

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 705 – CIVIL ENGINEERING

Environmental Protection – Refuse Disposal

184DR – Refurbishment and upgrading of West Kowloon transfer station

**185DR – Refurbishment and upgrading of Island West and Island East
transfer stations**

Members are invited to recommend to the Finance
Committee –

- (a) the upgrading of **184DR**, entitled
“Refurbishment and upgrading of West Kowloon
transfer station”, to Category A at an estimated
cost of \$2,625.6 million in money-of-the-day
(MOD) price; and

- (b) the upgrading of **185DR**, entitled
“Refurbishment and upgrading of Island West
and Island East transfer stations”, to Category A
at an estimated cost of \$2,079.9 million in MOD
prices.

PROBLEM

2. The West Kowloon Transfer Station (WKTS), Island West Transfer Station (IWTS) and Island East Transfer Station (IETS) were completed in the 1990s and have been in operation for over two decades. Most of the facilities in

/these

these refuse transfer stations (RTS) are aging. We need to implement refurbishment and upgrading works to not only maintain reliable and safe waste transfer services but also enhance the operational efficiency and environmental performance of the three RTS.

PROPOSAL

3. The Director of Environmental Protection, with the support of the Secretary for the Environment, proposes to upgrade the following projects to Category A –

- (a) **184DR** – Refurbishment and upgrading of WKTS at an estimated cost of \$2,625.6 million in money-of-the-day (MOD) prices; and
- (b) **185DR** – Refurbishment and upgrading of IWTS and IETS at an estimated cost of \$2,079.9 million in MOD prices.

PROJECT SCOPE AND NATURE

_____ 4. Details of the above two projects are provided at Enclosures 1 and 2 respectively.

WAY FORWARD

5. Subject to Members’ comments, we plan to seek funding approval from the Finance Committee (FC) soon, so that the proposed works can commence as soon as possible.

184DR – Refurbishment and upgrading of West Kowloon transfer station

PROJECT SCOPE AND NATURE

The scope of **184DR** comprises design and construction of the following works –

- (a) replacement and enhancement of waste handling mechanical systems;
- (b) replacement and upgrading of odour control systems (including ventilation and air-scrubbing units);
- (c) replacement and upgrading to energy-saving and low-emission waste container vessels;
- (d) provision of onshore power supply (OPS) facilities;
- (e) replacement of containers and associated transport vehicles and container cranes;
- (f) upgrading of refuse collection vehicle (RCV) washing facilities;
- (g) reprovision and enhancement of the grease trap waste treatment facility;
- (h) upgrading of wastewater treatment plant;
- (i) provision of covers over suitable areas for improving visual quality; and
- (j) carrying out renewable energy projects, etc.

2. The proposed works will be carried out at the WKTS. A plan showing its location is at Annex 1 to Enclosure 1. We plan to commence the proposed works after obtaining funding approval from the FC. The proposed works are expected to be completed within 4 years. During the construction works, the daily waste transfer services at the RTS will be maintained.

/JUSTIFICATION

JUSTIFICATION

3. The WKTS is located on the Stonecutters Island and has been in operation since 1997. Every day, the waste delivered to the WKTS is immediately compacted and containerised in purpose-built sealed containers for onward sea transportation by purpose-built container vessels to the West New Territories Landfill for disposal. Currently, the WKTS receives from Kowloon, Kwai Tsing, Tsuen Wan and their neighbouring areas a daily average of about 2 550 tonnes of municipal solid waste (MSW) (equivalent to about 680 RCV trips per day). Another 500 tonnes per day of grease trap waste from restaurants and food processing establishments are also delivered to the WKTS where they are processed by a grease trap waste collection and treatment facility, which extracts highly concentrated grease for delivery to suitable recyclers for biodiesel production.

4. Currently, the WKTS has been operating for over 20 years. Given that most of the facilities therein are either aging or in severe wear and tear, repairs have become more frequent with long recovery time, and procurement of parts for repairs has become increasingly difficult. The operational reliability and safety as well as environmental performance of the RTS will be directly affected if its aged mechanical equipment remains in use without timely replacement.

5. The existing operation contract for the WKTS will expire on 18 December 2022. The Environment Protection Department (EPD) thus commissioned a consultancy study in September 2019 on service enhancement and environmental improvement works for WKTS, with a view to formulating the contractual arrangements for the next operation contract. Findings of the consultancy study have revealed that the aging of facilities in the WKTS is serious. The consultants have suggested that large-scale replacement and upgrading of facilities in the RTS be carried out.

6. Upon completion of the proposed improvement works, the WKTS will have its waste handling efficiency comprehensively improved, with the environmental performance further enhanced in various aspects, such as more effective ventilation systems, upgraded air-scrubbing units, better vehicle washing facilities, higher wastewater treatment capacity, upgraded grease trap waste treatment facility, higher capacity in recovering oil and grease for recycling into biodiesel and enhanced visual quality.

FINANCIAL IMPLICATIONS

7. The WKTS is equipped with a large number of various types of machinery and equipment, most of which have been used for more than 20 years. They need to be substantially refurbished and replaced, and the required cost is relatively large. Among other proposed works, construction of new waste container vessels alone has already accounted for 40% of the total cost of the project. The need of maintaining the daily waste reception and transfer services at the RTS during the construction stage will also increase the difficulty of the project and the related costs.

8. We estimate the capital cost of **184DR** to be \$2,625.6 million in MOD prices, broken down as follows –

	\$ million (in MOD prices)
(a) Replacement, refurbishment or upgrading of waste handling machinery and facilities	1,540.1
(i) Waste handling mechanical systems, mobile plant, containers and waste transport vehicles	168.6
(ii) Wastewater treatment plant	76.8
(iii) Odour control systems	10.7
(iv) Container cranes	194.8
(v) Waste container vessels ¹	1,073.7
(vi) RCV washing facilities	5.3
(vii) Other related works	10.2

/(b)

¹ At present, the waste container vessels at WKTS were commissioned in the 1990s. After detailed surveys and studies, the consultants considered that it was necessary to construct a total of three new waste container vessels to replace the existing vessels to cope with the future demand. With reference to the cost of the similar type of vessels in recent years, together with the additional onboard odour control systems and inflation etc, the consultants estimated that each vessel with a capacity of 216 containers would cost around \$350 million.

		\$ million (in MOD prices)
(b)	Reprovision and enhancement of grease trap waste treatment facility at the new subsidiary waste transfer building ²	577.1
(i)	Civil engineering works as well as electrical and mechanical equipment	349.1
(ii)	Grease trap waste treatment machinery and facility	228.0
(c)	Replacement of the roof of the waste transfer building	56.9
(d)	Landscaping and greening works	105.3
(e)	Additional energy conservation and recycled features	48.6
(f)	Consultants' fees for	5.8
(i)	contract administration	4.0
(ii)	management of resident site staff	1.8
(g)	Remuneration of resident site staff	71.2
(h)	Contingencies	220.6
Total		2,625.6

We propose to engage consultants to undertake contract administration and site supervision for **184DR**. A breakdown of the estimate for consultants' fees and resident site staff costs by man-month is at Annex 2 to Enclosure 1.

9. Subject to funding approval, we plan to phase the expenditure as follows –

/Year

² The reprovision and enhancement of grease trap waste treatment facility is mainly divided into two parts-(i) construction works as well as electrical and mechanical equipment and (ii) grease trap waste treatment machinery and facilities. On (i) construction works as well as electrical and mechanical equipment, we estimated the cost based on various factors, including the latest market construction prices, project complexity, and gross floor area of the building etc. It also includes the cost of demolition of the existing structures, reprovision of fire services facilities and other related works. On (ii) grease trap waste treatment machinery and facilities, we estimated the cost, with reference to the cost of constructing the grease trap waste treatment facility at WKTS in 2005, taking into account the treatment capacity and inflation etc.

Year	\$ million (in MOD prices)
2023 – 2024	302.0
2024 – 2025	811.0
2025 – 2026	1,067.6
2026 – 2027	366.2
2027 – 2028	78.8
	<hr style="width: 50%; margin: auto;"/> 2,625.6 <hr style="width: 50%; margin: auto;"/>

10. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output for the period from 2023 to 2028. We will follow the established Design-Build-Operate contractual arrangements adopted for the existing RTS contract in taking forward the proposed project and continuing with the operation of the WKTS. The capital cost of \$2,625.6 million for the WKTS contract will cover the design and build elements of the contract, while the operation will be funded under the General Revenue Account.

11. We estimate the additional annual recurrent expenditure arising from **184DR** to be \$162 million.

PUBLIC CONSULTATION

12. We submitted a discussion paper on the proposed project **184DR** to the Environment and Hygiene Committee of the Sham Shui Po District Council on 9 November 2020. So far no comment has been received on the proposed project.

13. We consulted the Legislative Council Panel on Environmental Affairs on **184DR** on 22 February 2021. Members supported submission of the funding proposal to the Public Works Subcommittee for consideration.

ENVIRONMENTAL IMPLICATIONS

14. The existing WKTS, which commenced operation before April 1998, is an exempted designated project under the Environmental Impact Assessment (EIA) Ordinance, while the grease trap waste treatment facility added inside the WKTS in 2005 is a designated project controlled by the EIA Ordinance. An Environmental Permit was issued for the construction and operation of the grease trap waste treatment facility. We have conducted an environmental review (ER) to assess the environmental impact of the proposed refurbishment and upgrading works. According to the ER findings, the proposed works will not result in adverse environmental impacts with implementation of appropriate design and mitigation measures.

15. Under the proposed project, the major facilities of the WKTS will be completely replaced and upgraded to enhance their operational efficiency and environmental performance. The works include installation of rapid-closing plastic gates at appropriate locations to prevent spreading of odour, upgrading of air-scrubbing units, upgrading of RCV washing facilities to ensure the cleanliness of RCVs leaving the RTS, replacement of waste container vessels with new energy-saving and low-emission models, enhancement to the efficiency of wastewater treatment facilities, reprovision and enhancement of the grease trap waste treatment facility, provision of OPS facilities, and carrying out of landscaping works within the WKTS to improve their outlook appearance.

16. During the construction, a variety of mitigation measures will be implemented to control noise, dust and site run-off to levels within established standards and guidelines. The measures include control of working hours, sea transportation of materials wherever possible, use of quiet construction plant to reduce noise generation, water-spraying to reduce dust emission as well as proper containment and treatment of site run-off.

17. At the planning and design stages, the contractors are required to implement measures to minimise the generation of construction and demolition materials. In addition, we will require the contractors to reuse inert construction waste (e.g. demolished concrete) on site or in other suitable construction sites as far as possible. The contractors are encouraged to maximise the use of recycled or recyclable inert construction waste and the use of non-timber formwork to further reduce the generation of construction waste.

18. At the construction stage, the contractors are required to submit for approval waste management plans setting out appropriate mitigation measures to avoid and reduce the generation of inert construction waste, and to reuse and recycle the waste. We will ensure the day-to-day operations on site comply with the approved waste management plans and require the contractors to handle the inert and non-inert construction waste separately on site to facilitate the delivery to appropriate facilities for disposal. We will monitor the disposal of construction waste through a trip-ticket system.

19. We estimate that the proposed project **184DR** will generate 4 040 tonnes of construction waste. Of these, we will reuse 400 tonnes (10%) on site and deliver 3 600 tonnes (89%) of inert construction waste to public fill reception facilities³ for subsequent reuse. The remaining 40 tonnes (1%) of non-inert construction waste will be disposed of at landfills. The total cost for disposal of construction waste at public fill reception facilities and landfills for this project is estimated to be about \$260,000 (based on a unit charge rate of \$71 per tonne for disposal at public fill reception facilities and \$200 per tonne for disposal at landfills as stipulated in the Waste Disposal (Charge for Disposal of Construction Waste) Regulation (Cap. 354N)).

HERITAGE IMPLICATIONS

20. The proposed project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological research value and government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

21. The proposed project will only involve government land and no land resumption is required.

/ENERGY

³ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste at public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

ENERGY CONSERVATION AND RECYCLED FEATURES

22. This project will adopt energy efficient features and renewable energy technologies, including photovoltaic system.
23. For recycled features, we will adopt a rainwater harvesting system for landscape irrigation.
24. The total estimated additional cost for adoption of the above energy conservation and recycled measures is around \$48.6 million, which has been included in the cost estimate of the project. The energy efficient features will achieve around 3% energy savings in the annual energy consumption with a payback period of about 9 years.

BACKGROUND INFORMATION

25. We upgraded **184DR** to Category B in September 2018.
26. We engaged consultants in September 2019 to review the operation of the WKTS, IWTS and IETS; formulate details for the refurbishment and upgrading of their facilities; and prepare the necessary tender documents. We charged the total cost of about \$20 million to block allocation **Subhead 5101DX** “Environmental works, studies and investigations for items in Category D of the Public Works Programme”.
27. The proposed project will not involve any tree removal proposal.
28. We estimate that the proposed project **184DR** will create about 190 jobs (150 for labourers and 40 for professional/technical staff), providing employment of 8 000 man-months.
29. There are probably multi-sources for the odour problem in Sham Shui Po District. Potential sources include the Stonecutters Island sewage treatment works (SCISTW), the WKTS, the RCV passing by in the district and the quality of coastal waters etc. For the SCISTW, the Drainage Services Department (DSD) has already enhanced its odour control measures. Besides fully covering and dealing with the odour sources (including sedimentation tanks and other associated facilities) since 2012, DSD has also adopted new and fully enclosed containers to

/transport

transport sludge, and installed multiple deodorizing devices in the newly constructed sludge treatment facility for enhancing the odour management measures. To address the pollution problem of the RCV passing by in the area, the compaction-typed RCV entering RTS are all equipped with metal tailgate covers and proper waste water sump tanks to prevent RCV from causing hygiene problem to the surrounding environment. Various measures have been proposed in the proposed project to further upgrade the odour control systems at the WKTS and the vehicle washing arrangement when the RCV leaving RTS.

30. To enhance the quality of coastal waters of Victoria Harbour and the overall environment, DSD is also implementing a series of pollution control measures. In which, the construction and modification of dry weather flow interceptors to intercept pollutants in Tsuen Wan and West Kowloon (including Sham Shui Po District) have been progressively completed. Besides, DSD has commenced the investigation and rehabilitation of ageing sewers across the territory to avoid sewage leakage and will also apply “odour-control hydrogel” at the outlets of box culverts in some key locations (including Sham Shui Po District) with a view to mitigating the odour problem.



Figure 1 West Kowloon transfer station

Annex 2 to Enclosure 1

184DR – Refurbishment and upgrading of West Kowloon transfer station

Breakdown of the estimates for consultants’ fees and resident site staff costs (in September 2020 prices)

		Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fees (\$ million)
(a) Consultants’ fees for contract administration (Note 2)	Professional	12	38	2.0	2.1
	Technical	20	14	2.0	1.2
				Sub-total	3.3#
(b) Resident site staff costs (Note 3)	Professional	266	38	1.6	36.5
	Technical	483	14	1.6	23.4
				Sub-total	59.9
Comprising:-					
(i) Consultants’ fees for management of resident site staff				1.4#	
(ii) Remuneration of resident site staff				58.5#	
				Total	63.2

* MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS point to arrive at the full staff costs, including the consultants’ overheads and profit, as the staff will be employed in the consultants’ offices. 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 now, MPS point 38 = \$85,870 per month and MPS point 14 = \$30,235 per month.)
2. The consultants’ staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of this project. The construction phase of the assignment will only be executed subject to the FC’s approval to upgrade **184DR** to Category A.
3. The actual man-months and actual costs will only be known after completion of the construction works.

Remarks

The figures in the Enclosure are shown in constant prices to correlate with the MPS salary point of the same year. The figures marked with # are shown in money-of-the-day prices in paragraph 8 of the Enclosure 1.

**185DR – Refurbishment and upgrading of Island West
and Island East transfer stations**

PROJECT SCOPE AND NATURE

The scope of **185DR** comprises design and construction of the following works –

- (a) replacement and enhancement of waste handling mechanical systems;
- (b) replacement and upgrading of odour control systems (including ventilation and air-scrubbing units);
- (c) replacement and upgrading to energy-saving and low-emission waste container vessels;
- (d) replacement of containers and associated transport vehicles;
- (e) upgrading of refuse collection vehicle (RCV) washing facilities;
- (f) upgrading of wastewater treatment plant;
- (g) provision of covers over suitable areas for improving visual quality; and
- (h) carrying out renewable energy projects, etc.

2. The proposed works will be carried out at the IWTS and IETS. A plan showing their locations is at **Annex 1 to Enclosure 2**. We plan to commence the proposed works after obtaining funding approval from the FC. The proposed works are expected to be completed within 4 years. During the construction works, the daily waste transfer services at the RTS will be maintained.

JUSTIFICATION

3. The IWTS and IETS are located at the waterfront of Kennedy Town and Sun Yip Street in Chai Wan respectively, the former has been in operation since 1997 and the latter since 1992. Every day, the waste delivered to the IWTS and IETS is immediately compacted and containerised in purpose-built sealed containers for onward sea transportation by purpose-built container vessels to the West New Territories Landfill for disposal. Currently, the IWTS receives from
/the

the Central and Western District and its neighbouring areas a daily average of about 1 000 tonnes of MSW, equivalent to about 260 RCV trips per day. The IETS receives from the Eastern District and its neighbouring areas a daily average of about 1 100 tonnes of MSW, equivalent to about 300 RCV trips per day.

4. Currently, the two RTS mentioned above have been operating for over 20 years. Given that most of the facilities therein are either aging or in severe wear and tear, repairs have become more frequent with long recovery time, and procurement of parts for repairs has become increasingly difficult. The operational reliability and safety as well as environmental performance of the two RTS will be directly affected if their aged mechanical equipment remains in use without timely replacement.

5. The existing combined operation contract for the IWTS and IETS will expire on 31 December 2022. The EPD thus commissioned a consultancy study in September 2019 on service enhancement and environmental improvement works for these RTS, with a view to formulating the contractual arrangements for the next operation contract. Findings of the consultancy study have revealed that the aging of facilities in the two RTS is serious. The consultants have suggested that large-scale replacement and upgrading of facilities in the two RTS be carried out.

6. Upon completion of the proposed improvement works, the two RTS will have their waste handling efficiency comprehensively improved, with the environmental performance further enhanced in various aspects, such as more effective ventilation systems, upgraded air-scrubbing units, better vehicle washing facilities, higher wastewater treatment capacity, and enhanced visual quality.

FINANCIAL IMPLICATIONS

7. The IWTS and IETS are equipped with a large number of various types of machinery and equipment, most of which have been used for more than 20 years. They need to be substantially refurbished and replaced, and the required cost is relatively large. Among other proposed works, construction of new waste container vessels alone has already accounted for 60% of the total cost of the project. The need of maintaining the daily waste reception and transfer services at the two RTS during the construction stage will also increase the difficulty of the project and the related costs.

8. We estimate the capital cost of **185DR** to be \$2,079.9 million in MOD prices, broken down as follows –

	\$ million (in MOD prices)
(a) Replacement, refurbishment or upgrading of waste handling machinery and facilities	1,532.6
(i) Waste handling mechanical systems, mobile plant, containers and waste transport vehicles	111.6
(ii) Wastewater treatment plant	78.1
(iii) Odour control systems	53.6
(iv) Waste container vessels ¹	1,249.9
(v) RCV washing facilities	7.6
(vi) Other related works	31.8
(b) Re-provision of the administration office at the IETS	81.6
(c) Landscaping and greening works	178.1
(d) Additional energy conservation and recycled features	39.1
(e) Consultants' fees for	5.6
(i) contract administration	4.0
(ii) management of resident site staff	1.6
(f) Remuneration of resident site staff	64.6
(g) Contingencies	178.3
Total	<u>2,079.9</u>

We propose to engage consultants to undertake contract administration and site supervision for **185DR**. A breakdown of the estimate for consultants' fees and resident site staff costs by man-month is at **Annex 2 to Enclosure 2**.

/9.

¹ At present, the waste container vessels at IWTS and IETS were commissioned in 1990s. After detailed surveys and studies, the consultants considered that it was necessary to construct a total of four new waste container vessels to replace the existing vessels to cope with the future demand. With reference to the cost of the similar type of vessels in recent years, together with the additional onboard odour control systems and inflation etc, the consultants estimated that each vessel with a capacity of 120 containers would cost around \$ 300 million.

9. Subject to funding approval, we plan to phase the expenditure as follows –

Year	\$ million (in MOD prices)
2023 – 2024	257.8
2024 – 2025	1,163.5
2025 – 2026	596.2
2026 – 2027	62.4
	<hr/>
	2,079.9
	<hr/>

10. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output for the period from 2023 to 2027. We will follow the established Design-Build-Operate contractual arrangements adopted for the existing RTS contract in taking forward the proposed project and continuing with the operation of the these RTS. The capital cost of \$2,079.9 million for the IWTS and IETS combined contract will cover the design and build elements of the contract, while the operation will be funded under the General Revenue Account.

11. We estimate the additional annual recurrent expenditure arising from **185DR** to be \$91 million.

PUBLIC CONSULTATION

12. We consulted the Building Management, Environmental Hygiene & Works Committee of the Central and Western District Council and the Food, Environment and Hygiene Committee of the Eastern District Council on the proposed project **185DR** on 12 and 24 November 2020 respectively. Both District Councils expressed support for the proposed project.

13. We consulted the Legislative Council Panel on Environmental Affairs on **185DR** on 22 February 2021. Members supported submission of the funding proposal to the Public Works Subcommittee for consideration.

/ENVIRONMENTAL

ENVIRONMENTAL IMPLICATIONS

14. The existing IWTS and IETS, which commenced operation before April 1998, are exempted designated projects under the Environmental Impact Assessment (EIA) Ordinance. We have conducted an environmental review (ER) to assess the environmental impact of the proposed refurbishment and upgrading works. According to all the ER findings, the proposed works will not result in adverse environmental impacts with implementation of appropriate design and mitigation measures.

15. Under the proposed project, the major facilities of the two RTS will be completely replaced and upgraded to enhance their operational efficiency and environmental performance. The works include installation of rapid-closing plastic gates at appropriate locations to prevent spreading of odour, upgrading of air-scrubbing units, upgrading of RCV washing facilities to ensure the cleanliness of RCVs leaving the RTS, replacement of waste container vessels with new energy-saving and low-emission models, enhancement to the efficiency of wastewater treatment facilities, and carrying out of landscaping works within the two RTS to improve their outlook appearance.

16. During the construction, a variety of mitigation measures will be implemented to control noise, dust and site run-off to levels within established standards and guidelines. The measures include control of working hours, sea transportation of materials wherever possible, use of quiet construction plant to reduce noise generation, water-spraying to reduce dust emission as well as proper containment and treatment of site run-off.

17. At the planning and design stages, the contractors are required to implement measures to minimise the generation of construction and demolition materials. In addition, we will require the contractors to reuse inert construction waste (e.g. demolished concrete) on site or in other suitable construction sites as far as possible. The contractors are encouraged to maximise the use of recycled or recyclable inert construction waste and the use of non-timber formwork to further reduce the generation of construction waste.

18. At the construction stage, the contractors are required to submit for approval waste management plans setting out appropriate mitigation measures to avoid and reduce the generation of inert construction waste, and to reuse and recycle the waste. We will ensure the day-to-day operations on site comply with the approved waste management plans and require the contractors to handle the inert and non-inert construction waste separately on site to facilitate the delivery to

/appropriate

appropriate facilities for disposal. We will monitor the disposal of construction waste through a trip-ticket system.

19. We estimate that the proposed project **185DR** will generate 910 tonnes of construction waste. Of these, we will reuse 530 tonnes (58%) on site and deliver 300 tonnes (33%) of inert construction waste to public fill reception facilities² for subsequent reuse. The remaining 80 tonnes (9%) of non-inert construction waste will be disposed of at landfills. The total cost for disposal of construction waste at public fill reception facilities and landfills for this project is estimated to be around \$40,000 (based on a unit charge rate of \$71 per tonne for disposal at public fill reception facilities and \$200 per tonne for disposal at landfills as stipulated in the Waste Disposal (Charge for Disposal of Construction Waste) Regulation (Cap. 354N)).

HERITAGE IMPLICATIONS

20. The proposed project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological research value and government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

21. The proposed project will only involve government land and no land resumption is required.

ENERGY CONSERVATION AND RECYCLED FEATURES

22. This project will adopt energy efficient features and renewable energy technologies, including photovoltaic system.

23. For recycled features, we will adopt a rainwater harvesting system for landscape irrigation.

/24.

² Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste at public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

24. The total estimated additional cost for adoption of the above energy conservation and recycled measures is around \$39.1 million, which has been included in the cost estimate of the project. The energy efficient features will achieve around 3% energy savings in the annual energy consumption with a payback period of about 9 years.

BACKGROUND INFORMATION

25. We upgraded **185DR** to Category B in September 2018.

26. We engaged consultants in September 2019 to review the operation of the WKTS, IWTS and IETS; formulate details for the refurbishment and upgrading of their facilities; and prepare the necessary tender documents. We charged the total cost of about \$20 million to block allocation **Subhead 5101DX** “Environmental works, studies and investigations for items in Category D of the Public Works Programme”.

27. The proposed project will not involve any tree removal proposal.

28. We estimate that the proposed project **185DR** will create about 180 jobs (140 for labourers and 40 for professional/technical staff), providing employment of 6 500 man-months.



Figure 1 Island West transfer station



Figure 2 Island East transfer station

**185DR – Refurbishment and upgrading of Island West
and Island East transfer stations**

**Breakdown of the estimates for consultants' fees and resident site staff costs
(in September 2020 prices)**

		Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fees (\$ million)
(a) Consultants' fees for contract administration (Note 2)	Professional	12	38	2.0	2.1
	Technical	20	14	2.0	1.2
				Sub-total	<u>3.3#</u>
(b) Resident site staff costs (Note 3)	Professional	237	38	1.6	32.6
	Technical	464	14	1.6	22.4
				Sub-total	<u>55.0</u>
Comprising:-					
(i) Consultants' fees for management of resident site staff				1.3#	
(ii) Remuneration of resident site staff				53.7#	
				Total	<u>58.3</u>

* MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS point to arrive at the full staff costs, including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. 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 now, MPS point 38 = \$85,870 per month and MPS point 14 = \$30,235 per month.)
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of this project. The construction phase of the assignment will only be executed subject to the FC's approval to upgrade **185DR** to Category A.
3. The actual man-months and actual costs will only be known after completion of the construction works.

Remarks

The figures in the Enclosure are shown in constant prices to correlate with the MPS salary point of the same year. The figures marked with # are shown in money-of-the-day prices in paragraph 8 of the Enclosure 2.