For discussion
on 27 November 2017

Legislative Council
Panel on Environmental Affairs

Expansion of Sha Tau Kok Sewage Treatment Works and Provision of Village Sewerage in Tong To, Lei Yue Mun Village and Peng Chau

PURPOSE

This paper seeks Members' views on our proposals to upgrade the following sewerage items to Category A for taking forward the expansion of Sha Tau Kok Sewage Treatment Works and the provision of village sewerage to the unsewered areas in Tong To, Lei Yue Mun Village and Peng Chau in order to improve water quality of the receiving waters of Starling Inlet, Lei Yue Mun and Peng Chau respectively -

(a) **4392DS – Expansion of Sha Tau Kok Sewage Treatment Works – phase 1** at an estimated cost of $2,040.9 million;

(b) part of **4345DS – North District sewerage stage 2 part 2A – village sewerage for Tong To** at an estimated cost of $34 million;

(c) **4398DS – Sewerage to Lei Yue Mun Village** at an estimated cost of $260.2 million; and

(d) part of **4343DS – Outlying Islands sewerage stage 2 – Peng Chau village sewerage phase 2** at an estimated cost of $133.7 million,

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

2. Details of the above proposals are at **Enclosures 1** to **4** respectively.

WAY FORWARD

3. We plan to seek funding approval from the Finance Committee (FC) for the proposed works under **4392DS**, part of **4345DS**, **4398DS** and part of **4343DS** in February 2018 after consulting the Public Works Subcommittee (PWSC). Members are invited to comment on the proposed funding application.

Environment Bureau
Drainage Services Department
November 2017

Enclosure 1

4392DS – Expansion of Sha Tau Kok Sewage Treatment Works - phase 1

PROJECT SCOPE

The proposed scope of works under **4392DS** comprises -

(a) the reconstruction of the existing Sha Tau Kok Sewage Treatment Works (STKSTW) to increase its capacity to 5 000 cubic metres (m^3) per day and provide allowance to facilitate a further increase to 10 000 m^3 per day in the future;

(b) the construction of approximately 1.7 kilometres (km) of submarine outfall for the disposal of treated effluent from the STKSTW;

(c) the demolition of an existing sewage pumping station and the decommissioning of approximately 500 metres (m) of twin rising mains and an existing submarine outfall;

(d) the construction of approximately 520 m gravity sewers in Sha Tau Kok town; and

(e) ancillary works[1].

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

JUSTIFICATIONS

3. The existing STKSTW has a capacity of 1 660 m^3 per day and discharges its treated effluent through a short submarine outfall into Starling Inlet. At present, it only serves the Sha Tau Kok town area.

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[1] Ancillary works include the utilities diversion, provision of manholes, temporary closure and reinstatement of carriageways/footpaths/open space, necessary building services and landscaping works that are required to complete the proposed works and the provision of temporary sewage treatment facilities to maintain the current level of sewage treatment service for Sha Tau Kok town during the reconstruction of STKSTW.

4. The existing capacity of STKSTW is expected to be used up by 2019 and the sewage flow would reach 5 000 m^3 per day after 2031 as a result of population growth, completion of village sewerage along Sha Tau Kok Road and the potential housing developments in Sha Tau Kok town. We propose to reconstruct STKSTW to increase its capacity to 5 000 m^3 per day to serve a projected population of about 20 000 with an allowance to further increase the capacity to 10 000 m^3 per day in the future. We also propose to construct a larger and longer submarine outfall to provide sufficient capacity for discharging the increased treated effluent and to improve the dilution of effluent by water current.

5. The proposed works will also include the provision of temporary sewage treatment facilities to maintain the current level of sewage treatment service for Sha Tau Kok town during the reconstruction of existing STKSTW, the upgrading of STKSTW treatment level and alteration to the trunk sewer system within Sha Tau Kok town.

6. Subject to the approval of the Finance Committee, we aim to commence construction of the proposed works in the second quarter of 2018 for completion in the first quarter of 2025.

FINANCIAL IMPLICATIONS

7. We estimate that the total capital cost of the proposed works as detailed in paragraph 1 above to be $2,040.9 million in money-of-the-day (MOD) prices.

8. We estimate that the proposed works will create about 200 jobs (160 for labourers and 40 for professional or technical staff), providing a total employment of 13 700 man-months.

PUBLIC CONSULTATION

9. We conducted two public forums in August 2015. We also consulted the Sha Tau Kok District Rural Committee and the District Minor Works and Environmental Improvement Committee of North District Council on 15 July and 14 September 2015 respectively. Both the Rural Committee and the District Council supported the proposed works.

10. The proposed works for submarine outfall was gazetted under

Foreshore and Sea-bed (Reclamations) Ordinance (Cap. 127) on 18 March 2016 and authorised by the Chief Executive (CE) in Council on 25 April 2017 after considering the unresolved objections submitted by members of the public.

ENVIRONMENTAL IMPLICATIONS

11. The proposed works 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 February 2017, the Environmental Impact Assessment (EIA) Report for the project was approved with conditions 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 February 2017. We will implement the measures recommended in the approved EIA Report and stipulated in the EP as well as the environmental monitoring and audit programme to ascertain the effectiveness of the mitigation measures. We have included in the project estimate of the proposed works the cost for implementation of the necessary environmental mitigation measures.

12. For 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 within fully drained water-tight cofferdam to avoid any adverse impact on water quality. We will conduct pre-construction survey of the nearby Night Roosting Site for Great Egret and schedule demolition and construction works within 100 m of the Roosting Site to avoid disturbance to the Great Egret or other ardeids using the Roosting Site. We will make use of low-noise technology and equipment to minimise noise impact from the demolition works. To further minimise dust and noise impacts, the section of the new sewer near Tin Hau Temple will be constructed using trenchless method. 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. For the operation phase, we will also implement the measures recommended in the approved EIA report and stipulated in the EP. The key measures include enclosing all process equipment inside building structure, equipping the expanded STKSTW with deodourisation unit, fitting exhaust fans with acoustic louvre/ silencer and removing sewage sludge off-site regularly in fully enclosed trucks. We will also prepare an Emergency Response Plan to cater for any emergency discharge.

13. At the planning and design stages, we have considered ways to reduce the generation of construction waste where possible. In addition, we will request 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 to the public fill reception facilities (PFRF[2]). We will encourage the contractors to maximise the use of recycled / recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

14. We will also request the contractors to submit for approval a plan setting out the waste management measures, including appropriate mitigation measures to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will request the contractors to separate inert and 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.

15. We estimate that the proposed works will generate 115 200 tonnes of construction waste. Of these, we will reuse 23 000 tonnes (20%) on site, and deliver 91 700 tonnes (79.6%) of inert construction waste to PFRF for subsequent reuse and 500 tonnes (0.4%) non-inert construction waste to landfill sites for disposal. The total cost for accommodating the aforementioned construction waste at PFRF and landfill sites is estimated to be $6.6 million[3].

HERITAGE IMPLICATIONS

16. 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). We have conducted a Built Heritage Impact Assessment (BHIA) within the boundary of the project. The BHIA has identified a number of historic buildings, comprising 11 historic buildings at Ha Tam Shui Hang and 27 historic buildings at Sha Tau Kok and no declared

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2 PFRF are specified in Schedule 4 of Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste in PFRF requires a licence issued by the Director of Civil Engineering and Development.

3 The cost is calculated 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).

monument is identified. The identified historic buildings at Ha Tam Shui Hang and Sha Tau Kok are located over 150 m and 80 m away from the proposed works respectively except the Tin Hau Temple at Sha Tau Kok. Appropriate mitigation measures to preserve the Tin Hau Temple will be implemented in accordance with the recommendations of the BHIA.

LAND ACQUISTION

17. The implementation of the proposed works will only involve government land. No land resumption is required.

Environment Bureau
Drainage Services Department
November 2017

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DCM/2017/104

擬議的沙頭角污水處理廠擴建工程
PROPOSED EXPANSION OF SHA TAU KOK SEWAGE TREATMENT WORKS

擬解除運作的現有海底排放管
EXISTING SUBMARINE OUTFALL PROPOSED TO BE DECOMMISSIONED

擬建的擴散器
PROPOSED DIFFUSER

擬建的海底排放管
PROPOSED SUBMARINE OUTFALL

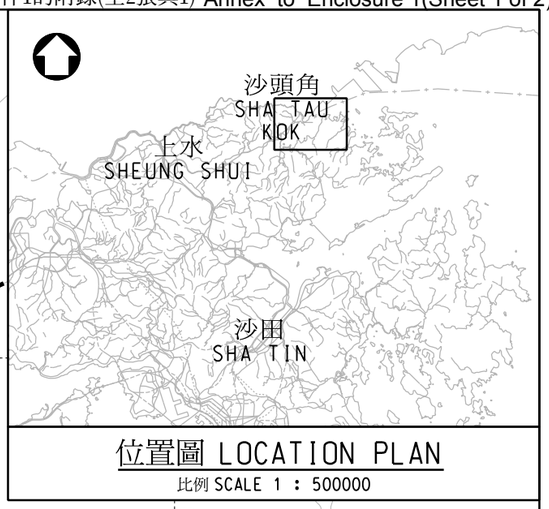
沙頭角魚類養殖區
SHA TAU KOK FISH CULTURE ZONE

沙頭角海
STARLING INLET
(SHA TAU KOK HOI)

白鶴林
PAK HOK LAM

Frontier Closed Area Boundary

LUK KENG ROAD



位置圖 LOCATION PLAN
比例 SCALE 1 : 500000

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圖 則 名 稱 drawing title

工務工程計劃編號 4392DS
- 沙頭角污水處理廠第一期擴建工程

PWP ITEM NO. 4392DS
- EXPANSION OF SHA TAU KOK SEWAGE TREATMENT WORKS, PHASE 1

全二張其一 (SHEET 1 OF 2)

圖 則 編 號 drawing no.
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比例 scale
1 : 15000 OR AS SHOWN

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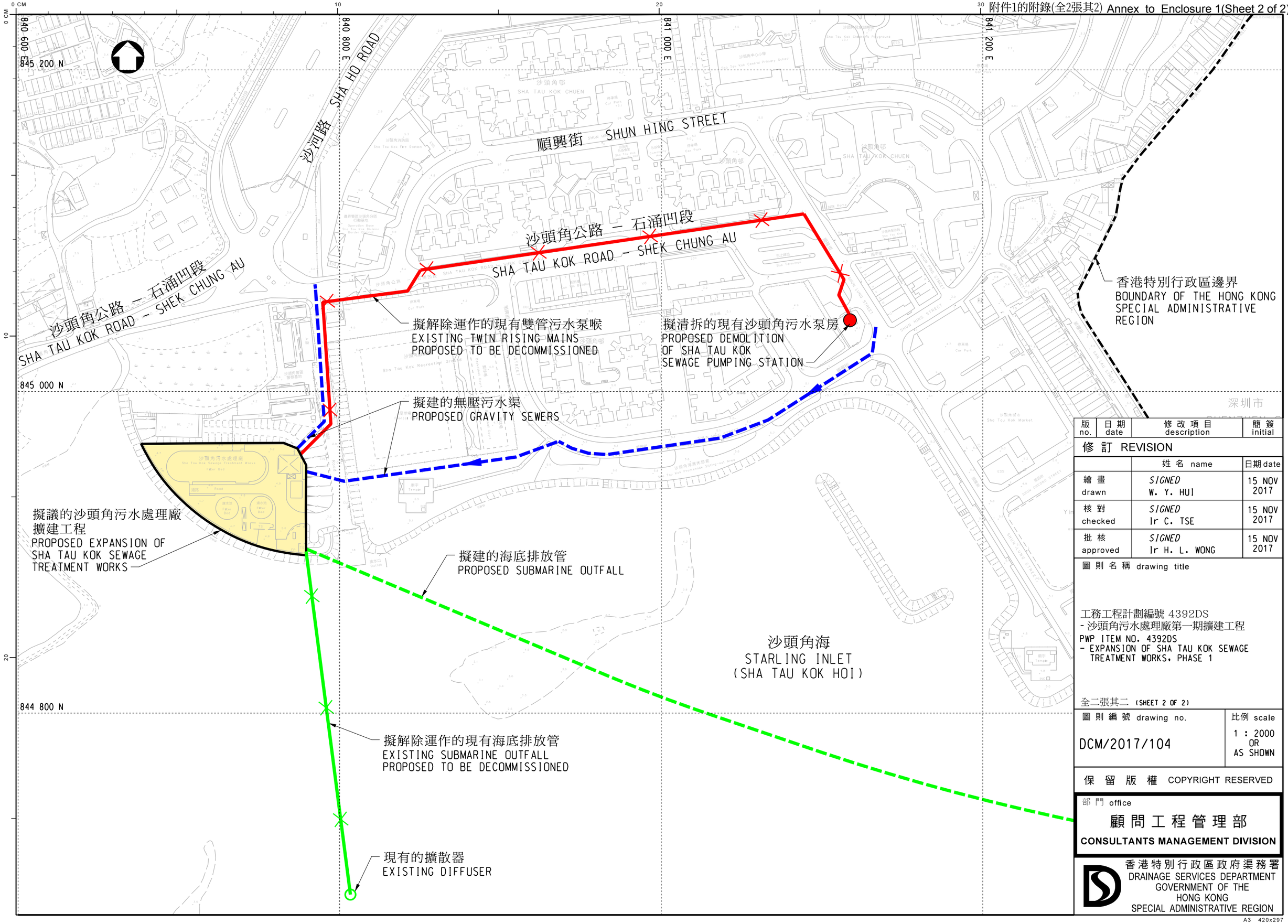
A3 420x297



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- 沙頭角污水處理廠第一期擴建工程

PWP ITEM NO. 4392DS
- EXPANSION OF SHA TAU KOK SEWAGE TREATMENT WORKS, PHASE 1

全二張其二 (SHEET 2 OF 2)

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Enclosure 2

4345DS — North District sewerage, stage 2 part 2A – village sewerage for Tong To

PROJECT SCOPE

The part of **4345DS** that we propose to upgrade to Category A comprises -

(a) the construction of about one kilometre of gravity sewer for Tong To in Sha Tau Kok; and

(b) ancillary works[1].

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

JUSTIFICATIONS

2. Tong To is an unsewered area in Sha Tau Kok and the sewage from this area is currently disposed of by many individual and simple on-site facilities such as septic tank and soakaway (STS) systems[2]. The effluent from some STS systems has been identified as a source of pollution to nearby streams as well as the receiving waters of Starling Inlet.

3. The "North District Sewerage Master Plan" (SMP) recommended that Tong To should be served by public sewerage system. We now propose to install a public sewerage system for Tong To to collect and convey its sewage to Sha Tau Kok Sewage Treatment Works for proper treatment and disposal. The proposed sewerage system will serve an estimated ultimate population of 1 000.

4. Subject to the approval of the Finance Committee, we aim to commence construction of the proposed works in the second quarter of 2018 for completion in the fourth quarter of 2021. We will retain the remainder of

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[1] Ancillary works include the utilities diversion, road and drainage works required to facilitate the sewerage 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 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.

4345DS in Category B for the provision of public sewerage system for another five unsewered areas in North District. Funding for the remainder of **4345DS** will be sought at a later stage after completion of the design and preparatory work.

FINANCIAL IMPLICATIONS

5. We estimate that the total capital cost of the proposed works as detailed in paragraph 1 above to be $34 million in money-of-the-day (MOD) prices.

6. We estimate that the proposed works will create about 12 jobs (ten for labourers and two for professional or technical staff), providing a total employment of 400 man-months.

PUBLIC CONSULTATION

7. Following the previous consultations with the Sha Tau Kok District Rural Committee (STKDRC) and the District Minor Works and Environmental Improvement Committee (DMW&EIC) of North District Council, we consulted the Chairman of STKDRC, the relevant North District Council member and the village representative again on 26 October 2017. They maintained their support of the project.

8. We consulted DMW&EIC on the proposed works again on 20 November 2017 and they remained in support of the project.

9. We gazetted the proposed works under the Water Pollution Control (Sewerage) Regulation (Cap. 358AL) on 20 May 2011. No objection was received and the proposed works were subsequently authorised on 19 August 2011.

ENVIRONMENTAL IMPLICATIONS

10. The proposed works 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 August 2012. The PER concluded and the Director of Environmental Protection agreed that, with the implementation of appropriate mitigation measures, the proposed works would not cause long-term adverse

environmental impacts. We have included in the project estimate of the proposed works the cost for implementing the necessary environmental mitigation measures.

11. For the construction phase, we will control noise, dust and site run-off nuisances to within the established standards and guidelines through the implementation of the recommended mitigation measures in the relevant contract. These 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 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.

12. At the planning and design stages, we have considered ways to reduce the generation of construction waste where possible. In addition, we will request 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 to public fill reception facilities (PFRF[3]). We will encourage the contractors to maximise the use of recycled / recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

13. We will also request the contractors to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation measures to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will request the contractors to separate inert and 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.

14. We estimate that the proposed works will generate 6 360 tonnes of construction waste. Of these, we will reuse 3 800 tonnes (60%) on site and deliver 2 500 tonnes (39%) of inert construction waste to PFRF for subsequent reuse. We will dispose of the remaining 60 tonnes (1%) of non-inert construction waste at landfills. The total cost for accommodating the aforementioned construction waste at PFRF and landfill sites is estimated to be

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

$189,500[4].

HERITAGE IMPLICATIONS

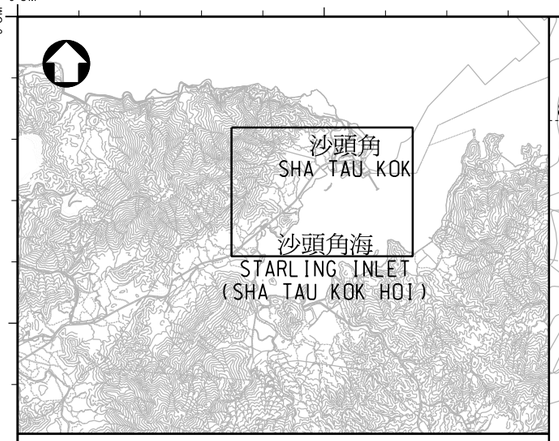
15. The proposed works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites or buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office. We conducted a Built Heritage Impact Assessment (BHIA) in October 2009 and identified that several proposed sewers will be located in the vicinity of some village houses and shrine. Appropriate mitigation measures will be implemented in accordance with the recommendations of the BHIA.

LAND ACQUISTION

16. Thirty-two private agricultural lots (about 1 101 square metres) will need to be resumed for implementing the proposed works. Site clearance will not affect any household or structure.

Environment Bureau
Drainage Services Department
November 2017

[4] The cost is calculated 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).



位置圖 LOCATION PLAN
比例 SCALE 1 : 100000

845 500 N
840 000 E
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現有的雙管污水泵喉
EXISTING TWIN RISING MAINS

蕉坑
TSIU HANG

沙頭角
SHA TAU KOK

沙頭角污水處理廠
SHA TAU KOK SEWAGE TREATMENT WORKS

現有的海底排放管
EXISTING SUBMARINE OUTFALL

現有的沙頭角污水泵房
EXISTING SHA TAU KOK SEWAGE PUMPING STATION

塘肚
TONG TO

現有的無壓污水渠
EXISTING GRAVITY SEWERS

擬建的鄉村污水收集系統範圍
PROPOSED VILLAGE SEWERAGE AREA

石涌凹
SHEK CHUNG AU

沙頭角海
STARLING INLET
(SHA TAU KOK HOI)

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工務工程計劃編號4345DS
- 北區污水收集系統第2階段第2A期
PWP ITEM NO. 4345DS
- NORTH DISTRICT SEWERAGE STAGE 2 PART 2A

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比例 scale
1 : 7500 OR AS SHOWN

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Enclosure 3

4398DS – Sewerage to Lei Yue Mun Village

PROJECT SCOPE

The proposed scope of works under **4398DS** comprises –

(a) the construction of approximately one kilometre of gravity sewers and nine dry weather flow interceptors (DWFIs[1]);

(b) the construction of approximately 460 metre (m) of twin rising mains and four sewage pumping chambers;

(c) the upgrading of approximately 400 m of existing gravity sewers at Lei Yue Mun (LYM) Praya Road and LYM Path;

(d) the upgrading of the existing Sam Ka Tsuen Sewage Pumping Chamber (SKTSPC); and

(e) ancillary works[2].

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

JUSTIFICATIONS

2. LYM Village has no public sewerage system; and only the restaurants and a few village houses thereat are equipped with their individual and simple on-site facilities such as septic tanks and soakaway (STS) systems[3]. Many squatter houses also discharge their sewage directly into the stormwater system. As a result, the Sam Ka Tsuen Typhoon Shelter has been suffering from water pollution.

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[1] DWFI is a device that intercepts and diverts polluted dry weather flow from stormwater drain / channel into the sewerage system during non-rainy days for treatment.

[2] Ancillary works include the utility diversion, road and drainage works required to facilitate the sewerage works.

[3] 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.

3. The Tourism Commission plans to launch the "Lei Yue Mun Waterfront Enhancement Project" ("LYM Project") to further improve the facilities along the LYM waterfront areas with a view to enhancing the attractiveness of LYM as a tourist attraction. During the gazettal of the dredging works of the LYM Project under the Foreshore and Sea-bed (Reclamations) Ordinance (Cap. 127) in October 2009, objections were received raising concern primarily about the sewerage problem in the LYM area. To address this concern raised by the objectors, the Environmental Protection Department and the Drainage Services Department (DSD) were tasked to work out a sewerage plan for the area.

4. We propose to construct a public sewerage system and upgrade the existing SKTSPC and sewers at LYM Praya Road and LYM Path to serve the restaurants, shops, village houses and structures along both sides of the main access road at LYM Village, including On Li Sai Tsuen, Ma Wan Tsuen, Che Ting Tsuen and Ma Pui Tsuen. We also propose to construct nine DWFIs to intercept the polluted flow from the stormwater system. The proposed sewerage system will serve an ultimate residential population of 3 100 as well as commercial and tourist activities.

5. Subject to the approval of the Finance Committee, we aim to commence construction of the proposed works in the third quarter of 2018 for completion in the first quarter of 2023.

FINANCIAL IMPLICATIONS

6. We estimate the total capital cost of the proposed works as detailed in paragraph 1 above to be $260.2 million in money-of-the-day (MOD) prices.

7. We estimate that the proposed works will create about 50 jobs (40 for labourers and ten for professional or technical staff), providing a total employment of 2 400 man-months.

PUBLIC CONSULTATION

8. We consulted the Environment and Hygiene Committee of Kwun Tong District Council on 20 September 2016 and the Task Force on Harbourfront Developments in Kowloon, Tsuen Wan and Kwai Tsing on 22 September 2016. All parties supported the proposed works.

9. We gazetted the proposed sewerage works under **4398DS** in

accordance with the Water Pollution Control (Sewerage) Regulation (Cap. 358AL) on 20 October 2017. If no objection is received upon the expiry of the gazettal period on 19 December 2017, the proposed works will be authorised. If objections are received within the objection period and cannot be resolved, the Chief Executive in Council will decide on the authorisation of the proposed works.

ENVIRONMENTAL IMPLICATIONS

10. The proposed works is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). The DSD completed a Preliminary Environmental Review (PER) for the proposed works in July 2017. The PER has concluded and the Director of Environmental Protection agreed that the proposed works would not have any long-term adverse environmental impacts. We have included in the project estimate of the proposed works the cost for implementing suitable mitigation measures to control short-term environmental impacts.

11. For the construction phase, we will control noise, dust and site run-off nuisances to within the established standards and guidelines through the implementation of the recommended mitigation measures in the relevant contract. These 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 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.

12. At the planning and design stages, we have considered ways to reduce the generation of construction waste (e.g. to minimise the size of the proposed DWFIs to minimise 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 to 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.

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

13. We will also request 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 inert and 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.

14. We estimate that the proposed works will generate 14 500 tonnes of construction waste. Of these, we will reuse 3 600 tonnes (25%) on site, and deliver the 9 600 tonnes (66%) of inert construction waste to PFRF for subsequent reuse. We will dispose of the remaining 1 300 tonnes (9%) non-inert construction wastes to landfill sites for disposal at landfills. The total cost for accommodating construction waste at PFRF and landfill sites is estimated to be $941,600[5].

HERITAGE IMPLICATIONS

15. 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 ACQUISTION

16. The implementation of the proposed works will only involve government land. No land resumption is required.

Environment Bureau
Drainage Services Department
November 2017

[5] The cost is calculated 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).

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817 000 N
816 800 N
816 600 N
816 400 N

三家村避風塘
SAM KA TSUEN
TYPHOON SHELTER

鯉魚門徑 LEI YUE MUN PATH
鯉魚門海傍道 LEI YUE MUN PRAYA ROAD

安里西村
ON LI SAI TSUEN

鯉魚門村
LEI YUE MUN
VILLAGE

馬環村
MA WAN TSUEN

崠頂村
CHE TING TSUEN

馬背村
MA PUI TSUEN

鯉魚門
LEI YUE MUN

觀塘仔灣
KWUN TONG
TSAI WAN

三家村避風塘
SAM KA TSUEN
TYPHOON SHELTER

鯉魚門
LEI YUE MUN

位置圖 LOCATION PLAN

比例 SCALE 1 : 30000

圖例 LEGEND :

- 擬改善現有的三家村污水泵井 PROPOSED UPGRADE OF EXISTING SAM KA TSUEN SEWAGE PUMPING CHAMBER
- 擬建的污水泵井 PROPOSED SEWAGE PUMPING CHAMBERS
- 擬建的旱季截流器 PROPOSED DRY WEATHER FLOW INTERCEPTORS (DWFIs)
- 擬建的無壓污水渠 PROPOSED GRAVITY SEWERS
- 擬建的雙管污水泵喉 PROPOSED TWIN RISING MAINS
- 擬改善現有的無壓污水渠 PROPOSED UPGRADE OF EXISTING GRAVITY SEWERS

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修 訂 REVISION

	姓 名 name	日期 date
繪 畫 drawn	*SIGNED* K. S. LEUNG	15 NOV 2017
核 對 checked	*SIGNED* Ir W. K. AU YEUNG	15 NOV 2017
批 核 approved	*SIGNED* Ir K. F. SEIT	15 NOV 2017

圖 則 名 稱 drawing title

工務工程計劃編號 4398DS
- 鯉魚門村污水收集系統工程
PWP ITEM NO. 4398DS
- SEWERAGE TO LEI YUE MUN VILLAGE

圖 則 編 號 drawing no.	比例 scale
DCM/2017/106	1 : 3000 OR AS SHOWN

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部 門 office
顧 問 工 程 管 理 部
CONSULTANTS MANAGEMENT DIVISION

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

A3 420x297

Enclosure 4

4343DS – Outlying Islands sewerage stage 2 – Peng Chau village sewerage phase 2

PROJECT SCOPE

The part of **4343DS** that we propose to upgrade to Category A comprises –

(a) the construction of approximately 3.4 kilometres of gravity sewers for six unsewered areas in Peng Chau, namely Nam Wan San Tsuen, Tai Yat San Tsuen (part), Wai Tsai Tseng San Tsuen, Central Peng Chau, Nam Wan Shan Ting Tsuen, and Tung Wan Village (part); and

(b) ancillary works[1].

A plan showing the locations of the proposed works is at **Annex to Enclosure 4**.

JUSTIFICATIONS

2. There is an existing sewage pumping station and a secondary sewage treatment works (STW) in Peng Chau, but many densely populated areas are still unsewered. Domestic sewage from these unsewered areas is currently disposed of by many individual and simple on-site facilities such as septic tank and soakaway (STS) systems[2], and some of them have been identified as a source of water pollution to the receiving waters of Peng Chau.

3. The "Outlying Islands Sewerage Master Plan Stage 2 Review" recommended that public sewerage system should be provided for the unsewered areas in Peng Chau. We propose to construct public sewerage system for six unsewered areas mentioned in paragraph 1 above and convey their sewage to the existing Peng Chau STW for proper treatment and disposal.

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[1] Ancillary works include the utility diversion, road and drainage works required to facilitate the sewerage 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 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.

The proposed sewerage system will serve an estimated ultimate population of 2 500.

4. Subject to the approval of the Finance Committee, we aim to commence construction of the proposed works in the fourth quarter of 2018 for completion in the fourth quarter of 2022. We will retain the remainder of **4343DS** in Category B for the provision of sewerage system for another five unsewered areas in Peng Chau. Funding for the remainder of **4343DS** will be sought at a later stage after completion of the design and preparatory work.

FINANCIAL IMPLICATIONS

5. We estimate the total capital cost of the proposed works as detailed in paragraph 1 above to be $133.7 million in money-of-the-day (MOD) prices.

6. We estimate that the proposed works will create 40 jobs (35 for labourers and five for professional or technical staff), providing a total employment of about 1 700 man-months.

PUBLIC CONSULTATION

7. Following the previous consultations with the Peng Chau Rural Committee (PCRC) and the Tourism, Agriculture, Fisheries and Environmental Hygiene Committee of the Islands District Council (IsDC), we consulted the PCRC again on 22 January 2016 and reported progress of the proposed works to the IsDC on 24 October 2016. All parties supported the proposed works and urged the Government to expedite progress.

8. We gazetted the proposed sewerage works in two packages under the Water Pollution Control (Sewerage) Regulation (Cap. 358AL) on 28 March 2013 and 30 May 2014 respectively. The first package gazetted in March 2013 was authorised on 6 September 2013 after the two objections received against the proposal were satisfactorily resolved. There was no objection received to the second package gazetted in May 2014 and it was subsequently authorised on 29 August 2014.

ENVIRONMENTAL IMPLICATIONS

9. The proposed works is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). It belongs to one of

the categories listed in the "Guidelines and Procedures for Environmental Impact Assessment of Government Projects and Proposals" (Environment, Transport and Works Bureau Technical Circular (Works) No. 13/2003) that has very little potential for giving rise to adverse environmental impacts. We have included in the project estimate of the proposed works the cost to implement suitable mitigation measures to control short-term environmental impacts.

10. For the construction phase, we will control noise, dust and site run-off nuisances to within the established standards and guidelines through the implementation of the recommended mitigation measures in the relevant contract. These 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 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.

11. At the planning and design stages, we have considered ways to reduce the generation of construction waste where possible. In addition, we will request 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 need for disposal of inert construction waste at public fill reception facilities (PFRF[3]). We will encourage the contractors to maximise the use of recycled/recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

12. We will also request the contractors to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation measures to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will request the contractors to separate inert and 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.

13. We estimate that the proposed works will generate 13 600 tonnes of construction waste. Of these, we will reuse 9 600 tonnes (71%) on site and deliver 3 800 tonnes (28%) to PFRF for subsequent reuse and 200 tonnes (1%)

[3] 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.

of non-inert construction waste to landfill sites for disposal. The total cost for accommodating the aforementioned construction waste at PFRF and landfill sites is estimated to be $309,800[4].

HERITAGE IMPLICATIONS

14. 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

15. Eight private agricultural lots (about 222 square metres) will need to be resumed for implementing the proposed works. Site clearance will not affect any household, but will affect 20 structures.

Environment Bureau
Drainage Services Department
November 2017

[4] The cost is calculated 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).

816800N

816400N

816000N

821400E

821800E

822200E

822600E

823000E

坪洲污水處理廠
PENG CHAU SEWAGE TREATMENT WORKS

東灣村
TUNG WAN VILLAGE

坪洲(中)
CENTRAL PENG CHAU

圍仔井新村
WAI TSAI TSENG SAN TSUEN

第一新村
TAI YAT SAN TSUEN

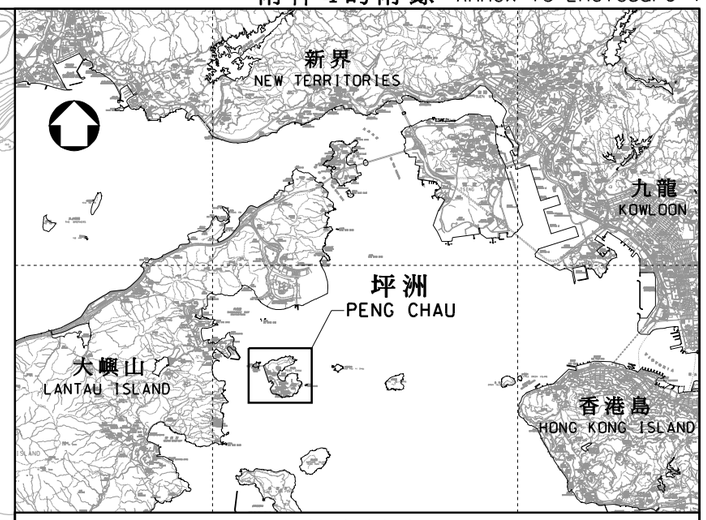
南灣新村
NAM WAN SAN TSUEN

南灣山頂村
NAM WAN SHAN TING TSUEN

坪洲
PENG CHAU

東灣
TUNG WAN

NGAU CHAU



位置圖
LOCATION PLAN
比例 1 : 200000
SCALE 1 : 200000

圖例
LEGEND :

- 現有的無壓污水渠 EXISTING GRAVITY SEWERS
- 現有的污水泵喉 EXISTING RISING MAINS
- 現有的海底排放管 EXISTING SUBMARINE OUTFALL
- 現有的污水泵房 EXISTING SEWAGE PUMPING STATION
- 擬建的鄉村污水收集系統範圍 PROPOSED VILLAGE SEWERAGE AREA

圖則名稱 drawing title

工務工程計劃編號4343DS
離島污水收集系統第2階段 - 坪洲鄉村污水收集系統第2期
PWP ITEM NO. 4343DS
OUTLYING ISLANDS SEWERAGE STAGE 2 - PENG CHAU VILLAGE SEWERAGE PHASE 2

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圖則編號 drawing no. DDN/343DS1/8096

比例 scale N.T.S.

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