

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



Re-provision of Open Cycle Gas Turbines at Lamma Power Station

Decommissioning/ Demolition & Construction Phases

Monthly Environmental Monitoring & Audit Report

May 2023

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



ENVIRONMENTAL IMPACT ASSESSMENT (EIA) ORDINANCE, CAP. 499

ENVIRONMENTAL PERMIT NO. EP-600/2022

**RE-PROVISION OF OPEN CYCLE GAS TURBINES
AT LAMMA POWER STATION**



Title	<u>Monthly EM&A Report (May 2023)</u>
Date	<u>13 June 2023</u>
Certified by	 <u>(Mr. Kenneth Fung, Environmental Team Leader)</u>
Verified by	 <u>Mr. Y. W. Fung (AECOM Asia Company Limited, Independent Environmental Checker)</u>

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EXECUTIVE SUMMARY

In April 2022, an Environmental Permit (EP-600/2022) was granted to the Hongkong Electric Co., Ltd. (HK Electric) for the decommissioning/ demolition, construction and operation of the Project entitled “Re-provision of Open Cycle Gas Turbines at Lamma Power Station”. This report, prepared by the Environmental Team, presents the Environmental Monitoring and Audit (EM&A) findings for the Project in May 2023 and is the 11th Monthly EM&A Report for the decommissioning/ demolition and construction phases of the Project.

Key Construction Activities Undertaken

The construction activities undertaken in the reporting month are as follows:

- Trenching works;
- Demolition of pipe rack
- Lube Oil Tank area (BH1) sampling works
- Scraped material removal works;
- Lifting and cut;
- Operation of crawler crane;
- Operation of cherry picker;
- Take down the equipment and steel frame; and
- Oil discharge.

Environmental Monitoring

According to the EM&A Manual, no environmental monitoring was necessary in view of the anticipated insignificant environmental impact.

Site Environmental Audit and Implementation of Mitigation Measure

EPD officials from Regional Office (South) visited Lamma Power Station on 4/5/2023. There was no adverse comment from EPD regarding the construction site.

Independent Environmental Checker (IEC) conducted a site inspection on 23/5/2023. The site conditions were generally satisfactory.

Weekly site audits were carried out to monitor environmental issues on the construction site. The site conditions were generally satisfactory. All recommended environmental mitigation measures were properly implemented. No environmental non-compliance was recorded in the reporting month.

Environmental Licensing and Permitting

License/Permit	Ref. No.	Valid Period		Authority/Holder	Date Issued
		From	To		
Environmental Permit	EP-600/2022	01/04/2022	-	EPD / HK Electric	01/04/2022
Waste Disposal Billing Account	Account No.: 7044319	27/06/2022	-	EPD / Civil Contractor	27/06/2022
Registration of Chemical Waste Producer	5213-912-P2781-22	22/02/2016	-	EPD / Civil Contractor	22/02/2016

License/Permit	Ref. No.	Valid Period		Authority/Holder	Date Issued
		From	To		
EPD Notification (Dust) Construction, Air Pollution Control (Construction Dust) Regulation	481782	07/07/2022	-	EPD / Civil Contractor	07/07/2022
Construction Noise Permit	GW-RS1132-22	30/12/2022	26/06/2023	EPD / Civil Contractor	28/12/2022
Waste Disposal Billing Account	Account No.: 7045179	28/09/2022	-	EPD / E&M Contractor	28/09/2022
Registration of Chemical Waste Producer	5517-912-K2931-02	05/12/2022	-	EPD / E&M Contractor	05/12/2022
Construction Noise Permit	GW-RS0258-23	14/04/2023	13/10/2023	EPD / E&M Contractor	24/03/2023

Environmental Complaints / Summons/ Prosecutions

No complaint in relation to the environmental impact of the construction activities was received in the reporting month. There was also no notification of summon and successful prosecution for breaches of relevant environmental legislations received in the reporting month.

Future Key Issues

The construction activities scheduled for the coming month are mainly demolition of existing pipe rack, foundation works, trenching works, GTAB plant equipment demolition, Heat Recovery Steam Generator (HRSG) 5 and Heat Recovery Steam Generator (HRSG) 7 demolition, GT5 and GT7 power train removal works, operation of crawler crane, operation of cherry picker and oil discharge.

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

- Relevant environmental legislations should be observed.
- Relevant environmental licenses/permits should be obtained, if required.
- Required environmental mitigation measures should be properly implemented.
- Good site practices should be adopted to minimize environmental impacts.
- Dust suppression measures should be implemented for the construction activities.
- Works conducted during restricted hours should comply with the valid CNP.
- Wastewater from site facilities should be properly collected and stored within the site area.
- Generation of waste should be minimized.
- Waste generated should be properly stored and disposed of.

Reporting Changes

There was no reporting change in the reporting month.

Concluding Remarks

The environmental performance of the Project was generally satisfactory.

1. INTRODUCTION

1.1 Background

In April 2022, an Environmental Permit (EP-600/2022) was granted to HK Electric for the decommissioning/ demolition, construction and operation of the Project entitled “Re-provision of Open Cycle Gas Turbines at Lamma Power Station”. An Environmental Team was then formed to implement the Environmental Monitoring and Audit (EM&A) programme in accordance with the EM&A Manual for the Project.

The key components of the Project are outlined as follows:

- Decommissioning and demolition of four oil-fired open cycle gas turbine units (GT2, GT3, GT4 and GT6) and one gas-fired combined cycle gas turbine unit (GT57), and auxiliary equipment including the black start gas turbine (BSGT), the miscellaneous storage shed, and the lube oil storage tank near GT5;
- Construction of four new oil-fired open cycle gas turbine units (GT8, GT9, GT 10 and GT11), and installation of the new BSGT and Battery Energy Storage System (BESS);
- Construction of new cable trenches, staircase and lift, and reconstruction of the GT57 Auxiliary Building (GTAB) to a new 132kV Switching Station; and
- Operation of four new oil-fired open cycle gas turbine units (GT8, GT9, GT10 and GT11).

The EM&A programme was commenced on 1 July 2022. This is the 11th monthly EM&A report which summarizes the environmental monitoring and audit work for the Project for the month of May 2023.

1.2 Project Organization

The management structure to oversee the Project includes the following:

- Project Proponent (HK Electric);
- Environmental Protection Department (EPD);
- Independent Environmental Checker (IEC);
- Environmental Team (ET); and
- Contractor.

The project organisation chart for the EM&A programme is shown in [Appendix A](#).

1.3 Key Construction Works Undertaken during the Reporting Month

The Project area is shown in [Figure 1.1](#), and the tentative decommissioning and construction phasing schedule is shown in [Figure 1.2](#).

The locations of air, noise and water sensitive receivers are shown in [Figure 1.3](#), [Figure 1.4](#) and [Figure 1.5](#) respectively.

The main construction activities carried out during the reporting month and the corresponding environmental mitigation measures are summarized in [Table 1.1](#). The implementation status of the major mitigation measures in the reporting month can be found in [Appendix C](#).

Table 1.1 Construction Activities and Corresponding Environmental Mitigation Measures

Item	Activities	Environmental Mitigation Measures
Civil Works - General		
1.	Trenching works and demolition of pipe rack	<p><i>Air</i></p> <ul style="list-style-type: none"> - All regulated machine attached with valid exception/ approval NRMM labels. - Water spraying for concrete breaking works. - Excavated material stockpile will be temporary covered with canvas or transferred to temporary storage location for backfill later. <p><i>Noise</i></p> <ul style="list-style-type: none"> - Noise emission label was provided for air compressor. - Works conducted during restricted hours should comply with the valid CNP. <p><i>Wastewater</i></p> <ul style="list-style-type: none"> - No wastewater is required to be discharged at this moment. - Sand bag barriers was set up as preventive measures. <p><i>Waste Management</i></p> <ul style="list-style-type: none"> - Excavated material was temporary stored for backfilling later. - Scrape metal will be recycled. - Chemical waste should be collected by licensed collector.
2	Lube Oil Tank area (BH1) sampling works	<ul style="list-style-type: none"> - Follow sampling procedures stated in Contamination Assessment Plan (CAP) under supervision of Land Contamination Specialist
E&M Works - General		
3.	Scraped material removal works	<p><i>Air</i></p> <ul style="list-style-type: none"> - All regulated machine attached with exception/ approval NRMM labels <p><i>Noise</i></p> <ul style="list-style-type: none"> - Works conducted during restricted hours should comply with the valid CNP. <p><i>Wastewater</i></p> <ul style="list-style-type: none"> - No wastewater is required to be discharged for this moment. <p><i>Waste Management</i></p> <ul style="list-style-type: none"> - Scrap metal will be recycled.
4.	Lifting and cut	<p><i>Air</i></p> <ul style="list-style-type: none"> - Fence off the working area to avoid dust emission. <p><i>Noise</i></p> <ul style="list-style-type: none"> - Works conducted during restricted hours should comply with the valid CNP.

Item	Activities	Environmental Mitigation Measures
		<p><i>Wastewater</i></p> <ul style="list-style-type: none"> - No wastewater is required to be discharge for this works. <p><i>Waste Management</i></p> <ul style="list-style-type: none"> - Scrap metal will be recycled.
5.	Operation of crawler crane	<p><i>Air</i></p> <ul style="list-style-type: none"> - All regulated machine attached with valid exception/ approval NRMM labels. <p><i>Noise</i></p> <ul style="list-style-type: none"> - Works conducted during restricted hours should comply with the valid CNP. <p><i>Wastewater</i></p> <ul style="list-style-type: none"> - No wastewater is required to be discharged for this works. <p><i>Waste Management</i></p> <ul style="list-style-type: none"> - No waste will be generated.
6.	Operation of cherry picker	<p><i>Air</i></p> <ul style="list-style-type: none"> - All regulated machine attached with exception/approval NRMM labels. <p><i>Wastewater</i></p> <ul style="list-style-type: none"> - No wastewater is required to be discharged for this works. <p><i>Noise</i></p> <ul style="list-style-type: none"> - No works will be conducted during restricted hours at this moment. <p><i>Waste Management</i></p> <ul style="list-style-type: none"> - No waste will be generated.
7.	Take down the equipment and steel frame	<p><i>Air</i></p> <ul style="list-style-type: none"> - Fence off the working area to avoid dust emission. <p><i>Noise</i></p> <ul style="list-style-type: none"> - Works conducted during restricted hours should comply with the valid CNP. <p><i>Wastewater</i></p> <ul style="list-style-type: none"> - No wastewater is required to be discharge for this works. <p><i>Waste Management</i></p> <ul style="list-style-type: none"> - Scrap metal will be recycled.
7.	Oil discharge	<p><i>Air</i></p> <ul style="list-style-type: none"> - Fence off the working area to avoid dust emission <p><i>Noise</i></p> <ul style="list-style-type: none"> - Works conducted during restricted hours should comply

Item	Activities	Environmental Mitigation Measures
		with the valid CNP. <i>Wastewater</i> – Nylon sheet are set on the ground. <i>Waste Management</i> – Oil would be handled by a specific chemical waste disposal company.

1.4 Summary of EM&A Requirements

Impact Monitoring

According to the EM&A Manual, no routine impact monitoring for air quality, noise and water quality is necessary in view of the anticipated insignificant environmental impact.

Environmental Audit

Regular environmental audits on air quality, noise, water quality, waste management, and land contamination are required. Details of the audits are summarized in [Section 2](#) of this report.

Report on complaints, notification of summons and successful prosecutions are given in [Section 3](#) of this report.

Future key issues are given in [Section 4](#) of this report.

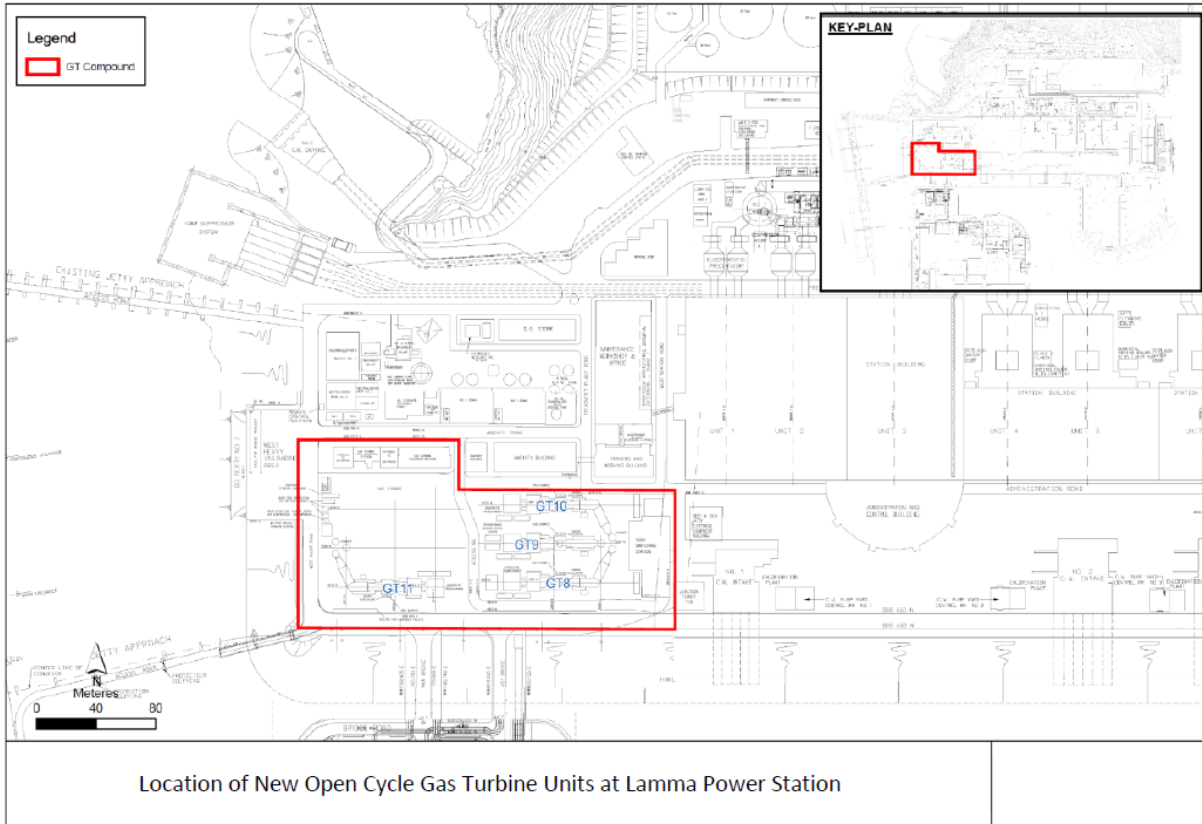
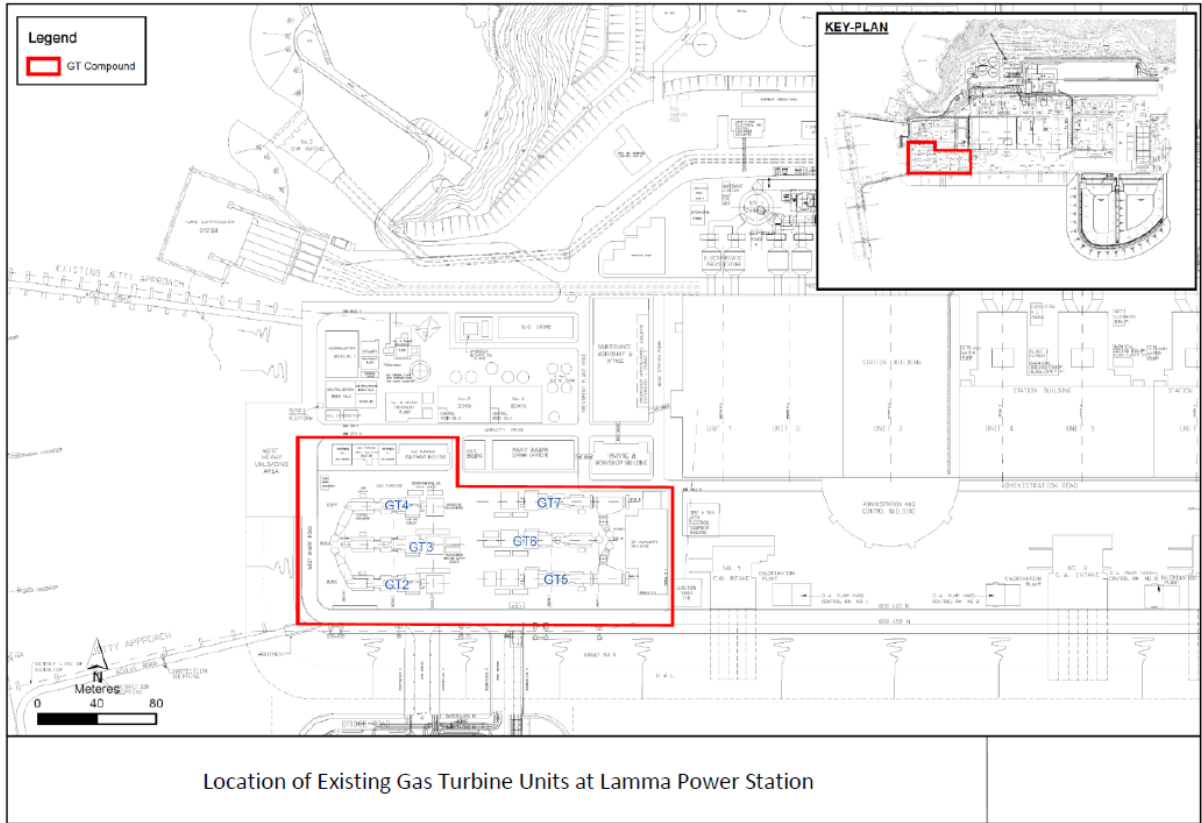


Figure 1.1 The Project Area

		Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	Q4 2024	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Q1 2026	Q2 2026	Q3 2026	Q4 2026
GT57	Decommissioning of GT57																				
Demolition of GT7	Demolition of E&M equipment in GTAB																				
	Demolition of HRSG Demolition of gas turbine, generator, generator transformer and auxiliary equipment																				
GT10	Anchor bolt replacement																				
	Stack refurbishment																				
	Construction of gas turbine, generator, generator transformer and auxiliary equipment																				
	Testing and Commissioning																				
Demolition of GT5	Demolition of HRSG																				
	Demolition of gas turbine, generator, generator transformer and auxiliary equipment																				
GT8	Anchor bolt replacement																				
	Construction of gas turbine, generator, generator transformer and auxiliary equipment																				
	Testing and Commissioning																				
	Decommissioning																				
Demolition of GT6	Demolition of gas turbine, generator, generator transformer and auxiliary equipment																				
	Anchor bolt replacement																				
GT9	Construction of gas turbine, generator, generator transformer and auxiliary equipment																				
	Testing and Commissioning																				
	Decommissioning																				
GT2	Decommissioning	To be advised																			
	Demolition																				
GT3	Decommissioning																				
	Demolition																				
GT4	Decommissioning																				
	Demolition																				
GT11	Construction																				
	Testing and Commissioning																				

Figure 1.2 Decommissioning and Construction Phasing Schedule

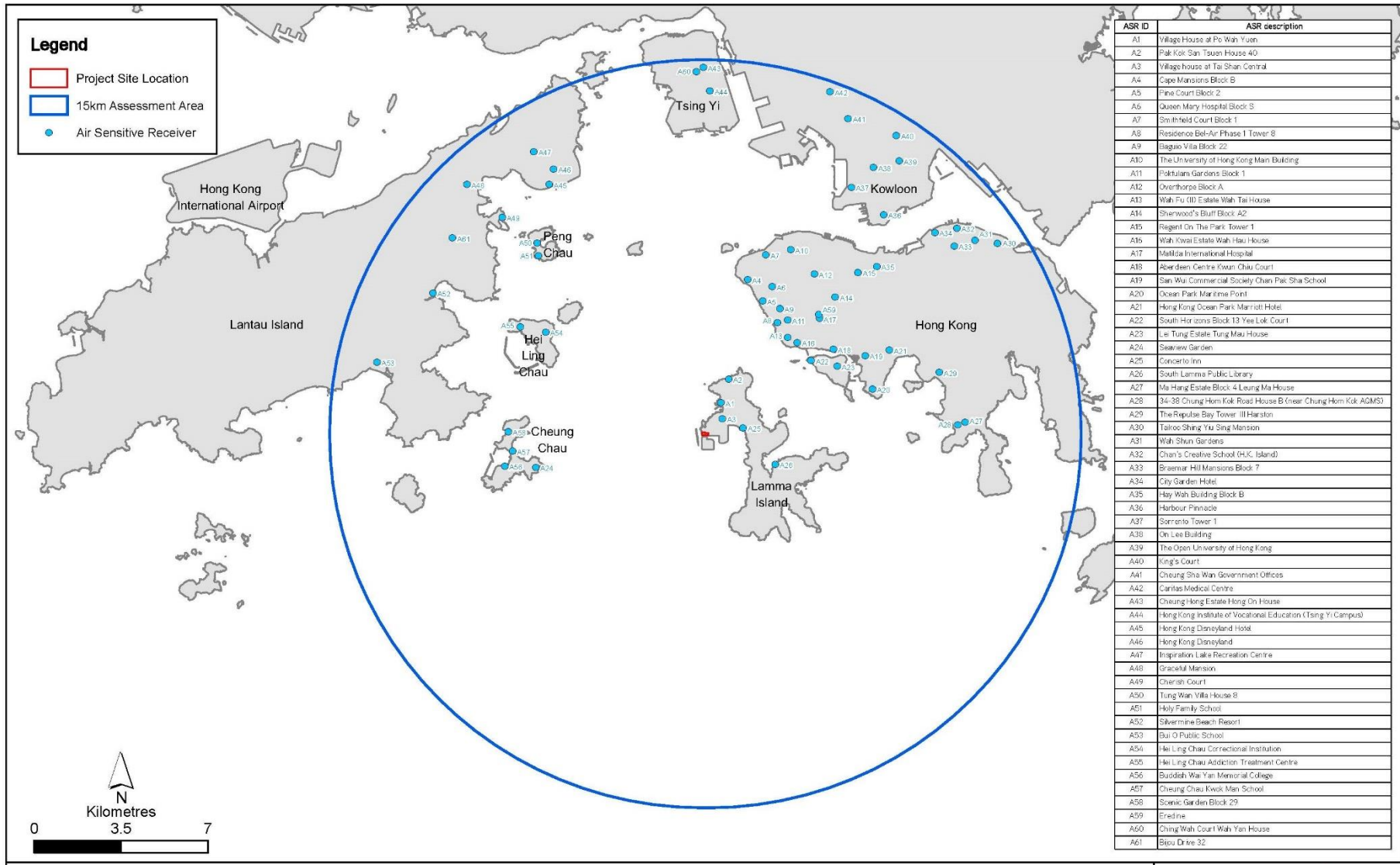


Figure 1.3 Locations of Air Sensitive Receivers within the 15km Assessment Area



Figure 1.4 Locations of Noise Sensitive Receivers

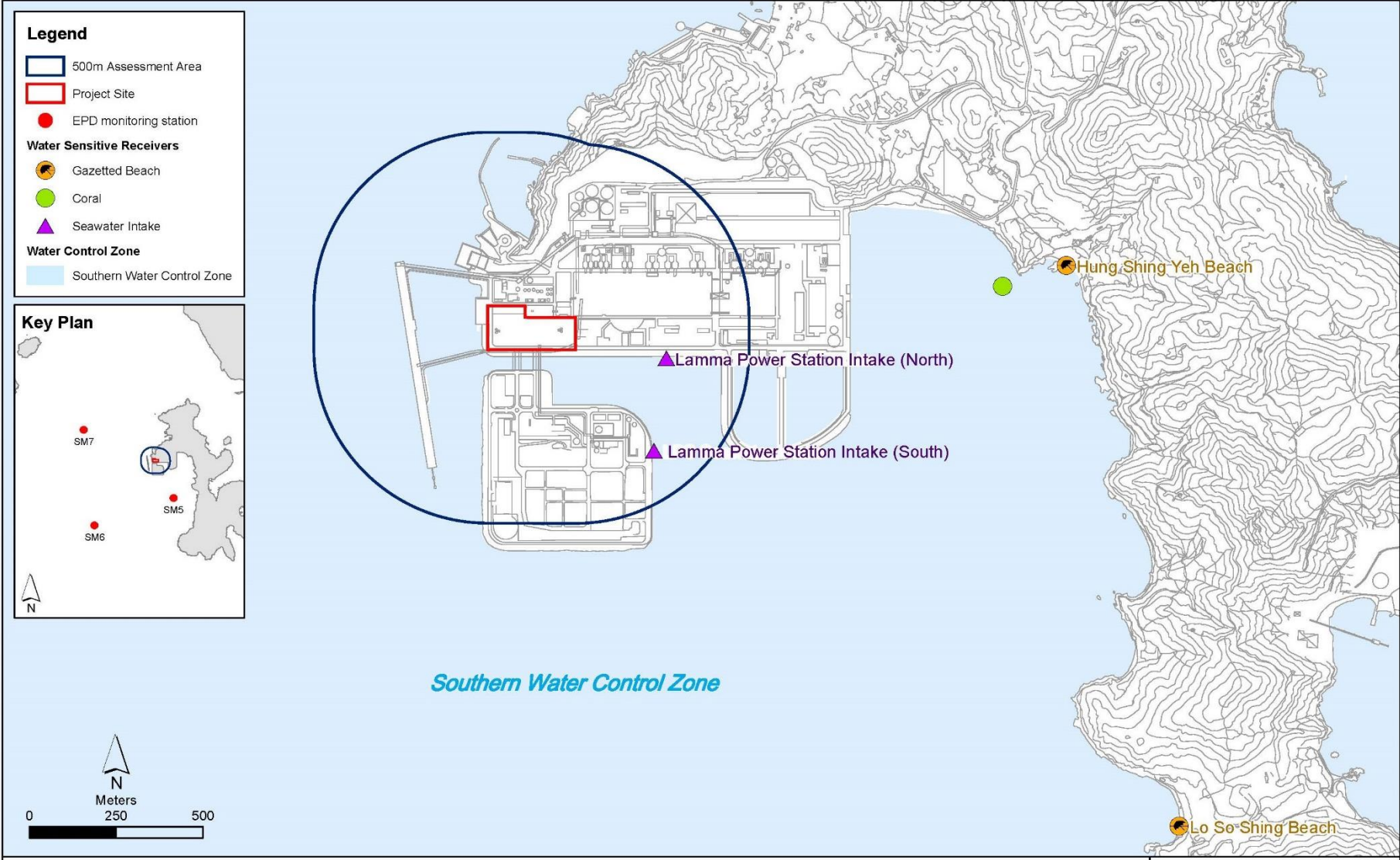


Figure 1.5 Locations of Water Sensitive Receivers

2. ENVIRONMENTAL AUDIT

2.1 Site Inspection

EPD officials from Regional Office (South) visited Lamma Power Station on 4/5/2023. There was no adverse comment from EPD regarding the construction site.

Independent Environmental Checker (IEC) conducted a site inspection on 23/5/2023. The site conditions were generally satisfactory.

Weekly site audits were carried out by the Environmental Team in the reporting month to ensure compliance with relevant legislations and other requirements. The site audit findings or recommendations in the reporting month are summarized in [Appendix D](#). The site conditions were generally satisfactory. No non-compliance was recorded during the site inspection. All recommended mitigation measures were properly implemented.

2.2 Status of Environmental Licensing and Permitting

The licenses/permits obtained for the Project as of end May 2023 are summarised in [Table 2.1](#).

Table 2.1 Status of Environmental Licensing and Permitting

License/Permit	Ref. No.	Valid Period		Description	Status
		From	To		
Environmental Permit	EP-600/2022	01/04/2022	-	For the decommissioning/ demolition, construction and operation of the Project	Valid
Waste Disposal Billing Account	Account No.: 7044319	27/06/2022	-	Civil Work	Valid
Registration of Chemical Waste Producer	5213-912-P2781-22	22/02/2016	-	Civil Work	Valid
EPD Notification (Dust) Construction, Air Pollution Control (Construction Dust) Regulation	481782	07/07/2022	-	Civil Work	Valid
Construction Noise Permit	GW-RS1132-22	30/12/2022	26/06/2023	Civil Work. Operation of PME during restricted hours	Valid
Waste Disposal Billing Account	Account No.: 7045179	28/09/2022	-	E&M Work	Valid
Registration of Chemical Waste Producer	5517-912-K2931-02	05/12/2022	-	E&M Work	Valid
Construction Noise Permit	GW-RS0258-23	14/04/2023	13/10/2023	E&M Work. Operation of PME	Valid

License/Permit	Ref. No.	Valid Period		Description	Status
		From	To		
				during restricted hours	

2.3 Waste Management

All wastes produced were managed in accordance with the Waste Management Plan, good waste management practices, and statutory regulations and requirements.

The estimated quantities of wastes generated in May 2023 are summarized in [Table 2.2](#).

Table 2.2 Estimated Quantities of Waste Generated in May 2023

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	0	59.75 Tonnes	30,000 Litres

The monthly waste flow tables prepared by the contractors are attached in [Appendix E](#).

2.4 Implementation Status of Land Contamination Assessment

The EIA study has recommended to conduct site investigation and sampling at five hotspot locations (i.e. 4 boreholes and 1 trial pit) to assess the potential land contamination impacts within the Project site in accordance with the Contaminated Assessment Plan (CAP). Site investigation and soil and groundwater sampling will be undertaken in accordance with the CAP under the supervision of a Land Contamination Specialist when the proposed sampling locations are made available after the demolition of the existing units and structures. The updated CAP was submitted to EPD in December 2022 for approval. EPD's comments on the CAP were received on 20/12/2022 and a revised CAP was submitted to EPD on 13/1/2023. EPD's approval for the CAP was granted on 2/3/2023.

Site investigation work on Lube Oil Tank area (BH1) was started on 22/5/2023 and the samples obtained had been delivered to laboratory for further analysis.

2.5 Implementation Status of Environmental Mitigation Measures

Mitigation measures detailed in the Environmental Permit and the EM&A Manual are required to be implemented. A summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in [Appendix C](#).

3. REPORT ON COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

3.1 Implementation Status of Environmental Complaint Handling Procedures

No complaint in relation to the environmental impact of the construction activities was received in the reporting month.

Table 3.1 Environmental Complaints Received in May 2023

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

Table 3.2 Outstanding Environmental Complaints Carried Over

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

3.2 Environmental Summon and Successful Prosecution

No notification of summon or successful prosecution was received in the reporting month.

Table 3.3 Notifications of Summon or Successful Prosecution Received in May 2023

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

Table 3.4 Notifications of Summon or Successful Prosecution Carried Over

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

4. FUTURE KEY ISSUES

4.1 Construction Program for the Coming Month

The construction activities scheduled for the coming month are mainly demolition of existing pipe rack, foundation works, trenching works, GTAB plant equipment demolition, Heat Recovery Steam Generator (HRSG) 5 and Heat Recovery Steam Generator (HRSG) 7 demolition, GT5 and GT7 power train removal works, operation of crawler crane, operation of cherry picker and oil discharge (see [Appendix B](#)).

4.2 Key Issues for the Coming Month

Key issues to be considered and recommended in the coming month include:

Civil Works

General

- Relevant environmental legislations should be observed.
- Relevant environmental licenses/permits should be obtained, if required.
- Required environmental mitigation measures should be properly implemented.

Air

- Dust suppression measures should be implemented for the construction activities.

Noise

- General noise mitigation measures should be employed at work site.
- Works conducted during restricted hours should comply with the valid CNP.

Water

- Wastewater from site facilities should be properly collected and stored within the site area.
- Good site practices should be adopted.

Waste

- Waste Management Plan submitted should be implemented
- Good site practices should be adopted.

Land Contamination

- Good site practices should be adopted.

E&M Works

General

- Relevant environmental legislations should be observed.
- Relevant environmental licenses/permits should be obtained, if required.
- Required environmental mitigation measures should be properly implemented.

Air

- Dust suppression measures should be implemented for the construction activities.

Noise

- General noise mitigation measures should be employed at work site.
- Works conducted during restricted hours should comply with the valid CNP.

Water

- Wastewater from site facilities should be properly collected and stored within the site area.
- Good site practices should be adopted.

Waste

- Waste Management Plan submitted should be implemented
- Good site practices should be adopted.

Land Contamination

- Good site practices should be adopted.

5. CONCLUSION

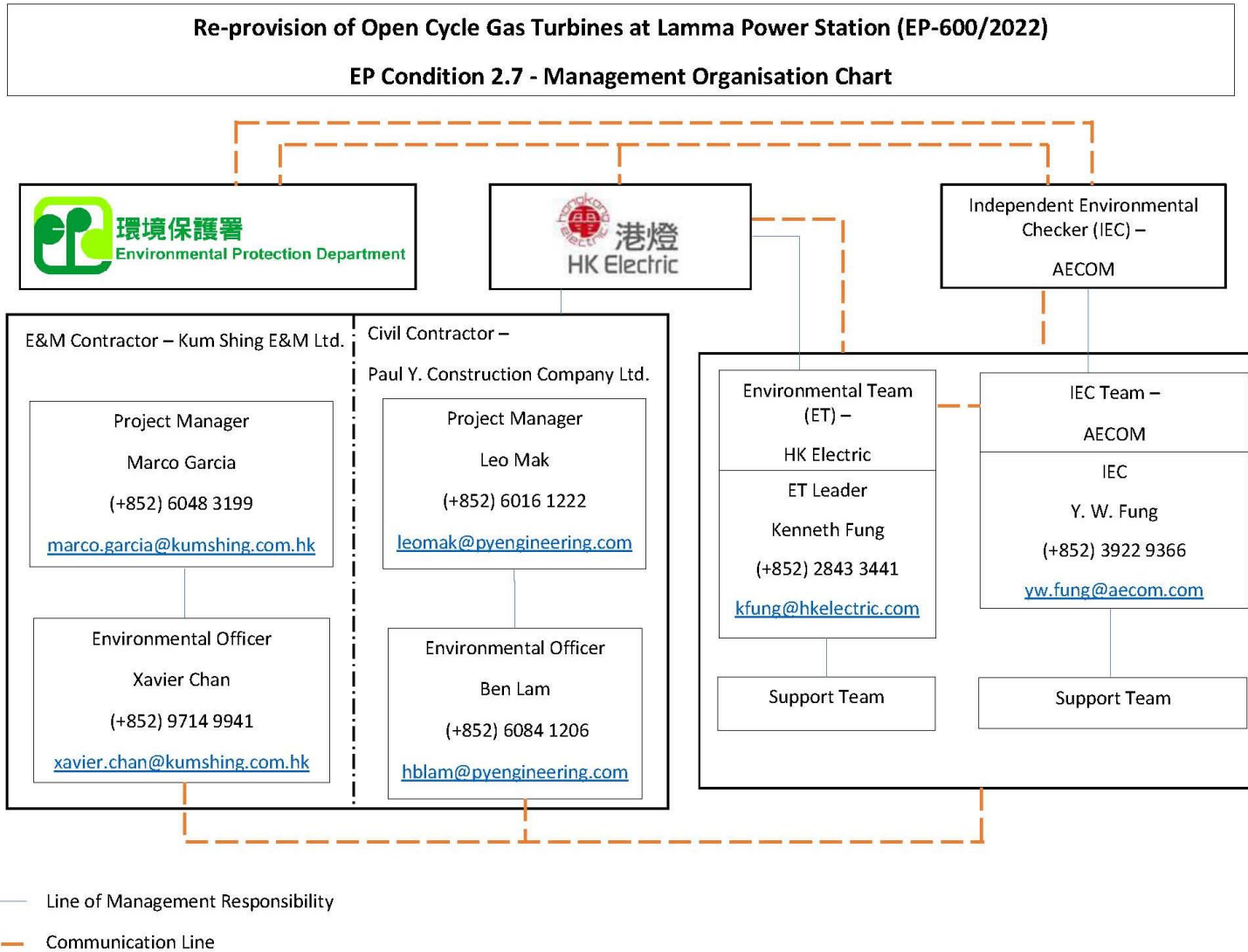
According to the EM&A Manual, environmental monitoring was not necessary in view of the anticipated insignificant environmental impact. Environmental audits were performed in accordance with the EM&A Manual.

All recommended environmental mitigation measures were properly implemented. No complaint in relation to the environmental impact of the construction activities was received in the reporting month. There was also no notification of summon and successful prosecution for breaches of relevant environmental legislations received in the reporting month.

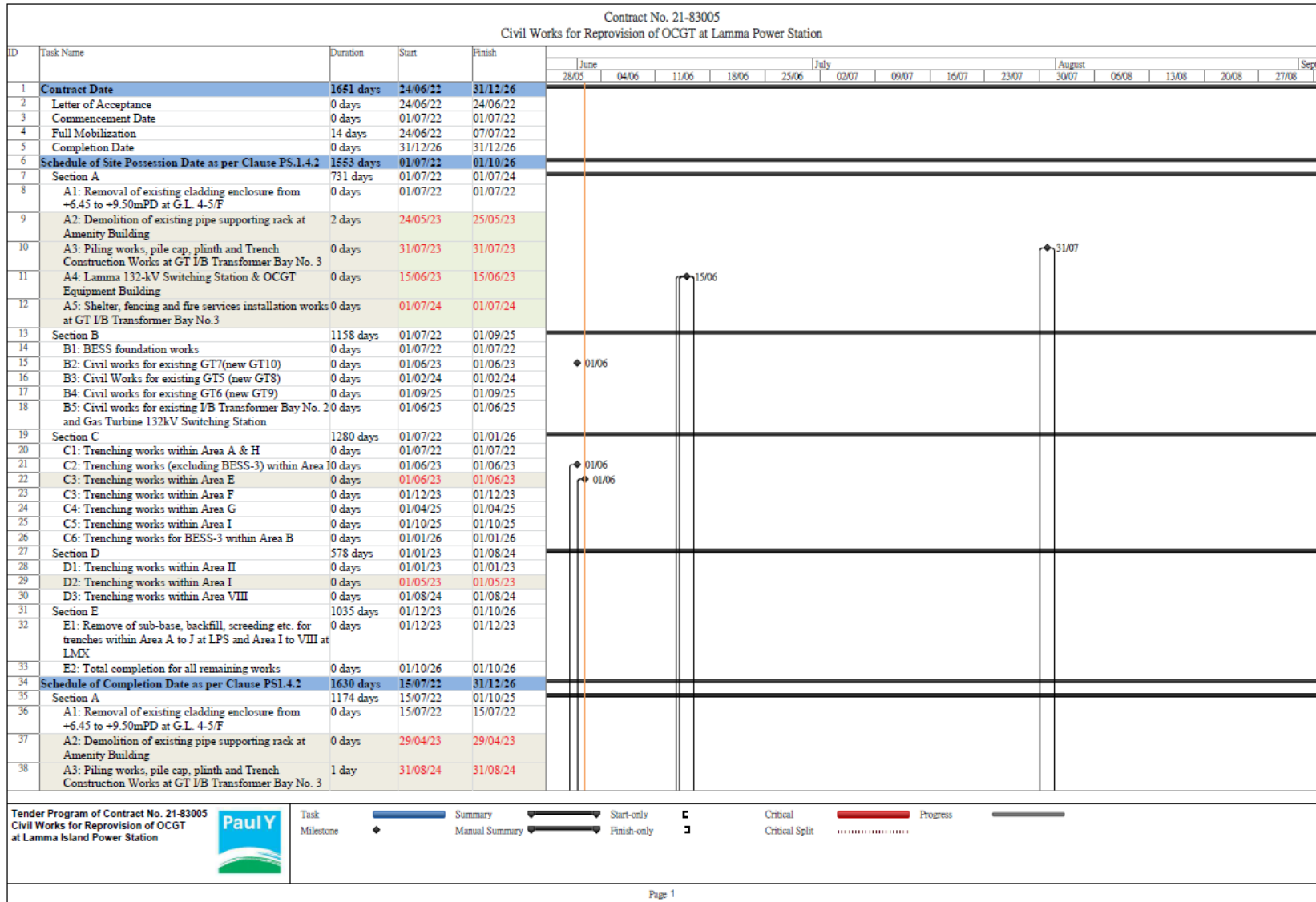
No non-compliance was recorded in the reporting month.

The environmental performance of the Project was generally satisfactory.

Appendix A Organization Chart



Appendix B1 Tentative Decommissioning and Construction Programme (Civil Contractor)



Re-provision of Open Cycle Gas Turbines at Lamma Power Station
 Monthly EM&A Report for May 2023

Contract No. 21-83005																	
Civil Works for Reprovision of OCGT at Lamma Power Station																	
ID	Task Name	Duration	Start	Finish	June			July				August				Sept	
					28/05	04/06	11/06	18/06	25/06	02/07	09/07	16/07	23/07	30/07	06/08	13/08	20/08
39	A4: Lamma 132-kV Switching Station & OCGT Equipment Building	0 days	01/10/24	01/10/24													
40	A5: Shelter, fencing and fire services installation works at GT I/B Transformer Bay No.3	0 days	01/10/25	01/10/25													
41	Section B	1155 days	31/12/22	28/02/26													
42	B1: BESS foundation works	0 days	31/12/22	31/12/22													
43	B2: Civil works for existing GT7(new GT10)	0 days	30/11/23	30/11/23													
44	B3: Civil Works for existing GT5 (new GT8)	0 days	31/07/24	31/07/24													
45	B4: Civil works for existing GT6 (new GT9)	0 days	28/02/26	28/02/26													
46	B5: Civil works for existing I/B Transformer Bay No. 20 and Gas Turbine 132kV Switching Station	20 days	28/02/26	28/02/26													
47	Section C (LPS)	1277 days	31/12/22	30/06/26													
48	C1: Trenching works within Area A & H	0 days	31/12/22	31/12/22													
49	C2: Trenching works (excluding BESS-3) within Area	10 days	31/12/23	31/12/23													
50	C3: Trenching works within Area E & F	0 days	31/05/24	31/05/24													
51	C4: Trenching works within Area G	0 days	30/09/25	30/09/25													
52	C5: Trenching works within Area I	0 days	31/03/26	31/03/26													
53	C6: Trenching works for BESS-3 within Area B	0 days	30/06/26	30/06/26													
54	Section D (LMX)	519 days	30/06/23	30/11/24													
55	D1: Trenching works within Area II	0 days	30/06/23	30/06/23													
56	D2: Trenching works within Area I	0 days	31/03/24	31/03/24													
57	D3: Trenching works within Area VIII	0 days	30/11/24	30/11/24													
58	Section E (LPS & LMX)	0 days	31/12/26	31/12/26													
59	E1: Remove of sub-base, backfill, screeding etc. for trenches within Area A to J at LPS and Area I to VIII at LMX	0 days	31/12/26	31/12/26													
60	E2: Total completion for all remaining works	0 days	31/12/26	31/12/26													
61	Schedule of Anchor Bolt Installation by Employer's Specialist Contractor as per Clause PS1.4.3 (Section B2 to	882 days	01/10/23	28/02/26													
62	Section B2 - Anchor Bolt installation	46 days	01/10/23	15/11/23													
63	Section B3 - Anchor Bolt installation	45 days	01/06/24	15/07/24													
64	Section B4 - Anchor Bolt installation	46 days	01/01/26	15/02/26													
65	Schedule of Final concreting works	836 days	16/11/23	28/02/26													
66	Section B2 - Final Concreting Works	15 days	16/11/23	30/11/23													
67	Section B3 - Final Concreting Works	16 days	16/07/24	31/07/24													
68	Section B4 - Final Concreting Works	13 days	16/02/26	28/02/26													
69	Transformer works by Employer's Specialist Contractor as per Clause PS1.4.3 (Section B5)	122 days	01/09/25	31/12/25													
70	Section B5 - Transformer Works	122 days	01/09/25	31/12/25													
71	General Preliminary and Technical Submission and Approv	940 days	24/06/22	18/01/25													
72	Method Statement and Materials: Preparation and Submission (Section A1 & Section A2)	7 days	24/06/22	30/06/22													
73	Method Statement and Materials: Engineer's Review and Approval (Section A1 & Section A2)	7 days	24/06/22	30/06/22													
74	Method Statement and Materials: Preparation and Submission (Other Major Works)	28 days	01/07/22	28/07/22													
75	Method Statement and Materials: Engineer's Review and Approval (Other Major Works)	28 days	29/07/22	25/08/22													
76	Quality Plan - Preparation & Submission	28 days	24/06/22	21/07/22													

Tender Program of Contract No. 21-83005
 Civil Works for Reprovision of OCGT
 at Lamma Island Power Station



Task Summary Start-only Finish-only Critical Progress
 Milestone Manual Summary Finish-only Critical Split

Re-provision of Open Cycle Gas Turbines at Lamma Power Station
 Monthly EM&A Report for May 2023

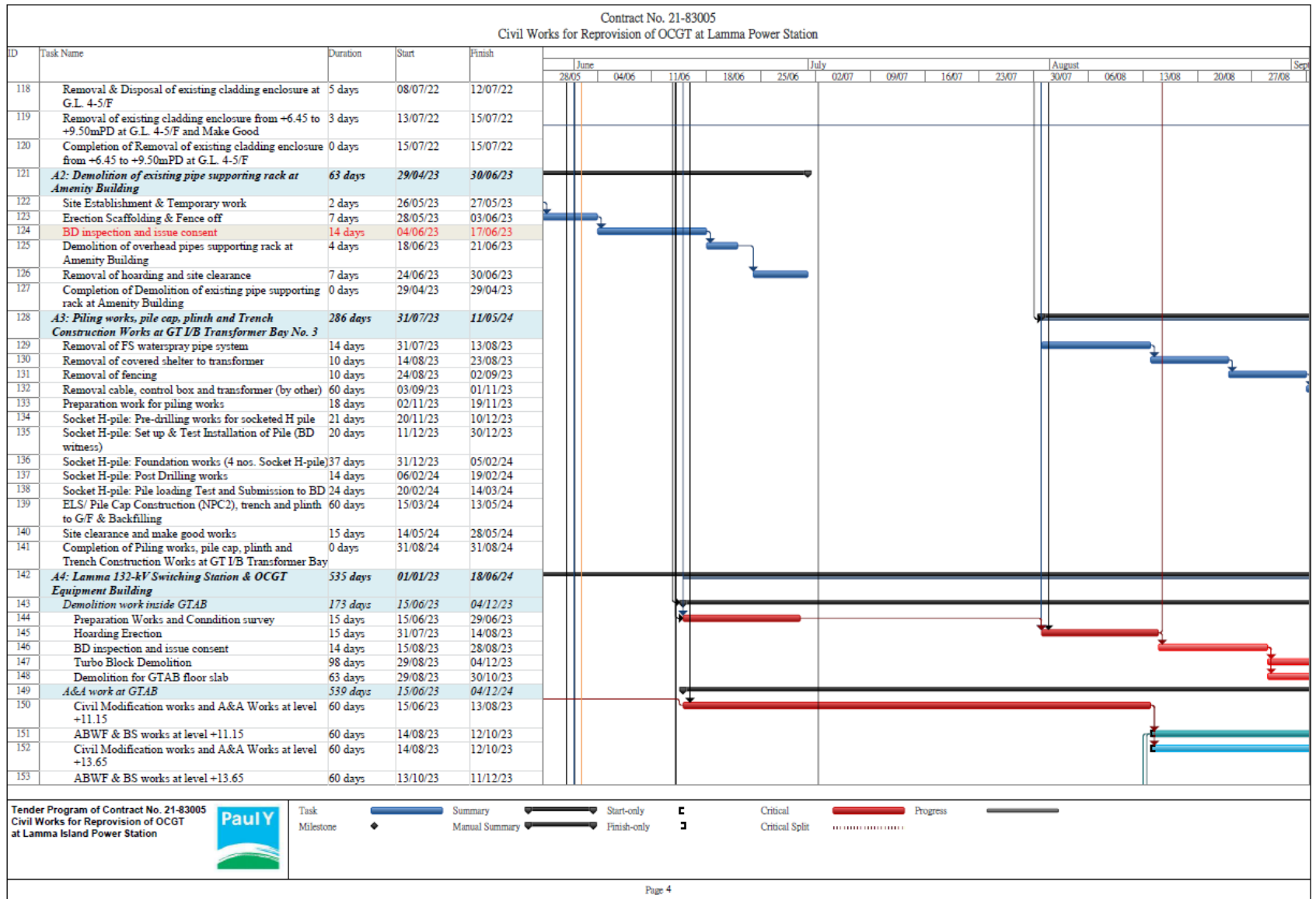
Contract No. 21-83005																	
Civil Works for Re-provision of OCGT at Lamma Power Station																	
ID	Task Name	Duration	Start	Finish	June				July				August				Sept
					28/05	04/06	11/06	18/06	25/06	02/07	09/07	16/07	23/07	30/07	06/08	13/08	20/08
77	Quality Plan - Engineer's Review and Approval	28 days	22/07/22	18/08/22													
78	Health and Safety Plan - Preparation & Submission	28 days	24/06/22	21/07/22													
79	Health and Safety Plan - Engineer's Review and Approval	28 days	22/07/22	18/08/22													
80	Trenching Submission - Prepare and submit of Trenching work	28 days	24/06/22	21/07/22													
81	Trenching Submission - Approval of Trenching work	28 days	22/07/22	18/08/22													
82	ELS Design Submission - Preparation for Submission (Pile Cap)	28 days	24/06/22	21/07/22													
83	ELS Design Submission - Review & Approval (Pile Cap)	28 days	22/07/22	18/08/22													
84	FS installation - Design Submission to ICE	28 days	23/11/24	21/12/24													
85	FS installation - Engineer's Review and Approval	29 days	22/12/24	19/01/25													
86	BS Shop Drawing and Combined Services Drawings Preparation	90 days	28/10/22	26/01/23													
87	Combined Services Drawings Approval by the Engineer	28 days	27/01/23	23/02/23													
88	BS Equipment Schedule Preparation & Submission	90 days	31/01/23	30/04/23													
89	BS Equipment Schedule Approval by the Engineer	28 days	02/05/23	29/05/23													
90	BD Application & Procedure	719 days	01/07/22	18/06/24													
91	BA19 Hoarding Permit Application (Phase I)	30 days	01/07/22	30/07/22													
92	BA19 Hoarding Permit Application (Phase II)	30 days	15/06/23	14/07/23													
93	BA8 Application for Consent (Demolition Works) (Green Zone - ST5)	28 days	01/07/22	28/07/22													
94	BA8 Application for Consent (Demolition Works) (Cyan & Red Zone - GTAB & Turbo Block)	28 days	15/06/23	12/07/23													
95	BA10 Notice of Appointment of Registered Contractor (Demolition Works)	7 days	13/07/23	19/07/23													
96	BA14A Certificate on Completion of Demolition Works	27 days	06/12/23	01/01/24													
97	BA8 Application for Consent (Piling works)	28 days	15/02/23	14/03/23													
98	BA14 Certificate on Completion of Building Works (Piling Works)	0 days	09/10/23	09/10/23													
99	BA8 Application for Consent (A&A Works)	28 days	15/08/23	11/09/23													
100	BA8 Application for Consent (Pile Cap & Superstructure)	28 days	01/07/22	28/07/22													
101	BA10 Notice of Appointment of Registered Contractor (Pile Cap & Superstructure)	7 days	29/07/22	04/08/22													
102	BA14 Certificate on Completion of Building Works (Pile Cap & Superstructure)	0 days	03/01/25	03/01/25													
103	BA14 Certificate on Completion of Building Works (OCGT Equipment Building)	0 days	03/01/25	03/01/25													
104	Procurement & Delivery	190 days	30/05/23	05/12/23													
108	Construction	1645 days	01/07/22	31/12/26													
109	Preparation	110 days	29/07/23	15/11/23													
110	Site Set-up and survey	48 days	01/07/22	17/08/22													
111	Site Condition Survey	14 days	01/07/22	14/07/22													
112	Fencing Erection at Site Office & Store	20 days	15/07/22	03/08/22													
113	Erect Scaffolding & Temporary working platform	14 days	04/08/22	17/08/22													
114	Section A	1188 days	01/07/22	01/10/25													
115	<i>A1: Removal of existing cladding enclosure from +6.45 to +9.50mPD at G.L. 4-5/F</i>	15 days	01/07/22	15/07/22													
116	Site Establishment & Condition survey	4 days	01/07/22	04/07/22													
117	Erection Scaffolding & Fence off	3 days	05/07/22	07/07/22													

Tender Program of Contract No. 21-83005
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 at Lamma Island Power Station



Task Milestone Summary Manual Summary Start-only Finish-only Critical Critical Split Progress

Re-provision of Open Cycle Gas Turbines at Lamna Power Station
 Monthly EM&A Report for May 2023



Re-provision of Open Cycle Gas Turbines at Lamma Power Station
 Monthly EM&A Report for May 2023

Contract No. 21-83005 Civil Works for Re-provision of OCGT at Lamma Power Station																			
ID	Task Name	Duration	Start	Finish	June		July					August					Sept		
					28/05	04/06	11/06	18/06	25/06	02/07	09/07	16/07	23/07	30/07	06/08	13/08	20/08	27/08	
154	Civil Modification works and A&A Works at level +19.65	60 days	13/10/23	11/12/23															
155	ABWF & BS works at level +19.65	60 days	12/12/23	09/02/24															
156	Civil Modification works and A&A Works at level +25.15	60 days	12/12/23	09/02/24															
157	ABWF & BS works at level +25.15	60 days	10/02/24	09/04/24															
158	Re-construction of three internal floors	60 days	09/05/24	07/07/24															
159	ABWF & BS works at three new internal floors	90 days	08/07/24	05/10/24															
160	Civil Modification works and A&A Works at level +6.15 & +7.00	160 days	01/12/23	08/05/24															
161	ABWF & BS works at level +6.15 & +7.00	90 days	09/05/24	06/08/24															
162	Other Building Works	479 days	14/08/23	04/12/24															
163	Replacement of the existing windows and translucent sheets by metal cladding	90 days	13/09/23	11/12/23															
164	Installation of new fibreglass F.S. water tank to replace the existing fibreglass tank on flat roof	20 days	12/12/23	31/12/23															
165	Application of new waterproofing system to flat roof	20 days	01/01/24	20/01/24															
166	Application of fire protection system to the existing indoor structural steelworks of the	50 days	22/07/24	09/09/24															
167	Fire services installation	300 days	13/09/23	08/07/24															
168	Partition wall construction for new plant/equipment rooms	200 days	14/08/23	29/02/24															
169	Procurement & Delivery	180 days	02/11/23	29/04/24															
170	Replacement of the existing doors, roller shutters and folding shutters	45 days	01/03/24	14/04/24															
171	Drainage Works	90 days	01/07/24	28/09/24															
172	Procurement & Delivery	180 days	10/01/24	08/07/24															
173	Mechanical ventilation and air conditioning installation	90 days	08/07/24	05/10/24															
174	T&C	60 days	06/10/24	04/12/24															
175	Construction of New Staircase ST-5	484 days	15/06/23	10/10/24															
176	Preparation Work	18 days	15/06/23	02/07/23															
177	Modification Work for Existing Inlet Culvert	68 days	03/07/23	08/09/23															
178	Socket H-pile: Pre-drilling works for socketed H pile	21 days	09/09/23	29/09/23															
179	Socket H-pile: Set up & Test Installation of Pile (BD witness)	20 days	30/09/23	19/10/23															
180	Socket H-pile: Foundation works (7 nos. Socket H-pile)	67 days	20/10/23	25/12/23															
181	Socket H-pile: Post Drilling works	14 days	26/12/23	08/01/24															
182	Socket H-pile: Pile loading Test and Submission to BD	24 days	09/01/24	01/02/24															
183	ELS/ Pile Cap Construction (NPC1) to G/F	35 days	15/03/24	18/04/24															
184	Construction of New Staircase 4 above NPC1	65 days	19/04/24	22/06/24															
185	Construction of new cladding enclosure for Staircase 4 at flat roof	65 days	23/06/24	26/08/24															
186	Lift Procurement	180 days	05/01/24	03/07/24															
187	Fireman's lift installation at OCGT Equipment Buldi	70 days	03/07/24	10/09/24															
188	T&C	30 days	11/09/24	10/10/24															

Tender Program of Contract No. 21-83005
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 at Lamma Island Power Station



Task Summary Start-only Finish-only Critical Progress Critical Split

Milestone Manual Summary

Re-provision of Open Cycle Gas Turbines at Lamma Power Station
 Monthly EM&A Report for May 2023

Contract No. 21-83005 Civil Works for Reprovision of OCGT at Lamma Power Station																				
ID	Task Name	Duration	Start	Finish	June					July					August					Sept
					28/05	04/06	11/06	18/06	25/06	02/07	09/07	16/07	23/07	30/07	06/08	13/08	20/08	27/08		
189	EMSD	35 days	10/10/24	14/11/24																
190	Submit Form 5 for Lift inspection	0 days	10/10/24	10/10/24																
191	Lift inspection by EMSD	14 days	11/10/24	24/10/24																
192	Issue of Lift Certificate (Form 6) by EMSD	21 days	25/10/24	14/11/24																
193	WSD inspection	45 days	08/04/24	22/05/24																
194	Form WWO Part IV Submission	0 days	08/04/24	08/04/24																
195	WSD inspection	15 days	08/04/24	22/04/24																
196	WSD collection of Water sample	15 days	23/04/24	07/05/24																
197	Issuance of water certificate	15 days	08/05/24	22/05/24																
198	FSD inspection	50 days	14/11/24	03/01/25																
199	Form 314 & 501 submission	0 days	14/11/24	14/11/24																
200	FS inspection (FS system)	15 days	15/11/24	29/11/24																
201	FS re-inspection	7 days	30/11/24	06/12/24																
202	FSD - Form 172 (Fire Certificate)	28 days	07/12/24	03/01/25																
203	BD inspection for OP	27 days	03/01/25	30/01/25																
204	Form 314 & 501 submission	0 days	03/01/25	03/01/25																
205	BD inspection	13 days	04/01/25	16/01/25																
206	BD rectification and re-inspection	14 days	17/01/25	30/01/25																
207	Completion of Lamma 132-kV Switching Station & OCGT Equipment Building	0 days	30/01/25	30/01/25																
208	A5: Shelter, fencing and fire services installation works at GT I/B Transformer Bay No.3	457 days	01/07/24	01/10/25																
209	Construction of shelter and fencing works at GT Interbus (I/B) Transformer Bay No. 3	90 days	01/07/24	28/09/24																
210	Completion of Shelter, fencing and fire services installation works at GT I/B Transformer Bay No.3	0 days	01/10/25	01/10/25																
211	Section B	1247 days	01/10/22	28/02/26																
238	Section C	1461 days	01/07/22	30/06/26																
239	C1: Trenching works within Area A & H	284 days	01/07/22	10/04/23																
240	Area A	284 days	01/07/22	10/04/23																
241	Preparation Works (UU checking/ Condition survey/ Fence off)	20 days	01/07/22	20/07/22																
242	Excavation (ELS)/ UU Diversion (if any)	60 days	21/07/22	18/09/22																
243	Trench construction	180 days	04/09/22	02/03/23																
244	Procurement & Delivery of Precast Trench Cover	60 days	01/01/23	02/03/23																
245	Lay & compact sub-base & Install Precast Trench Covers	39 days	03/03/23	10/04/23																
246	Area H	184 days	01/10/22	02/04/23																
247	Preparation Works (UU checking/ Condition survey/ Fence off)	20 days	01/10/22	20/10/22																
248	Excavation (ELS)/ UU Diversion (if any)	60 days	21/10/22	19/12/22																
249	Trench construction	90 days	30/11/22	27/02/23																
250	Procurement & Delivery of Precast Trench Cover	60 days	29/12/22	27/02/23																
251	Lay & compact sub-base & Install Precast Trench Covers	34 days	28/02/23	02/04/23																
252	Completion of Trenching works within Area A & H	0 days	10/04/23	10/04/23																
253	C2: Trenching works (excluding BESS-3) within Area B	515 days	04/08/22	31/12/23																
254	Area B (BESS-2a)	150 days	04/08/22	31/12/22																

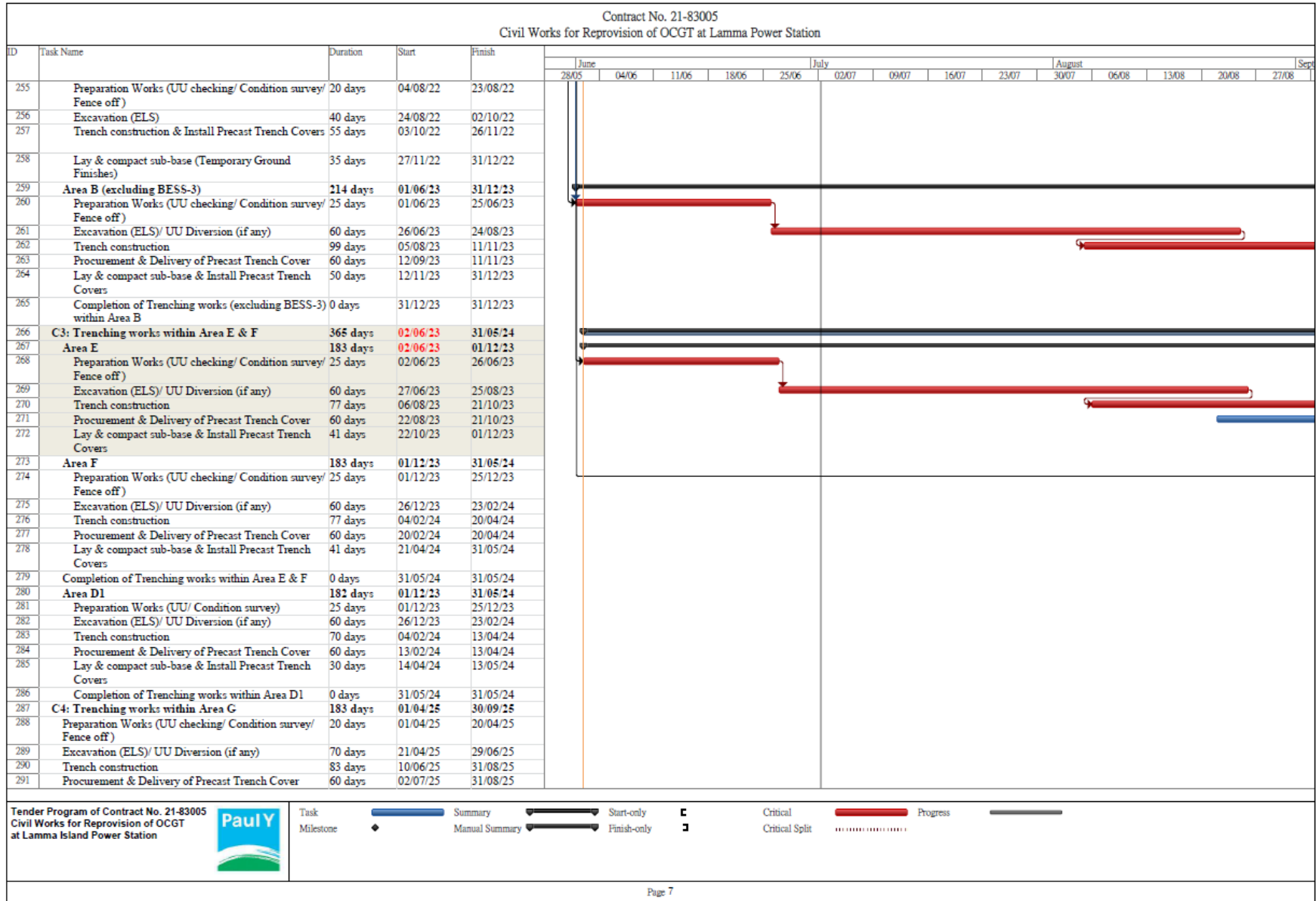
Tender Program of Contract No. 21-83005
Civil Works for Reprovision of OCGT
at Lamma Island Power Station

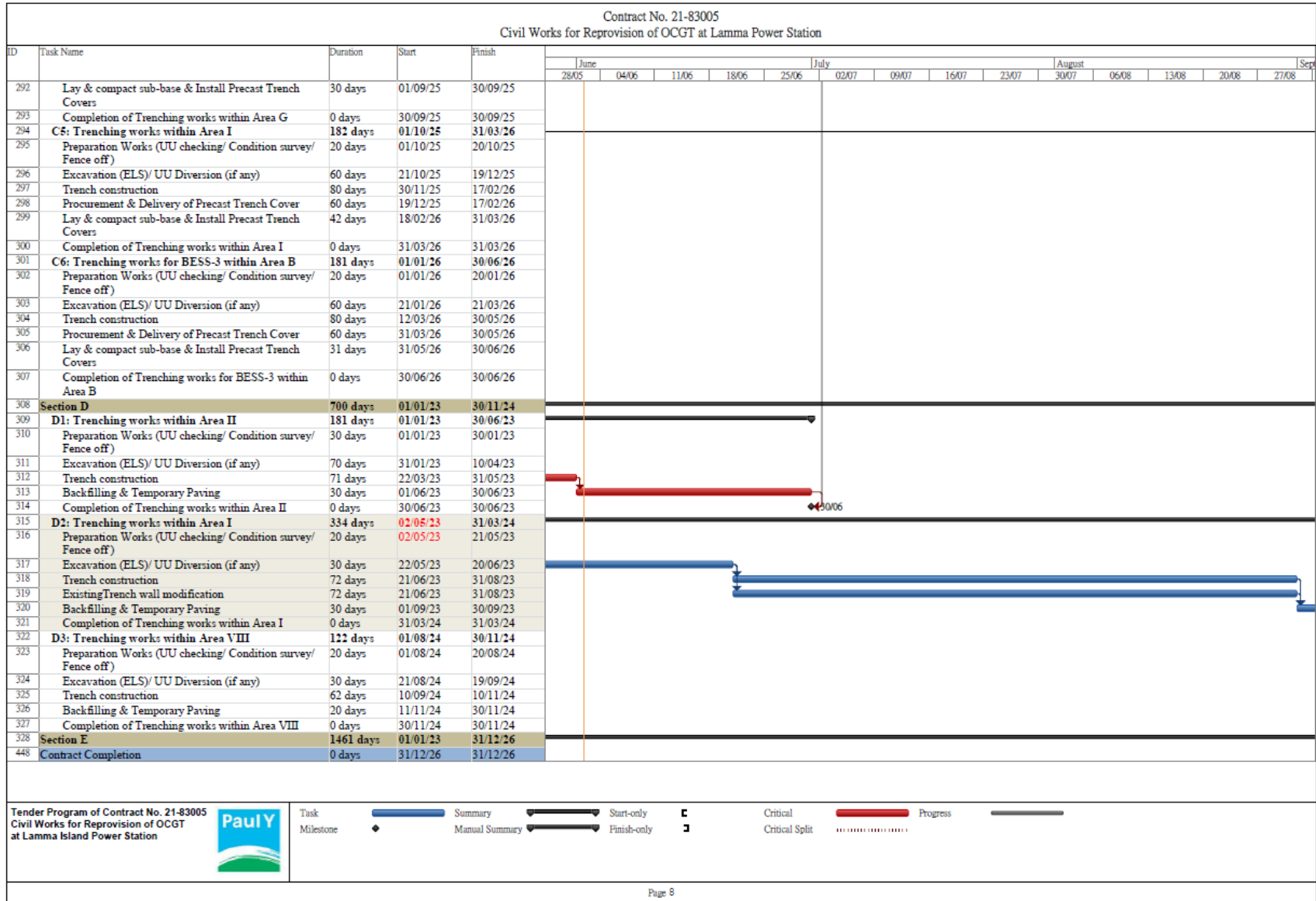


Task Summary Start-only Finish-only Critical Progress Critical Split

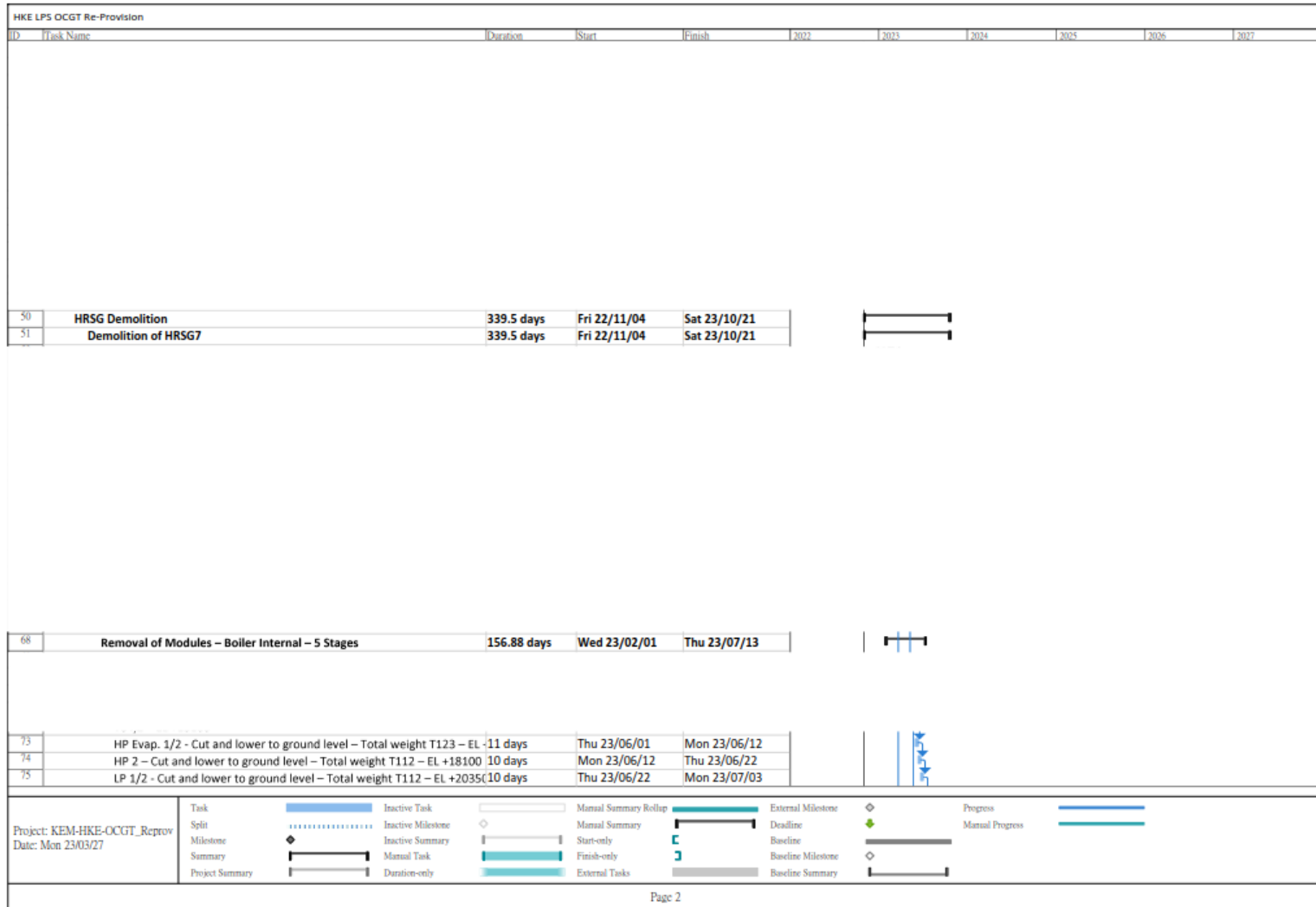
Milestone Manual Summary

Re-provision of Open Cycle Gas Turbines at Lamma Power Station
 Monthly EM&A Report for May 2023





Appendix B2 Tentative Decommissioning and Construction Programme (E&M Contractor)



Re-provision of Open Cycle Gas Turbines at Lamma Power Station
 Monthly EM&A Report for May 2023

HKE LPS OCGT Re-Provision						2022	2023	2024	2025	2026	2027
ID	Task Name	Duration	Start	Finish							
76	HP/L Eco – Cut and lower to ground level – Total weight T60 – EL +226	10 days	Mon 23/07/03	Thu 23/07/13							
77	Removal of Gas outlet Duct (GT exhaust)	26.5 days	Thu 23/07/13	Wed 23/08/09							
78	Flame cutting to remove side-bottom casing below HRSFG 7 - EL +1000 – EL +1300	15 days	Thu 23/07/13	Fri 23/07/28							
79	Flame cutting to remove duct between HRSFG & Non Metallic Expansion Joint – EL +1000 – EL+13000	9 days	Fri 23/07/28	Mon 23/08/07							
80	Remove Non Metallic Expansion Joint	9 days	Tue 23/08/01	Wed 23/08/09							
92	Demolition of HRSFG5	190 days	Thu 23/02/23	Fri 23/09/08							
96	Set Up of 250T Crawler Crane	14 days	Fri 23/06/02	Sat 23/06/17							
97	250T Crawler Crane Ready for Use	0 days	Sat 23/06/17	Sat 23/06/17							
98	Work tasks inside the HRSFG enclosure	76 days	Sat 23/06/17	Mon 23/09/04							
99	Remove silencers- EL +34400	4 days	Sat 23/06/17	Wed 23/06/21							
100	Take out the roofing deck and purlin	6 days	Wed 23/06/21	Wed 23/06/28							
101	Scaffolding works	20 days	Wed 23/06/28	Tue 23/07/18							
102	Removal the equipment and related facilities at HRSFG	20 days	Tue 23/07/18	Tue 23/08/08							
103	Remove the cladding of HRSFG enclosure	10 days	Tue 23/08/08	Fri 23/08/18							
104	Removal of HRSFG sub frame	5 days	Fri 23/08/18	Wed 23/08/23							
105	Scaffolding dismantle works	11 days	Thu 23/08/24	Mon 23/09/04							
106	Removal of HRSFG Roof – above Hot Beam	26 days	Sat 23/06/17	Fri 23/07/14							
107	Remove roof structure & cladding to allow access to Top of Hot Beams – EL +24763 – EL +29300	26 days	Sat 23/06/17	Fri 23/07/14							
108	Removal of Modules – Boiler Internal – 5 Stages	54 days	Fri 23/07/14	Fri 23/09/08							
109	Setup the Secondary beam structural frame	14 days	Fri 23/07/14	Fri 23/07/28							
110	Remove the bottom steel panel block	10 days	Fri 23/07/28	Tue 23/08/08							
111	HP /1RY – HP / 2RY Eco – Cut and lower to ground level – Total weight T64,2 – EL +13100	9 days	Fri 23/07/14	Mon 23/07/24							
112	HP Evap. 1/2 - Cut and lower to ground level – Total weight T123 – EL -9 days	9 days	Mon 23/07/24	Wed 23/08/02							
113	HP 2 – Cut and lower to ground level – Total weight T112 – EL +18100	9 days	Wed 23/08/02	Fri 23/08/11							
114	LP 1/2 - Cut and lower to ground level – Total weight T112 – EL +2035	9 days	Fri 23/08/11	Mon 23/08/21							
115	HP/L Eco – Cut and lower to ground level – Total weight T60 – EL +226	9 days	Mon 23/08/21	Wed 23/08/30							

Project: KEM-HKE-OCGT_Reprov Date: Mon 23/03/27	Task		Inactive Task		Manual Summary Rollup		External Milestone		Progress	
	Split		Inactive Milestone		Manual Summary		Deadline		Manual Progress	
	Milestone		Inactive Summary		Start-only		Baseline			
	Summary		Manual Task		Finish-only		Baseline Milestone			
	Project Summary		Duration-only		External Tasks		Baseline Summary			

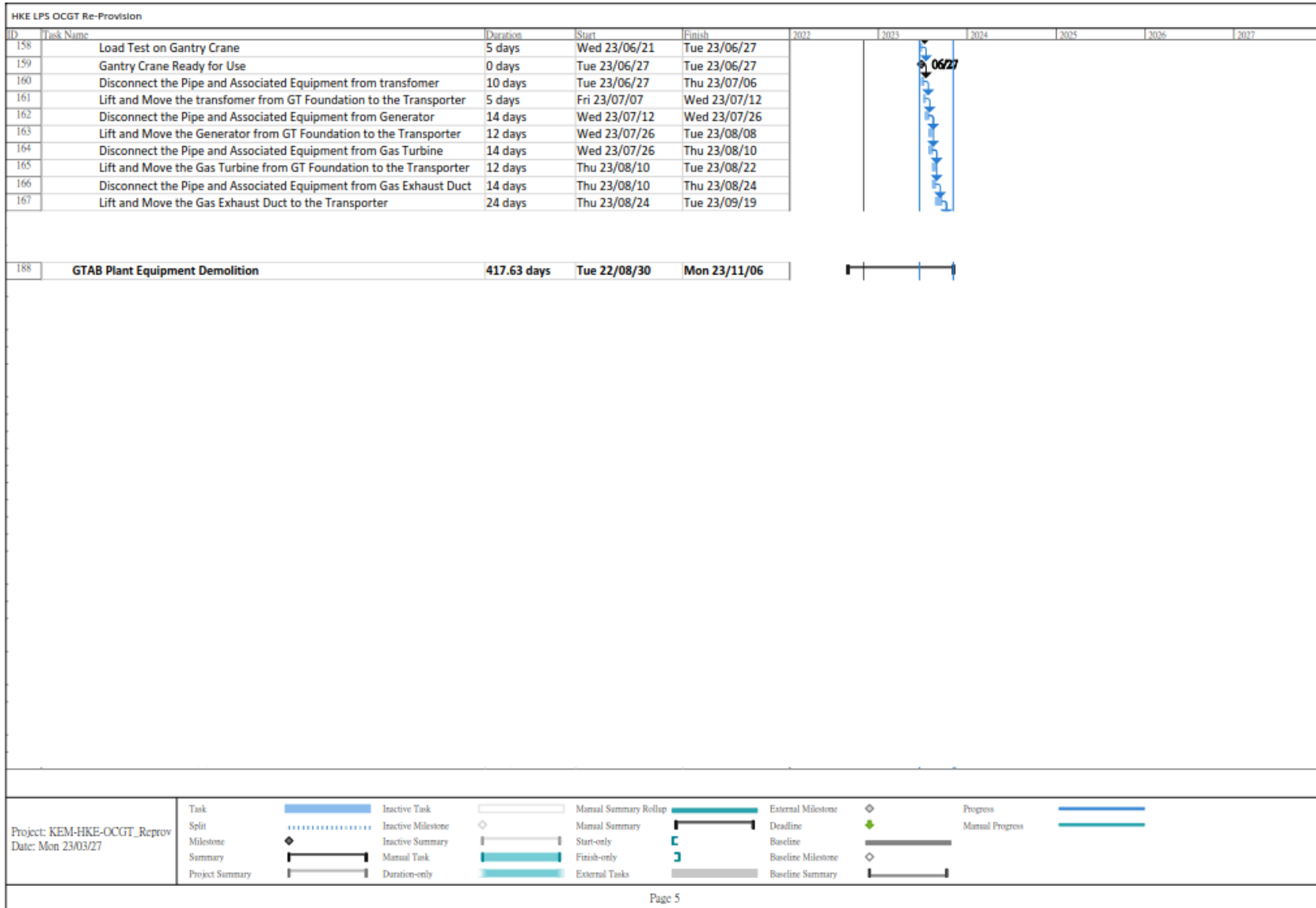
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 Monthly EM&A Report for May 2023

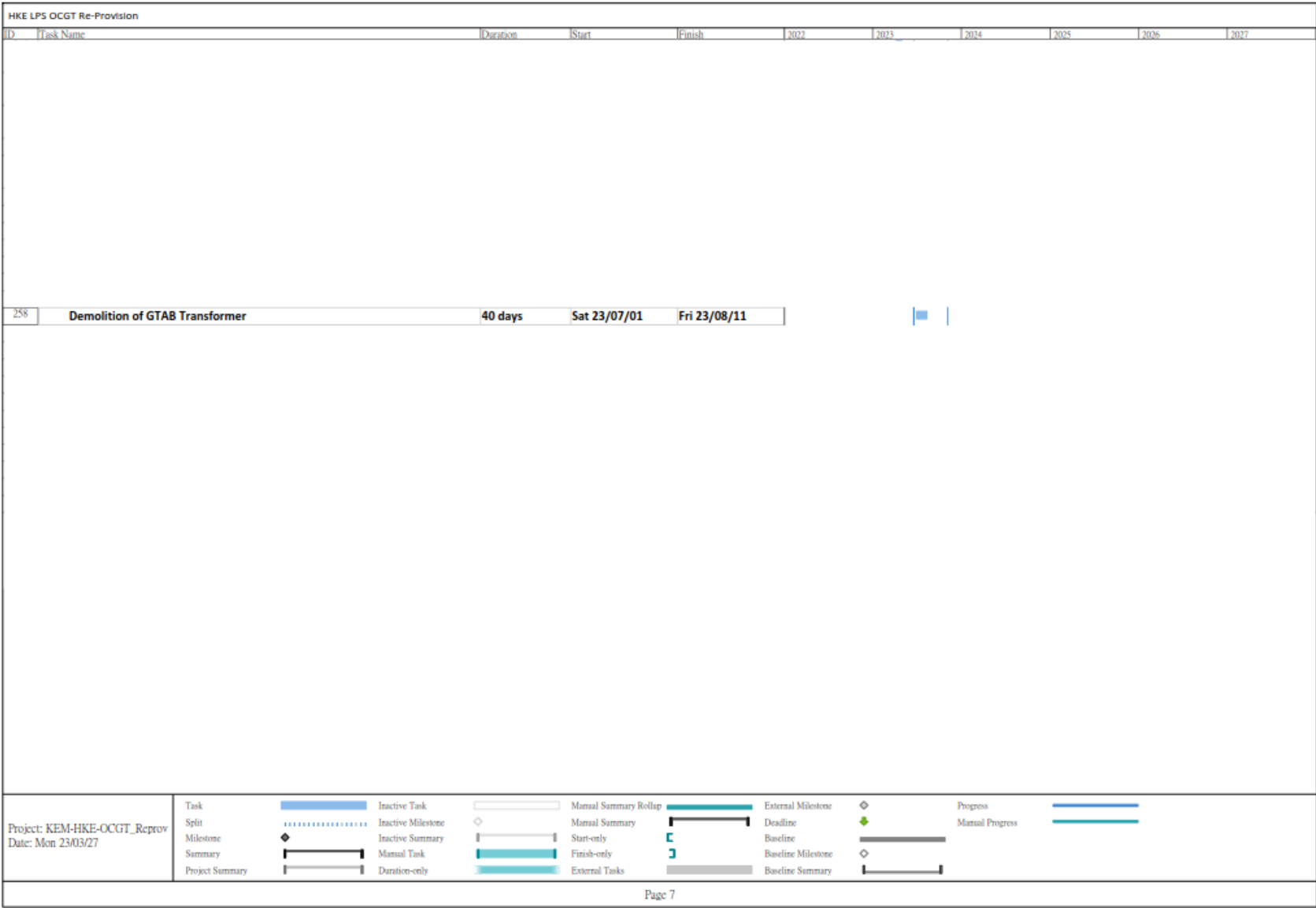
HKE LPS OCGT Re-Provision					2022	2023	2024	2025	2026	2027
ID	Task Name	Duration	Start	Finish						
117	Removal of Gas outlet Duct (GT exhaust)	34 days	Sat 23/06/17	Sat 23/07/22						
118	Flame cutting to remove side-bottom casing below HRSG 5 - EL +1000 - EL +1300	6 days	Sat 23/06/17	Fri 23/06/23						
119	Flame cutting to remove duct between HRSG & Non Metallic Expansion Joint - EL +1000 - EL+13000	2 days	Fri 23/06/23	Mon 23/06/26						
120	Remove Non Metallic Expansion Joint	2 days	Thu 23/07/20	Sat 23/07/22						
121	Removal of Gas Outlet Duct (HRSG exhaust)	18 days	Fri 23/07/14	Wed 23/08/02						
122	Flame cut and remove Gas Duct - part1 -6, - EL +26763 - EL +29300	10 days	Fri 23/07/14	Tue 23/07/25						
123	Remove Non-Metallic Expansion Joint & Support - EL+26763 - EL +293	3 days	Tue 23/07/25	Thu 23/07/27						
124	Remove all Steel segment for Outlet Duct	5 days	Thu 23/07/27	Wed 23/08/02						
125	Removal of HRSG External platforms in controlled manner	27 days	Thu 23/07/27	Thu 23/08/24						
126	Remove platforms steel structures - EL +34400	6 days	Thu 23/07/27	Thu 23/08/03						
127	Remove HP Steam Drum - 32894(KG)	3 days	Thu 23/08/03	Sat 23/08/05						
128	Remove platforms steel structures - EL +29300	6 days	Sat 23/08/05	Sat 23/08/12						
129	Remove Platforms steel structures - EL +27200	6 days	Sat 23/08/12	Fri 23/08/18						
130	Remove LP Steam Drum - 7323(KG)	3 days	Fri 23/08/18	Tue 23/08/22						
131	Remove Platforms steel structures - EL +24800	3 days	Tue 23/08/22	Thu 23/08/24						
133	Demolition of GT7	98.88 days	Sat 23/02/18	Wed 23/05/31						
150	Demolition of GT5	169.75 days	Wed 23/04/26	Thu 23/10/19						
155	Scaffold Erection	10 days	Fri 23/05/26	Tue 23/06/06						
156	Asbestos removal work (Turbine coating)	21 days	Tue 23/06/06	Wed 23/06/28						
157	Set Up Mobile Gantry Crane	20 days	Wed 23/05/31	Wed 23/06/21						

Project: KEM-HKE-OCGT_Reprov Date: Mon 23/03/27	Task: Inactive Task Split: Inactive Milestone Milestone: Inactive Summary Summary: Manual Task Project Summary: Duration-only	Manual Summary Rollup: Manual Summary Start-only: Start-only Finish-only: Finish-only External Tasks: External Tasks	External Milestone: External Milestone Deadline: Deadline Baseline: Baseline Baseline Milestone: Baseline Milestone Baseline Summary: Baseline Summary	Progress: Progress Manual Progress: Manual Progress
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Re-provision of Open Cycle Gas Turbines at Lamma Power Station
 Monthly EM&A Report for May 2023



Re-provision of Open Cycle Gas Turbines at Lamma Power Station
 Monthly EM&A Report for May 2023



Appendix C Summary of EMIS

Table C.1 Mitigation Measures and their Implementation in the Reporting Month

EM&A Log Ref.	Recommended Mitigation Measures	Implementation Status
	AIR QUALITY	
EM&A: S2	Impervious sheet will be provided for skip hoist for material transport.	Complied
EM&A: S2	The area where dusty work takes place should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after dusty activities as far as practicable.	Complied
EM&A: S2	All dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation.	Complied
EM&A: S2	Dropping heights for excavated materials should be controlled to a practical height to minimise the fugitive dust arising from unloading.	Complied
EM&A: S2	During transportation by truck, materials should not be loaded to a level higher than the side and tail boards, and should be dampened or covered before transport.	Complied
EM&A: S2	Temporary stockpiles of dusty materials will be either covered entirely by impervious sheets or sprayed with water to maintain the entire surface wet all the time.	Complied
EM&A: S2	Stockpiles of more than 20 bags of cement, dry pulverised fuel ash and dusty construction materials will be covered entirely by impervious sheeting sheltered on top and 3-sides.	Complied
EM&A: S2	All exposed areas will be kept wet always to minimise dust emission.	Complied
EM&A: S2	Ultra-low-sulphur diesel (ULSD) will be used for all construction plant on-site, as defined as diesel fuel containing not more than 0.005% sulphur by weight) as stipulated in Environment, Transport and Works Bureau Technical Circular (ETWB-TC(W)) No 19/2005 on Environmental Management on Construction Sites.	Complied
EM&A: S2	The engine of the construction equipment during idling will be switched off.	Complied
EM&A: S2	Regular maintenance of construction equipment deployed on-site will be conducted to prevent black smoke emission.	Complied
EM&A: S2	All marine vessels fuelled in Hong Kong will operate using marine light diesel with Sulphur content lower than 0.05%.	Complied
EM&A: S2	NRMMs, e.g. mobile generator and air compressor, will comply with the prescribed emission standards with a proper label approved by EPD.	Complied
EM&A: S2	Electric power supply for on-site machinery will be provided as far as practicable for construction activities.	Complied
EM&A: S2	To ensure proper implementation of the recommended dust mitigation measures and good construction site practices during the decommissioning/ demolition/ construction phases, environmental site audits on weekly basis is recommended throughout the construction period.	Complied

EM&A Log Ref.	Recommended Mitigation Measures	Implementation Status
APCO	Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving construction site.	Complied
	NOISE	
EM&A: S3	Machines and construction plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	Complied
EM&A: S3	Only well-maintained construction plant should be operated on-site and should be serviced regularly.	Complied
NCO	Valid construction noise permits, if required, are available for inspection.	Complied
NCO	Conditions of construction noise permits, if any, for the relevant part(s) of the works are implemented accordingly.	Complied
NCO	Valid noise emission labels are fixed at air compressors and hand held percussive breakers.	Complied
	WATER QUALITY	
EM&A: S4	Wastewater, chemical waste and effluent from cleaning of existing OCGTs would be collected, stored for proper disposal by licensed contractor.	Not applicable at this stage
EM&A: S4	Silt removal facilities such as silt traps or sedimentation facilities will be provided where necessary to remove silt particles from runoff to meet the requirements of the TM standard under the WPCO. The design of silt removal facilities will be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures will be inspected on a regular basis and maintained to confirm proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit will be removed regularly.	Not applicable at this stage
EM&A: S4	Appropriate surface drainage will be designed and provided, where necessary.	Not applicable at this stage
EM&A: S4	The precautions to be taken at any time of year when rainstorms are likely together with the actions to be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94.	Not applicable at this stage
EM&A: S4	Oil interceptors will be provided in the drainage system where necessary and regularly emptied to prevent the release of oil and grease into the stormwater drainage system after accidental spillages.	Not applicable at this stage
EM&A: S4	Temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge, if any, will be adequately designed for the controlled release of storm flows.	Not applicable at this stage
EM&A: S4	The temporary diverted drainage, if any, will be reinstated to the original condition when the construction work has finished or when the temporary diversion is no longer required.	Not applicable at this stage
EM&A: S4	Appropriate numbers of portable toilets shall be provided by a licensed contractor where necessary to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment.	Complied
EM&A: S4	To ensure proper implementation of the recommended water quality mitigation measures and good construction site practices during the decommissioning/ demolition, and construction phases, environmental	Complied

EM&A Log Ref.	Recommended Mitigation Measures	Implementation Status
	site audits on weekly basis is recommended throughout the construction period.	
	WASTE MANAGEMENT	
EM&A: S5	The contractor(s) must ensure that all the necessary waste disposal licences are obtained prior to the commencement of the decommissioning/ demolition and construction works.	Complied
EM&A: S5	The contractor will open a billing account with EPD in accordance with the Waste Disposal (Charges for Disposal of Construction Waste) Regulation for the payment of disposal charges.	Complied
EM&A: S5	A trip-ticket system will be established in accordance with DEVB TC(W) No. 6/2010 to monitor the reuse of surplus excavated materials off-site and disposal of construction waste and general refuse at transfer facilities/ landfills, and to control fly-tipping.	Complied
EM&A: S5	A WMP as stated in the PNAP ADV-19 for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established and implemented during the construction phase as part of the Environmental Management Plan (EMP). The Contractor will be required to prepare the EMP and submits it to the Architect/ Engineer under the Contract for approval prior to implementation.	Complied
EM&A: S5	C&D materials will be segregated on-site into public fill and construction waste and stored in different containers or skips to facilitate reuse of the public fill and proper disposal of the construction waste. Specific areas of the Site will be designated for such segregation and storage if immediate use is not practicable. Prefabrication will be adopted as far as practicable to reduce the construction waste arisings.	Complied
EM&A: S5	The contractor(s) will register as a chemical waste producer with the EPD. Chemical waste will be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.	Complied
EM&A: S5	Containers used for storage of chemical wastes will: <ul style="list-style-type: none"> • Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; • Have a capacity of less than 450 L unless the specifications have been approved by the EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations. 	Complied
EM&A: S5	The storage area for chemical wastes will: <ul style="list-style-type: none"> • Be clearly labelled and used solely for the storage of chemical waste; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • Have adequate ventilation; • Be covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and • Be arranged so that incompatible materials are appropriately separated. 	Complied
EM&A: S5	Chemical waste will be disposed of: <ul style="list-style-type: none"> • Via a licensed chemical waste collector; and 	Complied

EM&A Log Ref.	Recommended Mitigation Measures	Implementation Status
	<ul style="list-style-type: none"> To a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility which also offers a chemical waste collection service and can supply the necessary storage containers. 	
EM&A: S5	General refuse will be stored in enclosed bins separately from construction and chemical wastes. The general refuse will be delivered separately from construction and chemical wastes for offsite disposal on a daily basis to reduce odour, pest and litter impacts.	Complied
EM&A: S5	Recycling bins will be provided at strategic locations within the Project Site to facilitate recovery of recyclable materials (including aluminium cans, waste papers, glass bottles and plastic bottles, etc.). Materials recovered will be sold for recycling.	Not applicable at this stage
EM&A: S5	To avoid any odour and litter impact, appropriate number of portable toilets will be provided for workers on-site where appropriate.	Not applicable at this stage
EM&A: S5	At the commencement of the decommissioning/demolition and construction works, training will be provided to workers on the concepts of site cleanliness and on appropriate waste management procedures, including waste reduction, reuse and recycling.	Complied
EM&A: S5	General refuse and non-recyclables will be stored in enclosed bins and collected by existing waste management contractor at Lamma Power Station for disposal at the landfills on a daily basis for avoidance of pest and odour nuisance.	Complied
EM&A: S5	Recycling bins for recyclable materials (including aluminium cans, waste papers, glass bottles and plastic bottles) will be placed at the site office and transported off- site for recycling on a regular basis.	Complied
EM&A: S5	It is recommended that weekly audits of the waste management practices be carried out during the decommissioning/demolition, and construction phases to determine if wastes are being managed in accordance with the recommended good site practices and WMP. The audits will investigate all aspects of waste management including waste generation, storage, handling, recycling, transportation and disposal.	Complied
LAND CONTAMINATION		
EM&A: S6	During the demolition stage, a Land Contamination Specialist shall oversee the removal / demolition activities and record any new visual signs of potential contamination such as oil leakage or oil stains. The Land Contamination Specialist shall also review the need of additional sampling to capture potential contamination observed during the demolition stage.	Complied
EM&A: S6	SI and sampling shall be carried out when the proposed sampling locations are available after the demolition stage.	Complied
EM&A: S6	Soil and groundwater sampling works will be supervised by a Land Contamination Specialist.	Complied
EM&A: S6	Prior to commencement of demolition works in the Project site, the leftover diesel or other petroleum products in the equipment to be demolished shall be removed as much as possible. The removed diesel or other petroleum products will be reused as far as practicable. The removed diesel and other petroleum products, which cannot be reused are considered as chemical waste and are controlled under the Waste Disposal (Chemical Waste)(General) Regulation. The demolition contractor who will generate the chemical waste or cause it to be	Complied

EM&A Log Ref.	Recommended Mitigation Measures	Implementation Status
	<p>produced should register with the EPD as a chemical waste producer. Removed diesel and petroleum products shall be labelled and stored in accordance with the requirement stipulated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes issued by EPD. The removed petrol and petroleum products are required to be collected by licensed chemical waste collector for disposal. Trip tickets system shall be implemented during the collection and disposal of removed petrol and diesel.</p>	
EM&A: S6	<p>During demolition and construction phases, the following good housekeeping practices shall be implemented to ensure that risk of ground contamination as a result of oil spills or leaks is kept to a practical minimum:</p> <ul style="list-style-type: none"> • Regular visual inspections to detect any early signs of fuel leakage prior to demolition; • Provision of impermeable lining or absorbent materials to contain leaks; • Provision of secondary containment for the temporary storage of removed diesel or petroleum products, demolished structures and pipes; and • Provision of spill control materials and equipment 	Complied
EM&A: S6	<p>To ensure proper implementation of the good housekeeping practices, weekly site inspections should be carried out during the decommissioning/demolition, and construction phases of the Project.</p>	Complied

Remarks:

APCO: Air Pollution Control Ordinance
 EM&A: EM&A Manual
 NCO: Noise Control Ordinance

Appendix D Summary of Site Audit Findings or Recommendation

Civil contractor

Dates of Inspection: 02/05/2023, 09/05/2023, 16/05/2023, 23/05/2023 and 30/05/2023

Summary of Findings or Recommendation

Air Quality

- No environmental deficiency identified.

Noise

- No environmental deficiency identified.

Water Quality

- No environmental deficiency identified.

Waste Management

- No environmental deficiency identified.

Land Contamination

- No environmental deficiency identified.

E&M contractor

Dates of Inspection: 05/05/2023, 12/05/2023, 19/05/2023 and 23/05/2023

Summary of Findings or Recommendation

Air Quality

- No environmental deficiency identified.

Noise

- No environmental deficiency identified.

Water Quality

- No environmental deficiency identified.

Waste Management

- No environmental deficiency identified.

Land Contamination

- No environmental deficiency identified.

Appendix E

Monthly Waste Flow Table for May 2023

Appendix E1 Monthly Waste Flow Table for May 2023 (Civil Contractor)

Monthly Waste Flow Table for May 2023

Project: Civil Works for Re-Provision of Open Cycle Gas Turbine at Lamma Power Station

Contractor: Paul Y. Construction Company, Limited

Record by: Ben Lam

Year of Record: 2022, 2023

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					Metals (steel bar / metal strip) ⁽¹⁾	Metals (aluminum can) ⁽¹⁾	Paper / cardboard packaging ⁽¹⁾	Plastics ^{(1) & (4)}	Chemical waste (wasted lubricant oil/oil container)	Chemical waste (wasted lubricant oil/oil container)	Other, e.g. general refuse
	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							
(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)	(in '000kg)	
Jul 2022	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	0.00
Aug 2022	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	0.00
Sep 2022	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	0.00
Oct 2022	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	0.00
Nov 2022	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	0.00
Dec 2022	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	11.21
Jan 2023	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	2.72
Feb 2023	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	6.32
Mar 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.26	0.00	0.00	0.00	0.00	0.00	0.00
Apr 2023	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	7.37
May 2023	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	5.07
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.26	0.00	0.00	0.00	0.00	0.00	32.69

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	6.26 tonnes	32.69 tonnes	0.00 tonnes

- 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 0.00 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 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.

Appendix E2 Monthly Waste Flow Table for May 2023 (E&M Contractor)

Monthly Waste Flow Table for May 2023

Project: C/N 22 23001 Lamma Re-provision of OCGT Demolition & Erection Work
 Contractor: Kum Shing
 Record by: Xavier Chan
 Year of Record: 2023

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					Metals (steel bar/ metal strip)	Metals (aluminum can)	Paper / cardboard packaging	Plastics	Chemical waste (wasted lubricant oil/oil container)	Chemical waste (wasted lubricant oil/oil container)	Other, e.g. general refuse
	Disposed in Public Fill	Disposed in Sorting Facilities	Others (e.g. Reused in the Contract / Other Projects)	Broken Concrete or Construc- tion Waste Collected by Recycled Company	Reused in the Contract	Reused in Contract Projects	Disposed in Public Fill	Disposed in Sorting Facilities							
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)							
十月-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
十一月-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
十二月-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
一月-23	0	0	0	0	0	0	0	0	103.24	0	0	0	36	0	19.53
二月-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66.53
三月-23	0	0	0	0	0	0	0	0	150.45	0	0	0	0	0	63.12
四月-23	0	0	0	0	0	0	0	9.05	26.19	0	0	0	41.8	0	93.29
五月-23	0	0	0	0	0	0	0	0	0	0	0	0	30	0	54.68
Total	0	0	0	0	0	0	0	9.05	279.88	0	0	0	107.8	0	297.15

Total Inert C&D Waste Materials Generated		Non-inert C&D Materials		
		C&D Materials Recycled	C&D Waste Disposed of at	Chemical Waste
9.05 tonnes		279.88 tonnes	297.15 tonnes	107.80 kilo litre

Where

- (A) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, 9.05 tonnes of inert C&D material were generated from the Project, of which 0.00 tonnes were reused in this and other contracts, and the remaining 9.05 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) 279880 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.