

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

Head 704 – DRAINAGE

Civil Engineering – Drainage and erosion protection

127CD – Drainage improvement in Northern Hong Kong Island – Sheung Wan stormwater pumping station and the associated intercepting drains

Members are invited to recommend to Finance Committee –

- (a) the upgrading of part of **127CD**, entitled “Drainage improvement in Northern Hong Kong Island – intercepting drains at Queen’s Road Central”, to Category A at an estimated cost of \$46.3 million in money-of-the-day prices; and
- (b) the retention of the remainder of **127CD**, retitled “Drainage improvement in Northern Hong Kong Island – Sheung Wan stormwater pumping station” in Category B.

PROBLEM

The low-lying areas bounded by Rumsey Street, Queen’s Road Central/West, Queen Street and Connaught Road Central/West in Sheung Wan are susceptible to frequent flooding during heavy rainstorms, particularly at times of high tidal levels.

/PROPOSAL

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade part of **127CD** to Category A at an estimated cost of \$46.3 million in money-of-the-day (MOD) prices for construction of intercepting drains in Sheung Wan.

PROJECT SCOPE AND NATURE

3. The scope of the proposed works comprises –
- (a) construction of about 530 metres (m) of stormwater drains of diameter ranging from 900 millimetres (mm) to 1 500 mm along Lok Ku Road and Queen’s Road Central; and
 - (b) construction of 130 m of single cell drainage box culvert of internal size 2 250 mm wide and 1 250 mm high along Gilman’s Bazaar.

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

4. We plan to commence construction in March 2006 for completion in October 2008.

JUSTIFICATION

5. Sheung Wan is one of the earliest settlements in Hong Kong. Most of the infrastructures including the existing drains were designed and constructed decades ago to meet the flow requirements and standards at that time. Although we have been making local improvements to the drainage systems to cater for new developments from time to time, the low-lying areas of about 10 hectares including Bonham Strand, Wing Lok Street and Man Wa Lane are susceptible to flooding during heavy rainstorms with a return period¹ of one in two years coincided with a probable high spring tide in a year. As the lowest ground level

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¹ “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.

in the area is only slightly above the mean high tide level, the flooding situation would become worse with high tide surge because the existing drainage system could not effectively drain the run-off away due to the small difference in ground and sea levels. The situation would be the worst during extreme high tides, when the sea level is higher than the ground level in Sheung Wan causing seawater to flow back and overflow from manholes and gratings.

6. To alleviate the flooding problem and to meet the community's increased expectation for better flood protection standards, we plan to construct stormwater drains to intercept and divert the upland flows away from the low-lying areas and a pumping station and the associated stormwater drains to dispose of the run-off in the areas concerned to the harbour.

7. We have recently worked out the traffic arrangements for the proposed drainage improvement works mentioned in paragraph 3 above and plan to start the proposed works in March 2006 for completion in October 2008. Upon completion of the proposed works, the drains will intercept about 30% of the surface run-off from getting into the Sheung Wan low-lying areas so as to alleviate the flooding problems in some of the areas concerned.

FINANCIAL IMPLICATIONS

8. We estimate the cost of the proposed works to be \$46.3 million in MOD prices (see paragraph 9 below), made up as follows –

| | \$ million |
|---|-------------------|
| (a) Construction of stormwater drains and box culvert by open-cut method | 16.2 |
| (b) Construction of stormwater drains and box culvert by the trenchless method ² | 26.6 |
| | /(c) |

² Trenchless method refers to the use of micro-tunnelling or boring techniques to construct underground sewers or drain pipes without opening up the road surface along the alignment of the sewers or drains. The method would greatly reduce the need for road opening and thus minimise disruption to traffic during the construction phase.

| | | \$ million | |
|-----|-----------------------------------|-------------------|----------------------------|
| (c) | Environmental mitigation measures | 0.6 | |
| (d) | Contingencies | 2.9 | |
| | Sub-total | 46.3 | (in September 2005 prices) |
| (d) | Provision for price adjustment | 0.0 | |
| | Total | 46.3 | (in MOD prices) |

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

| Year | \$ million (Sept 2005) | Price adjustment factor | \$ million (MOD) |
|-------------|-----------------------------------|--|-----------------------------|
| 2006 – 2007 | 7.8 | 1.00125 | 7.8 |
| 2007 – 2008 | 19.4 | 1.00125 | 19.4 |
| 2008 – 2009 | 10.1 | 1.00125 | 10.1 |
| 2009 – 2010 | 7.8 | 1.00125 | 7.8 |
| 2010 – 2011 | 1.2 | 1.01627 | 1.2 |
| | 46.3 | | 46.3 |

10. We have derived the MOD estimate on the basis of the Government's latest forecast of the trend rate of change in the prices of the public sector building and construction output for the period from 2006 to 2011. We will tender the proposed works under a re-measurement contract because of the uncertainties 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.

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11. We estimate the annual recurrent expenditure arising from this project to be \$30,000.

PUBLIC CONSULTATION

12. We consulted the Traffic and Transport Committee of Central and Western District Council on 4 November 2004 on the proposed drainage works. Members of the Committee supported the implementation of the proposal but requested that only one traffic lane of Queen's Road Central be closed at any one time during construction. The proposed traffic arrangements are set out in paragraph 19 below.

13. We consulted the Legislative Council Panel on Planning, Lands and Works on the proposed works by circulation of an information paper on 15 November 2005. Members had raised no objection to the proposed works.

LAND ACQUISITION

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

ENVIRONMENTAL IMPLICATIONS

15. The part of **127CD** which we now propose to upgrade to Category A is not a designated project under the Environmental Impact Assessment Ordinance. We have completed a Preliminary Environmental Review which concluded that there would not be any long term adverse environmental impacts arising from the proposed works. For short term impacts caused by the works during construction, we will control noise, dust and site run-off within established standards and guidelines through implementation of mitigation measures, such as the use of temporary noise barriers, silenced construction plant and water-spraying to reduce noise and dust generated by the works. We will also carry out regular site inspections to ensure that these recommended mitigation measures and good site practices would be properly implemented on site. We have included in the project estimate \$600,000 in September 2005 prices for implementation of the environmental mitigation measures.

16. We have considered at the planning and design stages ways of minimising the generation of construction and demolition (C&D) materials by carefully designing the alignment and levels of the proposed drains. 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 formwork to further minimise the generation of construction waste.

17. 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 to public fill reception facilities 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.

18. We estimate that the project will generate about 23 000 tonnes of C&D materials. Of these, we will reuse about 3 500 tonnes (15%) on site and deliver 19 500 tonnes (85%) to public fill reception facilities³ for subsequent reuse. The total cost for accommodating C&D materials at public fill reception facilities is estimated to be about \$526,000 for this project (based on an unit cost of \$27/tonne for disposal at public fill reception facilities).

TRAFFIC IMPACTS

19. We have completed a traffic impact assessment and worked out mitigation measures to minimise possible disruption to traffic during construction of the drains. To minimise the traffic impacts, works in Queen's Road Central, Lok Ku Road and Gilman's Bazaar will be divided into a number of sections, each generally not exceeding 50 m in length. Each section will normally require the closure of one traffic lane. We will maintain smooth traffic flow through temporary traffic management measures. We will also display notice boards on site to explain the reason for the temporary traffic arrangements and to show the expected completion date of the concerned section. We will set up a telephone

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³ 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.

hotline for public enquiries or complaints. We have carefully selected the alignment of the proposed drains and have avoided the busy sections of the road or pedestrian way areas in Queen's Road Central near Morrison Street and along Wing Wo Street. We will maintain existing vehicular entry and exit points, pedestrian routes and pedestrian crossing facilities, and design temporary traffic arrangements according to prevailing site constraints and up to the required standards. To expedite works progress without inducing unacceptable nuisance to the public, we will use the trenchless method to construct drains at critical locations such as at the junction of Wellington Street and Queen's Road Central, and along Gilman's Bazaar.

20. During the construction period, we will establish a Traffic Management Liaison Group to discuss, scrutinise and review on the proposed temporary traffic arrangements. We will maintain close contacts with the Transport Department, public transport operators, the Hong Kong Police Force and relevant government departments to review the situation so as to minimise any disruption caused. We will also maintain close contacts with the shop operators to derive temporary traffic arrangements which would cause lesser disruption to the shop operations.

BACKGROUND INFORMATION

21. We included **127CD** in Category B in April 2002 for alleviating the flooding problem in the low-lying areas in Sheung Wan. We have deployed in-house resources to carry out the detailed design and will also deploy in-house resources to supervise the proposed works.

22. The stormwater pumping station and the associated drains along Chung Kong Road are grouped under the remaining works in order to accommodate the lead time required for public consultation on the proposed site of the pumping station and its design to complete. The design is underway. The remaining works are scheduled to start in late 2006 for completion in late 2009. Upon completion of the whole scheme, we could generally raise the flood protection level in Sheung Wan to withstand a rainstorm with a return period of one in 50 years and thus substantially reduce the risk of flooding during heavy rainstorms.

23. The proposed drainage improvement works will not involve any tree removal or planting proposal.

24. We estimate that the proposed works will create some 35 jobs (30 labourers and five professional/technical staff) providing a total employment of 800 man-months.

Environment, Transport and Works Bureau
December 2005

