

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 704 – DRAINAGE

#### Civil Engineering – Drainage and erosion protection

#### 112CD – Drainage improvement in Northern New Territories – package A

Members are invited to recommend to Finance Committee –

- (a) the upgrading of part of **112CD**, entitled “Upgrading of stormwater drains in Sheung Shui and Fanling”, to Category A at an estimated cost of \$92.2 million in money-of-the-day prices; and
- (b) the retention of the remainder of **112CD** in Category B.

### PROBLEM

Some old development areas in Sheung Shui and Fanling are susceptible to flooding during severe rainstorms due to inadequate capacity of the existing drainage systems.

### PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade part of **112CD** to Category A at an estimated cost of \$92.2 million in money-of-the-day (MOD) prices for upgrading stormwater drains in Sheung Shui and Fanling.

/PROJECT .....

## PROJECT SCOPE AND NATURE

3. The scope of the proposed works in Sheung Shui and Fanling to be part-upgraded under **112CD** comprises –

- (a) construction of about 3.3 kilometres of stormwater drains ranging from 225 millimetres (mm) to 2 100 mm in diameter; and
- (b) ancillary works.

— A site plan showing the locations of the proposed works is at Enclosure.

4. We plan to start the proposed works in April 2006 for completion in June 2009.

## JUSTIFICATION

5. Sheung Shui and Fanling comprise new residential and commercial developments, numerous community facilities and original settlements such as Shek Wu Hui. The existing drainage systems were built decades ago to meet the flow requirements and standard at that time. Flooding and complaint records show that parts of the existing drainage systems are inadequate to abate flooding, causing nuisance to the public and disruption to traffic. In particular, the old development areas such as Ling Shan Tsuen, Fan Gardens and Shek Wu Hui are flood prone during heavy rainstorms.

6. We have reviewed the drainage systems in Northern New Territories under **55CD** “Drainage Master Plan study in Northern New Territories”. The study has revealed that the drainage systems in some local areas in Sheung Shui and Fanling do not have adequate capacity to cater for the rapid development in the last decade.

7. We therefore propose to upgrade stormwater drains in these areas to bring the drainage systems up to the latest flood protection standards. Upon completion of the proposed works, the drainage systems will have a flood protection standard of a 50-year return period<sup>1</sup> rainstorm for branch drains and a 200-year return period rainstorm for trunk drains.

**/FINANCIAL .....**

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<sup>1</sup> “Return period” is the average number of years during which a certain severity of flooding will occur once, statistically. A longer return period means a rarer chance of occurrence of a more severe flooding.

**FINANCIAL IMPLICATIONS**

8. We estimate the capital cost of the proposed works to be \$92.2 million in MOD prices (see paragraph 9 below), made up as follows –

	<b>\$ million</b>	
(a) Drainage improvement works	81.5	
(b) Ancillary works	0.5	
(c) Environmental mitigation measures	2.0	
(d) Contingencies	8.0	
Sub-total	92.0	(in September 2005 prices)
(e) Provision for price adjustment	0.2	
Total	92.2	(in MOD prices)

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

<b>Year</b>	<b>\$ million (Sept 2005)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
2006 – 2007	12.0	1.00125	12.0
2007 – 2008	26.0	1.00125	26.0
2008 – 2009	26.0	1.00125	26.0
2009 – 2010	18.0	1.00125	18.0
2010 – 2011	6.0	1.01627	6.1
2011 – 2012	4.0	1.03659	4.1
	92.0		92.2

/10. ....

10. 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 proposed works under a standard remeasurement contract because of uncertainties of the sub-soil conditions and underground utilities such as gas pipes, electricity cables, telephone cables and water pipes. The contract will provide for price adjustments as the contract period will exceed 21 months.

11. We estimate the annual recurrent expenditure arising from this project to be about \$94,000.

## **PUBLIC CONSULTATION**

12. We consulted the District Development and Environmental Improvement Committee under the North District Council, the Sheung Shui District Rural Committee, the Fanling District Rural Committee and representatives of local business associations on the proposed drainage works on 18 and 29 July, 10 August and 15 September 2005 respectively on the proposed drainage works. They supported the implementation of the proposed works.

13. We consulted the Legislative Council Panel on Planning, Lands and Works on the proposed works by circulation of an information paper on 12 December 2005. Members raised no objection to the proposed works.

## **ENVIRONMENTAL IMPLICATIONS**

14. The proposed works to be part-upgraded under **112CD** are not a designated project under the Environmental Impact Assessment Ordinance. We completed in 2003 an Environmental Study (ES) which concluded that with full implementation of the recommended mitigation measures and environmental monitoring and audit programme, the proposed works would not have significant residual environmental impacts. We would incorporate the ES recommendations into the works contract for implementation. During construction, we will control noise, dust and site run-off through implementation of mitigation measures such as use of temporary noise barriers and silenced construction plant to reduce noise generation, water-spraying to reduce emission of dust and discharging water from excavation through silt traps. We have included \$2 million (in September 2005 prices) in the project estimate for implementing the environmental mitigation measures.

15. We have considered ways 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 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 in 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 purposes.

17. We estimate that the project will generate about 49 000 tonnes of C&D materials. Of these, we will reuse about 19 000 tonnes (39%) on site, deliver 28 000 tonnes (57%) to public fill reception facilities<sup>2</sup> for subsequent reuse. In addition, we will dispose of 2 000 tonnes (4%) at landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites is estimated to be about \$1 million for this project (based on an unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne<sup>3</sup> at landfills).

## LAND ACQUISITION

18. The project does not require any land acquisition.

## /BACKGROUND .....

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<sup>2</sup> 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.

<sup>3</sup> The 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.

**BACKGROUND INFORMATION**

19. In October 1999, we completed a comprehensive review of the drainage systems in Northern New Territories under **55CD** “Drainage Master Plan study in Northern New Territories”. The drainage master plan study has identified some existing drainage streamcourses and drainage systems which are inadequate to meet the required flood protection standards and future development needs.

20. The study recommended a three-package programme of drainage improvement works to tackle the flooding problems in the areas. Package A covers works in San Tin North, Fanling, Sheung Shui and Tai Po North with higher flooding risks, whereas Packages B and C cover other areas including San Tin South, Kwu Tung and Ma Tso Lung.

21. In September 2000, we upgraded Package A drainage improvement works to Category B as **112CD** “Drainage improvement in Northern New Territories – package A”. In November 2001, we included **118CD** “Drainage improvement in Northern New Territories – package B” and **119CD** “Drainage improvement in Northern New Territories – package C” in Category B.

22. In June 2001, we upgraded part of **112CD** to Category A as **116CD** “Drainage improvement in Northern New Territories – package A – consultants’ fees and investigations” for carrying out site investigation, impact assessments and preliminary design for **112CD**. The consultancy commenced in March 2002 for completion in end 2006.

23. In March 2005, we upgraded part of **112CD** to Category A as **137CD** “Drainage improvement for Ma Wat River at Kau Lung Hang” and commenced the construction in June 2005 for completion in late 2008.

24. We have substantially completed the detailed design of the proposed drainage improvement works in Sheung Shui and Fanling using in-house resources. We will also deploy in-house resources to supervise the construction works.

25. The planning and design of the remainder of **112CD**, i.e. the construction of drainage channels at Ping Kong and upstream of Ma Wat River and the construction of a drainage channel in San Tin North is underway.

26. The proposed part-upgraded drainage improvement works will involve removal of 40 common trees including 11 trees to be felled and 29 trees to be transplanted. All trees to be removed are not important trees<sup>4</sup>. We will incorporate planting of 22 new trees as part of the project.

27. We estimate that the proposed works will create about 52 jobs (45 for labourers and another seven for professional/technical staff) providing a total employment of 1 550 man-months.

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Environment, Transport and Works Bureau  
December 2005

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<sup>4</sup> 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).

上水  
SHEUNG SHUI

天平山  
TIN PING SHAN

石湖墟  
SHEK WU HUI

彩麗邨  
CHOI YUEN ESTATE

靈山村  
LING SHAN TSUEN

永寧圍  
WING NING WAI

北區公園  
NORTH DISTRICT PARK

芬蘭  
FAN GARDENS

聯和墟  
LUEN WO HUI

北區醫院  
NORTH DISTRICT HOSPITAL

安樂村  
ON LOK TSUEN

粉嶺  
FANLING

靚角  
KAI LENG

鮮華邨  
CHEUNG WAH ESTATE

粉嶺中心  
FANLING CENTRE



圖例：  
LEGEND :

— 擬議雨水渠改善工程  
PROPOSED UPGRADING OF  
STORMWATER DRAINS

圖則編號: 112CD/1897

上水及粉嶺雨水渠改善工程  
UPGRADING OF STORMWATER DRAINS  
IN SHEUNG SHUI AND FANLING

繪圖 drafter	SIGNED W. H. KO	訂製日期 DATE DRAWN	04 SEPT 2005
校對 checker	SIGNED H. W. NGAI	訂製日期 DATE CHECKED	20 OCT 2005
審核 approved	SIGNED W. M. WONG	訂製日期 DATE APPROVED	20 OCT 2005
部門 office	排 水 工 程 部 DRAINAGE PROJECTS DIVISION		

圖則編號 Drawing No.  
**DDN/112CD/1897**

比例 Scale  
1:15000

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

圖 件 - Enclosure