For discussion **PWSC(2011-12)8**
on 18 May 2011

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 705 – CIVIL ENGINEERING
Environmental Protection – Refuse Disposal
174DR – Refurbishment and modification of Island West transfer station

Members are invited to recommend to the Finance Committee the upgrading of **174DR** to Category A at an estimated cost of $99.7 million in money-of-the-day prices for the refurbishment and modification of the Island West transfer station associated with its continued operation upon the expiry of the existing contract.

PROBLEM

The Island West transfer station (IWTS) was commissioned in 1997 to serve as a waste reception facility on the Hong Kong Island and to transfer waste collected to the West New Territories (WENT) Landfill for final disposal. We need to carry out some refurbishment and modification works to maintain its operation efficiency for the service.

PROPOSAL

2. The Director of Environmental Protection, with the support of the Secretary for the Environment, proposes to upgrade **174DR** to Category A at an estimated cost of $99.7 million in money-of-the-day (MOD) prices for the refurbishment and modification of the IWTS associated with the continuation of the IWTS operation upon the expiry of the existing contract.

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PROJECT SCOPE AND NATURE

3. The scope of the project comprises design and construction of the following works –

(a) improvement works for the cavern, station access roads and building façade;

(b) enhancement and upgrading of wastewater treatment system;

(c) enhancement and upgrading of ventilation and air-scrubbing systems;

(d) replacement of mechanical waste compactors;

(e) refurbishment and modification of electrical and mechanical equipment; and

(f) landscaping works.

The proposed works are to be carried out at the IWTS and its location plan is at Enclosure 1. The works items are illustrated in Enclosure 2. Subject to the funding approval of the Finance Committee, we plan to commence the proposed works by May 2012 for completion in mid-2013, except for the mechanical waste compactors under paragraph 3(d) which are planned for replacement in 2018-19. During the implementation of the proposed works, the normal operation of the IWTS and the waste transfer service will be maintained.

JUSTIFICATION

4. At present, the IWTS in Kennedy Town and the Island East transfer station (IETS) in Chai Wan are serving as the waste reception facilities on Hong Kong Island. About 520 tonnes per day of municipal solid waste (MSW) collected from the Central and Western District and part of the Southern District are delivered to the IWTS for compaction and containerisation, followed by marine transfer to the WENT Landfill for disposal. The IWTS was originally built under **5060DR** "Island West refuse transfer station", with an approved project estimate of $789.42 million in MOD prices. The waste handling facilities of the IWTS were specially designed to be housed inside a cavern to minimize impact on the surroundings. The IWTS, commissioned in May 1997, has been facilitating bulk transfer of MSW in an environmentally acceptable manner, which has greatly

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reduced the traffic and environmental impact. As the existing 15-year contract for the operation of the IWTS will expire on 30 April 2012, a feasibility study was commissioned in March 2010 to review the operation of the IWTS and to formulate the follow-on contract arrangements. The study has confirmed that continual operation of the IWTS is necessary and crucial for efficient transfer of MSW arising from Hong Kong Island to the disposal facilities.

5. To enable the IWTS to continue with its waste transfer service after 15 years of operation, some refurbishment and modification works are required to maintain its operational efficiency. For example, we propose to replace the mechanical waste compactors when they approach the end of their usable life. Opportunity is also taken to enhance the environmental performance of the station. For example, we propose to install air curtains at the entrance and exit of the cavern as part of the cavern improvement works to prevent spreading of odour, enhance and upgrade the ventilation and air-scrubbing systems to further reduce odour emission, refurbish and modify certain electrical and mechanical equipment such as improving the vehicle washing facilities to ensure cleanliness of refuse collection vehicles (RCVs) leaving the station, and enhance and upgrade the wastewater treatment system for better performance standards. We also propose some improvement works for the building façade and landscaping works to enhance the external appearance of the station.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the proposed works to be $99.7 million in MOD prices (please see paragraph 7 below), broken down as follows –

		$ million	
(a)	refurbishment and modification works		72.4
	(i) improvement works for the cavern, station access roads and building façade	20.4	
	(ii) enhancement and upgrading of wastewater treatment system	7.0	
	(iii) enhancement and upgrading of ventilation and air-scrubbing systems	18.5	
	(iv) replacement of mechanical waste compactors	15.0	

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		$ million	
(v)	refurbishment and modification of electrical and mechanical equipment	9.5	
(vi)	landscaping works	2.0	
(b)	Independent assessor's fees[1]	1.0	
(c)	Contingencies	7.0	
	Sub-total	80.4	(in September 2010 prices)
(d)	Provision for price adjustment	19.3	
	Total	99.7	(in MOD prices)

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

Year	**$ million (Sept 2010)**	**Price adjustment factor**	**$ million (MOD)**
2013 – 2014	60.0	1.16201	69.7
2014 – 2015	5.4	1.22592	6.6
2015 – 2016	0.0	1.29335	0.0
2016 – 2017	0.0	1.36448	0.0
2017 – 2018	0.0	1.43953	0.0
2018 – 2019	7.5	1.51870	11.4
2019 – 2020	7.5	1.60223	12.0
	80.4		99.7

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[1] An independent assessor will be appointed to check and certify that the design and construction of the works comply with the contract requirements.

8. We have derived the MOD estimates on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output for the period from 2013 to 2020. We plan to implement the proposed works and the follow-on operation under a Design-Build-and-Operate (DBO) contract. The capital cost of $99.7 million will cover the design and build elements of the contract while the operation element will be funded under the General Revenue Account. The contractual operation period will be 10 years[2]. The contract will provide for price adjustments for the entire contractual period (including the operation period).

9. The proposed works will not give rise to additional recurrent expenditure.

10. The contract management, supervision and environmental monitoring during the operation stage will be undertaken by the existing staff of the Environmental Protection Department. No additional staff and other recurrent costs will be required.

PUBLIC CONSULTATION

11. We consulted the Food, Environment, Hygiene and Works Committee of the Central and Western District Council on 17 March 2011. The Committee expressed support for the project, although some members requested the concerned departments to follow up on the hygienic conditions of RCVs jointly with the trades.

12. We consulted the Legislative Council Panel on Environmental Affairs on 20 April 2011 on the proposed works. Members expressed their support for the project.

/ENVIRONMENTAL …..

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[2] In the paper submitted to the Public Works Subcommittee on 18 April 2007 on **5168DR** "Refurbishment and Modification of Island East Transfer Station (IETS)", we flagged up the possibility of bundling the contracts of the two transfer stations on Hong Kong Island together in future. For more efficient resource and contract management as well as to facilitate better synergy in the transfer of waste to the treatment facilities, we plan to operate the IWTS and IETS under a combined follow-on contract upon expiry of their existing contracts on 30 April 2012 and 31 August 2013 respectively.

ENVIRONMENTAL IMPLICATIONS

13. The existing IWTS, which commenced operation before April 1998, is an exempted designated project under the Environmental Impact Assessment Ordinance (Cap. 499). For the proposed refurbishment and modification works, we completed an environmental review (ER) in March 2011. The ER concluded that the proposed works, with implementation of appropriate design and mitigation measures, would unlikely result in adverse environmental impacts.

14. Under this project, we will improve the station facilities to enhance the environmental and operational performance of the IWTS. We will increase the frequency of cleaning on-site operational areas and nearby roads and also the frequency of environmental monitoring and audit to ensure the environmental performance of the IWTS is in full compliance with the contract and statutory requirements. We will also implement additional landscaping works to improve the external appearance of the station. During the design and construction stages, we will require the contractor to appoint an independent assessor to ensure that the environmental performance of the works comply with the contract requirements. We will include in the contract appropriate provisions to enable us to withhold payment to the contractor if there is any non-compliance with the environmental performance requirements throughout the contract period.

15. At the design stage, we will require the contractor to take measures to reduce the generation of construction waste where possible, such as avoiding the removal of existing building wall finishes as far as possible during the façade improvement works. In addition, we will require the contractor to reuse inert construction waste (e.g. demolished concrete) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste at public fill reception facilities[3]. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimise the generation of construction waste.

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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 inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

16. At the construction stage, we will require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

17. We estimate that the project will generate in total about 27 tonnes of construction waste. Of these, we will reuse about 2 tonnes (7.4%) on site and deliver 23 tonnes (85.2%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 2 tonnes (7.4%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be $871 for this project (based on a unit cost of $27 per tonne for disposal at public fill reception facilities and $125 per tonne[4] at landfills).

HERITAGE IMPLICATIONS

18. The proposed works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

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

/BACKGROUND …..

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[4] 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 per m^3), nor the cost to provide new landfills (which is likely to be more expensive), when the existing ones are filled.

BACKGROUND INFORMATION

20. There are six refuse transfer stations (RTSs) serving the urban areas and new towns and seven small refuse transfer facilities serving the outlying islands in Hong Kong. MSW collected by RCVs is delivered to the RTSs where it is compacted and containerised and then transferred to the three strategic landfills by either marine or land transport. This method of transporting waste in bulk from RTSs to landfills or other waste treatment facilities is an efficient, environmentally friendly and cost effective mode of waste transfer. It greatly reduces the traffic and environmental impact associated with large number of RCVs moving in the road network.

21. We upgraded **174DR** to Category B in October 2009.

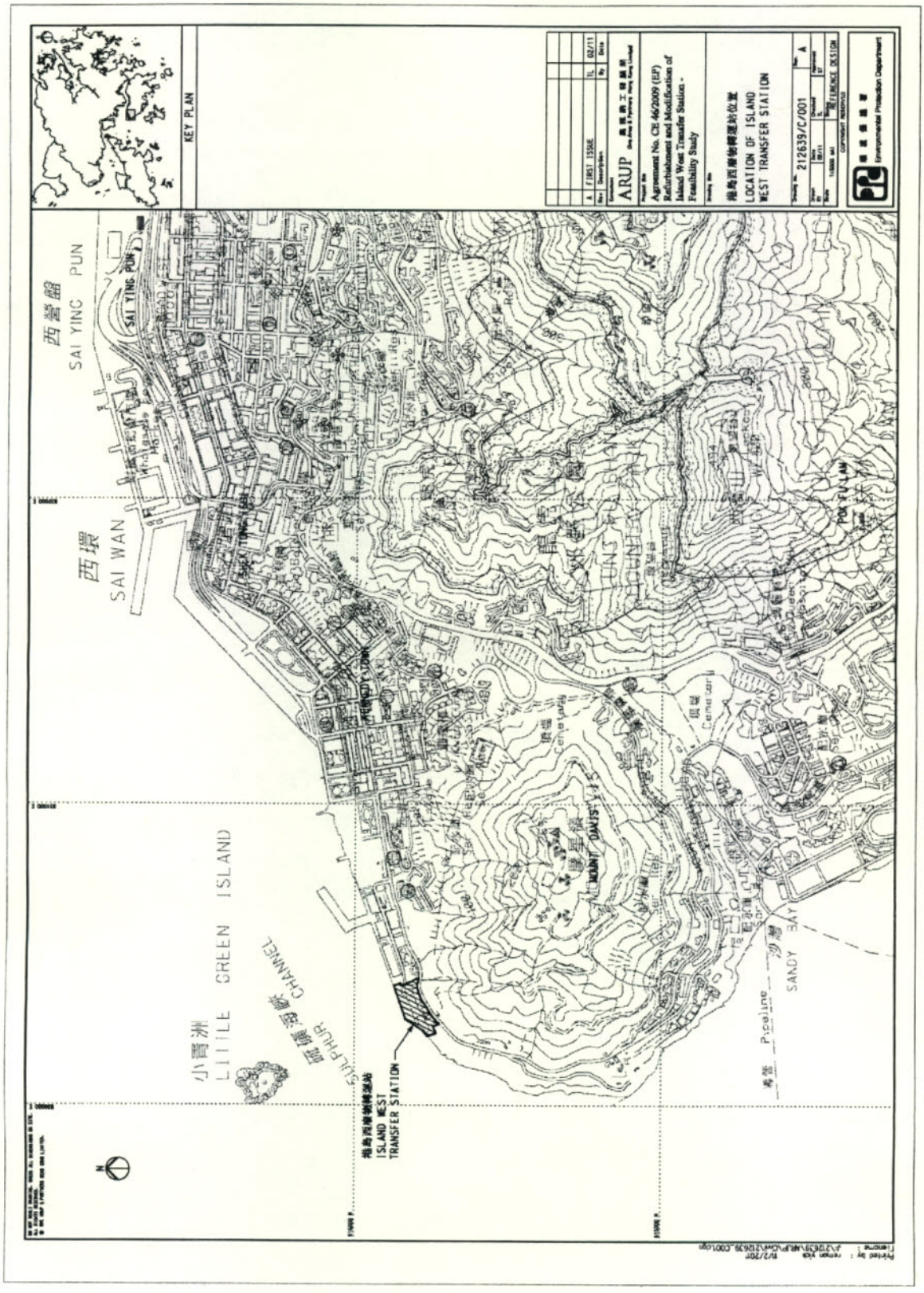
22. The proposed works will not involve any tree removal.

23. To support waste recovery projects and measures and to reduce waste disposal at landfills, we plan to make arrangements in the IWTS contract for facilitating collection of certain source-separated recyclables, such as waste electrical and electronic equipment, generated in Hong Kong Island for centralised delivery to other recycling outlets.

24. We estimate that the proposed works will create 45 jobs (38 labourers and seven professional/technical staff) providing a total employment of 490 man-months during the design and construction stage.

Environment Bureau
May 2011

Enclosure 1 to PWSC(2011-12)8
PWSC(2011-12)8 附件 1



Refurbishment and modification works of the IWTS

港島西廢物轉運站改建及翻新工程

Enclosure 2 to PWSC(2011-12)8
PWSC(2011-12)8 附件 2