**For discussion** **PWSC(2006-07)29**
**on 21 June 2006**

# ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

**HEAD 705 - CIVIL ENGINEERING**
**Water Supplies - Salt water supplies**
**44WS – Salt water supply system for Penny's Bay**

Members are invited to recommend to Finance Committee the upgrading of **44WS** to Category A at an estimated cost of $119.5 million in money-of-the-day prices for the construction of the salt water supply system for Penny's Bay.

## PROBLEM

There is no salt water supply to Hong Kong Disneyland (HKD) and other facilities in Penny's Bay on Lantau Island for flushing purpose.

## PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Economic Development and Labour, proposes to upgrade **44WS** to Category A at an estimated cost of $119.5 million in money-of-the-day (MOD) prices for the construction of a salt water supply system for HKD and other facilities in Penny's Bay.

**/PROJECT .....**

## PROJECT SCOPE AND NATURE

3. The scope of works under **44WS** comprises -

(a) the construction of a salt water service reservoir of a capacity of 2 500 cubic metres near Yan O Tuk;

(b) the construction of a salt water pumping station of a pumping capacity of 7 600 cubic metres per day at Ta Pang Po;

(c) the laying of about 1.3 kilometre of salt water mains which are 450 millimetres in diameter; and

(d) mechanical and electrical works for the proposed service reservoir and pumping station.

A site plan showing the proposed works is at Enclosure 1. A perspective view of the salt water pumping station is at Enclosure 2.

4. We plan to commence the construction of the proposed works in November 2006 for completion in June 2009.

## JUSTIFICATION

5. Penny's Bay is a new development area with no salt water supply system. It is Government policy to provide salt water flushing supply to a new development area as far as possible. This will help reduce the demand on the precious fresh water. Major users of the proposed salt water supply system in Penny's Bay include HKD and others such as the Penny's Bay Police Post and Fire Station cum Ambulance Depot. As an interim measure, these facilities have been provided with fresh water for flushing purpose.

## FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the proposed works to be $119.5 million in MOD prices (see paragraph 7 below), made up as follows –

/(a) .....

| | | **$ million** | |
|---|---|---|---|
| (a) | A salt water service reservoir | 35.0 | |
| (b) | A salt water pumping station | 41.6 | |
| (c) | Mainlaying works and pipeworks | 6.0 | |
| (d) | Mechanical and electrical works | 20.0 | |
| (e) | Environmental mitigation measures | 1.0 | |
| (f) | Contingencies | 10.4 | |
| | Sub-total | 114.0 | (in September 2005 prices) |
| (g) | Provision for price adjustment | 5.5 | |
| | Total | 119.5 | (in MOD prices) |

7. Subject to approval, we will phase the expenditure as follows –

| **Year** | **$ million (Sept 2005)** | **Price adjustment factor** | **$ million (MOD)** |
|---|---|---|---|
| 2006 – 2007 | 1.0 | 1.01500 | 1.0 |
| 2007 – 2008 | 28.4 | 1.03023 | 29.3 |
| 2008 – 2009 | 50.9 | 1.04568 | 53.2 |
| 2009 – 2010 | 24.4 | 1.06136 | 25.9 |
| 2010 – 2011 | 7.6 | 1.07728 | 8.2 |
| 2011 – 2012 | 1.7 | 1.10152 | 1.9 |
| | 114.0 | | 119.5 |

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8. We have derived the MOD estimates on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period 2006 to 2012. We will tender the civil engineering works on a re-measurement basis because the quantities of earthwork are subject to variation during construction to suit actual site conditions. The contract will provide for price adjustment as the contract period will exceed 21 months. For the mechanical and electrical works, the mechanical and electrical equipment will be supplied and installed through a works contract. We will supervise the proposed works using in-house staff.

9. The annual recurrent expenditure arising from this project is about $2.6 million.

10. The project by itself would lead to an increase in production cost of water by 0.1% in real terms by 2012[1].

**PUBLIC CONSULTATION**

11. We consulted the Tsuen Wan District Council, Ma Wan Rural Committee and Village Representatives from the north-east part of Lantau Island on the proposed works in January 2006. They had no objection to the proposal.

12. We submitted a paper on this proposal to the Legislative Council Panel on Economic Services. The Panel did not have time to discuss the paper at its meeting on 22 May 2006, but agreed that the proposal could be submitted to the Public Works Subcommittee. It was also agreed that Members could send their written comments on the proposal to the Administration via the Secretariat of the Legislative Council by 30 May 2006. We have not received any written comments.

**/ENVIRONMENTAL .....**

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[1] The increase in production cost of water is calculated at the present price level and on the assumption that the water demand remains static during the period from 2006 to 2012.

## ENVIRONMENTAL IMPLICATIONS

13. We completed an Environmental Impact Assessment (EIA) study in 2000 for the "Northshore Lantau Development Feasibility Study" covering, amongst others, the salt water service reservoir and associated laying of water mains near Yan O Tuk. The recommendations made in the approved EIA report relevant to the design stage have been adopted and other recommendations applicable to the construction stage will be effected during the construction of the proposed works.

14. We completed a Preliminary Environmental Review (PER) in October 2005 for the proposed salt water pumping station and the associated laying of water mains at Ta Pang Po. The Director of Environmental Protection concluded that the proposed works is not a Designated Project under the EIA Ordinance (Cap. 499). The findings of the PER mainly relate to precautions required during construction stage and will be adopted in the construction of the proposed works.

15. We have considered the location, levels and layout of the proposed salt water service reservoir, pumping station and associated water mains in the planning and design stages to reduce the generation of construction and demolition (C&D) materials where possible. In addition, we will require the contractor to reuse inert C&D materials (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of C&D materials to public fill reception facilities. We will encourage the contractor to maximise the use of recycled or recyclable C&D materials, as well as the use of non-timber formwork to further minimise the generation of construction waste.

16. We will also 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 public fill reception 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 purpose.

17. The project will not cause long term environmental impact. We will control noise, dust and site run-off during construction to within established standards and guidelines by incorporating standard environmental pollution control clauses in the civil engineering works contract. We have included about $1.0 million (in September 2005 prices) in the project estimates to implement suitable mitigation measures to control short term environmental impacts.

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18. We estimate that the project will generate about 76 500 tonnes of C&D materials. Of these, we will reuse about 12 600 tonnes (16.5%) on site and deliver 63 750 tonnes (83.3%) to public fill reception facilities[2] for subsequent reuse. In addition, we will dispose of 150 tonnes (0.2%) at landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites is estimated to be $1.7 million for this project (based on an unit cost of $27/tonne for disposal at public fill reception facilities and $125/tonne[3] at landfills).

## LAND ACQUISITION

19. The proposed works do not require any land acquisition. The clearance of crops and fruit trees on the government land for the project will not affect any households. We will charge the clearance cost estimated at $10,000 to **Head 701 - Land Acquisition**.

## BACKGROUND INFORMATION

20. In October 2003, we upgraded **44WS** to Category B. This project is part of **660CL** for site formation, construction of associated infrastructure and provision of government, institution and community facilities on Lantau Island. In 1999, the Finance Committee agreed to accept in principle the financial implications for **660CL**, estimated at $13.6 billion in September 1999 prices. The construction of the salt water supply system has been provided for within the budget of **660CL**.

21. The original plan was to construct a salt water pumping station on a site to be reclaimed under the Tai Ho Development to provide salt water supply to Penny's Bay for flushing by 2006. However, owing to changes in the Tai Ho Development, we had to identify an alternative site for the salt water pumping station. After study, we decided in 2004 to locate the pumping station in Ta Pang Po as shown in the map in Enclosure 1. In the interim, the short-term option of providing fresh water supply to Penny's Bay for flushing has been adopted.

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[2] Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal 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.

[3] This estimate has taken into account the cost for 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.

22. The detailed design for the proposed works commenced in late 2004 and was substantially completed in May 2006.

23. The proposed construction works will involve the removal of about 19 trees, which are not important trees[4]. We will incorporate planting proposal as part of the project, including estimated quantities of about 13 000 shrubs and 2 100 trees seedling.

24. We estimate that the proposed works will create 90 jobs (78 for labourers and another 12 for professional/technical staff) providing a total employment of 2 100 man-months.

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Economic Development and Labour Bureau
June 2006

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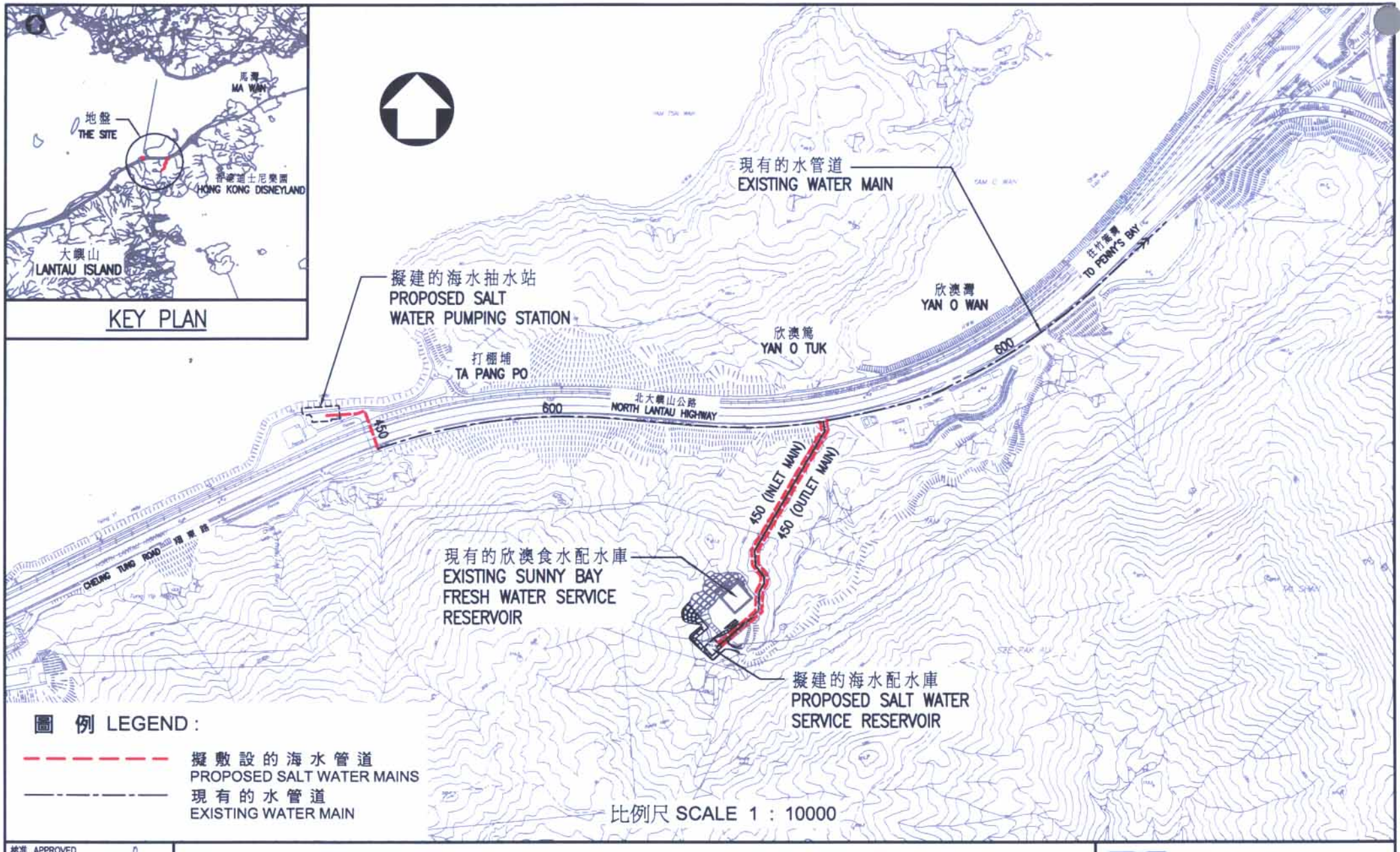
[4] Important trees include trees on the Register of Old and Valuable Trees, and any other trees which meet one or more of the following criteria:
(a) trees over 100 years old;
(b) trees of cultural, historical or memorable significance;
(c) trees of precious or rare species;
(d) trees of outstanding form; or
(e) trees with trunk diameter exceeding one metre (measured at one metre above ground level).




核准 APPROVED

總工程師/設計 CE / Des

9 / 6 / 2006

（甲級工程）
( CAT 'A' Submission )

工務計劃項目第44WS號 —— 竹篙灣海水供應系統

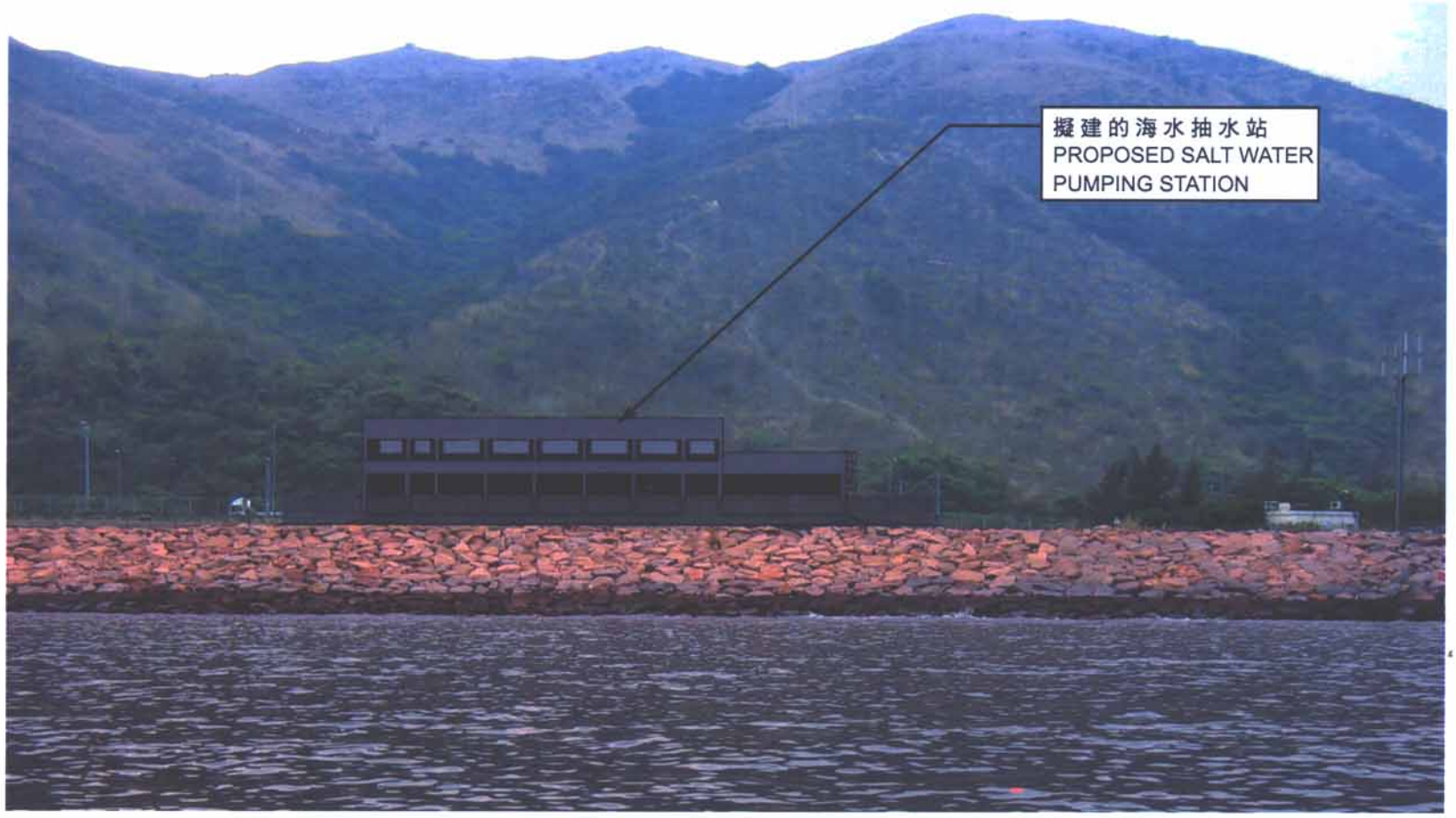
P.W.P. Item no. 44WS —— Salt water supply system for Penny's Bay

水 務 署
WATER SUPPLIES DEPT.

草圖編號 SKETCH NO. SK 62006 / 027 / 001

REF. 62006-027_001.DWG

附件一 ENCLOSURE 1




# 遠觀透視圖
# PERSPECTIVE VIEW

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S16 / 2006

（甲級工程）
( CAT 'A' Submission )

工務計劃項目第 44WS號 — 竹篙灣海水供應系統
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水務署
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草圖編號 SKETCH NO. SK 62006 / 027 / 002

附件二 ENCLOSURE 2