

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Education – Primary

314EP – A 24-classroom primary school at the junction of Tin Shing Road and Tin Pak Road, Tin Shui Wai

Members are invited to recommend to Finance Committee the upgrading of **314EP** to Category A at an estimated cost of \$84.8 million in money-of-the-day prices for the construction of a 24-classroom primary school at the junction of Tin Shing Road and Tin Pak Road, Tin Shui Wai.

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 **314EP** to Category A at an estimated cost of \$84.8 million in money-of-the-day (MOD) prices for the construction of a 24-classroom primary school at the junction of Tin Shing Road and Tin Pak Road, Tin Shui Wai.

PROJECT SCOPE AND NATURE

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

/(a)

- (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 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 (one at ground level and the other at the rooftop of the assembly hall block);
- (n) a green corner¹; and
- (o) ancillary accommodation, including a lift and relevant facilities for the handicapped.

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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 view of the school premises (artist's impression) is at Enclosure 2. D Arch S plans to start the construction works in October 2004 for completion in July 2006.

/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

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% of 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. **314EP** will further help achieve this policy target.

5. The Yuen Long District, in which **314EP** 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. A 36-classroom primary school project, covered in **311EP**, is pending Finance Committee's approval². The School Allocation Committee³ has recommended the allocation of **314EP** to Ho Ming Primary School under the sponsorship of Sik Sik Yuen for whole-day conversion. The above projects, together with another 30-classroom primary school project under **322EP** to be considered by Members at this meeting (see paper referenced PWSC(2003-04)70) will help reduce the shortfall by 180 classrooms to 93 in the district. We plan to meet the rest of the requirement through further school construction projects.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost to be \$84.8 million in MOD prices (see paragraph 7 below), made up as follows –

/(a)

² At the Public Works Subcommittee meeting on 18 February 2004, Members agreed to recommend to Finance Committee the upgrading of **311EP**. The Finance Committee will consider the recommendation on 27 February 2004.

³ 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 | 11.4 | |
| (b) Building | 40.3 | |
| (c) Building services | 13.8 | |
| (d) Drainage and external works | 8.2 | |
| (e) Furniture and equipment ⁴ | 3.4 | |
| (f) Consultants' fees for – | 2.4 | |
| (i) Contract administration | 1.7 | |
| (ii) Site supervision | 0.7 | |
| (g) Contingencies | 7.6 | |
| | <hr/> | |
| Sub-total | 87.1 | (in September 2003 prices) |
| (h) Provision for price adjustment | (2.3) | |
| | <hr/> | |
| Total | 84.8 | (in MOD prices) |
| | <hr/> | |

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 **314EP** is 9 156 square metres. The estimated construction unit cost, represented by the building and the building services costs, is \$5,909 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 for a 24-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated cost of **314EP** is at Enclosure 4.

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

/2004 – 05

⁴ Based on the furniture and equipment reference list prepared by the Education and Manpower Bureau for new schools adopting the standard schedule of accommodation.

| Year | \$ million (Sept 2003) | Price adjustment factor | \$ million (MOD) |
|-----------|---------------------------|----------------------------|---------------------|
| 2004 – 05 | 4.0 | 0.98225 | 3.9 |
| 2005 – 06 | 38.0 | 0.97734 | 37.1 |
| 2006 – 07 | 33.0 | 0.97245 | 32.1 |
| 2007 – 08 | 9.9 | 0.96759 | 9.6 |
| 2008 – 09 | 2.2 | 0.96638 | 2.1 |
| | 87.1 | | 84.8 |

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 \$3.4 million, will be borne by the Government as the school premises will enable an existing bi-sessional school to convert into whole-day operation. This is in line with the existing policy.

10. We estimate the additional annual recurrent expenditure of the project to be \$3.4 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 with seeking funding approval from the Public Works Subcommittee for projects in the following three categories –

/(a)

- (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.

Members supported projects under categories (a) and (b). In respect of proposals under category (c), members asked that full background and justification, including the supply and demand balance of school places on both a territory-wide and district basis, be provided to facilitate consideration on a case-by-case basis.

ENVIRONMENTAL IMPLICATIONS

12. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **314EP** in December 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) Insulated windows and air-conditioning for 24 classrooms from the 1/F to 6/F at the north-eastern façade of the classroom block | 2.3 |
| (b) Insulated windows and air-conditioning for four small group teaching rooms from the 3/F to 6/F at the south-eastern façade of the classroom block | 0.2 |
| (c) Insulated windows and air-conditioning for four special rooms on the 3/F, 5/F and 7/F at the north-western façade of the special room block | 0.5 |

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 2 500 cubic metres (m³) of C&D materials. Of these, we will reuse about 1 700 m³ (68%) on site, 450 m³ (18%) as fill in public filling areas⁵, and dispose of 350 m³ (14%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$43,750 for this project (based on a notional unit cost⁶ of \$125/m³)

/LAND

⁵ 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.

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/m³), 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. The project does not require land acquisition.

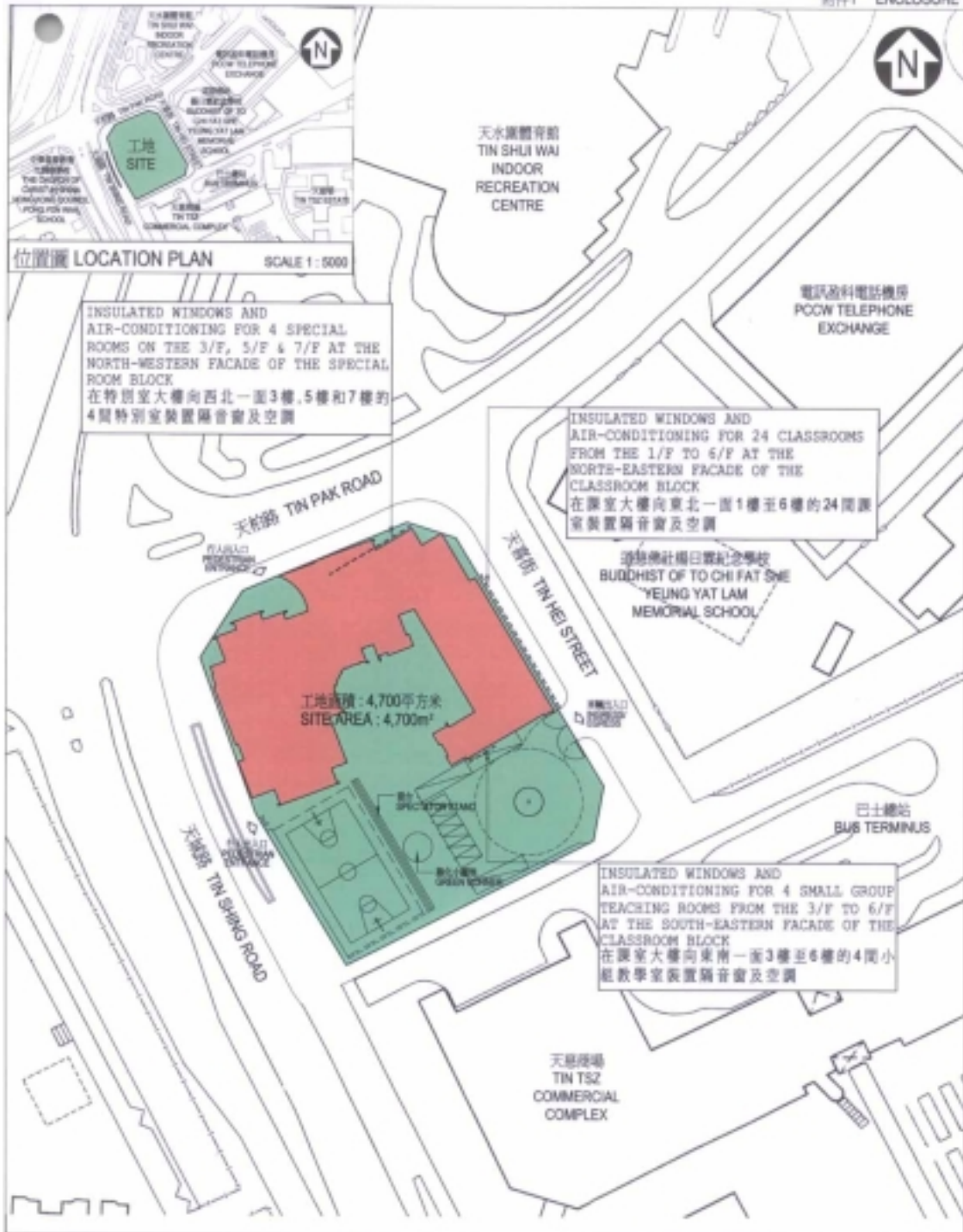
BACKGROUND INFORMATION


17. We upgraded **314EP** to Category B in November 2002. We engaged a term contractor to carry out site investigation in October 2003; and consultants to carry out a topographical survey in July 2003, detailed design in November 2003, the PER in December 2003, and tender documentation in January 2004 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, topographical survey, detailed design and PER 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 48 trees, 220 shrubs and 600 annuals.

19. We estimate that the project will create some 100 jobs comprising ten professional/technical staff and 90 labourers, totalling 1 600 man-months.

Education and Manpower Bureau
February 2004




| | | | | |
|---|----------------------------------|------------------|---|-------------------|
| title 314EP 天水圍 天龍路與天祥路交界處 1所設有24間課室的小學 A 24-CLASSROOM PRIMARY SCHOOL AT THE JUNCTION OF TIN SHING ROAD AND TIN PAK ROAD, TIN SHUI WAI | drawn by 林恩哲 LAM YAN CHIT | date 18.01.04 | drawing no. AB/6784/NM-01 | scale 1 : 1000 |
| | approved 黎耀輝 REMBERT S.K. LAI | date 18.01.04 |  ARCHITECTURAL SERVICES DEPARTMENT | |
| | office ARCHITECTURAL BRANCH | | | |



從西北面望向校舍的構思圖

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

| | | | | | | | | |
|---|----------|----------------------|------|----------|---|---------------|-------|---|
| title 314EP 天水圍 天城路與天柏路交界處 1所設有24間課室的小學 A 24-CLASSROOM PRIMARY SCHOOL AT THE JUNCTION OF TIN SHING ROAD AND TIN PAK ROAD, TIN SHUI WAI | drawn by | 林恩哲 LAM YAN CHIT | date | 18.01.04 | drawing no. | AB/6784/NM-02 | scale | - |
| | approved | 黎樹聲 REMBERT S.K. LAI | date | 18.01.04 |  ARCHITECTURAL SERVICES DEPARTMENT | | | |
| | office | ARCHITECTURAL BRANCH | | | | | | |

Enclosure 3 to PWSC(2003-04)68

314EP – A 24-classroom primary school at the junction of Tin Shing Road and Tin Pak Road, Tin Shui Wai

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 Technical | — — | — — | — — | 1.2 0.5 |
| (b) | Site supervision (Note 3) | Professional | 7.8 | 38 | 1.6 | 0.7 |
| | | | | | Total | 2.4 |

* 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 **314EP**. The assignment will only be executed subject to Finance Committee's approval to upgrade **314EP** 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 314EP**

\$ million (in Sept 2003 prices)

| | Reference cost* | 314EP | |
|---|------------------------|------------------------|--------------|
| (a) Piling | 7.3 | 11.4 | (See note A) |
| (b) Building | 40.3 | 40.3 | |
| (c) Building services | 10.8 | 13.8 | (See note B) |
| (d) Drainage and external works | 8.2 | 8.2 | |
| (e) Furniture and equipment | – | 3.4 | (See note C) |
| (f) Consultants' fees | – | 2.4 | (See note D) |
| (g) Contingencies | 6.7 | 7.6 | |
| | Total | 73.3 | 87.1 |
| (h) Construction floor area | 9 129 m ² | 9 156 m ² | |
| (i) Construction unit cost {[(b) + (c)] ÷ (h)} | \$5,598/m ² | \$5,909/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 101 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 24-classroom primary school site area of 4 700 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 165 steel H-piles at an average depth of 35 metres. The increase in the number of piles is due to design allowance for the effect of negative skin friction in view of loose fill, and also to protect the adjacent drainage reserve from lateral loading caused by the new structure.
- B. The building services cost is higher because of the provision of air-conditioning as a noise mitigation measure.
- C. The cost of furniture and equipment, estimated to be \$3.4 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.
- D. Consultants’ fees are required for contract administration and site supervision.