

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 705 – CIVIL ENGINEERING Civil Engineering – Land Development 703CL – Development of EcoPark in Tuen Mun Area 38

Members are invited to recommend to Finance Committee the upgrading of **703CL** to Category A at an estimated cost of \$319.1 million in money-of-the-day prices for developing the EcoPark in Tuen Mun Area 38.

PROBLEM

The timely completion of the proposed EcoPark is instrumental to jump start a circular economy in the Government's efforts to tackle the urgent and serious waste problems in Hong Kong.

PROPOSAL

2. The Director of Environmental Protection (EPD), with the support of the Secretary for Environment, Transport and Works, proposes to upgrade **703CL** to Category A at an estimated cost of \$319.1 million in money-of-the-day (MOD) prices for developing the EcoPark in Tuen Mun Area 38.

/PROJECT

PROJECT SCOPE AND NATURE

3. The scope of **703CL** comprises –
- (a) the construction of the common infrastructure including –
 - (i) site formation for the EcoPark;
 - (ii) internal roads, drains and sewers;
 - (iii) water supply, power supply, fire service installations, and other utilities;
 - (iv) waste collection and wastewater treatment/pumping facilities;
 - (v) marine loading/unloading areas and cargo handling facilities;
 - (vi) an Administration Building and other buildings/ancillary facilities for management and recycling operations;
 - (vii) green features, fencing and landscaping; and
 - (viii) associated road junctions improvement, and traffic management measures.
 - (b) Implementation of environmental monitoring and mitigation measures for the works mentioned in item 3(a) above.

4. The EcoPark occupies 20 hectares of land in Tuen Mun Area 38 and will be developed in two phases. Phase I, with an area of about 8 hectares, will be commissioned towards the end of 2006 and Phase II in 2009. A site plan showing the location of the proposed EcoPark project is at Enclosure 1.

JUSTIFICATION

5. In the document “A Policy Framework for the Management of Municipal Solid Waste” (the Policy Framework), the Government has mapped out a strategy on waste management that places emphasis on waste reduction and recovery. With the measures to promote waste recovery, recycling and reuse in place, we need a robust recycling industry locally to handle the increasing amount of recyclables that we will be able to recover. Hong Kong currently recycles 40% of

its municipal solid waste (MSW), but over 90% of locally recovered recyclable materials are exported for further re-processing while less than 10% are treated locally and re-manufactured into useful products.

6. The EcoPark is a key element described in the Policy Framework to provide an outlet for locally recovered materials and alleviate the heavy reliance on the export of these recyclable materials. In particular, the EcoPark would encourage the development of value-added environmental and recycling technologies that help minimise waste generation or turn locally recovered materials into products for material conservation. While the EcoPark will cater for the processing of the most common recyclable materials collected in Hong Kong, priority will be given to the recyclable materials that are targets of the proposed Producer Responsibility Schemes¹ and other materials that are, otherwise, difficult to recycle. We anticipate that the EcoPark will be able to handle a significant percentage of these target materials such as rubber tyres, Polyethylene Terephthalate (PET) bottles and waste electrical and electronic equipment. Projected throughputs of some of these target materials processed in the EcoPark are given in Enclosure 2.

7. The EcoPark should be equipped with the essential facilities so that recyclers are willing to make long term investment in technologies and machinery. Based upon our consultation with the recycling trade, it is proposed that the basic infrastructure should include an internal access road, utilities, a wastewater treatment facility, an administration building with conference facilities and marine berths. The site will be divided into lots of different sizes for tenancy to cater for different specific recycled products or recycling processes. An operator will be appointed to manage and maintain the infrastructure as an agent of the Government. Opportunities are also taken to use as much as possible recycled construction materials and green features in infrastructure design so that the EcoPark will be an icon for promoting local recycling industry.

FINANCIAL IMPLICATIONS

8. We estimate the cost of the proposed works to be \$319.1 million in MOD prices (see paragraph 9 below), made up as follows –

¹ Producer Responsibility Scheme (PRS) is a shared responsibility tool to enhance recovery, recycling and reuse of waste. Under PRS, a host of stakeholders (including the manufacturers, importers, distributors, retailers and consumers) are held responsible for the collection, treatment, recycling and environmentally sound disposal of the end-of-life products.

/(a)

		\$ million
(a)	Site formation	74.4
(b)	Internal roads, drains and sewers	46.5
(c)	Water supply, power supply, fire service installations, and other utilities	23.7
(d)	Waste collection and wastewater treatment/pumping facilities	25.1
(e)	Marine loading/unloading areas and cargo handling facilities	3.1
(f)	Administration Building and other buildings / ancillary facilities for management and recycling operations	54.5
(g)	Green features, fencing and landscaping	14.3
(h)	Associated road junctions improvement, traffic management measures	7.6
(i)	Consultants' fees for	35.0
	(i) Contract administration	0.7 34.3
	(ii) Site supervision	
(j)	Environmental monitoring and mitigation measures	4.3
(k)	Contingencies	28.9
	Sub-total	317.4
		(in September 2005 prices)
(e)	Provision for price adjustment	1.7
	Total	319.1
		(in MOD prices)

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

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

Year	\$ million (Sept 2005)	Price adjustment factor	\$ million (MOD)
2006 – 2007	90.0	1.00125	90.1
2007 – 2008	48.5	1.00125	48.6
2008 – 2009	10.0	1.00125	10.0
2009 – 2010	80.0	1.00125	80.1
2010 – 2011	88.9	1.01627	90.3
	—————		—————
	317.4		319.1
	—————		—————

10. We have derived the MOD estimates on the basis of the Government's latest forecast of trend rate of change in prices of public sector building and construction output for the period 2006 to 2011. We will tender the proposed construction works under a standard remeasurement contract because of uncertainties associated with drainage works, underground utilities and foundations. The contract will provide for price adjustments as the contract period will exceed 21 months.

11. We estimate the annual recurrent expenditure arising from this project to be about \$10.7 million.

PUBLIC CONSULTATION

12. We consulted the Environmental, Hygiene & District Development Committee under Tuen Mun District Council in November 2004, March and November 2005. At its meeting on 18 November 2005, the Committee

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supported the development of the EcoPark and hoped that the EcoPark would help promote the development of local recycling industry and create job opportunities in Tuen Mun.

13. Following the endorsement of the Environmental Impact Assessment (EIA) report by the EIA Sub-committee of the Advisory Council on the Environment (ACE) in May 2005, the ACE at its meeting on 13 June 2005 gave full support to the development of the EcoPark and considered it an important move as an integral part of the waste management strategy.

14. Local trade associations and recyclers were also consulted and they supported the development of the EcoPark. They agreed that by providing long-term land at affordable cost, together with supporting infrastructure, the EcoPark would help enhance recycling technology development and improve waste recovery rates in Hong Kong.

15. We consulted the Legislative Council Panel on Environmental Affairs on the proposed works at the meeting on 15 December 2005. Members raised no objection to the proposed works, and requested more information on targetted percentages of waste recovery. We have included the information at Enclosure 2.

16. The Town Planning Board has agreed to the re-zoning of the EcoPark site in Tuen Mun Area 38 as Other Specified Uses (Resource Recovery Park). The proposed change in zoning was gazetted under the Town Planning Ordinance on 2 December 2005.

ENVIRONMENTAL IMPLICATIONS

17. The EcoPark is a designated project under the Environmental Impact Assessment (EIA) Ordinance. An EIA was carried out in respect of air quality, water quality, waste management, land contamination, landfill gas hazard, hazard to life, landscape and visual, in which a wide range of recycling processes for different material types were examined. The assessment recommended a list of materials and processes to be allowed and also recommended a number of mitigation measures. With the implementation of the recommended mitigation measures and the

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environmental monitoring and audit programme, the environmental impact of the project can be controlled to within the standards under the EIA Ordinance and the Technical Memorandum on EIA Process. The EIA report for the project was approved under the EIA Ordinance on 29 June 2005. An environmental permit for the construction and operation of the project was obtained on 9 September 2005. We will ensure that the recommendations of the EIA are adhered to. We have included in the project estimate \$4.3 million in September 2005 prices for the implementation of environmental monitoring and mitigation measures.

18. We have considered the use of suitable excavated materials for filling within the site in the planning and design stages to reduce the generation of construction and demolition (C&D) materials where possible. 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.

19. 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, C&D materials and C&D waste to public fill reception facilities, sorting 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.

20. We estimate that the project will generate about 54 000 tonnes of C&D materials. Of these, we will reuse about 53 100 tonnes (98.3%) on site, deliver nil to public fill reception facilities² as all inert C&D materials will be reused on site and nil to sorting facilities as sorting can be carried out on site. In addition, we will dispose of 900 tonnes (1.7%) at landfills. The total cost for accommodating C&D

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materials at landfill sites is estimated to be \$112,500 for this project (based on a unit

² Sorting facilities and public fill reception facilities are specified in Schedule 3 and Schedule 4 respectively 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.

cost of \$125/tonne for disposal³ at landfills).

LAND ACQUISITION

21. The proposed EcoPark does not require land acquisition.

BACKGROUND INFORMATION

22. The project was upgraded to Category B in November 2002.

23. In April 2005, we engaged consultants to undertake the detailed design for the project at a cost of \$4.8 million in MOD prices. We have charged this amount to block allocation **5101DX** "Environmental works, studies and investigations for items in Category D of the Public Works Programme".

24. The proposed works will involve removal of scrub and trees which have grown within the project area since it was formed. All trees to be removed are not important trees⁴. We will incorporate a planting and landscaping proposal as part of the project, including estimated quantities of about 540 trees and 135 000 shrubs.

25. We estimate that the proposed works will create about 200 jobs (160 for labourers and another 40 for professional/technical staff) during construction

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providing a total employment of 4 800 man-months. About 750 permanent jobs

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/m³), nor the cost to provide new landfills, (which is likely to be more expensive) when the existing ones are filled.

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 round level).

(590 for labourers and another 160 for management/technical staff) would be created upon full commissioning.

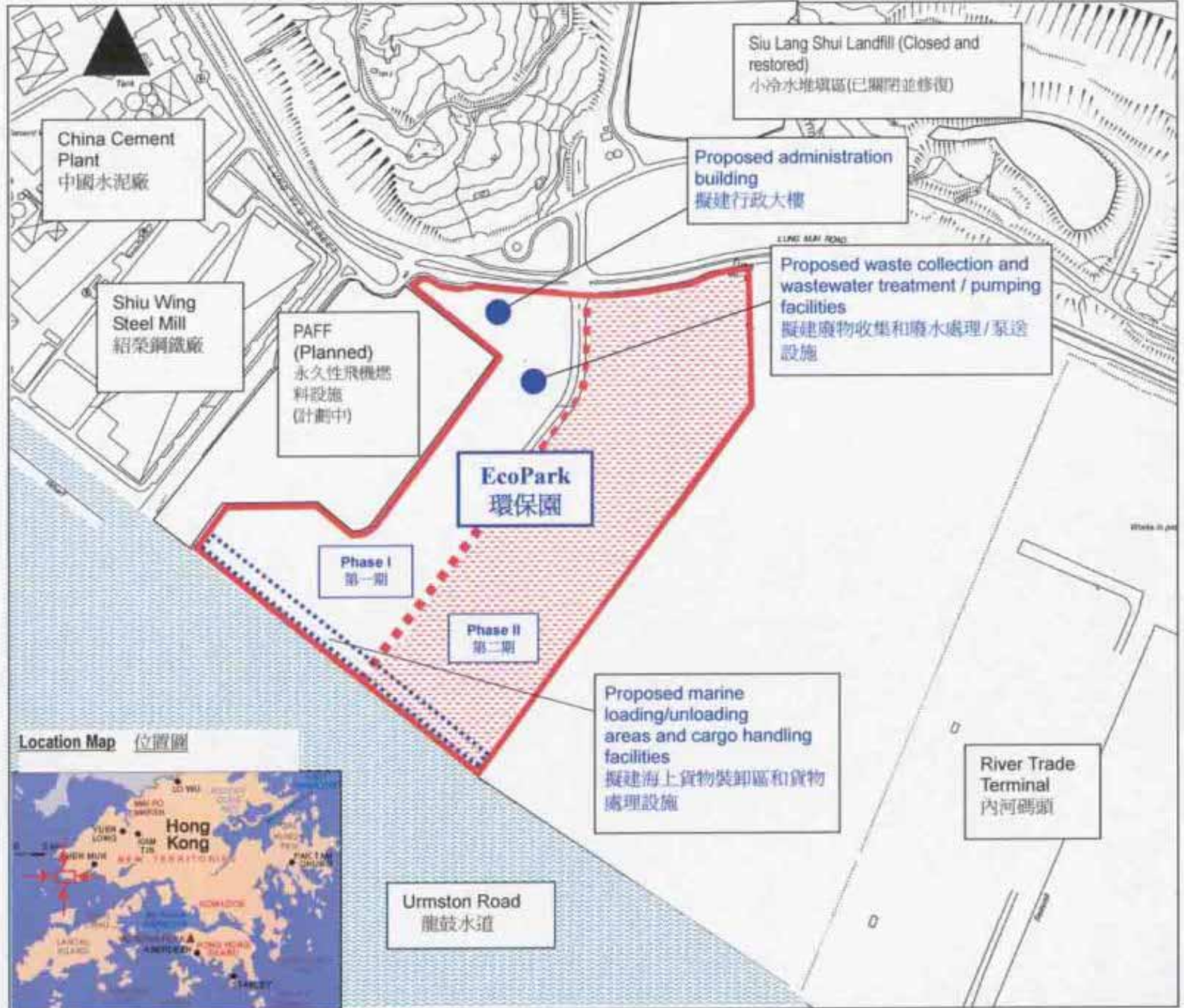
Environment, Transport and Works Bureau
February 2006

Location of the Proposed EcoPark in Tuen Mun Area 38
 位於屯門 38 區建議中的環保園

Enclosure 1 to PWSC(2005-06) 49
 PWSC (2005-06) 49 附件 1

Key 圖例

-  EcoPark (Phase I)
環保園 (第一期)
-  EcoPark (Phase II)
環保園 (第二期)



703CL – Development of EcoPark in Tuen Mun Area 38

Projected throughputs of some target locally generated recyclable wastes to be processed in EcoPark

Material	Estimated Waste Generation in 2004 (tonnes per year)		Projected Throughput in EcoPark (tonnes per year)	Percentage
	<i>Disposal at landfills</i>	<i>Recovered</i>		
PET bottles	49,400		25,000	51%
	48,300	1,100		
Rubber tyres	18,400		15,000	82%
	13,500	4,900		
Waste electrical and electronic equipment (WEEE)	55,700		15,000	27%
	18,400	37,300		
Expanded polystyrene (EPS) packaging	15,400		3,500	23%
	15,400	<i>Insignificant</i>		
Rechargeable batteries	250		100	40%
	250	<i>Insignificant</i>		

703CL – Development of EcoPark in Tuen Mun Area 38

Breakdown of the estimates for consultant's fees

Consultants' staff cost		Estimated man-months	Average MPS* salary Point	Multiplier (Note 1)	Estimated fee (\$ million)
(a) Contract administration (Note 2)	Professional	–	–	–	0.2
	Technical	–	–	–	0.5
(b) Site supervision by resident site staff of the consultants (Note 3)	Professional	225	38	1.6	19.5
	Technical	512	14	1.6	14.8
				Total	35.0

*MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants (As at 1 January 2005, MPS Pt. 38 = \$54,255 per month and MPS Pt. 14 = \$18,010 per month).
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction for **703CL**. The construction phase of the assignment for this project will only be executed subject to Finance Committee's approval to upgrade **703CL** to Category A.
3. We will only know the actual man-months and actual fees after completion of the project.