

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 703 - BUILDINGS

#### Education - Primary

#### 290EP - Primary school in Shek Pai Wan Redevelopment Phase 2

Members are invited to recommend to Finance Committee the upgrading of **290EP** to Category A at an estimated cost of \$107.9 million in money-of-the-day prices for the construction of a 30-classroom primary school in Shek Pai Wan Redevelopment Phase 2.

### PROBLEM

We need to provide additional primary schools for the implementation of the whole-day primary schooling policy.

### PROPOSAL

2. The Director of Architectural Services (D Arch S), with the support of the Secretary for Education and Manpower, proposes to upgrade **290EP** to Category A at an estimated cost of \$107.9 million in money-of-the-day (MOD) prices for the construction of a primary school in Shek Pai Wan Redevelopment Phase 2.

### PROJECT SCOPE AND NATURE

3. The proposed primary school is a standard design 30-classroom school building. The school will have -

/(a) .....

- (a) 30 classrooms;
- (b) six special rooms, including a computer-assisted learning room and a language room;
- (c) four remedial teaching rooms;
- (d) a guidance activity/interview room;
- (e) two interview rooms;
- (f) a staff room and a staff common room;
- (g) a student activity centre;
- (h) a conference room;
- (i) a library;
- (j) an assembly hall (which, together with the roof of the assembly hall block, can also be used for a wide range of physical activities such as badminton, gymnastics and table-tennis);
- (k) a multi-purpose area;
- (l) three basketball courts (inclusive of two on ground level and a further one at the rooftop of the assembly hall block);
- (m) ancillary accommodation including a lift and relevant facilities for the handicapped; and
- (n) a green corner<sup>1</sup>.

4. The proposed project will be able to meet the planning target of providing two square metres of open space per student. A site plan for the school is at Enclosure 1. The Director of Housing (D of H) plans to start the construction works in September 2001 for completion in December 2004.

**/JUSTIFICATION .....**

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<sup>1</sup> The green corner is a designated area inside the campus to enable students to pursue their interests in horticulture and natural environment. The green corner may include a green house, a weather station and planting beds.

**JUSTIFICATION**

5. The Government's interim target is to enable 60% of our primary school pupils to study in whole-day schools by the 2002/03 school year. To achieve this target, 78 new primary schools are required between the 1998/99 and 2002/03 school years. To date, 37 schools have already been completed, and a further 40 are at various stages of construction. The only remaining project targeted to be completed by end 2002 will be submitted to the Committee as soon as possible.

6. The Government is further committed to enabling virtually all primary school pupils to study in whole-day schools by the 2007/08 school year. To this end, Director of Education (D of E) plans to construct another 46 new schools between the 2003/04 and the 2007/08 school years. **290EP** will help achieve this policy target.

7. The Southern District currently has 25 public sector primary schools providing 369 classrooms. D of E forecasts that an additional 48 classrooms will be required for full implementation of whole-day primary schooling by the 2007/08 school year. **290EP** will help reduce the shortfall by 30 to 18 and will enable an existing bi-sessional primary school to convert into whole-day operation. The remaining shortfall will be met by another school project which is currently being planned.

8. In order to tie in with the overall public housing development programme in Shek Pai Wan, we will entrust the construction of the school to the Housing Authority (HA).

**FINANCIAL IMPLICATIONS**

9. We estimate the capital cost of the project to be \$107.9 million in MOD prices (see paragraph 10 below), made up as follows -

/(a) .....

	\$ million	
(a) Demolition and site formation	6.1	
(b) Piling	8.0	
(c) Building	49.5	
(d) Building services	11.5	
(e) Drainage and external works	14.7	
(f) Furniture and equipment	4.5	
(g) Consultants' fees -	3.4	
(i) Contract administration	1.8	
(ii) Site supervision	1.6	
(h) Contingencies	9.4	
(i) On-cost <sup>2</sup>	2.1	
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Sub-total	109.2	(in September 2000 prices)
(j) Provision for price adjustment	(1.3)	
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Total	107.9	(in MOD prices)
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The construction floor area of **290EP** is 10 727 square metres. The construction unit cost, represented by building and building services costs, is \$5,687 per square metre in September 2000 prices. D Arch S considers the estimated construction unit costs comparable to similar school projects built by the Government. A comparison of the reference cost for a 30-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated cost for **290EP** is at Enclosure 2. A breakdown by man-months of the cost estimate for consultants' fees is at Enclosure 3.

/10. ....

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<sup>2</sup> There is a standard arrangement for Government to pay the HA a 2% on-cost for administrative and supervisory works (i.e. items 9(a) to (e), (g) and (h)) which the HA undertakes for the Government on an entrustment basis.

10. Subject to approval, we will phase the expenditure as follows -

Year	\$ million (Sept 2000)	Price adjustment factor	\$ million (MOD)
2001 - 02	7.7	0.98000	7.5
2002 - 03	19.5	0.97976	19.1
2003 - 04	49.2	0.98759	48.6
2004 - 05	25.8	0.99549	25.7
2005 - 06	6.0	1.00346	6.0
2006 - 07	1.0	1.01149	1.0
	109.2		107.9

11. We derived the MOD estimates on the basis of Government's latest forecast of trend labour and construction prices for the period 2001 to 2007. D of H will tender the foundation works under a fixed-price lump-sum contract because the contract period will be less than 21 months and the scope of works can be defined in advance, leaving little room for uncertainty. Separately, he will tender the building works on a lump-sum basis with provision for price fluctuation because the contract period will be longer than 21 months.

12. We estimate the annually recurrent expenditure for the school to be \$23.1 million.

## **PUBLIC CONSULTATION**

13. In December 2000, we consulted the Community Building and Tourism Affairs Committee of the Southern District Council on **290EP**. Members of the Committee supported the project.

**/ENVIRONMENTAL .....**

## ENVIRONMENTAL IMPLICATIONS

14. D of H engaged a consultant in December 1999 to conduct a Preliminary Environmental Review (PER) for the school. The PER concluded that the school would not be subject to adverse environmental impacts. During construction, we will control noise, dust and site run-off nuisances 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 provisions of wheel-washing facilities.

15. At the planning and design stages, we have considered measures to reduce the generation of construction and demolition (C&D) materials. D of H has introduced more prefabricated building elements into project designs to avoid 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 minimize off-site disposal. In addition, the contractor will be required to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

16. D of H will also 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. D of H will ensure that the day-to-day operations on site comply with the approved WMP. D of H 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. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes. We estimate that the project will generate about 14 100 cubic metres (m<sup>3</sup>) of C&D materials. Of these, we will reuse about 5 600 m<sup>3</sup> (39.7%) on site, 7 900 m<sup>3</sup> (56%) as fill in public filling areas<sup>3</sup>, and dispose of 600 m<sup>3</sup> (4.3%) at landfills.

## LAND ACQUISITION

17. The project does not require any land acquisition.

**/BACKGROUND .....**

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<sup>3</sup> 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.

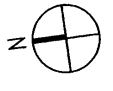
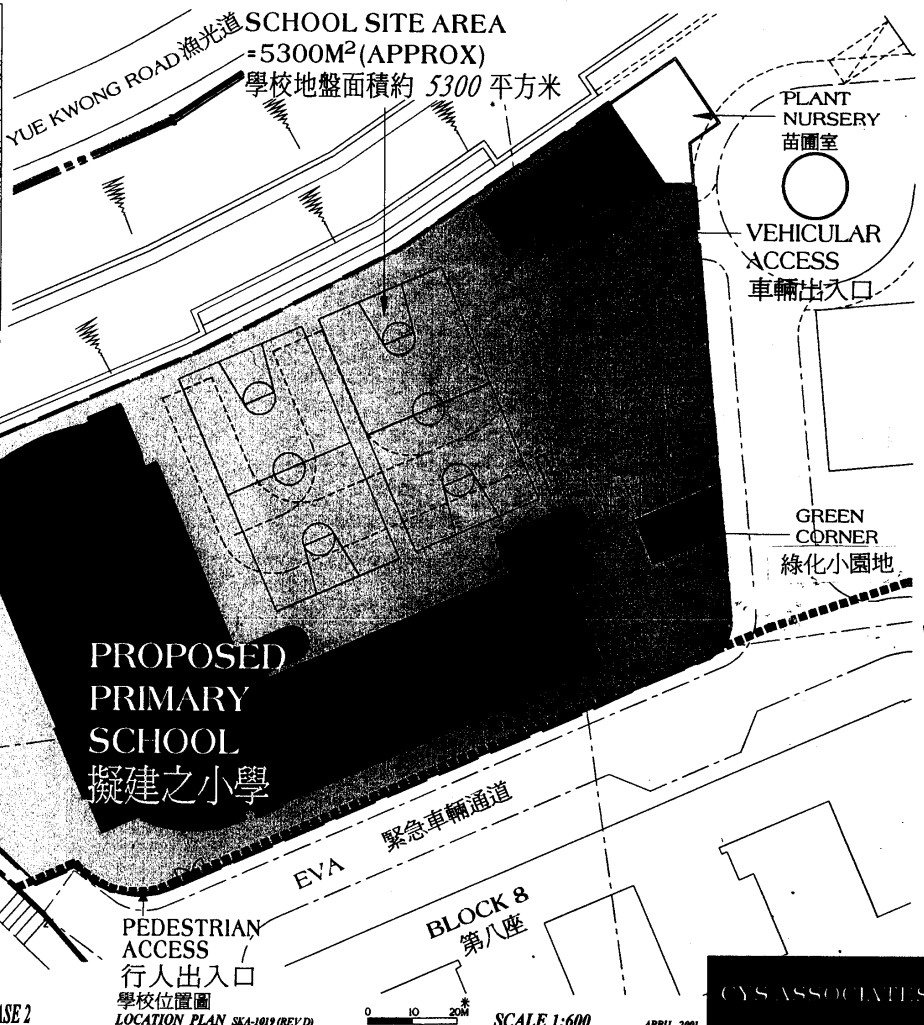
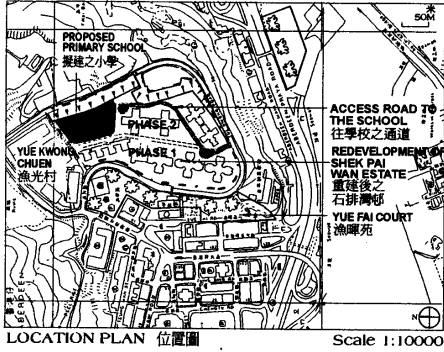
**BACKGROUND INFORMATION**

18. We upgraded **290EP** to Category B in November 2000. D of H engaged consultants to carry out a topographical survey in May 1999 and a PER in December 1999, and employed a term contractor to carry out site investigation in October 1999. These studies cost \$1.82 million in total. D of H charged this amount to the HA's funding votes "Civil Engineering Studies and Land Surveying" and "Site investigation and Geotechnical Studies" respectively. The consultants and the term contractor have completed the topographical survey, PER and site investigation. Another consultant engaged by D of H has also completed the detailed design and is preparing tender documents.

19. We estimate that the proposed project will create some 115 jobs with a total of 2 900 man-months comprising five professional staff, ten technical staff and 100 labourers during the construction period.

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Education and Manpower Bureau  
May 2001



TITLE: 290EP  
石排灣邨 2 期重建計劃 1 所小學  
PRIMARY SCHOOL IN SHEK PAI WAN REDEVELOPMENT PHASE 2

PEDESTRIAN ACCESS  
行人出入口  
學校位置圖  
LOCATION PLAN SKA-1019 (REV D)

SCALE 1:600

APRIL 2001

CYS ASSOCIATES (HK) LTD

Enclosure 1 附件一



**Enclosure 2 to PWSC(2001-02)27**

**A comparison of the reference cost of  
a 30-classroom primary school project  
with the estimated cost of 290EP**

<b>\$ million (in Sept 2000 prices)</b>			
	<b>Reference cost*</b>	<b>290EP</b>	
(a) Demolition and site formation	-	6.1	(See A below)
(b) Piling	9.0	8.0	(See B below)
(c) Building	49.5	49.5	
(d) Building services	11.5	11.5	
(e) Drainage and external works	9.0	14.7	(See C below)
(f) Furniture and equipment	-	4.5	(See D below)
(g) Consultants' fees	-	3.4	(See E below)
(h) Contingencies	7.9	9.4	
(i) On-cost	-	2.1	(See F below)
	<hr/>	<hr/>	
Total	86.9	109.2	
	<hr/>	<hr/>	
(j) Construction floor area	10 727m <sup>2</sup>	10 727m <sup>2</sup>	
(k) Construction unit cost {[(c)+(d)] ÷ (j)}	\$5,687/m <sup>2</sup>	\$5,687/m <sup>2</sup>	

**\* Assumptions 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 112 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 standard 30-classroom primary school site area of 6 200 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 body for 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.

**Estimate for 290EP**

- A. Site formation works are required for creating an appropriate platform for the school and constructing retaining walls around the eastern periphery of the school site. The foundation for the existing residential blocks is also required to be demolished. The cost is estimated on the basis of the construction floor area of the school building as a proportion of the total construction floor area of the phase 2 housing redevelopment.
- B. The piling cost is lower because it is based on the use of 100 numbers of pre-bored socket H-piles at an average depth of 11 metres instead of 112 numbers of steel H-piles at an average depth of 30 metres. Fewer piles

with shallower depth can be used because the bedrock level is close to the surface.

- C. The school is to be built as part of the public housing estate redevelopment in Shek Pai Wan, Aberdeen. The drainage and external works costs (including the construction cost of an access road to the school) are estimated on the basis of the construction floor area of the school building as a proportion of the total construction floor area of the phase 2 housing redevelopment.
- D. The cost of furniture and equipment, estimated to be \$4.5 million, will be borne by Government as the school will be allocated to an existing bi-sessional school for conversion to whole-day operation.
- E. Consultancy fees are required to pay for contract administration and site supervision.
- F. There is a standard arrangement for Government to pay the HA a 2% on-cost for administrative and supervisory works which the HA undertakes for the Government on an entrustment basis.

**290EP - Primary school in Shek Pai Wan Redevelopment Phase 2**

**Breakdown of estimate for consultants' fees**

Consultants' staff costs		Estimated man-months	Average MPS* salary point	Multiplier Factor	Estimated Fee (\$million)
(a) Contract administration	Professional	6.7	38	2.4	0.9
	Technical	19.8	14	2.4	0.9
(b) Site supervision	Technical	48.0	14	1.7	1.6
				Total	3.4

**\*MPS = Master Pay Scale**

**Notes**

1. A multiplier factor of 2.4 is applied to the average MPS point to arrive at the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultant's offices. A multiplier factor of 1.7 is applied in the case of site staff supplied by the consultant. (At 1.4.2000, MPS pt. 38 = \$57,525p.m. and MPS pt.14 = \$19,055p.m.)
2. The consultants' fees for the work during the construction stage formed an optional part of the lump-sum price quoted by the consultants selected to carry out the project design and tender documentation mentioned in paragraph 18 of the paper. Subject to Members' approval to upgrade **290EP** to Category A, the Director of Housing will direct the necessary works to be carried out.