For discussion **PWSC(2009-10)42**
on 15 June 2009

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS
Education – Primary
330EP – A 24-classroom primary school at the junction of Victoria Road and Pok Fu Lam Road, Pok Fu Lam

Members are invited to recommend to Finance Committee the upgrading of **330EP** to Category A at an estimated cost of $255.6 million in money-of-the-day prices for the construction of a 24-classroom primary school at the junction of Victoria Road and Pok Fu Lam Road, Pok Fu Lam.

PROBLEM

We need to reprovision St. Paul's College Primary School (the School), an existing Direct Subsidy Scheme (DSS) primary school at Hill Road, Pok Fu Lam, so as to make available its existing premises for the whole-day conversion of an aided bi-sessional primary school under the same School Sponsoring Body (SSB).

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Education, proposes to upgrade **330EP** to Category A at an estimated cost of $255.6 million in money-of-the-day (MOD) prices for the construction of a 24-classroom primary school at the junction of Victoria Road and Pok Fu Lam Road, Pok Fu Lam.

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PROJECT SCOPE AND NATURE

3. The proposed scope of works for **330EP** involves the construction of a new school premises with the following facilities[1] —

(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;

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[1] These facilities include those standard facilities that are to be funded under the project and do not include two additional small group teaching rooms, four additional special rooms, a teaching resources room, a parent resources room, an additional lift that are to be funded by the school sponsor's contributions. Additional areas provided for a number of standard facilities, like school hall, guidance activities room and physical education store, will also be funded by the school sponsor.

(n) a 35-metre (m) running track[2];

(o) a green corner[3]; and

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

A comparison of the facilities proposed under **330EP** with those of standard school design is at Enclosure 1. 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 2 and a view of the school premises (artist's impression) is at Enclosure 3. The construction works are scheduled to commence in January 2010 for completion in February 2012.

JUSTIFICATION

4. The proposed school project is for reprovisioning the School to the Southern District. This will in turn make available its existing 18-classroom school premises in the Central and Western District for accommodating one session of SKH St. Peter's Primary School, an aided bi-sessional school rooted in the Central and Western District under the same SSB, and in so doing enable both sessions to turn whole-day. SKH St. Peter's Primary School needs additional premises to turn whole-day, as it currently operates 36 classes in two sessions with an enrolment rate of 96% from an 18-classroom building.

5. Being a DSS school, the School is currently operating 18 classes with an enrolment rate of 99% in the 2008/09 school year. Upon completion, **330EP** will provide 24 classrooms and other facilities for accommodating the School. We propose a scope larger than the current 18 classrooms in order to optimize the development potential of the school site to meet the anticipated demand in future. Since the School will continue to recruit students from all over the territory, its relocation to the Southern District will only have a marginal impact, if any, on the supply and demand balance of public sector primary school places in that district. On the contrary, if SKH St. Peter's Primary School, being

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[2] Making optimal use of the space of the campus, a 35-m running track will be provided.

[3] 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.

an aided school, is to be relocated to the proposed new school premises in the Southern District, this may upset the supply and demand situation of public sector school places therein as well as that in the Central and Western District. Therefore, the preferred approach is to relocate the School instead of SKH St. Peter's Primary School to the new school premises, with a view to allowing SKH St. Peter's Primary School to switch to whole-day operation within the Central and Western District.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the project to be $255.6 million[4] in MOD prices (see paragraph 7 below), made up as follows –

		$ million
(a)	Site formation and slope works	36.7
(b)	Piling	24.6
(c)	Building	98.4
(d)	Building services	23.6
(e)	Additional energy conservation measures	2.4
(f)	Drainage	5.6
(g)	External works	14.7
(h)	Consultants' fees –	2.1
	(i) Contract administration	1.9
	(ii) Management of resident site staff	0.2
(i)	Remuneration of resident site staff	7.5

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[4] The estimated capital cost of $237.2 million (in September 2008 prices) excludes the estimated amount of $22.4 million (in September 2008 prices) for the above-standard facilities to be funded by the school sponsor. The actual sharing of the project cost to be borne by the school sponsor will be subject to the final contract sum of the project. The school sponsor's contributions will under no circumstances be entitled to claim, reimbursement or compensation of any kind from the Government.

		$ million	
(j)	Contingencies	21.6	
	Sub-total	237.2	(in September 2008 prices)
(k)	Provision for price adjustment	18.4	
	Total	255.6	(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 and resident site staff costs by man-months is at Enclosure 4. The construction floor area (CFA) of **330EP** is 11 161 m^2 (excluding 1 410 m^2 CFA for the above-standard facilities mentioned in footnote 1) The estimated construction unit cost, represented by the building and the building services costs, is $10,931 per m^2 of CFA in September 2008 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 **330EP** is at Enclosure 5.

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

Year	**$ million (Sept 2008)**	**Price adjustment factor**	**$ million (MOD)**
2009 – 10	2.0	1.03500	2.1
2010 – 11	60.0	1.05570	63.3
2011 – 12	120.0	1.07681	129.2
2012 – 13	35.0	1.09835	38.4
2013 – 14	20.2	1.12032	22.6
	237.2		255.6

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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 2009 to 2014. We will deliver the construction works through a lump sum contract because we can clearly define the scope of the works in advance. The contract will provide for price adjustments to reflect market fluctuations in labour and material costs.

9. In line with the existing policy, the cost of furniture and equipment will be borne by the school sponsoring body. We estimate that the annual recurrent expenditure for **330EP** to be $20.0 million.

PUBLIC CONSULTATION

10. At its meeting on 28 June 2007, the Southern District Council was consulted on **330EP** and supported the project.

11. 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 in general, as well as reprovisioning and redevelopment of sub-standard school premises. **330EP** is a project to reprovision a school so as to make available its existing premises for the whole-day conversion of another school.

ENVIRONMENTAL IMPLICATIONS

12. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **330EP** in September 2008. 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 are as follows –

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	Mitigation measures	Estimated cost $ million (in Sept 2008 prices)
(a)	Insulated windows and air-conditioning for 24 classrooms and four small group teaching rooms from G/F to 5/F at the north-eastern façade of the classroom block.	3.0
(b)	Insulated windows and air-conditioning for four special rooms from 1/F to 2/F, 4/F to 5/F at the north-eastern and north-western façades of the special room block.	0.6
(c)	Insulated windows and air-conditioning for two special rooms on 5/F at the south-eastern and north-western façades of the assembly hall block.	0.3

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

13. 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.

14. 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 (e.g. use of excavated materials for filling within the site) or in other suitable construction sites as far as possible, in order to minimize

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the disposal of inert construction waste to public fill reception facilities[5]. 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.

15. 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.

16. We estimate that the project will generate in total about 20 100 tonnes of construction waste. Of these, we will reuse about 4 200 tonnes (20.9%) of inert construction waste on site and deliver 14 000 tonnes (69.7%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 1 900 tonnes (9.4%) 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 $615,500 for this project (based on a unit cost of $27/tonne for disposal at public fill reception facilities and $125/tonne[6] at landfills).

ENERGY CONSERVATION MEASURES

17. This project has adopted various forms of energy efficient features, including —

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[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.

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

(a) Variable Refrigerant Volume (VRV) air-conditioning System;

(b) heat recovery fresh air pre-conditioners in the air-conditioned spaces for heat energy reclaim of exhaust air;

(c) T5 energy efficient fluorescent tubes with electronic ballast and lighting control by occupancy sensors and daylight sensors ;

(d) light emitting diode (LED) type exit signs; and

(e) automatic on/off switching of lighting and ventilation fan inside the lift.

18. For renewable energy technologies, we will adopt photovoltaic system to provide renewable energy for environmental benefits.

19. For greening features, we will provide landscape in the appropriate area on the main roof and terraces for environmental and amenity benefits.

20. For recycled features, we will adopt a rainwater collection system for landscape irrigation with a view to conserving water.

21. The total estimated additional cost for adoption of the above features is around $2.4 million (including $572,000 for energy efficient features), which has been included in the cost estimate for this project. The energy efficient features will achieve 7.1% energy savings in the annual energy consumption with a payback period at about 7.8 years.

HERITAGE IMPLICATIONS

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

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LAND ACQUISITION

23. The project does not require any land acquisition.

BACKGROUND INFORMATION

24. We upgraded **330EP** to Category B in October 2003 and engaged an architectural consultant in November 2004 to carry out the detailed design and PER of the project. The project was later suspended for School Building Programme review in May 2005 and was reactivated in July 2007. A quantity surveying consultant was engaged in September 2007 to prepare tender documents. A revised PER was conducted in September 2008. The total cost of these consultancy services works is about $6.5 million. We have 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 and PER. The quantity surveying consultant is finalising the tender documents.

25. The proposed works will involve removal of 92 trees, including 48 trees to be felled and 44 trees to be replanted within the project site. All trees to be removed are not important trees[7]. We will incorporate planting proposals as part of the project, including estimated quantities of 22 trees and 1 800 shrubs.

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[7] "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.

26. We estimate that the proposed works will create about 242 jobs (220 for labourers and another 22 for professional/technical staff) providing a total employment of 5 016 man-months.

Education Bureau
June 2009

Enclosure 1 to PWSC(2009-10)42

330EP – A 24-classroom primary school at the junction of Victoria Road and Pok Fu Lam Road, Pok Fu Lam

A comparison of the facilities proposed under the new school premises of St. Paul's College Primary School with those of a standard design 24-classroom primary school

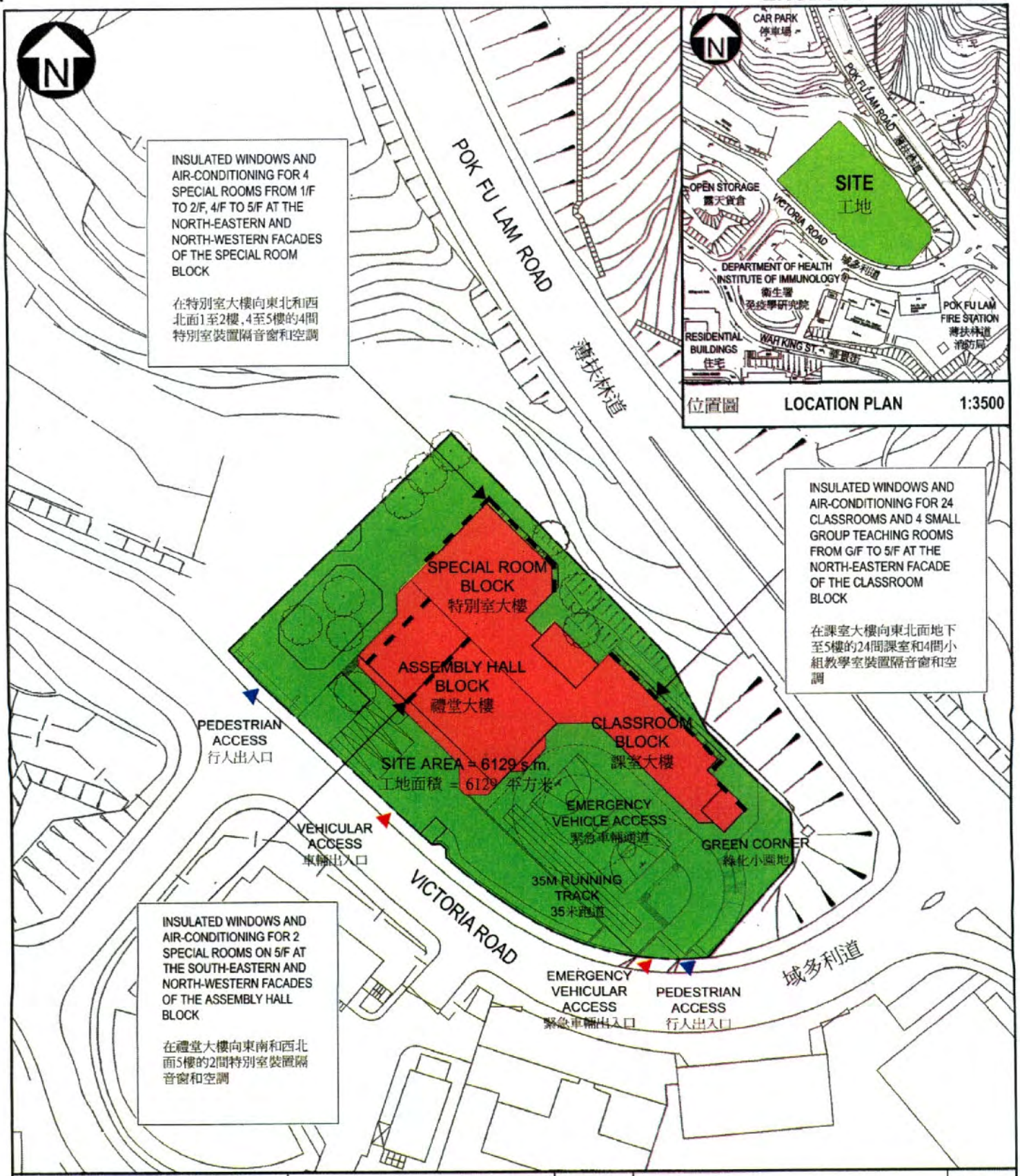
Facilities	**St. Paul's College Primary School**	**Standard design primary school**
Classroom	24	24
Special room	10(Note 1)	6
Small group teaching room	6(Note 1)	4
Guidance activity room	1(Note 2)	1
Interview room	2	2
Staff room	1	1
Staff common room	1	1
Student activity centre	1	1
Conference room	1	1
Teaching resources room	1(Note 1)	-
Parent resources room	1(Note 1)	-
Library	1	1
Assembly hall	1(Note 2)	1
Multi-purpose area	1	1
Basketball court	2	1
Ancillary accommodation, including a lift and relevant facilities for the handicapped	Available(Notes 1 and 2) (2 lifts)	Available (1 lift)

Notes

1 Additional facilities to be funded by the school sponsor's contributions.

2. Additional areas to be funded by the school sponsor's contributions.

ENCLOSURE 2 附件2



TITLE 330EP 薄扶林域多利道與薄扶林道交界處1所設有24間課室的小學 A 24-CLASSROOM PRIMARY SCHOOL AT THE JUNCTION OF VICTORIA ROAD AND POK FU LAM ROAD, POK FU LAM	DRAWN BY ESTHER LI 李芷君	DATE 20.03.2009	DRAWING NO. AB / 6713 / XA001
	APPROVED ALFRED C.C. LAI 賴拯中	DATE 20.03.2009	SCALE 1 : 1000
	OFFICE ARCHITECTURAL BRANCH 建築設計處		ARCHITECTURAL SERVICES DEPARTMENT 建築署

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

TITLE 330EP 薄扶林域多利道與薄扶林道交界處1所設有24間課室的小學 A 24-CLASSROOM PRIMARY SCHOOL AT THE JUNCTION OF VICTORIA ROAD AND POK FU LAM ROAD, POK FU LAM	DRAWN BY ESTHER LI 李芷君	DATE 20.03.2009	DRAWING NO. AB / 6713 / XA002	SCALE N.T.S.
	APPROVED ALFRED C.C. LAI 賴拯中	DATE 20.03.2009	ARCHITECTURAL SERVICES DEPARTMENT 建築署	
	OFFICE ARCHITECTURAL BRANCH 建築設計處			

330EP – A 24-classroom primary school at the junction of Victoria Road and Pok Fu Lam Road, Pok Fu Lam

Breakdown of the estimate for consultants' fees and resident site staff costs (in September 2008 prices)

			Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee ($ million)
(a)	Consultants' fees for contract administration (Note 2)	Professional	–	–	–	1.6
		Technical	–	–	–	0.3
					Sub-total	1.9
(b)	Resident site staff costs (Note 3)	Professional	66	38	1.6	6.4
		Technical	41	14	1.6	1.3
					Sub-total	7.7
	Comprising -					
	(i) Consultants' fees for management of resident site staff					0.2
	(ii) Remuneration of resident site staff					7.5
					Total	9.6

* 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 2008, MPS point 38 = $60,535 per month and MPS point 14 = $19,835 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 **330EP**. The assignment will only be executed subject to the Finance Committee's approval to upgrade **330EP** 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 330EP

$ million (in Sept 2008 prices)

		Reference cost*	330EP	
(a)	Site formation and slope works	-	36.7	(See note A)
(b)	Piling	15.2	24.6	(See note B)
(c)	Building	80.0	98.4	(See note C)
(d)	Building services	18.8	23.6	(See note D)
(e)	Additional energy conservation measures	-	2.4	(See note E)
(f)	Drainage	3.5	5.6	(See note F)
(g)	External works	12.5	14.7	(See note G)
(h)	Consultants' fees	-	2.1	(See note H)
(i)	Remuneration of resident site staff	-	7.5	(See note I)
(j)	Contingencies	13.0	21.6	
	Total	143.0	237.2	
(k)	Construction floor area	9 129 m^2	11 161 m^2	
(l)	Construction unit cost {[(c) + (d)] ÷ (k)}	$10,823/$m^2$	$10,931/$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 105 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 cost of site formation and slope works is for the following works –

   (a) approximately 9 000 m^3 soil excavation and imported backfilling works involved for site formation;

   (b) 113 m long retaining walls to be constructed to maintain the level difference between formation platforms;

   (c) 22 raking piles at an average depth of 17 m will be required below a section of the building to retain the sloping ground outside the site below Pok Fu Lam Road;

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(d) 62 m long barrier walls with 30 raking piles at an average depth of 17 m to be constructed to protect the school from slope collapse danger; and

(e) 497 soil nails at an average depth of 15 m to stabilize an existing slope.

B. 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 high bedrock level under the classroom block. It is estimated that this project will require the use of 138 rock socketted H-piles in pre-bored hole at an average depth of 18 m.

C. The building cost is higher because of larger construction floor area and the additional carparking spaces as recommended by a Traffic Impact Assessment study carried out in April 2005 and the associated sprinkler water tank and pump room as required by Fire Services Department.

D. The building services cost is higher because of larger construction floor area and the provision of insulated windows and air-conditioning as noise mitigation measures and sprinkler installation for covered carpark.

E. Additional energy conservation measures are required for environmental benefits.

F. The cost of drainage is higher because of larger site area.

G. The cost of external works is higher because of larger site area and the requirement for extensive transplanting of existing trees.

H. Consultants' fees for contract administration and management of resident site staff are required for contract administration and site supervision of the building works.

I. Remuneration of resident site staff is required for site supervision of the building works.