For discussion **PWSC(2003-04)67**
on 18 February 2004

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS
Education – Primary
311EP – A 36-classroom primary school in Area 12, Yuen Long

Members are invited to recommend to Finance Committee the upgrading of **311EP** to Category A at an estimated cost of $107.7 million in money-of-the-day prices for the construction of a 36-classroom primary school in Area 12, Yuen Long.

PROBLEM

We do not have enough primary schools to implement the whole-day primary schooling policy by the 2007/08 school year.

PROPOSAL

2. The Director of Architectural Services (D Arch S), with the support of the Secretary for Education and Manpower (SEM), proposes to upgrade **311EP** to Category A at an estimated cost of $107.7 million in money-of-the-day (MOD) prices for the construction of a 36-classroom primary school in Area 12, Yuen Long.

/PROJECT …..

PROJECT SCOPE AND NATURE

3. The proposed primary school will have the following facilities –

(a) 36 classrooms;

(b) nine special rooms, including two computer-assisted learning rooms 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 be used for a wide range of physical activities such as badminton, gymnastics and table-tennis);

(l) a multi-purpose area;

(m) three basketball courts (two at ground level and one at the rooftop of the assembly hall block);

(n) a green corner[1]; and

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

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[1] 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.

The proposed school will meet the planning target of providing two square metres of open space per student. A site plan is at Enclosure 1 and computer rendered drawings of the school premises are at Enclosure 2. D Arch S plans to start the construction works in October 2004 for completion in July 2006.

JUSTIFICATION

4. It is Government policy to implement whole-day primary schooling for virtually all primary school students by the 2007/08 school year. At present, about 66% primary school students are studying in whole-day primary schools. To facilitate implementation of the policy, SEM plans to construct 46 new schools between the 2004/05 and 2007/08 school years. To date, Finance Committee has approved funding for 15 of these 46 new schools. **311EP** will further help achieve this policy target.

5. The Yuen Long District, in which **311EP** is located, currently has 76 public sector primary schools providing 970 classrooms. SEM forecasts that 273 additional classrooms will be required for full implementation of whole-day primary schooling in the district by the 2007/08 school year. The Finance Committee has approved funding for three primary school projects providing 90 additional classrooms for completion in the 2004/05 and 2005/06 school years. The School Allocation Committee[2] has recommended the allocation of **311EP** to Kwong Ming School under the sponsorship of Kwong Ming School Limited. **311EP** will help reduce the forecast shortfall in the district further to 147 classrooms. We plan to meet the rest of the requirement through further school construction projects.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost to be $107.7 million in MOD prices (see paragraph 7 below), made up as follows –

/(a) …..

[2] The School Allocation Committee makes recommendations to SEM on the allocation of school premises/sites to suitable school sponsors. The Committee comprises an equal number of official and non-official members familiar with the Hong Kong education system.

		$ million	
(a)	Piling	14.0	
(b)	Building	52.0	
(c)	Building services	16.8	
(d)	Drainage and external works	11.3	
(e)	Furniture and equipment[3]	4.3	
(f)	Consultants' fees for –	2.5	
	(i) Contract administration 1.8		
	(ii) Site supervision 0.7		
(g)	Contingencies	9.7	
	Sub-total	110.6	(in September 2003 prices)
(h)	Provision for price adjustment	(2.9)	
	Total	107.7	(in MOD prices)

D Arch S proposes 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 **311EP** is 12 950 square metres. The estimated construction unit cost, represented by the building and building services costs, is $5,313 per square metre of CFA in September 2003 prices. D Arch S considers this unit cost comparable to similar school projects built by the Government. A comparison of the reference cost of a 36-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated cost of **311EP** is at Enclosure 4.

/7. …..

[3] Based on a standard furniture and equipment list prepared by the Education and Manpower Bureau for new schools adopting the standard schedule of accommodation.

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

Year	$ million (Sept 2003)	Price adjustment factor	$ million (MOD)
2004 – 05	6.0	0.98225	5.9
2005 – 06	43.2	0.97734	42.2
2006 – 07	44.5	0.97245	43.3
2007 – 08	11.5	0.96759	11.1
2008 – 09	5.4	0.96638	5.2
	110.6		107.7

8. We have derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period 2004 to 2009. We will deliver the works through a fixed-price lump-sum contract because the contract period will be less than 21 months and we can clearly define the scope of works in advance, leaving little room for uncertainty.

9. The cost of furniture and equipment, estimated to be $4.3 million, will be borne by the Government as the school will enable an existing bi-sessional school to convert into whole-day operation. This is in line with existing policy.

10. We estimate the additional annual recurrent expenditure for **311EP** to be $8.3 million.

PUBLIC CONSULTATION

11. We consulted the Yuen Long District Council on 14 July 2003. Members of the Council supported the project. We also consulted the Legislative Council Panel on Education on 30 January 2004 on the planning and provision of public sector school places and the various projects to be implemented in the School Building Programme in the next few years. The Panel on Education thoroughly discussed the Administration's policy and noted its plan to proceed

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with seeking funding approval from the Public Works Subcommittee for projects in the following three categories –

(a) whole-day primary schools;

(b) reprovisioning and redevelopment projects; and

(c) schools, including direct subsidy scheme and private independent schools, which have already been allocated to sponsoring bodies.

ENVIRONMENTAL IMPLICATIONS

12. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **311EP** in May 2003. The PER 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 2003 prices)**
(a)	Provision of insulated windows and air-conditioning to 21 classrooms from the 1/F to 4/F and six special rooms on the 2/F, 3/F and 5/F at the southern façade of the south classroom block	2.7
(b)	Provision of insulated windows and air-conditioning to 15 classrooms from the 1/F to 4/F and two small group teaching rooms on the 2/F at the northern façade of the north classroom block	1.6
(c)	Provision of insulated windows and air-conditioning to two small group teaching rooms on the 2/F at the southern façade of the assembly hall block	0.2

We have included the cost of the above mitigation measures as part of the 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 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.

14. At the planning and design stages, we have considered measures to reduce the generation of construction and demolition (C&D) materials. D Arch S has introduced more prefabricated building elements into the school design to reduce temporary formwork and construction waste. These include dry-wall partitioning and proprietary fittings and fixtures. We will use suitable excavated materials for filling within the site to minimise off-site disposal. In addition, we will require the contractor to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

15. D Arch S will 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. D Arch S will ensure that the day-to-day operations on site comply with the approved WMP. D Arch S will control the disposal of public fill and C&D waste to designated public filling facilities and landfills respectively through a trip-ticket system. D Arch S 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. We estimate that the project will generate about 3 480 cubic metres (m^3) of C&D materials. Of these, we will reuse about 2 220 m^3 (63.8%) on site, 720 m^3 (20.7%) as fill in public filling areas[4], and dispose of 540 m^3 (15.5%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be $67,500 for this project (based on a notional unit cost[5] of $125/$m^3$)

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[4] A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

[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 are likely to be more expensive) when the existing ones are filled. The notional cost estimate is for reference only and does not form part of this project estimate.

LAND ACQUISITION

16. This project does not require land acquisition.

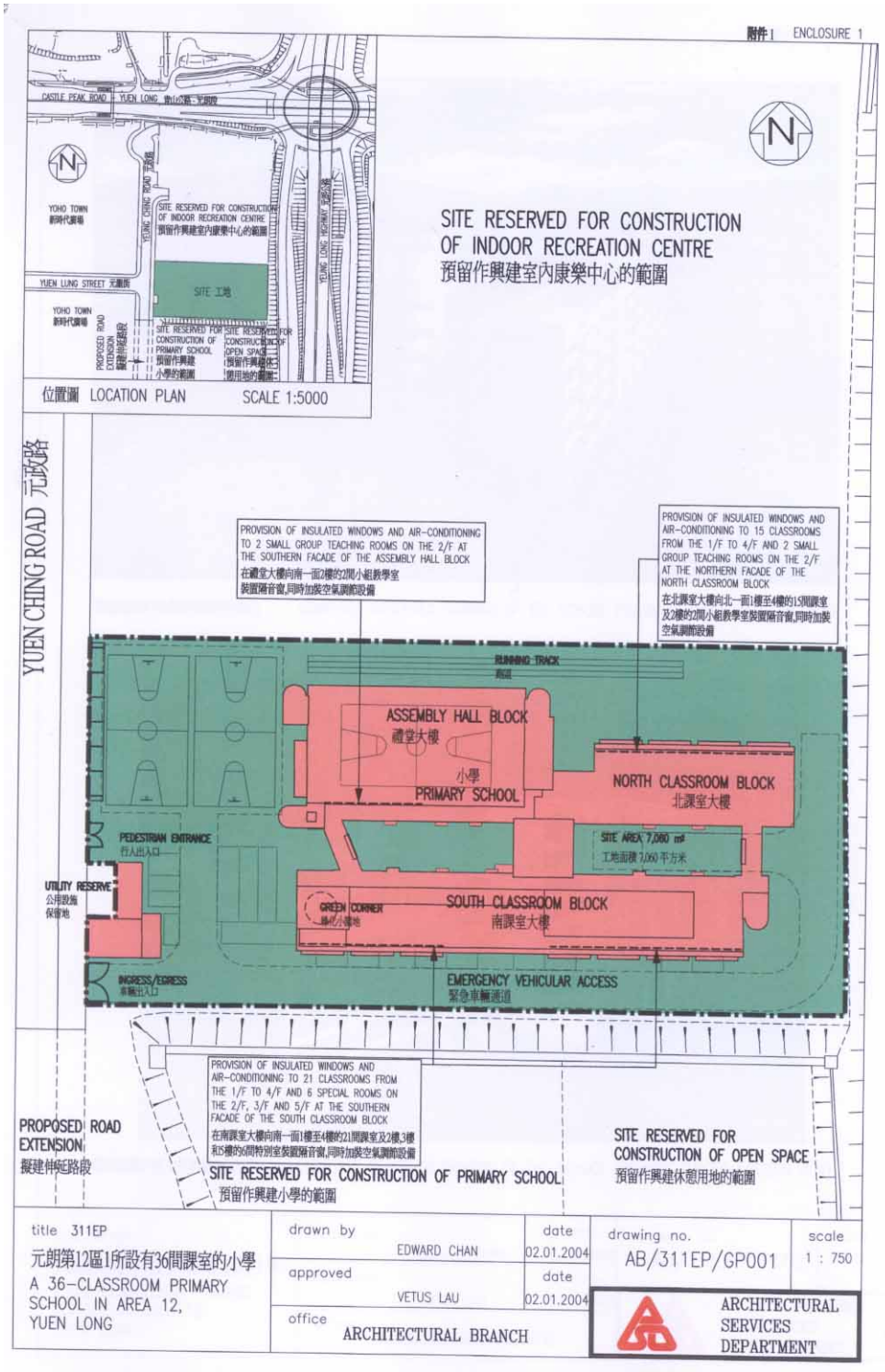
BACKGROUND INFORMATION

17. We upgraded **311EP** to Category B in November 2002. We engaged a term contractor to carry out site investigation in May 2003; and consultants to carry out the PER and a topographical survey in May 2003, detailed design in August 2003 and tender documentation in December 2003 at a total cost of $2.9 million. We charged this to block allocation **Subhead 3100GX** "Project feasibility studies, minor investigations and consultants' fees for items in Category D of the Public Works Programme". The term contractor and the consultants have completed the site investigation, PER, topographical survey and detailed design of the project. The consultants are finalising the tender documents.

18. The proposed construction of a primary school will not involve any tree removal proposal. We will incorporate planting proposal as part of the project, including estimated quantities of 138 trees, 1 730 shrubs and 1 400 annuals.

19. We estimate that the project will create some 120 jobs comprising ten professional/technical staff and 110 labourers, totalling 2 050 man-months.

Education and Manpower Bureau
February 2004


附件1 ENCLOSURE 1
CASTLE PEAK ROAD - YUEN LONG 青山公路 - 元朗段
YOHO TOWN 新時代廣場
YUNG CHING ROAD 永政路
YUNG LONG HIGHWAY 榮龍路
SITE RESERVED FOR CONSTRUCTION OF INDOOR RECREATION CENTRE 預留作興建室內康樂中心的範圍
SITE 工地
YUEN LUNG STREET 元朗街
PROPOSED ROAD EXTENSION 擬建伸延路段
SITE RESERVED FOR CONSTRUCTION OF PRIMARY SCHOOL 預留作興建小學的範圍
SITE RESERVED FOR CONSTRUCTION OF OPEN SPACE 預留作興建休憩用地的範圍
位置圖 LOCATION PLAN SCALE 1:5000
SITE RESERVED FOR CONSTRUCTION OF INDOOR RECREATION CENTRE
預留作興建室內康樂中心的範圍
YUEN CHING ROAD 元政路
PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 2 SMALL GROUP TEACHING ROOMS ON THE 2/F AT THE SOUTHERN FACADE OF THE ASSEMBLY HALL BLOCK
在禮堂大樓向南一面2樓的2間小組教學室裝置隔音窗,同時加裝空氣調節設備
PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 15 CLASSROOMS FROM THE 1/F TO 4/F AND 2 SMALL GROUP TEACHING ROOMS ON THE 2/F AT THE NORTHERN FACADE OF THE NORTH CLASSROOM BLOCK
在北課室大樓向北一面1樓至4樓的15間課室及2樓的2間小組教學室裝置隔音窗,同時加裝空氣調節設備
RUNNING TRACK 跑道
ASSEMBLY HALL BLOCK 禮堂大樓
小學 PRIMARY SCHOOL
NORTH CLASSROOM BLOCK 北課室大樓
PEDESTRIAN ENTRANCE 行人出入口
SITE AREA 7,060 m² 工地面積 7,060 平方米
UTILITY RESERVE 公用設施保留地
GREEN CORNER 綠化角地
SOUTH CLASSROOM BLOCK 南課室大樓
INGRESS/EGRESS 車輛出入口
EMERGENCY VEHICULAR ACCESS 緊急車輛通道
PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 21 CLASSROOMS FROM THE 1/F TO 4/F AND 6 SPECIAL ROOMS ON THE 2/F, 3/F AND 5/F AT THE SOUTHERN FACADE OF THE SOUTH CLASSROOM BLOCK
在南課室大樓向南一面1樓至4樓的21間課室及2樓,3樓和5樓的6間特別室裝置隔音窗,同時加裝空氣調節設備
PROPOSED ROAD EXTENSION 擬建伸延路段
SITE RESERVED FOR CONSTRUCTION OF PRIMARY SCHOOL 預留作興建小學的範圍
SITE RESERVED FOR CONSTRUCTION OF OPEN SPACE 預留作興建休憩用地的範圍
title 311EP
元朗第12區1所設有36間課室的小學
A 36-CLASSROOM PRIMARY SCHOOL IN AREA 12, YUEN LONG
drawn by EDWARD CHAN
date 02.01.2004
approved VETUS LAU
date 02.01.2004
office ARCHITECTURAL BRANCH
drawing no. AB/311EP/GP001
scale 1 : 750
ARCHITECTURAL SERVICES DEPARTMENT

附件2 ENCLOSURE 2

電腦繪製的校舍模擬圖(西南面) COMPUTER RENDERED DRAWING OF THE SCHOOL PREMISES (SOUTH-WESTERN VIEW)

電腦繪製的校舍模擬圖(東北面) COMPUTER RENDERED DRAWING OF THE SCHOOL PREMISES (NORTH-EASTERN VIEW)

title 311EP 元朗第12區1所設有36間課室的小學 A 36-CLASSROOM PRIMARY SCHOOL IN AREA 12, YUEN LONG	drawn by EDWARD CHAN	date 02.01.2004	drawing no. AB/311EP/GP002	scale N.T.S.
	approved VETUS LAU	date 02.01.2004		
	office ARCHITECTURAL BRANCH		ARCHITECTURAL SERVICES DEPARTMENT	

311EP – A 36-classroom primary school in Area 12, 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)
(a) Contract administration (Note 2)	Professional	–	–	–	1.3
	Technical	–	–	–	0.5
(b) Site supervision (Note 3)	Professional	7.8	38	1.6	0.7
				Total	2.5

* 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 2004, MPS point 38 = $55,993 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 **311EP**. The assignment will only be executed subject to Finance Committee's approval to upgrade **311EP** 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 36-classroom primary school project with the estimated cost of 311EP

		$ million (in Sept 2003 prices)		
		Reference cost*	**311EP**	
(a)	Piling	10.0	14.0	(See note A)
(b)	Building	49.2	52.0	(See note B)
(c)	Building services	12.3	16.8	(See note C)
(d)	Drainage and external works	11.3	11.3	
(e)	Furniture and equipment	–	4.3	(See note D)
(f)	Consultants' fees	–	2.5	(See note E)
(g)	Contingencies	8.3	9.7	
	Total	91.1	110.6	
(h)	Construction floor area	12 770 m^2	12 950 m^2	
(i)	Construction unit cost {[(b) + (c)] ÷ (h)}	\$4,816/m^2	\$5,313/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.

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 150 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 36-classroom primary school site area of 7 000 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 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. D Arch S will review, and revise if necessary, the reference cost which should be adopted for future projects.

Notes

A. The piling cost is higher because ground conditions require the use of 196 steel H-piles at an average depth of 50 metres. More piles are needed due to the larger construction floor area as well as design allowance for the effect of negative skin friction in view of fill on reclaimed land. Longer piles are also needed due to deeper rockhead.

B. The building cost is higher because of the larger construction floor area and larger building footprint.

C. The building services cost is higher because of the provision of air-conditioning as a noise mitigation measure.

D. The cost of furniture and equipment, estimated to be $4.3 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.

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

[#] We do not have a standard design for 36-classroom primary school. 7 000 square metres are calculated on a pro-rata basis having regard to the site area of a standard design 30-classroom primary school.