

Drainage Improvement Works Near Four Villages in Yuen Long - Sung Shan New Village, Tai Wo, Lin Fa Tei and Ha Che

Project Profile

September 2014

YUEN LONG

Yuen Long His

SUNG SHAN NEW VILLAGE LIN FA TEI

TAIWO

ATKINS

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1. BASIC INFORMATION

1.1 Project Title

1.1.1 Drainage Improvement Works near Four Villages in Yuen Long – Sung Shan New Village, Tai Wo, Lin Fa Tei and Ha Che, hereafter called "the Project".

1.2 Purpose and Nature of the Project

1.2.1 The Project comprises drainage improvement works near four villages in Yuen Long, namely Sung Shan New Village, Tai Wo, Lin Fa Tei and Ha Che as recommended in the Review of Drainage Master Plans in Yuen Long and North Districts – Feasibility Study (Package YL-1) (hereafter called "the Review Study") which was completed in 2011.

1.3 Name of Project Proponent

1.3.1 Drainage Services Department (DSD) is the Project Proponent.

1.4 Location and Scale of Project and History of Site

- 1.4.1 The Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai catchments are served by the existing drainage systems. Rapid urbanization has led to increased runoff in these areas and the existing drainage systems do not have sufficient capacity to cater for the increase in runoff, leading to frequent flooding during periods of heavy rainfall.
- 1.4.2 The Drainage Master Plan studies for the Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Basin (YLDMP) were completed in 1998 and the majority of the recommended improvement works in Yuen Long and Kam Tin have been completed. Since the completion of the DMP studies, DSD commissioned the Review Study in 2008 so that the new development scenarios could be incorporated and the effectiveness of the previously recommended works could be assessed.
- 1.4.3 The Review Study has identified that some areas in Yuen Long District could not meet the required flood protection level according to the latest land uses changes and future developments taking into account various factors, including sedimentation at the downstream main channels, mangrove growth at river estuaries, updated extreme sea level statistics at Tsim Bei Tsui and projected Climate Change impacts, in the hydraulic analysis. To account for the severity and extent of possible flooding and the works implementation time, the Review Study proposed drainage improvement works in Yuen Long District.
- 1.4.4 The proposed drainage improvement works to be implemented at the four villages include landscaping, waterscaping, utilities diversion, temporary traffic arrangements, re-provisioning/improvement to existing dry weather flow intercepting system and any other works incidental to the completion of the Project.
- 1.4.5 Based on the drainage improvement works recommended in the Review Study, alternative options have been developed for evaluation and selection of the preferred option for improving the drainage conditions at the project areas, particularly in terms of minimization of land resumption, minimization of disturbance





to villagers/residents, cost effectiveness, time saving, land issue and environmental friendliness. The preferred options for the four villages are presented in **Table 1-1** and the extent and location of the works are shown in **Figure 1.1**.

1.5 Number and Types of Designated Project

1.5.1 Based on the tentative design scheme information for the preferred options, the proposed drainage improvement works at the four villages (Sung Shan New Village, Tai Wo, Lin Fa Tei and Ha Che) are classified as Designated Project (DP) in accordance with Part I Schedule 2, Category I.1(b) of the Environmental Impact Assessment Ordinance (EIAO) – A drainage channel or river training and diversion works which discharges or discharge into an area which is less than 300m from the nearest boundary of an existing or planned (i) site of special scientific interest; (ii) site of cultural heritage; (iii) marine park or marine reserve; (iv) fish culture zone; (v) wild animal protection area; (vi) coastal protection area; or (vii) conservation area. The proposed works at these four villages are detailed in Table 1-1 Proposed Drainage Improvement Works at Sung Shan New Village, Tai Wo, Lin Fa Tei and Ha Che. The proximity of the proposed drainage improvement works from conservation areas is shown in Figure 1.1.

Location	Scope of Works	Approximate Length of proposed drainage improvement works, m
Sung Shan New Village	Upgrading of the existing stream to a trapezoidal/rectangular channel with size at around 12m(W) x 3.5m(H) trapezoidal/rectangular channel. The cross section will be varied along the stream to suit the existing site constraints.	610
Tai Wo	Provision of a 1m (W) x 1.5m (H) open trapezoidal/rectangular channel from Tai Wo to Cheung Po and connect to the engineering channel at the west.	275
Lin Fa Tei	Provision of a 2m wide trapezoidal/rectangular channel from upstream of Lin Fa Tei stream to Shui Tsan Tin stream, which will then be upgraded to trapezoidal/rectangular channel along the original alignment. The existing Lin Fai Tei stream is proposed to be upgraded to 1m wide trapezoidal/rectangular channel along the original alignment.	1450
Ha Che	Upgrade existing stream to 3m (W) x 2m (H) trapezoidal/rectangular channel along the original alignment. Provision of a 1200mm dia. pipe at access road to Shui Kan Shek. Addition of two 1500mm dia. drains at Fan Kam Road. A portion of stream (~200m long) adjacent to Fu Hing Garden to be upgraded to 4.5m (W) x 3m (H) trapezoidal/rectangular channel.	990

Table 1-1	Proposed Drainage Improvement Works at Sung Shan New Village, Tai
	Wo, Lin Fa Tei and Ha Che



1.5.2 Each of the drainage improvement works on its own at the above four villages is a DP under the EIAO. The drainage improvement works at the four villages are considered to be similar in nature (i.e. upgrading of existing stream, provision of trapezoidal/rectangular channel, provision of drainage pipe/drain) and these four DPs elements shall be covered under the same EIA study.

1.6 Name and Telephone Number of Contact Person(s)

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2. OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

2.1 **Project Implementation**

- 2.1.1 Drainage Services Department (DSD) is the Project Proponent. The Project will be implemented by consultants engaged and managed by the DSD for the investigation, design and construction of the Project. DSD will be responsible for the operation and maintenance of the completed works.
- 2.1.2 The investigation stage of the Project is expected to be complete by the end of August 2014, after which the detailed design stage will begin. Based on the current information, the implementation programme for the drainage improvement works is expected to commence in January 2016 with a view to completing all the proposed works in 2018.

2.2 Interface with Other Projects

- 2.2.1 Based on the current information, other projects that will likely interface with this Project during the course of construction and / or operational phases are listed below:
 - Agreement No. CE30/2006(DS) Yuen Long and Kam Tin Sewerage and Sewage Disposal Design and Construction (Ha Che).
 - Agreement No. CE61/2012(HY) Improvement to Fan Kam Road.



3. POSSIBLE IMPACTS ON THE ENVIRONMENT

3.1 Environmental Impact During Construction Phase

Air Quality

3.1.1 During construction phase, fugitive dust emissions are expected from construction activities such as site formation and excavation works, filling, material handling, vehicle movement and wind erosion of unpaved areas and stockpiles. The operation of construction plants and equipment will also generate exhaust emissions to the surrounding environment. The impact is expected to be of short-term and will be able to be controlled through implementation and adherence to appropriate control measures and good site practices.

Noise

3.1.2 Noise impacts during the construction phase may result from different phases of the construction activities, use of Powered Mechanical Equipment (PME) and construction plants, etc. The noise generated from the construction activities will have the potential to induce adverse noise impacts to the nearby Noise Sensitive Receivers (NSRs).

Ecology

3.1.3 Works within and adjacent to the existing stream courses could potentially result in loss of aquatic, riparian and wetland habitats, and deterioration in water quality due to sedimentation and re-suspension of pollutants.

Water Quality

3.1.4 There is potential for water quality impacts to occur due to construction site run-off, other potential release to the aquatic environment and effluent from the construction workforce, especially during the rainy season. Run-off from the work sites during construction phase may contain elevated levels of suspended solids and contaminants arising from site formation, excavation, formwork and reinforcement work and oil and lubricants from construction plants. With the proper implementation of mitigation measures and good site practices, it is not expected that there will be adverse water quality impacts generated.

Waste Management

3.1.5 Solid wastes generated from the proposed drainage improvement works include mainly inert and non-inert construction and demolition (C&D) material, chemical waste (from maintenance of construction plant and equipment such as lubricant oil) and general refuse. Upgrading of existing streams and the construction of rectangular/trapezoid channels could potentially involve excavation of sediments from the existing stream courses. Contaminated sediments, if any, will require proper handling in accordance with ETWB TCW No. 34/2002.



Land Contamination

3.1.6 There is potential for land contamination caused by car workshops and open storage areas located close to the works sites. The land contamination issues and associated impacts should be identified and assessed in accordance with *Practice Guide for Investigation and Remediation of Contaminated Land* and *Guidance Manual for use of Risk-based Remediation Goals for Contamination Land Management* issued by the EPD.

Landscape and Visual Resources

3.1.7 During the construction phase, potential landscape and visual impacts may arise from excavation works, temporary stockpiling of C&D materials, presence of construction equipment and plants on site, removal of shrubs, etc.

Cultural Heritage

3.1.8 There are no known sites of archaeological interest or built heritage sites located within or in close proximity to the proposed works areas. No potential unacceptable impacts on cultural heritage resources are identified.

Hazard to Life

3.1.9 None of the works passes within the Consultation Zone of any potentially hazardous installations (PHI), and hence no potential hazard to life is identified.

3.2 Environmental Impacts During Operational Phase

General Summary

3.2.1 In general, there are no specific features of the proposed drainage improvement works at Sung Shan New Village, Tai Wo, Lin Fa Tei and Ha Che that will result in any potential environmental impacts during its operation. As the proposed works at the four villages only involve widening of existing streams and channels and the construction of pipelines, and with consideration that the upgraded channels and pipes will be for stormwater only for relieving flooding problems, there are no air quality or odour impacts expected during the operation phase. In terms of landscape, visual and ecological impact, mitigation measures to minimize impacts during operational phase maybe required and will be recommended in the EIA study. With appropriate implementation of mitigation measures and good site practices, potential environmental impacts resulting from the operation of the Project can be readily controlled to within acceptable levels.



4. MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

4.1 Planned and Existing Sensitive Receivers

Sung Shan New Village

4.1.1 The existing surrounding land-uses in the vicinity of the proposed drainage improvement works at Sung Shan New Village are predominantly village houses, open storage areas (with warehouses for storage, food processing/packaging, etc.) and agricultural land. The nearest residential villages are Tong Tau Po Tsuen which lies to the northwest and Sung Shan New Village which lies to the north of the proposed works at this location. There are existing open storage areas and temporary structures located immediately to the north while Tai Shu Ha Road runs to the west of the proposed alignment.

<u>Tai Wo</u>

4.1.2 The existing land-uses in the vicinity of the proposed drainage improvement works at Tai Wo are mainly village houses. The nearest residential villages are Cheung Po which lies to the west and Tai Wo which lies to the east of the proposed works at this village. There is existing natural vegetation to the north and south of the proposed alignment and Kam Po Road and the MTRC West Rail Line runs to the northwest.

<u>Lin Fa Tei</u>

4.1.3 The existing land-uses in the vicinity of the proposed drainage improvement works at Lin Fa Tei are mainly village houses. The nearest existing residential uses are Seasons Palace to the northwest, Kam Lung Terrace, Ngan Bo Garden and Lin Fa Tei village to the north, Shui Tsan Tin, Evergreen Villa, Fully Villa and Full Art Garden to the south and Lau Uk Tsuen to the northeast of the proposed works at this village. Kam Sheung Road runs to the north of the proposed alignment.

<u>Ha Che</u>

4.1.4 The existing land-uses in the vicinity of the proposed drainage improvement works at Ha Che are mainly village houses, open storage areas, car park and pigsties. The nearest residential villages are A Kung Tin to the north, Shui Kan Shek and Chuk Hang to the east, San Lung Wai to the south and Sheung Che Tsuen to the southwest of the proposed works at this village. The northern section of the proposed alignment runs to the east of Fan Kam Road and the southern section beyond Sheung Che Tsuen runs to the west of Fan Kam Road.



4.1.5 Key sensitive receivers are summarised in **Table 4.1**.

Table 4-1 Environmental Sensitive Receivers in the Vicinity of the Project

Description	Nature	Туре
Sung Shan New Village		
Tong Tau Po Tsuen	Village	Air & Noise Sensitive Receiver
Sung Shan New Village	Village	Air & Noise Sensitive Receiver
Tai Wo		
Cheung Po	Village	Air & Noise Sensitive Receiver
Tai Wo	Village	Air & Noise Sensitive Receiver
Playground at Cheung Po	Recreational	Air Sensitive Receiver
Lin Fa Tei		
Seasons Palace	Residential	Air & Noise Sensitive Receiver
Kam Tin River	Recreational	Water Sensitive Receiver
Shui Tsan Tin	Village	Air & Noise Sensitive Receiver
Lin Fa Tei	Village	Air & Noise Sensitive Receiver
Lai Uk Tsuen	Village	Air & Noise Sensitive Receiver
Ha Che		
Fire Services Department Training School	Educational	Air & Noise Sensitive Receiver
A Kung Tin	Village	Air & Noise Sensitive Receiver
Sports Ground to the west of Fam Kam Road	Recreational	Air Sensitive Receiver
Shui Kan Shek	Village	Air & Noise Sensitive Receiver
Sheung Che Tsuen	Village	Air & Noise Sensitive Receiver
Chuk Hang	Village	Air & Noise Sensitive Receiver
San Lung Wai	Village	Air & Noise Sensitive Receiver
Existing streams and bodies of open water in the vicinity of the works areas	Recreational	Water Sensitive Receiver





4.2 Elements of Surrounding Environment Which Might Affect the Project

4.2.1 There are car workshops and open storage areas in the vicinity of the proposed works at Sung Shan New Village, Lin Fa Tei, Tai Wo and Ha Che. These may give rise to potential land contamination that might affect the project works areas at these villages.



5. ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN

5.1 Measures to Minimize Environmental Impacts

General

5.1.1 Standard pollution control clauses are generally good engineering practices to minimize inconvenience and environmental nuisance to nearby sensitive receivers. These will be included in the construction contracts. The following provides the key prevention and pollution control measures related to air quality, noise, ecology, water quality, waste generation, land contamination, landscape and visual resources and cultural heritage.

Air Quality

5.1.2 To ensure that dust emissions are minimized during the construction phase of the Project, the relevant dust control requirements stipulated in the *Air Pollution Control (Construction Dust) Regulation* should be met. Dust suppression measures should be implemented to control the potential dust impacts during the construction phase of the Project.

Noise

5.1.3 In order to mitigate the potential adverse noise impacts, mitigation measures such as use of quiet PME, temporary/movable noise barrier and adoption of good site practices are recommended to alleviate the noise impact on the nearby NSRs.

Ecology

- 5.1.4 In order to preserve the ecological function of habitats, fauna and areas of conservation/ecological value identified in the ecological impact assessment and ecological survey, the following mitigation measures are recommended but are subject to the findings of the ecological impact assessment.
 - Avoid or minimise as far as practicable, any direct impact/disturbance to habitats and associated wildlife identified with ecological importance and compensating any unavoidable habitat loss and disturbance of significant adverse ecological impact; and
 - The mitigation measures that are recommended in the EIA Study to mitigate impacts on air quality, noise and water quality may also help to mitigate the potential ecological impacts.



Water Quality

- 5.1.5 The *Water Pollution Control Ordinance* (Cap 358) and its subsidiary regulations shall be fully complied with during the course of the construction works. The guidelines for handling and disposal of construction site discharges as detailed in EPD's ProPECC Note PN 1/94 "Construction Site Drainage" shall be followed.
- 5.1.6 The Contractor shall carry out the Works in such a manner as to minimise adverse impacts on the water quality during execution of the works. In particular he shall arrange his method of working to minimise the effects on the water quality within and outside the Site and on the transport routes. Appropriate wastewater collection, treatment and disposal facilities should be provided.

Waste Management

5.1.7 The Contractor shall fully comply with the *Waste Disposal Ordinance* (Cap 354) and its subsidiary regulations during the course of the construction works. Whenever possible, the Contractor should maximise the re-use of C&D material, sort C&D materials and waste on site and dispose chemical waste by licensed collectors.

Land Contamination

- 5.1.8 Mitigation measures will be proposed with reference to EPD's "Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management (Dec 2007)", "Practice Guide for Investigation and Remediation of Contaminated Land (Aug 2011)" and "Guidance Note for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair/Dismantling Workshops (May 1999)".
- 5.1.9 Should land contamination be found, mitigation measures should be implemented to minimise any potential exposure to contaminated soil and groundwater. These include provision of protective clothing for site workers, use of bulk earth movers to remove contaminated materials to prevent human contact, provision of adequate washing facilities, provision of an impermeable surface for excavated contaminated soil, use of licensed waste haulers to collect and transport contaminated materials and application of necessary waste disposal permits.

Landscape and Visual Resources

5.1.10 Prompt removal of disused materials and erection of hoardings will alleviate the potential impacts on landscape and visual resources. Mitigation measures to minimize landscape and visual impacts during operational phase maybe required and will be recommended in the EIA study.

Cultural Heritage

5.1.11 Construction works may have the potential to cause impacts to cultural heritage sites should they be present. Comments from the Antiquities and Monuments Office will be sought to avoid any unacceptable adverse impacts to cultural heritage during construction.





6. USE OF PREVIOUSLY APPROVED EIA REPORTS

6.1.1 No EIA Report has been previously approved under the EIAO for the subject drainage improvement works.



FIGURE



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