

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 705 – CIVIL ENGINEERING

Environmental Protection – Refuse Disposal

175DR – Refurbishment and modification of West Kowloon transfer station

Members are invited to recommend to the Finance Committee the upgrading of **175DR** to Category A at an estimated cost of \$105.4 million in money-of-the-day prices for the refurbishment and modification of the West Kowloon transfer station associated with its continued operation upon the expiry of the existing contract.

PROBLEM

The West Kowloon transfer station (WKTS) was commissioned in 1997 to serve as a waste reception facility for Kowloon, Kwai Tsing and Tsuen Wan 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

PROPOSAL

2. The Director of Environmental Protection, with the support of the Secretary for the Environment, proposes to upgrade **175DR** to Category A at an estimated cost of \$105.4 million in money-of-the-day (MOD) prices for the refurbishment and modification of the WKTS associated with the continuation of the WKTS operation upon the expiry of the existing contract.

PROJECT SCOPE AND NATURE

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

- (a) improvement works for station buildings and access roads;
- (b) enhancement and upgrading of wastewater treatment system and grease trap waste treatment facility;
- (c) enhancement and upgrading of ventilation and air-scrubbing systems;
- (d) replacement of mechanical waste compactors;
- (e) replacement of shore-based cranes;
- (f) refurbishment and modification of electrical and mechanical equipment; and
- (g) landscaping works.

— The proposed works are to be carried out at the WKTS 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 June 2012 for completion in mid-2013, except for the mechanical waste compactors and shore-based cranes under paragraph 3(d) and (e) which are planned for progressive replacement over four years from 2012 to 2016. During the implementation of the proposed works, the normal operation of the WKTS and the waste transfer service will be maintained.

/JUSTIFICATION

JUSTIFICATION

4. At present, the WKTS located in West Kowloon reclamation area is serving as the waste reception facility for Kowloon, Kwai Tsing and Tsuen Wan. About 2 240 tonnes per day of municipal solid waste (MSW) collected from these areas are delivered to the WKTS for compaction and containerization, followed by marine transfer to the WENT Landfill for disposal. Another 470 tonnes per day of grease trap waste from restaurants and food processing establishments are received for treatment whereby the oil and grease are recovered and now sold as a raw material for the production of biodiesel. The WKTS was originally built under **5083DR** “West Kowloon refuse transfer station”, with an approved project estimate (APE) of \$808 million in MOD prices. In 2006, a grease trap waste treatment facility was built within the WKTS under **5167DR** “Provision of grease trap waste treatment facility at a refuse transfer station”, with an APE of \$85.3 million in MOD prices. The WKTS, commissioned in June 1997, has been facilitating bulk transfer of MSW in an environmentally acceptable manner, which has greatly reduced the traffic and environmental impact. As the existing 15-year contract for the operation of the WKTS will expire on 18 June 2012, a feasibility study was commissioned in June 2010 to review the operation of the WKTS and to formulate the follow-on contract arrangements. The study has confirmed that continual operation of the WKTS is necessary and crucial for efficient transfer of MSW arising from Kowloon and south-western part of the New Territories to the disposal facilities.

5. To enable the WKTS 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 and shore-based cranes 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 station building as part of the building 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 and grease trap waste treatment facility for better performance standards. We also propose some landscaping works to enhance the external appearance of the station.

/FINANCIAL

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the proposed works to be \$105.4 million in MOD prices (please see paragraph 7 below), broken down as follows –

	\$ million	
(a) Refurbishment and modification works	80.8	
(i) improvement works for station buildings and access roads	2.7	
(ii) enhancement and upgrading of wastewater treatment system and grease trap waste treatment facility	3.1	
(iii) enhancement and upgrading of ventilation and air-scrubbing systems	14.7	
(iv) replacement of mechanical waste compactors	26.0	
(v) replacement of shore-based cranes	32.4	
(vi) refurbishment and modification of electrical and mechanical equipment	1.6	
(vii) landscaping works	0.3	
(b) Independent assessor's fees ¹	1.0	
(c) Contingencies	4.7	
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Sub-total	86.5	(in September 2010 prices)
(d) Provision for price adjustment	18.9	
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Total	105.4	(in MOD prices)
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/7.

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

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

Year	\$ million (Sept 2010)	Price adjustment factor	\$ million (MOD)
2013 – 2014	38.5	1.16201	44.7
2014 – 2015	31.9	1.22592	39.1
2015 – 2016	5.2	1.29335	6.7
2016 – 2017	10.9	1.36448	14.9
	86.5		105.4

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 2017. We plan to implement the proposed works and the follow-on operation of the WKTS under a Design-Build-and-Operate (DBO) contract. The capital cost of \$105.4 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. The DBO 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. We will revisit the current charging policy for the treatment and disposal of grease trap waste at Government waste treatment facility during which the capital cost relating to the grease trap waste treatment facility would be taken into account.

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

/PUBLIC

PUBLIC CONSULTATION

11. We consulted the Sham Shui Po District Council on 8 March 2011. Members expressed their support for the project.

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 IMPLICATIONS

13. The existing WKTS, 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 WKTS. 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 WKTS 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 such as on-site sorting to reduce the generation of construction waste where possible. 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 facilities². 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.

/16.

² 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 243 tonnes of construction waste. Of these, we will reuse about 24 tonnes (10%) on site. We will dispose of the remaining 219 tonnes (90%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at landfill sites is estimated to be \$27,375 (based on a unit cost of \$125 per tonne³ 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 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.

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

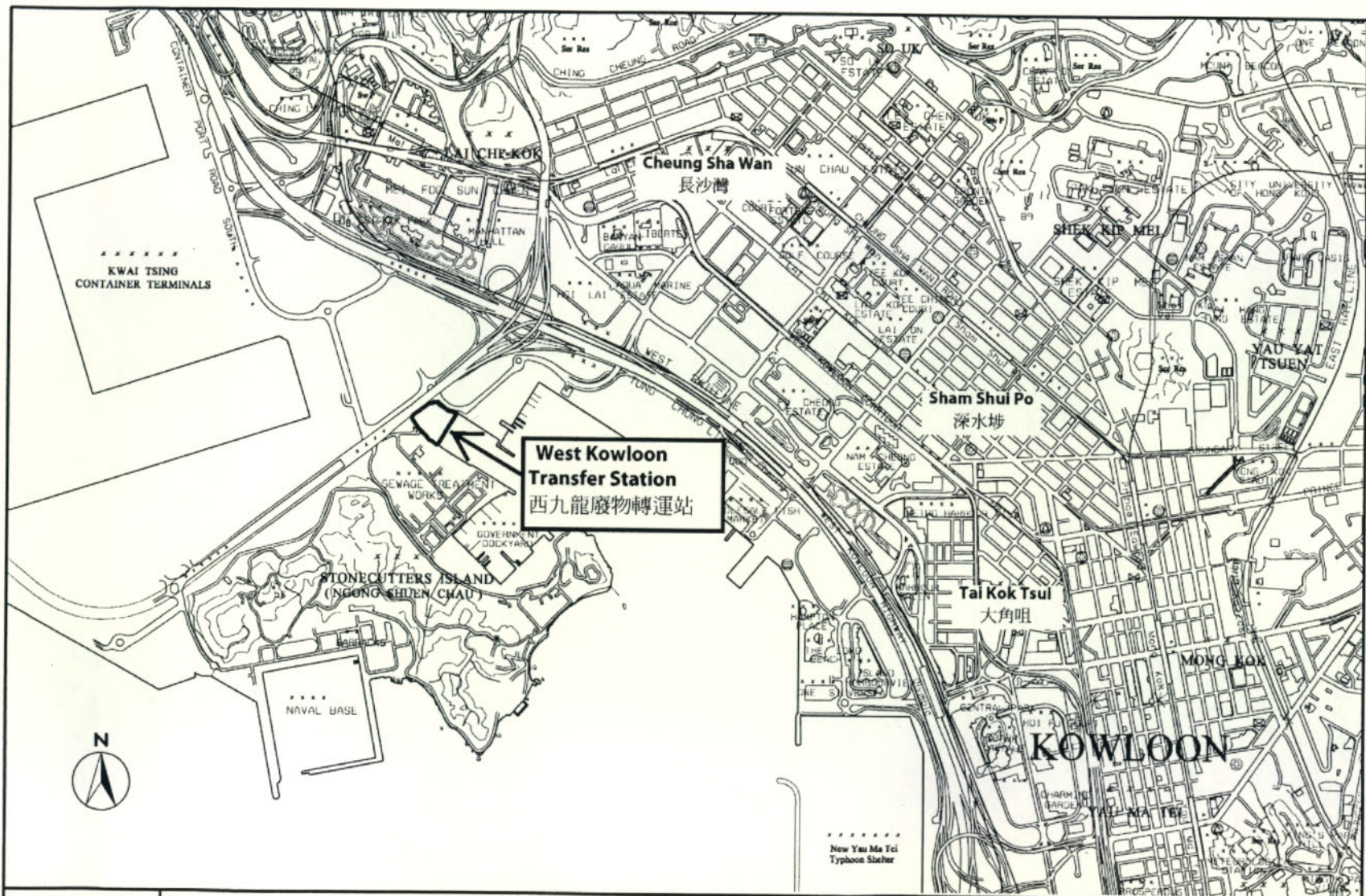
21. We upgraded **175DR** to Category B in October 2009.

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 will allow for separation and storage of wood waste delivered to the WKTS for centralised transfer to other recycling outlets. We also plan to make arrangements in the WKTS contract for facilitating collection of certain source-separated recyclables, such as waste electrical and electronic equipment, generated in Kowloon for centralised delivery to other recycling outlets.

24. We estimate that the proposed works will create 50 jobs (42 labourers and eight professional/technical staff) providing a total employment of 540 man-months during the design and construction stage.

Environment Bureau
May 2011



AECOM	Agreement No. CE 45/2009 (EP) Refurbishment and Modification of West Kowloon Transfer Station - Feasibility Study			
	Location of WKTS 西九龍廢物轉運站位置圖			
	SCALE	A4 1:20000	DATE	17 FEB 2011
CHECK	VL WK	DRAWN	DNCY	
JOB No.	60158952	FIGURE No.	-	

P:/60158952/1.01/CAO/DRAWING/1000/WKTS 2.DGN

Enclosure 1 to PWSC(2011-12)9
 PWSC(2011-12)9 附件 1

Refurbishment and Modification Works of the WKTS

西九龍廢物轉運站改建及翻新工程

