

**For discussion
on 23 March 2015**

**Legislative Council
Panel on Environmental Affairs**

**223DS – Yuen Long and Kam Tin sewage treatment upgrade - upgrading of
San Wai sewage treatment works**

235DS – Yuen Long and Kam Tin sewerage and sewage disposal

PURPOSE

This paper seeks Members' support for our proposals to —

- (a) upgrade part of **223DS – Yuen Long and Kam Tin sewage treatment upgrade - upgrading of San Wai sewage treatment works** to Category A at an estimated cost of \$2,319.0 million; and
- (b) upgrade part of **235DS – Yuen Long and Kam Tin sewerage and sewage disposal** to Category A at an estimated cost of \$140.3 million

in money-of-the-day (MOD) prices.

PROJECT SCOPE

2. The part of **223DS** and **235DS** that we propose to upgrade to Category A comprises the phase 1 upgrading of San Wai sewage treatment works (SWSTW) including -

- (a) provision of preliminary treatment ^[1] facilities with treatment capacity of 200 000 cubic metres (m³) per day (under **235DS**);
- (b) provision of chemically enhanced primary treatment ^[2] (CEPT) facilities and ultraviolet disinfection facilities with treatment capacity of 200 000 m³ per day (under **223DS**); and
- (c) design and construction of ancillary works. (under **223DS**).

¹ Preliminary treatment includes screening and removal of grits. Solids larger than six millimetres in diameter as well as grit which consists of sand, bone pieces, etc. are removed from the sewage.

² Primary treatment includes a primary sedimentation process for removal of settleable suspended solids from the sewage after preliminary treatment. For CEPT, chemicals are added during the primary sedimentation process to enhance the removal of suspended solids.

— A site plan^[3] showing the proposed works for the SWSTW is at **Enclosure 1**.

JUSTIFICATIONS

3. The existing SWSTW serving the Northwest New Territories (NWNT) including Yuen Long, Tin Shui Wai and Hung Shui Kiu areas is a preliminary treatment plant with design capacity of 164 000 m³ per day. It only removes solids and grit from the sewage inflow prior to discharging the treated effluent into the northwestern waters via the NWNT effluent tunnel and then a submarine outfall.

4. Currently, the quantity of sewage flow to the SWSTW for treatment is about 130 000 m³ per day. The design treatment capacity of 164 000 m³ per day of the existing SWSTW is expected not to be sufficient to meet the projected flow derived from the latest planning data which estimate a population of around 700 000 by 2020 in the area and a further increase of around 100 000 from 2020 onwards, with the development of its catchment of about 1 300 hectares of land for various uses such as residential and commercial developments. We need to increase the treatment capacity of the SWSTW by 36 000 m³ under phase 1 upgrading of the SWSTW to 200 000 m³ per day to cater for the forecast sewage flow due to population growth in the NWNT from 2020 onwards. To enhance the environmental performance of the SWSTW, we also need to upgrade the sewage treatment level of the plant to CEPT with disinfection to reduce pollution loads to the northwestern waters. We will review the further phase of enhancement of the sewerage system in the light of the recommendations of the Hung Shui Kiu New Development Area study.

5. The proposed works on increasing the design capacity of the SWSTW with upgraded sewage treatment level will be implemented as an integrated project under one single contract to optimise the land use and to maximise cost-effectiveness. The phase 1 upgrading works of the SWSTW will be carried out at a site adjacent to the existing SWSTW to minimise interfacing problems and to maintain the existing sewage treatment services efficiently during the construction stage. After the commissioning of the upgraded SWSTW, the existing SWSTW will be decommissioned and its site will be reserved for future upgrading of the SWSTW under phase 2.

6. If we do not implement the proposed works, the existing SWSTW will not be able to cope with the projected increase in sewage flow nor reduce pollution loads. This will hinder future development of its serving areas in

³ As the proposed works will be implemented under a Design-Build-Operate contract, the layout of the new facilities in the SWSTW is subject to the contractor's design.

NWNT and will affect the target of improving the quality of the treated effluent discharged from the SWSTW into the northwestern waters.

7. To match the proposed programme for commencement of works, we have invited tenders for the proposed works. Tender assessment is in progress. We plan to seek funding approval for the proposed works from the Finance Committee (FC) in mid-2015 after consulting the Public Works Subcommittee. Subject to the funding approval of the FC, we plan to commence the proposed works in mid 2015 for completion in early 2020. We will retain the remainder of **223DS** and **235DS** in Category B for the phase 2 upgrading of the SWSTW to further increase its sewage treatment capacity. The remainder of **235DS** also comprises the provision of sewerage in Yuen Long and Kam Tin. Funding for the remainder of **223DS** and **235DS** will be sought at a later stage after completion of the conceptual design and preparatory work.

FINANCIAL IMPLICATIONS

8. We estimate the total capital cost of the proposed works under **223DS** and **235DS** as detailed in paragraph 2 above to be \$2,459.3 million in MOD prices made up as follows —

	\$ million (MOD)
(a) 223DS — Yuen Long and Kam Tin sewage treatment upgrade - upgrading of San Wai sewage treatment works (<i>part</i>)	2,319.0
(b) 235DS — Yuen Long and Kam Tin sewerage and sewage disposal (<i>part</i>)	140.3
Total	2,459.3

9. We estimate that the proposed works will create about 400 jobs (320 for labourers and another 80 for professional/technical staff) providing a total employment of 20 000 man-months.

PUBLIC CONSULTATION

10. On 1 December 2011, we consulted the Ha Tsuen Rural Committee

(HTRC), which in-principle supported the proposed works subject to an agreeable zonal compensation rate for land resumption. HTRC expressed concerns on land resumption related issues which were later addressed in a follow-up meeting with the Chairman and Vice-chairman of HTRC on 12 January 2012. No further follow-up enquiries or objections had been raised.

11. On 12 March 2012, we consulted the Environmental Improvement Committee of Yuen Long District Council on the proposed works. Members supported the proposed works. In December 2014, we updated Members in writing of the progress of the proposed works.

12. We gazetted the proposed works in accordance with the Water Pollution Control (Sewerage) Regulation on 20 April 2012. A total of seven objections were received during the statutory objection period. In order to address the objectors' concern, the land resumption boundary was amended and the Amendment to the Plan and Scheme was gazetted on 11 January 2013. One more objection was received during the statutory objection period of the Amendment Scheme. Among the eight objections received, one objection was resolved while the remaining seven objections were unresolved. The seven unresolved objections were mainly on compensation for land resumption and business loss. The Amendment Scheme was subsequently authorised by the Chief Executive in Council without modification and the relevant authorization notice was gazetted on 30 August 2013.

HERITAGE IMPLICATIONS

13. The proposed 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.

LAND ACQUISITION

14. We have to resume a total of 20 private agricultural lots with a total area of about 22 700 square metres (m²) and to clear about 7 500 m² of Government Land for implementation of the proposed works under **223DS**. No domestic structure was found in the pre-clearance survey and therefore no re-housing is required. Clearance of crops, fruit trees, flowers and fences on both private and Government land will be required. Ex-gratia allowances will be paid to affected cultivators. Claim for "Tun Fu" ceremonial fees and business loss are anticipated. Land resumption is not required for **235DS**.

ENVIRONMENTAL IMPLICATIONS

15. The proposed works is a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Chapter 499). In May 2003, the EIA report for the proposed works was approved under the EIAO. The EIA report concluded that the environmental impacts of the proposed works can be controlled to within the criteria under the EIAO and the Technical Memorandum on EIA Process. We have obtained an environmental permit in October 2013 for the construction and operation of the proposed works after completion of a review confirming the validity of the 2003 EIA report findings. We shall implement the mitigation measures recommended in the approved EIA report and stipulated in the environmental permit. We have included a sum of about \$5.5 million and \$0.3 million (in September 2014 prices) in the project estimates under **223DS** and **235DS** respectively for the implementation of the environmental mitigation measures.

16. At the planning and preliminary design stages, we have considered minimising the excavation for structures to reduce the generation of construction waste where possible. We will require the contractor to reuse inert construction waste, e.g. excavated soil and demolished concrete on site as far as possible, in order to minimise the disposal of inert construction waste to the public fill reception facilities (PFRF) ^[4]. 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.

17. At the construction stage, we will require the contractor to submit for approval a plan setting out waste management measures, which will include appropriate mitigation means to avoid, 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 and non-inert construction waste to PFRF and landfills respectively through a trip-ticket system.

18. We estimate that the proposed works will generate in total about 65 300 tonnes of construction waste. Of these, we will reuse about 8 800 tonnes (13%) on site, and deliver 53 300 tonnes (82%) of inert construction waste to PFRF for subsequent reuse and 3 200 (5%) tonnes non-inert construction waste to landfill sites for disposal. The total cost for accommodating the construction waste at PFRF and landfill sites is estimated to

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

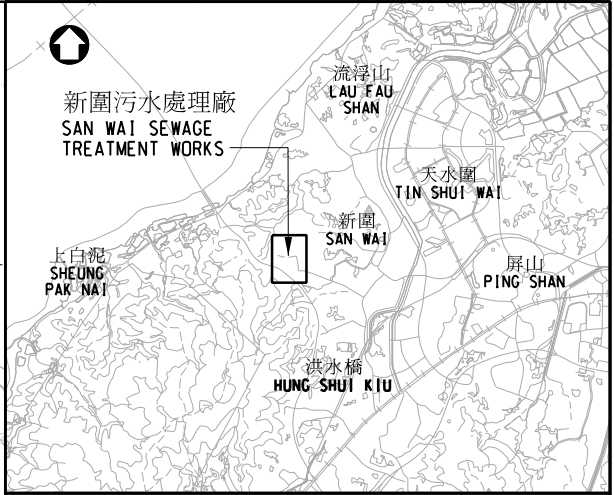
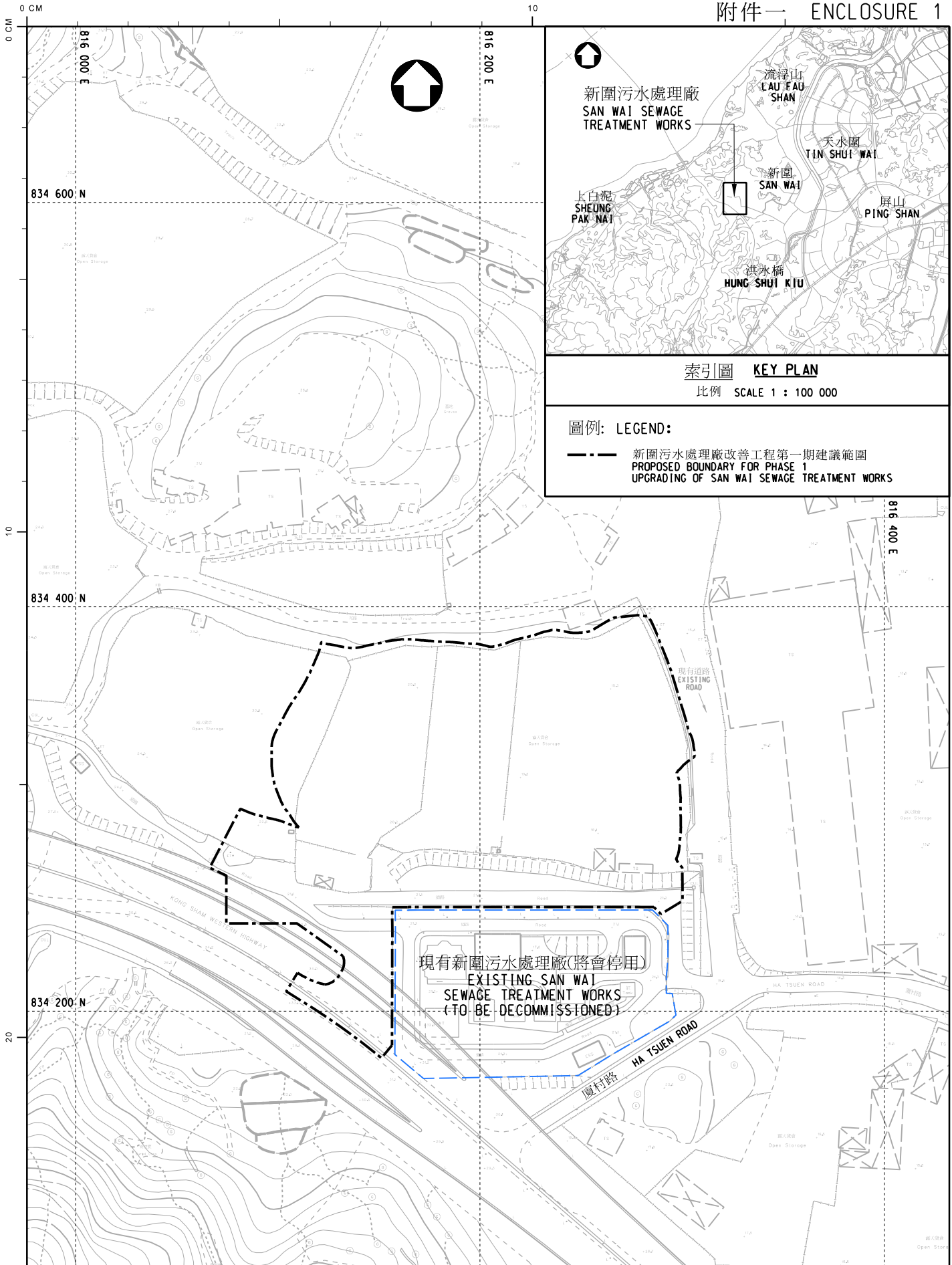
be about \$1.84 million for the proposed works (based on a unit cost of \$27 per tonne for disposal at PFRF and \$125 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation). Detailed breakdown is as follows —

	Inert Construction & Demolition (C&D) Materials		Non-inert C&D Materials	Costs for accommodating construction waste at PFRF and landfill sites
PWP item no.	Reuse (tonnes)	Deliver to PFRF for subsequent reuse (tonnes)	Disposal at landfill (tonnes)	(\$ million)
223DS (part)	8 300	50 300	3 000	1.73
235DS (part)	500	3 000	200	0.11
Total	8 800	53 300	3 200	1.84

ADVICE SOUGHT

19. Members are invited to support our proposals for upgrading the proposed works under **223DS** and **235DS** to Category A.

**Environment Bureau
Drainage Services Department
March 2015**



索引圖 KEY PLAN

比例 SCALE 1 : 100 000

圖例: LEGEND:

- 新圍污水處理廠改善工程第一期建議範圍
PROPOSED BOUNDARY FOR PHASE 1
UPGRADING OF SAN WAI SEWAGE TREATMENT WORKS

現有新圍污水處理廠(將會停用)
EXISTING SAN WAI
SEWAGE TREATMENT WORKS
(TO BE DECOMMISSIONED)

圖則名稱 drawing title
工務工程計劃第4223DS號及4235DS號：
元朗及錦田污水處理系統改善工程 -
新圍污水處理廠改善工程及
元朗及錦田污水收集系統及污水排放計劃
PWP ITEM NO. 4223DS AND 4235DS:
YUEN LONG AND KAM TIN SEWAGE TREATMENT
UPGRADE - UPGRADING OF SAN WAI SEWAGE
TREATMENT WORKS AND
YUEN LONG AND KAM TIN SEWERAGE
AND SEWAGE DISPOSAL

繪畫 drawn <i>SIGNED</i> L. L. LIU	日期 date 4 FEB 2015	圖則編號 drawing no. DSS/2015/001	簡簽 initial 比例 scale 1 : 2500 OR AS SHOWN
核對 checked <i>SIGNED</i> Ir C. K. KWOK	日期 date 4 FEB 2015		
批核 approved <i>SIGNED</i> Ir S. C. LAU	日期 date 4 FEB 2015	保留版權 COPYRIGHT RESERVED	
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