

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE

Civil Engineering – Drainage and erosion protection

126CD – Drainage improvement in East Kowloon

Members are invited to recommend to Finance Committee –

- (a) the upgrading of part of **126CD**, entitled “Drainage improvement in East Kowloon – Package A”, to Category A at an estimated cost of \$251.5 million in money-of-the-day prices; and
- (b) the retention of the remainder of **126CD**, retitled “Drainage improvement in East Kowloon – Package B”, in Category B.

PROBLEM

East Kowloon is susceptible to flooding during severe rainstorms due to the inadequate capacity of the existing drainage systems in the area.

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade part of **126CD** to

/Category

Category A at an estimated cost of \$ 251.5 million in money-of-the-day (MOD) prices for the construction of the proposed drainage improvement works in Tsim Sha Tsui, To Kwa Wan, Wong Tai Sin and Yau Tong.

PROJECT SCOPE AND NATURE

3. The scope of the proposed works to be part-upgraded under **126CD** comprises –

- (a) construction of about 0.8 kilometres (km) drains ranging from 600 millimetres (mm) in diameter to 1 800 mm in diameter and 0.1 km box culverts with size 2.0 metres (m) x 2.0 m in Tsim Sha Tsui;
- (b) construction of about 2.3 km drains ranging from 375 mm in diameter to 2 100 mm in diameter and 0.1 km box culverts with size ranging from 1.0 m x 0.9 m to 3.6 m x 1.8 m in To Kwa Wan;
- (c) construction of about 1.6 km drains ranging from 750 mm in diameter to 2 100 mm in diameter and 0.5 km box culverts with size ranging from 2.4 m x 2.0 m to 4.0 m x 2.3 m in Wong Tai Sin;
- (d) construction of about 0.2 km drains with size ranging from 1 200 mm to 1 500 mm in diameter in Yau Tong; and
- (e) ancillary works.

—— A site plan showing the locations of the proposed works is at Enclosure 1.

4. We plan to start the proposed works in December 2004 for completion in November 2008.

JUSTIFICATION

5. The drainage catchment area of East Kowloon covers major residential, industrial and commercial districts in part of Tsim Sha Tsui, To Kwa Wan, Wong Tai Sin, Yau Tong, Hung Hom, Kowloon City, San Po Kong and Kwun Tong. We developed the existing drainage systems decades ago to meet the flow requirements and standards at that time. Flooding records show that parts of the above areas are susceptible to flooding during severe rainstorms, causing

/nuisance

nuisance to the public and disruption to traffic. Chatham Road South near the junction with Austin Road, and Tung Tau Tsuen Road around the junction of Fung Mo Street are particularly flood prone areas. We have completed a comprehensive assessment of the drainage system in this catchment area and concluded that the existing system requires improvement to alleviate the risk of flooding in the districts.

6. To bring early improvement to the flood prone areas in East Kowloon, we will carry out the drainage improvement works in two packages. Package A covers Tsim Sha Tsui, To Kwa Wan, Wong Tai Sin and Yau Tong, which are in general more susceptible to flooding, and Package B will cater for Hung Hom, Kowloon City, San Po Kong and Kwun Tong. Under the proposed Package A works, we shall replace existing drains of insufficient capacity with larger drain pipes or box culverts, or construct new drains. Upon the completion of works, the standard of flood protection in Tsim Sha Tsui, To Kwa Wan, Wong Tai Sin and Yau Tong would be raised generally to withstand a rainstorm with a return period of one in 50 years¹.

FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the proposed works to be \$251.5 million in MOD prices (see paragraph 8 below), made up as follows –

| | \$ million |
|---|-------------------|
| (a) Construction of about 5.6 km of box culverts and drains | 208.5 |
| (i) by trenchless method ² (about 0.2 km) | 9.2 |
| (ii) by open cut method (about 5.4 km) | 199.3 |
| | /(b) |

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

² Trenchless method refers to the use of pipe-jacking or boring techniques to construct underground pipes without opening up the road surface along the alignment of the pipes. Although the method is more expensive than the conventional open cut method, the former method, if feasible, is preferred for carrying out works at busy road sections since it will greatly reduce the need for road opening thus minimise disruption to traffic during the construction phase.

| | | \$ million | |
|-----|-----------------------------------|-------------------|----------------------------|
| (b) | Consultants' fees for | 23.7 | |
| | (i) contract administration | 0.9 | |
| | (ii) site supervision | 22.8 | |
| (c) | Environmental mitigation measures | 3.5 | |
| (d) | Contingencies | 23.5 | |
| | Sub-total | 259.2 | (in September 2003 prices) |
| (e) | Provision for price adjustment | (7.7) | |
| | Total | 251.5 | (in MOD prices) |

A breakdown of the estimates for the consultants' fees by man-months is at Enclosure 2.

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

| Year | \$ million (Sept 2003) | Price adjustment factor | \$ million (MOD) |
|-------------|-----------------------------------|--|-----------------------------|
| 2004 – 2005 | 4.0 | 0.97150 | 3.9 |
| 2005 – 2006 | 45.0 | 0.95450 | 43.0 |
| 2006 – 2007 | 59.0 | 0.95450 | 56.3 |
| 2007 – 2008 | 64.1 | 0.96643 | 61.9 |
| 2008 – 2009 | 52.0 | 0.98455 | 51.2 |
| 2009 – 2010 | 35.1 | 1.00203 | 35.2 |
| | 259.2 | | 251.5 |

9. 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 2004 to 2010. We will tender the works under a standard re-measurement contract because of the uncertainties of the existence and location of underground utilities such as electricity cables, telephone cables and water pipes. The contract will provide for price adjustments because the contract period will exceed 21 months.

10. We estimate the annual recurrent expenditure arising from this project to be about \$0.3 million.

PUBLIC CONSULTATION

11. We consulted the Traffic and Transport Committees of Wong Tai Sin District Council, Yau Tsim Mong District Council, Kowloon City District Council and Kwun Tong District Council on the proposed works on 9 March 2004, 18 March 2004, 1 April 2004 and 15 April 2004 respectively. All supported the implementation of the proposed drainage improvement works.

12. We consulted the Legislative Council Panel on Planning, Lands and Works on the proposed works by circulation of an information paper on 12 May 2004. Members did not raise any objection to the proposal.

ENVIRONMENTAL IMPLICATIONS

13. **126CD** is not a designated project under Environmental Impact Assessment Ordinance. We completed the Environmental Review (ER) for the proposed works in February 2004. The ER concluded that there would be no insurmountable impacts on the air quality, water, waste management, visual impacts and ecology aspects.

14. We will implement appropriate environmental mitigation measures to minimise nuisances arising from the works. We have made assessments and mitigation proposal for the potential construction noise impacts for all construction works during the design stage. For short-term impacts during construction, we will control noise, dust and site run-off within established standards and guidelines through the implementation of mitigation measures, such as the use of temporary noise barriers and silenced construction plants to reduce noise generation, water-spraying to reduce emission of fugitive dust and strict control on diversion of sewage flows in the works contracts. For night-works identified as necessary at

/several

several locations, we will apply for Construction Noise Permits under the Noise Control Ordinance and restrict the plant type used to minimise the noise level. We will incorporate a relevant clause into the works contract to require the contractor to carry out the recommended environmental mitigation measures to control pollution and disposal of contaminated soil in accordance with the relevant regulations during construction. We have included \$3.5 million (in September 2003 prices) in the project estimate for implementing the environmental mitigation measures.

15. We will require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures like the allocation of an area for waste segregation. We shall ensure that the day-to-day operations on site comply with the WMP. We will encourage the contractors to use steel instead of timber in formwork and temporary works to reduce the generation of waste. We will require the contractor to implement necessary measures to minimise the generation of construction and demolition (C&D) materials and to reuse C&D materials as fill material as far as possible. We will control disposal of C&D materials and waste to public filling areas and landfills respectively through a trip-ticket system. We will record the disposal and reuse of C&D materials for monitoring purposes.

16. We estimate that the project will generate about 95 100 cubic metres (m³) of C&D materials. Of these, we will reuse about 44 000 m³ (46.3%) on site, deliver 45 000 m³ (47.3%) to public filling areas³ and dispose of 6 100 m³ (6.4%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$762,500 for this project (based on a notional⁴ unit cost of \$125/m³).

TRAFFIC IMPLICATONS

17. To minimise possible disruption to traffic during construction, we have substantially completed the traffic impact assessment for the proposed works.

/During

³ 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 facility requires a licence issued by the Director of Civil Engineering.

⁴ 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/m³), 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.

During construction, we will maintain smooth traffic flow through temporary traffic management measures as far as possible and display notice boards on site to explain the reason of temporary traffic arrangements and the expected completion date of the concerned section of works. In addition, telephone hotlines will be set up for the public to make enquiries or lodge complaints. Construction works in busy road sections will be carried out in non-peak hours. To expedite works progress and minimise disruption to traffic, we would use trenchless method for works at busy locations at King Fuk Street between Sam Chuk Street and Tseuk Luk Street, and the junction of Fung Mo Street and Fu Mei Street. We will also establish a Traffic Management Liaison Group (TMLG) under the contract to discuss, scrutinise and agree on the proposed temporary traffic management measures. Representatives from Transport Department, Hong Kong Police Force, Highways Department, District Offices and various road public transport operators will be invited to attend the TMLG meetings and every temporary traffic arrangement has to be agreed by the TMLG before implementation. The TMLG will also take into account all relevant factors such as site restrictions, existing and future traffic conditions, pedestrian safety, access to buildings/shop fronts and provision of emergency vehicles access while considering the temporary traffic arrangements.

LAND ACQUISITION

18. The project does not require land acquisition.

BACKGROUND INFORMATION

19. In September 2000, we completed a comprehensive review of the drainage systems in East Kowloon under **80CD** "Drainage master plan study in Sai Kung, East Kowloon and Southern Lantau" (the Study). The Study identified that some of the existing drainage systems in East Kowloon are inadequate to meet the required flood protection standard and recommended a programme of drainage improvement works to tackle the flooding problems in the areas.

20. In April 2002, we included **126CD** "Drainage improvement in East Kowloon" in Category B for the drainage improvement works in East Kowloon. The scope of **126CD** comprises the construction of about 19 km of box culvert and drains in East Kowloon to be implemented in two packages. Package A comprises drainage improvement works in Tsim Sha Tsui, To Kwa Wan, Wong Tai Sin and Yau Tong. Package B comprises drainage improvement works in Hung Hom, Kowloon City, San Po Kong and Kwun Tong.

21. In June 2003, we engaged consultants to undertake site investigations, surveys, traffic impact assessment and detailed design for the project at a cost of \$13.0 million in MOD prices. We have charged this amount to block allocation **Subhead 4100DX** "Drainage works, studies and investigations for items in Category D of the Public Works Programme". We have substantially completed the detailed design for Package A in June 2004. Planning for the improvement works under Package B is underway.

22. We plan to start the proposed works under Package A in December 2004 for completion in November 2008.

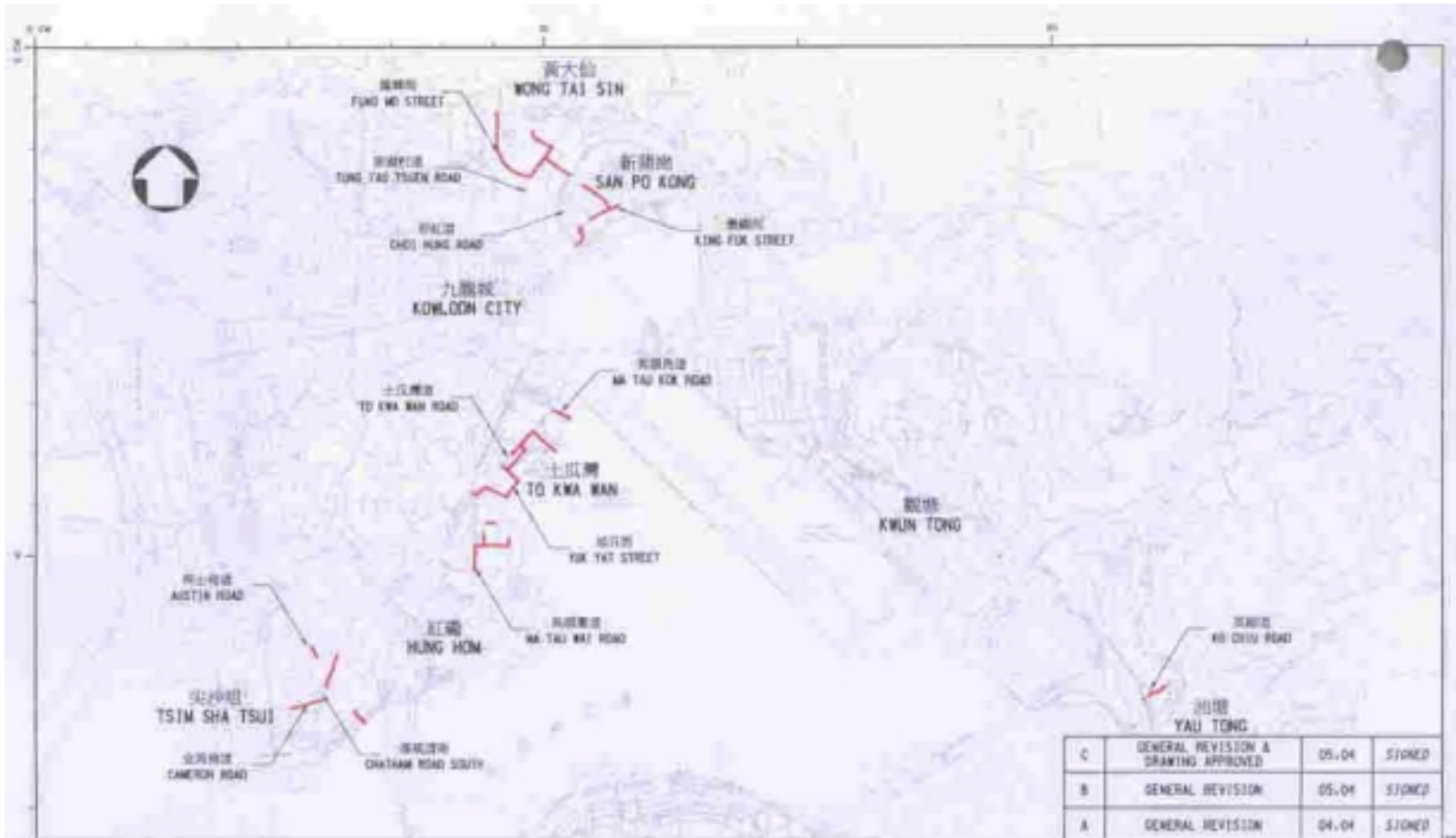
23. The proposed drainage works will involve removal of 23 trees including five trees to be felled and 18 trees to be transplanted elsewhere. All trees to be removed are not important trees⁵. We will incorporate planting proposals as part of the project, including estimated quantities of 20 trees.

24. We estimate that the proposed works will create about 112 jobs (90 for labourers and another 22 for professional/technical staff) providing a total employment of 4 200 man-months.

Environment, Transport and Works Bureau
June 2004

⁵ 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 trees with trunk diameter exceeding one metre (measured at one metre above ground level).



| | | | |
|---|--|-------|--------|
| C | GENERAL REVISION A DRAWING APPROVED | 05-04 | STORED |
| B | GENERAL REVISION | 05-04 | STORED |
| A | GENERAL REVISION | 04-04 | STORED |

圖則名稱 Drawing Title
東九龍雨水排放系統改善計劃 - A部分
DRAINAGE IMPROVEMENT IN EAST KOWLOON - PACKAGE A

繪圖 drawn SIGNED C. X. LAM 日期 date 03-04
 校對 checked SIGNED C. W. KO 日期 date 03-04
 工程 approved SIGNED Y. T. CHEUNG 日期 date 05-04
 部門 office **工程管理部**
PROJECT MANAGEMENT DIVISION

圖則編號 Drawing No. (1/1) scale
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Enclosure 1 附件一

Enclosure 2 to PWSC(2004-05)29

126CD – Drainage improvement in East Kowloon

Breakdown of the estimates for consultants' fees

| Consultants' staff costs | | Estimated man- months | Average MPS* salary point | Multiplier (Note 1) | Estimated fee (\$ million) |
|--|--------------|--------------------------------------|--|--------------------------------|---|
| (a) Contract administration (Note 2) | Professional | — | — | — | 0.7 |
| | Technical | — | — | — | 0.2 |
| (b) Site supervision by resident site staff of the consultants (Note 3) | Professional | 70 | 38 | 1.6 | 6.3 |
| | Technical | 555 | 14 | 1.6 | 16.5 |
| Total consultants' staff costs | | | | | <hr/> 23.7 <hr/> |

*MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied in the case of site staff supplied by the consultants. (As at 1 January 2004, MPS pt. 38 = \$55,993 per month and MPS pt. 14 = \$18,603 per month).
2. The consultants' fees for contract administration are based on the lump sum fees calculated in accordance with the consultancy agreement which the Director of Drainage Services has agreed with the consultants undertaking the design and construction of the project.
3. The consultants' fees for site supervision are based on estimates prepared by the Director of Drainage Services. We will only know the actual man months and actual costs after the completion of the construction works.