

Drainage Improvement Works in Mui Wo

Environmental Impact Assessment Report

Executive Summary

Binnies Hong Kong Limited
43/F, AIA Kowloon Tower,
100 How Ming Street,
Kwun Tong
Hong Kong

Drainage Services Department,
Project Management Division,
42/F, Revenue Tower,
5 Gloucester Road,
Wan Chai

June 2023

CONTENTS

1. INTRODUCTION	1
1.1 Project Background	1
2. PROJECT DESCRIPTION.....	2
2.1 Location and Description of the Project	2
2.2 Need of the Project.....	3
2.3 Consideration of Alternative Design Options	3
2.4 Benefits of the Project.....	3
2.5 Construction Methods and Sequences of Works	4
2.6 Construction Programme	5
3. SUMMARY OF ENVIRONMENTAL IMPACT ASSESSMENT	6
3.1 Introduction.....	6
3.2 Air Quality.....	6
3.3 Noise	6
3.4 Water Quality	7
3.5 Waste Management	7
3.6 Ecology.....	8
3.7 Landscape and Visual.....	9
3.8 Cultural Heritage.....	10
4. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENT	12
5. CONCLUSION	13

Figures

Figure 1.1 Location of Project Site and Its Environs

Figure 2.1 General Layout of Design Option 1

1. INTRODUCTION

1.1 Project Background

- 1.1.1 The Drainage Services Department (DSD) completed the “Stormwater Drainage Master Plan Study in Sai Kung, East Kowloon and Southern Lantau” (DMP Study) in September 2000. The DMP Study identified deficiencies and flooding problems in the existing drainage systems in Sai Kung, East Kowloon and Southern Lantau. Drainage improvement works (including improvement works at the three bends at Tai Tei Tong River, construction of Luk Tei Tong Bypass Channel, bypass box culvert and floodwalls for Pak Ngan Heung River and U-channel at Ling Tsui Tau) have been completed by DSD Contract DC/2006/11 – Drainage Improvement in South Lantau in 2010.
- 1.1.2 Despite the drainage improvement in South Lantau completed in 2010, the Review of Drainage Master Plan in Lantau and the Outlying Islands – Feasibility Study (the DMP Review Study) completed by DSD in 2018 revealed that the drainage provisions in some areas in Mui Wo, including Tai Tei Tong, Luk Tei Tong, Nam Bin Wai, Ma Po Tsuen, Ling Tsui Tau and Chung Hau (hereafter refer to “the concerned area”) could not meet the current standard, taking cognisance of the topography, existing drainage capacity and updated hydrological statistics. The inadequate drainage are mainly caused by the under capacity of Tai Tei Tong River and the adverse effect of tidal backwater affecting low topography areas adjacent to the existing rivers. The flooding incident in Mui Wo recorded during the red rainstorm warning in May 2015, typhoon *Hato* in August 2017 and typhoon *Mangkhut* in September 2018 corroborated the above findings.
- 1.1.3 To relieve the flood risk at Mui Wo, the DMP Review Study has proposed drainage improvement measures in a combination of different approaches including diversion, pumping, drainage upgrading and river reprofiling.
- 1.1.4 Binnies Hong Kong Limited (Binnies) was commissioned by DSD to carry out an investigation of the “Drainage Improvement Works in Mui Wo” (hereafter refer to “the Project”) in July 2021 and propose design scheme for the above-mentioned drainage improvement measures.
- 1.1.5 The proposed design scheme should effectively mitigate the flood risk while land requirement for project implementation has been kept minimal. Upon completion of the drainage improvement measures, the flood protection standard in the areas concerned will be upgraded to meet the requirements in the current DSD’s Stormwater Drainage Manual and the flood risks of the low-lying areas in Mui Wo thereon can be significantly relieved.

- 1.1.6 An Environmental Impact Assessment (EIA) Study Brief (ESB-334/2020) for the Project was issued by the Environmental Protection Department (EPD) on 15 October 2020. 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 boundary of an existing or planned bathing beach”.¹

2. PROJECT DESCRIPTION

2.1 Location and Description of the Project

- 2.1.1 Location of the project site and its environs of the preferred scheme are shown in **Figure 1.1**. The Project comprises of drainage improvement works as well as enhancement measures including river revitalization at Luk Tei Tong Bypass Channel and two fish ladders at Tai Tei Tong River. The overall scope of the Project includes:

Tai Tei Tong

- a) Construction of flood walls (about 580m);
- b) Reconstruction of gabion walls (about 280m);
- c) River reprofiling (about 1000m²);
- d) Modification of agricultural weir; and
- e) Construction of fish ladders and associated works (about 510m²).

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

- a) Construction of access across Pak Ngan Heung River (about 15m);
- b) Construction of stormwater pumping station and the associated drainage works (about 1150m);
- c) Construction of diversion box culvert from Tai Tei Tong River to Luk Tei Tong Bypass Channel (about 180m); and
- d) Construction of tidal gate at River Silver and other associated works.

¹ Based on the latest information during the preparation of this EIA, the EIAO (Amendment of Schedule 2 and 3) Order 2023 (Order) is expected to be effective on June 30, 2023. The Project is still a designated project by virtue of Item C.12(a)(iii) under the proposed amendment of Schedule 2 and 3 to the Ordinance and the scope of this EIA study remains unchanged.

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

- a) Reconstruction of gabion walls (about 290m);
- b) Construction of box culvert (about 10m);
- c) Construction of mechanical penstock; and
- d) River revitalisation and associated works.

2.2 Need of the Project

- 2.2.1 Although drainage improvement works at Tai Tei Tong River was previously completed in 2010 under DC/2006/11, the works was confined at three bottlenecks of the river and the drainage capacity of Tai Tei Tong River remain inadequate.
- 2.2.2 The DMP Review Study completed in 2018 revealed that the drainage provisions at the Tai Tei Tong, Luk Tei Tong, Nam Bin Wai, Ma Po Tsuen, Ling Tsui Tau and Chung Hau could not meet the latest flood protection standard, taking cognisance of the topography, existing drainage capacity and updated hydrological statistics.
- 2.2.3 Flooding incidents recorded in Mui Wo during the red rainstorm warning in May 2015, typhoon *Hato* in August 2017 and typhoon *Mangkhut* in September 2018 corroborated the above findings in DMP Review Study.
- 2.2.4 Based on the above consideration, this Project is necessary to be implemented so as to upgrade the drainage provisions at Tai Tei Tong, Luk Tei Tong, Nam Bin Wai, Ma Po Tsuen, Ling Tsui Tau and Chung Hau to meet the standards in the latest DSD's Stormwater Drainage Manual and help safeguard the livelihood of existing and future development along the river.

2.3 Consideration of Alternative Design Options

- 2.3.1 Design options with alternative locations of the proposed stormwater pumping station and tidal gate, various alignments of the proposed stormwater drain and diversion box culvert, as well as different extent of flood wall and gabion wall have been critically considered and evaluated based on environmental factors, land resumption practicability, and hydraulic performance. Whilst in general all the design options could achieve similar hydraulic performance, the preferred option (Design Option 1) has a shorter diversion box culvert, a stormwater pumping station that is further away from major residential area and the shortest construction time compare to other design options, hence the duration and magnitude of the potential environmental impact from Design Option 1 are anticipated to be the least compared to other design options and is more preferable. The general layout of Design Option 1 is shown in **Figure 2.1**.

2.4 Benefits of the Project

- 2.4.1 Upon completion of the drainage improvement measures, the flood protection standard at Tai Tei Tong, Luk Tei Tong, Nam Bin Wai, Ma Po Tsuen, Ling Tsui Tau and

Chung Hau will be upgraded to meet the requirements in the latest DSD's Stormwater Drainage Manual. The flood risks of the low-lying areas in Mui Wo thereon can be significantly relieved and help safeguard the livelihood of existing and future development along the river.

- 2.4.2 Tidal gate and mechanical penstocks will be operated according to the tidal and weather condition. The tidal gate and mechanical penstocks will be opened in general circumstance. Under high tidal and / or adverse weather condition such as typhoon and storm surge events, tidal gate will be closed in advance to prevent seawater intrusion to the low-lying areas while mechanical penstocks will be closed appropriately to divert the stormwater to stormwater pumping station to prevent flooding.
- 2.4.3 Enhancement measures such as river revitalisation works will also be introduced along Luk Tei Tong Bypass Channel which could improve and enhance the appearance of the rivers and surroundings. Blue-green infrastructure concepts will be adopted in this Project, such as planting and landscaping work along riverbanks to promote greening, enhance biodiversity and beautify the surrounding environment. Leisure facilities will also be provided appropriately along Luk Tei Tong Bypass Channel to improve the amenity value.
- 2.4.4 Enhancement measures include provision of fish ladders at mid-stream of Tai Tei Tong River and up-stream of Tai Tei Tong River to relieve the level difference which hinders fish movement along the river. Upon completion, fish movement along the river can be enhanced. The fish ladder will be designed using natural bedding material with small ponds and waterfalls to mimic the natural stream course and provide habitats for aquatic life.
- 2.4.5 The proposed stormwater pumping station will integrate the concept of sustainability and green building design including green roof and vertical greening such as planting of climbers to enhance the greenery of proposed structure. Measures to safeguard environmental quality and reduce carbon footprint including retaining natural vegetation, phasing of construction to minimise noise and dust emissions, promoting stormwater reuse by means of rain harvesting for irrigation purpose will be adopted.
- 2.4.6 In addition, the applicability of usage of renewable energy (i.e. Solar Panel) for leisure facilities, street lighting, flood control system and electrical and mechanical (E&M) system within the stormwater pumping station will be adopted as far as practicable in order to reduce the energy consumption and carbon emission during the operation phase of the Project.

2.5 Construction Methods and Sequences of Works

- 2.5.1 To minimise water quality impact, river flow will be diverted to the far side of the works area. Cofferdam and / or other means of temporary flow diversion will be undertaken before any excavation / major works within the existing watercourses to ensure the flow is not affected and to provide a dry working environment. In addition, excavation of river sediment will be scheduled to carry out in dry seasons (typically from November to March) as far as practicable. The same principal will be adopted for

construction of tidal gate and mechanical penstocks to minimise the water quality impact during construction.

- 2.5.2 All excavated river sediment will be reused on-site as backfill material. River sediment and / or boulders excavated during river reprofiling works will be reused at Tai Tei Tong River as natural bedding substrate and / or as backfilling material at other works area. Such construction method could avoid the disposal of sediment off-site.
- 2.5.3 Open-cut method will be adopted for the construction of the diversion box culvert and stormwater drainage while trenchless method will be adopted for the construction of the section of stormwater drainage at the river crossing as appropriate.
- 2.5.4 Although precast flood wall / pre-filled gabion wall could minimize the environmental impact as well as shorten the construction period, as the works areas are closed to public access which lifting and unloading of precast flood wall / gabion wall could pose safety concern and nuisance to pedestrian nearby. As such, on-site construction method for flood wall / gabion wall will be preferred.
- 2.5.5 On-site construction will be preferred for the construction of the proposed stormwater pumping station as it could allow more flexibility for on-site alteration of E&M equipment and pumping system installation, hence reduce potential disturbance to the environment and nearby sensitive receivers.

2.6 Construction Programme

- 2.6.1 The construction works are expected to last for around 51 months. Subject to completion of statutory procedures, the preliminary construction programme for the Project is tentatively expected to commence in 3rd quarter of 2025 and complete in 4th quarter of 2029.

3. SUMMARY OF ENVIRONMENTAL IMPACT ASSESSMENT

3.1 Introduction

3.1.1 This Section summarises the findings of the EIA associated with the construction and operation phases of the Project.

3.2 Air Quality

3.2.1 Potential air quality impact associated with the construction phases of the Project have been assessed in accordance with the criteria and guidelines as stated in the requirements given in Clause 3.4.4 of the EIA Study Brief, as well as Annexes 4 and 12 of EIAO-TM. The assessment area for air quality impact assessment is within 500m from the Project boundary.

3.2.2 During construction phase of the Project, potential air quality impact from fugitive dust may arise from excavation works, stockpiling of excavated material and piling works. Potential air quality impact may also arise from the gaseous emission due to the use of Powered Mechanical Equipment (PME). However, adverse air quality impact due to fugitive dust and gaseous emission from PME during the construction phase is not expected with the implementation of recommended mitigation measures.

3.2.3 During operation phase of the Project, regular maintenance desilting and debris clearance will be necessary. Adverse air quality impacts due to fugitive dust gaseous emission from PMEs and odour impact arise from maintenance works are not anticipated with the implementation of recommended mitigation measures.

3.2.4 Site inspections and audits during construction phase of the Project to ensure proper implementation of the mitigation measures are recommended. Air quality monitoring is considered not necessary during the construction and operation phases of the Project.

3.3 Noise

3.3.1 Potential noise impact associated with the construction and operation phases of the Project have been assessed in accordance with the criteria and guidelines as stated in the requirements given in Clause 3.4.5 of the EIA Study Brief, as well as Annexes 5 and 13 of EIAO-TM. The assessment area for noise impact assessment is within 300m from the Project boundary.

3.3.2 Owing to the close proximity of some of the NSRs to the works area of the Project, mitigation measures are required to be implemented to mitigate the construction noise impact. Practicable mitigation measures, including good construction site practices, use of quiet construction method / PME, temporary noise barriers / noise enclosures, scheduling of PME / construction activities to avoid work during sensitive time (e.g., school examination period) and reduce the concurrent operation of PMEs are recommended. With the implementation of the recommended mitigation measures, the mitigated construction noise levels at all representative NSRs will comply with the daytime construction noise criteria throughout the construction period. A

Construction Noise Management Plan would be prepared and submitted before commencement of construction works, 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.

- 3.3.3 No adverse noise impact is anticipated during operation phase after the implementation of the recommended mitigation measures, and the proper design of the proposed stormwater pumping station.
- 3.3.4 Noise monitoring is recommended during the construction phase to ensure compliance with the noise criterion at the NSRs. Regular site inspections and audits should be conducted to ensure that the recommended mitigation measures are properly implemented during the construction stage.
- 3.3.5 A commissioning test should be conducted prior to the operation of the Project to ensure operation noise levels would comply with the relevant noise standards.

3.4 Water Quality

- 3.4.1 Potential water quality impact associated with the construction and operation phases of the Project has been assessed in accordance with the criteria and guidelines as stated in the requirements given in Clause 3.4.6 of the EIA Study Brief, as well as Annexes 6 and 14 of EIAO-TM. The assessment area for water quality impact assessment is within 500m from the Project boundary.
- 3.4.2 Potential water quality impact from construction surface runoff, wastewater and sediment release from works into water bodies, sewage from workforce and construction works of stormwater pumping station, outlet channel to River Silver and diversion box culvert during the construction phase of the Project have been assessed. No unacceptable water quality impact during the construction phase of the Project is anticipated with the implementation of mitigation measures (in particular to carry out excavation works for the Project in a confined and dry condition) and good site management recommended.
- 3.4.3 Potential water quality impact associated with maintenance works of the drainage channels and change in flow regime during the operation phase of the Project has been assessed. No unacceptable water quality impact from the operation phase of the Project is anticipated.
- 3.4.4 Water quality monitoring programme is recommended during construction phase to verify the predictions of the assessment and ensure compliance with the assessment criteria.

3.5 Waste Management

- 3.5.1 Potential waste management implications arising from the construction and operational phases of the Project have been assessed in accordance with the criteria

and guidelines as stated in the requirements given in Clause 3.4.7 of the EIA Study Brief, as well as Annexes 7 and 15 of EIAO-TM.

- 3.5.2 Wastes generated by the construction activities are likely to include construction and demolition (C&D) materials from the construction works, general refuse from workforce and chemical waste from any maintenance of construction plant and equipment during construction phase. All excavated river sediment will be reused on-site as backfilling material.
- 3.5.3 During the operation phase of the Project, a small amount of desilted material and screened debris will be generated from the routine maintenance works.
- 3.5.4 With the implementation of good site practices, adverse environmental impact (potential air and odour emissions, noise and wastewater discharge) arising from the management and disposal of waste during the construction and operation phases of the Project is not anticipated.
- 3.5.5 It is recommended that regular site inspections of the waste management practices would be carried out during the construction phase to assess whether wastes are being managed in accordance with the recommended good site practices and Waste Management Plan (WMP).

3.6 Ecology

- 3.6.1 Potential ecological impact associated with the construction and operational phases of the Project has been assessed in accordance with the criteria and guidelines as stated in the requirements given in Clause 3.4.8 of the EIA Study Brief, as well as Annexes 8 and 16 of EIAO-TM. The assessment area for ecological impact assessment is within 500m from the Project boundary.
- 3.6.2 Ecological impact assessment has been carried out based on literature reviews and the focused field surveys of twelve months covering both wet and dry seasons completed in 2022. According to the Project alignment, the Project will cause potential temporary and permanent habitat loss to marsh (~0.7ha; including ~0.5ha temporary works area), semi-natural watercourse (~0.7km; including ~0.7km temporary works area), channelised watercourses (~0.4km; including ~0.4km temporary works area), agricultural land (~1.1ha; including ~0.8ha of temporary works area) and village / developed area (~0.5ha; including ~0.5ha temporary works area).
- 3.6.3 Majority of the identified impact are considered to be low in the absence of mitigation measures. However, the potential impact on direct loss (i.e., permanent, and temporary losses) of marsh, watercourses and agricultural land, ecological impact on fauna species of conservation importance, and ecological impact to watercourses due to river reprofiling, temporary stream diversion and the associated change in water flow / level are considered as low to moderate. Necessary mitigation measures and ecological monitoring programme are proposed for the above potential impact.
- 3.6.4 It is predicted that the impact will mainly arise during the construction phase, as no major activities would be conducted during the operation phase. The routine

maintenance and the operation of the completed drainage channel and pumping station would not cause any significant ecological impact. Good site practice and mitigation measures are recommended to minimise potential impacts resulting from operational phase activities.

- 3.6.5 With the implementation of mitigation measures and precautionary measures, no adverse residual ecological impacts from the Project within and in the vicinity of the works area during construction and operation phases would be anticipated. Off-site mitigation measures are therefore not considered necessary to mitigate the residual impacts any further.
- 3.6.6 Updated ecological survey shall be conducted by a qualified ecologist as part of the Environmental Team (ET) with focus on the herpetofauna and freshwater community prior to commencement of construction at the affected watercourse(s). Should species of conservation importance be found within the surveyed watercourse sections, a Translocation Plan should be prepared and the translocation work should be conducted to move the individuals from the works area to suitable recipient sites. As a precautionary measure, construction works for the proposed stormwater drain near Mui Wo Municipal Services Building during night-time from 17:00 to 07:00 should be avoided to minimize potential disturbance to the Ardeids. Clear signs should also be erected on site to alert all site staff and workers about the precautionary measures.

3.7 Landscape and Visual

- 3.7.1 Potential landscape and visual impact associated with the construction and operational phases of the Project has been assessed in accordance with the criteria and guidelines as stated in the requirements given in Clause 3.4.9 of the EIA Study Brief, as well as Annexes 10 and 18 of EIAO-TM, and the EIAO Guidance Note No. 8/2010 "Preparation of Landscape and Visual Impact Assessment under the EIAO". The assessment area for landscape and visual impact assessment is within 500m from the Project boundary.
- 3.7.2 Landscape and visual impact on Landscape Character Areas (LCAs), Landscape Resources (LRs) and Visually Sensitive Receivers (VSRs) during the construction and operation phases of the Project has been assessed.
- 3.7.3 Residual landscape impact is **slight** on LCA3 (Rural Inland Plains of Mui Wo and Surrounding Villages), LR5 (Agricultural Land) and LR9 (Semi Natural Water Course) during construction and operation, and **Insignificant** on all other LRs and LCAs with proper implementation of the recommended mitigation measures.
- 3.7.4 Residual visual impact on VSRs is **slight** to **insignificant** during construction and operation with proper implementation of the recommended mitigation measures.
- 3.7.5 Approximately 87 nos. of trees will be affected and proposed to be felled by this Project. None of them are Old and Valuable Trees. The main affected tree species include *Callistemon viminalis*, *Celtis sinensis*, *Melaleuca cajuputi subsp. cumingiana* and *Terminalia catappa*. To compensate for the trees loss, compensatory planting within the Project boundary i.e. mainly along the Luk Tei Tong Bypass Channel is proposed.

- 3.7.6 During operation, construction equipment will have been removed and earthworks have been completed such that the landscape and visual impact during construction phase will no longer exist. With sensitive architectural design of the structures, tree planting and careful design of lighting, residual visual impact would further reduce since operation commences. The new structures are expected to blend into the surrounding environment, with denser vegetation after operation at about 10 years. The residual impact on LCAs, LRs and VSRs will become **slight to insignificant** after operation at about 10 years.
- 3.7.7 It is recommended that regular site inspections and audits would be carried out during the construction phase to ensure that the proposed mitigation measures and good site practices proposed to manage and mitigate landscape and visual impact are implemented. In addition, site audits should be undertaken bi-monthly for 12 months establishment period during the operation phase to check that the proposed landscape and visual mitigation measures are properly implemented and maintained as per their intended objectives.
- 3.7.8 In conclusion, the Landscape and Visual Impacts of this Project, are considered acceptable with mitigation measures adopted.

3.8 Cultural Heritage

- 3.8.1 Potential cultural heritage impact associated with the construction and operation phases of the Project has been assessed in accordance with the criteria and guidelines as stated in the requirements given in Clause 3.4.10 of the EIA Study Brief, as well as Annexes 10 and 19 of EIAO-TM. The assessment area for cultural heritage impact assessment is within 300m from the Project boundary.
- 3.8.2 Chung Hau Sites of Archaeological Interest (SAI) is found within the cultural heritage impact assessment area (CHAA), at a distance of about 20m within the works area of the Project. No excavation works of the project will exist in or adjacent to the SAI, therefore no adverse archaeological impact due to the proposed development is anticipated and thus, no mitigation measure is required.
- 3.8.3 No archaeological potential area has been identified within the works area. No archaeological impact is anticipated and thus no mitigation measures is required.
- 3.8.4 As a precautionary measure, the project proponent and contractors appointed by the project proponent are required to inform Antiquities and Monuments Office (AMO) immediately when any antiquities or supposed antiquities under the A&M Ordinance (Cap. 53) are discovered during the course of works.
- 3.8.5 Desktop review supplemented by built heritage survey identified no declared or proposed monuments and Government historic sites identified by AMO in the CHAA. No built heritage impact is anticipated and thus no mitigation measures is required for these items.
- 3.8.6 Seven (7) graded historic sites / buildings / structures identified in the CHAA are located over 70m from the Project boundary. Due to adequate separation distance

between the proposed works and graded historic sites / buildings / structures, no impact is anticipated. However, special attention should be paid to avoid adverse physical impact arising from the proposed works to them. Design proposal, method of works and choice of machinery should be targeted to minimize adverse impact to these graded historic sites / buildings / structures. Any vibration and building movement induced from the proposed works should be strictly monitored to ensure no disturbance and physical damages made to them during the course of works. Monitoring proposal, including checkpoint locations, installation details, response actions for each of the Alert / Alarm / Action (3As) levels and frequency of monitoring should be submitted for AMO's consideration.

- 3.8.7 Potential direct impact to the built heritage items identified is not anticipated due to adequate separation distance between the proposed works and the built heritage items except for the two agricultural weirs (HB-22 and HB-76).
- 3.8.8 The two agricultural weirs, HB- 22 and HB-76, are located within the works area of the river reprofiling work at upstream of Tai Tei Tong River and the proposed fish ladder at the midstream of Tai Tei Tong River. Modification of the agricultural weirs and construction of fish ladder are proposed to achieve beneficial ecological impact like improvement of the river hydraulic performance and fish movement. The agricultural weirs (HB-22 and HB-76) are constructed with concrete and have already undergone various modification and repair works. For instance, HB-22 was modified with wide steps at downstream in 1960s and a further modification in 1970s; while HB-76 underwent significant modification in the early of 1990s, only two concrete block and floor steps remained on site. Hence, their cultural heritage significance is relatively low due to high level of modifications underwent. Therefore, although the modification of the agricultural weir and construction of fish ladder of this Project will bring direct impact to the weirs, the impact would be acceptable with mitigation measures. It is recommended that cartographic and photographic records be conducted to record the weirs prior to commencement of modification works.
- 3.8.9 No adverse impact would be anticipated on both built heritages and archaeology during the operation phase of the Project.

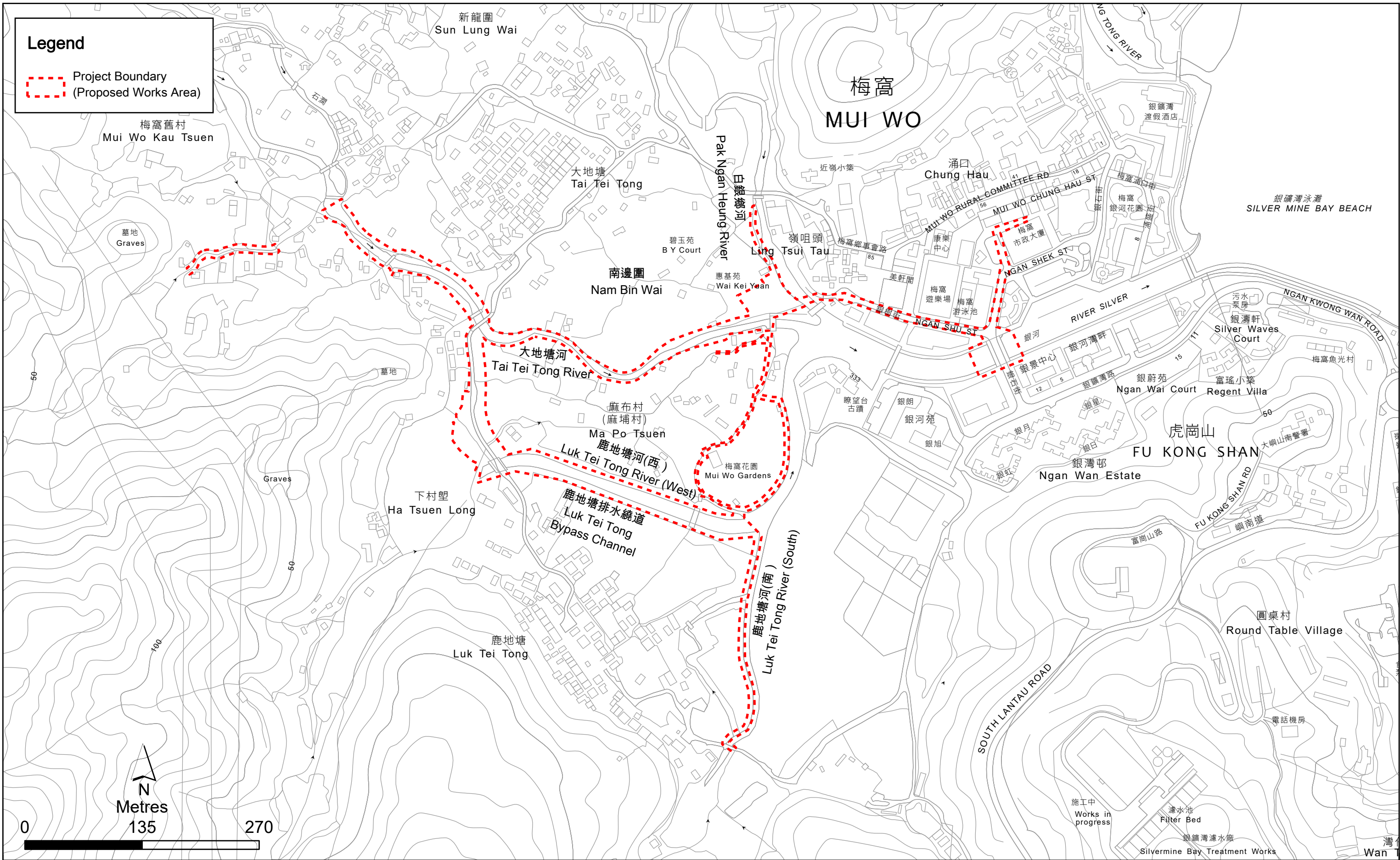
4. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENT

- 4.1.1 Environmental Monitoring and Audit (EM&A) requirements for air quality, noise, water quality, waste management, ecological, landscape and visual impact as well as cultural heritage have been recommended, with regular site inspection and audits during construction phase to ensure that the recommended mitigation measures are properly implemented. The EM&A requirements are specified and detailed in the EM&A Manual.

5. CONCLUSION

- 5.1.1 The environmental impact assessment has concluded that with the implementation of the recommended mitigation measures, the Project would comply with the requirements of the EIA Study Brief and EIAO-TM, and would not give rise to unacceptable environmental impacts during both the construction and operation phase.

Figures



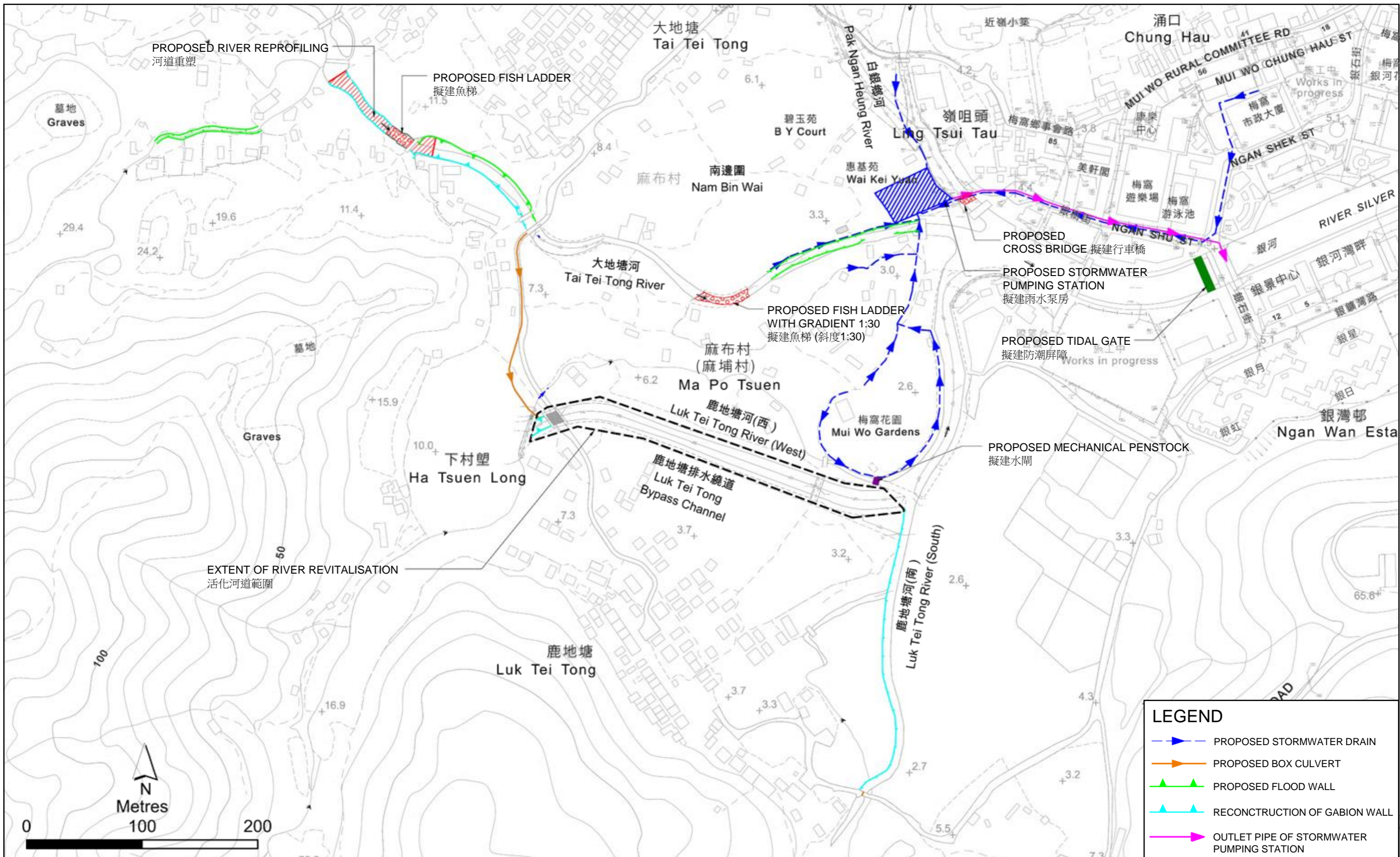


Figure 2.1

General Layout of Design Option 1