

Our Ref : 382766/(DC/2018/08)/M45/110/(802759)

Your Ref :

15 December 2021

Distribution List

Dear Sirs,

**Contract No. DC/2018/08**  
**Inter-reservoirs Transfer Scheme –**  
**Water Tunnel between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir**  
**Monthly Environmental Monitoring and Audit (EM&A) Report**  
**(November 2021)**

I write to inform you that the monthly EM&A Reports for November 2021 have been certified by the ET leader and verified by the IEC in accordance with Condition 4.3 of the EP. The report will be submitted to EPD separately.

Please note that the following measures have been taken to enhance the EM&A programme:

- Review of water sampling methodology
- Enhancement of records of water monitoring and noise monitoring

Should you have any queries, please contact my Resident Engineer Mr. Irving Sze at 3959 7366.

Yours faithfully,



Wilson Lam  
Chief Resident Engineer

**Distribution List:**

SE/DP2, DSD

E/NTE (Headworks 1), WSD

- Attn: Mr. N.F. Wan, Antony

- Attn: Mr. Anthony Lau

WL/18/ee

Our ref: 15-12-2021

15-12-2021

By email: cre.wilsonlam@hkirts.com

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

Dear Mr. Lam,

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

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

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

**29th Monthly EM&A Report (Rev. 2)**

Reference is made to the submission of the 29th Monthly EM&A Report (Rev. 2) and provided to us via email dated on 14-12-2021 for our review and comment.

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

A verification process has been carried out to review the submission in connection with the Environmental Permit and EM&A Manual submitted by the ET. Please be informed that IEC has comments on the captioned submission. IEC would like to draw your attention on the exceedance of Limit Level for suspended solids at water monitoring location D2a on 29 November 2021.

- ET informed the exceedance IEC, contractor, ER and EPD on 8 December 2021. Because of the unreasonable time for SS recording, the contractor was failed to implement the requirement according to Item 4, Table B-2 of EM&A manual (i.e. discuss with ET, IEC and ER and propose mitigation measures to ER and IEC within 3 working days).
- Repeat suspended solids measurement was conducted on 30 November 2021. There are 15 exceedances of Action/Limit Level for suspended solids since the project commencement in July 2019. Surprisingly, this is the first time that ET conducted repeat measurement on next day of exceedance being recorded.
- Analysis of SS was not carried out with reference to the testing method and detection limit stated in Section 5.3.9 of EM&A Manual. Similarly, the use of laboratory analytical methods in the baseline condition and in the previous reporting periods have been asked for clarification. ET is reluctant to reveal at the time of writing.

- Testing methods and testing location were different from the SS testing reports in previous periods. Thus, an enquiry email has been sent to the laboratory for clarification (see enclosed). Unfortunately, no response was received at the time of writing.

Repeatedly, IEC would like to draw your attention on a long turnaround time (3-5 days) for the SS result. This long time lap may affect any immediate remedial measures if there is exceedance due to the construction works. Similar comments have been provided in the verification letters of 13th, 15th, 23rd, 24th and 28th Monthly EM&A Reports. This is the sixth gentle reminder for your kind consideration. The existing SS recording (> 3 days) will affect the contractor to implement the requirement according Item 4, Table B-2 of EM&A manual. IEC would like to clarify that IEC did not endorse the current procedure of investigating SS-induced exceedance.

Section 5.1.3 of EIA report stated "This Project involves the construction of a water tunnel linking the Kowloon Byewash Reservoir with the Lower Shing Mun Reservoir. Although the tunnel will be entirely underground, the portals construction on either ends will fall within the water gathering grounds of both reservoirs and hence water quality impact is a key issue." IEC would like to raise awareness of the contractor, ET, and ER to determine the action and limit levels for SS and turbidity. According to Table 5-3 of EM&A Manual, the action and limit levels for SS and turbidity were determined based on 95 and 99 percentiles of baseline data or the 120% and 130% of upstream control stations of the same day, respectively.

IEC revealed unreasonable records of temperature and wind speed in Noise Monitoring Field Record Sheet at NM1. Surprisingly, an unrecorded modification of field quality records was observed. (see enclosed) IEC has reservation on the record of traceability.


IEC hereby writes to verify the captioned submission in accordance with Condition 2.1 of the Environmental Permit No. EP-345/2009/A.

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

Encl. An email enquiry subjected as "Enquiry of SS Testing Reports" and two sets of Noise Monitoring Field Record Sheet at NM1



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## Enquiry of SS Testing Reports



To [htthui@acumenhk.com](mailto:htthui@acumenhk.com) on 2021-12-10 11:46

[Details](#)

Dear Mr. Fung,

Acuity Sustainability Consulting Limited is used to submitted water sample to carry out SS test at your laboratory for our review for a government project. Recently, I received your laboratory test reports with another address in Cheung Sha Wan instead of Tsing Yi. I noted from HOKLAS website that you have moved to new address at Cheung Sha Wan.

1. In the regards, I would like to ask the expiry date and effective date of your HOKLAS testing laboratory in Tsing Yi and Cheung Sha Wan, respectively. In the test reports, I observe test period and issue date are useful for our purpose. This is important as our project requires the testing laboratory should be HOKLAS accredited.

2. Since November 6, 2021, your SS test method change from "QPL-15e, APHA 22ed 2540 D" to "In-house method, QPL-15e". Can you kindly advise the reason for the change?

3. Can you kindly advise the method named QPL-15e? Is it an international standard method?

Thanks for your kind response in advance.

Regards,  
Douglas WONG

Noise Monitoring Field Record Sheet

Monitoring Location		NM 1					
Description of Location		湖景花園					
Date of Monitoring		4/11/2021					
Noise Meter Model/Identification		Pulsar 43 (1768)					
Calibrator Model/Identification		Pulsar 105 (63705)					
Measurement Start Time (hh:mm)		1140	2100	2105	2110		
Measurement Time Length (min.)		30	5	5	5		
Measurement Results	L <sub>90</sub> (dB(A))	50.2	45.2	43.1	42.2		
	L <sub>10</sub> (dB(A))	58.1	53.4	49.2	49.9		
	L <sub>EQ</sub> (dB(A))	55.2	49.3	45.3	46.2		
Major Construction Noise Source(s) During Monitoring		/					
Other Noise Source(s) During Monitoring		/					
Remarks		speed 0.2/26°C					

Recorded By: Name & Designation  
Andy Li

Signature  
Andy

Date  
4/11/2021

Checked By: Kelvin Lau

for

5-11-21

Noise Monitoring Field Record Sheet

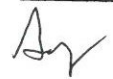

Monitoring Location		VM 1					
Description of Location		湖岸花園					
Date of Monitoring		10/11/2021					
Noise Meter Model/Identification		Pulsar 43 (1765)					
Calibrator Model/Identification		Paul Swan 105 (63705)					
Measurement Start Time (hh:mm)		0800	2030	2035	2040		
Measurement Time Length (min.)		30	5	5	5		
Measurement Results	L <sub>90</sub> (dB(A))	52.1	42.1	43.1	41.9		
	L <sub>10</sub> (dB(A))	59.1	49.3	48.2	49.9		
	L <sub>EQ</sub> (dB(A))	55.2	46.1	45.1	46.5		
Major Construction Noise Source(s) During Monitoring		/					
Other Noise Source(s) During Monitoring		/					
Remarks		Speed 0.3 / 14°C					

Recorded By: Name & Designation Andy Li Signature  Date 10/11/2021

Checked By: Kelvin Lau Signature  11-11-21



Noise Monitoring Field Record Sheet

Monitoring Location		MM1					
Description of Location		沙田花園					
Date of Monitoring		17/11/2021					
Noise Meter Model/Identification		Pulser 43 (1768)					
Calibrator Model/Identification		Pulser 105 (63705)					
Measurement Start Time (hh:mm)		1130	2002	2007	2042		
Measurement Time Length (min.)		30	5	5	5		
Measurement Results	L <sub>90</sub> (dB(A))	52.1	43.1	42.2	43.6		
	L <sub>10</sub> (dB(A))	59.4	49.3	48.2	50.6		
	L <sub>EQ</sub> (dB(A))	55.6	45.2	44.6	46.1		
Major Construction Noise Source(s) During Monitoring		/					
Other Noise Source(s) During Monitoring		/					
Remarks		Speed 60 / 20°C					

	<u>Name &amp; Designation</u>	<u>Signature</u>	<u>Date</u>
Recorded By:	Andy Li		17/11/2021
Checked By:	Kelvin Lau		18-11-21

Noise Monitoring Field Record Sheet



Monitoring Location		N141					
Description of Location		沙田學校 (區)					
Date of Monitoring		25/11/2011					
Noise Meter Model/Identification		Pulsar 43 (1765)					
Calibrator Model/Identification		Pulsar 105 (63705)					
Measurement Start Time (hh:mm)		1030	1930	1935	1940		
Measurement Time Length (min.)		30	5	5	5		
Measurement Results	L <sub>90</sub> (dB(A))	52.1	43.1	42.1	42.4		
	L <sub>10</sub> (dB(A))	57.2	49.6	49.2	52.6		
	L <sub>EQ</sub> (dB(A))	55.1	46.1	45.5	46.9		
Major Construction Noise Source(s) During Monitoring		/					
Other Noise Source(s) During Monitoring		/					
Remarks		Speed 1.0 16°C					

	<u>Name &amp; Designation</u>	<u>Signature</u>	<u>Date</u>
Recorded By:	Andy Li		25/11/2011
Checked By:	Kelvin Lau		26/11/11





Noise Monitoring Field Record Sheet

Monitoring Location		NM 1					
Description of Location		湖景花園					
Date of Monitoring		4/11/2021					
Noise Meter Model/Identification		Pulsar 43 (1768)					
Calibrator Model/Identification		Pulsar 105 (63705)					
Measurement Start Time (hh:mm)		1140	2100	2105	2110		
Measurement Time Length (min.)		30	5	5	5		
Measurement Results	L <sub>90</sub> (dB(A))	50.2	45.2	43.1	42.2		
	L <sub>10</sub> (dB(A))	58.1	53.4	49.2	49.9		
	L <sub>EQ</sub> (dB(A))	55.2	49.3	45.3	46.2		
Major Construction Noise Source(s) During Monitoring		/					
Other Noise Source(s) During Monitoring		/					
Remarks		Day Speed 0.2/26°C evening Speed 0.2/23°C					

Recorded By:	Name & Designation	Signature	Date
	Andy Li		4/11/2021
Checked By:	Name & Designation	Signature	Date
	Kelvin Lau		5-11-21

Noise Monitoring Field Record Sheet

Monitoring Location		NM 1					
Description of Location		湖景花園					
Date of Monitoring		10/11/2021					
Noise Meter Model/Identification		Pulsar 43 (1768)					
Calibrator Model/Identification		Paul Swan 105 (63705)					
Measurement Start Time (hh:mm)		0800	2030	2035	2040		
Measurement Time Length (min.)		30	5	5	5		
Measurement Results	L <sub>90</sub> (dB(A))	52.1	42.1	43.1	41.9		
	L <sub>10</sub> (dB(A))	59.1	49.3	48.2	49.9		
	L <sub>EQ</sub> (dB(A))	55.2	46.1	45.1	46.5		
Major Construction Noise Source(s) During Monitoring		/					
Other Noise Source(s) During Monitoring		/					
Remarks		Day Speed 0.3 / 14°C evening speed 0.4 / 13°C					

	<u>Name &amp; Designation</u>	<u>Signature</u>	<u>Date</u>
Recorded By:	Andy Li		10/11/2021
Checked By:	Kelvin Lau		11-11-21

Noise Monitoring Field Record Sheet

Monitoring Location		MM1					
Description of Location		渣打花園 (5)					
Date of Monitoring		17/11/2021					
Noise Meter Model/Identification		Pulsar 43 (1768)					
Calibrator Model/Identification		Pulsar 105 (63705)					
Measurement Start Time (hh:mm)		1130	2002	2007	2042		
Measurement Time Length (min.)		30	5	5	5		
Measurement Results	L <sub>90</sub> (dB(A))	52.1	43.1	42.2	43.6		
	L <sub>10</sub> (dB(A))	59.4	49.3	48.2	50.6		
	L <sub>EQ</sub> (dB(A))	55.6	45.2	44.6	46.1		
Major Construction Noise Source(s) During Monitoring		/					
Other Noise Source(s) During Monitoring		/					
Remarks		Day Speed 0.6 / 20°C Evening Speed 0.6 / 19°C					

Recorded By: Andy Li

Name & Designation

Signature

Date

*Andy Li*

17/11/2021



Checked By: Kelvin Lau

*Kelvin Lau*

18-11-21

Noise Monitoring Field Record Sheet

Monitoring Location		N141					
Description of Location		活期花園					
Date of Monitoring		25/11/2011					
Noise Meter Model/Identification		Pulsar 43 (1765)					
Calibrator Model/Identification		Pulsar 105 (63705)					
Measurement Start Time (hh:mm)		1030	1930	1935	1940		
Measurement Time Length (min.)		30	5	5	5		
Measurement Results	L <sub>90</sub> (dB(A))	52.1	43.1	42.1	42.4		
	L <sub>10</sub> (dB(A))	57.2	49.6	49.2	52.6		
	L <sub>EQ</sub> (dB(A))	55.1	46.1	45.5	46.9		
Major Construction Noise Source(s) During Monitoring		/					
Other Noise Source(s) During Monitoring		/					
Remarks		Day Speed 1.0 16°C evening Speed 0.0 15°C					

Recorded By:	<u>Name &amp; Designation</u> Andy Li	<u>Signature</u> 	<u>Date</u> 25/11/2011
Checked By:	Kelvin Lau		26/11/11



**29<sup>th</sup> Monthly EM&A Report (Rev. 2)**  
**November 2021**

**for**

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

	<b>Prepared by:</b>	<b>Checked by:</b>	<b>Certified by:</b>
<b>Name</b>	Kelvin LAU	Tandy TSE	Kevin LI
<b>Position</b>	Environmental Team Member	Environmental Team Member	Environmental Team Leader
<b>Signature</b>			
<b>Date</b>	14 December 2021	14 December 2021	14 December 2021

### Revision History

<b>Rev.</b>	<b>Description</b>	<b>Date</b>
2	Updated Section 3.5	14 December 2021
1	According to IEC's comments, Appendix F and Appendix H are updated	11 December 2021
0	1 <sup>st</sup> Submission for Comments	9 December 2021

## 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 29<sup>th</sup> Monthly Environmental Monitoring and Audit (EM&A) Report presents EM&A works undertaken in the period from 1 to 30 November 2021. EM&A works were performed in accordance with the approved EM&A Manual and conditions stipulated in the amended Environmental Permit EP-345/2009/A.
- 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. Four (4) sessions of construction noise impact monitoring at NM1 and NM2 for daytime except general holidays and Sundays; four (4) sessions of construction noise impact monitoring at NM1 for daytime during general holidays and Sundays and four (4) sessions of construction noise impact monitoring at NM1 for all days during evening. Thirteen (13) sessions of impact water quality monitoring at all approved monitoring points and one (1) repeat measurement at C2 and D2a were carried out in the reporting period.
- E4. After the joint water sampling inspection with the ER, the IEC representative, the Contractor and the ET on 15 October 2021, on days when very shallow flow (<11cm of water depth) were observed at the control points, actions will be taken to collect samples at the sampling locations.
- E5. No exceedance was recorded for noise monitoring in the reporting period.
- E6. Exceedance of Limit Level for turbidity and suspended solids at water monitoring location D2a was recorded on 29 November 2021 on site. Repeat measurement was conducted on 30 November 2021. The exceedance was considered project unrelated after investigation.
- E7. Joint weekly site inspections were conducted by representative of ET, Contractor and Engineer on 2, 9, 16, 23 and 30 November 2021. Details of the audit findings and implementation status are presented in Section 5.
- E8. No complaint regarding environmental issue was received in the reporting period.
- E9. No notification of summons nor prosecution have been received since the commencement of the Project.
- E10. The variation of Environmental Permit was issued on 11 November 2020. The amendments incorporated into the Environmental Permit are summarized as follow:
  - “Location of Designated Project” changed;

- Location of cofferdam changed;
- Content of earth bund added;
- More plant species of conservation importance added.

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

Works Area	Major Site Activities
Portion A & D	<ul style="list-style-type: none"><li>• TBM demolish</li><li>• Pipe piling works (Stage 2B ELS)</li></ul>
Portion C	<ul style="list-style-type: none"><li>• Mined tunnel construction works</li></ul>

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

Works Area	Major Site Activities
Portion A	<ul style="list-style-type: none"><li>• TBM demolish</li><li>• Pipe piling works (Stage 2B ELS)</li></ul>
Portion C	<ul style="list-style-type: none"><li>• Mined tunnel construction works</li></ul>

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



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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 2.8 km 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. EP345/2009, was granted to the Water Supplies Department (WSD) for permitting the construction and operation of this Project. Subsequently, the EP was amended and a variation of EP, with Permit No. EP345/2009/A, was granted to the WSD on 11 November 2020.
- 1.4 The commencement date of construction of the Project was 12 July 2019. No major works except site clearance and preparation was performed before the commencement date of construction.
- 1.5 This is the 29<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 from 1 to 30 November 2021.
- 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/register/permit/latest/vep5822020.htm>
- 1.7 As part of the EM&A programme, baseline monitoring is required for determining the ambient environmental conditions. Baseline monitoring including background noise and water quality were conducted in periods from 3 May 2019 to 22 June 2019 in accordance to the approved EM&A Manual before commencement of construction works. The

corresponding Baseline Monitoring Report has been compiled by the ET and verified by the Independent Environment Checker (IEC) prior submitting to the Environmental Protection Department.

1.8 Project organization structure is presented in Figure 1.1.

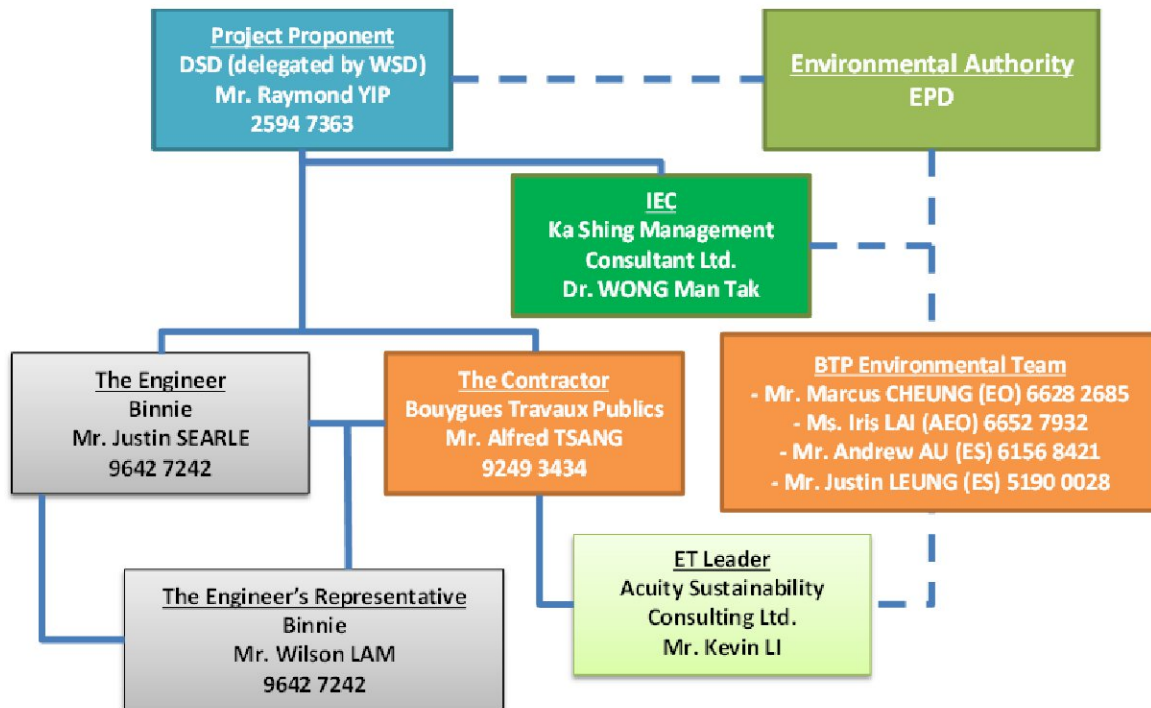


Figure 1.1 Project Organization Chart

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

Table 1.1 Contact Details of Key Personnel

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

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

Table 1.2 Summary of Construction Activities Undertaken in the Reporting Period

Works Area	Major Site Activities
Portion A & D	<ul style="list-style-type: none"> <li>• TBM demolish</li> <li>• Pipe piling works (Stage 2B ELS)</li> </ul>
Portion C	<ul style="list-style-type: none"> <li>• Mined tunnel construction works</li> </ul>

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

Table 1.3 Summary of Environmental Licences and Permits of the Project

Type of Permit / License	Date of Application	Reference Number	Status	Duration
Environmental Permit	N/A	EP-345/2009	Valid	Along project
Chemical Waste Producer	22-Feb-2019	WPN5218-733-B2557-01	Approved.	Along project
Notification of The Air Pollution Control (Construction Dust) Regulation	1-Mar-2019	442711	Completed (No approval required)	Along project
Billing Account of Trip Ticket System	25-Feb-2019	703344617	Approved on 13 March 2019	Along project
Effluent Discharge License for LSMR	4-Apr-2019	WT00034164-2019	Approved	Until 31-Jul-2024
Effluent Discharge License for KBR	30-Sep-2019	WT00035821-2020	Approved	Along project (Until 31-May-2025)
Construction Noise Permit for works at Portion A	9-Sep-2021	GW-RN0694-21	Approved	29-Sep-2021 to 27-Mar-2022
Construction Noise Permit for works at Portion C	27-May-2021	GW-RN0377-21	Approved	14-Jun-2021 to 13-Dec-2021
Construction Noise Permit for works at Tai Po Road	25-Oct-2021	GW-RN0804-21	Approved	13-Nov-2021 to 12-May-2022

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

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

Table 1.4 Documents Submission Required in the amended Environmental Permit

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

## 2. ENVIRONMENTAL MONITORING REQUIREMENTS AND PROGRAMME

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

### Monitoring Parameters, Time and Frequency

2.2 Impact monitoring parameters are summarized in Table 2.1 below.

Table 2.1 – Summary of Impact Monitoring Parameters

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

### Monitoring Locations

Noise

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

Table 2.2 – Designated Noise Monitoring Location

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

Water Quality

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

Table 2.3 – Original Water Quality Monitoring Location

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

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

Table 2.4 – Approved Water Quality Monitoring Location

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

### **Monitoring Equipment**

#### Noise

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

#### Water Quality

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



- 2.11 A water sampler, consisting of a transparent PVC or glass cylinder of a capacity of not less than two litres which can be effectively sealed with caps at both ends should be used. If the approved water sampler could not be used in shallow water (<11 cm), a water bucket or a small bottle made of inert material (e.g. plastic) was used instead.
- 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

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

Table 2.6 – Action/Limit Levels for Water Quality Monitoring

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

*Remarks:*

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

**Event / Action Plan**

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

### 3. IMPACT MONITORING METHODOLOGY AND RESULTS

#### Equipment Used

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

Table 3.1 – Equipment Used in the Reporting Period

Environmental Aspect	Equipment	Model
Noise	Sound Level Meter	Pulsar 43
	Calibrator	Pulsar 105
	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 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 22ed, in accordance to American Public Health Association: Standard Methods for the Examination of Water and Wastewater APHA was adopted. According to the standard, 1000 mL of sample should be obtained and the reporting limit should be 2.5 mg/L.

### 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 during the reporting period. No work was conducted during restricted hours at KBR as confirmed by the Contractor, therefore no noise monitoring was performed during restricted hours at NM2 in the reporting period.
- 3.9 Evening time construction work has been conducted since 25 March 2020. Evening time monitoring was conducted on 4, 10, 17 and 25 November 2021 at NM1. The evening time construction noise monitoring data is presented in Table 3.2

Table 3.2 Summary of Evening Time Noise Monitoring Result

Monitoring Location	Time Period	Leq(5min), dB(A)			Limit Level, dB(A)
		Mean	Max	Min	
NM1	All days during Evening (1900-2300)	46.1	49.3	44.6	60

No night time work was conducted in the reporting period as confirmed by the Contractor.

- 3.10 Daytime during general holidays and Sundays construction work was conducted on 7, 14, 21 and 28 November 2021. Construction noise monitoring was also conducted in the same days. The daytime during general holidays and Sundays construction noise monitoring data is presented in Table 3.4.

Table 3.4 Summary of Daytime during General Holidays and Sundays Noise Monitoring Result

Monitoring Location	Time Period	Leq(5min), dB(A)			Limit Level, dB(A)
		Mean	Max	Min	
NM1	Daytime (0700-1900) during general holidays and Sundays	49.4	59.3	46.1	60

- 3.11 Four (4) sessions of construction noise impact monitoring at NM1 and NM2 for daytime except general holidays and Sundays. The noise monitoring data is presented in **Appendix E** and results are summarized in Table 3.5.

Table 3.5 Summary of Construction Noise Monitoring Results

Monitoring Location	Time Period	Leq(30min), dB(A)			Limit Level, dB(A)
		Mean	Max	Min	
NM1	Daytime (0700 – 1900) except general holidays and Sunday	54.8	55.2	53.6	75
NM2		50.2	52.2	46.1	

- 3.12 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.
- 3.13 Weather conditions were mainly cloudy with sunny intervals during daytime measurements, and mainly a clear sky with occasional cloud coverage during evening and night time measurements. Summary of meteorological data is presented in **Appendix E**.

### Water Quality Monitoring Result

- 3.14 Water quality monitoring was performed at approved monitoring locations, i.e. C1b, D1b, C2 and D2a, during the reporting period.
- 3.15 Thirteen (13) sessions of water quality monitoring were performed at each of the approved monitoring locations and one (1) repeat measurement was performed at C2 and D2a on 30 November 2021. The water quality monitoring data is presented in **Appendix F** and results are summarized in Table 3.6.

Table 3.6 Summary of Water Quality Monitoring Results

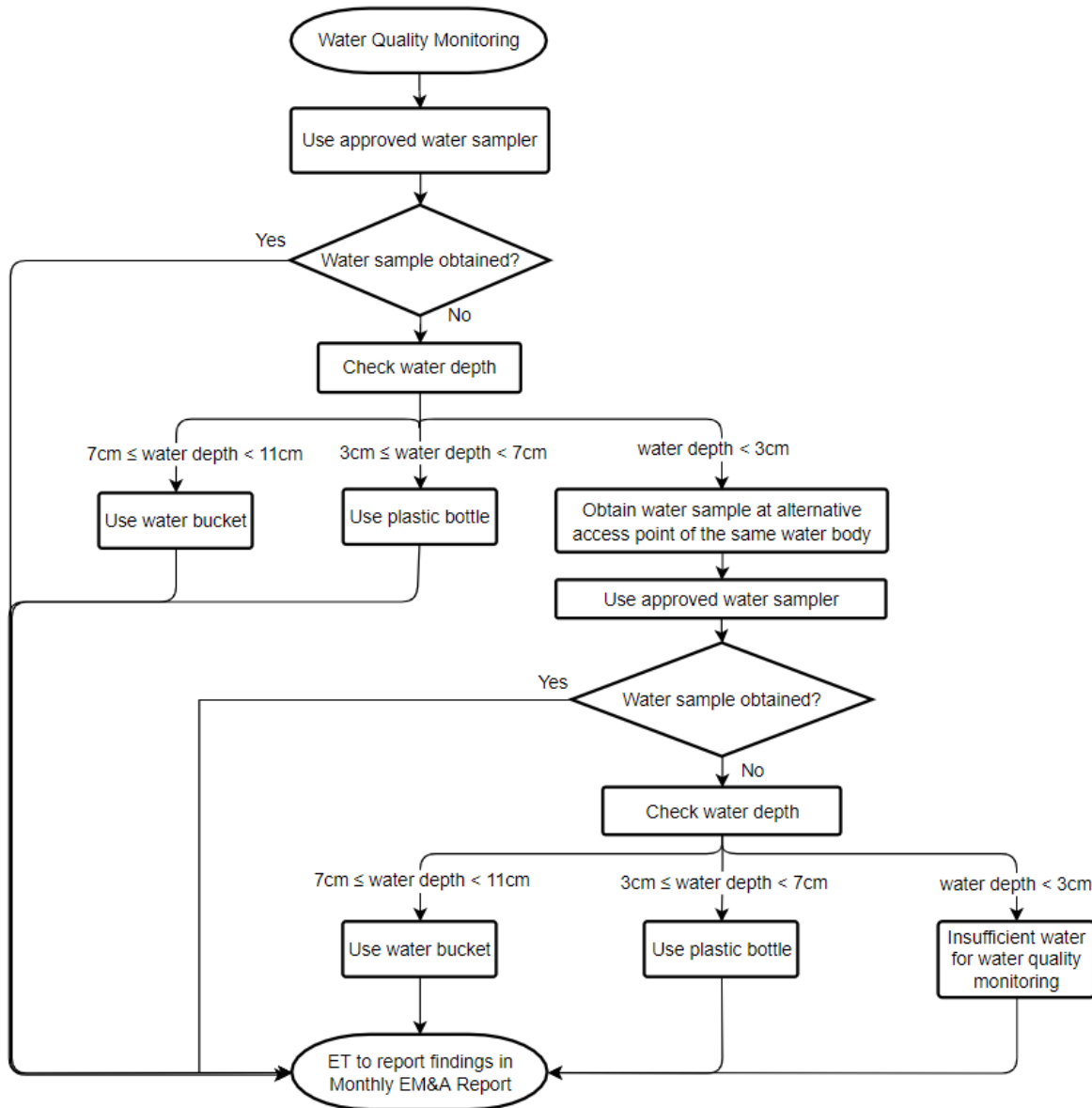
Parameters		C1b	D1b	C2	D2a
pH Value	Mean	7.2	7.1	7.2	7.2
	Max	8.0	7.4	7.7	8.6
	Min	6.7	6.8	6.7	6.7
Dissolved Oxygen (mg/L)	Mean	7.5	7.3	7.5	7.7
	Max	8.0	8.0	8.0	10.9
	Min	7.1	6.9	6.9	6.9
Dissolved Oxygen Saturation (%)	Mean	87.4	85.0	86.8	90.1
	Max	95.8	95.8	96.9	126.0
	Min	78.8	80.0	79.4	79.9
Turbidity (NTU)	Mean	12.2	5.2	11.1	19.1
	Max	26.9	7.4	24.3	190.0
	Min	4.2	1.9	4.9	3.5
Suspended Solids <sup>1</sup> (mg/L)	Mean	5.1	2.9	4.4	3.3
	Max	11.2	5.4	8.4	7.3
	Min	2.5	2.5	2.5	2.5

Remarks:

1. Lower detection limit of Suspended Solids is 2.5. Data lower than such limit is regarded as 2.5 in result presentation.

- 3.16 The water level at Lower Shing Mun Reservoir (i.e., monitoring location D2a) changes in time. Due to the access constraint, water sampling could only be done at the boundary of the water body. Hence, the actual sampling location of D2a is subject to the actual water level of the reservoir and was determined on-site at locations close to the site.
- 3.17 After the joint water sampling inspection with the ER, the IEC representative, the Contractor and the ET on 15 October 2021, on days when very shallow flow (<11cm of

water depth) were observed at the control points, actions will be taken to collect samples at the sampling locations. At the control point C1b, a small plastic bottle was used to collect samples according to the flow chart below. At the control point C2, samples were collected from another access to the water body.



C1b	C2
	
	
*Photos taken on 17 November 2021	*Photos taken on 17 November 2021

3.18 Weather conditions during monitoring were mainly cloudy with sunny intervals.



#### 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'000L)	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)
November 2021	0.1602	1.4	0.02673	0	0	0

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

## 5. SITE INSPECTION

- 5.1 Joint weekly site inspections were conducted by representative of ET, Contractor and Engineer so as to monitoring the implementation of proper environmental pollution control and mitigation measures. Four (4) site inspections were performed in the reporting period.
- 5.2 One joint site inspection with IEC was also undertaken on 2 November 2021. Minor deficiencies were observed during weekly site inspection. Inspection findings are summarized in Table 5.1.

Table 5.1 Weekly Inspection Findings

<b>Date</b>	<b>Location</b>	<b>Observation(s)</b>	<b>Follow-up Status</b>
2 November 2021	LSMR	<ol style="list-style-type: none"> <li>1. Stagnant water should be cleaned regularly.</li> <li>2. Unused construction materials should be stored properly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Stagnant water was cleaned.</li> <li>2. Construction materials were removed.</li> </ol>
16 November 2021	LSMR	<ol style="list-style-type: none"> <li>1. Oil stain should be cleaned immediately.</li> <li>2. The condition of drip trays should be maintained and the drip trays should be free from construction materials.</li> </ol>	<ol style="list-style-type: none"> <li>1. Oil stain was cleaned.</li> <li>2. Drip tray was repaired.</li> </ol>
23 November 2021	LSMR	No environmental deficiency was observed.	N.A.
30 November 2021	LSMR	<ol style="list-style-type: none"> <li>1. Drip trays should be cleaned regularly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Drip tray was cleaned.</li> </ol>

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

- 6.1 Exceedance of Limit Level for turbidity and suspended solids at water monitoring location D2a was recorded on 29 November 2021 on site. Repeat measurement was conducted on 30 November 2021. The exceedance was considered project unrelated after investigation.
- 6.2 No exceedance was recorded for noise monitoring in the reporting period.
- 6.3 There was no environmental related complaint received in the reporting period.
- 6.4 There was no notification of summon and successful prosecution for breaches of current environmental protection/pollution control legislation in the reporting period.
- 6.5 The Cumulative statistics on complaints, notifications of summons and successful prosecutions is presented in **Appendix K**.

## 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 I**. 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

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

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

## 8. ENVIRONMENTAL FORECASTING

8.1 As advised by the Contractor, major construction works to be performed in the next reporting month, i.e., December 2021, include the followings:

Works Area	Major Site Activities
Portion A	<ul style="list-style-type: none"><li>• TBM demolish</li><li>• Pipe piling works (Stage 2B ELS)</li></ul>
Portion C	<ul style="list-style-type: none"><li>• Mined tunnel construction works</li></ul>

8.2 The Contractor is reminded to properly implement mitigation measures for each specified works. 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., December 2021, is presented in **Appendix J**. Monitoring will be performed at same locations presented in above sections.

## 9. CONCLUSION AND RECOMMENDATIONS

- 9.1 This is the 29<sup>th</sup> Monthly Environmental Monitoring and Audit (EM&A) Report presents EM&A works undertaken in the period of 1 to 30 November 2021. EM&A works were performed in accordance with the approved EM&A Manual and conditions stipulated in the amended Environmental Permit EP-345/2009/A.
- 9.2 Impact monitoring for construction noise and water quality were performed in the reporting period.
- 9.3 After the joint water sampling inspection with the ER, the IEC representative, the Contractor and the ET on 15 October 2021, on days when very shallow flow (<11cm of water depth) were observed at the control points, actions will be taken to collect samples at the sampling locations.
- 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 As per Section 10.3.3 of the EM&A Manual, the number and location of monitoring stations and parameters were reviewed. No significant change was observed on the surrounding environment (i.e., no new stream or water way, no new sensitive receiver and no better alternative monitoring locations which suit the descriptions in Section 5.4.2 of the EM&A Manual) or the nature of works in progress. The current monitoring locations remain to be representative; the current water quality control monitoring locations are the nearest upstream accessible stream before passing through the construction site and merging with the water body; and the current monitoring parameters have covered the possible environmental impact arising from the nature of works in progress. No change is suggested to be made to the current EM&A programme. No change in surrounding environment and nature of works in progress was noted from the Contractor and Supervisor.
- 9.6 Weekly site inspections were performed during the reporting period.
- 9.7 No complaint regarding environmental issue was received in the reporting period.
- 9.8 No notification of summons nor prosecution have been received since the commencement of the Project.
- 9.9 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.

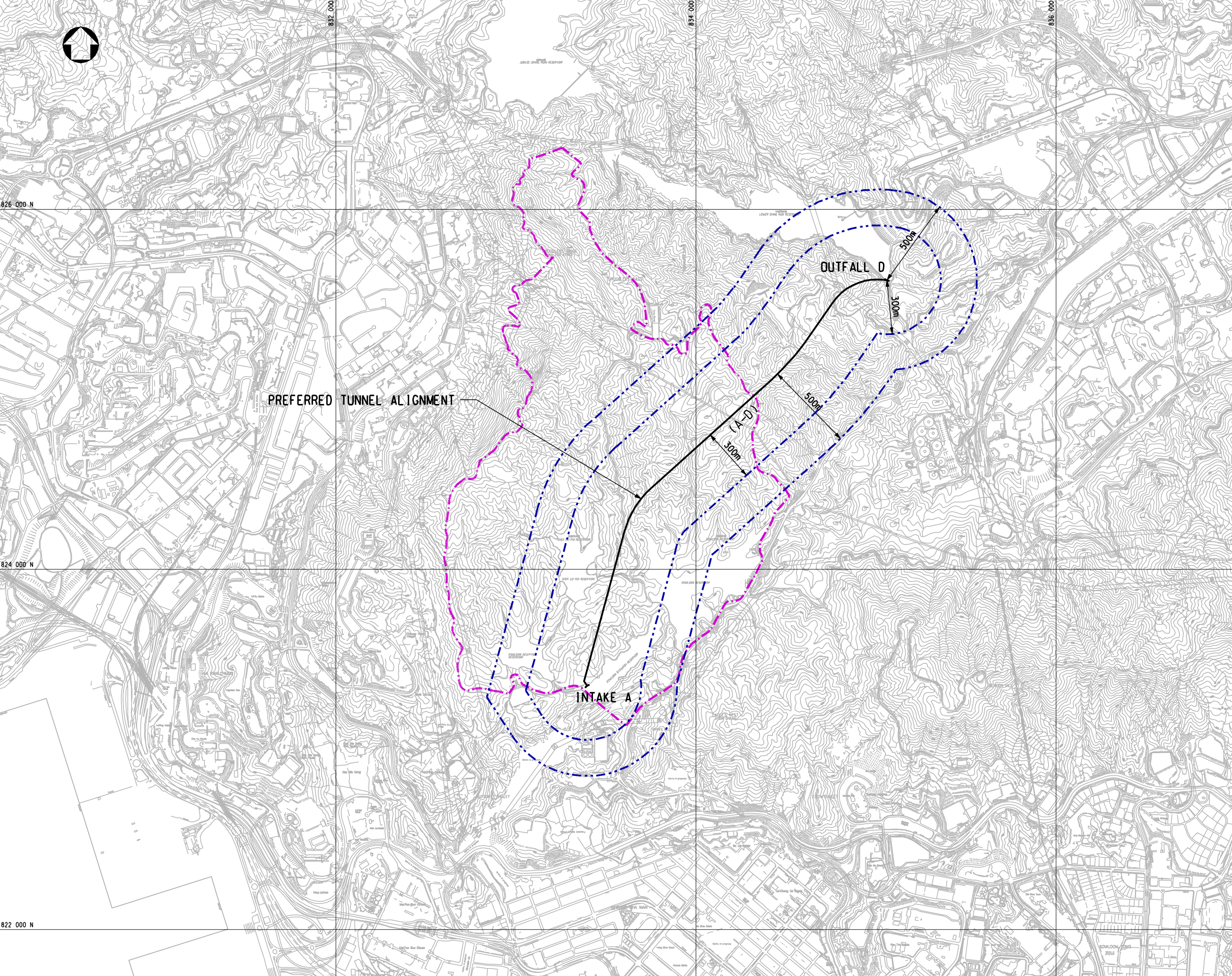
- 9.10 The Contractor is reminded to review the visual impact due to the appearance of permanent intake and outfall structure and include in the latest Landscape Plan for authorities' approval.



Appendix A  
Project Site Layout Plan




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



826 000 N  
824 000 N  
822 000 N

832 000 E  
834 000 E  
836 000 E

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  
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 20 Salisbury Road  
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 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	

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FIGURE 1-1

## Appendix B

# Latest Construction Programme

# IRTS: 3 Month Rolling Programme (Nov 21 ~ Jan 22)

Layout : 4 -IRT-Rolling Y21M10D27a  
 TASK filters: 3 Month Rolling, Level of Effort.  
 Data Date : 27-Oct-21

Activity ID	Activity Name	Dur	Start	Finish	2021			2022	
					Oct	Nov	Dec	Jan	Feb
					32	33	34	35	36
IRTS - 3M Rolling Programme (Y21M10D27a)									
Preliminaries and General Requirements									
Procurement of Consultants and Sub-Contractors									
Sub-Contractors									
Pro_SCon_1700	Subcontract Enhancement works at Kam Shan Country park works *(P3)	38	30-Oct-21	13-Dec-21		Subcontract Enhancement works at Kam Shan Country park works *(P3)			
Tai Po Road Site (TGLA No. TST453)									
TPR_GW-1040	General Site Storage	891	02-Jul-19A	22-Aug-22					
CSD Submission									
CSD 1 - Outfall Structure									
Alternative Works (Subject to approval of Structure Design)									
CSD1_OF_1000	Pre-bored H pile *(link changed: erector removal to concurrent gripper dismantle)	67	16-Oct-21A	10-Jan-22			Pre-bored H pile *(link changed: erector removal to concurrent gripper dismantl		
CSD1_OF_2000	Pile loading test	10	11-Jan-22	21-Jan-22			Pile loading test		
CSD1_OF_3000	Pipe pile Wall Stage 2B	55	04-Nov-21	10-Jan-22			Pipe pile Wall Stage 2B		
CSD1_OF_4000	Excavation, waler and strut installation (1st layer)	42	14-Jan-22	10-Mar-22					
CSD 2 - Alternative Alignment & Intake Structure									
Alternative Works (Subject to approval of alternative tunnel alignment)									
CSD_PF_2210-20	Mined Tunnel Construction - Excavation (Tunnel Breakthrough)	38	30-Sep-21A	12-Nov-21	Mined Tunnel Construction - Excavation (Tunnel Breakthrough)				
CSD_PF_2210-25	*Lay Invert Segment (by TBM team)	16	01-Dec-21	16-Dec-21			*Lay Invert Segment (by TBM team)		
CSD_PF_2210-30	Mined Tunnel Construction - Lining	30	17-Dec-21	24-Jan-22		Mined Tunnel Construction - Lining			
CSD_PF_2220	Cut and Cover Construction	19	25-Jan-22	22-Feb-22			Cut an		
CSD_PF_2225	Internal Staircase Construction	30	23-Dec-21	29-Jan-22		Internal Staircase Construction			
CSD_PF_2230	E&M Installation	48	02-Dec-21	29-Jan-22		E&M Installation			
TB_Ds_1600	Remove Bulkhead and Cutterhead	11	12-Nov-21	24-Nov-21	Remove Bulkhead and Cutterhead				
Compensation Event									
CE-054 & CE-056: Feasibility Study & DDA for Maintenance Walkway at KBR									
CE-054 Design Submissions									
CE054-2120	DDAComment/ Approval for Extension of Spillage Drainage Channel	24	28-Oct-21	24-Nov-21	DDAComment/ Approval for Extension of Spillage Drainage Channel				
CE054-2180	Prepare DDAfor Vertical Ladder & Intermediate Platform at Intake Structure	167	18-Jan-21A	09-Nov-21	Prepare DDAfor Vertical Ladder & Intermediate Platform at Intake Structure				
CE054-2190	DDAComment/ Approval for Ladder & Platform at Intake Structure	28	10-Nov-21	11-Dec-21	DDAComment/ Approval for Ladder & Platform at Intake Structure				
CE054-2210	Ready for Procurement	0		11-Dec-21		◆ Ready for Procurement,			
CE-056 Construction Works at KBR									
KBR Maintenance Access									
CE056-2050	Tree Felling/ Entrance/ GFRPHandrail	67	28-Oct-21	17-Jan-22	Tree Felling/ Entrance/ GFRPHandrail				
Spillage Channel									
CE056-3010	Draw Down Water to +103.6mPD by WSD	21	01-Nov-21*	24-Nov-21	Draw Down Water to +103.6mPD by WSD				
CE056-3020	Scaffold Erection	10	25-Nov-21	06-Dec-21	Scaffold Erection				
CE056-3030	Rock Breaking for Formation	14	07-Dec-21	22-Dec-21	Rock Breaking for Formation				
CE056-3040	Concreting Works	47	23-Dec-21	25-Feb-22	Concreting Works				
Slope Upgrading Work									
CE056-4010	No Fined Concrete & Tiling	50	26-Jan-22	31-Mar-22		No Fined Concrete & Tiling			
CE-064: Permanent Diversion of Twin 1200mm dia.Drainage Pipes									
CE064 Design Submissions									
CE064-2030	DDARReview & Comment	27	06-Nov-21	07-Dec-21	DDARReview & Comment				
Tunneling Works									
Design Submission									
Mined Tunnel Permanent Works Design									
MTD_KB_4030	2nd Submission - Mined Tunnel Design Preparation & Submission with ICE	10	30-Oct-21	10-Nov-21	2nd Submission - Mined Tunnel Design Preparation & Submission with ICE				

- 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
27-Oct-21	Rolling Y21M10D27a	A.Tsang	

# IRTS: 3 Month Rolling Programme (Nov 21 ~ Jan 22)

Layout : 4 -IRT-Rolling Y21M10D27a  
 TASK filters: 3 Month Rolling, Level of Effort.  
 Data Date : 27-Oct-21

Activity ID	Activity Name	Dur	Start	Finish	2021			2022	
					Oct	Nov	Dec	Jan	Feb
					32	33	34	35	36
MTD_KB_4040	Review and Acceptance	15	11-Nov-21	27-Nov-21		Review and Acceptance			
<b>Site Works</b>									
<b>LSMR (North Portal) &amp; TBM</b>									
<b>LSMR : TBM Tunnel Excavation</b>									
<b>TBM Dismantling</b>									
TB_Ds_1020	Remove Segment Feeder, ATC Cylinders & Conveyor No.2	8	01-Nov-21	09-Nov-21		Remove Segment Feeder, ATC Cylinders & Conveyor No.2			
TB_Ds_1100	Remove Erector	2	10-Nov-21	11-Nov-21		Remove Erector			
TB_Ds_1300	Dismantle Within Gripper Shield	4	12-Nov-21	15-Nov-21		Dismantle Within Gripper Shield			
TB_Ds_1400	Dismantle Within Shield and Telescopic	6	16-Nov-21	22-Nov-21		Dismantle Within Shield and Telescopic			
TB_Ds_1500	Remove Main Drive	5	23-Nov-21	27-Nov-21		Remove Main Drive			
TB_Ds_1700	Tunnel Services Removal and Tunnel Cleaning	20	29-Nov-21	21-Dec-21		Tunnel Services Removal and Tunnel Cleaning			
<b>Intake Structure at Kowloon Byewash Reservoir</b>									
<b>KBR Intake : E&amp;M for Electric Actuated Penstocks and Automatic Flow Control System</b>									
<b>KBR Intake : E&amp;M Installation of Automatic Flow Control System &amp; Others</b>									
KB_ISW_3600	Supply and Delivery of E&M Materials / Equipments *(P1a)	120	11-Aug-21 A	05-Mar-22					
KB_ISW_3610	Excavation Permit Application & Works for Power Supply Cables	77	28-Oct-21	28-Jan-22				Excavation Permit Application & Works for Po	
<b>KBR Intake : E&amp;M Installation of Electrical Actuated Penstocks</b>									
KB_ISW_3830	Penstock Installation (2nos.) *(P1a)	56	11-Aug-21 A	10-Dec-21		Penstock Installation (2nos.) *(P1a)			
<b>KBR Intake : E&amp;M Design for Lifting Crane</b>									
KBR_EMD_1380	Review and Acceptance	18	04-Nov-21	24-Nov-21		Review and Acceptance			
<b>KBR Intake : E&amp;M Installation of Lifting Crane</b>									
KB_ISW_3850	Supply and Delivery of Lifting Crane *(P1a)	56	25-Nov-21	08-Feb-22				Supply and Delivery of Lifting	
<b>Outfall Structure at Lower Shing Mun Reservoir (Conforming Design)</b>									
<b>LSMR Outfall : Design Submission</b>									
<b>LSMR Outfall : Stage 2B Pipe Pile Wall for Outfall</b>									
LSM_OSD_1300	Review and Acceptance	63	13-Mar-21A	23-Nov-21		Review and Acceptance			
<b>LSMR Stage 1 - C&amp;C Tunnel.</b>									
LSM_OSW_1100	Construct C&C Tunnel	24	22-Dec-21	21-Jan-22			Construct C&C Tunnel		
LSM_OSW_1200	Backfill	8	22-Jan-22	07-Feb-22			Backfill		
<b>LSMR Stage 2 - Outfall Structure &amp; Remaining C&amp;C Tunnel.</b>									
<b>LSMR Outfall Excavation</b>									
LSM_OSW_1380	Pipe Pile Wall Stage 2B (180 Piles/3 rigs/ 6 piles/day)	52	05-Nov-21	07-Jan-22		Pipe Pile Wall Stage 2B (180 Piles/3 rigs/ 6 piles/day)			
LSM_OSW_1400	Excavation, water and strut installation 1st layer	16	08-Jan-22	26-Jan-22			Excavation, water and strut installation 1st layer		
LSM_OSW_1500	Excavation, water and strut installation 2nd layer	20	27-Jan-22	25-Feb-22			Excavation, water and strut installation 2nd layer		
<b>Landscaping Works</b>									
<b>Enhancement Works of Kam Shan Country Park-Design</b>									
KBR_EHW_1300	1st Submission-Enhancement works at Kam Shan Country Park-Design Preparation & Submission *(P1c)	28	14-Dec-21	18-Jan-22			1st Submission-Enhancement works at Kam Shan Country F		
KBR_EHW_1400	Review and Comments *(P1c)	18	19-Jan-22	15-Feb-22			Review and Com		

█ 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 2
27-Oct-21	Rolling Y21M10D27a	A.Tsang		

Appendix C  
Monitoring Locations

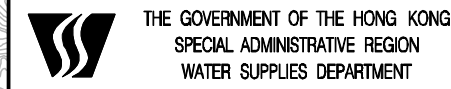


**LEGEND:**

- 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
- 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



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

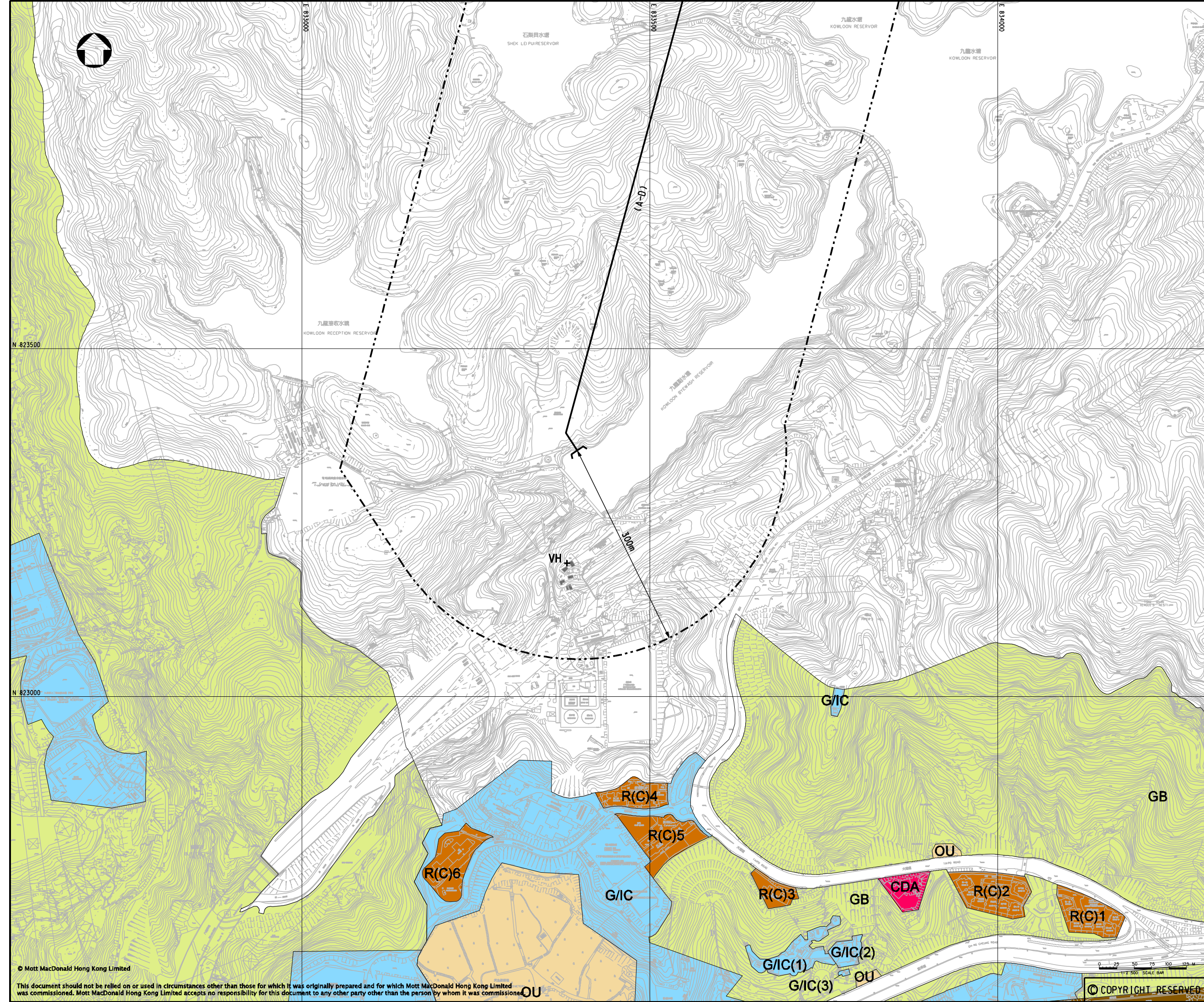
THE STUDY AREA AND REPRESENTATIVE NSRs (INTAKE END)

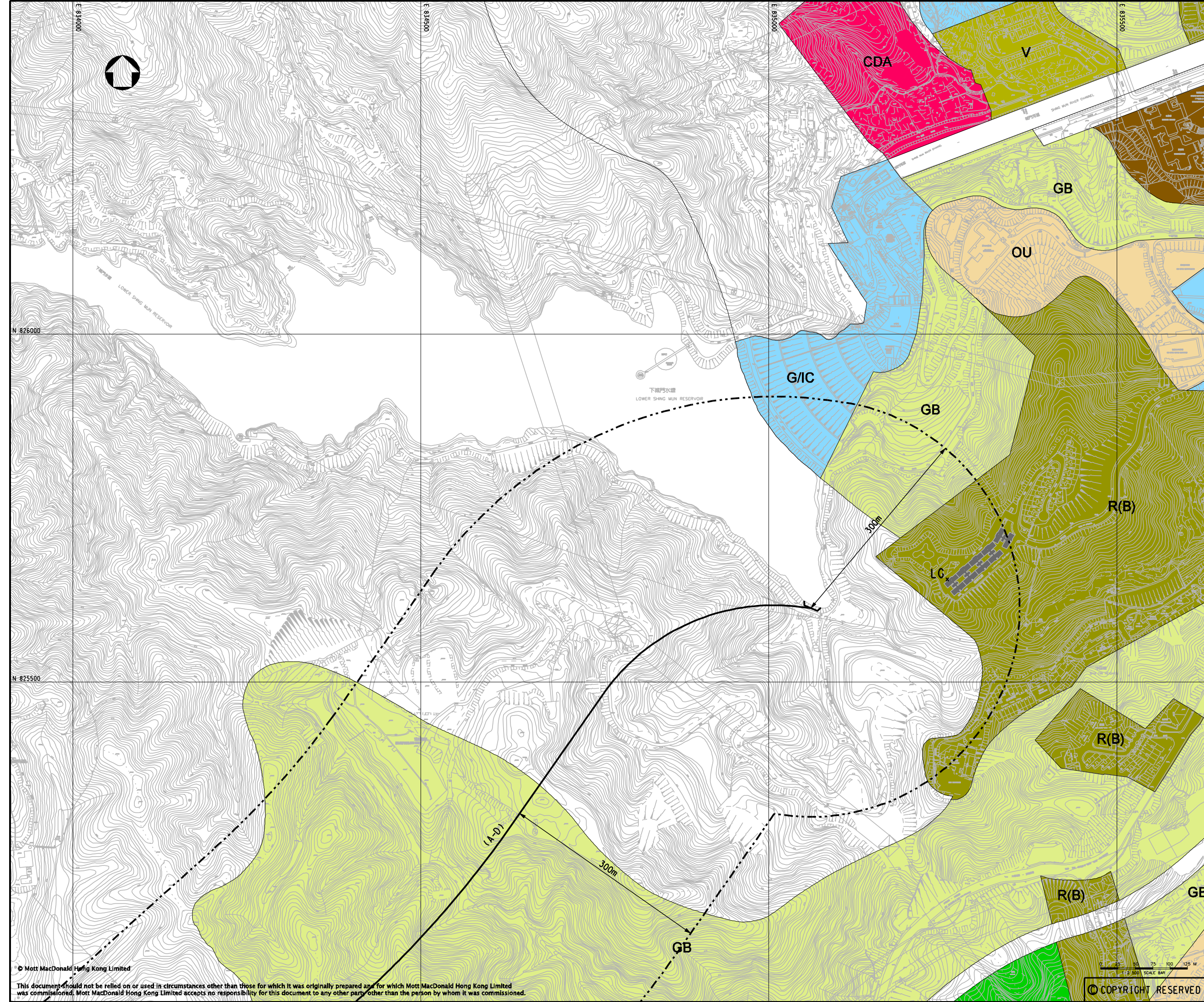
Designed	HN/PW	Eng.Chk.	PW
Drawn	VN	Coordination	PW
Dwg.Chk.	HN	Approved	AFK

Scale: 1:2500@A1

Project: 240564  
 Status: INF  
 Drawing No.: 41240564-REPORT-ENV/EMBA-08/2/FIGURE-4-1.dgn

Rev





- 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

Scale

1:2500@A1

Project 240564

Status INF

CAD File

Drawing No.

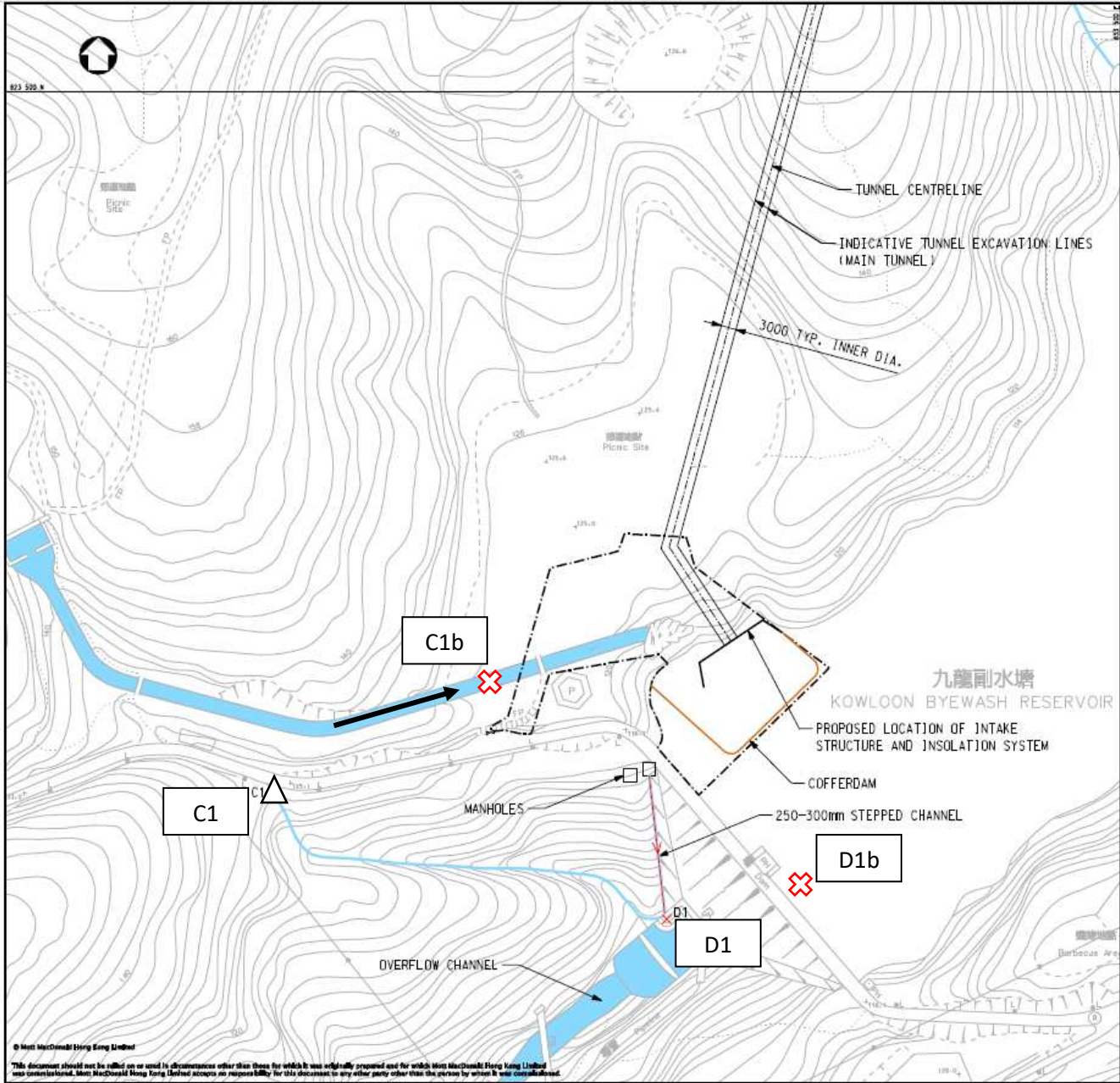
FIGURE 4-2

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

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

FF	REV 04	WDG	WORK AMENDMENT	FF	APR
FF	REV 03	WDG	WORK AMENDMENT	FF	APR
FF	REV 02	WN	FIRST ISSUE	FL	APR
Rev	Drawn	Checked	Drawn/Checked	Checked/Approved	

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

**m Mott MacDonald**  
22/F, One World Finance Centre  
 121 Cantonment Road  
 Hong Kong  
 Tel: 852 2511 8111  
 Fax: 852 2511 8112  
 www.mottmacdonald.com.hk

Project:  
Agreement No. GESS/2006/EP1  
Inter-reservoirs Transfer Scheme (IRTS)  
Water Tunnel between Kowloon Byewash Reservoir and Lower Shing Mun Reservoir  
Environmental Impact Assessment  
Investigation

PROPOSED WATER QUALITY MONITORING STATION AT INTAKE END

Designed	FF	Checked	FF
Drawn	WDG	Approved	FF
Sup/Chk	FF	Approved	FF

Date	1:500B/1	Proj No	240564	Scale	[NF]
Drawing No.		Client Ref		Rev	

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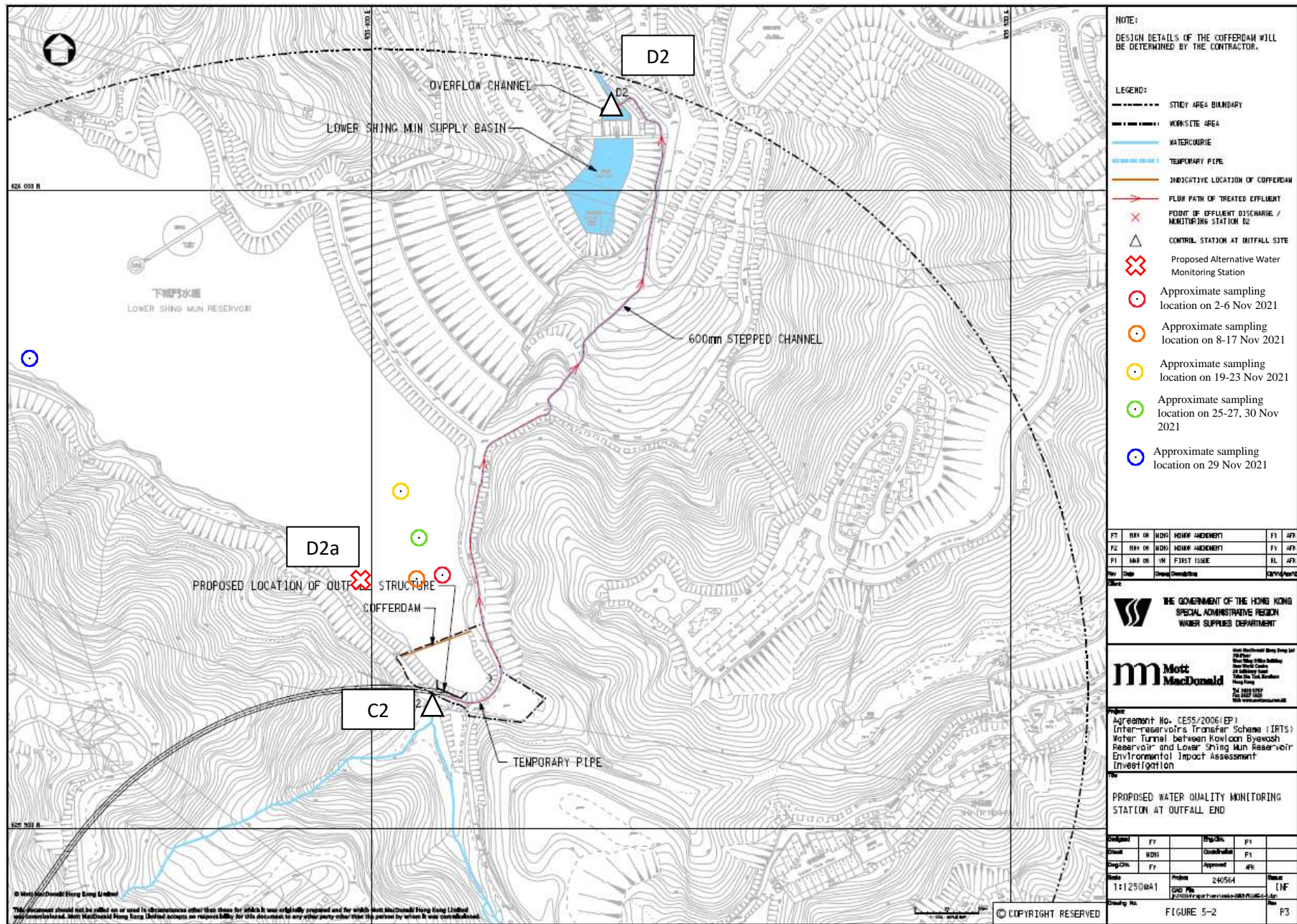


FIGURE 5-2

Appendix D  
Calibration Certificates of Equipment  
Used

# CERTIFICATE OF CALIBRATION

ISSUED BY **Pulsar Instruments Plc**

DATE OF ISSUE **12 August 2021**

CERTIFICATE NUMBER **161317**



**Pulsar Instruments Plc**  
**Acoustic House**  
**Bridlington Road**  
**Hunmanby**  
**North Yorkshire**  
**YO14 0PH**  
**United Kingdom**

Page 1 of 2

Approved signatory

R.Thomas

Electronically signed:

A handwritten signature in black ink, appearing to read "R. Thomas", written over a faint grid background.

## Sound Level Meter : IEC 61672-3:2013

### Instrument information

Manufacturer:	Pulsar Instruments Plc	Notes:
Model:	Model 43	
Serial number:	PN1768	
Class:	1	
Firmware version:	2.6.0.328	

### Test summary

The calibration was performed respecting the requirements of ISO/IEC 17025:2017.  
Periodic tests were performed in accordance with procedures from IEC 61672-3:2013.

**The sound level meter submitted for testing successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.**

However, no general statement or conclusion can be made about conformance of the sound level meter to the full specifications of IEC 61672-1:2013 because (a) evidence was not publicly available, from an independent testing organisation responsible for pattern approvals, to determine that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:2013 or correction data for acoustical test of frequency weighting were not provided in the Instruction Manual and (b) because the periodic tests of IEC 61672-3:2013 cover only a limited subset of the specifications in IEC 61672-1:2013.

### Notes

This certificate provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory. The results within this certificate relate only to the items calibrated. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k=2$ , providing a coverage probability of approximately 95%.

# CERTIFICATE OF CALIBRATION

Certificate Number:

**161317**

Page 2 of 2

## Environmental conditions

The following conditions were recorded at the time of the test:

**Before** Pressure: 99.64 kPa Temperature: 22.9 °C Humidity: 44.5 %  
**After** Pressure: 99.66 kPa Temperature: 23.2 °C Humidity: 44.5 %

## Test equipment

Equipment	Manufacturer	Model	Serial number
Signal Generator	TTi	TG4001	395851
Attenuator	Cirrus Research	ZE:952	52200
Environmental Monitor	Comet	T7510	16966334

## Additional instrument information

Instruction manual:

Reference level range: Single range

Pattern approval: No

Source of pattern approval: -

### Preamplifier

Model: PA40

Serial number: 1783

### Microphone

Model: PM1

Serial number: 012336D

## Test results summary

Test	Result
Toneburst response	Complies
Electrical noise-floor	Complies
Linearity	Complies
Electrical Frequency weightings	Complies
Frequency and time weightings at 1 kHz	Complies
C-weighted peak	Complies
Overload indication	Complies
High level stability	Complies
Long-term stability	Complies
Acoustic Frequency weightings	Complies

# CERTIFICATE OF CALIBRATION

ISSUED BY **Pulsar Instruments Plc**  
DATE OF ISSUE **12/08/21** CERTIFICATE NUMBER **161321**



**Pulsar Instruments Plc**  
**Acoustic House**  
**Bridlington Road**  
**Hunmanby**  
**North Yorkshire**  
**YO14 0PH**  
**United Kingdom**

Page 1 of 2

Test engineer:  
D.Swalwell  
Electronically signed:

A handwritten signature in black ink, appearing to be "D.Swalwell", written over a white background.

## Microphone

### Microphone capsule

Manufacturer: Pulsar Instruments

Model: PM1

Serial Number: 012336D

### Calibration procedure

Open circuit: 54.0 mV/Pa

Sensitivity at 1 kHz: -25.4 dB rel 1 V/Pa

The microphone capsule detailed above has been calibrated to the published data as described in the operating manual of the associated sound level meter (where applicable).

The frequency response was measured using an electrostatic actuator in accordance with BS EN 61094-6:2005 with the free-field response derived via standard correction data traceable to a National Measurement Institute.

The absolute sensitivity at 1 kHz was measured using an acoustic calibrator conforming to IEC 60942:2003 Class 1.

### Environmental conditions

Pressure: 100.90 kPa

Temperature: 21.0 °C

Humidity: 55.0 %

# CERTIFICATE OF CALIBRATION

Certificate Number:

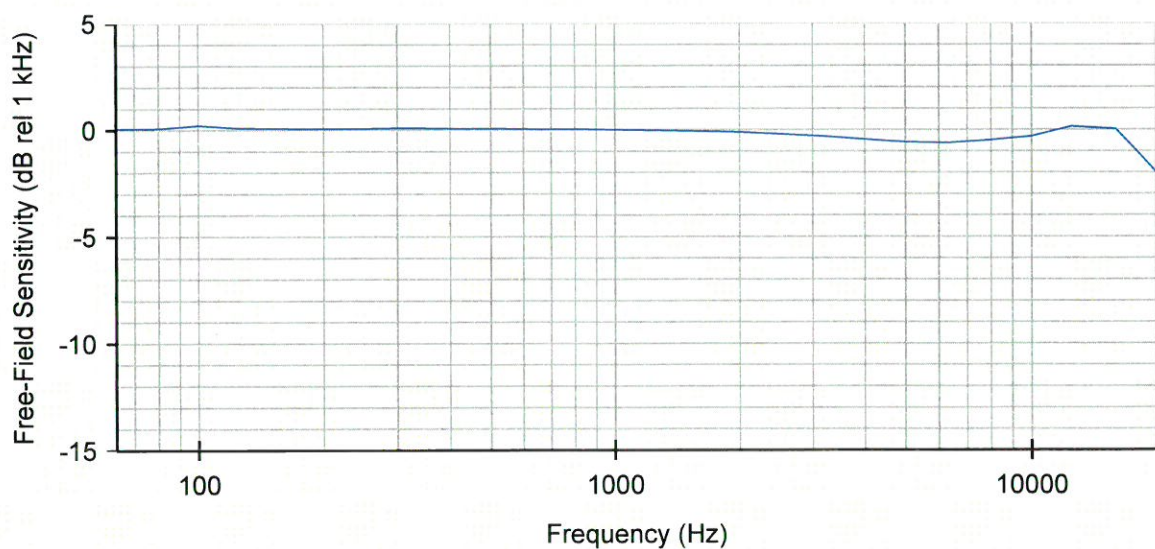
161321

Page 2 of 2

## Free-Field Frequency Response : Tabular

Frequency (Hz)	Free-Field Sensitivity (dB rel 1 kHz)	Actuator Response (dB)
63	0.06	-0.11
80	0.07	0.02
100	0.21	0.20
125	0.09	0.11
160	0.07	0.11
200	0.06	0.12
250	0.06	0.13
315	0.10	0.13
400	0.07	0.12
500	0.06	0.11
630	0.04	0.08
800	0.04	0.07
1 000	0.00	0.02
1 250	-0.03	-0.04
1 600	-0.07	-0.15
2 000	-0.12	-0.30
2 500	-0.20	-0.50
3 150	-0.31	-0.84
4 000	-0.46	-1.31
5 000	-0.59	-1.90
6 300	-0.62	-2.65
8 000	-0.49	-3.61
10 000	-0.32	-4.90
12 500	0.15	-6.33
16 000	0.03	-7.89
20 000	-2.00	-11.07


## Free-Field Frequency Response : Graphical





# MAXLAB

## CALIBRATION CERTIFICATE

<b>Certificate Information</b>			
Date of Issue	7-Aug-2021	Certificate Number MLCN212053S	
<b>Customer Information</b>			
Company Name	Acuity Sustainability Consulting Limited		
Address	Unit C, 11/F., Ford Glory Plaza, Nos. 37-39 Wing Hing Street, Cheung Sha Wan, Kowloon, HK		
<b>Equipment-under-Test (EUT)</b>			
Description	Acoustic Calibrator		
Manufacturer	Pulsar		
Model Number	105		
Serial Number	63705		
Equipment Number	--		
<b>Calibration Particular</b>			
Date of Calibration	7-Aug-2021		
Calibration Equipment	4231(MLTE008) / AV200063 / 23-Jun-23 1357(MLTE190) / MLEC21/05/02 / 26-May-22		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	Not applicable
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages. All calibration results were within EUT specification.		
<b>Approved By &amp; Date</b>			
		K.O. Lo 7-Aug-2021	
<b>Statements</b>			
<ul style="list-style-type: none"> <li>* Calibration equipment used for this calibration are traceable to national / international standards.</li> <li>* 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.</li> <li>* MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT.</li> <li>* 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.</li> </ul>			





# MAXLAB

Certificate No.

MLCN212053S

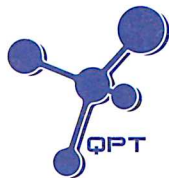
<i>Calibration Data</i>				
EUT Setting	Standard Reading	EUT Error from Setting	Calibration Uncertainty	EUT Specification
94 dB	93.9 dB	-0.1 dB	0.20 dB	± 0.2 dB

- END -

Calibrated By : Keneth  
Date : 7-Aug-21

Checked By : K.O. Lo  
Date : 7-Aug-21

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. : BA100007  
Date of Issue : 05 October 2021  
Page No. : 1 of 2

### PART A – CUSTOMER INFORMATION

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

### PART B – DESCRIPTION

Name of Equipment : Multi Water Quality Checker U-53  
Manufacturer : Horiba  
Serial Number : UHB5F2BB  
Date of Received : Sep 28, 2021  
Date of Calibration : Sep 29, 2021  
Date of Next Calibration<sup>(a)</sup> : Dec 28, 2021

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

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H <sup>+</sup> B
Dissolved Oxygen	APHA 21e 4500-O G
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.
Oxidation-Reduction Potential	APHA 22e 2580 B

### 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	3.82	-0.18	Satisfactory
7.42	7.43	0.01	Satisfactory
10.01	10.03	0.02	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
15	15.1	0.1	Satisfactory
25	25.1	0.1	Satisfactory
33.5	33.1	-0.4	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.

  
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Senior Chemist



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## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : BA100007  
Date of Issue : 05 October 2021  
Page No. : 2 of 2

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

#### (3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.65	0.56	-0.09	Satisfactory
1.91	1.79	-0.12	Satisfactory
3.30	3.34	0.04	Satisfactory
6.98	6.99	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	10.18	1.80	Satisfactory
20	20.70	3.50	Satisfactory
30	31.45	4.83	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	0.00	--	Satisfactory
10	10.5	5.0	Satisfactory
20	20.3	1.5	Satisfactory
100	106	6.0	Satisfactory
800	788	-1.5	Satisfactory

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

#### (6) Oxidation-Reduction Potential

Expected Reading (mV)	Displayed Reading (mV)	Tolerance (mV) <sup>(g)</sup>	Results
229	231	2	Satisfactory

Tolerance limit of Oxidation-Reduction Potential should be less than  $\pm 10$  (mV)

~ END OF REPORT ~

**Remark(s): -**

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

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

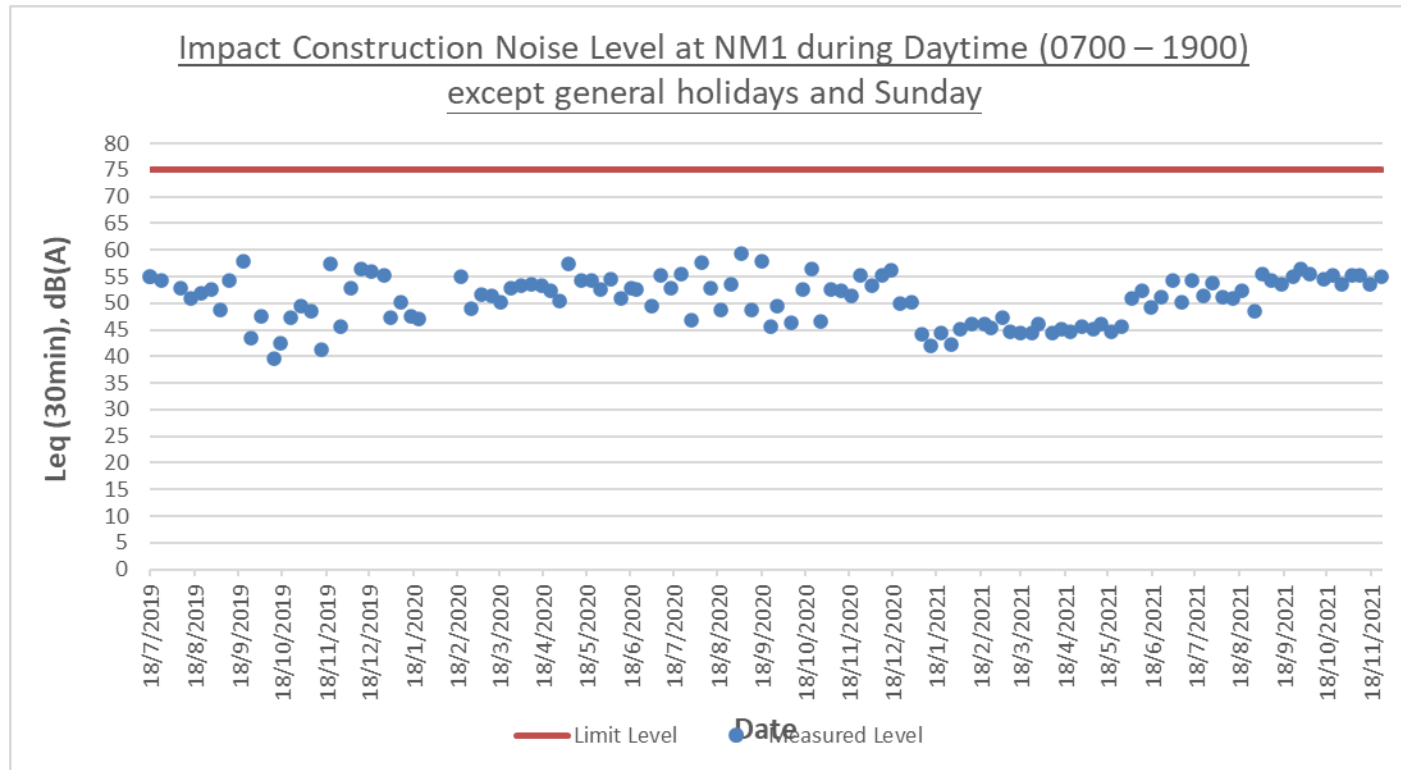
Appendix E  
Impact Noise Monitoring Data

## Impact Noise Monitoring Data

### NM1 – Lakeview Garden

Daytime (0700 – 1900) except general holidays and Sunday

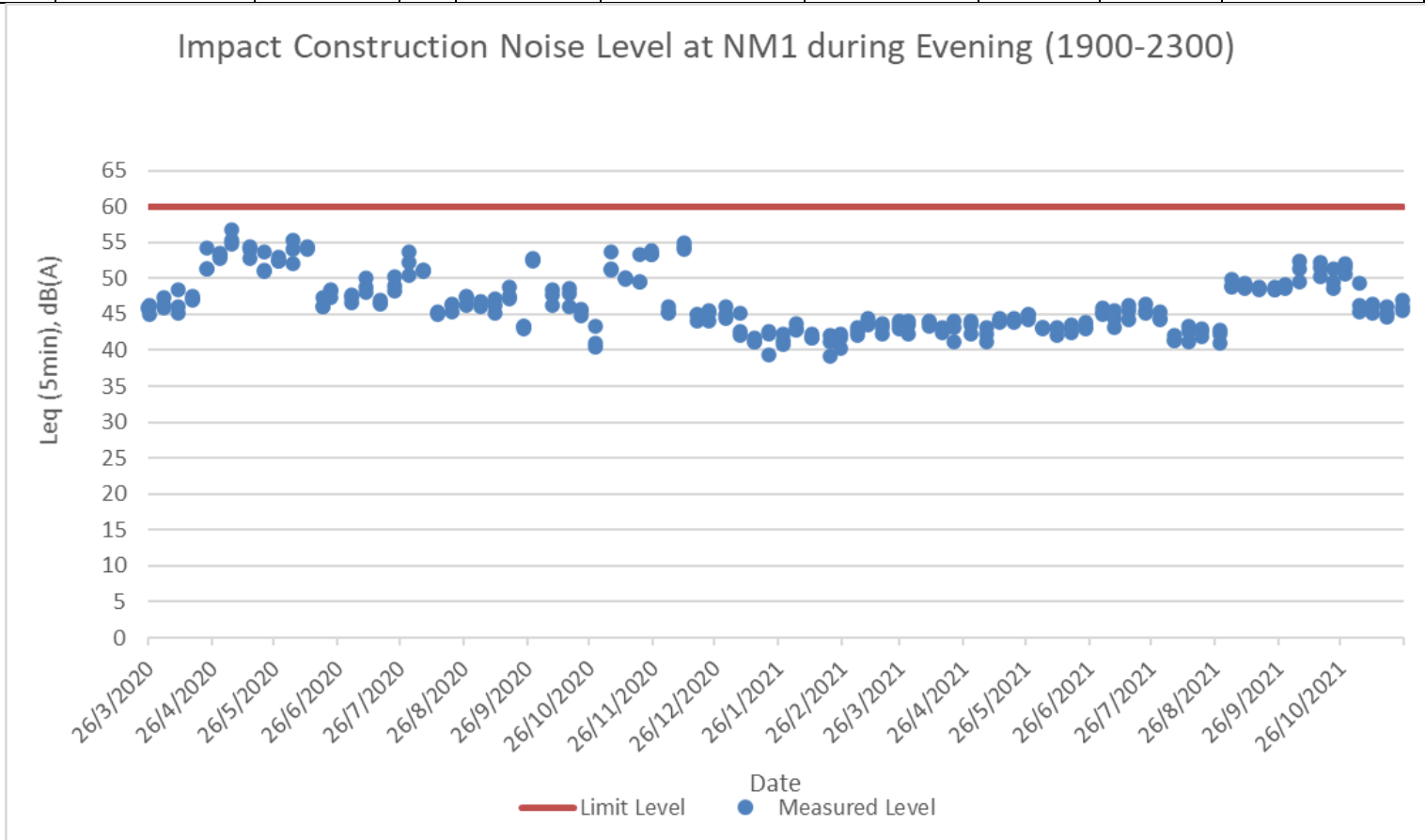
Date	Location	Time		Weather	Leq (30min)	L10	L90	Wind Speed	Temperature
4/11/2021	NM1	11:40	- 12:10	Sunny	55.2	58.1	50.2	0.2 m/s	26 °C
10/11/2021	NM1	8:00	- 8:30	Sunny	55.2	59.1	52.1	0.3 m/s	14 °C
17/11/2021	NM1	11:30	- 12:00	Sunny	55.6	59.4	52.1	0.0 m/s	20 °C
25/11/2021	NM1	10:30	- 11:00	Sunny	55.1	57.2	52.1	1.0 m/s	16 °C



All days during Evening (1900-2300)

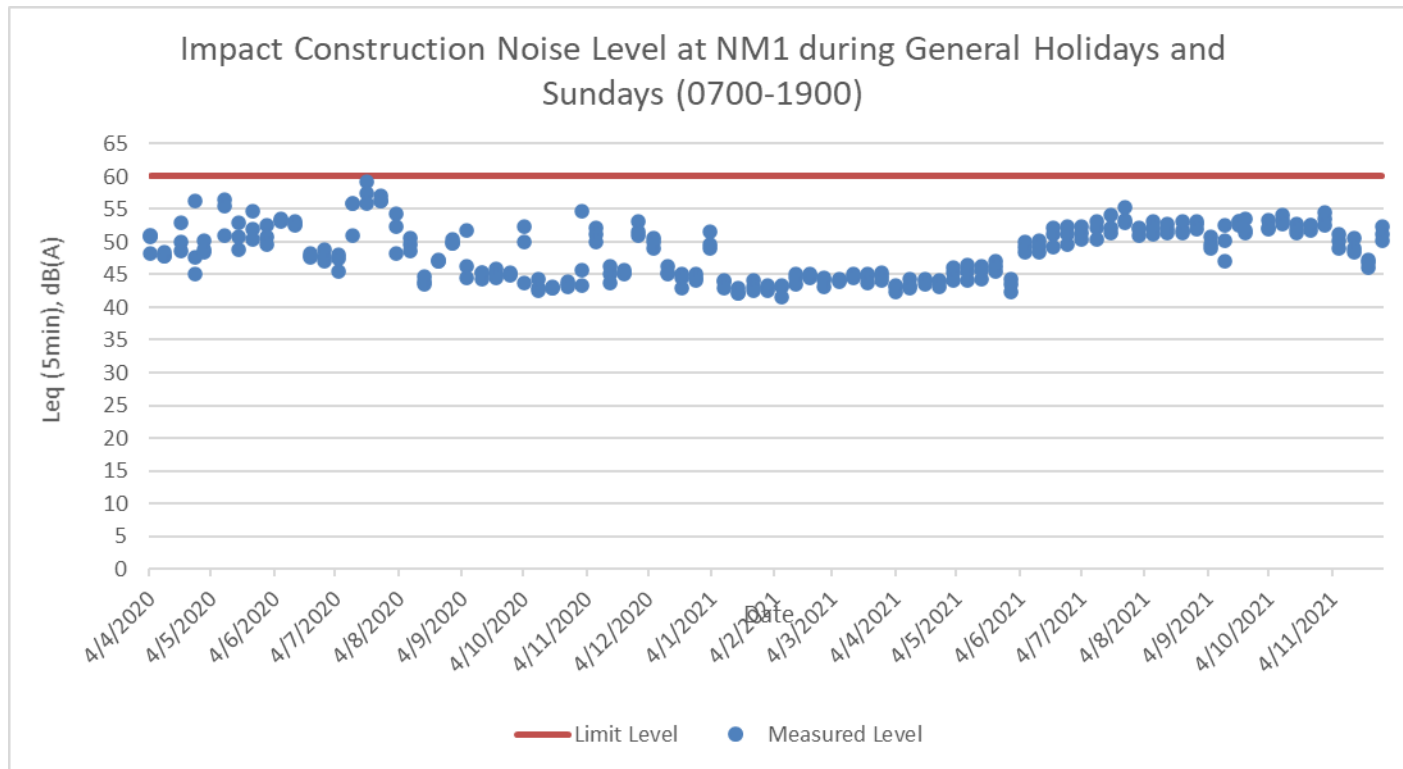
Date	Location	Time			Weather	L <sub>eq</sub> (5min)	L <sub>10</sub>	L <sub>90</sub>	Wind Speed	Temperature
4/11/2021	NM1	21:00	-	21:05	Fine	49.3	53.4	45.2	0.0 m/s	23.°C
4/11/2021	NM1	21:05	-	21:10	Fine	45.3	49.2	43.1		
4/11/2021	NM1	21:10	-	21:15	Fine	46.2	49.9	42.2		
10/11/2021	NM1	20:30	-	20:35	Fine	46.1	49.3	42.1	0.4 m/s	13°C
10/11/2021	NM1	20:35	-	20:40	Fine	45.1	48.2	43.1		
10/11/2021	NM1	20:40	-	20:45	Fine	46.5	49.9	41.9		
17/11/2021	NM1	20:02	-	20:07	Fine	45.2	49.3	43.1	0.6 m/s	19 °C
17/11/2021	NM1	20:07	-	20:12	Fine	44.6	48.2	42.2		
17/11/2021	NM1	20:12	-	20:17	Fine	46.1	50.6	43.6		
25/11/2021	NM1	19:30	-	19:35	Fine	46.1	49.6	43.1	0.0m/s	15 °C
25/11/2021	NM1	19:35	-	19:40	Fine	45.5	49.2	42.1		
25/11/2021	NM1	19:40	-	19:45	Fine	46.9	52.6	42.4		

Impact Construction Noise Level at NM1 during Evening (1900-2300)



Daytime (0700-1900) during general holidays and Sundays

Date	Location	Time			Weather	L <sub>eq</sub> (5min)	L <sub>10</sub>	L <sub>90</sub>	Wind Speed	Temperature
7/11/2021	NM1	15:23	-	15:28	sunny	49.1	54.2	45.1	0.4 m/s	26 °C
7/11/2021	NM1	15:28	-	15:33	sunny	50.2	54.3	47.2		
7/11/2021	NM1	15:33	-	15:38	sunny	51.1	55.1	48.2		
14/11/2021	NM1	14:30	-	14:35	Sunny	50.5	54.5	48.1	1.0 m/s	20 °C
14/11/2021	NM1	14:35	-	14:40	Sunny	49.1	52.5	46.2		
14/11/2021	NM1	14:40	-	14:45	Sunny	48.5	51.6	45.1		
21/11/2021	NM1	17:00	-	17:05	Sunny	46.1	50.1	43.3	1.0 m/s	18 °C
21/11/2021	NM1	17:05	-	17:10	Sunny	47.3	49.2	45.5		
21/11/2021	NM1	17:10	-	17:15	Sunny	46.9	49.1	42.1		
28/11/2021	NM1	16:00	-	16:05	Sunny	51.1	54.1	48.2	1.5 m/s	17 °C
28/11/2021	NM1	16:05	-	16:10	Sunny	52.3	56.2	49.3		
28/11/2021	NM1	16:10	-	16:15	Sunny	50.2	53.2	47.2		

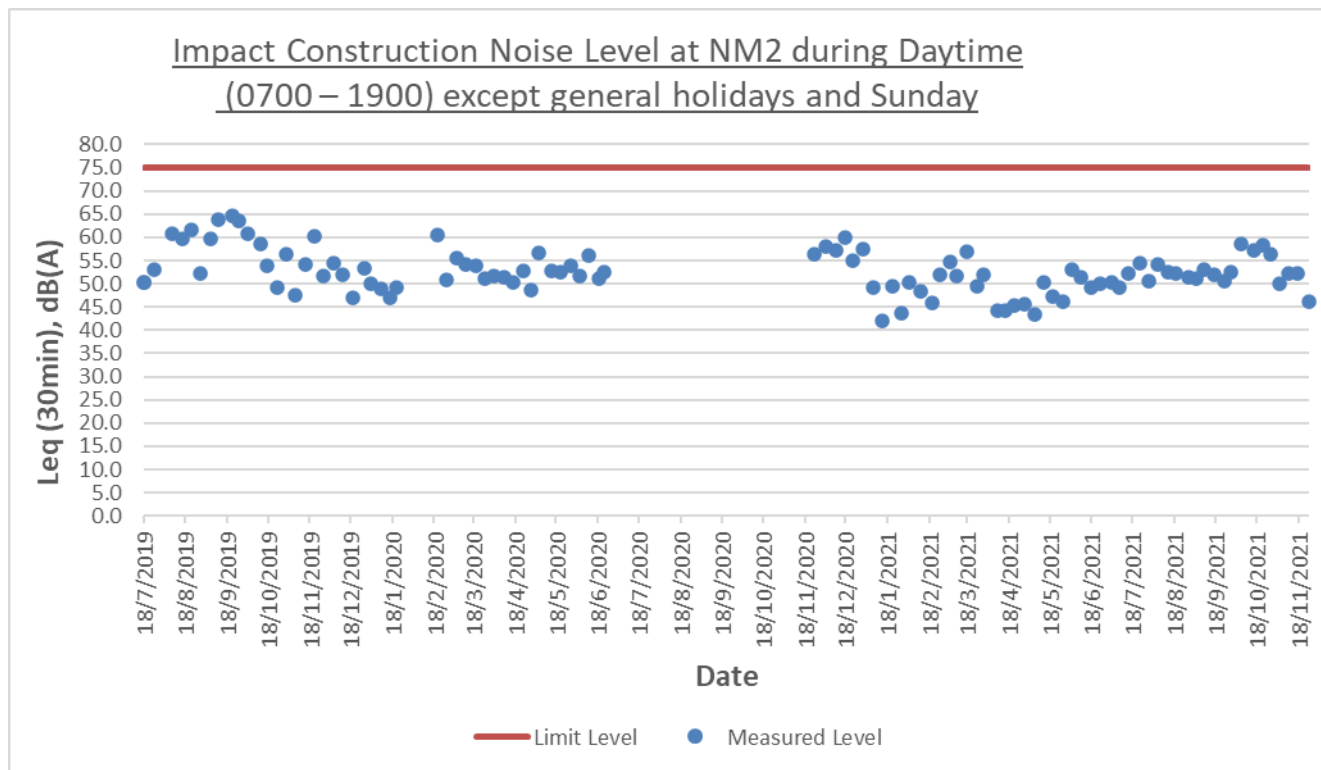


## Impact Noise Monitoring Data

NM2 – 4 ½ Milestone, Tai Po Road

Daytime (0700 – 1900) except general holidays and Sunday

Date	Location	Time		Weather	Leq (30min)	L10	L90	Wind Speed	Temperature
4/11/2021	NM2	13:00	- 13:30	Sunny	50.1	53.6	46.1	0.2 m/s	26 °C
10/11/2021	NM2	11:20	- 11:50	Sunny	52.2	54.9	49.3	0.3 m/s	14 °C
17/11/2021	NM2	13:09	- 13:39	Sunny	52.2	57.1	49.4	0.2m/s	20 °C
25/11/2021	NM2	13:00	- 13:30	Sunny	46.1	49.2	42.6	1.0 m/s	16 °C



Note 1: Period without data implied that no works were conducted at the monitoring location and no noise monitoring was needed for the location.



Appendix F

Impact Water Quality Monitoring Data

Location	Date	Sample ID	Time	Temp (°C)	pH	DO (mg/L)	DO%	Turbidity (NTU)	SS (mg/L)	Sampling Equipment
C1b	2/11/2021	C1b	11:01	23.8	6.8	7.6	89.8	10.4	5.7	Small Plastic Bottle
	2/11/2021	C1b#	11:02	23.7	6.7	7.3	86.3	10.4	5.6	
	4/11/2021	C1b	11:59	26.8	6.9	7.6	94.8	9.2	5.2	
	4/11/2021	C1b#	12:01	26.8	7.0	7.5	93.7	9.2	3.6	
	6/11/2021	C1b	15:37	24.8	7.2	8.0	95.8	9.6	6.2	
	6/11/2021	C1b#	15:38	24.8	7.2	7.9	95.2	9.3	4.4	
	8/11/2021	C1b	13:17	20.7	7.9	7.7	86.3	7.0	2.5	Water Sampler
	8/11/2021	C1b#	13:28	20.7	8.0	7.6	84.7	6.8	2.5	
	10/11/2021	C1b	11:09	22.5	7.3	7.4	85.2	8.3	5.8	
	10/11/2021	C1b#	11:10	22.6	7.1	7.8	90.4	8.9	8.3	
	12/11/2021	C1b	15:21	24.7	7.7	7.4	88.4	9.6	2.5	Small Plastic Bottle
	12/11/2021	C1b#	15:25	24.7	7.8	7.3	87.5	9.7	2.5	
	15/11/2021	C1b	12:30	23.0	7.0	7.6	88.3	8.9	2.5	
	15/11/2021	C1b#	12:33	23.0	6.9	7.4	86.8	8.9	2.5	
	17/11/2021	C1b	11:23	23.8	7.8	7.7	90.9	4.2	3.5	
	17/11/2021	C1b#	11:59	23.7	7.8	7.6	89.7	4.2	2.5	
	19/11/2021	C1b	17:43	22.2	7.4	7.2	83.1	11.3	9.9	
	19/11/2021	C1b#	17:44	22.2	7.3	7.3	83.4	11.2	6.9	
	23/11/2021	C1b	12:47	19.6	6.8	7.2	78.8	8.5	4.2	
	23/11/2021	C1b#	12:54	19.6	6.7	7.4	80.9	8.6	4.2	
	25/11/2021	C1b	17:22	20.8	7.3	7.2	81.0	26.1	9.4	
	25/11/2021	C1b#	17:24	20.8	7.2	7.1	79.8	26.9	11.2	
	27/11/2021	C1b	14:37	22.3	7.2	7.5	86.8	19.1	2.5	
27/11/2021	C1b#	14:43	22.3	7.2	7.6	87.1	18.1	2.5		
29/11/2021	C1b	16:12	22.4	7.1	7.7	88.7	23.1	12		
29/11/2021	C1b#	16:12	22.4	7.1	7.8	89.8	24.3	14		

**C1b on Days with Insufficient Water Available for Water Sampler**

2/11/2021



4/11/2021



6/11/2021



12/11/2021










15/11/2021



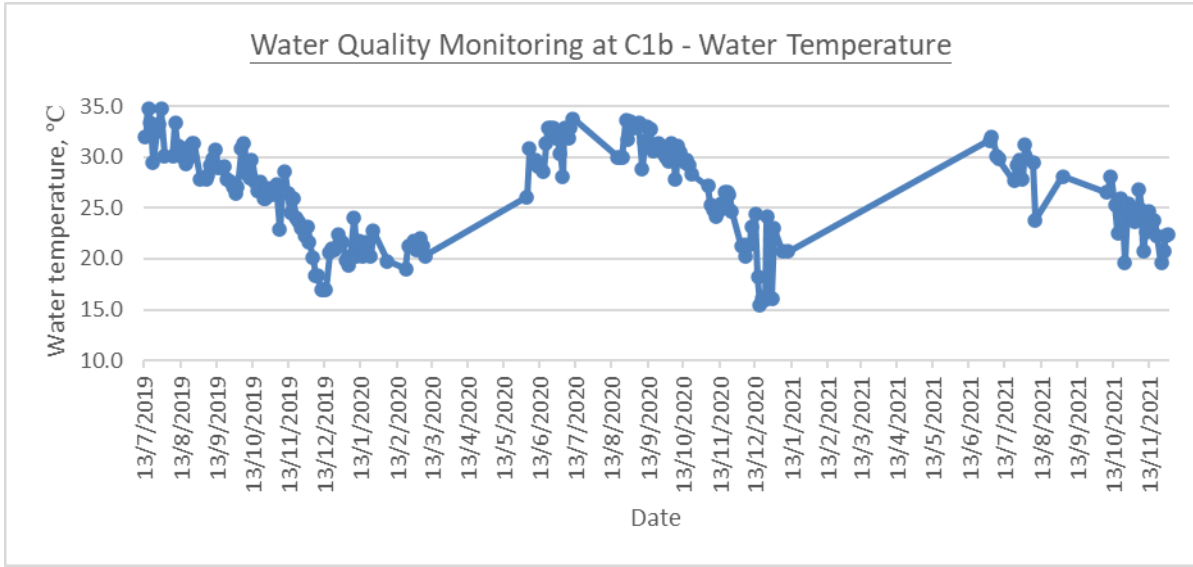
17/11/2021



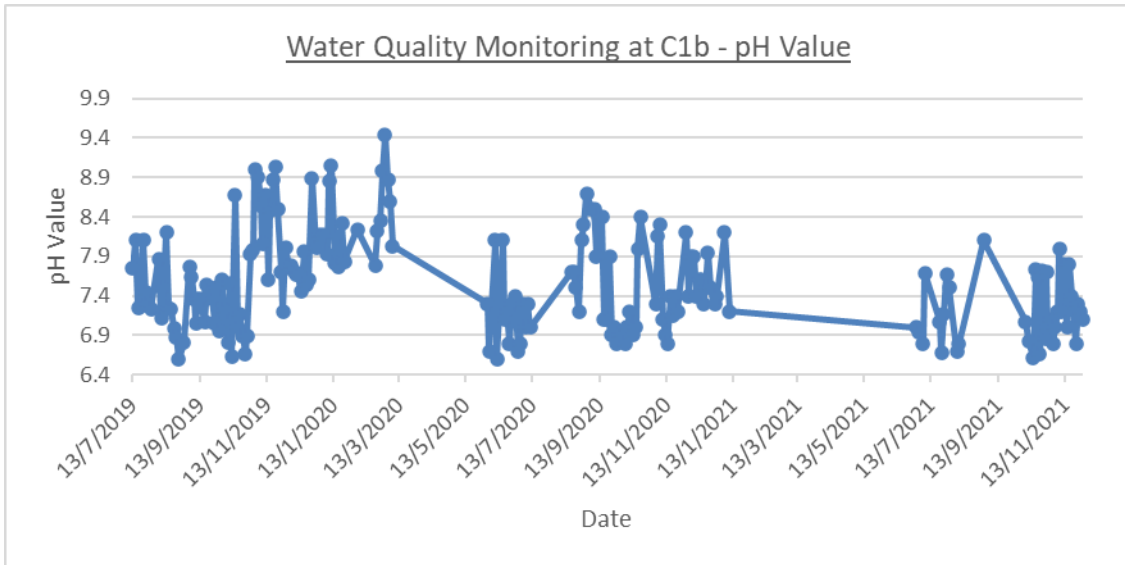
19/11/2021	23/11/2021	25/11/2021
 	 	 
27/11/2021	29/11/2021	
 	 	

Location	Date	Sample ID	Time	Temp (°C)	pH	DO (mg/L)	DO%	Turbidity (NTU)	SS (mg/L)	Sampling Equipment
D1b	2/11/2021	D1b	11:24	22.6	6.8	6.9	80.0	7.0	2.5	Water Sampler
	2/11/2021	D1b#	11:26	22.7	6.8	6.9	80.2	6.8	2.8	
	4/11/2021	D1b	12:12	26.6	7.2	6.9	86.3	5.6	2.8	
	4/11/2021	D1b#	12:01	26.6	7.2	7.1	88.8	5.4	2.8	
	6/11/2021	D1b	15:44	24.4	7.2	7.4	88.0	4.5	2.8	
	6/11/2021	D1b#	15:47	24.3	7.2	7.4	88.1	4.9	2.5	
	8/11/2021	D1b	12:57	24.7	7.0	8.0	95.8	7.4	3.8	
	8/11/2021	D1b#	12:58	24.6	6.9	7.9	95.0	7.0	5.4	
	10/11/2021	D1b	11:23	25.1	7.1	7.3	88.0	6.1	4.4	
	10/11/2021	D1b#	11:25	25.3	6.9	7.3	88.5	6.5	2.7	
	12/11/2021	D1b	15:38	25.3	7.3	7.3	89.3	6.7	2.5	
	12/11/2021	D1b#	15:39	25.3	7.4	7.4	89.6	6.5	2.5	
	15/11/2021	D1b	12:39	20.6	7.4	7.4	82.6	1.9	2.5	
	15/11/2021	D1b#	12:40	20.5	7.4	7.4	82.0	2.2	2.5	
	17/11/2021	D1b	14:22	19.9	7.3	7.4	81.3	2.5	2.5	
	17/11/2021	D1b#	12:20	20.2	7.3	7.3	81.1	2.8	2.5	
	19/11/2021	D1b	17:54	20.4	6.9	7.5	82.9	2.3	2.5	
	19/11/2021	D1b#	17:55	20.2	6.9	7.3	80.8	2.3	2.5	
	23/11/2021	D1b	14:14	20.6	7.1	7.6	84.6	4.9	2.5	
	23/11/2021	D1b#	14:15	20.6	7.0	7.8	86.5	5.0	2.5	
	25/11/2021	D1b	17:29	20.9	7.0	7.2	80.7	7.1	2.9	
	25/11/2021	D1b#	17:53	20.8	7.0	7.3	81.5	7.0	3.4	
	27/11/2021	D1b	16:08	23.1	7.1	7.3	85.6	6.8	2.5	
	27/11/2021	D1b#	16:11	23.1	7.1	7.2	84.4	6.8	2.5	
	29/11/2021	D1b	14:04	22.5	6.9	7.2	83.4	6.2	4.0	
	29/11/2021	D1b#	14:06	22.4	7.0	7.3	83.5	6.1	2.5	
	2/11/2021	D1b	11:24	22.6	6.8	6.9	80.0	7.0	2.5	
	2/11/2021	D1b#	11:26	22.7	6.8	6.9	80.2	6.8	2.8	

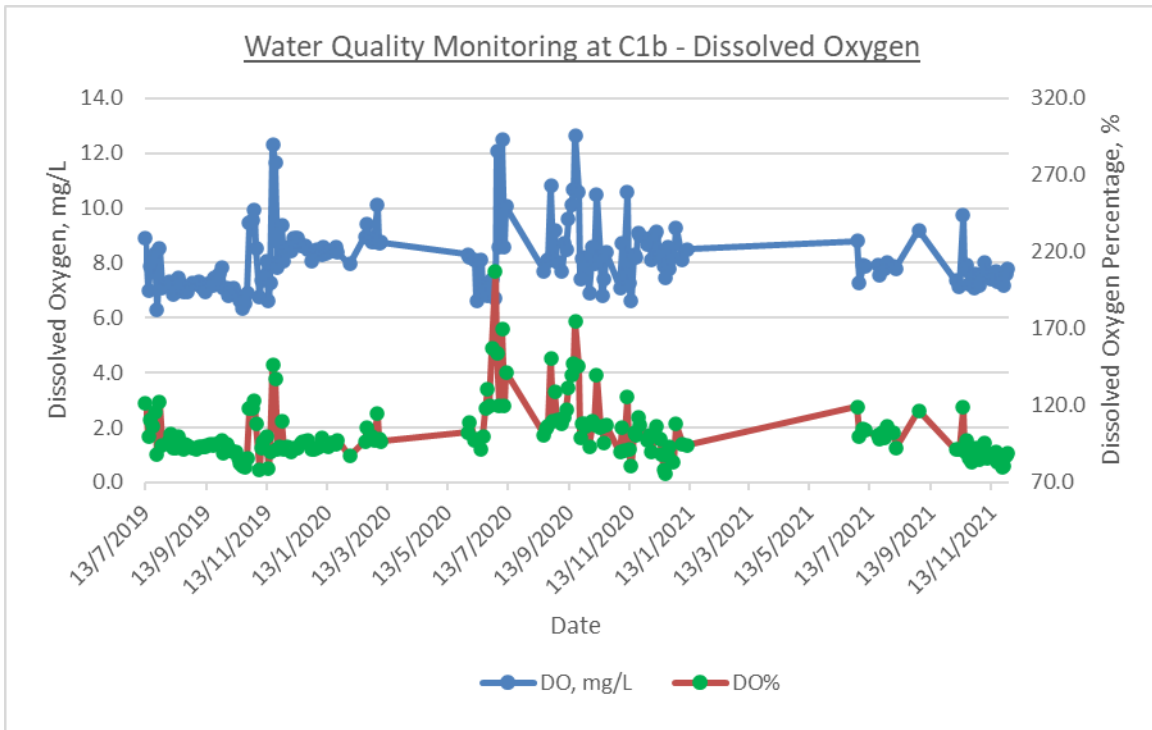
C1b



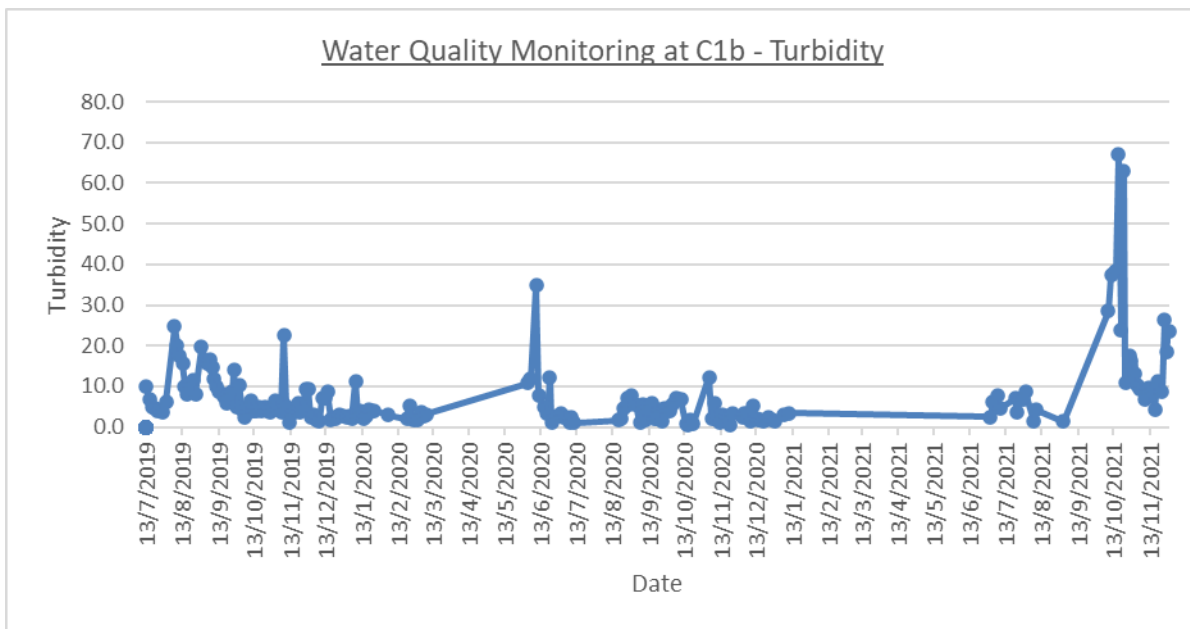
Note 1: Period without data implied that water in location C1b was dried up, insufficient water was available for sample collection



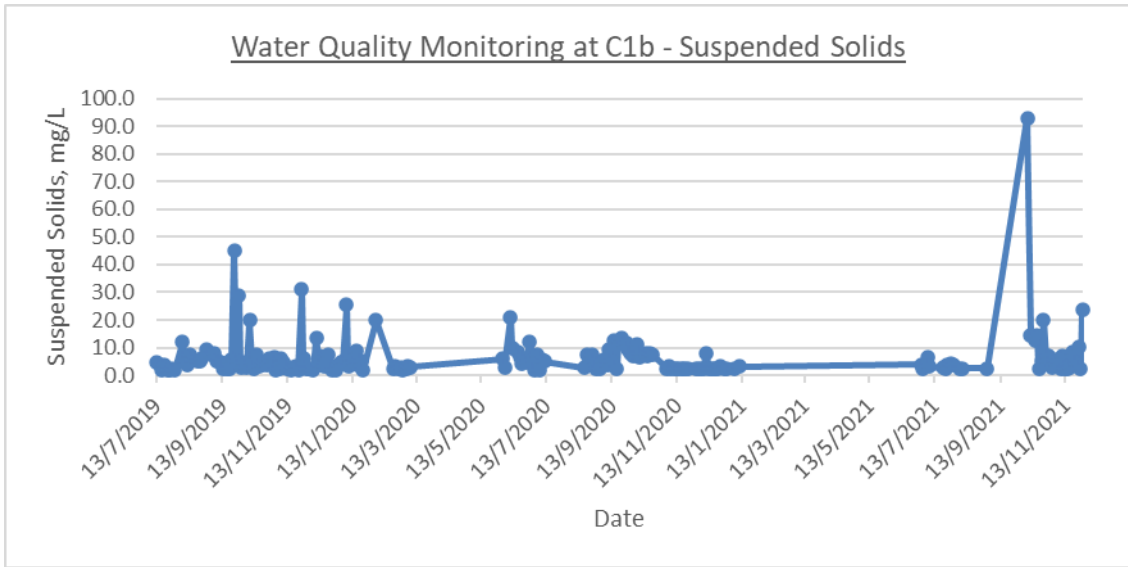
Note 1: Period without data implied that water in location C1b was dried up, insufficient water was available for sample collection



Note 1: Period without data implied that water in location C1b was dried up, insufficient water was available for sample collection



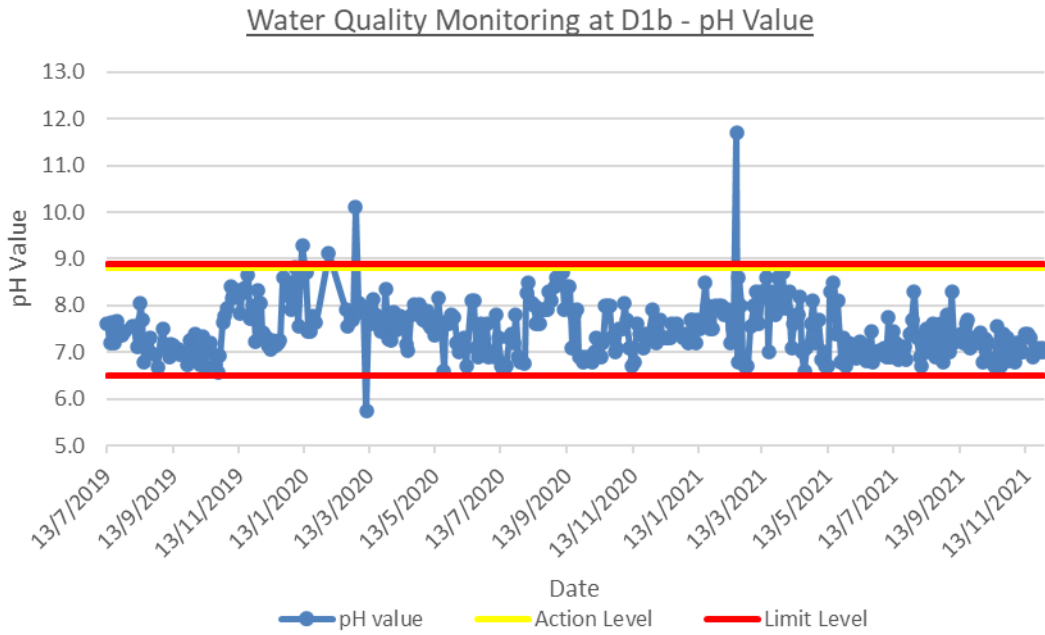
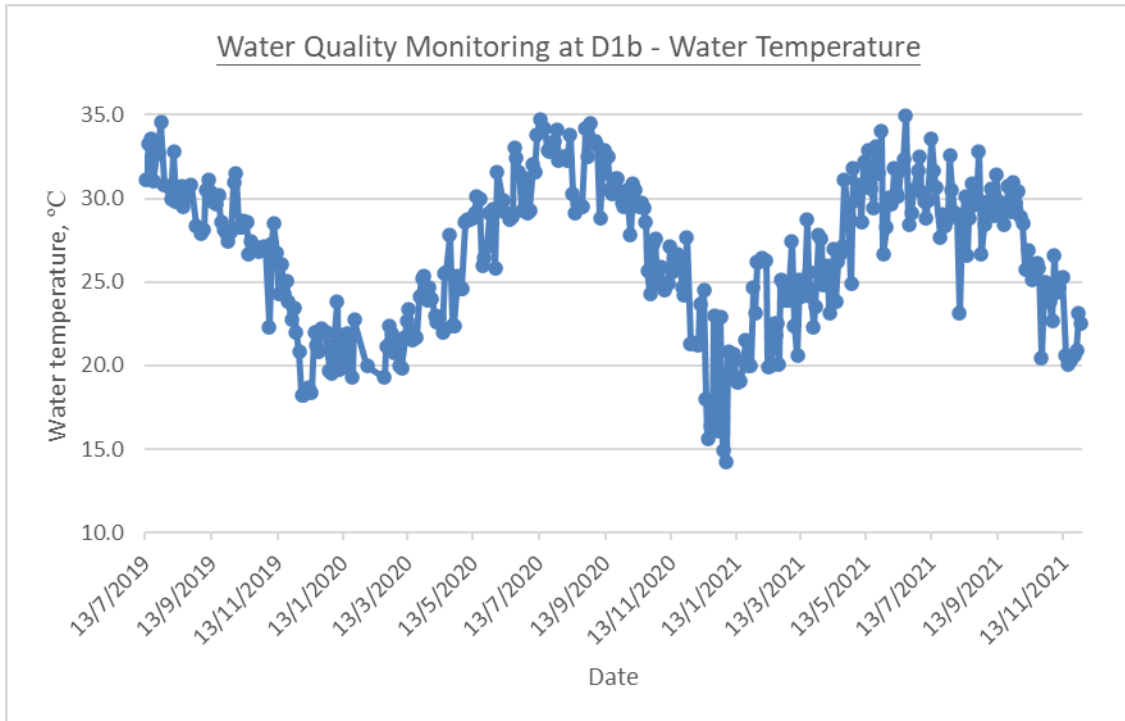
Note 1: Period without data implied that water in location C1b was dried up, insufficient water was available for sample collection



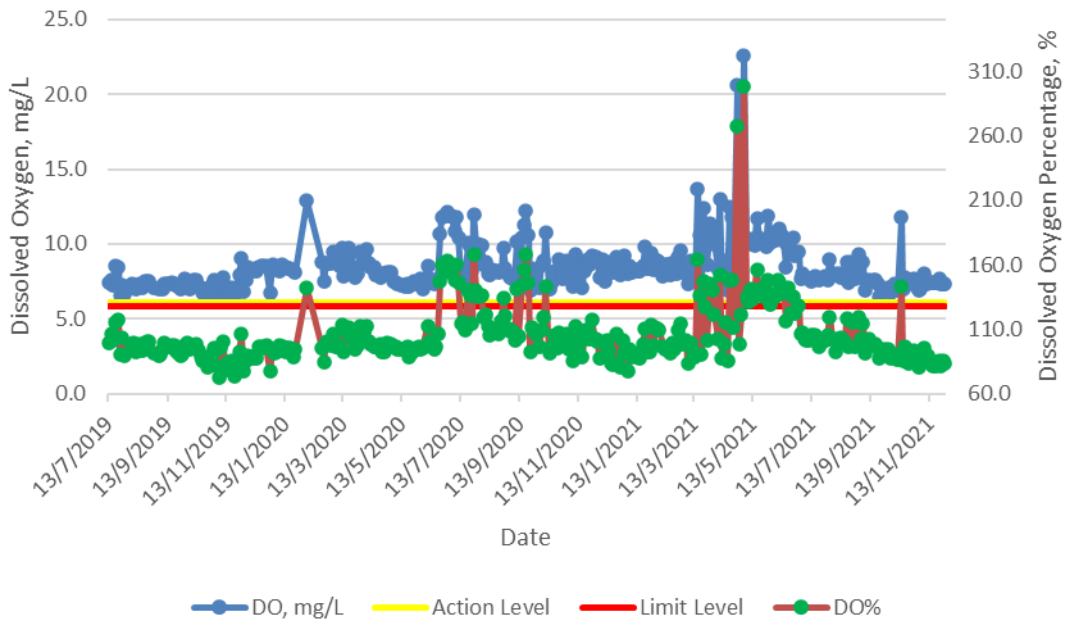
Note 1: Period without data implied that water in location C1b was dried up, insufficient water was available for sample collection



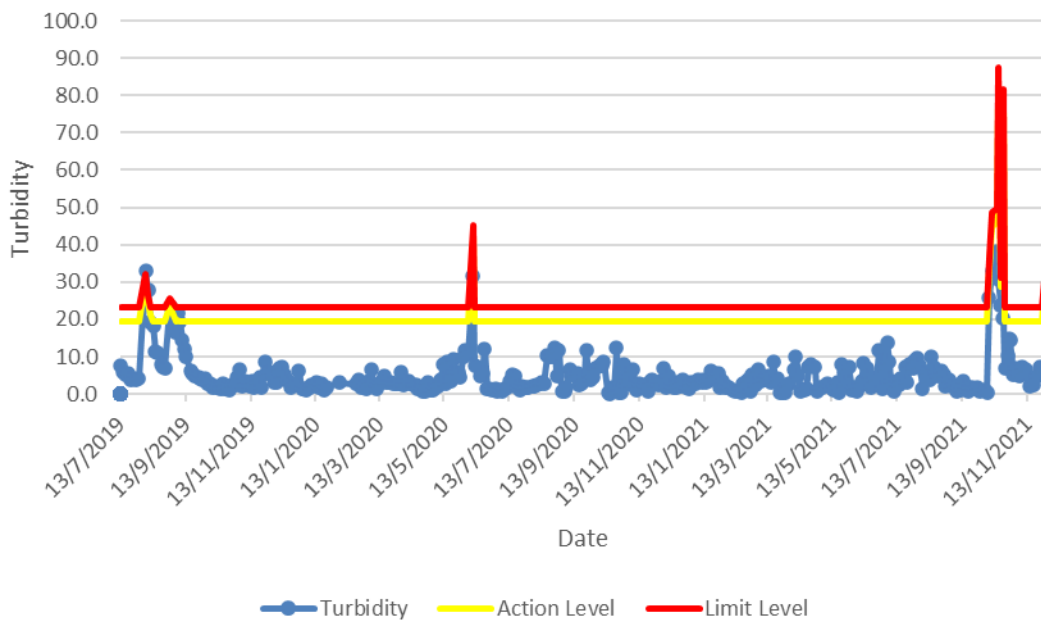
D1b



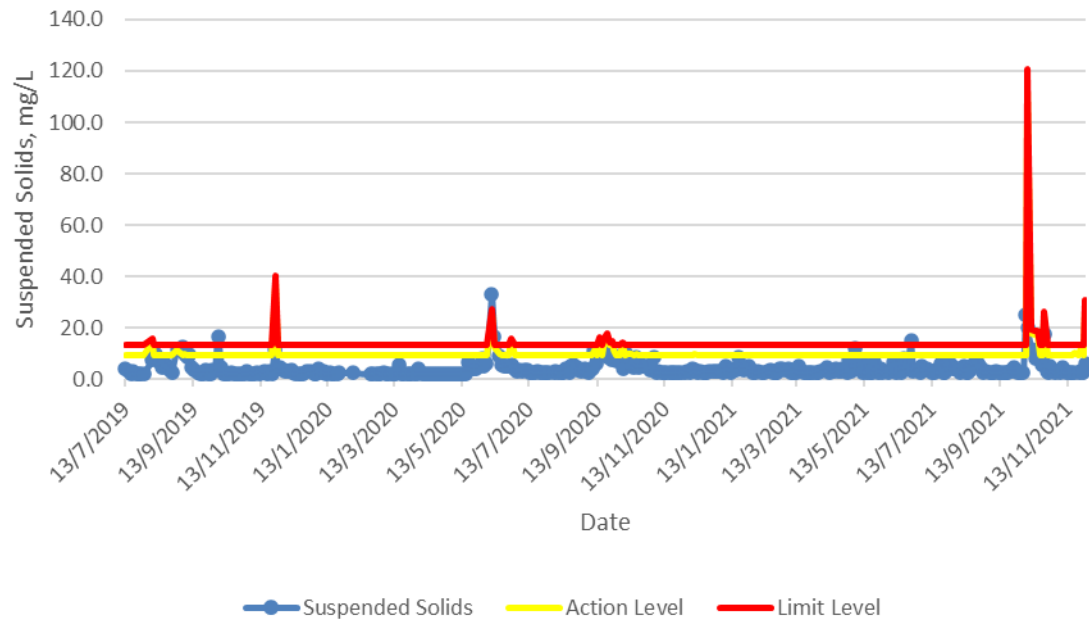
### Water Quality Monitoring at D1b - Dissolved Oxygen



### Water Quality Monitoring at D1b - Turbidity



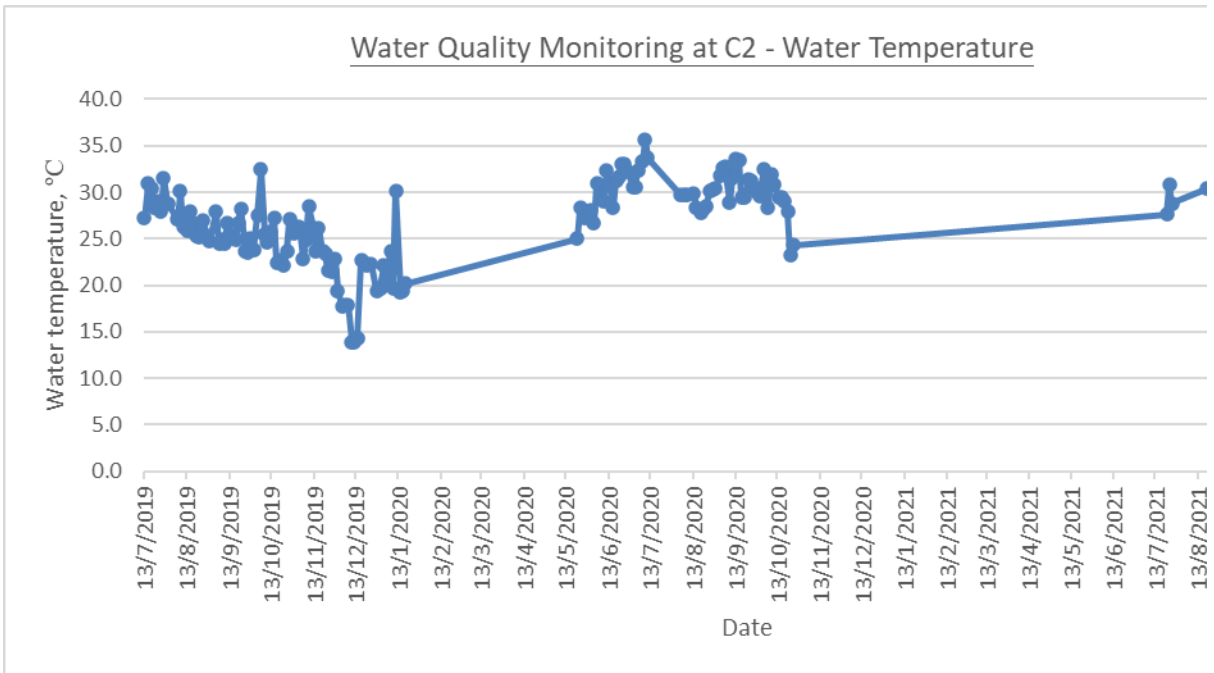
### Water Quality Monitoring at D1b - Suspended Solids



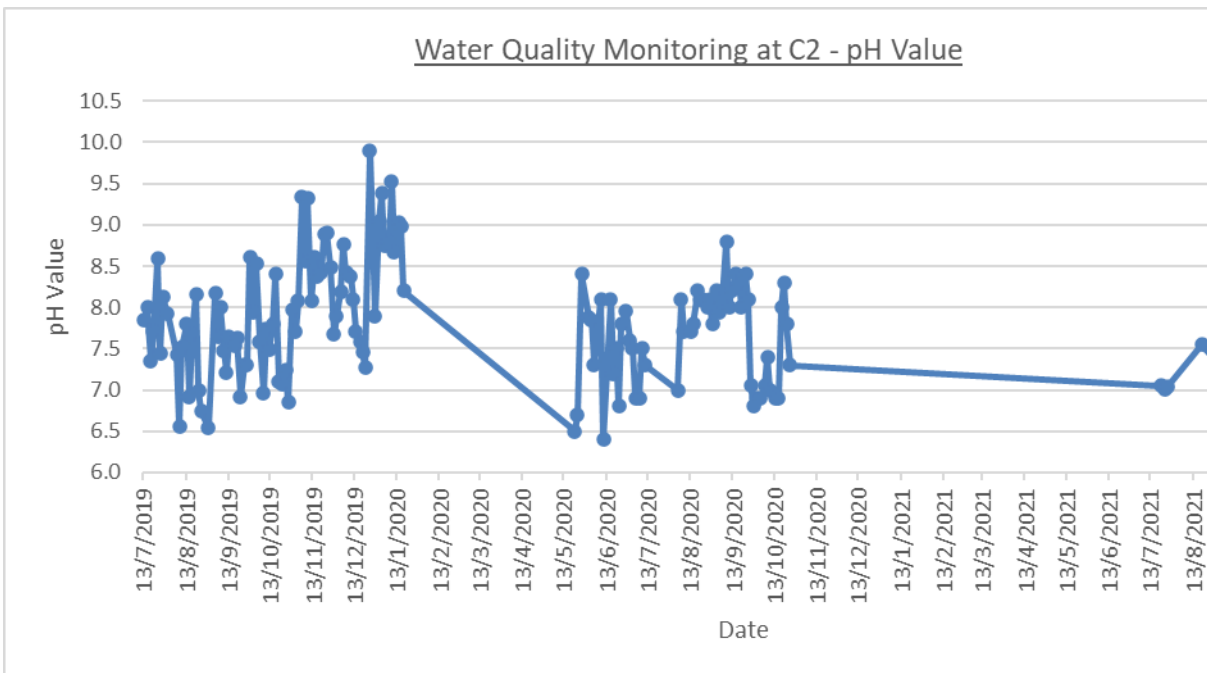
Location	Date	Sample ID	Time	Temp (°C)	pH	DO (mg/L)	DO%	Turbidity (NTU)	SS (mg/L)	Sampling Equipment
C2	2/11/2021	C2	10:18	24.0	6.7	7.6	89.8	7.7	4.7	Water Sampler
	2/11/2021	C2#	10:19	24.0	6.7	7.5	89.4	6.5	8.4	
	4/11/2021	C2	10:38	27.2	7.1	6.9	87.3	7.2	4.3	
	4/11/2021	C2#	10:39	27.2	7.1	7.1	89.2	7.3	2.5	
	6/11/2021	C2	14:07	25.0	7.3	7.7	93.6	7.6	5.9	
	6/11/2021	C2#	14:09	24.9	7.2	7.8	94.4	7.7	6.1	
	8/11/2021	C2	11:05	20.2	7.2	7.5	82.4	4.9	3.9	
	8/11/2021	C2#	11:06	20.2	7.2	7.2	79.7	6.3	4.6	
	10/11/2021	C2	9:23	21.6	7.0	7.6	85.8	10.3	2.8	
	10/11/2021	C2#	9:27	21.5	7.0	7.6	86.3	9.5	7.4	
	12/11/2021	C2	10:58	23.8	7.5	7.4	87.7	6.1	2.5	
	12/11/2021	C2#	11:09	24.0	7.5	7.6	90.7	6.3	2.5	
	15/11/2021	C2	11:01	22.3	7.0	7.4	84.6	7.7	2.5	
	15/11/2021	C2#	11:05	22.3	6.9	7.6	87.2	7.6	2.5	
	17/11/2021	C2	9:43	24.1	7.7	7.3	86.6	7.9	5.6	
	17/11/2021	C2#	9:46	24.1	7.6	7.2	85.4	7.9	2.5	
	19/11/2021	C2	16:19	20.5	7.6	7.3	81.6	10.7	3.7	
	19/11/2021	C2#	16:23	20.6	7.6	7.4	81.9	9.9	2.5	
	23/11/2021	C2	11:11	18.8	7.0	7.4	79.4	5.2	4.7	
	23/11/2021	C2#	11:11	18.8	7.0	7.5	80.3	5.1	3.7	
	25/11/2021	C2	16:06	21.3	7.2	7.3	82.6	13.4	6.6	
	25/11/2021	C2#	16:08	21.3	7.2	7.2	81.6	14.7	6.6	
	27/11/2021	C2	13:01	21.7	7.1	7.7	87.8	17.6	2.5	
	27/11/2021	C2#	13:06	21.7	7.1	7.8	88.6	16.9	2.5	
	29/11/2021	C2	16:12	22.4	7.1	7.7	88.7	23.1	19.0	
	29/11/2021	C2#	16:12	22.4	7.1	7.8	89.8	24.3	21.0	
	30/11/2021	C2	15:10	25.3	7.7	7.9	95.8	21.1	10.0	
	30/11/2021	C2#	15:16	25.4	7.7	8.0	96.9	21.3	15.0	

Location	Date	Sample ID	Time	Temp (°C)	pH	DO (mg/L)	DO%	Turbidity (NTU)	SS (mg/L)	Sampling Equipment
D2a	2/11/2021	D2a	10:33	24.2	6.8	7.6	90.9	4.6	4.0	Water Sampler
	2/11/2021	D2a#	10:34	23.7	6.8	7.9	93.3	4.5	3.0	
	4/11/2021	D2a	10:53	26.8	7.0	7.0	87.9	3.7	2.9	
	4/11/2021	D2a#	10:56	26.8	6.9	6.9	86.6	4.2	2.5	
	6/11/2021	D2a	14:29	24.4	7.1	7.6	90.6	5.6	2.5	
	6/11/2021	D2a#	14:34	24.0	7.1	7.5	89.5	5.5	5.8	
	8/11/2021	D2a	11:27	24.3	7.0	7.8	92.9	4.4	3.6	
	8/11/2021	D2a#	11:28	24.5	7.1	7.9	94.3	4.0	3.4	
	10/11/2021	D2a	9:46	24.1	6.8	7.7	91.9	5.0	7.3	
	10/11/2021	D2a#	9:48	24.4	6.7	7.6	90.4	4.7	6.6	
	12/11/2021	D2a	12:25	24.3	7.7	7.9	94.7	2.8	5.8	
	12/11/2021	D2a#	12:34	24.3	7.6	7.6	90.7	2.7	5.4	
	15/11/2021	D2a	11:21	22.3	7.1	7.6	87.1	3.5	2.5	
	15/11/2021	D2a#	11:22	22.2	7.1	7.5	86.7	3.5	2.5	
	17/11/2021	D2a	10:06	23.8	7.0	7.2	85.2	5.2	2.5	
	17/11/2021	D2a#	10:11	23.9	7.2	6.9	81.7	5.2	2.5	
	19/11/2021	D2a	16:42	20.0	7.4	7.4	81.5	4.4	2.5	
	19/11/2021	D2a#	16:47	20.1	7.4	7.3	79.9	4.9	2.5	
	23/11/2021	D2a	11:36	20.5	7.2	7.4	82.1	3.9	2.7	
	23/11/2021	D2a#	11:39	20.5	7.2	7.3	81.1	3.7	2.8	
	25/11/2021	D2a	16:26	21.2	6.9	7.3	82.3	6.9	3.6	
	25/11/2021	D2a#	16:37	21.1	6.9	7.4	82.9	6.9	2.5	
	27/11/2021	D2a	13:25	21.1	7.1	7.4	83.3	6.3	2.5	
	27/11/2021	D2a#	13:29	21.2	7.1	7.4	83.5	6.5	2.5	
29/11/2021	D2a	16:36	22.6	8.6	10.9	126.0	190.0	90.0		
29/11/2021	D2a#	16:37	22.6	8.5	10.5	121.7	189.0	98.0		
30/11/2021	D2a	15:32	27.7	7.1	7.5	95.2	5.4	5.7		
30/11/2021	D2a#	15:34	27.7	7.1	7.4	93.7	6.0	2.5		
D2a	<b>Date</b>	<b>Approximate Sampling Location Coordinates</b>								
	2/11/2021	E 835039.408 N 825657.474								
	4/11/2021									
	6/11/2021									
	8/11/2021	E 835056.118 N 825662.199								
	10/11/2021									
	12/11/2021									
	15/11/2021	E 835007.776 N 825647.653								
	17/11/2021									
	19/11/2021									
	23/11/2021	E 834963.496 N 825813.699								
	25/11/2021									
	27/11/2021	825721.483 N 835001.274 E								
	29/11/2021									
30/11/2021	E 834963.496 N 825813.699									

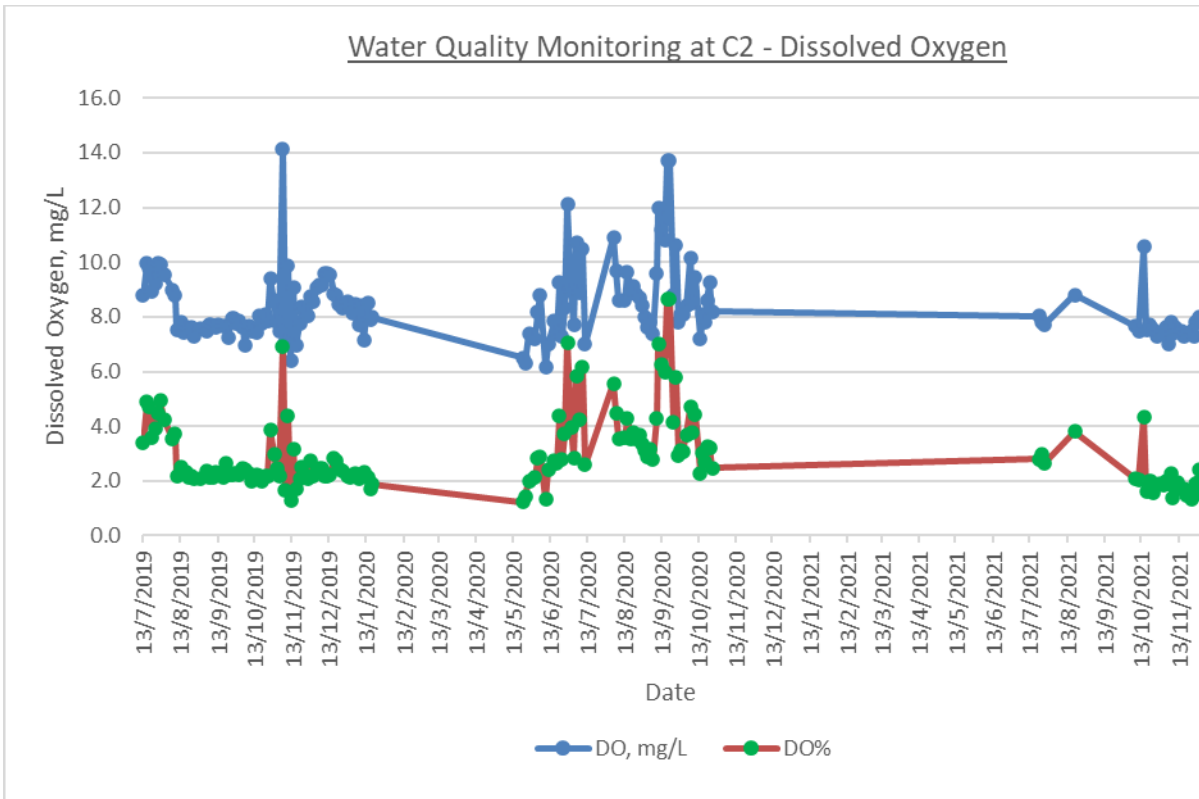
C2



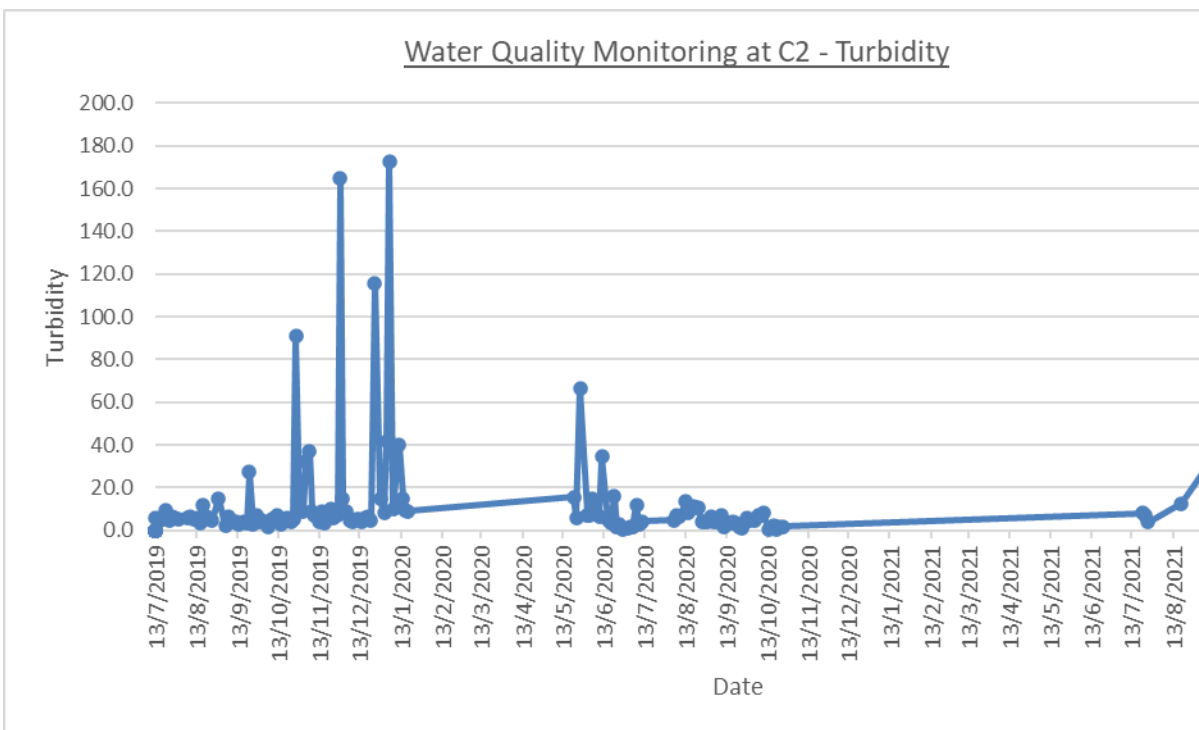
Note 1: Period without data implied that water in location C2 was dried up, insufficient water was available for sample collection



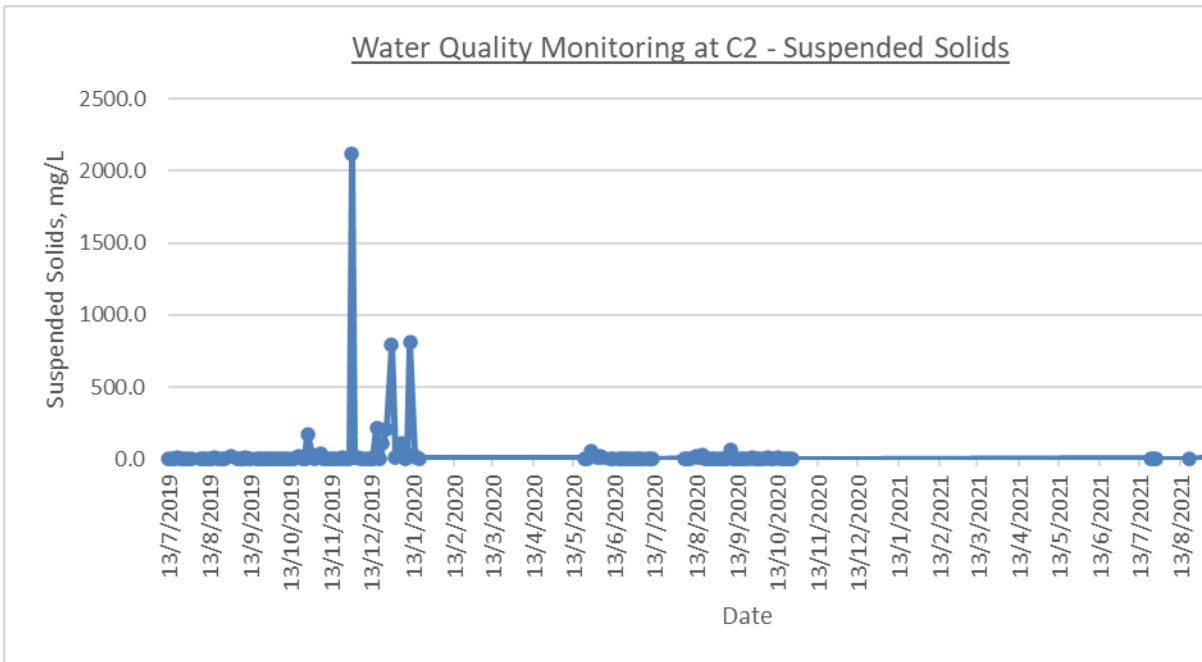
Note 1: Period without data implied that water in location C2 was dried up, insufficient water was available for sample collection



Note 1: Period without data implied that water in location C2 was dried up, insufficient water was available for sample collection



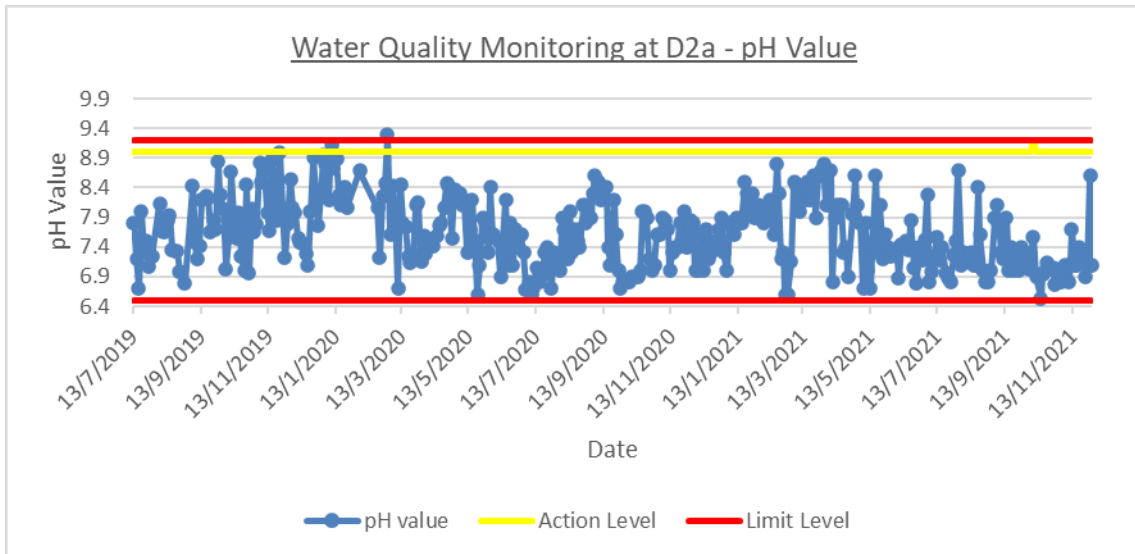
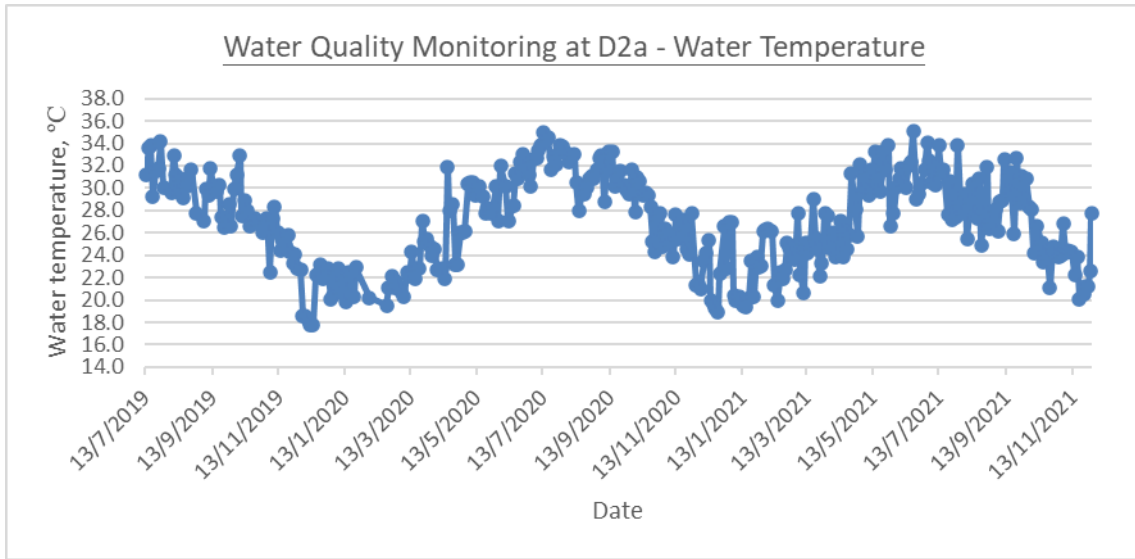
Note 1: Period without data implied that water in location C2 was dried up, insufficient water was available for sample collection



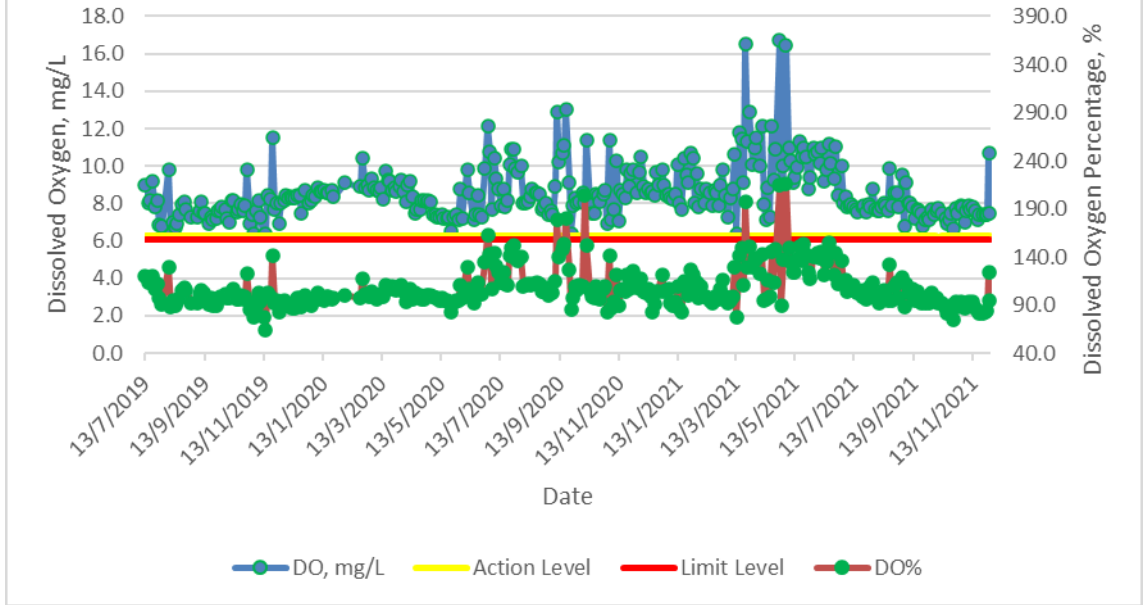
Note 1: Period without data implied that water in location C2 was dried up, insufficient water was available for sample collection



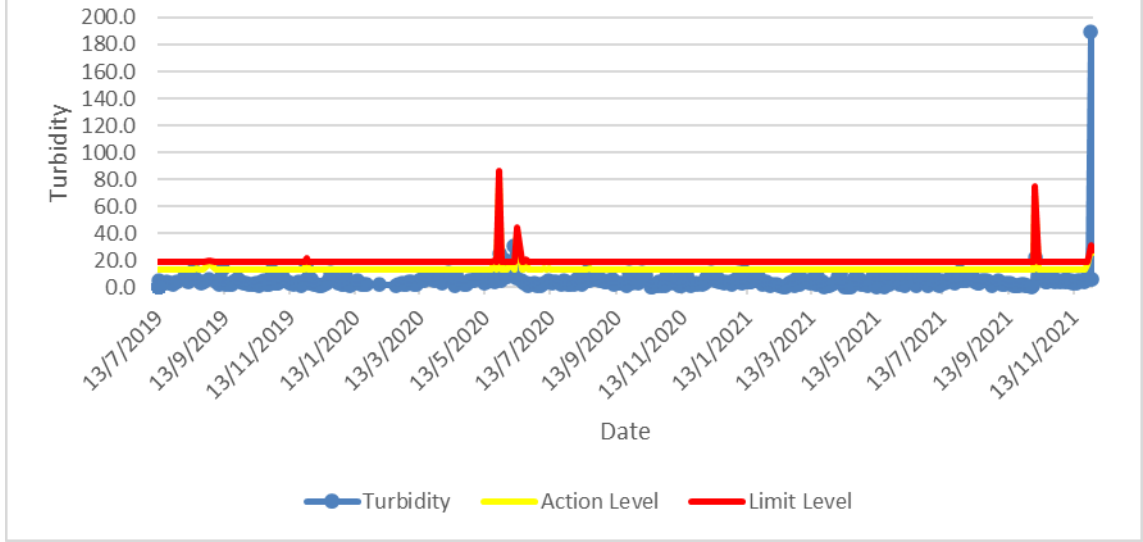
D2a



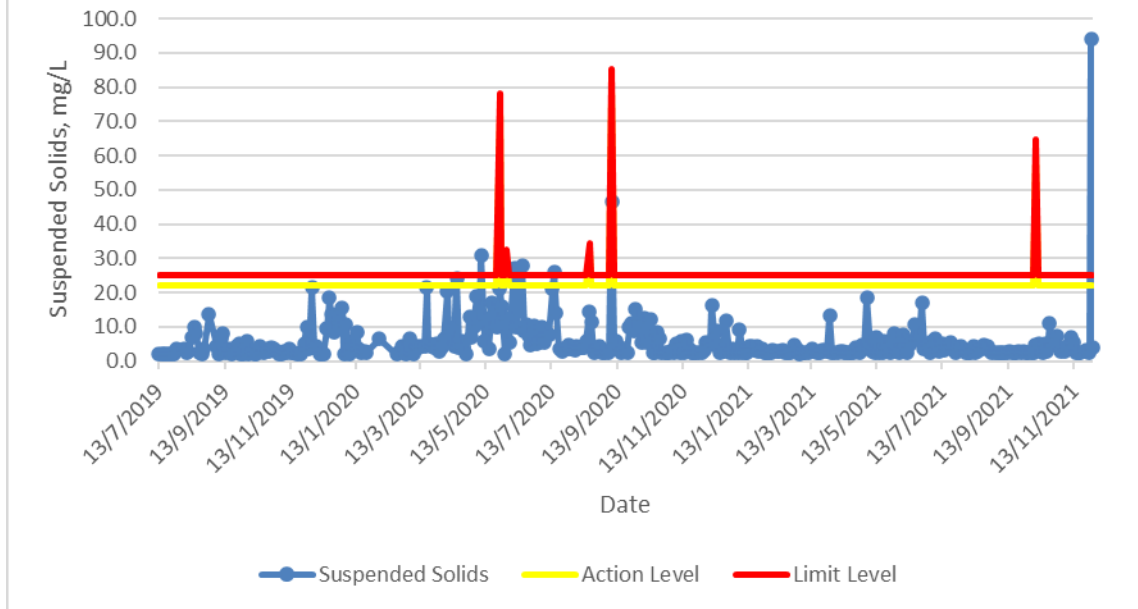
### Water Quality Monitoring at D2a - Dissolved Oxygen



### Water Quality Monitoring at D2a - Turbidity



### Water Quality Monitoring at D2a - Suspended Solids



## Appendix G

### 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 H

### Monthly Waste Flow Table





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

Contract No.: DC/2018/08

### Monthly Summary Waste Flow Table for 2021 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Jan	6.334	0	0	3.028	3.306	0	0	0	0	0.4	0.00847
Feb	4.008	0	0	1.461	2.547	0	0	0	0	1.4	0.01195
Mar	6.096	0	0	0	6.096	0	0	0	0	0	0.00638
Apr	4.013	0	0	0	4.013	0	0	0	0	4.2	0.00612
May	4.096	0	0	1.130	2.966	0	0	0	0	0	0.00769
June	5.882	0	0	5.212	0.670	0	0	0	0	0	0.00533
Sub-total	30.429	0	0	10.831	19.598	0	0	0	0	6	0.04594
July	4.194	0	0	3.188	1.006	0	0	0	0	0.05	0.02628
Aug	6.064	0	0	2.820	3.243	0	0	0	0	1	0.01173
Sept	5.775	0	0	4.467	1.308	0	64.05	0	0	0	0.01292
Oct	0.164	0	0	0	0.164	0	82.35	0	0	0	0.02909
Nov	0.160	0	0	0	0.160	0	0	0	0	1.4	0.02673
Dec											
Total	46.786	0	0	21.306	25.479	0	146.40	0	0	8.45	0.15269

Remark: Use of conversion factors: density of inert C&D materials (2 ton/m<sup>3</sup>) and general refuse (1 ton/m<sup>3</sup>)



Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
37.523	37.2	0	0	5.92	0	0	0	0	4.8	0.323

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

## Appendix I

# 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 J

# Tentative Monitoring Schedule of Next Reporting Period

IRTS – EM&A Monitoring & Inspection Schedule

**December 2021**

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			1 Impact Water Quality Monitoring & Noise Monitoring at NM1 & NM2 (09:00-19:00); NM1 (19:00-23:00)	2	3 Impact Water Quality Monitoring	4
5 Noise Monitoring at NM1 (09:00-19:00)	6	7 Impact Water Quality Monitoring & Weekly Site Inspection	8	9 Impact Water Quality Monitoring & Noise Monitoring at NM1 & NM2 (09:00-19:00); NM1 (19:00-23:00)	10	11 Impact Water Quality Monitoring
12 Noise Monitoring at NM1 (09:00-19:00)	13 Impact Water Quality Monitoring	14 Weekly Site Inspection	15 Impact Water Quality Monitoring & Noise Monitoring at NM1 & NM2 (09:00-19:00); NM1 (19:00-23:00)	16	17 Impact Water Quality Monitoring	18
19 Noise Monitoring at NM1 (09:00-19:00)	20 Impact Water Quality Monitoring	21 Weekly Site Inspection	22 Impact Water Quality Monitoring & Noise Monitoring at NM1 & NM2 (09:00-19:00); NM1 (19:00-23:00)	23	24 Impact Water Quality Monitoring	25
26 Noise Monitoring at NM1 (09:00-19:00)	27 Impact Water Quality Monitoring	28 Weekly Site Inspection	29 Impact Water Quality Monitoring & Noise Monitoring at NM1 & NM2 (09:00-19:00); NM1 (19:00-23:00)	30	31 Impact Water Quality Monitoring	

 = General Holiday

## Appendix K

# Cumulative Statistics on Complaints, Notifications of Summons And Successful Prosecutions

Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 Nov 2021 - 30 Nov 2021	0	1	N/A

Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Details
1 Nov 2021 - 30 Nov 2021	0	0	N/A

Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Details
1 Nov 2021 - 30 Nov 2021	0	0	N/A

Appendix L  
Investigation Report on  
Exceedance



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

<b>Our Ref.</b>	IR026						
<b>Monitoring Date</b>	29 November 2021						
<b>Time</b>	16:36						
<b>Environmental Aspect</b>	Water Quality						
<b>Monitoring Location</b>	D2a						
<b>Parameter</b>	Turbidity						
<b>Control Level</b>	23.7						
<b>Action Level</b>	28.44						
<b>Limit Level</b>	30.81						
<b>Measured Level</b>	190						
<b>Exceedance</b>	Limit Level						
<b>Investigation Findings</b>	<p>Please find the investigation findings below.</p> <p>The water level at LSMR was lowered by WSD since 13 November 2021 from around +76mPD to +50mPD (see Figure 1 – Graph of Water level at LSMR).</p> <p>On 29 November 2021, water level at LSMR was very low (+50 mPD) and the bottom level of LSMR is at around +45mPD, it was observed that the sediment was accumulated at the bottom of the reservoir (See Figure 2 – Site Photo of LSMR taken on 29 November 2021). There was no sign of muddy water discharging to the reservoir from the site, and the reservoir was observed to be overall turbid.</p> <p>The water level started to rise later on 29 November 2021 to around +60mPD and the re-measurement results taken on 30 November 2021 recorded no exceedance for in-situ parameters. A summary of turbidity results is presented as follow:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Monitoring Date</th> <th>Turbidity at D2a</th> </tr> </thead> <tbody> <tr> <td>29/11/2021</td> <td>190 NTU</td> </tr> <tr> <td>30/11/2021</td> <td>5.7 NTU</td> </tr> </tbody> </table> <p>The exceedance is considered not related to the construction works of IRTS. No further action is required.</p>	Monitoring Date	Turbidity at D2a	29/11/2021	190 NTU	30/11/2021	5.7 NTU
Monitoring Date	Turbidity at D2a						
29/11/2021	190 NTU						
30/11/2021	5.7 NTU						

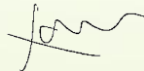


Figure 1 – Graph of Water level at LSMR



Figure 2 – Site Photo of LSMR taken on 29 November 2021

**Remark** The exceedance is considered project unrelated. The exceedance was recorded on 29 November 2021. The repeat in-situ measurement was conducted on 30 November 2021.

Prepared by: Kelvin Lau  
 Position: Environmental Consultant  
 Signature:   
 Date: 2 December 2021





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

<b>Our Ref.</b>	IR027						
<b>Monitoring Date</b>	29 November 2021						
<b>Time</b>	16:36						
<b>Environmental Aspect</b>	Water Quality						
<b>Monitoring Location</b>	D2a						
<b>Parameter</b>	Suspended Solids (SS)						
<b>Control Level</b>	20 mg/L						
<b>Action Level</b>	24 mg/L						
<b>Limit Level</b>	26 mg/L						
<b>Measured Level</b>	94 mg/L						
<b>Exceedance</b>	Limit Level						
<b>Investigation Findings</b>	<p>Please find the investigation findings below.</p> <p>The water level at LSMR was lowered by WSD since 13 November 2021 from around +76mPD to +50mPD (see Figure 1 – Graph of Water level at LSMR).</p> <p>On 29 November 2021, water level at LSMR was very low (+50 mPD) and the bottom level of LSMR is at around +45mPD, it was observed that the sediment was accumulated at the bottom of the reservoir (See Figure 2 – Site Photo of LSMR taken on 29 November 2021). There was no sign of muddy water discharging to the reservoir from the site, and the reservoir was observed to be overall turbid.</p> <p>The water level started to rise later on 29 November 2021 to around +60mPD and the re-measurement results taken on 30 November 2021 recorded no exceedance for SS parameters. A summary of SS results is presented as follow:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Monitoring Date</th> <th>SS at D2a</th> </tr> </thead> <tbody> <tr> <td>29/11/2021</td> <td>94 mg/L</td> </tr> <tr> <td>30/11/2021</td> <td>4.1 mg/L</td> </tr> </tbody> </table> <p>The exceedance is considered not related to the construction works of IRTS. No further action is required.</p>	Monitoring Date	SS at D2a	29/11/2021	94 mg/L	30/11/2021	4.1 mg/L
Monitoring Date	SS at D2a						
29/11/2021	94 mg/L						
30/11/2021	4.1 mg/L						



Figure 1 – Graph of Water level at LSMR



Figure 2 – Site Photo of LSMR taken on 29 November 2021

<b>Remark</b>	The exceedance is considered project unrelated. The exceedance was recorded on 29 November 2021. The repeat water quality measurement was conducted on 30 November 2021.
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**CONTRACT NO. DC/2018/08 - INTER-RESERVOIRS TRANSFER SCHEME  
- WATER TUNNEL BETWEEN KOWLOON BYEWASH RESERVOIR AND LOWER SHING MUN RESERVOIR  
IEC's COMMENTS**

**Document Title:** IRTS 29<sup>th</sup> Monthly EM&A Report (November 2021) IEC Verification Letter

**Document Ref. No.:** IEC's verification letter ref. 15-12-2021

**Date of Issue of Comments:** 15/12/2021

ITEM NO.	IEC'S COMMENT	ET'S RESPONSE	CLOSE DATE
1.	ET informed the exceedance IEC, contractor, ER and EPD on 8 December 2021. Because of the unreasonable time for SS recording, the contractor was failed to implement the requirement according to Item 4, Table B-2 of EM&A manual (i.e. discuss with ET, IEC and ER and propose mitigation measures to ER and IEC within 3 working days).	The EM&A Manual did not specify the SS turnaround time. According to Section 5.7.1 of EM&A manual, the actions in accordance with the Event and Action Plan should be carried out if the water quality assessment criteria are exceeded at any designated monitoring points. Hence, the propose mitigation measures should be submitted within 3 working days of the exceedance being recorded (i.e. the laboratory testing report issue date).	
2.	Repeat suspended solids measurement was conducted on 30 November 2021. There are 15 exceedances of Action/Limit Level for suspended solids since the project commencement in July 2019. Surprisingly, this is the first time that ET conducted repeat measurement on next day of exceedance being recorded.	Regarding the exceedance of suspended solids on 29 November 2021, the laboratory testing report was issued on 6 December 2021. The investigation report of the exceedance was issued on 8 December 2021 (i.e. within 3 working days), concluding that the exceedance is project unrelated and no further action is required.	
3.	Analysis of SS was not carried out with reference to the testing method and detection limit stated in Section 5.3.9 of EM&A Manual. Similarly, the use of laboratory analytical methods in the baseline condition and in the previous reporting periods have been asked for clarification. ET is reluctant to reveal at the time of writing.	As per Section 5.3.9 of the EM&A Manual, the procedures for testing suspended solids should follow APHA 2540D (21st edition at the time of the EM&A Manual being written) and the detection limit to be less than or equal to 0.1 mg/L.  After enquired 6 laboratories in the market, the closest match was 0.5 mg/L for 5 L samples with the APHA 17th, 22nd or 23rd (the latest) edition of APHA. Depending on the actual site situation and the amount of water to be sampled at each sampling location, 5 L samples will be taken as far as possible. When there is not enough water to be sampled at the sampling location (i.e. water depth is less than 11 cm), 1 L samples, which the detection limit being 2.5 mg/L, shall then be taken as far as possible. Given that the action and limit levels of this Project are considerably greater than 2.5 mg/L, it is a reasonable and practical value to be used.	
4.	Testing methods and testing location were different from the SS testing reports in previous periods. Thus, an enquiry email has been sent to the laboratory for clarification (see enclosed). Unfortunately, no response was received at the time of writing.	There is no change in testing methods in this reporting period and the previous periods. The testing location was changed due to the relocation of the laboratory.	
5.	Repeatedly, IEC would like to draw your attention on a long turnaround time (3-5 days) for the SS result. This long time lap may affect any immediate remedial measures if there is exceedance due to the construction works. Similar comments have been provided in the verification letters of 13th, 15th, 23rd, 24th and 28th Monthly EM&A Reports. This is the sixth gentle reminder for your kind consideration. The existing SS recording (> 3 days) will affect the contractor to implement the requirement according Item 4, Table B-2 of EM&A manual. IEC would like to clarify that IEC did not endorse the current procedure of investigating SS-induced exceedance.	The EM&A Manual did not specify the SS turnaround time. According to Section 5.7.1 of EM&A manual, the actions in accordance with the Event and Action Plan should be carried out if the water quality assessment criteria are exceeded at any designated monitoring points. Hence, the propose mitigation measures should be submitted within 3 working days of the exceedance being recorded (i.e. the laboratory testing report issue date).	

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ITEM NO.	IEC'S COMMENT	ET'S RESPONSE	CLOSE DATE
6.	Section 5.1.3 of EIA report stated "This Project involves the construction of a water tunnel linking the Kowloon Byewash Reservoir with the Lower Shing Mun Reservoir. Although the tunnel will be entirely underground, the portals construction on either ends will fall within the water gathering grounds of both reservoirs and hence water quality impact is a key issue." IEC would like to raise awareness of the contractor, ET, and ER to determine the action and limit levels for SS and turbidity. According to Table 5-3 of EM&A Manual, the action and limit levels for SS and turbidity were determined based on 95 and 99 percentiles of baseline data or the 120% and 130% of upstream control stations of the same day, respectively.	<p>The action and limit levels for SS and turbidity were determined in accordance with Table 5-3 of EM&amp;A Manual. As per Note 3 of Table 5-3 of EM&amp;A Manual, for SS and turbidity measurement, non-compliance occurs when monitoring result is higher than the limits. Hence, the action and limit levels are taken as the higher of 95 and 99 percentiles of baseline data and the 120% and 130% of upstream control stations of the same day, respectively.</p> <p>Projects that adopted the same practice are listed below for your reference:</p> <ul style="list-style-type: none"> <li>• First Phase Development of Kwu Tung North and Fanling North New Development Areas (EP-466/2013, EP-467/2013/A, EP-468/2013/A, EP-469/2013, EP-470/2013, EP-473/2013/A, EP-475/2013/A and EP-546/2017)</li> <li>• Contract No: HY/2019/14 New Wang Tong River Bridge (EP-555/2018/A)</li> <li>• Yuen Long Effluent Polishing Plant (EP-565/2019)</li> <li>• Tung Chung New Town Extension (EP-519/2016)</li> </ul>	
7.	IEC revealed unreasonable records of temperature and wind speed in Noise Monitoring Field Record Sheet at NM1. Surprisingly, an unrecorded modification of field quality records was observed. (see enclosed) IEC has reservation on the record of traceability.	The noise monitoring field record sheet was modified to address IEC's comment to include field temperature and wind speed. Such information was not included in the sample noise monitoring field record sheet of the EM&A Manual.	