0130, YSW01805
Marine Outfall						
7	85	09/05/13 A	06/02/14	09/05/13 A	29/04/14	E&M1110
0	100		05/05/10 A		05/05/10 A	KD0125
30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A	YSW0422
30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A	YSW0432, YSW0500, YSW0610,
14	100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A	YSW0510
Hydraulic						
105	100	08/09/10 A	21/12/10 A	08/09/10 A	21/12/10 A	YSW0510
129	100	22/12/10 A	29/04/11 A	22/12/10 A	29/04/11 A	YSW0520
40	100	30/04/11 A	08/06/11 A	30/04/11 A	08/06/11 A	YSW05701
159	100	01/01/11 A	08/06/11 A	01/01/11 A	08/06/11 A	YSW0540, YSW05701
112	100	09/06/11 A	28/09/11 A	09/06/11 A	28/09/11 A	YSW0550, YSW05901
20	100	29/09/11 A	18/10/11 A	29/09/11 A	18/10/11 A	YSW05901
28	100	09/06/11 A	06/07/11 A	09/06/11 A	06/07/11 A	YSW05711, YSW05731
106	100	07/07/11 A	20/10/11 A	07/07/11 A	20/10/11 A	YSW05721, YSW05911
12	100	21/10/11 A	01/11/11 A	21/10/11 A	01/11/11 A	YSW05911
34	100	07/07/11 A	09/08/11 A	07/07/11 A	09/08/11 A	YSW05741
52	100	10/09/11 A	30/09/11 A	10/09/11 A	30/09/11 A	YSW05751
27	100	01/10/11 A	27/10/11 A	01/10/11 A	27/10/11 A	YSW05752
48	100	28/10/11 A	14/12/11 A	28/10/11 A	14/12/11 A	YSW05761
10	100	15/12/11 A	24/12/11 A	15/12/11 A	24/12/11 A	YSW0580, YSW05921
10	100	25/12/11 A	03/01/12 A	25/12/11 A	03/01/12 A	YSW05801, YSW05922
40	100	04/01/12 A	12/02/12 A	04/01/12 A	12/02/12 A	YSW05802, YSW05923
10	100	13/02/12 A	22/02/12 A	13/02/12 A	22/02/12 A	YSW05924
90	100	29/09/11 A	27/12/11 A	29/09/11 A	27/12/11 A	YSW06001
80	100	21/10/11 A	08/01/12 A	21/10/11 A	08/01/12 A	YSW06011, YSW06035
45	100	25/12/11 A	07/02/12 A	25/12/11 A	07/02/12 A	YSW06021
80	100	04/01/12 A	23/03/12 A	04/01/12 A	23/03/12 A	YSW06022
60	100	13/02/12 A	12/04/12 A	13/02/12 A	12/04/12 A	E&M0530, E&M0540, E&M0550,
50	100	28/05/12 A	16/07/12 A	28/05/12 A	16/07/12 A	YSW06034
87	100	28/12/11 A	23/03/12 A	28/12/11 A	23/03/12 A	YSW0600
75	100	09/01/12 A	23/03/12 A	09/01/12 A	23/03/12 A	YSW0600
44	100	08/02/12 A	22/03/12 A	08/02/12 A	22/03/12 A	YSW07201
60	100	24/03/12 A	22/05/12 A	24/03/12 A	22/05/12 A	YSW0600
45	100	13/04/12 A	27/05/12 A	13/04/12 A	27/05/12 A	E&M0560, YSW05924
28	100	27/07/12 A	13/08/12 A	27/07/12 A	13/08/12 A	YSW0600
90	100	18/04/12 A	16/07/12 A	18/04/12 A	16/07/12 A	YSW07204
60	100	23/03/12 A	21/05/12 A	23/03/12 A	21/05/12 A	YSW07202, YSW0800
42	100	22/05/12 A	02/07/12 A	22/05/12 A	02/07/12 A	E&M0600, YSW07203, YSW0800
42	100	17/09/12 A	29/09/12 A	17/09/12 A	29/09/12 A	YSW07204, YSW0800
32	100	03/10/12 A	31/10/12 A	03/10/12 A	31/10/12 A	E&M0570, YSW07205, YSW0800
21	100	31/08/13 A	23/09/13 A	31/08/13 A	23/09/13 A	YSW0800

64	100	15/12/11 A	16/02/12 A	16/03/12 A	16/02/12 A	15/12/11 A	28/12/11 A	16/03/12 A	16/02/12 A	YSW0655	YSW0656	E&M0610, E&M0620, E&M0630,
80	100	28/12/11 A	16/03/12 A	16/03/12 A	16/02/12 A	28/12/11 A	16/03/12 A	16/03/12 A	16/02/12 A	YSW0640	YSW0640	
37	100	08/09/10 A	14/10/10 A	08/09/10 A	14/10/10 A	08/09/10 A	08/09/10 A	08/09/10 A	14/10/10 A	YSW0035, YSW0422	YSW0660	
78	100	15/10/10 A	31/12/10 A	15/10/10 A	31/12/10 A	15/10/10 A	15/10/10 A	15/10/10 A	31/12/10 A	YSW0650	YSW0670	
70	100	01/01/11 A	11/03/11 A	01/01/11 A	11/03/11 A	01/01/11 A	11/03/11 A	11/03/11 A	11/03/11 A	YSW0660	YSW0680	
17	100	12/03/11 A	28/03/11 A	12/03/11 A	28/03/11 A	12/03/11 A	28/03/11 A	28/03/11 A	28/03/11 A	YSW0670	YSW0690	
82	100	29/03/11 A	18/06/11 A	29/03/11 A	18/06/11 A	29/03/11 A	18/06/11 A	18/06/11 A	18/06/11 A	YSW0680	YSW0710, YSW0920	
28	100	15/05/12 A	11/06/12 A	15/05/12 A	11/06/12 A	15/05/12 A	11/06/12 A	11/06/12 A	11/06/12 A	YSW0735	YSW0830	
47	100	01/10/12 A	16/11/12 A	01/10/12 A	16/11/12 A	01/10/12 A	16/11/12 A	16/11/12 A	16/11/12 A	YSW0710	E&M0510, E&M0640, YSW07055,	
54	100	17/11/12 A	10/01/13 A	17/11/12 A	10/01/13 A	17/11/12 A	10/01/13 A	10/01/13 A	10/01/13 A	YSW0705, YSW07105	E&M0610	
7	100	24/09/12 A	30/09/12 A	24/09/12 A	30/09/12 A	24/09/12 A	30/09/12 A	30/09/12 A	30/09/12 A	YSW0690	YSW0705, YSW07105	
7	100	01/10/12 A	07/10/12 A	01/10/12 A	07/10/12 A	01/10/12 A	07/10/12 A	07/10/12 A	07/10/12 A	YSW0710	YSW07055	
28	100	14/07/13 A	13/09/13 A	14/07/13 A	13/09/13 A	14/07/13 A	13/09/13 A	13/09/13 A	13/09/13 A	YSW06901	YSW0850	
6	100	27/04/13 A	11/07/13 A	27/04/13 A	11/07/13 A	27/04/13 A	11/07/13 A	11/07/13 A	11/07/13 A	YSW0690	E&M0610	
0	100	21/01/12 A	09/02/12 A	21/01/12 A	09/02/12 A	21/01/12 A	09/02/12 A	09/02/12 A	09/02/12 A	YSW03601, YSW03605	YSW0732	
20	100	21/01/12 A	09/02/12 A	21/01/12 A	09/02/12 A	21/01/12 A	09/02/12 A	09/02/12 A	09/02/12 A	YSW0730	YSW0733	
20	100	10/02/12 A	29/02/12 A	10/02/12 A	29/02/12 A	10/02/12 A	29/02/12 A	29/02/12 A	29/02/12 A	YSW0732	YSW0735, YSW0740	
75	100	01/03/12 A	14/05/12 A	01/03/12 A	14/05/12 A	01/03/12 A	14/05/12 A	14/05/12 A	14/05/12 A	YSW0733	YSW06901, YSW0736, YSW08302,	
100	100	15/05/12 A	14/05/12 A	15/05/12 A	14/05/12 A	15/05/12 A	14/05/12 A	14/05/12 A	14/05/12 A	YSW0735	YSW08302, YSW08305	
75	100	01/03/12 A	14/05/12 A	01/03/12 A	14/05/12 A	01/03/12 A	14/05/12 A	14/05/12 A	14/05/12 A	YSW0733	YSW0750	
19	100	15/05/12 A	02/06/12 A	15/05/12 A	02/06/12 A	15/05/12 A	02/06/12 A	02/06/12 A	02/06/12 A	YSW0740	YSW07501	
5	100	03/06/12 A	07/06/12 A	03/06/12 A	07/06/12 A	03/06/12 A	07/06/12 A	07/06/12 A	07/06/12 A	YSW0750	YSW07502	
16	100	08/06/12 A	23/06/12 A	08/06/12 A	23/06/12 A	08/06/12 A	23/06/12 A	23/06/12 A	23/06/12 A	YSW0760	YSW0760	
8	100	24/06/12 A	01/07/12 A	24/06/12 A	01/07/12 A	24/06/12 A	01/07/12 A	01/07/12 A	01/07/12 A	YSW07502	YSW01800, YSW07601, YSW07603,	
30	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A	31/07/12 A	31/07/12 A	YSW0760	YSW08301, YSW08305	
25	100	01/06/12 A	25/06/12 A	01/06/12 A	25/06/12 A	01/06/12 A	25/06/12 A	25/06/12 A	25/06/12 A	YSW0760	YSW07604	
24	100	26/06/12 A	19/07/12 A	26/06/12 A	19/07/12 A	26/06/12 A	19/07/12 A	19/07/12 A	19/07/12 A	YSW07603	YSW07605	
12	100	20/07/12 A	31/07/12 A	20/07/12 A	31/07/12 A	20/07/12 A	31/07/12 A	31/07/12 A	31/07/12 A	YSW07604	YSW07607	
24	100	01/08/12 A	24/08/12 A	01/08/12 A	24/08/12 A	01/08/12 A	24/08/12 A	24/08/12 A	24/08/12 A	YSW07605	YSW07608, YSW07609	
37	100	25/08/12 A	30/09/12 A	25/08/12 A	30/09/12 A	25/08/12 A	30/09/12 A	30/09/12 A	30/09/12 A	YSW07607	YSW08304, YSW08305	
37	100	25/08/12 A	30/09/12 A	25/08/12 A	30/09/12 A	25/08/12 A	30/09/12 A	30/09/12 A	30/09/12 A	YSW07607	YSW07610, YSW08303, YSW1470	
31	100	03/10/12 A	31/10/12 A	03/10/12 A	31/10/12 A	03/10/12 A	31/10/12 A	31/10/12 A	31/10/12 A	YSW07609	YSW0840, YSW16606, YSW16607,	
42	100	03/04/13 A	18/04/13 A	03/04/13 A	18/04/13 A	03/04/13 A	18/04/13 A	18/04/13 A	18/04/13 A	YSW0390, YSW07601	E&M0690	
95	100	10/08/13 A	24/08/13 A	10/08/13 A	24/08/13 A	10/08/13 A	24/08/13 A	24/08/13 A	24/08/13 A	YSW0735, YSW0736	E&M0520, E&M0590, E&M0605,	
19	100	30/11/12 A	18/12/12 A	30/11/12 A	18/12/12 A	30/11/12 A	18/12/12 A	18/12/12 A	18/12/12 A	YSW07609	E&M0520	
32	100	31/08/13 A	01/10/13 A	31/08/13 A	01/10/13 A	31/08/13 A	01/10/13 A	01/10/13 A	01/10/13 A	YSW07608	E&M0610	
120	100	02/10/12 A	15/08/13 A	02/10/12 A	15/08/13 A	02/10/12 A	15/08/13 A	15/08/13 A	15/08/13 A	YSW0735, YSW0736, YSW07601,	E&M0610	
40	100	25/02/13 A	18/04/13 A	25/02/13 A	18/04/13 A	25/02/13 A	18/04/13 A	18/04/13 A	18/04/13 A	YSW07610, YSW16606	YSW0860	
40	100	19/04/13 A	12/06/13 A	19/04/13 A	12/06/13 A	19/04/13 A	12/06/13 A	12/06/13 A	12/06/13 A	YSW0640	YSW0890	
35	100	21/06/13 A	26/08/13 A	21/06/13 A	26/08/13 A	21/06/13 A	26/08/13 A	26/08/13 A	26/08/13 A	YSW0890	YSW0910	
40	100	04/06/13 A	14/07/13 A	04/06/13 A	14/07/13 A	04/06/13 A	14/07/13 A	14/07/13 A	14/07/13 A	YSW0690	YSW0890, YSW0900	
35	100	04/06/13 A	01/08/13 A	04/06/13 A	01/08/13 A	04/06/13 A	01/08/13 A	01/08/13 A	01/08/13 A	YSW0690	YSW0910, YSW0925	
28	0	31/12/13	27/01/14	31/12/13	17/02/14	17/02/14	17/03/14	17/03/14	17/03/14	45d	YSW0915	
14	0	31/12/13	13/01/14	31/12/13	26/01/14	26/01/14	09/02/14	09/02/14	09/02/14	27d	E&M0640, YSW0925	
30	35	16/07/13 A	19/01/14	16/07/13 A	16/07/13 A	16/07/13 A	16/07/13 A	16/07/13 A	16/06/14	145d	YSW0900, YSW0915	
16	100	17/09/12 A	02/10/12 A	17/09/12 A	02/10/12 A	17/09/12 A	02/10/12 A	02/10/12 A	02/10/12 A	YSW07609	YSW1480	

est for FSH Water Supply Tank.



Item No.	Description	Quantity	Start Date	End Date	Unit	Remarks
90	100m deep sewer (FM1 - YFMH13)	100	04/08/13 A	15/01/14 A	15/01/14 A	YSW0760, YSW16606, YSW16607, YSW16602
45	10m deep sewer (FM1 - YFMH13)	100	20/01/14 A	10/02/14 A	10/02/14 A	YSW16601
60	Pipes along sea side (Grid Q-X)	50	04/03/14 A	29/01/14 A	04/03/14 A	12d YSW16607, YSW16608
60	Pipes along sea side (Grid XA-D)	100	22/07/13 A	06/02/14 A	06/02/14 A	YSW16603
90	Pipes along hill side (Grid D-Q)	100	10/10/12 A	01/09/13 A	01/09/13 A	YSW07610
72	Pipes along hill side (Grid Q-X)	100	20/08/12 A	01/09/13 A	01/09/13 A	YSW07610
72	Pipes along hill side (Grid XA-D)	100	30/11/12 A	01/09/13 A	01/09/13 A	YSW07610
80	Boundary Wall (Grid XA-D)	100	10/01/13 A	15/12/13 A	15/12/13 A	YSW16604
80	Boundary Wall (Grid D-Q)	60	01/01/14 A	12/02/14 A	02/03/14 A	18d YSW16605, YSW16701
80	Boundary Wall (Grid Q-X)	30	21/02/14 A	26/03/14 A	07/04/14 A	12d YSW16603, YSW16702
240	Baseline installation	0	31/12/13 A	27/08/14 A	16/06/14 A	-72d YSW16703
120	Load Kerbs, Downpipes, U-channel	60	26/01/13 A	16/02/14 A	20/02/14 A	4d YSW1650, YSW1700
180		60	02/01/13 A	29/04/14 A	03/05/14 A	4d YSW16608, YSW1680
110		60	23/05/14 A	12/06/14 A	16/06/14 A	4d YSW16602, YSW16605, YSW16703, YSW1680, YSW1690
53	IEC	100	17/05/10 A	08/07/10 A	08/07/10 A	KD0020
60	Approval of Ecologist	100	17/05/10 A	15/07/10 A	15/07/10 A	KD0020
211		100	16/07/10 A	11/02/11 A	11/02/11 A	YSW0200
103	Approval of In. Hydro Survey	100	17/05/10 A	17/05/10 A	27/08/10 A	KD0020
157	Survey (YSW)	100	28/08/10 A	31/01/11 A	31/01/11 A	YSW0220
319	Installation, Approval of HDPE pipe	100	17/05/10 A	17/05/10 A	31/03/11 A	KD0020
83	Letter of Point Y (Reply of RFI 010)	100	28/06/10 A	18/09/10 A	18/09/10 A	YSW0250
188	Approval of Method Statement for HDD	100	19/09/10 A	25/03/11 A	19/09/10 A	YSW02401
14	HDD Method Statement to HEC	100	26/03/11 A	08/04/11 A	08/04/11 A	YSW0250
123	Preholes (YSW)	100	19/09/10 A	19/01/11 A	19/01/11 A	YSW0270
44	Propose alignment	100	20/01/11 A	04/03/11 A	04/03/11 A	YSW0270
69	Marine Notice	100	20/01/11 A	29/03/11 A	29/03/11 A	YSW0280
27	Entry Pit and Preparation Work	100	05/03/11 A	31/03/11 A	31/03/11 A	YSW0310
28	Drill Rig Set-up (YSW)	100	01/04/11 A	28/04/11 A	28/04/11 A	YSW0330, YSW0350
6	HDD plant & equipment	100	09/04/11 A	14/04/11 A	14/04/11 A	YSW0340
14	Drilling hole location	100	15/04/11 A	28/04/11 A	28/04/11 A	YSW0350
229	Drilling hole - NS400 - 530m	100	29/04/11 A	13/12/11 A	13/12/11 A	YSW0360
17	400 HDPE 530m	100	14/12/11 A	30/12/11 A	30/12/11 A	SKW1181, YSW03601, YSW03620, YSW03605, YSW03641, YSW0730
7	HDD plant & equipment	100	31/12/11 A	06/01/12 A	06/01/12 A	YSW0730
14	HDD plant & equipment	100	07/01/12 A	20/01/12 A	20/01/12 A	YSW0365
14	Living Pit	100	31/12/11 A	13/01/12 A	13/01/12 A	YSW0365
120	Grouting material under VO 046A	100	07/01/12 A	05/05/12 A	05/05/12 A	YSW0370
2	Chain as per EP	100	23/11/12 A	24/11/12 A	24/11/12 A	SKW1431, YSW03620, YSW03641
5	Grout Deposit for Diffuser (YSW)	100	24/11/12 A	29/11/12 A	29/11/12 A	YSW0380
60	Installation (YSW)	100	30/11/12 A	20/06/13 A	20/06/13 A	E&M0690, YSW0400, YSW08301
30	Curtain	100	30/04/13 A	31/05/13 A	31/05/13 A	KD0040
118	Membr. Mod. (MBR Tk 4)	100	24/02/11 A	24/02/11 A	21/06/11 A	E&M0510
236	Membrane Modules - 2nd Shipment	100	24/02/11 A	24/02/11 A	17/10/11 A	E&M0520
81	Removal Equipment	100	10/10/11 A	29/12/11 A	29/12/11 A	E&M0530
129	Removal Screens	100	06/09/11 A	12/01/12 A	12/01/12 A	E&M0540
80	Removal Screens	100	12/09/11 A	12/09/11 A	30/11/11 A	E&M0550

90	100	03/12/12 A	04/03/13 A	03/12/12 A	10/12/11 A	23/06/13	E&M0220	E&M0630	
446	65	10/12/11 A	20/03/15	10/12/11 A	11/12/11 A	14/08/13	E&M0230	E&M0330, E&M0540	
507	25	11/12/11 A	11/11/15	11/12/11 A	03/11/12 A	28/02/13 A	E&M0360, YSW0705	E&M0690	
89	100	03/11/12 A	28/02/13 A	03/11/12 A	03/12/12 A	28/02/13 A	E&M0370, YSW08302, YSW08303	E&M0690	
57	100	03/12/12 A	28/02/13 A	03/12/12 A	01/06/12 A	30/09/12 A	E&M0380, YSW05923	E&M0590, E&M0660	
122	100	01/06/12 A	30/09/12 A	01/06/12 A	23/08/13 A	23/08/13 A	E&M0390, YSW05923	E&M0660	
240	100	23/04/12 A	23/08/13 A	23/04/12 A	01/06/12 A	12/08/13 A	E&M0400, YSW05923	E&M0590, E&M0660	
122	100	01/06/12 A	12/08/13 A	01/06/12 A	23/04/12 A	12/05/13	E&M0410, YSW05923	E&M0660	Install
355	90	23/04/12 A	04/02/14	23/04/12 A	15/01/13 A	12/05/13	E&M0420, YSW07204	E&M0660, E&M0690	Install Submersible
163	90	15/01/13 A	16/01/14	15/01/13 A	29/05/12 A	09/06/13	E&M0440, YSW06023	E&M0690	Install
361	60	29/05/12 A	24/05/14	15/01/13 A	10/06/13	21/05/13 A	E&M0450, E&M0530, E&M0650,	E&M0650, E&M0690	Install
232	85	15/01/13 A	03/02/14	23/04/12 A	02/01/13 A	10/06/13	E&M0460, YSW07202	E&M0690	
213	100	23/04/12 A	21/05/13 A	02/01/13 A	10/06/13	08/06/13	E&M0470, YSW07055, YSW0810,	E&M0690	
74	5	02/01/13 A	11/03/14	02/01/13 A	02/01/13 A	02/01/15 A	E&M0480, YSW0810	E&M0650, E&M0680	
8	100	02/01/13 A	02/01/15 A	02/01/13 A	14/07/13	14/07/13	E&M0490, YSW0810, YSW0820	E&M0690	
180	55	02/01/13 A	10/04/15	02/01/13 A	14/07/13	14/07/13	E&M0500, YSW0705, YSW0810,	E&M0690	
180	50	02/01/13 A	11/10/15	02/01/13 A	15/06/13	21/05/13	E&M0590, YSW08302	E&M0670	
153	60	02/01/13 A	02/03/14	04/02/15 A	08/06/13	03/04/15 A	E&M0550, E&M0540, E&M0550,	E&M0670	
15	42	04/02/15 A	11/09/15	02/04/15 A	03/04/15 A	03/04/15 A	E&M0560, E&M0570, E&M0620,	E&M0690	
26	30	11/04/15 A	29/09/15	11/04/15 A	25/03/15 A	27/06/13 *	E&M0630, YSW08301, YSW1530,	E&M0730, KD0040	
1	100	02/04/15 A	03/04/15 A	18/10/15	08/06/13	08/06/13	YSW1540	KD0132	
35	45	25/03/15 A	18/10/15	04/05/16	04/12/17	14/06/15	E&M0330, E&M0690		Install Penstock
137	0	09/12/15	04/05/16	04/12/17	08/06/13	08/06/13	E&M0460, YSW08302	E&M0690	
413	0	04/05/16	04/12/17	28/04/14	01/06/10 A	01/06/10 A	KD0020	SKW0260	
131	85	02/01/13 A	19/01/14	02/01/13 A	02/06/10 A	15/06/10 A	SKW0250	SKW0242, SKW0265, SKW0592,	
16	100	17/05/10 A	01/06/10 A	15/06/10 A	16/06/10 A	08/07/10 A	SKW0260	SKW0242, SKW0592, SKW0681,	
14	100	02/06/10 A	15/06/10 A	08/07/10 A	06/06/10 A	06/06/10 A			
14	100	16/06/10 A	08/07/10 A	06/06/10 A	17/05/10 A	15/06/10 A			
21	100	17/05/10 A	06/06/10 A	06/06/10 A	30/06/10 A	23/12/10 A			
9	100	07/06/10 A	15/06/10 A	07/06/10 A	03/03/11 A	03/03/11 A			
177	100	30/06/10 A	23/12/10 A	30/06/10 A	10/03/11 A	10/03/11 A			
70	100	24/12/10 A	03/03/11 A	03/03/11 A	24/03/11 A	24/03/11 A			
7	100	04/03/11 A	10/03/11 A	04/03/11 A	30/04/11 A	30/04/11 A			
14	100	11/03/11 A	24/03/11 A	11/03/11 A	01/05/11 A	03/05/11 A			
37	100	25/03/11 A	30/04/11 A	25/03/11 A	29/05/11 A	29/05/11 A			
3	100	01/05/11 A	03/05/11 A	01/05/11 A	20/05/11 A	31/05/11 A			
26	100	04/05/11 A	29/05/11 A	04/05/11 A	01/06/11 A	14/06/11 A			
12	100	20/05/11 A	31/05/11 A	20/05/11 A	15/06/11 A	21/06/11 A			
14	100	01/06/11 A	14/06/11 A	01/06/11 A	17/08/11 A	17/08/11 A			
7	100	15/06/11 A	21/06/11 A	15/06/11 A	02/01/12 A	02/01/12 A			
57	100	22/06/11 A	17/08/11 A	22/06/11 A	09/01/12 A	09/01/12 A			
138	100	18/08/11 A	02/01/12 A	18/08/11 A	03/01/12 A	03/01/12 A			
7	100	03/01/12 A	09/01/12 A	03/01/12 A	09/01/12 A	09/01/12 A			

42	0	12/12/14	22/01/15	02/08/15	12/09/15	2330	SKW0591	RD0123
30	100	15/06/10 A	14/07/10 A	15/06/10 A	14/07/10 A		KD0020	SKW0590
100	100	15/07/10 A	22/10/10 A	15/07/10 A	22/10/10 A		SKW0588	SKW0591
28	100	21/09/10 A	18/10/10 A	21/09/10 A	18/10/10 A		SKW0590	SKW0592
43	100	31/08/10 A	12/10/10 A	31/08/10 A	12/10/10 A		SKW0260, SKW0265, SKW0591	SKW05931
50	100	03/09/10 A	22/10/10 A	03/09/10 A	22/10/10 A		SKW0592	SKW05932
68	100	23/10/10 A	29/12/10 A	23/10/10 A	29/12/10 A		SKW05931	SKW059322
121	100	03/11/10 A	03/03/11 A	03/11/10 A	03/03/11 A		SKW05932	SKW059411
174	100	11/01/11 A	03/07/11 A	11/01/11 A	03/07/11 A		SKW05932	SKW059341
1	100	17/03/11 A	17/03/11 A	17/03/11 A	17/03/11 A		SKW059323	SKW059324
12	100	18/03/11 A	29/03/11 A	18/03/11 A	29/03/11 A		SKW059323	SKW059325
17	100	30/03/11 A	15/04/11 A	30/03/11 A	15/04/11 A		SKW059324	SKW05933
2	100	16/04/11 A	17/04/11 A	16/04/11 A	17/04/11 A		SKW059325	SKW059331
45	100	18/04/11 A	01/06/11 A	18/04/11 A	01/06/11 A		SKW05933	SKW05934
32	100	02/06/11 A	03/07/11 A	02/06/11 A	03/07/11 A		SKW059331	SKW059341
1	100	04/07/11 A	04/07/11 A	04/07/11 A	04/07/11 A		SKW059322, SKW05934	SKW05935
83	100	08/07/11 A	28/09/11 A	08/07/11 A	28/09/11 A		SKW059341	SKW05936
61	100	29/09/11 A	28/11/11 A	29/09/11 A	28/11/11 A		SKW05935	SKW05937
39	100	29/11/11 A	06/01/12 A	29/11/11 A	06/01/12 A		SKW05936	SKW05938
90	100	07/01/12 A	27/03/12 A	07/01/12 A	27/03/12 A		SKW05937	KD0060, SKW1261, SKW1311,
300	100	28/03/12 A	25/05/12 A	28/03/12 A	25/05/12 A		KD0060	SKW05942
72	100	04/03/11 A	14/05/11 A	04/03/11 A	14/05/11 A		SKW059321	SKW059412
82	100	15/05/11 A	04/08/11 A	15/05/11 A	04/08/11 A		SKW059411	SKW059413
55	100	05/08/11 A	28/09/11 A	05/08/11 A	28/09/11 A		SKW059412	SKW059414
61	100	29/09/11 A	28/11/11 A	29/09/11 A	28/11/11 A		SKW059413	SKW059415
39	100	29/11/11 A	06/01/12 A	29/11/11 A	06/01/12 A		SKW059414	SKW059416
81	100	07/01/12 A	27/03/12 A	07/01/12 A	27/03/12 A		SKW059415	KD0060, SKW1311, SKW1371
61	100	26/05/12 A	31/07/12 A	26/05/12 A	31/07/12 A		SKW05941	SKW05943, SKW0595
60	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW05942	SKW05944
60	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW05943	SKW05945
60	100	01/08/12 A	30/09/12 A	01/08/12 A	30/09/12 A		SKW05944	SKW05946
60	100	10/09/12 A	28/02/13 A	10/09/12 A	28/02/13 A		SKW05945	SKW05947
60	100	01/11/12 A	28/02/13 A	01/11/12 A	28/02/13 A		SKW05946	KD0135
300	100	10/02/12 A	28/02/13 A	10/02/12 A	28/02/13 A		SKW05946	SKW05963
60	0	31/12/13	28/02/14	07/08/15	05/10/15	584d	SKW05942, SKW05972	KD0165
120	100	10/02/12 A	08/06/12 A	10/02/12 A	08/06/12 A		SKW05948	SKW059631, SKW05964,
70	100	09/06/12 A	31/07/12 A	09/06/12 A	31/07/12 A		SKW05963	SKW05968
180	100	09/06/12 A	30/11/12 A	09/06/12 A	30/11/12 A		SKW05963	SKW05972
62	100	09/06/12 A	31/07/12 A	09/06/12 A	31/07/12 A		SKW05963	SKW05967
14	100	02/01/13 A	15/01/13 A	02/01/13 A	15/01/13 A		SKW05965	SKW05968
180	100	16/01/13 A	17/08/13 A	16/01/13 A	17/08/13 A		SKW059631, SKW05967	SKW05969
120	100	11/07/13 A	23/08/13 A	11/07/13 A	23/08/13 A		SKW05968	SKW05970
60	100	31/07/13 A	28/09/13 A	31/07/13 A	28/09/13 A		SKW05969	SKW05971
30	100	31/07/13 A	29/08/13 A	31/07/13 A	29/08/13 A		SKW05970	SKW05972
90	100	31/07/13 A	28/10/13 A	31/07/13 A	28/10/13 A		SKW05964, SKW05971	KD0165, SKW0595
60	80	20/11/13 A	11/01/14	20/11/13 A	29/01/14	18d	YSW16604	YSW16702, YSW1700

Construct UU & pipe
Installation of Flexible barrier
slope crest

Activity	Duration	Start Date	End Date	Resources	Notes
Anchorholes (VO. No. 21A)	107	28/10/13 A	08/06/14	E&M1800	
Structure	240	14/06/11 A	08/02/12 A	SKW0721	KD0070, SKW0841
Oil & 675mm Step Channel	30	26/01/14 A	21/06/14	E&M1800, SKW0841	E&M1101, E&M1102, E&M1103, KD0165
Pumps	198	17/05/10 A	24/02/11 A	KD0020	E&M1011
In-Set	198	17/05/10 A	24/02/11 A		E&M1012
O System	198	17/05/10 A	16/07/13 A		E&M1013
SB & MCC	180	17/05/10 A	09/01/12 A		E&M1014
Instrumentation	243	17/05/10 A	12/03/12 A		E&M1015
System	243	17/05/10 A	30/09/12 A		E&M1016
System	243	17/05/10 A	07/01/14		E&M1017
System	150	24/02/11 A	21/07/11 A	E&M1001	E&M1101
System	150	24/02/11 A	23/09/11 A	E&M1002	E&M1102
System	150	11/07/11 A	28/10/11 A	E&M1003	E&M1103
System & MCC	150	01/06/12 A	31/07/12 A	E&M1004	E&M1104
System	90	01/11/11 A	03/11/11 A	E&M1005	E&M1105
System	107	01/12/11 A	21/01/14	E&M1006	E&M1106
System	107	15/11/11 A	28/01/14	E&M1007	E&M1107
System	55	02/10/12 A	05/01/14	E&M1011, SKW0841	E&M1110, E&M1140
System	55	02/10/12 A	05/05/13 A	E&M1012, SKW0841	E&M1110, E&M1140
System	55	03/12/12 A	02/01/14	E&M1013, SKW0841	E&M1110, E&M1140
System	55	02/01/13 A	26/03/13 A	E&M1014, SKW0841	E&M1140
System	55	01/11/12 A	28/01/14	E&M1015, SKW0841	E&M1140
System	55	02/10/12 A	20/02/14	E&M1016, SKW0841	E&M1130, E&M1140
System	55	02/10/12 A	05/02/14	E&M1017, SKW0841	E&M1110, E&M1140
System	46	02/01/13 A	27/03/13 A	E&M1101, E&M1102, E&M1103,	E&M1120
System	28	20/02/14	20/03/14	E&M1106	E&M11800
System	43	21/05/13 A	01/03/14	E&M1101, E&M1102, E&M1103,	E&M1150
System	7	25/06/13 A	02/03/14	E&M1140	E&M1160
System	3	01/07/13 A	02/08/13 A	E&M1150	E&M1170
System	30	02/01/13 A	29/03/14	E&M1160	E&M11800
System	60	29/03/14	28/05/14	E&M0350, E&M1120, E&M1130,	SKW0722, SKW0861
2 in Portions E&H					
System	7	17/05/10 A	23/05/10 A	KD0020	SKW0891
System	7	17/05/10 A	17/05/10 A	SKW0881	SKW0892
System	30	24/05/10 A	22/06/10 A	SKW0891	SKW0901
System	90	23/06/10 A	20/09/10 A	SKW0892	SKW0921
System	14	21/09/10 A	04/10/10 A	SKW0260, SKW0265, SKW0901	SKW0931, SKW0951
System	14	05/10/10 A	18/10/10 A	SKW0921	SKW0950, SKW0951
System	66	19/10/10 A	23/12/10 A	SKW0931	SKW0951
System	169	24/12/10 A	10/06/11 A	SKW0921, SKW0931, SKW0950	SKW0971
System	90	16/01/13 A	06/01/14	SKW1081	KD0155
System	90	24/03/12 A	21/06/12 A	PRE0100, SKW1021	SKW15111
System	180	23/06/12 A	30/11/12 A	SKW1491	SKW1531

Item No	Activity	Start Date	End Date	Duration (Days)	Notes
42	Installation of Catchpits/Outfall	23/03/12 A	23/03/12 A	1	
90	Installation of Catchpits/Outfall	24/03/12 A	21/06/12 A	90	SKW1021
30	Installation of Catchpits/Outfall	31/01/13 A	31/01/13 A	1	SKW1021, SKW1061
198	Installation of Pumps	24/02/11 A	24/02/11 A	1	KD0020
198	Installation of Pumps	24/02/11 A	24/02/11 A	1	E&M2011
198	Installation of Pumps	24/02/11 A	24/02/11 A	1	E&M2012
271	Installation of Pumps	11/07/11 A	11/07/11 A	1	E&M2013
243	Installation of Pumps	30/06/12 A	30/06/12 A	1	E&M2014
243	Installation of Pumps	30/06/12 A	30/06/12 A	1	E&M2015
243	Installation of Pumps	07/01/14	12/09/12	-481d	E&M2016
150	Installation of Pumps	21/07/11 A	21/07/11 A	1	E&M2017
150	Installation of Pumps	23/09/11 A	23/09/11 A	1	E&M2101
150	Installation of Pumps	28/10/11 A	28/10/11 A	1	E&M2102
150	Installation of Pumps	31/07/12 A	31/07/12 A	1	E&M2103
90	Installation of Pumps	03/11/11 A	03/11/11 A	1	E&M2104
107	Installation of Pumps	01/12/11 A	04/10/12	-481d	E&M2105
107	Installation of Pumps	28/01/14	26/10/12	-459d	E&M2107
55	Installation of Pumps	10/01/14	02/10/12 A	-363d	E&M2011, SKW1061
55	Installation of Pumps	05/05/13 A	05/05/13 A	1	E&M2110
55	Installation of Pumps	05/01/14	03/12/12 A	-358d	E&M2110
55	Installation of Pumps	31/01/13 A	31/01/13 A	1	E&M2110
55	Installation of Pumps	01/02/14	31/05/13 A	-455d	E&M2140
55	Installation of Pumps	27/02/14	03/11/12	-481d	E&M2140
55	Installation of Pumps	05/02/14	03/11/12	-459d	E&M2140
46	Installation of Pumps	31/01/13 A	02/01/13 A	1	E&M2101, E&M2102, E&M2103,
7	Installation of Pumps	31/01/13 A	31/01/13 A	1	E&M2120
28	Installation of Pumps	05/03/14	13/01/13	-389d	E&M2130
43	Installation of Pumps	08/03/14	01/02/13 A	-481d	KD0155
7	Installation of Pumps	11/03/14	01/02/13 A	-481d	E&M2150
3	Installation of Pumps	25/03/13 A	25/03/13 A	1	E&M2160
30	Installation of Pumps	07/04/14	15/01/13 A	-481d	E&M2170
60	Installation of Pumps	06/06/14	12/12/12	-481d	E&M2180
180	Installation of Pumps	27/08/10 A	17/05/10 A	-363d	KD0155
300	Installation of Pumps	28/02/11 A	01/02/11 A	-277d	SKW1131
213	Installation of Pumps	31/12/10 A	27/07/10 A	-358d	SKW1231
90	Installation of Pumps	30/09/11 A	15/06/11 A	-358d	SKW1151
90	Installation of Pumps	30/09/11 A	01/09/11 A	-300d	SKW1171
8	Installation of Pumps	07/01/12 A	06/01/12 A	1	SKW1181
7	Installation of Pumps	14/01/12 A	09/01/12 A	1	SKW1191
33	Installation of Pumps	16/02/12 A	16/02/12 A	1	SKW1201
13	Installation of Pumps	16/01/12 A	16/01/12 A	1	SKW1211
61	Installation of Pumps	30/04/12 A	31/03/12 A	-30d	SKW1221
50	Installation of Pumps	19/06/12 A	01/05/12 A	-249d	KD0090, SKW1231, SKW1441
16	Installation of Pumps	20/06/12 A	05/07/12 A	16	SKW1241
77	Installation of Pumps	16/11/12 A	01/09/12 A	-172d	E&M3359, SKW1251
180	Installation of Pumps	27/08/10 A	17/05/10 A	-363d	SKW1431
300	Installation of Pumps	28/02/11 A	01/02/11 A	-277d	
213	Installation of Pumps	31/12/10 A	27/07/10 A	-358d	
90	Installation of Pumps	30/09/11 A	15/06/11 A	-358d	
90	Installation of Pumps	30/09/11 A	01/09/11 A	-300d	
8	Installation of Pumps	07/01/12 A	06/01/12 A	1	
7	Installation of Pumps	14/01/12 A	09/01/12 A	1	
33	Installation of Pumps	16/02/12 A	16/02/12 A	1	
13	Installation of Pumps	16/01/12 A	16/01/12 A	1	
61	Installation of Pumps	30/04/12 A	31/03/12 A	-30d	
50	Installation of Pumps	19/06/12 A	01/05/12 A	-249d	
16	Installation of Pumps	20/06/12 A	05/07/12 A	16	
77	Installation of Pumps	16/11/12 A	01/09/12 A	-172d	

Removal Equipment	180	10/10/11 A	29/12/11 A	10/10/11 A	10/10/11 A	29/12/11 A	E&M1150	E&M3190	
creens	136	100	12/09/11 A	30/11/11 A	12/09/11 A	30/11/11 A	E&M120	E&M3210	
s	136	100	23/06/11 A	05/09/11 A	23/06/11 A	05/09/11 A	E&M130	E&M3220	
versible Mixers	180	100	26/07/11 A	17/11/11 A	26/07/11 A	17/11/11 A	E&M140	E&M3230	
Watering Equipment	210	70	01/09/11 A	03/03/14	01/09/11 A	11/01/14	E&M170	E&M3240	
Pipes & Fittings	180	70	30/08/11 A	22/02/14	30/08/11 A	19/11/13	E&M180	E&M3250	
ocks	180	100	12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A	E&M190	E&M3260	
entis	180	100	21/06/11 A	03/11/11 A	21/06/11 A	03/11/11 A	E&M200	E&M3270	
USB	180	0	01/01/14	30/06/14	07/04/13	03/10/13	E&M210	E&M3261	
upment	180	8	03/07/12 A	20/07/14	03/07/12 A	04/12/13	E&M220	E&M3291	
upment	180	5	30/06/12 A	06/08/14	30/06/12 A	23/12/13	E&M230	E&M0340, E&M3300	
STW Structure (Grid A -G)	164	100	28/03/12 A	31/08/12 A	28/03/12 A	31/08/12 A	SKW04885, SKW05938	SKW1271, SKW1371	
ie Water Tank (FL +0.9 mPD)	36	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A	SKW1261	SKW1281	
b (Grid A-G)	46	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A	SKW1271	SKW1291	
to 1/F & 1/F Slab (Grid A-G)	50	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A	SKW1281	KD0090, SKW1301	
to R/F & R/F Slab (Grid A-G)	50	100	01/09/12 A	31/01/13 A	01/09/12 A	31/01/13 A	SKW1291	E&M3261, E&M3291, E&M3311,	
	105	65	01/02/13 A	05/02/14	01/02/13 A	19/06/13	SKW1301	E&M3261, E&M3291, E&M3311,	ABW
STW Structure (Grid G-N)	90	100	28/03/12 A	25/06/12 A	28/03/12 A	25/06/12 A	SKW05938, SKW05946	SKW1321, SKW1371	
r no. 1 & 2 with base slabs (-2.1	42	100	26/06/12 A	30/09/12 A	26/06/12 A	30/09/12 A	SKW1311	SKW1331	
from B/S to G/F Slab (Grid G-N)	35	100	01/09/12 A	30/09/12 A	01/09/12 A	30/09/12 A	SKW1321	SKW1341	
b (Grid G-N)	35	100	01/09/12 A	17/12/12 A	01/09/12 A	17/12/12 A	SKW1331	SKW1351	
to 1/F & 1/F Slab (Grid G-N)	28	100	01/11/12 A	15/01/13 A	01/11/12 A	15/01/13 A	SKW1341	SKW1361	
to R/F & R/F Slab (Grid G-N)	35	100	01/11/12 A	03/08/13 A	01/11/12 A	03/08/13 A	SKW1351	SKW1451	
	54	65	05/06/13 A	18/01/14	05/06/13 A	17/05/13	SKW1361	E&M3170, E&M3190, E&M3210, E&M3291, E&M3300, SKW1391,	ABWF Works
STW Structure (Grid N-T)	97	100	03/07/12 A	25/01/13 A	03/07/12 A	25/01/13 A	SKW05938, SKW05946, SKW1261,	SKW1381	
s include MBR Tank (Grid N-T)	58	100	02/10/12 A	31/01/13 A	02/10/12 A	31/01/13 A	SKW1371	SKW1391	
to 1/F & 1/F Slab (Grid N-T)	35	100	31/05/13 A	05/07/13 A	31/05/13 A	05/07/13 A	SKW1381, SKW1451	SKW1401	
to R/F & R/F Slab (Grid N-T)	35	100	03/07/13 A	15/09/13 A	03/07/13 A	15/09/13 A	SKW1391	E&M3240, SKW0491, SKW1421	R/F Slab (Grid N-T)
	60	45	06/08/13 A	20/02/14	06/08/13 A	19/06/13	SKW1401	E&M3240, SKW1551	
1-SSMH7)	35	0	20/02/14	27/03/14	20/06/13	24/07/13	SKW1411, SKW1421, SKW1451	SKW1561	
MFH2, SMFH3-SMFH7)	220	0	27/03/14	02/11/14	25/07/13	01/03/14	SKW1551	SKW1571	
Image Channel (SKW)	220	0	02/11/14	10/06/15	02/03/14	07/10/14	SKW1561	KD0090	
Modules in MBR Tank No. 1 to 2	100	0	18/01/14	28/04/14	07/01/14	16/04/14	E&M3010, SKW1451	E&M3311	
Water Equipment	60	0	19/03/14	18/05/14	21/09/13	19/11/13	E&M3030, E&M3210, SKW1451	E&M3250, E&M3320	
ns	60	0	18/01/14	19/03/14	24/05/13	22/07/13	E&M3060, SKW1451	E&M3190, E&M3220, E&M3250, E&M3320, E&M3320	
le Mixers	75	0	19/03/14	02/06/14	23/07/13	05/10/13	E&M3070, E&M3210	E&M3230, E&M3250, E&M3260,	
Watering Equipment	45	0	02/06/14	17/07/14	06/10/13	19/11/13	E&M3080, E&M3220	E&M3250, E&M3260, E&M3311,	
es & Fittings	74	0	04/03/14	16/05/14	12/01/14	26/03/14	E&M3090, SKW1401, SKW1421	E&M3320	
	75	0	17/07/14	30/09/14	20/11/13	02/02/14	E&M3100, E&M3190, E&M3210, E&M3220, E&M3230	E&M3270, E&M3291, E&M3300, E&M3310	
C & LVSB	135	10	05/03/14 A	16/11/14	05/03/14 A	16/04/14	E&M3110, E&M3210, E&M3220,	E&M3311	
	174	0	30/06/14	21/12/14	04/10/13	26/03/14	E&M3140, SKW1301, SKW1411	E&M3311, E&M3320	
	60	0	30/09/14	29/11/14	16/02/14	16/04/14	E&M3130, E&M3250	E&M3311	

Item Description	Quantity	Start Date	End Date	Duration	Notes	Material/Code
Installation of Cables and Cable Termination	21	06/02/15	27/02/15	-270d		E&M3330, E&M3340, E&M3361, E&M3331
Performance Tests of Equipment	1	27/02/15	28/02/15	-270d		E&M33291, E&M3300, E&M3311, E&M3359
	35	28/02/15	04/04/15	-270d		E&M33291, E&M3300, E&M3310, E&M3311, E&M3331, SKW1241, E&M3360
	91	04/04/15	04/07/15	-270d		E&M0340, E&M3359, SKW0722, SKW15112, E&M3370, KD0090
Period	456	04/07/15	15/12/16	252d		E&M3360
Delivery of DI pipes (ChB1+20)	120	17/05/10 A	13/09/10 A	13/09/10 A		KD0020, SKW1501
Protection of Trees	300	14/09/10 A	10/07/11 A	10/07/11 A		PRE0100, SKW1481, SKW1521
Establishment Works	250	11/07/11 A	24/01/14	256d		SKW1501, KD0090
Works in All Portions	21	17/05/10 A	06/06/10 A	06/06/10 A		SKW1621
	1053	17/05/10 A	10/01/14	-282d		KD0100, SKW1631
	90	07/06/10 A	04/09/10 A	04/09/10 A		KD0100
Works in All Portions	365	10/01/14	10/01/15	-282d		SKW1611, KD0110

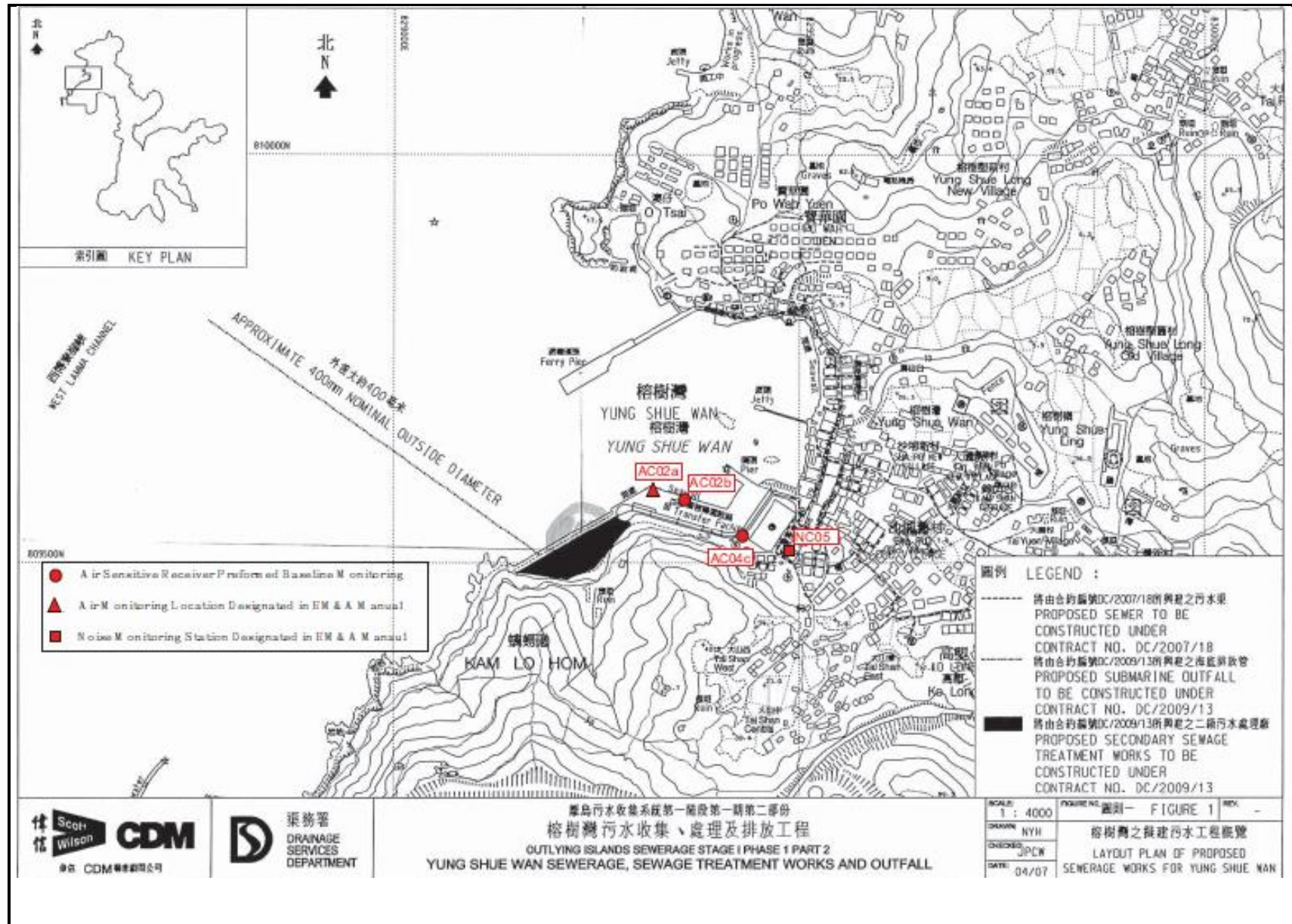
Twin DN150

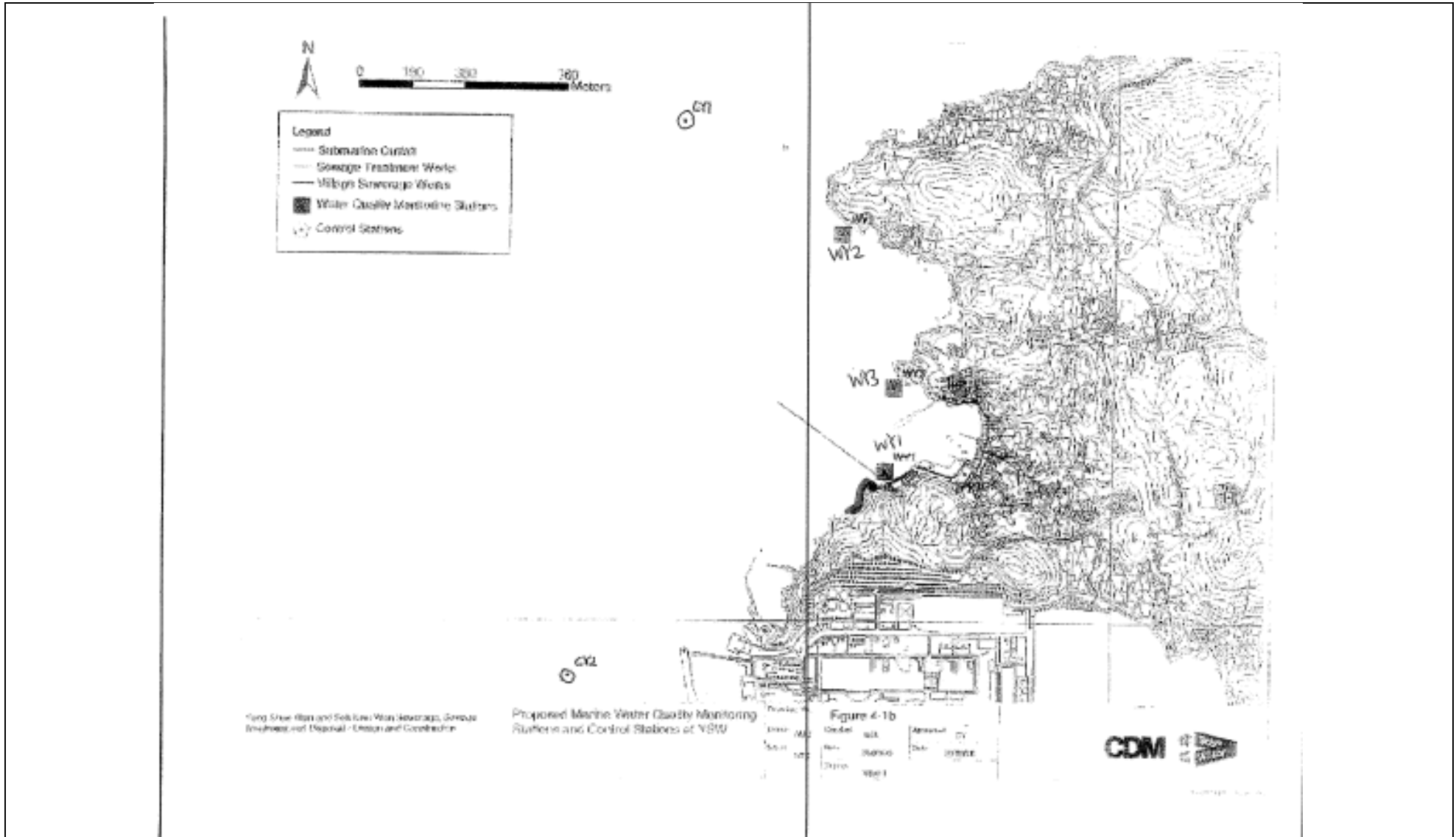
Preservation & Protection



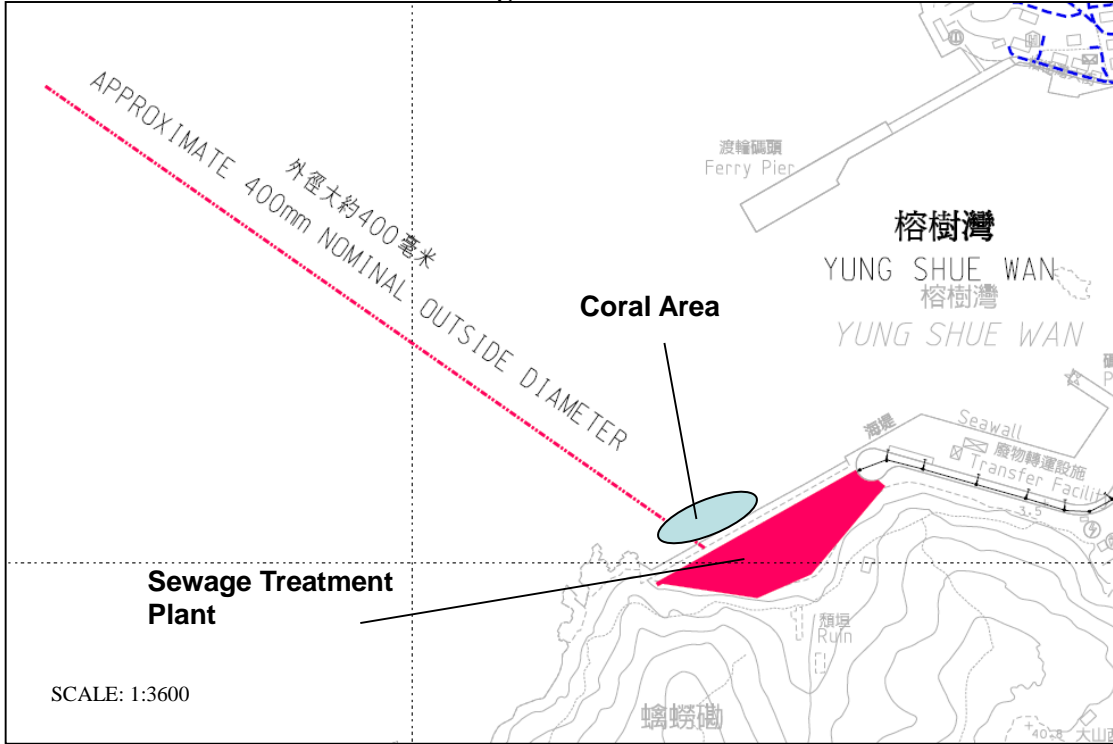
Appendix D

Location of Monitoring Stations (Air Quality / Construction Noise / Water Quality / Dive Surveys of Coral)

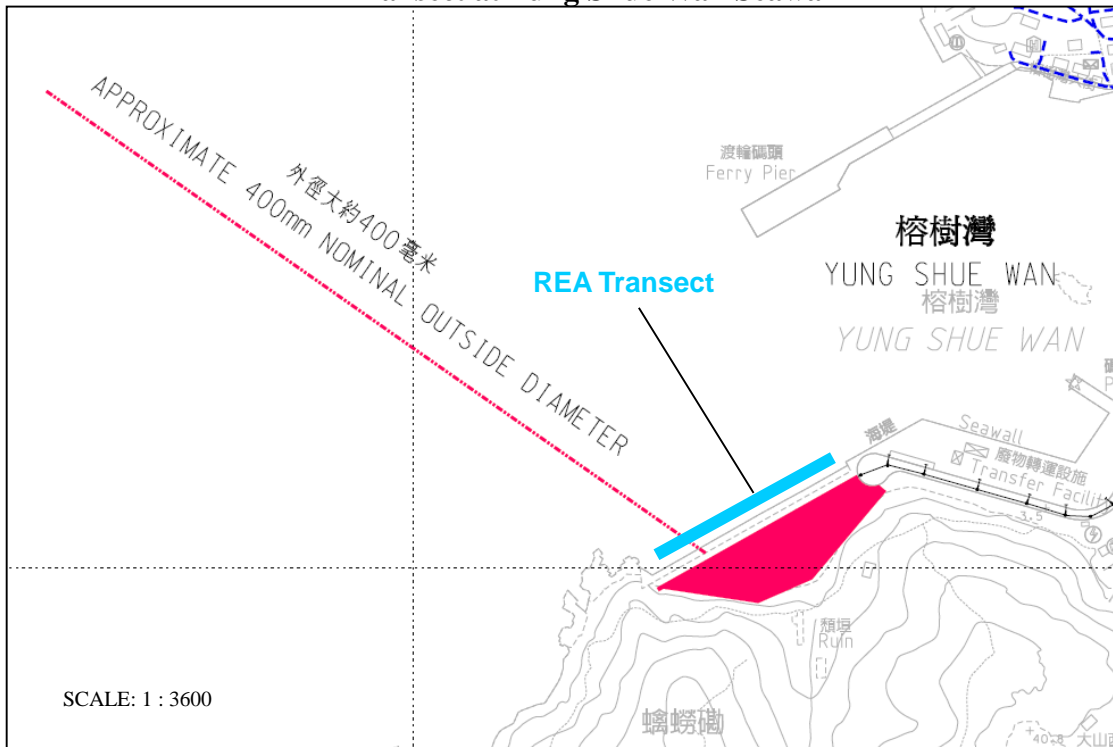




Coral Area at Yung Shue Wan Seawall



REA Transect at Yung Shue Wan Seawall



Coral Area at Sham Wan



REA Transect at Sham Wan



Appendix E

Monitoring Equipments Calibration Certificate

SIBATA SCIENTIFIC TECHNOLOGY LTD.

1-1-62, Nakane, Soka, Saitama, 340-0005 Japan

TEL : 048-933-1582 FAX : 048-933-1591

CALIBRATION CERTIFICATE

Date: June 20, 2013

Equipment Name	:	Laser Dust Monitor, Model LD-3B
Code No.	:	080000-42
Quantity	:	1 unit
Serial No.	:	366410
Sensitivity	:	0.001 mg/m ³
Sensitivity Adjustment	:	668 CPM
Scale Setting	:	June 17, 2013

We hereby certify that the above mentioned instrument has been calibrated satisfactorily.

Sincerely

SIBATA SCIENTIFIC TECHNOLOGY LTD.

Kentaro Togo

Overseas Sales Division



CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Condition			Model	8520
Temperature	74.8 (23.8)	°F (°C)		
Relative Humidity	27	%RH	Serial Number	23080
Barometric Pressure	28.96 (980.7)	inHg (hPa)		

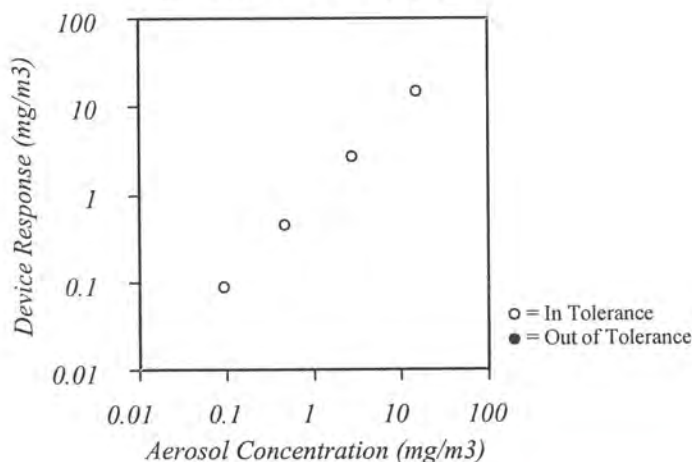
 As Left

 In Tolerance

 As Found

 Out of Tolerance

Concentration Linearity Plot



System ID: DTH01-02

Zero Stability Results

Average:	Minimum:	Maximum:	Time:
0.000 :mg/m ³	0.000 :mg/m ³	0.001 :mg/m ³	17:00 :hrs.

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Barometric Pressure	E003733	03-12-13	03-12-14	Temperature	E002873	11-08-12	11-08-13
Humidity	E002873	11-08-12	11-08-13	DC Voltage	E003314	01-02-13	01-02-14
DC Voltage	E003315	01-02-13	01-02-14	Photometer	E003319	08-14-13	02-14-14
Microbalance	M001324	01-04-13	01-04-15	Pressure	E003511	11-07-12	11-07-13
Flowmeter	E002006	03-05-13	03-05-14				

Tom Jay
Calibrated

 Final Function Check

October 22, 2013

Date

TSI P/N 2300157

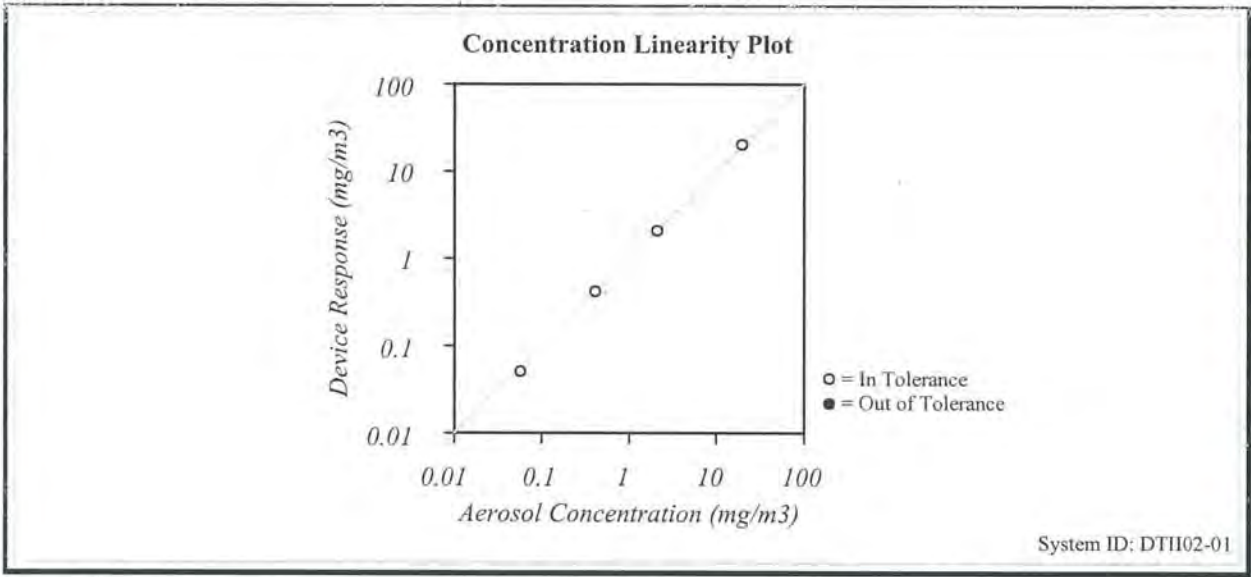


CERTIFICATE OF CALIBRATION AND TESTING

TSI Instruments Ltd, Stirling Road, Cressex Business Park
High Wycombe Bucks HP12 3ST England
Tel: (Int +44) (UK 0) 1494 459200 Fax: (Int +44) (UK 0) 1494 459700 <http://www.tsiinc.co.uk>

Environment Condition			Model	8520
Temperature	23.5	°C	Serial Number	23079
Relative Humidity	41.92	%RH		
Barometric Pressure	996.6	hPa		

<input checked="" type="checkbox"/> As Left	<input checked="" type="checkbox"/> In Tolerance
<input type="checkbox"/> As Found	<input type="checkbox"/> Out of Tolerance



Zero Stability Results			
Average:	Minimum:	Maximum:	Time:
0.000 :mg/m ³	0.000 :mg/m ³	0.001 :mg/m ³	4.00 :hrs.

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Barometric Pressure	E006013	18-03-13	18-03-14	Temperature	E006014	18-03-13	18-03-14
Humidity	E006014	18-03-13	18-03-14	Photometer	E003336	06-03-13	06-09-13
Microbalance	UK 23403008	07-01-13	07-01-14	Flow and Temperature	E006128	29-01-13	29-01-14
Pressure	E006013	18-03-13	18-03-14	DC Voltage	E003323	19-10-12	19-10-13

 _____ Calibrated	<input checked="" type="checkbox"/> Final Function Check	17 June, 2013 _____ Date
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CERTIFICATE OF CALIBRATION AND TESTING

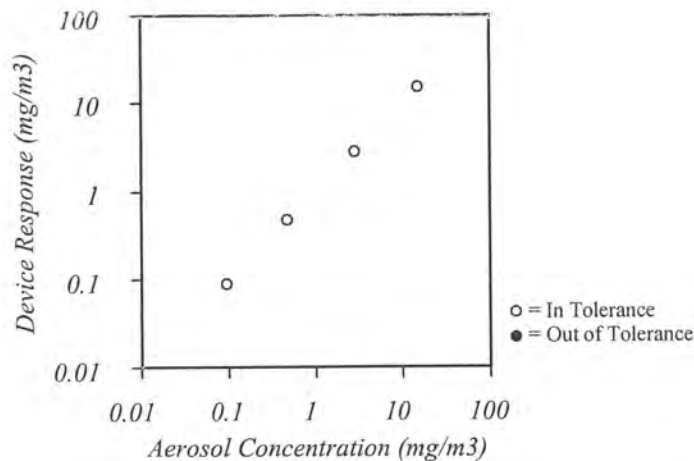
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Condition			Model	8520
Temperature	74.7 (23.7)	°F (°C)	Serial Number	21060
Relative Humidity	27	%RH		
Barometric Pressure	28.97 (981.0)	inHg (hPa)		

As Left
 As Found

In Tolerance
 Out of Tolerance

Concentration Linearity Plot



System ID: DT1101-02

Zero Stability Results

Average: <i>0.00</i> :mg/m ³	Minimum: <i>0.00</i> :mg/m ³	Maximum: <i>0.00</i> :mg/m ³	Time: <i>2.07</i> :hrs.
--	--	--	----------------------------

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Barometric Pressure	E003733	03-12-13	03-12-14	Temperature	E002873	11-08-12	11-08-13
Humidity	E002873	11-08-12	11-08-13	DC Voltage	E003314	01-02-13	01-02-14
DC Voltage	E003315	01-02-13	01-02-14	Photometer	E003319	08-14-13	02-14-14
Microbalance	M001324	01-04-13	01-04-15	Pressure	E003511	11-07-12	11-07-13
Flowmeter	E002006	03-05-13	03-05-14				

[Signature]
Calibrated

Final Function
Check

October 22, 2013

Date

25100837.M41 (SI)

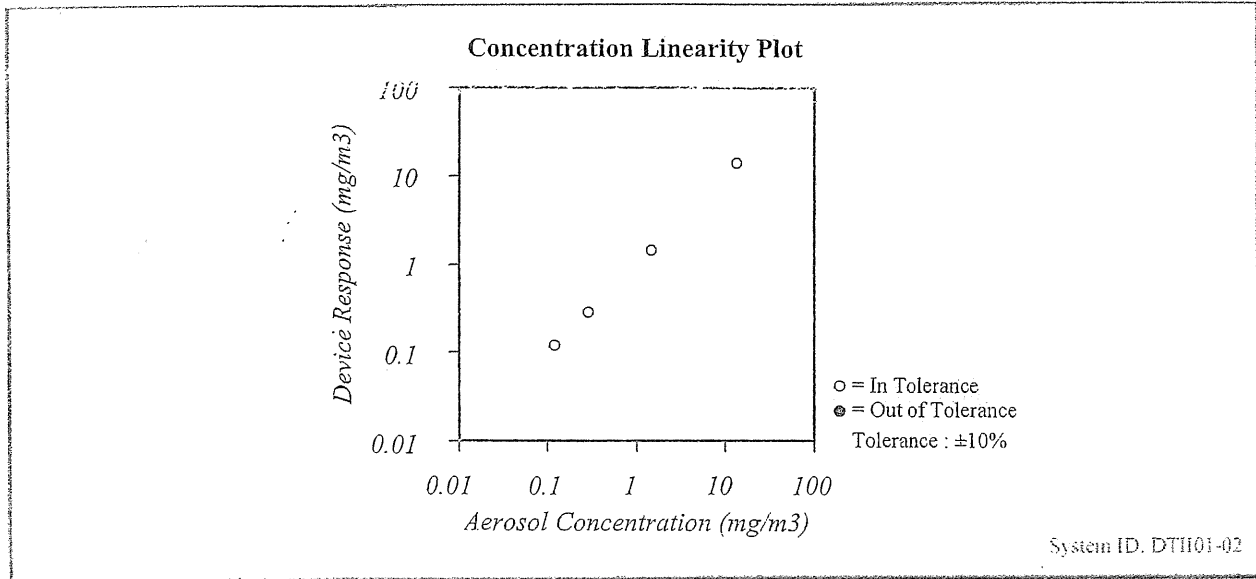


CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

Environment Condition			Model	AM510
Temperature	69.1 (20.6)	°F (°C)		
Relative Humidity	46	%RH	Serial Number	11008017
Barometric Pressure	29.07 (984.4)	inHg (hPa)		

- | | |
|---|--|
| <input checked="" type="checkbox"/> As Left | <input checked="" type="checkbox"/> In Tolerance |
| <input type="checkbox"/> As Found | <input type="checkbox"/> Out of Tolerance |



TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, AI test dust (Arizona dust). Our calibration ratio is greater than 1:2:1.

Measurement Variable	System ID	Last Cal	Cal Due	Measurement Variable	System ID	Last Cal	Cal Due
Barometric Pressure	F005733	03-12-13	03-12-14	Temperature	E002875	11-08-12	11-08-13
Humidity	E002873	11-08-12	11-08-13	DC Voltage	F003314	01-02-13	01-02-14
DC Voltage	E003315	01-02-13	01-02-14	Photometer	E003319	02-19-13	03-19-13
Microbalance	M001324	01-04-13	01-04-15	Pressure	E003511	11-07-12	11-07-13
Flowmeter	E002006	03-05-13	03-05-14				

Amanda MAD

 Calibrated

Final Function
 Check

June 18, 2013

 Date



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.

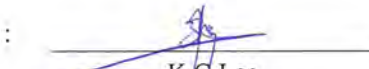
The results are detailed in the subsequent page(s).

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.

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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

輝創工程有限公司 - 校正及檢測實驗室

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. : C142224

證書編號

- 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.
- Self-calibration was performed before the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

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

- Test procedure : MA101N.

- 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.

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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.

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Certificate of Calibration

校正證書

Certificate No. : C132980

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 (EQ065)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2337676
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 : $(23 \pm 2)^{\circ}\text{C}$
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 : $(55 \pm 20)\%$

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 18 May 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).

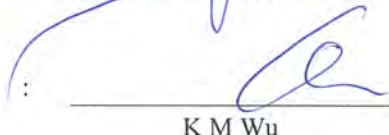
The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By
測試

: 
K C Lee

Certified By
核證

: 
K M Wu

Date of Issue
簽發日期

: 20 May 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.

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Certificate of Calibration

校正證書

Certificate No. : C132980

證書編號

- 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.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

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

- Test procedure : MA101N.

- 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	93.6

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	94.0	± 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	94.0 (Ref.)
				104.00		104.0
				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.

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Certificate of Calibration

校正證書

Certificate No. : C132980
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	94.0	Ref.
	L _{ASP}		S			94.0	± 0.1
	L _{AIP}		I			94.0	± 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	54.9	-39.4 ± 1.5
					63 Hz	67.9	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+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.

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Certificate of Calibration

校正證書

Certificate No. : C132980
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	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	93.9	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-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
								90	89.9	± 0.5
								80	79.8	± 1.0
								70	69.5	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2793313

- 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. : C142873
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 : 8 May 2014

Description / 儀器名稱 : Integrating Sound Level Meter (EQ065)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2337676
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 : 13 May 2014

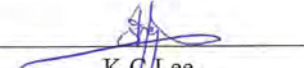
TEST RESULTS / 測試結果

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).

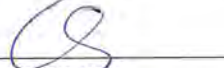
The test equipment used for calibration are traceable to National Standards via :

- 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

15 May 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.

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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

輝創工程有限公司 - 校正及檢測實驗室

c/o 香港新界山門興安里一號青山灣機樓四樓

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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. : C142873

證書編號

- 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.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

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

- Test procedure : MA101N.

- 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	94.2

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	94.0	± 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	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

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

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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	94.0	Ref.
	L _{ASP}		S			94.0	± 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	54.8	-39.4 ± 1.5
					63 Hz	67.9	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+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)					

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Certificate of Calibration

校正證書

Certificate No. : C142873
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	91.1	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	93.9	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-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
								90	89.7	± 0.5
								80	79.7	± 1.0
								70	69.7	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2812708

- 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.

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TEST REPORT
for
SOUND CALIBRATOR

Model : NC - 74

Serial No. : 34246492

Condition : Temperature 24 °C

Humidity 38 %RH

Date : February, 28, 2014

Signature : 

1. Sound Pressure Level	94.0 ± 0.25 dB	<u>94.00 dB</u>
2. Frequency	1000 ± 7 Hz	<u>1001.4 Hz</u>
3. Distortion	3 % or less	<u>Pass</u>
4. Alarm Function		<u>Pass</u>
5. Appearance		<u>Pass</u>

Applicable standards

JIS C 1515:2004 Class1
IEC 60942:2003 Class1

Appendix F

Event and Action Plan

Air Quality

EVENT	ACTION		CONTRACTOR	
	ET	IC(E)	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IC(E) and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IC(E) and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IC(E) and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IC(E) and ER; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify IC(E), ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented; 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. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) 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.

Construction Noise

EVENT	ACTION			
	ET	IC(E)	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Notify IC(E) and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IC(E), ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the analysed 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IC(E); 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IC(E), ER, EPD and Contractor; 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 IC(E), ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed 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. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) 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.

Water Quality

EVENT	ACTION			
	ET	IC(E)	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sampling day	<ol style="list-style-type: none"> 1. Repeat in-situ measurement on the next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform ICE, Contractor, ER, EPD and AFCD; and 4. Check monitoring data, all plant, equipment and Contractor's working methods. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working methods 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-compliance in writing; and 2. Notify Contractor 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; and 3. Amend working methods if appropriate
2. Exceedance for two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Same as the above; 2. Inform ICE, Contractor, ER, EPD and AFCD; 3. Discuss mitigation measures with IC(E), RE and Contractor; 4. Ensure well implementation of mitigation measures; and 5. Increase the monitoring frequency to daily until no exceedance of Action Level 	<ol style="list-style-type: none"> 1. Same as the above; 2. Discuss with ET and Contractor on possible remedial actions; 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; and 4. Supervise the implementation of mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IC(E) on the proposed mitigation measures; 2. Ensure well implementation of mitigation measures; and 3. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Same as the above; 2. Check all plant and equipment and consider changes of working methods; 3. Submit proposal of additional mitigation measures to ER within 3 working days of notification and discuss with ET, IC(E), and ER; and 4. Implement the agreed mitigation measures
LIMIT LEVEL				
1. Exceedance for one sampling day	<ol style="list-style-type: none"> 1. Repeat in-situ measurement on the next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform ICE, Contractor, ER, EPD and AFCD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; and 5. Discuss mitigation measures with IC(E), RE and Contractor 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working method 2. Discuss with ER and Contractor on possible remedial actions; and 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly 	<ol style="list-style-type: none"> 1. Confirm receipt of notification failure in writing; and 2. Discuss with IC(E), ET and Contractor on the proposed mitigation measures; and 4. Request Contractor to review the working methods 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the failure in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; and 4. Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET and ER
2. Exceedance for two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Same as the above; 2. Ensure mitigation measures are implemented; and 3. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days 	<ol style="list-style-type: none"> 1. Same as the above; and 2. Supervise the Implementation of mitigation measures 	<ol style="list-style-type: none"> 1. Same as the above; 2. Ensure well implementation of mitigation measures 3. Make agreement on the mitigation measures to be implemented; and 4. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of limit level 	<ol style="list-style-type: none"> 1. Same as the above; 2. Take immediate action to avoid further exceedance; 3. Implement the agreed mitigation measures; 4. Resubmit proposals of mitigation measures if problem still not under control; and 5. As directed by the Engineer, to slow down or to stop all or part of the construction activities until to no exceedance of Limit Level.

Coral Monitoring

EVENT	ACTION	CONTRACTOR	ER/ IC(E)
	ET		
Action Level being exceeded	<p>Inform contractor, AFCD and EPD immediately;</p> <p>Discuss mitigation measure with ER/IC(E) and Contractor;</p> <p>Ensure mitigation measures are implemented.</p>	<p>Inform the Engineer and confirm notification of the non-compliance in writing;</p> <p>Propose mitigation measure to ER/IC(E) within 1 working day and discuss with Et and ER/IC(E);</p> <p>Ensure mitigation measures are implemented.</p>	<p>Inform contractor, Review water quality monitoring data;</p> <p>Determine whether water quality monitoring data shows effects attributable to the backfilling works;</p> <p>If water quality monitoring data indicates effects attributable to backfilling works, then make agreement on mitigation measures to be implemented;</p> <p>If water quality monitoring data indicates no effects attributable to backfilling works then Action Level is not triggered;</p> <p>Assess the effectiveness of the implemented mitigation measures.</p>
Limit Level	<p>Inform contractor, AFCD and EPD immediately;</p> <p>Discuss mitigation measure with ER/IC(E) and Contractor;</p> <p>Ensure mitigation measures are implemented.</p>	<p>Inform the Engineer and confirm notification of the non-compliance in writing;</p> <p>Suspend backfilling operations;</p> <p>Propose mitigation measure to ER/IC(E) within 3 working days and discuss with Et and ER/IC(E);</p> <p>Implement the agreed mitigation measures.</p>	<p>Inform contractor to suspend backfilling operations;</p> <p>Make agreement on the mitigation measures to be implemented;</p> <p>Assess the effectiveness of the implemented mitigation measures.</p>

Appendix G

Impact Monitoring Schedule

Impact Monitoring Schedule for the Reporting Period

Date		Air Quality		Noise
		1-hour TSP	24-hour TSP	Leq (30min)
Sat	26-April-14		✓	
Sun	27-April-14			
Mon	28-April-14	✓		✓
Tue	29-April-14			
Wed	30-April-14			
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			

✓	Monitoring Day
	Sunday or Public Holiday

Impact Monitoring Schedule for next Reporting Period

Date		Air Quality		14. NOISE	15. WATER QUALITY
		1-hour TSP	24-hour TSP	Leq (30min)	
Mon	26-May-14	✓	✓	✓	
Tue	27-May-14				
Wed	28-May-14				
Thu	29-May-14				
Fri	30-May-14	✓		✓	
Sat	31-May-14		✓		
Sun	1-Jun-14				
Mon	2-Jun-14				
Tue	3-Jun-14				
Wed	4-Jun-14				
Thu	5-Jun-14	✓		✓	
Fri	6-Jun-14		✓		
Sat	7-Jun-14				
Sun	8-Jun-14				
Mon	9-Jun-14				
Tue	10-Jun-14				
Wed	11-Jun-14	✓		✓	
Thu	12-Jun-14		✓		
Fri	13-Jun-14				
Sat	14-Jun-14				
Sun	15-Jun-14				
Mon	16-Jun-14				
Tue	17-Jun-14	✓		✓	
Wed	18-Jun-14		✓		
Thu	19-Jun-14				
Fri	20-Jun-14				
Sat	21-Jun-14				
Sun	22-Jun-14				
Mon	23-Jun-14	✓		✓	
Tue	24-Jun-14		✓		
Wed	25-Jun-14				

✓	Monitoring Day
	Sunday or Public Holiday

Appendix H

Monitoring Data Sheet

24-hour TSP Monitoring Data Sheet

24-hour TSP Monitoring Results

Monitoring Location : AC02b															
DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP (oC)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	DUST 24-hour TSP IN AIR (ug/m ³)
		INITIAL	FINAL	ACTUAL (min)	MIN	MAX	AVG		AVG PRESS (hPa)	FLOW RATE (m3/min)	AIR VOLUME (std m3)				
26-Apr-14	power failure	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-May-14	26678	7719.16	7743.15	1439.40	23	28	25.5	24	1015	0.53	760	2.712	2.7596	0.0476	63
8-May-14	26713	7743.15	7767.14	1439.40	22	31	26.5	22.2	1010.7	0.56	810	2.6927	2.746	0.0533	66
14-May-14	26758	7767.14	7791.13	1439.40	21	32	26.5	28.7	1005.2	0.55	792	2.7188	2.7813	0.0625	79
20-May-14	26778	7791.13	7815.12	1439.40	20	33	26.5	26.9	1007.8	0.55	798	2.7253	2.746	0.0207	26

Action Level: 161µg/m³

Limit Level: 260µg/m³

Monitoring Location : AC04c															
DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP (oC)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	DUST 24-hour TSP IN AIR (ug/m ³)
		INITIAL	FINAL	ACTUAL (min)	MIN	MAX	AVG		AVG PRESS (hPa)	FLOW RATE (m3/min)	AIR VOLUME (std m3)				
26-Apr-14	26684	13452.75	13476.74	1439.4	31	39	35	23.1	1012.9	0.87	1259	2.7354	2.7958	0.0604	48
2-May-14	26686	13476.74	13500.73	1439.4	29	38	33.5	24	1015	0.82	1187	2.7337	2.7767	0.0430	36
8-May-14	26755	13500.73	13524.72	1439.4	28	37	32.5	21.8	1014.3	0.80	1145	2.708	2.7671	0.0591	52
14-May-14	26759	13524.72	13548.71	1439.4	30	38	34	28.7	1005.2	0.83	1191	2.7307	2.7819	0.0512	43
20-May-14	26779	13548.71	13572.7	1439.4	29	36	32.5	26.9	1007.8	0.78	1127	2.7035	2.7552	0.0517	46

Action Level: 176µg/m³

Limit Level: 260µg/m³

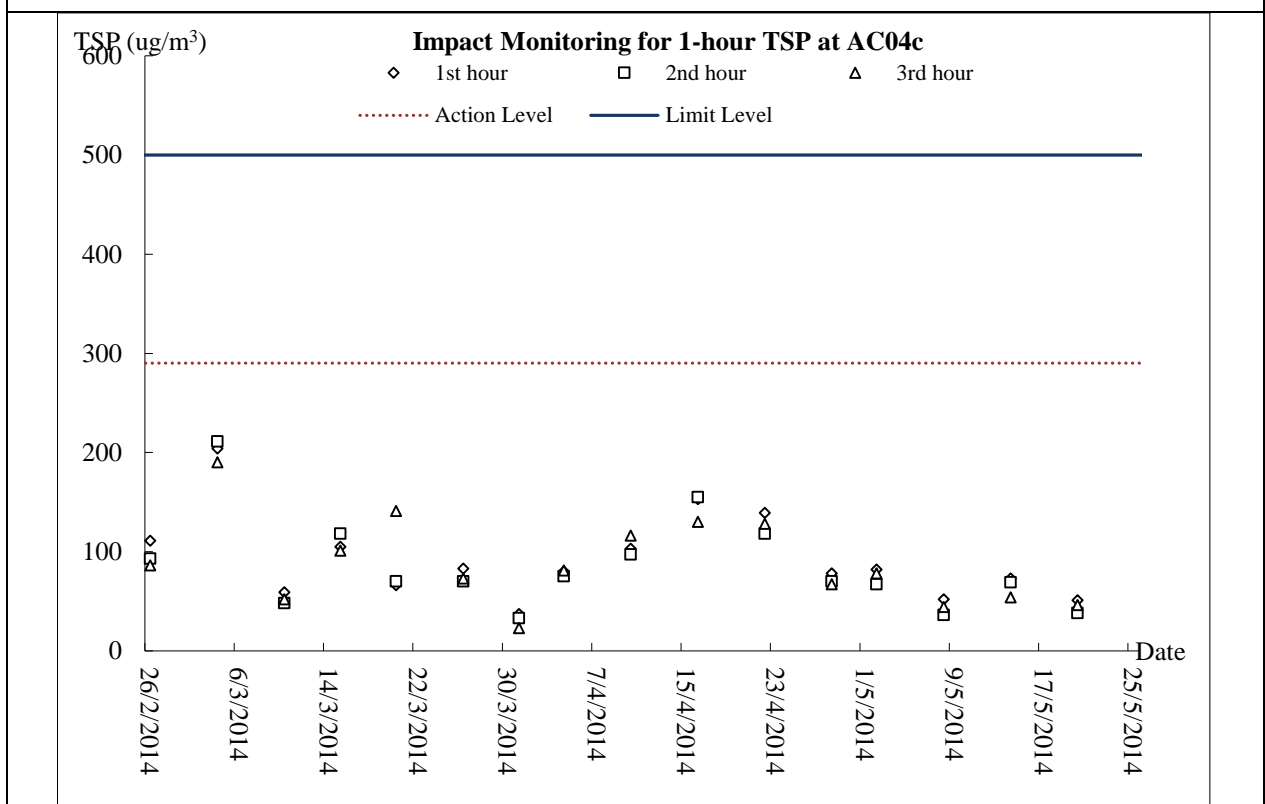
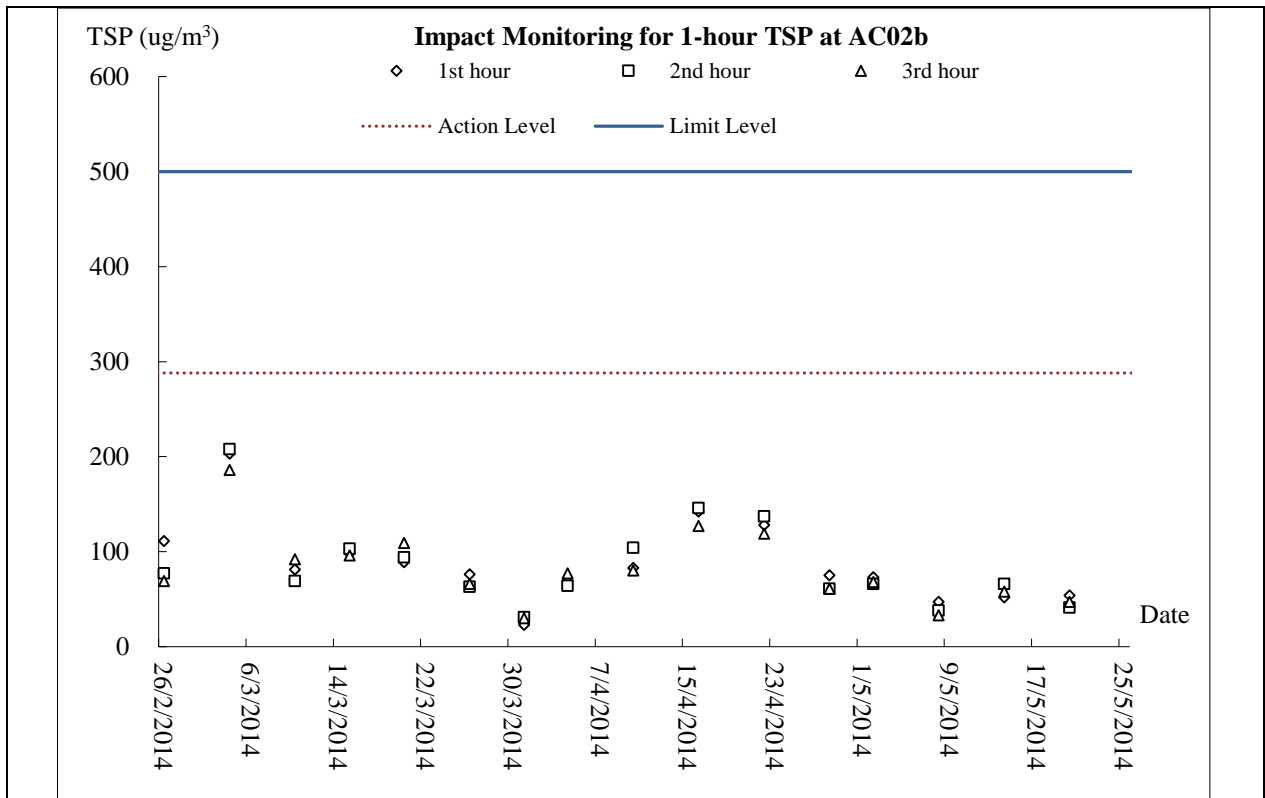
Marine Water Quality Monitoring Data Sheet

Non-Applicable

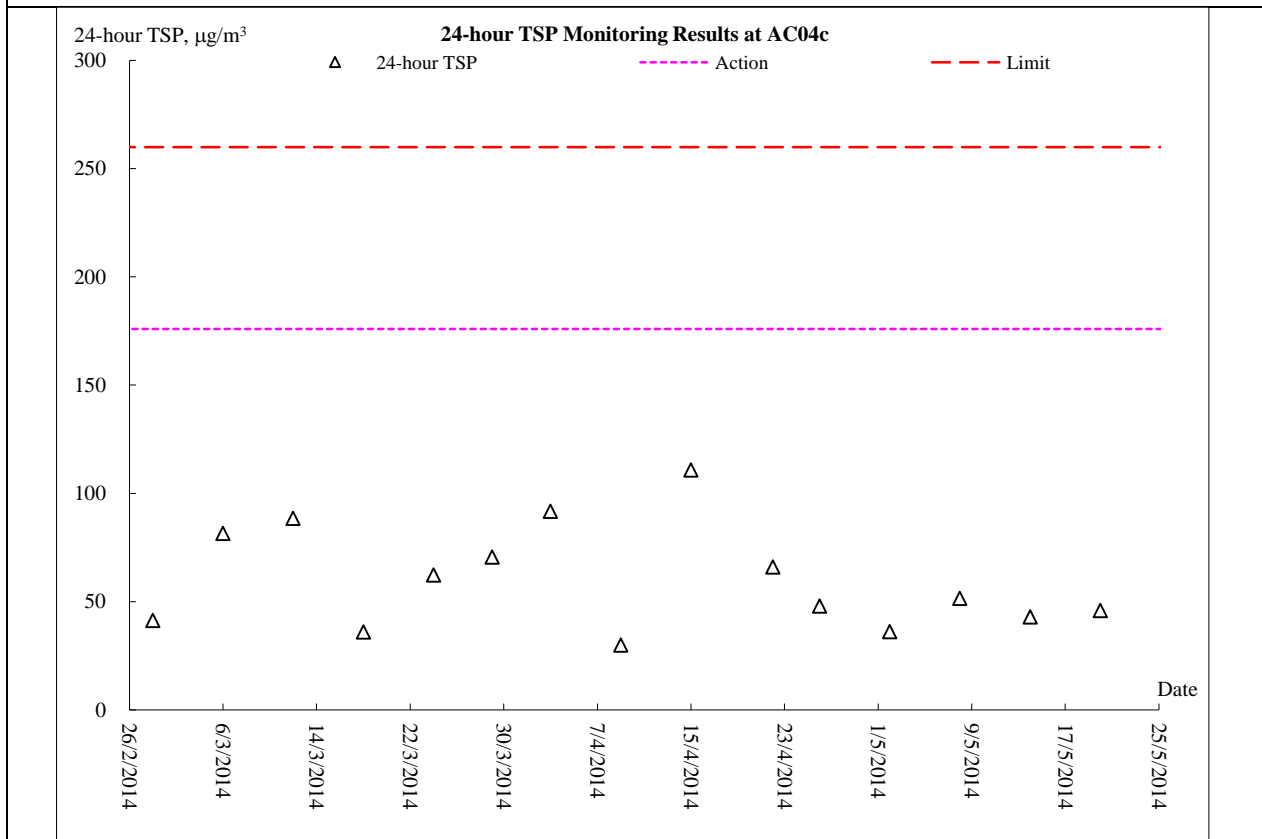
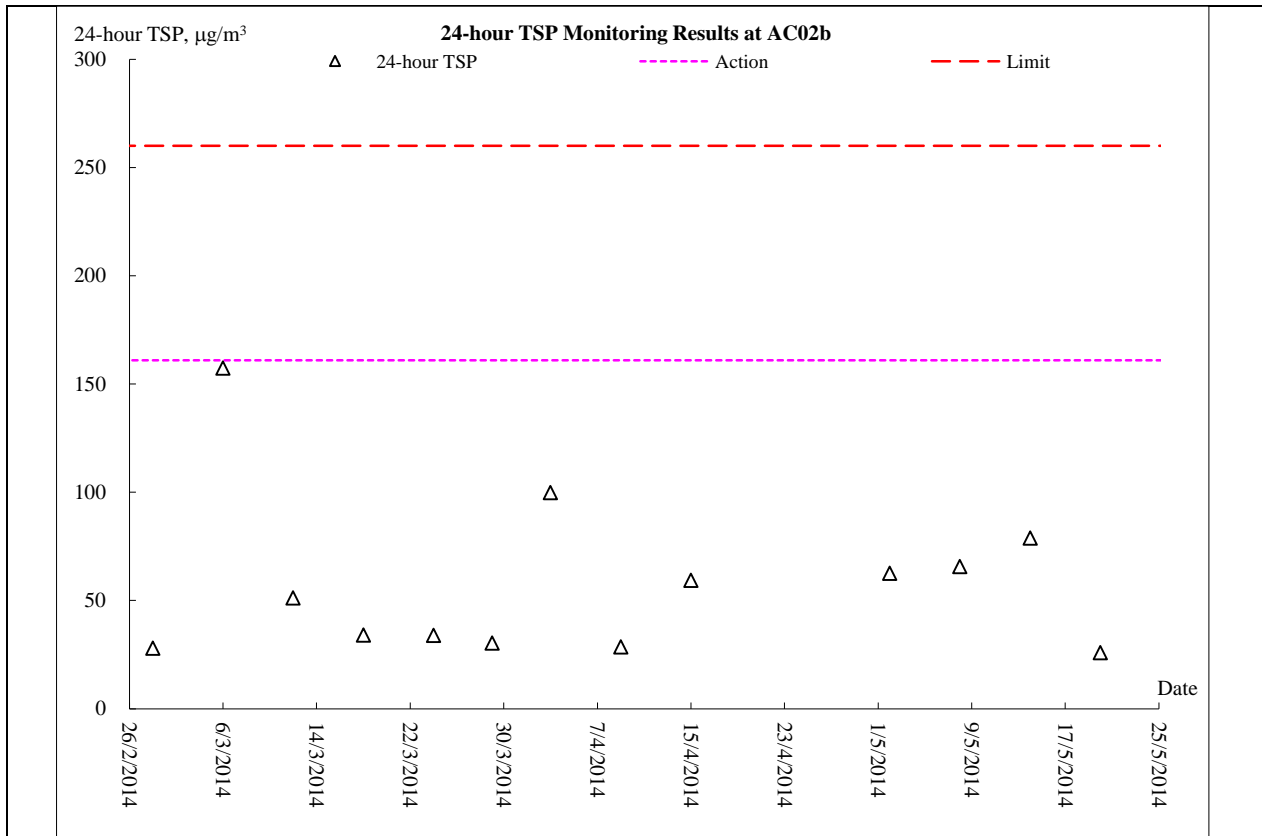
Appendix I

Graphical Plots of Monitoring Results

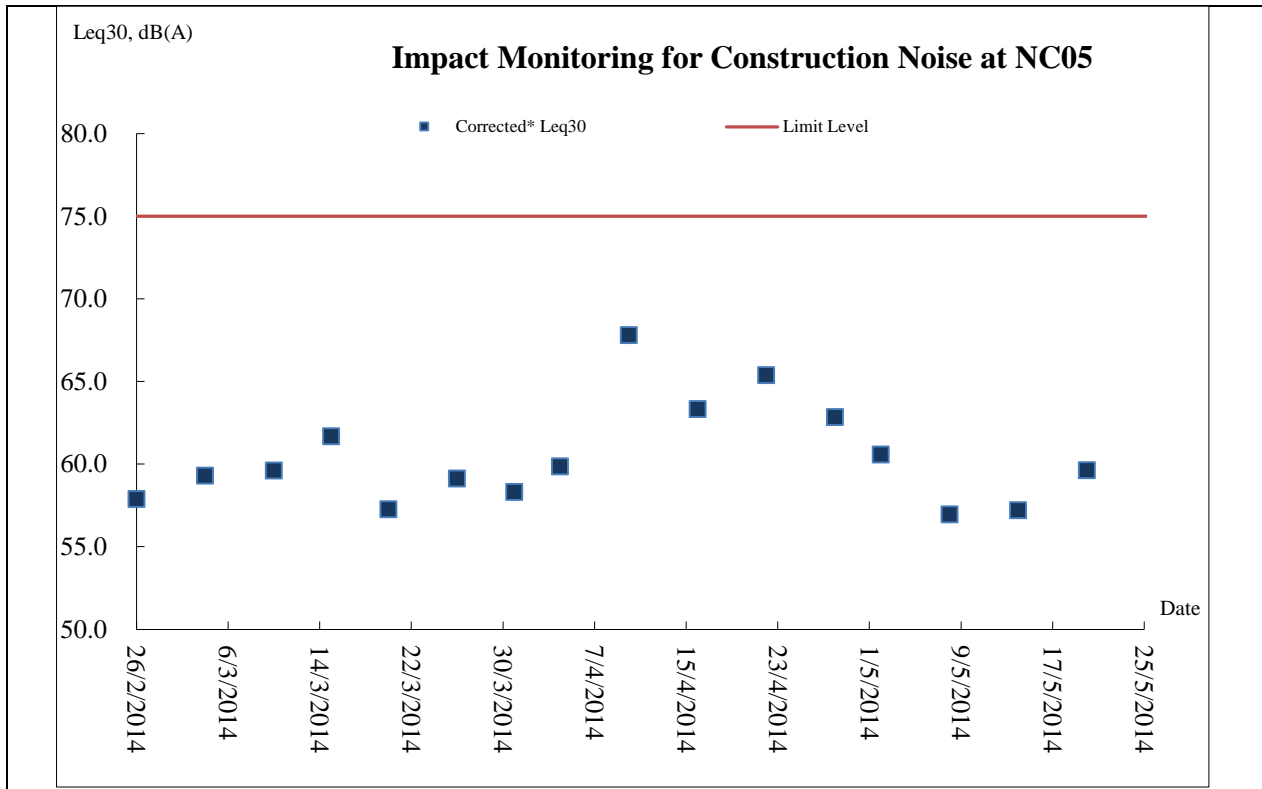
1-hour TSP Monitoring



24-hour TSP Monitoring



Noise Monitoring



Appendix J

Meteorological Information

Meteorological Data Extracted from HKO during the Reporting Period

Date		Weather
26-Apr-14	Sat	Cloudy and misty with light rain patches. Moderate to fresh easterly winds.
27-Apr-14	Sun	Dry with sunny periods during the day. Mainly cloudy tonight. Moderate to fresh north to northeasterly winds.
28-Apr-14	Mon	Dry with sunny periods during the day. Mainly cloudy tonight. Moderate to fresh north to northeasterly winds.
29-Apr-14	Tue	Mainly cloudy. Visibility relatively low in some areas. Showers and a few thunderstorms later. Light to moderate easterly winds.
30-Apr-14	Wed	Mainly cloudy. Visibility relatively low in some areas. Showers and a few thunderstorms later. Light to moderate easterly winds.
1-May-14	Thu	Sunny periods in the afternoon. Mainly cloudy tonight. Moderate easterly winds, fresh offshore.
2-May-14	Fri	Sunny periods in the afternoon. Mainly cloudy tonight. Moderate easterly winds, fresh offshore.
3-May-14	Sat	Sunny intervals. Moderate northeasterly winds, fresh at times.
4-May-14	Sun	Sunny intervals. Moderate northeasterly winds, fresh at times.
5-May-14	Mon	Sunny intervals. Moderate northeasterly winds, fresh at times.
6-May-14	Tue	Cloudy to overcast with showers and a few thunderstorms. Moderate east to southeasterly winds.
7-May-14	Wed	Cloudy to overcast with showers and a few thunderstorms. Moderate east to southeasterly winds.
8-May-14	Thu	Cloudy to overcast with showers and squally thunderstorms. Moderate easterly winds.
9-May-14	Fri	Cloudy to overcast with rain and squally thunderstorms. Moderate to fresh east to southeasterly winds.
10-May-14	Sat	Mainly cloudy with a few showers. Moderate south to southeasterly winds.
11-May-14	Sun	Mainly cloudy with a few showers. Moderate south to southeasterly winds.
12-May-14	Mon	Mainly cloudy with a few showers. Moderate south to southeasterly winds.
13-May-14	Tue	Mainly cloudy, Scattered showers, Sunny intervals. Moderate southwesterly winds.
14-May-14	Wed	Mainly cloudy, Scattered showers, Sunny intervals. Moderate southwesterly winds.
15-May-14	Thu	Mainly cloudy with a few showers. Moderate south to southeasterly winds.
16-May-14	Fri	Mainly cloudy with a few showers. Moderate southerly winds.
17-May-14	Sat	Mainly cloudy with a few showers. Moderate southerly winds.
18-May-14	Sun	Mainly cloudy with sunny intervals. Moderate south to southwesterly winds.
19-May-14	Mon	Mainly cloudy with sunny intervals. Moderate south to southwesterly winds.
20-May-14	Tue	Mainly cloudy, few showers, frequent with thunderstorms. Moderate south to southwesterly winds.
21-May-14	Wed	Mainly cloudy, few showers, frequent with thunderstorms. Moderate south to southwesterly winds.
22-May-14	Thu	Mainly cloudy with a few showers and isolated thunderstorms. Moderate to fresh south to southwesterly winds.
23-May-14	Fri	Hot, rain, sunny periods, a few showers. Moderate south to southeasterly winds.
24-May-14	Sat	Mainly fine apart from isolated showers, very hot. Moderate southwesterly winds.
25-May-14	Sun	Mainly fine apart from isolated showers, very hot. Moderate southwesterly winds.

Appendix K

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for May 2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly												Actual Quantities of C&D Wastes Generated Monthly									
	Total Quantity Generated (a) = (c)+(d)+(e)		Hard Rock and Large Broken Concrete (b)		Reused in the Contract (c)		Reused in other Projects (d)		Disposed as Public Fill (e)		Imported Fill (f)		Metals		Paper/ cardboard packaging		Plastics		Chemical Waste		Others, e.g. rubbish	
	(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 tonne)	
	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW
2014	15.933	50.762	0.160	0.432	0.740	2.802	0.000	0.000	15.194	47.960	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	487.580	290.030
Jan	0.342	0.325	0.000	0.005	0.000	0.000	0.000	0.000	0.342	0.325	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.480	4.820
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.110	4.300
Mar	0.305	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.305	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.150	4.340
Apr	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.030	3.900
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	35.810	4.180
Jun																						
Sub-total	16.581	51.087	0.160	0.442	0.740	2.802	0.000	0.000	15.841	48.285	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	555.160	311.570
Jul																						
Aug																						
Sep																						
Oct																						
Nov																						
Dec																						
Total	16.581	51.087	0.160	0.442	0.740	2.802	0.000	0.000	15.841	48.285	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	555.160	311.570
	67.668		0.602		3.542		0.000		64.126		0.000		0.000		0.000		0.000		0.000		866.730	

Remark: Assume 1.0 m³ vehicle dump load = 1.6 tonnes C&D materials

YSW: Yung Shue Wan

SKW: Sok Kwu Wan

Appendix L

Weekly Site Inspection Checklist

Project: TCS/00512/09
DC-2009-03: Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan

Inspected by
ETL/ ET's Representative:
RE's Representative:
Contractor's Representative:
IEC's Representative:

Checklist No. TCS512A-2 May 2014
Mr. Martin Li
Mr. Daniel Chau
Mr. M. K. Leung

Date: 2 May 2014

Time: 09:30

PART A: GENERAL INFORMATION **Environmental Permit No.**

Weather: Sunny Fine Cloudy Rainy EP- 282/2007

Temperature: °C

Humidity: High Moderate Low

Wind: Strong Breeze Light Calm

Area Inspected
 1 Yung Shue Wan

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 an effluent discharge license obtained for the Project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.02	Is the effluent discharged in accordance with the discharge licence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.03	Is the discharge of turbid water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.07	Is drainage system well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.09	Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.10	Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.11	Are manholes adequately covered or temporarily sealed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.12	Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.13	Are wheel washing facilities well maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
1.14	Is runoff from wheel washing facilities avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
1.15	Are there toilets provided on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.16	Are toilets properly maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
1.18	Is the oil/grease leakage or spillage avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____

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
1.22	Are the oil interceptors/grease traps maintained properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.23	Is used bentonite recycled where appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m ³ capacities for sedimentation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.25	No excavation is undertaken in the settlement area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.27	Mobile toilets should provide on site and located away the stream course.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.28	License collector should be employed for handling the sewage of mobile toilet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.29	Is ponding /stand water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 2: Air Quality							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.03	Are the excavated materials sprayed with water during handling?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.11	Is dark smoke emission from plant/equipment avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.15	Is open burning avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.16	Excavated materials from the stream must be removed from the site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.17	Is the road surface kept clear of loose material?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 3: Noise							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.02	Is silenced equipment adopted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.03	Is idle equipment turned off or throttled down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.04	Are all plant and equipment well maintained and in good condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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
3.07	Are air compressors fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.08	Are flaps and panels of mechanical equipment closed during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.02	Are receptacles available for general refuse collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03	Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04	Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05	Is the Contractor registered as a chemical waste producer?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06	Are the chemical waste containers and storage area properly labelled?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.07	Are the chemical wastes stored in proper storage areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.08	Is the chemical container or equipment provided with drip tray?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.10	Are incompatible chemical wastes stored in different areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.11	Are the chemical wastes disposed of by licensed collectors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.14	Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15	Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16	Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17	Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20	Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Project: <u>TCS/00512/09</u> <u>DC-2009-03: Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan</u>	Inspected by ETL/ ET's Representative: RE's Representative: Contractor's Representative: IEC's Representative:	Checklist No. <u>TCS512A-06 May 2014</u> Mr. Martin Li Mr. Daniel Chau Mr. M. K. Leung
Date: <u>06 May 2014</u>	Time: <u>09:30</u>	

PART A: GENERAL INFORMATION	Environmental Permit No.
Weather: <input type="checkbox"/> Sunny <input checked="" type="checkbox"/> Fine <input type="checkbox"/> Cloudy <input type="checkbox"/> Rainy	<input checked="" type="checkbox"/> EP- 282/2007
Temperature: <input type="text" value="19.9"/> °C	
Humidity: <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low	
Wind: <input type="checkbox"/> Strong <input checked="" type="checkbox"/> Breeze <input type="checkbox"/> Light <input type="checkbox"/> Calm	
Area Inspected 1 Yung Shue Wan	

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 an effluent discharge license obtained for the Project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.02 Is the effluent discharged in accordance with the discharge licence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.03 Is the discharge of turbid water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.04 Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.05 Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.06 Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.07 Is drainage system well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.08 As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09 Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10 Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.11 Are manholes adequately covered or temporarily sealed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.12 Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13 Are wheel washing facilities well maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.14 Is runoff from wheel washing facilities avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.15 Are there toilets provided on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.16 Are toilets properly maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.17 Are the vehicle and plant servicing areas paved and located within roofed areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.18 Is the oil/grease leakage or spillage avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.19 Are there any measures to prevent leaked oil from entering the drainage system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.20 Are there any measures to collect spilt cement and concrete washings during concreting works?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.21 Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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
1.22	Are the oil interceptors/grease traps maintained properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.23	Is used bentonite recycled where appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.25	No excavation is undertaken in the settlement area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.27	Mobile toilets should provide on site and located away the stream course.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.28	License collector should be employed for handling the sewage of mobile toilet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.29	Is ponding /stand water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 2: Air Quality							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.03	Are the excavated materials sprayed with water during handling?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.11	Is dark smoke emission from plant/equipment avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.15	Is open burning avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.16	Excavated materials from the stream must be removed from the site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.17	Is the road surface kept clear of loose material?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 3: Noise							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.02	Is silenced equipment adopted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.03	Is idle equipment turned off or throttled down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.04	Are all plant and equipment well maintained and in good condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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
3.07 Are air compressors fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.08 Are flaps and panels of mechanical equipment closed during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.09 Are Construction Noise Permit(s) applied for percussive piling works?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.10 Are Construction Noise Permit(s) applied for general construction works during restricted hours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.11 Are valid Construction Noise Permit(s) posted at site entrances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.12 Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.13 Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.14 Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Section 4: Waste/Chemical Management						
4.01 Waste Management Plan had been submit to Engineer for approval.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.02 Are receptacles available for general refuse collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03 Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04 Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05 Is the Contractor registered as a chemical waste producer?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06 Are the chemical waste containers and storage area properly labelled?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.07 Are the chemical wastes stored in proper storage areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.08 Is the chemical container or equipment provided with drip tray?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09 Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.10 Are incompatible chemical wastes stored in different areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.11 Are the chemical wastes disposed of by licensed collectors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.12 Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13 Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.14 Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15 Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16 Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17 Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18 Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19 Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20 Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21 Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22 Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23 Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.02	Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Section 6: Others							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6.02	Are the warning sign or larvicidal oil record shown clearly at the construction site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Remarks


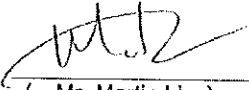

Findings of Site Inspection (6 May 2014):

Follow up (6 May 2014):

No environmental issue was observed during the site inspection

Nil.

IEC's representative RE's representative ET's representative EO's representative Contractor's representative

() () () () ()

Project: TCS/00512/09
DC-2009-03: Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan

Date: 13 May 2014

Inspected by _____
ETL/ ET's Representative: _____
RE's Representative: _____
Contractor's Representative: _____
IEC's Representative: _____

Checklist No. TCS512A-13 May 2014
 Mr. Martin Li
 Mr. Daniel Chau
 Mr. M. K. Leung

Time: 09:30

PART A: GENERAL INFORMATION **Environmental Permit No.**

Weather: Sunny Fine Cloudy Rainy EP- 282/2007

Temperature: °C

Humidity: High Moderate Low

Wind: Strong Breeze Light Calm

Area Inspected
 1 Yung Shue Wan

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 an effluent discharge license obtained for the Project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.02 Is the effluent discharged in accordance with the discharge licence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.03 Is the discharge of turbid water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.04 Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.05 Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.06 Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.07 Is drainage system well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.08 As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09 Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10 Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.11 Are manholes adequately covered or temporarily sealed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.12 Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13 Are wheel washing facilities well maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.14 Is runoff from wheel washing facilities avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.15 Are there toilets provided on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.16 Are toilets properly maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.17 Are the vehicle and plant servicing areas paved and located within roofed areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.18 Is the oil/grease leakage or spillage avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.19 Are there any measures to prevent leaked oil from entering the drainage system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.20 Are there any measures to collect spilt cement and concrete washings during concreting works?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.21 Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Note:	Not Obs.:	Yes:	No:	Follow Up:	N/A:	Photo/Remarks:
	Not Observed; Observations requiring follow-Up actions	Compliance	Non-Compliance			
Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks	
1.22	Are the oil interceptors/grease traps maintained properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.23	Is used bentonite recycled where appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.25	No excavation is undertaken in the settlement area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.27	Mobile toilets should provide on site and located away the stream course.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.28	License collector should be employed for handling the sewage of mobile toilet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.29	Is ponding /stand water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 2: Air Quality						
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.03	Are the excavated materials sprayed with water during handling?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.11	Is dark smoke emission from plant/equipment avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.15	Is open burning avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.16	Excavated materials from the stream must be removed from the site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.17	Is the road surface kept clear of loose material?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 3: Noise						
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.02	Is silenced equipment adopted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.03	Is idle equipment turned off or throttled down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.04	Are all plant and equipment well maintained and in good condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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3.07	Are air compressors fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.08	Are flaps and panels of mechanical equipment closed during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.02	Are receptacles available for general refuse collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03	Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04	Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05	Is the Contractor registered as a chemical waste producer?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06	Are the chemical waste containers and storage area properly labelled?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.07	Are the chemical wastes stored in proper storage areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.08	Is the chemical container or equipment provided with drip tray?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.10	Are incompatible chemical wastes stored in different areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.11	Are the chemical wastes disposed of by licensed collectors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.14	Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15	Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16	Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17	Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20	Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.02	Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Section 6: Others							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6.02	Are the warning sign or larvicidal oil record shown clearly at the construction site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Remarks


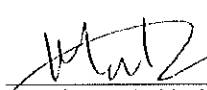

Findings of Site Inspection (13 May 2014):

Follow up (13 May 2014):

No environmental issue was observed during the site inspection

Nil.

IEC's representative RE's representative ET's representative EO's representative Contractor's representative

()  (Mr. Daniel Chau)  (Mr. Martin Li)  (Mr. M. K. Leung) ()

Project: <u>TCS/00512/09</u> <u>DC-2009-03: Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan</u>	Inspected by ETL/ ET's Representative: RE's Representative: Contractor's Representative: IEC's Representative:	Checklist No. <u>TCS512A-20 May 2014</u> Mr. Martin Li Mr. Daniel Chau Mr. M. K. Leung
Date: <u>20 May 2014</u>	Time:	09:30

PART A:	GENERAL INFORMATION	Environmental Permit No.
Weather:	<input type="checkbox"/> Sunny <input checked="" type="checkbox"/> Fine <input type="checkbox"/> Cloudy <input type="checkbox"/> Rainy	<input checked="" type="checkbox"/> EP- 282/2007
Temperature:	<input type="text" value="26.9"/> °C	
Humidity:	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low	
Wind:	<input type="checkbox"/> Strong <input checked="" type="checkbox"/> Breeze <input type="checkbox"/> Light <input type="checkbox"/> Calm	
Area Inspected		
1 Yung Shue Wan		

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 an effluent discharge license obtained for the Project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.02 Is the effluent discharged in accordance with the discharge licence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.03 Is the discharge of turbid water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.04 Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.05 Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.06 Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.07 Is drainage system well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.08 As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09 Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10 Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.11 Are manholes adequately covered or temporarily sealed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.12 Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13 Are wheel washing facilities well maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.14 Is runoff from wheel washing facilities avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.15 Are there toilets provided on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.16 Are toilets properly maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.17 Are the vehicle and plant servicing areas paved and located within roofed areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.18 Is the oil/grease leakage or spillage avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.19 Are there any measures to prevent leaked oil from entering the drainage system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.20 Are there any measures to collect spilt cement and concrete washings during concreting works?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.21 Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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1.22	Are the oil interceptors/grease traps maintained properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.23	Is used bentonite recycled where appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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2.03	Are the excavated materials sprayed with water during handling?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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2.16	Excavated materials from the stream must be removed from the site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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3.04	Are all plant and equipment well maintained and in good condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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3.08	Are flaps and panels of mechanical equipment closed during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.02	Are receptacles available for general refuse collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03	Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04	Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05	Is the Contractor registered as a chemical waste producer?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06	Are the chemical waste containers and storage area properly labelled?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.07	Are the chemical wastes stored in proper storage areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.08	Is the chemical container or equipment provided with drip tray?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.10	Are incompatible chemical wastes stored in different areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.11	Are the chemical wastes disposed of by licensed collectors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.14	Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15	Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16	Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17	Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20	Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.02	Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Section 6: Others							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6.02	Are the warning sign or larvicidal oil record shown clearly at the construction site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

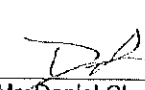
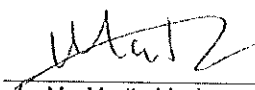
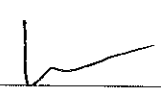
Remarks

Findings of Site Inspection (20 May 2014):

Follow up (20 May 2014):

No environmental issue was observed during the site inspection

Nil.

<u>IEC's representative</u>	<u>RE's representative</u>	<u>ET's representative</u>	<u>EO's representative</u>	<u>Contractor's representative</u>
()	 (Mr. Daniel Chau)	 (Mr. Martin Li)	 (Mr. M. K. Leung)	()

Appendix M

Implementation Schedule of Mitigation Measures

Implementation Schedule of Air Quality Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
2.3.18	2.10.2	Adopting the following good site practices and follow the dust control requirements of the Air Pollution Control (Construction Dust) Regulation: <ul style="list-style-type: none"> • Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather; • Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses; • Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like. • Any vehicle used for moving sands, aggregates and construction waste should have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin. 	Work site / during construction	All contractors		√		TM- EIAO, APCO, Air Pollution Control (Construction Dust) Regulation
2.10.3	Section 2	1 hour and 24 hour dust monitoring and site audit	Designated air monitoring locations / throughout construction period	Contractor/ Environmental Team		√		EM&A Manual

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** D=Design, C=Construction, O=Operation

N/A Not applicable

Implementation Schedule of Noise Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location/Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
2.4.16	3.8.2	Implementation of following measures during the sewer construction: <ul style="list-style-type: none"> • Use of quiet PME or method; • Restriction on the number plant (1 item for each type of plant); and • Good Site Practices <ul style="list-style-type: none"> ➤ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme. ➤ Mobile plant, if any, should be sited as far away from NSRs as possible. ➤ Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. ➤ Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. ➤ Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	Work site /during the construction of Sewer.	Contractor		√		EIAO-TM, NCO
2.10.5 to 2.10.9	Section 35	Noise monitoring	Designated noise monitoring locations / throughout construction period	Contractor/ Environmental Team		√		EM&A Manual

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** D=Design, C=Construction, O=Operation

N/A Not applicable

Implementation Schedule of Water Quality Control Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
Construction Phase								
2.5.23	4.12.1	No-dig method using Horizontal Directional Drilling (HDD) would be used for the installation of main portion of outfall pipes	Marine works site / During construction of submarine outfall	Contractor		√		
4.5.38	4.12.3	<p>Dredging Works</p> <p>Implementation of following measures during the dredging works:</p> <ul style="list-style-type: none"> dredging should be undertaken using closed grab dredgers with a maximum total production rate of 55m³/hr; deployment of 2-layer silt curtains with the first layer enclosing the grab and the second layer at around 50m from the dredging area while dredging works are in progress; dredging operation should be undertaken during ebb tide only; all vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; all pipe leakages should be repaired promptly and plant should not be operated with leaking pipes; excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved; adequate freeboard (i.e. minimum of 200mm) should be maintained on barges to ensure that decks are not washed by wave action; all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; loading of barges should be controlled to prevent splashing of dredged material to the surrounding water, and barges should not be filled to a level which will cause the overflow of materials or polluted water during loading or transportation; and 	Marine works site and at the identified water sensitive receivers/ During construction	Contractor		√		

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
		<ul style="list-style-type: none"> the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard. 						
2.5.39	4.12.4	<p><u>Construction Run-off and Drainage</u></p> <p>Implementation of the following site practices outlined in ProPECC PN 1/94 for “Construction Site Drainage”</p> <ul style="list-style-type: none"> Provision of perimeter channels to intercept storm-runoff from outside the site. These should be constructed in advance of site formation works and earthworks. Works programmes should be designed to minimize works areas at any one time, thus minimizing exposed soil areas and reducing the potential for increased siltation and runoff. Sand / silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove the sand / silt particles from run-off. These facilities should be properly and regularly maintained. These facilities should be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site. Careful programming of the works to minimise soil excavation works during rainy seasons. Exposed soil surface should be protected by paving or hydroseeding as soon as possible to reduce the potential of soil erosion. Trench excavation should be avoided in the wet season, and if necessary, these should be excavated and backfilled in short sections. Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric 	Construction works sites	Contractor		√		ProPECC PN 1/94
2.5.39	4.12.5	<p><u>General Construction Activities</u></p> <ul style="list-style-type: none"> Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby coastal waters and stormwater drains. 	Construction works sites	Contractor		√		

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
		<ul style="list-style-type: none"> All fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. Open drainage channels and culverts near the works areas should be covered to block the entrance of large debris and refuse. 						
2.5.39	4.12.6	<u>Wastewater Arising from Workforce</u> Portable toilets should be provided by the Contractors, where necessary, to handle sewage from the workforce. The Contractor should also be responsible for waste disposal and maintenance practices.	Construction works sites	Contractor		√		
2.10.10	Section 4	Water quality monitoring	Designated water monitoring locations/ throughout construction period	Contractor		√		EM&A Manual

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N/A Not applicable

Implementation Schedule of Sediment Contamination Mitigation Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
2.9.24	5.2.1	Carrying out Sediment Quality Investigation	Marine works site / prior to construction	DSD	√			WBTC No. 34/2002
2.9.23	5.2.1	Follow the requirement and procedures for dredged mud disposal specified under the WBTC No. 34/2002.	Marine works site / during dredging works	Contractor		√		WBTC No. 34/2002
2.9.23	5.2.2	Implement appropriate dredging methods which have been incorporated into the recommended water quality mitigation measures.	Marine works site, during dredging works	Contractor		√		
2.9.23	5.2.3	During the transportation and disposal of the dredged sediment, the following measures should be taken: <ul style="list-style-type: none"> • Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. • Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self monitoring devices as specified by the DEP. 	Marine works site and at the identified sensitive receivers	Contractor		√		

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** D=Design, C=Construction, O=Operation

N/A Not applicable

Implementation Schedule of Solid Waste Management Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
2.9.14	6.6.2	<u>Good site practices</u> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for implementation of good site practices, arranging for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training (proper waste management and chemical handling procedure) should be provided for site staffs Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. Provision of sufficient waste disposal points and regular collection for disposal. Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility. Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. Maintain records of the quantities of wastes generated, recycled and disposed. 	Work sites/During construction	Contractor		√		Waste Disposal Ordinance (Cap.54)
2.9.15	6.2.3	The Contractor will be required to open a billing account under the Construction Waste Disposal Charging Scheme, and to pay for disposal of all construction waste. The construction waste will be sent to a designated reception facility, which in this case will be YSW RTS, where drivers must present a valid chit for disposal of each load.	Work sites/During construction	Contractor		√		Waste disposal (Amendment) Ordinance 2004
2.9.16	6.2.4	Recommendations to achieve waste reduction include: <ul style="list-style-type: none"> segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; to encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to 	Work sites/During construction	Contractor		√		WBTC No. 4/98, 5/98

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
		segregate this waste from other general refuse generated by the work force; <ul style="list-style-type: none"> any unused chemicals or those with remaining functional capacity should be recycled; use of reusable non-timber formwork to reduce the amount of C&D material; prior to disposal of C&D waste, it is recommended that wood, steel and other metals should be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill; proper storage and site practices to minimise the potential for damage or contamination of construction materials; and plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. 						
2.9.18	6.2.5	<u>General Site Wastes</u> <ul style="list-style-type: none"> A collection area for construction site waste should be provided where waste can be stored prior to removal from site An enclosed and covered area for the collection of the waste is recommended to reduce 'wind blow' of light material 	Work sites/During construction	Contractor		√		Public Health and Municipal Services Ordinance (Cap. 132)
2.9.19	6.2.6 and 6.2.7	<u>Chemical Wastes</u> <ul style="list-style-type: none"> After use, chemical waste should be handled according to the Code of Practice on the Package, Labelling and Storage of Chemical Wastes Any unused chemicals or those with remaining functional capacity should be recycled Waste should be properly stored on site within suitably designed containers and should be collected by an approved licensed waste collectors for disposal at the Chemical Waste Treatment Facility or other licenced facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordance. 	Work sites/During construction	Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Wastes

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
		<ul style="list-style-type: none"> Any service shop and minor maintenance facilities should be located on hard standing within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the designated areas equipped control these discharges 						
2.9.21 and 2.9.22	6.2.8 and 6.2.9	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> The C&D waste should be separated on-site into three categories: <ul style="list-style-type: none"> ➤ public fill, the inert portion of the C&D material (e.g. concrete and rubble), which should be re-used on-site or disposed of at a public filling area; ➤ C&D waste for re-use and / or recycling, the non-inert portion of the C&D material, (e.g. steel and other metals, woods, glass and plastic); ➤ C&D waste which cannot be re-used and / or recycled (e.g. wood, glass and plastic) Where possible, inert material should be re-used on-site Where practicable, steel and other metals should be separated for re-use and/or recycling prior to disposal of C&D material 	During all construction phases	Contractors		√		WBTC No. 4/98, 5/98, 21/2002, 25/99, 12/2000

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** D=Design, C=Construction, O=Operation

N/A Not applicable

Implementation Schedule of Ecological Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
2.10.11 and 2.10.12	7.2 and 7.3	Carry out monitoring of corals before, during and after marine works.	Work sites / during construction phase	Contractor		√		
2.6.45 to 2.6.48	7.6.1	Use horizontal directional drilling to avoid direct disturbance to corals	Marine works site / during dredging works	Contractor		√		
2.6.57 to 2.6.58	4.12.3	Deploying of 2-layer silt curtains with the first layer enclosing the grab and the second layer at around 50m from the dredging area while dredging works are in progress	All work sites / during construction phase	Contractor		√		
2.6.51	7.6.1	Fence off the slope stabilisation works area from surrounding shrubland and/ woodland, to prevent access to or disturbance of adjacent habitats. The works area should be as small as is possible, consistent with the requirements of the works.	STW/ During construction	Contractor		√		

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** D=Design, C=Construction, O=Operation

N/A Not applicable

Implementation Schedule of Fisheries Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
2.5.37	4.12.4	Use of closed grab dredging and silt curtains around the immediate dredging area and low dredging rates as recommended in Water Quality of the EIA report	Marine works site, during dredging works	Contractor		√		TM on EIA Process

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** D=Design, C=Construction, O=Operation

N/A Not applicable

Implementation Schedule of Landscape and Visual Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
2.8.37	9.2.2	Careful and efficient transplanting of affected trees to temporary or final transplant location (the proposed tree to be transplanted is a semi-mature <i>Macaranga tanarius</i> and is located at the proposed Pumping Station P2 location).	All sites	Contractor		√		WBTC No. 14/2002
2.8.37	9.2.2	Short excavation and immediate backfilling sections upon completion of works to reduce active site area.	All sites	Contractor		√		
2.8.37	9.2.2	Screening of site construction works by use of hoarding that is appropriate to its site.	All sites	Contractor		√		WBTC No. 19/2001
2.8.37	9.2.2	Conservation of topsoil for reuse.	All sites	Contractor		√		
2.8.30	9.2.2	Night-time light source from marine fleets should be directed away from the residential units.	Outfall area.	Contractor		√		

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** D=Design, C=Construction, O=Operation

N/A Not applicable