For discussion
on 27 March 2018

Legislative Council Panel on Development

PWP Item No. 399DS (Part)
Relocation of Sha Tin Sewage Treatment Works to caverns –
Site Preparation and Access Tunnel Construction

PURPOSE

This paper briefs Members on the proposal to upgrade part of **399DS**, entitled "Relocation of Sha Tin Sewage Treatment Works to caverns" (the Project), to Category A at an estimated cost of $2,077.5 million in money-of-the-day (MOD) prices to carry out the Stage 1 Works comprising site preparation works, construction of the main access tunnel and the access road, and ancillary works for the Project.

PROJECT SCOPE

2. The part of **399DS** which we propose to upgrade to Category A, hereinafter referred to collectively as "Stage 1 Works", comprises –

(a) site preparation works at the main access tunnel portal area, including construction of the relevant retaining structures;

(b) construction of about 350 metres (m) long main access tunnel leading to the proposed cavern complex at Nui Po Shan[1];

(c) construction of about 500 m long access road leading to the proposed ventilation shaft[2]; and

(d) ancillary works[3].

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[1] The proposed cavern complex at Nui Po Shan and the proposed ventilation shaft will be constructed under the remainder of **399DS**.

[2] *Ibid.* Footnote 1.

[3] Including diversion of utilities, geotechnical works, removal and preservation of trees, improvement works at Mui Tsz Lam Road, provision of temporary traffic arrangement and environmental mitigation measures.

3. A layout plan of the proposed Stage 1 Works is at **Enclosure 1**.

4. Subject to the funding approval of the Finance Committee (FC), we plan to commence the proposed Stage 1 Works in the first quarter of 2019 for completion in the fourth quarter of 2022.

5. We will retain the remainder of **399DS** in Category B and will seek funding for the works at a later stage. The remainder of **399DS** mainly comprises construction of the cavern complex at Nui Po Shan and the remaining access tunnels and portals; construction of the relocated Sha Tin Sewage Treatment Works (STSTW) and the associated facilities; decommissioning and demolition of the existing STSTW; and ancillary works[4].

6. A layout plan of the remainder of **399DS** is at **Enclosure 2**.

JUSTIFICATION

7. There is a pressing need to optimise the supply of land for various uses by sustainable and innovative approaches to support social and economic development. It is the established policy of the Government to adopt a multi-pronged approach to expand land resources. One practicable approach is rock cavern development, which is a viable source of long-term land supply. In 2011, the Civil Engineering and Development Department (CEDD) completed a study on "Enhanced Use of Underground Space in Hong Kong". Amongst other findings, the study has broadly demonstrated that relocation of the existing STSTW to caverns is technically feasible and financially viable.

8. Releasing of about 28 hectare of land after relocating the existing STSTW to caverns brings multifold benefits to the communities of Sha Tin and Ma On Shan Districts as a whole. On one hand, developing the vacated site for residential and other beneficial uses will bring about advantage to the community by meeting the public's needs[5]. On the other hand, the environment of the vacated site and its surroundings will be

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[4] Including environmental mitigation works, road works, traffic diversion, utilities diversion, etc. that are incidental to the Project.

[5] The future land uses of the existing STSTW site to be vacated are subject to a separate planning and engineering study, in which appropriate development and land uses schemes will be formulated for further consultation with the public and stakeholders.

greatly improved. Comparing to the existing open-plant arrangement, the odour management of the proposed relocated STSTW in caverns, with caverns as natural barrier, can be efficiently enhanced so as to minimise the odour impact on the surrounding communities.

9. The 2017 (October) Policy Agenda announced that the Government would strive to complete the site investigation, detailed impact assessments and detailed design for the relocation of STSTW to caverns as soon as possible for early commencement of cavern construction works, provisioning of the relocated STSTW in caverns and onward demolition of the existing STSTW.

10. The future cavern complex for the relocated STSTW will be the largest of its type ever built in Hong Kong. It needs to be implemented in stages. Tentatively, the Project will be implemented in 5 stages, namely (i) site preparation and access tunnel construction (Stage 1 Works) (i.e. the part seeking upgrading on this submission); (ii) main caverns construction; (iii) sewage treatment facilities installation; (iv) modification and construction of upstream sewerage and pumping stations; and (v) decommission and demolition of existing STSTW.

11. It is anticipated that the construction period of the Project would last for more than 10 years. In order to derive a more reliable project cost estimate for prudent project administration and financial management over a long construction period, we propose to implement the Stage 1 Works first, leaving the remaining works and associated funding application to be carried out at a later stage.

FINANCIAL IMPLICATIONS

12. We estimate the cost of the proposed Stage 1 Works to be $2,077.5 million in MOD prices.

PUBLIC CONSULTATION

13. We conducted a three-stage Public Engagement (PE) exercise in the planning and design stage to seek views from the public and the relevant stakeholders with a view to building consensus on the Project. The Stage 1 PE was conducted from November 2012 to March 2013 to share the overseas experience of cavern sewage treatment works and to collect public opinions on the Project. The Stage 2 PE was conducted from July to October 2013 to respond to the public concerns received from

Stage 1 PE with the support from various preliminary technical assessments. The Stage 3 PE was conducted from December 2015 to May 2016 to disseminate the results of detailed technical assessments with recommended mitigation measures, including environmental impact assessment, traffic impact assessment, etc., to the public. During the PE exercises, we carried out a wide range of activities, including media briefings, roving exhibitions, visits to the Stanley cavern sewage treatment works, focus group meetings with professional and environmental concern groups, community group meetings, public forum, etc. According to the results of the PE, it was generally agreed that the Project could benefit the community and enhance the environment in Sha Tin as a whole, especially in the aspects of odour control and visual impact.

14. We consulted the Health and Environment Committee of Sha Tin District Council (STDC) on the Project on 11 January 2018. The Committee generally supported the implementation of the Project.

ENVIRONMENTAL IMPLICATIONS

15. The Project is a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap.499) and an environmental permit (EP) is required for the construction and operation of the project. The Environmental Protection Department approved the Environmental Impact Assessment (EIA) Report for the Project under EIAO in November 2016, and issued an EP for the construction and operation of the Project in March 2017. The EIA Report concludes that the environmental impact of the Project can be controlled to within the criteria under EIAO and the Technical Memorandum on EIA Process. We will implement the environmental mitigation measures and environmental monitoring and audit (EM&A) programme recommended in the approved EIA Report, and comply with relevant conditions under the EP and other statutory requirements for environmental protection.

16. For short-term environmental impacts during construction of the proposed Stage 1 Works, the recommended mitigation measures mainly include adoption of quiet powered mechanical equipment and temporary noise barriers to minimise construction noise impact, regular water spraying for dust control, and setting up of community liaison groups to maintain close communication with the community and concern groups. All necessary environmental mitigation measures and the implementation of the EM&A programme have been taken into account in the cost estimation for the proposed Stage 1 Works.

17. At the planning and design stages, we have considered all the proposed works and construction sequences associated with the proposed Stage 1 Works to reduce the generation of construction waste where possible. In addition, we will request the contractor to reuse inert construction waste (e.g. demolished concrete and excavated soil and rock) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities (PFRF)[6]. We will encourage the contractor 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, we will request 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 request 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 and non-inert construction waste at PFRF and landfills respectively through a trip-ticket system.

19. We estimate that the proposed Stage 1 Works will generate 642 600 tonnes of construction waste. Of these, we will reuse 13 100 tonnes (2%) on site and 199 600 tonnes (31.1%) on other construction site(s), deliver 418 000 tonnes (65%) of inert construction waste to PFRF for subsequent reuse and 11 900 tonnes (1.9%) of non-inert construction waste at landfill sites for disposal. The total cost for disposal of construction waste at PFRF and landfills is estimated to be $32.1 million for the proposed Stage 1 Works (based on a unit charge rate of $71 per tonne for disposal at PFRF and $200 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap.354N)).

HERITAGE IMPLICATIONS

20. The proposed Stage 1 Works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites or buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office.

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[6] PFRF are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap 354N). Disposal of inert construction waste in public fill reception facilities requires a license issued by the Director of Civil Engineering and Development.

LAND ACQUISITION

21. The proposed Stage 1 Works does not involve resumption of private land.

TRAFFIC IMPLICATIONS

22. We have conducted a traffic impact assessment (TIA) for the Project, covering the traffic impact during both construction and operation phases. According to the findings of the assessment, with the implementation of appropriate temporary traffic arrangement (TTA), the construction works will not cause significant impact on the traffic network in all areas concerned. The traffic impact during operation phase, after completion of the Project, has also been assessed and found to be insignificant.

23. We will consult STDC prior to the implementation of any major TTA for the Project. At the construction stage, we will establish a traffic management liaison group and closely liaise with the Hong Kong Police Force, the Transport Department and other concerned government departments to discuss, scrutinize and review the proposed TTA with a view to minimising the traffic impact arising from the construction works.

BACKGROUND

24. We upgraded **399DS** to Category B in September 2013.

25. In July 2014, FC approved the upgrading of part of **399DS** to Category A as **407DS** "Relocation of Sha Tin sewage treatment works to caverns – consultants' fees and investigation" at an approved project estimate of $637.7 million in MOD prices for carrying out site investigation, surveys, impact assessments and detailed design study for the Project.

26. In September 2014, we engaged consultants to undertake various impact assessments including EIA, TIA, etc. and detailed design for the Project. Drainage Services Department also engaged contractors to carry out ground investigation for the Project. The ground investigation works have been substantially completed.

27. We have substantially completed the detailed design of the proposed Stage 1 Works.

28. Of the 2 193 trees within the Project boundary, 230 trees will be preserved. The construction works will involve the removal of 1 963 trees[7], including 1 904 trees to be felled and 59 trees to be transplanted elsewhere. All the affected trees are not important trees[8]. We will incorporate planting proposal as part of the Project, including estimated quantities of 333 trees and about 2 962 square metres of mix planting (including planting about 3 554 whip trees).

WAY FORWARD

29. We will seek support of the Public Works Subcommittee for the approval from the FC to upgrade part of **399DS** to Category A.

Development Bureau
Drainage Services Department
March 2018

[7] Of 1 963 trees affected by the Project, all of them will be removed under Stage 1 Works.

[8] "Important trees" 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 trees, trees as landmark of monastery or heritage monument, and trees in memory of important persons or events;
(c) trees of precious or rare species;
(d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
(e) trees with trunk diameter equal or exceeding 1.0 m (measured at 1.3 m above ground level), or with height or canopy spread equal or exceeding 25 m.