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10 December 2007

Clerk to the Public Works Subcommittee
(Attn: Ms Rosalind MA)
Legislative Council Secretariat
Legislative Council Building
8 Jackson Road, Central

By Fax 2869 6794

Dear Ms MA,

Public Works Subcommittee

Follow-up to meeting on 22 November 2007 Supplementary Information Pertaining to Item PWSC(2007-08)52

We refer to your letter reference CB1/F/2/6(II) dated 26 November 2007 to the Secretary for Financial Services and the Treasury.

In considering the paper referenced PWSC(2007-08)52 on 92CD "Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1, phase 2B – remaining works", a Member requested us to review the estimated provision for site supervision for this civil engineering project against another building project 20EJ "Multi-media Building – stage 2". We have undertaken a general review of the provision for site supervision for civil engineering and building projects. The results of the review are presented in the following paragraphs.

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Comparison of Civil Engineering and Building Projects

The major differences between civil engineering and building projects in relation to requirements for site supervision provision are summarised in the following table.

Factors	Civil Engineering Projects	Building Projects
Contract Period	<ul style="list-style-type: none"> • Generally more than 36 months 	<ul style="list-style-type: none"> • Generally about 24 months
Characteristics of Works	<ul style="list-style-type: none"> • Covers a large site area with multiple works fronts • High impact on traffic/ environment requiring intensive liaison with local residents, close monitoring of mitigation measures and handling of complaints • Problem with underground utilities/unforeseen ground conditions requiring on-site design variations and decisions • Works implemented by remeasurement contract, exact quantities of works to be ascertained during construction • May need to adhere to restricted working hours; e.g. working in ecological sensitive areas or only night shifts are allowed for works under busy roads 	<ul style="list-style-type: none"> • Usually within the confine of a much smaller site • Low impact on traffic/ environment involving lesser liaison and monitoring • Problem limited to foundation works • Works implemented by lump sum contract, remeasurement not required • Less constraints on working hours, occasionally during piling works

Factors	Civil Engineering Projects	Building Projects
Characteristics of Works (continued)	<ul style="list-style-type: none"> • Majority of works need to be inspected before they are covered up permanently • Generally small proportion of works are repetitive 	<ul style="list-style-type: none"> • Works can be inspected readily after installation • High percentage of works may be repetitive
Site Supervision Team	<ul style="list-style-type: none"> • Normally full team of professionals, including senior professionals (e.g. Chief/Senior Resident Engineers) and technical staff (e.g. Inspectors/ Assistant Inspectors, works supervisors) 	<ul style="list-style-type: none"> • Normally 1 to 2 full time professionals and 3 to 4 technical staff, to be supplemented by senior professional input on part time basis
General Range of Supervision Cost as a Percentage of Project Cost	<ul style="list-style-type: none"> • Generally 7% to 10% 	<ul style="list-style-type: none"> • Generally 3% to 5%

As shown above, due to the differences in the characteristics of works between civil engineering and building projects, a larger team of site supervision staff to be employed over a longer contract period is generally required for civil engineering projects. Therefore, the general range of percentage of site supervision cost is 7% to 10% for civil engineering projects, against that of 3% to 5% for building projects.

It should be noted that the part time supervision input by senior professionals for building projects are charged by the consultants as contract administration fee. Hence for comparison purposes, the cost of site supervision provision includes both consultants' fee for site supervision and contract administration.

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Review of Site Supervision Provision for 92CD and 20EJ

We have also undertaken a review of the estimated provision for site supervision for **92CD** with reference to that of **20EJ**. Detailed information on the site supervision costs for **92CD** and **20EJ** are included in **Annex A** and **Annex B** respectively. In summary, the projects are different in many aspects, e.g. the scattered sites of **92CD** with the single site of **20EJ**. Taking into account the characteristics of works under the two projects, the site supervision costs of \$18.1 million and \$14.0 million respectively for **92CD** and **20EJ** are considered appropriate for these projects. The percentage supervision cost of 9.2% and 3.1% for **92CD** and **20EJ** respectively are within the respective normal range for civil engineering and building projects.

Yours faithfully,



(K C Lam)

for Secretary for Development

Encl.

Annex A**Details of Consultants' Fees for Site Supervision for
92CD – Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage
improvements, stage 1, phase 2B – remaining works**

A site supervision team of 3 professionals and 11 technical staff is proposed to supervise a 36-months re-measurement contract for the construction of drainage channels spreading over 5 sites in Kam Tin and Pat Heung. The working duration for the supervision teams at the different site locations range from 28 months to 47 months. The proposed site supervision organization had been subject to vetting by a high level committee of Drainage Services Department and is considered appropriate for the following reasons-

- (a) The proposed works involve extensive excavation, earth-filling, land and marine disposal of construction waste, drainage channel and road construction works. The exact quantities of the above works can only be ascertained during construction and be re-measured by the site supervision team to finalise the actual amount to be paid to the contractor.
- (b) The proposed works span over 5 works fronts, separated by as much as 1 kilometre.
- (c) The site supervision team will be responsible for revising the design to suit actual site conditions.
- (d) The proposed channels at Tin Sam Tsuen and Ma On Kong are designated projects under the Environmental Impact Assessment Ordinance (EIAO). Site supervisory staff needs to carry out stringent monitoring and auditing to control potential environmental impacts during construction.
- (e) As the majority of the works will be undertaken along existing streamcourses with limited flow diversions, an audit team will have to be set up during wet seasons, i.e. from April to September to monitor the potential hazard of flooding in the neighbouring areas during construction.

- (f) As the proposed works will be in close proximity to some village houses, site supervisory staff will have to check ground movement monitoring points installed under the contract at daily intervals and liaise closely with the residents.

2. The estimated consultants' fees are **\$18.1 million** including \$2.0 million for contract administration and \$16.1 million for site supervision representing **9.2%** of the total project cost of \$197.2 million (in September 2007 prices). This is within the normal range of consultants' fees for civil engineering projects.

Annex B**Details of Consultants' Fees for Site Supervision for
20EJ - Multi-media Building – stage 2**

The proposed site supervision team comprises 2 professionals and 5 technical staff working on site to supervise the construction of the foundation and superstructure of the proposed building under a 24-months lump sum construction contract. Regular and periodic site review and inspections by senior professionals will also be provided by the consultants and charged under contract administration. The proposed site establishment and provision of part time supervision under contract administration fulfill the stipulated supervision requirements in the Technical Memorandum for Supervision Plan 2005 issued by the Buildings Department, and due regard has been given to the type, scale and complexity of the proposed works. The proposed site supervision organization is considered appropriate as explained below-

- (a) The scope of the proposed building construction works is clearly defined. Little on-site design variation is anticipated.
- (b) Re-measurement of the completed works is not required as the works are executed under a lump sum construction contract.
- (c) The site coverage for this building project is relatively limited and will have little interfacing with existing and neighbouring facilities.
- (d) The environmental constraints are much less stringent than those for drainage project 92CD.

2. The estimated consultants' fees excluding those required for tender assessment are **\$14.0 million** including \$7.5 million for contract administration and \$6.5 million for site supervision representing 3.1% of the total project cost of \$445.6 million (in September 2007 prices).