



Capco 青山發電有限公司
Castle Peak Power Co. Ltd.

Installation of Additional Gas-fired Generation Unit (CCGT Unit No.2)

Annual EM&A Report No. 6

19 January 2023

Project No.: 0554663

Document details	
Document title	Installation of Additional Gas-fired Generation Unit (CCGT Unit No.2)
Document subtitle	Annual EM&A Report No.6
Project No.	0554663
Date	19 January 2023
Version	1
Author	Carina Cheng
Client Name	Castle Peak Power Company Limited (CAPCO)

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	1.0	Carina Cheng	Jasmine Ng	Jasmine Ng	19.1.2022	-

**Installation of Additional Gas-fired Generation Units at the Black Point
Power Station (CCGT Unit No. 2)
Environmental Certification Sheet
EP-507/2016/D and FEP-04/507/2016/D**

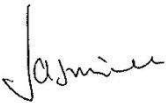
Reference Document/Plan

Document/ Plan to be Certified/ Verified :	Annual EM&A Report No.6
Date of Report:	19 January 2023
Date prepared by ET:	19 January 2023
Date received by IEC:	


Reference EM&A Manual/ EP Requirement

EM&A Manual (AEIAR-197/2016):	Sections 15.1 & 15.6
Content:	<i>Annual EM&A Reports</i>
In accordance with Annex 21 of the EIAO-TM, a copy of the monthly, quarterly, annual and final review EM&A reports will be made available to the Director of Environmental Protection.	
An annual EM&A report will be prepared by the ET at the end of each construction year during the course of the Project.	

ET Certification

I hereby certify that the above referenced document/ plan complies with the above referenced requirement of EM&A Manual (AEIAR-197/2016).	
Dr Jasmine Ng, Environmental Team Leader:	Date: 19 January 2023
	

IEC Verification

I hereby verify that the above referenced document/ plan complies with the above referenced requirement of EM&A Manual (AEIAR-197/2016).	
Mr Thomas Chan, Independent Environmental Checker:	Date: 6 February 2023
	

Signature Page

19 January 2023

Installation of Additional Gas-fired Generation Unit (CCGT Unit No.2)

Annual EM&A Report No.6



Dr Jasmine Ng
Partner

ERM-Hong Kong, Limited
2509, 25/F One Harbourfront
18 Tak Fung Street
Hung Hom, Kowloon
Hong Kong

© Copyright 2023 by ERM Worldwide Group Ltd and/or its affiliates ("ERM").
All rights reserved. No part of this work may be reproduced or transmitted in any form,
or by any means, without the prior written permission of ERM.

CONTENTS

EXECUTIVE SUMMARY	6
Summary of the Construction Works undertaken during the Reporting Period.....	6
Environmental Site Inspection	6
Waste Management.....	6
Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution	6
1. INTRODUCTION	7
1.1 Purpose of the Report.....	7
1.2 Structure of the Report	7
2. PROJECT INFORMATION	8
2.1 Background.....	8
2.2 General Site Description	8
2.3 Construction Programme and Activities	8
2.4 Project Organisation	10
2.5 Status of Environmental Licenses, Notification and Permits	10
3. EM&A REQUIREMENTS	12
3.1 General	12
3.2 SITE INSPECTIONS & AUDITS	12
3.3 WATER QUALITY MONITORING	12
4. IMPLEMENTATION STATUS OF THE ENVIRONMENTAL PROTECTION REQUIREMENTS	13
4.1 Submissions under the Project	13
4.2 Marine Vessel Operation	13
5. EM&A RESULTS.....	15
5.1 Site Inspections & Audits	15
5.2 Waste Management.....	15
6. ENVIRONMENTAL NON-CONFORMANCE	17
6.1 Summary of Monitoring Exceedance	17
6.2 Summary of Environmental Non-compliance.....	17
6.3 Summary of Environmental Compliant	17
6.4 Summary of Environmental Summon and Successful Prosecution	17
7. REVIEW OF EM&A PROGRAMME.....	18
7.1 SITE INSPECTIONS & AUDITS	18
7.2 WASTE MANAGEMENT	18
7.3 SUMMARY OF RECOMMENDATIONS	18
8. CONCLUSIONS	19

List of Appendices

APPENDIX A	WORKS AREA FOR CCGT UNIT NO. 2 AT THE BLACK POINT POWER STATION
APPENDIX B	CONSTRUCTION PROGRAMME FOR THE REPORTING PERIOD AND COMING MONTHS
APPENDIX C	PROJECT ORGANISATION FOR EM&A IMPLEMENTATION
APPENDIX D	SUMMARY OF IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION
APPENDIX E	WASTE FLOW TABLE

List of Tables

Table 2.1	Summary of the Construction Activities Undertaken during the Reporting Period	8
Table 2.2	Summary of the Status of Valid Environmental Licence, Notification, Permit and Documentations for CCGT Unit No. 2.....	10
Table 4.1	Status of Required Submission under the CCGT Unit No. 2.....	13
Table 5.1	Quantities of Waste Generated from CCGT Unit No. 2.....	15
Table 5.2	Comparison of Estimated Amount of Waste and Actual Amount Generated during the Reporting Period for CCGT Unit No. 2.....	16

EXECUTIVE SUMMARY

The construction works of CCGT Unit No. 2 of the **Additional Gas-fired Generation Units Project at the Black Point Power Station** commenced on 4 June 2020. This is the 6th Annual Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 January to 31 December 2022 for CCGT Unit No. 2 in accordance with the EM&A Manual and the requirements of EP-507/2016/D and FEP-04/507/2016/D.

Summary of the Construction Works undertaken during the Reporting Period

The major construction works undertaken during the reporting period include land-based civil works and superstructure construction for CCGT Unit No.2 within the BPPS. Details of the construction activities within the reporting period are presented in *Section 2*.

Environmental Site Inspection

During the reporting period, weekly joint environmental site inspections/ audits were carried out by the representatives of the Contractors, the Environmental Team (ET), CLP and the Independent Environmental Checker (IEC). Environmental performance complied with the environmental requirements and all necessary mitigation measures were properly implemented.

Waste Management

CAPCO and the Contractors have followed the Waste Management Plan (WMP) for the handling and disposal of construction and demolition (C&D) materials (inert public fill and non-inert construction wastes), chemical wastes, recyclable materials, and sewage.

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

For CCGT Unit No.2:

- No non-compliance event was recorded during the reporting period.
- No complaint was received during the reporting period.
- No summon or prosecution was received in this reporting period.

The EM&A requirements have been reviewed and were considered as adequate and effective. No change to the requirements was considered to be necessary. The recommended environmental mitigation measures are also considered to be effective and efficient in reducing the potential environmental impacts associated with the construction of the Project. No change was thus considered necessary.

Overall, the EM&A results indicated that the Project has not caused unacceptable environmental impacts. This is in agreement with the assessment presented in the EIA Report.

1. INTRODUCTION

The Castle Peak Power Company Limited (CAPCO) is a joint venture between CLP Power Hong Kong Limited (CLP) and China Southern Power Grid Company Limited with CLP as the operator. ERM-Hong Kong, Limited (ERM) and Mott MacDonald Hong Kong Limited were appointed by CAPCO as the Environmental Team (ET) and the Independent Environmental Checker (IEC), respectively, to undertake the Environmental Monitoring and Audit (EM&A) activities for the installation of CCGT Unit No. 2 of the Additional Gas-fired Generation Units Project at the Black Point Power Station (BPPS) (“the Project”).

1.1 Purpose of the Report

This is the sixth Annual EM&A report which summarises the audit findings during the reporting period from 1 January to 31 December 2022 for CCGT Unit No. 2.

1.2 Structure of the Report

Following this introductory section, the remainder of this *Annual EM&A Report* is organised as follows:

- Section 2: Project Information

It summarises the background and scope of the project, site description, project organisation and contact details, construction programme, construction works undertaken and status of the Environmental Permits/Licenses during the reporting period;

- Section 3: Environmental Monitoring Requirement

It presents the environmental monitoring requirements for the Project;

- Section 4: Implementation Status of the Environmental Protection Requirements

It summarises the implementation of environmental protection measures during the reporting period;

- Section 5: EM&A Results

It summarises the EM&A results obtained in the reporting period;

- Section 6: Environmental Non-conformance

It summarises any monitoring exceedance, environmental complaints and summons within the reporting period;

- Section 7: Review of EM&A Programme

It reviews the success of the EM&A programme, including the effectiveness and efficiency of the mitigation measures and recommendations for any improvements in the EM&A Programme;

- Section 8: Conclusions

2. PROJECT INFORMATION

2.1 Background

The scope of the Project involves the phased construction and operation of up to two additional combined cycle gas turbine (CCGT) units (with an installed capacity of up to 1,200 MW) at the BPPS. The additional generation units will be of CCGT configuration using natural gas as the primary fuel. It is a Designated Project under the *Environmental Impact Assessment Ordinance* (Cap. 499) (EIAO). The construction of CCGT Unit No. 1 was completed on 31 May 2021. The current EM&A Programme includes CCGT Unit No. 2.

An EIA of the Additional Gas-fired Generation Units Project was prepared in accordance with the *EIA Study Brief* (No. ESB-286/2015) and the *Technical Memorandum of the Environmental Impact Assessment Process (EIAO-TM)* and submitted under the EIAO in February 2016. Subsequent to the approval of the EIA (*EIAO Register Number AEIAR-197/2016*), an Environmental Permit (EP-507/2016) (EP) for CCGT Unit No. 1 was granted by the Director of Environmental Protection (DEP) on 14 June 2016.

An application for Variation of Environmental Permit (No. VEP-575/2020) was submitted to EPD on 30 March 2020 to include CCGT Unit No. 2 and the Variation of Environmental Permit (EP-507/2016/C) was granted on 27 April 2020.

Application for Further Environmental Permit (FEP-201/2020) was submitted to EPD on 3 August 2020 and the Further Environmental Permit (FEP-03/507/2016/C) was granted to the Contractor, Gammon Engineering & Construction Company Limited, of the CCGT Unit No. 2 on 28 August 2020. Further Environmental Permit (FEP-04/507/2016/C) was granted to the Contractor, Siemens Energy Limited, of the CCGT Unit No. 2 on 6 August 2021. The Contractor, Gammon Engineering & Construction Company Limited, had completed the early civil works, and the application for surrender of FEP (FEP-03/507/2016/C) was submitted to EPD on 25 November 2021 and approved on 30 November 2021.

Applications for Variation of Environmental Permits were submitted to EPD on 30 November 2021 to cater for the proposed changes of Project site area and cooling tower. The Variation of Environmental Permit (EP-507/2016/D) was granted on 21 December 2021 and the Further Environmental Permit (FEP-04/507/2016/D) was granted to the Contractor, Siemens Energy Limited, of the CCGT Unit No. 2 on 21 December 2021.

2.2 General Site Description

The proposed location for the Project is within the existing boundaries of the BPPS site. The size of the land reserved for the additional generation units and the associated facilities (the Project Site) is about 37,300 m². Construction works for CCGT Unit No.2 are currently ongoing at the Project Site.

The location plan of key Project components for CCGT Unit No. 2 is shown in **Appendix A**.

2.3 Construction Programme and Activities

A summary of the major construction activities undertaken in this reporting period is shown in **Table 2.1**. The construction programme for CCGT Unit No. 2 is presented in **Appendix B**.

Table 2.1 Summary of the Construction Activities Undertaken during the Reporting Period

INSTALLATION OF ADDITIONAL GAS-FIRED GENERATION UNIT
(CCGT UNIT NO.2) AT THE BLACK POINT POWER STATION

Annual EM&A Report No.6

CCGT Unit No. 2

Month	Construction Activities undertaken
January 2022	<ul style="list-style-type: none">■ Site Preparation and Mobilization.■ Concreting for permanent structures and plinths.■ Rebar works and Formwork installation■ Blinding works.■ Backfilling of trench for pipe installation.■ Pressure Test for PAB piping.
February 2022	<ul style="list-style-type: none">■ Site Preparation and Mobilization.■ Concreting for permanent structures and plinths.■ Rebar works and Formwork installation■ Blinding works.■ Backfilling of trench for pipe installation.■ Pressure Test for PAB piping.
March 2022	<ul style="list-style-type: none">■ Site Preparation and Mobilization.■ Concreting for permanent structures and plinths.■ Rebar works and Formwork installation■ Blinding works.■ Backfilling of trench for pipe installation.■ Pressure Test for PAB piping.
April 2022	<ul style="list-style-type: none">■ Site Preparation and Mobilization.■ Concreting for permanent structures and plinths.■ Rebar works and Formwork installation■ Blinding works.■ Backfilling of trench for pipe installation.■ Pressure Test for PAB piping.
May 2022	<ul style="list-style-type: none">■ Site Preparation and Mobilization.■ Concreting for permanent structures and plinths.■ Rebar works and Formwork installation■ Blinding works.■ Backfilling of trench for pipe installation.■ Pressure Test for PAB piping.
June 2022	<ul style="list-style-type: none">■ Site Preparation and Mobilization.■ Concreting for permanent structures and plinths.■ Rebar works and Formwork installation■ Blinding works.■ Backfilling of trench for pipe installation.■ Pressure Test for PAB piping.
July 2022	<ul style="list-style-type: none">■ Site Preparation and Mobilization.■ Concreting for permanent structures and plinths.■ Rebar works and Formwork installation■ Blinding works.■ Backfilling of trench for pipe installation.■ Pressure Test for PAB piping.
August 2022	<ul style="list-style-type: none">■ Site Preparation and Mobilization.■ Concreting for permanent structures and plinths.■ Rebar works and Formwork installation■ Blinding works.■ Backfilling of trench for pipe installation.■ Pressure Test for PAB piping.

September 2022	<ul style="list-style-type: none"> ■ Site Preparation and Mobilization. ■ Concreting for permanent structures and plinths. ■ Rebar works and Formwork installation ■ Blinding works. ■ Backfilling of trench for pipe installation. ■ Pressure Test for PAB piping.
October 2022	<ul style="list-style-type: none"> ■ Site Preparation and Mobilization. ■ Concreting for permanent structures and plinths. ■ Rebar works and Formwork installation ■ Blinding works. ■ Backfilling of trench for pipe installation. ■ Pressure Test for PAB piping.
November 2022	<ul style="list-style-type: none"> ■ Site Preparation and Mobilization. ■ Concreting for permanent structures and plinths. ■ Rebar works and Formwork installation ■ Blinding works. ■ Backfilling of trench for pipe installation. ■ Pressure Test for PAB piping.
December 2022	<ul style="list-style-type: none"> ■ Site Preparation and Mobilization. ■ Concreting for permanent structures and plinths. ■ Rebar works and Formwork installation ■ Blinding works. ■ Backfilling of trench for pipe installation. ■ Pressure Test for PAB piping.

2.4 Project Organisation

The project organisational chart and contact details for CCGT Unit No. 2 are shown in **Appendix C**.

2.5 Status of Environmental Licenses, Notification and Permits

A summary of the valid permits, licences, and/or notifications on environmental protection for CCGT Unit No.2 is presented in **Table 2.2**.

Table 2.2 Summary of the Status of Valid Environmental Licence, Notification, Permit and Documentations for CCGT Unit No. 2

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-507/2016	Throughout the Contract	Permit granted on 14 Jun 2016
Variation of Environmental Permit	EP-507/2016/D	Throughout the Contract	Permit granted on 21 Dec 2021
Further Environmental Permit	FEP-04/507/2016/D	Throughout the Contract	Permit granted on 21 Dec 2021
Notification Pursuant to Section 3(1) of the <i>Air Pollution Control (Construction Dust) Regulation</i>	458265	Throughout the Contract	EPD Acknowledgement of receipt dated 17 Jul 2020
	468383	Throughout the Contract	EPD Acknowledgement of receipt dated 9 Jun 2021
Chemical Waste Producer Registration	WPN5213-432-G2892-01	Throughout the Contract	Registration approved on 24 Aug 2020
	WPN5213-432-H4284-01	Throughout the Contract	Registration approved on 30 December 2021

INSTALLATION OF ADDITIONAL GAS-FIRED GENERATION UNIT
(CCGT UNIT NO.2) AT THE BLACK POINT POWER STATION

Annual EM&A Report No.6

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
	WPN5213-432- A3102 -01	Throughout the Contract	Registration approved on 06 Jul 2022
Billing Account for Disposal of Construction Waste	7037977	Throughout the Contract	Approved on 5 Aug 2020
	7039993	Throughout the Contract	Approved on 16 Mar 2021
Construction Noise Permit	GW-RW0341-21	25 Aug 2021 – 18 Feb 2022	Approved on 23 Aug 2021
	GW-RW0057-22	19 Feb 2021 – 18 Aug 2022	Approved on 28 Jan 2022
	GW-RW0328-22	9 Jun 2022 – 30 Nov 2022	Approved on 02 Jun 2022
	GW-RW0635-22	1 Dec 2022 – 30 May 2023	Approved on 24 Oct 2022
Wastewater Discharge Licence	WT00037278- 2020	28 Jan 2021 – 31 Jan 2026	Licence granted on 28 Jan 2021
	WT0008-2020	28 Jan 2021 – 31 Jan 2026	Licence granted on 28 Jan 2021

3. EM&A REQUIREMENTS

3.1 General

Potential environmental impacts, which were identified during the EIA process and are associated with the construction phase of the Project, will be addressed through the monitoring and controls specified in the EM&A Manual and in the construction contracts.

During the construction phase of the Project, air quality, hazard to life, noise, water quality, waste, land contamination, ecology, fisheries, landscape and visual and cultural heritage will be subjected to EM&A. Monitoring of the effectiveness of the mitigation measures will be achieved through site inspections.

3.2 SITE INSPECTIONS & AUDITS

The ET will undertake site inspections of on-site practices and procedures each week. The primary objective of the inspection programme will be to assess the effectiveness of the environmental controls established by the Contractor(s) and the implementation of the environmental mitigation measures recommended in the EIA Report. The IEC will undertake monthly site audits to assess the performance of the Contractor(s) and the effectiveness of the ET.

3.3 WATER QUALITY MONITORING

In accordance with the EM&A Manual, monitoring works are required at a frequency of once per week on the first year of commissioning of the CCGT Unit No.2. The monitoring details including monitoring requirement, locations of monitoring stations will be confirmed and approved by EPD before commissioning of the CCGT Unit No.2.

4. IMPLEMENTATION STATUS OF THE ENVIRONMENTAL PROTECTION REQUIREMENTS

4.1 Submissions under the Project

The Contractors have implemented all the environmental mitigation measures and requirements as stated in the EIA Report, Environmental Permit (EP) and EM&A Manual for the installation of CCGT Unit No. 2.

The implementation status of the environmental mitigation measures for CCGT Unit No.2 during the reporting period is summarised in **Appendix D**. The status of the required submissions under the EP and EM&A Manual for the Project is presented in **Table 4.1**.

Table 4.1 Status of Required Submission under the CCGT Unit No. 2

EP Condition	Submission	Submission Date
Sections 15.1 & 15.6 of EM&A Manual (AEIAR-197/2016)	5 th Annual EM&A Report	25 January 2022
Sections 15.1 & 15.5 of EM&A Manual (AEIAR-197/2016)	21 st Quarterly EM&A Report	28 March 2022
	22 nd Quarterly EM&A Report	30 June 2022
	23 rd Quarterly EM&A Report	29 September 2022
	24 th Quarterly EM&A Report	23 December 2022
Condition 3.2 under Environmental Permit No. EP-507/2016/C, EP-507/2016/D, FEP-04/507/2016/C and FEP-04/507/2016/D	61 st Monthly EM&A Report	12 January 2022
Condition 3.2 under Environmental Permit No. EP-507/2016/D and FEP-04/507/2016/D.	62 nd Monthly EM&A Report	14 February 2022
	63 rd Monthly EM&A Report	14 March 2022
	64 th Monthly EM&A Report	12 April 2022
	65 th Monthly EM&A Report	13 May 2022
	66 th Monthly EM&A Report	13 June 2022
	67 th Monthly EM&A Report	12 July 2022
	68 th Monthly EM&A Report	11 August 2022
	69 th Monthly EM&A Report	15 September 2022
	70 th Monthly EM&A Report	12 October 2022
	71 st Monthly EM&A Report	14 November 2022
	72 nd Monthly EM&A Report	14 December 2022
Condition 2.11 under Environmental Permit No. EP-507/2016/D	Cooling Tower Plume Abatement Plan	20 July 2022

4.2 Marine Vessel Operation

During the reporting period, 56 vessels for transport of equipment and materials from Siemens were operated (6, 10, 11 and 13 January 2022; 21 and 22 February 2022; 6, 7, 8, 9, 19, 22, 26, 27, 29 and 30 April 2022; 11, 24 and 30 May 2022; 6, 8, 14, 27 and 28 June 2022; 5, 7, 8, 11, 15, 20, 21, 23, 25, 29 and 30 July 2022; 5, 9, 11, 22, 26 and 31 August 2022; 2, 3, 14, 21 and 26 September 2022; 3 and 9 December 2022).

In accordance with the Vessel Control Plan prepared for the Project under Condition 2.4 of the EP, an environmental briefing to vessel operators was conducted prior to the vessel operations. The environmental briefing has included the following content:

- Requirements under the EP and *Vessel Control Plan*;
- General education on local cetaceans;
- Predefined and regular marine travel routes for this Project;
- Vessel speed limit within designated areas and areas identified as high presence of Indo-Pacific humpback dolphin;
- Guidelines for safe vessel operation in the presence of cetaceans;
- Guidelines on effluent /wastewater handling from vessels to prevent avoidable water quality impacts; and
- Policy of no dumping of rubbish, food, oil, or chemicals from vessels.

Details of the monitoring method and procedures have been agreed with the IEC before implementation and communicated with the vessel operators. Warning will be noticed to the vessel operators if the predefined and regular marine travel route is not followed. The record of marine travel routes of the works vessels was provided by the vessel operators for inspection and monitoring purposes. There was no major observation and no non-compliance was recorded.

5. EM&A RESULTS

5.1 Site Inspections & Audits

Joint site inspections were conducted by representatives of the Contractors, CAPCO Project Team and ET every week throughout the reporting period. The representative of the IEC joined the site inspections on a monthly basis in the reporting period. No non-compliance was recorded during the site inspections.

Environmental performance complied with environmental requirements and all necessary mitigation measures were properly implemented. The implementation status of the environmental mitigation measures for this Project during the reporting period is summarised in **Appendix D**. The ET will keep track of the construction activities to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

5.2 Waste Management

The waste generated from this Project includes inert construction and demolition (C&D) materials, and non-inert C&D materials. Non-inert C&D materials are made up of general refuse and recyclable wastes such as plastics and paper/cardboard packaging waste. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.

With reference to relevant handling records and trip tickets of CCGT Unit No. 2, the quantities of different types of waste generated in the reporting period are summarised in **Table 5.3**. Details of waste management data are presented in **Appendix E**.

Table 5.1 Quantities of Waste Generated from CCGT Unit No. 2

Reporting Month	Quantity					
	Inert C&D Materials ^{(a) (b)}	Chemical Waste ^(d)	Non-inert C&D Materials			
			General Refuse ^(c)	Recycled materials		
				Paper/card board	Plastics	Metals
(in '000m ³)	(in'000 kg)	(in '000m ³)	(in'000 kg)	(in'000 kg)	(in'000 kg)	
January 2022	0.002	0	0.012	0	0.410	59.830
February 2022	0.003	0	0.012	0	0	112.650
March 2022	0.261	0.030	0.030	0.109	0	53.060
April 2022	0.163	0	0.024	0	0	27.020
May 2022	0.101	0	0.016	0	0.011	13.300
June 2022	0.208	0	0.010	0	0	11.440
July 2022	0.034	0	0.006	0.113	0.011	0.021
August 2022	1.000	0	0.013	0.130	0.007	0.022
September 2022	1.336	0	0.027	0.112	0.007	4.301
October 2022	0.021	0	0.065	0.119	0.016	12.916
November 2022	0.639	0	0.084	0.102	0.016	0.016
December 2022	0.057	0	0.074	0.004	0.012	0.035

Reporting Month	Quantity					
	Inert C&D Materials ^{(a) (b)}	Chemical Waste ^(d)	Non-inert C&D Materials			
			General Refuse ^(c)	Recycled materials		
				Paper/card board	Plastics	Metals

Notes:

- (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil.
- (b) The inert C&D materials generated from the Project were sent to Tuen Mun Area 38 Fill Bank during the reporting period.
- (c) The general refuse generated from the Project was sent to WENT landfill during the reporting period.
- (d) Chemical waste includes waste oil and spent pipes with lubricating oil. It is assumed density of waste oil to be 0.8 kg/L.
- (e) The cut-off date for waste management data during the reporting period is 31 December 2022.

The estimated amount of waste generated from the Project predicted by EIA Report and the actual cumulative quantities of waste generated from the construction phase of the Project during the reporting period are presented in **Table 5.4**. Mitigation measures recommended in EIA Report were implemented by the Contractor as far as practicable and were considered effective in reducing the total quantity of wastes generated during the reporting period.

Table 5.2 Comparison of Estimated Amount of Waste and Actual Amount Generated during the Reporting Period for CCGT Unit No. 2

Type of Material	Estimated Amount for Project	Actual Amount during Reporting Period	Cumulative Amount since Project's Commencement (June 2020)
Total Amount of Inert C&D Materials disposed as Public Fill ^(a) (in '000m ³)	85.050	0.138	9.051
Amount of Inert C&D Materials Reused in the Contract (in '000m ³)	12.010	0.029	13.467
Amount of Inert C&D Materials Reused in Other Projects (in '000m ³)	-	3.658	4.188
Total Amount of Non-Inert C&D Materials and General Refuse disposed at WENT Landfill ^(b) (in '000m ³)	1.525	0.368	0.832
Chemical Waste ^(c) (in '000kg)	10.20	0.030	1.150

Notes:

- (a) Inert C&D materials include site clearance waste, excavated materials, building works generated from construction of CCGT Unit No.2 for the entire project.
- (b) Non-inert C&D materials include site clearance waste, excavated materials, building works generated from construction period of CCGT Unit No.2 for the entire project. The amount of general refuse was estimated 780 kg per day for construction of CCGT Unit No.2. There are 296 working days in the reporting period.
- (c) Chemical waste includes waste oil and spent pipes with lubricating oil. Density of waste oil is assumed to be 0.8 kg/L. There are 12 months in the reporting period.

6. ENVIRONMENTAL NON-CONFORMANCE

6.1 Summary of Monitoring Exceedance

No environmental monitoring is required during construction of CCGT Unit No.2.

6.2 Summary of Environmental Non-compliance

No non-compliance event was recorded during the reporting period for CCGT Unit No.2.

6.3 Summary of Environmental Compliant

No environmental complaint was received during the reporting period for CCGT Unit No.2.

6.4 Summary of Environmental Summon and Successful Prosecution

No summon or prosecution was received during the reporting period for CCGT Unit No.2.

7. REVIEW OF EM&A PROGRAMME

7.1 SITE INSPECTIONS & AUDITS

Weekly joint environmental site inspections by ET and monthly joint environmental site inspections with IEC have been conducted in the reporting period to assess the effectiveness of the environmental controls established by the Contractor(s) and the implementation of the environmental mitigation measures recommended in the EIA Report. Findings of the site inspections confirmed that the predictions in EIA Report are valid and environmental mitigation measures recommended in the EIA Report were properly implemented by the Contractor, and the recommended mitigation measures have been working effectively. There was no non-compliance recorded during the site inspections and environmental performance complied with environmental requirements.

The requirements for site inspections and audits have been reviewed and were considered as adequate. No change to the requirements was considered to be necessary.

The recommended environmental mitigation measures are also considered to be effective and efficient in reducing the potential environmental impacts associated with the construction of Project. No change was thus considered necessary.

7.2 WASTE MANAGEMENT

The waste inspection and audit programme has been implemented during this reporting period. Wastes generated from construction activities have been managed in accordance with the recommendations in the EIA Report, the EM&A Manual, the WMP and other relevant legislative requirements.

The requirements for construction waste management have been reviewed and were considered as adequate. No change to the requirements was considered to be necessary.

7.3 SUMMARY OF RECOMMENDATIONS

Findings of the EM&A programme indicate that the recommended mitigation measures have been properly implemented and working effectively. The EM&A programme has been reviewed and was considered as adequate and effective. No change to the EM&A programme was considered to be necessary.

The EM&A programme will be evaluated as appropriate in the next reporting period and improvements in the EM&A programme will be recommended if deemed necessary.

8. CONCLUSIONS

This sixth Annual Environmental Monitoring and Audit (EM&A) Report presents the EM&A works carried out during the period from 1 January to 31 December 2022 for CCGT Unit No. 2 in accordance with the EM&A Manual and the requirements of EP-507/2016/D and FEP-04/507/2016/D.

Weekly joint environmental site inspections by ET and monthly joint environmental site inspections with IEC were conducted in the reporting period. It confirmed that the environmental mitigation measures recommended in the EIA Report were properly implemented by the Contractor and were working effectively.

The Contractors have followed the Waste Management Plan (WMP) for handling and disposal of construction and demolition (C&D) materials (inert public fill and non-inert construction wastes), chemical wastes, recyclable materials, and sewage generated from the Project. No non-compliance event was recorded during the reporting period.

No environmental complaint, summon or prosecution was received during the reporting period. The EM&A programme was considered effective in reflecting the environmental conditions at the site. The site inspection results also indicated that the Project has not caused unacceptable environmental impacts and the mitigation measure were effectively implemented. The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

The EM&A programme has been reviewed and was considered as adequate and effective. No change to the EM&A programme was considered to be necessary. The EM&A programme will be evaluated as appropriate in the next reporting period.

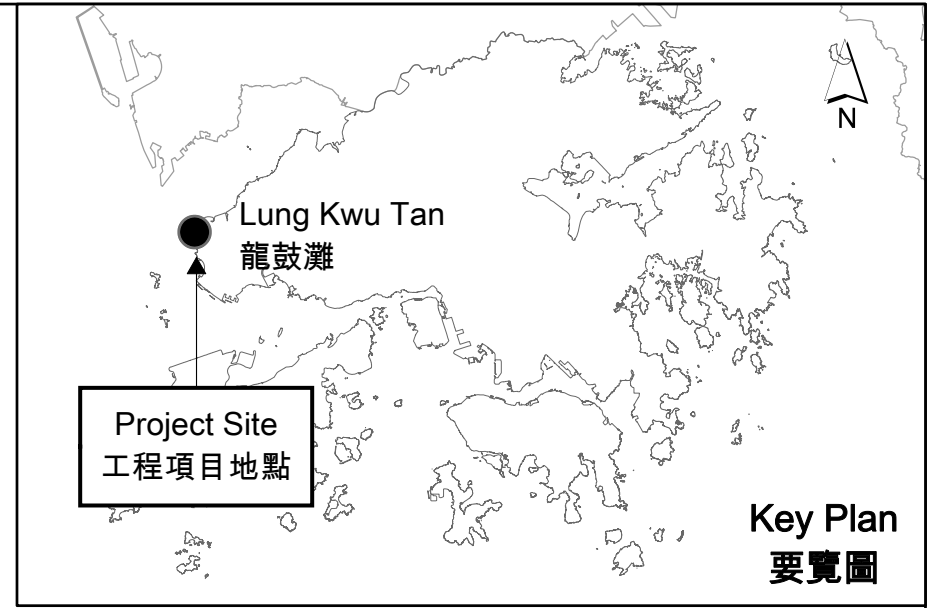
APPENDIX A WORKS AREA FOR CCGT UNIT NO. 2 AT THE BLACK POINT POWER STATION

Legend 圖例

Indicative Location
初步位置



Black Point Power Station
龍鼓灘發電廠



New Power
Generation Area for
CCGT Unit No.2
2號機組的
新發電區域

Metres 米

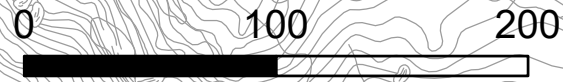


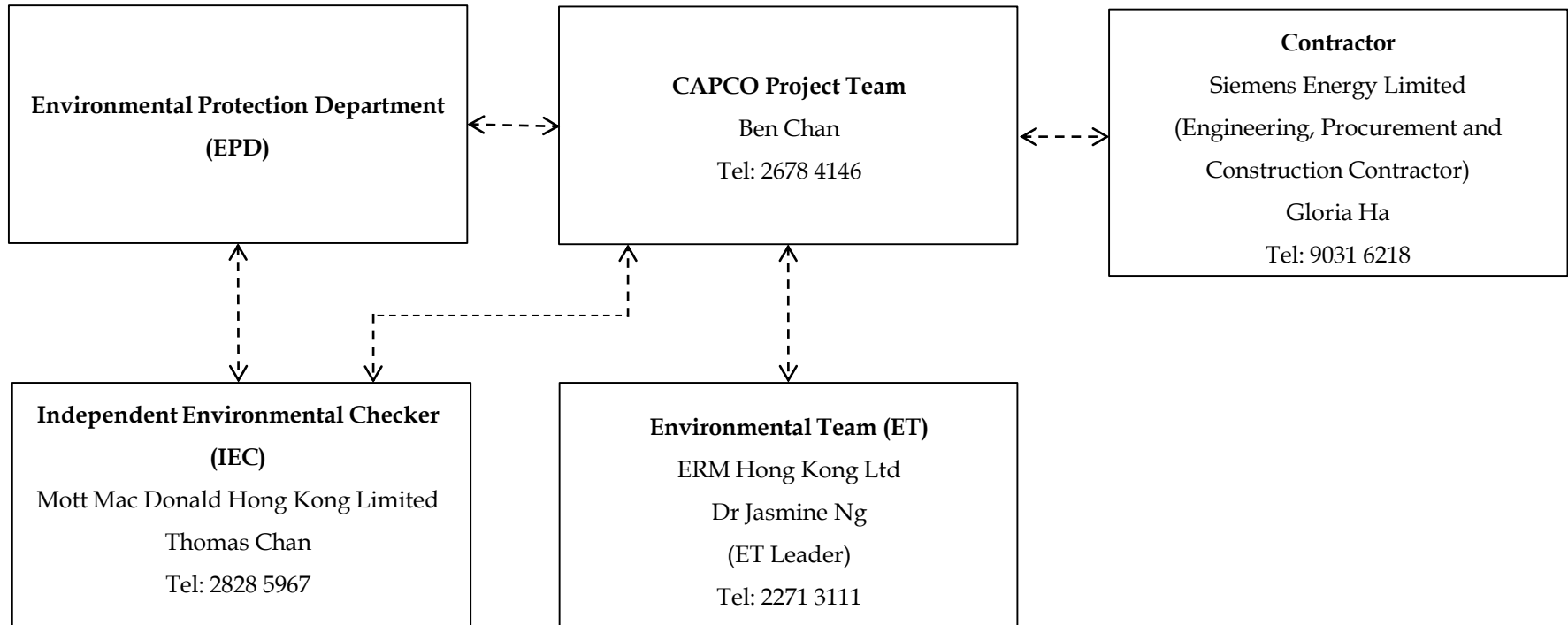
Figure 2.1
圖 2.1

Location of CCGT Unit No.2
2號聯合循環燃氣渦輪發電機組的項目位置圖

APPENDIX B CONSTRUCTION PROGRAMME FOR THE REPORTING PERIOD AND COMING MONTHS

	Year 2020												Year 2021												Year 2022												Year 2023												Year 2024							
CCGT Unit No.2	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6							
Set up of Site Office	█	█	█																																																					
Site Establishment	█	█	█	█	█																																																			
Civil Works	█	█	█	█	█	█	█	█	█	█	█	█	█	█																																										
Equipment Supply & Installation, Commissioning								█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█

APPENDIX C PROJECT ORGANISATION FOR EM&A IMPLEMENTATION



Key
 ----- Line of Communication

APPENDIX D SUMMARY OF IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION

Appendix D - Environmental Mitigation Implementation Status for Additional CCGT Units Project at BPPS

Note:

- ✓ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by the Contractor
- Δ Deficiency of Mitigation Measures but rectified by the Contractor
- N/A Not Applicable in Reporting Period

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Who to implement the measures?	When to implement the measures?	Implementation Status
Air Quality					
S4.10.1	S3.1	Impervious dust screen or sheeting will be provided to enclose scaffolding from the ground floor level of building for construction of superstructure of the new buildings.	Contractor	Construction Stage	✓
S4.10.1	S3.1	Impervious sheet will be provided for skip hoist for material transport.	Contractor	Construction Stage	✓
S4.10.1	S3.1	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.	Contractor	Construction Stage	✓
S4.10.1	S3.1	All dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation.	Contractor	Construction Stage	✓
S4.10.1	S3.1	Dropping heights for excavated materials should be controlled to a practical height to minimise the fugitive dust arising from unloading.	Contractor	Construction Stage	✓
S4.10.1	S3.1	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.	Contractor	Construction Stage	<>
S4.10.1	S3.1	Wheel washing device should be provided at the exits of the work sites. Immediately before leaving a construction site, every vehicle shall be washed to remove any dusty material from its body and wheels as far as practicable.	Contractor	Construction Stage	✓
S4.10.1	S3.1	Road sections between vehicle-wash areas and vehicular entrance will be paved.	Contractor	Construction Stage	✓
S4.10.1	S3.1	Hoarding of not less than 1.8m high from ground level will be provided along the length of the Project Site boundary.	Contractor	Construction Stage	✓

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Who implement the measures?	to When to implement the measures?	Implementation Status
S4.10.1	S3.1	Haul roads will be kept clear of dusty materials and will be sprayed with water so as to maintain the entire road surface wet at all times.	Contractor	Construction Stage	<>
S4.10.1	S3.1	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.	Contractor	Construction Stage	<>
S4.10.1	S3.1	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.	Contractor	Construction Stage	✓
S4.10.1	S3.1	All exposed areas will be kept wet always to minimise dust emission.	Contractor	Construction Stage	✓
S4.10.1	S3.1	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 <i>Environment, Transport and Works Bureau Technical Circular (ETWB-TC(W)) No 19/2005</i> on Environmental Management on Construction Sites.	Contractor	Construction Stage	✓
S4.10.1	S3.1	The engine of the construction equipment during idling will be switched off.	Contractor	Construction Stage	✓
S4.10.1	S3.1	Regular maintenance of construction equipment deployed on-site will be conducted to prevent black smoke emission.	Contractor	Construction Stage	✓
S4.11.2	S3.2	It is recommended to continuously monitor and record the levels of air pollutants of the exhaust gas streams emitted from the stacks of the additional CCGT units by means of CEMS per the licence requirements. Continuous monitoring of ambient concentrations of SO ₂ , NO and NO ₂ will be continued at the current CLP's AQMSs.	CAPCO	Operational Stage	N/A
Hazard to Life					
S5.6	S4	All construction workers shall comply with CLP's safety policy and requirements.	Contractor	Construction Stage	✓
S5.6	S4	Method statements and risk assessments shall be prepared and safety control measures shall be in place before commencement of work.	Contractor	Construction Stage	✓
S5.6	S4	All work procedures shall be complied with the operating plant procedures or guidelines and regulatory requirements.	Contractor	Construction Stage	✓
S5.6	S4	Work permit system, on-site pre-work risk assessment and emergency response procedure shall be in place before commencement of work.	Contractor	Construction Stage	✓
S5.6	S4	All construction workers shall equip with appropriate PPE when working at the Project Site.	Contractor	Construction Stage	✓

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Who implement the measures?	to When to implement the measures?	the Implementation Status
S5.6	S4	Safety training and briefings shall be provided to all construction workers.	Contractor	Construction Stage	✓
S5.6	S4	All construction workers shall be under close site supervision.	Contractor	Construction Stage	✓
S5.6	S4	Regular site safety inspections shall be conducted during the construction phase of the Project.	Contractor	Construction Stage	✓
S5.13	S4	Ensure speed limit enforcement is specified in the contractor's method statement to limit the speed of construction vehicles on-site.	Contractor	Construction Stage	✓
S5.13	S4	Conduct speed checks to ensure enforcement of speed limits and to ensure adequate site access control.	Contractor	Construction Stage	✓
S5.13	S4	Provide escort for hydrogen and CO ₂ delivery vehicle drivers to ensure the right access route is used during the construction phases of the Project.	Contractor	Construction Stage	✓
S5.13	S4	A lifting plan, with detailed risk assessment, should be prepared and endorsed for heavy lifting of large equipment.	Contractor	Construction Stage	✓
S5.13	S4	Vehicle crash barrier, designed for the specific speed limit at the BPPS, should be provided between the construction site and the distillate oil storage facilities during 1 st CCGT unit construction phase. Also, a vehicle crash barrier is to be provided between the construction site and the 1 st CCGT unit during 2 nd CCGT unit construction phase.	Contractor	Construction Stage	✓
S5.13	S4	Any lifting operation near or over live equipment should be strictly minimised. If such operation cannot be avoided, lifting activities should be assessed, controlled and supervised. Adequate protection covers should also be provided on the existing BPPS facilities in case the operation of lifting equipment has a potential to impact live equipment at BPPS. Process isolation should be achieved in case that live equipment protection becomes impractical.	Contractor	Construction Stage	✓
S5.13	S4	The hydrogen road trailer and carbon dioxide road tanker delivery should follow alternative route, which is further from the construction site, during crane operation and movement of construction vehicles in the vicinity.	Contractor	Construction Stage	✓
S5.13	S4	Ensure that a hazardous area classification study is conducted and hazardous area maps are updated before the start of the construction activities to ensure ignition sources are controlled during both construction and operation phases.	Contractor	Construction Stage	✓

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Who implement the measures?	to When to implement the measures?	Implementation Status
S5.13	S4	Ensure work permit system for hot work activities within the Project Site is specified in the contractor's method statement to minimise/ control ignition sources during construction phase.	Contractor	Construction Stage	✓
S5.13	S4	Ensure effective communication system/ protocol is in place between the construction contractors and operation staff.	Contractor	Construction Stage	✓
S5.13	S4	Ensure the Project Construction Emergency Response Plan is integrated with the Emergency Response Plan for the BPPS during construction phases. The plan should address stop work instructions to be promptly communicated to all construction workers performing hot works in case a confirmed flammable gas (natural gas and hydrogen) detection at the BPPS.	Contractor	Construction Stage	✓
S5.13	S4	Ensure that construction activities do not impede the functions of fire and gas detection system, fire protection system, muster areas, fire-fighting vehicle access and escape routes.	Contractor	Construction Stage	✓
S5.13	S4	Ensure a Job Safety Analysis is conducted for construction activities of the Project during the construction phases, to identify and analyse hazards associated with the construction activities (e.g. lifting operations by cranes) onto the existing plant facilities and operations. Potential risks of the construction activities shall be assessed, and risk precautionary measures shall be implemented in Contractor's works procedures.	Contractor	Construction Stage	✓
Water Quality					
S 7.9	S6.5	Reduction of dredging rate from 4,000 m ³ per day to 740 m ³ per day for dredging at the seawater intake and discharge outfall	Contractor	Construction Stage	N/A
S 7.9	S6.5	Deploy floating type silt curtain around grab dredger	Contractor	Construction Stage	N/A
S 7.9	S6.5	Deploy single layer of floating type silt curtain surrounding coral colonies identify at dive survey Transect C (SR18). The silt curtain surrounding SR18 should provide sufficient clearance to the coral colonies such that no direct impact from the installation and anchoring of silt curtain would be inflicted on the coral colonies.	Contractor	Construction Stage	N/A
S 7.9	S6.5	The contractor shall regularly inspect the silt curtains and check that they are moored and marked to avoid danger to marine traffic. Regular inspection on the integrity of the silt curtain should be carried out by the contractor and any damage to the silt curtain shall be repaired by the contractor promptly. Relevant marine works shall only be undertaken when the repair is fixed to the satisfaction of the engineer.	Contractor	Construction Stage	N/A

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Who implement the measures?	to When to implement the measures?	Implementation Status
S 7.9	S6.5	Construction of intake and outfall structure shall be conducted behind drained cofferdam.	Contractor	Construction Stage	N/A
S 7.9	S6.5	All vessels should be well maintained and inspected before use to limit any potential discharges to the marine environment.	Contractor	Construction Stage	N/A
S 7.9	S6.5	All vessels must have a clean ballast system.	Contractor	Construction Stage	N/A
S 7.9	S6.5	No discharge of sewage/grey wastewater should be allowed. Wastewater from potentially contaminated area on working vessels should be minimised and collected. These kinds of wastewater should be brought back to port and discharged at appropriate collection and treatment system.	Contractor	Construction Stage	N/A
S 7.9	S6.5	No soil waste is allowed to be disposed overboard.	Contractor	Construction Stage	N/A
S 7.9	S6.5	Silt removal facilities such as silt traps or sedimentation facilities will be provided 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.	Contractor	Construction Stage	✓
S 7.9	S6.5	Earthworks to form the final surfaces will be followed up with surface protection and drainage works to prevent erosion caused by rainstorms.	Contractor	Construction Stage	✓
S 7.9	S6.5	Appropriate surface drainage will be designed and provided where necessary.	Contractor	Construction Stage	✓
S 7.9	S6.5	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.	Contractor	Construction Stage	✓
S 7.9	S6.5	Oil interceptors will be provided in the drainage system where necessary and regularly emptied to prevent the release of oil and grease into the storm water drainage system after accidental spillages.	Contractor	Construction Stage	✓
S 7.9	S6.5	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.	Contractor	Construction Stage	<>

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Who implement the measures?	to When to implement the measures?	Implementation Status
S 7.9	S6.5	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.	Contractor	Construction Stage	✓
S 7.9	S6.5	Appropriate infiltration control, such as cofferdam wall, should be adopted to limit groundwater inflow to the excavation works areas in the Project site. Groundwater pumped out from excavation area should be discharged into the storm system via silt removal facilities.	Contractor	Construction Stage	✓
S 7.9	S6.5	Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment.	Contractor	Construction Stage	✓
S 7.9	S6.5	The contingency plan for the existing operation of the BPPS is considered sufficient for directing immediate response to any accidental spillage event.	CAPCO	Construction Stage	✓
S 7.9	S6.5	Mitigation measures required for maintenance dredging at seawater intake and discharge outfall would be the same as that recommended for construction phase dredging operation	Contractor	Construction Stage	N/A
S7.9 and S7.12	S6.2-S6.5	A water quality monitoring programme shall be implemented for the construction phase.	ET	Construction Stage	N/A
S7.9 and S7.12	S6.2-S6.5	To ensure compliance to the effluent standard, regular monitoring of effluent quality is recommended during normal operation. Furthermore, marine water monitoring at selected nearby WSRs during the first year of project commission are recommended to ensure compliance to WQO or other water quality criteria.	ET/ CAPCO	Operational Stage	N/A
Waste Management					
S8.5.1	Table 7.1	The Contractor must ensure that all the necessary waste disposal and marine dumping permits or licences are obtained prior to the commencement of the construction works.	Contractor	Construction Stage	✓
S8.5.1	S7.2	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.	Contractor	Construction Stage	✓
S8.5.1	S7.2	A trip-ticket system will be established in accordance with <i>DEVB TC(W) No. 6/2010</i> 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.	Contractor	Construction Stage	✓

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Who implement the measures?	to When to implement the measures?	Implementation Status
S8.5.1	S7.2	A WMP as stated in the <i>PNAP ADV-19</i> 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.	Contractor	Construction Stage	✓
S8.5.1	Table 7.1	The management of dredged/ excavated sediment management requirement from <i>PNAP ADV-21</i> will be incorporated in the Specification of the Contract Documents.	CAPCO/ Contractor	Construction Stage	N/A
S8.5.1	S7.2	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.	Contractor	Construction Stage	✓
S8.5.1	S7.2	The Contractor 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.	Contractor	Construction Stage	✓
S8.5.1	S7.2	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. 	Contractor	Construction Stage	✓
S8.5.1	S7.2	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; 	Contractor	Construction Stage	✓

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Who implement the measures?	to When to implement the measures?	the Implementation Status
S8.5.1	S7.2	<ul style="list-style-type: none"> 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. Chemical waste will be disposed of: <ul style="list-style-type: none"> Via a licensed waste collector; and 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. 	Contractor	Construction Stage	✓
S8.5.1	S7.2	General refuse will be stored in enclosed bins separately from construction and chemical wastes. The general refuse will be delivered to the WENT Landfill, separately from construction and chemical wastes, on a daily basis to reduce odour, pest and litter impacts.	Contractor	Construction Stage	✓
S8.5.1	S7.2	Recycling bins will be provided at strategic locations within the Project Site to facilitate recovery of recyclable materials (including aluminium can, waste paper, glass bottles and plastic bottles) from the Project Site. Materials recovered will be sold for recycling.	Contractor	Construction Stage	✓
S8.5.1	S7.2	To avoid any odour and litter impact, appropriate number of portable toilets will be provided for workers on-site.	Contractor	Construction Stage	✓
S8.5.1	S7.2	At the commencement of the 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.	Contractor	Construction Stage	✓

Land Contamination

S9.8	S8	During construction stage, good house-keeping practices shall be maintained by the Contractor to minimise the risk of land contamination due to construction activities, including but not limited to the followings: <ul style="list-style-type: none"> Minimise the chemical stock within Project Site, only store the amount of chemicals needed; Designated chemical/ chemical waste storage shall be established on concrete paved ground, as far as practicable. Secondary containments shall be provided for storage of chemicals/ chemical wastes; 	Contractor	Construction Stage	✓
------	----	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------	--------------------	---

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Who implement the measures?	to When to implement the measures?	the Implementation Status
		<ul style="list-style-type: none"> Conduct regular maintenance and inspection on plants and equipment, particularly those involve the use of fuel, hydraulic oil or any sort of chemicals; and Divert rainfall and surface run-off around construction areas. 			
Ecology					
S10.9.2	S9.1	The vessel operators will be required to control and manage all effluent from vessels to prevent avoidable water quality impacts.	Contractor	Construction Stage	N/A
S10.9.2	S9.1	A policy of no dumping of rubbish, food, oil, or chemicals will be strictly enforced. This will also be covered in the contractor briefings.	Contractor	Construction Stage	N/A
S10.9.2	S9.1	The effects of construction of the Project on the water quality of the area will be reduced with the implementation of mitigation measures as described in the Water Quality Impact Assessment.	Contractor	Construction Stage	N/A
S10.9.3	S9.1	All vessel operators working on the Project construction will be given a briefing, alerting them to the possible presence of dolphins in the marine works areas, and the guidelines for safe vessel operation in the presence of cetaceans. The use of high-speed vessels will be avoided as far as possible. All vessels used in this Project will be required to slow to 10 knots around the Project's marine works areas and area with high dolphin usage.	Contractor	Construction Stage	N/A
S10.9.3	S9.1	The vessel operators of this Project will be required to use predefined and regular routes.	Contractor	Construction Stage	N/A
S10.9.3	S9.2.1	A marine mammal exclusion zone within a radius of 250 m from dredger will be implemented during the construction phase. Qualified observer(s) will scan an exclusion zone of 250 m radius around the work area for at least 30 minutes prior to the start of dredging. If cetaceans are observed in the exclusion zone, dredging will be delayed until they have left the area.	Contractor	Construction Stage	N/A
S10.9.4	S9.1	Structures will utilise appropriate design to complement the surrounding landscape wherever possible. Materials and finishes will be considered during detailed design.	CAPCO	Construction Stage	✓
S10.9.4	S9.1	All of the major lighting sources will be pointed inward and downwards to avoid disturbances to wildlife.	CAPCO	Construction Stage	✓

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Who implement the measures?	to When to implement the measures?	Implementation Status
S10.9.4	S9.1	Good site practices and precautionary measures are recommended to be implemented to avoid encroachment onto the nearby natural habitats, minimise disturbance to wildlife, and ensure air and water quality is maintained. Mitigations measures as mentioned in the air quality (Section 4 in Approved EIA Report ref. no. AEIAR-197/2016) and water quality (Section 7 in Approved EIA Report ref. no. AEIAR-197/2016) assessments will be consequently instigated to minimise dust and surface runoff to adjacent wildlife and natural habitats during construction activities.	CAPCO/ Contractor	Construction Stage	✓
S10.9.4	S9.1	Erect fences or demarcate along the boundary of the works area before the commencement of works to prevent vehicle movements, and encroachment of staffs, onto adjacent areas.	CAPCO/ Contractor	Construction Stage	✓
S10.9.4	S9.1	Avoid any damage and unnecessary disturbance to the surrounding natural habitats.	CAPCO/ Contractor	Construction Stage	✓
Landscape & Visual					
S12.8	S11	Sensitive architectural design of the new facilities. This should take into account material texture, colour, finished to structure and the context of the site.	CAPCO/ Design Contractor	Construction Stage	N/A
S12.8	S11	Reinstatement. Following construction, areas temporarily affected by the construction works, will be reinstated to their former state. This will include the artificial shoreline as well as parts of some roads.	CAPCO/ Contractor	Construction Stage	N/A
S12.8	S11	Preservation of vegetation. Plants affected by the proposed Project are all within movable planters. Prior to construction, these affected moveable planters should be re-located to a suitable area, still within the BPPS, taking care to ensure the existing health status of the vegetation is maintained or enhanced at the new location. Once construction is complete the final location of the moveable planters should be integrated into the LMP.	CAPCO/ Contractor	Construction Stage	✓
S12.8	S11	Update Landscape Master Plan (LMP) to take account of the changes brought about by the Project and explore suitable areas where soft landscaping may be installed amongst the new facilities. The LMP should give due consideration to the possibility of re-provisioning of disturbed lands and provision of screen planting within the facility boundaries as far as practicable.	Qualified Landscape Professional employed by Project Proponent	Construction Stage	N/A

APPENDIX E WASTE FLOW TABLE

Appendix E - Waste Flow Table for CCGT Unit No. 2

Monthly Summary Waste Flow Table for 2022

Month	Actual Quantities of Inert C&D Materials Generated Monthly ⁽¹⁾					Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete ⁽⁵⁾	Reused in the Contract	Reused in other Projects	Disposed as Public Fill ⁽³⁾	Metals	Paper/ cardboard packaging	Plastics ⁽²⁾	Chemical Waste ⁽⁴⁾	Others, e.g. general refuse ⁽³⁾
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000 kg)	(in '000m ³)
Jan 2022	0.002	0.000	0.002	0.000	0.000	59.830	0.000	0.410	0.000	0.012
Feb 2022	0.003	0.000	0.000	0.000	0.003	112.650	0.000	0.000	0.000	0.007
Mar 2022	0.261	0.000	0.000	0.246	0.015	53.060	0.109	0.000	0.030	0.030
Apr 2022	0.163	0.000	0.008	0.155	0.000	27.020	0.000	0.000	0.000	0.024
May 2022	0.101	0.000	0.000	0.096	0.005	13.300	0.000	0.011	0.000	0.016
Jun 2022	0.208	0.000	0.000	0.206	0.002	11.446	0.004	0.003	0.000	0.010
Sub-total	0.738	0.000	0.010	0.703	0.025	277.306	0.113	0.424	0.030	0.099
Jul 2022	0.034	0.000	0.009	0.000	0.025	0.021	0.113	0.011	0.000	0.006
Aug 2022	1.000	0.000	0.004	0.996	0.000	0.022	0.130	0.007	0.000	0.013
Sep 2022	1.336	0.000	0.003	1.325	0.008	4.301	0.112	0.007	0.000	0.027
Oct 2022	0.021	0.000	0.003	0.000	0.018	12.916	0.119	0.016	0.000	0.065
Nov 2022	0.639	0.000	0.000	0.634	0.005	0.016	0.102	0.016	0.000	0.084
Dec 2022	0.057	0.000	0.000	0.000	0.057	0.035	0.004	0.012	0.000	0.074
Total (2022)	3.825	0.000	0.029	3.658	0.138	294.617	0.693	0.493	0.030	0.368
2020	7.095	0.602	5.250	0.001	1.243	226.030	0.000	0.000	0.000	0.029
2021	16.387	0.000	8.188	0.529	7.670	161.800	0.069	0.000	1.120	0.435
Cumulative	27.307	0.602	13.467	4.188	9.051	682.447	0.762	0.493	1.150	0.832

Notes:

- (1) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil.
- (2) Plastics refer to plastic bottles/containers, plastic sheets/foam form packaging material.
- (3) Density Assumption: 1.6(kg/l) for Public Fill and 0.9(kg/l) for General Refuse.
- (4) Chemical waste includes waste oil. Density of waste oil is assumed to be 0.8 kg/L.
- (5) Density of broken concrete is assumed to be 2.5 ton/m³.
- (6) The cut-off date for waste management data is 31 December 2022.