For discussion **PWSC(2001-02)60**
on 17 October 2001

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 - BUILDINGS
Education - Primary
292EP - A 36-classroom primary school at Sze Mei Street, San Po Kong

Members are invited to recommend to Finance Committee the upgrading of **292EP** to Category A at an estimated cost of $105.7 million in money-of-the-day prices for the construction of a 36-classroom primary school at Sze Mei Street, San Po Kong.

PROBLEM

We need to provide additional 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, proposes to upgrade **292EP** to Category A at an estimated cost of $105.7 million in money-of-the-day (MOD) prices for the construction of a 36-classroom primary school at Sze Mei Street, San Po Kong.

PROJECT SCOPE AND NATURE

3. The proposed 36-classroom primary school will adopt a non-standard design and have the following facilities -

/(a) …..

(a) 36 classrooms;

(b) nine 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 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 (including two on ground level and one at the rooftop of the assembly hall block);

(m) a green corner[1]; and

(n) ancillary accommodation including two lifts and relevant facilities for the handicapped.

The proposed project will meet the planning target of providing two square metres of open space per student. A site plan is at Enclosure 1. D Arch S plans to start the construction works in January 2002 for completion in August 2003.

/JUSTIFICATION …..

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[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's interim target is to enable 60% of our primary school students to study in whole-day schools in the 2002/03 school year. To achieve this target, 78 new primary schools are required between the 1998/99 and the 2002/03 school years. To date, 52 schools have already been completed, and the remaining 26 are at various stages of construction.

5. 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, Director of Education (D of E) plans to construct another 46 new schools between the 2003/04 and the 2007/08 school years. To date, nine new schools have already been upgraded to Category A. **292EP** will help achieve this policy target. Another three schools, covered in **279EP**, **284EP** and **293EP**, will also be considered by Members at this meeting (see papers referenced PWSC(2001-02)58 and PWSC(2001-02)59).

6. The Wong Tai Sin District, in which **292EP** is located, currently has 25 public sector primary schools providing 594 classrooms. D of E forecasts that an additional 111 classrooms will be required for full implementation of whole-day primary schooling by the 2007/08 school year. **292EP** will help reduce the shortfall by 36 classrooms to 75 and will enable an existing bi-sessional primary school to convert into whole-day operation. We plan to meet the projected shortfall in this district through further school construction projects.

FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the project to be $105.7 million in MOD prices (see paragraph 8 below), made up as follows -

		$ million
(a)	Piling	11.2
(b)	Building	53.9
(c)	Building services	15.3
(d)	Drainage and external works	9.0
(e)	Furniture and equipment	5.0
(f)	Consultant's fees for contract administration	1.8

/(g) …..

		$ million	
(g)	Contingencies	9.1	
	Sub-total	105.3	(in September 2001 prices)
(h)	Provisions for price adjustment	0.4	
	Total	105.7	(in MOD prices)

As D Arch S does not have adequate in-house staff resources, we propose to engage consultants to undertake certain aspects of the contract administration for quantity surveying and building services works of the project. A breakdown by man-months of the estimate for consultants' fees is at Enclosure 2. The construction floor area (CFA) of **292EP** is about 12 770 square metres. The estimated construction unit cost, represented by building and building services costs, is $5,419 per square metre of CFA in September 2001 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 **292EP** is at Enclosure 3.

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

Year	**$ million (Sept 2001)**	**Price adjustment factor**	**$ million (MOD)**
2001 - 02	2.0	1.00000	2.0
2002 - 03	43.0	0.99700	42.9
2003 - 04	42.0	1.00398	42.2
2004 - 05	14.3	1.01101	14.5
2005 - 06	4.0	1.01808	4.1
	105.3		105.7

/9. …..

9. We derived the MOD estimates on the basis of Government's latest forecast of trend labour and construction prices for the period 2001 to 2006. 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.

10. The cost of furniture and equipment[2], estimated to be $5.0 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.

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

PUBLIC CONSULTATION

12. We consulted the Community Building and Social Services Committee of the Wong Tai Sin District Council in August 2001. Members of the Committee supported the project.

ENVIRONMENTAL IMPLICATIONS

13. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **292EP** in December 2000. 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 2001 prices)
Provision of insulated windows and air-conditioning to 18 classrooms and three small group teaching rooms from the G/F to the 4/F at the western façade of the classroom block; and five special rooms from the 2/F to the 4/F at the northern façade of the special room block	2.6

/We …..

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[2] Based on a standard furniture and equipment list prepared by Education Department for "Year 2000 design" school.

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

14. During construction, we will control noise, dust and site run-off nuisances to within established standard 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.

15. 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 designs 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.

16. 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. 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 3 480 cubic metres (m^3) of C&D materials. Of these, we will reuse about 2 220 m^3 (63.8%) on site, 720 m^3 (20.7%) as fill in public filling areas[3], and disposed of 540 m^3 (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 cost[4] of $125/$m^3$).

/LAND …..

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[3] 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.

[4] 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 $90/$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.

LAND ACQUISITION

17. The project does not require land acquisition.

BACKGROUND INFORMATION

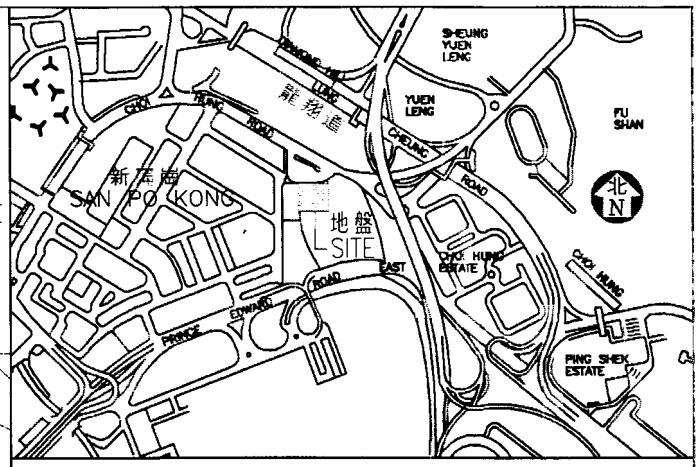
18. We upgraded **292EP** to Category B in June 2001. We engaged consultants to carry out a PER in December 2000 and topographical survey in February 2001 and employed a term contractor to carry out site investigation in March 2001 at a total cost of $710,000. We also engaged consultants to carry out the building services design and tender documentation at a total cost of $1.25 million. We charged these amounts to block allocation **Subhead 3100GX** "Project feasibility studies, minor investigations and consultants' fees for items in Category D of the Public Works Programme". The consultants and the term contractor have completed the PER, topographical survey and site investigation respectively. D Arch S has completed the detailed architectural and structural designs of the project using in-house staff resources. The consultants have completed the building services design and are preparing the tender documents.

19. We estimate that the proposed works under **292EP** will create some 150 jobs with a total of 2 600 man-months comprising three professional staff, seven technical staff and 140 labourers.

Education and Manpower Bureau
October 2001

圖例 LEGEND :
界線及圍牆
SITE BOUNDARY & FENCE WALL

地盤總面積 : 約6 000平方米
TOTAL SITE AREA : 6 000 Sq.m APPROX



位置圖 LOCATION PLAN SCALE 1 : 20 000

北
N

巴士總站
BUS TERMINUS

行人出入口
PEDESTRIAN ENTRANCE

車輛入口
INGRESS POINT

車輛出口
EGRESS POINT

在課室大樓向西面由地下至4樓之18間課室及3間小組教學室安裝隔音玻璃窗和空氣調節
PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 18 CLASSROOMS AND 3 SMALL GROUP TEACHING ROOMS FROM THE G/F TO THE 4/F AT THE WESTERN FACADE OF THE CLASSROOM BLOCK

在特別室大樓向北面由2樓至4樓之5間特別室安裝隔音玻璃窗和空氣調節
PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 5 SPECIAL ROOMS FROM THE 2/F TO THE 4/F AT THE NORTHERN FACADE OF THE SPECIAL ROOM BLOCK

緊急車輛通道 EVA

綠化小園地 GREEN CORNER

四美街
SZE MEI STREET

土地預留作將來道路發展
LAND RESERVED FOR FUTURE ROAD DEVELOPMENT

采頤花園
RHYTHM GARDEN

title 292EP 新蒲崗四美街的1所36間課室小學 A 36-CLASSROOM PRIMARY SCHOOL AT SZE MEI STREET, SAN PO KONG	drawn by W.H.LAW	date 10/07/01	drawing no. AB/6370/XB001	scale 1:1000
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292EP - A 36-classroom primary school at Sze Mei Street, San Po Kong

Breakdown of estimates for consultants' fees

Consultants' staff cost		Estimated man-months	Average MPS* salary point	Multiplier	Estimated fee ($million)
Contract administration	Professional	6.2	38	2.4	0.9
	Technical	19.2	14	2.4	0.9
				Total	1.8

MPS = Master Pay Scale

Notes

(1) A multiplier of 2.4 is applied to the average MPS point to estimate the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. (At 1.4.2001, MPS point 38 is $60,395 per month and MPS point 14 is $19,510 per month.)

(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 building services design and tender documentation mentioned in paragraph 18 of the paper. Subject to Members' approval to upgrade **292EP** to Category A, the Director of Architectural Services will direct the necessary works to be carried out.

A comparison of the reference cost of a 36-classroom primary school project with the estimated cost of 292EP

$ million (in Sept 2001 prices)

	Reference cost*	**292EP**	
(a) Piling	11.2	11.2	
(b) Building	53.9	53.9	
(c) Building services	12.7	15.3	(See note A)
(d) Drainage and external works	11.0	9.0	(See note B)
(e) Furniture and equipment	-	5.0	(See note C)
(f) Consultant's fees for contract administration	-	1.8	(See note D)
(g) Contingencies	8.9	9.1	
Total	97.7	105.3	
(h) Construction floor area	12 770m^2	12 770m^2	
(i) Construction unit cost {[(b) + (c)] ÷ (h)}	$5,215/$m^2$	$5,419/$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 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 handing over the project site for school construction.

3. Piling cost is based on the use of 140 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 36-classroom primary school site area of 7 000 square metres[5] 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 building services cost is higher due to the provision of insulated windows and air-conditioning as a noise mitigation measure.

B. The drainage and external works is lower because the site area of the school (6 000 square metres) is smaller than those of a 36-classroom primary school (7 000 square metres).

C. The cost of furniture and equipment, estimated to be $5.0 million, will be borne by the Government as the school has been allocated to an existing bi-sessional school for conversion into whole-day operation.

D. Consultants' fees are required for contract administration.

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[5] 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.