



Our Ref. : L20191109

Date : 14<sup>th</sup> November 2019

By Hand

Bouygues Travaux Publics  
Room 2507-2509,  
25/F., The Octagon,  
No.6 Sha Tsui Road,  
Tsuen Wan, Hong Kong

Dear Sir/Madam,

**Contract No. DC/2018/08**  
**Inter-Reservoir Transfer Scheme – Water Tunnel Between**  
**Kowloon Byewash Reservoir and Lower Shing Mun Reservoir**  
**Certification of 4<sup>th</sup> Monthly EM&A Report (Rev. 2)**

I refer to the 4<sup>th</sup> Monthly EM&A Report (Rev. 2) issued on 14<sup>th</sup> November 2019. We herewith certify the captioned submission in accordance to Condition 4.3 of the Environmental Permit EP-345/2009.

Should you have any queries, please do not hesitate to contact the undersigned at 2698 6833.

Yours faithfully,

For and on behalf of  
Acuity Sustainability Consulting Limited

---

Kevin Li  
Environmental Team Leader

Our ref: 14-11-2019

14-11-2019

By email: re.irvingsze@hkirts.com

Black & Veatch Hong Kong Limited  
Room 1201-11, 12/F, Millennium City 5,  
48 Kwun Tong Road,  
Kowloon, Hong Kong  
(Attn: Irving Sze)

Dear Mr. Sze,

**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**

**4th Monthly EM&A Report (Rev. 2)**

Reference is made to the submission of the 4th Monthly EM&A Report (Rev. 2) and provided to us via email dated on 14-11-2019 for our review and comment.

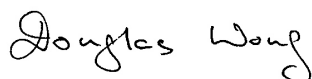
Please be informed that IEC has no adverse comment on the captioned submission. IEC writes to verify the captioned submission in accordance with Condition 2.1 of the Environmental Permit No. EP-345/2009.

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



Dr. Wong



Independent Environmental Checker



**4<sup>th</sup> Monthly EM&A Report (Rev. 2)**  
**October 2019**

**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>Name</b>	Nelson TSUI	Kevin LI
<b>Position</b>	Environmental Team	Environmental Team Leader
<b>Signature</b>		
<b>Date</b>	14 November 2019	14 November 2019

### Revision History

<b>Rev.</b>	<b>Description</b>	<b>Date</b>
0	First Submission	7 November 2019
1	Second Submission	7 November 2019
2	Third Submission Updated the table in Appendix F	14 November 2019

## 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 4<sup>th</sup> Monthly Environmental Monitoring and Audit (EM&A) Report presents EM&A works undertaken in the period of 1<sup>st</sup> to 31<sup>st</sup> October 2019. 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 sessions of impact construction noise monitoring at all designated monitoring stations and thirteen sessions of impact water quality monitoring at all approved monitoring points were carried out in the reporting period.
- E4. Exceedance of Limit Level was recorded for water monitoring location D1b on 5 October 2019, while the exceedance is considered non-project related after investigation, whereas construction work has not been commenced at the Kowloon Byewash Reservoir (KBR) site.
- E5. No exceedance was recorded for noise monitoring in the reporting period.
- E6. No complaint regarding environmental issue was received in the reporting period.
- E7. No notification of summons nor prosecution have been received since the commencement of the Project.
- E8. There was no change to be reported that may affect the on-going EM&A programme.
- E9. 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>• Excavation for construction of embankment bund</li><li>• Construction of CLP substation</li><li>• Pipe pile for tunnel portal and preparation for mined tunnel</li></ul>
Portion B	<ul style="list-style-type: none"><li>• Setup site office and storage compound</li></ul>
Portion C	<ul style="list-style-type: none"><li>• Site clearance</li><li>• Site installation including setting up of lifting devices</li></ul>

- E10. 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>• Slope upgrading works (soil nail) at slope C27 &amp; C28</li><li>• Installation of CLP transformer</li><li>• Forming of earth bund/TBM launching platform</li><li>• Pipe pile for tunnel portal and preparation for mined tunnel</li></ul>
Portion B	<ul style="list-style-type: none"><li>• Telecom cable ducting installation</li></ul>
Portion C	<ul style="list-style-type: none"><li>• Site installation</li><li>• Roof crane footing installation</li></ul>

- E11. The Contractor is reminded that all works to be undertaken within the water gathering ground of Lower Shing Mun Reservoir (LSMR) and KBR must fulfill statutory environmental requirements, especially in watercourse protection.

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## 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<sup>th</sup> July 2019. No major works except site clearance and preparation was performed before the commencement date of construction.
- 1.5 This is the 4<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<sup>st</sup> to 31<sup>st</sup> October 2019.
- 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<sup>rd</sup> May 2019 to 22<sup>nd</sup> 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.

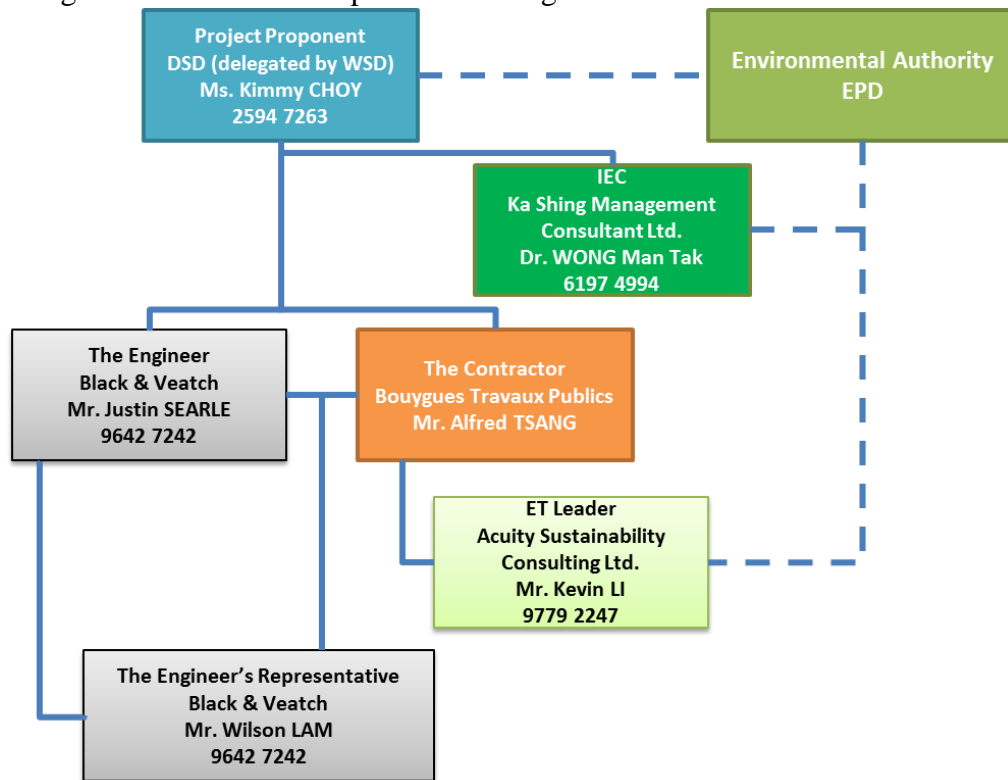


Figure 1.1 Project Organization Chart

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 All works were taken place in the outfall site at LSMR while no works has been taken place in the intake site at KBR. 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

<b>Location of Works</b>	<b>Construction Activities Undertaken</b>
LSMR Site	Slope upgrading works
LSMR Site	Excavation for construction of embankment bund
LSMR Site	Pipe pile for tunnel portal

- 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

<b>Permit/ Licence/ Notification</b>	<b>Reference</b>	<b>Validity</b>	<b>Remarks</b>
Environmental Permit	EP-345/2009	Valid	Granted on 22 May 2009
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation	442711	Valid	Notified on 1 March 2019
Water Pollution Control Ordinance Licence for LSMR	WT00034164-2019	Valid until 31 July 2024	Applied on 4 April 2019
Chemical Waste Producer Registration	WPN5218-733-B2557-01	Valid	Registered on 22 February 2019
Billing Account for Disposal of Construction Waste	703344617	Valid	Applied on 25 February 2019
Construction Noise Permit (CNP) for earth bund works at Portion A	GW-RN0684-19	Valid until 24 December 2019	Approved on 23 September 2019
Construction Noise Permit (CNP) for works at Portion C	GW-RN0658-19	Valid until 13 December 2019	Approved on 17 September 2019
Water Pollution Control Ordinance Licence for KBR	EPD Ref: 449639	N.A.	Under application

- 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.	Under preparation	N.A.
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 work is undertaken)</li> <li>• 3 nos. of consecutive <math>L_{eq}(5min)</math> noise measurement between 1900-2300 hours (if evening activities are undertaken)</li> <li>• 3 nos. of consecutive <math>L_{eq}(5min)</math> noise measurement between 1900-2300 hours (if there are nighttime activities)</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

Location ID (ID in EM&A Manual)	Type of NSR	Location	Description
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

ID	Description	Location
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<sup>th</sup> 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 Leq (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 Leq (5min)</i>		60
Night-time (2300 – 0700 hrs) <i>*Measurements in Leq (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	Svantek SVAN 971
	Calibrator	Rion NC-74
	Portable Anemometer	Kestrel 1000
Water Quality	Multifunctional Meter	HORIBA U-53 Multiparameter Water Quality Meter

#### 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 There was no construction works conducted in restricted hours in the reporting period. Therefore, only one number of  $L_{eq}(30min)$  noise measurements between 0700-1900 hours on any normal weekday was conducted weekly.
- 3.10 Five sessions of construction noise monitoring were performed at each of the designated monitoring locations. The noise monitoring data is presented in **Appendix E** and results are summarized in Table 3.2.

Table 3.2 Summary of Construction Noise Monitoring Results

Monitoring Location	Time Period	$L_{eq}(30min)$ , dB(A)			Limit Level, dB(A)
		Mean	Max	Min	
NM1	0700 - 1900	45.3	49.4	39.6	75
NM2		55.8	60.7	49.1	75

- 3.11 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.
- 3.12 Weather conditions during monitoring were mainly cloudy with sunny intervals. Summary of meteorological data is presented in **Appendix G**.

### Water Quality Monitoring Result

- 3.13 Water quality monitoring was performed at approved monitoring locations, i.e. C1b, D1b, C2 and D2a, during the reporting period.
- 3.14 Thirteen 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 3.3.

Table 3.3 Summary of Water Quality Monitoring Results

Parameters		C1b	D1b	C2	D2a
Dissolved Oxygen (mg/L)	Min	6.3	6.1	7.0	6.7
	Max	11.3	8.5	9.4	9.8
	Mean	7.5	7.2	7.9	7.8
Dissolved Oxygen Saturation (%)	Min	79.4	75.8	89.5	83.2
	Max	140.6	107.2	118.2	123.1
	Mean	94.9	91.6	96.2	99.5
pH Value	Min	6.5	6.6	6.8	6.9
	Max	9.1	7.9	8.6	9.0
	Mean	7.3	7.1	7.6	7.7
Turbidity (NTU)	Min	2.2	1.2	1.5	1.2
	Max	6.9	6.9	91.4	12.8
	Mean	4.4	2.2	11.8	3.5
Suspended Solids <sup>1</sup> (mg/L)	Min	2.0	2.0	2.0	2.0
	Max	29.0	17.0	244.0	6.0
	Mean	5.8	4.2	20.7	3.4

Remarks:

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

- 3.15 Exceedance of Limit Level was recorded for water monitoring location D1b on 5 October 2019, while the exceedance is considered non-project related after investigation, whereas construction work has not been commenced at the Kowloon Byewash Reservoir (KBR) site.
- 3.16 Exceedance investigation has been conducted for each exceedance occurrence as shown in Appendix L.
- 3.17 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)
October 2019	0.1890	0	0.0042	0	0	0

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

## 5. SITE INSPECTION

- 5.1 Site inspections were conducted in a weekly basis so as to monitoring the implementation of proper environmental pollution control and mitigation measures. Five site inspections were performed in the reporting period.
- 5.2 Since there was no any construction works commenced in the intake site at KBR, all five site inspections were performed in the outfall site at Lower Shing Mun Reservoir.
- 5.3 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>
2 October 2019	LSMR Site	No key observations.	N.A.
9 October 2019	LSMR Site	No key observations.	N.A.
16 October 2019	LSMR Site	1. House-keeping should be enhanced. 2. Proper measures should be conducted to the deadwood of the tree.	1. Site cleaning was conducted and sandbags were packed. 2. Deadwood was decided to cut.
23 October 2019	LSMR Site	No key observations.	N.A.
30 October 2019	LSMR Site	1. Exposed dusty material was observed	1. Dusty material was cleaned up.

- 5.4 The Contractor rectified all observations that had been identified in the weekly inspection timely.

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

- 6.1 Exceedance of Limit Level was recorded for water monitoring location D1b on 5 October 2019, while the exceedance is considered non-project related after investigation. Only hoarding erection works and site clearance was commenced in Kowloon Byewash Reservoir (KBR). No excavation and construction work were conducted at the KBR site. According to contractor, neither site preparation work nor construction work were carried out on 5 October 2019.
- 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 are to be dropped</li> <li>• All vehicles are 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 has 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 is accidental spillage</li> <li>• Provision of channels, earth bunds and sand bags barriers for directing surface runoff to desilting facilities</li> <li>• Existing manholes are covered</li> <li>• Portable chemical toilets were provided on-site and licensed contractor is employed for the collection and disposal process</li> <li>• Two layers of silt curtain are deployed to separate the works area from water gathering ground</li> <li>• Oil and grease removal materials are provided</li> <li>• Exposed slopes are 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 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 is implemented for control of C&amp;D waste disposal</li> <li>• Covered bins are 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> has been transplanted on-site</li> <li>• Eating, leaving food and feeding wildlife are forbidden in works area</li> <li>• Fishing is 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 is 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 has 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. November 2019, include the followings:

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>• Installation of CLP transformer</li> <li>• Forming of earth bund/TBM launching platform</li> <li>• Pipe pile for tunnel portal and preparation for mined tunnel</li> </ul>
Portion B	<ul style="list-style-type: none"> <li>• Telecom cable ducting installation</li> </ul>
Portion C	<ul style="list-style-type: none"> <li>• Site installation</li> <li>• Roof crane footing installation</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. November 2019, is presented in **Appendix K**. Monitoring will be performed at same locations presented in above sections.

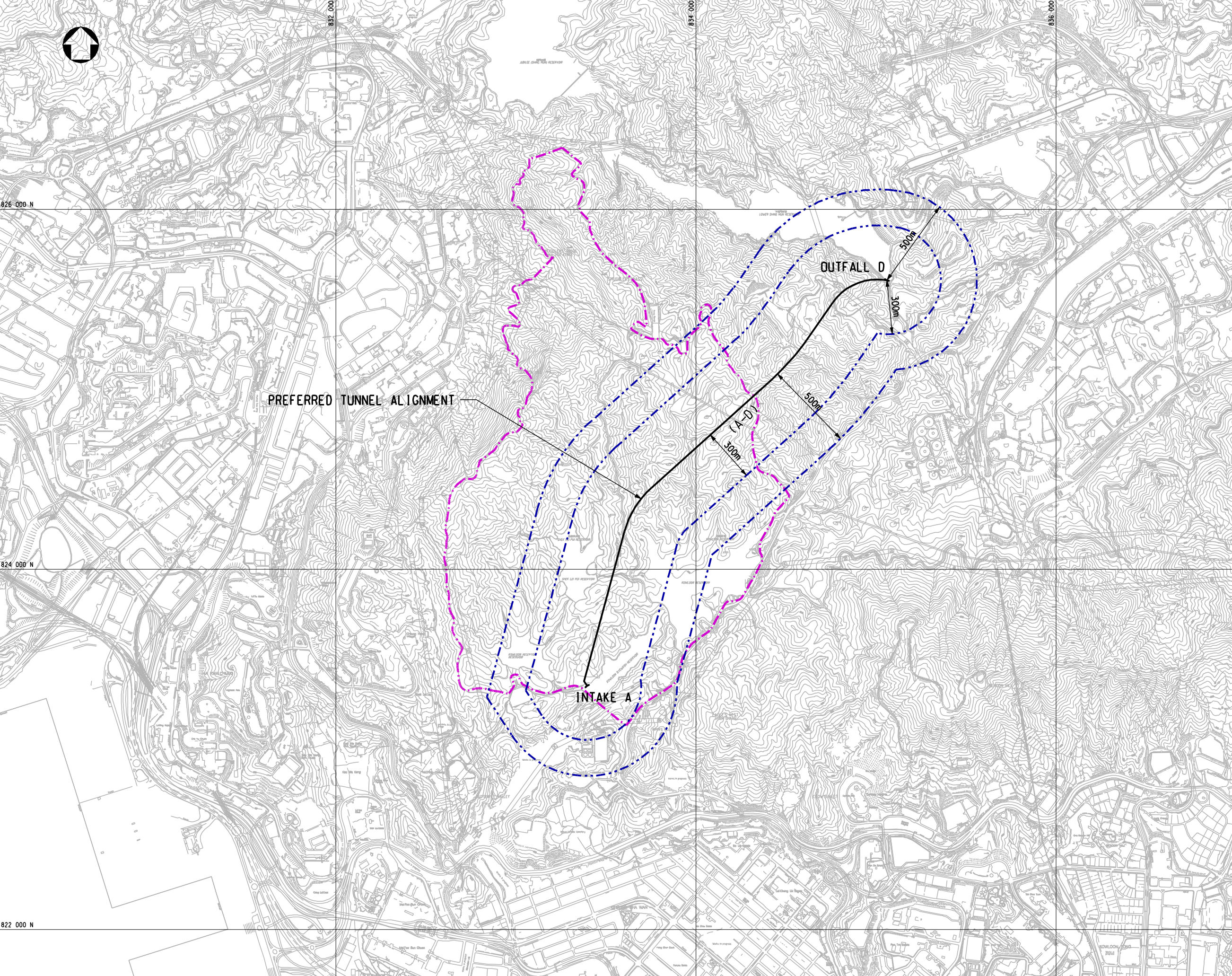
## **9. CONCLUSION AND RECOMMENDATIONS**

- 9.1 This is the 4<sup>th</sup> Monthly Environmental Monitoring and Audit (EM&A) Report presents EM&A works undertaken in the period of 1<sup>st</sup> to 31<sup>st</sup> October 2019. 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. Exceedance of Limit Level was recorded for water monitoring location D1b on 5 October 2019, while the exceedance is considered non-project related after investigation, whereas construction work has not been commenced at the Kowloon Byewash Reservoir (KBR) site.
- 9.3 No exceedance was recorded for noise monitoring in the reporting period.
- 9.4 Similar to predictions from the EIA report, no project-related exceedance was identified from the EM&A programme of the reporting month.
- 9.5 Weekly site inspections were performed during the reporting period. Observations identified in weekly inspections were rectified timely. Environmental performance of the Project was considered satisfactory.
- 9.6 No complaint regarding environmental issue was received in the reporting period.
- 9.7 No notification of summons nor prosecution have been received since the commencement of the Project.
- 9.8 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



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	1:10000@A1	Project	240564	Status	INF
Drawing No.	CAD File			Rev	

## Appendix B

# Latest Construction Programme



# IRTS: 3 Month Rolling Programme (Nov 19 ~ Jan 20)

Layout : IRT-Rolling Y19M10D31d  
 TASK filters: 3 Month Rolling, Level of Effort.  
 Data Date : 31-Oct-19

Activity ID	Activity Name	Dur	Start	Finish	2019					2020	
					Oct 8	Nov 9	Dec 10	Jan 11	Feb 12		
<b>IRTS - Rolling Programme (Y19M10D31d)</b>											
<b>Preliminaries and General Requirements</b>											
PGR_1110	Procurement - Major Sub-Contract (Disposal)	60d	02-Jan-20	19-Mar-20							
PGR_1400-20	Preparation and Submission of Landscape Plan Proposal to EPD (6 Months after EPD Baseline Monitoring Approval)	36d	27-Nov-19	10-Jan-20*							
PGR_1400-40	Additional Tree Removal Proposal (TRP) Approval by EPD	86d	21-Aug-19A	30-Nov-19							
PGR_1820	CNP Application for TBM Operation	30d	06-Jan-20	17-Feb-20							
<b>BIM Submission</b>											
PGR_1930	Preparation and Submission BIM Combined Services Drawings *(P3)	154d	31-May-19A	30-Nov-19							
PGR_1940	Preparation and Submission of Proposal for COBie Information Requirements *(P3)	54d	02-Dec-19	13-Feb-20*							
<b>Procurement of Consultants and Sub-Contractors</b>											
<b>Sub-Contractors</b>											
Pro_SCon_1300-10	Subcontract Pipe Pile Wall and Grouting Works for Portal (Stage 2A)	12d	10-Jan-20	23-Jan-20							
Pro_SCon_1600	Subcontract E&M work of the electrical actuated penstocks and the automatic flow control system *(P2a)	65d	16-Dec-19	11-Mar-20							
<b>Tai Po Road Site (TGLA No. TST453)</b>											
TPR_GW-1040	General Site Storage	808d	02-Jul-19A	30-Mar-22							
<b>ARPE Submission</b>											
<b>Package 2 - KBR Works</b>											
ARPE_P2-020z	Approval by WSD	36d	19-Oct-19A	29-Nov-19							
<b>Package 3 - Tunnel Works</b>											
ARPE_P3-010z	Prepare & Submit ARPE Report	50d	10-Sep-19A	08-Nov-19							
ARPE_P3-020z	Approval by WSD	12d	09-Nov-19	22-Nov-19							
<b>CSD Submission</b>											
<b>CSD 2 - Alternative Alignment &amp; Intake Structure</b>											
<b>Design Submission</b>											
CSD_PF_2150	DDA - Review & Acceptance	29d	12-Oct-19A	14-Nov-19							
CSD_PF_2160	Approval for Site Construction	0d		14-Nov-19							
<b>Alternative Works (Subject to approval of alternative tunnel alignment)</b>											
CSD_PF_2170	Preparation and Approval Method Statement and Temp. Works Design	52d	02-Oct-19A	30-Nov-19							
CSD_PF_2180	Additional Tree Removal Application & Removal	50d	17-Sep-19A	15-Nov-19							
CSD_PF_2190	Rock Breaking for Base Slab Formation and Slope Protection (Work Stoppage during Wet Season April to Oct 2020)	60d	02-Dec-19	20-Feb-20							
<b>Tunneling Works</b>											
<b>Design Submission</b>											
<b>Tunnel Lining Design</b>											
TLD_1300	DDA Review and Acceptance	33d	26-Sep-19A	05-Nov-19							
<b>Mined Tunnel Temporary Works Design</b>											
<b>LSMR Mined Tunnel</b>											
MTD_LS_2000	Review and Comments	18d	31-Oct-19A	20-Nov-19							
MTD_LS_3000	2nd Submission - Mined Tunnel Design Preparation & Submission with ICE	6d	21-Nov-19	27-Nov-19							
MTD_LS_4000	Review and Acceptance	12d	28-Nov-19	11-Dec-19							

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	1 of 4
31-Oct-19	Rolling Y19M10D31d	EChu		



# IRTS: 3 Month Rolling Programme (Nov 19 ~ Jan 20)

Layout : IRT-Rolling Y19M10D31d  
 TASK filters: 3 Month Rolling, Level of Effort.  
 Data Date : 31-Oct-19

Activity ID	Activity Name	Dur	Start	Finish	2019			2020	
					Oct 8	Nov 9	Dec 10	Jan 11	Feb 12
<b>KBR Mined Tunnel</b>									
MTD_KB_1000	1st Submission - Mined Tunnel Design Preparation & Submission	37d	28-Nov-19	13-Jan-20					1st Submission - Mined Tunnel Design Preparation & Submission
MTD_KB_2000	Review and Comments	18d	14-Jan-20	11-Feb-20					Review and Comments
<b>TBM Thrust Frame Design</b>									
TTF_D_1000	1st Submission - TBM Thrust Frame Design Preparation & Submission	51d	16-Sep-19A	15-Nov-19					1st Submission - TBM Thrust Frame Design Preparation & Submission
TTF_D_2000	Review and Comments	18d	16-Nov-19	06-Dec-19					Review and Comments
TTF_D_3000	2nd Submission - TBM Thrust Frame Design Preparation & Submission with ICE	16d	07-Dec-19	27-Dec-19					2nd Submission - TBM Thrust Frame Design Preparation & Submission with ICE
TTF_D_4000	Review and Acceptance	18d	28-Dec-19	18-Jan-20					Review and Acceptance
<b>TBM Procurement, Manufacture and Delivery</b>									
TBM_Pr_1300-10	TBM Manufacturing	130d	01-Aug-19A	04-Jan-20					TBM Manufacturing
TBM_Pr_1300-20	TBM Factory Acceptance Test (FAT)	5d	06-Jan-20	10-Jan-20					TBM Factory Acceptance Test (FAT)
TBM_Pr_1300-30	TBM Packing (Factory) prior to Delivery	14d	11-Jan-20	04-Feb-20					TBM Packing (Factory) prior to Delivery
TBM_Pr_1310	Delivery Route Design *(P12)	70d	21-Aug-19A	12-Nov-19					Delivery Route Design *(P12)
TBM_Pr_1320	TTMS Approval by TMLG *(P12)	44d	13-Nov-19	06-Jan-20					TTMS Approval by TMLG *(P12)
TBM_Pr_1330	RA Permit Application and Acceptance *(P12)	16d	07-Jan-20	24-Jan-20					RA Permit Application and Acceptance *(P12)
TBM_Pr_1410	Thrust Frame purchasing & Manufacturing	72d	20-Jan-20	24-Apr-20					Thrust Frame purchasing & Manufacturing
<b>Lining Mould Procurement, Manufacture and Delivery</b>									
TBM_Ln_1100-25_10	Lining Fabrication : Segment Mock-Up (1st Batch)	28d	09-Oct-19A	09-Nov-19					Lining Fabrication : Segment Mock-Up (1st Batch)
TBM_Ln_1100-45_10	Lining Fabrication : Segment Mock-Up (2nd and 3rd Batch)	28d	09-Oct-19A	09-Nov-19					Lining Fabrication : Segment Mock-Up (2nd and 3rd Batch)
TBM_Ln_1200	Lining Fabrication : Procurement of Rebars and Segments Accessories	86d	29-Jul-19A	07-Nov-19					Lining Fabrication : Procurement of Rebars and Segments Accessories
TBM_Ln_1400	1st Batch : Segment Fabrication & Delivery to site in batches = 848 rings	149d	11-Nov-19	20-May-20					1st Batch : Segment Fabrication & Delivery to site in batches = 848 rings
TBM_Ln_1520xx	1st Batch : Segment Fabrication & Delivery to site in batches = 786 rings + 2w LC	143d	11-Nov-19	20-May-20					1st Batch : Segment Fabrication & Delivery to site in batches = 786 rings + 2w LC
<b>LSMR - Site Preparation</b>									
TBM_SPr_1900-20	Pipe Pile Wall Stage 1: North Side	5d	29-Oct-19A	02-Nov-19					Pipe Pile Wall Stage 1: North Side
TBM_SPr_1900-30	Pipe Pile Wall Stage 1: West Side	8d	04-Nov-19	12-Nov-19					Pipe Pile Wall Stage 1: West Side
TBM_SPr_1900-40	Pipe Pile Wall Stage 1: South Side	6d	13-Nov-19	19-Nov-19					Pipe Pile Wall Stage 1: South Side
TBM_SPr_1900-50	Pipe Pile Wall Stage 1: East Side	5d	20-Nov-19	25-Nov-19					Pipe Pile Wall Stage 1: East Side
TBM_SPr_2000	ELS Works at Tunnel Portal	18d	26-Nov-19	16-Dec-19					ELS Works at Tunnel Portal
TBM_SPr_2060	Forming WSD Access - Stage 2 Diversion	12d	24-Dec-19	09-Jan-20					Forming WSD Access - Stage 2 Diversion
TBM_SPr_2100	Pipe Pile Wall Stage 2a (56 Piles, 2 rigs/ 4 piles/day+ 6d setup)	20d	24-Jan-20	24-Feb-20					Pipe Pile Wall Stage 2a (56 Piles, 2 rigs/ 4 piles/day+ 6d setup)
<b>Site Works</b>									
<b>LSMR (North Portal) &amp; TBM</b>									
<b>LSMR : Excavation &amp; Portal Formation</b>									
NP_1000-10	Earth Bund Type 1 (+77.0 to +79.0): Base Preparation	56d	30-Aug-19A	05-Nov-19					Earth Bund Type 1 (+77.0 to +79.0): Base Preparation
NP_1000-20	Earth Bund Type 1 (+77.0 to +79.0): Mass Concrete Filling	15d	24-Oct-19A	09-Nov-19					Earth Bund Type 1 (+77.0 to +79.0): Mass Concrete Filling
NP_1000-30	Earth Bund Type 2 (+79.0 to +85.0): Base Preparation	12d	11-Nov-19	23-Nov-19					Earth Bund Type 2 (+79.0 to +85.0): Base Preparation
NP_1000-40	Earth Bund Type 2 (+79.0 to +85.0): Filling & Compaction	18d	25-Nov-19	14-Dec-19					Earth Bund Type 2 (+79.0 to +85.0): Filling & Compaction
NP_1000-50	Earth Bund Type 3 (+85.0 to +88.0): Base Preparation	7d	16-Dec-19	23-Dec-19					Earth Bund Type 3 (+85.0 to +88.0): Base Preparation
NP_1000-60	Earth Bund Type 3 (+85.0 to +88.0): Filling & Compaction	12d	24-Dec-19	09-Jan-20					Earth Bund Type 3 (+85.0 to +88.0): Filling & Compaction
NP_1000-70	Earth Bund Type 4 (+88.0 to +91.0): Base Preparation	6d	10-Jan-20	16-Jan-20					Earth Bund Type 4 (+88.0 to +91.0): Base Preparation
NP_1000-80	Earth Bund Type 4 (+88.0 to +91.0): Filling & Compaction	12d	17-Jan-20	07-Feb-20					Earth Bund Type 4 (+88.0 to +91.0): Filling & Compaction

█ 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
31-Oct-19	Rolling Y19M10D31d	EChu		





# IRTS: 3 Month Rolling Programme (Nov 19 ~ Jan 20)

Layout : IRT-Rolling Y19M10D31d  
 TASK filters: 3 Month Rolling, Level of Effort.  
 Data Date : 31-Oct-19

Activity ID	Activity Name	Dur	Start	Finish	2019					2020			
					Oct 8	Nov 9	Dec 10	Jan 11	Feb 12				
NP_1100-10	Launching Platform Filling for +77.0 to +81.0	95d	04-Sep-19A	27-Dec-19	Launching Platform Filling for +77.0 to +81.0								
NP_1100-20	Launching Platform Filling for +81.0 to +85.0	30d	28-Dec-19	10-Feb-20	Launching Platform Filling for +81.0 to +85.0								
NP_1360	Tree Removal of Additional TRP	6d	02-Dec-19	07-Dec-19	Tree Removal of Additional TRP								
<b>LSMR : Mined Tunnel</b>													
<b>Mined Tunnel (CH 41.83 to CH62.04)</b>													
NP_MT_1000	Probing and Grouting (CH41.83) *(P15)	6d	17-Dec-19	23-Dec-19	Probing and Grouting (CH41.83) *(P15)								
NP_MT_1100	Install Canopy (CH41.83 to CH50.2) *(P15)	6d	24-Dec-19	30-Dec-19	Install Canopy (CH41.83 to CH50.2) *(P15)								
NP_MT_1200	Probing, Grouting, Excavation, arch rib installation and Shotcreting (CH41.83 to CH50.2) *(P15)	54d	31-Dec-19	02-Mar-20	Probing, Grouting, Excavation, arch rib installation and Shotcreting (CH41.83 to CH50.2) *(P15)								
<b>LSMR : TBM Tunnel Excavation</b>													
<b>LSMR : TBM Power and Water Supply</b>													
TBM_PoS_1110	TBM HV Power Supply : Trench excavation and cable laying by CLP	186d	18-Apr-19A	29-Nov-19	TBM HV Power Supply : Trench excavation and cable laying by CLP								
TBM_PoS_1200	TBM HV Power Supply : Construction of transformer/switch room	111d	23-Aug-19A	04-Jan-20	TBM HV Power Supply : Construction of transformer/switch room								
TBM_PoS_1300	TBM HV Power Supply : Installation work inside transformer / switch room by CLP	20d	06-Jan-20	05-Feb-20	TBM HV Power Supply : Installation work inside transformer / switch room by CLP								
TBM_PoS_1700	TBM LV Power Supply : Trench excavation and cable laying by CLP	186d	18-Apr-19A	29-Nov-19	TBM LV Power Supply : Trench excavation and cable laying by CLP								
TBM_PoS_1800	TBM LV Power Supply : Construction of switch panel enclosure and cable installation by CLP	20d	06-Jan-20	05-Feb-20	TBM LV Power Supply : Construction of switch panel enclosure and cable installation by CLP								
TBM_WtrS_2100	Water Supply Application to WSD for TBM Operation	194d	30-Apr-19A	17-Dec-19	Water Supply Application to WSD for TBM Operation								
TBM_WtrS_2200	Installation of Water Supply by WSD	90d	18-Dec-19	16-Apr-20	Installation of Water Supply by WSD								
<b>TBM Excavation</b>													
TBM_Exc_0100	Installation of settlement marker for Tunneling work (SM13- SM16, 4nos.) *(P14)	6d	27-Dec-19*	03-Jan-20	Installation of settlement marker for Tunneling work (SM13- SM16, 4nos.) *(P14)								
TBM_Exc_1000	Initial Readings of settlement marker for Tunneling work (SM13- SM16, 4nos.) *(P14)	24d	04-Jan-20	08-Feb-20	Initial Readings of settlement marker for Tunneling work (SM13- SM16, 4nos.) *(P14)								
<b>Intake Structure at Kowloon Byewash Reservoir</b>													
<b>KBR Intake : Design Submission</b>													
<b>KBR Intake: Permanent Site Formation / Slope Stabilization for Tunnel Portal Design</b>													
KBR_ISD_1100	Review and Comments *(P1b)	12d	24-Oct-19A	06-Nov-19	Review and Comments *(P1b)								
KBR_ISD_1200	2nd Submission - Permanent Site Formation/Slope Stabilization for Tunnel Portal Design Preparation & Submission with ICE	7d	07-Nov-19	14-Nov-19	2nd Submission - Permanent Site Formation/Slope Stabilization for Tunnel Portal Design Preparation & Submission with ICE								
KBR_ISD_1300	Review and Acceptance *(P1b)	12d	15-Nov-19	28-Nov-19	Review and Acceptance *(P1b)								
<b>KBR Intake : Cofferdam Design</b>													
KBR_ISD_1400	1st Submission - Cofferdam Design Preparation & Submission	37d	31-Oct-19	12-Dec-19	1st Submission - Cofferdam Design Preparation & Submission								
KBR_ISD_1500	Review and Comments	18d	13-Dec-19	06-Jan-20	Review and Comments								
KBR_ISD_1600	2nd Submission - Cofferdam Design Preparation & Submission with ICE	28d	07-Jan-20	15-Feb-20	2nd Submission - Cofferdam Design Preparation & Submission with ICE								
<b>KBR Intake : Temporary ELS Design</b>													
KBR_ISD_1800	1st Submission - Temporary ELS Design Preparation & Submission	37d	31-Oct-19	12-Dec-19	1st Submission - Temporary ELS Design Preparation & Submission								
KBR_ISD_1900	Review and Comments	18d	13-Dec-19	06-Jan-20	Review and Comments								
KBR_ISD_2000	2nd Submission - Temporary ELS Design Preparation & Submission with ICE	28d	07-Jan-20	15-Feb-20	2nd Submission - Temporary ELS Design Preparation & Submission with ICE								
<b>KBR : Site Setup and Access</b>													
KB_ISW_1200	Setup Water and Power Supply	6d	31-Oct-19	06-Nov-19	Setup Water and Power Supply								
KB_ISW_1300	Protection of Pavillion	6d	31-Oct-19	06-Nov-19	Protection of Pavillion								
KB_ISW_1310	Installation of Settlement Marker along KBR Dam and Platform (SM1, SM4A-SM4F, SM5, SM6, SM6A, 11nos.) *(P14)	15d	30-Oct-19A	15-Nov-19	Installation of Settlement Marker along KBR Dam and Platform (SM1, SM4A-SM4F, SM5, SM6, SM6A, 11nos.) *(P14)								
KB_ISW_1320	Initial Readings of settlement marker along KBR Dam and Platform (SM1, SM4A-SM4F, SM5, SM6, SM6A, 11nos.) *(P14)	4d	16-Nov-19	20-Nov-19	Initial Readings of settlement marker along KBR Dam and Platform (SM1, SM4A-SM4F, SM5, SM6, SM6A, 11nos.) *(P14)								
KB_ISW_1400-30	Prepare Foundation for Crane	30d	04-Oct-19A	08-Nov-19	Prepare Foundation for Crane								
KB_ISW_1400-40	Erect Crane	6d	09-Nov-19	15-Nov-19	Erect Crane								
KB_ISW_1400-50	Test & Commissioning	3d	16-Nov-19	19-Nov-19	Test & Commissioning								

█ 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	3 of 4
31-Oct-19	Rolling Y19M10D31d	EChu		



# IRTS: 3 Month Rolling Programme (Nov 19 ~ Jan 20)

Layout : IRT-Rolling Y19M10D31d  
 TASK filters: 3 Month Rolling, Level of Effort.  
 Data Date : 31-Oct-19

Activity ID	Activity Name	Dur	Start	Finish	2019			2020	
					Oct 8	Nov 9	Dec 10	Jan 11	Feb 12
KB_ISW_1700	Associated Site Drainage System	11d	20-Nov-19	02-Dec-19			Associated Site Drainage System		
KB_ISW_1800	Setup Wetsep	8d	20-Nov-19	28-Nov-19		Setup Wetsep			
<b>KBR : Intake Structure</b>									
KB_ISW_1900	Install Double Silt Curtain Inside the Reservoir	7d	20-Nov-19	27-Nov-19		Install Double Silt Curtain Inside the Reservoir			
KB_ISW_2000	Tree Felling	11d	20-Nov-19	02-Dec-19		Tree Felling			
KB_ISW_2100	Breaking Rock Slope to Formation Level and Slope Protection	48d	03-Dec-19	07-Feb-20			Breaking Rock Slope to F		
KB_ISW_2205	Boulder Stabilization	21d	03-Dec-19	28-Dec-19			Boulder Stabilization		
<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_0910	1st Submission - Pipe Pile and Sheetpile Design Preparation & Submission	57d	09-Sep-19A	15-Nov-19		1st Submission - Pipe Pile and Sheetpile Design Preparation & Submission			
LSM_OSD_0920	Review and Comments	18d	16-Nov-19	06-Dec-19		Review and Comments			
LSM_OSD_0930	2nd Submission - Pipe Pile and Sheetpile Design Preparation & Submission with ICE	8d	07-Dec-19	16-Dec-19			2nd Submission - Pipe Pile and Sheetpile Design Preparation & Submission with ICE		
LSM_OSD_0940	Review and Acceptance	18d	17-Dec-19	09-Jan-20			Review and Acceptance		
<b>LSMR Outfall : Stage 2B Pipe Pile Wall for Outfall</b>									
LSM_OSD_1000	1st Submission - Pipe Pile and Sheetpile Design Preparation & Submission	30d	31-Oct-19	04-Dec-19		1st Submission - Pipe Pile and Sheetpile Design Preparation & Submission			
LSM_OSD_1100	Review and Comments	18d	05-Dec-19	27-Dec-19		Review and Comments			
LSM_OSD_1200	2nd Submission - Pipe Pile and Sheetpile Design Preparation & Submission with ICE	18d	28-Dec-19	18-Jan-20			2nd Submission - Pipe Pile and Sheetpile Design		
LSM_OSD_1300	Review and Acceptance	18d	20-Jan-20	17-Feb-20			Review and		
<b>Slope Upgrading Works</b>									
<b>LSMR Slope Stabilization Works</b>									
LSM_Slp_1200-10	Soil Nails : 7SW-D/C27 Slope Top Section	25d	09-Nov-19	07-Dec-19		Soil Nails : 7SW-D/C27 Slope Top Section			
LSM_Slp_1200-20	Soil Nails : 7SW-D/C27 Slope Mid Section	47d	09-Oct-19A	20-Jan-20			Soil Nails : 7SW-D/C27 Slope Mid Section		
LSM_Slp_1200-30	Soil Nails : 7SW-D/C27 Slope Lower Section	91d	29-Aug-19A	14-Dec-19		Soil Nails : 7SW-D/C27 Slope Lower Section			
LSM_Slp_1210	7SW-D/C27 Raking Drains Installation	30d	16-Dec-19	22-Jan-20			7SW-D/C27 Raking Drains Installation		
LSM_Slp_1600	7SW-D/C27 Slope Top Berm (incl.U-channel/ Step Channel/ Maintenance Access)	56d	09-Dec-19	22-Feb-20			7SW-D/C27 Slope Top Berm		
LSM_Slp_2050	Soil Nail Pull Out Test	20d	24-Oct-19A	15-Nov-19		Soil Nail Pull Out Test			
LSM_Slp_2060	Soil Nail Site Trial	14d	16-Nov-19	02-Dec-19		Soil Nail Site Trial			
LSM_Slp_2110-10	Soil Nails - 7SW-D/C28 Slope Region 1	25d	03-Dec-19	03-Jan-20			Soil Nails - 7SW-D/C28 Slope Region 1		
LSM_Slp_2110-20	Soil Nails - 7SW-D/C28 Slope Region 2 (South)	25d	04-Jan-20	10-Feb-20			Soil Nails - 7SW-D/C		
<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)	26d	31-Oct-19	29-Nov-19*		Submission of Enhancement Facility Proposal at Kam Shan Country Park *(P1c)			
KBR_EhW_1200	Review and Comments of Proposal *(P1c)	26d	30-Nov-19	02-Jan-20			Review and Comments of Proposal *(P1c)		
KBR_EhW_1300	1st Submission-Enhancement works at Kam Shan Country Park-Design Preparation & Submission *(P1c)	26d	03-Jan-20	10-Feb-20*			1st Submission-Enha		
<b>LSMR Landscaping</b>									
LSM_LSc_1000	Landscape	18d	11-Jan-20	08-Feb-20			Landscape		

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

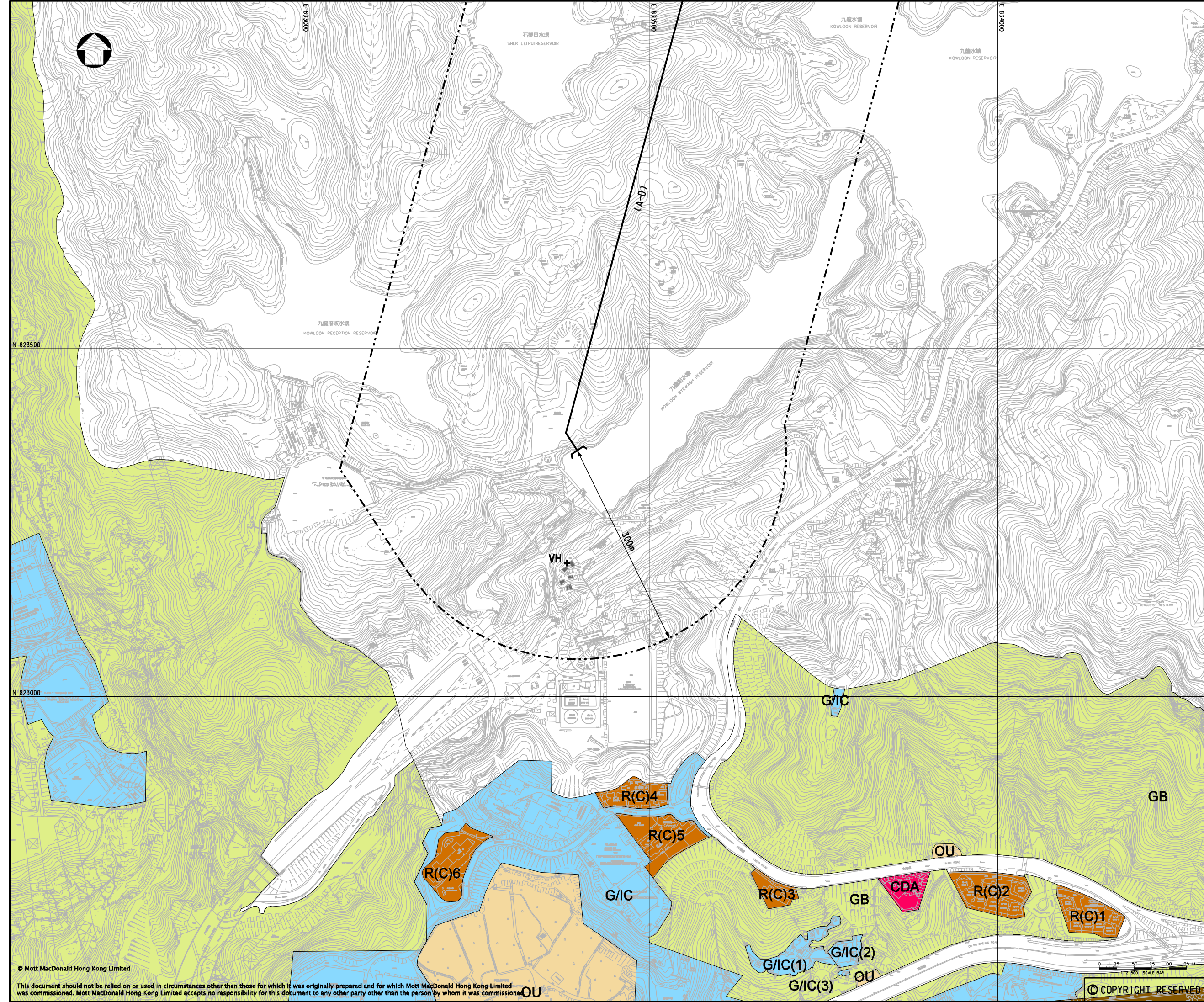
Contract No. DC/2018/08 : Inter-Reservoirs Transfer Scheme  
 Water Tunnel Between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir

Date	Revision	Checked	Approved
31-Oct-19	Rolling Y19M10D31d	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**

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 STUDY AREA AND  
REPRESENTATIVE NSRs (INTAKE END)

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

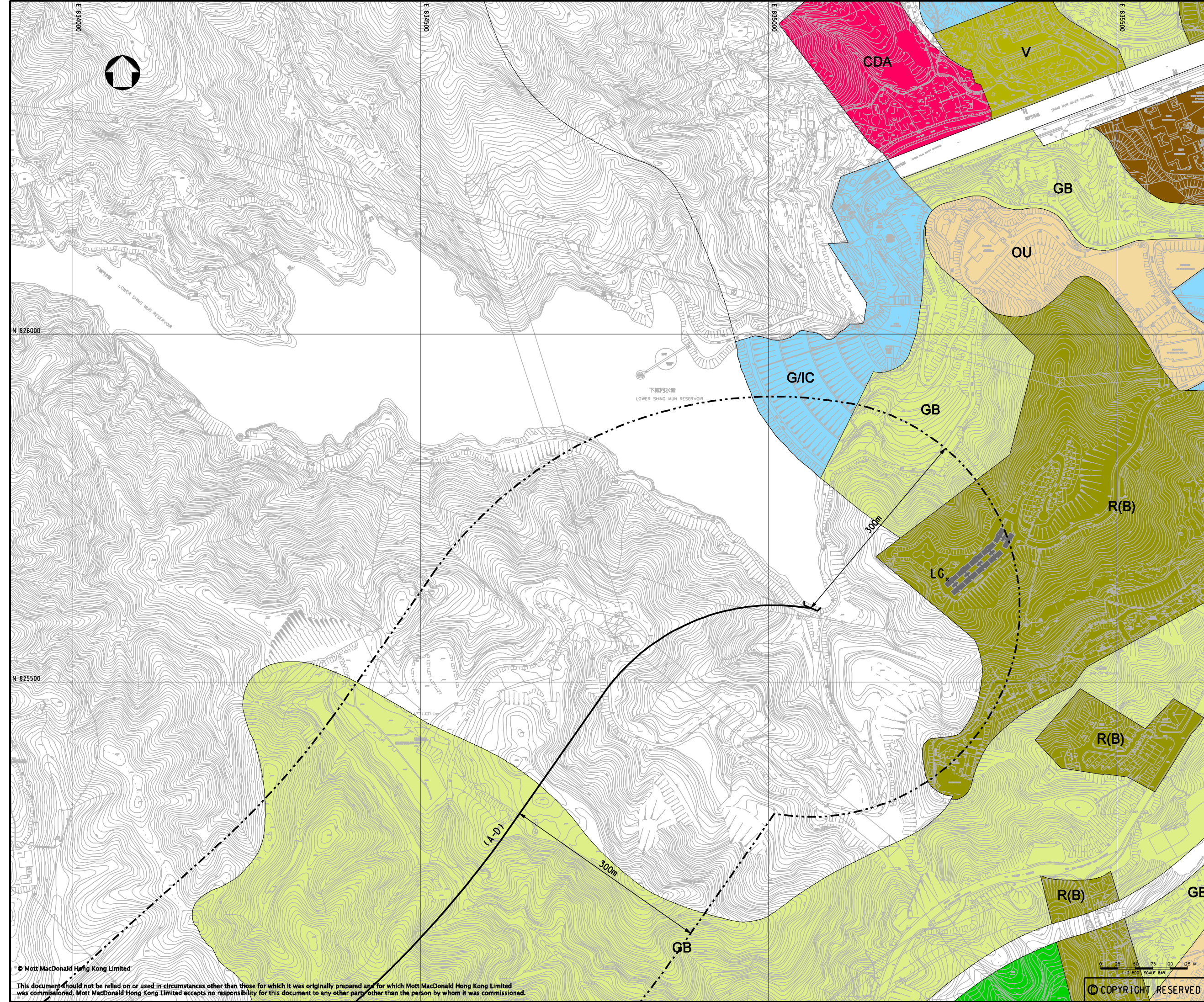
Scale

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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 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

PROPOSED LOCATION OF NOISE  
MONITORING STATION AT OUTFALL END

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

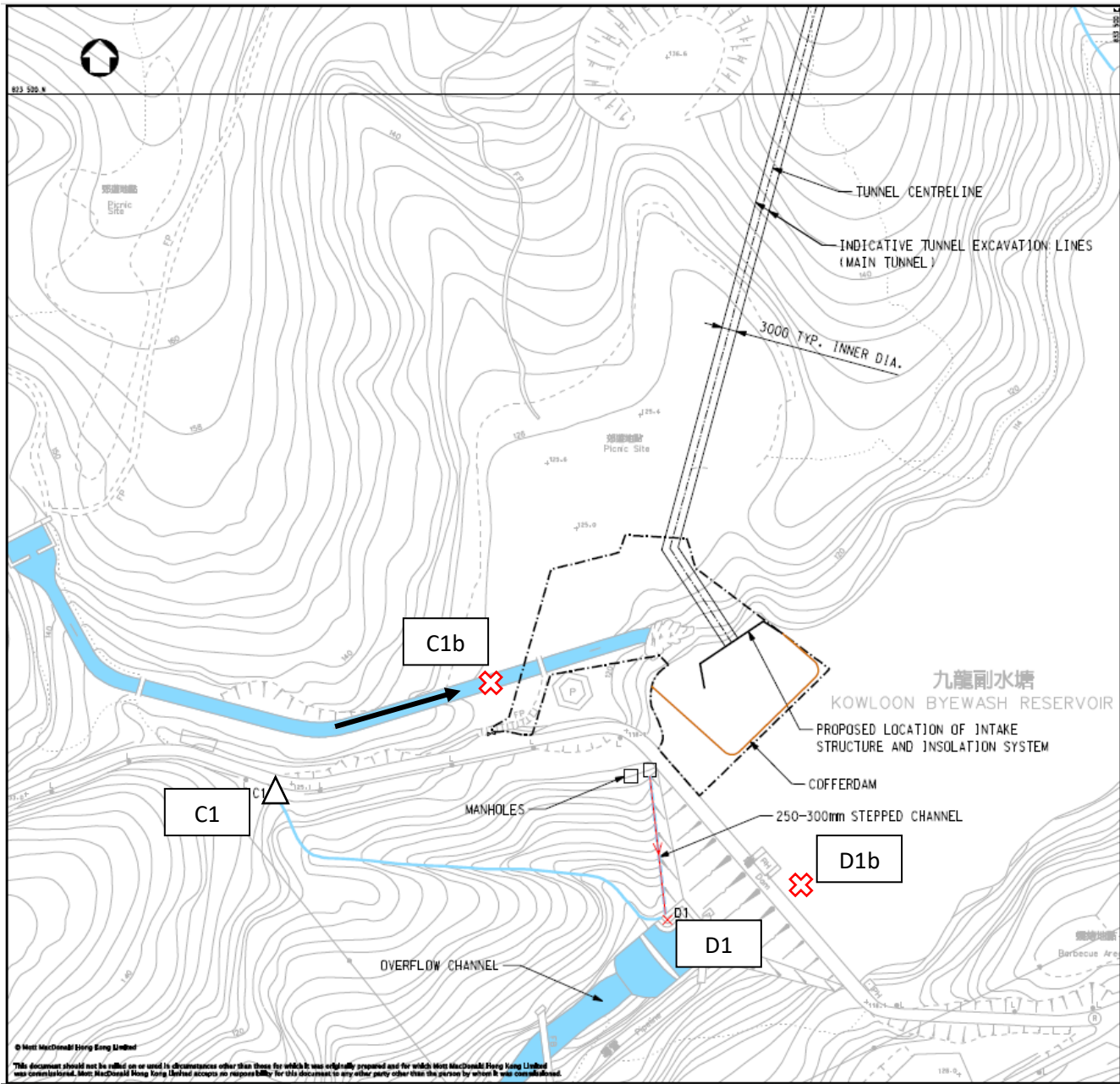
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Project 240564

Status INF

Drawing No. FIGURE 4-2



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
  - x POINT OF EFFLUENT DISCHARGE / MONITORING STATION D1
  - △ CONTROL STATION AT INTAKE SITE
  - x Proposed Alternative Water Monitoring Station

Rev	Drawn	Checked	Drawn/Checked	Date
01	WVF	MDG	WONG	24/04/2011
02	WVF	MDG	WONG	24/04/2011
03	WVF	MDG	WONG	24/04/2011

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

**Mott MacDonald**  
 Mott MacDonald Hong Kong Ltd  
 22/F, One World Plaza, One World Centre  
 22 Harbour Road, Kowloon, Hong Kong  
 Tel: 852 2412 8888  
 Fax: 852 2412 8888  
 www.mottmacdonald.com.hk

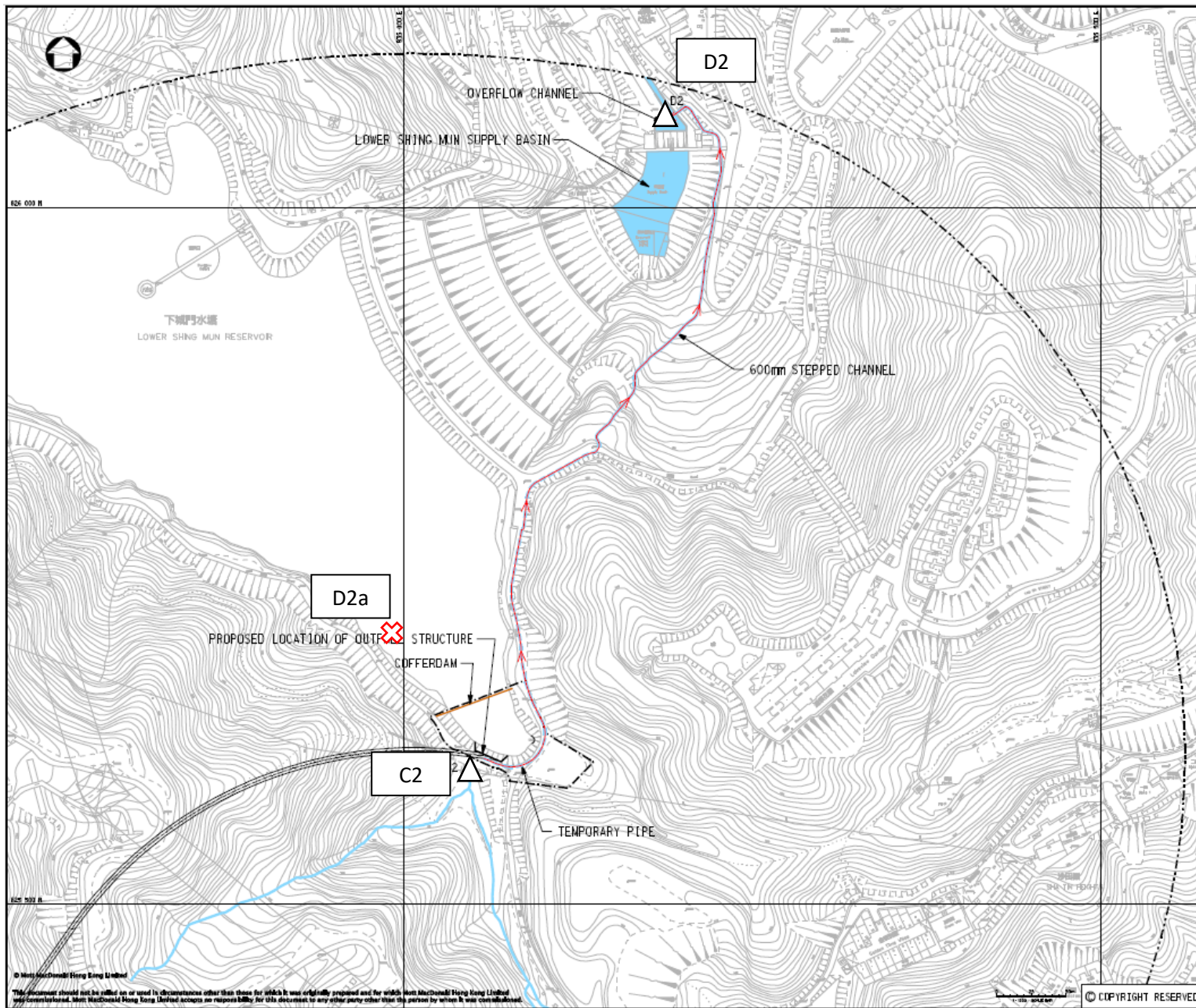
Project: Agreement No. CE55/2006 (EP) Inter-reservoirs Transfer Scheme (IRTS) Water Tunnel between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir Environmental Impact Assessment Investigation

Title: PROPOSED WATER QUALITY MONITORING STATION AT INTAKE END

Designed	WVF	Checked	MDG
Drawn	MDG	Approved	WVF
Design	WVF	Approved	WVF

Scale: 1:500 (A1) Project No: 240564 Date: 24/04/2011

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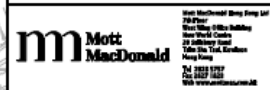


NOTE:  
DESIGN DETAILS OF THE COFFERDAM WILL BE DETERMINED BY THE CONTRACTOR.

- LEGEND:
- STUDY AREA BOUNDARY
  - WORKSITE AREA
  - WATERCOURSE
  - TEMPORARY PIPE
  - INDICATIVE LOCATION OF COFFERDAM
  - FLOW PATH OF TREATED EFFLUENT
  - × POINT OF EFFLUENT DISCHARGE / MONITORING STATION C2
  - △ CONTROL STATION AT OUTFALL SITE
  - ⊗ Proposed Alternative Water Monitoring Station

FR	REV 01	NOV	NOV	NOV	NOV	NOV	NOV	NOV	NOV
FR	REV 02	NOV	NOV	NOV	NOV	NOV	NOV	NOV	NOV
FR	REV 03	NOV	NOV	NOV	NOV	NOV	NOV	NOV	NOV

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



Project:  
Agreement No. CES5/2006 (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 OUTFALL END

Checked	FR	Checked	FR
Drawn	NOV	Checked	FR
Eng. OK	FR	Approved	FR

Scale: 1:125000  
 Date: 24/05/14  
 Drawing No: FIGURE 5-2  
 Page: P3

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## Appendix D

# Calibration Certificates of Equipment Used



Range: Low: Steady level nominal result = 60dB

Result	Detector	Duration [ms]	1000	500	200	100	50	20	10	5	2	1	0.5
MAX	Fast	Indication [dB]	60.1	60.0	59.1	57.5	55.3	51.8	48.9	46.0	42.0	39.0	36.0
		Error [dB]	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.1
	Slow	Indication [dB]	58.0	56.0	53.6	49.8	46.9	42.9	40.0	37.0	32.9	-	-
		Error [dB]	0.0	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-
SEL	-	Indication [dB]	60.1	57.1	53.1	50.1	47.1	43.1	40.1	37.1	33.1	30.1	27.0
		Error [dB]	0.0	-0.0	0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0

Range: Low: Steady level nominal result = 35dB

Result	Detector	Duration [ms]	1000	500	200	100	50	20	10	5	2	1	0.5
MAX	Fast	Indication [dB]	35.1	35.0	34.1	-	-	-	-	-	-	-	-
		Error [dB]	-0.0	-0.0	0.0	-	-	-	-	-	-	-	-
	Slow	Indication [dB]	33.0	31.0	27.6	-	-	-	-	-	-	-	-
		Error [dB]	-0.1	-0.0	-0.1	-	-	-	-	-	-	-	-
SEL	-	Indication [dB]	35.1	32.1	28.1	-	-	-	-	-	-	-	-
		Error [dB]	-0.0	-0.0	0.0	-	-	-	-	-	-	-	-

Range: High: Steady level nominal result = 134dB

Result	Detector	Duration [ms]	1000	500	200	100	50	20	10	5	2	1	0.5
MAX	Fast	Indication [dB]	134.1	134.0	133.1	131.5	129.3	125.8	122.9	120.0	116.0	113.0	110.0
		Error [dB]	-0.0	0.0	0.0	0.0	-0.0	-0.0	-0.1	0.0	-0.0	-0.0	-0.1
	Slow	Indication [dB]	132.0	130.0	126.6	123.8	120.9	117.0	114.0	111.0	107.0	-	-
		Error [dB]	-0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-	-
SEL	-	Indication [dB]	134.1	131.1	127.1	124.1	121.1	117.1	114.1	111.1	107.1	104.0	101.0
		Error [dB]	0.0	-0.0	0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.1	-0.1

Range: High: Steady level nominal result = 54dB

Result	Detector	Duration [ms]	1000	500	200	100	50	20	10	5	2	1	0.5
MAX	Fast	Indication [dB]	54.1	54.0	53.1	51.5	49.3	-	-	-	-	-	-
		Error [dB]	0.0	0.0	0.0	0.0	-0.0	-	-	-	-	-	-
	Slow	Indication [dB]	52.1	50.0	46.6	43.9	40.9	-	-	-	-	-	-
		Error [dB]	-0.0	-0.0	-0.0	-0.1	-0.1	-	-	-	-	-	-
SEL	-	Indication [dB]	54.1	51.1	47.1	44.1	41.1	-	-	-	-	-	-
		Error [dB]	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-

Range: High: Steady level nominal result = 45dB

Result	Detector	Duration [ms]	1000	500	200	100	50	20	10	5	2	1	0.5
MAX	Fast	Indication [dB]	45.2	45.1	44.2	-	-	-	-	-	-	-	-
		Error [dB]	0.0	0.0	0.0	-	-	-	-	-	-	-	-
	Slow	Indication [dB]	43.1	41.0	37.7	-	-	-	-	-	-	-	-
		Error [dB]	-0.0	-0.0	-0.1	-	-	-	-	-	-	-	-
SEL	-	Indication [dB]	45.2	42.2	38.2	-	-	-	-	-	-	-	-
		Error [dB]	0.0	0.0	0.0	-	-	-	-	-	-	-	-

#### 4. FREQUENCY RESPONSE (electrical)

LEVEL METER function: Characteristic: Z; Range: Low; Input signal = 120 dB.



Calculated Filter Response

Measured Filter Response with Preamplifier SV18 (f: frequency; Level)

f [Hz]	1.4 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB
10	0.0	0.0	0.0	0.0	0.0	0.0
12.5	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0
31.5	0.0	0.0	0.0	0.0	0.0	0.0

All frequencies are nominal center values for the 1/3 octave bands.

#### 5. INTERNAL NOISE LEVEL (electrical - compensated)

LEVEL METER function: Range: Low; (Backlight - off); Calibration factor: (dB)

Characteristic	Z	A	C
Level [dB]	≤30	≤12	≤12

measured with preamplifier SVANTER type SV18 No. 78763

\*\*\* SI-EN 971, No. 27231, page 2 \*\*\*

#### 6. INTERNAL NOISE LEVEL (acoustical - compensated)

LEVEL METER function: Characteristic: A; (Backlight - off)

Range	Low	High
Indication [dB]	≤15	19.8

Noise measured in special chamber, with reference microphone G.R.A.S type 40AN No. 73421

#### ENVIRONMENTAL CONDITIONS

Temperature	Relative humidity	Ambient pressure
23 °C	25%	1016 hPa

#### TEST EQUIPMENT

Item	Manufacturer	Model	Serial no.	Description
1	SVANTER	SVAN-401	87	Signal generator
2	SVANTER	SVAN-912A	6120	Sound & Vibration Analyser
3	RIGOL	DM3068	DNF30155100773	Digital multimeter
4	SVANTER	SV33	48878	Acoustic calibrator
5	SVANTER	ST02	-	Microphone equivalent electrical impedance (189F)

#### CONFORMITY & TEST DECLARATION

1. Herewith Svantek company declares that this instrument has been calibrated and tested in compliance with the internal ISO9001 procedures and meets all specifications given in the Manual(s) or respectively surpass them.
2. The acoustic calibration was performed using the Sound Calibrator and is traceable to the GUM (Central Office of Measures) reference standard - sound level calibrator Dpe 4231 No 2392773.
3. The information appearing on this sheet has been compiled specifically for this instrument. This form is produced with advanced equipment & procedures which permit comprehensive quality assurance verification of all data supplied herein.
4. This calibration sheet shall not be reproduced except in full, without written permission of the SVANTER Ltd.

Calibration specialist: Krzysztof Czachor

Test date: 2019-02-06

\*\*\* SI-EN 971, No. 27231, page 3 \*\*\*



**FACTORY CALIBRATION DATA OF THE SV/AN 971 No. 77731**  
 with preamplifier SVANTEK type SV18 No. 78763 and with microphone ACO type 7052E No. 72681

**1. CALIBRATION\*** (acoustical)

LEVEL METER function, Range Low, Reference frequency: 1000Hz, Sound Pressure Level: 113.97 dB

Characteristic	Correct value [dB]	Indication [dB]	Error [dB]
Z	113.97	114.01	0.04
A	113.97	114.01	0.04
C	113.97	114.01	0.04

Calibration measured with the microphone ACO type 7052E No. 72681, Calibration factor: -0.20 dB

**2. LINEARITY TEST\*** (electrical)

LEVEL METER function, Range Low, Characteristic: A,  $f_{me} = 31.5$  Hz

Nominal result LEQ [dB]	24.0	25.0	26.0	28.0	30.0	40.0	60.0	80.0	100.0	120.0
Error [dB]	0.1	0.0	0.0	0.0	-0.0	0.0	0.0	0.0	0.0	0.0

LEVEL METER function, Range Low, Characteristic: A,  $f_{me} = 1000$  Hz

Nominal result LEQ [dB]	24.0	25.0	26.0	28.0	30.0	40.0	60.0	80.0	100.0	120.0
Error [dB]	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0

LEVEL METER function, Range Low, Characteristic: A,  $f_{me} = 8000$  Hz

Nominal result LEQ [dB]	24.0	25.0	26.0	28.0	30.0	40.0	60.0	80.0	100.0	120.0
Error [dB]	-0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0

LEVEL METER function, Range High, Characteristic: A,  $f_{me} = 31.5$  Hz

Nominal result LEQ [dB]	34.0	35.0	36.0	38.0	40.0	60.0	80.0	97.0
Error [dB]	0.0	0.0	0.0	-0.0	0.0	0.0	0.0	0.0

LEVEL METER function, Range High, Characteristic: A,  $f_{me} = 1000$  Hz

Nominal result LEQ [dB]	34.0	35.0	36.0	38.0	40.0	60.0	80.0	100.0	120.0	137.0
Error [dB]	0.1	0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0

LEVEL METER function, Range High, Characteristic: A,  $f_{me} = 8000$  Hz

Nominal result LEQ [dB]	34.0	35.0	36.0	38.0	40.0	60.0	80.0	100.0	120.0	136.0
Error [dB]	0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0

1/3 OCTAVE (1kHz), Range Low,  $f_{me} = 1000$  Hz

Nominal result [dB]	25.0	30.0	40.0	60.0	80.0	100.0	120.0	123.0
Error [dB]	0.0	-0.0	-0.0	-0.0	-0.0	-0.0	0.0	-0.0

**3. TONE BURST RESPONSE\***

LEVEL METER function, Characteristic: A,  $f_{me} = 4000$  Hz, Burst duration: 2s

Range Low, Steady level nominal result = 120dB

Result	Detector		500		200		100		50		20		10		5		2		1		0.5		0.25		
	Indication [dB]	Error [dB]	Indication [dB]	Error [dB]	Indication [dB]	Error [dB]	Indication [dB]	Error [dB]	Indication [dB]	Error [dB]	Indication [dB]	Error [dB]	Indication [dB]	Error [dB]	Indication [dB]	Error [dB]	Indication [dB]	Error [dB]	Indication [dB]	Error [dB]	Indication [dB]	Error [dB]	Indication [dB]	Error [dB]	
MAX	Fast	120.1	0.0	120.0	0.0	119.1	0.0	117.5	0.0	115.2	0.0	111.8	0.0	108.9	0.0	102.0	0.0	99.0	0.0	96.0	0.0	93.0	0.0	91.0	0.0
	Slow	118.0	0.0	115.9	0.0	109.8	0.0	106.8	0.0	102.9	0.0	99.9	0.0	96.9	0.0	91.0	0.0	88.0	0.0	85.0	0.0	82.0	0.0	79.0	0.0
SEL	Fast	120.1	0.0	117.1	0.0	115.1	0.0	110.1	0.0	107.1	0.0	103.1	0.0	100.1	0.0	97.0	0.0	93.1	0.0	90.0	0.0	87.0	0.0	83.9	0.0
	Slow	120.1	0.0	117.1	0.0	115.1	0.0	110.1	0.0	107.1	0.0	103.1	0.0	100.1	0.0	97.0	0.0	93.1	0.0	90.0	0.0	87.0	0.0	83.9	0.0



# 1/2" Prepolarized Condenser Microphone

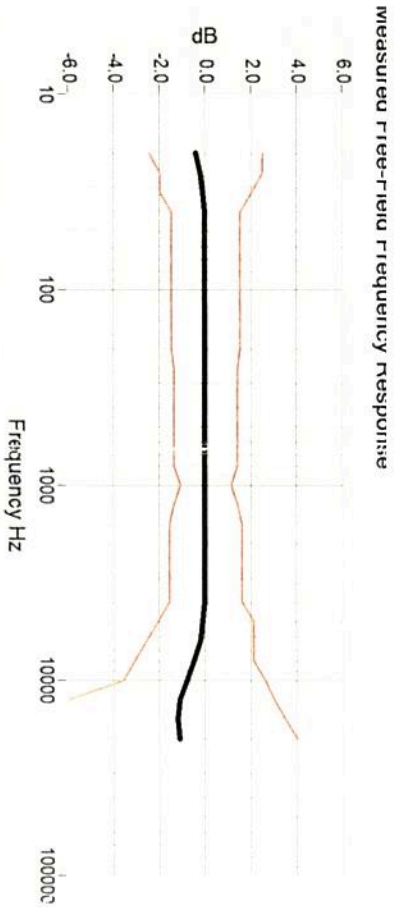
## Calibration Chart

Type: **7052E** Serial No: **72681**

Measured sensitivity: **35.41 mV/Pa**

Manufacturer: **ACO PACIFIC**

Date: **2019-01-21** Signature: *[Signature]*



Environmental Calibration Conditions: **22 °C 28 % 1010 hPa**



# MAXLAB

## CALIBRATION CERTIFICATE

### Certificate Information

<b>Date of Issue</b>	23-Nov-2018	<b>Certificate Number</b>	MLCN182934S
----------------------	-------------	---------------------------	-------------

### Customer Information

<b>Company Name</b>	Acuity Sustainability Consulting Limited
<b>Address</b>	Unit 1908, Nos. 301-305 Castle Peak Road, Kwai Chung, N.T.

### Equipment-under-Test (EUT)

<b>Description</b>	Sound Level Calibrator
<b>Manufacturer</b>	Rion
<b>Model Number</b>	NC-74
<b>Serial Number</b>	34504770
<b>Equipment Number</b>	--

### Calibration Particular

<b>Date of Calibration</b>	23-Nov-2018		
<b>Calibration Equipment</b>	4231(MLTE008) / AV180068 / 13-May-20 1357(MLTE190) / MLEC18/05/02 / 25-May-19		
<b>Calibration Procedure</b>	MLCG00, MLCG15		
<b>Calibration Conditions</b>	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
<b>Calibration Results</b>	Calibration data were detailed in the continuation pages. Calibration result was out of EUT specification.		

### Approved By & Date

K.O. Lo

23-Nov-2018

### 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. MLCN182934S

## Calibration Data

EUT Setting	Standard Reading	EUT Error from Setting	Calibration Uncertainty	EUT Specification
94 dB	94.0 dB	0.0 dB	0.20 dB	± 0.3 dB

- END -

Calibrated By :  
Date :

Dan  
23-Nov-18

Checked By :  
Date :

K.O. Lo  
23-Nov-18

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 B2 室

Unit B2, 9/F., Baldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk



# 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. : AI080021  
Date of Issue : 12 Aug, 2019  
Page No. : 1 of 2

### PART A – CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited  
Unit 1908, Nos. 301-305  
Castle Peak Road, Kwai Chung  
N.T., HK  
Attn: Mr. Nelson TSUI

### PART B – DESCRIPTION

Name of Equipment : Multi Water Quality Checker U-53  
Manufacturer : Horiba  
Serial Number : L20550GA  
Date of Received : Aug 01, 2019  
Date of Calibration : Aug 01, 2019 – Aug 08, 2019  
Date of Next Calibration<sup>(a)</sup> : Nov 01, 2019

### 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	4.10	0.10	Satisfactory
7.42	7.42	0.00	Satisfactory
10.01	10.09	0.08	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
14.0	14.37	0.37	Satisfactory
27.0	27.25	0.25	Satisfactory
50.0	49.40	-0.60	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 from 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 referenced to YSI product specifications.

  
LEE Chun-ning, Desmond  
Senior Chemist





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. : AI080021  
Date of Issue : 12 Aug, 2019  
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
8.17	8.16	-0.01	Satisfactory
5.27	5.00	-0.27	Satisfactory
3.52	3.21	-0.31	Satisfactory
0.01	0.00	-0.01	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	9.88	-1.2	Satisfactory
20	20.40	2.0	Satisfactory
30	30.41	1.4	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	0.28	--	Satisfactory
10	10.0	0.0	Satisfactory
20	21.0	5.0	Satisfactory
100	103	3.0	Satisfactory
800	806	0.8	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.



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. : AI080157  
Date of Issue : 06 Sep, 2019  
Page No. : 1 of 2

### PART A – CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited  
Unit 1908, Nos. 301-305  
Castle Peak Road, Kwai Chung  
N.T., HK  
Attn: Mr. Nelson TSUI

### PART B – DESCRIPTION

Name of Equipment : Multi Water Quality Checker U-53  
Manufacturer : Horiba  
Serial Number : BGY9CKD  
Date of Received : Aug 30, 2019  
Date of Calibration : Aug 30, 2019 – Sep 05, 2019  
Date of Next Calibration<sup>(a)</sup> : Nov 29, 2019

### 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	3.98	-0.02	Satisfactory
7.42	7.42	0.00	Satisfactory
10.01	10.11	0.10	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
9.8	9.99	0.19	Satisfactory
27.4	27.3	-0.10	Satisfactory
43.0	42.78	-0.22	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 from 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 from relevant international standards.

  
LEE Chun-ning, Desmond  
Senior Chemist



## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI080157  
Date of Issue : 06 Sep, 2019  
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
8.18	8.23	0.05	Satisfactory
6.48	6.67	0.19	Satisfactory
3.5	3.68	0.18	Satisfactory
0.19	0.66	0.47	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	9.72	-2.80	Satisfactory
20	19.7	-1.50	Satisfactory
30	29.2	-2.67	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	0.02	--	Satisfactory
10	9.72	-2.8	Satisfactory
20	19.8	-1.0	Satisfactory
100	100	0.0	Satisfactory
800	819	2.4	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.

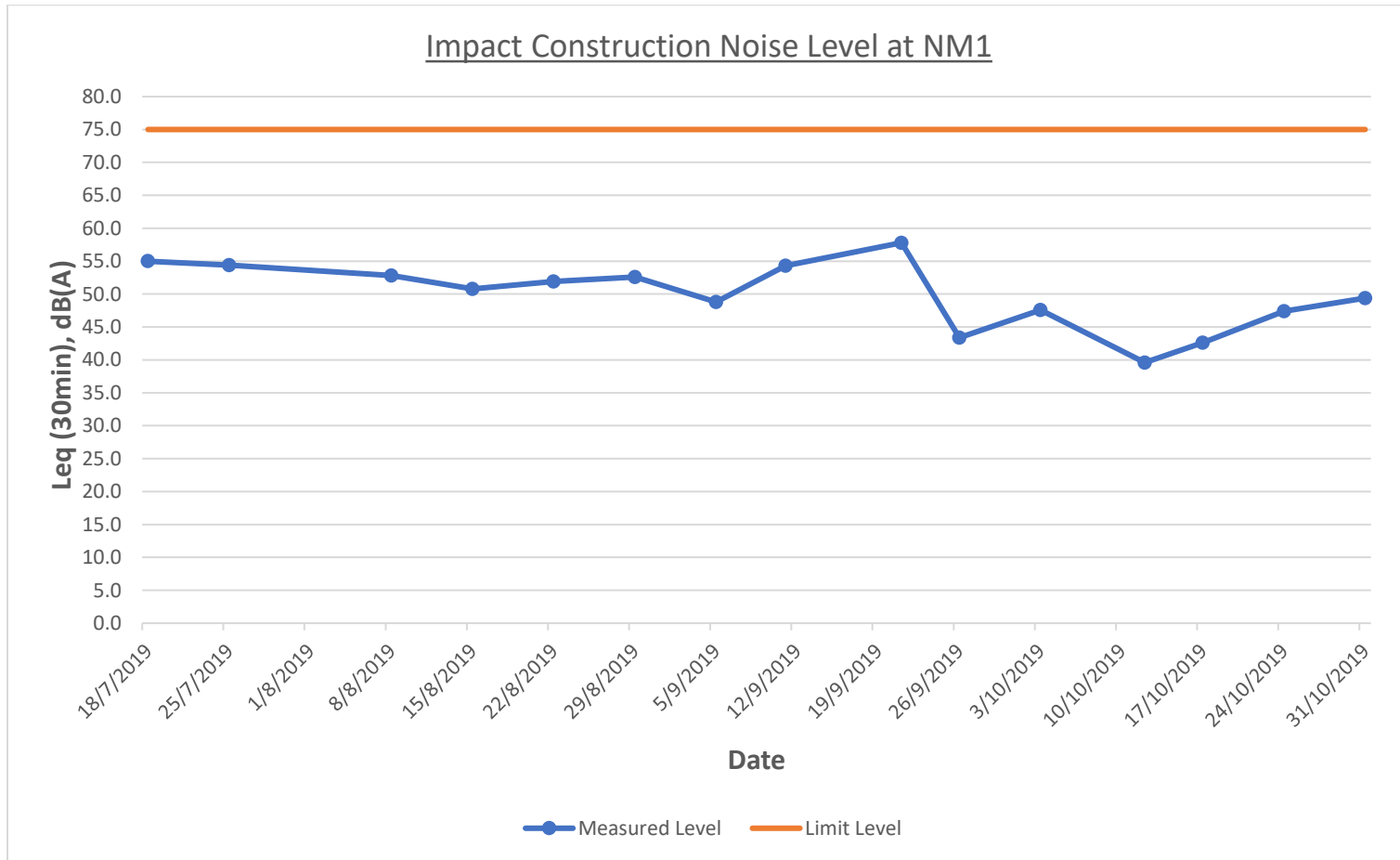
<sup>(g)</sup> The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.

Appendix E  
Impact Noise Monitoring Data

## Impact Noise Monitoring Data

### NM1 – Lakeview Garden

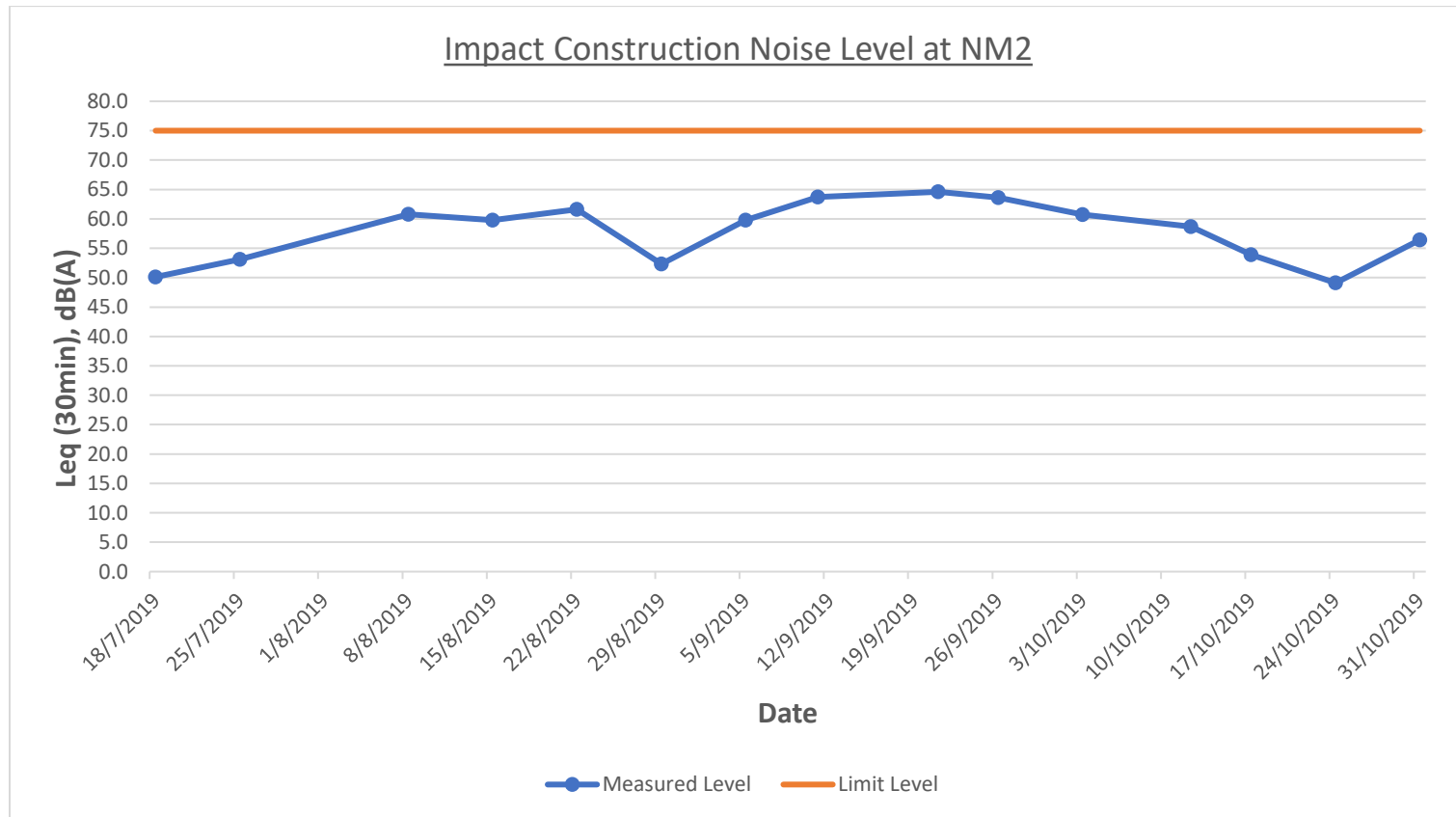
Date	Location	Time			Weather	Leq (30min)	L10	L90	Remarks
3/10/2019	NM1	9:22	-	9:52	Sunny	47.6	50.2	41.8	N.A.
12/10/2019	NM1	10:21	-	10:51	Cloudy	39.6	41.3	36.8	N.A.
17/10/2019	NM1	10:26	-	10:56	Fine	42.6	45.1	37.8	N.A.
24/10/2019	NM1	14:23	-	14:53	Sunny	47.4	49.8	42.1	N.A.
31/10/2019	NM1	13:29	-	13:59	Sunny	49.4	52.2	42.7	N.A.



## Impact Noise Monitoring Data

NM2 – 4 ½ Milestone, Tai Po Road

Date	Location	Time			Weather	Leq (30min)	L10	L90	Remarks
3/10/2019	NM2	11:10	-	11:40	Sunny	60.7	63.1	48.7	N.A.
12/10/2019	NM2	11:14	-	11:44	Cloudy	58.7	61.2	35.7	N.A.
17/10/2019	NM2	11:34	-	12:04	Fine	53.9	57.0	45.1	N.A.
24/10/2019	NM2	15:13	-	15:43	Sunny	49.1	52.5	38.7	N.A.
31/10/2019	NM2	14:18	-	14:48	Sunny	56.4	61.2	52.9	N.A.



## Appendix F

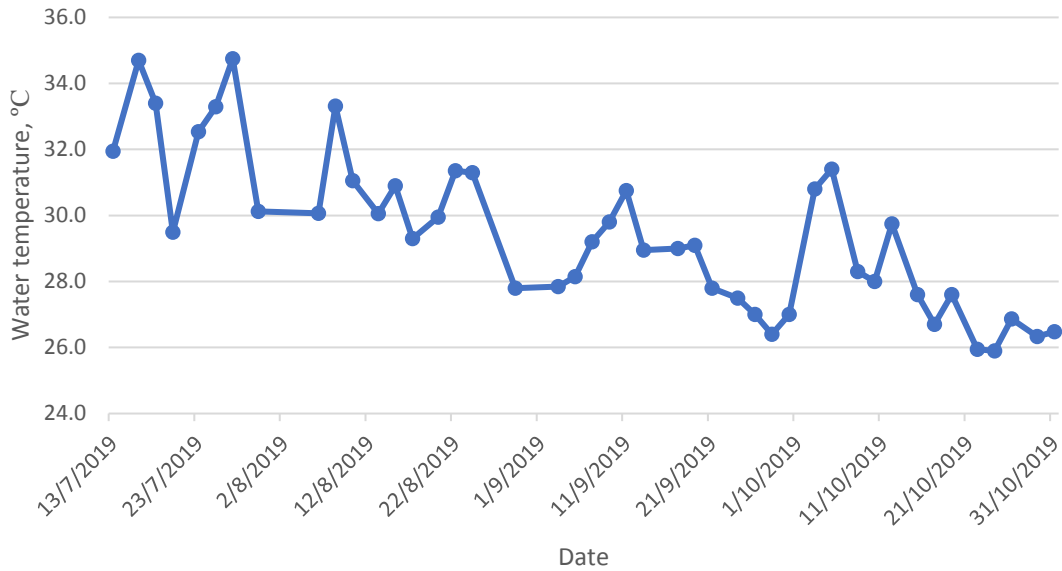
# Impact Water Quality Monitoring Data

Location	Sample ID	Date	Time	DO (mg/L)	DO%	pH	Temp (°C)	Turbidity (NTU)	SS (mg/L)
C1b	C1b	3/10/2019	11:35	7.1	95.2	7.7	30.8	4.1	5
	C1b#	3/10/2019	11:35	7.1	95.2	7.5	30.8	4.2	4
	C1b	5/10/2019	10:39	6.8	92.3	7.3	31.4	2.2	3
	C1b#	5/10/2019	10:40	6.8	92.3	7.1	31.4	2.5	3
	C1b	8/10/2019	16:51	7.1	90.9	6.9	28.3	3.9	11
	C1b#	8/10/2019	16:51	7.0	90.0	6.7	28.3	3.7	29
	C1b	10/10/2019	15:33	7.1	90.3	7.6	28.0	6.4	5
	C1b#	10/10/2019	15:33	7.1	90.2	7.5	28.0	6.5	4
	C1b	12/10/2019	11:03	6.8	89.8	6.8	29.7	3.7	3
	C1b#	12/10/2019	11:04	6.9	90.6	6.5	29.8	4.1	2
	C1b	15/10/2019	12:14	6.8	86.7	9.1	27.6	4.2	7
	C1b#	15/10/2019	12:14	6.7	84.6	8.3	27.6	3.9	8
	C1b	17/10/2019	11:39	6.7	83.1	7.0	26.7	4.8	3
	C1b#	17/10/2019	11:40	6.6	82.0	7.0	26.7	4.7	4
	C1b	19/10/2019	10:59	6.4	80.5	7.1	27.6	4.0	4
	C1b#	19/10/2019	11:00	6.3	80.4	7.2	27.6	3.9	4
	C1b	22/10/2019	12:47	6.6	81.0	6.9	26.0	5.1	4
	C1b#	22/10/2019	12:48	6.5	79.4	6.9	25.9	4.7	5
	C1b	24/10/2019	15:08	6.9	86.0	6.7	25.9	3.9	4
	C1b#	24/10/2019	15:09	6.9	85.8	6.6	25.9	3.8	4
	C1b	26/10/2019	15:08	9.6	119.6	6.9	26.9	3.7	7
	C1b#	26/10/2019	15:09	9.4	117.5	6.9	26.9	3.7	5
	C1b	29/10/2019	10:49	11.3	140.6	8.1	26.3	5.3	6
	C1b#	29/10/2019	10:50	7.8	96.2	7.7	26.4	4.7	4
C1b	31/10/2019	14:28	10.0	123.9	8.0	26.5	6.0	7	
C1b#	31/10/2019	14:29	9.9	122.6	7.9	26.4	6.9	6	

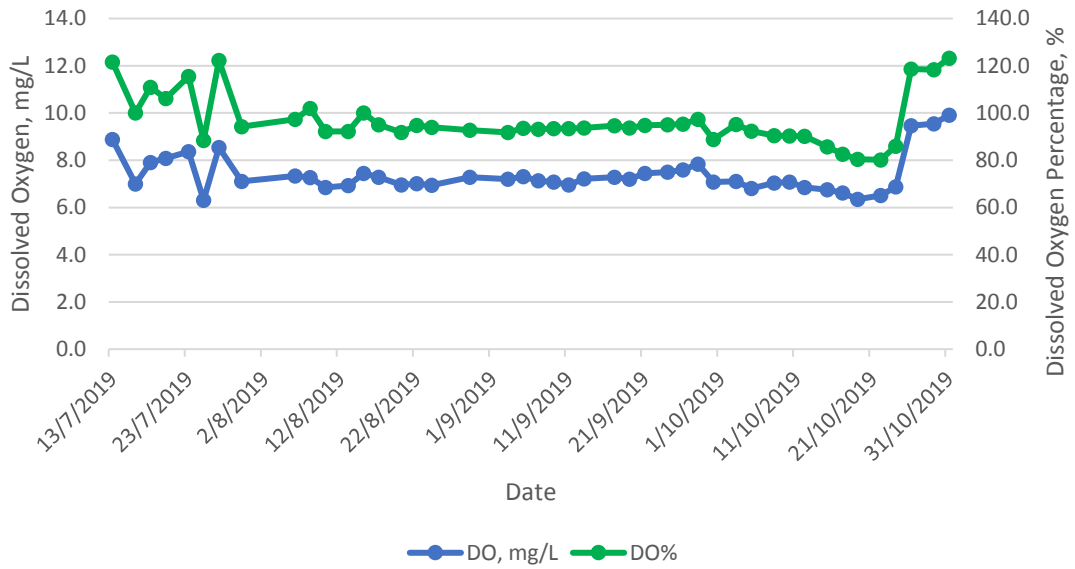


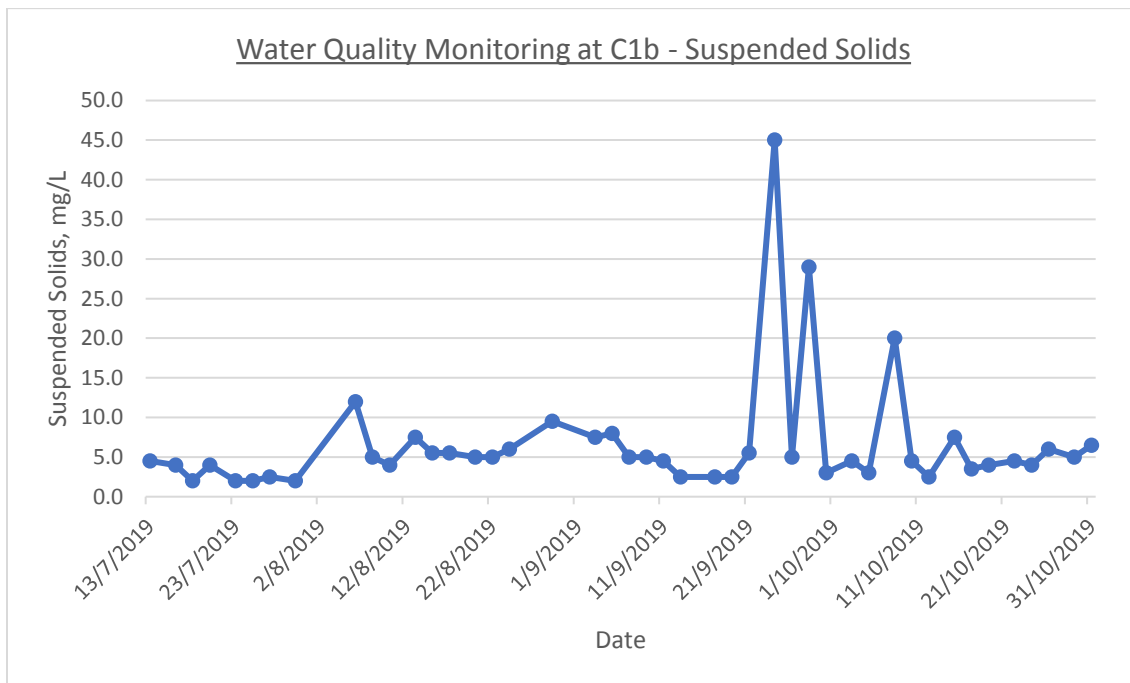
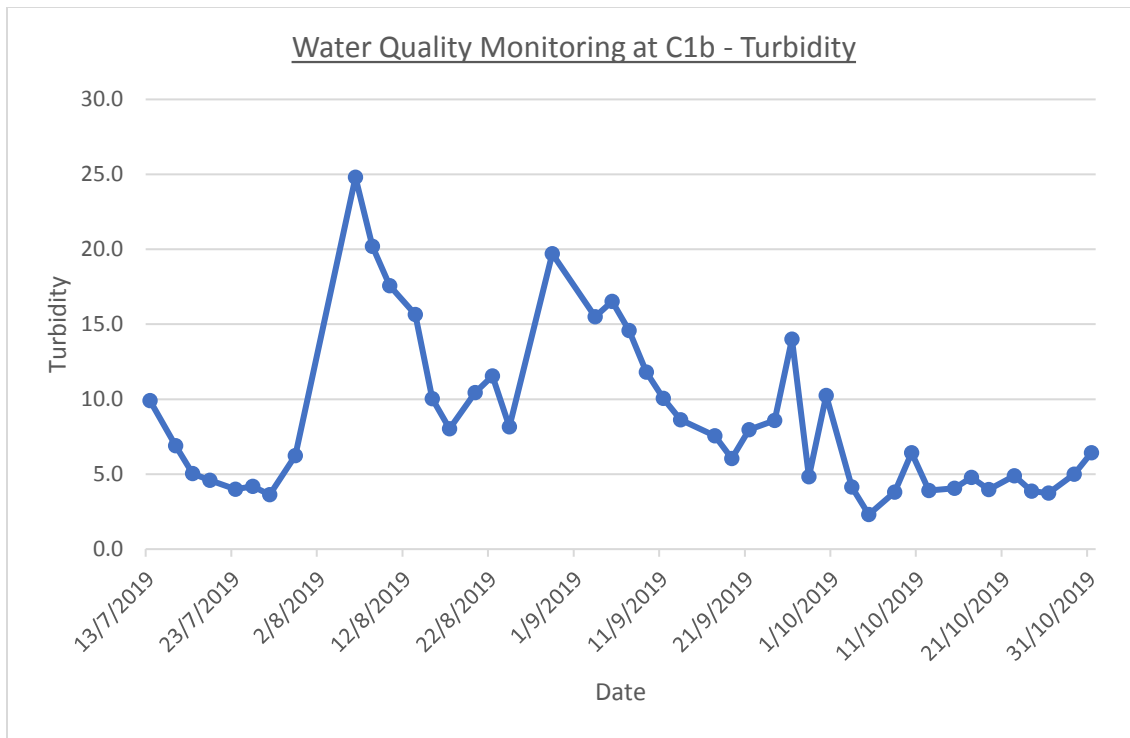
Location	Sample ID	Date	Time	DO (mg/L)	DO%	pH	Temp (°C)	Turbidity (NTU)	SS (mg/L)
D1b	D1b	3/10/2019	11:46	7.4	99.5	7.4	31.0	2.6	4
	D1b#	3/10/2019	11:47	7.4	99.8	7.4	31.0	2.8	3
	D1b	5/10/2019	10:56	7.0	94.7	6.9	31.5	2.9	17
	D1b#	5/10/2019	10:56	7.0	94.8	6.9	31.5	2.5	16
	D1b	8/10/2019	17:04	7.5	96.0	6.7	28.3	1.8	5
	D1b#	8/10/2019	17:05	7.5	96.2	6.8	28.3	1.9	4
	D1b	10/10/2019	15:34	7.6	97.6	7.4	28.3	2.0	2
	D1b#	10/10/2019	15:34	7.6	97.8	7.3	28.3	2.2	2
	D1b	12/10/2019	11:05	7.6	97.9	6.7	28.6	1.6	<2
	D1b#	12/10/2019	11:05	7.6	98.2	6.7	28.7	2.0	<2
	D1b	15/10/2019	12:33	7.2	93.1	7.2	28.6	1.5	2
	D1b#	15/10/2019	12:24	7.2	92.8	7.1	28.6	1.5	2
	D1b	17/10/2019	11:56	7.1	88.6	7.2	26.7	2.8	3
	D1b#	17/10/2019	11:57	7.1	88.5	7.2	26.7	2.5	2
	D1b	19/10/2019	11:11	6.8	85.6	7.0	27.4	1.3	2
	D1b#	19/10/2019	11:12	6.7	85.0	7.0	27.4	1.3	2
	D1b	22/10/2019	12:55	7.1	88.8	6.7	27.2	1.8	<2
	D1b#	22/10/2019	12:57	6.9	86.2	6.8	27.1	1.7	<2
	D1b	24/10/2019	15:19	6.4	80.0	6.6	27.2	1.2	<2
	D1b#	24/10/2019	15:20	6.4	79.9	6.6	26.9	1.2	<2
	D1b	26/10/2019	15:19	7.3	90.9	6.9	26.8	2.5	<2
	D1b#	26/10/2019	15:21	6.1	75.8	6.9	26.8	2.4	<2
	D1b	29/10/2019	11:07	7.6	95.3	7.7	26.8	2.7	2
	D1b#	29/10/2019	11:08	7.0	88.0	7.6	26.9	2.6	2
D1b	31/10/2019	14:41	8.5	107.2	7.9	27.1	6.9	3	
D1b#	31/10/2019	14:42	6.7	83.8	7.6	27.2	2.3	3	

Water Quality Monitoring at C1b - Water Temperature

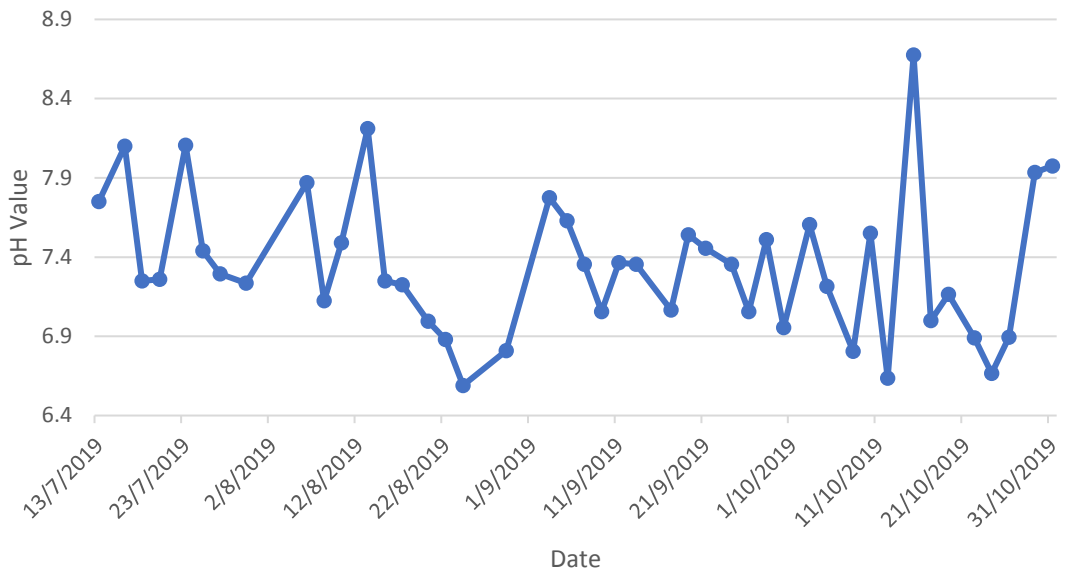


Water Quality Monitoring at C1b - Dissolved Oxygen

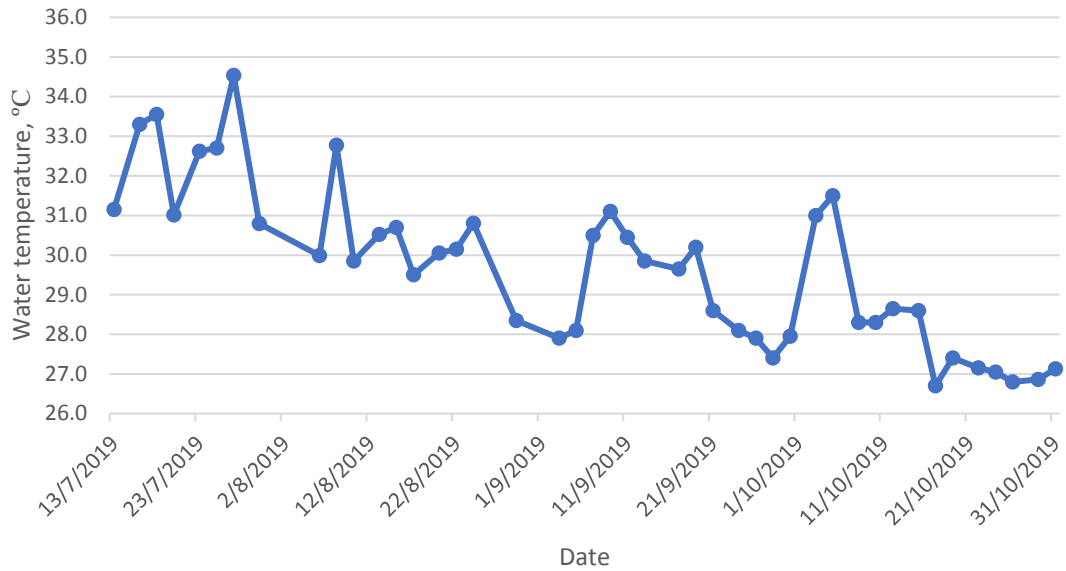




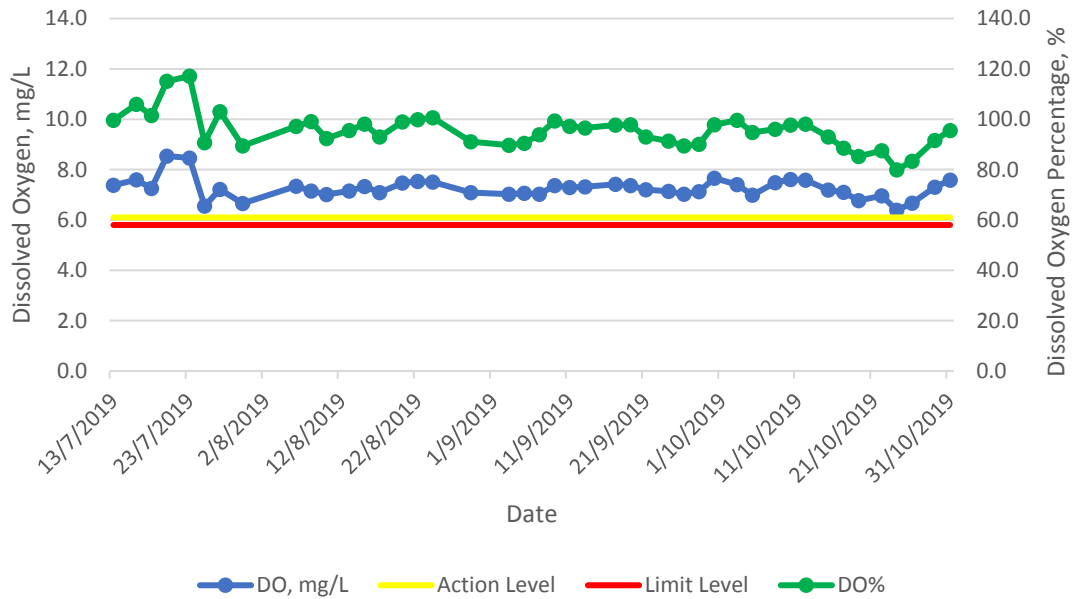
Water Quality Monitoring at C1b - pH Value

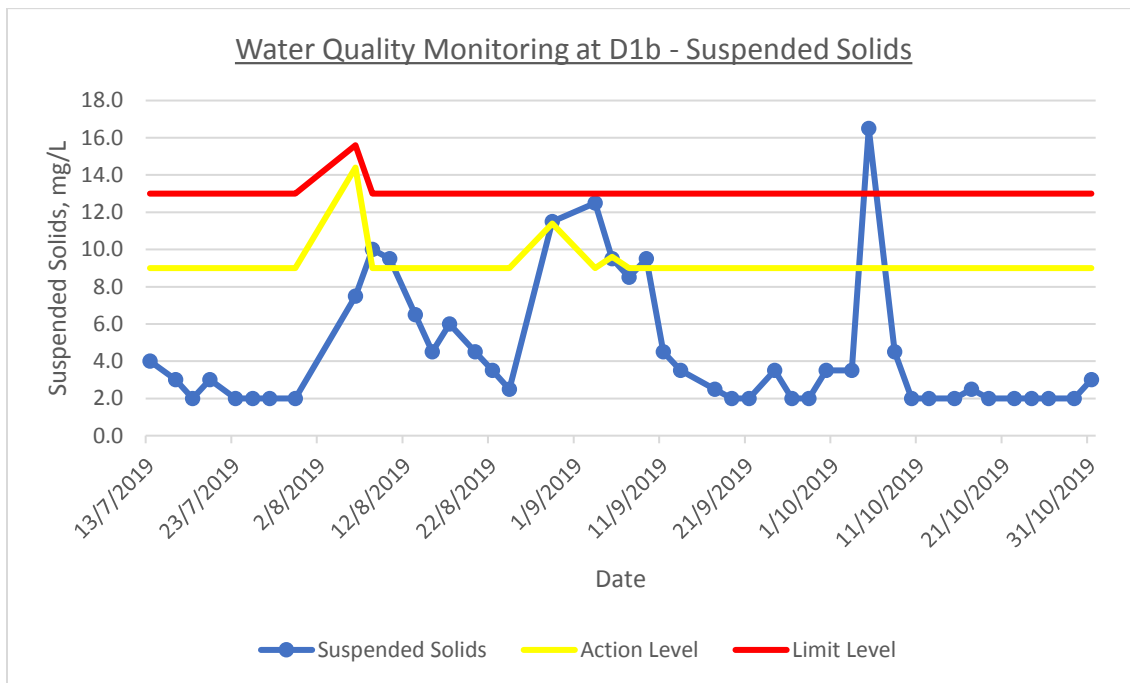
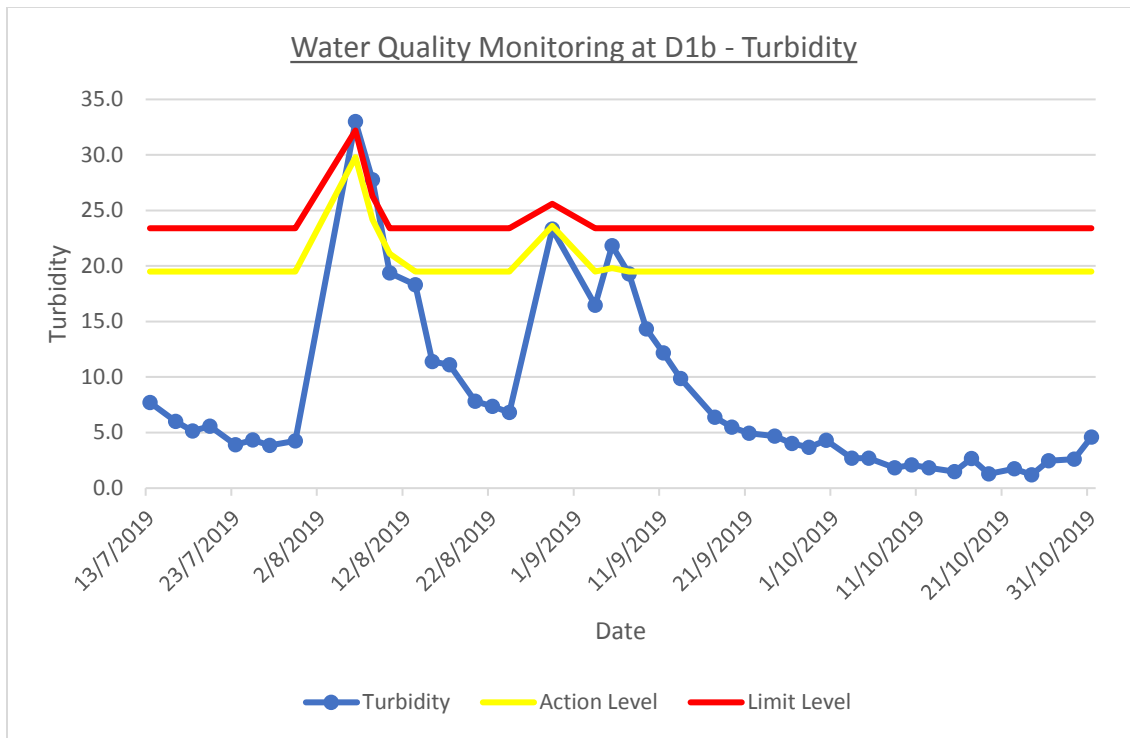


Water Quality Monitoring at D1b - Water Temperature

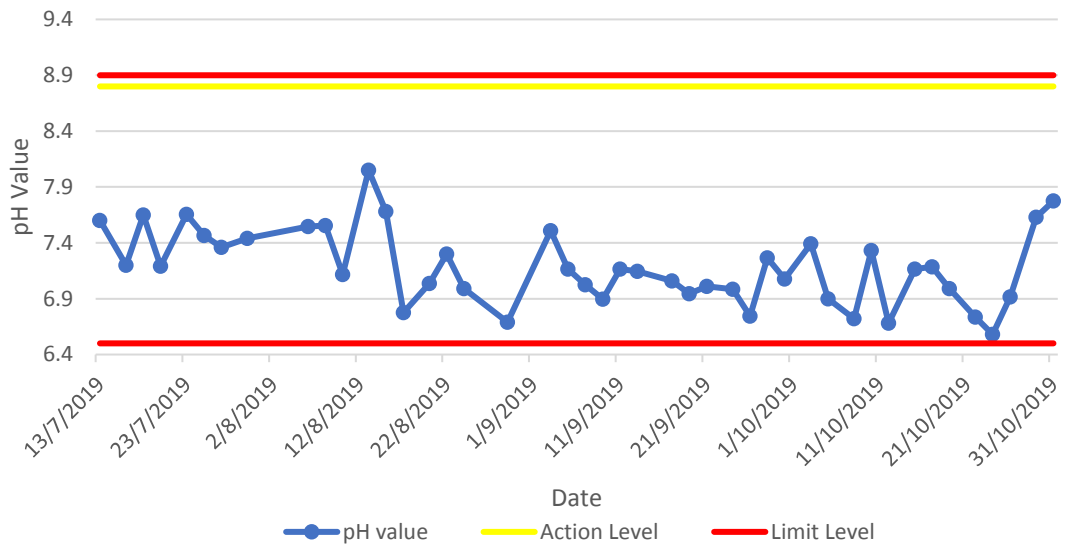


Water Quality Monitoring at D1b - Dissolved Oxygen





### Water Quality Monitoring at D1b - pH Value

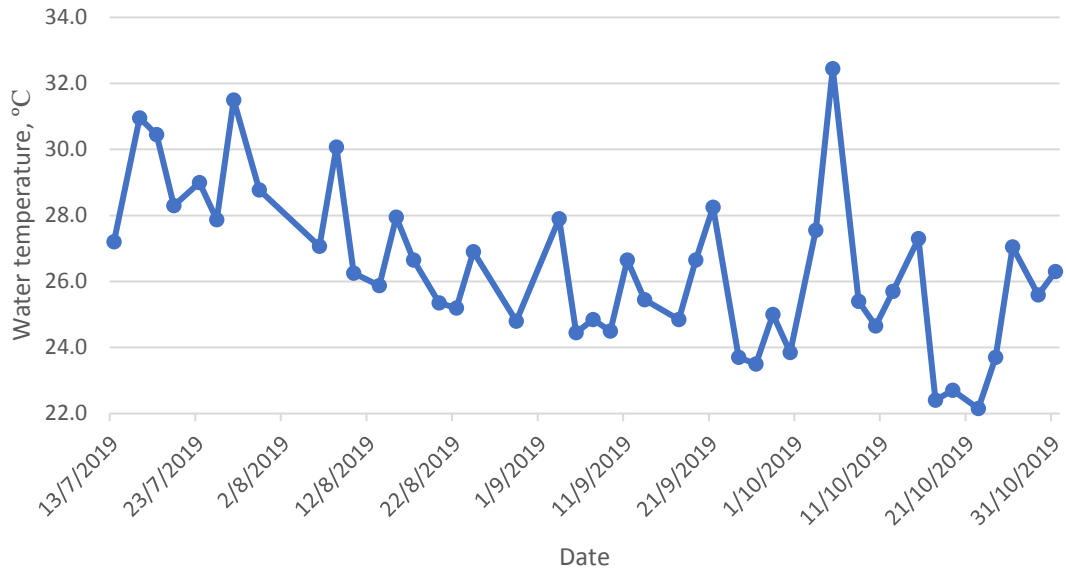


Location	Sample ID	Date	Time	DO (mg/L)	DO%	pH	Temp (°C)	Turbidity (NTU)	SS (mg/L)
C2	C2	3/10/2019	9:57	7.6	96.8	8.6	27.5	3.4	2
	C2#	3/10/2019	9:58	7.6	96.8	8.4	27.6	3.2	2
	C2	5/10/2019	9:44	7.0	97.3	8.2	33.2	1.5	3
	C2#	5/10/2019	9:44	7.0	94.7	7.0	31.7	1.5	3
	C2	8/10/2019	16:36	7.7	93.6	7.0	25.3	4.9	5
	C2#	8/10/2019	16:37	7.7	93.9	6.9	25.5	5.0	5
	C2	10/10/2019	15:00	7.5	90.0	7.8	24.7	4.6	3
	C2#	10/10/2019	15:01	7.5	90.0	7.7	24.6	4.3	4
	C2	12/10/2019	10:09	7.6	92.8	7.5	25.6	7.4	3
	C2#	12/10/2019	10:10	7.6	93.1	7.4	25.8	6.6	4
	C2	15/10/2019	11:34	7.4	93.8	7.9	27.3	2.7	3
	C2#	15/10/2019	11:35	7.4	93.6	7.8	27.3	2.7	3
	C2	17/10/2019	10:37	8.1	92.7	8.5	22.4	5.3	5
	C2#	17/10/2019	10:38	8.1	92.7	8.3	22.4	4.4	18
	C2	19/10/2019	10:12	7.8	90.8	7.1	22.8	5.2	27
	C2#	19/10/2019	10:13	7.7	89.5	7.1	22.6	6.1	8
	C2	22/10/2019	12:04	8.1	92.5	7.1	22.0	3.9	3
	C2#	22/10/2019	12:05	8.1	93.0	7.1	22.3	3.6	3
	C2	24/10/2019	14:48	7.9	92.7	7.3	23.5	4.6	6
	C2#	24/10/2019	14:49	7.8	92.7	7.2	23.9	5.6	4
	C2	26/10/2019	14:32	9.4	118.2	6.9	27.2	91.4	106
	C2#	26/10/2019	14:33	9.4	117.3	6.8	26.9	90.5	244
	C2	29/10/2019	9:58	8.3	102.4	7.8	26.1	10.4	8
	C2#	29/10/2019	9:59	8.9	107.2	8.1	25.1	10.1	53
C2	31/10/2019	13:46	7.8	96.6	7.7	26.6	8.6	8	
C2#	31/10/2019	13:47	7.9	96.6	7.7	26.0	8.7	6	

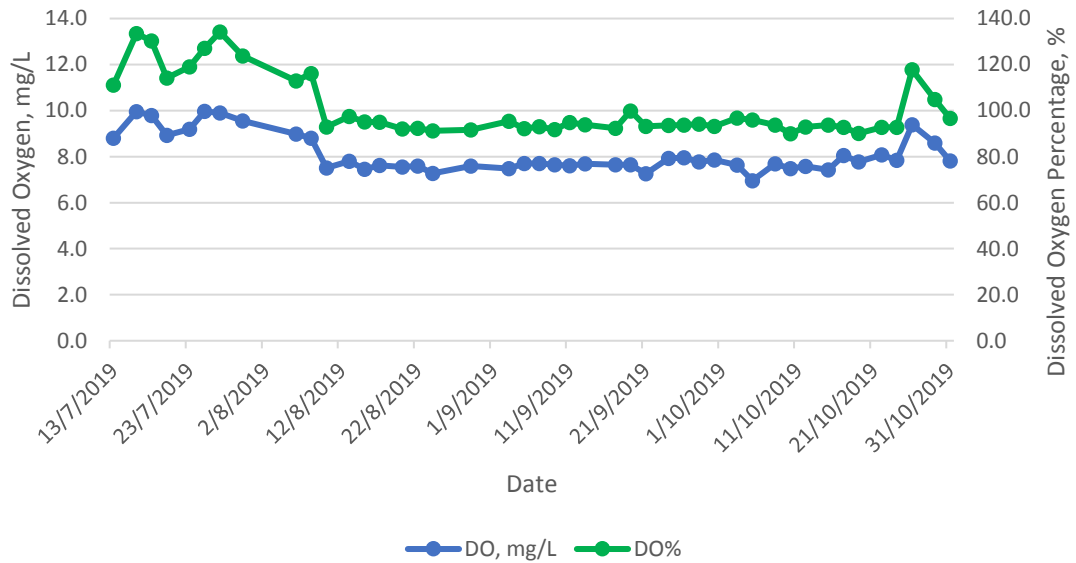


Location	Sample ID	Date	Time	DO (mg/L)	DO%	pH	Temp (°C)	Turbidity (NTU)	SS (mg/L)
D2a	D2a	3/10/2019	10:13	7.7	101.3	8.1	29.9	3.6	6
	D2a#	3/10/2019	10:14	7.7	102.0	8.0	29.9	3.1	6
	D2a	5/10/2019	9:58	7.1	95.6	7.1	31.2	2.1	2
	D2a#	5/10/2019	9:59	7.3	98.7	7.0	31.1	2.0	2
	D2a	8/10/2019	16:17	7.0	97.6	7.6	33.0	1.9	3
	D2a#	8/10/2019	16:17	7.0	97.6	7.5	32.9	2.0	3
	D2a	10/10/2019	14:50	8.2	103.5	9.0	27.7	2.5	2
	D2a#	10/10/2019	14:51	8.2	103.0	8.4	27.4	2.6	2
	D2a	12/10/2019	9:59	8.2	106.0	8.0	28.9	3.2	<2
	D2a#	12/10/2019	9:59	8.2	106.1	7.8	28.9	2.2	<2
	D2a	15/10/2019	11:48	7.6	95.7	7.7	27.5	1.4	5
	D2a#	15/10/2019	11:48	7.5	97.0	7.3	28.5	1.2	4
	D2a	17/10/2019	10:49	7.7	95.8	8.0	26.5	3.8	3
	D2a#	17/10/2019	10:49	7.7	95.8	7.9	26.6	4.6	4
	D2a	19/10/2019	10:25	7.9	99.2	7.3	26.8	5.6	3
	D2a#	19/10/2019	10:26	8.0	99.7	7.2	26.9	4.1	2
	D2a	22/10/2019	12:17	7.6	96.1	7.0	27.2	1.3	3
	D2a#	22/10/2019	12:18	7.6	95.9	7.0	27.3	2.1	4
	D2a	24/10/2019	14:38	7.9	99.1	8.7	26.9	1.9	3
	D2a#	24/10/2019	14:39	7.9	98.7	8.2	27.0	1.9	3
	D2a	26/10/2019	14:46	9.8	123.1	6.9	26.9	12.8	5
	D2a#	26/10/2019	14:47	9.8	122.3	7.1	26.9	12.3	3
	D2a	29/10/2019	10:27	7.2	88.6	8.0	25.8	3.3	3
	D2a#	29/10/2019	10:28	6.7	83.2	8.1	26.3	3.6	4
D2a	3/10/2019	14:04	7.7	95.6	7.7	26.5	3.4	3	
D2a#	3/10/2019	14:05	7.1	89.4	7.6	27.3	3.4	3	

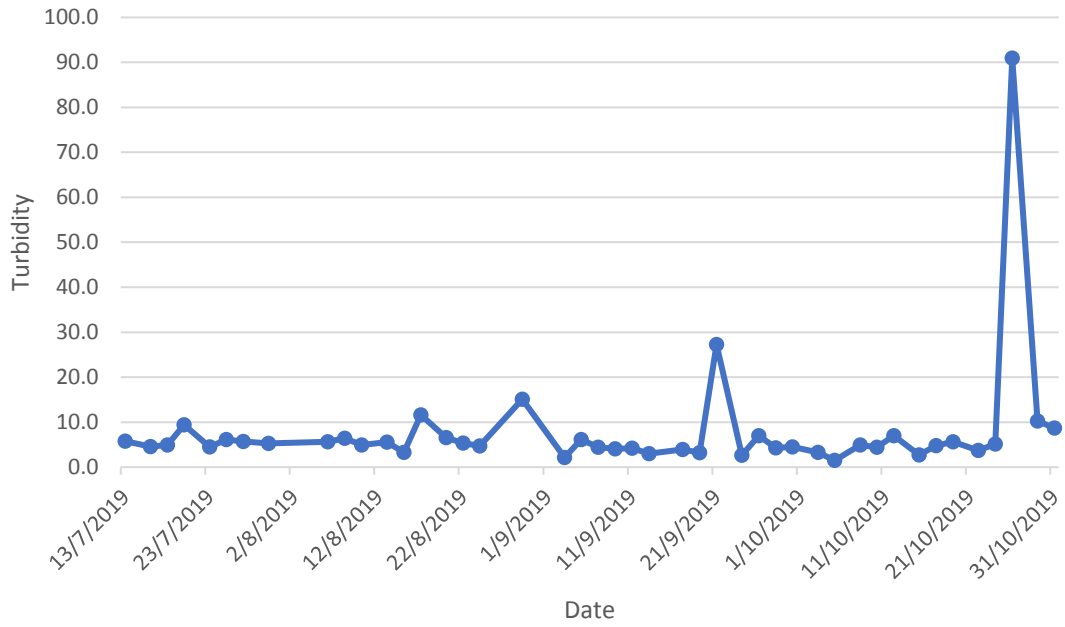
Water Quality Monitoring at C2 - Water Temperature



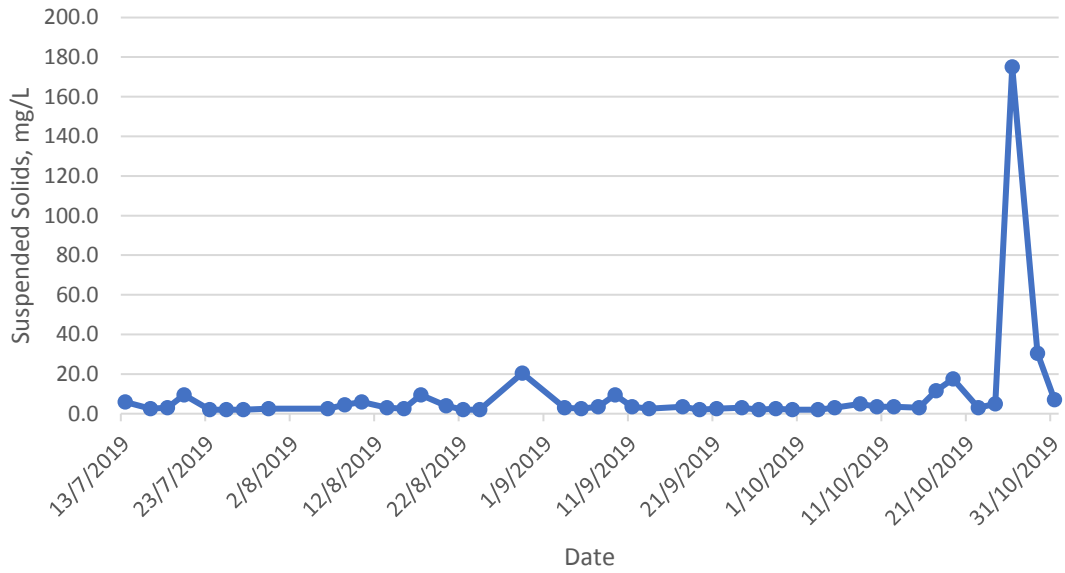
Water Quality Monitoring at C2 - Dissolved Oxygen



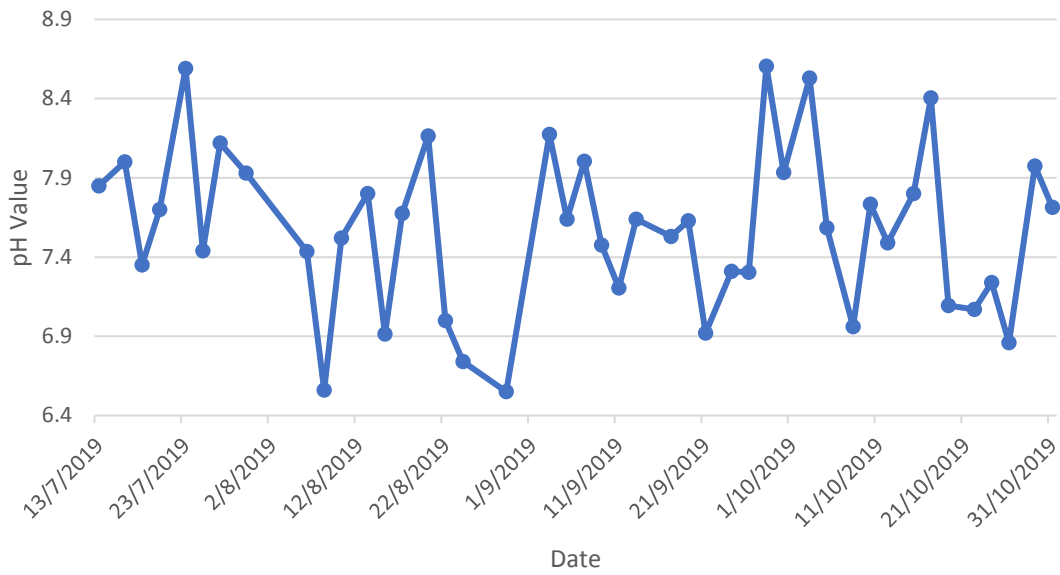
### Water Quality Monitoring at C2 - Turbidity



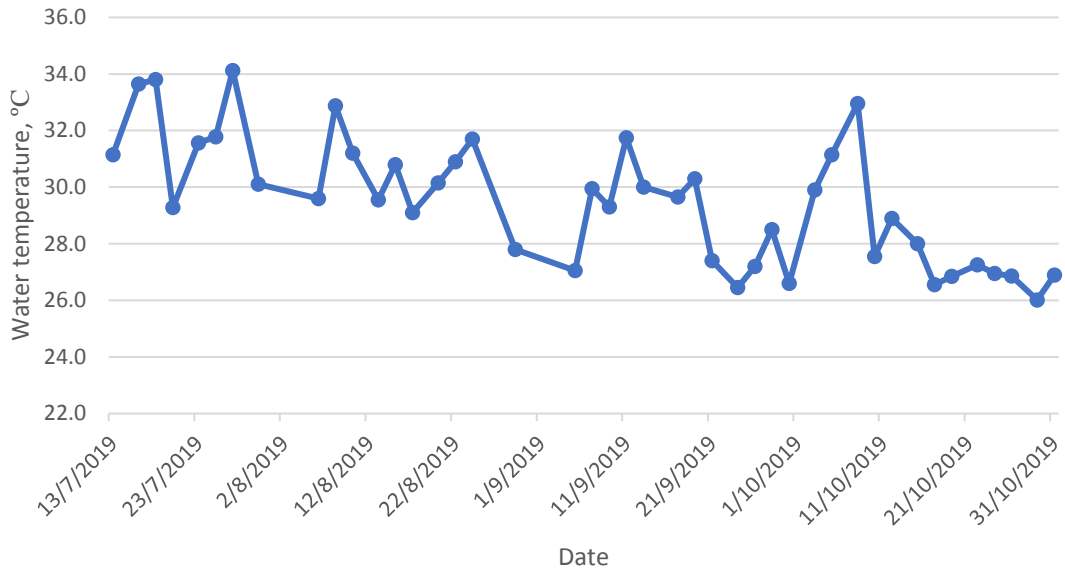
### Water Quality Monitoring at C2 - Suspended Solids



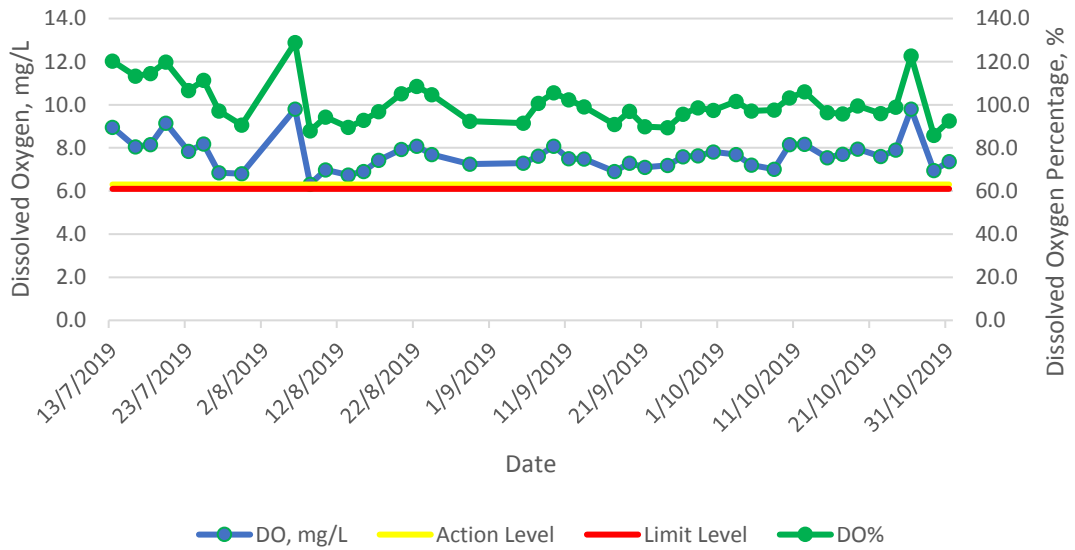
Water Quality Monitoring at C2 - pH Value

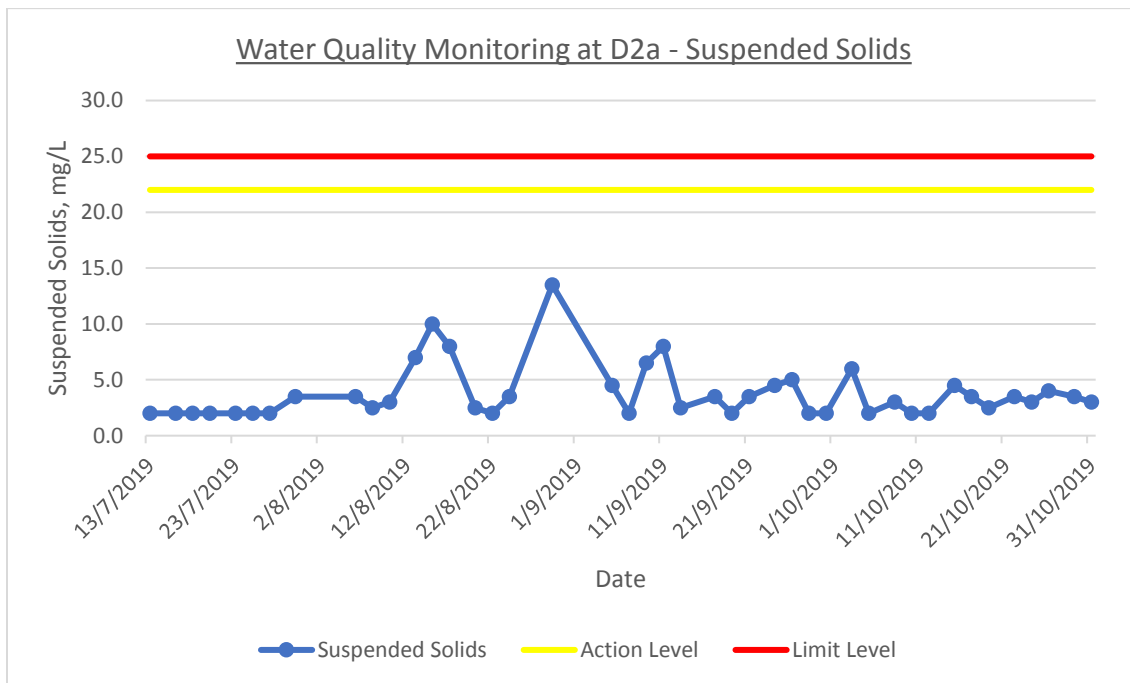
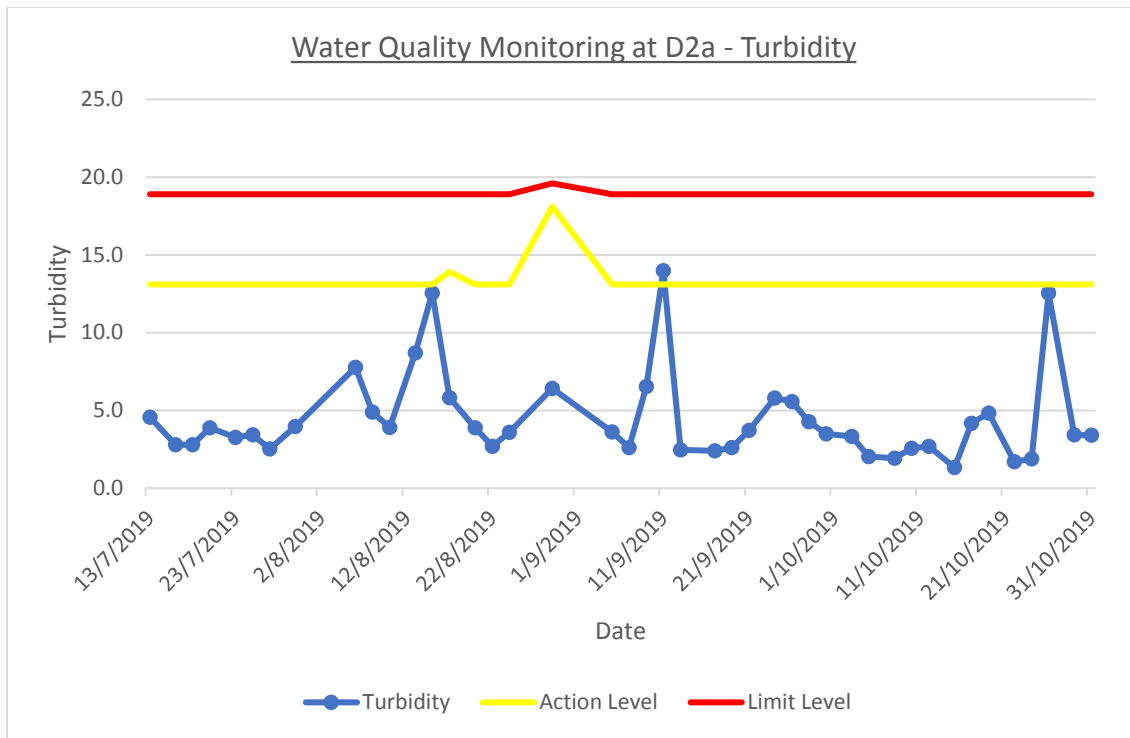


Water Quality Monitoring at D2a - Water Temperature

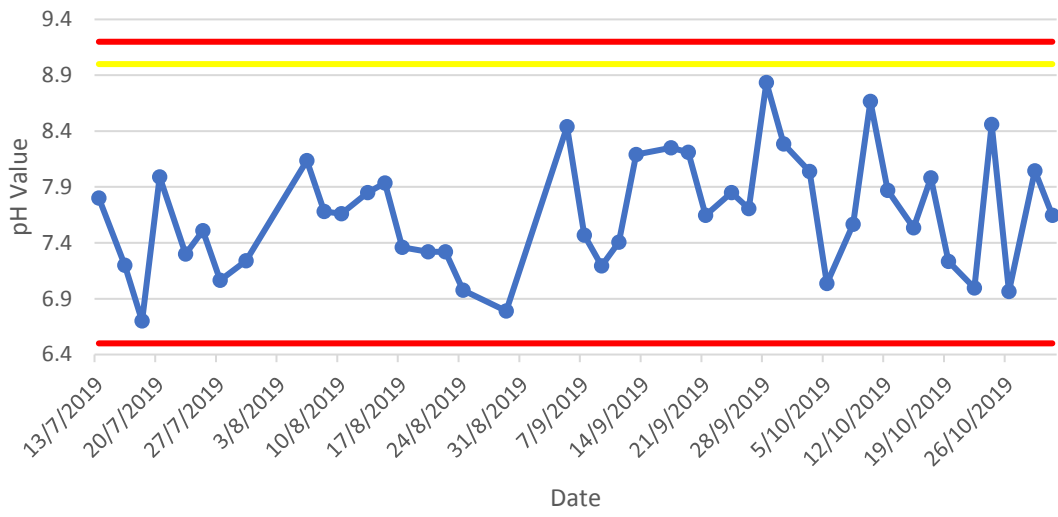


Water Quality Monitoring at D2a - Dissolved Oxygen





### Water Quality Monitoring at D2a - pH Value



● pH value    — Action Level    — Limit Level

Appendix G  
Supplementary Meteorological Data



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## The Weather of October 2019

4 November 2019

[\[Mobile Version\]](#)



Owing to the stronger than normal upper-air anticyclone over southern China, October 2019 was exceptionally hot and sunny in Hong Kong. The monthly mean maximum temperature of 29.5 degrees, 1.7 degrees above the normal figure of 27.8 degrees, was the highest on record for October. The monthly mean temperature was 26.6 degrees, 1.1 degrees above the normal figure of 25.5 degrees and the second highest on record for October. The month was marked by sunny weather with the monthly total sunshine duration amounting to 230.7 hours, about 19 percent above the normal of 193.9 hours. With two heavy rain episodes respectively on 6 – 7 October and 13 – 14 October, the month was also wetter than normal with a monthly rainfall of 149.5 millimetres, about 48 percent above the normal of 100.9 millimetres. The accumulated rainfall this year up to October was 2382.7 millimetres, about 2 percent higher than the normal figure of 2334.0 millimetres for the same period.

Affected by an anticyclone aloft southern China, it was generally fine and hot on 1 – 5 October in Hong Kong. With plenty of sunshine, the maximum temperature at the Observatory soared to 33.2 degrees on 1 October, the highest of the month. Moreover, the daily mean temperature of 30.3 degrees on that day was the highest on record for October.

Under the influence of a strong easterly airstream and an upper-air disturbance, local weather became mainly cloudy with occasional heavy showers and squally thunderstorms on 6 – 7 October. More than 30 millimetres of rainfall were recorded over many places on 6 October, rainfall even exceeded 50 millimetres over Sai Kung and southern part of Hong Kong Island. With the anticyclone aloft strengthening again over southern China, apart from isolated showers, local weather was generally fine on 8 – 11 October. There were isolated thunderstorms on the afternoon of 12 October due to the weakening of the anticyclone aloft. About 20 millimetres of rainfall were recorded over Kowloon and the western part of Hong Kong Island on that day.

A cold front moved across the coast of Guangdong on the morning of 13 October and the associated northeast monsoon brought slightly cooler weather to the region. Locally, the weather became unsettled with occasional heavy showers and squally thunderstorms on 13 – 14 October. More than 30 millimetres of rainfall were recorded over many places on these two days, rainfall even exceeded 70 millimetres over parts of New Territories East and Hong Kong Island.

With the northeast monsoon strengthening gradually, apart from a few showers in the morning, the weather became generally fine and windy on 15 October. Dominated by the dry northeast monsoon, the weather of Hong Kong was generally fine and dry during the

day on 16 – 27 October. A replenishment of the northeast monsoon reached the coastal areas of Guangdong later on 28 October. Locally, it was mainly cloudy with a few rain patches and relatively low visibility in some places. The strengthening of the northerlies also brought cooler weather to the territory that night. With the dry northeast monsoon prevailing over southern China, it was cooler and dry with sunny periods in Hong Kong for the rest of the month. The lowest temperature of the month, 20.3 degrees, was recorded on the morning of 29 October.

Five tropical cyclones occurred over the South China Sea and the western North Pacific in the month.

Details of issuance and cancellation of various warnings/signals in the month are summarized in Tables 1.1 to 1.5. Monthly meteorological figures and departures from normal for October are tabulated in Table 2.

## Warnings and Signals issued in October 2019

**Table 1.1 Strong Monsoon Signal**

Beginning Time		Ending Time	
Day/Month	HKT	Day/Month	HKT
6 / 10	1400	7 / 10	1415
15 / 10	0410	16 / 10	1140

**Table 1.2 Rainstorm Warning Signals**

Colour	Beginning Time		Ending Time	
	Day/Month	HKT	Day/Month	HKT
Amber	6 / 10	2300	7 / 10	0030
Amber	14 / 10	0315	14 / 10	1000

**Table 1.3 Thunderstorm Warning**

Beginning Time		Ending Time	
Day/Month	HKT	Day/Month	HKT
6 / 10	0020	6 / 10	0430
6 / 10	1330	6 / 10	1700
6 / 10	2015	7 / 10	0120
7 / 10	0235	7 / 10	0930
12 / 10	1255	12 / 10	1715
13 / 10	0225	13 / 10	0730
13 / 10	1800	14 / 10	1130

**Table 1.4 Fire Danger Warnings**

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Colour	Beginning Time		Ending Time	
	Day/Month	HKT	Day/Month	HKT
Yellow	1 / 10	0600	1 / 10	2045
Yellow	5 / 10	0730	5 / 10	1900
Yellow	19 / 10	0745	19 / 10	1930
Yellow	20 / 10	1000	20 / 10	1845
Yellow	26 / 10	0600	26 / 10	1800
Yellow	27 / 10	0600	27 / 10	1800
Red	29 / 10	0600	29 / 10	1900

**Table 1.5 Very Hot Weather Warning**

Beginning Time		Ending Time	
Day/Month	HKT	Day/Month	HKT
1 / 10	0645	1 / 10	1830

**Table 2 Figures and Departures from Normal - October 2019**

Meteorological Element	Figure of the Month	Departure from Normal*
Mean Daily Maximum Air Temperature	29.5 degrees C	1.7 degrees above normal
Mean Air Temperature	26.6 degrees C	1.1 degrees above normal
Mean Daily Minimum Air Temperature	24.6 degrees C	0.9 degree above normal
Mean Dew Point Temperature	21.2 degrees C	1.0 degree above normal
Mean Relative Humidity	73 %	normal
Mean Cloud Amount	49 %	9 % below normal
Total Rainfall	149.5 mm	48.6 mm above normal
Number of hours of Reduced Visibility $\Delta$	26 hours	99.4 hours below normal $\S$
Total Bright Sunshine Duration	230.7 hours	36.8 hours above normal
Mean Daily Global Solar Radiation	16.51 Megajoule / square metre	2.46 Megajoule above normal
Total Evaporation	113.0 mm	10.9 mm below normal

Remarks : All measurements were made at the Hong Kong Observatory except

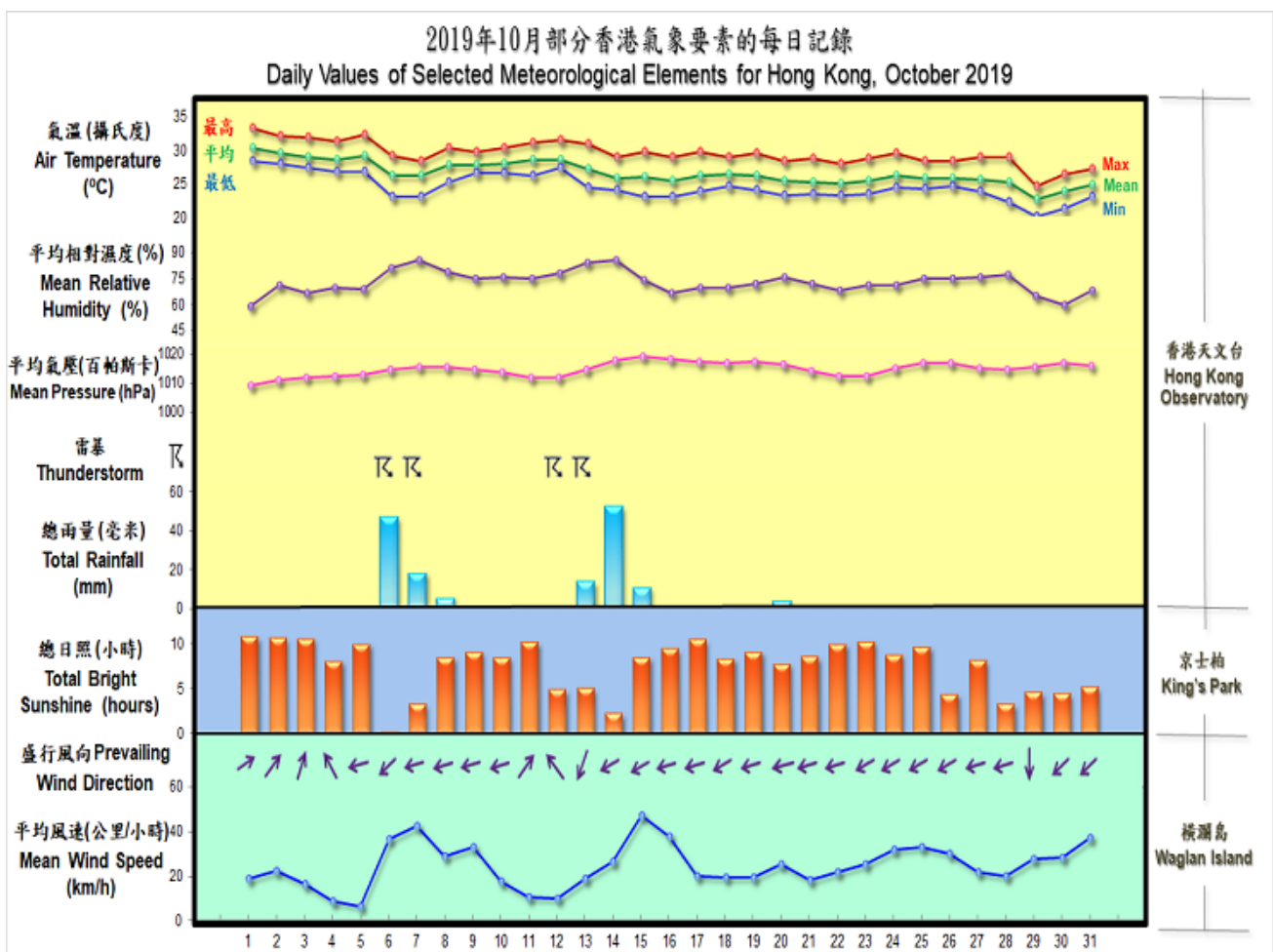
sunshine, solar radiation and evaporation which were recorded at King's Park Meteorological Station and visibility which was observed at the Hong Kong International Airport.

△ 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.

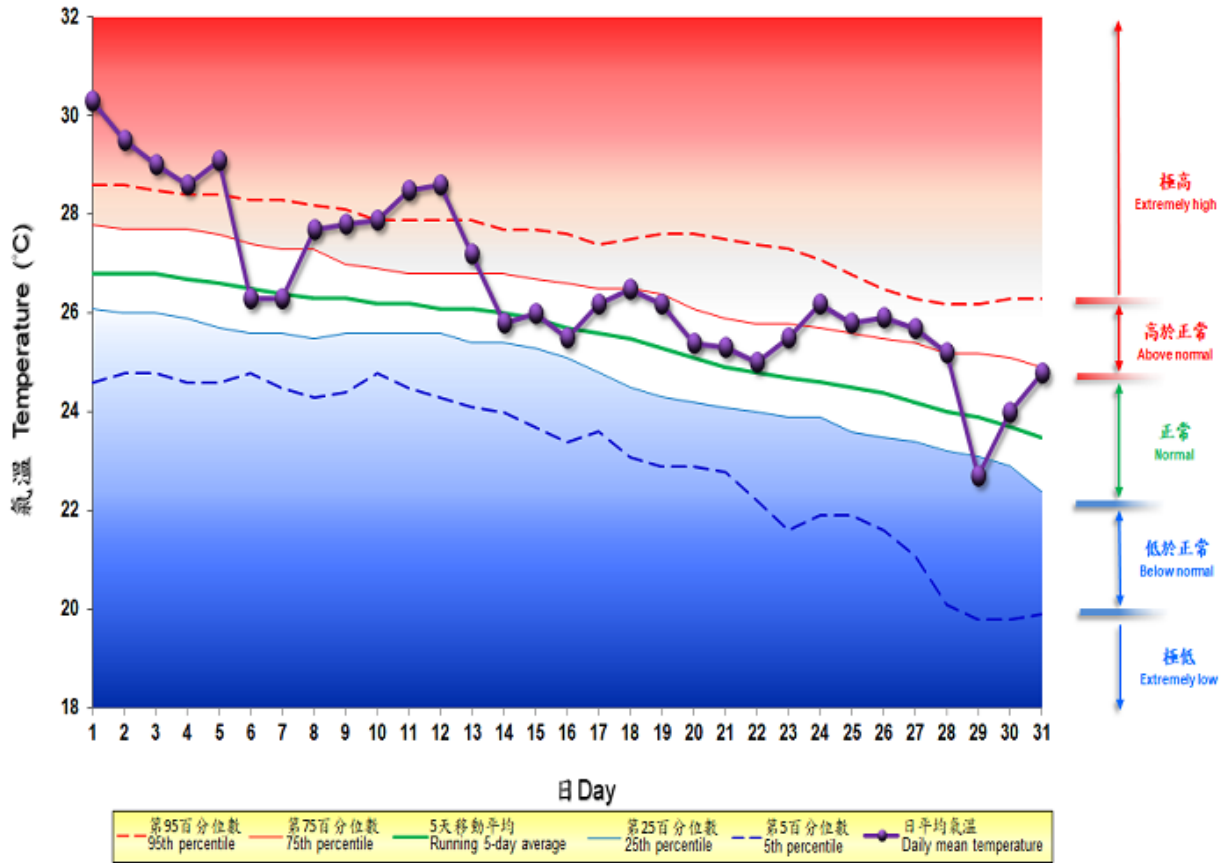
Before 10 October 2007, the number of hours of reduced visibility at the Hong Kong International Airport in 2005 and thereafter displayed in this web page was based on hourly visibility observations by professional meteorological observers. Since 10 October 2007, the data have been revised using the 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.

\* Departure from 1981 - 2010 climatological normal, except for number of hours of reduced visibility

§ Departure from mean value between 1997 and 2018



2019年10月香港天文台錄得的日平均氣溫  
Daily Mean Temperature recorded at the Hong Kong Observatory for October 2019



Remarks :  
 Extremely high: above 95th percentile  
 Above normal: between 75th and 95th percentile  
 Normal: between 25th and 75th percentile  
 Below normal: between 5th and 25th percentile  
 Extremely low: below 5th percentile  
 Percentile and 5-day running average values are computed based on the data from 1981 to 2010

[Extract of Meteorological Observations in Hong Kong for October 2019](#)

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



Contract No.: DC/2018/08

Contract Title: Inter-Reservoirs Transfer Scheme – Water Tunnel between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir

### Monthly Summary Waste Flow Table for 2019 (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	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 '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Jan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Feb	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mar	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Apr	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
May	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120
June	0.1876	0.0000	0.0000	0.0000	0.1650	0.0000	0.0000	0.0000	0.0000	0.0226
Sub-total	0.1996	0.0000	0.0000	0.0000	0.1650	0.0000	0.0000	0.0000	0.0000	0.0346
July	0.0175	0.0000	0.0000	0.0000	0.0149	0.0000	0.0000	0.0000	0.0000	0.0026
Aug	0.0102	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0102
Sept	0.0056	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0056
Oct	0.1932	0.0000	0.0000	0.0000	0.1890	0.0000	0.0000	0.0000	0.0000	0.0042
Nov										
Dec										
Total	0.4261	0.0000	0.0000	0.0000	0.3689	0.0000	0.0000	0.0000	0.0000	0.0572

- Notes:
- (1) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.
  - (2) Broken concrete for recycling into aggregates.
  - (3) Plastic refer to plastic bottles/ containers, plastic sheets/ foam from packaging material.
  - (4) C&D materials include metals, paper/ cardboard packaging waste, chemical waste and other wastes such as general refuse.

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

**November 2019**


Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1	2 Impact Water Quality Monitoring
3	4	5 Impact Water Quality Monitoring	6 Weekly Site Inspection	7 Impact Water Quality & Noise Monitoring	8	9 Impact Water Quality Monitoring
10	11	12 Impact Water Quality Monitoring	13 Weekly Site Inspection	14 Impact Water Quality & Noise Monitoring	15	16 Impact Water Quality Monitoring
17	18	19 Impact Water Quality Monitoring	20 Weekly Site Inspection	21 Impact Water Quality & Noise Monitoring	22	23 Impact Water Quality Monitoring
24	25	26 Impact Water Quality Monitoring	27 Weekly Site Inspection	28 Impact Water Quality & Noise Monitoring	29	30 Impact Water Quality Monitoring

 = General Holiday

## Appendix L

# Investigation Report on Exceedance

**Inter-reservoirs Transfer Scheme –  
Water Tunnel between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir  
Notification of Action/Limit Level Exceedance**

<b>Our Ref.</b>	NOE007
<b>Monitoring Date</b>	5 October 2019
<b>Time</b>	10:56
<b>Environmental Aspect</b>	Water Quality
<b>Monitoring Location</b>	D1b
<b>Parameter</b>	Suspended Solids
<b>Control Level</b>	3.0 mg/L
<b>Action Level</b>	9.0 mg/L
<b>Limit Level</b>	13.0 mg/L
<b>Measured Level</b>	16.5 mg/L
<b>Exceedance</b>	Limit Level
<b>Site Observation</b>	<p>Only hoarding erection works and site clearance was commenced in Kowloon Byewash Reservoir (KBR). No excavation and construction work were conducted at the KBR site.</p> <p>According to contractor, neither site preparation work nor construction work was carried out on 5 October 2019.</p> 
<b>Remark</b>	In view of the absence of possible water polluting works and polluted runoff generating work at the KBR site, the exceedance is deemed project unrelated.



## Acuity Sustainability Consulting Limited

Unit 1908, Nos. 301-305 Castle Peak Road, Kwai Chung, N.T.  
O: 2333-6823 | F: 2333-1316 | E: general@acuityhk.com | www.acuityhk.com

Prepared by: Nelson Tsui

Position: Senior Environmental Consultant

Signature: 

Date: 18 October 2019