

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 – NEW TOWNS AND URBAN AREA DEVELOPMENT

Civil Engineering – Land development

681CL – Formation, roads and drains in Area 54, Tuen Mun – phase 2

Members are invited to recommend to Finance Committee –

- (a) the upgrading of part of **681CL**, entitled “Formation, roads and drains in Area 54, Tuen Mun – phase 2 stage 2 works”, to Category A at an estimated cost of \$178.9 million in money-of-the-day prices; and
- (b) to retain the remainder of **681CL** in Category B.

PROBLEM

We need to construct the Tuen Mun Area 54 Sewage Pumping Station (TM54SPS) and associated sewerage works to serve the planned public rental housing (PRH), school and Government, Institution or Community (GIC) developments in Tuen Mun Area 54.

PROPOSAL

2. The Director of Civil Engineering and Development (DCED), with the support of the Secretary for Development, proposes to upgrade part of **681CL** to Category A at an estimated cost of \$178.9 million in money-of-the-day (MOD) prices to construct the TM54SPS and associated sewerage works.

PROJECT SCOPE AND NATURE

3. The part of **681CL** which we propose to upgrade to Category A comprises –

- (a) construction of a sewage pumping station near Tsz Tin Road;
- (b) construction of about 900 metres (m) long 500 millimetres (mm) diameter twin rising mains and associated manholes along San Fuk Road;
- (c) construction of about 150 m long 600 mm diameter and 200 m long 750 mm diameter gravity trunk sewers and associated manholes near Tsz Tin Road and along Tsun Wen Road respectively;
- (d) landscaping and ancillary works including reinstatement of the affected carriageways and footpaths; and
- (e) implementation of environmental mitigation measures and an Environmental Monitoring and Audit (EM&A) programme for the works mentioned in (a) to (d) above.

——— 4. A layout plan showing the proposed works is at Enclosure 1.

5. We have substantially completed the detailed design of the proposed works using in-house resources. Subject to approval of the Finance Committee (FC), we plan to commence construction in October 2012 for completion in March 2016.

6. The remaining parts of **681CL** comprise site formation and associated infrastructural works for PRH, school and GIC developments at other sites in Tuen Mun Area 54. Funding for these works will be sought separately when they are ready for upgrading to Category A.

JUSTIFICATION

7. Tuen Mun Area 54 is designated for PRH developments together with school and GIC facilities, as part of Government's continued efforts to maintain a steady and sufficient supply of land to meet housing demand in the long term. The proposed TM54SPS and associated sewerage works collect sewage generated from the new developments in Tuen Mun Area 54 for discharge into the gravity trunk sewer¹ under construction at Ming Kum Road. The sewage will then be conveyed via the gravity trunk sewer to the Pillar Point Sewage Treatment Works for proper treatment before disposal.

8. The first PRH site being developed in Area 54 is Site 2 near the junction of Tsing Lun Road and Tsz Tin Road, which will produce about 5 000 PRH flats. Population intake of the PRH development at Site 2 is expected by mid 2016 to meet the public housing need. Hence, the proposed TM54SPS and associated sewerage works are required to be completed before mid 2016. PRH developments at other sites in Area 54 will be implemented in stages for population intake in around 2020.

FINANCIAL IMPLICATIONS

9. We estimate the cost of the proposed works to be \$178.9 million in MOD prices (please see paragraph 10 below), broken down as follows –

	\$ million
(a) Sewage pumping station	96.7
(i) civil works	54.6
(ii) electrical and mechanical (E&M) works	42.1
(b) Rising mains, gravity trunk sewers and associated sewerage works	35.8
(c) Landscaping works	1.9
	/(d)

¹ The gravity trunk sewer is being constructed by the Drainage Services Department under PWP No. **4371DS** – “Sewerage in western Tuen Mun” for completion by December 2015.

		\$ million	
(d)	Environmental mitigation measures and EM&A programme	3.1	
(e)	Contingencies	13.5	
	Sub-total	151.0	(in September 2011 prices)
(f)	Provision for price adjustment	27.9	
	Total	178.9	(in MOD prices)

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

Year	\$ million (Sept 2011)	Price adjustment factor	\$ million (MOD)
2012 – 2013	7.5	1.05325	7.9
2013 – 2014	30.2	1.11118	33.6
2014 – 2015	60.4	1.17229	70.8
2015 – 2016	37.8	1.23677	46.7
2016 – 2017	12.1	1.30479	15.8
2017 – 2018	3.0	1.37656	4.1
	151.0		178.9

11. We have derived the MOD estimates on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output from 2012 to 2018. Subject to funding approval, we will implement the works under two contracts. The DCED will deliver the civil works under a re-measurement civil works contract because of the uncertain ground conditions that may affect the profile of the rising mains and gravity trunk sewers as well as the foundation of the sewage pumping station. The civil works contract will provide for price adjustments. The Director of Drainage Services will arrange the supply and installation of E&M equipment for the sewage pumping station under an E&M works contract on a lump-sum basis without price adjustment given the clearly defined scope. The supervision of the civil and E&M works will be undertaken by in-house resources.

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12. We estimate the annual recurrent expenditure arising from the proposed works to be \$2.5 million. Based on the current level of expenditure on operation and day-to-day maintenance of sewerage facilities, the proposed works will lead to an increase in the recurrent cost of providing sewage services by about 0.18% which will be taken into consideration when determining the sewage charges and trade effluent surcharge rates in future.

PUBLIC CONSULTATION

13. We consulted the Tuen Mun Rural Committee and the Environment, Hygiene and District Development Committee (EHDDC) of the Tuen Mun District Council (TMDC) on 23 October and 17 November 2006 respectively on the proposed TM54SPS and associated sewerage works. Both Committees supported the proposed works. We have also been liaising closely with the Working Group formed under EHDDC of TMDC for monitoring the proposed PRH development at Site 2, as well as the proposed TM54SPS and associated sewerage works. We reported the project progress to the Working Group on a regular basis with our last report in August 2011.

14. We gazetted the proposed sewerage works under the Water Pollution Control (Sewerage) Regulation on 24 October 2008. We received two objections. The first objection was withdrawn unconditionally after the objector was informed that his house was outside the works limit of the proposed works, and that we would implement appropriate environmental mitigation measures to mitigate possible environmental nuisance to the nearby residents during construction.

15. The second objector requested an extension of the resumption limit to include a part of his lot. He also suggested upgrading the San Fuk Road van track near his lot by widening the track to 4.5 m and constructing sewers underneath. While proposing some measures to maintain accessibility to his lot, we advised the objector that the proposed works did not necessitate resumption of the part of his lot concerned. In respect of the objector's request for upgrading the van track, we explained that the project scope did not cover the widening of the van track and his suggestion of upgrading the van track would be referred to District Office (Tuen Mun) (DO(TM)) separately. DO(TM) considered the suggested widening works not cost-effective due to site constraints. Despite our explanations, the objector maintained his objection. On 3 November 2009, the Chief Executive in Council overruled the objection and authorized the proposed sewerage works without modification. The objector was notified of the decision on 26 November 2009.

16. We circulated an information paper to the Legislative Council Panel on Development on the proposed works on 15 February 2012. Members raised no objection to the proposal.

ENVIRONMENTAL IMPLICATIONS

17. The proposed TM54SPS is a Designated Project (DP) under Schedule 2 of the Environmental Impact Assessment Ordinance (Cap 499), while the proposed associated sewerage works are not.

18. The Environmental Impact Assessment (EIA) report for the proposed TM54SPS was approved by the Director of Environmental Protection on 12 November 2008. We obtained the environmental permit (EP) required for the construction and operation of the proposed TM54SPS on 30 December 2009. The EP has taken into account the recommendations of the EIA report. With the implementation of the recommended mitigation measures and EM&A programme, the environmental impacts arising from the construction and operation of the proposed TM54SPS will be controlled to ensure compliance with the statutory requirements.

19. We will incorporate the recommended mitigation measures into the works contract to control the environmental impacts arising from the construction of the works to within established standards and guidelines. These measures include frequent watering of the site, provision of wheel-washing facilities, covering of materials on trucks and use of silenced construction plant. We will also implement the EM&A programme recommended in the EIA report. We have included \$3.1 million (in September 2011 prices) in the project estimate for the implementation of the environmental mitigation measures and the EM&A programme.

20. At the planning and design stages, we have considered the design of the proposed works and the construction sequence to reduce the generation of construction waste where possible. In addition, we will require the contractor 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

construction waste at public fill reception facilities². We will encourage the contractor to maximize the use of recycled/recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

21. At the construction stage, we will 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 at public fill reception facilities and landfills respectively through a trip-ticket system.

22. We estimate that the project will generate in total about 10 400 tonnes of construction waste. Of these, we will reuse about 2 500 tonnes (24%) of inert construction waste on site and deliver 7 500 tonnes (72%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 400 tonnes (4%) 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 \$252,500 for this project (based on a unit cost of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne³ at landfills).

HERITAGE IMPLICATIONS

23. The proposed works will encroach upon the Kei Lun Wai Site of Archaeological Interest. We conducted an archaeological investigation at the proposed works site and discovered no significant archaeological remains. No further archaeological action is therefore required for the proposed works.

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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 filling reception facilities requires a licence issued by the Director of Civil Engineering and Development.

³ 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 per m³), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

LAND ACQUISITION

24. We have reviewed the design of the project to minimize the extent of land acquisition required for the proposed TM54SPS and associated sewerage works. It is necessary to resume 4 572 square metres (m²) of private land and clear 9 594 m² of government land for the proposed TM54SPS and associated sewerage works. All necessary land resumption and clearance of the affected private land were completed in October 2011. The land resumption and clearance affects 13 land owners who have been offered ex-gratia compensation in accordance with the established policy. The cost of land resumption and clearance estimated at \$40.4 million is charged to **Head 701 – Land Acquisition**. A breakdown of the land resumption and clearance costs is at Enclosure 2.

BACKGROUND INFORMATION

25. In 1999, we completed a “Planning and development study of potential housing sites in Area 54, Tuen Mun” (the Study). The land use proposals recommended in the Study were subsequently incorporated into the Tuen Mun Outline Zoning Plan, which was approved by the Chief Executive in Council on 30 September 2003. In October 2005, we commenced a review of the recommendations of the Study taking into account changes in development layout and parameters in Area 54 since completion of the Study. The review, completed in March 2008, confirmed the feasibility of the development of the proposed PRH sites in phases.

26. The project **681CL** was included in Category B in September 2000.

27. On 25 May 2001, we upgraded part of **681CL** as **686CL** – “Consultants’ fees and site investigation for site formation, roads and drains in Area 54, Tuen Mun – phase 2”, at an estimated cost of \$25.9 million for site investigation and engagement of consultants to undertake detailed design of the site formation and infrastructural works for the phase 2 development in Area 54, Tuen Mun.

28. On 15 April 2011, we upgraded part of **681CL** as **744CL** – “Formation, roads and drains in Area 54, Tuen Mun – phase 2 stage 1 works”, at an estimated cost of \$325.2 million for carrying out site formation works at Site 2 for PRH development and associated infrastructural works. The site formation works and associated infrastructural works commenced in September 2011 for completion in April 2015.

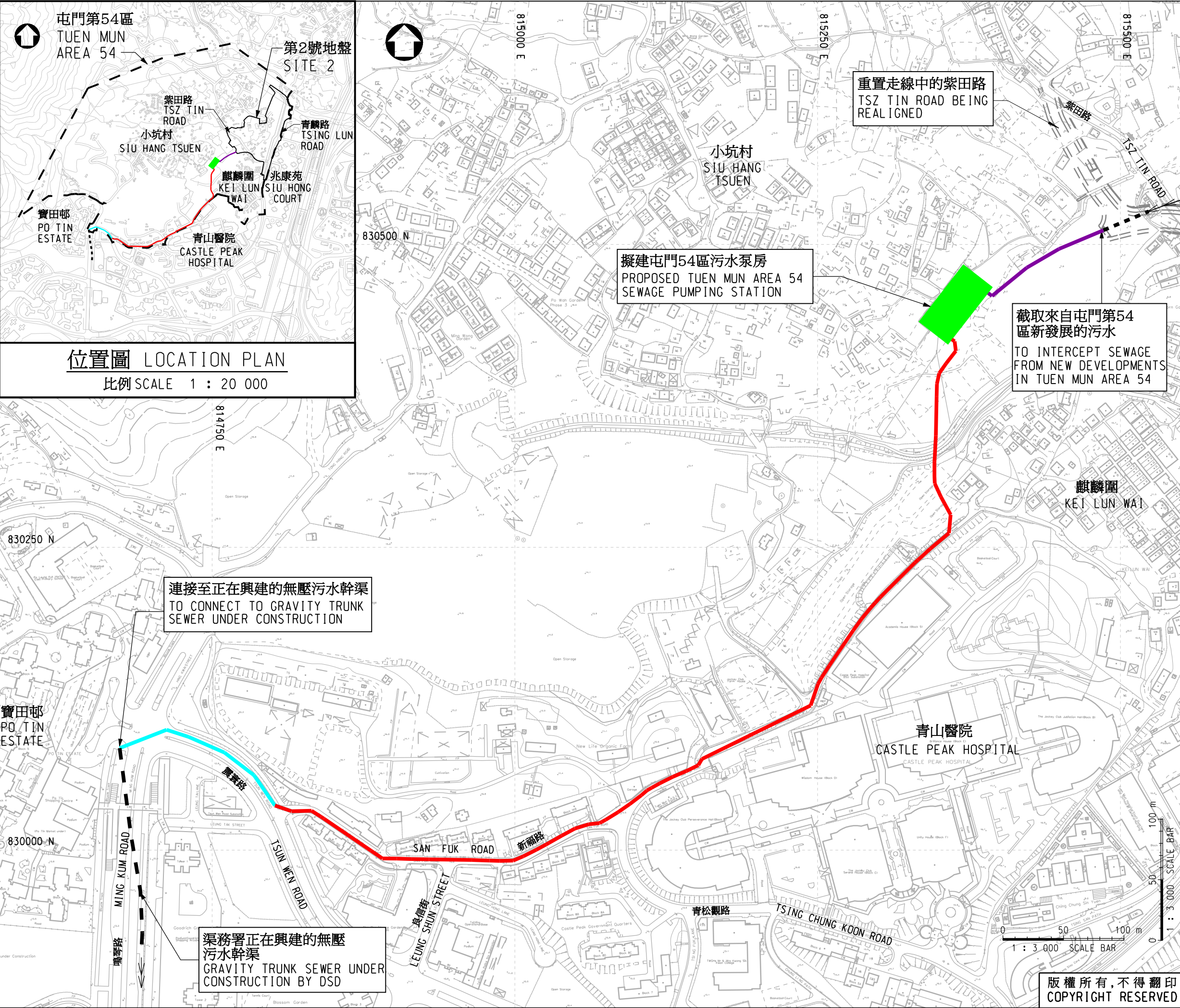
29. Of the 63 trees within the boundary of the proposed works, 57 trees will be preserved. Of the remaining six trees, two dead trees will be removed and four trees will be felled. All trees to be removed are not important trees⁴. We will incorporate planting proposals as part of the project, including estimated quantities of 35 trees.

30. We estimate that the proposed works will create about 85 jobs (74 for labourers and another 11 for professional/technical staff), providing a total employment of 3 150 man-months.

Development Bureau
April 2012

⁴ “Important trees” refers to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

- (a) trees of 100 years old or above;
- (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 an important person or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of the overall tree sizes, shape and any special features), e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
- (e) trees with a trunk diameter equal to or exceeding 1.0 metre (m) (measured at 1.3 m above ground level), or with a height/canopy spread equal to or exceeding 25 m.



註釋 NOTE:
所有擬建環境美化工程均在污水泵房範圍內
ALL PROPOSED LANDSCAPE WORKS ARE WITHIN BOUNDARY OF SEWAGE PUMPING STATION

- 圖例 LEGEND:
- 擬建的污水泵房
PROPOSED SEWAGE PUMPING STATION
 - 擬建600mm直徑的無壓污水幹渠
PROPOSED 600mm DIAMETER GRAVITY TRUNK SEWER
 - 擬建500mm直徑的雙管加壓污水管
PROPOSED 500mm DIAMETER TWIN RISING MAINS
 - 擬建750mm直徑的無壓污水幹渠
PROPOSED 750mm DIAMETER GRAVITY TRUNK SEWER

編號 no.	日期 date	內容摘要 description	核對 checked	核准 approved
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修訂 REVISION

	姓名 name	簽署 initial	日期 date
設計 designed	H L TSANG	SIGNED	02.04.2012
繪圖 drawn	Y Y WOO	SIGNED	02.04.2012
描摹 traced			
核對 checked	C T LAU	SIGNED	02.04.2012

核准 approved

SIGNED
(JOSEPH, C L YUNG)
總工程師 CHIEF ENGINEER
日期 date : 02.04.2012

工程名稱 project

屯門第54區的土地平整、道路及渠務工程第2期 —
興建污水泵房及相關排污系統工程
FORMATION, ROADS AND DRAINS IN AREA 54, TUEN MUN, PHASE 2 -
CONSTRUCTION OF SEWAGE PUMPING STATION AND ASSOCIATED SEWERAGE WORKS

圖則名稱 drawing title

屯門第54區污水泵房及相關
排污系統工程平面圖
LAYOUT PLAN FOR TUEN MUN AREA 54
SEWAGE PUMPING STATION AND
ASSOCIATED SEWERAGE WORKS

圖則編號 drawing no.

LW8609

比例 scale
1 : 3000
OR
AS SHOWN

辦事處 office

土木工程處 土地工程處
LAND WORKS DIVISION
CIVIL ENGINEERING OFFICE

土木工程拓展署
CEDD CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT

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Enclosure 2 to PWSC(2012-13)9

681CL (Part) – Formation, roads and drains in Area 54, Tuen Mun – phase 2

Breakdown of the land resumption and clearance costs

		\$ million
(I) Estimated resumption cost		36.2
(a) Agricultural land ex-gratia compensation	36.2	
19 agricultural lots (with a total area of 4 572 square metres (m ²)) were resumed		
4 572 m ² x \$7,918 per m ² (please see Notes below)		
(II) Estimated clearance cost		0.5
(a) Ex-gratia allowance of crop compensation	0.3	
(b) Ex-gratia allowance for farm structures and miscellaneous permanent improvements to farms	0.18	
(c) Ex-gratia allowances for miscellaneous indigenous villager matters (e.g. removal of graves and shrines and “Tun Fu” ceremonies)	0.05	
(III) Interest and contingency payment		3.7
(a) The interest payment on various ex-gratia compensations for private land	0.03	
(b) Contingency on the above costs	3.7	
	Total	40.4

Notes

- There are four ex-gratia compensation zones, namely Zones A, B, C and D, for land resumption in the New Territories as approved by Executive Council in 1985 and 1996. The boundaries of these zones are shown on the Zonal Plan for Calculation of Compensation Rates. The land resumed in the project **681CL** is agricultural land within Compensation Zone “A”.
- In accordance with G.N. 1888 dated 14 March 2011 on the revised ex-gratia compensation rates for resumed land, the ex-gratia compensation rate of agricultural land for “Zone A” is 120% of the Basic Rate at \$613 per square foot, i.e. \$735.6 per square foot (or \$7,918 per m²).