

## **ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE**

### **HEAD 708 - CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT**

#### **Universities**

##### **The Chinese University of Hong Kong**

##### **61EF – Construction of a teaching-research complex in Tai Po Area 39**

##### **The University of Hong Kong**

##### **65EG – Enhancement of facilities cum medical campus development**

Members are invited to recommend to the Finance  
Committee –

- (a) the upgrading of part of **61EF** and part of **65EG** to Category A at estimated costs of \$59.7 million and \$194.3 million in money-of-the-day prices respectively; and
- (b) the retention of the remainder of **61EF** and **65EG** in Category B.

### **PROBLEM**

To support the second 10-year hospital development plan, improve the clinic facilities in the Department of Health, and upgrade and increase healthcare teaching facilities, the Government has set aside \$300 billion as announced in the 2018-19 Budget. Out of this \$300 billion provision, the Government has earmarked about \$20 billion for short, medium and long-term



works projects to upgrade and increase the healthcare teaching facilities of The Chinese University of Hong Kong (CUHK), The Hong Kong Polytechnic University (PolyU) and the University of Hong Kong (HKU). The latest packages of works projects are set out below –

(a) CUHK

- (i) Renovation of facilities in Choh-Ming LI Basic Medical Sciences Building (BMSB) (Short-term project);
- (ii) Construction of a teaching-research complex in Tai Po Area 39 (Medium-term project); and
- (iii) Construction of a multi-purpose building for CUHK's Faculty of Medicine and student residence around the Prince of Wales Hospital (Long-term project)

(b) PolyU

- (i) Renovation of healthcare-related teaching facilities within the PolyU campus (Short-term project);
- (ii) Campus expansion at Ho Man Tin Slope (Medium-term project); and
- (iii) Construction of an integrated teaching building (Long-term project)

(c) HKU

- (i) Enhancement of facilities cum medical campus development (Short-term project);
- (ii) Construction of additional academic building and ancillary facilities for HKU's Faculty of Medicine (Medium-term project); and
- (iii) Redevelopment of Patrick Manson Building at No. 7 Sassoon Road and construction of a university corridor at Sassoon Road Campus (Long-term project).



2. To meet the short to medium term expansion needs, CUHK and HKU now submit the following proposals to upgrade and increase their healthcare-relevant teaching facilities with a view to coping with the additional University Grants Committee (UGC)-funded healthcare training places as specified by the Government –

- (a) Part of **61EF** for CUHK to carry out a technical services consultancy, site investigation works and minor studies, as well as a quantity surveying consultancy for the teaching-research complex in Tai Po Area 39 (re. paragraph 1(a)(ii)); and
- (b) Part of **65EG** for the HKU to carry out the conversion works for additional anatomy dissecting laboratories and storage for cadavers at the Laboratory Block, as well as enablement of virtual connection by telepresence solution across different teaching venues at the Sassoon Road medical campus buildings and Queen Mary Hospital (re. paragraph 1(c)(i)).

3. For the remaining short to medium-term works projects, funding proposals will be submitted to the Legislative Council as soon as practicable after the completion of relevant consultancy studies. For the long-term works projects, the Government will continue to assist the three universities to actively plan for relevant expansions.

## PROPOSAL

4. The Secretary-General, University Grants Committee (SG, UGC), on the advice of the Director of Architectural Services (D Arch S) as UGC's Technical Adviser, and with the support of Secretary for Food and Health and the Secretary for Education, proposes to upgrade the following projects to Category A –

- (a) part of **61EF** at an estimated cost of \$59.7 million in money-of-the-day (MOD) prices for carrying out pre-contract consultancy for the teaching-research complex in Tai Po Area 39; and
- (b) part of **65EG** at an estimated cost of \$194.3 million in MOD prices for carrying out conversion works and enablement of telepresence solution across different teaching venues.

**/PROJECT .....**



**PROJECT SCOPE AND NATURE**

- 5. Details of the two projects above are provided at Enclosures 1 and 2.

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Food and Health Bureau  
Education Bureau  
May 2019



**Construction of a teaching-research complex in Tai Po Area 39**

**PROJECT SCOPE AND NATURE**

The part of **61EF** that we propose to upgrade to Category A includes –

- (a) a technical services consultancy to prepare technical specifications, conceptual drawings, detailed design, tender drawings; assess tenders and make statutory submissions for pre-construction activities and main works;
- (b) site investigation works and minor studies<sup>1</sup> to facilitate the design work described in paragraph 1(a) above; and
- (c) a quantity surveying consultancy to review the cost, prepare tender documents and assess tenders for pre-construction activities and main works.

2. Subject to the funding approval of the Finance Committee (FC), The Chinese University of Hong Kong (CUHK) plans to commence the pre-construction activities in the first quarter of 2020 for completion in the first quarter of 2022. Subject to progress of pre-construction activities, we plan to seek funding for the main works from the FC in the second quarter of 2022.

3. We will retain the remainder of **61EF** in Category B which, subject to final design, shall mainly include the construction of a Teaching-Research

/Complex .....

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<sup>1</sup> Site investigation works and minor studies include topographical and tree surveys, utility mapping, ground investigation, geotechnical assessment, traffic review, preliminary environmental review, drainage impact assessment, sewage impact assessment, air ventilation assessment and fire engineering study etc.



Complex (TRC) of some 29 000 square meters (m<sup>2</sup>) in net operational floor area (NOFA)<sup>2</sup> of teaching and research facilities and necessary external works such as provision of car parking spaces, external landscaping, linkage bridges, covered walkways, engineering services, electrical and mechanical facilities, special furniture and equipment for research laboratories.

4. A site plan, a sectional plan and an artist's impression of the proposed TRC are at Annex 1 to Enclosure 1.

## JUSTIFICATION

5. In order to increase the manpower of doctors and nurses, the Government has substantially increased the University Grants Committee (UGC)-funded medical and nursing training places from 250 and about 520 in the 2005/06 academic year to 470 and 630 in the 2016/17 academic year respectively. In the 2019/20 to 2021/22 triennium, the Government will further increase the number of healthcare-related UGC-funded first-year-first-degree annual intake places of CUHK by 50 (including 30 medical and 20 nursing).

6. To meet the demands of the increased medical and nursing student enrollments and address the issue of the CUHK Faculty of Medicine's space insufficiency on the campus, this project, as Phase I of the Faculty's redevelopment, is to provide the Faculty with additional space by fully utilising the available land in Area 39 on the campus for building a TRC with a total NOFA of approximately 29 000 m<sup>2</sup>.

7. In addition to providing further teaching and research spaces, with the construction of this Complex, the CUHK Faculty of Medicine is able to allow

/staff .....

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<sup>2</sup> NOFA is the floor area actually allocated to the users of a building for carrying out the intended activities. Unlike the construction floor area which takes into account all areas within the building structure envelope, NOFA does not include areas for such facilities (if any) as toilets, bathrooms and shower rooms, lift lobbies, stair halls, public or shared corridors, stairwells, escalators and lift shafts, pipe or services ducts, barrier-free access facilities, gender mainstreaming of facilities, refuse chutes and refuse rooms, balconies, verandas, open decks and flat roofs, parking spaces, loading and unloading areas and mechanical plant rooms, etc.



staff members to be geographically close to each other, and to efficiently share space, facilities and equipment, and to enjoy a strong connectivity with the CUHK Medical Centre and the CUHK's Laboratory Animal Service Centre that are located along the railway that runs parallel with the northern boundary of the campus.

8. Since this Complex is to be built in Area 39, it will also be in close proximity to Hong Kong Science Park. This proximity will help generating a synergistic effect in this region and support the Government's strategic plan in developing areas of strength, especially on biotechnology, and for establishing a research cluster in healthcare technologies.

## FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the project to be \$59.7 million in MOD prices, broken down as follows –

	<b>\$ million (in MOD prices)</b>
(a) Consultants' fee for design and preparation of tender documents	50.2
(b) Site investigation works and minor studies	4.1
(c) Contingencies	5.4
Total	59.7

CUHK will engage consultants to undertake the design and preparation of tender documents for the project. A detailed breakdown of the estimates for the consultants' fees by man-months is at Annex 2 to Enclosure 1.

10. Subject to funding approval, CUHK plans to phase the expenditure as follows –

/Year .....



Year	\$ million (MOD)
2019 – 2020	5.6
2020 – 2021	20.2
2021 – 2022	24.3
2022 – 2023	9.6
	<hr/> 59.7 <hr/>

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 for the period from 2019 to 2023. Subject to FC's funding approval, CUHK will engage consultants and contractors to undertake the pre-construction consultancies and surveying work on a lump-sum basis. The ground investigation works will be delivered under a re-measurement contract because the quantity for works involved may vary depending on actual ground conditions.

12. The proposed pre-construction activities have no impact on tuition fees. The proposal has no additional recurrent financial implications for the Government.

## **PUBLIC CONSULTATION**

13. As the proposed TRC of CUHK is located within the University campus and there are no residential developments in its immediate vicinity, it is unlikely that project will affect other public residents in the area. CUHK had briefed its staff and students on this development on various committee meetings and no objection to the project has been raised. The Chairman of Environment, Housing and Works Committee of Tai Po District Council and nearby village representatives were briefed on the proposed development by CUHK in April 2019 and no adverse comment was raised.

/14. ....



14. We consulted the Legislative Council Panel on Health Services and Panel on Education on 21 January 2019. Members supported submitting the funding proposal to the Public Works Subcommittee for consideration. In response to Members' requests for supplementary information on the details of the latest package of works projects, an information note was issued on 23 May 2019.

### **ENVIRONMENTAL IMPLICATIONS**

15. The project is not a designated project under the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). It belongs to one of the categories listed in Environment, Transport and Works Bureau Technical Circular (Works) No. 13/2003 that have very little potential for giving rise to adverse environmental impacts. CUHK undertakes to implement the standard pollution control measures during construction, as promulgated by the Director of Environmental Protection. We have included in the project estimates the cost to implement suitable mitigation measures to control short term environmental impacts.

16. The site investigations will generate only a non-substantial quantity of construction waste.

### **HERITAGE IMPLICATIONS**

17. The proposed pre-construction activities will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites or buildings and government historic sites identified by the Antiquities and Monuments Office. As the Cheung Shue Tan Site of Archaeological Interest falls partly into the project area, appropriate mitigation measures will be implemented in prior consultation with the Antiquities and Monuments Office.

### **LAND ACQUISITION**

18. The proposed pre-construction activities do not require any clearance of any government land.



**BACKGROUND INFORMATION**

19. We upgraded **61EF** to Category B in October 2018.

20. The proposed pre-construction activities will not directly involve any tree removal or planting proposals. CUHK will require the consultant to take into consideration the need for tree preservation during the planning and design stages of the project. CUHK will also incorporate tree planting proposals, where possible, in the construction phase in the future.

21. We estimate that the proposed works will create about 20 jobs (two for labourers and another 18 for professional or technical staff), providing a total employment of 420 man-months.

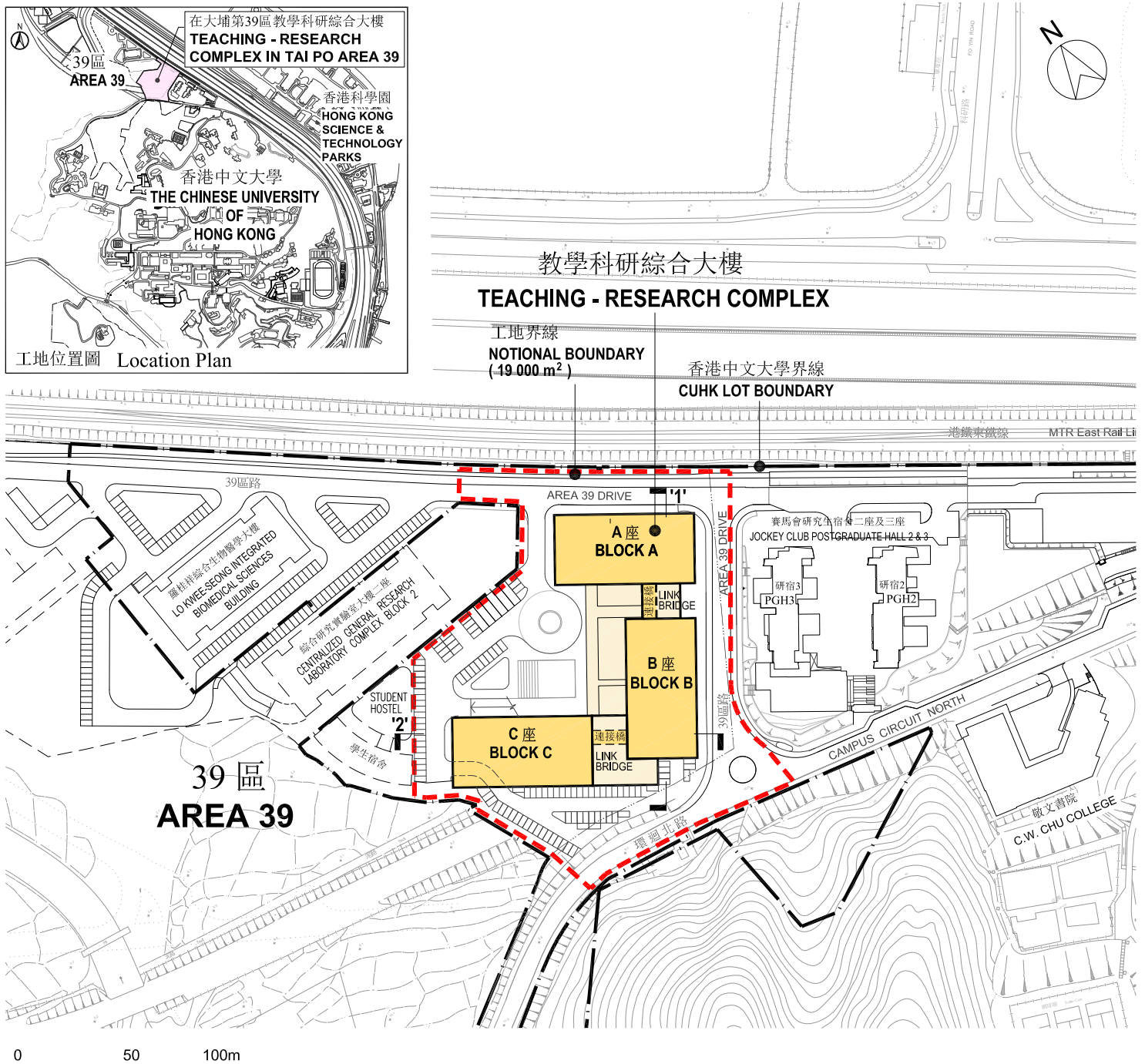
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Food and Health Bureau  
Education Bureau  
May 2019



香港中文大學  
在大埔第39區興建一座教學科研綜合大樓  
The Chinese University of Hong Kong  
Construction of a Teaching-research Complex in Tai Po Area 39

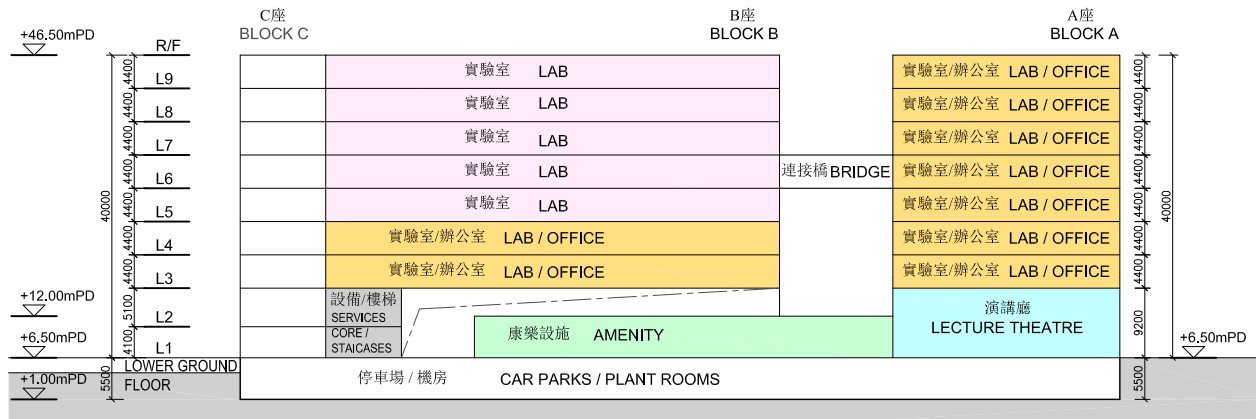
工地平面圖 Site Plan



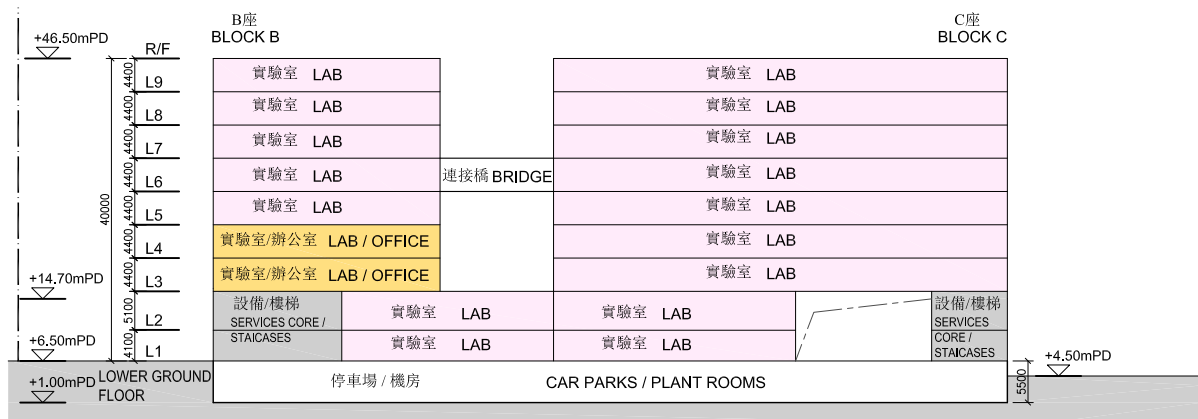


香港中文大學  
在大埔第39區興建一座教學科研綜合大樓  
The Chinese University of Hong Kong  
Construction of a Teaching-research Complex in Tai Po Area 39

截面圖 Sectional Plan



截面圖 1 SECTION 1



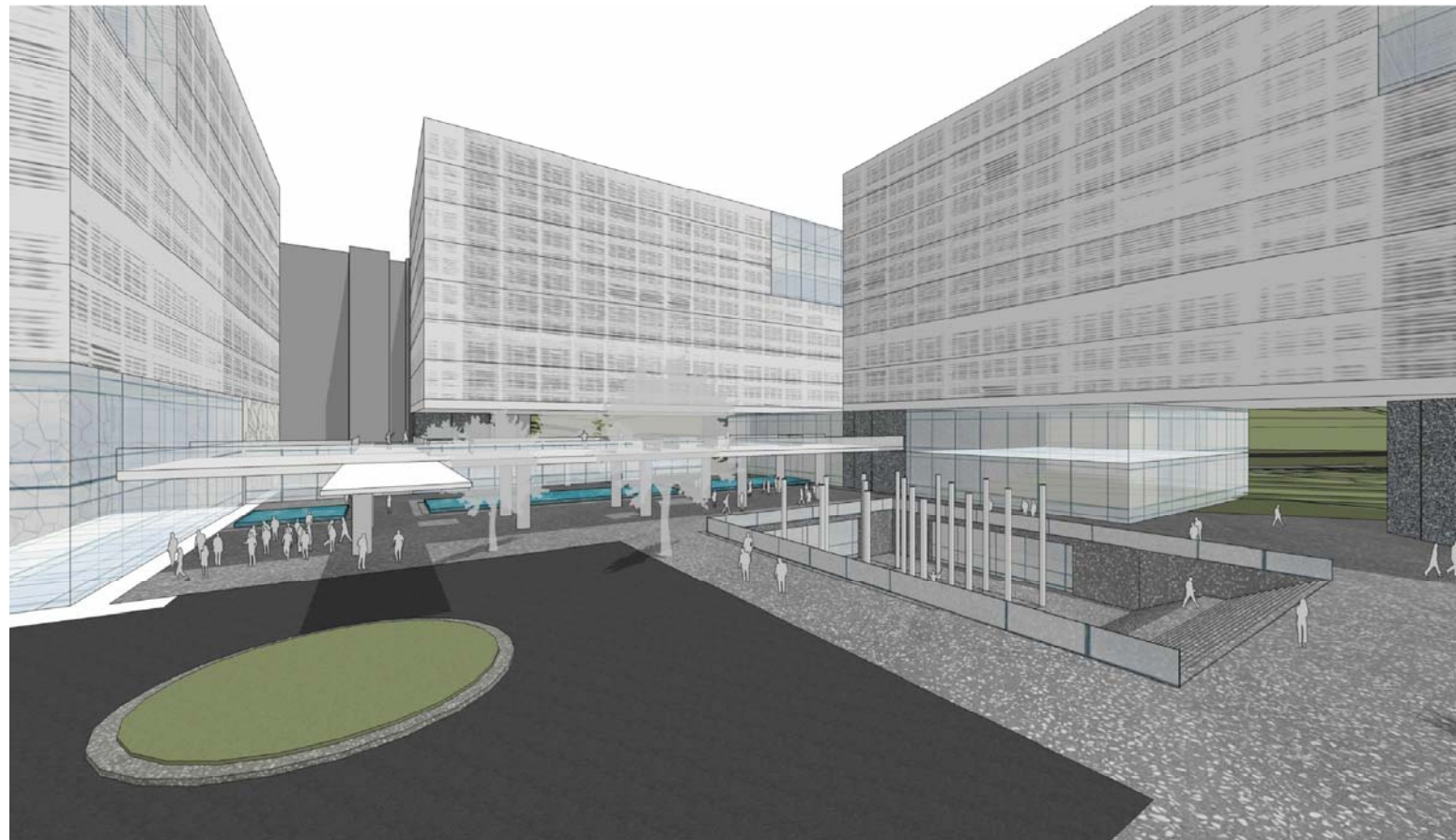
截面圖 2 SECTION 2

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香港中文大學  
在大埔第39區興建一座教學科研綜合大樓  
The Chinese University of Hong Kong  
Construction of a Teaching-research Complex in Tai Po Area 39

從西北面望向教學科研綜合大樓的構思圖  
View of Teaching-research Complex from northwest (Artist's impression)





## Annex 2 to Enclosure 1

### 61EF (part) – Construction of a teaching-research complex in Tai Po Area 39

#### Breakdown of estimates for consultants' fees (in September 2018 prices)

		Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
Consultants' fee for design and preparation of tender documents (Note 2)	Professional	200	38	2.0	32.8
	Technical	273	14	2.0	15.7
Total					<b>48.5#</b>

\* MPS = Master Pay Scale

#### Notes

1. A multiplier factor of 2.0 is applied to the average MPS point to estimate the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. (As at 1 April 2018, MPS point 38 = \$81,975 per month and MPS point 14 = \$28,725 per month.)
2. The actual man-months and fees will only be known after the consultants have been selected.

#### Remarks

The figures in this Annex are shown in constant prices to correlate with the MPS salary point of the same year. The figure marked with # is shown in money-of-the-day prices in paragraph 9 of Enclosure 1.



## **Enclosure 2 to PWSC (2019-20)13**

### **Enhancement of facilities cum medical campus development**

#### **PROJECT SCOPE AND NATURE**

The part of **65EG** that we propose to upgrade to Category A includes the conversion works for additional anatomy dissecting laboratories and storage for cadavers at the Laboratory Block on No. 21 Sassoon Road, and implementation of technology-enabled measures for teaching including telepresence solution, Virtual Reality (VR) and Augmented Reality (AR) at the following teaching venues –

- (a) Faculty of Medicine Building (Laboratory Block and William M.W. Mong Block) on No. 21 Sassoon Road;
- (b) Jockey Club Building for Interdisciplinary Research on No. 5 Sassoon Road;
- (c) Pauline Chan Building on No. 10 Sassoon Road; and
- (d) Teaching areas at Queen Mary Hospital.

2. The project is technology-enabled measures for teaching including telepresence solution and AR/VR implementation, and conversion works at existing premises. The project enables virtual expansion of teaching venues and will not provide an increase in net operational floor area.

3. Subject to funding approval of the Finance Committee (FC), The University of Hong Kong (HKU) plans to commence the project in the third quarter of 2019 for completion in the third quarter of 2020.



4. We will retain the remainder of **65EG** in Category B which shall mainly include the renovation and conversion to Clinical Skills Laboratories and Student Amenities and Support Services Office in William M.W. Mong Block.

5. Site plan, layout plans and references of telepresence solution and AR/VR in medical application are at Annexes 1, 2 and 3 to Enclosure 2.

## **JUSTIFICATION**

6. In order to increase the manpower of doctors and nurses, the Government has substantially increased the University Grants Committee (UGC)-funded medical and nursing training places from 250 and about 520 in the 2005/06 academic year to 470 and 630 in the 2016/17 academic year respectively. In the 2019/20 to 2021/22 triennium, the Government will further increase the number of healthcare-related UGC-funded first-year-first-degree annual intake places of HKU by 57 (including 30 medical, 20 nursing, and seven dental).

7. Given that there is no short-term opportunity to demolish and re-develop more major teaching facilities within the Sassoon Road neighbourhood, and before the physical infrastructure and major capital works under planning as medium-term measures are completed in 2025/26, an urgent stop-gap solution through conversion of existing space into teaching facilities and enablement of virtual connection of teaching and learning locations is crucial to allow better utilisation of space at the initial stage under this project in transition to 2025/26.

8. Adaptation of contemporary technologies such as VR and AR in teaching, especially of anatomy/physiology and clinical skills also helps alleviate the strain on existing space and training facilities before larger and better equipped laboratories are built. The essence of the short-term measures, involving mainly technology-enabled initiatives, is to ensure that the standard and quality of

/training .....



training rendered to medical and nursing students will not be compromised because of the increase in class size against the constraints imposed by no immediate corresponding increase in physical space.

## FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the project to be \$194.3 million in MOD prices, broken down as follows –

	<b>\$ million (in MOD prices)</b>
(a) Building <sup>1</sup>	6.5
(b) Building services <sup>2</sup>	7.6
(c) Additional energy conservation, green and recycled features	0.9
(d) Special furniture and equipment (F&E) <sup>3</sup>	159.1
(e) Consultants' fees for contract administration	2.8
(f) Contingencies	17.4
Total	194.3

/10. ....

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<sup>1</sup> Building works comprise conversion works at existing teaching venues.

<sup>2</sup> Building services works cover electrical installation, ventilation and air-conditioning installation, fire services installation and above plumbing works.

<sup>3</sup> Special furniture and equipment include additional dissecting tables, cadaver storage, IT infrastructure and equipment, VR and AR special equipment.



10. HKU will engage consultants to undertake contract administration for the project. A detailed breakdown of the estimates for consultants' fees is at Annex 4 to Enclosure 2.

11. The construction floor area (CFA) of this project is approximately 7 347 m<sup>2</sup>. The estimated construction unit cost, represented by the building and building services costs, is \$1,919 per m<sup>2</sup> of CFA in MOD prices. The Director of Architectural Services considers, taking into account the project nature, the estimated construction unit cost is reasonable as compared to similar projects for UGC-funded universities.

12. Subject to funding approval, HKU plans to phase the expenditure as follows –

<b>Year</b>	<b>\$ million (MOD)</b>
2019 – 2020	117.3
2020 – 2021	72.0
2021 – 2022	5.0
	<hr/> 194.3 <hr/>

13. 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 2019 to 2022. HKU will award the contracts on a lump-sum basis as the scope of the works can be clearly defined in advance.

/14. ....



14. The project has no impact on tuition fees. The additional recurrent costs associated with this project will be absorbed by HKU. The proposal has no additional recurrent financial implications for the Government.

## **PUBLIC CONSULTATION**

15. Given that the renovation works and implementation of technology-enabled measures are carried out inside the existing buildings, no public consultation will be conducted for the HKU project. Students and teachers of the Faculty were informed of the proposed works. Major works will not be scheduled in daytime on weekdays to minimise impact on teaching and learning.

16. We consulted the Legislative Council Panel on Health Services and Panel on Education on 21 January 2019. Members supported submitting the funding proposal to the Public Works Subcommittee for consideration. In response to Members' requests for supplementary information on the details of the latest package of works projects, an information note was issued on 23 May 2019.

## **ENVIRONMENTAL IMPLICATIONS**

17. The renovation works and implementation of technology-enabled measures at the existing teaching venues are not a designated project under the Environment Impact Assessment Ordinance (Cap. 499). It will not cause any adverse environmental impact. We have included in the project estimates the cost to implement suitable mitigation measures to control short term environmental impacts.

18. The proposed works within the existing premises will only generate very little construction waste. At the planning and design stages, HKU has considered optimisation of the construction programme to reduce the generation

/of .....



of construction waste where possible. In addition, HKU will require the contractor to reuse inert construction waste (e.g. removed partition systems) 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<sup>4</sup>. HKU will encourage the contractor to maximise the use of recycled / recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

19. At the construction stage, HKU 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. HKU will ensure that the day-to-day operations on site comply with the approved plan. HKU will require the contractor to separate the inert and non-inert construction waste on site for disposal at appropriate facilities. HKU 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.

20. It is estimated that the proposed works within the existing premises will only generate non-substantial quantity of construction waste. HKU will require the contractors to fully consider measures to minimise the generation of construction waste.

## **ENERGY CONSERVATION, GREEN AND RECYCLED FEATURES**

21. This project will adopt various forms of energy efficient features, in particular light-emitting diode type light fittings.

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<sup>4</sup> 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.



22. The total estimated additional cost for adoption of the above energy conservation measures is around \$0.9 million in MOD prices (including \$0.7 million for energy efficient features), which has been included in the cost estimate of this project. The energy efficient features will achieve 5.5% energy savings in the annual energy consumption with a payback period of about eight years.

## **HERITAGE IMPLICATIONS**

23. This project involving works within the existing buildings will not affect any heritage sites, i.e. all declared monuments, proposed monuments, graded historic sites or buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office.

## **LAND ACQUISITION**

24. The proposed works do not require any land acquisition.

## **BACKGROUND INFORMATION**

25. We upgraded **65EG** to Category B in October 2018.

26. The proposed project involving mainly IT telepresence solutions and AR/VR implementation within the existing premises will not involve the removal of any trees.

27. The pre-contract design consultancy for the proposed project is handled by HKU in-house staff.

/28. ....



28. We estimate that the proposed works will create about 20 jobs (15 for labourers and 5 for professional or technical staff), providing a total employment of 200 man-months.

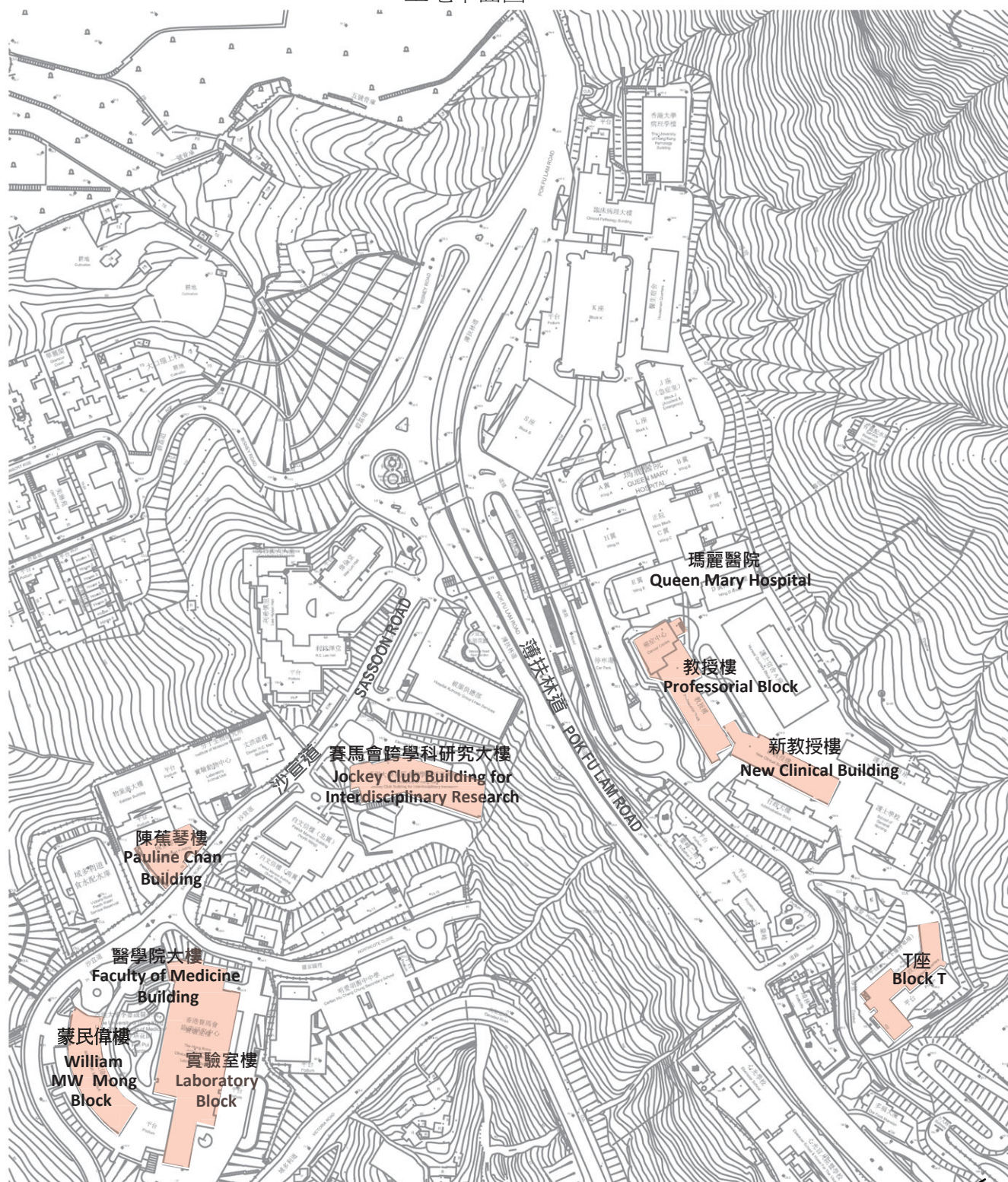
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Education Bureau  
May 2019



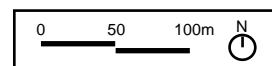
香港大學  
設施提升及醫學院校區發展  
The University of Hong Kong  
Enhancement of Facilities cum Medical Campus Development

工地平面圖 Site Plan



圖例 LEGEND

工程範圍  
Works Area





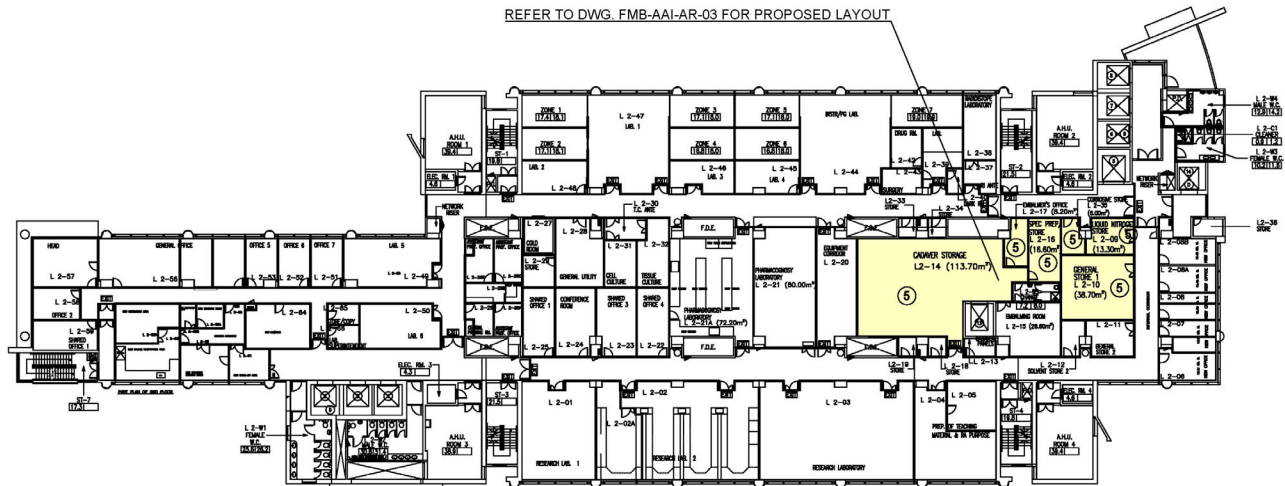
# 平面圖 LAYOUT PLAN

附件2附錄2 (9頁中的第1頁)  
Annex 2 to Enclosure 2 (Page 1 of 9)

## 醫學院大樓實驗室樓2樓

## Faculty of Medicine Building 2/F Laboratory Block

圖例 LEGEND  
工程範圍  
Works Area





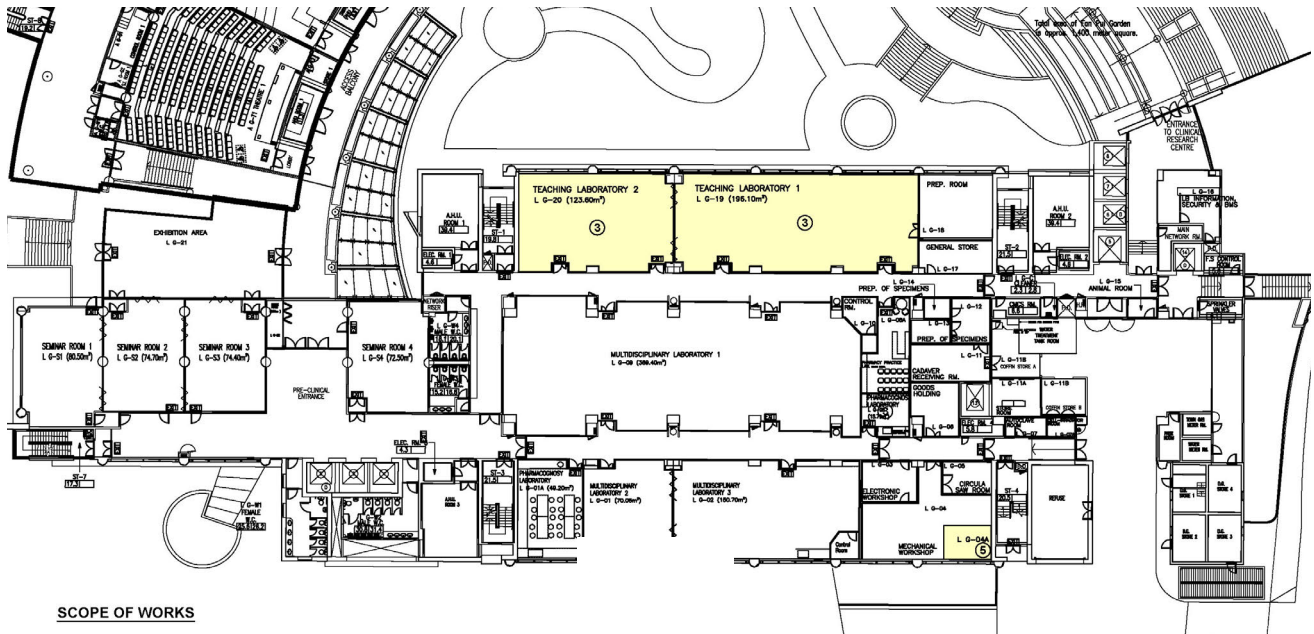
# 平面圖 LAYOUT PLAN

附件2附錄2 (9頁中的第2頁)  
Annex 2 to Enclosure 2 (Page 2 of 9)

## 醫學院大樓實驗室樓地下

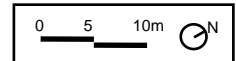
### Faculty of Medicine Building G/F Laboratory Block

圖例 LEGEND  
工程範圍  
Works Area



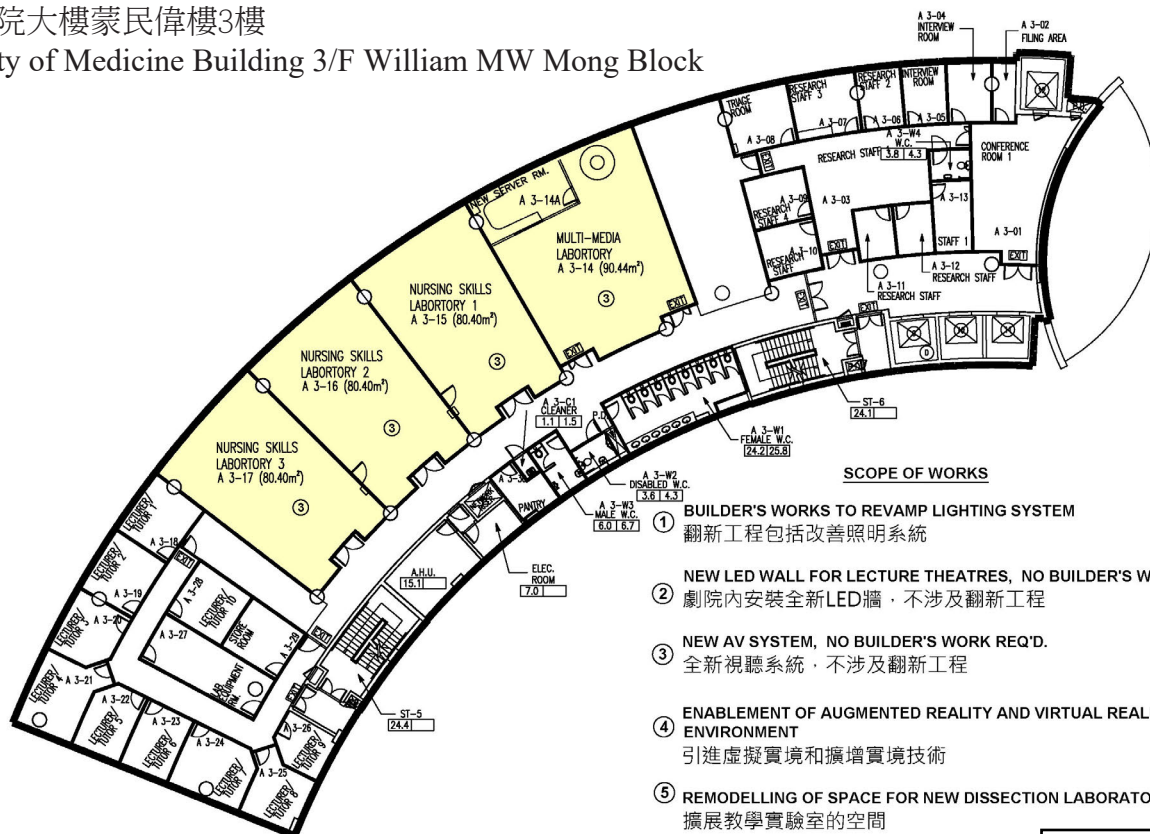
#### SCOPE OF WORKS

- ① BUILDER'S WORKS TO REVAMP LIGHTING SYSTEM  
翻新工程包括改善照明系統
- ② NEW LED WALL FOR LECTURE THEATRES, NO BUILDER'S WORK REQ'D.  
劇院內安裝全新LED牆，不涉及翻新工程
- ③ NEW AV SYSTEM, NO BUILDER'S WORK REQ'D.  
全新視聽系統，不涉及翻新工程
- ④ ENABLEMENT OF AUGMENTED REALITY AND VIRTUAL REALITY ENVIRONMENT  
引進虛擬實境和擴增實境技術
- ⑤ REMODELLING OF SPACE FOR NEW DISSECTION LABORATORY  
擴展教學實驗室的空間



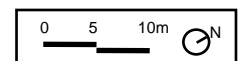
## 醫學院大樓蒙民偉樓3樓

### Faculty of Medicine Building 3/F William MW Mong Block



#### SCOPE OF WORKS

- ① BUILDER'S WORKS TO REVAMP LIGHTING SYSTEM  
翻新工程包括改善照明系統
- ② NEW LED WALL FOR LECTURE THEATRES, NO BUILDER'S WORK REQ'D.  
劇院內安裝全新LED牆，不涉及翻新工程
- ③ NEW AV SYSTEM, NO BUILDER'S WORK REQ'D.  
全新視聽系統，不涉及翻新工程
- ④ ENABLEMENT OF AUGMENTED REALITY AND VIRTUAL REALITY ENVIRONMENT  
引進虛擬實境和擴增實境技術
- ⑤ REMODELLING OF SPACE FOR NEW DISSECTION LABORATORY  
擴展教學實驗室的空間



香港大學設施提升及醫學院校區發展

The University of Hong Kong - Enhancement of Facilities cum Medical Campus Development

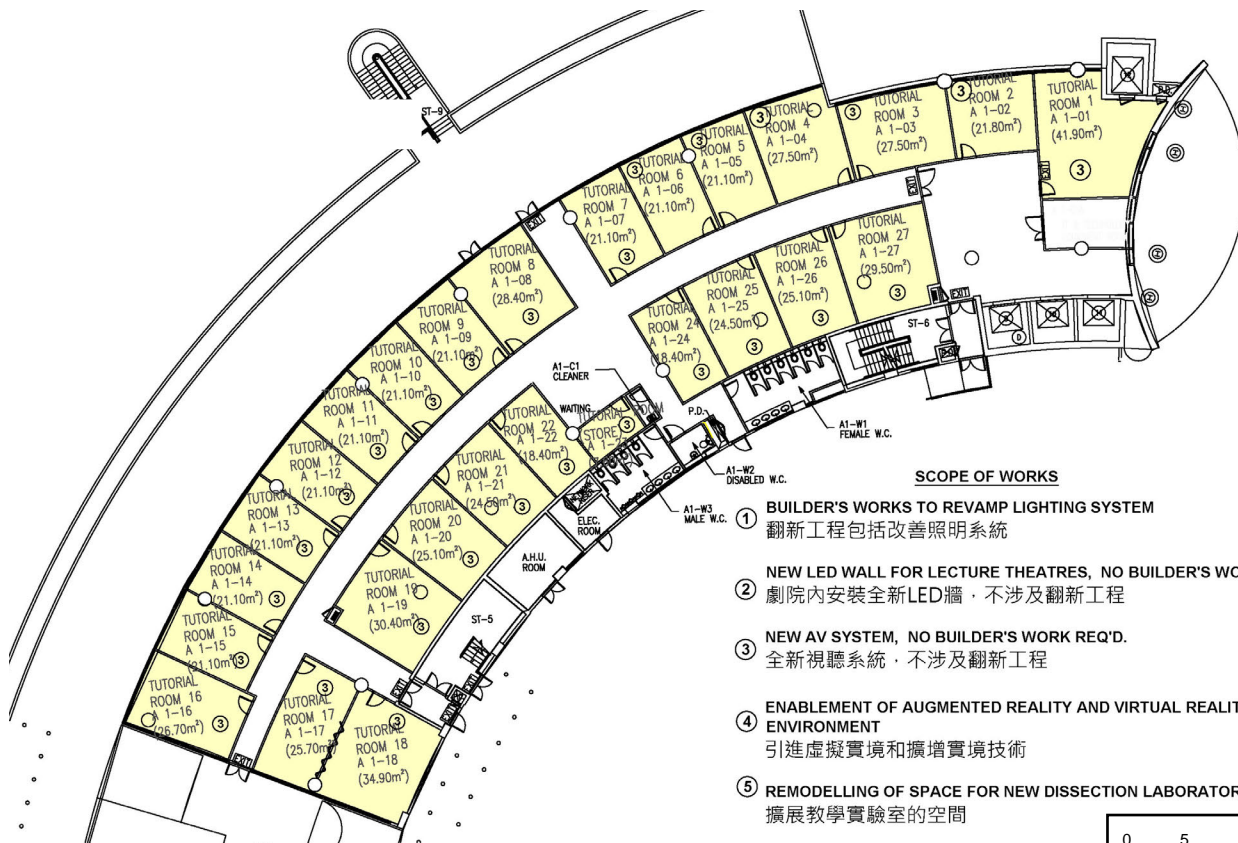


# 平面圖 LAYOUT PLAN

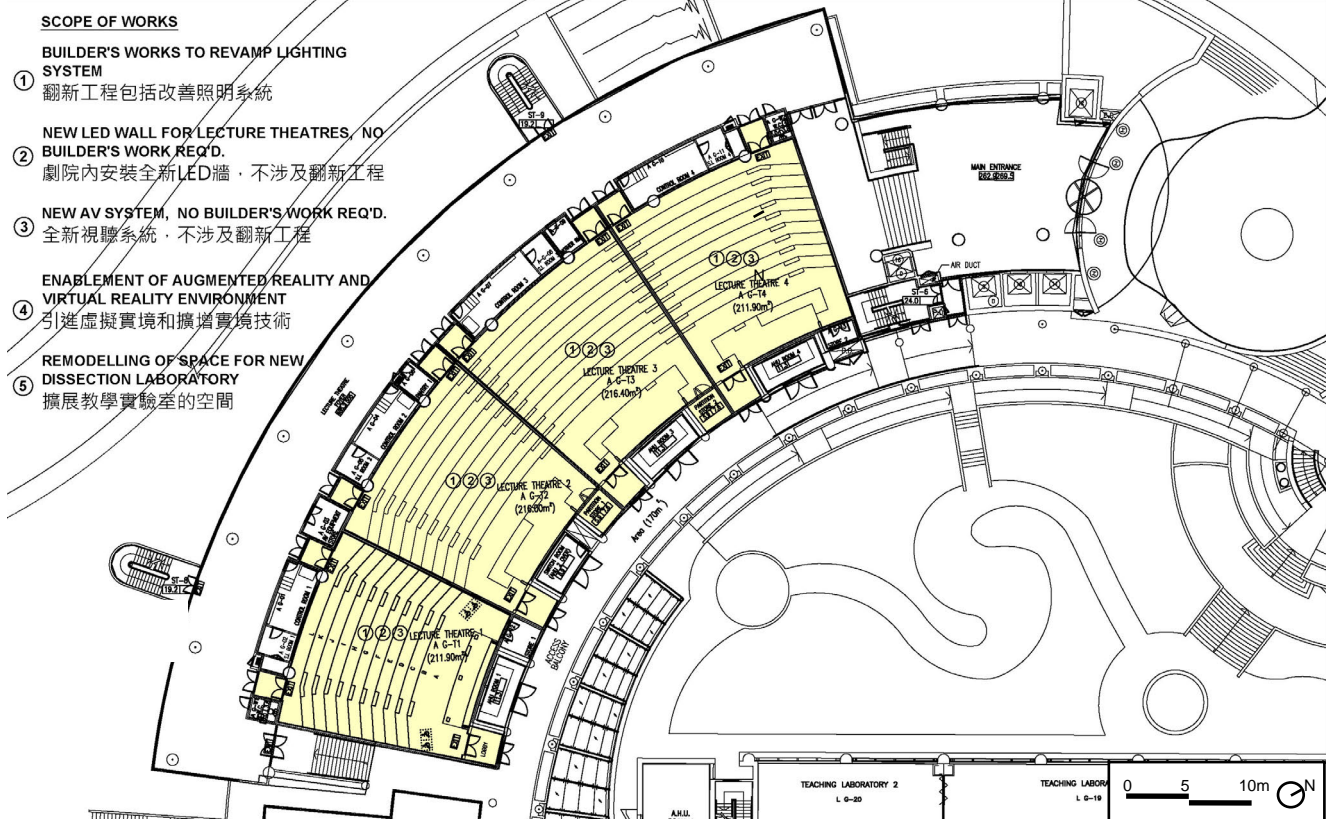
附件2附錄2 (9頁中的第3頁)  
Annex 2 to Enclosure 2 (Page 3 of 9)

## 醫學院大樓蒙民偉樓1樓 Faculty of Medicine Building 1/F William MW Mong Block

圖例 LEGEND  
工程範圍  
Works Area



## 醫學院大樓蒙民偉樓地下 Faculty of Medicine Building G/F William MW Mong Block



香港大學設施提升及醫學院校區發展

The University of Hong Kong - Enhancement of Facilities cum Medical Campus Development

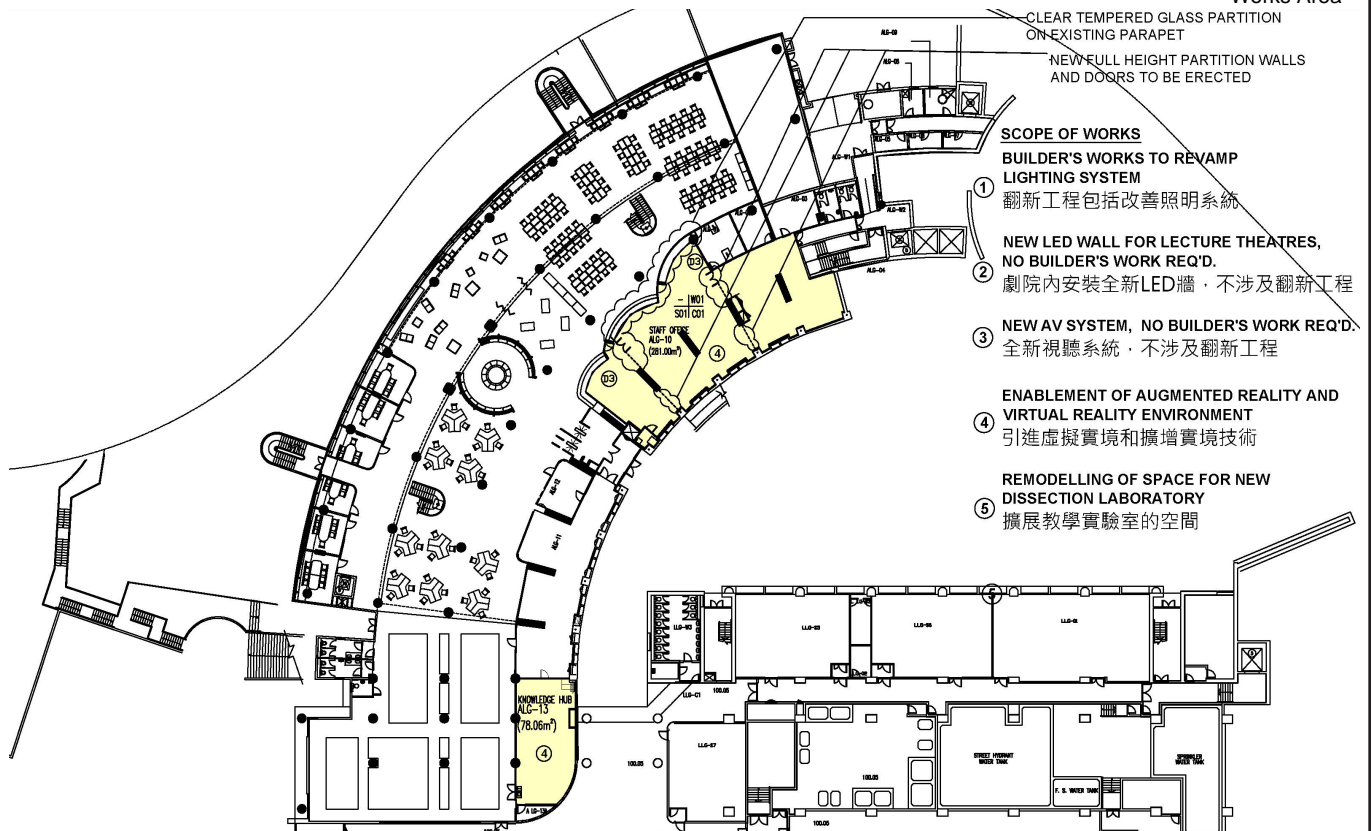


# 平面圖 FLOOR LAYOUT PLAN

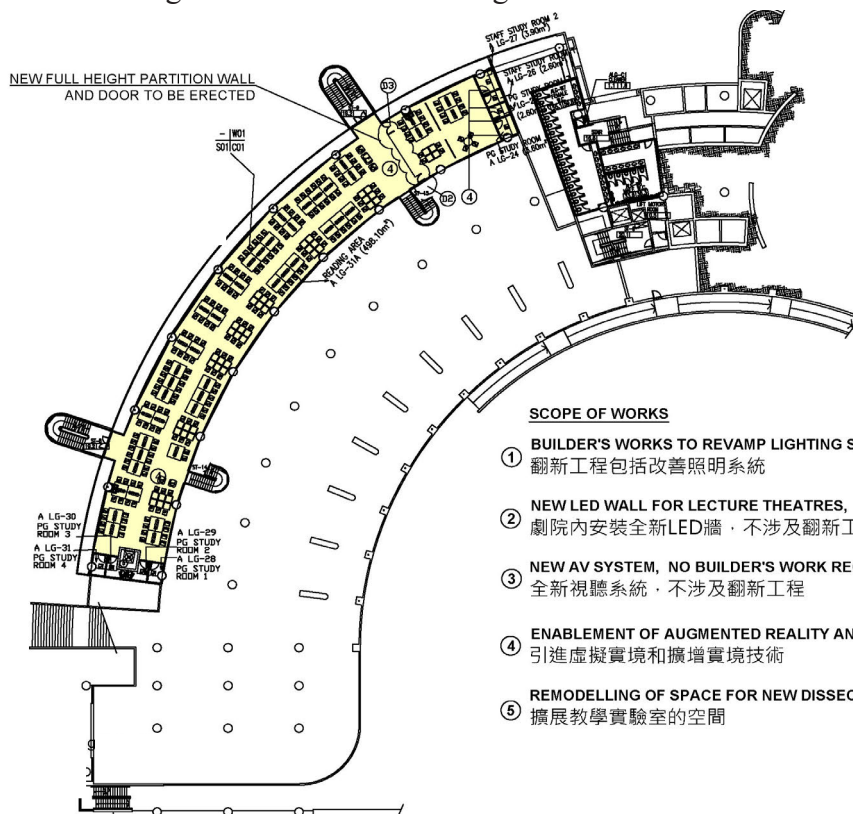
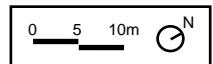
附件2附錄2 (9頁中的第4頁)  
Annex 2 to Enclosure 2 (Page 4 of 9)

## 醫學院大樓蒙民偉樓LG層 Faculty of Medicine Building LG/F William MW Mong Block

圖例 LEGEND  
工程範圍  
Works Area



## 醫學院大樓蒙民偉樓M層 Faculty of Medicine Building M/F William MW Mong Block



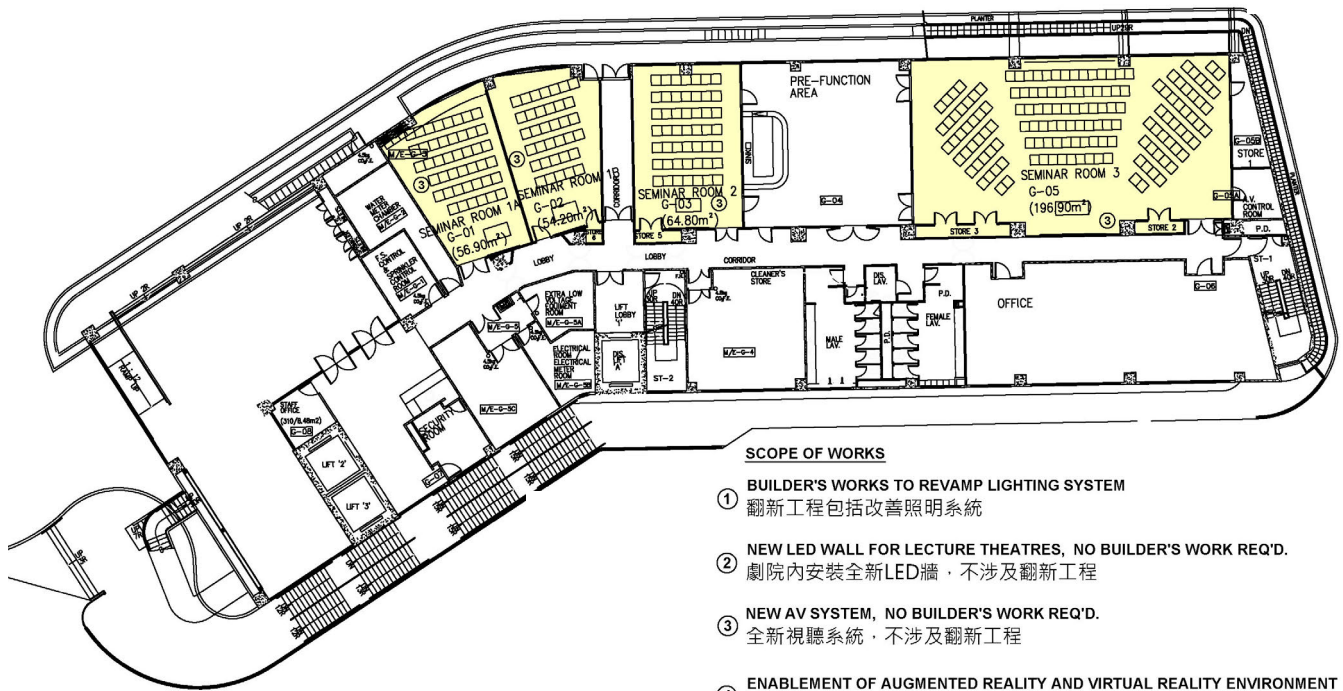


# 平面圖 LAYOUT PLAN

附件2附錄2 (9頁中的第5頁)  
Annex 2 to Enclosure 2 (Page 5 of 9)

## 醫學院賽馬會跨學科研究大樓地下 Faculty of Medicine G/F Jockey Club Building for Interdisciplinary Research

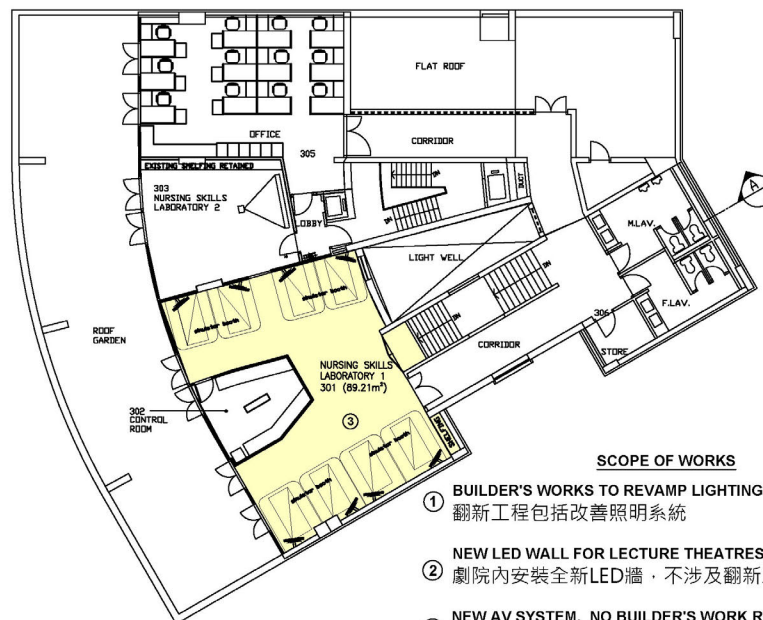
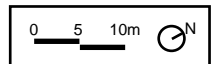
圖例 LEGEND  
工程範圍  
Works Area



### SCOPE OF WORKS

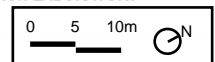
- ① BUILDER'S WORKS TO REVAMP LIGHTING SYSTEM  
翻新工程包括改善照明系統
- ② NEW LED WALL FOR LECTURE THEATRES, NO BUILDER'S WORK REQ'D.  
劇院內安裝全新LED牆，不涉及翻新工程
- ③ NEW AV SYSTEM, NO BUILDER'S WORK REQ'D.  
全新視聽系統，不涉及翻新工程
- ④ ENABLEMENT OF AUGMENTED REALITY AND VIRTUAL REALITY ENVIRONMENT  
引進虛擬實境和擴增實境技術
- ⑤ REMODELLING OF SPACE FOR NEW DISSECTION LABORATORY  
擴展教學實驗室的空間

## 醫學院陳蕉琴樓3樓 Faculty of Medicine 3/F Pauline Chan Building



### SCOPE OF WORKS

- ① BUILDER'S WORKS TO REVAMP LIGHTING SYSTEM  
翻新工程包括改善照明系統
- ② NEW LED WALL FOR LECTURE THEATRES, NO BUILDER'S WORK REQ'D.  
劇院內安裝全新LED牆，不涉及翻新工程
- ③ NEW AV SYSTEM, NO BUILDER'S WORK REQ'D.  
全新視聽系統，不涉及翻新工程
- ④ ENABLEMENT OF AUGMENTED REALITY AND VIRTUAL REALITY ENVIRONMENT  
引進虛擬實境和擴增實境技術
- ⑤ REMODELLING OF SPACE FOR NEW DISSECTION LABORATORY  
擴展教學實驗室的空間



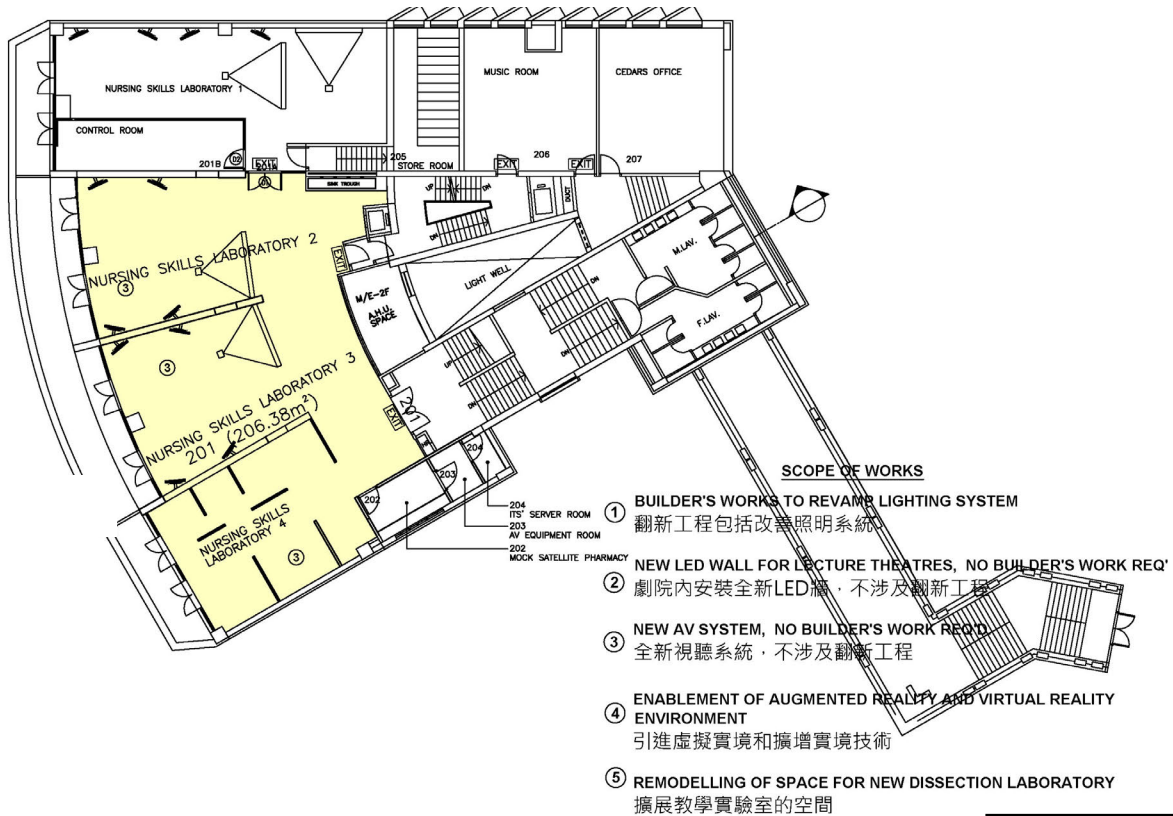


# 平面圖 LAYOUT PLAN

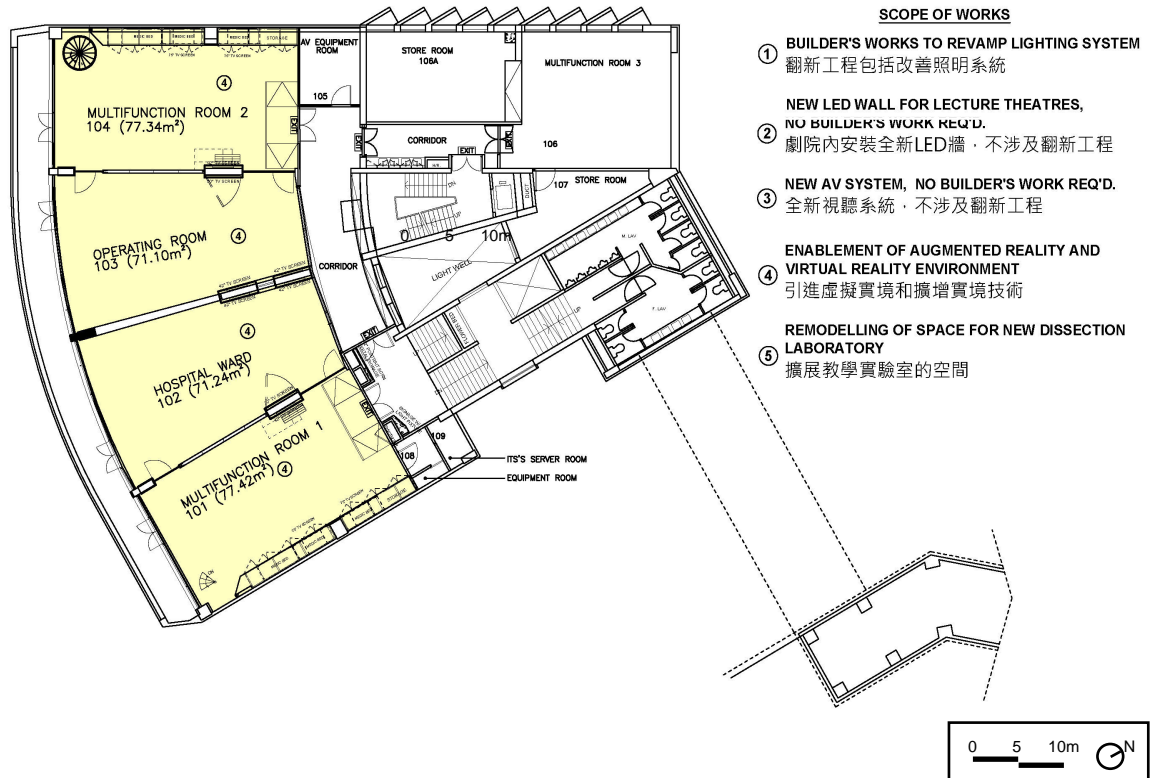
附件2附錄2 (9頁中的第6頁)  
Annex 2 to Enclosure 2 (Page 6 of 9)

## 醫學院陳蕉琴樓2樓 Faculty of Medicine 2/F Pauline Chan Building

圖例 LEGEND  
工程範圍  
Works Area



## 醫學院陳蕉琴樓1樓 Faculty of Medicine 1/F Pauline Chan Building



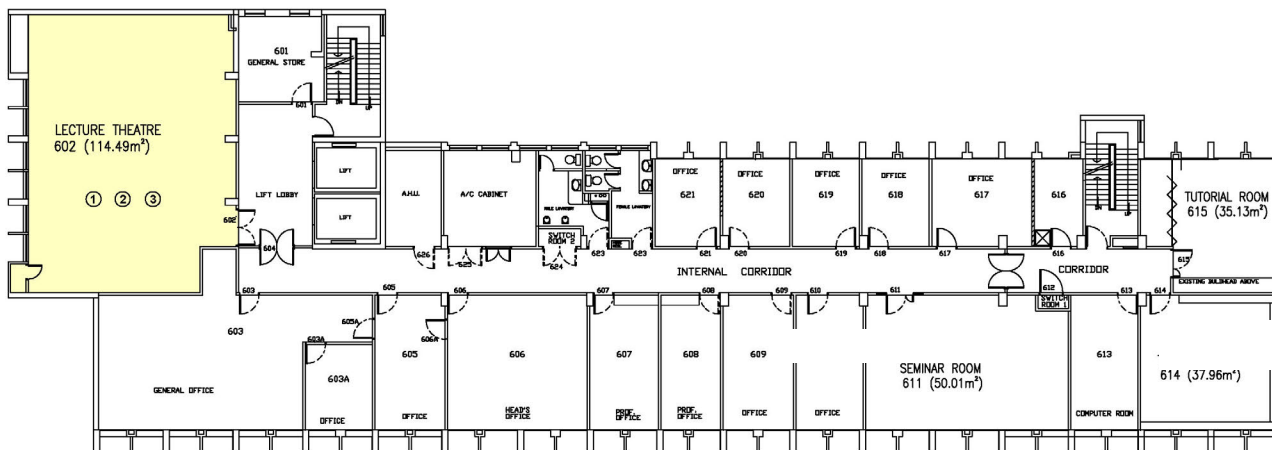


# 平面圖 LAYOUT PLAN

附件2附錄2 (9頁中的第7頁)  
Annex 2 to Enclosure 2 (Page 7 of 9)

## 瑪麗醫院教授樓6樓 Queen Mary Hospital 6/F Professorial Block

圖例 LEGEND  
工程範圍  
Works Area



### SCOPE OF WORKS

#### ① BUILDER'S WORKS TO REVAMP LIGHTING SYSTEM

翻新工程包括改善照明系統

#### ② NEW LED WALL FOR LECTURE THEATRES, NO BUILDER'S WORK REQ'D.

劇院內安裝全新LED牆，不涉及翻新工程

#### ③ NEW AV SYSTEM, NO BUILDER'S WORK REQ'D.

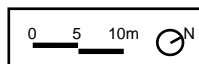
全新視聽系統，不涉及翻新工程

#### ④ ENABLEMENT OF AUGMENTED REALITY AND VIRTUAL REALITY ENVIRONMENT

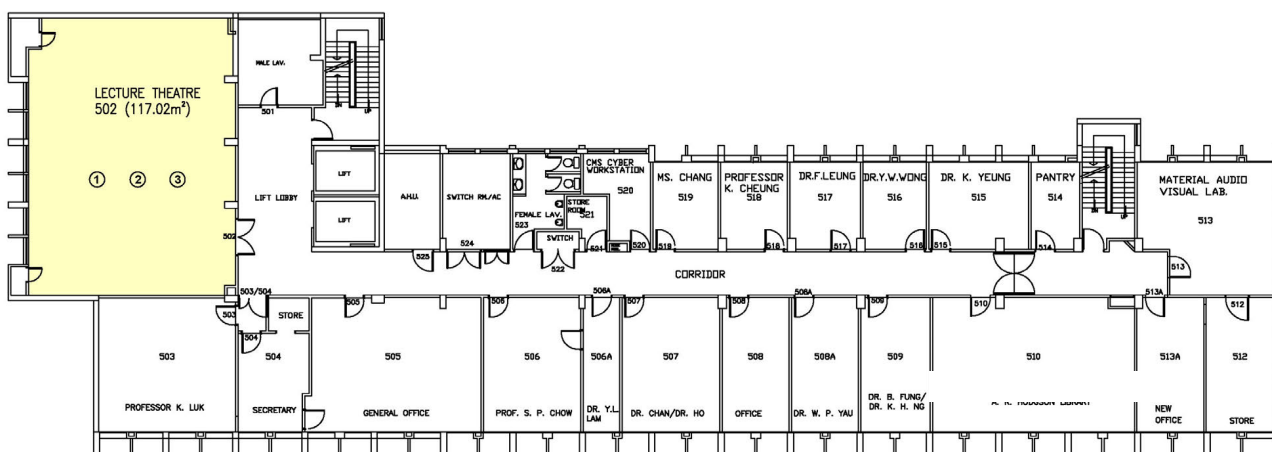
引進虛擬實境和擴增實境技術

#### ⑤ REMODELLING OF SPACE FOR NEW DISSECTION LABORATORY

擴展教學實驗室的空間



## 瑪麗醫院教授樓5樓 Queen Mary Hospital 5/F Professorial Block



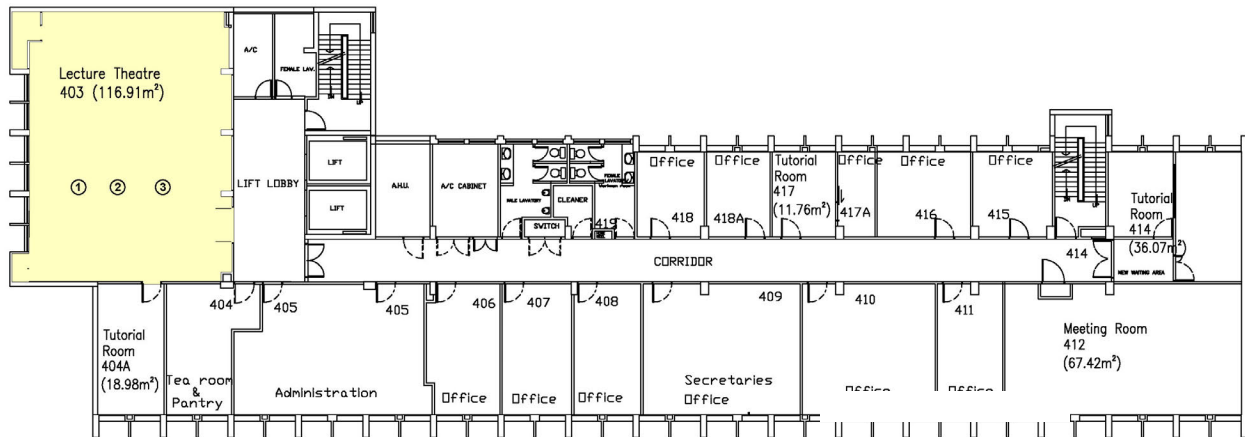


# 平面圖 LAYOUT PLAN

附件2附錄2 (9頁中的第8頁)  
Annex 2 to Enclosure 2 (Page 8 of 9)

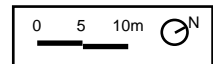
## 瑪麗醫院教授樓4樓 Queen Mary Hospital 4/F Professorial Block

圖例 LEGEND  
工程範圍  
Works Area



### SCOPE OF WORKS

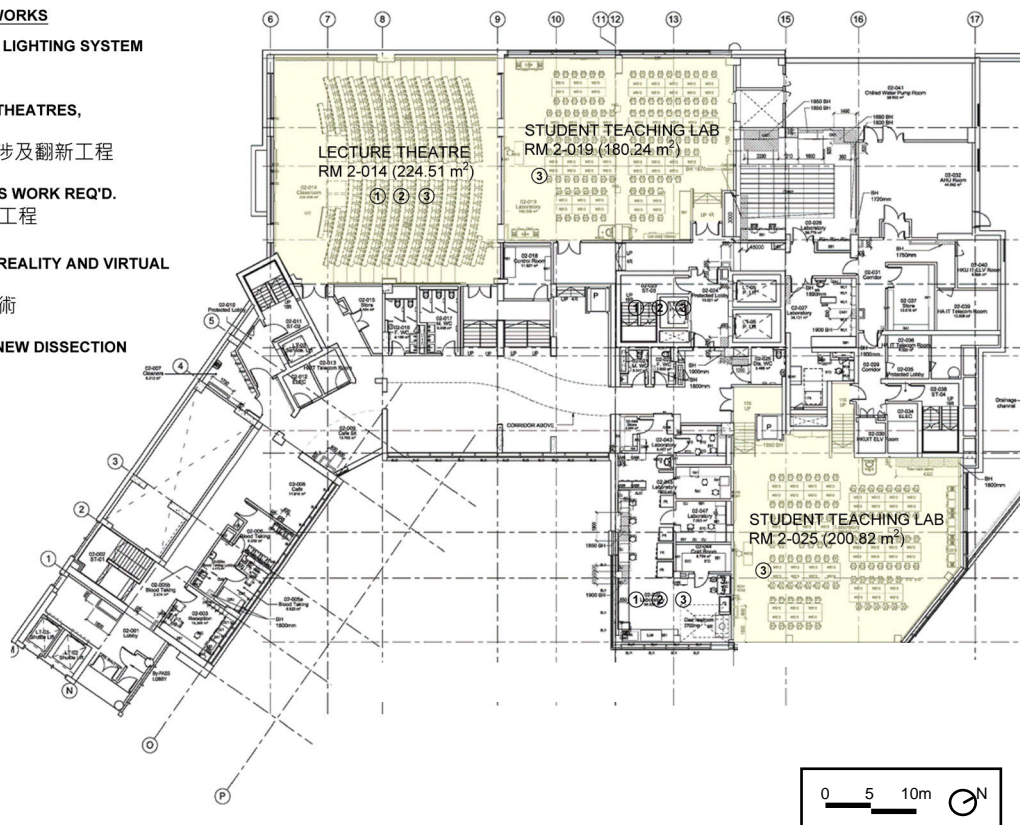
- ① BUILDER'S WORKS TO REVAMP LIGHTING SYSTEM  
翻新工程包括改善照明系統
- ② NEW LED WALL FOR LECTURE THEATRES, NO BUILDER'S WORK REQ'D.  
劇院內安裝全新LED牆，不涉及翻新工程
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- ⑤ REMODELLING OF SPACE FOR NEW DISSECTION LABORATORY  
擴展教學實驗室的空間



## 瑪麗醫院T座2樓 Queen Mary Hospital 2/F Block T

### SCOPE OF WORKS

- ① BUILDER'S WORKS TO REVAMP LIGHTING SYSTEM  
翻新工程包括改善照明系統
- ② NEW LED WALL FOR LECTURE THEATRES, NO BUILDER'S WORK REQ'D.  
劇院內安裝全新LED牆，不涉及翻新工程
- ③ NEW AV SYSTEM, NO BUILDER'S WORK REQ'D.  
全新視聽系統，不涉及翻新工程
- ④ ENABLEMENT OF AUGMENTED REALITY AND VIRTUAL REALITY ENVIRONMENT  
引進虛擬實境和擴增實境技術
- ⑤ REMODELLING OF SPACE FOR NEW DISSECTION LABORATORY  
擴展教學實驗室的空間





# 平面圖 LAYOUT PLAN

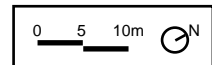
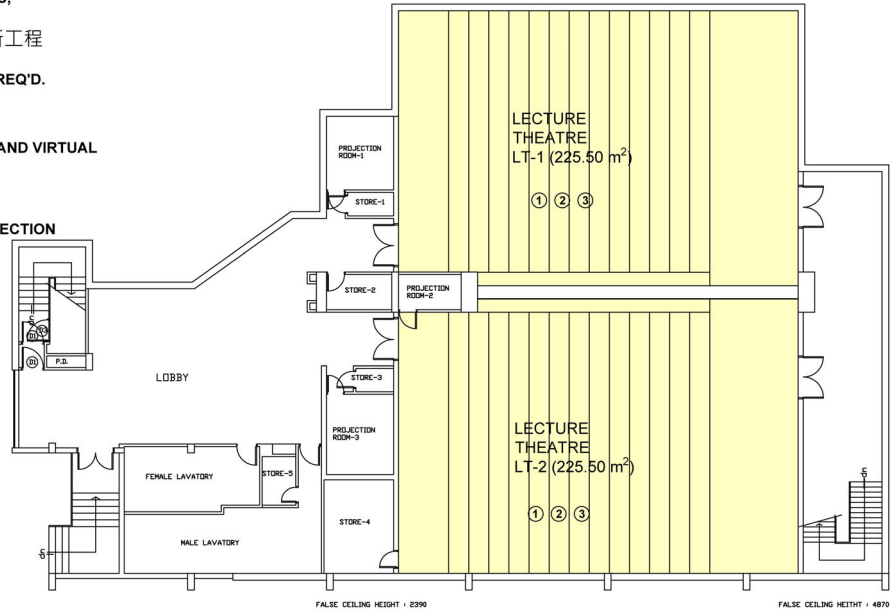
附件2附錄2 (9頁中的第9頁)  
Annex 2 to Enclosure 2 (Page 9 of 9)

## 瑪麗醫院新教授樓LG層 Queen Mary Hospital LG/F New Clinical Building

圖例 LEGEND  
工程範圍  
Works Area

### SCOPE OF WORKS

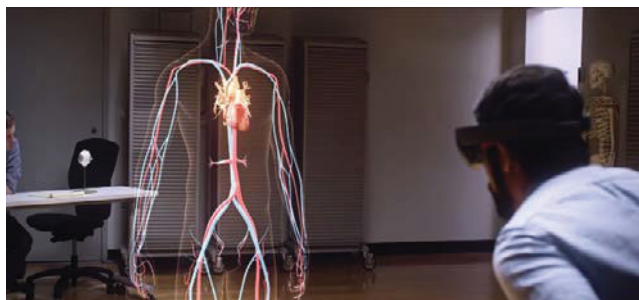
- ① BUILDER'S WORKS TO REVAMP LIGHTING SYSTEM  
翻新工程包括改善照明系統
- ② NEW LED WALL FOR LECTURE THEATRES,  
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REALITY ENVIRONMENT  
引進虛擬實境和擴增實境技術
- ⑤ REMODELLING OF SPACE FOR NEW DISSECTION  
LABORATORY  
擴展教學實驗室的空間





香港大學  
設施提升及醫學院校區發展  
The University of Hong Kong  
Enhancement of Facilities cum Medical Campus Development

引進虛擬實境（VR）和擴增實境（AR）技術以虛擬擴展實驗室教學空間  
Implementation of telepresence solutions and virtual expansion of teaching laboratories with  
Virtual Reality (VR) and Augmented Reality (AR) technologies



資料來源 / Source: renderlounge.com



資料來源 / Source: uploadvr.com



資料來源 / Source: Filmora.wondershare.com



資料來源 / Source: 3D4Medical.com



資料來源 / Source: Fundamentalsurgery.com



Source: Pilot Study at LKS Faculty of Medicine, HKU  
資料來源: 香港大學李嘉誠醫學院的先導性研究



資料來源 / Source: Medicalsimulation.training.com



## Annex 4 to Enclosure 2

### Enhancement of facilities cum medical campus development of The University of Hong Kong

#### Breakdown of the estimates for consultants' fee (in September 2018 prices)

		Estimated man- months	Average MPS* salary point	Multiplier	Estimated fees (\$ million)
(a)	Consultants' fee for contract	Professional	-	-	2.6
	administration for renovation works and implementation of technology-enabled measures <sup>(Note 1)</sup>	Technical	-	-	-
				<b>Total</b>	<b>2.6#</b>

\* MPS = Master Pay Scale

#### Notes

1. The consultants' fee is based on the estimate prepared by HKU. We will only know the actual fees after the award of contract.

#### Remarks

The figure in this Annex is shown in constant price. The figure marked with # is shown in money-of-the-day prices in paragraph 9 of Enclosure 2.