For discussion **PWSC(2004-05)44**
on 24 November 2004

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE
Civil Engineering – Drainage and erosion protection
132CD – Drainage improvement works at Tsing Lun Road, Tuen Mun

Members are invited to recommend to Finance Committee the upgrading of **132CD** to Category A at an estimated cost of $40.6 million in money-of-the-day prices for drainage improvement works at Tsing Lun Road, Tuen Mun.

PROBLEM

The low-lying areas of Tsz Tin Tsuen and Chung Shan are susceptible to flooding during severe rainstorms due to inadequate capacity of the existing drainage system in the areas.

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade **132CD** to Category A at an estimated cost of $40.6 million in money-of-the-day (MOD) prices for drainage improvement works at Tsing Lun Road, Tuen Mun.

PROJECT SCOPE AND NATURE

3. The scope of the proposed works comprises **–**

/(a) .....

(a) construction of about 180 metres (m) long twin-cell box culvert and a total length of about 220 m long single-cell box culverts at Tsing Lun Road;

(b) widening about 120 m of the existing nullah near Lam Tei Interchange; and

(c) conversion of about 200 m of the existing nullah alongside Tsing Lun Road to a local drainage channel.

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

4. We plan to start the proposed works in April 2005 for completion in October 2007.

JUSTIFICATION

5. The existing drainage catchment of Tsz Tin Tsuen and Chung Shan areas in the north-western part of Tuen Mun comprises mainly agricultural land, open spaces, village areas and rural upland areas. Stormwater run-offs from the catchment are discharged into the existing Tuen Mun River Channel via the box culverts at Siu Hong Road. Due to insufficient capacity of the box culverts at Siu Hong Road, the low-lying areas of Tsz Tin Tsuen and Chung Shan have suffered flooding periodically during heavy rainstorms.

6. Since there is insufficient room to enlarge the existing box culverts at Siu Hong Road, we propose to construct new box culverts at Tsing Lun Road and widen a section of the existing nullah near Lam Tei Interchange so as to convey the run-offs from Tsz Tin Tsuen and Chung Shan areas to Tuen Mun River Channel. The existing nullah alongside Tsing Lun Road will be converted to a local drainage channel for discharging runoffs from the adjacent areas to Tuen Mun River Channel via the proposed box culverts at Tsing Lun Road and the existing box culverts at Siu Hong Road.

7. Upon completion of the proposed drainage works, the main drainage system for Tsz Tin Tsuen and Chung Shan will be improved to withstand rainstorms with a 50-year return period[1].

/FINANCIAL .....

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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.

FINANCIAL IMPLICATIONS

8. We estimate the cost of the proposed works to be $40.6 million at MOD prices (see paragraph 9 below), made up as follows –

		$ million	
(a)	Box culverts at Tsing Lun Road	28.3	
(b)	Widening of the existing nullah near Lam Tei Interchange	7.6	
(c)	Conversion of the existing nullah to a local drainage channel	2.2	
(d)	Environmental mitigation measures	0.9	
(e)	Contingencies	2.0	
	Sub-total	41.0	(in September 2004 prices)
(f)	Provision for price adjustment	(0.4)	
	Total	40.6	(in MOD prices)

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

Year	**$ million (Sept 2004)**	**Price adjustment factor**	**$ million (MOD)**
2005 – 2006	7.0	0.99000	6.9
2006 – 2007	13.9	0.98753	13.7
2007 – 2008	11.9	0.99123	11.8
2008 – 2009	4.9	0.99990	4.9
2009 – 2010	3.3	1.01515	3.3
	41.0		40.6

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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 from 2005 to 2010. We will tender the proposed works under a standard re-measurement contract because of uncertainties in the sub-soil conditions and locations of existing 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 that the annual recurrent expenditure arising from this project will be about $90,000.

PUBLIC CONSULTATION

12. We consulted the Environmental, Hygiene and District Development Committee (EHDDC) of Tuen Mun District Council on 16 July 2004 on the proposed drainage improvement works. Members of the EHDDC supported 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 3 November 2004. Members did not raise any objection to the proposal.

ENVIRONMENTAL IMPLICATIONS

14. The proposal is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). We completed a Preliminary Environmental Review (PER) for the project and concluded that the project would not result in long term environmental impact. The PER concluded that with the implementation of the recommended mitigation measures, the environmental impacts arising from the project could be mitigated to within established standards and guidelines. We have included in the project estimate about $0.9 million (in September 2004 prices) for implementation of environmental mitigation measures.

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15. We have considered ways of minimising the generation of construction and demolition (C&D) materials in the planning and design stages. We have optimised the size and shape of the box culvert. Furthermore, typical sections of reinforced concrete structures were adopted to minimise the use of formwork. We will require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures. We will ensure that the day-to-day operations on site comply with the WMP. We will require the contractor to reuse the excavated material as filling material on site or on other construction sites as far as possible to minimise the disposal of public fill to public filling facilities. To further minimise the generation of C&D materials, we will encourage the contractor to use non-timber formwork and recyclable material for temporary works. We will also require the contractor to carry out on-site sorting to recover reusable/recyclable material from C&D materials to minimise disposal of public fill and C&D waste. We will control disposal of public fill and C&D waste to public filling facilities and landfills respectively through a trip-ticket system. We will require the contractors 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.

16. We estimate that the proposed drainage works will generate about 26 800 cubic metres (m^3) of C&D materials. Of these, we will reuse about 18 300 m^3 (68%) on site, 7 500 m^3 (28%) as fill in public filling areas[2] and dispose of 1 000 m^3 (4%) at landfills. The notional cost[3] of accommodating C&D waste at landfill site is estimated to be $125,000 for this project (based on a notional unit cost of $125/$m^3$).

LAND ACQUISITION

17. The project does not require resumption of private lands.

/**BACKGROUND** .....

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2 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 area requires a licence issued by the Director of Civil Engineering and Development.

3 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 $90/$m^3$), nor the cost to provide new landfills (which are likely to be more expensive) when existing ones are filled. The notional cost estimate is for reference only and does not form part of this project estimate.

BACKGROUND INFORMATION

18. The project was included in Category B in December 2002. It aims at alleviating the flooding problem in Tsz Tin Tsuen and Chung Shan areas, Tuen Mun.

19. We have substantially completed the design by in-house resources and plan to start the drainage improvement works in April 2005 for completion in October 2007. We will also deploy in-house resources to supervise the works.

20. The proposed drainage improvement works will involve removal of 41 common trees including 35 trees to be felled and six trees to be replanted within the project site. All trees to be removed are not important trees[4]. We will incorporate planting proposal as part of the project, including estimated quantities of 38 trees and 6 400 shrubs.

21. We estimate that the proposed works will create about 30 jobs (25 for labourers and another five for professional/technical staff) providing a total employment of 700 man-months.

Environment, Transport and Works Bureau
November 2004

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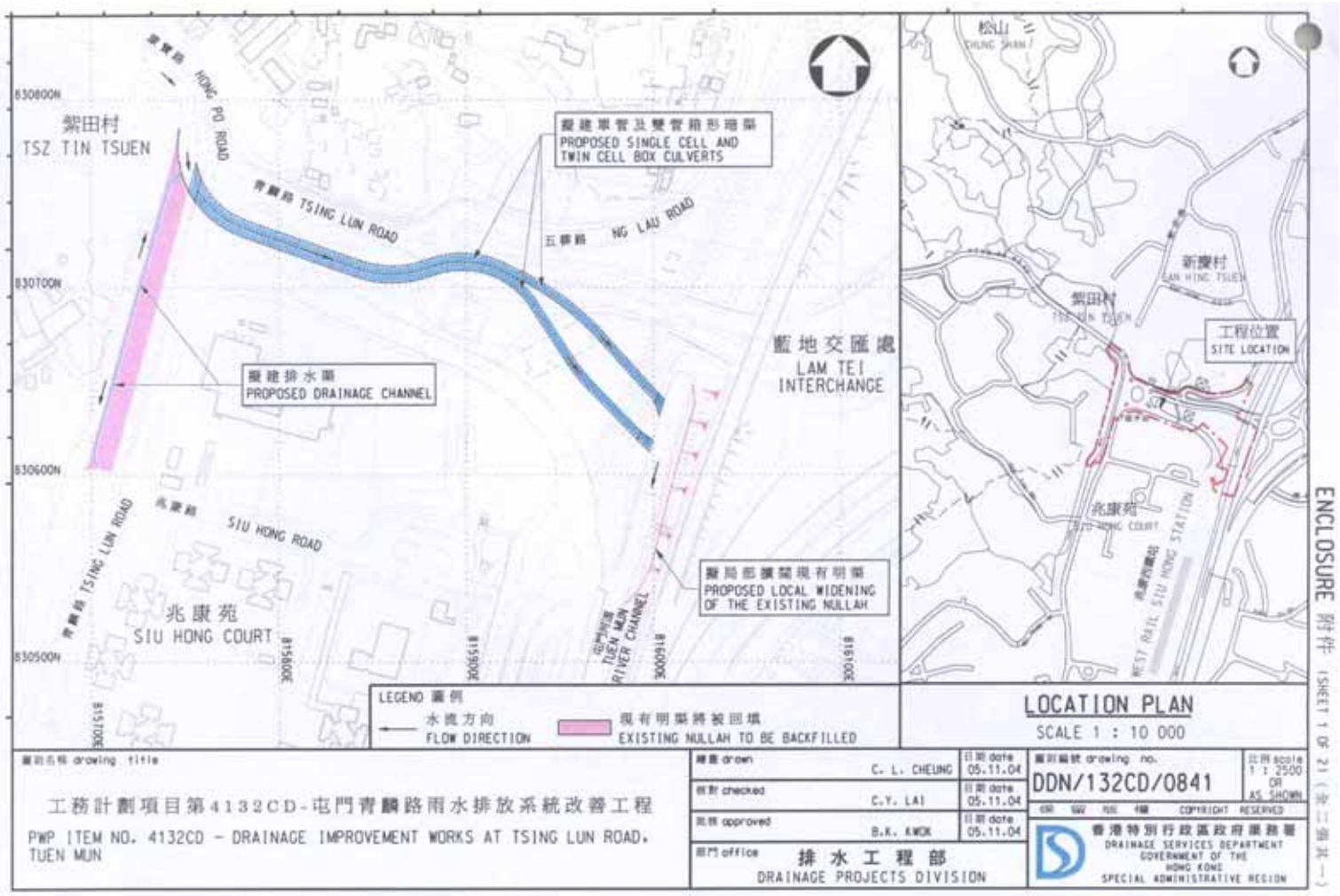
[4] Important trees include trees on the Register of Old and Valuable Trees, and any other trees which meet one or more of the following criteria –

(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).



ENCLOSURE 附件 1 SHEET 1 OF 21 (本工程共一)

圖則名稱 drawing title

工務計劃項目第4132CD-屯門青麟路雨水排放系統改善工程

PWP ITEM NO. 4132CD - DRAINAGE IMPROVEMENT WORKS AT TSING LUN ROAD, TUEN MUN

繪圖 drawn	C. L. CHEUNG	日期 date 05.11.04
核對 checked	C.Y. LAI	日期 date 05.11.04
批核 approved	B.K. KWOK	日期 date 05.11.04

部門 office 排水工程部 DRAINAGE PROJECTS DIVISION

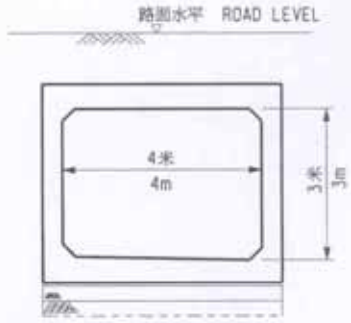
圖則編號 drawing no. DDN/132CD/0841

比例 scale 1 : 2500 OR AS SHOWN

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

雙管箱形暗渠橫截面圖

TYPICAL CROSS SECTION OF TWIN CELL BOX CULVERT



單管箱形暗渠橫截面圖

TYPICAL CROSS SECTION OF SINGLE CELL BOX CULVERT

ENCLOSURE 附件 1 OF 2 頁之 1

圖則名稱 drawing title			
工務計劃項目第4132CD-屯門青麟路雨水排放系統改善工程 PWP ITEM NO. 4132CD - DRAINAGE IMPROVEMENT WORKS AT TSING LUN ROAD, TUEN MUN			
繪圖 drawn	H.K. LAI	日期 date 02.11.04	
核對 checked	C.Y. LAI	日期 date 02.11.04	
批核 approved	B.K. KWOK	日期 date 02.11.04	
部門 office	排水工程部 DRAINAGE PROJECTS DIVISION		
圖則編號 drawing no.	DDN/132CD/0839	比例 scale	1 : 100
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