香港電燈有限公司 The Hongkong Electric Co., Ltd.



# Lamma Power Station Extension Construction Phase Monthly Environmental Monitoring & Audit Report

January 2020

香港電燈有限公司 The Hongkong Electric Co., Ltd.



# ENVIRONMENTAL IMPACT ASSESSMENT (EIA) ORDINANCE, CAP. 499

# ENVIRONMENTAL PERMIT NO. EP-071/2000/C

## LAMMA POWER STATION EXTENSION ENVIRONMENTAL MONITORING & AUDIT PROGRAMME AT CONSTRUCTION PHASE

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 Report Title	Lamma Power Station Extension – Unit L10 & L11 & L12
	Monthly EM&A Report
	(January 2020)
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### **EXECUTIVE SUMMARY**

This is the 117<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) report for the Project "Construction of Lamma Power Station Extension" prepared by the Environmental Team (ET). This report presents the results of impact monitoring on air quality and noise for the said project in January 2020.

The reclamation and submarine pipeline works were completed with the first gas-fired combined cycle unit (viz. Unit L9) commissioned in October 2006, working currently on base load operation. To cope with the scheduled retirement of the existing units at Lamma Power Station, the second gas-fired combined cycle unit (viz. Unit L10) is planned for commercial operation in early 2020 and the associated construction work commenced in February 2016. The Gas-in and Synchronization for L10 were carried out in mid-September and mid-October 2019 respectively to facilitate commissioning activities.

In September 2016, the Government approved HK Electric to construct the third combined cycle gasfired generating unit (L11) to implement the 2020 Fuel Mix Target. L11 is planned for commercial operation in 2022 and the associated construction work commenced in November 2016.

With the Government's approval to build the fourth combined cycle gas-fired generating unit (L12) in July 2018, the associated construction work commenced in April 2019. When L12 is commissioned in 2023, the total gas-fired electricity generation will further rise to reach about 70% of our total output.

Air and noise monitoring were performed. The results were checked against the established Action/Limit (AL) levels. An on-site audit was conducted once per week. The implementation status of the environmental mitigation measures, Event/Action Plan and environmental complaint handling procedures were also checked.

#### **Construction Activities Undertaken**

Item	Construction Activities
Unit L10 Civil and Building Works	Main Station Building, Urea Plant and Store Area (trench excavation and backfilling, road base and paving works), and cable trench
Unit L10 Mechanical Erection	Condenser installation, HRSG installation and turbine block installation
Unit L10 Electrical, Instrumentation & Control Erection	Cable installation
Unit L11 Civil and Building Works	275kV Station Building Extension works, Main Building Station, CW pipe installation, installation of columns and beams, Site formation works and pipe jacking works
Unit L11 Mechanical Erection	Condenser installation, HRSG installation and turbine block installation
Unit L11 Electrical, Instrumentation & Control Erection	Cable installation

Construction activities for Lamma Extension during the reporting month are tabulated as follows:

Unit L12 Foundation Works	Bored Pile Work and Pre-drilling Work
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#### **Environmental Monitoring Works**

All monitoring work at designated stations was performed as scheduled satisfactorily.

#### Air Quality

No exceedance of Action/Limit levels on 1-hour TSP and 24-hour TSP for air quality was recorded in the month.

#### Noise

Construction work for Lamma Extension was carried out during the restricted hours including evening-time, holidays and night-time under valid Construction Noise Permit. No exceedance of Action and Limit levels for noise arising from the construction of Lamma Extension was recorded in the month.

#### Site Environmental Audit

EPD officials from Regional Office (South) visited Lamma Power Station on 03/01/2020. EPD inspected the Lamma Extension Construction Site. There was no adverse comment from EPD regarding the construction site.

Site audits were carried out on a weekly basis to monitor environmental issues on the construction site. The site conditions were generally satisfactory.

Environmental Licensing and Permitting

Description	Description Permit No. Valid Period		Issued To	Date of	
		From	То		Issuance
Varied Environmental Permit	EP-071/2000/C	18/05/05	-	HK Electric	18/05/05
Construction Noise Permit	GW-RS0809-19	15/09/19	14/03/20	Contractor	11/09/19
Construction Noise Permit	GW-RS1134-19	01/01/20	30/06/20	Contractor	20/12/19
Construction Noise Permit	GW-RS0930-19	02/11/19	01/05/20	Contractor	22/10/19
Construction Noise Permit	GW-RS1064-19	04/12/19	03/06/20	Contractor	26/11/19
Construction Noise Permit	PP-RS0013-19	08/08/19	30/01/20	Contractor	06/08/19
WPCO Discharge Licence	WT00027316-2017	01/03/17	31/03/22	Contractor	01/03/17
WPCO Discharge Licence	WT00034006-2019	08/08/19	31/08/24	Contractor	22/08/19
WPCO Discharge Licence	WT00034368-2019	11/09/19	30/09/24	Contractor	11/09/19
Registration of Chemical Waste Producer	WPN5213-912- P2781-22	22/02/16	-	Contractor	22/02/16
Registration of Chemical Waste Producer	WPN5517-912- T2007-02	17/03/05		Contractor	17/03/05

Description	Permit No.	Valid Period		Issued To	Date of
		From	То		Issuance
Waste Disposal	Account No.:	06/10/16	-	Contractor	06/12/16
Billing Account	7026035				
Waste Disposal	Account No.:	28/12/16	-	Contractor	28/12/16
Billing Account	7026793				
Waste Disposal	Account No.:	20/04/17	-	Contractor	20/04/17
Billing Account	7027632				
Waste Disposal	Account No.:	21/06/18	-	Contractor	21/06/18
Billing Account	7031135				
Waste Disposal	Account No.:	24/04/17	-	Contractor	24/04/17
Billing Account	7027672				
Waste Disposal	Account No.:	01/04/19	-	Contractor	01/04/19
Billing Account	7033637				

## **Implementation Status of Environmental Mitigation Measures**

Environmental mitigation measures for the construction activities as recommended in the EM&A manual were implemented in the reporting month.

#### **Environmental Complaints**

No complaint against the construction activities was received in the reporting month.

#### **Future Key Issues**

The future key issues to be considered in the coming month are as follows:

#### Unit L10 Civil and Building Works

- to continue monitoring the noise level during construction;
- to continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary;
- to treat wastewater in sedimentation pit and tanks before discharge and to ensure compliance with the WPCO discharge licence already obtained.

#### Unit L10 Mechanical Erection

- to continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Unit L10 Electrical, Instrumentation & Control Erection

- to continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Unit L11 Civil and Building Works

- to continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained;

- to continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary;
- to treat wastewater in sedimentation pit and tanks before discharge and to ensure compliance with the WPCO discharge licence already obtained.

#### Unit L11 Mechanical Erection

- to continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained;
- to continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Unit L11 Electrical, Instrumentation & Control Erection

- to continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained;
- to continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Unit L12 Foundation Works

- to continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained;
- to continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary;
- to treat wastewater in sedimentation pit and tanks for reuse on water spraying and to ensure compliance in accordance with the WPCO discharge licence already obtained.

#### **Concluding Remarks**

The environmental performance of the project was generally satisfactory.

## 1. INTRODUCTION

## 1.1 Background

The Environmental Team (hereinafter called the "ET") was formed within the Hongkong Electric Co. Ltd (HEC) to undertake Environmental Monitoring and Audit for "Construction of Lamma Power Station Extension" (hereinafter called the "Project"). Under the requirements of Section 6 of Environmental Permit EP-071/2000/C, an EM&A programme for impact environmental monitoring set out in the EM&A Manual (Construction Phase) is required to be implemented. In accordance with the EM&A Manual, environmental monitoring of air quality, noise and water quality and regular environmental audits are required for the Project. With the completion of reclamation and submarine pipeline works, no further marine water quality monitoring would be required.

The Project involves the construction of a gas-fired power station employing combined cycled gas turbine technology, forming an extension to the existing Lamma Power Station. The key elements of the Project including the construction activities associated with the transmission system and submarine gas pipeline are outlined as follows.

- dredging and reclamation to form approximately 22 hectares of usable area;
- construction of six 300MW class gas-fired combined cycle units;
- construction of a gas receiving station;
- construction of a transmission system linking the Lamma Extension to load centres on Hong Kong Island;
- laying of a gas pipeline for the supply of natural gas to the new power station

This report summarizes the environmental monitoring and audit work for the Project for the month of January 2020.

## **1.2 Project Organisation**

An Environmental Management Committee (EMC) has been set up in HEC to oversee the Project. The management structure includes the following:

- Environmental Protection Department (The Authority);
- Environmental Manager (The Chairman of the Environmental Management Committee);
- Engineer;
- Independent Environmental Checker (IEC);
- Environmental Team (ET);
- Contractor.

The project organisation chart for the construction EM&A programme is shown in Appendix A.

## **1.3** Construction Works undertaken during the Reporting Month

Construction activities for Unit L10 civil and building works were carried out for Main Station Building, Urea Plant and Store Area (trench excavation and backfilling, road base and paving works), and for Cable Trench. Construction activities for Unit L10 mechanical erection were condenser installation, HRSG installation and turbine block installation. Construction activity for Unit L10 electrical, instrumentation & control erection was cable installation. Construction activities for Unit L11 civil and building works were, 275kV station building extension works,

Main Station Building, CW pipe installation, installation of columns and beams, site formation works and pipe jacking works. Construction activities for Unit L11 mechanical erection were condenser installation, HRSG installation and turbine block installation. Construction activity for Unit L11 electrical, instrumentation & control erection was cable installation. Construction activities for Unit L12 foundation works were bored pile work and pre-drilling work. Layout plan for construction site is shown in Figure 1.1.

The main construction activities carried out during the reporting month and the corresponding environmental mitigation measures are summarized in Table 1.1. The implementation of major mitigation measures in the month is provided in Appendix I.

Item	Construction Activities	Environmental Mitigation Measures
Unit L1	0 Civil and Building	Works
1.	Main Station Building, Urea Plant and Store Area (trench excavation and backfilling, road base and paving works)	<ul> <li>Air</li> <li>All regulated machine attached with valid exception/approval NRMM labels.</li> <li>Water truck was used for water spraying of the haul road.</li> <li>Water spraying for concrete breaking of pile head.</li> <li>Excavated slope covered with cement or tarpaulin.</li> <li>Backfilled surface was compacted.</li> <li>Wheel washing facilities was provided.</li> <li>Provision of shelter with three sides and top cover for fendolite mixer and fendolite stock should be covered.</li> <li>Noise</li> <li>General noise mitigation measures employed at all work sites throughout the construction phase.</li> <li>CNP should be applied if works to be conduct during restricted hours.</li> </ul>
		<ul> <li>Wastewater         <ul> <li>Wastewater should be treated in sedimentation pit and tanks before discharge. Solution should be added to speed up the sedimentation process. Sediment in pit and tanks must be removed regularly.</li> </ul> </li> <li>Waste Management         <ul> <li>Excavated soil was temporary stored for backfilling.</li> <li>Scrape metal will be recycled.</li> <li>Timber will be reused as much as possible.</li> </ul> </li> </ul>

 
 Table 1.1
 Construction Activities and Their Corresponding Environmental Mitigation Measures

Item	Construction Activities	Environmental Mitigation Measures
2.	Cable Trench	<ul> <li>Air <ul> <li>All regulated machine attached with valid exception/approval NRMM labels.</li> <li>Water spraying for road surface breaking</li> <li>Soil stock covered with tarpaulin.</li> </ul> </li> <li>Wastewater <ul> <li>Wastewater should be treated in sedimentation pit and tanks before discharge. Solution should be added to speed up the sedimentation process. Sediment in pit</li> </ul> </li> </ul>
		<ul> <li>Waste Management         <ul> <li>Excavated soil was temporary stored for backfilling.</li> <li>Scrape metal will be recycled.</li> </ul> </li> </ul>
Unit L1(	) Mechanical Erectio	n
3.	Condenser installation HRSG installation Turbine block installation	<ul> <li>Air <ul> <li>Dust suppression measures implemented according to the EMP.</li> </ul> </li> <li>Noise <ul> <li>General noise mitigation measures employed at all</li> </ul> </li> </ul>
		work sites throughout the construction phase. Waste Management
		<ul> <li>Waste Management Plan submitted and implemented.</li> </ul>
Unit L10	) Electrical, Instrume	entation & Control Erection
4.	Cable installation	Air – Dust suppression measures implemented according to the EMP.
		<ul> <li>Noise</li> <li>General noise mitigation measures employed at all work sites throughout the construction phase.</li> </ul>
		<ul> <li>Waste Management</li> <li>Waste Management Plan submitted and implemented.</li> </ul>
		- waste wanagement i fan submitted and implemented.

Item	Construction Activities	Environmental Mitigation Measures
Unit L1	1 Civil and Building	Works
5.	275kV Station Building Extension Works	<ul> <li>Air         <ul> <li>All regulated machine attached with valid exception/approval NRMM labels.</li> <li>Wheel washing facility was provided.</li> </ul> </li> <li>Noise         <ul> <li>Works conducted during holiday should comply with the valid CNP.</li> </ul> </li> <li>Wastewater         <ul> <li>Wastewater should be treated in desilting pit and tanks for reuse on water spraying.</li> </ul> </li> </ul>
		<ul> <li>Waste Management <ul> <li>Scrape metal will be recycled.</li> <li>Timber will be reused as much as possible.</li> <li>Chemical waste should be collected by licensed collector</li> </ul> </li> </ul>
6.	Main Station Building, CW Pipe Installation, Installation of Columns and Beams, Site Formation Works and Pipe Jacking Works (Set up of jacking and receiving pit)	<ul> <li>Air         <ul> <li>All regulated machine attached with valid exception/approval NRMM labels.</li> <li>Water truck and water sprinkler system was used.</li> <li>Water spraying for concrete breaking of pile head.</li> <li>Excavated slope and soil stock covered with cement or tarpaulin.</li> <li>Wheel washing facility was provided.</li> </ul> </li> <li>Noise         <ul> <li>Works conducted during holiday should comply with the valid CNP.</li> </ul> </li> <li>Wastewater         <ul> <li>Wastewater should be treated in desilting pit and tanks before discharge. Solution should be added to</li> </ul> </li> </ul>
		<ul> <li>speed up the sedimentation process. Sediment in pit and tanks must be removed regularly.</li> <li>Waste Management <ul> <li>Excavated soil was temporary stored for backfilling.</li> <li>Scrape metal will be recycled.</li> <li>Timber will be reused as much as possible.</li> </ul> </li> </ul>

Item	Construction Activities	Environmental Mitigation Measures
Unit L1	1 Mechanical Erection	on
7	Condenser installation HRSG installation Turbine block	Air – Dust suppression measures implemented according to the EMP.
	installation	Noise <ul> <li>General noise mitigation measures employed at all work sites throughout the construction phase.</li> </ul>
		Waste Management <ul> <li>Waste Management Plan submitted and implemented</li> </ul>
Unit L1	1 Electrical, Instrume	entation & Control Erection
8	Cable installation	<ul> <li>Air</li> <li>Dust suppression measures implemented according to the EMP.</li> </ul>
		<ul> <li>Noise</li> <li>General noise mitigation measures employed at all work sites throughout the construction phase.</li> </ul>
		<ul> <li>Waste Management</li> <li>Waste Management Plan submitted and implemented.</li> </ul>
Unit L12	2 Foundation Works	
9.	Bored Pile Work	<ul> <li>Air</li> <li>Dust suppression in the main haul road.</li> <li>Using ULSD for PMEs.</li> <li>Cover dusty stockpile with tarpaulin and water spraying.</li> </ul>
		<ul> <li>Noise</li> <li>General noise mitigation measure employed at all work sites throughout the construction phase.</li> <li>Routine checking should be carried out to ensure the requirements as stipulated in the CNP have been fulfilled.</li> </ul>
		<ul> <li>Wastewater</li> <li>Wastewater should be pumped to the sedimentation ponds for desilting process. After that, waste water will be re-used for construction activities or pumped</li> </ul>

Item	Construction Activities	Environmental Mitigation Measures
		for storage.
		Waste Management
		- Waste Management Plan submitted and implemented
10.	Pre-drilling Work	<ul> <li>Noise</li> <li>General noise mitigation measure employed at all work sites throughout the construction phase.</li> <li>Routine checking should be carried out to ensure the requirements as stipulated in the CNP have been fulfilled.</li> </ul>
		<ul> <li>Wastewater <ul> <li>All wastewater will be re-used for construction activities or pumped for storage.</li> </ul> </li> <li>Waste Management</li> </ul>
		<ul> <li>Waste Management Plan submitted and implemented.</li> </ul>

## **1.4 Summary of EM&A Requirements**

The detailed EM&A monitoring work for air quality and noise are described in Sections 2 and 3 respectively. Regular environmental site audits for air quality, noise, water quality and waste management were carried out.

The following environmental audits are summarized in Section 4 of this report:

- Environmental monitoring results;
- Waste Management Records;
- Weekly site audit results;
- The status of environmental licensing and permits for the Project;
- The implementation status of environmental protection and pollution control/ mitigation measures.

Future key issues will be reported in Section 5 of this report.

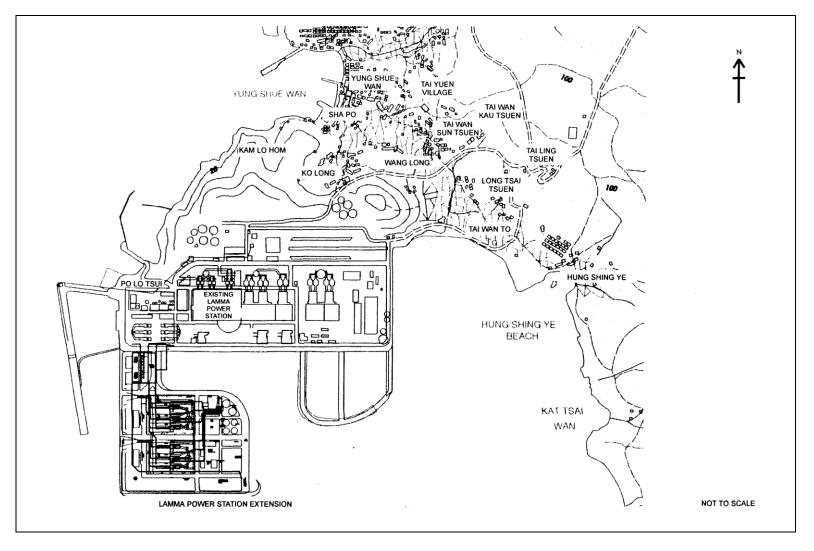


Figure 1.1 Layout of Work Site

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## 2. AIR QUALITY

## 2.1 Monitoring Requirements

1-hour and 24-hour TSP monitoring at agreed frequencies were conducted to monitor air quality. The impact monitoring data were checked against the Action/Limit Levels as determined in the Baseline Monitoring Report (Construction Phase). Appendix B shows the established Action/Limit Levels for Air Quality.

## 2.2 Monitoring Locations

Three dust monitoring locations were selected for 1-hour TSP sampling (AM1, AM2 & AM3) while four monitoring locations were selected for 24-hour TSP sampling (AM1, AM2, AM3 and AM4). Table 2.1 tabulates the monitoring stations. The locations of the monitoring stations are shown in Figure 2.1.

Location I.D.	Description
AM1	Reservoir
AM2	East Gate
AM3	Ash Lagoon
AM4	Tai Yuen Village

Table 2.1	Air Quality Monitoring Locations
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## 2.3 Monitoring Equipment

It is agreed with EPD that continuous 24-hour TSP air quality monitoring would be performed using TEOM continuous dust monitor and the MINIVOL Portable Sampler at AM1,2&3 and AM4 respectively. TEOM continuous dust monitors were used to carry out 1-hour TSP monitoring at AM1, AM2 and AM3. Table 2.2 summarises the equipment used in dust monitoring.

Table 2.2Air Quality Monitoring Equipment

Equipment	Model and Make
24-hour sampling:	
Continuous TSP Dust Meter	TEOM continuous dust monitor Thermo Scientific
MINIVOL Portable Sampler	AIRMETRICS
<i>1-hour sampling:</i> Continuous TSP Dust Meter	TEOM continuous dust monitor Thermo Scientific

## 2.4 Monitoring Parameters, Frequency and Duration

Table 2.3 summarises the monitoring parameters, duration and frequency of air quality monitoring. The monitoring schedule for the reporting month is shown in Appendix C.

Monitoring Stations	Parameter	Duration	Frequency
AM1	1-hour TSP	1	3 hourly samples every 6 days
Alvii	24-hour TSP	24	Once every 6 days
AM2	1-hour TSP	1	3 hourly samples every 6 days
Alvi2	24-hour TSP	24	Once every 6 days
AM3	1-hour TSP	1	3 hourly samples every 6 days
AINIS	24-hour TSP	24	Once every 6 days
AM4	24-hour TSP	24	Once every 6 days

 Table 2.3
 Air Quality Monitoring Parameter, Duration and Frequency

## 2.5 Monitoring Procedures and Calibration Details

## MINIVOL (24- hour TSP Monitoring):

## Preparation of Filter Papers

- Visual inspection of filter papers was carried out to ensure that there were no pinholes, tears and creases;
- The filter papers were then labeled before sampling.
- The filter papers were equilibrated at room temperature and relative humidity < 50% for at least 24 hours before weighing.

## Field Monitoring

- During collection of the sampled filter paper, the information on the elapse timer was logged. Site observations around the monitoring stations, which might have affected the monitoring results, were also recorded. Major pollution sources, if any, would be identified and reported.
- The post-sampling filter papers were removed carefully from the filter holder and folded to avoid loss of fibres or dust particles from the filter papers;
- The filter holder and its surrounding were cleaned;
- A pre-weighed blank filter paper for the next sampling was put in place and aligned carefully. The filter holder was then tightened firmly to avoid leakage;
- The programmable timer was set for the next 24 hrs sampling period;
- The post-sampling filter papers were equilibrated at room temperature and relative humidity < 50% for at least 24 hours before weighing.

TEOM continuous dust monitor (24- hour TSP and 1- hour TSP Monitoring):

- The following parameters of the TEOM model dust meters are regularly checked to ensure proper functionality:
  - Operation Mode;
  - Frequency of the tapered element;
  - o Main flow;
  - o Bypass flow.

## Maintenance & Calibration

• The monitoring equipment and their accessories are maintained in good working conditions.

• Monitoring equipment is calibrated at monthly intervals. Calibration details are shown in Appendix F.

#### 2.6 Results and Observations

All dust monitoring works were conducted on schedule. All monitoring data and graphical presentation of the monitoring results are provided in Appendix D. Key findings and observations are provided below:

1-hour TSP

No exceedance of 1-hour TSP Action/Limit Level was recorded in the month.

24-hour TSP

No exceedance of 24-hour TSP Action/Limit Level was recorded in the month.

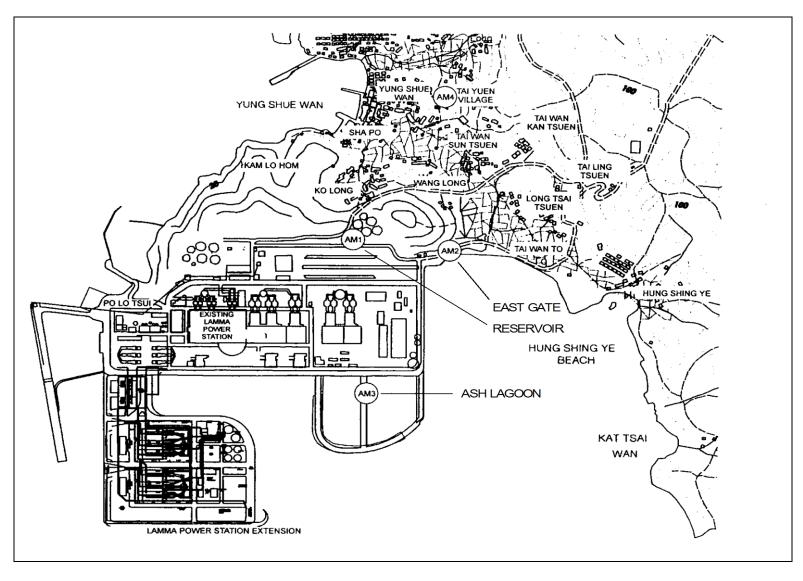


Figure 2.1 Location of Air Quality Monitoring Stations

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## 3. NOISE

## 3.1 Monitoring Requirements

Continuous noise alarm monitoring at Ash Lagoon/Ching Lam were carried out to calculate the noise contributed by the construction activities at the two critical NSR's, viz. Long Tsai Tsuen/Hung Shing Ye and the school within the village of Tai Wan San Tsuen. The impact monitoring data for construction noise were checked against the limit levels specified in the EM&A Manual. With the availability of the construction noise permits, impact monitoring for the construction work during the restricted hours was also carried out. Section 3 presents the details of the construction noise permits.

The impact noise monitoring data were checked against the limit levels specified in the EM&A Manual. Appendix B shows the established Action/Limit Levels for noise.

## **3.2** Monitoring Locations

In accordance with the EM&A manual, the identified noise monitoring locations of Ash Lagoon and Ching Lam are shown in Figure 3.1.

## 3.3 Monitoring Equipment

The sound level meters used for noise monitoring complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). The noise monitoring equipment used is shown in Table 3.1.

Table 3.1 Noise Monitoring Equipment

Equipment	Model
Sound level meters	B&K 2250
Sound level calibrator	B&K 4231

## **3.4** Monitoring Parameters, Frequency and Duration

Continuous alarm monitoring was carried out at Ash Lagoon and Ching Lam. The measurement duration and parameter of noise monitoring were presented in Table 3.2 as follows:

Table 3.2Noise Monitoring Duration and Parameter

LocationTime PeriodFrequencyPar	ter
---------------------------------	-----

	Day-time: 0700-1900 hrs on normal weekdays	Day-time: 30 minutes	30-min L <sub>Aeq</sub>
Ash Lagoon Ching Lam	Evening-time & holidays: 0700-2300 hrs on holidays; and 1900-2300 hrs on all other days	Evening-time & holidays: 5 minutes	5-min L <sub>Aeq</sub>
	Night-time: 2300-0700 hrs of next day	Night-time: 5 minutes	5-min $L_{Aeq}$

## **3.5** Monitoring Procedures and Calibration Details

## Monitoring Procedures

#### Continuous Noise Monitoring for Lamma Extension Construction

The measured noise levels (MNL's) were collected at the noise alarm monitoring stations at Ash Lagoon and Ching Lam. The notional background noise levels (viz. baseline noise data at Ash Lagoon and Ching Lam) were applied to correct the corresponding MNL's in 30-min/5-min  $L_{Aeq}$ .

A wind speed sensor was installed at Station Building Rooftop. The wind speed signal was used to determine whether the data from Ash Lagoon and Ching Lam noise alarm monitoring stations were affected. The instantaneous data was discarded in case the instantaneous wind speed exceeded 10 m/s. The 30-min/5-min  $L_{Aeq}$  was considered valid only if the amount of valid data was equal to or above 70%.

## Equipment Calibration

The sound level meters and calibrators were verified by the manufacturer or accredited laboratory. With the endorsement of the Independent Environmental Checker, the enhancement of calibration of sound level meter at the noise monitoring stations was implemented. The monthly manual on-site calibration using sound level calibrator was replaced by the daily auto charge injection calibration function of the sound level meter. For additional quality assurance, manual on-site calibration would still be conducted for the noise monitoring stations once every 6 months. The manual on-site calibrations for Ching Lam and Ash Lagoon noise monitoring stations were carried out in September and December 2019 respectively. The next calibrations for the corresponding noise monitoring stations were scheduled in March and June 2020 respectively.

#### **3.6 Results and Observations**

Continuous noise monitoring was conducted at the two monitoring stations at Ash Lagoon and Ching Lam.

All monitoring results and their graphical presentations are provided in Appendix E. No exceedance of noise Action/Limit Level was recorded in the month.

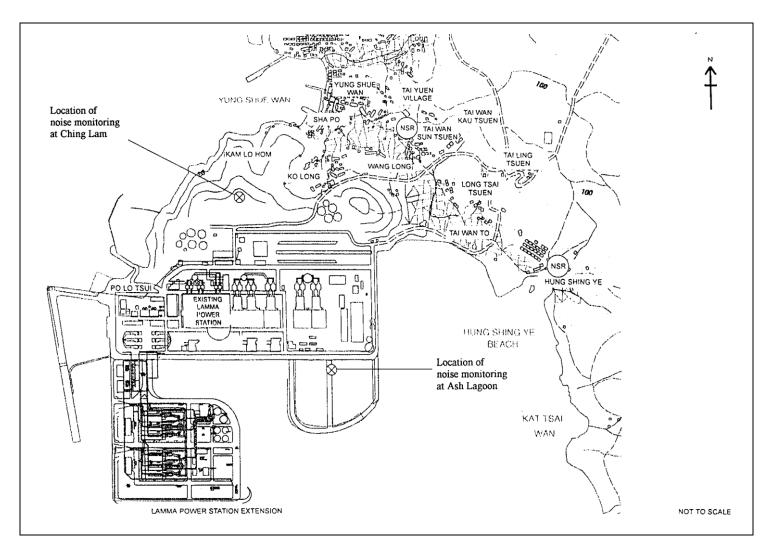


Figure 3.1 Location of Noise Monitoring Stations

## 4. ENVIRONMENTAL AUDIT

## 4.1 Review of Environmental Monitoring Procedures

The environmental monitoring procedures were regularly reviewed by the Environmental Team. No modification to the existing monitoring procedures was recommended.

## 4.2 Assessment of Environmental Monitoring Results

Monitoring results for Air Quality and Noise

The environmental monitoring results for Air Quality and Noise in the reporting month presented in Sections 2 and 3 respectively are summarized in Table 4.1.

Item	Parameter Monitored	Monitoring Period	No. of Exceedances In		Event/Action Plan Implementation Status	
	Action Limit Level Level			and Results		
Air	•	•				
1	Ambient TSP (24-hour)	01/01/2020- 31/01/2020	0	0		
2	Ambient TSP (1-hour)	01/01/2020- 31/01/2020	0	0		
Noise	•	•				
1	Noise level at the critical NSR's predicted by the noise alarm monitoring system	01/01/2020- 31/01/2020	0	0		

 Table 4.1
 Summary of AL Level Exceedances on Monitoring Parameters

## 4.3 Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. Inert C&D materials comprise excavated materials and broken concrete. Non-inert C&D materials comprise general refuse, metals and paper/ cardboard packaging, plastics, chemical waste, etc.

Inert C&D material and non-inert C&D material disposed of in January 2020 are shown in Table 4.2.

Table 4.2	Estimated Amounts of Waste in January 2020
-----------	--

	Non-inert C&D Materials		
Total Inert C&D Waste Materials	C&D Materials Recycled	C&D Waste Disposed of at Landfill	Chemical Waste

2,996.78 Tonnes	6.69 Tonnes	39.16 Tonnes	0 Litres
-----------------	-------------	--------------	----------

The monthly waste flow tables prepared by the contractors are attached in Appendix K

## 4.4 Site Environmental Audit

EPD officials from Regional Office (South) visited Lamma Power Station on 03/01/2020. EPD inspected the Lamma Extension Construction Site. There was no adverse comment from EPD regarding the construction site.

Site audits were carried out by ET on a weekly basis to monitor environmental issues at the construction sites to ensure that all mitigation measures were implemented timely and properly. The site audit findings for the reporting month are summarized in Appendix H. The site conditions were generally satisfactory. All required mitigation measures were implemented.

#### 4.5 Status of Environmental Licensing and Permitting

All permits/licenses obtained for the project are summarised in Table 4.3.

Table 4.3	Summary of Environmental Licensing and Permit Status

Description	Permit No.	Valid Period		Highlights	Status
		From	То		
Varied Environmental Permit	EP-071/2000/C	18/05/05	-	The whole construction work site	Valid
Construction Noise Permit	GW-RS0809-19	15/09/19	14/03/20	Civil and Building Works for Unit L11. Operation of PME during restricted hours	Valid
Construction Noise Permit	GW-RS1134-19	01/01/20	30/06/20	Power Block Facilities works for Unit L11. Operation of PME during restricted hours	Valid
Construction Noise Permit	GW-RS0930-19	02/11/19	01/05/20	Foundation work for Unit L12. Operation of PME during restricted hours.	Valid
Construction Noise Permit	GW-RS1064-19	04/12/19	03/06/20	Foundation work for Unit L12 at Station Road. Operation of PME during restricted hours.	Valid
Construction Noise Permit	PP-RS0013-19	08/08/19	30/01/20	Percussive piling for foundation work of Unit L12.	Valid

Description	Permit No.	Valid Period		Highlights	Status	
•		From To				
WPCO Discharge Licence#	WT00027316- 2017	01/03/17	31/03/22	Civil and Building Works for Unit L10	Valid	
WPCO Discharge Licence##	WT00034006- 2019	08/08/19	31/08/24	Civil and Building Works for Unit L11	Valid	
WPCO Discharge Licence###	WT00034368- 2019	11/09/19	30/09/24	Foundation Works for L12	Valid	
Registration of Chemical Waste Producer	WPN5213-912- P2781-22	22/02/16	-	Civil and Building Works for Unit L10	Valid	
Registration of Chemical Waste Producer	WPN5517-912- T2007-02	17/03/05		E&M Equipment Installation and Maintenance	Valid	
Waste Disposal Billing Account	Account No.: 7026035	06/10/16	-	Civil and Building Works for Unit L10	Valid	
Waste Disposal Billing Account	Account No.: 7026793	28/12/16	-	Foundation works for Unit L11	Valid	
Waste Disposal Billing Account	Account No.: 7027632	20/04/17	-	E&M Erection of Power Block Facilities – L10	Valid	
Waste Disposal Billing Account	Account No.: 7031135	21/06/18	-	Civil and Building Works for Unit L11	Valid	
Waste Disposal Billing Account	Account No.: 7027672	24/04/17	-	E&M Erection of Power Block Facilities – L11	Valid	
Waste Disposal Billing Account	Account No.: 7033637	01/04/19	-	Foundation works for Unit L12	Valid	

Notes: # - No discharge of effluent was carried out in the reporting period.

## - Water quality monitoring was carried out in November 2019 and the result of which had been reported under a separate cover by the contractor.

### - Water quality monitoring was carried out in December 2019 and the result of which had been reported under a separate cover by the contractor.

## 4.6 Implementation Status of Environmental Mitigation Measures

Mitigation measures detailed in the permits and the EM&A Manual (Construction Phase) are required to be implemented. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in Appendix I.

## 4.7 Implementation Status of Event/Action Plans

The Event/Action Plans extracted from the EM&A Manual (Construction Phase) are presented in Appendix G.

## 4.8 Implementation Status of Environmental Complaint Handling Procedures

In January 2020, no complaint against the construction activities was received.

Table 4.4Environmental Complaints Received in January 2020

Case Reference / Date, Time Received / Date, Time Concerned	Descriptions /Actions Taken	Conclusion / Status
Nil	N/A	N/A

#### Table 4.5 Outstanding Environmental Complaints Carried Over

Case Reference / Date, Time Received / Date, Time Concerned	Descriptions /Actions Taken	Conclusion / Status
Nil	N/A	N/A

## 5. FUTURE KEY ISSUES

## 5.1 Key Issues for the Coming Month

Key issues to be considered in the coming month include:

#### Unit L10 Civil and Building Works

#### Noise Impact

- To continue monitoring the noise level during construction.
- To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the noise performance.

#### Air Impact

• To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Water Impact

• To treat wastewater in sedimentation pit and tanks before discharge and to ensure compliance in accordance with the WPCO discharge licence already obtained.

#### Unit L10 Mechanical Erection

#### Noise Impact

• To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the noise performance.

#### Air Impact

• To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Unit L10 Electrical, Instrumentation & Control Erection

#### Noise Impact

• To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the noise performance.

#### Air Impact

• To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Unit L11 Civil and Building Works

#### Noise Impact

• To continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained.

• To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the noise performance.

#### Air Impact

• To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Water Impact

• To treat wastewater in sedimentation pit and tanks before discharge and to ensure compliance in accordance with the WPCO discharge licence already obtained.

#### Unit L11 Mechanical Erection

#### Noise Impact

- To continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained.
- To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the noise performance.

#### Air Impact

• To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Unit L11 Electrical, Instrumentation & Control Erection

#### Noise Impact

- To continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained.
- To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the noise performance.

#### Air Impact

• To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Unit L12 Foundation Works

#### Noise Impact

- To continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained.
- To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the noise performance.

#### Air Impact

• To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Water Impact

• To treat wastewater in sedimentation pit and tanks for reuse on water spraying and to ensure compliance in accordance with the WPCO discharge licence already obtained.

## 5.2 Monitoring Schedules for the Next 3 Months

The tentative environmental monitoring schedules for the next 3 months are shown in Appendix C.

## 5.3 Construction Program for the Next 3 Months

The tentative construction programs for the next 3 months are shown in Appendix J.

## 6. CONCLUSION

All monitoring work at designated stations was performed as scheduled satisfactorily. The environmental monitoring works and site inspection were performed as scheduled in the reporting month. All monitoring results were checked and reviewed.

No Action/Limit level exceedance on 1-hour and 24-hour TSP level was recorded in the reporting month.

No Action/Limit level exceedance on noise was recorded in the reporting month.

Environmental mitigation measures recommended in the EM&A manual for the construction activities were implemented in the reporting month. No complaint against the construction activities was received in the reporting month. No prosecution was received for this Project in the reporting period.

The environmental performance of the Project was generally satisfactory.

## Appendix A Organization Chart

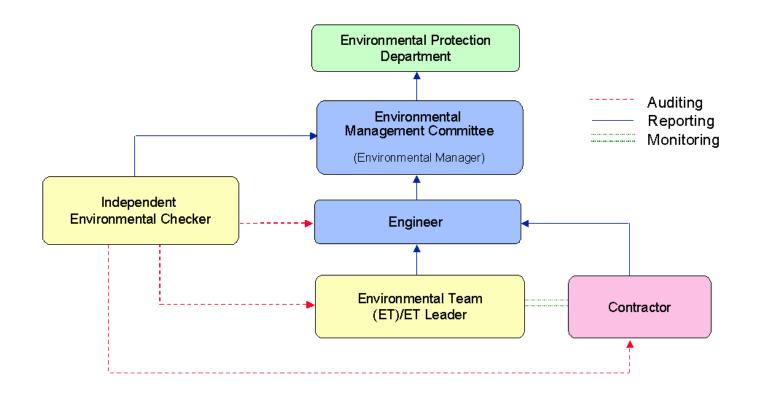


Figure A.1 Organisation of EM&A Programme at Construction Phase

## Appendix B Action and Limit Levels for Air Quality and Noise Monitoring

## B.1. Air

Table B.1         Action and Limit Levels for 1-hour and 24-hour Table
--

	Action Level, µg/m <sup>3</sup>	Limit Level, µg/m <sup>3</sup>
1-hour TSP*	340	500
24-hour TSP	190	260

\* No Action/Limit Level for 1-hour TSP is applied to AM4 where no real time dust monitor is installed.

## **B.2.** Noise

Table B.2 AL Levels for Construction Noise (Other than Pe	Percussive Piling)
---	--------------------

Parameters	Action	Limit			
Noise Levels at the NSR's at Long Tsai Tsuen/Hung Shing Ye and school within the village of Tai Wan San Tsuen predicted by the noise alarm monitoring system Manual noise monitoring at the nearest Pak Kok Tsui residences to cable landing points N4 and N5	When one or more documented complaints are received	<ul> <li>a. 75 dB(A) in L<sub>Aeq,30 min</sub> (07:00-19:00 hrs on normal weekdays) (Note 1)</li> <li>b. subject to statutory control under the Noise Control Ordinance (07:00-23:00 hrs on holidays and 19:00-23:00 hrs on all other days). Set to 60 dB(A) in L<sub>Aeq,5 min</sub></li> <li>c. subject to statutory control under the Noise Control Ordinance (23:00-07:00 hrs of next day). Set to 45 dB(A) in L<sub>Aeq,5 min</sub></li> </ul>			
<ul> <li>Note:</li> <li>1. For educational institution, the limit level shall be 70 dB(A), reduced to 65 dB(A) during examination periods.</li> </ul>					

## Appendix C Environmental Monitoring Schedule

24hr TSP Monitoring	1hr TSP Monitoring	
1/January/2020	1/January/2020 1500hr to 1800hr	
7/January/2020	7/January/2020 1500hr to 1800hr	
13/January/2020	13/January/2020 1500hr to 1800hr	
19/January/2020	19/January/2020 1500hr to 1800hr	
25/January/2020	25/January/2020 1500hr to 1800hr	
31/January/2020	31/January/2020 1500hr to 1800hr	
6/February/2020	6/February/2020 1500hr to 1800hr	
12/February/2020	12/February/2020 1500hr to 1800hr	
18/ February/2020	18/February/2020 1500hr to 1800hr	
24/February/2020	24/February/2020 1500hr to 1800hr	
1/March/2020	1/March/2020 1500hr to 1800hr	
7/March/2020	7/March/2020 1500hr to 1800hr	
13/March/2020	13/March/2020 1500hr to 1800hr	
19/ March/2020	19/March/2020 1500hr to 1800hr	
25/March/2020	25/March/2020 1500hr to 1800hr	
31/March/2020	31/March/2020 1500hr to 1800hr	
6/April/2020	6/April/2020 1500hr to 1800hr	
12/April/2020	12/April/2020 1500hr to 1800hr	
18/April/2020	18/April/2020 1500hr to 1800hr	
24/April/2020	24/April/2020 1500hr to 1800hr	
30/April/2020	30/April/2020 1500hr to 1800hr	

Table C.1Monitoring schedule for 24hr and 1hr TSP monitoring for Lamma<br/>Extension Construction (January 2020 to April 2020)

## APPENDIX D AIR QUALITY MONITORING RESULTS

Site: Lamma Power Station Extension

## Month: January 2020

## 24 hour TSP Measurement:-

	TSP concentration ( $\mu$ g/m <sup>3</sup> )			Weather Info (From Hong Kong			
Date	Reservoir (AM1)	East Gate (AM2)	Ash Lagoon (AM3)	Tai Yuen Village (AM4)	Mean Wind Speed (km/hr)	Prevailing Wind Dir. (°)	Mean R.H. (%)
1/1/2020	33	37	31	15	33.5	80	80
7/1/2020	41	37	32	8	11.8	20	83
13/1/2020	29	34	31	58	29.8	50	76
19/1/2020	43	52	41	38	24.8	50	75
25/1/2020	15	18	18	##	37.5	60	89
31/1/2020	31	34	30	##	25.2	70	52

Remarks:

## - TSP monitoring at AM4 temporarily suspended on 25/1 and 31/1 due to outbreak of Wuhan Pneumonia.

		TSP concentration ( $\mu g/m^3$ )		
Date	Time	Reservoir (AM1)	East Gate (AM2)	Ash Lagoon (AM3)
1/1/2020	15:00 - 15:59	26	31	26
1/1/2020	16:00 - 16:59	24	35	27
	17:00 - 17:59	29	40	29
7/1/2020	15:00 - 15:59	67	46	25
7/1/2020	16:00 - 16:59	36	35	23
	17:00 - 17:59	27	27	22
12/1/2020	15:00 - 15:59	26	35	30
13/1/2020	16:00 - 16:59	28	36	32
	17:00 - 17:59	31	33	29
10/1/2020	15:00 - 15:59	62	94	67
19/1/2020	16:00 - 16:59	65	89	66
	17:00 - 17:59	68	88	59
25/1/2020	15:00 - 15:59	19	28	26
25/1/2020	16:00 - 16:59	27	26	24
	17:00 - 17:59	25	22	18
	15:00 - 15:59	28	33	25
31/1/2020	16:00 - 16:59	25	33	28
	17:00 - 17:59	35	36	31

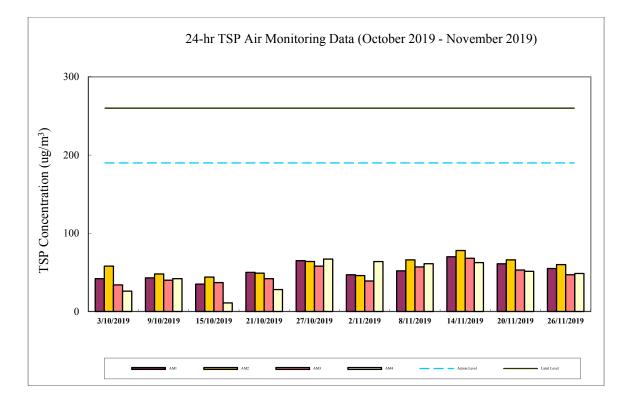
## 1 hour TSP Measurement:-

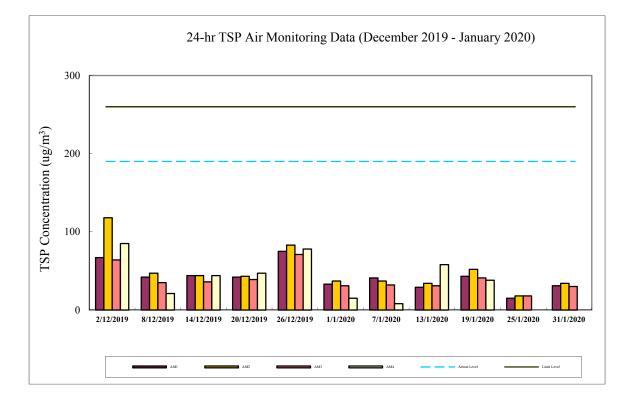
	1-hr TSP	24-hr TSP
	$(\mu g/m^3)$	$(\mu g/m^3)$
Action Level	340	190
Limit Level	500	260

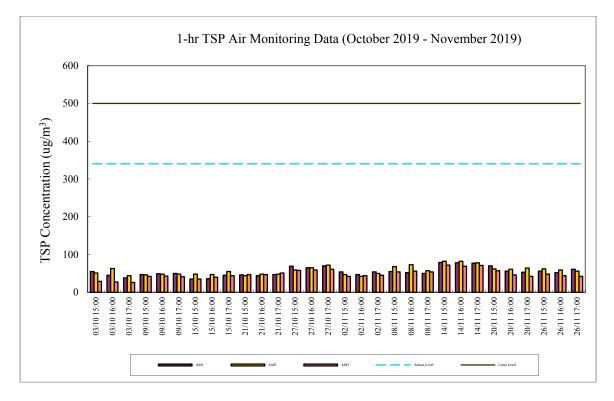
Calibration: Calibration details are shown in appendix F.

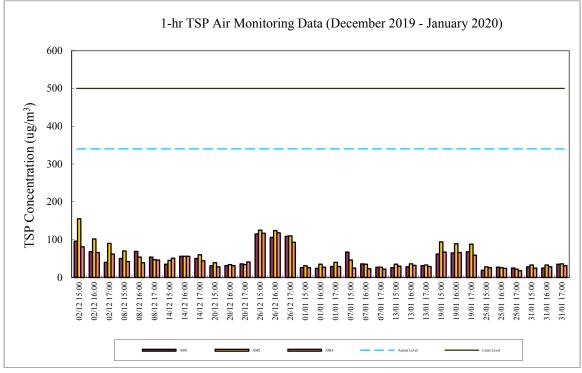
Equipment used:

Location	1-hr TSP	24-hr TSP
Reservoir, East Gate and Ash Lagoon	TEOM	TEOM
Tai Yuen Village	-	MINIVOL Portable Sampler









Appendix E Cont	tinuous Noise Monitoring Results for January 2020				
Site:	Lamma Power Station Extension Construction				
Measurement Location:	Ash Lagoon and Ching Lam				
Measurement Parameter:	30-min Leq (07:00-19:00 hrs on normal weekdays)				
	5-min Leq (07:00-23:00 hrs on holidays and				
	19:00-23:00 hrs on all other days, and 23:00-				
	07:00 hrs of next day)				
Noise Equipment:	B&K 2250 sound level meters and B&K 4231 sound				
	level calibrator				
Lab. Calibration Date:	B&K 2250 sound level meters - 21/06/2018 (Ash Lagoon)				
	19/08/2019 (Ching Lam)				
	B&K 4231 calibrator - 02/10/2019				

Date	Time	Calcula Noise Level a NSR at Tsai Tsuen/H Shing Y (dB(A))	at Long Hung Ze	Limit Noise Level (dB(A))	Calcula Noise Level a NSR at school within Wan San Tsuen	at the Tai 1	Limit Noise Level (dB(A))
		Max	Avg		(dB(A)) Max	Avg	
01/01/2020	07:00-23:00	45	36	60	49	36	60
01/01/2020	23:00-07:00			45	43	36	45
02/01/2020	07:00-19:00	58	58	75	55	37	70
02/01/2020	19:00-23:00			60	44	41	60
02/01/2020	23:00-07:00			45	45	40	45
03/01/2020	07:00-19:00	45	45	75	44	40	70
03/01/2020	19:00-23:00			60	50	42	60
03/01/2020	23:00-07:00	31	26	45	43	39	45
04/01/2020	07:00-19:00			75	44	41	70
04/01/2020	19:00-23:00			60	42	38	60
04/01/2020	23:00-07:00	37	32	45	43	38	45
05/01/2020	07:00-23:00	59	37	60	45	35	60
05/01/2020	23:00-07:00	42	37	45	45	38	45
06/01/2020	07:00-19:00			75	45	41	65
06/01/2020	19:00-23:00	38	34	60	43	38	60
06/01/2020	23:00-07:00	38	35	45	44	41	45
07/01/2020	07:00-19:00	57	54	75	52	40	65
07/01/2020	19:00-23:00			60	43	40	60
07/01/2020	23:00-07:00	34	34	45	43	40	45
08/01/2020	07:00-19:00	56	53	75	47	41	65
08/01/2020	19:00-23:00			60	45	43	60
08/01/2020	23:00-07:00	42	37	45	45	35	45
09/01/2020	07:00-19:00			75	45	41	65
09/01/2020	19:00-23:00			60	44	42	60
09/01/2020	23:00-07:00			45	45	40	45
10/01/2020	07:00-19:00			75	45	40	70
10/01/2020	19:00-23:00			60	43	41	60
10/01/2020	23:00-07:00	35	32	45	44	38	45
11/01/2020	07:00-19:00	54	54	75	41	37	70
11/01/2020	19:00-23:00	25	25	60	44	40	60
11/01/2020	23:00-07:00			45	43	39	45
12/01/2020	07:00-23:00	52	37	60	46	33	60
12/01/2020	23:00-07:00			45	42	38	45
13/01/2020	07:00-19:00	56	56	75	39	37	70
13/01/2020	19:00-23:00			60	40	38	60
13/01/2020	23:00-07:00	45	38	45	42	36	45

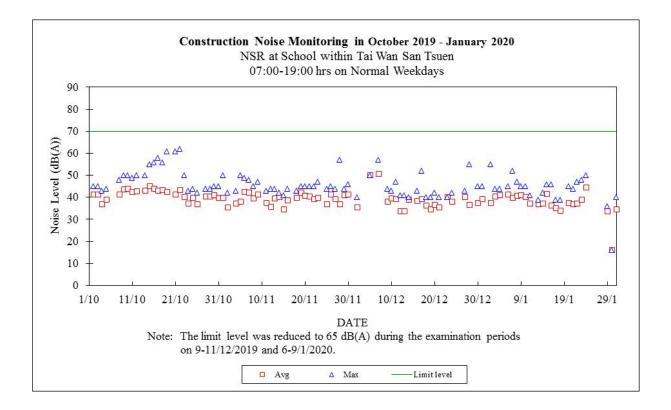
14/01/2020	07:00-19:00			75	42	37	70
14/01/2020	19:00-23:00			60	42	41	60
14/01/2020	23:00-07:00	45	39	45	43	36	45
15/01/2020	07:00-19:00			75	46	42	70
15/01/2020	19:00-23:00	16	16	60	40	39	60
15/01/2020	23:00-07:00	44	38	45	43	35	45
16/01/2020	07:00-19:00			75	46	36	70
16/01/2020	19:00-23:00			60	50	40	60
16/01/2020	23:00-07:00	45	33	45	42	37	45
17/01/2020	07:00-19:00	55	51	75	39	37	70
17/01/2020	19:00-23:00			60	41	33	60
17/01/2020	23:00-07:00	44	42	45	43	39	45
18/01/2020	07:00-19:00	60	60	75	39	39	70
18/01/2020	19:00-23:00			60	43	41	60
	23:00-07:00			45	43	39	45
18/01/2020		53	42	45 60	43	39	45 60
19/01/2020 19/01/2020	07:00-23:00						
20/01/2020		38	35	45	40	32	45 70
	07:00-19:00			75	45	37	-
20/01/2020	19:00-23:00	 / E	 / /	60	46	37	60
20/01/2020	23:00-07:00 07:00-19:00	45	44	45	45	42	45
21/01/2020		55	53	75	44	37	70
21/01/2020	19:00-23:00	35	35	60	50	40	60
21/01/2020	23:00-07:00	45	43	45	44	35	45
22/01/2020	07:00-19:00			75	47 44	<u>37</u> 39	70 60
22/01/2020 22/01/2020	19:00-23:00 23:00-07:00	42	42	60 45	44 41	39	45
23/01/2020	07:00-19:00	42	42	45 75	41 48	39	70
23/01/2020	19:00-23:00	40	40	60	40	39	60
23/01/2020	23:00-07:00	45	38	45	42	36	
24/01/2020	07:00-19:00	45		45 75	41 50	45	45 70
24/01/2020	19:00-23:00			60	50	34	60
24/01/2020	23:00-07:00	43	35	45	43	34	45
25/01/2020	07:00-23:00			60	52	43	60
25/01/2020	23:00-07:00	41	37	45	52	45	45
26/01/2020	07:00-23:00	50	40	60	50	36	60
26/01/2020	23:00-07:00	42	36	45	43	34	45
27/01/2020	07:00-23:00	42	30	45 60	43 51	34	45 60
27/01/2020	23:00-07:00	49	42	45	41	39	45
28/01/2020	07:00-23:00	39	37	60	41	32	45 60
28/01/2020	23:00-07:00	45	44	45	41 42	34	45
29/01/2020	07:00-19:00	45		75	36	34	70
29/01/2020	19:00-23:00			60	38	35	60
29/01/2020	23:00-07:00	45	43	45	39	37	45
30/01/2020	07:00-19:00			75	16	16	70
30/01/2020	19:00-23:00			60	38	31	60
30/01/2020	23:00-07:00			45	38	36	45
31/01/2020	07:00-19:00			75	40	34	70
31/01/2020	19:00-23:00			60	40	39	60
31/01/2020	23:00-07:00			45	41	39	45
JT/01/2020	23.00-07.00			L IJ	71	50	L L L

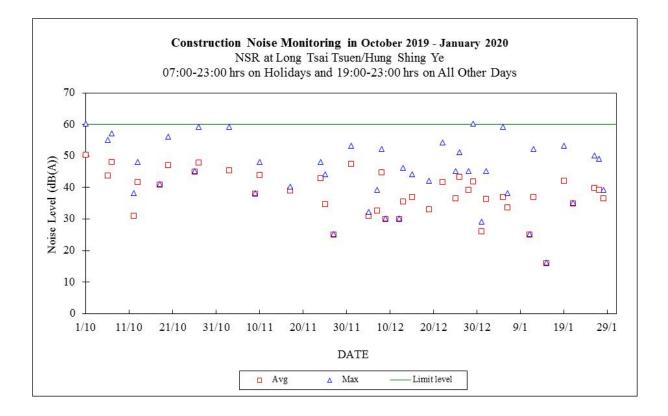
Note:

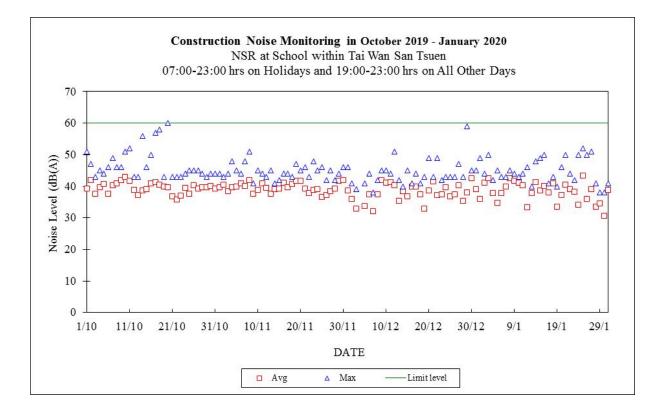
a. "---" represents the measured noise monitoring data lower than the established notional background level/discarded under strong wind.

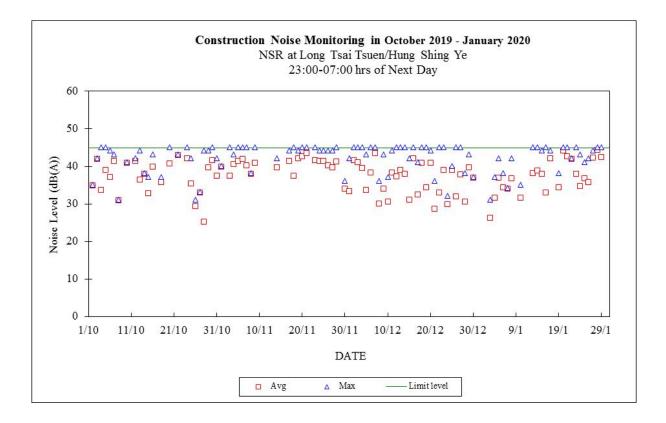
b. Continuous noise monitoring was also carried out at holidays & eveningtime (07:00-23:00 hrs on holidays and 19:00-23:00 hrs on all other days) and night-time (23:00-07:00 hrs of next day) with construction noise permit.

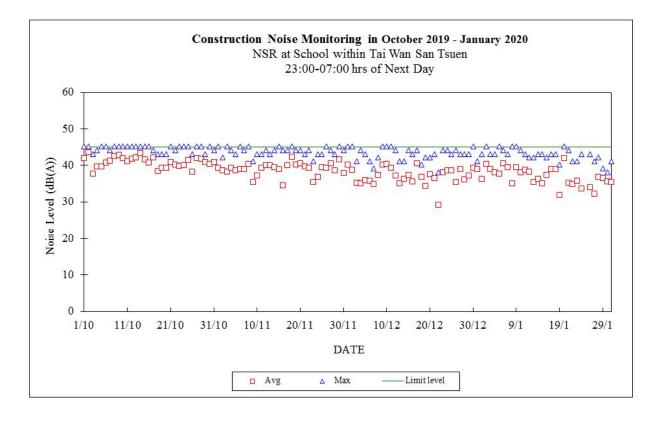












# Appendix F

The QA/QC Procedures and Results

#### The Hongkong Electric Co., Ltd. Lamma Power Station Extension Noise Monitoring Stations Daily Calibration Records

Date	Location:	Ash Lagoon	Location:	Ching Lam
	Calibration Results	Deviation from	Calibration Results	Deviation from
		Reference (dB)		Reference (dB)
01/01/2020	Passed	0.09	Passed	-0.11
02/01/2020	Passed	0.26	Passed	-0.07
03/01/2020	Passed	0.21	Passed	-0.10
04/01/2020	Passed	0.09	Passed	-0.08
05/01/2020	Passed	0.18	Passed	-0.08
06/01/2020	Passed	0.20	Passed	-0.08
07/01/2020	Passed	0.21	Passed	-0.08
08/01/2020	Passed	0.20	Passed	-0.06
09/01/2020	Passed	0.19	Passed	-0.08
10/01/2020	Passed	0.15	Passed	-0.11
11/01/2020	Passed	0.04	Passed	-0.09
12/01/2020	Passed	0.13	Passed	-0.10
13/01/2020	Passed	0.15	Passed	-0.10
14/01/2020	Passed	0.17	Passed	-0.10
15/01/2020	Passed	0.20	Passed	-0.10
16/01/2020	Passed	0.04	Passed	-0.09
17/01/2020	Passed	0.15	Passed	-0.04
18/01/2020	Passed	0.15	Passed	-0.07
19/01/2020	Passed	0.10	Passed	-0.09
20/01/2020	Passed	0.13	Passed	-0.07
21/01/2020	Passed	0.11	Passed	-0.07
22/01/2020	Passed	0.13	Passed	-0.03
23/01/2020	Passed	0.08	Passed	-0.02
24/01/2020	Passed	0.06	Passed	-0.03
25/01/2020	Passed	0.03	Passed	-0.06
26/01/2020	Passed	0.03	Passed	-0.11
27/01/2020	Passed	0.25	Passed	-0.13
28/01/2020	Passed	0.26	Passed	-0.11
29/01/2020	Passed	0.26	Passed	-0.09
30/01/2020	Passed	0.28	Passed	-0.06
31/01/2020	Passed	0.26	Passed	-0.07

Remarks:

1. The B&K sound level meter at the noise monitoring station has an advanced feature of internal calibration checking (viz. Charge Injection Calibration (CIC)). CIC is a B&K patented method for in situ verification of the integrity of the entire sound measurement chain (including microphone, preamplifier and cabling).

2. The acceptance criterion of deviation from reference is  $\pm 0.5$  dB.

#### The Hongkong Electric Co., Ltd. Mini Volume Air Sampler Site Visit Log Sheet

#### Attendance Log

Site Name: Tai Yuen Village (AM4)

Date/Time	Staff Name
20/01/2020 / 10:30	WM Tam

#### <u>Equipment / Item</u>

Equipment / Item	Serial No. / No.
MINIVOL	5580
Used filter paper no.	MQ57
New filter paper no.	MQ58

#### Type of filter: Glass-fibre

I. Calibration is performed by using Drycal DC-2 Flow Calibrator 5 std. L/min set point is recommended

Before: After: 5.023 5.023 (No Adjustment)

#### II. General Services

1.	Clean Rotameter:	<u>Yes</u>
2.	Clean / Replace Pump Valves:	<u>No</u>

- 3. Clean / Replace Pump Diaphragms: No
- 4. Clean Impaction Inlet: Yes
- 5. Replace Timer Battery Every 6 months: Yes
- 6. Replace Inlet Filter: Yes

#### <u>Remarks</u>

<u>N/A</u>

#### Conducted by: WM Tam

Checked by: SM Hon

#### The Hongkong Electric Co., Ltd. Lamma Power Station Extension TEOM Continuous Dust Monitor Data Quality Assurance Log Sheet

Month: January	Year: 2020		0	
		Reser∨oir (AM	1)	
Date	Frequency (Hz) (240 - 275)	Operation Mode (Mode 4)	Main Flow (l/min) (2.70 - 3.30)	Bypass Flow (I/min) (12.30 - 15.04)
01/01/2020	267.165	4	3.03	13.79
07/01/2020	269.300	4	2.95	13.42
13/01/2020	268.701	4	2.98	13.58
19/01/2020	268.147	4	3.01	13.70
25/01/2020	267.679	4	2.97	13.52

	East Gate (AM2)					
Date	Frequency (Hz) (240 - 275)	Operation Mode (Mode 4)	Main Flow (l/min) (2.70 - 3.30)	Bypass Flow (l/min) (12.30 - 15.04)		
01/01/2020	256.267	4	3.10	14.12		
07/01/2020	255.836	4	3.02	13.75		
13/01/2020	256.597	4	3.09	14.09		
19/01/2020	256.067	4	3.10	14.14		
25/01/2020	255.638	4	3.07	13.97		

Ash Lagoon (AM3)					
Date	Frequency (Hz) (240 - 275)	Operation Mode (Mode 4)	Main Flow (I/min) (2.70 - 3.30)	Bypass Flow (I/min) (12.30 - 15.04)	
01/01/2020	255.600	4	3.00	13.67	
07/01/2020	255.200	4	3.00	13.67	
13/01/2020	254.695	4	3.00	13.67	
19/01/2020	254.235	4	3.00	13.67	
25/01/2020	255.974	4	3.00	13.67	

Maintenance Record							
Reservoir East Gate Ash Lagoon							
TEOM Filter Exchange	1	1	1				
Clean TSP Inlet	1	1	1				
Replace flow in-line filter	1	1	1				
Pump Repair							
Leak Check							
Flow audit							
Flow Controller Calibration							
A/C filter cleaning							

<u>Remarks:</u>

Prepared by: Chris Chan

#### The Hongkong Electric Co., Ltd. Lamma Power Station Extension Noise Monitoring Stations Daily Calibration Records

Date	Location: Ash Lagoon		Location:	Ching Lam
	Calibration Results	Deviation from	Calibration Results	Deviation from
		Reference (dB)		Reference (dB)
01/01/2020	Passed	0.09	Passed	-0.11
02/01/2020	Passed	0.26	Passed	-0.07
03/01/2020	Passed	0.21	Passed	-0.10
04/01/2020	Passed	0.09	Passed	-0.08
05/01/2020	Passed	0.18	Passed	-0.08
06/01/2020	Passed	0.20	Passed	-0.08
07/01/2020	Passed	0.21	Passed	-0.08
08/01/2020	Passed	0.20	Passed	-0.06
09/01/2020	Passed	0.19	Passed	-0.08
10/01/2020	Passed	0.15	Passed	-0.11
11/01/2020	Passed	0.04	Passed	-0.09
12/01/2020	Passed	0.13	Passed	-0.10
13/01/2020	Passed	0.15	Passed	-0.10
14/01/2020	Passed	0.17	Passed	-0.10
15/01/2020	Passed	0.20	Passed	-0.10
16/01/2020	Passed	0.04	Passed	-0.09
17/01/2020	Passed	0.15	Passed	-0.04
18/01/2020	Passed	0.15	Passed	-0.07
19/01/2020	Passed	0.10	Passed	-0.09
20/01/2020	Passed	0.13	Passed	-0.07
21/01/2020	Passed	0.11	Passed	-0.07
22/01/2020	Passed	0.13	Passed	-0.03
23/01/2020	Passed	0.08	Passed	-0.02
24/01/2020	Passed	0.06	Passed	-0.03
25/01/2020	Passed	0.03	Passed	-0.06
26/01/2020	Passed	0.03	Passed	-0.11
27/01/2020	Passed	0.25	Passed	-0.13
28/01/2020	Passed	0.26	Passed	-0.11
29/01/2020	Passed	0.26	Passed	-0.09
30/01/2020	Passed	0.28	Passed	-0.06
31/01/2020	Passed	0.26	Passed	-0.07

Remarks:

1. The B&K sound level meter at the noise monitoring station has an advanced feature of internal calibration checking (viz. Charge Injection Calibration (CIC)). CIC is a B&K patented method for in situ verification of the integrity of the entire sound measurement chain (including microphone, preamplifier and cabling).

2. The acceptance criterion of deviation from reference is  $\pm 0.5$  dB.

#### Appendix G Event/Action Plans

Event	Monitoring		Action		
	ET Leader	IEC	Engineer	Contractor	
Action Level					
Exceedance of one sample	Identify source Inform Engineer and IEC verbally Repeat measurement to confirm finding	Check monitoring data submitted by ET and advise Engineer.	Notify Contractor Checking monitoring data and contractor's working methods	Rectify any unacceptable practice amend any working methods if appropriate	
Exceedance of two or more consecutive samples	Identify source Inform Engineer and IEC verbally Repeat measurement to confirm finding Increase monitoring frequency Discuss with Engineer and Contractor on remedial actions required If exceedance continues, arrange meeting with Engineer If exceedance stops, discontinue additional monitoring	Check monitoring data submitted by ET and advise Engineer. Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor Advise Engineer on the effectiveness of the proposed remedial measures Verify the implementation of the remedial measures	Confirm receipt of notification of failure in writing Notify contractor Checking monitoring data and contractor's working methods Discuss proposed remedial actions with the ET and Contractor Ensure remedial actions properly implemented	Submit proposals for remedial actions to Engineer within 3 working days of notifications Implement the agreed proposals Amend proposal if appropriate	
Limit level Exceedance of one sample	Repeat measurement to confirm finding. Identify the source(s) of the impact. If the exceedance is found to be valid and due to the Construction works, verbally advise the Contractor, Engineer and IEC, and inform the EPD of the exceedance, as soon as practicable. Increase monitoring frequency to daily Assess the effectiveness of the contractor's remedial actions and keep Engineer, IEC and EPD informed of the results	Check monitoring data submitted by ET and advise Engineer Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor Advise Engineer on the effectiveness of the proposed remedial measures Verify the implementation of the remedial measures	Confirm receipt of notification of failure in writing Notify Contractor Checking monitoring data and Contractor's working method Discuss with ET and Contractor on remedial actions to be provided Ensure remedial measures properly implemented	Take immediate action to avoid further exceedance Submit proposals for remedial actions to Engineer within 3 working days of notifications Implement the agreed proposals Amend proposal if appropriate	
Exceedance of two or more	Identify source	Provide feedback to the Engineer on the remedial actions proposed by the	Confirm receipt of notification of	Take immediate action to	

# Table G.1Event and Action Plans for Air Quality

Event	Monitoring		Action		
	ET Leader	IEC	Engineer	Contractor	
consecutive samples	If the exceedance is found to be valid and due to the construction works, verbally advise the Contractor, Engineer and IEC, and inform the EPD of the exceedance as soon as practicable. Repeat measurement to confirm finding Increase monitoring frequency to daily Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented Arrange meeting with Engineer and Contractor to discuss the remedial actions to be taken If exceedance stops, discontinue additional monitoring	ET / Contractor Advise Engineer on the effectiveness of the proposed remedial measures Verify the implementation of the remedial measures	failure in writing Checking monitoring data and Contractor's working methods Notify Contractor Discuss proposed remedial actions with ET and Contractor Ensure remedial measures properly implemented If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop the portion of work until the exceedance is abated	avoid further exceedance Submit proposals for remedial actions to Engineer within 3 working days of notifications Implement the agreed proposals Resubmit proposals if problem still not under control Stop the relevant portion of works as determined by the Engineer until the exceedance is abated	

Table G.2Event and Action Plans for Construction Noise
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Exceedance	ET Leader	IEC	Engineer	Contractor
Action Level	Undertake noise measurement/check monitoring data to establish validity of complaint.	Review the analysed results submitted by the ET.	Notify Contractor of the complaint if proven.	Submit proposals for remedial actions to Engineer.
	If the complaint is valid, inform Engineer and IEC verbally.	Review the remedial measures proposed by the Contractor and advise the Engineer and ET accordingly.	Check Contractor's working methods and advise IEC and ET accordingly.	Amend proposals if required by the Engineer.
	Identify the source(s) of the noise.	Verify the implementation of the remedial measures.	Remind the Contractor of his contractual obligations and discuss remedial actions.	Implement the remedial actions immediately upon instruction from the Engineer.
	Discuss remedial actions required with Contractor and Engineer.		Keep the Contractor informed of the efficacy of remedial actions.	Liaise with the Engineer to optimise the effectiveness of the agreed mitigation.
	Increase manual monitoring frequency to assess efficacy of remedial measures.			
	If exceedance continues, review implementation of appropriate mitigation measures.			
Limit Level	Repeat manual measurement/check monitoring data to confirm findings.	Agree potential remedial actions with Engineer, ET and Contractor.	Notify Contractor of exceedance.	Take immediate action to avoid further exceedance.
	Identify the source(s) of the impact. If the exceedance is found to be valid and due to	Review Contractor's remedial actions / measures to ensure their effectiveness	Check Contractor's working methods and advise IEC and ET accordingly.	Submit proposals for remedial actions to Engineer.
	the Construction works, verbally advise the Contractor, Engineer and IEC, and inform the EPD of the exceedance, as soon as practicable.	and advise the Engineer and ET accordingly.	Discuss with Contractor the remedial actions to be implemented.	Amend proposals if required by the Engineer.
	Discuss remedial actions required with	Verify the implementation of the remedial measures	Keep the Contractor informed of the efficacy of remedial actions. If the exceedance continues, consider	Implement remedial actions immediately upon instruction from the Engineer.
	Engineer.			If the exceedance continues, consider what portion of the work is responsible
	Increase manual monitoring frequency to assess efficacy of remedial measures.		responsible and instruct the Contractor to stop the portion of work until the exceedance is abated	and, as instructed by the Engineer, stop the portion of work until the exceedance is abated

# Table G.3Event and Action Plans for Water Quality

Exceedance	ET Leader	IEC	Engineer	Contractor
Action level exceeded on one sampling day	Verbally inform the Contractor, and IEC. Repeat in-situ measurement to confirm findings; Identify source(s) of impact; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with Engineer and Contractor; Repeat measurement on next day of exceedance.	Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor Advise Engineer on the effectiveness of the proposed remedial measures Verify the implementation of the remedial measures	Discuss with Contractor the proposed mitigation measures; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures.	Inform the Engineer and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Propose and discuss mitigation measures with Engineer; Implement the agreed mitigation measures.
Action level exceeded on more than one consecutive sampling day	Repeat in-situ measurements to confirm findings; Identify source(s) of impact; Inform Contractor and IEC; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measure with Engineer and Contractor; Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance.	Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor Advise Engineer on the effectiveness of the proposed remedial measures Verify the implementation of the remedial measures	Discuss with ET and Contractor on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures.	Inform the Engineer and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Propose mitigation measures to Engineer within 3 working days and discuss with ET and Engineer; Implement the agreed mitigation measures.
Limit level exceeded on one sampling day	Verbally inform the Contractor, IEC and the EPD of the exceedance; Repeat in-situ measurement to confirm findings; Identify source(s) of impact; Check monitoring data, all plant,	Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor Advise Engineer on the effectiveness of the proposed remedial measures Verify the implementation of the remedial measures	Discuss with Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the	Inform the Engineer and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Propose mitigation measures to Engineer

Exceedance	ET Leader	IEC	Engineer	Contractor
	equipment and Contractor's working methods;		implemented mitigation measures.	within 3 working days and discuss with Engineer;
	Discuss mitigation measure with Engineer and Contractor;			Implement the agreed mitigation measures.
	Ensure mitigation measures are implemented;			
	Increase the monitoring frequency to daily until no exceedance of Limit level.			
Limit level exceeded by more than one	Repeat in-situ measurement to confirm findings; Identify source(s) of impact;	Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor	Discuss with Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures; Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine works until no exceedance of the Limit Level.	Inform the Engineer and confirm notification of the non-compliance in writing;
consecutive	Inform Contractor, IEC and EPD;	Advise Engineer on the effectiveness of the		Rectify unacceptable practice; Check all plant and equipment; Conside changes of working methods;
sampling day	Check monitoring data, all plant, equipment and Contractor's	proposed remedial measures Verify the implementation of the remedial measures		
	working methods;			Propose mitigation measures to Engineer
	Discuss mitigation measure with Engineer and Contractor;			within 3 working days and discuss with Engineer;
	Ensure mitigation measures are implemented;			Implement the agreed mitigation measures
	Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.			As directed by the Engineer, to slow down or to stop all or part of the marine work

### Appendix H Summary of Site Audit Findings

#### L10 Civil & Building Superstructure Work

#### Dates of Inspection: 7/1/2020, 14/1/2020, 21/1/2020 and 31/1/2020

#### Summary of Findings

#### General

- No environmental deficiency identified.

#### Air Quality

- No environmental deficiency identified.

#### Noise

- No environmental deficiency identified.

#### Water Quality

- No environmental deficiency identified.

#### Waste Management

#### L10 Mechanical, Electrical, Instrumentation & Control Erection Work

#### Dates of Inspection: 2/1/2020, 9/1/20120, 16/1/2020, 23/1/2020 and 30/1/2020.

#### Summary of Findings

#### General

- No environmental deficiency identified.

#### Air Quality

- No environmental deficiency identified.

#### Noise

- No environmental deficiency identified.

#### Water Quality

- No environmental deficiency identified.

#### Waste Management

#### L11 Civil & Building Superstructure Work

#### Dates of Inspection: 7/1/2020, 14/1/2020, 21/1/2020 and 31/1/2020.

#### Summary of Findings

#### General

- No environmental deficiency identified.

#### Air Quality

- No environmental deficiency identified.

#### Noise

- No environmental deficiency identified.

#### Water Quality

- No environmental deficiency identified.

#### Waste Management

#### L11 Mechanical, Electrical, Instrumentation & Control Erection Work

#### Dates of Inspection: 2/1/2020, 9/1/2020, 16/1/2020, 23/1/2020 and 30/1/2020.

#### Summary of Findings

#### General

- No environmental deficiency identified.

#### Air Quality

- No environmental deficiency identified.

#### Noise

- No environmental deficiency identified.

#### Water Quality

- No environmental deficiency identified.

#### Waste Management

#### L12 Piling Foundation Work

#### Dates of Inspection: 7/1/2020, 14/1/2020, 21/1/2020 and 30/1/2020

#### Summary of Findings

#### General

- No environmental deficiency identified.

#### Air Quality

- No environmental deficiency identified.

#### Noise

- No environmental deficiency identified.

#### Water Quality

- No environmental deficiency identified.

#### Waste Management

# Summary of EMIS

# **Power Station – (Part B of EIA Report)**

# **Construction Phase Mitigation Measures and their Implementation**

EM&A Log Ref.	Mitigation Measures	Implementation Status
	AIR QUALITY	
A1	For general construction works, the dust control measures stipulated under the Air Pollution Control (Construction Dust) Regulation shall be complied with, such as:	
	• the haul roads shall be sprayed with water to keep the entire road surface wet.	С
	• the load carried by vehicle shall be covered by impervious sheeting to ensure no leakage of dusty materials from the vehicle.	С
	• the heights from which fill materials are dropped shall be controlled to a practical level to minimise the fugitive dust arising from unloading.	С
A2	For the concrete batching plant, the following control measures are recommended:	
	• loading, unloading, handling, transfer or storage or any dusty materials shall be carried out in a totally enclosed system.	С
	• The materials which may generate airborne dust emissions shall be wetted by water spray system.	С
	• All receiving hoppers shall be enclosed on three sides up to 3m above unloading point.	С
	• All conveyor transfer points shall be totally enclosed.	С
	WATER QUALITY	
B1	Silt curtains shall be installed on the eastern, southern and north western sides of the reclamation site during dredging for the reclamation construction. This is a required mitigation measure for the construction works and shall be implemented prior to the commencement of bulk dredging. **	N/A
B3	As a necessary operational constraint combined bulk dredging and sand filling for site formation shall not be permitted at any time. In addition, sand filling for site platform shall take place behind constructed sea walls which pierce the water surface. **	N/A
B4	HEC shall ensure design to divert all storm drains away from Hung Shing Ye Bay.	N/A
B5	Sand fill for the rubble mound seawalls shall be placed by controlled pumping down the trailer arm. **	N/A
B6	EM&A shall confirm the acceptability of any impacts during construction and should any unacceptable impacts be found then one or more of the following mitigation measures shall be implemented: **	N/A
	<ul> <li>reducing the number of dredgers working at any one time;</li> <li>reducing the rate of working of the dredgers;</li> <li>temporary suspension of operations;</li> <li>phasing of the works so that dredging / filling is only undertaken at certain stages of the tidal cycle.</li> </ul>	

EM&A Log Ref.	Mitigation Measures	Implementation Status
B7	In addition to the above specific measures the following general working procedures shall be adopted. **	
	• fully-enclosed or watertight grabs shall be used to minimise loss of sediment during the raising of loaded grabs through the water column;	N/A
	• the descent speed of grabs shall be controlled to minimise the seabed impact speed and to reduce the volume of over dredging;	N/A
	• barges shall be loaded carefully to avoid splashing of material;	N/A
	• all barges used for the transport of dredged materials shall be fitted with tight bottom seals in order to prevent leakage of material during loading and transport;	N/A
	• all barges shall be filled to a level which ensures that material does not spill over during loading and transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action;	N/A
	• the speed of trailer dredgers shall be controlled to prevent propeller wash from stirring up the sea bed sediments;	N/A
	• "rainbowing" sand fill from trailer dredgers shall not be permitted; and	N/A
	• the works shall cause no visible foam, oil, grease or litter or other objectionable matter to be present in the water within and adjacent to the dredging site and along the route to the disposal site.	N/A
B8	Cumulative impacts shall be assessed through EM&A. Co-ordination with the EM&A consultants for other projects to determine if any exceedances are caused by the other projects or by HEC's activities. Should monitoring results indicate exceedances at sensitive receivers due to HEC's activities, then the above described mitigation measures shall be implemented until impacts reduce to acceptable levels. **	N/A
	NOISE	
C1	General noise mitigation measures shall be employed at all work sites throughout the construction phase.	С
C2	Mitigate against general construction noise during Sunday's and public holidays, either at source with portable noise barriers, or by rescheduling of some PMEs to less sensitive time periods.	С
C3	Mitigate against night time noise from dredging equipment, with silencers or mufflers. **	N/A
	LANDSCAPE & VISUAL IMPACTS	
D1	The following mitigation measures shall be allowed for landscape and visual improvement:	
	• Use rubble mound seawall along south and west edges of the reclamation to provide a more natural look.	С
	• Break the mass of main buildings by varying the height/division into smaller units.	С
	Plant trees and vegetation for screening.	С
	• Adopt colour scheme to blend the buildings into the scenery.	С

EM&A Log Ref.	Mitigation Measures	Implementation Status
	WASTE MANAGEMENT	
E1	HEC to submit a Waste Management Plan for the construction phase to EPD. The Plan shall be verified by the IEC and shall describe the arrangements for avoidance, reuse, recovery and recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities and shall take into account the recommendations of the EIA report.	С
	Dredging Waste	
E2	All vessels for marine transportation of dredged sediment shall be fitted with tight fitting seals to their bottom openings to prevent leakage of materials. In addition, loading of barges and hoppers shall be controlled to prevent splashing of dredged material into the surrounding water, and barges or hoppers should under no circumstances be filled to a level which shall cause the overflowing of materials or polluted water during loading or transportation**	N/A
	Storage, Collection and Transport of Waste	
E3	• Minimise windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed containers.	С
	• Obtain the necessary waste disposal permits from the appropriate authorities, if they are required, in accordance with the Waste Disposal Ordinance (Cap.354), Waste Disposal (Chemical Waste) (General) Regulation (Cap.354), the Crown Land Ordinance (Cap 28), Dumping at Sea Ordinance (Cap 466) and Work Branch Technical Circular No. 22/92, Marine Disposal of Dredged Mud.	С
	• Disposal of waste at Licensed sites;	С
	• Develop procedures such as a ticketing system to facilitate tracking of marine mud and chemical waste, and to ensure that illegal disposal does not occur;	С
	<ul> <li>Segregate and sort the waste materials into 3 categories:</li> <li>public fill (e.g. concrete and rubble) for re-use on-site or disposal at a public filling area;</li> <li>re-use and/or recycling waste (e.g. steel and other metals);</li> <li>waste which cannot be re-used and/or recycled (e.g. wood, glass and</li> </ul>	С
	<ul> <li>plastic) for landfill disposal.</li> <li>The sorting process shall be carefully monitored to avoid missing of the 3 categories. Different types of wastes shall be stockpiled and stored in different containers or skips to enhance re-use or recycling of materials and their proper disposal.</li> </ul>	
	• Maintain records of the quantities of wastes generated and disposed off-site for each category of waste.	С
E4	Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes	С
	LAND CONTAMINATION	
F1	No land Contamination mitigation measures are required during the construction phase.	N/A
	MARINE ECOLOGY	

EM&A Log Ref.	Mitigation Measures	Implementation Status
G1	All percussive piling works shall be conducted on reclaimed land to avoid noise impact to marine mammals**	N/A
G2	All construction related vessels shall approach the extension site from the north and via the East Lamma Channel to avoid disturbance to the finless porpoise**	N/A
G3	Rubble mound seawall to the south and west edges of the reclamation to enhance recolonisation of marine organisms**	N/A
G4	Artificial Reefs of a volume not less than 400 m <sup>3</sup> shall be deployed in a location to be decided upon consultation with the Director of Agriculture and Fisheries to serve the purpose of an Additional Habitat Enhancement Measure.**	N/A
	FISHERIES	
H1	No Fisheries-specific mitigation measures are required during the construction phase.	N/A
	RISK ASSESSMENT	
I1	No risk mitigation measures are required during the construction phase.	N/A

#### Remarks:

**	-	No dredging and reclamation work would be involved for L10 & L11 construction
С	-	Compliance with mitigation measure
NC	-	Non-compliance with mitigation measure
N/A	-	Not Applicable

#### Appendix J

16/8002 Outstanding Work Programme       ID     Task Name		16-8002 OS Work Prog (4 Nov 19)			Ν	Mon 4/11.	
		Duration	February 2020	March 2020		April 2020	
1 16/3	8002 Unit 10 Outstanding Work Programme	370 days?	robidary 2020	Maron 2020	I		
2 I	Unit 10 MSB & HRSG	370 days					
3	Superstructure	340 days					
4	Upper Roof	107 days					
10	5/F	14 days					
11	Erect fall arrest system @ rooflight	3 days					
12	Erect remaining external feature and cladding at North of Air Filter Inlet	10 days					
13	Install cat ladder @ rooflight	7 days					
14	Instlallation of toe board for railing@ hoisting well	1 day					
15	4/F	6 days					
16	Additional handrail to overhead crane walkway	3 days					
17	Instlallation of toe board for railing@ hoisting well	1 day					
18	Seal up opening by chequer plates	2 days					
19	3/F	2 days					
20	Instlallation of toe board for railing@ hoisting well	1 day					
21	Seal up opening by chequer plates	2 days					
22	2/F	5 days					
23	Additional and modification of handrail to overhead crane walkway	5 days					
24	Instlallation of toe board for railing@ hoisting well	1 day					
25	Seal up opening by chequer plates	2 days					
26	1/F	3 days					
27	Instlallation of toe board for railing@ hoisting well	1 day					
28	Seal up opening by chequer plates	2 days					
29	M/F +12.15mPD Mainenance Platform	28 days					
33	G/F	11 days					
34	Installation of railing@ Condenser & Lube Oil Tank Room	7 days					
35	Modification of chequer plates of surface channel with pipes installed	10 days					
36	Transformer Area	85 days					
41	Link Bridge	132 days					
50	Others	4 days					
51	Fendolite touch up@ ST2, G-1/F	3 days					
52	Instllation of braille sign on handrail@ ST1 & ST2	3 days					
53	External Works	15 days					
54	EVA North MSB & HRSG	13 days					
55	Curb surrounding Feed Water Pump	6 days					
56	Road base near West & along cable trench	7 days					
57	Road paving near West & along cable trench	10 days					
58	Conduits for streetlight and fs signal	3 days					
59	Road base near East	2 days					
60	Road paving near East	3 days					
61	EVA West MSB	7 days					
62	Road base near South	2 days					
63	Road paving	2 days					
64	Relocate hoarding and Gate 39	3 days					

#### Appendix J

Feature 2009         Mean No.200           C PVA South MSB & HRSC         11 days           Road base near West         2 days           Road pairing nerr West         2 days           Road pairing nerr West         2 days           Road pairing nerr West         4 days           Road pairing nerr East         3 days           Excent hourding to the East         1 days           F PVA Last HRSC         14 days           Surface stame constable different Room         4 days           Road base chame constable different Room         4 days           Surface stame constable different Room         4 days           C Conduits for stretcipit and is signal         5 days           C Conduits for stretcipit and is signal         3 days           C Conduits for stretcipit and is signal         3 days           C Conduits for stretcipit and is signal         3 days           C Conduits for stretcipit and is signal         3 days           Stretci highing         2 days           D Rood base         70 days           Stretci highing         2 days           Warks         Stretci highing           C Conduits for stretcipit and is signal         3 days           Stretci highing         2 days           Stretci h	Asoth MSB & HRSG         11 days         Keita MSG         Aeit 2000         Matri 2000         Aeit 2000           Soud base neur West         2 days         2 days         Aeit 2000	/8002 Outstanding Work Programme		16-8002 OS Work Prog (4 Nov 19)		
EVA Sonth XSE & KHRSG         11 days           Road haves near Vest         2 days           Conduits for streetlight and is signal near East         3 days           Road haves near Fast         3 days           Road haves near Fast         3 days           Road haves near Fast         3 days           EVA Sonth MSE & HASG         1 day           EVA Sonth Assochamed outside HBSC Explanment Room         4 days           Road haves near Fast         3 days           Road haves near Fast         3 days           Romating ourged so days         6 days           Southand da datin to new surface channel         5 days           New surface channel channel         5 days           Board have         2 days           Road have         2 days           Ionstallation on gele for tartific signe EVA         8 days           Ionstallation of gele for tartific signe EVA         8 days           CW. Pump Area ind. Otherination Area         12 days           CW. Pump Area ind. Otherination Area         12 days           Gondatin to Gutys' MHS3         4 days           Gondatin to for streetilght and f signall Broopath         5 days           CW. Pump Area ind. Otherination Area         12 days           CW. Pump Area ind. Otherinatindo Area	A Soufi NSB & HISCi         11 days           Koad pavener, West         2 days           Koad pavener, West         2 days           Soud pavener, Person         4 days           Bornand Ling Contragener, Person         4 days           Soud pavener, Person         4 days           Soud pavener, Person         4 days           Soud pavener, Person         5 days           Soud pavener,	D Task Name	Duration	February 2020	March 2020	April 2020
7         Road paving neur West         2 days           8         Conduits for structlight and is signal and Fast         3 days           9         Road base near East         3 days           9         Road base near East         3 days           9         Extend boarding to the East         1 day           9         FXA Fast HRSG         1 days           9         FXA Fast HRSG         4 days           4         Remaining on-grades bals to HRSG Equipment Room         4 days           9         Surface channel Outside HRSG Equipment Room         4 days           9         New aurface drain a channel         5 days           7         Conduits for structlight and fs signal         3 days           9         Road paving         3 days           9         Road paving         3 days           10         Erect hoarding and gave         2 days           12         Closning and complete remaining works inside manholes@EVA         8 days           12         Closning and Curep Fant and Outstanting External         3 days           13         Structer Lighting         1 2 days           14         Lift of HIRSG Installation (Temporary)         30 days           15         Statatator Stignale Froot Fant Stigna	Xoad paving mare Xest         2 days           Xoad base nare Ears         3 days           Xoad Daving nare Test         3 days           Xoad Daving nare Test         3 days           Xoad Daving nare Xest         1 days           Xoad Daving nare Xest         1 days           Xoad Daving nare Xest         1 days           Xoad Daving Constructions         4 days           Xoad Daving Constructions         4 days           Xoad Daving Constructions         5 days           Xoad Daving Constructions         6 days           Xoad Daving Constructions         6 days           Xoad Daving Constructions         8 days           Yoad Partine And Constraining Works Inside manihoses PEVA         8 days           Yoad Song Yoad Song Constructions         7 Days           Yoad Song Yoad Song Yoad Song Yoad Song Yoad Song Yoad Yoad Yoad Yoad Yoad Yoad Yoad Yoad	5 EVA South MSB & HRSG	11 days	rebruary 2020		April 2020
6         Conduist for storetight and fs signal near East         4 days           9         Road paving near East         3 days           9         Road paving near East         3 days           2         EvX East HBS0         14 days           2         Surface channel duvisid HBC Equipment Room         4 days           4         Remaining on grade slab at HBS0         6 days           5         900m diff. drin 1 one surface channel         5 days           6         Road paving         3 days           7         Conduits for sterelight and Is signal         3 days           6         Road paving         3 days           7         Road paving         3 days           8         Road paving         3 days           9         Road paving         3 days           10         Installation of Opic for traffic sign@EVA         8 days           10         Installation State fight and Is signal         10 days           2         Statutory Statesign and Stage Install         3 days           11         HESC Installation (Temporary)         30 days           2         Conduits for staretign and Is signal?         3 days           2         Conduits for staretign and Is signal?         3 days     <	Condusit         Stagual near East         3 days           Stade haran cer Latar         3 days           Stade haran cer Latar         3 days           Stade haran cer Latar         1 days           Miran charding to the Fast         1 days           Strade harding to the HSGS         1 days           Strade harding to the Stad         1 days           Strade harding to the Stad         5 days           Strade harding to the save strafe charant         5 days           Strade harding to the save strafe charant         5 days           Strade harding to the save strafe charant         3 days           Strade harding to the save strafe charant         3 days           Strade harding to the save strafe charant         3 days           Strade harding to the save strafe charant         3 days           Strade harding to the save strafe charant         3 days           Strade harding to the save strafe charant         3 days           Strade harding to the save strafe charant         3 days           Strade harding to the save strafe charant         3 days           Strade harding to the save strafe charant         3 days           Strade harding to the save strafe charant         3 days           Strade harding to the save strafe charant harant no Strade strafe         3 days </td <td>6 Road base near West</td> <td>2 days</td> <td></td> <td></td> <td></td>	6 Road base near West	2 days			
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#### **Summary of EMIS**

# **Power Station – (Part B of EIA Report)**

# **Construction Phase Mitigation Measures and their Implementation**

EM&A Log Ref.	Mitigation Measures	Implementation Status
	AIR QUALITY	
A1	For general construction works, the dust control measures stipulated under the Air Pollution Control (Construction Dust) Regulation shall be complied with, such as:	
	• the haul roads shall be sprayed with water to keep the entire road surface wet.	N/A
	• the load carried by vehicle shall be covered by impervious sheeting to ensure no leakage of dusty materials from the vehicle.	N/A
	• the heights from which fill materials are dropped shall be controlled to a practical level to minimize the fugitive dust arising from unloading.	N/A
A2	For the concrete batching plant, the following control measures are recommended:	
	• loading, unloading, handling, transfer or storage or any dusty materials shall be carried out in a totally enclosed system.	N/A
	• The materials which may generate airborne dust emissions shall be wetted by water spray system.	N/A
	• All receiving hoppers shall be enclosed on three sides up to 3m above unloading point.	N/A
	• All conveyor transfer points shall be totally enclosed.	N/A
	WATER QUALITY	
B1	Silt curtains shall be installed on the eastern, southern and north western sides of the reclamation site during dredging for the reclamation construction. This is a required mitigation measure for the construction works and shall be implemented prior to the commencement of bulk dredging. **	N/A
B3	As a necessary operational constraint combined bulk dredging and sand filling for site formation shall not be permitted at any time. In addition, sand filling for site platform shall take place behind constructed sea walls which pierce the water surface. **	N/A
B4	HEC shall ensure design to divert all storm drains away from Hung Shing Ye Bay.	N/A
B5	Sand fill for the rubble mound seawalls shall be placed by controlled pumping down the trailer arm. **	N/A
B6	EM&A shall confirm the acceptability of any impacts during construction and should any unacceptable impacts be found then one or more of the following mitigation measures shall be implemented: **	N/A
	<ul> <li>reducing the number of dredgers working at any one time;</li> <li>reducing the rate of working of the dredgers;</li> <li>temporary suspension of operations;</li> <li>phasing of the works so that dredging / filling is only undertaken at certain stages of the tidal cycle.</li> </ul>	

# Taihei Dengyo Kaisha, Ltd.

EM&A	I ainei Dengyo Kaisha, Ltd.         Mitigation Measures	Implementation
Log Ref. B7		Status
DT	In addition to the above specific measures the following general working procedures shall be adopted. **	
	• fully-enclosed or watertight grabs shall be used to minimise loss of sediment during the raising of loaded grabs through the water column;	N/A
	• the descent speed of grabs shall be controlled to minimise the seabed impact speed and to reduce the volume of over dredging;	N/A
	• barges shall be loaded carefully to avoid splashing of material;	N/A
	• all barges used for the transport of dredged materials shall be fitted with tight bottom seals in order to prevent leakage of material during loading and transport;	N/A
	• all barges shall be filled to a level which ensures that material does not spill over during loading and transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action;	N/A
	• the speed of trailer dredgers shall be controlled to prevent propeller wash from stirring up the sea bed sediments;	N/A
	• "rainbowing" sand fill from trailer dredgers shall not be permitted; and	N/A
	• the works shall cause no visible foam, oil, grease or litter or other objectionable matter to be present in the water within and adjacent to the dredging site and along the route to the disposal site.	N/A
B8	Cumulative impacts shall be assessed through EM&A. Co-ordination with the EM&A consultants for other projects to determine if any exceedances are caused by the other projects or by HEC's activities. Should monitoring results indicate exceedances at sensitive receivers due to HEC's activities, then the above described mitigation measures shall be implemented until impacts reduce to acceptable levels. **	N/A
	NOISE	1
<u>C1</u>	NOISE	C
C1	General noise mitigation measures shall be employed at all work sites throughout the construction phase.	С
C2	Mitigate against general construction noise during Sunday's and public holidays, either at source with portable noise barriers, or by rescheduling of some PMEs to less sensitive time periods.	С
C3	Mitigate against night time noise from dredging equipment, with silencers or mufflers. **	N/A
	LANDSCAPE & VISUAL IMPACTS	
D1	The following mitigation measures shall be allowed for landscape and visual improvement:	
	• Use rubble mound seawall along south and west edges of the reclamation to provide a more natural look.	С
	• Break the mass of main buildings by varying the height/division into smaller units.	С
	• Plant trees and vegetation for screening.	С

# Taihei Dengyo Kaisha, Ltd.

EM&A Log Ref.	Mitigation Measures	Implementation Status
	Adopt colour scheme to blend the buildings into the scenery.	С
	WASTE MANAGEMENT	
E1	HEC to submit a Waste Management Plan for the construction phase to EPD. The Plan shall be verified by the IEC and shall describe the arrangements for avoidance, reuse, recovery and recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities and shall take into account the recommendations of the EIA report.	С
	Dredging Waste	
E2	All vessels for marine transportation of dredged sediment shall be fitted with tight fitting seals to their bottom openings to prevent leakage of materials. In addition, loading of barges and hoppers shall be controlled to prevent splashing of dredged material into the surrounding water, and barges or hoppers should under no circumstances be filled to a level which shall cause the overflowing of materials or polluted water during loading or transportation**	N/A
	Storage, Collection and Transport of Waste	
E3	• Minimise windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed containers.	С
	• Obtain the necessary waste disposal permits from the appropriate authorities, if they are required, in accordance with the Waste Disposal Ordinance (Cap.354), Waste Disposal (Chemical Waste) (General) Regulation (Cap.354), the Crown Land Ordinance (Cap 28), Dumping at Sea Ordinance (Cap 466) and Work Branch Technical Circular No. 22/92, Marine Disposal of Dredged Mud.	С
	• Disposal of waste at Licensed sites;	С
	• Develop procedures such as a ticketing system to facilitate tracking of marine mud and chemical waste, and to ensure that illegal disposal does not occur;	С
E4	<ul> <li>Segregate and sort the waste materials into 3 categories:</li> <li>public fill (e.g. concrete and rubble) for re-use on-site or disposal at a public filling area;</li> <li>re-use and/or recycling waste (e.g. steel and other metals);</li> <li>waste which cannot be re-used and/or recycled (e.g. wood, glass and plastic) for landfill disposal.</li> <li>The sorting process shall be carefully monitored to avoid missing of the 3 categories. Different types of wastes shall be stockpiled and stored in different containers or skips to enhance re-use or recycling of materials and their proper disposal.</li> <li>Maintain records of the quantities of wastes generated and disposed off-site for each category of waste.</li> </ul>	C C C
	(Chemical Waste) (General) Regulation, shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes	
	LAND CONTAMINATION	
F1	No land Contamination mitigation measures are required during the construction phase.	N/A

# Taihei Dengyo Kaisha, Ltd.

EM&A Log Ref.	Mitigation Measures	Implementation Status
	MARINE ECOLOGY	
G1	All percussive piling works shall be conducted on reclaimed land to avoid noise impact to marine mammals**	N/A
G2	All construction related vessels shall approach the extension site from the north and via the East Lamma Channel to avoid disturbance to the finless porpoise**	N/A
G3	Rubble mound seawall to the south and west edges of the reclamation to enhance recolonisation of marine organisms**	N/A
G4	Artificial Reefs of a volume not less than 400 m <sup>3</sup> shall be deployed in a location to be decided upon consultation with the Director of Agriculture and Fisheries to serve the purpose of an Additional Habitat Enhancement Measure.**	N/A
	FISHERIES	
H1	No Fisheries-specific mitigation measures are required during the construction phase.	N/A
		•
	RISK ASSESSMENT	
I1	No risk mitigation measures are required during the construction phase.	N/A

#### Remarks:

**	-	No dredging and reclamation work would be involved for L10 construction
С	-	Compliance with mitigation measure
NC	-	Non-compliance with mitigation measure
N/A	-	Not Applicable

N/A - Not Applicable

No.	Description	2020	2020	2020
	Erection Key Date	Feb	Mar	Apr
		т		
		/		
A	HRSG PORTION			
A-01	Install Casing (Bottom/Side/Top) with Structure			
A-02	Upper/Lower Connection Pipe	_		
A-03	Module Install (Bundle Tube Block)			
A-04	Down Commer Pipe			
A-05	Drum Lifting / HDR Level Adjustment			
A-06	Critical Piping/connecting piping (Main Steam, Aux, R/H, HP/LP Feed Water)			
A-07	Other piping			
A-08	Access Platform / Hand Rail			
A-09	Inside Baffle Plate & Seismic Tie Adjust / Setting			
A-10	SCR System			

No.	Description	2020 Feb	2020 Mar	2020 Apr
	Erection Key Date		Indi	Лрі
		Т /		
A-11	Inlet Duct Structure / Include Pipe Rack (U9-U10 Connection)			
A-12	Inlet Duct			
A-12				
A-13	Exhaust Duct Structure			
A-14	Exhaust Duct			
A-15	Aux Equip(B/D Tank, HP/IP Feed Water Pump, LP Eco			
	Recirculation Pump, etc.)			
	HP/IP Feed Water Pump			
	Reserve feed water Tank			
A-16	Insulation			
A-10	insulation			
A-17	Painting			
A-18	Install Catalyst	1		
A-19	Steam Blowing out(other scope) & alkaline boiling out	+		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				

No.	Description	2020 Feb	2020 Mar	2020 Apr
	Erection Key Date	reb	IVIAI	Арі
		T /		
	Installation of Temporary piping, Support & Silencer			
	Excection of Steam blowing out			
	Dismantle of Temporary iping, Support & Silencer			
	Excection of Steam boiling out			
В	GT/ST/GEN PORTION			
B-1	Turbine O/H Crane			
B-2	Condenser			
B-3	Install ST			

Appendix J

No.	Description	2020 Feb	2020 Mar	2020 Apr
<u> </u>	Erection Key Date		ividi	
		Т		
B-4	Install GEN			
B-5	Install GT			
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Appendix J

No.	Description	2020 Feb	2020 Mar	2020 Apr
	Erection Key Date		IVIAI	
		Т /		
B-6	Aux Equipment			
B-7	Insulation			
B-8	Painting			
B-9	Switchgear/Hoist/Hoist for condenser			

SCHEDULE C. Contract No. 16/2209 Lamma Power Station Extension - Unit 10 Complete Erection, Inspection, Testing & Commissioning of Power Block Facilities

No.	Description	2020 Feb	2020 Mar	2020 Apr
	Erection Key Date		Ivial	
		T /		
		1		
C	ERECTRICAL & INSTRUMENTATION PORTION			
C-1	Transformer & Ancillaries (G Tx, U Tx, Ex Tx, SFC Tx)			
C-2	EQUIPMENT INSTALLATION			
	Generator & Ancillaries			
	Isolated Phase Busducts			
	Switchgear and Accessories			
	UPS, Batterys, Battery Charger System & DBs			
	Electrical Panels & Local Control Panels			
	Control Systems, Control Panels, Local Instrument Cubicle & Rack			
	Channel Base Installation			
C-3	CABLING SYSTEM INSTALLATION			
	Cable Ladder / Tray Installation			
	Conduit Pipe Installation			
	Earthing Installation			
	Cable Laying & Termination			
	Fire Resistant Sealing			
	Cable Trench Opening & Transportation	<u> </u>		

Appendix J

SCHEDULE C. Contract No. 16/2209 Lamma Power Station Extension - Unit 10 Complete Erection, Inspection, Testing & Commissioning of Power Block Facilities

No.	Description	2020	2020	2020
	Erection Key Date	Feb	Mar	Apr
		Ţ		
		(		
C-4	INSTRUMENTS, INSTR. PIPINGS & AIR TUBE			
	Local Instruments, Piping & Tubing			
	Instrument Calibration			
C-5	OTHER WORK			
	275kV Shunt Reactor Relocation			
	Turbine Overhead Crane, Hoist, Battery Power Supply			
	Existing CWP etc.			
	BOP & Other Works			
	Site Cleaning			
C-6	TESTING & COMMISSIONING			
		-		
	Testing & Commissioning			
	Commissioning Assistant			

	Task Name	Duration		February 2020 March 2020
	Civil and Building Works for Unit 11 and Assoicated Works	<u>1197 days</u>		
2	Contract Key Dates	<u>1197 days</u>		
3 4	Contract Commencement Date Completion Dates	0 days 1044 days	_	
5	Section A1 - Ground treatment installation works at Zone 1A	0 days		
;	Section A2 - Ground treatment installation works at Zone 1B	0 days	-	
	Section A3 - Ground treatment installation works at Zone 2	0 days		
	Section A4 - Ground treatment installation works at Zone 3	0 days		
	Section A5 (i) - Ground treatment installation works at Zone 4 - Band drain installation	0 days		
	Section A5 (ii) - Ground treatment installation works at Zone 4 - Surcharge filling	0 days		
	Section A6 (i) - A&A Works for No. 4 C.W. Outfall at Area E18	0 days	_	♦ (Section AC (ii)) External works at Area E4E
_	Section A6 (ii) - External works at Area E15	0 days	-	Section A6 (ii) - External works at Area E15 Section B1 (i) - Area south of L11 MSB and HRSG from GL1
_	Section B1 (i) - Area south of L11 MSB and HRSG from GL11-F eastwards leading to Chimney Road at Area E1 & E2	0 days		◆ Section B1 (i) - Alea south of L11 MSB and fixed from GL1
	Section B1 (ii) - Supporting structures for overhead cranes of L11 MSB including the associated roof structure except the roof deferred works	0 days		
;	Section B1 (iii) - FSRU Civil works at Area E13	0 days	-	
+	Section B2 - Retractable Cover D at Area E22	0 days	-	
+	Section B2 - External works at Area B1, D2 and D4	0 days		
	Section C1 - Area south of L11 MSB from GL11-F westwards leading to Station Road at Area E3(A) & E3(B)	0 days		Section C1 - Area south of L11 MSB from GL11-F westward
	Section C2 - (i) Southern part of L11 HRSG area and its surrounding at Area E7 except the deferred works for Lube Oil Storage Tank	0 days	ank	
	Section C2 - (ii) L11 Turbo Block foundation including the L11 MSB ground floor together with the equipment foundations between GL 11-F to 11-H and 11-1 to 11-6 for the installation of power generator, air inlet duct and lube oil reservoir	0 days		
	Section C2 - (iii) G/F of L11 MSB including the Condenser Pit, Circulating Water Pipe Pit and equipment foundations between GL 11-B to 11-C and 11-1 to 11-6 for the installation of condenser	0 days		♦ Section C2 - (iii) G/F of L11 MSB including the Condenser F
	Section D - (i) Roads and external grounds surrounding L11 MSB and L11 HRSG in addition to the southern & eastern areas mentioned above in Area E5 and E6	0 days	and	L11 HRSG in addition to the southern & eastern areas mentioned above in Area E5 and E6
-	Section D - (ii) Remaining northern part of L11 HRSG area and its surrounding in Area E6	0 days		♦ Section D - (ii) Remaining northern part of L11 HRSG area a
	Section D - (iii) Whole of L11 MSB including the pipe and cable rack along south façade of L11 MSB with all underground utilities at Area E4 including C.W. Inlet and Outlet Culvert except the deferred works	0 days		
	Section D - (iv) Link Bridge between L10 and L11 MSB and at the south of L11 MSB including their associated alternations & additions (A&A) Works at L10 MSB	0 days		
	Section D - (v) Gas Duct Foundation, Pipe and Cable Rack and associated trench in Area E20	0 days	<b>*</b>	Section D - (v) Gas Duct Foundation, Pipe and Cable Rack and associated trench in Area E20
	Section E1 - (i) Link BrIdge and Pipe and Cable Rack connecting L11 MSB to the western area of L11 MSB at Area E3	0 days		
	Section E1 - (ii) Gas Receiving Station and L11 Gas Receiving Station Equipment Room (GRS) Area Extension at Area E16	0 days		
	Section E1 - (iii) External Works at Area E15 ( C )	0 days	_	
	Section E2 - Pipe and Cable Rack and trench at west of Chimney Road and Pipe and Cable Rack at south of Middle Road at Area E8 and E19	0 days		
	Section E3 - Gas Pipe Support Foundation and Pipe Trench and associated external works at Area E14, E15 (A) and E15 (B)	0 days		
	Section E4 - 275kV cable trenching works connecting the 275kV Switching Station Extension and L11 MSB at Area E9 (A)	0 days		
	Section F - 275kV Station Building Extension and associated works at Area E17	0 days		
	Section G - A&A Works at No. 4 C.W. Intake at Area E12	0 days		
1	Section H - L11 Steel flue liner at No. 4 Chimney	0 days		

	Appendix J
	Refer to CEM dated 26March2019
	April 2020
Sectior	A6 (i) - A&A Works for No. 4 C.W. Outfall at Area E18
11-F ea:	stwards leading to Chimney Road at Area E1 & E2
ting stru	uctures for overhead cranes of L11 MSB including the associat
<b>*</b>	Section B2 - Retractable Cover D at Area E22
ds leadi	ng to Station Road at Area E3(A) & E3(B)
Pit, Cir	culating Water Pipe Pit and equipment foundations between G
and ite	surrounding in Area E6
	Surrounding in Area Eo

	ask Name	Duration		February 20	)20	T		March 2020	 
36	Section I - (i) 275kV cable trenching works connecting the 275kV Switching Station Extension and L11 MSB at Area E9 (B)	0 days							
37	Section I - (ii) Interconnector 2 Trench Modification Works at Area E10	0 days							
8	Section J - (i) Demolition of Retractable Cover A&B & (ii) Foundation of LMX Light Oil Storage Tank Nos. 3 & 4 and A&A for Existing Bund Wall at	0 days							
9	Section K1 - External works at Area 15 (E) and 15(F)	0 days							
C	Section K2 - Removal of Southern Bund and External Works at Area D5, D6 and D7	0 days							
1	Section K3 - All remaining works shall be completed for reporting completion to BD and ready for OP inspection	0 days							
2	General & Preliminary	<b>318 days</b>							
3	Set up Temporary Site Office and Utilities	90 days							
4	Permit Applications & Statuary Submissions	120 days							
5	Existing Utilities scanning & Excavation Permit	45 days							
6	Tower Crane erection 2@MSB, 1@ 275	50 days							
7	Submission and Approval	<u>554 days</u>							
-8	Method Statement / Temp Work Submission & Approval from HEC for General Works	240 days							
.9	BD Approval & Consent (If required)	120 days							
50	BIM Model, CSD & CBWD Submission & Approval from HEC	200 days							
1	Structure Steelwork Connection Design Submission & BD Approval	60 days							
2	Structure Steelwork Shop Drawing & Approval	60 days	_						
3	Metal Cladding, louvre & windows submission & BD Approval	60 days	_						
4	Metal Cladding, louvre & windows shop drawing submission	60 days	_						
5	Order, Off Site Fabrication and Delivery (S. Steel & Cladding & louvres)	180 days	_						
6 7	Retractable Cover D BD Submission & Approval	90 days	_						
8	No. 4 C.W. Outfall A&A BD 1st SubmissionSumission & Approval of Steel Flue Assessment Report and Design Drawings	90 days 60 days	-						
9	Submission and Approval of Steel Flue Design from BD	60 days	-						
60	Material Fabrication & Delivery for L11 Flue	100 days							
51	Folding Shutters Shop Drawing Submission & Approval	120 days							
2	Fabrication & Delivery of Folding Shutters	150 days							
3	Sewage Pump System Design submission & approval	90 days							
4	Fabrication & Delivery of Sewage Pump	180 days							
5	Other material submission & approval & delivery	300 days							
6	Coordination with the Employer's Specialist Contractors	<u>478 days</u>	<mark>)K</mark>						
7	Installation of Puddle Pipes at C.W. outlet Culvert	7 days	_						
8	Installation of Puddle Pipes at C.W. Inlet Culvert	7 days	_					<b>-</b>	
9	Template setting at L11 Turbo Block Foundation	60 days						Template setting a	( r
0 1	Template setting of holding down bolts at HRSG column base	46 days	-						
	I-beam / channel base installation on top of transformer foundations at Transformer Area	30 days	_						
2	Overhead crane erection at turbine hall using access through a temporary opening at L11 MSB roof between GL11-G to 11-H and 11-2 to 11-6	36 days	ss th	ough a temporary opening at	L11 MSB roof between GL	11-G t	o 11-H and 11-2	to 11-6	
3	Condenser assembly and erection using access through a temporary façade opening at L11 MSB below 1/F along GL 11-6 from GL11-B to 11-C including	127 days			ſ				
4	a clear space below 1/F between GL 11-B to 11-C	1.40.1	_						
4	Installation of power train equipment including air inlet duct using access through a temporary façade opening at L11 MSB below 1/F along GL 11-6 from	142 days							
5	GL11-F to 11-H including a clear space below 1/F of the above area Installation of embedded materials such as holding down bolts for equipment	30 days	-						
'6	foundations - Commencement Section A1 & A2 - Ground treatment at Zone 1A & 1B	<u>92 days</u>							
7	Plant establishment for earthworks	7 days							
8	Backfilling and compaction from existing ground +4.5mPD to +5.5mPD	45 days							
9	Delivery of band drain	5 days							
80	Plant establishment for band drain (1st rig)	10 days							
1	Plant establishment for band drain (2nd rig)	7 days							
32	Plant establishment for band drain (3rd rig)	7 days							
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			Appendix J
		Refer to CEM dat	ed 26March2019
		April 202	20
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וט	Fask Name	Duration	-			200			http://www.com	
33	Vert. Band drain installation (1023 nos. x 44m)	45 days			February 20	)20			March 2020	
34	Deposition of surcharge up to +8.3mPD	45 days								
35	Section A3 - Ground treatment installation works at Zone 2	158 days								
36	Backfilling and compaction from existing ground +4.5mPD to +5.5mPD	30 days								
37	Delivery of band drain	6 days								
38	Vert. Band drain installation (1787 nos. x 44m)	50 days								
39	Deposition of surcharge up to +8.3mPD	60 days								
90	Additional Concrete Blocks + Extra Surcharge	60 days								
91	Section A4 - Ground treatment installation works at Zone 3	<u>131 days</u>								
92	Backfilling and compaction from existing ground +4.5mPD to +5.5mPD	12 days								
3	Vert. Band drain installation	60 days								
94	Deposition of surcharge up to +8.3mPD	45 days	_							
95 96	Possession of Part 1 Defer portion at Zone 3 Vert. Band drain installation	0 days 10 days	_							
7	Possession of Part 2 Defer portion at Zone 3	0 days								
8	Vert. Band drain installation	7 days								
9	Surcharge at deferred portion	14 days								
00	Section A5 (i) - Ground treatment installation works at Zone 4	<u>83 days</u>								
01 02	Site Preparation for Vertical Band Drain	3 days								
_	Band drain installation Possession of Defer portion at Zone 4	21 days 0 days	_							
)3 )4	Vert. Band drain installation	28 days								
)5	Section A5 (ii) - Surcharge works at Zone 4	30 days								
6	Deposition of surcharge up to +8.3mPD	30 days								
7	Section A6 (i) - A&A Works for No. 4 C.W. Outfall at Area E18	493 days	۶C.	. <mark>A6(</mark> i)						- 2
8	BD Amendment, resubmission & approval for Jacking Pit	170 days								
)9	Consent for Jacking Pit ELS	28 days								
0	Mobilization	0 days								
1	Jacking Pit Sheetpile Installation (incl. Stop work notice + CNY)	60 days								
2	Protective screen and preventive measure for U9 gas pipeline (VO)	28 days	_							
3 4	Provision of temp support for U10 gas pipeline (VO) upon RMA allow access ELS of jacking pit	28 days 30 days								
15	Pipe Jacking set up & ground strengthing	18 days	_							
16	Pipe Jacking set up & ground strengthing Pipe Jacking	90 days	_							
7	Receiving Pit BD Approval	170 days	_							
8	Consent for Pipe & Sheet pile	28 days								
9	Receiving Pit Pipe & Sheet pile installation	30 days								
0	Consent for Receiving Pit ELS	28 days								
1	ELS of Receiving pit	40 days	_							
2	Allow modify existing outfall manhole for pipe jacking receiving	18 days	_		Cultoret	Dine Intelletion 9 :	watar taat			
3	Culvert Pipe Intallation & water test	55 days			Cuivert	Pipe Intallation & v		onaction Manh	alo of looking Dit	backfill (Area E3(A))
.4 25	Inspection Manhole at Jacking Pit + backfill (Area E3(A))	18 days	_				•	spection mann	ole at Jacking Fit +	M
26	Manhole extension at Outfall no. 4 + backfill + Reinstate of Outfall Rd	45 days	_							
b 7	Sheetpile for L12 Outlet culvert (Connection to Jacking Pit) Consent + ELS for remaining jacking pit	45 days 75 days	_							
8	Outlet Culvert pipe installation + Thrust Box (remaining portion at A1 Area)	45 days	a)	)						
9	Sheet pile for future extension along GRS	60 days		,						
0	Section A6 (ii) - External works at Area E15(D)	<u>37 days</u>			<b>•</b> 1	5 Feb '20				
1	Arae possession & Clearance	6 days								
2	Road & Surface Works	31 days			R	oad & Surface Wo	rks			
3	Section B1 (i) - Area south of L11 MSB and HRSG from GL11-F eastwards	<u>375 days</u>	C.	B1(i)				1 Mar '20		
	leading to Chimney Road at Area E1 & E2									
4	Area Possession & Clearance	0 days								
5	Excavation for CW Inlet Culvert (South of L11 HRSG)	21 days								
6	Installation CW Inlet Culvert pipe	30 days								
7	Construction of Thrust Box & Manholes,etc	14 days								
8	Backfill	21 days								
9	Install underground utilities	45 days			× -					andonoon Marris (EA)
0	Backfill and Temporary paving for Condensor Move in (E1)	14 days	_						1	ondensor Move in (E1)
1	Backfill and Temporary paving for Condensor Move in (others)	30 days		D4 /				ackfill and Tem	1	ondensor Move in (othe
2	Section B1 (ii) - Supporting structures for overhead cranes of L11 MSB	<u>482 days</u>	C.	B1(i)						17 Mar '20
2	including the associated roof structure except the roof deferred works	0.1								
3	Area possession & Clearance	0 days								
.80	02 Master Prog Rev 3 Task Split	Mile	esto	ne 🕯	Summa	rv 🛡				
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		Appendix J
	Refer to CEM date	ed 26March2019
	April 202	20
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lanhole	e extension at Outfall no. 4 + back	fill + Reinstate of Outfall Rd

onti	act No. 17/8002 Lamma Power Station Extension Civil and Building Work	s for Unit	L11	17-8002 Master Prog Rev 3	Refer to CEM dated 26March20
ד כ	ask Name	Duration		February 2020 March 2020	April 2020
4	Erection of turbine hall roof except defer work	0 days			
5	Installation of crane griders	21 days			
6	Turbine hall wall claddings	60 days		Turbine hall wall claddings	
7	Section B1 (iii) - FSRU Civil works at Area E13 (GRS)	<u>151 days</u>			
3	Submission and approval for consent to work	0 days	_		
)	Civil & Building Works	130 days	_		
' 	Ground reinstatement	21 days	c.B2		31 Mar '20
2	Section B2 - Retractable Cover D at Area E22 Area Possession, Demolition and clearance work	435 days 60 days	C.DZ		
3	Revise Structural Form and BD resubmission & approval	150 days	-		
•	Foundation construction	60 days	-		
5	Backfill & Ground reinstatement	30 days			
5	Superstructure fabrication & delivery	90 days			
7	Superstructure erection	90 days		Superstructure erection	
3	E&M Installation and T&C	45 days			E&M Installation and T&C
)	Section B3 - External works at Area B1, D2 and D4	<u>416 days</u>	c.B3		
)	Receive Area from HKE, Area Possession & Clearance	0 days			
1	Removal of existing paving for band drain under Section A5(i)	30 days	4		
2 3	Complete Vert. Band drain under Section A5(i)	0 days	-		
	Ground preparation for B1, D2 & D4 for handover to Plant contractor	90 days	c.C1	Mar '20	
	Section C1 - Area south of L11 MSB from GL11-F westwards leading to Station Road at Area E3(A) & E3(B)	<u>466 days</u>			
;	Area Possession & Clearance	0 days			
5	Excavation for Type C (Area E3A)	21 days	-		
7	Installation CW Outlet Culvert Pipe connect to Type C1	21 days 21 days	-		
;	Installation CW Inlet Culvert ripe (South of L11 Condensor)	21 days 21 days	-		
)	Construction of Thrust Box	10 days	-		
)	Construction of Access Manhole	21 days	-		
1	Backfill	14 days	-		
2	Construction of Underground drainage and utilities	60 days	;		
3	Construct Temp Paving for Condenser move in	45 days		€ onstruct Temp Paving for Condenser move in	
4	<u>Section C2 - (i) Southern part of L11 HRSG area and its surrounding at Area</u> <u>E7 (No Defer Foundations)</u>	<u>295 days</u>	c.C2(		
5	Area Possession & Clearance	0 days			
6	Excavation & Pile Caps & Tie Beams (HRSG South Area E7)	45 days	_		
7	Construction RC foundations	45 days			
3	Construction RC plinths	30 days	_		
9	Construction underground utilities	45 days	_		
)	Backfill & Construction on-grade slabs	35 days	_		
1 2	Backfill and Temporary paving	21 days	c.C2		
2	Section C2 - (ii) L11 Turbo Block foundation including the L11 MSB ground floor together with the equipment foundations between GL 11-F to 11-H and	<u>496 days</u>	0.02		
	11-1 to 11-6 for the installation of power generator, air inlet duct and lube oil				
	reservoir				
3	Area Possession & Clearance	0 days	7		
4	Excavation & Pile Caps & Tie Beams (MSBL11 - Turbo Block North)	70 days			
5	Excavation & Pile Caps & Tie Beams (MSBL11 - Turbo Block South)	30 days			
	Backfill and construction turbine block foundations	21 days			
'	Construction of internal drainage	60 days			
3	Construction RC walls incl. G/F rooms Construction turbine block columns and upper portion for plant embed	90 days 21 days	-		
	installation	-			
)	Concrete Turbine upper part foundation & clear falsework	52 days			
1	Section C2 - (iii) G/F of L11 MSB including the Condenser Pit, Circulating Water Pipe Pit and equipment foundations between GL 11-B to 11-C and 11-1	<u>466 days</u>	c.C2(	i) — 1 Mar '20	
	to 11-6 for the installation of condenser				
2	Area Possession & Clearance	0 days			
3	Excavation to foundation level at ELS Type A	18 days			
4	Construction of CW Outlet Box + lowest tie beam & caps	40 days			
5	Construction of pile caps & tie beams & hot well sump pit up to +2.5mPD	30 days			
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ID	Fask Name	Duration							
196					February 2020			March 2020	)
190	Backfill & Construction of CW Inlet Box + tie beams	18 days							
198	Backfill and Construction ground beams & trenches Construction of indoor underground drainage	18 days 12 days	_						
99	Backfill & construction on-grade slabs	12 days 10 days	_						
00	Construction Column casting and RC walls	30 days	-						
201	Metal Cladding & Louvres for GLB-C/1-6	60 days			Metal Cladding & Louvres f	for GLB-C/1-6			
202	Mis. Works for plant erection	24 days	_				Mis. Works fo	or plant erection	
203	Section D - (i) Roads and external grounds surrounding L11 MSB and L11	414 days	c.D(i)						
	HRSG in addition to the southern & eastern areas mentioned above in Area								
	E5 and E6								
204	Area Possession & Clearance	14 days							
205	Excavation for Type C1 and open sheet pile Install CW Outlet pipe & connect to prevous	75 days 21 days	_						
207	Backfill	10 days	-						
208	Undeground utilities and trenches	60 days	_						
209	Construction of plant drainage, trenches & RC plinths	45 days	_						
210	Remaining Undeground utilities & backfill (West of Tx Bay)	75 days	_						
211	Section D - (ii) Remaining northern part of L11 HRSG area and its	375 days	c.D(ii	)			📕 Mar '20		
	surrounding in Area E6								
212	Area Possession & Clearance	0 days							
213	Excavation & Pits & Pile Caps & Tie Beams (HRSG north Area E6)	45 days							
214	Construction RC foundations	45 days							
215	Construction RC plinths & HRSG Lift Pit & internal drainage	60 days	_						
216	Backfill Construction on-grade slabs	28 days	_						
217	Construction underground utilities	45 days	_		Ba	oldill Domoining utilities			
218 219	Backfill, Remaining utilities and temporary paving Touch up and site clearance	85 days 13 days			Ba	ckfill, Remaining utilities		d site clearance	
219	Section D - (iii) Whole of L11 MSB including the pipe and cable rack along	<u>526 days</u>	c.D(ii	i			Touch up and	u site clearance	
	south façade of L11 MSB with all underground utilities at Area E4 including	<u>520 uuys</u>		1					
	C.W. Inlet and Outlet Culvert except the deferred works								
221	Area Possession & Clearance	0 days							
222	Construction of pile caps & tie beams at Transformer Area	60 days							
223	Excavation & Construction Blow Down Sum pit (Type B)	45 days							
224	Construction of pile caps & tie beams at SunShadeCover Area	45 days							
225	Preaparation for S.Steelwork Erection	14 days							
226	Structural Delivery & Erection (Turhine Hall North fr G.L. 1-3/H->B)	30 days							
227	Structural Delivery & Erection (Equipment Floors)	45 days	_		]				
228 229	Structural Delivery & Erection (Turbine Hall South)	45 days	_						
229	Fire Coating Application at Joint	120 days	_						
230	External Scaffolding Erection Construction 1/F RC Slab	150 days	_						
232	Construction M/F RC Slab	14 days 7 days							
233	Construction M/F RC Slab	14 days	_						
234	Construction 2/F RC Slab	14 days	_						
235	Construction 4/F RC Slab	14 days	_						
236	Construction 5/F RC Slab (Roof of turbine hall, except defer portion)	30 days	_						
237	Construction Roof RC Slab	14 days							
238	Construction Upper Roof RC Slab	12 days							
239	Construction Defer Roof RC Slab (G.L. G-H)	30 days			<mark>- Constru</mark>	uction Defer Roof RC Sla	<del>b (G.L. G-H)</del>	ſ	
240	Construction of Staircase ST-01 & lift shaft & machine room	120 days							
241	Construction of Staircase ST-02 except defer work	76 days	pt defe	er wor					
242	Construction of RC plinth, kerbs & parapet Walls	30 days						Construction of RC pli	nth, kerbs & parapet Wa
243	Erection of Skylight & Roof Features	45 days	_						
244	Waterproofing & Flooring at Roof	60 days						Wa	terproofing & Flooring
245	ABFW Works from 1/F to 5/F equipment rooms	150 days							Motol Cladding Wind
246 247	Metal Cladding, Windows and Louvres incl. roof feature	100 days							Metal Cladding, Window
247	Removal of external scaffolding	60 days							
240	Building Services E&M Access & Installation Remaining and Mis. works for Plant erection Full Access	150 days 18 days							
249		To uays							
7-80	02 Master Prog Rev 3 Task Split Split	Mile	stone	<b>♦</b>	Summary 🛡	<b>V</b>			
						5 of 8			

# Appendix J Refer to CEM dated 26March2019 April 2020 Walls Erection of Skylight & Roof Features ng at Roof ABFW Works from 1/F to 5/F equipment rooms ows and Louvres incl. roof feature Removal of external scaffoldi Building Services E&M Access & Inst

D	Task Name	Duration				Februar	ry 2020 March 2020
50	Section D - (iv) Link Bridge between L10 and L11 MSB and at the south of	526 days	c.D(i	iv)		Februar	1 V 2020 March 2020
	L11 MSB including their associated alternations & additions (A&A) Works at						
	<u>L10 MSB</u>						
51	Area Possession & Clearance	0 days					
52	A&A works at South of L10 MSB	60 days			A&A	works at Sou	uth of L10 MSB
53	Erection of link bridge structural steel	21 days	_				Erection of link bridge structural steel
54	Casting of bridge deck	7 days	_				Casting of bridge deck
55	Metal roofing installation	14 days	_				Metal roofing in
56	ABWF work	21 days	_				
57	Form new opening at MSB for final connection	14 days	_				
58	E&M Work for completion	21 days			100		
59	Section D - (v) Gas Duct Foundation, Pipe and Cable Rack and associated	<u>345 days</u>	<b>CID(</b> 1	v)i-eb	0 20		
50	trench in Area E20 Area Possession & Clearance + CNY	0 dava					
50 51		0 days	_				
52	Sheet pile installation & submit as-built Consent for excavation	75 days	_				
52 53		28 days	_				
53 54	Excavation & plate load test	45 days	_				
54 65	Construction of foundation Real fill & Underground utilities	45 days	_				
55 56	Backfill & Underground utilities Remaining Pipe & cable rack and associated trenchs in Area E20	30 days 115 days		emai	inina Pin	e & cable rack	k and associated trenchs in Area E20
50 57				eman			
,,	Section E1 - (i) Link BrIdge and Pipe and Cable Rack connecting L11 MSB to the western area of L11 MSB at Area E3	<u>263 days</u>					
58	Area Possession	0 days					
59	Excavation & construction of new foundation	40 days					Excavation & construction of new foundation
70	Backfill	10 days					Backfill
71	Erection of Structural steel	30 days	_				
72	Backfill & Ground works	55 days	_				
73	Section E1 - (ii) Gas Receiving Station and L11 Gas Receiving Station	<u>173 days</u>					
	Equipment Room (GRS) Area Extension at Area E16	<u>175 uays</u>					
4	Area Possession	0 days					
75	Removal of Surcharge and excavation	14 days	on				
76	Modification of Site Drainage	45 days					Modification of Site Drainage
77	Construction of new RC for GRS Equipment Room	75 days					
78	ABWF for GRS Equipment room	45 days	_				
79	E&M Installation	45 days	-				
30	Construction of new Gas pipe plinths & racks	45 days	-				
31	Backfill and construction site drainage	21 days					
32	External Paving and install new fencing	60 days					
33	Section E1 - (iii) External Works at Area E15 ( C )	273 days					
34	Removal of Surcharge and excavation	45 days					
35	Underground drianage, Utilities and RC plinths	123 days					
36	Backfill and install surface utilities	45 days					
37	Roadwork	60 days					
38	Section E2 - Pipe and Cable Rack and trench at west of Chimney Road and	495 days	c.E2				
	Pipe and Cable Rack at south of Middle Road at Area E8 and E19						
39	BD consent + Site Possession @ Area E8	0 days					
90	Excavation & Plate load test	60 days	_				
91 92	Foundation and Trench constructions	90 days 60 days	_				
92 93	Backfill & underground utitiles + temp paving Excavation & plate load test @ E19				Excav	ation & nlate l	load test @ E19
)4	Construction of foundations & trenches	60 days					Constructio
95	Backfill & underground utitiles	45 days	_				
96		60 days	_				
90 97	Pipe & cable rack Erection Ground reinstatement	60 days 60 days	_				
8	Section E3 - Gas Pipe Support Foundation and Pipe Trench and associated	173 days					
-	external works at Area E14, E15 (A) and E15 (B)	<u>175 uays</u>					
9	Removal of surcharge / site clearance	21 days	le / si	ite cle	learance		
0	Excavation & construction of pipe trench	30 days					Excavation & construction of pipe trench
1	Construction of gas pipe support foundation	30 days					
)2	Construction of underground drainage and utilities	60 days	-				
	construction of underground dramage and autitude	00 uu yo					
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		N/110	w TODO			Sum	

Appendix J Refer to CEM dated 26March2019
April 2020
- April 2020
ation ABWF work
Form new opening at MSB for final connect
Construction of new RC for GRS Equipment Roon
Construction of new Gas pipe plinths & racks
Back
foundations & trenches
Construction of gas pipe support foundation

ר ס	ask Name	Duration		February 2020 March 2020
03	Backfill & road work	32 days		
04	Section E4 - 275kV cable trenching works connecting the 275kV Switching	185 days		
	Station Extension and L11 MSB at Area E9 (A)			
05	Site possession	0 days		
06	Obtain Permit to work & Road close permit	10 days		
07	Excavation & construction new cable trench to 275kV	45 days		
08	Excavation & construction new cable trench to L11MSB	130 days		
09	Section F - 275kV Station Building Extension and associated works at Area	<u>709 days</u>	c.F	
10	E17 Installation of ELS for 275kV Switching Station near Staircase ST-3 and ST-6	14 days		
11	Construction of Staircase ST-3	110 days	-	
12	BD Amendment Approval on A&A	0 days	-	
13	BD Amendment Approval on A&A ST3 & Drainage	0 days		
14	OP inspection of Staircase ST-3	14 days	_	
15	Consent of New Foundation Works (Stage 1)	0 days	_	
16 17	Consent & BA10 for Demolition of Existing Staircase Demolition of Exisiting Staircase and Submit BA14A	0 days 14 days	_	
18	BD inspection for BA14A & Issue OP	28 days	-	
19	Consent & BA10 for New Foundation Work (Stage 2)	28 days	-	
20	Hoarding Modification	7 days		
21	Pile Cap & Tie Beam Construction (Stage 1)	98 days	_	
22	Erection of Tower Crane	40 days	_	
23 24	Pile Cap and Tie Beam (Stage 2) RC Construction up to 1/F (Stage 1)	21 days 30 days	_	
24 25	RC Construction up to 1/F (Stage 2)	75 days	-	
26	Construction of Staircase ST6	90 days	-	
27	Shop Drawing Submission & Approval of Structural Steel	45 days	-	
28	Structural Steel fabrication & Delivery	60 days		
29	Erection of Structural Steel GL 17~18	30 days		
30	Erection of Structural Steel GL 8~17	60 days	_	
31 32	Metal Cladding Delivery Metal Door, Window & Lourve Delivery	60 days 45 days	_	
33	Erection of Working Platform and Scaffold	150 days	-	
34	Install Decking	60 days	-	
35	RC Walls from 1/F @ GIS Hall	40 days		
36	Construction of 2/F RC slab	14 days		
37	Construction of R/F RC slab	21 days	_	
38 39	Construction of UR/F RC slab Construction of GIS Hall Floor	14 days 60 days		Construction of UR/F RC slab
40	Installation of Overhead Crane (By JEC)	60 days		
41	Construction of staircase ST4, ST5, Lift Shaft & Equip Floors	150 days		Construction of staircase ST4, ST5, Lift Shaft & Equip Floors
42	Lift Installation	90 days		
43	Concrete of RC walls, plinths, kerb & parapet walls & New trench for LV Power	30 days	-	Concrete of RC walls, plinths, kerb & parapet walls & New trench for LV Power
44	ABWF Works @ G/F ABWF Works @ 1/F	50 days	_	
45 46	ABWF Works @ 1/F ABWF Works @ 2/F	50 days 75 days		ABWF Works @ 2/F
47	ABWF Works @ R/F	30 days		ABWF Works @ R/F
48	ABWF Works @ UR/F	21 days	1000000	ABWF Works @ UR/F
49	Waterproofing Works at R/F & UR/F	45 days		Waterproofing Works at R/F & UR/F
50	Building Services E&M Access & Installation & T&C	150 days		
51	Metal Cladding, Windows and Louvres incl. Roof Feature Shutter Erection	90 days		
52 53	Removal of External Scaffolding + Tower Crane	30 days 35 days	-	
54	External Underground Drainage and Utilities	30 days	-	
55	Road & Paving Reinstatement	30 days	-	
56	Ready for FSD & OP Inspection	0 days		
57	Section G - A&A Works at No. 4 C.W. Intake at Area E12	<u>143 days</u>		
58	Permit to work	0 days		
59	Erection of temp. platform	14 days		
60	Demolition work	30 days		Demolition work
61	Modify existing slab openings	75 days		
62	Curing + Removal of platform	24 days		
63	Section H - L11 Steel flue liner at No. 4 Chimney	186 days		
64	Complete erection of L10 Steel flue	0 days		
65	Modification of erection equipment	21 days	-	
66	Erection temp. platform and demolition work	30 days	-	
67	Structural steel delivery & Erection	85 days	-	
68	Removal of temp. work	5 days	-	
69	Reinstate G/F louvre wall and access door	45 days	-	
53		45 days		
	12 Master Prog Rev 3 Task Split	Mile		e Internet Summary Interne

	Appendix J
	Refer to CEM dated 26March2019
)	April 2020
p Floors	
orks at R/F & UR/F	Building Services →Metal Cladding, Windows and Louvres incl. Roof Feature

	ask Name	Duration		February 2	020 March 2020
370	Section I - (i) 275kV cable trenching works connecting the 275kV Switching Station Extension and L11 MSB at Area E9 (B)	<u>232 days</u>	ec.l(i)		020 Miarch 2020
371	Obtain Permit to work & Road close permit	0 days			
72	Excavation & construction new cable trench	160 days			Excavation & construction new cable trench
73	Re-excavate cable trench for cable laying	72 days	tatatatatata		
574	Section I - (ii) Interconnector 2 Trench Modification Works at Area E10	275 days			1 Ap
75	Obtain Permit to work & Road close permit	0 days			
76	Re-excavate & new cable trench for cable laying	275 days	-		
7	Section J - (i) Demolition of Retractable Cover A&B & (ii) Construction of new LOT 3 & 4	<u>426 days</u>			1 Mar '20 USec.J
78	Obtain permit to work & Road close permit	0 days			♦ Obtain permit to work & Road close permit
79	Erection of Hoarding	21 days			Erection of He
30	Removal of existing cover & structural steel	30 days			
81	Demolish of existing bund wall and staircases	45 days			
32	Demolish of existing slab & foundation	60 days			
33	Consent for new work	30 days			
34	Construction of new bund wall and foundation	100 days			
35	Construction of new oil separator	80 days			
86	Construct underground drainage and surface channel	40 days			
37	Construction on-grade slab	60 days			
38	Removal of hoarding and ground reinstatement	40 days			
39	Section K1 - External works at Area 15 ( E ) and 15( F )	<u>365 days</u>			
90	Removal of surcharge	30 days	_		
91	Construct new drainage and utilities work	200 days	_		
92	Road & Paving	135 days			
93	Section K2 - Removal of Southern Bund and External Works at Area D5, D6 and D7	<u>365 days</u>			
94	Demolition work	30 days	_		
95	Construct new drainage and utilities work	200 days	_		
96	Road & Paving	135 days			
97	Section K3 - All remaining works shall be completed for reporting completion	<u>623 days</u>			
98	to BD and ready for OP inspection (PS1.4.4)	20 4			completion of remaining roof after over headcrane move in
99	Completion of remaining roof after over headcrane move in	30 days			ompletion of remaining roof after over neadclane move m
00	Construction of G/F Lube Oil Tank Room (BY TDK) Construction of wall and staircase at G/F after Condensor Move in	61 days 90 days	-		
)1	Construction of Wall and staticase at G/F after Condensor Move in Construction of Durasteel Steel wall panel after IBP installation	30 days	-		
2	Construction of Durasformer fence wall, cladding & associated FS services	122 days	-		
)3	Final restatement of road & paving around MSB & HRSG	122 days	-		
)4	Installation of trench covers and gratings after plant installation	151 days	-		
05	Backfill and reinstatement after 275kV cable laying	122 days	-		

17-8002 Master Prog Rev 3

Task

Split Milestone 🔶

D 0 60

Summary 🛡 🛡

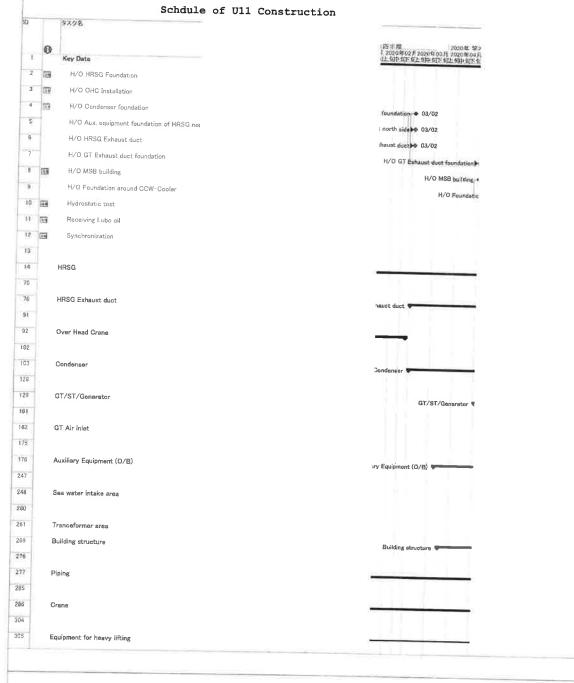
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	Appendix J
	Refer to CEM dated 26March2019
	April 2020
C	
or '20	Sec.I(ii)
L	Obtain Permit to work & Road close permit

### barding

Removal of existing

# Appendix J



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1

# SUNLEY ENGINEERING & CONSTRUCTION CO., LTD.

Contract No. 18/8004 - Lamma Power Station Extension Foundation Works for Unit L12

#### Master Programme

			Mas		
ID Task Name	Duration	Start	Finish	2019年 2020年	
					N
				-	
1 Key Date	416 days		4月30日星期四		
2 Commencement date	0 days		3月12日星期二		_
3 Duration of works	416 days		4月30日星期四		п
4 Site possession date	0 days		3月12日星期二		
5 Completion of the Contract	0 days	4月30日星期四	4月30日星期四		
6					
7 Total Contract Period	455 days	2月1日星期五	4月30日星期四		
B					
Preliminaries	21 days		4月1日星期一		
Coordination with utility companies	14 days				
Pre-construction condition survey	14 days				
2 Notification of commencement of works to L			3月18日星期一		
3 Notification of air pollution control for comm			3月18日星期一		
Application of water discharge licence from		3月12日星期二			
5 Application for billing account for disposal o	f construction waste from EPD 7 days	3月12日星期二			
CCTV for existing underground drainage pip					
7 Utility detection for existing underground cal					
8 Site clearance	21 days				
9 Set up contractor's site office	21 days				
Installation of monitoring checkpoints	20 days		3月31日星期日		
Submission of BA10 for ELS & foundation v	vorks 7 days	3月12日星期二	3月18日星期一		
2					
B Predrilling Works for Section of A1 to A3 (A	rea P1 to P3) 96 days		5月7日星期二		
Drilling rigs mobilization Predrilling works (46 holes) (8 rigs)	10 days		2月10日星期日		
Predrilling works (46 holes) (8 rigs)	81 days		5月2日星期四		
Submission of predrill logs	71 days				
27 Completion of predrilling works	0 days	5月7日星期二	5月7日星期二		
8					
Plant Mobilization for Bored Pile Constructi			8月15日星期四		
Crawler Crane 1st & 2nd set	136 days	3月19日星期二	8月1日星期四		
1st & 2nd set	21 days				
2 3rd set	21 days		4月30日星期二		
3 4th & 5th set	21 days		7月4日星期四		
6th set	21 days				
5 Oscillator	136 days		8月1日星期四		
5 1st & 2nd set	21 days				
7 3rd set	21 days		4月30日星期二		
8 4th & 5th set	21 days		7月4日星期四		
9 6th set	21 days		8月1日星期四		
RCD	129 days		8月15日星期四		
1st & 2nd set	14 days		4月22日星期一		
3rd set	14 days		5月14日星期二		
4th & 5th set	14 days		7月18日星期四		
6th set	14 days		8月15日星期四		
Completion of plant mobilization for bored p	bile construction 0 days	8月15日星期四	8月15日星期四		
Delivery of Temporary Steel Casing for Bore Duration for delivery of temporary steel casi			8月15日星期四		
			8月15日星期四		
9 Completion of delivery of temporary steel ca	asing for bored pile construction 0 days	8月15日星期四	8月15日星期四		
Delivery of Permanent Casing & Double Wa	-		3月20日星期五		
2 Testing for double wall liner	45 days				
53 Duration for delivery of permanent casing &	double wall liner 325 days	5月1日星期三	3月20日星期五		
54					
55 Section A1	320 days	3月18日星期一	1月31日星期五		

# SUNLEY ENGINEERING & CONSTRUCTION CO., LTD.

#### Contract No. 18/8004 - Lamma Power Station Extension Foundation Works for Unit L12

#### Master Program

				Mas
ID	ask Name	Duration	Start	Finish
56	Bored Pile Construction at P1 (17 piles)	296 days	48118夏期四	1月31日星期五
57	1st set plant - BP13 > BP5 > BP9 > BP26 > BP1 > BP12 > BP8 > BP4 > G2 > G4 > G6	273 days		1月8日星期三
58	3rd set plant - G8	45 days		6月5日星期三
59	3rd set plant - BPC3 > BPC4 > BPC5 > BPC6 > BPC7	135 days		1月11日星期六
60	Interface & sonic test	28 days		1月31日星期五
61	Completion of bored pile construction at P1	0 days		1月31日星期五
62				1710111 2 1/12
63	Sheet Pile at P1	215 days	7日1日星雄一	1月31日星期五
64	Delivery of sheet pile material	14 days		7月14日星期日
65	Installation of sheet pile (approx. 57 piles) (1 rig)	10 days		7月26日星期五
66	Installation of sheet pile (approx. 254 piles) (1 rig)	38 days		1月23日星期四
67	Prepare & submit as-built record plan	7 days		1月30日星期四
68	Submission of BA14	1 day		1月31日星期五
69	Completion of sheet pile at P1	0 days		1月31日星期五
70		0 days	17101112/02	1/10/11 EWIE
71	Cone Penetration Test	104 days	3日18日星期—	6月29日星期六
72	Plant mobilization	14 days		3月31日星期日
73	Carry out CPTU testing (9 nos.) (1 rig)	90 days		6月29日星期六
74	Completion of cone penetration test	0 days		6月29日星期六
75	Completion of section A1	0 days		1月31日星期五
76				
77	Section A2	197 days	4月8日星期一	10月21日星期一
78	Bored Pile Construction at P2 (11 piles)	197 days		10月21日星期一
79	2nd set plant - BP27 > BP24 > BP23 > BP16 > BP20 > BP17	161 days		9月15日星期日
80	3rd set plant - G10 > BP21 > BPC8 > BPC1 > BPC2	135 days		9月23日星期一
81	Interface & sonic test	28 days		10月21日星期一
82	Completion of bored pile construction at P2	0 days	10月21日星期一	10月21日星期一
83	Completion of section A2	0 days		10月21日星期一
84				
85	Section A3	331 days	5月18日星期六	4月12日星期日
86	Bored Pile Construction at P3 (18 piles)	283 days		4月12日星期日
87	4th set plant - G1 > G3 > G5 > G7 > G9	225 days		2月14日星期五
88	5th set plant - BP15 > BP19 > BP22 > BP25 > BP28	225 days		2月14日星期五
89	6th set plant - BP3 > BP6 > BP7 > BP11 > BP2 > BP10 > BP14 > BP18	203 days		2月20日星期四
90	Interface & sonic test	28 days		3月19日星期四
91	Prepare & submit as-built record plan	7 days		3月19日星期四
92	Submission of BA14	1 day		3月19日星期四
93	Allow 14 days for selection of pile for concrete full core test	14 days		4月2日星期四
94	Concrete full core test	10 days		4月12日星期日
95	Completion of bored pile construction at P3	0 days		4月12日星期日
96				
97	Sheet Pile at P3	60 days	5月18日星期六	7月16日星期二
98	Plant mobilization	7 days		5月31日星期五
99	Delivery of sheet pile material	14 days		5月31日星期五
100	Installation of sheet pile (approx. 626 piles) (2 rigs)	46 days		7月16日星期二
101	Completion of sheet pile at P3	0 days		7月16日星期二
102	Completion of section A3	0 days		4月12日星期日
103		,5		
104	Section B	305 days	7月1日星期一	4月30日星期四
105	Shunt Reactor	121 days		4月30日星期四
106	Site possession date	0 days		1月1日星期三
107	Predrilling Works for Bored Pile	34 days		2月3日星期一
108	Drilling rigs mobilization	7 days	1月1日星期三	
	Predrilling works (4 holes) (2 rigs)	25 days		2月1日星期六
109	Submission of predrill logs	15 days	1月20日星期一	
109 110				

# SUNLEY ENGINEERING & CONSTRUCTION CO., LTD.

#### Contract No. 18/8004 - Lamma Power Station Extension Foundation Works for Unit L12

### Master Programm

	sk Name	Duration	Start	Finish
	SK Name	Duration	Start	FILISI
111	Completion of predrilling works	0 days	2月3日星期一	2月3日星期一
112				
113	Bored Pile Construction (4 piles)	113 days		4月30日星期四
114	Plant mobilization	15 days		1月23日星期四
115	1st set plant - BPR-B4 > BPR-E2	65 days		3月20日星期五
116	3rd set plant - BPR-E6 > BPR-E5	65 days		3月28日星期六
117	Interface & sonic test	14 days		4月6日星期一
118	Prepare & submit as-built record plan	7 days		4月6日星期一
119	Submission of BA14	1 day	4月6日星期一	
120	Allow 14 days for selection of pile for concrete full core test	14 days		4月20日星期一
121	Concrete full core test	10 days		4月30日星期四
122	Completion of bored pile construction	0 days		4月30日星期四
123	Completion of shunt reactor	0 days	4月30日星期四	4月30日星期四
124				
125	Cable Bridge	267 days		3月23日星期一
126	Site possession date	0 days	7月1日星期一	7月1日星期一
127	Predrilling Works for Bored Pile	55 days		8月24日星期六
128	Drilling rigs mobilization	7 days		7月7日星期日
129	Predrilling works (8 holes) (2 rig)	46 days		8月22日星期四
130 131	Submission of predrill logs Completion of predrilling works	30 days		8月24日星期六 8月24日星期六
131	Completion of predming works	0 days	0月24口生刑八	0月24日生制八
132	Bored Pile Construction (6 piles)	178 days	9月16日三郎—	3月11日星期三
133	Plant mobilization	14 days		9月29日星期日
135	2nd set plant - CP6-1 > CP6-3 > CP6-6 > CP6-8 > CP6-5 > CP6-2 > CP6-7 > CP6-4	150 days		2月26日星期三
136	Interface & sonic test	14 days		3月11日星期三
137	Completion of bored pile construction	0 days		3月11日星期三
138		0 days	0/1111 = 2/11=	0/1111 2/012
139	Temporary Working Platform for Socketted H-Pile Construction	74 days	7月1日星期一	9月12日星期四
140	Material delivery for temporary working platform erection	14 days		7月14日星期日
141	Erection of temporary working platform	60 days		9月12日星期四
142	Completion of temporary working platform	0 days		9月12日星期四
143		0 4470	-//	
144	Predrilling Works for Socketted H-pile	27 days	9月13日星期五	10月9日星期三
145	Drilling rigs mobilization	7 days		9月19日星期四
145	Predrilling works (6 holes) (2 rigs)	18 days		10月7日星期一
140	Submission of predrill logs	13 days		10月9日星期三
147	Completion of predrilling works	0 days		10月9日星期三
148		Judys	10/10日王州-	10/10/12/01-
150	Socketted H-Pile Construction (30 piles)	168 days	10月8日星期二	3月23日星期一
151	Plant mobilization	14 days		10月21日星期一
152	Trial pile installation (1 pile)	14 days		11月4日星期一
153	Socketted H-pile installation (16 piles) (1 set plant)	65 days		1月8日星期三
154	Post drill	5 days		1月13日星期一
155	Prepare & submit as-built record plan	28 days		2月5日星期三
156	Submission of BA14	1 day		2月6日星期四
157	Allow 14 days for selection of pile for loading test	14 days		2月20日星期四
158	Set up loading test platform for 1st pile testing	12 days		3月3日星期二
159	Loading test for 1st pile	4 days		3月7日星期六
160	Set up loading test platform for 2nd pile testing	12 days		3月19日星期四
161	Loading test for 2nd pile	4 days		3月23日星期一
162	Completion of socketted H-pile construction	0 days		3月23日星期一
163	Completion of cable bridge	0 days		3月23日星期一
	Completion of section B	0 days		4月30日星期四
164	ontract completion	0 days	4月30日星期四	

Lamma Power Station Extension - Civil and Building Works for Unit L10 Project:

Contractor: Paul Y. Construction Company, Limited Ben Lam Record by: Year of Record: 2016, 2017, 2018, 2019 & 2020

MM.YYYY	Y Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of Non-inert C&D Materials Generated Monthly						
	Exc	avated Mate	erials		Non-	excavated	Materials	•						
	Disposed in Public Fill	Disposed in Sorting Facilities	Others (e.g Reused in the Contract / Other Projects)	Broken Concrete or Construction Waste Collected by Recycled Company	the	Reused in other Projects	Disposed in Public Fill	Disposed in Sorting Facilities	Metals (steel bar / metal strip) <sup>(1)</sup>	Metals (aluminum can) <sup>(1)</sup>	Paper / cardboard packaging <sup>(1)</sup>	Plastics (1) & (4)	Chemical waste (wasted lubricant oil/oil container)	Other, e.g. general refuse
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000L)	(in '000kg)
Jan 2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb 2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar-2016	-		-	-	-		-	-	-	-	-	-	-	-
Apr-16 May-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun-16	-		-	-	-	-	-	-	-			-	-	-
Jul-16							-							
Aug-16	-		-	-	-		-	-		-	-	-	-	-
Sep-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct-16	-		-		-	-	-	-	-	-				-
Nov-16	1779.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec-16	0.00	1.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.48
Jan-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00
Feb-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mar-17	3160.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.17	0.00	0.00	0.00	0.00	0.00
Apr-17 May-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.84 23.41	0.00	0.00	0.00	0.00	0.00
Jun-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jul-17	2988.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.26	0.00	0.00	0.00	0.00	0.00
Aug-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.61	0.00	0.00	0.00	0.00	0.00
Sep-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.04	0.00	0.00	0.00	0.00	0.00
Oct-17	1963.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00
Nov-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.90	0.00	0.00	0.00	0.00	0.00
Dec-17	3011.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.41	0.00	0.00	0.00	0.00	0.00
Jan-18	117.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.81	0.00	0.00	0.00	0.00	151.22
Feb-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00
Mar-18	2434.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 24.41	0.00	0.00	0.00	0.00	4.94
Apr-18 May-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.41	0.00	0.00	0.00	0.00	0.00
Jun-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.35
Jul-18	1655.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.11	0.00	0.00	0.00	0.00	18.35
Aug-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.04	0.00	0.00	0.00	0.00	35.11
Sep-18	823.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oct-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75	0.00	0.00	0.00	0.00	2.93
Nov-18	1734.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	5.09
Dec-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.64	0.00	0.00	0.00	0.00	1.79
Jan-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.94	0.00	0.00	0.00	0.00	25.57
Feb-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mar-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apr-19 May-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jun-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.11
Jul-19 Jul-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.63
Aug-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.92
Sep-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.82
Oct-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.07
Nov-19	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.70
Dec-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan-20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	21057.60	6.93	0.00	0.00	0.00	0.00	0.00	0.00	282.34	0.00	0.00	0.00	1.20	520.36
i otai	21057.60	0.93	0.00	0.00	0.00	0.00	0.00	0.00	202.34	0.00	0.00	0.00	1.20	520.3b

Total Inert C&D Waste Materials	Non-inert C&D Materials							
Generated	C&D Materials Recycled	C&D Waste Disposed of at Landfill	Chemical Waste					
21064.53 tonnes	282.34 tonnes	520.36 tonnes	1200 Liters					

Where (A) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, <u>21064.53</u> tonnes of Inert C&D material were generated from the Project, of which <u>0</u> tonnes were reused in this and other contracts, and the remaining <u>21064.53</u> tonse were dispected as public fill to Fill Banks? Storing Facilities.

(b) Non-inert C&D materials (construction wastes) include metals, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Metals generated from the Project were grouped into construction wastes as the materials were not disposed of with others at the public fill.

(c) 0 kg of metals, 0 kg of papers/ cardboard packing and 0 kg of plastics were sent to recyclers for recycling during the reporting period.

(d) Construction wastes other than metals, paper/cardboard packaging, plastics and chemicals were disposed of at Landfill.

Notes:

(1) metal, paper & plastic were collected by recycler
 (2) The performance target of waste recycling are specified in the Contract.
 (3) The waste for waste shall also chulde C&D materials that are specified in the Contract to be imported for use at the Site.
 (4) Plastics refer to plastic bottles' containers, plastic/barn from packaging material.
 (5) Brown concrete for recycling into agregates.
 (6) Disposal of inert waste to public fill or sorting facilities will <u>NOT</u> be considered as recycled waste.

Project: LAMMA POWER STATION EXTENSION – Unit 10 Complete Erection, Inspection, Testing & Commissioning of Power Block Facilities

Contractor: Taihei Dengyo Kaisha, Lt
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Record by: Stephen Sin

Year of Record: 2017, 2018, 2019, 2020

MM.YYYY		Actual	Quantities o	f Inert C&D	Materials Ge	enerated Mo	onthly		Actual Q	uantities of	Non-inert C	&D Materials	s Generated	Monthly
	Ex	cavated Mater	ials		Non-e	xcavated M	aterials							
	Disposed in Public Fill	Disposed in Sorting Facilities	Others (e.g Reused in the Contract / Other Projects)	Broken Concrete or Construction Waste Collected by Recycled Company	Reused in the Contract	Reused in other Projects	Disposed in Public Fill	Disposed in Sorting Facilities	Metals (steel bar / metal strip) <sup>(1)</sup>	Metals (aluminum can) <sup>(1)</sup>	Paper / cardboard packaging <sup>(1)</sup>	Plastics (1) & (4)	Chemical waste (wasted lubricant oil/oil container)	Other, e.g general refuse
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in L)	(in '000kg
Jan 2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Feb 2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mar 2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Apr 2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
May 2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jun 2017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jul 2017 Aug 2017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aug 2017 Sep 2017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oct 2017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov 2017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec 2017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Feb 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mar 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.73
Apr 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.09
May 2018	0.00	0.00	0.00	0.00	0.00	0.00	8.43	7.53	0.00	0.00	0.00	0.00	0.00	0.00
Jun 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jul 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.82
Aug 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.00	67.37
Sep 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.36
Oct 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.32
Nov 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.35
Dec 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.23
Jan 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.97
Feb 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.00 0.00	7.11
Mar 2019 Apr 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
May 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.13
Jun 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.56
Jul 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44000	17.99
Aug 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.40
Sep 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10000	22.71
Oct 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.85
Nov 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.64
Dec 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10
Jan 2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.27
Total	0.00	0.00	0.00	0.00	0.00	0.00	8.43	7.53	0.00	0.00	0.00	0.00	54120	401.00

Total Inert C&D Waste Materials	Non-inert C&D Materials									
Generated	C&D Materials Recycled	Chemical Waste								
15.96 tonnes	0.00 tonnes	401.00 tonnes	54120 Liters							

- Where (A) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, <u>15.96</u> tonnes of inert C&D material were generated from the Project, of which <u>0</u> tonnes were resused in this and other contracts, and the remaining 15.96 tonnes were disposed in Public Fill and forting Facilities.
  - (b) Non-inert C&D materials (construction wastes) include metals, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Metals generated from the Project were grouped into construction wastes as the materials were not disposed of with others at the public fill.
  - (c) 0 kg of metals, 0 kg of papers/ cardboard packing and 0 kg of plastics were sent to recyclers for recycling during the reporting period.

(d) Construction wastes other than metals, paper/cardboard packaging, plastics and chemicals were disposed of at Landfill.

- Notes: (1) metal, paper & plastic were collected by recycler
  - (2) The performance target of waste recycling are specified in the Contractt.
  - (3) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
  - (4) Plastics refer to plastic bottles/ containers, plastic/ foam from packaging material.
  - (5) Broken concrete for recycling into aggregates.
  - (6) Disposal of inert waste to public fill or sorting facilities will NOT be considered as recycled waste.

Project: Lamma Power Station Extension - Civil and Building Works for Unit L11

Contractor: Paul Y. Construction Company, Limited

Record by: Ben Lam

Year of Record: 2018, 2019 & 2020

MM.YYYY		Actua	l Quantitie	s of Inert C&	D Materials	Generate	ed Monthly	/	Actual Quantities of Non-inert C&D Materials Generated Mor							
	Exca	avated Mate	erials		Non-e>	cavated	Materials									
	Disposed in Public Fill	Disposed in Sorting Facilities	Others (e.g Reused in the Contract / Other Projects)	Broken Concrete or Construction Waste Collected by Recycled Company	Reused in the Contract	Reused in other Projects	Disposed in Public Fill	Disposed in Sorting Facilities	Metals (steel bar / metal strip) <sup>(1)</sup>	Metals (aluminum can) <sup>(1)</sup>	Paper / cardboard packaging <sup>(1)</sup>	Plastics (1) & (4)	Chemical waste (wasted lubricant oil/oil container)	Other, e.g. general refuse		
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000L)	(in '000kg)		
Jul 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Aug 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Sep 2018	3160.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Oct 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nov 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.87		
Dec 2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.67		
Jan 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feb 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.66	0.00	0.00	0.00	0.60	0.00		
Mar 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.05	0.00	0.00	0.00	0.00	0.00		
Apr 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.08	0.00	0.00	0.00	0.00	19.09		
May 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.63	0.00	0.00	0.00	0.00	59.75		
Jun 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.64		
Jul 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.66		
Aug 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Sep 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.31		
Oct 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.109	0.00	0.00	4.76		
Nov 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	4.87		
Dec 2019	0.00	0.00	0.00	0.00	0.00	10226.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.19		
Jan 2020	0.00	0.00	0.00	0.00	0.00	7981.09	0.00	0.00	0.00	0.00	0.157	0.00	0.00	26.89		
Total	3160.23	0.00	0.00	0.00	0.00	18207.33	0.00	0.00	35.42	0.00	0.266	0.00	1.20	197.70		

Total Inert C&D Waste Materials	Non-inert C&D Materials						
Generated	C&D Materials Recycled	C&D Waste Disposed of at Landfill	Chemical Waste				
21367.56 tonnes	35.69 tonnes	197.70 tonnes	1200 Liters				

- Where
   (A)
   Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, were generated from the Project, of which
   18207.33
   tonnes were reused in this and other contracts, and the remaining

   3160.23
   tonnes were disposed as public fill to Fill Banks / Sorting Facilities.
   21367.56
   tonnes of inert C&D material
  - (b) Non-inert C&D materials (construction wastes) include metals, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Metals generated from the Project were grouped into construction wastes as the materials were not disposed of with others at the public fill
  - (c) 0 kg of metals 157 kg of papers/ cardboard packing and 0 kg of plastics were sent to recyclers for recycling during the reporting period.

(d) Construction wastes other than metals, paper/cardboard packaging, plastics and chemicals were disposed of at Landfill.

Notes: (1) metal, paper & plastic were collected by recycler

(2) The performance target of waste recycling are specified in the Contract.

(3) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(4) Plastics refer to plastic bottles/ containers, plastic/ foam from packaging material.

(5) Broken concrete for recycling into aggregates.

(6) Disposal of inert waste to public fill or sorting facilities will NOT be considered as recycled waste.

Project: LAMMA POWER STATION EXTENSION – Unit 11 Complete Erection, Inspection, Testing & Commissioning of Power Block Facilities

Contractor:	Taihei Dengyo Kaisha, Ltd.
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Record by: Stephen Sin

Year of Record: 2019, 2020

MM.YYYY	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of Non-inert C&D Materials Generated Monthly					
	Excavated Materials				xcavated M	aterials								
	Disposed in Public Fill	Disposed in Sorting Facilities	Others (e.g Reused in the Contract / Other Projects)	Broken Concrete or Construction Waste Collected by Recycled Company	Reused in the Contract	Reused in other Projects	Disposed in Public Fill	Disposed in Sorting Facilities	Metals (steel bar / metal strip) <sup>(1)</sup>	Metals (aluminum can) <sup>(1)</sup>	Paper / cardboard packaging <sup>(1)</sup>	Plastics (1) & (4)	Chemical waste (wasted lubricant oil/oil container)	Other, e.g. general refuse
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in L)	(in '000kg)
Nov 2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dec 2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan 2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1													
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00

Total Inert C&D Waste	Matoriale	Non-inert C&D Materials						
Generated	materials	C&D Materials Recycled C&D Waste Disposed Landfill		t Chemical Waste				
0.00	tonnes	0.00 tonnes	0.00 tonnes	0	Liters			

(b) Non-inert C&D materials (construction wastes) include metals, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Metals generated from the Project were grouped into construction wastes as the materials were not disposed of with others at the public fill.

(c) 0 kg of metals, 0 kg of papers/ cardboard packing and 0 kg of plastics were sent to recyclers for recycling during the reporting period.

(d) Construction wastes other than metals, paper/cardboard packaging, plastics and chemicals were disposed of at Landfill.

(1) metal, paper & plastic were collected by recycler

(2) The performance target of waste recycling are specified in the Contractt.
(3) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(4) Plastics refer to plastic bottles/ containers, plastic/ foam from packaging material.

(5) Broken concrete for recycling into aggregates.

Notes:

(6) Disposal of inert waste to public fill or sorting facilities will NOT be considered as recycled waste.

 Project:
 Foundation Works for Lamma Power Station Extension Unit L12

 Contractor:
 Sunley Engineering & Construction Co Ltd

 Record by:
 Eric Liu

 Year of Record:
 2019 & 2020

		Actual Quar	ntities of In	ert C&D Mat	erials Ger	nerated Mo	onthly		Actual Quantities of Non-inert C&D Materials Generated Monthly					
	Excavated Materials			Non-excavated Materials										
ΜΜ/ΥΥΥΥ	Disposed in Public Fill	Disposed in Sorting Facilities	Others (e.g Reused in the Contract / Other Projects)	Broken Concrete or Construction Waste Collected by Recycled Company	Reused in the Contract	Reused in other Projects	Disposed in Public Fill	Disposed in Sorting Facilities	Metals (steel bar / metal strip) <sup>(1)</sup>	Metals (aluminum can) <sup>(1)</sup>	Paper / cardboard packaging <sup>(1)</sup>	Plastics (1) & (4)	Chemical waste (wasted lubricant oil/oil container)	Other, e.g. general refuse
	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in L)	(in tonne)
Apr/2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
May/2019	7417.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jun/2019	8470.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jul/2019	5056.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.29
Aug/2019	9705.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.51
Sep/2019	5432.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	400.00	2.96
Oct/2019	10767.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.79	0.00	0.00	0.00	0.00	0.00
Nov/2019	8646.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	400.00	4.75
Dec/2019	11100.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan/2020	2996.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.53	0.00	0.00	0.00	0.00	0.00
Total	69594.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.32	0.00	0.00	0.00	800.00	20.51

	Total Inert C&D Waste	Non-inert C&D Materials							
	Generated	C&D Materials Recycled			te Disposed Landfill	Chemical Waste			
Ľ	69594.49	tonnes	62.32	tonnes	20.51	tonnes	800.00	liter	

 Where
 (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, were generated from the Project, of which
 0.00
 tonnes were reused in this and other contracts, and the remaining

 69594.49
 tonnes were disposed as public fill to Fill Banks/Sorting Facilities.

(b) Non-inert C&D materials (construction wastes) include metals, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Metals generated from the Project were grouped into construction wastes as the materials were not disposed of with others at the public fill.

(c) <u>6.53</u> tonne of metals, <u>0.00</u> tonne of paper / cardboard packing and <u>0.00</u> tonne of plastics were sent to recyclers for recycling during the reporting period.

(d) Construction wastes other than metals, paper/cardboard packaging, plastics and chemicals were disposed of at Landfill.

Notes: (1) metal, paper & plastic were collected by recycler

(2) The performance target of waste recycling are specified in the Contract.

(3) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(4) Plastics refer to plastic bottles/ containers, plastic/ foam from packaging material.

(5) Broken concrete for recycling into aggregates.

(6) Disposal of inert waste to public fill or sorting facilities will NOT be considered as recycled waste.

(7) Quantity of metal recycled is revised.