ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS Environmental Hygiene – Toilets and bathhouses 11NT – Conversion of aqua privies into flushing toilets – phase 5

Members are invited to recommend to Finance Committee the upgrading of **11NT** to Category A at an estimated cost of \$189.6 million in money-of-the-day prices for the conversion of 80 aqua privies into flushing toilets.

PROBLEM

Aqua privies in the New Territories and outlying islands can no longer meet the rising expectation of the public over the standard of public toilet facilities.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Food and Health, proposes to upgrade **11NT** to Category A at an estimated cost of \$189.6 million in money-of-the-day (MOD) prices for the conversion of 80 aqua privies into flushing toilets.

/PROJECT

PROJECT SCOPE AND NATURE

3. Since 2005, we have been implementing a programme to convert aqua privies in the New Territories and outlying islands into flushing toilets by phases. The conversion of 97 aqua privies¹ under phases 1, 2A and 2B (i.e. **6NT**, **7NT** and **8NT**) was completed in end 2007. Conversion of another 50 aqua privies under phase 3 (**9NT**) and phase 4 (**10NT**) commenced in November 2007 and is expected to complete by May 2009.

4. The scope of conversion works for the 80 aqua privies under phase 5 (**11NT**) will be similar to that in previous phases and can be classified into the following three types -

(a) **Type 1 – General refurbishment works for 43 aqua** privies, including –

- (i) conversion of existing aqua privies into toilets with flushing system including alterations to cubicles and the provision of pedestal or squatting type water closets;
- (ii) replacement of internal/external wall and floor finishes;
- (iii) improvement of hand-washing facilities;
- (iv) improvement of lighting and ventilation; and
- (v) conversion of the existing septic tank into an underground holding tank.

(b) **Type 2 – Installation of bio-treatment system for 31** aqua privies, including –

(i) general refurbishment works under Type 1 items(i) to (iv) above; and

/(ii)

¹ There were 100 aqua privies in the original scope of **6NT**, **7NT** and **8NT**. Among them, two aqua privies have encroached onto private lots hence conversion works could not be done. Another one is affected by a road widening project. We will arrange reprovisioning in the nearby area.

- (ii) installation of a bio-treatment system to treat waste by a biological process and to recirculate the treated effluent for flushing purpose.
- (c) **Type 3 Connection with public sewerage for 6** aqua privies, including –
 - (i) general refurbishment works under Type 1 items (i) to (iv) above; and
 - (ii) connecting underground drains of the toilets to the public sewer available in the vicinity.

The location of the 80 aqua privies on the Conversion List is set out in Enclosure 1.

5. The type of works to be implemented at each aqua privy is subject to site constraints and the availability of public sewer nearby. For Type 1 and Type 2 conversion works, we will convert existing septic tanks into holding tanks for waste. For Type 1 aqua privies without bio-treatment plant, we will arrange more frequent tankering away of waste. For Type 2 aqua privies where sufficient space is available, we will install bio-treatment plants. For Type 3 aqua privies, as nearby public sewer is available, we will connect their underground drains to the public sewer. The conversion method recommended for each aqua privy will be reviewed and, if required, adjusted in the light of the situation on the ground.

6. We have also drawn up a Reserve List at Enclosure 2 as replacements in case some of the aqua privies identified for action could not proceed as planned due to land or other technical reasons. As the aqua privies on the Reserve List are similar in size and nature to those on the Conversion List, replacements, if any, will not have significant time or cost implications.

7. The layout plans of a typical aqua privy and a flushing toilet converted from an aqua privy are at Enclosures 3 and 4 respectively. Exterior and interior views of the toilet after the completion of the proposed conversion works are at Enclosure 5. We plan to carry out the proposed conversion works under **11NT** in batches starting from November 2008 for completion by mid 2010. During the closure period of the aqua privies, we will make available portable toilets on site for use by the public.

JUSTIFICATION

8. Aqua privy is a village-type dry latrine without any flushing system. Toilet waste passes down the squatting hole of each toilet compartment and is collected in the septic tank underneath the aqua privies. The absence of a flushing system may create hygiene, pest and odour problems. Hence, aqua privies are not desirable public toilet facilities.

9. To meet the rising public expectation, the upgrading of existing aqua privies to flushing toilets with proper hand-washing facilities, improved lighting, ventilation and odour control, more up-to-date external outlook and internal fitting-out will improve the hygiene conditions and upgrade the standard of provision of public toilet facilities in the New Territories and outlying islands.

10. As set out in the 2007-08 Policy Agenda, we aim to convert all aqua privies in the territory into flushing toilets by 2012 - 2013. With the completion of **6NT** to **10NT** and the proposed **11NT**, a total of 227 aqua privies would be converted into flushing toilets. We expect four more phases, each covering about 80 aqua privies, would be required to complete the territory-wide conversion programme. We will seek funding approval from the Legislative Council when details of these four phases are ready.

FINANCIAL IMPLICATIONS

11. We estimate the capital cost of **11NT** to be \$189.6 million in MOD prices (see paragraph 12 below), made up as follows –

		\$ million
(a)	Site preparation	21.2
(b)	Building	30.5
(c)	Building services	16.6
(d)	Drainage	69.7
(e)	External works	9.0

/(f)

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			\$ million	
(f)	Additional energy conservation measures		0.2	
(g)	Consultants' fees for		3.9	
	(i) contract administration(ii) site supervision	3.4 0.5		
(h)	Provision of temporary portable toilets		4.0	
(i)	Contingencies		15.5	
	Sub-total		170.6	(in September
(j)	Provision for price adjustment		19.0	2007 prices)
	Total		189.6	(in MOD prices)

¢ million

We propose to engage consultants to undertake contract administration and site supervision of the project. A detailed breakdown of the estimate for consultants' fee by man-month is at Enclosure 6. The construction floor area (CFA) of the **11NT** is about 4 500 square metres (m^2). The estimated construction unit cost, represented by the building and the building services costs, are \$10,467 per m^2 of CFA in September 2007 prices. We consider this unit cost reasonable as compared with similar projects implemented by the Government.

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

Year	\$ million (Sep 2007)	Price adjustment factor	\$ million (MOD)
2008 - 09	3.0	1.02575	3.1
2009 - 10	55.0	1.06293	58.5

/2010

Year	\$ million (Sep 2007)	Price adjustment factor	\$ million (MOD)
2010 - 11	50.0	1.10545	55.3
2011 – 12	46.0	1.14967	52.9
2012 – 13	16.6	1.19566	19.8
	170.6		189.6

13. We have derived the MOD estimates on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period 2008 to 2013. We intend to deliver the proposed works under an existing design and construction term contract which was awarded in November 2007. The contract has been specially created to meet the needs of the phased conversion programme of aqua privies into flushing toilets. This is a 36-month re-measurement contract with provision for price adjustments.

14. Upon completion of the project, the annual recurrent expenditure for the 80 aqua privies under phase 5 will be about \$9.5 million.

PUBLIC CONSULTATION

15. We consulted the relevant District Councils in February and March 2008, and they all supported the proposed conversion works. A list of the District Councils consulted is at Enclosure 7.

16. On 8 May 2008, we issued an information paper to the Legislative Council Panel on Food Safety and Environmental Hygiene on the proposed conversion of 80 aqua privies into flushing toilets under **11NT**. Members did not raise any objection to the proposal.

/ENVIRONMENTAL

ENVIRONMENTAL IMPLICATIONS

17. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499) and will not cause long-term environmental impact. We have included in the project estimates the cost to implement suitable mitigation measures to control short term environmental impacts.

18. During construction, we will control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of mitigation measures in the relevant contract. These include the use of silencers, mufflers, acoustic lining or shields for noisy construction activities, and frequent cleaning and watering of the site.

19. We have considered measures in the planning and design stages to reduce the generation of construction waste where possible. These include the use of metal hoardings and signboards so that these materials can be recycled or reused in other sites; the use of prefabricated building elements such as steel frame construction, proprietary toilet partitions, counter top, wall finishes, and fittings and fixtures to reduce temporary formwork and construction waste. We will reduce demolition and off-site disposal by retaining the existing construction and structures of the aqua privies as far as possible. In addition, we will require the contractor to reuse inert construction waste (e.g. the use of excavated materials for filling within the site) 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 facilities². We will encourage the contractor to maximise the use of recyclable inert construction waste, as well as the use of non-timber formwork to further minimise the generation of construction waste.

/20.

² 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.

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

21. We estimate that the project will generate in total about 680 tonnes of construction waste. Of these, we will reuse about 220 tonnes (32.4%) of inert construction waste on site and deliver 400 tonnes (58.8%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 60 tonnes (8.8%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be \$18,300 for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne³ at landfills).

ENERGY CONSERVATION MEASURES

22. For energy efficient features, we will adopt T5 energy efficient fluorescent tubes with electronic ballasts and lighting control by occupancy sensors.

23. The total estimated additional cost for the adoption of energy efficient features is about \$200,000. There will be about 9 % energy savings in the annual energy consumption

HERITAGE IMPLICATIONS

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

/LAND

³ This estimate has taken into account the cost of 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/m³), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

LAND ACQUISITION

25. The project does not require any land acquisition.

BACKGROUND INFORMATION

26. We upgraded **11NT** to Category B in February 2008. We have already appointed a quantity surveying consultant to carry out administration of the existing design and construction term contract for the phased conversion programme of aqua privies into flushing toilets. Therefore, no other consultant appointments are necessary. We have completed site investigation and sketch plans using in-house staff resources.

27. The proposed aqua privies conversion works will not involve any tree removal or planting proposals.

28. We estimate that the proposed works will create about 274 jobs (247 for labourers and another 27 for professional/technical staff) providing a total employment of 4 200 man-months.

Food and Health Bureau May 2008

 11NT – Conversion of aqua privies into flushing toilets – phase 5

 Locations of 80 aqua privies on the Conversion List

 11NT – 把旱廁改為沖水式廁所 – 第 5 期

 列於改建名單的 80 個旱廁所在地點

A. Locations of 43 aqua privies to be converted under Type 1 works 擬進行第一類改建工程的 43 個旱廁的地點

<u>Kwai Tsing District 葵青區</u>

1. Lutheran Village, Tsing Yi 青衣信義村

North District 北區

- 1. Fu Tei Pei, Fanling 粉嶺虎地排
- 2. Man Uk Pin, Sha Tau Kok 沙頭角萬屋邊
- 3. Muk Min Tau, Sha Tau Kok 沙頭角木棉頭
- 4. Ho Sheung Heung San Tsuen, Sheung Shui 上水河上鄉新村
- 5. Kwu Tung (Lung Tang Kok), Sheung Shui 上水古洞(龍騰閣)
- 6. Kwu Tung (Tung Fong), Sheung Shui 上水古洞(東方)
- 7. Tai Tau Ling (2), Sheung Shui 上水大頭嶺(2)
- 8. Tsung Pak Long (South), Sheung Shui 上水松柏朗(南)
- 9. Ha Shan Kai Wat (1), Ta Kwu Ling 打鼓嶺下山雞乙(1)
- 10. Lei Uk Tsuen, Ta Kwu Ling 打鼓嶺李屋村

Sai Kung District 西貢區

- 1. Mau Wu Tsai 茅湖仔
- 2. Pak Wai Tsuen 北圍村
- 3. Wai Sum Village 圍心村

Sha Tin District 沙田區

- 1. Tin Liu Village 田寮村
- 2. Tung Lo Wan Hill Top Village 銅鑼灣山頂村

Tai Po District 大埔區

- 1. Chai Kek Village 寨乪村
- 2. Cheung Shue Tan Village Site II 樟樹灘村工地 II
- 3. Chung Uk Tsuen 鍾屋村
- 4. Kei Ling Ha Lo Wai 企嶺下老圍
- 5. Tai Hang Village Site I 泰亨村工地 I
- 6. Tai Tung Tsuen 大洞村

Tuen Mun District 屯門區

- 1. Fu Tei Sheung Tsuen 虎地上村
- 2. Kei Lun Wai 麒麟圍
- 3. Lee Uk Tsuen, So Kwun Wat 掃管笏李屋村
- 4. Siu Lam San Tsuen 小欖新村
- 5. Tin Tei Yan Road 天地人路
- 6. Tsz Tin Tsuen 紫田村

Yuen Long District 元朗區

- 1. Tung Tau Tsuen, Ha Tsuen 廈村東頭村
- 2. Ko Po Tsuen, Kam Tin 錦田高埔村
- 3. Tai Hong Wai, Kam Tin 錦田泰康圍
- 4. Wah Shing Tsuen, Kam Tin 錦田華盛村
- 5. Ha Pak Nai Tsuen, Lau Fau Shan 流浮山下白泥村
- 6. San Hing Tsuen, Lau Fau Shan 流浮山新慶村
- 7. Kam Tsin Wai, Pat Heung 八鄉金錢圍
- 8. Lin Fa Tei, Pat Heung 八鄉蓮花地
- 9. Ngau Keng Tsuen, Pat Heung 八鄉牛徑村
- 10. Shan Ha Tsuen (1), Ping Shan 屏山山下村(1)
- 11. Fuk Hing Lane, San Tin 新田福興里
- 12. Lok Ma Chau Tsuen, San Tin 新田落馬洲村
- 13. Pun Uk Tsuen, San Tin 新田潘屋村
- 14. Hung Cho Tin, Shap Pat Heung 十八鄉紅棗田
- 15. Tai Tong Kuk, Shap Pat Heung 十八鄉大棠谷

B. Locations of 31 aqua privies to be converted under Type 2 works 擬進行第二類改建工程的 31 個旱廁的地點

<u>Islands District</u> 離島區

- 1. Lo So Shing Village, Lamma Island 南丫島蘆鬚城村
- 2. Tai Peng, Lamma Island 南丫島大坪
- 3. Leung Uk Tsuen, Lantau Island 大嶼山梁屋村
- 4. Sha Lo Wan Beach, Lantau Island 大嶼山沙螺灣沙灘
- 5. Shap Long San Tsuen, Lantau Island 大嶼山十塱新村

<u>Kwai Tsing District 葵青區</u>

- 1. Cheung Yuen Road, Kwai Chung 葵涌長源路
- 2. Sheung Yat Tsuen, Kwai Chung 葵涌上一村
- 3. Kau Wah Keng Village 九華徑村

North District 北區

- 1. Liu Pok Tsuen (South) Playground 料壆村(南)遊樂場
- 2. Ha Ma Tseuk Leng, Sha Tau Kok 沙頭角下麻雀嶺
- 3. Lin Ma Hang, Sha Tau Kok 沙頭角蓮麻坑
- 4. Sai O, Kat O, Sha Tau Kok 沙頭角吉澳西澳
- 5. Sheung Wo Hang, Sha Tau Kok 沙頭角上禾坑
- 6. Sze Tau Leng, Sha Tau Kok 沙頭角獅頭嶺
- 7. Wo Keng Shan, Sha Tau Kok 沙頭角禾徑山
- 8. Fu Tei Au, Sheung Shui 上水虎地坳
- 9. Fung Kong (Tong Kok), Sheung Shui 上水鳳崗(塘角)
- 10. Ma Cho Lung Shun Yee Tsuen (1), Sheung Shui 上水馬草壟信義村(1)
- 11. Ha Shan Kai Wat (2), Ta Kwu Ling 打鼓嶺下山雞乙(2)
- 12. Sheung Shan Kai Wat, Ta Kwu Ling 打鼓嶺上山雞乙
- 13. Tai Po Tin (1), Ta Kwu Ling 打鼓嶺大埔田(1)
- 14. Tai Po Tin (2), Ta Kwu Ling 打鼓嶺大埔田(2)

Sai Kung District 西貢區

- 1. Hang Mei Teng Village 坑尾頂村
- 2. Sai Wan (I) 西灣(I)

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Tsuen Wan District 荃灣區

1. Sam Dip Tam Tsuen 三疊潭村

Tuen Mun District 屯門區

- 1. Kwong Shan Tsuen 礦山村
- 2. Pak Kok Tsuen 白角村
- 3. San Hing Tsuen, Chung Shan 松山新慶村

Yuen Long District 元朗區

- 1. Sik Kong Wai Tsuen, Ha Tsuen 廈村錫降圍村
- 2. Fui Sha Wai, Ping Shan 屏山灰沙圍
- 3. Ma Tin Tsuen, Shap Pat Heung 十八鄉馬田村

C. Locations of 6 aqua privies to be converted under Type 3 works 擬進行第三類改建工程的 6 個旱廁的地點

North District 北區

- 1. Tung Kok Wai, Lung Yeuk Tau, Fanling 粉嶺龍躍頭東閣圍
- 2. Wing Ling Wai, Lung Yeuk Tau, Fanling 粉嶺龍躍頭永寧圍
- 3. Chuk Yuen Tsuen, Sha Tau Kok 沙頭角竹園村
- 4. Kan Tau Wai, Ta Kwu Ling 打鼓嶺簡頭圍
- 5. Tong Fong, Ta Kwu Ling 打鼓嶺塘坊

Tsuen Wan District 荃灣區

1. Ting Kau Village 汀九村

11NT – Conversion of aqua privies into flushing toilets – phase 5 Locations of 14 aqua privies on the Reserve List 11NT – 把旱廁改為沖水式廁所 – 第 5 期 列於後備名單的 14 個旱廁所在地點

A. Location of 8 aqua privies to be converted under Type 1 works 擬進行第一類改建工程的 8 個旱廁的地點

<u>North District</u> 北區

1. San Tong Po, Sha Tau Kok 沙頭角新塘莆

Sha Tin District 沙田區

1. Kwun Yam Shan Village 觀音山村

Tsuen Wan District <u>荃灣區</u>

1. Sham Tseng East Village 深井東村

<u>Tuen Mun District</u> 屯門區

1. Tin Sum San Tsuen 田心新村

<u>Yuen Long District</u> 元朗區

- 1. Sha Po Tsuen, Kam Tin 錦田沙埔村
- 2. Chung Pak Nai, Lau Fau Shan 流浮山中白泥
- 3. Mei Po Lung Tsuen, San Tin 新田米埔隴村
- 4. Yeung Uk Tsuen, Shap Pat Heung 十八鄉楊屋村

B. Location of 3 aqua privies to be converted under Type 2 works 擬進行第二類改建工程的 3 個旱廁的地點

North District 北區

1. Kwan Tei Tsuen, Sha Tau Kok 沙頭角軍地村

Tai Po District 大埔區

1. Sheung Pak Ngau Shek Tsuen 上白牛石村

Yuen Long District 元朗區

1. Ng Uk Tsuen, Ping Shan 屏山吳屋村

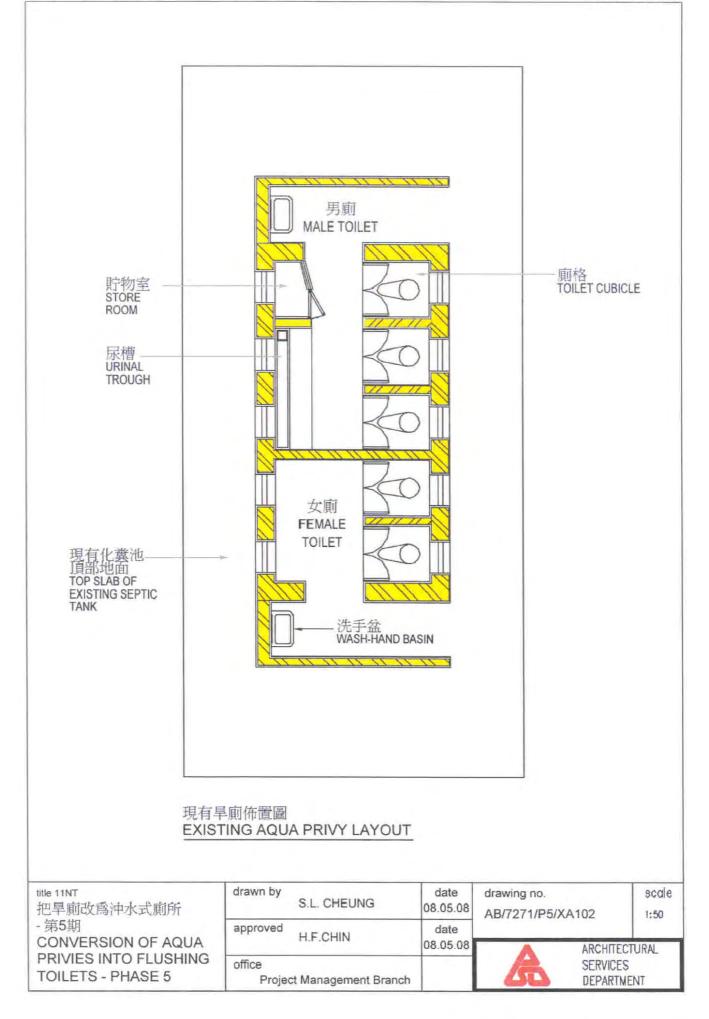
C. Location of 3 aqua privies to be converted under Type 3 works 擬進行第三類改建工程的 3 個旱廁的地點

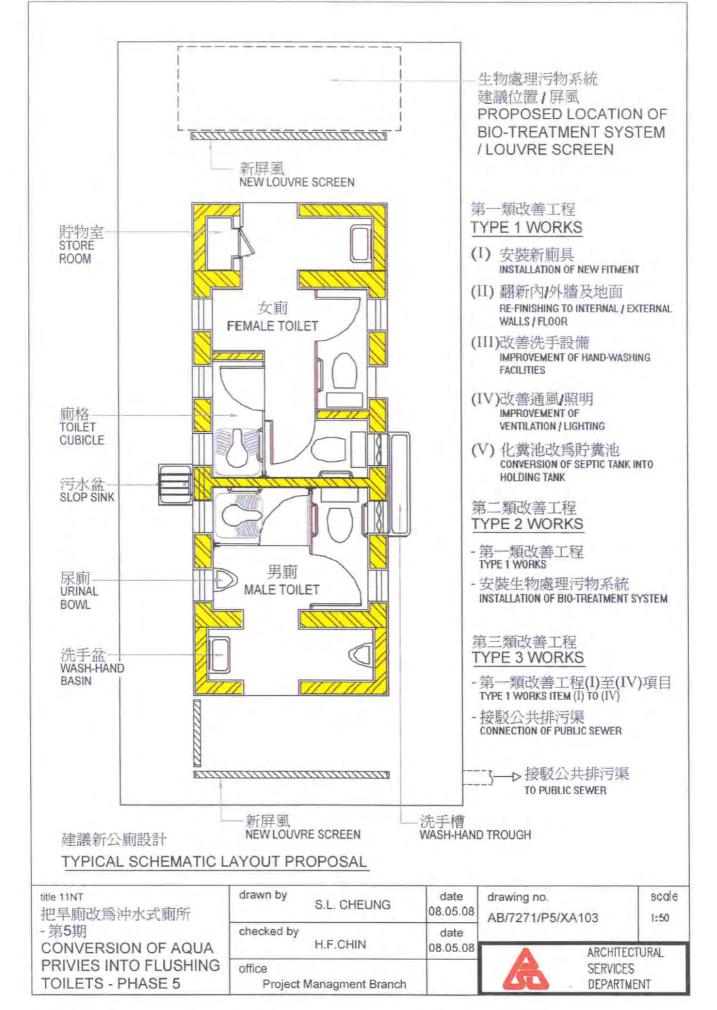
North District 北區

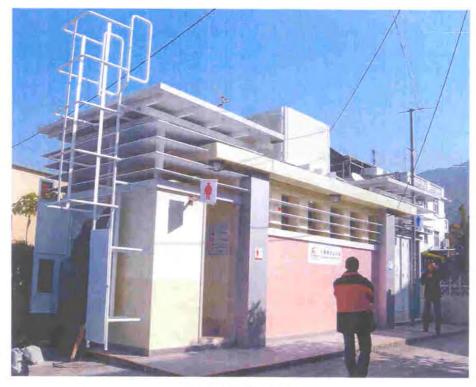
- 1. Tsung Yuen Ha Tsuen, Sha Tau Kok 沙頭角松園下村
- 2. Ping Che Tsuen, Ta Kwu Ling 打鼓嶺坪輋村

Sai Kung District 西貢區

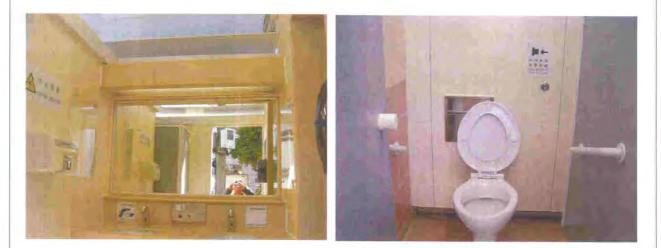
1. Mang Kung Uk Lower Village 孟公屋下村







廁所改善後之外貌 EXTERIOR VIEW OF TOILET AFTER IMPROVEMENT



廁所改善後之內貌 INTERIOR VIEW OF TOILET AFTER IMPROVEMENT

title 11NT 把旱廁改為沖水式廁所 - 第5期 CONVERSION OF AQUA PRIVIES INTO FLUSHING TOILETS - PHASE 5	drawn by	S.L. CHEUNG	date 08.05.08			scale NTS
	checked by	H.F.CHIN	date 08.05.08	ARCHITECTURAL		TURAL
	office	Project Managment Branch		A	SERVICES DEPARTMENT	

11NT - Conversion of aqua privies into flushing toilets - phase 5

Breakdown of the estimate for consultants' fees

Consultants' staff costs		Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a) Contract administration (Note 2)	Professional Technical	-	-	-	1.1 2.3
(b) Site supervision (Note 3)	Technical	16.6	14	1.6	0.5
				Total	3.9

^{*} MPS = Master Pay Scale

Notes

- 1. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants. (As at 1 January 2008, MPS point 14 = \$18,840 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 **11NT**. The assignment will only be executed subject to Finance Committee's approval to upgrade **11NT** to Category A.
- 3. The consultants' staff cost for site supervision is based on the estimate prepared by the Director of Architectural Services. We will only know the actual man-months and actual costs after completion of the construction works.

11NT – Conversion of aqua privies into flushing toilets – phase 5 11NT – 把旱廁改為沖水式廁所一第 5 期

List of District Councils/ Subcommittees Consulted 已諮詢的區議會/其轄下相關的委員會的名單

District 區	District Councils/Subcommittees consulted 已諮詢的區議會/其轄下相關的委員會	Date of Consultation 諮詢日期
Islands 離島區	Tourism, Agriculture, Fisheries & Environmental Hygiene Committee 旅遊漁農及環境衞生委員會	10.3.2008
Kwai Tsing 葵青區	Community Affairs Committee 社區事務委員會	19.2.2008
North 北區	District Minor Works & Environmental Improvement Committee 地區小型工程及環境改善委員會	17.3.2008
Sai Kung 西貢區	Housing & Environmental Hygiene Committee 房屋及環境衞生委員會	19.2.2008
Sha Tin 沙田區	Health and Environment Committee 衛生及環境委員會	6.3.2008
Tai Po 大埔區	Environment, Housing & Works Committee 環境、房屋及工程委員會	12.3.2008
Tsuen Wan 荃灣區	Environmental and Health Affairs Committee 環境及衛生事務委員會	28.2.2008
Tuen Mun 屯門區	Environment, Hygiene & District Development Committee 環境、衛生及地區發展委員會	28.3.2008
Yuen Long 元朗區	Environmental Improvement Committee 環境改善委員會	10.3.2008