



**Water Supplies Department  
The Government of the Hong Kong Special Administrative Region**

**PWP Item No. 9327WF -  
Laying of Western Cross Harbour Main  
and Associated Land Mains  
from West Kowloon to Sai Ying Pun**

**PROJECT PROFILE**

**August 2005**

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## **1. BASIC INFORMATION**

### **1.1 Project Title**

- 1.1.1 The title of the proposed project is “Laying of Western Cross Harbour Main and Associated Land Mains from West Kowloon to Sai Ying Pun” (hereafter refer to the “Project”).

### **1.2 Purpose and Nature of the Project**

- 1.2.1 In 10 years’ time, two of the existing four cross-harbour pipelines transferring potable water supplies to Hong Kong Island will reach their design life of 50 years. There will be an increasing risk of having one cross-harbour pipeline under maintenance while another pipeline has to be taken out of service unexpectedly.
- 1.2.2 As cross-harbour pipelines are strategically important, it is necessary to lay a new cross-harbour pipeline on the western part of the harbour for maintaining the reliability of cross-harbour water transfer to Hong Kong Island.
- 1.2.3 The scope of the Project comprises the construction of a new western cross-harbour main and associated land mains of 1200mm nominal diameter across Victoria Harbour from its connection at Lin Cheung Road in West Kowloon to the existing Sai Ying Pun Fresh Water Pumping Station in Sheung Wan. The proposed submarine watermain and associated land watermain are approximately 2100m and 2200m in length respectively. The recommended route of the proposed watermain is illustrated on **Sketch No. 62005/025**.
- 1.2.4 The sections of the pipeline to be laid in West Kowloon and Sai Ying Pun will be buried underground at appropriate depths to avoid clashes with other underground utilities. The submarine section of pipeline crossing Victoria Harbour will be buried, at least 5m, below the dredged/existing seabed levels to avoid accidental damage by ship anchors dragging etc.

### **1.3 Name of Project Proponent**

- 1.3.1 The Project Proponent for this assignment is Water Supplies Department (WSD).

### **1.4 Location and Scale of Project and History of Site**

- 1.4.1 The site boundary of the proposed project covers three portions namely: West Kowloon, Sai Ying Pun and Victoria Harbour.
- 1.4.2 **West Kowloon Portion** – comprises West Kowloon Reclamation area adjacent to Western Harbour Tunnel Toll Plaza and is bounded by Jordan Road to its north and Lin Cheung Road to its east. The land uses in this portion include the land reserved for the West Kowloon Cultural District, the Kowloon Station Development, the Wui Cheung Road Bus Terminus, the Yau Ma Tei Public Cargo Working Area, and the Western Harbour Tunnel Toll Plaza. The proposed 1200mm diameter fresh watermain will be laid in this portion for connection to the existing 1200mm diameter fresh watermain at the junction of Lin Cheung Road/Wui Cheung Road.
- 1.4.3 **Sai Ying Pun Portion** – comprises Sai Ying Pun area adjacent to Western Wholesale Food Market and is bounded by the approaches of Western Harbour Crossing Interchange. The proposed 1200 mm diameter fresh watermain will be laid in this portion for connection to the existing Sai Ying Pun Fresh Water Pumping Station situated at the junction of Water Street/Fung Mat Road.

1.4.4 **Victoria Harbour Portion** – comprises a 60m wide corridor across Victoria Harbour linking West Kowloon Portion with Sai Ying Pun Portion.

1.4.5 The submarine pipeline will be installed by dredging a trench and then installing the pipeline by “bottom pull” method. Dredging will be conducted with the use of a closed type grab dredger. The trench will then be backfilled with selected materials followed by rock or decomposed granite to provide protection of the pipeline from damage by ship anchors. The estimated total quantity of dredged material is approximately 310,000 m<sup>3</sup> and the expected dredging rate will be approximately 22,200 m<sup>3</sup> per week or 3,200 m<sup>3</sup>/day (320 m<sup>3</sup>/hr).

## **1.5 Number and Types of Designated Projects to be Covered by This Project Profile**

1.5.1 This Project involves the construction and operation of a single water supply pipeline of 1200mm nominal diameter across Victoria Harbour from its connection at Lin Cheung Road in West Kowloon to the existing Sai Ying Pun Fresh Water Pumping Station. Only the “submarine watermain” component of the Project is classified as a Designated Project (DP) under item E.3 of Part 1, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) Cap. 499.

## **1.6 Name and Telephone Number of Contact Person(s)**

1.6.1 Any queries regarding the Project can be addressed to Mr. Jaime ROSARIO, Senior Engineer/Consultants Management(4), at Water Supplies Department, 6<sup>th</sup> Floor, Sha Tin Government Offices, No. 1 Sheung Wo Che Road, Sha Tin, New Territories, Hong Kong. The contact telephone and facsimile numbers are 2634 3572 and 2634 1800 respectively.

## **2. OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME**

### **2.1 Responsibilities of Parties**

2.1.1 WSD is the Project Proponent with overall responsibility for the planning, design, construction and operation of the Project. The Project Proponent will commission Consultant(s) to undertake the engineering design and to conduct an Environmental Impact Assessment (EIA) study. The project will be undertaken by Contractor(s) to be appointed by the Project Proponent at the subsequent stage.

### **2.2 Project Time Table**

2.2.1 Investigation and detailed design consultants will be appointed in January 2006 and September 2007 respectively. The investigation and detailed design of the Project will be carried out between January 2006 and March 2008. Tendering of the construction works will be carried out between March and August 2008. Construction is tentatively scheduled to commence in August 2008 for completion in February 2011. Details of the tentative programme is shown in Appendix A.

### **2.3 Interactions with Other Projects**

2.3.1 According to the available information, some projects are also proposed in the vicinity of the site of this Project. The implementation schedule of these projects will be further checked with the relevant project proponents during the investigation stage. If the construction period of these projects overlap, it may give rise to potential cumulative impacts to the environment. These projects include:

- Western Harbour Submarine Gas Pipeline and Associated Stations by Hong Kong and China Gas Company Limited;

- Harbour Area Treatment Scheme Stage 2 by Drainage Services Department; and
- West Kowloon Cultural District.

### **3. POSSIBLE IMPACT ON THE ENVIRONMENT**

#### **3.1 Summary of Preliminary Environmental Review Findings**

- 3.1.1 The potential environmental impacts associated with the construction and operation of the preferred option for the Project have been identified and evaluated in the Preliminary Environmental Review Report completed in October 2002. The findings are summarised as follows:

##### *Construction Phase*

##### Noise

- 3.1.2 The main potential construction noise impacts during laying of the land mains would be related to the noise emitted from the powered mechanical equipment such as breakers, excavator and lorry. The potential construction noise impacts during laying of the submarine pipeline would be related to the noise emitted from marine crafts such as grab dredgers, hopper barges, workboats, etc.. The number of vessels will be kept to a minimum to ensure the least interference to normal marine traffic. The dredging work is expected to be a 24 hours operation.
- 3.1.3 With the adoption of the recommended mitigation measures such as using silent equipment and barriers during the construction phase, it is expected that the potential impacts could be reduced to acceptable levels in accordance with the Technical Memorandum on EIAO Process requirements.

##### Air Quality

- 3.1.4 Construction dust has been identified to contribute a potential short-term impact to the nearby sensitive receivers. As the construction activities involved are limited in extent and duration, the potential impacts would be able to be controlled through appropriate design and good site practice such as regular watering.

##### Water Quality

- 3.1.5 The key potential water quality impact for laying the submarine watermain will be mainly related to the release of sediments to the water column during dredging and backfilling. Though it is expected the impacts due to dredging will be short in duration, it is recommended that a quantitative water quality assessment is conducted to predict the extent of impacts and thus the extent of mitigation measures which need to be adopted due to the dredging activities and construction works at both landfall areas.

##### Solid Waste

- 3.1.6 The generation of construction waste arising from the proposed works has been identified. The management and disposal of the dredged materials of the proposed submarine pipeline would follow the procedures and requirements specified in the Environment, Transport and Works Bureau Technical Circular (Works) (ETWB TC(W)) No. 34/2002.

##### Ecology

- 3.1.7 Limited ecological impacts are envisaged for both marine and terrestrial environment during construction. The potential for impacts arising during the construction phase is anticipated to be minor due to the lack of sensitive receivers in the vicinity of the project area. However, site visits will be required which will highlight ecological features of significance during the Investigation and Preliminary Design Phase of the Project.
- 3.1.8 Employment of appropriate mitigation measures for the dredging/backfilling works which will be required for protection of water quality will also protect the limited ecological resources in the Harbour.

#### Landscape & Visual

- 3.1.9 Impacts associated with the operational phase of the proposed pipeline through the terrestrial and marine environments are considered to be negligible. There are potential for some short term visual impacts during construction; however, these can be mitigated with appropriate site management practices.

#### Cultural Heritage

- 3.1.10 The marine archaeological potential of the affected seabed will be reviewed based on the available information. If the archaeological potential of the affected area is considered to be affirmative, a Marine Archaeological Investigation is required to be conducted to ascertain if any marine archaeological deposit would be affected by the submarine pipeline.

#### *Operational Phase*

- 3.1.11 Impacts associated with the operational phase of the proposed pipeline through the terrestrial and marine environments are considered to be negligible. No operational noise, air and water quality impacts are likely to be expected.

## **4. MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT**

- 4.1 The nearby sensitive receivers at the land section of the Project in Kowloon side are the Waterfront and the residential blocks at Kowloon Station Phases 2, 3, 4 and 6.
- 4.2 The nearest sensitive receiver at the land section of the Project in Sai Ying Pun side is the Western Wholesale Food Market which is about 100m away from the proposed landfall. Further investigation will be carried out during the investigation stage to examine if the construction will affect the operation of the Western Wholesale Food Market. Composite residential/commercial buildings are also located near the existing Sai Ying Pun Fresh Water Pumping Station. There is no declared monument in the vicinity of the project area.
- 4.3 Victoria Harbour is ecologically degraded. There are no sensitive biotic receivers such as mariculture zones, commercial fisheries, shell fisheries or fish spawning grounds in the vicinity of the project area. New Yau Ma Tei Typhoon Shelter is identified as one of the representative water quality sensitive receivers in the vicinity of the project area. Corals are identified at Green Island which may be influenced by the proposed dredging and filling activities of the Project.
- 4.4 In addition, there are existing seawater intakes in the vicinity of the submarine pipeline that may be affected, such as seawater intake culvert of WSD's Kowloon South Salt Water Pumping Station, intakes for MTR cooling mains and seawater intakes located in the vicinity of the Western Harbour Crossing on both sides of Kowloon and Hong Kong Island.

4.5 Sensitive receivers may also include (subject to review at the EIA study stage) :

- WSD intakes at Cheung Sha Wan, Kowloon South, Central Waterfront, Kennedy Town, Sheung Wan and Wan Chai; and
- Cooling water intakes for Prince Philip Dental Hospital, Macau Ferry Terminal, Rumsey Street Carpark, Harbour Building, General Post Office, City Hall, Edinburgh Place, Cheung Sha Wan Wholesale Market, Kowloon Government Offices Building, Canton Road Government Offices Building, China Ferry Terminal, and Hong Kong Cultural Centre.

## **5. ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN AND ANY FURTHER ENVIRONMENTAL IMPLICATIONS**

### **5.1 Mitigation Measures**

*During Construction Phase*

#### Noise

- 5.1.1 In order to minimize the construction noise impacts, the proper scheduling of work and necessary noise mitigation such as selection of silenced equipment and use of temporary acoustic barriers would be required.

#### Air Quality

- 5.1.2 Typical dust control measures during the construction phases should include entirely covering the open stockpiles and dampening the dusty materials before transportation.

#### Water Quality

- 5.1.3 Good site management practice should ensure that construction impacts on water quality are kept to a minimum. To prevent surface water from contamination of construction activities, the following measures should be adopted:

- All waste water generated should be collected and removed from the site via a suitable and properly designed temporary drainage system and disposed of at a location and in a manner that will cause neither pollution nor nuisance.
- Precautions will also be required for the avoidance of damage by flooding and silt washed down from the proposed works. Adequate precautions should be provided to ensure that no spoil or debris of any kind is allowed to be pushed, washed down, fall or be deposited on land or on the seabed adjacent to the site.
- Any sewage, wastewater or other effluent containing sand, cement, silt or any other suspended or dissolved material should not be permitted to flow from the site onto any adjoining drainage system and watercourses. All such materials should be removed from the site.
- Discharge directly or indirectly (by runoff) into any public sewer, storm-water drain, channel or sea, any effluent or foul or contaminated water or cooling water should not be permitted without any proper treatment and/or without prior consent of the relevant Authority, including EPD and DSD.
- Chemicals used for sterilising the pipelines prior to commissioning should not be deposited into watercourses but should be treated on site or tacked offsite for treatment at an appropriate treatment plant.
- All equipment should be designed and maintained to minimise the risk of silt and other contaminants being released into the water column or deposited in other than designated

locations.

#### Construction Waste

- 5.1.4 The management and disposal of the dredged materials of the proposed submarine pipeline would follow the procedures and requirements specified in the ETWB TC(W) No. 34/2002 – Management of Dredged/Excavated Sediment, and a Marine Dumping Permit will be required prior to the commencement of the works. Other construction wastes such as land excavated material and general refuse will be limited and normal waste management practices will be implemented.

#### Marine Ecology

- 5.1.5 The main potential adverse ecological impacts are anticipated to arise as a result of elevation of suspended sediments due to dredging and filling operations. To minimise the mobilisation of pollutants within the marine waters:
- Dredging tools should be designed and maintained to avoid spillage and sealed tightly while being lifted.
  - Loading of barges and hoppers is to be controlled to prevent splashing of dredged material into the surrounding water. Barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation.

#### Landscape and Visual Impact

- 5.1.6 The possible measures for mitigating the short-term visual intrusion during construction may include temporary hoarding, with the cladding panels painted with aesthetic features, for surrounding the works areas at sensitive locations.

#### *During Operation Phase*

- 5.1.7 No mitigation measures will be required as no operational impacts are expected.

### **5.2 Possible Severity, Distribution and Duration of Environmental Effects**

- 5.2.1 Potential environmental impacts identified will mainly be associated with the construction period (a period of about 30 months). As such the effects are considered to be temporary and short term. With the implementation of appropriate mitigation measures, no insurmountable environmental impacts are expected.

## **6. USE OF PREVIOUSLY APPROVED EIA REPORTS**

- 6.1 No previous EIA Report has been approved and submitted for this Project.
- 6.2 The previously approved EIA reports which have similar water quality sensitive receivers to the Project are as follows :
- Wanchai Development Phase II - Comprehensive Feasibility Study
  - Central Wai Chai Bypass and Island East Corridor Link - Design and Construction
  - Central Reclamation Phase III – Studies, Site Investigation, Design and Construction
- 6.3 All these EIA reports were approved in August 2001. Environmental considerations which have been addressed in these EIA reports include: -





- Air Quality
- Noise
- Water Quality
- Waste Management
- Land Contamination
- Terrestrial Ecology
- Marine Ecology
- Landscape and Visual Aspects
- Boigas Risk Appraisal
- Environmental Monitoring and Audit

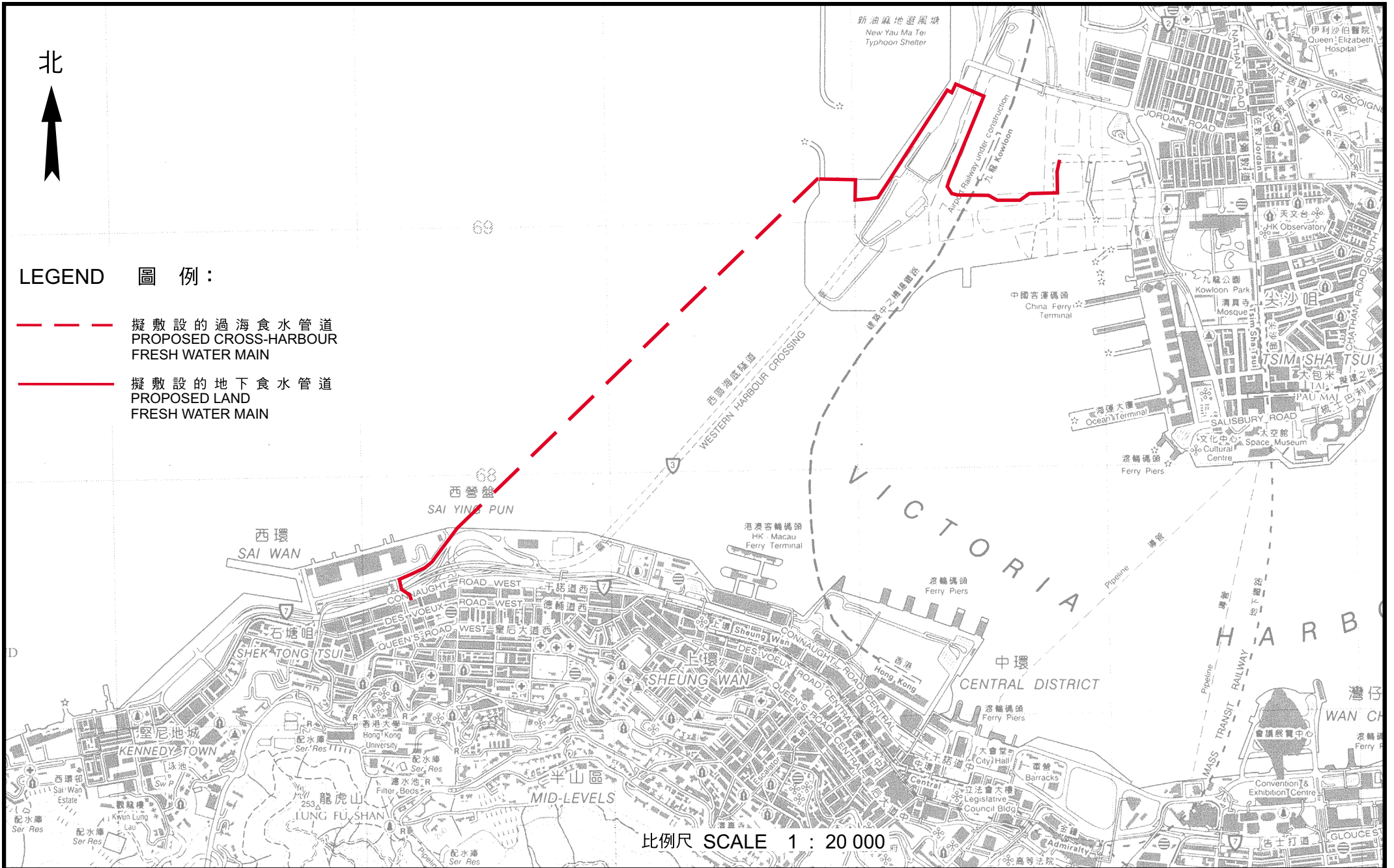
- 6.4 The assessments which were conducted are relevant to the current situation because the information of the marine water quality and marine ecology survey, and from the previously approved EIA which preliminary outline the potential impacts on the marine ecology and fisheries in the study area.
- 6.5 Although reference has been made to the aforementioned reports the information was only used to provide guidelines for assessing the scale of the potential impacts. It is proposed that the current EIA is carried out without relying on the findings of the previous report to ensure the latest information are used which will reflect a more accurate situation.

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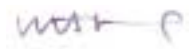


LEGEND 圖例：

-  擬敷設的過海食水管道  
PROPOSED CROSS-HARBOUR  
FRESH WATER MAIN
-  擬敷設的地下食水管道  
PROPOSED LAND  
FRESH WATER MAIN



比例尺 SCALE 1 : 20 000

核准 APPROVED  
  
 總工程師/顧問工程管理 CE/MC  
 13 / 6 / 2005

工務計劃項目第 9327WF 號 — 敷設由西九龍至西營盤之西區過海海底水管及與其相關的地下喉管  
 P.W.P. ITEM NO. 9327WF — LAYING OF WESTERN CROSS HARBOUR MAIN  
 AND ASSOCIATED LAND MAINS FROM WEST KOWLOON TO SAI YING PUN

 水務署  
 WATER SUPPLIES DEPT.  
 草圖編號 SKETCH NO. SK 62005 / 025

Tentative Programme for PWP 9327WF  
 - Laying of Western Cross Harbopur Main and Associated Land Mains from West Kowloon to Sai Ying Pun

ID	Task Name	Duration	Start	Finish	2006				2007				2008				2009				2010				2011	
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1	Investigation Stage	14 mons	Tue 06/1/31	Mon 07/3/26	█																					
2	EIA Study	12 mons	Mon 06/2/6	Wed 07/1/31	█																					
3	Detailed Design Stage	7 mons	Sat 07/9/1	Fri 08/3/28					█																	
4	Tendering Stage	5 mons	Sat 08/3/29	Mon 08/8/25									█													
5	Contruction Stage	30 mons	Tue 08/8/26	Fri 11/2/11													█									

Project: programme for PP  
 Date: Tue 05/8/30

Task		Milestone		External Tasks	
Split		Summary		External Milestone	
Progress		Project Summary		Deadline	