

**For Information**

**Legislative Council Panel on Development**

**46WS – Uprating of Sha Tin salt water supply system**

**PURPOSE**

This paper briefs Members on the proposal to upgrade **46WS** “Uprating of Sha Tin salt water supply system” to Category A, at an estimated cost of about \$207.4 million in money-of-the-day (MOD) prices.

**PROPOSAL**

2. The scope of works under **46WS** comprises –
  - (a) the uprating of Sha Tin seafront salt water pumping station (SWPS) to a total capacity of 112 000 m<sup>3</sup> per day (m<sup>3</sup>/day) by constructing an annex salt water pumping station of capacity of 17 000 m<sup>3</sup>/day, and uprating of the existing facilities in Sha Tin seafront SWPS including valves and surge suppression equipment;
  - (b) the increase of pumping head of Sha Tin salt water booster pumping station by replacing the existing pumps with high-head pumps;
  - (c) the reconstruction of the existing To Shek salt water service reservoir (SWSR) for a storage capacity of about 8 800 m<sup>3</sup>;
  - (d) the construction of Ma On Shan No. 3 salt water service reservoir of storage capacity of about 1 200 m<sup>3</sup>; and
  - (e) the laying of about 3.5 kilometres (km) and rehabilitation of about 2.9 km of salt water mains of diameters ranging from 200 millimetres (mm) to 800 mm.

— A site plan showing the proposed works is at **Enclosure 1**.

3. We plan to start construction in February 2008 for completion of the whole project in June 2011. The works will be supervised by in-house staff.

## JUSTIFICATION

4. With the planned developments in various areas in Sha Tin, such as Wu Kai Sha, Lok Wo Sha, Tai Wai, Shek Mun and Pak Shek Kok, etc. the water demand for flushing uses is on the increase. We project that the total mean daily water demand will increase gradually to 84 000 m<sup>3</sup> beyond 2011<sup>1</sup>. As the existing salt water supply system in Sha Tin can only cope with a mean daily demand of 72 000 m<sup>3</sup>, we consider that uprating of the supply system is required to meet the projected shortfall.

5. To meet the increase in flushing water demand in Sha Tin, we propose to uprate the existing Sha Tin salt water supply system. The proposed works include the construction of an annex SWPS and the uprating of the existing facilities including valves and surge suppression equipment in Sha Tin seafront SWPS to give a total output capacity of 112 000 m<sup>3</sup>/day with sufficient provisions to cover daily fluctuation in demand and contingency. Sha Tin salt water booster pumping station will also be uprated by replacing the existing pumps with high-head pumps. To meet the increased flushing water demand in Sha Tin town centre area (including Tai Wai and Shek Mun), we propose to increase the capacity of To Shek SWSR by reconstructing the existing To Shek SWSR to 8 800 m<sup>3</sup>. We also propose to extend the existing Ma On Shan SWSR by constructing a new salt water service reservoir (Ma On Shan no. 3 SWSR) of storage capacity of about 1 200 m<sup>3</sup> due to the increase in demand in Ma On Shan.

6. We will lay additional water mains to enhance the reliability and improve the hydraulics of the system. Two sections of existing trunk mains of 700 mm diameter are approaching the end of their service life and have become increasingly difficult and costly to maintain. We will take this opportunity to rehabilitate the trunk mains to prevent further deterioration of the salt water supply network.

## FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the proposed works to be about \$207.4 million in MOD prices made up as follows –

	<b>\$ million</b>
(a) Salt water service reservoirs	57.7
(b) Salt water pumping station	11.5

---

<sup>1</sup> To cope with a mean daily water demand of 84 000 m<sup>3</sup>/day, we need the total output capacity of 112 000 m<sup>3</sup>/day to cater for daily fluctuation and contingency.

(c)	Mainlaying and rehabilitation	86.7	
(i)	Mainlaying	41.6	
(ii)	Main rehabilitation	45.1	
(d)	Electrical and mechanical works	31.0	
(e)	Environmental mitigation measures	1.6	
(f)	Contingencies	18.9	
	Total	<u>207.4</u>	(in MOD prices)

## ENVIRONMENTAL IMPLICATIONS

8. The part of the project related to Ma On Shan no. 3 SWSR requires an environmental permit under the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) for the construction and operation of that part of the project. Having regard to the project profile, the Director of Environmental Protection is satisfied that the impact of the project and the mitigation measures meet the requirements of the Technical Memorandum on EIA Process. The permission to apply directly for an environmental permit was granted on 12 October 2007 with conditions. We shall implement the mitigation measures set out in the project profile and as required by the Director of Environmental Protection.

9. The remaining parts of the project would have no long-term adverse environmental impact. We will control short-term impacts caused by the construction works through the implementation of standard pollution control measures. We have included about \$1.6 million (in MOD prices) in the project estimate for the implementation of the environmental mitigation measures of the project.

10. We have considered the alignment of the water mains, the layouts and foundation levels of the proposed service reservoirs and pumping stations in the planning and design stages to reduce the generation of construction waste where possible. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to

further minimize the generation of construction waste.

11. We will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

12. We estimate that the project will generate in total about 78 100 tonnes of construction waste. Of these, we will reuse about 19 200 tonnes (24.6%) of inert construction waste on site, deliver 58 100 tonnes (74.4%) of inert construction waste to public fill reception facilities<sup>2</sup> for subsequent reuse. In addition, we will dispose of 800 tonnes (1.0%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be \$1.7 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne at landfills<sup>3</sup>).

13. Of the 245 trees within the project boundary, we shall be able to preserve 151 trees. The proposed construction works will involve removal of 94 trees including 28 trees to be felled and 66 trees to be transplanted within the project site. All trees to be removed are not important trees<sup>4</sup>. We have adjusted the orientation of the new salt water service reservoir to keep the felling of trees to a minimum. We will incorporate planting proposals as part of the project, including estimated quantities of 48 trees, 1 500 shrubs and 1 200 m<sup>2</sup> of grassed area.

---

<sup>2</sup> Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulations. Disposal of public fill in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

<sup>3</sup> 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/m<sup>3</sup>), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

<sup>4</sup> “Important trees” refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria:

- (a) trees over 100 years old or above;
- (b) trees of cultural, historical or memorable significance, e.g. Fung Shui trees, trees as landmark of monastery or heritage monument, and trees in memory of important persons or events;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall trees sizes, shape and any special features), e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
- (e) trees with trunk diameter equal or exceeding 1.0 m (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.

## **TRAFFIC IMPLICATIONS**

14. To minimize possible disruption to traffic during construction, we have completed the traffic impact assessment (TIA) for the proposed works. The TIA has concluded that the proposed works would not cause unacceptable traffic impact. During construction, we will maintain smooth traffic flow as far as possible through implementing temporary traffic management measures, and will display notice boards on site to explain the reason of temporary traffic arrangements and the expected completion dates of the concerned sections of works. In addition, we will set up telephone hotlines for public enquiries or complaints. We will arrange to carry out construction works in busy road sections in non-peak hours. At road junctions where traffic impact may be significant, we will employ trenchless method as far as practicable.

## **PUBLIC CONSULTATION**

15. We consulted the Development and Housing Committee of the Sha Tin District Council in August 2007. The Committee supported the project.

## **LAND ACQUISITION**

16. The proposed works does not require any land acquisition.

## **JOB CREATION**

17. We estimate that the proposed works will create about 106 jobs (92 for labourers and another 14 for professional/technical staff) providing a total employment of 3 800 man-months.

## **BACKGROUND**

18. Salt water to Sha Tin and Ma On Shan areas is provided by Sha Tin seafront SWPS. According to forecast on population growth and development proposals, the existing salt water system will become heavily overloaded soon and will require uprating works to be carried out as early as possible.

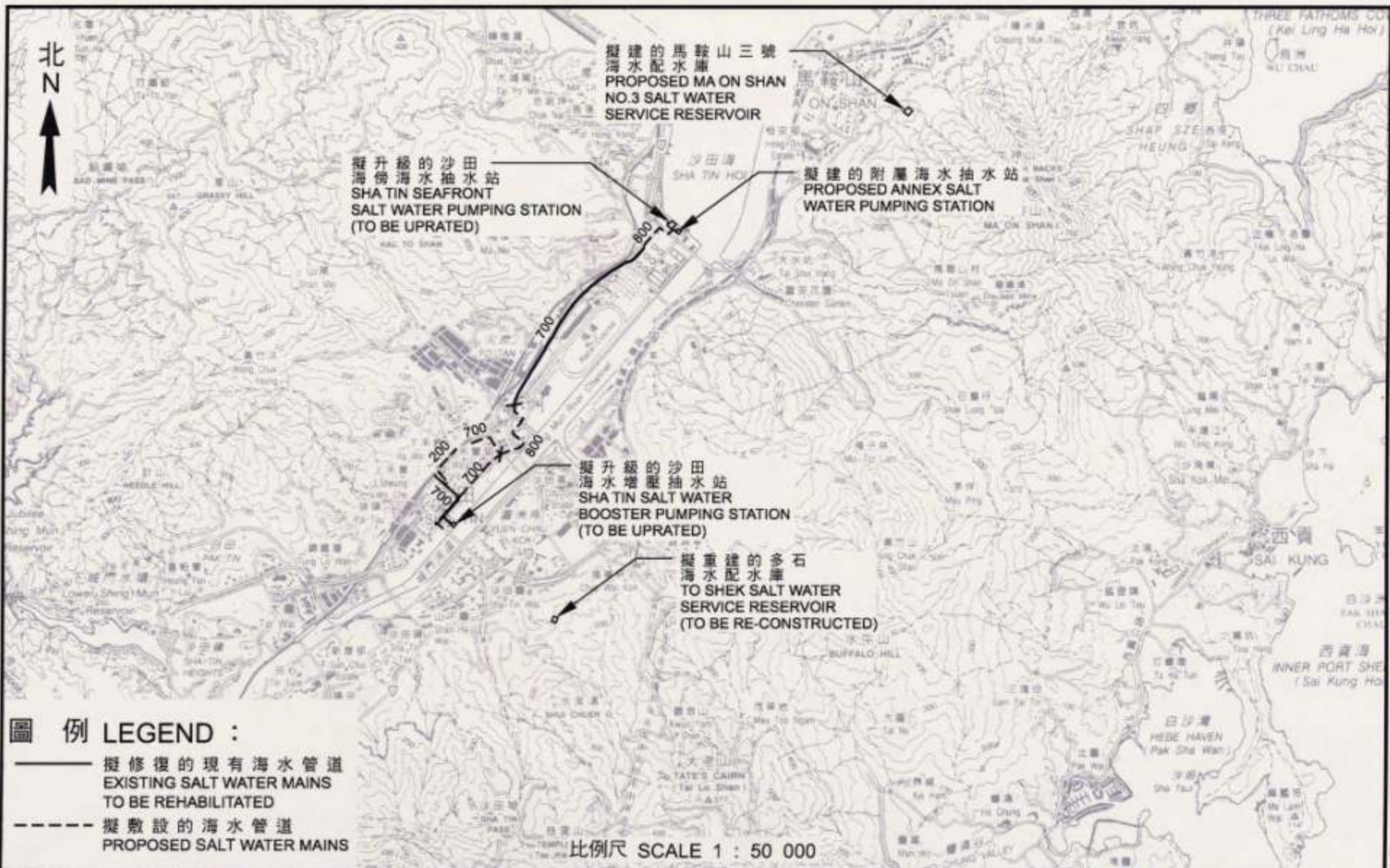
20. We included **46WS** in Category B in November 2004.

21. In December 2006, we included the replacement of the existing four aged pumps in the existing Sha Tin seafront SWPS in the Category D item **24BWS** “Upgrading of Sha Tin seafront salt water pumping station under 046WS” for completion by the end of 2008. The advance work to replace the existing pumps of output capacity of 86 000 m<sup>3</sup>/day to those of 95 000 m<sup>3</sup>/day is required to alleviate the progressive overloading of the existing Sha Tin seafront SWPS from end 2008 and ensure a reliable flushing water supply to meet the anticipated flushing water demand of Sha Tin and Ma On Shan areas.

### **WAY FORWARD**

22. We intend to submit our proposal of upgrading **46WS** to Category A for consideration by the Public Works Sub-committee in November 2007 with a view to seeking funding approval from the Finance Committee.

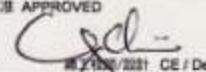
**Development Bureau**  
**October 2007**



**圖例 LEGEND :**

- 擬修復的現有海水管道  
EXISTING SALT WATER MAINS  
TO BE REHABILITATED
- - - - 擬敷設的海水管  
PROPOSED SALT WATER MAINS

比例尺 SCALE 1 : 50 000

核准 APPROVED  
  
 28 / 9 / 2007

工務計劃項目第046WS號 — 沙田海水供應系統提升工程  
 P.W.P. Item no. 046WS — Upgrading of Sha Tin salt water supply system

 水務署  
 WATER SUPPLIES DEPT.  
 草圖編號 SKETCH NO. 1

附件 1 ENCLOSURE 1