

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 1 works”, to Category A at an estimated cost of \$325.2 million in money-of-the-day prices; and
- (b) to retain the remainder of **681CL** in Category B.

PROBLEM

We need to carry out site formation works and associated infrastructural works to take forward a planned public rental housing (PRH) development in Area 54, Tuen Mun.

/PROPOSAL

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Development, proposes to upgrade part of **681CL** to Category A at an estimated cost of \$325.2 million in money-of-the-day (MOD) prices to carry out site formation works at Site 2 in Area 54, Tuen Mun for PRH development and associated infrastructural works.

PROJECT SCOPE AND NATURE

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

- (a) formation of about 4.2 hectares of land for PRH development at Site 2;
- (b) construction of the following roadworks –
 - (i) widening of a section of Tsing Lun Road of about 390 metres (m) long between Tsing Lun Road roundabout and south of Tsz Tin Road from a single two-lane carriageway to a single four-lane carriageway;
 - (ii) widening of a section of Tsz Tin Road of about 300 m long (west of Tsing Lun Road) from a village road to a single two-lane carriageway;
 - (iii) widening of a section of Hong Po Road of about 170 m long (west of Tsing Lun Road roundabout) from a single two-lane carriageway to a single four-lane carriageway; and
 - (iv) a new single two-lane carriageway of about 50 m long connecting Site 2 to Hong Po Road;
- (c) installation of the following noise barriers and enclosures –
 - (i) vertical noise barriers of about 173 m long ranging from 1 m to 5 m high along Hong Po Road, Tsing Lun Road and Tsz Tin Road;

/(ii)

- (ii) vertical noise barriers of about 467 m long and 5.5 m high with a cantilever ranging from 3.0 m to 3.5 m long along Tsing Lun Road and Tsz Tin Road;
- (iii) semi-enclosure of about 68 m long along Tsing Lun Road; and
- (iv) full-enclosure of about 27 m long along Tsing Lun Road;
- (d) construction of a covered footbridge of about 3 m wide with staircases and lifts across Tsing Lun Road near its junction with Tsz Tin Road;
- (e) construction of associated footpaths, cycle tracks, cycle parking spaces, slopes, retaining walls, drainage, sewerage, waterworks, landscaping works, electrical and mechanical (E&M) works and other ancillary works;
- (f) re-provisioning of a refuse collection point, a pavilion and a public toilet; and
- (g) implementation of environmental mitigation measures and an Environmental Monitoring and Audit (EM&A) programme for the works mentioned in (a) to (f) above.

4. A layout plan showing the proposed works is at Enclosure 1. Typical cross section and photomontage of the proposed noise barriers and enclosures are at Enclosure 2.

5. We have substantially completed the detailed design of the proposed works. Subject to approval of the Finance Committee (FC), we plan to commence construction in October 2011 for completion in April 2015.

6. The remaining parts of **681CL** comprise site formation for PRH and school developments; construction of roads, drainage, sewerage, waterworks, slope and landscaping works; provision of noise mitigation measures and other ancillary works at other sites in Tuen Mun Area 54. Funding for these works will be sought separately at a later time when they are ready for upgrading to Category A.

/JUSTIFICATION

JUSTIFICATION

7. Tuen Mun Area 54 is designated mainly for PRH development 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 first public housing site to be developed in Area 54 is Site 2 near the junction of Tsing Lun Road and Tsz Tin Road. The Director of Housing aims at making available about 5 000 PRH flats at the site in 2016 to meet the public housing need. Site formation works at Site 2 is therefore required to provide formed land for the proposed PRH development.

8. The proposed PRH development at Site 2 is expected to generate a traffic flow of about 725 pcu¹/hr during morning peak hours. The junction of Tsing Lun Road and Tsz Tin Road will be operating beyond capacity upon full development of Area 54 by 2021. To increase the junction capacity, we will enhance the junction layout and provide a footbridge across Tsing Lun Road to replace the existing at-grade pedestrian crossing. Pedestrian lifts will be provided on both sides of the footbridge for the convenience of the public, particularly those with disabilities. It is anticipated that the footbridge would carry about 410 pedestrian trips in the morning peak hour. With the implementation of the above measures, we expect that the junction will be able to operate with reserve capacity² of about 13% by 2021.

9. Moreover, with the planned population intake at Site 2 as well as the other developments in Tuen Mun Area 54, widening of Tsing Lun Road, Tsz Tin Road and Hong Po Road is required to increase their capacity to cope with the anticipated demands.

FINANCIAL IMPLICATIONS

10. We estimate the cost of the proposed works to be \$325.2 million in MOD prices (please see paragraph 11 below), broken down as follows –

/(a)

¹ Passenger car unit (pcu) is a unit for measuring traffic flow in equivalent number of private cars. For example, a pcu value of 1.0 is assigned to private cars and taxis. Heavy vehicles such as goods vehicles or buses which usually travel at a lower speed are assigned higher pcu values.

² In general, when the reserve capacity is more than 5%, most vehicles will pass through the road junction without waiting for more than one signal cycle. The larger the reserve capacity, the more traffic flow the road junction will be able to cope with.

		\$ million	
(a)	Site formation works	7.6	
(b)	Roadworks	25.3	
(c)	Drainage and sewerage works	64.7	
(d)	Noise barriers and enclosures	119.7	
	(i) Structural frames and panels	53.8	
	(ii) Foundation works	64.6	
	(iii) E&M works	1.3	
(e)	Footbridge	24.4	
	(i) Civil works	20.2	
	(ii) E&M works	4.2	
(f)	Waterworks	3.7	
(g)	Landscaping works	3.4	
(h)	Re-provisioning and ancillary works	3.7	
(i)	Environmental mitigation measures and EM&A programme	2.7	
(j)	Contingencies	25.0	
Sub-total		280.2	(in September 2010 prices)
(k)	Provision for price adjustment	45.0	
Total		325.2	(in MOD prices)

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

Year	\$ million (Sept 2010)	Price adjustment factor	\$ million (MOD)
2011 – 2012	14.2	1.04250	14.8
2012 – 2013	58.4	1.09463	63.9

/2013 – 2014

Year	\$ million (Sept 2010)	Price adjustment factor	\$ million (MOD)
2013 – 2014	108.4	1.14936	124.6
2014 – 2015	71.5	1.20682	86.3
2015 – 2016	22.3	1.27169	28.4
2016 – 2017	5.4	1.34163	7.2
	<hr/> 280.2 <hr/>		<hr/> 325.2 <hr/>

12. 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 2011 to 2017. Subject to funding approval, we will deliver the works under a standard re-measurement contract because the quantities of earthworks and piling works may vary according to the actual ground conditions. The contract will provide for price adjustments.

13. We estimate the annual recurrent expenditure arising from the project to be about \$1.7 million.

PUBLIC CONSULTATION

14. 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 site formation works for the PRH development at Site 2 and the associated improvement works at Tsing Lun Road, Tsz Tin Road and Hong Po Road. Both Committees supported the proposed works. We have also liaised closely with the Working Group formed under EHDDC of TMDC for monitoring the proposed PRH development and reported project progress to the Working Group on a regular basis. The Working Group was last informed of the project progress in January 2011.

/15.

15. We gazetted the proposed improvement works to Tsing Lun Road, Tsz Tin Road and Hong Po Road under the Roads (Works, Use and Compensation) Ordinance (Cap 370) (R(WU&C)O) on 14 December 2007. We received five objections. Four objections were against the compensation and re-housing arrangement for resuming their lots. We explained to the objectors the prevailing land resumption and re-housing policy, and their statutory rights. For the remaining one objection, the objector requested the relocation of the proposed footbridge at Tsing Lun Road, the provision of sufficient transport, retail and market facilities for the PRH development at Site 2, and an increase in compensation to the residents affected by the land clearance. We explained to the objector that the proposed footbridge was considered appropriate in order to enhance traffic condition at the road junction and to serve the nearby residents. We also provided details of the planned facilities within the future PRH development at Site 2 and the prevailing land resumption policy. Notwithstanding our explanations, all the five objectors maintained their objections. On 21 October 2008, the Chief Executive in Council overruled these five objections and authorized the proposed roadworks without modification. The objectors were notified of the decision on 18 November 2008.

16. We gazetted the proposed sewerage works at Tsing Lun Road and Tsz Tin Road under the R(WU&C)O as applied by the Water Pollution Control (Sewerage) Regulations on 14 December 2007. We received two objections. Both objections were against the compensation and re-housing arrangement for resuming their lots. We explained to the objectors the prevailing land resumption and re-housing policy, and their statutory rights. Notwithstanding our explanations, the two objectors maintained their objections. On 21 October 2008, the Chief Executive in Council overruled these two objections and authorized the proposed sewerage works without modification. The objectors were notified of the decision on 26 November 2008.

17. We made arrangements in August 2008 for the local residents and members of the Working Group of EHDDC under TMDC to visit the site where the proposed footbridge would be located. Some local residents considered that the proposed footbridge could provide a safe means for the elderly and children crossing Tsing Lun Road. The Working Group also provided comments on the design and alignment of the proposed footbridge.

/18.

18. We consulted the Advisory Committee on Appearance of Bridges and Associated Structures³ on the aesthetic design of the proposed footbridge, the noise barriers and enclosures at Tsing Lun Road, Tsz Tin Road and Hong Po Road on 16 December 2008. The Committee accepted the proposed aesthetic design.

19. We consulted the Legislative Council Panel on Development on the proposed works on 25 January 2011. A Member did not support the proposed works due to land compensation arrangement. He also asked for early resolution of the proposed pedestrian route from the future PRH development to Siu Hong Mass Transit Railway and Light Rail Transit Stations. Other Members supported the proposed works.

ENVIRONMENTAL IMPLICATIONS

20. The proposed widening of Tsing Lun Road is a Designated Project (DP) under Schedule 2 of the Environmental Impact Assessment Ordinance (Cap 499), while the proposed site formation and widening of Tsz Tin Road and Hong Po Road are not.

21. The Environmental Impact Assessment (EIA) report for the Tuen Mun Area 54 development, which covers the proposed widening of Tsing Lun Road as mentioned above, was approved by the Director of Environmental Protection (DEP) on 3 September 1999. We commenced a review to update the recommendations of the EIA report in October 2005 and the findings of the review were endorsed by DEP on 28 March 2008. We obtained the environmental permit (EP) required for the construction and operation of the proposed widening of Tsing Lun Road on 17 March 2009. The EP has taken into account the recommendations of the EIA report and EIA review. With the implementation of the recommended mitigation measures and EM&A programme, the environmental impacts arising from the construction of the proposed roadworks at Tsing Lun Road and the subsequent operation of the road will be controlled to ensure compliance with the statutory requirements.

/22.

³ The Advisory Committee on the Appearance of Bridges and Associated Structures, which comprises representatives of the Hong Kong Institute of Architects, the Hong Kong Institution of Engineers, the Hong Kong Institute of Planners, an academic institution, Architectural Services Department, Highways Department, Housing Department, and Civil Engineering and Development Department, is responsible for vetting the design of bridges and other structures associated with the public highway system, including noise barriers and enclosures, from the aesthetic and visual impact points of view.

22. 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 standard and guidelines. These measures include frequent watering of the site, provision of wheel-washing facilities, covering of materials on trucks, use of silenced construction plant and provision of mobile noise barriers. We will also implement the EM&A programme recommended in the EIA report and EIA review. We have included \$2.7 million (in September 2010 prices) in the project estimate for the implementation of the environmental mitigation measures and the EM&A programme.

23. We have considered the design of the proposed works and the construction sequence in the planning and design stages 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 waste at public fill reception facilities⁴. We will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste.

24. 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 at public fill reception facilities and landfills respectively through a trip-ticket system.

25. We estimate that the project will generate in total about 24 200 tonnes of construction waste. Of these, we will reuse about 19 290 tonnes (79.7%) of inert construction waste on site and deliver 2 100 tonnes (8.7%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 2 810 tonnes (11.6%) 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 \$407,950 for this project

/(based

⁴ 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.

(based on a unit cost of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne⁵ at landfills).

HERITAGE IMPLICATIONS

26. A Heritage Impact Assessment has been conducted, which indicates that the proposed works will encroach upon the Kei Lun Wai Site of Archaeological Interest. We have conducted an archaeological investigation at the proposed works site and no significant archaeological remains have been discovered. No further archaeological action is therefore required for the proposed works.

LAND ACQUISITION

27. We have reviewed the design of the project to minimize the extent of land acquisition required for the proposed site formation and roadworks. All necessary land resumption and clearance for the proposed works were completed in September 2010. We have resumed about 39 931 square metres (m²) of private land and cleared 38 464 m² of government land for the proposed site formation and roadworks. The cost of land resumption and clearance estimated at \$224.8 million is charged to **Head 701 – Land Acquisition**. The land resumption and clearance affects 69 land owners, 106 households involving 193 persons, and 33 commercial/industrial undertakings. The 69 land owners, 54 eligible households and six eligible commercial/industrial undertakings have been offered ex-gratia allowances and/or accommodation in public housing in accordance with the established rehousing policy. So far 49 land owners, 46 eligible households and all six eligible commercial/industrial undertakings have accepted Government's offer. A breakdown of the land resumption and clearance costs is at Enclosure 3.

BACKGROUND INFORMATION

28. 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

⁵ 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.

Council on 30 September 2003. In October 2005, we commenced a review to update 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.

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

30. We sought funding from the FC on 25 May 2001 for upgrading 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.

31. We circulated an information paper to the Legislative Council Panel on Development regarding the proposed widening of the northern section of Tsing Lun Road for the PRH development at Site 2 on 17 June 2009. We subsequently submitted a funding proposal for the proposed road widening works to the Public Works Subcommittee (PWSC) vide paper PWSC(2010-11)5 on 2 June 2010. Although the proposed roadworks did not require land resumption, Members expressed concerns about the compensation arrangement for land resumption for the PRH development at Site 2. We eventually withdrew the item.

32. Subsequently, we continued our discussion with the affected clearerees on the compensation and re-housing arrangement and addressed their concerns as far as possible. As at 15 January 2011, 49 former land owners have accepted the Government's compensation offers out of the total number of 69. There are also 106 households affected by the proposed works. Rehousing or ex-gratia allowance has been offered to the 54 eligible households. Amongst these eligible households, 46 households have accepted the Government's offers. The remaining eight households who were eligible for Interim Housing have already moved out without acceptance of the offers. As for the six eligible business undertakings, they have all accepted Government's offer of ex-gratia allowance.

33. We have reviewed the implementation programme of the site formation works at Site 2 and other associated infrastructural works. In the current proposed part-upgrade of the project, we have incorporated two stages of

/works

works into one batch (i.e. the proposed widening of the northern section of Tsing Lun Road, site formation for the PRH development at Site 2 and other associated infrastructural works), with a view to delivering the proposed PRH development by 2016 as scheduled.

34. At the PWSC meeting on 2 June 2010, a Member requested the Administration to consider providing pedestrian crossing facilities at the junction of Tsing Lun Road and Siu Hong Road and incorporating climbing plants in the design of the proposed noise barriers. We have already incorporated pedestrian crossing facilities at the junction concerned in the proposed works to be part-upgraded. We will provide landscaping areas with trees and shrubs adjacent to the noise barriers to mitigate visual impact.

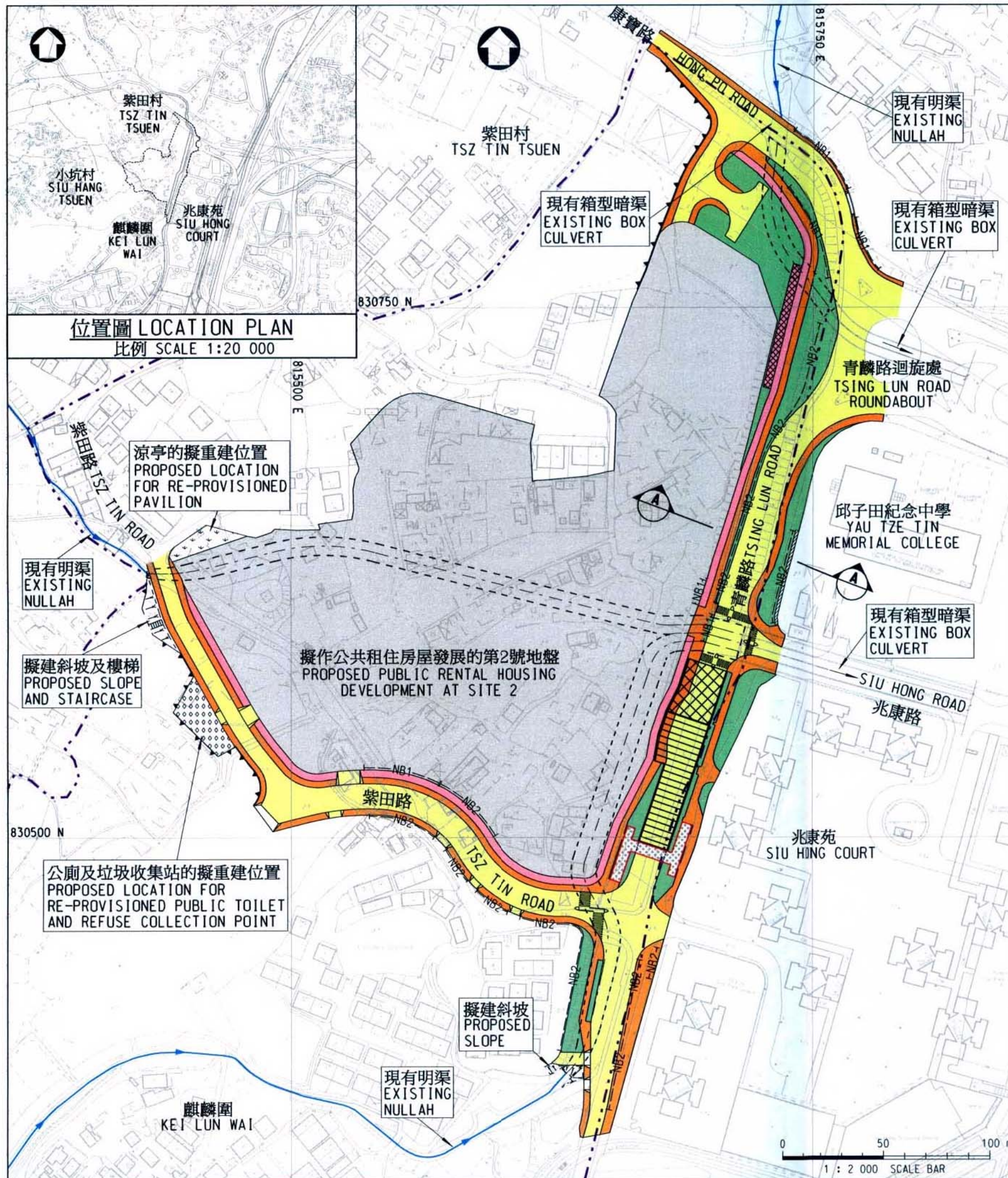
35. Of the 704 trees within the boundary of the proposed works, 289 trees will be preserved. Of the remaining 415 trees to be removed, 364 trees will be felled and 51 trees will be transplanted within the site as far as possible. All trees to be removed or transplanted are not important trees⁶. We will incorporate planting proposals as part of the project, including estimated quantities of 583 trees and 36 500 shrubs.

36. We estimate that the proposed works will create about 170 jobs (146 for labourers and another 24 for professional/technical staff), providing a total employment of 5 110 man-months.

Development Bureau
January 2011

⁶ “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.



圖例 LEGEND :

- 麒麟圍考古遺址
KEI LUN WAI ARCHAEOLOGICAL SITE
- 擬建土地平整工程
PROPOSED SITE FORMATION WORKS
- 擬建行車道
PROPOSED CARRIAGEWAY
- 擬建行人路
PROPOSED FOOTWAY
- 擬建單車徑
PROPOSED CYCLE TRACK
- 擬建單車停泊位
PROPOSED CYCLE PARKING SPACES
- 擬建花槽/種植地帶
PROPOSED PLANTER / LANDSCAPING AREA
- 擬建行人天橋
PROPOSED FOOTBRIDGE
- 擬建箱形暗渠
PROPOSED BOX CULVERT
- 擬建擋土牆
PROPOSED RETAINING WALL
- 維修通道
MAINTENANCE ACCESS
- 擬建隔音屏障(1米至5米高)
PROPOSED NOISE BARRIER (1m TO 5m HIGH)
- 擬建高5.5米附有懸臂的隔音屏障
PROPOSED 5.5m HIGH NOISE BARRIER WITH CANTILEVER
- 擬建密封式隔音罩
PROPOSED FULL-ENCLOSURE
- 擬建半密封式隔音罩
PROPOSED SEMI-ENCLOSURE
- 擬建車輛出入通道
PROPOSED RUN-IN
- 擬建行人過路處
PROPOSED PEDESTRIAN CROSSING

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

修訂 REVISION

	姓名 name	簽署 initial	日期 date
設計 designed	K M LAM	SIGNED	28/01/11
繪圖 drawn	C H HO	SIGNED	28/01/11
描摹 traced			
核對 checked	C T LAU	SIGNED	28/01/11

核准 approved	SIGNED (Joseph C L YUNG) 總工程師 Chief Engineer 日期 date : 28/01/11
-------------	--

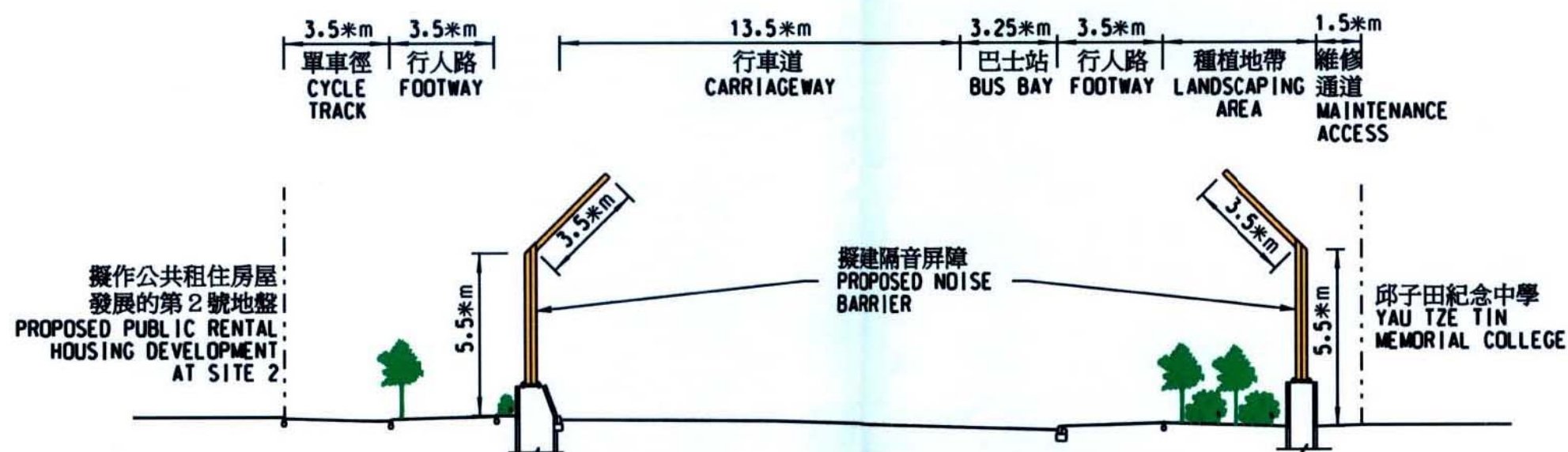
圖則名稱 drawing title
屯門第54區土地平整、道路及渠務工程第2期
第2號地盤的土地平整及相關
基建工程平面圖
FORMATION, ROADS AND DRAINS IN AREA 54, TUEN MUN - PHASE 2 LAYOUT PLAN FOR SITE FORMATION WORKS AT SITE 2 AND ASSOCIATED INFRASTRUCTURAL WORKS

圖則編號 drawing no.	比例 scale 1 : 2000 或 OR 圖示 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

版權所有, 不得翻印
COPYRIGHT RESERVED



切面 A-A 擬建隔音屏障(NB2)
SECTION A-A PROPOSED NOISE BARRIER (NB2)



位於青麟路的擬建隔音罩構想圖
PHOTOMONTAGE OF PROPOSED NOISE ENCLOSURE
AT TSING LUN ROAD



位於康寶路的擬建隔音屏障(NB1)構想圖
PHOTOMONTAGE OF PROPOSED NOISE BARRIER (NB1)
AT HONG PO ROAD

Enclosure 3 to PWSC(2010-11)38

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

Breakdown of the land resumption and clearance costs

		\$ million
(I) Estimated resumption cost		206.1
(a) Agricultural land ex-gratia compensation	203.4	
96 agricultural lots and 1 mixed lot (see Note 1 below) (with a total area of 39 866 square metres (m ²)) were resumed		
39 866 m ² x \$ 5,102 per m ² (see Notes 2 & 3 below)		
(b) Building land compensation		
1 mixed lot (see Note 1 below) (with an area of 65.03 m ²) was resumed		
(i) Building land ex-gratia compensation 65.03 m ² x \$ 10,075 per m ² (see Notes 2 & 3 below)	0.7	
(ii) Valuation on building land	2.0	
(II) Estimated clearance cost		6.3
(a) Ex-gratia allowance of crop compensation	0.9	
(b) Ex-gratia allowance for farm structures and miscellaneous permanent improvements to farms	0.8	
(c) Ex-gratia allowance for domestic occupiers and business undertakings	4.6	
(III) Interest and Contingency Payment		12.4
(a) The interest payment on various ex-gratia compensations for private land	0.01	
(b) Contingency on the above costs	12.4	
	Total	224.8

Notes

1. One mixed lot with both ex-gratia land compensation for agricultural land and ex-gratia land compensation for building land.
2. There are four ex-gratia compensation zones, namely Zones A, B, C and D, for land resumption in the New Territories as approved by ExCo 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 within Compensation Zone “A”.
3. In accordance with G.N. 1895 dated 18 March 2009 on the revised ex-gratia compensation rates for resumed land, the ex-gratia compensation rate of agricultural land for “Zone A” is \$474 per square foot (or \$5,102 per m²) and the ex-gratia compensation rate of building land for “Zone A” is \$936 per square foot (or \$10,075 per m²).