For discussion **PWSC(2007-08)47**
on 31 October 2007

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS
Education – Primary
339EP – A 30-classroom primary school at Fuk Wing Street, Sham Shui Po
341EP – An 18-classroom primary school at Fuk Wing Street, Sham Shui Po

Members are invited to recommend to Finance Committee the upgrading of **339EP** and **341EP** to Category A at an estimated cost of $132.6 million and $103.9 million respectively in money-of-the-day prices for the construction of two primary schools at Fuk Wing Street, Sham Shui Po.

PROBLEM

We need to construct two school premises in Sham Shui Po district, one for converting an existing bi-sessional primary school into whole-day operation, and the other for the reprovisioning of a school presently accommodated in substandard premises in the same district.

PROPOSAL

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

/(a) .....

			Estimated cost (in MOD prices)
(a)	**339EP**	A 30-classroom primary school at Fuk Wing Street, Sham Shui Po	$132.6 million
(b)	**341EP**	An 18-classroom primary school at Fuk Wing Street, Sham Shui Po	$103.9 million

PROJECT SCOPE AND NATURE

3. The two proposed primary schools will have the following facilities –

		339EP	**341EP**
(a)	classrooms	30	18
(b)	special rooms, including a computer-assisted learning room and a language room	6	6
(c)	small group teaching room	4	3
(d)	guidance activity room	1	1
(e)	interview room	2	1
(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) .....

(m)	basketball court at ground level	2	1
(n)	a 60-metre (m) running track[1]	1	1
(o)	green corner[2]	1	1
(p)	ancillary accommodation, including a lift and relevant facilities for the handicapped	available	available

The proposed schools will meet the planning target of providing two square metres (m^2) of open space per student. A site plan for **339EP** and **341EP** is at Enclosure 1 and views of the school premises (artist's impression) are at Enclosure 2. Subject to approval, we plan to start the construction works of **339EP** and **341EP** in April 2008 for completion in December 2009.

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 2007/08 school year, about 96% of primary school places are in the whole-day mode.

5. Upon completion, **339EP** will provide 30 classrooms for converting an existing bi-sessional primary school in Mong Kok district to whole-day operation[3]. As such, the project will not affect the overall supply of primary school places.

/6. .....

1 Making optimal use of the space of the campus, a 60-m 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 greenhouse, a weather station and planting beds.

3 In late 2002, the school in Mong Kok District was allocated a new primary school premises to be built in the then South-East Kowloon Development (SEKD) for whole-day conversion. Subsequently, the school building project was suspended in view of the need for a comprehensive review of the SEKD. In October 2005, we consulted the Legislative Council Panel on Education (Education Panel) on the proposed adjustments to the School Building Programme. The Education Panel noted our plan to allocate a replacement site in Sham Shui Po for this whole-day conversion project which could not be taken forward on the original site located in the SEKD.

6. It is also Government's plan to improve the physical conditions of existing school premises to current standards through the School Improvement Programme (SIP) as well as reprovisioning and redevelopment. The existing school to be reprovisioned to the school premises under **341EP** currently occupies a site area of only about 1 100 m^2 and does not have the additional space required for infrastructure upgrading through SIP or in-situ redevelopment. Due to site constraints, reprovisioning the school to a new school premises is the most cost-effective way to improve the teaching and learning environment for the teachers and students of the school.

7. Upon completion, **341EP** will provide 18 primary classes and other facilities for accommodating the existing school which is operating the same number of classes in the 2007/08 school year in the same district.

FINANCIAL IMPLICATIONS

8. We estimate the capital costs of **339EP** and **341EP** to be $132.6 million and $103.9 million respectively in MOD prices (see paragraph 9 below), made up as follows –

		$ million	
		339EP	**341EP**
(a)	Piling	19.9	12.8
(b)	Building	57.6	49.4
(c)	Building services	19.2	13.7
(d)	Drainage	2.9	2.1
(e)	External works	11.6	8.5
(f)	Furniture and equipment[4]	3.1	2.8

/(g) .....

4 Based on the standard furniture and equipment reference list prepared by the Education Bureau for a new 30-classroom primary school and a new 18-classroom primary school adopting the standard schedule of accommodation. The actual amount will be determined on the basis of a survey on the serviceability of the existing furniture and equipment.

		$ million		
		339EP	**341EP**	
(g)	Consultants' fees for –	4.3	3.6	
	(i) Contract administration	1.8	1.3	
	(ii) Site supervision	2.5	2.3	
(h)	Contingencies	11.3	8.9	
	Sub-total	129.9	101.8	(in September 2007 prices)
(i)	Provision for price adjustment	2.7	2.1	
	Total	132.6	103.9	(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 areas (CFAs) of **339EP** and **341EP** are 11 260 m^2 and 8 549 m^2 respectively. The estimated construction unit costs of **339EP** and **341EP**, represented by the building and the building services costs, are $6,821 per m^2 and $7,381 per m^2 of CFA in September 2007 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 18-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated costs for **339EP** and **341EP** are at Enclosures 4 and 5 respectively.

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

/2008 – 09 .....

Year	$ million (Sept 2007)		Price adjustment factor	$ million (MOD)	
	339EP	**341EP**		**339EP**	**341EP**
2008 – 09	30.3	23.2	1.00750	30.5	23.4
2009 – 10	56.5	47.7	1.01758	57.5	48.5
2010 – 11	24.5	16.6	1.02775	25.2	17.1
2011 – 12	17.2	13.1	1.03803	17.9	13.6
2012 – 13	1.4	1.2	1.05619	1.5	1.3
	129.9	101.8		132.6	103.9

10. 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 2008 to 2013. 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.

11. The costs of furniture and equipment, estimated to be $5.9 million in total, will be borne by the Government. This is in line with the existing policy.

12. We estimate the annual recurrent expenditures for **339EP** and **341EP** to be $25.2 million and $15.9 million respectively.

PUBLIC CONSULTATION

13. We consulted the Sham Shui Po District Council on **339EP** and **341EP** in April 2007. Members of the Council supported the projects.

/14. .....

14. 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. Members also noted our plan to proceed with reprovisioning and redevelopment projects.

15. We circulated to the Panel an information paper on these two primary school projects on 4 October 2007. Members have not raised any comments.

ENVIRONMENTAL IMPLICATIONS

16. We engaged a consultant to conduct Preliminary Environmental Reviews (PERs) for **339EP** and **341EP** in February 2007. The PERs recommended the provision 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 2007 prices)**
	339EP	
(a)	Insulated windows and air-conditioning for 30 classrooms from the 1/F to 6/F at the north-eastern and north-western façades of the classroom block	3.0
(b)	Insulated windows and air-conditioning for four special rooms and four small group teaching rooms from the G/F to 3/F and on 6/F at the north-western and south-western façades of the special room block	0.8

/(c) .....

	Mitigation measures	Estimated cost $ million (in Sept 2007 prices)
	341EP	
(c)	Insulated windows and air-conditioning for three classrooms from the 1/F to 3/F at the north-eastern and south-eastern façades of the classroom block	0.3
(d)	Insulated windows and air-conditioning for five special rooms and three small group teaching rooms from the 1/F to 6/F at the south-eastern and south-western façades of the special room block	0.8

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

17. 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.

18. We have considered measures in the planning and design stages to reduce the generation of construction waste where possible (e.g. using metal site hoardings and signboards so that these materials can be recycled or reused in other projects). In addition, we will require the contractor to reuse inert construction waste on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities[5] (e.g. use excavated materials for filling within the site). We will encourage the contractor to maximize the use of recycled or recyclable construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste.

/19. .....

5 Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

19. We will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from the non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

20. We estimate that the projects will generate the following construction waste.

	339EP		**341EP**	
	tonnes	**%**	**tonnes**	**%**
Inert construction waste reused on site or other construction sites	6 500	55.5	4 900	55.0
Inert construction waste to public fill reception facilities for subsequent reuse	4 300	36.8	3 200	36.0
Non-inert construction waste to landfills	900	7.7	800	9.0
Total construction waste generated	11 700	100	8 900	100

The total cost for accommodating construction waste at public fill reception facilities and landfill sites, is estimated to be $228,600 for **339EP** and $186,400 for **341EP** (based on a unit cost of $27/tonne for disposal at public fill reception facilities and $125/tonne[6] at landfills).

/LAND .....

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 are likely to be more expensive) when the existing ones are filled.

LAND ACQUISITION

21. The projects do not require any land acquisition.

BACKGROUND INFORMATION

22. We upgraded **339EP** and **341EP** to Category B in September and November 2005 respectively. We engaged an architectural consultant in December 2006 to undertake the detailed design, PERs and topographical survey, at a total cost of $4.6 million. We engaged a quantity surveying consultant In March 2007 to prepare tender documents at a cost of $800,000. The total cost of the above consultancy services and works is about $5.4 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 architectural consultant has completed the detailed design, PERs and topographical survey. The quantity surveying consultant has completed the tender documents.

23. The proposed construction of the two primary schools will not involve any removal of trees. We will incorporate planting proposals as part of the projects, including estimated quantities of 123 trees, 300 shrubs, 1 000 groundcovers and 100 m^2 of grassed area.

24. We estimate that the proposed works will create the following job opportunities —

	Professional / Technical staff	**Labourer**	**Total**	**Estimated total man-months**
339EP	18	135	153	2 600
341EP	14	105	119	2 000

Education Bureau
October 2007

附件 1 ENCLOSURE 1

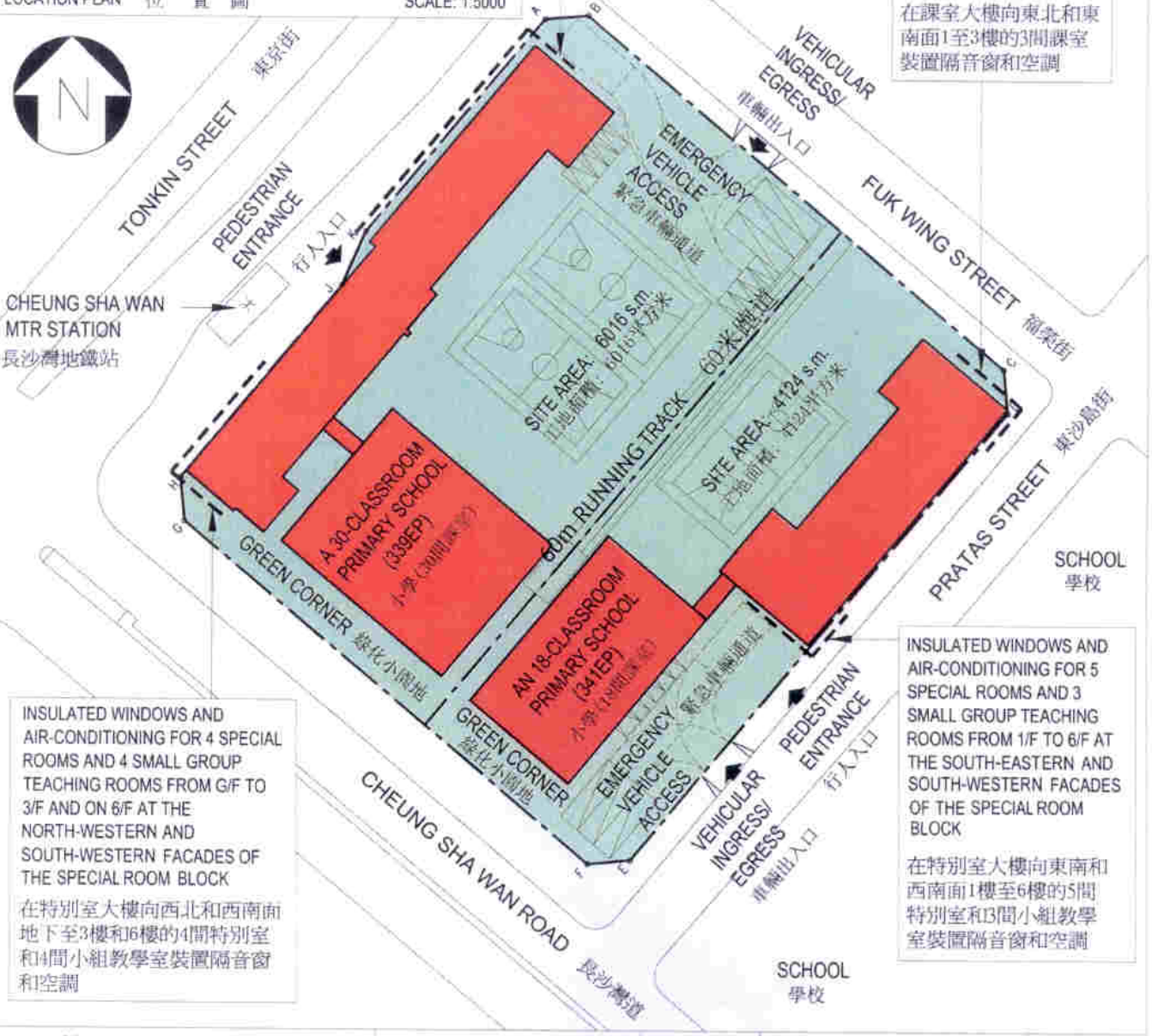
LOCATION PLAN 位置圖 SCALE: 1:5000

INSULATED WINDOWS AND AIR-CONDITIONING FOR 30 CLASSROOMS FROM 1/F TO 6/F AT THE NORTH-EASTERN AND NORTH-WESTERN FACADES OF THE CLASSROOM BLOCK
在課室大樓向東北和西北面1至6樓的30間課室裝置隔音窗和空調

INSULATED WINDOWS AND AIR-CONDITIONING FOR 3 CLASSROOMS FROM 1/F TO 3/F AT THE NORTH-EASTERN AND SOUTH-EASTERN FACADES OF THE CLASSROOM BLOCK
在課室大樓向東北和東南面1至3樓的3間課室裝置隔音窗和空調

INSULATED WINDOWS AND AIR-CONDITIONING FOR 4 SPECIAL ROOMS AND 4 SMALL GROUP TEACHING ROOMS FROM G/F TO 3/F AND ON 6/F AT THE NORTH-WESTERN AND SOUTH-WESTERN FACADES OF THE SPECIAL ROOM BLOCK
在特別室大樓向西北和西南面地下至3樓和6樓的4間特別室和4間小組教學室裝置隔音窗和空調

INSULATED WINDOWS AND AIR-CONDITIONING FOR 5 SPECIAL ROOMS AND 3 SMALL GROUP TEACHING ROOMS FROM 1/F TO 6/F AT THE SOUTH-EASTERN AND SOUTH-WESTERN FACADES OF THE SPECIAL ROOM BLOCK
在特別室大樓向東南和西南面1樓至6樓的5間特別室和3間小組教學室裝置隔音窗和空調



TITLE 339EP and 341EP 深水埗福榮街1所設有30間課室的小學和1所設有18間課室的小學 A 30-CLASSROOM PRIMARY SCHOOL & AN 18-CLASSROOM PRIMARY SCHOOL AT FUK WING STREET, SHAM SHUI PO	DRAWN BY SALLY CHAN 陳舒曇	DATE 02.10.2007	DRAWING NO. AB/7125 & 6956/XA101
	APPROVED JOEL CHAN 陳祖聲	DATE 02.10.2007	SCALE 1:1000
	OFFICE ARCHITECTURAL BRANCH 建築設計處		ARCHITECTURAL SERVICES DEPARTMENT 建築署

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

從南面望向校舍的構思圖
VIEW OF THE SCHOOL PREMISES FROM SOUTHERN DIRECTION (ARTIST'S IMPRESSION)

TITLE 339EP and 341EP 深水埗福榮街1所設有30間課室的小學 和1所設有18間課室的小學 A 30-CLASSROOM PRIMARY SCHOOL & AN 18-CLASSROOM PRIMARY SCHOOL AT FUK WING STREET, SHAM SHUI PO	DRAWN BY SALLY CHAN 陳舒靈	DATE 02.10.2007	DRAWING NO. AB/7125 & 6956/XA102	SCALE N.T.S.
	APPROVED JOEL CHAN 陳祖聲	02.10.2007	ARCHITECTURAL SERVICES DEPARTMENT 建築署	
	OFFICE ARCHITECTURAL BRANCH 建築設計處			

339EP – A 30-classroom primary school at Fuk Wing Street, Sham Shui Po
341EP – An 18-classroom primary school at Fuk Wing Street, Sham Shui Po

Breakdown of the estimate for consultants' fees

Consultants' staff costs		Estimated man-months		Average MPS* salary point	Multiplier (Note 1)	Estimated fee ($ million)	
		339EP	341EP			339EP	341EP
(a) Contract administration (Note 2)	Professional	–	–	–	–	1.8	1.3
(b) Site supervision (Note 3)	Technical	83	76	14	1.6	2.5	2.3
					Total	4.3	3.6

* 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 April 2007, MPS point 14 = $18,840 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 **339EP** and **341EP**. The assignment will only be executed subject to Finance Committee's approval to upgrade **339EP** and **341EP** 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(2007-08)47

A comparison of the reference cost of a 30-classroom primary school project with the estimated cost of 339EP

		$ million (in Sept 2007 prices)		
		Reference cost*	**339EP**	
(a)	Piling	10.3	19.9	(See note A)
(b)	Building	56.4	57.6	(See note B)
(c)	Building services	15.0	19.2	(See note C)
(d)	Drainage	2.5	2.9	(See note D)
(e)	External works	10.4	11.6	(See note E)
(f)	Furniture and equipment	–	3.1	(See note F)
(g)	Consultants' fees	–	4.3	(See note G)
(h)	Contingencies	9.5	11.3	
	Total	104.1	129.9	
(i)	Construction floor area	10 727 m^2	11 260 m^2	
(j)	Construction unit cost {[(b) + (c)] ÷ (i)}	$6,656/$m^2$	$ 6,821/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** .....

Notes

A. The piling cost is higher than the reference school. Percussion steel H-pile is not suitable because the adjacent MTR underground structures are prone to ground borne vibrations. The cost estimate is based on 126 rock socketed steel H-pile in pre-bored hole at an average depth of 50 metres which is considered a more suitable foundation system.

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 drainage is higher because of the requirement to provide allowance for removal of underground obstruction such as remaining foundation of the demolished factory buildings and the associated abandoned pipes.

E. The cost of external works is higher because of the Transport Department's requirement to provide new/improvement works to the public pavement surrounding the site.

F. The cost of furniture and equipment, estimated to be $3.1 million, will be borne by the Government as the school premises is allocated to an existing bi-sessional school for conversion into whole-day operation.

G. Consultants' fees are required for contract administration and site supervision.

A comparison of the reference cost of an 18-classroom primary school project with the estimated cost of 341EP

		$ million (in Sept 2007 prices)		
		Reference cost*	**341EP**	
(a)	Piling	8.9	12.8	(See note A)
(b)	Building	48.5	49.4	(See note B)
(c)	Building services	12.3	13.7	(See note C)
(d)	Drainage	1.7	2.1	(See note D)
(e)	External works	7.8	8.5	(See note E)
(f)	Furniture and equipment	–	2.8	(See note F)
(g)	Consultants' fees	–	3.6	(See note G)
(h)	Contingencies	7.9	8.9	
	Total	87.1	101.8	
(i)	Construction floor area	8 476 m^2	8 549 m^2	
(j)	Construction unit cost {[(b) + (c)] ÷ (i)}	$7,173/$m^2$	$ 7,381/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 95 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 18-classroom primary school site area of 3 950 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 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 .....

Notes

A. The piling cost is higher than the reference school. Percussion steel H-pile is not suitable because the adjacent MTR underground structures are prone to ground borne vibrations. The cost estimate is based on 101 rock socketed steel H-pile in pre-bored hole at an average depth of 50 metres which is considered a more suitable foundation system.

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 drainage cost is higher because of allowance for removal of underground obstruction such as remaining foundation of the demolished factory buildings and the associated abandoned pipes.

E. The cost of external works is higher because of the Transport Department's requirement to provide new/improvement works to the public pavement surrounding the site.

F. The cost of furniture and equipment, estimated to be $2.8 million, will be borne by the Government as the school premises is allocated to an existing primary school for reprovisioning.

G. Consultants' fees are required for contract administration and site supervision.