

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE

Environmental Protection – Sewerage and sewage treatment

- 331DS – Outlying Islands sewerage, stage 2 – South Lantau sewerage works
- 339DS – North District sewerage, stage 1 phase 2C and stage 2 phase 1
- 346DS – Upgrading of Tuen Mun sewerage, phase 1
- 362DS – Sewerage for Ma Yau Tong Village, Tseung Kwan O

Members are invited to recommend to the Finance Committee –

- (a) the upgrading of part of **331DS**, entitled “Construction of San Shek Wan Sewage Treatment Works and Pui O village sewerage”, to Category A at an estimated cost of \$1,688.8 million in money-of-the-day (MOD) prices;
- (b) the upgrading of part of **339DS**, entitled “Village sewerage in Fanling Wai, So Kwun Po and Leng Pei Tsuen, Fanling”, to Category A at an estimated cost of \$179.7 million in MOD prices;
- (c) the upgrading of part of **346DS**, entitled “Village Sewerage in Northern Tuen Mun”, to Category A at an estimated cost of \$431.2 million in MOD prices;

/(d)

- (d) the upgrading of **362DS** to Category A at an estimated cost of \$179.4 million in MOD prices; and
- (e) the retention of the remainders of **331DS**, **339DS** and **346DS** in Category B.

PROBLEM

2. To cater for population growth and development needs of Hong Kong and to safeguard public health and protect the environment, we need to construct sewage treatment facilities in South Lantau, and provide more village sewerage systems in South Lantau, North District, Tuen Mun and Tseung Kwan O.

PROPOSAL

3. The Director of Drainage Services, with the support of the Secretary for the Environment, proposes to upgrade the following projects to Category A –
- (a) part of **331DS** at an estimated cost of \$1,688.8 million in MOD prices for the construction of sewage treatment works at San Shek Wan in South Lantau, and the provision of trunk sewers and village sewerage in Pui O;
 - (b) part of **339DS** at an estimated cost of \$179.7 million in MOD prices for the provision of village sewerage in part of North District;
 - (c) part of **346DS** at an estimated cost of \$431.2 million in MOD prices for the provision of village sewerage in part of Tuen Mun; and
 - (d) **362DS** at an estimated cost of \$179.4 million in MOD prices for the provision of village sewerage in Ma Yau Tong Village, Tseung Kwan O.

PROJECT SCOPE AND NATURE

4. To cater for population growth and development needs of Hong Kong and to safeguard public health and the environment, we need to maintain and enhance the capacity and coverage of the existing sewerage infrastructure. At present, the public sewerage system of Hong Kong has reached over 93% of the population. Building on this performance, we still need to upgrade the system to improve its performance and extend its coverage to serve expansion areas in developed districts, new development areas and more rural villages.

5. This paper consists of four sewerage projects in South Lantau, North District, Tuen Mun and Tseung Kwan O.

6. Details of the above proposals are provided at Enclosures 1 to 4 respectively.

Environment Bureau
May 2020

331DS – Outlying Islands sewerage, stage 2 – South Lantau sewerage works

PROJECT SCOPE AND NATURE

The part of **331DS** that we propose to upgrade to Category A comprises –

- (a) the construction of a secondary sewage treatment works (STW) with a design capacity of 5 800 cubic metres per day (m³/day) at San Shek Wan in South Lantau;
- (b) the construction of a sewage pumping station (SPS) with a design capacity of about 1 960 m³/day at Pui O;
- (c) the construction of about 1.4 kilometres (km) of submarine outfall with a diameter of 350 millimetres (mm) for the disposal of treated effluent from the STW at San Shek Wan;
- (d) the construction of about 4.1 km of gravity sewers with diameters ranging from 150 mm to 375 mm along South Lantau Road and Chi Ma Wan Road and at Pui O Lo Uk;
- (e) the construction of about 1.2 km of twin rising mains with a diameter of 200 mm along South Lantau Road and Chi Ma Wan Road; and
- (f) ancillary works¹.

/2.

1 Ancillary works include the utilities diversion, road and drainage works, provision of manholes, temporary closure and reinstatement of carriageways/footpaths/open space, necessary architectural, building services and landscaping works that are required to complete the proposed works.

- _____ 2. A plan showing the location of the proposed works is at Annex 1 to Enclosure 1.
3. Subject to the funding approval of the Finance Committee, we aim to commence the proposed works in the fourth quarter of 2020 for completion in the third quarter of 2026.
4. We will retain the remainder of **331DS** in Category B for provision of public sewerage system for another eight unsewered areas within the catchment of the proposed STW. Funding for the remainder of **331DS** will be sought later after completion of the design and preparatory work.

JUSTIFICATION

5. Currently, there is no public sewerage system along the central part of the coastal area of South Lantau between Shui Hau and Ham Tin, and sewage from this area is often disposed of by individual and simple on-site facilities such as septic tanks and soakaway (STS) systems². Provision of a public sewerage system to this area can help reduce the amount of pollutants being discharged into the coastal waters, thereby improving environmental hygiene and protecting the water quality of the bathing beaches nearby.
6. According to the natural population growth projection and the planned housing development, sewage flow in South Lantau is projected to reach 5 800 m³/day from an ultimate population of around 12 600 after 20 years. To meet the sewage disposal need, we propose to construct a trunk sewerage system at Pui O area, a secondary STW at San Shek Wan and a village sewerage system at Lo Uk.

/7.

2 STS systems operate by allowing the effluent to percolate through soil layers so that pollutants may be removed in a natural manner. However, if a STS system is located in an area where the ground water table is high, such as an area in proximity to the seaside or watercourses, it will not function properly due to ineffective percolation. There are also maintenance problems with some STS systems.

7. Upon completion of the proposed works, sewage from the sewerage area will be conveyed to the proposed STW for proper treatment and the treated effluent will be discharged through a submarine outfall into the sea about 1.1 km off the South Lantau coast.

FINANCIAL IMPLICATIONS

8. We estimate that the cost of the proposed works to be \$1,688.8 million in money-of-the-day (MOD) prices (please see paragraph 10 below), broken down as follows –

	\$ million (in MOD prices)
(a) Construction of STW	608.8
(i) civil works	305.3
(ii) electrical and mechanical (E&M) works	303.5
(b) Construction of submarine outfall	388.3
(c) Construction of SPS	102.6
(i) civil works	78.4
(ii) E&M works	24.2
(d) Construction of gravity sewers	108.4
(e) Construction of twin rising mains	63.8
(f) Ancillary works	46.2
(g) Environmental mitigation measures	15.2

		\$ million (in MOD prices)
(h)	Consultants' fees for	10.9
(i)	contract administration	4.0
(ii)	management of resident site staff (RSS)	6.9
(i)	Remuneration of RSS	191.2
(j)	Contingencies	153.4
Total		1,688.8

9. We propose to engage consultants to undertake contract administration and site supervision for the project. A detailed breakdown of the estimates for the consultants' fees and RSS costs by man-months is at Annex 2 to Enclosure 1.

10. Subject to funding approval, we plan to phase the expenditure as follows –

Year	\$ million (MOD)
2020 – 2021	5.2
2021 – 2022	196.7
2022 – 2023	312.3
2023 – 2024	360.6
2024 – 2025	267.8
2025 – 2026	182.7

/Year

Year	\$ million (MOD)
2026 – 2027	128.6
2027 – 2028	122.5
2028 – 2029	112.4
	<hr/> 1,688.8 <hr/>

11. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output for the period from 2020 to 2029. We will deliver the proposed works under a New Engineering Contract (NEC)³ form of contract with provision for price adjustment.

12. We estimate the additional annual recurrent expenditure arising from this project to be \$65.4 million. The recurrent expenditure will be taken into consideration when determining the sewage charge and trade effluent surcharge rates in future.

PUBLIC CONSULTATION

13. We have been consulting relevant members of the South Lantau Rural Committee and the Islands District Council (IsDC) about the proposed works since August 2010, and they supported the proposed works. We further consulted the Tourism, Agriculture, Fisheries and Environmental Hygiene Committee of the IsDC in July 2011 and November 2018. The Committee also supported the proposed works.

/14.

3 NEC is a suite of contracts developed by the Institution of Civil Engineers, United Kingdom. It is a contract form that emphasizes cooperation, mutual trust and collaborative risk management between contracting parties.

14. We gazetted the proposed works for the submarine outfall under the Foreshore and Sea-bed (Reclamations) Ordinance (Cap. 127) on 25 October 2013. No objection was received and the proposed works were authorised on 17 November 2017.

15. We gazetted the proposed STW works under the Water Pollution Control (Sewerage) Regulation (Cap. 358AL) on 16 December 2016. No objection was received and the proposed works were authorised on 5 October 2018.

16. We gazetted the proposed sewerage works for Pui O and Lo Uk under the Water Pollution Control (Sewerage) Regulation (Cap. 358AL) on 1 March 2019, and amended them by further gazette on 15 November in the same year. The proposed works were authorised on 24 January 2020 after one objection received against the proposal was resolved.

17. We consulted the Legislative Council Panel on Environmental Affairs on 29 April 2019 and Members supported the proposed works.

ENVIRONMENTAL IMPLICATIONS

18. The proposed 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. In April 2017, the Environmental Impact Assessment (EIA) Report for the project was approved under EIAO. The EIA Report concluded that the environmental impact of the project could be controlled to within the criteria under EIAO and the Technical Memorandum on EIA Process. An EP for the project was issued in July 2017. We will implement the measures recommended in the EIA Report and the EP as well as the environmental monitoring and audit programme to ascertain the effectiveness of the mitigation measures. The key mitigation measures for San Shek Wan STW and Pui O SPS include placing most of their equipment in underground enclosed structures, provision of deodorization units as well as landscaping works and green roof to the structures to minimise the potential noise, odour and visual impact to nearby sensitive receivers. We have included in
/paragraph

paragraph 8(g) a sum of \$15.2 million (in MOD prices) in the project estimate for implementation of the environmental mitigation measures.

19. At the construction phase, we will adopt non-dredge trenchless method for the outfall construction to avoid disturbing the seabed and will conduct removal of sediment at the proposed outfall diffuser by closed grab dredgers surrounded by silt curtains to minimise adverse impact on water quality. We will require the contractors to control noise, dust and site run-off nuisances to levels within established standards and guidelines through implementation of the recommended environmental mitigation measures. These measures include the use of silenced construction equipment and temporary noise barriers to reduce noise generation. In addition, water-spraying to the construction site will be applied regularly to minimise emission of fugitive dust, and on-site treatment of site run-off will be carried out to minimise potential water quality impact. We will also carry out regular site inspections to ensure that these recommended mitigation measures and good practices will be properly implemented on site.

20. At the planning and design stages, we have considered ways to reduce the generation of construction waste where possible. In addition, we will require the contractors to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible in order to minimise the disposal of inert construction waste at public fill reception facilities (PFRF)⁴. We will encourage the contractors 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.

/21.

4 PFRF are specified in Schedule 4 of the 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.

21. We will also require the contractors 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 require the contractors 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.

22. We estimate that the proposed works will generate in total about 113 600 tonnes of construction waste. Of these, we will reuse about 44 840 tones (39.5%) of inert construction waste on site and deliver 68 420 tonnes (60.2%) of inert construction waste to PFRF for subsequent reuse. We will dispose of the remaining 340 tonnes (0.3%) of non-inert construction waste at landfills. The total cost of accommodating construction waste at PFRF and landfill sites is estimated to be about \$4.9 million for the proposed 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

23. The proposed works will not affect declared monuments, proposed monuments, graded historic sites/buildings, and Government historic sites identified by the Antiquities and Monuments Office. As part of the proposed works will be executed within the Pui O Site of Archaeological Interest, we will implement the mitigation measures as recommended by the approved EIA Report accordingly. A marine archaeological investigation has been conducted under the EIA. It concluded that adverse impact on marine archaeology was not anticipated.

LAND ACQUISITION

24. We have reviewed the design of the proposed works to minimise the extent of land acquisition. We will resume about 203.5 square metres (m²) of private land and clear about 72 920 m² of government land for implementing the proposed works. The land resumption and clearance will not require clearance of any households, but will affect 17 non-domestic structures. We will charge the cost of land acquisition and clearance, estimated at \$1.5 million, to **Head 701 – Land Acquisition**. A breakdown of the land acquisition cost is at Annex 3 to Enclosure 1.

BACKGROUND INFORMATION

25. We upgraded **331DS** to Category B in October 2008.

26. In March 2010, we engaged consultants to undertake site investigation, surveys, impact assessments and preliminary design for the proposed works. The total cost was \$11.5 million in MOD prices. We have charged this amount to block allocation **Subhead 4100DX** “Drainage works, studies and investigations for items in Category D of the Public Works Programme”.

27. In June 2012, we upgraded part of **331DS** to Category A as **385DS** for carrying out detailed design for the project at an approved project estimate of \$30.0 million in MOD prices.

28. We have substantially completed the detailed design of the proposed works mentioned in paragraph 1 above.

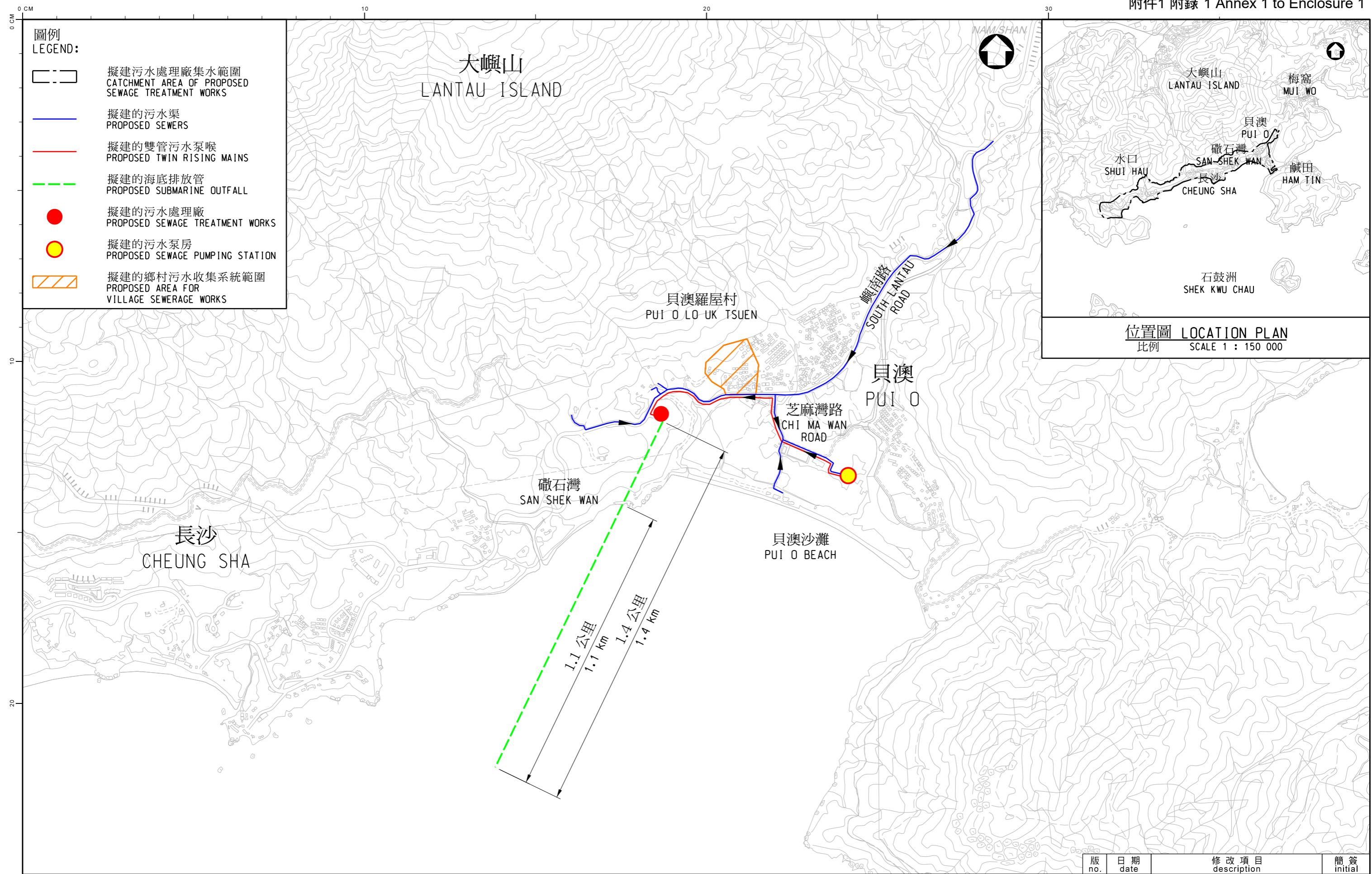
29. The proposed works will involve the felling of 276 trees. All the trees to be removed are not important trees⁵. We will incorporate a planting proposal of 276 trees as part of the project.

30. We estimate that the proposed works will create about 180 jobs (145 for labourers and 35 for professional or technical staff), providing a total employment of 11 250 man-months.

Environment Bureau
May 2020

5 “Important tree” refer to a tree in the Register of Old and Valuable Trees, or any other tree that meets one or more of the following criteria –

- (a) a tree of 100 years old or above;
- (b) a tree of cultural, historical or memorable significance, e.g. Fung Shui trees, trees as landmark of monastery or heritage monument, or in memory of an important person or event;
- (c) a tree of precious or rare species;
- (d) a tree of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. a tree with curtain like aerial roots, or growing in unusual habitat; or
- (e) a tree 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.



圖則名稱 drawing title
 工務工程計劃編號331DS - 離島污水收集系統第2階段
 - 南大嶼山污水收集系統工程
 PWP ITEM NO.331DS - OUTLYING ISLANDS SEWERAGE, STAGE 2
 - SOUTH LANTAU SEWERAGE WORKS

繪畫 drawn	SIGNED W. H. CHAN	日期 date	27 APR 2020	修改項目 description	圖則編號 drawing no.	簡簽 initial	比例 scale
核對 checked	SIGNED Ir K. S. CHAN	日期 date	27 APR 2020	保留版權 COPYRIGHT RESERVED	DVD/2020/001		1:12 500
批核 approved	SIGNED Ir L. CHEN	日期 date	27 APR 2020	香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION			
部門 office	特別職務部 SPECIAL DUTY DIVISION						

Annex 2 to Enclosure 1 to PWSC(2020-21)9

331DS – Outlying Islands sewerage, stage 2 – South Lantau sewerage works

Breakdown of estimates for consultants’ fees and resident site staff costs (in September 2019 prices)

		Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a) Consultants’ fees for contract administration (Note 2)	Professional	-	-	-	2.3
	Technical	-	-	-	0.9
	Sub-total				3.2#
(b) Resident site staff (RSS) costs (Note 3)	Professional	391	38	1.6	53.7
	Technical	2 171	14	1.6	105.0
	Sub-total				158.7
Comprising –				5.5#	
(i) Consultants’ fees for management of RSS					
(ii) Remuneration of RSS				153.2#	
				Total	161.9

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of Resident Site Staff supplied by the consultants (As at now, MPS salary point 38 = \$85,870 per month and MPS salary point 14 = \$30,235 per month).
2. The consultants’ staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of the project. The construction phase of the assignment will only be executed subject to Finance Committee’s approval to upgrade this part of **331DS** to Category A.
3. The actual man-months and actual costs will only be known after the completion of the construction works.

Remarks

The cost figures in this Annex 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 paragraph 8 of the Enclosure 1.

331DS – Outlying Islands sewerage, stage 2 – South Lantau sewerage works

Breakdown of land acquisition cost

	\$ million
(I) Estimated cost for land acquisition (resumption of private land)	1.23
(II) Estimated cost for land clearance	0.14
(a) Ex-gratia allowances (EGAs) (e.g. crops compensation, disturbance allowance for cultivators, and “Tun Fu” ceremonial fees, etc.)	0.14
(III) Interest and Contingency payment	0.14
Total	<hr/> 1.51 (say 1.5) <hr/>

Note

The above estimated land acquisition cost is based on the prevailing rates as at April 2020.

339DS – North District sewerage, stage 1 phase 2C and stage 2 phase 1

PROJECT SCOPE AND NATURE

The part of **339DS** that we propose to upgrade to Category A comprises –

- (a) the construction of about 6 kilometres of gravity sewers with diameters ranging from 150 millimetres (mm) to 225 mm in Fanling district ; and
- (b) ancillary works¹.

_____ 2. A plan showing the location of the proposed works is at Annex 1 to Enclosure 2.

3. Subject to the funding approval of the Finance Committee, we aim to commence the proposed works in the third quarter of 2020 for completion in the first quarter of 2025.

4. We will retain the remainder of **339DS** in Category B for provision of public sewerage system for another ten unsewered areas within the catchment of the North District. Funding for the remainder of **339DS** will be sought later after completion of the design and preparatory work.

/JUSTIFICATION.....

1 Ancillary works include the utilities diversions, road and drainage works, provision of manholes, temporary closure and reinstatement of carriageways/footpaths/open space, necessary landscaping works that are required to complete the proposed works.

JUSTIFICATION

5. Currently, a large part of Fanling is served by public sewerage system, but some village areas in the district are still unsewered, and sewage from these areas is disposed of by individual and simple on-site facilities such as septic tanks and soakaway (STS) systems². Extension of the public sewerage system to these areas can help improve environmental hygiene and further reduce the amount of pollutants being discharged into the nearby River Indus and Deep Bay.

6. We propose to provide public sewerage system for the five unsewered village areas in Fanling, which include three villages in Fanling Wai (Fanling Nam Wai, Fanling Pak Wai and Fanling Ching Wai), So Kwun Po and Leng Pei Tsuen through the proposed works. It is estimated that the proposed sewerage system will serve an ultimate population of around 9 000.

7. Upon completion of the proposed works, sewage from Fanling Wai, So Kwun Po and Leng Pei Tsuen will be collected and conveyed to the Shek Wu Hui Sewage Treatment Works for proper treatment and disposal.

FINANCIAL IMPLICATIONS

8. We estimate that the cost of the proposed works to be \$179.7 million in money-of-the-day (MOD) prices (please see paragraph 10 below), broken down as follows –

	\$ million (in MOD prices)
(a) Construction of gravity sewers	125.6
(b) Ancillary works	9.8
	/(c)

2 STS systems operate by allowing the effluent to percolate through soil layers so that pollutants may be removed in a natural manner. However, if a STS system is located in an area where the ground water table is high, such as an area in proximity to the seaside or watercourses, it will not function properly due to ineffective percolation. There are also maintenance problems with some STS systems.

		\$ million (in MOD prices)
(c)	Environmental mitigation measures	1.2
(d)	Consultants' fees for	1.4
	(i) Contract administration	0.5
	(ii) Management of resident site staff (RSS)	0.9
(g)	Remuneration of RSS	25.4
(h)	Contingencies	16.3
Total		179.7

9. We propose to engage consultants to undertake contract administration and site supervision for the project. A detailed breakdown of the estimates for the consultants' fees and RSS costs by man-months is at Annex 2 to Enclosure 2.

10. Subject to funding approval, we plan to phase the expenditure as follows –

Year	\$ million (MOD)
2020 – 2021	6.8
2021 – 2022	36.0
2022 – 2023	44.7
2023 – 2024	37.0
2024 – 2025	28.5

/Year

Year	\$ million (MOD)
2025 – 2026	11.7
2026 – 2027	7.9
2027 – 2028	7.1
	<hr/> 179.7 <hr/>

11. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output for the period from 2020 to 2028. We will deliver the proposed works under a New Engineering Contract (NEC)³ form of contract with provision for price adjustment.

12. We estimate the additional annual recurrent expenditure arising from this project to be \$790,000. The recurrent expenditure will be taken into consideration when determining the sewage charge and trade effluent surcharge rates in future.

PUBLIC CONSULTATION

13. We consulted the Fanling District Rural Committee about the proposed works on 6 September 2017 and the District Minor Works and Environmental Improvement Committee of the North District Council on 20 November 2017. Both Committees supported the proposed works.

/14.

³ NEC is a suite of contracts developed by the Institution of Civil Engineers, United Kingdom. It is a contract form that emphasizes cooperation, mutual trust and collaborative risk management between contracting parties.

14. We gazetted the proposed sewerage works in four packages under the Water Pollution Control (Sewerage) Regulation (Cap. 358AL) between December 2018 and March 2019. There was no objection received against the three packages for So Kwun Po, Leng Pei Tsuen and Fanling Wai (Part 1), and they were authorised on 8 March 2019, 12 April 2019 and 24 May 2019 respectively. There was one objection received against the package for Fanling Wai (Part 2). The proposed works was authorized on 13 December 2019 after the objection had been resolved.

15. We consulted the Legislative Council Panel on Environmental Affairs on 25 November 2019 and Members supported the proposed works.

ENVIRONMENTAL IMPLICATIONS

16. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). The Drainage Services Department completed a Preliminary Environmental Review (PER) for the proposed works in September 2016. The PER concluded and the Director of Environmental Protection agreed, with the implementation of appropriate mitigation measures as mentioned in the following paragraphs, that the proposed works would not cause long-term adverse environmental impacts. We have included in paragraph 8(c) a sum of \$1.2 million (in MOD prices) in the project estimate for implementing the environmental mitigation measures.

17. At the construction phase, we will require the contractors to control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of the recommended mitigation measures. These measures include the use of silenced construction equipment and temporary noise barriers to reduce noise impact. In addition, water-spraying to the construction site will be applied regularly to minimise the emission of fugitive dust and on-site treatment of site run-off to minimise potential water quality impact. We will also carry out regular site inspections to ensure that these recommended mitigation measures and good practices will be properly implemented on site.

18. At the planning and design stages, we have considered ways to reduce the generation of construction waste where possible. In addition, we will require the contractors to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible in order to minimize the disposal of inert construction waste to public fill reception facilities (PFRF⁴). We will encourage the contractors 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.

19. We will also require the contractors 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 require the contractors 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.

20. We estimate that the proposed works will generate in total about 15 140 tonnes of construction waste. Of these, we will reuse about 8 680 tonnes (57%) of inert construction waste on site and deliver 6 290 tonnes (42%) of inert construction waste to PFRF for subsequent reuse. We will dispose of the remaining 170 tonnes (1%) of non-inert construction waste at landfills. The total cost for disposal of construction waste at PFRF and landfill sites is estimated to be about \$480,000 for the proposed 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

4 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.

HERITAGE IMPLICATIONS

21. The proposed works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites and buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

22. We have reviewed the design of the proposed works to minimise the extent of land acquisition. We will resume about 551 square metres (m²) of private land and clear about 11 665 m² of government land for carrying out the proposed works. The land resumption and clearance will not require clearance of any households but will affect three non-domestic structures. We will charge the cost of land acquisition and clearance, estimated at \$8.4 million, to **Head 701 – Land Acquisition**. A breakdown of the land acquisition cost is at Annex 3 to Enclosure 2.

BACKGROUND INFORMATION

23. We upgraded **203DS** “North District sewerage” to Category B in October 1994.

24. In October 2004, we split **203DS** into **339DS** “North District sewerage, stage 1 phases 2B and 2C and stage 2 phase 1” and **203DS** “North District sewerage, stage 2 phase 2B”.

25. In January 2007, we upgraded part of **339DS** to Category A as **359DS** “North District sewerage, stage 1 phase 2B” at an APE of \$130.0 million in MOD prices. The construction works were completed in January 2011. The remaining works of **339DS** was retitled as “North District sewerage, stage 1 phase 2C and stage 2 phase 1”.

26. In January 2009, we upgraded part of **339DS** to Category A as **366DS** “Kau Lung Hang sewerage – trunk sewers, pumping station and rising mains” at an APE of \$103.2 million in MOD prices. The construction works were completed in September 2012.

27. In June 2011, we upgraded part of **339DS** to Category A as **375DS** “Sewerage in Ping Kong, Fu Tei Pai and Tai Wo” at an APE of \$226.8 million in MOD prices. The construction works were completed in September 2016.

28. In May 2012, we upgraded part of **339DS** to Category A as **386DS** “Village Sewerage in Kau Lung Hang San Wai, Kau Lung Hang Lo Wai and Tai Hang, and Southern Truck Sewer Between Wai Tau Tsuen and Nam Wa Po” at an APE of \$316.8 million in MOD prices. The construction works were completed in May 2017.

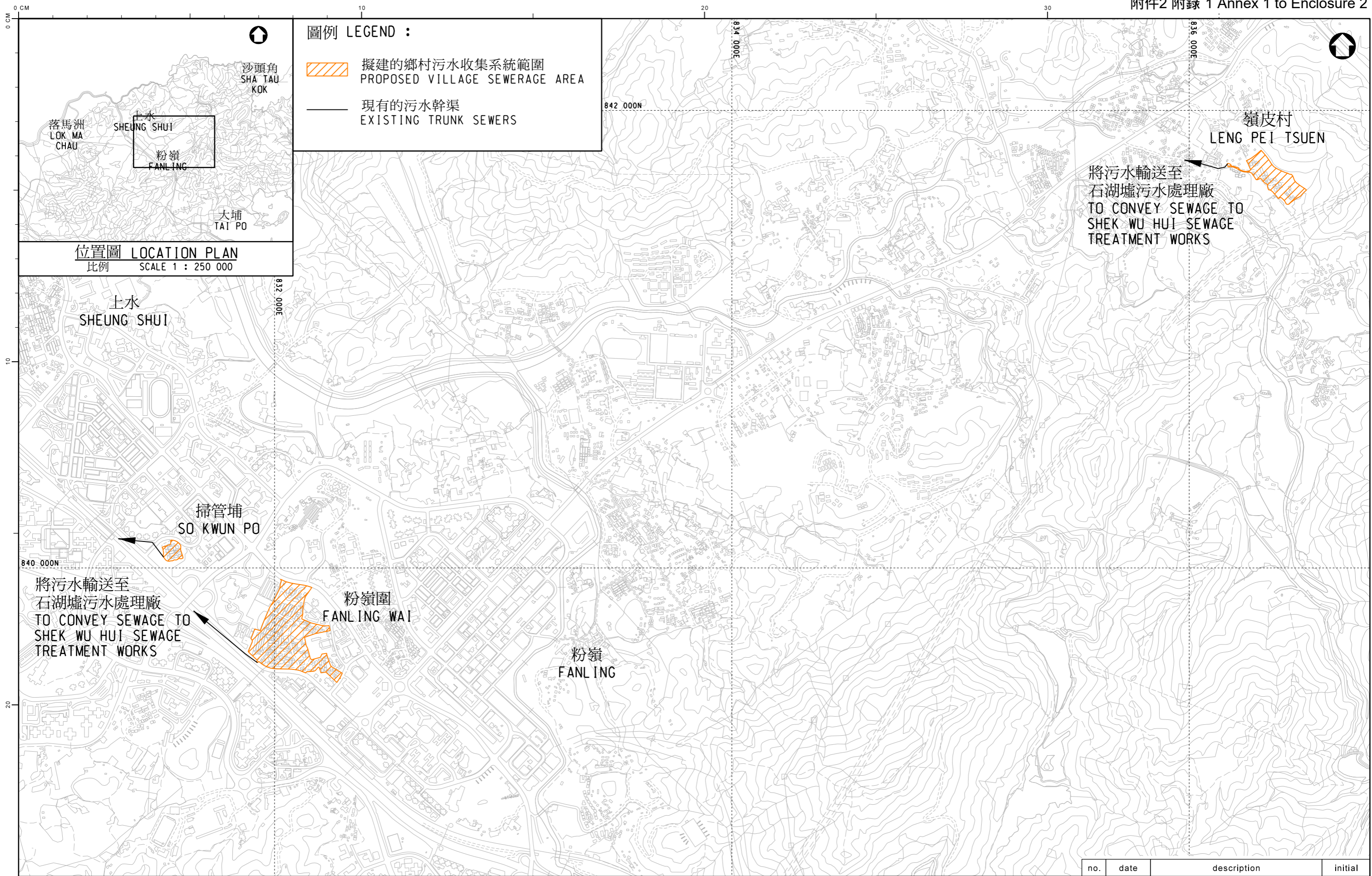
29. In July 2013, we upgraded part of **339DS** to Category A as **396DS** “Sewerage in Nam Wa Po and Wai Tau Tsuen” at an APE of \$319.1 million in MOD prices. The construction works were completed in December 2018.

30. We have substantially completed the detailed design of the proposed works as mentioned in paragraph 1 above.

31. The proposed works will not involve any tree removal or planting proposal.

32. We estimate that the proposed works will create about 35 jobs (25 for labourers and ten for professional or technical staff) providing a total employment of 1 500 man-months.

Environment Bureau
May 2020



drawing title

工務工程計劃編號 339號 - 北區污水收集系統第1階段第2C期及第2階段第1期
 PWP ITEM NO. 339DS - NORTH DISTRICT SEWERAGE STAGE 1 PHASE 2C AND STAGE 2 PHASE 1

drawn	<i>SIGNED</i> W. H. CHAN	date	12 MAY 2020
checked	<i>SIGNED</i> H. K. LI	date	12 MAY 2020
approved	<i>SIGNED</i> Ir K. Y. HO	date	12 MAY 2020
office	CONSULTANTS MANAGEMENT DIVISION		

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 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION			

Annex 2 to Enclosure 2 to PWSC(2020-21)9

339DS – North District sewerage, stage 1 phase 2C and stage 2 phase 1

Breakdown of estimates for consultants' fees and resident site staff costs (in September 2019 prices)

		Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Consultants' fees for				
	contract administration (Note 2)				
	Professional	-	-	-	0.1
	Technical	-	-	-	0.3
				Sub-total	0.4#
(b)	Resident site staff				
	(RSS) costs (Note 3)				
	Professional	41	38	1.6	5.6
	Technical	340	14	1.6	16.4
				Sub-total	22.0
	Comprising –				
	(i) Consultants' fees for management of RSS			0.8#	
	(ii) Remuneration of RSS			21.2#	
				Total	22.4

* 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 consultants (as at now, MPS salary point 38 = \$85,870 per month and MPS salary point 14 = \$30,235 per month).
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of the project. The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade this part of **339DS** to Category A.
3. The actual man-months and actual costs will only be known after the completion of the construction works.

Remarks

The cost figures in this Annex 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 paragraph 8 of Enclosure 2.

339DS – North District sewerage, stage 1 phase 2C and stage 2 phase 1

Breakdown of land acquisition cost

	\$ million
(I) Estimated cost for land acquisition (resumption of private land)	6.91
(II) Estimated cost for land clearance	0.40
(a) Ex-gratia allowances (EGAs) (e.g. crop compensation, disturbance allowance for cultivators, EGA for miscellaneous permanent improvements to farms, “Tun Fu” ceremonies fees, etc.)	0.40
(III) Interest and Contingency payment	1.09
Total	<u>8.40</u>

Note

The above estimated land acquisition cost is based on the prevailing rates as at April 2020.

346DS – Upgrading of Tuen Mun sewerage, phase 1

PROJECT SCOPE AND NATURE

The part of **346DS** that we propose to upgrade to Category A comprises –

- (a) the construction of one sewage pumping station (SPS) with a design capacity of about 190 cubic metres per day at Fuk Hang Tsuen (Lower);
- (b) the construction of about 150 metres of twin rising mains with a diameter of 100 millimetres (mm) in Fuk Hang Tsuen (Lower);
- (c) the construction of about 11 kilometres of gravity sewers with diameters ranging from 150 mm to 450 mm in Fuk Hang Tsuen (Lower), Po Tong Ha, Siu Hang Tsuen and Tsz Tin Tsuen; and
- (d) ancillary works¹.

2. A plan showing the locations of the proposed works is at Annex 1 to Enclosure 3.

3. Subject to the funding approval of the Finance Committee, we aim to commence the proposed works in the first quarter of 2021 for completion in the fourth quarter of 2024.

4. We will retain the remainder of **346DS** in Category B for provision of public sewerage system for another unsewered area. Funding for the remainder of **346DS** will be sought later after completion of the design and preparatory work.

/JUSTIFICATION

1 Ancillary works include the utilities diversion, road and drainage works, provision of manholes, temporary closure and reinstatement of carriageways/footpaths/open space, necessary architectural, building services and landscaping works that are required to complete the proposed works.

JUSTIFICATION

5. Currently, the majority part of Tuen Mun is served by public sewerage system, but some village areas in the district are still unsewered. The villagers now rely on individual and simple on-site facilities such as septic tanks and soakaway (STS) systems². Extension of the public sewerage system to these areas can help improve environmental hygiene and further reduce the amount of pollutants being discharged into the nearby stream courses and marine waters.

6. We now propose to provide public sewerage system for four unsewered village areas, namely Fuk Hang Tsuen (Lower), Po Tong Ha, Siu Hang Tsuen and Tsz Tin Tsuen through the proposed works. It is estimated that the proposed sewerage system will serve an ultimate population of about 6 250 and convey the sewage to the existing Pillar Point Sewage Treatment Works for proper treatment and disposal.

FINANCIAL IMPLICATIONS

7. We estimate the cost of the proposed works to be \$431.2 million in money-of-the-day (MOD) prices (please see paragraph 9 below), broken down as follows –

	\$ million (in MOD prices)
(a) Construction of Fuk Hang Tsuen (Lower) SPS	22.8
(i) civil works	13.3
(ii) electrical and mechanical works	9.5
(b) Construction of twin rising mains	2.0
(c) Construction of gravity sewers	310.5
(d) Ancillary works	3.6
	/(e)

2 STS systems operate by allowing the effluent to percolate through soil layers so that pollutants may be removed in a natural manner. However, if a STS system is located in an area where the ground water table is high, such as an area in proximity to the seaside or watercourses, it will not function properly due to ineffective percolation. There are also maintenance problems with some STS systems.

		\$ million (in MOD prices)
(e)	Environmental mitigation measures	1.6
(f)	Consultants' fees for	3.7
	(i) contract administration	2.4
	(ii) management of resident site staff (RSS)	1.3
(g)	Remuneration of RSS	47.9
(h)	Contingencies	39.1
Total		431.2

8. We propose to engage consultants to undertake contract administration and site supervision for the project. A detailed breakdown of the estimates for the consultants' fees and RSS costs by man-months is at Annex 2 to Enclosure 3.

9. Subject to funding approval, we plan to phase the expenditure as follows –

Year	\$ million (MOD)
2020 – 2021	30.0
2021 – 2022	62.7
2022 – 2023	83.6
2023 – 2024	92.2
2024 – 2025	99.0
2025 – 2026	26.5
2026 – 2027	27.7

/Year

Year	\$ million (MOD)
2027 – 2028	9.5
	<hr/>
	431.2
	<hr/>

10. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output for the period from 2020 to 2028. We will deliver the proposed works under a New Engineering Contract (NEC)³ form of contract with provision for price adjustment.

11. We estimate the additional annual recurrent expenditure arising from this project to be \$2.07 million. The recurrent expenditure will be taken into consideration when determining the sewage charge and trade effluent surcharge rates in future.

PUBLIC CONSULTATION

12. We have consulted the Tuen Mun Rural Committee and the Environment, Hygiene and District Development Committee of the Tuen Mun District Council on the project and have reported the progress of the proposed works to the two Committees on 20 October 2018 and 23 November 2018 respectively. Both Committees supported the proposed works and urged the Government to expedite the progress of works.

/13.

3 NEC is a suite of contracts developed by the Institution of Civil Engineers, United Kingdom. It is a contract form that emphasises cooperation, mutual trust and collaborative risk management between contracting parties.

13. We gazetted the proposed sewerage works in four packages under the Water Pollution Control (Sewerage) Regulation (Cap. 358AL). The first package for Siu Hang Tsuen was gazetted in December 2018 and re-gazetted with amendments in July 2019. The proposed works were authorised in November 2019 after resolution of three objections received against the proposal. The second package for Po Tong Ha was gazetted in February 2019 and re-gazetted with amendments in August 2019. The proposed works were authorised in November 2019 after resolution of five objections received against the proposal. The third package for Fuk Hang Tsuen (Lower) was gazetted in March 2019. No objection was received and the proposed works were authorised in August 2019. The fourth package for Tsz Tin Tsuen was gazetted in July 2019 and re-gazetted with amendments in November 2019. The proposed works were authorised in February 2020 after resolution of five objections received against the proposal.

14. We consulted the Legislative Council Panel on Environmental Affairs on 27 April 2020 and Members supported the proposed works.

ENVIRONMENTAL IMPLICATIONS

15. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). The Drainage Services Department has completed a Preliminary Environmental Review (PER) for the proposed works and a supplementary PER for the proposed SPS at Fuk Hang Tsuen (Lower). Both PERs have concluded, and the Director of Environmental Protection agreed that with the implementation of mitigation measures, the proposed works would not cause long-term adverse environmental impacts. We have included in paragraph 7(e) a sum of \$1.6 million (in MOD prices) in the project estimate for implementation of the necessary environmental mitigation measures.

16. At the construction phase, we will require the contractors to control noise, dust and site run-off nuisances to within the established standards and guidelines through the implementation of the recommended mitigation measures. These measures include the use of silenced construction equipment and temporary noise barriers to reduce noise impact, regular water-spraying to the construction site to minimise emission of fugitive dust, and on-site treatment of site run-off to minimise potential water quality impact. We will also carry out regular site inspections to ensure that these recommended mitigation measures and good practices will be properly implemented on site.

17. At the planning and design stages, we have considered ways to reduce the generation of construction waste (e.g. use of trenchless construction method to avoid excavation works) where possible. In addition, we will require the contractors to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible in order to minimise the disposal of inert construction waste at the public fill reception facilities (PFRF⁴). We will encourage the contractors 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. We will also require the contractors 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 require the contractors 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 works will generate in total about 18 600 tonnes of construction waste. Of these, we will reuse about 8 500 tonnes (45.7%) of inert construction waste on site, and deliver about 8 700 tonnes (46.8%) of inert construction waste to PFRF for subsequent reuse. We will dispose of the remaining 1 400 tonnes (7.5%) of non-inert construction waste at landfills. The total cost for disposal of the construction waste at PFRF and landfill sites is estimated to be about \$897,000 for the proposed 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

4 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.

HERITAGE IMPLICATIONS

20. The proposed works will not affect declared monuments, proposed monuments, graded historic sites and buildings, and Government historic sites identified by the Antiquities and Monuments Office (AMO). Part of the proposed works will be carried out within Siu Hang Tsuen and Kei Lun Wai Sites of Archaeological Interest and fall in the vicinity of San Hing Tsuen Site of Archaeological Interest. We will implement appropriate mitigation measures, record and preserve any archaeological resources. We will inform AMO immediately upon discovery of antiquities during construction to develop follow-up actions.

LAND ACQUISITION

21. We have reviewed the design of the proposed works to minimise the extent of land acquisition. We will resume about 5 105 square metres (m²) of private agricultural land and clear about 51 440 m² of government land for implementing the proposed works. The land resumption and clearance at Fuk Hang Tsuen (Lower), Po Tong Ha, Siu Hang Tsuen and Tsz Tin Tsuen will not affect any household but will affect 63 non-domestic structures. We will charge the cost of land acquisition and clearance, estimated at \$76.1 million, to **Head 701 – Land Acquisition**. A breakdown of the land acquisition cost is at Annex 3 to Enclosure 3.

BACKGROUND INFORMATION

22. We upgraded **346DS** to Category B in October 2005.

23. In January 2007, we engaged consultants to undertake site investigation, surveys, impact assessments and detailed design for the proposed works. The total estimated cost was \$14.3 million in MOD prices. We have charged this amount to block allocation **Subhead 4100DX** “Drainage works, studies and investigations for items in Category D of the Public Works Programme”.

24. In October 2007, we upgraded part of **346DS** to Category A as **360DS** “Sewerage at Tseng Tau Chung Tsuen, Tuen Mun” at an approved project estimate (APE) of \$33 million in MOD prices. The construction works were completed in October 2010.

25. In July 2009, we upgraded part of **346DS** to Category A as **371DS** “Sewerage in western Tuen Mun” at an APE of \$1,340 million in MOD prices for construction of the trunk sewerage along Ming Kam Road, Tsing Wun Road and Lung Mun Road and sewerage works in two unsewered areas. The construction works were completed in December 2015.

26. In April 2015, we upgraded part of **346DS** to Category A as part of **404DS** “Tuen Mun Sewerage – Castle Peak Road Trunk Sewer and Tuen Mun Village Sewerage” at an APE of \$436.2 million in MOD prices for construction of sewerage works in five unsewered areas. The construction works were completed in October 2019.

27. We have substantially completed the detailed design of the proposed works mentioned in paragraph 1 above.

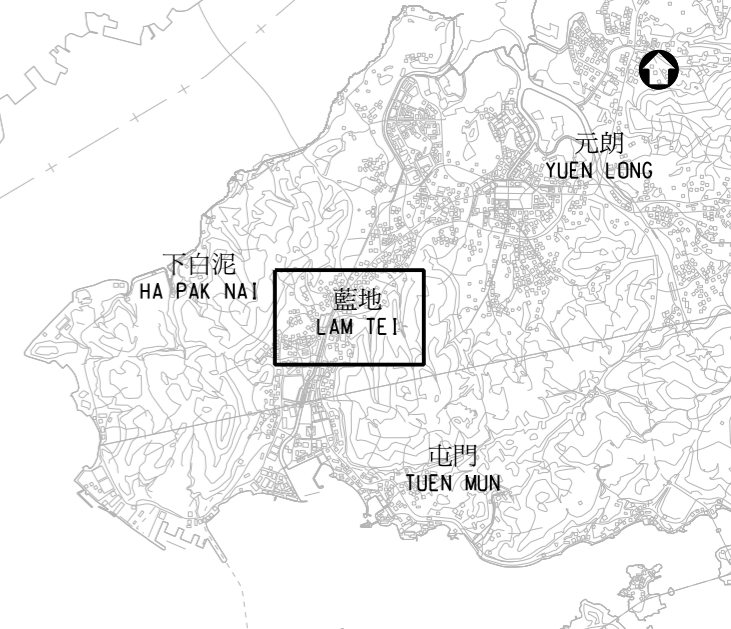
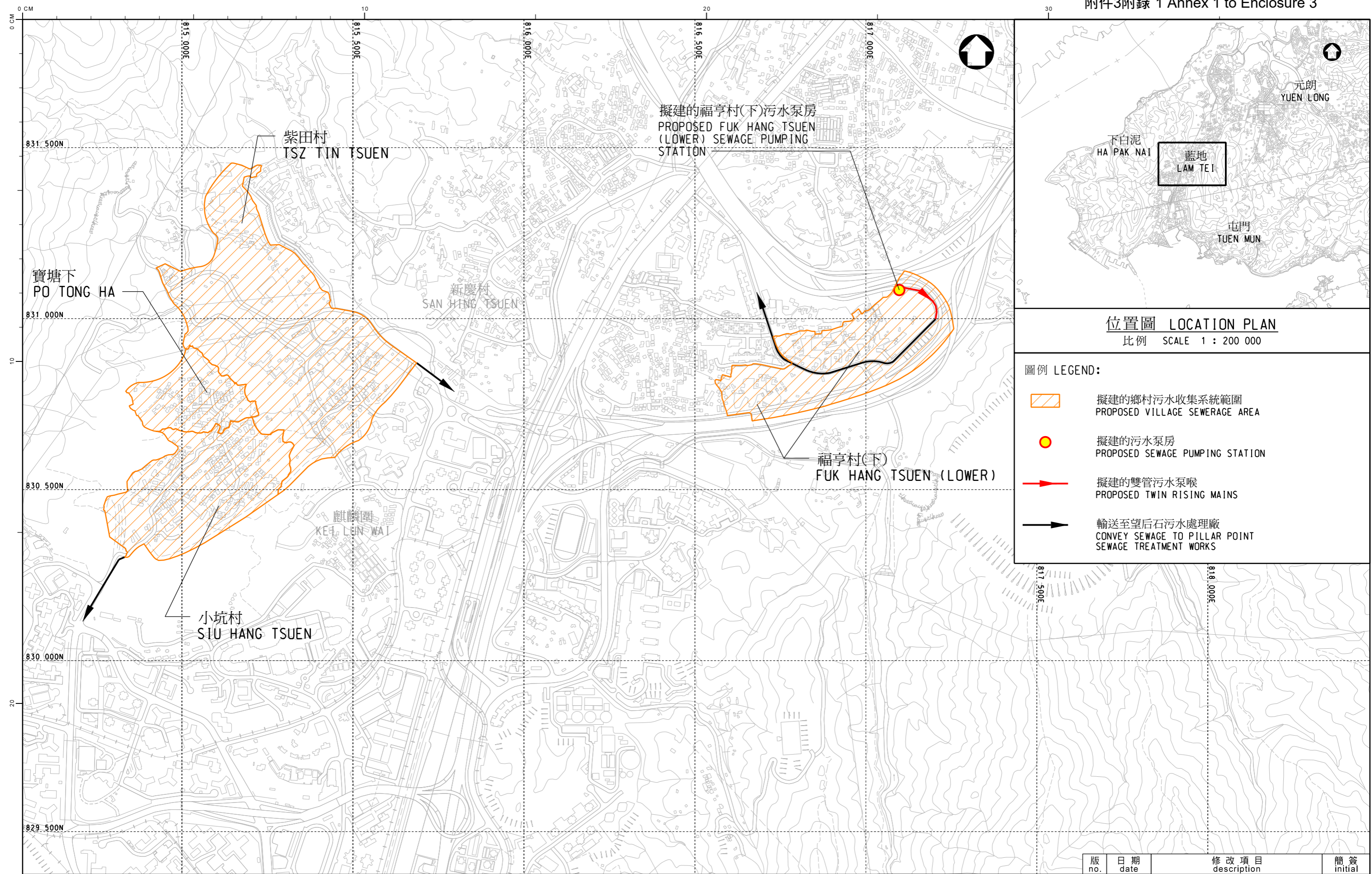
28. The proposed works will involve the felling of 28 trees. All the trees to be removed are not important trees⁵. We will incorporate a planting proposal of 28 trees as part of the project.

29. We estimate that the proposed works will create about 90 jobs (70 for labourers and 20 for professional or technical staff), providing a total employment of about 3 650 man-months.





Environment Bureau
May 2020

5 “Important tree” refer to a tree in the Register of Old and Valuable Trees, or any other tree that meets one or more of the following criteria –

- (a) a tree of 100 years old or above;
- (b) a tree of cultural, historical or memorable significance, e.g. Fung Shui trees, tree as landmark of monastery or heritage monument, or in memory of important persons or event;
- (c) a tree of precious or rare species;
- (d) a tree of outstanding form (taking account of overall tree size, shape and any special features) e.g. a tree with curtain like aerial roots, or growing in unusual habitat; or
- (e) a tree with trunk diameter equal or exceeding 1.0 m (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.



位置圖 LOCATION PLAN
比例 SCALE 1 : 200 000

- 圖例 LEGEND:
-  擬建的鄉村污水收集系統範圍
PROPOSED VILLAGE SEWERAGE AREA
 -  擬建的污水泵房
PROPOSED SEWAGE PUMPING STATION
 -  擬建的雙管污水泵喉
PROPOSED TWIN RISING MAINS
 -  輸送至望后石污水處理廠
CONVEY SEWAGE TO PILLAR POINT SEWAGE TREATMENT WORKS

圖則名稱 drawing title
工務工程計劃編號346DS
屯門污水收集系統改善計劃第1期
PWP ITEM NO.346DS
UPGRADING OF TUEN MUN SEWERAGE, PHASE 1

繪畫 drawn <i>SIGNED</i> L. L. LIU	日期 date 25 MAR 2020
核對 checked <i>SIGNED</i> W. C. LEE	日期 date 25 MAR 2020
批核 approved <i>SIGNED</i> Ir C. H. CHAN	日期 date 25 MAR 2020
部門 office 特別職務部 SPECIAL DUTY DIVISION	

修改項目 description	圖則編號 drawing no.	簡簽 initial
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Annex 2 to Enclosure 3 to PWSC(2020-21)9

346DS –Upgrading of Tuen Mun sewerage, phase 1

Breakdown of estimates for consultants' fees and resident site staff costs (in September 2019 prices)

			Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Consultants' fees for contract administration (Note 2)	Professional	-	-	-	1.0
		Technical	-	-	-	1.0
					Sub-total	<u>2.0#</u>
(b)	Resident site staff (RSS) costs (Note 3)	Professional	93	38	1.6	12.8
		Technical	588	14	1.6	28.4
					Sub-total	<u>41.2</u>
	Comprising –					
	(i) Consultants' fees for management of RSS				1.1#	
	(ii) Remuneration of RSS				40.1#	
					Total	<u>43.2</u>

* 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 consultants (As at now, MPS salary point 38 = \$85,870 per month and MPS salary point 14 = \$30,235 per month).
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of the project. The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade this part of 346DS to Category A.
3. The actual man-months and actual costs will only be known after the completion of the construction works.

Remarks

The cost figures in this Annex 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 paragraph 7 of Enclosure 3.

Annex 3 to Enclosure 3 to PWSC(2020-21)9

346DS – Upgrading of Tuen Mun sewerage, phase 1

Breakdown of land acquisition cost

		\$ million
(I)	Estimated cost for land acquisition (resumption of private land)	65.62
(II)	Estimated cost for land clearance	0.56
(a)	Ex-gratia allowances (EGAs) (e.g. crop compensation, disturbance allowance for cultivators, EGA for miscellaneous permanent improvements to farms and “Tun Fu” ceremonial fees, etc.)	0.56
(III)	Interest and contingency payment	9.93
	Total	<hr/> 76.11 (Say 76.1) <hr/>

Note

The above estimated land acquisition cost is based on the prevailing rates as at April 2020.

362DS — Sewerage for Ma Yau Tong Village, Tseung Kwan O

PROJECT SCOPE AND NATURE

The proposed scope of works under **362DS** comprises –

- (a) the construction of about 4.8 kilometres of gravity sewers with diameters ranging from 200 millimetres (mm) to 350 mm for Ma Yau Tong Village in Tseung Kwan O; and
- (b) ancillary works¹.

2. A plan showing the location of the proposed works is at Annex 1 to Enclosure 4.

3. Subject to the funding approval of the Finance Committee, we aim to commence the proposed works in the first quarter of 2021 for completion in the fourth quarter of 2024.

JUSTIFICATION

4. Currently, the majority part of Tseung Kwan O is served by public sewerage system, but some remote area such as Ma Yau Tong Village is still unsewered. The villagers now rely on individual and simple on-site facilities such as septic tanks and soakaway (STS) systems². Extension of the public sewerage system to this area can help improve environmental hygiene and further reduce the amount of pollutants being discharged into nearby stream courses and marine waters.

/5.

1 Ancillary works include the utility diversion, provision of manholes, temporary closure and reinstatement of carriageways/footpaths/open space, necessary landscaping works that are required to complete the proposed works.

2 STS systems operate by allowing the effluent to percolate through soil layers so that pollutants may be removed in a natural manner. However, if a STS system is located in an area where the groundwater table is high, such as an area in proximity to the seaside or watercourses, it will not function properly due to ineffective percolation. There are also maintenance problems with some STS systems.

5. We propose to provide public sewerage system for Ma Yau Tong Village through the proposed works. It is estimated that the proposed sewerage system will serve an ultimate population of 2 300 and convey the sewage to the existing Kwun Tong Preliminary Treatment Works for proper treatment and disposal.

FINANCIAL IMPLICATIONS

6. We estimate the cost of the proposed works to be \$179.4 million in money-of-the-day (MOD) prices (please see paragraph 8 below), broken down as follows –

	\$ million (in MOD prices)
(a) Construction of gravity sewers	135.2
(b) Ancillary works	1.2
(c) Environmental mitigation measures	3.3
(d) Consultants' fees for	3.3
(i) contract administration	1.0
(ii) management of resident site staff (RSS)	2.3
(e) Remuneration of RSS	20.1
(f) Contingencies	16.3
Total	179.4

7. We propose to engage consultants to undertake contract administration and site supervision for the project. A detailed breakdown of the estimates for the consultants' fees and RSS costs by man-months is at Annex 2 to Enclosure 4.

8. Subject to funding approval, we plan to phase the expenditure as follows –

Year	\$ million (MOD)
2020 – 2021	19.2
2021 – 2022	28.7
2022 – 2023	35.9
2023 – 2024	36.4
2024 – 2025	30.4
2025 – 2026	17.4
2026 – 2027	11.4
	<hr/> 179.4 <hr/>

9. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output for the period from 2020 to 2027. We will deliver the proposed works under a New Engineering Contract (NEC)³ form of contract with provision for price adjustment.

10. We estimate the additional annual recurrent expenditure arising from this project to be \$1.41 million. The recurrent expenditure will be taken into consideration when determining the sewage charge and trade effluent surcharge rates in future.

/PUBLIC

3 NEC is a suite of contracts developed by the Institution of Civil Engineers, United Kingdom. It is a contract form that emphasises cooperation, mutual trust and collaborative risk management between contracting parties.

PUBLIC CONSULTATION

11. We have consulted the Hang Hau Rural Committee (HHRC) and the Housing and Environmental Hygiene Committee of the Sai Kung District Council (SKDC) on the proposed works, and reported to the two Committees on 16 October 2018 and 15 November 2018 respectively on the progress of the proposed works. Both Committees supported the proposed works and urged the Government to expedite the progress of works.

12. We gazetted the proposed sewerage works under the Water Pollution Control (Sewerage) Regulation (Cap. 358AL) in February 2019 and re-gazetted them with amendments in August 2019. The proposed works were authorised in November 2019 after resolution of two objections received against the proposal.

13. We consulted the Legislative Council Panel on Environmental Affairs on 27 April 2020 and Members supported the proposed works.

ENVIRONMENTAL IMPLICATIONS

14. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). The Drainage Services Department has completed a Preliminary Environmental Review (PER) for the proposed works and updated it in January 2019. The updated PER concluded and the Director of Environmental Protection agreed, with the implementation of appropriate mitigation measures as mentioned in the following paragraphs, that the proposed works would not cause long-term adverse environmental impacts. We have included in paragraph 6(c) a sum of \$3.3 million (in MOD prices) in the project estimate for implementation of the environmental mitigation measures.

15. At the construction phase, we will require the contractors to control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of the recommended mitigation measures. These measures include the use of silenced construction equipment and temporary noise barriers to reduce noise impact. In addition, water-spraying to the construction site will be applied regularly to minimise the emission of fugitive dust, and on-site treatment of site run-off will be carried out to minimise potential water quality impact. We will also carry out regular site inspections to ensure that these recommended mitigation measures and good practices will be properly implemented on site.

16. At the planning and design stages, we have considered ways to reduce the generation of construction waste (e.g. use of trenchless construction method to avoid excavation works) where possible. In addition, we will require the contractors to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible in order to minimise the disposal of inert construction waste at the public fill reception facilities (PFRF)⁴. We will encourage the contractors 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.

17. We will also require the contractors 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 require the contractors 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.

18. We estimate that the proposed works will generate in total about 11 000 tonnes of construction waste. Of these, we will reuse about 6 600 tonnes (60%) of inert construction waste on site and deliver about 4 290 tonnes (39%) of inert construction waste to PFRF for subsequent reuse. We will dispose of the remaining 110 tonnes (1%) of non-inert construction waste at landfills. The total cost for disposal of the construction waste at PFRF and landfill sites is estimated to be about \$326,000 for the proposed 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

19. The proposed works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites and buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

/LAND

4 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.

LAND ACQUISITION

20. We have reviewed the design of the proposed works to minimise the extent of land acquisition. We will resume about 50 square metres (m²) of private agricultural land and clear about 22 900 m² of government land for implementing the proposed works. Site clearance at Ma Yau Tong Village will not affect any household but will affect two non-domestic structures. We will charge the cost of land acquisition and clearance, estimated at \$800,000, to **Head 701 – Land Acquisition**. A breakdown of the land acquisition cost is at Annex 3 to Enclosure 4.

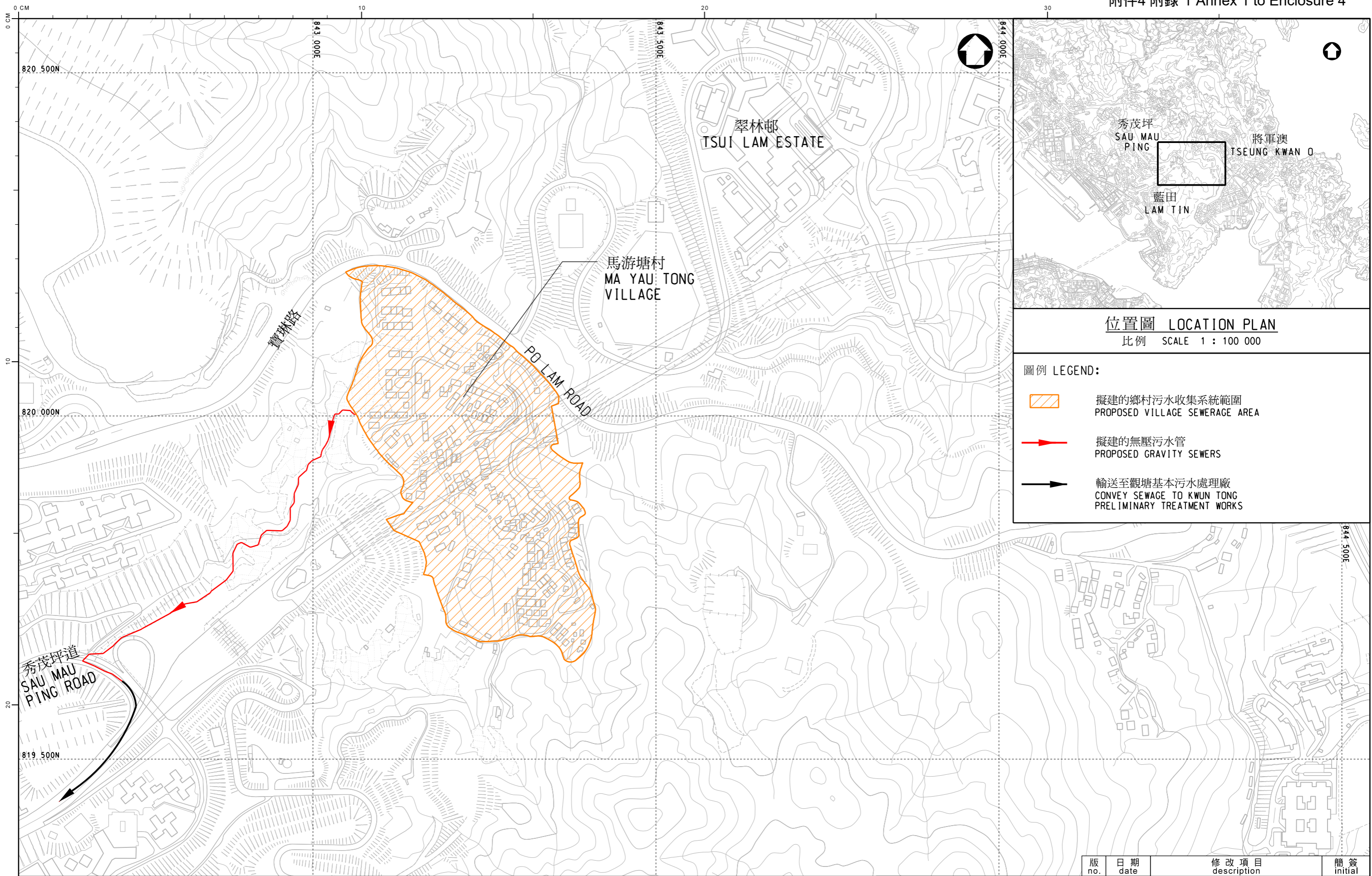
BACKGROUND INFORMATION

21. We upgraded **362DS** to Category B in October 2007.

22. In June 2008, we engaged consultants to undertake site investigation, surveys, impact assessments and detailed design for the proposed works. The total estimated cost was \$5.6 million in MOD prices. We have charged this amount to block allocation **Subhead 4100DX** “Drainage works, studies and investigations for items in Category D of the Public Works Programme”. We have substantially completed the detailed design of the proposed works.




23. The proposed works will not involve any tree removal or planting proposals.



24. We estimate that the proposed works will create 35 jobs (25 for labourers and ten for professional or technical staff), providing a total employment of about 1 500 man-months.



位置圖 LOCATION PLAN
比例 SCALE 1 : 100 000

圖例 LEGEND:

-  擬建的鄉村污水收集系統範圍
PROPOSED VILLAGE SEWERAGE AREA
-  擬建的無壓污水管
PROPOSED GRAVITY SEWERS
-  輸送至觀塘基本污水處理廠
CONVEY SEWAGE TO KWUN TONG PRELIMINARY TREATMENT WORKS

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PWP ITEM NO.362DS	 香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION		
SEWERAGE FOR MA YAU TONG VILLAGE, TSEUNG KWAN O			
繪畫 drawn	日期 date	圖則編號 drawing no.	比例 scale
SIGNED W. H. CHAN	11 MAY 2020	DVD/2020/010	1 : 5 000 OR AS SHOWN
核對 checked	日期 date	保留版權 COPYRIGHT RESERVED	
SIGNED C. F. YEUNG	11 MAY 2020	 香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION	
批核 approved	日期 date		
SIGNED Ir C. H. CHAN	11 MAY 2020		
部門 office	特別職務部 SPECIAL DUTY DIVISION		

Annex 2 to Enclosure 4 to PWSC(2020-21)9

362DS – Sewerage for Ma Yau Tong Village, Tseung Kwan O

Breakdown of estimates for consultants' fees and resident site staff costs (in September 2019 prices)

			Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Consultants' fees for contract administration (Note 2)	Professional	-	-	-	0.6
		Technical	-	-	-	0.2
					Sub-total	<u>0.8#</u>
(b)	Resident site staff (RSS) costs (Note 3)	Professional	75	38	1.6	10.3
		Technical	168	14	1.6	8.1
					Sub-total	<u>18.4</u>
Comprising –						
(i)	Consultants' fees for management of RSS				2.0#	
(ii)	Remuneration of RSS				16.4#	
					Total	<u>19.2</u>

* 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 consultants (as at now, MPS salary point 38 = \$85,870 per month and MPS salary point 14 = \$30,235 per month).
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of the project. The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade **362DS** to Category A.
3. The actual man-months and actual costs will only be known after the completion of the construction works.

Remarks

The cost figures in this Annex 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 paragraph 6 of Enclosure 4.

362DS – Sewerage for Ma Yau Tong Village, Tseung Kwan O

Breakdown of land acquisition cost

	\$ million
(I) Estimated cost for land acquisition (resumption of private land)	0.44
(II) Estimated cost for land clearance	0.22
(a) Ex-gratia allowances (EGAs) (e.g. crop compensation, disturbance allowance for cultivators, and “Tun Fu” ceremonial fees, etc.)	0.22
(III) Interest and Contingency payment	0.10
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Total	0.76 (say 0.8) <hr/>

Note

The above estimated land acquisition cost is based on the prevailing rates as at April 2020.