

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 “Drainage improvement in Northern New Territories – construction of a box culvert underneath Castle Peak Road at San Tin”, to Category A at an estimated cost of \$26.8 million in money-of-the-day prices; and
- (b) the retention of the remainder of **112CD** in Category B.

PROBLEM

The inadequate hydraulic capacity of the existing box culvert across the San Tin section of Castle Peak Road has aggravated the flooding situation in Shek Wu Wai area of San Tin North during heavy rainstorms. There is an urgent need to enhance the capacity of the box culvert to alleviate the flooding problem.

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PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for Development, proposes to upgrade part of **112CD** to Category A at an estimated cost of \$26.8 million in money-of-the-day (MOD) prices for upgrading the box culvert underneath Castle Peak Road at San Tin.

PROJECT SCOPE AND NATURE

3. The part of **112CD** which we propose to upgrade to Category A comprises –

- (a) upgrading of about 15 metres (m)-long three-cell box culvert by enlarging the internal cell dimensions from 2.2 m in height and 1.8 m in width to 2.7 m in height and 4 m in width;
- (b) construction of about 50 m-long retaining wall of 3 m high; and
- (c) provision of ancillary works including minor roadworks and greening works.

————— A site plan and typical section of the box culvert are at Enclosure.

4. The proposed part-upgrading is the first stage of works for the drainage improvement in San Tin North and Shek Wu Wai. We will retain the remainder of **112CD** in Category B, which covers the improvement to San Tin Western Main Drainage Channel from Castle Peak Road to Shenzhen River and two drainage channels in Shek Wu Wai. Funding for the remainder of **112CD** will be sought in phases at a later date after Drainage Services Department (DSD) has completed a review of the Drainage Master Plans for Yuen Long and North District.

5. Subject to the approval of the Finance Committee, we plan to commence construction in April 2011 for completion in February 2014.

JUSTIFICATION

6. The existing box culvert across the San Tin section of Castle Peak Road was constructed nearly 40 years ago. It conveys runoff from Shek Wu Wai across Castle Peak Road to the downstream. There have been changes in land use

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and developments in the upstream areas of Shek Wu Wai over the years involving paving of natural ground with impermeable materials. As a result, less rainwater can dissipate naturally through ground infiltration, which has led to an increase in surface run-off entering the box culvert. The capacity of the box culvert becomes inadequate during heavy rainstorms and it forms a bottleneck to the flow aggravating the flooding situation in the Shek Wu Wai area. We have been receiving flooding complaints from the area. There is an urgent need to enhance the hydraulic capacity of the existing box culvert by enlarging its internal cell dimensions. When the improvement works are completed, the flooding problem at Shek Wu Wai will be alleviated.

FINANCIAL IMPLICATIONS

7. We estimate the cost of the proposed works to be \$26.8 million in MOD prices (please see paragraph 8 below), broken down as follows –

		\$ million	
(a)	Construction works	21.3	
	(i) box culvert	13.0	
	(ii) retaining walls	6.0	
	(iii) ancillary works	2.3	
(b)	Environmental mitigation measures	0.4	
(c)	Contingencies	2.1	
	Sub-total	23.8	(in September 2010 prices)
(d)	Provision for price adjustment	3.0	
	Total	26.8	(in MOD prices)

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

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Year	\$ million (Sept 2010)	Price adjustment factor	\$ million (MOD)
2011 – 2012	5.0	1.04250	5.2
2012 – 2013	7.0	1.09463	7.7
2013 – 2014	6.6	1.14936	7.6
2014 – 2015	4.3	1.20682	5.2
2015 – 2016	0.9	1.27169	1.1
	23.8		26.8

9. We have derived the MOD estimate on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of the public sector building and construction output for the period from 2011 to 2016. Subject to funding approval, we will deliver the works under standard re-measurement contract because the quantities of works involved will vary depending on actual ground conditions. The contract will provide for price adjustments.

10. The proposed works will not give rise to additional recurrent expenditure.

PUBLIC CONSULTATION

11. We consulted the San Tin Rural Committee (STRC) through exchange of correspondence in June 2009. The STRC supported upgrading the box culvert underneath Castle Peak Road. We further consulted the Yuen Long District Council (YLDC) on the project at its meeting on 25 June 2009. Members supported the project and urged for the early implementation of drainage improvement in San Tin North and Shek Wu Wai areas by phases. YLDC also raised concerns about the possible traffic impact during the construction stage. Upon the request of YLDC, DSD has agreed to consult the Traffic and Transport Committee (T&TC) of YLDC on the traffic diversion plan upon commencement of construction.

12. We circulated to the Legislative Council Panel on Development an information paper on the proposed works on 2 December 2010. Members raised no objection to the proposed works.

ENVIRONMENTAL IMPLICATIONS

13. The proposed works to be upgraded are not a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (Cap. 499). The proposed works will not cause unacceptable long-term environmental impact as they only involve constructing an improved drainage structure and associated works to replace an existing box culvert underneath a public road.

14. For short-term environmental impacts during construction, we will control noise, dust and site run-off to within established standards and guidelines through implementation of environmental mitigation measures such as the use of temporary noise barriers and silenced construction plant to reduce noise generation, water-spraying and covering loads on trucks to reduce emission of fugitive dust and working in dry environment with barriers to control water pollution during excavation. We will also carry out regular site inspections to ensure that these recommended mitigation measures and good site practices will be properly implemented on site. We have included in paragraph 7(b) above a sum of \$0.4 million (in September 2010 prices) in the project estimates for implementing the environmental mitigation measures.

15. At the planning and design stages, we have considered optimizing the size and shape of the box culvert 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 at public fill reception facilities¹. We will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

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¹ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

16. At the construction stage, we will 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 at public fill reception facilities and landfills respectively through a trip-ticket system.

17. We estimate that the project will generate in total about 1 400 tonnes of construction waste. Of these, we will reuse about 400 tonnes (29%) of inert construction waste on site and deliver 900 tonnes (64%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 100 tonnes (7%) 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 \$37,000 for this project (based on a unit cost of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne² at landfills).

HERITAGE IMPLICATIONS

18. The project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

TRAFFIC IMPLICATIONS

19. To minimise disturbance to the traffic flow during construction, the box culvert will be constructed in short sections such that the same number of traffic lanes on Castle Peak Road could be maintained. We will establish a Traffic Management Liaison Group (TMLG) under the contract and invite representatives from Transport Department, Hong Kong Police Force, Highways Department, Yuen Long District Office, public transport operators and utility undertakings to attend the TMLG meeting, and all temporary traffic arrangements will be agreed by TMLG and the T&TC of YLDC before implementation.

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² 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.

LAND ACQUISITION

20. The proposed works do not require any land acquisition.

BACKGROUND INFORMATION

21. In September 2000, we upgraded **112CD** “Drainage improvement in Northern New Territories – package A” to Category B for the drainage improvement works in San Tin North, Fanling, Sheung Shui and Tai Po North.

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” at an estimated cost of \$23.4 million in MOD prices for engaging consultants to carry out preliminary design, environmental and traffic impact assessments and investigation works for all proposed drainage improvement works under **112CD**. The consultancy commenced in March 2002 and was completed in July 2010.

23. In March 2005, we upgraded part of **112CD** to Category A as **137CD** “Drainage improvement for Ma Wat River at Kau Lung Hang” at an estimated cost of \$232.6 million in MOD prices for improving the drainage capacity of Ma Wat River at Kau Lung Hang. The construction works commenced in June 2005 and was completed in September 2008.

24. In February 2006, we upgraded part of **112CD** to Category A as **145CD** “Upgrading of stormwater drains in Sheung Shui and Fanling” at an estimated cost of \$92.2 million in MOD prices for improving the capacity of the drainage system in the urban areas of Sheung Shui and Fanling. The construction works commenced in March 2006 and was completed in September 2009.

25. In December 2006, we upgraded part of **112CD** to Category A as **148CD** “Drainage improvement works in Ping Kong, Kau Lung Hang, Yuen Leng, Nam Wa Po and Tai Hang areas” at an estimated cost of \$260.5 million in MOD prices for improving the capacity of the drainage system in Ping Kong, Kau Lung Hang, Yuen Leng, Nam Wa Po and Tai Hang areas. The construction works commenced in December 2006 for completion in April 2011.

26. DSD is currently undertaking a review of the Drainage Master Plans for Yuen Long and North District. Under this review, we will examine in a holistic manner the latest flooding situation of the catchment of San Tin Western Main Drainage Channel and will formulate further drainage improvement measures under the remaining works of **112CD** for implementation in the next stage.

27. Of the 105 trees within the project boundary, 80 trees will be preserved. The proposed works will involve felling of 25 trees. All trees to be felled are not important trees³. We will incorporate planting proposals as part of the project, including planting about 48 trees.

28. We estimate that the proposed works will create about 12 jobs (ten for labourers and another two professional/technical staff) providing a total employment of 350 man-months.

Development Bureau
January 2011

³ An “Important Tree” refers 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 of 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 an important person or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree 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 metre (m) (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.

