

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Support – Boundary facilities (other than road works)

12GB – Construction of a secondary boundary fence and new sections of primary boundary fence and boundary patrol road

Members are invited to recommend to Finance
Committee –

- (a) the upgrading of part of **12GB**, entitled
“construction of a secondary boundary fence
and new sections of primary boundary fence
and boundary patrol road – phase 1”, to
Category A at an estimated cost of
\$395.5 million in money-of-the-day prices;
and
- (b) the retention of the remainder of **12GB** in
Category B.

PROBLEM

In order to implement the reduced coverage of the Frontier Closed Area (FCA) while maintaining the integrity of the boundary, we need to construct a Secondary Boundary Fence (SBF) along the Boundary Patrol Road (BPR) and new sections of the BPR and the Primary Boundary Fence (PBF) at certain sections along the Hong Kong SAR’s boundary with the Mainland.

/PROPOSAL

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Security, proposes to upgrade part of **12GB** to Category A at an estimated cost of \$395.5 million in money-of-the-day (MOD) prices for the construction of an SBF and new sections of the PBF and the BPR in order to take forward the phased implementation of the reduced coverage of the FCA.

PROJECT SCOPE AND NATURE

3. The scope of **12GB** is to construct an SBF along the southern edge of the existing BPR (approximately 21.7 kilometres) from Pak Hok Chau in the west to Sha Tau Kok in the east, and to construct new sections of the PBF and the BPR (approximately 9.6 kilometres in total) along Shenzhen River near Lok Ma Chau Loop and Hoo Hok Wai, Pak Fu Shan and Lin Ma Hang.

4. The existing PBF is installed with the Fence Protection System. The Fence Protection System comprises thermal imagers, a sensor alarm system and CCTV cameras, which are connected to a Centralized Monitoring and Control System for monitoring round the clock at Man Kam To Police Operational Base. At present, the PBF runs along the entire length of the BPR and, depending on the topography, is situated on either the northern or southern side of the BPR.

5. The SBF will be constructed along the southern side of the BPR, to the same standard of the PBF but without the Fence Protection System, the slanted portion and barbed wires. Where the section of the existing PBF runs along the southern side of the BPR, we will transfer the existing Fence Protection System to the new section of the PBF to be built on the northern side of the BPR. The section of the original PBF with the Fence Protection System removed will be modified to become the new SBF. In addition, three new sections of the BPR, the PBF installed with the Fence Protection System, and the SBF will be constructed along the Shenzhen River to the north of Lok Ma Chau Loop and Hoo Hok Wai, to the north of Pak Fu Shan and to the northwest of Lin Ma Hang respectively to implement the planned reduction of the FCA coverage.

6. To facilitate early implementation of the reduced FCA coverage, the project is divided into four sections. The scope of the part of **12GB** proposed to be upgraded to Category A covers construction works for the following three sections –

- (a) Mai Po to Lok Ma Chau Control Point Section
- (i) to erect an SBF along the existing BPR (approximately 4.1 kilometres); and
- (ii) to replace the existing check point at Pak Hok Chau¹.
- (b) Lok Ma Chau Control Point to Ng Tung River Section
- (i) to convert the maintenance services road of Drainage Services Department along the Shenzhen River bank to the north of the Lok Ma Chau Loop and Hoo Hok Wai into a new section of the BPR (approximately 5.6 kilometres); and
- (ii) to erect a new PBF (approximately 5.6 kilometres) with the Fence Protection System and an SBF (approximately 5.8 kilometres) along the northern and southern curbs respectively of the converted road in (b)(i).
- (c) Lin Ma Hang to Sha Tau Kok Section
- (i) to erect an SBF from the entrance of the Sha Tau Kok town (i.e. the location of “Gate One”) to the Sha Tau Kok Control Point (approximately 0.5 kilometre); and
- (ii) to provide a new check point at “Gate One”.

7. A site plan is at Enclosure 1. A plan showing the proposed SBF, PBF and BPR (artist’s impression) is at Enclosure 2. The construction programme for the works outlined in paragraph 6 above is set out below –

	Section	Construction Period
(a)	Mai Po to Lok Ma Chau Control Point Section	1 st quarter 2010 – 3 rd quarter 2011
(b)	Lok Ma Chau Control Point to Ng Tung River Section	1 st quarter 2010 – 4 th quarter 2012

/(c)

¹ The check point at Pak Hok Chau is located at the western end of the PBF to protect the PBF from any deliberate or inadvertent interference.

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|---|--|
| (c) Lin Ma Hang to Sha Tau Kok
Section | 4 th quarter 2009 –
4 th quarter 2010 |
|---|--|

JUSTIFICATION

8. The PBF and the SBF will be erected along the northern and southern curbs of the re-aligned BPR respectively, thereby enclosing the road and ensuring that the PBF and BPR would be protected from deliberate or inadvertent interference.

9. The construction works under **12GB** will proceed in two phases to facilitate the early release of the land which is to be excluded from the FCA. Phase 1 covers the three sections set out in paragraph 6 above. The remaining section, i.e. the Ng Tung River to Lin Ma Hang Section, involves the construction of an SBF from Lo Wu to Lin Ma Hang and two new sections of the PBF and the BPR to the north of Pak Fu Shan and northwest of Lin Ma Hang respectively. This Section will involve the resumption of private lands. We will seek funding for the cost of construction of this Section after the authorization of land resumption is sought. The construction programme for this Section will need to dovetail with the Shenzhen River Improvement works related to the new boundary control point development at Liantang/Heung Yuen Wai, which is located within this Section. We are liaising closely with relevant Government departments on this.

FINANCIAL IMPLICATIONS

10. We estimate the capital cost of the Project to be \$395.5 million in MOD prices (see paragraph 11 below), made up as follows –

	\$ million
(a) Site works	10.3
(b) Buildings	1.3
(c) Building services	1.0
(d) External services, including builder works	21.4
(e) Security fence	189.2

/(f)

	\$ million	
(f) Road works	37.1	
(g) Soft landscaping	4.9	
(h) Drainage	17.0	
(i) Furniture and equipment ²	24.0	
(j) Consultants' fees	11.7	
(i) contract administration	10.4	
(ii) management of resident site staff	1.3	
(k) Remuneration of resident site staff	16.1	
(l) Contingencies	31.0	
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Sub-total	365.0	(in September 2008 prices)
(m) Provision for price adjustment	30.5	
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Total	395.5	(in MOD prices)

We propose to engage consultants to undertake contract administration and site supervision of the project. A detailed breakdown of the estimates for the consultants' fees and resident site staff costs by man-months is at Enclosure 3. We consider the estimated project cost reasonable as compared with similar projects undertaken by the Government.

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

/2009–10

² Based on an indicative list of furniture and equipment items required, including control equipment, display, video and data storage and management servers, software licences, outdoor fibre and sensor cable, outdoor cameras and transmission facilities, microwave transmitters and receivers and installation cost.

	\$ million (Sept 2008)	Price adjustment factor	\$ million (MOD)
2009 – 10	2.0	1.03500	2.1
2010 – 11	95.0	1.05570	100.3
2011 – 12	135.7	1.07681	146.1
2012 – 13	93.4	1.09835	102.6
2013 – 14	20.0	1.12032	22.4
2014 – 15	12.3	1.15113	14.2
2015 – 16	6.6	1.18566	7.8
	----- 365.0 -----		----- 395.5 -----

12. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output for the period 2009 to 2016. We will award the contract on a lump-sum basis because we can clearly define the scope of the works in advance. However, due to the uncertain soil conditions, the design and construction of footing will be measured under provisional quantities. The contract will provide for price adjustments.

13. We estimate the annual recurrent expenditure arising from this project to be \$3.3 million.

PUBLIC CONSULTATION

14. We consulted the Legislative Council Panel on Security and other relevant parties, including Heung Yee Kuk, the Town Planning Board, the Advisory Council on the Environment, North District Council, Yuen Long District Council, and Ta Kwu Ling, Sha Tau Kok, Sheung Shui and San Tin Rural Committees, on the results of the FCA review in 2006. We briefed the Legislative Council Panel on Security on the finalized coverage of the reduced FCA in February 2008. In April 2009, we further consulted Heung Yee Kuk and

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the relevant Rural Committees, including the Ta Kwu Ling, Sha Tau Kok, Sheung Shui and San Tin Rural Committees, on the construction works arising from the reduced coverage of the FCA. On 5 May 2009, we consulted the Legislative Council Panel on Security on the proposed construction works. The Panel raised no objection to the Project.

15. The local communities generally have no objection to the construction project. Some villagers in areas that will in future be excluded from the FCA have enquired whether they will continue to be eligible for Closed Area Permits (CAPs) which will allow them to use the BPR for access to fishponds nearby. We have reaffirmed that CAPs will continue to be issued to individuals who have actual needs to enter the FCA.

ENVIRONMENTAL IMPLICATIONS

16. This is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and an Environmental Permit (EP) is required for the construction and operation of the project. The EIA report has concluded that the environmental impact arising from the project can be controlled to within the criteria under the EIA Ordinance and the Technical Memorandum on EIA Process. The Director of Environmental Protection approved the EIA report with conditions on 8 April 2009.

17. We will implement the mitigation measures and the environmental monitoring and audit programme during the construction and operation stages of the Project as set out in the approved EIA report. Specifically, the EIA report has pointed out that the wintering waterbirds at the Mai Po Nature Reserve, the fishponds in the Wetland Conservation Area and nearby areas are sensitive to disturbance caused by the construction works under the Project, especially during winter when a large number of waterbirds are present. To minimize the potential disturbance to this area of high ecological value, the EIA report concludes that construction works using powered mechanical equipment during the wintering period (i.e. from mid-November to mid-March) should be avoided. Thus, we will avoid such construction works for the Mai Po to Lok Ma Chau Control Point Section and the Lok Ma Chau Control Point to Ng Tung River Section during the wintering periods throughout the construction programme.

18. Other mitigation measures to be implemented include landscape planting, watering of the site, covering of materials on trucks, use of silenced construction plant, and provision of mobile noise barriers. We estimate the cost of implementing the environmental mitigation measures to be \$8.5 million. We have included this cost in the overall project estimate.

19. We have considered measures in the planning and design stages to reduce the generation of construction waste where possible (e.g. using metal site hoardings and signboards so that these materials can be recycled or reused in other projects). In addition, we will require the contractor to reuse inert construction waste on site (e.g. use of excavated materials for filling within the 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 facilities³. 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.

20. We will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigating 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 65 500 tonnes of construction waste. Of these, we will reuse about 23 400 tonnes (36%) of inert construction waste on site and deliver 40 500 tonnes (62%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 1 600 tonnes (2%) 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 \$1,293,500 for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne⁴ at landfills).

ENERGY CONSERVATION MEASURES

22. The energy efficient features adopted for this Project include T5
/energy

³ 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 license issued by the Director of Civil Engineering and Development.

⁴ 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.

energy efficient fluorescent tubes with electronic ballast and lighting control by occupancy sensors and daylight sensors at check points. For renewable energy technologies, we will adopt a small-scale photovoltaic system for one of the check points.

23. The total estimated additional cost for the adoption of the above features at check points is around \$43,000 (including \$5,000 for energy efficiency features), which has been included in the cost estimate for this project. The energy efficient features will achieve 5% energy savings in the annual energy consumption with a payback period of about 5 years.

HERITAGE IMPLICATIONS

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

LAND ACQUISITION

25. The part of **12GB** proposed to be upgraded to Category A only involves Government land and does not require any resumption of private land.

BACKGROUND INFORMATION

26. The FCA is an integral part of a package of measures for maintaining the integrity of the Hong Kong SAR's boundary with the Mainland and for combating illegal immigration and other cross-boundary criminal activities. Following a review of the coverage of the FCA in 2006, the Administration announced in January 2008 that the coverage of the FCA would be substantially reduced from about 2 800 hectares to about 400 hectares given that the problem of illegal immigration on land had been under control and that the interception rate of illegal immigrants along the land boundary had substantially improved with an enhanced boundary fence system, including the installation of the Fence Protection System, in 2002. The reduced FCA will comprise a narrow strip of land covering the re-aligned BPR and areas to its north, together with crossing points along the boundary (i.e. the Boundary Control Points and Sha Tau Kok town).

27. The current coverage of the FCA is specified in the Frontier Closed Area Order pursuant to section 36(1) of the Public Order Ordinance (Cap. 245).

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We shall amend the Frontier Closed Area Order to stipulate the commencement of the new statutory FCA boundary in phases to tie in with the completion of the construction works for the four sections.

28. We upgraded **12GB** to Category B in November 2003. We employed term contractors to carry out site investigations in April 2005 and topographical surveys in September 2008. We engaged a consultant to carry out an EIA in October 2007 and a quantity surveying consultant to prepare tender documents in January 2009. We charged the total cost of \$13.5 million to block allocation **Subhead 3100GX** "Project feasibility studies, minor investigations and consultants' fees in Category D of the Public Works Programme". The term contractors and consultant have completed the site investigations, topographical surveys and EIA. The quantity surveying consultant is finalising the tender documents.

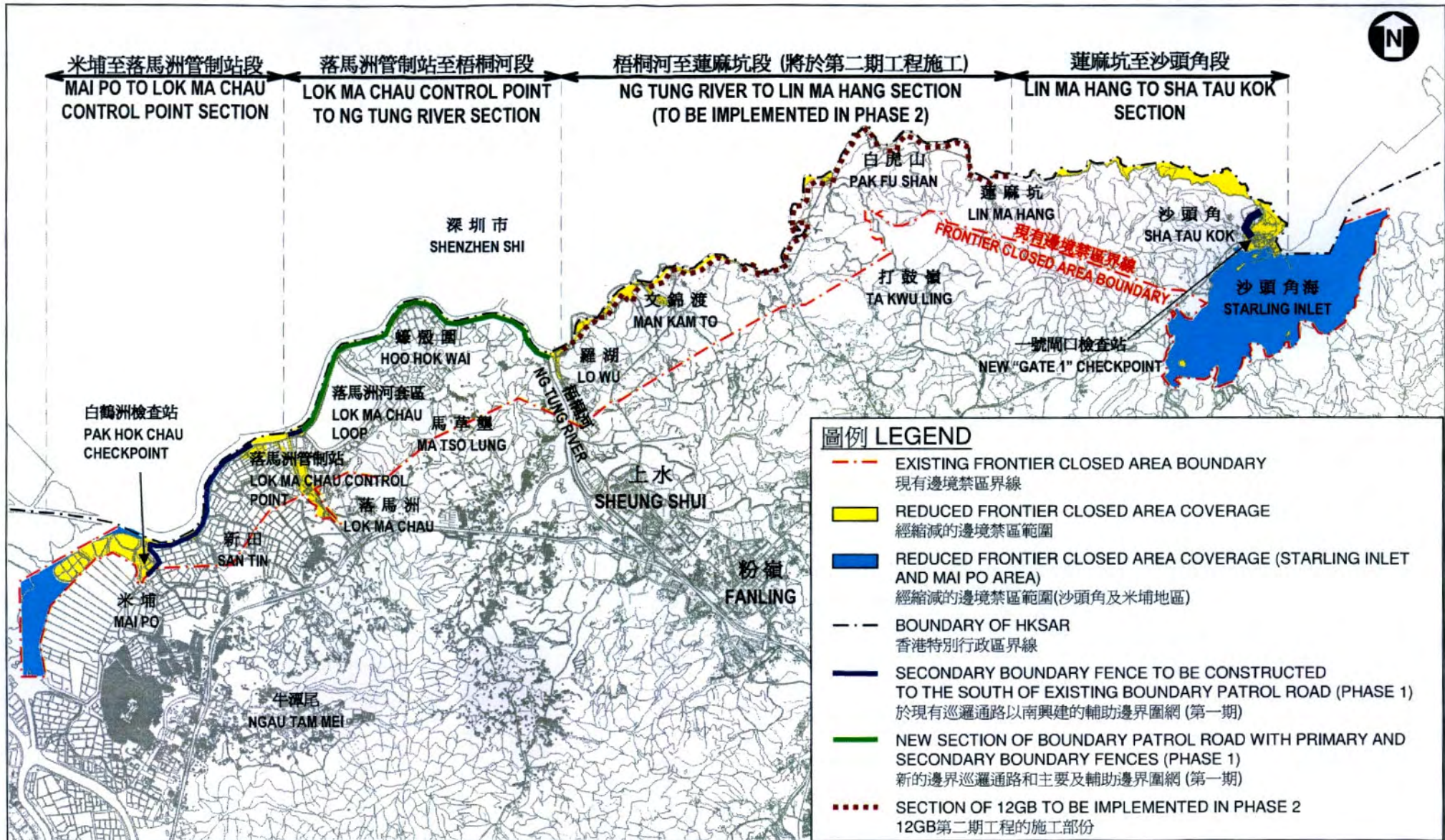
29. The proposed construction work will involve removal of 414 trees, including 15 dead trees and 381 to be felled, six to be replanted within the project site and 12 to be transplanted at adjacent areas outside the site boundary. All trees to be removed are not important trees⁵. We will incorporate planting proposals as part of the project, including an estimated quantity of about 550 trees, and two hectares of shrubs/ground covers.

30. We estimate that the proposed works will create about 190 jobs (172 for labourers and another 18 for professional/technical staff), providing a total employment of 5 150 man-months.

Security Bureau
May 2009

⁵ "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 –

- trees of 100 years old or above;
- trees of cultural, historical or memorable significance e.g. fung shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;
- trees of precious or rare species;
- trees of outstanding form (taking account of overall tree size, shape and any special features) e.g. trees with curtain – like aerial roots, trees growing in unusual habitat; or
- trees with trunk diameter equal to or exceeding 1 metre (measured at 1.3 metre above ground level), or with height/canopy spread equal to or exceeding 25 m.



PWP No. 12GB
輔助邊界圍網及主圍網和邊界巡邏通路新段建造工程(第一期)
CONSTRUCTION OF A SECONDARY BOUNDARY FENCE AND NEW SECTIONS OF PRIMARY BOUNDARY FENCE AND BOUNDARY PATROL ROAD (PHASE 1)

drawn by 繪圖	W.H. CHEUNG	date 日期	4/2009
approved 覆核	PEGGY YU	date 日期	4/2009

drawing no. 圖則編號	AB/6815/XA001	N.T.S.
office 辦事處	PROJECT MANAGEMENT BRANCH 工程策劃管理處	



圍網及巡邏通路工程構思圖 Artist's Impression of the Fence and Road Works



於現有巡邏通路以南興建的輔助邊界圍網
SECONDARY BOUNDARY FENCE TO BE CONSTRUCTED
TO THE SOUTH OF EXISTING BOUNDARY PATROL ROAD



新的邊界巡邏通路和主要及輔助邊界圍網
NEW SECTION OF BOUNDARY PATROL ROAD WITH PRIMARY
AND SECONDARY BOUNDARY FENCES

PWP No. 12GB
輔助邊界圍網及主圍網和邊界巡邏通路新段建造工程 (第一期)
CONSTRUCTION OF A SECONDARY BOUNDARY FENCE AND NEW
SECTIONS OF PRIMARY BOUNDARY FENCE AND BOUNDARY
PATROL ROAD (PHASE 1)

drawn by 繪圖
W.H. CHEUNG

date日期
4/2009

drawing no. 圖則編號
AB/6815/XA002

scale 比例
N.T.S.

approved 覆核
PEGGY YU

date日期
4/2009

office 辦事處
PROJECT MANAGEMENT BRANCH 工程策劃管理處



ARCHITECTURAL
SERVICES
DEPARTMENT 建築署

Enclosure 3 to PWSC(2009-10)31

12GB – Construction of a secondary boundary fence and new sections of primary boundary fence and boundary patrol road

Breakdown of the estimates for consultants’ fees and resident site staff costs (in September 2008 prices)

			Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Consultants’ fee for contract administration <small>(Note 2)</small>	Professional	–	–	–	10.4
					Sub-total	10.4
(b)	Resident site staff costs <small>(Note 3)</small>	Technical	548	14	1.6	17.4
					Sub-total	17.4
Comprising –						
(i)	Consultants’ fees for management of resident site staff				1.3	
(ii)	Remuneration of resident site staff				16.1	
					Total	27.8

* 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 April 2008, MPS point 14 = \$19,835 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 **12GB**. The assignment will only be executed subject to Finance Committee’s approval to upgrade **12GB** 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.