For discussion **PWSC(2006-07)10**
on 10 May 2006

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT
Education Subventions
84EB – Redevelopment of Pooi To Middle School at Inverness Road, Kowloon City

Members are invited to recommend to Finance Committee the upgrading of **84EB** to Category A at an estimated cost of $138.5 million in money-of-the-day prices for in-situ redevelopment of Pooi To Middle School at Inverness Road, Kowloon City.

PROBLEM

Pooi To Middle School (the School) in Kowloon City is operating in substandard conditions.

PROPOSAL

2. The Secretary for Education and Manpower (SEM), on the advice of the Director of Architectural Services (D Arch S), proposes to upgrade **84EB** to Category A at an estimated cost of $138.5 million in money-of-the-day (MOD) prices for in-situ redevelopment of the School.

PROJECT SCOPE AND NATURE

3. The project scope comprises the demolition of the existing school premises and construction of a new 30-classroom secondary school premises adopting a non-standard design with the following facilities –

/(a) .....

(a) 30 classrooms;

(b) 16 special rooms, including a computer-assisted learning room, a language room and a small lecture room;

(c) three 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 (one at the lower ground floor, one at the ground floor and one at the rooftop of the assembly hall block);

(n) a running track[1];

(o) a green corner[2]; and

(p) ancillary accommodation, including a medical room, two lifts and relevant facilities for the handicapped.

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[1] Making optimal use of the space of the campus, a 50-metre running track will be provided.

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

The redeveloped school premises will meet the planning target of providing two square metres (m^2) of open space per student. A site plan is at Enclosure 1 and views of the new school premises (artist's impression) are at Enclosure 2. The school sponsor plans to start the demolition of the existing school premises in August 2006 and start the construction works of the new school premises in November 2006 for completion in August 2008.

JUSTIFICATION

4. The School is a 30-classroom secondary school with an enrolment rate of 100% in the 2005/06 school year. The existing school premises, built in 1953, falls short of the provision as stipulated in the current standard schedule of accommodation. Certain essential facilities for effective teaching and learning, such as small group teaching rooms, conference room, guidance activity room, interview rooms, student activity centre etc. are lacking.

5. The existing school premises is deteriorating and requires frequent repair in recent years. The School was not included under the School Improvement Programme[3] since improvement works would not be feasible due to site constraints. Redevelopment is considered to be the most cost-effective way to provide a quality teaching and learning environment for teachers and students of the School. During the redevelopment period, students will use the premises of ex-Tack Ching Girls' Middle School in Sham Shui Po.

6. Upon completion, the new school premises will provide the same number of classrooms as in the existing school. As such, the redevelopment of this school will not have any impact on the supply and demand of public sector school places in the Kowloon City District, in which **84EB** is located.

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[3] The School Improvement Programme involves some 740 existing schools to provide additional space and upgraded facilities to support teaching and learning.

FINANCIAL IMPLICATIONS

7. The school sponsor estimates the capital cost of the project to be $138.5 million in MOD prices (see paragraph 8 below). D Arch S has examined and endorsed the cost estimate, made up as follows –

			$ million	
(a)	Demolition		4.9	
(b)	Piling		25.4	
(c)	Building		53.4	
(d)	Building services		19.7	
(e)	Drainage		2.2	
(f)	External works		9.0	
(g)	Furniture and Equipment (F&E)[4]		6.4	
(h)	Consultants' fees for –		2.7	
	(i) Contract administration	1.3		
	(ii) Site supervision	1.1		
	(iii) Out-of-pocket expenses	0.3		
(i)	Contingencies		12.4	
	Sub-total		136.1	(in September 2005 prices)
(j)	Provision for price adjustment		2.4	
	Total		138.5	(in MOD prices)

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[4] Based on an indicative list of F&E items required by the School. The indicative list is compiled on the basis of a survey on serviceability of the existing F&E of the School and the standard F&E reference list prepared by the Education and Manpower Bureau for new 30-classroom secondary schools.

The school sponsor 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 the new school premises under **84EB** is about 12 224 m^2. The estimated construction unit cost of the new school premises, represented by the building and building services costs, is $5,980 per m^2 of CFA in September 2005 prices. D Arch S considers this comparable to similar school projects built by the Government, except the higher piling costs due to the ground conditions. A comparison of the reference cost of a 30-classroom secondary school based on an uncomplicated site with no unusual environment or geotechnical constraints with the estimated cost of the new school premises is at Enclosure 4.

8. Subject to approval, the school sponsor will phase the expenditure as follows –

Year	$ million (Sept 2005)	Price adjustment factor	$ million (MOD)
2006 – 07	25.8	1.00000	25.8
2007 – 08	72.4	1.01500	73.5
2008 – 09	30.2	1.03023	31.1
2009 – 10	7.7	1.04568	8.1
	136.1		138.5

9. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period 2006 to 2010. The school sponsor will deliver the demolition works of the existing school premises, the piling works and the construction works of the new school premises through two fixed-price lump-sum contracts because the school sponsor can clearly define the scope of works in advance. The contracts will not provide for price adjustment because the contract periods will not exceed 21 months each.

10. The cost of F&E, estimated to be $6.4 million, will be borne by the Government for the redevelopment of the School. This is in line with the existing policy.

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11. Redevelopment of the School per se will not give rise to additional recurrent expenditure, as the mode of operation and the number of classrooms will remain unchanged. The annual recurrent expenditure of the School was $40.4 million in the 2004/05 school year.

PUBLIC CONSULTATION

12. We consulted the Kowloon City District Council on 17 November 2005. Members of the District Council supported the redevelopment of the School.

13. We consulted the Legislative Council Panel on Education on 24 October 2005 on our recent review of projects under planning in the School Building Programme. The Panel supported our recommendation to proceed with six projects for redevelopment and reprovisioning purposes, including the current proposal.

ENVIRONMENTAL IMPLICATIONS

14. The school sponsor engaged a consultant to conduct a Preliminary Environmental Review (PER) for **84EB** in December 2005. The PER recommended the provision of insulated windows and air-conditioning for rooms which may be exposed to traffic noise above 65dB, i.e. exceeding the limits recommended in the Hong Kong Planning Standards and Guidelines. We will provide insulated windows and air-conditioning for 15 classrooms, one small group teaching room and nine special rooms from 1/F to 5/F at the western façade at an estimated cost of $4.2 million (in September 2005 prices). The school sponsor has included the cost of these mitigation measures as part of the building services works in the project estimate in paragraph 7 above.

15. During construction, the school sponsor 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 sites, and the provision of wheel-washing facilities.

16. At the planning and design stages, the school sponsor has considered measures to reduce the generation of construction and demolition (C&D) materials. To further minimise the generation of C&D materials, the school sponsor will encourage its contractor to use non-timber formwork and

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recyclable material for temporary works. The school sponsor will require its contractor to re-use the excavated material as filling material on site or in other construction sites as far as possible to minimise the disposal of C&D materials to public fill reception facilities. In addition, the school sponsor will require its contractors to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

17. The school sponsor 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. It will ensure that the day-to-day operations on site comply with the approved WMP. It will also control the disposal of public fill C&D materials and C&D waste to public fill reception facilities, sorting facilities and landfills respectively through a trip-ticket system. It will require the contractor to separate public fill from C&D waste for disposal at appropriate facilities. It will also record the disposal, reuse and recycling of C&D materials for monitoring purposes.

18. The school sponsor estimates that the project will generate about 16 300 tonnes of C&D materials. Of these, it will reuse about 60 tonnes (0.4%) on site, deliver 14 640 tonnes (89.8%) to public fill reception facilities[5] for subsequent re-use, and 700 tonnes (4.3%) to sorting facilities[6] in order to retrieve the inert portion for reuse as public fill. In addition, it will dispose of 900 tonnes (5.5%) at landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites, together with the cost for handling the materials at sorting facilities is estimated to be $577,780 for this project (based on a unit cost of $27/tonne for disposal at public fill reception facilities, $100/tonne at sorting facilities and $125/tonne[6] at landfills).

LAND ACQUISITION

19. The project does not require land acquisition.

/BACKGROUND .....

[5] Sorting facilities and public fill reception facilities are specified in Schedule 3 and Schedule 4 respectively of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of public fill in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

[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 $90/m^3$), nor the cost to provide new landfills, (which is likely to be more expensive) when the existing ones are filled.

BACKGROUND INFORMATION

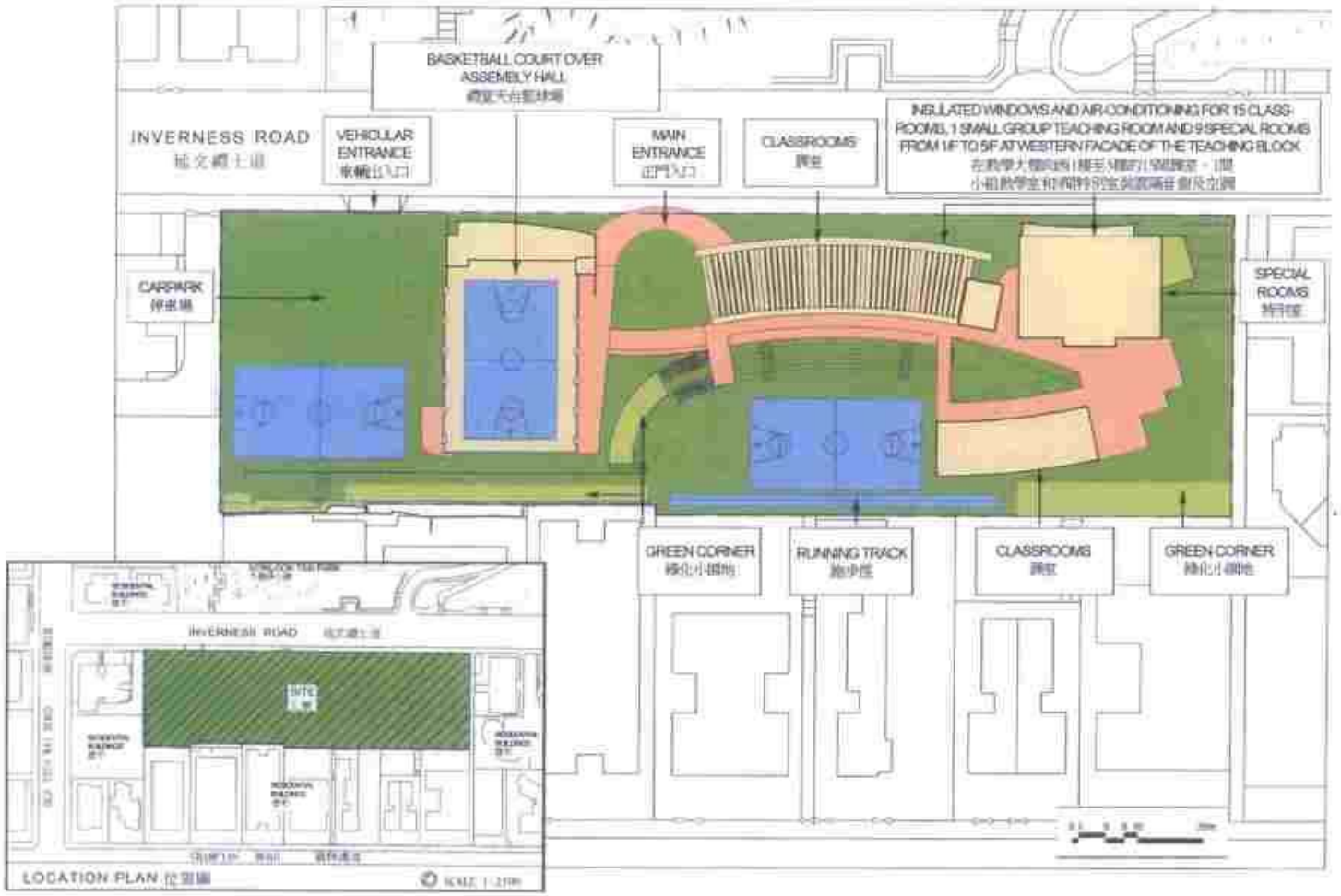
20. We upgraded **84EB** to Category B in November 2004. The school sponsor engaged consultants to undertake the detailed design and tender documentation in April 2005, topographical survey in June 2005 and site investigation in July 2005. We will charge the estimated cost of $3 million for these services to block allocation **Subhead 8100QX** "Alterations, additions, repairs and improvements to education subvented buildings". The consultants engaged by the school sponsor have carried out these services except for the tender documents which are being finalised.

21. Renovation works for ex-Tack Ching Girls' Middle School are being carried out at an estimated cost of $6.2 million by Architectural Services Department to bring the premises up to the minimal standards required for temporary occupation by the School. The works include internal redecoration for classrooms, special rooms and administration rooms, repair works for all toilets, existing staircases, handrails & corridor, patch repairing work for defective water-proofing roof, upgrading existing fire services installations etc. We will charge this amount to block allocation **Subhead 8100QX.** After the School moves into its new premises, the renovated premises of ex-Tack Ching Girls' Middle School would be used to meet the temporary accommodation needs of other schools.

22. The proposed redevelopment of the School will not involve any tree removal or felling proposal. Due to site constraints, the project does not contain any additional planting provision.

23. We estimate that the proposed works will create about 122 jobs (110 for labourers and another twelve for professional/technical staff) providing a total employment of 2 400 man-months.

Education and Manpower Bureau
April 2006



84EB - REDEVELOPMENT OF POOI TO MIDDLE SCHOOL
AT INVERNESS ROAD, KOWLOON CITY
九龍城延文禮士道香港培道中學重建計劃

VIEW OF THE SCHOOL PREMISES FROM WESTERN DIRECTION (ARTIST'S IMPRESSION)
從西面望向校舍的構思圖

VIEW OF THE SCHOOL PREMISES FROM EASTERN DIRECTION (ARTIST'S IMPRESSION)
從東面望向校舍的構思圖

84EB – Redevelopment of Pooi To Middle School at Inverness Road, Kowloon City

Breakdown of the estimate for consultants' fees

			Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee ($ million)
(a)	Consultants' staff costs					
	(i) Contract administration(Note 2)	Professional Technical	–	–	–	1.3
	(ii) Site supervision(Note 3)	Technical	38	14	1.6	1.1
					Sub-total	2.4
(b)	Out-of-pocket expenses(Note 4)					
	Lithography and other direct expenses					0.3
					Sub-total	0.3
					Total	2.7

* 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. (As at 1 January 2005, MPS point 14 = $18,010 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 **84EB**. The assignment will only be executed subject to Finance Committee's approval to upgrade **84EB** to Category A.

3. We will only know the actual man-months and actual costs for site supervision after completion of the works.

4. 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.

A comparison of the reference cost of a 30-classroom secondary school project with the estimated cost of the new school premises under 84EB

			$ million (in September 2005 prices)		
			Reference cost*	**84EB**	
(a)	Demolition		–	4.9	(See note A)
(b)	Piling		9.7	25.4	(See note B)
(c)	Building		53.5	53.4	(See note C)
(d)	Building services		15.5	19.7	(See note D)
(e)	Drainage		2.3	2.2	(See note E)
(f)	External works		9.2	9.0	(See note E)
(g)	Furniture and Equipment (F&E)		–	6.4	(See note F)
(h)	Consultants' fees		–	2.7	(See note G)
(i)	Contingencies		9.0	12.4	
		Total	99.2	136.1	
(j)	Construction floor area		12 238 m^2	12 224 m^2	
(k)	Construction unit cost {[(c) + (d)] ÷ (j)}		$5,638/$m^2$	$5,980/$m^2$	

/**Assumptions** .....

*** 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 101 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. Costs for drainage and external works are for a standard 30-classroom 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. F&E costs are excluded as they are usually borne by the sponsoring bodies of the new schools.

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

Notes

A. Additional cost is required for demolition of the existing school premises.

B. The piling cost is higher because of the use of 124 socketted H-piles at an average depth of 48 metres and 16 mini-piles at an average depth of 41 metres for the new school premises. Socketted H-piles system instead of driven H-pile is used because corestone and hard layer above the reliable founding stratum were encountered. In addition, the vibration to the existing masonry walls and limited working hours also limit the choice of driven H-piles.

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C. The building cost is lower because of the smaller construction floor area.

D. The building services cost is higher because of additional air-conditioning to rooms due to noise mitigation measures for the School.

E. The drainage and external works costs are lower because of the relatively small site area.

F. The cost of F&E, estimated to be $6.4 million, will be borne by the Government.

G. Consultants' fees are required for contract administration, site supervision and out-of-pocket expenses.