






## 10<sup>th</sup> Monthly EM&A Report (Rev. 2)

April 2020

for

### Inter-Reservoir Transfer Scheme – Water Tunnel Between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir (Contract No.: DC/2018/08)

	<b>Prepared by:</b>	<b>Checked by:</b>	<b>Certified by:</b>
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<b>Date</b>	12 May 2020	12 May 2020	12 May 2020

# 嘉誠管理顧問有限公司

Ka Shing management consultant Limited



Our ref: 13-5-2020

13-5-2020

By email: cre.wilsonlam@hkirts.com

Black & Veatch Hong Kong Limited  
Unit No. 2507-2509, 25/F, The Octagon,  
No. 6 Sha Tsui Road,  
Tsuen Wan, N.T.  
(Attn: Wilson Lam)

Dear Mr. Lam,

**Re: Contract No. CM 10/2018**

**Independent environmental checker services for inter-reservoirs transfer scheme (IRTS)**

**– water tunnel between Kowloon byewash reservoir and lower shing mun reservoir**

**10th Monthly EM&A Report (Rev. 2)**

Reference is made to the submission of the 10th Monthly EM&A Report (Rev. 2) and provided to us via email dated on 13-5-2020 for our review and comment.

Please be informed that IEC has no adverse comment on the captioned submission. IEC hereby writes to verify the captioned submission in accordance with Condition 2.1 of the Environmental Permit No. EP-345/2009.

The ET Leader and ET are reminded that according to condition 2.2 of the Environmental Permit No. EP-345/2009 the ET and the ET Leader shall be responsible for the implementation of the EM&A programme in accordance with the relevant EM&A requirements as contained in the EM&A Manual.

Thank you very much for your attention and please feel free to contact the undersigned should you require further information.

Yours faithfully,

For and on behalf of  
Ka Shing Management Consultant Limited

*Douglas Wong*

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Dr. Wong

Independent Environmental Checker

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### Revision History

<b>Rev.</b>	<b>Description</b>	<b>Date</b>
2	Added pending lab results and respective descriptions.  Added remarks when noise monitoring is higher than limit level, corrections will be made.  Added pictures of water quality monitoring control points per IEC's comments.	12/5/2020
1	Added rectification measures	11/5/2020
0	Draft report with pending laboratory testing result	9/5/2020



## **EXECUTIVE SUMMARY**

- E1. Acuity Sustainability Consulting Limited (ASCL) has been commissioned by Bouygues Travaux Publics to undertake the assignment as the Environmental Team (ET) for the Designated Project of West Kowloon Drainage Improvement – Inter-reservoirs Transfer Scheme (IRTS) (the Project), with Contract No. DC/2018/08.
- E2. This is the 10<sup>th</sup> Monthly Environmental Monitoring and Audit (EM&A) Report presents EM&A works undertaken in the period of 1 to 30 April 2020. EM&A works were performed in accordance with the approved EM&A Manual and conditions stipulated in the Environmental Permit EP-345/2009.
- E3. According to the approved EM&A Manual, construction noise and water quality monitoring are required to be performed during the construction phase of the Project. Five (5) sessions of construction noise impact monitoring at all designated monitoring stations for daytime except general holidays and Sundays, five (5) sessions of construction noise impact monitoring for daytime during general holidays and Sundays, five (5) sessions of construction noise impact monitoring for all days during evening, four (4) sessions of construction noise impact monitoring for all days during night and thirteen (13) sessions of impact water quality monitoring at all approved monitoring points were carried out in the reporting period.
- E4. The control points (C1b and C2) were observed dried up on 2, 4, 7, 9, 11, 14, 16, 18, 21, 23, 25, 28 and 30 April 2020. Insufficient water was available for sample collection.
- E5. Exceedance of Action Level was recorded for water monitoring location D2a on 16 April 2020. The exceedance was considered project unrelated after investigation.
- E6. No exceedance was recorded for noise monitoring in the reporting period.
- E7. Joint weekly site inspections were conducted by representative of ET, Contractor and Engineer on 1, 8, 15, 22 and 29 April 2020. Details of the audit findings and implementation status are presented in Section 5.
- E8. No complaint regarding environmental issue was received in the reporting period.
- E9. No notification of summons nor prosecution have been received since the commencement of the Project.
- E10. There was no change to be reported that may affect the on-going EM&A programme.

E11. Construction works undertaken in the reporting period include the following:

Works Area	Major Site Activities
Portion A	<ul style="list-style-type: none"> <li>• Slope upgrading works (soil nail) at slope C27 &amp; C28</li> <li>• Forming of TBM launching platform</li> <li>• Pipe pile or tunnel portal</li> <li>• Mined tunnelling – Probing, grouting, excavation, arch rib installation and Shotcreting</li> </ul>
Portion C	<ul style="list-style-type: none"> <li>• Slope access and base slab installation for the KBR intake structure</li> </ul>

E12. Construction works to be undertaken in the next reporting period include the following:

Works Area	Major Site Activities
Portion A	<ul style="list-style-type: none"> <li>• Stage 2a ELS pipe pile installation</li> <li>• Spoil basin construction</li> <li>• Gantry crane footing construction</li> <li>• Slope upgrading works (soil nail) at slope C27 &amp; C28</li> <li>• Mined tunnelling – Probing, grouting, excavation, arch rib installation and Shot-creting</li> <li>• TBM assembly</li> </ul>
Portion C	<ul style="list-style-type: none"> <li>• Slope access and base slab installation for the KBR intake structure</li> </ul>

E13. The Contractor was reminded that all works to be undertaken within the water gathering ground of Lower Shing Mun Reservoir (LSMR) and Kowloon Byewash Reservoir (KBR) must fulfill statutory environmental requirements, especially in watercourse protection.

## Table of Contents

<u>Section</u>		<u>Page</u>
1	Introduction	6
2	Environmental Monitoring Requirements and Programme	10
3	Impact Monitoring Methodology and Results	15
4	Waste Management	20
5	Site Inspection	21
6	Environmental Complaint and Non-compliance	22
7	Implementation Status of Mitigation Measures	23
8	Environmental Forecasting	25
9	Conclusion and Recommendations	26

### List of Appendix

Appendix A	Project Site Layout Plan
Appendix B	Latest Construction Programme
Appendix C	Monitoring Locations
Appendix D	Calibration Certificates of Equipment Used
Appendix E	Impact Noise Monitoring Data
Appendix F	Impact Water Quality Monitoring Data
Appendix G	Supplementary Meteorological Data
Appendix H	Event / Action Plans
Appendix I	Monthly Waste Flow Table
Appendix J	Implementation Schedule of Recommended Mitigation Measures
Appendix K	Tentative Monitoring Schedule of Next Reporting Period
Appendix L	Investigation Report on Exceedance

### List of Table

Table 1.1	Contact Details of Key Personnel
Table 1.2	Summary of Construction Activities Undertaken in the Reporting Period
Table 1.3	Summary of Environmental Licences and Permits of the Project
Table 1.4	Documents Submission Required in the Environmental Permit
Table 2.1	Summary of Impact Monitoring Parameters
Table 2.2	Designated Noise Monitoring Location
Table 2.3	Original Water Quality Monitoring Location
Table 2.4	Approved Water Quality Monitoring Location
Table 2.5	Action / Limit Levels for Construction Noise Monitoring
Table 2.6	Action / Limit Levels for Water Quality Monitoring
Table 3.1	Equipment Used in the Reporting Period
Table 3.2	Summary of Evening-Time Noise Monitoring Results
Table 3.3	Summary of Construction Noise Monitoring Results
Table 3.4	Summary of Water Quality Monitoring Results
Table 4.1	Summary of Waste Disposal
Table 5.1	Weekly Inspection Findings
Table 7.1	Implemented Environmental Mitigation Measures in the Reporting Period

## 1. INTRODUCTION

- 1.1 Acuity Sustainability Consulting Limited (ASCL) has been commissioned by Bouygues Travaux Publics to undertake the assignment as the Environmental Team (ET) for the contract of West Kowloon Drainage Improvement – Inter-reservoirs Transfer Scheme (IRTS) (the Project), with Contract No. DC/2018/08. The Project comprises the following principal works elements:
- Construction of a new water tunnel, with about 2.8km in length and 3m in diameter, from KBR to LSMR;
  - Construction of an intake structure at KBR and an isolation system;
  - Construction of an outfall structure at LSMR with an energy dissipater; and
  - All associated civil, structural, geotechnical, electrical and mechanical works, including landscaping, permanent and temporary accesses as may be necessary for the completion of the works elements listed above.
- 1.2 The Project site consists of the intake site at KBR and the outfall site at the Lower Shing Mun Reservoir. The layout of the Project site is presented in **Appendix A**.
- 1.3 This project is a Designated Project under Part I of Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO). An Environmental Permit (EP), with Permit No. EP-345/2009, has been granted to the Water Supplies Department (WSD) for permitting the construction and operation of this Project.
- 1.4 The commencement date of construction of the Project was 12 July 2019. No major works except site clearance and preparation was performed before the commencement date of construction.
- 1.5 This is the 10<sup>th</sup> Monthly Environmental Monitoring and Audit (EM&A) Report presenting results and findings of all EM&A work required in the approved EM&A Manual for the period of 1 to 30 April 2020.
- 1.6 All project information since the commencement of work under EP including Monthly EM&A Reports is made available to the public via internet access at the website: [https://www.epd.gov.hk/eia/english/register/aep/ep3452009\\_content.html](https://www.epd.gov.hk/eia/english/register/aep/ep3452009_content.html)
- 1.7 As part of the EM&A programme, baseline monitoring is required for determining the ambient environmental conditions. Baseline monitoring including background noise and water quality were conducted in periods from 3 May 2019 to 22 June 2019 in accordance to the approved EM&A Manual before commencement of construction works. The corresponding Baseline Monitoring Report has been compiled by the ET and verified by the Independent Environment Checker (IEC) prior submitting to the Environmental Protection Department.

1.8 Project organization structure is presented in Figure 1.1.

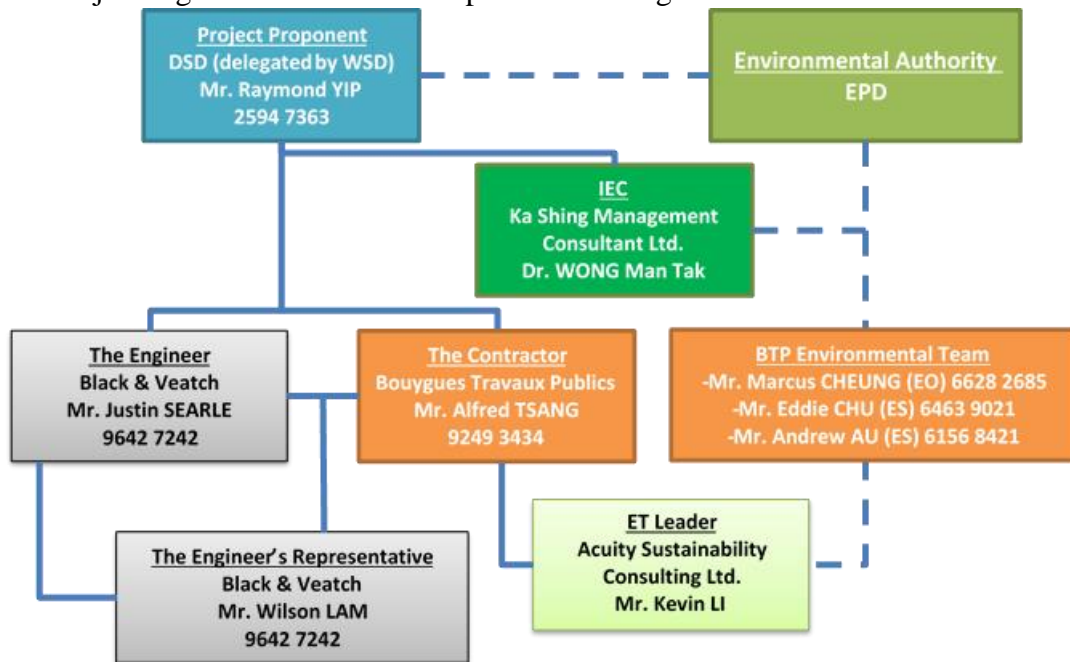


Figure 1.1 Project Organization Chart

1.9 Contact details of key personnel are presented in Table 1.1 below.

Table 1.1 Contact Details of Key Personnel

Party	Position	Name	Contact No.
Bouygues Travaux Publics	Site Agent	Mr. Alfred Tsang	3959 7317
Acuity Sustainability Consulting Limited	Environmental Team Leader	Mr. Kevin Li	2698 6833
Ka Shing Management Consultant Limited	Independent Environment Checker	Dr. Douglas Wong	2618 2166

1.10 Details of major construction activities undertaken in this reporting period are shown in Table 1.2 below. The construction programme is presented in **Appendix B**.

Table 1.2 Summary of Construction Activities Undertaken in the Reporting Period

Works Area	Major Site Activities
Portion A	<ul style="list-style-type: none"> <li>• Slope upgrading works (soil nail) at slope C27 &amp; C28</li> <li>• Forming of TBM launching platform</li> <li>• Pipe pile or tunnel portal</li> <li>• Mined tunnelling – Probing, grouting, excavation, arch rib installation and Shotcreting</li> </ul>
Portion C	<ul style="list-style-type: none"> <li>• Slope access and base slab installation for the KBR intake structure</li> </ul>

1.11 A summary of status of environmental legislations related licences, permits and/or notifications is presented in Table 1.3.

Table 1.3 Summary of Environmental Licences and Permits of the Project

Type of Permit / License	Date of Application	Reference Number	Status	Duration
Environmental Permit	N/A	EP-345/2009	Valid	Along project
Chemical Waste Producer	22 February 2019	WPN5218-733-B2557-01	Approved.	Along project
Notification of The Air Pollution Control (Construction Dust) Regulation	1 March 2019	442711	Completed (No approval required)	Along project
Billing Account of Trip Ticket System	25 February 2019	703344617	Approved on 13 March 2019	Along project
Effluent Discharge License for LSMR	4 April 2019	WT00034164-2019	Approved	Until 31-Jul-2024
Effluent Discharge License for KBR	30 September 2019	EPD Ref: 449639	Under approval	Along project
Construction Noise Permit for earth bund works and mined tunnelling at Portion A.	2 March 2020	GW-RN0187-20	Received on 24 March 2020 (Extension submitted on 20 Apr 2020)	25-Mar-2020 to 24-May-2020
Construction Noise Permit for works at Portion C.	26 November 2019	GW-RN0918-19	Received on 20 December 2019	14-Dec-2019 to 13-Jun-2020
Construction Noise Permit for works at Tai Po Road	15 January 2020	GW-RN0093-20	Approved on 12 February 2020 (Extension submitted on 20 Apr 2020)	13-Feb-2020 to 12-May-2020

Remark: Information for table 1.3 will be updated by the Contractor.

1.12 Contract documents required under conditions stipulated in the Environmental Permit are summarized in Table 1.4.

Table 1.4 Documents Submission Required in the Environmental Permit

<b>Document</b>	<b>EP Condition No.</b>	<b>Timeframe</b>	<b>Status</b>	<b>Remarks</b>
Landscape Plan	2.4 & 2.5	Submission of document shall be done no later than 6 months after commencement of construction.	The document was submitted to EPD on 9 January 2020.	Under revision according to EPD's comments.
Condition Survey Report for Historic Structures	2.6	Document shall be deposited to the authority before commencement of construction.	The document was deposited to EPD on 3 June 2019.	N.A.
Baseline Monitoring Report	4.2	Submission of document shall be done at least two weeks before commencement of construction.	The document was submitted to EPD on 28 June 2019.	1 <sup>st</sup> Revision was submitted to EPD on 6 August 2019.



## 2. ENVIRONMENTAL MONITORING REQUIREMENTS AND PROGRAMME

2.1 The Environmental Monitoring and Audit requirements are set out in the approved EM&A Manual. Construction noise and water quality were identified as key environmental issues during the construction phase. A summary of the requirements for conducting impact noise and water quality monitoring is presented in the sub-sections below.

### Monitoring Parameters, Time and Frequency

2.2 Impact monitoring parameters are summarized in Table 2.1 below.

Table 2.1 – Summary of Impact Monitoring Parameters

Environmental Aspect	Parameters	Frequency
Noise	<ul style="list-style-type: none"> <li>• 1 no. of <math>L_{eq}(30min)</math> noise measurements between 0700-1900 hours on any normal weekdays</li> <li>• 3 nos. of consecutive <math>L_{eq}(5min)</math> noise measurement between 0700-1900 hours on general holidays or Sunday (if works are undertaken)</li> <li>• 3 nos. of consecutive <math>L_{eq}(5min)</math> noise measurement between 1900-2300 hours (if evening works are undertaken)</li> <li>• 3 nos. of consecutive <math>L_{eq}(5min)</math> noise measurement between 2300-0700 hours (if nighttime works are undertaken)</li> </ul>	<ul style="list-style-type: none"> <li>• Once per week</li> </ul>
Water Quality	<ul style="list-style-type: none"> <li>• Dissolved Oxygen (mg/L)</li> <li>• Dissolved Oxygen Saturation (%)</li> <li>• pH Value</li> <li>• Turbidity (NTU)</li> <li>• Temperature (°C)</li> <li>• Suspended Solids (mg/L)</li> </ul>	<ul style="list-style-type: none"> <li>• 3 times per week</li> <li>• Interval between two sets of monitoring shall not be less than 36 hours</li> </ul>

## Monitoring Locations

### Noise

- 2.3 According to Section 4.4 of the approved EM&A Manual, the two most representative and affected noise sensitive receivers (NSRs) were designated as monitoring stations. Details regarding the two noise monitoring stations are shown in Table 2.2. Layout plans showing the monitoring locations are presented in **Appendix C**.

Table 2.2 – Designated Noise Monitoring Location

<b>Location ID (ID in EM&amp;A Manual)</b>	<b>Type of NSR</b>	<b>Location</b>	<b>Description</b>
NM1 (LG)	Residential	Tower 1, Lakeview Garden	The closest NSR to the Outfall Site (LSMR)
NM2 (VH)	Residential	4 ½ Milestone, Tai Po Road	The closest NSR to the Intake Site (KBR)

### Water Quality

- 2.4 According to Section 5.4 of the approved EM&A Manual, water quality monitoring should be performed at designated monitoring stations. Details regarding the four designated water quality monitoring stations are shown in Table 2.3.

Table 2.3 – Original Water Quality Monitoring Location

<b>ID</b>	<b>Description</b>	<b>Location</b>
C1	Control Point near Intake Site	Stepped channel by-passing KBR
D1	Impact Monitoring Point near Intake Site	Junction of stepped channel and overflow channel of KBR
C2	Control Point near Outfall Site	Natural Stream directing to Lower Shing Mun Reservoir
D2	Impact Monitoring Point near Outfall Site	Overflow channel of Lower Shing Mun Reservoir

- 2.5 As conditions of designated water quality monitoring locations have been changed since the issuing of the approved EM&A Manual, location C1, D1 and D2 are no longer feasible for conducting water quality monitoring. Therefore, the three locations were proposed to relocating to alternative monitoring locations. The proposal of alternative monitoring location was approved by EPD on 20 May 2019. Details regarding the approved water quality monitoring stations are shown in Table 2.4. Layout plans showing the original and approved monitoring locations are attached in **Appendix C**.

Table 2.4 – Approved Water Quality Monitoring Location

<b>ID</b>	<b>Description</b>	<b>Location</b>
C1b	Control Point near Intake Site	Overflow channel of Kowloon Reception Reservoir (KRR)
D1b	Impact Monitoring Point near Intake Site	KBR
C2	Control Point near Outfall Site	Natural Stream directing to LSMR
D2a	Impact Monitoring Point near Outfall Site	LSMR

### **Monitoring Equipment**

#### Noise

- 2.6 As referenced to the Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO), sound level meters in compliance with the International Electrical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring.
- 2.7 Immediately prior to and following each noise measurement the accuracy of the sound level meter should be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration level from before and after the noise measurement agrees to within 1.0dB. The acoustic calibrator to be used shall meet IEC 942, 1988 Class 1 specifications. Annual calibration of all sound level meters and acoustic calibrators shall be conducted by a laboratory in Hong Kong or the manufacturer in compliance with national standards as recommended by the manufacturer of the sound level meter and acoustic calibrator.

#### Water Quality

- 2.8 DO and water temperature should be measured in-situ by a DO/temperature meter. The equipment should be portable and weather proof using a DC power source. It should have a membrane electrode with automatic temperature compensation complete with a cable. The equipment should be capable of measuring:
- A DO level in the range of 0-20 mg/l and 0-200% saturation; and
  - A temperature of between 0 and 45 degree Celsius.
- 2.9 A portable pH meter capable of measuring a range between 0.0 and 14.0 should be provided to measure pH under the specified conditions (e.g. Orion Model 250A or an approved similar instrument) accordingly to the Standard Methods, APHA.
- 2.10 Turbidity should be measured in situ by the nephelometric method. The instrument should be portable and weatherproof using a DC power source complete with cable, sensor and comprehensive operation manuals. The equipment should be capable of measuring turbidity between 0-1000 NTU.

- 2.11 A water sampler, consisting of a transparent PVC or glass cylinder of a capacity of not less than two litres which can be effectively sealed with caps at both ends should be used.
- 2.12 In-situ monitoring instruments should be checked, calibrated and certified by a laboratory accredited under HOKLAS or other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals.

**Environmental Quality Performance Limits (Action/Limit Levels)**

- 2.13 The baseline results form basis for determining the environmental acceptance criteria for the impact monitoring. Derived Action/Limit Levels for noise and water quality are summarised in Table 2.5 and 2.6 respectively.

Table 2.5 – Action / Limit Levels for Construction Noise Monitoring

<b>Time Period</b>	<b>Action Level</b>	<b>Limit Level, dB(A)</b>
Daytime (0700-1900) except general holidays and Sunday  <i>*Measurements in <math>L_{eq}</math> (30min)</i>	When one documented compliant is received	75
Daytime (0700-1900) during general holidays and Sundays and all days during Evening (1900-2300 hrs)  <i>*Measurements in <math>L_{eq}</math> (5min)</i>		60
Night-time (2300 – 0700 hrs)  <i>*Measurements in <math>L_{eq}</math> (5min)</i>		45

Table 2.6 – Action/Limit Levels for Water Quality Monitoring

Parameter	Performance Criteria	Monitoring Location	
		D1b	D2a
Dissolved Oxygen (mg/L)	Action Level	6.1	6.3
	Limit Level	5.8	6.1
pH Value	Action Level	8.8	9.0
	Limit Level	≤ 6.5 <b>OR</b> ≥ 8.9	≤ 6.5 <b>OR</b> ≥ 9.2
Turbidity (NTU)	Action Level	19.5	13.1
		<b>OR</b> 120% of upstream control station of the same day	
	Limit Level	23.4	18.9
		<b>OR</b> 130% of upstream control station of the same day	
Suspended Solids (mg/L)	Action Level	9.0	22.0
		<b>OR</b> 120% of upstream control station of the same day	
	Limit Level	13.0	25.0
		<b>OR</b> 130% of upstream control station of the same day	

*Remarks:*

1. Non-compliance occurs when monitoring result of Dissolved Oxygen is lower than the limits.
2. Non-compliance occurs when monitoring result of pH value is higher than the Action Levels or when the result does not fall into the pH range of the Limit Levels.
3. Non-compliance occurs when monitoring results of Turbidity and Suspended Solids is higher than the limits.

**Event / Action Plan**

- 2.14 Should there be any triggering of Action Levels, or exceedance of Limit Levels, the Event / Action Plan established in the approved EM&A Manual should be followed. The Event / Action Plan is attached in **Appendix H**.

### 3. IMPACT MONITORING METHODOLOGY AND RESULTS

#### Equipment Used

- 3.1 Equipment used in impact noise and water quality monitoring during the reporting period is summarized in Table 3.1 below. Calibration certificates of equipment used are attached in **Appendix D**.

Table 3.1 – Equipment Used in the Reporting Period

Environmental Aspect	Equipment	Model
Noise	Sound Level Meter	Pulsar 43
	Sound Level Meter	XL2
	Calibrator	Pulsar 105
	Portable Anemometer	Kestrel 1000
Water Quality	Multifunctional Meter	HORIBA U-53 Multiparameter Water Quality Meter
		YSI ProDSS

#### Monitoring Procedure

##### Noise

- 3.2 Field measurement procedures for each set of the noise level measurement are as followed:
- i. Record the field condition including temperature, weather conditions, and any other potential source of interference;
  - ii. Turn the power of sound level meter on;
  - iii. Check the general condition of the sound level meter and the battery status;
  - iv. Mount the sound level meter onto a tripod of 1.2 m height;
  - v. Check the distance of the probe from closest facade;
  - vi. Adjust the orientation of probe so that it is facing the project site;
  - vii. Calibrate the sound level meter by using acoustic calibrator;
  - viii. Select the period of measurement to be 30 minutes;
  - ix. Select the appropriate displaying unit, dB(A);
  - x. Collect and record the sampled data;
  - xi. Calibrate the sound level meter by using acoustic calibrator. Repeat procedure ii. to xi. if the difference in calibration level is more than 1.0 dB.
- 3.3 All noise measurements were performed in the absence of fog, rain and wind with a speed exceeding 5m/s or wind with gusts exceeding 10m/s. Wind speed was checked with portable wind speed meter.

### Water Quality

- 3.4 Field measurement procedures for each set of the water quality measurement are as followed:
- i. The DO probe of the multifunctional meter is checked by wet bulb method; the pH and turbidity probes are checked against standard solutions. Record the checking result;
  - ii. Record the field condition including weather conditions and any other potential source of interference;
  - iii. Lower the sampler into water body and rinse it with water in the target water body;
  - iv. Fill the sampler until adequate sample is collected. Replicate sample at each monitoring location is required;
  - v. Rinse the bottles by the sample before transferring samples into containing bottles;
  - vi. Rinse the probe of multimeter with distilled water;
  - vii. Measure and record temperature, turbidity, pH value and DO of each bottle of sample;
  - viii. Bottles containing sample is stored temporarily in insulation box with ice until reaching the laboratory;
- 3.5 Analysis of SS was carried out in a HOKLAS accredited laboratory. Standard test method, APHA 2540 D, in accordance to American Public Health Association: Standard Methods for the Examination of Water and Wastewater APHA 21 ed was adopted.

### Data Management and QA/QC

- 3.6 The monitoring data were handled by the ET's in-house data recording and management system. Laboratory responsible for laboratory analysis would follow QA/QC requirements as set out under HOKLAS scheme.
- 3.7 The in-situ monitoring data measured in the equipment were recorded by both field operators and by the equipment itself. Laboratory analysis results were directly issued by the designated laboratory. All data were then input into a computerized database which is properly maintained by the ET. Cross checking between results was performed by other personnel.



### Noise Monitoring Result

- 3.8 Construction noise monitoring was performed at designated monitoring locations, i.e. NM1 and NM2, during the reporting period.
- 3.9 Evening time construction work had conducted since 25 March 2020. Evening time monitoring was conducted on 2, 9, 16, 23 and 29 April 2020. The evening time construction noise monitoring data is presented in Table 3.2

Table 3.2 Summary of Evening Time Noise Monitoring Result

Monitoring Location	Time Period	L <sub>eq(5min)</sub> , dB(A)			Limit Level, dB(A)
		Mean	Max	Min	
NM1	All days during Evening (1900-2300)	50.3	54.3	45.2	60

- 3.10 Night time construction work had conducted since 6 April 2020. Night time monitoring was conducted on 9, 16, 23 and 29 April 2020. The night time construction noise monitoring data is presented in Table 3.3

Table 3.3 Summary of Night Time Noise Monitoring Result

Monitoring Location	Time Period	L <sub>eq(5min)</sub> , dB(A)			Limit Level, dB(A)
		Mean	Max	Min	
NM1	All days during Night (2300-0700)	44.4	44.9	43.6	45

- 3.11 Daytime during general holidays and Sundays construction work had conducted on 4, 11, 19, 26 and 30 April 2020 and construction noise monitoring was also conducted on the same day. The daytime during general holidays and Sundays construction noise monitoring data is presented in Table 3.3.

Table 3.3 Summary of Daytime during General Holidays and Sundays Noise Monitoring Result

Monitoring Location	Time Period	L <sub>eq(5min)</sub> , dB(A)			Limit Level, dB(A)
		Mean	Max	Min	
NM1	Daytime (0700-1900) during general holidays and Sundays	50.4	56.3	45.1	60
NM2	Daytime (0700-1900) during general holidays and Sundays	56.2	62.2	44.3	60

- 3.12 Five (5) sessions of construction noise impact monitoring at all designated monitoring stations for daytime except general holidays and Sundays. The noise monitoring data is presented in **Appendix E** and results are summarized in Table 3.4.

Table 3.4 Summary of Construction Noise Monitoring Results

Monitoring Location	Time Period	Leq(30min), dB(A)			Limit Level, dB(A)
		Mean	Max	Min	
NM1	Daytime (0700 – 1900) except general holidays and Sunday	52.7	53.5	50.4	75
NM2		51.2	52.8	48.7	75

- 3.13 No construction noise related complaint was received in the reporting period. There was no Action / Limit Levels exceedance of construction noise recorded in the reporting period.
- 3.14 Weather conditions during monitoring were mainly sunny. Summary of meteorological data is presented in **Appendix G**.

**Water Quality Monitoring Result**

- 3.15 Water quality monitoring was performed at approved monitoring locations, i.e. C1b, D1b, C2 and D2a, during the reporting period.
- 3.16 Thirteen (13) sessions of water quality monitoring were performed at each of the approved monitoring locations. The water quality monitoring data is presented in **Appendix F** and results are summarized in Table 3.4.

Table 3.4 Summary of Water Quality Monitoring Results

Parameters		C1b	D1b	C2	D2a
Dissolved Oxygen (mg/L)	Min	-	7.7	-	7.4
	Max		9.7		9.4
	Mean		8.4		8.3
Dissolved Oxygen Saturation (%)	Min	-	92.6	-	89.1
	Max		112.8		110.7
	Mean		99.7		100.4
pH Value	Min	-	7.0	-	7.3
	Max		8.2		8.5
	Mean		7.7		7.8
	Min	-	0.8	-	1.3

<b>Turbidity (NTU)</b>	<b>Max</b>		5.9		11.5
	<b>Mean</b>		2.5		5.5
<b>Suspended Solids <sup>1</sup> (mg/L)</b>	<b>Min</b>		2.0		2.0
	<b>Max</b>	-	4.0	-	32.0
	<b>Mean</b>		2.2		8.5

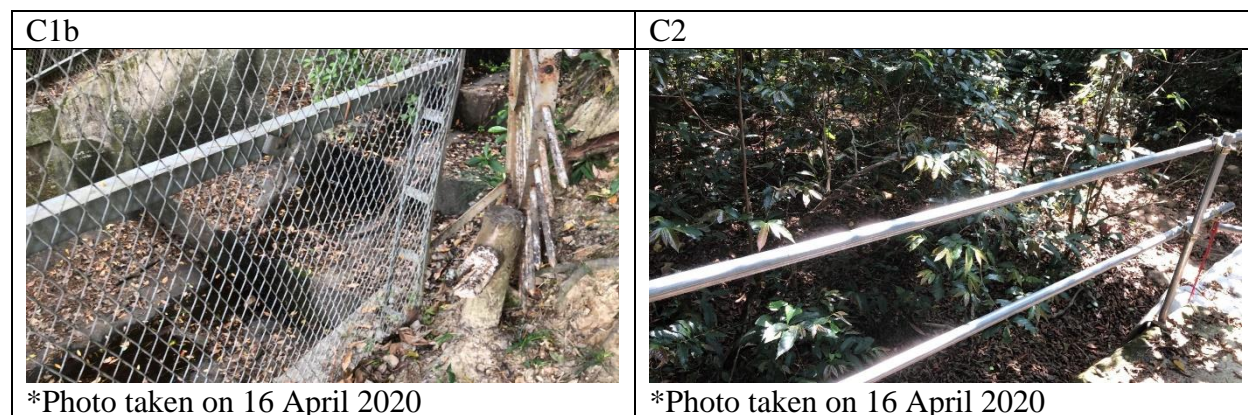
*Remarks:*

1. Lower detection limit of Suspended Solids is 2.0. Data lower than such limit is regarded as 2.0 in result presentation.

2. The control point (C1b) and control point (C2) were observed dried up on 2, 4, 7, 9, 11, 14, 16, 18, 21, 23, 25, 28 and 30 April 2020

3.17 The control points (C1b) as well as control point (C2) were observed dried up on 2, 4, 7, 9, 11, 14, 16, 18, 21, 23, 25, 28 and 30 April 2020. Insufficient water was available for sample collection.

3.18 Shallow water and break up into sections of the stream were observed at control points (C1b and C2), which are located at the natural stream directing to the construction site and Kowloon Byewash Reservoir and Lower Shing Mun Reservoir respectively, during water monitoring event in April 2020; and the natural stream where C1b and C2 located were found dried up during water monitoring event in April 2020. The abnormal stream condition for the natural stream where C1b and C2 located were considered due to lack of precipitation in this period of time. Trace amount of or no water from the natural stream where C1b and C2 located were observed flowing through the impact monitoring points (D1b and D2a) near the construction site at Kowloon Byewash Reservoir and Lower Shing Mun Reservoir respectively in April 2020. Low water level of Kowloon Byewash Reservoir and Lower Shing Mun Reservoir were also observed as a result of lack of precipitation and/or WSD assistance in drawing off the reservoir water. The actual sampling location of D2a is subject to the actual water level of the reservoir and was determined on-site at locations close to the site.



- 3.19 As a result, Action and Limit levels of water quality monitoring at D1b and D2a in April 2020 were referred only to the respective percentile of baseline data according to the Baseline Monitoring Report when insufficient water was available for sample collection.
- 3.20 Exceedance of Action Level was recorded for water monitoring location D2a on 16 April 2020. The exceedance was considered project unrelated after investigation.
- 3.21 Weather conditions during monitoring were mainly cloudy with sunny intervals. Summary of meteorological data is presented in **Appendix G**.

## 4. WASTE MANAGEMENT

4.1 An on-site environmental coordinator, i.e. Environmental Officer, has been employed by the Contractor to coordinate and supervise the project waste management works.

4.2 Waste arisen from the construction works are classified into the followings:

- Construction and demolition (C&D) material;
- Chemical waste; and
- General refuse.

4.3 Waste disposal record provided by the Contractor is summarized in Table 4.1.

Table 4.1 Summary of Waste Disposal

Reporting period	Quantity					
	Inert C&D Materials (in'000m <sup>3</sup> )	Chemical Waste (in'000kg)	Non-inert C&D Materials			
			Others, e.g. General Refuse disposed at Landfill (in'000m <sup>3</sup> )	Recycled materials		
				Paper/card board (in'000kg)	Plastics (in'000kg)	Metals (in'000kg)
April 2020	0.3707	0.0	0.0192	0.0	0.0	0.0

4.4 The Monthly Summary Waste Flow Table is presented in **Appendix I**.

## 5. SITE INSPECTION

- 5.1 Joint weekly site inspections were conducted by representative of ET, Contractor and Engineer so as to monitoring the implementation of proper environmental pollution control and mitigation measures. Five (5) site inspections were performed in the reporting period.
- 5.2 One joint site inspection with IEC was also undertaken on 29 April 2020. Minor deficiencies were observed during weekly site inspection. Inspection findings are summarized in Table 5.1.

Table 5.1 Weekly Inspection Findings

<b>Date</b>	<b>Location</b>	<b>Observation(s)</b>	<b>Follow-up Status</b>
1 April 2020	KBR	1. Retained trees should be fenced off and protected.	1. The trees will be fenced off and kept well maintained.
8 April 2020	LSMR	1. Chemical containers should be placed properly in Portion A.	1. Chemical containers have been removed.
		2. Updated license and permit should be posted at the entrance in Portion A.	2. Copies of updated license and permit have been posted at entrance at Portion A.
15 April 2020	LSMR	1. Location for soil and mud collection near the entrance area should be well maintained and covered to avoid spreading of dusty substance.	1. Soil accumulation will be avoided.
		2. Sand bags for preventing seepage were observed broken. It should be well maintained to ensure the efficiency.	2. Sandbags have been changed and packed tidily.
		3. The U-channel near site entrance should be blocked to avoid the chance of waste water entry.	3. The concerned area has been blocked with sandbags barrier.

		4. Tree fences were observed broken.	4. Tree fencing will be changed and well maintained.
		5. Notice for reminding of no eating within site area was missing.	5. Posted.
		6. Permit copy and Licence copies should be posted at the entrance of site area.	6. Posted.
		7. Waste water treatment facilities should be connected after relocation.	7. The Wetsep and relevant drainage network has been connected.
		8. Chemical waste cabinet was missing after relocation.	8. A new chemical waste storage cabinet has been installed.
22 April 2020	LSMR	1. Bunding made up by sand bags should keep on maintain to avoid seepage of soil or muddy water.	1. The sandbag barrier has been changed and well packed tidily.
		2. Chemical waste storage area should be locked.	2. Lock has been provided.
		3. At portion A, penal of wastewater treatment facility showed a pH around 10. No discharge of water was observed. Contractor should check and ensure the operation of the facility is good condition.	3. Wetsep has been fixed and pH has been resumed to normal arrange (pH 6-9)
	KBR	4. At KBR, retained trees should be protected by tree fences. Construction materials should not put on the rooting area.	4. Materials have been removed.
29 April 2020	LSMR	1. Chemical Storage Tank shall be locked.	1. Locked.



		2. CNP for LSMR area was missing from site.	2. Posted.
		3. Refuse collection/ recycling area shall be properly labelled with “Inert” / “non-inert” label.	3. The label has been changed.
		4. Sandbags at temporary site boundaries shall be maintained.	4. Sandbags barrier will be kept tidily installed.
		5. Drainage channels shall be kept clean from debris.	5. Drainage channels will be kept cleaning to maintain smooth drainage flow.

5.3 The Contractor rectified all observations that had been identified during weekly inspection within the reporting period.

## **6. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE**

- 6.1 Exceedance of Action Level was recorded for water monitoring location D2a on 16 April 2020. The exceedance was considered project unrelated after investigation.
- 6.2 No exceedance was recorded for noise monitoring in the reporting period.
- 6.3 There was no environmental related complaint received in the reporting period.
- 6.4 There was no notification of summon and successful prosecution for breaches of current environmental protection/pollution control legislation in the reporting period.

## 7. IMPLEMENTATION STATUS OF MITIGATION MEASURES

7.1 The Contractor has been implementing environmental mitigation measures set out in the approved EM&A Manual subject to the actual site condition. The implementation schedule is presented in **Appendix J**. Mitigation measures generally implemented by the Contractor in the reporting period are summarized in Table 7.1.

Table 7.1 Implemented Environmental Mitigation Measures in the Reporting Period

<b>Environmental Aspect</b>	<b>Mitigation Measures Implemented</b>
Air Quality	<ul style="list-style-type: none"> <li>• Water spraying at works area before, during and after operation</li> <li>• Restricting heights from which materials were to be dropped</li> <li>• All vehicles were washed to remove dusty materials immediately before leaving the site</li> <li>• Erection of hoarding of not less than 2.4m in height</li> <li>• Covering dusty materials stockpile entirely with impervious tarpaulin</li> <li>• Spraying dusty materials with water immediately prior to any loading, unloading or transfer operation</li> </ul>
Construction Noise	<ul style="list-style-type: none"> <li>• The Contractor had been submitting method statement to the Engineer Representative for the approval of working method, equipment and noise mitigation measures to be used before commencing any work</li> <li>• Unused equipment was switched off</li> <li>• Regular maintenance of plants and equipment</li> </ul>
Water Quality	<ul style="list-style-type: none"> <li>• Provision of desilting facilities within works area capable of controlling discharge of SS to comply with WPCO/TM-DSS</li> <li>• Preparing of Contingency Plan which detailing the response and procedures when there was accidental spillage</li> <li>• Provision of channels, earth bunds and sand bags barriers for directing surface runoff to desilting facilities</li> <li>• Existing manholes were covered</li> <li>• Portable chemical toilets were provided on-site and licensed contractor was employed for the collection and disposal process</li> <li>• Two layers of silt curtain were deployed to separate the works area from water gathering ground</li> <li>• Oil and grease removal materials were provided</li> <li>• Exposed slopes were either shotcreted or covered by impervious tarpaulin</li> </ul>
Waste Management	<ul style="list-style-type: none"> <li>• Provision of on-site coordinator for waste management</li> <li>• Excavated material was reused on site as far as practicable to minimize off-site disposal</li> <li>• Sorting of waste materials into inert/non-inert type on-site</li> </ul>

<b>Environmental Aspect</b>	<b>Mitigation Measures Implemented</b>
	<ul style="list-style-type: none"> <li>• Trip Ticket System was implemented for control of C&amp;D waste disposal</li> <li>• Covered bins were provided for the containment of general refuse</li> <li>• Toolbox talks were provided to workers for enhancing their awareness</li> </ul>
Ecology	<ul style="list-style-type: none"> <li>• Clear definition of site boundary was provided</li> <li>• <i>Pavetta hongkongensis</i> had been transplanted on-site</li> <li>• Eating, leaving food and feeding wildlife are forbidden in works area</li> <li>• Fishing was forbidden in works area</li> <li>• Litter was removed off-site regularly</li> <li>• Unused equipment was switched off</li> </ul>
Landscape and Visual	<ul style="list-style-type: none"> <li>• Retained trees were protected</li> <li>• Hoarding erected was compatible with surrounding setting</li> </ul>
Cultural Heritage	<ul style="list-style-type: none"> <li>• Condition survey was conducted prior to the commencement of construction</li> <li>• Vibration monitoring had been implemented in accordance with recommendations in the condition survey report</li> </ul>

## 8. ENVIRONMENTAL FORECASTING

8.1 As advised by the Contractor, major construction works to be performed in the next reporting month, i.e. May 2020, include the followings:

Works Area	Major Site Activities
Portion A	<ul style="list-style-type: none"> <li>• Stage 2a ELS pipe pile installation</li> <li>• Spoil basin construction</li> <li>• Gantry crane footing construction</li> <li>• Slope upgrading works (soil nail) at slope C27 &amp; C28</li> <li>• Mined tunnelling – Probing, grouting, excavation, arch rib installation and Shot-creting</li> <li>• TBM assembly</li> </ul>
Portion C	<ul style="list-style-type: none"> <li>• Slope access and base slab installation for the KBR intake structure</li> </ul>

8.2 The Contractor is reminded to properly implement mitigation measures for each specified works. Attention should be drawn to air pollution control during soil nailing since the works area is very close to public road. The Contractor should also carefully program the drainage diversion and TBM launching platform works so as to critically protect the water gathering ground of LSMR during construction.

8.3 Tentative schedule of impact construction noise and water quality monitoring for the next reporting month, i.e. May 2020, is presented in **Appendix K**. Monitoring will be performed at same locations presented in above sections.

## **9. CONCLUSION AND RECOMMENDATIONS**

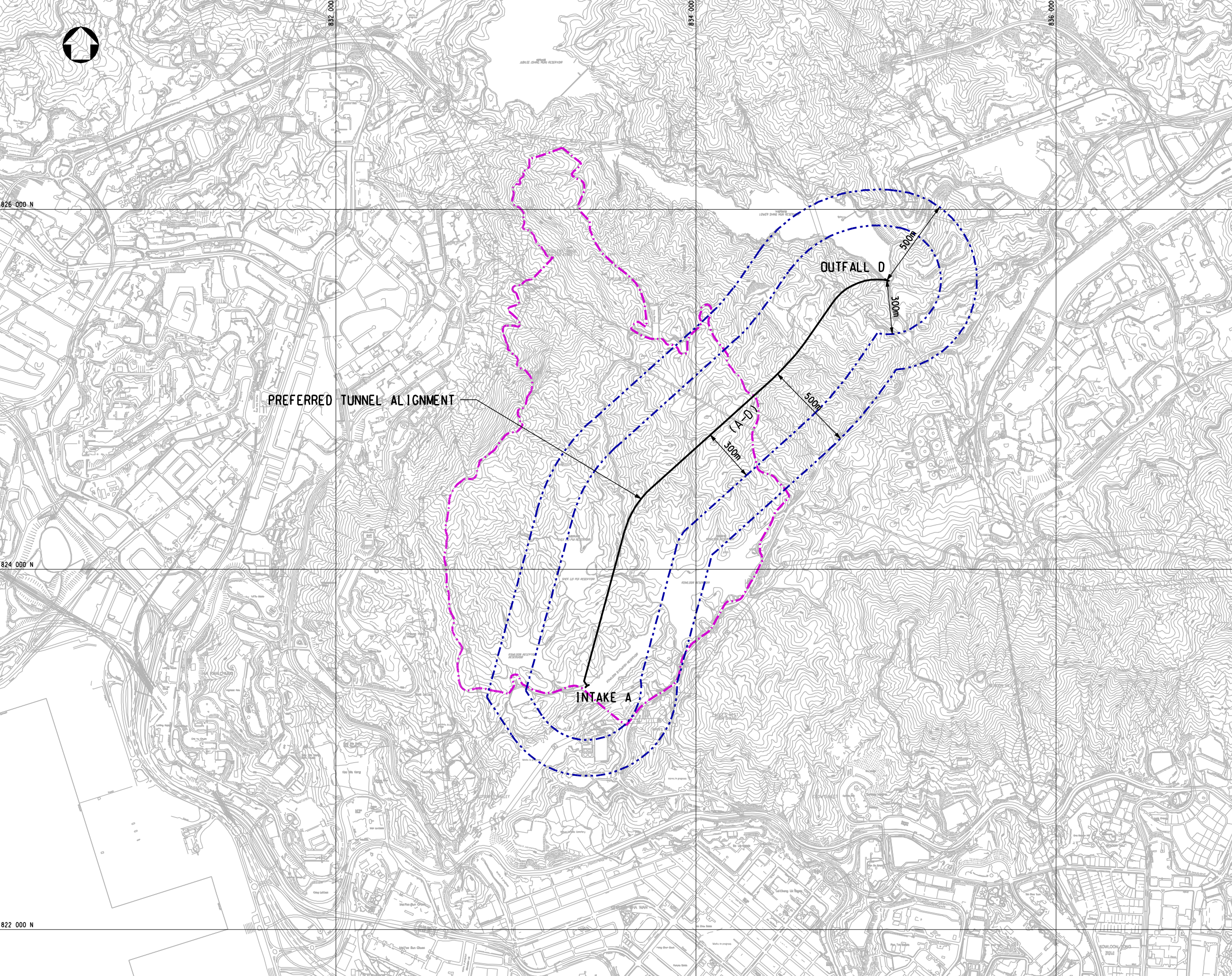
- 9.1 This is the 10<sup>th</sup> Monthly Environmental Monitoring and Audit (EM&A) Report presents EM&A works undertaken in the period of 1 to 30 April 2020. EM&A works were performed in accordance with the approved EM&A Manual and conditions stipulated in the Environmental Permit EP-345/2009.
- 9.2 Impact monitoring for construction noise and water quality were performed in the reporting period.
- 9.3 The control points (C1b and C2) were observed dried up on 2, 4, 7, 9, 11, 14, 16, 18, 21, 23, 25, 28 and 30 April 2020. Insufficient water was available for sample collection.
- 9.4 Exceedance of Action Level was recorded for water monitoring location D2a on 16 April 2020. The exceedance was considered project unrelated after investigation.
- 9.5 No exceedance was recorded for noise monitoring in the reporting period.
- 9.6 Similar to predictions from the EIA report, no project-related exceedance was identified from the EM&A programme of the reporting month.
- 9.7 Weekly site inspections were performed during the reporting period.
- 9.8 No complaint regarding environmental issue was received in the reporting period.
- 9.9 No notification of summons nor prosecution have been received since the commencement of the Project.
- 9.10 The Contractor is reminded that all works to be undertaken within the water gathering ground of LSMR and KBR must fulfill statutory environmental requirements, especially in watercourse protection.

Appendix A  
Project Site Layout Plan





**LEGEND:**  
 - - - - - KAM SHAN COUNTRY PARK BOUNDARY  
 - - - - - STUDY AREA




PREFERRED TUNNEL ALIGNMENT

OUTFALL D

INTAKE A

Rev	Date	Drawn/Description	Ch'kd/App'd

Client  
 THE GOVERNMENT OF THE HONG KONG  
 SPECIAL ADMINISTRATIVE REGION  
 WATER SUPPLIES DEPARTMENT

**m Mott MacDonald**  
 Mott MacDonald Hong Kong Ltd  
 7th Floor  
 West Wing Office Building  
 New World Centre  
 20 Salisbury Road  
 Tsim Sha Tsui, Kowloon  
 Hong Kong  
 Tel: 2828 5757  
 Fax: 2827 1823  
 Web: www.mottmac.com.hk

Project  
 Agreement No. CE55/2006(EP)  
 Inter-reservoirs Transfer Scheme (IRTS)  
 Water Tunnel between Kowloon Byewash  
 Reservoir and Lower Shing Mun Reservoir  
 Environmental Impact Assessment  
 Investigation

Title  
 THE PREFERRED SCHEME

Designed	HN/PW	Eng.Chk.	PW
Drawn	VN	Coordination	PW
Dwg.Chk.	HN	Approved	AFK

Scale	Project	Status
1:10000@A1	240564	INF

Drawing No.	FIGURE 1-1
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## Appendix B

# Latest Construction Programme



# IRTS: 3 Month Rolling Programme (May 20 ~ Jul 20)

Layout : IRT-Rolling Y20M02D04a  
 TASK filters: 3 Month Rolling, Level of Effort.  
 Data Date : 29-Apr-20

Activity ID	Activity Name	Dur	Start	Finish	2020					
					Apr 14	May 15	Jun 16	Jul 17	Aug 18	
<b>IRTS - Rolling Programme (Y20M04D29a)</b>										
<b>Preliminaries and General Requirements</b>										
PGR_1110	Procurement - Major Sub-Contract (Disposal)	82	20-Jan-20A	08-May-20	Procurement - Major Sub-Contract (Disposal)					
PGR_1820	CNP Application for TBM Operation	30	29-Apr-20	04-Jun-20	CNP Application for TBM Operation					
<b>BIM Submission</b>										
PGR_1940	Preparation and Submission of Proposal for COBie Information Requirements *(P3)	84	20-Jan-20A	11-May-20*	Preparation and Submission of Proposal for COBie Information Requirements *(P3)					
<b>Procurement of Consultants and Sub-Contractors</b>										
<b>Sub-Contractors</b>										
Pro_SCon_1300-20	Subcontract Pipe Pile Wall and Grouting Works for Outfall Structure (Stage 2B)	48	12-May-20	08-Jul-20	Subcontract Pipe Pile Wall and Grouting Works for Outfall Structure (Stage 2B)					
Pro_SCon_1400-10	Subcontract Supply & Installation of Strutting and Waling System for Outfall Structure	76	12-May-20	10-Aug-20	Subcontract Supply & Installation of Strutting and Waling System for Outfall Structure					
Pro_SCon_1400-20	Subcontract Supply & Installation of Cofferdam for KBR Cut & Cover Tunnel	76	02-May-20	31-Jul-20	Subcontract Supply & Installation of Cofferdam for KBR Cut & Cover Tunnel					
Pro_SCon_1600	Subcontract E&M work of the electrical actuated penstocks and the automatic flow control system *(P2a)	126	23-Dec-19A	04-Jun-20	Subcontract E&M work of the electrical actuated penstocks and the automatic flow control system *(P2a)					
<b>Tai Po Road Site (TGLA No. TST453)</b>										
TPR_GW-1040	General Site Storage	808	02-Jul-19A	30-Mar-22	General Site Storage					
<b>ARPE Submission</b>										
<b>Package 3 - Tunnel Works</b>										
ARPE_P3-020z	Approval by WSD	86	17-Jan-20A	11-May-20	Approval by WSD					
<b>CSD Submission</b>										
<b>CSD 1 - Outfall Structure</b>										
<b>Design Submission</b>										
CSD_FF_2070	DDA- Review & Acceptance	165	03-Oct-19A	29-Apr-20	DDA- Review & Acceptance					
CSD_FF_2080	Approval for Site Construction	0		29-Apr-20	Approval for Site Construction					
<b>CSD 2 - Alternative Alignment &amp; Intake Structure</b>										
<b>Design Submission</b>										
CSD_FF_2150	DDA- Review & Acceptance	159	12-Oct-19A	02-May-20	DDA- Review & Acceptance					
CSD_FF_2160	Approval for Site Construction	0		02-May-20	Approval for Site Construction					
<b>Alternative Works (Subject to approval of alternative tunnel alignment)</b>										
CSD_FF_2170	Preparation and Approval Method Statement and Temp. Works Design	234	02-Oct-19A	22-Jul-20	Preparation and Approval Method Statement and Temp. Works Design					
CSD_FF_2190-40	Rock Breaking to Level (+110.0 ~ +108.0)	25	29-Apr-20	29-May-20	Rock Breaking to Level (+110.0 ~ +108.0)					
CSD_FF_2190-50	Rock Breaking to Level (+108.0 ~ +106.0)	25	30-May-20	29-Jun-20	Rock Breaking to Level (+108.0 ~ +106.0)					
CSD_FF_2200	Intake Structure Base Slab Construction	30	23-Jul-20	26-Aug-20	Intake Structure Base Slab Construction					
<b>Tunneling Works</b>										
<b>Design Submission</b>										
<b>Mined Tunnel Temporary Works Design</b>										
<b>KBR Mined Tunnel</b>										
MTD_KB_1000	1st Submission - Mined Tunnel Design Preparation & Submission	122	11-Dec-19A	19-May-20	1st Submission - Mined Tunnel Design Preparation & Submission					
MTD_KB_2000	Review and Comments	18	20-May-20	09-Jun-20	Review and Comments					
MTD_KB_3000	2nd Submission - Mined Tunnel Design Preparation & Submission with ICE	28	10-Jun-20	14-Jul-20	2nd Submission - Mined Tunnel Design Preparation & Submission with ICE					
MTD_KB_4000	Review and Acceptance	18	15-Jul-20	04-Aug-20	Review and Acceptance					
<b>Mined Tunnel Permanent Works Design</b>										
MTD_KB_4010	1st Submission - Mined Tunnel Design Preparation & Submission	37	15-Jul-20	26-Aug-20	1st Submission - Mined Tunnel Design Preparation & Submission					
<b>TBM Thrust Frame Design</b>										

█ Actual Level of Effort    █ Critical Remaining Work  
█ Actual Work            ◆ Milestone  
█ Remaining Work

Contract No. DC/2018/08 : Inter-Reservoirs Transfer Scheme  
 Water Tunnel Between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir

Date	Revision	Checked	Approved
29-Apr-20	Rolling Y20M04D29a	EChu	

1 of 4



# IRTS: 3 Month Rolling Programme (May 20 ~ Jul 20)

Layout : IRT-Rolling Y20M02D04a  
 TASK filters: 3 Month Rolling, Level of Effort.  
 Data Date : 29-Apr-20

Activity ID	Activity Name	Dur	Start	Finish	2020				
					Apr 14	May 15	Jun 16	Jul 17	Aug 18
TTF_D_3000	2nd Submission - TBM Thrust Frame Design Preparation & Submission with ICE	98	31-Dec-19A	08-May-20	2nd Submission - TBM Thrust Frame Design Preparation & Submission with ICE				
TTF_D_4000	Review and Acceptance	12	09-May-20	22-May-20	Review and Acceptance				
<b>Lining Mould Procurement, Manufacture and Delivery</b>									
TBM_Ln_1400	1st Batch : Segment Fabrication 848 rings	162	16-Nov-19A	10-Jun-20	1st Batch : Segment Fabrication 848 rings				
TBM_Ln_1500	2nd Batch : Segment Fabrication 1485 rings	248	11-Jun-20	16-Apr-21					
TBM_Ln_1510	Segment Delivery to Site	275	01-Jun-20	08-May-21					
TBM_Ln_1520xx	1st Batch : Segment Fabrication & Delivery to site in batches = 786 rings + 2w LC	143	29-Apr-20	17-Oct-20					
<b>LSMR - Site Preparation</b>									
TBM_SP_2110-10	Excavation & Install Strut S1	8	22-Apr-20A	02-May-20	Excavation & Install Strut S1				
TBM_SP_2110-20	Excavation & Install Strut S2	5	04-May-20	08-May-20	Excavation & Install Strut S2				
TBM_SP_2110-30	Excavation & Install Strut S3	4	09-May-20	13-May-20	Excavation & Install Strut S3				
TBM_SP_2110-40	Backfill to +87.125, Cast Blinding	2	14-May-20	15-May-20	Backfill to +87.125, Cast Blinding				
TBM_SP_2110-50	Remove Strut S2	2	16-May-20	18-May-20	Remove Strut S2				
TBM_SP_2110-60	Cut Pipe Pile Wall (Stage 1 ELS)	2	16-May-20	18-May-20	Cut Pipe Pile Wall (Stage 1 ELS)				
TBM_SP_2110-70	Construct Shifting Way & Cradle Slab (Section C3)	6	19-May-20	25-May-20	Construct Shifting Way & Cradle Slab (Section C3)				
<b>Site Works</b>									
<b>LSMR (North Portal) &amp; TBM</b>									
<b>LSMR : Excavation &amp; Portal Formation</b>									
NP_1100-40	Temporary Site Drainage System incl. Wetsep (Stage 2)	79	23-Jan-20A	08-May-20	Temporary Site Drainage System incl. Wetsep (Stage 2)				
<b>LSMR : Mined Tunnel</b>									
<b>Mined Tunnel (CH 41.83 to CH62.04)</b>									
NP_MT_1200	Probing ,Grouting,Excavation, arch rib installation and Shotcreting(CH41.83 to CH47.11) (7a.m to 7p.m) *(P15)	42	16-Mar-20A	02-May-20	Probing ,Grouting,Excavation, arch rib installation and Shotcreting(CH41.83 to CH47.11) (7a.m to 7p.m) *(P15)				
NP_MT_1210	Probing ,Grouting,Excavation, arch rib installation and Shotcreting(CH47.11 to CH50.2) (24Hrs.) *(P15)	11	04-May-20	15-May-20	Probing ,Grouting,Excavation, arch rib installation and Shotcreting(CH47.11 to CH50.2) (24Hrs.) *(P15)				
NP_MT_1400	Probing ,Grouting,Excavation, Rock Bolt installation and Shotcreting(CH50.2 to CH60.0) *(P15)	9	16-May-20	26-May-20	Probing ,Grouting,Excavation, Rock Bolt installation and Shotcreting(CH50.2 to CH60.0) *(P15)				
NP_MT_1410	Construct Shifting Way Cradle Slab (Section C2)	5	27-May-20	01-Jun-20	Construct Shifting Way Cradle Slab (Section C2)				
<b>LSMR : TBM Tunnel Excavation</b>									
<b>LSMR : Civil Provision for TBM Launching</b>									
TBM_Cv_1010	Water Silo & Chiller	20	17-Apr-20A	12-May-20	Water Silo & Chiller				
TBM_Cv_1020	Set Up Batching Plant	14	13-May-20	28-May-20	Set Up Batching Plant				
TBM_Cv_1030	Plant Trial for Grout Mix	18	29-May-20	18-Jun-20	Plant Trial for Grout Mix				
TBM_Cv_1110	Erect 10 ton Gantry for Precast Segment	7	16-Jun-20	23-Jun-20	Erect 10 ton Gantry for Precast Segment				
<b>LSMR : TBM Power and Water Supply</b>									
TBM_PoS_1400	TBM HV Power Supply : Testing and Commissioning of Power Supply by CLP	33	24-Mar-20A	07-May-20	TBM HV Power Supply : Testing and Commissioning of Power Supply by CLP				
TBM_PoS_1500	TBM HV Power Supply : Commissioning of Power Supply	0		07-May-20	TBM HV Power Supply : Commissioning of Power Supply				
TBM_PoS_1900	TBM LV Power Supply :Testing and Commissioning by CLP	33	24-Mar-20A	07-May-20	TBM LV Power Supply :Testing and Commissioning by CLP				
TBM_PoS_2000	TBM Power Supply : Commissioning of Power Supply	0		07-May-20	TBM Power Supply : Commissioning of Power Supply				
TBM_WtrS_2200	Installation of Water Supply by WSD	55	02-Mar-20A	11-May-20	Installation of Water Supply by WSD				
<b>LSMR : TBM Assembly</b>									
TBM_Asb_1200	Assembly - Front Shield and Telescope	11	21-Apr-20A	01-May-20	Assembly - Front Shield and Telescope				
TBM_Asb_1300	Assembly - Gripper Shield	10	21-Apr-20A	30-Apr-20	Assembly - Gripper Shield				
TBM_Asb_1340	Assembly - Thrust Unit and Tailskin	12	22-Apr-20A	03-May-20	Assembly - Thrust Unit and Tailskin				
TBM_Asb_1500	Assembly - Cutterhead and Disk	12	21-May-20	01-Jun-20	Assembly - Cutterhead and Disk				
TBM_Asb_1600	TBM Shifting and Install 47.5m of Gantry 1 to 4	14	02-Jun-20	15-Jun-20	TBM Shifting and Install 47.5m of Gantry 1 to 4				

█ Actual Level of Effort    █ Critical Remaining Work  
█ Actual Work                ◆ ◆ Milestone  
█ Remaining Work

Contract No. DC/2018/08 : Inter-Reservoirs Transfer Scheme  
 Water Tunnel Between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir

Date	Revision	Checked	Approved	2 of 4
29-Apr-20	Rolling Y20M04D29a	EChu		



# IRTS: 3 Month Rolling Programme (May 20 ~ Jul 20)

Layout : IRT-Rolling Y20M02D04a  
 TASK filters: 3 Month Rolling, Level of Effort.  
 Data Date : 29-Apr-20

Activity ID	Activity Name	Dur	Start	Finish	2020					
					Apr 14	May 15	Jun 16	Jul 17	Aug 18	
TBM_Asb_1700	Install the Thrust Frame	12	16-Jun-20	27-Jun-20						
TBM_Asb_1800	Install Backup Trailer 60m (Ch080 to CH120)	18	28-Jun-20	15-Jul-20						
TBM_Asb_1810	Noise Enclosure Installation	24	16-Jul-20	12-Aug-20						
<b>TBM Excavation</b>										
TBM_Exc_0100	Installation of settlement marker for Tunneling work (SM13-SM16,4nos.) *(P14)	6	29-Apr-20	07-May-20						
TBM_Exc_1000	Initial Readings of settlement marker for Tunneling work (SM13-SM16,4nos.) *(P14)	18	08-May-20	28-May-20						
TBM_Exc_1100	PL1 (Ch120 to CH278)	19	16-Jul-20	06-Aug-20						
TBM_Exc_1900	Installation of settlement marker for Tunneling work (SM11-SM12,2nos.) *(P14)	4	08-May-20	12-May-20						
TBM_Exc_2200	Installation of settlement marker for Tunneling work (SM9-SM10,2nos.) *(P14)	5	13-May-20	18-May-20						
TBM_Exc_2600	Installation of settlement marker for Tunneling work (SM2,SM3,SM7,SM8,4nos.) *(P14)	6	19-May-20	25-May-20						
<b>Intake Structure at Kowloon Byewash Reservoir</b>										
<b>KBR Intake : Design Submission</b>										
<b>KBR Intake : Cofferdam Design</b>										
KBR_ISD_1700	Review and Acceptance	129	15-Nov-19A	29-Apr-20						
<b>KBR Intake : E&amp;M for Electric Actuated Penstocks and Automatic Flow Control System</b>										
<b>KBR Intake : E&amp;M Design of Electrical Actuated Penstocks and Automatic Flow Control System</b>										
KBR_EMD_1000	1st Submission - E&M Design Preparation & Submission	37	05-Jun-20	20-Jul-20						
KBR_EMD_1100	Review and Comments	18	21-Jul-20	10-Aug-20						
<b>KBR : Intake Structure</b>										
KB_ISW_2300	Inspection of Rock Quality, Slope Access Installation, and Drainage System	18	07-Apr-20A	02-May-20						
KB_ISW_2400	Base Slab Construction	24	04-May-20	30-May-20						
KB_ISW_2500	Wall Construction	32	01-Jun-20	09-Jul-20						
KB_ISW_2600	Bulkhead Installation for Wall Opening	15	10-Jul-20	27-Jul-20						
<b>KBR : Cofferdam</b>										
KB_ISW_2700	Deck Over Intake Structure	15	10-Jul-20	27-Jul-20						
KB_ISW_2800	Mobilization of Drill Rig	16	28-Jul-20	14-Aug-20						
<b>Outfall Structure at Lower Shing Mun Reservoir (Conforming Design)</b>										
<b>LSMR Outfall : Design Submission</b>										
<b>LSMR Outfall : Stage 2A Pipe Pile Wall for Outfall</b>										
LSM_OSD_0930	2nd Submission - Pipe Pile and Sheetpile Design Preparation & Submission with ICE	75	02-Jan-20A	04-May-20						
LSM_OSD_0940	Review and Acceptance	6	05-May-20	11-May-20						
<b>LSMR Outfall : Stage 2B Pipe Pile Wall for Outfall</b>										
LSM_OSD_1200	2nd Submission - Pipe Pile and Sheetpile Design Preparation & Submission with ICE	75	02-Jan-20A	04-May-20						
LSM_OSD_1300	Review and Acceptance	6	05-May-20	11-May-20						
<b>Slope Upgrading Works</b>										
<b>LSMR Slope Stabilization Works</b>										
LSM_Slp_1230	7SW-D/C27 Soil Nail Head for Mid Berm	27	27-Mar-20A	04-May-20						
LSM_Slp_1240	7SW-D/C27 Soil Nail Head for Lower Berm	16	05-May-20	22-May-20						
LSM_Slp_1250	7SW-D/C27 Erosion Control Mat for Top Berm	37	27-Mar-20A	15-May-20						
LSM_Slp_1260	7SW-D/C27 Erosion Control Mat for Mid Berm	9	05-May-20	14-May-20						
LSM_Slp_1270	7SW-D/C27 Erosion Control Mat for Lower Berm	9	23-May-20	02-Jun-20						
LSM_Slp_1600	7SW-D/C27 Slope Top Berm (incl.U-channel/ Step Channel/ Maintenance Access)	22	16-May-20	10-Jun-20						

█ Actual Level of Effort    █ Critical Remaining Work  
█ Actual Work            ◆ Milestone  
█ Remaining Work

Contract No. DC/2018/08 : Inter-Reservoirs Transfer Scheme  
 Water Tunnel Between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir

Date	Revision	Checked	Approved
29-Apr-20	Rolling Y20M04D29a	EChu	

3 of 4



# IRTS: 3 Month Rolling Programme (May 20 ~ Jul 20)

Layout : IRT-Rolling Y20M02D04a  
 TASK filters: 3 Month Rolling, Level of Effort.  
 Data Date : 29-Apr-20

Activity ID	Activity Name	Dur	Start	Finish	2020				
					Apr 14	May 15	Jun 16	Jul 17	Aug 18
LSM_Slp_1700	7SW-D/C27 Slope Mid Berm (incl.U-channel/ Step Channel/ MaintenanceAccess)	16	15-May-20	02-Jun-20					
LSM_Slp_1800	7SW-D/C27 Slope Lower Berm (incl.U-channel/ Step Channel/ MaintenanceAccess)	18	03-Jun-20	23-Jun-20					
LSM_Slp_1810	7SW-D/C27 Modification at Ground Level	25	24-Jun-20	24-Jul-20					
LSM_Slp_1900	7SW-D/C27 Hydroseeding	9	25-Jul-20	04-Aug-20					
LSM_Slp_2110-20	7SW-D/C28 Soil Nails - Slope Region 2 (South)	109	10-Dec-19A	02-May-20					
LSM_Slp_2110-80	Soil Nails - 7SW-D/C28 Slope Region 1 (120nos. affected by mine tunnel)	18	29-Apr-20	21-May-20					
LSM_Slp_2510	7SW-D/C28 Raking Drains Installation	24	04-May-20	30-May-20					
LSM_Slp_2512	7SW-D/C28 Soil Nail Head for Region 2	39	29-Apr-20	15-Jun-20					
LSM_Slp_2514	7SW-D/C28 Soil Nail Head for Region 1	28	22-May-20	23-Jun-20					
LSM_Slp_2516	7SW-D/C28 Erosion Control Mat	12	24-Jun-20	09-Jul-20					
LSM_Slp_2520	7SW-D/C28 U-channel/ Step Channel/ MaintenanceAccess	26	10-Jul-20	08-Aug-20					
<b>KBR Slope Stabilization Works</b>									
KBR_Slp_Slp_1000	Cut Slope for Intake	26	10-Jul-20	08-Aug-20					
<b>Landscaping Works</b>									
<b>Enhancement Works of Kam Shan Country Park-Design</b>									
KBR_EHW_1000	Submission of Enhancement Facility Proposal at Kam Shan Country Park *(P1c)	26	02-May-20	01-Jun-20*					
KBR_EHW_1200	Review and Comments of Proposal *(P1c)	26	02-Jun-20	03-Jul-20					
KBR_EHW_1300	1st Submission-Enhancement works at Kam Shan Country Park-Design Preparation & Submission *(P1c)	26	04-Jul-20	03-Aug-20*					

█ Actual Level of Effort    █ Critical Remaining Work  
█ Actual Work            ◆ ◆ Milestone  
█ Remaining Work

Contract No. DC/2018/08 : Inter-Reservoirs Transfer Scheme  
 Water Tunnel Between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir

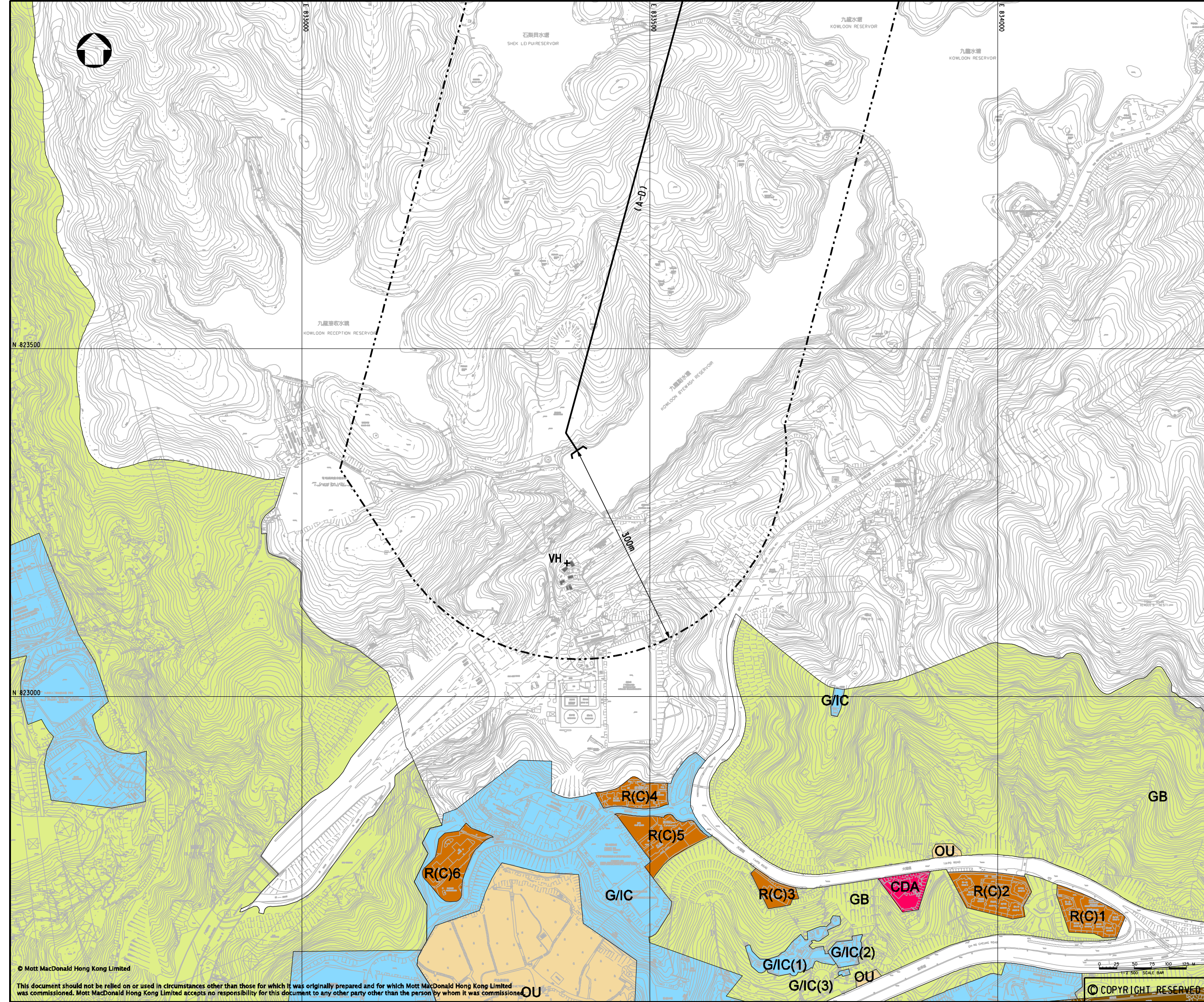
Date	Revision	Checked	Approved
29-Apr-20	Rolling Y20M04D29a	EChu	

Appendix C  
Monitoring Locations






- LEGEND:**
- STUDY AREA BOUNDARY
  - PREFERRED TUNNEL ALIGNMENT
  - + NOISE SENSITIVE RECEIVER
  - C COMMERCIAL
  - CDA COMPREHENSIVE DEVELOPMENT AREA
  - G/IC GOVERNMENT/INSTITUTION/COMMUNITY
  - GB GREEN BELT
  - I INDUSTRIAL
  - O OPEN SPACE
  - OU OTHER SPECIFIED USES
  - RIA1 RESIDENTIAL (GROUP A)
  - RIA2 RESIDENTIAL (GROUP B)
  - RIA3 RESIDENTIAL (GROUP C)
  - RIA4 RESIDENTIAL (GROUP E)
  - V VILLAGE TYPE DEVELOPMENT



Rev	Date	Drawn/Description	Ch'kd/App'd

Client

 THE GOVERNMENT OF THE HONG KONG  
SPECIAL ADMINISTRATIVE REGION  
WATER SUPPLIES DEPARTMENT

 **Mott MacDonald**

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Tsim Sha Tsui, Kowloon  
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Tel: 2828 5757  
Fax: 2827 1823  
Web: www.mottmac.com.hk

Project

Agreement No. CE55/2006(EP)  
Inter-reservoirs Transfer Scheme (IRTS)  
Water Tunnel between Kowloon Byewash  
Reservoir and Lower Shing Mun Reservoir  
Environmental Impact Assessment  
Investigation

Title

THE STUDY AREA AND  
REPRESENTATIVE NSRS (INTAKE END)

Designed	HN/PW	Eng.Chk.	PW
Drawn	VN	Coordination	PW
Dwg.Chk.	HN	Approved	AFK

Scale

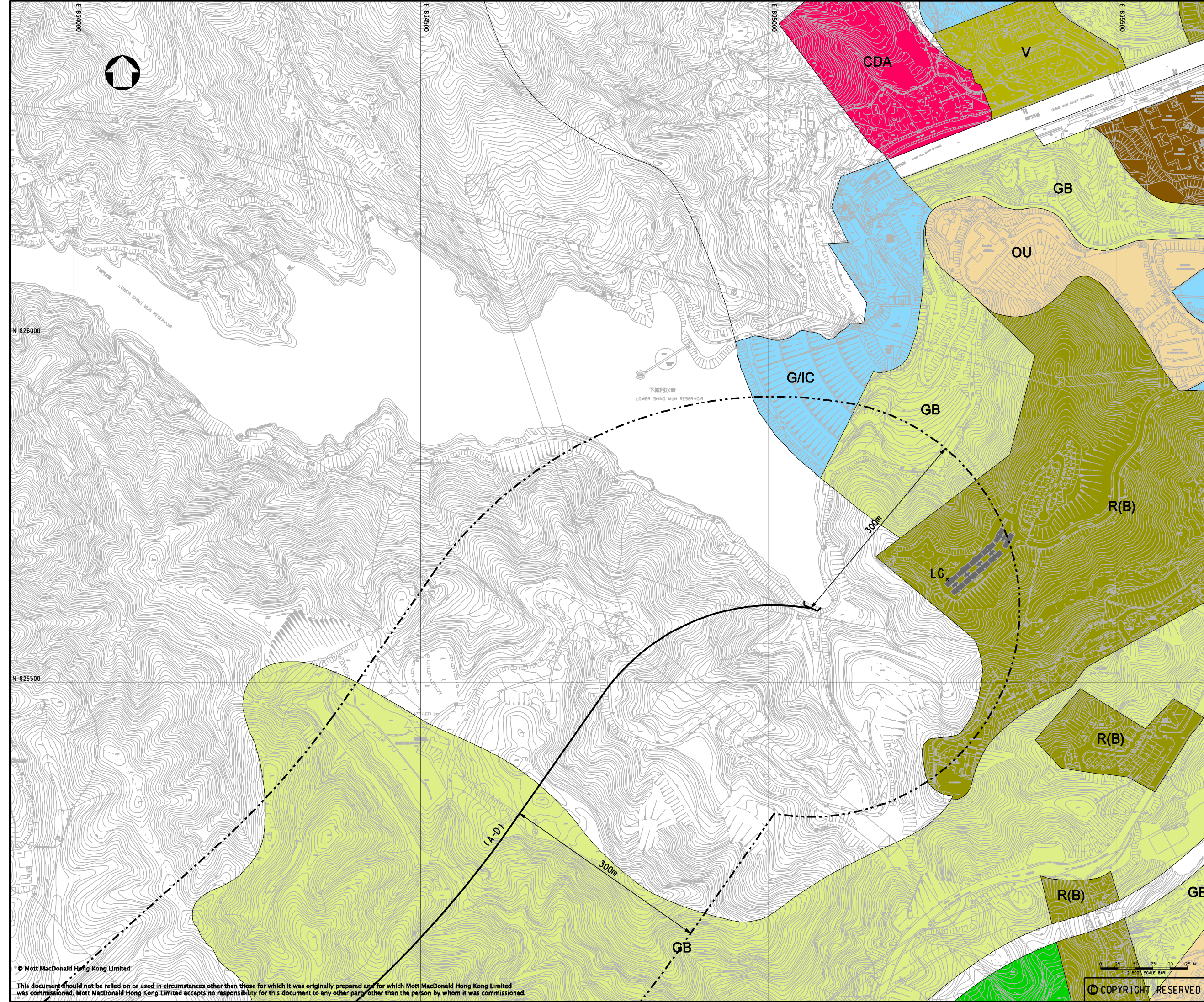
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Project 240564

Status INF

Drawing No. FIGURE 4-1






**LEGEND:**

- STUDY AREA BOUNDARY
- PREFERRED TUNNEL ALIGNMENT
- +
- NOISE SENSITIVE RECEIVER
- C COMMERCIAL
- CDA COMPREHENSIVE DEVELOPMENT AREA
- G/IC GOVERNMENT/INSTITUTION/COMMUNITY
- GB GREEN BELT
- I INDUSTRIAL
- O OPEN SPACE
- OU OTHER SPECIFIED USES
- R(A) RESIDENTIAL (GROUP A)
- R(B) RESIDENTIAL (GROUP B)
- R(C) RESIDENTIAL (GROUP C)
- R(E) RESIDENTIAL (GROUP E)
- V VILLAGE TYPE DEVELOPMENT

Rev	Date	Drawn/Description	Ch'kd/App'd

Client

 THE GOVERNMENT OF THE HONG KONG  
SPECIAL ADMINISTRATIVE REGION  
WATER SUPPLIES DEPARTMENT

 **Mott  
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Project

Agreement No. CE55/2006(EP)  
Inter-reservoirs Transfer Scheme (IRTS)  
Water Tunnel between Kowloon Byewash  
Reservoir and Lower Shing Mun Reservoir  
Environmental Impact Assessment  
Investigation

Title

PROPOSED LOCATION OF NOISE  
MONITORING STATION AT OUTFALL END

Designed	HN/PW	Eng.Chk.	PW
Drawn	VN	Coordination	PW
Dwg.Chk.	HN	Approved	AFK

Scale

1:2500@A1

Project 240564

Status INF

CAD File

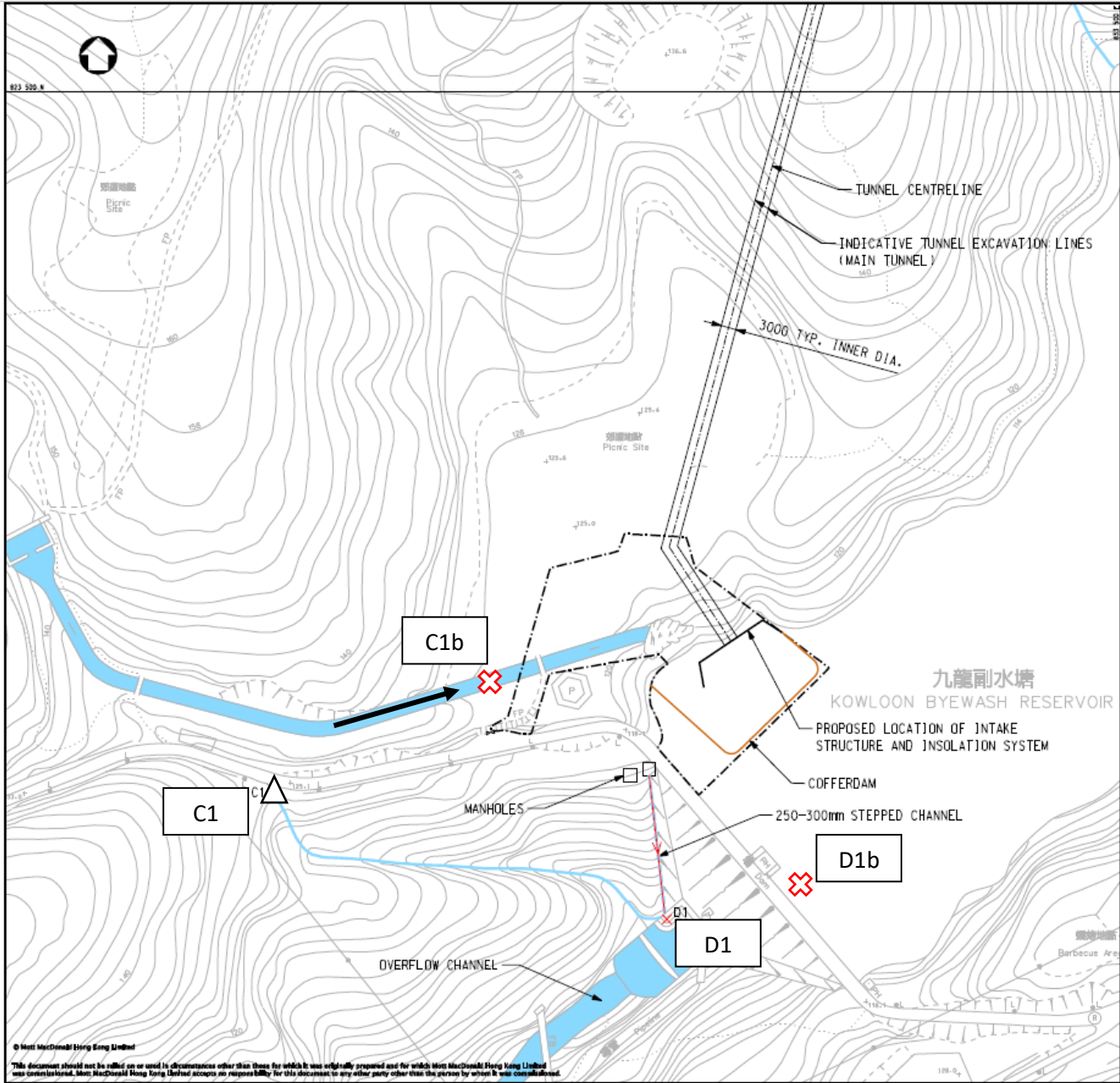
Drawing No.

FIGURE 4-2

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NOTE:  
DESIGN DETAILS OF THE COFFERDAM WILL BE DETERMINED BY THE CONTRACTOR.

- LEGEND:
- WORKSITE AREA
  - WATERCOURSE
  - INDICATIVE LOCATION OF COFFERDAM
  - FLOW PATH OF TREATED EFFLUENT
  - × POINT OF EFFLUENT DISCHARGE / MONITORING STATION D1
  - △ CONTROL STATION AT INTAKE SITE
  - ⊠ Proposed Alternative Water Monitoring Station

Rev	Desc	Drawn	Checked	Date
01	REV 01	MDG	APR	2006/04/01
02	REV 02	MDG	APR	2006/04/01
03	REV 03	MDG	APR	2006/04/01

THE GOVERNMENT OF THE HONG KONG  
SPECIAL ADMINISTRATIVE REGION  
WATER SUPPLIES DEPARTMENT

**Mott MacDonald**  
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www.mottmac.com

Project:  
Agreement No. CE55/2006 (EP)  
Inter-reservoirs Transfer Scheme (IRTS)  
Water Tunnel between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir  
Environmental Impact Assessment Investigation

PROPOSED WATER QUALITY MONITORING STATION AT INTAKE END

Designed	MDG	Checked	APR
Drawn	MDG	Approved	APR

Scale: 1:5000A1  
Sheet No: 240564  
Date: [NF]

Copyright No. FIGURE 5-1  
Page P3

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Appendix D  
Calibration Certificates of Equipment  
Used





# Certificate of Calibration

for

**Description:** *Sound Level Meter*  
**Manufacturer:** *Pulsar Instruments Plc*  
**Type No.:** *Model 43 (Serial No.: PNI755)*  
**Microphone:** *PM1 (Serial No.:012049D)*  
**Preamplifier:** *PA40 (Serial No.:1729)*

**Submitted by:**

**Customer:** *Acuity Sustainability Consulting Limited*  
**Address:** *Unit 1908, Nos. 301-305 Castle Peak Road,  
Kwai Chung, N.T.*

Upon receipt for calibration, the instrument was found to be:

- Within**
- Outside**

the allowable tolerance.

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

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

**Date of receipt:** 17 December 2019

**Date of calibration:** 18 December 2019

**Calibrated by:**   
Calibration Technician

**Certified by:**   
Mr. Ng Yan Wa  
Laboratory Manager

**Date of issue:** 18 December 2019



Certificate No.: APJ19-100-CC001

Page 1 of 4



### 1. Calibration Precaution:

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

### 2. Calibration Conditions:

Air Temperature: 23.8 °C  
 Air Pressure: 1008 hPa  
 Relative Humidity: 62.5 %

### 3. Calibration Equipment:

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV180064	HOKLAS

### 4. Calibration Results

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
20-140	dBA SPL	Fast	94	1000	93.7	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
20-140	dBA SPL	Fast	94	1000	93.7	Ref
			104		103.7	±0.3
			114		113.7	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
20-140	dBA SPL	Fast	94	1000	93.7	Ref
		Slow			93.7	±0.3

Certificate No.: APJ19-100-CC001



Page 2 of 4



Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
20-140	dB	SPL	Fast	94	31.5	93.6	±2.0
					63	93.7	±1.5
					125	93.8	±1.5
					250	93.7	±1.4
					500	93.7	±1.4
					1000	93.7	Ref
					2000	93.4	±1.6
					4000	92.5	±1.6
					8000	91.2	+2.1; -3.1

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
20-140	dBA	SPL	Fast	94	31.5	55.1	-39.4±2.0
					63	67.6	-26.2±1.5
					125	77.6	-16.1±1.5
					250	85.0	-8.6±1.4
					500	90.4	-3.2±1.4
					1000	93.7	Ref
					2000	94.5	+1.2±1.6
					4000	93.5	+1.0±1.6
					8000	90.3	-1.1±2.1; -3.1

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
20-140	dBC	SPL	Fast	94	31.5	90.6	-3.0±2.0
					63	92.9	-0.8±1.5
					125	93.5	-0.2±1.5
					250	93.7	-0.0±1.4
					500	93.7	-0.0±1.4
					1000	93.7	Ref
					2000	93.2	-0.2±1.6
					4000	91.7	-0.8±1.6
					8000	88.4	-3.0±2.1; -3.1



Certificate No.: APJ19-100-CC001

Page 3 of 4





## 5. Calibration Results Applied

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.05
	63 Hz	± 0.05
	125 Hz	± 0.05
	250 Hz	± 0.05
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

### Note:

The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)\*L shall not be liable for any loss or damage resulting from the use of the equipment.







# *Certificate of Calibration*

*for*

*Description:*                      *Sound Level Meter*  
*Manufacturer:*                  *NTi Audio*  
*Type No.:*                          *XL2 (Serial No.: A2A-13548-E0)*  
*Microphone:*                    *ACO 7052 (Serial No.:73780)*  
*Preamplifier:*                  *NTi Audio MA220 (Serial No.:5235)*

***Submitted by:***

*Customer:*                      *Acuity Sustainability Consulting Limited*  
*Address:*                        *Unit 1908, iPlace, Nos. 301-305 Castle Peak Road,*  
*Kwai Chung, New Territories*

**Upon receipt for calibration, the instrument was found to be:**

- Within**  
 **Outside**

**the allowable tolerance.**

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

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

**Date of receipt: 6 January 2020**

**Date of calibration: 10 January 2020**

*Calibrated by:* \_\_\_\_\_  
*Calibration Technician*

*Certified by:* \_\_\_\_\_  
*Tang Cheuk Hang*  
*Quality Manager*

***Date of issue: 10 January 2020***

*Certificate No.: APJ19-143-CC001*



**1. Calibration Precaution:**

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

**2. Calibration Conditions:**

Air Temperature: 23.0 °C  
 Air Pressure: 1006 hPa  
 Relative Humidity: 71.0 %

**3. Calibration Equipment:**

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV180064	HOKLAS

**4. Calibration Results**

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)				Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB	
30-130	dBA SPL	Fast	94	1000	94.0	±0.4	

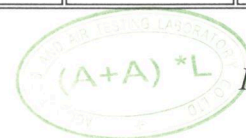
Linearity

Setting of Unit-under-test (UUT)				Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB	
30-130	dBA SPL	Fast	94	1000	94.0	Ref	
			104		104.0	±0.3	
			114		114.0	±0.3	

Time Weighting

Setting of Unit-under-test (UUT)				Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB	
30-130	dBA SPL	Fast	94	1000	94.0	Ref	
		Slow			94.0	±0.3	

Certificate No.: APJ19-143-CC001



Page 2 of 4

Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
30-130	dB	SPL	Fast	94	31.5	94.0	±2.0
					63	94.1	±1.5
					125	94.1	±1.5
					250	94.0	±1.4
					500	94.0	±1.4
					1000	94.0	Ref
					2000	93.8	±1.6
					4000	93.4	±1.6
					8000	92.4	+2.1; -3.1

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
30-130	dBA	SPL	Fast	94	31.5	54.8	-39.4±2.0
					63	67.9	-26.2±1.5
					125	78.0	-16.1±1.5
					250	85.4	-8.6±1.4
					500	90.8	-3.2±1.4
					1000	94.0	Ref
					2000	95.0	+1.2±1.6
					4000	94.4	+1.0±1.6
					8000	91.3	-1.1±2.1; -3.1

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
30-130	dBC	SPL	Fast	94	31.5	91.0	-3.0±2.0
					63	93.3	-0.8±1.5
					125	93.9	-0.2±1.5
					250	94.1	-0.0±1.4
					500	94.1	-0.0±1.4
					1000	94.0	Ref
					2000	93.6	-0.2±1.6
					4000	92.6	-0.8±1.6
					8000	89.4	-3.0±2.1; -3.1



## 5. Calibration Results Applied

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.10
	63 Hz	± 0.05
	125 Hz	± 0.10
	250 Hz	± 0.10
	500 Hz	± 0.10
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

### Note:

The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)\*L shall not be liable for any loss or damage resulting from the use of the equipment.







# MAXLAB

## CALIBRATION CERTIFICATE

### Certificate Information

Date of Issue **28-Sep-2019** Certificate Number **MLCN192490S**

### Customer Information

Company Name Acuity Sustainability Consulting Limited  
Address Unit C, 11/F, Ford Glory Plaza,  
No. 37-39 Wing Hong Street,  
Cheung Sha Wan, Kowloon, Hong Kong

### Equipment-under-Test (EUT)

Description Acoustic Calibrator  
Manufacturer Pulsar  
Model Number 105  
Serial Number 63705  
Equipment Number --

### Calibration Particular

Date of Calibration 28-Sep-2019  
Calibration Equipment 4231(MLTE008) / AV180068 / 13-May-20  
1357(MLTE190) / MLEC19/05/02 / 26-May-20  
Calibration Procedure MLCG00, MLCG15  
Calibration Conditions Laboratory Temperature 23 °C ± 5 °C  
Relative Humidity 55% ± 25%  
EUT Stabilizing Time Over 3 hours  
Warm-up Time Not applicable  
Power Supply Internal battery  
Calibration Results Calibration data were detailed in the continuation pages.  
All calibration results were within EUT specification.

### Approved By & Date

K.O. Lo

28-Sep-2019

### Statements

- \* Calibration equipment used for this calibration are traceable to national / international standards.
- \* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
- \* MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT.
- \* The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited.



# MAXLAB

Certificate No. MLCN192490S

<i>Calibration Data</i>				
EUT Setting	Standard Reading	EUT Error from Setting	Calibration Uncertainty	EUT Specification
94 dB	93.8 dB	-0.2 dB	0.20 dB	± 0.2 dB

- END -

Calibrated By :

Dan

Checked By :

K.O. Lo

Date :

28-Sep-19

Date :

28-Sep-19

Page 2 of 2

萬儀校正中心有限公司  
MaxLab Calibration Centre Limited

香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B 室



# MAXLAB

## CALIBRATION CERTIFICATE

### Certificate Information

Date of Issue

20-Jun-2019

Certificate Number

MLCN191363S

### Customer Information

Company Name

Acuity Sustainability Consulting Limited

Address

Unit 1908, Nos. 301-305 Castle Peak Road,  
Kwai Chung, N.T.

### Equipment-under-Test (EUT)

Description

Pocket Weather Meter

Manufacturer

Kestrel

Model Number

1000

Serial Number

2145043

Equipment Number

--

### Calibration Particular

Date of Calibration

20-Jun-2019

Calibration Equipment

WT4401S(MLTE143A) / 021606 / 6-Aug-2019  
DPG409-10WDWU(MLTE208) / MLEC18/09/05 / 17-Sep-2019

Calibration Procedure

MLCG00

Calibration Conditions

Laboratory	Temperature	23 °C ± 5 °C
	Relative Humidity	55% ± 25%
EUT	Stabilizing Time	Over 3 hours
	Warm-up Time	10 minutes
	Power Supply	Internal battery

Calibration Results

Calibration data were detailed in the continuation pages.

### Approved By & Date

K.O. Lo

20-Jun-2019

### Statements

- \* Calibration equipment used for this calibration are traceable to national / international standards.
- \* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
- \* MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT.
- \* The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited.



# MAXLAB

Certificate No. MLCN191363S

<b>Calibration Data</b>					
<b>Function</b>	<b>Range</b>	<b>EUT Reading</b>	<b>Standard Reading</b>	<b>EUT Error (% of Rdg)</b>	<b>Calibration Uncertainty (% of Rdg)</b>
Air Velocity	0.6 to 40 m/s	5.0 m/s	5.12 m/s	-2.4%	3%
		10.0 m/s	10.08 m/s	-0.7%	3%
		15.0 m/s	14.91 m/s	0.6%	3%
		20.4 m/s	20.02 m/s	1.9%	3%

- END -

Calibrated By :  
Date :

Dan  
20-Jun-2019

Checked By :  
Date :

K.O. Lo  
20-Jun-2019

Page 2 of 2





專業化驗有限公司  
QUALITY PRO TEST-CONSULT LIMITED

Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong  
Email: info@qualityprotest.com; Website: www.qualityprotest.com  
Tel: (852) 3956 8717; Fax: (852) 3956 3928

## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ020031  
Date of Issue : 25 February, 2020  
Page No. : 1 of 2

### PART A – CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited  
Unit C, 11/F, Ford Glory Plaza  
37-39 Wing Hong Street  
Cheung Sha Wan, Kowloon, Hong Kong  
Attn: Mr. Nelson TSUI

### PART B – DESCRIPTION

Name of Equipment : Multi Water Quality Checker U-53  
Manufacturer : Horiba  
Serial Number : L20550GA  
Date of Received : Feb 18, 2020  
Date of Calibration : Feb 24, 2020  
Date of Next Calibration<sup>(a)</sup> : May 24, 2020

### PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H <sup>+</sup> B
Dissolved Oxygen	APHA 21e 4500-O G
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

### PART D – CALIBRATION RESULTS<sup>(b,c)</sup>

#### (1) pH at 25°C

Target (pH unit)	Displayed Reading <sup>(d)</sup> (pH Unit)	Tolerance <sup>(e)</sup> (pH Unit)	Results
4.00	4.08	0.08	Satisfactory
7.42	7.38	-0.04	Satisfactory
10.01	10.05	0.04	Satisfactory

Tolerance of pH should be less than  $\pm 0.20$  (pH unit)

#### (2) Temperature


Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
11.0	11.65	0.7	Satisfactory
25.0	25.80	0.8	Satisfactory
43.0	42.54	-0.5	Satisfactory

Tolerance limit of temperature should be less than  $\pm 2.0$  (°C)

~ CONTINUED ON NEXT PAGE ~

#### Remark(s): -

- <sup>(a)</sup> The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.  
<sup>(b)</sup> The results relate only to the calibrated equipment as received  
<sup>(c)</sup> The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.  
<sup>(d)</sup> "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.  
<sup>(e)</sup> The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.

  
LEE Chun-ning, Desmond  
Senior Chemist



專業化驗有限公司

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## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ020031  
Date of Issue : 25 February, 2020  
Page No. : 2 of 2

### PART D – CALIBRATION RESULTS (Cont'd)

#### (3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.08	0.08	0.00	Satisfactory
2.39	2.48	0.09	Satisfactory
5.00	5.18	0.18	Satisfactory
8.45	8.42	-0.03	Satisfactory

Tolerance limit of dissolved oxygen should be less than  $\pm 0.50$  (mg/L)

#### (4) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.76	-2.40	Satisfactory
20	19.91	-0.45	Satisfactory
30	29.00	-3.33	Satisfactory

Tolerance limit of salinity should be less than  $\pm 10.0$  (%)

#### (5) Turbidity

Expected Reading (NTU)	Displayed Reading <sup>(f)</sup> (NTU)	Tolerance <sup>(g)</sup> (%)	Results
0	0.7	--	Satisfactory
10	10.8	8.0	Satisfactory
20	21.4	7.0	Satisfactory
100	98.0	-2.0	Satisfactory
800	800.0	0.0	Satisfactory

Tolerance limit of turbidity should be less than  $\pm 10.0$  (%)

~ END OF REPORT ~

**Remark(s): -**

<sup>(f)</sup> "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

<sup>(g)</sup> The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.



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## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ010129  
Date of Issue : 06 February, 2020  
Page No. : 1 of 2

### PART A – CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited  
Unit C, 11/F, Ford Glory Plaza  
37-39 Wing Hong Street  
Cheung Sha Wan, Kowloon, Hong Kong  
Attn: Mr. Nelson TSUI

### PART B – DESCRIPTION

Name of Equipment : YSI ProDSS Multi Parameters  
Manufacturer : YSI (a xylem brand)  
Serial Number : 15M101091  
Date of Received : Jan 23, 2020  
Date of Calibration : Feb 05, 2020  
Date of Next Calibration<sup>(a)</sup> : May 05, 2020

### PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

<u>Parameter</u>	<u>Reference Method</u>
pH at 25°C	APHA 21e 4500-H <sup>+</sup> B
Dissolved Oxygen	APHA 21e 4500-O G
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

### PART D – CALIBRATION RESULTS<sup>(b,c)</sup>

#### (1) pH at 25°C

Target (pH unit)	Displayed Reading <sup>(d)</sup> (pH Unit)	Tolerance <sup>(e)</sup> (pH Unit)	Results
4.00	4.05	0.05	Satisfactory
7.42	7.43	0.01	Satisfactory
10.01	10.10	0.09	Satisfactory

Tolerance of pH should be less than  $\pm 0.20$  (pH unit)

#### (2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
5.5	5.60	0.1	Satisfactory
24.0	23.50	-0.5	Satisfactory
56.0	54.90	-1.1	Satisfactory

Tolerance limit of temperature should be less than  $\pm 2.0$  (°C)

~ CONTINUED ON NEXT PAGE ~

#### Remark(s) :-

- <sup>(a)</sup> The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.  
<sup>(b)</sup> The results relate only to the calibrated equipment as received  
<sup>(c)</sup> The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.  
<sup>(d)</sup> "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.  
<sup>(e)</sup> The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.

LEE Chun-ning, Desmond  
Senior Chemist





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## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ010129  
Date of Issue : 06 February, 2020  
Page No. : 2 of 2

### PART D – CALIBRATION RESULTS (Cont'd)

#### (3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.12	0.31	0.19	Satisfactory
3.79	4.01	0.22	Satisfactory
6.01	6.21	0.20	Satisfactory
7.90	8.17	0.27	Satisfactory

Tolerance limit of dissolved oxygen should be less than  $\pm 0.50$  (mg/L)

#### (4) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.87	-1.30	Satisfactory
20	20.26	1.30	Satisfactory
30	30.60	2.00	Satisfactory

Tolerance limit of salinity should be less than  $\pm 10.0$  (%)

#### (5) Turbidity

Expected Reading (NTU)	Displayed Reading <sup>(f)</sup> (NTU)	Tolerance <sup>(g)</sup> (%)	Results
0	0.9	--	Satisfactory
10	10.8	8.0	Satisfactory
20	21.0	5.0	Satisfactory
100	103.0	3.0	Satisfactory
800	807.0	0.9	Satisfactory

Tolerance limit of turbidity should be less than  $\pm 10.0$  (%)

~ END OF REPORT ~

**Remark(s): -**

<sup>(f)</sup> "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

<sup>(g)</sup> The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.

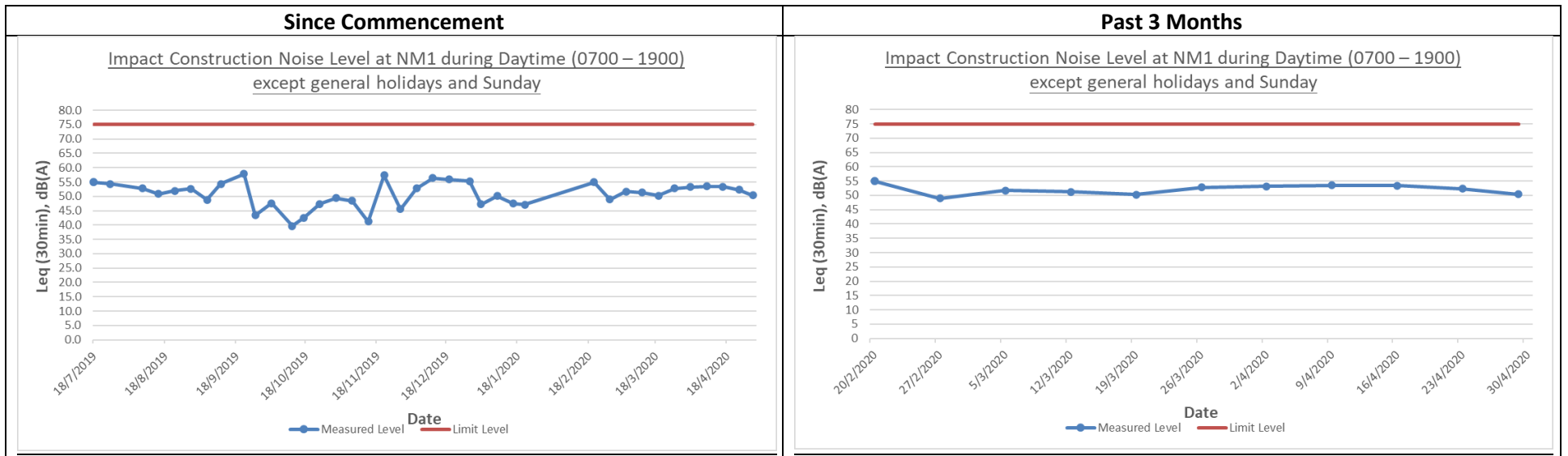
Appendix E  
Impact Noise Monitoring Data

## Impact Noise Monitoring Data

### NM1 – Lakeview Garden

Daytime (0700 – 1900) except general holidays and Sunday

Date	Location	Time		Weather	L <sub>eq</sub> (30min)	L <sub>10</sub>	L <sub>90</sub>	Remarks	
2/4/2020	NM1	14:05	-	15:53	Sunny	51.7	52.9	50.1	N.A.
9/4/2020	NM1	15:20	-	16:40	Fine	51.3	52.5	48.7	N.A.
16/4/2020	NM1	18:30	-	15:27	Fine	50.3	52.7	48.5	N.A.
23/4/2020	NM1	16:15	-	14:32	Fine	52.8	54.6	50.5	N.A.
29/4/2020	NM1	18:20	-	18:50	Sunny	50.4	54.7	46.7	N.A.



Daytime (0700-1900) during general holidays and Sundays

Date	Location	Time			Weather	L <sub>eq</sub> (5min)	L <sub>10</sub>	L <sub>90</sub>	Remarks
4/4/2020	NM1	11:08	-	11:13	Fine	50.8	52.9	46.5	N.A.
4/4/2020	NM1	11:13	-	11:18	Fine	48.3	49.2	46.9	N.A.
4/4/2020	NM1	11:18	-	11:23	Fine	50.8	52.9	46.5	N.A.
11/4/2020	NM1	13:17	-	13:22	Fine	47.8	50.0	42.7	N.A.
11/4/2020	NM1	13:22	-	13:27	Fine	47.9	48.9	42.7	N.A.
11/4/2020	NM1	13:27	-	13:32	Fine	48.5	49.3	42.5	N.A.
19/4/2020	NM1	13:00	-	13:05	Fine	48.7	51.6	41.8	N.A.
19/4/2020	NM1	13:05	-	13:10	Fine	53	56.1	42	N.A.
19/4/2020	NM1	13:10	-	13:15	Fine	50	53.4	42.5	N.A.
26/4/2020	NM1	11:20	-	11:25	Cloudy	56.3	62.4	42.4	N.A.
26/4/2020	NM1	11:25	-	11:30	Cloudy	45.1	47.3	42.6	N.A.
26/4/2020	NM1	11:30	-	11:35	Cloudy	47.6	49.8	42.4	N.A.
30/4/2020	NM1	9:00	-	9:35	Fine	48.5	51.3	46.7	N.A.
30/4/2020	NM1	9:35	-	9:40	Fine	48.9	51.7	46.9	N.A.
30/4/2020	NM1	9:40	-	9:45	Fine	50.1	52.3	46.9	N.A.

All days during Evening (1900-2300)

Date	Location	Time			Weather	L <sub>eq</sub> (5min)	L <sub>10</sub>	L <sub>90</sub>	Remarks
2/4/2020	NM1	19:15	-	19:20	Fine	45.8	47.2	43.8	N.A.
2/4/2020	NM1	19:20	-	19:25	Fine	46.2	47.3	43.6	N.A.
2/4/2020	NM1	19:25	-	19:30	Fine	47.3	47.4	43.5	N.A.
9/4/2020	NM1	19:00	-	19:05	Fine	48.4	49.1	42.7	N.A.
9/4/2020	NM1	19:05	-	19:10	Fine	45.2	47.5	41.0	N.A.
9/4/2020	NM1	19:10	-	19:15	Fine	46.1	49.4	42.3	N.A.
16/4/2020	NM1	19:00	-	19:05	Fine	47.1	50.6	41.1	N.A.
16/4/2020	NM1	19:05	-	19:10	Fine	47.5	50.6	41.1	N.A.
16/4/2020	NM1	19:10	-	19:15	Fine	47	50.4	41.1	N.A.
23/4/2020	NM1	22:45	-	22:50	Fine	51.4	54.1	48.6	N.A.
23/4/2020	NM1	22:50	-	22:55	Fine	51.4	54	48.6	N.A.
23/4/2020	NM1	22:55	-	23:00	Fine	54.3	55.9	51.5	N.A.
29/4/2020	NM1	19:10	-	19:15	Sunny	53.1	55.5	51.1	N.A.
29/4/2020	NM1	19:15	-	19:20	Sunny	53.5	55.8	51.4	N.A.
29/4/2020	NM1	19:20	-	19:25	Sunny	52.7	54.9	51.3	N.A.

All days during Night (2300-0700)

Date	Location	Time			Weather	L <sub>eq</sub> (5min)	L <sub>10</sub>	L <sub>90</sub>	Remarks
9/4/2020	NM1	0:00	-	0:05	Fine	44.8	45.0	44.3	N.A.
9/4/2020	NM1	0:05	-	0:10	Fine	44.5	45.6	44.0	N.A.
9/4/2020	NM1	0:10	-	0:15	Fine	44.9	45.2	43.6	N.A.
16/4/2020	NM1	23:00	-	23:05	Fine	44.8	47.8	40.6	N.A.
16/4/2020	NM1	23:05	-	23:10	Fine	44.0	46.4	40.7	N.A.
16/4/2020	NM1	23:10	-	23:15	Fine	44.0	46.3	41.0	N.A.
23/4/2020	NM1	23:10	-	23:15	Fine	44.2	46.7	40.5	N.A.
23/4/2020	NM1	23:15	-	23:20	Fine	43.6	47.7	39.3	N.A.
23/4/2020	NM1	23:20	-	23:25	Fine	43.8	46.6	39	N.A.
29/4/2020	NM1	23:00	-	23:05	Sunny	44.2	46.9	40.8	N.A.
29/4/2020	NM1	23:05	-	23:10	Sunny	44.9	46.7	40.6	N.A.
29/4/2020	NM1	23:10	-	23:15	Sunny	44.8	46.3	40.1	N.A.

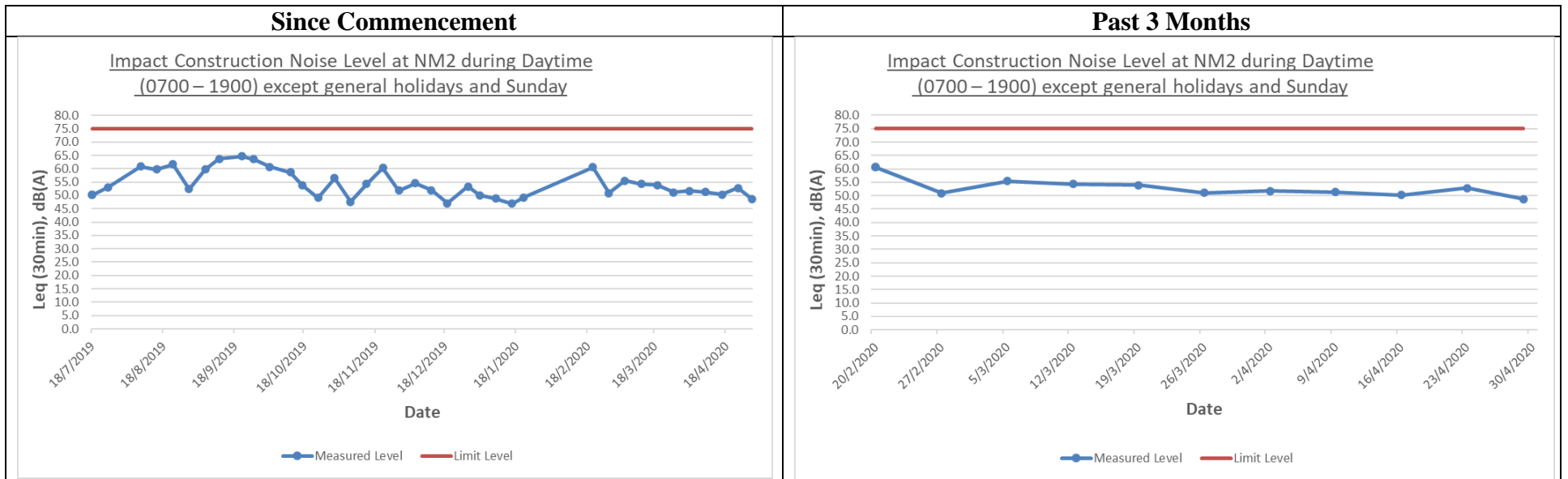


## Impact Noise Monitoring Data

NM2 – 4 ½ Milestone, Tai Po Road

Daytime (0700 – 1900) except general holidays and Sunday

Date	Location	Time			Weather	L <sub>eq</sub> (30min)	L <sub>10</sub>	L <sub>90</sub>	Remarks
2/4/2020	NM2	14:05	-	15:53	Sunny	51.7	52.9	50.1	N.A.
9/4/2020	NM2	15:20	-	16:40	Fine	51.3	52.5	48.7	N.A.
16/4/2020	NM2	18:30	-	15:27	Fine	50.3	52.7	48.5	N.A.
23/4/2020	NM2	16:15	-	14:32	Fine	52.8	54.6	50.5	N.A.
29/4/2020	NM2	18:30	-	19:00	Sunny	48.7	53.6	46	N.A.



Daytime (0700-1900) during general holidays and Sundays

Date	Location	Time			Weather	L <sub>eq</sub> (5min)	L <sub>10</sub>	L <sub>90</sub>	Remarks
4/4/2020	NM2	10:32	-	10:37	Fine	45.7	47.8	43	N.A.
4/4/2020	NM2	10:37	-	10:42	Fine	44.3	46.1	42.2	N.A.
4/4/2020	NM2	10:42	-	10:47	Fine	50.4	53.6	41.8	N.A.
11/4/2020	NM2	14:17	-	14:22	Fine	58.4	62.2	51.6	N.A.
11/4/2020	NM2	14:22	-	14:27	Fine	53.2	57.1	51.5	N.A.
11/4/2020	NM2	14:27	-	14:32	Fine	55.1	58.6	51.3	N.A.
19/4/2020	NM2	13:50	-	13:55	Fine	58.3	61.1	50.7	N.A.
19/4/2020	NM2	13:55	-	14:00	Fine	57.7	63	50.5	N.A.
19/4/2020	NM2	14:00	-	14:05	Fine	56	59.3	51	N.A.
26/4/2020	NM2	13:14	-	13:19	Cloudy	54.4	58.7	45.6	N.A.
26/4/2020	NM2	13:19	-	13:24	Cloudy	53	56.3	46.7	N.A.
26/4/2020	NM2	13:24	-	13:29	Cloudy	54.5	57.8	47.6	N.A.
30/4/2020	NM2	9:50	-	9:55	Fine	56.7	58.8	54.1	N.A.
30/4/2020	NM2	9:55	-	10:00	Fine	57.3	59	54.5	N.A.
30/4/2020	NM2	10:00	-	10:05	Fine	57.1	58.8	54.7	N.A.

## Appendix F

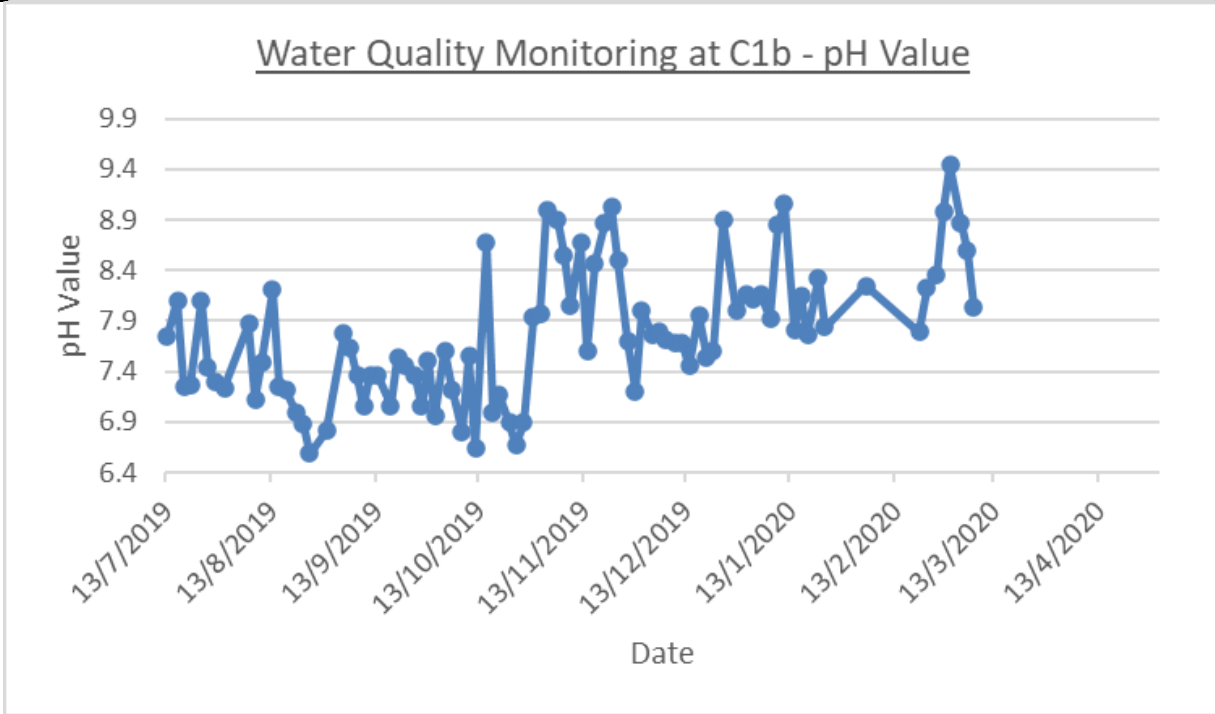
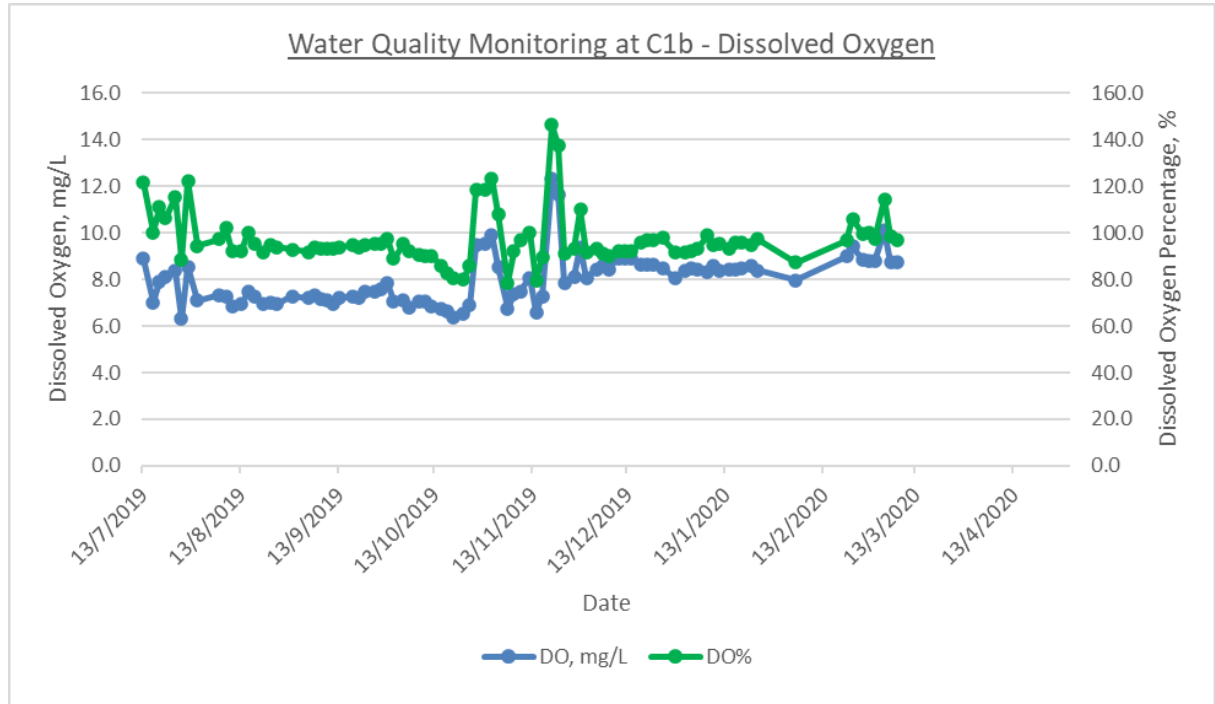
# Impact Water Quality Monitoring Data

Location	Sample ID	Date	Time	DO (mg/L)	DO%	pH	Temp (°C)	Turbidity (NTU)	SS (mg/L)
C1b	C1b	2/4/2020		No water was available for sample collection					
	C1b#	2/4/2020							
	C1b	4/4/2020		No water was available for sample collection					
	C1b#	4/4/2020							
	C1b	7/4/2020		No water was available for sample collection					
	C1b#	7/4/2020							
	C1b	9/4/2020		No water was available for sample collection					
	C1b#	9/4/2020							
	C1b	11/4/2020		No water was available for sample collection					
	C1b#	11/4/2020							
	C1b	14/4/2020		No water was available for sample collection					
	C1b#	14/4/2020							
	C1b	16/4/2020		No water was available for sample collection					
	C1b#	16/4/2020							
	C1b	18/4/2020		No water was available for sample collection					
	C1b#	18/4/2020							
	C1b	21/4/2020		No water was available for sample collection					
	C1b#	21/4/2020							
	C1b	23/4/2020		No water was available for sample collection					
	C1b#	23/4/2020							
	C1b	25/4/2020		No water was available for sample collection					
	C1b#	25/4/2020							
	C1b	28/4/2020		No water was available for sample collection					
	C1b#	28/4/2020							
C1b	30/4/2020		No water was available for sample collection						
C1b#	30/4/2020								

\*Remark: Water in location C1b was dried up, insufficient water was available for sample collection.

Location	Sample ID	Date	Time	DO (mg/L)	DO%	pH	Temp (°C)	Turbidity (NTU)	SS (mg/L)
D1b	2/4/2020	D1b	13:21	24.8	7.3	8.9	107.6	5.9	<2
	2/4/2020	D1b#	13:23	24.6	7.2	8.5	102.2	5.9	<2
	4/4/2020	D1b	10:18	24.0	7.8	9.1	108.6	2.7	<4
	4/4/2020	D1b#	10:18	24.0	7.9	9.1	108.1	2.6	<4
	7/4/2020	D1b	14:25	23.0	7.4	9.6	112.0	3.2	<2
	7/4/2020	D1b#	14:26	22.9	7.5	9.7	112.8	3.4	<2
	9/4/2020	D1b	14:37	22.7	7.7	8.5	98.4	3.8	<2
	9/4/2020	D1b#	14:39	22.6	7.7	8.9	102.6	3.2	<2
	11/4/2020	D1b	14:18	22.9	7.8	8.4	97.8	2.9	<2
	11/4/2020	D1b#	14:19	22.9	7.8	8.5	99.3	2.8	<2
	14/4/2020	D1b	16:27	22.0	7.6	8.5	96.5	2.4	<2
	14/4/2020	D1b#	16:28	22.0	7.6	8.4	96.0	2.4	2
	16/4/2020	D1b	14:18	25.5	7.0	7.9	96.0	2.3	2
	16/4/2020	D1b#	14:19	25.6	7.3	8.0	97.5	2.4	2
	18/4/2020	D1b	16:37	25.6	7.0	8.0	97.3	1.4	<2
	18/4/2020	D1b#	16:38	25.6	7.0	8.0	97.5	1.6	2
	21/4/2020	D1b	10:44	27.9	7.7	7.7	98.7	1.7	<2
	21/4/2020	D1b#	10:45	27.7	7.9	7.8	98.9	1.2	<2
	23/4/2020	D1b	15:44	22.4	8.0	8.0	92.6	0.8	<2
	23/4/2020	D1b#	15:44	22.4	8.0	8.0	92.6	0.9	<2
	25/4/2020	D1b	10:21	22.4	8.0	8.0	92.6	0.8	<2
	25/4/2020	D1b#	10:22	22.4	8.0	8.0	92.6	0.9	<2
	28/4/2020	D1b	10:12	26.2	8.2	8.1	100.2	5.4	<2
	28/4/2020	D1b#	10:13	24.5	7.9	8.2	97.7	1.0	<2
	30/4/2020	D1b	14:55	24.6	7.8	8.2	97.8	1.0	<2
	30/4/2020	D1b#	14:56	24.6	7.7	8.1	97.8	1.3	<2

### C1b (Since Commencement)



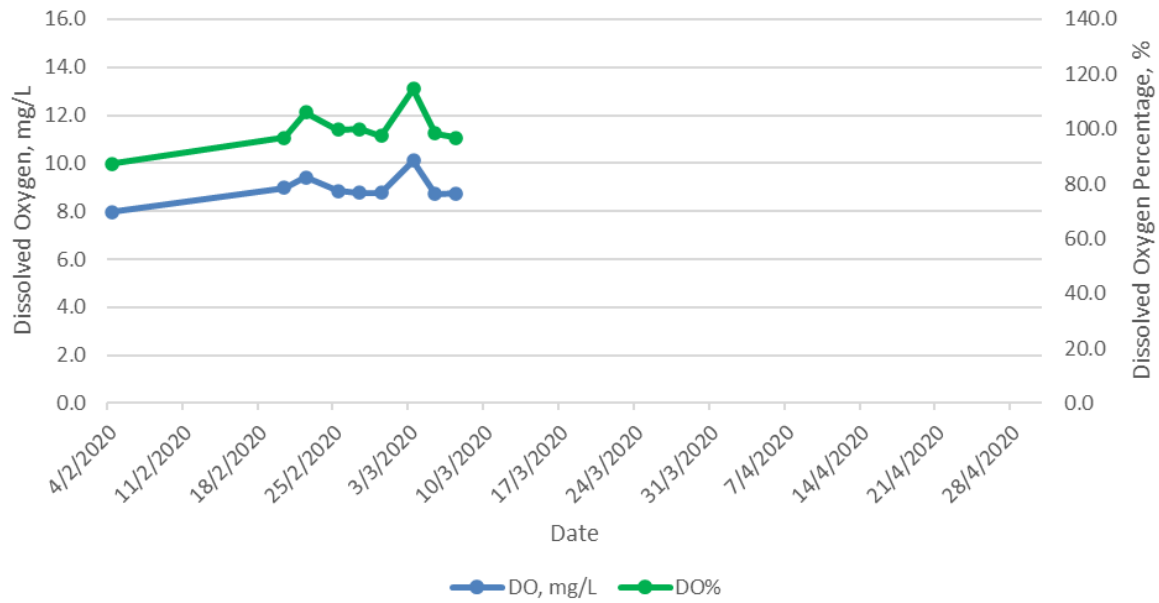




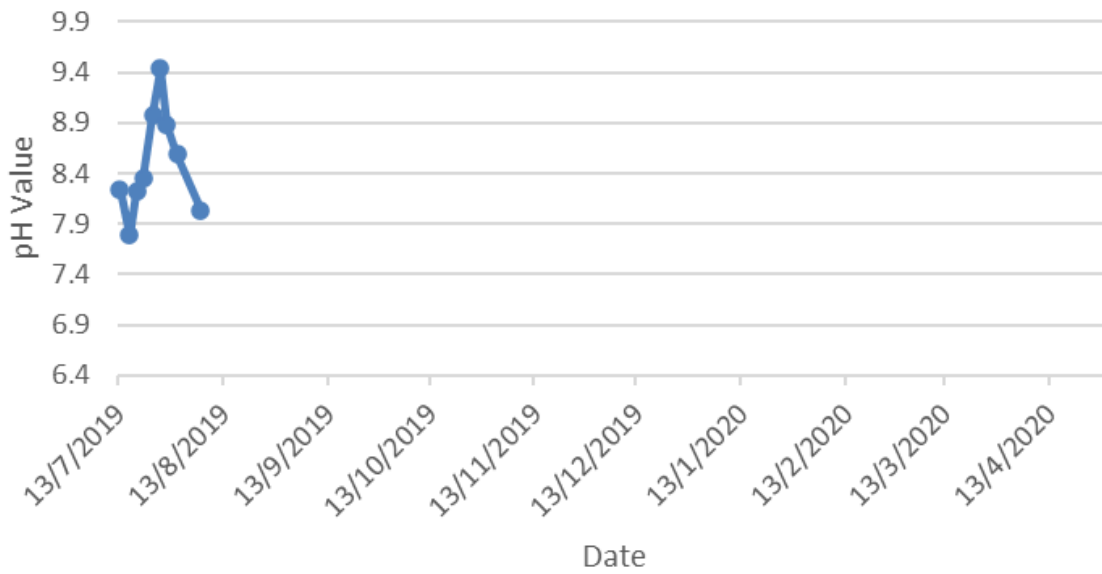


### C1b (Past 3 Months)

#### Water Quality Monitoring at C1b - Dissolved Oxygen

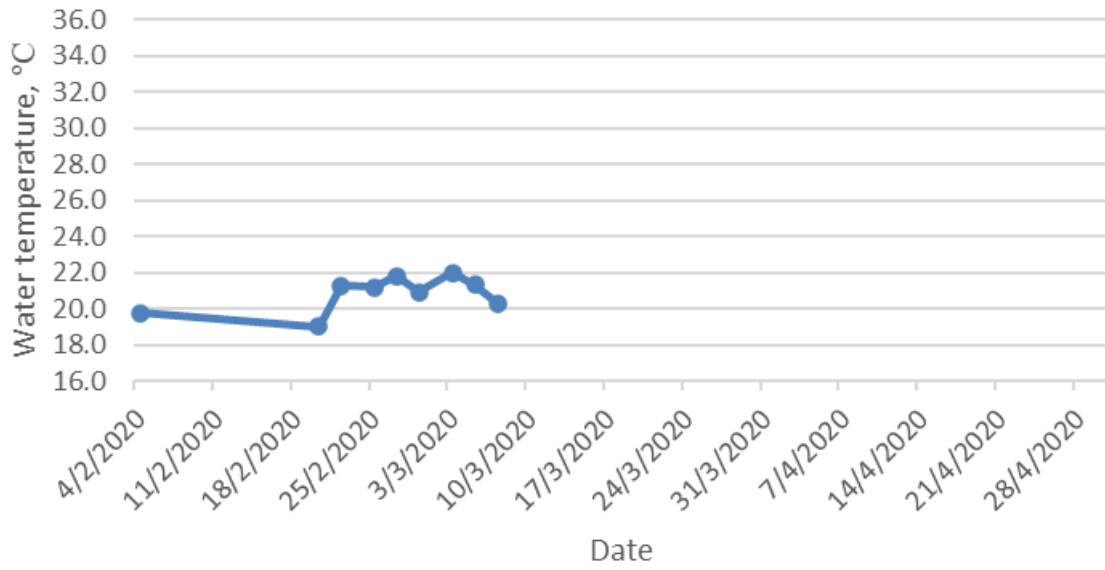


#### Water Quality Monitoring at C1b - pH Value

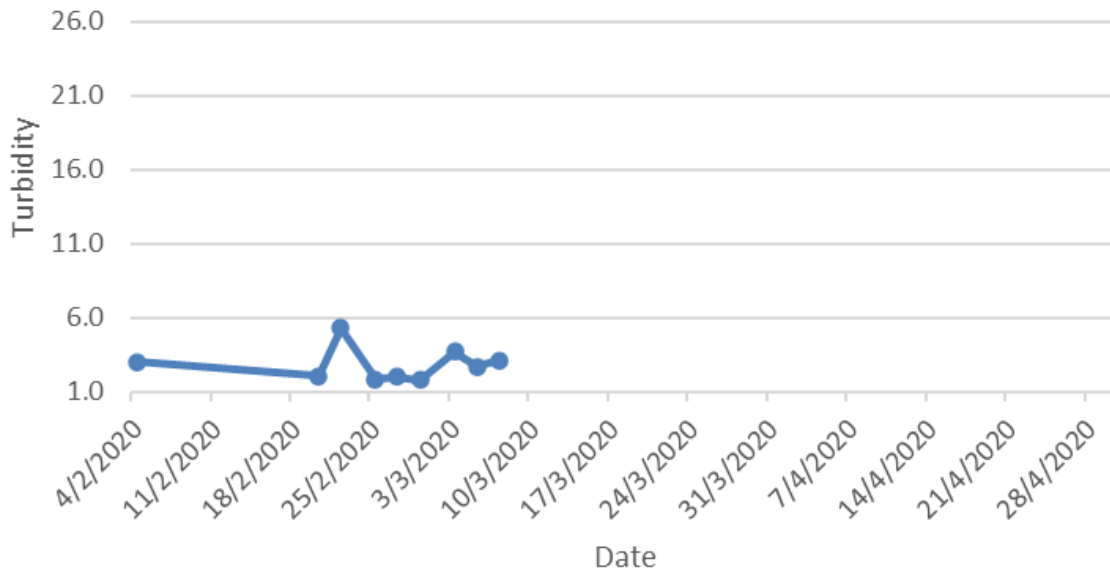


C1b (Past 3 Months)

Water Quality Monitoring at C1b - Water Temperature

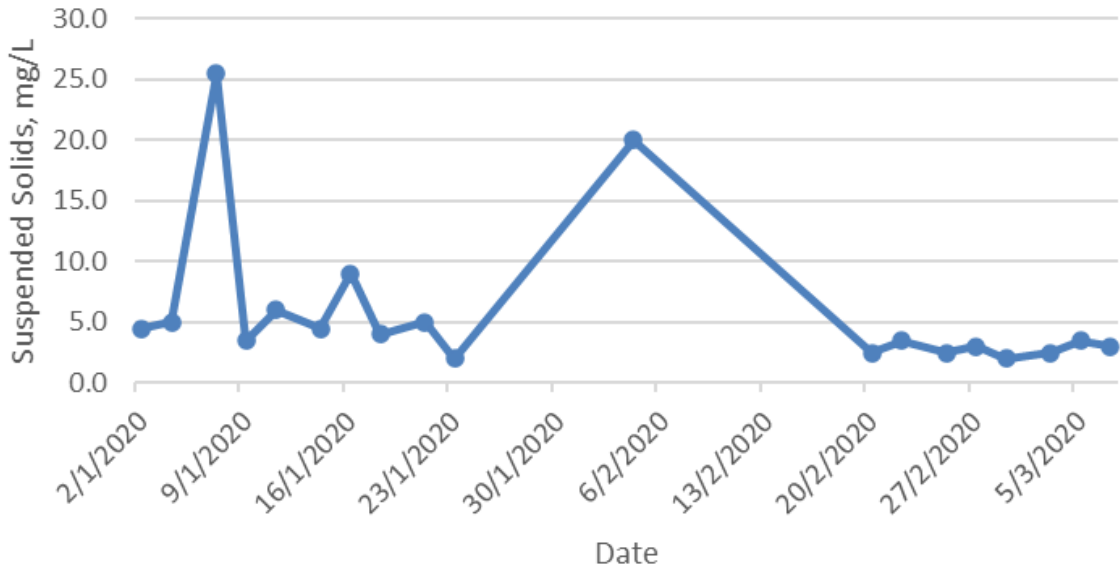


Water Quality Monitoring at C1b - Turbidity

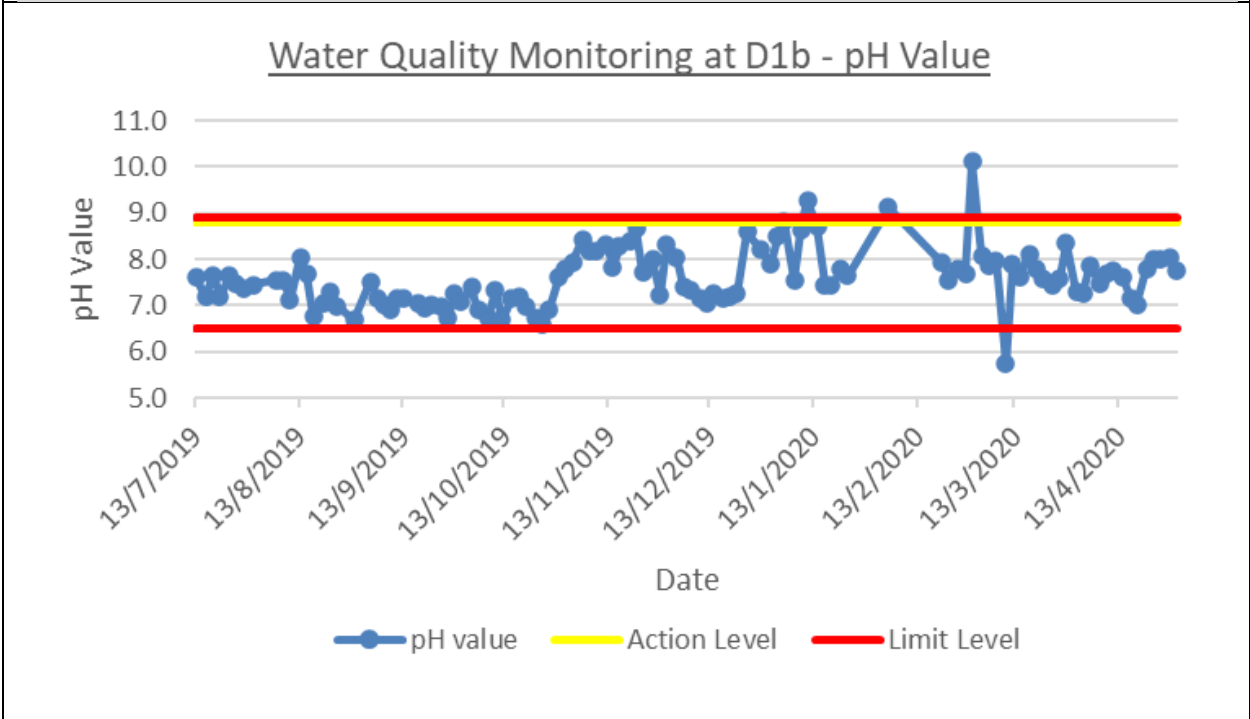
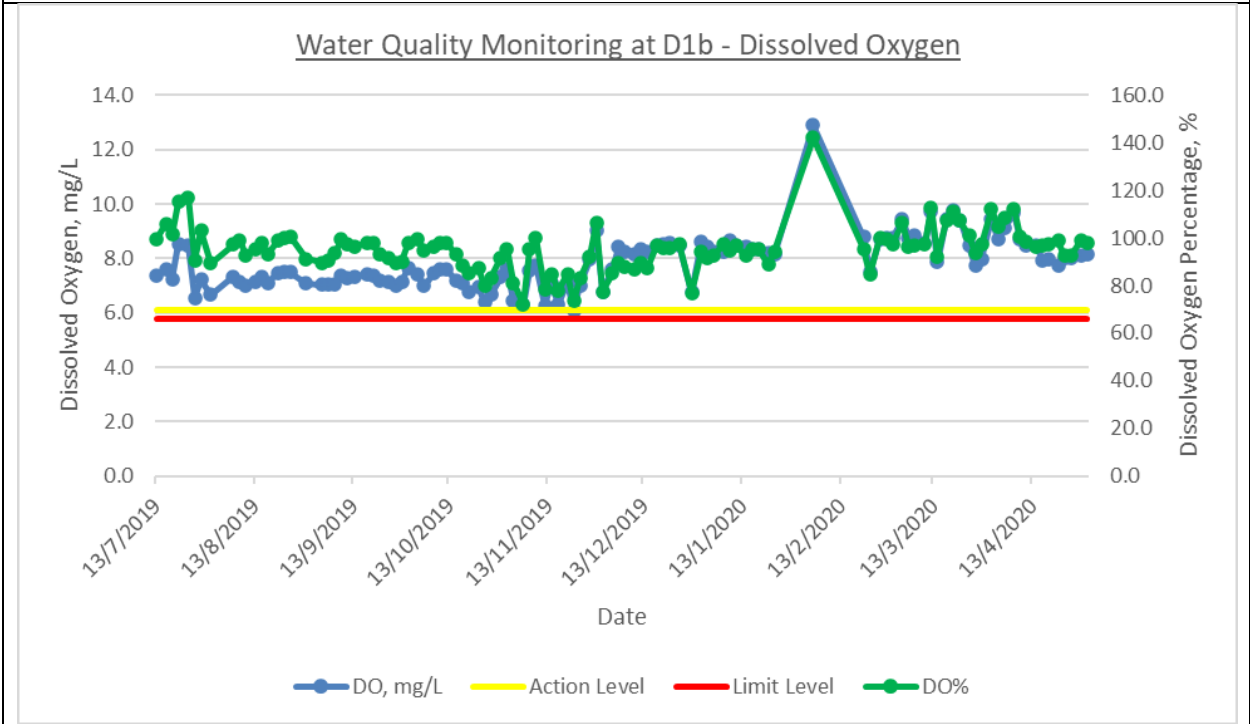


C1b (Past 3 Months)

Water Quality Monitoring at C1b - Suspended Solids

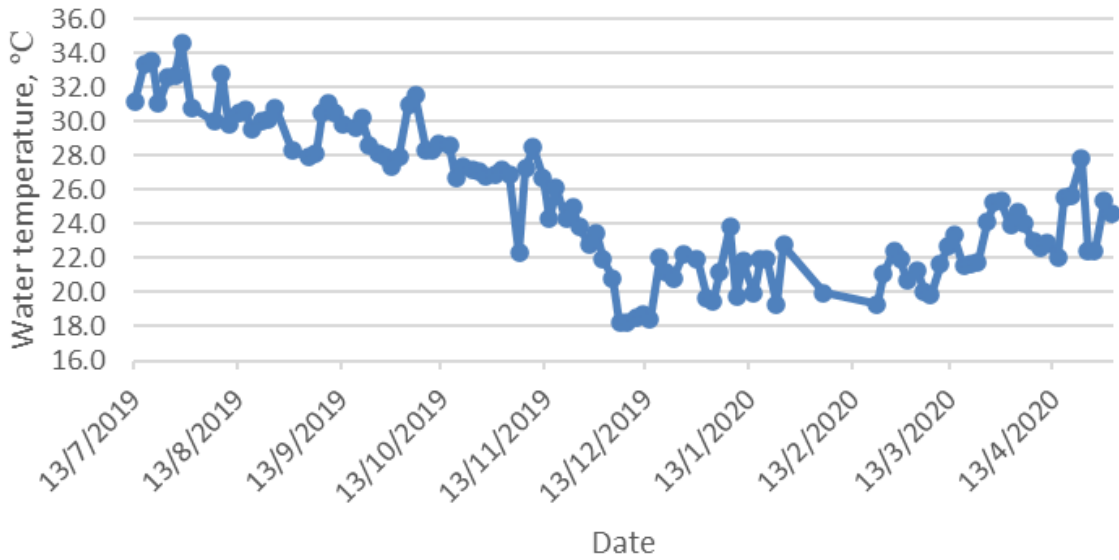


### D1b (Since Commencement)

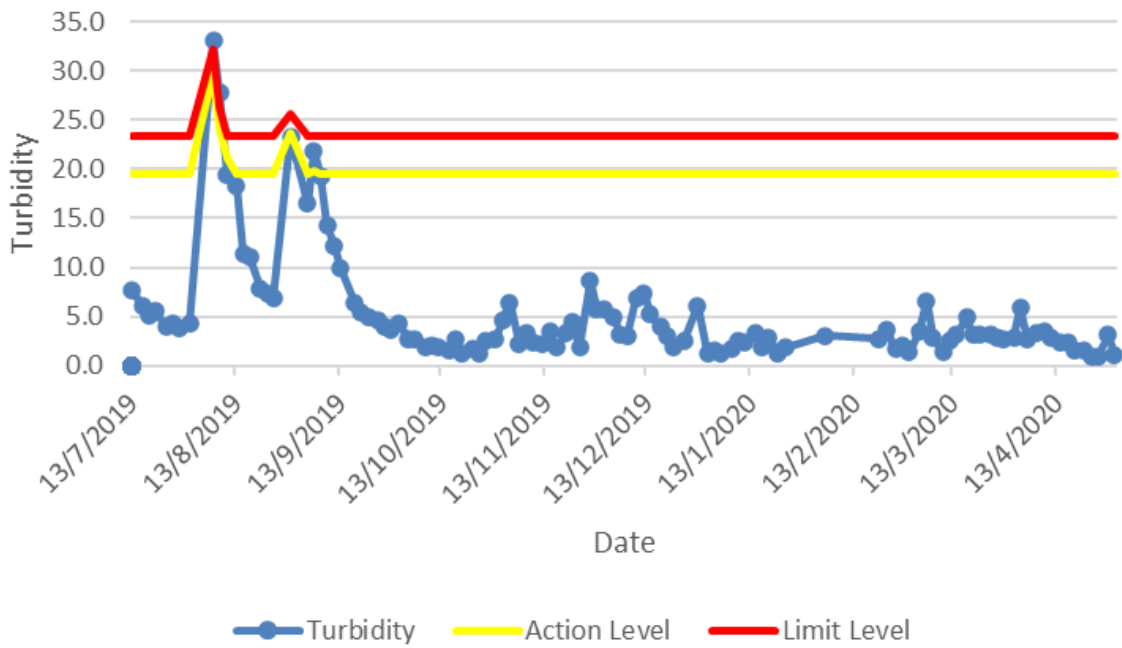


D1b (Since Commencement)

Water Quality Monitoring at D1b - Water Temperature

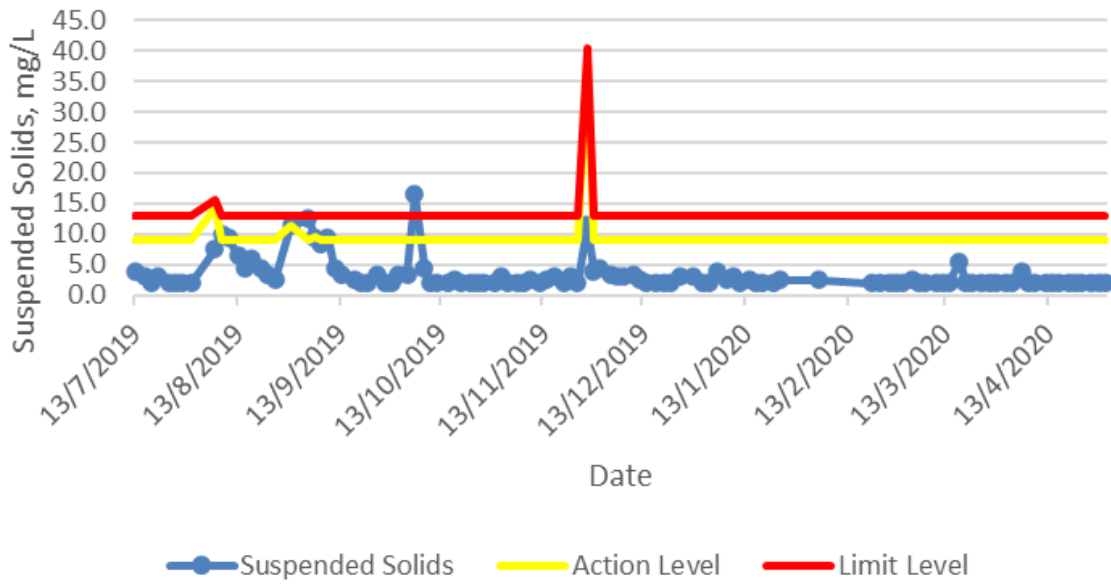


Water Quality Monitoring at D1b - Turbidity

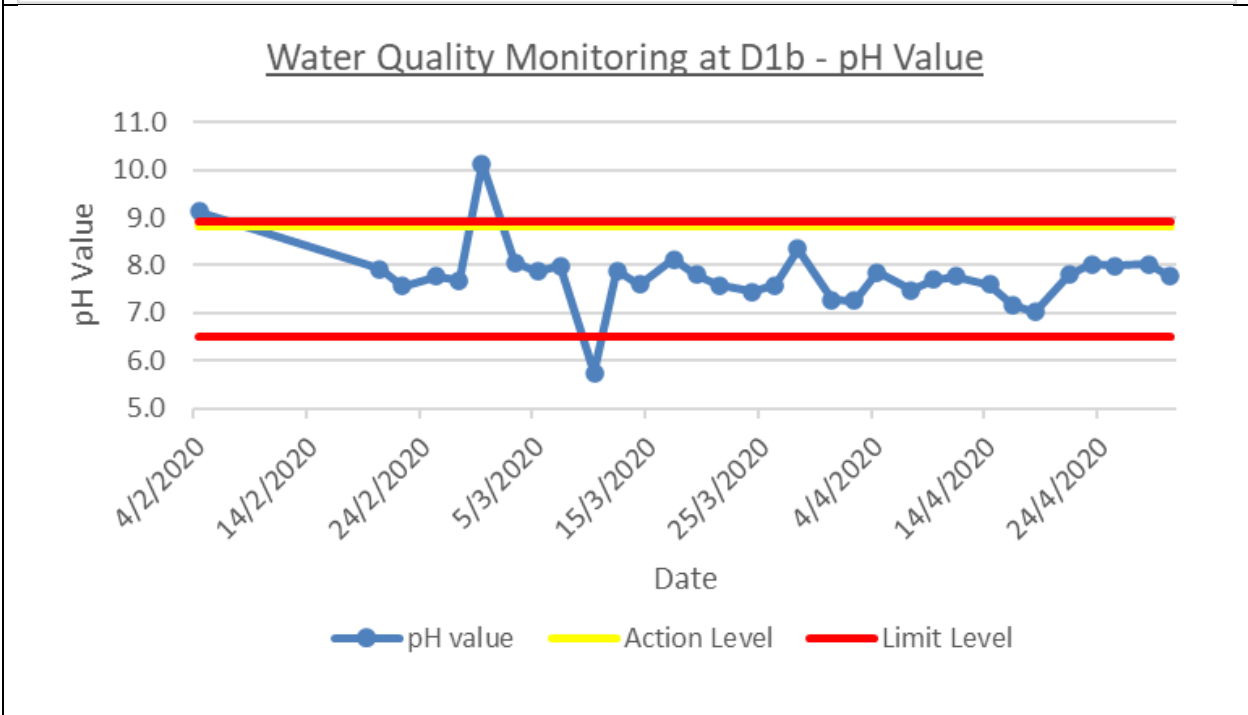
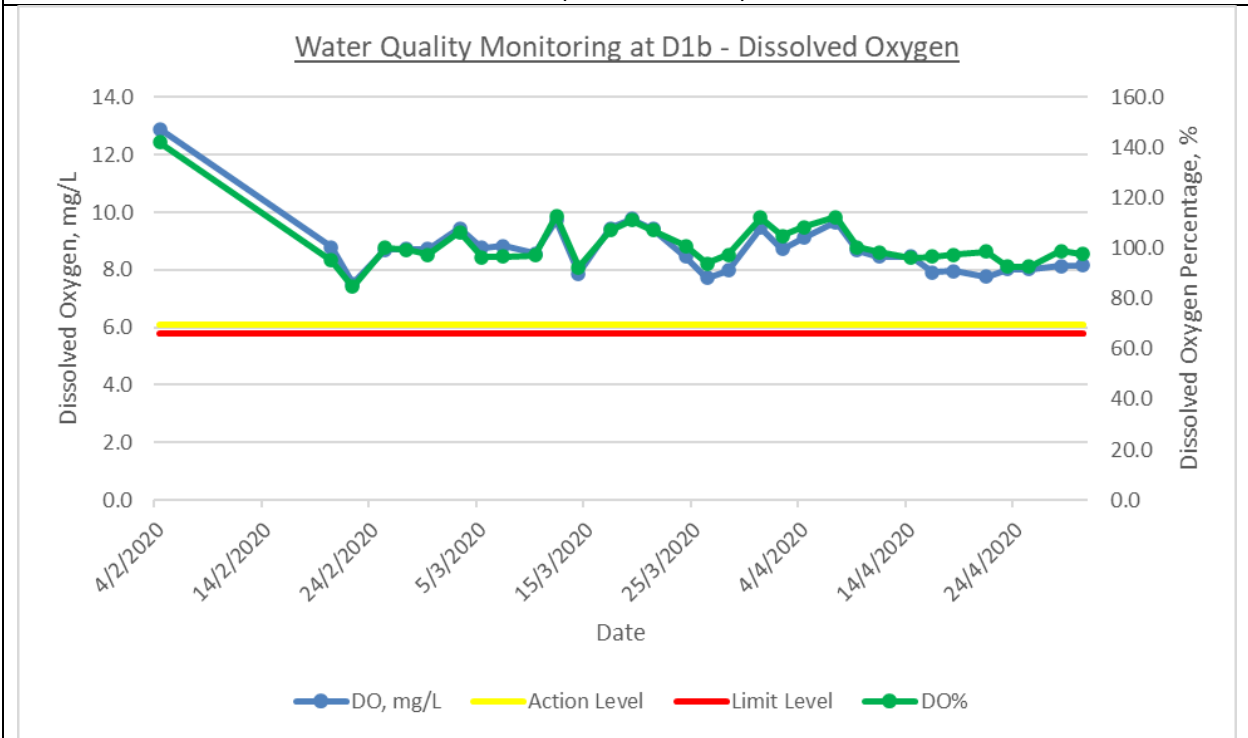


D1b (Since Commencement)

Water Quality Monitoring at D1b - Suspended Solids

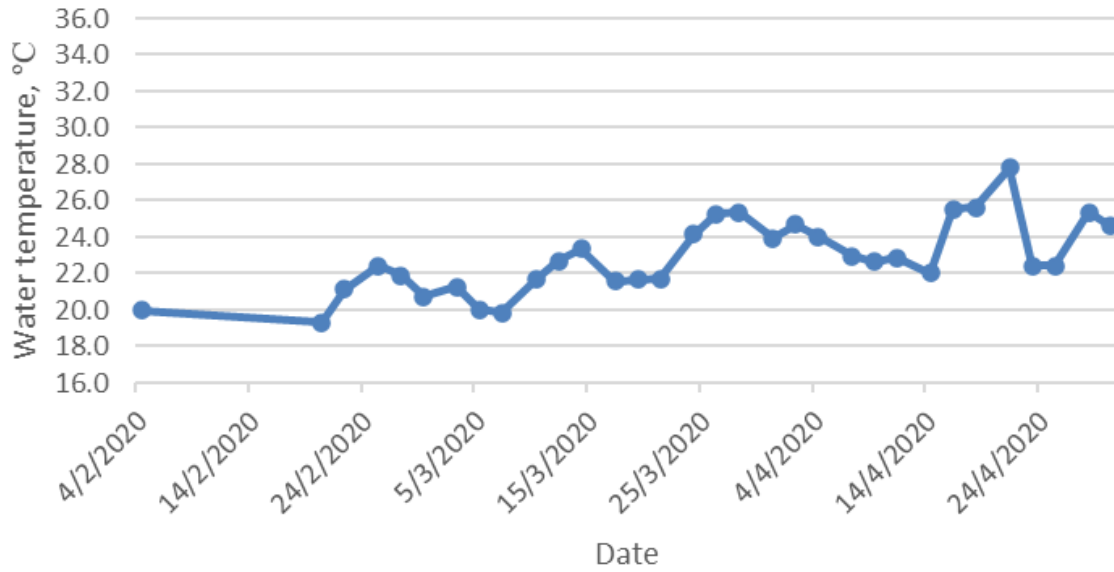


### D1b (Past 3 Months)

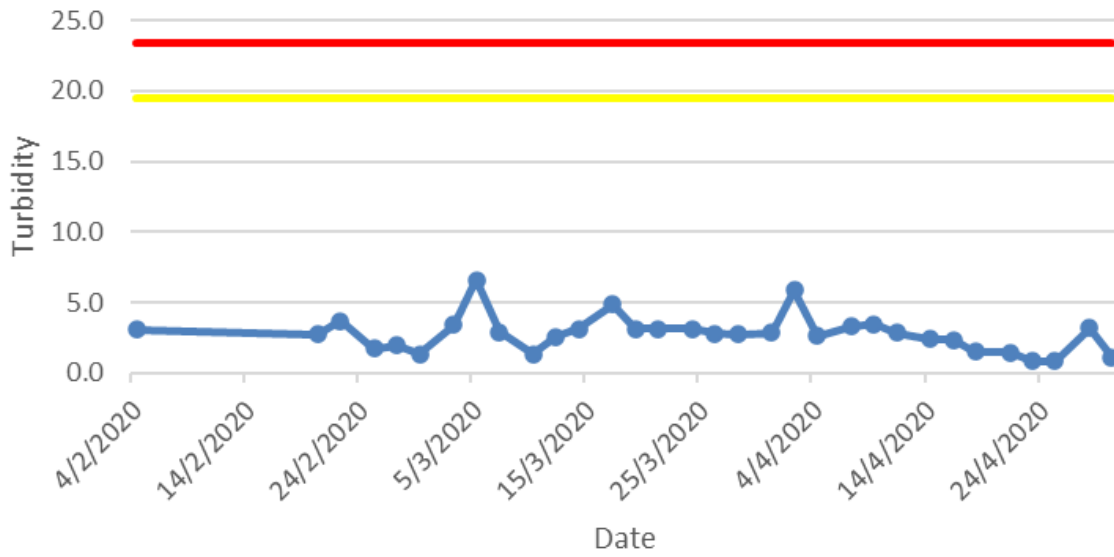


D1b (Past 3 Months)

Water Quality Monitoring at D1b - Water Temperature



Water Quality Monitoring at D1b - Turbidity

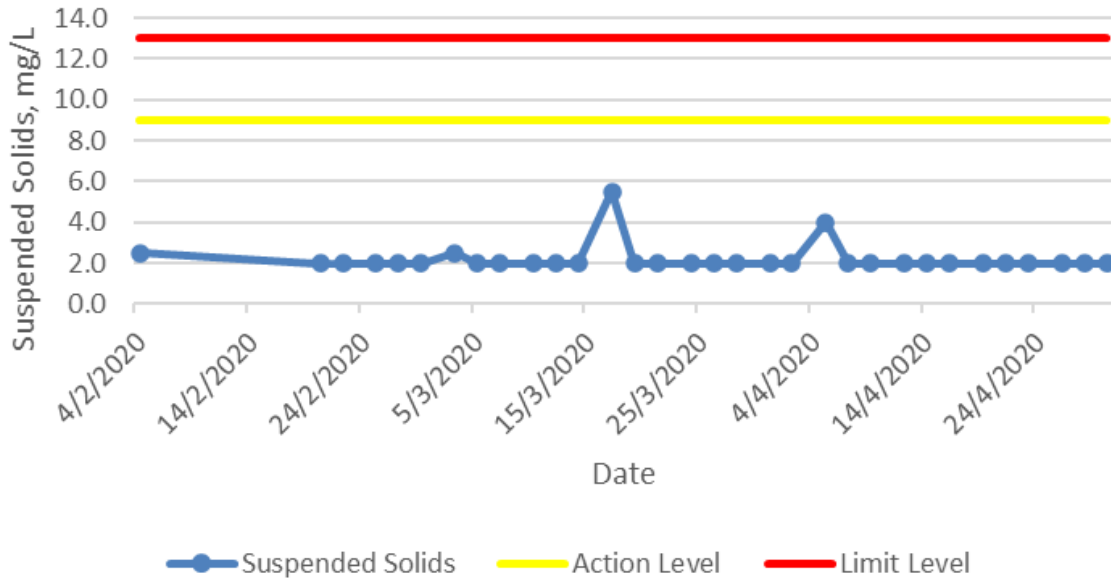


● Turbidity    — Action Level    — Limit Level



D1b (Past 3 Months)

Water Quality Monitoring at D1b - Suspended Solids



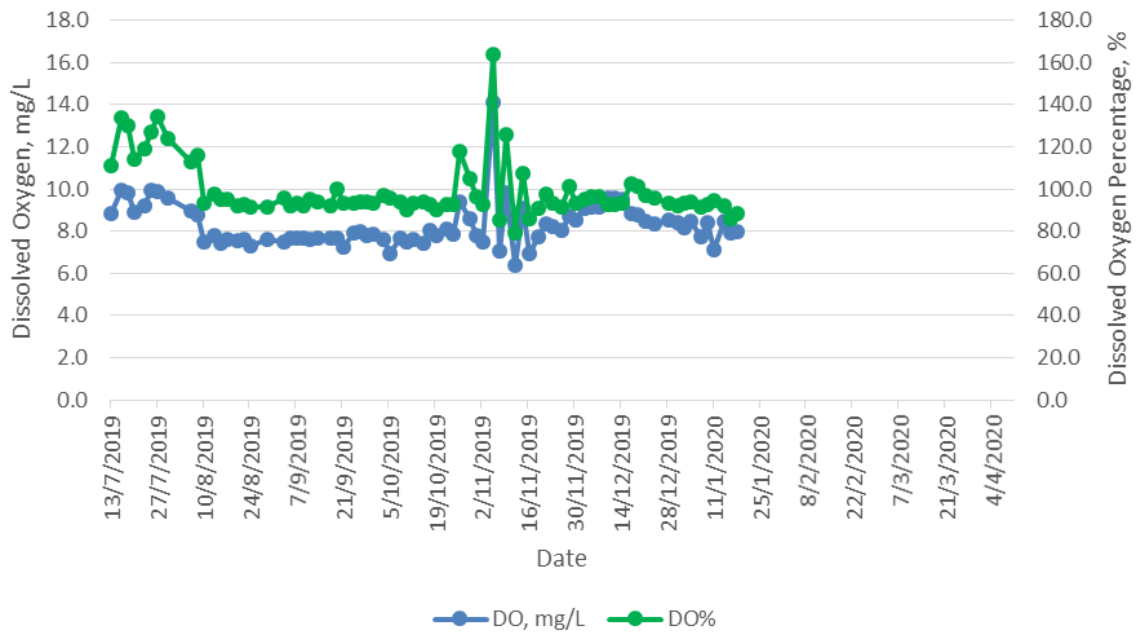
Location	Sample ID	Date	Time	DO (mg/L)	DO%	pH	Temp (°C)	Turbidity (NTU)	SS (mg/L)
C2	C2	2/4/2020							
	C2#	2/4/2020							
	C2	4/4/2020							
	C2#	4/4/2020							
	C2	7/4/2020							
	C2#	7/4/2020							
	C2	9/4/2020							
	C2#	9/4/2020							
	C2	11/4/2020							
	C2#	11/4/2020							
	C2	14/4/2020							
	C2#	14/4/2020							
	C2	16/4/2020							
	C2#	16/4/2020							
	C2	18/4/2020							
	C2#	18/4/2020							
	C2	21/4/2020							
	C2#	21/4/2020							
	C2	23/4/2020							
	C2#	23/4/2020							
	C2	25/4/2020							
	C2#	25/4/2020							
	C2	28/4/2020							
	C2#	28/4/2020							
C2	30/4/2020								
C2#	30/4/2020								

\*Remark: Water in location C2 was dried up, insufficient water was available for sample collection.

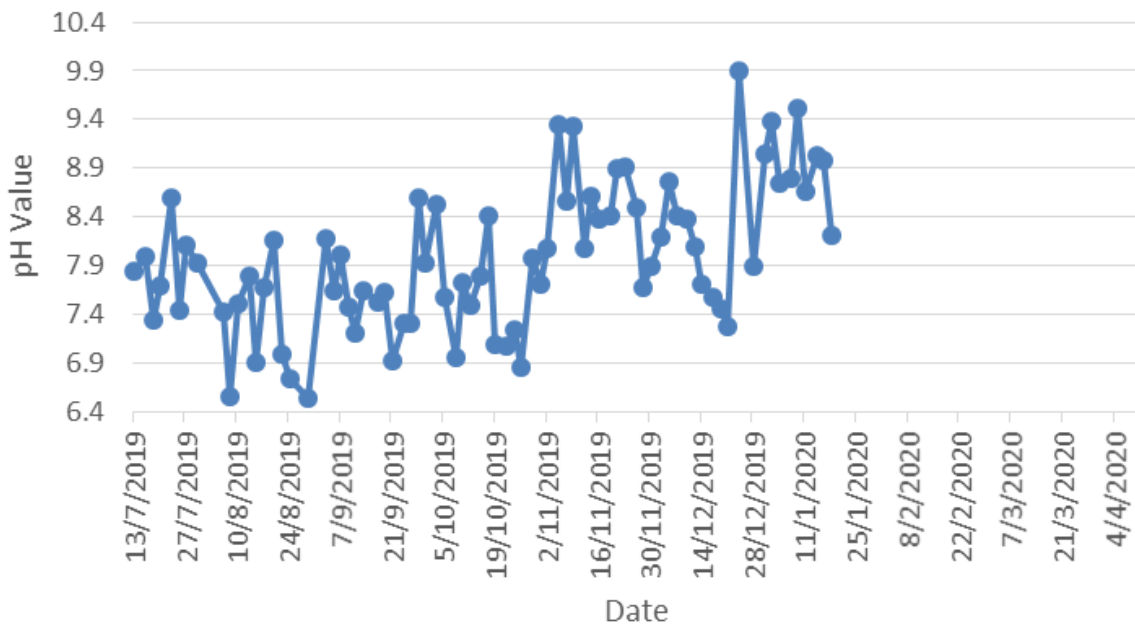
Location	Sample ID	Date	Time	DO (mg/L)	DO%	pH	Temp (°C)	Turbidity (NTU)	SS (mg/L)
D2a	D2a	2/4/2020	14:08	24.0	7.5	9.3	110.7	2.7	4
	D2a#	2/4/2020	14:09	24.0	7.7	9.2	109.5	2.9	4
	D2a	4/4/2020	11:56	24.7	7.3	8.7	104.1	6.6	6
	D2a#	4/4/2020	11:57	24.5	7.3	8.6	103.4	7.0	7
	D2a	7/4/2020	15:33	22.7	7.4	8.5	98.7	10.0	20
	D2a#	7/4/2020	15:34	22.8	7.4	7.7	89.1	9.5	21
	D2a	9/4/2020	15:22	22.7	7.5	8.6	99.1	11.5	9
	D2a#	9/4/2020	15:23	22.7	7.5	9.4	109.4	9.6	8
	D2a	11/4/2020	13:33	22.8	7.4	9.2	106.9	8.5	10
	D2a#	11/4/2020	13:34	22.8	7.4	9.1	106.0	9.4	9
	D2a	14/4/2020	15:44	21.9	7.7	8.4	95.8	2.0	5
	D2a#	14/4/2020	15:46	21.9	7.5	8.4	96.0	1.3	4
	D2a	16/4/2020	13:11	32.2	7.9	7.6	104.7	8.2	15
	D2a#	16/4/2020	13:12	31.6	7.6	7.4	100.0	10.6	32
	D2a	18/4/2020	15:48	27.9	7.8	7.7	98.2	3.9	4
	D2a#	18/4/2020	15:49	28.0	7.8	7.7	97.8	3.8	3
	D2a	21/4/2020	9:38	28.6	8.2	7.7	99.4	4.0	6
	D2a#	21/4/2020	9:39	28.6	8.0	7.7	99.3	3.6	5
	D2a	23/4/2020	14:55	23.2	8.5	8.2	95.3	2.0	3
	D2a#	23/4/2020	14:55	23.2	8.5	8.2	95.5	2.2	4
	D2a	25/4/2020	9:28	23.2	8.4	8.2	95.5	2.2	2
	D2a#	25/4/2020	9:30	23.2	8.4	8.2	95.5	2.3	2
	D2a	28/4/2020	11:04	26.0	7.6	8.1	99.6	4.7	13
	D2a#	28/4/2020	11:05	26.0	7.5	8.1	99.5	4.4	12
D2a	30/4/2020	14:00	26.0	8.4	8.1	100.3	5.0	7	
D2a#	30/4/2020	14:01	26.0	8.3	8.1	100.3	5.3	7	

### C2 (Since Commencement)

#### Water Quality Monitoring at C2 - Dissolved Oxygen

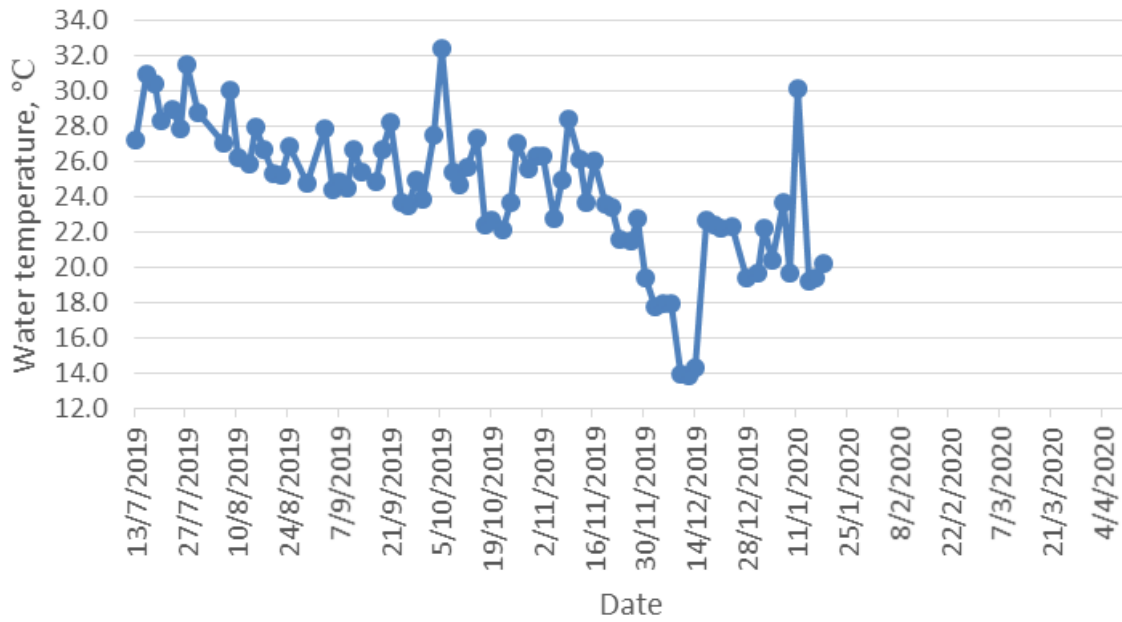


#### Water Quality Monitoring at C2 - pH Value

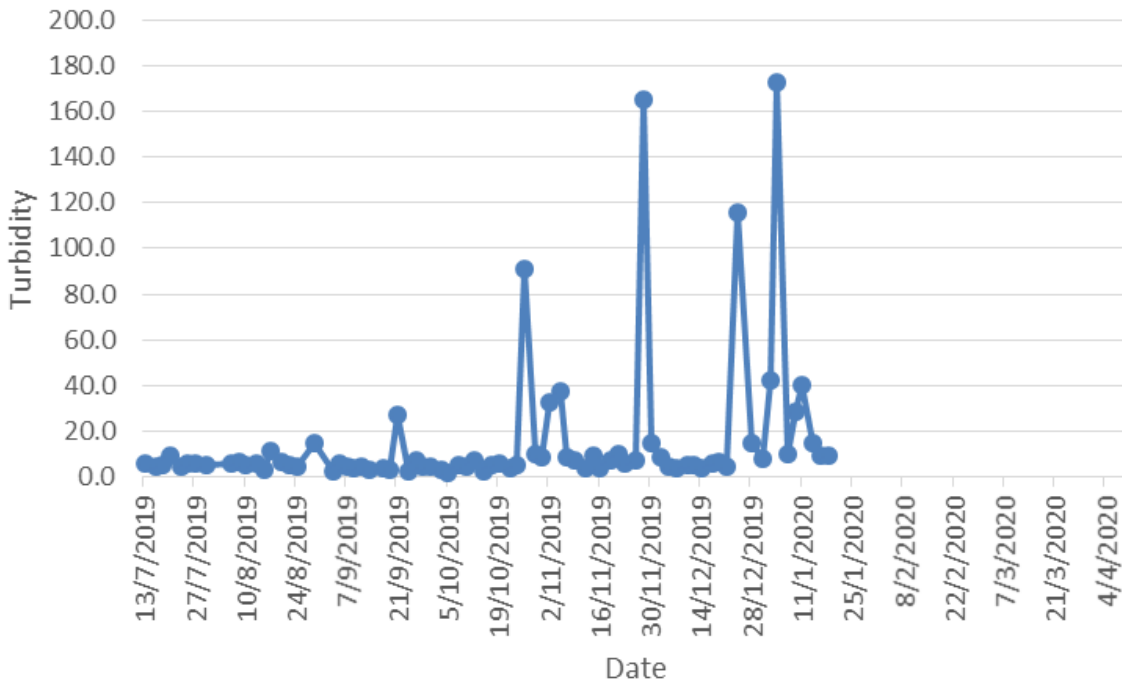


C2 (Since Commencement)

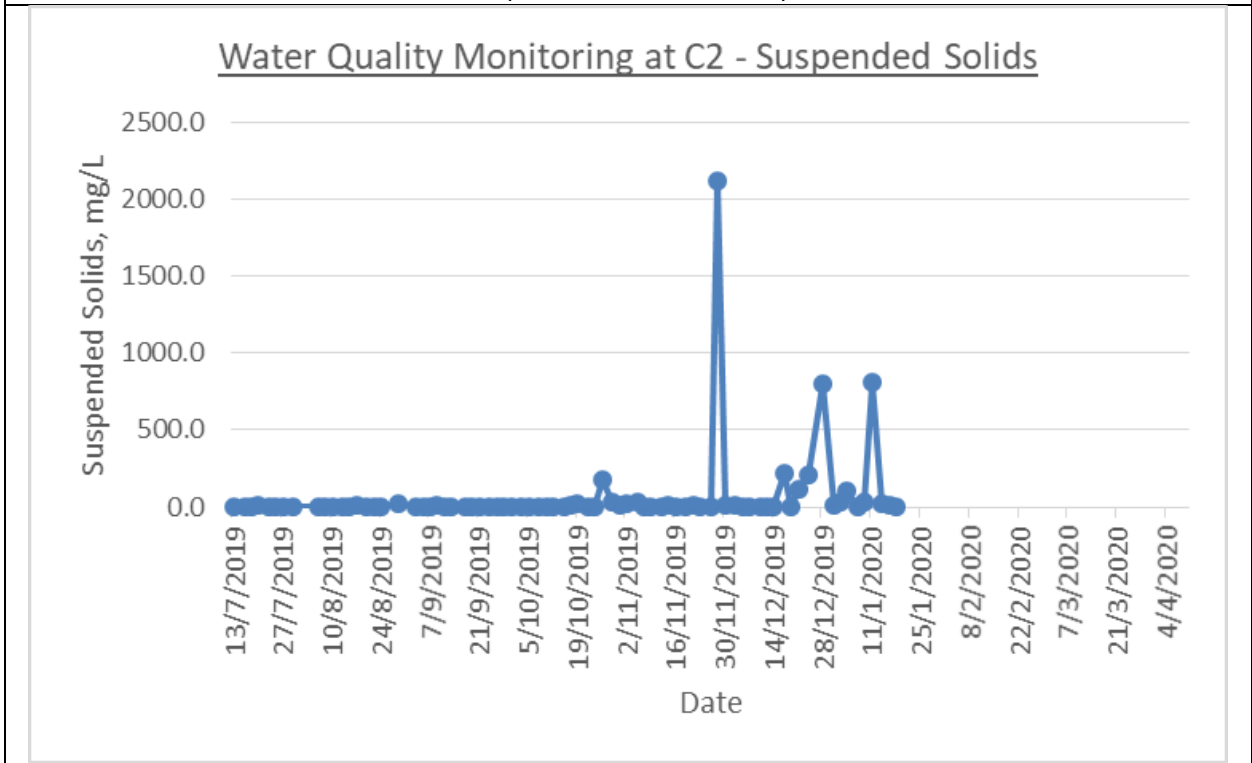
Water Quality Monitoring at C2 - Water Temperature



Water Quality Monitoring at C2 - Turbidity



C2 (Since Commencement)

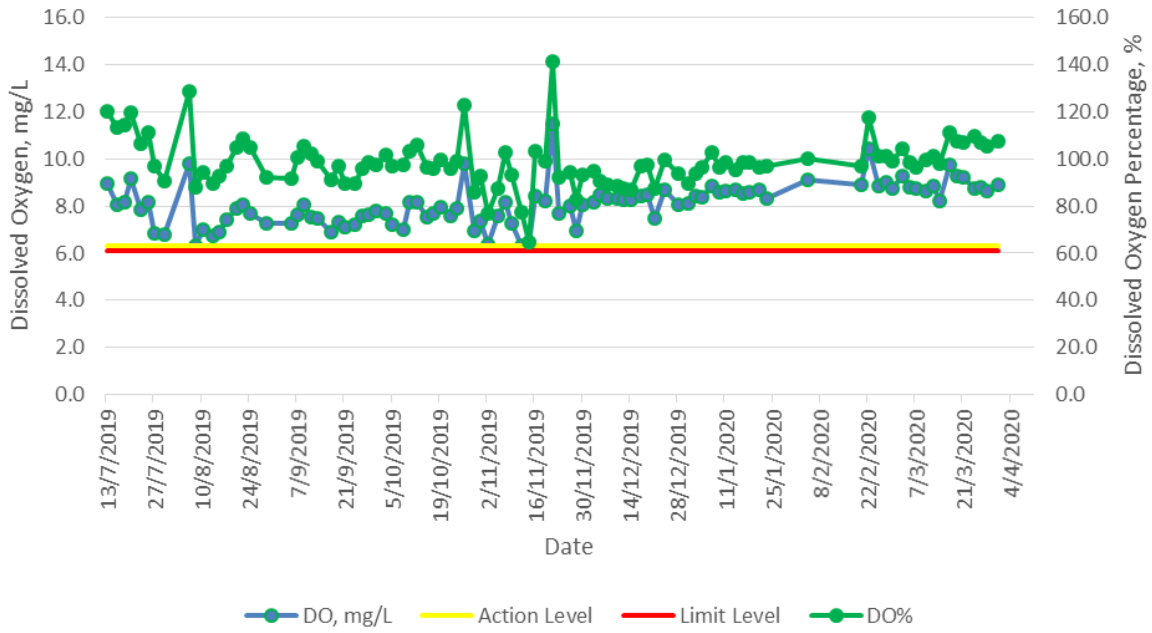


C2 (Past 3 Months)

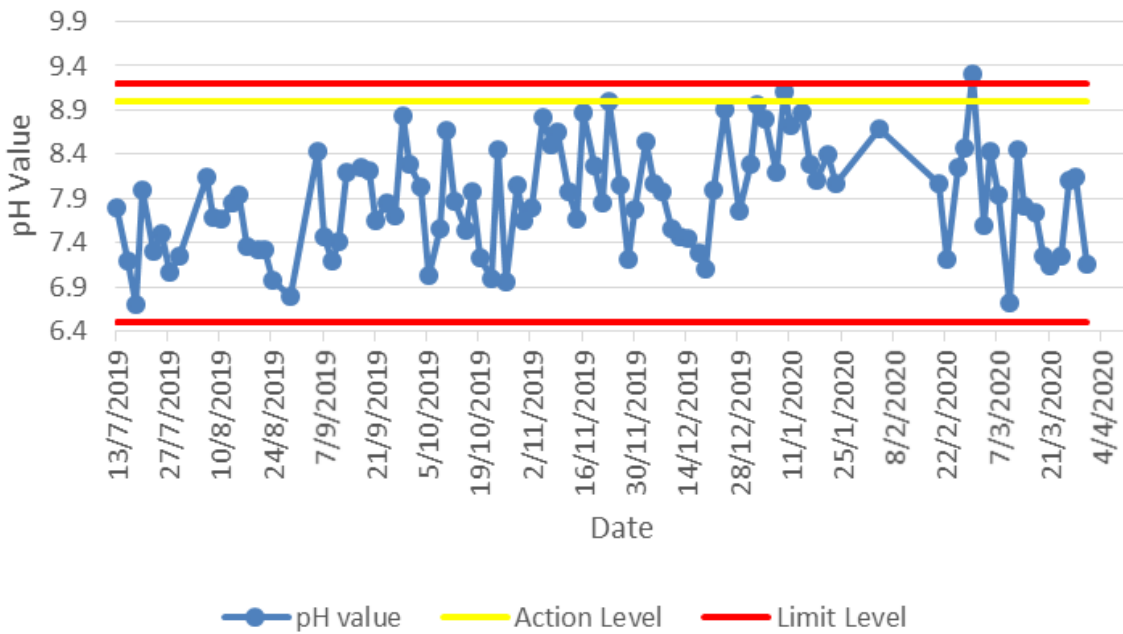
Not available since no water was collected at the point in the period.

### D2a (Since Commencement)

#### Water Quality Monitoring at D2a - Dissolved Oxygen

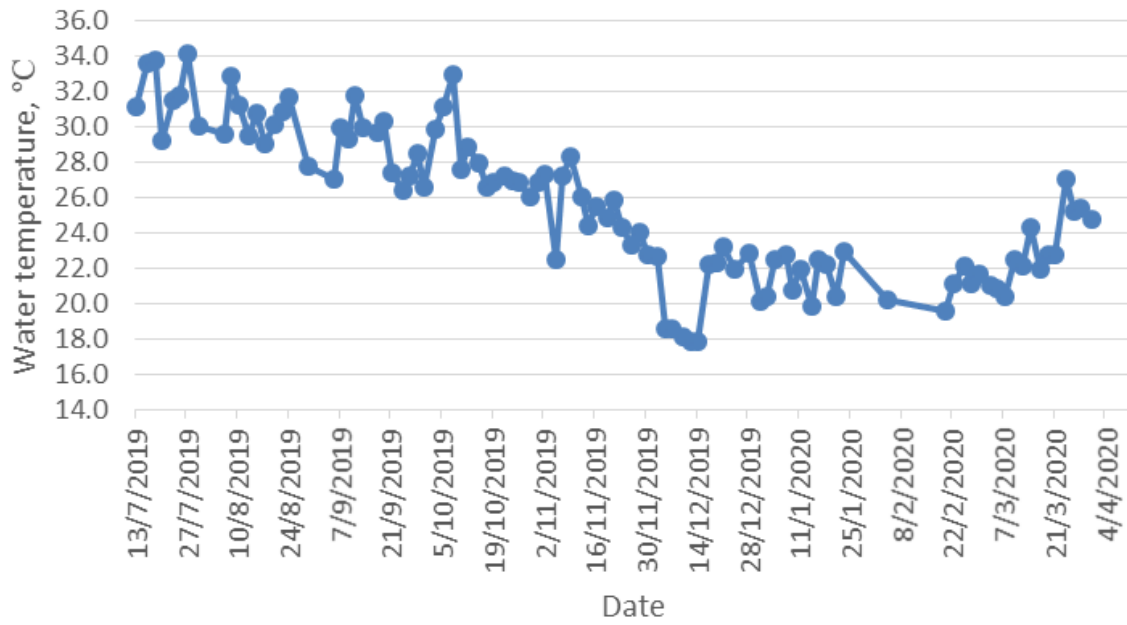


#### Water Quality Monitoring at D2a - pH Value

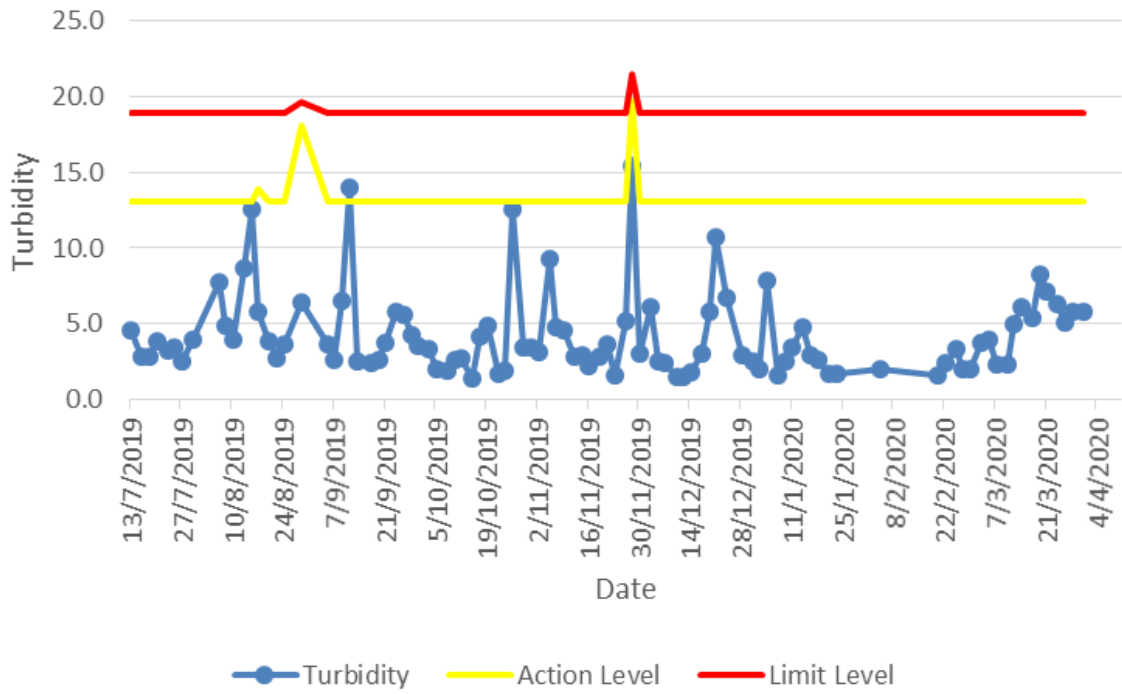


D2a (Since Commencement)

Water Quality Monitoring at D2a - Water Temperature



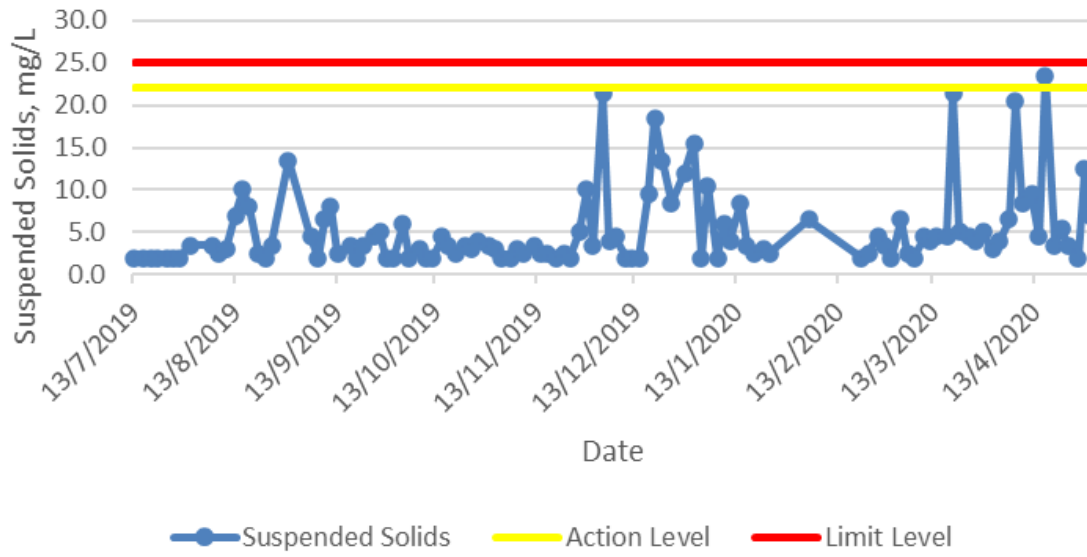
Water Quality Monitoring at D2a - Turbidity





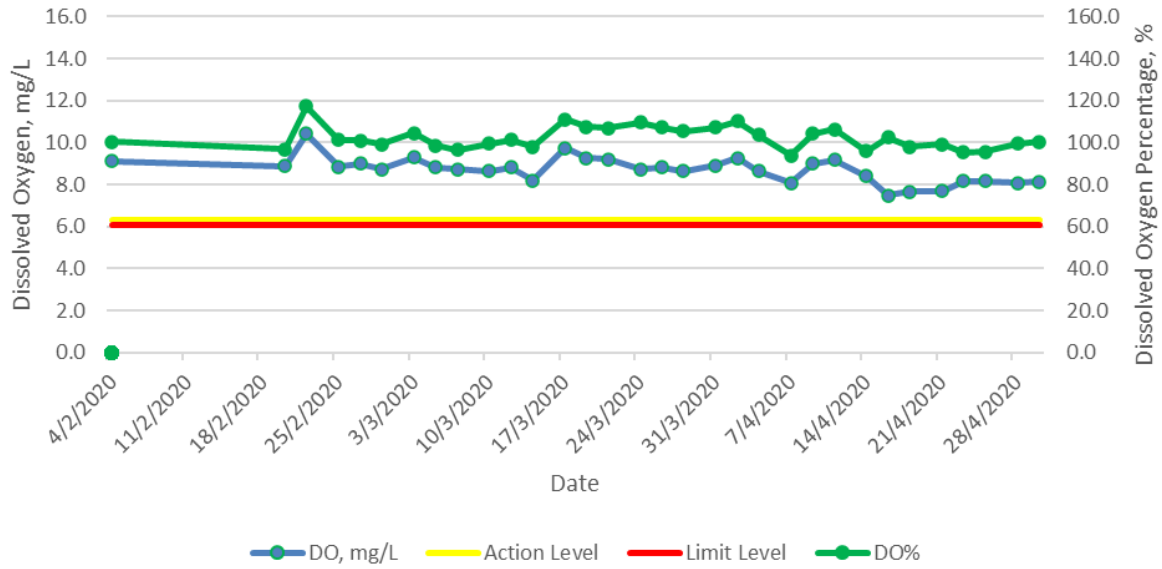
D2a (Since Commencement)

Water Quality Monitoring at D2a - Suspended Solids

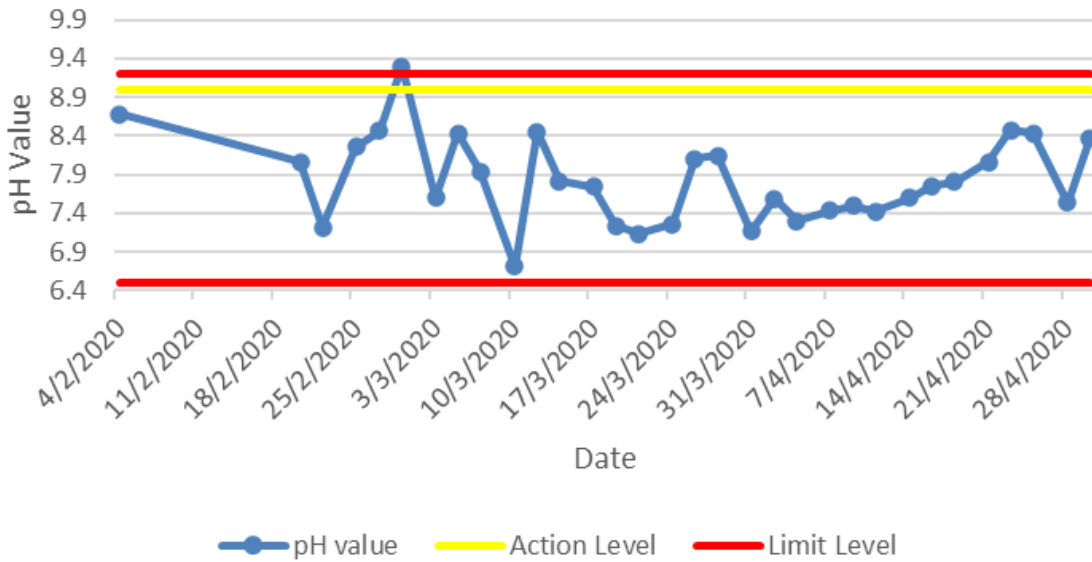


### D2a (Past 3 Months)

#### Water Quality Monitoring at D2a - Dissolved Oxygen

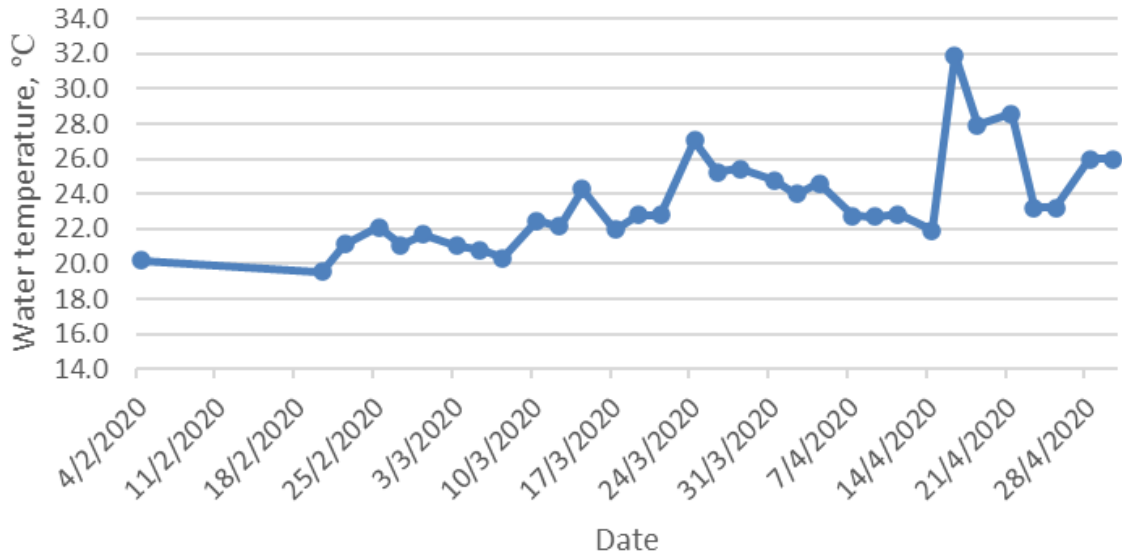


#### Water Quality Monitoring at D2a - pH Value

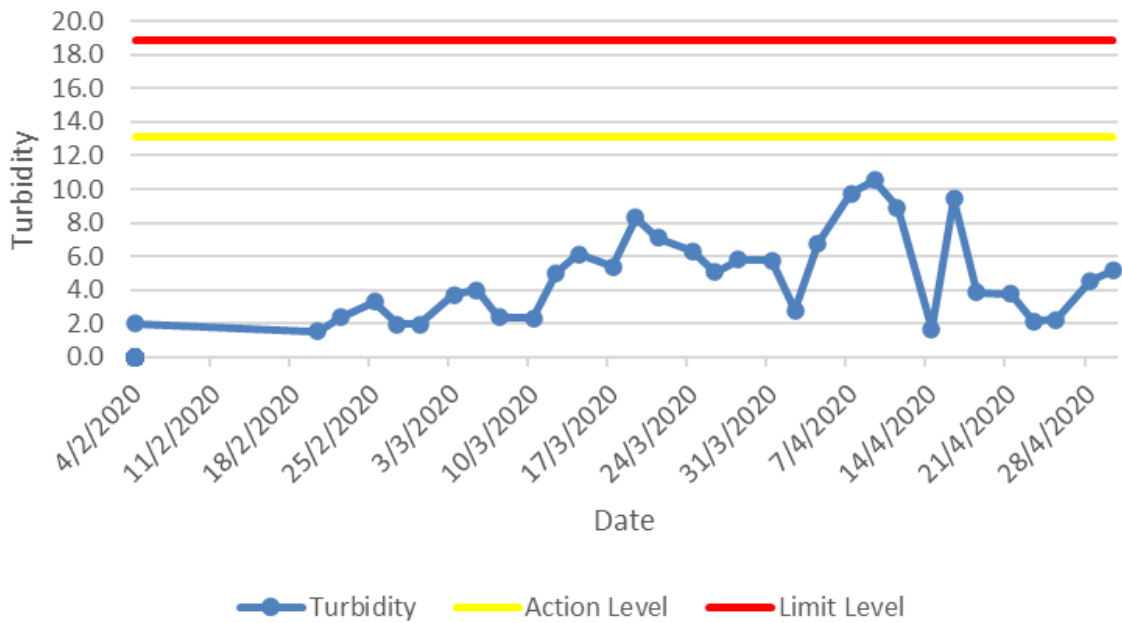


D2a (Past 3 Months)

Water Quality Monitoring at D2a - Water Temperature

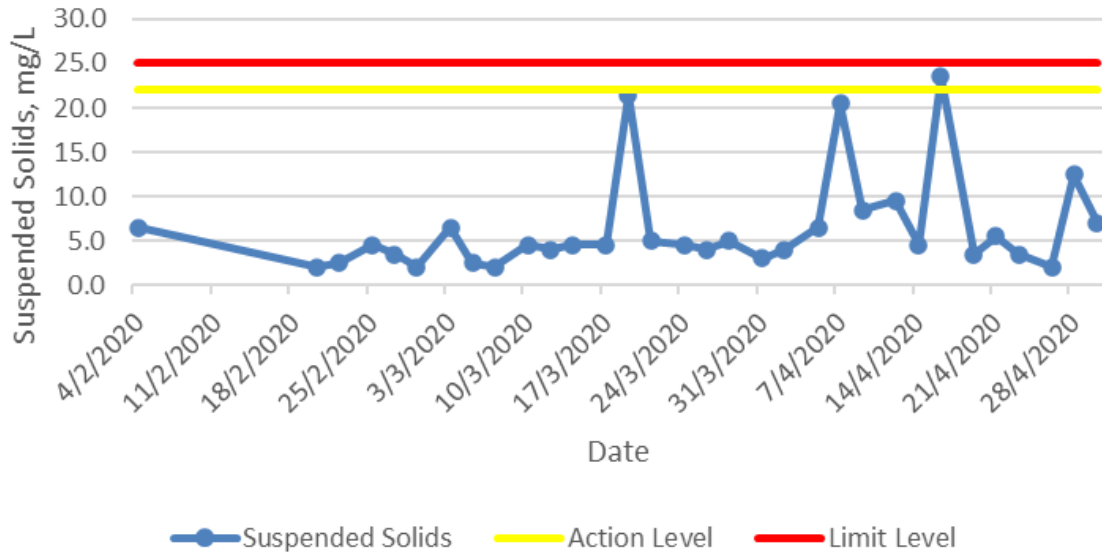


Water Quality Monitoring at D2a - Turbidity



D2a (Past 3 Months)

Water Quality Monitoring at D2a - Suspended Solids



Appendix G  
Supplementary Meteorological Data

## EXTRACT OF METEOROLOGICAL OBSERVATIONS FOR HONG KONG, APRIL 2020 (Table 1)

Date April	Mean Pressure (hPa)	Air Temperature			Mean Dew Point Temperature (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)				
1	1015.0	21.3	19.7	18.9	18.2	91	96	0.2
2	1017.0	20.7	19.9	19.3	17.5	86	94	0.4
3	1017.2	21.3	20.4	19.4	18.2	88	88	0.6
4	1018.0	24.1	20.8	19.7	18.9	89	89	1.1
5	1019.0	19.9	18.2	16.9	16.2	88	94	4.6
6	1016.8	17.9	17.1	16.1	15.7	92	97	21.5
7	1015.5	21.1	19.1	17.2	16.5	86	88	Trace
8	1016.5	24.0	20.6	18.7	14.8	71	83	-
9	1017.5	25.6	21.6	18.8	15.4	69	31	-
10	1018.1	24.6	21.7	19.9	16.5	73	39	-
11	1015.0	24.3	22.5	20.5	20.4	88	89	20.5
12	1017.3	25.6	20.8	18.1	12.0	59	45	0.4
13	1019.2	25.4	20.2	16.4	7.5	44	49	-
14	1017.5	24.1	21.1	19.6	14.2	65	80	-
15	1015.4	25.9	22.2	19.0	15.4	66	46	-
16	1014.5	28.3	23.3	20.0	18.8	77	41	-
17	1014.8	28.3	24.1	22.0	20.1	79	59	-
18	1013.9	27.8	24.4	22.4	20.9	81	73	Trace
19	1012.6	30.0	25.9	23.7	22.1	80	47	-
20	1012.5	29.4	26.4	24.6	22.7	81	53	-
21	1012.4	30.0	26.7	24.9	23.2	82	69	-
22	1014.9	25.7	22.1	19.4	21.1	94	93	25.8
23	1017.2	21.7	20.6	19.4	18.8	89	93	1.3
24	1019.0	21.4	19.4	18.1	16.6	84	94	0.6
25	1018.1	22.7	20.5	18.4	17.4	83	90	0.1
26	1017.0	27.8	23.1	19.9	18.3	75	79	0.7
27	1017.1	28.5	24.4	21.6	16.8	65	65	-
28	1017.5	27.9	24.3	22.4	17.0	64	56	-
29	1017.0	28.5	24.2	21.7	18.9	72	39	-
30	1015.3	30.3	25.3	22.2	20.0	74	52	-
Mean/Total	1016.3	25.1	22.0	20.0	17.7	78	70	77.8
Normal*	1012.9	25.0	22.6	20.8	19.4	83	81	174.7
Station	Hong Kong Observatory							



## EXTRACT OF METEOROLOGICAL OBSERVATIONS FOR HONG KONG, APRIL 2020 (Table 2)

Date April	Number of hours of Reduced Visibility <sup>#</sup> (hours)	Total Bright Sunshine (hours)	Daily Global Solar Radiation (MJ/m <sup>2</sup> )	Total Evaporation (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
1	1	-	3.72	1.7	040	20.4
2	0	-	6.86	1.4	070	42.8
3	1	-	5.32	0.5	060	37.3
4	0	1.2	7.78	1.5	070	28.2
5	0	-	1.96	0.5	070	43.3
6	0	-	1.71	0.2	060	34.1
7	1	0.7	8.01	1.5	070	17.8
8	0	4.3	17.33	3.6	060	25.3
9	0	9.8	23.61	4.9	070	18.6
10	0	10.5	21.81	3.5	070	29.8
11	0	0.3	7.26	3.7	030	13.0
12	0	9.5	25.62	7.3	360	42.6
13	0	10.6	26.71	4.6	360	21.6
14	0	3.5	14.05	2.9	050	15.8
15	0	11.0	25.01	4.1	010	8.1
16	0	11.1	25.65	3.9	120	7.4
17	0	10.6	22.99	3.8	050	9.5
18	0	5.2	15.09	2.6	060	6.5
19	0	9.7	22.68	4.2	240	7.8
20	0	8.7	23.01	4.2	240	14.6
21	0	5.5	16.93	3.6	140	9.8
22	0	-	3.16	0.1	080	39.3
23	0	-	4.60	1.1	070	33.3
24	0	0.1	5.94	1.3	010	21.2
25	4	0.7	7.55	1.2	010	12.8
26	12	7.2	20.01	3.2	250	4.7
27	8	7.9	21.27	5.1	060	10.3
28	0	11.3	26.40	5.3	080	25.8
29	0	10.6	26.27	4.6	070	24.7
30	0	10.3	24.17	4.2	050	9.7
Mean/Total	27	160.3	15.42	90.3	070	21.2
Normal*	77.8 <sup>§</sup>	101.7	11.60	83.8	070	20.9

Station	Hong Kong International Airport	King's Park	Waglan Island <sup>^</sup>
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The minimum pressure recorded at the Hong Kong Observatory was 1010.1 hectopascals at 1642 HKT on 20 April.

The maximum air temperature recorded at the Hong Kong Observatory was 30.3 degrees C at 1450 HKT on 30 April.

The minimum air temperature recorded at the Hong Kong Observatory was 16.1 degrees C at 0403 HKT on 6 April.

The maximum gust peak speed recorded at Waglan Island was 72 kilometres per hour from 360 degrees at 0353 HKT on 12 April.

The maximum 1-minute mean rainfall rate recorded at King's Park was 91 millimetres per hour at 2239 HKT on 11 April.

# Reduced visibility refers to visibility below 8 kilometres when there is no fog, mist or precipitation.

- The visibility readings at the Hong Kong International Airport are based on hourly observations by professional meteorological observers in 2004 and before, and average readings over the 10-minute period before the clock hour of the visibility meter near the middle of the south runway from 2005 onwards. The change of the data source in 2005 is an improvement of the visibility assessment using instrumented observations following the international trend.

- Before 10 October 2007, the number of hours of reduced visibility at the Hong Kong International Airport in 2005 and thereafter displayed in this web page was based on hourly visibility observations by professional meteorological observers. Since 10 October 2007, the data have been revised using the average visibility readings over the 10-minute period before the clock hour, as recorded by the visibility meter near the middle of the south runway.

<sup>^</sup> In case the data are not available from Waglan Island, observations of Cheung Chau or other nearby weather stations will be incorporated in computing the Prevailing Wind Direction and Mean Wind Speed.

\* 1981-2010 Climatological Normal, unless otherwise specified

§ 1997-2019 Mean value

Appendix H  
Event / Action Plans

**Table B-1 Event/ Action Plan for Noise Impact**

Event and Action Plan for Noise Impact				
Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level is reached	<ol style="list-style-type: none"> <li>1. Notify IEC and Contractor</li> <li>2. Carry out investigation</li> <li>3. Report the results of the investigation to the IEC and Contractor</li> <li>4. Discuss with the Contractor and formulate remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET and Contractor on the potential remedial actions</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly</li> <li>3. Supervise the implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing</li> <li>2. Notify Contractor</li> <li>3. Require Contractor to propose remedial measures for the analyzed noise problem</li> <li>4. Ensure remedial measures are properly implemented</li> <li>5.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposal to IEC</li> <li>2. Implement noise mitigation proposals</li> </ol>
Limit Level is reached	<ol style="list-style-type: none"> <li>1. Notify IEC, ER, EPD and Contractor</li> <li>2. Identify source</li> <li>3. Repeat measurement to confirm findings</li> <li>4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented</li> <li>5. Inform IEC, ER and EPD the causes &amp; actions taken for the exceedances</li> <li>6. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results</li> <li>7. If exceedance stops cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET and Contractor on the potential remedial actions</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly</li> <li>3. Supervise the implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing</li> <li>2. Notify Contractor</li> <li>3. Require Contractor to propose remedial measures for the analyzed noise problem</li> <li>4. Ensure remedial measures are properly implemented</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion or work until the exceedance is abated</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification</li> <li>3. Implement the agreed proposals</li> <li>4. Resubmit proposals if problem still not under control</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated</li> </ol>

**Table B-2 Event/ Action Plan for Water Quality Impact**

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm findings and repeat measurement on next day of exceedance being recorded;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, contractor, ER and EPD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, ER and Contractor;</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor's working methods.</li> <li>2. Discuss with ET and Contractor on possible mitigation measures;</li> <li>3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly;</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing</li> <li>2. Discuss with IEC, ET and Contractor on the proposed mitigation.</li> <li>3. Request Contractor to view the working methods.</li> <li>4. Ensure mitigation measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment and consider changes of working methods;</li> <li>4. Discuss with ET, IEC and ER and propose mitigation measures to ER and IEC within 3 working days;</li> <li>5. Implement the agreed mitigation measures.</li> </ol>
Limit level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm findings and repeat measurement on next day of exceedance being recorded;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, Contractor, ER and EPD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, ER and Contractor;</li> <li>6. Ensure mitigation measures are implemented;</li> <li>7. Increase the monitoring frequency</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor's working methods.</li> <li>2. Discuss with ET and Contractor on possible mitigation measures;</li> <li>3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly;</li> <li>4. Supervise the implementation of mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC, ET and Contractor on the proposed mitigation measures;</li> <li>2. Request Contractor to critically review the working methods;</li> <li>3. Make agreement on the mitigation measures to be implemented;</li> <li>4. Ensure mitigation measures are properly implemented;</li> <li>5. 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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance</li> <li>2. Discuss with ET, IEC and ER and propose mitigation measures to ER and IEC;</li> <li>3. Implement the agreed mitigation measures;</li> <li>4. Resubmit proposals of mitigation measures if problem still not under control;</li> <li>5. As directed by the Engineer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.</li> </ol>

	to daily until no exceedance of Limit level for two consecutive days.			
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Appendix I  
Monthly Waste Flow Table





Name of Department: ArchSD/CEDD/DSD/EMSD/HyD/WSD

Contract No.: DC/2018/08

### Monthly Summary Waste Flow Table for 2020 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Jan	0.1263	0	0	0	0.1263	0	0	0	0	0	0.0041
Feb	0.2843	0	0	0	0.2843	0	0	0	0	0	0.0010
Mar	0.1355	0	0	0	0.1355	0	0	0	0	0	0.0056
Apr*	0.3707	0	0	0	0.3707	0	0	0	0	0	0.0192
May											
June											
<b>Sub-total</b>	<b>0.9168</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.9168</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0299</b>
July											
Aug											
Sept											
Oct											
Nov											
Dec											
<b>Total</b>	<b>0.9168</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.9168</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0299</b>

Remark: \* Data was summarized up to 28-Apr-2020.  
 Use of conversion factors: density of inert C&D materials (2 ton/m<sup>3</sup>) and general refuse (1 ton/m<sup>3</sup>)



Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
37.523	37.2	0	0	5.92	0	0	0	0	4.8	0.162

- Notes:
- (1) The performance targets are given in PS Clause 1.104(14).
  - (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
  - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material

Appendix J  
Implementation Schedule of  
Recommended Mitigation Measures

**Table A-1 Air Quality Impact – Implementation Schedule of Recommended Mitigation Measures**

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
<b>Construction Phase</b>						
S.3.5.9	S.3.2.2	All the dust control measures as recommended in the Air Pollution Control (Construction Dust) Regulation, where applicable, should be implemented. Typical dust control measures include:	Air Quality (fugitive dust) Control during Construction Phase	Contractors	At all construction areas of the site during the entire construction period	EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.5.9	S.3.2.2	<ul style="list-style-type: none"> <li>The works area for site clearance shall be sprayed with water before, during and after the operation so as to maintain the entire surface wet</li> </ul>	Air Quality (fugitive dust) Control during Construction Phase	Contractors	Ditto	EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.5.9	S.3.2.2	<ul style="list-style-type: none"> <li>Restricting heights from which materials are to be dropped, as far as practicable to minimise the fugitive dust arising from unloading/ loading</li> </ul>	Air Quality (fugitive dust) Control during Construction Phase	Contractors	Ditto	EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.5.9	S.3.2.2	<ul style="list-style-type: none"> <li>Immediately before leaving a construction site, all vehicles shall be washed to remove any dusty materials from the bodies and wheels. However, all spraying of materials and surfaces should avoid excessive water usage</li> </ul>	Air Quality (fugitive dust) Control during Construction Phase	Contractors	Ditto	EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.5.9	S.3.2.2	<ul style="list-style-type: none"> <li>Where a vehicle leaving a construction site is carrying a load of dusty materials, the load shall be covered entirely by clean impervious sheeting to ensure that the dusty materials will not leak from the vehicle</li> </ul>	Air Quality (fugitive dust) Control during Construction Phase	Contractors	Ditto	EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.5.9	S.3.2.2	<ul style="list-style-type: none"> <li>Erection of hoarding of not less than 2.4 m high from ground level along the site boundary, where appropriate</li> </ul>	Air Quality (fugitive dust) Control during Construction Phase	Contractors	Ditto	EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.5.9	S.3.2.2	<ul style="list-style-type: none"> <li>Any stockpile of dusty materials shall be covered entirely by impervious sheeting; and/or placed in an area sheltered on the top and 4 sides</li> </ul>	Air Quality (fugitive dust) Control during Construction Phase	Contractors	Ditto	EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.5.9	S.3.2.2	<ul style="list-style-type: none"> <li>All dusty materials shall be sprayed with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet</li> </ul>	Air Quality (fugitive dust) Control during Construction Phase	Contractors	Ditto	EIAO -TM, Air Pollution Control (Construction Dust) Regulation
<b>Operational Phase</b>						
N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table A-2 Noise Impact – Implementation Schedule of Recommended Mitigation Measures**

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
<b>Construction Phase</b>						
S.4.8.2	S.4.8.1	<ul style="list-style-type: none"> <li>The Contractor shall adopt the Code of Practice on Good Management Practice to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD</li> </ul>	Noise control during construction	Contractors	At all construction areas of the site during the entire construction period	Annex 5 of EIAO-TM
S.4.8.2	S.4.8.1	<ul style="list-style-type: none"> <li>The Contractor shall observe and comply with the statutory and non-statutory requirements and guidelines</li> </ul>	Noise control during construction	Contractors	Ditto	Annex 5 of EIAO-TM
S.4.8.2	S.4.8.1	<ul style="list-style-type: none"> <li>Before commencing any work, the Contractor shall submit to the Engineer Representative for approval the method of working, equipment and noise mitigation measures intended to be used at the site</li> </ul>	Noise control during construction	Contractors	Ditto	Annex 5 of EIAO-TM
S.4.8.2	S.4.8.1	<ul style="list-style-type: none"> <li>The Contractor shall devise and execute working methods to minimise the noise impact on the surrounding sensitive uses, and provide experienced personnel with suitable training to ensure that those methods are implemented</li> </ul>	Noise control during construction	Contractors	Ditto	Annex 5 of EIAO-TM
S.4.8.2	S.4.8.1	<ul style="list-style-type: none"> <li>Noisy equipment and noisy activities should be located as far away from the NSRs as is practical</li> </ul>	Noise control during construction	Contractors	Ditto	Annex 5 of EIAO-TM
S.4.8.2	S.4.8.1	<ul style="list-style-type: none"> <li>Unused equipment should be turned off. PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided</li> </ul>	Noise control during construction	Contractors	Ditto	Annex 5 of EIAO-TM
S.4.8.2	S.4.8.1	<ul style="list-style-type: none"> <li>Regular maintenance of all plant and equipment</li> </ul>	Noise control during construction	Contractors	Ditto	Annex 5 of EIAO-TM
S.4.8.2	S.4.8.1	<ul style="list-style-type: none"> <li>Material stockpiles and other structures should be effectively utilised as noise barriers, where practicable</li> </ul>	Noise control during construction	Contractors	Ditto	Annex 5 of EIAO-TM
<b>Operational Phase</b>						
N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table A-3 Water Quality Impact – Implementation Schedule of Recommended Mitigation Measures**

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
<b>Construction Phase</b>						
S.5.10.1 -5.10.2	S.5.8.2 -5.8.3	Construction for the desilting facilities at intake and outfall portals should be carried out behind a temporary cofferdam which is watertight enclosure built in the reservoirs and pumped dry to expose the bottom.	Point Pollution Control	Contractors	Before construction of intake and outfall portals and remain on site until completion of intake and outfall portals and tunnel construction	Water Pollution Control Ordinance
S.5.10.3	S.5.8.4	The cofferdams should be regularly inspected and maintained to ensure no spillage of waste or wastewater into the reservoirs.	Point Pollution Control	Contractors	Before construction of intake and outfall portals and remain on site until completion of intake and outfall portals and tunnel construction	Water Pollution Control Ordinance
S. 5.10.4	S. 5.8.5	Construction of desilting facilities within works areas capable of controlling discharge of SS to comply with WPCO/TM-DSS	Point and Non-point Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S.5.10.5	S.5.8.6	Construction runoff will be managed as per the Practice Note for Professional Persons ProPECC PN1/94 - Construction Site Drainage and the conditions of working within Water Gathering Grounds stipulated by WSD	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance Water Gathering Ground control by WSD
S.5.10.6	S. 5.8.7	A Drainage Management Plan should be prepared by the Contractor for approval by the Engineer for each of the works areas, detailing the facilities and measures to manage pollution arising from surface runoff from those works areas	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance Water Gathering Ground control by WSD
S. 5.10.7	S. 5.8.8	An Emergency Contingency Plan should also be prepared by the Contractor, detailing the response and procedures to contain and remove any accidental spillage along the temporary and permanent roads and at the site at short notice to prevent or minimize the quantities of contaminants from reaching the reservoirs and local streams leading to the reservoirs. The Emergency Contingency Plan should be submitted to the Engineer for approval	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance Water Gathering Ground control by WSD
S. 5.10.8	S. 5.8.9	▪ Surface run-off and effluent from the construction sites at	Stormwater and Non-point	Contractors	Ditto	Water Pollution Control

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
		the intake at Kowloon Byewash Reservoir and outfall at the Lower Shing Mun Reservoir will be directed towards adequately designed sand/silt removal facilities such as sand/silt traps and sediment basins to remove sand/silt particles from runoff to meet the requirements of the TM standards under the WPCO before discharging to discharge points downstream of the Kowloon Byewash Reservoir Dam and Lower Shing Mun Reservoir Dam respectively. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1m <sup>3</sup> /s a sedimentation basin of 30m <sup>3</sup> would be required and for a flow rate of 0.5m <sup>3</sup> /s the basin would be 150m <sup>3</sup> . The detailed design of the sand/silt traps should be undertaken by the contractor prior to the commencement of construction	Source Pollution Control			Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>Channels, earth bunds or sand bag barriers will be provided on-site to properly direct stormwater to the above-mentioned facilities</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>Existing on-site silt removal facilities, channels and manholes, if any, will be maintained and the deposited silt and grit will be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>Other manholes, if any, including any newly constructed ones will be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>Open stockpiles of materials on site will be avoided within water gathering grounds as far as practicable. All surplus spoil will be removed from water gathering grounds as soon as possible Measures will be taken to prevent the washing away of construction materials, soil, silt or debris</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>Where possible, works entailing soil excavation will be minimized during the rainy season (i.e. April to September). If excavation in soil could not be avoided in these months or</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance



EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
		at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest/edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm				
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>Where applicable, final earthworks surfaces/ slopes will be well compacted and hydro-seeded following completion to prevent erosion</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>Where surface runoff or construction effluent is likely to be contaminated with oil, properly designed and maintained petrol interceptor will be provided to meet the WPCO/TM-DSS requirements. Oil leakage or spillage shall be contained and cleaned up immediately. Detailed design of the petrol interceptor shall be provided by the Contractor before commencement of construction</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>Sewage arising from the construction workers on site should be collected by temporary sanitary facilities e.g. portable chemical toilets. Portable toilets should be used coupled with tankering away services provided by a licensed collector</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>All site discharges within Inland Waters Group A must comply with the terms and conditions of a valid discharge licence issued by EPD</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>Vehicle wheel washing facilities should be provided, where applicable, at the site exit such that mud, debris, etc. deposited onto the vehicle wheels or body can be washed off before the vehicles are leaving the site area</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>Section of the road between the wheel washing bay and the public road should be paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>▪ Vehicle washing facilities should be drained into desilting facilities before discharge. The water should be recycled on site wherever possible. It is suggested that the wash water from the wheel wash basin is either reused for site watering or pumped to the on-site desilting facilities for treatment</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>• Desilting facilities should be checked and the deposited silt and grit should be removed regularly to ensure they are working properly at all times</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>• To minimize water quality impact, recycled water should be used at the cutter face for cooling purposes. Used water should be collected and discharged to settling tank for settlement</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>• Excess water from the settling tank would be transferred to the desilting facilities for treatment before discharge. The Contractor should ensure that the discharge water from the desilting facilities and treated spent effluent arising from tunnel boring from the desilting facilities comply with the WPCO/TM-DSS requirements before discharge</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>▪ Existing on-site silt removal facilities, channels and manholes, if any, would be maintained such that the deposited silt and grit will be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times;</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>▪ Desilting facilities should be checked and the deposited silt and grit should be removed regularly to ensure they are working properly at all times;</li> </ul>	Stormwater and Non-point Source Pollution Control	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>▪ The project may occasionally involve the handling of fuel and generates chemical wastes. It must be ensured that all fuel tanks and chemical storage are sited on sealed and bunded areas, provided with locks and located outside water gathering grounds as far as practicable</li> </ul>	Protection Against Accidental Spillage	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>▪ The storage areas will be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank to prevent accidentally spilled oil, fuel or chemicals from reaching the receiving waters</li> </ul>	Protection Against Accidental Spillage	Contractors	Ditto	Water Pollution Control Ordinance

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>Oil and grease removal facilities will be provided where appropriate, for example, in area near plant workshop/maintenance areas, if any</li> </ul>	Protection Against Accidental Spillage	Contractors	Ditto	Water Pollution Control Ordinance
S. 5.10.8	S. 5.8.9	<ul style="list-style-type: none"> <li>Chemical waste arising from the site should be properly stored, handled, treated and disposed of in compliance with the requirements stipulated under the Waste Disposal (Chemical Waste) (General) Regulation</li> </ul>	Protection Against Accidental Spillage	Contractors	Ditto	Waste Disposal (Chemical Waste) (General) Regulation
<b>Operational Phase</b>						
N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table A-4 Waste Management Implication – Implementation Schedule of Recommended Mitigation Measures**

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
<b>Construction Phase</b>						
S.6.7.1		Given the potential for secondary environmental impacts (dust, noise, water quality and visual impacts), mitigation measures are required to ensure proper handling, storage, transportation and disposal of materials at the outset and throughout the construction phase of the project	Waste management during construction	Contractors	At all construction areas of the site during the entire construction period	Waste Disposal Ordinance
S.6.7.2	S. 6.2.5	<ul style="list-style-type: none"> <li>An on-site environmental co-ordinator employed by the Contractor should be identified at the outset of the works. The co-ordinator shall prepare a Waste Management Plan ("WMP") in accordance with the requirements set out in the ETWB TCW No. 19/2005, Waste Management on Construction Sites. The WMP shall include monthly and yearly Waste Flow Tables ("WFT") that indicate the amounts of waste generated, recycled and disposed of (including final disposal site), and which should be regularly updated</li> </ul>	Waste management during construction	Contractors	Ditto	ETWB TCW No. 19/2005, Waste Management on Construction Sites
S.6.7.2	S. 6.2.5	<ul style="list-style-type: none"> <li>The reuse/ recycling of all materials on site shall be investigated and exhausted prior to treatment/ disposal off-site</li> </ul>	Waste management during construction	Contractors	Ditto	Waste Disposal Ordinance
S.6.7.2	S. 6.2.5	<ul style="list-style-type: none"> <li>Good site practices shall be adopted from the commencement of works to avoid the generation of waste, reduce cross contamination of waste and to promote waste minimisation</li> </ul>	Waste management during construction	Contractors	Ditto	Waste Disposal Ordinance
S.6.7.2	S. 6.2.5	<ul style="list-style-type: none"> <li>All waste materials shall be sorted on-site into inert and non-inert C&amp;D materials, and where the materials can be recycled or reused, they shall be further segregated. Inert material, or public fill will comprise stone, rock, concrete and soil which is suitable for land reclamation and site formation whilst non-inert materials include all other wastes generated from the construction process such as plastic packaging and vegetation (from site clearance)</li> </ul>	Waste management during construction	Contractors	Ditto	Waste Disposal Ordinance
S.6.7.2	S. 6.2.5	<ul style="list-style-type: none"> <li>The Contractor shall be responsible for identifying what materials can be recycled/ reused, whether on-site or off-site. In the event of the latter, the Contractor shall make</li> </ul>	Waste management during construction	Contractors	Ditto	Waste Disposal Ordinance

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
		arrangements for the collection of the recyclable materials. Any remaining non-inert waste shall be collected and disposed of to the public fill reception facilities whilst any inert C&D materials shall be re-used on site as far as possible. Alternatively, if no use of the inert material can be found on-site, the materials can be delivered to a public fill reception facilities after obtaining the appropriate licence				
S.6.7.2	S. 6.2.5	<ul style="list-style-type: none"> <li>In order to monitor the disposal of C&amp;D material and solid wastes at public fill reception facilities and landfills, and control fly-tipping, a trip-ticket system shall be implemented by the Contractor, in accordance with the contract and the requirements of WBTC 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Material"</li> </ul>	Waste management during construction	Contractors	Ditto	WBTC 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Material"
S.6.7.2	S. 6.2.5	<ul style="list-style-type: none"> <li>Under the Waste Disposal (Chemical Waste) (General) Regulation, the Contractor shall register as a Chemical Waste Producer if chemical wastes such as spent lubricants and paints are generated on site. Only licensed chemical waste collectors shall be employed to collect any chemical waste generated at site. The handling, storage, transportation and disposal of chemical wastes shall be conducted in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes and A Guide to the Chemical Waste Control Scheme both published by EPD</li> </ul>	Waste management during construction	Contractors	Ditto	Waste Disposal (Chemical Waste) (General) Regulation
S.6.7.2	S. 6.2.5	<ul style="list-style-type: none"> <li>A sufficient number of covered bins shall be provided on site for the containment of general refuse to prevent visual impacts and nuisance to the sensitive surroundings. These bins shall be cleared daily and the collected waste disposed of to the refuse transfer station. Further to the issue of ETWB TCW No. 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness, the Contractor is required to maintain a clean and hygienic site throughout the project works</li> </ul>	Waste management during construction	Contractors	Ditto	Waste Disposal Ordinance
S.6.7.2	S. 6.2.5	<ul style="list-style-type: none"> <li>All chemical toilets, if any, shall be regularly cleaned and the night-soil collected and transported by a licensed contractor to a Government Sewage Treatment Works facility for disposal</li> </ul>	Waste management during construction	Contractors	Ditto	Waste Disposal Ordinance

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S.6.7.2	S. 6.2.5	<ul style="list-style-type: none"> <li>Toolbox talks should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling</li> </ul>	Waste management during construction	Contractors	Ditto	Waste Disposal Ordinance
S.6.7.2	S. 6.2.5	<ul style="list-style-type: none"> <li>The Contractor shall comply with all relevant statutory requirements and guidelines and their updated versions that may be issued during the course of project construction</li> </ul>	Waste management during construction	Contractors	Ditto	Waste Disposal Ordinance
<b>Operational Phase</b>						
N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table A-5 Ecological Impact – Implementation Schedule of Recommended Mitigation Measures**

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
<b>Construction Phase</b>						
S 8.8	N/A	Minimise the habitat loss of secondary woodland / plantation and grassland as far as possible	Reduce habitat and vegetation loss	Contractors	At all construction areas of the site during the entire construction period	Annex 16 of EIAO-TM
S 8.8	N/A	Disturbed secondary woodland / plantation and grassland should be reinstated after the completion of works	Reinstate disturbed habitats	Contractors	Worksite areas at the two portals / after completion of construction works	Annex 16 of EIAO-TM
S 8.8	N/A	Provide clear definition of site boundary	Prevent impact on offsite habitats	Contractors	At all construction areas of the site during the entire construction period	Annex 16 of EIAO-TM
S 8.8	N/A	Protect the protected plant <i>Pavetta hongkongensis</i> on its existing location; Transplant the <i>Pavetta hongkongensis</i> to other suitable location if onsite protection is not feasible.	Preserve the protected plant species	Contractors	On the vegetated slope along the existing vehicle access at worksite area at Lower Shing Mun Reservoir / Construction period	Annex 16 of EIAO-TM
S 8.8	N/A	Carry out compensatory planting if the individual of <i>Artocarpus hypargyreus</i> cannot be retained onsite	Mitigate the tree removal	Contractors	worksite area at Kwoloon Byewash Reservoir / Construction Period	ETWB TCW No. 3/2006
S 8.8	N/A	Workers should avoid eating and leave food in works area and avoid feeding the wildlife; Fishes observed remaining at the proposed works area during the draining down process should be translocated to the portion of the reservoir outside the cofferdam.	Avoidance of injury to wildlife	Contractors	At all construction areas of the site during the entire construction period	Annex 16 of EIAO-TM
S 8.8	N/A	Implement standard good site practices for dust suppression	Avoid dust deposition on vegetation	Contractors	At all construction areas of the site during the entire construction period	EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S 8.8	N/A	Implement standard good site practices for water quality control	Avoid site runoff to nearby habitats	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S 8.8	N/A	Workers shall not disturb birds and other wildlife; Litter shall not be burned on-site but shall be removed off-site;	Avoid disturbance to wildlife	Contractors	At all construction areas of the site during the entire construction period	Annex 16 of EIAO-TM

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
		Machinery not in use should be switched off to minimize the noise nuisance; No fishing is allowed in the reservoir without permission.				
<b>Operational Phase</b>						
S 8.8	N/A	Compensate the habitat loss (grassland and woodland) by restoration of same type of habitats to be lost. The compensatory ratio should not be less than 1:1 in terms of area.	Mitigate the temporary habitat loss	Contractors	Woodland at worksite area at Kowloon Byewash Reservoir and Grassland at worksite area at Lower Shing Mun Reservoir / Operational period	Annex 16 of EIAO-TM



**Table A-6 Landscape and Visual Impact – Implementation Schedule of Recommended Mitigation Measures**

Id No.	Landscape and Visual Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stage			Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
LMM1	Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical	Site	WSD	Contractor	TM-EIA Annex 18		√		Throughout construction phase	To provide a viable growing medium suited to the existing conditions and reduce the need for the importation of top soil
LMM2	Existing Trees to be retained on site should be carefully protected during construction	Site	WSD	Contractor	TM-EIA Annex 18, ETWB TCW No. 2/2004 & ETWB TCW No. 3/2006		√		Throughout construction phase	To ensure the success of the tree preservation proposal
LMM3	Compensatory tree planting should be provided to compensate for felled trees	Site	WSD	Contractor	TM-EIA Annex 18, ETWB TCW No. 2/2004 & ETWB TCW No. 3/2006		√		Throughout design and construction phase	The planting proposal seeks to compensate for the predicted tree loss resulting from the construction, visually integrate the proposals within its existing landscape framework and provide an improved visual amenity
LMM4	Erection of decorative screen hoarding compatible with surrounding setting	Site	WSD	Contractor	TM-EIA Annex 18 and BD		√		Throughout construction phase	To integrate the construction site with the existing environment
LMM5	Locations of the site office, storage or workshops should be carefully adjusted to areas out of tree protection zones.	Site	WSD	Contractor	TM-EIA Annex 18 and BD	√			Throughout design phase	To avoid unnecessary felling of trees
LMM6	Selection of intake and outfall portals to areas enclosed by existing topography or vegetation	Site	WSD	Contractor	TM-EIA Annex 18 and BD	√			Throughout design phase	To preserve the existing topography and as many as trees as possible
LMM7	Appearance of the water intake and outfall structures	Site	WSD	Contractor	TM-EIA Annex 18 and BD	√			Throughout design phase	To reduce the apparent visual mass of water intake and outfall structures
LMM8	Reinstatement of disturbed vegetation at both portal	Site	WSD	Contractor	TM-EIA Annex 18			√	After the completion of construction	To mitigate disturbance to vegetation arising from the proposed construction

Id No.	Landscape and Visual Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stage	Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
	areas						works	

**Table A-7 Cultural Heritage – Implementation Schedule of Recommended Mitigation Measures**

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
<b>Construction Phase</b>						
S 10.7	S8.1.2	Condition Survey for the identified historic items and monitoring of vibration levels if required.	Prevention of structural damage to the identified historic items	Contractors	Condition survey to be undertaken prior to the construction phase and vibration monitoring to be undertaken during the construction phase if required.	None
<b>Operational Phase</b>						
N/A	N/A	None	None	None	None	None

## Appendix K


# Tentative Monitoring Schedule of Next Reporting Period

IRTS – EM&A Monitoring & Inspection Schedule

**May 2020**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2 Impact Water Quality Monitoring
3	4	5 Impact Water Quality & Noise Monitoring at NSR1(09:00-19:00, 19:00-23:00, 23:00-07:00) & NSR2 (09:00-19:00)	6 Weekly Site Inspection	7 Impact Water Quality Monitoring	8	9 Impact Water Quality Monitoring
10 Noise Monitoring at NSR1 (09:00-19:00)	11	12 Impact Water Quality Monitoring	13 Weekly Site Inspection	14 Impact Water Quality & Noise Monitoring at NSR1(09:00-19:00, 19:00-23:00, 23:00-07:00) & NSR2 (09:00-19:00)	15	16 Impact Water Quality Monitoring
17 Noise Monitoring at NSR1 (09:00-19:00)	18	19 Impact Water Quality Monitoring	20 Weekly Site Inspection	21 Impact Water Quality & Noise Monitoring at NSR1(09:00-19:00, 19:00-23:00, 23:00-07:00) & NSR2 (09:00-19:00)	22	23 Impact Water Quality Monitoring
24 Noise Monitoring at NSR1 (09:00-19:00)	25	26 Impact Water Quality Monitoring	27 Weekly Site Inspection	28 Impact Water Quality & Noise Monitoring at NSR1(09:00-19:00, 19:00-23:00, 23:00-07:00) & NSR2 (09:00-19:00)	29	30 Impact Water Quality Monitoring
31 Noise Monitoring at NSR1 (09:00-19:00)						

Remark: This is a tentative schedule for water quality and construction noise impact monitoring and will be updated when there is further notice from the Contractor.


 = General Holiday

## Appendix L

# Investigation Report on Exceedance



**Inter-reservoirs Transfer Scheme –  
Water Tunnel between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir  
Investigation Report**

<b>Our Ref.</b>	IR012																																															
<b>Monitoring Date</b>	16 April 2020																																															
<b>Time</b>	13:12																																															
<b>Environmental Aspect</b>	Water Quality																																															
<b>Monitoring Location</b>	D2a																																															
<b>Parameter</b>	Suspended Solids																																															
<b>Control Level</b>	Control Point (C2) was observed dried up.																																															
<b>Action Level</b>	22.0																																															
<b>Limit Level</b>	25.0																																															
<b>Measured Level</b>	23.5																																															
<b>Exceedance</b>	Action Level																																															
<b>Site Observation</b>	<p>As control point C2 was dried up, only the baseline results were used as a reference to the Action Level and Limit Level:</p> 																																															
	<p>From the lab results, it has shown more than 100% increase in the second sample (D2a#) from the first sample (D2a):</p> <table border="1"> <thead> <tr> <th colspan="2">Analytical Results</th> <th colspan="4">Client sample ID</th> </tr> <tr> <th colspan="2">Sub-Matrix: WATER</th> <th>D1b</th> <th>D1b#</th> <th>D2a</th> <th>D2a#</th> </tr> <tr> <th colspan="2"></th> <th colspan="4">Client sampling date / time</th> </tr> <tr> <th colspan="2"></th> <th>16-Apr-2020</th> <th>16-Apr-2020</th> <th>16-Apr-2020</th> <th>16-Apr-2020</th> </tr> <tr> <th>Compound</th> <th>CAS Number</th> <th>LOD</th> <th>Unit</th> <th>HK2013102-001</th> <th>HK2013102-002</th> <th>HK2013102-003</th> <th>HK2013102-004</th> </tr> </thead> <tbody> <tr> <td colspan="8"><b>EA02: Physical and Aggregate Properties</b></td> </tr> <tr> <td>EA026: Suspended Solids (SS)</td> <td></td> <td>—</td> <td>2 mg/L</td> <td>2</td> <td>2</td> <td>15</td> <td>32</td> </tr> </tbody> </table> <p>Moreover, comparing the results before and after this sampling event, a significant difference has been spotted as shown below:</p>	Analytical Results		Client sample ID				Sub-Matrix: WATER		D1b	D1b#	D2a	D2a#			Client sampling date / time						16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	Compound	CAS Number	LOD	Unit	HK2013102-001	HK2013102-002	HK2013102-003	HK2013102-004	<b>EA02: Physical and Aggregate Properties</b>								EA026: Suspended Solids (SS)		—	2 mg/L	2	2	15
Analytical Results		Client sample ID																																														
Sub-Matrix: WATER		D1b	D1b#	D2a	D2a#																																											
		Client sampling date / time																																														
		16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020																																											
Compound	CAS Number	LOD	Unit	HK2013102-001	HK2013102-002	HK2013102-003	HK2013102-004																																									
<b>EA02: Physical and Aggregate Properties</b>																																																
EA026: Suspended Solids (SS)		—	2 mg/L	2	2	15	32																																									

