For discussion **PWSC(2007-08)81**
on 20 February 2008

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT

Universities
The Chinese University of Hong Kong
53EF – 1 500-place student hostel

Members are invited to recommend to the Finance Committee the upgrading of **53EF** to Category A at an estimated cost of $338.2 million in money-of-the-day prices for the construction of 1 500-place student hostel for The Chinese University of Hong Kong within its campus in Sha Tin.

PROBLEM

The Chinese University of Hong Kong (CUHK) needs additional hostel to meet the accommodation need of students.

PROPOSAL

2. The Secretary-General, University Grants Committee (SG, UGC), on the advice of the University Grants Committee (UGC) and the Director of Architectural Services (D Arch S) as UGC's Technical Adviser, and with the support of the Secretary for Education, proposes to upgrade **53EF** to Category A at an estimated cost of $338.2 million in money-of-the-day (MOD) prices for the construction of 1 500-place student hostel by CUHK within the university campus.

/PROJECT .....

PROJECT SCOPE AND NATURE

3. The project will provide 1 500 hostel places in five hostel blocks to be constructed on podium structure of ancillary facilities, providing approximately 23 059 square metres (m^2) in net operational floor area (NOFA). The scope of **53EF** comprises —

(a) five 300-place multi-storey (ranging from seven to 16 storeys) hostel blocks providing 1 500 hostel places in total, and other ancillary facilities including flats for wardens and tutors; and

(b) podium structure accommodating common and support facilities of 4 392m^2 in NOFA, including common rooms, study rooms, pantries, laundry and store, as well as enhanced communal facilities of 6 315m^2 in NOFA, including multi-purpose hall with kitchen, seminar rooms, day student's facility and offices.

4. The site plans are at Enclosure 1. View of the buildings (artist's impression), the sectional plans and the list of facilities to be provided are at Enclosures 2 to 4 respectively. CUHK plans to start the construction works in the second quarter of 2008 for completion in the third quarter of 2010.

JUSTIFICATION

5. In view of the educational value of hostel life, the Executive Council approved in December 1996 a set of criteria for calculating the level of publicly-funded student hostel provisions for the UGC-funded sector. Under this policy, all undergraduate students should be given the opportunity to stay in student hostels for at least one year of their courses. Furthermore, all research postgraduates, non-local students as well as all undergraduate students whose daily travelling time exceeds four hours, should be provided with student hostel places. In addition, to support internationalization, the Government has agreed to provide an additional 1 840 publicly-funded student hostel places at the UGC-funded sector to support student exchange activities and to cater for the accommodation needs of non-local exchange students. The Government will fund up to 75% of the capital cost of the approved student hostel provision, with the remainder to be met by the respective institutions using private funds.

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6. Under the prevailing student hostel policy and taking into account the additional hostel places for exchange activities, the approved publicly-funded hostel provision for CUHK in the 2007/08 academic year is 5 926 places. Against its current provision of 4 066 publicly-funded hostel places, CUHK has a shortfall of about 1 860 hostel places. To address this shortfall, CUHK proposes to construct new student hostels at the eastern and western sides of its campus.

FINANCIAL IMPLICATIONS

7. The total estimated cost of the project is $759.9 million (in MOD prices). The Government will fund up to $338.2 million, i.e. 75% of the cost for the publicly-funded hostel places (1 419 hostel places[1]) and the ancillary facilities. CUHK will contribute $421.7 million to finance 81 hostel places, 25% of the construction cost for the publicly-funded hostel places and the ancillary facilities, as well as the full cost of the enhanced communal facilities through its private sources of funding.

8. SG, UGC, on the advice of D Arch S, recommends a capital funding of $338.2 million in MOD prices to be provided by the Government (see paragraph 11 below), made up as follows –

			$ million
(a)	Site formation and development		43.8
(b)	Building		250.2
(c)	Building services		70.5
(d)	Drainage, external works, utilities and services		22.1
(e)	Consultants' fees for –		11.4
	(i) Tender assessment	0.8	
	(ii) Contract administration	3.8	

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[1] This represents the total amount of shortfall in publicly-funded hostel places for CUHK which was prevailing when funding resources were earmarked for the project.

			$ million	
	(iii)	Site supervision	6.6	
	(iv)	Out-of-pocket expenses	0.2	
(f)	Furniture and equipment[2]		40.1	
(g)	Contingencies		32.9	
(h)	Enhanced communal facilities[3]		279.6	
		Sub-total	750.6	(in September 2007 prices)
(i)	Provision for price adjustment		9.3	
		Sub-total	759.9	(in MOD prices)
(j)	Less contribution by CUHK[4]		(421.7)	
		Total	338.2	(in MOD prices)

9. CUHK will engage consultants to undertake tender assessment, contract administration and site supervision of the project. A detailed breakdown of the estimate for consultants' fees by man-months is at Enclosure 6.

10. The construction floor area (CFA) of the hostel blocks (excluding the enhanced communal facilities financed by CUHK) is approximately 29 302m^2. The estimated construction unit cost for the hostels, represented by the building and building services costs, is $10,945 per m^2 of CFA (in September 2007 prices). A detailed account of the CFA vis-à-vis the construction unit cost is at Enclosure 7. D Arch S considers the estimated construction unit cost of the hostels reasonable and comparable with those of similar projects for UGC-funded institutions.

/11. .....

[2] Based on 12.5% of the building and building services costs of the project estimate.

[3] Detailed cost breakdown of the enhanced communal facilities are at Enclosure 5.

[4] CUHK's contribution is to cover the full cost of 81 hostel places and 25% of the cost of 1 419 hostel places ($138.6 million in MOD prices), and the full cost of enhanced communal facilities ($283.1 million in MOD prices).

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

Year	$ million (Sept 2007)	Price adjustment factor	$ million (MOD)	Contribution by CUHK $ million	53EF $ million (MOD)
2008 - 09	435.7	1.00750	439.0	421.7	17.3
2009 - 10	272.7	1.01758	277.5	-	277.5
2010 - 11	33.8	1.02775	34.7	-	34.7
2011 - 12	8.4	1.03803	8.7	-	8.7
	750.6		759.9	421.7	338.2

12. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period 2007 to 2012. CUHK will tender the works through a fixed-price lump-sum contract because it can clearly define the scope of works in advance.

13. The project has no impact on tuition fees. In accordance with established practice, CUHK will operate these student hostels on a self-financing basis through charges levied on hostel places. The proposal has no additional recurrent cost implication on the Government.

PUBLIC CONSULTATION

14. As the project is located within the CUHK campus and there are no residential developments in its immediate vicinity, it is unlikely that the project will affect residents in the area. The Chairman, Vice Chairman and Committee Chairmen of the Sha Tin District Council were briefed on the proposed development by CUHK on 10 September 2007 and they raised no adverse comment. We circulated an information paper on this project to the Legislative Council Panel on Education on 7 January 2008. Members did not raise any objection to the proposal.

/ENVIRONMENTAL .....

ENVIRONMENTAL IMPLICATIONS

15. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). CUHK completed a Preliminary Environmental Review for the project in February 2006. The Director of Environmental Protection (DEP) agreed that with proper building orientation and layout design, the project would not have long-term environmental impact. CUHK has addressed these matters in the design of the project to the satisfaction of DEP.

16. CUHK has included in the project estimates the provisions required to implement suitable mitigation measures to control short-term environmental impacts to within established standards and guidelines. These include the use of silencers, mufflers, acoustic linings or shields for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities.

17. CUHK has considered measures (e.g. adjusting the building layout and foundation system to cope with the topography) at the planning and design stages to reduce the generation of construction waste where possible. In addition, CUHK will require the contractor to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities[5]. CUHK will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste. In addition, CUHK will require the contractor to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

18. CUHK will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. CUHK will ensure that the day-to-day operations on site comply with the approved plan. CUHK will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. CUHK will control the disposal of inert construction waste to public fill reception facilities, sorting facilities[5] and landfills respectively through a trip-ticket system.

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[5] Sorting facilities and public fill reception facilities are specified in Schedule 3 and Schedule 4 respectively 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.

19. CUHK estimates that the project will generate in total about 55 200 tonnes of construction waste. Of these, CUHK will reuse about 650 tonnes (1.2%) of inert construction waste on site and about 32 500 tonnes (58.9%) of inert construction waste on other construction sites within campus, deliver 12 000 tonnes (21.7%) of inert construction waste to public fill reception facilities for subsequent reuse, and 650 tonnes (1.2%) of mixed inert and non-inert construction waste to sorting facilities to separate the inert from the non-inert portion. In addition, CUHK will dispose of 9 400 tonnes (17.0%) of non-inert construction waste at landfills. The total cost for 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 $1.6 million for this project (based on a unit cost of $27/tonne for disposal at public fill reception facilities, $100/tonne at sorting facilities and $125/tonne[6] at landfills).

ENERGY CONSERVATION MEASURES

20. This project has adopted various forms of energy efficient features for lighting installation, including —

(a) Energy efficient lighting and associated lighting control;

(b) Daylight sensors; and

(c) Occupancy sensors.

21. For renewable energy technologies, this project will adopt solar panels for water heating.

22. The total estimated additional cost for adoption of the energy efficient and renewable energy features is around $4.6 million. There will be about 11% energy savings in the annual energy consumption.

23. For greening features, this project will include greening on podiums and rooftops to provide landscaped areas at different levels.

/HERITAGE .....

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[6] This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at $90/m^3), nor the cost to provide new landfills, (which is likely to be more expensive) when the existing ones are filled.

HERITAGE IMPLICATIONS

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

LAND ACQUISITION

25. The project does not require any land acquisition.

BACKGROUND INFORMATION

26. Under existing procedures, UGC-funded institutions submit capital works proposals to the UGC annually. The UGC examines all these proposals carefully, with professional advice provided by D Arch S who acts as UGC's Technical Adviser, and refers those supported proposals to the Government for consideration of bidding of funds under the established mechanism. Having examined CUHK's proposal, SG, UGC has, in consultation with D Arch S, adjusted the project estimate proposed by CUHK to arrive at the project estimate set out in paragraph 8 above.

27. We upgraded **53EF** to Category B in October 2005. CUHK engaged consultants in October 2005 to carry out site investigation, and to prepare preliminary design, detailed design and tender documents at a total estimated cost of $21.7 million. We charged $9.9 million to block allocation **Subhead 8100EX** "Alterations, additions, repairs and improvements to the campuses of the UGC-funded institutions". The remaining amount of $11.8 million was funded by CUHK's private sources of funding. The consultants have completed site investigation, preliminary design and detailed design of the project. CUHK is finalising the tender documents for the project.

28. When we circulated an information paper to the Panel on Education on 7 January 2008 on the proposed works, the estimated project cost quoted in the paper was $303.0 million in MOD prices. However, in view of the recent abrupt escalation of works tender prices in the market due mainly to the significant increase in labour, structural steel and fuel prices, it is necessary to adjust the estimated project cost upward. Taking into account the results of the tenders for other works projects recently, the estimated project cost has been increased from $303.0 million to $338.2 million (in MOD prices), which represents an increase of about 11.6%.

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29. The project will involve the removal of 274 common trees, including 247 trees to be felled and 27 trees to be replanted within the project site. Two important trees[7] will be transplanted within the site during the implementation of the project. A summary of important trees affected is at Enclosure 8. CUHK will incorporate planting proposal as part of the project, including estimated quantities of 330 trees, 2 500 annuals and 3 500m^2 grassed area.

30. CUHK estimates that the project will create about 390 jobs (350 for labourers and another 40 for professional/technical staff) providing a total employment of 12 000 man-months.

Education Bureau
February 2008

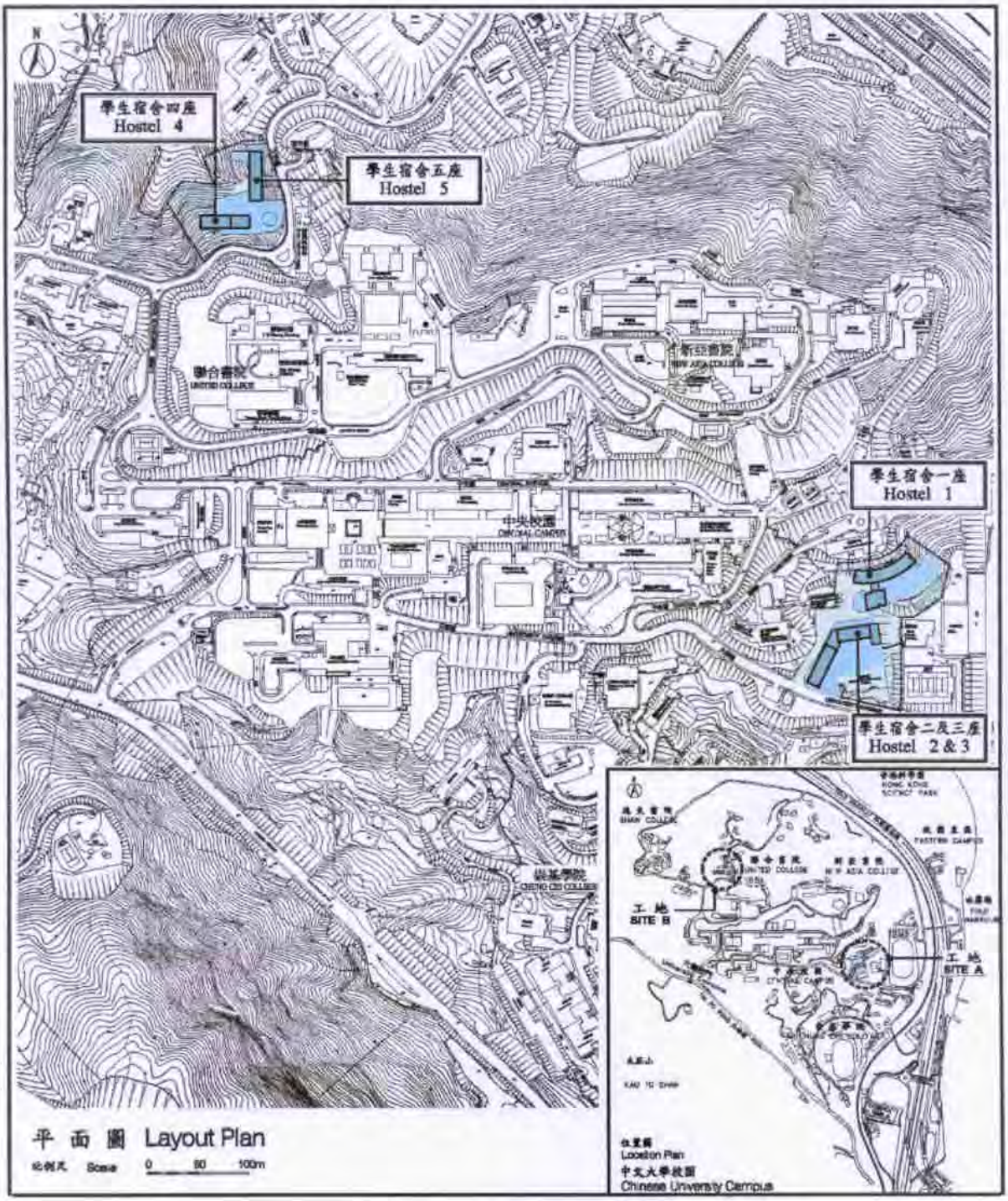
[7] "Important trees" refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria–

(a) trees of 100 years old or above;
(b) trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;
(c) trees of precious or rare species;
(d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
(e) trees with trunk diameter equal or exceeding 1.0 m (measured at 1.3 m above ground level) or with height/canopy spread equal or exceeding 25 m.

附件1 Enclosure 1 to PWSC(2007-08)81

The Chinese University of Hong Kong
8053EF – 1 500-place student hostel
香港中文大學1 500個宿位的學生宿舍

Site plan 工地平面圖



The Chinese University of Hong Kong
8053EF – 1 500-place student hostel
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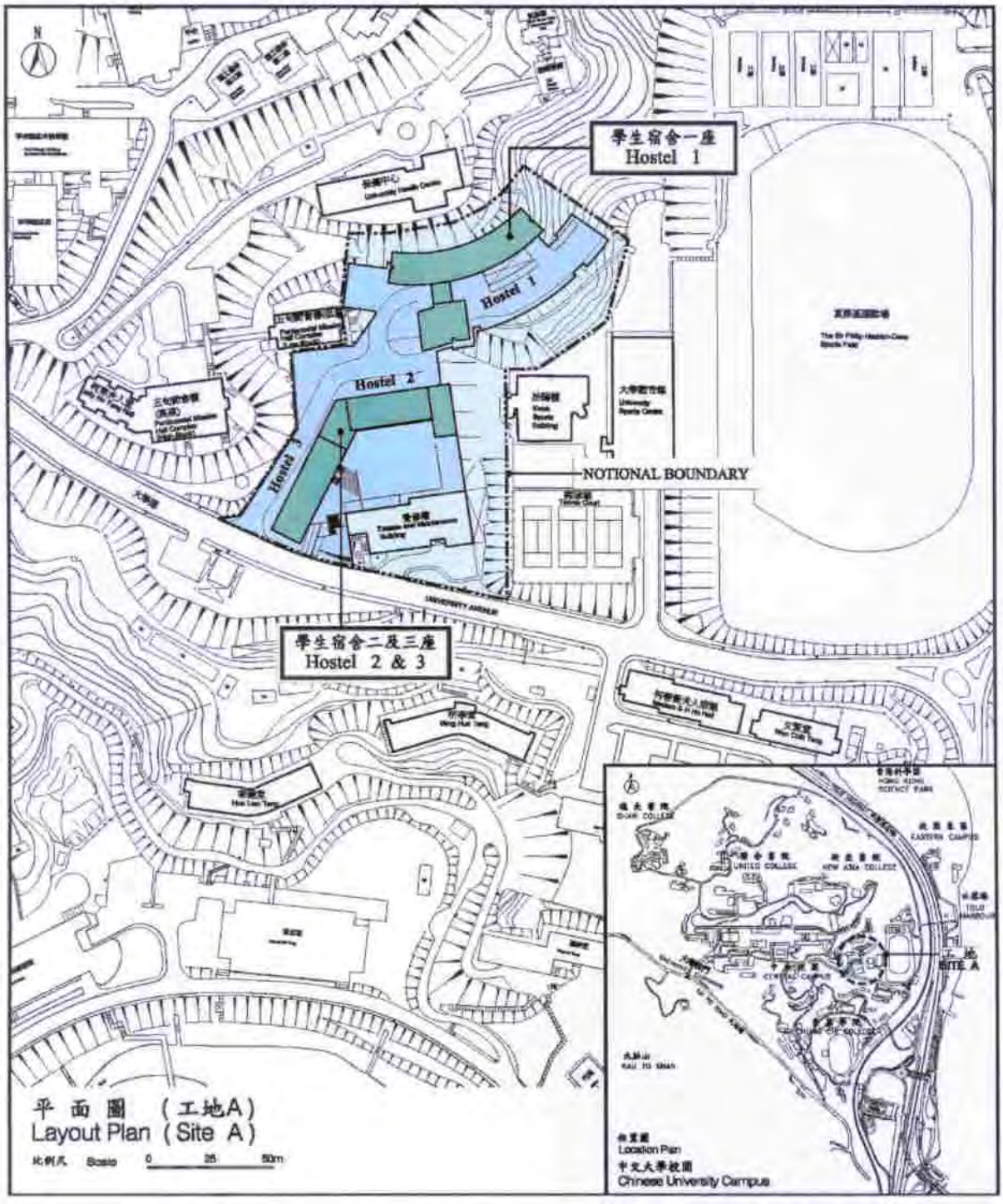
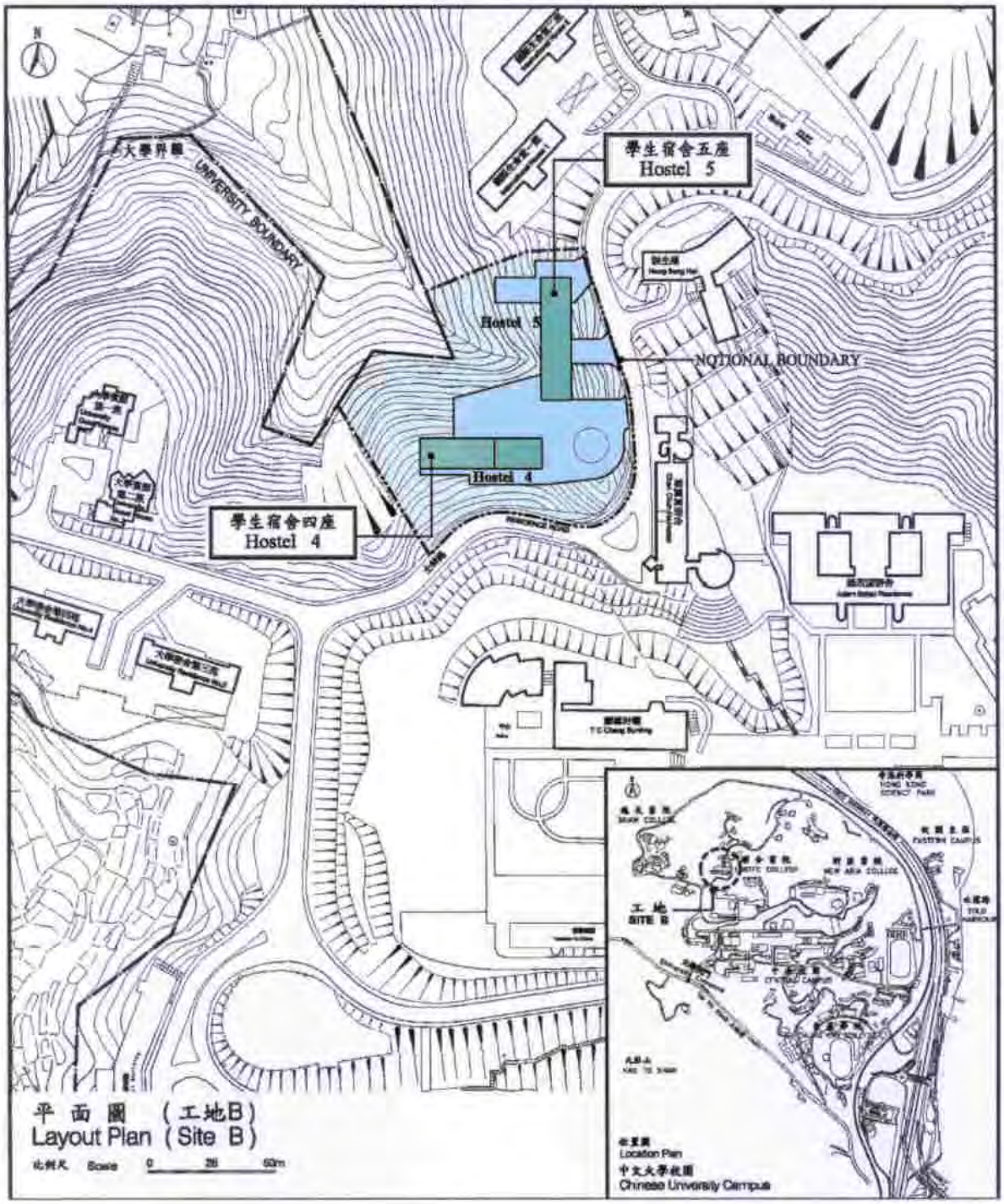
Site plan 工地平面圖



The Chinese University of Hong Kong
8053EF – 1 500-place student hostel
香港中文大學1 500個宿位的學生宿舍

Site plan 工地平面圖



The Chinese University of Hong Kong
8053EF – 1 500-place student hostel
香港中文大學1 500個宿位的學生宿舍

從東面望向學生宿舍一座的構思圖
View of student hostel 1 from the east (Artist's impression)

The Chinese University of Hong Kong
8053EF – 1 500-place student hostel
香港中文大學1 500個宿位的學生宿舍

從南面望向學生宿舍二座及三座的構思圖
View of student hostels 2 and 3 from the south (Artist's impression)

The Chinese University of Hong Kong
8053EF – 1 500-place student hostel
香港中文大學1 500個宿位的學生宿舍

從東南面望向學生宿舍四座及五座的構思圖
View of student hostels 4 and 5 from the south-east (Artist's impression)

The Chinese University of Hong Kong
8053EF – 1 500-place student hostel
香港中文大學1 500個宿位的學生宿舍

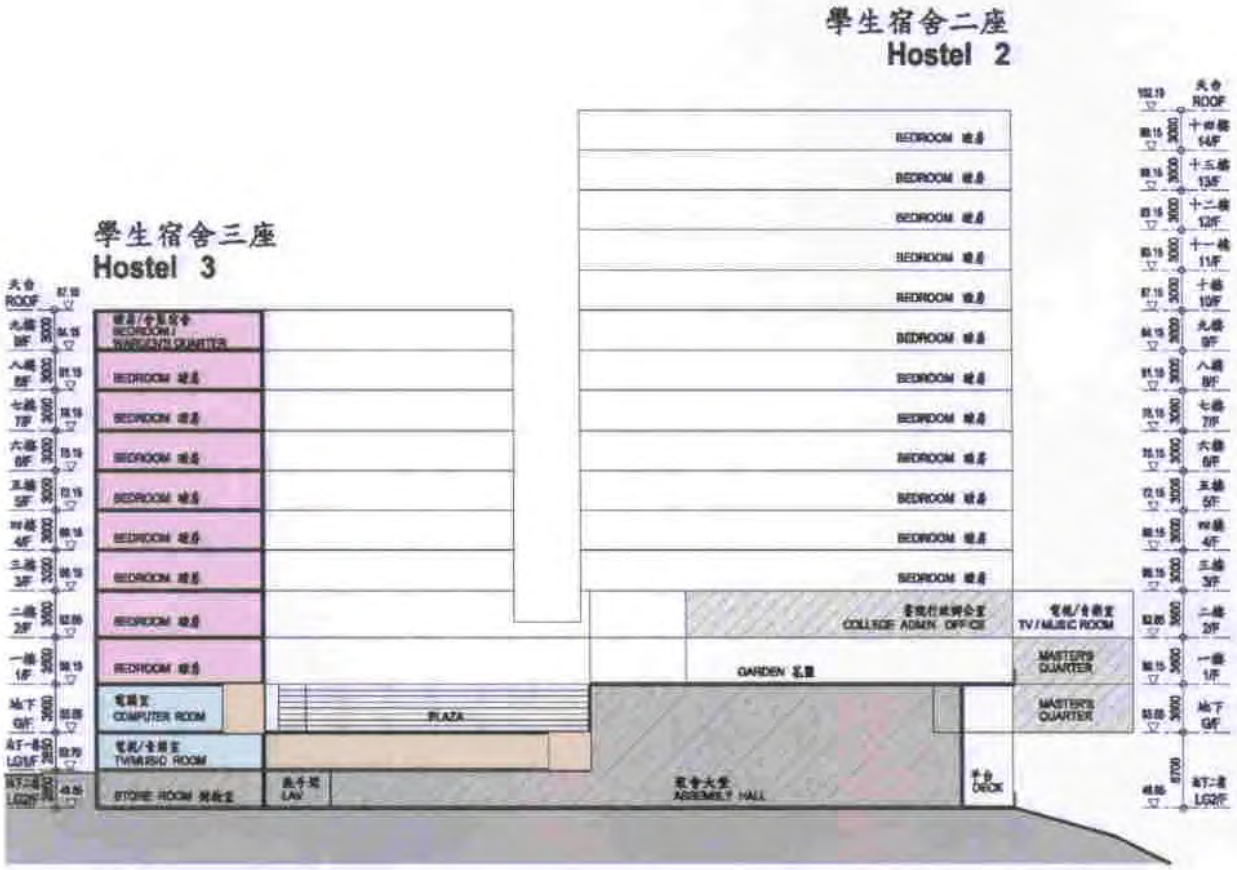
Sectional plan 截面圖
Student hostel 1 學生宿舍一座

LEGEND :

PRIVATE FUNDING SUPPORT

The Chinese University of Hong Kong
8053EF – 1 500-place student hostel
香港中文大學1 500個宿位的學生宿舍

Sectional plan 截面圖
Student hostels 2 and 3 學生宿舍二座及三座

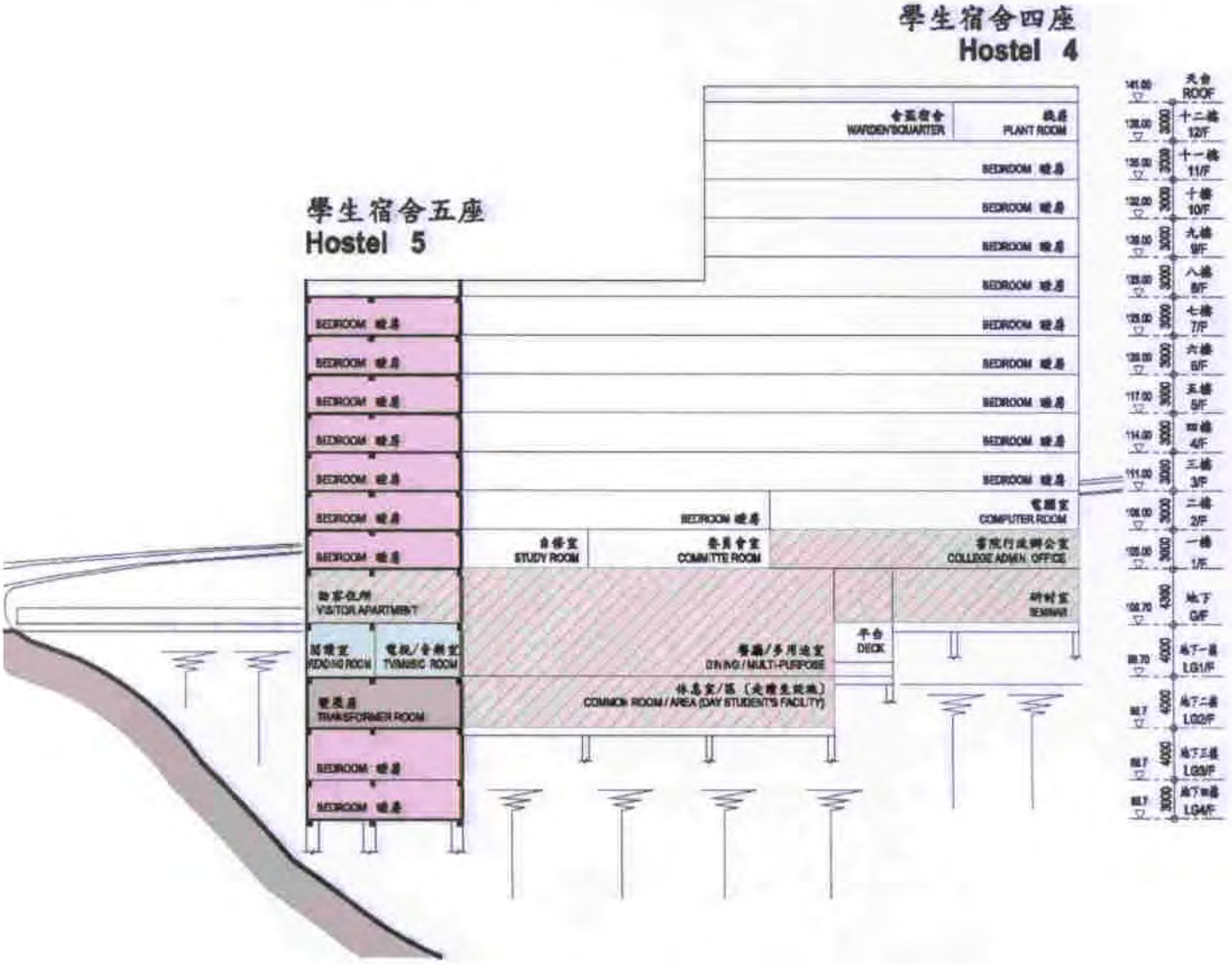


LEGEND :

PRIVATE FUNDING SUPPORT

The Chinese University of Hong Kong
8053EF – 1 500-place student hostel
香港中文大學1 500個宿位的學生宿舍

Sectional plan 截面圖
Student hostels 4 and 5 學生宿舍四座及五座



LEGEND :

PRIVATE FUNDING SUPPORT

The Chinese University of Hong Kong
53EF – 1 500-place student hostel
(Hostels 1 to 5)

I. Schedule of Modular Accommodation

	Total (*No. of Unit / Estimated floor area in NOFA (m^2)*)	H1 (m^2)	H2 (m^2)	H3 (m^2)	H4 (m^2)	H5 (m^2)
(A) Living Accommodation						
1. Student double-bedroom	750 / 11 250	2 250	2 250	2 250	2 250	2 250
2. Warden's quarters	5 / 702	150	135	121	149	147
3. Tutors' Quarters	25 / 400	80	80	80	80	80
Sub-total	780 / 12 352	2 480	2 465	2 451	2 479	2 477
(B) Common Space						
1. Pantries	48 / 365	73	84	63	99	46
2. Common rooms	45 / 1 357	301	288	355	177	236
3. Games room / Fitness room	7 / 475	85	93	74	140	83
4. Music / TV rooms	5 / 429	112	60	106	47	104
5. Committee room	5 / 135	17	30	18	40	30
6. Computer rooms	5 / 442	77	100	60	110	95
7. Study room	5 / 231	54	-	-	110	67
Sub-total	120 / 3 434	719	655	676	723	661
(C) Support						
1. Warden's office	5 / 85	21	15	14	16	19
2. Attendant's room	5 / 91	16	15	19	22	19
3. Laundry / Ironing / Drying	5 / 280	65	60	64	46	45
4. Staff rest room	5 / 107	32	15	20	15	25
5. Sick room	5 / 78	16	12	15	16	19
6. Store	19 / 317	146	55	50	33	33
Sub-total	44 / 958	296	172	182	148	160
Total	944 / 16 744	3 495	3 292	3 309	3 350	3 298

II. Enhanced Communal Facilities (to be funded by CUHK's private sources of funding)

	Total (*No. of Unit / Estimated floor area in NOFA (m^2)*)	H1 (m^2)	H2 & H3 (m^2)	H4 & H5 (m^2)
1. Dining/Multi-purpose hall with kitchen	3 / 2 983	1 004	1 179	800
2. Seminar rooms	6 / 261	165	-	96
3. College administration offices	3 / 394	167	52	175
4. Common room for college fellow	1 / 65	-	-	65
5. Master's quarter	3 / 810	320	210	280
6. Bedrooms for visitors	13 / 600	400	-	200
7. Reading room	3 / 158	46	-	112
8. Activity room	5 / 379	254	-	125
9. Day student's facility	1 / 665	-	-	665
Total	38 / 6 315	2 356	1 441	2 518

The Chinese University of Hong Kong
53EF – 1 500-place student hostel

Estimated cost of the enhanced communal facilities
(to be funded by CUHK's private sources of funding.)

		$ million	
(a)	Site formation and development	18.6	
(b)	Building	147.4	
(c)	Building services	53.2	
(d)	Drainage, external works, utilities and services	9.4	
(e)	Consultants' fees	6.4	
(f)	Furniture and equipment	25.1	
(g)	Contingencies	19.5	
	Sub-total	279.6	(in September 2007 prices)
(h)	Provision for price adjustment	3.5	
	Total	283.1	(in MOD prices)

Enclosure 6 to PWSC(2007-08)81

The Chinese University of Hong Kong
53EF – 1 500-place student hostel

Breakdown of the estimate for consultants' fees (Note 1)

			Estimated man-months	Average MPS* salary point	Multiplier (Note 2)	Estimated fees ($ million)
(a)	Consultants' fees (Note 3)					
	(i) Tender assessment	Professional	–	–	–	0.5
		Technical	–	–	–	0.3
	(ii) Contract administration	Professional	–	–	–	2.5
		Technical	–	–	–	1.3
(b)	Site supervision (Note 4)	Professional	50.7	38	1.6	4.6
		Technical	66.3	14	1.6	2.0
					Sub-total	11.2
(c)	Out-of-pocket expenses (Note 5)					
	Lithography and other direct expenses					0.2
					Total	11.4

* MPS = Master Pay Scale

Notes

1. Having examined the consultants' fees estimated by CUHK, D Arch S considers the figures acceptable.

2. A multiplier of 1.6 is applied to the average MPS point to estimate the staff costs for contract staff employed by CUHK direct on the project. (As at 1 April 2007, MPS point 38 = $56,945 per month and MPS point 14 = $18,840 per month.)

3. The consultants' fees for tender assessment and contract administration are calculated in accordance with the existing consultancy agreements obtained through competitive tendering for the design and construction of **53EF**. The assignment will only be executed subject to Finance Committee's approval to upgrade **53EF** to Category A.

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

5. Out-of-pocket expenses are the actual costs incurred. The consultants are not entitled to any additional payment for the overheads or profit in respect of these items.

The Chinese University of Hong Kong
53EF – 1 500-place student hostel

Breakdown of the construction floor area (CFA) vis-à-vis the construction unit cost (excluding the enhanced communal facilities)

(a) Breakdown of CFA

	Estimated floor area (m^2)
Net operational floor area (NOFA)	16 744
Circulation areas and toilets	10 627
Mechanical and electrical plants	1 931
CFA	29 302

(b) NOFA / CFA ratio — 57.1%

(c) Estimated construction unit cost (represented by the building and building services costs) — $10,945 per m^2 of CFA (in September 2007 prices)

Enclosure 8 to PWSC(2007-08)81

Summary of "important trees" involved in
53EF – 1 500-place student hostel
The Chinese University of Hong Kong

Tree no.	Tree species (Botanical Name)	Tree size			Form[(1)] (Good/ Fair/ Poor)	Health condition (Good/ Fair/ Poor)	Amenity value (High/ Medium/ Low)	Survival rate after transplanting (High/ Medium/ Low)	Recommendation (Retain/ Transplant/ Fell)	Remarks
		Overall height (m)	Trunk[(2)] diameter (mm)	Average crown spread (m)						
RT476	Aquilaria sinensis (土沉香)	6	130	4	Poor	Poor	Medium	Medium	Transplant within the site	1. Rare species 2. The tree is located in the middle of building block and cannot be retained.
RT477	Aquilaria sinensis (土沉香)	4	160	2	Poor	Poor	Medium	Medium	Transplant within the site	1. Rare species 2. The tree is located in the middle of building block and cannot be retained.

(1) Form of tree will take account of the overall tree size, shape, and any special feature.

(2) Trunk diameter of a tree refers to its diameter at breast height (i.e. measured at 1.3m above ground level).