

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Education – Primary

325EP – First primary school in Area 13, Yuen Long

326EP – Second primary school in Area 13, Yuen Long

Members are invited to recommend to Finance Committee the upgrading of **325EP** and **326EP** to Category A at an estimated cost of \$110.2 million and \$100.2 million respectively in money-of-the-day prices for the construction of two primary schools in Area 13, Yuen Long.

PROBLEM

We need additional school premises to convert two bi-sessional primary schools in the Yuen Long district into whole-day operation.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Education and Manpower (SEM), proposes to upgrade the following projects to Category A –

		Estimated cost (in MOD prices)
(a)	325EP First primary school in Area 13, Yuen Long	\$110.2 million
(b)	326EP Second primary school in Area 13, Yuen Long	\$100.2 million
		/PROJECT

PROJECT SCOPE AND NATURE

3. The two proposed primary schools in Area 13, Yuen Long, located adjacent to one another, will have the following facilities –

	325EP	326E P
(a) classrooms	30	24
(b) special rooms, including a computer-assisted learning room and a language room	6	6
(c) small group teaching rooms	4	4
(d) guidance activity room	1	1
(e) interview rooms	2	2
(f) staff room	1	1
(g) staff common room	1	1
(h) student activity centre	1	1
(i) conference room	1	1
(j) library	1	1
(k) assembly hall (which can be used for a wide range of physical activities such as badminton, gymnastics and table-tennis)	1	1
(l) multi-purpose area	1	1
(m) basketball court at ground level	2	1
(n) ancillary accommodation, including a lift and relevant facilities for the handicapped	available	available

Shared facilities

- (o) a 100-metre running track¹;
- (p) green corner²; and
- (q) bus parking facilities.

¹ Making optimal use of the space of the campus, a 100-metre running track will be provided.

² 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.

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The proposed schools will meet the planning target of providing two square metres (m²) of open space per student. A site plan for **325EP** and **326EP** is at Enclosure 1 and views of the school premises (artist's impression) are at Enclosure 2. Subject to the funding approval of the Finance Committee, we plan to start the construction works of **325EP** and **326EP** in November 2006 for completion in July 2008.

JUSTIFICATION

4. It is Government's policy to implement whole-day primary schooling for virtually all primary school students by the 2007/08 school year. In the 2005/06 school year, over 80% of primary school places are in the whole-day mode. To facilitate implementation of the policy, we have included in our School Building Programme 16 school projects, including **325EP** and **326EP**.

5. Upon completion, **325EP** and **326EP** will provide 30 primary classes and 24 primary classes respectively for converting two existing bi-sessional primary schools in the same district to whole-day operation. Since the projects involve the splitting of two existing bi-sessional schools into four primary schools in the whole-day mode, they will not affect the supply of school places in the Yuen Long District.

FINANCIAL IMPLICATIONS

6. We estimate the capital costs of **325EP** and **326EP** to be \$110.2 million and \$100.2 million respectively in MOD prices (see paragraph 7 below), made up as follows –

	\$ million	
	325EP	326EP
(a) Piling	16.5	15.0
(b) Building	45.7	42.0
(c) Building services	15.8	14.4

	/\$ million	
	\$ million	
	325EP	326EP
(d) Drainage	2.0	1.7
(e) External works	9.3	7.8
(f) Furniture and equipment ³	3.4	3.2
(g) Consultants' fees for –	4.0	3.7
(i) Contract administration	1.7	1.7
(ii) Site supervision	2.3	2.0
(h) Contingencies	9.3	8.5
Sub-total	106.0	96.3
		(in September 2005 prices)
(i) Provision for price adjustment	4.2	3.9
Total	110.2	100.2
		(in MOD prices)

We propose to engage consultants to undertake contract administration and site supervision of the projects. A detailed breakdown of the estimate for consultants' fees by man-months is at Enclosure 3. The construction floor area (CFAs) of **325EP** and **326EP** are 11 475 m² and 9 850 m² respectively. The estimated construction unit costs of **325EP** and **326EP**, represented by the building and the building services costs, are \$5,359 per m² and \$5,726 per m² of CFA in September 2005 prices respectively. We consider these unit costs comparable to similar school projects built by the Government. Comparison of the reference cost for a 30-classroom primary school and 24-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated costs for **325EP** and **326EP** are at Enclosures 4 and 5 respectively.

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³ Based on the standard furniture and equipment reference list prepared by the Education and Manpower Bureau for a new 30-classroom primary school and a new 24-classroom primary school adopting the standard schedule of accommodation.

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

Year	\$ million (Sept 2005)		Price adjustment factor	\$ million (MOD)	
	325EP	326EP		325EP	326EP
2006 – 07	7.3	6.7	1.01500	7.4	6.8
2007 – 08	39.8	36.2	1.03023	41.0	37.3
2008 – 09	44.3	40.3	1.04568	46.3	42.1
2009 – 10	10.5	9.5	1.06136	11.1	10.1
2010 – 11	4.1	3.6	1.07728	4.4	3.9
	<u>106.0</u>	<u>96.3</u>		<u>110.2</u>	<u>100.2</u>

8. We have derived the MOD estimates 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 2011. We intend to award the contract on a lump-sum basis because we can clearly define the scope of the works in advance. The contract will not provide for price adjustment because the contract period will not exceed 21 months.

9. The costs of furniture and equipment, estimated to be \$6.6 million in total, will be borne by the Government. This is in line with the existing policy.

10. We estimate the annual recurrent expenditures for **325EP** and **326EP** to be \$25.9 million and \$18.7 million respectively.

PUBLIC CONSULTATION

11. We consulted the Legislative Council Panel on Education (the Panel) on 24 October 2005 on our review of the School Building Programme. Members generally supported our recommendation to proceed with school projects for converting existing bi-sessional primary schools to whole-day operation.

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12. We also consulted the Yuen Long District Council on **325EP** and **326EP** on 10 March 2006. Members of the Council supported the projects.

13. We circulated to the Panel an information paper on these two primary school projects on 17 May 2006. Members have not raised any comments.

ENVIRONMENTAL IMPLICATIONS

14. We engaged a consultant to conduct Preliminary Environmental Reviews (PERs) for **325EP** and **326EP** in June 2004. The PERs recommended the provision of installation of insulated windows and air-conditioning for rooms exposed to traffic noise exceeding the limits recommended in the Hong Kong Planning Standards and Guidelines. The recommended mitigation measures are as follows –

Mitigation measures	Estimated cost \$ million (in Sept 2005 prices)	
	325EP	326EP
(a) A 2.5 m high boundary wall along the north-eastern and eastern sides of the sites of 325EP and 326EP	0.5	0.3
(b) Insulated windows and air-conditioning for four special rooms from the 2/F to 7/F at the eastern façade of the special room block in 325EP	0.8	—
(c) Insulated windows and air-conditioning for four classrooms from the 3/F to 7/F at the eastern façade of the classroom block and two special rooms on 4/F and 6/F at the southern façade of the special room block in 326EP	—	0.8

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

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15. 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 sites, and the provision of wheel-washing facilities.

16. We have considered in the planning and design stages measures to reduce the generation of construction and demolition (C&D) materials where possible. We will require the contractor to reuse inert C&D materials on site or in other suitable construction sites as far as possible (e.g. use suitable excavated materials for filling within the site, use metal site hoardings and signboards so that these materials can be recycled or reused in other projects), in order to minimise the disposal of C&D materials to public fill reception facilities. We will encourage the contractor to maximize the use of recycled or recyclable C&D materials, as well as the use of non-timber formwork to further minimize the generation of construction waste.

17. We 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. We will ensure that the day-to-day operations on site comply with the approved WMP. We will 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. We 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.

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18. We estimate that the projects will generate the following C&D materials.

	325EP		326EP	
	tonnes	%	tonnes	%
C&D materials reused / recycled on site	3 500	67.3	3 100	68.9
C&D materials to public fill reception facilities ⁴ for subsequent reuse	1 100	21.2	900	20.0
C&D materials to sorting facilities ⁴ to retrieve the inert portion for reuse as public fill	110	2.1	90	2.0
C&D materials to landfills	490	9.4	410	9.1
Total C&D materials generated	5 200	100.0	4 500	100.0

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 \$101,950 for **325EP** and \$84,550 for **326EP** (based on a unit cost of \$27/tonne for disposal at public fill reception facilities, \$100/tonne at sorting facilities and \$125/tonne⁵ at landfills).

LAND ACQUISITION

19. The project does not require any land acquisition.

/BACKGROUND

⁴ 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.

⁵ 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.

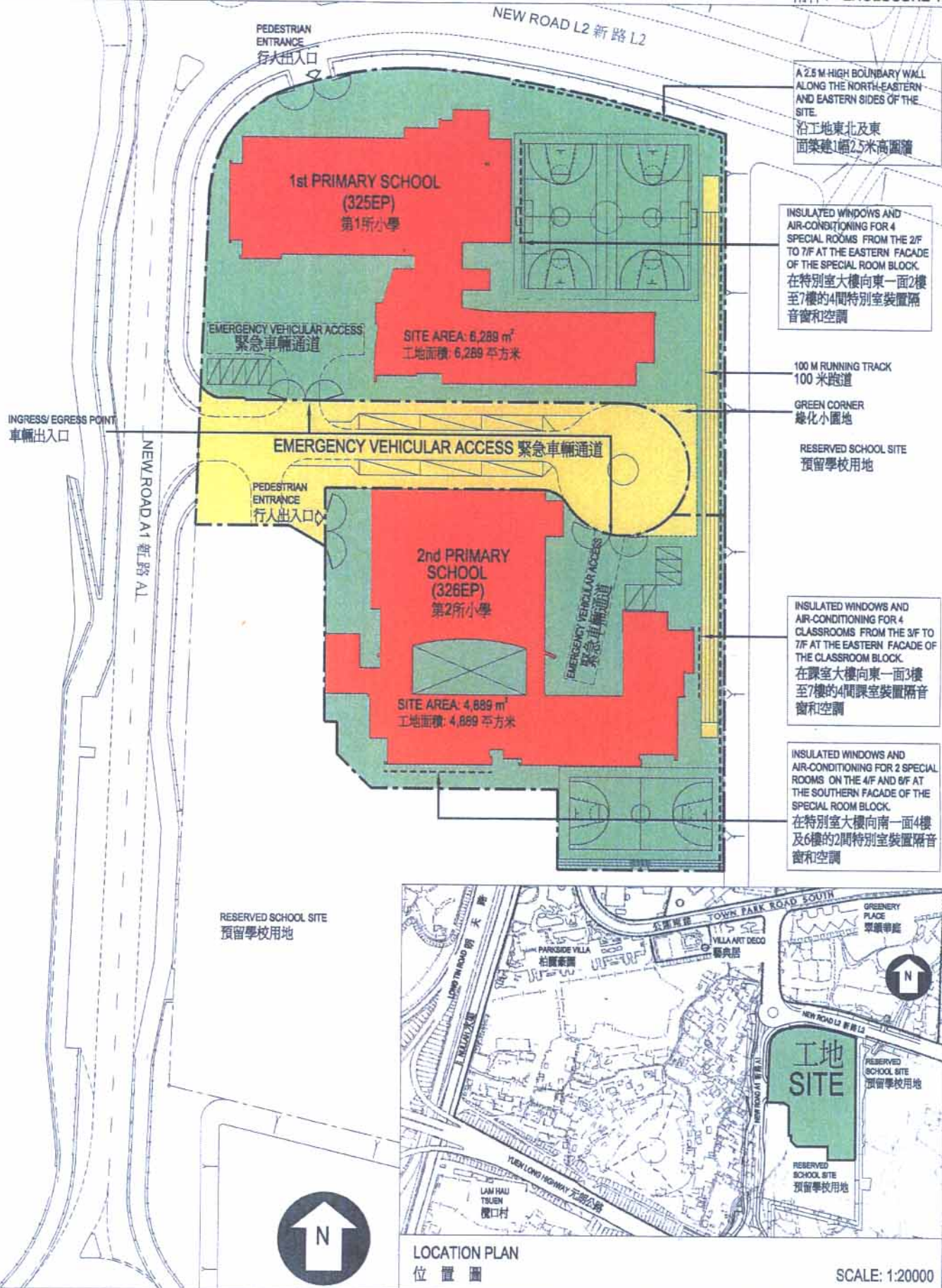
BACKGROUND INFORMATION

20. We upgraded **325EP** and **326EP** to Category B in October 2003. We engaged an architectural consultancy in June 2004 to undertake the detailed design, PERs and topographical survey and a term contractor in April 2004 to carry out site investigation, at a total cost of \$3.7 million. We engaged a quantity surveying consultant to prepare tender documents in April 2006 at a cost of \$0.6 million. The total cost of the above consultancy services and works is about \$4.3 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 architectural consultant and the term contractor have completed the detailed design, PERs, topographical survey and site investigation. The quantity surveying consultant is finalising the tender documents.

21. The proposed construction of the two primary schools in Area 13, Yuen Long will not involve removal of trees. We will incorporate planting proposals as part of the projects, including estimated quantities of a total of 121 trees, 4 500 shrubs, 6 400 annuals and 130 m² of grassed area.

22. We estimate that the proposed works will create the following job opportunities -

	Professional / Technical staff	Labourer	Total	Estimated total man- months
325EP	15	116	131	2 245
326EP	14	105	119	2 030



title 325EP AND 326EP
元朗第13區的第1所及第2所小學
FIRST PRIMARY SCHOOL AND
SECOND PRIMARY SCHOOL IN AREA 13,
YUEN LONG

drawn by 林活豪 JACK W.H. LAM
date 17.03.2006
approved 鄧文傑 JOSEPH M.K. TANG
date 17.03.2006
office ARCHITECTURAL BRANCH 建築設計處

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scale 1:1000
ARCHITECTURAL SERVICES DEPARTMENT 建築署





從北面望向第1所小學校舍的構思圖
 VIEW OF THE PREMISES OF FIRST PRIMARY SCHOOL (325EP) FROM NORTHERN DIRECTION (ARTIST'S IMPRESSION)



從北面望向第2所小學校舍的構思圖
 VIEW OF THE PREMISES OF SECOND PRIMARY SCHOOL (326EP) FROM NORTHERN DIRECTION (ARTIST'S IMPRESSION)

title 325EP AND 326EP 元朗第13區的第1所及第2所小學 FIRST PRIMARY SCHOOL AND SECOND PRIMARY SCHOOL IN AREA 13, YUEN LONG	drawn by 林活豪 JACK W.H. LAM	date 21.03.2006	drawing no. AB/6657/XA102	scale N.T.S.
	approved 鄭文傑 JOSEPH M.K. TANG	date 21.03.2006	 ARCHITECTURAL SERVICES DEPARTMENT 建築署	
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Enclosure 3 to PWSC(2006-07)19

325EP – First primary school in Area 13, Yuen Long 326EP – Second primary school in Area 13, Yuen Long

Breakdown of the estimate for consultants' fees

Consultants' staff costs		Estimated man-months		Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)	
		325EP	326EP			325EP	326EP
(a) Contract administration (Note 2)	Professional	–		–	–	1.2	1.2
	Technical	–		–	–	0.5	0.5
(b) Site supervision (Note 3)	Professional	10.4	9.2	38	1.6	0.9	0.8
	Technical	48.6	41.6	14	1.6	1.4	1.2
Total						4.0	3.7

* 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 2006, MPS point 38 = \$54,255 per month and 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 **325EP** and **326EP**. The assignment will only be executed subject to Finance Committee's approval to upgrade **325EP** and **326EP** 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.

Enclosure 4 to PWSC(2006-07)19

**A comparison of the reference cost of
a 30-classroom primary school project
with the estimated cost of 325EP**

\$ million (in Sept 2005 prices)

		Reference cost*	325EP	
(a)	Piling	8.2	16.5	(See note A)
(b)	Building	44.1	45.7	(See note B)
(c)	Building services	12.6	15.8	(See note C)
(d)	Drainage	2.0	2.0	
(e)	External works	8.2	9.3	(See note D)
(f)	Furniture and equipment	–	3.4	(See note E)
(g)	Consultants' fees	–	4.0	(See note F)
(h)	Contingencies	7.5	9.3	
Total		82.6	106.0	
(j)	Construction floor area	10 727 m ²	11 475 m ²	
(k)	Construction unit cost {[(b) + (c)] ÷ (i)}	\$5,286/m ²	\$ 5,359/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 112 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 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 “green-field” site).
5. No consultancy services are allowed.
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. We will review, and revise if necessary, the reference cost which should be adopted for future projects.

Notes

- A. The piling cost is higher because the ground conditions and the larger construction floor area require the use of 345 “non-percussive cast in-situ concrete piles” piles at an average depth of 33 metres.
- 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.

- D. The cost of external works is higher because of the requirement to provide a road access to the school and a boundary wall as a noise mitigation measure.
- E. The cost of furniture and equipment, estimated to be \$3.4 million, will be borne by the Government as the school premises will be allocated to an existing bi-sessional school for conversion into whole-day operation.
- F. Consultants' fees are required for contract administration and site supervision.

Enclosure 5 to PWSC(2006-07)19

**A comparison of the reference cost of
a 24-classroom primary school project
with the estimated cost of 326EP**

\$ million (in Sept 2005 prices)

		Reference cost*	326EP	
(a)	Piling	7.5	15.0	(See note A)
(b)	Building	41.0	42.0	(See note B)
(c)	Building services	11.4	14.4	(See note C)
(d)	Drainage	1.7	1.7	
(e)	External works	6.8	7.8	(See note D)
(f)	Furniture and equipment	–	3.2	(See note E)
(g)	Consultants' fees	–	3.7	(See note F)
(h)	Contingencies	6.8	8.5	
Total		<u>75.2</u>	<u>96.3</u>	
(i)	Construction floor area	9 129 m ²	9 850 m ²	
(j)	Construction unit cost {[(b) + (c)] ÷ (i)}	\$5,740/m ²	\$ 5,726/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. 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 “green-field” site).
5. No consultancy services are allowed.
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. We will review, and revise if necessary, the reference cost which should be adopted for future projects.

Notes

- A. The piling cost is higher because the ground conditions and the larger construction floor area require the use of 319 “non-percussive cast in-situ concrete piles” piles at an average depth of 33 metres.
- 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 cost of external works is higher because of the requirement to provide an access road to the school and a boundary wall as a noise mitigation measure.
- E. The cost of furniture and equipment, estimated to be \$3.2 million, will be borne by the Government as the school premises will be allocated to an existing bi-sessional school for conversion into whole-day operation.
- F. Consultants' fees are required for contract administration and site supervision.