

For discussion
on 31 May 2001

PWSC(2001-02)35

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 - BUILDINGS

Education - Primary

291EP - Primary school in Area 111, Tin Shui Wai

280EP - Second primary school in Area 111, Tin Shui Wai

282EP - Primary school in Lam Tin Estate Redevelopment, Kwun Tong

283EP - Primary school at Kai Yip Road, Kowloon Bay

285EP - Primary school at Kai Yan Street, Kowloon Bay

Members are invited to recommend to Finance Committee the upgrading of **291EP**, **280EP**, **282EP**, **283EP** and **285EP** to Category A at an estimated cost of \$94.0 million, \$94.0 million, \$94.2 million, \$96.9 million and \$95.9 million respectively in money-of-the-day prices for the construction of five 30-classroom primary schools, two of which are in Tin Shui Wai, one in Lam Tin and two in Kowloon Bay.

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 \$475.0 million in money-of-the-day (MOD) prices -

/(a)

	Project Estimate \$ million (MOD)
(a) 291EP - Primary school in Area 111, Tin Shui Wai	94.0
(b) 280EP - Second primary school in Area 111, Tin Shui Wai	94.0
(c) 282EP - Primary school in Lam Tin Estate Redevelopment, Kwun Tong	94.2
(d) 283EP - Primary school at Kai Yip Road, Kowloon Bay	96.9
(e) 285EP - Primary school at Kai Yan Street, Kowloon Bay	95.9

Total	475.0

PROJECT SCOPE AND NATURE

3. The five proposed primary schools are standard design 30-classroom school buildings. Each school will have the following facilities -

- (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;
- (e) two interview rooms;
- (f) a staff room and a staff common room;

/(g)

- (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) 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);
- (m) ancillary accommodation including a lift and relevant facilities for the handicapped; and
- (n) a green corner¹.

In addition, **291EP**, **280EP**, **283EP** and **285EP** will have their own running tracks and spectator stands whereas **282EP** will have a volleyball court. All of them will meet the planning target of providing two square metres of open space per student.

4. The site plans for the five schools are at Enclosures 1 to 4. D Arch S plans to start the construction works for the schools in December 2001 for completion in July 2003.

/JUSTIFICATION

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.

JUSTIFICATION

5. The Government's interim target is to enable 60% of our primary school pupils to study in whole-day schools by the 2002/03 school year. To achieve this target, 78 new primary schools are required between the 1998/99 and the 2002/03 school years. To date, 37 schools have already been completed, and a further 40 are at various stages of construction. The one remaining project will be considered by Members at this meeting (see paper referenced PWSC(2001-02)34).

6. The Government is further committed to enabling virtually all primary school pupils to study in whole-day schools by the 2007/08 school year. To this end, Director of Education (D of E) plans to construct another 46 new schools between the 2003/04 and the 2007/08 school years. The proposed five projects will help achieve this policy target. To date, funding has already been approved for one new school for meeting this target.

7. Yuen Long District (in which Tin Shui Wai is located) currently has 49 public sector primary schools providing 872 classrooms. D of E forecasts that an additional 304 classrooms will be required for full implementation of whole-day primary schooling by the 2007/08 school year. **291EP** and **280EP** will help reduce the shortfall by 60 to 244 and will enable two existing bi-sessional primary schools to convert into whole-day operation. The remaining shortfall will be met by further school projects which are currently being planned.

8. Kwun Tong District (in which Lam Tin and Kowloon Bay are situated) currently has 30 public sector primary schools providing 708 classrooms. D of E forecasts that an additional 178 classrooms will be required for full implementation of whole-day primary schooling by the 2007/08 school year. **282EP**, **283EP** and **285EP** will help reduce the shortfall by 90 to 88 and will enable three existing bi-sessional primary schools to convert into whole-day operation. The remaining shortfall will be met by further school projects which are currently being planned.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of **291EP**, **280EP**, **282EP**, **283EP**, and **285EP** to be \$94.0 million, \$94.0 million, \$94.2 million, \$96.9 million and \$95.9 million respectively in MOD prices (see paragraph 10 below), made up as follows -

/(a)

	\$ million					
	291EP	280EP	282EP	283EP	285EP	
(a) Piling	12.5	12.5	9.0	10.8	10.8	
(b) Building	49.5	49.5	49.5	49.5	49.5	
(c) Building services	11.5	11.5	13.4	15.0	15.0	
(d) Drainage and external works	9.0	9.0	10.8	10.0	9.0	
(e) Furniture and equipment	4.5	4.5	4.5	4.5	4.5	
(f) Contingencies	8.3	8.3	8.3	8.5	8.4	
Sub-total	95.3	95.3	95.5	98.3	97.2	(in September 2000 prices)
(g) Provisions for price adjustment	(1.3)	(1.3)	(1.3)	(1.4)	(1.3)	
Total	94.0	94.0	94.2	96.9	95.9	(in MOD prices)

The construction floor area of each of the five schools is 10 727 square metres. The construction unit costs in September 2000 prices, represented by building and building services costs, are as follows -

**Construction Unit Cost
per square metre
(in September 2000 prices)**

(a) For 291EP and 280EP	\$5,687
(b) For 282EP	\$5,864
(c) For 283EP and 285EP	\$6,013

/D Arch S

D Arch S considers the estimated construction unit costs comparable to similar school projects built by the Government. A comparison of the reference cost for a 30-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated costs for the five schools is at Enclosure 5.

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

Year	\$ million (in September 2000)					Price Adjustment Factor	\$ million (MOD)				
	291EP	280EP	282EP	283EP	285EP		291EP	280EP	282EP	283EP	285EP
2001 - 02	2.0	2.0	2.0	2.0	2.0	0.98000	2.0	2.0	2.0	2.0	2.0
2002 - 03	41.3	41.3	41.3	41.3	41.3	0.97976	40.5	40.5	40.5	40.5	40.5
2003 - 04	41.6	41.6	41.8	44.4	43.4	0.98759	41.1	41.1	41.3	43.8	42.9
2004 - 05	8.4	8.4	8.4	8.6	8.5	0.99549	8.4	8.4	8.4	8.6	8.5
2005 - 06	2.0	2.0	2.0	2.0	2.0	1.00346	2.0	2.0	2.0	2.0	2.0
	95.3	95.3	95.5	98.3	97.2		94.0	94.0	94.2	96.9	95.9

11. We derived the MOD estimates on the basis of Government’s latest forecast of trend labour and construction prices for the period 2001 to 2006. We will tender the proposed works under fixed-price lump-sum contracts because the contract period of each project will be less than 21 months and we can clearly define the scope of works in advance, leaving little room for uncertainty.

12. For the five projects, the cost of furniture and equipment will be borne by the Government as the schools will enable five existing bi-sessionals schools to convert into whole-day operation. This is in line with existing policy.

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

/PUBLIC

PUBLIC CONSULTATION

14. We consulted the Kwun Tong District Council on **282EP**, **283EP** and **285EP** in February 2001 and the Yuen Long District Council on **291EP** and **280EP** in March 2001. Members of the two Councils supported the projects.

ENVIRONMENTAL IMPLICATIONS

15. We completed Preliminary Environmental Reviews (PERs) for **291EP** in October 1998, **280EP** in August 1999, **282EP** in January 2000, **283EP** and **285EP** in February 2001. The PERs concluded that **291EP** and **280EP** would not be subject to adverse environmental impacts. For **282EP**, **283EP** and **285EP**, it was concluded that the schools would not be subject to adverse environmental impacts provided that we implement the following environmental mitigation measures to keep the road traffic noise impact within the limits stipulated in the Hong Kong Planning Standards and Guidelines -

Project No.	Mitigation Measures	Estimated Cost \$ million (in Sept 2000 prices)
282EP	(a) Construction of a 2.5-metre high solid boundary wall along the eastern, western and northern sides of the site	0.4
	(b) Provision of insulated windows and air-conditioning to 21 classrooms from the 1/F to the 6/F at the eastern façade of the classroom block	1.9
283EP	(c) 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 south-western façade of the classroom block and four special rooms on 2/F and 3/F at the north-western façade of the special room block	3.5

Project No.	Mitigation Measures	Estimated Cost \$ million (in Sept 2000 prices)
285EP	(d) 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 western façade of the classroom block and four special rooms on 2/F and 3/F at the northern façade of the special room block	/285EP 3.5

We have included the costs of the above mitigation measures in the project estimates for the schools concerned as part of the building services works or drainage and external works.

16. 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.

17. 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 project designs to avoid temporary formwork and construction waste. These include dry-wall partitioning and proprietary fittings and fixtures. Suitable excavated materials will be used for filling within the site to minimize off-site disposal. In addition, the contractor will be required to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

/18.

18. We will require the contractors to submit waste management plans (WMPs) for approval. The WMPs will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials in each case. 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. The contractors will be required to separate public fill from C&D waste for disposal at appropriate facilities. The disposal, reuse and recycling of C&D materials will be recorded for monitoring purposes. It is estimated that each project will generate about 2 750 cubic metres (m³) of C&D materials. Of these, about 1 850 m³ (67.3%) will be reused on site, 400 m³ (14.5%) will be reused as fill in public filling areas², and about 500 m³ (18.2%) will be disposed of at landfills.

LAND ACQUISITION

19. The five projects do not require land acquisition.

BACKGROUND INFORMATION

20. We upgraded **291EP** to Category B in May 1997 and **280EP**, **282EP**, **283EP** and **285EP** in September 2000. We engaged consultants to carry out PERs and topographical surveys and employed term contractors to carry out site investigations for the five projects at the following dates and costs -

Project No.	PER	Topographical survey	Site investigation	Total cost
291EP	September 1996	March 2000	March 2000	\$576,000
280EP	June 1999	March 2000	March 2000	\$607,000
282EP	December 1999	December 2000	December 2000	\$830,000
283EP	February 2000	February 2001	February 2001	\$800,000
285EP	February 2000	February 2001	February 2001	\$800,000

/For

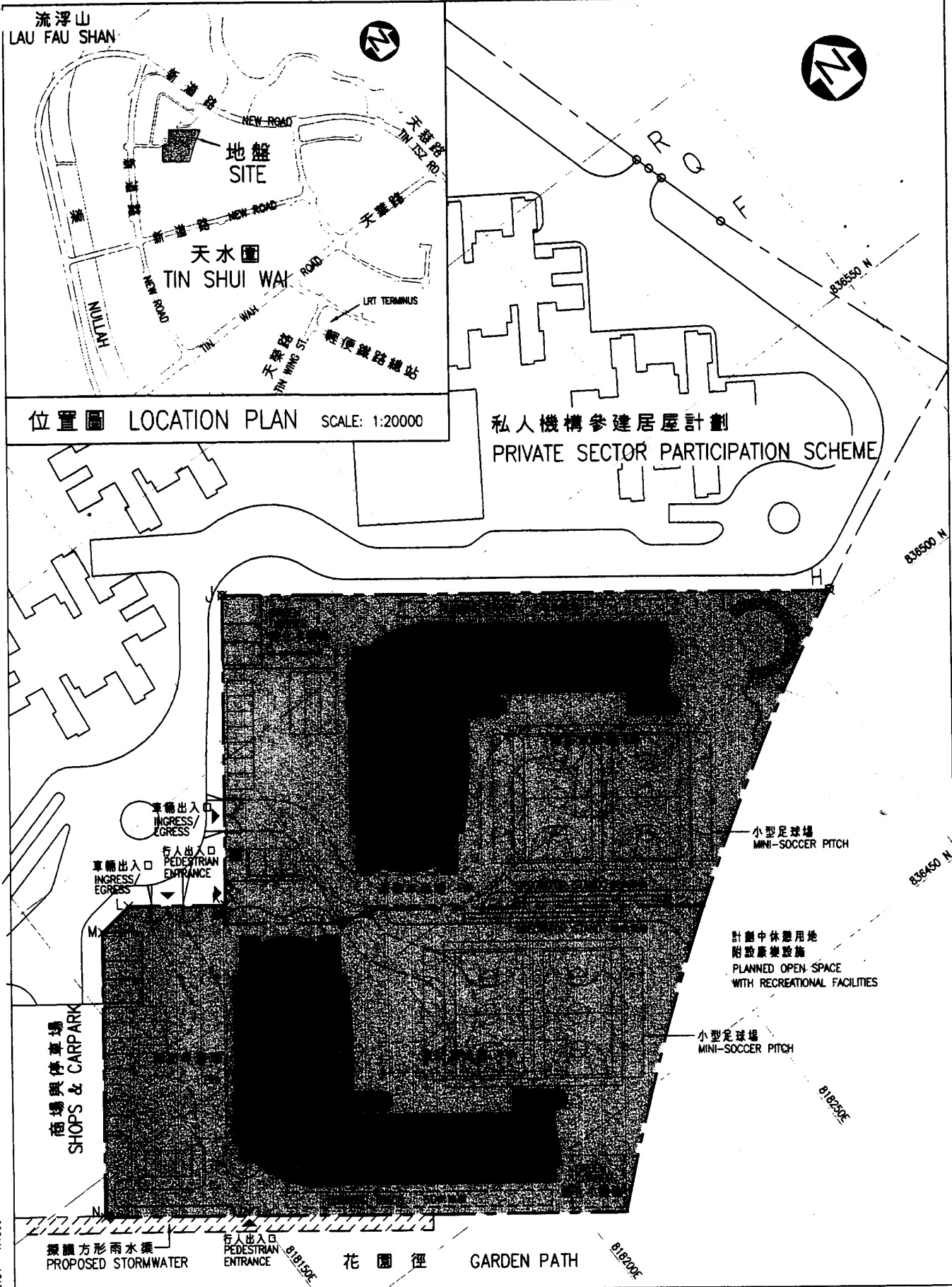
² A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

For **291EP**, we charged the amount to block allocation **Subhead B100HX** “Minor housing development related works, studies and investigations for items in Category D of the Public Works Programme”; for the rest, we charged the amounts to **Subhead 3100GX** “Project feasibility studies, minor investigations and consultants’ fees for items in Category D of the Public Works Programme”. The consultants have completed the PERs and topographical surveys and the term contractors, the site investigations. D Arch S has completed the detailed designs of the projects and is preparing the tender documents using in-house staff resources.

21. We estimate that the proposed works will create the following job opportunities during the construction period -

Project No.	Professional Staff	Technical Staff	Labourer	Total no. of staff	Total Man-months
291EP	3	7	125	135	2 280
280EP	3	7	125	135	2 280
282EP	3	7	125	135	2 290
283EP	3	7	130	140	2 360
285EP	3	7	125	135	2 340

Education and Manpower Bureau
May 2001



位置圖 LOCATION PLAN SCALE: 1:20000

私人機構參建居屋計劃
PRIVATE SECTOR PARTICIPATION SCHEME

商場
SHOPS & CARPARK

車輛出入口
VEHICLE INGRESS/EGRESS

行人出入口
PEDESTRIAN ENTRANCE

小型足球場
MINI-SOCCER PITCH

計劃中休憩用地
附設康樂設施
PLANNED OPEN SPACE
WITH RECREATIONAL FACILITIES


小型足球場
MINI-SOCCER PITCH

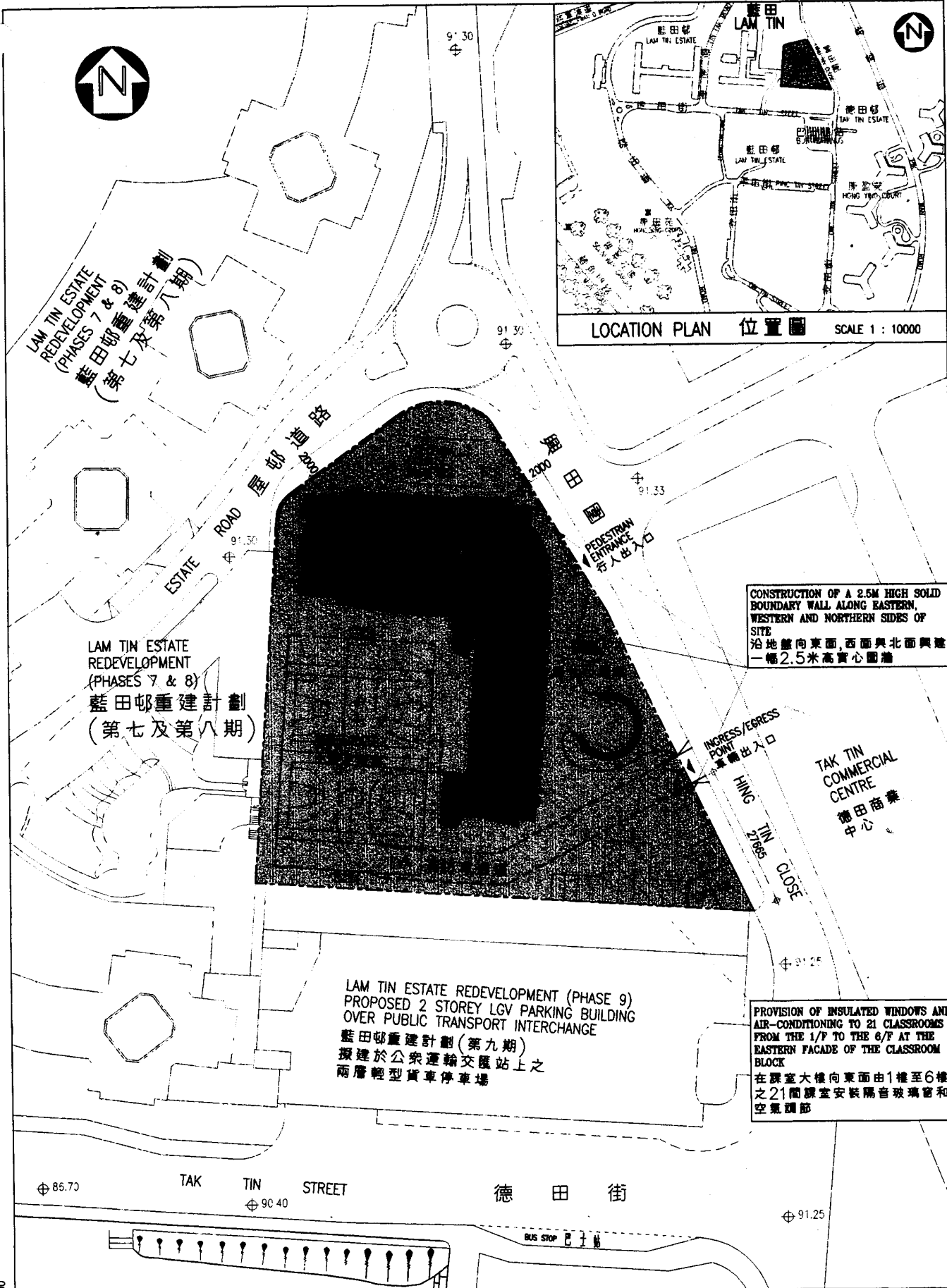
擬議方形雨水渠
PROPOSED STORMWATER

行人出入口
PEDESTRIAN ENTRANCE

花園徑 GARDEN PATH

CAD Ref. PPF5\5638&6145\XE101--1:1000

title 291EP & 280EP 天水圍第111區 第1所小學 PRIMARY SCHOOL IN AREA 111, TIN SHUI WAI 天水圍第111區 第2所小學 SECOND PRIMARY SCHOOL IN AREA 111, TIN SHUI WAI	drawn by 黎秉然 (P.Y. LAI) 梁宇滿 (ANNA LEUNG)	date 13.02.01	drawing no. AB/5638 & 6145/XE105	scale 1:1000
	approved 陳伯雄 (DANIEL CHAN)	date 13.02.01	 建築署 ARCHITECTURAL SERVICES DEPARTMENT	
	office ARCHITECTURAL BRANCH			



LAM TIN ESTATE REDEVELOPMENT (PHASES 7 & 8)
藍田邨重建計劃 (第七及第八期)

LAM TIN ESTATE REDEVELOPMENT (PHASES 7 & 8)
藍田邨重建計劃 (第七及第八期)


LAM TIN ESTATE REDEVELOPMENT (PHASE 9)
PROPOSED 2 STOREY LGV PARKING BUILDING OVER PUBLIC TRANSPORT INTERCHANGE
藍田邨重建計劃 (第九期)
擬建於公眾運輸交匯站上之兩層輕型貨車停車場

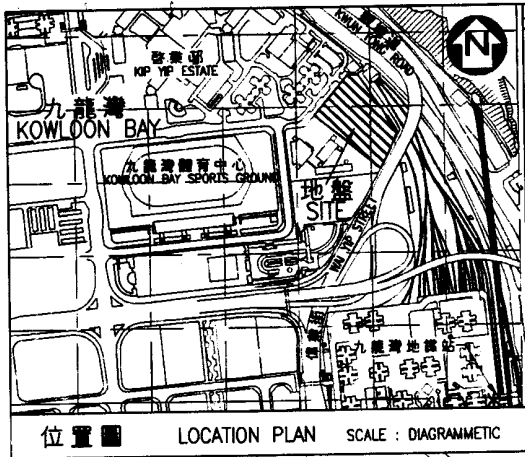
LOCATION PLAN 位置圖 SCALE 1 : 10000

CONSTRUCTION OF A 2.5M HIGH SOLID BOUNDARY WALL ALONG EASTERN, WESTERN AND NORTHERN SIDES OF SITE
沿地盤向東面, 西面與北面興建一幅2.5米高實心圍牆

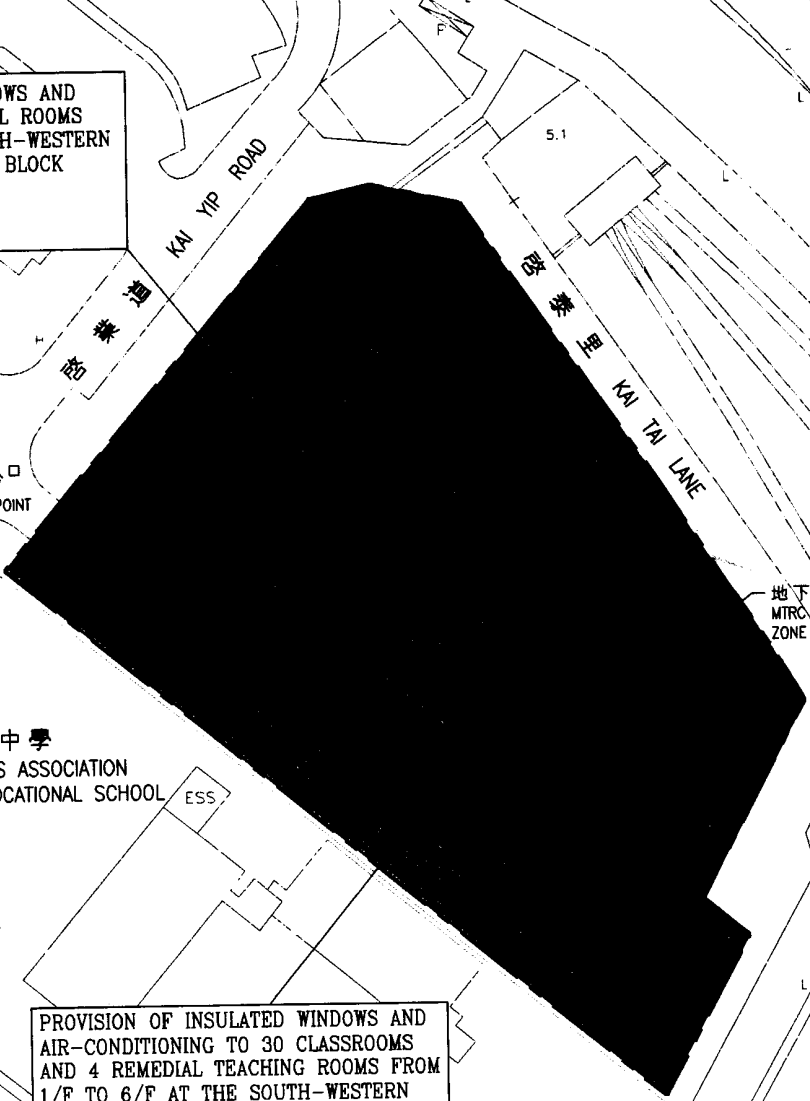
PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 21 CLASSROOMS FROM THE 1/F TO THE 6/F AT THE EASTERN FAÇADE OF THE CLASSROOM BLOCK
在課室大樓向東面由1樓至6樓之21間課室安裝隔音玻璃窗和空氣調節

CAD Ref. 6244/XD101--1:1000

title 282EP 觀塘藍田邨重建計劃 1所小學 PRIMARY SCHOOL IN LAM TIN ESTATE REDEVELOPMENT, KWUN TONG	drawn by M. CHEUNG / P.Y. LAI	date 1.12.00	drawing no. AB/6244/XD101	scale 1:1000
	approved LOUISA MENG	date 1.12.00	 建築署 ARCHITECTURAL SERVICES DEPARTMENT	
	office ARCHITECTURAL BRANCH			



PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 4 SPECIAL ROOMS ON 2/F AND 3/F AT THE NORTH-WESTERN FACADE OF THE SPECIAL ROOM BLOCK
 在特別室大樓向西北面二樓及三樓之四間特別室安裝隔音玻璃窗和空氣調節



啓泰苑
KAI TAI COURT

車輛出入口
INGRESS/EGRESS POINT
行人出入口
PEDESTRIAN ENTRANCE


地下鐵路保護區
MTRC PROTECTION ZONE

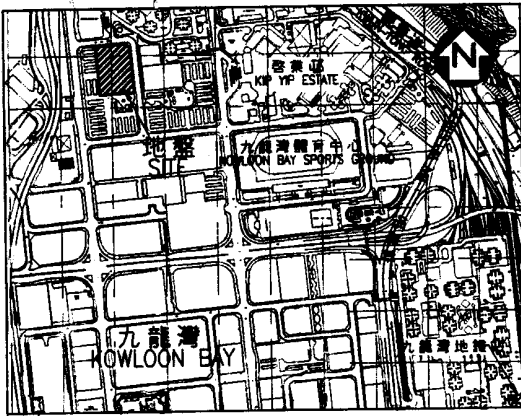
香港布廠商會
朱石麟職業先修中學
THE HK WEAVING MILLS ASSOCIATION
CHU SHEK LUN PREVOCATIONAL SCHOOL

PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 30 CLASSROOMS AND 4 REMEDIAL TEACHING ROOMS FROM 1/F TO 6/F AT THE SOUTH-WESTERN FACADE OF THE CLASSROOM BLOCK
 在課室大樓向西南面由一樓至六樓之三十間課室與四間輔導教學室安裝隔音玻璃窗和空氣調節

九龍灣室內運動場
KOWLOON BAY INDOOR GAMES HALL

CAD Ref. 6327xc101 -- 1:1000

title 283EP 九龍灣啓業道 1所小學 PRIMARY SCHOOL AT KAI YIP ROAD, KOWLOON BAY	drawn by H.Y. TAM	date 15.2.2001	drawing no. AB/6327/XC101	scale 1:1000
	approved S.K. SAY	date 15.2.2001	 ARCHITECTURAL SERVICES DEPARTMENT	
	office ARCHITECTURAL BRANCH			



位置圖 LOCATION PLAN SCALE : DIAGRAMMETIC

麗晶花園
RICHLAND GARDENS

PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 4 SPECIAL ROOMS ON 2/F AND 3/F AT THE NORTHERN FACADE OF THE SPECIAL ROOM BLOCK
在特別室大樓向北面二樓及三樓之四間特別室安裝隔音玻璃窗和空氣調節

啓仁街 KAI YAN STREET
行人出入口 PEDESTRIAN ENTRANCE

宏光道
WANG KWONG ROAD

計劃中
休憩用地
PLANNED
OPEN SPACE

啓仁街
KAI YAN STREET


九龍灣基層健康護理中心及護養院
KOWLOON BAY PRIMARY HEALTH CARE CENTRE AND NURSING HOME FOR THE ELDERLY

車輛出入口
VEHICLE INGRESS/EGRESS POINT

PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 30 CLASSROOMS AND 4 REMEDIAL TEACHING ROOMS FROM 1/F TO 6/F AT THE WESTERN FACADE OF THE CLASSROOM BLOCK
在課室大樓向西面由一樓至六樓之三十間課室與四間輔導教學室安裝隔音玻璃窗和空氣調節

計劃中休憩用地
附設康樂設施
PLANNED OPEN SPACE
WITH RECREATIONAL FACILITIES

CAD Ref. 6328xb101-1:1000

title 285EP 九龍灣啓仁街 1所小學 PRIMARY SCHOOL AT KAI YAN STREET, KOWLOON BAY	drawn by H.Y. TAM	date 13.2.2001	drawing no. AB/6328/XB101	scale 1:1000
	approved S.K. SAY	date 13.2.2001	 ARCHITECTURAL SERVICES DEPARTMENT	
	office ARCHITECTURAL BRANCH			

Enclosure 5 to PWSC(2001-02)35

**A comparison of the reference cost of
a 30-classroom primary school project
with the estimated cost of 291EP, 280EP, 282EP, 283EP and 285EP**

	Reference cost*	\$ million (in Sept 2000 prices)					
		291EP	280EP	282EP	283EP	285EP	
(a) Piling	9.0	12.5	12.5	9.0	10.8	10.8	(See note A)
(b) Building	49.5	49.5	49.5	49.5	49.5	49.5	
(c) Building services	11.5	11.5	11.5	13.4	15.0	15.0	(See note B)
(d) Drainage and external works	9.0	9.0	9.0	10.8	10.0	9.0	(See note C)
(e) Furniture and equipment	-	4.5	4.5	4.5	4.5	4.5	(See note D)
(f) Contingencies	7.9	8.3	8.3	8.3	8.5	8.4	
	86.9	95.3	95.3	95.5	98.3	97.2	
(g) Construction floor area	10 727m ²	10 727m ²	10 727m ²	10 727m ²	10 727m ²	10 727m ²	
(h) Construction unit cost {[(b)+(c)] ÷(g)}	\$5,687/m ²	\$5,687/m ²	\$5,687/m ²	\$5,864/m ²	\$6,013/m ²	\$6,013/m ²	

*** Assumptions for reference 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 “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 costs for both **291EP** and **280EP** are higher because they are based on the use of 142 numbers of steel H-piles at an average depth of 45 metres and another 19 numbers at an average depth of 10 metres instead of 112 numbers of steel H-piles at an average depth of 30 metres. Additional piles are required due to substantial negative skin friction of the ground. Some piles also need to be driven to a greater depth to suit the bedrock level.

For **283EP**, the piling cost is higher because it is based on the use of 122 numbers of rock socketed steel H-piles in prebored holes at an average depth of 31 metres instead of 112 numbers of steel H-piles at an average depth of 30 metres . Percussive steel H-piles are unsuitable in this case because the piles need to be driven through a layer of underlying boulders.

For **285EP**, the piling cost is higher because it is based on the use of 122 numbers of steel H-piles at an average depth of 40 metres instead of 112 numbers of steel H-piles at an average depth of 30 metres. Additional piles are required due to substantial negative skin friction of the ground. Some piles also need to be driven to a greater depth to suit the bedrock level.

- B. The building services costs for **282EP**, **283EP** and **285EP** are higher because of the provision of air-conditioning as a noise mitigation measure.
- C. For **282EP**, the drainage and external works cost is higher because it is estimated on the basis of the construction floor area of the school building as a proportion of the total construction floor area of the housing development. The construction of a 2.5-metre high solid boundary wall as a noise mitigation measure for the school also contributes to the higher cost.

For **283EP**, the drainage and external works cost is higher because of the larger site area.

- D. The costs of furniture and equipment for each of the five projects, estimated to be \$4.5 million, will be borne by Government as the school will be allocated to existing bi-sessional school for conversion to whole-day operation.