ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT

Subventions – Miscellaneous

2QE – Restored Landfill Revitalisation Funding Scheme – E-Co Village at Lot B of Tseung Kwan O Stage I Landfill

Members are invited to recommend to the Finance Committee the upgrading of **2QE** to Category A at an estimated cost of \$92.6 million in money-of-the-day prices as the capital grant for construction of a camp site-cum-green education ground at Lot B of Tseung Kwan O Stage I Landfill under the Restored Landfill Revitalisation Funding Scheme.

PROBLEM

The Tung Wah Group of Hospitals (TWGHs) has been approved inprinciple by the Environmental Protection Department (EPD) to revitalise Lot B of Tseung Kwan O Stage I Landfill (TKOIL) into a camp site-cum-green education ground called E-Co Village under the Restored Landfill Revitalisation Funding Scheme (the Scheme). The TWGHs E-Co Village Limited¹ (ECVL) needs to engage consultant and contractor to carry out the construction works for the project for early enjoyment of the public.

/PROPOSAL

As required by the Scheme, the TWGHs has set up a special-purpose company (SPC), namely the ECVL, for the sole purpose of the E-Co Village project. The purpose of setting up the ECVL is to facilitate financial monitoring by the Government, particularly in detecting whether the granted fund would be used to serve non-project related purposes. It has obtained tax exemption under section 88 of the Inland Revenue Ordinance (Cap. 112).

PROPOSAL

2. The Director of Environmental Protection, with the support of the Secretary for the Environment and on the advice of the Director of Architectural Services, proposes to upgrade **2QE** to Category A at an estimated cost of \$92.6 million in money-of-the-day (MOD) prices as the capital grant for the ECVL to carry out the construction works of the E-Co Village at Lot B of TKOIL.

PROJECT SCOPE AND NATURE

- 3. The proposed E-Co Village occupies around 2 hectares and the site consists of the lower and upper platforms. The majority of the site, after completion of the project, will remain green open space. The proposed scope of works under **2QE** includes
 - (a) lower platform camping areas, central activity area, children adventure zones, green theatre, green exhibition area, farming garden, butterfly garden, picnic area, cycling path, and green station to house security staff room, reception, nursery room, multi-purpose rooms, store room, toilets, shower facilities, medical room, refuse room as well as green and energy conservation features;
 - (b) upper platform camping areas, central activity area, adventure zones, plant maze, herbal garden, farming garden, children education zone, picnic area and green station to house security staff room, nursery room, store room, toilets, shower facilities as well as green and energy conservation features; and
 - (c) ancillary works including utilities, access, building services and landscaping, etc.

The location and site plan, the artistic impression as well as green station layout plans and sectional drawings of the E-Co Village are given at **Enclosures 1** to **3** respectively. The ECVL plans to commence the proposed works upon obtaining funding approval from the Finance Committee (FC) for target completion within one and a half years.

JUSTIFICATION

- 4. The TKOIL received wastes² during the period from 1978 to 1995. The EPD carried out comprehensive restoration works³ to minimise the potential environmental impacts and render it safe for beneficial afteruses. The restoration works were completed in early 1999 and the aftercare works⁴ commenced immediately afterwards. After years of aftercare works and close environmental monitoring, it is confirmed that the TKOIL is safe for developing suitable beneficial afteruses. However, the development of beneficial uses on restored landfills needs to overcome many technical constraints such as the load-bearing capacity of the landfills and the need of site formation. The TKOIL is zoned as "Recreation" in the Outline Zoning Plan, thus the site is suitable for developing into recreational facilities with light loading and simple structures.
- 5. By revitalising the TKOIL into the E-Co Village, the TWGHs aims to promote environmental protection and enhance the inclusion of families, communities as well as the environment. The E-Co Village contains a number of camping areas as well as outdoor activity and training zones. By taking part in outdoor activities in the green environment of Tseung Kwan O city center, the public would be able to enjoy living in the nature, and enrich the harmony experience with the nature. This is also an opportunity to learn about cherishing the nature and protecting the environment, as well as putting healthy and green life to practice.
- 6. The E-Co Village will be equipped with appropriate number of green and energy conservation features including photovoltaic system, solar hot water system and solar powered light fittings. It is estimated that the electricity generated each year is sufficient to support the operation of the E-Co Village to achieve carbon neutrality for the project. The E-Co Village will also include food waste composter, small-scale yard waste composting facility and grey water recycling system⁵, etc. In addition, the E-Co Village will incorporate a range of

/themed

- In early years, the TKOIL received approximately 15.2 million tonnes of domestic, commercial, industrial, construction and special wastes.
- The restoration works mainly include provision of landfill gas and leachate management systems, low permeability engineered capping layers and surface water drainage systems, as well as undertaking slope improvement works, etc.
- 4 The aftercare works mainly include operating and maintaining the landfill gas and leachate management systems, conducting environmental monitoring, etc.
- The polluted water collected from bathroom, wash basin, kitchen sink, etc. is called grey water, which can be reused for non-drinking purposes after going through treatment.

themed gardens for planting and strengthening the natural environment, such as butterfly garden, herbal garden, farming garden and plant maze, etc. Through joining diverse activities, guided tours and workshops that enhance public education and publicity in green education in the E-Co Village, participants will experience green living and work together to adopt zero carbon lifestyles.

- 7. The E-Co Village will be operated on a non-profit-making and self-financing basis, and serves families, students, various organisations, disadvantaged groups and the general public. Upon completion of the proposed works, the TWGHs will revitalise the site into a camp site-cum-green education ground and provide diversified recreational facilities for camping, green education, outdoor recreation, adventure training, farming and morning exercise, etc. to the community.
- 8. The TWGHs has set up a SPC, namely the ECVL, for implementation as well as future day-to-day operation of the E-Co Village. The ECVL will undertake the construction works with the capital grant proposed in this submission. During the land licensing period⁶, the ECVL is required to fund its operating cost with the revenue generated from the services to be provided at the E-Co Village. The Government will provide a non-recurrent grant to meet the starting cost and/or deficits of the project (if any) in the first two years of operation at a ceiling of \$5 million (in MOD prices). The project is expected to become self-sustainable after the first two years of operation. Any operating surplus will be ploughed back to support the operation of the E-Co Village.

FINANCIAL IMPLICATIONS

9. Under the Scheme, the ceiling of capital grant for each project (including pre-construction activities and the works mentioned in paragraph 3) is \$100 million (in MOD prices). In December 2018, we upgraded **1QE** "Restored Landfill Revitalisation Funding Scheme – E-Co Village at Lot B of Tseung Kwan O Stage I Landfill – pre-construction activities" to Category A with estimated project cost of \$7.4 million (in MOD prices), so as to provide capital grant to the ECVL for engaging consultant to carry out the pre-construction activities. Thus the remaining capital grant for the project is \$92.6 million (in MOD prices), broken down as follows:

/(a)

The land licensing period of the E-Co Village project is of an initial term of seven years. Subject to the development of the project, arrangement of the Lands Department and other factors, the licensing period could be extended by the Government (if applicable).

		•	Illion O prices)
(a)	Site clearance		1.4
(b)	Building works		34.6
(c)	Building services		11.1
(d)	Drainage		4.3
(e)	External works and landscaping		20.5
(f)	Additional energy conservation, green and recycle features		3.7
(g)	Consultant's fee for (i) contract administration (ii) management of resident site staff (RSS)	3.9 0.1	4.0
(h)	Remuneration of RSS		2.5
(i)	Furniture and equipment		2.1
(j)	Contingencies		8.4
	Total		92.6

10. The ECVL will engage consultant to undertake contract administration, management of RSS and site supervision of the project. A detailed breakdown of the estimates of the consultant's fees and RSS costs by man-months is at **Enclosure 4**. We consider the estimated project cost comparable to that of similar projects built by the Government. When the project expenditure exceeds the ceiling of government funding, the TWGHs will fund the remainder of the capital works. The estimated capital cost of the project is \$106.1 million in MOD prices with the breakdown shown in **Enclosure 5**.

11. Subject to funding approval, the ECVL plans to phase the expenditure as follows –

Year	Capital grant under 2QE \$ million (in MOD prices)	Total estimated project cost to be incurred \$ million (in MOD prices)
2021 - 22	32.1	32.1
2022 - 23	59.1	59.1
2023 – 24	1.4	9.9
2024 - 25	0.0	3.0
2025 - 26	0.0	2.0
	92.6	106.1

- 12. 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 2021 to 2026. The ECVL will deliver the proposed works through a lump-sum contract as the scope of works can be clearly defined in advance.
- During the land licensing period, besides the grant to meet the starting cost and deficits of the project in the first two years of operation (at a ceiling of \$5 million), the ECVL shall be responsible for the operation and maintenance of all facilities of the E-Co Village at its own cost; thus the E-Co Village project will not give rise to any recurrent expenditure to the Government.

PUBLIC CONSULTATION

14. The EPD and the TWGHs consulted the Housing and Environmental Hygiene Committee of the Sai Kung District Council on the E-Co Village project on 14 September 2017. Members in general supported this project.

15. The EPD and the ECVL consulted the Legislative Council Panel on Environmental Affairs (EA Panel) on 23 November 2020 on the E-Co Village project. Members generally supported the submission of this project to the Public Works Subcommittee for consideration. At the request of the EA Panel, supplementary information about the design details and the design capacities of the E-Co Village, target number of participants to be received by E-Co Village, and how to ensure financial sustainability of the project is provided at **Enclosure 6**.

ENVIRONMENTAL IMPLICATIONS

- 16. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). It will not cause long-term adverse environmental impact. The ECVL has included in the project estimates the cost to implement suitable mitigation measures to control the adverse environmental impacts arising from the project.
- 17. During construction, contractor should implement mitigation measures as required by the ECVL in the relevant contract to control noise, dust and site run-off to levels within established standards and guidelines. These measures include the use of mufflers, acoustic lining or temporary noise barriers for noisy construction activities, water-spraying to reduce dust emission as well as proper containment and treatment of site run-off.
- 18. Since there is no existing building on site and the proposed works will not involve large-scale excavation, the project will not generate large amount of construction waste. At the planning and design stages, the ECVL will require the contractor to implement measures to minimise the generation of construction and demolition materials. In addition, the ECVL will require the contractor to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible. The ECVL will encourage the contractor to maximise the use of recycled or recyclable inert construction waste and the use of non-timber formwork to further minimise the generation of construction waste.
- 19. At the construction stage, the ECVL will require the contractor to submit for approval waste management plan setting out appropriate mitigation means to avoid and reduce the generation of inert construction waste, and to reuse and recycle the waste. The ECVL will ensure the day-to-day operations on site comply with the approved waste management plan, and require the contractor to handle the inert and non-inert construction waste separately on site to facilitate the

/subsequent

subsequent delivery to appropriate facilities for disposal. The ECVL will monitor the disposal of construction waste through a trip-ticket system.

- 20. The ECVL estimates that the project will generate 424 tonnes of construction waste. Of these, the ECVL will reuse 85 tonnes (20%) on site and deliver 303 tonnes (71%) of inert construction waste to public fill reception facilities (PFRF⁷) for subsequent reuse. The remaining 36 tonnes (9%) of noninert construction waste will be disposed of at landfills by the ECVL. The total cost for disposal of construction waste at PFRF and landfills for this project is estimated to be about \$29,000 (based on a unit charge rate of \$71 per tonne for disposal at PFRF and \$200 per tonne for disposal at landfills as stipulated in the Waste Disposal (Charge for Disposal of Construction Waste) Regulation (Cap. 354N)).
- 21. In addition, the ECVL will reuse or recycle yard waste in accordance with the Guidelines on Yard Waste Reduction and Treatment, and set up a small-scale yard waste composting facility at the E-Co Village to further minimise the waste quantity and better utilise resources.

ENERGY CONSERVATION, GREEN AND RECYCLED FEATURES

- 22. This project will adopt various forms of energy efficient features and renewable energy technologies, in particular
 - (a) demand control of supply air;
 - (b) photovoltaic system;
 - (c) solar hot water system;
 - (d) solar powered light fittings; and
 - (e) wind turbine.

/23.

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

- 23. For greening features, this project will provide large amount of landscaping as well as vertical greening in the appropriate areas for environmental and amenity benefits.
- 24. For recycled features, this project will adopt grey water recycling system for landscape irrigation. The project will also incorporate food waste composter and yard waste composting facility, and make use of recycled construction materials.
- 25. The total estimated additional cost for adoption of the above features is around \$4.2 million (including \$0.1 million for energy efficient features), which has been included in the cost estimate of this project. The energy efficient features will achieve 3.8% energy savings in the annual energy consumption with a payback period of about eight years.

HERITAGE IMPLICATIONS

26. The proposed project 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

27. The proposed project only involves government land, so there is no need for land acquisition.

BACKGROUND

28. In 2014, the Government set up the Scheme to provide funding support to non-profit-making organisations⁸ and National Sports Associations to develop recreational facilities and other innovative proposals at restored landfills. At the same time, the Government established a Steering Committee (SC) to advise on the operational arrangements for the Scheme, and to assist in assessing the applications and monitoring the approved projects.

/29.

⁸ For the purpose of this paper, "non-profit-making organisations" means organisations which have obtained tax exemption under section 88 of the Inland Revenue Ordinance (Cap. 112).

- 29. Under the Scheme, the ceiling of grant for the capital works and related expenses⁹ of each approved project is \$100 million (in MOD prices), and the grant to meet the starting costs and operating deficits is up to \$5 million (in MOD prices). At the meetings of the Panel on Environmental Affairs on 23 June and 23 July 2014, we briefed Members on the Scheme and its operational arrangements.
- 30. In November 2015, the EPD invited eligible organisations to apply for Batch 1 of the Scheme. After a rigorous selection process, including seeking views from the SC on the Scheme, the District Councils, as well as relevant bureaux and departments, an in-principle approval was granted to the TWGHs in February 2018 for implementation of its proposed project, namely the E-Co Village at Lot B of the TKOIL. The Technical Feasibility Statement for "Restored Landfill Revitalisation Funding Scheme E-Co Village at Lot B of Tseung Kwan O Stage I Landfill" was approved by the Development Bureau on 15 August 2018.
- In December 2018, we upgraded part of **1QE** to Category A with the estimated project cost of \$7.4 million (in MOD prices), so as to pay the ECVL for the cost of engaging consultant for carrying out the pre-construction activities. The remaining part is designated as **2QE**. The ECVL subsequently engaged architectural and quantity surveying consultant to undertake the detailed design and site investigation, and prepare tender documents in April 2019. Detailed design and site investigation have been completed, and the tender documents are being finalised.
- 32. The proposed construction works will involve removal of 50 trees. All trees to be removed are not important trees¹⁰. As compensation, the ECVL will incorporate planting proposals as part of the project, including around 50 trees, 8 000 shrubs and 13 000 m² grassed area.

/33.

Including pre-construction study or works, such as consultancy fee for detailed planning and architectural, landscape and engineering design, and site investigation.

An "important tree" refers to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

⁽a) Trees of 100 years old or above;

⁽b) Trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;

⁽c) Tree of precious or rare species;

⁽d) Tree of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, tree growing in unusual habitat; or

⁽e) Trees with trunk diameter equal to or exceeding 1.0 m (measured at 1.3 m above ground level), or with height/canopy spread equal to or exceeding 25 m.

33.	The ECVL estimates that the proposed works will create about 65
jobs (50 fo	r labourers and 15 for professional or technical staff), providing a total
employme	at of 800 man-months.

Environment Bureau May 2021





環保村模擬圖 - 下層平台

E-CO VILLAGE ARTIST IMPRESSION - LOWER PLATFORM



種植園 FARMING GARDEN



兒童戶外訓練區 CHILDREN ADVENTURE ZONE



蝴蝶園 BUTTERFLY GARDEN



E-CO VILLAGE ARTIST IMPRESSION - UPPER PLATFORM



兒童教育基地 CHILDREN EDUCATION ZONE



中央活動區 CENTRAL ACTIVITY AREA



露營區 CAMPING AREA

環保站1-下層平台

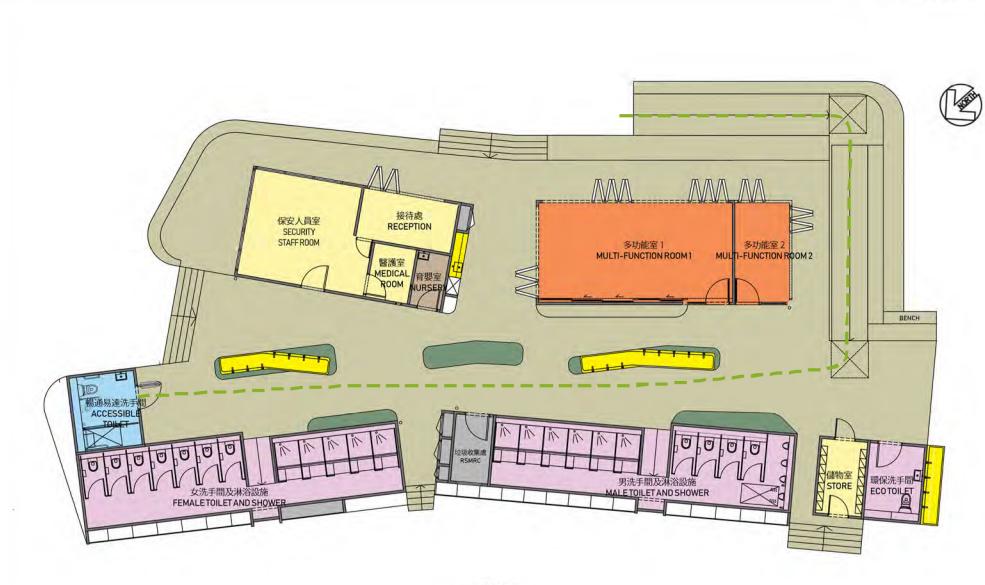
GREEN STATION 1 - LOWER PLATFORM



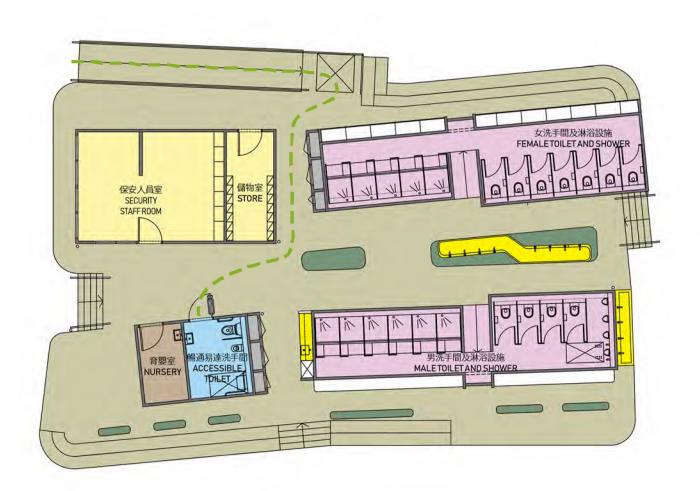
環保站2-上層平台

GREEN STATION 2 - UPPER PLATFORM



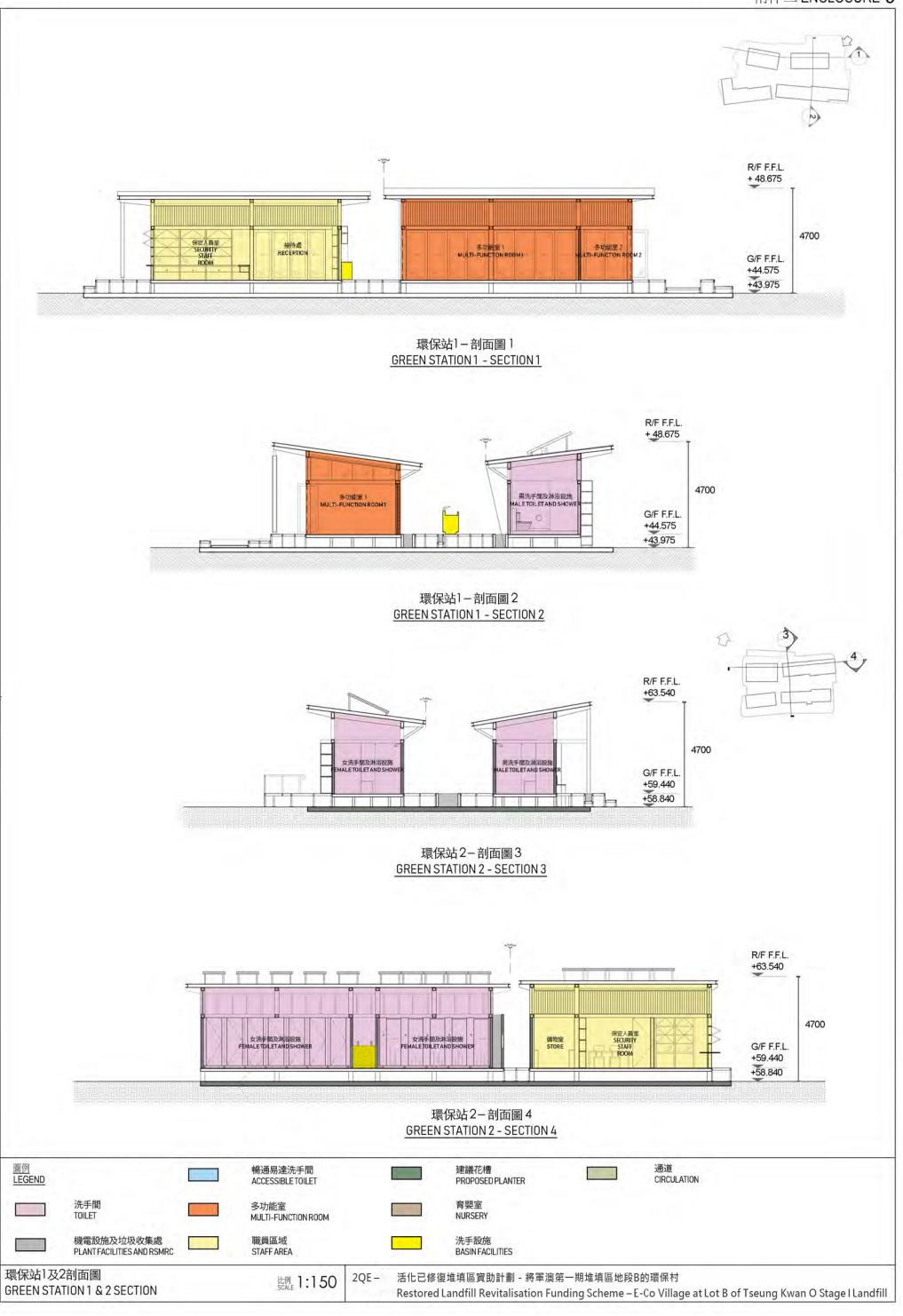


環保站 1 GREEN STATION 1



環保站2 GREEN STATION 2





2QE – Restored Landfill Revitalisation Funding Scheme – E-Co Village at Lot B of Tseung Kwan O Stage I Landfill

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

			Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Consultant's fees for contract administration (Note 2)	Professional Technical	_ _	- -		4.1 -
					Sub-total	4.1#
(b)	Resident site staff costs	Professional	_	_	_	_
()	(Note 3)	Technical	55	14	1.6	2.7
					Sub-total	2.7
	Comprising –					
	(i) Consultant's fees for management of resident site staff				0.1#	
	(ii) Remuneration of resident site staff				2.6#	
					Total	6.8#

^{*} MPS = Master Pay Scale

Notes

- 1. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of RSS supplied by the consultant (As at now, MPS salary point 14 = \$30,235 per month).
- 2. The consultant's fees for contract administration are estimated 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 Finance Committee's approval to upgrade **2QE** to Category A.
- 3. The consultant's staff cost for site supervision is based on the estimate prepared by the consultant. The actual man-months and actual costs will only be known after completion of the construction works.

Remarks

The cost 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 Enclosure 5. For the Government subvented portion, it is shown in MOD prices in paragraph 9 of the main paper.

2QE – Restored Landfill Revitalisation Funding Scheme – E-Co Village at Lot B of Tseung Kwan O Stage I Landfill

Breakdown of the total project cost estimate

		-	nillion OD prices)
(a)	Site clearance		1.6
(b)	Building works		39.7
(c)	Building services		12.8
(d)	Drainage		4.9
(e)	External works and landscaping		23.5
(f)	Additional energy conservation, green and recycle features		4.2
(g)	Consultant's fee for (i) contract administration (ii) management of resident site staff (RSS)	4.5 0.1	4.6
(h)	Remuneration of RSS		2.8
(i)	Furniture and equipment		2.4
(j)	Contingencies		9.6
	Total		106.1

2QE – Restored Landfill Revitalisation Funding Scheme – E-Co Village at Lot B of Tseung Kwan O Stage I Landfill

Supplementary Information of the E-Co Village Project

(i) Project design details and design capacities

E-Co Village is a camp site-cum-green education ground, providing diversified facilities for camping, green education, outdoor recreation and training, farming, etc. to the general public. The artistic impression of E-Co Village is shown in **Enclosure 2**. The maximum capacity of the E-Co Village is 300 users at the same time.

The facilities and area of the E-Co Village are listed below:

Facilities	Area (square meter)		
(a) Camping Areas	5 594		
(b) Children Education Zone, Green Theatre, Adventure Zones, Picnic and Central Activity Areas	5 293		
(c) Plant Maze, Butterfly Garden, Herbal Garden and Farming Garden	2 204		
(d) Two Green Stations with toilets and shower facilities etc.	605 (construction floor area)		
(e) Ancillary works include utilities, access and building facilities etc.	7 279		

There are three camping areas and three family camping areas in the E-Co Village. These areas can accommodate 57 tents and up to 216 campers. The design capacity of each camping area is listed as follows:

Facility	Area (square meter)	Number of Tents	Maximum Camping Capacity (person)
Camping Area 1	574	7	25 in total
Camping Area 2	1 030	10	38 in total
Camping Area 3	1 572	11	41 in total
Family Camping Area 1	925	10	39 in total
Family Camping Area 2	711	10	36 in total
Family Camping Area 3	782	9	37 in total

(ii) Target number of participants of the E-Co Village

Target number of participants (based on programme attendance to individual activity):

- In the first 3 years of operation, at least 200 000 programme attendance in E-Co Village is expected. The projected number of participants by programme attendance for the first year is around 50 000, for the second year is around 69 000 and for the third year is around 102 000. The total projected number of visitors by programme attendance for the first 3 years is around 221 000.
- After the first 3 years, at least 100 000 programme attendance in E-Co Village per year is targeted.

(iii) How to ensure financial sustainability of the E-Co Village project

The E-Co Village will be operated on a non-profit making and self-financing basis. All income (including interest) earned from the project must be put in a specific bank account and the surplus will be used for the operation of E-Co Village project. Since the application stage of the project, the TWGHs has formulated an operation plan with detailed calculations and estimations of project income and expenditures. As the E-Co Village aims to provide education and social services, its activity fee will be at the same range of similar activities arranged by non-profit making organisations, which will be affordable to the public. Besides, the TWGHs will

actively seek social resources to help grassroots to participate in E-Co Village activities.

The TWGHs has been reviewing the operation plan of E-Co Village on a regular basis and is confident that the E-Co Village will achieve fiscal balance in the long run. If necessary, the TWGHs will make adjustments based on the actual operating conditions, such as cutting expenditure and raising revenue, and strengthening publicity and promotion strategies.