

APPENDIX A SUMMARY OF KEY FINDINGS FOR ENVIRONMENTAL IMPACTS

	Construction Phase	Operational Phase
Air Quality		
Assessment Scope and Key Criteria	<ul style="list-style-type: none"> • 500m area from the boundary of the project site • Air Pollution Control (Amendment) Ordinance 2013 • Air Pollution Control (Construction Dust) Regulation • Annexes 4 and 12 of Technical Memorandum of Environmental Impact Assessment Process (EIAO-TM) • Hong Kong Air Quality Objectives 	<ul style="list-style-type: none"> • Same as construction phase
Representative Sensitive Receivers	<ul style="list-style-type: none"> • The sensitive receivers include, but not limited to, those at Siu To Yuen Village, Lung Wo Tsuen, the planned public housing development along Anderson Road and the planned residential development and educational use at the Anderson Road Quarry (ARQ) Development. 	<ul style="list-style-type: none"> • Future residents within ARQ Site
Evaluation of Major Impacts	<ul style="list-style-type: none"> • Construction dust associated with the cavern works. 	<ul style="list-style-type: none"> • Based on the preliminary traffic forecast, the induced daily traffic (2-way) would be in the order of 50 vehicles/day induced on the future local distributor roads and the traffic is mainly attributed to the maintenance activities and work-related transport. Comparing to the traffic flows of nearby future local distributors (i.e. Road L1 & L2) which have around 4000 veh/day (2-way) per road, the induced traffic volume is small and hence it would not cause adverse air quality to the surroundings. • Reference has been made to the approved Schedule 3 EIA Report for Anderson Road Quarry Development (Register No.: AEIAR-183/2014) for the predicted air quality condition in the vicinity of the cavern development during the operational phase of ARQ Site. The predicted representative air pollutants concentration including NO₂, RSP and FSP at the worst-case year (i.e. Year 2026) on areas nearby the cavern development are well complied to the AQOs with taken the nearby emission sources into account. Provided that the location of fresh air intake for the cavern will be properly located with sufficient buffer distance to emission sources, adverse air quality

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		impact is not anticipated to the proposed exhibition area/resource centre in cavern.
Cumulative Impacts	<ul style="list-style-type: none"> • Concurrent projects that pose cumulative dust impact such as Road Improvement Works at Clear Water Bay Road / On Sau Road & New Clear Water Bay Road / Shun Lee Tsuen Road and ARQ Development and Pedestrian Connectivity have been taken into account. • Dust from Open Road Emissions within 500m study area has been considered. 	<ul style="list-style-type: none"> • Not adverse impact is anticipated.
Key Mitigation Measures	<ul style="list-style-type: none"> • Hourly water spraying to construction site with the intensity of 0.152 L/m² to works areas associated with potential dust impact. • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet 	<ul style="list-style-type: none"> • Not applicable
Residual Impact	<ul style="list-style-type: none"> • No excessive residual impact is anticipated. 	<ul style="list-style-type: none"> • No excessive residual impact is anticipated.
Noise		
Assessment Scope and Key Criteria	<ul style="list-style-type: none"> • 300m area from the boundary of the project site • TMs under Noise Control Ordinance • Annexes 5 and 13 of EIAO-TM 	<ul style="list-style-type: none"> • Same as construction phase
Representative Sensitive Receivers	<ul style="list-style-type: none"> • Existing village houses near Lung Wo Tsuen and Tan Shan Tsuen • Chi Yum Ching She 	<ul style="list-style-type: none"> • Future residents within ARQ Site
Evaluation of Major Impacts	<ul style="list-style-type: none"> • Construction noise associated with the cavern works. 	<ul style="list-style-type: none"> • Fixed plant noise from the ventilation shaft of the cavern.

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Cumulative Impacts	<ul style="list-style-type: none"> Concurrent project that pose cumulative noise impact (i.e. ARQ development) within 300m area from boundary of the project site. 	<ul style="list-style-type: none"> Other concurrent fixed noise sources such as proposed pumping station within ARQ Site.
Key Mitigation Measures	<ul style="list-style-type: none"> Follow the requirements set out in the “Recommended Environmental Pollution Control Clauses” published by EPD and adopt good site practice 	<ul style="list-style-type: none"> Choose quieter plant such as those which have been effectively silenced to achieve maximum permissible sound power levels predicted in EIA. Install direct noise mitigation measures including silencers, acoustic louvers and acoustic enclosure where necessary.
Residual Impact	<ul style="list-style-type: none"> No excessive residual impact is anticipated. 	<ul style="list-style-type: none"> With the provision of suitable equipment or treatment, surrounding NSRs would not be adversely affected.
Water Quality		
Assessment Scope and Key Criteria	<ul style="list-style-type: none"> 500m from the boundary of the project site Water Quality Objectives for the Victoria Harbour Water Control Zone Annexes 6 and 14 of the EIAO-TM 	<ul style="list-style-type: none"> Same as construction phase
Representative Sensitive Receivers	<ul style="list-style-type: none"> One natural stream located to the northeast of the project site. 	<ul style="list-style-type: none"> Same as construction phase
Evaluation of Major Impacts	<ul style="list-style-type: none"> Minimal impacts from wastewater generated and water pollution caused by land-based construction activities. Unacceptable impacts are not expected from construction site run-off and drainage. Impacts could be mitigated for accidental spillage of engine oil and lubricants when in use and storage. Significant impact is not expected for sewage effluent from construction workforce with provision of proper interim sewage treatment facilities, such as chemical toilets. No adverse impact envisaged for potential contaminated 	<ul style="list-style-type: none"> No adverse impact from the sewage and wastewater generated from the rock cavern development.

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	<p>groundwater as no groundwater contamination issue was identified in the land contamination assessment.</p> <ul style="list-style-type: none"> Minimal impacts from groundwater infiltration caused by rock cavern and tunnel construction. 	
Cumulative Impacts	<ul style="list-style-type: none"> No cumulative impact expected provided that all recommended mitigation measures are implemented properly. 	<ul style="list-style-type: none"> No adverse impact is anticipated.
Key Mitigation Measures	<ul style="list-style-type: none"> Site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" to follow so as to minimise surface run-off and the chance of erosion. Waste Disposal (Chemical Waste) (General) Regulation to comply with for controlling chemical wastes. Interim treatment facilities, such as chemical toilets, should be properly maintained to avoid adverse impact upon the nearby water environment. Practices outlined in ETWB TC (Works) No. 5/2005 "Protection of Natural Streams/Rivers from Adverse Impacts Arising from Construction Works" to adopt. Water control strategies include probing ahead, pre-grouting, grout pre-treatment and waterproof lining installation should be implemented to minimize groundwater filtration during the cavern construction. Post grouting should be applied when excessive infiltration is observed. 	<ul style="list-style-type: none"> Provision of adequate sewerage and sewage treatment facilities.
Residual Impact	<ul style="list-style-type: none"> No excessive residual impact is anticipated. 	<ul style="list-style-type: none"> No excessive residual impact is anticipated
Sewerage and Sewage Treatment		
Assessment Scope and Key Criteria	<ul style="list-style-type: none"> Sewerage Manual, Parts 1 and 2 (2013 Edition), published by Drainage Services Department (DSD) 	<ul style="list-style-type: none"> Same as construction phase

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	<ul style="list-style-type: none"> DSD Technical Circulars and Practice Notes Environmental Protection Department (EPD) Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning Version 1.0, Report No. EPD/TP 1/05 	
Representative Sensitive Receivers	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Not applicable
Evaluation of Major Impacts	<ul style="list-style-type: none"> No sewerage impact is anticipated. 	<ul style="list-style-type: none"> Sewage generated from the cavern will be discharged into a new sewerage network, which will be constructed in the ARQ Site, and subsequently discharged into the existing sewerage network in Kwun Tong. The sewage will eventually be collected and treated by KTPTW. The impact assessment shows that the new sewerage network in ARQ site has sufficient capacity to cater for the sewage flow from the cavern.
Cumulative Impacts	<ul style="list-style-type: none"> No adverse impact is anticipated. 	<ul style="list-style-type: none"> No adverse impact is anticipated.
Key Mitigation Measures	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Not applicable
Residual Impact	<ul style="list-style-type: none"> No excessive residual impact is anticipated. 	<ul style="list-style-type: none"> No excessive residual impact is anticipated.
Waste Management		
Assessment Scope and Key Criteria	<ul style="list-style-type: none"> Areas within the boundary of the project site Annexes 7 and 15 of the EIAO-TM Waste Disposal Ordinance (Cap. 354) 	<ul style="list-style-type: none"> Same as construction phase
Representative Sensitive Receivers	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Not applicable
Evaluation of Major	<ul style="list-style-type: none"> The estimated volumes of C&D materials are approximately 18,485m³ of inert and approximately 310m³ 	<ul style="list-style-type: none"> As advised by Leisure and Cultural Services Department, the area of the quarry exhibition and supporting facilities will be 1,000m² and

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Impacts	<p>of non-inert materials. There is no sediment present requiring marine disposal.</p> <ul style="list-style-type: none"> Quantity of chemical waste would be small and in the order of a few cubic metres over the construction period. It is also estimated that about 7.8 kg per day of general refuse would be generated by the construction workers. 	<p>800m² respectively.</p> <ul style="list-style-type: none"> It is assumed that (1) each customer occupy 2.6 m², (2) 1 retail staff serves 13 visitors, (3) waste generation rate = 2.69 kg/person/day. By using the above assumptions, it is expected during the operation of the Project there will be 385 customers and 30 retail staff per day. As such, the general refuse generated will be about 1,116 kg/day.
Cumulative Impacts	<ul style="list-style-type: none"> No adverse impact is anticipated. 	<ul style="list-style-type: none"> No adverse impact is anticipated.
Key Mitigation Measures	<ul style="list-style-type: none"> C&D materials would be sorted on-site and the inert portion would be stored in different containers, skips or stockpiles to re-use. Surplus excavated material would therefore be exported off-site. Amount of chemical waste generated would be quantified in the site waste management plan to be prepared by the Contractor. 	<ul style="list-style-type: none"> Sufficient recycling containers are recommended to be provided at suitable locations to encourage recycling of such waste as aluminium cans, plastics and waste paper. The refuse must be disposed at approved waste transfer or disposal facilities by refuse collection vehicle.
Residual Impact	<ul style="list-style-type: none"> No excessive residual impact is anticipated 	<ul style="list-style-type: none"> No excessive residual impact is anticipated
Landscape and Visual		
Assessment Scope and Key Criteria	<ul style="list-style-type: none"> 500m area from the boundary of the project site Visual envelope Annexes 10 and 18 of the EIAO-TM 	<ul style="list-style-type: none"> Same as construction phase

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Representative Sensitive Receivers	<p><u>Landscape Resources</u> LR1 – Major Transport Route LR2 – Hillside Woodland LR3 – Semi-natural Dense Hillside Vegetation LR3.1 – Engineered Slope along with Semi-natural Dense LR4 – Natural Stream LR5 – Rural Development Area LR5.1 – Utilities Landscape at Rural Development Area LR6 – Quarry LR6.1 – Trees at Anderson Road LR6.2 – Trees in front of and above the proposed Rock Cavern Development LR6A – Potentially registrable Old and Valuable Tree (A) at Quarry LR6B – Potentially registrable Old and Valuable Tree (B) at Quarry LR7 – On-going Development Area LR8 – Development Area (DAR)</p> <p><u>Landscape Character Area (LCA)</u> LCA1 – Peaks, Uplands and Hillside LCA LCA2 – Rural Fringe LCA LCA4 – Urban LCA LCA6 – Quarry LCA LCA7 – Development Area LCA</p>	<p><u>Visual Sensitive Receivers</u> VP1 – Planned Quarry Park area; VP2 – Planned residential development immediately adjacent to Quarry Park on platform of 200mPD; VP3 – Planned DAR development; VP4 – Planned residential development on southern side of platform of 200mPD.</p>	<ul style="list-style-type: none"> • Same as construction phase
Evaluation of Major Impacts	<ul style="list-style-type: none"> • Approximately 30 trees are in conflict with the proposed layout of the Project and are recommended to be felled. 		<ul style="list-style-type: none"> • No adverse impact is anticipated.

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Cumulative Impacts	<ul style="list-style-type: none"> No adverse impact is anticipated. 	<ul style="list-style-type: none"> No adverse impact is anticipated.
Key Mitigation Measures	<ul style="list-style-type: none"> Erection of decorative screen hoarding. 	<ul style="list-style-type: none"> Sensitive and aesthetically pleasing design as regard to the form, height, material and finishes which should be visually unobtrusive, non-reflective compatible with surrounding context shall be incorporated to design of cavern entrance and associated infrastructure facilities. Landscape treatments on slope to provide vertical greening with climber to enhance the landscape and visual amenity value of proposed man made slope. Compensatory trees planting in accordance with ETWB TCW No. 10/2013 and shrubs planting shall be incorporated to enhance the landscape and visual amenity value of entrance area of the proposed cavern.
Residual Impact	<p><u>Residual Landscape Impact</u></p> <ul style="list-style-type: none"> After the implementation of the proposed mitigation measures, there will still be some residual landscape impacts of moderate to substantial significance. <p><u>Residual Visual Impact</u></p> <ul style="list-style-type: none"> Approximately 30 trees are in conflict with the proposed layout of the Rock cavern development and are recommended to be felled. Appropriate mitigation measure is proposed to minimize visual impacts in construction phase. With the implementation of appropriate mitigation measures such as incorporation of decorative hoarding in this small scale development, the residual visual impacts will be lowered to slight level. The residual visual impacts in construction phase of Rock Cavern Development are slight and acceptable. 	<p><u>Residual Landscape Impact</u></p> <ul style="list-style-type: none"> Impact on rock slope – To construct the new portal of cavern, rock slope will be cut and also an eight metres height new structure will be formed. Benefit in long term – Rock cavern development is part of the development of Anderson Road Quarry. The whole planning of the development will provide large area of greening. Comparing with the existing condition, development in the future will highly improve the open space environment. For rock cavern development, mitigation measures applied to improve landscape area nearby will benefit the whole development in the long term. <p><u>Residual Visual Impact</u></p> <ul style="list-style-type: none"> Approximately 30 trees are in conflict with the proposed layout of the Rock cavern development and are recommended to be felled. Tree planting is proposed near the entrance to cavern and on the platform to maximize greening opportunity and minimize visual impacts in operational phase.

