

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 704 - DRAINAGE

#### Environmental Protection – Sewerage and sewage treatment

#### 340DS – Port Shelter sewerage stage 3 – Mang Kung Uk sewerage

Members are invited to recommend to Finance Committee the upgrading of **340DS** to Category A at an estimated cost of \$24.1 million in money-of-the-day prices for provision of public sewerage to Mang Kung Uk and nearby areas.

### PROBLEM

There is no public sewer system at Mang Kung Uk and nearby areas. Sewage discharged from these unsewered areas is a source of pollution to the local watercourses and the receiving waters at Tseung Kwan O.

### PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, proposes to upgrade **340DS** to Category A at an estimated cost of \$24.1 million in money-of-the-day (MOD) prices for provision of public sewerage to Mang Kung Uk and nearby areas.

### PROJECT SCOPE AND NATURE

3. The scope of works under **340DS** covers the extension of the public sewer system to the Mang Kung Uk area, which involves the construction of about 4.2 kilometres (km) of trunk sewers and branch sewers, ranging from 225 millimetres (mm) to 300mm in diameter.

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\_\_\_\_\_ A site plan showing the proposed works is at Enclosure 1.

4. We plan to start construction in June 2008 for completion in July 2010.

## JUSTIFICATION

5. There is no existing public sewerage at Mang Kung Uk areas. Sewage generated from these unsewered areas is mainly treated and disposed of by means of privately owned septic tank and soakaway systems<sup>1</sup>. These privately owned facilities are often ineffective in removing pollutants due to their close proximity to watercourses and inadequate maintenance<sup>1</sup>. Sewage discharged from these unsewered areas is a source of pollution to the existing watercourses and the receiving waters in Tseung Kwan O.

6. To safeguard the water quality of local watercourses and to maintain good water quality in the receiving waters over the long term, we propose to provide a public sewer system to collect and convey the sewage generated from Mang Kung Uk and nearby areas to Tseung Kwan O Sewage Treatment Works via the existing sewerage. The proposed sewer system will serve a planned population of about 3 400 at Mang Kung Uk area and about 400 at nearby areas.

7. On completion of the proposed works, villages at Mang Kung Uk and some residential blocks along Clearwater Bay Road can be connected to public sewerage. This will enable collection of sewage generated from these areas for proper treatment, and improve the water quality of the nearby watercourses and the receiving waters in Tseung Kwan O.

## FINANCIAL IMPLICATIONS

8. We estimate the capital cost of the proposed works to be \$24.1 million in MOD prices (see paragraph 9 below), made up as follows –

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<sup>1</sup> Septic tank and soakaway systems operate by allowing the effluent to percolate through the soil so that pollutants would be removed in a natural manner. However, if a system is located in an area where the underground water table is high such as an area in close proximity to watercourses, it cannot function properly.

<sup>1</sup> Inadequate maintenance of septic tanks or soakaway systems would affect their pollutant removal efficiency and may even lead to an overflow of effluent.

		<b>\$ million</b>
(a)	Sewers	21.2
(b)	Environmental mitigation measures	0.2
(c)	Contingencies	2.1
		<hr/>
	Sub-total	23.5 (in September 2007 prices)
(d)	Provision for price adjustment	0.6
		<hr/>
	Total	24.1 (in MOD prices)
		<hr/>

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

<b>Year</b>	<b>\$ million (September 2007)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
2008 – 2009	2.8	1.00750	2.8
2009 – 2010	8.1	1.01758	8.2
2010 – 2011	5.7	1.02775	5.9
2011 – 2012	4.8	1.03803	5.0
2012 – 2013	2.1	1.05619	2.2
	<hr/>		<hr/>
	23.5		24.1
	<hr/>		<hr/>

10. We have derived the MOD estimate on the basis of the Government's latest forecast of the trend rate of change in the prices of the public sector building and construction output for the period from 2008 to 2013. We will tender the proposed works under a re-measurement contract because of uncertainties concerning the existence and location of various underground utilities. As the contract period will not exceed 21 months, the contract will not provide for price adjustments.

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11. We estimate the annual recurrent expenditure arising from the proposed works to be about \$0.5 million.

## PUBLIC CONSULTATION

12. We presented our proposal for the proposed works together with other works in Port Shelter to the Sai Kung Rural Committee in September 2001 and the Hang Hau Rural Committee in October 2001. They both supported the implementation of the project.

13. The original proposed sewerage scheme in Mang Kung Uk included a sewage pumping station. We consulted the Hang Hau Rural Committee on the proposed sewerage scheme on 29 March 2006. The Committee supported the implementation of the proposed sewerage works, but requested for relocation of the sewage pumping station<sup>2</sup>. We agreed with Hang Hau Rural Committee and Mang Kung UK Village Rural Committee regarding the revised location of the sewage pumping station during a meeting on 9 June 2006. We then consulted the Food and Environmental Hygiene Committee of Sai Kung District Council on 25 October 2006. The Committee also supported the implementation of the proposed sewerage works.

14. The proposed works, and their proposed amendments, were gazetted under the Water Pollution Control (Sewerage) Regulation (“WPC(S)R”) in August 2006, January and June 2007 respectively and we received a total of 14 objections at different stages. Nine of the objections have been resolved and the remaining five considered by the Chief Executive in Council (CE in Council) on 4 December 2007. The status of the received objections are summarised below –

<b>Gazette</b>	<b>Gazettal Date</b>	<b>No. of Objection Received</b>	<b>Ground of Objection</b>	<b>Status</b>
Original Gazette	18 August 2006	1	Land resumption	Resolved
1 <sup>st</sup> Amendment Gazette	19 January 2007	12	Sewage pumping station site	8 resolved, 4 considered by CE in Council
2 <sup>nd</sup> Amendment Gazette	1 June 2007	1	Land resumption	Considered by CE in Council

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<sup>2</sup> The sewage pumping station in Mang Kung Uk included in the original sewerage scheme was later deleted by gazettal of 2<sup>nd</sup> amendment to the scheme under the Water Pollution Control (Sewerage) Regulation due to the strong objection against the pumping station site. Details are provided in paragraph 16 below.

15. The objection received during the statutory objection period of the gazettal of the original sewerage scheme (i.e. "Original Gazette") was made on the ground that the proposed land resumption for the sewer laying works would affect their development plan of the objector's land. Having discussed with the objectors and considered their grounds for objection, we amended the proposed works and gazetted an amendment under WPC(S)R on 19 January 2007 (i.e. "1<sup>st</sup> Amendment Gazette"). The objectors withdrew the objection unconditionally.

16. During the statutory objection period of the 1<sup>st</sup> Amendment Gazette, 12 fresh objections involving more than 100 objectors were received. The objections were against the location of the sewage pumping station in Mang Kung Uk. After lengthy deliberations, we formulated an alternative sewerage scheme which involved the construction of an additional 500 metre (m) long sewer at the hillside for re-routing the sewage flow so as to obviate the need of building the sewage pumping station. We held meetings with the registered land lot owners who might be affected by the proposed land resumption, and one of the owners requested full resumption of his two affected land lots. As excessive resumption was not justifiable under the current land resumption policy, his request could not be acceded to. We therefore re-aligned the sewer to avoid resumption of the affected land lots. We consulted Mang Kung UK Village Rural Committee on 21 March 2007 and obtained their support on the modified sewerage scheme. The modified sewerage scheme was gazetted under WPC(S)R on 1 June 2007 (i.e. "2<sup>nd</sup> Amendment Gazette").

17. Although the objectors' concerns had been fully addressed by the 2<sup>nd</sup> Amendment Gazette, four of the objectors to the 1<sup>st</sup> Amendment Gazette neither withdrew their objection unconditionally nor provided feedback on their stance despite our repeated explanation. Among them, one objector also indicated that he would only withdraw his objection if villagers do not need to bear any expense relating to the sewerage works. However, this is against the well established policy that villagers are required to carry out sewer connection works within their private lots up to the lot boundary at their own expense and to pay for the sewage charge. The information was conveyed to the objector.

18. While the modified sewerage alignment under the 2<sup>nd</sup> Amendment Gazette has taken into account the location of the private lots of a lot owner who objected to the scheme, the owner maintained his objection under the 2<sup>nd</sup> Amendment Gazette without providing valid ground.

19. After considering the five outstanding objections mentioned above, and having regard to the interest of the public at large in implementing the proposed works, the CE in Council authorised the proposed works without modification on 4 December 2007. The notice of authorisation was gazetted on 28 December 2007.

20. We consulted the Legislative Council Panel on Environmental Affairs on 8 January 2008 on the proposed works of **340DS**. Members raised no objection to our plan to submit the funding proposal to the Public Works Subcommittee. Nevertheless, some members requested the Administration to provide further information on the other sewerage works in Port Shelter areas. The supplementary information is set out at Enclosure 2.

## ENVIRONMENTAL IMPLICATIONS

21. The proposed sewerage works is not a designated project under the Environmental Impact Assessment Ordinance. We have conducted a Preliminary Environmental Review for the project, which concluded that there will be no significant environmental impact arising from the operation and maintenance of the sewer. For short-term impact caused by the works during the course of construction, we will control noise, dust and site run-off to levels within established standards and guidelines through the implementation of mitigation measures, such as the use of quiet construction equipment to reduce noise, water-spraying to reduce dust generation, and proper treatment of site run-off before discharge. We will also carry out close site inspection to ensure that these recommended mitigation measures and good site practices are properly implemented on site. We have included in paragraph 8(b) above a sum of \$0.2 million (in September 2007 prices) in the project estimate for implementation of the environmental mitigation measures.

22. We have duly considered in the planning and design stages ways to reduce the generation of construction waste where possible. For example, we have reduced as far as possible the depth of the proposed sewers to minimise the extent of trench excavation and adopted the alignments such that excavation and demolition of existing structures would be minimised. We will require the contractor to reuse inert construction waste (e.g. excavated soil or demolished concrete) on site as far as possible, in order to minimise the disposal of inert construction waste at public fill reception facilities<sup>3</sup>. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimise the generation of construction waste.

23. We will also require the contractor 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

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<sup>3</sup> Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from the non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

24. We estimate that the project will generate in total about 13 000 tonnes of construction waste. Of these, we will reuse about 4 400 tonnes (34%) of inert construction waste on site, and deliver 8 200 tonnes (63%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 400 tonnes (3%) of non-inert construction waste at landfills. The total cost of accommodating the construction waste at public fill reception facilities and landfill sites is estimated to be about \$0.3 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne<sup>4</sup> at landfills)

## HERITAGE IMPLICATIONS

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

## LAND ACQUISITION

26. We will resume about 706.6 square metres (m<sup>2</sup>) of private agricultural land for the project. The land acquisition and clearance will affect one temporary structure and one occupant living therein. As the affected structure is not a 1982 Housing Department (HD) surveyed domestic structure, the occupant is not eligible for public rental housing under the prevailing policy on Rehousing of Occupants of Squatter Structures Affected by Government Clearance Operations. Should the affected clearee has a temporary housing need, interim housing will be considered subject to his fulfilling the Comprehensive Means Test to be conducted by the HD. We will charge the cost of land acquisition and clearance, estimated at about \$2.86 million, to **Head 701 – Land Acquisition**. A breakdown of the land resumption and clearance costs is at Enclosure 3.

**/BACKGROUND .....**

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<sup>4</sup> This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m<sup>3</sup>), nor the cost to provide new landfills, (which is likely to be more expensive) when the existing ones are filled.

**BACKGROUND INFORMATION**

27. We included the proposed sewerage at Mang Kung Uk and sewerage in Sai Kung Area 4 in Category B as **340DS** in October 2004.

28. In January 2006, we upgraded part of **340DS** to Category A as **347DS** “Port Shelter sewerage stage 3 – Sai Kung Area 4 sewerage” at an estimated cost of \$73 million. We started the construction of works under **347DS** in March 2006 for completion in October 2008.

29. We have completed the design of the proposed works in Mang Kung Uk under **340DS** by in-house resources.

30. The proposed sewer laying works within villages at Mang Kung Uk and at Clearwater Bay Road will not involve any tree removal. For the sewer at the hillside, of the 46 trees within the project boundary, 31 trees will be preserved. The other 15 trees will be felled, and they are not important trees<sup>5</sup>. We will incorporate planting proposals as part of the project, including an estimated quantity of 18 trees.

31. We estimate that the proposed works will create about 28 jobs (24 for labourers and 4 for professional/technical staff) providing a total employment of 600 man-months.

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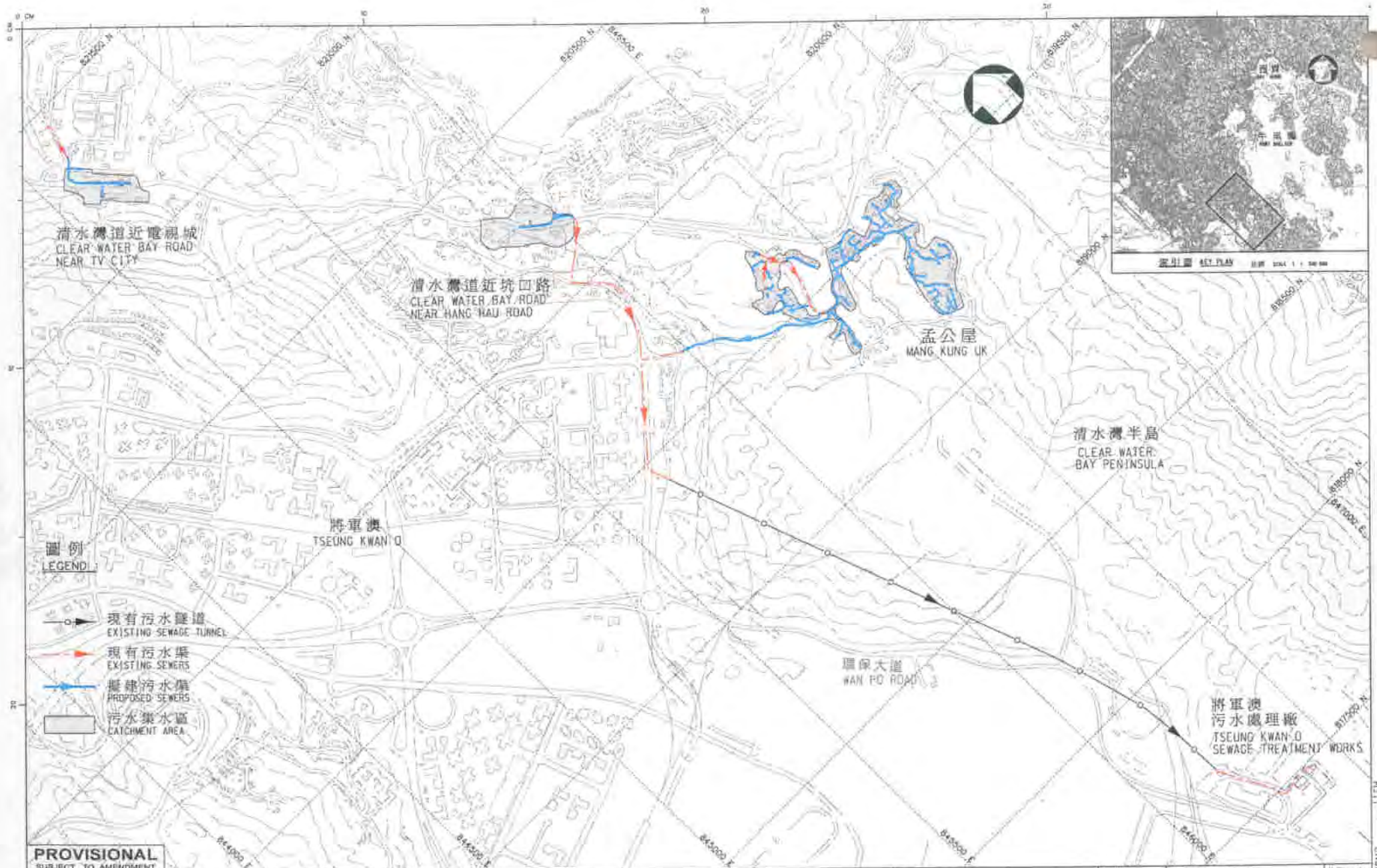
Environment Bureau  
February 2008

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<sup>5</sup> Important trees include trees on the Register of Old and Valuable Trees, and any other trees which meet one or more of the following criteria –

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





**PROVISIONAL**  
SUBJECT TO AMENDMENT

圖則名稱 drawing title  
 工務計劃項目第340DS號 -  
 牛尾海污水收集系統第3階段工程 - 孟公屋污水收集系統  
 PWP ITEM No. 340DS -  
 PORT SHELTER SEWERAGE STAGE 3 - MANG KUNG UK SEWERAGE

繪圖 drawn	SIGNED K. F. NG	日期 date	07NOV2007
校對 checked	SIGNED W. Y. LIU	日期 date	24DEC2007
批准 approved	SIGNED C. M. CHAN	日期 date	27DEC2007
部門 office	污水工程處 SEWERAGE PROJECTS DIVISION		

圖則編號 drawing no.  
**DDN/340DS/8057**

比例 scale  
 1:10 000  
 OR  
 AS SHOWN

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 DRAINAGE SERVICES DEPARTMENT  
 GOVERNMENT OF THE  
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附件一 ENCLOSURE 1

## **340DS – Port Shelter sewerage stage 3 – Mang Kung Uk sewerage**

### **Other sewerage projects in Port Shelter areas**

The Government provides sewage infrastructure for the protection of public health and the attainment of the declared Water Quality Objectives for the receiving waters. In March 1991, Environmental Protection Department completed a study entitled “Port Shelter Sewerage Master Plan Study”. The study has recommended a series of sewerage improvement works for implementation in four stages at various locations in the Port Shelter area.

2. We have been implementing the works of stages 1, 2 and 3, and the implementation of stage 4 works will be subject to a review after the first three stages are completed. Stage 1 works were carried out at Tan Cheung, Po Lo Che, Tui Min Hoi and Silverstrand with the last phase completed in October 2001. Part of the stage 2 works covering Sai Kung Old Town, Tai Wan, Sha Ha and Sha Kok Mei were completed in May 2005. The remaining stage 2 works and the stage 3 works are being implemented.

3. The proposed Mang Kuk Uk sewerage under **340DS** is a part of the stage 3 works. It extends the existing sewerage to the villages at Mang Kung Uk and nearby areas.

4. The detailed design of the remaining stages 2 and 3 works under Port Shelter sewerage is in progress. The works cover approximately 30 villages in Wong Chuk Wan, Tai Chung Hau, Pak Sha Wan, Ho Chung, Tai Po Tsai, Pik Shui Sun Tsuen and Tseng Lan Shue. We schedule to commence the phased implementation of works in 2010 for completion in 2014.

5. We also plan to expand and upgrade the Sai Kung Sewage Treatment Works to cope with the existing and planned developments, and to improve the water quality of Port Shelter. The detailed design is being carried out. We target to commence the works in 2010 for completion in 2014.

**340DS – Port Shelter sewerage stage 3 – Mang Kung Uk sewerage****Breakdown of the land resumption and clearance costs**

		<b>\$ million</b>
<b>Estimated land resumption cost</b>		<b>2.299</b>
(a) Agricultural Land Ex-gratia Compensation (including 20 lots of private land)	2.299	
706.6 m <sup>2</sup> @ \$3,253.40/ m <sup>2</sup> (Notes)		
<b>Estimated clearance cost</b>		<b>0.560</b>
(a) Compensation for crops	0.100	
(b) Ex-gratia compensation for miscellaneous permanent improvements to farms	0.100	
(c) “Tun Fu” ceremonial fees	0.050	
(d) Interest payment on various ex-gratia compensations for private land and contingency	0.310	
	<b>Total costs</b>	<b>2.859</b> <b>Say \$2.86 million</b>

**Notes**

- All the land to be resumed in the project **340DS** is agricultural land within Compensation Zone “B”. As published in the Gazette, the ex-gratia compensation rate for this zone is 75% of the Basic Rate for agricultural land. The present Basic Rate for agricultural land is \$403 per square foot (or \$4,337.86 per square metre). Hence the ex-gratia compensation rate used for estimating the resumption cost of the 20 lots affected by the project **340DS** is \$3,253.40 per square metre. (i.e. 75% of \$4,337.86 per square metre).
- There are four ex-gratia compensation zones, namely Zones A, B, C and D, for land resumption in the New Territories as approved by the Executive Council in 1985 and 1996. The boundaries of these zones are shown on the Zonal Plan for Calculation of Compensation Rates.