

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Education – Primary

310EP – A 36-classroom primary school at Cheung Sha Wan Road, Sham Shui Po

Members are invited to recommend to Finance Committee the upgrading of **310EP** to Category A at an estimated cost of \$113.5 million in money-of-the-day prices for the construction of a 36-classroom primary school at Cheung Sha Wan Road, Sham Shui Po.

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 **310EP** to Category A at an estimated cost of \$113.5 million in money-of-the-day (MOD) prices for the construction of a 36-classroom primary school at Cheung Sha Wan Road, Sham Shui Po.

/PROJECT

PROJECT SCOPE AND NATURE

3. The proposed primary school will have the following facilities –
- (a) 36 classrooms;
 - (b) nine special rooms, including two computer-assisted learning rooms and a language room;
 - (c) four small group teaching rooms;
 - (d) a guidance activity room;
 - (e) two interview rooms;
 - (f) a staff room and a staff common room;
 - (g) a student activity room;
 - (h) a conference room;
 - (i) a library;
 - (j) an assembly hall (which, together with the roof of the assembly hall block, can 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 (two at ground level and one at the rooftop of the assembly hall block);
 - (m) a green corner¹; and
 - (n) ancillary accommodation including two lifts 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 19 new schools. Another project covering two schools is pending upgrading³. **310EP** will help achieve this policy target. Another school project, covered in **315EP**, will also be considered by Members at this meeting (see paper referenced PWSC(2003-04)19).

5. The Sham Shui Po District, in which **310EP** is located, currently has 23 public sector primary schools providing 448 classrooms. SEM forecasts that 103 additional classrooms will be required for full implementation of whole-day primary schooling in the district by the 2007/08 school year. **310EP** will help reduce the shortfall by 36 classrooms to 67 in this district and facilitate conversion of bi-sessional classes into whole-day operation. We plan to meet the rest of the projected shortfall in this district through further school construction projects.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the project to be \$113.5 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 7 May 2003, Members agreed to recommend to Finance Committee the upgrading of **305EP** for the construction of two 36-classroom primary schools. The Finance Committee will consider the recommendation on 30 May 2003.

	\$ million	
(a) Piling	18.6	
(b) Building	55.2	
(c) Building services	18.4	
(d) Drainage and external works	11.6	
(e) Furniture and equipment ⁴	4.6	
(f) Consultants' fees for –	2.8	
(i) Contract administration	2.0	
(ii) Site supervision	0.8	
(g) Contingencies	10.7	
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Sub-total	121.9	(in September 2002 prices)
(h) Provision for price adjustment	(8.4)	
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Total	113.5	(in MOD prices)
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D Arch S proposes to engage consultants to undertake contract administration and site supervision of the project. A detailed breakdown of the estimates for consultants' fees by man-months is at Enclosure 3. The construction floor area (CFA) of **310EP** is 13 300 square metres. The estimated construction unit cost, represented by the building and the building services costs, is \$5,534 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 for a 36-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated cost of **310EP** is at Enclosure 4.

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

/2003

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

Year	\$ million (Sept 2002)	Price adjustment factor	\$ million (MOD)
2003 – 04	10.0	0.94300	9.4
2004 – 05	53.0	0.93003	49.3
2005 – 06	44.3	0.93003	41.2
2006 – 07	12.6	0.93003	11.7
2007 – 08	2.0	0.93003	1.9
	121.9		113.5

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 \$4.6 million, will be borne by the Government as the school will enable existing bi-sessional schools to convert into whole-day operation. This is in line with the existing policy.

10. We estimate the annual recurrent expenditure of the project to be \$26.6 million.

PUBLIC CONSULTATION

11. We consulted the Sham Shui Po District Council on 9 January 2003. Members of the Council supported the project.

/ENVIRONMENTAL

ENVIRONMENTAL IMPLICATIONS

12. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **310EP** in June 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 36 classrooms from the 1/F to 6/F at the north-western façade of the classroom block	3.6
(b) Provision of insulated windows and air-conditioning to four small group teaching rooms from the 3/F to 4/F at the northern façade of the assembly hall block and six special rooms from the 1/F to 3/F at the north-eastern façade of the special room block	1.4
(c) Construction of a three-metre high boundary wall along the north-eastern side of the site	0.6

We have included the cost of the above mitigation measures as part of the building services and external 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. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes. We estimate that the project will generate about 3 480 cubic metres (m³) of C&D materials. Of these, we will reuse about 2 220 m³ (63.8%) on site, 720 m³ (20.7%) as fill in public filling areas⁵, and dispose of 540 m³ (15.5%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$67,500 for this project (based on a notional unit cost⁶ of \$125/m³)

LAND ACQUISITION

16. The project does not require land acquisition.

/BACKGROUND

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.

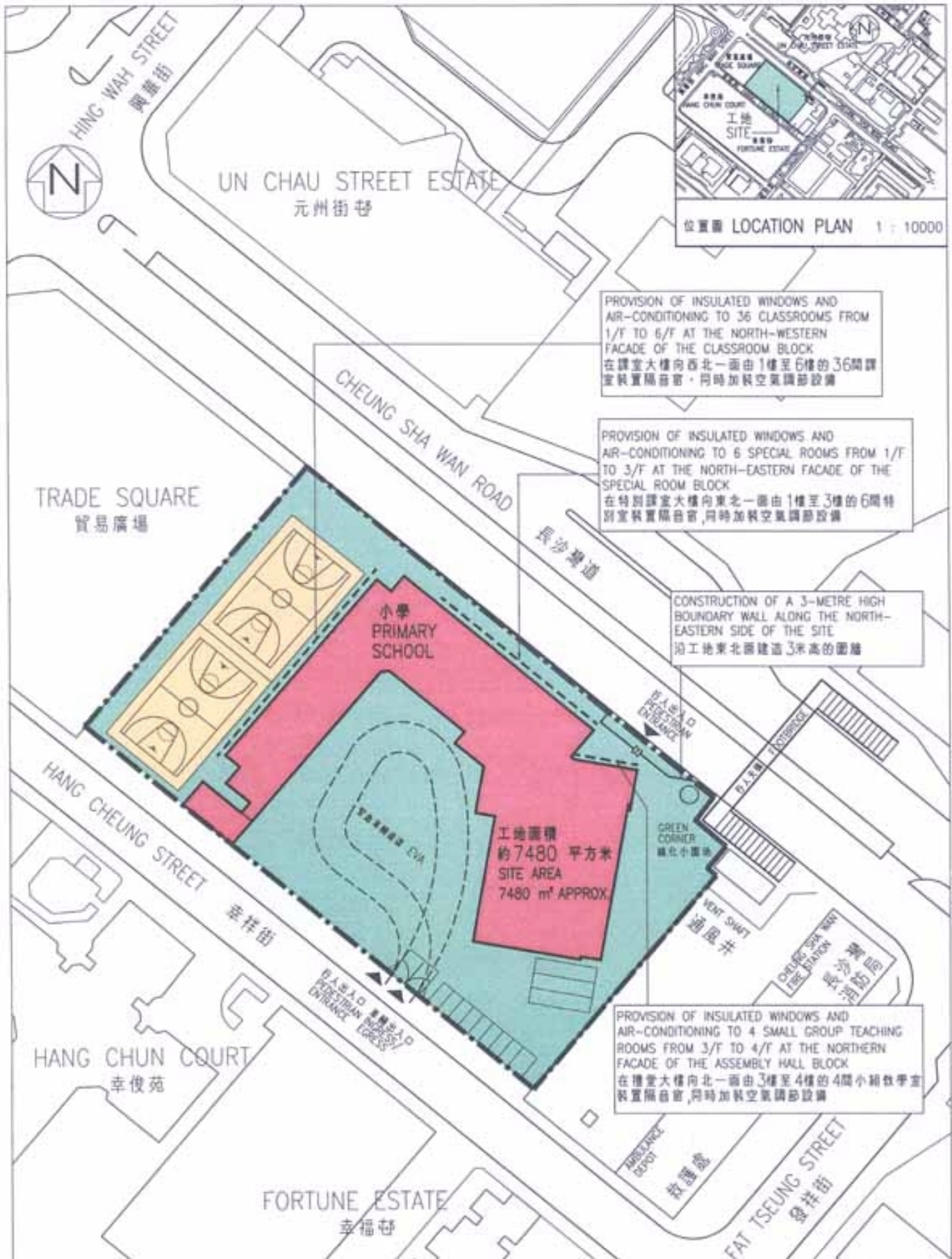
⁶ This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m³), nor the cost to provide new landfills (which 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.

BACKGROUND INFORMATION

17. We upgraded **310EP** to Category B in April 2002. We engaged a term contractor to carry out site investigation in August 2002; and consultants to carry out the PER in June 2002, topographical survey in August 2002, detailed design in December 2002 and tender documentation in March 2003 at a total cost of \$3.9 million. We charged this 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 the consultants have completed the site investigation, PER, topographical survey and detailed design of the project. The consultants are finalising the tender documentation.

18. We estimate that the project will create some 145 jobs comprising ten professional/technical staff and 135 labourers, totalling 2 750 man-months.

Education and Manpower Bureau
May 2003



title 310EP

深水埗長沙灣道 1 所設有 36 間課室的小學

A 36-CLASSROOM PRIMARY SCHOOL
AT CHEUNG SHA WAN ROAD,
SHAM SHUI PO

drawn by

ROBIN WONG

date

25.02.2003

approved

Y. M. CHANG

date

25.02.2003

office

ARCHITECTURAL BRANCH

drawing no.

AB/6529/GP001

scale

1:1000


ARCHITECTURAL
SERVICES
DEPARTMENT



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



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

title 310EP 深水埗長沙灣道1所設有36間課室的小學 A 36-CLASSROOM PRIMARY SCHOOL AT CHEUNG SHA WAN ROAD, SHAM SHUI PO	drawn by ROBIN WONG	date 25.02.2003	drawing no. AB/6529/GP002	scale N.T.S.
	approved Y. M. CHANG	date 25.02.2003	 ARCHITECTURAL SERVICES DEPARTMENT	
	office ARCHITECTURAL BRANCH			

**310EP – A 36-classroom primary school at Cheung Sha Wan Road,
Sham Shui Po**

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	Professional	–	–	–	1.5
	administration (Note 2)	Technical	–	–	–	0.5
(b)	Site supervision (Note 3)	Professional	8.7	38	1.6	0.8
					Total	2.8

* 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 **310EP**. The assignment will only be executed subject to Finance Committee's approval to upgrade **310EP** 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 36-classroom primary school project
with the estimated cost of 310EP**

\$ million (in Sept 2002 prices)

	Reference cost*	310EP	
(a) Piling	11.2	18.6	(See note A)
(b) Building	53.9	55.2	(See note B)
(c) Building services	12.7	18.4	(See note C)
(d) Drainage and external works	11.0	11.6	(See note D)
(e) Furniture and equipment	–	4.6	(See note E)
(f) Consultants' fees	–	2.8	(See note F)
(g) Contingencies	8.9	10.7	
	Total	97.7	121.9
(h) Construction floor area	12 770 m ²	13 300 m ²	
(i) Construction unit cost {[(b) + (c)] ÷ (h)}	\$5,215/m ²	\$5,534/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 140 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 36-classroom primary school site area of 7 000 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 ground conditions require the use of 230 steel H-piles at an average depth of 45 metres instead of 140 steel H-piles at an average depth of 30 metres. The increase in pile numbers is due to larger construction area as well as design allowance for the effect of negative skin friction in view of fill on reclaimed land.
- 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 construction of a three-metre high boundary wall as a noise mitigation measure.
- E. The cost of furniture and equipment, estimated to be \$4.6 million, will be borne by the Government as the school premises will be allocated to existing bi-sessional schools for conversion into whole-day operation.
- F. Consultants’ fees are required for contract administration and site supervision.

[#] We do not have a standard design for 36-classroom primary school. 7 000 square metres are calculated on a pro-rata basis having regard to the site area of a standard design 30-classroom primary school.