

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Education – Primary

306EP – Primary school at Shek Pai Street, Kwai Chung

Members are invited to recommend to Finance Committee the upgrading of **306EP** to Category A at an estimated cost of \$90 million in money-of-the-day prices for the construction of a 30-classroom primary school at Shek Pai Street, Kwai Chung.

PROBLEM

We do not have enough primary schools to implement 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 (SEM), proposes to upgrade **306EP** to Category A at an estimated cost of \$90 million in money-of-the-day (MOD) prices for the construction of a 30-classroom primary school at Shek Pai Street, Kwai Chung.

PROJECT SCOPE AND NATURE

3. The proposed primary school will have the following facilities –

/(a)

- (a) 30 classrooms;
- (b) six special rooms, including a computer-assisted learning room and a language room;
- (c) four small group teaching rooms;
- (d) a guidance activity room;
- (e) two interview rooms;
- (f) a staff room;
- (g) a staff common room;
- (h) a student activity centre;
- (i) a conference room;
- (j) a library;
- (k) an assembly hall (which can be used for a wide range of physical activities such as badminton, gymnastics and table-tennis);
- (l) a multi-purpose area;
- (m) three basketball courts (two at ground level and one at the rooftop of the assembly hall block);
- (n) a green corner¹; and
- (o) ancillary accommodation, including a lift and relevant facilities for the handicapped.

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The proposed school will meet the planning target of providing two square metres of open space per student. A site plan is at Enclosure 1 and computer rendering drawings of the school premises are at Enclosure 2. D Arch S plans to start the construction works in November 2003 for completion in July 2005.

/JUSTIFICATION

¹ 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.

JUSTIFICATION

4. The Government has achieved the interim target of enabling 60% of our primary school students to study in whole-day schools in the 2002/03 school year. The Government is further committed to enabling virtually all primary school students to study in whole-day schools by the 2007/08 school year. To this end, SEM plans to construct another 56² new schools between the 2003/04 and 2007/08 school years. To date, Finance Committee has approved funding for 21 new schools, and two more are pending approval³. **306EP** will further help achieve this policy target. Another school project, covered in **321EP**, will also be considered by Members at this meeting (see paper referenced PWSC(2003-04)27).

5. The Kwai Tsing District, in which **306EP** is located, currently has 38 public sector primary schools providing 808 classrooms. SEM forecasts that 123 additional classrooms will be required for full implementation of whole-day primary schooling in the district by the 2007/08 school year. **306EP** will help reduce the shortfall by 30 classrooms to 93 in this district and facilitate conversion of bi-sessional classes into whole-day operation. We plan to meet the rest of projected shortfall in this district through further school construction projects.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost to be \$90 million in MOD prices (see paragraph 7 below), made up as follows –

/(a)

² Based on previous population projection, 48 schools were originally planned to be completed between 2003 to 2007 to achieve 100% whole-day primary schooling. We have revised the plan having regard to the latest population demand and other factors, such as parental choice, project cost and popularity of schools, and have suspended seven originally planned projects. Of these seven projects, **289EP** “A 36-classroom primary school at Pokfield Road, Kennedy Town”, has been upgraded to Category A on 15 July 2002. The project is suspended because the tender outturn is \$32 million above the Approved Project Estimate and exceeds the reference cost for a 36-classroom primary school by about 120%. We consider it not cost-effective to proceed with this project at this level of cost. On the other hand, due to upsurge of population in five districts as revealed in the latest population projection, we plan to build 15 additional new primary schools in these districts by 2007. This makes up our target of building a total of 56 schools between 2003 and 2007.

³ At the Public Works Subcommittee meeting on 21 May 2003, Members agreed to recommend to Finance Committee the upgrading of **310EP** and **315EP** for the construction of a 36-classroom primary school and a 30-classroom primary school respectively. The Finance Committee will consider the recommendation on 13 June 2003.

	\$ million	
(a) Piling	11.0	
(b) Building	45.9	
(c) Building services	14.8	
(d) Drainage and external works	10.2	
(e) Furniture and equipment ⁴	3.9	
(f) Consultants' fees for –	2.5	
(i) Contract administration	1.9	
(ii) Site supervision	0.6	
(g) Contingencies	8.4	
Sub-total	96.7	(in September 2002 prices)
(h) Provision for price adjustment	(6.7)	
Total	90.0	(in MOD prices)

D Arch S proposes to engage consultants to undertake contract administration and site supervision of the project. A detailed breakdown of the estimate for consultants' fees by man-months is at Enclosure 3. The construction floor area (CFA) of **306EP** is 11 200 square metres. The estimated construction unit cost, represented by the building and building services costs, is \$5,420 per square metre of CFA in September 2002 prices. D Arch S considers this comparable to similar school projects built by the Government. A comparison of the reference cost of a 30-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated cost of **306EP** is at Enclosure 4.

/7.

⁴ Based on a standard furniture and equipment list prepared by the Education and Manpower Bureau for "Year 2000 design" schools.

7. Subject to approval, we will phase the expenditure as follows –

Year	\$ million (Sept 2002)	Price adjustment factor	\$ million (MOD)
2003 – 04	8.0	0.94300	7.5
2004 – 05	38.5	0.93003	35.8
2005 – 06	38.0	0.93003	35.3
2006 – 07	10.2	0.93003	9.5
2007 – 08	2.0	0.93003	1.9
	96.7		90.0

8. We have derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period 2003 to 2008. We will deliver the works through a fixed-price lump-sum contract because the contract period will be less than 21 months and we can clearly define the scope of works in advance, leaving little room for uncertainty.

9. The cost of furniture and equipment, estimated to be \$3.9 million, will be borne by the Government as the school will enable an existing bi-sessional school to convert into whole-day operation. This is in line with existing policy.

10. We estimate the annual recurrent expenditure for **306EP** to be \$23.7 million.

PUBLIC CONSULTATION

11. We consulted the Kwai Tsing District Council on 25 February 2003. Members of the Council supported the project.

/ENVIRONMENTAL

ENVIRONMENTAL IMPLICATIONS

12. We engaged a consultant to conduct Preliminary Environmental Review (PER) for **306EP** in September 2002. The PER concluded that the school would not be subject to adverse environmental impacts provided that we implement the following environmental mitigation measures to keep the road traffic noise impact within the limits recommended in the Hong Kong Planning Standards and Guidelines –

Mitigation measures	Estimated cost \$ million (in Sept 2002 prices)
(a) Provision of insulated windows and air-conditioning to 30 classrooms from the 1/F to 6/F and four small group teaching rooms from the 1/F to 4/F at the south-eastern façade of the classroom block	2.6
(b) Provision of insulated windows and air-conditioning to four special rooms from the 1/F to 3/F and on the 5/F at the south-eastern façade of the assembly hall block	0.4

We have included the cost of the above mitigation measures as part of the building services works in the project estimate.

13. During construction, we 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.

14. At the planning and design stages, we have considered measures to reduce the generation of construction and demolition (C&D) materials. D Arch S has introduced more prefabricated building elements into the school design to reduce temporary formwork and construction waste. These include dry-wall partitioning and proprietary fittings and fixtures. We will use suitable excavated materials for filling within the site to minimise off-site disposal. In addition, we will require the contractor to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

15. D Arch S 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. D Arch S will ensure that the day-to-day operations on site comply with the approved WMP. D Arch S will control the disposal of public fill and C&D waste to designated public filling facilities and landfills respectively through a trip-ticket system. D Arch S will require the contractor to separate public fill from C&D waste for disposal at appropriate facilities. D Arch S will record the disposal, reuse and recycling of C&D materials for monitoring purposes. We estimate that the project will generate about 2 900 cubic metres (m³) of C&D materials. Of these, we will reuse about 1 850 m³ (63.8%) on site, 600 m³ (20.7%) as fill in public filling areas⁵, and dispose of 450 m³ (15.5%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$56,250 for this project (based on a notional unit cost⁶ of \$125/m³)

LAND ACQUISITION

16. This project does not require land acquisition.

BACKGROUND INFORMATION

17. We consulted Legislative Council Panel on Education on 20 January 2003 on our latest plan for building secondary and primary schools. This project is one of the planned projects. The Panel had no objection to our proposed plan.

18. We upgraded **306EP** to Category B in April 2002. We engaged a term contractor to carry out the site investigation in September 2002, and consultants to undertake the topographical survey and detailed design in June 2002, PER in September 2002 and tender documentation in March 2003, at a total cost

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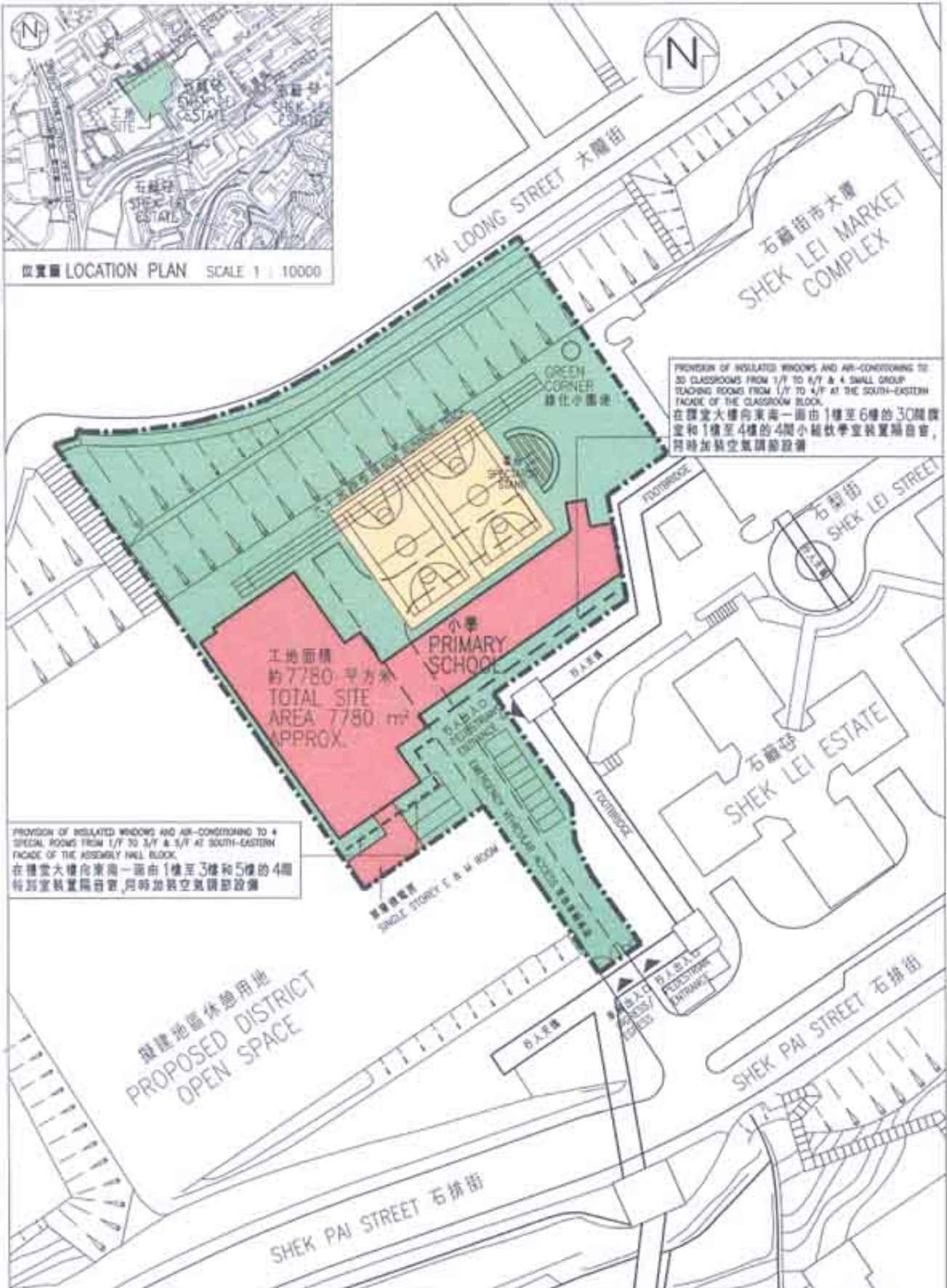
⁵ A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

⁶ This estimate has taken into account the cost for developing, operating and restoring the landfill 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/m³), 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.

of \$3.9 million. We charged this amount to block allocation **Subhead 3100GX** “Project feasibility studies, minor investigations and consultants’ fees for items in Category D of the Public Works Programme”. The term contractor and consultants have completed the site investigation, topographical survey, detailed design and PER of the project. The consultants are finalising the tender documents.

19. We estimate that the project will create some 115 jobs comprising ten professional/technical staff and 105 labourers, totalling 2 200 man-months.

Education and Manpower Bureau
June 2003




位置圖 LOCATION PLAN SCALE 1 : 10000

PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 30 CLASSROOMS FROM 1/F TO 6/F & 4 SMALL GROUP TEACHING ROOMS FROM 1/F TO 4/F AT THE SOUTH-EASTERN FACADE OF THE CLASSROOM BLOCK.
 在課堂大樓向東南一面由 1樓至 6樓的 30間課室和 1樓至 4樓的 4間小組教學室裝置隔音窗，同時加裝空氣調節設備

工地面積
 約 7780 平方米
 TOTAL SITE
 AREA 7780 m²
 APPROX.

PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 4 SPECIAL ROOMS FROM 1/F TO 3/F & 5/F AT SOUTH-EASTERN FACADE OF THE ASSEMBLY HALL BLOCK.
 在禮堂大樓向東南一面由 1樓至 3樓和 5樓的 4間特別室裝置隔音窗，同時加裝空氣調節設備

擬建地區休憩用地
 PROPOSED DISTRICT
 OPEN SPACE


Title 306EP 葵涌石排道的 1 所小學 PRIMARY SCHOOL AT SHEK PAI STREET, KWAI CHUNG	drawn by ROBIN WONG	date 10.02.2003	drawing no. AB/6512/GP001	scale 1:1000
	approved Y. M. CHANG	date 10.02.2003	 ARCHITECTURAL SERVICES DEPARTMENT	
	office ARCHITECTURAL BRANCH			



電腦繪製的校舍模擬圖(東南面) - COMPUTER RENDERING DRAWING OF THE SCHOOL PREMISES (SOUTH-EASTERN VIEW)



電腦繪製的校舍模擬圖(北面) - COMPUTER RENDERING DRAWING OF THE SCHOOL PREMISES (NORTHERN VIEW)

title 306EP 葵涌石排街的1所小學 PRIMARY SCHOOL AT SHEK PAI STREET, KWAI CHUNG	drawn by ROBIN WONG	date 25.02.2003	drawing no. AB/6512/GP002	scale N.T.S.
	approved Y. M. CHANG	date 25.02.2003	 ARCHITECTURAL SERVICES DEPARTMENT	
	office ARCHITECTURAL BRANCH			

306EP – Primary school at Shek Pai Street, Kwai Chung**Breakdown of the estimate for consultants' fees**

Consultants' staff costs		Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a) Contract administration (Note 2)	Professional	–	–	–	1.4
	Technical	–	–	–	0.5
(b) Site supervision (Note 3)	Professional	6.5	38	1.6	0.6
				Total	2.5

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants. (At 1 October 2002, MPS point 38 is \$57,730 per month.)
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of **306EP**. The assignment will only be executed subject to Finance Committee's approval to upgrade **306EP** to Category A.
3. The consultants' staff cost for site supervision is based on the estimate prepared by the Director of Architectural Services. We will only know the actual man-months and actual costs after completion of the construction works.

**A comparison of the reference cost of
a 30-classroom primary school project
with the estimated cost of 306EP**

	\$ million (in Sept 2002 prices)		
	Reference cost*	306EP	
(a) Piling	7.5	11.0	(See note A)
(b) Building	41.3	45.9	(See note B)
(c) Building services	11.0	14.8	(See note C)
(d) Drainage and external works	9.5	10.2	(See note D)
(e) Furniture and equipment	–	3.9	(See note E)
(f) Consultants' fees	–	2.5	(See note F)
(g) Contingencies	7.0	8.4	
Total	<u>76.3</u>	<u>96.7</u>	
(h) Construction floor area	10 727 m ²	11 200 m ²	
(i) Construction unit cost {[(b) + (c)] ÷ (h)}	\$4,876/m ²	\$5,420/m ²	

* **Assumptions for reference cost**

1. The estimation is based on the assumption that the school site is uncomplicated and without unusual environmental restrictions. No allowance is reserved for specific environmental restrictions such as the provision of insulated windows, air-conditioning and 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 handing over the project site for school construction.

3. Piling cost is based on the use of 112 steel H-piles at an average depth of 30 metres, assuming 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 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.

Notes

- A. The piling cost is higher because the ground conditions require 130 rock-socketted steel H-piles at an average depth of 19 metres. The requirement for increased number of piles is due to heavier design loads resulting from larger construction floor area. Moreover, the unit cost of using rock-socketted steel H-pile is higher than that of using normal percussive H-pile even of shorter pile length.
- B. The building cost is higher because of the larger construction floor area.
- C. The building services cost is higher because of the larger construction floor area and the provision of air-conditioning as a noise mitigation measure.
- D. The drainage and external works cost is higher because of the larger site area.
- E. The cost of furniture and equipment, estimated to be \$3.9 million, will be borne by the Government as the school premises will be allocated to an existing bi-sessional school for conversion into whole-day operation.
- F. Consultants’ fees are required for contract administration and site supervision.