

**Chapters 13 to 20 cover our review of Contract No. CC-213  
for the civil construction of Tuen Mun Station.**

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**13. BRIEF OUTLINE OF THE CONTRACT AND THE SUPPLEMENTAL AGREEMENT**

- 13.1 Contract No. CC-213 (“CC-213”) comprises the works for the construction of the above ground station, including architectural and building works and building services, in the centre of Tuen Mun. The station is constructed entirely within the confines of an existing drainage nullah for which the Drainage Services Department of the Government (“DSD”) has imposed strict controls on the working methods.
- 13.2 The station’s Public Transport Interchange is constructed on the east bank of the nullah after the demolition of the existing San Fat Estate. There are re-provisioning works to local schools, playgrounds and the Light Rail Transit San Fat stop, which will also be constructed under this contract.
- 13.3 The viaduct fan directly to the north of the station is included in CC-213 as far as the junction with Contract No. CC-212, where the tracks run on the west bank of the nullah parallel to each other. Contract No. CC-212 and CC-213 were awarded to the same contractor.
- 13.4 CC-213 is a lump sum contract without price adjustment for escalation. The contract has provisions that allow for the re-measurement of the piling works and a duration of 51 months. Since the estimated value of the contract exceeds HK\$50 million, the provisions of the World Trade Organisation Government Procurement Agreement apply.
- 13.5 Advertisements requesting expressions of interest for 12 Civil and Building Works Construction Contracts, including CC-213, were published on 2 and 3 July 1998 in the local newspapers and on 10 July 1998 in the Government Gazette. In addition to public advertising, the advertisements were also sent to various trade commissions and/or foreign consulates resident in Hong Kong to ensure the widest distribution of the request for expressions of interest.
- 13.6 15 applicants expressed interest in CC-213. After the pre-qualification evaluation process, the Corporate Tender Board in its meeting held on 16 December 1998 approved a shortlist of ten tenderers.
- 13.7 The pre-qualified tenderers were invited to tender on 26 February 1999 with the tender closing date on 21 May 1999. The tender closing date was extended to 4 June 1999 following approval of the Corporate Tender Board on 22 April 1999. The tender validity period was 26 weeks and expired on 3 December 1999.
- 13.8 In total, six conforming tenders and four alternative tenders were received by the tender closing date.
- 13.9 Tender Review Panel meetings were held on 10, 17 and 29 June 1999. After reading through the Preliminary Technical and Financial Assessment Reports, the Tender Review Panel concluded that all four alternative tenders were incompatible with the DSD’s requirements for works in the nullah and accordingly were set aside. The Tender Review Panel further approved the performance of detailed tender evaluations on the three lowest priced conforming tenders.

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- 13.10 During the detailed and final technical evaluation assessment process, two of the tenders were considered technically non-compliant as they failed to comply with the constraints of working in the nullah.
- 13.11 The detailed evaluation assessment considered that HK ACE JV had demonstrated a full understanding of the problems of operating within the confines of the nullah and had proposed solutions, which complied with the specified constraints and would obtain DSD consent.
- 13.12 The detailed financial assessment report indicated that all three tenderers passed the financial capabilities test.
- 13.13 During the Corporate Tender Board meeting on 7 July 1999, the Board resolved to endorse the recommendation to award both CC-212 and CC-213 to HK ACE JV at a sum of HK\$1,371.69 million, plus a provisional sum of HK\$16 million. The Engineer's estimate, prepared by Maunsell Consultants Asia Limited, was HK\$1,590.74 million.
- 13.14 HK ACE JV offered a saving of HK\$70 million in the event it was awarded both CC-213 and CC-212. This saving of HK\$35 million for each contract was not included in the contract sum stated in Section 13.13.
- 13.15 On 19 July 1999, the Managing Board approved the award of both CC-212 and CC-213 to HK ACE JV.
- 13.16 The work on CC-213 commenced on 20 July 1999.
- 13.17 Works on the foundations of the station, which were to be built in the Tuen Mun nullah, were restricted by the fact that such work could only be performed during the six month dry season from October to April.
- 13.18 Due to the fact that the ground conditions were found to be different from those anticipated, this delayed the progress of the foundation work that was planned during the first dry season. This delay then had a consequential impact on the construction work that was planned for the first wet season, resulting in the contract being some nine months behind schedule after fifteen months.
- 13.19 The unforeseen ground conditions provided the contractor with an entitlement for an extension of time. In order to ensure that West Rail would be completed on time, KCRC decided to buy back part of the extension entitlement using a supplemental agreement.

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- 13.20 The main terms of the supplemental agreement are as follows:
- KCRC to pay HK ACE JV additional consideration of HK\$255 million, including the amount of HK\$20 million in respect of the entitlements of a sub-contractor settled by the supplemental agreement;
  - All terms of the original contract to stand except where supplemented by the supplemental agreement;
  - Schedules for key dates, liquidated damages, work program, interim payment and access dates have been changed;
  - The consideration covered full settlement of all measures taken or to be taken by HK ACE JV to recover delays to the progress or completion of works;
  - The consideration covered full settlement of all present or future claims, rights or entitlements of HK ACE JV to extensions of time for substantial completion of the works up to and including 30 June 2001;
  - The consideration covered all costs, losses and expenses incurred by HK ACE JV in re-organising, rescheduling and/or re-sequencing the activities comprising the works to achieve the requirements of the revised works programme; and
  - The value of all piling works, including all additions, omissions and variations issued on or before 30 June 2001, whether executed by HK ACE JV before on or after the date of this Supplemental Agreement, is HK\$226 million. The piling works, which had not commenced at 30 June 2001, are not included in the sum.
- 13.21 The supplemental agreement was drafted by West Rail's in-house legal counsel and approved by the Managing Board on 17 September 2001.
- 13.22 A supplemental agreement was executed on 18 October 2001 and was signed by KY Yeung and David Fleming on behalf of KCRC and Michael John Kennedy, Timothy Graham Stelfox, Long Xingbang and Hu Juang Dong on behalf of HK ACE JV.

**14. CONTRACT PERFORMANCE AND MONITORING**

**14.1 Scope of our work**

14.1.1 We are requested to consider the following:

*When did KCRC become aware of the fact that the contractor was not performing and what steps were taken at that time?*

14.1.2 In this Chapter, we have sought to provide the reader with an overview of the management procedures established by the West Rail Division in respect of civil construction contracts.

14.1.3 We have then summarised the progress of CC-213 as shown on the Situation Reports before providing a more detailed analysis of the performance of and problems arising on CC-213.

**14.2 Description of contract monitoring procedures – civil construction contracts**

14.2.1 In this section, we have summarized the management infrastructure in place for the management of contracts, and the key reports that are produced and the meetings that are held for the monitoring of contract performance.

*The Personnel*

14.2.2 The West Rail Division, which is responsible for the development of West Rail, is headed by Ian Thoms, Director West Rail (“DWR”). DWR reports to James Blake, Senior Director, Capital Projects (“SDP”).

14.2.3 Under DWR, there are three General Managers who are responsible for Railway Systems, Construction and Project Support.

14.2.4 The General Manager - Construction (“GM-CN”) is Jayananda Jesudason, who is responsible for all civil construction projects including tunneling, depot and station building, and viaduct construction.

14.2.5 For the purposes of managing and monitoring the civil construction contracts, West Rail is divided into two geographical sections (i.e. Southern and Northern), which are each overseen by a dedicated Project Manager, who reports to GM-CN.

14.2.6 Under the two Project Managers, there are separate project and construction management teams, who work at their respective construction site areas. Each management team is led by a Construction Manager. The Construction Manager for CC-213 also looks after CC-212.

14.2.7 In order to effectively manage each contract, KCRC engages a firm of engineering consultants to perform the on-site contract management and supervision work. This firm acts as the Engineer under the contract. The Engineer for CC-213 is Maunsell Consultants Asia Ltd.

- 14.2.8 The Engineer is required to maintain an effective Resident Site Staff (“RSS”) organisation to adequately supervise the construction work. The Engineer has delegated certain powers to the Chief Resident Engineer (“CRE”), who leads the RSS organization on site.
- 14.2.9 The RSS organisation generally comprises of the CRE and Senior Resident Engineer (“SRE”), plus supporting staff responsible for contract administration, quality, safety and programming, and are staff of the consultants seconded to the construction site.
- 14.2.10 Neither the Engineer nor the RSS are employees of the Corporation, both being engaged by the engineering consultants. Under the contract, the Engineer has a duty to be fair and reasonable to each party. Notwithstanding this, he is obliged under the terms of the contract to seek the Employer’s direction should he wish to take action under certain terms of the contract.
- 14.2.11 In practice, the CRE and KCRC’s Project and Construction Management staff will closely liaise in the monitoring of progress and performance.

***Weekly meetings and reports***

- 14.2.12 Each contractor has to fulfill his obligations according to the contract works programme, which sets out all of the contract activities and dates. The Construction Manager would review the works programme and discuss the contract’s progress with the contractor on a weekly basis.
- 14.2.13 The Project Manager for each Section holds weekly meetings with his construction teams to discuss issues and progress on each contract, as well as financial/contractual, co-ordination and interfacing matters to ensure KCRC’s requirements are met. Minutes are taken and distributed to all attendees.
- 14.2.14 GM-CN chairs weekly meetings with his managers (excluding the Engineers and CREs) to closely monitor the progress of each civil engineering project and to identify relevant issues and claims. Minutes are taken and distributed to all attendees.

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14.2.15 The Lead Programme Engineer of each Section prepares a West Rail weekly Performance Indicator Report for each contract, which is passed to the respective Project Manager for review. The Performance Indicator Report will then be issued to GM-CN and the Programme Manager of the Project Support Department. The Performance Indicator Report comprises of the following:

- Progress chart – a graphical representation of progress on each work programme;
- Quarterly review targets – the status of targets set at quarterly review meetings;
- Key dates achievements – the status of achievement of key dates as planned; and
- Issues – a summary of the main issues arising in respect of the contract.

14.2.16 Since June 2000, with the information provided on the Performance Indicator Report, the Programme Manager will prepare a one-page, A3 size Performance Indicator Report Summary Sheet for all contracts. The Performance Indicator Report Summary Sheet utilises the concept of traffic light reporting to indicate the severity of problems. The lights are determined based on the overall and critical delays.

14.2.17 For construction contracts, the traffic light system only shows three colors, (i.e. green, amber and red); it is not further analysed by the number of light as for the railway systems contracts. The criteria for setting the traffic light indicators, as shown on the Performance Indicator Report Summary Sheets and the Situation Report, are as follows:

<b>Traffic lights</b>	<b>Overall delays (No. of weeks)</b>
On target	Works are generally on programme
Green	0 to 4 weeks late
Amber	5 to 12 weeks late
Red	More than 13 weeks late

14.2.18 The Performance Indicator Report Summary Sheets are distributed to:

- SDP;
- DWR;
- The relevant General Managers;
- The Project Managers; and
- The relevant department managers.

*Fortnightly Situation Reports*

14.2.19 Based on the information from the site staff and the Weekly Performance Indicator Reports, the Manager - Management Information/Project Reporting prepares a one-page A3-size fortnightly Situation Report, which comprises the following information:

- Developments since the last Situation Report;
- Project progress;
- Significant issues;
- Safety status by contracts in terms of accidents and incidents;
- Key event indicator;
- West Rail project team staffing for KCRC West Rail Division, resident site staff, civil construction contractors, railway systems contractors and other contractors and consultants;
- Status of all awarded contracts including traffic lights assigned and comments on the progress; and
- Tender status for civil and systems contracts.

14.2.20 The detailed criteria for assigning the traffic lights to each contract on the Situation Report are set out in the table in Section 14.2.17. A note on the Situation Reports describe the meaning of the traffic lights as follows:

- Green – activities are on programme or there are no significant delays;
- Amber – activities are not on programme and are being closely monitored but are not critical to timely project completion; and
- Red – activities are not on programme and are critical to timely project completion.

The traffic lights assigned to the contracts are determined by DWR.

14.2.21 The Situation Report is circulated to the following persons:

- SDP;
- DWR;
- GM-RS;
- CM-RS;
- The project engineers; and
- Relevant department managers.

14.2.22 The Situation Report will be discussed in the weekly Directors' Meetings. The minutes of the Directors' Meetings together with the Situation Reports were sent to the members of the Managing Board until 30 January 2002. After that, only the Situation Report is sent to the members of the Managing Board.

*Monthly meetings and reports – contractors*

14.2.23 A Monthly Progress Meeting is held between the contractor and the Engineer's Representatives, including the CRE and SRE, to discuss the status of work, safety, environmental and public concerns issues, contracts administration and co-ordination and contractor's resources. KCRC employees such as the Senior Contracts Administrator and/or the Civil Engineer will sometimes act as observers to the meeting. Minutes are taken and distributed to all attendees plus observers, if any.

14.2.24 The Engineer holds a Monthly Financial Meeting with the CRE, SRE and members of the construction team to discuss general financial/contractual matters including measurement, variation orders, new rates and claims. Minutes are taken and distributed to all attendees.

14.2.25 The CRE prepares a Monthly Progress Report for the construction team, which details the overall status of programme and the areas of concern based upon information provided to him by the contractor.

14.2.26 A Construction Monthly Progress Meeting, chaired by GM-CN and attended by the Project Managers, Construction Managers, the CRE and the Engineers, reviews the progress of each contract, including construction, engineering, safety, land and other related matters, and identifies key issues and follow up actions to be taken. Minutes are taken and distributed to all attendees.

*Monthly reports – senior management*

14.2.27 There are three West Rail divisional monthly reports distributed to the senior management of KCRC, being the Monthly Project Support Department Report, Monthly Progress Report and Monthly Construction Department Report.

14.2.28 Monthly Project Support Department Reports, which are prepared by the Project Support Group, mainly cover the works that have been or will be done by the Project Support Department. The report is usually about 120 pages and contains the following:

- Automation development;
- Claim management;
- Cost engineering;
- Estimating for new projects;
- Finance and Administration;
- Project reporting;
- Procurement;
- Programming;
- Public affairs; and
- Risk management.

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14.2.29 The Monthly Project Support Department Reports are distributed to the following persons:

- SDP;
- DWR;
- GM-RS;
- GM-CN; and
- Various department managers.

14.2.30 Based on the input from the contract teams and the reports prepared by the contractors, the Monthly Progress Reports are prepared. This report is usually about 100 pages and covers the following:

- Master programme status;
- Monthly cost summary; and
- Overviews of significant accomplishment, areas of concern, plans and contractor status for various project areas, Light Rail section and Railway section.

14.2.31 The Monthly Progress Reports are distributed to the following persons:

- Members of the Managing Board;
- SDP;
- DWR;
- GM-RS;
- GM-CN;
- CM-RS; and
- Various department managers.

14.2.32 Monthly Construction Department Reports (a.k.a. West Rail Construction Monthly Reports) are prepared and cover the civil construction status and progress. This report is usually about 130 pages and covers:

- Construction safety;
- Southern section;
- Northern section;
- Construction engineering section; and
- Land section.

14.2.33 The Monthly Construction Department Reports are distributed to the following persons:

- SDP;
- DWR;
- GM-RS; and
- GM-CN.

*Quarterly Review Meetings*

- 14.2.34 Quarterly Review Meetings are used to discuss the progress of each and every contract with all the contractors. The Quarterly Review Meeting is normally chaired by SDP and is also attended by GM-CN, the project managers and the project directors. It is a 3-day meeting, which allows KCRC and the contractors to discuss issues and problems and set performance targets.
- 14.2.35 The programme consists of opening and closing meetings, which include all of the contractors, and working meetings for each contract held on site between the contractors and KCRC staff. The meetings (other than the working meetings) are not minuted, but a paper is issued to record agreed objectives.

*Overall evaluation of contractors' performance*

- 14.2.36 Within the Construction and Railway Operating Systems Departments, monitoring of contractors' performance is performed according to Rules 831 to 833 of the Procurement Manual (*which replaced CC No.4 of 1997, Paragraphs 46 and 47*). These rules state that, if a contract is expected to run for more than one year, Performance Appraisal Reviews of the contractors are to be carried out by the Engineer every six months. If the contract is expected to run for less than a year, the Performance Appraisal Review will be carried out after the contract has finished.
- 14.2.37 The Performance Appraisal Review grades the contractor in respect of various aspects of the contract management (e.g. adherence to the contract conditions, quality of workmanship and end products). A weighted average score is calculated and the contractor is graded "Good", "Satisfactory" and "Unsatisfactory".
- 14.2.38 The Performance Assessment Reviews are retained and are considered in the assessment of any future tenders received from the same contractor.
- 14.2.39 According to Rule 844 of the Procurement Manual, in circumstances where an adverse report is issued (i.e. a grading of "unsatisfactory" is given), the report must be submitted to the Secretary of the Corporate Tender Board within one week after the end of the reporting period. Upon the request by the Corporate Tender Board, the relevant heads of departments are required to present the adverse report to the Corporate Tender Board for information and discussion at the earliest meeting available.

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**14.3 The Situation Reports**

14.3.1 Situation Reports were prepared weekly up to 20 May 2000 and fortnightly thereafter. A summary of the Situation Reports and the weekly Performance Indicator Report Summary Sheets for the period from the commencement of the contract to March 2002 is presented below:

Information extracted from the Situation Report			Weekly PIR Summary Sheet
Date of Report	Status	Comments	
25 Sep 1999	Green, on target	Contract is on programme	Note
2 Oct 1999	Green, on target	Contract is on programme	Note
9 Oct 1999	Green, on target	Contract is on programme	Note
16 Oct 1999	Green, on target	Contract is on programme	Note
23 Oct 1999	Green, on target	Contract is on programme	Note
30 Oct 1999	Green, on target	Contract is on programme	Note
6 Nov 1999	Amber, - 1 week	Nullah dam delays have affected piling commencement.	Note
13 Nov 1999	Amber, -2 weeks	Nullah dam delays have affected piling commencement.	Note
20 Nov 1999	Amber, -3 weeks	Nullah dam delays have affected piling commencement.	Note
27 Nov 1999	Amber, -4 weeks	Nullah dam delays have affected piling commencement	Note
4 Dec 1999	Amber, -5 weeks	Nullah dam delays have affected piling commencement.	Note
11 Dec 1999	Amber, -6 weeks	Nullah dam delays have affected piling commencement	Note
18 Dec 1999	Amber, -7 weeks	Nullah dam delays have affected piling commencement	Note
1 Jan 2000	Amber, -7 weeks	First pile installed, work progressing to recovery programme	Note
8 Jan 2000	Amber, -8 weeks	Slow piling progress	Note
15 Jan 2000	Amber, -8 weeks	Slow piling progress, behind target	Note
22 Jan 2000	Amber, -8 weeks	Slow piling progress, behind target	Note
29 Jan 2000	Amber, -9 weeks	Contract is on programme, behind target	Note
4 & 11 Feb 2000	Amber, -9 weeks	Revised programme under production for next wet and dry season	Note
19 Feb 2000	Amber, -10 weeks	Revised programme under production for next wet and dry season	Note
26 Feb 2000	Red, -11 weeks *	Revised programme under production for next wet and dry season	Note
4 Mar 2000	Red, -12 weeks *	Revised programme under production for next wet and dry season	Note
11 Mar 2000	Red, -12 weeks **	Revised programme under production for next wet and dry season	Note
18 Mar 2000	Red, -12 weeks **	Revised programme under production for next wet and dry season	Note
25 Mar 2000	Red, -12 weeks ***	Revised programme under production for next wet and dry season	Note
1 Apr 2000	Red, -12 weeks +	Revised programme under production for next wet and dry season	Note
8 Apr 2000	Red ++	Revised programme under production for next wet and dry season	Note

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Information extracted from the Situation Report			Weekly PIR Summary Sheet
Date of Report	Status	Comments	
15 Apr 2000	Red +++	Revised programme under production for next wet and dry season	Note
22 Apr 2000	Red ++++	Revised programme under production for next wet and dry season	Note
29 Apr 2000	Green +++++	Revised programme acceptable	Note
6 May 2000	Green	Revised programme acceptable	Note
13 May 2000	Green	Revised programme acceptable	Note
20 May 2000	Green	Revised programme acceptable	Note
3 Jun 2000	Green	Re-start of piling delayed	Note
17 Jun 2000	Green	Re-start of piling delayed	On Target
1 Jul 2000	Green, on target #	Restart of piling delayed	On Target
15 Jul 2000	Green	Piling has re-commenced	Green, -1 week
29 Jul 2000	Green	Piling and land-related work progressing	Green, -1 week
12 Aug 2000	Green	Piling and land-related work progressing	Green, -1 week
26 Aug 2000	Green	Piling and land-related work progressing	Green, -2 weeks
9 Sep 2000	Green	Piling and land-related work progressing	Green, -3 weeks
23 Sep 2000	Green	Piling and land-related work progressing	Not prepared
7 Oct 2000	Green	Dry season has commenced	Green, -3 weeks
21 Oct 2000	Green	Dry season work has commenced in nullah. Pile installation rate requires gaining momentum.	Green, -4 weeks
4 Nov 2000	Green	14 "nullah piles" completed during the reporting period.	Not prepared
18 Nov 2000	Green	Encouraging progress with 20 "nullah piles" completed during the report period.	Green, -4 weeks
2 Dec 2000	Amber	Pile caps and columns falling behind target programme	Not prepared
16 Dec 2000	Amber ##	Pile caps and columns falling behind target programme	Amber, -7 weeks
30 Dec 2000	Amber	Pile caps and columns falling behind target programme	Amber, -7 weeks
13 Jan 2001	Amber	Pile caps and columns falling behind the target programme	Amber, -7 weeks
27 Jan 2001	Amber	Pile caps and columns falling behind the target programme	Not prepared
10 Feb 2001	Amber	Focus is on concreting station track slab in dry season.	Amber, -7 weeks
24 Feb 2001	Amber	Focus is on concreting station track slab in dry season	Amber, -7 weeks
10 Mar 2001	Amber	Focus is on concreting station track slab in dry season. Focus on completing works for this dry season.	Amber, -7 weeks
24 Mar 2001	Amber	Focus is on concreting remaining columns in nullah and ground floor slab.	Amber, -7 weeks
7 Apr 2001	Green	Focus is on concreting ground floor slab	Green, -4 weeks

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<b>Information extracted from the Situation Report</b>			<b>Weekly PIR Summary Sheet</b>
<b>Date of Report</b>	<b>Status</b>	<b>Comments</b>	
21 Apr 2001	Green	Focus is on concreting station superstructure	Green, -4 weeks
5 May 2001	Green	Focus is on concreting concourse slab	Green, -4 weeks
19 May 2001	Green, on target	Columns to track level commenced. HFT school on programme for handover in July 2001	On Target
2 Jun 2001	Green, on target	Columns to track level commenced. HFT School on programme for handover in July 2001	On Target
16 Jun 2001	Green, on target	Concrete superstructure progressing. Viaduct section needs expediting	On Target
30 Jun 2001	Green, on target	Columns up to track level and station slab are in progress. HFT School being readied for statutory inspections.	On Target
14 Jul 2001	Green, on target	Column up to track level and station slab are in progress. HFT School statutory inspections in progress	On Target
28 Jul 2001	Green, on target	Column up to track level and station slab are in progress. HFT School statutory inspections in progress	On Target
11 Aug 2001	Green, on target	Column up to track level and station slab are in progress. HFT School statutory inspections in progress	On Target
25 Aug 2001	Green, on target	Column up to track level and station slab are in progress. HFT School statutory inspections in progress	On Target
8 Sep 2001	Green, on target	Station structure is in progress. Viaduct section needs to be expedited	On Target
22 Sep 2001	Green, on target	Viaduct section at TUM north needs to be expedited to avoid delaying CC-1820	Green, -4 weeks
6 Oct 2001	Green	Viaduct section at TUM north needs to be expedited to avoid delaying CC-1820.	Green, -4 weeks
20 Oct 2001	Green	Provide first access to CC-1820.	Green, -4 weeks
3 Nov 2001	Green, on target	Concreted platform slab from GL4 to 7	On Target
17 Nov 2001	Green, on target	-	On Target
1 Dec 2001	Green, on target	-	On Target
15 Dec 2001	Green, on target	-	On Target
12 Jan 2002	Green, on target	-	On Target
26 Jan 2002	Green, on target	-	Not prepared
23 Feb 2002	Green, on target	-	On Target
9 Mar 2002	Green, on target	-	On Target
23 Mar 2002	Green, on target	-	On Target

Note:

The Weekly Performance Indicator Report Summary Sheet was not prepared prior to 17 June 2000. The Summary Sheets may not be prepared if there are holidays before or after the date for the preparation of the report. In such cases, only the Weekly Performance Indicator Reports are prepared.

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The following comments have been extracted from the “Significant Issues” section of the Situation Reports:

- \* *“Piling production continued at five piles per week. This slow production rate means it is now necessary to continue piling through the wet season in the nullah. The contractor is currently developing his detailed temporary works proposals for discussion and agreement with DSD and KCRC.”*
- \*\* *“Piling production in the nullah reached its highest level to date (nine piles per week). The contractor is currently developing his detailed temporary works proposals, for discussion and agreement with DSD and KCRC, to continue working in the wet season.”*
- \*\*\* *“The contractor is currently developing detailed temporary works proposals, for discussion and agreement with DSD and KCRC, to continue working in the wet season. Full working details of the recovery programme are to be finalised and agreed by the QRM meeting, which will begin on 27 March.”*
- + *“Approval from DSD has been obtained to extend work in the Tuen Mun Nullah .. until 20 April. Full working details of the recovery programme were discussed at the QRM meeting, which demonstrated that the TUM station key date and completion date can be achieved with the additional resources to be provided by the contractor.”*
- ++ *“Approval from DSD has been obtained to extend work in the Tuen Mun Nullah .. until 20 April. The contractor has demonstrated that the TUM station key dates and completion date can be achieved with the additional resources proposed, and full details of the revised works programme are due by 20 April.”*
- +++ *“Approval from DSD has been obtained to extend work in the Tuen Mun Nullah .. until 20 April. The contractor has demonstrated that the TUM station key dates and completion date can be achieved with the additional resources proposed, however, full details of the revised works programme are awaited. The contractor successfully implemented emergency procedures prior to the red rainstorm on 2 April, and removed all necessary plant from the nullah.”*
- ++++ *“Discussions with DSD to continue works in the Tuen Mun Nullah ... through the wet season are continuing. The contractor has demonstrated that the TUM station key dates and completion date can be achieved with the additional resources proposed, and initial details of the revised Works Programme have been received.”*
- +++++ *“Discussions with DSD to continue works in the Tuen Mun Nullah ... through the wet season are continuing. A revised programme has been received that achieved West Rail objectives.”*
- # *“The CC-212 and CC-213 (TUM) contractors received DSD approval for the Contractor’s proposed wet season Temporary Drainage Management Plans.”*
- ## *“The CC-212 & CC-213 (SIH & TUM) contractor presented the alternative nullah-widening scheme to DSD senior management for their acceptance.”*

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- 14.3.2 The first delay in progress was noticed in early November 1999. The situation did not improve and the delays became more serious. As a result, an amber status was assigned from November 1999 to February 2000.
- 14.3.3 The delays were mainly caused by the unforeseen ground conditions, comprising harder than expected rock and inclined rock layers, resulting in the planned drilling equipment being inappropriate. As the contract started to fall behind schedule, the status was changed from “green” to “amber” on 6 November 1999.
- 14.3.4 As a result of the delays in the piling work, the concrete deck could not be poured on top of the piles before the end of the first dry season in March 2000. Thus, from the start of the first wet season, only limited construction work could be performed above the nullah and the delays were exacerbated. As a result, the status was changed to “red” on 26 February 2000.
- 14.3.5 In view of the serious delays, the contractor produced a revised works programme, which was approved in April 2000. As the planned dates of completion were amended to reflect the actual situation at that time, KCRC considered the progress of the contract had been put back on track and therefore the status turned to “green” on 29 April 2000.
- 14.3.6 Due to the serious delays in piling during the first dry season, when the piling works were re-started in the second dry season in October 2000, the delays were not fully recovered. Therefore, an “amber” light was assigned throughout the second half of the dry season.
- 14.3.7 Focus was placed on completing the piling and concreting the station track slab and columns in the nullah before the end of the second dry season in March 2001. As the progress was satisfactory, the status was changed back to “green” on 7 April 2001.
- 14.3.8 No serious delays have occurred since March 2001 and KCRC consider that the contract is back on schedule.

**14.4 Analysis of contract performance**

- 14.4.1 The following analysis of the performance of CC-213 is divided into seven calendar quarters. For each quarter, we have provided a summary of the progress made and problems encountered during the quarter, and the action that was taken.
- 14.4.2 We have then highlighted the progress based on the Performance Indicator Report Summary Sheets and the West Rail Construction Monthly Reports. Finally, we have provided extracts from the various reports and from the discussions held at various monthly progress meetings and quarterly review meetings in order to provide more detail of the problems encountered and how they were dealt with.
- 14.4.3 We have only summarized the performance of CC-213 up to the end of March 2001 as, thereafter, CC-213 did not encounter any significant delays.

**14.5 Period to 30 September 1999**

*Summary of progress for the third quarter of 1999*

- 14.5.1 CC-213 was awarded on 19 July 1999 and the contract commencement date was 20 July 1999.
- 14.5.2 Since the station was to be built in the nullah, major construction constraints were imposed by the DSD. To avoid the risk of flooding, the nullah could only be dammed during the dry season and thus work on the station's foundations could only be done during this period. The official dry season runs from 1 October to 31 March.
- 14.5.3 Thus, no construction work could commence in the nullah until 1 October 1999.
- 14.5.4 Submissions such as the full version of the works programme and the Temporary Drainage Management Plan were provided by the contractor.
- 14.5.5 At the end of the quarter, construction work amounted to pre-drilling of bored piles at the Ho Fuk Tong School site. No material delays were noted as the major construction work has not been commenced.

*The West Rail Construction Monthly Report*

- 14.5.6 The following points were noted in the West Rail Construction Monthly Report in September 1999:

*“Based on current assessment, CC-213 is slightly behind programme. In order to have an agreed overall project status, the Contractor is urged to propose and develop an ‘earned value curve’ based on the agreed Works Programme.”*

*The CC-212 and CC-213 Contractor encountered difficulty in obtaining permission into a few designated buildings for installation of equipment for environmental baseline monitoring. This would delay the completion of environmental baseline monitoring report which is required to be submitted to EPD prior to commencement of major construction works. This would have programme impact on the Works as a whole. Some of these problematic buildings are government premises. KCRC has offered assistance to the Contractor to resolve this issue in order to expedite the completion of the baseline monitoring.”*

*Quarterly Review Meeting*

- 14.5.7 The following points were noted in the minutes of the Quarterly Review Meeting on 23 September 1999:

*“2.2 HKACE advised that the Temporary Drainage Management Plan (TDMP) had been submitted to the Engineer. The ICE certification would be ready the following day.”*

- 2.8 *KCRC reminded HKACE to discuss with EPD on the hoarding requirements alongside the west bank of Tuen Mun Station as the Engineer opined that it may be necessary to extend the hoarding along side the bank towards the dam for construction noise attenuation purpose*
- 4.4 *HKACE advised that they were exploring the opportunity to redesign the nullah wall to suit the method of construction....HKACE advised that the above would take one or two months to explore.*
- 8.1 *HKACE expressed concern that 4 monitoring stations had either received refusal of access or required lengthy bureaucratic procedures by the building owners for installation of monitoring equipment, mainly involved Government premises. KCRC/HKACE to resolve these issues."*

#### **14.6 Three months to 31 December 1999**

##### *Summary of progress for the fourth quarter of 1999*

- 14.6.1 After obtaining the approval from the DSD on the Temporary Drainage Management Plan in October, the contractor started the construction of the coffer dam in the nullah. The construction of the dam encountered some problems with drainage pipes but the construction was substantially completed in November 1999.
- 14.6.2 The contractor had sourced a sub-contractor for the piling work. The sub-contractor commenced pre-drilling for the bored piling in the nullah in November 1999.
- 14.6.3 However, the progress of the piling work was not satisfactory. The sub-contractor claimed that the rock layer was harder than expected and there was also an inclination problem in the rock layer. Accordingly, their equipment, sourced and applied in accordance with the tender documents, were not strong enough for effective drilling.
- 14.6.4 By December 1999, piling was showing serious delays. In the station area, only one pile was completed as compared with the programme target of 130 piles.
- 14.6.5 Ad-hoc site meetings were held with the contractor and GM-CN from December 1999 onwards to monitor the progress of the piling works and to develop solutions to the problems that were being encountered.
- 14.6.6 By the end of December 1999, CC-213 was about seven weeks behind the works programme.

##### *The West Rail Construction Monthly Report*

- 14.6.7 The following points were noted in the West Rail Construction Monthly Report for October 1999:

*“The Contractor submitted the full version of Works Programme on 28 September as scheduled. However, the programme was found unsatisfactory, as most previous comments to the Initial Works Programme have not been addressed. In order to fulfil the requirement of the Milestone A3, the Contractor then submitted an amended Works Programme on 28 October. The Programme is currently under review.*

*Construction of earth dam has encountered some problems on drainage pipes. Piling in the nullah has not started as programmed.*

*Up to the end of October, CC-213 is slightly behind programme....”*

14.6.8 The following points were noted in the report for November 1999:

*“iv) Up to end of November 1999, CC-213 is about five weeks behind programme...*

*v) The Contractor is currently reviewing the resources requirement and is expected to generate a resources schedule in early December 1999 for completing the scheduled works in the nullah within the first dry season in order to allow wet season working above flood level to proceed.”*

14.6.9 The following point was noted in the report for December 1999:

*“The piling works which are critical to allow the wet season working above flood level to proceed are about 6 weeks and 7 weeks behind programme for CC-212 and CC-213 respectively. The Contractor has reviewed the piling resources and established a recovery programme in order to recover the programme slippage. Both the piling resources and production rate are being monitored on a daily basis.”*

#### ***The CRE Monthly Progress Report***

14.6.10 No significant issue came to our attention in the CRE Monthly Progress Report for October 1999.

14.6.11 The following points were noted in the report for November 1999:

*“...Of particular concern is the lack of achievement on the piling works in the nullah. Targets have been redefined following more detailed programming of this critical activity and a progressive mobilisation of piling equipment has been arranged. Whilst pre-drilling is now underway, some 28% of the first contract dry season has elapsed without a single pile having been completed. Recovery is however considered possible.*

*...Continuing concerns exists over the implementation of the Contractor’s quality system and lack of supervision of works....*

*Additional pre-drilling rigs are required to those originally planned to expedite the foundation works and recover the losses of production due to late start...*

*Work in nullah continuing without revised TDMP being lodged with DSD...”*

14.6.12 The following points were noted in the report for December 1999:

*“Piling is in delay and weekly meetings are being held with the Contractor and Employer to monitor the progress of piling works and to review the Contractor’s resources. Additional piling equipment is urgently required.*

*Delay in the progress of construction at Ho Fuk Tong School structure is mainly due to delay in piling works.*

*Tree felling permits are urgently required. Further delay in obtaining the permits can have knock-on effect on the pre-drilling work for the LRT structure.”*

***Quarterly Review Meeting***

14.6.13 The following points were noted in the minutes of the Quarterly Review Meeting on 8 December 1999:

*“2.10 HKACE stated that he intended to complete the tie beams between gridlines 4 to 7. If this could not be achieved, the tie beams would be omitted until next dry season.*

*2.11 HKACE remarked that the dam was effective in controlling tidal effects and had enabled the pre-drill works to proceed on the nullah bed.*

*4.1 HKACE reported that he has decided to go for the alternative design of the nullah wall that was still in the detailed design process. HKACE would submit the design to the Engineer once the design is in place.*

*4.2 The Engineer reminded that BD should be consulted for the alternative design. BD would review the submission and revert the comments but with no statutory period. Submission to DSD is also required.*

*6.1 HKACE acknowledged that environmental constraint is a significant aspect of works control and will be monitored closely. The CNP is to be lobbied for.”*

**14.7 Three months to 31 March 2000**

***Summary of progress for the first quarter of 2000***

14.7.1 The progress of the bored piling for the station remained unsatisfactory in early January 2000. A meeting was held on 8 January 2000 between the senior management of KCRC and the contractor, and a short-term target was set. However, progress on the station bored piling was not recouped compared to the short-term target.

14.7.2 The heavy rain on 23 and 24 January 2000 had caused flooding in the Tuen Mun nullah. The station works area was severely flooded with the majority of the piling plant and equipment damaged. The bored piling works were suspended until 11 February 2000.

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- 14.7.3 In early February 2000, the contractor indicated to KCRC that CC-213 might overrun by one to three months. Numerous meetings were held in February 2000 amongst and between the senior management of both KCRC and the contractor in order to determine measures that could be taken to recover the delays.
- 14.7.4 The contractor made a presentation to KCRC on delay mitigation proposals and programmes on 18 February 2000 and advised that the nullah bored piling and substructure works to be carried out in the first dry season as planned were impossible to achieve.
- 14.7.5 On 9 March 2000, a Claims Review Panel meeting was held to initially discuss the arguments of claims submitted by the Contractor.
- 14.7.6 The Engineer opined that the unsatisfactory progress of the piling works in the nullah was mainly due to under-performance of the sub-contractor, and requested the contractor to consider delay recovery measures, including replacing this sub-contractor. The contractor and sub-contractor then entered into a mutual agreement that the sub-contractor would complete their piling works towards the end of the first dry season and would then demobilise from the site.
- 14.7.7 In the Quarterly Review Meeting held on 27 March 2000, the contractor advised that the re-provisioning of Ho Fuk Tong School would be delayed for about three months due to late completion of bored piling works as a result of the amount of rock excavation being much greater than anticipated.
- 14.7.8 Up to the end of March 2000 (the end of the first dry season), the contractor could only complete 51 bored piles, ten pile caps and eight columns of the station, while the planned number of piles was 180. Overall, CC-213 was about 14 weeks behind the works programme.

***The West Rail Construction Monthly Report***

- 14.7.9 The following points were noted in the West Rail Construction Monthly Report for January 2000:
- “ii) *Station bored piling progress was found not satisfactory in early January 2000. A short-term target was set by the Contractor at the meeting held on 8 January 2000 amongst senior management of both KCRC and the Contractor. However, progress on the Station bored piling has not been recouped, compared neither to the post QRM target nor the short-term target.*
  - iv) *The station works area in the nullah was totally flooded on 24 January 2000. Majority of the piling equipment were damaged by the water. Bored piling works has been suspended since 24 January 2000. Programme and progress has been seriously affected by this incident. The Contractor indicated that piling works can be resumed after Chinese New Year, i.e. early February 2000 with four additional piling rigs.*
  - v) *Up to the end of January 2000, CC-213 is about ten weeks behind programme...*

- vi) *During the meeting held on 31 January 2000, the Contractor provided KCRC with a summary projection programme and expressed that certain key dates may be overrun based on the current site progress and projection up to the end of March 2000 (1<sup>st</sup> dry season). However, KCRC expressed that projected overrun on the Key Dates at this early stage is not acceptable and the Contractor has been asked to review and improve the situation.”*

14.7.10 The following points were noted in the report for February 2000:

*“In early February 2000, the Contractor indicated that certain key dates of both contract CC-212 and CC-213 might be overrun by one to three months. Upon request by senior management of KCRC, the Contractor re-visited their resources and work sequence again, and then conducted a presentation to KCRC on delay mitigation proposals and programme on 18 February 2000. A revised mitigation programme was presented showing only KD4 of CC-212 and KD6 of CC-213 to be possibly delayed by one month after taking some mitigation measures. The Contractor has been requested to provide KCRC with a revised Works Programme to show their revised work sequence and mitigation measures by mid March 2000.*

*As a result of flood caused by heavy rain on 23 and 24 January 2000, further slippage of the bored piling progress has occurred. This has knock-on effect on the construction of station structure planned for the coming wet season. The Contractor has been strongly requested to submit recovery programme and contingency plans to enable the continual construction of station structure through the wet season in order not to hamper the achievement of Key Dates KD-3, KD-4 & KD-5 and KD-4 & KD-6 for CC-212 and CC-213 respectively, which are critical for giving access to CC-1820 for permanent way installation.*

- iii) *Station bored piling progress has not been satisfactory since early January 2000. Numerous meetings were held in February 2000 amongst senior management of both KCRC and the Contractor to review piling progress in the nullah and possible impacts to the contract key dates.*
- iv) *During the meeting held on 2 February 2000, the Contractor provided KCRC with a summary projection programme and expressed that KD-6 might be overrun by 30 days. It is based on the site progress on 1 February 2000 and their projection up to the end of March 2000 (the 1<sup>st</sup> dry season). However, KCRC expressed that projected overrun on the Key Dates at this early stage is not acceptable and the Contractor has been asked to review and improve the situation.*
- vi) *The Contractor conducted a presentation on delay mitigation proposals and programmes on 18 February 2000 and advised that the nullah bored piling and substructure works to be carried out in the 1<sup>st</sup> dry season as planned in the revised Works Programme were impossible to achieve. Based on their (sic) projection on 18 February 2000, only 50 piles and 25 columns would be concreted in the nullah by the end of March 2000. A mitigation programme showing KD6 to be possibly delayed by one month was presented in the presentation.*

- vii) *The Contractor has been asked to provide KCRC with a revised Works Programme to show their revised work sequence and mitigation measures by mid March 2000.*
- viii) *By the end of February 2000, further slippage in nullah bored piling work was identified in comparison with the targets set on 18 February 2000.*
- ix) *Up to the end of February 2000, CC-213 was about eleven weeks behind programme....”*

14.7.11 The following points were noted in the report for March 2000:

*“The slow progress of the bored piling works, especially for CC-213, has knock-on effect on the construction of station structure planned for the coming wet season. DSD approved the Contractor’s proposal for extension of Dry Weather TDMP up to 20 April 2000. The Contractor has also prepared contingency plans and mitigation measures to facilitate the continual construction of station structure through the wet season in order not to hamper those Key Dates, which are critical to giving access to CC-1820 for permanent way installation.*

*As a result of flood caused by heavy rain on 23 and 24 January 2000, further slippage of the bored piling progress has occurred. Especially for CC-213, the piling works resumed after Chinese New Year is also not satisfactory. This has knock-on effect on the construction of station structure planned for the coming wet season. The Contractor has prepared recovery programme and contingency plans to enable the continual construction of station structure through the wet season in order not to hamper the achievement of Key Dates KD-3, KD-4 & KD-5 and KD-4 & KD-6 for CC-212 and CC-213 respectively, which are critical for giving access to CC-1820 for permanent way installation.*

- v) *The first dry season of the Contract as set out by DSD was ended on 31 March 2000. Up to end of March, the Contractor could only complete 51 bored piles, 10 pile caps and 28 columns (upto ground level) of the Station. However, progress on columns can be improved as the Contractor’s proposal on extension of the dry season to 20 April 2000 for working on non-piling activities in the nullah has been accepted by DSD.*
- vi) *Unfortunately, the bounded works area in the nullah was flooded again on 3 April 2000 due to heavy raining. This time as all piling equipments were removed from the nullah, no major equipment loss is anticipated. It is expected columns construction work can be resumed by 7 April 2000.”*
- vii) *Up to the end of March 2000, CC-213 was about 14 weeks behind programme...”*

***The CRE Monthly Progress Report***

- 14.7.12 The following points were noted in the CRE Monthly Progress Report in January 2000:

*“Inability of Contractor to increase pile production much above 4-5 per week is seriously impacting on extent of work to superstructure available for coming wet (sic) season. This impacts in turn upon the completion date for the Station.*

*Effective contingency plans for emergency evacuation is urgently required:...*

*A complete recovery plan for the intensified critical bored pile construction is to be worked out urgently to achieve the target.”*

- 14.7.13 The following points were noted in the report for February 2000:

*“Low pile production rate of 4-5 nos. per week is seriously impacting on availability of superstructure for coming wet season works. This impacts in turn upon the completion date for the Station.*

*Seismograph and geotechnical instrumentation reading for the Station are long overdue.*

*A recovery plan for highly critical bored pile construction is required urgently.”*

- 14.7.14 The following points were noted in the report for March 2000:

*“DSD have given approval to the proposal to extend the allowable period for working within the nullah until 20 April and this should allow the contractor to achieve completion of 15 No. Station columns.*

*Achievement of the original Key Date is in jeopardy given the considerable delay to completion of piling. However, not all of this deal may be attributable to the Contractor’s default.*

***Quarterly Review Meeting***

- 14.7.15 The following points were noted in the minutes of the Quarterly Review Meeting on 27 March 2000:

*“2.1 HKACE briefly present the Works Plan together with the piling target and the station slab construction (both CC-212 & CC-213) for the coming quarter by means of monthly plan for intended activities. Revised Works Programme would be available by mid of April.*

*2.2 KCRC reminded that HKACE sub-contractors should be informed and work according to the revised Works Programme.*

*4.1 HKACE tabled the summary of RFI and DAN for both CC-212 & CC-213 and express his concern on the late information of structural details, especially reinforcement detailing. This would affect the procurement programme.*

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5.2 *HKACE would propose alternative design of viaduct foundation (increase pile diameter, reduce pile number) and pier. KCRC reminded that alternative design of viaduct pier should submit to DSD for review and approval via KCRC.*

5.3 *HKACE informed that because of the substandard quality on piling works, the piling subcontractor, TLC (sic) would not works (sic) on piling next dry season.”*

**14.8 Three months to 30 June 2000**

*Summary of progress for the second quarter of 2000*

14.8.1 DSD had given approval to extend the allowable period for working within the nullah until 20 April 2000. During this extended period, the contractor completed six columns, which made the total up to fourteen columns of the station.

14.8.2 The bounded works area in the nullah was flooded again on 14 April 2000 due to heavy rain in the Tuen Mun and Yuen Long areas. Since all piling equipment was removed from the nullah, there was no major equipment loss. Columns construction work was resumed on 17 April 2000.

14.8.3 The first piling sub-contractor had demobilised from the site completely.

14.8.4 In order to recover the delays, the contractor had sourced three new piling sub-contractors, which possessed stronger drilling equipment and had experience in dealing with rock layers with different inclinations.

14.8.5 A revised works programme was submitted in April 2000 and finally accepted in June 2000.

14.8.6 Up to the end of June 2000, CC-213 was about three weeks behind the revised works programme.

*The weekly Performance Indicator Report Summary Sheet*

14.8.7 The weekly Performance Indicator Report Summary Sheet for the period indicates the following:

Date of report	Issues		Status	Comments
	Major items	Completion to date %		
18 Jun 00	-	-	On target	Re-start of piling delayed

*The West Rail Construction Monthly Report*

- 14.8.8 The following points were noted in the West Rail Construction Monthly Report for April 2000:

*“The slow progress of the bored piling works, especially for CC-213, has knock-on effect on the construction of station structure planned for the coming wet season. DSD approved the Contractor’s proposal for extension of Dry Weather TDMP up to 20 April 2000.*

*In the QRM No.5 working meeting, the Contractor presented some time-change(sic) diagrams together with a summary recovery programme showing that all Key Dates for both CC-212 and CC-213 could be achieved except KDI for CC-213, which is the reprovisioning of Ho Fuk Tong Primary School. The Contractor expressed that this Key Date KDI will be delayed for about three months due to late completion of bored piling works as a result of the amount of rock excavation being much greater than anticipated.*

- v) *Unfortunately, the bounded works area in the nullah was flooded again on 14 April 2000 due to heavy raining in Tuen Mun and Yuen Long areas. Since all piling equipment was removed from the nullah, no major equipment loss is anticipated. Columns construction work was resumed on 17 April 2000.”*

- 14.8.9 The following points were noted in the report for May 2000:

“iv) *No piling activity was taken place in CC-213 works area throughout the period of May 2000. In order to recoup the lateness on piling, the Contractor has re-arranged piling sequence in its revised Works Programme that will be re-submitted in early June. An informal piling schedule was received from the Contractor on 26 May for our information.*

vii) *Up to end of May 2000, CC-213 was about 6.3% complete which representing the work was about four weeks behind the early date schedule...”*

- 14.8.10 The following points were noted in the report for June 2000:

*“DD-220 proposes a number of utilities diversions along the west bank of Tuen Mun nullah at TUM, which will have influence to CC-213 Works Programme. DD-210 is asked to co-ordinate with DD-220 to review and provide a rational work scheme for KCRC consideration. These changes may require a supplemental agreement with CC-213 Contractor.*

- v) *No piling activity was taken place in CC-213 works area throughout the period of June 2000. However, in accordance with the latest revised Works Programme only 4 piles were planned to completed in June.*

- vi) *Apart from piling remedial works, no other construction activity was carried out in May at the New Ho Fuk Tong School. The Contractor anticipated that completion of the school would be delayed as a result of late completion of bored piling and piles validation works. However, our target latest completion date for KDI (Re-provisioning of Ho Fuk Tong School) by mid February 2001 has been clearly conveyed to the Contractor.*
- viii) *Up to end of June 2000, CC-213 was about 8% complete, which representing the work was about three weeks behind the early date schedule....”*

***The CRE Monthly Progress Report***

- 14.8.11 The following point was noted in the CRE Monthly Progress Report in April 2000:

*“Poor quality of pile has significant effects on the progress of both Station and Ho Fuk Tong School.”*

- 14.8.12 The following point was noted in the report for May 2000:

*“Pile remedial works, required throughout the completed foundation works, are the subject of urgent discussion with the Engineer and the Employer. Pooled knowledge is anticipated to produce more practical and less time consuming means of testing and remediation.”*

- 14.8.13 The following point was noted in the report for June 2000:

*“Delays to proceeding on any of the Station piling results from a variety of problems – temporary works, equipment suitability and necessary re-designs. Each of these difficulties is only now being actively resolved.”*

***Quarterly Review Meeting***

- 14.8.14 The following points were noted in the minutes of the Quarterly Review Meeting on 29 June 2000:

*“3.1 HKACE raised concern on the responses to RFI. Large amount of DAN had been issued but the drawings had not been updated. It caused difficulty to issue information to sub-contractors.*

*7.2 HKACE proposed alternatives design on nullah wall widening and use barrettes instead of bore piles. MCAL/KCRC to review and resolve the technical and financial issues.”*

**14.9 Three months to 30 September 2000**

***Summary of progress for the third quarter of 2000***

- 14.9.1 As part of the delay recovery measures put forward by the contractor, it was agreed that three specialist piling contractors would be brought in to work on different areas of the site.

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- 14.9.2 Gammon was responsible for the piling works of the station in the nullah. Mobilisation, general preparation and assembly of Gammon piling rigs and associated equipment started during the quarter, so that these would be in place and ready to start work at the beginning of the second dry season.
- 14.9.3 Trevi was responsible for the piling works of the viaduct in the nullah. The Trevi piling rigs commenced their piling works from August 2000 and worked along the nullah shoulder and on nullah widening works.
- 14.9.4 Vibro was responsible for the piling works of the viaduct on the land. As they were not working in the nullah and were free to work during the wet season, they commenced their piling works in July 2000.
- 14.9.5 During the quarter, 61 piles were planned to be completed according to the revised works programme but only 22 piles were concreted.
- 14.9.6 Up to the end of September 2000, CC-213 was about 11.3% complete and the work was about eight weeks behind the revised works programme.

***The weekly Performance Indicator Report Summary Sheets***

- 14.9.7 The weekly Performance Indicator Report Summary Sheets for the period indicate the following:

Date of Report	Issues		Status	Comments
	Major Items	% Completion to Date		
30 Jul 00	-	-	Green, -1	Piling and land related works are progressing
27 Aug 00	<ul style="list-style-type: none"> <li>• Piling outside nullah</li> <li>• Piling inside nullah in "dry season"</li> </ul>	14% 1%	Green, -2	Piling and land related works are progressing
10 Sep 00	Piling outside nullah	14%	Green, -3	Piling and land related works are progressing

***The West Rail Construction Monthly Report***

- 14.9.8 The following points were noted in the West Rail Construction Monthly Report for July 2000:

*"For CC-213, the progress on piling works was not satisfactory. The overall performance of the work was fallen behind the late date schedule in July 2000. Close monitoring on site progress is required in order not to further delay the works.*

- v) *Piling works for Area 30A and viaduct were commenced in July. Overall progress on piling work was not satisfactory. In the revised Works Programme, 14 piles were planned to complete in July 2000 but only 8 piles were concreted.*

- vi) *Apart from piles remedial/validation works, no other construction activity was carried out in July 2000 at the New Ho Fuk Tong School. The Contractor anticipated that completion of the school would be further delayed as a result of late completion of bored piling and piles validation works. An EOT of 31 days on KD-1 has been approval by CCC. KD-1 is now extended to 6 February 2001.*
- vii) *Programme for achievement of KD2 (Re-provisioning of LCSD facilities in Area 30A) may still be jeopardised due to conflict between the new drainage system with the existing drainage system, despite the Engineer instructed the Contractor to resume the suspended works on 28 June 2000. Discussion with LCSD regarding the hand-over requirements for the reprovisioned facilities commenced.*
- viii) *Up to end July 2000, CC-213 was about 9% complete, representing that the work was about four weeks behind the early date schedule, and two weeks behind the late dates schedule.”*

14.9.9 The following points were noted in the report for August 2000:

*“For CC-213, the progress on piling works was not satisfactory. The overall performance of the work was fallen behind the late date schedule in July 2000. Close monitoring on site progress is required in order not to further delay the works.*

- v) *Piling works for the Station were re-commenced in August 2000. Overall progress on piling work was not satisfactory. In the revised Works Programme, 19 piles were planned to complete in August but only 7piles were concreted.*
- vi) *Substructure works for the New Ho Fuk Tong School was re-commenced in August 2000. However, the Contractor anticipated that completion of the school would be further delayed as a result of late completion of bored piling and piles validation works. An EOT of 31 days on KD-1 has been approval by CC. KD-1 is now extended to 6 February 2001.*
- vii) *It is anticipated that programme for achievement of KD2 (Re-provisioning of LCSD facilities in Area 30A) will be jeopardised due to conflict between the new drainage system with the existing drainage system and the suspension of works in the Pavilion area. Discussion with LCSD regarding the hand-over requirements for the reprovisioning facilities commenced .....*
- viii) *Up to end of August, CC-213 was about 10.2% complete, representing that the work was about six weeks behind the early date schedule, and four weeks behind the late dates schedule ... ”*

14.9.10 The following points were noted in the report for September 2000:

- “vi) *Progress on piling work was not satisfactory in September and was still behind the revised schedule. In the revised Works Programme, 28 piles were planned to complete in September but only seven piles were concreted.*
- vii) *Substructure works for the new Ho Fuk Tong School was re-commenced in August. However, the Contractor anticipated that completion of the school would be further delayed to June 2001 as a result of late completion of bored piling and piles validation works. An EOT of 31 days on KD-1 has been approval by CC. KD-1 is now extended to 6 February 2001.*
- viii) *It is anticipated that programme for achievement of KD-2 (Re-provisioning of LCSD facilities in Area 30A) will be jeopardised due to conflict between design drawings and the suspension of works in the Pavilion area. The Contractor anticipated that KD-2 would be delayed to mid March 2001.*
- ix) *Up to end of September 2000, CC-213 was about 11.3% complete, representing that the work was about eight weeks behind the early date schedule, and six weeks behind the late dates schedule. The overall performance of the work was fallen out of the double ‘S’-curves envelope formed by the early and late date schedules. Close monitoring on site progress is required in order not to further delay the works. An in-house overall progress chart is attached for reference.”*

***The CRE Monthly Progress Report***

14.9.11 The following point was noted in the CRE monthly progress report for July 2000:

*“Method statements for viaduct structure construction still outstanding.”*

14.9.12 The following points were noted in the report for August 2000:

*“Overall progress has been poor during the month also with critical bored pile achieved less than half of the planned target. The project is delayed by 4-6 weeks according to Revised Works Programme.*

*Remedial works to School piling is still unresolved. As a consequence of pile remediation works, sub-structure construction is identified to be delayed between 10-12 weeks in comparison to the Revised Works Programme that was submitted in June 2000.*

*Slow progress of E&M construction drawings submission, ER’s concern been raised through letter WR1CN2000-0164716.”*

14.9.13 No significant issue was noted in the report for September 2000.

*Quarterly Review Meeting*

14.9.14 The following point was noted in the minutes of the Quarterly Review Meeting on 20 September 2000:

“4.1 ASD had directed two more loading test to validate the school piles. After completion, piling records should be forwarded to ASD for consideration and approval. HKACE would prepare commencement of pile cap and superstructure works.”

**14.10 Three months to 31 December 2000**

*Summary of progress for the fourth quarter of 2000*

14.10.1 Gammon commenced piling works in the nullah in early October 2000 as the revised Temporary Drainage Management Plan for the second dry season had been approved by the DSD.

14.10.2 Weekly progress meetings amongst KCRC, the Engineer and the contractor were held every Tuesday since early October 2000 to keep track of construction activities targeted to be completed in the second dry season within the nullah.

14.10.3 During the quarter, the overall piling work for both nullah and land piles was progressing satisfactorily. In the revised works programme, 141 piles were planned to be completed; 120 piles were actually concreted.

14.10.4 On 8 December 2000, the contractor made a presentation to the DSD's senior management regarding the nullah widening scheme. The nullah widening works at the west bank progressed in line with the sub-programme.

14.10.5 In December 2000, the contractor made a presentation to the KCRC in respect of their claims and their expectation for settlement of all delay recovery measures at about HK\$647 million.

14.10.6 Up to the end of December 2000, CC-213 was 20.2% complete and was about 10 weeks behind the revised works programme.

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*The weekly Performance Indicator Report Summary Sheets*

14.10.7 The weekly Performance Indicator Report Summary Sheets for the period indicate the following:

Date of report	Issues		Status	Comments
	Major items	% completion to date		
29 Oct 2000	<ul style="list-style-type: none"> <li>• Piling outside nullah</li> <li>• Piling inside nullah in “dry season” (00/01)</li> </ul>	15%	Green, -4	6 “Nullah piles” completed last week
19 Nov 2000	<ul style="list-style-type: none"> <li>• Piling outside nullah</li> <li>• Piling inside nullah in “dry season” (00/01)</li> </ul>	66%*	Green, -4	Encouraging progress with 12 “Nullah piles” completed last Week
31 Dec 2000	<ul style="list-style-type: none"> <li>• Piling outside nullah</li> <li>• Piling inside nullah in “dry season” (00/01)</li> </ul>	46%*	Amber, -7	Caps and columns falling behind target programme

\* Decrease from 66% to 46% was due to the increase of total required piles from 120 to 190

*The West Rail Construction Monthly Report*

14.10.8 The following points were noted in the West Rail Construction Monthly Report for October 2000:

- “i) *The Contractor commenced piling work in the nullah in early October 2000 as the revised TDMP for the 2<sup>nd</sup> dry season have been approved by DSD ...*
- iv) *In general, progress on piling work was not satisfactory in October and was still behind the revised schedule. In the revised Works Programme, 39 piles were planned to complete in October but only 14 were concreted.*
- viii) *Contractor’s claims on KD-2 (Re-provisioning of LCSD facilities in Area 30A) have been reviewed by the Engineers. CA is now being prepared for recommendation of EOT to KD-2. It is anticipated that KD-2 would be delayed to mid March 2001.*
- ix) *Up to end of October 2000, CC-213 was about 13.4% complete, representing that the work was about ten weeks behind the early date schedule, and eight weeks behind late dates schedules ...”*

14.10.9 The following points were noted in the report for November 2000:

- “ix) *KD-1 (Re-provisioning of Ho Fuk Tong Primary School): Substructure was about 98% completed with more than half of ground floor slab cast in the month. The Contractor has been requested to develop a works programme for completion of the school. An EOT of 31 working days on KD-1 has been approved by CCC. KD-1 is now extended to 13 February 2001. However, the current anticipated completion is in June 2001.*
- x) *KD-2 (Re-provisioning of LCSD facilities in Area 30A): the Contractor’s claims have been reviewed by the Engineer. CA was prepared for recommendation of EOT for KD-2. It is anticipated that KD-2 would be delayed to mid March 2001.*
- xi) *Up to end November, CC-213 was 17% complete, representing that the work was ten weeks behind the early date schedule, and seven weeks behind the late dates schedule.”*

14.10.10 The following points were noted in the report for December 2000:

- “iv) *In comparison with the revised Works Programme, progress on overall piling work (for both nullah and land piles) was satisfactory in the month despite that progress was still behind the Programme. In the revised Works Programme, 50 piles were planned to complete in December while 49 piles were concreted.*
- vi) *Progress on the station ground slab was about 3 weeks behind the revised target programme in general.*
- xiii) *Up to the end of December 2000, CC-213 was about 20.2% complete, representing that the work was about ten weeks behind the early date schedule, and seven weeks behind the late dates schedule.”*

#### ***The CRE Monthly Progress Report***

14.10.11 The following points were noted in the CRE Monthly Progress Report in October 2000:

*“Overall work progress remains unsatisfactorily though bored pile construction is well underway.... A concern has been expressed repeatedly on the lack of follow-up testing of concreted piles.*

*Substructure construction in nullah recommenced in October and the construction of pile cap is a critical issue but currently obstructed in the main Station area by the large amount of piling kit.*

*Nullah widening work at the west bank is critical to comply with the DSD’s hydrological requirements. The revised design work is in progress and substantial efforts have been made to co-ordinate it with different parties. An urgent resolution is needed.*

*The most significant delay continues to be in relation to Key Dates KD-1 and KD-2, these are respectively estimated at around sixteen and fourteen weeks behind.*

*Construction of viaduct structure are being carried out in accordance with ICE's certified drawing for the alternative design while Engineer's approval for the alternative design is still pending."*

14.10.12 The following point was noted in the report for November 2000:

*"A detailed design of nullah widening works at the west bank is required urgently to finalise to facilitate the commencement of construction works as soon as November"*

14.10.13 The following points were noted in the report for December 2000:

*"RSS is not resourced fully to cope with the substantial number of claims that will require a considerable resources to resolve.*

*Recent claim notices indicate a lack of senior management control by the Contractor."*

#### ***Quarterly Review Meeting***

14.10.14 The following points were noted in the minutes of the Quarterly Review Meeting on 13 December 2000:

*"2.4 C requested urgent confirmation on the intended change in pile validation criteria that for piles with segregation between 100 mm and 200 mm, no verification coring is required after grouting. CC212 got 5-6 nos. bored pile (by bentonite) of such category but none in CC213 so far for the piles cast in this dry season.*

*5.1 C tabled a target completion programme for the new school.*

- Superstructure completion date      3 July 2001*
- School completion date                15 November 2001*

*KCRC stressed that this programme is not acceptable and reiterated that the new school should be substantially completed by end of June 2001 as expressed in previous weekly meetings. KCRC has also clarified this to the ER*

*5.3 ER stated that in order to get a firm commitment from the Contractor to complete the new school by June 2001, early settlement of the relevant commercial issues in this respect by the senior management of both the Contractor and the Employer will be envisaged.*

*6.3 C also mentioned the areas of concern for San Fat Estate demolition which include the utilities termination, tree felling and transformer room demolition (that is also serving premises elsewhere). KCRC would liaise with Housing Department to facilitate the works."*

**14.11 Three months to 31 March 2001**

*Summary of progress for the first quarter of 2001*

- 14.11.1 During the quarter, the contractor had placed more resources and conducted delay recovery measures so as to catch up the delayed work progress. The resources mainly comprised the employment of additional labour, additional overtime working, and the use of more equipment.
- 14.11.2 During the second half of the second dry season, strenuous effort was made in order to meet the targets set. At the end of March 2001, the following works were completed:
- All station piles, pile caps and columns in the nullah;
  - Ground level slab;
  - Nullah widening at west bank from the station; and
  - All column bases in the nullah for the viaduct piers.
- 14.11.3 As the nullah piling works and the first level slab had been completed, work on the station substructure could be continued in the coming wet season.
- 14.11.4 For the construction of Ho Fuk Tong School, all superstructures were completed in March 2001 after completion of the piling validation tests in October 2000.
- 14.11.5 On 18 February 2001, the contractor made a presentation to KCRC regarding their expectation for the delay recovery measures. Their proposed claims had increased to HK\$840 million, representing an increase of HK\$193 million as compared with the amount claimed in December 2000.
- 14.11.6 Up to the end of March 2001, CC-213 was about 34.1% complete and was six weeks behind the revised works programme.

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*The weekly Performance Indicator Report Summary Sheets*

14.11.7 The weekly Performance Indicator Report Summary Sheets for the period indicate the following:

Date of report	Issues		Status	Comments
	Major items	% Completion to Date		
21 Jan 2001	• Piling outside nullah	49%	Amber, -7	Caps and columns falling behind target programme
	• Piling inside nullah in “dry season” (00/01)	76%		
25 Feb 2001	• Piling outside nullah	49%	Amber, -7	Focus is on concreting station track slab in dry Season
	• Piling inside nullah in “dry season” (00/01)	100%		
25 Mar 2001	• Piling outside nullah	52%	Amber, -7	Focus is on concreting station track slab in dry season and remaining columns in nullah
	• Column (Nullah to G/F)	74%		
	• Column (Nullah) – in “dry season” (00/01)	78%		

*The West Rail Construction Monthly Report*

14.11.8 The following points were noted in the West Rail Construction Monthly Report in January 2001:

- “ii) *Progress on pile cap / column construction was still fallen behind the revised Target Programme.*
- iv) *Progress on the west bank nullah widening was slightly behind programme due to relocation of a section of sheet piles.*
- viii) *KD-1 (Re-provisioning of Ho Fuk Tong Primary School): 4<sup>th</sup> floor slab was completed with more than half of the 5<sup>th</sup> floor slab was cast in the month. The Contractor has provided a recovery works programme for the completion of the school by 31 August 2001. An EOT of 31 working days on KD-1 has been granted to the Contractor. KD-1 is now extended to 13 February 2001. However, the current anticipated completion is in July 2001.*

- x) *Up to end of January 2001, CC-213 was about 23.7% complete, representing that the work was about eleven weeks behind the early date schedule, and eight weeks behind the late dates schedule.”*

14.11.9 The following points were noted in the report for February 2001:

- “iii) *All Nullah piles were completed in February with land piling in progress. Progress on pile cap/column construction was still fallen behind the revised Target Programme despite strenuous effort made in February.*
- ix) *KD-1 (Re-provisioning of Ho Fuk Tong Primary School): 4<sup>th</sup> floor slab was completed with more than half of the roof slab was cast in the month. A supplemental agreement between the Contractor and KCRC is now being proposed in order to complete the new HFT School by 31 August 2001.*
- x) *KD-2 (Re-provisioning of LCSD facilities in Area 30A): An EoT of 81 working days on KD-2 has just been approved by CCC. KD-2 is now extended to 22 March 2001. However, further delay is anticipated due to inadequate resources.*
- xii) *Up to end of February 2001, CC-213 was about 29.3% complete, representing the work was about seven weeks behind the late dates schedule.”*

14.11.10 The following points were noted in the report for March 2001:

- “viii) *KD-1 (Re-provisioning of Ho Fuk Tong Primary School): School superstructure was substantially completed with ABWF and M&E works in full swing in March 2001. A supplemental agreement between the Contractor and KCRC is now being proposed in order to complete the new HFT School by 31 August 2001.*
- ix) *KD-2 (Re-provisioning of LCSD facilities in Area 30A): CCC has just approved An EoT of 81 working days on KD-2. KD-2 is now extended to 22 March 2001. However, further delay is anticipated due to inadequate resources. The situation was not improved in the month.*
- xi) *Up to end of March 2001, CC-213 was about 34.1% complete, representing the work was about six weeks behind the late dates schedule.”*

***The CRE Monthly Progress Report***

14.11.11 The following point was noted in the CRE Monthly Progress Report in January 2001:

*“The progress of Station substructure and ground floor slab construction is slow with completions around 50% and 20% respectively. The most critical activity is now Station pile caps and columns in the nullah to allow for the slab construction during this remaining dry season.”*

14.11.12 The following points were noted in the report for February 2001:

*“In Area 30A, overall progress remains unsatisfactory, particularly at the ramp...*

*A full Work Programme update has been called for at Date 30 March 2001 and is anticipated to be submitted by the 2<sup>nd</sup> half of April for ER’s review.”*

14.11.13 The following point was noted in the report for March 2001:

*“In Area 30A, overall progress remains very unsatisfactory, particularly at the pedestrian access ramp...”*

***Quarterly Review Meeting***

14.11.14 The following points were noted in the minutes of the Quarterly Review Meeting on 27 March 2001:

*“3.3 HKACE would discuss his proposal with DSD on 30 March 2001 and obtain DSD approval on the wet season works in the nullah.*

*6.2 CRE expressed concern on the temporary works built on site, which did not comply with the design. HKACE was requested to improve the situation. The temporary works co-ordinator should ensure the site erection complied with the design and had ICE certificate.*

*7.1 HKACE raised great concerns on the slow progress of resolving the financial/commercial matters. The production, environmental and safety issues had been improved on site. The financial expenses needed to be compensated properly. Meetings with KCRC senior management were sought to resolve the urgent issues i.e. piling and delay recovery programme.*

*DSD and the Contractor had not reached agreement on the proposed arrangement for working in the nullah after March. Employer to intervene at senior level to facilitate a positive result from forthcoming meeting with DSD. In the meantime demobilisation from the nullah is in hand although certain areas may overrun the due date.*

*A series of senior management meetings to be arranged between the Employer, Engineer and Contractor to address queries in respect of the Piling and Delay Recovery issues in order to enable commercial arguments to be reached with the next month. A similar series of meetings would then be arranged to address other financial/commercial matters.”*

**14.12 Period subsequent to March 2001**

14.12.1 Since the piling works, columns and concrete slab were completed within the second dry season, the contractor was able to continue construction of the superstructure works of the station during the coming wet season.

14.12.2 Details of the current status of CC-213 are summarised in Section 18.3.

## **15. IDENTIFYING THE NEED FOR A SUPPLEMENTAL AGREEMENT**

### **15.1 Scope of our work**

15.1.1 We are requested to consider the following:

*“When did KCRC determine that a supplemental agreement was appropriate and what processes were followed in order to finalise an agreement?”*

15.1.2 In this chapter, we have provided the reader with a summary of the procedures that KCRC has in place in respect of supplemental agreements and an overview of the rationale for and the uses of supplemental agreements.

15.1.3 We have then explained the processes followed by the senior management and the Managing Board for entering into the supplemental agreement.

### **15.2 Background**

15.2.1 Please refer to Section 7.2 for an overview of the procedures followed by KCRC in respect of supplemental agreements.

### **15.3 Document circulated to the senior management dated 11 July 2001**

15.3.1 The first time that a supplemental agreement was formally proposed was in July 2001.

15.3.2 Before the Managing Board Meeting held on 16 July 2001, GM-WP prepared a Paper dated 11 July 2001 and titled “Proposal to enter into a Supplemental Agreement”, which covered both CC-212 and CC-213. This paper was circulated to SDF and CS-GC via SDP and DWR for their endorsement to recommend a settlement by entering into a supplemental agreement.

15.3.3 The paper states the major construction constraints imposed by the DSD regarding working in the Tuen Mun nullah, as follows:

“3. ... are located in the Tuen Mun nullah where significant construction constraints arise not least from the strict controls imposed by the Drainage Services Department of Government that essentially prohibit “wet season”\* working in the nullah. This prohibition means that until a working deck is constructed above and clear of the nullah no work can proceed on the station during the wet season.

\* The official “wet season” runs from 1 April to 30 September in any given year.

4. ... To achieve the key dates in 2002, it was vital that the station piling and the first level concrete slab be completed over the station footprint within that first dry season, and this was reflected in the contractor’s approved works programme. Only by such an achievement could superstructure construction continue unconstrained throughout the following wet season.”

15.3.4 The paper continues on the reasons for the delays and their impacts, as follows:

- “5. *This objective was, however, frustrated because the unexpected ground conditions of harder and layered rock stratum required heavier duty plant than initially mobilized and caused significant delays in determining founding levels and in completing the piled foundations. Adding to the delays was the increased pile testing requirements instructed to ensure pile integrity. ...*
6. *... As a consequence, the programme delay at 30 September 2000 had increased to between 40 and 45 weeks. Delays of this magnitude would be impossible to recover by accelerating the trackwork or railway systems contractors. If project completion was not to be jeopardized then delay recovery measures had to be implemented in these contracts by compressing the remaining construction time to obtain completion by the original key dates.”*

15.3.5 The paper then reports on the contractual position as follows:

- “7. *The Engineer has determined that the rock conditions encountered constitute unforeseen circumstances under Clause 15 of the Contract. The Contractor has a genuine entitlement for an extension of time assessed at ...38 weeks for contract CC213. These extensions of time have not been awarded”.*

15.3.6 The paper continues to report on the proposals and argument for settlement. It states that:

- “9. *The Corporation has the choice of resolving these claims by either leaving matters in the hands of the Engineer to be dealt with under the contract, or by reaching a commercial agreement with the contractor.*
10. *The determination by the Engineer that the ground conditions are unforeseen, clears the way contractually for the consequences of those unforeseen conditions, i.e. delay and disruption, to be recognised as contractual entitlements. The contractor should be formally notified of the consequential extension of time and the effect on key dates, and the valuation of the claims should proceed as expeditiously as possible. These contractual steps will tie up considerable resources on the part of the Engineer, the Corporation’s project management team and the Contractor. The contractor’s claimed amounts will increase as a result to cover both the additional resource cost and the finance cost of the payment that will eventually become due.*

11. *The delays due to unforeseen rock conditions have been exacerbated by the nullah constraints. Whilst the nullah risk itself is for the contractor to mitigate, the DSD's insistence of avoiding flooding risks, partially driven by political considerations, was outside the contractor's control. It is fair to state that had the works been constructed under "normal" site conditions the delays would have been contained initially to no more than 12 to 16 weeks and could have been recovered within a proportionately shorter time. The inability to work and therefore to recover during the wet season is the major contributory factor to the magnitude of delay.*
12. *The recognition of delay entitlement combined with the implementation of agreed delay recovery measures creates the contractor's entitlement to recover the value of the measures implemented. The Engineer's duty is to undertake a fair and reasonable valuation that would be based on actual cost from contemporaneous records. Because of the site characteristics it must be expected that this valuation would be proportionately higher than an equivalent valuation for a construction site which was not, in the main, over a nullah bounded by Light Rail on one side and in close proximity to residential buildings and a major highway.*
13. *Management and the Engineer's site representative have successfully steered the Contractor towards implementing special measures to recover the delay encountered to date, i.e. delay recovery measures (DRMs), including substantially increasing the management and supervision staff on site, the use of additional temporary materials and falsework, increased labour with consequential inefficient working, and the like. The contractor has implemented measures anticipating that his efforts, if successful in recovering time, would be recognised either by a commercial settlement or under the contract through the recovery of all additional costs plus overheads and profit. Management considers that the commercial agreement route is preferable because-*
- (a) *the burden of time risk reverts back to the contractor by the removal of extension of time entitlements and the re-establishment of the key dates with enforceable liquidated damages;*
  - (b) *the construction cost risk reverts back to the contractor through the agreement of a lump sum price for implementing delay recovery measures and for settling claims and the Corporation's resultant cost risk is, therefore, capped to the specified date;*
  - (c) *a contemporary settlement will negate any opportunity that the contractor may have of enhancing his recovery through a "cost based" valuation that could be "open ended";*
  - (d) *negation of the risk of arbitration, with its associated costs, in circumstances where the sums involved are substantive enough that arbitration could be a probability.*

14. *Accordingly, in parallel with the implementation of DRMs, with successful results to date, Management and the contractor have entered into ad referendum discussions to explore whether a commercial settlement could be agreed.”*

15.3.7 The paper also reports on how the supplemental agreement was quantified, negotiated and justified as value for money. Please refer to Chapter 16 for details.

15.3.8 The paper then provides the justification of the proposal to settle through a supplemental agreement. It states that:

“18. *In the circumstances, the offer by the contractor to settle at a sum of HK\$430 million, and accept the terms of a supplemental agreement is recommended as value for money. The scope of the agreement will cover-*

(a) *the retention of the critical key dates modified only to align with the recently agreed dates for contract CC1820;*

(b) *modifications to the milestone and interim payment schedules;*

(c) *the settlement of claims for time and money to 30 June 2001, except where that claims relates to a valuation and the Engineer certifies as such the direct costs of those variations; and*

(d) *a commercial consideration for the contractor in respect of the settlement of claims and for the risks in accepting the provisions of the supplemental agreement.*

*Additionally, the contractor requested that the piling final account be agreed to determine his risks in that regard. This was accepted and representatives of the Engineer and the Corporation have completed the piling final account.”*

15.3.9 The paper finally concludes its findings and makes recommendations accordingly. It states that:

“25. *Based upon the above the settlement amounts can be considered as value for money. The contractor has vigorously adopted delay recovery measures and has made a significant investment in achieving the key dates. In doing so he has effectively abandoned recourse to the contract for “delay” and prolongation. The Engineer has acknowledged that the ground conditions causing the piling delays that made the delay recovery measures necessary in the first instance are unforeseen thereby triggering contractual entitlement for the valuation of the delay recovery measures. Failure to agree a settlement with the contractor may not result in delays to key date achievement but would place the Corporation at significant financial risk that will be increased when the contractor’s cash flow position needs to be assisted to sustain progress.*

26. *It is recommended that a settlement be reached through a supplemental agreement to be drafted by CLC-C the terms for which will be in accordance with the proposal and will be circulated for acceptance prior to execution.*

#### **15.4 Document presented at the Managing Board Meeting on 16 July 2001**

15.4.1 A six-page Managing Board Paper 01/87, titled “Contract CC-212 - Siu Hong Station, Contract CC-213 - Tuen Mun Station, Updated status on settlement agreements” was presented at the 202<sup>nd</sup> Meeting of the Managing Board held on 16 July 2001. The paper, based on the information discussed in the Paper “Proposal to enter into a Supplemental Agreement” as summarised in Section 15.3, informed the Members of the progress that KCRC management had made towards settling the contractor’s claims for additional piling works and delay recovery measures.

15.4.2 The paper contains the following information:

- “4. *Both stations are located in the Tuen Mun nullah where significant construction constraints arise from the strict controls imposed by the Drainage Services Department (DSD) that prohibit “wet season” working in the nullah....*
5. *Although the contracts commenced in July 1999, no physical work for the stations could start until the onset of the first dry season in October 1999...*
6. *This objective was, however, frustrated because unexpected ground conditions caused significant delays ... The resulting delay at each station was between 12 and 16 weeks.*
7. *...only limited delay mitigation measures could be put into place immediately... the programme delay at 30 September 2000 had increased to between 40 and 45 weeks. Delays of this magnitude are impossible to recover unless the remaining construction time is compressed to restore completion to the original key dates.*
8. *... According to these conditions the Corporation can agree delay recovery measures and associated costs with the contractor... the contractor’s right for extension of time is preserved where, in spite of his best endeavours, he has not succeeded in recovering the delay. This then leaves an “escape route” for the contractor in respect of liquidated damages, and a risk that the project may not be completed on time.*
9. *Legally this risk can only be removed through mutual agreement, in which the contractor foregoes his entitlement for extension of time in exchange for additional payment by the employer. Given the Corporation’s commitment to deliver West Rail on time and, in order to restore certainty of completion, Management considers that a settlement should be reached with the contractor by means of supplemental agreement.*

10. *The Engineer has determined that the ground conditions discovered were unforeseeable. Consequently the contractor has an entitlement for an extension of time, and has assessed this at ...38 weeks for contract CC213.*
11. *Against the background of the contractor having a genuine entitlement for extension of time, ad referendum discussions have been undertaken by Management with the contractor to establish the framework for a settlement...The difference between the contractor and the Corporation's positions is about HK\$180 million.*
12. *Management considers that obtaining a settlement provides greater benefit than leaving the matter within the Engineer's contract jurisdiction because-*
  - (a) *agreement would re-establish the key dates with enforceable liquidated damages;*
  - (b) *the agreement would fix a lump sum price for implementing delay recovery measures and for settling about 224 claims up to the cut off date of 30 June 2001;*
  - (c) *the settlement will negate any opportunity that the contractor may otherwise have of building up a position to recover under the contract a "cost based" valuation...*
  - (d) *the risk of arbitration would be avoided...*
  - (e) *the contractor's cash flow position would be improved by the injection of cash placing him in a stronger position to proceed with maximum effort; and*
  - (f) *the Corporation's risk of consequential costs arising from delays to follow-on project contractors would be removed.*
13. *... the contractor has committed substantial plant and other resources in order to reduce delay, and should be paid accordingly...*
14. *... The unexpected ground conditions actually experienced were of such a significant difference that the tendered piling rates are rendered inapplicable and have had to be adjusted to reflect the extra cost incurred by the contractor...*
15. *... The contractor's latest proposal is to reach a final settlement for everything for a sum of HK\$430 million... Management is not in a position to recommend this settlement to Members, but proposes to continue discussions with a view to reaching an agreement within a ceiling amount that can be demonstrated to Members as representing value for money.*

16. ... Management accepts that those payment entitlements under the contract that have been formally recognised by the Engineer should be included in the monthly interim payment certificates... These certified interim payments will, of course, be deducted from whatever figure that may be finally settled on by both sides.
18. In the event of a settlement with the contractor, the proposed supplemental agreement will be reviewed by the Company Secretary and General Counsel.”

15.4.3 The minutes noted the following discussion regarding the paper:

- “30. Mr. Chung sought clarification on whether, in paragraphs 14 and 15 of the paper, two separate sets of numbers were being discussed. Chairman explained that, in respect of paragraph 14, piling was remeasurable, with the total sum for piling being HK\$614 million and the additional piling remeasured for the two contracts being HK\$84.2 million, as shown in the table at paragraph 16. On paragraph 15, this dealt with payment for delay recovery measures because of unforeseen ground conditions. The contractor could not drive enough piles in the first dry season and had had to spend a lot of money in the second dry season to recover the delay, which he was seeking to recover. While Management had yet to finalise the assessment, it was certain that the contractor had spent HK\$120 million on CC212 and HK\$170 million on CC213 as this work had been certified by the Engineer. The purpose of the paper was to seek Members’ agreement to pay the contractor these sums while continuing to negotiate a final settlement. He hoped to be able to come back to Members with a final figure in September.
31. Mr. Lau referred to paragraph 4 of the paper, concerning working in the Tuen Mun nullah and Director of Drainage Services’ restriction, and asked if working in the nullah was a common practice or whether it only applied in the case of these two stations. Senior Director, Capital Projects said that, when the original alignment was first considered, going over the nullah was the only way to get into Tuen Mun. At that time the Director of Drainage Services expressed serious concern. Mr. Lau followed-up by questioning whether the contractor knew about the Director of Drainage Services’ restrictions before he took on the contract and whether such restrictions formed the part of the basis of the contractor’s claim. Senior Director, Capital Projects said that the contractor was aware of the restrictions but had not expected the unforeseen ground conditions. In fact, had it not been for the Director of Drainage Services’ restrictions, the delay recovery measures would have been easier to implement. However, the basis of the contractor’s claim was not the restrictions but the extreme difficulty of driving piles.”

15.4.4 The Managing Board duly approved the paper as follows:

- “32. The Board then –
- (a) NOTED the current position relating to settlement discussions;

- (b) *APPROVED that the Approved Project Estimates and contract sums for contracts CC212 and CC213 be increased in accordance with the table at paragraph 16; and*
- (c) *REQUESTED that the negotiations with the contractor come to a settlement in time for a submission to be made to the Managing Board in September 2001.*”

15.4.5 The following persons were present at the meeting:

- K Y Yeung
- Edmond Lau Ting-chung
- Denise Yue
- Tim Chung Shui-ming
- Vincent Cheng Hoi-chuen
- Keith Lam Hon-keung
- Vincent Lo Wing-sang
- Arthur Ho
- David Fleming
- Michael Arnold
- James Blake
- Samuel Lai
- Jonathan Yu
- K K Lee
- Ian Thoms
- Daniel Lam
- Kenneth Leung
- Y T Li
- Irene Yau

## **15.5 Document presented at the Managing Board Meeting on 17 September 2001**

15.5.1 A seven-page Managing Board Paper 01/101, titled “Contract CC212 – Siu Hong Station, Contract CC213 – Tuen Mun Station, Approval to enter into supplemental agreement” was presented at the 204<sup>th</sup> Meeting of the Managing Board Members held on 17 September 2001. The paper reported again the principal reasons for proposing supplemental agreement and the consideration of the supplemental agreement. The Members were invited to approve the Corporation entering into the supplemental agreement with the contractor.

15.5.2 The Managing Board Paper 01/101 contains the following information:

- “5. *The principal reasons for proposing supplemental agreements were set out in paragraphs 10 to 12 of Paper 01/87. Members were informed that obtaining a settlement would provide greater benefit than leaving the matter within the Engineer’s contract jurisdiction because...*
- 6. *Following the contractor’s oral final offer to settle all matters for HK\$430 million, Management has undertaken a review of the contractor’s entitlements under the two contracts. A detailed valuation of the contractor’s entitlements indicates that the potential exposure for the Corporation, if matters were addressed through the contracts in the normal fashion, could be as much as HK\$484 million...*
- 7. *The increase of HK\$141 million from the Corporation’s original position of about HK\$343 million to the latest valuation of HK\$484 million is because Management’s initial assessment of the contractor’s entitlement was limited to four cost heads...*

8. *Management's further detailed appraisal to assess the Corporation's full exposure has identified additional areas where payment to the contractor might be required if the claims were to be addressed through the contract...*
9. *It should be emphasised, however, that even if the Corporation were to pay the contractor the sum of HK\$484 million, this would not resolve the delay recovery issue. Under the contracts, the contractor would still be entitled to any necessary extensions of time if, in spite of his reasonable endeavours, he were unable to achieve the key dates. The only way to remove the contractor's entitlement to extensions of time so as to secure key dates is through supplemental agreements, which amend the current contracts and bind the contractor to a compressed programme for the remaining works to recover the delays.*
10. *Given that the potential financial exposure of the Corporation is HK\$54 million more than the sum being sought as a final settlement by the contractor, Management proposes that the Corporation should accept the contractor's offer. Management further proposes that the Corporation enter into supplemental agreements with the contractor in respect of contracts CC212 and CC213, which would provide for settlement of all matters related to disruption, delay and delay recovery measures in respect of these two contracts up to 30 June 2001 for a total payment of HK\$430 million, and also preserve the Corporation's right to claim liquidated damages from the contractor for any subsequent failure on his part to achieve critical key dates...*
- Management is currently awaiting detailed particulars from the main contractor in respect of the sub-contractors' alleged disruption. Management does not expect the value of these claims to exceed HK\$15 million, a figure which Management believes the main contractor could be persuaded to absorb.*
13. *The Company Secretary and General Counsel will review the proposed supplemental agreements before they are signed on behalf of the Corporation."*

15.5.3 The Managing Board duly approved the paper as follows:

*"30. The Board then –*

- (a) *APPROVED that the Corporation enter into supplemental agreements with the Hong Kong Construction-AMEC Joint Venture to buy back the contractor's entitlement for extensions of time, thus keeping intact the Corporation's contractual right to recover liquidated damages for failure on the part of the contractor to achieve key dates, and to settle all claims related to disruption, delay and delay recovery measures up to 30 June 2001; the additional payments involved, on top of the interim payments already made to the contractor, being HK\$68 million for contract CC212 and HK\$72 million for contract CC213;*

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- (b) *APPROVED that the Approved Project Estimate and the contract sum for CC212 be increased from HK\$1,734.78 million by HK\$68 million to HK\$1,802.78 million.*
- (c) *APPROVED that the Approved Project Estimate and the contract sum for CC213 be increased from HK\$1,709.21 million by HK\$72 million to HK\$1,781.21 million; and*
- (d) *NOTED that a draw down will be made from the Programme Reserve of HK\$140 million”*

15.5.4 The following persons were present at the meeting:

- K Y Yeung
- Denys E. Connolly
- Tim Chung Shui-ming
- Keith Lam Hong-keung
- Vincent Lo Wing-sang
- Arthur Ho
- Martin Glass
- David Fleming
- Michael Arnold
- James Blake
- Samuel Lai
- Jonathan Yu
- K K Lee
- Ian Thoms
- Daniel Lam
- Y T Li
- Stephen Chik
- Irene Yau

15.5.5 On 21 September 2001, GM-WP prepared and circulated a memo to SDF and CS-GC via SDP and DWR for their endorsement of a copy of the Supplemental Agreement No. 1 (i.e. for CC-213) to be made with the contractor.

15.5.6 The Supplemental Agreement No. 1 was subsequently signed on 18 October 2001.

**16. HOW THE SUPPLEMENTAL AGREEMENT WAS QUANTIFIED, NEGOTIATED AND APPROVED**

**16.1 Scope of our work**

16.1.1 We are requested to consider the following:

*“What factors were taken into account by KCRC in coming into a conclusion that the contractor should be paid additional monies?”*

*“What internal procedures were in place to determine the appropriate or maximum amount of the additional monies payable and were these procedures being followed in all cases?”*

*“What procedures were in place to override the internal assessment of the maximum amount payable and were these procedures being followed in these cases?”*

16.1.2 In this Chapter, we have provided an overview of the claims procedures followed by KCRC.

16.1.3 We have then commented on the manner in which the internal assessment of the maximum amount payable to the contractor under the supplemental agreement was quantified. Finally, we have commented on whether that amount was overridden.

**16.2 Background**

16.2.1 Please refer to Section 8.2 for background of internal procedures in place for addressing claims from contractors.

**16.3 Document circulated to the Senior Management for justification for payment of additional monies**

16.3.1 The Paper titled “Proposal to enter into a Supplemental Agreement” (for CC-212 and CC-213) circulated by GM-WP to SDF and CS-GC via SDP and DWR dated 11 July 2001 states that:

*“15. The contractor has made a number of presentations and submissions in support of his payment entitlement to be included into an agreement. The initial presentation on 9 December 2000 was followed by further presentations on 1 March 2001 and most recently in June 2001... excluding the piling element which will be better dealt with separately under the contract, the contractor has increased his settlement expectation from HK\$467 million in December 2000, to HK\$611 million in March 2001, to HK\$721 million in June 2001.”*

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16.3.2 The paper goes on to state how the contractor reduced his settlement expectation, as follows:

“16 *Managing Board Paper 01/87 makes reference to the contractor’s willingness to settle at HK\$430 million. This amount was determined following a series of discussions that stemmed from Management’s firm advice to the joint venture that its expectation of HK\$721 million could not be justified. Initially, the local joint venture board agreed to a reduction from HK\$721 million to HK\$520 million. Upon advice that this still not acceptable local management consulted with its overseas principals who advised verbally that if the Corporation was prepared to offer a settlement at HK\$430 million the joint venture would accept.*”

16.3.3 The paper continues the justification as follows:

“17. *Management, with the Engineer, has prepared an assessment of the likely valuation, if measured under the contract, see Annex 3. The valuation at HK\$484 million is directly comparable with the contractor’s assessment of HK\$721 million. In Managing Board Paper 01/87, the amount of HK\$343 million is referred to as representing the Corporation’s position, which did not, however, include the settlement of all claims up to the 30 June 2001. If the supplemental agreement route were taken Management would recommend that the settlement of claims be included. It also did not include financing cost, overheads and a risk allowance for giving up further extension of time protection under the terms of the supplemental agreement.*”

16.3.4 The Annex 3 to the paper lists out the comparison between the contractor’s and KCRC’s assessment of the entitlement to additional costs and delay recovery measures costs, as below:

<i>Entitlement to additional costs</i>	<i>Contractor HK\$’million</i>	<i>KCRC HK\$’million</i>
	<b>CC-212 &amp; CC-213</b>	
<i>DRM (excluding E&amp;M)</i>	190	156
<i>Staff</i>	226	134
<i>Claims excluding piling</i>	110	57
<i>HFT School</i>	25	15
<i>E&amp;M (DRM)</i>	40	55
<i>Financing</i>	20	12
<i>Risk</i>	50	22
<i>Head office overheads</i>	60	33
<b>Total</b>	<b>721</b>	<b>484</b>

**16.4 The Quantification of the Additional Monies Payable to the Contractor**

16.4.1 CC213 was awarded to the same contractor as CC212. Both contracts were to be administered together, an arrangement that gave KCRC the benefit of a HK\$70 million saving in the combined award contract values.

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16.4.2 In December 2000, the contractor offered to settle all claims notified on both contracts up to 31 October 2000 for a sum of HK\$647 million which included HK\$467 million of non-piling costs. These can be summarised as follows:

	<b>CC212</b>	<b>CC213</b>	<b>Total</b>
A Entitlement to extensions of time	291 days	317 days	
B Entitlements to additional costs	HK\$'million	HK\$'million	HK\$'million
i. Falsework/formwork, staff, claims (excl. piling), Ho Fuk Tong School, electrical and mechanical, financing	189	278	467
ii. Piling	93	87	180
<b>Total</b>	<b>282</b>	<b>365</b>	<b>647</b>

16.4.3 In March 2001, KCRC requested and the contractor provided detailed particulars relating to the direct cost for piling works and delay recovery measures to address the unforeseen ground conditions for which the Engineer determined the contractor had an entitlement. The Contractor's claims are summarised as follows:

	<b>CC212</b>	<b>CC213</b>	<b>Total</b>
A Entitlement to extensions of time	376 days	376 days	
B Entitlements to additional cost	HK\$'million	HK\$'million	HK\$'million
i. Delay recovery measures (excl. E&M), staff, claims (excl. piling), Ho Fuk Tong School, electrical and mechanical, financing	233	378	611
ii. Piling	142	87	229
<b>Total</b>	<b>375</b>	<b>465</b>	<b>840</b>

16.4.4 Prior to 20 June 2001, the contractor had notified 210 claims claiming additional costs in the sum of HK\$847 million. There were 91 claims totaling HK\$330m on CC212 and 119 claims totaling HK\$517m on CC213.

16.4.5 The Engineer and KCRC had separately reviewed these claims and reached their own assessments of liability, albeit that both reviews were necessarily interim and subject to review upon receipt of further details from the contractor and additional research and review. These assessments are summarised as follows:

<b>Contract</b>	<b>Claims Notified Number</b>	<b>Contractor's Claim HK\$'million</b>	<b>Of which Piling HK\$'million</b>	<b>Engineer's Assessment HK\$'million</b>	<b>KCRC's Assessment HK\$'million</b>
CC 212	91	330	282	23.3	77.6
CC 213	119	517	360	26.3	27.5
<b>Total</b>		<b>847</b>	<b>642</b>	<b>49.6</b>	<b>105.1</b>

From the information provided, it would appear that in reaching these assessed values the Engineer and KCRC had taken no account of potential cost of delay recovery measures.

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16.4.6 The Engineer subsequently reviewed these claims and made a determination that overall the contractor had an entitlement to extensions of time amounting to 31 weeks on CC212 and 38 weeks on CC213.

16.4.7 It is noted that delays arising through unforeseen ground conditions were exacerbated by the need to vacate the nullah where much of the piling work was to take place during the wet season thereby prolonging piling delays by a disproportionate period relative to the actual construction delays arising from the varied ground conditions.

16.4.8 Subsequently negotiations commenced in order to settle all claims up to 30 June 2001 and to establish key dates that would permit completion of the works to meet the target railway opening date of 1 September 2003. During these negotiations, the contractor further reviewed and revised his settlement proposal as follows:

	<b>CC212</b>	<b>CC213</b>	<b>Total</b>
<b>A</b> Entitlement to extensions of time	376 days	376 days	
<b>B</b> Entitlements to additional cost	HK\$'million	HK\$'million	HK\$'million
i. Delay recovery measures, staff, claims (excl. piling), Ho Fuk Tong School, electrical and mechanical, financing, risk, head office overheads	288	433	721
ii. Piling	142	87	229
<b>Total</b>	<b>430</b>	<b>520</b>	<b>950</b>

16.4.9 In GM-WP's paper "Proposed Supplemental Agreement" dated 11<sup>th</sup> July 2001, paragraph 15 notes that the contractor had increased his settlement expectation to HK\$721 million excluding piling matters which are noted to "*be better dealt with separately under the contract.*"

16.4.10 Paragraph 16 of the same paper notes that the contractor agreed to reduce its claim from HK\$721 million to HK\$520 million and this offer was subsequently revised, on consultation with overseas joint venture principals, to HK\$430 million.

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16.4.11 The paper goes on to note that the Engineer and KCRC had made separate assessments in respect of the matters covered by the contractor's proposed HK\$430 million settlement and KCRC had arrived at a potential liability figure of HK\$484 million, in excess of the contractor's proposed settlement. A comparison of the contractor's and KCRC's assessments is as follows:

	Contractor			KCRC		
	CC212	CC213	Total	CC212	CC213	Total
A. Entitlement to extensions of time	376 days	376 days	-	217 days	266 days	-
B. Entitlement to additional cost	HK\$' million					
i) Delay recovery measures (excl E&M)	74	116	190	57	99	156
ii) Staff	110	116	226	67	37	134
iii) Claims excl piling	20	90	110	20	37	57
iv) HFT School	-	25	25	-	15	15
v) E&M (DRM)	20	20	40	27	28	55
vi) Financing	9	11	20	4	8	12
vii) Risk	25	25	50	10	12	22
viii) Head office overheads	30	30	60	14	19	33
<b>Total</b>	<b>288</b>	<b>433</b>	<b>721</b>	<b>199</b>	<b>285</b>	<b>484</b>

16.4.12 Separately, it is noted that KCRC had reached agreement with the contractor over the total value of the piling works in the sum of HK\$614 million. The total tender value for this element of the works was HK\$409 million, being HK\$226 million in CC212 and HK\$183 million in CC213.

16.4.13 The final agreed piling cost includes additional value in respect of remeasurement, re-rating to address unforeseen ground conditions and re-rating for Area A35 toe-in. The HK\$614 million is divided as to HK\$367 million in CC212 and HK\$247 million in CC213.

16.4.14 A fair amount of detail has been provided to indicate how the comparison figures for KCRC's assessment were derived. It would appear that KCRC and the Engineer both used the contractor's evaluation (amounting to HK\$721 million) as a starting point for their own evaluations. This is reasonable.

*Delay Recovery Measures*

- 16.4.15 In KCRC's Proposal to Enter into a Supplemental Agreement, it is noted that this is for measures to include:

*“Additional site establishment facilities, additional labour input, mainly through overtime working, additional plant, particularly craneage, additional temporary works materials and falsework and traffic diversion schemes. Costs were assessed based upon contract and market rates and included the consequential costs of reduced productivity and disruption”.*

The allowance excludes delay recovery measures for electrical and mechanical works, which are calculated separately.

- 16.4.16 KCRC's assessment is based on the contractor's submission, which lists by heading items that he claims as additional cost. These headings are broad but specific and each has a single cost against it.
- 16.4.17 Against each claimed cost, KCRC give a yes/no opinion on whether there may be an entitlement to payment against that heading. Where the decision is yes, in the vast majority of cases, KCRC adopts the contractor's claimed cost; where the decision is no, no cost is allowed.
- 16.4.18 On two occasions, KCRC decided that the cost claimed could be classified as a potential delay recovery measure but only allowed 50% of that claimed by the contractor. Using this methodology, KCRC arrived at an assessment of HK\$99.3 million for CC213 compared with HK\$116 million put forward by the contractor. The Engineer's assessment was HK\$51.6 million.
- 16.4.19 In the comparable CC212 exercise, the summary exercise notes that the contractor claimed a total of HK\$74.3 million for delay recovery measures for CC212 against which the KCRC assessed an allowable amount of HK\$57.3 million. The Engineer's assessment is noted to be HK\$39 million.
- 16.4.20 No risk assessment appears to have been carried out for this exercise; the contractor's claimed amount is either in or out. Given that the contractor's figures are without doubt “opening” figures for a negotiation, this appears on the face of the information made available to be insufficient consideration of true worth.

*Additional Staff Costs*

- 16.4.21 KCRC's proposal for this category of cost states:

*“Additional management and supervision resources were agreed based upon calculations making due allowance for any under-estimate of staff needs made by the contractor at tender, bearing in mind that a HK\$70 million saving was obtained for the combined award of both contracts. ... The assessed reasonable additional resource was costed on the basis of rates derived from the contract.”*

- 16.4.22 Review of the supporting documentation indicates a calculation of the difference between an alleged actual/forecast resource requirement and a reasonable assessment of required resources and applies an average rate per man-month to the difference to arrive at an additional staff cost. The average rate per man-month is derived from the amount allowed by the contractor in the contract price.
- 16.4.23 The actual and reasonable resource allowances used in the calculation of additional cost do not appear to refer to or rely on resources allowed in the tender submission or stipulated in the Letter of Clarification. This is correct since if the contractor had under-priced the tender, use of these tender or Letter of Clarification allowances as a base for comparison would effectively compensate his pricing shortcomings.
- 16.4.24 Figures provided indicate that the reasonable level of resources is approximately 58% above the level of resource said to have been allowed within the Letter of Clarification stipulation (43% above that allowed in the tender submission – the difference presumably arising through the saving of HK\$70 million offered by the contractor in respect of staffing economies that could be obtained if he were awarded both CC212 and CC213).
- 16.4.25 The additional resources allowed in CC213 within the settlement figures equate (in man-month terms) to 86% of the total allowed in the original tender submission or 95% of the total said to have been allowed in the Letter of Clarification. In principle, the methodology for arriving at the figure is proper.

***Claims excluding piling***

- 16.4.26 KCRC's proposal in respect of this item states:
- “The contractor had notified 209 claims with an aggregate claimed value of HK\$847 million. ... The contractor will be required to include settlement of these claims in the agreement. A certain number of these claims, not covered under other heads, represent genuine contractual entitlements for additional payment that would have to be made to the contractor if settlement was not reached. The contract requires that claims are valued at cost plus overhead, i.e. without profit, and a preliminary estimate of the additional payment entitlement has been undertaken following the contract rules”.*
- 16.4.27 A schedule entitled “Potential Claim Risk for Miscellaneous Claims” has been provided. This appears to note all claims submitted, sorted into categories depending on whether they relate to piling, electrical and mechanical etc.
- 16.4.28 Many of the miscellaneous claims are indicated to have had no cost details supplied by the contractor and KCRC has therefore made an assessment of liability. In order to ensure that all claims up to a stated cut-off date are included within the supplemental agreement, it is reasonable to make some allowance for notified matters.
- 16.4.29 The supplemental agreement includes HK\$37 million for such matters in the CC213 contract. It would appear that this HK\$37 million includes allowances in respect of claims associated with Ho Fuk Tong School despite there being a separate allowance in the cost summary for that.

- 16.4.30 It is not possible from the information provided to determine whether these claims should have been addressed within the separate allowance for the Ho Fuk Tong School. A similar schedule has been prepared for CC212 and KCRC have assessed an amount of HK\$20 million. As with CC213, a number of such individual assessments appear to have been made in the absence of any claimed cost from the contractor.

***Ho Fuk Tong School***

- 16.4.31 KCRC explain this amount in the following terms:

*“Delays arising from unexpected ground conditions caused significant delay to progress of these works leading to an assessed delay entitlement of about 50 weeks. Because of the need to complete the school prior to the start of the 2001 school term, delay recovery measures had to be implemented that have to a large degree been successful in meeting that target. However, because only about 26 weeks of the full delay can be recovered the contractor will have an entitlement for a small amount of prolongation cost in respect of the period starting at the original completion date of December 2000 and the actual completion date of August 2001. These costs have been assessed using resources employed valued at rates derived either from the contractor the construction market.”*

- 16.4.32 KCRC have assessed an allowance of HK\$15 million against the contractor's claimed amount of HK\$25 million. The methodology in the assessment has been examined and appears reasonable.
- 16.4.33 The delay recovery measures allowance of HK\$13 million can be found in the Change Authorisation Justification (No. 5784(213/108)). KCRC's assessment adopts the valuation apparently put forward by the contractor, being HK\$12.9 million.
- 16.4.34 From the papers provided, it would appear that the HK\$12.9 million figure is the contractor's assessment of his sub-contractor's claims for cost of delay recovery measures against claims amounting to HK\$26.4 million. The likely settlement figures can only be empirically estimated and that is normal practice.

***Electrical and mechanical delay recovery measures***

- 16.4.35 KCRC notes in its proposal:

*“Implicit in overall station delay recovery is the compression of the periods allowable for the specialist building services installation by between 4.5 and 5.5 months. This compression will mean concurrent working in many more areas than originally planned leading to increased management and supervision, reduced productivity, increased overtime and/or shift costs and the need for additional plant resources. An assessment of the likely cost based upon market rates has been undertaken. Additionally, allowance has been made for the costs of updating combined services drawings and the structural building services drawings arising from a greater number of changes than expected”.*

- 16.4.36 This head of assessment therefore comprises two allowances by KCRC, of HK\$8 million for changes to drawings and HK\$20 million for electrical and mechanical delay recovery measures. The total of HK\$28 million is above the contractor's claimed figure of HK\$20 million.
- 16.4.37 There is an allowance of HK\$8 million in respect in the volume of changes to drawings arising from ongoing variations during the course of the works. The Engineer has reviewed the contractor's submission and agreed in principle to the claim. The method of cost assessment appears reasonable albeit that it is a broadbrush approach.
- 16.4.38 Delay recovery measures address the need to compress the programme for the electrical and mechanical works as a result of earlier delays impinging on the window for these activities.
- 16.4.39 The calculation is hypothetical and appears to make generous allowances for anticipated measures. Since this topic addresses work entirely in the future, it can only be based on assumptions. Whilst the allowances made appear generous, it is likely that, in practice, as efforts are being made to implement recovery measures, allowances will be exceeded, for example, as a result of a need to work more overtime than envisaged. These calculations are also adopted for the CC212 evaluation.

#### ***Financing***

- 16.4.40 This head of cost is explained as follows in KCRC's briefing paper:
- “With the Engineer having determined contractual entitlements for additional payment, the contractor becomes entitled to the cost of having to fund any shortfall in payment for those entitlements. Assessment has been limited to any under-payment related to the values of piling, increased staff costs and other delay recovery measures shown above, calculated at the contract rate of interest being 1% above the prime lending rate of the (HSBCL).”*
- 16.4.41 Financing costs are claimed as a consequence of under-recovery against recognised entitlement. This is a common head of claim and as noted a readily justifiable cost in principle once entitlement is agreed.
- 16.4.42 The calculations used are very straightforward being interest at Prime Rate + 1% multiplied by the difference between actual recovery and a stated “entitlement” to recovery in that month.
- 16.4.43 In respect of the piling works and the additional staff, the basis for the “entitlement” figure is not clear. The base figures for financing of delay recovery measures are taken from the detailed review of entitlement in respect of these matters described above. The calculations appear acceptable.

*Head Office Overheads*

16.4.44 KCRC state in their explanation:

*“When considering delay recovery measures, the contract contemplates that agreement will be reached as to the price of the measures. If agreement is not reached the Engineer has a duty to assess a fair price. In distinction from claims where the method of calculation is “cost” based, delay recovery measures require to be valued and therefore allowance must be made for overheads and profit. The amount has been calculated only on the delay recovery elements at the contract rate.”*

16.4.45 These are calculated by reference to the tender breakdown of on-cost. The assessed costs associated with heads of claim addressed are categorised as either applicable to Cost Centre A (which relates to Preliminaries items) or other cost centres.

16.4.46 The tender breakdown of on-cost indicates that an overhead percentage of \* % should be applied to Cost Centre A related items and \* % to other cost centre related items. These percentages are then applied to the cost assessments referred to above to determine the relevant overhead allowance that should be made.

16.4.47 Certain heads of claim are noted to have already included within their assessments for overheads and therefore do not attract further allowance in this calculation. These are the Ho Fuk Tong School delay recovery measures, the School disruption costs and miscellaneous claims. For CC213, the contractor claims HK\$30 million and the KCRC’s assessment in this respect is HK\$19 million.

16.4.48 Contrary to KCRC’s explanation, an allowance does not appear to have been included within this percentage for profit.

***Risk***

16.4.49 The KCRC assessment of potential entitlement includes an allowance for risk. This is explained by KCRC as follows:

*“In the event that delay recovery measures are instructed under the contract, provided he proceeds to implement measures with “due diligence” the contractor retains his entitlement for extension of time for any time not recovered. By agreeing to enter into a supplemental agreement, this “escape route” gets closed and the risk for liquidated damages fall again to the contractor. The revised works programme initially questioned the capability of the agreed measures to achieve some of the key completion dates. However, the contractor has agreed to commit to those dates but in doing so has accepted greater risk. To compensate for this situation a sum of money, based upon the risk for liquidated damages has been included in the valuation to cover the risk.”*

16.4.50 This explanation is clear and comment about unsuccessful delay recovery measures in the absence of supplemental agreement accords with the intent of General Conditions of Contract Clause 47.

**\* The figures contained in paragraph 16.4.46 have been removed due to KCRC’s contractual duty to its contractors of non disclosure.**

- 16.4.51 KCRC's assessment identifies the difference in days between KCRC required achievement dates and the contractor's proposed or expected dates. The number of days beyond KCRC's required dates that the contractor proposes multiplied by the daily liquidated damages rate aggregated over all key dates gives the risk figure.
- 16.4.52 This calculation, in isolation, is proper but represents the absolute maximum risk, not a realistic risk for evaluation purposes. If the contractor were (say) 100 days in delay and KCRC seeks to recover that, the delay recovery measures necessary are assessed above.
- 16.4.53 The present calculation assumes that the contractor is at risk of being entirely unsuccessful, and of finishing 100 days late despite implementation of delay recovery measures. As a result, the allowance is too high, and should be factored.
- 16.4.54 Further, the calculation takes no account, in principle, of any delays for which the contractor is responsible. The delay is drawn from programme analysis, not from extension of time entitlement analysis. Thus, if the whole amount were allowed in a settlement, KCRC would in effect be, possibly, reimbursing the contractor for the risk of being late because of his own delays.
- 16.4.55 The amounts involved in this type of risk allowance are likely to be substantial. It is important that KCRC develop a more realistic assessment methodology.

## **16.5 Overriding the Internal Assessment**

- 16.5.1 The internal assessment of the additional monies due to the contractor related to CC-213 amounted to HK\$ 285 million. However, the claims from the contractor were settled for HK\$ 255 million. Thus, there was no override of the internal assessment.

**17. CONSIDERATION OF ALTERNATIVES TO A SUPPLEMENTAL AGREEMENT**

**17.1 Scope of our work**

17.1.1 We are requested to consider the following:

*“Did KCRC give due consideration to other alternatives?”*

17.1.2 In this Chapter, we have commented on the options considered by senior management and whether there were any other viable options.

**17.2 Document circulated to the senior management on 16 July 2001**

17.2.1 In the paper titled “Proposal to enter into a Supplemental Agreement” circulated by GM-WP on 16 July 2001, consideration was given to the alternative to a supplemental agreement as follows:

- “7. *The Engineer has determined that the rock conditions encountered constitute unforeseen circumstances under Clause 15 of the Contract. The Contractor has a genuine entitlement for an extension of time assessed at ...38 weeks for contract CC213. These extensions of time have not been awarded.*
9. *The Corporation has the choice of resolving these claims by either leaving matters in the hands of the Engineer to be dealt with under the contract, or by reaching a commercial agreement with the contractor.*
10. *The determination by the Engineer that the ground conditions are unforeseen, clears the way contractually for the consequences of those unforeseen conditions, i.e. delay and disruption, to be recognised as contractual entitlements. The contractor should be formally notified of the consequential extension of time and the effect on key dates, and the valuation of the claims should proceed as expeditiously as possible. These contractual steps will tie up considerable resources on the part of the Engineer, the Corporation’s project management team and the Contractor. The contractor’s claimed amounts will increase as a result to cover both the additional resource cost and the finance cost of the payment that will eventually become due.*
11. *The delays due to unforeseen rock conditions have been exacerbated by the nullah constraints. Whilst the nullah risk itself is for the contractor to mitigate, the DSD’s insistence of avoiding flooding risks, partially driven by political considerations, was outside the contractor’s control. It is fair to state that had the works been constructed under “normal” site conditions the delays would have been contained initially to no more than 12 to 16 weeks and could have been recovered within a proportionately shorter time. The inability to work and therefore to recover during the wet season is the major contributory factor to the magnitude of delay.*

12. *The recognition of delay entitlement combined with the implementation of agreed delay recovery measures creates the contractor's entitlement to recover the value of the measures implemented. The Engineer's duty is to undertake a fair and reasonable valuation that would be based on actual cost from contemporaneous records. Because of the site characteristics it must be expected that this valuation would be proportionately higher than an equivalent valuation for a construction site which was not, in the main, over a nullah bounded by Light Rail on one side and in close proximity to residential buildings and a major highway.*
13. *Management and the Engineer's site representative have successfully steered the Contractor towards implementing special measures to recover the delay encountered to date, i.e. delay recovery measures (DRMs), including substantially increasing the management and supervision staff on site, the use of additional temporary materials and falsework, increased labour with consequential inefficient working, and the like. The contractor has implemented measures anticipating that his efforts, if successful in recovering time, would be recognised either by a commercial settlement or under the contract through the recovery of all additional costs plus overheads and profit. Management considers that the commercial agreement route is preferable because-*
- (a) the burden of time risk reverts back to the contractor by the removal of extension of time entitlements and the re-establishment of the key dates with enforceable liquidated damages;*
  - (b) the contraction cost risk reverts back to the contractor through the agreement of a lump sum price for implementing delay recovery measures and for settling claims and the Corporation's resultant cost risk is, therefore, capped to the specified date;*
  - (c) a contemporary settlement will negate any opportunity that the contractor may have of enhancing his recovery through a "cost based" valuation that could be "open ended";*
  - d) negation of the risk of arbitration, with its associated costs, in circumstances where the sums involved are substantive enough that arbitration could be a probability.*
14. *Accordingly, in parallel with the implementation of DRMs, with successful results to date, Management and the contractor have entered into ad referendum discussions to explore whether a commercial settlement could be agreed.*

15. *The contractor has made a number of presentations and submissions in support of his payment entitlement to be included into an agreement. The initial presentation on 9 December 2000 was followed by further presentations on 1 March 2001 and most recently in June 2001... excluding the piling element which will be better dealt with separately under the contract, the contractor has increased his settlement expectation from HK\$467 million in December 2000, to HK\$611 million in March 2001, to HK\$721 million in June 2001.*
16. *Managing Board Paper 01/87 makes reference to the contractor's willingness to settle at HK\$430 million. This amount was determined following a series of discussions that stemmed from Management's firm advice to the joint venture that its expectation of HK\$721 million could not be justified. Initially, the local joint venture board agreed to a reduction from HK\$721 million to HK\$520 million. Upon advice that this still not acceptable local management consulted with its overseas principals who advised verbally that if the Corporation was prepared to offer a settlement at HK\$430 million the joint venture would accept.*
17. *Management, with the Engineer, has prepared an assessment of the likely valuation, if measured under the contract, see Annex 3. The valuation at HK\$484 million is directly comparable with the contractor's assessment of HK\$721 million. In Managing Board Paper 01/87, the amount of HK\$343 million is referred to as representing the Corporation's position, which did not, however, include the settlement of all claims up to the 30 June 2001. If the supplemental agreement route were taken Management would recommend that the settlement of claims be included. It also did not include financing cost, overheads and a risk allowance for giving up further extension of time protection under the terms of the supplemental agreement.*
18. *In the circumstances, the offer by the contractor to settle at a sum of HK\$430 million, and accept the terms of a supplemental agreement is recommended as value of money. The scope of the agreement will cover-*
- (a) the retention of the critical key dates modified only to align with the recently agreed dates for contract CC1820;*
  - (b) modifications to the milestone and interim payment schedules;*
  - (c) the settlement of claims for time and money to 30 June 2001, except where that claims relates to a valuation and the Engineer certifies as such the direct costs of those variations; and*
  - (d) a commercial consideration for the contractor in respect of the settlement of claims and for the risks in accepting the provisions of the supplemental agreement.*

*Additionally, the contractor requested that the piling final account be agreed to determine his risks in that regard. This was accepted and representatives of the Engineer and the Corporation have completed the piling final account.*

25. *Based upon the above the settlement amounts can be considered as value for money. The contractor has vigorously adopted delay recovery measures and has made a significant investment in achieving the key dates. In doing so he has effectively abandoned recourse to the contract for “delay” and prolongation. The Engineer has acknowledged that the ground conditions causing the piling delays that made the delay recovery measures necessary in the first instance are unforeseen thereby triggering contractual entitlement for the valuation of the delay recovery measures. Failure to agree a settlement with the contractor may not result in delays to key date achievement but would place the Corporation at significant financial risk that will be increased when the contractor’s cash flow position needs to be assisted to sustain progress.*
26. *It is recommended that a settlement be reached through a supplemental agreement to be drafted by CLC-C the terms for which will be in accordance with the proposal and will be circulated for acceptance prior to execution.”*

17.2.2 Based on our review of the documentation and our meetings with the senior management, we believe that the only option or alternative to entering into a supplemental agreement was to leave until later the resolution of the outstanding claims.

17.2.3 However, this was not in fact a viable option / alternative. There were sound commercial and project management reasons for seeking to resolve matters at the time that the supplemental agreement was finalised. The situation on CC-213 was quite different to the situation on DB-1500.



**18. MONITORING OF CONTRACTOR PERFORMANCE UNDER THE SUPPLEMENTAL AGREEMENT**

**18.1 Scope of our work**

18.1.1 We are requested to consider the following:

*“What measures were put in place in the Supplemental Agreement or thereafter to ensure that the contractor shall meet its obligations under the original contract and the supplemental agreement?”*

18.1.2 In this Chapter, we have commented on any measures put in place in the supplemental agreement to ensure that the contractor met its obligations, and on the performance of the contractor after the supplemental agreement was signed.

**18.2 The measures put in place in the supplemental agreement**

18.2.1 We have reviewed the supplemental agreement with a view to identifying whether it contains any “controls” for monitoring and / or regulating the contractor’s performance after the signing of the supplemental agreement.

18.2.2 We will discuss our findings shortly. Before doing so, however, we pause to make the following important point.

18.2.3 The supplemental agreement on CC-213 arose against a significantly different background to the supplemental agreement on DB-1500. On DB-1500, the view of KCRC’s project team was that the contractor was not performing, but that a supplemental agreement was needed anyway.

18.2.4 For this reason, it was necessary for there to be some “controls” for monitoring and/or regulating the contractor’s performance after the signing of the supplemental agreement.

18.2.5 On the other hand, there was no suggestion (of which we are aware) that the contractor on CC-213 was failing to perform. To the contrary, it seems to have been acknowledged that the contractor on CC-213 was doing its best, under difficult project conditions.

18.2.6 Given this important difference, there was no real imperative for the supplemental agreement on CC-213 to contain significant or special “controls” for monitoring and / or regulating the contractor’s performance after the signing of the supplemental agreement.

**18.3 The contractor’s performance after signing the supplemental agreement**

18.3.1 The station was topped out in November 2001.

18.3.2 Up to the end of March 2002, CC-213 was about 59.6% complete and was approximately seven to eight weeks behind the current target programme. Based on the Contractor’s works programme and resources, this lateness could be recouped and therefore is not expected to jeopardise the overall completion of the West Rail project.

**19. INFORMATION PROVIDED TO THE MANAGING BOARD IN SUPPORT OF APPROVAL AND MONITORING OF THE CONTRACT**

**19.1 Scope of our work**

19.1.1 We are requested to consider the following:

*“Was KCRC’s Managing Board informed of all the relevant factors in determining the tender and any subsequent significant development and, if so, were they informed on a timely basis?”*

19.1.2 In this Chapter, we have set out the documents that were submitted to the Managing Board at the time of award of CC-213 and what documents were provided subsequently for monitoring purposes.

**19.2 Documents provided to the Managing Board during the tendering process**

19.2.1 The five-page Managing Board Paper 99/80 titled “Approval to award, Contract No. CC-213 – Tuen Mun Station” was tabled at the 179<sup>th</sup> Meeting of the Managing Board on 19 July 1999. The paper states that the nine-page Final Tender Assessment Report is annexed and that GM-CN was to attend the meeting of the Managing Board to discuss the paper.

19.2.2 The paper summarises the tendering process and invites the members of the Managing Board to approve the award of CC-213 to HK ACE JV.

19.2.3 The paper contains the following information:

- A list of pre-qualified tenderers and their composition and JV share percentage;
- A summary of the tendering process;
- The findings of the Review Panel that the two of three tenderers were technically non-compliant and that HK ACE JV was the only technically compliant tenderer;
- A summary of the detailed technical and financial assessments; and
- A conclusion and recommendation that the contract be awarded to HK ACE JV as the lowest conforming tender.

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19.2.4 The Managing Board duly approved the paper as follows:

“64. *The Board then –*

- (a) *APPROVED that Contract CC213 – Tuen Mun Station be awarded to the HKACE JV in the sum of HK\$1,387.69 million (MOD), which includes a provisional sum of HK\$16 million but does not include options to be exercised after award;*
- (b) *AUTHORIZED Management to decide, when appropriate, whether to exercise options after the award of the contract, in the sum of HK\$62.84 million;*
- (c) *NOTED that HKACE JV have offered the Corporation a saving of HK\$70.00 million, in the event that CC212 is also awarded to HKACE JV, such saving to be split equally between CC212 and CC213;*
- (d) *UPGRADED Project CC213 – Tuen Mun Station, under Head 75000 – West Rail Division, to the status of an Approved Major Project with an Approved Estimate of HK\$1,354.37 million, comprising the contract award sum of HK\$1,387.69 million, the saving of HK\$35.00 million in the event that Contract CC212 is also awarded to HKACE JV, options to be exercised after the award of contract in the sum of HK\$62.84 million, but less the Light Rail funding which is provided for separately;*
- (e) *APPROVED the creation of a new project under Head 15000 - Light Rail Division, Component 10.6 – Capital Expenditure: Light Rail integration with West Rail, with an Approved Estimate of HK\$61.16 million after a proportional saving of HK\$0.58 million from Contracts CC212 and CC213 together;*
- (f) *NOTED that the shortfall of HK\$162.62 million, being the difference between the approved project estimate and the project estimate included in the Approved 1999 Estimates of Revenue and Expenditure, will be transferred from the West Rail Programme Reserve, which was approved by Members on 17 May 1999 vide Paper 99/47; and*
- (g) *NOTED that the Corporation will recover the cost of the Essential Public Infrastructure Works from the Government as revenue based upon the apportioned cost in the order of HK\$39.58 million plus an agreed oncost charge of 16.5%.”*

19.2.5 The following persons were present at the meeting:

- K Y Yeung
- Denys E. Connolly
- Edmond Lau Ting-chung
- Vincent Cheng Hoi-chuen
- Tim Chung Shui-ming
- Denise Yue
- Kevin Ho
- David Fleming
- Ian Peterson
- James Blake
- Samuel Lai
- Clement Chiu
- Jonathan Yu
- Ian Thoms
- Y T Li
- Irene Yau

19.2.6 According to the minutes of the Managing Board meeting, there was no discussion regarding the non-compliance of two out of three tenderers during the final technical assessment, which left the third-lowest applicant as the only conforming tenderer.

### **19.3 Documents provided to the Managing Board during the Monitoring Process**

19.3.1 Prior to the monthly Managing Board meetings, members are provided with the following documents:

- Board agenda and papers;
- Minutes of the weekly directors' meetings;
- The fortnightly Situation Report; and
- The Monthly Progress Report.

19.3.2 From the minutes of the Managing Board meetings, it was noted that, after the award of CC-213 in July 1999, there was no discussion of the problems that the contract was encountering until the meeting on 16 July 2001, at which the paper concerning the supplemental agreement was tabled.

19.3.3 The fortnightly Situation Report provides a one page, A3 size summary of the progress of the construction on West Rail and the current status of each of the contracts. This report is explained in more detail in Sections 6.2.15 to 6.2.18.

19.3.4 The Situation Report shows the progress status by using a traffic light for each contract as follows:

- Green – activities are on programme or there are no significant delays;
- Amber – activities are not on programme and are being closely monitored but are not critical to timely project completion; and
- Red – activities are not on programme and are critical to timely project completion.

19.3.5 The progress status and the comments presented in the Situation Reports in respect of CC-213 is summarised in Section 14.3.1.

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19.3.6 In summary, the Situation Reports show the progress status for CC-213 as follows:

- From the start of the contract until 30 October 1999 Green
- From 6 November 1999 to 19 February 2000 Amber
- From 26 February 2000 to 22 April 2000 Red
- From 29 April 2000 to 18 November 2000 Amber
- Since 7 April 2001 Green

19.3.7 We believe that the traffic lights and comments on the Situation Reports provide a fair reflection of the gravity of the problems being encountered on CC-213.

## **20. CONCLUSIONS - CC-213 FOR TUEN MUN STATION**

### **20.1 Introduction**

20.1.1 In this Chapter, we have set out our overall conclusions developed principally from our review of the documentation in respect of CC-213 and our meetings with members of the Managing Board and senior management.

20.1.2 We have also provided some more detailed comments on a number of key matters that arose during our review.

20.1.3 These matters relate to the pre-tender site investigation, the limited number of conforming tenders, the management and monitoring of the contract, and the quantification of the supplemental agreement.

### **20.2 Pre-tender site investigation**

20.2.1 As described in the Executive Summary, one of the features of the contract philosophy was that KCRC decided to take the risk of unforeseen ground conditions on the civil engineering contracts.

20.2.2 This means that it would set out in the tender documents the ground conditions that the contractor could expect to encounter in the performance of the contract based upon KCRC's own site investigation. As noted in a recent industry report commissioned by the HKSAR Government, KCRC's philosophy in this respect is consistent with international practice.

20.2.3 If ground conditions were discovered to be different during the performance of the contract, the contractor would be entitled to additional compensation depending on the conditions encountered and the delays that might be caused.

20.2.4 On the Tuen Mun contract, work on the foundations of the station, which were to be built in the Tuen Mun nullah, were restricted by the fact that such work could only be performed during the six month dry season between October and April of the following year.

20.2.5 When piling work was started on CC-213, it was found that the actual rock was significantly harder than expected and there were inclined rock layers.

20.2.6 As a result, the drilling equipment put in place by the first piling subcontractor was not suitable, even though it complied with the requirements of the tender documents. This caused the piling work to progress at a far slower rate than planned for the first dry season.

20.2.7 Due to the delays in the piling work, it was not possible to complete sufficient piles at the end of the first dry season in order to be able to pour the concrete slab upon which work would be continued above the nullah during the first wet season.

20.2.8 As a result of these delays, the contract was some nine months behind schedule after fifteen months.

- 20.2.9 KCRC were well aware of the constraints imposed by the DSD for working in the Tuen Mun nullah and we believe that they should have commissioned a more extensive site investigation in order to obtain as much information as possible about the ground conditions before the contract was tendered.
- 20.2.10 Such an investigation would have involved additional expense in itself, and could have resulted in different and potentially higher tender prices. However, we believe that in these circumstances this would have been money well spent.
- 20.2.11 We do not believe that it is possible to determine whether the overall cost of the contract, including the supplemental agreement, would have been different if a more detailed site investigation had been carried out by KCRC before the tender process. However, the contract may have progressed more smoothly had more information about the ground conditions been available.

### **20.3 The limited number of conforming tenders**

- 20.3.1 KCRC pre-qualified ten tenderers in respect of this contract. Of the six conforming and four alternative tenders, the three lowest priced conforming tenders were selected for evaluation.
- 20.3.2 During the tender evaluation, KCRC determined that two of the tenders selected for evaluation were not technically compliant as they had not demonstrated effectively how they would work within the constraints of the nullah and the conditions set out by the DSD.
- 20.3.3 Thus, only one contractor was found to be technically compliant at the end of the tender evaluation.
- 20.3.4 We believe that this may suggest the tender process for this contract did not make clear the mandatory nature of certain aspects of working in the nullah as imposed by the DSD. While the DSD requirements were largely beyond its control, KCRC should have ensured that tenderers were aware of any mandatory requirements that could have ruled out the whole tender from consideration.
- 20.3.5 Consistent with its contract philosophy and to ensure that sufficient competitive tenders are received, KCRC should ensure that tender documents and subsequent clarifications make clear any such mandatory requirements.

### **20.4 The management of the contract**

- 20.4.1 As a result of the processes put in place for the management of the contracts for the West Rail project, KCRC were aware from an early stage of the problems being encountered on CC-213.

20.4.2 From the documentation that we have reviewed and the meetings that we have held with senior management, we believe that the appropriate actions were taken by senior management to address the problems as they arose in a timely manner.

20.4.3 We also believe that the problems arising on the contract were brought to the attention of appropriate levels of KCRC management below Managing Board level in a timely manner such that more senior management resources were brought to bear on the problems as they became worse.

## **20.5 The monitoring of the contract**

20.5.1 The primary document that is provided to the Managing Board to facilitate their monitoring of the various contracts on the West Rail project is the fortnightly Situation Report.

20.5.2 The one-page A3 size Situation Report provides, inter alia, an overall summary of the project progress, significant issues, key event indicators and the status of each awarded contract.

20.5.3 The status of each contract is indicated by a green, amber or red traffic light, which shows whether the contract is on schedule or not, and a brief one-line comment on any significant issues.

20.5.4 We believe that the traffic lights and comments set out in the Situation Reports prepared in respect of CC-213 provide a fair reflection of the gravity of the problems that were being encountered on this contract.

20.5.5 However, we have concerns about the use of this Situation Report.

20.5.6 Because of the manner in which the Situation Report is provided to the Managing Board, it was difficult for the members to identify the critical issues on each contract, especially bearing in mind the huge volume of papers which were provided to them before each meeting. At present, this report is circulated to the members as part of their preparatory reading, but is not formally presented or discussed at the meeting.

20.5.7 We believe that the members of the Managing Board would be better informed about the progress of the West Rail project and the problems being encountered on individual contracts, if the Situation Report were to be formally presented to the Managing Board by senior management and discussed at each monthly meeting.

20.5.8 To avoid unnecessary detail, we would stress that such presentation should focus on the significant problems on an exception basis rather than discussing each individual contract.

20.5.9 Had the members of the Managing Board been aware of the problems being encountered on CC-213 earlier, this would have provided them with the opportunity to consider the steps being taken by senior management to resolve the problems, although we do not think that they would have disagreed with the actions being proposed by senior management.

**20.6 The quantification of the supplemental agreement**

- 20.6.1 In reviewing the calculations prepared in relation to the settlement amount in the supplemental agreement, we found it difficult to determine how these figures had been developed from the records kept. However, from discussions with KCRC personnel, we could understand how the amounts were arrived at.
- 20.6.2 The sums claimed by the contractor have been used as the starting point for the calculations prepared by KCRC in support of the settlement amount, and this is normal practice.
- 20.6.3 However, it is unclear to what extent the sums put forward by the contractor have been challenged. We have seen evidence that the amount finally agreed in the supplemental agreement is substantially less than the contractor's original claims and is also less than KCRC's internal estimates of the value of the contractor's claims.
- 20.6.4 The situation was made more complicated because the contractor on CC-213 was also responsible for CC-212 and the negotiations over supplemental agreements covered both contracts.
- 20.6.5 We have seen evidence that the amount finally agreed in the supplemental agreements for both contracts totalled HK\$430 million. The amount initially claimed by the contractor was HK\$721 million, and KCRC's internal assessment of the contractor's final agreed claims was HK\$484 million.
- 20.6.6 HK\$430 million is substantially less than the contractor's original claims and also less than KCRC's internal estimates of the value of the contractor's final claims, and it therefore appears that KCRC were successful in challenging the initial claims put forward by the contractor.
- 20.6.7 Overall, we believe that the quality of the supporting documentation and calculations in respect of the proposed settlement limit could have been improved. We recommend that in future such information should be prepared in a manner that allows for the information to be independently scrutinized.

**20.7 Liquidated damages**

- 20.7.1 *[These paragraphs in the original Report dealt with the issue of liquidated*  
20.7.2 *damages in KCRC's construction contracts. These paragraphs have been deleted on the advice of KCRC's external legal advisers because of their commercially sensitive nature and because their disclosure would be prejudicial to the Corporation's interests].*

**20.8 Overall conclusions**

- 20.8.1 KCRC had determined at the start of the West Rail project that it would take the risk of unforeseen ground conditions on the civil engineering contracts. As a result, it set out in the tender documents the ground conditions that the contractor could expect to encounter in the performance of the contract based upon KCRC's own site investigation.

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- 20.8.2 If ground conditions were discovered to be different during the performance of the contract, the contractor would be entitled to additional compensation and possibly also to extensions of time to the completion date, depending on the conditions encountered and the delays that might be caused.
- 20.8.3 On the Tuen Mun contract, work on the foundations of the station, which were to be built in the Tuen Mun nullah, was restricted by the fact that it could only be performed during the six month dry season between October and April of the following year.
- 20.8.4 Due to the fact that the ground conditions were found to be different from those anticipated, this delayed the progress of the foundation work that was planned during the first dry season. This delay then had a consequential impact on the construction work that was planned during the first wet season, resulting in the contract being some nine months behind schedule after fifteen months.
- 20.8.5 At this point, KCRC had the choice between allowing the contract to progress as best it could or to put in place a delay recovery programme to recover the lost time through the use of additional resources.
- 20.8.6 Had KCRC taken the first option, this would not only have had an impact on other related contracts, resulting in claims for additional delay-related compensation from other contractors, but it would have also jeopardized the opening date of the entire West Rail project.
- 20.8.7 Therefore, KCRC decided to develop a delay recovery programme with the contractor in order to accelerate the progress of work on the site and thereby get the whole contract back on schedule.
- 20.8.8 The contractor had a contractual entitlement to be compensated for both the unexpected ground conditions as well as the cost of the additional resources that were required to accelerate the rate of work. Consistent with its contract philosophy and the objective of seeking to resolve disputes in a timely way, KCRC negotiated with the contractor and settled the contractor's claims. The settlement was documented by way of a supplemental agreement.
- 20.8.9 Clearly, on this particular contract, the question remains as to whether a more extensive site investigation would have identified more clearly the actual ground conditions. Such an investigation would have involved additional expense in itself, and could have resulted in different and potentially higher tender prices. However, we believe that in these circumstances this would have been money well spent.
- 20.8.10 We do not believe that it is possible to determine whether the overall cost of the contract, including the supplemental agreement, would have been different if a more extensive site investigation had been carried out by KCRC before the tender process.
- 20.8.11 However, we do recommend that KCRC should reconsider the amount of site investigation work that is performed before the issue of tender documents, particularly in the case of those sites where major construction constraints are known to exist.

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- 20.8.12 While we believe that potentially damaging delays to the contract and to the project as a whole were avoided, we have similar concerns about whether the Managing Board was made aware of the problems on the contract at a sufficiently early stage.
- 20.8.13 Because this contract was being run in conjunction with CC-212, the amounts of money involved were sufficiently large that we believe the Managing Board should have been briefed on what was happening.
- 20.8.14 In the end, the settlement amounts in the supplemental agreements on CC-212 and CC-213 totalled HK\$430 million but we have seen no indication that the Managing Board were advised of the nature and gravity of the problems or of the proposed solutions in a timely manner.
- 20.8.15 Despite this, we believe that the strategy adopted by senior management was the right one in the circumstances and we do not believe that the Managing Board would have disagreed with the actions proposed.