For discussion **PWSC(2000-01)54**
on 8 November 2000

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 - BUILDINGS
Education - Primary
268EP – A 24-classroom primary school at the junction of Tsing King Road and Tsing Luk Street, Tsing Yi

Members are invited to recommend to Finance Committee the upgrading of **268EP** to Category A at an estimated cost of $91.9 million in money-of-the-day prices for the construction of a 24-classroom primary school at the junction of Tsing King Road and Tsing Luk Street, Tsing Yi.

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 **268EP** to Category A at an estimated cost of $91.9 million in money-of-the-day (MOD) prices for the construction of a primary school at the junction of Tsing King Road and Tsing Luk Street, Tsing Yi.

/ PROJECT .....

PROJECT SCOPE AND NATURE

3. The proposed primary school is a standard design 24-classroom school building. The school will have -

(a) 24 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) two staff rooms 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) two basketball courts (one at ground level and the other at the rooftop of the assembly hall block); and

(m) ancillary accommodation including a lift and relevant facilities for the handicapped.

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. D Arch S plans to start construction works in January 2001 for completion in July 2002.

/ **JUSTIFICATION** .....

JUSTIFICATION

4. To meet the increase in demand for primary school places and to help achieve the policy target of enabling 60% of pupils in public sector schools to study on a whole-day basis by the school year 2002/03, the Director of Education (D of E) originally planned to build 73 new primary schools for completion between August 1998 and August 2002. Pursuant to the latest projection on population distribution[1] which indicates that further primary school places will need to be provided in certain districts in order to meet the 60% whole-day primary schooling target, D of E now plans to build five additional schools on top of the 73 schools mentioned above, making up a total of 78 schools for completion by the school year 2002/03. To date, 36 of these 78 schools have been completed, and another 32 are at various stages of construction. Another five projects **252EP, 267EP, 276EP, 286EP** and **287EP** will also be considered by Members at this meeting (see papers referenced PWSC(2000-01)53, PWSC(2000-01)55 and PWSC(2000-01)56).

5. Kwai Tsing District currently has 28 public sector primary schools providing 690 classrooms. Whilst D of E forecasts that no additional classrooms are required to meet the increase in demand for school places by the school year 2002/03, **268EP** will enable an existing bi-sessional primary school in the district to convert into whole-day operation.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the project to be $91.9 million in MOD prices (see paragraph 7 below), made up as follows -

		$ million
(a)	Piling	9.0
(b)	Building	45.8
(c)	Building services	14.7
(d)	Drainage and external works	6.8
(e)	Furniture and equipment	4.3

/ (f) .....

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[1] The Working Group on Population Distribution under the Planning Department releases updated projection on population distribution from time to time. The last update was released in February 2000.

		$ million	
(f)	Contingencies	7.6	
	Sub-total	88.2	(in September 2000 prices)
(g)	Provision for price adjustment	3.7	
	Total	91.9	(in MOD prices)

The construction floor area of **268EP** is 9 129 square metres. The construction unit cost, represented by building and building services costs, is $6,627 per square metre in September 2000 prices. D Arch S considers the estimated construction unit cost comparable to similar school projects built by the Government. A comparison of the standard cost of a 24-classroom primary school with the estimated cost for this school is at Enclosure 2.

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

Year	**$ million (Sept 2000)**	**Price adjustment factor**	**$ million (MOD)**
2000 - 01	1.0	1.00000	1.0
2001 - 02	46.0	1.02550	47.2
2002 - 03	34.0	1.05627	35.9
2003 - 04	7.2	1.08795	7.8
	88.2		91.9

8. We derived the MOD estimates on the basis of Government's latest forecast of trend labour and construction prices for the period 2000 to 2004. We will tender the works under a fixed-price lump-sum contract because the construction period will be less than 21 months and we can clearly define the scope of works in advance, leaving little room for uncertainty.

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9. We estimate the annually recurrent expenditure for the school to be $19.1 million.

PUBLIC CONSULTATION

10. We consulted the Community Affairs Committee of the Kwai Tsing District Council on **268EP** in April 2000. Members of the Council supported the project.

ENVIRONMENTAL IMPLICATIONS

11. We conducted a Preliminary Environmental Review (PER) for the school in October 1999. The PER concluded that the school will not be subject to adverse environmental impacts provided that we implement the following environmental mitigation measure to keep the road traffic noise impact on the proposed schools within the limits stipulated in the Hong Kong Planning Standards and Guidelines -

Mitigation Measure	Estimated Cost $ million (in Sept 2000 prices)
Provision of insulated windows and air-conditioning to 24 classrooms and four remedial teaching rooms from the 1/F to the 6/F at the southern façade of the classroom block and two special rooms on the 2/F and 3/F at the eastern façade of the special room block.	4.0

We have included the cost of this mitigation measure as part of the building and building services works in the project estimate.

12. During construction, we will control noise, dust and site run-off nuisances through the implementation of mitigation measures in the relevant contract. These include the use of silencers, mufflers, acoustic lining or shields for noisy construction activities, as well as frequent cleaning and watering of the site.

13. We estimate that some 250 cubic metres of public fill will be delivered to public filling areas and about 550 cubic metres of construction and demolition (C&D) waste will be disposed of at landfills. Ways of minimizing

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the generation of C&D materials were considered at the planning and design stage. We will require the contractor to implement necessary measures to minimize the generation of C&D materials. Where such materials are produced, we will try to reuse and recycle them. If this is not possible, C&D materials will be disposed of through designated public filling facilities and/or in landfills through a trip ticket system. The reuse, recycling and disposal of C&D materials will be properly recorded for monitoring purposes.

LAND ACQUISITION

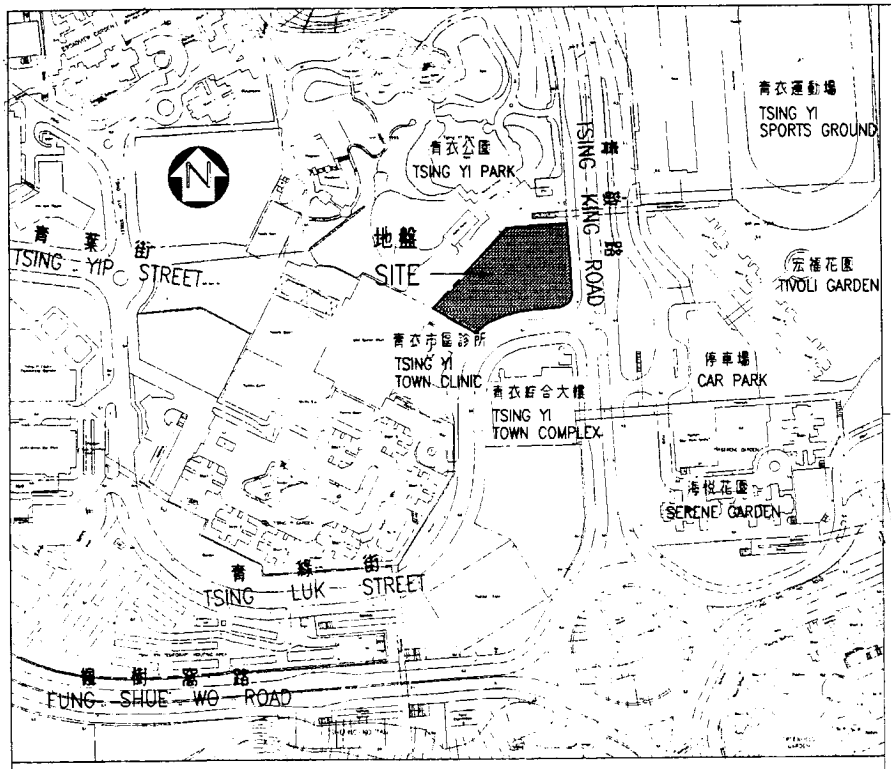
14. The project does not require any land acquisition.

BACKGROUND INFORMATION

15. We upgraded **268EP** to Category B in September 1999. We engaged consultants to carry out topographical survey and PER in December 1998 and employed a term contractor to carry out ground investigation in April 2000 at a total cost of $826,000. 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 consultants and the term contractor have completed the PER, topographical survey and ground investigation. D Arch S has completed the detailed design and the tender documents of the project using in-house staff resources.

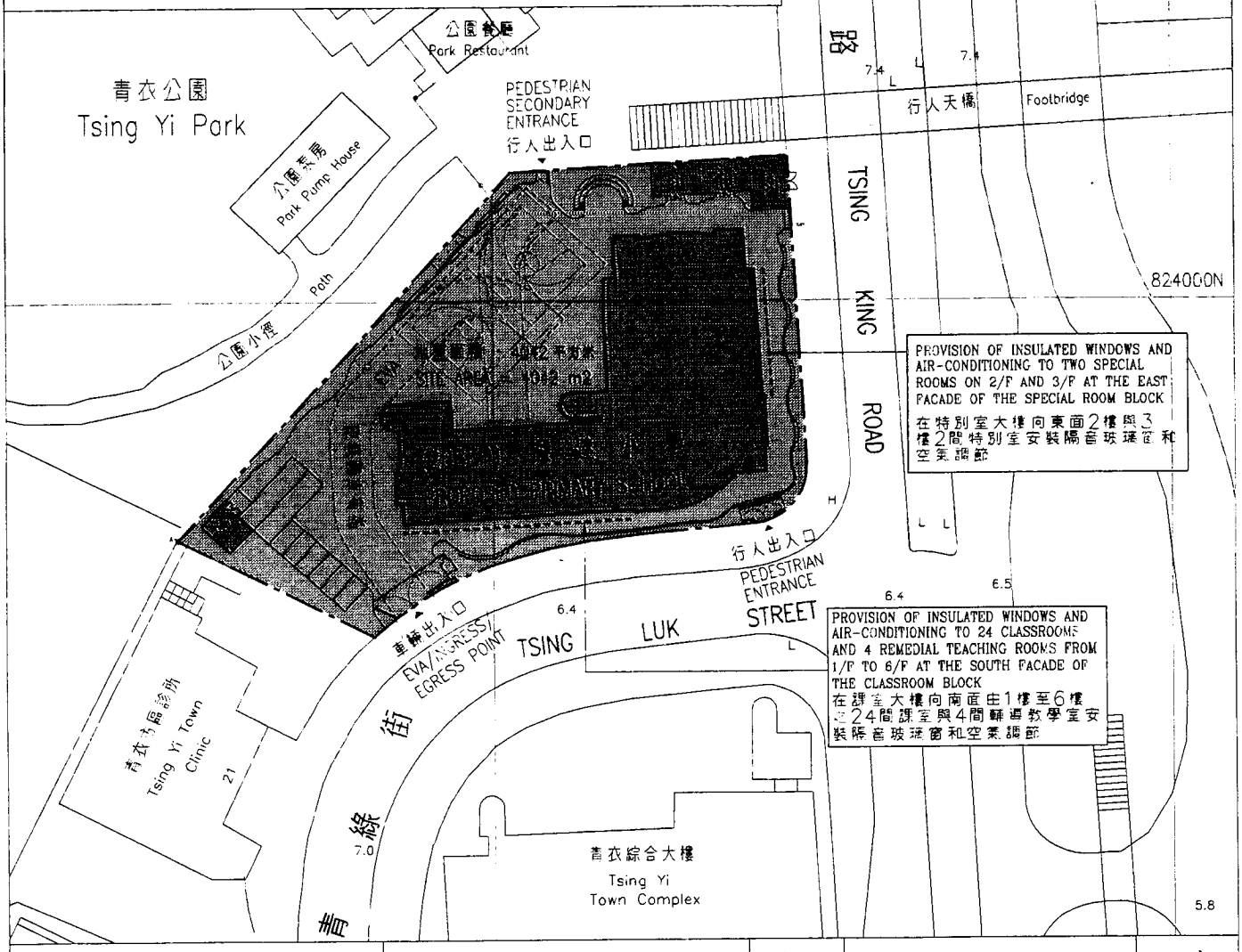
16. We estimate that the proposed project will create some 140 jobs with a total of 2 395 man-months comprising three professional staff, seven technical staff and 130 labourers during the construction period.

Education and Manpower Bureau
October 2000



位置圖
LOCATION PLAN

比例 SCALE : 1:5000



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小學(設有 24 間課室)建校計劃的標準建校費用與 268EP 號工程計劃的預算費的比較

		標準建校費用 *	268EP	
		百萬元 (按 2000 年 9 月價格計算)		
(a)	打樁工程	8.0	9.0	(見下文 A 項)
(b)	建築工程	45.5	45.8	(見下文 B 項)
(c)	屋宇裝備	11.0	14.7	(見下文 C 項)
(d)	渠務和外部工程	7.5	6.8	(見下文 D 項)
(e)	家具和設備	-	4.3	(見下文 E 項)
(f)	應急費用	7.2	7.6	
	總計	79.2	88.2	
(g)	建築面積	9 129 平方米	9 129 平方米	
(h)	建築費用單位價格 {[(b)+(c)]÷(g)}	每平方米 6,189 元	每平方米 6,627 元	

* 計算標準建校費用時所假設的事項

1. 預計費用時，是假設建校地點的土地狀況並不複雜，而且沒有異常的環境限制。實施特定的紓減環境影響措施，如安裝隔音窗、裝置空氣調節設備和建造實心圍牆，以消減學校所受的噪音影響所需的費用，並不包括在內。

2. 無須進行工地平整工程／土力工程，因為在一般情況下，這些工程會在工地交付有關方面進行建校工程前，由其他政府部門以另一項工程撥款進行。

3. 打樁費用是假設可進行撞擊式打樁，並根據把 101 枝鋼製工字樁打至平均 30 米的深度所需的費用計算得出。這項費用還包括樁帽、連接樑和測試的費用，但處理填海土地填土所引致的負表面摩擦力問題所需的費用，則不包括在內。

Enclosure 2 to PWSC(2000-01)54

A comparison of the standard cost of a 24-classroom primary school project with the estimated cost of 268EP

		Standard cost*	268EP	
		$ million (in Sept 2000 prices)		
(a)	Piling	8.0	9.0	(See A below)
(b)	Building	45.5	45.8	(See B below)
(c)	Building services	11.0	14.7	(See C below)
(d)	Drainage and external works	7.5	6.8	(See D below)
(e)	Furniture and equipment	-	4.3	(See E below)
(f)	Contingencies	7.2	7.6	
	Total	79.2	88.2	
(g)	Construction floor area	9 129m^2	9 129m^2	
(h)	Construction unit cost {[(b)+(c)] ÷ (g)}	\$6,189/m^2	\$6,627/m^2	

*** Assumptions for standard 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 101 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 24-classroom primary school site area of 4 700 square metres built on an average level site without complicated geotechnical conditions, utility diversions, etc. (i.e. a greenfield site).

5. No consultancy services are required.

6. Furniture and equipment costs are excluded as they are usually borne by the sponsoring body.

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

Estimates for 268EP

A. The piling cost is higher because it is based on the use of 110 numbers of rock socketed steel H-piles in pre-bored holes at an average depth of 22 metres instead of 101 numbers at an average depth of 30 metres in a standard 24-classroom primary school. Rock socketed steel H-piles in pre-bored holes are considered as the most suitable piling system because the ground investigation shows a prevalence of large boulders. There is also evidence of negative skin friction which requires additional number of piles.

B. The building cost is higher because of the provision of the insulated windows as a noise mitigation measure.

C. The building services cost is higher because of the provision of air-conditioning as a noise mitigation measure.

D. The drainage and external works cost is lower because the site area of 4 042 square metres is smaller than that for a standard 24-classroom primary school (4 700 square metres).

E. The cost of furniture and equipment, estimated to be $4.3 million, will be borne by Government as the school will be allocated to an existing bi-sessional school for conversion to whole-day operation.