

Hong Kong Offshore LNG Terminal - Works associated with the double berth jetty at LNG Terminal

Location Plan

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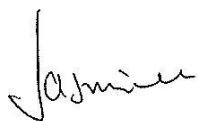
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1. INTRODUCTION

1.1 Background

To support the increased use of natural gas in Hong Kong from 2020 onwards, Castle Peak Power Company Limited (CAPCO) and The Hongkong Electric Company, Limited (HK Electric) have identified that the development of an offshore liquefied natural gas (LNG) receiving terminal in Hong Kong using Floating Storage and Regasification Unit (FSRU) technology ('the Hong Kong Offshore LNG Terminal Project') presents a viable additional gas supply option that will provide energy security through access to competitive gas supplies from world markets. The Hong Kong Offshore LNG Terminal Project will involve the construction and operation of an offshore LNG import facility to be located in the southern waters of Hong Kong, a double berth jetty, and subsea pipelines that connect to the gas receiving stations (GRS) at the Black Point Power Station (BPPS) and the Lamma Power Station (LPS).

The Environmental Impact Assessment (EIA) Report for the Hong Kong Offshore LNG Terminal Project was submitted to the Environmental Protection Department (EPD) of the Hong Kong Special Administrative Region Government in May 2018. The EIA Report (EIAO Register No. AEIAR-218/2018) was approved by EPD and the associated Environmental Permit (EP) (EP-558/2018) was issued in October 2018. An application for Further Environmental Permits (FEP) were made on 24 December 2019 to demarcate the works between the different parties. The following FEPs were issued on 17 January 2020 and the EP under EP-558/2018 was surrendered on 5 March 2020:

- the double berth jetty at LNG Terminal under the Hong Kong LNG Terminal Limited, joint venture between CAPCO and HK Electric (FEP-01/558/2018/A) ⁽¹⁾;
- the subsea gas pipeline for the BPPS and the associated GRS in the BPPS under CAPCO (FEP-03/558/2018/A) ⁽²⁾; and
- the subsea gas pipeline for the LPS and the associated GRS in the LPS under HK Electric (FEP-02/558/2018/A) ⁽³⁾.

The location plan for the works associated with the double berth jetty at LNG Terminal ('the Project') is provided in **Figure 1.1**.

1.2 Objectives of the Location Plan

This *Location Plan* for the Project has been prepared in accordance with Condition 2.6 of the Further Environmental Permit FEP-01/558/2018/A.

FEP No. FEP-01/558/2018/A, Condition 2.6:

"The Permit Holder shall, no later than 1 month before the commencement of construction of the Project, deposit with the Director 3 hard copies and 1 electronic copy of a location plan of the Project with a scale of 1:1000 or other appropriate scale as agreed with the Director. The location plan shall include but not limited to the details of the works areas and boundaries, location and orientation of the jetty, and locations of the key environmental mitigation measures. The Project shall be constructed in accordance with the information as contained in the deposited location plan."

The key objectives of this *Location Plan* are to:

- (1) Application for variation of an environmental permit for FEP-01/558/2018 was undertaken and the latest FEP (FEP-01/558/2018/A) was issued on 6 November 2020.
- (2) Application for variation of an environmental permit for FEP-03/558/2018 was undertaken and the latest FEP (FEP-03/558/2018/A) was issued on 22 January 2021.
- (3) Application for variation of an environmental permit for FEP-02/558/2018 was undertaken and the latest FEP (FEP-02/558/2018/A) was issued on 22 December 2020.

- include the details of the works areas and boundaries, location and orientation of the jetty; and
- include locations of the key environmental mitigation measures.

The *Location Plan* will be reviewed and updated as appropriate, throughout the course of the construction works to confirm that it remains current with the latest detailed information and works practice.

2. INDICATIVE WORKS AREAS AND BOUNDARIES OF THE PROJECT

The Project contains the following key facilities:

- An offshore LNG Terminal that comprises the double berth jetty and the FSRU Vessel.

2.1 Location and Orientation of the Jetty

The proposed double berth jetty of the Project ('the Jetty') is located offshore in Hong Kong SAR waters about 4 km east of Tau Lo Chau, near the Soko Islands. The water depth at the Jetty area is at least 15m which is suitable for the safe transit approach and departure of the FSRU Vessel and a visiting LNG Carrier (LNGC), and their safe berthing. The orientation of the Jetty is at 165° North so that both the FSRU Vessel and a visiting LNGC can be berthed with their bows facing south. The location of the Jetty is near the below key sites as shown in **Figure 2.1**:

- To the north of the Jetty there are recommended traffic separation schemes (TSS), including Adamasta Channel Recommended TSS and South Cheung Chau Recommended TSS;
- To the northwest of the Jetty there is the proposed South Lantau Marine Park (SLMP), and the Jetty is in relatively close proximity to its southeastern corner;
- To the south of the Jetty there is open water for approximately 500m, until the boundary of the HKSAR waters is reached, and thereafter lies the South China Sea;
- To the east of the Jetty there is the Sediment Disposal Area, which is operational and used for the disposal of uncontaminated sediment; and
- To the west of the Jetty there are subsea telecommunications cables that span approximately 4.5 km.

The details of the works area and boundaries, location and orientation of the jetty is shown in **Annex A**.

3. LOCATIONS OF KEY ENVIRONMENTAL MITIGATION MEASURES

The recommended key environmental mitigation measures and the associated locations specified, as appropriate, are summarised in **Table 3.1**. Other mitigation measures relevant to the Project will also be implemented in accordance with the Implementation Schedule detailed in Annex A of the Updated EM&A Manual.

Table 3.1 Locations of Key Environmental Mitigation Measures

Location	Key Environmental Mitigation Measures
Marine waters in Hong Kong	<ul style="list-style-type: none"> <li data-bbox="472 566 1382 768">■ No working vessels for construction of the Project shall enter into, transit through, stop over or anchor within the existing marine parks including Sha Chau and Lung Kwu Chau Marine Park and Southwest Lantau Marine Park, and the proposed South Lantau Marine Park, unless otherwise agreed by the Director of Environmental Protection. <li data-bbox="472 790 1382 1059">■ The vessel operators of this Project will be required to use predefined and regular routes (that do not encroach into existing and proposed marine parks), make use of designated fairways to access the works areas, and would avoid traversing sensitive habitats such as existing and proposed marine parks. Predefined and regular routes will become known to Finless Porpoise (FP) and Chinese White Dolphin (CWD) using these waters. This measure will further serve to minimise disturbance to marine mammals due to vessel movements. <li data-bbox="472 1081 1382 1249">■ The working vessels for construction of the Project shall not be operated at a speed higher than 10 knots when moving within the areas frequented by CWD or FP, including the waters near Sha Chau and Lung Kwu Chau Marine Park, the waters at the west of Lantau Island and the waters between Soko Islands and Shek Kwu Chau. <li data-bbox="472 1272 1382 1440">■ The working vessels shall be equipped with tracking devices to record their operating speeds and marine travel routes during construction of the Project. The records shall be submitted weekly to the ET Leader and IEC for review of the acceptability of operating speeds and marine travel routes.
Existing marine parks, proposed South Lantau Marine Park	<ul style="list-style-type: none"> <li data-bbox="472 1462 1382 1529">■ Any anchoring/ anchor spread requirements during Project construction will avoid encroachment into the existing and proposed marine parks. <li data-bbox="472 1552 1382 1641">■ No stopping over or anchoring activity of vessels related to the Project should be conducted within existing and proposed marine parks even before, during and after typhoon.
Areas with piling works	<ul style="list-style-type: none"> <li data-bbox="472 1664 1382 1787">■ Use of vibratory/ hydraulic pushing method to vibrate / push the open-ended steel tubular pile for the upper layer of the seabed and only use hydraulic hammer (if needed) to install the remainder of the pile length through the lower layer of the seabed. <li data-bbox="472 1798 1382 1854">■ Quieter hydraulic hammers should be used instead of the noisier diesel hammers. <li data-bbox="472 1865 1382 1921">■ Use of Noise Reduction System for hydraulic hammering, which fully encloses the hammer and pile during driving. <li data-bbox="472 1933 1382 1989">■ Acoustic decoupling of noisy equipment on work barges should be undertaken.

Location	Key Environmental Mitigation Measures
	<ul style="list-style-type: none">■ Use of structural jacket and bubble curtain to enclose the pile installation works as detailed in the <i>Piling Installation Plan</i> submitted under Condition 2.8 of the FEP.■ Using ramp-up piling procedures as detailed in the <i>Piling Installation Plan</i> submitted under Condition 2.8 of the FEP.■ Underwater piling should be conducted inside a bubble curtain so as to ameliorate underwater sound level transmission;■ The pile driving will be conducted during the daytime (0700 – 1900) for a maximum of 12 hours, avoiding generation of underwater sounds at night time.■ Underwater piling works for the Jetty construction will avoid the peak season of FP as stated in Condition 3.3 of the FEP.■ Implementation of a marine mammal exclusion zone of not less than 500 m radius from the piling works during the piling works for construction of the jetty. No piling shall be carried until the marine mammal exclusion zone is confirmed by an experienced marine mammal observer as clear of marine mammals for 30 minutes continuously. Use of passive acoustic monitoring device shall be explored to assist the marine mammal observer to monitor and detect the marine mammals.

ANNEX A

WORKS AREAS AND BOUNDARIES, LOCATION AND ORIENTATION OF THE JETTY