

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE

Environmental Protection – Sewerage and sewage treatment

408DS – Yuen Long effluent polishing plant

Members are invited to recommend to the Finance Committee –

- (a) the upgrading of part of **408DS**, entitled “Yuen Long effluent polishing plant - consultants’ fees and investigation”, to Category A at an estimated cost of \$88.9 million in money-of-the-day prices; and
- (b) the retention of the remainder of **408DS** in Category B.

PROBLEM

It is necessary to upgrade the Yuen Long sewage treatment works (YLSTW) to the Yuen Long effluent polishing plant (YLEPP) to cope with the expected increase in sewage treatment demand and enhance its environmental performance.

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, proposes to upgrade part of **408DS** to Category A at an estimated cost of \$88.9 million in money-of-the-day (MOD) prices to carry out the study, design and associated investigation works for upgrading the YLSTW to YLEPP.

/PROJECT

PROJECT SCOPE AND NATURE

3. The part of **408DS** that we propose to upgrade to Category A comprises –

- (a) the engagement of consultants for the YLEPP to undertake –
 - (i) an investigation study as well as preliminary and detailed design of sewage and sludge treatment facilities;
 - (ii) impact assessments on the environmental, drainage, geotechnical, traffic and other aspects necessary for the design in (i) above;
 - (iii) public engagement and consultation with relevant stakeholders;
 - (iv) preparation of tender documents and assessment of tenders; and
 - (v) supervision of the site investigation, surveys and laboratory testing relating to (b) below.
- (b) site investigation, surveys and laboratory testing in support of the detailed design and impact assessments in (a)(i) and (a)(ii) above.

— Site plans showing the proposed works and the catchment area of YLSTW are at Enclosures 1 and 2 respectively.

4. Subject to funding approval of the Finance Committee, we plan to commence the proposed study, design and associated investigation works in late 2015 for completion in phases from 2018 to 2021.

5. We will retain the remainder of **408DS** in Category B for the construction of the YLEPP. Funding for the construction will be sought at a later stage after completion of the study, design and associated investigation works.

/JUSTIFICATION

JUSTIFICATION

6. The YLSTW currently provides secondary treatment¹ to sewage collected from Yuen Long Old Town, Yuen Long Industrial Estate, Kam Tin, San Tin and Pat Heung areas with a capacity of 70 000 cubic metres (m³) per day.

7. According to the latest planning data and housing development programme, the total volume of sewage in the catchment area of the YLSTW is estimated to reach 150 000 m³ per day in 2036 arising from major housing developments under planning as well as the village sewerage projects in its catchment area. It is therefore necessary to increase the daily treatment capacity of the YLSTW to 150 000 m³.

8. Furthermore, Deep Bay is a semi-enclosed water body very sensitive to pollution loading. To avoid the generation of additional residual pollution loading discharging into Deep Bay due to the increase in treatment capacity, it is also necessary to further enhance the YLSTW's environmental performance by upgrading it to an effluent polishing plant with tertiary treatment² to keep the residual pollution loading of the treated effluent to an acceptable level.

FINANCIAL IMPLICATIONS

9. We estimate the cost of the proposed study, design and associated investigation works under **408DS** to be \$88.9 million in MOD prices (see paragraph 11 below), broken down as follows –

	\$ million
(a) Consultants' fees for	53.9
(i) investigation study, preliminary and detailed design	42.3
(ii) impact assessments	5.7
(iii) public engagement and consultation	1.0
(iv) preparation of tender documents and assessment of tenders	3.6
(v) supervision of site investigation, surveys and laboratory testing	1.3
	/(b)

¹ Secondary treatment is a biological process that uses microorganisms to decompose and remove organic matters in sewage.

² Tertiary treatment is a combination of physical, chemical and/or more intensive biological processes to further remove organic matters and nutrient in sewage.

		\$ million	
(b)	Investigation works	11.4	
	(i) site investigation	3.7	
	(ii) surveys	3.6	
	(iii) laboratory testing	3.8	
	(iv) environmental mitigation measures	0.3	
(c)	Contingencies	<u>6.5</u>	
	Sub-total	71.8	(in September 2014 prices)
(d)	Provision for price adjustment	<u>17.1</u>	
	Total	<u>88.9</u>	(in MOD prices)

10. Due to inadequate in-house resources, we propose to engage consultants to conduct the study, design and supervision of the associated investigation works. A detailed breakdown of the estimates for the consultants' fees by man-months is at Enclosure 3.

11. Subject to funding approval, we will phase the expenditure as follows –

Year	\$ million (Sept 2014)	Price adjustment factor	\$ million (MOD)
2015 – 2016	7.4	1.05725	7.8
2016 – 2017	21.3	1.12069	23.9
2017 – 2018	16.2	1.18793	19.2
2018 – 2019	3.8	1.25920	4.8
2019 – 2020	3.9	1.33475	5.2
2020 – 2021	8.0	1.40483	11.2
2021 – 2022	8.0	1.47507	11.8
2022 – 2023	1.9	1.54882	2.9
2023 – 2024	1.3	1.62626	2.1
	<u>71.8</u>		<u>88.9</u>

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 2015 to 2024. We will tender the proposed consultancy mentioned in paragraph 3(a) under a lump-sum contract as the scope of works is well defined. We will deliver the site investigation, surveys and laboratory testing mentioned in paragraph 3(b) under re-measurement contracts because the quantities of works involved will vary depending on actual site conditions. The contracts will provide for price adjustment.

13. The proposed study, design and associated investigation works will not give rise to any recurrent consequences.

PUBLIC CONSULTATION

14. We consulted the Ping Shan Rural Committee and the Environmental Improvement Committee of the Yuen Long District Council on the project on 24 October and 10 November 2014 respectively. Both committees generally supported the proposed study, design and associated investigation works.

15. We consulted the Legislative Council Panel on Environmental Affairs on 26 January 2015 and Members supported the project.

ENVIRONMENTAL IMPLICATIONS

16. The proposed study, design and associated investigation works are not designated projects under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO) and will not cause any long-term environmental impact. We have included a sum of \$0.3 million (in September 2014 prices) in the project estimate for implementing suitable mitigation measures to control the short-term environmental impacts arising from the investigation works.

17. The proposed investigation works will only generate a small quantity of construction waste. We will require the consultants to minimise the generation of construction waste and to reuse or recycle construction waste as much as possible during the implementation of the construction stage of the project in future.

18. The construction and operation of the YLEPP is a designated project under Schedule 2 of the EIAO and an Environmental Permit is required. We will conduct an Environmental Impact Assessment (EIA) in accordance with the requirements of the EIAO during the study to address the environmental impacts. We will prepare and submit an EIA report to the Director of Environmental Protection for approval under the EIAO. We will follow the statutory procedures, including provision of the EIA report for inspection and comment by the public and the Advisory Council on the Environment.

HERITAGE IMPLICATIONS

19. The proposed study, design and associated investigation 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

20. The proposed study, design and associated investigation works do not require any land acquisition.

BACKGROUND INFORMATION

21. In July 2013, Drainage Services Department commissioned a consultancy to carry out the treatment process study during which the sewage flow projection and treatment process at the YLSTW were reviewed. The total cost of the study was about \$1.3 million. We have charged this amount to **350DS** “Yuen Long and Kam Tin sewerage and sewage disposal – consultants’ fees and investigations”. The study was completed in mid-2014 and concluded the technical feasibility of upgrading the YLSTW for providing the required treatment capacity and treatment level within its existing site.

22. In September 2014, we upgraded **408DS** “Yuen Long effluent polishing plant” to Category B.

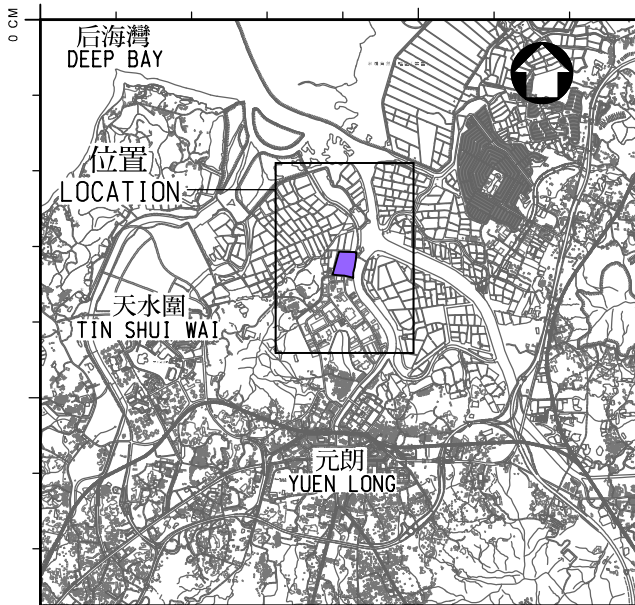
23. The proposed study, design and associated investigation works will not involve any tree removal or planting proposals. We will require the consultants to take into consideration the need for tree preservation during the proposed study and design. We will also incorporate tree planting proposals in the construction stage in the future.

24. We estimate that the proposed study, design and associated investigation works will create about 13 jobs (one for labourer and another 12 for professional or technical staff), providing a total employment of 890 man-months.

Environment Bureau
June 2015

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索引圖 KEY PLAN

比例 SCALE 1:100 000

附件一 ENCLASURE 1



圖例 LEGEND:



擬建元朗淨水設施位於
現有元朗污水處理廠範圍之內
PROPOSED YUEN LONG EFFLUENT
POLISHING PLANT LOCATED WITHIN THE
SITE BOUNDARY OF EXISTING YUEN LONG
SEWAGE TREATMENT WORKS

PROVISIONAL

SUBJECT TO AMENDMENT

圖則名稱 drawing title

工程計劃項目第408DS號
- 元朗淨水設施

PWP ITEM NO. 408DS
- YUEN LONG EFFLUENT
POLISHING PLANT

繪畫 drawn

K. W. CHAN

日期 date

18 DEC 2014

核對 checked

Ir S. K. PUN

日期 date

18 DEC 2014

批核 approved

Ir W. L. LEE

日期 date

18 DEC 2014

部門 office

污水工程部

SEWERAGE PROJECTS DIVISION

修改項目 description

圖則編號 drawing no.
DSP/S1403/11022

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簡簽 initial

比例 scale
1:10000
OR
AS SHOWN



香港特別行政區政府渠務署
DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE
HONG KONG
SPECIAL ADMINISTRATIVE REGION

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元朗污水處理廠
YUEN LONG SEWAGE
TREATMENT WORKS

元朗工業邨
YUEN LONG
INDUSTRIAL
ESTATE

元朗舊墟
YUEN LONG
KAU HUI

新田
SAN TIN

錦田
KAM TIN

八鄉
PAT HEUNG

圖例 LEGEND:

 元朗污水處理廠集水區
YUEN LONG SEWAGE
TREATMENT WORKS
CATCHMENT AREA

PROVISIONAL
SUBJECT TO AMENDMENT

圖則名稱 drawing title

工程計劃項目第408DS號
- 元朗淨水設施

PWP ITEM NO. 408DS
- YUEN LONG EFFLUENT
POLISHING PLANT

繪畫 drawn C. L. KWAN 日期 date 29 MAY 2015

核對 checked Ir S. K. PUN 日期 date 29 MAY 2015

批核 approved Ir W. L. LEE 日期 date 29 MAY 2015

部門 office 污水工程部

SEWERAGE PROJECTS DIVISION

版 no. 日期 date 修改項目 description 簡簽 initial

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DSP/S1403/11031

比例 scale

1:100000

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DRAINAGE SERVICES DEPARTMENT
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408DS – Yuen Long effluent polishing plant

Breakdown of the estimate for consultants' fees (in September 2014 prices)

Consultants' staff costs (Note 2)		Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fees (\$ million)
Consultants' fees for –					
(i) investigation study, preliminary and detailed design	Professional	227	38	2.0	32.4
	Technical	203	14	2.0	9.9
(ii) impact assessments	Professional	32	38	2.0	4.6
	Technical	23	14	2.0	1.1
(iii) public engagement and consultation	Professional	6	38	2.0	0.9
	Technical	3	14	2.0	0.1
(iv) preparation of tender documents and assessment of tenders	Professional	21	38	2.0	3.0
	Technical	12	14	2.0	0.6
(v) supervision of site investigation, surveys and laboratory testing	Professional	5	38	2.0	0.7
	Technical	13	14	2.0	0.6
Total					53.9

* MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS point to estimate the full staff costs including the consultants' overhead and profit, as the staff will be employed in the consultants' offices (as at now, MPS point 38 = \$71,385 per month and MPS point 14 = \$24,380 per month).
2. The actual man-months and fees will only be known when we have selected the consultants through the usual competitive lump sum fee bidding system.