CONTRACT NO: SD 6/2020

CONSTRUCTION OF SAN SHEK WAN SEWAGE TREATMENT WORKS ASSOCIATED SUBMARINE OUTFALL AND PUI O SEWERAGE WORKS

UNDER ENVIRONMENTAL PERMIT NO. EP-538/2017

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT

FEBRUARY 2022
REVISION 2

CLIENTS:

Drainage Services Department

PREPARED BY:

Lam Environmental Services Limited

19/F Remex Centre,
42 Wong Chuk Hang Road,
Hong Kong

Telephone: (852) 2882-3939
Facsimile: (852) 2882-3331
E-mail: info@lamenviro.com
Website: http://www.lamenviro.com

CERTIFIED BY:

Melody Cheng
Environmental Team Leader

DATE:

14 March 2022

Member of the Surbana Jurong Group

local people
global experience

Our ref: 7076811/L28391/AW/KL/TK/rw

14 March 2022

Drainage Services Department
Sewage Services Branch
Special Duty Division Group 3
42/F Revenue Tower
5 Gloucester Road
Wan Chai, Hong Kong

By Email and Post
(kschan04@dsd.gov.hk)

Attention: Mr Silas CHAN

Dear Sir

Contract No. SD 7/2020
Independent Environmental Checker ("IEC") for Environmental Monitoring Work for South Lantau Sewerage Works
Verification of Monthly EM&A Report (February 2022)

With reference to the Monthly EM&A Report (February 2022) Revision 2 certified by the ET Leader dated 14 March 2022, please note that we have no adverse comments on the captioned. We herewith verify the captioned in accordance with Condition 3.4 of the Environmental Permit No. EP-538/2017 subject to the following condition:

- EPD's approval for the proposed cancellation of water quality monitoring at Monitoring Stations SR9, SR10, and SR12 during construction

Should you have questions please do not hesitate to contact the undersigned at tel. 3995-8140 or by email to kitty.lee@smec.com.

Yours faithfully

Ir Kitty LEE
Independent Environmental Checker

cc	Binnies	-	Mr Clarence CHAK	by email
	Lam	-	Ms Melody CHENG / Mr Raymond DAI	by email
	KLCW-JV	-	Mr Charles TSE	by email

SMEC ASIA LIMITED
27/F Ford Glory Plaza, 37-39 Wing Hong Street
Cheung Sha Wan, Kowloon, Hong Kong
T +852 3995 8100
F +852 3995 8101
E hongkong@smec.com
W www.smec.com

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EXECUTIVE SUMMARY

i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – February 2022 of Outlying Islands Sewerage Stage 2 – South Lantau Sewerage Works under Environmental Permit no. EP-538/2017 (Hereafter as "the Project"). The construction works of the Project was commenced on 3 November 2021 and the tentative completion date is Q1 2026. The EM&A report presenting the environmental monitoring findings and information recorded during the period of 01 February 2022 to 28 February 2022. The cut-off date of reporting is at the end of each reporting month.

ii. In the reporting month, the principal work activities conducted are as follow:

- Tree pruning, removal, digging Recipient site preparation and transplanting works at San Shek Wan Sewage Treatment Works (SSWSTW) and Pui O Sewage Pumping Station (POSPS)
- Excavation and site formation works at SSWSTW
- Village sewers (excavation, sewer laying, construction of manhole) at Pui O Lo Uk Tsuen

Exceedances of Action/Limit Levels

Noise Monitoring

iii. Noise monitoring was conducted at five (5) noise monitoring stations N12a, N12b, N13, N14 and N17 once per week in the reporting month.

iv. No action or limit level exceedance was recorded in construction noise level in this reporting period.

Water Quality Monitoring

v. No water quality monitoring was conducted at six (6) monitoring stations three days per week in the reporting month due to no marine-based construction works.

Ecological Impact Monitoring

vi. Transplanting of the trees of *Aquilaria sinensis* was completed on 28 February 2022.

Complaint log

vii. No environmental complaint regarding the construction works was recorded in the reporting period.

Notifications of Any Summons and Successful Prosecutions

viii. No environmental notification of any summons and successful prosecution regarding the construction works was recorded in the reporting period.

Reporting Changes

ix. Deployment of silt curtain will be subject to actual commencement of marine works.

Future Key Issues

x. In coming reporting 3 months, the scheduled construction activities and the recommended mitigation measures are listed as follows:

Key Construction Works	**Recommended Mitigation Measures**
• Tree pruning, digging recipient site preparation and transplanting works • Establishment works for transplanted trees.	• Ensure the transplanting of the trees including *Aquilaris sinensis* and their establishment are not affected by any unacceptable construction works;
• Village sewers (excavation, sewer laying, construction of manhole) at Pui O Lo Uk Tsuen • Trunk Sewers and Rising Mains preparation works outside village and to POSPS	• Implementation of proper noise pollution control; • Dust control during dust generating works; • Adopt surface drainage and sediment control facilities for sewage installation in village and public roads;
• Site formation for POSPS and horizontal directional drilling (HDD) works setup at SSWSTW • Excavation and Lateral Support (ELS) works at SSWSTW and POSPS.	• Vehicle wheel-washing and body washing facilities are provided at the site entrance; • Regular water spraying on exposed area; and • Proper waste handling, recycling and storage.

1 Introduction

1.1 Scope of the Report

1.1.1. Lam Environmental Services Limited (LES) has been appointed to work as the Environmental Team (ET) under Environmental Permit (EP) no. EP-538/2017 to implement the Environmental Monitoring and Audit (EM&A) programme as stipulated in the EM&A Manual of the approved Environmental Impact Assessment (EIA) Report for Outlying Islands Sewerage Stage 2 - South Lantau Sewerage Works (Register No.: AEIAR-210/2017).

1.1.2. In accordance with Clause 3.4 stated in EP-538/2017, 4 hard copies and 1 electronic copy of Monthly EM&A Report shall be submitted to the Director within 2 weeks after the end of each reporting month.

1.1.3. According to Section 12.2 of the Project EM&A Manual, the Monthly EM&A Report should be submitted within 10 working days of the end of each reporting month, with the first report due in the month after construction commences.

1.2 Structure of the Report

Section 1 ***Introduction*** – details the scope and structure of the report.

Section 2 ***Environmental Status*** – construction programme, works undertaken during the month with illustrations, drawing showing the project area, environmental sensitive receivers and monitoring locations.

Section 3 ***Implementation Status*** **–** Advice on the implementation status of environmental protection and pollution control/mitigation measures, as recommended in the EIA Report and summarised in the updated implementation schedule.

Section 4 ***Monitoring Results*** – summarizes the monitoring results obtained in the reporting period, including monitoring methodology, name of laboratory and equipment used and calibration details, parameters monitored, monitoring locations (and depth), monitoring date, frequency, and duration.

Section 5 ***Report on Complaints, Notification of Summons and Successful Prosecutions***

Record of all complaints received (written or verbal) for each media, including locations and nature of complaints investigation, liaison and consultation undertaken, actions and follow-up procedures taken, results and summary;

Record of notifications of summons and successful prosecutions for breaches of the current environmental protection/pollution control legislations, including locations and nature of the breaches, investigation, follow-up actions taken, results and summary;

Review of the reasons for and the implications of non-compliance, complaints, summons and prosecutions including review of pollution sources and working procedures; and

Description of the actions taken in the event of non-compliance and deficiency reporting and any follow-up procedures related to non-compliance.

Section 6 ***Others –*** An account of the future key issues as reviewed from the works programme and work method statements.

Section 7 ***Conclusion***

2 Environmental Status

2.1 Construction Programme

2.1.1 The proposed sewerage works will collect the sewage generated from the unsewered areas of Shui Hau, Tong Fuk, Cheung Sha, San Shek Wan, Pui O and Ham Tin in South Lantau (i.e. within the Project Catchment Area) and convey it to a proposed sewage treatment works at San Shek Wan for treatment and disposal into outer bay of Pui O/ Chi Ma Wan via a submarine outfall.

2.1.2 The entire Project are divided into three contracts. Contract No. DC/2020/20 (the Contract) would have the following implementations as demonstrated in ***Figure 2.1***.

2.1.3 The major components of the Project under Environmental Permit (EP) (EP No. EP-538/2017) comprises: (i) construction of sewage treatment works at San Shek Wan (SSWSTW) and associated submarine outfall; (ii) construction of sewage pumping station at Pui O (POSPS); (iii) village sewage works at Pui O; and (iv) trunk sewers and rising mains on carriageways.

2.1.4 No construction programme with fine tuning of construction activities showing the inter-relationship with environmental protection/ mitigation measures for the month.

2.2 Works undertaken during the month

2.2.1 In the reporting month, the principal work activities conducted are as follow:

- Site formation works at SSWSTW
- Village sewers (excavation, sewer laying, construction of manhole) at Pui O Lo Uk Tsuen
- Tree pruning, removal, digging Recipient site preparation and transplanting works at SSWSTW and POSPS

The locations of works are shown in ***Figure 2.2***.

2.3 Drawing showing the project area, environmental sensitive receivers and monitoring locations

2.3.1 Noise and water monitoring location plans with sensitive receivers are shown in ***Figure 2.3*** and ***Figure 2.4***.

3. Implementation Status

3.1 Advice on the implementation status of environmental protection and pollution control/mitigation measures

3.1.1 Mitigation measures according to the environmental mitigation implementation schedule in Annex A of EM&A Manual were generally implemented by the Contractor. Hence, the EM&A programme was considered effective and shall be maintained.

3.1.2 Ecological mitigation measures – transplantation of *Aquilaris sinensis* was completed on 28 February 2022. Advices are the following:

a) Provide caring measures for the health, form and structural conditions, etc. for the concerned tree *Aquilaris sinensis* (tree no. 392) during establishment period;

b) Planning for transplant the tree back to permanent location, considering the expected height & breadth inclement of the tree.

3.1.3 Landscape & Visual mitigation measures – Total of 4 trees no. T742, T751, T758 including *Aquilaris sinensis* tree no. T392 were transplanted on 21st and 28th February 2022. Advices are the following:

a) Strengthened tree protection works, such as support and guying;

b) Planning for transplant the trees back to permanent location, considering the expected height & breadth inclement of the trees.

c) Planning for compensatory tree planting arrangement.

3.2 Environmental Mitigation Measures

3.2.1 Environmental mitigation measures mentioned the EIA Report were weekly reviewed and recorded in Weekly Environmental Site Audit Checklist. Also, a summary of the current status on submissions and measures mentioned in Environmental Permit (EP-538/2017) are shown in ***Table 3.1***.

Table 3.1 Summary of submission status under EP-538/2017

EP Condition	Submission	Date of Latest Submission to EPD^ / EPD Approval#
Condition 2.10	Waste Management Plan (Rev. 5)	19 Nov 2021^

EP Condition	Submission	Date of Latest Submission to EPD^ / EPD Approval#
Condition 2.11	Submission of Preservation and/or Transplantation Plan for Plant Species of Conservation Importance (Rev. 7)	25 June 2021^
Condition 2.12	Submission of Compensatory Woodland Planting Plan (Rev. 5)	2 July 2021^
Condition 2.13	Silt Curtain Deployment Plan (Rev. 6)	31 Jan 2022^
Condition 2.14	Landscape Mitigation Plan	To be confirmed
Condition 2.15	Construction Noise Mitigation Plan (Rev. 13)	8 Feb 2022^

3.3 Environmental monitoring requirements and contractual requirements

3.3.1 A summary of the current status on licences and/or permits on environmental protection pertinent to the Project is shown in ***Table 3.2***.

Table 3.2 Summary of the current status on licences and/or permits on environmental protection pertinent to the Project

Permits and/or Licences	Permit. No. / Account No.	Issued Date	Valid Period & Expiry Date (dd-mm-yyyy to dd-mm-yyyy)	Status
Notification of Works Under APCO	466408	14 Apr 2021	N/A	Valid
Discharge Licence	POPS: WT00039820-2021 SSWSTW: WT00039636-2021	31 Dec 2021 30 Dec 2021	31-12-2021 to 31-12-2026 30-12-2021 to 31-12-2026	Valid
Billing account under Waste Disposal Ordinance	Account No.: 7040411	05 May 2021	N/A	Valid
Registration as a Chemical Waste Producer	0000-931-K3428-01	13 May 2021	N/A	Valid
Construction Noise Permit	GW-RS0921-21	26 Nov 2021	29-11-2021 to 28-05-2022	Valid

Note: Only include those valid or under application; fill in "N/A" for non-applicable item(s).

3.4 Site Inspection and Audit Reports

3.4.1 Within this reporting month, weekly environmental site inspections were conducted on 08, 15, and 24 February 2022. IEC attended the SSEMC meeting held on 24 February 2022.

3.4.2 No non-compliance was found during the site inspection while reminders on environmental measures were recommended. Results and findings of these inspections in this reporting month are listed below in ***Table 3.3***.

Table 3.3 Summary of Environmental Inspections

Inspection Date	Reminder and Recommendations	Close-out Date / Status
8 Feb 2022	Comment from IEC (10 Feb 2022): the barrier seems to be quite tight to the tree root and not sure if that has allowed sufficient tree protection zone (TPZ) as mentioned in DEVB TC (W) No. 7/2015. https://www.devb.gov.hk/filemanager/technicalcirculars/en/upload/340/1/C-2015-07-01.pdf Suggest double check in next site visit.	15 Feb 2022
15 Feb 2022	Pui O Sewage Pumping Station – Transplant trees should be properly fenced off along dripline and fully implement tree preservation so as to ensure that the **Tree Protection Zone** (above and below the ground) should not be encroached by the construction works.	24 Feb 2022
24 Feb 2022	Reminder for site works should not encroach on the Tree Protection Zone.	28 Feb 2022

4. Monitoring Results

4.1 Noise Monitoring

MONITORING METHODOLOGY

4.1.1 Monitoring Procedure

(a) The impact noise monitoring should be carried out at all the designated monitoring stations when there are project-related construction activities undertaken within a radius of 300m from the monitoring stations.

(b) The monitoring station shall normally be at a point 1m from the exterior of the sensitive receiver's building façade and be at a position 1.2m above the ground.

(c) Façade measurements were made at the monitoring locations. For free-field measurement, a correction factor of +3 dB (A) would be applied.

(d) The battery condition was checked to ensure the correct functioning of the meter.

(e) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

(f) Frequency weighting: A, Time weighting: Fast, Measurement time set: continuous 5 mins

(g) Prior and after to the noise measurement, the meter was checked using the acoustic calibrator for 94dB (A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than ±1 dB (A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.

NAME OF LABORATORY AND EQUIPMENT USED AND CALIBRATION DETAILS

4.1.2 Noise monitoring was performed using sound level meter at the designated monitoring locations. The sound level meters shall comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator shall be deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in ***Table 4.1***.

Table 4.1 Noise Monitoring Equipment

Equipment	Brand and Model	Series Number
Integrated Sound Level Meter	Larson Davis LxT1	0003737
Acoustic Calibrator	Honglim HLES-02	2016611465

4.1.3 The calibration certificates of the noise monitoring equipment are attached in ***Appendix 4.1***.

4.1.4 Calibration Details

(a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.

(b) The sound level meter and calibrator were calibrated at yearly intervals.

PARAMETERS MONITORED

4.1.5 The construction noise level shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). $L_{eq\ (30min)}$ should be used as the monitoring parameter. Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.

4.1.6 For impact monitoring for construction of village sewers / rising main, noise monitoring should be undertaken on weekly basis. One set of $L_{eq\ (30min)}$ noise level as six consecutive $L_{eq\ (5min)}$ between 07:00-19:00 hours on normal weekdays.

MONITORING STATIONS

4.1.7 The noise monitoring stations for the Project are listed and shown in ***Table 4.2***, impact noise monitoring was conducted at five (5) noise monitoring stations N12a, N12b, N13, N14 and N17 once per week in the reporting month.

Table 4.2 Noise Monitoring Station

Monitoring Station ID (1)	Monitoring Location	Measurement Type	Level (in terms of no. of floor)
N01a	Shui Hau Village	Free-Field	G/F
N01c	Shui Hau Village	Free-Field	G/F
N03a	Tong Fuk Village	Free-Field	G/F
N05a	Residences at Cheung Fu Street	Free-Field	G/F
N07	Government Holiday Bungalows	Free-Field	G/F
N08	Cheung Sha Ha Tsuen	Free-Field	G/F
N10	Cheung Sha Sheung Tsuen	Façade	G/F
N11b	San Shek Wan – Ming Garden	Free-Field	G/F
N12a	Lo Uk Tsuen	Free-Field	G/F
N12b	Lo Uk Tsuen	Façade	G/F
N13	Pui O San Wai Tsuen	Façade	G/F
N14	South Lantau Community Centre	Free-Field	G/F
N15b	Pui O Lo Wai Tsuen	Façade	G/F
N16a	Residences at Ham Tin	Free-Field	G/F
N16b	Residences at Ham Tin	Free-Field	G/F
N17	Bui O Public School	Façade	R/F

Remarks (1): Fine adjustment of noise monitoring stations at all locations was proposed as per EP Condition 3.1.

MONITORING DATE, TIME, FREQUENCY AND DURATION

4.1.8 For daytime construction work on normal weekdays, monitoring of $L_{eq(30min)}$ should be carried out at each station at 0700-1900 hours on normal weekdays at a frequency of once a week. Impact monitoring schedule can be referred to ***Appendix 4.2***.

NOISE MONITORING RESULTS

4.1.9 Noise monitoring results measured in this reporting period are reviewed and summarized. Details of noise monitoring results and graphical presentation can be referred in ***Appendix 4.3***.

4.1.10 No action or limit level exceedance was recorded in construction noise level in this reporting period.

4.2 Water Quality Monitoring

MONITORING METHODOLOGY

4.2.1 Monitoring Procedure

(a) The condition near the monitoring stations shall be observed and recorded on the data log sheet.
(b) Check of sensors and electrodes with certified standard solutions before each use.
(c) Wet bulb calibration for a DO meter should be carried out before measurement.
(d) Water depth should be recorded by detector before sampling.
(e) Sample would be taken using bucket sampler at surface level.
(f) Transfer the sampled water carefully into cleaned water bottles (2x 1000ml) provided by the laboratory at the spot after the collection of the water sample for the subsequent laboratory Suspended Solid testing.
(g) Transfer the sampled water from the bucket sampler to the rinsed water container for in-situ measurement (In case of the in-situ measurement cannot be carried at spot due to safety and adverse weather condition, sampled water from the bucket sampler will be transfer to cleaned water bottles provided by laboratory. Then, In-situ measurement will be conducted at a safe location which sampled water inside cleaned water bottle will be transfer to the rinsed water container for in-situ measurement) In-situ measurement shall be measured in duplicate.
(h) Parameters including Water Temperature (℃), pH (units), Salinity (ppt), DO (mg/L), DO saturation (%) will be measured by the Multifunctional Meter and Turbidity (NTU) will be measured by turbid meter. (Water Temperature and Salinity will be measured as reference parameters)
(i) Record the result on the data log sheet and record any special finding during / after in-situ measurement.
(j) The water sample bottles will be stored in a cool box (at cooled to 4℃ without being frozen), which shall be delivered to HOKLAS laboratory (ALS Technichem (HK) Pty Ltd) for further testing to determine the level of SS.

NAME OF LABORATORY AND EQUIPMENT USED AND CALIBRATION DETAILS

LABORATORY MEASUREMENT / ANALYSIS

4.2.2 Analysis of suspended solids will be carried out in a HOKLAS accredited laboratory, which is ALS Technichem (HK) Pty Ltd.

EQUIPMENT USED

Dissolved Oxygen, pH And Temperature Measuring Equipment

4.2.3 Multifunctional Meter and Turbid Meter are used at each designated monitoring station. They are capable of measuring:

(a) a dissolved oxygen level in the range of 0-20mg/L and 0-200% saturation (Detection Limit: 0.1mg/L)
(b) a temperature of 0-45 degree Celsius (Detection Limit: 0.1 degree Celsius)
(c) turbidity level between 0-1000NTU (Detection Limit: 0.1NTU)
(d) salinity in the range of 0-40ppt (Detection Limit: 0.1ppt)
(e) pH value in range of 0.0 – 14.0 (Detection Limit: 0.1units)

Other monitoring equipment namely water depth meter, water current meter, dGPS positioning device, water sampler listed below were also deployed,

(a) Water depth meter (Range: 0.6 -100m, Resolution: 0.1m)
(b) Water current meter (Range: 0-360^{o}, Detection Limit: 1mm/s)
(c) dGPS positioning device (Resolution: Horizontal: 0.25m; Vertical: 0.50 m)
(d) Water sampler (Horizontal discrete type, Capacity: 2.2L)

Sampler Container and Storage

4.2.4 A water sampler, Water samples for suspended solids measurement should be collected in high-density polythene bottles, packed in ice (cooled to 4°C without being frozen), and delivered to ALS Technichem (HK) Pty Ltd. as soon as possible after collection for analysis.

Water Depth Detector

4.2.5 A portable, battery-operated echo sounder shall be used for the determination of water depth at each designated monitoring station. This unit can either be handheld or affixed to the bottom of the workboat, if the same vessel is to be used throughout the monitoring programme.

CALIBRATION DETAILS

4.2.6 Maintenance and Calibration

(a) The responses of sensors and electrodes of the water quality monitoring equipment were cleaned and checked at regular intervals.
(b) DO meter (Multifunctional Meter) and turbid meter was certified by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at three monthly intervals.

4.2.7 Brand and model of the equipment are given in ***Table 4.3***.

Table 4.3 Water Quality Monitoring Equipment

Equipment	Brand and model	Series Number
Multifunctional Meter	Sonde YSI Professional Plus	17F100236
Turbid meter	Xin Rui WGZ-3B	1807079

4.2.8 Due to no marine-based construction works, water quality monitoring was not conducted. Calibration certificates of the water quality monitoring equipment to be attached in ***Appendix 4.1*** will be prepared in the upcoming reporting month during commencement of monitoring.

PARAMETERS MONITORED

4.2.9 In construction phase, the levels of dissolved oxygen (DO), temperature, turbidity and salinity should be measured in situ while suspended solids (SS) is determined by laboratory analysis.

MONITORING STATIONS

4.2.10 Water quality monitoring involves 6 monitoring stations. Reviewing the location of the outfall constructed under the scope of Contract DC/2020/02, water quality impact of the localized dredging works during construction phase can be effectively monitored around the nearfield stations SR4, SR5, SR15 within 500m radius of the outfall location and SR6 is already outside the 500m radius together with CE and CF can effectively act as control stations to monitor the extent of the dredging impact, whereas the farfield SR9, SR10 and SR12 are located at least 3km away from the sewage outfall location. As such, water quality monitoring at Station SR9, SR10 and SR12 were cancelled. The locations of water quality monitoring station are shown in ***Table 4.4.***

Table 4.4 Marine Water Quality Stations for Water Quality Monitoring

Station	Description	Easting	Northing
CE	Upstream control station at ebb tide	810900	807690
CF	Upstream control station at flood tide	815720	807980
SR4 (1)	Ecological Sensitive Receiver (Coral Communities) at Pui O Wan	814938	810975
SR5	Ecological Sensitive Receiver (Coral Communities) at Pui O Wan	814326	810540
SR6	Gazetted Bathing Beach at Lower Cheung Sha	810553	810475
SR15	Gazetted Bathing Beach at Pui O and Ecologically Important Stream at Pui O	816037	810722

Remarks (1): Fine adjustment of water quality monitoring stations at SR4, SR9 and SR12 was proposed as per EP Condition 3.1, and baseline monitoring was conducted at corresponding fine adjusted locations.

MONITORING DATE, TIME, FREQUENCY AND DURATION

4.2.11 The levels of dissolved oxygen (DO), temperature, turbidity and salinity were measured in situ while suspended solids (SS) is determined by laboratory analysis at all the monitoring stations in ***Table 4.4*** three times a week.

4.2.12 In association with the water quality parameters, other relevant data shall also be recorded, such as monitoring location / position, time, water temperature, DO saturation, weather conditions, and any special phenomena underway near the monitoring station.

4.2.13 Impact Monitoring shall be carried out three days per week, at mid-flood and mid-ebb tides (within ± 1.75 hour of the predicted time). The interval between two sets of monitoring shall not be less than 36 hours. The monitoring period should avoid concurrent marine project in the vicinity.

4.2.14 The sampling frequency of at least three days per week should be undertaken when the highest dust impact occurs. Upon completion of the construction works, the monitoring exercise at the designated monitoring locations should be continued for four weeks in the same manner as the impact monitoring. In case exceedance of Action/Limit Level is recorded, the frequency shall be increased as per the Event and Action Plan.

4.2.15 To ensure the robustness of in-situ measurement, parameters shall be measured in duplicate. In case the difference between duplicates is larger than 25%, a third set of measurement shall be carried out.

MONITORING RESULTS

4.2.16 Due to no marine-based construction works in the reporting period, no water quality monitoring was conducted. Water quality monitoring results to be measured in the upcoming reporting period will be reviewed and summarized.

4.3 Ecology

MONITORING METHODOLOGY

4.3.1 The weekly site audit to be carried out by the ET should include checking whether good site practices are being properly implemented by the Contractor.

4.3.2 Impact monitoring of the transplanting of the tree of *Aquilaris sinensis* at San SSWSTW, establishment and after-establishment caring measures of the compensatory mixed woodland to ensure the affected tree would not be affected by any unacceptable construction works. The trees would be treated with establishment works immediately after transplanting.

PARAMETERS MONITORED

4.3.3 The extent of the work site boundaries should be checked by the ET during the weekly site audit. Any disturbance by the Contractor outside the works area especially any damage to the vegetation and surrounding habitats outside the Project area shall be reported to ER and IEC.

4.3.4 To identify any unacceptable construction works for the trees of *Aquilaris sinensis* during transplanting, establishment and after-establishment caring measures of the compensatory mixed woodland.

MONITORING LOCATION

4.3.5 The original location of *Aquilaris sinensis* is at San SSWSTW (***Figure 2.5***). The tree is transplanted to temporary holding nursery (***Figure 2.6***) for establishment.

MONITORING DATE, TIME, FREQUENCY AND DURATION

4.3.6 The recommended good site practices to be audited once every week as part of the site audit programme. The weekly site audit to be carried out by the ET includes checking whether good site practices are being properly implemented by the Contractor. Results are recorded in Weekly Environmental Site Audit Checklist.

4.3.7 Monitoring programme for post-transplantation will be conducted once per month.

MONITORING RESULTS

4.3.8 Results and findings of site audit in this reporting month are listed in ***Table 3.3***.

4.3.9 Transplanting work was completed on 28 February 2022.

4.4 Waste Management

4.4.1 The quantities of waste for disposal in the Reporting Period are summarized in Table 4.5. The Monthly Summary Waste Flow Table is shown in ***Appendix 4.4***.

4.4.2 There is 2400kg of felled tree has been recycled in reporting month.

Table 4.5 Summary of Quantities of Waste Material (as of February 2022)

Waste Type	Quantity this month	Quantity (Project commencement to the end of last month)	Cumulative Quantity-to-Date
Hard Rock and Large Broken Concrete (Inert) (in '000m^3)	0	0	0
Reused in this Contract (Inert) (in '000m^3)	0	0	0
Reused in other Projects (Inert) (in '000m^3)	0	0	0
Disposal as Public Fill (Inert) (in '000m^3)	2.36898	0.86687	3.23585
Metals (in '000kg)	0	0.00720	0.00720
Paper / Cardboard Packing (in '000kg)	0	0.02448	0.02448
Plastics (in '000kg)	0	0.00696	0.00696
Chemical Wastes (in '000kg)	0	0	0
General Refuses (in '000kg)	52.60	178.95	231.55

*: Further breakdown into sub-group if considered applicable;
*: Please also provide daily dumping report for our records.
*: Delete as appropriate

5. Complaints, Notification of Summons and Prosecution

5.1.1 No environmental complaint, notification of summons and successful prosecution regarding construction works was recorded in the reporting period.

5.1.2 Cumulative statistic on complaints and successful prosecutions are summarized in ***Table 5.1*** and ***Table 5.2*** respectively.

Table 5.1 Cumulative Statistics on Complaints

Reporting Period	No. of Complaints
February 2022	0
Project commencement to the end of last reporting month	-
Total	**0**

Table 5.2 Cumulative Statistics on Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Successful Prosecutions this month (Offence Date)	Cumulative No. Project-to-Date
Air	-	0	0
Noise	-	0	0
Water	-	0	0
Waste	-	0	0
Other	-	0	0
Total	**-**	**0**	**0**

6. Others

6.1.1 In coming reporting 3 months, the scheduled construction activities are listed as follows:

- Tree pruning, digging recipient site preparation and transplanting works
- Establishment works for transplanted trees
- Village sewers (excavation, sewer laying, construction of manhole) at Pui O Lo Uk Tsuen
- Trunk Sewers and Rising Mains Outside village and to POSPS
- Site formation for POSPS and horizontal directional drilling (HDD) works setup at SSWSTW
- Excavation and Lateral Support (ELS) works at SSWSTW and POSPS.

6.1.2 The scheduled construction activities and the recommended mitigation measures for the coming 3 months are listed in ***Table 6.1***. The major construction activities for the next 3 months are summarized in Three Months Rolling Programme - Dec 2021 to Feb 2022 in ***Appendix 6.1***.

Table 6.1 Construction Activities and Recommended Mitigation Measures in Coming Reporting 3 Months

Key Construction Works	Recommended Mitigation Measures
• Tree pruning, digging recipient site preparation and transplanting works • Establishment works for transplanted trees.	• Ensure the transplanting of the trees including *Aquilaris sinensis* and their establishment are not affected by any unacceptable construction works;
• Village sewers (excavation, sewer laying, construction of manhole) at Pui O Lo Uk Tsuen • Trunk Sewers and Rising Mains preparation works outside village and to POSPS	• Implementation of proper noise pollution control; • Dust control during dust generating works; • Adopt surface drainage and sediment control facilities for sewage installation in village and public roads;
• Site formation for POSPS and horizontal directional drilling (HDD) works setup at SSWSTW • Excavation and Lateral Support (ELS) works at SSWSTW and POSPS.	• Vehicle wheel-washing and body washing facilities are provided at the site entrance; • Regular water spraying on exposed area; and • Proper waste handling, recycling and storage.

7 Conclusion

7.1 Noise Monitoring.

7.1.1 No action or limit level exceedance was recorded in construction noise level in this reporting period.

7.2 Water Quality Monitoring

7.2.1 Due to no marine-based construction works in the reporting period, no water quality monitoring was conducted.

7.3 Ecological Impact Monitoring

7.3.1 Transplanting of one individual of *Aquilaris sinensis* at San SSWSTW was completed on 28 February 2022.

7.4 Review of the Reasons for and the Implications of Non-compliance

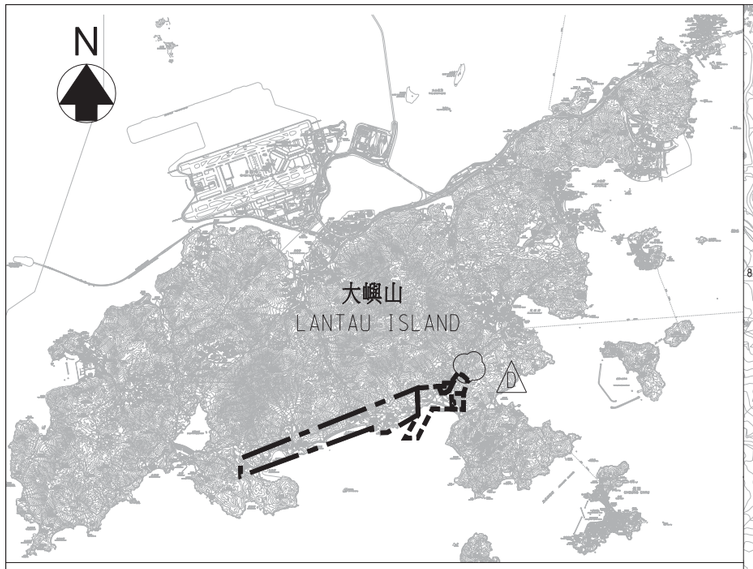
7.4.1 No environmental non-compliance was recorded in the reporting month.

7.5 Summary of action taken in the event of and follow-up on non-compliance

7.5.1 There was no particular action taken since no non-compliance was recorded in the reporting period.

Figure 2.1

Master Layout Plan



SITE PLAN
1:100000

SEWERAGE SYSTEM TO BE CONSTRUCTED UNDER OTHER CONTRACT IN THE FUTURE

SEWERAGE SYSTEM TO BE CONSTRUCTED UNDER OTHER CONTRACT IN THE FUTURE (EXCEPT THE PROPOSED SAFETY PIPELINE AS SHOWN IN DRAWING NO. 178711/B&V/POSPS/SR/001 TO BE CONSTRUCTED UNDER THIS CONTRACT.)

SEWERAGE SYSTEM TO BE CONSTRUCTED UNDER OTHER CONTRACT IN THE FUTURE

CONSTRUCTION OF SEWERAGE SYSTEM UNDER CONTRACT DC/2020/02

0 375 750 1125 1500m
1 : 15000

Revision	Date	Description	Initial
D	11/20	TENDER ADDENDUM NO.6	BL
C	11/20	TENDER ADDENDUM NO.5	BL
B	11/20	TENDER ADDENDUM NO.4	BL
A	09/20	TENDER ADDENDUM NO.2	TFL

	Designed	Checked	Drawn	Checked
Initial	TFL	BL	SZ	CSC
Date	04/20	04/20	04/20	04/20

Approved

Contract no.
DC/2020/02

Contract title
CONSTRUCTION OF SAN SHEK WAN SEWAGE TREATMENT WORKS, ASSOCIATED SUBMARINE OUTFALL AND PUI O SEWERAGE WORKS

Drawing title
SOUTH LANTAU SEWERAGE WORKS - MASTER LAYOUT PLAN

Drawing no.
178711/B&V/GN/001

Revision
D

Scale
1 : 15000

香港特別行政區政府渠務署
THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION DRAINAGE SERVICES DEPARTMENT

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 11/25/2020

CAD Filename = Y:\Daily Work\00 From SZ Design Team\178711 - South Lantau Sewerage Works\Tender Drawing\Dgn\178711-B&V-GN-001.dgn

Figure 2.2

Contract Layout Plan

Figure 2.2

圖例
LEGEND:

- 擬建污水處理廠集水範圍 CATCHMENT AREA OF PROPOSED SEWAGE TREATMENT WORKS
- 擬建的污水渠 PROPOSED SEWERS
- 擬建的雙管污水泵喉 PROPOSED TWIN RISING MAINS
- 擬建的海底排放管 PROPOSED SUBMARINE OUTFALL
- 擬建的污水處理廠 PROPOSED SEWAGE TREATMENT WORKS
- 擬建的污水泵房 PROPOSED SEWAGE PUMPING STATION
- 擬建的鄉村污水收集系統範圍 PROPOSED AREA FOR VILLAGE SEWERAGE WORKS

大嶼山
LANTAU ISLAND

NAM SHAN

Construction of village sewers at Lo Uk Tsuen

貝澳羅屋村
PUI O LO UK TSUEN

Site formation works, tree transplant works at SSWSTW

嶼南路
SOUTH LANTAU ROAD

貝澳
PUI O

芝麻灣路
CHI MA WAN ROAD

Tree transplant preparation works at POSPS

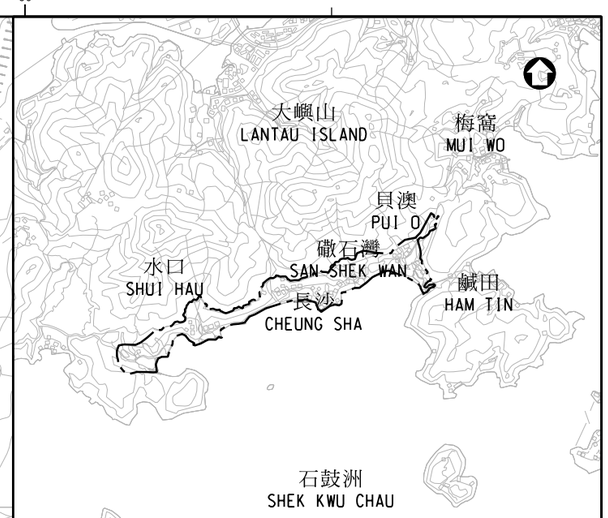
磯石灣
SAN SHEK WAN

長沙
CHEUNG SHA

貝澳沙灘
PUI O BEACH

1.1 公里
1.1 km

1.4 公里
1.4 km



位置圖 LOCATION PLAN
比例 SCALE 1 : 150 000

圖則名稱 drawing title

工務工程計劃編號331DS - 離島污水收集系統第2階段
- 南大嶼山污水收集系統工程
PWP ITEM NO.331DS - OUTLYING ISLANDS SEWERAGE, STAGE 2
- SOUTH LANTAU SEWERAGE WORKS

版 no.	日期 date	修改項目 description	簡簽 initial

繪畫 drawn	SIGNED W. H. CHAN	日期 date 27 APR 2020	圖則編號 drawing no. DVD/2020/001
核對 checked	SIGNED Ir K. S. CHAN	日期 date 27 APR 2020	比例 scale 1:12 500
批核 approved	SIGNED Ir L. CHEN	日期 date 27 APR 2020	
部門 office	特別職務部 SPECIAL DUTY DIVISION		

香港特別行政區政府渠務署
DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

v8i_PDF_cswp_Col-DPSP2016.pltcfg iWin7v8i_CSWP.tbl S:\SDD\DVD_2020\DVD_2020_001.dgn A3 420x297

Figure 2.3

Locations of Noise Monitoring Station

圖例
LEGEND:

- 擬建污水處理廠集水範圍 CATCHMENT AREA OF PROPOSED SEWAGE TREATMENT WORKS
- 擬建的污水渠 PROPOSED SEWERS
- 擬建的雙管污水泵喉 PROPOSED TWIN RISING MAINS
- 擬建的海底排放管 PROPOSED SUBMARINE OUTFALL
- 擬建的污水處理廠 PROPOSED SEWAGE TREATMENT WORKS
- 擬建的污水泵房 PROPOSED SEWAGE PUMPING STATION
- 擬建的鄉村污水收集系統範圍 PROPOSED AREA FOR VILLAGE SEWERAGE WORKS

- FINE ADJUSTED NOISE MONITORING LOCATIONS
- AREA OF A RADIUS OF 300m OFFSET FROM CONSTRUCTION AREA
- AREA OF A RADIUS OF 300m OFFSET FROM CONSTRUCTION AREA FOR VILLAGE SEWERAGE WORKS

大嶼山
LANTAU ISLAND

Construction of village sewers at Pui O Lo Uk Tsuen

貝澳羅屋村
PUI O LO UK TSUEN

嶼南路
SOUTH LANTAU ROAD

貝澳
PUI O

芝麻灣路
CHI MA WAN ROAD

磯石灣
SAN SHEK WAN

長沙
CHEUNG SHA

貝澳沙灘
PUI O BEACH

Fine Adjusted N15b
Fine Adjusted N12a
Fine Adjusted N12b
Fine Adjusted N13
Fine Adjusted N17
Fine Adjusted N14
Fine Adjusted N16b
Fine Adjusted N16a
Fine Adjusted N11b
Fine Adjusted N07
Fine Adjusted N10
Fine Adjusted N08

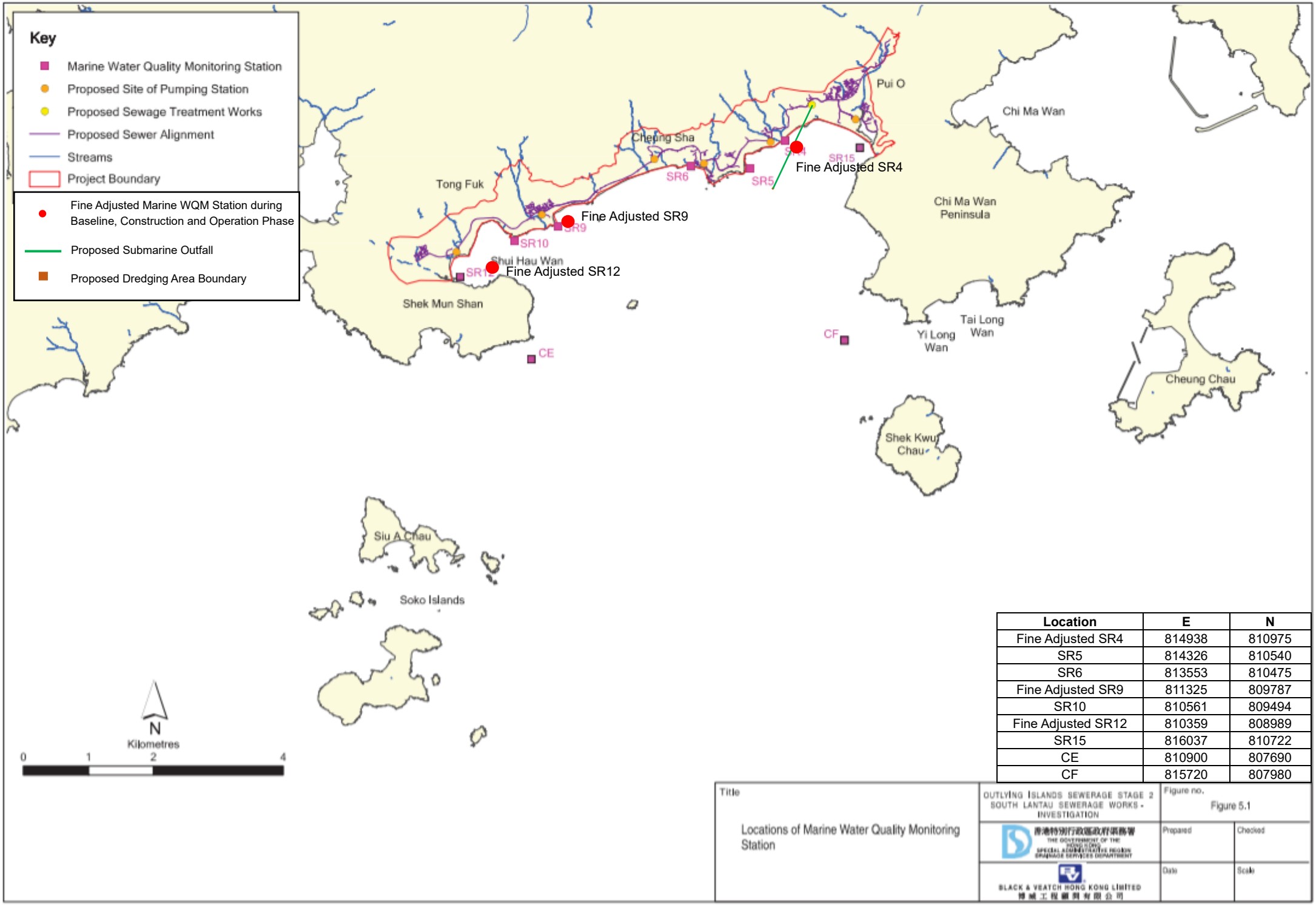
1.1 公里 1.1 km
1.4 公里 1.4 km

大嶼山 LANTAU ISLAND
梅窩 MUI WO
貝澳 PUI O
磯石灣 SAN SHEK WAN
水口 SHUI HAU
長沙 CHEUNG SHA
鹹田 HAM TIN
石鼓洲 SHEK KWU CHAU

位置圖 LOCATION PLAN
比例 SCALE 1 : 150 000

Figure 2.4

Locations of Water Quality Monitoring Stations



Location	E	N
Fine Adjusted SR4	814938	810975
SR5	814326	810540
SR6	813553	810475
Fine Adjusted SR9	811325	809787
SR10	810561	809494
Fine Adjusted SR12	810359	808989
SR15	816037	810722
CE	810900	807690
CF	815720	807980

Title

Locations of Marine Water Quality Monitoring Station

OUTLYING ISLANDS SEWERAGE STAGE 2 SOUTH LANTAU SEWERAGE WORKS - INVESTIGATION

Figure no. Figure 5.1

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION DRAINAGE SERVICES DEPARTMENT

Prepared | Checked

BLACK & VEATCH HONG KONG LIMITED 博威工程顧問有限公司

Date | Scale

File: T:\GIS\CONTRACT\0227541\Mxd\0227541_Marine_Water_Quality_Monitoring_Stations.mxd
Date: 5/8/2015

Figure 2.5

Mark up Figure 5.4i extracted from approved EIA Report (AEIAR-210/2017)

Figure 2.5 - Mark up Figure 5.4i extracted from approved EIA Report (AEIAR-210/2017)

Key

Project Boundary
- Project Boundary
- 500m Study Area
- Proposed Site of Pumping Station
- Alternative Site of Pumping Station
- Proposed Site of Sewage Treatment Works
- Access Road
- Proposed Sewer
- Proposed Rising Main
- Proposed Submarine Outfall

Habitat
- Fung Shui Woodland
- Mixed Woodland
- Plantation
- Shrubland-Grassland
- Cultivated Land
- Marsh
- Stream
- Mangrove
- Sandflat
- Rocky Shore
- Sandy Shore
- Urbanised/Disturbed Area
- Subtidal Hard Bottom Habitat
- Subtidal Soft Bottom Habitat

Species of Conservation Interest
- *Aquilaria sinensis*
- *Artocarpus hypargyreus*
- *Pavetta hongkongensis*
- Black Kite
- Collared Scops Owl
- Greater Coucal
- Hwamei
- Reef Egret
- Copperhead Racer
- Chinese Bullfrog
- Japanese pipistrelle
- Horseshoe Crab
- Hard Coral

Index Map

Aquilaria sinensis

N
Meters
0 100 200 400

Title: Habitat Map and Species of Conservation Interest (Sheet 8 of 12)	Outlying Islands Sewerage Stage 2 – South Lantau Sewerage Works	Figure no. Figure 5.4i
	香港特別行政區政府渠務署 THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION DRAINAGE SERVICES DEPARTMENT	Prepared / Checked
	BLACK & VEATCH HONG KONG LIMITED	Date / Scale

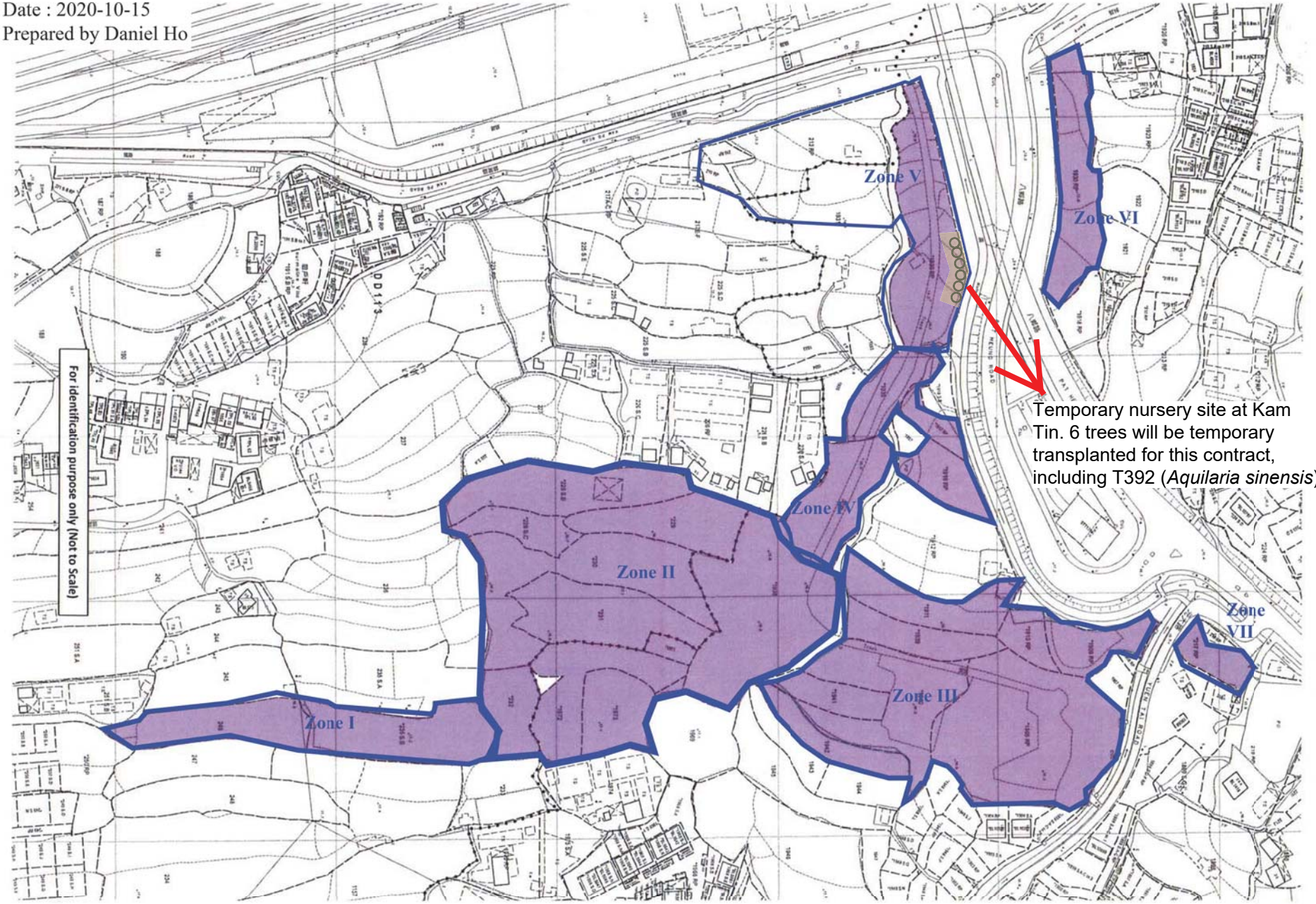
File: T:\GIS\CONTRACT\0227541\Mxd\Ecology\0227541_Habitat_8.mxd
Date: 16/8/2016

Figure 2.6

Location Plan for Temporary Holding Nursery

Figure 2.6

Date : 2020-10-15
Prepared by Daniel Ho



Project : Contract No.: DC/2020/02
Construction of San Shek Wan Sewage Treatment Works, Associated Submarine Outfall and Pui O Sewerage Works

Toyo Greenland Co., Ltd.

Drawing Title : Location Plan for 6 nos. Trees on Kam Tin Nursery

Check : Ho Tat Pui, Daniel	Scale : N.T.S.	Rev.
Ref: C3109/22/TGD0164	Date : 10 January 2022	00

Appendix 4.1

Copies of Calibration Certificates

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0326 03-02 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	Larson Davis	,	PCB
Type/Model No.:	LxT1	,	377B02
Serial/Equipment No.:	0003737	,	171529
Adaptors used:	-	,	-

Item submitted by

Customer Name:	Lam Environmental Services Limited.
Address of Customer:	-
Request No.:	-
Date of receipt:	26-Mar-2021

Date of test: 31-Mar-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2021	CIGISMEC
Signal generator	DS 360	33873	19-May-2021	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 07-Apr-2021 **Company Chop:**

SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA0326 03-02 **Page** 2 **of** 2

1, Electrical Tests

The electrical tests were perfomed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	2.1
	Lin	Pass	1.6	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 31-Mar-2021

Checked by: Chan Yuk Yiu **Date:** 07-Apr-2021

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

SMECLab

Sound level meter type:	LxT1	Serial No.	0003737	Date	31-Mar-2021
Microphone type:	377B02	Serial No.	171529		
				Report:	21CA0326 03-02

SELF GENERATED NOISE TEST

The noise test is performed in the most sensitive range of the SLM with the microphone replaced by an equivalent impedance.

Noise level in A weighting	11.3	dB
Noise level in C weighting	14.9	dB
Noise level in Lin	21.5	dB

LINEARITY TEST

The linearity is tested relative to the reference sound pressure level using a continuous sinusoidal signal of frequency 4 kHz. The measurement is made on the reference range for indications at 5 dB intervals starting from the 94 dB reference sound pressure level. And until within 5 dB of the upper and lower limits of the reference range, the measurements shall be made at 1 dB intervals.(SLM set to LEQ/SPL)

Reference/Expected level	Actual level		Tolerance	Deviation	
	non-integrated	integrated		non-integrated	integrated
dB	dB	dB	+/- dB	dB	dB
94.0	94.0	94.0	0.7	0.0	0.0
99.0	99.0	99.0	0.7	0.0	0.0
104.0	104.0	104.0	0.7	0.0	0.0
109.0	109.0	109.0	0.7	0.0	0.0
114.0	114.0	114.0	0.7	0.0	0.0
115.0	115.0	115.0	0.7	0.0	0.0
116.0	116.0	116.0	0.7	0.0	0.0
117.0	117.0	117.0	0.7	0.0	0.0
118.0	118.0	118.0	0.7	0.0	0.0
119.0	119.0	119.0	0.7	0.0	0.0
120.0	120.0	120.0	0.7	0.0	0.0
89.0	89.0	89.0	0.7	0.0	0.0
84.0	84.0	84.0	0.7	0.0	0.0
79.0	79.0	79.0	0.7	0.0	0.0
74.0	74.0	74.0	0.7	0.0	0.0
69.0	69.0	69.0	0.7	0.0	0.0
64.0	63.9	63.9	0.7	-0.1	-0.1
59.0	59.0	59.0	0.7	0.0	0.0
54.0	54.0	54.0	0.7	0.0	0.0
49.0	48.9	48.9	0.7	-0.1	-0.1
44.0	43.9	43.9	0.7	-0.1	-0.1
39.0	38.9	38.9	0.7	-0.1	-0.1
34.0	33.9	33.9	0.7	-0.1	-0.1
33.0	32.9	32.9	0.7	-0.1	-0.1

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

SMECLab

Sound level meter type: LxT1 Serial No. 0003737 Date 31-Mar-2021

Microphone type: 377B02 Serial No. 171529

Report: 21CA0326 03-02

32.0	31.9	31.9	0.7	-0.1	-0.1
31.0	30.9	30.9	0.7	-0.1	-0.1
30.0	29.9	29.9	0.7	-0.1	-0.1

Measurements for an indication of the reference SPL on all other ranges which include it

Other ranges	Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
20-120	94.0	94.0	0.7	0.0

Measurements on all level ranges for indications 2 dB below the upper limit and 2 dB above the lower limit

Ranges	Reference/Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
20-120	30.0	29.9	0.7	-0.1
	118.0	118.0	0.7	0.0

FREQUENCY WEIGHTING TEST

The frequency response of the weighting netwoks are tested at octave intervals over the frequency ranges 31.5 Hz to 12500 Hz. The signal level at 1000 Hz is set to give an indication of the reference SPL.

Frequency weighting A:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
Hz	dB	dB	dB	+	-	dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	54.6	54.5	1.5	1.5	-0.1
63.1	94.0	67.8	67.7	1.5	1.5	-0.1
125.9	94.0	77.9	77.8	1.0	1.0	-0.1
251.2	94.0	85.4	85.3	1.0	1.0	-0.1
501.2	94.0	90.8	90.7	1.0	1.0	-0.1
1995.0	94.0	95.2	95.2	1.0	1.0	0.0
3981.0	94.0	95.0	95.0	1.0	1.0	0.0
7943.0	94.0	92.9	92.9	1.5	3.0	0.0
12590.0	94.0	89.7	89.6	3.0	6.0	-0.1

Frequency weighting C:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
Hz	dB	dB	dB	+	-	dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	91.0	91.0	1.5	1.5	0.0
63.1	94.0	93.2	93.1	1.5	1.5	-0.1
125.9	94.0	93.8	93.7	1.0	1.0	-0.1
251.2	94.0	94.0	93.9	1.0	1.0	-0.1
501.2	94.0	94.0	94.0	1.0	1.0	0.0

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SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

SMECLab

Sound level meter type: LxT1 Serial No. 0003737 Date 31-Mar-2021

Microphone type: 377B02 Serial No. 171529

Report: 21CA0326 03-02

1995.0	94.0	93.8	93.8	1.0	1.0	0.0
3981.0	94.0	93.2	93.2	1.0	1.0	0.0
7943.0	94.0	91.0	91.0	1.5	3.0	0.0
12590.0	94.0	87.8	87.7	3.0	6.0	-0.1

Frequency weighting Lin:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
Hz	dB	dB	dB	+	-	dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	94.0	93.9	1.5	1.5	-0.1
63.1	94.0	94.0	93.9	1.5	1.5	-0.1
125.9	94.0	94.0	93.9	1.0	1.0	-0.1
251.2	94.0	94.0	93.9	1.0	1.0	-0.1
501.2	94.0	94.0	94.0	1.0	1.0	0.0
1995.0	94.0	94.0	94.0	1.0	1.0	0.0
3981.0	94.0	94.0	94.0	1.0	1.0	0.0
7943.0	94.0	94.0	93.9	1.5	3.0	-0.1
12590.0	94.0	94.0	94.0	3.0	6.0	0.0

TIME WEIGHTING FAST TEST

Time weighting F is tested on the reference range with a single sinusoidal burst of duration 200 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
dB	dB	dB	+	-	dB
116.0	115.0	114.9	1.0	1.0	-0.1

TIME WEIGHTING SLOW TEST

Time weighting S is tested on the reference range with a single sinusoidal burst of duration 500 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
dB	dB	dB	+	-	dB
116.0	111.9	111.8	1.0	1.0	-0.1

PEAK RESPONSE TEST

The onset time of the peak detector is tested on the reference range by comparing the response to a 100 us rectangular test pulse with the response to a 10 ms reference pulse of the same amplitude. The amplitude of the 10 ms reference pulse is such as to produce an indication 1 dB below the upper limit of the primary indicator range.

Positive polarities: (Weighting Z, set the generator signal to single, Lzpeak)

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	119.5	2.0	0.5

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SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

SMECLab

Sound level meter type: LxT1 Serial No. 0003737 Date 31-Mar-2021
Microphone type: 377B02 Serial No. 171529
Report: 21CA0326 03-02

Negative polarities:

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	119.5	2.0	0.5

RMS ACCURACY TEST

The RMS detector accuracy is tested on the reference range for a crest factor of 3.

Test frequency: 2000 Hz
Amplitude: 2 dB below the upper limit of the primary indicator range.
Burst repetition frequency: 40 Hz
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz. (Set to INT)

	Ref. Level	Expected level	Tone burst signal	Tolerance	Deviation
Time wighting	dB	dB	indication(dB)	+/- dB	dB
Slow	116.0+6.6	116.0	115.8	0.5	-0.2

TIME WEIGHTING IMPULSE TEST

Time weighting I is tested on the reference range (Set the SLM to LAImax)
Test frequency: 2000 Hz
Amplitude: The upper limit of the primary indicator range.

Single sinusoidal burst of duration 5 ms:

Ref. Level	Single burst indication		Tolerance	Deviation
dB	Expected (dB)	Actual (dB)	+/- dB	dB
120.0	111.2	111.1	2.0	-0.1

Repeated at 100 Hz

Ref. Level	Repeated burst indication		Tolerance	Deviation
dB	Expected (dB)	Actual (dB)	+/- dB	dB
120.0	117.3	117.1	1.0	-0.2

TIME AVERAGING TEST

This test compares the SLM reading for continuous sine signals with readings obtained from a sine tone burst sequence having the same RMS level. The test level is 30 dB below the upper limit of the linearity range and repeated for Type 1 SLM with 40 dB below the upper limit of the linearity.

Frequency of tone burst: 4000 Hz
Duration of tone burst: 1 ms

Repetition Time	Level of tone burst	Expected Leq	Actual Leq	Tolerance	Deviation	Remarks
msec	dB	dB	dB	+/- dB	dB	
1000	90.0	90.0	89.9	1.0	-0.1	60s integ.
10000	80.0	80.0	79.9	1.0	-0.1	6min. integ.

PULSE RANGE AND SOUND EXPOSURE LEVEL TEST

The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

Test frequency: 4000 Hz
Integration time: 10 sec

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SMECLab

Sound level meter type: LxT1 Serial No. 0003737 Date 31-Mar-2021
Microphone type: 377B02 Serial No. 171529
Report: 21CA0326 03-02

The integrating sound level meter set to Leq:

Duration	Rms level of	Expected	Actual	Tolerance	Deviation
msec	tone burst (dB)	dB	dB	+/- dB	dB
10	88.0	58.0	57.9	1.7	-0.1

The integrating sound level meter set to SEL:

Duration	Rms level of	Expected	Actual	Tolerance	Deviation
msec	tone burst (dB)	dB	dB	+/- dB	dB
10.0	88.0	68.0	67.9	1.7	-0.1

OVERLOAD INDICATION TEST

For SLM capable of operating in a non-integrating mode.

Test frequency: 2000 Hz
Amplitude: 2 dB below the upper limit of the primary indicator range.
Burst repetition frequency: 40 Hz
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz.

Level	Level reduced by	Further reduced	Difference	Tolerance	Deviation
at overload (dB)	1 dB	3 dB	dB	dB	dB
115.0	114.0	111.0	3.0	1.0	0.0

For integrating SLM, with the instrument indicating Leq.

For integrating SLM, with the instrument indicating Leq and set to the reference range. The test signal as following:
The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

Test frequency: 4000 Hz
Integration time: 10 sec
Single burst duration: 1 msec

Rms level	Level reduced by	Expected level	Actual level	Tolerance	Deviation
at overload (dB)	1 dB	dB	dB	dB	dB
121.7	120.7	80.7	80.6	2.2	-0.1

ACOUSTIC TEST

The acoustic test of the complete SLM is tested at the frequency 125 Hz and 8000 Hz using a B&K type 4226 Multifunction Acoustic Calibrator. The test is performed in A weighting.

Frequency	Expected level	Actual level	Tolerance (dB)		Deviation
Hz	dB	Measured (dB)	+	-	dB
1000	94.0	94.0	0.0	0.0	0.0
125	77.9	78.0	1.0	1.0	0.1
8000	92.9	91.1	1.5	3.0	-1.8

----------END---------

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香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

Certificate No.: 21CA1021 05-01 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Honglim Co., Ltd.
Type/Model No.:	HLES-02
Serial/Equipment No.:	2016611465
Adaptors used:	-

Item submitted by

Curstomer:	Lam Environmental Services Limited.
Address of Customer:	-
Request No.:	-
Date of receipt:	21-Oct-2021

Date of test: 25-Oct-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	04-May-2022	SCL
Preamplifier	B&K 2673	2239857	31-May-2022	CEPREI
Measuring amplifier	B&K 2610	2346941	01-Jun-2022	CEPREI
Signal generator	DS 360	33873	27-May-2022	CEPREI
Digital multi-meter	34401A	US36087050	27-May-2022	CEPREI
Audio analyzer	8903B	GB41300350	28-May-2022	CEPREI
Universal counter	53132A	MY40003662	02-Jun-2022	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1. The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
2. The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
3. The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Feng Junqi **Date:** 26-Oct-2021 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

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SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA1021 05-01 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.01	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.017 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 1003.7 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 1.5 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 25-Oct-2021

Checked by: Chan Yuk Yiu **Date:** 26-Oct-2021

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

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SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

Certificate No.: 21CA1021 05-02 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Honglim Co., Ltd.
Type/Model No.:	HLES-02
Serial/Equipment No.:	2019612534
Adaptors used:	-

Item submitted by

Curstomer:	Lam Environmental Services Limited.
Address of Customer:	-
Request No.:	-
Date of receipt:	21-Oct-2021

Date of test: 25-Oct-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	04-May-2022	SCL
Preamplifier	B&K 2673	2239857	31-May-2022	CEPREI
Measuring amplifier	B&K 2610	2346941	01-Jun-2022	CEPREI
Signal generator	DS 360	33873	27-May-2022	CEPREI
Digital multi-meter	34401A	US36087050	27-May-2022	CEPREI
Audio analyzer	8903B	GB41300350	28-May-2022	CEPREI
Universal counter	53132A	MY40003662	02-Jun-2022	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1. The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
2. The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
3. The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Feng Junqi **Date:** 26-Oct-2021 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA1021 05-02 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.02	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.011 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 998.27 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 0.4 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 25-Oct-2021

Checked by: Chan Yuk Yiu **Date:** 26-Oct-2021

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

Appendix 4.2

Impact Monitoring Schedule

Contract No. SD 6/2020
Construction of San Shek Wan Sewage Treatment Works, Associated Submarine Outfall and Pui O Sewerage Works
Environmental Team Services (2021 - 2022)
Impact Monitoring Schedule
Feb 2022

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30 Jan	31 Jan	01 Feb	02 Feb	03 Feb	04 Feb Noise Monitoring	05 Feb
06 Feb	07 Feb	08 Feb Noise Monitoring	09 Feb	10 Feb	11 Feb	12 Feb
13 Feb	14 Feb	15 Feb Noise Monitoring	16 Feb	17 Feb	18 Feb	19 Feb
20 Feb	21 Feb	22 Feb	23 Feb	24 Feb Noise Monitoring	25 Feb	26 Feb
27 Feb	28 Feb	01 Mar	02 Mar	03 Mar	04 Mar	05 Mar

Remark:

Noise Monitoring to be conducted at the designated monitoring stations when there are project-related construction activities undertaken within a radius of 300m from the monitoring stations; and

Water Quality Monitoring to be scheduled upon the commencement of marine construction work site and conducted during marine construction works.

Appendix 4.3

Noise Monitoring Results and Graphical Presentations

Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: N12a - Light Pole in front of 47 Lo Uk Tsuen

Date	Weather	Time	Measurement Noise Level			Average Noise Level	Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq	Leq
			Unit: dB(A), (5-min)			Unit: dB(A), (30-min)			
4 Feb 2022	Cloudy	11:31	70.0	73.0	46.8	70.8	73.3	<Baseline Level	75
		11:36	72.5	76.6	48.9				
		11:41	72.4	76.6	48.3				
		11:46	70.6	75.4	47.7				
		11:51	66.1	70.0	44.0				
		11:56	70.8	75.5	40.6				
8 Feb 2022	Cloudy	10:36	71.9	75.4	48.5	70.3	73.3	<Baseline Level	75
		10:41	70.8	75.7	46.4				
		10:46	69.4	73.4	45.0				
		10:51	68.8	71.6	43.3				
		10:56	71.6	75.8	51.4				
		11:01	67.3	71.1	52.0				
15 Feb 2022	Sunny	10:41	70.5	75.1	51.7	70.2	73.3	<Baseline Level	75
		10:46	68.4	72.2	46.6				
		10:51	71.4	74.9	51.3				
		10:56	69.8	72.9	47.5				
		11:01	67.5	71.3	53.3				
		11:06	72.1	76.2	56.1				
24 Feb 2022	Sunny	10:41	72.6	77.2	50.8	72.0	73.3	<Baseline Level	75
		10:46	71.0	75.4	50.2				
		10:51	71.0	74.8	48.6				
		10:56	71.4	74.4	50.7				
		11:01	72.4	76.0	49.8				
		11:06	73.0	76.8	47.5				

Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: N12b - 11B Lo Uk Tsuen

Date	Weather	Time	Measurement Noise Level			Average Noise Level	Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq	Leq
			Unit: dB(A), (5-min)			Unit: dB(A), (30-min)			
4 Feb 2022	Cloudy	10:51	58.1	62.1	41.5	59.8	76.8	<Baseline Level	75
		10:56	55.9	59.5	40.5				
		11:01	60.6	63.8	41.4				
		11:06	59.8	63.6	44.3				
		11:11	62.8	64.5	41.2				
		11:16	58.2	62.7	40.8				
8 Feb 2022	Cloudy	10:11	63.9	65.0	55.0	64.7	76.8	<Baseline Level	75
		10:16	64.0	66.7	55.0				
		10:21	65.3	69.1	54.8				
		10:26	62.4	66.0	53.8				
		10:31	62.8	64.7	53.7				
		10:36	67.5	73.1	44.2				
15 Feb 2022	Sunny	14:16	66.3	67.0	57.7	64.9	76.8	<Baseline Level	75
		14:21	65.4	67.8	59.0				
		14:26	64.5	66.0	58.9				
		14:31	65.3	65.3	58.4				
		14:36	63.8	66.6	59.0				
		14:41	63.5	64.5	58.3				
24 Feb 2022	Sunny	11:21	64.3	61.6	46.2	61.7	76.8	<Baseline Level	75
		11:26	61.7	63.2	44.7				
		11:31	64.5	66.3	41.6				
		11:36	56.8	60.6	41.6				
		11:41	59.5	61.7	42.5				
		11:46	56.5	58.8	40.6				

Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: N13 - 74 Pui O San Wai Tsuen

Date	Weather	Time	Measurement Noise Level			Average Noise Level	Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq	Leq
			Unit: dB(A), (5-min)			Unit: dB(A), (30-min)			
4 Feb 2022	Cloudy	10:16	61.1	64.7	46.2	61.5	73.6	<Baseline Level	75
		10:21	60.8	64.9	44.5				
		10:26	60.9	66.1	44.1				
		10:31	60.9	64.7	46.4				
		10:36	61.6	65.1	45.3				
		10:41	63.3	66.5	48.2				
8 Feb 2022	Cloudy	14:21	63.0	66.8	55.5	62.5	73.6	<Baseline Level	75
		14:26	63.8	66.8	56.0				
		14:31	61.3	65.0	54.1				
		14:36	63.0	66.3	54.5				
		14:41	62.0	67.8	53.8				
		14:46	61.4	65.0	52.3				
15 Feb 2022	Sunny	13:41	64.3	67.6	54.8	63.6	73.6	<Baseline Level	75
		13:46	62.7	65.2	52.5				
		13:51	66.0	68.7	53.3				
		13:56	62.5	66.7	54.2				
		14:01	63.0	67.0	53.0				
		14:06	61.6	66.1	53.3				
24 Feb 2022	Sunny	14:06	65.5	67.1	53.9	63.6	73.6	<Baseline Level	75
		14:11	65.1	69.1	53.4				
		14:16	63.5	67.5	51.8				
		14:21	62.1	64.8	50.6				
		14:26	62.1	65.6	49.2				
		14:31	62.1	66.9	49.6				

Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: N14 - Fence in front of South Lantau Community Centre

Date	Weather	Time	Measurement Noise Level			Average Noise Level	Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq	Leq
			Unit: dB(A), (5-min)			Unit: dB(A), (30-min)			
4 Feb 2022	Cloudy	9:41	63.1	64.7	48.2	62.7	62.2	53	75
		9:46	65.0	64.1	42.3				
		9:51	59.4	61.8	43.8				
		9:56	58.8	62.0	41.1				
		10:01	66.0	69.0	46.6				
		10:06	55.1	58.3	43.6				
8 Feb 2022	Cloudy	13:01	63.4	61.9	47.2	67.1	62.2	65	75
		13:06	55.7	60.1	44.8				
		13:11	69.5	69.7	47.5				
		13:16	68.6	71.5	46.8				
		13:21	70.3	67.7	50.3				
		13:26	60.3	63.6	46.3				
15 Feb 2022	Sunny	13:01	61.7	63.7	45.1	64.6	62.2	61	75
		13:06	66.6	69.9	44.2				
		13:11	64.2	68.2	48.8				
		13:16	61.8	64.1	46.7				
		13:21	66.0	62.3	43.9				
		13:26	64.8	65.4	45.4				
24 Feb 2022	Sunny	14:46	54.0	54.0	42.0	63.4	62.2	57	75
		14:51	63.7	64.8	43.3				
		14:56	57.6	60.0	42.2				
		15:01	64.2	64.1	43.3				
		15:06	65.9	65.7	46.0				
		15:11	65.5	64.7	47.2				

Noise Monitoring Result

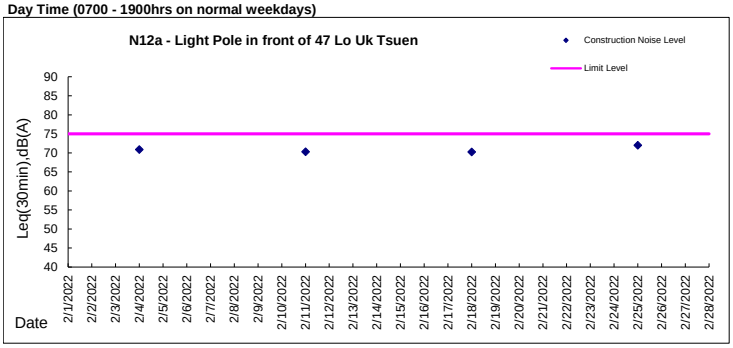
Day Time (0700 - 1900hrs on normal weekdays)

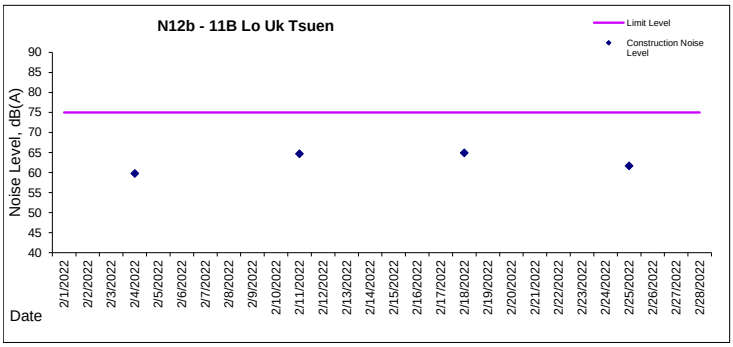
Location: N17 - Bui O Public School

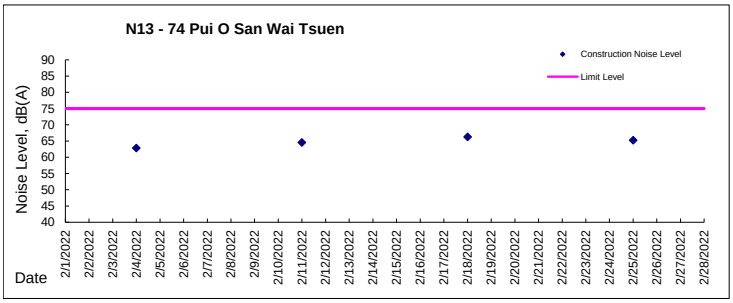
Date	Weather	Time	Measurement Noise Level			Average Noise Level	Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq	Leq
			Unit: dB(A), (5-min)			Unit: dB(A), (30-min)			
4 Feb 2022	Cloudy	9:01	47.8	51.5	39.2	48.0	62.3	<Baseline Level	70
		9:06	46.7	49.9	39.9				
		9:11	45.4	48.0	39.0				
		9:16	49.1	52.3	42.5				
		9:21	46.7	50.1	40.1				
		9:26	50.5	51.9	43.4				
8 Feb 2022	Cloudy	13:41	50.5	54.2	43.7	52.0	62.3	<Baseline Level	65
		13:46	52.5	56.5	44.2				
		13:51	51.2	54.0	43.4				
		13:56	50.4	55.1	45.3				
		14:01	50.8	53.2	44.6				
		14:06	54.8	57.4	44.3				
15 Feb 2022	Sunny	11:21	48.7	50.0	42.2	49.6	62.3	<Baseline Level	70
		11:26	48.7	51.5	43.7				
		11:31	49.1	52.0	43.0				
		11:36	50.3	52.2	43.6				
		11:41	49.7	53.3	44.4				
		11:46	50.7	53.0	42.5				
24 Feb 2022	Sunny	13:31	48.3	51.3	43.1	49.2	62.3	<Baseline Level	70
		13:36	50.7	52.9	43.1				
		13:41	50.4	53.2	42.8				
		13:46	48.4	51.1	41.5				
		13:51	48.3	51.4	42.0				
		13:56	48.1	50.8	42.1				

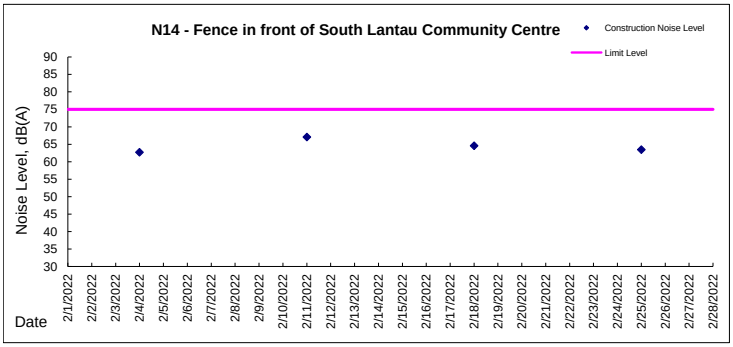
Graphic Presentation of Noise Monitoring Result

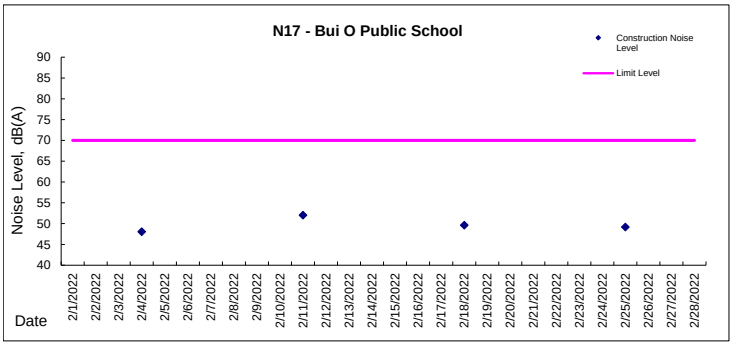
Day Time (0700 - 1900hrs on normal weekdays)











Appendix 4.4

Monthly Summary Waste Flow Table

Drainage Services Department
Contract No. DC/2020/02
Construction of San Shek Wan Sewage Treatment Works,
Associated Submarine Outfall and Pui O Sewerage Works

Monthly Summary Waste Flow Table for 2022

Month	Actual Quantities if Inert C&D Material Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated (a) (in '000m^3)	Hard Rocks and Large Broken Concrete (b) (in '000m^3)	Reused in the Contract (c) (in '000m^3)	Reused in other Projects (d) (in '000m^3)	Disposed as Public Fill (a-b-c-d) (in '000m^3)	Imported Fill (in '000m^3)	Metals (in '000kg)	Paper/card-board packaging (in '000kg)	Plastics [see Note 3] (in '000kg)	Chemical waste (in '000kg)	Others. e.g. general refuse (in '000kg)
Jan	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00	58.35
Feb	2.37	0.00	0.00	0.00	2.37	0.00	0.00	0.00	0.00	0.00	52.60
Mar											
Apr											
May											
Jun											
Sub-total	2.38	0.00	0.00	0.00	2.38	0.00	0.00	0.01	0.00	0.00	110.95
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	2.38	0.00	0.00	0.00	2.38	0.00	0.00	0.01	0.00	0.00	110.95

Notes:
(1) The inert C&D material except slurry and bentonite are disposed at Mui Wo Temporary Public Fill Bank (MW-PFRF)
(2) The slurry and bentonite are disposed at Tseung Kwan O Area 137 Fill Bank (TKO137FB)
(3) The non-inert waste is disposed at NENT or Outlying Islands Transfer Facilities
(4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(5) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material

Appendix 6.1

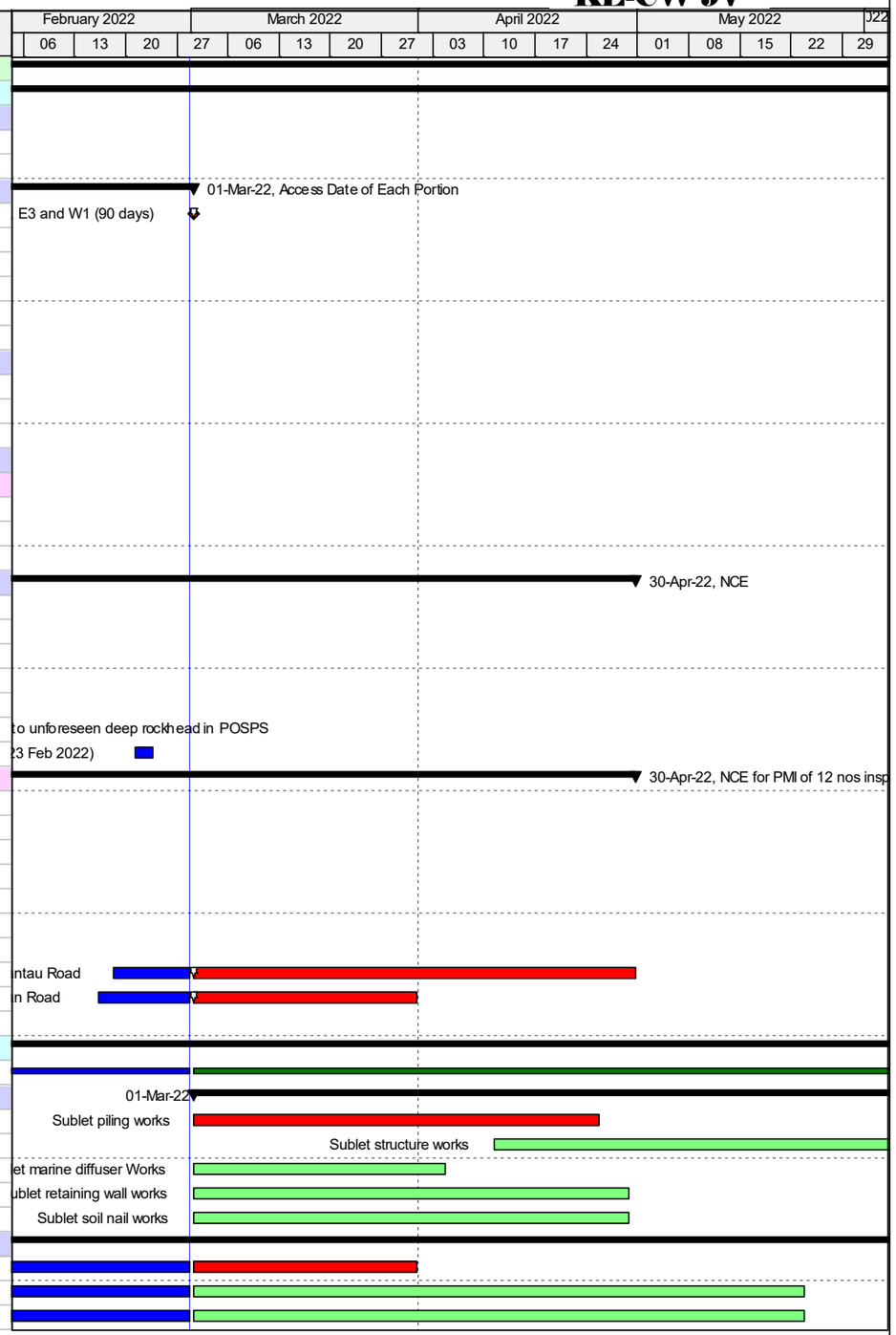
Three Months Rolling Programme – March 2022 to May 2022

Contract No. DC/2020/02

Construction of San Shek Wan Sewage Treatment Works, Associated Submarine Outfall and Pui O Sewerage Works

KL-CW JV

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
Monthly Programme for Feb 2022		1551	19-Mar-21 A	24-Aug-26	0
Project Contractual Dates		1551	19-Mar-21 A	24-Aug-26	-119
Contractual Dates		11	19-Mar-21 A	30-Mar-21 A	
CD-1000	Contract Date	0	19-Mar-21 A		
CD-1010	Starting Date	0	30-Mar-21 A		
Access Date of Each Portion		247	30-Apr-21 A	01-Mar-22	1489
CD-2000	Contract Access date of Portion A, B1, C1, D1, D3,E1, E2, E3 and W1 (90 days)	0	01-Mar-22*		-247
CD-2010	Contract Access date of Portion B2, C2, D2 and D4 (210 days)	0	04-Oct-21 A		
CD-2020	Access date of Portion A and B1 (90 days)	0	30-Apr-21 A		
CD-2030	Access date of Works Area W1 (90 days)	0	17-May-21 A		
CD-2040	Access date of Works Area C1 & D3 (90days) and B2, C2, & D2 (210 days)	0	30-Jul-21 A		
CD-2050	Simplified Temporary Land Allocation (STLA) access date of Works Area D1 & E1 (90days)	0	10-Aug-21 A		
Sectional Completion		1055	08-May-23	28-Mar-26	0
SC-1000	Section 1 The Trunk Sewers and Rising Mains in Portion A and B1 & B2 in Lo Uk Tsuen (770 days)	0		08-May-23*	0
SC-1010	Section 2 Foundation, Substructure and Superstructure of POSPS, Trunk Sewers and Rising Mains in D1& D2 (770 days)	0		08-May-23*	0
SC-1020	Section 3 Whole of the works excluding the works in sections 1 and 2(1825 days)	0		28-Mar-26*	0
Planned Sectional Completion Date		1091	29-Aug-23	24-Aug-26	-149
Sectional Completion Dates		1091	29-Aug-23	24-Aug-26	-149
PC-1000	Planned Section 1 completion date	0		11-Oct-23	-156
PC-1010	Planned Section 2 completion date	0		29-Aug-23	-113
PC-1020	Planned Section 3 completion date	0		24-Aug-26	-149
NCE		255	27-Jun-21 A	30-Apr-22	-49
NCE-001	No fully access to Portion D1 (90 days) [PGLA on 4 Oct 2021]	99	27-Jun-21 A	03-Oct-21 A	
NCE-002	No fully access to Portion E1 on access date (90 days) [PGLA on 12 Jan 2022]	199	27-Jun-21 A	11-Jan-22 A	
NCE-003	No fully access to Portion E2 and E3 on access date (90 days)	219	27-Jun-21 A	31-Jan-22 A	
NCE-008a	Delay and Disruption of Works due to Inclement Weather for Oct 2021 (8-9 Oct 2021)	2	08-Oct-21 A	09-Oct-21 A	
NCE-008b	Delay and Disruption of Works due to Inclement Weather for Oct 2021 (12-13 Oct 2021)	2	12-Oct-21 A	13-Oct-21 A	
NCE-010	Extra time for GI works for BH-5 (50m dep. on 13/11 and 100m dep. on 22/11) due to unforeseen deep rockhead in POSPS	9	14-Nov-21 A	22-Nov-21 A	
NCE-011	Delay and Disruption of Works due to Inclement Weather for Feb 2022 (21-23 Feb 2022)	3	21-Feb-22 A	23-Feb-22 A	
NCE for PMI of 12 nos inspection pits at South Lantau Road, Lo Uk Tsuen and Chi Ma Wan Road		203	29-Jun-21 A	30-Apr-22	-49
NCE-006a	Preparation and Issurance of PMI for 12 nos Inspection pits at South Lantau Road, Lo Uk Tsuen and Chi Ma Wan Road by PM	7	29-Jun-21 A	11-Aug-21 A	
NCE-006b	Received PMI for 12 nos Inspection pits at South Lantau Road, Lo Uk Tsuen and Chi Ma	0	11-Aug-21 A	11-Aug-21 A	
NCE-006c	JV prepared XP plans	7	11-Aug-21 A	18-Aug-21 A	
NCE-006d	JV revised XP plans as per PM's comment	7	18-Aug-21 A	25-Aug-21 A	
NCE-006e	Confirmation and circulation by PM for XP and TTA application	7	25-Aug-21 A	03-Sep-21 A	
NCE-006f	Revision & accept XP ID 1300556 application and TTA for South Lantau Road (assume with waiver)	90	04-Sep-21 A	17-Jan-22 A	
NCE-006f10	Revision & accept XP ID 1300565 application and TTA for Chi Ma Wan Road (assume with waiver)	90	04-Sep-21 A	19-Jan-22 A	
NCE-006g	Trai run and Inspection pits works at South Lantau Road	58	18-Feb-22 A	30-Apr-22	-129
NCE-006h	Trial run and Inspection pits works at Chi Ma Wan Road	38	16-Feb-22 A	31-Mar-22	-107
NCE-006i	Inspection pits works at Lo Uk Tsuen (VTP1 & VTP2)	12	29-Sep-21 A	05-Oct-21 A	
Preliminary Works		570	19-Mar-21 A	31-Mar-24	-6
PW-1000	Preliminary works	0	19-Mar-21 A	01-Jun-23	162
Subletting of Major Subcontract Package		101	01-Mar-22	09-Jun-22	503
SUB-1035	Sublet piling works	56	01-Mar-22	25-Apr-22	-92
SUB-1039	Sublet structure works	60	11-Apr-22	09-Jun-22	117
SUB-1047	Sublet marine diffuser Works	35	01-Mar-22	04-Apr-22	569
SUB-1135	Sublet retaining wall works	60	01-Mar-22	29-Apr-22	403
SUB-1145	Sublet soil nail works	60	01-Mar-22	29-Apr-22	115
Submissions for the whole works		510	05-Jul-21 A	31-Mar-24	-6
SU-1030	Prepare, submit, revision & accept Tree Survey, tree preservation , transplant and removal plan	90	05-Jul-21 A	31-Mar-22	-99
SU-1043	Prepare, submit, revision & accept XP ID 1303702 application and TTA for SLR Lo Wai Section (assume with waiver)	240	02-Nov-21 A	23-May-22	518
SU-1045	Prepare, submit, revision & accept XP ID 1303703 application and TTA for SLR SSWTW Section (assume with waiver)	240	02-Nov-21 A	23-May-22	91



Summary | Actual LOE | Remaining LOE | Actual Work | Remaining Work | Critical Remaining Work | Milestone | Crit Milestone | Actual Milestone | Start Constraint | Finish Constraint | No Predecessors | No Successors

Project ID: MP202202

3 Months Rolling Programme --- Mar 2022 to May 2022

Data Date: 28-Feb-22
Printed: 04-Mar-22 17:11
Layout: SSW- 3MRP202202
TASK filters: 3 months rolling porgramme-r_1, Key Dates.

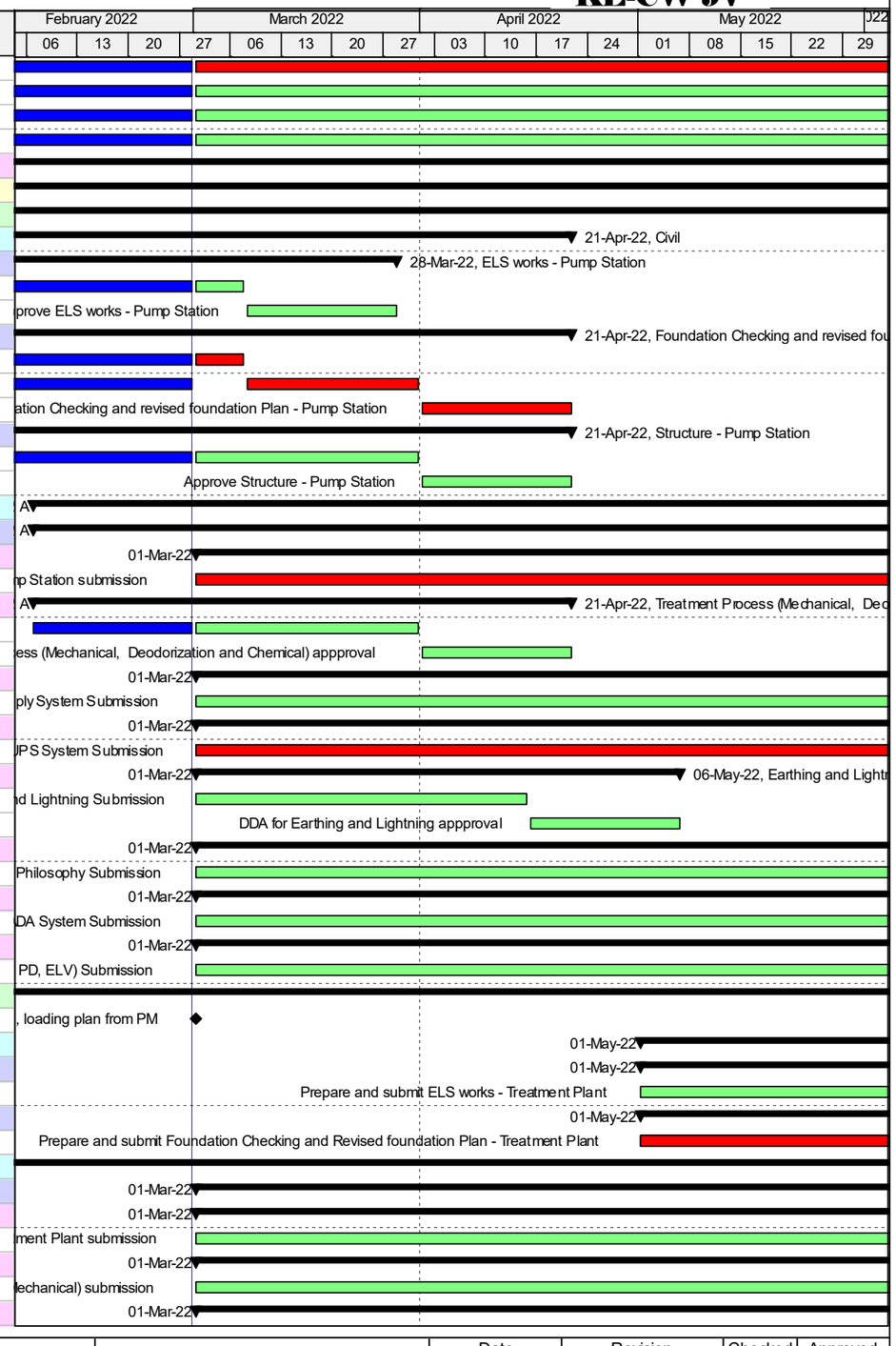
Date	Revision	Checked	Approved
04-Mar-22	r0	JW	CT

Contract No. DC/2020/02

Construction of San Shek Wan Sewage Treatment Works, Associated Submarine Outfall and Pui O Sewerage Works

KL-CW JV

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
SU-1046	Prepare, submit, revision & accept XP ID 1303704 application and TTA for SLR btw SSWSTW and Lo Uk (assume with waiver)	240	24-Jan-22 A	31-Mar-24	-6
SU-1047	Prepare, submit, revision & accept XP ID 1307099 application and TTA for SLR San Wai Section (assume with waiver)	240	24-Jan-22 A	22-Nov-23	62
SU-1048	Prepare, submit, revision & accept XP ID 1307120 application and TTA for SLR WSD POSP north (assume with waiver)	240	24-Jan-22 A	22-Nov-23	62
SU-1049	Prepare, submit, revision & accept XP ID 1307306 application and TTA for SLR SSWTW west (assume with waiver)	240	24-Jan-22 A	22-Nov-23	62
Design		343	04-Oct-21 A	22-Dec-22	271
Civil		343	04-Oct-21 A	22-Dec-22	271
POSPS		229	04-Oct-21 A	30-Aug-22	35
Civil		163	04-Oct-21 A	21-Apr-22	166
ELS works - Pump Station		110	01-Dec-21 A	28-Mar-22	88
SU-2080	Prepare and submit ELS works - Pump Station	56	01-Dec-21 A	07-Mar-22	88
SU-2250	Approve ELS works - Pump Station	21	08-Mar-22	28-Mar-22	88
Foundation Checking and revised foundation Plan - Pump Station		98	04-Oct-21 A	21-Apr-22	-113
SU-2085	Foundation design review by PM after Management meenting on 1 Dec 2021	35	01-Dec-21 A	07-Mar-22	-113
SU-2090	Prepare and submit Foundation Checking and revised foundation Plan - Pump Station	35	04-Oct-21 A	31-Mar-22	-113
SU-2260	Approve Foundation Checking and revised foundation Plan - Pump Station	21	01-Apr-22	21-Apr-22	-113
Structure - Pump Station		70	04-Oct-21 A	21-Apr-22	166
SU-2100	Prepare and submit Structure - Pump Station	56	04-Oct-21 A	31-Mar-22	166
SU-2270	Approve Structure - Pump Station	21	01-Apr-22	21-Apr-22	166
E&M		183	07-Feb-22 A	30-Aug-22	5
DDA		183	07-Feb-22 A	30-Aug-22	5
DDA Submission		183	01-Mar-22	30-Aug-22	-16
EM-1020	Detailed Design Approval (DDA) for E&M works for Pui O Pump Station submission	183	01-Mar-22	30-Aug-22	-16
Treatment Process (Mechanical, Deodorization and Chemical)		91	07-Feb-22 A	21-Apr-22	136
EM-1021	DDA for Treatment Process (Mechanical, Deodorization and Chemical) Submission	91	07-Feb-22 A	31-Mar-22	136
EM-3260	DDA for Treatment Process (Mechanical, Deodorization and Chemical) appproval	21	01-Apr-22	21-Apr-22	136
Electrical Power Supply System		122	01-Mar-22	30-Jun-22	45
EM-1022	DDA for Electrical Power Supply System Submission	122	01-Mar-22	30-Jun-22	45
UPS System		183	01-Mar-22	30-Aug-22	-16
EM-1023	DDA for UPS System Submission	183	01-Mar-22	30-Aug-22	-16
Earthing and Lightning		67	01-Mar-22	06-May-22	121
EM-1024	DDA for Earthing and Lightning Submission	46	01-Mar-22	15-Apr-22	121
EM-3290	DDA for Earthing and Lightning appproval	21	16-Apr-22	06-May-22	121
System Control Philosophy		122	01-Mar-22	30-Jun-22	45
EM-1025	DDA for System Control Philosophy Submission	122	01-Mar-22	30-Jun-22	45
PLC & SCADA System		152	01-Mar-22	30-Jul-22	15
EM-1026	DDA for PLC & SCADA System Submission	152	01-Mar-22	30-Jul-22	15
Building Service (MV, EL, FS, PD, ELV)		122	01-Mar-22	30-Jun-22	45
EM-1027	DDA for Building Service (MV, EL, FS, PD, ELV) Submission	122	01-Mar-22	30-Jun-22	45
SSWTW		297	13-Jan-22 A	22-Dec-22	271
SU-2170	Obtain revised SSWTW GA, piling schedule , loading plan from PM	0	01-Mar-22		28
Civil		98	01-May-22	06-Aug-22	192
ELS works - Treatment Plant		98	01-May-22	06-Aug-22	192
SU-2135	Prepare and submit ELS works - Treatment Plant	98	01-May-22	06-Aug-22	192
Foundation Checking and Revised foundation Plan - Treatment Plant		98	01-May-22	06-Aug-22	-33
SU-2140	Prepare and submit Foundation Checking and Revised foundation Plan - Treatment Plant	98	01-May-22	06-Aug-22	-33
E&M		297	13-Jan-22 A	22-Dec-22	271
DDA		297	01-Mar-22	22-Dec-22	271
DDA Submission		297	01-Mar-22	22-Dec-22	162
EM-3000	DDA for E&M works for Treatment Plant submission	297	01-Mar-22	22-Dec-22	162
Preliminary Treatment (Mechanical)		183	01-Mar-22	30-Aug-22	248
EM-3010	DDA for Preliminary Treatment (Mechanical) submission	183	01-Mar-22	30-Aug-22	248
Secondary Treatment & Membrane Filtration (Mechanical)		168	01-Mar-22	15-Aug-22	400



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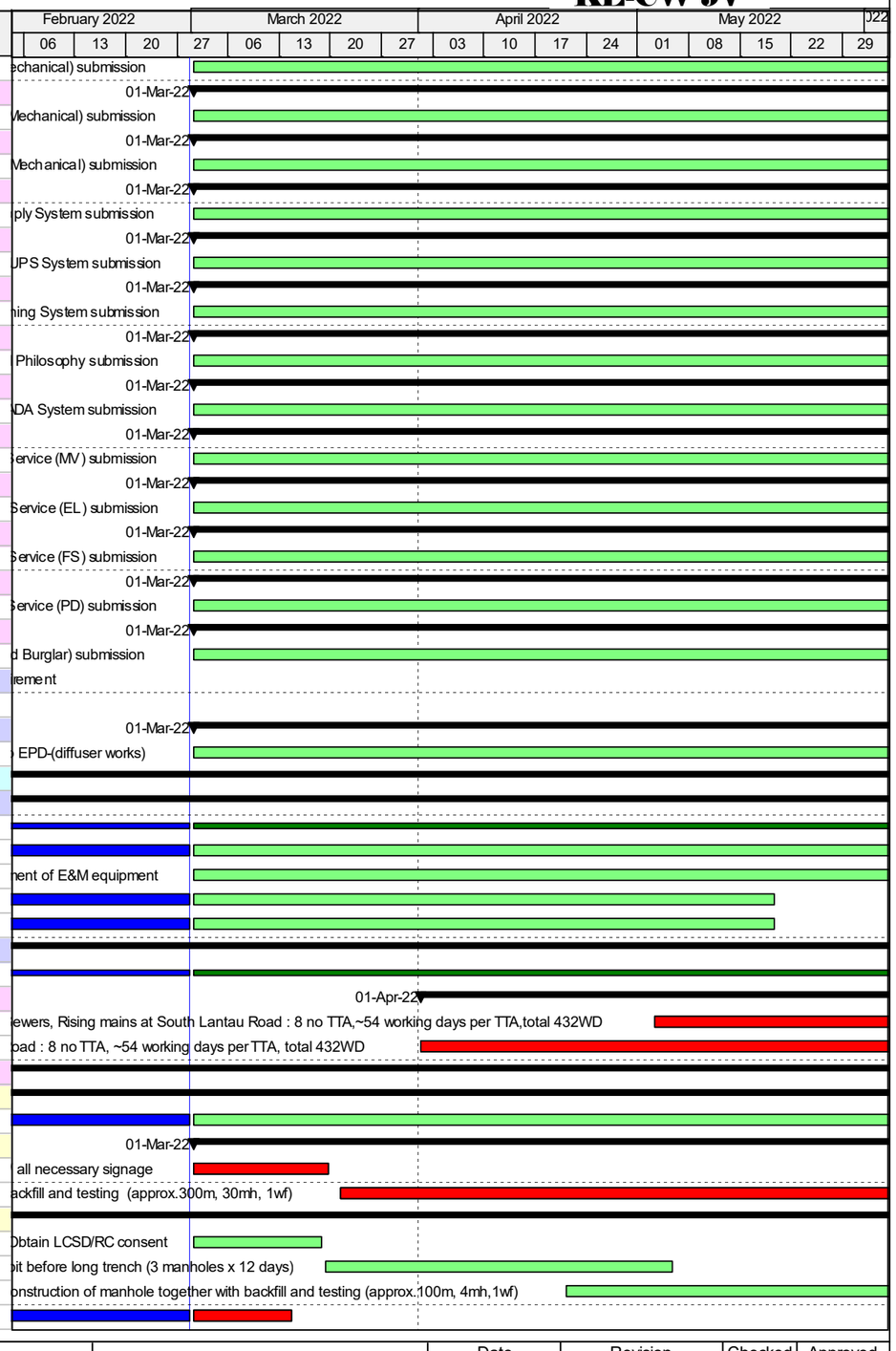
Contract No. DC/2020/02

Construction of San Shek Wan Sewage Treatment Works, Associated Submarine Outfall and Pui O Sewerage Works

KL-CW JV

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
EM-3020	DDA for Secondary Treatment & Membrane Filtration (Mechanical) submission	168	01-Mar-22	15-Aug-22	400
Sludge Treatment (Mechanical)		199	01-Mar-22	15-Sep-22	369
EM-3030	DDA for Sludge Treatment (Mechanical) submission	199	01-Mar-22	15-Sep-22	369
Deodorisation (Mechanical)		199	01-Mar-22	15-Sep-22	369
EM-3040	DDA for Deodorisation (Mechanical) submission	199	01-Mar-22	15-Sep-22	369
Electrical Power Supply System		244	01-Mar-22	30-Oct-22	73
EM-3050	DDA for Electrical Power Supply System submission	244	01-Mar-22	30-Oct-22	73
UPS System		260	01-Mar-22	15-Nov-22	308
EM-3060	DDA for UPS System submission	260	01-Mar-22	15-Nov-22	308
Earthing and Lightning System		214	01-Mar-22	30-Sep-22	354
EM-3070	DDA for Earthing and Lightning System submission	214	01-Mar-22	30-Sep-22	354
System Control Philosophy		244	01-Mar-22	30-Oct-22	324
EM-3080	DDA for System Control Philosophy submission	244	01-Mar-22	30-Oct-22	324
PLC & SCADA System		244	01-Mar-22	30-Oct-22	324
EM-3090	DDA for PLC & SCADA System submission	244	01-Mar-22	30-Oct-22	324
Building Service (MV)		275	01-Mar-22	30-Nov-22	293
EM-3100	DDA for Building Service (MV) submission	275	01-Mar-22	30-Nov-22	293
Building Service (EL)		260	01-Mar-22	15-Nov-22	308
EM-3110	DDA for Building Service (EL) submission	260	01-Mar-22	15-Nov-22	308
Building Service (FS)		260	01-Mar-22	15-Nov-22	308
EM-3120	DDA for Building Service (FS) submission	260	01-Mar-22	15-Nov-22	308
Building Service (PD)		275	01-Mar-22	30-Nov-22	293
EM-3130	DDA for Building Service (PD) submission	275	01-Mar-22	30-Nov-22	293
ELV System (CCTV, Access Control and Burglar)		275	01-Mar-22	30-Nov-22	293
EM-3140	DDA for ELV System (CCTV, Access Control and Burglar) submission	275	01-Mar-22	30-Nov-22	293
Civil Requirement		0	13-Jan-22 A	13-Jan-22 A	
EM-2030	Civil Requirement for SSWTW foundation design (loading distribution, opening for plant mobilization) provided by ATAL	0	13-Jan-22 A		
Site Safety and Environmental Management		120	01-Mar-22	28-Jun-22	364
SU-2010	Prepare & Submit Sediment sampling and Test Plan SSTP to EPD-(diffuser works)	120	01-Mar-22	28-Jun-22	364
Construction works		1467	30-Jun-21 A	24-Aug-26	0
CLP and UU coordination- by others		1090	02-Aug-21 A	23-Sep-25	18
CLP-0000	CLP works	1090	02-Aug-21 A	23-Sep-25	18
CLP-2000	Permanent Electricity coordination with CLP	180	05-Aug-21 A	09-Aug-22	297
CLP-3000	Early Liaise with CLP before the procurement of E&M equipment	180	01-Mar-22	07-Oct-22	484
CLP-4000	Liaise with CLP to inspection the Transformer room after Related E&M works delivered on site-POSPS	60	05-Aug-21 A	19-May-22	903
CLP-4010	Liaise with CLP to inspection the Transformer room after Related E&M works delivered on site-SSWTP	60	05-Aug-21 A	19-May-22	911
Section 1 Sewerage installation (Portion A,B1 & B2 / Area A, B1 & B2)		677	30-Jun-21 A	11-Oct-23	-129
S1-1000	Section 1 Sewerage installation (Portion A,B1 & B2 / Area A, B1 & B2)	533	30-Jun-21 A	11-Oct-23	-129
Trunk Sewers and Rising Mains Outside village and to POSPS (Area A)		454	01-Apr-22	11-Oct-23	-129
A-1030	Construct Sewers, Rising mains at South Lantau Road : 8 no TTA,~54 working days per TTA,total 432WD	432	03-May-22	11-Oct-23	-129
A-1040	Construct Sewers, Rising mains at Chi Ma Wan Road : 8 no TTA, ~54 working days per TTA, total 432WD	432	01-Apr-22	13-Sep-23	-107
The village Sewerage in Pui O Lo Uk Tsuen		382	18-Nov-21 A	28-Mar-23	30
Portion B1		352	18-Nov-21 A	18-Mar-23	7
B1-1040	Excavation, sewer laying, construction of manhole together with backfill and testing (approx.468m, 48mh, 2wf)	352	18-Nov-21 A	18-Mar-23	7
Portion B2		322	01-Mar-22	28-Mar-23	0
B2-1020	Trial pits, mobilization and water barrier/ fencing/ all necessary signage	17	01-Mar-22	19-Mar-22	0
B2-1040	Excavation, sewer laying, construction of manhole together with backfill and testing (approx.300m, 30mh, 1wf)	305	21-Mar-22	28-Mar-23	0
Portion B2 / Area B22 (Chi Ma Wan Beach)		288	07-Dec-21 A	20-Dec-22	108
B22-1005	Obtain LCSD/RC consent	16	01-Mar-22	18-Mar-22	250
B22-1010	Trial pit before long trench (3 manholes x 12 days)	36	19-Mar-22	05-May-22	252
B22-1020	Excavation, sewer laying, construction of manhole together with backfill and testing (approx.100m, 4mh,1wf)	60	21-Apr-22	02-Jul-22	252
B22-1040	Obtain PMI for additional GI on Pui O beach road	16	07-Dec-21 A	14-Mar-22	-11



Summary | Actual LOE | Remaining LOE | Actual Work | Remaining Work | Critical Remaining Work | Milestone | Crit Milestone | Actual Milestone | Start Constraint | Finish Constraint | No Predecessors | No Successors

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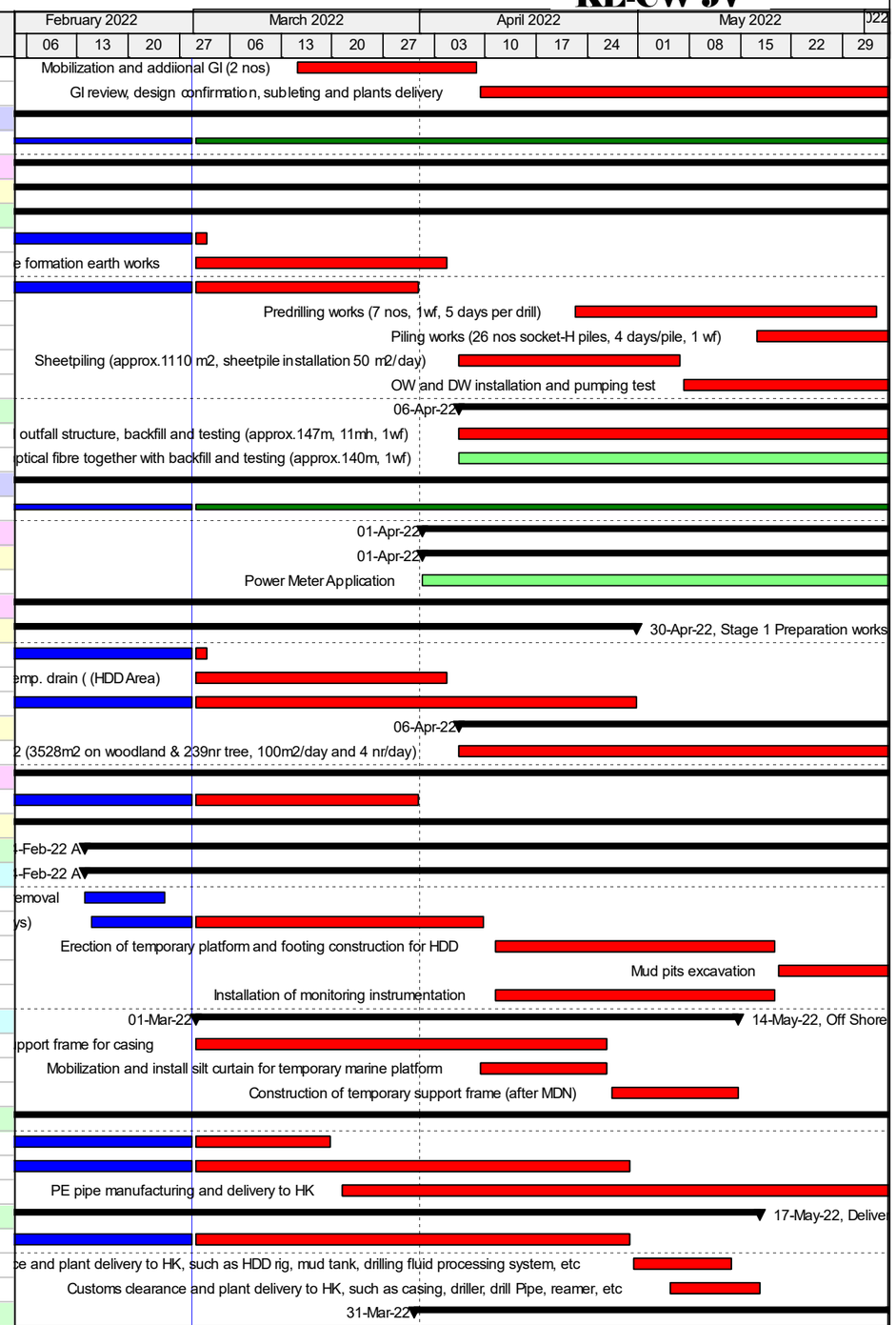
Contract No. DC/2020/02

Construction of San Shek Wan Sewage Treatment Works, Associated Submarine Outfall and Pui O Sewerage Works

KL-CW JV

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
B22-1050	Mobilization and addiional GI (2 nos)	21	15-Mar-22	08-Apr-22	-11
B22-1060	GI review, design confirmation, subleting and plants delivery	210	09-Apr-22	20-Dec-22	-11
Section 2 Pui O Sewage Pumping Station and nearby Sewage works		554	05-Jul-21 A	29-Aug-23	-94
S2-1000	Pui O sewage Pumping Station and nearby Sewage works (Sectional Completion date 2)	554	05-Jul-21 A	29-Aug-23	-94
Construction of Pui O Sewage Pumping Station (Area D, section 2)		299	25-Dec-21 A	03-Jan-23	-11
Stage 1		299	25-Dec-21 A	03-Jan-23	-11
Pump Station		211	25-Dec-21 A	17-Sep-22	-71
SPS-1020	Tree pruning, digging Recipient site preparation and transplanting works for T113 & T114	42	05-Jan-22 A	02-Mar-22	-50
SPS-1023	Erection of water barrier and site formation earth works	30	01-Mar-22	04-Apr-22	-58
SPS-1035	Obtain Gi information to verifiy foundation design (Log and Testing in Lab)	30	25-Dec-21 A	31-Mar-22	-92
SPS-1037	Predrilling works (7 nos, 1wf, 5 days per drill)	35	22-Apr-22	02-Jun-22	-89
SPS-1040	Piling works (26 nos socket-H piles, 4 days/pile, 1 wf)	104	17-May-22	17-Sep-22	-89
SPS-1060	Sheetpiling (approx.1110 m2, sheetpile installation 50 m2/day)	23	06-Apr-22	06-May-22	-13
SPS-1065	OW and DW installation and pumping test	54	07-May-22	11-Jul-22	-13
Sewers and Rising Mains		223	06-Apr-22	03-Jan-23	-11
SPS-1070	Excavation, sewer laying, construction of manhole and outfall structure, backfill and testing (approx.147m, 11mh, 1wf)	223	06-Apr-22	03-Jan-23	-11
SPS-1080	Excavation, construction of rising main and optical fibre together with backfill and testing (approx.140m, 1wf)	125	06-Apr-22	05-Sep-22	87
Section 3 SSWSTW, HHD and Submarine outfall & POSPS		1390	01-Sep-21 A	24-Aug-26	0
S3-1000	SPS, SSWSTW and HDD works	1333	23-Dec-21 A	24-Aug-26	-120
Remaining Pui O Sewage Pumping Station (Area D, section 3)		140	01-Apr-22	20-Sep-22	1166
Statutory Submission & Approval		140	01-Apr-22	20-Sep-22	1166
SPS-7000	Power Meter Application	140	01-Apr-22	20-Sep-22	1166
SSWSTW		149	15-Dec-21 A	04-Aug-22	-52
Stage 1 Preparation works for HDD and SSWSTW		51	15-Dec-21 A	30-Apr-22	-25
STW-1016	Tree transplant for T392, T742, T751 & T758	42	05-Jan-22 A	02-Mar-22	-87
STW-1018	Water barrier and temp. drain ((HDD Area)	30	01-Mar-22	04-Apr-22	-70
STW-9930	Obtain Gi information to verifiy foundation design (Log and Testing in Lab)	30	15-Dec-21 A	30-Apr-22	-25
Stage 2 Works outside HDD area		98	06-Apr-22	04-Aug-22	-52
STW-1020	Site Clearance, erection of hoarding and tree felling stage 2 (3528m2 on woodland & 239nr tree, 100m2/day and 4 nr/day)	98	06-Apr-22	04-Aug-22	-52
Submarine Outfall		287	01-Sep-21 A	20-Sep-22	-86
HDD2-1010	Liaise with existing Shek Pik Supply Tunnel	60	01-Sep-21 A	31-Mar-22	-81
HDD		213	18-Nov-21 A	20-Sep-22	-86
Preparation		79	14-Feb-22 A	07-Jun-22	-84
On Shore [Land]		79	14-Feb-22 A	07-Jun-22	-84
HDD-1240	Funiture and paving removal	6	14-Feb-22 A	25-Feb-22 A	
HDD-1330	Formation earth works from +50.4mPD to +48mPD (~6000m3), (23 trips x 6m3 24Ttrucks = 134m3 per day x 45 working days)	45	15-Feb-22 A	09-Apr-22	-119
HDD-1340	Erection of temporary platform and footing construction for HDD	30	11-Apr-22	19-May-22	-119
HDD-1350	Mud pits excavation	15	20-May-22	07-Jun-22	-119
HDD-1780	Installation of monitoring instrumentation	30	11-Apr-22	19-May-22	-69
Off Shore [Sea]		60	01-Mar-22	14-May-22	-81
HDD-1010	Procurement, Prefabrication and delivery of temporary support frame for casing	45	01-Mar-22	26-Apr-22	-81
HDD-1020	Mobilization and install silt curtain for temporary marine platform	12	09-Apr-22	26-Apr-22	-81
HDD-1030	Construction of temporary support frame (after MDN)	15	27-Apr-22	14-May-22	-81
Procurement		213	06-Dec-21 A	20-Sep-22	-86
HDD-1360	HDD plant design, fabrication and modification	40	06-Dec-21 A	19-Mar-22	-86
HDD-1370	HDD material procurement such as casing and betonite, etc	28	06-Dec-21 A	29-Apr-22	-102
HDD-1380	PE pipe manufacturing and delivery to HK	150	21-Mar-22	20-Sep-22	-86
Delivery to HK		108	18-Nov-21 A	17-May-22	-102
HDD-1390	Submission to the Ministry of Commerce for HDD equipment	58	18-Nov-21 A	29-Apr-22	-102
HDD-1400	Customs clearance and plant delivery to HK, such as HDD rig, mud tank, drilling fluid processing system, etc	11	30-Apr-22	13-May-22	-102
HDD-1410	Customs clearance and plant delivery to HK, such as casing, driller, drill Pipe, reamer, etc	11	05-May-22	17-May-22	-102
Construction		51	31-Mar-22	04-Jun-22	-81



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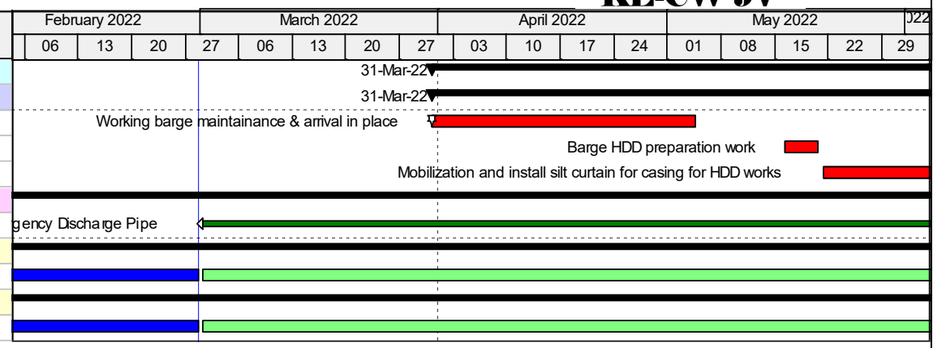
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
1st tunnel		51	31-Mar-22	04-Jun-22	-81
Sea side (HDD Rig 2)		51	31-Mar-22	04-Jun-22	-81
HDD-1040	Working barge maintainance & arrival in place	25	31-Mar-22*	04-May-22	-72
HDD-1045	Barge HDD preparation work	5	16-May-22	20-May-22	-81
HDD-1046	Mobilization and install silt curtain for casing for HDD works	12	21-May-22	04-Jun-22	-81
Remaining Trunk Sewers, Rising Mains & Emergency Discharge Pipe		1027	02-Nov-21 A	20-May-25	252
R-1000	Remaining Truck Sewers, Rising Mains & Emergency Discharge Pipe	955	01-Mar-22	20-May-25	252
Portion C1 / SSWTW Section		240	02-Nov-21 A	16-Jul-22	525
C1-1000	TTA application for Portion C1/ SSWTW Section (Plan ID 1303703) (TTA with 24hrs permit)	240	02-Nov-21 A	16-Jul-22	525
Portion C1 / Lo Wai Tsuen Section		240	02-Nov-21 A	16-Jul-22	421
C3-1000	TTA application for Portion C1/ Lo Wai Tsuen Section (Plan ID 1303702) (TTA with 24hrs permit)	240	02-Nov-21 A	16-Jul-22	421



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