For discussion **FCR(2020-21)3**
on 24 April 2020

ITEM FOR FINANCE COMMITTEE

RECOMMENDATION OF THE PUBLIC WORKS SUBCOMMITTEE ON PUBLIC WORKS PROGRAMME AND CAPITAL SUBVENTION PROJECTS

PURPOSE

This note recommends upgrading part of **61EF** "Construction of a teaching-research complex in Tai Po Area 39" (as **62EF**), part of **65EG** "Enhancement of facilities cum medical campus development" (as **66EG**) and **30EK** "Campus Expansion at Ho Man Tin Slope" to Category A; and retention of the remainders of **61EF** and **65EG** in Category B. This note also provides updates on the estimated cash flows and implementation programme for **61EF**, **65EG** and **30EK**.

JUSTIFICATION

2. The Public Works Subcommittee (PWSC) recommended the Finance Committee (FC) to approve 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 (MOD) prices respectively on 31 May 2019. PWSC also recommended the FC to approve the upgrading of **30EK** to Category A at an estimated cost of $1,418.0 million in MOD prices on 19 June 2019. Members have requested the recommendation on **61EF**, **65EG** and **30EK** should be submitted to the FC for separate voting.
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3. The three proposals were submitted to FC for consideration in July 2019. The Government noted some Members' concerns on the teaching facilities projects. The projects were temporarily withdrawn in November 2019 to allow more time for the Government to explain to the Members. Over the past few months, the Government and representatives of the universities have met with Members to explain the details of the projects.

/4. …..

4. The relevant papers considered by the PWSC (i.e. PWSC(2019-20)13 and PWSC(2019-20)17), with updates shaded in grey, are at Enclosure 1 and Enclosure 2 respectively. We have taken the opportunity to update the cash flows and the implementation programme of the projects. The project scopes as recommended in PWSC(2019-20)13 and PWSC(2019-20)17 remain unchanged.

5. In July 2019, we issued FCR(2019-20)31 and FCR(2019-20)32 inviting Members to approve the upgrading of part of **61EF**, part of **65EG** and **30EK** to Category A; and retention of the remainders of **61EF** and **65EG** in Category B. The papers have not been discussed by the FC. This paper supersedes FCR(2019-20)31 and FCR(2019-20)32.

6. Members are invited to approve the recommendation above.

Financial Services and the Treasury Bureau
April 2020

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 …..

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. …..

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 Annexes 1 and 2.

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 [1] 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 fourth quarter of 2020 for completion in the fourth 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 2023.

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 …..

1 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^2) in net operational floor area (NOFA)[2] 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 Appendix 1 to 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^2.

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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2 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 –

		$ million (in MOD prices)
(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 Appendix 2 to Annex 1 to Enclosure 1.

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

Year	$ million (MOD)
2020 – 2021	11.9
2021 – 2022	20.9
2022 – 2023	23.9
2023 – 2024	3.0
	59.7

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 2020 to 2023. Subject to FC's funding approval, CUHK will engage consultants and contractors to undertake the pre-construction consultancies and surveyig 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 …..

BACKGROUND INFORMATION

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

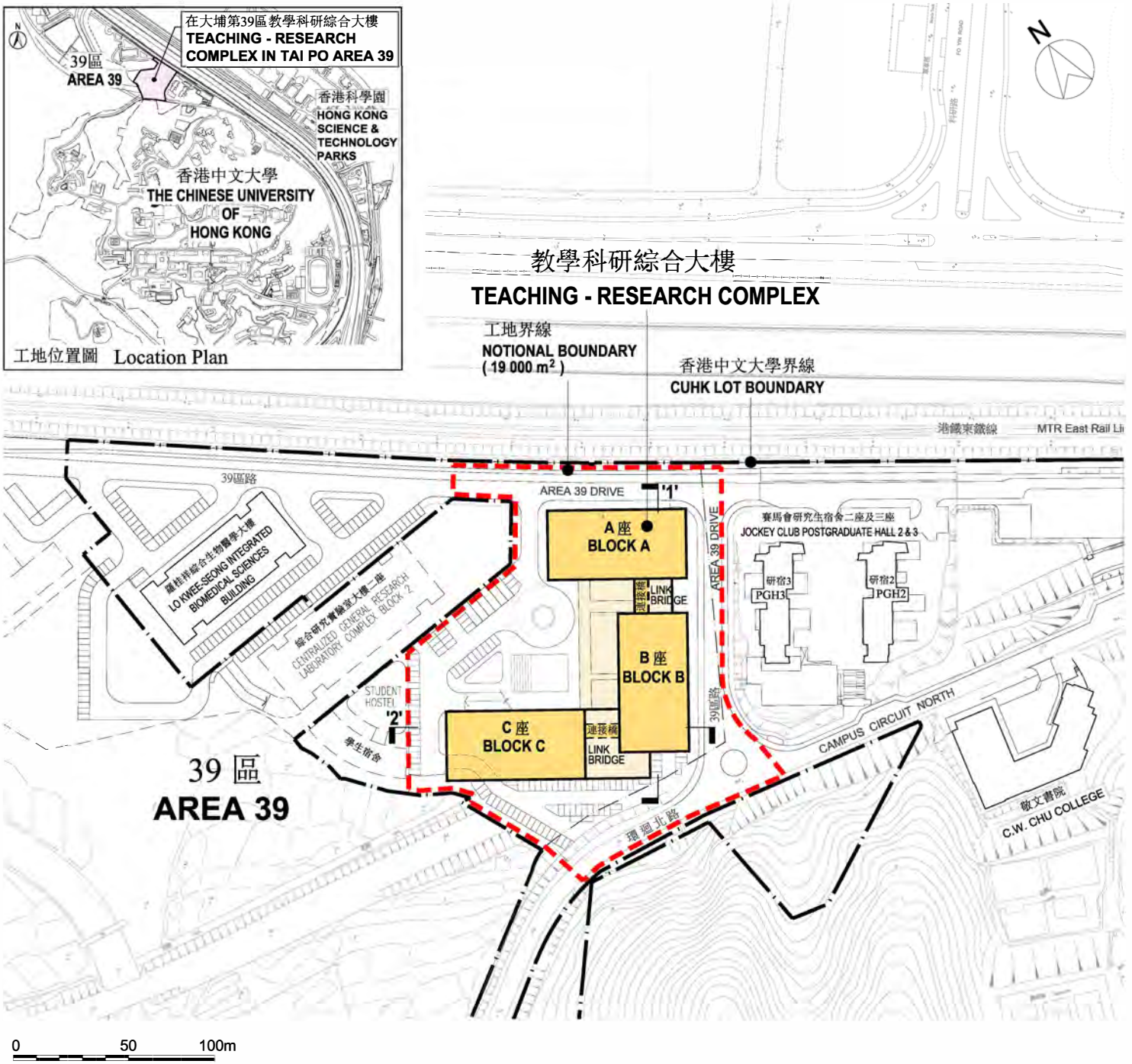
20. The proposed pre-construction activities will not directly involve any tree removal or planting proposals. CUHK will require the consultant to take into consideration the need for tree preservation during the planning and design stages of the project. CUHK will also incorporate tree planting proposals,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

Food and Health Bureau
Education Bureau
May 2019

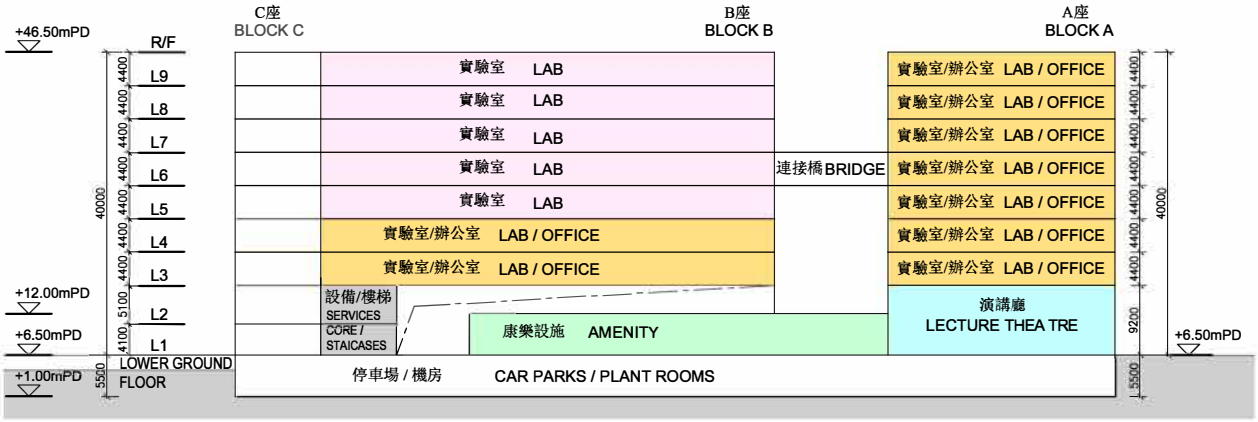
香港中文大學
在大埔第39區興建一座教學科研綜合大樓
The Chinese University of Hong Kong
Construction of a Teaching-research Complex in Tai Po Area 39

工地平面圖 Site Plan

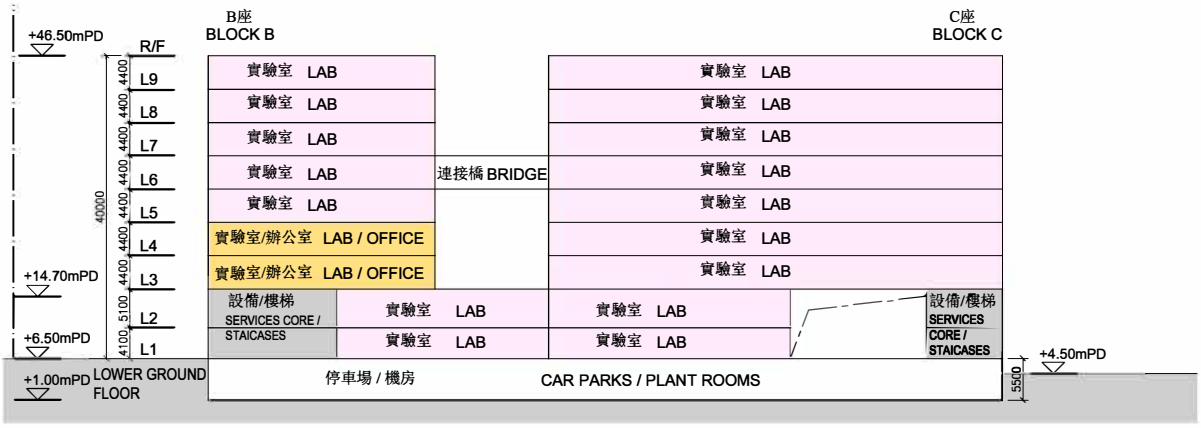


香港中文大學
在大埔第39區興建一座教學科研綜合大樓
The Chinese University of Hong Kong
Construction of a Teaching-research Complex in Tai Po Area 39

截面圖 Sectional Plan



截面圖 1 SECTION 1

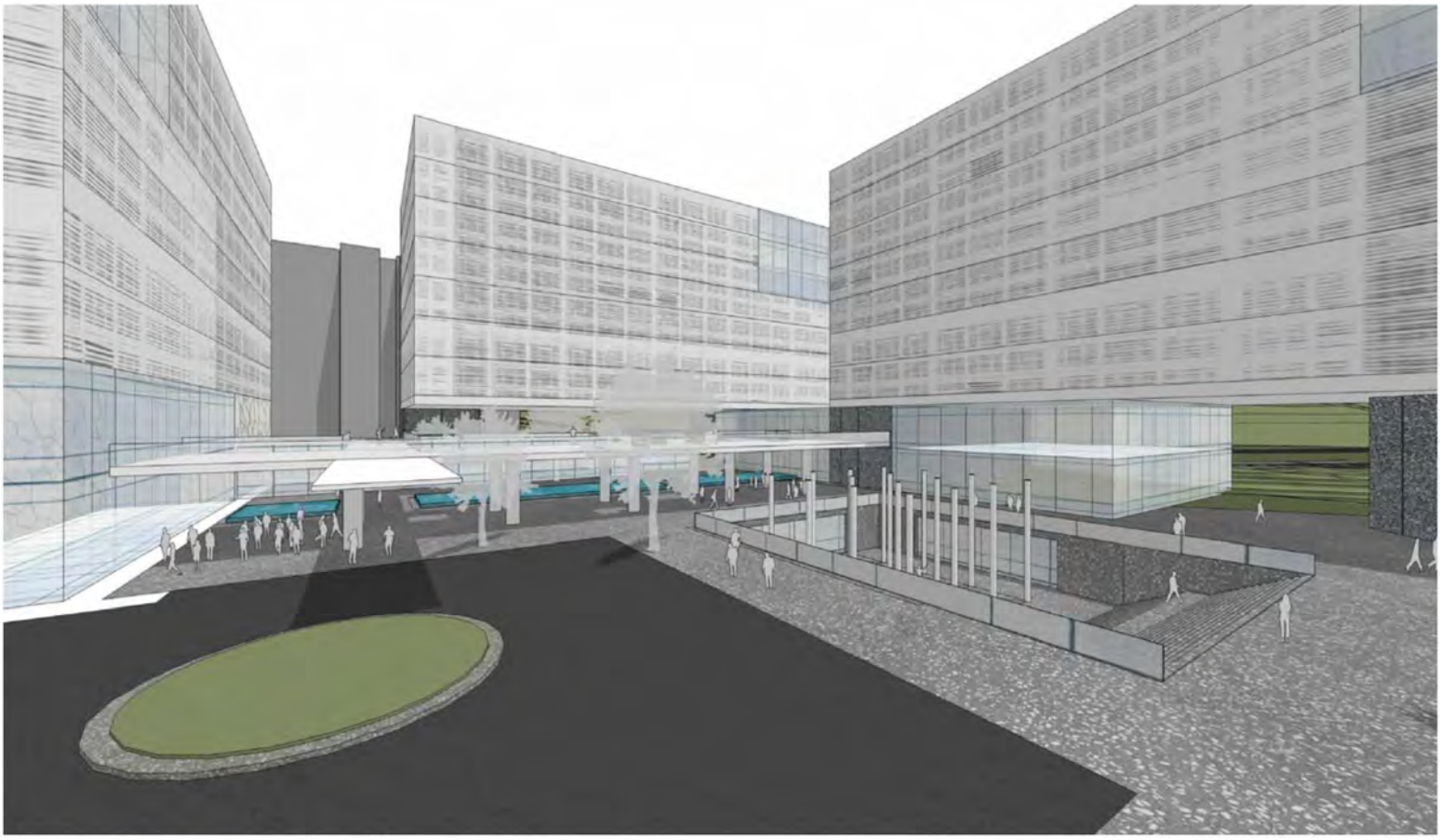


截面圖 2 SECTION 2

0 5 10 20m

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)



Appendix 2 to Annex 1 to Enclosure 1

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

Breakdown of estimates for consultants' fees (in September 2019 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	190	38	2.0	32.6
	Technical	263	14	2.0	15.9
				Total	**48.5**#

* 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 2019, MPS point 38 = $85,870 per month and MPS point 14 = $30,235 per month.)
2. The actual man-months and fees will only be known after the consultants have been selected.

Remarks

The figures in this Appendix 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 Annex 1 to Enclosure 1.

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 2020 for completion in the third quarter of 2021.

/4. …..

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 Appendices 1, 2 and 3 to Annex 2 to Enclosure 1.

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 –

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

/10. …..

1 Building works comprise conversion works at existing teaching venues.

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

3 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 Appendix 4 to Annex 2 to Enclosure 1.

11. The construction floor area (CFA) of this project is approximately 7 347 m^2. The estimated construction unit cost, represented by the building and building services costs, is $1,919 per m^2 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 –

Year	**$ million (MOD)**
2020 – 2021	150.0
2021 – 2022	44.3
	194.3

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 2020 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[4]. 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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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 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.

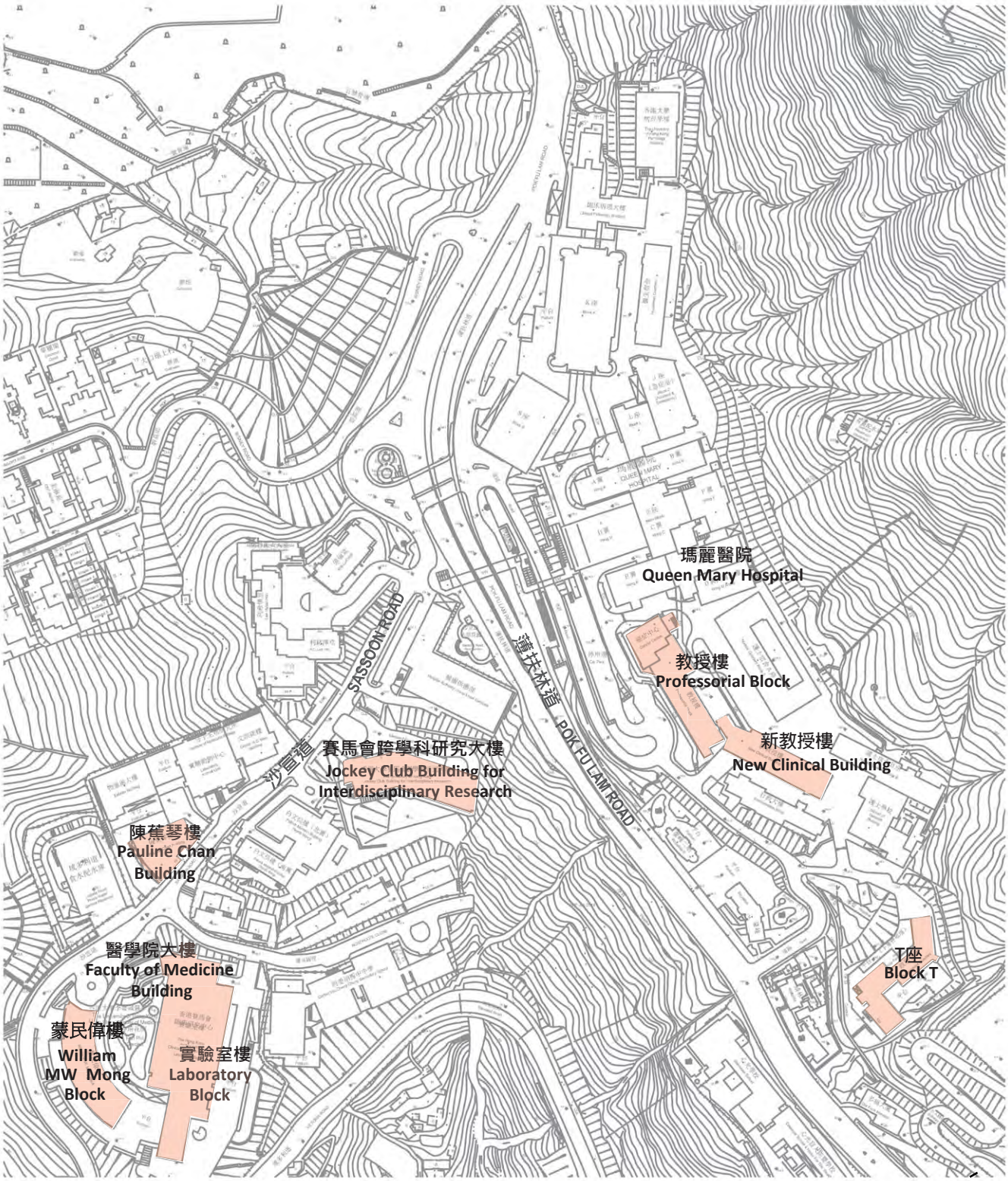
/28. …..

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.

Food and Health Bureau
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

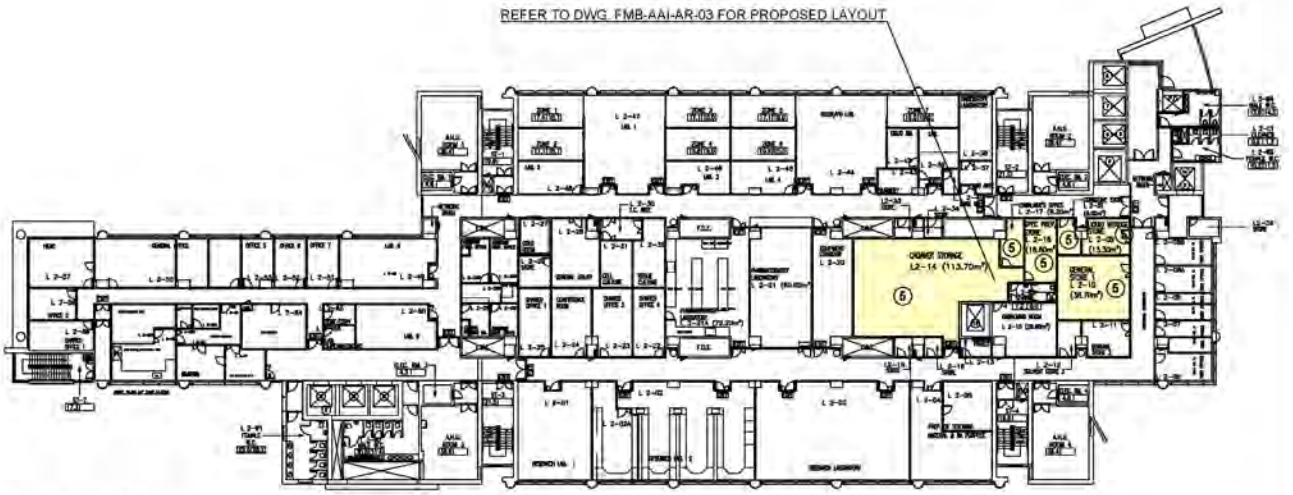
工地平面圖 Site Plan



平面圖
LAYOUT PLAN

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



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

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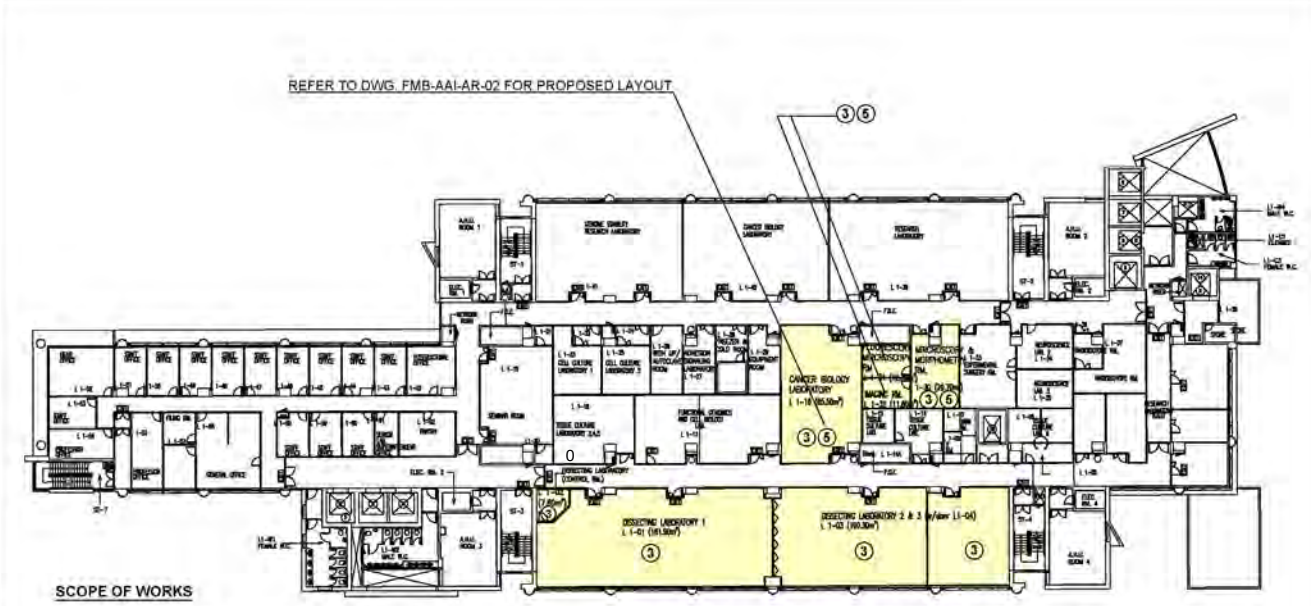
醫學院大樓實驗室樓1樓
Faculty of Medicine Building 1/F Laboratory Block



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

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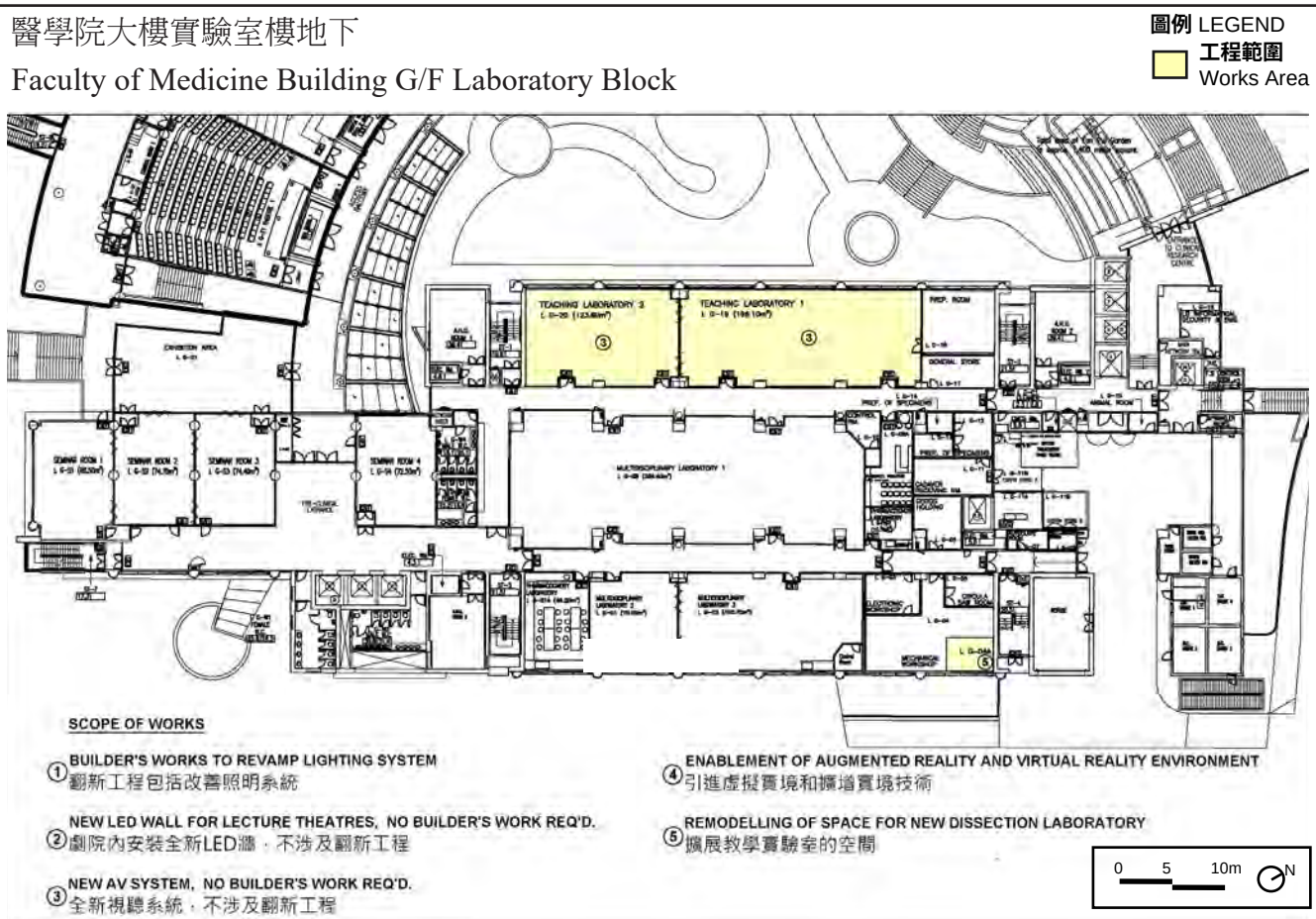
平面圖
LAYOUT PLAN

醫學院大樓實驗室樓地下

Faculty of Medicine Building G/F Laboratory Block



醫學院大樓蒙民偉樓3樓

Faculty of Medicine Building 3/F William MW Mong Block

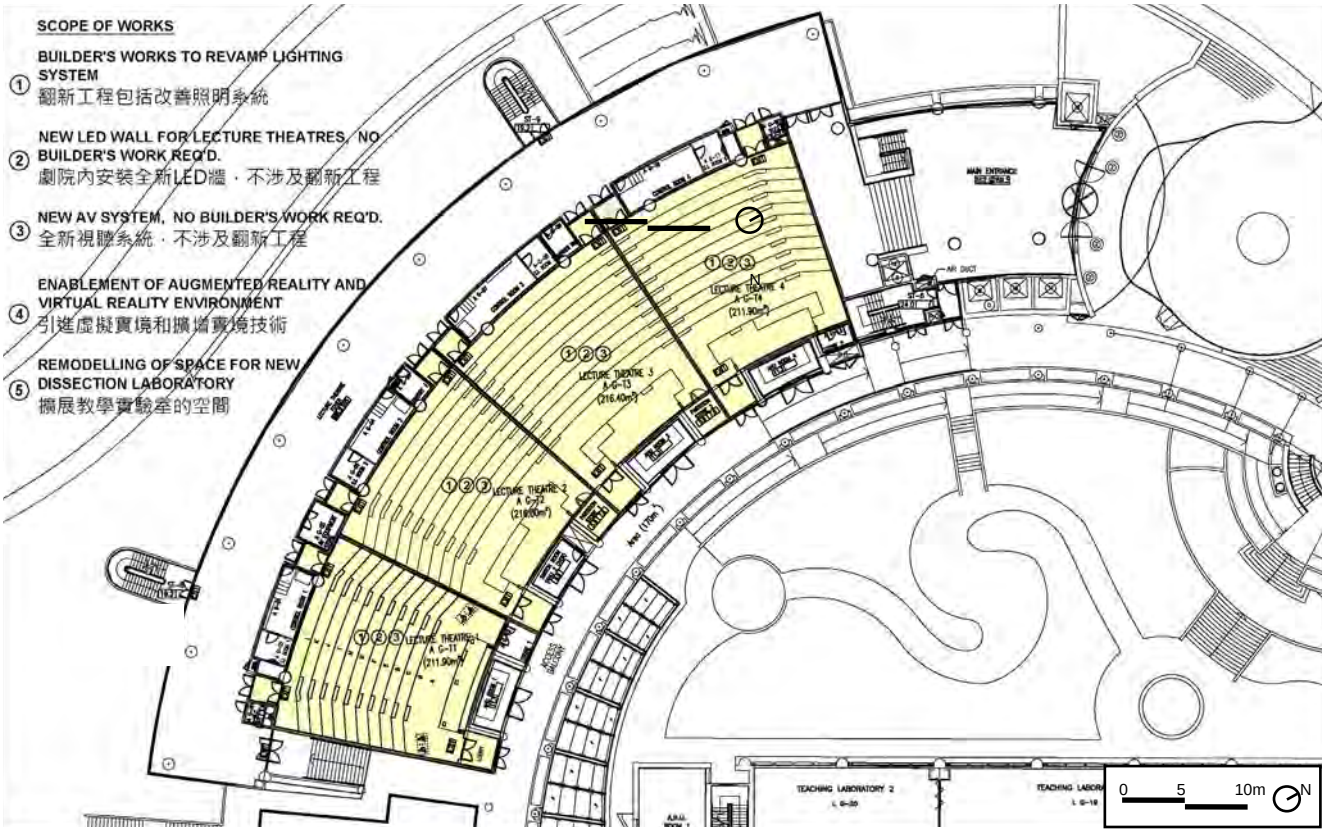
香港大學設施提升及醫學院校區發展

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

平面圖
LAYOUT PLAN

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

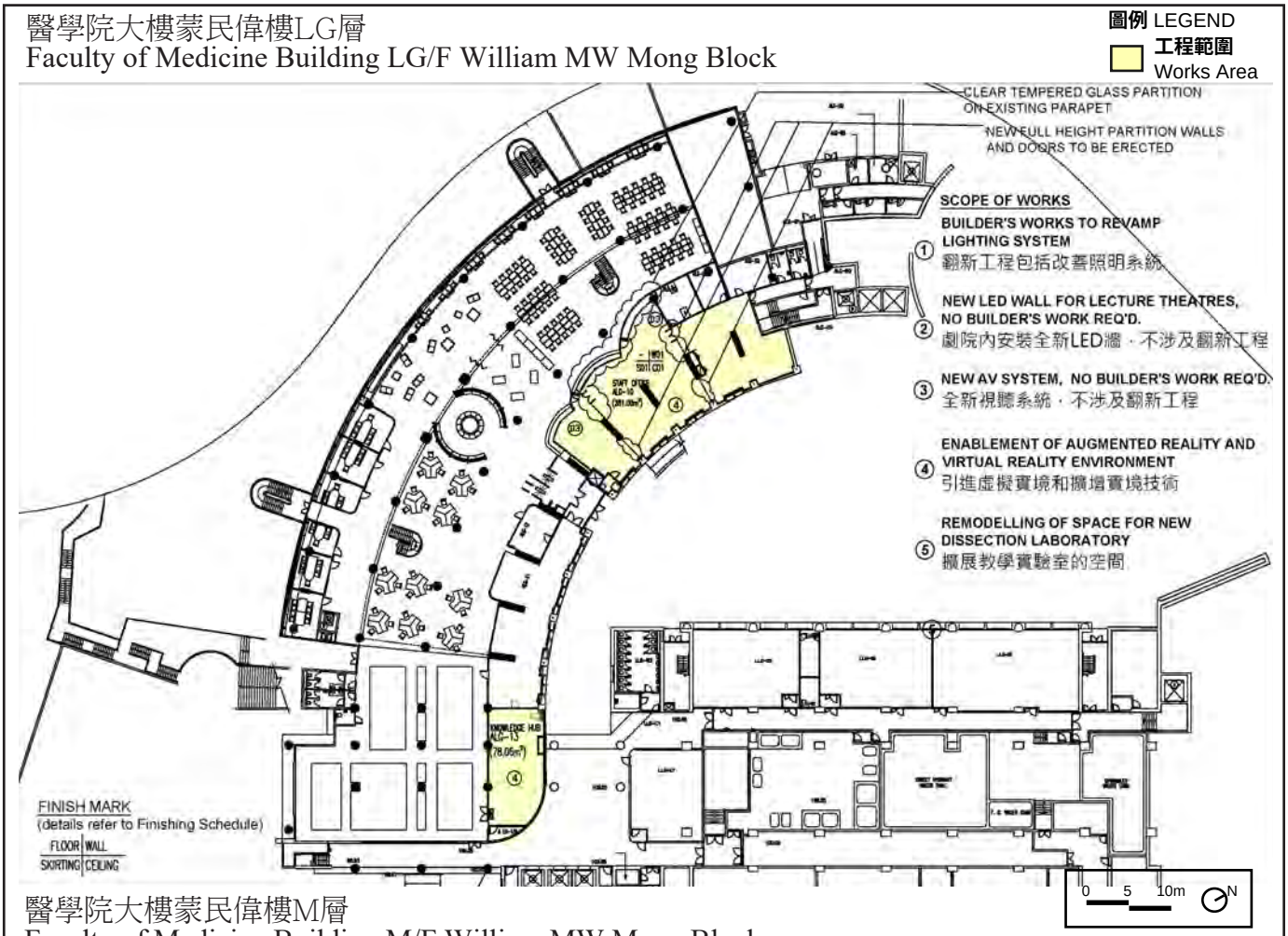
醫學院大樓蒙民偉樓地下
Faculty of Medicine Building G/F William MW Mong Block



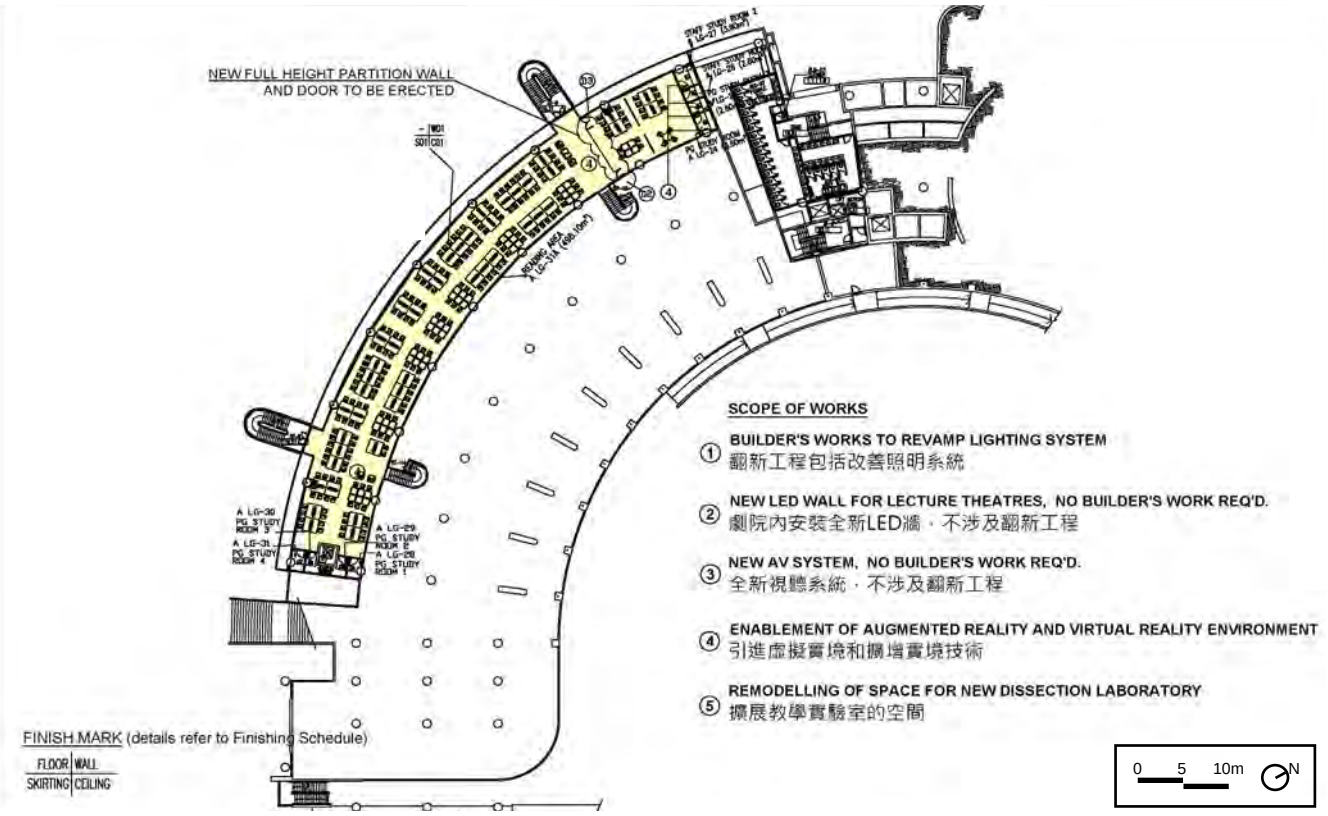
香港大學設施提升及醫學院校區發展
The University of Hong Kong - Enhancement of Facilities cum Medical Campus Development

平面圖
FLOOR LAYOUT PLAN

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



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

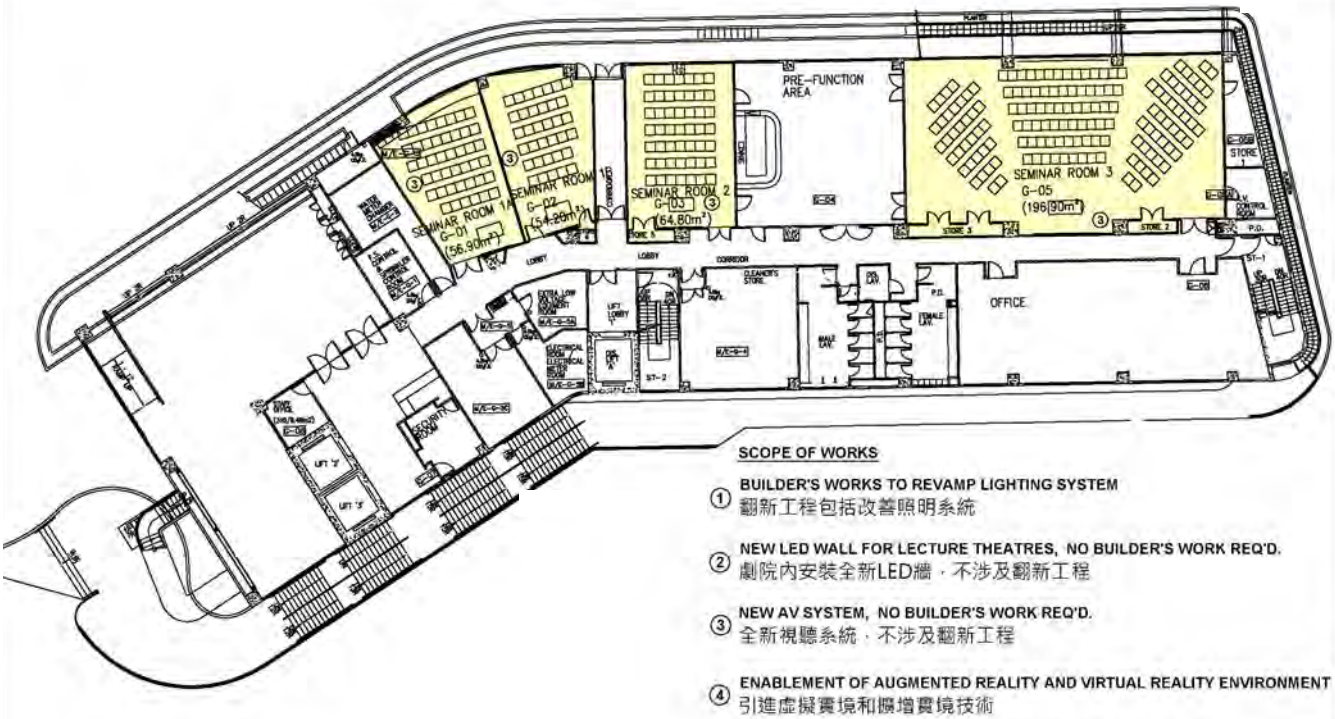


香港大學設施提升及醫學院校區發展
The University of Hong Kong - Enhancement of Facilities cum Medical Campus Development

平面圖
LAYOUT PLAN

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



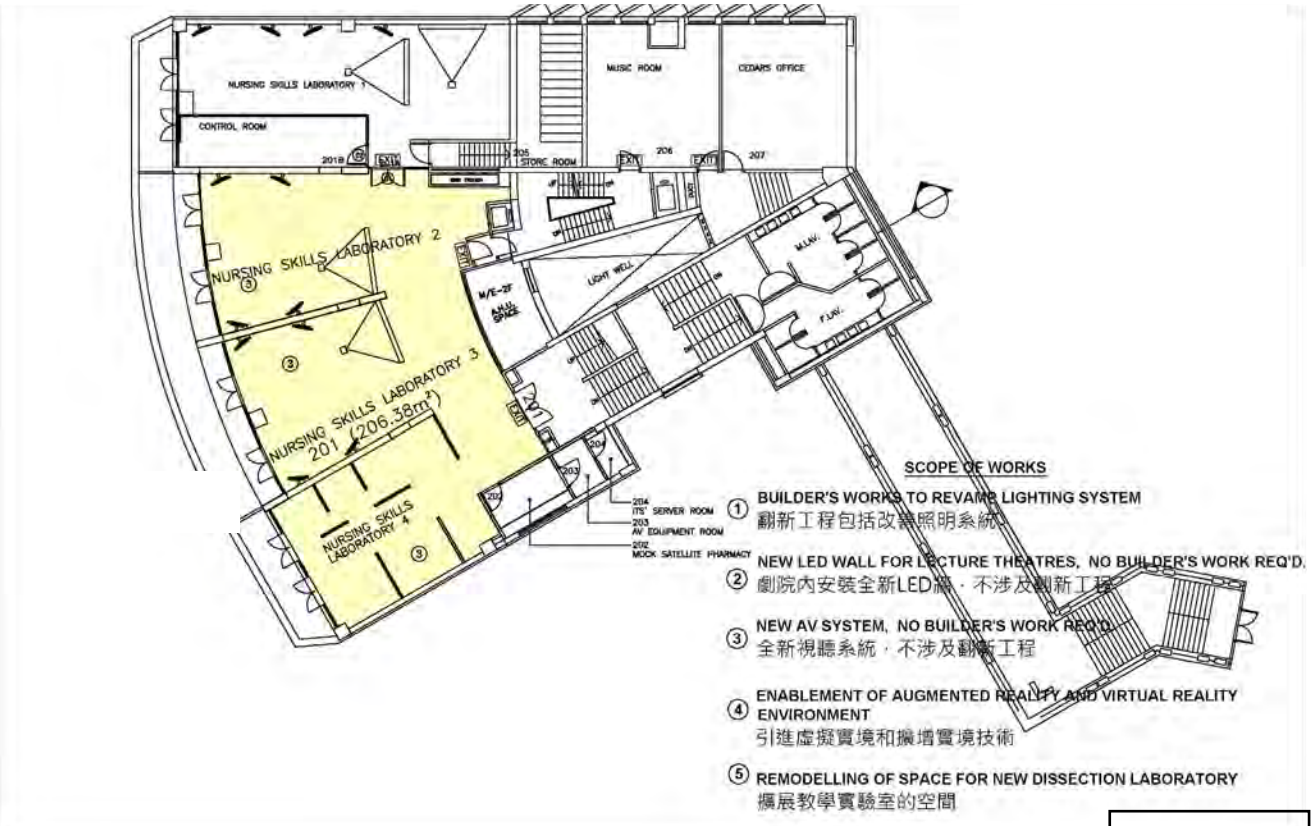
醫學院陳蕉琴樓3樓
Faculty of Medicine 3/F Pauline Chan Building

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

圖例 LEGEND
工程範圍
Works Area

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



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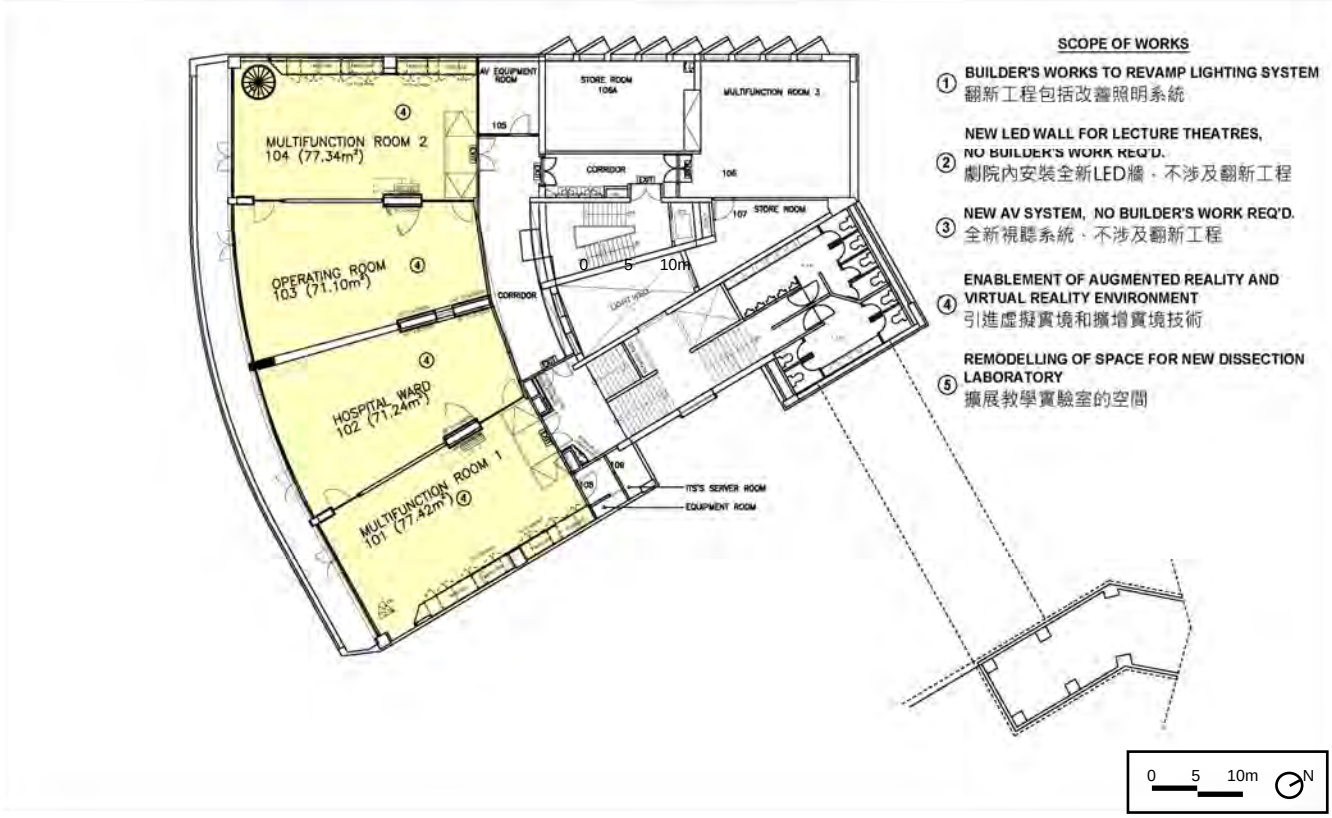
Faculty of Medicine 1/F Pauline Chan Building

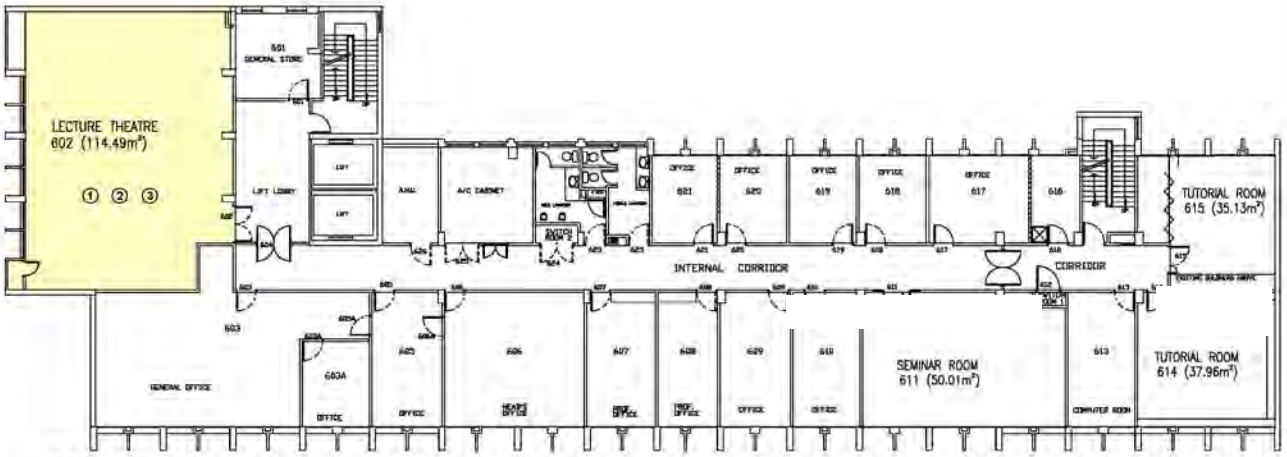


香港大學設施提升及醫學院校區發展
The University of Hong Kong - Enhancement of Facilities cum Medical Campus Development

平面圖
LAYOUT PLAN

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

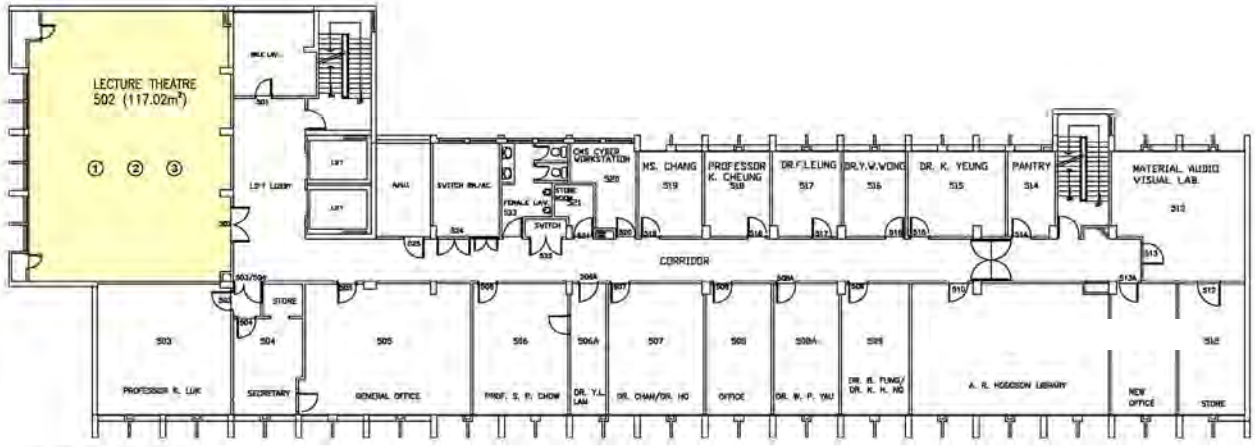
③ **NEW AV SYSTEM, NO BUILDER'S WORK REQ'D.**
全新視聽系統，不涉及翻新工程

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

0 5 10m N

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



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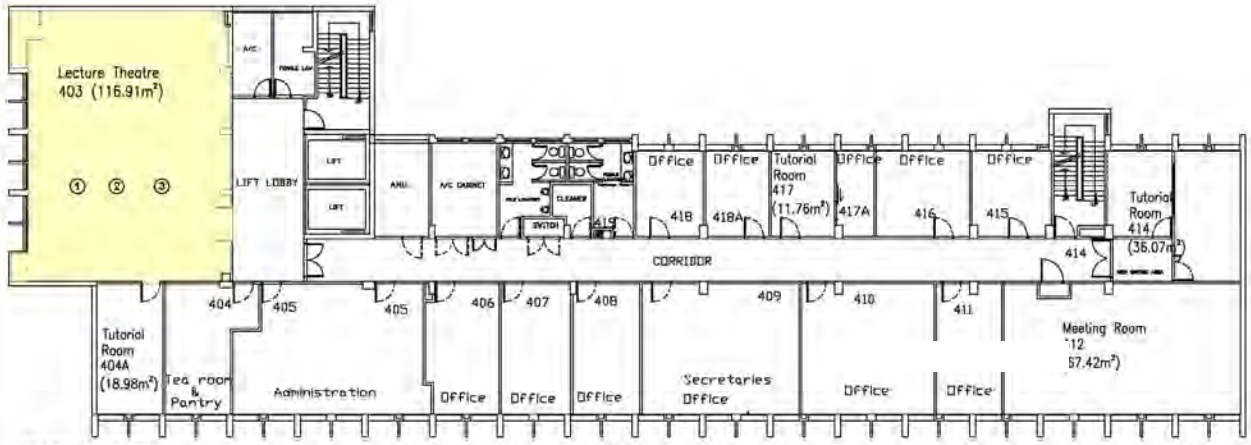
香港大學設施提升及醫學院校區發展
The University of Hong Kong - Enhancement of Facilities cum Medical Campus Development

平面圖
LAYOUT PLAN

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

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翻新工程包括改善照明系統

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⑤ REMODELLING OF SPACE FOR NEW DISSECTION LABORATORY
擴展教學實驗室的空間

0 5 10m N

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

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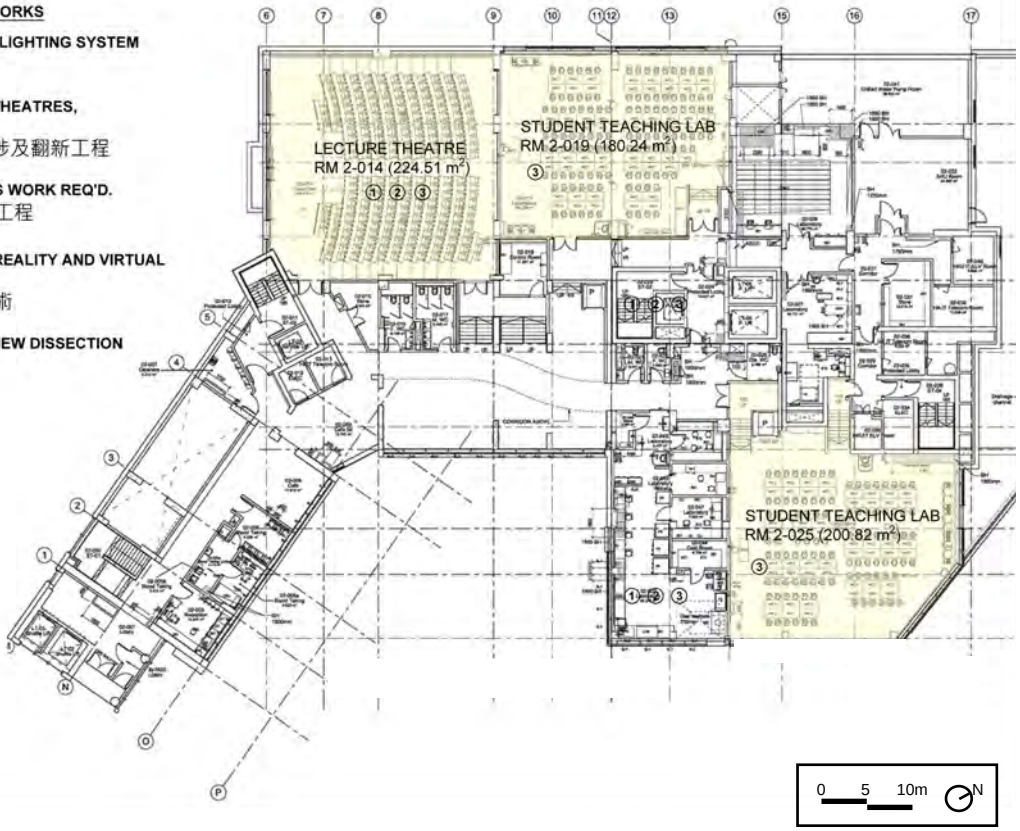
⑤ REMODELLING OF SPACE FOR NEW DISSECTION LABORATORY
擴展教學實驗室的空間



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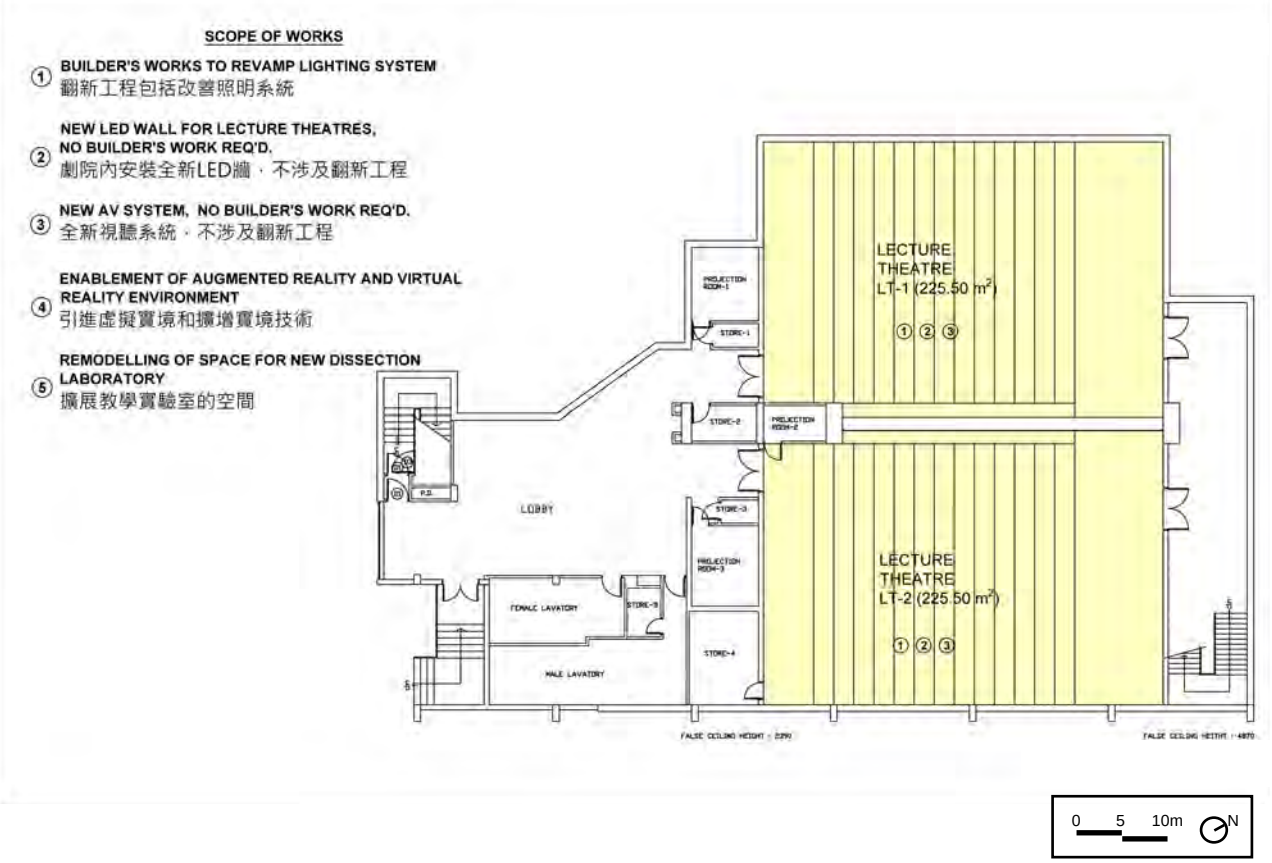
香港大學設施提升及醫學院校區發展
The University of Hong Kong - Enhancement of Facilities cum Medical Campus Development

平面圖
LAYOUT PLAN

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

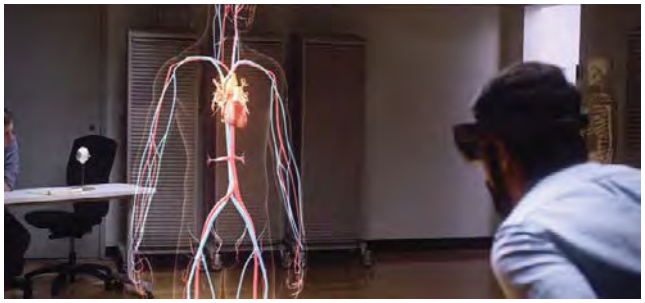
圖例 LEGEND
工程範圍
Works Area



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

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



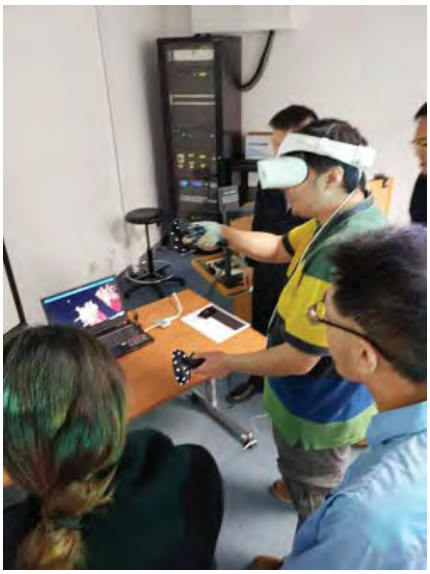
資料來源 / Source: renderlounge.com

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

Appendix 4 to Annex 2 to Enclosure 1

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

Breakdown of the estimates for consultants' fee (in September 2019 prices)

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

* 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 Appendix is shown in constant price. The figure marked with # is shown in money-of-the-day prices in paragraph 9 of Annex 2 to Enclosure 1.

HEAD 708 - CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT

Universities
The Hong Kong Polytechnic University
30EK – Campus Expansion at Ho Man Tin Slope

Members are invited to recommend to the Finance Committee the upgrading of **30EK** to Category A at an estimated cost of $1,418.0 million in money-of-the-day prices for campus expansion for The Hong Kong Polytechnic University.

PROBLEM

The campus of the Hong Kong Polytechnic University (PolyU) needs expansion to enable the university to deliver the health-related training needs for allied health services for Hong Kong.

PROPOSAL

2. 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 **30EK** to Category A at an estimated cost of $1,418.0 million in money-of-the-day (MOD) prices for construction of an academic building at Ho Man Tin Slope.

/PROJECT …..

PROJECT SCOPE AND NATURE

3. The site occupies an area of around 11 800 square meters (m^2). The scope of works comprises the construction of an eleven-storey academic and administration building, providing approximately 10 344 m^2 in net operation floor area[1] (NOFA). The following facilities will be provided by the project –

(a) classrooms and lecture theatres of about 720 m^2 in NOFA;

(b) teaching and research laboratories of about 7 354 m^2 in NOFA;

(c) study spaces of about 220 m^2 in NOFA;

(d) offices of about 1 890 m^2 in NOFA;

(e) support and amenities facilities of about 160 m^2 in NOFA; and

(f) public open space from ground floor to the podium deck, including two pedestrian walkways linking Oi Sen Path with Chung Hau Street.

4. Site and location plans, floor plans, view of the building (artist's impression), sectional plans and a list of facilities are at Annexes 1 to 5 to Enclosure 2 respectively. Subject to funding approval of the Finance Committee (FC), PolyU plans to start construction works in the third quarter of 2020 for completion by 2026. To meet the works programme, PolyU invited tenders for the site formation and foundation works of the project in March 2019. Tender will only be awarded after obtaining FC's funding approval.

JUSTIFICATION

5. In order to increase the manpower of healthcare professionals, the Government has substantially increased the number of healthcare-related training

/places …..

1 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.

places by about 60% (from about 1 150 to about 1 800) in the past decade. In the 2019/20 to 2021/22 UGC triennium, the Government will further increase the number of healthcare-related UGC-funded first-year-first-degree annual intake places of PolyU by 45 for each academic year (including 20 nursing, 20 physiotherapy and 5 optometry).

6. The development parameters of the project are generally based on PolyU's planning application as approved by the Town Planning Board in March 2016.

7. The academic building will provide additional teaching and research facilities for students of the Department of Rehabilitation Science and the School of Optometry, which is in line with the 2018 Policy Address on increasing healthcare manpower to meet the needs of the society.

8. The project will provide health clinics, publicly accessible open space, landscaped area and pedestrian routes linking Oi Sen Path with Chung Hau Street with a view to serving the local community.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the project to be $1,418 million in MOD prices, broken down as follows –

		$ million (in MOD prices)
(a)	Site development	76.6
(b)	Piling	167.7
(c)	Building	416.6
(d)	Building services	255.8
(e)	Drainage	92.8
(f)	External works	147.1
(g)	Soft landscaping	16.2

/(h) …..

			$ million (in MOD prices)
(h)	Additional energy conservation, green and recycled features		24.8
(i)	Furniture and equipment		64.9
(j)	Consultants' fees for		23.8
	(i) Contract administration	8.7	
	(ii) Site supervision		
	(1) Management of resident site staff (RSS)	1.6	
	(2) Remuneration of resident site staff (RSS)	13.5	
(k)	Contingencies		131.7
		Total	1,418.0

10. PolyU will engage consultants to undertake contract administration and site supervision of the construction of the project. A detailed breakdown of the estimates for consultants' fees and resident site staff costs by man-months is at Annex 6 to Enclosure 2.

11. The construction floor area (CFA) of this project is approximately 18 978 m^2. The estimated construction unit cost, represented by the building and building services costs, is $35,430 per m^2 of CFA in MOD prices. The D Arch S considers, taking into account the building form, site constraint, the relative percentage of laboratory space and the statutory conditions imposed on the development, the estimated construction unit cost is reasonable as compared with similar projects for UGC-funded universities. A detailed account of the CFA vis-à-vis the construction unit cost of **30EK** is at Annex 7 to Enclosure 2.

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

/**Year** …..

Year	$ million (MOD)
2020-2021	42.9
2021-2022	64.8
2022-2023	152.6
2023-2024	387.0
2024-2025	383.9
2025-2026	268.2
2026-2027	42.9
2027-2028	44.4
2028-2029	31.3
	1,418.0

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 2020 to 2029. PolyU will award the contracts on a lump-sum basis as PolyU can clearly define the scope of works in advance. The contracts will provide for price adjustment.

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

PUBLIC CONSULTATION

15. The proposed new academic building is located on government land at a slope site in Ho Man Tin opposite to its main campus. Before the planning application was approved in 2016, PolyU consulted the Housing and Infrastructure Committee of the Kowloon City District Council on the project on 7 March 2013. Members generally supported the project. PolyU also consulted its staff and students on the project in various presentation and discussion sessions[2]. No adverse comment on the project has been received and the project is generally supported by the University community.

/16. …..

2 Regular meetings with the user departments have been conducted to consult their comments on the projects. The project is also presented to staff and student during the PolyU 80th Anniversary Exhibition on Campus Development & Green Deck during 3 November to 8 December 2018.

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, an information note was issued on 23 May 2019.

ENVIRONMENTAL IMPLICATIONS

17. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). It will not cause any long-term adverse environmental impact. We have included in the project estimates the cost to implement suitable mitigation measures to control short term environmental impacts.

18. During construction, PolyU will control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of mitigation measures in the relevant contract. These include the use of silencers, mufflers, acoustic lining or shields for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities. When the buildings are in use, PolyU will equip all noise sensitive rooms in the proposed development with central air conditioning system and well-gasketted windows / glass wall system to abate road traffic noise impact from nearby roads.

19. At the planning and design stages, PolyU has considered measures (e.g. the optimisation of the foundation layout by suitable piling design and the use of metal hoarding frameworks and signboards so that these materials can be recycled and reused in other projects) to reduce the generation of construction waste where possible. In addition, PolyU will require the contractor to reuse inert construction waste (e.g. excavated materials) on 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 facilities[3]. PolyU 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. …..

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3 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.

20. At the construction stage, PolyU will also require the contractor to submit for approval a plan setting out waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. PolyU will ensure that the day-to-day operations on site comply with the approved plan. PolyU will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. PolyU 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. PolyU estimates that the project will generate in total about 44 440 tonnes of construction waste. Of these, PolyU will reuse about 9 360 tonnes (21%) of inert construction waste on site, and deliver 30 620 tonnes (69%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, PolyU will dispose of 4 460 tonnes (10%) of non-inert construction waste at landfills. The total cost of accommodating construction waste at public fill reception facilities and landfill sites, together with the cost for handling mixed inert and non-inert construction waste at sorting facilities, is estimated to be $3.1 million for this project (based on a unit cost of $71/tonne for disposal at public fill reception facilities and $200 /tonne at landfills respectively as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).

ENERGY CONSERVATION, GREEN AND RECYCLED FEATURES

22. This project will adopt various forms of energy efficient features and renewable energy technologies, in particular –

(a) variable speed drive for chillers;

(b) demand control of supply air;

(c) heat energy reclaim of exhaust air;

(d) building energy management system; and

(e) photovoltaic system.

23. For greening features, this project will provide green roof and landscape features/ greening provisions for better building environmental performance. The external wall will also be partially screened by vertical greening.

/24. …..

24. For recycled features, we will adopt rainwater harvesting system and grey water recycling system for landscape irrigation and toilet flushing respectively.

25. The total estimated additional cost for adoption of the above features is around $24.8 million (including $2.4 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

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

LAND ACQUISITION

27. The project does not require any land acquisition.

BACKGROUND INFORMATION

28. 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), 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) …..

(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).

HKU and CUHK have presented funding proposals for their short to medium expansion needs. This paper focuses on the PolyU.

29. To meet the short to medium term expansion needs, PolyU now proposes constructing an academic building at Ho Man Tin Slope with a view to coping with the additional UGC-funded healthcare training places as specified by the Government. For the long-term works project, the Government will continue to assist PolyU to actively plan for relevant expansion.

30. We upgraded **30EK** to Category B in October 2015. PolyU engaged consultants to carry out topographical survey, site investigation, preliminary design, detailed design and to prepare tender documents at a total cost of $14.3 million. We charged this amount to block allocation **Subhead 8100EX** "Alterations, additions, repairs and improvements to the campuses of UGC-funded institutions". The consultants have completed the topographical survey, site

/investigation …..

investigation, preliminary design and detailed design of the project. Parallel tendering for foundation and site formation works has been adopted in this project.

31. The project will involve felling of 61 trees. All trees to be felled are not important trees[4]. PolyU will incorporate planting proposals as part of the project, including estimated quantities of 278 trees, 11 000 shrubs, 130 000 ground covers and 1 500 m^2 turfs.

32. We estimate that the proposed works will create about 360 jobs (325 for labourers and 35 for professional or technical staff) providing a total employment of 10 800 man-months.

Food and Health Bureau
Education Bureau
June 2019

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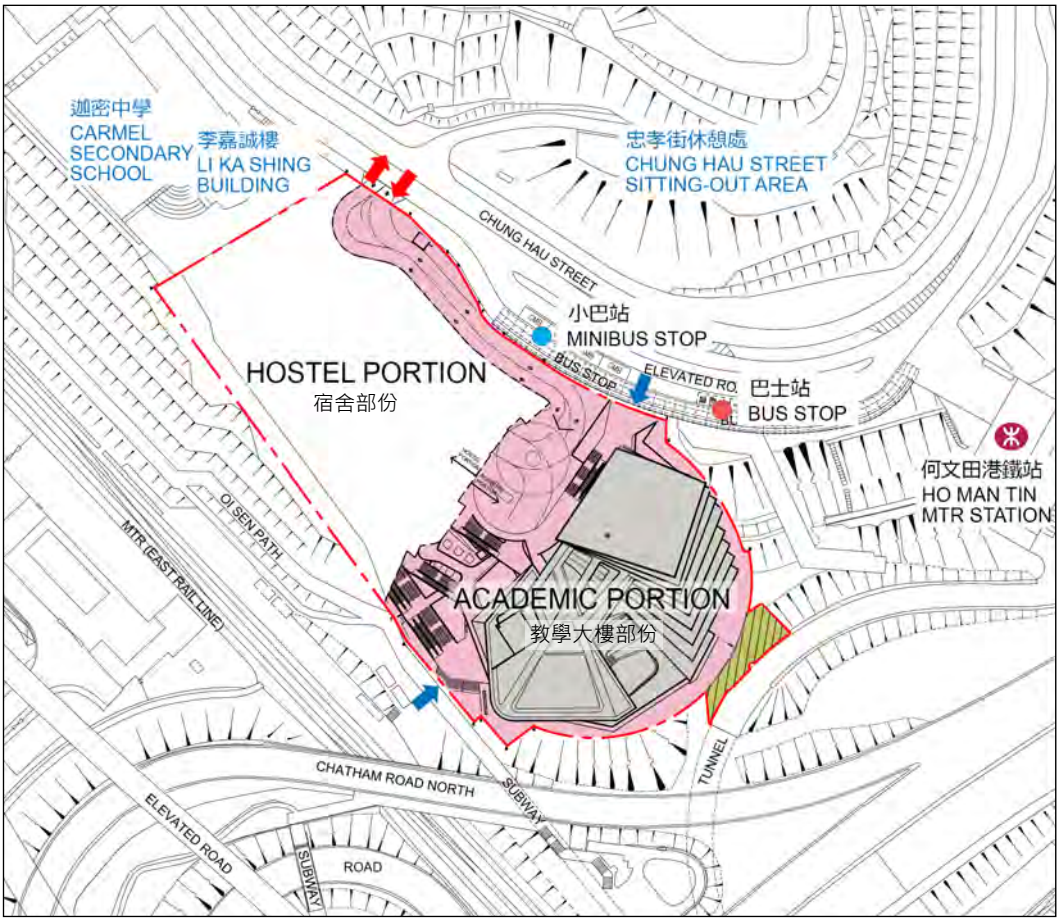
4 "Important trees" refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

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

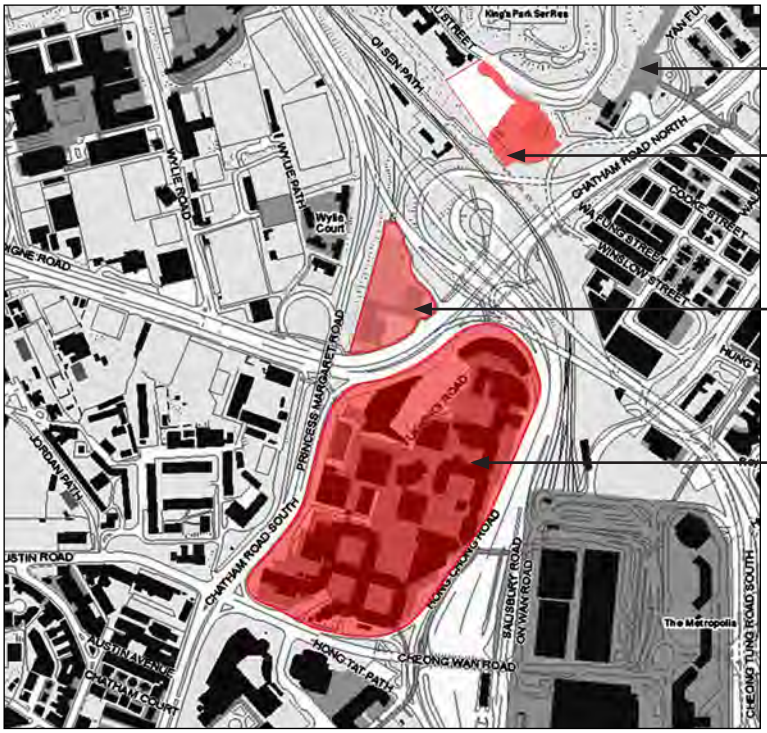


SITE AREA
(excluding green hatched black area):
11800 m²
工地面積
(綠色黑影地帶除外): 11800 平方米

- SITE AREA FOR HOSTEL PORTION: 6853 m²
宿舍工地面積 : 6853 平方米

- SITE AREA FOR ACADEMIC PORTION: 4947 m²
教學大樓工地面積 : 4947 平方米

SITE PLAN
工地平面圖 SCALE 1:1500



Ho Man Tin Station 何文田站

The Hong Kong Polytechnic University - Campus Expansion at Ho Man Tin Slope
香港理工大學 – 何文田斜坡校園擴建工程

The Hong Kong Polytechnic University Phase 8 香港理工大學第八期

The Hong Kong Polytechnic University
香港理工大學校園

LOCATION PLAN
位置圖

車輛出入口
VEHICULAR INGRESS / EGRESS

行人出入口
PEDESTRIAN ENTRANCE / EXIT

工地界線
SITE BOUNDARY

綠色黑影線地帶
GREEN HATCHED BLACK AREA


5m 0m 10m 20m
N
地下平面圖
GROUND FLOOR PLAN
圖例 LEGENDS
行人出入口
PEDESTRIAN ENTRANCE / EXIT
無障礙通道
BARRIER-FREE ACCESS
公眾通道
PUBLIC ACCESS
垂直種植
VERTICAL GREEN
公眾休憩用地
PUBLIC OPEN SPACE
綠化範圍 (公眾休憩用地)
LANDSCAPED AREA CUM PUBLIC OPEN SPACE
暢通易達升降機
ACCESSIBLE LIFT
暢通易達洗手間
ACCESSIBLE TOILET
公用地方
COMMON AREA
教學研究實驗室
TEACHING / RESEARCH LAB
綜合教學 / 演講廳
GENERAL TEACHING / LECTURE THEATRES
學習空間
STUDY SPACE
輔助設施
SUPPORT FACILITIES
OI SEN PATH 愛晨徑
LIFT LOBBY 入口大堂


0m 5m 10m 20m 40m
N
一樓平面圖
FIRST FLOOR PLAN
圖例 LEGENDS
無障礙通道
BARRIER-FREE ACCESS
公眾通道
PUBLIC ACCESS
綠化範圍
LANDSCAPED AREA
暢通易達升降機
ACCESSIBLE LIFT
暢通易達洗手間
ACCESSIBLE TOILET
公用地方
COMMON AREA
教學研究實驗室
TEACHING / RESEARCH LAB
輔助設施
SUPPORT FACILITIES
HOSTEL PORTION
宿舍部份
ACADEMIC PORTION
教學大樓部份
LIFT LOBBY 入口大堂

5m 0m 10m 20m

二樓平面圖
SECOND FLOOR PLAN

圖例 LEGENDS

- 無障礙通道 BARRIER-FREE ACCESS
- 公眾通道 PUBLIC ACCESS
- 綠化範圍 LANDSCAPED AREA
- 暢通易達升降機 ACCESSIBLE LIFT
- 暢通易達洗手間 ACCESSIBLE TOILET
- 公用地方 COMMON AREA
- 教學研究實驗室 TEACHING / RESEARCH LAB
- 學習空間 STUDY SPACE
- 輔助設施 SUPPORT FACILITIES

0m 5m 10m 20m 40m

三樓平面圖
THIRD FLOOR PLAN

圖例 LEGENDS

- 無障礙通道 BARRIER-FREE ACCESS
- 公眾通道 PUBLIC ACCESS
- 垂直種植 VERTICAL GREEN
- 綠化範圍 LANDSCAPED AREA
- 暢通易達升降機 ACCESSIBLE LIFT
- 暢通易達洗手間 ACCESSIBLE TOILET
- 公用地方 COMMON AREA
- 教學研究實驗室 TEACHING / RESEARCH LAB
- 學習空間 STUDY SPACE
- 輔助設施 SUPPORT FACILITIES

5m 0m 10m 20m

四樓平面圖
FOURTH FLOOR PLAN

圖例 LEGENDS

- 無障礙通道 BARRIER-FREE ACCESS
- 公眾通道 PUBLIC ACCESS
- 綠化範圍 LANDSCAPED AREA
- 暢通易達升降機 ACCESSIBLE LIFT
- 暢通易達洗手間 ACCESSIBLE TOILET
- 公用地方 COMMON AREA
- 教學研究實驗室 TEACHING / RESEARCH LAB
- 學習空間 STUDY SPACE
- 輔助設施 SUPPORT FACILITIES

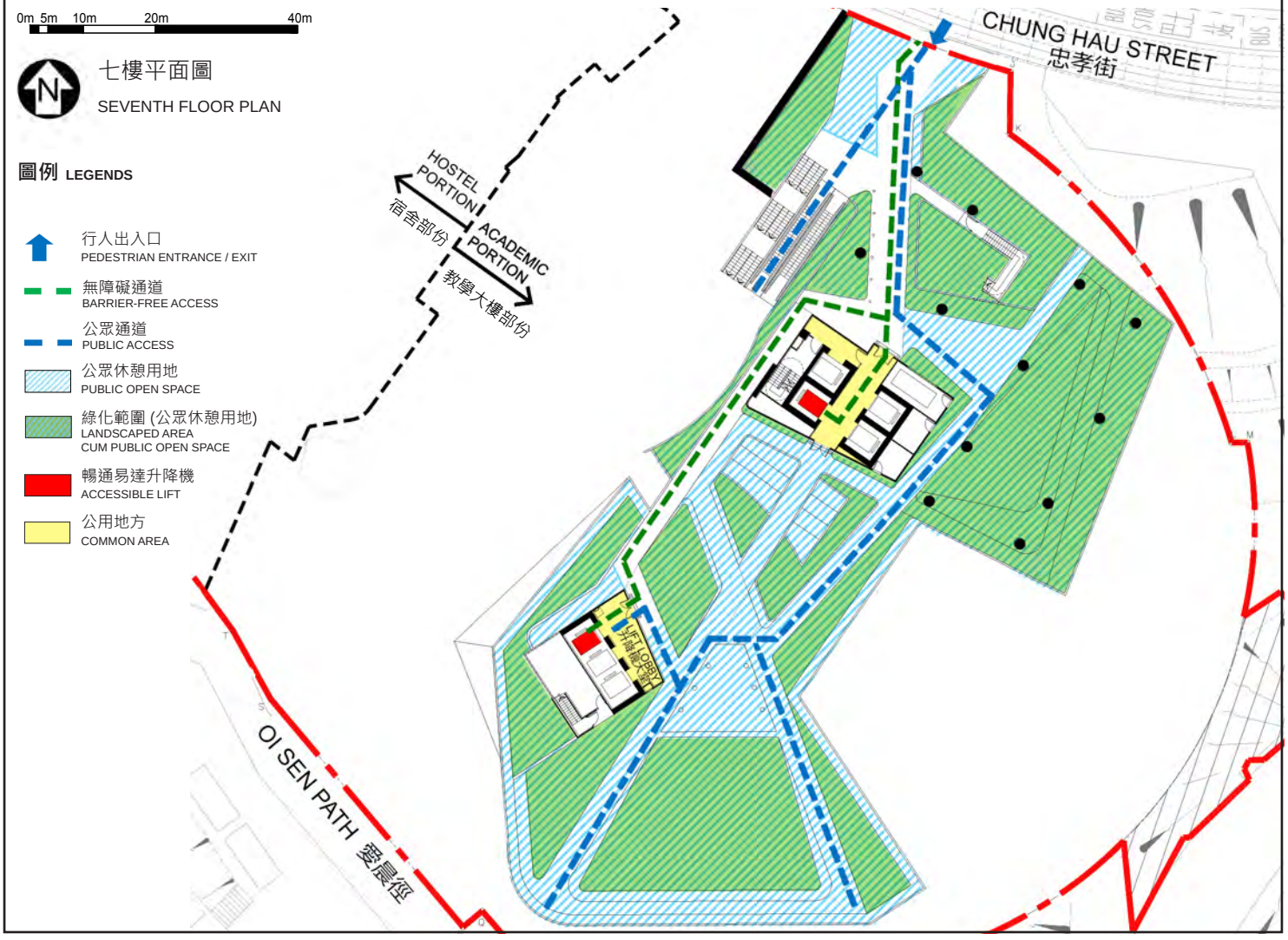
0m 5m 10m 20m 40m

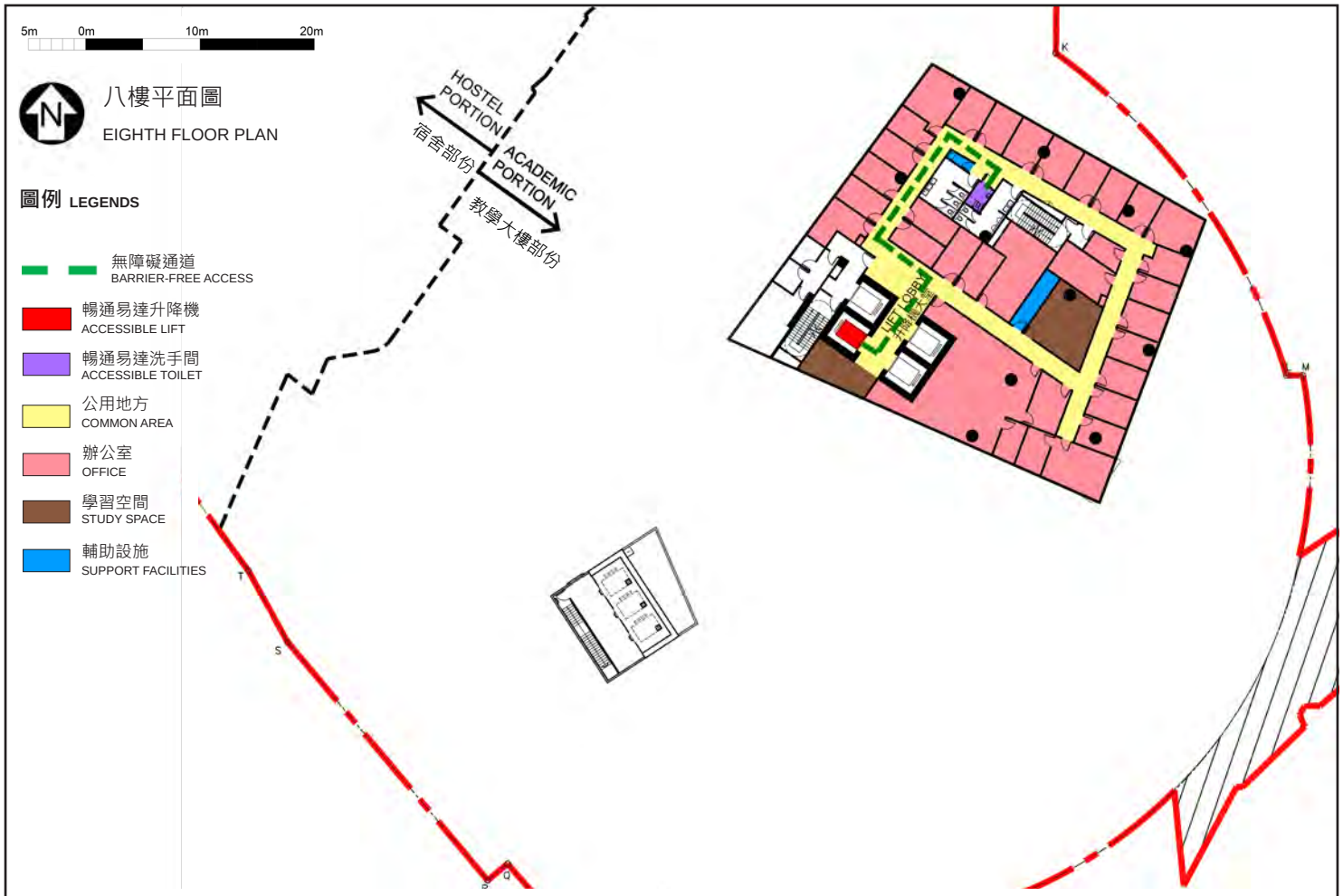
五樓平面圖
FIFTH FLOOR PLAN

圖例 LEGENDS

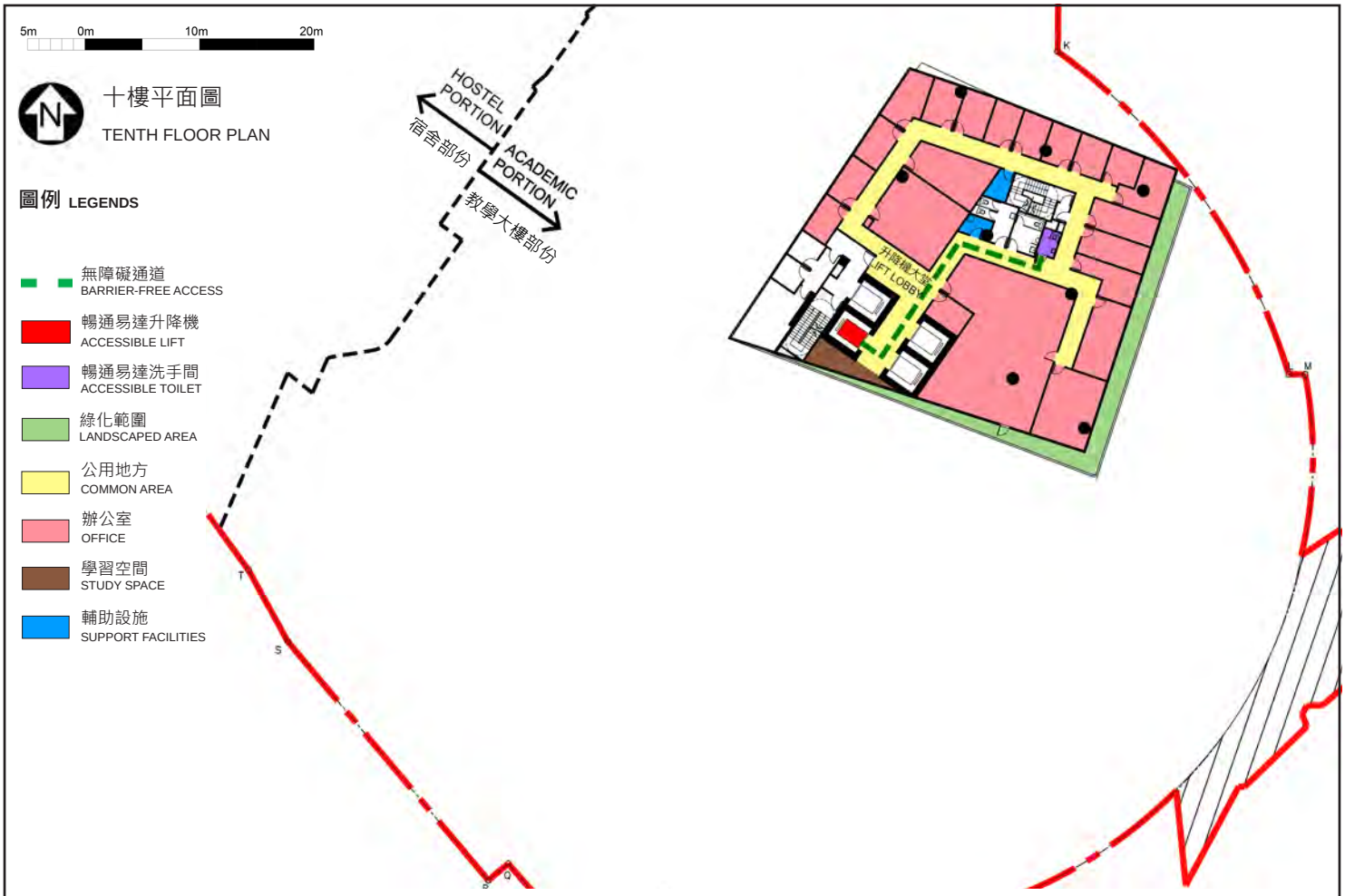
- 無障礙通道 BARRIER-FREE ACCESS
- 公眾通道 PUBLIC ACCESS
- 綠化範圍 LANDSCAPED AREA
- 暢通易達升降機 ACCESSIBLE LIFT
- 暢通易達洗手間 ACCESSIBLE TOILET
- 公用地方 COMMON AREA
- 教學研究實驗室 TEACHING / RESEARCH LAB
- 學習空間 STUDY SPACE
- 輔助設施 SUPPORT FACILITIES


5m 0m 10m 20m
六樓平面圖
SIXTH FLOOR PLAN
圖例 LEGENDS
車輛出入口
VEHICULAR INGRESS / EGRESS
無障礙通道
BARRIER-FREE ACCESS
公眾通道
PUBLIC ACCESS
綠化範圍
LANDSCAPED AREA
暢通易達升降機
ACCESSIBLE LIFT
暢通易達洗手間
ACCESSIBLE TOILET
公用地方
COMMON AREA
教學研究實驗室
TEACHING / RESEARCH LAB
輔助設施
SUPPORT FACILITIES
E. V. A.
緊急車輛通道
HOSTEL PORTION
宿舍部份
ACADEMIC PORTION
教學大樓部份
LIFT LOBBY
升降機大堂


0m 5m 10m 20m 40m
七樓平面圖
SEVENTH FLOOR PLAN
圖例 LEGENDS
行人出入口
PEDESTRIAN ENTRANCE / EXIT
無障礙通道
BARRIER-FREE ACCESS
公眾通道
PUBLIC ACCESS
公眾休憩用地
PUBLIC OPEN SPACE
綠化範圍 (公眾休憩用地)
LANDSCAPED AREA
CUM PUBLIC OPEN SPACE
暢通易達升降機
ACCESSIBLE LIFT
公用地方
COMMON AREA
CHUNG HAU STREET
忠孝街
HOSTEL PORTION
宿舍部份
ACADEMIC PORTION
教學大樓部份
LIFT LOBBY
升降機大堂
OI SEN PATH 愛晨徑


5m 0m 10m 20m
八樓平面圖
EIGHTH FLOOR PLAN
圖例 LEGENDS
無障礙通道
BARRIER-FREE ACCESS
暢通易達升降機
ACCESSIBLE LIFT
暢通易達洗手間
ACCESSIBLE TOILET
公用地方
COMMON AREA
辦公室
OFFICE
學習空間
STUDY SPACE
輔助設施
SUPPORT FACILITIES
HOSTEL PORTION
宿舍部份
ACADEMIC PORTION
教學大樓部份
LIFT LOBBY
升降機大堂
K
M
T
S
Q

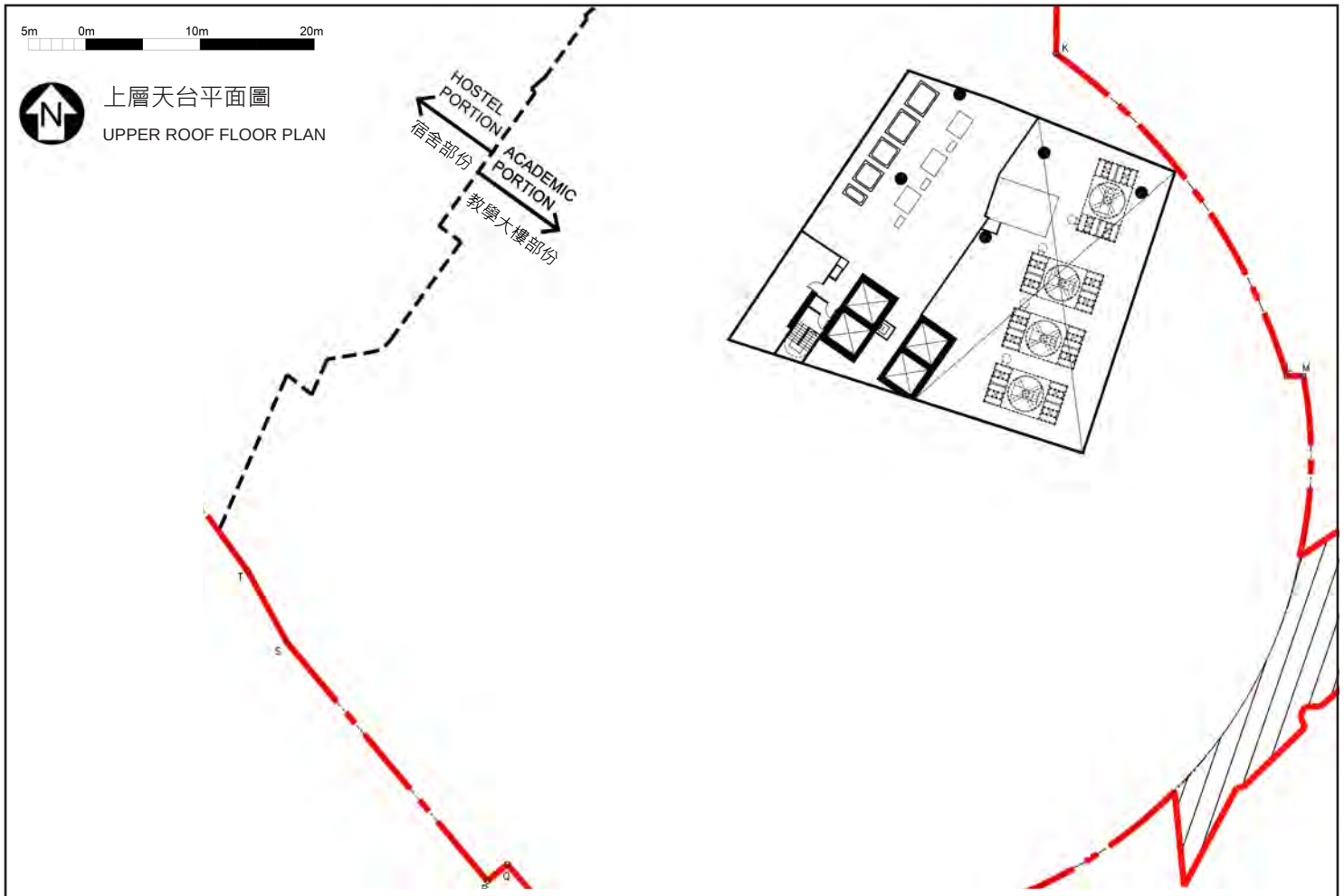

0m 5m 10m 20m 40m
九樓平面圖
NINTH FLOOR PLAN
圖例 LEGENDS
無障礙通道
BARRIER-FREE ACCESS
暢通易達升降機
ACCESSIBLE LIFT
暢通易達洗手間
ACCESSIBLE TOILET
綠化範圍
LANDSCAPED AREA
公用地方
COMMON AREA
辦公室
OFFICE
學習空間
STUDY SPACE
輔助設施
SUPPORT FACILITIES
HOSTEL PORTION
宿舍部份
ACADEMIC PORTION
教學大樓部份
LIFT LOBBY
升降機大堂
K
M
T
S
R
Q
N
P


5m 0m 10m 20m
十樓平面圖
TENTH FLOOR PLAN
圖例 LEGENDS
無障礙通道
BARRIER-FREE ACCESS
暢通易達升降機
ACCESSIBLE LIFT
暢通易達洗手間
ACCESSIBLE TOILET
綠化範圍
LANDSCAPED AREA
公用地方
COMMON AREA
辦公室
OFFICE
學習空間
STUDY SPACE
輔助設施
SUPPORT FACILITIES
HOSTEL PORTION
宿舍部份
ACADEMIC PORTION
教學大樓部份
升降機大堂
LIFT LOBBY
K
M
T
S
Q


0m 5m 10m 20m 40m
天台平面圖
ROOF FLOOR PLAN
圖例 LEGENDS
暢通易達升降機
ACCESSIBLE LIFT
公用地方
COMMON AREA
HOSTEL PORTION
宿舍部份
ACADEMIC PORTION
教學大樓部份
K
M
T
S
R
Q
N
P

5m 0m 10m 20m

上層天台平面圖
UPPER ROOF FLOOR PLAN

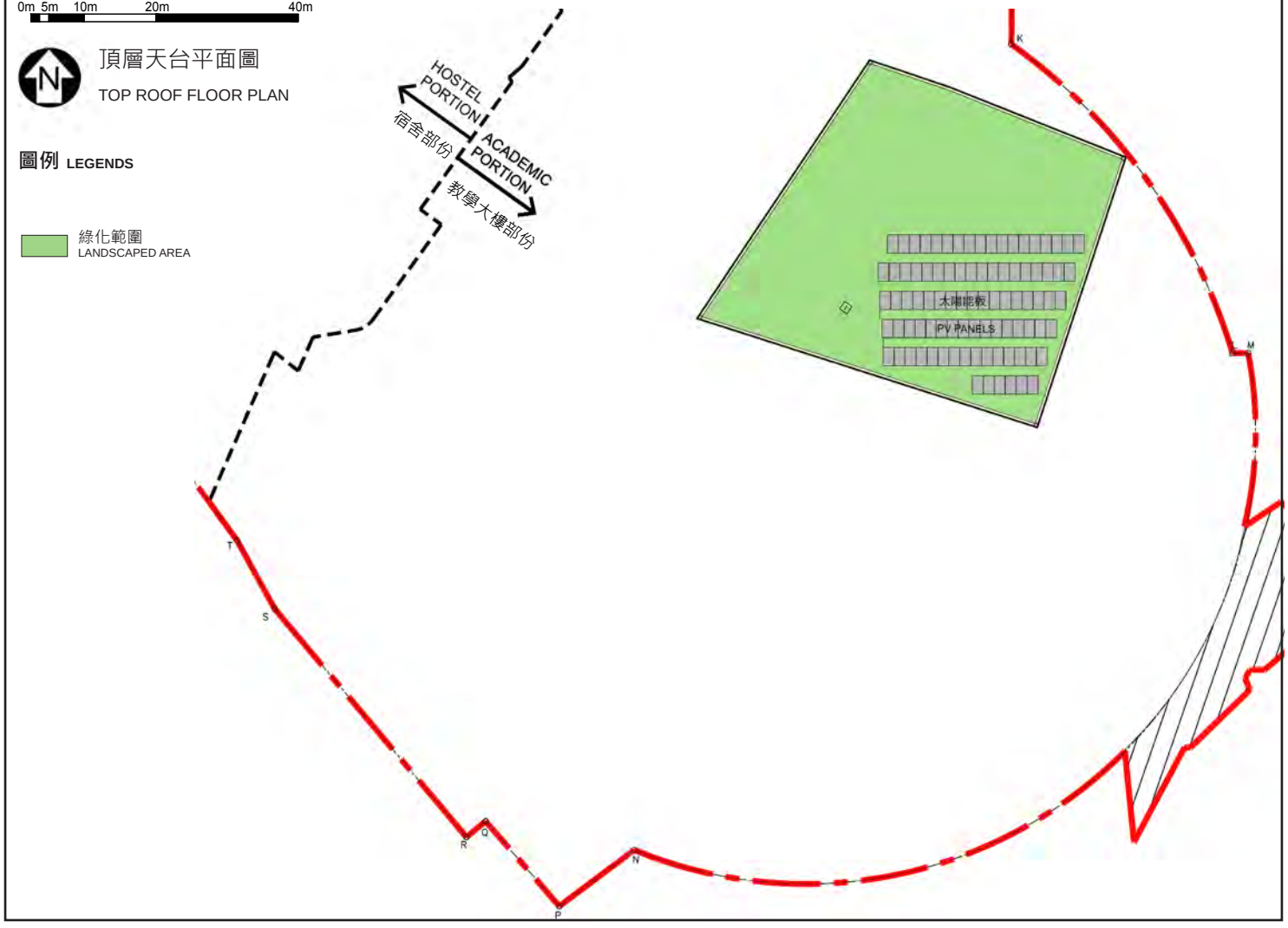


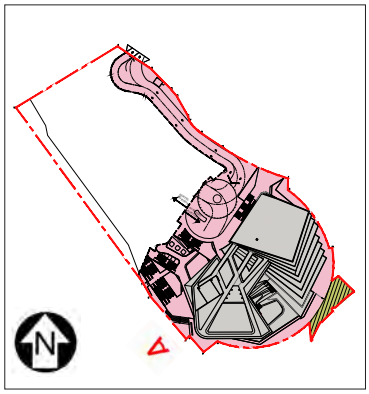
0m 5m 10m 20m 40m

頂層天台平面圖
TOP ROOF FLOOR PLAN

圖例 LEGENDS

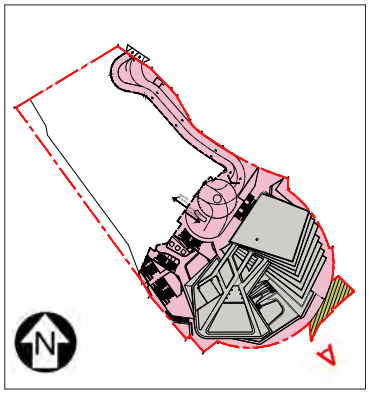
綠化範圍
LANDSCAPED AREA





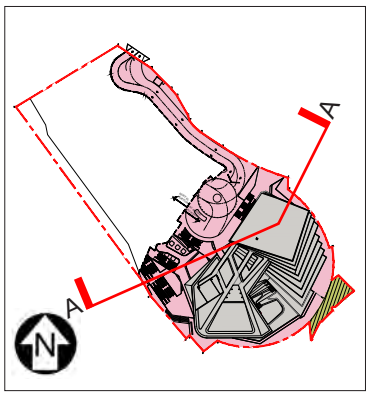
從西南面望向教學大樓的構思圖

VIEW OF ACADEMIC BUILDING FROM SOUTHWEST (ARTIST'S IMPRESSION)



從東南面望向教學大樓的構思圖

VIEW OF ACADEMIC BUILDING FROM SOUTHEAST (ARTIST'S IMPRESSION)



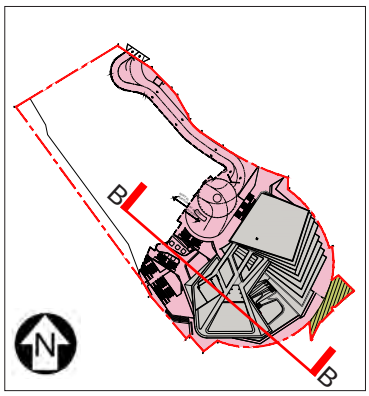
5m 0m 10m 20m

圖例 LEGENDS

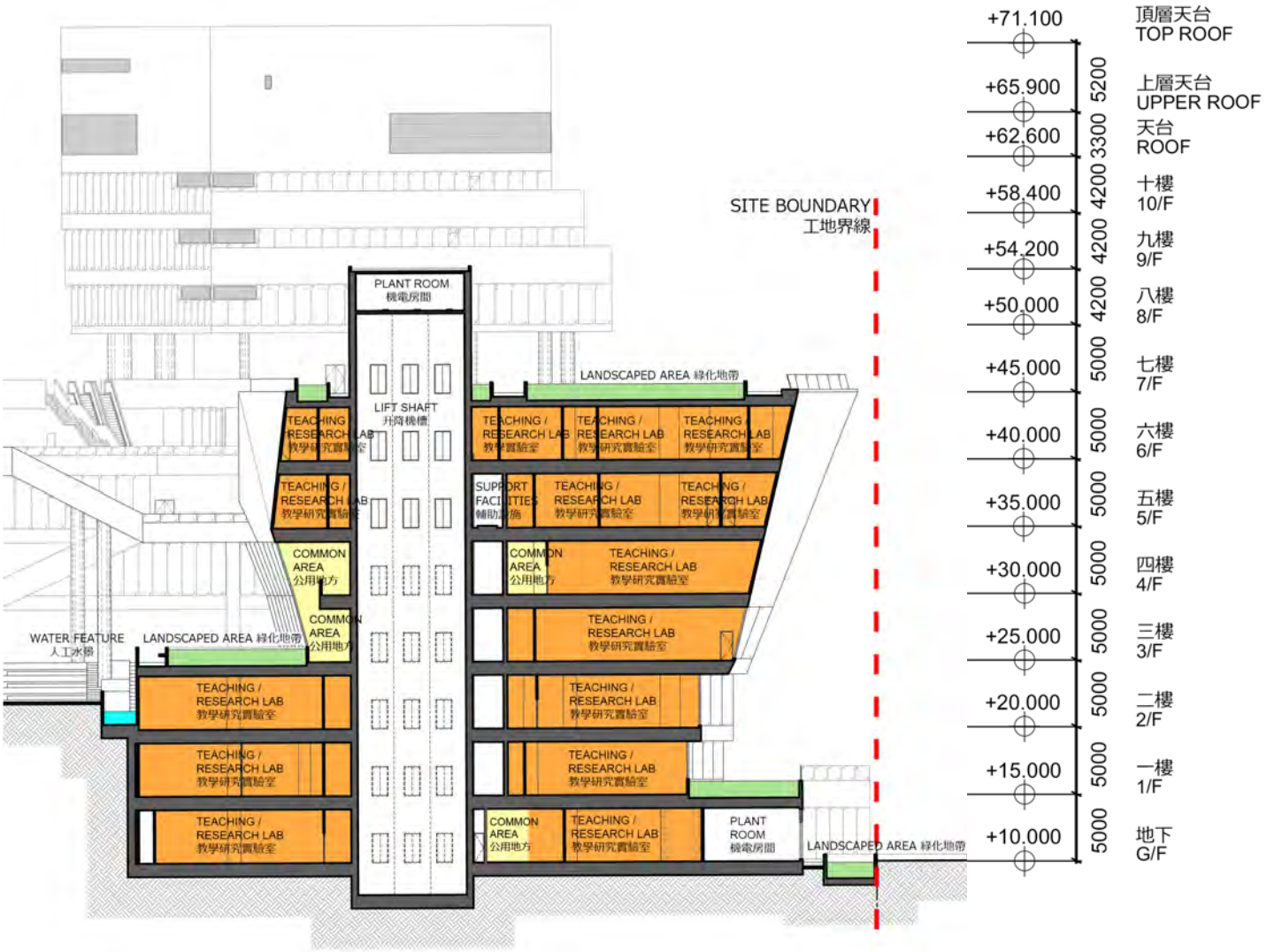
- 綠化範圍 LANDSCAPED AREA
- 教學研究實驗室 TEACHING / RESEARCH LAB
- 辦公室 OFFICE
- 公用地方 COMMON AREA
- 學習空間 STUDY SPACE

剖面圖 A - A

SECTION A - A



5m 0m 10m 20m



圖例 LEGENDS

工地界線 SITE BOUNDARY
綠化範圍 LANDSCAPED AREA
公用地方 COMMON AREA
人工水景 WATER FEATURE
教學研究實驗室 TEACHING / RESEARCH LAB

剖面圖 B - B

SECTION B - B

Annex 5 to Enclosure 2

The Hong Kong Polytechnic University
30EK – Campus Expansion at Ho Man Tin Slope

List of Facilities

	Facilities	Estimated floor area in net operational floor area (NOFA) (m^2)
(a)	Classroom facilities*	720
(b)	Teaching & research laboratories*	7 354
(c)	Study spaces*	220
(d)	Offices*	1 890
(e)	Support & amenities facilities*	160
	Total	**10 344**

CFA = 18 978 m^2

** Subject to layout refinement and finalisation with user groups*

Annex 6 to Enclosure 2

The Hong Kong Polytechnic University
30EK – Campus Expansion at Ho Man Tin Slope

Breakdown of the estimate for consultants' fees and resident site staff costs (in September 2019 prices)

			Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee ($ million)
(a)	Consultants' fees for contract administration (Note 2)	Professional	–	–	–	8.7
		Technical	–	–	–	–
					Sub-total	8.7#
(b)	Resident site staff (RSS) cost (Note 3)	Professional	12	38	1.6	1.6
		Technical	224	14	1.6	10.8
	Comprising –				Sub-total	12.4
	(i) Consultants' fees for management of RSS				1.6#	
	(ii) Remuneration of RSS				10.8#	
					Total	21.1

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of RSS supplied by the consultants (As at 1 April 2019, MPS salary point 38 = $85,870 per month, and MPS salary point 14 = $30,235 per month.)

2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreements for the design and construction of Campus Expansion at Ho Man Tin Slope**.** The assignment will only be executed subject to FC's approval to upgrade **30EK** to Category A.

3. We will only know the actual man-months and actual costs for site supervision after completion of the construction works.

Remarks

The cost figures in this Annex are shown in constant prices to correlate with the MPS salary point of the same year. The figures marked with # are shown in MOD prices in paragraph 9 of Enclosure 2.

Annex 7 to Enclosure 2

The Hong Kong Polytechnic University
30EK – Campus Expansion at Ho Man Tin Slope

Breakdown of the construction floor area (CFA) vis-à-vis the construction unit cost

(a)	Breakdown of CFA of the Campus Expansion at Ho Man Tin Slope	**Estimated floor area (m^2)**
	Net operational floor area (NOFA)	10 344
	Circulation areas, toilets	6 020
	Mechanical and electrical plants	2 614
	CFA	18 978
(b)	NOFA / CFA ratio	55%
(c)	Estimated construction unit cost (represented by the building and building services costs)	\$35 430 per m^2 of CFA (in MOD prices)