For discussion **PWSC(2015-16)57**
on 24 February 2016

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS
Health - Hospitals
86MM – Extension of Operating Theatre Block for Tuen Mun Hospital

Members are invited to recommend to the Finance Committee –

(a) the upgrading of part of **86MM**, entitled "Extension of Operating Theatre Block for Tuen Mun Hospital – substructure and utilities diversion works", to Category A at an estimated cost of $167.2 million in money-of-the-day prices; and

(b) the retention of the remainder of **86MM** in Category B.

PROBLEM

The existing capacity of the operating theatres (OTs) and other facilities of Tuen Mun Hospital (TMH) cannot meet the rising demand for medical services in the New Territories West Cluster (NTWC).

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Food and Health, proposes to upgrade part of **86MM** to Category (Cat) A at an estimated cost of $167.2 million in money-of-the-day (MOD) prices to carry out the substructure and utilities diversion works for the extension of OT Block of TMH.

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PROJECT SCOPE AND NATURE

3. The extension of OT Block of TMH will be implemented in two stages as follows –

(a) stage 1 covering the service diversion of underground utilities and foundation works of the extension block; and

(b) stage 2 covering the construction of the extension block, link bridges connecting the extension block and the existing OT Block, expansion of the existing accident and emergency (A&E) department and radiology department at the extension block and ground floor of Block D of TMH respectively, as well as refurbishment of the existing OT Block and the existing A&E and radiology departments located on the ground floor of Block D of TMH.

4. We propose to upgrade stage 1 of the project to Cat A which comprises –

(a) diversion of existing underground utilities, demolition and reprovisioning of the underground fuel tank located at the open car-parking area outside the existing OT Block where the extension block would be built;

(b) foundation works for the extension block;

(c) other associated site works including tree felling and transplanting, reprovisioning of ambulance parking spaces which are currently located at the site where the extension block would be built;

(d) land contamination assessment for the site of the existing underground fuel tank where the extension block would be built; and

(e) consultancy services for contract administration and site supervision of the substructure and utilities diversion works.

The site and location plan showing the location for the substructure and utilities diversion works at TMH is at **Enclosure 1**.

5. Subject to funding approval of the Finance Committee (FC), we plan to commence works in mid-2016 for completion in late 2017. To meet the programme, the Hospital Authority (HA) has invited tender on 21 September 2015. The contract will only be awarded upon obtaining FC's funding approval.

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6. We will retain stage 2 of the project in Cat B, comprising –

(a) construction of an extension OT Block over the open car-parking area outside the existing OT Block;

(b) construction of link bridges to connect the extension block with the existing OT Block; and

(c) expansion of the existing A&E department and radiology department at the extension OT Block and ground floor of Block D of TMH respectively, as well as refurbishment of the existing OT Block and the existing A&E and radiology departments located on the ground floor of Block D of TMH to integrate with the extension block for coherent workflows.

7. Separate funding from FC for stage 2 works will be sought later to dovetail with the implementation programme. Subject to the FC's funding approval, we aim to complete the whole extension project in 2020-21.

JUSTIFICATION

8. TMH is the acute regional hospital of the NTWC of the HA. Together with the other hospitals of NTWC, namely Pok Oi Hospital, Castle Peak Hospital and Siu Lam Hospital, TMH serves Tuen Mun and Yuen Long districts with a total population of 1 098 700 in 2014. TMH provides a comprehensive range of specialty services at secondary and tertiary levels. It runs a 24-hour A&E department and provides a full range of acute, ambulatory, extended care and community medical services. It also serves as a tertiary referral centre for trauma and neurosurgery. Most of the ultra-major and major operations of NTWC are carried out in TMH.

9. There are 11 OTs in TMH now. Over 50% of the operations performed at these OTs are emergency surgeries, resulting in long waiting time for elective surgery of surgical and orthopaedic specialties[1]. The OT utilisation rate

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[1] For example, as at September 2015, the average waiting time for a total joint replacement surgery in NTWC was 63 weeks, 20 weeks longer than the average of all HA hospital clusters.

for elective surgery in TMH is over 120%[2]. The workload of surgical services at TMH is also among the highest of HA hospitals. In 2014-15, TMH had around 23 900 discharges and deaths in surgical specialties, accounting for around 9% of the overall total in HA.

10. Apart from the long waiting time, the OTs in TMH is also not up to modern days' standards. Of the 11 OTs, 10 only have an area of around 40 square metres (m^2) each, as compared with the international standard of 60 m^2. This limits the development and modernisation of surgical services in TMH. We plan to provide nine additional OTs and bring all 20 OTs up to modern days' standards upon completion of stages 1 and 2 of the project.

11. According to the Projections of Population Distribution 2015-2024 published by the Planning Department, the total population in Tuen Mun and Yuen Long districts is projected to reach 1 241 300 by 2024 (representing an increase of 13% over the population in 2014). While there has been continuous expansion in service capacity in NTWC in the past few years[3] to strengthen the provision of medical services to the local community, there is a genuine need to expand the A&E department and radiology department of TMH given TMH's status as the acute regional hospital and tertiary referral centre for the NTWC.

12. The current A&E department and radiology department are located on the ground floor of Block D of TMH. The number of total A&E attendances of TMH was around 219 000 in 2014-15, the highest among all HA hospitals. It now occupies an area of around 1 900 m^2 which is insufficient to meet the rising service demand. Further, no major renovation of the A&E department has been conducted since its establishment in 1990. The existing facilities are unable to meet modern standards for the delivery of emergency care. We plan to provide an additional accommodation of around 1 900 m^2 for the A&E department in the extension block, increasing the premises for A&E department by 100%. As many patients seeking emergency care require radiological examinations, we propose to provide an additional accommodation of around 400 m^2 for the radiology department (representing an increase of around 17% over the existing space

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[2] The OT utilisation rate for elective surgery is the actual OT time used for elective surgery divided by the OT time allocated for elective surgeries. If the OT utilisation rate is close to but not exceeding 100%, it implies that the supply and demand of OT resources for elective surgery are suitably matched.

[3] Namely the commissioning of additional beds at TMH and Pok Oi Hospital, opening of Tin Shui Wai (Tin Yip Road) Community Health Centre, and planned commissioning of the new Tin Shui Wai Hospital by phases in 2016-17.

occupied by the radiology department at 2 400 m^2) on the ground floor of Block D. We plan to refurbish the existing A&E department and the radiology department upon completion of the extension areas for both departments.

13. To expedite project implementation and to achieve cost effectiveness, we plan to entrust the works for stage 1 to HA, to be followed by the works for stage 2. The existing OT Block and other parts of TMH will remain functional at all times during the works. Affected facilities such as ambulance parking and underground fuel tank will be reprovisioned in an alternative location as part of the utilities diversion works.

FINANCIAL IMPLICATIONS

14. We estimate the capital cost of this project to be $167.2 million in MOD prices, broken down as follows –

		$ million
(a)	Site works[4] and demolition	15.9
(b)	Piling[5] and foundation works	34.2
(c)	Building works[6]	34.1
(d)	Building services works[7]	9.1
(e)	External works including tree felling and transplanting, utilities diversion and connection, and reprovisioning of ambulance parking spaces	32.7

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[4] Site works comprise the site preparation, monitoring, instrumentation and underground temporary works around the fuel tank for confining spread of contamination, etc.

[5] Piling works cover the construction of piles and all related testing and monitoring.

[6] Building works comprise the construction of the underground service corridor, underground fuel tank, fill chamber, and diesel pump room.

[7] Building services works comprise the electrical and mechanical installations of the underground service corridor, the related fire services installation works, and pump facilities and pipework for the underground fuel tank and fill chamber.

		$ million	
(f)	Consultants' fees for contract administration	3.5	
(g)	Remuneration of resident site staff	4.9	
(h)	Contingencies	12.5	
	Sub-total	146.9	(in September 2015 prices)
(i)	Provision for price adjustment	20.3	
	Total	167.2	(in MOD prices)

15. We propose to engage consultants to undertake contract administration and employ resident site staff for the supervision of the substructure and utilities diversion works. A detailed breakdown of the estimate for consultants' fees and resident site staff costs by man-months is at **Enclosure 2**.

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

Year	**$ million (Sept 2015)**	**Price adjustment factor**	**$ million (MOD)**
2016 – 2017	39.0	1.05875	41.3
2017 – 2018	56.0	1.12228	62.8
2018 – 2019	33.0	1.18961	39.3
2019 – 2020	18.9	1.26099	23.8
	146.9		167.2

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17. 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 for the period from 2016 to 2020. Subject to funding approval, HA will award the contract on a lump-sum basis because the scope of the works can be clearly defined in advance. The contract will provide for price adjustment.

18. The proposed works will not give rise to any additional recurrent expenditure.

PUBLIC CONSULTATION

19. We consulted the Social Services Committee of the Tuen Mun District Council on the proposed project on 12 May 2015. Members of the Committee supported the project.

20. We consulted the Legislative Council Panel on Health Services on 18 May 2015. Members of the Panel supported the project.

ENVIRONMENTAL IMPLICATIONS

21. The extension of OT Block of TMH project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). HA completed the Preliminary Environmental Review (PER) for the project which covered the proposed stage 1 and stage 2 works as stated in paragraph 3 in August 2015. The PER has concluded and the Director of Environmental Protection agreed that the project would not have long-term adverse environmental impacts with implementation of suitable mitigation measures.

22. HA will incorporate into the works contract mitigation measures recommended in the PER in order to ensure that the environmental impacts arising from the substructure and utilities diversion works are within established standards and guidelines. These include the use of quality powered mechanical equipment, temporary noise barriers for noisy substructure works, frequent cleaning and watering of the site. The cost for the implementation of the environmental mitigation measures has been included in the project estimates.

23. At the planning and design stages, HA has considered measures 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, HA will require the contractor to reuse inert construction waste (e.g. 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 at public fill reception facilities[8]. HA will encourage the contractor to maximise the use of recycled and recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

24. At the construction stage, HA 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. HA will ensure that the day-to-day operations on site comply with the approved plan. HA will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. HA will control the disposal of inert 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 41 370 tonnes of construction waste. Of these, 35 880 tonnes (87%) of inert construction waste will be delivered to public fill reception facilities for subsequent reuse. We will dispose of the remaining 5 490 tonnes (13%) of non-inert waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be $1.7 million for this project (based on a unit charge rate of $27 per tonne for disposal at public fill reception facilities and $125 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation).

HERITAGE IMPLICATIONS

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

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[8] Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

LAND ACQUISITION

27. The proposed works does not require any land acquisition.

BACKGROUND INFORMATION

28. We upgraded **86MM** to Cat B in September 2014.

29. HA engaged consultants to carry out ground investigation works, topographical, tree, utility and asbestos surveys as well as to prepare tender document. The total cost of the above-mentioned services is about $39.5 million, including the pre-construction consultancy fees of both stage 1 and stage 2 works, and is charged to **Subhead 8083MM** "One-off grant to the Hospital Authority for minor works projects". The above consultancy services are ongoing for the design development and tender preparation for the superstructure and refurbishment works of existing areas and will be completed in 2018.

30. The proposed works will involve 11 trees to be replanted within the project site and felling of eight trees. All trees to be removed are not important trees[9]. Compensatory planting of eight new trees will be included as part of the project.

31. We estimate that the proposed works will create 120 jobs (110 for labourers and 10 for professional or technical staff) providing a total employment of 1 540 man-months.

Food and Health Bureau
February 2016

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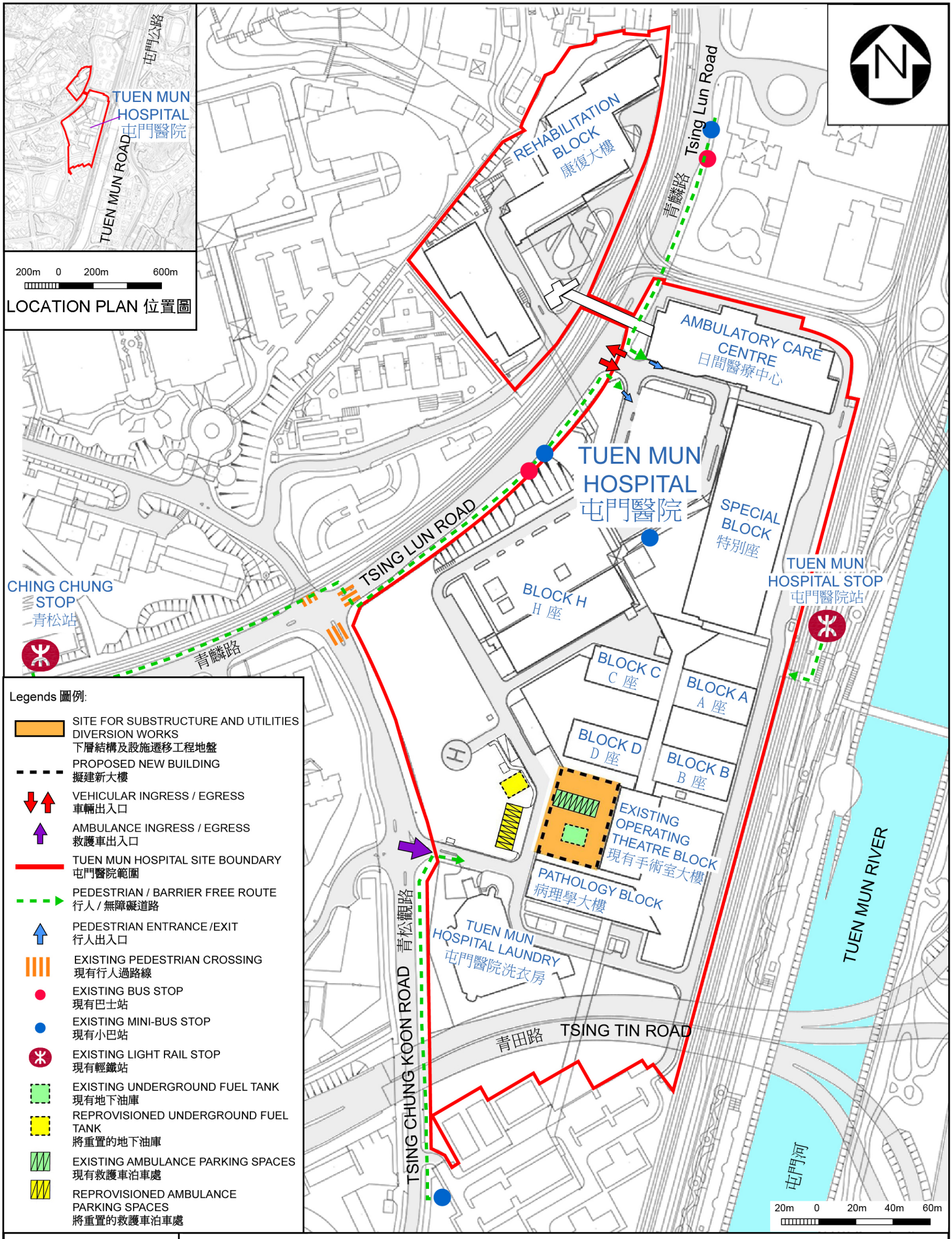
[9] "Important trees" refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

(a) trees of 100 years old or above;
(b) trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree 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 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 trunk diameter equal or exceeding 1.0 metre (m) (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.



SITE PLAN
工地平面圖

86MM
EXTENSION OF OPERATING THEATRE BLOCK FOR TUEN MUN HOSPITAL
屯門醫院手術室大樓擴建計劃

86MM (Part) – Extension of Operating Theatre Block for Tuen Mun Hospital

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2015 prices)

			Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee ($ million)
(a)	Consultants' fees for contract administration	Professional	15	38	2.0	2.2
		Technical	25	14	2.0	1.3
					Sub-total	3.5
(b)	Resident site staff costs (Note 2)	Technical	120	14	1.6	4.9
					Sub-total	4.9
					Total	**8.4**

* MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS salary point to estimate the full staff cost including the consultants' overheads and profit for staff employed in the consultants' offices. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of resident site staff. (as at now, MPS salary point 38 = $74,210 per month and MPS salary point 14 = $25,505 per month.)

2. The actual man-months and actual fees will only be known after completion of the refurbishment works.