

## 1. INTRODUCTION

### 1.1 Project Background

Since 1992, the Civil Engineering and Development Department (CEDD) of the Hong Kong Special Administrative Region (HKSAR) Government has been managing a number of contaminated sediment disposal facilities in the Hong Kong waters, including the contaminated mud pits (CMPs) to the east of Sha Chau (ESC) <sup>(1)</sup> and the south of The Brothers (SB) <sup>(2)</sup>. These facilities consist of some series of seabed pits, formed by the removal of existing marine sediments, for disposal of contaminated dredged/ excavated sediment generated from works within Hong Kong. When their designed capacities have been reached, the pits would be sealed off from the adjoining environment by a layer of uncontaminated sediment (or naturally excavated materials) of no less than 3 m thick. Operations at these facilities are monitored through the implementation of a purposely designed environmental monitoring and auditing programme. Monitoring results for the existing CMPs at ESC and SB reveal that operations at these facilities are environmentally acceptable.

According to the latest estimate, the total remaining capacity of the existing disposal facility at ESC can only cope with the demand up to 2027 for the disposal of contaminated sediment generated from routine harbour / channel / river maintenance dredging works and future projects. The existing CMPs cannot be expanded further due to the limited usable seabed in the vicinity based on the findings of two previous studies (under (i) Agreement No. CE 105/98 – Strategic Assessment and Site Selection Study for Contaminated Mud Disposal and (ii) Agreement No. CE 12/2002 (EP) – Detailed Site Selection Study for a Proposed Contaminated Mud Disposal Facility within the Airport East/East of Sha Chau Area). A new sediment disposal facility has to be planned for in order to meet the sediment disposal demand after 2027 arising from routine harbour / channel / river maintenance dredging works and other projects.

To address the sediment disposal requirements upon the exhaustion of the existing CMPs, CEDD commissioned a preliminary study <sup>(3)</sup> to assess the potential sites suitable for development into future CMPs. The study has identified that a portion of the seabed in the West Lamma Channel, between Cheung Chau and Lamma Island, will have good potential for development into a new contaminated sediment disposal facility <sup>(4)</sup>. Based on the finding of this study, the Government decided in 2017 to take forward the Project.

### 1.2 Purpose and Nature of Project

The Project covers a new marine contaminated sediment disposal facility in the West Lamma Channel, which is capable of disposing of sediments categorized as Type 1 – Open Sea Disposal (Dedicated Sites), Type 2 – Confined Marine Disposal and Type 3 – Special Treatment/ Disposal under the *Environment, Transport and Works Bureau Technical Circular (Works) (ETWB TC(W)) No. 34/2002*, involving:

- Dredging of the seabed for the formation of CMPs;

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(1) The contaminated sediment disposal facility (CMP V) to the east of Sha Chau is covered by an Environmental Permit (No. EP-312/2008/A).

(2) The contaminated sediment disposal facility to the south of The Brothers is covered by an Environmental Permit (No. EP-427/2011/A).

(3) ERM (2017). Information Paper for Feasibility Study of two Potential Contained Aquatic Disposal (CAD) Sites in the Southern Waters of Hong Kong. Submitted under Agreement No. CE 23/2012 (EP)

(4) In the territory-wide site search for CMPs conducted in 1998 by the Civil Engineering Department, the proposed seabed was not selected because it had been earmarked as an additional shelter to support the midstream and container terminal related development. However, findings from the Port 2030 Study anticipated that it would be sufficient to enhance the handling capacity of existing container terminals to cope with future growth, and the planning for Container Terminal No. 10 before 2030 was not recommended. In addition, there is no other planned development within the portions of southern waters between Cheung Chau and Lamma Island from the HK2030 Study. Following from the latest development plans, it is considered that this area would have potential for housing a new contaminated sediment disposal facility.

- Disposal of contaminated sediment <sup>(5)</sup> in the formed CMP; and
- Capping of the exhausted CMP by uncontaminated sediment <sup>(6)</sup> up to the original seabed level.

The following elements of the Project are classified as Designated Projects under the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) and therefore a statutory environmental impact assessment (EIA) is required.

- Item C.10 of Schedule 2, Part I of the EIAO, which specifies “A marine dumping area”; and
- Item C.12 of Schedule 2, Part I of the EIAO, which specifies “A dredging operation exceeding 500,000m<sup>3</sup>”.

The Study Area for the Project is presented in **Figure 1.1**.

In accordance with the requirements of Section 5(1) of the EIAO, application for EIA study brief with the Project Profile for the New Contaminated Sediment Disposal Facility to the West of Lamma Island (No. PP-594/2019) was submitted to the Environmental Protection Department (EPD) on 9 December 2019. The EIA Study Brief of the Project (No. ESB-328/2019) were then issued by EPD on 20 January 2020.

### 1.3 Purpose and Objectives of the EIA Study

The purpose of this EIA Study is to provide information on the nature and extent of environmental impacts arising from the construction and operation of the Project and associated works that will take place concurrently. This information will contribute to decisions by the Director of Environmental Protection on:

- The overall acceptability of any adverse environmental consequences that are likely to arise as a result of the Project and associated works;
- The conditions and requirements for the detailed design, construction and operation of the Project to mitigate against adverse environmental consequences wherever practicable; and
- The acceptability of residual impacts after the proposed mitigation measures are implemented.

The detailed requirements of the EIA Study are set out in *Clause 3* of the EIA Study Brief, and the specific scope of work for the EIA Study is presented in *Clause 3.2* of the EIA Study Brief. With reference to *Clause 2* of the EIA Study Brief, the objectives of the EIA Study are as follows:

1. to describe the Project and associated works together with the requirements and environmental benefits for carrying out the proposed Project;
2. to identify and describe the elements of the community and environment likely to be affected by the Project and/or likely to cause adverse impacts to the Project, including both the natural and man-made environment and the associated environmental constraints;
3. to identify and quantify emission sources and determine the significance of impacts on sensitive receivers and potential affected uses;
4. to identify and quantify any potential losses or damage and other potential impacts to fisheries, flora, fauna and natural habitats and to propose measures to mitigate these impacts;
5. to identify and quantify waste management requirements and to propose measures to mitigate these impacts;
6. to propose the provision of infrastructure or mitigation measures so as to minimize pollution, environmental disturbance and nuisance during the construction and operation of the Project;

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(5) Contaminated sediment refers to sediment categorized as Type 1 – Open Sea Disposal (Dedicated Sites), Type 2 – Confined Marine Disposal and Type 3 – Special Treatment/ Disposal under *ETWB TC(W)) No. 34/2002*.

(6) Uncontaminated sediment refers to sediment categorized as Type 1 – Open Sea Disposal under *ETWB TC(W)) No. 34/2002*.

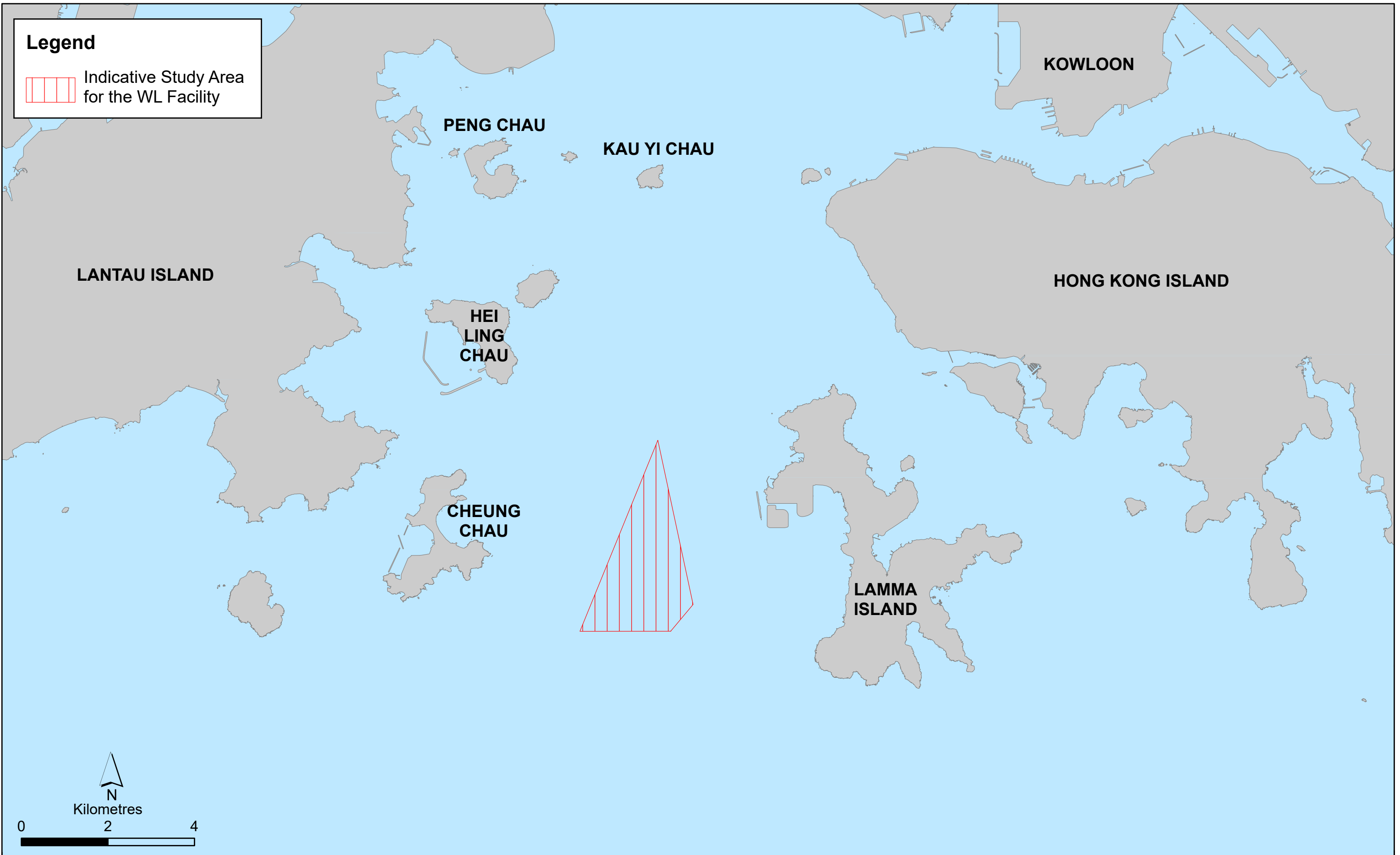


Figure 1.1

Indicative Study Area for the Contaminated Sediment Disposal Facility at West of Lamma Island (WL Facility)

7. to investigate the feasibility, effectiveness and implications of the proposed mitigation measures;
8. to identify, predict and evaluate the residual environmental impacts (i.e. after practicable mitigation) and the cumulative effects expected to arise during the construction and operation phases of the Project in relation to the sensitive receivers and potential affected uses;
9. to identify, assess and specify methods, measures and standards, to be included in the detailed design, construction and operation of the Project which are necessary to mitigate these residual environmental impacts and cumulative effects and reduce them to acceptable levels;
10. to design and specify the environmental monitoring and audit requirements; and
11. to identify any additional studies necessary to implement the mitigation measures or monitoring and proposals recommended in the EIA report.

The EIA Report has been produced in accordance with the requirements in the EIA Study Brief (No. ESB-328/2019) and the *Technical Memorandum on Environmental Impact Assessment Process* issued under the EIAO (EIAO-TM) for the Project, the aim being to obtain an EP under the EIAO. The description of the Project presented in the EIA Report has been based on the best available information compiled by CEDD that describes the relevant construction activities, operational details and baseline information describing the conditions relating to the Project and its surrounding environment. This EIA Report for the Project prepared by CEDD is hereby submitted to EPD for approval under the EIAO.

## 1.4 Public Engagement

During the performance of the EIA Study for the Project, CEDD has been reaching out to potential stakeholders to explain the Project, and seek their views and opinions. Stakeholder engagement activities, which commenced in 2021, included briefings and meetings with special interest groups including members of advisory and professional bodies, local communities, fishermen groups, green groups, legislative councillors etc. Details of the stakeholder engagement activities undertaken and the feedback received are presented in **Annex 1A**. The feedback and opinions obtained from the stakeholders has been fully considered and incorporated, where applicable, as part of the technical assessments undertaken in the EIA Study.

## 1.5 Structure of this Report

Following this introductory section, the remainder of this EIA Report is arranged as follows:

- *Section 2* presents the description of the Project and need for marine disposal of contaminated sediment and site selection;
- *Section 3* presents the water quality impact assessment;
- *Section 4* presents the marine ecological impact assessment;
- *Section 5* presents the fisheries impact assessment;
- *Section 6* presents the assessment of the waste management implications;
- *Section 7* presents the assessment of cultural heritage impact including marine archaeological impact;
- *Section 8* presents the assessment of human health risk associated with the Project;
- *Section 9* presents the assessment of air quality impacts;
- *Section 10* presents the assessment of noise impacts;
- *Section 11* presents the Environmental Monitoring and Audit (EM&A) requirements; and
- *Section 12* provides a summary of the conclusions and environmental outcomes.