

**For information
on 23 October 2007**

**Legislative Council Panel on Development
Reprovisioning of Sha Tin Water Treatment Works**

Purpose

This paper provides Members with an update on the planning for the reprovisioning of the Sha Tin Water Treatment Works (STWTW), and reports on the details of a revised strategy to take forward this project.

Background

2. The Administration consulted the then PLW Panel of the Legislative Council on 18 May 2004 [LC Paper No. CB(1)1823/03-04(03)] on the key findings and recommendations of the feasibility study on the reprovisioning of STWTW and delivery of water supply, distribution and customer services using the Public Private Partnership (PPP) approach.

3. Members and representatives of the WSD staff unions who were present at the Panel meeting, expressed strong reservation on adopting the PPP approach, and raised concerns on the risks associated with the PPP approach and likely adverse impacts on staff morale in the WSD. The

Panel carried a motion calling on the Government not to make any decisions on privatization of the STWTW before the relevant consultancy report was submitted to and endorsed by the Panel. The Administration agreed to keep the Panel informed of further progress and to consult the Panel on how best to take forward the STWTW project before arriving at a final decision [LC Paper No. CB(1)2074/03-04(01)].

4. Between 2004 and 2006, WSD held 11 meetings with the staff side of the WSD to further deliberate on the adoption of the PPP approach for the reprovisioning of the STWTW. There was no consensus reached.

5. In parallel, WSD also conducted more studies to compare different approaches to implement the reprovisioning project. In early 2007, the Department carried out an extended review of the overall water treatment and distribution system, bringing in the reserved capacity of the Tai Po Water Treatment Works (TPWTW). The review indicated that instead of taking the STWTW in isolation, combining the STWTW and the TPWTW will result in a more balanced configuration of the treatment and distribution network, which will greatly enhance the overall reliability of water supply in Hong Kong in the long term. Based on the review findings, WSD has now formulated a revised strategy for the reprovisioning of the STWTW by making use of the TPWTW. The rationale and the main aspects of the revised strategy are elaborated in paragraphs 6 to 10 below.

The revised reprovisioning strategy

6. The STWTW has traditionally been the most important water treatment works in Hong Kong. It handles about 35% of our total water treatment requirements. A major constraint in the in-situ reprovisioning of the STWTW is the difficulties to maintain the plant in operation during the reprovisioning. There would be considerable risk that the supply of treated water would be interrupted by the reprovisioning work.

7. On the other hand, the TPWTW was originally developed for meeting the forecast demand arising from the planned developments in the urban area and the Northeast New Territories. It has an ultimate capacity of 1,200 million litres per day (Mld) and the site for the treatment works has included formed land for expansion to its ultimate capacity. Its present capacity of 250 Mld constitutes the first phase of the treatment works. The TPWTW can be readily expanded.

8. Taking the STWTW and the TPWTW together, the revised strategy is to implement the reprovisioning of the STWTW as a two-stage process:

- (a) Stage 1 - the TPWTW and the associated transfer system is first upgraded from its existing capacity of 250 Mld to 800 Mld; and

- (b) Stage 2 - the in-situ reprovisioning the STWTW will then be carried out to a scale compatible with the forecast demand.

The layouts of the proposed works at the TPWTW and STWTW are shown in the plan at **Annex A**.

9. We plan to implement the upgrading of the TPWTW and the reprovisioning of the STWTW as public works projects. Given the need to provide a reliable, safe and steady water supply, the conventional public works route will provide a much clearer way forward for this project when we can achieve project completion with fairly accurate budget and timing. It is also in line with Government's objective to speed up essential infrastructure. It is therefore the preferred method to implement this project. We will ensure that the best contract procurement method under the conventional approach would be used for the construction works.

10. A table summarizing the original and the revised strategies is attached at **Annex B**. The total capital cost of \$5.7 billion (in September 2007 prices) quoted for the revised strategy comprises \$2.7 billion for the upgrading of TPWTW and \$3.0 billion for the reconstruction of the south plant of the STWTW.

Project Programme

11. The tentative project implementation programme is as follows -

- | | | |
|-----|--|------------|
| (a) | Seek funding to commence design and contract preparation for the TPWTW | Early 2008 |
| (b) | Commence construction at the TPWTW | 2009/2010 |
| (c) | Complete the expansion of TPWTW | 2013 |
| (d) | Commence reprovisioning of the south plant of the STWTW | 2011 |
| (e) | Complete reprovisioning of the south plant of the STWTW | 2015 |

Way Forward

12. WSD will consult the relevant District Councils on the revised strategy for the reprovisioning of the STWTW, and will communicate with the staff unions of the Department. After consultation, we plan to seek funding approval from the Legislative Council in early 2008 for engaging consultants to undertake the design and contract preparation for this project.

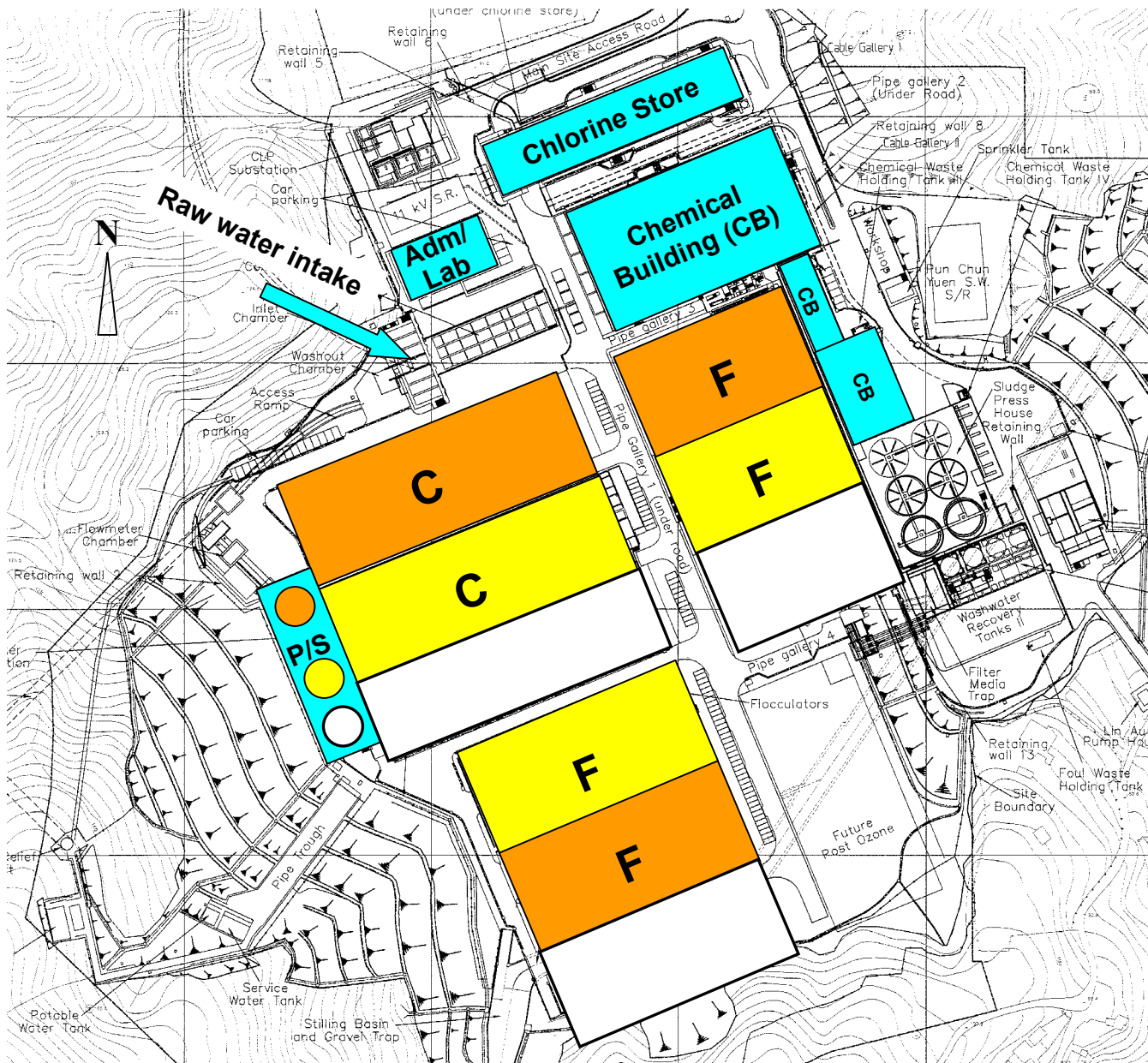
Development Bureau

October 2007

Stage 1 – Expansion of Tai Po Water Treatment Works

Annex A
(Sheet 1 of 2)

Major facilities layout



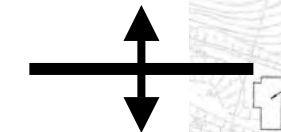
- Common facilities in use (Civil structures already built to cater for cap. 1200Mld)
- Existing facilities in use (Cap. 250Mld) proposed to be updated to 400 Mld
- Proposed facilities to be constructed (Cap. updated from 400 Mld to 800Mld)
- Reserve for future facilities (Cap. updated from 800Mld to 1200Mld)
- C =** clarifiers
- F =** filters
- P/S =** treated water pumping stations
- Adm =** administration block
- Lab =** laboratory

Stage 2 - Reprovisioning of South Works Facilities of Sha Tin Water Treatment Works

Major facilities layout

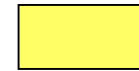
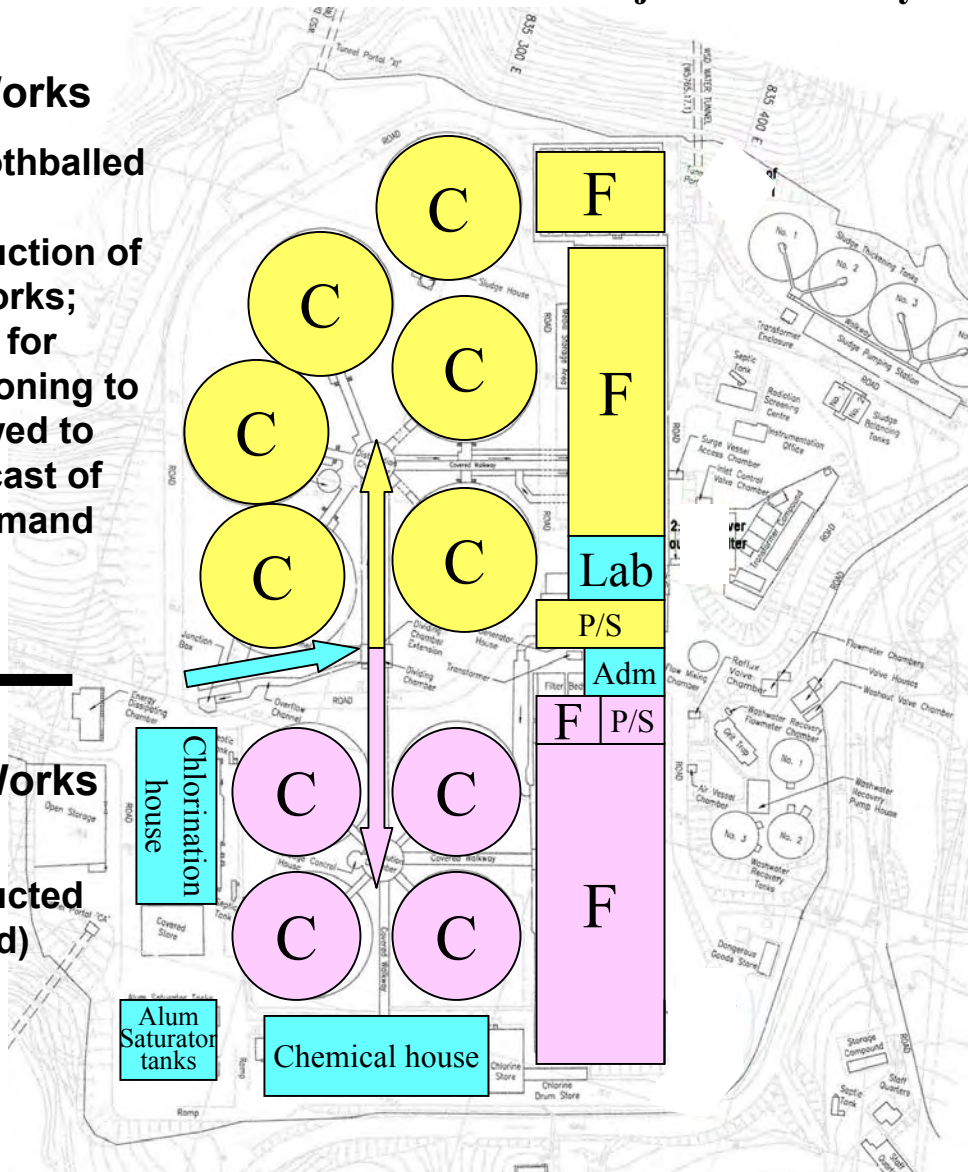
North Works

(to be mothballed after reconstruction of South Works; schedule for reprovisioning to be reviewed to suit forecast of future demand pattern)



South Works

(to be reconstructed to 550 Mld)



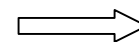
North Works facilities



South Works facilities



Common facilities



Raw water intake

C = clarifiers

F = filters

P/S = treated water pumping stations

Adm = administration block

Lab = laboratory

Annex B

	Original Plan: In-situ reprovisioning of STWTW using PPP approach	Revised Strategy: Expansion of TPWTW to be followed by reprovisioning of STWTW, both as PWP projects
Scope of works	Reprovisioning of the entire STWTW of 1,227 Mld in-situ	Stage 1 – expand TPWTW from 250 Mld to 800 Mld. Stage 2 – reprovisioning of the south plant of STWTW (tentatively at 550 Mld) to cope with forecast demand
Service during construction	Potential risk of interruption of water supply, due to the need to maintain continued operation of STWTW during in-situ reprovisioning	Significant risk reduction, as the entire south plant of STWTW would be isolated for reconstruction in one go
Construction period	Over 12 years	Around 6 years
Programme	Uncertainty in programme and work commencement due to the need to complete a detailed business case study to ascertain the appropriateness of adopting the PPP approach	Fast tracking under the conventional procurement method could allow works to commence in 2009/2010
Capital cost (in September 2007 prices)	\$6.8 billion	\$5.7 billion (\$2.7 billion for the expansion of TPWTW and \$3.0 billion for the reprovisioning of the south plant of the STWTW)
Supply network configuration	The heavy concentration of about 35% of the treatment capacity in the STWTW means a severe consequence in case of failure at the STWTW	Balanced distribution of treatment capacity in the territory-wide network and flexibility in expansion to meet future demand