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15 October 2020

By Registered Post & Fax

Drainage Services Department

Dear Ms. CHAN,

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

**Project Title: Drainage Improvement Works in Mui Wo
(Application No. ESB-334/2020)**

I refer to your above application received on 2 September 2020 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-334/2020) 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. Becky LAM (Tel: 2594 6323) regarding the details in due course.

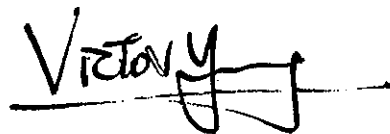
If the EIA report is selected by ACE for submission and presentation, you are expected to provide ACE with an account of the environmental issues arising from the project, major

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. Simon HO at 2835 1153.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Victor W.T. Yeung". The signature is stylized with a horizontal line underneath the name.

(Victor W.T. YEUNG)

Acting Principal Environmental Protection Officer
for Director of Environmental Protection

Encl.

c.c. (w/o encl.)

ACE EIA Subcommittee Secretariat (Attn. : Ms. Becky LAM)

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

ENVIRONMENTAL IMPACT ASSESSMENT STUDY BRIEF NO. ESB-334/2020

PROJECT TITLE: DRAINAGE IMPROVEMENT WORKS IN MUI WO
(hereinafter known as the “Project”)

NAME OF APPLICANT: DRAINAGE SERVICES DEPARTMENT
(hereinafter known as the “Applicant”)

1. BACKGROUND

1.1 An application (No. ESB-334/2020) for an Environmental Impact Assessment (EIA) Study Brief under section 5(1)(a) of the Environmental Impact Assessment Ordinance (EIAO) was submitted by the captioned Applicant on 2 September 2020 with a project profile (No. PP-610/2020) (the Project Profile).

1.2 The Applicant proposes to carry out drainage improvement works at various locations including Tai Tei Tong, Nam Bin Wai, Chung Hau, Ling Tsui Tau, Ma Po Tsuen, Luk Tei Tong River and Luk Tei Tong Bypass Channel to relieve the flooding risks at Mui Wo. The location of the Project is shown in Appendix A and the scope of works comprises:-

(i) Tai Tei Tong

- a. construction of box culverts of about 530 metres long to divert the flow from Tai Tei Tong River to Pak Ngan Heung River and Luk Tei Tong Bypass Channel under heavy rainstorms;
- b. modification/reconstruction of flood walls and gabion walls;
- c. modification of agricultural weirs, river reprofiling and revitalisation; and
- d. construction of tidal barrier and penstocks and other associated works.

(ii) Nam Bin Wai, Chung Hau, Ling Tsui Tau and Ma Po Tsuen

- a. construction of a stormwater pumping station at Nam Bin Wai and the associated drainage works.

(iii) Luk Tei Tong River and Luk Tei Tong Bypass Channel

- a. construction of penstock and tidal barrier;
- b. reconstruction of gabion walls, river revitalisation; and
- c. construction of low-flow channel and other associated works.

1.3 The Project is a designated project by virtue of Item C.12(a)(iii) of Schedule 2, Part I of the EIAO, which specifies “A dredging operation which is less than 500 m from the nearest boundary of an existing or planned bathing beach”.

- 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 associated works 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;
 - (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/or likely 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 (noise, water, etc.) on sensitive receivers and potential affected uses;
 - (iv) to identify and quantify potential waste management issues and impacts arising as a result of the construction and operation activities of the Project;
 - (v) to identify and quantify any potential losses or damage to flora, fauna and natural habitats;
 - (vi) to identify and evaluate any potential landscape and visual impacts and to propose measures to mitigate these impacts;
 - (vii) to identify any negative impacts on sites of cultural heritage and to propose measures to mitigate these impacts;

- (viii) to propose the provision of infrastructure or mitigation measures so as to minimise pollution, environmental disturbance and nuisance during construction and operation of the Project;
- (ix) to investigate the feasibility, effectiveness and implications of the proposed mitigation measures;
- (x) to identify, predict and evaluate the residual (i.e. after practicable mitigation) environmental impacts and the cumulative effects expected to arise during the construction and operation phases of the Project in relation to the sensitive receivers and potential affected uses;
- (xi) to identify, assess and specify methods, measures and standards, to be included in the detailed design, construction and operation of the Project which are necessary to mitigate these residual environmental impacts and cumulative effects and reduce them to acceptable levels;
- (xii) to design and specify the environmental monitoring and audit requirements; and
- (xiii) 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 Study Brief is to set out the purposes and objectives of the EIA study, the scope of 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 report whether the criteria in the relevant sections of the Technical Memorandum on 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 associated works mentioned in Section 1.2 of this EIA Study Brief. 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) environmental benefits and dis-benefits of different development options, siting, alignment, design and construction methods of the Project including works relating to flood relief and environmental enhancement initiatives such as provision of fish ladders, etc., with a view to deriving the preferred

- development option(s) that will avoid or minimise adverse environmental impact;
- (ii) potential air quality impacts on air sensitive receivers (ASRs) due to the construction of the Project and associated works;
 - (iii) potential noise impacts on noise sensitive receivers (NSRs) due to the construction and operation of the Project including construction noise and fixed noise sources;
 - (iv) potential water quality impacts on the water sensitive receivers and the relevant water system(s) in the vicinity including River Silver, Luk Tei Tong River, Tai Tei Tong River, Pak Ngan Heung River and Silver Mine Bay Beach due to the construction and operation of the Project;
 - (v) potential waste management implications arising from the construction and operation of the Project and associated works including proper handling and disposal of excavated materials and construction and demolition (C&D) materials generated and the monitoring/management measures to prevent disposal of excavated materials and C&D materials at places other than designated outlets;
 - (vi) potential ecological impacts due to the construction and operation of the Project and associated works including impacts on Luk Tei Tong freshwater marsh and other ecological sensitive areas;
 - (vii) potential landscape and visual impacts due to the construction and operation of the Project and associated works;
 - (viii) potential cultural heritage impacts due to the construction of the Project including impacts on built heritage such as Yuen's Mansion (Grade 2); 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 Purpose(s) and Objectives of the Project

The Applicant shall provide information on the purpose(s) and objectives of the Project, and describe 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 the proposed land uses, siting, alignment, size, design, construction methods, sequence of construction

works, access arrangements and other major activities involved in the Project, using diagrams, plans and/or maps as necessary. The estimated duration of the construction phase and operation phase of the Project together with the programme within these phases shall be given. The land taken by the Project site(s), construction sites and any associated access arrangements, auxiliary facilities and landscaping areas shall be shown on a scaled map. The uses of the Project shall be described and the different land use areas shall be demarcated as appropriate.

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, minimising and control of adverse environmental impacts. The options might include siting, alignment, size, design, construction methods, sequence of construction works and access arrangements for the Project including works relating to flood relief and environmental enhancement initiatives. The key reasons for selecting the preferred development option(s) and the part environmental factors and other factors including the feasibility, practicability and effectiveness of the project design played in the selection shall be described. The main environmental impacts of different development options shall be compared with those 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 all environmental aspects of the activities 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 works programmes of the Project and associated works and other concurrent projects, and assess the cumulative environmental impacts from the Project and associated works with all interacting projects, including staged implementation of the Project and associated works.

3.4.3 The EIA study shall follow the technical requirements specified below and in the Appendices of this EIA Study Brief.

3.4.4 **Air Quality Impact**

3.4.4.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing the air quality impacts arising from the construction of the Project as stated in Section 1 of Annex 4 and Annex 12 of the TM respectively.

3.4.4.2 The assessment area for the air quality impact assessment shall be defined by a distance of 500 metres from the boundary of the Project area 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 sensitive receivers within the assessment area as well as any proposed air sensitive receivers within the Project as identified in the EIA study and areas where 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.

3.4.4.3 The air quality impact assessment for the construction of the Project shall follow the detailed technical requirements given in **Appendix B** of this EIA Study Brief.

3.4.5 **Noise Impact**

3.4.5.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing the noise impacts arising from the construction and operation of the Project as stated in Annexes 5 and 13 of the TM respectively.

3.4.5.2 The assessment area for the noise impact assessment shall generally include areas within 300 metres from the boundary of the Project site and any associated works as identified in the EIA study. Subject to the agreement of the Director, the assessment area could be reduced accordingly if the first layer of noise sensitive receivers (NSRs), closer than 300 metres from the outer Project limit, provides acoustic shielding to those receivers at distances further away from the Project. The assessment area shall be expanded to include NSRs at distances over 300 metres from the Project which are affected by the construction and operation of the Project. Assessment shall include the construction noise and fixed noise source impact assessments of the existing, committed and planned Noise Sensitive Receivers (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.

3.4.5.3 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.

3.4.6 **Water Quality Impact**

3.4.6.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing water pollution arising from the construction and operation of the Project as stated in Annexes 6 and 14 of the TM respectively.

3.4.6.2 The assessment area for the water quality impact assessment shall include areas within 500 metres from the boundary of the Project and shall cover the Southern Water Control Zone as designated under the Water Pollution Control Ordinance (Cap. 358), and water sensitive receivers in the vicinity of the Project including River Silver, Luk Tei Tong River, Tai Tei Tong River, Pak Ngan Heung River and Silver Mine Bay Beach. The assessment area shall be extended to include other areas such as stream courses and other water system(s) in the vicinity, if they are found

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

3.4.6.3 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.

3.4.7 **Waste Management Implications**

3.4.7.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing the waste management implications arising from the construction and operation of the Project as stated in Annexes 7 and 15 of the TM respectively.

3.4.7.2 The assessment of the waste management implications arising from the construction and operation of the Project, including handling and disposal of dredged/excavated sediments, C&D materials and other wastes, shall follow the detailed technical requirements given in **Appendix E** of this EIA Study Brief.

3.4.8 **Ecological Impact**

3.4.8.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing the ecological impacts arising from the construction and operation of the Project as stated in Annexes 8 and 16 of the TM respectively.

3.4.8.2 The assessment area for the purpose of the ecological impact assessment shall include areas within 500 metres distance from the boundary of the Project and any other areas likely to be impacted by the Project.

3.4.8.3 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.

3.4.9 **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 arising from the construction and operation of the Project 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 EIAO".

3.4.9.2 The assessment area for the landscape impact assessment shall include areas within 500 metres distance from the boundary of the Project area 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 defined visual envelope shall be shown on a plan 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 G** of this EIA Study Brief.

3.4.10 **Impact on Cultural Heritage**

3.4.10.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing the cultural heritage impacts arising from the construction of the Project as stated in Annexes 10 and 19 of the TM respectively.

3.4.10.2 The assessment area for the cultural heritage impact assessment (CHIA) shall be defined by a distance of 300 metres from the boundary of the Project area. The CHIA shall include a Built Heritage Impact Assessment (BHIA) for the construction of the Project. It shall follow the detailed technical requirements given in **Appendix H** 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 the construction and operation phases of the Project and, if affirmative, to define the scope of the EM&A requirements for the Project in the EIA study.

3.5.2 Subject to the confirmation of the EIA study findings, the Applicant shall comply with the 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 I**) containing all the EIA study recommendations and mitigation measures with reference to the implementation programme.

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 Options and Mitigation Measures

The EIA report shall contain a summary of alternative development options and measures considered during the course of the EIA study, including design, scale, extent, layout, siting, alignment as well as construction methods, disposal and treatment method 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 development options and 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. REPORTING 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 this 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 J** 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-610/2020), 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 this 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:

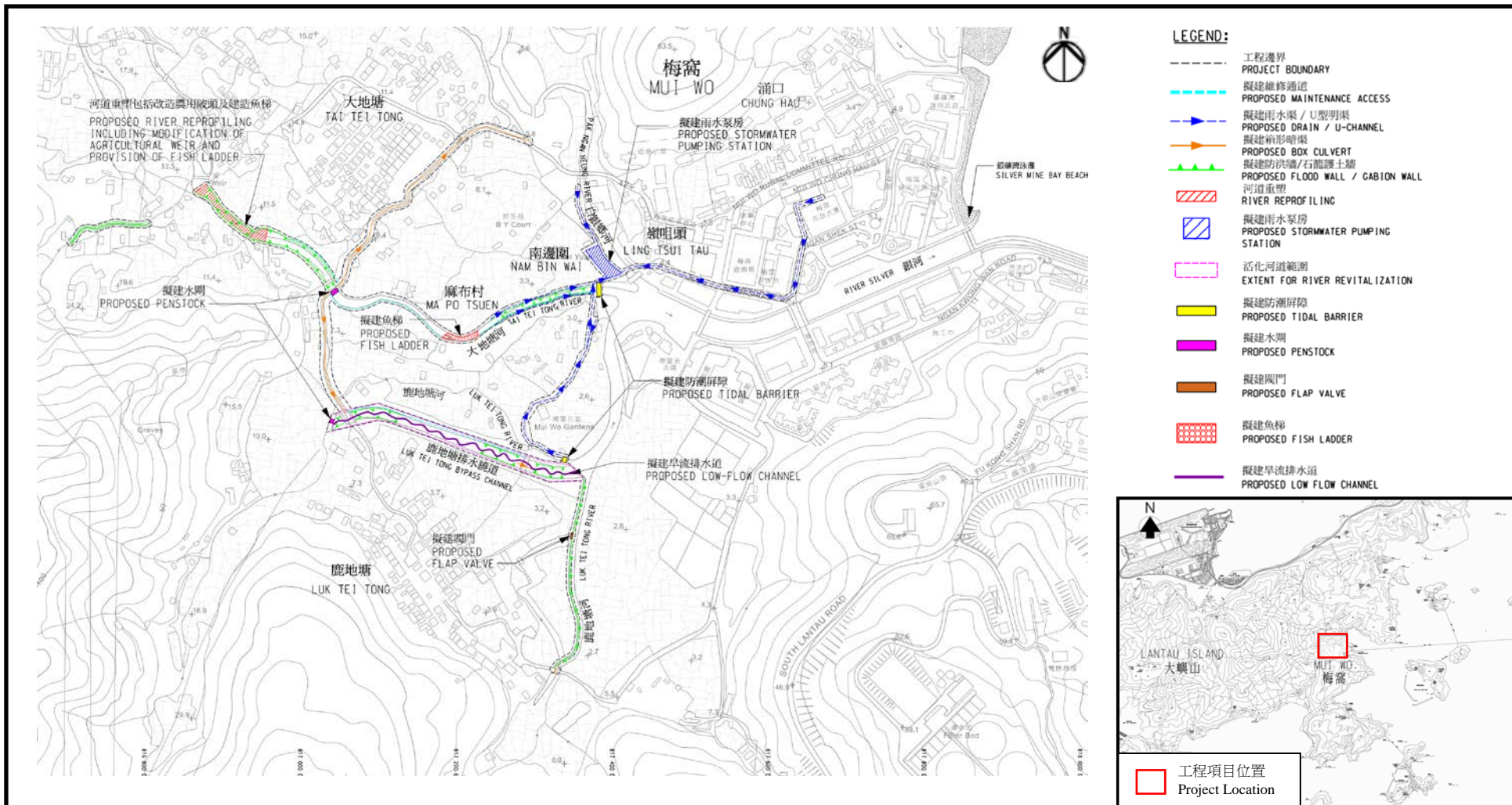
- Appendix A - Project Location Plan
- Appendix B - Requirements for Air Quality Impact Assessment
- Appendix C - Requirements for Noise Impact Assessment
- Appendix D - Requirements for Water Quality Impact Assessment
- Appendix E - Requirements for Assessment of Waste Management Implications
- Appendix F - Requirements for Ecological Impact Assessment
- Appendix G - Requirements for Landscape and Visual Impact Assessment
- Appendix H - Requirements for Built Heritage Impact Assessment under Cultural Heritage Impact Assessment
- Appendix I - Implementation Schedule of Recommended Mitigation Measures
- Appendix J - Requirements for EIA Report Documents

- END of EIA STUDY BRIEF -

October 2020

Environmental Assessment Division
Environmental Protection Department

Appendix A



Project Title : Drainage Improvement Works in Mui Wo
工程項目名稱 : 梅窩雨水排放系統改善工程

(This figure is prepared based on Figure 1 of Project Profile No.: PP-610/2020)
 (本圖是根據工程項目簡介 PP-610/2020 圖則編號 1 編製)

EIA Study Brief No. :
環評研究概要編號 :

ESB-334/2020

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) Provision of 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 construction stage of the Project.
 - (ii) 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 to minimise the air quality impact during construction stage of the Project.
 - (iii) Presentation of background air quality levels in the study area for the purpose of evaluating cumulative air quality impacts during construction stage of the Project. Future year background data can be extracted from the PATH (Pollutants in the Atmosphere and their Transport over Hong Kong) model released by the Director. If PATH model rerun is necessary, details for the emission sources to be adopted in the model run/runs should be clearly presented.
2. Identification of Air Sensitive Receivers (ASRs) and Examination of Emission/Dispersion Characteristics
 - (i) Identification and description of existing, committed and planned ASRs that would likely be affected by the Project, including those earmarked on the relevant Outline Zoning Plans, Development Permission Area Plans, Outline Development Plans and Layout Plans and other relevant published land use plans, including plans and drawings published by Lands Department and 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 clearly 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) Provision of 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 the construction activities in Section 1 above. Examples of construction stage emission sources include earthworks, excavation, vehicular movements, etc. Confirmation regarding the validity of the assumptions adopted and the magnitude of the activities (e.g. volume of construction materials to be handled and volume of dredging materials handled etc.) shall be obtained from the relevant government departments/authorities, where applicable, and documented in the EIA report.

- (iii) Identification of chimneys 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 impact. The impact as affecting the existing, committed and planned ASRs within the study 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 impacts are controlled within the relevant standards as stipulated in Section 1 of Annex 4 of the TM.
- (ii) If the Applicant anticipates that 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 shall be carried out to evaluate the construction dust impact at the identified ASRs. The Applicant shall follow the methodology set out in Section 4 below when carrying out the quantitative assessment.
- (iii) Where necessary, the Applicant shall consider and evaluate direct mitigation measures, including water-spraying, re-scheduling construction programme to minimise concurrent dust impact arising from different construction sites, for fugitive dust control. 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) A monitoring and audit programme for the construction phase of the Project shall be devised to verify the effectiveness of the proposed control measures so as to ensure proper control of fugitive dust emission.

4. 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. This 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 has been set up to simulate the situation under study without referring to the model input files. In case of doubt, prior agreement between the Applicant and the Director on 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 pollution parameters (types of pollutants and the averaging time concentrations) to be evaluated and provide explanation for selecting these parameters for assessing the impact of the Project.
- (iii) Calculation of the relevant pollutant emission rates for input to the model and map(s) showing emission rates 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 estimating the 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. Use of any alternatives to the PATH model shall be agreed with the Director. Details of the adopted emission sources should be presented if PATH model re-run is necessary.
- (v) Emission impact from road vehicles and nearby concurrent projects within the assessment area, which are identified to contribute to the cumulative impact of the Project at the identified ASRs, should be taken into account and be included in the dispersion model. Major point sources locating within 4 km from the project site boundary, which are identified to contribute to the cumulative impact of the Project at the identified ASRs, should also be modelled by dispersion model to account for the sub-grid scale spatial variations in background concentrations induced by them.
- (vi) The Applicant shall calculate the overall cumulative air quality impact at the 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 (both unmitigated and mitigated) shall be presented in the form of summary table(s) and pollution contours, 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 to allow buffer distance requirements to be determined properly.

5. 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 Applicant shall consider mitigation measures 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.

6. Submission of Emission Calculation Details and Model Files

Input and output file(s) of model run(s) including those files for generating the pollution contours and emission calculation work sheets 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 Applicant in performing the air quality assessment. The Applicant must exercise professional judgment in applying this general information.]

The air quality modelling guidelines shall include the following guidelines as published on the website of the Environmental Protection Department

(https://www.epd.gov.hk/epd/english/environmentinhk/air/guide_ref/guide_aqa_model.html):

- i) Guidelines on Choice of Models and Model Parameters (Revised);
- ii) Guidelines on Assessing the "Total" Air Quality Impacts (Revised);
- iii) Guidelines on the Use of Alternative Computer Models in Air Quality Assessment;
- iv) Guidelines on the Estimation of PM_{2.5} for Air Quality Assessment in Hong Kong; and
- v) Guidelines on the Estimation of 10-minute Average SO₂ Concentration for Air Quality Assessment in Hong Kong.

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.
- 1.2 The Applicant shall conduct prevailing background noise surveys to determine the standards for evaluating noise impact from fixed noise source. The respective noise environment should be documented in the EIA report.
- 1.3 The Applicant shall consider and compare the noise environment with respect to the benefits and dis-benefits of various scenarios with or without the Project.

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 weekdays other than general holidays in accordance with methodology in paragraphs 5.3 and 5.4 of Annex 13 of the TM.

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 construction 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 NSRs in the assessment area and select assessment points to represent identified NSRs for carrying out quantitative construction noise impact assessment described below.
- (c) The assessment points shall be confirmed with the Director prior to the commencement of the quantitative construction noise impact 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 and quantify an inventory of noise sources for representative construction equipment for the purpose of construction noise impact

assessment.

2.3 Prediction and Evaluation of Construction Noise Impact

2.3.1 *Phases of Construction*

The Applicant shall identify representative phases of construction that would have noticeable varying construction noise emissions at existing NSRs at the assessment area for agreement of the Director before commencing the construction noise impact assessment.

2.3.2 *Scenarios*

The Applicant shall quantitatively assess the construction noise impact, with respect to criteria set in Annex 5 of the TM, of unmitigated scenario and mitigated scenario at different phases of construction of the Project.

2.3.3 *Prediction of Noise Impact*

- (a) The Applicant shall present the predicted noise levels in Leq (30 min) dB(A) at the selected assessment points on tables and plans of suitable scale.
- (b) The assessment shall cover the cumulative construction noise impact resulting from the construction works of the Project and other concurrent projects identified during the course of the EIA study on identified NSRs within the assessment area.
- (c) The potential construction noise impact under different phases of construction shall be quantified by estimating the total number of dwellings and other noise sensitive receivers that will be exposed to noise impact exceeding the criteria set in Annex 5 in the TM.
- (d) The Applicant shall, as far as practicable, formulate a reasonable construction programme so that no work will be required in restricted hours as defined under the Noise Control Ordinance (NCO). In case the Applicant needs to evaluate whether construction works in restricted hours as defined under the NCO are feasible or not in the context of programming construction works, reference should be made to relevant technical memoranda issued under the NCO. Regardless of the results of construction noise impact assessment for restricted hours, the Noise Control Authority will process Construction Noise Permit (CNP) application, if necessary, based on the NCO, the relevant technical memoranda issued under the NCO, and the contemporary conditions/ situations. This aspect should be explicitly stated in the noise chapter and the conclusions and recommendations chapter in EIA report.

2.4 Mitigation of Construction Noise Impact

2.4.1 *Direct Mitigation Measures*

Where the predicted construction noise impact exceeds the criteria set in Table 1B of Annex 5 of the TM, the Applicant shall consider and evaluate direct mitigation measures including movable barriers, enclosures, quieter alternative methods, re-scheduling, restricting hours of operation of noisy tasks, etc. 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 criteria in the TM or to maximise the protection for the NSRs as far as possible should be clearly substantiated and documented in the EIA report.

2.5 Evaluation of Residual Construction Noise Impact

Upon exhaust of direct mitigation measures, if the mitigated noise impact still exceeds the relevant criteria in Annex 5 of the TM, the Applicant shall identify, predict, evaluate the residual construction noise impact in accordance with Section 4.4.3 of the TM and estimate the total number of existing dwellings and other noise sensitive elements that will be exposed to residual noise impact exceeding the criteria set in Annex 5 in the TM.

2.6 Construction Noise Impact Monitoring and Audit

The Applicant shall, with reference to Section 8 and Annex 21 of the TM, propose a construction noise management plan so that both the verification of the inventory of noise sources, and the assessment of the effectiveness and practicality of all identified measures for mitigating the construction noise impact of the Project, would be performed during the design, tendering and implementation stage of the construction works.

3. Fixed Noise Source Impact Assessment

3.1 Fixed Noise Source Impact Assessment Methodology

The Applicant shall carry out fixed noise sources impact assessment from the Project in accordance with the methodology in paragraph 5.2 of Annex 13 of the TM.

3.2 Identification of Fixed Noise Source Impact

3.2.1 *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 fixed noise impact 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, committed and planned NSRs in the assessment area and select assessment points to represent identified NSRs for carrying out fixed noise source impact assessment described below.
- (c) The assessment points shall be confirmed with the Director prior to the commencement of the quantitative fixed noise source impact 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.

- (e) For planned noise sensitive land uses without committed site layouts, the Applicant should use the relevant land use and planning parameters and conditions to work out representative site layouts for fixed noise source impact assessment purpose. However, such parameters and conditions together with the representative site layouts and any constraints identified shall be confirmed with the relevant responsible parties including Planning Department and Lands Department.

3.2.2 *Inventory of Noise Sources*

- (a) The Applicant shall identify and quantify an inventory of noise sources for fixed noise source impact assessment. The inventory of noise sources shall include, but not limited to noise associated with any permanent and temporary industrial noise sources.
- (b) The Applicant shall provide document or certificate, with a methodology accepted by recognised national/international organisation, for the sound power level of each type of fixed noise sources.
- (c) Validity of the inventory shall be confirmed with the relevant government departments/authorities and documented in the EIA report.

3.3 Prediction and Evaluation of Fixed Noise Source Impact

3.3.1 *Scenarios*

- (a) The Applicant shall quantitatively assess the fixed noise source impact of the Project, with respect to the criteria set in Annex 5 of the TM, of unmitigated scenario and mitigated scenario at assessment year 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 of the Project; and
 - (ii) any other operation modes as confirmed with the Director.
- (b) Validity of the above operation modes shall be confirmed with relevant departments/authorities and documented in the EIA report.

3.3.2 *Prediction of Noise Impact*

- (a) The Applicant shall present the predicted noise levels in Leq (30 min) dB(A) 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 fixed noise source impact associated with the operation of the Project on existing, committed and planned NSRs within the assessment area.
- (c) The potential fixed noise source impact under different scenarios shall be quantified by estimating the total number of dwellings and other noise sensitive

receivers that will be exposed to noise impact exceeding the criteria set in Annex 5 in the TM.

3.4 Mitigation of Fixed Noise Source Impact

3.4.1 *Direct Mitigation Measures*

Where the predicted fixed noise source impact exceeds the criteria set in Table 1A of Annex 5 of the TM, the Applicant shall consider and evaluate direct mitigation measures including noise barrier/enclosure, screening by noise tolerant buildings, etc. The feasibility, practicability, programming and effectiveness of the recommended mitigation measures shall be assessed. Any direct mitigation measures recommended shall be well documented in the report. Specific reasons for not adopting certain direct mitigation measures to reduce the noise to a level meeting the criteria in the TM or to maximise the protection for the NSRs as far as possible should be clearly substantiated and documented in the EIA report.

3.5 Evaluation of Residual Fixed Noise Source Impact

Upon exhaust of direct mitigation measures, if the mitigated noise impact still exceeds the relevant criteria in Annex 5 of the TM, the Applicant shall identify, predict, evaluate the residual fixed noise source 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 criteria set in Annex 5 in the TM.

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.
3. The assessment shall include, but not be limited to the following:
 - (i) the water quality impacts of the site run-off, effluent generated from concrete washing, removal of sediment and those specified in the ProPECC Practice Note 1/94 during the construction phase;
 - (ii) the water quality impacts on river courses, natural streams drainages and other water sensitive receivers which may be affected by the Project; and
 - (iii) the water quality impacts arising from sediment removal if any during operation phase.
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 system(s), their respective catchments and sensitive receivers which might be affected by the Project;
 - (ii) characterise water quality of the water system(s) and sensitive receivers, which might be affected by the Project based on existing best available information or 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 assess the likely water quality impacts arising from the Project;
- (vi) identify any alternation of any water courses, 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 sources to surface water runoff, sewage from workforce and wastewater discharge generated from the Project, contaminants and/or sediment release from works into water bodies or sediment re-suspension;
- (viii) provide an emission inventory on the quantities and characteristics of these 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 water quality impacts arising from those alterations and changes and 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) analyse the provision and adequacy of existing and planned future facilities to reduce pollution arising from the point and non-point sources identified in sub-section (vii) above;
- (xii) develop effective construction methods, infrastructure upgrading or provision, contingency plan, water pollution prevention and mitigation measures to be implemented during the 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 to reduce storm water 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.

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 the construction and operation activities of the Project based on the sequence, duration, method and process of these activities, e.g. any dredged/excavated sediment/mud, construction and demolition (C&D) materials and other wastes which would be generated during construction and operation stages.
- (ii) The Applicant shall adopt appropriate design, general layout, construction methods and programme to minimise the generation of public fill/inert 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) 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 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 Section (iv) below;
- (iii) The EIA report shall state 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
- (iv) 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 emission;
 - noise;
 - wastewater discharge; and
 - public transport.

- (v) In addition to the above, the EIA report shall also identify practicable means of avoiding illegal dumping and landfilling, particularly on ecological sensitive areas in Mui Wo and South Lantau.

3. Excavation/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 practicable 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**

The ecological impact assessment shall cover both terrestrial and aquatic ecology and shall include the following:

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 as far as possible 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 associated with the Project, both directly by loss of wetland habitat as well as indirectly by potential impacts such as human disturbance and changes of water quality and hydrodynamic regime to the natural environment and the associated wildlife groups and habitats/species.
2. The assessment shall include the following major tasks:
 - (i) review the findings of relevant studies/surveys and collate the available information regarding the ecological characters of the assessment area;
 - (ii) evaluate the information collected, identify any information gap relating to the assessment of potential ecological impacts to terrestrial and aquatic environment, and determine the ecological field surveys and investigations that are needed for a comprehensive assessment as required under the following sections;
 - (iii) carry out any necessary ecological field surveys with a duration of at least 12 months covering both wet and dry seasons, and investigations to verify the information collected, fill in the information gaps as identified under sub-section (ii) above, if any, and to fulfil the objectives of the EIA study. The field surveys shall cover flora, fauna and any other habitats/species of conservation importance;
 - (iv) establish the ecological profile of the assessment area based on information collected in the tasks mentioned in sub-sections (i) to (iii) above, and describe the characteristics of each habitat found; the data set should be comprehensive and representative covering the variations of the wet and dry seasons, 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 all recognized sites of conservation importance and assessment of whether these sites will be affected by the Project or not;
 - (b) habitat maps of suitable scale (1:1000 to 1:5000) showing the types and locations of habitats and species of conservation interest in the assessment area;

- (c) ecological characteristics of each habitat type such as size, vegetation type, species present, dominant species found, species richness and abundance of major taxa groups, seasonal patterns, ecological value, inter-dependence of the habitats and species, and presence of any features of ecological importance;
 - (d) representative colour photos of each habitat type and any important ecological features identified; and
 - (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 various habitats with special attention to those wildlife groups and habitats with conservation interest, including the following:
- (a) Wetland habitats including marshes and seasonally wet grassland;
 - (b) Natural streams and rivers;
 - (c) Vertebrates (e.g. avifauna, mammals, fish, herpetofauna such as Romer's Tree Frog, etc.);
 - (d) Macroinvertebrates (including butterflies and odonates); and
 - (e) Any other habitats or species identified as having conservation importance by this study.
- (vi) describe recognised site of conservation importance in the assessment area, and assess whether these site will be affected by the Project or not;
- (vii) using suitable methodology, and considering also any works activities from other projects reasonably likely to occur at the time, identify and assess any direct (e.g. loss of habitats), indirect (e.g. changes in water qualities, hydrology, light, noise 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 destruction of habitats, potential diversion or modification of stream courses, disturbance to wildlife, reduction of species abundance/diversity, loss of feeding and breeding grounds, reduction of ecological carrying capacity and habitat fragmentation, in particular the following:
- (a) loss of habitats of conservation interest, in particular wetlands including marsh, on temporary and permanent basis, due to the construction and operation of the Project;
 - (b) noise, glare, dust, traffic and other human disturbance to wildlife including wetland-dependent species during the construction and operation stages of the Project;
 - (c) impacts due to potential changes in water quality, hydrodynamics properties, hydrology and ecological connectivity of River Silver, Luk Tei Tong River, Tai Tei Tong River, Pak Ngan Heung River and Silver

Mine Bay Beach during the construction and operation stages of the Project; and

- (d) 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 as well as the subsequent management and maintenance requirement of the Project;
- (ix) recommend possible alternatives, such as modification of layout, design and/or construction methods, and practicable mitigation measures (such as restriction of works at specified season, provision of wildlife corridor, etc.) to avoid, minimise 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, in particular similar measures that have been adopted in previous studies (e.g. Drainage Improvements in Southern Lantau (AEIAR-093/2005)) should be reviewed to assess their effectiveness;
- (xi) determine and quantify as far as possible of the residual ecological impacts after implementation of the proposed mitigation measures;
- (xii) evaluate the significance 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 and if affirmative, guidelines and requirements laid down in Annex 16 of the TM should be followed; and
- (xiii) review the need for and recommend any ecological monitoring programme required.

Appendix G**Requirements for Landscape and Visual Impact Assessment**

1. The Applicant shall review relevant plan(s) and/or studies which may identify areas of high landscape value e.g. wetlands, watercourse, and woodland areas, etc. 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 the statutory town plan(s) and any published land use plans shall be highlighted and appropriate follow-up action shall be recommended. A system shall be derived for judging the landscape and visual impact significance as required under the Annexes 10 and 18 of the TM and the 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 impacts of the Project. The Applicant shall describe, appraise, analyse and evaluate the existing and planned landscape resources and character of the assessment area. A system shall be derived for judging landscape and visual impact significance. Annotated oblique aerial photographs and plans of suitable scale showing the baseline landscape character areas and landscape resources 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 and visual point of view. The sensitivity of the landscape framework and its ability to accommodate change shall be particularly focused on. The Applicant shall identify the degree of compatibility of the Project with the existing and planned landscape setting, recreation and tourism related uses, and scenic spot. The landscape impact assessment shall quantify the potential landscape impact as far as possible so as to illustrate the significance of such impacts arising from the proposed development. Clear mapping of the landscape impact is required. Broad brush tree and vegetation survey shall be carried out and the impacts on existing trees and vegetation shall be addressed. Cumulative landscape and visual impacts of the Project with other committed and planned developments shall be assessed.
3. The Applicant shall assess the visual impacts of the Project. Clear illustration including mapping of visual impact is required. Descriptive text shall provide a concise and reasoned judgment from a visual point of view. 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 and justification of the key groups of existing and planned sensitive receivers including tourists and residents in the vicinity of the Project within the visual envelope with regard to views from ground level, sea 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 planned setting, its obstruction and interference with the key views of the study areas, and changes in visual amenity;
 - (v) identification and description of the severity of visual impacts in terms of distance, nature and number of sensitive receivers. Assessment on effectiveness of the proposed mitigation measures of visual impacts during construction and operation stages shall be carried out by comparing the impacts with and without mitigation measures; and
 - (vi) evaluation and explanation with supportive arguments of factors considered in arriving the significance thresholds of visual impact. The visual impacts should include presentation of an evaluation matrix derived for judging impact significance.
4. The Applicant shall evaluate the merits 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 methods that would avoid or reduce the identified landscape and visual impacts shall be considered and evaluated for comparison before adopting other mitigation or compensatory measures to alleviate the impacts. The Applicant shall recommend mitigation measures which shall not only focus on damage reduction but also potential enhancement of existing landscape and visual quality of the area. The recommendations shall also be illustrated in landscape design and landscape/visual impact mitigation measure plan.
5. The mitigation measures shall include preservation of vegetation and natural landscape resources (e.g. maintaining buffer for wetland/natural streams, retaining existing trees, transplanting of mature trees), wetland restoration, provision of screen planting, re-vegetation of disturbed land, woodland restoration, compensatory planting, provisioning/reprovisioning of amenity areas and open spaces, design and layout of structures, provision of finishes to structures, colour scheme and texture of

material used and any measures to mitigate the impact on existing and planned land uses and sensitive receivers. Parties shall be identified for the ongoing management and maintenance of the proposed mitigation works to ensure their effectiveness throughout the construction phase and operation phase of the Project. A practical programme for the implementation of the recommended measures shall be provided.

6. Annotated illustration materials such as colour perspective drawings, plans and section/elevation diagrams, annotated oblique aerial photographs, photographs taken at vantage points, and computer-generated photomontage shall be adopted to fully illustrate the landscape and visual impacts of the Project. The landscape and visual impacts of the Project with and without mitigation measures from representative viewpoints, particularly from views of the most severely affected visually sensitive receivers (i.e. worst case scenario), shall be properly illustrated in existing and planned setting at four stages (existing condition, Day 1 with no mitigation measures, Day 1 with mitigation measures and Year 10 with mitigation measures) by computer-generated photomontage so as to demonstrate the effectiveness of the proposed mitigation measures. Computer graphics shall be compatible with Microstation DGN file format. The Applicant shall record the technical details in preparing the illustration, which may need to be submitted for verification of the accuracy of the illustration.

Appendix H**Requirements for Built Heritage Impact Assessment under
Cultural Heritage Impact Assessment**

1. The Applicant shall conduct a built heritage impact assessment (BHIA), taking the results of the previous studies and other background of the site into account, to identify known and unknown built heritage items within the assessment area that may be affected during construction of the Project and its associated works and to assess the direct and indirect construction stage impacts on built heritage items. The impacts include visual impact, impacts on the fung shui/visual corridor of the historic buildings and structures through change of water-table, vibration caused by the Project. Assessment of impacts on cultural heritage shall also take full account of, and allow where appropriate, the Guidelines for Landscape and Visual Impact Assessment of Annex 18 of the TM. The Applicant shall demonstrate that all reasonable efforts have been made to avoid or keep the adverse impacts of built heritage items to the minimum through modification of design of the Project, or use of latest construction/engineering techniques. For those built heritage items that might still be directly and indirectly affected by the Project, the Applicant shall recommend practicable mitigation measures and monitoring to avoid or keep the adverse impact to the minimum. A checklist including all the affected sites of cultural heritage, impacts identified, recommended mitigation measures as well as the implementation agent and period shall also be included in the EIA report. The Applicant shall draw necessary reference to relevant sections of the “Guidelines for Cultural Heritage Impact Assessment” issued by the Antiquities and Monuments Office for detailed requirement.

Appendix I

Implementation Schedule of Recommended Mitigation Measures

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

Appendix J**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 bilingual (in both English and Chinese) executive summary 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 bilingual (in both English and Chinese) executive summary 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. To facilitate public inspection of EIA report via EIAO Internet Website, the Applicant shall provide electronic copies of both the EIA report and the executive summary prepared in HyperText 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 the executive summary shall be included in the beginning of the document. Hyperlinks to figures, drawings and tables in the EIA report and the 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.
5. 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.