For discussion **PWSC(2007-08)77**
on 30 January 2008

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS
Education – Primary
304EP – A 24-classroom primary school at Wylie Road, Kowloon

Members are invited to recommend to Finance Committee the upgrading of **304EP** to Category A at an estimated cost of $150.0 million in money-of-the-day prices for the construction of a 24-classroom primary school at Wylie Road, Kowloon.

PROBLEM

We need to construct a primary school for the whole-day conversion of an existing bi-sessional school in Yau Tsim Mong District.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Education (SED), proposes to upgrade **304EP** to Category A at an estimated cost of $150.0 million in money-of-the-day (MOD) prices for the construction of a 24-classroom primary school at Wylie Road, Kowloon.

/PROJECT .....

PROJECT SCOPE AND NATURE

3. The proposed scope comprises demolition of two blocks of existing quarters on site and construction of the proposed primary school under **304EP** will have the following facilities –

(a) 24 classrooms;

(b) six special rooms;

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

(l) a multi-purpose area;

(m) one basketball court;

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

(o) a green corner[2]; and

/(p) .....

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[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.

(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. We plan to start the demolition works in March 2008 and construction works in November 2008 for completion in July 2010.

JUSTIFICATION

4. It is Government's policy to implement whole-day schooling for all primary school students. As at January 2008, 96% of primary school places are in whole-day mode.

5. Upon completion, **304EP** will provide 24 classrooms and other facilities for accommodating an existing bi-sessional primary school in the same district and in so doing enable both sessions to switch to whole-day operation. The project will not affect the overall supply of primary school places.

6. We have examined the implementation program of this project against the implementation schedule of small-class teaching. On the one hand, we are anxious to proceed with this project to facilitate an existing bi-sessional school to turn whole-day to fulfill our policy commitment. As to the implementation of small-class teaching, however, we will only be able to arrive at a realistic assessment if additional classrooms, and, if yes, the number, that would be required in the school net in which this project is located by mid-2008. Considering that a change in the project scope and design would cause substantial delay to this project and the fact that minor conversion works could be pursued on a need basis in future, the school sponsoring body has indicated that they would prefer to proceed this project at its present scope of work and school design without further delay.

FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the project to be $150.0 million in MOD prices (see paragraph 8 below), made up as follows –

/(a) .....

			$ million	
(a)	Demolition		10.0	
(b)	Geotechnical works		6.5	
(c)	Piling		22.5	
(d)	Building		58.5	
(e)	Building services		14.4	
(f)	Drainage		2.5	
(g)	External works		9.8	
(h)	Furniture and equipment[3]		3.0	
(i)	Consultants' fees for –		5.9	
	(i) Contract administration	1.9		
	(ii) Site supervision	4.0		
(j)	Contingencies		13.0	
	Sub-total		146.1	(in September 2007 prices)
(k)	Provision for price adjustment		3.9	
	Total		150.0	(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

/**304EP** .....

[3] Based on the standard furniture and equipment reference list prepared by the Education Bureau for a new 24-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.

304EP is 9 690 m^2. The estimated construction unit cost, represented by the building and the building services costs, is $7,523 per m^2 of CFA in September 2007 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 costs for **304EP** is at Enclosure 4.

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

Year	$ million (Sept 2007)	Price adjustment factor	$ million (MOD)
2008 – 09	13.0	1.00750	13.1
2009 – 10	44.5	1.01758	45.3
2010 – 11	58.2	1.02775	59.8
2011 – 12	16.1	1.03803	16.7
2012 – 13	14.3	1.05619	15.1
	146.1		150.0

9. 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 will deliver the demolition and construction works through two separate 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.

10. The cost of furniture and equipment, estimated to be $3.0 million, will be borne by the Government. This is in line with the existing policy.

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11. We estimate the annual recurrent expenditure for **304EP** to be $20.8 million.

PUBLIC CONSULTATION

12. We consulted the Yau Tsim Mong District Council on **304EP** in September 2007. Members of the Council supported the project.

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

ENVIRONMENTAL IMPLICATIONS

14. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **304EP** in December 2007. The PER recommended 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 include the provision of insulated windows and air-conditioning for two special rooms on the M/F at the western façade of special classroom block at a cost of $400,000. 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 in the project estimate.

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 contract. 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.

16. 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 .....

other projects). In addition, we will require the contractor to reuse inert construction waste (e.g. use of excavated materials for filling within the site) on site or in other suitable construction sites as far as possible, in order to minimize the disposal of inert construction waste to public fill reception facilities[4]. We will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, 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 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 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.

18. We estimate that the project will generate in total about 20 820 tonnes of construction waste. Of these, we will reuse about 4 200 tonnes (20.2%) of inert construction waste on site and deliver 14 920 tonnes (71.7%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 1 700 tonnes (8.1%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be $615,340 for this project (based on a unit cost of $27/tonne for disposal at public fill reception facilities and $125/tonne[5] at landfills).

19. This project has adopted various forms of energy efficient features, including –

(a) T5 energy efficient fluorescent tubes with electronic ballast and lighting control by daylight sensor will be adopted in all offices and rooms at the perimeter of the building;

/(b) .....

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

(b) heat recovery fresh air pre-conditioners will be adopted in the air-conditioned rooms; and

(c) automatic on/off switching of lighting and ventilation fan will be adopted inside the lift.

20 For greening features, the main roof and terraces will be landscaped for environmental and amenity benefits.

21 For recycled features, we will adopt rain water recycling system for irrigation purpose.

22. The total estimated additional cost for adoption of the energy efficient features, greening features and recycled features is around $1.1 million. There will be about 8% energy savings in the annual energy consumption.

LAND ACQUISITION

23. The project does not require any land acquisition.

HERITAGE IMPLICATIONS

24. This project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interests and Government historic sites identified by the Antiquities and Monuments Office.

BACKGROUND INFORMATION

25. We upgraded **304EP** to Category B in September 2006. We engaged an architectural consultant in June 2007 to undertake the detailed design and PER. We engaged a quantity surveying consultant in November 2007 to prepare tender documents. The total cost of the above consultancy services and works is about $3.5 million. We charged this amount to block allocation

/**Subhead** .....

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 and PER. The quantity surveying consultant is finalising the tender documents.

26. The proposed works will involve removal of 38 trees, including 29 to be felled and nine to 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 98 trees and 1 500 shrubs.

27. We estimate that the proposed works will create about 179 jobs (160 for labourers and another 19 for professional/technical staff) providing a total employment of 3 000 man-months.

Education Bureau
January 2008

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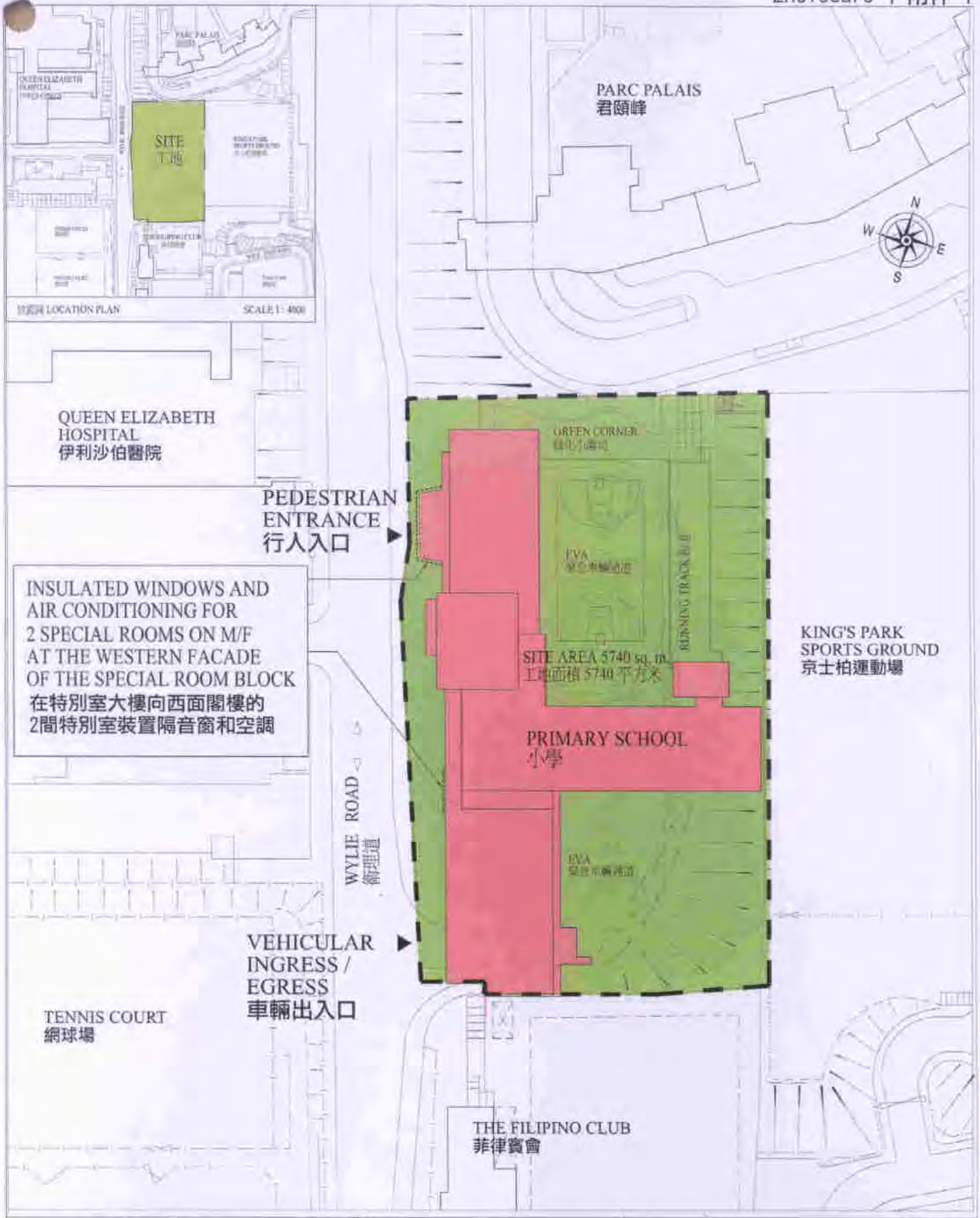
[6] "Important trees" refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

(a) trees of 100 years old or above;
(b) trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person 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 25 metres.



Project Title 304 EP 九龍衛理道 1所設有24間課室的小學 A 24-CLASSROOM PRIMARY SCHOOL AT WYLIE ROAD, KOWLOON	Drawn by D. KWOK	Date DEC. 07	Drawing No. AB/6550/XA101
	Approved by N. CHOW	Date DEC. 07	Scale 1:800
	Office ARCHITECTURAL BRANCH		ARCHITECTURAL SERVICES DEPARTMENT

VIEW OF THE SCHOOL PREMISES FROM WESTERN DIRECTION (ARTIST'S IMPRESSION)
從西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

Project Title: 304 EP 九龍衛理道 1所設有24間課室的小學 A 24-CLASSROOM PRIMARY SCHOOL AT WYLIE ROAD, KOWLOON	Drawn by: D. KWOK	Date: DEC. 07	Drawing No.: AB/6550/XA102	Scale: NTS
	Approved by: N. CHOW	Date: DEC. 07		
	Office: ARCHITECTURAL BRANCH		ARCHITECTURAL SERVICES DEPARTMENT	

304EP – A 24-classroom primary school at Wylie Road, Kowloon

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	–	–	–	1.5
		Technical	–	–	–	0.4
(b)	Site supervision (Note 3)	Professional	12.1	38	1.6	1.1
		Technical	96.2	14	1.6	2.9
					Total	5.9

* 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 38 = $56,945 per month and 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 **304EP.** The assignment will only be executed subject to Finance Committee's approval to upgrade **304EP** 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 304EP

		$ million (in Sept 2007 prices)		
		Reference cost*	**304EP**	
(a)	Demolition	–	10.0	(See note A)
(b)	Geotechnical works	–	6.5	(See note B)
(c)	Piling	9.3	22.5	(See note C)
(d)	Building	49.8	58.5	(See note D)
(e)	Building services	13.3	14.4	(See note E)
(f)	Drainage	2.1	2.5	(See note F)
(g)	External works	8.5	9.8	(See note G)
(h)	Furniture and equipment	–	3.0	(See note H)
(i)	Consultants' fees	–	5.9	(See note I)
(j)	Contingencies	8.3	13.0	
	Total	91.3	146.1	
(k)	Construction floor area	9 129 m^2	9 690 m^2	
(l)	Construction unit cost {[(d) + (e)] ÷ (k)}	\$6,912/m^2	\$7,523/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 mixed 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. The demolition cost is for the demolition of the existing two blocks of quarters on site.

B. Geotechnical works is for the construction of steel H-pile wall and soil nails to maintain the stability of the existing slope and the retaining wall of the adjacent building.

/C. .....

C. The piling cost is higher because percussive piling system is not recommended due to the excessive vibrations and noise to be generated to nearby residents and hospital. It is estimated that this project will require the use of 130 non-percussive pre-bored socketed steel-H piles at an average of 30 metres.

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

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

F. The cost of drainage works is slightly higher because the drainage works is carried out on site with existing foundation.

G. The cost of external works is higher because of larger site area.

H. The cost of furniture and equipment, estimated to be $3.0 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.

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