

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 701 – LAND ACQUISITION

**Subhead 1100CA - Compensation and ex-gratia allowances in respect of
projects in the Public Works Programme**

HEAD 704 – DRAINAGE

Civil Engineering – Drainage and erosion protection

90CD - Regulation of Shenzhen River, stage III

Members are invited to recommend to Finance
Committee -

- (a) the upgrading of **90CD** to Category A at an estimated total cost of \$563.7 million in money-of-the-day prices for implementing stage III works of the Shenzhen River regulation project to regulate the section of the Shenzhen River from Lo Wu to Lo Shue Ling; and
- (b) to authorise the Director of Lands to charge against **Head 701 Subhead 1100CA** special ex-gratia payments to registered landowners whose private lots are affected by the Shenzhen River regulation project but, due to the meandering of the River, are now situated within the River or on the north bank of the River in Shenzhen.

/PROBLEM

PROBLEM

Due to inadequate hydraulic capacity of the Shenzhen River (the River), the Northern New Territories and Shenzhen are susceptible to flooding during heavy rainstorms. We need to implement stage III of the Shenzhen River regulation project. We need to be authorised to offer ex-gratia payments to registered landowners whose private lots are now situated either within the River or on the north bank of the River in Shenzhen.

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for Works, proposes to upgrade **90CD** to Category A for implementing the stage III works of the Shenzhen River regulation project to regulate the section of the River from Lo Wu to Lo Shue Ling. The total estimated cost of the proposed works is \$563.7 million in money-of-the-day (MOD) prices.

3. The Director of Lands, with the support of the Secretary for Planning and Lands, proposes to charge against **Head 701 Subhead 1100CA** special ex-gratia payments to registered landowners whose private lots are affected by the Shenzhen River regulation project but, due to the meandering of the River, are now situated within the River or on the north bank of the River in Shenzhen. Details of the proposed special ex-gratia payments are set out in paragraphs 11 to 12 below.

PROJECT SCOPE AND NATURE

4. The Shenzhen River regulation project comprises three stages. Stage I (**24CD**) covers the realignment, widening and deepening of two stretches of the River at Lok Ma Chau and Liu Pok. Stage II (**31CD**) covers the widening and deepening of sections of the River from Lok Ma Chau bend to Deep Bay and from Lok Ma Chau bend to the Liu Pok bend. Stage III (**90CD**) covers the widening and deepening of the River from Lo Wu to Lo Shue Ling. A map showing the areas covered by stages I, II and III is at Enclosure 1.

5. The scope of works under **90CD** comprises –

- (a) reprovisioning of a border road about 1.9 kilometres (km) long at Yuen Leng Chai and upstream of Man Kam To and associated border security facilities;

/(b)

- (b) construction of a temporary security fence about 1.1 km long at the Nam Hang spoil disposal ground;
- (c) works including landscaping, slope, paving, drainage, archaeological and electrical and mechanical works, which are associated with or ancillary to the works under items (a) and (b) above;
- (d) improvement of about 4 km of the River from the confluence with River Indus at Lo Wu to the confluence with River Ganges at Lo Shue Ling;
- (e) reconstruction of the Lo Wu Railway Bridge, Lo Wu Old Pedestrian Bridge and Man Kam To Vehicular Bridges;
- (f) reassembling of the dismantled Lo Wu Railway Bridge for heritage preservation;
- (g) reconstruction and modification of railway tracks (about 0.5 km), and electricity, signaling and telecommunication facilities associated with Lo Wu Railway Bridge;
- (h) reprovisioning of the border fence at Lo Wu and Nam Hang;
- (i) reprovisioning of the Dongjiang Water Mains; and
- (j) ancillary drainage works, hydrological stations, landscaping works and reprovisioning works.

Works under items (a) to (c) above will be undertaken by the Government of Hong Kong Special Administrative Region (HKSAR) and the remaining items (d) to (j) above will be entrusted to the Shenzhen Municipal Government for implementation. Details of the entrustment arrangements are explained in paragraphs 19 and 20 below.

---- 6. The layout plan showing the proposed works is at Enclosure 2.

/JUSTIFICATION

JUSTIFICATION

Stage III works

7. Due to rapid developments in both the Northern New Territories and Shenzhen over the past decades, the hydraulic capacity of the River has become inadequate. This has increased the flooding risk in the catchment areas of the River. There is an urgent need to implement the Shenzhen River regulation project to reduce the risk of flooding.

8. As the River is the main outlet of the Northern New Territories stormwater catchment, the regulation project is the key element to resolve flooding problem in the area. With the completion of the stages I and II works, the River downstream of Lo Wu has attained the required drainage capacity of a 50-year return period¹. The extent and intensity of regional flooding around the regulated sections have been reduced substantially. We are now ready to proceed with stage III works, which will widen and deepen the River from Lo Wu up to Lo Shue Ling. Stage III works will bring the drainage capacity of this section of the River to the required standard and further alleviate the flooding problem in the areas concerned.

9. Stage III works will affect a number of facilities within the site, including the Lo Wu Railway Bridge, Lo Wu Old Pedestrian Bridge, Man Kam To Vehicular Bridges, the border road and border fence at Yuen Leng Chai and upstream of Man Kam To and a section of the twin Dongjiang Water Mains. We need to demolish or relocate/divert these facilities during construction and to re-construct them as part of the project. We will complete the necessary reprovisioning before removing the existing facilities to ensure that all the services would not be affected or disrupted. The Environmental Impact Assessment (EIA) for the project has assessed that the existing Lo Wu Railway Bridge is of historical value. We will reassemble the bridge as a monument at the bank of River Indus adjacent to the Lo Wu Station.

10. The EIA for the project has also identified and recommended that the Nam Hang Valley be used as disposal ground for uncontaminated spoil arising from the project. As a section of border road and border fence will be affected, we need to construct a temporary security fence to make the site available for spoil disposal and maintain border security in the area during construction.

/Special

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 rarer chance of occurrence of a more severe flooding.

Special ex-gratia payments

11. Due to the meandering of the River towards Hong Kong over the years, some 7 132.5 m² of private agricultural land registered in the North New Territories Land Registry are now situated either within the River or on the north bank of the River in Shenzhen. These comprise 6 567.4 m² and 565.1 m² of land required respectively for the stage III drainage works and ancillary road works. As advised by the Department of Justice, we cannot resume land in the River, which is tidal, as the former legal title thereto has been extinguished, and the Lands Resumption Ordinance cannot be applied outside Hong Kong. We therefore do not have a mandate to pay statutory compensation to the registered owners of these land which will be affected by the stage III works of the Shenzhen River regulation project.

12. To overcome the technical problems caused by the meandering of the River, we propose that special ex-gratia payments at the standard zonal rate be made to the registered landowners of the 7 132.5 m² of land mentioned in paragraph 11 above even though we are not legally bound to do so. This will be at the same rate as the other lots to be resumed, and will result in these registered landowners receiving payments equivalent to their legal entitlement had the River not changed course. The estimated amount of the proposed special ex-gratia payments is \$7.17 million, as split below -

	\$ million
(a) Land within Shenzhen River 3 140.8 m ²	3.16
(b) Land on the north bank of the River in Shenzhen 3 991.7 m ²	4.01
Total	<u>7.17</u>

This is in line with the previous arrangements in the implementation of the stages I and II works of the Shenzhen River regulation project. We believe that this will facilitate a smooth land resumption and avoid delay to the clearance exercise.

/FINANCIAL

FINANCIAL IMPLICATIONS

13. The Joint Working Group² agreed in July 2000 that while funding for regulating the River should be equally shared between the two governments, the provision of land, demolition or relocation/diversion/reprovisioning of border security facilities, railway and associated facilities affected within their own territory will be funded by the respective government.

14. We estimate the capital cost of the proposed works funded by the Government of the HKSAR to be \$563.7 million in MOD prices. A breakdown of the cost is as follows –

	\$ million
(a) Works to be funded solely by the HKSAR Government	134.9
(i) Reprovisioning of a border road and associated border security facilities	73.2
(ii) Construction of a temporary security fence	8.1
(iii) Landscaping, slope, paving, drainage archaeological and electrical and mechanical works	35.6
(iv) Reconstruction and modification of railway tracks and associated works	7.3
(v) Environmental mitigation measures	5.7

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² In September 1992, a Joint Working Group was set up between the Government of the HKSAR and the Shenzhen Municipal Government to oversee the implementation of the regulation of Shenzhen River.

	\$ million
(vi) Environmental monitoring and audit ³	5.0
(b) Works to be funded jointly by the HKSAR Government and the Shenzhen Municipal Government on an equal sharing basis (figures only reflect the HKSAR Government's share of the cost)	378.0
(i) Improvements to the River	249.9
(ii) Reconstruction of Lo Wu Railway Bridge, Lo Wu Old Pedestrian Bridge and Man Kam To Vehicular Bridges	41.9
(iii) Reassembling of the Lo Wu Railway Bridge	1.5
(iv) Reprovisioning of border fence at Lo Wu and Nam Hang	7.6
(v) Reprovisioning of the Dongjiang Water Mains	8.9
(vi) Ancillary drainage, hydrological stations, landscaping and reprovisioning works	22.3
(vii) Environmental mitigation measures	15.3
(viii) Environmental monitoring works	6.5

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³ The estimated cost for environmental monitoring and auditing comprises \$2.1 million for consultants' fee (see breakdown by man-months at Enclosure 3) and \$2.9 million for conducting environmental monitoring on site.

		\$ million	
(ix)	Contract management and supervision ⁴	23.0	
(x)	Consultants' fees for construction stage ⁵	1.1	
(c)	Contingency	46.1	
	Sub-total	559.0	(in September 2001 prices)
(d)	Provision for price adjustment	4.7	
	Total	563.7	(in MOD prices)

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

Year	\$ million (Sept 2001)	Price Adjustment factor	\$ million (MOD)
2001 – 2002	4.9	1.00000	4.9
2002 – 2003	116.8	0.99700	116.4
2003 – 2004	181.3	1.00398	182.0
2004 – 2005	124.4	1.01101	125.8
2005 – 2006	71.8	1.01808	73.1

/2006

⁴ The estimated total cost of contract management and supervision is \$46.0 million i.e. 6.5% of the total cost of the entrusted works excluding environmental monitoring works. Our share of the cost is \$23.0 million in September 2001 prices.

⁵ The total consultants' fees for the design of the river improvement works is \$7.28 million of which \$2.2 million is for professional services during the construction stage. Hence, our share of the cost is \$1.1 million.

Year	\$ million (Sept 2001)	Price Adjustment factor	\$ million (MOD)
2006 – 2007	43.1	1.02521	44.2
2007 – 2008	12.9	1.03239	13.3
2008 – 2009	3.8	1.03961	4.0
	559.0		563.7

16. We have derived the MOD estimate on the basis of the Government's latest forecast of trend labour and construction prices for the period 2001 to 2009.

17. We will award fixed-price lump-sum contracts for the border road works and temporary security fence to be undertaken by the Government of the HKSAR because the scope of works is well defined. The Shenzhen Municipal Government will also arrange for the three river improvement works contracts to be awarded through a competitive bidding basis. There will be price adjustments in the contract for border road works but not for the temporary security fence as the construction period of the security fence does not exceed 21 months. As there is no price adjustment factor that can be applied in common to both HKSAR and Shenzhen, we have agreed with the Shenzhen Municipal Government that there will be no price adjustments in the cross-border river improvement works contracts to avoid contractual difficulties and disputes.

18. We have agreed with the Shenzhen Municipal Government that each side will be responsible for the maintenance of its own embankment and associated structures, while future maintenance including dredging of the river channel will remain a joint undertaking. The total additional annual recurrent expenditure to be borne by the Government of the HKSAR will be \$3.9 million.

ENTRUSTMENT ARRANGEMENTS

19. Since the proposed river improvement works and the associated reconstruction of cross boundary facilities straddle Hong Kong and Shenzhen, it is

/neither

neither practicable nor cost-effective for each side to implement separately those works falling within its own territory. Taking into account the problems associated with access to the site, the existing usage and management of the River, and the effectiveness of contract administration, we have agreed to entrust the proposed works in paragraphs 5(d) to 5(j) above to the Shenzhen Municipal Government for implementation. The Shenzhen River Regulation Office (the Office) of the Shenzhen Municipal Government will take up the role of the contract employer and be responsible for inviting tenders for the works contracts on the basis of tender documents agreed between the Government of the HKSAR and the Shenzhen Municipal Government. Qualified contractors of both sides will be invited to submit tenders for the works contracts. The Office will also be responsible for supervising the works and carrying out environmental monitoring and audit during construction. The works contracts will be subject to overall control and monitoring by the Joint Working Group. Works under stages I and II have been smoothly completed under similar arrangements.

20. The proposed works to be entrusted to the Shenzhen Municipal Government will be implemented in three construction contracts. We will work out three entrustment agreements with the Shenzhen Municipal Government and sign the agreement before the award of each works contract. The entrustment agreements will set out the duties and obligations of each side, and arrangements on funding, financial control, contract management, site security and payments.

PUBLIC CONSULTATION

21. We presented the proposed works to the North Provisional District Board (now the North District Council) on 5 August 1999. Members of the Provisional District Board supported the proposal.

22. We consulted the LegCo Panel on Planning, Lands and Works on 5 February 2001. The Panel supported implementation of the proposed works.

23. We gazetted the works under Foreshore and Sea-bed (Reclamations) Ordinance, Railways Ordinance, and Roads (Works, Use and Compensation) Ordinance on 21 July 2000, 19 January 2001 and 16 February 2001 respectively. We also gazetted an amendment under the Roads (Works, Use and Compensation) Ordinance on 20 April 2001 to amend the lot designation and area to be resumed in the Draft Resumption Plans. We received one objection to the works under the Roads (Works, Use and Compensation) Ordinance. The objection was raised on the ground of the potential adverse impact of the proposed works on the ecological habitats. It was withdrawn in June 2001 after we had provided the

/objector

objector more details on the assessment of the potential environmental impacts and proposed mitigation measures. We would provide the objector with further information on the implementation of environmental mitigation measures during the construction period. No objection has been received under the other ordinances. The works were authorized by the Chief Executive under the Foreshore and Sea-bed (Reclamations) Ordinance in October 2000, and Secretary for Transport under the Railways Ordinance and Roads (Works, Use and Compensation) Ordinance in April and July 2001 respectively.

ENVIRONMENTAL IMPLICATIONS

24. The project is a designated project under Schedule 2 of the EIA Ordinance and an environmental permit is required for the construction and operation of the project. In June 2000, the EIA report for the project was approved under the EIA Ordinance. The EIA report concluded that the environmental impact of the project could be controlled to within the criteria under the EIA Ordinance and the Technical Memorandum on EIA Process. The Shenzhen Municipal Government and the Government of the HKSAR shall implement the measures recommended in the approved EIA report. Ecological mitigation measures are one of the key recommendations under EIA report, which involve the compensation for the loss of fishponds and wetland due to the river training works. We will reinstate the affected fishponds within the site, restore river meanders, plant trees within the site and carry out environmental monitoring and audit.

25. For the part of the project undertaken solely by the Government of the HKSAR, we estimate that about 70 000 cubic metres (m^3) of construction and demolition (C&D) materials will be generated. Of these, about 40 000 m^3 (57%) will be reused on site, 21 000 m^3 (30%) of inert C&D materials reused as fill in public filling areas⁶ and about 9 000 m^3 (13%) of C&D waste disposed of at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$1.125 million for this project (based on a notional unit cost⁷ of \$125/ m^3).

/26.

⁶ 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.

⁷ 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 the existing ones are filled. The notional cost estimate is for reference only and does not form part of the project estimate.

26. We have considered in the planning and design stages measures to reduce the generation of C&D materials as far as possible. We will require the contractors to submit a waste management plan (WMP) to the Engineer of the contracts for approval. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle of C&D materials. We will ensure the day-to-day operations on site comply with the WMP submitted. We will require the contractors to reuse the excavation materials as filling material on site or on other construction sites as far as possible to minimise disposal to public filling facilities. We will also require the contractors to break down any over-sized fill/C&D materials to less than 250 mm in size so as to facilitate their reuse. To further minimise the generation of C&D materials, we will encourage the contractors to use non-timber formwork and recyclable materials for temporary works. We will control the disposal of public fill and C&D waste to designated public filling facilities and landfills respectively 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.

27. For the part of the project entrusted to the Shenzhen Municipal Government, we estimate that about 2 million m³ of materials will be excavated from the River. Of these, about 1.8 million m³ is uncontaminated and 0.2 million m³ is contaminated. For the uncontaminated spoil, we will reuse about 0.4 million m³ (20%) on site and dispose of about 0.4 million m³ (20%) in Nam Hang Valley and about 1 million m³ (50%) in Neilingding in Mainland waters respectively. Under present planning, we will dispose of the contaminated spoil (10%) at East Sha Chau. Currently, the Shenzhen Municipal Government is seeking to develop a contaminated spoil disposal site in the Mainland to accommodate half (0.1 million m³) of the contaminated spoil excavated from the river. If the disposal ground in the Mainland can be made available on time, the contaminated spoil to be disposed of at East Sha Chau would be reduced.

LAND ACQUISITION

28. We have agreed with the Shenzhen Municipal Government that each side shall be responsible for the acquisition and clearance of land required for the project within its own territory, including the associated costs. We will resume 180 856.9 square metres (m²) of private agricultural land and clear 283 888 m² of Government land for the proposed works. The cost of land acquisition and clearance for the project is estimated to be about \$240 million comprising \$191 million for resumption of land and \$49 million for clearance, and will be met from **Head 701 - Land Acquisition**. Out of the total land clearance cost, \$7.17 million will be set aside for proposed special ex-gratia payments to the affected registered landowners whose lots are situated either

/within

within the River or on the north bank of the River in Shenzhen (see paragraphs 11-12 above). Furthermore, we will create a right of temporary occupation over a strip of land of about 2 000 m² within the vested area of Kowloon-Canton Railway Corporation to facilitate reprovisioning of the existing Lo Wu Railway Bridge.

BACKGROUND INFORMATION

Stage I

29. In October 1993, we created a Category D project **63CD** "Regulation of Shenzhen River stages I and II – preparatory works" at an approved project estimate of \$6.6 million to fund the Hong Kong Government's share of land survey for the stage I works, site investigation and hydraulic model test for the Lo Wu rail-bridge, and an environmental impact assessment study for the stages I and II works.

30. In January 1995, we upgraded **24CD** "Regulation of Shenzhen River, stage I – improvement to the river bends at Lok Ma Chau and Liu Pok" to Category A at an estimated cost of \$188 million in MOD prices for implementing the stage I works. We started the works in May 1995 and completed the works in May 1997.

Stage II

31. In October 1995, we started the preparatory works for stage II under block allocation Subhead **4006DX**⁸ "Consultants' design fees and charges and major in-house investigations for drainage projects". The works included site survey and hydrological data collection to facilitate detailed design of the works. We also commissioned a design consultancy in April 1996 under Subhead **4100DX** to carry out detailed design, site investigation and hydraulic model tests. The cost of these works was shared equally by both sides and our share of the cost was estimated to be \$9.5 million.

32. In July 1996, we upgraded **44CD** "Regulation of Shenzhen River, stage II, phase I – reprovisioning of border road between Lok Ma Chau and Tam Kon Chau" to Category A at an estimated cost of \$200 million in MOD prices for implementing the stage II advance works. We started the works in November 1996 and completed the works in November 1998.

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⁸ Subhead **4006DX** was combined with other block allocation subheads under **Head 704** to form **Subhead 4100DX** "Drainage works, studies and investigations for items selected in Category D of the Public Works Programme" in 1996-97.

33. In March 1997, we upgraded **31CD** "Regulation of Shenzhen River stage II, phase II – improvement to river sections between Liu Pok and Lok Ma Chau and from Lok Ma Chau to estuary" to Category A at an estimated cost of \$526 million in MOD prices for implementing the stage II works. We started the works in May 1997 and completed the works in June 2000.

Stage III

34. In February 1997, a Preliminary Project Feasibility Study Report confirmed the need to implement stage III works. In August 1997, we upgraded **90CD** "Regulation of Shenzhen River, Stage III" to Category B.

35. In December 1997, we started the preparatory works for stage III funded under a Category D item "Regulation of Shenzhen River, stage III – consultancy fees and investigations" at an approved project estimate of \$14.2 million. The works included hydrological data collection, topographic survey, EIA study, hydraulic modelling, and site investigations. Both sides equally shared the cost of these works.

36. The stage III works will affect a section of the existing border fence near the Lo Wu Station. To provide adequate working space for the construction work and to maintain security, temporary security fence needs to be constructed beforehand. This temporary security fence will maintain the normal security functions until the affected border fence at Lo Wu is reprovided under stage III. The construction of the temporary security fence, funded under a Category D item "Regulation of Shenzhen River stage III – temporary security fences at Lo Wu" at an estimated cost of \$4.71 million, commenced in August 2001 for completion in April 2002.

37. We have substantially completed the detailed design of the proposed works. The Shenzhen Municipal Government and the Government of the HKSAR have invited tenders for the first (of three) construction contract of the proposed river improvement works and the contract for the construction of the temporary security fence at Nam Hang in September and November 2001 respectively. Subject to funding approval, we plan to start the proposed works in December 2001 for completion in August 2005.

38. We estimate that the project (including works to be undertaken by the Government of the HKSAR and works to be entrusted to the Shenzhen Municipal Government) will create a total of some 280 jobs, comprising 50 professional/technical staff and 230 labourers, totalling 6 820 man-months.

Works Bureau
Planning and Lands Bureau
November 2001

(pwsc90cdv7.doc)

90CD – Regulation of Shenzhen River, stage III

Breakdown of the estimates for the consultants' fees for environmental monitoring and auditing

Consultants' staff costs		Estimated man-months	Average MPS* salary point	Multiplier	Estimated fee (\$ million)
Planning, supervising and reporting on environmental monitoring and auditing	Professional	12	38	2.4	1.7
	Technical	8	14	2.4	0.4
Total consultants' staff costs					2.1

* 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 consultants' offices. (As 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 lump sum fee bid system.

