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19 September 2022

By Registered Post & Fax

Civil Engineering and Development Department

Environmental Impact Assessment (EIA) Ordinance, Cap.499
Application for EIA Study Brief

Project Title: Expansion of Aberdeen Typhoon Shelter
(Application No. ESB-357/2022)

I refer to your above application received on 11.8.2022 for an EIA Study Brief under Section 5(1)(a) of the EIA Ordinance.

In accordance with Section 5(7)(a) of the EIA Ordinance and after public inspection of the project profile, I issue the attached EIA Study Brief (No. ESB-357/2022) for your preparation of an EIA report.

Under Section 15 of the EIA Ordinance, the EIA Study Brief will be placed on the EIA Ordinance Register. It will also be placed on the EIA Ordinance website (http://www.epd.gov.hk/eia/).

You may submit an application for approval of the EIA report in accordance with Section 6(2) of the EIA Ordinance after its completion. Upon receipt of your application, this department will decide under Section 6(3) of the EIA Ordinance whether the EIA report meets the requirements of the EIA Study Brief and Technical Memorandum on EIA Process, and accordingly advise you under Section 6(4) of the EIA Ordinance whether a submission to the Advisory Council on the Environment (ACE) or its subcommittee is required. In this connection, you are required to provide sufficient copies of the Executive Summary of the EIA report to the Secretariat of the EIA Subcommittee of the Council for selection for submission when you submit the EIA report to this department for approval. Please liaise with Ms. Sally SHEK (Tel: 2594 6324) regarding the details in due course.

If the EIA report is selected by ACE for submission and presentation, you are expected to provide ACE with an account of the environmental issues arising from the project, major conclusions and recommendations of the EIA study. In particular, the main environmental concerns of the general public and interest groups who may be affected by the Project should be identified and addressed in the EIA study. As such, you are strongly advised to engage the public and interest groups during the course of the EIA study. Please find attached a copy of the "*Modus Operandi of the EIA Subcommittee of the Advisory Council on the Environment*" for your reference.

Please note that if you are aggrieved by any of the content of this EIA Study Brief, you may appeal under Section 17 of the EIA Ordinance within 30 days of receipt of this EIA Study Brief.

Should you have any queries on the above application, please contact my colleague Mr. TS SO at 2835 1128.

Yours sincerely,

(Sunny C.W. CHEUNG)
Principal Environmental Protection Officer
for Director of Environmental Protection

Encl.

c.c. (w/o encl.)
ACE EIA Subcommittee Secretariat (Attn. : Ms. Sally SHEK) Fax: 2872 0603

MODUS OPERANDI OF THE ENVIRONMENTAL IMPACT ASSESSMENT SUBCOMMITTEE OF THE ADVISORY COUNCIL ON THE ENVIRONMENT

Purpose

This paper sets out the *modus operandi* of the Environmental Impact Assessment (EIA) Subcommittee of the Advisory Council on the Environment (ACE) so as to facilitate smooth proceedings of subcommittee meetings. The current *modus operandi* was last updated and endorsed by ACE in July 2009.

Background

2. ACE is the Government's principal advisory body on matters relating to environmental protection and nature conservation. The terms of reference of ACE are –

(a) to keep under review the state of the environment in Hong Kong; and

(b) to advise the Government, through the Secretary for the Environment, on appropriate measures which might be taken to combat pollution of all kinds, and to protect and sustain the environment.

3. The EIA Subcommittee is set up under ACE to study EIA reports of major development projects. It also comments on strategic environmental assessment reports of major planning projects. The terms of reference of the EIA Subcommittee are –

(a) to receive and study EIA reports of major development projects; and

(b) to report on its deliberations and findings and make recommendations to ACE.

EIA Process

4. ACE and the EIA Subcommittee are involved in three main stages of the EIA process, namely commenting on the project profiles for designated projects, selection of EIA reports for submission to ACE and commenting on selected EIA reports. In accordance with ETWB Technical Circular (Works) No. 13/2003, the statutory gazetting of a project under the relevant ordinances can be done in parallel with the EIA process. Separately, consultation with District Councils and other relevant parties may proceed in advance of or in parallel with the submission of EIA reports to the EIA Subcommittee.

Project Profiles

5. Under section 5 of the EIA Ordinance, ACE and members of the public may comment on the project profile of a designated project within 14 days of it being advertised. It is hence not necessary for the EIA Subcommittee to present to the Director of Environmental Protection (DEP) the collective view of the EIA Subcommittee on project profiles. To ensure that comments on project profiles, if any, are given to DEP within the statutory time limit, individual ACE Members would write to DEP directly. Where necessary, the ACE Member may copy his/her comments to the Chairman and Members for information.

Selection of EIA Reports

6. Project proponents of designated projects will have to present their EIA reports to ACE if they are required to submit the reports to the Council. Members of the EIA Subcommittee will be asked to select those projects which they consider should require a presentation to the EIA Subcommittee by the project proponent. The selection outcome is for internal planning of the schedule of the EIA Subcommittee and will not be divulged to the project proponent. Only those projects selected by half or more of EIA Subcommittee Members will be selected. The project proponent concerned will be notified of the selection outcome only after DEP has decided that the EIA report is ready for public inspection and submission to ACE for advice.

7. During the project selection process, if individual EIA Subcommittee Member has special concerns/comments on a certain project, he/she could draw the EIA Subcommittee Chairman's attention to his/her concerns/comments and the Chairman would consider the need to review the decision on selection of the EIA report for submission to ACE.

8. For projects not selected, the project proponent will be required to send the Executive Summary of the EIA report to the EIA Subcommittee. Members would pass their comments, if any, to DEP directly within the prescribed public inspection period and if necessary, copy his/her comments to the Chairman and Members of the EIA Subcommittee for information. At the ACE meeting immediately following the issue of the Executive Summaries of the EIA reports, the EIA Subcommittee Chairman will report to ACE about the submission of these Executive Summaries for information of Members and record as projects not selected for discussion.

Meeting Arrangements

9. The EIA Subcommittee will basically meet on a monthly basis. Meetings will be held when there is submission of EIA report(s) or issue(s) to be discussed.

10. To facilitate focused discussion, the EIA Subcommittee will generally consider no more than two EIA reports in each meeting. EPD will prepare a paper on each EIA report to be submitted to the EIA Subcommittee highlighting the key environmental issues and major findings of the EIA study. Upon expiry of the report inspection period by the general public, EPD will summarize all public comments received during the period for consideration of the EIA Subcommittee. The project proponent, where applicable, will provide the EIA Subcommittee with a report on the site selection process of the project, setting out the alternative sites that have been considered and the reasons of the selection of the particular site when such information is not provided in the EIA report. The paper, the EIA report and the site report, if any, will normally be issued to EIA Subcommittee Members two weeks before the scheduled meeting. The summary of public comments will also be given to Members before the meeting. Members will be asked to indicate whether it is necessary for the project proponent to attend the meeting or the report could be considered by circulation. Project proponents will be informed accordingly before the scheduled meeting.

11. Summary of the public comments will also be provided to non-EIA Subcommittee Members for reference to facilitate their discussion of the EIA Subcommittee's recommendations at the next ACE meeting before the Council tenders its comments to DEP on the EIA report as provided for under the EIA Ordinance.

12. Members of the EIA Subcommittee may raise questions in writing on an EIA report before the scheduled meeting and the project proponent should provide written response to the Secretariat at least three working days before

the meeting.

13. Each discussion item on an EIA report would include a Presentation Session by the project proponent, a Question-and-Answer Session and Internal Discussion Sessions. The Presentation Session and the Question-and-Answer Session are open up for broadcasting and members of the public can view the sessions real time in the public viewing room. The EIA Subcommittee would allocate as much time to the Question-and-Answer Session as possible.

14. The presentation by the project proponent should cover, inter alia, the major conclusions and recommendations of the EIA study. In addition, the project proponent should provide a concise and objective account of the main concerns of the general public and interest groups made known during the EIA study and the public inspection stages, and explain how these concerns are addressed in the EIA study.

Criteria for Assessing EIA Reports

15. EIA reports will be assessed by the EIA Subcommittee according to the requirements of the Technical Memorandum on the EIA Process and the study brief of the individual projects issued by DEP.

Recommendations to the Full Council

16. The EIA Subcommittee can make one of the following recommendations to the full Council –

(i) endorse the EIA report without condition; or
(ii) endorse the EIA report with condition(s); or
(iii) reject the EIA report and inform the proponent the right to go to the full Council.

17. If the EIA Subcommittee cannot reach a consensus (i.e. if two or more Members do not agree with the conclusion of the EIA Subcommittee) during the meeting, it may –

(i) ask for a second submission to the EIA Subcommittee; or
(ii) defer the decision to the full Council and highlight issues or reasons for not reaching a consensus for the full Council's deliberation.

18. Other than the scenario in paragraph 17 above or the EIA

Subcommittee Chairman considers it appropriate, the recommendations of the EIA Subcommittee will not be discussed in detail in the full Council.

Other Rules that apply to EIA Subcommittee Meetings

19. Apart from the procedures mentioned above, the following rules also apply to EIA Subcommittee meetings –

(i) the quorum for EIA Subcommittee meetings should be half of the number of EIA Subcommittee Members, including the Chairman;

(ii) ACE Members who are not EIA Subcommittee Members may attend EIA Subcommittee meetings and participate in the discussion of the meetings but they shall not vote when votes are taken;

(iii) Council Members and EIA Subcommittee Members should declare direct and indirect interest before deliberating on agenda items so that the EIA Subcommittee Chairman could decide whether they should take part in the discussion or in the case of EIA Subcommittee Members to vote;

(iv) the confirmed minutes of the EIA Subcommittee (with Members' names deleted) are uploaded on the ACE's website for public inspection;

(v) the Presentation Session and Question-and-Answer Session of a discussion item on an EIA report at the EIA Subcommittee meeting requiring the attendance of the project proponent team will be opened to the public. The opening up of these sessions is an administrative arrangement only. The open meeting arrangements are not applicable to internal discussion sessions of a discussion item on an EIA report and all other sessions of the meetings of the EIA Subcommittee;

(vi) special meetings may be called to consider urgent items. The EIA Subcommittee will consider each case individually should there be requests for direct submissions to the full Council;

(vii) there will not be a limit on the number of professionals/experts to be invited to each EIA Subcommittee meeting for items requiring their assistance. In these cases and where votes are

taken, these professionals/experts shall not vote; and

(viii) to facilitate effective deliberation at meetings of the EIA Subcommittee, the EIA Subcommittee may appoint Members to advise the EIA Subcommittee on specific subject areas of EIA reports. The appointed Members would consider the assigned subjects of an EIA report, and seek advice from the relevant authorities designated under the EIAO as necessary before EIA Subcommittee meetings.

20. The revised *modus operandi* of the EIA Subcommittee has taken effect in April 2013 upon endorsement of ACE.

EIA Subcommittee Secretariat
April 2013

ENVIRONMENTAL IMPACT ASSESSMENT ORDINANCE (CAP. 499), SECTION 5(7)

ENVIRONMENTAL IMPACT ASSESSMENT STUDY BRIEF NO. ESB-357/2022

PROJECT TITLE: Expansion of Aberdeen Typhoon Shelter
(hereinafter known as the "Project")

NAME OF APPLICANT: Port Works Division, Civil Engineering and Development Department
(hereinafter known as the "Applicant")

1. BACKGROUND

1.1 An application (No. ESB-357/2022) for an Environmental Impact Assessment (EIA) study brief under section 5(1) of the Environmental Impact Assessment Ordinance (EIAO) was submitted by the Applicant on 11 August 2022 with a Project Profile (No. PP- 648/2022) (the Project Profile).

1.2 The Project is to expand the existing Aberdeen Typhoon Shelter (ATS) by about 30 hectares from its southern part to provide extra sheltered space for local vessels with length less than 30.4m except for vessels longer than 30.4m that obtain permission from the Director of Marine separately. The Project is expected to address the strong regional demand for sheltered space in Hong Kong Island South and support tourism, leisure and recreation development in the Southern District. The Project mainly comprises the following works:

(i) construction of two new breakwaters of about 350m and 280m in length to the south of the existing ATS and the associated seabed stabilization works for the new breakwaters;

(ii) construction of wave wall of about 40m in length between Yuk Kwai Shan and Ap Lei Pai;

(iii) construction works for provision of access, including potential marine access and land access, to existing breakwaters, proposed new breakwaters, and wave wall along the rocky shoreline within the Project boundary and other associated works, as appropriate; and

(iv) modification of the existing breakwaters at ATS for revitalization purpose which may include demolition of part of the existing breakwaters.

The location plan of the Project as shown in the Project Profile is reproduced in **Appendix A** of this EIA Study Brief.

1.3 Based on the information provided in the Project Profile, the Project will comprise the following designated project items under Part I, Schedule 2 of EIAO:

(i) Item C.4 – a breakwater more than 1 km in length or a breakwater extending

into a tidal flushing channel by more than 30% of width;

(ii) Item C.5 – a typhoon shelter designed to provide moorings for not less than 30 vessels; and

(iii) Item C.12 (a)(vii) – a dredging operation which is less than 500m from the nearest boundary of an existing coastal protection area if dredging operation is found to be required subject to the findings of investigation study and design of the Project.

1.4 Pursuant to section 5(7)(a) of the EIAO, the Director of Environmental Protection (the Director) issues this EIA study brief to the Applicant to carry out an EIA study.

1.5 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 related activities that will take place concurrently. This information will contribute to decisions by the Director on:

(i) the overall acceptability of any adverse environmental consequences that are likely to arise as a result of the Project and associated works;

(ii) the conditions and requirements for the detailed design, construction and operation of the Project to mitigate against adverse environmental consequences wherever practicable; and

(iii) the acceptability of residual impacts after the proposed mitigation measures are implemented.

2. OBJECTIVES OF THE EIA STUDY

2.1 The objectives of the EIA study are as follows:

(i) to describe the Project and associated works together with the requirements and environmental benefits for carrying out the proposed Project;

(ii) to identify and describe the elements of the community and environment likely to be affected by the Project and associated works and/or to cause adverse impacts to the Project, including both the natural and man-made environment and the associated environmental constraints;

(iii) to identify and quantify emission sources and determine the significance of impacts on sensitive receivers and potential affected uses, and to propose measures to mitigate these impacts;

(iv) to identify and quantify any potential impacts from point and non-point pollution sources on the identified water systems and sensitive receivers and to propose measures to mitigate these impacts;

(v) to identify and quantify waste management requirements and to propose measures to mitigate or prevent impacts;

(vi) to identify and quantify any potential losses or damage to flora, fauna and natural habitats, and to propose measures to mitigate these impacts;

(vii) to identify and quantify any potential fisheries impacts and to propose measures to mitigate these impacts;

(viii) to identify any potential landscape and visual impacts and to propose measures to mitigate these impacts;

(ix) to identify any adverse impacts on sites of cultural heritage and to propose measures to mitigate these impacts;

(x) to propose the provision of mitigation measures to minimise pollution, environmental disturbance and nuisance during construction and operation of the Project;

(xi) to investigate the feasibility, practicability, effectiveness and implications of the proposed mitigation measures;

(xii) to identify, predict and evaluate the residual environmental impacts (i.e. after practicable mitigation) and the cumulative effects expected to arise during construction and operational phases of the Project in relation to the sensitive receivers and potential affected uses;

(xiii) 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 any risks, environmental impacts and cumulative effects and reduce them to acceptable levels;

(xiv) to investigate the extent of the secondary environmental impacts that may arise from the proposed mitigation measures and to identify constraints associated with the mitigation measures recommended in the EIA study, as well as the provision of any necessary modification; and

(xv) to design and specify the environmental monitoring and audit requirements to ensure the effective implementation of the recommended environmental protection and pollution control measures; and

(xvi) to identify any additional studies necessary to implement the mitigation measures of monitoring and proposals recommended in the EIA report.

3. DETAILED REQUIREMENTS OF THE EIA STUDY

3.1 The Purpose

3.1.1 The purpose of this EIA Study Brief is to set out the purposes and objectives of the EIA study, the scope of the environmental issues which shall be addressed, the requirements that the EIA study shall need to fulfil, and the necessary procedural and reporting requirements. The Applicant shall demonstrate in the EIA whether the criteria in the relevant sections of the Technical Memorandum on the Environmental

Impact Assessment Process of the Environmental Impact Assessment Ordinance (hereinafter referred to as "the TM"), are fully complied with.

3.2 The Scope

3.2.1 The scope of this EIA study shall cover the Project and the associated works mentioned in Section 1.2 above. For the purpose of assessing whether the environmental impacts shall comply with the criteria of the TM, the EIA study shall address the key issues described below, together with any other key issues identified during the course of the EIA study:

(i) potential air quality impacts on air sensitive receivers (ASRs) due to construction and operation of the Project, associated works and marine activities;

(ii) potential noise impacts on noise sensitive receivers (NSRs) due to the construction and operation of the Project including potential noise impact from marine traffic;

(iii) potential hydrodynamic and water quality impact caused by the Project and associated works such as dredging, fill extraction, reclamation, back filling, drainage diversion, etc. arising from the Project;

(iv) potential waste management implications arising from the construction and operation of the Project;

(v) potential marine ecological impacts due to construction and operation of the Project and associated works including impacts arising from the dredging works of the Project, and impacts on ecological sensitive areas and species such as existing coastal protection area and coral communities;

(vi) potential fisheries impacts due to construction and operation of the Project and associated works, including impacts on fishing grounds, fisheries habitats, spawning and nursery grounds, aquaculture sites and artificial reefs;

(vii) potential landscape and visual impacts due to the construction and operation of the Project;

(viii) potential cultural heritage, including built heritage and marine archaeological impact due to the Project; and

(ix) potential cumulative environmental impacts of the Project, through interaction or in combination with other existing, committed and planned projects in the vicinity of the Project, and that those impacts may have a bearing on the environmental acceptability of the Project.

3.3 Description of the Project

3.3.1 <u>Purpose(s) and Objectives of the Project</u>

The Applicant shall provide information on the purpose(s) and objectives of the Project, describe the need of the Project, the environmental benefits of the Project and scenarios with and without the Project.

3.3.2 Details of the Project

The Applicant shall indicate the nature and status of Project decision(s) for which the EIA study is undertaken. The Applicant shall describe Project details that may affect the potential environmental impacts and cumulative impacts, including the proposed siting, size, layout design, construction methods, sequence of construction works, and other major activities involved in the Project, using diagrams, plans and/or maps as necessary. The estimated duration of the construction phase(s) and operation phase of the Project together with the programme within these phases, where appropriate, shall be given. The areas to be taken by the Project, construction sites and any associated access arrangements and auxiliary facilities shall be shown on a scaled map.

3.3.3 Background and History of the Project

The Applicant shall provide information on the site location and site history of the Project, interactions with other projects, and the consideration of different development options, taking into account the principles of avoidance, minimizing and control of adverse environmental impacts. The options might include consideration of alternative siting, scale/size, extent, layout, configuration, including the option(s) without encroaching upon the tombolo between Yuk Kwai Shan and Ap Lei Pai, construction methods (e.g. consideration of dredged and non-dredged methods) and sequence of construction works of the Project, etc. The key reasons for selecting the preferred development option and the part environmental factors played in the selection shall be described. The main environmental impacts of different development options shall be compared with those of the recommended option of the Project and with the likely future environmental conditions in the absence of the Project.

3.4 Technical Requirements

3.4.1 The Applicant shall conduct the EIA study to address the environmental aspects as described in the scope as set out above. The assessment shall be based on the best and latest information available during the course of the EIA study.

3.4.2 The Applicant shall include in the EIA report details of the construction programme and methodologies. The Applicant shall clearly state in the EIA report the time frame and work programmes of the Project and associated works and other concurrent projects, and assess the cumulative environmental impacts from the Project with interacting projects, including any staged implementation of the Project and the associated works. The EIA study shall follow the technical requirements specified below and in the Appendices of this EIA Study Brief.

3.4.3 Air Quality Impact

3.4.3.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing

the air quality impact as stated in Section 1 of Annex 4 and Annex 12 of the TM respectively.

3.4.3.2 The assessment area for air quality impact assessment shall be defined by a distance of 500 metres from the boundary of the Project site and the works of the Project as identified in the EIA study, which shall be extended to include major existing, committed and planned air pollutant emission sources identified to have a bearing on the environmental acceptability of the Project. The assessment shall include the existing, committed and planned air sensitive receivers within the assessment area as well as areas where the air quality may be potentially affected by the Project. The assessment shall be based on the best available information at the time of the assessment. The assessment shall also take into account the impacts of emission sources from nearby concurrent projects, if any.

3.4.3.3 The assessment of air quality impact arising from construction and operation of the Project shall follow the detailed technical requirements given in **Appendix B** of this EIA Study Brief.

3.4.4 Noise Impact

3.4.4.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing noise impact as stated in Annexes 5 and 13 of the TM respectively.

3.4.4.2 The assessment area for the noise impact assessment shall be defined by a distance of 300 metres form the boundary of the Project and works of the Project as defined in the EIA. The Applicant shall conduct construction noise and operation noise impact assessment on the existing, committed and planned NSRs earmarked on the relevant Outline Zoning Plans, Development Permission Area Plans, Outline Development Plans, Layout Plans and other relevant published land use plans, including plans and drawings published by the Lands Department and any land use and development applications approved by the Town Planning Board, in the vicinity of the Project.

3.4.4.3 The noise impact assessment for the construction and operation of the Project shall follow the detailed technical requirements given in **Appendix C** of this EIA study brief.

3.4.5 Water Quality Impact

3.4.5.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing water pollution as stated in Annexes 6 and 14 of the TM respectively.

3.4.5.2 The assessment area for the water quality impact assessment shall cover the Western Buffer Water Control Zone and Southern Water Control Zone as designated under the Water Pollution Control Ordinance (Cap. 358) and water sensitive receivers (WSRs) in the vicinity of the Project such as Aberdeen Typhoon Shelter (both the existing and the proposed expanded Aberdeen Typhoon Shelter), seawater intake for Brick Hill Salt Water Pumping Station, seawater intake for Ap Lei Chau Salt Water Pumping Station, secondary contact recreation subzones in the vicinity, coral communities at the Aberdeen Channel, fish culture zones and coral communities at or in the vicinity of the East Lamma Channel, etc. The assessment area shall be extended to include other areas such as stream courses, existing and new drainage systems, and other water system(s) in the vicinity if they are found

also being impacted by the Project during the course of the EIA study and have a bearing on the environmental acceptability of the Project.

3.4.5.3 The water quality impact assessment for the construction and operation of the Project shall follow the detailed technical requirements given in **Appendix D** of this EIA Study Brief.

3.4.6 Waste Management Implications

3.4.6.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing waste management implications as stated in Annexes 7 and 15 of the TM respectively.

3.4.6.2 The assessment of waste management implications arising from construction of the Project shall follow the detailed technical requirements given in **Appendix E** of this EIA Study Brief.

3.4.7 Marine Ecological Impact

3.4.7.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing ecological impact as stated in Annexes 8 and 16 of the TM respectively.

3.4.7.2 The assessment area shall be the same as the water quality impact assessment described in section 3.4.5.2 above. The assessment shall include ecological sensitive receivers in the vicinity of the Project such as coral communities.

3.4.7.3 The ecological impact assessment for construction and operation of the Project shall follow the detailed technical requirements given in **Appendix F** of this EIA Study Brief.

3.4.8 Fisheries Impact

3.4.8.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing fisheries impact as stated in Annexes 9 and 17 of the TM respectively.

3.4.8.2 The assessment area for fisheries impact assessment shall be the same as the water quality impact assessment as described in Section 3.4.5.2 above and other areas with potential fisheries impacts found during the course of the EIA study.

3.4.8.3 The fisheries impact assessment for the construction and operation of the Project shall follow the detailed technical requirements given in **Appendix G** of this EIA Study Brief.

3.4.9 Landscape and Visual Impact

3.4.9.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing the landscape and visual impacts as stated in Annexes 10 and 18 of the TM respectively, and the EIAO Guidance Note No. 8/2010 "Preparation of Landscape and Visual Impact Assessment under the Environmental Impact Assessment Ordinance".

3.4.9.2 The assessment area for the landscape impact assessment shall include areas within 100 metres from the boundary of the Project and the works of the Project as

identified in the EIA, while the assessment area for the visual impact assessment shall be defined by the visual envelope of the Project. The extent of the defined visual envelope shall be shown on a plan and documented in the EIA report.

3.4.9.3 The landscape and visual impact assessment for the construction and operation of the Project shall follow the detailed technical requirements given in **Appendix H** of this EIA Study Brief.

3.4.10 Cultural Heritage Impact

3.4.10.1 The applicant shall follow the criteria and guideline for evaluating and assessing the cultural heritage impacts as stated in Annexes 10 and 19 of the TM respectively.

3.4.10.2 A marine archaeological investigation (MAI) shall be conducted. It shall include all areas to be affected by the marine and dredging works of the Project. The MAI shall follow the detailed technical requirements given in **Appendix I** and **I-1** of this EIA Study Brief.

3.5 Environmental Monitoring and Audit (EM&A) Requirements

3.5.1 The Applicant shall identify and justify in the EIA study whether there is any need for EM&A activities during construction and operational phases of the Project and, if affirmative, to define the scope of EM&A requirements for the Project in the EIA study.

3.5.2 Subject to confirmation of EIA findings, the Applicant shall comply with requirements as stipulated in Annex 21 of the TM.

3.5.3 The Applicant shall prepare a Project Implementation Schedule (in the form of a checklist as shown in **Appendix J**) containing the EIA study recommendations and mitigation measures with reference to the implementation programme of the Project.

3.6 Presentation of Summary Information

3.6.1 Summary of Environmental Outcomes

The EIA report shall contain a summary of key environmental outcomes arising from the EIA study, including estimated population protected from various environmental impacts, environmentally sensitive areas protected, environmentally friendly options considered and incorporated in the preferred option, environmental designs recommended, key environmental problems avoided, compensation areas included and the environmental benefits of environmental protection measures recommended.

3.6.2 Summary of Environmental Impacts

To facilitate effective retrieval of pertinent key information, the EIA report shall contain a summary table of environmental impacts showing the assessment points, results of impact predictions, relevant standards or criteria, extents of exceedances predicted, impact avoidance measures considered, mitigation measures proposed and residual impacts (after mitigation). This summary shall cover each individual impact and shall also form an essential part of the executive summary of the EIA report.

3.6.3 Documentation of Key Assessment Assumptions, Limitation of Assessment Methodologies and related Prior Agreement(s) with the Director

The EIA report shall contain a summary including the assessment methodologies and key assessment assumptions adopted in the EIA study, the limitations of these assessment(s) methodologies/assumptions, if any, plus relevant prior agreement(s) with the Director or other Authorities on individual environmental media assessment components. The proposed use of any alternative assessment tool(s) or assumption(s) have to be justified by the Applicant, with supporting documents based on cogent, scientific and objectively derived reason(s) before seeking the Director's agreement. The supporting documents shall be provided in the EIA report.

3.6.4 Summary of Alternative Mitigation Measures

The EIA report shall contain a summary of alternative measures considered during the course of EIA study, including design, scale, extent, layout and mode of operation as well as construction methods, disposal/treatment methods and sequences of works for the Project, with a view to avoiding, minimising and mitigating adverse environmental impacts. A comparison of the environmental benefits and dis-benefits of applying different mitigation options shall be made. This summary shall cover the key impacts and shall also form an essential part of the executive summary of the EIA report.

3.6.5 Documentation of Public Concerns

The EIA report shall contain a summary of the main concerns of the general public, special interest groups and the relevant statutory or advisory bodies received and identified by the Applicant during the course of the EIA study, and describe how the relevant concerns have been taken into account.

4 DURATION OF VALIDITY

4.1 The Applicant shall notify the Director of the commencement of the EIA study. If the EIA study does not commence within 36 months after the date of issue of this EIA study brief, the Applicant shall apply to the Director for a fresh EIA study brief before commencement of the EIA study.

5 REPORT REQUIREMENTS

5.1 In preparing the EIA report, the Applicant shall refer to Annex 11 of the TM for the contents of an EIA report. The Applicant shall also refer to Annex 20 of the TM, which stipulates the guidelines for the review of an EIA report. When submitting the EIA report to the Director, the Applicant shall provide a summary, pointing out where in the EIA report the respective requirements of the EIA Study Brief and the TM (in particular Annexes 11 and 20) have been addressed and fulfilled.

5.2 The Applicant shall supply the Director with hard and electronic copies of the EIA report and the executive summary in accordance with the requirements given in **Appendix K** of this EIA study brief. The Applicant shall, upon request, make additional copies of the above documents available to the public, subject to payment by the interested parties of full costs of printing.

6 OTHER PROCEDURAL REQUIREMENTS

6.1 If there is any change in the name of Applicant for this EIA study brief during the course of the EIA study, the Applicant must notify the Director immediately.

6.2 If there is any key change in the scope of the Project mentioned in Section 1.2 of this EIA study brief and in Project Profile (No. PP-648/2022), the Applicant must seek confirmation from the Director in writing on whether or not the scope of issues covered by this EIA study brief can still cover the key changes, and the additional issues, if any, that the EIA study must also address. If the changes to the Project fundamentally alter the key scope of the EIA study brief, the Applicant shall apply to the Director for a fresh EIA study brief.

7. LIST OF APPENDICES

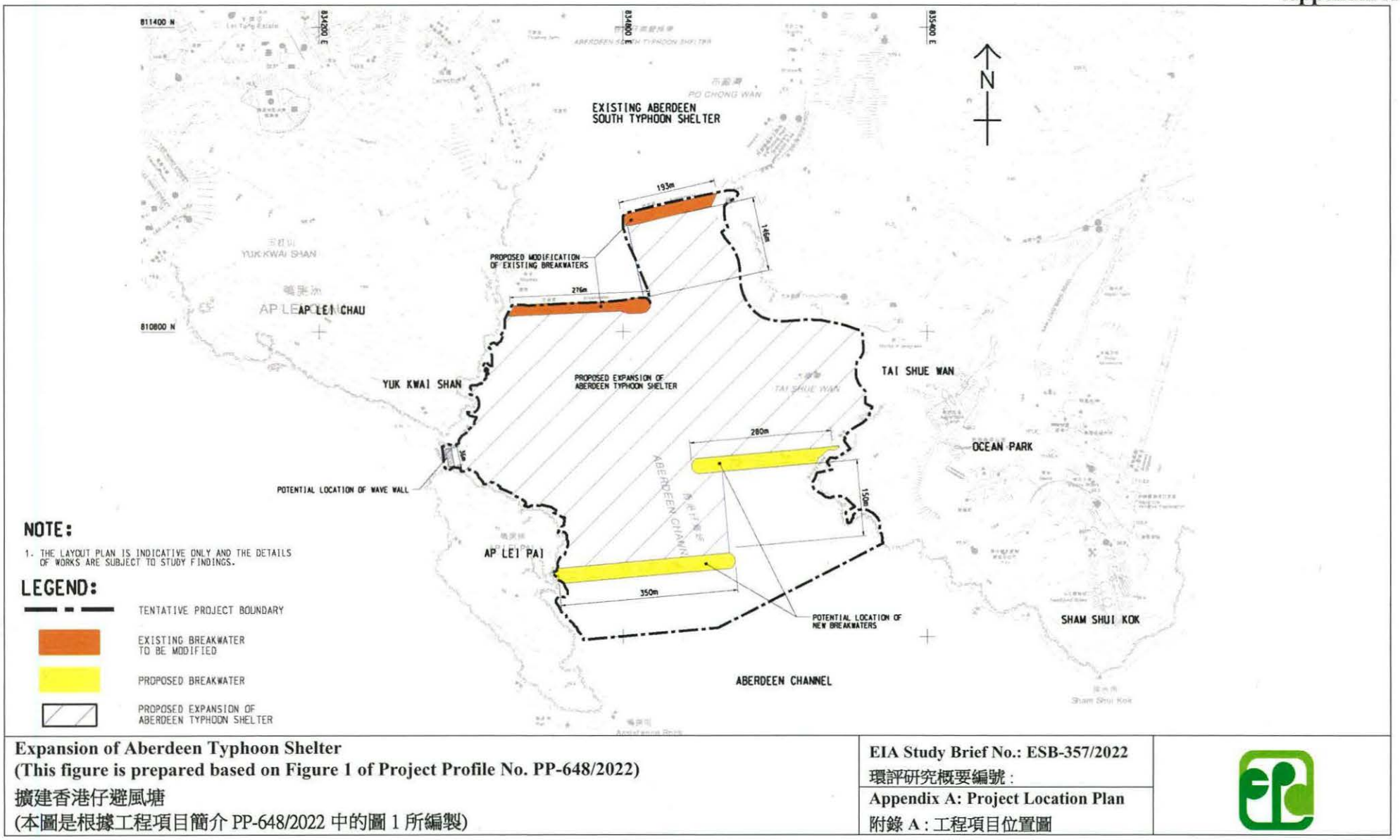
7.1 This EIA study brief includes the following appendices:

Appendix A	Project Location Plan
Appendix B	Requirements for Air Quality Impact Assessment
Appendix B-1	Air Quality Modelling Guidelines
Appendix C	Requirements for Noise Impact Assessment
Appendix D	Requirements for Water Quality Impact Assessment
Appendix D-1	Requirements for Hydrodynamic and Water Quality Modeling
Appendix E	Requirements for Assessment of Waste Management Implications
Appendix F	Requirements for Ecological Impact Assessment (Marine)
Appendix G	Requirements for Fisheries Impact Assessment
Appendix H	Requirements for Landscape and Visual Impact Assessment
Appendix I	Requirements for Cultural Heritage Impact Assessment
Appendix I-1	Guidelines for Marine Archaeological Investigation (MAI)
Appendix J	Implementation Schedule of Recommended Mitigation Measures
Appendix K	Requirements for EIA Report Documents

--- END OF EIA STUDY BRIEF ---

September 2022
Environmental Assessment Division,
Environmental Protection Department

Appendix A



Expansion of Aberdeen Typhoon Shelter **(This figure is prepared based on Figure 1 of Project Profile No. PP-648/2022)** 擴建香港仔避風塘 (本圖是根據工程項目簡介 PP-648/2022 中的圖 1 所編製)	**EIA Study Brief No.: ESB-357/2022** 環評研究概要編號： **Appendix A: Project Location Plan** 附錄 A：工程項目位置圖

Appendix B

Requirements for Air Quality Impact Assessment

The air quality impact assessment shall include the following:

1. Background and Analysis of Activities

   (i) Provide background information relating to air quality issues relevant to the Project, e.g. description of the types of activities of the Project that may affect air quality during both construction and operational stages.

   (ii) Present background air quality levels in the assessment area for the purpose of evaluating cumulative construction and operational air quality impacts. Projection of future year background air quality can be extracted from "Pollutants in the Atmosphere and their Transport over Hong Kong" (PATH) model released by the Director. If a modification to the emission sources is to be adopted in the PATH model to update the projection of future year background air quality, details of the emission sources adopted in the modification should be clearly presented.

   (iii) Provision of an account, where appropriate, of the consideration/measures that have been taken into consideration during the planning of the Project to avoid and minimise the air pollution impact. The Applicant shall consider alternative construction methods/phasing programmes and alternative modes of operation to minimise the construction and operational phase air quality impact.

2. Identification of Air Sensitive Receivers (ASRs) and Examination of Emission/ Dispersion Characteristics

   (i) Identify and describe existing, committed and planned ASRs that would likely be affected by the Project, including those indicated on the relevant Outline Zoning Plans, Development Permission Area Plans, Outline Development Plans, Layout Plans and other relevant published land use plans including plans and drawings published by the Lands Department, any land use and development applications approved by the Town Planning Board. The Applicant shall select the assessment points of the identified ASRs that represent the worst impact point of these ASRs. A map showing the location and description such as name of buildings, their uses and height of the selected assessment points shall be given. The separation distances of these ASRs from the nearest emission sources shall also be given.

   (ii) Provide a list of air pollution emission sources, including any nearby emission sources which are likely to have impact related to the Project based on the analysis of construction and operational activities in Section 1 above. Besides, if the concurrent projects within the study area are identified relevant, its possible emissions shall also be taken into account in the air quality impact assessment. Examples of construction stage emission sources include dredging works, filling for the proposed breakwaters, material handling, demolition works of the existing breakwaters, construction of the wave wall, and vehicular movements on haul roads on site. Examples of operational stage emission sources include stack emissions from industrial chimneys (if any) ,

vehicular emissions from nearby road network, marine vessel emissions induced by the expanded Aberdeen Typhoon Shelter and other marine traffic within 500m of the project site boundary . Confirmation regarding the validity of assumptions and magnitude of activities (e.g. volume of construction material to be handled, etc.) shall be obtained from the relevant government departments/authorities and documented. Validity of the traffic flow, vehicle fleet mix and traffic speed prediction shall be confirmed with Transport Department and documented in the EIA report.

(iii) Identification of existing and potential chimneys (if any) and obtainment of relevant chimney emission data in the assessment area, where appropriate, by carrying out a survey for assessing the cumulative air quality impact of air pollutants through chimneys. The Applicant shall ensure and confirm the validity of the emission data used in their assessment. Any errors found in their emission data used may render the submission invalid.

(iv) The emissions from any concurrent projects identified as relevant during the course of the EIA study shall be taken into account as contributing towards the overall cumulative air quality impacts. The impacts at the existing, committed and planned ASRs within the assessment area shall be assessed, based on the best information available at the time of assessment.

3. Construction Phase Air Quality Impact

(i) The Applicant shall follow the requirements stipulated under the Air Pollution Control (Construction Dust) Regulation to ensure that construction dust which may arise as a result of the works are controlled within the relevant standards as stipulated in Section 1 of Annex 4 of the TM.

(ii) Provided that the Applicant anticipates the Project will give rise to significant construction dust impacts likely to exceed recommended limits in the TM at the ASRs despite the incorporation of the dust control measures proposed, a quantitative assessment may be carried out to evaluate the construction dust impact at the identified ASRs. If this is the case, the Applicant shall follow the methodology set out in Section 5 below for carrying out the quantitative assessment.

(iii) Where necessary, the Applicant shall consider and evaluate direct mitigation measures, including but not limited to water-spraying, re-scheduling construction programme to minimise concurrent dust impact arising from different construction sites, for fugitive dust control. The Applicant shall also consider connecting construction plant and equipment to mains electricity supply and avoid use of diesel generators and diesel-powered equipment as far as practicable to minimise air quality impact arising from the construction machinery. The Applicant shall describe the means of transportation and their routings involved, with a view to addressing potential dust nuisance caused by transportation activities. Any mitigation measures recommended for fugitive dust control should be well documented in the EIA report.

(iv) If necessary, a monitoring and audit programme for the Project shall be devised to verify the effectiveness of the proposed control measures so as to ensure proper control of emissions.

4. Operational Phase Air Quality Impact

(i) The Applicant shall assess the expected air quality impacts at the identified ASRs based on an assumed reasonably worst-case scenario under normal operating conditions of the Project. If the assessment indicates likely exceedances of the recommended limits in the TM at the identified ASRs, a quantitative assessment shall be carried out to evaluate the operation phase air quality impacts at the identified ASRs. The Applicant shall follow the methodology set out in section 5 below when carrying out the quantitative assessment.

(ii) If necessary, a monitoring and audit programme for the operational phase of the Project shall be devised to verify the effectiveness of the proposed control measures so as to ensure proper control of operational air quality impacts.

5. Quantitative Assessment Methodology

(i) The Applicant shall conduct the quantitative assessment by applying the general principles enunciated in the modelling guidelines in **Appendix B-1** while making allowance for the specific characteristic of the Project. The specific methodology must be documented in such level of details (preferably assisted with tables and diagrams) to allow the readers of the EIA report to grasp how the model is set up to simulate the situation at hand without referring to the model input files. In case of doubt, prior agreement between the Applicant and the Director on the specific modelling details should be sought.

(ii) For the purpose of assessing the compliance with the criteria as stated in section 1 of Annex 4 of the TM, the Applicant shall identify the key/representative air pollutant parameters (types of pollutants and the averaging time concentrations) to be evaluated and provide explanation for choosing these parameters for the assessment of the impact of the Project.

(iii) Calculation of the relevant pollutant emission rates for input to the model and map(s) showing road links and emission sources shall be presented in the EIA report. A summary table of the emission rates shall be presented in the EIA report. The Applicant shall ensure consistency between the text description and the model files at every stage of submission for review.

(iv) For operational phase air quality impact assessment, the air pollution impacts of road traffic shall be calculated based on the highest emission strength from the road vehicles in the assessment area within the next 15 years upon commissioning of the Project. The Applicant shall demonstrate that the selected year of assessment represents the highest emission scenario given the combination of vehicular emission factors and traffic flow for the selected year. For construction phase air quality impact assessment, the Applicant shall demonstrate the use of the emission data of the road traffic represents the highest emission scenario within the construction phase concerned. The Applicant may use EMFAC-HK model released by the Director to determine the Fleet Average Emission Factors, taking into account vehicle fleet mix and other necessary data on each road section. Vehicle emissions, including running, start/idling emission, at parking sites, if any, that would contribute

be taken into account in the assessment. Unless otherwise agreed by the Director, the latest version of the EMFAC-HK model shall be used. Use of any alternatives to the EMFAC-HK model shall be agreed with the Director. The traffic forecast data and assumptions, such as the hourly traffic volume, average speed, vehicle composition, number of trips and soaking time data, the exhaust technology fractions, vehicle age/population distribution, etc. that are used in the assessment shall be presented.

(v) Emissions from road traffic, marine traffic, other industrial sources and nearby concurrent projects within the assessment area, which contribute to the cumulative air quality impact of the identified ASRs, should be taken into account and be included in the dispersion models accepted by the Director.

(vi) For projection of future background air quality, the Applicant may use the PATH model released by the Director, taking into consideration the major air pollutant emission sources projected for Hong Kong and nearby regions. Unless otherwise agreed by the Director, the latest version of the PATH model shall be used. If any modification is made to the emission sources in PATH model or an alternative model is used, details of the emission sources adopted should be clearly presented. In general, major point sources located within 4 km from the identified ASRs shall be reviewed if they have direct contributions of air quality impacts to the ASRs on the concerned pollutants of the assessment. In such case, these point sources shall be simulated by dispersion model to account for their induced sub-grid scale spatial variations in background air quality. The exact approach shall be determined according to the case specific situation and subject to the agreement by the Director.

(vii) The Applicant shall calculate the overall cumulative air quality impact at the identified ASRs identified under Section 2 above and compare these results against the criteria set out in Section 1 of Annex 4 in the TM. The predicted air quality impacts shall be presented in the form of summary table(s) and pollution contours to cover the whole assessment area, to be evaluated against the relevant air quality standards and on any effect they may have on the land use implications. Plans of a suitable scale should be used to present pollution contours over the whole assessment area to allow buffer distance requirements to be determined properly.

6. Mitigation Measures for Air Quality Impact

Consideration for Mitigation Measures

(i) When the predicted air quality impact exceeds the criteria set in section 1 of Annex 4 in the TM, the Application shall consider mitigation measures including but not limited to dust control measures, minimisation of marine and vehicular emissions (e.g. control the number of trips and routing, use cleaner fuels, adopt higher emission standards, etc.) and minimisation of emissions from construction plant and equipment to reduce the air quality impact on the identified ASRs. The feasibility, practicability, programming and effectiveness of the recommended mitigation measures shall be assessed and documented in the EIA report. Specific reasons for not adopting certain workable mitigation measures to reduce the air quality to a level meeting the criteria in the TM or to maximise the protection of the ASRs as far as possible

should be clearly substantiated and documented in the EIA report.

Evaluation of Residual Air Quality Impact

(ii) Upon consideration of mitigation measures, if the mitigated air quality impact still exceeds the relevant criteria in Annex 4 of the TM, the Applicant shall identify, predict, and evaluate the residual air quality impact in accordance with section 4.4.3 and section 4.5.1(d) of the TM.

7. Submission of Emission Calculation Details and Model Files

(i) Input and output file(s) of the model run(s) including those files for generating the pollution contours and emission calculations worksheets shall be submitted to the Director in electronic format together with the submission of the EIA report.

Appendix B-1

Air Quality Modelling Guidelines

[*The information contained in this Appendix is meant to assist the Consultant in performing the air quality assessment. The Proponent must exercise professional judgment in applying this general information.*]

The air quality modelling guidelines shall refer to the guidelines as published on the website of the Environmental Protection Department:

http://www.epd.gov.hk/epd/english/environmentinhk/air/guide_ref/guide_aqa_model.html

Appendix C

Requirements for Noise Impact Assessment

The noise impact assessment shall include the following:

1. Description of the Noise Environment

1.1 The Applicant shall describe the prevailing noise environment in the EIA report.

2. Construction Noise Impact Assessment

2.1 Construction Noise Impact Assessment Methodology

2.1.1 The Applicant shall carry out construction noise impact assessment (excluding percussive piling) of the Project during daytime, i.e. 7am to 7pm, on any days other than Sundays or general holidays in accordance with methodology in paragraphs 5.3 and 5.4 of Annex 13 of the TM.

2.1.2 The Applicant shall conduct a qualitative assessment in the EIA to demonstrate no adverse construction noise impact would be associated with the project by adopting quieter construction method and equipment during the construction stages. The Applicant shall firstly identify the major noise sources/activities, then propose the corresponding quiet construction methods and noise mitigation measures, and commit to submitting a Construction Noise Management Plan (CNMP) to the Director.

2.2 Identification of Construction Noise Impact

2.2.1 *Identification of Assessment Area and Noise Sensitive Receivers (NSRs)*

(a) The Applicant shall propose the assessment area for agreement of the Director before commencing the assessment. The assessment area for the noise impact assessment shall generally include areas within 300 metres from the boundary of the Project and the works of the Project.

(b) The Applicant shall identify all existing NSR in the assessment area and select assessment points to represent identified NSRs for carrying out construction noise impact assessment.

(c) The assessment points shall be confirmed with the Director before commencing the assessment and may be varied subject to the best and latest information available during the course of the EIA study.

(d) A map showing the location and description such as name of building, use, and floor of each and every selected assessment point shall be given. Photographs of existing NSRs shall be appended to the EIA report.

2.2.2 Inventory of Noise Sources

The Applicant shall identify an inventory of noise sources for representative construction

equipment for the purpose of construction noise impact assessment. Validity of the inventory shall be confirmed with the relevant government departments, authorities or the Applicant's construction professionals and documented in the EIA report.

2.3 Mitigation of Construction Nosie Impact

The Applicant shall consider and evaluate the application of direct mitigation measures including but not limited to, quieter construction method and equipment, barrier, enclosures, etc. The feasibility practicability programming and effectiveness of the recommended mitigation measures shall be qualitatively assessed. Any direct mitigation measures recommended shall be well documented in the report. Specific reasons for not adopting certain direct mitigation measures to maximise the protection for the NSRs as far as possible shall be clearly substantiated and documented in the EIA report.

2.4 Construction Noise Management Plan (CNMP)

The Applicant shall propose to submit a CNMP to the Director. The CNMP shall contain the quantitative construction noise impact assessment, the adopted quieter construction method and equipment, noise mitigation measures and the construction noise impact monitoring and audit programme, with reference to the updated and identified noise mitigation measures once available and in any case before the tender invitation if there is any change to the construction noise mitigation measures recommended in the EIA report and before the commencement of construction of the project. Any technical constraint that would hinder the use of the quieter construction method and equipment shall be evaluated and clearly recorded in the assessment.

The CNMP shall include an implementation schedule clearly listing out the mitigation measures, the implementation party, location and timing of implementation. Mitigation measures recommended and requirements specified in the CNMP shall be fully implemented.

3. Marine Traffic Noise Impact Assessment

3.1 Marine Traffic Noise Impact Assessment Methodology

The Applicant shall propose methodology which shall be agreed with the Director, with reference to Section 4.4.2 of the TM, prior to the commencement of the assessment.

3.2 Prediction and Evaluation of Marine Traffic Noise Impact

3.2.1 Scenarios

The Applicant shall assess the marine traffic noise impact, with respect to proposed criteria which the applicant shall submit for agreement with the Director (with reference to section 4.4.2(c) of the TM), of unmitigated scenario and mitigated scenario at assessment years of various operation modes including, but not limited to:

(i) the worst operation mode which represents the maximum noise emission in connection of identified noise sources; and/ or

(ii) any other operation modes as confirmed with the Director.

3.2.2 Prediction of Noise Impact

(a) The Applicant shall present the predicted noise levels at the selected assessment points at various representative floor levels (in m P.D.) on tables and plans of suitable scale.

(b) The assessment shall cover the cumulative marine traffic noise impact associated with the operation of the proposed project on existing, committed and planned NSRs within the assessment area.

(c) The potential marine traffic noise impact under different scenarios shall be quantified by estimating the total number of dwellings, classrooms and other noise sensitive receivers that will be exposed to noise impact exceeding the adopted criteria.

3.3 Mitigation of Marine Traffic Noise Impact

3.3.1 Direct Mitigation Measures

Where the predicted marine traffic noise impact exceeds the proposed criteria, the Applicant shall consider and evaluate direct mitigation measures. The feasibility, practicability, programming and effectiveness of the recommended mitigation measures shall be assessed. Any direct mitigation measures recommended should be well documented in the report. Specific reasons for not adopting certain direct mitigation measures to reduce the noise to a level meeting the proposed criteria should be clearly substantiated and documented in the EIA report.

3.3.2 Evaluation of Residual Marine Traffic Noise Impact

Upon exhaust of direct mitigation measures, if the mitigated noise impact still exceeds the adopted criteria, the Applicant shall identify, predict, evaluate the residual marine traffic noise impact in accordance with Section 4.4.3 of the TM and estimate the total number of existing dwellings, classrooms and other noise sensitive elements that will be exposed to residual noise impact exceeding the adopted criteria.

Appendix D

Requirements for Water Quality Impact Assessment

1. The Applicant shall identify and analyse physical, chemical and biological disruptions of the water system(s) arising from the construction and operation of the Project.

2. The Applicant shall predict, quantify and assess any water quality impacts arising from the construction and operation of the Project by appropriate mathematical modelling and/or other techniques proposed by the Applicant and approved by the Director. The mathematical modelling requirements are set out in Appendix D-1. Possible impacts due to the dredging, fill extraction, backfilling, transportation and disposal of dredged materials, other marine works activities, effluent discharge and site runoff shall include changes in hydrology, flow regime, sediment erosion and deposition patterns, morphological change of seabed profile, shoreline change, water and sediment quality. The prediction shall include possible different construction and operation stages or sequences of the Project. Affected sensitive receivers shall be identified by the assessment tool with indications of degree of severity.

3. The assessment shall include, but not limited to the following:

   (i) the water quality impacts of the site run-off generated during the construction stage such as the effluents generated from dewatering associated with piling activities, grouting and concrete washing and those specified in the ProPECC Practice Note 1/94;

   (ii) the water quality impacts of the road runoff containing oil/grease and suspended solids during the operation stage;

   (iii) the water quality impact arising from marine dredging and filling works and other marine works during the construction stage; and vessels berthing, vessels driving and maintenance, and potential wastewater discharge from vessels during the operation stage;

   (iv) the change in hydrological condition due to the proposed and modified breakwaters which may result in changing in water quality during the operation stage; and

   (v) the water quality impacts on typhoon shelters, secondary contact recreation subzones, corals, fish culture zones, seawater intake points, watercourses, drainages and other water sensitive receivers which may be affected by the Project.

4. The Applicant shall address water quality impacts due to the construction phase and operation phase of the Project. Essentially, the assessment shall address the following :

   (i) collect and review background information on affected existing and planned water systems, their respective catchments and sensitive receivers which might be affected by the Project;

   (ii) characterize water quality of the water systems and sensitive receivers, which might be affected by the Project based on existing best available information and through appropriate site survey and tests when existing data are insufficient;

(iii) identify and analyse relevant existing and planned future activities, beneficial uses and water sensitive receivers related to the affected water system(s). The Applicant should refer to, inter alia, those developments and uses earmarked on the relevant Outline Zoning Plans, Development Permission Area Plans, Outline Development Plans and Layout Plans, and any other relevant published landuse plans, including plans and drawings published by Lands Department and any land use and development applications approved by the Town Planning Board;

(iv) identify pertinent water quality objectives and establish other appropriate water quality criteria or standards for the water system(s) and the sensitive receivers identified in (i), (ii) & (iii) above;

(v) review the specific construction methods and configurations, and operation of the Project to identify and predict the likely water quality impacts arising from the Project;

(vi) identify any alternation of any watercourses, natural streams, ponds, change of water holding/flow regimes of water bodies, change of catchment types or areas, erosion or sedimentation due to the Project and any other hydrological changes in the assessment area;

(vii) identify and quantify existing and likely future water pollution sources, including point discharges and non-point source discharges to the water system(s), sewage from workforce and polluted discharge generated from the Project, contaminant release from works on marine sediment and sediment release or re-suspension from works into water bodies;

(viii) provide an emission inventory on the quantities and characteristics of those existing and future pollution sources in the assessment area. Field investigation and laboratory test, shall be conducted as appropriate to fill relevant information gaps;

(ix) predict and quantify the impacts on the water system(s) and their sensitive receivers due to the alterations, changes and the pollution sources identified above. Possible impacts include change in hydrology, flow regime, water quality and release of contaminants, etc. The prediction shall take into account and include possible different construction and operation stages of the Project;

(x) assess the cumulative impacts due to other related concurrent and planned projects, activities or pollution sources within the assessment area that may have a bearing on the environmental acceptability of the Project;

(xi) analyze the provision and adequacy of existing and planned future facilities to reduce pollution arising from the point and non-point sources identified in (vii) above;

(xii) develop effective infrastructure upgrading or provision, contingency plan, water pollution prevention and mitigation measures to be implemented during construction and operation stages so as to reduce the water quality impacts to within standards. Requirements to be incorporated in the Project contract document shall also be proposed;

(xiii) investigate and develop best management practices and propose proper maintenance procedures to reduce storm water/surface runoff and non-point source

pollution as appropriate; and

(xiv) evaluate and quantify residual impacts on water system(s) and the sensitive receivers with regard to the appropriate water quality objectives, criteria, standards or guidelines. If the mitigated water quality impact still exceeds the relevant criteria in Annex 6 of TM, the Applicant shall identify, predict and evaluate the residual water quality impact in accordance with Section 4.4.3 of the TM and estimate the significance of the residual impact to the water system(s) and the water sensitive receivers.

Appendix D-1

Hydrodynamic and Water Quality Modelling Requirements

1. Modelling Software General

(i) The modelling software shall be fully 3-dimensional capable of accurately simulating the stratified condition, salinity transport, and effects of wind and tide on the water body within the model area.

(ii) The modelling software shall consist of hydrodynamic, water quality, sediment transport, thermal and particle dispersion modules. All modules shall have been proven with successful applications locally and overseas.

(iii) The hydrodynamic, water quality, sediment transport and thermal modules shall be strictly mass conserved at all levels.

(iv) An initial dilution model shall be used to characterize the initial mixing of the effluent discharge, and to feed the terminal level and size of the plume into the far field water quality modules where necessary. The initial dilution model shall have been proven with successful applications locally and overseas.

2. Model Details – Calibration and Validation

(i) The models shall be properly calibrated and validated against applicable existing and/or newly collected field data before their use in this study in the Hong Kong waters, the Pearl Estuary and the Dangan (Lema) Channel. The field data set for calibration and validation shall be agreed with EPD.

(ii) Tidal data shall be calibrated and validated in both frequency and time domain manner.

(iii) For the purpose of calibration and validation, the model shall run for not less than 15 days of real sequence of tide (excluding model spin up) in both dry and wet seasons with due consideration of the time required to establish initial conditions.

(iv) In general the hydrodynamic models shall be calibrated to the following criteria:

Criteria	Level of fitness with field data
• tidal elevation (@)	< 8 %
• maximum phase error at high water and low water	< 20 minutes
• maximum current speed deviation	< 30 %
• maximum phase error at peak speed	< 20 minutes
• maximum direction error at peak speed	< 15 degrees
• maximum salinity deviation	< 2.5 ppt

@ Root mean square of the error including the mean and fluctuating components shall meet the criteria at no less than 80% of the monitoring stations in the model domain

(v) The Applicant shall be responsible for acquiring/developing and calibration of the models for use in this study themselves. They may make reference to the models developed under the Update on Cumulative Water Quality and Hydrological Effect of Coastal Developments and Upgrading of Assessment Tool (Agreement No. CE 42/97). They may

also propose to use other models subject to agreement with EPD.

3. Model Details – Simulation

(i) The water quality modelling results shall be qualitatively explainable, and any identifiable trend and variations in water quality shall be reproduced by the model. The water quality model shall be able to simulate and take account of the interaction of dissolved oxygen, phytoplankton, organic and inorganic nitrogen, phosphorus, silicate, BOD, temperature, suspended solids, contaminants release of dredged and disposed material, air-water exchange, E. coli and benthic processes. It shall also simulate salinity. Salinity results simulated by hydrodynamic models and water quality models shall be demonstrated to be consistent.

(ii) The sediment transport module for assessing impacts of sediment loss due to marine works shall include the processes of settling, deposition and re-erosion. The values of the modelling parameters shall be agreed with EPD. Contaminants release and DO depletion during dredging and dumping shall be simulated by the model.

(iii) The thermal model shall be based on the flow field produced by the hydrodynamic model. It shall incorporate the physical processes of thermal/cooled water discharge and abstraction flow, buoyancy effect of the thermal plume, and surface heat exchange. Dispersion of biocides in the discharge shall also be simulated with appropriate decay rates.

(iv) The models shall at least cover the Hong Kong waters, the Pearl Estuary and the Dangan Channel to incorporate all major influences on hydrodynamic and water quality. A fine grid model may be used for detailed assessment of this study. It shall either be linked to a far field model or form part of a larger model by gradual grid refinement. The coverage of the fine grid model shall be properly designed such that it is remote enough so that the boundary conditions will not be affected by the project. The model coverage area shall be agreed with EPD.

(v) In general, grid size at the area affected by the project shall be less than 400 m in open waters and less than 75 m around sensitive receivers. The grid shall also be able to reasonably represent coastal features existing and proposed in the project. The grid schematization shall be agreed with EPD.

(vi) The pollution load inventory for water quality modeling shall be agreed with EPD. It shall include both the background and project pollution loads. The Applicant may adopt the pollution load inventory provided by EPD as the background pollution load inventory.

(vii) The Applicant shall submit a Water Quality Modelling Plan for agreement with EPD before proceeding to modelling assessment. The Plan shall demonstrate that the models meet the requirements under the sections of Modelling software general, Model details – Calibration & Validation and Model details – Simulation in this Appendix. The Plan shall also set out the methodology for the modelling assessment under the section of Modelling Assessment in this Appendix.

4. Modelling Assessment

(i) The assessment shall include the construction and operation phases of the project. Where appropriate, the assessment shall also include maintenance dredging. Scenarios to be assessed shall cover the baseline condition and scenarios with various different options proposed by the Applicant in order to quantify the environmental impacts and

improvements that will be brought about by these options. Corresponding pollution load, bathymetry and coastline shall be adopted in the model set up.

(ii) Hydrodynamic and thermal modules, where appropriate, shall be run for (with proper model spin up) at least a real sequence of 15 days spring-neap tidal cycle in both the dry season and the wet season.

(iii) Water quality and sediment transport modules shall run for (with proper model spin up) a complete year incorporating monthly variations in Pearl River discharges, solar radiation, water temperature and wind velocity in the operational stage. Construction stage impacts, cooling water discharge and floating refuse and debris entrapment may be assessed by simulating typical spring-neap cycles in the dry and wet seasons.

(iv) For assessing temporary discharges via the emergency outfall, the Applicant shall estimate discharge loading, pattern and duration. The worst case scenario shall include discharge near slack water of neap tide. A period of at least 15 days spring-neap cycle in wet season, but long enough for recovery of the receiving water, shall be simulated. Detailed methodology shall be agreed with EPD.

(v) The results shall be assessed for compliance of Water Quality Objectives.

(vi) Any changes in hydrodynamic regime shall be accessed. Daily erosion / sedimentation rate shall be computed and its ecological impact shall be assessed.

(vii) The impact on all sensitive receivers shall be assessed.

(viii) Cumulative impacts due to other projects, activities or pollution sources within a boundary to the agreement of EPD shall also be predicted and quantified.

(ix) All modelling input data and results shall be submitted in digital media to EPD upon request.

Appendix E

Requirements for Assessment of Waste Management Implications

The assessment of waste management implications shall cover the following:

1. Analysis of Activities and Waste Generation

   (i) The Applicant shall identify the quantity, quality and timing of the waste arising as a result of construction and operational activities of the Project, based on the sequence and duration of these activities, e.g. any dredged / excavated sediment / mud, construction and demolition materials, floating refuse and other wastes which would be generated during construction and / or operation stage.

   (ii) The Applicant shall adopt the design, general layout, construction methods and programme that will minimise the generation of public fill/inert construction and demolition (C&D) materials and maximise the use of public fill/inert C&D materials for other construction works.

2. Proposal for Waste Management

   (i) Prior to considering the disposal options for various types of wastes, opportunities for reducing waste generation, on-site or off-site re-use and recycling shall be fully evaluated. Measures that can be taken in the planning and design stages e.g. by modifying the design approach and in the construction stage for maximising waste reduction shall be separately considered.

   (ii) The Applicant shall consider alternative project designs/measures to avoid/minimise floating refuse accumulation/entrapment and measures/proposals for the potential floating refuse problem, e.g. streamlining the shoreline design; measures to improve the tidal flushing capacity; alternative seawall design to facilitate floating refuse collection; and regular collection of the floating refuse along the shoreline. Regarding the potential trapping of floating refuse along the shoreline of the Project, the Applicant shall estimate as far as practicable the amount of floating refuse to be found/trapped along the shoreline of the Project in construction stage and after the completion of the Project. The Applicant shall develop an effective plan/design to avoid/minimise the trapping of floating refuse. If floating refuse is identified and needs to be dealt with, the Applicant shall propose appropriate measures to deal with this floating refuse in a proper and acceptable manner e.g. to collect, recycle, reuse, store, transport and dispose of.

   (iii) After considering the opportunities for reducing waste generation and maximising re-use, the types and quantities of the wastes required to be disposed of as a consequence shall be estimated and the disposal methods/options for each type of the wastes shall be described in detail. The disposal methods/options recommended for each type of wastes shall take into account the result of the assessment in item (v) below.

   (iv) The EIA report shall state clearly the transportation routings and the frequency

of the trucks/vessels involved, any barging point or conveyor system to be used, the stockpiling areas and the disposal outlets for the wastes identified; and

(v) The impact caused by handling (including stockpiling, labelling, packaging & storage), collection, transportation and re-use/disposal of wastes shall be addressed in detail and appropriate mitigation measures shall be proposed. This assessment shall cover the following areas:
- potential hazard;
- air and odour emissions;
- noise;
- wastewater discharge; and
- public transport.

3. Dredging and Dumping

(i) The Applicant shall identify and estimate dredging/excavation, dredged/excavated sediment/mud transportation and disposal activities and requirements. Potential dumping ground to be involved shall also be identified. Appropriate field investigation, sampling and chemical and biological laboratory tests to characterise the sediment/mud concerned shall be conducted for marine disposal option. The ranges of parameters to be analysed; the number, type and methods of sampling; sample preservation; chemical and biological laboratory test methods to be used shall be agreed with the Director (with reference to Section 4.4.2(c) of the TM) prior to the commencement of the tests and document in the EIA report for consideration. The categories of sediment/mud which are to be disposed of in accordance with the Dumping at Sea Ordinance (DASO) shall be identified by both chemical and biological tests and their quantities shall be estimated. If the presence of contamination of sediment/mud which requires special treatment/disposal is confirmed, the Applicant shall identify the appropriate treatment and/or disposal arrangement and demonstrate its viability in consultation with relevant authorities.

(ii) The Applicant shall identify and evaluate the practical dredging/excavation methods to minimise dredging/excavation and dumping requirements based on the criterion that existing sediment/mud shall be left in place and not to be disturbed as far as possible.

Appendix F

Requirements for Ecological Impact Assessment (Marine)

1. The Applicant shall examine the flora, fauna and other components of the ecological habitats within the assessment area. The aim shall be to protect, maintain or rehabilitate the natural environment. In particular, the Project shall avoid or minimise impacts on recognized sites of conservation importance and other ecological sensitive areas. The assessment shall identify and quantify as far as possible the potential ecological impacts arising from construction and operation of the Project and in combination with those cumulative impacts from associated works of the Project.

2. The assessment shall include the following major tasks:

   (i) review and incorporate the findings of relevant previous studies/surveys and collate available information on the ecological characters of the study area;

   (ii) evaluate the information collected, identify any information gap relating to the assessment of potential ecological impact, and determine the ecological field surveys and investigations that are needed for an impact assessment as required in the following sections;

   (iii) carry out necessary field surveys with a duration of six months covering both wet and dry seasons, and investigation to verify the information collected, fill the information gaps as identified in sub-section (ii) above, and to fulfill the objectives of the EIA study. The field surveys shall cover, but not be limited to flora, fauna and any other habitats / species of conservation importance and shall include but not be limited to intertidal, subtidal and benthic organisms and coral communities;

   (iv) establish the ecological profile of the assessment area based on information collected in the tasks mentioned in sub-section (i) to (iii) above, and describe the characteristics of each habitat found. The data set should be comprehensive and representative, and is up to date and valid for the purpose of this assessment. Major information to be provided shall include:

      (a) description of the physical environment, including recognized sites of conservation importance and ecologically sensitive areas;

      (b) habitats maps of suitable scale (1:1000 to 1:5000) showing the types and locations of habitats in the assessment area;

      (c) ecological characteristics of each habitat type such as size, substrate type, species present, dominant species found, species diversity and abundance, community structure, ecological value, seasonal patterns, inter-dependence of the habitats and species, and presence of any features of ecological importance;

      (d) representative colour photographs of each habitat type and any

important ecological features identified;

(e) species found that are rare, endangered and/or listed under local legislation, international conventions for conservation of wildlife/habitats or Red Data Books;

(v) investigate and describe the existing wildlife uses of the various habitats with special attention to those wildlife groups and habitats with conservation interest, including but not limited to the following:

(a) existing natural shoreline e.g. sandy shores and rocky shores;

(b) intertidal, subtidal and benthic habitats;

(c) coral communities (including hard corals, black corals, soft corals, gorgonians and sea pens);

(d) amphioxus;

(e) aquatic fauna (seahorse and pipefish); and

(f) any other habitats and wildlife groups identified as having special conservation interest by this EIA study.

(vi) describe recognized site of conservation importance in the study area, if any, and assess whether these site will be affected by the Project or not;

(vii) using suitable methodology (including but not limited to those adopted in other relevant EIA studies in Hong Kong), and considering also any works activities from other projects reasonably likely to occur at the time, identify and quantify as far as possible any direct (e.g. loss of habitats due to various elements such as dredging/excavation works, reclamation and other associated works of the Project), indirect (e.g. changes in water qualities, hydrodynamics properties, hydrology, and other disturbance generated by the construction and operation activities etc.), on-site, off-site, primary, secondary and cumulative ecological impacts on the wildlife groups and habitats identified such as disturbance to wildlife, destruction of habitats, reduction of species abundance/diversity, loss of feeding and breeding grounds, reduction of ecological carrying capacity and habitat fragmentation, in particular the following:

(a) habitat loss and disturbance to the intertidal, subtidal and benthic communities due to possible dredging operation, construction of wave wall and breakwaters, etc.;

(b) impacts due to habitat fragmentation and isolation;

(c) impacts on intertidal organisms and subtidal organisms during the construction and operation stages due to potential changes in water quality and hydrodynamics properties during the construction and operation stages of the Project;

(d) impacts due to increase in human activities and disturbance during

the construction and operation stages of the Project; and

(e) cumulative impacts due to other planned and committed concurrent development projects at or near the Project area.

(viii) evaluate ecological impact based on the best and latest information available during the course of the EIA study, using quantitative approach as far as practicable and covering construction and operation phases of the Project;

(ix) recommend possible and practicable mitigation measures such as alternative design and configuration of the Project and modification/change of construction methods to avoid, minimize and/or compensate for the adverse ecological impacts identified during construction and operation of the Project;

(x) evaluate feasibility and effectiveness of the recommended mitigation measures and define the scope, type, location, implementation arrangement, resources requirement, subsequent management and maintenance of such measures;

(xi) determine and quantify as far as possible of the residual ecological impacts after implementation of the proposed mitigation measures;

(xii) evaluate the severity and acceptability of the residual ecological impacts using well-defined criteria in Annex 8 of the TM and determine if off-site mitigation measures are necessary to mitigate the residual impacts by following the guidelines and requirements laid down in Annex 16 of the TM; and

(xiii) review the need for and recommend any ecological monitoring programme required.

Appendix G

Requirements for Fisheries Impact Assessment

1. Existing information regarding the study area shall be reviewed. Based on the review results, the study shall identify data gap and determine if there is any need for field surveys. If field surveys are considered necessary, the study shall recommend appropriate methodology, duration and timing for the field surveys.

2. The fisheries impact assessment shall cover any potential direct / indirect, on-site / off-site, short-term and long-term impacts on capture and culture fisheries during the construction and operation of the Project.

3. The fisheries impact assessment shall include the following:-

   (i) description of the physical environmental background;

   (ii) description and quantification of existing fisheries activities;

   (iii) description and quantification of existing fisheries resources / production;

   (iv) identification of parameters (e.g. water quality parameters) and areas that are important to fisheries and will be affected;

   (v) prediction and evaluation of any direct/indirect impacts and on-site/off-site impacts on fisheries, such as potential loss or disturbance of fishing grounds, fisheries resources and habitats, spawning or nursery grounds; as well as impact on hydrodynamics and water quality deterioration at sensitive receivers, such as fish culture zones and artificial reefs; impacts on capture fishing operations and aquaculture activities;

   (vi) evaluation of cumulative impacts on fisheries ;

   (vii) where necessary, propose feasible, practicable and effective alternatives and / or mitigation measures; and

   (viii) review the need of monitoring during construction and operation phases of the Project and associated works and, if necessary, propose a monitoring and audit programme.

Appendix H

Requirements for Landscape and Visual Impact Assessment

1. The Applicant shall review relevant outline development plan(s), outline zoning plan(s), layout plan(s) and/or studies which may identify areas of high landscape value, open space, amenity area, conservation area and green belt designations. Any guidelines on landscape and urban design strategies and frameworks that may affect the appreciation of the Project shall also be reviewed. The aim is to gain an insight to the future outlook of the area affected so as to assess whether the Project can fit into the surrounding setting. Any conflict with statutory town plan(s) shall be highlighted and appropriate follow-up action shall be recommended. A system shall be derived for judging landscape impact significance as required under the TM and EIAO Guidance Note No. 8/2010 "Preparation of Landscape and Visual Impact Assessment under the EIAO". Cumulative landscape and visual impacts of the Project with other existing, committed and planned developments in the assessment area shall be assessed.

2. The Applicant shall assess the landscape impact of the Project. The Applicant shall describe, appraise, analyze and evaluate the existing and planned landscape resources and characters of the assessment area. Annotated oblique aerial photographs and plans of suitable scale showing the baseline landscape resources and landscape character areas and mapping of impact assessment shall be extensively used to present the findings of impact assessment. Descriptive text shall provide a concise and reasoned judgment from a landscape point of view. The assessment shall be particularly focused on the sensitivity of the landscape framework and its ability to accommodate change. The Applicant shall identify the degree of compatibility of the Project with the existing and planned landscape setting. The landscape impact assessment shall quantify potential landscape impact as far as possible, so as to illustrate the significance of such impact arising from the Project. Clear mapping of the landscape impact is required. Where applicable, broad brush tree and vegetation survey shall be carried out and the impacts on existing trees and vegetation with conservation interest shall be addressed.

3. The Applicant shall assess the visual impacts of the proposed Project. Clear illustrations including mapping of visual impact is required. Descriptive text shall provide a concise and reasoned judgment from visual point of view. Cumulative visual impact of the Project with other existing, committed and planned developments in the assessment area shall be assessed. The assessment shall include the following:

   (i) identification and plotting of visual envelope of the Project;

   (ii) appraisal of existing visual resources and characters as well as future outlook of the visual system of the assessment area;

   (iii) identification of the key groups of existing and planned sensitive receivers within the visual envelope and their views at sea level, ground level and elevated vantage points, and clearly indicate the sensitive receivers on a plan of appropriate scale;

(iv) description of the visual compatibility of the Project with the surrounding and the existing and planned setting, and its obstruction and interference with the key views within the visual envelop;

(v) identification and description of the severity of visual impact in terms of nature, distance and number of sensitive receivers. The visual impact of the Project with and without mitigation measures shall be included and illustrated so as to demonstrate the effectiveness of the proposed mitigation measures across time; and

(vi) evaluations and explanation of factors considered in arriving the significance thresholds of visual impacts.

4. The Applicant shall evaluate the merit of preservation in totality, in parts or total destruction of existing landscape and the establishment of a new landscape character area. In addition, alternative location, site layout, development options, design and construction method that would avoid or reduce the identified landscape and visuals impacts shall be evaluated for comparison before adopting other mitigation or compensatory measures to alleviate the impacts. The mitigation measures proposed shall not only be concerned with damage reduction but shall also include consideration of potential enhancement of existing landscape and visual quality of the area. The Applicant shall recommend mitigation measures to minimize adverse effects identified above, including provision of a landscape design.

5. The mitigation measures shall include not limited to preservation of vegetation, and natural landscape resources, transplanting of mature trees, provision of screen planting, re-vegetation of disturbed land, compensatory planting, re-provisioning of amenity areas and open spaces, design of structure, provision of finishes to structure, colour scheme and texture of material used and any measures to mitigate the disturbance of the existing land use. Parties shall be identified for the on-going management and maintenance of the proposed mitigation works to ensure their effectiveness throughout the operation phase of the Project. A practical programme for the implementation of the recommended measures shall be provided.

6. Annotated illustration such as coloured perspective drawings, plans and section/elevation diagrams, oblique aerial photographs, photographs taken at vantage points and computer-generated photomontage, particularly from but not limited to the most severely affected vantage points shall be adopted to illustrate the significance of the visual impacts of the Project in four stage i.e existing conditions, unmitigated impacts at Day1, mitigated impacts at Day 1 and residual impact at Year 10. Options of design schemes shall be illustrated with photomontages to show the visual impact on the surrounding areas. True colour samples may be requested if found necessary and appropriate. Technical details in preparing the illustration, which may need to be submitted for verification of accuracy of the illustration shall be recorded. Computer graphics shall be compatible with Microstation DGN file format.

Appendix I

Requirements for Cultural Heritage Impact Assessment

Marine Archaeological Investigation (MAI)

1. The assessment area for the potential archaeological impact shall include all areas to be affected by the marine and dredging works of the Project.

2. The Applicant shall engage a marine archaeologist to conduct a marine archaeological review based on the best available information to identify whether there is any potential existence of sites or objects of cultural heritage within the seabed that will be affected by the marine works of the Project, whether the identified issues can be mitigated and whether there is a need for more detail investigation. The review shall take into account the scope and nature of proposed marine works, the results of previous marine archaeological investigations, the dredging history and other diving records, etc.

3. A MAI shall be carried out to ascertain the archaeological value of the affected seabed area. The Applicant shall propose a programme of investigation, including the scope of works, methodology and time schedule, etc. for agreement with the Director. The MAI shall be carried out by a marine archaeologist who shall obtain a licence from the Antiquities Authority under the provision of the Antiquities and Monuments Ordinance, Cap. 53 for the marine archaeological work. If significant archaeological remains are discovered, mitigation measures shall be designed and agreed by the Antiquities and Monuments Office (AMO) before implementation and implemented to the satisfaction of AMO.

4. The Applicant shall draw necessary reference to the relevant sections of the "Guidelines for Cultural Heritage Impact Assessment (as at 4 May 2020) and Marine Archaeological Investigation (MAI)", including those on archaeological survey, archaeological report, and handling of archaeological finds and archives.

Appendix I-1

Guidelines for Marine Archaeological Investigation (MAI) (as at 4 May 2020)

The standard practice for MAI should consist of four separate tasks, i.e. (1) Baseline Review, (2) Geophysical Survey, (3) Establishing Archaeological Potential and (4) Remote Operated Vehicle (ROV) Nisual Diver Survey/Watching Brief. Marine archaeologists should make reference to the standard and guidance of Chartered Institute for Archaeologists and Historic England to carry out MAI.

1. Baseline Review

1.1 A baseline review should be conducted to collate the existing information in order to identify the potential for archaeological resources and, if identified, their likely character, extent, quality and value.

1.2 The baseline review will focus on known sources of archive data. It will include:

(a) Geotechnical Engineering Office (GEO) – the office holds extensive seabed survey data collected from previous geological research.

(b) Marine Department, Hydrographic Office - the office holds a substantial archive of hydrographic data and charts.

(c) UK Hydrographic Department in the UK – the Department maintains an archive of all survey data collected by naval hydrographers.

(d) Relevant government departments should be consulted in order to obtain the information of dredging history (if any) on the proposed project area. Area for sand dredging, mud disposal and allocated marine borrow area within Hong Kong should also be considered during the review.

1.3 The above data sources will provide historical records and more detailed geological analysis of submarine features which may have been subsequently masked by more recent sediment deposits and accumulated debris.

2. Geophysical Survey

2.1 Extensive geophysical survey of the study area should deploy high resolution boomer, side scan sonar, an echo sounder and high resolution multi beam sonar. The multi beam data must be presented as processed digital terrain models to facilitate the archaeological analysis. The data received from the survey would be analysed in detail to provide:

(a) Exact definition of the areas of greatest archaeological potential.

(b) Assessment of the depth and nature of the seabed sediments to define which areas consist of suitable material to bury and preserve archaeological material.

(c) Detailed examination of the boomer and side scan sonar records to map anomalies in and on the seabed which may be archaeological material.

(d) Detailed examination of the multi beam sonar data to assess the archaeological potential of the sonar contacts.

3. Establishing Archaeological Potential

3.1 The data examined during Task 1 and 2 will be analysed to provide an indication of the likely character and extent of archaeological resources within the study area. This would facilitate formulation of a strategy for investigation.

3.2 The results would be presented as a written report and charts. If there is no indication of archaeological material there would be no need for further work.

3.3 Charts should be presented at the most appropriate scale and show each survey contact. Its dimensions and exact location should also be shown.

4. Remote Operated Vehicle (ROV)/Visual Diver Survey/Watching Brief

4.1 Subject to the outcome of Tasks 1, 2 and 3, accepted marine archaeological practice would be to plan a field evaluation programme to acquire more detailed data on areas identified as having archaeological potential. The areas of archaeological interest can be inspected by ROV or divers. ROV or a team of divers with both still and video cameras would be used to record all seabed features of archaeological interest.

4.2 Owing to the heavy marine traffic in Hong Kong, the ROV/visual diver survey may not be feasible to achieve the target. If that is the case, an archaeological watching brief is the most appropriate way to monitor the dredging operations in areas of identified high potential to obtain physical archaeological information.

4.3 A sampling strategy for an archaeological watching brief would be prepared based on the results of Tasks 1, 2 and 3 to focus work on the areas of greatest archaeological potential. Careful monitoring of the dredging operations would enable immediate identification and salvage of archaeological material. If archaeological material is found, the AMO should be contacted immediately to seek guidance on its significance and appropriate mitigation measures would be prepared.

4.4 If Task 4 is undertaken, the results would be presented in a written report with charts.

5. Report

5.1 Five copies of the final report should be submitted to the AMO. The copyright of the report should be clearly identified. To facilitate future research, please specify that the report can be made available to the public in the Reference Library of the Heritage Discovery Centre.

Appendix J

Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Measures & Main Concerns to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	What standards or requirements for the measure to achieve?

Appendix K

Requirements for EIA Report Documents

1. The Applicant shall supply the Director with the following number of copies of the EIA report and the executive summary:

   (i) 30 copies of the EIA report and 30 copies of the executive summary (each bilingual in both English and Chinese) as required under section 6(2) of the EIAO to be supplied at the time of application for approval of the EIA report.

   (ii) When necessary, addendum to the EIA report and the executive summary submitted in item (i) above as required under section 7(1) of the EIAO, to be supplied upon advice by the Director for public inspection.

   (iii) 20 copies of the EIA report and 50 copies of the executive summary (each bilingual in both English and Chinese) with or without Addendum as required under section 7(5) of the EIAO, to be supplied upon advice by the Director for consultation with the Advisory Council on the Environment.

2. In addition, to facilitate public inspection of EIA report via EIAO Internet Website, the Applicant shall provide electronic copies of both the EIA report and executive summary prepared in Hyper Text Markup Language (HTML) and in Portable Document Format (PDF), unless otherwise agreed by the Director. For both of the HTML and PDF versions, a content page capable of providing hyperlink to each section and sub-section of the EIA report and executive summary shall be included in the beginning of the document. Hyperlinks to figures, drawings and tables in the EIA report and executive summary shall be provided in the main text from where respective references are made. The EIA report, including drawings, tables, figures and appendices shall be viewable by common web-browsers including Internet Explorer 8, Firefox 23, Chrome and Safari 8 or later versions as agreed by the Director, and support languages including Traditional Chinese, Simplified Chinese and English.

3. The electronic copies of the EIA report and the executive summary shall be submitted to the Director at the time of application for approval of the EIA report.

4. When the EIA report and the executive summary are made available for public inspection under section 7(1) of the EIAO, the content of the electronic copies of the EIA report and the executive summary must be the same as the hard copies and the Director shall be provided with the most updated electronic copies.

To promote environmentally friendly and efficient dissemination of information, both hardcopies and electronic copies of future EM&A reports recommended by the EIA study shall be required and their format shall be agreed by the Director.