

## **ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE**

### **HEAD 709 – WATERWORKS**

#### **Water Supplies – Salt water supplies**

#### **39WS – Re provisioning of North Point salt water service reservoir and relocation of North Point upper salt water pumping station**

Members are invited to recommend to Finance Committee the upgrading of **39WS** to Category A at an estimated cost of \$44.3 million in money-of-the-day prices for re provisioning the aged North Point salt water service reservoir and relocating the North Point upper salt water pumping station.

### **PROBLEM**

The North Point salt water (NPSW) service reservoir has been in service for about 70 years. Due largely to ageing, it is in very poor condition and beyond economic repair. The North Point upper salt water (NPUSW) pumping station adjacent to the service reservoir is close to the edge of a cut-back slope, and may pose potential danger to the developments below.

### **PROPOSAL**

2. The Director of Water Supplies (DWS), with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade **39WS** to Category A at an estimated cost of \$44.3 million in money-of-the-day (MOD) prices for re provisioning the NPSW service reservoir and relocating the NPUSW pumping station.

**/PROJECT.....**

**PROJECT SCOPE AND NATURE**

3. The scope of 39WS comprises –
- (a) in-situ reprovisioning of the NPSW service reservoir with a capacity of 5 210 cubic metres (m<sup>3</sup>), including the existing sitting-out area;
  - (b) relocation of the NPUSW pumping station with a capacity of 7 430 m<sup>3</sup> per day to a new site adjacent to the NPSW service reservoir; and
  - (c) ancillary works, including the associated mainlaying works, landscaping works and construction of an access road.
4. We plan to start the proposed works in July 2003 for completion in mid-2006. A site plan showing the locations of the proposed works is at Enclosure 1. A perspective diagram of the proposed works is shown at Enclosure 2.

**JUSTIFICATION**

5. The existing NPSW service reservoir was constructed in 1930 for storage of fresh water. Since 1960 it has been used as a salt water service reservoir storing seawater to supply flushing water to North Point and Quarry Bay low level areas. Over the years, the service reservoir has been subject to corrosive saline environment not originally designed for. It is now in very poor condition and beyond economic repair.

6. The adjacent NPUSW pumping station constructed in 1966 sits at the crest of a slope. It pumps seawater from the adjacent NPSW service reservoir to the North Point high level areas. The pumping station was originally about five metres away from the slope edge. Subsequent to a slope failure in 1994, the slope crest was cut backward and the pumping station is now close to the edge of the slope and may pose a potential danger to the developments below it. The proposed relocation will remove the potential danger. It will also facilitate the construction of the service reservoir and provide an access road for operation and maintenance.

/FINANCIAL.....

**FINANCIAL IMPLICATIONS**

7. We estimate the capital cost of the proposed works to be \$44.3 million in MOD prices (see paragraph 8 below), made up as follows –

	<b>\$ million</b>	
(a) Salt water service reservoir	29.7	
(b) Salt water pumping station	5.3	
(c) Ancillary works, including the associated mainlaying works, landscaping works and construction of an access road	2.8	
(d) Electrical and mechanical works	2.4	
(e) Environmental mitigation measures	0.4	
(f) Contingencies	4.0	
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Sub-total	44.6	(in September 2002 prices)
(g) Provision for price adjustment	(0.3)	
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Total	44.3	(in MOD prices)
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8. Subject to approval, we will phase the expenditure as follows –

<b>Year</b>	<b>\$ million (Sept 2002)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
2003 – 2004	2.6	0.99250	2.6
2004 – 2005	11.8	0.99250	11.7
2005 – 2006	21.3	0.99250	21.1
2006 – 2007	4.5	0.99250	4.5
2007 – 2008	4.4	0.99250	4.4
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	44.6		<hr/>
	<hr/>		44.3
			<hr/>
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9. We have derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period 2003 to 2008. We will tender the works on a remeasurement basis because the works involve extensive underground works, the quantities of which are subject to variation during construction to suit the actual site conditions. Since the contract period will exceed 21 months, we will provide for price adjustments in the contract.

10. This project will not give rise to any additional recurrent expenditure.

11. This project by itself will lead to an increase in production cost of water by 0.01% in real terms by 2008<sup>1</sup>.

## **PUBLIC CONSULTATION**

12. We consulted the Works and Development Committee of the Eastern District Council on 20 June 2002. The Committee supported the proposed works.

## **ENVIRONMENTAL IMPLICATIONS**

13. We completed a Preliminary Environmental Review (PER) for 39WS in November 1997. The PER concluded that the project would not have any long-term adverse environmental impacts. The Director of Environmental Protection agreed that an Environmental Impact Assessment would not be required. We have designed the service reservoir and pumping station such that the level of noise during their operation will comply with the established standards and guidelines. For short-term impacts during the construction stage, standard environmental pollution control measures would be sufficient to mitigate the impacts. These include provision of wheel washing facilities, de-silting traps, and the use of silenced plants. We have included \$0.4 million in the project estimate for implementing these mitigation measures and will incorporate these requirements into the works contract.

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<sup>1</sup> The increase in production cost of water is calculated on the assumption that the demand remains static during the period from 2003 to 2008 and the amount of government subsidy to the waterworks operations is to be contained at the present level.

14. At the planning and design stages, we have taken due consideration in designing the layouts of the proposed service reservoir and pumping station to minimise the generation of construction and demolition (C&D) materials. To further minimise the generation of C&D materials, we will encourage the contractor to use steel instead of timber for formwork and temporary works. We estimate that the project will generate about 18 410 m<sup>3</sup> of C&D materials. Of these, we will reuse about 3 030 m<sup>3</sup> (16.5%) on site, 15 030 m<sup>3</sup> (81.6%) as fill in public filling areas<sup>2</sup> and dispose of 350 m<sup>3</sup> (1.9%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$43,750 for this project (based on a notional unit cost<sup>3</sup> of \$125/m<sup>3</sup>).

15. We will require the contractor to submit a waste management plan (WMP) with appropriate mitigation measures, including the allocation of areas for waste segregation on site to facilitate reuse or recycling of C&D materials, for approval. We will ensure that the day-to-day operations on site comply with the approved WMP. We will implement a trip-ticket system to control the proper disposal of C&D materials and will record the reuse, recycling and disposal of C&D materials for monitoring purposes.

## LAND ACQUISITION

16. The proposed works do not require land acquisition.

## BACKGROUND INFORMATION

17. We upgraded 39WS to Category B in September 1998.

18. We have substantially completed the detailed design for the proposed works using in-house resources.

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<sup>2</sup> A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

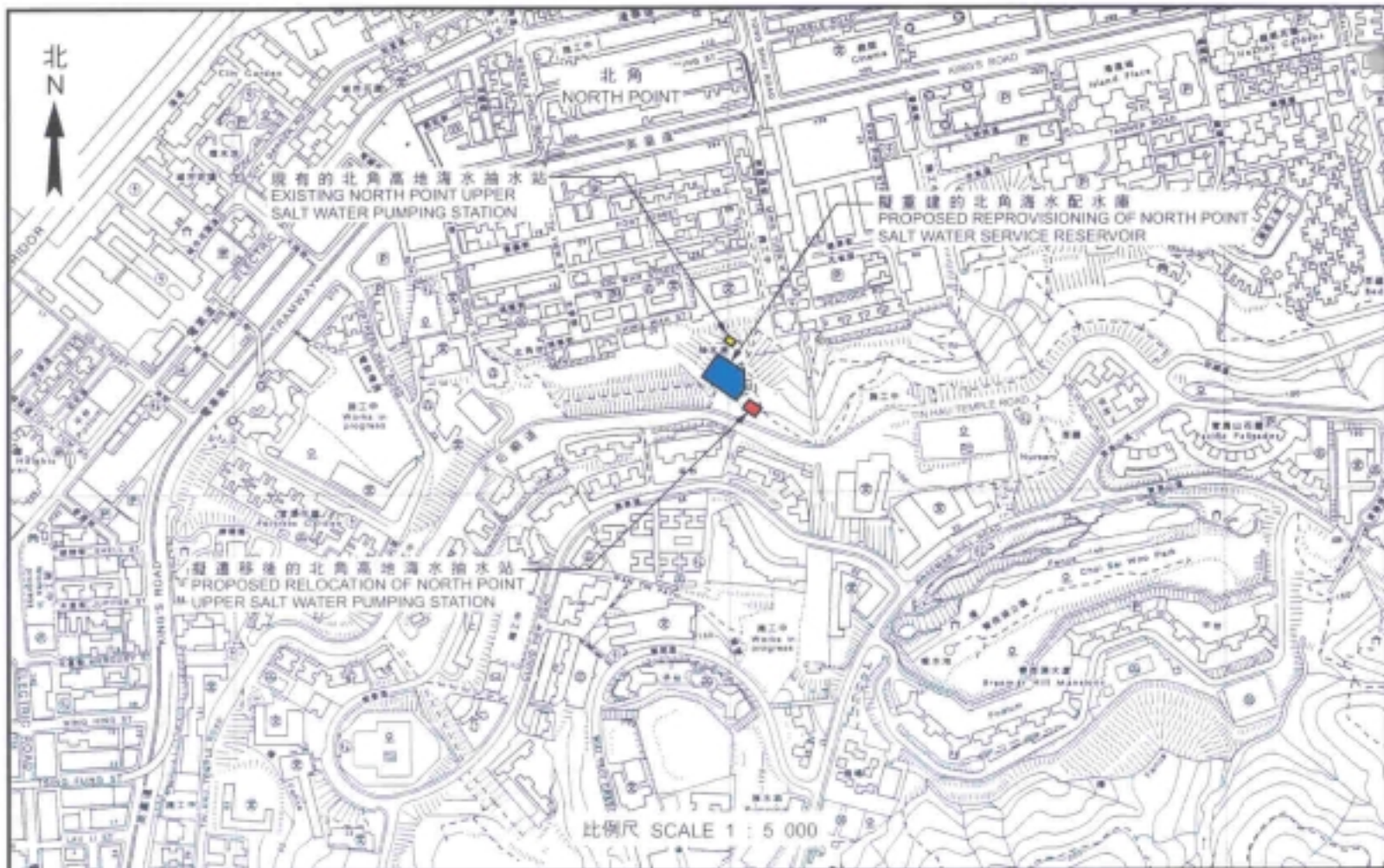
<sup>3</sup> This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m<sup>3</sup>), nor the cost to provide new landfills (which are likely to be more expensive) when the existing ones are filled. The notional cost estimate is for reference only and does not form part of this project estimate.

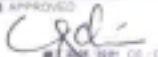
19. We estimate that the proposed works will create 21 new jobs comprising three professional/technical staff and 18 labourers, totalling 680 man-months.

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Environment, Transport and Works Bureau  
February 2003

[PWSC-39WS.doc]



核准 APPROVED  
  
 14 / 2 / 2003

工務計劃項目第39WS號 — 重建北角海水配水庫及遷移北角高地海水抽水站  
 P.W.P. ITEM NO. 39WS — REPROVISIONING OF NORTH POINT SALT WATER SERVICE RESERVOIR AND  
 RELOCATION OF NORTH POINT UPPER SALT WATER PUMPING STATION

(申請工程)  
 (CAT A Submission)

 水務署  
 WATER SUPPLIES DEPT.

草圖編號 SK 62002 / 122  
 SKETCH NO.



擬遷移後的北角高地海水抽水站  
13.9米(長) x 10.7米(闊) x 5.2米(高)  
PROPOSED RELOCATION OF NORTH POINT  
UPPER SALT WATER PUMPING STATION  
13.9m(L) x 10.7m(W) x 5.2m(H)

擬重建的北角海水配水庫  
40米(長) x 27米(闊) x 7.5米(高)  
PROPOSED REPROVISIONING OF  
NORTH POINT SALT WATER  
SERVICE RESERVOIR  
40m(L) x 27m(W) x 7.5m(H)

遠觀圖  
PERSPECTIVE VIEW

MEP APPROVED  
*Ced*  
MEP ENGINEER / CE / DM  
7/2/2003

工務計劃項目第39WS號 — 重建北角海水配水庫及遷移北角高地海水抽水站  
P.W.P. ITEM NO. 39WS — REPROVISIONING OF NORTH POINT SALT WATER SERVICE RESERVOIR AND  
RELOCATION OF NORTH POINT UPPER SALT WATER PUMPING STATION  
(中環工程)  
(CAT 'A' Submission)

水務署  
WATER SUPPLIES DEPT.  
草圖編號  
SKETCH NO. SK 62002 / 210