

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE

Civil Engineering – Drainage and erosion protection

118CD – Drainage improvement in Northern New Territories – package B

119CD – Drainage improvement in Northern New Territories – package C

Members are invited to recommend to Finance
Committee –

- (a) the upgrading of parts of **118CD** and **119CD**, entitled “Drainage improvement in Northern New Territories – package B – consultants’ fees and investigations” and “Drainage improvement in Northern New Territories – package C – consultants’ fees and investigations”, to Category A at estimated costs of \$15.1 million and \$15.4 million in money-of-the-day prices respectively; and
- (b) the retention of the remainder of **118CD** and **119CD** in Category B.

/PROBLEM

PROBLEM

Many areas in the Northern New Territories are susceptible to frequent flooding during heavy rainstorms due to inadequacies of the existing drainage systems and natural streamcourses.

PROPOSAL

2. The Director of Drainage Services (D of DS), with the support of the Secretary for Works, proposes to upgrade parts of **118CD** and **119CD** to Category A at estimated costs of \$15.1 million and \$15.4 million in money-of-the-day (MOD) prices respectively for engaging consultants to undertake site investigations and surveys, impact assessments and design for drainage improvement works to the Indus, Ganges and San Tin drainage basins.

PROJECT SCOPE AND NATURE

3. The scope of works under **118CD** comprises construction of about 9.1 kilometres (km) of drainage channels in San Tin South, Kwu Tung, Ma Tsao Lung and Fu Tei Au. A site plan showing the locations of the proposed works is at Enclosure 1.

4. The scope of works under **119CD** comprises construction of about 8 km of drainage channels in Ta Kwu Ling, Man Uk Pin, Lung Yeuk Tau and Lin Ma Hang. A site plan showing the locations of the proposed works is at Enclosure 2.

5. We propose to upgrade parts of **118CD** and **119CD** to Category A for carrying out the following works –

- (a) site investigations and surveys;
- (b) environmental studies for **118CD**;
- (c) environmental impact assessment for **119CD**;
- (d) traffic impact assessment;

/(e)

- (e) heritage impact assessment; and
- (f) design (including preparation of tender documents and assessment of tenders).

6. We plan to commission two separate investigation and design consultancies for **118CD** and **119CD**. The proposed consultancy for **118CD** will commence in August 2002 for completion in October 2005; drainage improvement works are scheduled to start thereafter for completion by the end of 2009. The consultancy for **119CD** will start in September 2002 for completion in December 2005; drainage improvement works will start in early 2006 for completion by the end of 2009.

JUSTIFICATION

7. Owing to urban developments and extensive changes in land use in the Northern New Territories over the years, large tracts of natural ground have been paved over and become impermeable. Rainwater which would previously dissipate naturally through ground infiltration can no longer do so. This has led to significant increase in surface run-off and overloading of the existing drainage system and streamcourses. As such, many areas of Northern New Territories are susceptible to flooding during heavy rainstorms.

8. To tackle the flooding problem in Northern New Territories, we have planned and implemented a comprehensive drainage improvement programme in phases starting from the downstream end. Since 1995, we have started training of major downstream rivers including Shenzhen River, River Indus and River Beas. Following progressive completion of these major river training works, we carried out a drainage master plan study for Northern New Territories to assess the adequacy of the drainage capacity of upstream rivers and local drainage systems. Completed in October 1999, the study recommends implementation of a three-stage programme (namely packages A, B and C) of drainage improvement works to further alleviate the flooding problem in Northern New Territories.

/Package

Package A

9. Package A covers works for areas in San Tin North, Fanling and Sheung Shui with higher flooding risks. We have commenced the investigation consultancy in March 2002 for completion in November 2003 under **116CD** “Drainage improvement in Northern New Territories – package A – consultants’ fees and investigations”. Upon completion of the consultancy, we will carry out detailed design of the proposed works with a view to starting construction in late 2004 for completion by the end of 2008.

Packages B and C

10. Packages B and C cover works for Indus, Ganges and San Tin drainage basins, and are packaged geographically to facilitate implementation. Package B comprises the construction of drainage channels in San Tin South, Kwu Tung, Ma Tsao Lung and Fu Tei Au. Package C comprises the construction of drainage channels in Ta Kwu Ling, Man Uk Pin, Lung Yeuk Tau and Lin Ma Hang. The above drainage basins are now served by a number of natural streamcourses and man-made drainage systems. Due to the inadequate capacity of the existing streamcourses and drainage systems as well as the low-lying topography, many villages in these areas are susceptible to flooding. The proposed drainage improvement works will relieve the flooding problems and provide basic drainage infrastructure for future planned developments in the areas.

11. Due to lack of in-house staff resources, D of DS proposes to employ consultants to carry out site investigations and surveys, impact assessments and design for implementation of the proposed drainage improvement works under **118CD** and **119CD**.

FINANCIAL IMPLICATIONS

12. We estimate the costs of the proposed investigation and design consultancies to be \$15.1 million and \$15.4 million in MOD prices for **118CD** and **119CD** respectively (see paragraph 13 below), made up as follows –

/(a)

| | | \$ million | | |
|-----|---|-------------------|--------------|----------------------------|
| | | 118CD | 119CD | |
| (a) | Site investigations and surveys | 6.5 | 6.3 | |
| (b) | Consultants' fees | 7.6 | 8.0 | |
| | (i) supervision of site investigations and surveys | 0.9 | 0.9 | |
| | (ii) environmental studies | 0.9 | – | |
| | (iii) environmental impact assessment | – | 1.3 | |
| | (iv) traffic impact assessment | 0.6 | 0.6 | |
| | (v) heritage impact assessment | 0.3 | 0.3 | |
| | (vi) design (including preparation of tender documents and assessment of tenders) | 4.9 | 4.9 | |
| (c) | Contingencies | 1.3 | 1.4 | |
| | Sub-total | 15.4 | 15.7 | (in September 2001 prices) |
| (d) | Provision for price adjustment | (0.3) | (0.3) | |
| | Total | 15.1 | 15.4 | (in MOD prices) |

_____ A breakdown of the estimates for the consultants' fees by man-months is at Enclosure 3.

/13.

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

| Year | \$ million (Sept 2001) | | Price adjustment factor | \$ million (MOD) | |
|-------------|---------------------------|-------|-------------------------------|---------------------|-------|
| | 118CD | 119CD | | 118CD | 119CD |
| 2002 – 2003 | 0.6 | 0.5 | 0.98625 | 0.6 | 0.5 |
| 2003 – 2004 | 4.3 | 4.3 | 0.98378 | 4.2 | 4.2 |
| 2004 – 2005 | 4.7 | 4.6 | 0.98378 | 4.6 | 4.5 |
| 2005 – 2006 | 3.9 | 3.9 | 0.98378 | 3.8 | 3.8 |
| 2006 – 2007 | 1.9 | 2.4 | 0.98378 | 1.9 | 2.4 |
| | 15.4 | 15.7 | | 15.1 | 15.4 |

14. We have derived the MOD estimate on the basis of the Government's latest forecasts of trend construction prices for the period 2002 to 2007. We will tender out two separate lump-sum consultancy agreements for **118CD** and **119CD** respectively with provision for price adjustment as each agreement will exceed 12 months. The consultants will supervise the site investigations to be carried out by the Director of Civil Engineering's term contractors for geotechnical works, and the surveys to be carried out by other contractors.

15. The proposed investigation and design consultancies will not give rise to any recurrent expenditure.

PUBLIC CONSULTATION

16. We presented the proposed works under **118CD** to the San Tin Rural Committee and Town Planning and Development Committee of the Yuen Long District Council on 28 February 2002 and 13 March 2002 respectively. On 19 March 2002, we consulted the North District Council about the proposed works under both **118CD** and **119CD**. All supported the implementation of packages B and C works for drainage improvement in Northern New Territories.

/ENVIRONMENTAL

ENVIRONMENTAL IMPLICATIONS

17. The proposed consultancies for site investigations and surveys, impact assessments and design will not cause any adverse environmental impacts.

18. The construction works in package C under **119CD** are designated under Schedule 2 of the Environmental Impact Assessment Ordinance (EIA) (Cap. 499), and an environmental permit will be required for the construction and operation of this part of the project.

19. The proposed investigation and design consultancies will not generate construction and demolition (C&D) materials while the site investigations involved will only generate a minimal amount. We will fully consider measures to minimise the generation of C&D materials and to reuse/recycle C&D materials as much as possible during implementation of the construction works in future.

LAND ACQUISITION

20. The proposed investigation and design consultancies do not require any land acquisition but we need to obtain the consent of private lot owners for carrying out the investigations and surveys.

BACKGROUND INFORMATION

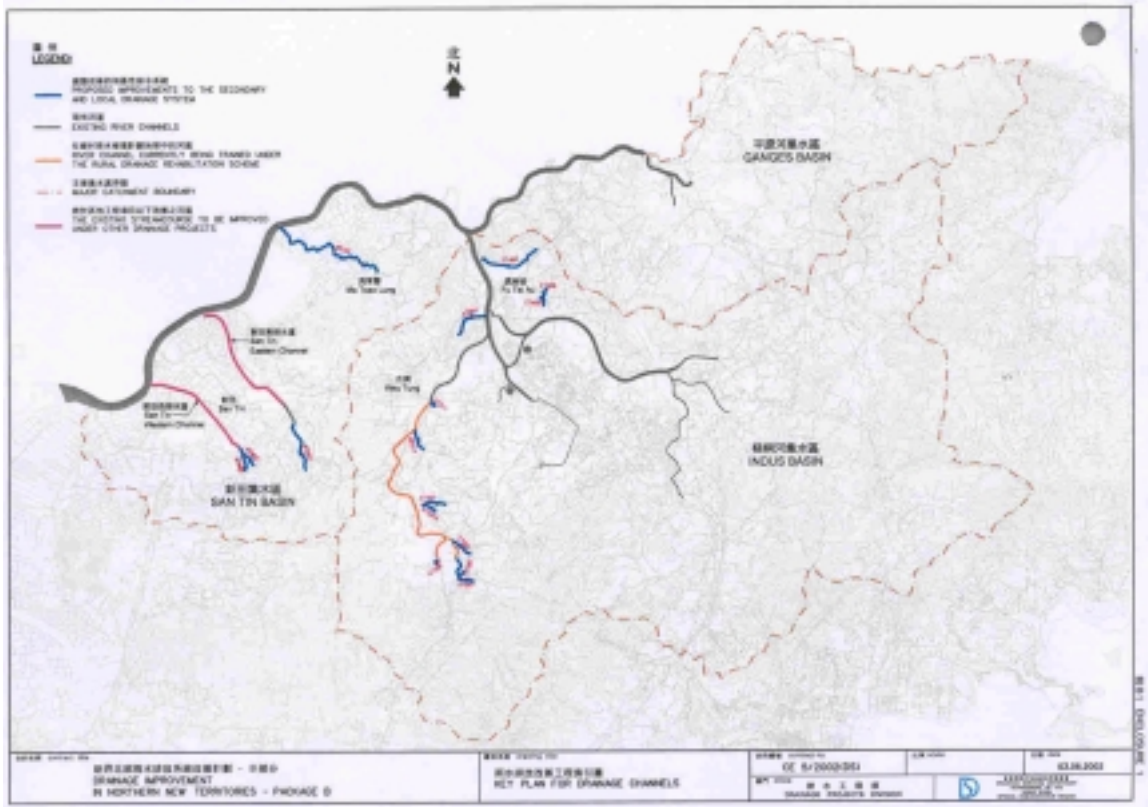
21. We commissioned the drainage master plan for Northern New Territories under **55CD** "Drainage master plan study in the Northern New Territories" in October 1997 and completed the study in October 1999. We included **112CD** "Drainage improvement in Northern New Territories – package A" in Category B in September 2000. The project is estimated to cost about \$686 million (in September 2001 prices). We included **118CD** "Drainage improvement in Northern New Territories – package B" and **119CD** "Drainage improvement in Northern New Territories – package C" in Category B in November 2001. The projects are estimated to cost \$349.3 million and \$344.4 million (in September 2001 prices) respectively.

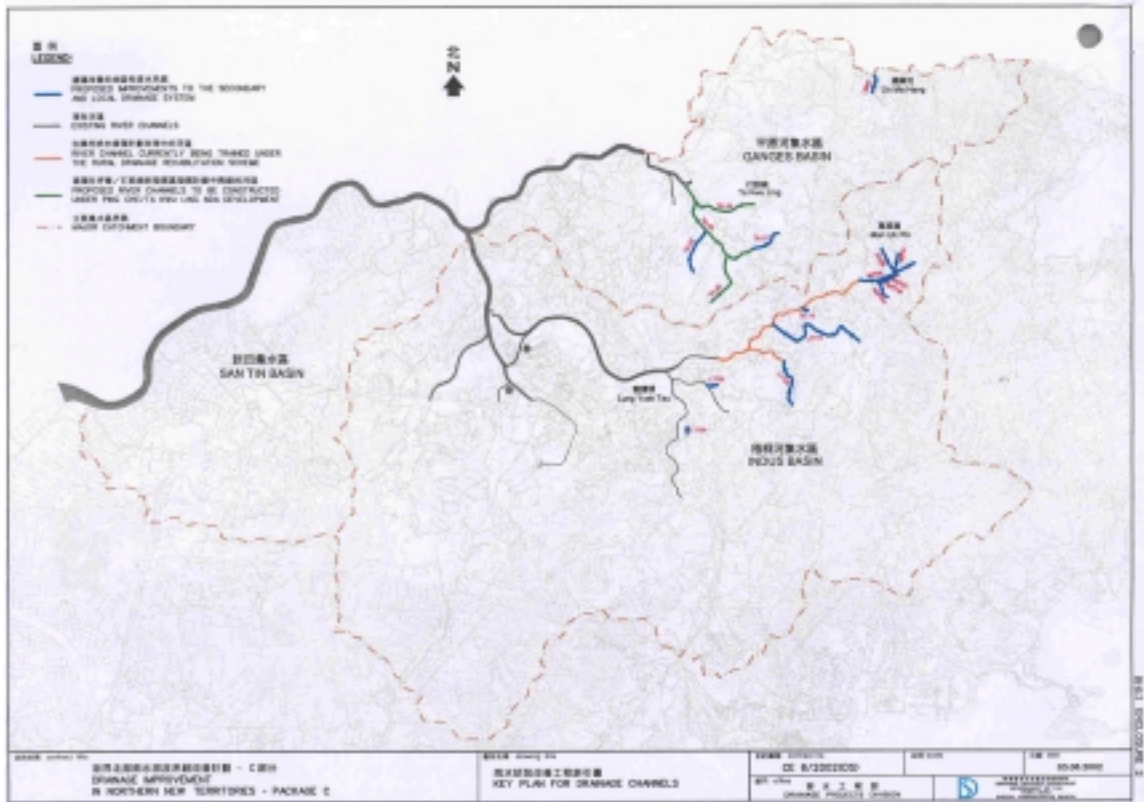
/22.

22. We estimate that the proposed investigation and design consultancies will create about 22 new jobs comprising 12 professional/technical staff and 10 labourers, totalling 480 man-months.

Works Bureau
June 2002

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| 圖則編號: 01/01 排水區劃分及排水系統改善計劃 - C區 DRAINAGE IMPROVEMENT IN NORTHERN NEW TERRITORIES - PHASE C | 圖則名稱: 排水系統改善工程圖則 KEY PLAN FOR DRAINAGE CHANNELS | 圖則編號: 01/01 日期: 01/2021 | 圖則編號: 01/01 日期: 01/2021 圖則名稱: 排水系統改善工程圖則 KEY PLAN FOR DRAINAGE CHANNELS |
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118CD – Drainage improvement in Northern New Territories – package B
119CD – Drainage improvement in Northern New Territories – package C

Breakdown of estimate for consultants' fees

118CD – Drainage improvement in Northern New Territories – package B

| Consultants' staff costs | | | Estimated man-months | Average MPS* salary point | Multiplier | Estimated fee (\$ million) |
|---------------------------------------|--|--------------|----------------------|---------------------------|------------|----------------------------|
| (a) | Supervision of site investigations and surveys | Professional | 4 | 38 | 2.4 | 0.6 |
| | | Technical | 6.5 | 14 | 2.4 | 0.3 |
| (b) | Impact assessments | Professional | 10.5 | 38 | 2.4 | 1.5 |
| | | Technical | 7 | 14 | 2.4 | 0.3 |
| (c) | Design (including preparation of tender documents and assessment of tenders) | Professional | 23 | 38 | 2.4 | 3.3 |
| | | Technical | 34 | 14 | 2.4 | 1.6 |
| Total consultants' staff costs | | | | | | 7.6 |

119CD – Drainage improvement in Northern New Territories – package C

| Consultants' staff costs | | | Estimated man-months | Average MPS* salary point | Multiplier | Estimated fee (\$ million) |
|---------------------------------------|--|--------------|----------------------|---------------------------|------------|----------------------------|
| (a) | Supervision of site investigations and surveys | Professional | 4 | 38 | 2.4 | 0.6 |
| | | Technical | 6.5 | 14 | 2.4 | 0.3 |
| Total consultants' staff costs | | | | | | 1.7 |

| | | | | | |
|--|--------------|----|----|-----|-----|
| | Technical | 9 | 14 | 2.4 | 0.5 |
| (c) Design (including preparation of tender documents and assessment of tenders) | Professional | 22 | 38 | 2.4 | 3.2 |
| | Technical | 37 | 14 | 2.4 | 1.7 |
| Total consultants' staff costs | | | | | 8.0 |

* MPS = Master Pay Scale

Notes

1. A multiplier of 2.4 is applied to the average MPS point to estimate the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultant's offices. (At 1.4.2001, MPS pt. 38 = \$60,395 per month and MPS pt. 14 = \$19,510 per month).
2. The figures given above are based on estimates prepared by the Director of Drainage Services. We will only know the actual man-months and actual fees when we have selected the consultants through the usual competitive fee bid system.