For discussion
on 20 June 2001

PWSC(2001-02)55

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 - CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT
Education Subventions
82EB - Prevocational school at Northcote Close, Pokfulam, Hong Kong

Members are invited to recommend to Finance Committee the approval of a new commitment of $128.7 million in money-of-the-day prices for the construction of a prevocational school at Northcote Close, Pokfulam, to reprovision the Caritas St. Francis Secondary School at Caine Road, Central.

PROBLEM

The existing premises of the Caritas St. Francis Secondary School (which is a prevocational school) at Caine Road, Central are sub-standard.

PROPOSAL

2. The Director of Education (D of E), on the advice of the Director of Architectural Services (D Arch S) and with the support of the Secretary for Education and Manpower, proposes to create a commitment of $128.7 million in money-of-the-day (MOD) prices for the construction of a prevocational school at Northcote Close, Pokfulam, Hong Kong.

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PROJECT SCOPE AND NATURE

3. The proposed prevocational school will adopt a non-standard design. While there is no standard schedule of accommodation for prevocational schools, the School Authority, in designing the proposed school premises, has followed the latest schedule of accommodation for a standard 30-classroom secondary school with suitable modifications to meet the educational needs of a prevocational school. For example, the proposed school will have nine workshops while a standard 30-classroom secondary school will have only one Design and Technology Workshop. A site plan is at Enclosure 1. The proposed school will have -

(a) 25 classrooms;

(b) nine workshops[1];

(c) 11 special rooms, including a computer laboratory and a language laboratory;

(d) three remedial teaching rooms;

(e) a library;

(f) a staff room and a staff common room;

(g) a conference room;

(h) a student activity centre;

(i) a guidance activity room;

(j) two interview rooms;

(k) an assembly hall;

(l) a multi-purpose area;

(m) basketball courts (a covered court on ground level and a half-court at the rooftop of the school building);

(n) ancillary accommodation including a lift and relevant facilities for the handicapped; and

/(o) …..

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[1] These include two Technology Fundamentals Workshops, two Business Fundamentals Workshops, a Desktop Publishing Workshop, an Electronic and Electricity Workshop, a Design Fundamentals Workshop, a Graphic Communication Workshop and an Accommodation and Catering Workshop.

(o) a green corner[2].

The proposed school will be able to meet the planning target of providing two square metres of open space per student. The School Authority plans to start construction works in August 2001 for completion in June 2003.

JUSTIFICATION

4. At present, the Caritas St. Francis Secondary School is operating at rented premises at Caine Road. It has 25 classes but only 16 classrooms. Some of its classes are running on a floating basis. It has no open space for students. Sports facilities are lacking. All recreational activities for students take place in a small covered playground. Most of the existing facilities are also well below current standard.

5. The Caritas St. Francis Secondary School should be reprovisioned to provide a better learning environment for students. Floating classes should be eliminated in accordance with existing policy. The proposed new school premises, equipped with up-to-standard facilities, will enable the school to implement more effectively the new prevocational school curriculum which has came into force since September 2000[3].

FINANCIAL IMPLICATIONS

6. We estimate the cost of **82EB** to be $128.7 million in MOD prices (see paragraph 7 below). The estimated cost, which has been examined and endorsed by D Arch S, is made up as follows -

/(a) …..

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[2] The green corner is a designated area inside the campus to enable students to develop an interest in horticulture and natural environment. The green corner may include a green house, a weather station and planting beds.

[3] The new curriculum was launched after the "Review of Prevocational and Secondary Technical Education" in 1997. It aims to impart to students generic but fundamental and transferable skills, thus putting stronger emphasis on languages, business and technological subjects. Under the new prevocational school curriculum, three new subjects, namely, Business Fundamentals, Technology Fundamentals and Design Fundamentals, have been introduced at the junior secondary level to replace existing practical/technical subjects like Metal Work, Book Keeping, Technical Drawing, etc. Three new subjects, namely, Graphical Communication, Technological Studies and Information Technology, have also been introduced at the senior secondary school level.

		$ million	
(a)	Site formation	5.5	
(b)	Slope stabilisation works	1.5	
(c)	Piling	14.8	
(d)	Building	64.6	
(e)	Building services	18.1	
(f)	Drainage and external works	8.8	
(g)	Consultants' fees -	5.8	
	(i) assessment of tenders 0.5[4]		
	(ii) contract administration 3.3[4]		
	(iii) site supervision 1.6		
	(iv) out-of-pocket expenses 0.4		
(h)	Contingencies	11.9	
	Sub-total	131.0	(in September 2000 prices)
(i)	Provision for price adjustment	(2.3)	
	Total	128.7	(in MOD prices)

The construction floor area (CFA) of **82EB** is 13 505 square metres. The construction unit cost, represented by building and building services costs, is $6,124 per square metre of CFA in September 2000 prices. D Arch S considers the construction unit cost reasonable. A comparison of the reference cost for a standard 30-classroom secondary school (based on an uncomplicated site with no unusual environmental or geotechnical constraints) with the estimated cost for **82EB** is at Enclosure 2. A breakdown by man-months of the cost estimate for the consultants' fees is at Enclosure 3.

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[4] The consultants' fees for assessment of tenders ($500,000) and contract administration ($3.3 million) are based on scale fees. The consultancy agreement for this project was awarded in January 1999.

7. Subject to approval, the School Authority will phase the expenditure as follows -

Year	$ million (Sep 2000)	Price adjustment factor	$ million (MOD)
2001 - 02	17.2	0.98000	16.9
2002 - 03	79.8	0.97976	78.2
2003 - 04	34.0	0.98759	33.6
	131.0		128.7

8. We derived the MOD estimates on the basis of Government's latest forecast of trend labour and construction prices for the period 2001 to 2004. We will tender the works under two fixed-price lump-sum contracts (one on site formation/piling works and the other on building works). This is because we can clearly define the scope of works in advance for both contracts, leaving little room for uncertainty.

9. Upon reprovisioning, Government will be able to save an annual rental of $4.9 million[5]. As regards other operational expenses, since the proposed project is for reprovisioning an existing school, the additional annually recurrent expenditure is insignificant.

PUBLIC CONSULTATION

10. We consulted the Southern District Council and the Central and Western District Council on **82EB** in June 2000 and July 2000 respectively. Members of the two Councils supported the project. The School Authority has also consulted the parents and teachers concerned. The project has received their support.

ENVIRONMENTAL IMPLICATIONS

11. The School Authority has conducted a Preliminary Environmental Review (PER) on the proposed project in February 1998. The PER concluded that,

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[5] In accordance with existing policy, Government bears the rental cost of the School which is $4.9 million per year.

in order to keep the road traffic noise impact on the proposed school within the limits stipulated in the Hong Kong Planning Standards and Guidelines, insulated windows with 6mm-thick glass panes and air-conditioning would need to be provided for all classrooms, workshops and special rooms facing Victoria Road. We have included $1.4 million in the project estimate as part of the building and building services works to implement the above mitigation measures. Moreover, a 10-metre buffer distance would need to be provided between the school building and Victoria Road in order to minimise the potential vehicular emission impact.

12. During construction, the School Authority will control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of mitigation measures in the relevant contracts. 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.

13. At the planning and design stages, the School Authority has considered measures to reduce the generation of construction and demolition (C&D) materials. The School Authority has introduced more pre-fabricated building elements into project designs to reduce temporary formwork and construction waste. These include dry wall partitioning and proprietary fittings and fixtures. Suitable excavated materials will be used for filling within the site to minimise off-site disposal. In addition, the School Authority will require the contractor to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

14. The School Authority will require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. The School Authority will ensure that the day-to-day operations on site comply with the approved WMP. The School Authority will control the disposal of public fill and C&D waste to designated public filling facilities and landfills respectively through a trip-ticket system. The contractor will be required to separate public fill from C&D waste for disposal at appropriate facilities. The School Authority will record the disposal, reuse and recycling of C&D materials for monitoring purposes. We estimate that the project will generate about 13 300 cubic metres (m^3) of C&D materials. Of these, we will reuse about 1 300 m^3 (10%) on site, 9 900 m^3 (74%) as fill in public filling areas[6], and dispose of 2 100 m^3 (16%) at landfills. The notional

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[6] A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

cost of accommodating C&D waste at landfill sites is estimated to be $262,500 for this project (based on a notional unit cost[7] of $125/m^3).

LAND ACQUISITION

15. The project does not require any land acquisition.

BACKGROUND INFORMATION

16. We upgraded **82EB** to Category B in September 1998. The School Authority employed a contractor who completed site investigation work in July 1999. The School Authority also engaged consultants who completed a topographical survey and a PER in January 1998 and April 1998 respectively, and detailed design and tender documentation of the site formation works in June 2001. The consultants are finalising the detailed design and the tender documentation of the construction works. We charged the total amount of $7.9 million for the above works to block allocation **Subhead 8100QX** "Alterations, additions, repairs and improvements to education subvented buildings".

17. We estimate that the proposed works will create some 265 jobs of 2 700 man-months comprising five professional staff, 15 technical staff and 245 labourers during the construction period.

Education and Manpower Bureau
June 2001

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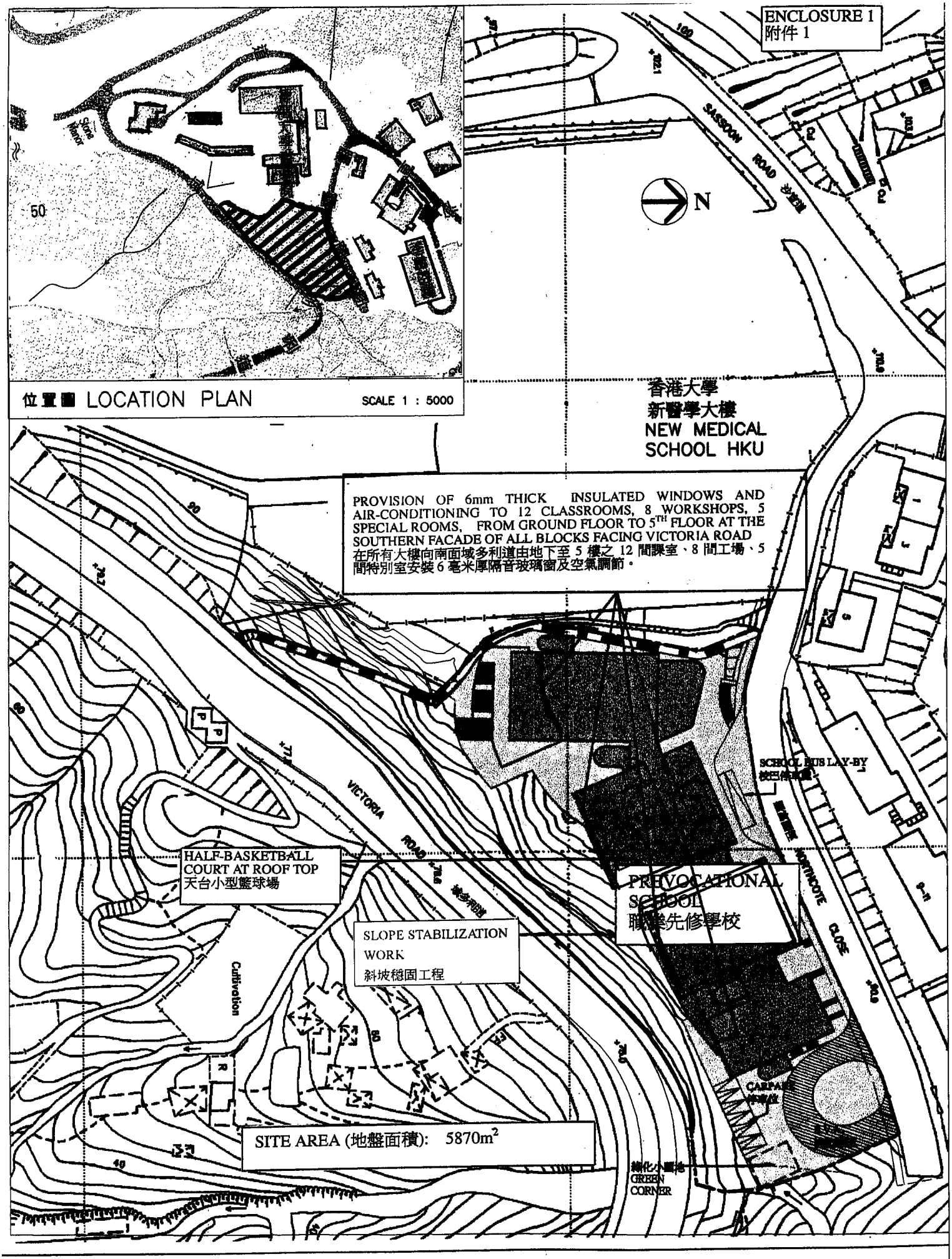
[7] This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at $90/m^3), nor the cost to provide new landfills (which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



PROJECT TITLE

8082EB

PREVOCATIONAL SCHOOL AT NORTHCOTE CLOSE, POKFULAM, HONG KONG

香港薄扶林羅富國徑的職業先修學校

SCALE 1:1000

Enclosure 2 to PWSC (2001-02)55

A comparison of the reference cost for a standard 30-classroom secondary school with the estimated cost for 82EB

$ million (in Sept 2000 prices)

		Reference cost*	**82EB**	
(a)	Site formation	-	5.5	(See A below)
(b)	Slope stabilisation works	-	1.5	(See B below)
(c)	Piling	11.0	14.8	(See C below)
(d)	Building	58.5	64.6	(See D below)
(e)	Building services	13.5	18.1	(See E below)
(f)	Drainage and external works	10.0	8.8	(See F below)
(g)	Consultants' fees	-	5.8	(See G below)
(h)	Contingencies	9.3	11.9	
	Total	102.3	131.0	
(i)	Construction floor area	12 238m^2	13 505m^2	
(j)	Construction unit cost {[(d)+(e)] ÷ (i)}	$5,883/$m^2$	$6,124/$m^2$	

*** Assumption for reference cost**

1. The estimation is based on the assumption that the school site is uncomplicated and without abnormal environmental restrictions. No allowance is reserved for specific environmental restrictions such as the provision of insulated windows, air-conditioning and solid boundary walls to mitigate noise impacts on the school.

2. No site formation works/geotechnical works are required as they are normally carried out by other government departments under a separate engineering vote before the handing-over of the project site for school construction.

3. Piling cost is based on the use of 138 numbers of steel H-piles at an average depth of 30 metres, on the assumption that percussive piling is permissible. It also includes costs for pile caps, strap beams and testing. No allowance is reserved for the effect of negative skin friction due to fill on reclaimed land.

4. Cost for drainage and external works is for a secondary school site area of 6 950 square metres built on an average level site without complicated geotechnical conditions, utility diversions, etc. (i.e. a "green-field" site).

5. No consultancy services are required.

6. Furniture and equipment costs are excluded as they are usually borne by the sponsoring bodies of new schools.

7. The reference cost for comparison purpose is subject to review regularly. D Arch S will review, and revise if necessary, the reference cost which should be adopted for future projects.

Estimates for 82EB

A. Additional costs are required for leveling off the site to create a platform for the school.

B. Additional costs are required for carrying out slope stabilisation works and for building retaining structures.

C. The piling cost is higher because it is based on the use of 146 numbers of mini-piles at an average depth of 9.8 metres. The more expensive mini-pile system will be used for overcoming large and numerous boulders in the ground. Besides, the mini-pile system has the advantages of requiring less temporary work and is easier to install on sloping ground.

D. The building cost is higher because the construction floor area of the proposed school (13 505 square metres) is larger than that of a standard secondary school (12 238 square metres). This is because the narrow configuration and sloping topography of the site requires a non-standard school design with a larger construction floor area to accommodate all necessary facilities. D Arch S considers the proposed school design the most economical one for this particular site.

E. The building services cost is higher because of the provision of air-conditioning to all classrooms, workshops, and special rooms facing Victoria Road as a noise mitigation measure. Also, due to the enclosed corridor design of the school, a fire sprinkler system has to be provided to meet fire safety requirements. All these account for the higher building services cost.

F. The drainage and external works cost is lower because the site area (5 870 square metres) is smaller than that of a standard 30-classroom secondary school (6 950 square metres).

G. The total consultancy fees are estimated to be $13.3 million. Those incurred before tendering are $7.5 million and those after tendering are $5.8 million. Following the existing practice, the pre-tendering consultancy fees are funded under the block allocation **Subhead 8100QX** "Alterations, additions, repairs and improvements to education subvented buildings".

82EB - Prevocational school at Northcote Close, Pokfulam, Hong Kong

Breakdown of estimate for consultants' fees and site supervision staff cost

Category of works/items		Estimated man-months	Average MPS* salary point	Multiplier factor	Estimated fee ($million)
(a) Scale fees (consultants' staff cost)					
(i) Assessment of tenders					0.5
(ii) Contract administration					3.3
				Sub-total	3.8
(b) Others					
(i) Site supervision	Technical	49.5	14	1.7	1.6
(ii) Out-of-pocket expenses					0.4
Lithography and other direct expenses					
				Sub-total	2.0
				Total	5.8

* **MPS = Master Pay Scale**

Notes

1. A multiplier factor of 1.7 is applied to the average MPS point to arrive at the full staff costs including overheads, as the staff will be employed by the School Authority directly for the project. (At 1.4.2000, MPS point 14 is $19,055 per month.)

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

3. The figures given at (b) above are based on estimates prepared by the Director of Architectural Services.