



Additional Gas-fired
Generation Units Project –
Installation of One
Additional Gas-fired
Generation Unit (CCGT Unit
No.2) at the Black Point
Power Station

Environmental Review Report

24 November 2021

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24 November 2021

Additional Gas-fired Generation Units Project – Installation of One Additional Gasfired Generation Unit (CCGT Unit No.2) at the Black Point Power Station

Environmental Review Report

Dr Jasmine Ng

Office Managing Partner

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

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1. INTRODUCTION

1.1 Background

Following the approval of the Environmental Impact Assessment (EIA) Report for *Additional Gas-Fired Generation Units Project* on 7 June 2016 (Register No.: AEIAR-197/2016) (the approved EIA Report), an Environmental Permit (EP) (EP-507/2016) was granted for the installation of one additional gasfired generation unit (CCGT Unit No.1) at the Black Point Power Station (BPPS) on 14 June 2016 and variations to the EP of CCGT Unit No.1 were approved in July 2017 and October 2018. An Environmental Review Report (ERR) for the variation of environmental permit (VEP) (hereafter referred to as "2020 ERR") to include both CCGT Units No.1 and No.2 was approved with the latest EP (EP-507/2016/C) issued in April 2020.

Based on the latest information, the final design of CCGT Unit No. 2 (the D2 Project) has now been confirmed by Castle Peak Power Company Limited (CAPCO). The location of cooling tower is proposed to be shifted to the west by ~55m and the footprint of cooling tower is proposed to be reduced ~1,500m² due to site condition with height unchanged. The discharge from cooling tower is proposed to be revised to be discharged via the existing CCGT Unit No. D1 seal pit from existing CCGT Unit No. D1 intake. The route of 400kV cables is proposed to be revised to minimise the excavation works. Therefore, the Project site boundary is required to be extended for an area of about 3,600m² within BPPS to accommodate these proposed changes, including infrastructure for making connection with existing plants and equipment of the BPPS.

1.2 Purpose of this Report

The objective of this ERR is to review the likely environmental impacts based on the latest design of the D2 Project. It also provides recommendations as to whether any modification and/or refinement of proposed mitigation measures and monitoring and audit requirements is needed. It should be noted that the scope and scale of CCGT Unit No.1, and the construction and operation activities of this unit, are in accordance with those described in the approved EIA Report and the associated EP (No. EP-507/2016/C), and hence there is no change to this part of the Project and impacts associated with the construction and operation of CCGT Unit No.1 are not reviewed in this ERR.

In accordance with Section 13 of the Environmental Impact Assessment Ordinance (EIAO), the potential environmental impacts associated with the latest design of the D2 Project have been assessed and are presented in this ERR to demonstrate that the potential environmental impacts will comply with the requirements and criteria stipulated in the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) and will not constitute a material change to the environmental impact assessed in the approved EIA Report. The supplementary information presented herein forms part of the submission to the Environmental Protection Department (EPD) for an Application for VEP that covers the CCGT Unit No.1 project.

1.3 Structure of this Report

Following this introductory section, the remainder of this ERR is set out as follows:

- Section 2 describes the proposed variations of the D2 Project;
- **Section 3** describes the potential impacts associated with the D2 Project and provides the results of supplementary environmental assessment;
- Section 4 includes a review of the environmental monitoring and audit requirements of the D2 Project; and
- Section 5 provides the conclusion of this environmental review.

2. PROPOSED VARIATIONS

2.1 Proposed Variations to the Conditions of in the Current EP

The proposed variations and the reason for variation are summarised in Table 2.1.

Table 2.1: Proposed Variations to the Conditions of EP No. EP-507/2016/C

Condition	Current EP	Proposed Variation	Reason for Variation
Figure 1	Additional Gas-fired Generation Units Project - Indicative Location Plan of Key Project Components for CCGT Unit No.1 and Unit No.2 (see Figure 2.1)	See Figure 2.2 of this ERR for the proposed amendments (comparison of the latest Project layout with the Project layout in EP-507/2016/B is shown in Figure 2.3)	The Project site is proposed to be extended by ~3,600m² to cater for the shift of location of cooling tower, cooling water intake and discharge, and 400kV cables. The location of cooling tower is proposed to be shifted to the west by ~55m and the footprint of cooling tower is proposed to be reduced ~1,500m² due to site condition.

It is noted that a majority of these variations are to allow for the phased construction and operation of two CCGT units at the BPPS, the activities of which are well covered in the approved EIA Report and the associated EP (EP-507/2016/C). It should be noted that the scope and scale of CCGT Unit No.1, and the construction and operation activities of this unit, are in accordance with those described in the approved EIA Report, 2020 ERR and the associated EP (No. EP-507/2016/C), and hence there is no change to this part of the Project.

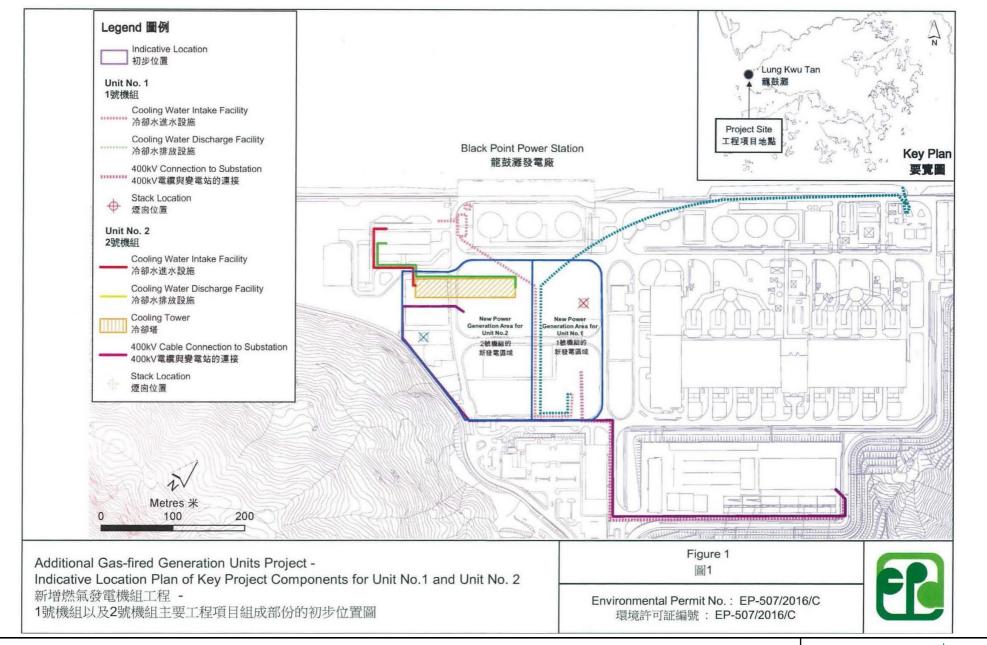


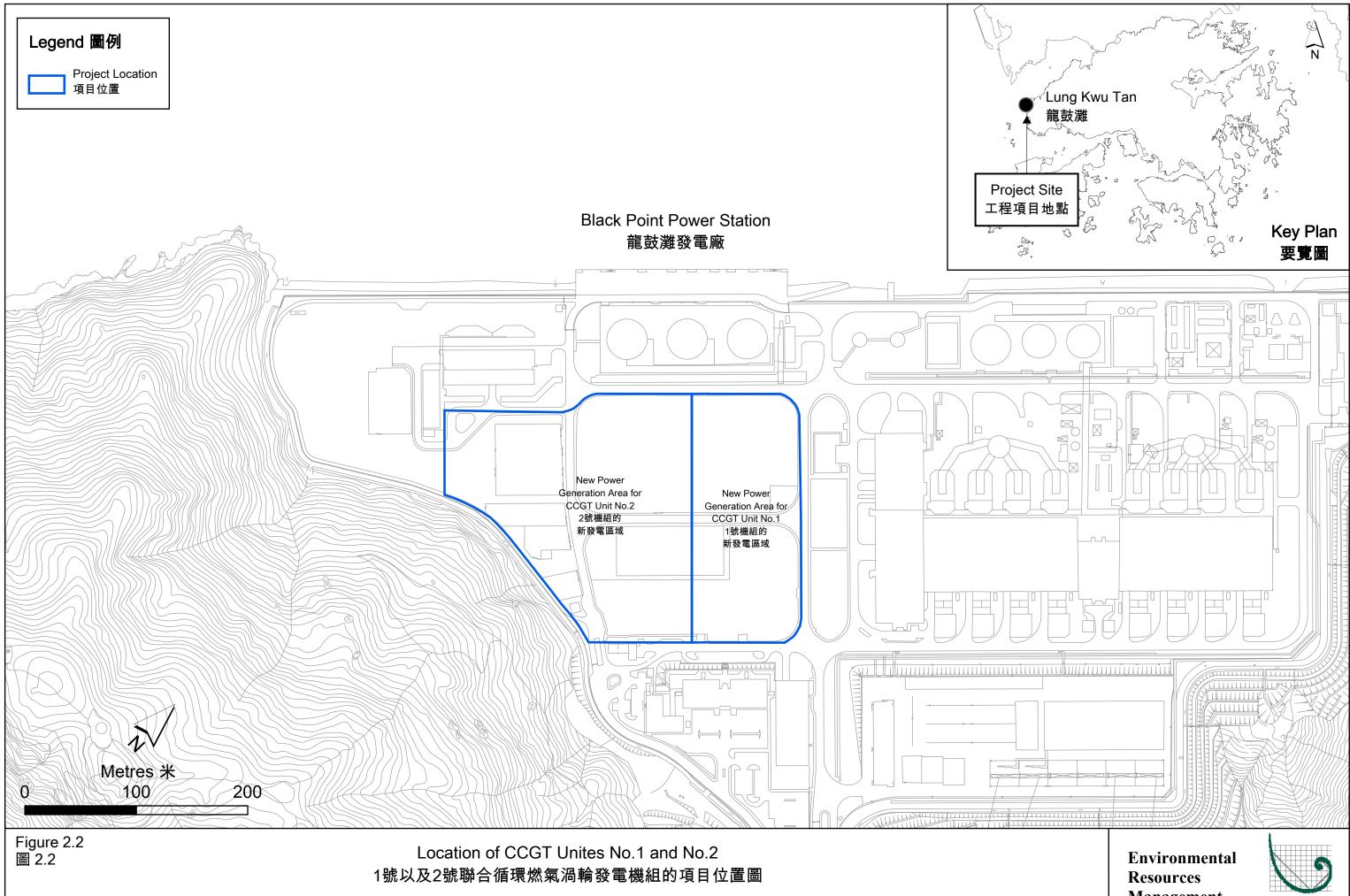
Figure 2.1

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Indicative Location of Key Project Components for CCGT Units No.1 and No.2 (Extracted from EP-507/2016/C)

Environmental Resources Management

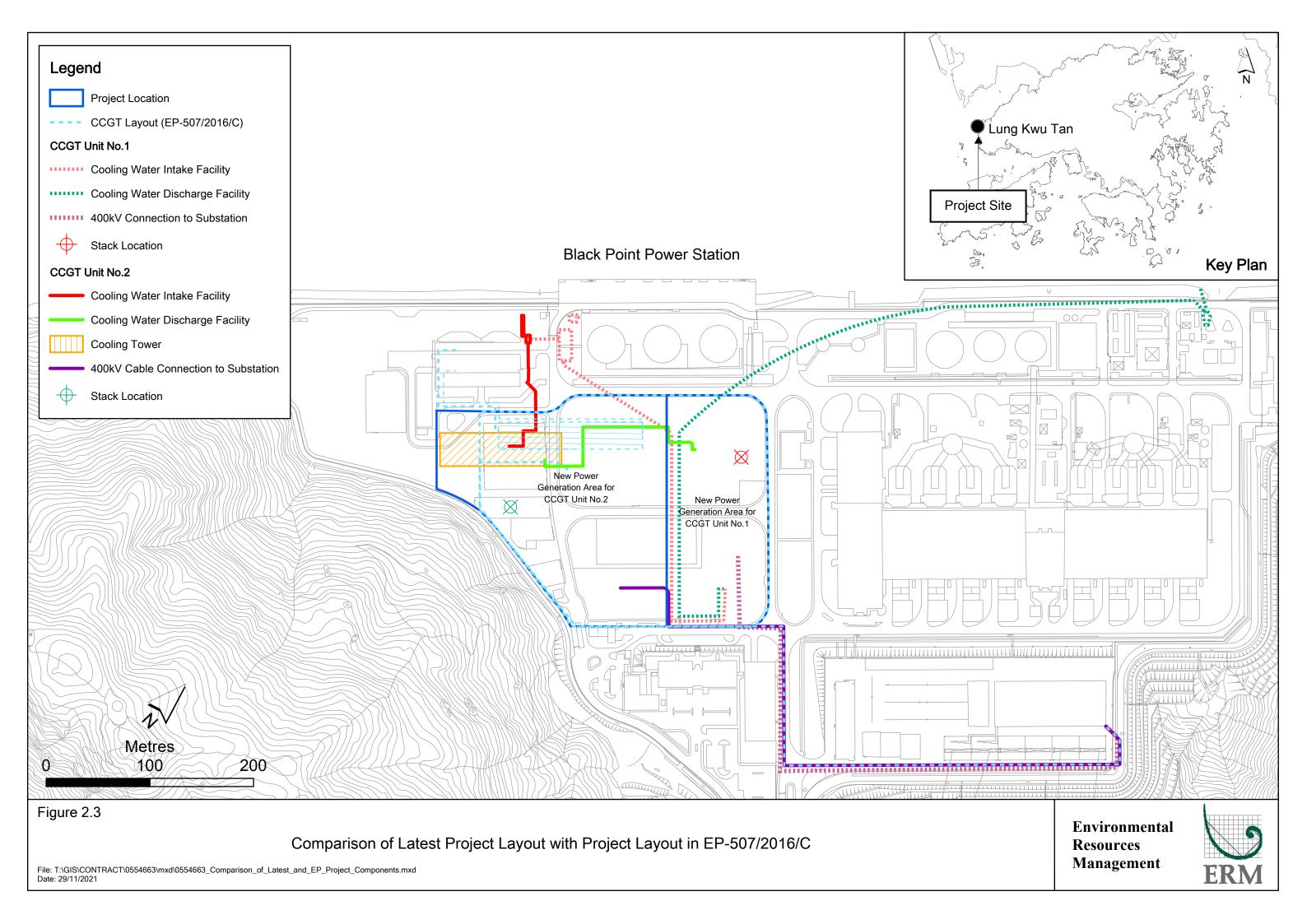




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Management





Environmental Review Report

3. POSSIBLE IMPACTS ON THE ENVIRONMENT

3.1 Key Environmental Issues Associated with the Proposed Changes

A description and evaluation of these potential impacts and the environmental changes arising from the proposed variations, and how the environment and the community might be affected by the proposed variations, are provided in the following sections.

3.2 Air Quality

Based on the proposed changes, the scale of excavation and trenching is expected to be similar as assessed in the approved EIA Report and 2020 ERR. The footprints for cooling tower and 400kV cables have been reduced to minimise excavation works, as such, potential air quality impact from dust generating activities and vehicular emissions from trucks during construction is expected to be within the magnitude assessed in the approved EIA Report and 2020 ERR. With the implementation of dust suppression measures stipulated under the *Air Pollution Control (Construction Dust)* Regulation and the adoption of good site practice, no unacceptable impact is anticipated.

There will be no change during operation phase, including stack height, stack location and parameters, and electricity generation capacity. Therefore, adverse air quality impact is not anticipated during the operation phase.

3.3 Noise

There will be no change in the construction and operation activities of D2 Project. Existing and planned noise sensitive receivers (NSRs) are located more than 900m away from the D2 Project and the direct lines of sight between the Project site and NSRs are screened by the natural terrain. No unacceptable noise impact due to the construction and operation of the D2 Project is anticipated.

3.4 Water Quality

Only land-based construction works will be required. With the implementation of the mitigation measures for land-based construction recommended in the approved EIA Report, no unacceptable water quality impact is anticipated during the construction phase.

The uptake and discharge of seawater have been significantly reduced from 950,400 m³/day assessed in approved EIA Report to 60,000 m³/day for D2 Project (with maximum discharge temperature of 40°C and total residual chlorine concentration of 0.5 mg/L unchanged). No change to chlorine dosage of cooling water nor potential fuel spillage risk and pollution load management is expected for the D2 Project, hence no unacceptable water quality from operation of the CCGT Unit No. 2 is expected during the operation phase.

3.5 Waste Management

The scale of excavation and trenching is expected to be similar to that discussed in the approved EIA Report and 2020 ERR. The quantities of inert and non-inert construction waste from site clearance, construction and demolition (C&D) materials from building construction, excavated materials, chemical waste and general refuse from the construction of the D2 Project will remain to be the same as those discussed in the approved EIA Report and 2020 ERR. With the implementation of the mitigation measures recommended in the approved EIA Report, no unacceptable environmental impacts (including air and odour emissions, noise and wastewater discharge) arising from storage, handling, transport and disposal of wastes are expected during construction phase.

The quantities of chemical wastes and general refuse, including food waste, plastic, glass bottles, waste paper, scrap metal etc., arising from the operation phase will remain to be the same as those discussed in the approved EIA Report and 2020 ERR. No unacceptable impact associated with the handling and disposal of chemical waste and general refuse during the operation of the Project is envisaged due to the proposed changes.

3.6 Land Contamination

A majority of the Project site of the D2 Project was assessed in the approved EIA Report and 2020 ERR, and no land contamination was identified. An area extended, which will accommodate the shift of cooling tower of CCGT Unit No.2 (hereinafter referred to as "Extended New Generation Area"), is therefore the focus of this review. The locations of the Project site and Extended New Generation Area are shown in **Appendix A1**.

The historical land uses and activities of the D2 Project were reviewed in the approved EIA Report and 2020 ERR based on observations from site walkover, review of historical aerial photos, and historical spillage and leakage records. There is no major change in the Extended New Generation Area. It was occupied by vehicle access roads, temporary contractor offices and material storage area since 1997 after completion of construction of BPPS. No chemicals and no signs of chemical spills/ oil stains were observed within the Extended New Generation Area. Based on the review of land use history, no potential land contaminating activities were performed at the Project site. The referenced historical aerial photographs are presented in Appendix A2. In addition, a site walkover was conducted on 21 and 28 May 2020 to confirm the current land uses at the Extended New Generation Area. The Extended New Generation Area was unpaved. It was currently used as vehicle access roads, material storage area and temporary contractor offices with metals, pipes, scaffolds and office supplies stored. No chemicals were stored in the area. During the site walkover, no potential land contaminating activities were observed within the Extended New Generation Area. There was no industrial/construction activities since operation of the BPPS in the Extended New Generation Area as confirmed by CAPCO. No sign of chemical spillage/ oil stain was observed therein. Site observation and photo taken during the site walkover were shown in **Appendix A3**. The site walkover checklist is provided in Appendix A4.

The proposed excavation depth for the construction of facilities and utilities within the Extended New Generation Area will remain the same as 2020 ERR. The potential of land contamination at the Extended New Generation Area is thus reviewed to identify and assess any potential land contamination issues due to the past or current land uses/ activities therein.

Enquiries made to the EPD and Fire Service Department (FSD) on the chemical waste producer records and historical spillage and leakage records at the BPPS remain valid. No land contamination activities such as spillage or leakage were recorded within the Extended New Generation Area.

This review confirmed that no land contamination activities were identified within the Extended New Generation Area of the D2 Project. Therefore, no unacceptable adverse environmental impact in respect of land contamination is expected and mitigation measures is not required.

3.7 Other Impacts

In accordance with the final design, the natures of the D2 Project are summarised as follows:

- There will be no change in transport and use of natural gas, as well as the transport, storage and use of other dangerous goods.
- The extension of the Project site remained in urbanised/ disturbed areas within the boundary of the BPPS.
- Only land-based construction works will be required. The operation of the Project will remain the same. D2 Project's contribution to the pollutants remain to be insignificant.
- The Project site boundary will only be extended slightly ~3,600m² to accommodate the shift of the cooling tower by ~55m. The footprint of cooling tower is proposed to be reduced 1,500m² due to site condition. The minor shift of cooling tower will be blocked by the gas turbine hall of CCGT Unit No.2. The Project will not be visible to the nearest residential areas in Lung Kwu Tan and hikers from Tsang Tsui.

ADDITIONAL GAS-FIRED GENERATION UNITS PROJECT – INSTALLATION OF ONE ADDITIONAL GAS-FIRED GENERATION UNIT (CCGT UNIT NO.2) AT THE BLACK POINT POWER STATION Environmental Review Report

POSSIBLE IMPACTS ON THE ENVIRONMENT

Based on the above, no other adverse environmental impacts are expected. Environmental performance requirements set out in the approved EIA Report (AEIAR-197/2016) for the Project are not exceeded nor violated, thus, no material change is arising from the proposed variations.

4. REVIEW OF ENVIRONMENTAL MONITORING AND AUDIT (EM&A) REQUIREMENTS

As no unacceptable adverse environmental impacts would be anticipated during construction and operation phases. It is considered that the EM&A requirements recommended in the approved EIA Report and 2020 ERR are adequate, and no additional EM&A requirements will be required.

5. CONCLUSIONS

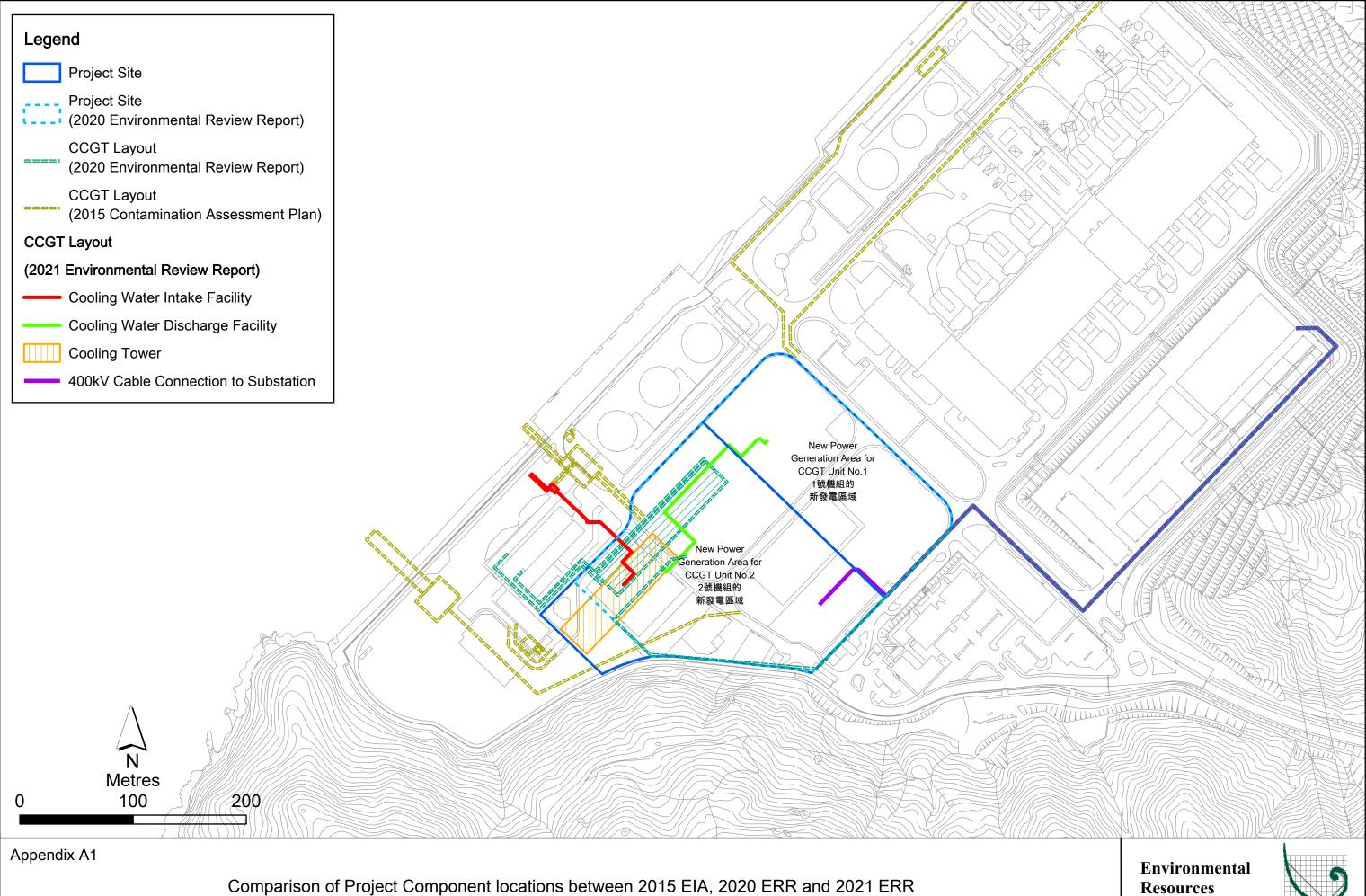
An environmental review has been carried out to assess the potential environmental impacts associated with the proposed changes of the D2 Project. The assessment indicates that no unacceptable adverse environmental impacts are anticipated from the proposed changes with respect to the assessment criteria stipulated in the EIAO-TM and relevant environmental legislation, and the same environmental performance requirements set out in the approved EIA Report (AEIAR-197/2016) will apply. It is considered that the EM&A requirements recommended in the approved EIA Report are adequate and no additional EM&A requirements will be required.

The Project Proponent has reviewed the D2 Project as a whole, the proposed changes will not constitute a material change to the environmental impact of the Project and the Project fully complies with the EIAO-TM requirements.

It should be noted that the scope and scale of CCGT Unit No.1, and the construction and operation activities of this unit, are in accordance with those described in the approved EIA Report and the associated EP (No. EP-507/2016/C), and hence there is no change to this part of the Project.



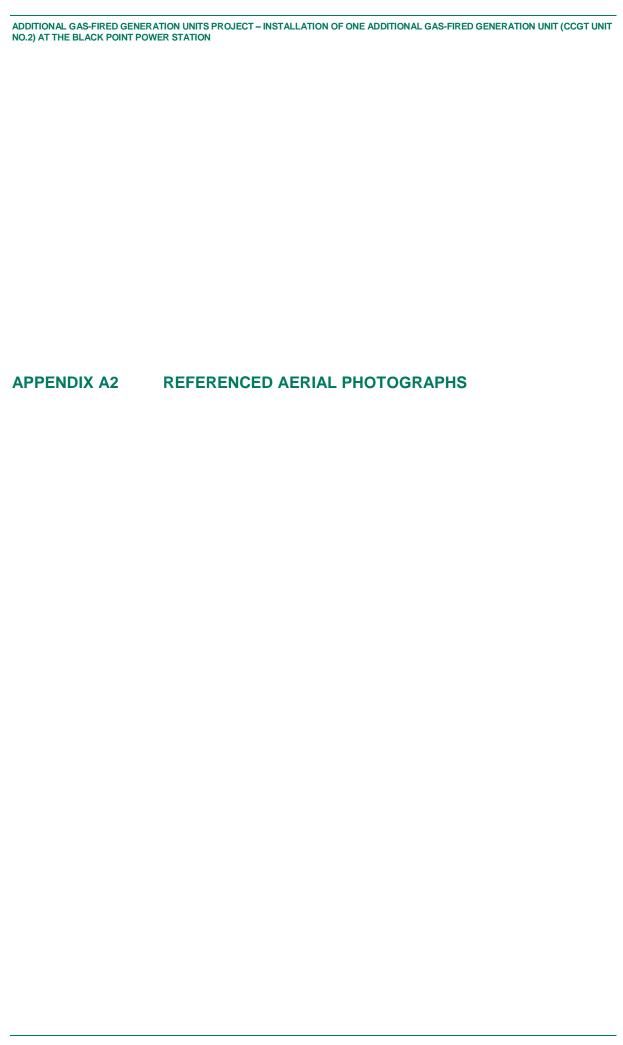
ADDITIONAL GAS-FIRED GENERATION UNITS PROJECT – INSTALLATION OF ONE ADDITIONAL GAS-FIRED GENERATION UNIT (CCGT UNIT NO.2) AT THE BLACK POINT POWER STATION			
APPENDIX A1	COMPARISON OF PROJECT COMPONENT LOCATIONS BETWEEN 2015 EIA AND 2020 ERR		



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Management







Year 1997 (ref: CN17011, height: 4,000) — BPPS has been completed in 1996. No significant changes were noted to have been made after almost 1 year of completion.

Approximate Area of the Project site
Approximate Area of the Cooling Tower
Approximate Area of the Water Intake
Approximate Area of the Water Discharge

 $Source \hbox{-} GEO \hbox{ INFO, Lands Department, HKSARG}$

PROJECT: Land Contamination Assessment for demolition works. Divisional Police Station at 151 Tsz Wan Shan Road, Tsz

Land Contamination Assessment for demolition works at existing Bs-Tsz Wan Shan Divisional Police Station at TS1 Tsz Wan Shan Road, Tsz Wan Shan for Kowloon East Regional Headquarters and Operational Base-cum-Ngau Tau Kok Divisional Police Station

ERM-Hong Kong, Limited 2509, 25/F, One Harbourfront, Tak Fung Street, Hung Hom, Kowloon Tel: (852) 2271 3000 Fax: (852) 2723 5660



Appendix A2 Referenced Aerial Photographs

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Year 2015 (ref: CS55455, height: 6,000m)
A temporary warehouse was located along the east portion of the Project site. The south/southwest portion of the Project site appear to be occupied by contractor's office, carpark area and material storage. The rest of the Project site was mostly vacant in 2015. No construction / industrial activities were observed.



Year 2016: (ref: E003695C, height: 7,000m) No significant changes were observed compared to 2015. No construction / industrial activities were observed.

Approximate Area of the Project site
Approximate Area of the Cooling Tower
Approximate Area of the Water Intake
Approximate Area of the Water Discharge

Source - GEO INFO, Lands Department, HKSARG

PROJECT: Land Contamination Assessment for demolition works at existing Ex-Taz Wan Shan Divisional Police Station at 151 Taz Wan Shan Road, Taz Wan Shan for Kowloon East Regional Headquarters and Operational Base-cum-Ngau Tau Kok Divisional Police Station			' '	endix A2 d Aerial Photo	oranhs		
	ERM-Hong Kong, Limited 2509, 25/F, One Harbourfront, Tak Fung Street, Hung Hom, Kowloon Tel: (852) 2271 3000	6	DATE: CHECKED: PROJECT: 0554663				
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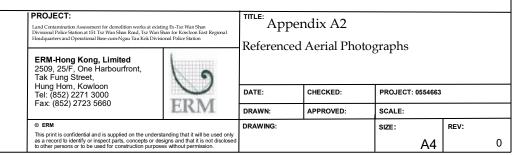
Year 2017 (ref: E017556C, height: 6,900m) No significant changes were observed compared to 2015. No construction / industrial activities were observed.



Year 2018 (ref: E036724C, height: 6,900m) Contractor's temporary offices and material storage areas occupied the north to east portion of the Project area. No construction / industrial activities were observed.

Approximate Area of the Project site
Approximate Area of the Cooling Tower
Approximate Area of the Water Intake
Approximate Area of the Water Discharge

 $Source \hbox{-} GEO \hbox{ INFO, Lands Department, HKSARG}$





Year 2019 (ref: E063237C, height: 6,900m) No significant changes were observed compared to 2018. No construction / industrial activities were observed.



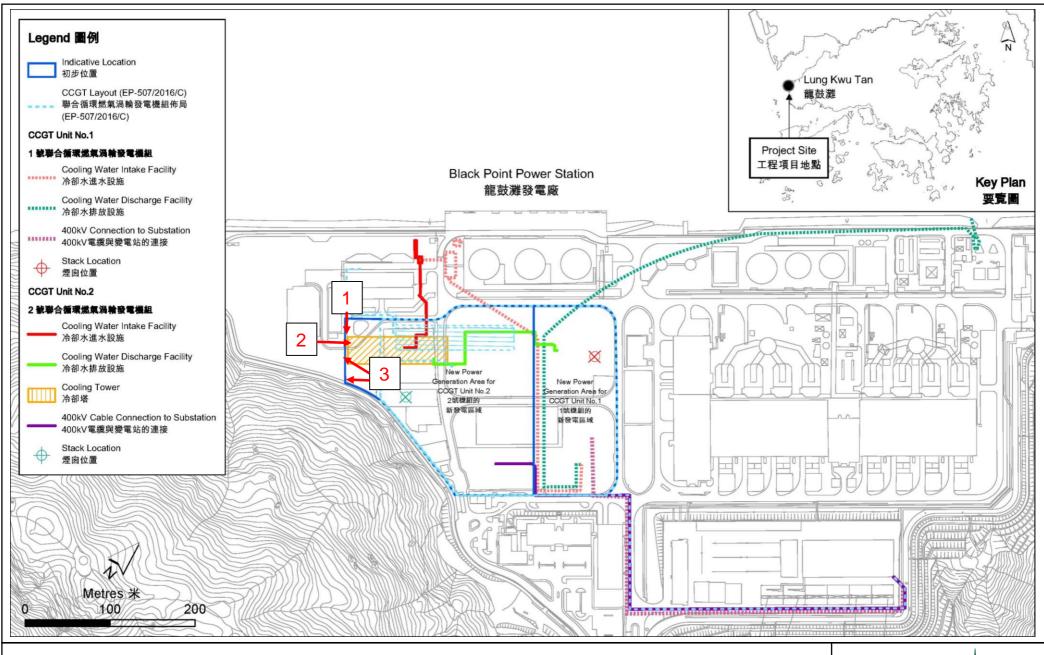
Year 2020 (ref: E088114C, height: 6,900m) No significant changes were observed compared to 2018. No construction / industrial activities were observed.

Approximate Area of the Project site
Approximate Area of the Cooling Tower
Approximate Area of the Water Intake
Approximate Area of the Water Discharge

 $Source \hbox{-} GEO \hbox{ INFO, Lands Department, HKSARG}$

PROJECT: TITLE: Appendix A2 Land Contamination Assessment for demolition works at existing Ex-Tsz Wan Shun Divisional Police Station at 151 Tsz Wan Shun Roud, Tsz Wan Shun for Kowloon East Regional Headquarters and Operational Base-cum-Ngau Tau Kot Divisional Police Station Referenced Aerial Photographs **ERM-Hong Kong, Limited** 2509, 25/F, One Harbourfront, Tak Fung Street, Hung Hom, Kowloon Tel: (852) 2271 3000 Fax: (852) 2723 5660 DATE: CHECKED: PROJECT: 0554663 DRAWN: APPROVED: SCALE: DRAWING: SIZE: REV: This print is confidential and is supplied on the understanding that it will be used only as a record to identify or inspect parts, concepts or designs and that it is not disclosed to other persons or to be used for construction purposes without permission. A4





Appendix A3

Locations of Site Walkover Photographs

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Photo 1: Vehicle access roads

Photo 2: Vehicle access roads







Photo 3a: Material storage areas and temporary contractor office

Photo 3b : Material storage areas and temporary contractor offices





Photo 3c : Ground Condition

Appendix A3



ADDITIONAL GAS-FIRED GENERATION UNITS PROJECT – INSTALLATION OF ONE ADDITIONAL GAS-FIRED GENERATION UNIT (CCGT UNIT NO.2) AT THE BLACK POINT POWER STATION		
APPENDIX A4	SITE WALKOVER CHECKLIST	

Appendix A4

Site Walkover Checklist

GENERAL SITE DETA	ILS	
SITE OWNER/CLIENT	<u>CAPCO</u>	
PROPERTY ADDRESS	Installation of One	e Additional Gas fixed
	Generation unit ((CGGT Unit No.2) in BPP
		·
	(•	
PERSON CONDUCTING		
NAME PAK	. 10	
POSITION	insultant (FRM)	
AUTHORIZED OWNER/0	CLIENT REPRESENTATIVE (IF APPL	ICABLE)
NAME Be	n (beur	
POSITION Invi	nonmental Manger ((APCO)
TELEPHONE		
TELEPHONE		
SITE ACTIVITIES		
Briefly describe activitie	es carried out on site, including typ	es of products/chemicals/materials handled.
Number of employees:	Full-time:	Varing.
	Part-time:	- Varing
	Temporary/Seasonal:	Varyny
Maximum no. of people	on site at any time:	Not Specifically Stated
Typical hours of operati	ion:	[0
Number of shifts:		Not Specifically Stated
Days per week:		
Weeks per year:		Not Specifically Stated
Scheduled plant shut-de	own:	<u> PIA</u>

Yes/No Coal Nes/No Oil Yes/No Other SITE DESCRIPTION This section is intended to gather information on site setting and environmental receptors on, adjacent or close to the site. ~37.000 m What is the total site area: N/A (covered by access wad afree) What area of the site is covered by buildings (%): (APCO (current & previous) Please list all current and previous owners/occupiers if possible. Is a site plan available? If yes, please attach. Are there any other parties on site as tenants or sub-tenants? Gummon If yes, identify those parties: Describe surrounding land use (residential, industrial, rural, etc.) and identify neighbouring facilities and types of industry. East: West:

Detail the main sources of energy at the site:

Gas

Electricity

Yes/Ño

Yes/No

A. Mark (1). Site Walkover Checklist

Describe the topography of the area (flat terrain, rolling hills, mountains, by a large body of water, vegetation, etc.).
Flat pared prea
State the size and location of the nearest residential communities.
Lung Kirn Tom Village (~ 200,000 m²)
Are there any sensitive habitats nearby, such as nature reserves, parks, wetlands or sites of special scientific interest?
N·

Questionnaire with Existing/Previous Site Owner or Occupier

		Yes/No	Notes
1.	What are the main activities/operations at the above address?		Power Generaling of the site in 199?
2.	How long have you been occupying the site?		Some Development of the site in 1993
3.	Were you the first occupant on site? (If yes, what was the usage of the site prior to occupancy.)	Yes	
4.	Prior to your occupancy, who occupied the site?		
5.	What were the main activities/operations during their occupancy?	/	No change related to operation
6.	Have there been any major changes in operations carried out at the site in the last 10 years?	No	7-0-1-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-
7.	Have any polluting activities been carried out in the vicinity of the site in the past?	N.	
8.	To the best of your knowledge, has the site ever been used as a petrol filling station/car service garage?	Nə	
9.	Are there any boreholes/wells or natural springs either on the site or in the surrounding area?	Yes	Boveholes were conducted in ricinity of the site
10.	Do you have any registered hazardous installations as defined under relevant ordinances? (If yes, please provide details.)	Yes	Yes m BPPS is a whole, but no hazardous metallation were lecated in sit
11.	Are any chemicals used in your daily operations? (If yes, please provide details.)	Yes	Diesel oil are used in the
	Where do you store these chemicals?		Dil tank truck some and till upon
12.	Material inventory lists, including quantities and locations available? (If yes, how often are these inventories updated?)	/	Dil tank truck come and till upon request. No chemic stored on site.
13.	Has the facility produced a separate hazardous substance inventory?		1/2 - 1
14.	Have there ever been any incidents or accidents (e.g. spills, fires, injuries, etc.) involving any of these materials? (If yes, please provide details.)	No	

		Yes/No	Notes	
15.	How are materials received (e.g. rail, truck, etc.) and stored on site (e.g. drums, tanks, carboys, bags, silos, cisterns, vaults and cylinders)?	No		_
16.	Do you have any underground storage tanks? (If yes, please provide details.)	No		_
	How many underground storage tanks do you have on site?	/		- -
	What are the tanks constructed of?			_
	What are the contents of these tanks?	/		_
	Are the pipelines above or below ground?	/		-
	• If the pipelines are below ground, has any leak and integrity testing been performed?	/		_
	Have there been any spills associated with these tanks?			_
17.	Are there any disused underground storage tanks?	No		
18.	Do you have regular check for any spillage and monitoring of chemicals handled? (If yes, please provide details.)			
19.	How are the wastes disposed of?	Yes	Waste are dispo	sed at refuse bin
20.	Have you ever received any notices of violation of environmental regulations or received public complaints? (If yes, please provide details.)	Nο	V	within the site
21.	Have any spills occurred on site? (If yes, please provide details.)	No		_
	When did the spill occur?			_
	What were the substances spilled?	/		_
	What was the quantity of material spilled?	/		_
	Did you notify the relevant departments of the spill?	/		
	What were the actions taken to clean up the spill?	/		_
	What were the areas affected?			-
22.	Do you have any records of major renovation of your site or re- arrangement of underground utilities, pipe work/underground tanks (If yes, please provide details.)	/		_
23.	Have disused underground tanks been removed or otherwise secured (e.g. concrete, sand, etc.)?	No		_
24.	Are there any known contaminations on site? (If yes, please provide details.)	N۵		_
25.	Has the site ever been remediated? (If yes, please provide details.)	1/1,		_

An. CX O.L Site Walkover Checklist

Observations

		Yes/No	Notes	
1.	Are chemical storage areas provided with secondary containment (i.e. bund walls and floors)?	Yus		
2.	What are the conditions of the bund walls and floors?		Concrete	
3.	Are any surface water drains located near to drum storage and unloading areas?	les		
4.	Are any solid or liquid waste (other than wastewater) generated at the site? (If yes, please provide details.)	Yes.		
5.	Is there a storage site for the wastes?	Yes		
6.	Is there an on-site landfill?	No		
7.	Were any stressed vegetation noted on site during the site reconnaissance? (If yes, please indicate location and approximate size.)	No		
8.	Were any stained surfaces noted on-site during the site reconnaissance? (If yes, please provide details.)	No		
9.	Are there any potential off-site sources of contamination?	No		
10.	Does the site have any equipment which might contain polychlorinated biphenyls (PCBs)?	No		
11.	Are there any sumps, effluent pits, interceptors or lagoons on site?	Yes	Stormologin discharge	t pi√
12.	Any noticeable odours during site walkover?	No.	¥	ì
13.	Are any of the following chemicals used on site: fuels, lubricating oils, hydraulic fluids, cleaning solvents, used chemical solutions, acids, anti-corrosive paints, thinners, coal, ash, oily tanks and bilge sludge, metal wastes, wood preservatives and polyurethane foam?	Иэ		

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ERM-Hong Kong, Limited

2509, 25/F One Harbourfront

18 Tak Fung Street

Hunghom Kowloon Hong Kong

T: +852 2271 3000 F: +852 3015 8052

www.erm.com

