

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 - BUILDINGS

Education – Secondary

237ES – Secondary school at Kai Lai Road, Kowloon Bay

Education – Primary

252EP – Primary school at Wang Chiu Road, Kowloon Bay

276EP – Primary school at Kai Lai Road, Kowloon Bay

Members are invited to recommend to Finance Committee the upgrading of **237ES**, **252EP** and **276EP** to Category A at an estimated cost of \$118.2 million, \$103.2 million and \$92.1 million respectively in money-of-the-day prices for the construction of a secondary school at Kai Lai Road, a 30-classroom primary school at Wang Chiu Road and a 24-classroom primary school at Kai Lai Road, Kowloon Bay.

PROBLEM

We do not have enough secondary schools to meet the increase in demand for new school places by the school year 2002/03. We also need to provide additional primary schools for the implementation of the whole-day primary schooling policy.

/ PROPOSAL

PROPOSAL

2. The Director of Architectural Services (D Arch S), with the support of the Secretary for Education and Manpower, proposes to upgrade the following projects to Category A at an estimated total cost of \$313.5 million in money-of-the-day (MOD) prices -

	Project Estimate \$ million (MOD)
(a) 237ES – Secondary school at Kai Lai Road, Kowloon Bay	118.2
(b) 252EP – Primary school at Wang Chiu Road, Kowloon Bay	103.2
(c) 276EP – Primary school at Kai Lai Road, Kowloon Bay	92.1
Total	313.5

PROJECT SCOPE AND NATURE

3. The proposed schools are located at Kai Lai Road and Wang Chiu Road, Kowloon Bay. The sites for the proposed schools are adjacent to each other and have mutual boundaries. The school buildings will adopt standard school designs, but the open area of the schools will be pooled together to provide common facilities for sharing by the schools. The schools will have -

	237ES (secondary school)	252EP (primary school)	276EP (primary school)
Standard facilities			
(a) classrooms;	30	30	24
(b) special rooms, including a computer-assisted learning room and a language room;	16	6	6

/ (c)

	237ES (secondary school)	252EP (primary school)	276EP (primary school)
(c) remedial teaching rooms;	3	4	4
(d) guidance activity /interview room;	1	1	1
(e) interview rooms;	2	2	2
(f) staff rooms;	2	2	2
(g) staff common room;	1	1	1
(h) student activity centre;	1	1	1
(i) conference room;	1	1	1
(j) library;	1	1	1
(k) 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);	1	1	1
(l) multi-purpose area;	1	1	1
(m) basketball courts (inclusive of one/two on ground level and an additional one at the rooftop of the assembly block);	3	3	2
(n) ancillary accommodation including a lift and relevant facilities for the handicapped;	yes	yes	yes

/ Shared

Shared facilities

- (o) a mini-soccer pitch (above covered car park)¹;
- (p) a covered carpark with 22 carparking spaces¹ (to be shared by **237ES** and **276EP** only since parking spaces for **252EP** will be available within its school boundary); and
- (q) a green corner².

The three proposed schools will all be able to meet the planning target of providing two square metres of open space per student. A site plan for the schools is at Enclosure 1. D Arch S plans to start construction works in December 2000 for completion in July 2002.

JUSTIFICATION***237ES - Secondary school at Kai Lai Road, Kowloon Bay***

4. The Director of Education (D of E) forecasts that 139 additional secondary school classes will still be required in the territory by the school year 2002/03 to meet the increase in demand for new places. **237ES**, together with another project (**170ES**), to be considered by Members at this meeting (see paper referenced PWSC(2000-01)56), will further provide a total of 60 classrooms. We plan to meet the projected shortfall in future through further school construction projects.

252EP – Primary school at Wang Chiu Road, Kowloon Bay***276EP – Primary school at Kai Lai Road, Kowloon Bay***

5. 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, D of E originally planned to build 73 new primary schools for completion between August 1998

/ and

¹ By constructing a covered carpark (the construction cost of which is about \$4.7 million), we will be able to provide an additional mini-soccer pitch for sharing by the three schools.

² The green corner is a designated area inside the campus to enable students to pursue their interests in horticulture and natural environment. The green corner includes a green house, a weather station and planting beds.

and August 2002. Pursuant to the latest projection on population distribution³ 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 four projects **267EP**, **268EP**, **286EP** and **287EP** will also be considered by Members at this meeting (see papers referenced PWSC(2000-01)54, PWSC(2000-01)55 and PWSC(2000-01)56).

6. Kwun Tong District currently has 30 public sector primary schools providing 708 classrooms. D of E forecasts that an additional 152 classrooms will be required to meet increase in demand for school places by the school year 2002/03. To meet this new demand, four primary school projects providing 120 classrooms for completion by the school year 2001/02 have already been upgraded to Category A and are at various stages of construction. **276EP** will help eliminate the remaining shortfall while **252EP** will enable an existing bi-sessional primary school in the district to convert into whole-day operation.

FINANCIAL IMPLICATIONS

7. We estimate the capital cost of **237ES**, **252EP** and **276EP** to be \$118.2 million, \$103.2 million and \$92.1 million respectively including the cost of the shared facilities which amounts to \$5.4 million in MOD prices (see paragraph 8 below), made up as follows -

	237ES	252EP	276EP
	\$ million		
(a) Piling	15.9	12.9	11.7
(b) Building	58.9	49.7	45.8
(c) Building services	16.9	12.5	13.6

/ (d)

³ The Working Group on Population Distribution under the Planning Department releases updated projection on population distribution from time to time. The latest update was released in February 2000.

	237ES	252EP	276EP	
	\$ million			
(d) Drainage and external works	9.7	8.8	7.3	
(e) Shared facilities	1.8	1.8	1.8	
(f) Furniture and equipment (see paragraph 10 below)	-	4.5	-	
(g) Contingencies	10.3	8.6	8.0	
Sub-total	113.5	98.8	88.2	(in September 2000 prices)
(h) Provisions for price adjustment	4.7	4.4	3.9	
Total	118.2	103.2	92.1	(in MOD prices)

The construction floor area for **237ES**, **252EP** and **276EP** is 12 238 square metres, 10 727 square metres and 9 129 square metres respectively. The respective construction unit costs of these schools, represented by building and building services costs, are \$6,194 per square metre, \$5,798 per square metre and \$6,507 per square metre. D Arch S considers the estimated construction unit costs comparable to similar school projects built by the Government. Comparisons of the standard costs of a secondary school, a 30-classroom primary school and a 24-classroom primary school with the estimated costs for **237ES**, **252EP** and **276EP** are at Enclosures 2, 3 and 4 respectively.

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

Year	\$ million (Sept 2000)			Price adjustment factor	\$ million (MOD)		
	237ES	252EP	276EP		237ES	252EP	276EP
2000 – 01	3.0	2.5	2.7	1.00000	3.0	2.5	2.7

/ 2001 - 02

Year	\$ million (Sept 2000)			Price adjustment factor	\$ million (MOD)		
	237ES	252EP	276EP		237ES	252EP	276EP
2001 – 02	56.5	47.7	41.9	1.02550	57.9	48.9	43.0
2002 – 03	43.3	34.7	32.3	1.05627	45.7	36.7	34.1
2003 – 04	10.7	13.9	11.3	1.08795	11.6	15.1	12.3
	<u>113.5</u>	<u>98.8</u>	<u>88.2</u>		<u>118.2</u>	<u>103.2</u>	<u>92.1</u>

9. 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 contract period will be shorter 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 for **237ES** and **276EP**, estimated to be \$9.4 million and \$4.3 million respectively, will be borne by the school sponsor as the schools will be allocated to meet increase in demand for school places. For **252EP**, the cost of furniture and equipment will be borne by the Government as the school will enable an existing bi-sessional school to convert into whole-day operation. The above arrangement for furniture and equipment cost is in accordance with established practice.

11. We estimate the annually recurrent expenditure for **237ES**, **252EP** and **276EP** to be \$40.8 million, \$23.1 million and \$19.1 million respectively. The shared facilities will not incur any additional recurrent expenditure.

PUBLIC CONSULTATION

12. We consulted the Social Services Committee of the Kwun Tong District Council in March 2000. Members of the Committee supported the projects.

/ ENVIRONMENTAL

ENVIRONMENTAL IMPLICATIONS

13. We conducted Preliminary Environmental Reviews (PERs) for the three projects in September 1999. The PERs concluded that these schools would not be subject to adverse environmental impacts provided that we will implement the following environmental mitigation measures to keep the road traffic noise impact on the proposed schools within the limits stipulated in the Hong Kong Planning Standards and Guidelines -

Project No.	Mitigation Measures	Estimated Cost \$ million (in Sept 2000 prices)
237ES	(a) Construction of a 3-metre high solid boundary wall at the eastern and southern sides of the site;	0.1
	(b) Provision of insulated windows and air-conditioning to 30 classrooms and one remedial teaching room from the 1/F to the 6/F at the northern façade of the classroom block and 12 special rooms from the 1/F to the 6/F at the eastern, southern and western façades of the special room block as well as one remedial teaching room on the 1/F at the eastern façade of the Assembly Hall block;	3.8
252EP	(c) Construction of a 3-metre high solid boundary wall at the eastern side of the site;	0.1
	(d) Provision of insulated windows and air-conditioning to ten classrooms and one remedial teaching room from the 5/F to the 6/F at the northern façade of the classroom block and two special rooms at the 3/F at the eastern façade of the special room block; and	1.2
		/ 276EP

Project No.	Mitigation Measures	Estimated Cost \$ million (in Sept 2000 prices)
276EP	(e) 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 at the 3/F at the western façade of the special room block.	2.9

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

14. During construction, we will control noise, dust and site run-off nuisances 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, as well as frequent cleaning and watering of the site.

15. We estimate that about 400 cubic metres of public fill for **237ES**, 350 cubic metre for **252EP** and 300 cubic metres for **276EP** will be delivered to public filling areas; and about 850 cubic metres of construction and demolition (C&D) waste for **237ES**, 760 cubic metres for **252EP** and 650 cubic metres for **276EP** will be disposed of at landfills. Ways of minimizing 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

16. None of the three school projects requires land acquisition.

/ BACKGROUND

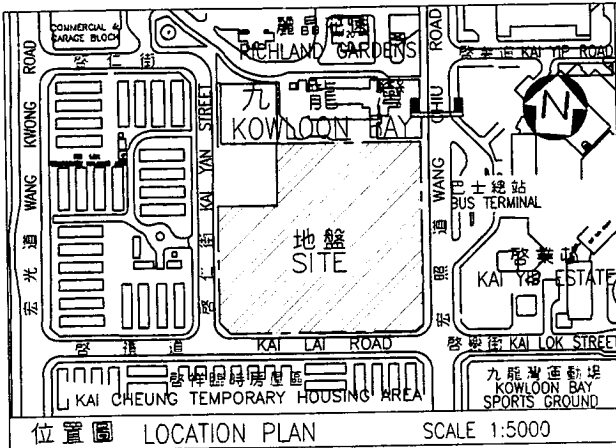
BACKGROUND INFORMATION

17. We upgraded **237ES**, **252EP** and **276EP** to Category B in September 1999. We engaged consultants to carry out PERs and topographical surveys in September 1999 and employed a term contractor to carry out site investigations in April 2000 at a total cost of \$3.03 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 consultants and the term contractor have completed the PERs, topographical surveys and site investigations. D Arch S has completed the detailed design and the tender documents of the projects using in-house staff resource.

18. We estimate that the proposed works will create some 480 new jobs with a total of 8 190 man-months comprising nine professional staff, 21 technical staff and 450 labourers during the construction period.

Education and Manpower Bureau
October 2000

(PWSC0303/Win12)



位置圖 LOCATION PLAN SCALE 1:5000

麗晶花園
RICHLAND GARDENS



WANG CHIU ROAD

診所
CLINIC

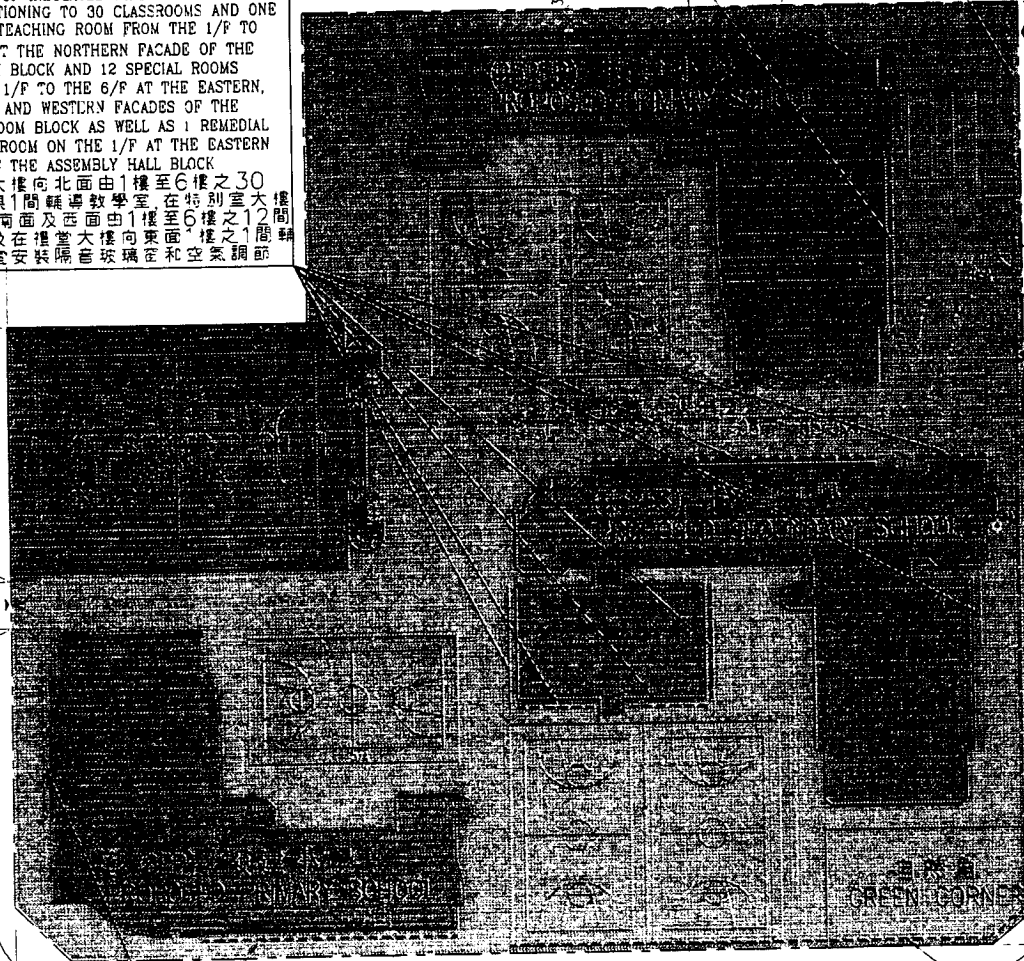
PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 10 CLASSROOMS AND ONE REMEDIAL TEACHING ROOM FROM THE 5/F TO THE 6/F AT THE NORTHERN FACADE OF THE CLASSROOM BLOCK AND TWO SPECIAL ROOMS AT THE 3/F AT THE EASTERN FACADE OF THE SPECIAL ROOM BLOCK
在課室大樓向北面由5樓至6樓之10間課室與1間輔導教學室及在特別室大樓向東面3樓之2間特別室安裝隔音玻璃窗和空氣調節

CONSTRUCTION OF A 3 METER HIGH SOLID BOUNDARY WALL AT THE EASTERN SIDE OF THE SITE
在地盤沿東面興建一幅3米高實心圍牆

行人天橋 FOOTBRIDGE

96.1M APPROX.

PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 30 CLASSROOMS AND ONE REMEDIAL TEACHING ROOM FROM THE 1/F TO THE 6/F AT THE NORTHERN FACADE OF THE CLASSROOM BLOCK AND 12 SPECIAL ROOMS FROM THE 1/F TO THE 6/F AT THE EASTERN, SOUTHERN AND WESTERN FACADES OF THE SPECIAL ROOM BLOCK AS WELL AS 1 REMEDIAL TEACHING ROOM ON THE 1/F AT THE EASTERN FACADE OF THE ASSEMBLY HALL BLOCK
在課室大樓向北面由1樓至6樓之30間課室與1間輔導教學室，在特別室大樓向東、南面及西面由1樓至6樓之12間特別室及在禮堂大樓向東面1樓之1間輔導室安裝隔音玻璃窗和空氣調節



啟祥臨時房屋區
KAI YIP STREET
86.2M APPROX.

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 FACADE OF CLASSROOM BLOCK AND TWO SPECIAL ROOMS AT THE 3/F AT THE WESTERN FACADE OF THE SPECIAL ROOM BLOCK
在課室大樓向南面由1樓至6樓之24間課室與4間輔導教學室及在特別室大樓向西面3樓之2間特別室安裝隔音玻璃窗和空氣調節

啟祥臨時房屋區
KAI CHEUNG TEMPORARY HOUSING AREA

CONSTRUCTION OF A 3 METER HIGH SOLID BOUNDARY WALL AT THE EASTERN AND SOUTHERN SIDES OF THE SITE
在地盤沿東面與南面興建一幅3米高實心圍牆

title 237ES, 252EP & 276EP
九龍灣啟禮道及宏照道
二所小學及一所中學
2 PRIMARY SCHOOLS &
A SECONDARY SCHOOL AT
KAI LAI ROAD & WANG CHIU ROAD,

drawn by TOMMY LEE

date 10/2000

drawing no. 5818
AB/6185/XA101
6184

scale 1:1000

approved LOL S MENG

date 10/2000

office ARCHITECTURAL BRANCH



ARCHITECTURAL SERVICES DEPARTMENT

**A comparison of the standard cost of
a secondary school project
with the estimated cost of 237ES**

		Standard cost*	237ES	
		\$ million (in Sept 2000 prices)		
(a)	Piling	11.0	15.9	(See A below)
(b)	Building	58.5	58.9	(See B below)
(c)	Building services	13.5	16.9	(See C below)
(d)	Drainage and external works	10.0	9.7	(See D below)
(e)	Shared facilities	-	1.8	(See E below)
(f)	Contingencies	9.3	10.3	
Total		102.3	113.5	
(g)	Construction floor area	12 238m ²	12 238m ²	
(h)	Construction unit cost {[(b)+(c)] ÷(g)}	\$5,883/m ²	\$6,194/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 138 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 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 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 continue to periodically review, and revise if necessary, the standard cost which should be adopted for future projects.

Estimates for 237ES

- A. The piling cost is higher because it is based on the use of 154 numbers of steel H-piles at an average depth of 38 metres instead of 138 numbers at an average depth of 30 metres in a standard secondary school. Additional piles are required because the ground investigation shows substantial negative skin friction which will add to the applied loading of the school building. The piles require a greater depth to suit the bedrock level.
- B. The building cost is higher because of the provision of 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. Despite the need to build a 3-metre high solid boundary wall as a noise mitigation measure, the cost for drainage and external works cost is lower because the total site area for the three schools (15 703 square metres) is smaller than the aggregate total site area (17 850 square metres) for a standard secondary school (6 950 square metres), a standard 30-classroom primary school (6 200 square metres) and a standard 24-classroom primary school (4 700 square metres).
- E. The cost of shared facilities is the apportioned cost for the construction of a mini-soccer pitch cum car park and a green corner.

**A comparison of the standard cost of
a 30-classroom primary school project
with the estimated cost of 252EP**

		Standard cost*	252EP	
		\$ million (in Sept 2000 prices)		
(a)	Piling	9.0	12.9	(See A below)
(b)	Building	49.5	49.7	(See B below)
(c)	Building services	11.5	12.5	(See C below)
(d)	Drainage and external works	9.0	8.8	(See D below)
(e)	Shared facilities	-	1.8	(See E below)
(f)	Furniture and equipment	-	4.5	(See F below)
(g)	Contingencies	7.9	8.6	
	Total	<u>86.9</u>	<u>98.8</u>	
(h)	Construction floor area	10 727m ²	10 727m ²	
(i)	Construction unit cost {[(b)+(c)] ÷ (h)}	\$5,687/m ²	\$5,798/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 112 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 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 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 continue to periodically review, and revise if necessary, the standard cost which should be adopted for future projects.

Estimates for 252EP

- A. The piling cost is higher because it is based on the use of 125 numbers of steel H-piles at an average depth of 38 metres instead of 112 numbers at an average depth of 30 metres in a standard 30-classroom primary school. Additional piles are required because the ground investigation shows substantial negative skin friction which will add to the applied loading of the school building. The piles require a greater depth to suit the bedrock level.
- 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. Despite the need to build a 3-metre high solid boundary wall as a noise mitigation measure, the cost for drainage and external works cost is lower because the total site area for the three schools (15 703 square metres) is smaller than the aggregate total site area (17 850 square metres) for a standard secondary school (6 950 square metres), a standard 30-classroom primary school (6 200 square metres) and a standard 24-classroom primary school (4 700 square metres).

- E. The cost of shared facilities is the apportioned cost for the construction of a mini-soccer pitch cum car park and a green corner.
- F. The cost of furniture and equipment, estimated to be \$4.5 million, will be borne by Government as the school will be allocated to existing bi-sessional school for conversion to whole-day operation.

**A comparison of the standard cost of
a 24-classroom primary school project
with the estimated cost of 276EP**

		Standard cost*	276EP	
\$ million (at Sept 2000 prices)				
(a)	Piling	8.0	11.7	(See A below)
(b)	Building	45.5	45.8	(See B below)
(c)	Building services	11.0	13.6	(See C below)
(d)	Drainage and external works	7.5	7.3	(See D below)
(e)	Shared facilities	-	1.8	(See E below)
(f)	Contingencies	7.2	8.0	
	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	\$6,507/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 continue to periodically review, and revise if necessary, the standard cost which should be adopted for future projects.

Estimates for 276EP

- A. The piling cost is higher because it is based on the use of 113 numbers of steel H-piles at an average depth of 38 metres instead of 101 numbers at an average depth of 30 metres in a standard 24-classroom primary school. Additional piles are required because the ground investigation shows substantial negative skin friction which will add to the applied loading of the school building. The piles require a greater depth to suit the bedrock level.
- 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 cost for drainage and external works cost is lower because the total site area for the three schools (15 703 square metres) is smaller than the aggregate total site area (17 850 square metres) for a standard secondary school (6 950 square metres), a standard 30-classroom primary school (6 200 square metres) and a standard 24-classroom primary school (4 700 square metres).
- E. The cost of shared facilities is the apportioned cost for the construction of a mini-soccer pitch cum car park and a green corner.