

For discussion
on 22 May 2006

**Legislative Council
Panel on Environmental Affairs**

**Provision of sewerage in Ting Kau and Sham Tseng and
Engagement of consultants for sewerage works in Yuen Long and Kam Tin**

PURPOSE

This paper seeks Members' support for the Administration's proposal to submit the following three projects to the Public Works Subcommittee for consideration with a view to seeking the Finance Committee's funding approval –

- a) **52DS** “Ting Kau sewerage stage 2” at an estimated cost of \$65 million in money-of-the-day (MOD) prices to provide public sewerage to the unsewered areas in Ting Kau;
- b) **126DS** “Sham Tseng sewerage stage 3” at an estimated cost of \$45 million in MOD prices to provide public sewerage to the unsewered areas in Sham Tseng and Tsing Lung Tau; and
- c) **235DS** “Yuen Long and Kam Tin sewerage and sewage disposal” at an estimated cost of \$28 million in MOD prices to engage consultants to undertake site investigations and surveys, an adoptive review¹ and detailed design for provision of public sewerage facilities in the Northwest New Territories.

PROPOSAL AND JUSTIFICATION

52DS “Ting Kau sewerage stage 2” and 126DS “Sham Tseng sewerage stage 3”

2. At present, domestic sewage from unsewered areas in Ting Kau, Sham Tseng and Tsing Lung Tau is discharged into nearby coastal waters either without treatment, for example in the cottage area in Sham Tseng, or after

¹ The Adoptive Review is to review the planning, investigation, survey, study and preliminary design work for the Project previously done with a view to facilitating more effective and efficient implementation. The review shall take account of any changed circumstances up to the beginning of the review and current constraints, including changes in the hydraulic condition in the catchment, traffic, road opening restrictions, environmental protection, legislation, land use, population, aspirations/requirements of local residents, District Council and Rural Committees and any other recent developments.

treatment by private treatment facilities. Most of these private treatment facilities, if available, are septic tanks and soakaway systems in village houses. The facilities in these areas are often ineffective in removing pollutants due to their close proximity to watercourses² and inadequate maintenance³. Sewage discharged from these unsewered areas is one of the causes of the serious water pollution in the nearby coastal waters including the beaches in the vicinity of both Ting Kau and Sham Tseng.

3. In 1989, the Environmental Protection Department commissioned the Tsuen Wan, Kwai Chung and Tsing Yi Sewerage Master Plan Study (the Study) to review the sewerage requirement in these areas including Ting Kau, Sham Tseng and Tsing Lung Tau. As a long-term measure to address the water pollution problem in the areas, the Study recommended, *inter alia*, the provision of a sewage treatment plant, namely, the Sham Tseng sewage treatment plant, a submarine outfall at Sham Tseng and comprehensive sewerage stretching from Approach Beach in the east to Tsing Lung Tau in the west. This sewerage aims to collect and convey sewage from the unsewered areas of Ting Kau, Sham Tseng and Tsing Lung Tau, including sewage currently handled by private facilities and sewage from the lavatories at Approach Beach and Lido Beach, to Sham Tseng sewage treatment plant for proper treatment and disposal.

4. We have been implementing the scheme in stages. We commissioned the Sham Tseng sewage treatment plant and the submarine outfall at the end of 2003 and have commenced serving most of the commercial and residential developments along both sides of Castle Peak Road in Sham Tseng. We have also been laying a trunk sewer along Castle Peak Road between Ting Kau and Tsing Lung Tau since mid 1999 for completion in late 2006. After completion of the trunk sewer, developments adjacent to Castle Peak Road in Tsing Lung Tau and in Ting Kau can be connected directly to it. The final stage of the scheme is to provide public sewers in those unsewered areas of Ting Kau, Sham Tseng and Tsing Lung Tau, which cover about ten villages. The villagers will then be required to connect their premises to the public sewers under the Water Pollution Control (Sewerage) Regulation.

5. The scope of the proposed works under **52DS** and **126DS** comprises –

52DS

(a) construction of three sewage pumping stations and laying a

² Soakaway systems operate by allowing the effluent to percolate through the gravel so that pollutants would be removed in a natural manner. However, if a system is located in an area where the underground water table is high such as an area in close proximity to watercourses, it cannot function properly.

³ Inadequate maintenance of septic tanks or soakaway systems would affect the pollutant removal efficiency of a system and may even lead to an overflow of effluent.

- total of about 200 metres of twin rising mains at Approach Beach, Lido Beach and Ting Kau; and
- (b) construction of 1.6 kilometers (km) of sewers in Ting Kau Village.

126DS

- (a) construction of one sewage pumping station in Tsing Lung Tau; and
- (b) construction of about 5.5 km of sewers in nine villages, namely Sham Tseng East Village, Sham Tseng Commercial New Village, Sham Tseng Kau Tsuen, Sham Tseng San Tsuen, Shu On Terrace, Tsing Fai Tong New Village, Pai Min Kok Village, Yuen Tun Village and Tsing Lung Tau Tsuen.

A site plan showing the scope of the proposed works is at Enclosure 1.

- 6. We plan to commence construction in late 2006 for completion in late 2009.

235DS “Yuen Long and Kam Tin sewerage and sewage disposal”

7. There is no public sewerage at Ngau Tam Mei, San Tin, Pat Heung, Kam Tin, Lau Fau Shan and Yuen Long South in the Northwest New Territories. The sewage is treated and disposed of by means of privately owned sewage treatment plants or septic tank and soakaway systems. These privately owned facilities are often ineffective in removing pollutants due to their close proximity to watercourses and inadequate maintenance. Sewage discharged from these unsewered areas is a source of pollution to the existing streamcourses and their receiving waters of Deep Bay. The lack of adequate public sewerage facilities also hinders further development in the Northwest New Territories.

8. In January 1999, the Environmental Protection Department completed the study “Review of Yuen Long and Kam Tin sewerage and sewage disposal requirements”. The study recommended a package of sewerage improvement works to provide trunk sewer systems in the above unsewered areas and to upgrade relevant sewerage facilities to abate the water pollution problems and to meet future development needs in the Northwest New Territories. The recommendations took into account the targets set down in the Deep Bay Water Pollution Control Joint Implementation Programme agreed with the Mainland authorities to reduce the amount of pollutants flowing into Deep Bay, so as to protect the sensitive inner Deep Bay habitat. The proposed sewer network will be designed for a population of about 300,000 people in Yuen Long South, Ngau

Tam Mei, San Tin, Kam Tin, Mong Tseng and Lau Fau Shan areas.

9. The scope of the project **235DS** comprises-

- a) the provision of public sewerage at Ngau Tam Mei, San Tin, Pat Heung, Kam Tin, Lau Fau Shan and Yuen Long South in Northwest New Territories,
- b) an effluent pumping station and rising mains from the existing Yuen Long Sewage Treatment Works to San Wai Sewage Treatment Works; and
- c) expansion of the existing Ha Tsuen sewage pumping station and San Wai sewage treatment works.

A site plan showing the scope of the proposed works is at Enclosure 2.

10. Owing to the inadequate in-house staff resources, D of DS proposes to employ consultants to carry out the site investigations and surveys, the adoptive review, and the design for the civil engineering part of the proposed sewerage works under **235DS**. The detailed design of the electrical and mechanical works will be carried out by in-house staff.

11. We propose to upgrade part of **235DS** to Category A for the following consultancy services –

- a) site investigations and surveys;
- b) adoptive review; and
- c) detailed design (including preparation of tender documents and assessment of tenders) of the proposed works.

12. We plan to commence the above consultancy services at the end of 2006 for completion in end 2010.

FINANCIAL IMPLICATIONS

13. We estimate the capital costs⁴ of the proposed works and consultancy services to be about \$138 million in MOD prices and the annual

⁴ These are the latest estimates. We will finalize the project costs and include a cost breakdown prior to submitting the proposals to the PWSC for consideration.

recurrent costs to be \$1.3 million, made up as follows-

	\$ million (MOD)	Annual recurrent cost \$ million
(a) 52DS “Ting Kau sewerage stage 2”	65	0.7
(b) 126DS “Sham Tseng sewerage stage 3”	45	0.6
(c) 235DS “Yuen Long and Kam Tin sewerage and sewage disposal”	28	0
Total	138	1.3

14. Based on the current level of expenditure on operation and maintenance of sewerage facilities, the proposed works by themselves will lead to an increase in the recurrent cost of providing sewage services by about 0.08 %, which will need to be taken into account in determining sewage charges.

15. We estimate that the proposed works will create about 93 jobs (62 for labourers and another 31 for professional/technical staff) providing a total employment of 2 650 man-months.

PUBLIC CONSULTATION

52DS “Ting Kau sewerage stage 2” and 126DS “Sham Tseng sewerage stage 3”

16. We consulted the Tsuen Wan Rural Area Committee and the Environmental and Health Affairs Committee of Tsuen Wan District Council on 20 January 2005 and 3 March 2005 respectively. Members supported the implementation of the proposed works.

235DS “Yuen Long and Kam Tin sewerage and sewage disposal”

17. We reported to the Environmental Improvement Committee of the Yuen Long District Council on 20 March 2006 about the latest implementation programme for engaging consultants to undertake the review and design of the project. They indicated no objection to the proposed engagement of consultants to undertake the review and design of the project. They requested that we should consult the Rural Committees and locals when more design details of the project are available.

ENVIRONMENTAL IMPLICATIONS

52DS “Ting Kau sewerage stage 2” and 126DS “Sham Tseng sewerage stage 3”

18. After completion of the projects and subsequent connection of the village houses to the sewers, the pollution problems caused by the discharge of sewage from Ting Kau, Sham Tseng and Tsing Lung Tau into local coastal waters will be alleviated.

19. We assessed the environmental impacts of the sewerage works arising from their construction and operation in an Environmental Impact Assessment study completed in August 1995. The study concluded that the environmental impacts of the projects including noise, odour and dust could be mitigated to within acceptable standards and guidelines. We will implement the mitigation measures recommended in the study. This will involve the provision of deodorization facilities to mitigate odour impact, the use of quieter equipment for noise control and limiting the height of the sewage pumping stations to reduce visual impact. For short term impacts during construction, we will control noise, dust and site run-off to levels within established standards and guidelines through implementation of mitigation measures, such as temporary noise barriers and quieter construction plant to reduce noise generation, water-spraying to reduce dust emission, and strict control on diversion of site run-off. We will also carry out regular site inspections to ensure that these recommended mitigation measures and good site practices are properly implemented.

20. We have given due consideration to the need to minimize construction and demolition (C&D) materials in the planning and design stages of the proposed works. We will require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. We will ensure that the day-to-day operations on site comply with the approved WMP. We will control the disposal of public fill and C&D waste to designated public filling facilities and landfills respectively through a trip-ticket system. We will require the contractor to separate public fill from C&D waste for disposal at appropriate facilities. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes.

21. We estimate that the projects will generate about 20 000 tonnes of C&D materials. Of these, we will reuse about 14 000 tonnes (70%) on site, and deliver 4 000 tonnes (20%) to public fill reception facilities⁵ for subsequent reuse.

⁵ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal

In addition, we will dispose of 2 000 tonnes (10%) at landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites is estimated to be about \$360,000 for these projects (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne⁶ at landfills.)

235DS “Yuen Long and Kam Tin sewerage and sewage disposal”

22. The proposed consultancy will not cause any significant adverse environmental implications. The site investigations under the proposed consultancy will generate an insignificant amount of construction and demolition (C&D) materials. We will require the consultants to fully consider, and propose measures to minimize, the generation of C&D materials. Similarly, we will require the consultants to propose measures for reusing/recycling C&D materials as much as possible when carrying out the site investigation work, and during the future implementation of the construction projects.

ADVICE SOUGHT

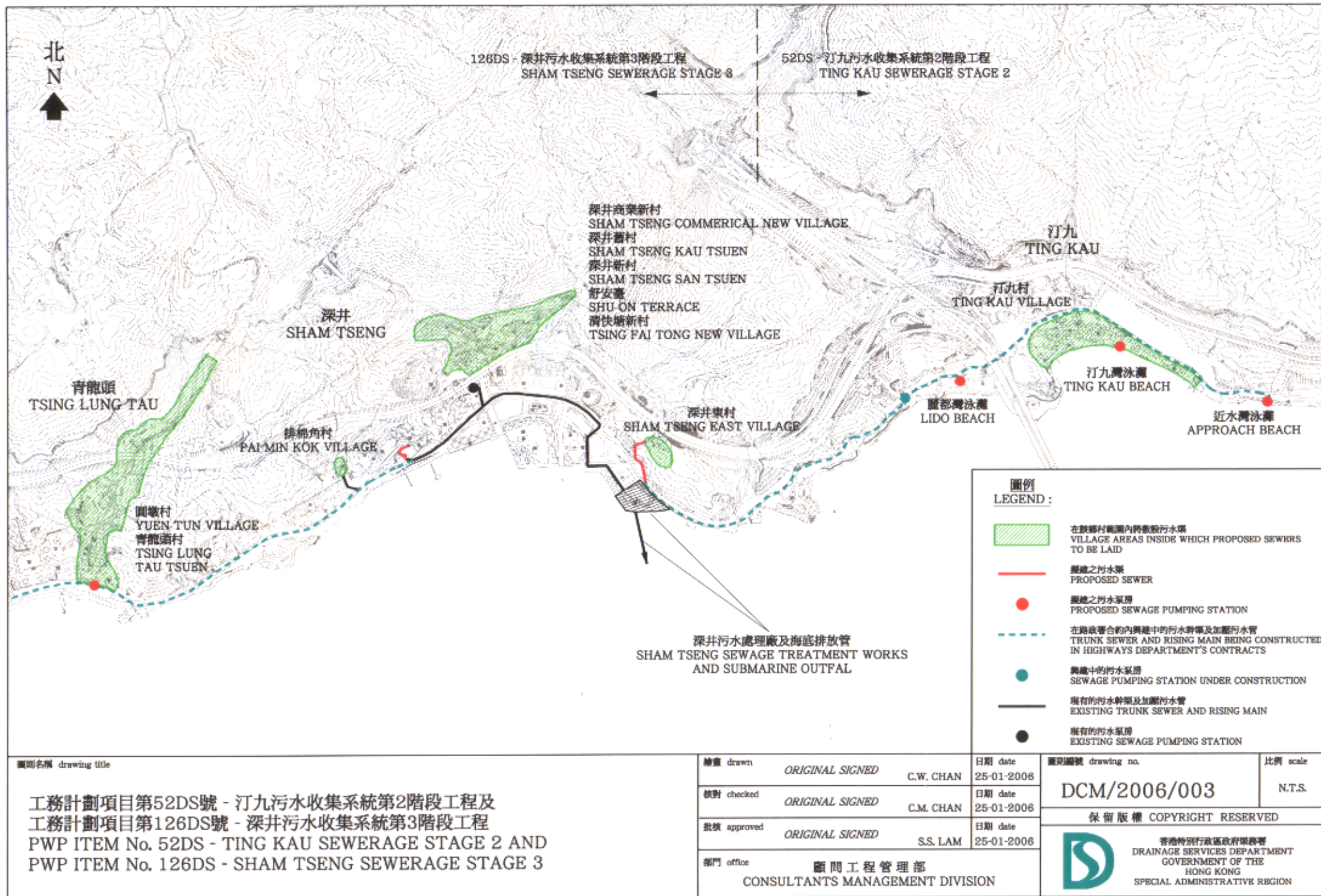
23. Members are invited to support the Administration’s proposal to submit the following three projects to the Public Works Subcommittee for consideration for upgrading to Category A.

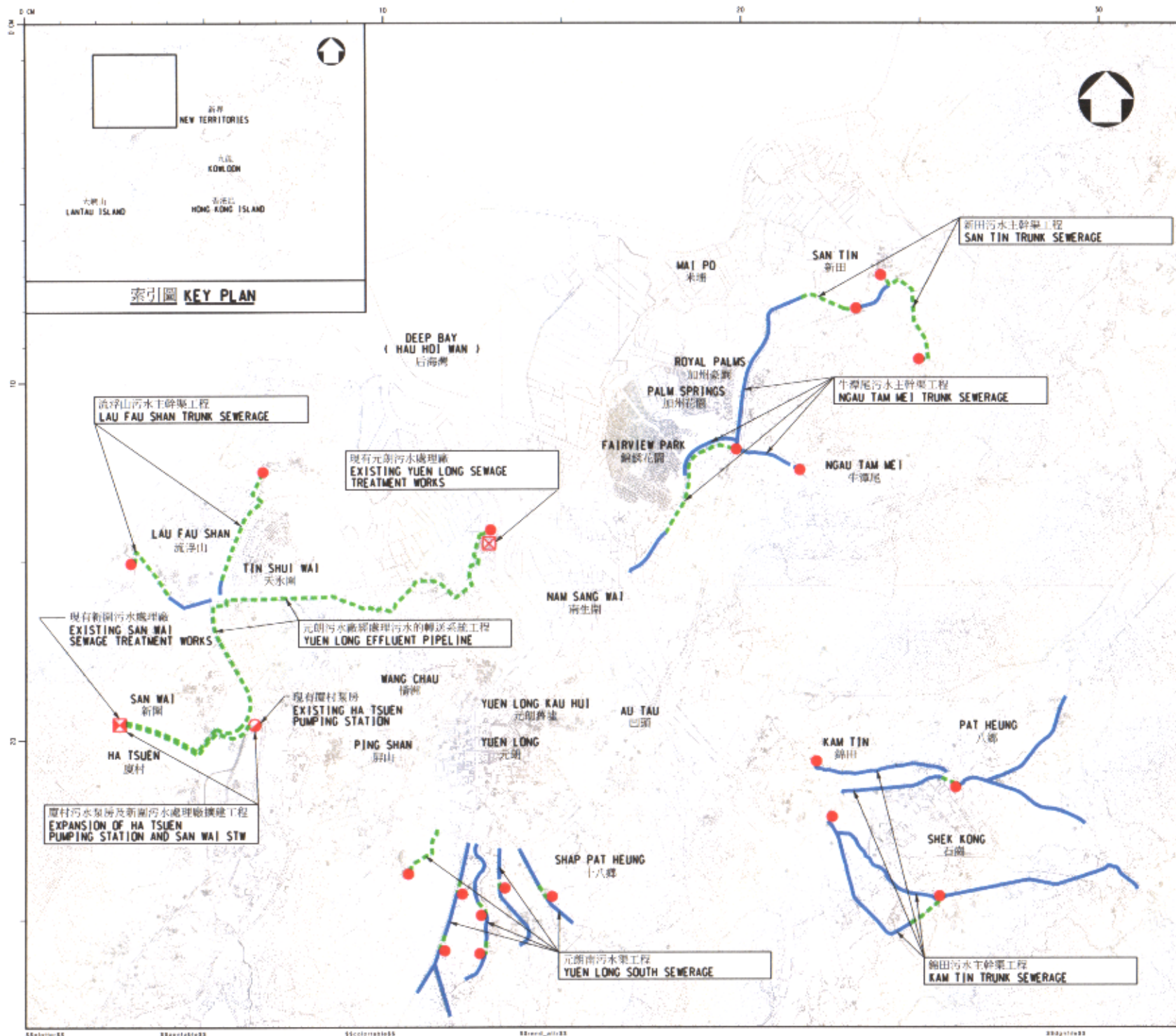
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Environmental Protection Department
May 2006

of Construction Waste) Regulation. Disposal of public fill in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

⁶ The estimate has taken into account the cost of developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m³), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.





註 NOTES :

LEGEND :

- PROPOSED SEWER
擬建污水渠
- PROPOSED RISING MAIN
擬建加壓污水管
- PROPOSED PUMPING STATION
擬建污水泵房

版 No.	日期 date	修訂項目 description	簽署 initial
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修訂 REVISION

	姓名 name	日期 date
繪圖 drawn	SIGNED Y. K. FAN	12MAY2006
核對 checked	SIGNED Ir P. W. CHAN	12MAY2006
批核 approved	SIGNED Ir T. Y. YUEN	12MAY2006

合約編號
contract no.

檔案編號
file no.

工程編號
project no.

合約名稱 contract

PROVISIONAL
SUBJECT TO AMENDMENT

圖則名稱 drawing title
元朗及錦田污水收集系統及污水排放計劃
YUEN LONG AND KAM TIN
SEWERAGE AND SEWAGE DISPOSAL
工程範圍
SCOPE OF WORKS

圖則編號 drawing no.

DDN/235DS/0003

比例 scale

NTS

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污水工程處
SEWERAGE PROJECTS DIVISION

香港特別行政區政府渠務署
DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE
HONG KONG
SPECIAL ADMINISTRATIVE REGION

附件 2 ENCLOSURE 2