For discussion **PWSC(2006-07)39**
on 25 October 2006

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS
Education – Primary
323EP – A 24-classroom primary school at the junction of Texaco Road and Castle Peak Road, Tsuen Wan

Members are invited to recommend to Finance Committee the upgrading of **323EP** to Category A at an estimated cost of $105.3 million in money-of-the-day prices for the construction of a primary school at the junction of Texaco Road and Castle Peak Road, Tsuen Wan.

PROBLEM

We need to construct a new primary school for the whole-day conversion of an existing bi-sessional primary school in Tsuen Wan.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Education and Manpower (SEM), proposes to upgrade **323EP** to Category A at an estimated cost of $105.3 million in money-of-the-day (MOD) prices for the construction of a 24-classroom primary school at the junction of Texaco Road and Castle Peak Road, Tsuen Wan.

/PROJECT…..

PROJECT SCOPE AND NATURE

3. The scope of the proposed works for **323EP** comprises the demolition of the existing four-storey high ex-police New Territories South operational base building and the construction of a new primary school with the following facilities –

(a) 24 classrooms;

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

(c) four 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 also be used for a wide range of physical activities such as badminton, gymnastics and table-tennis);

(l) a multi-purpose area;

(m) two basketball courts and a mini-football pitch at ground level;

(n) a 60-metre (m) running track[1];

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[1] Making optimal use of the space of the campus, a 60 m running track will be provided.

(o) a green corner[2]; and

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

The proposed school 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 school premises (artist's impression) are at Enclosure 2. Subject to approval, we plan to start the demolition works of the existing building in December 2006 and start the construction works of the new school premises in April 2007 for completion in December 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 2006/07 school year, 90% of primary school places are in whole-day mode.

5. Upon completion, **323EP** will provide 24 classrooms and other facilities for accommodating one session of an existing bi-sessional primary school in the same district, and in so doing enable both sessions to switch to whole-day operation. As such, the project will not affect the overall supply of primary school places as well as that in the Tsuen Wan District.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the project to be $105.3 million in MOD prices (see paragraph 7 below), made up as follows –

		$ million
(a)	Site formation and demolition	4.0

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[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.

			$ million	
(b)	Piling		9.1	
(c)	Building		43.7	
(d)	Building services		15.4	
(e)	Drainage		2.7	
(f)	External works		10.5	
(g)	Furniture and equipment[3]		3.2	
(h)	Consultants' fees for –		5.1	
	(i) Contract administration	1.9		
	(ii) Site supervision	3.2		
(i)	Contingencies		9.0	
	Sub-total		102.7	(in September 2006 prices)
(j)	Provision for price adjustment		2.6	
	Total		105.3	(in MOD prices)

We propose 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 **323EP** is 9 536 m^2. The estimated construction unit cost, represented by the building and the building services costs, is $6,198 per m^2 of CFA in September 2006 prices. We consider this comparable to similar school projects built by the Government. A comparison of the reference cost for a 24-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated cost for **323EP** is at Enclosure 4.

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[3] Based on the standard furniture and equipment reference list prepared by the Education and Manpower Bureau for 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 2006)	Price adjustment factor	$ million (MOD)
2006 – 07	2.0	1.00000	2.0
2007 – 08	33.0	1.01250	33.4
2008 – 09	50.0	1.02769	51.4
2009 – 10	14.2	1.04310	14.8
2010 – 11	3.5	1.05875	3.7
	102.7		105.3

8. 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 2011. We will deliver the demolition and construction works through two lump-sum contracts because we can clearly define the scope of the works in advance. The contracts will not provide for price adjustment because the contract periods will not exceed 21 months each.

9. The cost of furniture and equipment, estimated to be $3.2 million, will be borne by the Government. This is in line with the existing policy.

10. We estimate the annual recurrent expenditure for **323EP** to be $20.2 million.

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PUBLIC CONSULTATION

11. We consulted the Tsuen Wan District Council on **323EP** on 30 May 2006. Members of the Council supported the project.

12. 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, including **323EP,** for converting existing bi-sessional primary schools to whole-day operation. We circulated an information note on the project to the LegCo Panel on Education on 12 October 2006. Members did not raise objection to the proposal.

ENVIRONMENTAL IMPLICATIONS

13. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **323EP** in November 2005. The PER recommended the provision of boundary walls at suitable locations and 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 2006 prices)**
(a)	insulated windows and air-conditioning for 24 classrooms, two special rooms and four small group teaching rooms from the 1/F to 4/F at the southern façade of the classroom block	3.0
(b)	insulated windows and air-conditioning for two special rooms on the 1/F and the 3/F at the western façade of the assembly hall block	0.4
(c)	a 3 m high boundary wall along the southern and western sides of the site	0.9

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With such mitigation measures in place, the project would not have long term environmental impacts. We have included the cost of the above mitigation measures as part of the building services and external works in the project estimate.

14. During demolition and 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 site, and the provision of wheel-washing facilities. We completed a preliminary asbestos survey and identified on site some potential asbestos-containing materials which can be handled through due care in the demolition process. In addition, we will require our contractor to implement further precautionary measures related to the handling and disposal of asbestos, if additional asbestos is encountered.

15. We have considered introducing more prefabricated building elements (e.g. dry-wall partitioning and proprietary fittings and fixtures) into the school design in the planning and design stages to reduce the generation of construction and demolition (C&D) materials where possible. In addition, 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 minimize the disposal of C&D materials to public fill reception facilities[4]. 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.

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[4] Public fill reception facilities are specified in Schedule 4 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.

16. 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 also control the disposal of public fill, C&D materials and C&D waste to public fill reception 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 also record the disposal, reuse and recycling of C&D materials for monitoring purposes.

17. We estimate that the project will generate about 13 620 tonnes of C&D materials. Of these, we will reuse about 5 950 tonnes (43.7%) on site and deliver 6 770 tonnes (49.7%) to public fill reception facilities for subsequent reuse. In addition, we will dispose of 900 tonnes (6.6%) at landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites is estimated to be $295,290 for this project (based on a unit cost of $27/tonne for disposal at public fill reception facilities and $125/tonne[5] at landfills).

LAND ACQUISITION

18. The project does not require land acquisition.

BACKGROUND INFORMATION

19. We upgraded **323EP** to Category B in December 2004. We engaged an architectural consultant in November 2005 to undertake the detailed design, PER and topographical survey and appointed a term contractor in March 2006 to carry out site investigation, at a total cost of $2.2 million. We engaged a quantity surveying consultant to prepare tender documents in May 2006 at a cost of $400,000. We have 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, topographical survey, PER and site investigation. The quantity surveying consultant is finalising the tender documents.

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

20. The proposed construction of a 24-classroom classroom primary school at the junction of Texaco Road and Castle Peak Road will involve removal of four trees which will all be replanted within the project site. All trees to be removed are not important trees[6]. We will incorporate planting proposals as part of the project, including estimated quantities of 12 trees, 1 800 shrubs and 120 m^2 of grassed area.

21. We estimate that the proposed works will create about 95 jobs (83 for labourers and another 12 for professional/technical staff) providing a total employment of 1 850 man-months.

Education and Manpower Bureau
October 2006

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[6] "Important trees" refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

(a) trees over 100 years old or above;
(b) trees of cultural, historical or memorable significance e.g. Fung Shui trees, trees as landmark of monastery or heritage monument, and trees in memory of important persons or event;
(c) trees of precious or rare species;
(d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
(e) trees with trunk diameter equal or exceeding 1.0 metre (measured at 1.3 metre above ground level), or with height/canopy spread equal or exceeding 25m.

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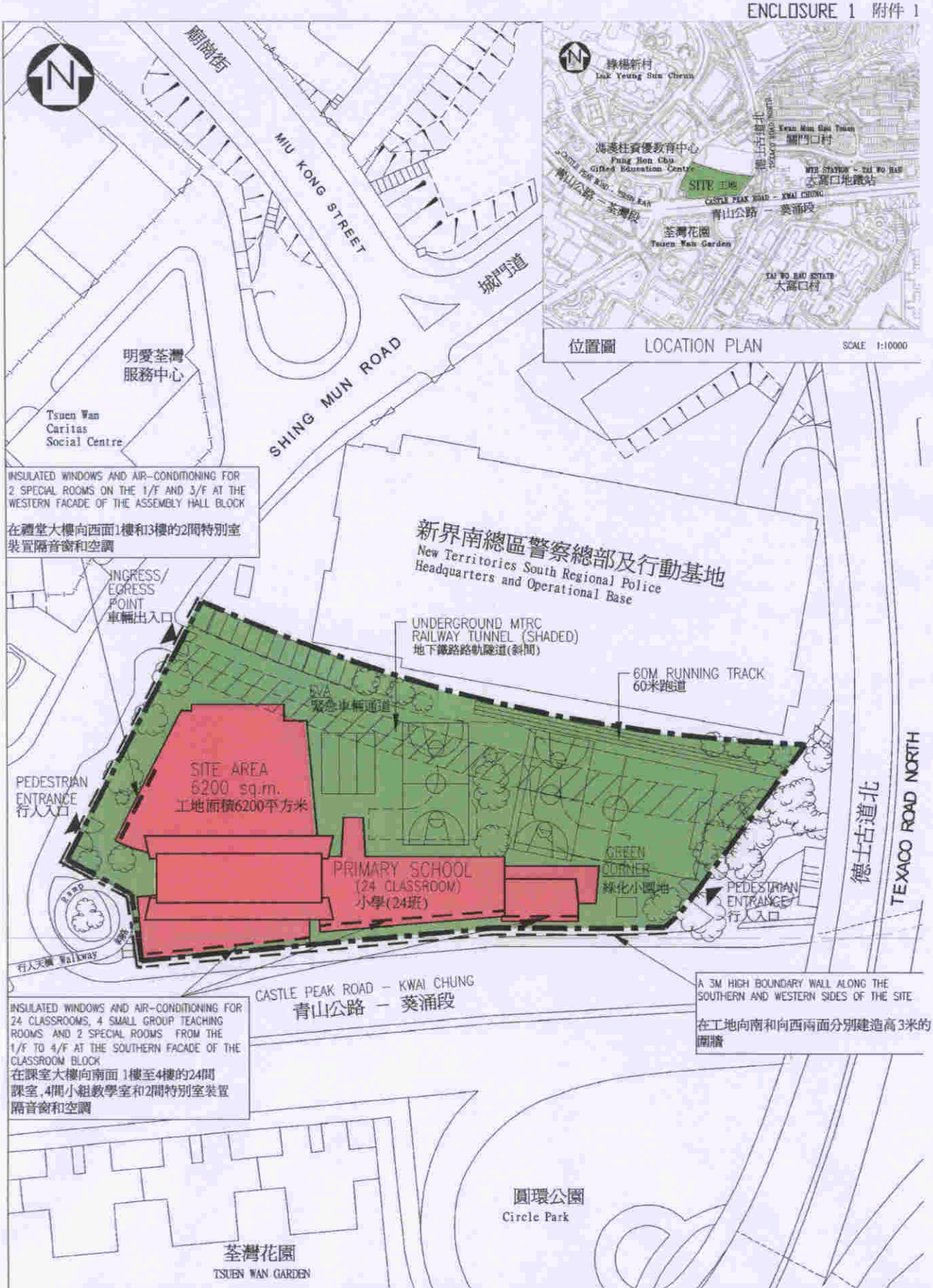
ENCLOSURE 1 附件 1



title 323 EP 荃灣德士古道與青山公路交界處1所設有24間課室的小學 A 24-CLASSROOM PRIMARY SCHOOL AT THE JUNCTION OF TEXACO ROAD AND CASTLE PEAK ROAD, TSUEN WAN	drawn by R.CHUM	date SEPT 2006	drawing no. AB/6647/GP001-a	scale 1 : 1000
	approved D.FEDORUK	date SEPT 2006		
	office TOM IP & PARTNERS		ARCHITECTURAL SERVICES DEPARTMENT	

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

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

title 323 EP 荃灣德士古道與青山公路交界處1所設有24間課室的小學 A 24-CLASSROOM PRIMARY SCHOOL AT THE JUNCTION OF TEXACO ROAD AND CASTLE PEAK ROAD, TSUEN WAN	drawn by R.CHUM	date SEPT 2006	drawing no. AB/6647/GP002-a	scale
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Breakdown of the estimate for consultants' fees

Consultants' staff costs			Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee ($ million)
(a)	Contract administration (Note 2)	Professional	–	–	–	1.3
		Technical	–	–	–	0.6
(b)	Site supervision (Note 3)	Professional	20.7	38	1.6	1.8
		Technical	48.6	14	1.6	1.4
					Total	5.1

* 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 **323EP**. The assignment will only be executed subject to Finance Committee's approval to upgrade **323EP** 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.

A comparison of the reference cost of a 24-classroom primary school project with the estimated cost of 323EP

		$ million (in Sept 2006 prices)		
		Reference cost*	**323EP**	
(a)	Site formation and demolition	–	4.0	(See note A)
(b)	Piling	8.1	9.1	(See note B)
(c)	Building	42.6	43.7	(See note C)
(d)	Building services	11.4	15.4	(See note D)
(e)	Drainage	1.8	2.7	(See note E)
(f)	External works	7.4	10.5	(See note F)
(g)	Furniture and equipment	–	3.2	(See note G)
(h)	Consultants' fees	–	5.1	(See note H)
(i)	Contingencies	7.2	9.0	
	Total	78.5	102.7	
(j)	Construction floor area	9 129 m^2	9 536 m^2	
(k)	Construction unit cost {[(c) + (d)] ÷ (j)}	$5,915/$m^2$	$6,198/$m^2$	

*** 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.

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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 m, 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 m^2 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. 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. Additional cost is required for the demolition of the existing premises.

B. The piling cost is higher because of the close proximity of MTR tunnels and nearby residential buildings which precludes the use of percussive piling system as excessive vibrations and noise will be generated by percussive piling. It is estimated that this project will require the use of 154 non-percussive rock-socketted steel H piles at an average depth of 20 metres. Besides, monitoring work will be required during piling work to ensure that vibrations and settlements, if any, are within acceptable limits.

C. The building cost is higher because of the larger construction floor area.

D. The building services cost is higher because of the larger construction floor area and the provision of air-conditioning as a noise mitigation measure.

E. The cost of drainage works is higher because of the larger site area.

F. The cost of external works is higher because the larger site area requires longer boundary walls as a noise mitigation measure.

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G. 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.

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