For discussion **PWSC(2000-01)55**
on 8 November 2000

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 - BUILDINGS
Education - Primary
286EP - Primary school in Kwai Chung Estate Redevelopment
287EP - Primary school in Area 1, Tai Po

Members are invited to recommend to Finance Committee the upgrading of **286EP** and **287EP** to Category A at an estimated cost of $106.5 million and $103.3 million respectively in money-of-the-day prices for the construction of a 30-classroom primary school in Kwai Chung and another similar one in Tai Po.

PROBLEM

We need to provide additional primary schools for the implementation of the whole-day primary schooling policy.

PROPOSAL

2. The Director of Architectural Services (D Arch S), with the support of the Secretary for Education and Manpower, proposes to upgrade the following projects to Category A at an estimated total cost of $209.8 million in money-of-the-day (MOD) prices -

/ (a) .....

			Project Estimate $ million (MOD)
(a)	**286EP -**	Primary school in Kwai Chung Estate Redevelopment	106.5
(b)	**287EP -**	Primary school in Area 1, Tai Po	103.3
		Total	209.8

PROJECT SCOPE AND NATURE

3. The two proposed primary schools are standard design 30-classroom school buildings. Each school building will have -

(a) 30 classrooms;

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

(c) four remedial teaching rooms;

(d) a guidance activity/interview room;

(e) two interview rooms;

(f) two staff rooms and a staff common room;

(g) a student activity centre;

(h) a conference room;

(i) a library;

(j) an assembly hall (which, together with the roof of the assembly hall block, can also be used for a wide range of physical activities such as badminton, gymnastics and table-tennis);

/ (k) .....

(k) a multi-purpose area;

(l) three basketball courts (inclusive of two on ground level and a further one at the rooftop of the assembly hall block); and

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

The proposed primary school in Kwai Chung will also have a mini-soccer pitch. The two proposed projects will be able to meet the planning target of providing two square meters of open space per student. The site plans for **286EP** and **287EP** are at Enclosures 1 and 2 respectively. D Arch S plans to start construction works for **286EP** and **287EP** in January 2001 for completion in July 2002.

JUSTIFICATION

4. To meet the increase in demand for primary school places and to help achieve the policy target of enabling 60% of pupils in public sector schools to study on a whole-day basis by the school year 2002/03, the Director of Education (D of E) originally planned to build 73 new primary schools for completion between August 1998 and August 2002. Pursuant to the latest projection on population distribution[1] which indicates that further primary school places will need to be provided in certain districts in order to meet the 60% whole-day primary schooling target, D of E now plans to build five additional schools on top of the 73 schools mentioned above, making up a total of 78 schools for completion by the school year 2002/03. To date, 36 of these 78 schools in total have been completed and 32 schools are at various stages of construction. Another four projects **252EP, 267EP, 268EP** and **276EP** will also be considered by Members at this meeting (see papers referenced PWSC(2000-01)53, PWSC(2000-01)54 and PWSC(2000-01)56).

5. Kwai Tsing District currently has 28 public sector primary schools providing 690 classrooms. Tai Po District has 27 public sector primary schools providing 467 classrooms. Whilst D of E forecasts that no additional classrooms are required in these two districts to meet the increase in demand for school places by the school year 2002/03, **286EP** and **287EP** will enable an existing bi-sessional primary school in each of the districts to convert into whole-day operation.

/ **FINANCIAL** .....

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[1] The Working Group on Population Distribution under the Planning Department releases updated projection on population distribution from time to time. The last update was released in February 2000.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of **286EP** and **287EP** to be $106.5 million and $103.3 million respectively in MOD prices (see paragraph 7 below), made up as follows -

		286EP	**287EP**	
		$ million		
(a)	Site formation	1.7	-	
(b)	Geotechnical works	3.4	-	
(c)	Piling	12.0	9.0	
(d)	Building	49.6	49.8	
(e)	Building services	12.9	16.0	
(f)	Drainage and external works	9.0	11.0	
(g)	Furniture and equipment	4.5	4.5	
(h)	Contingencies	8.9	8.6	
	Sub-total	102.0	98.9	(in September 2000 prices)
(i)	Provision for price adjustment	4.5	4.4	
	Total	106.5	103.3	(in MOD prices)

The construction floor area for each of the two schools is 10 727 square metres. The construction unit costs of **286EP** and **287EP**, represented by building and building services costs, are $5,826 per square metre and $6,134 per square metre respectively in September 2000 prices. D Arch S considers the estimated construction unit costs comparable to similar school projects built by the Government. A comparison of the standard cost of a 30-classroom primary school with the estimated costs for the two schools is at Enclosure 3.

/ 7. .....

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

Year	$ million (Sept 2000)		Price adjustment factor	$ million (MOD)	
	286EP	**287EP**		**286EP**	**287EP**
2000 - 01	0.5	0.5	1.00000	0.5	0.5
2001 - 02	50.8	47.4	1.02550	52.1	48.6
2002 - 03	43.2	43.5	1.05627	45.6	45.9
2003 - 04	5.2	5.2	1.08795	5.7	5.7
2004 - 05	2.3	2.3	1.12059	2.6	2.6
	102.0	98.9		106.5	103.3

8. We derived the MOD estimates on the basis of Government's latest forecast of trend labour and construction prices for the period 2000 to 2005. We will tender the works under fixed-price lump-sum contracts because the construction period of the two schools will be less than 21 months and we can clearly define the scope of works in advance, leaving little room for uncertainty.

9. We estimate the annually recurrent expenditure for each school to be $23.1 million.

PUBLIC CONSULTATION

10. We consulted the Kwai Tsing District Council on **286EP** in June 2000 and Tai Po District Council on **287EP** in September 2000 respectively. Members of the respective District Councils supported the projects.

ENVIRONMENTAL IMPLICATIONS

11. We conducted Preliminary Environmental Reviews (PERs) for **286EP** and **287EP** in November 1999 and January 2000 respectively. The PERs concluded that these schools would not be subject to adverse environmental

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impacts provided that we implement the following environmental mitigation measures to keep the road traffic noise impact on the proposed schools within the limits stipulated in the Hong Kong Planning Standards and Guidelines -

Project No.	Mitigation Measures	Estimated Cost $ million (in Sept. 2000 prices)
286EP	Provision of insulated windows and air-conditioning to nine classrooms from the 4/F to the 6/F at the western façade of the classroom block and two special rooms on the 3/F at the northern façade of the special room block; and	1.5
287EP	Provision of insulated windows and air-conditioning to 30 classrooms and four remedial teaching rooms from the 1/F to the 6/F at the southern façade of the classroom block, and two special rooms on the 3/F at the eastern façades of the assembly hall block.	4.0

We have included the costs of these mitigation measures as part of the building and building services works in the project estimate.

12. During construction, we will control noise, dust and site run-off nuisances 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, as well as frequent cleaning and watering of the site.

13. We estimate that 350 cubic metres of public fill for each of the two projects will be delivered to public filling areas; and about 750 cubic metres of construction and demolition (C&D) waste for **286EP** and 450 cubic metres for **287EP** will be disposed of at landfills. Ways of minimizing the generation of C&D materials were considered at the planning and design stage. We will require the contractor to implement necessary measures to minimize the generation of C&D materials. Where such materials are produced, we will try to reuse and recycle them. If this is not possible, C&D materials will be disposed of through designated public filling facilities and/or in landfills through a trip ticket system. The reuse, recycling and disposal of C&D materials will be properly recorded for monitoring purposes.

/ LAND .....

LAND ACQUISITION

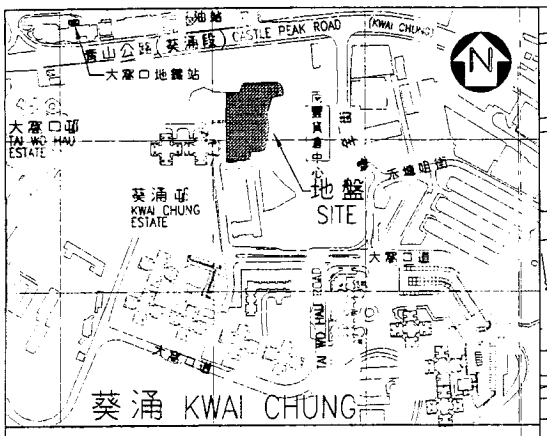
14. Neither of the two school projects requires land acquisition.

BACKGROUND INFORMATION

15. We upgraded **286EP** and **287EP** to Category B in September 2000. We engaged consultants to carry out topographical survey and PER for **286EP** in November 1999 and employed a term contractor to carry out site investigation in January 2000 at a total cost of $800,000. For **287EP**, we engaged consultants to carry out topographical survey and PER in January 2000 and employed a term contractor to carry out site investigation in July 2000 at a total cost of $750,000. We 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 consultants and the term contractors have completed the PERs, topographical surveys and site investigations respectively. D Arch S has completed the detailed design and the tender documents of the projects using in-house staff resources.

16. We estimate that **286EP** will create some 170 jobs with a total of 2 790 man-months comprising three professional staff, seven technical staff and 160 labourers while **287EP** will create some 170 jobs with a total of 2 705 man-months comprising three professional staff, seven technical staff and 160 labourers.

Education and Manpower Bureau
October 2000



位置圖 LOCATION PLAN SCALE : DIAGRAMMETIC

PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 9 CLASSROOMS FROM THE 4/F TO THE 6/F AT THE WESTERN FACADE OF THE CLASSROOM BLOCK AND 2 SPECIAL ROOMS ON THE 3/F AT THE NORTHERN FACADE OF THE SPECIAL ROOM BLOCK

在課室大樓向西面由4樓至6樓之9間課室及在特別室大樓向北面3樓之2間特別室安裝隔音玻璃窗和空氣調節

CASTLE PEAK ROAD 青山公路(葵涌段)

MTRC PROTECTION ZONE 地下鐵路保護區

PEDESTRIAN ENTRANCE 行人出入口

ESTATE SPORTS AREA 屋邨體育用地

CHILDREN'S PLAY AREA 兒童休憩用地

INGRESS/ EGRESS POINT 進出出入口

+39.90

KWAI CHUNG ESTATE PHASE 5 葵涌邨第五期

ACCESS ROAD FOR SCHOOL 學校通道

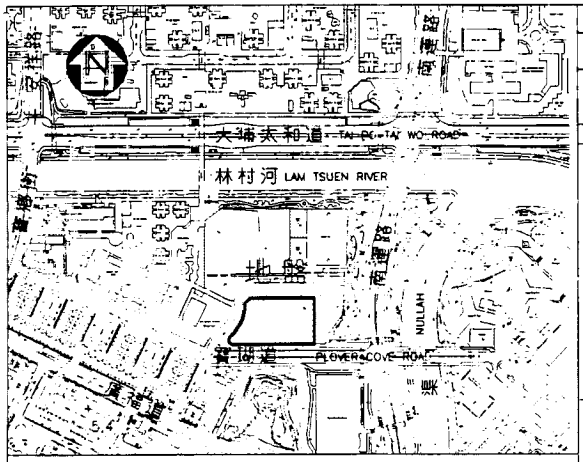
CHUEN YEUN COLLEGE 全完中學

南豐貨倉中心

title 286EP 葵涌邨重建計劃一所小學 A PRIMARY SCHOOL IN KWAI CHUNG ESTATE REDEVELOPMENT	drawn by CF WAN	date 23.08.2000	drawing no. AB/6234/XF103	scale 1:1000
	approved S.K. SAY	date 23.08.2000		
	office ARCHITECTURAL BRANCH		建築署 ARCHITECTURAL SERVICES DEPARTMENT	

CAD Ref. 6243F103 — 1:1000

A4 210 x 297



位置圖 LOCATION PLAN 1 : 10000

Sitting-out Area

835600E

835700E

834500N

834400N

N

擬將來興建的
大埔文娛中心

PROPOSED
TAI PO CIVIC CENTRE

在禮堂大樓向東面於三樓的兩間特別課室安裝隔音玻璃窗及空氣調節

PROVISION OF INSULATED WINDOWS & AIR-CONDITIONING TO 2 SPECIAL ROOMS AT 3/F OF THE EASTERN FACADE OF ASSEMBLY HALL BLOCK

在課室大樓向南面由一樓至六樓之三十間課室及四間輔導教室安裝隔音玻璃窗和空氣調節

PROVISION OF INSULATED WINDOWS & AIR-CONDITIONING TO 30 CLASSROOMS & 4 REMEDIAL TEACHING ROOMS FROM 1/F TO 6/F ON THE SOUTHERN FACADE OF THE CLASSROOM BLOCK

現有行車通道擴展工程

EXTENSION TO EXISTING ACCESS ROAD

大埔崇德黃建常紀念學校

SUNG TAK WONG KIN SHEUNG MEMORIAL SCHOOL

VEHICULAR INGRESS/ EGRESS POINT

ROAD 路

政府/團體/社區用地

G. C.

PEDESTRIAN ENTRANCE

PLOVER COVE ROAD 寶琳道

LAGOON COURT

平台 PODIUM

title 287EP 大埔第一區一所小學 PRIMARY SCHOOL IN AREA 1, TAI PO	drawn by K.M. KWONG	date 5.09.2000	drawing no. AB/6196/XB901
	approved WILSON W.P. LAM	date 5.09.2000	scale 1:1000
	office ARCHITECTURAL BRANCH		ARCHITECTURAL SERVICES DEPARTMENT

A comparison of the standard cost of a 30-classroom primary school project with the estimated cost of the proposed two school projects

		Standard cost*	286EP	287EP	
			$ million (in Sept. 2000 prices)		
(a)	Site formation	-	1.7	-	(See A below)
(b)	Geotechnical works	-	3.4	-	(See B below)
(c)	Piling	9.0	12.0	9.0	(See C below)
(d)	Building	49.5	49.6	49.8	(See D below)
(e)	Building services	11.5	12.9	16.0	(See E below)
(f)	Drainage and external works	9.0	9.0	11.0	(See F below)
(g)	Furniture and equipment	-	4.5	4.5	(See G below)
(h)	Contingencies	7.9	8.9	8.6	
	Total	86.9	102.0	98.9	
(i)	Construction floor area	10 727m^2	10 727m^2	10 727m^2	
(j)	Construction unit cost {[(d)+(e)] ÷(i)}	$5,687/$m^2$	$5,826/$m^2$	$6,134/$m^2$	

*** Assumptions for standard cost**

1. The estimation is based on the assumption that the school site is uncomplicated and without abnormal environmental restrictions. No allowance is reserved for specific environmental restrictions such as the provision of insulated windows, air-conditioning and solid 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 the handing-over of the project site for school construction.

3. Piling cost is based on the use of 112 numbers of steel H-piles at an average depth of 30 metres, on the assumption 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 greenfield site).

5. No consultancy services are required.

6. Furniture and equipment costs are excluded as they are usually borne by the sponsoring body.

7. The standard cost for comparison purpose is subject to review regularly. We will continue to periodically review, and revise if necessary, the standard cost which should be adopted for future projects.

Estimates for 286EP and 287EP

A. For **286EP**, the cost for site formation is required for the removal of foundations of existing housing block.

B. For **286EP**, the cost for geotechnical works is required for slope stabilization works at the north-east corner of the site.

C. For **286EP**, the piling cost is higher because it is based on the use of 135 numbers of rock socketed steel H-piles in pre-bored holes at an average depth of 28 metres instead of 112 numbers of steel H-piles at an average depth of 30 metres in a standard 30-classroom primary school. Rock-socketed steel H-piles in pre-bored holes are used to avoid any undue vibration induced by the piling onto the nearby slope.

D. The building costs for **286EP** and **287EP** are higher because of the provision of the insulated windows as a noise mitigation measure.

E. For **286EP**, the building services cost is higher because of the provision of air-conditioning as a noise mitigation measure. For **287EP**, the building services cost is higher because of the provision of air-conditioning as a

noise mitigation measure ($3.7 million) and other building services installations such as street lighting of the access road ($0.8 million).

F. The external works cost for **287EP** is higher because of the provision of an extension to the existing access road as required by the Transport Department for road improvement (as marked in the site plan in Enclosure 2).

G. For each of the two schools, $4.5 million is required for the cost of furniture and equipment as the school buildings will be allocated to existing bi-sessional schools for conversion to whole-day operation.

(PWSC0305/WIN12)