

1 INTRODUCTION

1.1 Background

- 1.1.1 The engineering feasibility study of the Anderson Road Quarry (ARQ) Development in East Kowloon has been conducted under the Agreement No. CE18/2012 (CE) "*Development of Anderson Road Quarry - Investigation*" (the FS) to ascertain the feasibility of implementing the development proposal. The FS was classified as a designated project under the Schedule 3 of the Environmental Impact Assessment Ordinance (EIAO). Hence, as a part of the study, an environmental impact assessment (EIA) report titled "Development of Anderson Road Quarry" has been submitted and approved under the EIAO (Register: AEIAR-183/2014) on 28 July 2014.
- 1.1.2 Community engagement was conducted under the FS and public views were collected. There was no strong view from the public on the cavern development and some of the LegCo members recommended promoting business opportunity or educational purposes in making use of the cavern. It was recommended in the FS to construct and operate cavern development within the boundary of the ARQ Development.
- 1.1.3 Subsequently, a Project Profile No. PP-501/2014 was submitted for the EIA study brief under section 5(1)(a) of the EIAO. An EIA Study Brief No. ESB 269/2014 "Development of Anderson Road Quarry Site – Rock Cavern Developments" was issued to Civil Engineering and Development Department for carrying the environmental impact assessment for the Project presented in this EIA Report on 10 March 2014.
- 1.1.4 This Project comprises the construction of a cavern located on the rock slopes in the north side of the ARQ Development.

1.2 Nature of Designated Project

- 1.2.1 The Project is a designated project by virtue of Category Q – Miscellaneous, Item Q.2 of Part 1, Schedule 2 of the EIAO: "Underground rock cavern." The nature of this designated project is to construct and operate a rock cavern at the existing rock slopes of the ARQ Site Development for museum and/or exhibition centre.

1.3 Objective of EIA Study

- 1.3.1 The purpose of this EIA study is to provide information on the nature and extent of environmental impacts arising from the construction and operation of the Project and associated works that will take place concurrently. This information will contribute to decisions by the Director of Environmental Protection on:
- (i) the overall acceptability of any adverse environmental consequences that are likely to arise as a result of the Project and associated works, and their staged implementation;
 - (ii) the conditions and requirements for the detailed design, construction and operation of the Project to mitigate against adverse environmental consequences; and
 - (iii) the acceptability of residual impacts after the proposed mitigation measures are implemented.
- 1.3.2 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 Project;
 - (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 natural and man-made environment and the associated environmental constraints;

- (iii) To provide information on the consideration of alternative options of the Project including alternative siting, scale/size, extent, layout, configuration/orientation, design and construction methods with a view to avoiding and minimizing potential environmental impacts to environmentally sensitive areas and sensitive uses; to compare the environmental benefits and dis-benefits of different options; to provide reasons for selecting the preferred options(s) and to describe the part environmental factors played in the selection of preferred options(s);
- (iv) To identify and quantify emission sources, including air and gaseous emission, noise emission, sewage and wastewater emission and waste generation and determine the significance of impacts on sensitive receivers and potential affected uses;
- (v) To identify and systematically evaluate any potential landscape and visual impacts and to propose measures to mitigate these impacts;
- (vi) 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;
- (vii) To investigate the feasibility, practicability, effectiveness and implications of the proposed mitigation measures;
- (viii) To identify, predict and evaluate the residual environmental impacts (i.e. after practicable mitigation) and the cumulative effects expected to arise during the construction and operation phases of the Project in relation to the sensitive receivers and potential affected uses;
- (ix) 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 environmental impacts and cumulative effects and reduce them to acceptable levels;
- (x) To investigate the extent of the secondary environmental impacts that may arise from the proposed mitigation measures and to identify constraints associated with the mitigation measures recommended in the EIA study, as well as the provision of any necessary modification; and
- (xi) To design and specify environmental monitoring and audit requirements to ensure the effective implementation of the recommended environmental protection and pollution control measures.

1.3.3 The key issues described below will be addressed:

- (i) Potential air quality impact on sensitive receivers during construction and operation of the Project, including the construction dust emissions and the emissions from the ventilation shafts of the caverns during operations;
- (ii) Potential noise impact on sensitive receivers during construction and operation of the Project, including noise generated from construction equipment and fixed plant noise arising from the ventilation shafts of the caverns during operation;
- (iii) Potential water quality impacts on relevant water system(s) including the Victoria Harbour (Phase One) Water Control Zone and relevant water sensitive receivers during construction and operation of the Project;
- (iv) Potential sewerage and sewage treatment implications arising from the Project;
- (v) Potential waste management issues including the excavated materials from rock caverns construction and other types of wastes to be generated from the Project;
- (vi) Potential landscape and visual impact arising from the operation of the Project; and
- (vii) Potential cumulative environmental impacts of the Project, through interaction or in combination with other existing, committed and planned projects such as the ARQ Development, in the vicinity of the Project, and that those impacts may have a bearing on the environmental acceptability of the Project.

1.4 Structure of the EIA Report

1.4.1 After this introductory section, the remaining sections of this EIA Report set out as follows:

- (i) Section 2 provides information on the project background, objectives and need, benefits, location, the scope of development, the EIA study area and the works programme.
- (ii) Section 3 presents consideration of alternatives including the “without the Project” scenario, the “with the Project” scenario as well as consideration of project design alternatives including related details of construction and operation of the project.
- (iii) Sections 4 to 9, inclusive, contain the assessments of potential impacts associated with the construction and operation of the proposed project, and the likely effects on air quality, noise, water quality, sewerage and sewage treatment implication, waste management implication and landscape and visual. In each technical section, necessary mitigation measures are recommended to ensure compliance with the established standards and other criteria. The environmental monitoring and audit (EM&A) requirements are also presented with further details of the EM&A scope, approach and requirements to be found in the accompanying stand-alone EM&A manual. The findings of EIA are summarized and concluded at the end of each relevant technical section.
- (iv) Section 10 includes a comprehensive Implementation Schedule summarising the environmental mitigation measures.
- (v) Section 11 presents the conclusion.

1.4.2 Various materials and background data are contained in Appendices to the report.