

本署檔號
OUR REF: () in EP 2/N8/K/130
來函檔號
YOUR REF:
電話
TEL. NO.: 2835 1751
圖文傳真
FAX NO: 2591 0558
電子郵件
E-MAIL:
網址
HOMEPAGE: <http://www.epd.gov.hk>

Environmental Protection Department
Branch Office
28th Floor, Southorn Centre,
130 Hennessy Road,
Wan Chai, Hong Kong.



環境保護署分處
香港灣仔
軒尼詩道
一百三十號
修頓中心廿八樓

20 April 2017

Leighton-China State JV,

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

Project Title: Proposed Explosive Magazine Site at Tseung Kwan O Area 137
for Tseung Kwan O – Lam Tin Tunnel
(Application No. ESB-298/2017)

I refer to your above application received on 13 March 2017 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-298/2017) 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. Dora CHU (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 Ms. Clara YU at 2835 1140.

Yours sincerely,



(Lawrence K. K. NGO)
Acting Principal Environmental Protection Officer
(Regional Assessment)
for Director of Environmental Protection

Encl.

Environmental Impact Assessment Ordinance (Cap. 499), Section 5(7)

Environmental Impact Assessment Study Brief No. ESB-298/2017

**Project Title: Proposed Explosive Magazine Site at Tseung Kwan O Area 137
for Tseung Kwan O – Lam Tin Tunnel
(hereinafter known as the "Project")**

Name of Applicant: Leighton-China State JV
(hereinafter known as the "Applicant")

1. BACKGROUND

1.1 An application (No. ESB-298/2017) 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 13 March 2017 with a project profile (No. PP-547/2017) (the Project Profile).

1.2 The Applicant proposes to construct and operate an explosive magazine site at Tseung Kwan O (TKO) Area 137 for storage and delivery of explosives from TKO Area 137 to blasting site(s) of Tseung Kwan O - Lam Tin Tunnel (TKO-LTT) project for construction of the main tunnel and associated works. The proposed explosive magazine site will later be decommissioned under the Project. The location of the Project as given in the Project Profile is reproduced in Appendix A of this EIA study brief. Major components of the proposed explosive magazine site are described as follows :-

- (i) Two one-storey stores with a total storage capacity of 600 kg explosives;
- (ii) Security fence;
- (iii) Guard house; and
- (iv) Street fire hydrant water tank and pumps.

1.3 The TKO-LTT project is classified as a designated project (DP) by virtue of Items A.1, A.7, A.8, A.9 and C.2(c) of Schedule 2, Part I of the EIAO. Civil Engineering and Development Department (CEDD) had completed an EIA for the TKO-LTT project. The EIA report (Register No. : AEIAR-173/2013, hereinafter referred to as "TKO-LTT EIA report") was approved with conditions in July 2013 and an Environmental Permit (EP) was issued to CEDD in August 2013 for construction

and operation of the TKO-LTT project. The TKO-LTT project is currently covered by an EP (Permit No. : EP-458/2013/C) in which condition 3.5 specifies that no overnight storage of explosive on site shall be permitted for the construction of the TKO-LTT project. Based on the information provided in the Project Profile, the Project is exclusively used for the construction of TKO-LTT project. In this connection, the Project is part and parcel of the TKO-LTT project when overnight storage of explosive is provided.

1.4 Based on the information provided in the Project Profile, the Project will comprise the following designated projects:

- (i) Item K.10 of Schedule 2, Part I of the EIAO, which specifies “*An explosives depot or explosives manufacturing plant in a stand-alone, purpose built building*”; and
- (ii) Item 11 of Schedule 2, Part II of the EIAO, which specifies “*Decommissioning of an explosives depot or explosives manufacturing plant*”.

1.5 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.

1.6 The purpose of this EIA study is to provide information on the nature and extent of environmental impacts arising from the construction, operation and decommissioning of the Project and associated activities of TKO-LTT project 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, operation and decommissioning 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 activities of the TKO-LTT project together with the requirements and environmental benefits for carrying out the Project taking into account the principles of avoidance, minimizing and control of adverse environmental impacts;
- (ii) to identify and describe elements of 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 on sensitive receivers and potential affected uses;
- (iv) to propose the provision of infrastructure or mitigation measures to minimize pollution, environmental disturbance and nuisance during construction, operation and decommissioning of the Project;
- (v) to investigate the feasibility, effectiveness and implications of the proposed mitigation measures;
- (vi) to identify, predict and evaluate the residual (i.e. after practicable mitigation) environmental impacts and the cumulative effects expected to arise during construction, operation and decommissioning of the Project in relation to the sensitive receivers and potential affected uses;
- (vii) to identify, assess and specify methods, measures and standards, to be included in detailed design, construction, operation and decommissioning of the Project which are necessary to mitigate these residual environmental impacts and cumulative effects and reduce them to acceptable levels;
- (viii) to design and specify environmental monitoring and audit requirements; and
- (ix) to identify any additional studies necessary to implement the mitigation measures 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 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 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 associated works mentioned in sections 1.2 - 1.4 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) the objective comparison of the environmental benefits and dis-benefits of alternative options for storage and delivery of explosives to the blasting site(s) of TKO-LTT project with a view to deriving the preferred option(s) that would avoid or minimize adverse environmental impact to the maximum practicable extent on the surrounding environment;
- (ii) review and update, if necessary the relevant sections of the TKO-LTT EIA report (Register No. : AEIAR-173/2013) for potential environmental impacts arising from operation of the Project;
- (iii) potential hazard to life impact due to storage, transport and use of explosives during operation of the Project;
- (iv) potential air quality impact on air sensitive receivers (ASRs), including dust and gaseous emissions caused by the Project and associated activities of the TKO-LTT project;

- (v) potential visual impact during construction, operation and decommissioning of the Project;
- (vi) potential waste management implications arising from the Project and the potential extent of land contamination within any project area for development works and relevant mitigation measures; and
- (vii) potential cumulative environmental impacts through interaction or in combination with other existing, committed and planned projects, that those impacts may have a bearing on the environmental acceptability of the Project. Consideration shall be given to account for impacts from potential concurrent projects, including but not limited to the TKO-LTT 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 benefit of the Project taking into account the principles of avoidance, minimizing and control of adverse environmental impacts, 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, design, size, construction methods and major activities involved in operation of the Project, using diagrams, plans and/or maps as necessary. The estimated duration of the construction, operational and decommissioning phases of the Project and associated activities of the TKO-LTT 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 consideration of alternatives to the

Project taking into account the principles of avoidance, minimizing and control of adverse environmental impacts. The Applicant shall also provide information on site location and site history of the Project, and the consideration of the different development options comprising layout and explosive transportation route options of the Project. The key reasons for selecting the preferred option for storage and delivery of explosives to be used by TKO-LTT project, the proposed layout and explosive transportation route(s) of the Project, and the part environmental factors played in the selection shall be described. The main environmental impacts of different practicable 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 work 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 include the following technical requirements on specific impacts.

3.4.4 Hazard to Life

3.4.4.1 The Applicant shall follow the criteria for evaluating hazard to life as stated in Section 2 of Annex 4 of the TM.

3.4.4.2 The hazard to life assessment for the Project and associated activities of the TKO-LTT project shall follow the detailed technical requirements given in Appendix B of this EIA study brief.

3.4.5 **Air Quality Impact**

- 3.4.5.1 The Applicant shall follow the criteria and guidelines as stated in Section 1 of Annexes 4 and 12 of the TM respectively, for evaluating and assessing air quality impact.
- 3.4.5.2 As mentioned in section 1.3 of this EIA study brief, the Project is part and parcel of the TKO-LTT project. Therefore, the assessment area for the air quality impact assessment shall be defined by a distance of 500 metres from the boundary of the Project site and the boundary of TKO-LTT project site as well as other project locations as identified in the EIA, 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 areas where air quality may be potentially affected by the Project and the TKO-LTT project as well as other project locations as identified in the EIA. 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.
- 3.4.5.3 The assessment of the air quality impacts of the Project and associated activities of the TKO-LTT project shall follow the detailed technical requirements given in Appendix C of this EIA study brief.

3.4.6 **Visual Impact**

- 3.4.6.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing the visual impact 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”.
- 3.4.6.2 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.
- 3.4.6.3 The visual impact assessment for the construction, operational and decommissioning phases of the Project shall follow the detailed technical requirements given in Appendix D of this EIA study brief.

3.4.7 Waste Management Implication and Land Contamination

- 3.4.7.1 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.
- 3.4.7.2 The assessment of the waste management implications arising from the construction, operational and decommissioning phases of the Project shall follow the detailed technical requirements given in Appendix E of this EIA study brief.
- 3.4.7.3 The Applicant shall follow the criteria and guidelines for evaluating and assessing potential land contamination issues as stated in Sections 3.1 and 3.2 of Annex 19 of the TM.
- 3.4.7.4 The assessment of the potential land contamination issues of the Project arising from the operational and decommissioning phases of the Project shall follow the detailed technical requirements given in Appendix F of this EIA study brief.

3.4.8 Environmental Monitoring and Audit (EM&A) Requirements

- 3.4.8.1 The Applicant shall identify and justify in the EIA study whether there is any need for EM&A activities during the construction, operational and decommissioning phases of the Project and, if affirmative, to define the scope of the EM&A requirements for the Project in the EIA study.
- 3.4.8.2 Subject to the confirmation of the EIA study findings, the Applicant shall comply with the requirements as stipulated in Annex 21 of the TM.
- 3.4.8.3 The Applicant shall prepare a project implementation schedule (in the form of a checklist as shown in Appendix G) containing all the EIA study recommendations and mitigation measures with reference to the implementation programme.

3.5 Presentation of Summary Information

3.5.1 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.

3.5.2 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.

3.5.3 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/key 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.

3.5.4 Summary of Alternative Mitigation Measures

The EIA report shall contain a summary of alternative mitigation measures considered during the course of the EIA study, including design, scale, layout and explosive transportation route options of the Project, with a view to avoiding, minimizing, compensating and/or mitigating adverse environmental impacts arising from the Project and associated activities of the TKO-LTT project. 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.

3.5.5 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 H 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. PP547/2017), 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 – Location Plan of the Proposed Explosive Magazine Site

Appendix B – Requirements for Hazard to Life Assessment

Appendix C – Requirements for Air Quality Impact Assessment

Appendix D – Requirements for Visual Impact Assessment

Appendix E – Requirements for Assessment of Waste Management Implications

Appendix F – Requirements for Land Contamination Assessment

Appendix G – Implementation Schedule

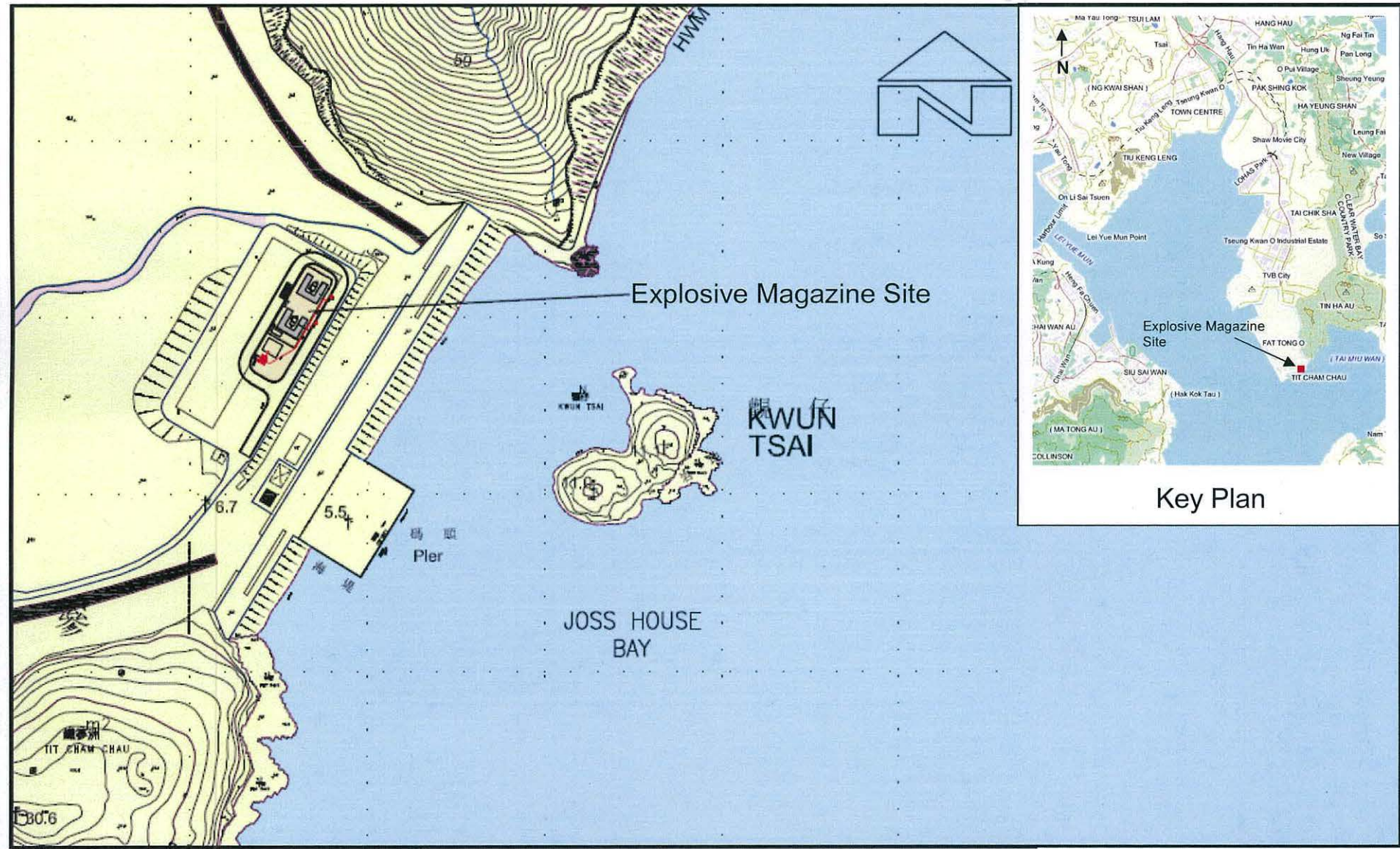
Appendix H – Requirements for EIA Report Documents

--- END OF EIA STUDY BRIEF ---

April 2017

Environmental Assessment Division

Environmental Protection Department



Project Title: Proposed Explosive Magazine Site at Tseung Kwan O Area 137 for Tseung Kwan O – Lam Tin Tunnel
 工程項目名稱：在將軍澳第137區擬建爆炸品倉庫以配合將軍澳-藍田隧道工程
 Location Plan of the Proposed Explosive Magazine Site
 擬建爆炸品倉庫的位置圖

[This figure was prepared based on Appendix A of the Project Profile (No. PP-547/2017)]
 [本圖是根據工程項目簡介(編號：PP-547/2017 附錄 A 編制)]

Environmental Protection Department
 環境保護署



EIA Study Brief No. : ESB-298/2017
 環境影响評估研究概要編號: ESB-298/2017

Appendix A
 附錄 A

Appendix B

Requirements for Hazard to Life Assessment

1. The Applicant shall carry out hazard assessment as follows:
 - (i) Identify hazardous scenarios associated with the storage, transport and use of explosives and then determine a set of relevant scenarios to be included in a Quantitative Risk Assessment (QRA);
 - (ii) Execute a QRA of the set of hazardous scenarios determined in (i), expressing population risks in both individual and societal terms;
 - (iii) Compare individual and societal risks with the criteria for evaluating hazard to life stipulated in Annex 4 of the TM; and
 - (iv) Identify and assess practicable and cost-effective risk mitigation measures.
2. The hazard assessment shall also include a cumulative risk assessment of the Project, through interaction or in combination with other existing, committed and planned developments involving dangerous goods (e.g. Explosives Offloading Pier) in the vicinity of the Project.
3. The methodology to be used in the hazard assessment should be consistent with previous studies having similar issues (e.g. Shatin to Central Link).

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, operation and decommissioning stages.
- (ii) Provision of an account, where appropriate, of the consideration/measures that have been taken into consideration in the planning of the Project to avoid and minimize the air pollution impact. The Applicant shall consider alternative construction methods, means of transportation for construction materials and their routings, phasing programmes and alternative modes of operation to minimise the air quality impact during construction, operation and decommissioning stages of the Project.
- (iii) Presentation of background air quality levels in the assessment area for the purpose of evaluating cumulative air quality impacts during construction, operation and decommissioning stages of the Project. If PATH model is used to estimate the background air quality, details for the estimation of the emission sources to be adopted in the model 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, 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. 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. For phased development, the Applicant shall review the development programme and, where appropriate, to include occupiers of earlier phases as ASRs of construction phase impact if they may be affected by works of later phases.

- (ii) Provision of a list of air pollutant emission sources, including any nearby emission sources which are likely to have impact related to the Project based on the analysis of the activities under construction, operation and decommissioning stages in Section 1 above. Examples of construction stage emission sources include stock piling, blasting, material handling and vehicular movements on unpaved haul roads on site, etc. Examples of operational stage emission sources include exhaust emissions from vehicles, marine vessels, etc. Confirmation regarding the validity of assumptions and the magnitude of activities (e.g. volume of construction material to be handled, etc.) shall be obtained from the relevant government departments/authorities and documented in the EIA report.
- (iii) Identification of chimneys and obtainment of relevant chimney emission data in the assessment area 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 impacts at the existing, committed and planned ASRs within the assessment area, 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) A quantitative assessment shall be carried out to evaluate the construction dust impact at the ASRs identified within the assessment area as defined in Section

3.4.5.2 of this study brief. The Applicant shall follow the methodology set out in Section 5 below when 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 minimize 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 shall be devised to verify the effectiveness of the proposed control measures so as to ensure proper control of fugitive dust emission.

4. Operational Phase Air Quality Impact

- (i) The Applicant shall ascertain and state clearly whether the Project will cause cumulative air quality impacts associated with the operational phase of the TKO-LTT project and other project locations as identified in the EIA. If affirmative, the Applicant shall assess the expected air pollutant impacts at the identified ASRs within the assessment area as defined in Section 3.4.5.2 of this study brief based on an assumed reasonable worst-case scenario under normal operation conditions of the Project.
- (ii) If the assessment indicates likely exceedances of the recommended limits in the TM at the development and the nearby ASRs, a quantitative assessment should be carried out to evaluate the operational phase air quality impacts at the identified ASRs. The Applicant shall follow the methodology set out in Section 5 below when carrying out the assessment.
- (iii) A monitoring and audit programme 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 quantitative assessment by applying the general

principles enunciated in the modelling guidelines in Appendix C-1 while making allowance for the specific characteristic of the Project. This specific methodology must be documented in such level of details, preferably associated 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 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 a map showing the 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) The air quality impacts of future road traffic should be calculated based on the highest emission strength from road vehicles in the assessment area within the next 15 years upon commencement of operation of the proposed roads. 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. The Applicant may use the EMFAC-HK model released by the Director to determine the Fleet Average Emission Factors, taking into account vehicle fleet mix and other necessary data. 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 flow data and assumptions, such as the exhaust technology fractions, vehicle age/population distribution, traffic forecast and speed fractions that are used in the assessment shall be presented.
- (v) For estimating the future background air quality, the Applicant may use EPD's 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.

- (vi) Ozone Limiting Method (OLM) or Discrete Parcel Method (DPM) or other appropriate method shall be used to estimate the conversion ratio of NO_x to NO₂ if NO₂ has been identified as a key/representative air pollutant.
- (vii) The Applicant shall calculate the cumulative air quality impact at the identified ASRs 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 shall be used to present pollution contours 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 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 4.5.1(d) of the TM.

7. 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 calculations work sheets shall be submitted to the Director in electronic format together with the submission of the EIA report.

Appendix C-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 judgement 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:

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

- (i) Guidelines on Choice of Models and Model Parameters;
- (ii) Guidelines on Assessing the “Total” Air Quality Impact (Revised);
- (iii) Guidelines on the Use of Alternative Computer Models in Air Quality Assessment (Revised);
- (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 D

Requirements for 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 visually sensitive areas/receivers. Any guidelines on visual impact of the Project shall also be reviewed. The aim is to gain an insight to the area affected so as to assess whether the Project will cause adverse visual impact of the Project and appropriate follow-up action shall be recommended. A system shall be derived for judging the visual impact significance as required under the Annexes 10 and 18 of the EIAO-TM and the EIAO Guidance Note No. 8/2010 “Preparation of Landscape and Visual Impact Assessment under the EIAO”.

2. The Applicant shall assess the visual impact of the Project. Clear illustrations including mapping of visual impact is required. Descriptive text shall provide a concise and reasoned judgment from a 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) identification of the key groups of existing and planned sensitive receivers within the visual envelope with regard to views from sea level, ground level and elevated vantage points;

 - (iii) 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 envelope; and

 - (iv) 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.

 - (v) evaluations and explanations of factors considered in arriving the significance thresholds of visual impact.

3. 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 and funding proposal for the implementation of the recommended measures shall be provided.

4. Annotated illustrations such as coloured perspective drawings, plans and section/elevation diagrams, oblique aerial photographs, photographs taken at vantage points, and computer-generated photomontage shall be adopted to fully illustrate the visual impacts of the Project. 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.

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 wastes arising as a result of the construction, operation and decommissioning activities of the Project, based on the sequence and duration of these activities, e.g. any dredged/excavated sediment/mud, construction and demolition (C&D) materials, floating refuse and other wastes which would be generated during construction, operation and/or decommissioning stage.
- (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 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 (iv) below.
- (iii) The EIA report shall also 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

- (iv) The impact caused by handling (including stockpiling, labelling, packaging and 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.

Appendix F

Requirements for Land Contamination Assessment

1. The Applicant shall carry out the land contamination assessment as detailed below and propose measures to avoid disposal:
 - (i) The Applicant identify the potential land contamination site(s) within the Project Area (Appendix A refers) and, if any, within the boundaries of associated areas (e.g. works areas) of the Project.
 - (ii) The Applicant shall provide a clear and detailed account of the present land use (including description of the activities, chemicals and hazardous substances handled, with clear indication of their storage and location, by reference to a site layout plan) and a complete past land uses history, in chronological order, in relation to possible land contamination (including accident records and change of land use(s) and the like).
 - (iii) If any potential contaminated land lots and sites as stated in Sections 3.1 and 3.2 of Annex 19 in the TM is identified, the Applicant shall carry out the land contamination assessment as detailed in Sections 3.1 and 3.2 of Annex 19 of the TM accordingly.

Appendix H

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 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 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.