

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Education – Secondary

261ES – Secondary school at Aberdeen Reservoir Road, Aberdeen

Members are invited to recommend to Finance Committee to increase the approved project estimate for **261ES** by \$27.3 million from \$182.0 million to \$209.3 million in money-of-the-day prices.

PROBLEM

The approved project estimate (APE) of **261ES** is not sufficient to cover the cost of construction works under the project.

PROPOSAL

2. The Director of Architectural Services (D Arch S), with the support of the Secretary for Education, proposes to increase the APE for **261ES** by \$27.3 million from \$182.0 million to \$209.3 million in money-of-the-day (MOD) prices to meet the increased cost of construction works.

PROJECT SCOPE AND NATURE

3. The approved scope of **261ES** comprises site formation works¹ and the construction of a new secondary school premises –

/Site

¹ The site formation works, including design works, has been entrusted to the Civil Engineering and Development Department.

Site formation works

- (a) formation of about 4 000 square metres (m²) of site platform and associated slope works;
- (b) re-alignment of a portion (about 40 metres (m) long) of Peel Rise;
- (c) landscaping works; and
- (d) environmental mitigation measures.

Construction of school premises

- (a) 30 classrooms;
- (b) 16 special rooms, including a computer-assisted learning room, a language room and a multi-purpose room;
- (c) three 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, one at ground level and one at the rooftop of assembly hall;

/(n)

- (n) a 30-m running track;
- (o) a green corner; and
- (p) ancillary accommodation, including a lift and relevant facilities for the handicapped.

———— A site plan is at Enclosure 1. The site formation works entrusted to the Civil Engineering Development Department (CEDD) is underway. We plan to commence construction of the school building in December 2009 for completion in August 2011.

JUSTIFICATION

4. Following a review of the project programme and the financial position of the project, we consider it necessary to increase the APE of **261ES** by \$27.3 million from \$182.0 million to \$209.3 million (in MOD prices) to cover the additional cost arising from the following:

- (a) higher-than-expected tender prices for the school building construction works; and
- (b) additional provision for price adjustment.

Higher-than-expected tender prices

5. Upon funding approval of the Finance Committee (FC) of the Legislative Council (LegCo) in November 2007, CEDD commenced site formation works in December 2007 for completion in December 2009. Tenders for the school building construction works of the project were invited in July 2009. Upon closure of the tender period in August 2009, we had evaluated the tenders returned, all of which were higher than the original estimate allowed in the APE.

6. The increased construction cost is due to higher-than-expected tender prices submitted by contractors arising partly from the unexpected drastic increase in prices of major construction materials from the date of the original

/project

project estimate of September 2007 to the date of return of tenders in August 2009. According to the latest available information from the construction cost indices published by the Census and Statistics Department, there was a substantial rise in material costs from the date of the original project estimate of September 2007 to August 2009. For example, the August 2009 cost indices for sand, aggregates, concrete block and ceramic wall tiles have risen by 38%, 39%, 37% and 16% as compared to the corresponding indices in September 2007.

7. Moreover, the tender rates submitted by contractors with regard to piling were higher-than-expected, because the contractors had anticipated site constraint-related risks that are greater than that expected under the original estimate. For building services, tender rates submitted by contractors were higher-than-expected, partly because a photovoltaic system for providing renewable energy was added to comply with the latest requirement for new school buildings.

Provision for price adjustment

8. When the project estimate was prepared in September 2007, an estimate on the price movements during the construction stage of the project was made using a set of price adjustment factors based on the forecast on inflation for construction works at the time. The MOD project estimate is derived by applying the price adjustment factors to the baseline project estimate. The difference between the MOD project estimate and the baseline project estimate will be the provision for price adjustment in the APE, which is used to pay for contract price fluctuation (CPF) payments. As a result of the increase in construction cost of the building works and revision of the price adjustment factors, the provision for price adjustment should be increased to meet the CPF payment.

9. We have carefully scrutinised the project and considered the option of re-tendering the contract. If the project were to be re-tendered, additional consultancy fee would be incurred and the project would be delayed by five to six months. This would mean that the targeted commencement of school operation in September 2011 could not be achieved. Moreover, as the market's response to re-tender will depend on many factors, it is not possible to guarantee that the re-tendered prices will be lower than that of the original tender. We therefore decide not to pursue the option of re-tendering.

/Overall

Overall Review

10. Upon review of the financial position of the project, D Arch S considers it necessary to increase the APE of **261ES** by \$27.3 million from \$182.0 million to \$209.3 million in MOD prices in order to cover the additional costs under the project. A breakdown for the increase of \$27.3 million is as follows -

| Factors | Proposed increased amount / savings in MOD prices (\$ million) | % of the total increased amount / savings |
|--|--|---|
| Additional costs associated with – | | |
| (a) Higher-than-expected tender price | 8.2 | 27.6 |
| (b) Provision for price adjustment | 21.5 | 72.4 |
| (c) Total cost increase (c = a + b) | 29.7 | 100.0 |
| Partly offset by – | | |
| (d) drawdown from contingencies | 2.4 | 100.0 |
| (e) Total savings (e = d) | 2.4 | 100.0 |
| (f) Proposed increase (f = c - e) | 27.3 | |

A comparison of cost breakdown of the APE and the revised project estimate for **261ES** in MOD prices, together with the explanation for the proposed increase, is at Enclosure 2. We expect that the revised project estimate, if approved, will be sufficient to cover the projected expenditure for implementation of the project and further increase in APE will not be required.

/FINANCIAL

FINANCIAL IMPLICATIONS

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

| Year | \$ million (MOD) |
|----------------------------------|---------------------|
| Up to 31 March 2009 ² | 13.1 |
| 2009 – 2010 | 20.7 |
| 2010 – 2011 | 60.7 |
| 2011 – 2012 | 60.1 |
| 2012 – 2013 | 28.9 |
| 2013 – 2014 | 25.8 |
| | 209.3 |

12. The proposed increase in the APE will not give rise to additional recurrent expenditure.

PUBLIC CONSULTATION

13. We consulted the Southern District Council on the site formation works for **261ES** in September 2003 and on the school project in November 2005. Members of the District Council expressed support on both occasions.

14. We circulated a paper on the proposed increase in APE to the LegCo Panel on Education on 27 October 2009. Members did not have any comments on the proposal.

/ENVIRONMENTAL

² This is the actual total expenditure up to March 2009.

ENVIRONMENTAL IMPLICATIONS

15. The proposed increase in the APE will not give rise to any adverse environmental implications. There will not be any increase of construction waste generated.

HERITAGE IMPLICATIONS

16. The proposed increase in the APE 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.

LAND ACQUISITION

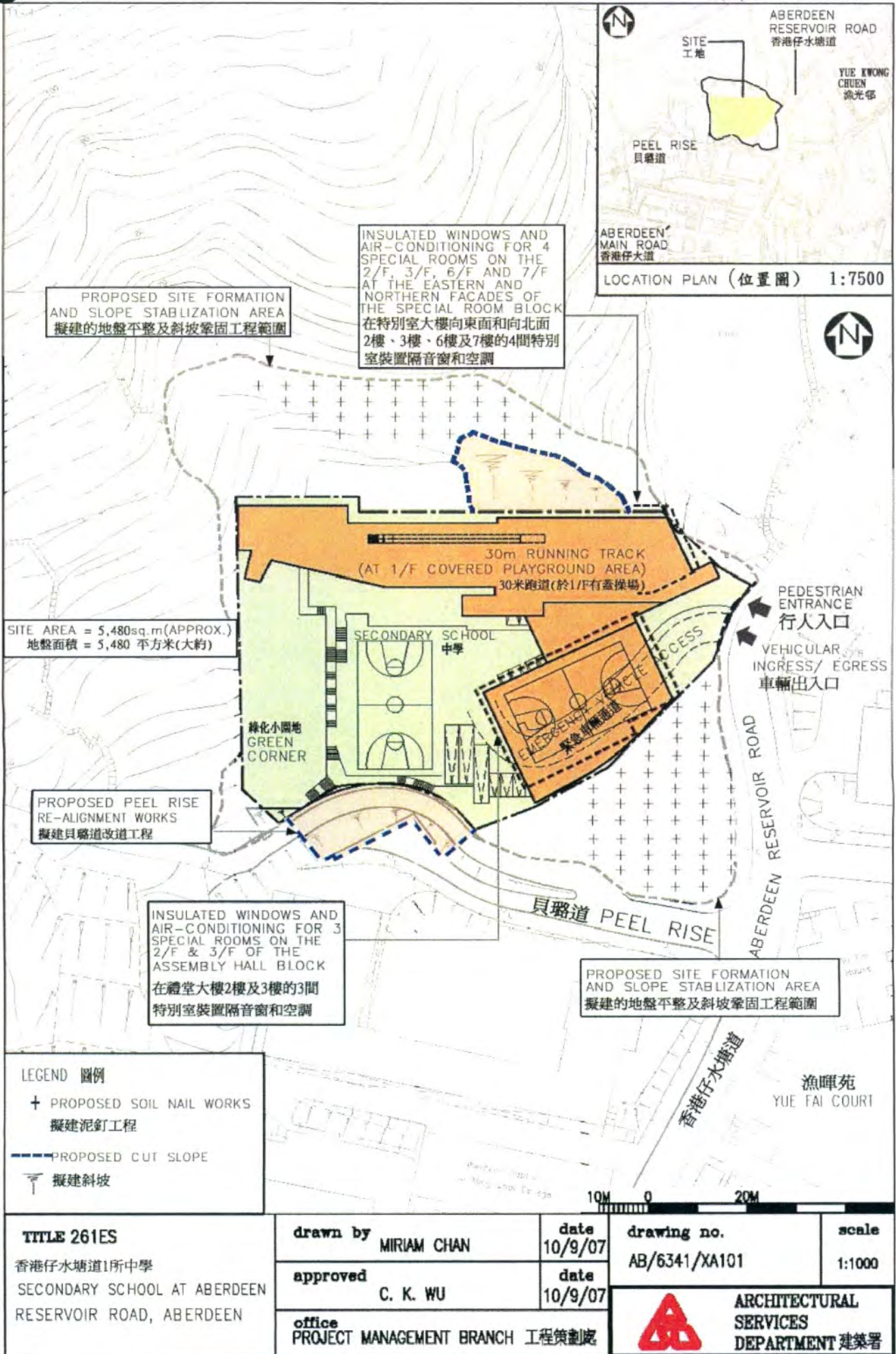
17. The proposed increase in the APE does not require any land acquisition.

BACKGROUND

18. On 16 November 2007, the FC approved the upgrading of **261ES** to Category A with an APE of \$182.0 million in MOD prices.

19. The proposed increase in the APE will not involve any additional tree removal or planting proposals.

20. The proposed increase in the APE will not create additional jobs.



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A comparison of the APE and the revised project estimate in MOD prices is as follows –

| | (A) Approved estimate (\$million) | (B) Revised estimate (\$million) | (B) – (A) Difference (\$million) |
|------------------------------------|--|---|--|
| (a) Site formation | 29.1 | 29.1 | - |
| (b) Piling | 19.4 | 23.7 | 4.3 |
| (c) Building | 65.0 | 66.6 | 1.6 |
| (d) Building services | 20.2 | 21.8 | 1.6 |
| (e) Drainage | 2.5 | 2.7 | 0.2 |
| (f) External works | 11.0 | 11.5 | 0.5 |
| (g) Furniture and equipment | 6.0 | 6.0 | - |
| (h) Consultants' fees | 7.4 | 7.4 | - |
| (i) Contingencies | 15.4 | 13.0 | (2.4) |
| (j) Provision for price adjustment | 6.0 | 27.5 | 21.5 |
| Total | 182.0 | 209.3 | 27.3 |

2. **As regards 1(b) (Piling)**, the increase of \$4.3 million is due to higher-than-expected rates submitted by the contractor for piling works. The higher-than-expected rates are attributable to higher risks allowed by the contractor (which are greater than that expected under the original project estimate) for the sloping site with various levels of platforms which may impose additional constraints to site activities and transportation, and provisions of temporary measures to ensure stabilization of the formed terrains during construction.

3. **As regards 1(c) (Building)**, the increase of \$1.6 million is due to higher-than-expected rates submitted by the contractor. The higher-than-expected rates are attributable to increase in material costs for sand, aggregates, concrete blocks and ceramic wall tiles, which have inflated the prices of reinforced concrete structure, partitioning and finishes works in the school building.

/4.

4. **As regards 1(d) (Building services)**, the increase of \$1.6 million is due to the adoption of photovoltaic system for providing renewable energy, which is a new requirement for all schools since 2008; and the higher-than-expected rates submitted by the contractor on energy conservation measures, which are attributable to the increase in material costs for electric cables.

5. **As regards 1(e) (Drainage)**, the increase of \$0.2 million is due to higher-than-expected rates submitted by the contractor. The higher-than-expected rates are attributable to increase in material costs for sand and aggregates, which have inflated the prices of reinforced concrete base for the sub-soil drain pipes in drainage works.

6. **As regards 1(f) (External works)**, the increase of \$0.5 million is due to higher-than-expected rates submitted by the contractor. The higher-than-expected rates are attributable to the increase in material costs for sand and aggregates, which have inflated the prices of reinforced concrete slab and planter walls in external works.

7. **As regards 1(i) (Contingencies)**, the decrease of \$2.4 million is based on a review of the contingencies required after return of the tenders in August 2009. Some of the risks can be eliminated as no more contract needs to be issued and the design has been finalised.

8. **As regards 1(j) (Provision for price adjustment)**, the increase of \$21.5 million is mainly due to higher-than-expected returned tender prices and the adoption of revised price adjustment factors. Detailed justification for the increase in provision for price adjustment is given in Enclosure 3.

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Table 1 – Cash flow and provisions for price adjustment in original PWSC paper

| Year | Original project estimate (\$ million, in Sept 2007 prices) | Original price adjustment factor # | Approved project estimate (\$ million, in MOD prices) | Provision for price adjustment (\$ million) |
|--------------|---|--|--|---|
| | X | Y | Z | A=Z – X |
| 2007 - 2008 | 1.7 | 1.00000 | 1.7 | 0.0 |
| 2008 - 2009 | 16.5 | 1.00750 | 16.6 | 0.1 |
| 2009 - 2010 | 23.4 | 1.01758 | 23.8 | 0.4 |
| 2010 - 2011 | 50.2 | 1.02775 | 51.6 | 1.4 |
| 2011 - 2012 | 45.9 | 1.03803 | 47.6 | 1.7 |
| 2012 - 2013 | 23.9 | 1.05619 | 25.2 | 1.3 |
| 2013 - 2014 | 14.4 | 1.07732 | 15.5 | 1.1 |
| Total | 176.0 | | 182.0 | 6.0 |

Table 2 – Revised cash flow and provision for price adjustment due to revised project estimate (PE) and latest adjustment factor

| Year | Revised PE (\$ million, in Sept 2007 prices) | Revised PE (\$ million, in Sept 2009 prices) * | Latest price adjustment factor ** | Revised PE (\$ million, in MOD prices) | Revised provision for price adjustment (\$ million) | Net increase in provision for price adjustment (\$ million) |
|--------------|---|---|---|--|---|--|
| | a | b | c | d | e | f |
| 2007 - 2008 | 1.2 | 1.3 [^] | 1.00000 | 1.3 | e = (d – a) | f = (e - A) |
| 2008 - 2009 | 10.6 | 11.8 [^] | 1.00000 | 11.8 | | |
| 2009 - 2010 | 18.6 | 20.7 | 1.00000 | 20.7 | | |
| 2010 - 2011 | 53.5 | 59.5 | 1.02000 | 60.7 | | |
| 2011 - 2012 | 52.0 | 57.8 | 1.04040 | 60.1 | | |
| 2012 - 2013 | 24.5 | 27.2 | 1.06121 | 28.9 | | |
| 2013 - 2014 | 21.4 | 23.8 | 1.08243 | 25.8 | | |
| Total | 181.8 | 202.1 | | 209.3 | 27.5 | 21.5 |

Notes:

Price adjustment factors adopted in November 2007 are based on the projection of prices for public sector building and construction output, and are assumed to increase by 0% in 2007, 1.0% per annum over the period from 2008 to 2011 and 2.0% per annum over the period from 2012 to 2014.

* Revised PE (in September 2007 price) is multiplied by 1.11197 for conversion to September 2009 price. The figure of 1.11197 represents the changes in price movement for public sector building and construction output between September 2007 and September 2009.

** The price adjustment factors adopted in November 2009 are based on the latest movement of prices for public sector building and construction output which increased by 8.7 % in 2008 and are assumed to increase by 2.0% per annum over the period from 2009 to 2013 and by 3.0% per annum over the period from 2014 to 2019.

[^] \$1.3 million and \$11.8 million for 2007-08 and 2008-09 respectively are actual expenditures.