

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 704 – DRAINAGE

#### Civil Engineering – Drainage and erosion protection

#### 111CD – Drainage improvement in Tsuen Wan, Kwai Chung and Tsing Yi – Tsuen Wan drainage tunnel

Members are invited to recommend to Finance Committee to increase the approved project estimate of **111CD** by \$226.5 million from \$1,259.5 million to \$1,486.0 million in money-of-the-day prices.

### PROBLEM

The approved project estimate (APE) of **111CD** is not sufficient to cover the cost of the works under the project.

### PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for Development, proposes to increase the APE of **111CD** by \$226.5 million from \$1,259.5 million to \$1,486.0 million in money-of-the-day (MOD) prices.

### PROJECT SCOPE AND NATURE

3. In June 2007, the Finance Committee (FC) approved the upgrading of **111CD** to Category A at an estimated cost of \$1,259.5 million in MOD prices. The approved scope of works under **111CD** comprises –

/(a) .....

- (a) construction of a drainage tunnel of about 5 kilometres in length and 6.5 metres (m) in diameter from Kwai Chung to Tsuen Wan;
- (b) construction of an outfall portal; and
- (c) construction of three intakes, about 80 m of associated connection adits and ancillary works.

— A layout plan showing the location of the works is at Enclosure 1.

4. We started the construction works in December 2007 and originally planned to complete the works in September 2011. However, the completion date of the works has been deferred due to slower than expected progress in site formation and preparation works for excavation by the tunnel boring machine (TBM). Progress has improved since commencement of TBM excavation in September 2010 and we expect to complete tunnel excavation by December 2011. As at end November 2011, 66% of works were completed. We expect that the works will be substantially completed by March 2013.

## JUSTIFICATION

5. Following a review of the financial position of the project, we consider it necessary to increase the APE of **111CD** by \$226.5 million in MOD prices to cover the additional costs arising from the increase in provision for price adjustment.

6. According to existing Government practice, monthly payments to contractors for most construction contracts are adjusted to cover market fluctuation in labour and material costs, which are known as Contract Price Fluctuation (CPF) payment. The payment for the works of **111CD** is subject to CPF, and the provision for price adjustment was allowed when FC's approval for the APE of **111CD** was sought in June 2007. At that time, on the basis of the forecast of trend rate of change in the prices of public sector building and construction output in March 2007, as well as the anticipated project cash flow, a provision of \$38.5 million was allowed for price adjustment in the original APE.

/7. ....

7. Construction material prices have been increasing since 2004. While the rise has been modest in the first two years or so, it has become sharper since mid-2007 before moderating in mid-2009. A chart showing the relevant trend of material costs is at Enclosure 2. For example, the July 2011 cost indices for steel reinforcement, galvanized mild steel and sand have risen by 33.4%, 24.8% and 49.9% respectively from the June 2007 prices when the funding for the project was approved. In the light of the sharp increase in subsequent forecast on the trend rate of change in the prices of public sector building and construction output (the latest forecast is that there will be an increase of 5% per annum in 2011 and 5.5% per annum from 2012 to 2015) and the actual price deflators between 2007 and 2010 (the actual price deflators for 2007, 2008, 2009 and 2010 were 2.9%, 8.7%, 3.1% and 2.9% respectively)<sup>1</sup>, the CPF payments have been higher than expected. We anticipate that the provision for price adjustment will have to be increased by \$226.5 million from \$38.5 million to \$265.0 million. Details are at Enclosure 3.

8. We have already drawn down a sum of \$77 million from the original contingency provision of \$100.0 million in the APE to meet the additional costs arising from the higher-than-expected tender prices (\$50 million) and the increased site supervision cost (\$27 million) (please refer to Enclosure 4 for details). We need to retain \$23 million contingencies to cater for further variations to the works and possible claims during construction of the remaining works and valuation of works during finalisation of the project account. As such, the remaining balance in the project vote is not sufficient to cover the additional CPF payment of \$226.5 million.

9. Since the most uncertain parts of the works have been over and we have already included the cost of the foreseeable variations of works in the latest project estimate, we consider that the revised APE is sufficient to cover the costs of the project.

10. A comparison of the cost breakdown of the APE and the latest project estimate is given at Enclosure 4.

## FINANCIAL IMPLICATIONS

11. Subject to FC's approval, we will phase the expenditure as follows –

/Year .....

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<sup>1</sup> The price adjustment factors adopted for the original funding application approved by FC in June 2007 are 0.0% in 2007, 1.0% per annum between 2008 and 2011, and 2.0% per annum from 2012 onwards.

Year	\$ million (in MOD prices)
Up to 31 March 2011	538.3
2011 – 2012	350.0
2012 – 2013	218.8
2013 – 2014	205.5
2014 – 2015	173.4
Total	1,486.0

12. The proposed increase in the APE will not give rise to any additional recurrent expenditure.

### **PUBLIC CONSULTATION**

13. As the proposed increase in the APE does not involve any change in project scope, we consider further public consultation not required.

14. We consulted the Legislative Council Panel on Development on the proposed increase in the APE on 22 November 2011. Members raised no objection to the proposal.

### **ENVIRONMENTAL IMPLICATIONS**

15. The proposed increase in the APE does not have any environmental implication.

### **HERITAGE IMPLICATIONS**

16. The proposed increase in the APE does not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interests and Government historic sites identified by the Antiquities and Monuments Office.

/LAND .....

**LAND ACQUISITION**

17. The proposed increase in the APE does not require any land acquisition.

**BACKGROUND INFORMATION**

18. In June 2007, we upgraded **111CD** to Category A at an estimated cost of \$1,259.5 million for the construction of Tsuen Wan drainage tunnel. The drainage tunnel will enhance the capacity of the existing drainage system, and alleviate the flooding risks of some areas in Tsuen Wan and Kwai Chung during heavy rainstorms. The construction works commenced in December 2007 and is expected to be substantially completed by March 2013.

19. The proposed increase in the APE will not involve any tree removal and planting proposal.

20. The proposed increase in the APE will not create any new job.

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Development Bureau  
December 2011

**Enclosure 3 to PWSC(2011-12)39**

**4111CD – Drainage improvement in Tsuen Wan, Kwai Chung and  
Tsing Yi – Tsuen Wan drainage tunnel**

**Table 1 – Cash flow and provisions for price adjustment in PWSC(2007-08)18**

<b>Year</b>	<b>Original project estimate (\$ million, in September 2006 prices)</b> <b>A</b>	<b>Original price adjustment factors (March 2007)#</b> <b>B</b>	<b>Approved project estimate (\$ million, in MOD prices)</b> <b>C</b>	<b>Provision for price adjustment (\$ million)</b> <b>D = C – A</b>
2007 - 2008	19.0	0.99900	19.0	0.0
2008 - 2009	189.0	1.00649	190.2	1.2
2009 - 2010	290.0	1.01656	294.8	4.8
2010 - 2011	319.0	1.02672	327.5	8.5
2011 - 2012	161.0	1.03699	167.0	6.0
2012 - 2013	98.0	1.05514	103.4	5.4
2013 - 2014	73.0	1.07624	78.6	5.6
2014 - 2015	72.0	1.09777	79.0	7.0
<b>Total</b>	<b>1,221.0</b>		<b>1,259.5</b>	<b>38.5</b>

**Table 2 – Latest cash flow and provision for price adjustment due to latest project estimate (PE) and latest adjustment factors**

<b>Year</b>	<b>Latest PE (\$ million, in September 2006 prices)</b> <b>a</b>	<b>Latest PE (\$ million, in September 2011 prices)^</b> <b>b</b>	<b>Latest price adjustment factors (October 2011) ##</b> <b>c</b>	<b>Latest PE (\$ million, in MOD prices)</b> <b>d</b>	<b>Latest provision for price adjustment (\$ million)</b> <b>e</b>	<b>Net increase in provision for price adjustment (\$ million)</b> <b>f</b>
Up to March 2011	498.5	538.3^	1.00000	538.3^	<b>e = d – a</b>	<b>f = e – D</b>
2011 – 2012	284.0	350.0	1.00000	350.0		
2012 – 2013	168.5	207.6	1.05375	218.8		
2013 – 2014	150.0	184.8	1.11171	205.5		
2014 – 2015	120.0	147.9	1.17285	173.4		
<b>Total</b>	<b>1,221.0</b>	<b>1,428.6</b>		<b>1,486.0</b>	<b>265.0</b>	<b>226.5</b>

**Notes:**

# Price adjustment factors adopted in March 2007 were based on the projected movement of prices for public sector building and construction output at that time, which were assumed to have no change in 2007 and to be increased by 1.0% per annum over the period from 2008 to 2011 and by 2.0% per annum from 2012 onwards.

## Price adjustment factors promulgated in October 2011 were based on the latest movement of prices for public sector building and construction output, which are assumed to increase by 5.0% per annum in 2011 and by 5.5% per annum from 2012 onwards.

^ \$538.3 million was the actual expenditure up to March 2011.

^^ The latest project estimate (in September 2006 prices) was multiplied by 1.23228 for conversion to September 2011 prices. The figure of 1.23228 represents the changes in price movement for public sector building and construction output between September 2006 and September 2011.

**111CD – Drainage improvement in Tsuen Wan, Kwai Chung and Tsing Yi –  
Tsuen Wan drainage tunnel**

**Comparison between Approved Project Estimate and  
the Latest Project Estimate**

A comparison of the approved project estimate and the latest project estimate is as follows –

	<b>(A)</b> <b>Approved Project Estimate</b>  <b>(\$ million)</b>	<b>(B)</b> <b>Revised Project Estimate<sup>1</sup></b>  <b>(\$ million)</b>	<b>(C)</b> <b>Latest Project Estimate</b>  <b>(\$ million)</b>	<b>(C) – (A)</b> <b>Difference</b>  <b>(\$ million)</b>
(a) Construction of drainage tunnel, outfall portal, intakes and ancillary works	1,016.0	1,076.0	1,066.0	50.0
(b) Consultant's fee for contract administration and site supervision	93.0	93.0	120.0	27.0
(c) Environmental mitigation measures	12.0	12.0	12.0	(0.0)
(d) Contingencies	100.0	40.0	23.0	(77.0)
(e) Provision for price adjustment	38.5	38.5	265.0	226.5
Total	<b>1,259.5</b>	<b>1,259.5</b>	<b>1,486.0</b>	<b>226.5</b>

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<sup>1</sup> Revised project estimate after contract award



2. As regards **(a) (Construction of drainage tunnel, outfall portal, intakes and ancillary works)**, the net increase of \$50.0 million is due to an increase of \$60.0 million for higher-than-expected tender price to be offset by a saving of \$10.0 million due to subsequent modification of design works.

3. As regards **(b) (Consultant's fees for contract administration and site supervision)**, the total increase of \$27.0 million is due to adjustment to salary pay scale and housing benefit of resident site staff employed by the consultants for site supervision, and extended construction period.

4. As regards **(d) (Contingencies)**, we need to retain the remaining sum of \$23.0 million as contingencies to cater for further variations and possible claims during construction and valuation of works during finalisation of project account.

5. As regards **(e) (Provision for price adjustment)**, the increase of \$226.5 million is due to unexpected increase in projected payments for contract price fluctuation.