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

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

April 2019

香港電燈有限公司
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港燈
HK Electric

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

Report Title	Lamma Power Station Extension – Unit L10 / L11 & L12 Monthly EM&A Report (April 2019)
Date	10 May 2019
Certified by	(Mr. IP Tat-Yan, Environmental Team Leader)
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EXECUTIVE SUMMARY

This is the 108th 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 April 2019.

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.

In September 2016, the Government approved HK Electric to construct the third combined cycle gas-fired 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

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

Item	Construction Activities
Unit L10 Civil and Building Works	Main Station Building, Urea Plant and Store Area (trench excavation and backfilling, formwork, steel fixing and concreting), 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	Ground Treatment, 275kV Station Building Extension Works, Main Building Station and CW pipe excavation
Unit L12 Foundation Works	Bored Pile Work and Pre-drilling Work

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

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	Permit No.	Valid Period		Issued To	Date of Issuance
		From	To		
Varied Environmental Permit	EP-071/2000/C	18/05/05	-	HK Electric	18/05/05
Construction Noise Permit	GW-RS1173-18	01/01/19	30/06/19	Contractor	14/12/18
Construction Noise Permit	GW-RS0210-19	18/03/19	14/09/19	Contractor	14/03/19
WPCO Discharge Licence	WT00027316-2017	01/03/17	31/03/22	Contractor	01/03/17
Registration of Chemical Waste Producer	WPN5213-912-P2781-22	22/02/16	-	Contractor	22/02/16
Waste Disposal Billing Account	Account No.: 7026035	06/10/16	-	Contractor	06/12/16
Waste Disposal Billing Account	Account No.: 7026793	28/12/16	-	Contractor	28/12/16
Waste Disposal Billing Account	Account No.: 7027632	20/04/17	-	Contractor	20/04/17
Waste Disposal Billing Account	Account No.: 7031135	21/06/18	-	Contractor	21/06/18

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:

<u>Unit L10 Civil and Building Works</u>

- 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 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 L10 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 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 for reuse on water spraying.

Unit L12 Foundation 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 for reuse on water spraying.

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 April 2019.

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, formwork, steel fixing and concreting), 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 ground treatment works,

275kV station building extension works, Main Station Building and CW pipe excavation. 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.

Table 1.1 Construction Activities and Their Corresponding Environmental Mitigation Measures

Item	Construction Activities	Environmental Mitigation Measures
Unit L10 Civil and Building Works		
1.	Main Station Building, Urea Plant and Store Area (trench excavation and backfilling, formwork, steel fixing and concreting)	**Air** – All regulated machine attached with valid exception/approval NRMM labels. – Water truck was used for water spraying of the haul road. – Water spraying for concrete breaking of pile head. – Excavated slope covered with cement or tarpaulin. – Backfilled surface was compacted. – Wheel washing facilities was provided. – Provision of shelter with three sides and top cover for fendolite mixer and fendolite stock should be covered. **Noise** – Works conducted during holiday should comply with the valid CNP. **Wastewater** – 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. **Waste Management** – Excavated soil was temporary stored for backfilling. – Scrape metal will be recycled. – Timber will be reused as much as possible.

Item	Construction Activities	Environmental Mitigation Measures
2.	Cable Trench	**Air** – All regulated machine attached with valid exception/approval NRMM labels. – Water spraying for road surface breaking – Soil stock covered with tarpaulin. **Wastewater** – 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. **Waste Management** – Excavated soil was temporary stored for backfilling. – Scrape metal will be recycled.
Unit L10 Mechanical Erection		
3.	Condenser installation HRSG installation Turbine block installation	**Air** – Dust suppression in the main haul road. **Noise** – General noise mitigation measures employed at all work sites throughout the construction phase. **Waste Management** – Waste Management Plan submitted and implemented.
Unit L10 Electrical, Instrumentation & Control Erection		
4.	Cable installation	**Air** – Dust suppression in the main haul road. **Noise** – General noise mitigation measures employed at all work sites throughout the construction phase. **Waste Management** – Waste Management Plan submitted and implemented.
Unit L11 Civil and Building Works		
5.	Ground Treatment Works	**Air** – All regulated machine attached with valid

Item	Construction Activities	Environmental Mitigation Measures
		exception/approval NRMM labels. – Water truck was used for water spraying. – Excavated slope and soil rock covered with cement or tarpaulin. – Wheel washing facility was provided. **Noise** – CNP should be applied if works to be conduct during restricted hours. **Wastewater** – Wastewater should be treated in sedimentation tanks for reuse on water spraying. **Waste Management** – Excavated soil was temporary stored for backfilling. – Scrape metal will be recycled. – Timber will be reused as much as possible.
6.	275kV Station Building Extension Works	**Air** – All regulated machine attached with valid exception/approval NRMM labels. **Waste Management** – Scrape metal will be recycled. – Timber will be reused as much as possible. – Chemical waste should be collected by licensed collector
7.	Main Station Building and CW Pipe Excavation	**Air** – All regulated machine attached with valid exception/approval NRMM labels. – Water truck and water sprinkler system was used. – Water spraying for concrete breaking of pile head. – Wheel washing facility was provided. **Wastewater** – Wastewater should be treated in sedimentation tanks for reuse on water spraying. **Waste Management** – Excavated soil was temporary stored for backfilling. – Scrape metal will be recycled. – Timber will be reused as much as possible.

Item	Construction Activities	Environmental Mitigation Measures
Unit L12 Foundation Works		
8.	Bored Pile Work	**Air** – Dust suppression in the main haul road. – Using ULSD for PMEs. – Cover dusty stockpile with tarpaulin and water spraying. **Noise** – General noise mitigation measure employed at all work sites throughout the construction phase. **Wastewater** – Wastewater should be pumped to the sedimentation ponds for desilting process. After that, waste water will be re-used for construction activities or pumped for storage. **Waste Management** – Waste Management Plan submitted and implemented
9.	Pre-drilling Work	**Noise** – General noise mitigation measure employed at all work sites throughout the construction phase. **Wastewater** – All wastewater will be re-used for construction activities or pumped for storage. **Waste Management** – Waste Management Plan submitted and implemented.

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.

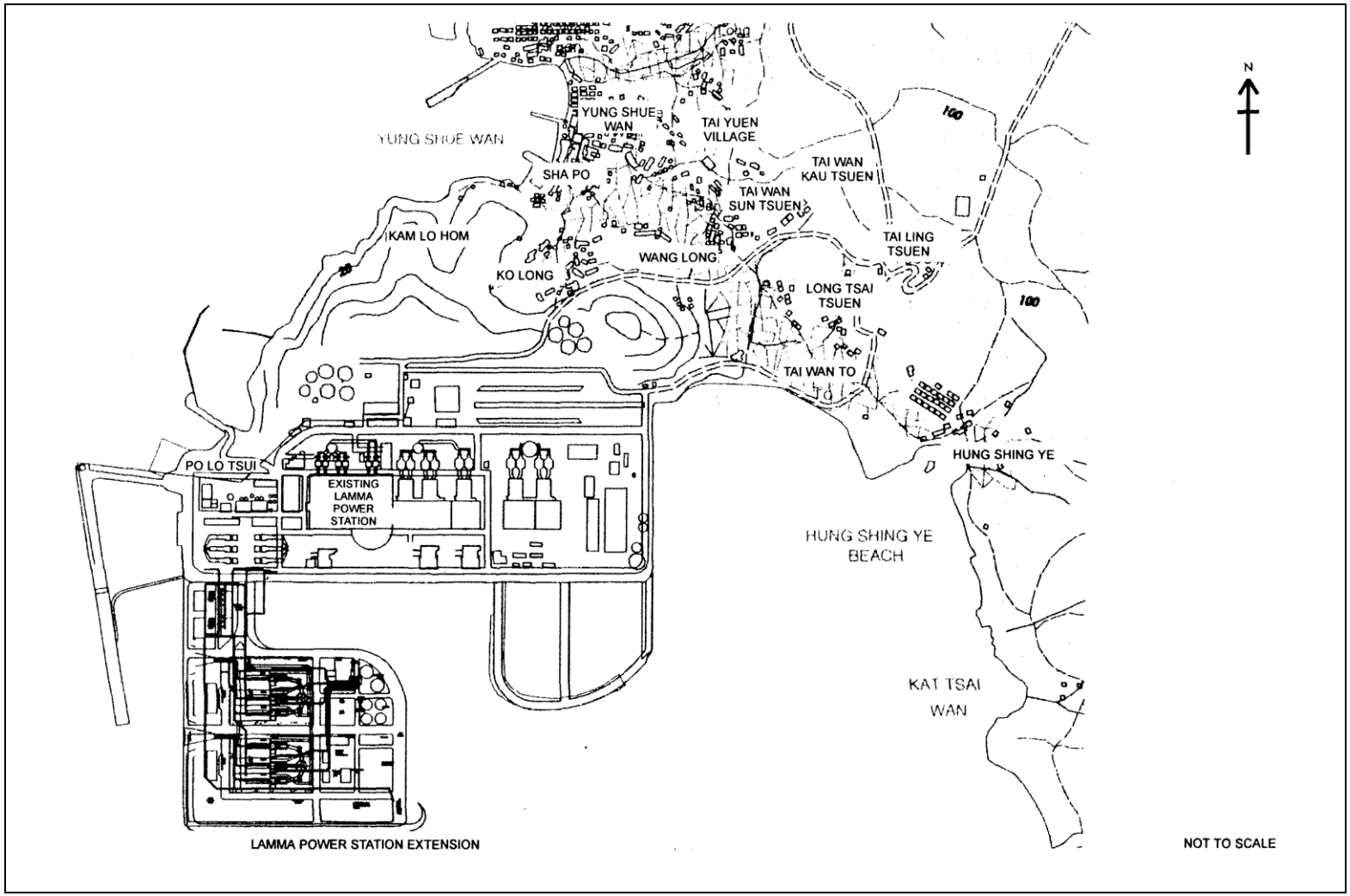


Figure 1.1 Layout of Work Site

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.

Table 2.1 Air Quality Monitoring Locations

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

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 2.2 Air Quality Monitoring Equipment

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

Table 2.3 Air Quality Monitoring Parameter, Duration and Frequency

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

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;
    - Main flow;
    - 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.

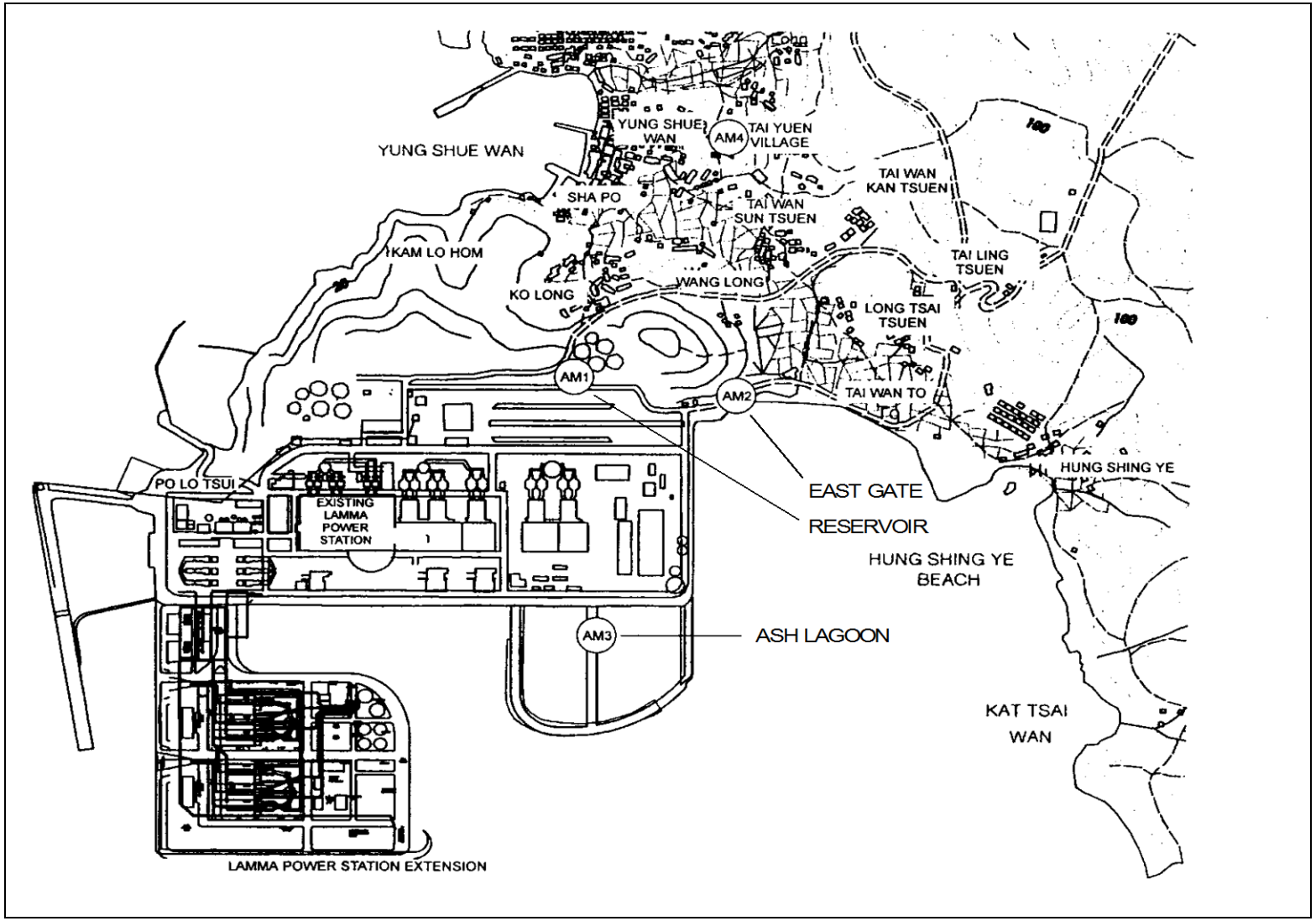


Figure 2.1 Location of Air Quality Monitoring Stations

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 3.2 Noise Monitoring Duration and Parameter

Location	Time Period	Frequency	Parameter

Ash Lagoon Ching Lam	Day-time: 0700-1900 hrs on normal weekdays Evening-time & holidays: 0700-2300 hrs on holidays; and 1900-2300 hrs on all other days Night-time: 2300-0700 hrs of next day	Day-time: 30 minutes Evening-time & holidays: 5 minutes Night-time: 5 minutes	30-min L_{Aeq} 5-min L_{Aeq} 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 Ash Lagoon and Ching Lam noise monitoring stations were scheduled in July and September 2019 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.

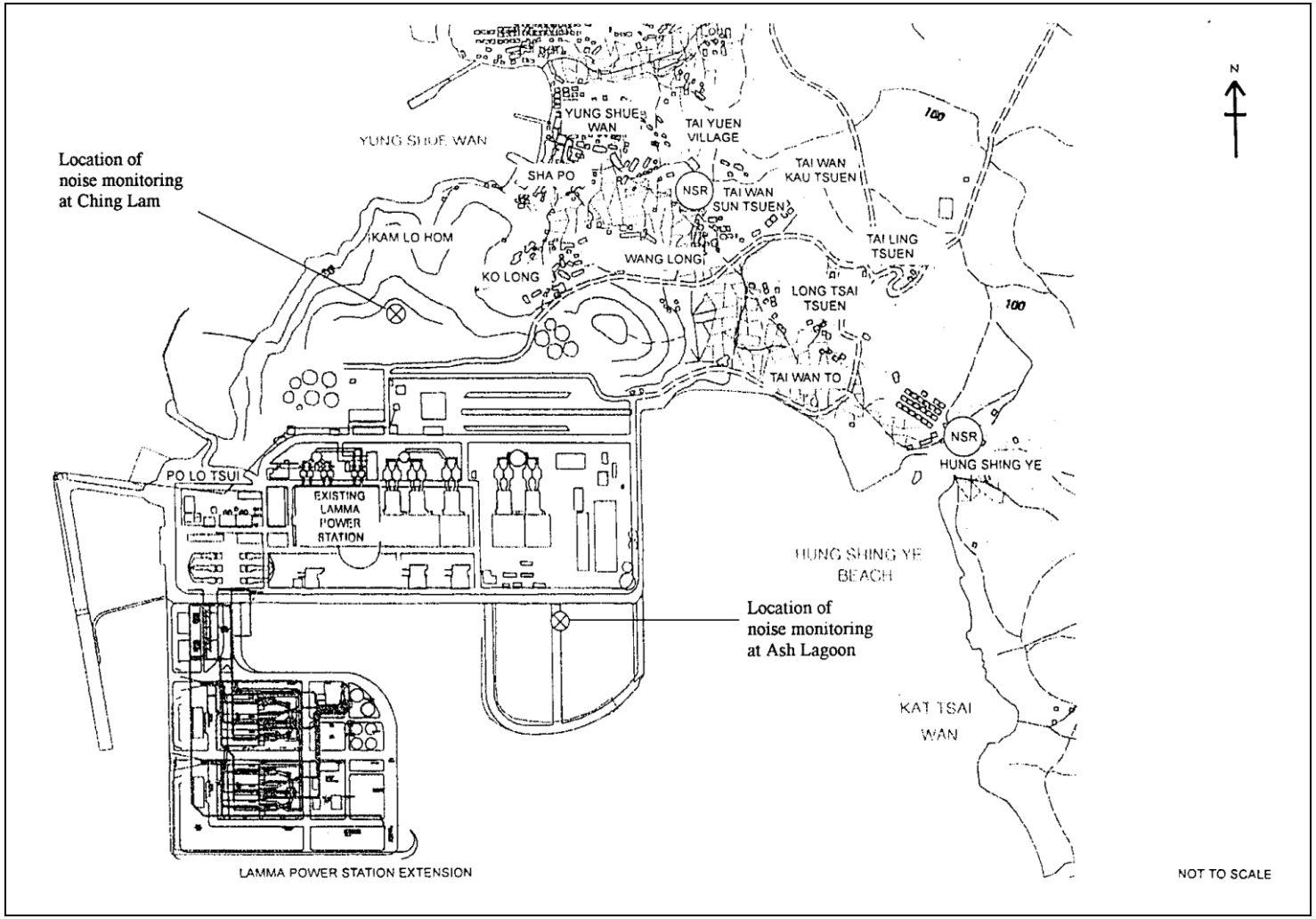


Figure 3.1 Location of Noise Monitoring Stations

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.

Table 4.1 Summary of AL Level Exceedances on Monitoring Parameters

Item	Parameter Monitored	Monitoring Period	No. of Exceedances In		Event/Action Plan Implementation Status and Results
			Action Level	Limit Level	
Air					
1	Ambient TSP (24-hour)	01/04/19-30/04/19	0	0	
2	Ambient TSP (1-hour)	01/04/19-30/04/19	0	0	
Noise					
1	Noise level at the critical NSR's predicted by the noise alarm monitoring system	01/04/19-30/04/19	0	0	

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 April 2019 are shown in Table 4.2.

Table 4.2 Estimated Amounts of Waste in April 2019

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

0 Tonnes	0 Tonnes	19.09 Tonnes	0 Litres

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

4.4 Site Environmental Audit

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	To		
Varied Environmental Permit	EP-071/2000/C	18/05/05	-	The whole construction work site	Valid
Construction Noise Permit	GW-RS1173-18	01/01/19	30/06/19	Power Block Facilities works for Unit L10. Operation of PME during restricted hours	Valid
Construction Noise Permit	GW-RS0210-19	18/03/19	14/09/19	Civil and Building Works for Unit L11. Operation of PME during restricted hours	Valid
WPCO Discharge Licence#	WT00027316-2017	01/03/17	31/03/22	Civil and Building Works for Unit L10	Valid
Registration of Chemical Waste Producer	WPN5213-912-P2781-22	22/02/16	-	Civil and Building Works for Unit L10	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	Valid

Description	Permit No.	Valid Period		Highlights	Status
		From	To		
Waste Disposal Billing Account	Account No.: 7031135	21/06/18	-	Civil and Building Works for Unit L11	Valid

Notes: # - Water quality monitoring was carried out in February 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 April 2019, no complaint against the construction activities was received.

Table 4.4 Environmental Complaints Received in April 2019

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 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 L10 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 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 for resuse on water spraying.

Unit L12 Foundation 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 for resuse on water spraying.

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

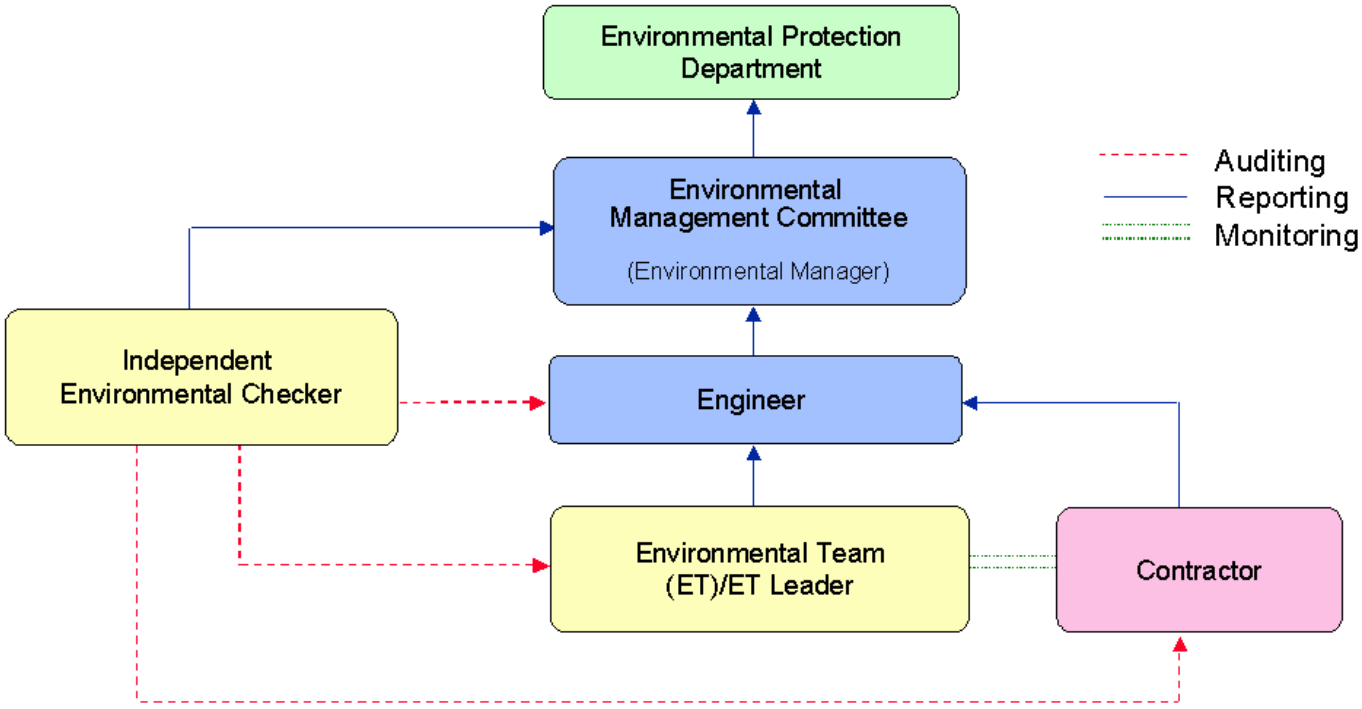


Figure A.1 Organisation of EM&A Programme at Construction Phase

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 TSP

	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
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 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	When one or more documented complaints are received	a. 75 dB(A) in $L_{Aeq,30\ min}$ (07:00-19:00 hrs on normal weekdays) (Note 1) 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 $L_{Aeq,5\ min}$ c. subject to statutory control under the Noise Control Ordinance (23:00-07:00 hrs of next day). Set to 45 dB(A) in $L_{Aeq,5\ min}$
Manual noise monitoring at the nearest Pak Kok Tsui residences to cable landing points N4 and N5		
Note: 1. For educational institution, the limit level shall be 70 dB(A), reduced to 65 dB(A) during examination periods.		

Appendix C Environmental Monitoring Schedule

Table C.1 Monitoring schedule for 24hr and 1hr TSP monitoring for Lamma Extension Construction (April 2019 to July 2019)

24hr TSP Monitoring	1hr TSP Monitoring
06/April/2019	06/April/2019 1500hr to 1800hr
12/April/2019	12/April/2019 1500hr to 1800hr
18/April/2019	18/April/2019 1500hr to 1800hr
24/April/2019	24/April/2019 1500hr to 1800hr
30/April/2019	30/April/2019 1500hr to 1800hr
06/May/2019	06/May/2019 1500hr to 1800hr
12/May/2019	12/May/2019 1500hr to 1800hr
18/May/2019	18/May/2019 1500hr to 1800hr
24/May/2019	24/May/2019 1500hr to 1800hr
30/May/2019	30/May/2019 1500hr to 1800hr
5/June/2019	5/June/2019 1500hr to 1800hr
11/June/2019	11/June/2019 1500hr to 1800hr
17/June/2019	17/June/2019 1500hr to 1800hr
23/June/2019	23/June/2019 1500hr to 1800hr
29/June/2019	29/June/2019 1500hr to 1800hr
5/July/2019	5/July/2019 1500hr to 1800hr
11/July/2019	11/July/2019 1500hr to 1800hr
17/July/2019	17/July/2019 1500hr to 1800hr
23/July/2019	23/July/2019 1500hr to 1800hr
29/July/2019	29/July/2019 1500hr to 1800hr

APPENDIX D AIR QUALITY MONITORING RESULTS

Site: Lamma Power Station Extension

Month: April 2019

24 hour TSP Measurement:-

Date	TSP concentration (μg/m^3)				Weather Information (From Hong Kong Observatory)		
	Reservoir (AM1)	East Gate (AM2)	Ash Lagoon (AM3)	Tai Yuen Village (AM4)	Mean Wind Speed (km/hr)	Prevailing Wind Dir. (°)	Mean R.H. (%)
6/4/2019	45	37	31	32	13.5	230	79
12/4/2019	12	17	14	7	43.2	070	89
18/4/2019	23	22	21	8	18.5	080	90
24/4/2019	22	26	20	10	17.1	220	78
30/4/2019	22	30	22	24	17.6	180	82

1 hour TSP Measurement:-

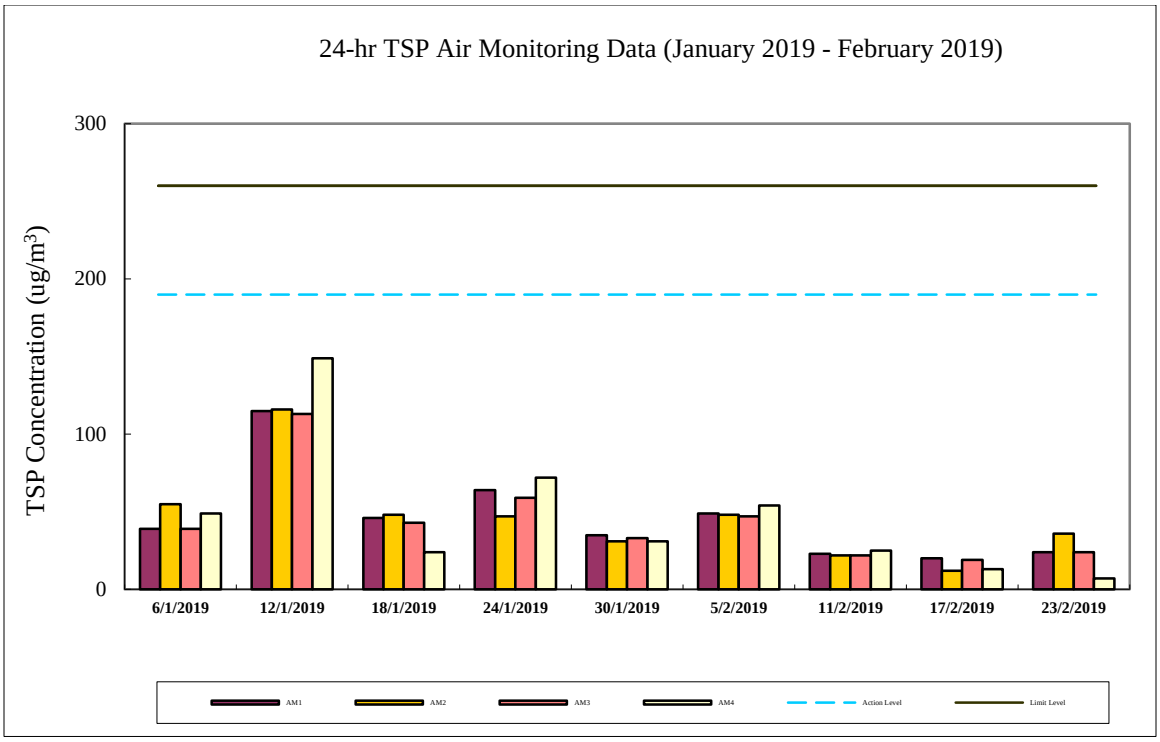
Date	Time	TSP concentration (μg/m^3)		
		Reservoir (AM1)	East Gate (AM2)	Ash Lagoon (AM3)
6/4/2019	15:00 - 15:59	39	28	19
	16:00 - 16:59	22	38	20
	17:00 - 17:59	47	39	22
12/4/2019	15:00 - 15:59	8	9	7
	16:00 - 16:59	5	11	10
	17:00 - 17:59	10	16	14
18/4/2019	15:00 - 15:59	25	24	19
	16:00 - 16:59	20	19	17
	17:00 - 17:59	19	18	18
24/4/2019	15:00 - 15:59	22	25	21
	16:00 - 16:59	22	25	21
	17:00 - 17:59	30	27	22
30/4/2019	15:00 - 15:59	13	25	18
	16:00 - 16:59	19	34	19
	17:00 - 17:59	22	42	20

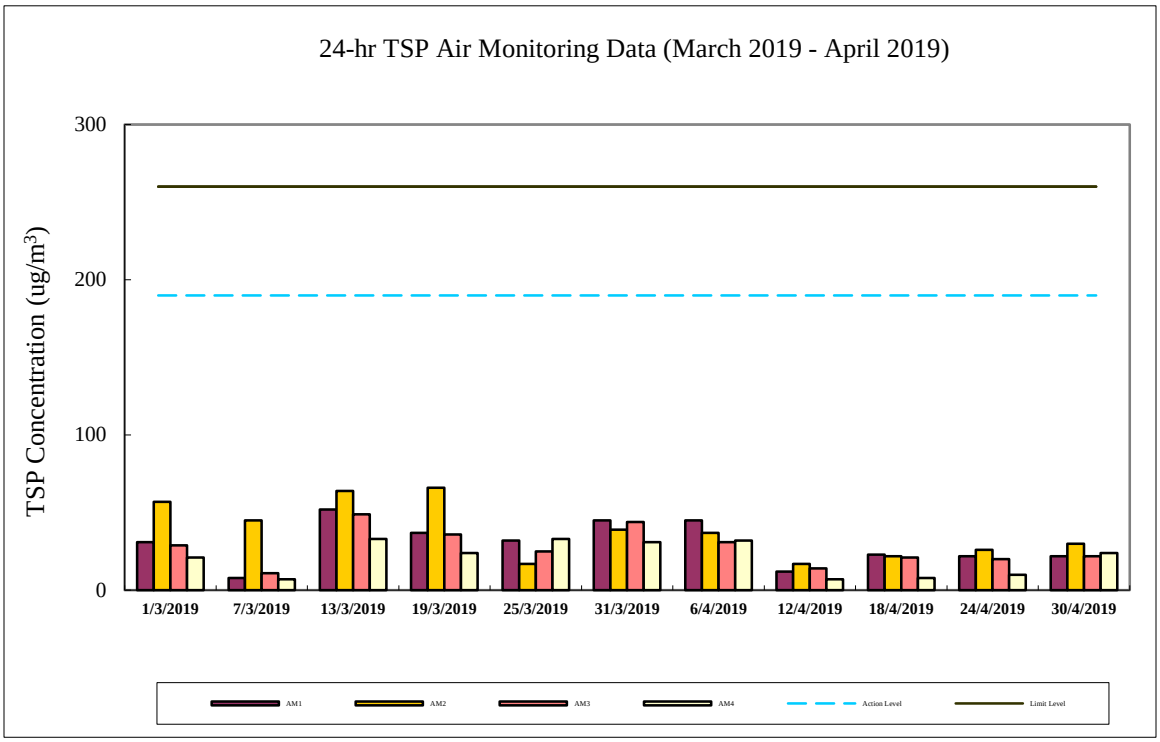
	1-hr TSP ($\mu g/m^3$)	24-hr TSP ($\mu g/m^3$)
Action Level	340	190
Limit Level	500	260

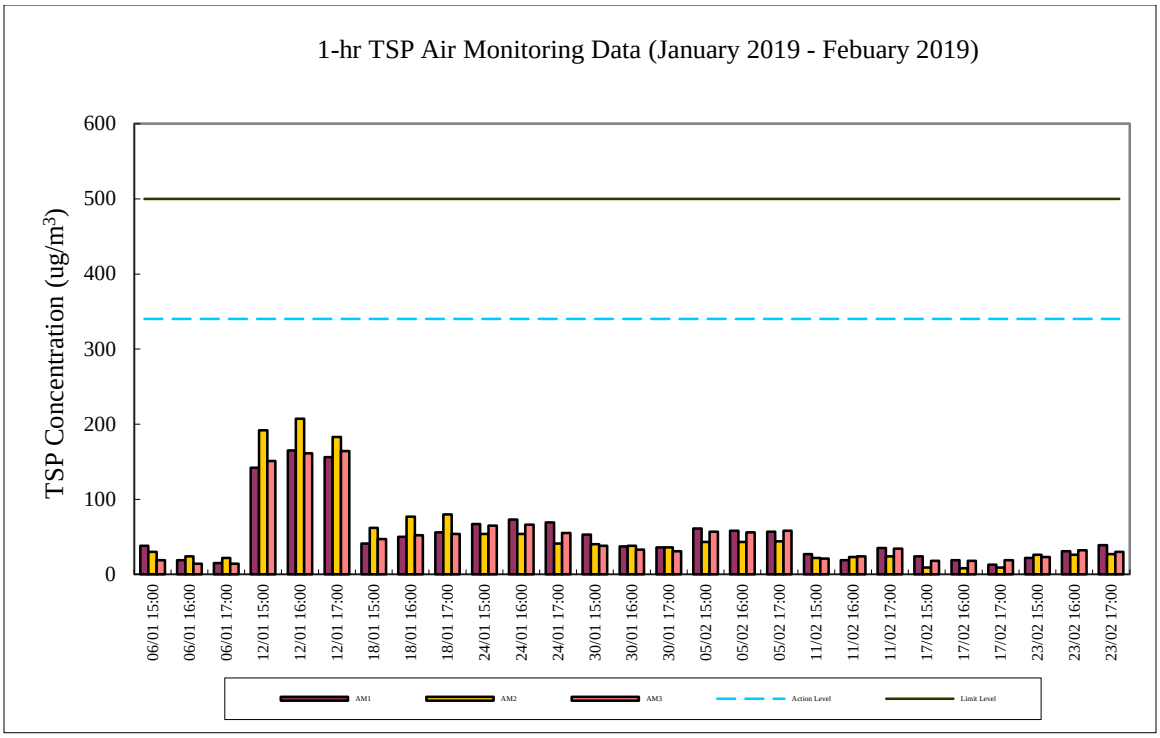
Calibration: Calibration details are shown in appendix F.

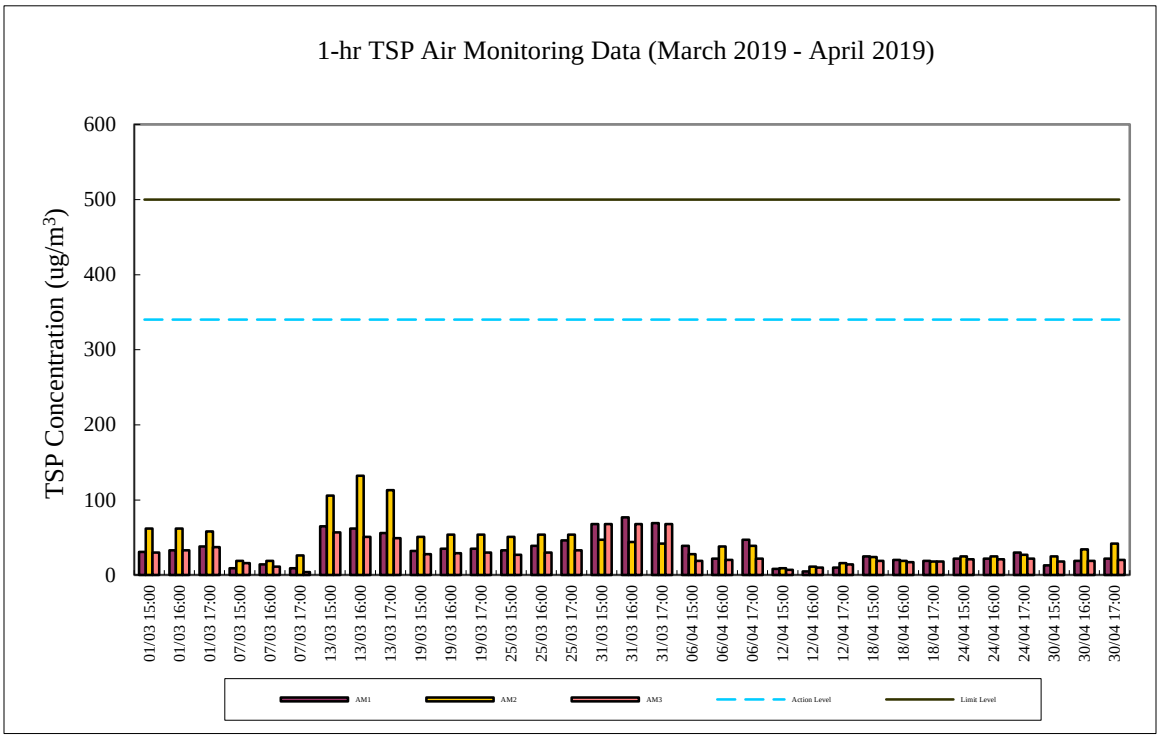
Equipment used:

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


24-hr TSP Air Monitoring Data (January 2019 - February 2019)
TSP Concentration (ug/m3)
300
200
100
0
6/1/2019
12/1/2019
18/1/2019
24/1/2019
30/1/2019
5/2/2019
11/2/2019
17/2/2019
23/2/2019
AM1
AM2
AM3
AM4
Action Level
Limit Level


24-hr TSP Air Monitoring Data (March 2019 - April 2019)
TSP Concentration (ug/m3)
300
200
100
0
1/3/2019
7/3/2019
13/3/2019
19/3/2019
25/3/2019
31/3/2019
6/4/2019
12/4/2019
18/4/2019
24/4/2019
30/4/2019
AM1
AM2
AM3
AM4
Action Level
Limit Level


1-hr TSP Air Monitoring Data (January 2019 - Febuary 2019)
TSP Concentration (ug/m3)
600
500
400
300
200
100
0
06/01 15:00
06/01 16:00
06/01 17:00
12/01 15:00
12/01 16:00
12/01 17:00
18/01 15:00
18/01 16:00
18/01 17:00
24/01 15:00
24/01 16:00
24/01 17:00
30/01 15:00
30/01 16:00
30/01 17:00
05/02 15:00
05/02 16:00
05/02 17:00
11/02 15:00
11/02 16:00
11/02 17:00
17/02 15:00
17/02 16:00
17/02 17:00
23/02 15:00
23/02 16:00
23/02 17:00
AM1
AM2
AM3
Action Level
Limit Level


1-hr TSP Air Monitoring Data (March 2019 - April 2019)
TSP Concentration (ug/m3)
600
500
400
300
200
100
0
01/03 15:00
01/03 16:00
01/03 17:00
07/03 15:00
07/03 16:00
07/03 17:00
13/03 15:00
13/03 16:00
13/03 17:00
19/03 15:00
19/03 16:00
19/03 17:00
25/03 15:00
25/03 16:00
25/03 17:00
31/03 15:00
31/03 16:00
31/03 17:00
06/04 15:00
06/04 16:00
06/04 17:00
12/04 15:00
12/04 16:00
12/04 17:00
18/04 15:00
18/04 16:00
18/04 17:00
24/04 15:00
24/04 16:00
24/04 17:00
30/04 15:00
30/04 16:00
30/04 17:00
AM1
AM2
AM3
Action Level
Limit Level

Appendix E Continuous Noise Monitoring Results for April 2019

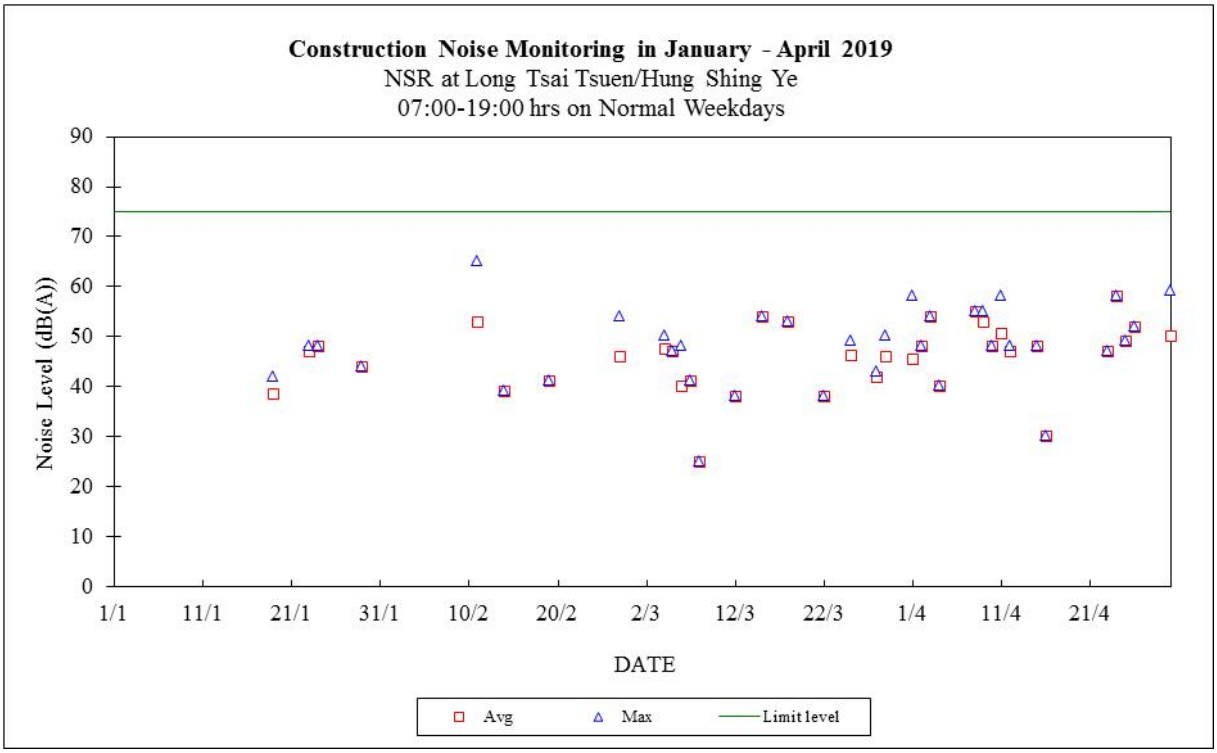
Site: Lamma Power Station Extension Construction
Measurement Location: Ash Lagoon and Ching Lam
Measurement Parameter: 30-min Leq (07:00-19:00 hrs on normal weekdays)
5-min Leq (07:00-23:00 hrs on holidays and 19:00-23:00 hrs on all other days, and 23:00-07:00 hrs of next day)
Noise Equipment: B&K 2250 sound level meters and B&K 4231 sound level calibrator
Lab. Calibration Date: B&K 2250 sound level meters - 21/06/2018 (Ash Lagoon)
02/11/2017 (Ching Lam)
B&K 4231 calibrator - 14/10/2018

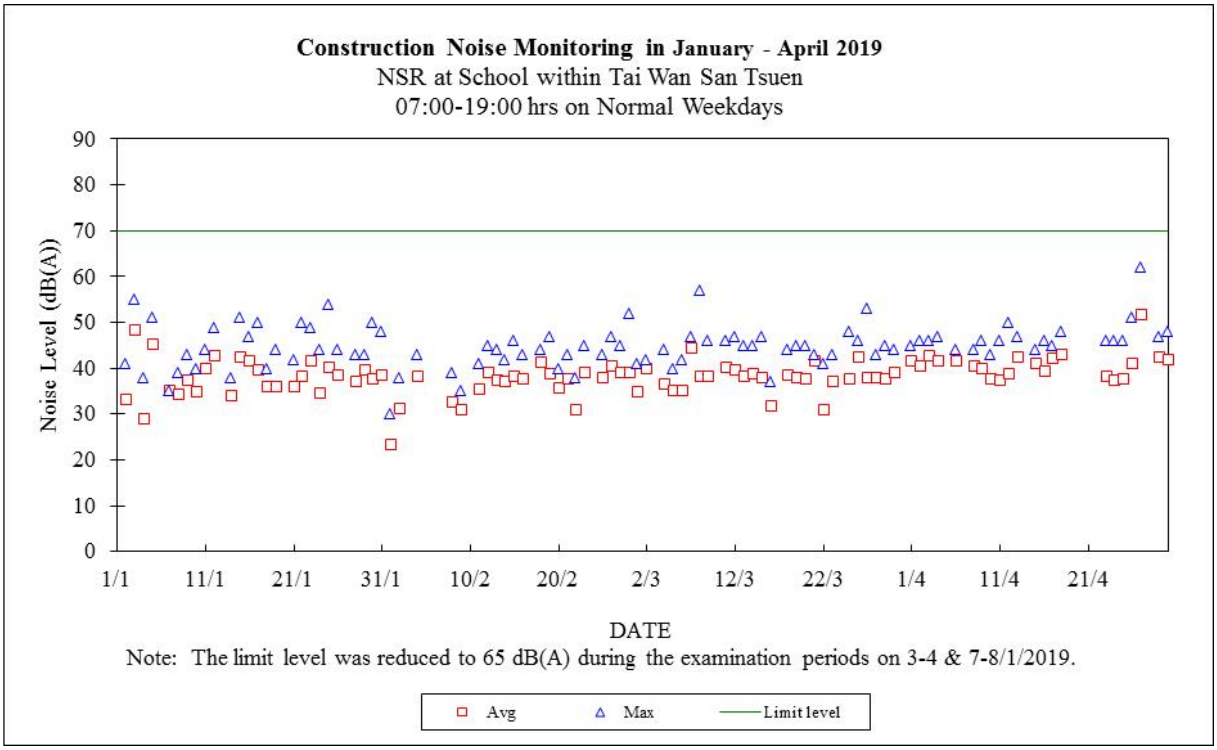
Date	Time	Calculated Noise Level at NSR at Long Tsai Tsuen/Hung Shing Ye (dB(A))		Limit Noise Level (dB(A))	Calculated Noise Level at NSR at the school within Tai Wan San Tsuen (dB(A))		Limit Noise Level (dB(A))
		Max	Avg		Max	Avg	
01/04/2019	07:00-19:00	58	45	75	45	42	70
01/04/2019	19:00-23:00	---	---	60	45	42	60
01/04/2019	23:00-07:00	44	35	45	45	38	45
02/04/2019	07:00-19:00	48	48	75	46	41	70
02/04/2019	19:00-23:00	---	---	60	46	43	60
02/04/2019	23:00-07:00	35	35	45	45	40	45
03/04/2019	07:00-19:00	54	54	75	46	43	70
03/04/2019	19:00-23:00	---	---	60	45	39	60
03/04/2019	23:00-07:00	39	28	45	44	40	45
04/04/2019	07:00-19:00	40	40	75	47	42	70
04/04/2019	19:00-23:00	44	42	60	47	38	60
04/04/2019	23:00-07:00	42	36	45	43	38	45
05/04/2019	07:00-23:00	59	47	60	54	39	60
05/04/2019	23:00-07:00	---	---	45	44	39	45
06/04/2019	07:00-19:00	---	---	75	44	42	70
06/04/2019	19:00-23:00	---	---	60	42	37	60
06/04/2019	23:00-07:00	27	27	45	44	41	45
07/04/2019	07:00-23:00	59	43	60	51	39	60
07/04/2019	23:00-07:00	---	---	45	44	40	45
08/04/2019	07:00-19:00	55	55	75	44	41	70
08/04/2019	19:00-23:00	---	---	60	44	39	60
08/04/2019	23:00-07:00	---	---	45	43	37	45
09/04/2019	07:00-19:00	55	53	75	46	40	70
09/04/2019	19:00-23:00	---	---	60	42	38	60
09/04/2019	23:00-07:00	---	---	45	41	37	45
10/04/2019	07:00-19:00	48	48	75	43	38	70
10/04/2019	19:00-23:00	---	---	60	42	38	60
10/04/2019	23:00-07:00	42	42	45	43	38	45
11/04/2019	07:00-19:00	58	51	75	46	37	70
11/04/2019	19:00-23:00	---	---	60	43	37	60
11/04/2019	23:00-07:00	37	33	45	45	39	45
12/04/2019	07:00-19:00	48	47	75	50	39	70
12/04/2019	19:00-23:00	44	39	60	46	34	60
12/04/2019	23:00-07:00	42	35	45	45	40	45
13/04/2019	07:00-19:00	---	---	75	47	42	70
13/04/2019	19:00-23:00	41	33	60	46	35	60

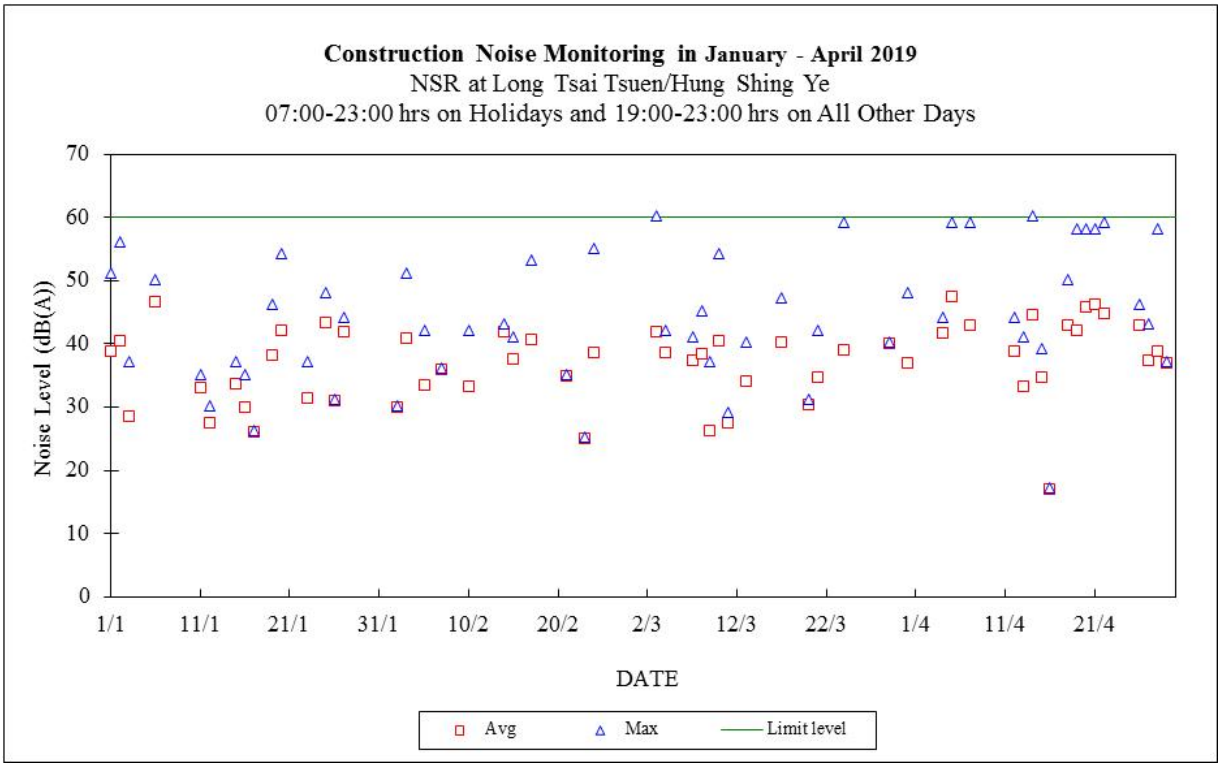
13/04/2019	23:00-07:00	39	37	45	45	42	45
14/04/2019	07:00-23:00	60	45	60	50	40	60
14/04/2019	23:00-07:00	38	35	45	44	41	45
15/04/2019	07:00-19:00	48	48	75	44	41	70
15/04/2019	19:00-23:00	39	35	60	47	38	60
15/04/2019	23:00-07:00	43	37	45	44	36	45
16/04/2019	07:00-19:00	30	30	75	46	39	70
16/04/2019	19:00-23:00	17	17	60	48	40	60
16/04/2019	23:00-07:00	34	29	45	45	42	45
17/04/2019	07:00-19:00	---	---	75	45	42	70
17/04/2019	19:00-23:00	---	---	60	44	41	60
17/04/2019	23:00-07:00	43	41	45	43	39	45
18/04/2019	07:00-19:00	---	---	75	48	43	70
18/04/2019	19:00-23:00	50	43	60	46	40	60
18/04/2019	23:00-07:00	39	34	45	44	40	45
19/04/2019	07:00-23:00	58	42	60	47	39	60
19/04/2019	23:00-07:00	45	34	45	45	42	45
20/04/2019	07:00-23:00	58	46	60	53	41	60
20/04/2019	23:00-07:00	44	37	45	45	41	45
21/04/2019	07:00-23:00	58	46	60	48	39	60
21/04/2019	23:00-07:00	45	43	45	44	40	45
22/04/2019	07:00-23:00	59	45	60	51	36	60
22/04/2019	23:00-07:00	40	33	45	43	38	45
23/04/2019	07:00-19:00	47	47	75	46	38	70
23/04/2019	19:00-23:00	---	---	60	42	37	60
23/04/2019	23:00-07:00	---	---	45	42	38	45
24/04/2019	07:00-19:00	58	58	75	46	37	70
24/04/2019	19:00-23:00	---	---	60	41	36	60
24/04/2019	23:00-07:00	41	41	45	42	38	45
25/04/2019	07:00-19:00	49	49	75	46	38	70
25/04/2019	19:00-23:00	---	---	60	48	37	60
25/04/2019	23:00-07:00	35	30	45	43	37	45
26/04/2019	07:00-19:00	52	52	75	51	41	70
26/04/2019	19:00-23:00	46	43	60	41	38	60
26/04/2019	23:00-07:00	45	39	45	45	41	45
27/04/2019	07:00-19:00	---	---	75	62	52	70
27/04/2019	19:00-23:00	43	37	60	60	49	60
27/04/2019	23:00-07:00	31	30	45	45	40	45
28/04/2019	07:00-23:00	58	39	60	59	45	60
28/04/2019	23:00-07:00	45	36	45	45	41	45
29/04/2019	07:00-19:00	---	---	75	47	43	70
29/04/2019	19:00-23:00	37	37	60	44	38	60
29/04/2019	23:00-07:00	44	37	45	45	41	45
30/04/2019	07:00-19:00	59	50	75	48	42	70
30/04/2019	19:00-23:00	---	---	60	48	41	60
30/04/2019	23:00-07:00	45	37	45	42	36	45

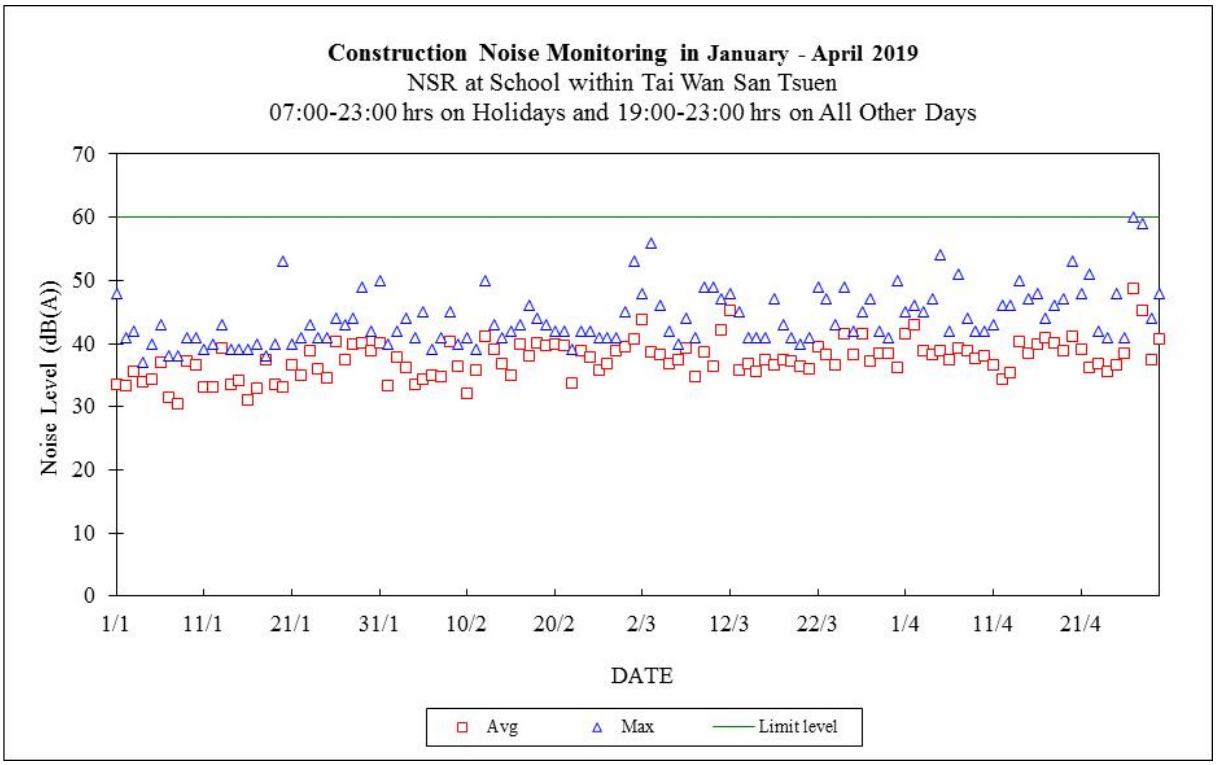
Note:

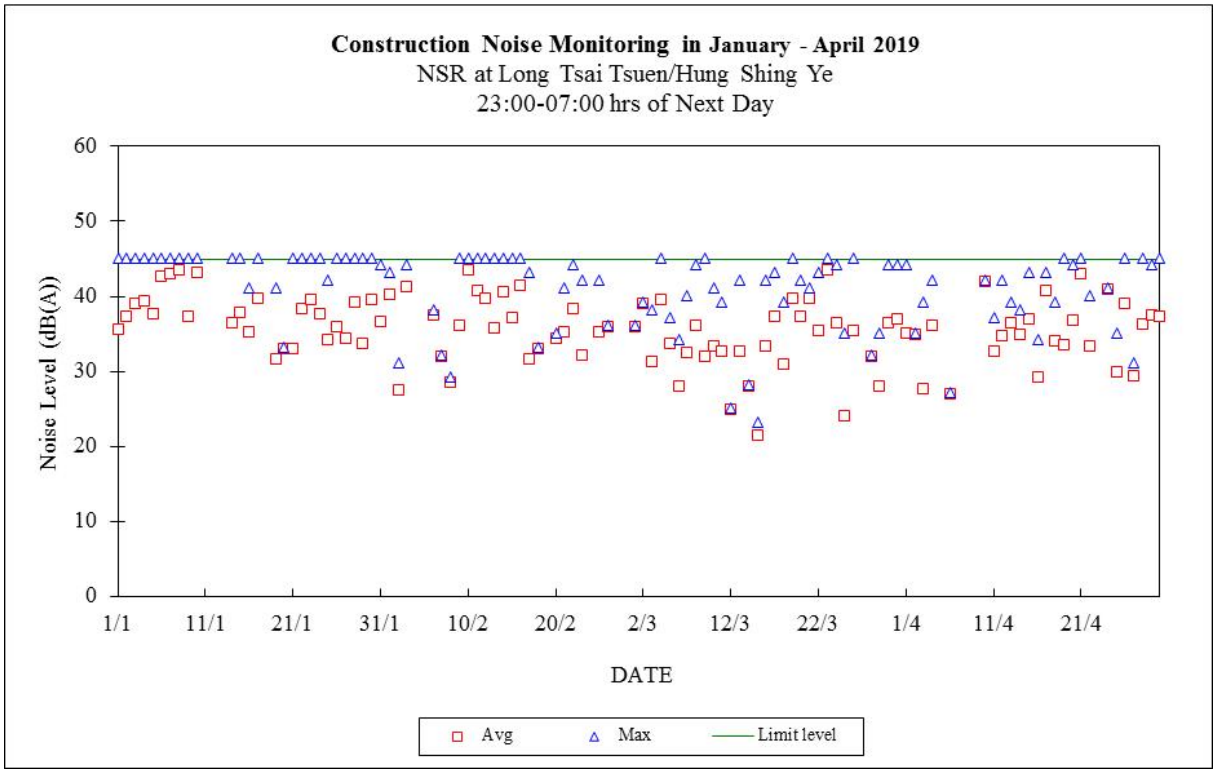
a. “---“ represents the measured noise monitoring data lower than the established notional background level/discarded under strong wind.
b. Continuous noise monitoring was carried out at holidays & evening-time (07:00-23:00 hrs on holidays and 19:00-23:00 hrs on all other days) and night-time (23:00-07:00 hrs of next day) under construction noise permit.

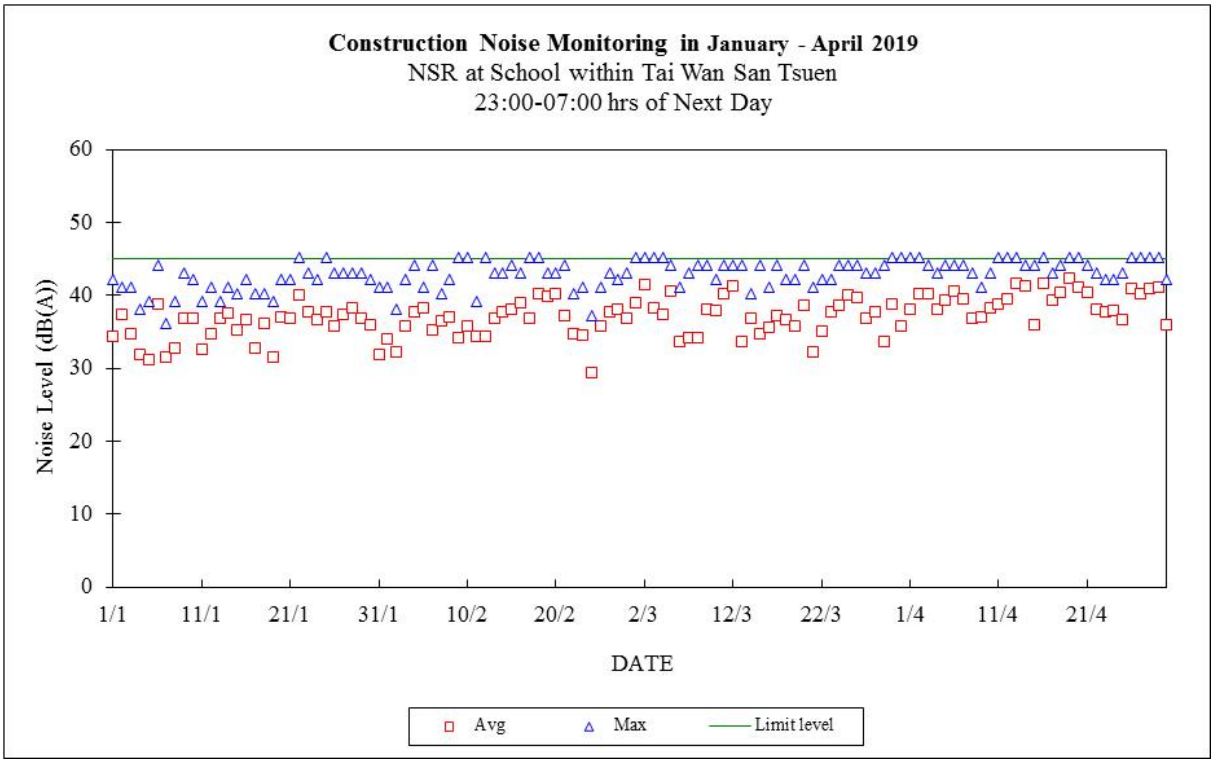

Construction Noise Monitoring in January - April 2019
NSR at Long Tsai Tsuen/Hung Shing Ye
07:00-19:00 hrs on Normal Weekdays
Noise Level (dB(A))
90
80
70
60
50
40
30
20
10
0
1/1
11/1
21/1
31/1
10/2
20/2
2/3
12/3
22/3
1/4
11/4
21/4
DATE
Avg
Max
Limit level


Construction Noise Monitoring in January - April 2019
NSR at School within Tai Wan San Tsuen
07:00-19:00 hrs on Normal Weekdays
Noise Level (dB(A))
90
80
70
60
50
40
30
20
10
0
1/1
11/1
21/1
31/1
10/2
20/2
2/3
12/3
22/3
1/4
11/4
21/4
DATE
Note: The limit level was reduced to 65 dB(A) during the examination periods on 3-4 & 7-8/1/2019.
Avg
Max
Limit level


Construction Noise Monitoring in January - April 2019
NSR at Long Tsai Tsuen/Hung Shing Ye
07:00-23:00 hrs on Holidays and 19:00-23:00 hrs on All Other Days
Noise Level (dB(A))
70
60
50
40
30
20
10
0
1/1
11/1
21/1
31/1
10/2
20/2
2/3
12/3
22/3
1/4
11/4
21/4
DATE
Avg
Max
Limit level


Construction Noise Monitoring in January - April 2019
NSR at School within Tai Wan San Tsuen
07:00-23:00 hrs on Holidays and 19:00-23:00 hrs on All Other Days
Noise Level (dB(A))
70
60
50
40
30
20
10
0
1/1
11/1
21/1
31/1
10/2
20/2
2/3
12/3
22/3
1/4
11/4
21/4
DATE
Avg
Max
Limit level


Construction Noise Monitoring in January - April 2019
NSR at Long Tsai Tsuen/Hung Shing Ye
23:00-07:00 hrs of Next Day
Noise Level (dB(A))
60
50
40
30
20
10
0
1/1
11/1
21/1
31/1
10/2
20/2
2/3
12/3
22/3
1/4
11/4
21/4
DATE
Avg
Max
Limit level


Construction Noise Monitoring in January - April 2019
NSR at School within Tai Wan San Tsuen
23:00-07:00 hrs of Next Day
Noise Level (dB(A))
60
50
40
30
20
10
0
1/1
11/1
21/1
31/1
10/2
20/2
2/3
12/3
22/3
1/4
11/4
21/4
DATE
Avg
Max
Limit level

Appendix F

The QA/QC Procedures and Results

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

Month: April Year: 2019

Reservoir (AM1)				
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)
06/04/2019	266.658	4	2.96	13.50
12/04/2019	271.862	4	3.03	13.80
18/04/2019	271.504	4	2.98	13.59
24/04/2019	271.203	4	2.92	13.32
30/04/2019	270.828	4	2.98	13.58

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)
06/04/2019	259.461	4	2.99	13.62
12/04/2019	259.199	4	3.05	13.90
18/04/2019	259.374	4	3.00	13.70
24/04/2019	259.054	4	2.95	13.45
30/04/2019	258.660	4	3.00	13.64

Ash Lagoon (AM3)				
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)
06/04/2019	255.122	4	3.00	13.67
12/04/2019	254.927	4	3.00	13.67
18/04/2019	254.646	4	3.01	13.66
24/04/2019	258.713	4	3.00	13.67
30/04/2019	258.364	4	3.00	13.67

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

Remarks:

N/A

Prepared by: HY Chan

Checked by: KF Chan

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
15/04/2019 / 10:30	WM Tam / HT Pang

Equipment / Item

Equipment / Item	Serial No. / No.
MINIVOL	5580
Used filter paper no.	MQ09
New filter paper no.	MQ10

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: 4.96
After: 5.02

II. General Services

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

Remarks

Conducted by: WM Tam / HT Pang

Checked by: SM Hon

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 Reference (dB)	Calibration Results	Deviation from Reference (dB)
01/04/2019	Passed	-0.02	Passed	-0.03
02/04/2019	Passed	-0.03	Passed	-0.01
03/04/2019	Passed	-0.03	Passed	0.00
04/04/2019	Passed	-0.04	Passed	-0.04
05/04/2019	Passed	-0.03	Passed	-0.03
06/04/2019	Passed	-0.01	Passed	-0.01
07/04/2019	Passed	-0.01	Passed	0.00
08/04/2019	Passed	0.02	Passed	-0.01
09/04/2019	Passed	0.00	Passed	-0.02
10/04/2019	Passed	0.01	Passed	0.01
11/04/2019	Passed	0.00	Passed	0.01
12/04/2019	Passed	-0.07	Passed	-0.04
13/04/2019	Passed	-0.05	Passed	-0.07
14/04/2019	Passed	-0.04	Passed	-0.04
15/04/2019	Passed	-0.05	Passed	-0.06
16/04/2019	Passed	-0.05	Passed	-0.03
17/04/2019	Passed	-0.03	Passed	0.00
18/04/2019	Passed	-0.01	Passed	0.00
19/04/2019	Passed	-0.05	Passed	-0.03
20/04/2019	Passed	-0.03	Passed	0.00
21/04/2019	Passed	0.01	Passed	0.02
22/04/2019	Passed	0.03	Passed	0.02
23/04/2019	Passed	0.02	Passed	0.04
24/04/2019	Passed	0.02	Passed	0.03
25/04/2019	Passed	0.02	Passed	0.01
26/04/2019	Passed	0.04	Passed	0.00
27/04/2019	Passed	0.03	Passed	-0.03
28/04/2019	Passed	0.00	Passed	-0.02
29/04/2019	Passed	0.00	Passed	0.01
30/04/2019	Passed	-0.01	Passed	-0.01

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 ± 0.5 dB.

Appendix G Event/Action Plans

Table G.1 Event and Action Plans for Air Quality

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

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.2 Event and Action Plans for Construction Noise

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 the Construction works, verbally advise the Contractor, Engineer and IEC, and inform the EPD of the exceedance, as soon as practicable.	Review Contractor's remedial actions / measures to ensure their effectiveness and advise the Engineer and ET accordingly.	Check Contractor's working methods and advise IEC and ET accordingly.	Submit proposals for remedial actions to Engineer.
			Discuss with Contractor the remedial actions to be implemented.	Amend proposals if required by the Engineer.
		Verify the implementation of the remedial measures	Keep the Contractor informed of the efficacy of remedial actions.	Implement remedial actions immediately upon instruction from the Engineer.
	Discuss remedial actions required with Engineer.		If the 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	If the exceedance continues, consider what portion of the work is responsible and, as instructed by the Engineer, stop the portion of work until the exceedance is abated
	Increase manual monitoring frequency to assess efficacy of remedial measures.			

Table G.3 Event 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; Discuss mitigation measure with Engineer and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit level.		implemented mitigation measures.	within 3 working days and discuss with Engineer; Implement the agreed mitigation measures.
Limit level exceeded by more than one consecutive sampling day	Repeat in-situ measurement to confirm findings; Identify source(s) of impact; Inform Contractor, IEC and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measure with Engineer and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.	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 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; 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 Engineer; Implement the agreed mitigation measures.. 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: 02/04/2019, 09/04/2019, 15/04/2019, 23/04/2019 and 30/04/2019

Summary of Findings

General

- No environmental deficiency identified.

Air Quality

- No environmental deficiency identified.

Noise

- No environmental deficiency identified.

Water Quality

- No environmental deficiency was identified.

Waste Management

- No environmental deficiency identified.

L10 Mechanical, Electrical, Instrumentation & Control Erection Work

Dates of Inspection: 04/04/2019, 12/04/2019, 18/04/2019 and 26/04/2019.

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

- No environmental deficiency identified.

L11 Civil & Building Superstructure Work

Dates of Inspection: 02/04/2019, 09/04/2019, 15/04/2019, 23/04/2019 and 30/04/2019.

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

- No environmental deficiency identified.

L12 Piling Foundation Work (Commenced on 08/04/2019)

Dates of Inspection: 12/04/2019, 18/04/2019 and 26/04/2019

Summary of Findings

General

- No environmental deficiency identified.

Air Quality

- No environmental deficiency identified.

Noise

- No environmental deficiency identified.

Water Quality

- No environmental deficiency was identified.

Waste Management

- No environmental deficiency identified.

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.	C
	• the load carried by vehicle shall be covered by impervious sheeting to ensure no leakage of dusty materials from the vehicle.	C
	• the heights from which fill materials are dropped shall be controlled to a practical level to minimise the fugitive dust arising from unloading.	C
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.	C
	• The materials which may generate airborne dust emissions shall be wetted by water spray system.	C
	• All receiving hoppers shall be enclosed on three sides up to 3m above unloading point.	C
	• All conveyor transfer points shall be totally enclosed.	C
	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: ** • reducing the number of dredgers working at any one time; • reducing the rate of working of the dredgers; • temporary suspension of operations; • phasing of the works so that dredging / filling is only undertaken at certain stages of the tidal cycle.	N/A

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.	C
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.	C
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.	C
	• Break the mass of main buildings by varying the height/division into smaller units.	C
	• Plant trees and vegetation for screening.	C
	• Adopt colour scheme to blend the buildings into the scenery.	C

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.	C
	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.	C
	• 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.	C
	• Disposal of waste at Licensed sites;	C
	• 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;	C

	• Segregate and sort the waste materials into 3 categories:
	  • public fill (e.g. concrete and rubble) for re-use on-site or disposal at a public filling area;
	  • re-use and/or recycling waste (e.g. steel and other metals);
	  • waste which cannot be re-used and/or recycled (e.g. wood, glass and plastic) for landfill disposal.
	  • 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.
		C

	• Maintain records of the quantities of wastes generated and disposed off-site for each category of waste.	C
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	C
	LAND CONTAMINATION	
F1	No land Contamination mitigation measures are required during the construction phase.	N/A
	MARINE ECOLOGY	

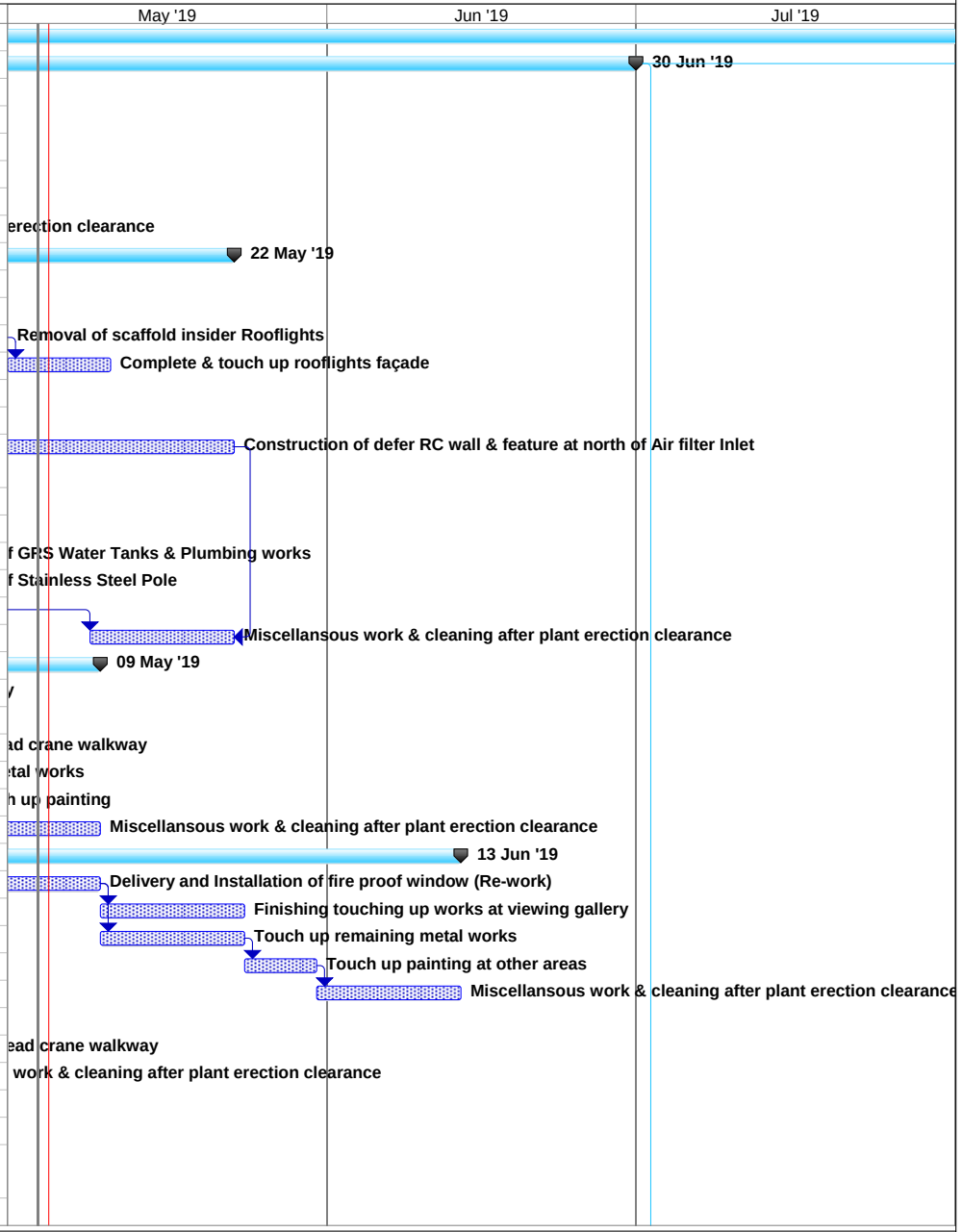
EM&A Log Ref.	Mitigation Measures	Implementation Status
G1	All percussive piling works shall be conducted on reclaimed land to avoid noise impact to marine mammals**	N/A
G2	All construction related vessels shall approach the extension site from the north and via the East Lamma Channel to avoid disturbance 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^3 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 & L12 construction
C - Compliance with mitigation measure
NC - Non-compliance with mitigation measure
N/A - Not Applicable

16/8002 Outstanding Work Programme 16-8002 OS Work Prog (09Apr19).mpp 09/04/19

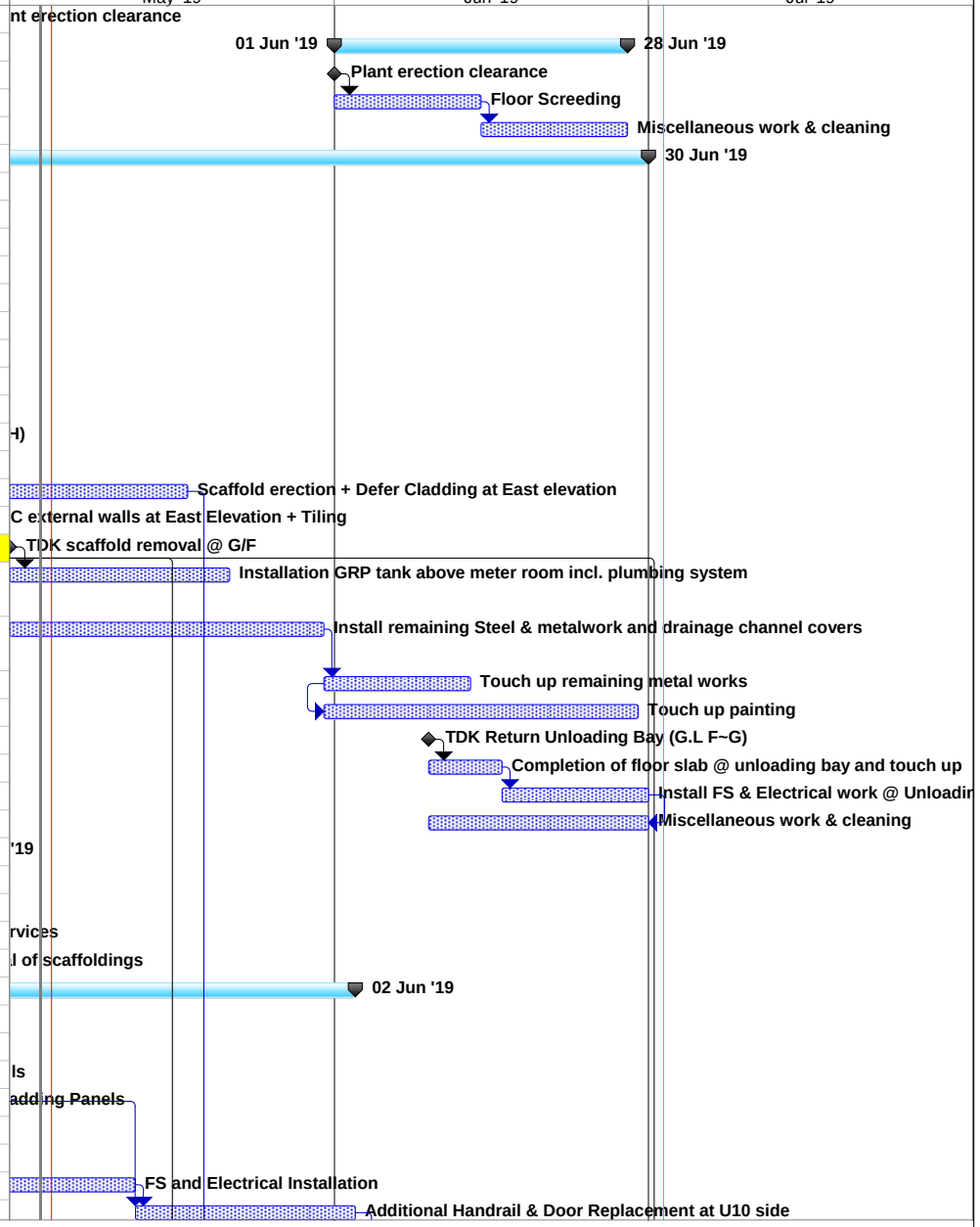
ID	Task Name	Duration	Start	Finish
1	**16/8002 Unit 10 Outstanding Work Programme**	**292 days**	**01/12/18**	**28/09/19**
2	**Superstructure**	**202 days**	**01/12/18**	**30/06/19**
3	**Upper Roof**	**107 days**	**01/12/18**	**27/03/19**
4	Tiling works	30 days	01/12/18	01/01/19
5	Remaining Waterproofing + screed + touch up	14 days	16/01/19	29/01/19
6	Finishing for lift machine room except defer works	21 days	02/01/19	22/01/19
7	Installation remaining handrails & hatch doors & catladder	21 days	23/01/19	20/02/19
8	Miscellansous work & cleaning after plant erection clearance	35 days	21/02/19	27/03/19
9	**5/F**	**126 days**	**09/01/19**	**22/05/19**
10	Complete Vent fan support @ rooflight	35 days	15/01/19	26/02/19
11	Installation of internal enclosure @ rooflight	14 days	27/02/19	12/03/19
12	Removal of scaffold insider Rooflights	30 days	01/04/19	30/04/19
13	Complete & touch up rooflights façade	10 days	01/05/19	10/05/19
14	Remaing Waterproofing + screed	21 days	09/01/19	29/01/19
15	Touch up painting & floor joints	21 days	30/01/19	27/02/19
16	Construction of defer RC wall & feature at north of Air filter Inlet	45 days	08/04/19	22/05/19
17	Complete pump room for FS installation	21 days	30/01/19	27/02/19
18	Complete Air Filter Plant Room	21 days	28/02/19	20/03/19
19	Installation of GRS Water Tanks & Plumbing works	30 days	21/03/19	19/04/19
20	Installation of Stainless Steel Pole	7 days	13/04/19	19/04/19
21	Touch up remaining metal works	14 days	28/02/19	13/03/19
22	Miscellansous work & cleaning after plant erection clearance	14 days	09/05/19	22/05/19
23	**4/F**	**101 days**	**21/01/19**	**09/05/19**
24	Installation of grating & handrail to overhead crane walkway	45 days	21/01/19	15/03/19
25	TDK remove scaffolding for step installation	0 days	15/03/19	15/03/19
26	Installation of steps & Handrail to overhead crane walkway	14 days	15/03/19	28/03/19
27	Touch up remaining metal works	14 days	29/03/19	11/04/19
28	Touch up painting	14 days	12/04/19	25/04/19
29	Miscellansous work & cleaning after plant erection clearance	14 days	26/04/19	09/05/19
30	**3/F**	**105 days**	**01/03/19**	**13/06/19**
31	Delivery and Installation of fire proof window (Re-work)	70 days	01/03/19	09/05/19
32	Finishing touching up works at viewing gallery	14 days	10/05/19	23/05/19
33	Touch up remaining metal works	14 days	10/05/19	23/05/19
34	Touch up painting at other areas	7 days	24/05/19	30/05/19
35	Miscellansous work & cleaning after plant erection clearance	14 days	31/05/19	13/06/19
36	**2/F**	**42 days**	**08/03/19**	**18/04/19**
37	Installation of grating & handrail to overhead crane walkway	21 days	08/03/19	28/03/19
38	Miscellansous work & cleaning after plant erection clearance	21 days	29/03/19	18/04/19
39	**1/F**	**66 days**	**15/01/19**	**29/03/19**
40	Complete IBP installation and return site from TDK	0 days	15/01/19	15/01/19
41	Durasteel steel partition and cat ladder installation at Loading Bay	35 days	15/01/19	26/02/19
42	Touch up remaining metal works	21 days	16/02/19	08/03/19



16-8002 OS Work Prog (09Apr19). Critical Split Task Split Milestone Summary

16/8002 Outstanding Work Programme 16-8002 OS Work Prog (09Apr19).mpp 09/04/19

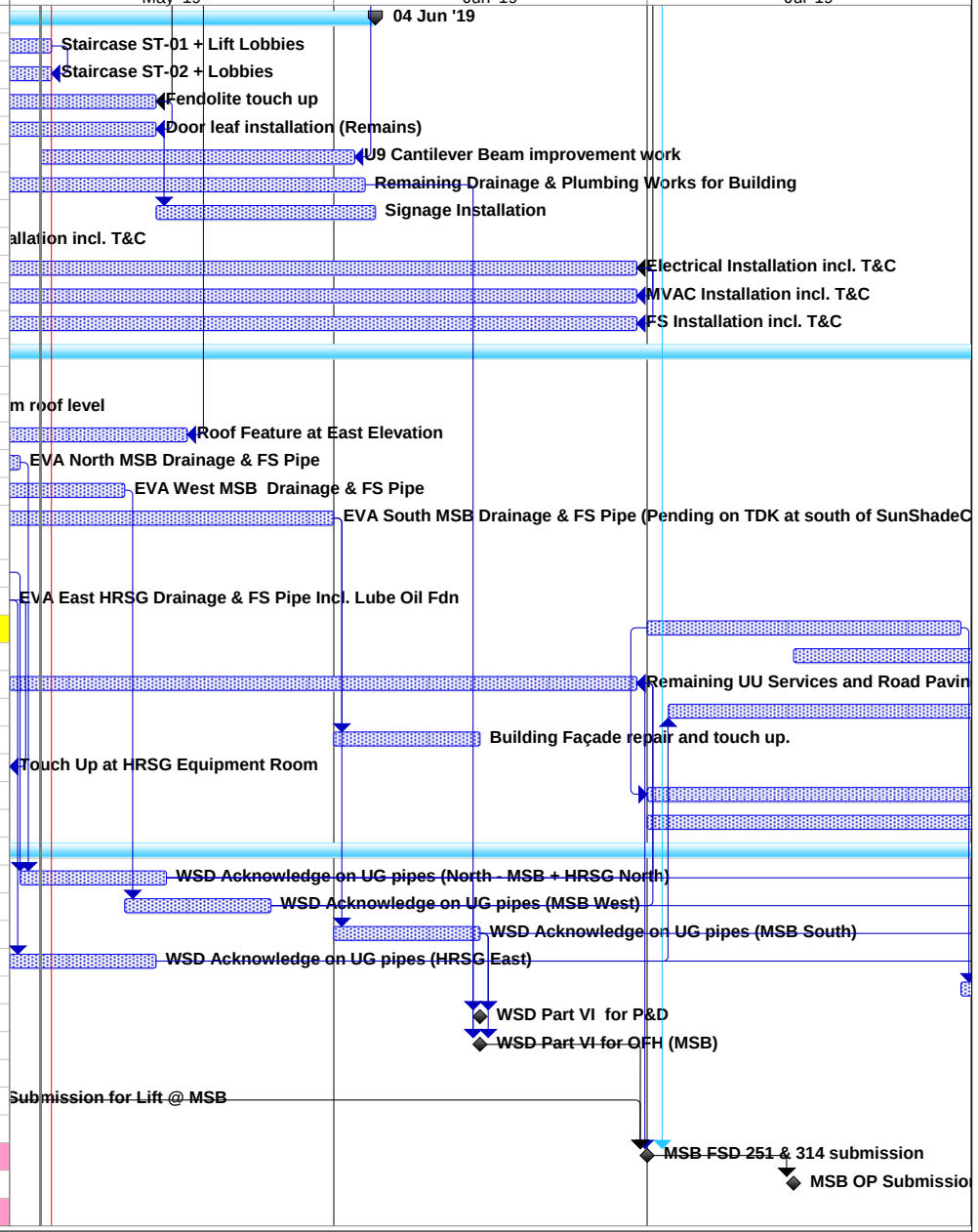
ID	Task Name	Duration	Start	Finish
43	Miscellansous work & cleaning after plant erection clearance	21 days	09/03/19	29/03/19
44	**M/F +12.15mPD Mainenance Platform**	**28 days**	**01/06/19**	**28/06/19**
45	Plant erection clearance	0 days	01/06/19	01/06/19
46	Floor Screeding	14 days	01/06/19	14/06/19
47	Miscellaneous work & cleaning	14 days	15/06/19	28/06/19
48	**G/F**	**202 days**	**01/12/18**	**30/06/19**
49	RC slabs at remaining rooms	21 days	15/12/18	06/01/19
50	Toilets finishing Works	21 days	07/01/19	27/01/19
51	Installation of Shutter at South	14 days	14/01/19	27/01/19
52	Lube Oil RC Walls	21 days	01/12/18	21/12/18
53	Remaining RC entrance lobbies (NE & E)	14 days	22/12/18	06/01/19
54	Return Condenser from Plant ejection	0 days	06/03/19	06/03/19
55	Remaining Floor slabs at Condenser Area	21 days	06/03/19	26/03/19
56	Modify GL G-H/6 Bracing	10 days	24/02/19	06/03/19
57	Return Unloading Bay from Plant ejection (G.L G~H)	0 days	15/03/19	15/03/19
58	On-Grade slab at Unloading Bay (G.L. G~H)	14 days	15/03/19	28/03/19
59	Erection of Shutter at East	6 days	22/03/19	27/03/19
60	Scaffold erection + Defer Cladding at East elevation	45 days	03/04/19	17/05/19
61	RC external walls at East Elevation + Tiling	45 days	15/03/19	28/04/19
62	TDK scaffold removal @ G/F	0 days	01/05/19	01/05/19
63	Installation GRP tank above meter room incl. plumbing system	21 days	01/05/19	21/05/19
64	Install remaining Steel & metalwork and drainage channel covers	30 days	01/05/19	30/05/19
65	Touch up remaining metal works	14 days	31/05/19	13/06/19
66	Touch up painting	30 days	31/05/19	29/06/19
67	TDK Return Unloading Bay (G.L F~G)	0 days	10/06/19	10/06/19
68	Completion of floor slab @ unloading bay and touch up	7 days	10/06/19	16/06/19
69	Install FS & Electrical work @ Unloading Bay	14 days	17/06/19	30/06/19
70	Miscellaneous work & cleaning	21 days	10/06/19	30/06/19
71	**Transformer Area**	**85 days**	**21/01/19**	**23/04/19**
72	Completion of Plant Installation	0 days	21/01/19	21/01/19
73	Installation of Roofing and Fence Louvre walls	21 days	21/01/19	18/02/19
74	Installation of Building Services	50 days	19/02/19	09/04/19
75	Removal of scaffoldings	14 days	10/04/19	23/04/19
76	**Link Bridge**	**132 days**	**14/01/19**	**02/06/19**
77	Scaffold erection	10 days	14/01/19	23/01/19
78	Roof Cladding	21 days	24/01/19	21/02/19
79	Fire partition & internal panels	45 days	22/02/19	07/04/19
80	Vertical Cladding Panels	14 days	08/04/19	21/04/19
81	Floor tiles	21 days	22/02/19	14/03/19
82	Downpipe installation	14 days	15/03/19	28/03/19
83	FS and Electrical Installation	21 days	22/04/19	12/05/19
84	Additional Handrail & Door Replacement at U10 side	21 days	13/05/19	02/06/19



16-8002 OS Work Prog (09Apr19). Critical Split Task Split Milestone Summary

16/8002 Outstanding Work Programme 16-8002 OS Work Prog (09Apr19).mpp 09/04/19

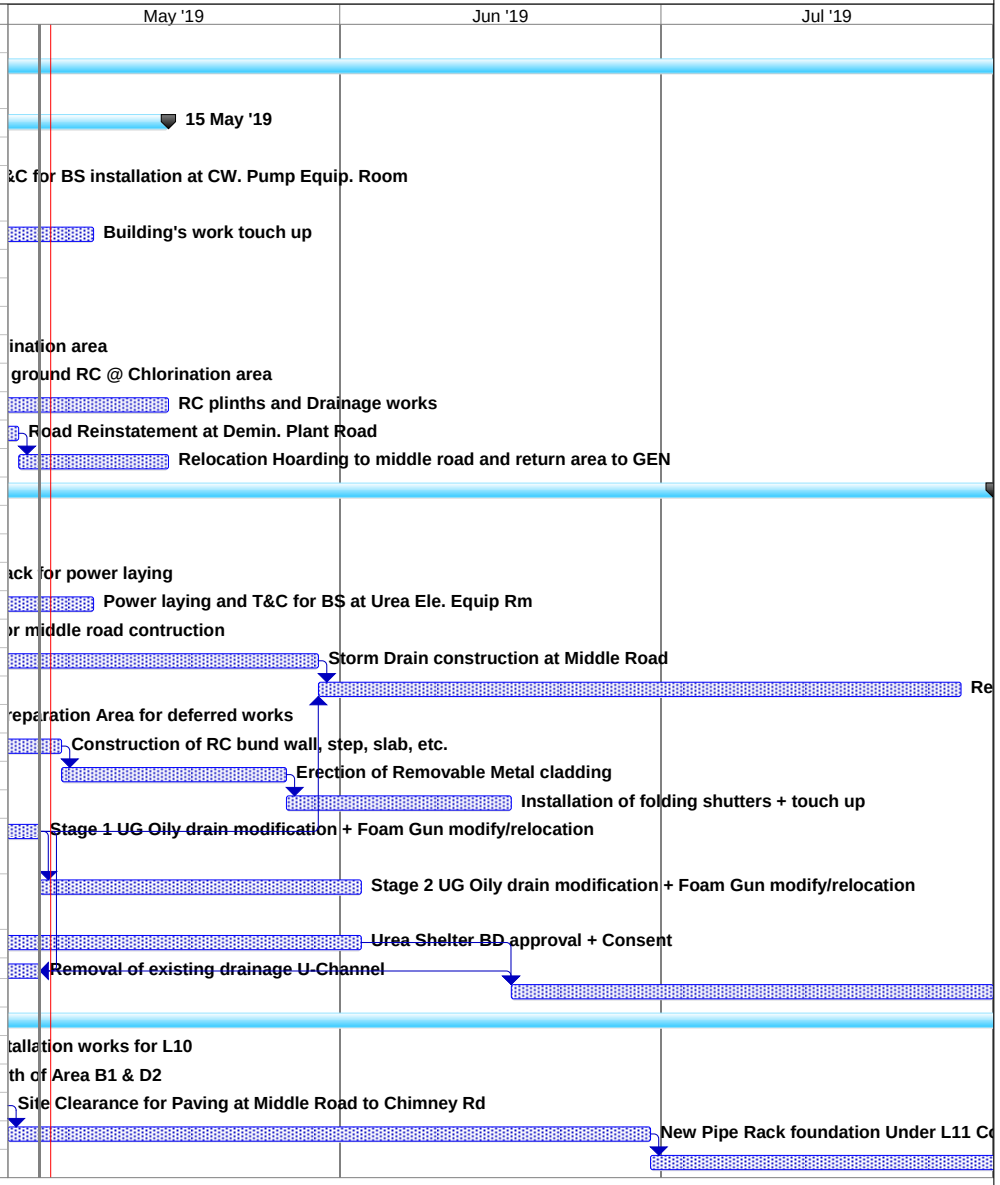
ID	Task Name	Duration	Start	Finish
85	**Others**	**162 days**	**15/12/18**	**04/06/19**
86	Staircase ST-01 + Lift Lobbies	45 days	21/03/19	04/05/19
87	Staircase ST-02 + Lobbies	30 days	05/04/19	04/05/19
88	Fendolite touch up	60 days	16/03/19	14/05/19
89	Door leaf installation (Remains)	45 days	31/03/19	14/05/19
90	U9 Cantilever Beam improvement work	30 days	04/05/19	02/06/19
91	Remaining Drainage & Plumbing Works for Building	45 days	20/04/19	03/06/19
92	Signage Installation	21 days	15/05/19	04/06/19
93	Lift Installation incl. T&C	120 days	15/12/18	23/04/19
94	Electrical Installation incl. T&C	120 days	02/03/19	29/06/19
95	MVAC Installation incl. T&C	120 days	02/03/19	29/06/19
96	FS Installation incl. T&C	120 days	02/03/19	29/06/19
97	**External Works**	**253 days**	**12/12/18**	**31/08/19**
98	Removal of remaining external scaffold	21 days	12/12/18	03/01/19
99	Allow access at East Elevation from roof level	0 days	03/04/19	03/04/19
100	Roof Feature at East Elevation	45 days	03/04/19	17/05/19
101	EVA North MSB Drainage & FS Pipe	110 days	04/01/19	01/05/19
102	EVA West MSB Drainage & FS Pipe	90 days	11/02/19	11/05/19
103	EVA South MSB Drainage & FS Pipe (Pending on TDK at south of SunShadeCover)	45 days	17/04/19	31/05/19
104	EVA North HRSG Drainage & FS Pipe	50 days	01/02/19	30/03/19
105	EVA East HRSG Drainage & FS Pipe Incl. Lube Oil Fdn	30 days	01/04/19	30/04/19
106	EVA South HRSG Drainage & FS Pipe	30 days	01/07/19	30/07/19
107	EVA North HRSG Paving Works (TDK Return back on 15/7/19)	30 days	15/07/19	13/08/19
108	Remaining UU Services and Road Paving Works (MSB)	60 days	01/05/19	29/06/19
109	Remaining UU Services and Road Paving Works (HRSG)	60 days	03/07/19	31/08/19
110	Building Façade repair and touch up.	14 days	01/06/19	14/06/19
111	Touch Up at HRSG Equipment Room	21 days	10/04/19	30/04/19
112	Electrical & FS Installation @ HRSG	60 days	01/07/19	29/08/19
113	Lift @ HRSG Installation	90 days	01/07/19	28/09/19
114	**Statutory Submissions & Inspection**	**158 days**	**23/04/19**	**28/09/19**
115	WSD Acknowledge on UG pipes (North - MSB + HRSG North)	14 days	02/05/19	15/05/19
116	WSD Acknowledge on UG pipes (MSB West)	14 days	12/05/19	25/05/19
117	WSD Acknowledge on UG pipes (MSB South)	14 days	01/06/19	14/06/19
118	WSD Acknowledge on UG pipes (HRSG East)	14 days	01/05/19	14/05/19
119	WSD Acknowledge on UG pipes (HRSG South)	14 days	31/07/19	13/08/19
120	WSD Part VI for P&D	0 days	14/06/19	14/06/19
121	WSD Part VI for OFH (MSB)	0 days	14/06/19	14/06/19
122	WSD Part VI for OFH (HRSG)	0 days	13/08/19	13/08/19
123	ESDM Submission for Lift @ MSB	0 days	23/04/19	23/04/19
124	ESDM Submission for Lift @ HRSG	0 days	28/09/19	28/09/19
125	MSB FSD 251 & 314 submission	0 days	30/06/19	30/06/19
126	MSB OP Submission	0 days	14/07/19	14/07/19
127	HRSG FSD 251 & 314 submission	0 days	31/08/19	31/08/19



16-8002 OS Work Prog (09Apr19). Critical Split Task Split Milestone Summary

16/8002 Outstanding Work Programme 16-8002 OS Work Prog (09Apr19).mpp 09/04/19

ID	Task Name	Duration	Start	Finish
128	HRSG OP Submission	0 days	14/09/19	14/09/19
129	**C.W. Pump, Intake and Urea Plant and Outstanding External Works**	233 days	31/12/18	28/08/19
130	C.W. Pump Area incl. Chlorination Area	**114 days**	**14/01/19**	**15/05/19**
131	Cable tray at pipe rack ready for power supply laying	0 days	31/01/19	31/01/19
132	Power supply laying and T&C for BS installation at CW. Pump Equip. Room	60 days	31/01/19	08/04/19
133	Building's work touch up	30 days	09/04/19	08/05/19
134	TDK confirm not use of temp. access to CW Intake	0 days	14/01/19	14/01/19
135	Drainage construction under Chlorination area	21 days	14/01/19	11/02/19
136	Bearing inspection by BD	30 days	12/02/19	13/03/19
137	Foundation Construction of Chlorination area	21 days	14/03/19	03/04/19
138	Above ground RC @ Chlorination area	21 days	04/04/19	24/04/19
139	RC plinths and Drainage works	21 days	25/04/19	15/05/19
140	Road Reinstatement at Demin. Plant Road	100 days	14/01/19	01/05/19
141	Relocation Hoarding to middle road and return area to GEN	14 days	02/05/19	15/05/19
142	Urea Plant	205 days	31/12/18	31/07/19
143	Handover for plant erection	0 days	31/12/18	31/12/18
144	Building Services and raised floors for Urea Ele. Equip Room	14 days	02/01/19	15/01/19
145	Cable Tray ready at Pipe rack for power laying	0 days	08/04/19	08/04/19
146	Power laying and T&C for BS at Urea Ele. Equip Rm	30 days	09/04/19	08/05/19
147	TDK Return area for middle road contruction	0 days	15/04/19	15/04/19
148	Storm Drain construction at Middle Road	45 days	15/04/19	29/05/19
149	Remaining UU at middle road + paving	60 days	30/05/19	28/07/19
150	TDK return Urea Preparation Area for deferred works	0 days	15/04/19	15/04/19
151	Construction of RC bund wall, step, slab, etc.	21 days	15/04/19	05/05/19
152	Erection of Removable Metal cladding	21 days	06/05/19	26/05/19
153	Installation of folding shutters + touch up	21 days	27/05/19	16/06/19
154	Stage 1 UG Oily drain modification + Foam Gun modify/relocation	30 days	04/04/19	03/05/19
155	Stage 2 UG Oily drain modification + Foam Gun modify/relocation	30 days	04/05/19	02/06/19
156	Urea Shelter BD approval + Consent	80 days	15/03/19	02/06/19
157	Removal of existing drainage U-Channel	14 days	20/04/19	03/05/19
158	Urea Shelter fdn and superstructure	45 days	17/06/19	31/07/19
159	**Other & External works**	**231 days**	**02/01/19**	**28/08/19**
160	Chimney Remainining Installation works for L10	90 days	02/01/19	09/04/19
161	Return from ground treatment at North of Area B1 & D2	0 days	01/04/19	01/04/19
162	Site Clearance for Paving at Middle Road to Chimney Rd	30 days	01/04/19	30/04/19
163	New Pipe Rack foundation Under L11 Contract (FYI)	60 days	01/05/19	29/06/19
164	Road Paving and other service reinstatement	60 days	30/06/19	28/08/19



16-8002 OS Work Prog (09Apr19). Critical Split Task Split Milestone Summary

FOR INFO

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

No.	Description	2019 May	Jun	Jul
	Erection Key Date		S	
			Synchro 1-Jun	
		0 **HRS**		
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			

FOR INFO

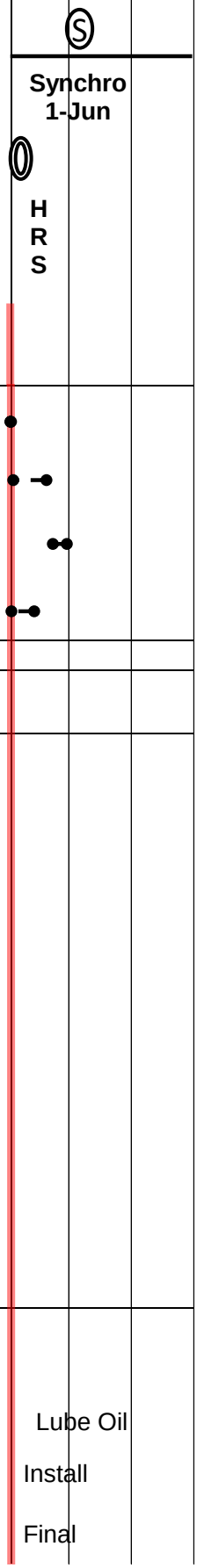
SCHEDULE C. Contract No. 16/2209
Lamma Power Station Extension - Unit 10
Complete Erection, Inspection, Testing & Commissioning of Power Block Facilities

No.	Description	2019 May	Jun	Jul
	Erection Key Date		S	
			Synchro 1-Jun	
			0 **HRS**	
A-11	Inlet Duct Structure / Include Pipe Rack (U9-U10 Connection)			
A-12	Inlet Duct			
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	Final		
A-16	Insulation			
A-17	Painting			
A-18	Install Catalyst			
A-19	Steam Blowing out(other scope) & alkaline boiling out			

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

FOR INFO

No.	Description	2019 May	Jun	Jul
	Erection Key Date			
	Installation of Temporary piping, Support & Silencer			
	Excection of Steam blowing out			
	Dismantle of Temporary iping, Support & Silencer			
	Excection of Steam boiling out			
B	**GT/ST/GEN PORTION**			
B-1	Turbine O/H Crane			
B-2	Condenser			
B-3	Install ST			



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

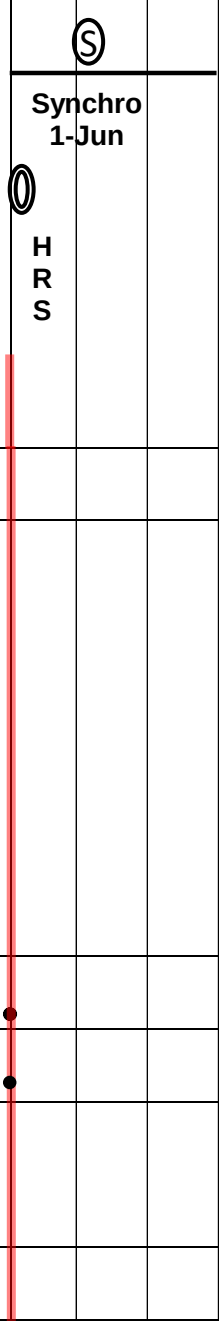
FOR INFO

No.	Description	2019 May	Jun	Jul
	Erection Key Date		S	
			Synchro 1-Jun	
			0 **HRS**	
B-4	Install GEN		GT Spin Bl	
B-5	Install GT			

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

FOR INFO

No.	Description	2019 May	Jun	Jul
	Erection Key Date			
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

FOR INFO

No.	Description	2019		
		May	Jun	Jul
	Erection Key Date	0 HRS	S **Synchro 1-Jun**	
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			

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

FOR INFO

No.	Description	2019 May	Jun	Jul
	Erection Key Date	S		
		Synchro 1-Jun		
		0 **HRS**		
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			

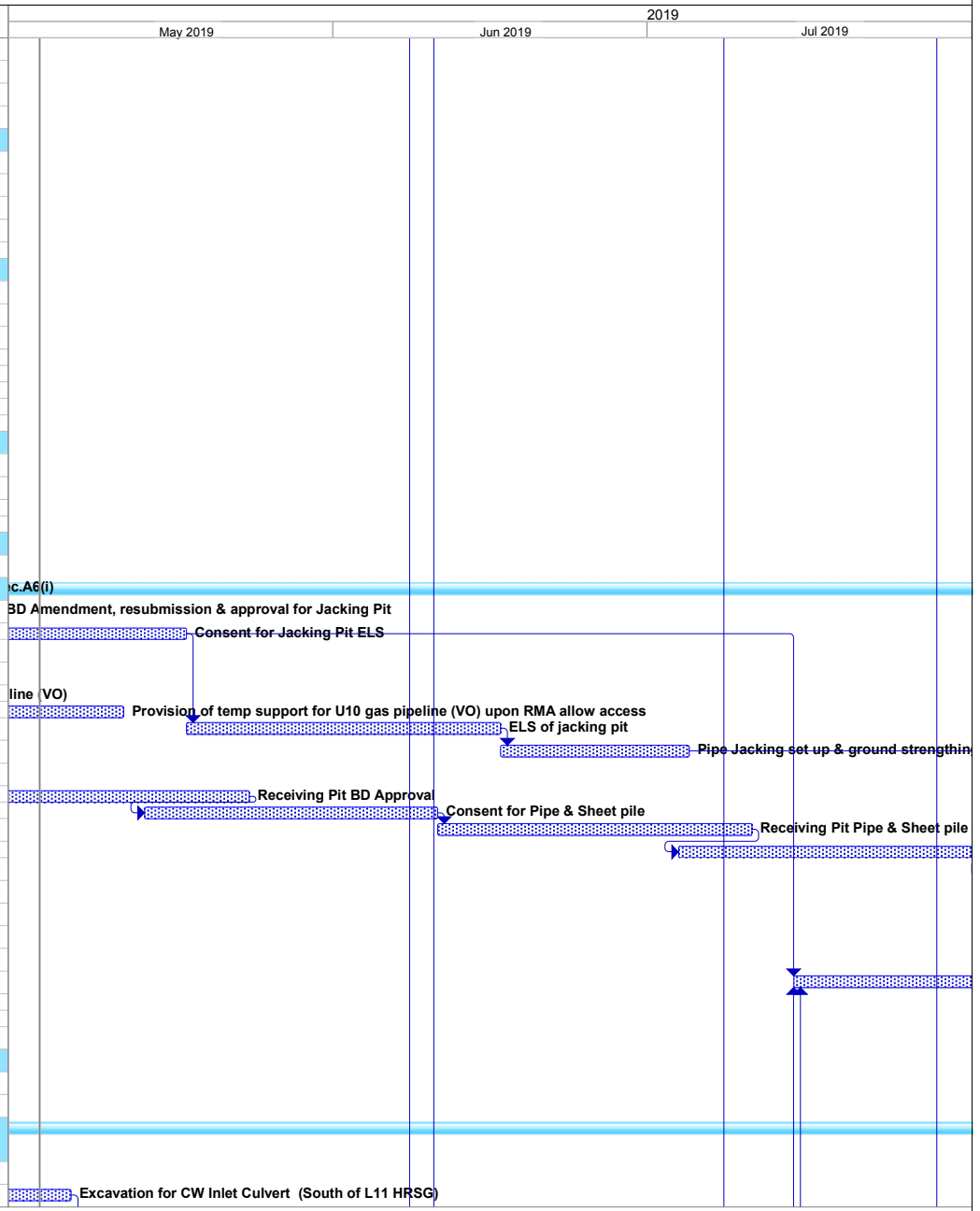
Contract No. 17/8002 Lamma Power Station Extension Civil and Building Works for Unit L11 17-8002 Master Prog Rev 3.mpp **Refer to CEM dated 26March2019**

ID	Task Name	Duration	Start	Finish
1	**Civil and Building Works for Unit 11 and Assoicated Works**	**1197 days**	**01/06/18**	**30/09/21**
2	**Contract Key Dates**	**1197 days**	**01/06/18**	**30/09/21**
3	Contract Commencement Date	0 days	01/06/18	01/06/18
4	**Completion Dates**	**1044 days**	**31/10/18**	**30/09/21**
42	**General & Preliminary**	**318 days**	**01/06/18**	**24/04/19**
43	Set up Temporary Site Office and Utilities	90 days	01/06/18	29/08/18
44	Permit Applications & Statuary Submissions	120 days	30/08/18	27/12/18
45	Existing Utilities scanning & Excavation Permit	45 days	13/11/18	27/12/18
46	Tower Crane erection 2@MSB, 1@ 275	50 days	06/03/19	24/04/19
47	**Submission and Approval**	**554 days**	**01/06/18**	**16/12/19**
48	Method Statement / Temp Work Submission & Approval from HEC for General Works	240 days	01/06/18	26/01/19
49	BD Approval & Consent (If required)	120 days	01/06/18	28/09/18
50	BIM Model, CSD & CBWD Submission & Approval from HEC	200 days	29/09/18	26/04/19
51	Structure Steelwork Connection Design Submission & BD Approval	60 days	29/09/18	27/11/18
52	Structure Steelwork Shop Drawing & Approval	60 days	13/10/18	11/12/18
53	Metal Cladding, louvre & windows submission & BD Approval	60 days	28/11/18	26/01/19
54	Metal Cladding, louvre & windows shop drawing submission	60 days	12/12/18	19/02/19
55	Order, Off Site Fabrication and Delivery (S. Steel & Cladding & louvres)	180 days	27/10/18	04/05/19
56	Retractable Cover D BD Submission & Approval	90 days	20/02/19	20/05/19
57	No. 4 C.W. Outfall A&A BD 1st Submission	90 days	30/08/18	27/11/18
58	Sumission & Approval of Steel Flue Assessment Report and Design Drawings	60 days	30/09/18	28/11/18
59	Submission and Approval of Steel Flue Design from BD	60 days	30/09/18	28/11/18
60	Material Fabrication & Delivery for L11 Flue	100 days	15/10/18	22/01/19
61	Folding Shutters Shop Drawing Submission & Approval	120 days	20/02/19	19/06/19
62	Fabrication & Delivery of Folding Shutters	150 days	20/06/19	16/11/19
63	Sewage Pump System Design submission & approval	90 days	22/03/19	19/06/19
64	Fabrication & Delivery of Sewage Pump	180 days	20/06/19	16/12/19
65	Other material submission & approval & delivery	300 days	30/08/18	05/07/19
66	**Coordination with the Employer's Specialist Contractors**	**478 days**	**20/05/19**	**19/09/20**
67	Installation of Puddle Pipes at C.W. outlet Culvert	7 days	20/05/19	26/05/19
68	Installation of Puddle Pipes at C.W. Inlet Culvert	7 days	07/07/19	13/07/19
69	Template setting at L11 Turbo Block Foundation	60 days	01/01/20	09/03/20
70	Template setting of holding down bolts at HRSG column base	46 days	23/07/19	06/09/19
71	I-beam / channel base installation on top of transformer foundations at Transformer Area	30 days	17/04/20	16/05/20
72	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	01/12/19	07/01/20
73	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 a clear space below 1/F between GL 11-B to 11-C	127 days	01/03/20	05/07/20
74	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 GL11-F to 11-H including a clear space below 1/F of the above area	142 days	01/05/20	19/09/20
75	Installation of embedded materials such as holding down bolts for equipment foundations - Commencement	30 days	23/06/19	22/07/19
76	**Section A1 & A2 - Ground treatment at Zone 1A & 1B**	**92 days**	**01/08/18**	**31/10/18**
77	Plant establishment for earthworks	7 days	01/08/18	07/08/18
78	Backfilling and compaction from existing ground +4.5mPD to +5.5mPD	45 days	08/08/18	21/09/18
79	Delivery of band drain	5 days	29/08/18	02/09/18
80	Plant establishment for band drain (1st rig)	10 days	03/09/18	12/09/18

17-8002 Master Prog Rev 3.mpp | Task | Split | Milestone | Summary

Contract No. 17/8002 Lamma Power Station Extension Civil and Building Works for Unit L11 17-8002 Master Prog Rev 3.mpp **Refer to CEM dated 26March2019**

ID	Task Name	Duration	Start	Finish
81	Plant establishment for band drain (2nd rig)	7 days	20/09/18	26/09/18
82	Plant establishment for band drain (3rd rig)	7 days	11/10/18	17/10/18
83	Vert. Band drain installation (1023 nos. x 44m)	45 days	13/09/18	27/10/18
84	Deposition of surcharge up to +8.3mPD	45 days	17/09/18	31/10/18
85	**Section A3 - Ground treatment installation works at Zone 2**	**158 days**	**01/10/18**	**17/03/19**
86	Backfilling and compaction from existing ground +4.5mPD to +5.5mPD	30 days	01/10/18	30/10/18
87	Delivery of band drain	6 days	18/10/18	23/10/18
88	Vert. Band drain installation (1787 nos. x 44m)	50 days	24/10/18	12/12/18
89	Deposition of surcharge up to +8.3mPD	60 days	03/12/18	31/01/19
90	Additional Concrete Blocks + Extra Surcharge	60 days	07/01/19	17/03/19
91	**Section A4 - Ground treatment installation works at Zone 3**	**131 days**	**01/11/18**	**21/03/19**
92	Backfilling and compaction from existing ground +4.5mPD to +5.5mPD	12 days	01/11/18	12/11/18
93	Vert. Band drain installation	60 days	09/11/18	07/01/19
94	Deposition of surcharge up to +8.3mPD	45 days	18/12/18	31/01/19
95	Possession of Part 1 Defer portion at Zone 3	0 days	20/02/19	20/02/19
96	Vert. Band drain installation	10 days	20/02/19	01/03/19
97	Possession of Part 2 Defer portion at Zone 3	0 days	01/03/19	01/03/19
98	Vert. Band drain installation	7 days	01/03/19	07/03/19
99	Surcharge at deferred portion	14 days	08/03/19	21/03/19
100	**Section A5 (i) - Ground treatment installation works at Zone 4**	**83 days**	**26/12/18**	**28/03/19**
101	Site Preparation for Vertical Band Drain	3 days	01/01/19	03/01/19
102	Band drain installation	21 days	26/12/18	15/01/19
103	Possession of Defer portion at Zone 4	0 days	01/03/19	01/03/19
104	Vert. Band drain installation	28 days	01/03/19	28/03/19
105	**Section A5 (ii) - Surcharge works at Zone 4**	**30 days**	**01/09/20**	**30/09/20**
106	Deposition of surcharge up to +8.3mPD	30 days	01/09/20	30/09/20
107	**Section A6 (i) - A&A Works for No. 4 C.W. Outfall at Area E18**	**493 days**	**01/11/18**	**28/03/20**
108	BD Amendment, resubmission & approval for Jacking Pit	170 days	01/11/18	29/04/19
109	Consent for Jacking Pit ELS	28 days	20/04/19	17/05/19
110	Mobilization	0 days	15/12/18	15/12/18
111	Jacking Pit Sheetpile Installation (incl. Stop work notice + CNY)	60 days	16/12/18	23/02/19
112	Protective screen and preventive measure for U9 gas pipeline (VO)	28 days	24/02/19	23/03/19
113	Provision of temp support for U10 gas pipeline (VO) upon RMA allow access	28 days	14/04/19	11/05/19
114	ELS of jacking pit	30 days	18/05/19	16/06/19
115	Pipe Jacking set up & ground strengthing	18 days	17/06/19	04/07/19
116	Pipe Jacking	90 days	10/09/19	08/12/19
117	Receiving Pit BD Approval	170 days	25/11/18	23/05/19
118	Consent for Pipe & Sheet pile	28 days	14/05/19	10/06/19
119	Receiving Pit Pipe & Sheet pile installation	30 days	11/06/19	10/07/19
120	Consent for Receiving Pit ELS	28 days	04/07/19	31/07/19
121	ELS of Receiving pit	40 days	01/08/19	09/09/19
122	Allow modify existing outfall manhole for pipe jacking receiving	18 days	10/09/19	27/09/19
123	Culvert Pipe Intallation & water test	55 days	09/12/19	12/02/20
124	Inspection Manhole at Jacking Pit + backfill (Area E3(A))	18 days	13/02/20	01/03/20
125	Manhole extension at Outfall no. 4 + backfill + Reinstate of Outfall Rd	45 days	13/02/20	28/03/20
126	Sheetpile for L12 Outlet culvert (Connection to Jacking Pit)	45 days	15/07/19	28/08/19
127	Consent + ELS for remaining jacking pit	75 days	29/08/19	11/11/19
128	Outlet Culvert pipe installation + Thrust Box (remaining portion at A1 Area)	45 days	12/11/19	28/12/19
129	Sheet pile for future extension along GRS	60 days	29/08/19	27/10/19
130	**Section A6 (ii) - External works at Area E15(D)**	**37 days**	**01/01/20**	**15/02/20**
131	Arae possession & Clearance	6 days	01/01/20	06/01/20
132	Road & Surface Works	31 days	07/01/20	15/02/20
133	**Section B1 (i) - Area south of L11 MSB and HRSG from GL11-F eastwards leading to Chimney Road at Area E1 & E2**	**375 days**	**31/01/19**	**01/03/20**
134	Area Possession & Clearance	0 days	31/01/19	31/01/19
135	Excavation for CW Inlet Culvert (South of L11 HRSG)	21 days	16/04/19	06/05/19



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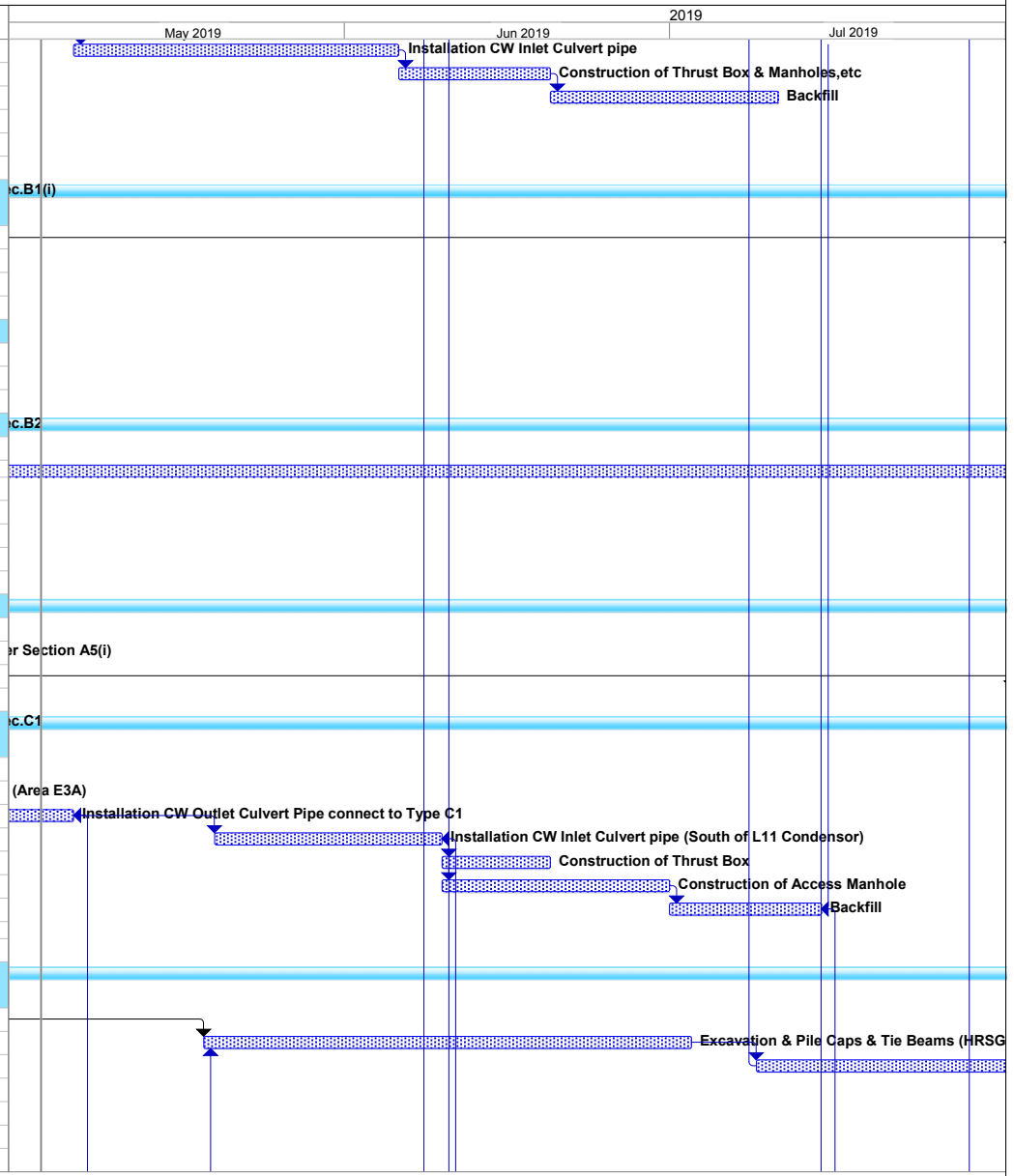
ID	Task Name	Duration	Start	Finish
136	Installation CW Inlet Culvert pipe	30 days	07/05/19	05/06/19
137	Construction of Thrust Box & Manholes,etc	14 days	06/06/19	19/06/19
138	Backfill	21 days	20/06/19	10/07/19
139	Install underground utilities	45 days	30/09/19	13/11/19
140	Backfill and Temporary paving for Condensor Move in (E1)	14 days	17/02/20	01/03/20
141	Backfill and Temporary paving for Condensor Move in (others)	30 days	01/02/20	01/03/20
142	**Section B1 (ii) - Supporting structures for overhead cranes of L11 MSB including the associated roof structure except the roof deferred works**	**482 days**	**01/11/18**	**17/03/20**
143	Area possession & Clearance	0 days	01/11/18	01/11/18
144	Erection of turbine hall roof except defer work	0 days	13/11/19	13/11/19
145	Installation of crane griders	21 days	11/11/19	01/12/19
146	Turbine hall wall claddings	60 days	09/01/20	17/03/20
147	**Section B1 (iii) - FSRU Civil works at Area E13 (GRS)**	**151 days**	**01/01/21**	**31/05/21**
148	Submission and approval for consent to work	0 days	01/01/21	01/01/21
149	Civil & Building Works	130 days	01/01/21	10/05/21
150	Ground reinstatement	21 days	11/05/21	31/05/21
151	**Section B2 - Retractable Cover D at Area E22**	**435 days**	**01/01/19**	**31/03/20**
152	Area Possession, Demolition and clearance work	60 days	01/01/19	11/03/19
153	Revise Structural Form and BD resubmission & approval	150 days	12/03/19	08/08/19
154	Foundation construction	60 days	09/08/19	07/10/19
155	Backfill & Ground reinstatement	30 days	08/10/19	06/11/19
156	Superstructure fabrication & delivery	90 days	09/08/19	06/11/19
157	Superstructure erection	90 days	07/11/19	15/02/20
158	E&M Installation and T&C	45 days	16/02/20	31/03/20
159	**Section B3 - External works at Area B1, D2 and D4**	**416 days**	**01/03/19**	**30/04/20**
160	Receive Area from HKE, Area Possession & Clearance	0 days	01/03/19	01/03/19
161	Removal of existing paving for band drain under Section A5(i)	30 days	01/03/19	30/03/19
162	Complete Vert. Band drain under Section A5(i)	0 days	28/03/19	28/03/19
163	Ground preparation for B1, D2 & D4 for handover to Plant contractor	90 days	01/02/20	30/04/20
164	**Section C1 - Area south of L11 MSB from GL11-F westwards leading to Station Road at Area E3(A) & E3(B)**	**466 days**	**01/11/18**	**01/03/20**
165	Area Possession & Clearance	0 days	01/11/18	01/11/18
166	Excavation for Type C (Area E3A)	21 days	26/03/19	15/04/19
167	Installation CW Outlet Culvert Pipe connect to Type C1	21 days	16/04/19	06/05/19
168	Installation CW Inlet Culvert pipe (South of L11 Condensor)	21 days	20/05/19	09/06/19
169	Construction of Thrust Box	10 days	10/06/19	19/06/19
170	Construction of Access Manhole	21 days	10/06/19	30/06/19
171	Backfill	14 days	01/07/19	14/07/19
172	Construction of Underground drainage and utilities	60 days	07/11/19	07/01/20
173	Construct Temp Paving for Condenser move in	45 days	08/01/20	01/03/20
174	**Section C2 - (i) Southern part of L11 HRSG area and its surrounding at Area E7 (No Defer Foundations)**	**295 days**	**31/01/19**	**01/12/19**
175	Area Possession & Clearance	0 days	31/01/19	31/01/19
176	Excavation & Pile Caps & Tie Beams (HRSG South Area E7)	45 days	19/05/19	02/07/19
177	Construction RC foundations	45 days	09/07/19	22/08/19
178	Construction RC plinths	30 days	23/08/19	21/09/19
179	Construction underground utilities	45 days	23/08/19	06/10/19
180	Backfill & Construction on-grade slabs	35 days	07/10/19	10/11/19
181	Backfill and Temporary paving	21 days	11/11/19	01/12/19



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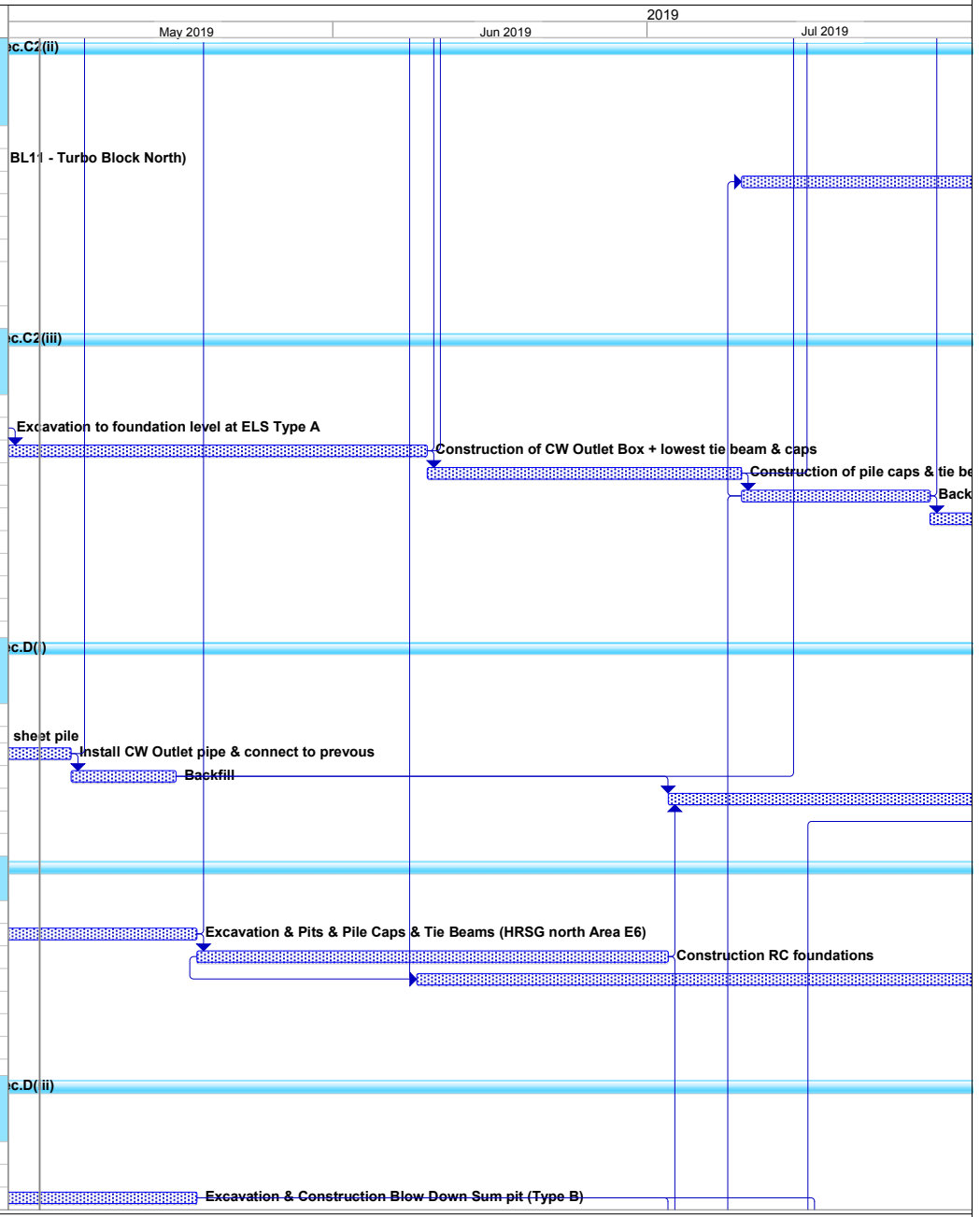
ID	Task Name	Duration	Start	Finish
182	**Section C2 - (ii) L11 Turbo Block foundation including the L11 MSB ground floor together with the equipment foundations between GL 11-F to 11-H and 11-1 to 11-6 for the installation of power generator, air inlet duct and lube oil reservoir**	**496 days**	**01/12/18**	**30/04/20**
183	Area Possession & Clearance	0 days	01/12/18	01/12/18
184	Excavation & Pile Caps & Tie Beams (MSBL11 - Turbo Block North)	70 days	14/01/19	03/04/19
185	Excavation & Pile Caps & Tie Beams (MSBL11 - Turbo Block South)	30 days	10/07/19	08/08/19
186	Backfill and construction turbine block foundations	21 days	09/08/19	29/08/19
187	Construction of internal drainage	60 days	09/08/19	07/10/19
188	Construction RC walls incl. G/F rooms	90 days	08/10/19	07/01/20
189	Construction turbine block columns and upper portion for plant embed installation	21 days	09/09/19	29/09/19
190	Concrete Turbine upper part foundation & clear falsework	52 days	10/03/20	30/04/20
191	**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**	**466 days**	**01/11/18**	**01/03/20**
192	Area Possession & Clearance	0 days	01/11/18	01/11/18
193	Excavation to foundation level at ELS Type A	18 days	13/04/19	30/04/19
194	Construction of CW Outlet Box + lowest tie beam & caps	40 days	01/05/19	09/06/19
195	Construction of pile caps & tie beams & hot well sump pit up to +2.5mPD	30 days	10/06/19	09/07/19
196	Backfill & Construction of CW Inlet Box + tie beams	18 days	10/07/19	27/07/19
197	Backfill and Construction ground beams & trenches	18 days	28/07/19	14/08/19
198	Construction of indoor underground drainage	12 days	15/08/19	26/08/19
199	Backfill & construction on-grade slabs	10 days	27/08/19	05/09/19
200	Construction Column casting and RC walls	30 days	30/09/19	29/10/19
201	Metal Cladding & Louvres for GLB-C/1-6	60 days	28/11/19	06/02/20
202	Mis. Works for plant erection	24 days	07/02/20	01/03/20
203	**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**	**414 days**	**01/11/18**	**31/12/19**
204	Area Possession & Clearance	14 days	01/11/18	14/11/18
205	Excavation for Type C1 and open sheet pile	75 days	14/01/19	08/04/19
206	Install CW Outlet pipe & connect to prevous	21 days	16/04/19	06/05/19
207	Backfill	10 days	07/05/19	16/05/19
208	Undeground utilities and trenches	60 days	03/07/19	31/08/19
209	Construction of plant drainage, trenches & RC plinths	45 days	01/09/19	15/10/19
210	Remaining Undeground utilities & backfill (West of Tx Bay)	75 days	16/10/19	31/12/19
211	**Section D - (ii) Remaining northern part of L11 HRSG area and its surrounding in Area E6**	**375 days**	**31/01/19**	**01/03/20**
212	Area Possession & Clearance	0 days	31/01/19	31/01/19
213	Excavation & Pits & Pile Caps & Tie Beams (HRSG north Area E6)	45 days	04/04/19	18/05/19
214	Construction RC foundations	45 days	19/05/19	02/07/19
215	Construction RC plinths & HRSG Lift Pit & internal drainage	60 days	09/06/19	07/08/19
216	Backfill Construction on-grade slabs	28 days	08/08/19	04/09/19
217	Construction underground utilities	45 days	05/09/19	19/10/19
218	Backfill, Remaining utilities and temporary paving	85 days	14/11/19	17/02/20
219	Touch up and site clearance	13 days	18/02/20	01/03/20
220	**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**	**526 days**	**01/11/18**	**30/04/20**
221	Area Possession & Clearance	0 days	01/11/18	01/11/18
222	Construction of pile caps & tie beams at Transformer Area	60 days	15/11/18	13/01/19
223	Excavation & Construction Blow Down Sum pit (Type B)	45 days	04/04/19	18/05/19



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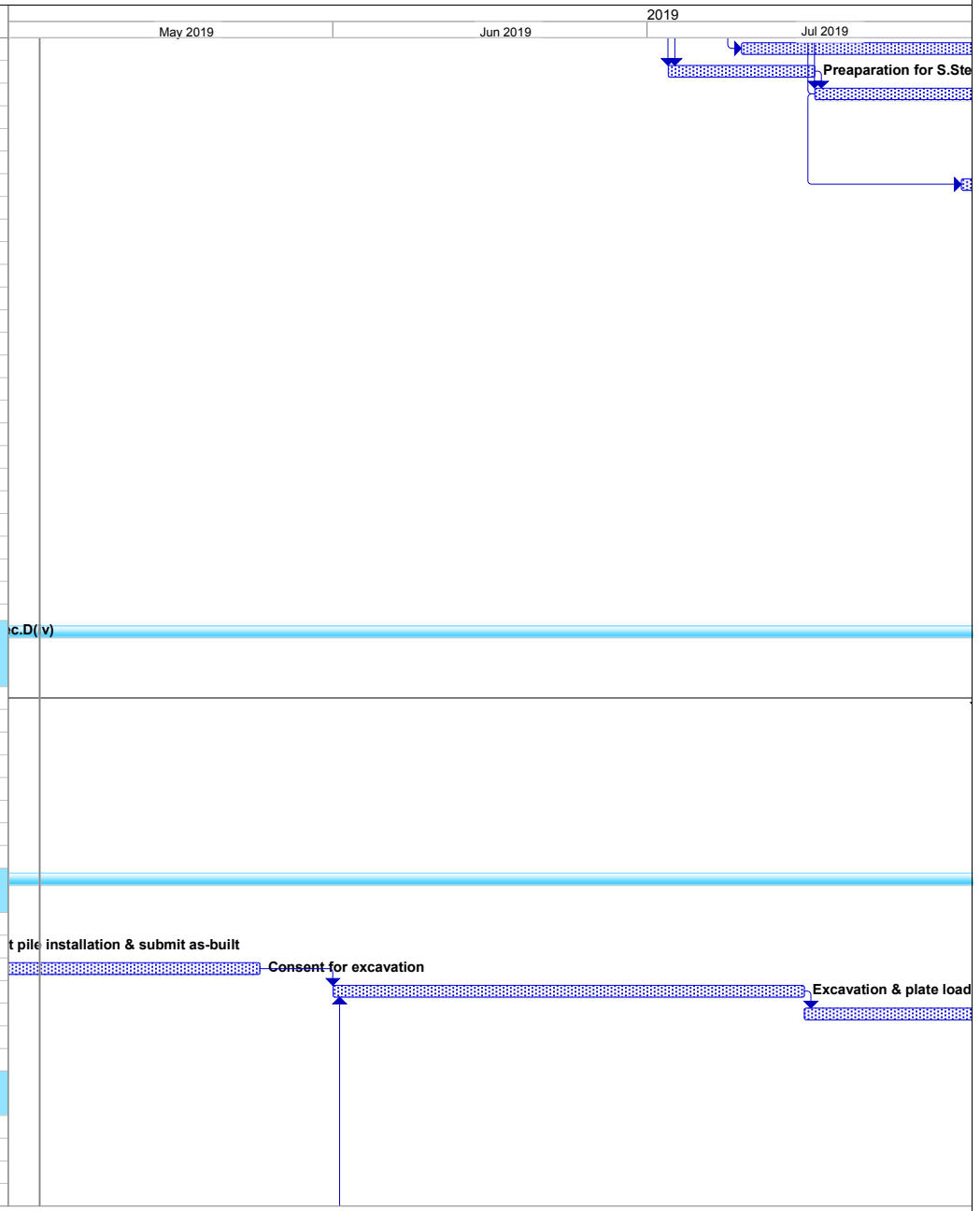
ID	Task Name	Duration	Start	Finish
224	Construction of pile caps & tie beams at SunShadeCover Area	45 days	10/07/19	23/08/19
225	Preaparation for S.Steelwork Erection	14 days	03/07/19	16/07/19
226	Structural Delivery & Erection (Turhine Hall North fr G.L. 1-3/H->B)	30 days	17/07/19	15/08/19
227	Structural Delivery & Erection (Equipment Floors)	45 days	16/08/19	29/09/19
228	Structural Delivery & Erection (Turbine Hall South)	45 days	30/09/19	13/11/19
229	Fire Coating Application at Joint	120 days	16/08/19	13/12/19
230	External Scaffolding Erection	150 days	31/07/19	29/12/19
231	Construction 1/F RC Slab	14 days	30/09/19	13/10/19
232	Construction M/F RC Slab	7 days	14/10/19	20/10/19
233	Construction 2/F RC Slab	14 days	14/10/19	27/10/19
234	Construction 3/F RC Slab	14 days	28/10/19	10/11/19
235	Construction 4/F RC Slab	14 days	11/11/19	24/11/19
236	Construction 5/F RC Slab (Roof of turbine hall, except defer portion)	30 days	25/11/19	24/12/19
237	Construction Roof RC Slab	14 days	09/12/19	22/12/19
238	Construction Upper Roof RC Slab	12 days	27/12/19	07/01/20
239	Construction Defer Roof RC Slab (G.L. G-H)	30 days	08/01/20	15/02/20
240	Construction of Staircase ST-01 & lift shaft & machine room	120 days	30/08/19	29/12/19
241	Construction of Staircase ST-02 except defer work	76 days	28/10/19	13/01/20
242	Construction of RC plinth, kerbs & parapet Walls	30 days	07/02/20	07/03/20
243	Erection of Skylight & Roof Features	45 days	21/02/20	05/04/20
244	Waterproofing & Flooring at Roof	60 days	08/01/20	16/03/20
245	ABFW Works from 1/F to 5/F equipment rooms	150 days	21/10/19	29/03/20
246	Metal Cladding, Windows and Louvres incl. roof feature	100 days	28/11/19	17/03/20
247	Removal of external scaffolding	60 days	17/02/20	16/04/20
248	Building Services E&M Access & Installation	150 days	04/11/19	12/04/20
249	Remaining and Mis. works for Plant erection Full Access	18 days	13/04/20	30/04/20
250	**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**	**526 days**	**01/11/18**	**30/04/20**
251	Area Possession & Clearance	0 days	01/11/18	01/11/18
252	A&A works at South of L10 MSB	60 days	28/11/19	07/02/20
253	Erection of link bridge structural steel	21 days	07/02/20	27/02/20
254	Casting of bridge deck	7 days	28/02/20	05/03/20
255	Metal roofing installation	14 days	06/03/20	19/03/20
256	ABWF work	21 days	20/03/20	09/04/20
257	Form new opening at MSB for final connection	14 days	27/03/20	09/04/20
258	E&M Work for completion	21 days	10/04/20	30/04/20
259	**Section D - (v) Gas Duct Foundation, Pipe and Cable Rack and associated trench in Area E20**	**345 days**	**11/02/19**	**01/02/20**
260	Area Possession & Clearance + CNY	0 days	11/02/19	11/02/19
261	Sheet pile installation & submit as-built	75 days	11/02/19	26/04/19
262	Consent for excavation	28 days	27/04/19	24/05/19
263	Excavation & plate load test	45 days	01/06/19	15/07/19
264	Construction of foundation	45 days	16/07/19	29/08/19
265	Backfill & Underground utiltiies	30 days	30/08/19	28/09/19
266	Remaining Pipe & cable rack and associated trenchs in Area E20	115 days	29/09/19	01/02/20
267	**Section E1 - (i) Link BrIdge and Pipe and Cable Rack connecting L11 MSB to the western area of L11 MSB at Area E3**	**263 days**	**01/01/20**	**28/09/20**
268	Area Possession	0 days	01/01/20	01/01/20
269	Excavation & construction of new foundation	40 days	01/01/20	18/02/20
270	Backfill	10 days	19/02/20	28/02/20
271	Erection of Structural steel	30 days	06/07/20	04/08/20



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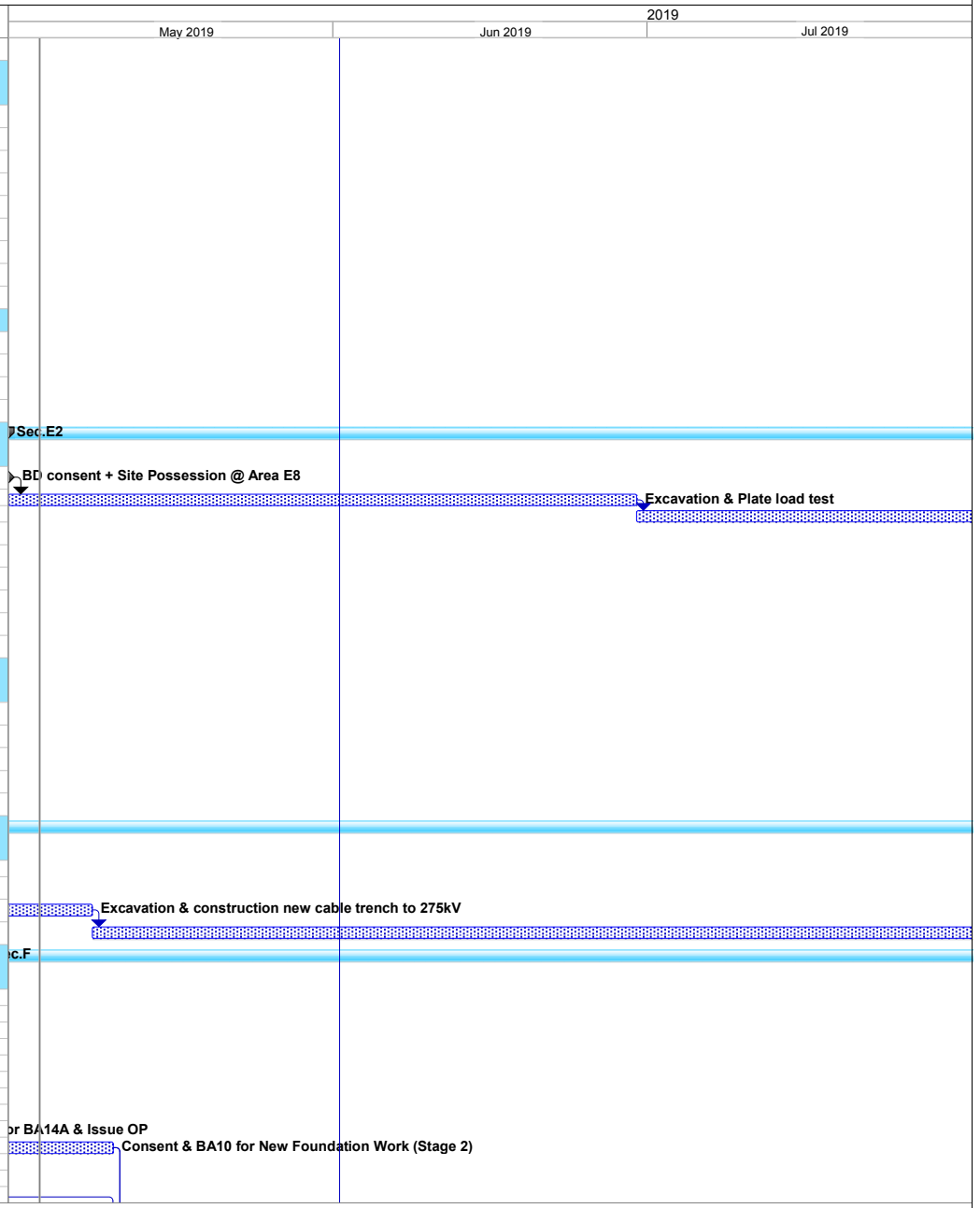
ID	Task Name	Duration	Start	Finish
272	Backfill & Ground works	55 days	05/08/20	28/09/20
273	**Section E1 - (ii) Gas Receiving Station and L11 Gas Receiving Station Equipment Room (GRS) Area Extension at Area E16**	**173 days**	**01/01/20**	**30/06/20**
274	Area Possession	0 days	01/01/20	01/01/20
275	Removal of Surcharge and excavation	14 days	01/01/20	14/01/20
276	Modification of Site Drainage	45 days	15/01/20	08/03/20
277	Construction of new RC for GRS Equipment Room	75 days	14/01/20	06/04/20
278	ABWF for GRS Equipment room	45 days	07/04/20	21/05/20
279	E&M Installation	45 days	17/05/20	30/06/20
280	Construction of new Gas pipe plinths & racks	45 days	22/02/20	06/04/20
281	Backfill and construction site drainage	21 days	07/04/20	27/04/20
282	External Paving and install new fencing	60 days	02/05/20	30/06/20
283	**Section E1 - (iii) External Works at Area E15 (C)**	**273 days**	**01/06/20**	**28/02/21**
284	Removal of Surcharge and excavation	45 days	01/06/20	15/07/20
285	Underground drianage, Utilities and RC plinths	123 days	16/07/20	15/11/20
286	Backfill and install surface utilities	45 days	16/11/20	30/12/20
287	Roadwork	60 days	31/12/20	28/02/21
288	**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**	**495 days**	**01/05/19**	**17/09/20**
289	BD consent + Site Possession @ Area E8	0 days	01/05/19	01/05/19
290	Excavation & Plate load test	60 days	01/05/19	29/06/19
291	Foundation and Trench constructions	90 days	30/06/19	27/09/19
292	Backfill & underground utitiles + temp paving	60 days	28/09/19	26/11/19
293	Excavation & plate load test @ E19	60 days	27/11/19	05/02/20
294	Construction of foundations & trenches	45 days	06/02/20	21/03/20
295	Backfill & underground utitiles	60 days	22/03/20	20/05/20
296	Pipe & cable rack Erection	60 days	21/05/20	19/07/20
297	Ground reinstatement	60 days	20/07/20	17/09/20
298	**Section E3 - Gas Pipe Support Foundation and Pipe Trench and associated external works at Area E14, E15 (A) and E15 (B)**	**173 days**	**01/01/20**	**30/06/20**
299	Removal of surcharge / site clearance	21 days	01/01/20	21/01/20
300	Excavation & construction of pipe trench	30 days	22/01/20	29/02/20
301	Construction of gas pipe support foundation	30 days	01/03/20	30/03/20
302	Construction of underground drainage and utilities	60 days	31/03/20	29/05/20
303	Backfill & road work	32 days	30/05/20	30/06/20
304	**Section E4 - 275kV cable trenching works connecting the 275kV Switching Station Extension and L11 MSB at Area E9 (A)**	**185 days**	**15/03/19**	**15/09/19**
305	Site possession	0 days	15/03/19	15/03/19
306	Obtain Permit to work & Road close permit	10 days	15/03/19	24/03/19
307	Excavation & construction new cable trench to 275kV	45 days	25/03/19	08/05/19
308	Excavation & construction new cable trench to L11MSB	130 days	09/05/19	15/09/19
309	**Section F - 275kV Station Building Extension and associated works at Area E17**	**709 days**	**01/06/18**	**30/05/20**
310	Installation of ELS for 275kV Switching Station near Staircase ST-3 and ST-6	14 days	01/06/18	14/06/18
311	Construction of Staircase ST-3	110 days	15/06/18	02/10/18
312	BD Amendment Approval on A&A	0 days	17/12/18	17/12/18
313	BD Amendment Approval on A&A ST3 & Drainage	0 days	04/02/19	04/02/19
314	OP inspection of Staircase ST-3	14 days	11/02/19	24/02/19
315	Consent of New Foundation Works (Stage 1)	0 days	19/10/18	19/10/18
316	Consent & BA10 for Demolition of Existing Staircase	0 days	08/03/19	08/03/19
317	Demolition of Exisiting Staircase and Submit BA14A	14 days	09/03/19	22/03/19
318	BD inspection for BA14A & Issue OP	28 days	23/03/19	19/04/19
319	Consent & BA10 for New Foundation Work (Stage 2)	28 days	13/04/19	10/05/19
320	Hoarding Modification	7 days	19/10/18	25/10/18
321	Pile Cap & Tie Beam Construction (Stage 1)	98 days	26/10/18	31/01/19
322	Erection of Tower Crane	40 days	11/02/19	22/03/19



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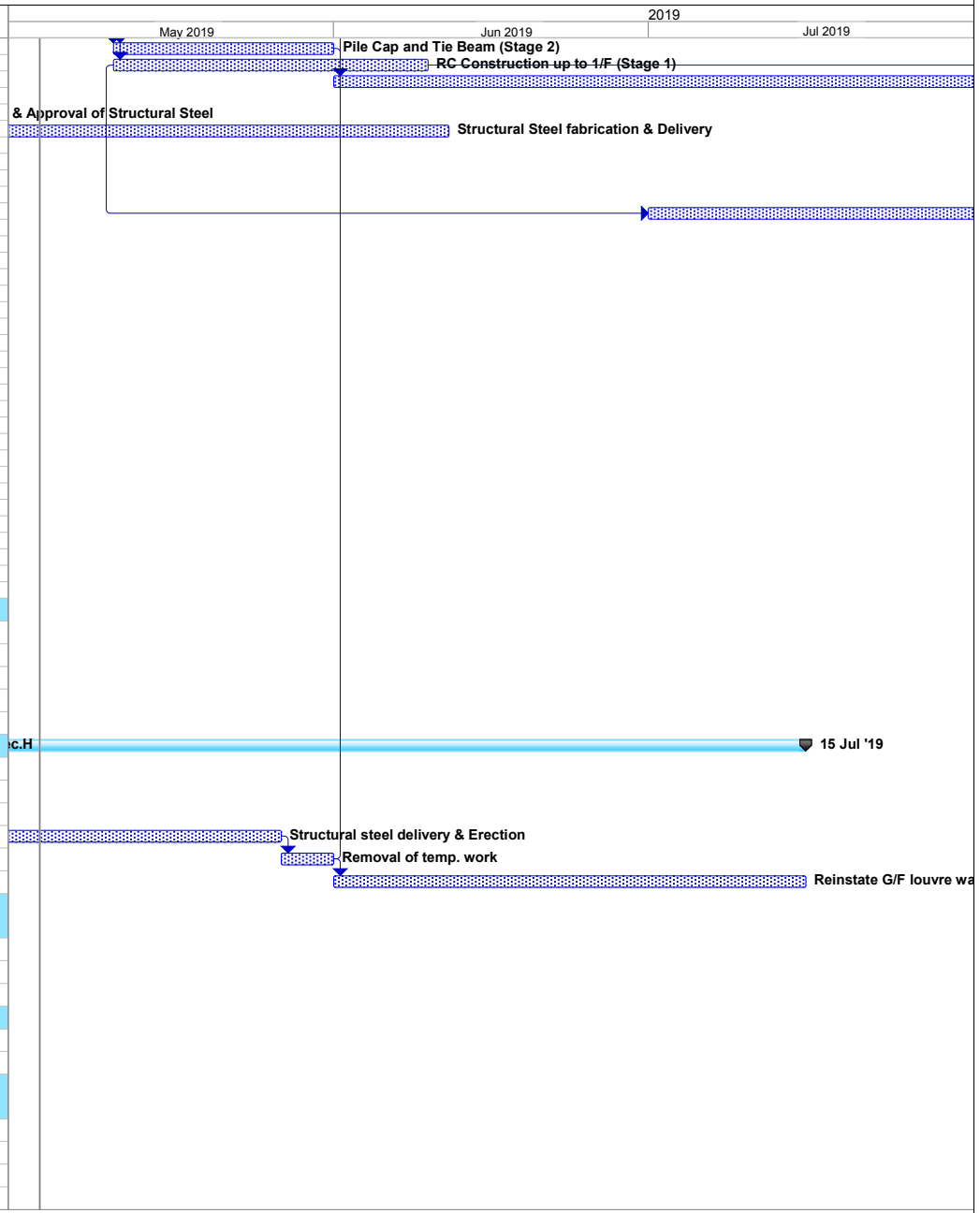
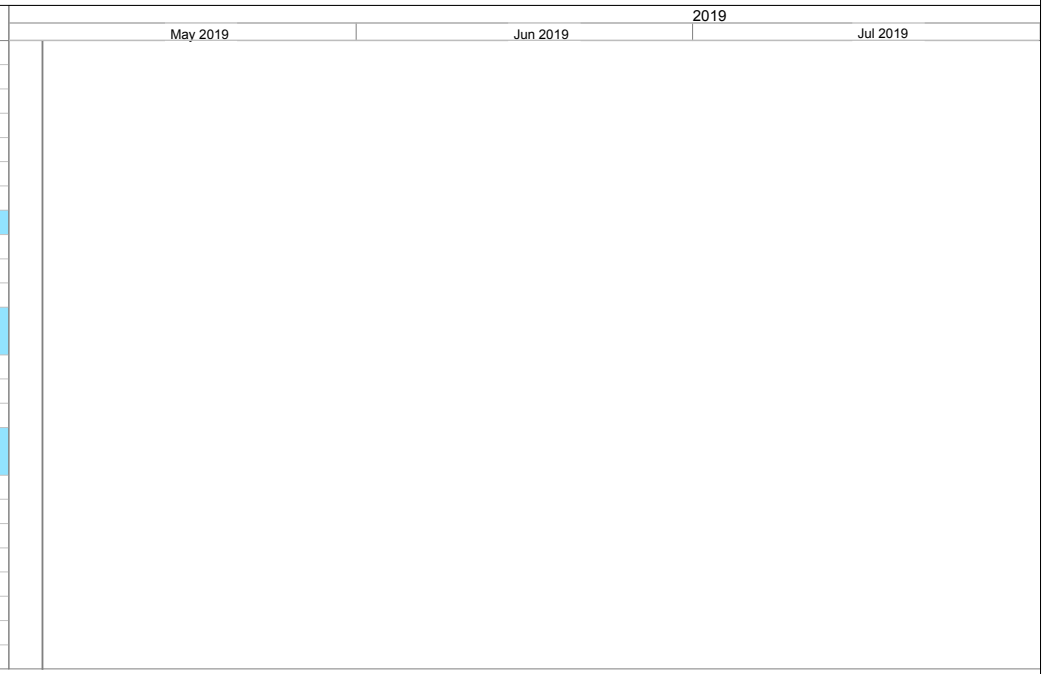
ID	Task Name	Duration	Start	Finish
323	Pile Cap and Tie Beam (Stage 2)	21 days	11/05/19	31/05/19
324	RC Construction up to 1/F (Stage 1)	30 days	11/05/19	09/06/19
325	RC Construction up to 1/F (Stage 2)	75 days	01/06/19	14/08/19
326	Construction of Staircase ST6	90 days	15/09/19	13/12/19
327	Shop Drawing Submission & Approval of Structural Steel	45 days	27/02/19	12/04/19
328	Structural Steel fabrication & Delivery	60 days	13/04/19	11/06/19
329	Erection of Structural Steel GL 17~18	30 days	16/08/19	14/09/19
330	Erection of Structural Steel GL 8~17	60 days	15/09/19	13/11/19
331	Metal Cladding Delivery	60 days	07/08/19	05/10/19
332	Metal Door, Window & Louvre Delivery	45 days	06/10/19	19/11/19
333	Erection of Working Platform and Scaffold	150 days	01/07/19	27/11/19
334	Install Decking	60 days	09/10/19	07/12/19
335	RC Walls from 1/F @ GIS Hall	40 days	31/10/19	09/12/19
336	Construction of 2/F RC slab	14 days	10/12/19	23/12/19
337	Construction of R/F RC slab	21 days	24/12/19	15/01/20
338	Construction of UR/F RC slab	14 days	16/01/20	07/02/20
339	Construction of GIS Hall Floor	60 days	24/12/19	03/03/20
340	Installation of Overhead Crane (By JEC)	60 days	04/03/20	02/05/20
341	Construction of staircase ST4, ST5, Lift Shaft & Equip Floors	150 days	15/09/19	22/02/20
342	Lift Installation	90 days	23/02/20	22/05/20
343	Concrete of RC walls, plinths, kerb & parapet walls & New trench for LV Power	30 days	24/12/19	02/02/20
344	ABWF Works @ G/F	50 days	14/10/19	02/12/19
345	ABWF Works @ 1/F	50 days	13/11/19	03/01/20
346	ABWF Works @ 2/F	75 days	13/12/19	07/03/20
347	ABWF Works @ R/F	30 days	14/01/20	21/02/20
348	ABWF Works @ UR/F	21 days	03/02/20	23/02/20
349	Waterproofing Works at R/F & UR/F	45 days	16/01/20	09/03/20
350	Building Services E&M Access & Installation & T&C	150 days	13/11/19	21/04/20
351	Metal Cladding, Windows and Louvres incl. Roof Feature	90 days	24/12/19	02/04/20
352	Shutter Erection	30 days	03/04/20	02/05/20
353	Removal of External Scaffolding + Tower Crane	35 days	03/04/20	07/05/20
354	External Underground Drainage and Utilities	30 days	17/04/20	16/05/20
355	Road & Paving Reinstatement	30 days	01/05/20	30/05/20
356	Ready for FSD & OP Inspection	0 days	30/05/20	30/05/20
357	**Section G - A&A Works at No. 4 C.W. Intake at Area E12**	**143 days**	**01/01/20**	**31/05/20**
358	Permit to work	0 days	01/01/20	01/01/20
359	Erection of temp. platform	14 days	01/01/20	14/01/20
360	Demolition work	30 days	15/01/20	22/02/20
361	Modify existing slab openings	75 days	23/02/20	07/05/20
362	Curing + Removal of platform	24 days	08/05/20	31/05/20
363	**Section H - L11 Steel flue liner at No. 4 Chimney**	**186 days**	**01/01/19**	**15/07/19**
364	Complete erection of L10 Steel flue	0 days	01/01/19	01/01/19
365	Modification of erection equipment	21 days	01/01/19	21/01/19
366	Erection temp. platform and demolition work	30 days	22/01/19	02/03/19
367	Structural steel delivery & Erection	85 days	03/03/19	26/05/19
368	Removal of temp. work	5 days	27/05/19	31/05/19
369	Reinstate G/F louvre wall and access door	45 days	01/06/19	15/07/19
370	**Section I - (i) 275kV cable trenching works connecting the 275kV Switching Station Extension and L11 MSB at Area E9 (B)**	**232 days**	**15/09/19**	**15/05/20**
371	Obtain Permit to work & Road close permit	0 days	15/09/19	15/09/19
372	Excavation & construction new cable trench	160 days	16/09/19	04/03/20
373	Re-excavate cable trench for cable laying	72 days	05/03/20	15/05/20
374	**Section I - (ii) Interconnector 2 Trench Modification Works at Area E10**	**275 days**	**01/04/20**	**31/12/20**
375	Obtain Permit to work & Road close permit	0 days	01/04/20	01/04/20
376	Re-excavate & new cable trench for cable laying	275 days	01/04/20	31/12/20
377	**Section J - (i) Demolition of Retractable Cover A&B & (ii) Construction of new LOT 3 & 4**	**426 days**	**01/03/20**	**30/04/21**
378	Obtain permit to work & Road close permit	0 days	01/03/20	01/03/20
379	Erection of Hoarding	21 days	01/03/20	21/03/20
380	Removal of existing cover & structural steel	30 days	22/03/20	20/04/20
381	Demolish of existing bund wall and staircases	45 days	21/04/20	04/06/20



17-8002 Master Prog Rev 3.mpp | Task | Split | Milestone | Summary

Contract No. 17/8002 Lamma Power Station Extension Civil and Building Works for Unit L11 17-8002 Master Prog Rev 3.mpp **Refer to CEM dated 26March2019**

ID	Task Name	Duration	Start	Finish
382	Demolish of existing slab & foundation	60 days	05/06/20	03/08/20
383	Consent for new work	30 days	04/08/20	02/09/20
384	Construction of new bund wall and foundation	100 days	03/09/20	11/12/20
385	Construction of new oil separator	80 days	23/09/20	11/12/20
386	Construct underground drainage and surface channel	40 days	12/12/20	20/01/21
387	Construction on-grade slab	60 days	21/01/21	21/03/21
388	Removal of hoarding and ground reinstatement	40 days	22/03/21	30/04/21
389	**Section K1 - External works at Area 15 (E) and 15(F)**	**365 days**	**01/06/20**	**31/05/21**
390	Removal of surcharge	30 days	01/06/20	30/06/20
391	Construct new drainage and utilities work	200 days	01/07/20	16/01/21
392	Road & Paving	135 days	17/01/21	31/05/21
393	**Section K2 - Removal of Southern Bund and External Works at Area D5, D6 and D7**	**365 days**	**01/06/20**	**31/05/21**
394	Demolition work	30 days	01/06/20	30/06/20
395	Construct new drainage and utilities work	200 days	01/07/20	16/01/21
396	Road & Paving	135 days	17/01/21	31/05/21
397	**Section K3 - All remaining works shall be completed for reporting completion to BD and ready for OP inspection (PS1.4.4)**	**623 days**	**08/01/20**	**30/09/21**
398	Completion of remaining roof after over headcrane move in	30 days	08/01/20	15/02/20
399	Construction of G/F Lube Oil Tank Room (BY TDK)	61 days	06/10/20	05/12/20
400	Construction of wall and staircase at G/F after Condensor Move in	90 days	06/07/20	03/10/20
401	Construction of Durasteel Steel wall panel after IBP installation	30 days	20/09/20	19/10/20
402	Construction of Transformer fence wall, cladding & associated FS services	122 days	01/09/20	31/12/20
403	Final restatement of road & paving around MSB & HRSG	122 days	01/09/20	31/12/20
404	Installation of trench covers and gratings after plant installation	151 days	01/10/20	28/02/21
405	Backfill and reinstatement after 275kV cable laying	122 days	01/06/21	30/09/21



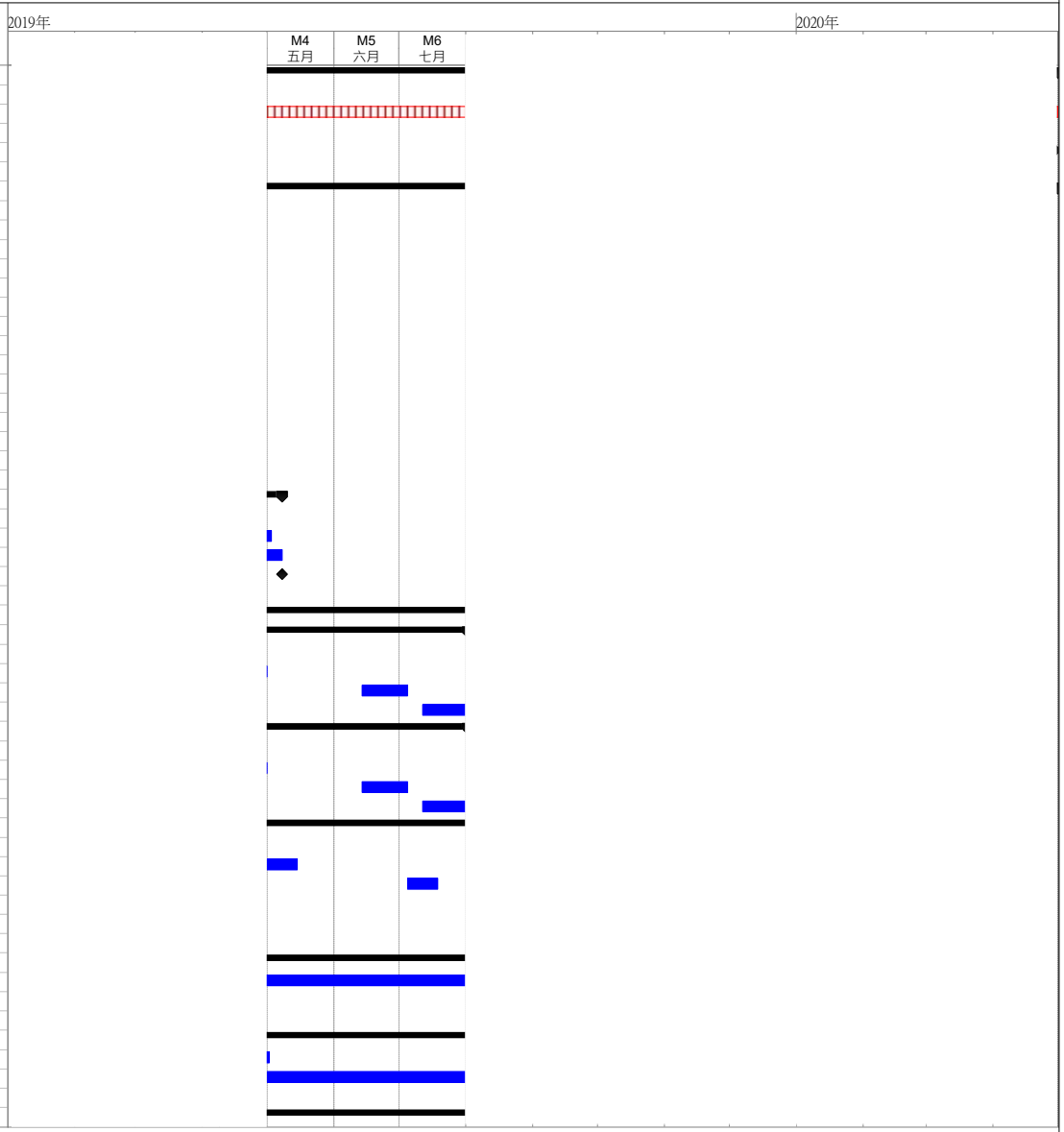
17-8002 Master Prog Rev 3.mpp | Task | Split | Milestone | Summary

SUNLEY ENGINEERING & CONSTRUCTION CO., LTD.

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

Master Programme

ID	Task Name	Duration	Start	Finish
1	**Key Date**	**416 days**	**3月12日星期二**	**4月30日星期四**
2	Commencement date	0 days	3月12日星期二	3月12日星期二
3	Duration of works	416 days	3月12日星期二	4月30日星期四
4	Site possession date	0 days	3月12日星期二	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**
8				
9	**Preliminaries**	**21 days**	**3月12日星期二**	**4月1日星期一**
10	Coordination with utility companies	14 days	3月12日星期二	3月25日星期一
11	Pre-construction condition survey	14 days	3月12日星期二	3月25日星期一
12	Notification of commencement of works to Labour Department	7 days	3月12日星期二	3月18日星期一
13	Notification of air pollution control for commencement of works to EPD	7 days	3月12日星期二	3月18日星期一
14	Application of water discharge licence from EPD	7 days	3月12日星期二	3月18日星期一
15	Application for billing account for disposal of construction waste from EPD	7 days	3月12日星期二	3月18日星期一
16	CCTV for existing underground drainage pipe around site boundary	21 days	3月12日星期二	4月1日星期一
17	Utility detection for existing underground cables	21 days	3月12日星期二	4月1日星期一
18	Site clearance	21 days	3月12日星期二	4月1日星期一
19	Set up contractor's site office	21 days	3月12日星期二	4月1日星期一
20	Installation of monitoring checkpoints	20 days	3月12日星期二	3月31日星期日
21	Submission of BA10 for ELS & foundation works	7 days	3月12日星期二	3月18日星期一
22				
23	**Predrilling Works for Section of A1 to A3 (Area P1 to P3)**	**96 days**	**2月1日星期五**	**5月7日星期二**
24	Drilling rigs mobilization	10 days	2月1日星期五	2月10日星期日
25	Predrilling works (46 holes) (8 rigs)	81 days	2月11日星期一	5月2日星期四
26	Submission of predrill logs	71 days	2月26日星期二	5月7日星期二
27	Completion of predrilling works	0 days	5月7日星期二	5月7日星期二
28				
29	**Plant Mobilization for Bored Pile Construction**	**150 days**	**3月19日星期二**	**8月15日星期四**
30	**Crawler Crane**	**136 days**	**3月19日星期二**	**8月1日星期四**
31	1st & 2nd set	21 days	3月19日星期二	4月8日星期一
32	3rd set	21 days	4月10日星期三	4月30日星期二
33	4th & 5th set	21 days	6月14日星期五	7月4日星期四
34	6th set	21 days	7月12日星期五	8月1日星期四
35	**Oscillator**	**136 days**	**3月19日星期二**	**8月1日星期四**
36	1st & 2nd set	21 days	3月19日星期二	4月8日星期一
37	3rd set	21 days	4月10日星期三	4月30日星期二
38	4th & 5th set	21 days	6月14日星期五	7月4日星期四
39	6th set	21 days	7月12日星期五	8月1日星期四
40	**RCD**	**129 days**	**4月9日星期二**	**8月15日星期四**
41	1st & 2nd set	14 days	4月9日星期二	4月22日星期一
42	3rd set	14 days	5月1日星期三	5月14日星期二
43	4th & 5th set	14 days	7月5日星期五	7月18日星期四
44	6th set	14 days	8月2日星期五	8月15日星期四
45	Completion of plant mobilization for bored pile construction	0 days	8月15日星期四	8月15日星期四
46				
47	**Delivery of Temporary Steel Casing for Bored Pile Construction**	**150 days**	**3月19日星期二**	**8月15日星期四**
48	Duration for delivery of temporary steel casing	150 days	3月19日星期二	8月15日星期四
49	Completion of delivery of temporary steel casing for bored pile construction	0 days	8月15日星期四	8月15日星期四
50				
51	**Delivery of Permanent Casing & Double Wall Liner**	**369 days**	**3月18日星期一**	**3月20日星期五**
52	Testing for double wall liner	45 days	3月18日星期一	5月1日星期三
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**



Master Programme

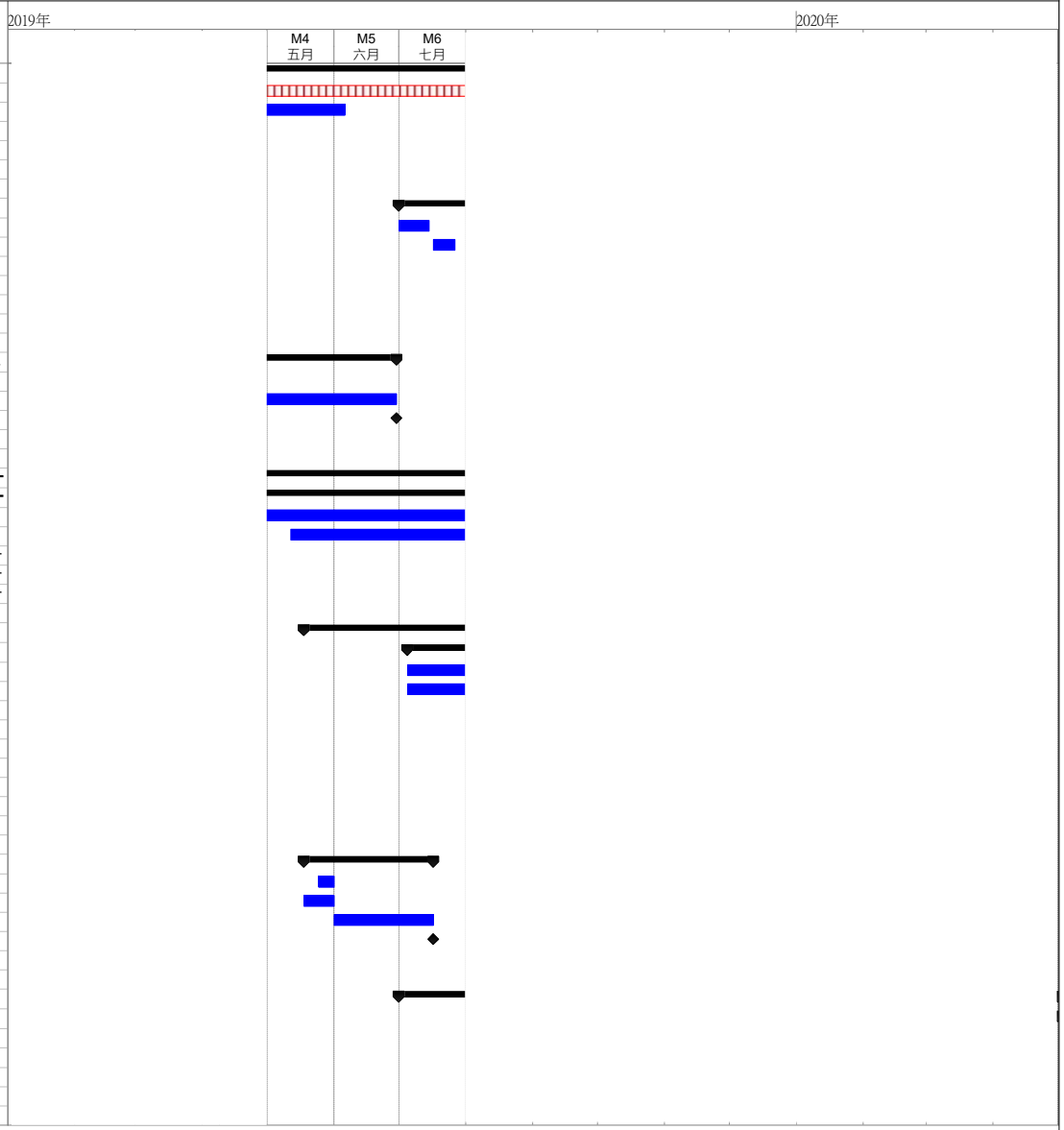
Task Critical Task Milestone Summary

SUNLEY ENGINEERING & CONSTRUCTION CO., LTD.

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

Master Programme

ID	Task Name	Duration	Start	Finish
56	**Bored Pile Construction at P1 (17 piles)**	**296 days**	**4月11日星期四**	**1月31日星期五**
57	1st set plant - BP13 > BP5 > BP9 > BP26 > BP1 > BP12 > BP8 > BP4 > G2 > G4 > G6	273 days	4月11日星期四	1月8日星期三
58	3rd set plant - G8	45 days	4月22日星期一	6月5日星期三
59	3rd set plant - BPC3 > BPC4 > BPC5 > BPC6 > BPC7	135 days	8月30日星期五	1月11日星期六
60	Interface & sonic test	28 days	1月4日星期六	1月31日星期五
61	Completion of bored pile construction at P1	0 days	1月31日星期五	1月31日星期五
62				
63	**Sheet Pile at P1**	**215 days**	**7月1日星期一**	**1月31日星期五**
64	Delivery of sheet pile material	14 days	7月1日星期一	7月14日星期日
65	Installation of sheet pile (approx. 57 piles) (1 rig)	10 days	7月17日星期三	7月26日星期五
66	Installation of sheet pile (approx. 254 piles) (1 rig)	38 days	12月17日星期二	1月23日星期四
67	Prepare & submit as-built record plan	7 days	1月24日星期五	1月30日星期四
68	Submission of BA14	1 day	1月31日星期五	1月31日星期五
69	Completion of sheet pile at P1	0 days	1月31日星期五	1月31日星期五
70				
71	**Cone Penetration Test**	**104 days**	**3月18日星期一**	**6月29日星期六**
72	Plant mobilization	14 days	3月18日星期一	3月31日星期日
73	Carry out CPTU testing (9 nos.) (1 rig)	90 days	4月1日星期一	6月29日星期六
74	Completion of cone penetration test	0 days	6月29日星期六	6月29日星期六
75	Completion of section A1	0 days	1月31日星期五	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**	**4月8日星期一**	**10月21日星期一**
79	2nd set plant - BP27 > BP24 > BP23 > BP16 > BP20 > BP17	161 days	4月8日星期一	9月15日星期日
80	3rd set plant - G10 > BP21 > BPC8 > BPC1 > BPC2	135 days	5月12日星期日	9月23日星期一
81	Interface & sonic test	28 days	9月24日星期二	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	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**	**7月5日星期五**	**4月12日星期日**
87	4th set plant - G1 > G3 > G5 > G7 > G9	225 days	7月5日星期五	2月14日星期五
88	5th set plant - BP15 > BP19 > BP22 > BP25 > BP28	225 days	7月5日星期五	2月14日星期五
89	6th set plant - BP3 > BP6 > BP7 > BP11 > BP2 > BP10 > BP14 > BP18	203 days	8月2日星期五	2月20日星期四
90	Interface & sonic test	28 days	2月21日星期五	3月19日星期四
91	Prepare & submit as-built record plan	7 days	3月13日星期五	3月19日星期四
92	Submission of BA14	1 day	3月19日星期四	3月19日星期四
93	Allow 14 days for selection of pile for concrete full core test	14 days	3月20日星期五	4月2日星期四
94	Concrete full core test	10 days	4月3日星期五	4月12日星期日
95	Completion of bored pile construction at P3	0 days	4月12日星期日	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25日星期六	5月31日星期五
99	Delivery of sheet pile material	14 days	5月18日星期六	5月31日星期五
100	Installation of sheet pile (approx. 626 piles) (2 rigs)	46 days	6月1日星期六	7月16日星期二
101	Completion of sheet pile at P3	0 days	7月16日星期二	7月16日星期二
102	Completion of section A3	0 days	4月12日星期日	4月12日星期日
103				
104	**Section B**	**305 days**	**7月1日星期一**	**4月30日星期四**
105	**Shunt Reactor**	**121 days**	**1月1日星期三**	**4月30日星期四**
106	Site possession date	0 days	1月1日星期三	1月1日星期三
107	**Predrilling Works for Bored Pile**	**34 days**	**1月1日星期三**	**2月3日星期一**
108	Drilling rigs mobilization	7 days	1月1日星期三	1月7日星期二
109	Predrilling works (4 holes) (2 rigs)	25 days	1月8日星期三	2月1日星期六
110	Submission of predrill logs	15 days	1月20日星期一	2月3日星期一



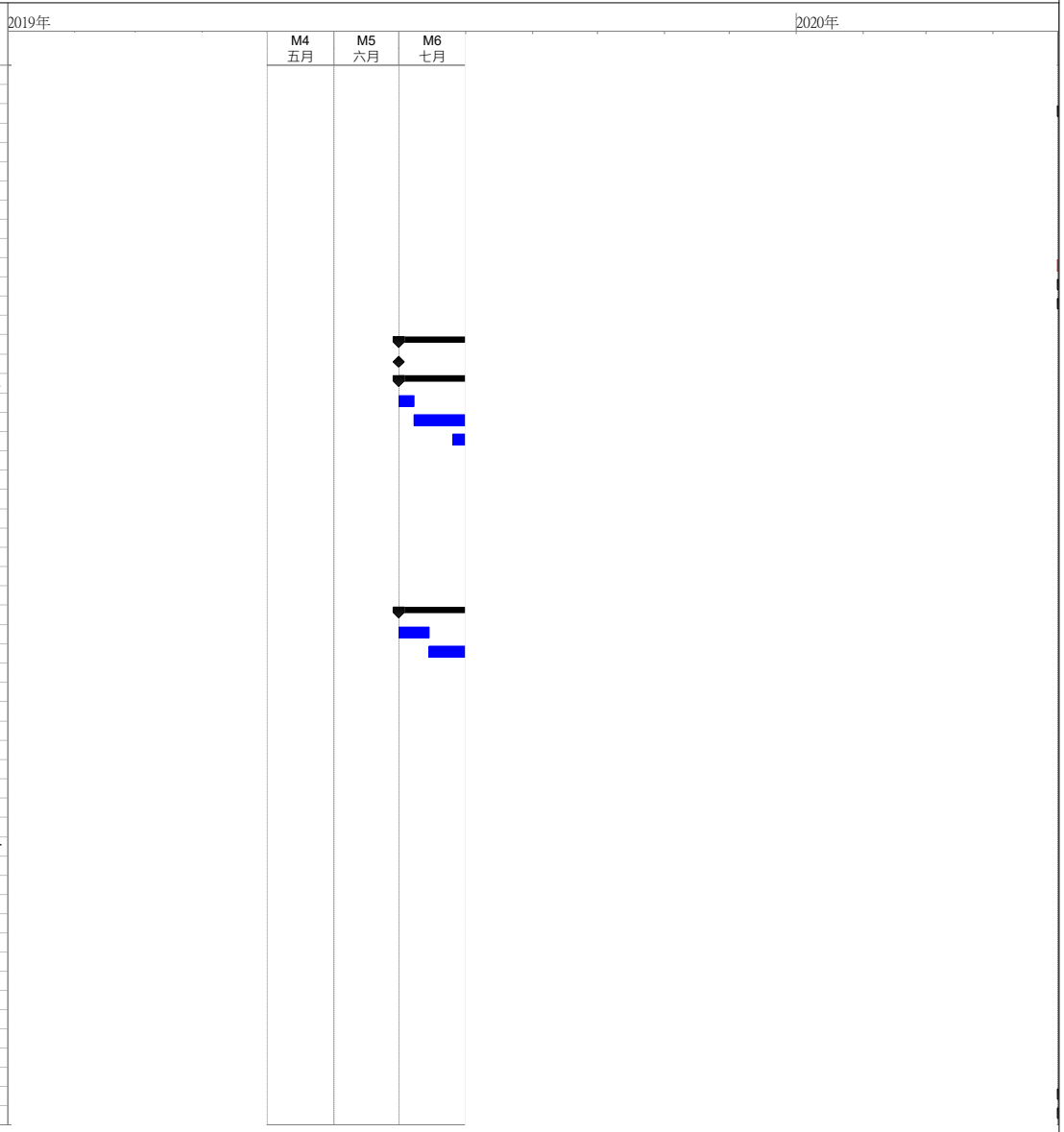
Master Programme | Task | Critical Task | Milestone | Summary

SUNLEY ENGINEERING & CONSTRUCTION CO., LTD.

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

Master Programme

ID	Task Name	Duration	Start	Finish
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**	**1月9日星期四**	**4月30日星期四**
114	Plant mobilization	15 days	1月9日星期四	1月23日星期四
115	1st set plant - BPR-B4 > BPR-E2	65 days	1月16日星期四	3月20日星期五
116	3rd set plant - BPR-E6 > BPR-E5	65 days	1月24日星期五	3月28日星期六
117	Interface & sonic test	14 days	3月24日星期二	4月6日星期一
118	Prepare & submit as-built record plan	7 days	3月31日星期二	4月6日星期一
119	Submission of BA14	1 day	4月6日星期一	4月6日星期一
120	Allow 14 days for selection of pile for concrete full core test	14 days	4月7日星期二	4月20日星期一
121	Concrete full core test	10 days	4月21日星期二	4月30日星期四
122	Completion of bored pile construction	0 days	4月30日星期四	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**	**7月1日星期一**	**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**	**7月1日星期一**	**8月24日星期六**
128	Drilling rigs mobilization	7 days	7月1日星期一	7月7日星期日
129	Predrilling works (8 holes) (2 rig)	46 days	7月8日星期一	8月22日星期四
130	Submission of predrill logs	30 days	7月26日星期五	8月24日星期六
131	Completion of predrilling works	0 days	8月24日星期六	8月24日星期六
132				
133	**Bored Pile Construction (6 piles)**	**178 days**	**9月16日星期一**	**3月11日星期三**
134	Plant mobilization	14 days	9月16日星期一	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	9月30日星期一	2月26日星期三
136	Interface & sonic test	14 days	2月27日星期四	3月11日星期三
137	Completion of bored pile construction	0 days	3月11日星期三	3月11日星期三
138				
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1日星期一	7月14日星期日
141	Erection of temporary working platform	60 days	7月15日星期一	9月12日星期四
142	Completion of temporary working platform	0 days	9月12日星期四	9月12日星期四
143				
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13日星期五	9月19日星期四
146	Predrilling works (6 holes) (2 rigs)	18 days	9月20日星期五	10月7日星期一
147	Submission of predrill logs	13 days	9月27日星期五	10月9日星期三
148	Completion of predrilling works	0 days	10月9日星期三	10月9日星期三
149				
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8日星期二	10月21日星期一
152	Trial pile installation (1 pile)	14 days	10月22日星期二	11月4日星期一
153	Socketted H-pile installation (16 piles) (1 set plant)	65 days	11月5日星期二	1月8日星期三
154	Post drill	5 days	1月9日星期四	1月13日星期一
155	Prepare & submit as-built record plan	28 days	1月9日星期四	2月5日星期三
156	Submission of BA14	1 day	2月6日星期四	2月6日星期四
157	Allow 14 days for selection of pile for loading test	14 days	2月7日星期五	2月20日星期四
158	Set up loading test platform for 1st pile testing	12 days	2月21日星期五	3月3日星期二
159	Loading test for 1st pile	4 days	3月4日星期三	3月7日星期六
160	Set up loading test platform for 2nd pile testing	12 days	3月8日星期日	3月19日星期四
161	Loading test for 2nd pile	4 days	3月20日星期五	3月23日星期一
162	Completion of socketted H-pile construction	0 days	3月23日星期一	3月23日星期一
163	Completion of cable bridge	0 days	3月23日星期一	3月23日星期一
164	Completion of section B	0 days	4月30日星期四	4月30日星期四
165	Contract completion	0 days	4月30日星期四	4月30日星期四



Master Programme

Task Critical Task Milestone Summary

Monthly Waste Flow Table for April 2019

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

Contractor: Paul Y. Construction Company, Limited

Record by: Ben Lam

Year of Record: 2016, 2017, 2018 & 2019

MM.YYYY	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of Non-inert C&D Materials Generated Monthly					
	Excavated Materials			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	Reused in the Contract	Reused in other Projects	Disposed in Public Fill	Disposed in Sorting Facilities	Metals (steel bar / metal strip) (1)	Metals (aluminum can) (1)	Paper / cardboard packaging (1)	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.84	0.00	0.00	0.00	0.00	0.00
May-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	4.94
Apr-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
May-18	1390.43	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-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	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	1.43	0.00	0.00	0.00	0.00	0.00	0.00	282.34	0.00	0.00	0.00	1.20	304.83

Total Inert C&D Waste Materials Generated	Non-inert C&D Materials		
	C&D Materials Recycled	C&D Waste Disposed of at Landfill	Chemical Waste
21059.03 tonnes	282.34 tonnes	304.83 tonnes	1200 Liters

Where (A) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, 21059.03 tonnes of inert C&D material were generated from the Project, of which 0 tonnes were reused in this and other contracts, and the remaining 21059.03 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) 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 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.

Monthly Waste Flow Table for April 2019

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

Contractor: Taihei Dengyo Kaisha, Ltd.

Record by: Stephen Sin

Year of Record: 2017, 2018, 2019

MM.YYYY	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of Non-inert C&D Materials Generated Monthly					
	Excavated Materials			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	Reused in the Contract	Reused in other Projects	Disposed in Public Fill	Disposed in Sorting Facilities	Metals (steel bar / metal strip) (1)	Metals (aluminum can) (1)	Paper / cardboard packaging (1)	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	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	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 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	7.11
Mar 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
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														
Jun 2019														
Jul 2019														
Aug 2019														
Sep 2019														
Oct 2019														
Nov 2019														
Dec 2019														
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	120.00	255.35

Total Inert C&D Waste Materials Generated	Non-inert C&D Materials		
	C&D Materials Recycled	C&D Waste Disposed of at Landfill	Chemical Waste
15.96 tonnes	0.00 tonnes	255.35 tonnes	120.00 Liters

Where (A) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, 15.96 tonnes of inert C&D material were generated from the Project, of which 0 tonnes were reused in this and other contracts, and the remaining 15.96 tonnes were disposed in Public Fill and 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) 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**.

Monthly Waste Flow Table for April 2019

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

MM.YYYY	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of Non-inert C&D Materials Generated Monthly					
	Excavated Materials			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	Reused in the Contract	Reused in other Projects	Disposed in Public Fill	Disposed in Sorting Facilities	Metals (steel bar / metal strip) (1)	Metals (aluminum can) (1)	Paper / cardboard packaging (1)	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	12.05	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	0.00	0.00	0.00	0.00	0.00	19.09
May 2019														
Jun 2019														
Jul 2019														
Aug 2019														
Sep 2019														
Oct 2019														
Nov 2019														
Dec 2019														
Total	3160.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.71	0.00	0.00	0.00	0.60	38.63

Total Inert C&D Waste Materials Generated	**Non-inert C&D Materials**		
	C&D Materials Recycled	C&D Waste Disposed of at Landfill	Chemical Waste
3160.23 tonnes	16.71 tonnes	38.63 tonnes	600 Liters

Where (A) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, 3160.23 tonnes of inert C&D material were generated from the Project, of which 0 tonnes were reused in this and other contracts, and the remaining 3160.23 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) 0 kg of metals 0 kg of papers/ cardboard packing anc 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.

Monthly Waste Flow Table for April 2019

Project: Foundation Works for Lamma Power Station Extension Unit L12

Contractor: Sunley Engineering & Construction Co Ltd

Record by: Andy Fan / Michael Wan

Year of Record: 2019

MM.YYYY	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of Non-inert C&D Materials Generated Monthly					
	Excavated Materials			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	Reused in the Contract	Reused in other Projects	Disposed in Public Fill	Disposed in Sorting Facilities	Metals (steel bar / metal strip) (1)	Metals (aluminum can) (1)	Paper / cardboard packaging (1)	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)
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
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	0.00	0.00

Total Inert C&D Waste Materials Generated	**Non-inert C&D Materials**		
	C&D Materials Recycled	C&D Waste Disposed of at Landfill	Chemical Waste
0.00 tonnes	0 tonnes	0.00 tonnes	0L

Where (A) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, 0.00 tonnes of inert C&D material were generated from the Project, of which 0 tonnes were reused in this and other contracts, and the remaining 0.00 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) 0.00 tonnes 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 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.