

For discussion  
on 25 March 2014

## Legislative Council Panel on Development

### 399DS – Relocation of Sha Tin sewage treatment works to caverns

#### PURPOSE

This paper seeks Members' support on the proposal to upgrade part of **399DS** to Category A at an estimated cost of \$637.7 million in money-of-the-day (MOD) prices to carry out the investigation and design (I&D) study and the associated site investigation works for relocation of the Sha Tin sewage treatment works (STSTW) to caverns (the relocation project).

#### PROJECT SCOPE AND NATURE

2. The part of **399DS**, which we propose to upgrade to Category A, comprises –
  - (a) preliminary and detailed design of the works described below:
    - (i) construction works for relocating STSTW to caverns, including the construction of caverns, portals, tunnels, sewage treatment facilities, ventilation shafts, ancillary buildings and the associated facilities;
    - (ii) modification, improvement and reprovisioning of the existing sewerage facilities upstream of the STSTW and the Tolo Harbour Effluent Export Scheme system (an existing effluent disposal system) in relation to relocation of the STSTW to caverns;
    - (iii) rehabilitation, modification and improvement of the existing emergency submarine outfall and construction of a new outfall for connecting with the relocated STSTW; and
    - (iv) and all necessary works, including environmental mitigation works, traffic diversion, utilities diversion, etc. that are incidental to (i), (ii) and (iii);

- (b) detailed impact assessments on environment, traffic, geotechnical, sewerage, drainage, waterworks, utilities, blasting vibration and other relevant aspects;
- (c) public engagement (PE) and consultation exercises with relevant stakeholders;
- (d) associated site investigation works and supervision; and
- (e) preparation of tender documents and assessment of tenders for the associated site investigation works and the future construction works for the relocation project.

— A plan showing the preliminary location of the relocated STSTW is at **Enclosure 1**.

3. Subject to the funding approval of the Finance Committee (FC), we plan to commence the proposed I&D study and the associated site investigation works in August 2014. In the detailed design, we will review the programme including the feasibility of shortening the construction period of the relocation project. The I&D study will be completed in stages by end 2022.

4. We will retain the remainder of **399DS** in Category B, which mainly covers the construction of the works described in item (a) of paragraph 2 above, commissioning of the relocated STSTW and demolition of the existing STSTW. We will seek funding for these works to dovetail with the implementation programme of the relocation project.

## **JUSTIFICATION**

5. 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. One practicable approach is rock cavern development.

6. According to the findings of the study on “Enhanced Use of Underground Space in Hong Kong” completed by the Civil Engineering and Development Department (CEDD) in 2011, about two-third of the land in Hong Kong is suitable for cavern development from topographical and geological perspectives. The study has also broadly demonstrated that a cavern scheme could be implemented to house the STSTW, the largest secondary sewage treatment works in Hong Kong with a designed sewage treatment capacity of 340 000 cubic metres per day, thereby releasing about 28 hectares (ha) of land for more beneficial and compatible land uses.

7. The 2011-12 Policy Address announced that the Government would explore the use of rock cavern development as an innovative method to expand Hong Kong's land resources. To take forward the initiative, the Drainage Services Department (DSD) commenced a detailed feasibility study on the relocation of the STSTW to caverns (FSR) in May 2012. The FSR included relevant preliminary technical and impact assessments, a preliminary planning review for the future land use of the existing STSTW site and a two-staged PE exercise. The main tasks of the FSR were completed in end 2013. The results confirmed that relocating the STSTW to the proposed cavern site at Nui Po Shan of A Kung Kok is technically feasible and financially viable.

8. The FSR has identified that the relocation project will give rise to the following social and environmental benefits:

- (a) releasing about 28 ha of land close to the centre of Sha Tin New Town with sea frontage and pleasant environment in the neighbourhood for (i) residential development to meet the society's housing need; (ii) commercial development thereby creating job opportunities; and (iii) government, institution and community facilities and public open space to meet the community needs and aspirations;
- (b) improving the living environment of the surroundings upon relocation of the existing STSTW to caverns and creating a green and vibrant waterfront living environment with ample open space, continuous promenade and recreational facilities such as cycle tracks, and the potential for other leisure facilities such as outdoor retail and food and beverage facilities, water sports facilities along Shing Mun River etc.;
- (c) enhancing odour management of the relocated STSTW with caverns as natural barrier, and taking the opportunity to review if more advanced technologies can be adopted for the sewage and sludge treatment facilities; and
- (d) enhancing the development opportunities of the surrounding area adjacent to the existing STSTW site after completion of the project and enhancing the accessibility of the area by improvements to transport infrastructure.

9. Moreover, according to the results of the PE exercise, relocating government facilities to caverns and releasing such sites for housing and other uses is generally supported by the public.

10. We hence propose to carry out the I&D study and the associated site investigation works for the relocation project as soon as possible. Due to inadequate

in-house resources, the Director of Drainage Services proposes to engage consultants to conduct the proposed study and supervise the site investigation works.

## FINANCIAL IMPLICATIONS

11. We estimate the cost of the proposed I&D study and associated site investigation works to be \$637.7 million in MOD prices, made up as follows –

		<b>\$ million</b>	
(a)	Consultants' fee for	194.2	
	(i) preliminary and detailed design	135.0	
	(ii) detailed impact assessments on environment, traffic, geotechnical, sewerage, drainage, waterworks, utilities, blasting vibration and other relevant aspects	38.6	
	(iii) PE and consultation exercises with relevant stakeholders	10.2	
	(iv) preparation of tender documents and assessment of tenders for the associated site investigation works and the future construction works	9.5	
	(v) management of resident site staff for site investigation works	0.9	
(b)	Remuneration of resident site staff for site investigation works	17.8	
(c)	Site investigation works	248.0	
(d)	Contingencies	46.0	
	Sub-total	<u>506.0</u>	(in September 2013 prices)
(e)	Provision for price adjustment	<u>131.7</u>	
	Total	<u>637.7</u>	(in MOD prices)

## **PUBLIC CONSULTATION**

12. We have conducted a two-stage PE exercise under the FSR to seek the views of the public and stakeholders with a view to building consensus on the relocation project. The Stage 1 PE was conducted from November 2012 to March 2013 to share the overseas experience of cavern sewage treatment works and collect public opinion on the relocation project, while the Stage 2 PE was conducted from July to October 2013 to further consult the public on the results and recommendations of the preliminary technical assessments. During the PE exercise, we carried out a wide range of activities, including a media briefing, roving exhibitions, visits to the Stanley sewage treatment works (an existing sewage treatment works in caverns), three focus group meetings with professional and environmental organisations, three community group meetings mainly for Sha Tin residents and a public forum. According to the results of the PE, it was generally agreed that the relocation project could benefit the community and enhance the environment in Sha Tin as a whole, especially on the aspects of odour and visual impacts. The reports of the Stage 1 and 2 PE were released in July 2013 and March 2014 respectively and uploaded to the project website.

13. During the PE exercise, some residents near the proposed relocation site expressed concerns about possible odour and traffic impacts caused by the new sewage treatment works in the cavern site and the effect of blasting vibration on buildings and structures during construction. We have addressed those issues in the preliminary impact assessments of the FSR, which showed that better odour management would be achieved with the relocated STSTW fully enclosed in rock caverns. Moreover, by adopting suitable control and mitigation measures, potential impacts such as those on traffic and caused by blasting will be reduced to acceptable levels in compliance with the relevant standards. These aspects will also be further reviewed during the proposed I&D study.

14. We consulted the Health and Environment Committee (H&EC) of the Sha Tin District Council (STDC) on the findings and recommendations of the FSR on 7 November 2013. H&EC of STDC generally supported the proposal to proceed further with the I&D study and the associated site investigation works.

## **ENVIRONMENTAL IMPLICATIONS**

15. The proposed I&D study and the associated site investigation works are not designated projects under the Environmental Impact Assessment (EIA) Ordinance (Chapter 499) and will not cause any long-term environmental impact. We have included in the project estimate the cost of implementing suitable mitigation measures to control the short-term environmental impacts arising from the site investigation works.

16. The proposed site investigation works will only generate very little construction waste. We will require the consultants to comprehensively examine measures to minimise the generation of construction waste and to reuse/recycle construction waste as much as possible for implementation in the construction stage of the relocation project in future.

17. The relocation project comprises designated projects under Schedule 2 of the EIA Ordinance and environmental permits are required for their construction and operation. We will conduct EIA studies to address the environmental impacts and prepare EIA reports to meet the requirements under the EIA Ordinance, and propose mitigation measures if necessary. We will submit the EIA reports to the Director of Environmental Protection for approval under the EIA Ordinance. We will follow the statutory procedures, including provision of the EIA reports for inspection and comment by the public and the Advisory Council on the Environment.

## **HERITAGE IMPLICATIONS**

18. The proposed I&D study and the associated site investigation 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 I&D study and the associated site investigation works will not require any land acquisition.

## **BACKGROUND INFORMATION**

20. On 11 May 2012, FC approved upgrading **379DS** “Feasibility study on relocation of STSTW to caverns” to Category A with an approved project estimate of \$57.9 million in MOD prices for carrying out the FSR. The FSR commenced in May 2012 for completion in May 2014. The main tasks under the FSR were completed in end 2013.

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

22. The proposed I&D study and the associated site investigation works will not directly involve any tree removal or planting proposals. We will require the consultants to take into consideration the need for tree preservation during the

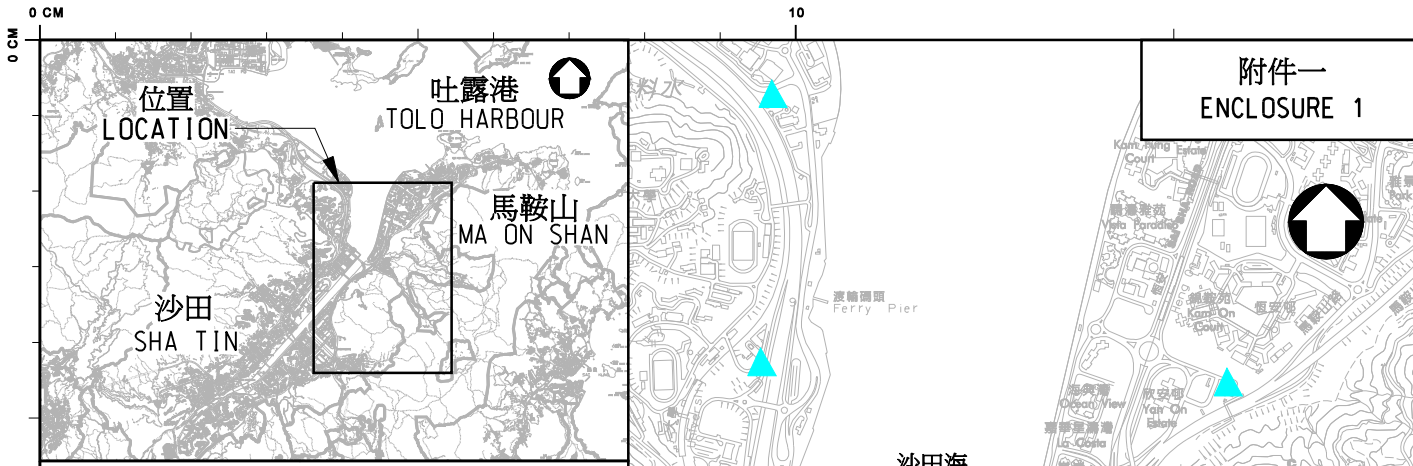
proposed I&D study. We will also incorporate tree planting proposals in the construction stage in future.

23. We estimate that the proposed I&D study and the associated site investigation works will create about 75 jobs (50 for labourers and another 25 for professional/technical staff) providing a total employment of 3 170 man-months.

## **WAY FORWARD**

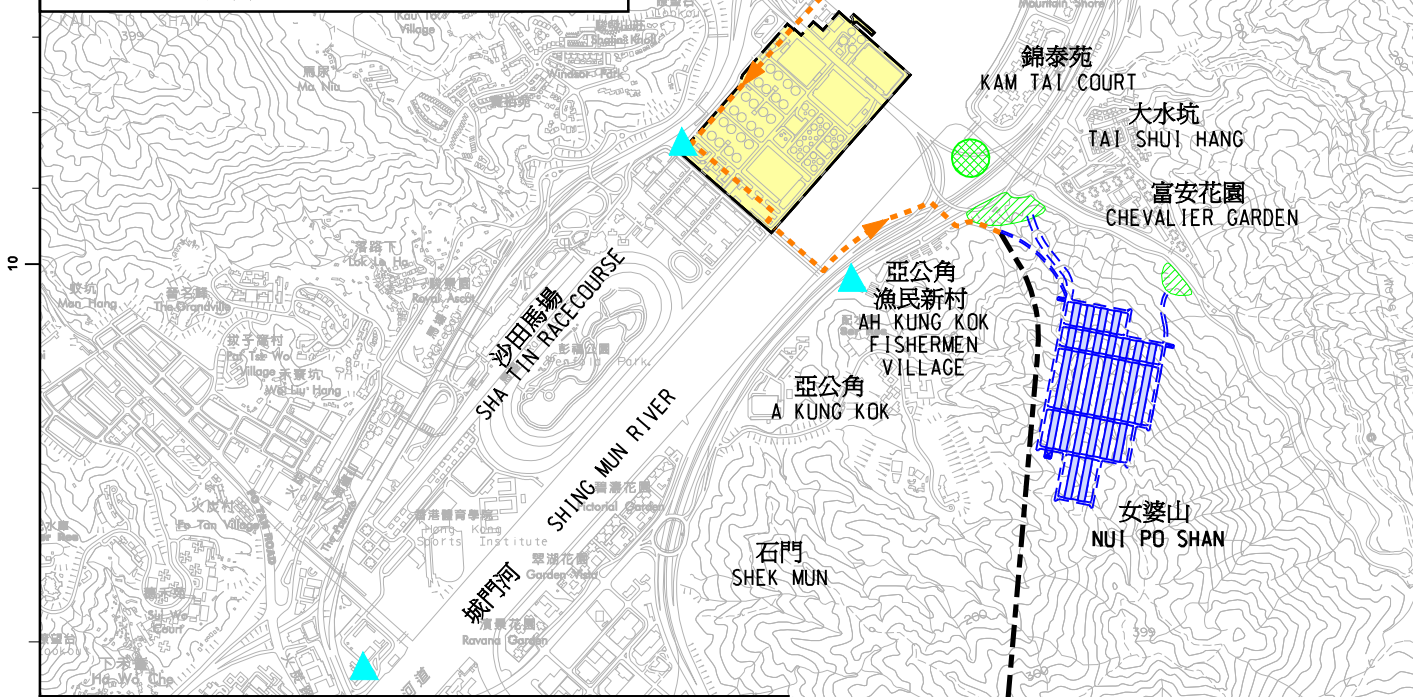
24. We plan to seek the support of the Public Works Subcommittee for upgrading part of **399DS** to Category A in April 2014 with a view to seeking funding approval from the FC in May 2014.

**Development Bureau  
Drainage Services Department  
March 2014**



附件一  
ENCLOSURE 1

索引圖 KEY PLAN  
比例 SCALE 1 : 200 000



- 圖例 LEGEND:**
- 現有沙田污水處理廠  
EXISTING SHA TIN SEWAGE TREATMENT WORKS (STSTW)
  - 擬議岩洞、通風豎井、隧道及重置沙田污水處理廠主體設施  
PROPOSED CAVERNS, VENTILATION SHAFTS, TUNNELS AND MAIN FACILITIES OF RELOCATED STSTW
  - 擬議重置沙田污水處理廠入口設施  
PROPOSED PORTAL FACILITIES OF RELOCATED STSTW
  - 擬議重置沙田污水處理廠附屬設施  
PROPOSED ANCILLARY FACILITIES OF RELOCATED STSTW
  - 將進行更改、改善和重置的現有上游污水泵房  
EXISTING UPSTREAM SEWAGE PUMPING STATIONS TO BE MODIFIED, IMPROVED AND REPROVISIONED
  - 將進行更改、改善和重置的吐露港經處理排放水輸送計劃系統  
TOLO HARBOUR EFFLUENT EXPORT SCHEME (THEES) SYSTEM TO BE MODIFIED, IMPROVED AND REPROVISIONED
  - 現有吐露港經處理排放水輸送隧道  
EXISTING THEES EFFLUENT EXPORT TUNNEL

- 註 NOTES:**
1. 擬議岩洞、隧道、出入口及附屬設施的佈局有待詳細設計。  
THE LAYOUT OF PROPOSED CAVERNS, TUNNELS, PORTALS AND ANCILLARY FACILITIES IS SUBJECT TO DETAILED DESIGN.
  2. 為保持清晰，將進行更改、改善和重置的現有上游污水收集系統沒有顯示。  
EXISTING UPSTREAM SEWERAGE TO BE MODIFIED, IMPROVED AND REPROVISIONED ARE NOT SHOWN FOR CLARITY.

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	12 MAR 2014	DSP/399DS/11042	
保留版權 COPYRIGHT RESERVED			
香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION			

圖則名稱 drawing title	繪畫 drawn	日期 date	圖則編號 drawing no.	比例 scale
工務工程計劃項目第399DS號 - 搬遷沙田污水處理廠往岩洞	K. W. CHAN	12 MAR 2014	DSP/399DS/11042	1:25000 OR AS SHOWN
PWP ITEM NO. 399DS - RELOCATION OF SHA TIN SEWAGE TREATMENT WORKS TO CAVERNS	核對 checked	日期 date	SEWERAGE PROJECTS DIVISION	
	Ir K. H. CHAN	12 MAR 2014		
	批核 approved	日期 date	SEWERAGE PROJECTS DIVISION	
	Ir H. S. KAN	12 MAR 2014		
	部門 office		SEWERAGE PROJECTS DIVISION	
	污水工程部			

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