PROJECT NO.: TCS/00408/08

DSD CONTRACT NO. DC/2007/17 DRAINAGE IMPROVEMENT WORKS IN CHEUNG PO, MA ON KONG, YUEN KONG SAN TSUEN AND TIN SAM TSUEN OF YUEN LONG DISTRICT AND SEWERAGE AT TSENG TAU CHUNG TSUEN, TUEN MUN

9TH QUARTERLY EM&A SUMMARY REPORT – KT13 (OCTOBER – DECEMBER 2010)

PREPARED FOR
CHINA ROAD & BRIDGE CORPORATION

Quality Index

Date	Reference No.	Prepared By	Certified by
24 January 2011	TCS00408/08/600/R1551v1	 Nicola Hon Environmental Consultant	 T.W. Tam Environmental Team Leader

Version	Date	Prepared by:	Certified by:	Description
1	24 Jan 2011	Nicola Hon	T.W. Tam	First submission

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7 March 2011

Dear Ms. Lui,

Contract No. DC/2007/17 Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen King San and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun
9th Quarterly EM&A Summary Report – KT13 (October to December 2010)
Version 1

We refer to the captioned report (ref.: TCS00408/08/600/R1551v1) and advise that we have no further comments on the captioned submission.

We hereby endorse the captioned report for your onward submission.

If you require any further information, please do not hesitate to contact the undersigned.

Yours sincerely

Coleman Ng
Independent Environmental Checker

cc China Road and Bridge Corporation (Mr. Raymond Mau) (Fax: 2478 9612)
AUES (Mr. TW Tam / Ms. Nicola Hon) (Fax: 2959 6079)

Executive Summary

ES01 This is the **9th** quarterly EM&A summary report highlights the EM&A results for the Designated Project of Channel KT13. It contains key environmental monitoring results during the three-month period from **26 September to 25 December 2010** on air quality, construction noise, water quality, ecology, cultural heritage and waste management.

Progress of the EM&A Programme

ES02 The impact EM&A program was undertaken in accordance with the relevant EM&A manuals. A summary of the monitoring activities in this quarter is listed below:

Environmental Issues	**Channel KT13**
1-hour TSP Monitoring	96 monitoring events
24-hour TSP Monitoring	29 monitoring events *
Noise Monitoring	48 monitoring events
Water Quality Monitoring	39 monitoring days
Cultural heritage (settlement monitoring)	12 monitoring days
Ecology	3 monitoring days
Site Inspection Audit	12 occasions

*Three events of unsuccessful monitoring due to power failure of HVS.

Breaches of Environmental Quality Criteria

ES03 Monitoring results of the Reporting Period demonstrated no exceedance of environmental quality criteria for air quality, construction noise and ecology.

ES04 For water quality monitoring, a total of 22 Action/Limit Level exceedances were recorded at designated Location W2 and W6 in this reporting quarter. Investigation was conducted and concluded that the exceedance was not project related. The overall compliance rate of water quality monitoring in the quarter is 95.3%.

ES05 Since construction work at Channel KT13 had entered the area within 100m of the cultural heritage site (the grave), the condition survey and settlement monitoring were preformed in this reporting quarter. The monitoring result demonstrated that no exceedance was recorded in both survey.

ES06 No significant changes were observed for the identified landscape resources and visual sensitive receivers, except for minor changes due to channel excavation, site clearance and preparation work at the identified landscape resources including LR1, LR2.1, LR2.2, LCA1, LCA3 and LCA4.

ES07 A summary of all environmental exceedances is presented as follows:

Issues	Parameters	Compliance Rate %	Investigation Results & Corrective Actions
		Channel KT13	
Air Quality	24-hour TSP	100%	N/A
	1-hour TSP	100%	N/A
Noise	Leq(30min) Daytime	100%	N/A
Water Quality	Suspended Solids	88.5%	Not project related
	Turbidity	94.9%	Not project related
	Dissolved Oxygen	100%	N/A
	pH	100%	N/A
	Ammonia	89.7%	Not project related
	Zinc	98.7%	Not project related
Cultural	Settlement Monitoring	100%	N/A

heritage			
Ecology	Decrease in number of breeding egrets since previous year	100%	N/A

Environmental Complaint, Notifications of Summons and Prosecutions

ES08 No documented complaint, notification of summons and successful prosecution was received during the Reporting Period. No major environmental impacts were observed during the weekly site inspection. Environmental audit of the Reporting Period, indicated that the implemented mitigation measures for air quality, construction noise and ecology were effective. Minor deficiencies found in the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

Reporting Changes

ES09 No reporting changes were made during the Reporting Period.

Future key issues

ES10 During dry season, special attention should be paid to the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Nevertheless, mitigation measures implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.

ES11 Special attention should be paid on construction noise and other environmental issues identified in the EM&A Manual as recommended in the EIA and summarized in Mitigation Measure Implementation Schedule. CRBC was reminded to implement the required mitigation measures during construction as far as possible.

END OF TEXT

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1 INTRODUCTION

1.1 BASIC PROJECT BACKGROUND

CRBC has been awarded the DSD Contract No. DC/2007/17 (the Project) for a package of drainage improvement works in areas located in Kam Tin, Pat Heung and Tuen Mun as shown in ***Appendix A***.

The Project involves construction of five drainage channels, namely Channels KT12, KT13 (under Environmental Permit No.EP263/2007), KT14A (under Environmental Permit No. EP231/2005A), KT14B and KT14C in Kam Tin and Pat Heung and the sewerage works at Tseng Tau Chung Tsuen in Tuen Mun. For ease of reporting, the EM&A report under the Project is split to the following three stand-alone parts:

EM&A Report – Channel KT13 (under EP No.EP263/2007);

EM&A Report – Channel KT14A (under EP No. EP231/2005A); and

EM&A Report – Channels KT12, KT14B and KT14C (Non-Designated works, under no Environmental Permit)

This report presents the EM&A results of the Designated Projects works for Channel KT13. It is the **9th** Quarterly EM&A Summary Report covering a three-month period from **26 September to 25 December 2010** (the Reporting Period).

1.2 REPORT STRUCTURE

This Report is structured as follows:

Section 1 Introduction
Section 2 Summary of Impact Environmental Monitoring and Audit Requirements
Section 3 Monitoring Results and Breaches of Environmental Quality Criteria
Section 4 Non-compliance, Complaint, Notifications of Summons and Successful Prosecution
Section 5 Conclusion

1.3 PROJECT ORGANISATION AND CONSTRUCTION PROGRESS

1.4 ENVIRONMENTAL MANAGEMENT ORGANIZATION

The environmental management team comprises: DSD (Project Proponent), CRBC (main Contractor), EPD and AFCD (supervisory departments in Government), BVHKL (ER); ARUP (IEC) and AUES (ET). Detailed management organization including organisation structure and key personnel contacts is presented in ***Appendix B.***

1.5 WORKS UNDERTAKEN DURING THE QUARTER REPORTING PERIOD

Construction activities implemented during the Reporting Period are presented in ***Appendix C***. In addition to the preparation works and site clearance, including underground utility investigation, tree survey, tree pruning and tree transplant, major construction activities are summarized as follows:

26 September to 25 October 2010

- Excavation of channel formation
- Construction of channel structure
- Backfilling
- Laying of underground drain pipe
- Laying of Gabion Block/Granite Block

26 October to 25 November 2010

- Excavation of channel formation

- Construction of channel structure
- Backfilling
- Laying of underground drain pipe
- Laying of Gabion Block/Granite Block

26 November to 25 December 2010

- Excavation of channel formation
- Construction of channel structure (dry flow channel and new box culvert)
- Construction of access road
- Backfilling
- Laying of Gabion Block/Granite Block

1.6 ENVIRONMENTAL LICENSING STATUS

The environmental licensing status in the quarter reporting period is summarized in ***Table 1-1***.

Table 1.1 Status of Environmental Licenses and Permits

Item	License / Permit Description	Status
1	Air Pollution Control (Construction Dust)	Notified EPD on 14-Feb-08
2	Water Pollution Control (Discharge License) License No. 1U461/1	Valid
3	Chemical Waste Producer Registration WPN: 5611-531-C3124-28	Registration on 2-May-08
4	Construction Waste Disposal Billing Account Number 7006524	Valid on 9 Jan 2008

2 SUMMARY OF IMPACT ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

2.1 MONITORING PARAMETERS

The ET has compiled the EM&A requirements set out in the associated EM&A Manuals in the ***Environmental Monitoring Methodology***, which has been agreed by the ER and IEC. The monitoring parameters are summarized below.

Table 2-1 Summary of Monitoring Parameters

Environmental Issues	Monitoring Parameters	
Air Quality	(a) 1-hour Total Suspended Particulate (1-hour TSP); and (b) 24-hour Total Suspended Particulate (24-hour TSP).	
Construction Noise	(a) A-weighted equivalent continuous sound pressure level (30min) (Leq(30min) during the normal working hours; and (b) A-weighted equivalent continuous sound pressure level (5min) (Leq(5min) for construction work during the Restricted Hours.	
Water Quality	(a) In Situ Measurement	temperature, dissolved oxygen (DO), pH & Turbidity
	(b) Laboratory Analysis	suspended solids (SS), Ammonia Nitrogen (NH_3-N) and Zinc (Zn)
Ecology	Vegetation, All bird species of wetland, Ho Pui Egret, Ma On Hong Egret and Flight Line Survey	
Waste Management	Inspection and the document audit	
Cultural Heritage	Condition survey for a historical grave	
Landscape & Visual	To audit the implementation of the proposed construction phase mitigation measure stipulated in EIA.	

2.2 MONITORING LOCATIONS

Details of monitoring locations are summarized in ***Table 2-2*** and shown in ***Appendix A***.

Table 2-2 Summary of Monitoring Locations

Environmental Issue	Monitoring Location ID	Identified Address / Co-ordinates	Status of Monitoring Locations / Rationale for Recommended Replacement
Air	A1(a)	No.68 Ho Pui Village	The original location of EM&A Manuals A1 has permanently been abandoned. No access can be acquired in the vicinity of A1. Taken into consideration that Ho Pui Village is one of the most important sensitive receivers near KT-13 without monitoring, the most fronting house, No. 68 Ho Pui Village, is therefore recommended as the replacement location A1(a).
	A2	No.1 Ma On Kong Village	Original location of the EM&A Manual; access granted.
Noise	N1(a)	168-169 Kam Ho Road, Ma On Kong Village,	Original location of N1 identified in the EM&A Manual was relocated to proposed area as recommended by IEC.

Environmental Issue	Monitoring Location ID	Identified Address / Co-ordinates	Status of Monitoring Locations / Rationale for Recommended Replacement
	N2(a)	No. 68 Ho Pui Village,	The original location of EM&A Manuals N2 has permanently been abandoned. No access can be acquired in the vicinity of N2. Taken into consideration that Ho Pui Village is one of the most important sensitive receivers near KT-13 without monitoring, the most fronting house, No. 68 Ho Pui Village, is therefore recommended as the replacement location N2(a).
	N3	No.1 Ma On Kong Village	Original locations of the EM&A Manual; access granted.
Water	W1	E824539 / N830283	Original locations of the EM&A Manual; access resolved.
	W2	E824693 / N830258	Original locations of the EM&A Manual; access resolved.
	W3(a)	E824833 / N830374	The W3 is proposed to be relocated about 55 m down stream to W3(a) for safety reason as there is no any discharge point observed between W3 and the proposed W3(a).
	W4	E824936 / N830618	Original locations of the EM&A Manual; access resolved.
	W5	E825008 / N830812	Original locations of the EM&A Manual; access resolved.
	W6	E825100 / N830987	Original locations of the EM&A Manual; access resolved.
Ecology	Monthly monitoring along the boundary of the works area to confirm that there are no adverse impacts on habitats outside the site in particular the Conservation Area (CA) zone and Ho Pui Egretry. Photographic records at six-month intervals; Monthly monitoring of all bird numbers including wetland species and species identified as being of conservation importance; Monitoring of Ho Pui egretry during March to August. The Ma On Kong egretry is also surveyed to provide reference information on the breeding egrets nearby; and Flight line surveys twice per month during April to June.		
Waste Management	Whole constriction site and document		
Cultural Heritage	Ma On Kong	Refer to EM&A Manual (KT13) Figure 7.1.	
Landscape & Visual	Refer to EIA Section 10		

2.3 MONITORING FREQUENCY

The impact monitoring frequency and duration for air quality, construction noise, water quality, ecology and other parameters are summarized below.

2.3.1 Air Quality

Frequency: Once every 6 days for 24-hour TSP and three times every 6 days for 1-hour TSP, when the highest construction dust impacts are anticipated.

Duration: Throughout the construction period

2.3.2 Construction Noise

Frequency: Measurement of Leq 30min: Once a week during 0700-1900 hours on normal weekdays for Leq30min

If the construction work is undertake at restrict hour, the frequency of noise monitoring will be conducted in accordance with the requirements under the related Construction Noise Permit issued by EPD as follows:

- 3 consecutive Leq5min at restrict hour from 1700 – 2300;
- 3 consecutive Leq5min for restrict hour from 2300 – 0700 next day;
- 3 consecutive Leq5min for Sunday or public holiday from 0700 – 1900;

Duration: Throughout the construction period

2.3.3 Water Quality

Frequency: Three times a week with at least 36 hour intervals between any two consecutive monitoring events

Depths: As the water columns in the stream water within KT13 is generally less than 3 m, measurement is performed at the mid-depths of the monitoring locations. In case the water columns are deeper than 6 m, measurement shall be carried out at three water depths, namely, 1 m below water surface, mid-depth, and 1 m above river bed. If the water depths are between 3 to 6 m, the mid-depth measurement is omitted.

Duration: Throughout the construction period.

2.3.4 Ecology

The Ecology Monitoring is required in accordance with the EM&A Manual.

Parameters: Vegetation, All bird species including wetland birds, Ho Pui and Ma On Hong Egretries and Flight line survey

Frequency: Vegetation – Impact monitoring – monthly;

Photographic records/checks against baseline records– six monthly

Wetland Bird survey – Monthly of half-day survey;

Ma On Kong egretry – Monthly between March to August; and

Ho Pui egretry – Bi-weekly between March and August;

Flight line Survey – Twice per month during the period from April to June

Duration: Throughout the whole construction period

2.3.5 Waste Management Audit

Frequency: Once per month

Duration: Throughout the construction period.

2.3.6 Cultural Heritage

Frequency: Bi-monthly for condition survey

Bi-weekly for settlement monitoring

Requirement: Condition survey and settlement monitoring of a Qing Dynasty Grave.

Duration: Throughout the construction phase period. (When construction work entered the 100m of the cultural heritage site)

2.3.7 Landscape & Visual

Frequency: Bi-weekly

Duration: Throughout the construction phase period.

2.4 ENVIRONMENTAL QUALITY CRITERIA

The environmental quality criteria i.e. Action and Limit levels (A/L levels) are summarized as follows:

Table 2-4-1 Summary of Air Quality Monitoring Results at KT14A-A8(a)

Monitoring Station	Action Level (μg /m³)		Limit Level (μg/m³)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
KT13(A1(a))	309	144	500	260
KT13(A2)	307	141	500	260

Table 2-4-2 Action and Limit Levels of Construction Noise Monitoring (Leq (30mins))

Time Period	Action Level in dB(A)	Limit Level in dB(A)
0700-1900 hours on normal weekdays	When one documented complaint is received	75* dB(A)

Note: * Reduces to 70 dB(A) for schools and 65dB(A) during the school examination periods.

Table 2-4-3 Water Quality Action and Limit Levels

Monitoring Location	DO (mg/L)		Turbidity (NTU)		pH		SS (mg/L)		Ammonia (mg/L)		Zinc (μg/L)	
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
W1 (Upstream) Control Station	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
W2 (Downstream) Impact Station	1.04	1.00	36.81	37.16	8.65	8.69	79.0	86.2	16.85	16.89	234.95	266.19
W3(a) (Upstream) Control Station	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
W4 (Upstream) Control Station	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
W5 (Upstream) Control Station	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
W6 (Downstream) Impact Station	0.93	0.91	27.88	30.02	8.7	8.7	73.40	78.68	51.62	54.56	191.90	201.58

Notes: # Act as Control Station for the Impact Water Quality Monitoring.
* Alternative Action Level of the Turbidity, pH, Suspended Solid, Ammonia Nitrogen and Zinc are 120% of upstream control station of same day.
** Alternative Action Level of the Turbidity, pH, Suspended Solid, Ammonia Nitrogen and Zinc are 130% of upstream control station of same day.

Table 2-4-4 Action and Limit Levels for Cultural Heritage Resources

Action Level	Limit Level
When damage or structural instability is first detected	Signs of deterioration and structural instability continues on subsequent visits after action level is triggered

Table 2-4-5 Ecological Action and Limit Levels

Parameters	Action Level	Limit Level
Decrease in number of breeding egrets since previous year	> 20%	> 40%

2.5 ENVIRONMENTAL MITIGATION MEASURES

CRBC has committed to implement environmental protection and pollution control and mitigation measures, as recommended in the EIA, EP and the EM&A Manuals, summarized in the Mitigation Measures Implementation Schedules in the EM&A Manual and enclosed in ***Appendix D***. The implemented mitigation measures include:

(a) Watering of stockpiles of rip-rap at KT13;
(b) Covering of the loose soil at KT13 to minimize water quality impacts;
(c) Hard pavement of haul road leading to public roads at KT13;
(d) Classification and disposal of illegally dumped construction and demolishment materials at KT13;
(e) Construction of noise barriers; and
(f) Erection of dams with sand bags downstream the excavation site within the water course of KT13 to enhance sedimentation of Turbidity and SS,

3 MONITORING RESULTS AND BREACHES OF ENVIRONMENTAL QUALITY CRITERIA

The environmental monitoring results will be compared against the Action and Limit Levels established based on the baseline monitoring results and statutory criteria. In case the measured data exceed the environmental quality criteria, remedial actions will be triggered according to the Event and Action Plan. In the report quarter, the graphical plots of the trends of monitored parameter over the past four months are presented in ***Appendix E.***

3.1 AIR QUALITY

Results of air quality monitoring at the identified locations during the Reporting Period are summarized in ***Tables 3-1*** below. It is reported that no exceedances of Action or Limit Levels recorded during the Reporting Period. No Notification of Exceedance (NOE) of air quality criteria or corrective action was required. However, due to the power failure of high volume sampler at KT13 A2 on 7, 11 and 23 December 2010, three monitoring data was absent in this reporting month. We have liaised with the Contractor and it is advised that only channel excavation, construction of channel structure and laying of gabion block were conducted at Channel KT-13 in the entire December. Those activities would not cause excessive dust problem. Moreover, air pollution mitigation measures such as regular watering on haul roads and cover for the stockpile of excavated soil were provided to prevent fugitive dust generation due to construction work. It is also noted that no adverse change of 1-hour TSP levels during the power failure incident. As the majority of works were almost the same before and after the HVS power failure, we consider the 24-hour TSP monitoring results during HVS power failure would not have big variation in comparing with before.

Table 3-1 Summary of 1-hour and 24-hour TSP at KT13 in the Reporting Period

Channel	Station	1-hour TSP			24-hour TSP		
		Max	Min	Mean	Max	Min	Mean
KT13	A1(a)	112	47	74	121	15	76
Record Date		21-Oct-10	13-Dec-10	48 events	11-Dec-10	27-Sep-10	16 events
KT13	A2	94	45	71	85	18	41
Record Date		21-Oct-10	13-Dec-10	48 events	17-Dec-10	2-Oct-10	13 events

3.2 CONSTRUCTION NOISE

Summary of construction noise monitoring at the identified locations during the Reporting Period are summarized in ***Table 3-2*** below and graphic plots are presented in ***Appendix E.*** In this reporting quarter, a total of 48 events of construction noise measurement were conducted while no documented construction complaint was received and all the construction noise results were below the Limit level. No NOE or corrective action was recommended for this parameter.

Table 3-2 Summary of Construction Noise at Channel KT13 in the Reporting Period

Channel	Station	Leq(30min)	
		Max	Min
KT13	N1(a)	**70.9**	**57.3**
Record Date		24-Dec-10	1-Dec-10
KT13	N2(a)	**66.5**	**62.2**
Record Date		24-Dec-10	15-Oct-10
KT13	N3	**67.9**	**62.0**
Record Date		9-Oct-10	28-Sep-10

3.3 WATER QUALITY

In this reporting quarter, a total of 39 days of water quality monitoring were conducted. Breaches of water quality A/L levels and statistics of the compliance status during the Reporting Period are summarized in ***Table 3-3-1 and 3-3-2***.

Table 3-3-1 Summaries of Breaches of the Existing Water Quality A/L Levels

Location	Exceedance	DO	Turbidity	pH	SS	NH_4^+-N	Zn	Total
October 2010								
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	0	0	**1**	**1**	0	**2**
W6	Action Level	0	0	0	0	0	**1**	**1**
	Limit Level	0	0	0	**1**	0	0	**1**
November 2010								
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	0	0	0	**2**	0	**2**
W6	Action Level	0	0	0	0	0	0	0
	Limit Level	0	0	0	0	0	0	0
December 2010								
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	**1**	0	**3**	**4**	0	**8**
W6	Action Level	0	0	0	0	0	0	0
	Limit Level	0	**3**	0	**4**	**1**	0	**8**
Total	Action Level	0	0	0	0	0	**1**	**1**
	Limit Level	0	**4**	0	**9**	**8**	0	**21**

Table 3-3-2 Summaries of Breaches of the Existing Water Quality A/L Levels at KT13

Parameter	Channel KT13	
	No. of Exceedances	Compliance%
Suspended Solids	9	88.5%
Turbidity	4	94.9%
Dissolved Oxygen	0	100%
pH	0	100%
Ammonia	8	89.7%
Zinc	1	98.7%
Overall	22	95.3%

In this reporting period, the readings of DO recorded at impact stations W2 and W6 fluctuated within 1.55mg/L to 19.51mg/L and the pH fluctuated well within 7.35 and 8.91. For turbidity, the measured readings fluctuated between 3.39NTU to 141.5NTU. Finally, the laboratory results showed that concentration of suspended solids fluctuated between 2.0 to 220.0 mg/L.

According to the existing Action/Limit Levels, a total of 22 Action/ Limit level exceedances, namely 9 Limit Level exceedances in suspended solids, 4 Limit Level exceedances in turbidity, 8 Limit Level exceedances in NH_4^+-N and 1 Action Level exceedances in Zinc were recorded during the Reporting Period as shown in ***Table 3-3-2***. NOEs were issued upon confirmation of the monitoring results, and investigation was conducted upon receipt of the information of construction activities and implementation status of mitigation measures provided by CRBC.

Exceedance in October 2010

A total of four (4) Action/ Limit Level exceedances in Suspended Solids, Zinc and NH_4^+-N were recorded in the stream water quality monitoring in October 2010. According to the

information provided by the Contractor, no site activities were conducted on 9 and 13 October at channel upstream but pigsty discharge was observed near monitoring location W2. Since high levels of suspended solids and Zinc were also recorded at upstream and control station, it is believed that the exceedances were likely due to the discharge from the vicinity agriculture farm and livestock at the vicinity as water quality throughout the channel was affected. Therefore, it is concluded that the exceedances were not related to the works under the Project.

Exceedance in November 2010

A total of two (2) Limit Level exceedances in Ammonia-N at Location W2 were recorded in the stream water quality monitoring in November 2010. According to the information provided by the Contractor, no site activities were conducted on 27 October and 19 November at channel upstream but pigsty discharge was observed near monitoring location W2. Since high levels of NH_4^+-*N* were also recorded at upstream and control station, it is believed that the exceedances were likely due to the discharge from the vicinity agriculture farm and livestock at the vicinity as water quality throughout the channel was affected. Therefore, it is concluded that the exceedances were not related to the works under the Project.

Exceedance in December 2010

A total of 16 Limit Level exceedances including the parameter of Turbidity, Suspended Solids and NH_4^+-N were recorded in the stream water quality monitoring, namely 8 exceedances at upstream Location W2 and 8 at downstream Location W6. According to the information provided by the Contractor, no site activities were conducted during the exceedance days at near Location W2 and W6 but pigsty discharge was observed near monitoring location W2. Since high levels of Turbidity, Suspended solids and NH_4^+-N were also recorded at upstream and control station, it is believed that the exceedances were likely due to the discharge from the agriculture farm and livestock at the vicinity as water quality throughout the channel was affected. Therefore, it is concluded that the exceedances were not related to the works under the Project.

3.4 ECOLOGY

Ecological monitoring were conducted on 16 October, 21 November and 18 December 2010. No breaches of ecological A/L levels were recorded during the Reporting Period.

October 2010

57 individuals of birds from 20 species were recorded during the survey for monthly monitoring on 16 October 2010. Among the birds recorded, 6 individuals of wetland dependent birds (from 4 species) were recorded. Ho Pui egretry and Man On Kong egretry survey and flight line survey were not required in this period. During the walk through survey, other than the bamboo trees which are within the Ho Pui Egretry boundary which was found to be cleared by villagers during a site inspection on 11 July 2009, no further adverse impacts on the habitats outside the boundary of the works area including the Conservation Area and the remaining Ho Pui Egretry was found.

November 2010

55 individuals of birds from 20 species were recorded during the survey for monthly monitoring on 21 November 2010. Among the birds recorded, 6 individuals of wetland dependent birds (from 3 species) were recorded. Ho Pui egretry and Man On Kong egretry survey and flight line survey were not required in this period. During the walk through survey, other than the bamboo trees which are within the Ho Pui Egretry boundary which was found to be cleared by villagers during a site inspection on 11 July 2009, no further adverse impacts on the habitats outside the boundary of the works area including

the Conservation Area and the remaining Ho Pui Egretry was found.

December 2010
51 individuals of birds from 20 species were recorded during the survey for monthly monitoring on 18 December 2010. Among the birds recorded, 7 individuals of wetland dependent birds (from 2 species) were recorded. Ho Pui egretry and Man On Kong egretry survey and flight line survey were not required in this period. During the walk through survey, other than the bamboo trees which are within the Ho Pui Egretry boundary which was found to be cleared by villagers during a site inspection on 11 July 2009, no further adverse impacts on the habitats outside the boundary of the works area including the Conservation Area and the remaining Ho Pui Egretry was found.

3.5 OTHER MONITORING AND AUDIT

3.5.1 Waste Management

Waste management audit was performed regularly on a monthly basis. A Billing Account (The account number 7006524) under the ***Waste Disposal (Charges for Disposal of Construction Waste) Regulation*** has already been assigned on 9 Jan 2008, a discharge license No. 1U461/1 under Section 20 of the ***Water Pollution Control Ordinance*** has been issued. CRBC has also registered as a Chemical Waste Producer with EPD under the Waste Disposal (Chemical Waste) (General) Regulation and the Waste Producer Number assigned is WPN: 5611-531-C3124-28 dated 2 May 08.

3.6 CULTURAL HERITAGE

The historical grave KT13-02-02 was identified during EIA stage of the project. A pre-construction condition survey report was issued in July 2008 and approved by AMO. The details of the grave could be referred to "Pre-construction condition survey on July 2008".

During the Reporting Period, construction work had entered the area within 100m of the cultural heritage area of Channel KT13 since 21 October 2009. Supplementary information of condition survey was undertaken on 31 August 2009 to update the condition of the grave (when no construction activities were carried out within 100m areas from the grave). Those results taken on 31 August 2010 would be adopted as the updated initial reading of the settlement level as agreed by the IEC.

Under the current EM&A programme and approved monitoring methodology, the condition survey would be conducted by ERM Limited in bi-monthly basis and the settlement monitoring will be conducted by CRBC in bi-weekly basis. For the settlement monitoring, five settlement marker points (13GS01 to 13GS05) were established to record the coordinates and elevation of the grave in order to monitor any ground movement or settlement during the construction works.

In this reporting quarter, settlement monitoring were undertaken on **29 September, 5, 12, 23 and 30 October 2010, 6, 13, 20 and 27 November 2010, 8, 14 and 18 December 2010** to compare with the initial reading to determine if there are any significant tilting or settlement of the grave. Also, Condition Surveys of the Grave during construction phase was undertaken on 23 October 2010 and 18 December 2010 and it has been enclosed in *EM&A monthly report – November and December 2010*. It was reported that no exceedance was recorded on both settlement monitoring and the condition survey. The summaries of settlement monitoring results in this report quarter are shown in **Table 3-3-3**.

Furthermore, it was informed that site clearance works within 100m concern zone of historical grave was carried out by an unknown third party on 19 August. During ET's weekly site inspections, it was noted that the concerned area has been fenced off and two sign boards by District Lands Office were erected. No further site clearance works near the historical grave was observed.

Table 3-3-3 Record of Five Settlement Marker Points of the Qing Dynasty Grave in reporting quarter

Monitoring Point / Date	*Level (mpd)*	*Diff. (mm)*	*Level (mpd)*	*Diff. (mm)*	*Level (mpd)*	*Diff. (mm)*	*Level (mpd)*	*Diff. (mm)*	*Level (mpd)*	*Diff. (mm)*
Date	**13GS01**		**13GS02**		**13GS03**		**13GS04**		**13GS05**	
31/08/09 (Initial reading)	**19.222**	**0**	**19.985**	**0**	**20.644**	**0**	**19.943**	**0**	**19.211**	**0**
29/09/10	19.223	+1	19.985	0	20.643	-1	19.943	0	19.211	0
5/10/10	19.222	0	19.985	0	20.643	-1	19.943	0	19.211	0
12/10/10	19.223	+1	19.986	+1	20.644	0	19.944	+1	19.211	0
23/10/10	19.222	0	19.985	0	20.643	-1	19.943	0	19.211	0
30/10/10	19.223	+1	19.985	0	20.644	0	19.944	+1	19.211	0
6/11/10	19.222	0	19.986	+1	20.643	-1	19.943	0	19.210	-1
13/11/10	19.222	0	19.985	0	20.643	-1	19.943	0	19.210	-1
20/11/10	19.222	0	19.985	0	20.644	0	19.944	+1	19.211	0
27/11/10	19.223	+1	19.985	0	20.644	0	19.944	+1	19.211	0
8/12/10	19.223	+1	19.985	0	20.644	0	19.944	+1	19.211	0
14/12/10	19.222	0	19.985	0	20.644	0	19.943	0	19.211	0
18/12/10	19.223	+1	19.985	0	20.644	0	19.944	+1	19.211	0
Breach of Action/Limit Level	-		-		-		-		-	

Note: Action level exceedance would be triggered when the settlement difference is ±2mm.
Limit level exceedance would be triggered when the settlement difference is ±5mm.

3.7 LANDSCAPE AND VISUAL

A total of six (6) occasions of landscape and visual audit was undertaken on **12 and 25 October 2010, 8 and 23 November 2010, 7 and 22 December 2010**. The landscape and visual audit confirmed that the conditions of the identified landscape resources during the Reporting Period remained the same as those of the baseline, except minor changes of river/stream/fish pond landscape character area at LR1, LR2.1, LR2.2, LCA3 and LCA4 due to site clearance, soil stockpiling and preparation work within KT13.

Detailed landscape and visual reports and the associated mitigation measures can be found in the appendix of the corresponding previous monthly EM&A reports of the Reporting Period.

3.8 WEATHER CONDITIONS

October 2010

The mean temperature for October 2010 was 24.8 degrees, 0.5 degrees below normal. It was attributed to an intense northeast monsoon dominating over southern China during the last six days of the month. The minimum temperature of 15.7 degrees recorded on 28 October was the lowest in October since 1988.

November 2010

With prevalence of relatively weak but dry northeast monsoon, there was ample of sunshine in November 2010. The total bright sunshine duration for the month was 212.5 hours, about 19 percent above normal. The mean temperature of the month was 21.2 degrees, slightly lower than the normal figure of 21.4 degrees.

December 2010

Despite several cold episodes in the month, the mean temperature of December 2010 was 18.1 degrees, 0.3 degrees above normal. It was mainly due to the high daytime temperatures in generally fine and dry weather brought by the dry winter monsoon. While there were seven cold days (daily minimum temperature at 12.0 degrees or below) and five days with frost reported, there were 22 days with maximum temperatures shooting up to 20.0 degrees or higher in the month. The lowest temperature recorded on 17 December was 5.8 degrees, the lowest for December since 1999; and the highest temperature recorded on 6 December was 26.8 degrees, the highest for December since 1968.

4 NON-COMPLIANCE, COMPLAINT, NOTIFICATION OF SUMMONS & SUCCESSFUL PROSECUTION

4.1 NON-COMPLIANCE

Apart from the exceedances of water quality A/L levels summarized in ***Table 3-3***, no non-compliance or deficiency was identified during regular site inspection and environmental audit. No associated remedial actions were recommended. No other non-compliance or deficiency was identified during regular site inspection and environmental audit. No associated remedial actions were recommended.

4.2 ENVIRONMENTAL COMPLAINTS

No written or verbal complaints were received for each environmental issue during the Reporting Period. No associated remedial actions were recommended.

4.3 NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

No notifications of summons and successful prosecutions were recorded during the Reporting Period. No associated remedial actions were recommended.

4.4 OTHERS

4.4.1 Waste Management Status

All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil and sediment

Waste generated, re-used, recycled and disposed of during the Reporting Period is shown in ***Appendix F***: ***Monthly Summary Waste Flow Table***.

4.5 SITE INSPECTION AND ENVIRONMENTAL AUDIT

A total of 12 occasions of weekly environmental site inspection and audit were conducted jointly by the ER, EO and ET during the Reporting Period. As no major construction activities were undertaken, no adverse environmental impacts were registered, indicating the mitigation measures implemented were effective and sufficient for the construction activities or preparation work and site clearance undertaken. Minor deficiencies found in the site inspection and audit were in general rectified within the specified deadlines. Findings of the site inspection and environmental audit are listed in ***Table 4-4-1***.

Table 4-4-1 Summary of Findings of Site Inspection and Environmental Audit

Date	Findings / Deficiencies	Follow-Up Status
28 September 2010	The Contractor is reminded to clear the stagnant water and waste found inside the drip tray of 'G01' Generator.	Recommendation based on the observation on 5 October 2010 was followed.
5 October 2010	The Contractor is reminded to maintain the outlet of the box culvert free of construction waste and general garbage. The Contractor is reminded to dampen the access road.	Recommendations based on the observations on 5 October 2010 were followed.
15 October 2010	The Contractor is reminded to clear the loose soil under the type 2 railing. The Contractor is reminded to repair the soil bund after draining the stagnant water.	Recommendations based on the observations on 5 October 2010 were followed.
19 October 2010	Generally in order. No adverse environmental impact is observed.	N.A

	The Contractor is encouraged to keep up the good site management practice.	
27 October 2010	The Contractor is reminded to provide dust mitigation measures for the rock segregation its associated works.	Recommendation based on the observation on 5 October 2010 was followed.
2 November 2010	The Contractor is reminded to stack properly the wood materials.	Recommendations based on the observations on 5 October 2010 were followed.
11 November 2010	The Contractor is reminded to protect the temporarily exposed slopes.	Recommendations based on the observations on 5 October 2010 were followed.
17 November 2010	Generally in order. No adverse environmental impact is observed. The Contractor is encouraged to keep up the good site management practice.	N.A
30 November 2010	The Contractor is reminded to remove unwanted construction materials.	Recommendation based on the observation on 5 October 2010 was followed.
7 December 2010	The Contractor is reminded to minimize dust disturbance from the dusty materials.	Recommendations based on the observations on 5 October 2010 were followed.
14 December 2010	The Contractor is reminded to remove the unused timber and formwork.	Recommendations based on the observations on 5 October 2010 were followed.
20 December 2010	The Contractor is encouraged to keep up the good site management practice.	N.A

5 CONCLUSION

This is the **9th** Quarterly EM&A Report for Designated Project works during the period from **26 September** to **25 December 2010** summarizing the environmental impact monitoring and audit results on air quality, construction noise, water quality, ecology, cultural heritage and waste management.

Monitoring results demonstrated that no exceedances of environmental quality criteria of air quality, construction noise and ecology were recorded during the Reporting Period.

For water quality monitoring, a total of 22 Action/Limit Level exceedances were recorded at designated Location W2 and W6 in this reporting quarter. Investigation was conducted and concluded that the exceedance was not project related. The overall compliance rate of water quality monitoring in the quarter is 95.3%.

Since construction work at Channel KT13 had entered the area within 100m of the cultural heritage site (the grave), the condition survey and settlement monitoring were preformed in this reporting quarter. The monitoring result demonstrated that no exceedance was recorded in both survey.

The conditions of the landscape resources during the Reporting Period remained the same as the baseline, except minor changes of river/stream/fish pond landscape character area at LR1, LR2.1, LR2.2, LCA3 and LCA4 due to site clearance, soil stockpiling and preparation work within KT13.

No written or verbal complaints, notifications of summons and successful prosecutions were received (written or verbal) from any medium during the Reporting Period. No adverse environmental impacts were observed during the weekly site inspection and environmental audit which indicated that the implemented mitigation measures for air quality, construction noise, water quality and ecology were effective. Minor deficiencies were found in the weekly site inspection and audit which were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

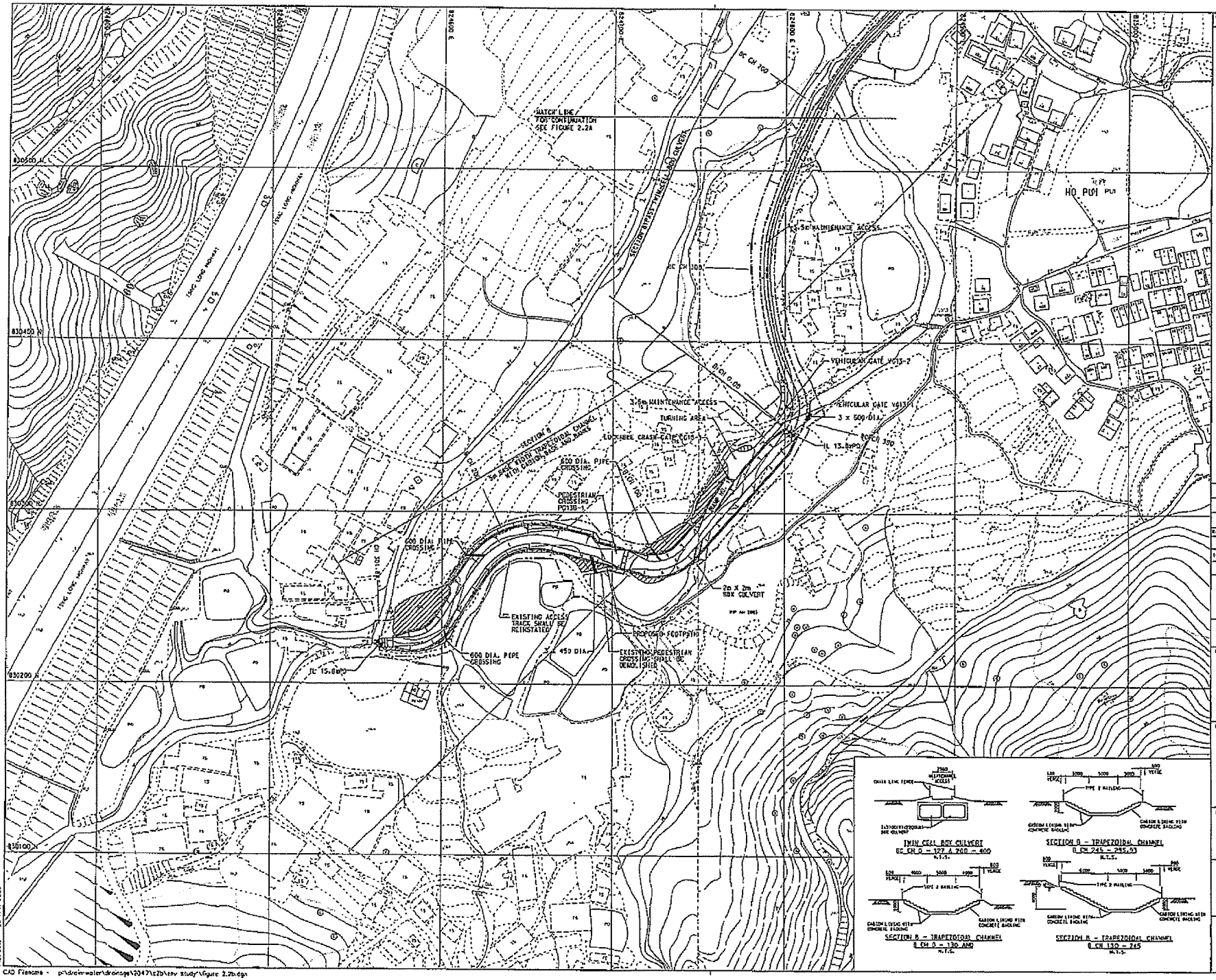
During dry season, special attention should be paid to the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Nevertheless, mitigation measures implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.

Special attention should be paid on construction noise and other environmental issues identified in the EM&A Manual as recommended in the EIA and summarized in Mitigation Measure Implementation Schedule. CRBC was reminded to implement the required mitigation measures during construction as far as possible.

END OF TEXT

Appendix A

Location Plan of the Project and Environmental Monitoring Locations



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
2. GRID LINES ARE HONG KONG METRIC GRID 1980.
3. TYPE 2 RAILING WITH DEBRIS TRAP BAR AND GENERAL MESH FILL SHALL BE PROVIDED AT BOTH SIDES OF THE CHANNEL BANKS

LEGEND :

- SITE BOUNDARY
- PROPOSED CHANNEL
- PROPOSED SLOPE
- AREA TO BE FILLED TO ADJACENT GROUND LEVEL
- I.L. INVERT LEVEL
- PROPOSED RETAINING WALL

Revision	Date	Description	Initial
C	03/06	AMENDMENT TO BY-PASS CULVERT	KIL
B	10/05	MINOR AMENDMENT TO CHANNEL LAYOUT	KIL
A	05/05	MINOR AMENDMENTS TO SITE BOUNDARY	KIL

	Designed	Checked	Drawn	Verified
Initial	TW	KIL	MK	KIL
Date	04/04	04/04	04/04	04/04

Approved

AGREEMENT NO. CE 67/98

Contract title

YUEN LONG, KAM TIN, NGAU TAM MEI AND TIN SHUI WAI DRAINAGE IMPROVEMENT, STAGE 1, PHASE 2B - KAM TIN

Drawing title

MA ON KONG CHANNEL KT13 PROPOSED LAYOUT PLAN (SHEET 2 OF 2)

Drawing no.	Scale
FIGURE 1.3b	1:1000 A1 1:2000 A3

香港特別行政區政府渠務署
THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION DRAINAGE SERVICES DEPARTMENT

BLACK & VEATCH HONG KONG LIMITED
柏威工程顧問有限公司

Plot Date - 26 APR 2006

CAD Filename - p:\drainwater\drainage\2047\e2b\env study\figure 2.2b.dgn

NOTES :

1. GRID LINES ARE HONG KONG METRIC GRID 1980.

LEGEND:

- MA ON KONG AND HO PUI ECRETARIES
- PROPOSED COMPENSATORY TREE PLANTING
- CONSERVATION AREA DENOTED ON OUTLINE ZONING PLAN
- WORKS BOUNDARY OF CHANNEL KY13
- ECOLOGY MONITORING AREAS

Revision	Date	Description			Initial
	Designed	Checked	Drawn		Checked
Initial	MC	KIL	YLL		KIL
Date	09/05	09/05	09/05		09/05

Approved

AGREEMENT NO. CE 67/98

Contract title

YUEN LONG, KAM TIN,
NGAU TAM MEI AND TIN SHUI WAI
DRAINAGE IMPROVEMENT, STAGE 1,
PHASE 2B – KAM TIN

Drawing title

ECOLOGY MONITORING AREAS
RECOMMENDED FOR
CONSTRUCTION PHASE AND
OPERATION PHASE

Drawing no.

Figure 6.1

Scale

1:2000 A1
1:4000 A3

香港特別行政區政府渠務署
THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION DRAINAGE SERVICES DEPARTMENT

BLACK & VEATCH HONG KONG LIMITED
柏威工程顧問有限公司

Plot Date : 25 APR 2006

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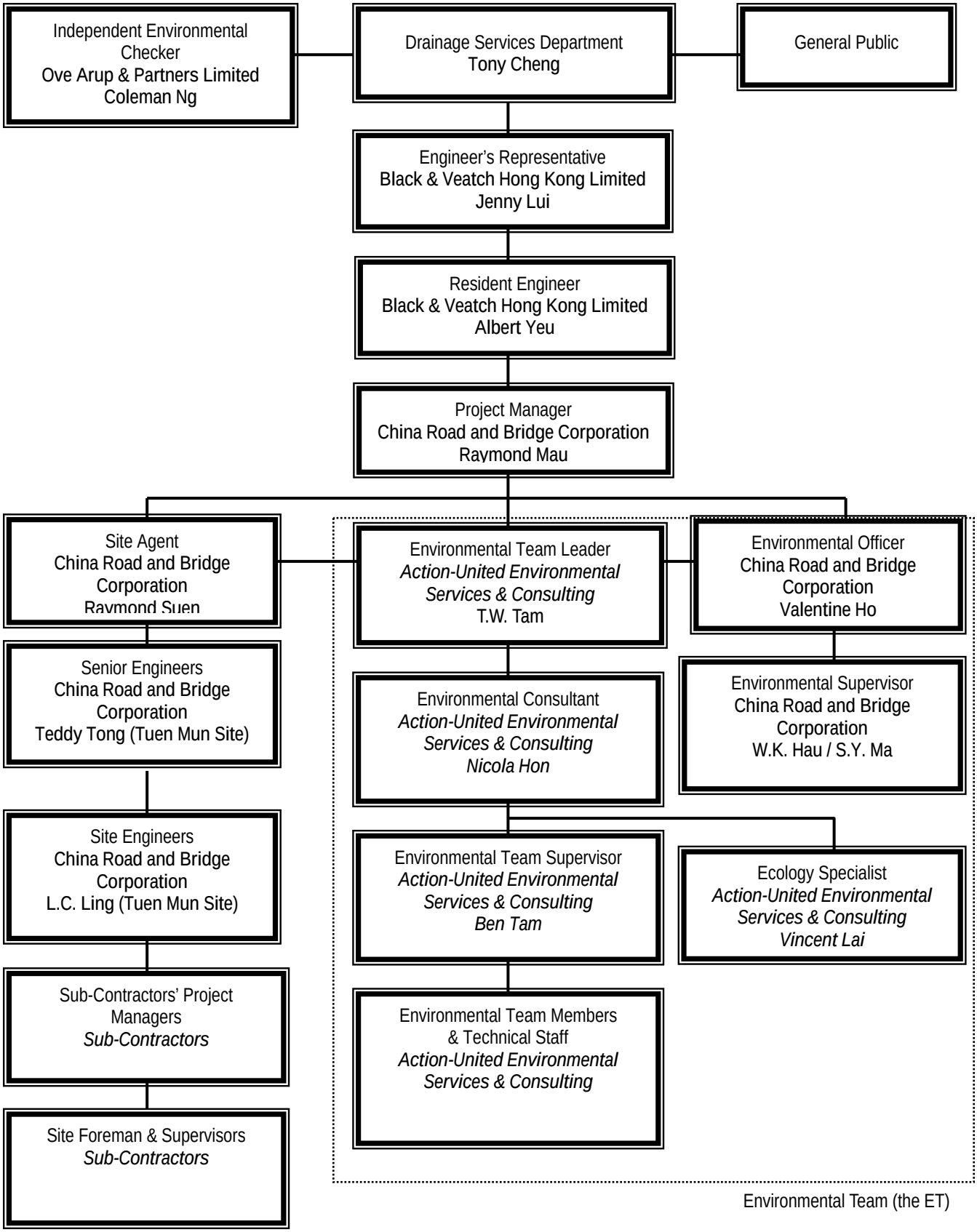
Appendix B

Environmental Management Organization and Contacts of Key Personnel



Environmental Management Organization

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Mr. Tony Cheng	2594-7264	2827-8526
B&V	Engineer's Representative	Ms. Jenny Lui	2478-9161	2478-9369
B&V	Resident Engineer	Mr. Albert Yeu	2478-9161	2478-9369
OAP	Independent Environmental Checker	Mr. Coleman Ng	2268-3097	2268-3950
CRBC	Project Director	Mr. Wang Yanhua	2283-1688	2283-1689
CRBC	Project Manager	Mr. Raymond Mau	9048-3669	2283-1689
CRBC	Site Agent	Mr. Raymond Suen	9779-8871	2283-1689
CRBC	Senior Engineer (Tuen Mun Site)	Mr. Daniel Wong	9858-3176	2283-1689
CRBC	Site Engineer (Tuen Mun Site)	Mr. L.C. Ling	6770-4010	2283-1689
CRBC	Environmental Officer	Mr. Valentine Ho	6474-6975	2283-1689
CRBC	Environmental / Construction Supervisor (Tuen Mun and Yuen Long site)	Mr. Lai Tsz Chung	6283-9696	2283-1689
CRBC	Environmental / Construction Supervisor (Yuen Long site)	Mr. W. K. Hau	9401-6296	2283-1689
CRBC	Safety Officer	Mr. Alexis Wong	9374-8954	2283-1689
AUES	Environmental Team Leader	Mr. T.W. Tam	2959-6059	2959-6079
AUES	Environmental Consultant	Miss Nicola Hon	2959-6059	2959-6079
AUES	Environmental Site Inspector	Mr. Ben Tam	2959-6059	2959-6079
AUES	Ecologist	Mr. Vincent Lai	2959-6059	2959-6079

Legend:

DSD (Employer) – Drainage Services Department
B&V (Engineer) – Black & Veatch Hong Kong Limited
CRBC (Main Contractor) – China Road and Bridge Corporation
OAP (IEC) – Ove Arup & Partners Ltd
AUES (ET) – Action-United Environmental Services & Consulting

Appendix C

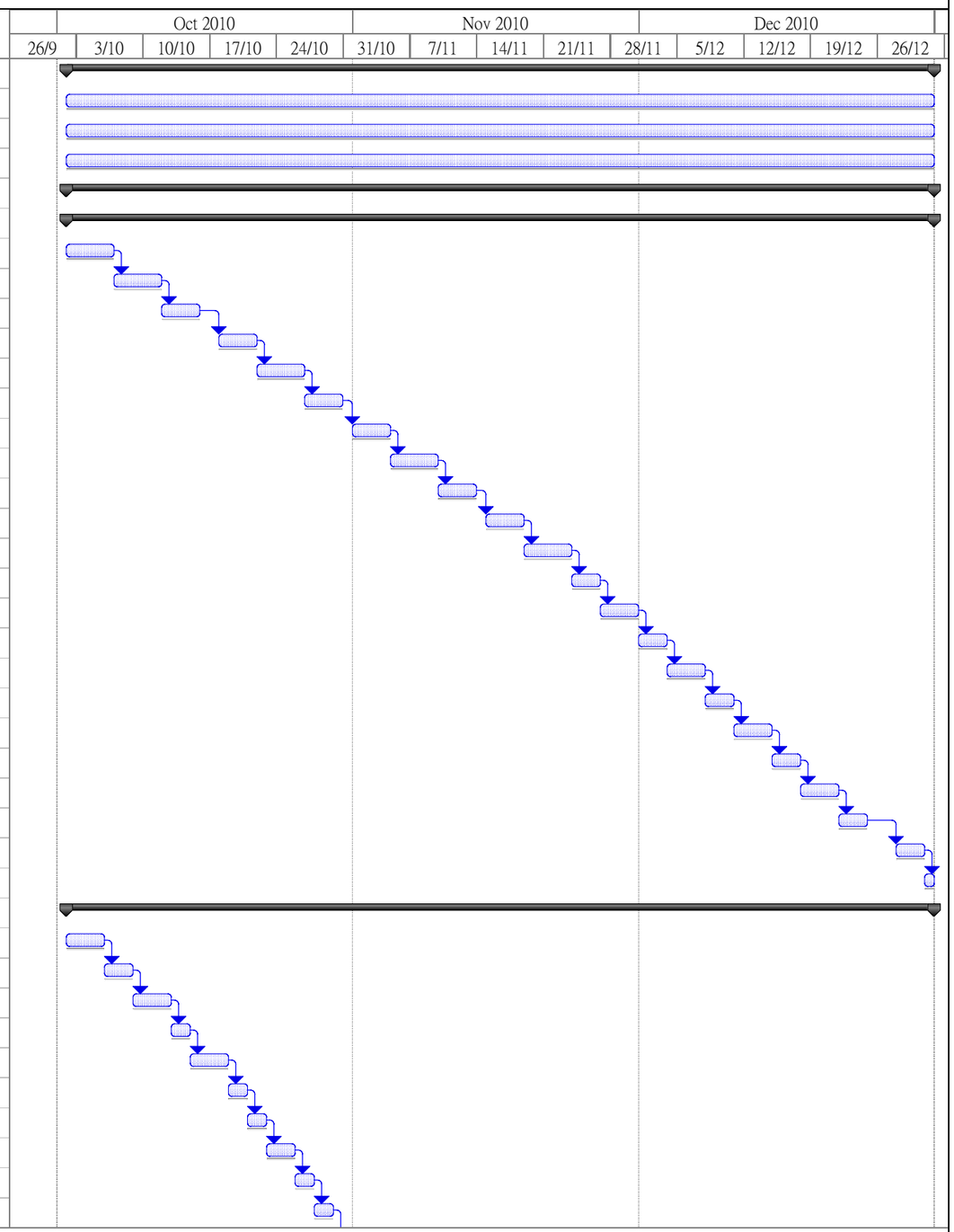
Construction Program

Contract No. : DC/2007/17

Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun

Three Months Rolling Programme - October 2010 to December 2010

ID	Task Name	Duration	Start	Finish
1	**Section II (Channel KT13)**	**75 days**	**2010/10/2**	**2010/12/31**
2	**Regular Environmental Impact Monitoring**	75 days	2010/10/2	2010/12/31
3	**Regular Tree Survey & Protection**	75 days	2010/10/2	2010/12/31
4	**Regular Structural Condition Survey**	75 days	2010/10/2	2010/12/31
5	**Section A**	**75 days**	**2010/10/2**	**2010/12/31**
6	**Laying gabion block / granite block inside the channel**	**75 days**	**2010/10/2**	**2010/12/31**
7	Bay A9 (A CH58.74 - A CH70.69) - TG2 (WB)	4 days	2010/10/2	2010/10/6
8	Bay A10 (A CH70.69 - A CH84.25) - TG2 (WB)	4 days	2010/10/7	2010/10/11
9	Bay A11 (A CH84.25 - A CH96.57) - TG2 (WB)	4 days	2010/10/12	2010/10/15
10	Bay A12 (A CH96.57 - A CH107.46) - TG2 (WB)	4 days	2010/10/18	2010/10/21
11	Bay A13 (A CH107.46 - A CH119.62) - TG2 (WB)	4 days	2010/10/22	2010/10/26
12	Bay A14 (A CH119.62 - A CH131.78) - TG2 (WB)	4 days	2010/10/27	2010/10/30
13	Bay A15 (A CH131.78 - A CH143.92) - TG2 (WB)	4 days	2010/11/1	2010/11/4
14	Bay A16 (A CH143.92 - A CH156.08) - TG2 (WB)	4 days	2010/11/5	2010/11/9
15	Bay A17 (A CH156.08 - A CH167.00) - TG2 (WB)	4 days	2010/11/10	2010/11/13
16	Bay A18 (A CH167.00 - A CH179.97) - TG2	4 days	2010/11/15	2010/11/18
17	Bay A19 (A CH179.97 - A CH190.69) - TG2	4 days	2010/11/19	2010/11/23
18	Bay A20 (A CH190.69 - A CH201.41) - TG2	3 days	2010/11/24	2010/11/26
19	Bay A21 (A CH201.41 - A CH213.44) - TG2	3 days	2010/11/27	2010/11/30
20	Bay A22 (A CH213.44 - A CH225.47) - TG2	3 days	2010/12/1	2010/12/3
21	Bay A23 (A CH225.47 - A CH237.50) - TG2	3 days	2010/12/4	2010/12/7
22	Bay A24 (A CH237.50 - A CH244.23) - TG2	3 days	2010/12/8	2010/12/10
23	Bay A25 (A CH244.23 - A CH257.09) - TG2 (WB)	3 days	2010/12/11	2010/12/14
24	Bay A26 (A CH257.09 - A CH269.95) - TG2 (WB)	3 days	2010/12/15	2010/12/17
25	Bay A27 (A CH269.95 - A CH282.43) - TG6 (WB)	3 days	2010/12/18	2010/12/21
26	Bay A28 (A CH282.43 - A CH294.59) - TG6 (WB)	3 days	2010/12/22	2010/12/24
27	Bay A29 (A CH294.59 - A CH306.75) - TG6 (WB)	3 days	2010/12/28	2010/12/30
28	Bay A30 (A CH306.75 - A CH318.91) - TG6 (WB)	1 day	2010/12/31	2010/12/31
29	**Construction of catchpit / manhole / drain pipe along the channel sides**	**75 days**	**2010/10/2**	**2010/12/31**
30	Bay A1 (A CH00.00 - A CH11.16) - RC2	3 days	2010/10/2	2010/10/5
31	Bay A2 (A CH11.16 - A CH17.28) - RC2	3 days	2010/10/6	2010/10/8
32	Bay A3 (A CH17.28 - A CH26.04) - RC2	3 days	2010/10/9	2010/10/12
33	Bay A4 (A CH26.04 - A CH33.57) - Transition	2 days	2010/10/13	2010/10/14
34	Bay A5 (A CH33.57 - A CH41.09) - Transition	2 days	2010/10/15	2010/10/18
35	Bay A6 (A CH41.09 - A CH43.72) & Pedestrian Crossing	2 days	2010/10/19	2010/10/20
36	Bay A7 (A CH43.72 - A CH51.19) - Transition	2 days	2010/10/21	2010/10/22
37	Bay A8 (A CH51.19 - A CH58.74) - Transition	2 days	2010/10/23	2010/10/25
38	Bay A9 (A CH58.74 - A CH70.69) - TG2	2 days	2010/10/26	2010/10/27
39	Bay A10 (A CH70.69 - A CH84.25) - TG2	2 days	2010/10/28	2010/10/29



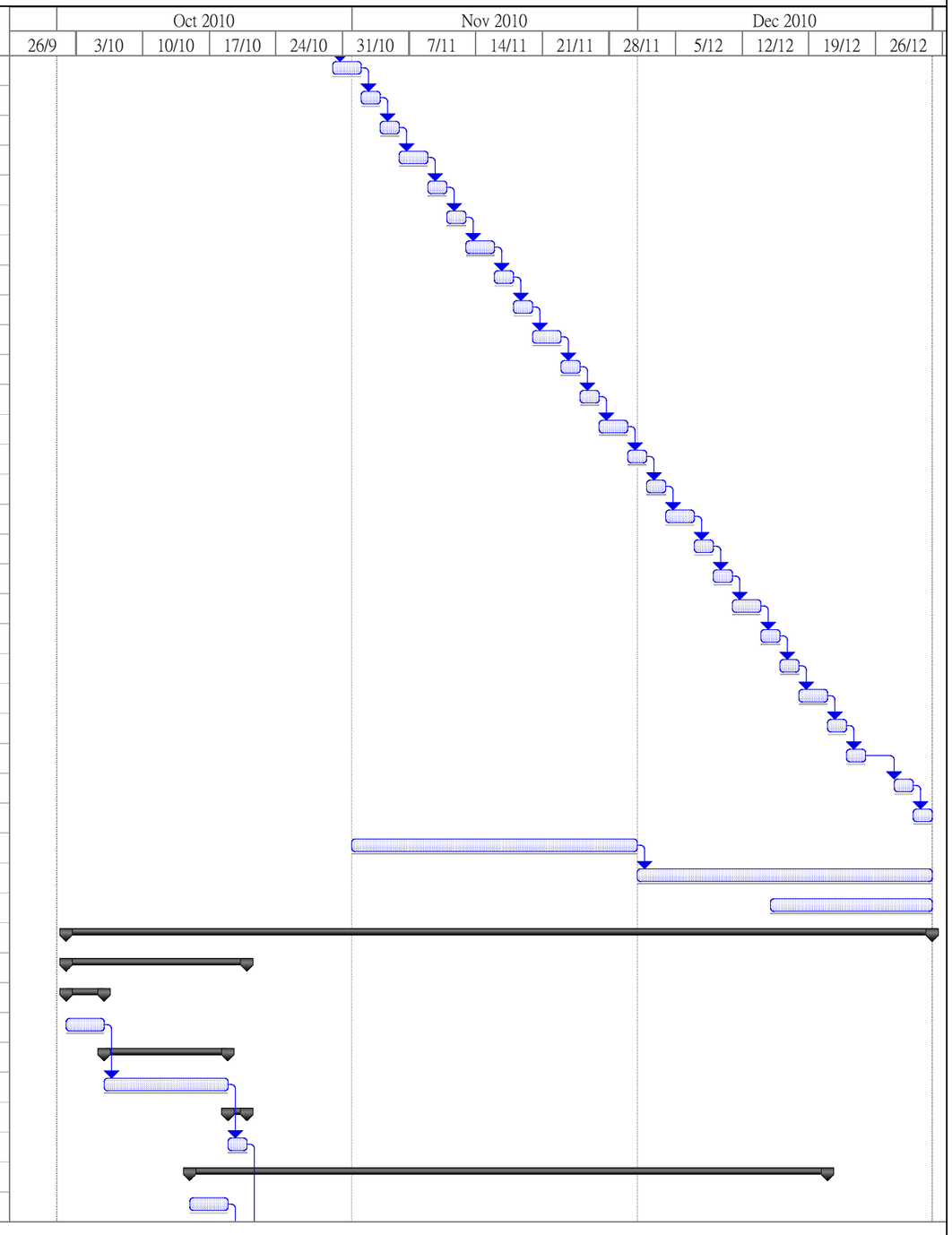
Task Split Progress Milestone Summary

Contract No. : DC/2007/17

Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun

Three Months Rolling Programme - October 2010 to December 2010

ID	Task Name	Duration	Start	Finish
40	Bay A11 (A CH84.25 - A CH96.57) - TG2	2 days	2010/10/30	2010/11/1
41	Bay A12 (A CH96.57 - A CH107.46) - TG2	2 days	2010/11/2	2010/11/3
42	Bay A13 (A CH107.46 - A CH119.62) - TG2	2 days	2010/11/4	2010/11/5
43	Bay A14 (A CH119.62 - A CH131.78) - TG2	2 days	2010/11/6	2010/11/8
44	Bay A15 (A CH131.78 - A CH143.92) - TG2	2 days	2010/11/9	2010/11/10
45	Bay A16 (A CH143.92 - A CH156.08) - TG2	2 days	2010/11/11	2010/11/12
46	Bay A17 (A CH156.08 - A CH167.00) - TG2	2 days	2010/11/13	2010/11/15
47	Bay A18 (A CH167.00 - A CH179.97) - TG2	2 days	2010/11/16	2010/11/17
48	Bay A19 (A CH179.97 - A CH190.69) - TG2	2 days	2010/11/18	2010/11/19
49	Bay A20 (A CH190.69 - A CH201.41) - TG2	2 days	2010/11/20	2010/11/22
50	Bay A21 (A CH201.41 - A CH213.44) - TG2	2 days	2010/11/23	2010/11/24
51	Bay A22 (A CH213.44 - A CH225.47) - TG2	2 days	2010/11/25	2010/11/26
52	Bay A23 (A CH225.47 - A CH237.50) - TG2	2 days	2010/11/27	2010/11/29
53	Bay A24 (A CH237.50 - A CH244.23) - TG2	2 days	2010/11/30	2010/12/1
54	Bay A25 (A CH244.23 - A CH257.09) - TG2	2 days	2010/12/2	2010/12/3
55	Bay A26 (A CH257.09 - A CH269.95) - TG2	2 days	2010/12/4	2010/12/6
56	Bay A27 (A CH269.95 - A CH282.43) - TG6	2 days	2010/12/7	2010/12/8
57	Bay A28 (A CH282.43 - A CH294.59) - TG6	2 days	2010/12/9	2010/12/10
58	Bay A29 (A CH294.59 - A CH306.75) - TG6	2 days	2010/12/11	2010/12/13
59	Bay A30 (A CH306.75 - A CH318.91) - TG6	2 days	2010/12/14	2010/12/15
60	Bay A31 (A CH318.91 - A CH331.09) - TG6	2 days	2010/12/16	2010/12/17
61	Bay A32 (A CH331.09 - A CH343.21) - Transition	2 days	2010/12/18	2010/12/20
62	Bay A33 (A CH343.21 - A CH359.26) - Transition	2 days	2010/12/21	2010/12/22
63	Bay A34 (A CH359.26 - A CH374.28)	2 days	2010/12/23	2010/12/24
64	Bay A35 (A CH374.28 - A CH389.29)	2 days	2010/12/28	2010/12/29
65	Bay A36 (A CH389.29 - A CH400.18)	2 days	2010/12/30	2010/12/31
66	Construction of Ramp No.2	26 days	2010/11/1	2010/11/30
67	Construction of vehicular access (A CH200.00 - A CH400.00) - East Bank	25 days	2010/12/1	2010/12/31
68	Installation of traffic sign plate / railing / street furniture	13 days	2010/12/15	2010/12/31
69	**Section of Box Culvert BC13-1**	**75 days**	**2010/10/2**	**2010/12/31**
70	**Construct box culvert (BC CH0.00 - BC CH386.00)**	**15 days**	**2010/10/2**	**2010/10/20**
71	**Excavation for box culvert formation & laying of rock fill material**	**3 days**	**2010/10/2**	**2010/10/5**
72	Bay BC5 (BC CH61.97 - BC CH46.95)	3 days	2010/10/2	2010/10/5
73	**Construction of box culvert**	**10 days**	**2010/10/6**	**2010/10/18**
74	Bay BC5 (BC CH61.97 - BC CH46.95)	10 days	2010/10/6	2010/10/18
75	**Backfilling the sides of channel structure & Laying of underground drain pipe**	**2 days**	**2010/10/19**	**2010/10/20**
76	Bay BC5 (BC CH61.97 - BC CH46.95)	2 days	2010/10/19	2010/10/20
77	**Construction of catchpit / manhole / drain pipe along channel sides**	**56 days**	**2010/10/15**	**2010/12/20**
78	Bay BC29 (BC CH383.63 - BC CH371.47)	2 days	2010/10/15	2010/10/18



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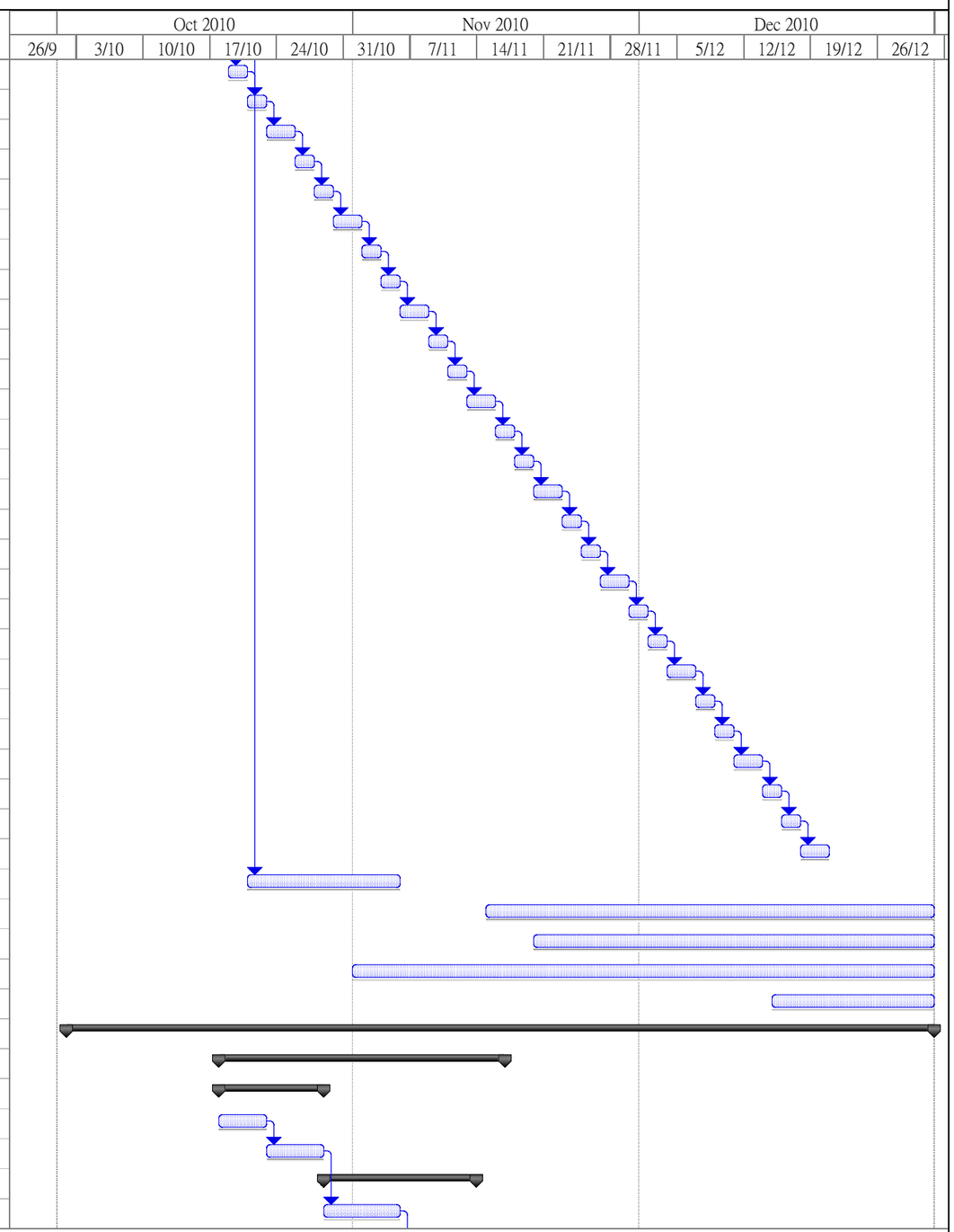
ID	Task Name	Duration	Start	Finish
79	Bay BC28 (BC CH371.47 - BC CH362.70)	2 days	2010/10/19	2010/10/20
80	Bay BC27 (BC CH362.70 - BC CH348.11)	2 days	2010/10/21	2010/10/22
81	Bay BC26 (BC CH348.11 - BC CH333.53)	2 days	2010/10/23	2010/10/25
82	Bay BC25 (BC CH333.53 - BC CH318.82)	2 days	2010/10/26	2010/10/27
83	Bay BC24 (BC CH318.82 - BC CH304.34)	2 days	2010/10/28	2010/10/29
84	Bay BC23 (BC CH304.34 - BC CH289.87)	2 days	2010/10/30	2010/11/1
85	Bay BC22 (BC CH289.87 - BC CH275.39)	2 days	2010/11/2	2010/11/3
86	Bay BC21 (BC CH275.39 - BC CH260.81)	2 days	2010/11/4	2010/11/5
87	Bay BC20 (BC CH260.81 - BC CH245.97)	2 days	2010/11/6	2010/11/8
88	Bay BC19 (BC CH245.97 - BC CH231.13)	2 days	2010/11/9	2010/11/10
89	Bay BC18 (BC CH231.13 - BC CH216.21)	2 days	2010/11/11	2010/11/12
90	Bay BC17 (BC CH216.21 - BC CH201.97)	2 days	2010/11/13	2010/11/15
91	Bay BC16 (BC CH201.97 - BC CH196.48)	2 days	2010/11/16	2010/11/17
92	Bay BC15 (BC CH196.48 - BC CH184.94)	2 days	2010/11/18	2010/11/19
93	Bay BC14 (BC CH184.94 - BC CH170.20)	2 days	2010/11/20	2010/11/22
94	Bay BC13 (BC CH170.20 - BC CH155.56)	2 days	2010/11/23	2010/11/24
95	Bay BC12 (BC CH155.56 - BC CH140.65)	2 days	2010/11/25	2010/11/26
96	Bay BC11 (BC CH140.65 - BC CH125.76)	2 days	2010/11/27	2010/11/29
97	Bay BC10 (BC CH125.76 - BC CH118.71)	2 days	2010/11/30	2010/12/1
98	Bay BC9 (BC CH118.71 - BC CH103.69)	2 days	2010/12/2	2010/12/3
99	Bay BC8 (BC CH103.69 - BC CH88.68)	2 days	2010/12/4	2010/12/6
100	Bay BC7 (BC CH88.68 - BC CH73.68)	2 days	2010/12/7	2010/12/8
101	Bay BC6 (BC CH73.68 - BC CH58.95)	2 days	2010/12/9	2010/12/10
102	Bay BC5 (BC CH58.95 - BC CH46.95)	2 days	2010/12/11	2010/12/13
103	Bay BC4 (BC CH46.95 - BC CH32.25)	2 days	2010/12/14	2010/12/15
104	Bay BC3 (BC CH32.25 - BC CH17.23)	2 days	2010/12/16	2010/12/17
105	Bay BC2 (BC CH17.23 - BC CH00.00)	2 days	2010/12/18	2010/12/20
106	Laying of new watermains across Bay A35 & Bay BC4	14 days	2010/10/21	2010/11/5
107	Reprovision of playground (BC CH60.00 - BC CH80.00)	39 days	2010/11/15	2010/12/31
108	Provision of cellular concrete paving at BC CH110.00 - BC CH250.00	34 days	2010/11/20	2010/12/31
109	Construction of Maintenance Access on the top of Box Culvert	51 days	2010/11/1	2010/12/31
110	Installation of traffic sign plate / railing street / furniture	13 days	2010/12/15	2010/12/31
111	**Section B**	**75 days**	**2010/10/2**	**2010/12/31**
112	**Construction of Transition (Bay B1 & Bay B2)**	**26 days**	**2010/10/18**	**2010/11/16**
113	**Excavation for channel formation & laying of rock fill material**	**10 days**	**2010/10/18**	**2010/10/28**
114	Bay B2 (B CH07.00 - B CH14.00) - Transition	5 days	2010/10/18	2010/10/22
115	Bay B1 (B CH00.00 - B CH07.00) - Transition	5 days	2010/10/23	2010/10/28
116	**Construction of channel structure (Transition, TG3, TG4, TG5, and TG8)**	**14 days**	**2010/10/29**	**2010/11/13**
117	Bay B2 (B CH07.00 - B CH14.00) - Transition	7 days	2010/10/29	2010/11/5



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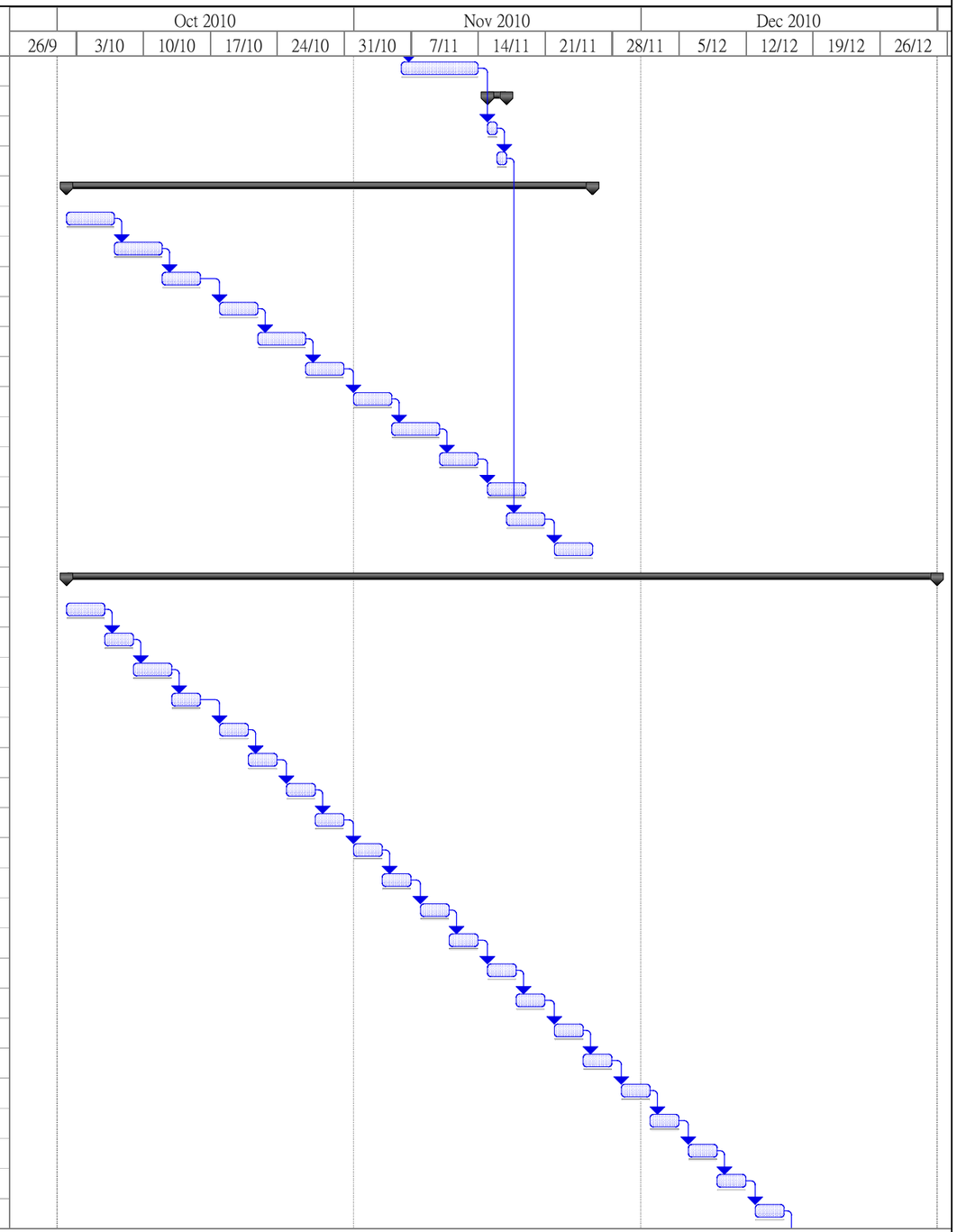
ID	Task Name	Duration	Start	Finish
118	Bay B1 (B CH00.00 - B CH07.00) - Transition	7 days	2010/11/6	2010/11/13
119	**Backfilling the sides of channel structure & Laying of underground drain pipe**	**2 days**	**2010/11/15**	**2010/11/16**
120	Bay B2 (B CH07.00 - B CH14.00) - Transition	1 day	2010/11/15	2010/11/15
121	Bay B1 (B CH00.00 - B CH07.00) - Transition	1 day	2010/11/16	2010/11/16
122	**Laying gabion block / granite block inside the channel**	**46 days**	**2010/10/2**	**2010/11/25**
123	Bay B22 (B CH212.00 - B CH224.00) - TG5	4 days	2010/10/2	2010/10/6
124	Bay B21 (B CH200.00 - B CH212.00) - TG8	4 days	2010/10/7	2010/10/11
125	Bay B20 (B CH188.00 - B CH200.00) - TG8	4 days	2010/10/12	2010/10/15
126	Bay B19 (B CH174.00 - B CH188.00) - TG8	4 days	2010/10/18	2010/10/21
127	Bay B18 (B CH162.00 - B CH174.00) - TG8	4 days	2010/10/22	2010/10/26
128	Bay B5 (B CH34.00 - B CH46.00) - TG3	4 days	2010/10/27	2010/10/30
129	Bay B4 (B CH24.00 - B CH34.00) - TG3	4 days	2010/11/1	2010/11/4
130	Bay B3 (B CH14.00 - B CH24.00) - TG3	4 days	2010/11/5	2010/11/9
131	Bay B4 (B CH24.00 - B CH34.00) - TG3	4 days	2010/11/10	2010/11/13
132	Bay B3 (B CH14.00 - B CH24.00) - TG3	4 days	2010/11/15	2010/11/18
133	Bay B2 (B CH07.00 - B CH14.00) - Transition	4 days	2010/11/17	2010/11/20
134	Bay B1 (B CH00.00 - B CH07.00) - Transition	4 days	2010/11/22	2010/11/25
135	**Construction of catchpit / manhole / drain pipe along channel sides**	**75 days**	**2010/10/2**	**2010/12/31**
136	Bay B30 (B CH302.00 - B CH312.00) - Transition	3 days	2010/10/2	2010/10/5
137	Bay B29 (B CH294.00 - B CH302.00) - Transition	3 days	2010/10/6	2010/10/8
138	Bay B28 (B CH282.00 - B CH294.00) - TG4	3 days	2010/10/9	2010/10/12
139	Bay B27 (B CH270.00 - B CH282.00) - TG4	3 days	2010/10/13	2010/10/15
140	Bay B26 (B CH260.00 - B CH270.00) - TG4	3 days	2010/10/18	2010/10/20
141	Bay B25 (B CH248.00 - B CH260.00) - TG5	3 days	2010/10/21	2010/10/23
142	Bay B24 (B CH236.00 - B CH248.00) - TG5	3 days	2010/10/25	2010/10/27
143	Bay B23 (B CH224.00 - B CH236.00) - TG5	3 days	2010/10/28	2010/10/30
144	Bay B22 (B CH212.00 - B CH224.00) - TG5	3 days	2010/11/1	2010/11/3
145	Bay B21 (B CH200.00 - B CH212.00) - TG8	3 days	2010/11/4	2010/11/6
146	Bay B20 (B CH188.00 - B CH200.00) - TG8	3 days	2010/11/8	2010/11/10
147	Bay B19 (B CH174.00 - B CH188.00) - TG8	3 days	2010/11/11	2010/11/13
148	Bay B18 (B CH162.00 - B CH174.00) - TG8	3 days	2010/11/15	2010/11/17
149	Bay B17 (B CH154.00 - B CH162.00) - Transition	3 days	2010/11/18	2010/11/20
150	Bay B16 (B CH147.00 - B CH154.00) - Transition	3 days	2010/11/22	2010/11/24
151	Bay B15 (B CH144.00 - B CH147.00) - Transition & Pedestrian Crossing	3 days	2010/11/25	2010/11/27
152	Bay B14 (B CH137.00 - B CH144.00) - Transition	3 days	2010/11/29	2010/12/1
153	Bay B13 (B CH129.00 - B CH137.00) - Transition	3 days	2010/12/2	2010/12/4
154	Bay B12 (B CH119.00 - B CH129.00) - TG3	3 days	2010/12/6	2010/12/8
155	Bay B11 (B CH107.00 - B CH119.00) - TG3	3 days	2010/12/9	2010/12/11
156	Bay B10 (B CH94.00 - B CH107.00) - TG3	3 days	2010/12/13	2010/12/15



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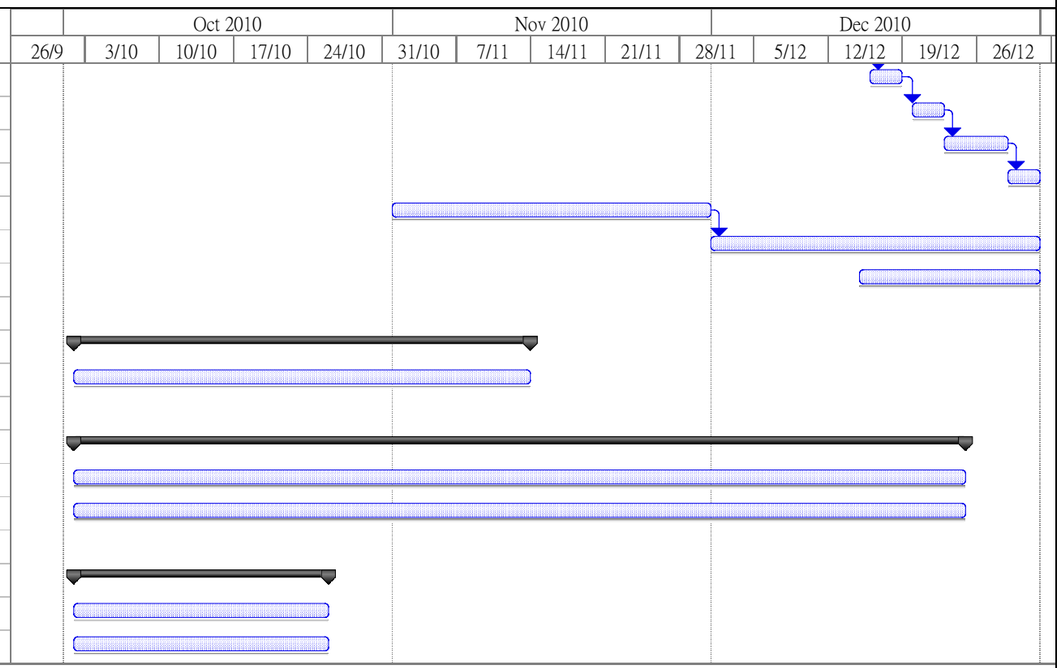
157	Bay B9 (B CH80.00 - B CH94.00) - TG3	3 days	2010/12/16	2010/12/18
158	Bay B8 (B CH68.00 - B CH80.00) - TG3	3 days	2010/12/20	2010/12/22
159	Bay B7 (B CH57.00 - B CH68.00) - TG3	3 days	2010/12/23	2010/12/28
160	Bay B6 (B CH46.00 - B CH57.00) - TG3	3 days	2010/12/29	2010/12/31
161	Construction of Ramp No.1	26 days	2010/11/1	2010/11/30
162	Construct 3.5m access road at B CH14.00 - B CH94.00 (North Bank)	25 days	2010/12/1	2010/12/31
163	Installation of traffic sign plate / Street furniture	13 days	2010/12/15	2010/12/31
164				
165	**Section V**	**36 days**	**2010/10/2**	**2010/11/13**
166	Preservation and protection of tree for Section I, II, III and IV	36 days	2010/10/2	2010/11/13
167				
168	**Section VI - Portion 9A & 9B (Tuen Mun Sewerage Work)**	**71 days**	**2010/10/2**	**2010/12/24**
169	Structural Survey and Monitoring	71 days	2010/10/2	2010/12/24
170	Construction of Manhole, Timber Box and Trench Excavation	71 days	2010/10/2	2010/12/24
171				
172	**Section VII - Portion 10A, 10B & 10C (Tuen Mun Sewerage Work)**	**19 days**	**2010/10/2**	**2010/10/25**
173	Structural Survey and Monitoring	19 days	2010/10/2	2010/10/25
174	Construction of Manhole, Timber Box and Trench Excavation	19 days	2010/10/2	2010/10/25



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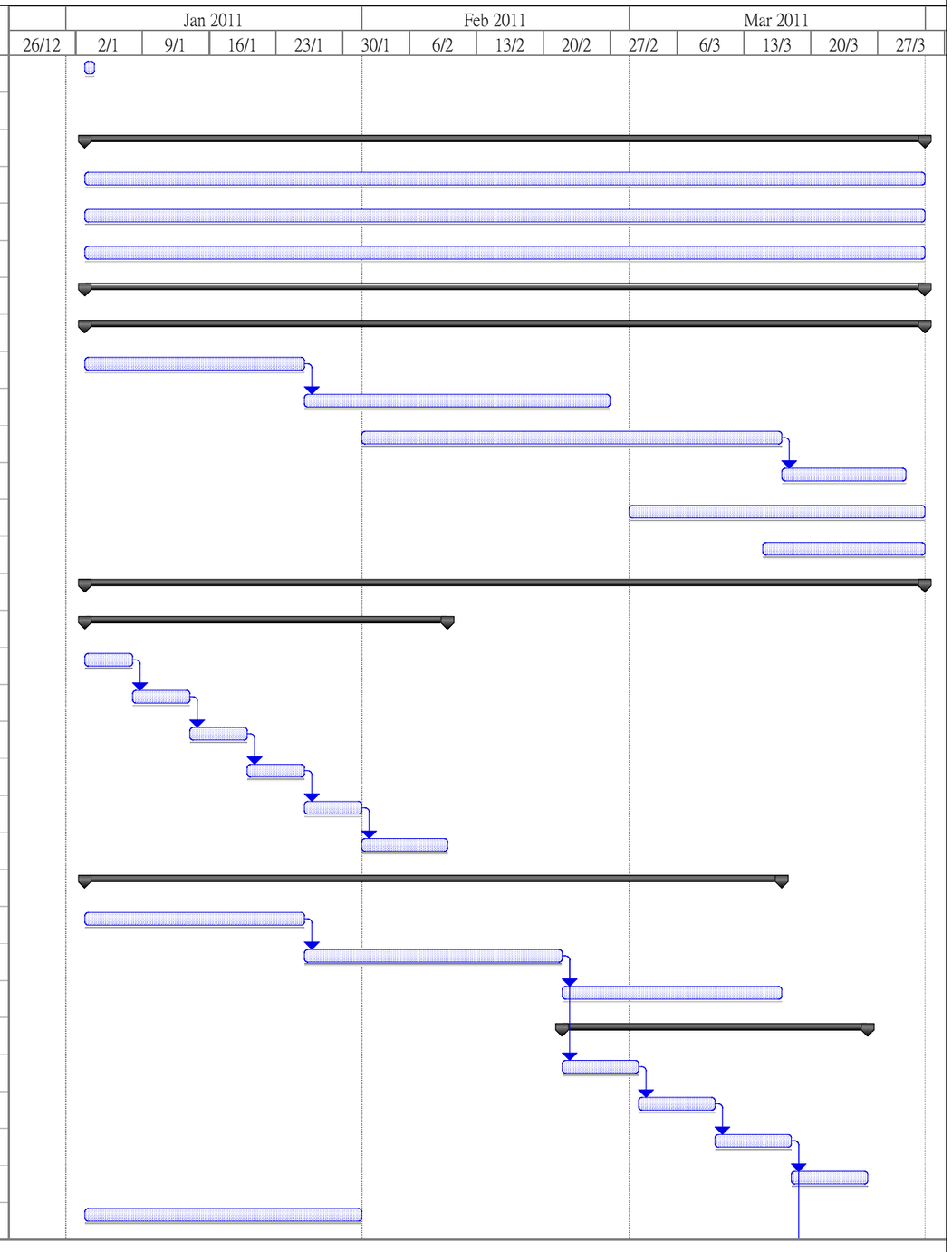
Three Months Rolling Programme - January 2011 to March 2011

ID	Task Name	Duration	Start	Finish
1	EOT was granted up to 30 September 2010	1 day	2011/1/3	2011/1/3
2				
3	**Section II (Channel KT13)**	**73 days**	**2011/1/3**	**2011/3/31**
4	**Regular Environmental Impact Monitoring**	73 days	2011/1/3	2011/3/31
5	**Regular Tree Survey & Protection**	73 days	2011/1/3	2011/3/31
6	**Regular Structural Condition Survey**	73 days	2011/1/3	2011/3/31
7	**Section A**	**73 days**	**2011/1/3**	**2011/3/31**
8	**Construction of Dry Weather Flow Channel**	**73 days**	**2011/1/3**	**2011/3/31**
9	Break Up the Existing Base Slab of Transition & Crossing	20 days	2011/1/3	2011/1/25
10	Removal of Existing Gabion Lining at Section A	25 days	2011/1/26	2011/2/26
11	Construction of Dry Flow Channel along Gabion Lining	35 days	2011/2/1	2011/3/16
12	Construction of Dry Flow Channel (Transition & Crossing)	11 days	2011/3/17	2011/3/29
13	Re-installation of Gabion Lining along Dry Flow Channel	27 days	2011/3/1	2011/3/31
14	Construction of Ramp No.2	15 days	2011/3/15	2011/3/31
15	**Section of Box Culvert BC13-1**	**73 days**	**2011/1/3**	**2011/3/31**
16	**Construction of catchpit / manhole / drain pipe along channel sides**	**30 days**	**2011/1/3**	**2011/2/9**
17	Bay BC7 (BC CH88.68 - BC CH73.68)	5 days	2011/1/3	2011/1/7
18	Bay BC6 (BC CH73.68 - BC CH58.95)	5 days	2011/1/8	2011/1/13
19	Bay BC5 (BC CH58.95 - BC CH46.95)	5 days	2011/1/14	2011/1/19
20	Bay BC4 (BC CH46.95 - BC CH32.25)	5 days	2011/1/20	2011/1/25
21	Bay BC3 (BC CH32.25 - BC CH17.23)	5 days	2011/1/26	2011/1/31
22	Bay BC2 (BC CH17.23 - BC CH00.00)	5 days	2011/2/1	2011/2/9
23	**Construction of 3.5m access road on top of box culvert (BC CH0.00 - BC CH384.00)**	**60 days**	**2011/1/3**	**2011/3/16**
24	Bay 3 (BC CH200.00 - BC CH300.00)	20 days	2011/1/3	2011/1/25
25	Bay 2 (BC CH100.00 - BC CH200.00)	20 days	2011/1/26	2011/2/21
26	Bay 1 (BC CH0.00 - BC CH100.00)	20 days	2011/2/22	2011/3/16
27	**Installation of chain link fence on top of box culvert (BC CH0.00 - BC CH384.00)**	**28 days**	**2011/2/22**	**2011/3/25**
28	BC CH300.00 - BC CH384.00	7 days	2011/2/22	2011/3/1
29	BC CH200.00 - BC CH300.00	7 days	2011/3/2	2011/3/9
30	BC CH100.00 - BC CH200.00	7 days	2011/3/10	2011/3/17
31	BC CH0.00 - BC CH100.00	7 days	2011/3/18	2011/3/25
32	Reprovision of playground (BC CH60.00 - BC CH80.00)	25 days	2011/1/3	2011/1/31



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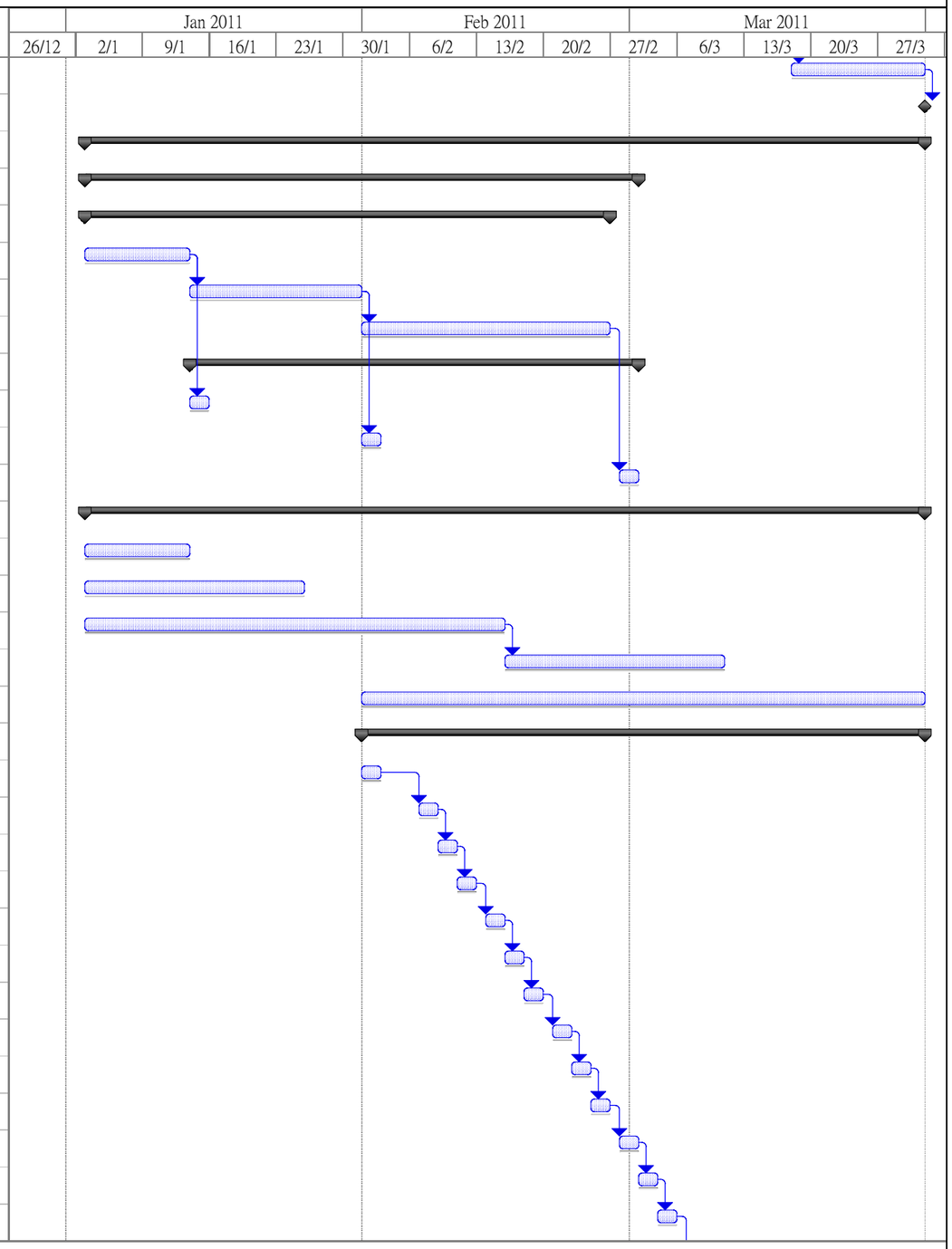
ID	Task Name	Duration	Start	Finish
33	Installation of traffic sign plate / railing street / furniture	12 days	2011/3/18	2011/3/31
34	Completion of Section of Box Culvert	0 days	2011/3/31	2011/3/31
35	**Section B**	**73 days**	**2011/1/3**	**2011/3/31**
36	**Construction of New Box Culvert at Upstream**	**47 days**	**2011/1/3**	**2011/3/1**
37	**Construction of channel structure**	**45 days**	**2011/1/3**	**2011/2/26**
38	New Box Culvert	10 days	2011/1/3	2011/1/13
39	Inlet Structure	15 days	2011/1/14	2011/1/31
40	Modification of Transition (Bay B30)	20 days	2011/2/1	2011/2/26
41	**Backfilling the sides of channel structure & Laying of underground drain pipe**	**37 days**	**2011/1/14**	**2011/3/1**
42	New Box Culvert	2 days	2011/1/14	2011/1/15
43	Inlet Structure	2 days	2011/2/1	2011/2/2
44	Modification of Transition (Bay B30)	2 days	2011/2/28	2011/3/1
45	**Construction of Dry Weather Flow Channel**	**73 days**	**2011/1/3**	**2011/3/31**
46	Break Up the Existing Base Slab of Transition & Crossing	10 days	2011/1/3	2011/1/13
47	Removal of Existing Gabion Lining at Section B	20 days	2011/1/3	2011/1/25
48	Construction of Dry Flow Channel along Gabion Lining	35 days	2011/1/3	2011/2/15
49	Construction of Dry Flow Channel (Transition & Crossing)	20 days	2011/2/16	2011/3/10
50	Re-installation of Gabion Lining along Dry Flow Channel	48 days	2011/2/1	2011/3/31
51	**Construction of catchpit / manhole / drain pipe along channel sides**	**48 days**	**2011/2/1**	**2011/3/31**
52	Bay B29 (B CH294.00 - B CH302.00) - Transition	2 days	2011/2/1	2011/2/2
53	Bay B28 (B CH282.00 - B CH294.00) - TG4	2 days	2011/2/7	2011/2/8
54	Bay B27 (B CH270.00 - B CH282.00) - TG4	2 days	2011/2/9	2011/2/10
55	Bay B26 (B CH260.00 - B CH270.00) - TG4	2 days	2011/2/11	2011/2/12
56	Bay B25 (B CH248.00 - B CH260.00) - TG5	2 days	2011/2/14	2011/2/15
57	Bay B24 (B CH236.00 - B CH248.00) - TG5	2 days	2011/2/16	2011/2/17
58	Bay B23 (B CH224.00 - B CH236.00) - TG5	2 days	2011/2/18	2011/2/19
59	Bay B22 (B CH212.00 - B CH224.00) - TG5	2 days	2011/2/21	2011/2/22
60	Bay B21 (B CH200.00 - B CH212.00) - TG8	2 days	2011/2/23	2011/2/24
61	Bay B20 (B CH188.00 - B CH200.00) - TG8	2 days	2011/2/25	2011/2/26
62	Bay B19 (B CH174.00 - B CH188.00) - TG8	2 days	2011/2/28	2011/3/1
63	Bay B18 (B CH162.00 - B CH174.00) - TG8	2 days	2011/3/2	2011/3/3
64	Bay B17 (B CH154.00 - B CH162.00) - Transition	2 days	2011/3/4	2011/3/5



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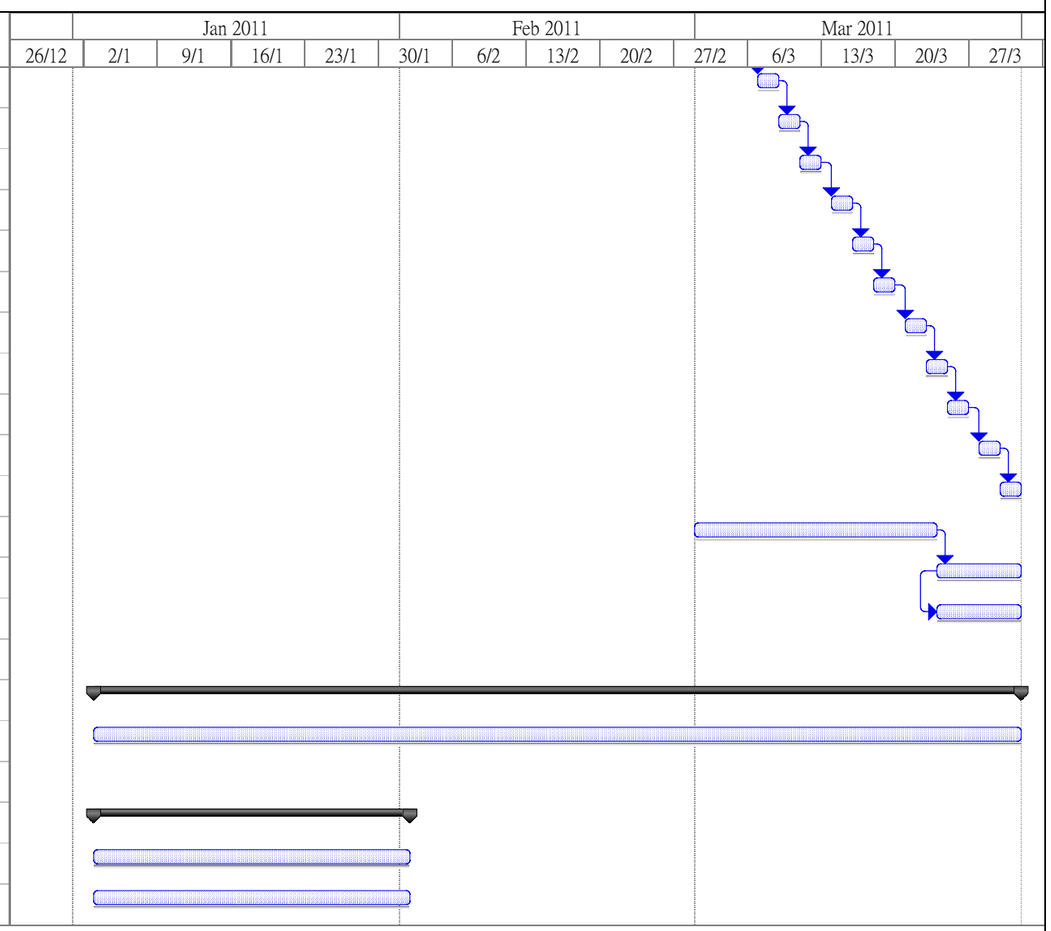
ID	Task Name	Duration	Start	Finish
65	Bay B16 (B CH147.00 - B CH154.00) - Transition	2 days	2011/3/7	2011/3/8
66	Bay B15 (B CH144.00 - B CH147.00) - Transition & Pedestrian Crossing	2 days	2011/3/9	2011/3/10
67	Bay B14 (B CH137.00 - B CH144.00) - Transition	2 days	2011/3/11	2011/3/12
68	Bay B13 (B CH129.00 - B CH137.00) - Transition	2 days	2011/3/14	2011/3/15
69	Bay B12 (B CH119.00 - B CH129.00) - TG3	2 days	2011/3/16	2011/3/17
70	Bay B11 (B CH107.00 - B CH119.00) - TG3	2 days	2011/3/18	2011/3/19
71	Bay B10 (B CH94.00 - B CH107.00) - TG3	2 days	2011/3/21	2011/3/22
72	Bay B9 (B CH80.00 - B CH94.00) - TG3	2 days	2011/3/23	2011/3/24
73	Bay B8 (B CH68.00 - B CH80.00) - TG3	2 days	2011/3/25	2011/3/26
74	Bay B7 (B CH57.00 - B CH68.00) - TG3	2 days	2011/3/28	2011/3/29
75	Bay B6 (B CH46.00 - B CH57.00) - TG3	2 days	2011/3/30	2011/3/31
76	Construction of Ramp No.1	20 days	2011/3/1	2011/3/23
77	Construct 3.5m access road at B CH14.00 - B CH94.00 (North Bank)	7 days	2011/3/24	2011/3/31
78	Installation of traffic sign plate / Street furniture	7 days	2011/3/24	2011/3/31
79				
80	**Section V**	**73 days**	**2011/1/3**	**2011/3/31**
81	Preservation and protection of tree for Section II and IV	73 days	2011/1/3	2011/3/31
82				
83	**Section VI - Portion 9A & 9B (Tuen Mun Sewerage Work)**	**26 days**	**2011/1/3**	**2011/2/1**
84	Structural Survey and Monitoring	26 days	2011/1/3	2011/2/1
85	Construction of Manhole, Timber Box and Trench Excavation	26 days	2011/1/3	2011/2/1



Task Split Progress Milestone Summary

Appendix D

Mitigation Measure Implementation Schedule

Appendix A
Mitigation Measures Implementation Schedule

Ecological Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
4.9.2	To avoid potential impacts to the egretry and the associated habitats, the proposed layout and gabion structures shown in Figures 2.2A, 2.2B and 2.4 of the EIA shall be adopted. The bypass culvert design shall ensure that continuous flow of the existing unmodified stream is maintained. Reprovide the stream section affected by the bypass culvert with gabion banks and natural substrates as stream bed materials.	Minimize loss of egretry, stream and conservation area, and the associated ecological habitats	Design Stage Refer to Figures 2.2A, 2.2B and 2.4 for locations	Detailed Design Engineer	✓	✓		Environmental Impact Assessment Ordinance (EIAO)
4.9.7	Chain link fence to be provided along the site boundary near the CA zone and Ho Pui Egretry (Figure 4.13). Prohibit the disturbance of vegetation outside the site boundary. Signage to be provided at conspicuous location to warn workers from entering and disturbing the sensitive areas.	Minimize the disturbance and access to the CA zone and Ho Pui Egretry during construction	Construction Stage at locations shown in Figure 4.13 of the EIA before commencement of bypass culvert construction	Construction Contractor		✓		EIAO
4.9.8	Compensatory planting of about 148 heavy standard size trees (in 2:1 ratio) for the approximately 74 trees to be felled.	Compensatory planting of trees that inevitably need to be felled	Construction Stage at locations shown in Figures 4.13, LP-001 and LP-002 of the EIA before commencement of operation stage	Construction Contractor		✓		EIAO
4.9.9 & Table 4.35	Planting an area (855 m²) of appropriate tree and bamboo species as shown in Figure 4.13: *Bambusa eutuldoides* 40% of total species *Cinnamomum camphora* 15% of total species *Celtis tetranda* 15% of total species *Ficus virens* 15% of total species *Ficus microcarpa* 15% of total species	Replace lost vegetation and conservation area by enhancing a stream side area to become suitable habitats for egrets	Construction Stage at locations shown in Figure 4.13 of the EIA before commencement of operation stage	Construction Contractor		✓		EIAO

Ecological Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
4.9.2 (ii)	Potentially adverse impacts arising from the maintenance of the channelized sections will be minimized by restricting routine channel maintenance to annual silt removal by hand or light machinery during the dry season (October to March). The management of woody / emergent vegetation will be limited to manual cutting, to be carried out only when unchecked growth of such vegetation is very likely to impede channel flow.	Minimize impacts arising from the maintenance of KT13	KT13 during Operation Stage	DSD (or DSD's maintenance contractor)			✓	EIAO

Noise Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
5.5.22	Level 1 Mitigation Measure Plant to be used in the construction phase are listed in Appendix F1 of the EIA. Quiet and silenced plant should be used (Appendix F2). No nighttime works will be carried out.	Prevent noise impact at sensitive receivers	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		EIAO
5.5.23 - 5.5.24	Level 2 Mitigation Measure Temporary noise barrier of minimum height 3m should be erected along the site boundary of the construction work which is closest to the NSRs. These barrier shall be gap free apart from the necessary entrances/exits. The overall length for which noise barriers are required is shown in Figure 5.3. These barriers shall be constructed in such a way that no construction works and PME are visible from the low rise noise sensitive receivers they protect. A minimum surface density of 10 kg/m² is required. Where the affected sensitive receivers are very close to the construction works so that they cannot be adequately screened by the proposed temporary noise barrier as described on Figure 5.3, the Contractor is required to fully or partially modify the design of the temporary noise barriers, such as adding cantilevered portion or the use of mobile barrier, to screen the construction works away from the line of sight of the affected sensitive receivers.	Prevent noise impact at sensitive receivers	To be implemented at the works sites during the Construction Phase (see Figure 5.3).	Construction Contractor		✓		EIAO

Air Quality Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
6.5.12	Dust Mitigation Measures The Contractor shall prevent dust nuisance arising from the construction activities. The Contractor is required to follow all the requirements for dust control stipulated in the Air Pollution Control (Construction Dust) Regulation. Dust suppression measures should be installed as part of proper construction practice, and these should be incorporated in the Contract Specification and implemented to minimize dust nuisance to within acceptable levels. The following are examples of the dust suppression measures: (i) The Contractor shall frequently clean and water the site to minimize fugitive dust emissions. (ii) Effective water sprays shall be used during the delivery and handling of aggregate, and other similar materials, when dust is likely to be created and to dampen all stored materials during dry and windy weather. (iii) Watering of exposed surfaces shall be exercised as often as possible depending on the circumstances. (iv) Areas within the site where there is a regular movement of vehicles must be regularly watered as often as necessary for effective suppression of dust or as often as directed by the Engineer. (v) Where dusty material are being discharged to vehicle from a conveying system at a fixed transfer point, a three-sided roofed enclosure with a flexible curtain across the entry shall be provided. Exhaust fans shall be provided for this enclosure and vented to a suitable fabric filter system.	Prevent dust / odour nuisance	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Air Pollution Control Ordinance [Air Pollution Control (Construction Dust) Regulation]

Air Quality Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
6.5.12 (cont'd)	(vi) The Contractor shall restrict all motorised vehicles within the site, excluding those on public roads, to a maximum speed of 15 km per hour and confine haulage and delivery vehicles to designated roadways inside the site. (vii) Wheel washing facilities shall be installed and used by all vehicles leaving the site. No earth, mud, debris, dust and the like shall be deposited on public roads. Water in the wheel cleaning facility shall be changed at frequent intervals and sediments shall be removed regularly. The Contractor shall submit details of proposals for the wheel cleaning facility. Such wheel washing facilities shall be usable prior to any earthworks excavating activity on the site. The Contractor shall also provide a hard-surfaced road between any washing facility and the public road. (viii) All vehicle exhausts should be directly vertically upwards or directed away from the ground. (ix) Any materials dropped on paved roads will need to be cleaned up immediately to prevent dust nuisance. *Odour Mitigation Measures* (x) Any odourous excavated material should be placed away from sensitive receivers. The material shall be removed within 1 day. (xi) Any odourous material stockpiled should be of the shortest duration. Also, all stockpiled materials must be stored in covered skips. Any leachate from these storage skips shall be collected in covered tanks or buckets and removed from site with toilet waste by licensed collectors for discharging to government sewer.							

Air Quality Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
6.5.4	No on-site concrete batching plant shall be erected.	Prevent dust nuisance	To be implemented at the works sites during the construction phase			✓		Air Pollution Control Construction Dust Regulation
6.5.13	During the Operation Phase, excavated sediment deposits should be regularly removed from the channel to maintain adequate water flow as well as to remove odourous materials. Potentially odourous materials should be stockpiled for the minimum time possible and away from ASRs. The material should be stored in covered impermeable skips and removed from site within 1 day.	Prevent odor nuisance during operation phase	To be implemented along KT13 during the Operation Phase.	DSD's Maintenance Contractor			✓	

Water Quality Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
7.5.5 - 7.5.7	Temporary earth bunds and sand barriers should be used to direct stormwater run-off to temporary settlement area. The settlement area should be within the channel itself. A cofferdam should be formed to keep the working area dry. The channel will be dug out to a depth of around 1 – 2m for a length of approximately 12m, to form a sedimentation area. The volume will be approximately 50m^3 (with a channel width of 3.5m). Sediment flowing downstream should settle in this settlement pond, while run-off from the surface should be channel through a local site drainage system into the settlement area. The settlement area should be maintained and the deposited materials should be removed regularly, at the onset of and after each rainstorm to ensure proper functioning at all times. No sediment removal shall be allowed in rainy weather. Open stockpiles susceptible to erosion should be covered with tarpaulin or similar fabric, especially during the wet season (Apr-Sep) or when heavy rainstorm is predicted.	Prevent additional pollution load being added to stream due to KT13 works (site formation)	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Water Pollution Control Ordinance ProPECC Note (PN 1/94)
7.5.8 - 7.5.10	The Contractor should provide temporary drainage diversion during construction to ensure continuous water flow to the unmodified portion of the stream. The use of containment structure such as temporary earth bunds, sand bags, sheetpile barriers or similar techniques is recommended to facilitate a dry or at least confined excavation within watercourses. Excavated sediment from streams and channel is likely to be wet and contaminated. The material should be stored in covered impermeable skips and disposed on the same day, or within 1 day, to avoid both odour and inadvertent release of contaminants to nearby water bodies.	Prevent additional pollution load being added to stream due to KT13 works (stream diversion and dredging)	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Water Pollution Control Ordinance ProPECC Note (PN 1/94)

Water Quality Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
7.5.11 - 7.5.12	Runoff should be carefully channelled to prevent concrete-contaminated water from entering watercourses. Adjustment of pH can be achieved by adding a suitable neutralising reagent to wastewater prior to discharge. Re-use of the supernatant from the sediment pits for washing out of concrete lorries should be practised. Any exceedance of acceptable range of pH levels in the nearby water bodies caused by inadvertent release of site runoff containing concrete should be monitored and rectified under the EM&A programme for this Project.	Prevent additional pollution load being added to stream due to KT13 works (concreting work)	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Water Pollution Control Ordinance ProPECC Note (PN 1/94)
7.5.13	Any Contractor generating waste oil or other chemicals as a result of his activities should register as a chemical waste producer and provide a safe storage area for chemicals on site. The storage site should be located away from existing water courses. Hard standing compounds should drain via an oil interceptor. To prevent spillage of fuels or other chemicals to water courses, all fuel tanks and storage areas should be sited on sealed areas, within a bund of a capacity equal to 110% of the storage capacity of the largest tank. Disposal of the waste oil should be done by a licensed collector. Oil interceptors should be regularly inspected and cleaned to avoid wash-out of oil during storm conditions. A bypass should be provided to avoid overload of the interceptor's capacity. Good housekeeping practices should be implemented to minimise careless spillage and to keep the storage and the work space in a tidy and clean condition. Appropriate training including safety codes and relevant manuals should be given to the personnel who regularly handle the chemicals on site.	Prevent additional pollution load being added to stream due to KT13 works (site workshop or depot)	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Water Pollution Control Ordinance ProPECC Note (PN 1/94)

Water Quality Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
7.5.14 - 7.5.15	Sewage arising from the additional population of workers on site should be collected in a suitable storage facility, such as portable chemical toilets. An adequate number of portable toilets should be provided for the construction workforce. The portable toilets should be maintained in a state that will not deter the workers from using them. The collected wastewater from sewage facilities and also from eating areas or washing facilities must be disposed of properly, in accordance with the WPCO requirements. Wastewater collected should be discharged into foul sewers and collected by licensed collectors. Either chemical toilets or other types of sewage treatment facilities without local discharge of wastewater shall be used to handle the foul water effluent arising from the project sites.	Prevent additional pollution load being added to stream due to KT13 works (wastewater from workers)	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Water Pollution Control Ordinance ProPECC Note (PN 1/94)

Waste Management

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
8.2.5	All construction wastes shall be sorted on site into inert and non-inert components. Non-inert materials (wood, glass and plastics) shall be recycled or reused and disposed to NENT Landfill as a last resort. Inert materials (soil, rubble, sand, rock, brick and concrete) shall be separated and reused on site prior to final disposal at the public filling facility at Tuen Mun Area 38.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		WBTC No. 12/2000 ETWB TCW No. 33/2002 19/2005 31/2004
8.2.7	Any excavated material from the stream shall be removed within 1 day of excavation, taking measures to reduce odour and potential runoff.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		WBTC No. 12/2000 ETWB TCW No. 33/2002 19/2005 31/2004
8.2.13 – 8.2.18 & 8.3.3	The excavated sediments shall be managed in accordance with ETWB TCW No. 34/2002 and WBTC No. 12/2000. The excavated sediment shall be disposed to marine disposal sites allocated by the Marine Fill Committee (MFC) – Pit IVa / Pit IVb of the East Sha Chau facility as capping material for Type 1 disposal and Pit IVc of the East Sha Chau facility for Type 2 disposal. The general allocation conditions as stipulated by the MFC shall be followed.	To properly manage the excavated sediment	Proposed works area during the Construction Phase	Construction Contractor		✓		WBTC No. 12/2000 ETWB TCW No. 34/2002 Dumping at Sea Ordinance
8.2.20	Dry concrete waste shall be sorted out from the other wastes and recycled at Tuen Mun Area 38 to form aggregates for road sub-base.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		WBTC No. 12/2000 ETWB TCW No. 33/2002 19/2005 31/2004
8.2.22 – 8.2.24	Hoarding, shutters, form works and false works made of reusable materials such as steel or plastic / concrete panels shall be used as a preferred alternative to non-reusable materials such as wood and timber, with reference to WBTC No. 19/2001 - Metallic Site Hoarding and Signboards.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		WBTC No. 19/2001

Waste Management

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
8.2.25 – 8.2.29	Where the construction processes produce chemical waste, the contractor must register with EPD as a Chemical Waste Producer. Storage, handling, transport and disposal of chemical waste shall be arranged in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published by EPD. All chemical waste shall be collected by a licensed collector for disposal at a licensed chemical waste treatment facility.	Waste reduction, re-use, recycling and proper disposal of chemical waste	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		Waste Disposal Ordinance Waste Disposal (Chemical Waste) (General Regulation)
8.2.30	Settled sediments from wheel wash facilities should be dried and disposed of in the same way as inert excavated material.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		WBTC No. 12/2000 ETWB TCW No. 33/2002 19/2005 31/2004
8.2.32	A temporary refuse collection station shall be set up by the Contractor. Municipal waste shall be collected regularly and delivered to the North East New Territories (NENT) Landfill.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		Waste Disposal Ordinance Public Health and Municipal Services Ordinance
8.4.2	Appropriate waste management measures should be incorporated as part of the Environmental Management Plan (EMP) to be prepared and implemented by the Contractor.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		ETWB TCW No. 19/2005
8.4.3	Training of construction staff should be undertaken by the Contractor in order to increase awareness of waste management issues.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		ETWB TCW No. 19/2005
8.3.4 & 8.4.9	The Contractor shall refer and strictly follow the requirements stipulated in the ETWB TCW No. 31/2004 – Trip Ticket System for Disposal of Construction and Demolition Materials.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		ETWB TCW No. 31/2004

Cultural Heritage

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
Table 9.3	A condition survey will be required before and during the construction phase to ensure the structure of the identified historic grave (KT13-02-02) remains intact. Measures will have to be taken to ensure the structural stability of the identified historic grave (KT13-02-02). Details will be presented in the condition survey.	To ensure the structure of the identified historic grave (KT13-02-02) remains intact during construction phase	Historic grave (KT13-02-02) / Before and during construction of the bypass culvert	Construction Contractor / Qualified archaeologist to conduct condition survey		✓		EIAO

Landscape/Visual Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives for Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
Table 10.2	CONSTRUCTION PHASE CM1 Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. CM2 Temporary access to site should be planned with care and located to minimize disturbance to existing riparian vegetation. CM3 Existing trees to be retained on site should be carefully protected during construction. CM4 Trees unavoidably affected by the works should be transplanted where practical. CM5 Compensatory tree planting should be provided to compensate for felled trees. CM6 Erection of decorative screen hoarding compatible with the surrounding rural setting.	Improves visual quality of project area and proposed works	To be implemented along KT13 works area during the Construction Phase.	Construction Contractor		✓		Works Bureau Technical Circular No. 14/2002
Table 10.3, Figures LP-001 & LP-002	OPERATION PHASE OM1 Buffer planting of trees and shrubs to screen off and blend in the channel with the adjacent settings OM2 Compensation planting of tree and bamboo species as recommended in Ecological Assessment compensates and reinstates riparian woodland disturbed on top of hydroseeding. OM3 Gabion embankment and substratum for natural colonization of vegetation OM4 Chromatic treatment of vehicular and pedestrian crossing to match adjacent setting. OM5 Aesthetic/ Quality design to re-provision of sitting out area of Ma On Kong. OM6 Approximate 50m stretch of grasscrete lined maintenance access road within CA zone.	Improved visual quality of proposed project	To be implemented along KT13 as shown in Figures LP-001 & LP-002 during Construction Phase / To be completed before commencement of Operation	Construction Contractor		✓		WBTC No. 14/2002 & ETWBTC No. 2/2004

Landscape/Visual Impact Mitigation

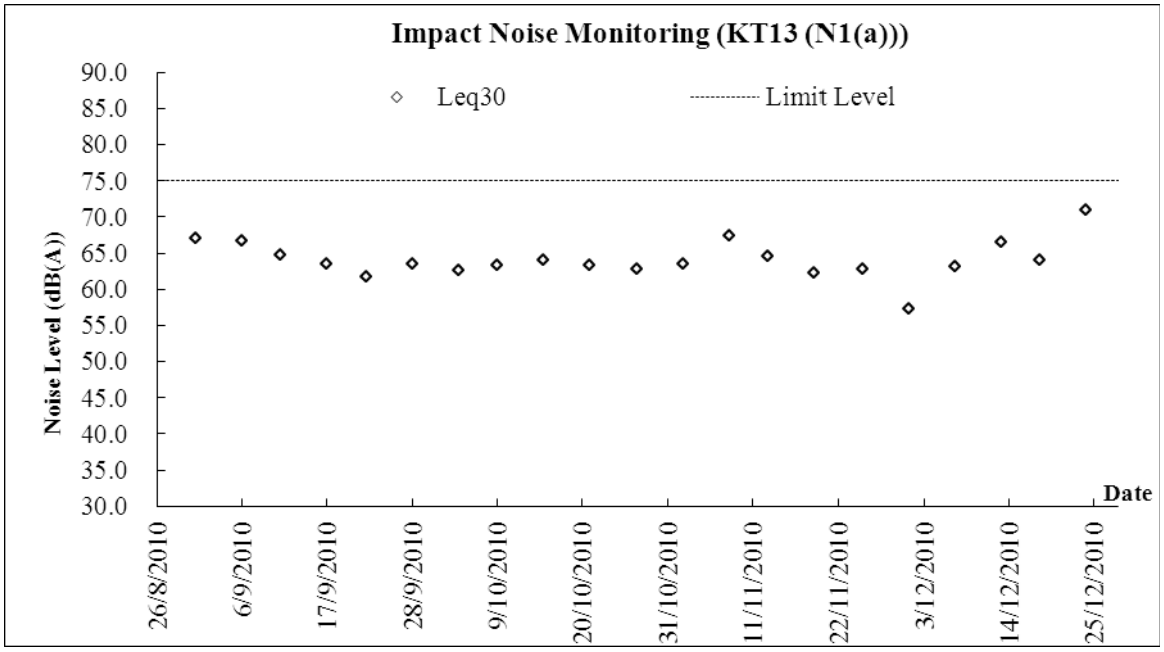
<table>
<tr><th rowspan="2">EIA Ref.</th><th rowspan="2">Mitigation Measures</th><th rowspan="2">Objectives for Proposed Measures</th><th rowspan="2">Location/Duration of Measures/Timing of Completion of Measures</th><th rowspan="2">Implementation Agent(s)</th><th colspan="3">Implementation Stage</th><th rowspan="2">Relevant Legislation & Guidelines</th></tr>
<tr><th>Design</th><th>Construction</th><th>Operation</th></tr>
<tr><td>10.8.18 Figures LP-001, LP-002 & 4.13</td><td>Compensatory planting of trees and bamboos with requirements as below.<table><tr><td>Size of compensatory tree planting</td><td>At least heavy standard size</td></tr><tr><td>Quantity of compensatory tree planting</td><td>2 times of the tree to be felled (approximately 148 nos. of tree to be compensated)</td></tr><tr><td>Proposed species</td><td>Bambusa eutuldoides*
Celtis tetranda
Cinnamomum camphora
Ficus virens
Ficus microcarpa</td></tr><tr><td>Requirements*</td><td>To ensure the right species of bamboo is planted, an experience botanist shall be acquired by the Contractor to source the correct bamboo species. In addition, the bamboos should have a minimum stem diameter of 8-10 cm and clump size of 5 shoots per plant.</td></tr></table></td><td>To address both landscape / visual and ecological mitigation needs</td><td>To be implemented along KT13 as shown in Figures LP-001 and LP-002 (with reference to Figure 4.13) during Construction Phase / To be completed before commencement of Operation</td><td>Construction Contractor</td><td></td><td>✓</td><td></td><td>WBTC No. 14/2002 & ETWBTC No. 2/2004</td></tr>
</table>

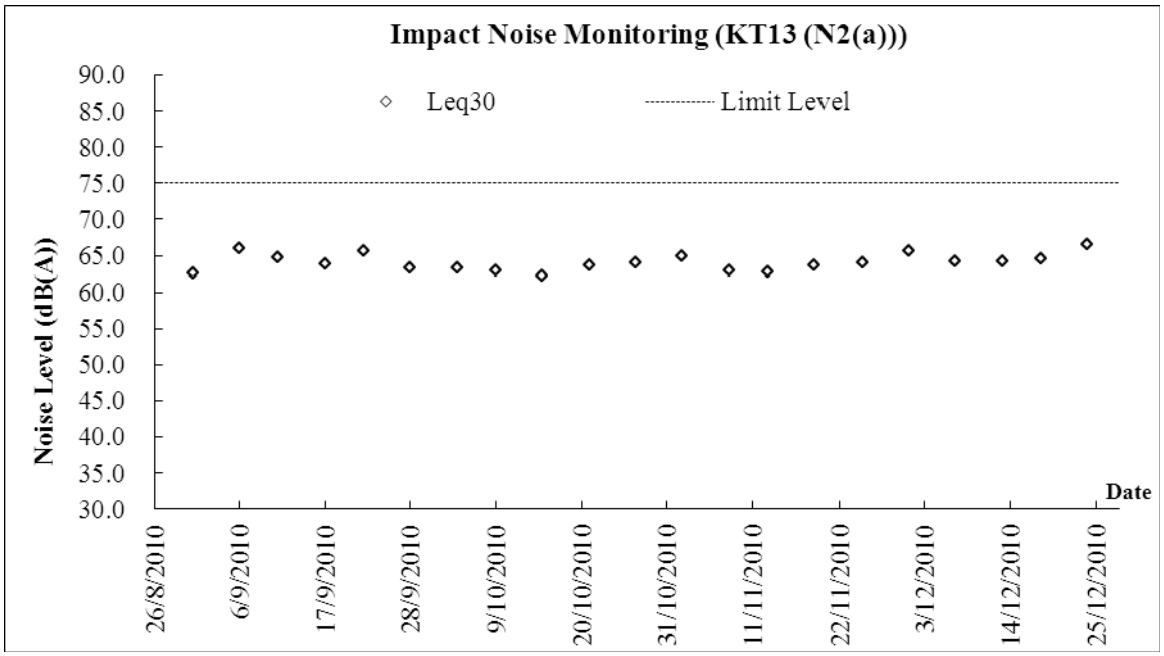
Appendix E

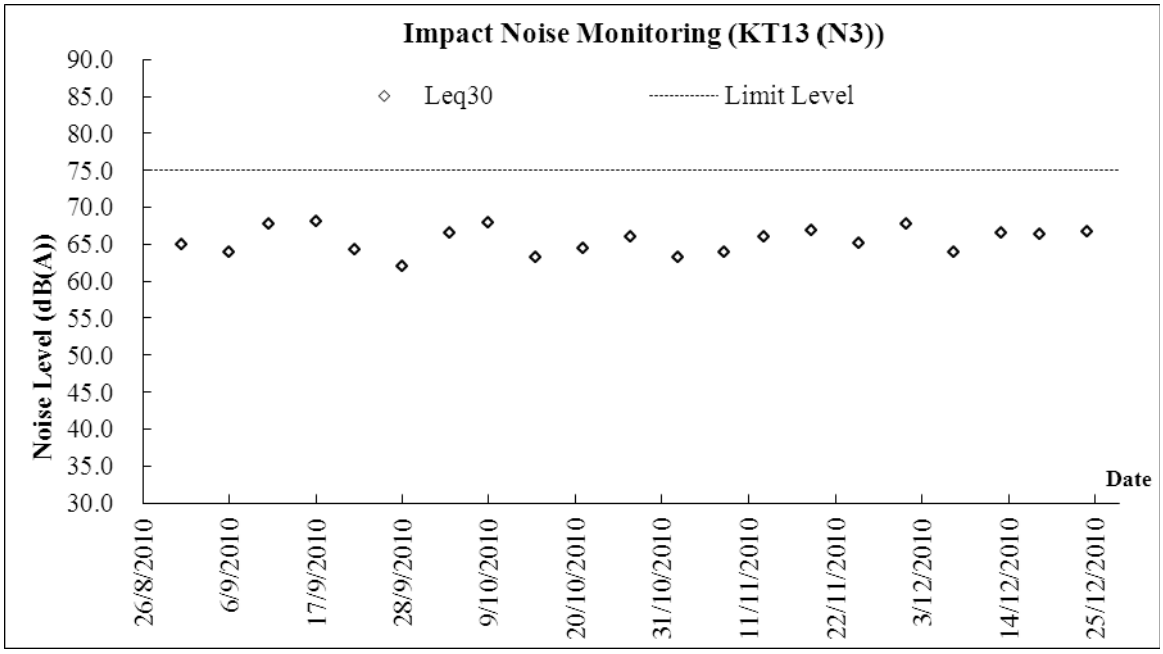
Graphic Plots of

(a) Air Quality
(b) Construction Noise
(c) Water Quality

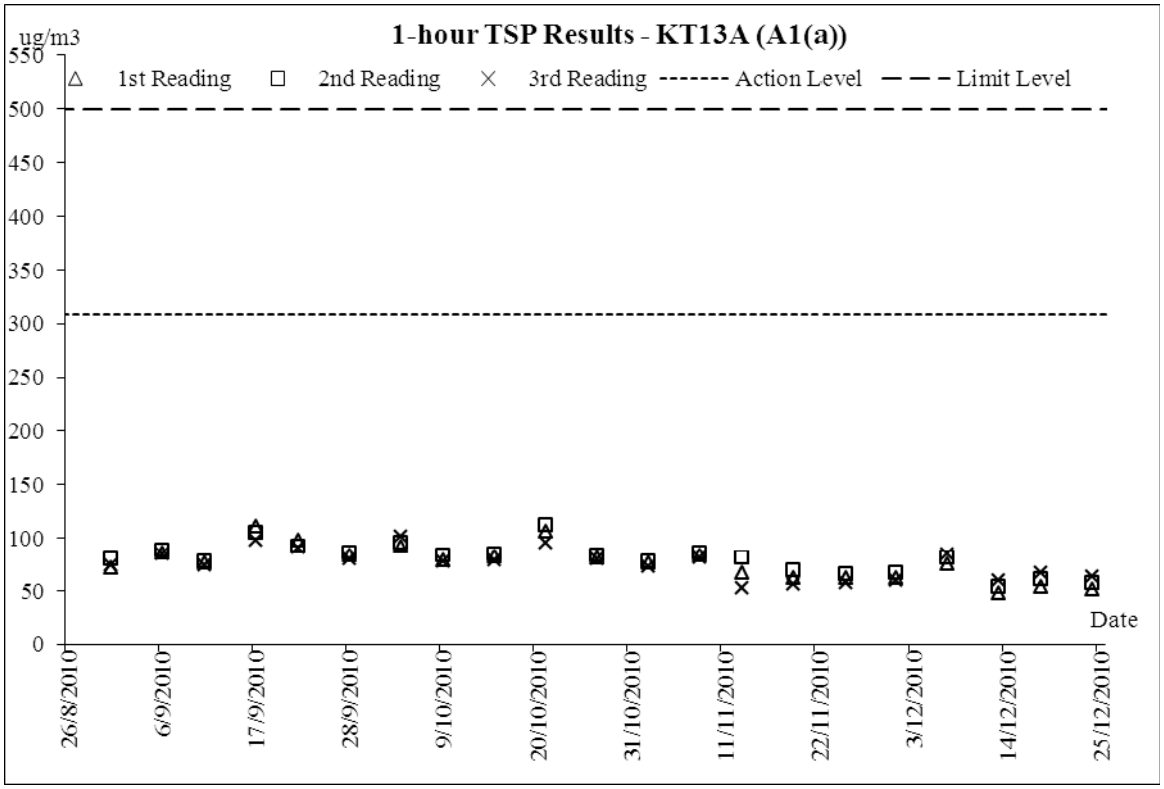
Graphic Plot of Monitoring - Construction Noise

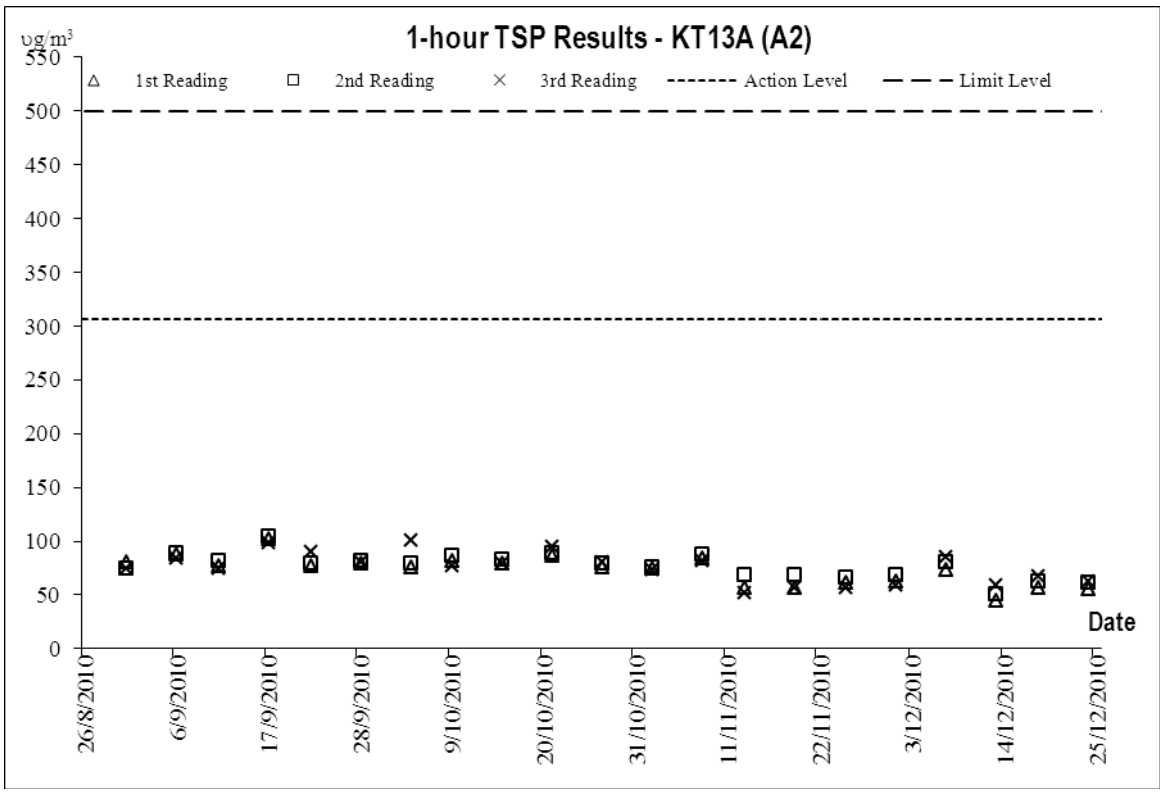


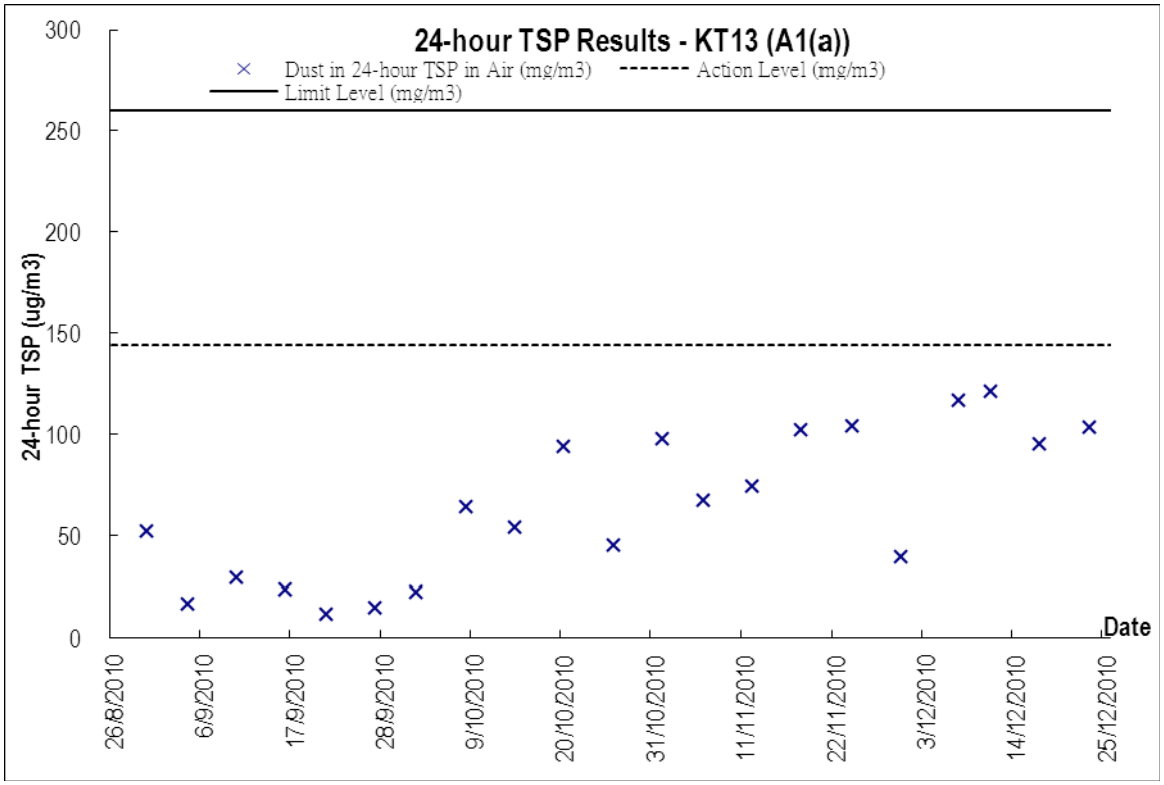


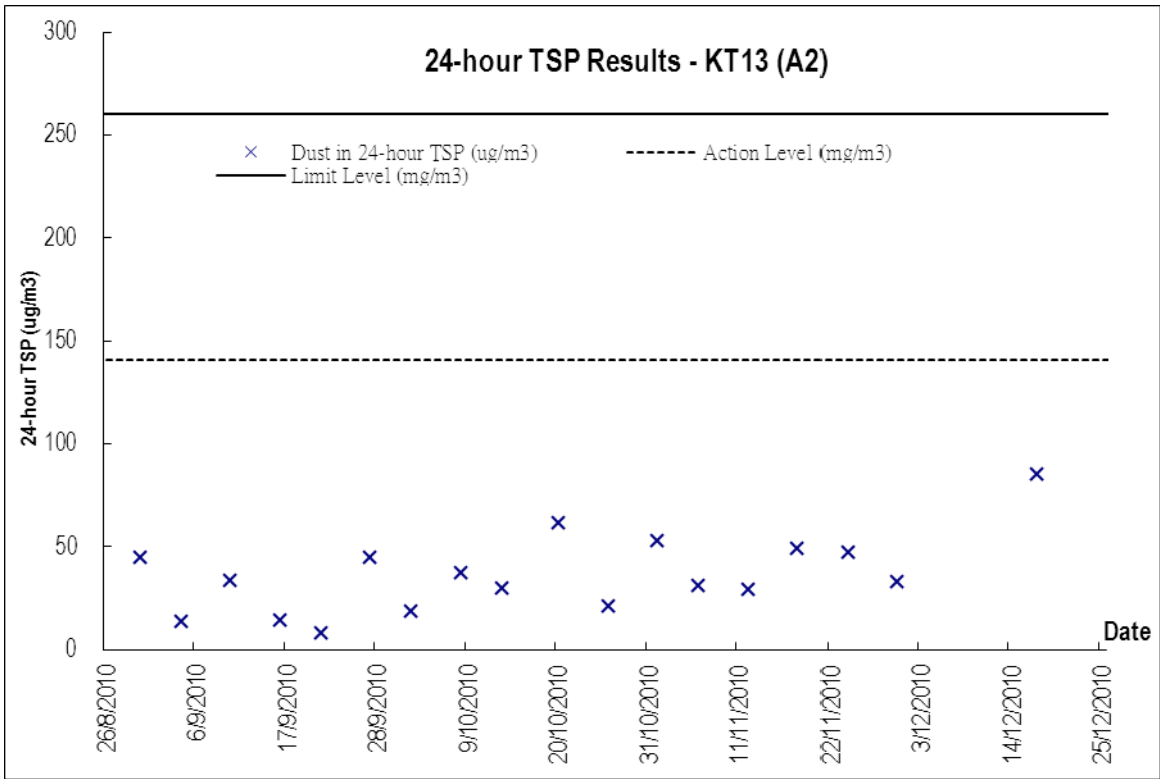

Impact Noise Monitoring (KT13 (N3))
Leq30
Limit Level
Noise Level (dB(A))
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
Date
26/8/2010
6/9/2010
17/9/2010
28/9/2010
9/10/2010
20/10/2010
31/10/2010
11/11/2010
22/11/2010
3/12/2010
14/12/2010
25/12/2010

Graphic Plot of Monitoring – Air Quality

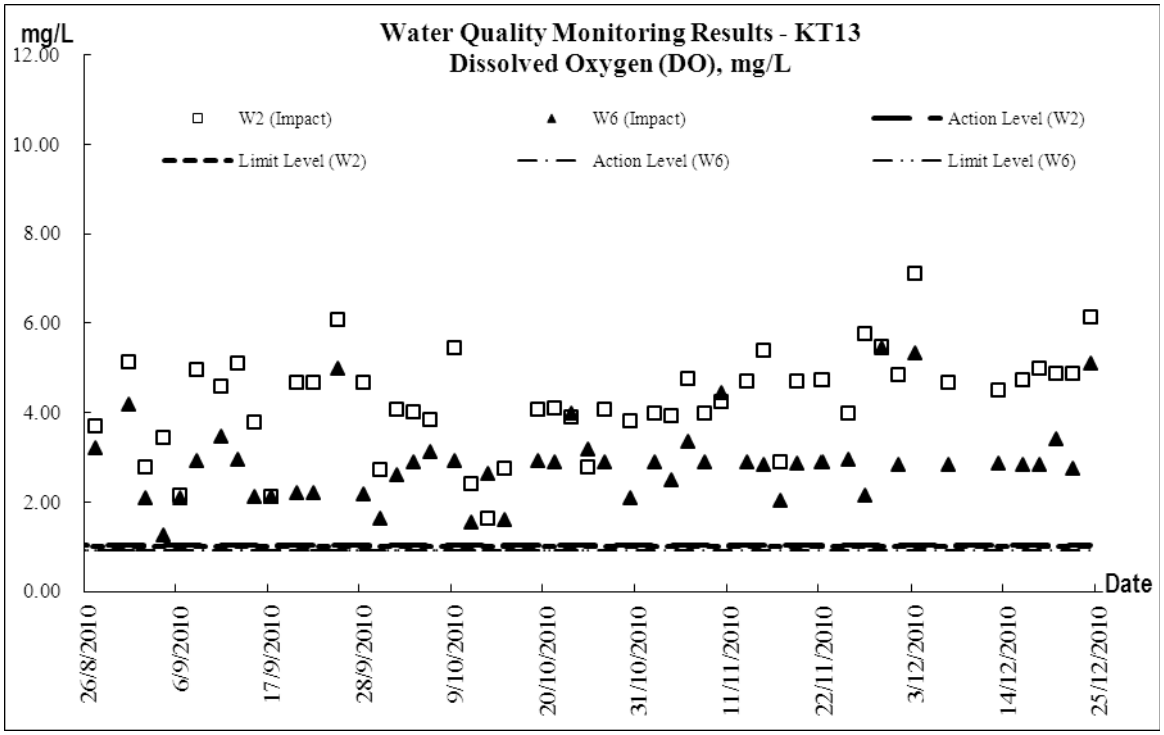


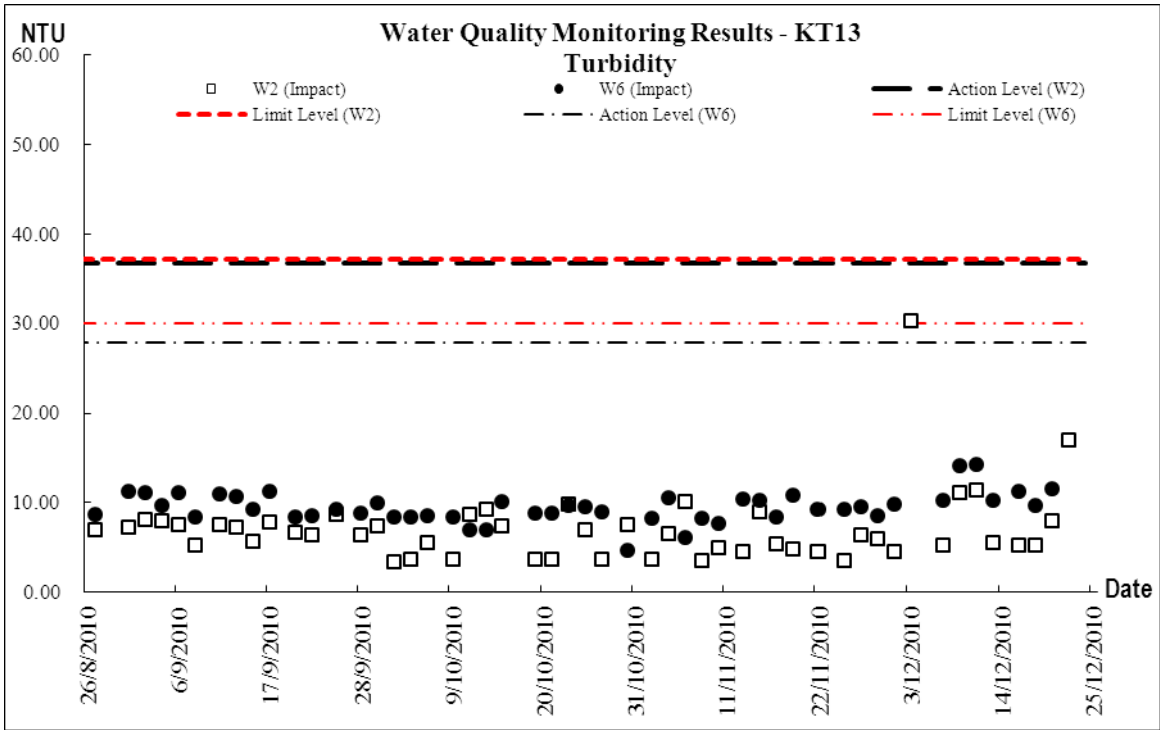


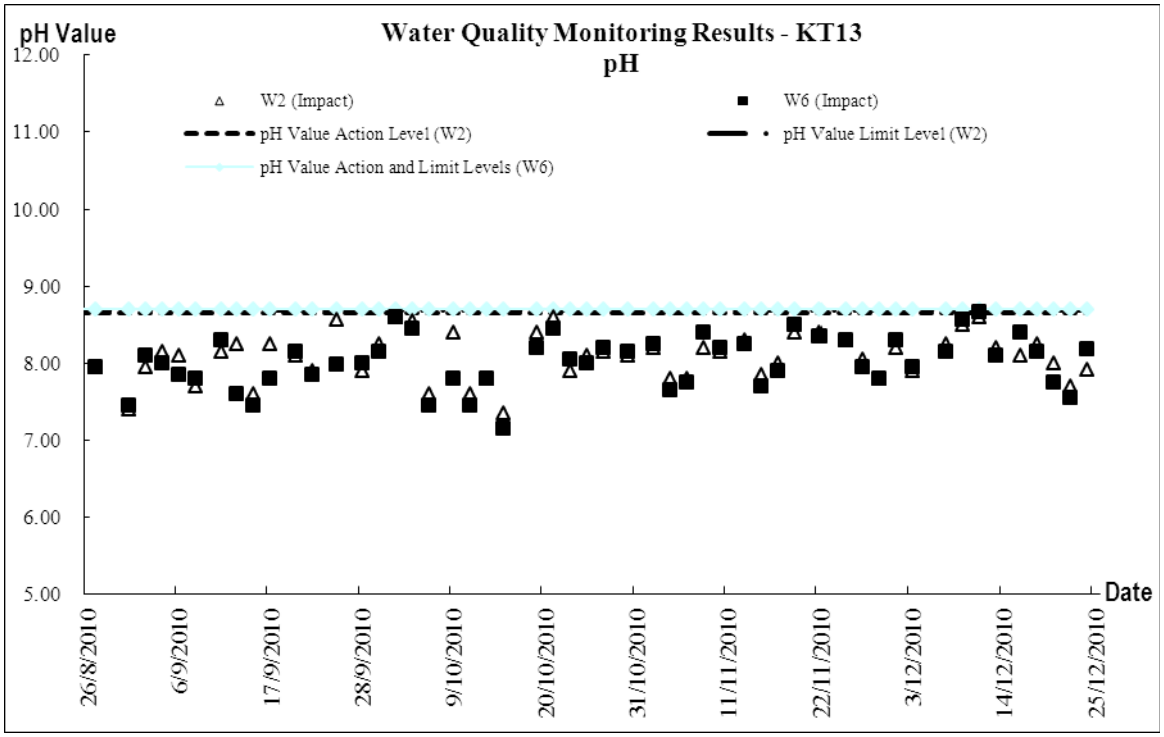

24-hour TSP Results - KT13 (A1(a))
Dust in 24-hour TSP in Air (mg/m3)
Action Level (mg/m3)
Limit Level (mg/m3)
24-hour TSP (ug/m3)
300
250
200
150
100
50
0
Date
26/8/2010
6/9/2010
17/9/2010
28/9/2010
9/10/2010
20/10/2010
31/10/2010
11/11/2010
22/11/2010
3/12/2010
14/12/2010
25/12/2010

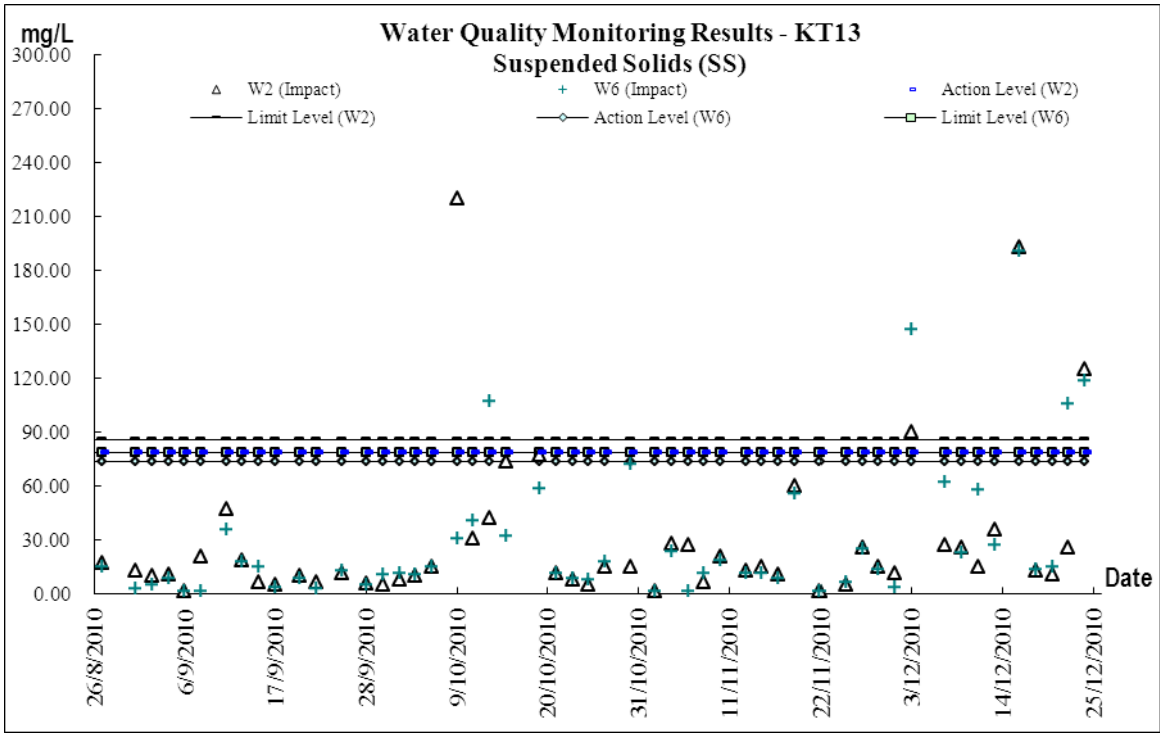

24-hour TSP Results - KT13 (A2)
Dust in 24-hour TSP (ug/m3)
Action Level (mg/m3)
Limit Level (mg/m3)
24-hour TSP (ug/m3)
300
250
200
150
100
50
0
Date
26/8/2010
6/9/2010
17/9/2010
28/9/2010
9/10/2010
20/10/2010
31/10/2010
11/11/2010
22/11/2010
3/12/2010
14/12/2010
25/12/2010

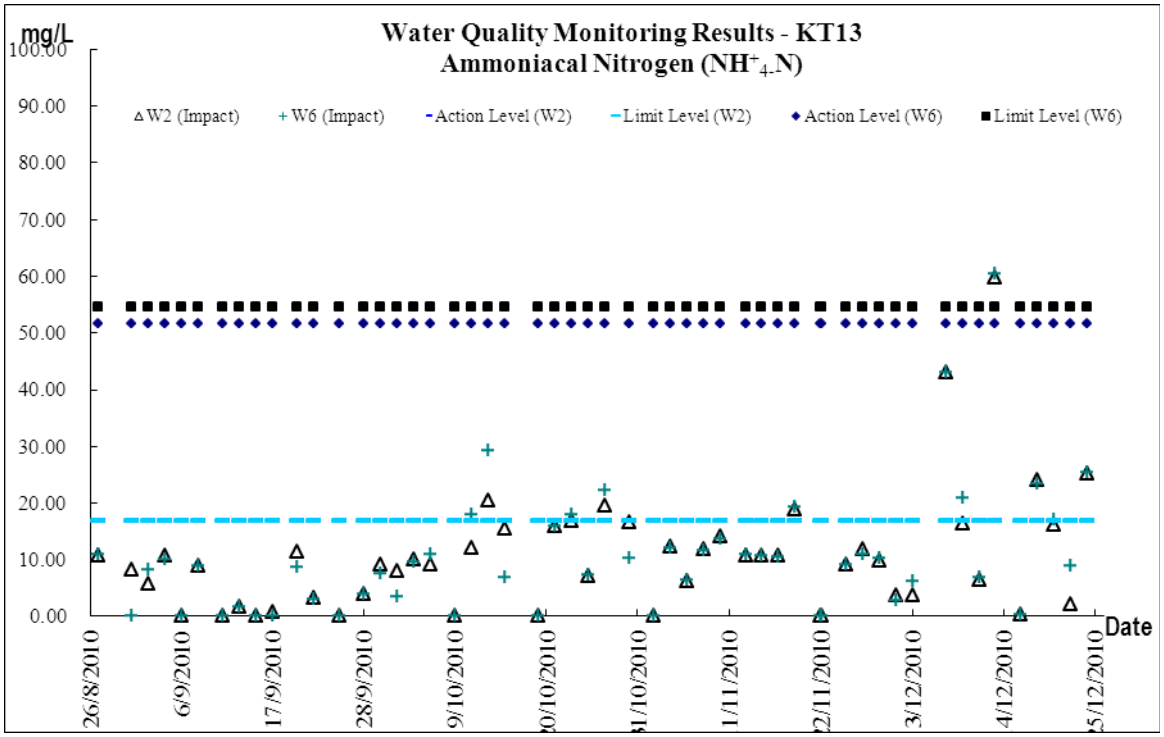
Graphic Plot of Monitoring –Water Quality

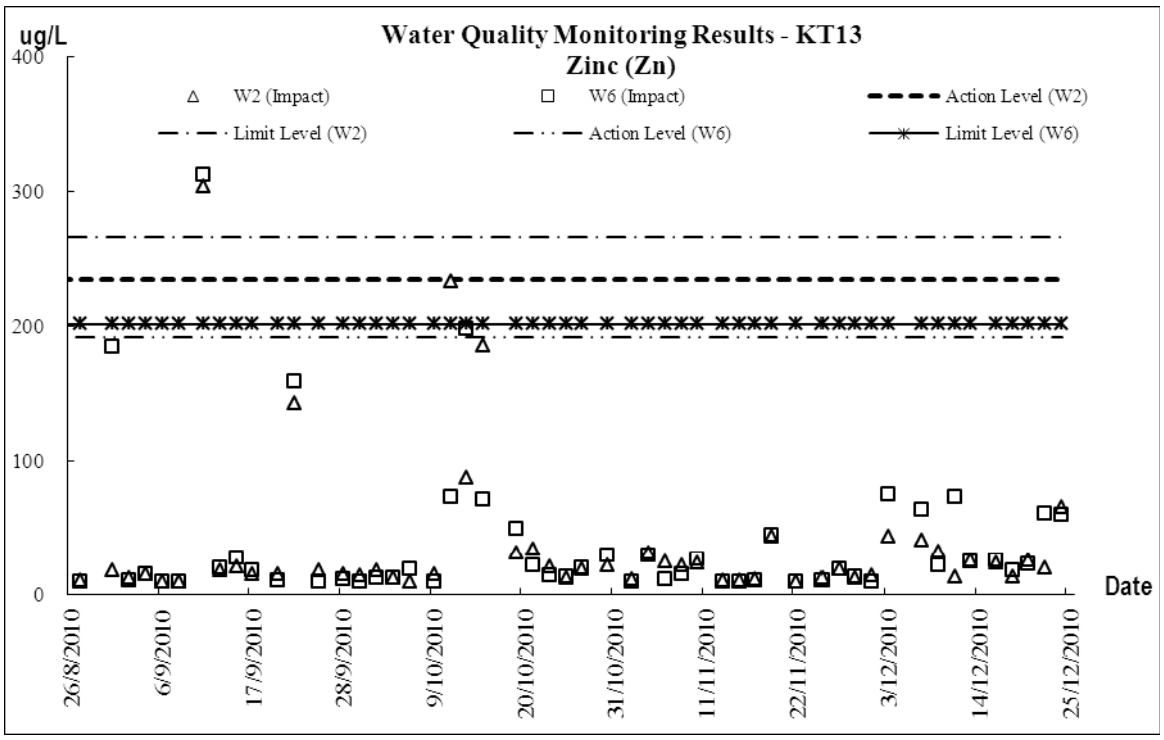





Water Quality Monitoring Results - KT13
pH
pH Value
W2 (Impact)
W6 (Impact)
pH Value Action Level (W2)
pH Value Limit Level (W2)
pH Value Action and Limit Levels (W6)
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
Date
26/8/2010
6/9/2010
17/9/2010
28/9/2010
9/10/2010
20/10/2010
31/10/2010
11/11/2010
22/11/2010
3/12/2010
14/12/2010
25/12/2010


Water Quality Monitoring Results - KT13
Suspended Solids (SS)
mg/L
W2 (Impact)
W6 (Impact)
Action Level (W2)
Limit Level (W2)
Action Level (W6)
Limit Level (W6)
300.00
270.00
240.00
210.00
180.00
150.00
120.00
90.00
60.00
30.00
0.00
Date
26/8/2010
6/9/2010
17/9/2010
28/9/2010
9/10/2010
20/10/2010
31/10/2010
11/11/2010
22/11/2010
3/12/2010
14/12/2010
25/12/2010


Water Quality Monitoring Results - KT13
Ammoniacal Nitrogen (NH^+_4-N)
mg/L
W2 (Impact)
W6 (Impact)
Action Level (W2)
Limit Level (W2)
Action Level (W6)
Limit Level (W6)
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Date
26/8/2010
6/9/2010
17/9/2010
28/9/2010
9/10/2010
20/10/2010
31/10/2010
11/11/2010
22/11/2010
3/12/2010
14/12/2010
25/12/2010


Water Quality Monitoring Results - KT13
Zinc (Zn)
ug/L
W2 (Impact)
W6 (Impact)
Action Level (W2)
Limit Level (W2)
Action Level (W6)
Limit Level (W6)
400
300
200
100
0
Date
26/8/2010
6/9/2010
17/9/2010
28/9/2010
9/10/2010
20/10/2010
31/10/2010
11/11/2010
22/11/2010
3/12/2010
14/12/2010
25/12/2010

Appendix F

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table

Date: 31-Dec-10
Year/Month: Dec-10

Monthly Summary Waste Flow Table for December 2010										
Year	Actual Quantities of Inert C & D Materials Generated Monthly					Estimated Annual Quantities of C & D Wastes Generated Monthly				
	Total Quantitiy Generated	Broken Concrete (see note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ Cardboard packaging	Plastics (see note 3)	Chemical Waste	Others, e.g. General refuse
	(in '000M^3)	(in '000M^3)	(in '000M^3)	(in '000M^3)	(in '000M^3)	(in '000KG)	(in '000KG)	(in '000KG)	(in '000KG)	(in '000M^3)
Jan	10.556	0.004	10.002	0.55	0	0	0	0	0	0
Feb	4.2195	0.001	4.323	-0.105	0	0	0	0	0	0
Mar	8.654	0.003	7.469	1.182	0	0	0	0	0	0
Apr	8.115	0.002	6.221	1.892	0	0	0	0	0	0
May	5.111	0.001	3.718	1.392	0	0	0	0	0	0
Jun	6.123	0.001	6.562	-0.44	0	0	0	0	0	0
Sub-Total	42.78	0.012	38.295	4.4715	0	0	0	0	0	0
Jul	7.449	0.002	8.652	-1.2045	0	0	0	0	0	0
Aug	7.658	0.002	7.953	-0.297	0	0	0	0	0	0
Sep	5.365	0.002	5.363	0	0	0	0	0	0	0
Oct	5.177	0.001	5.176	0	0	0	0	0	0	0
Nov	5.006	0.001	5.797	-0.792	0	0	0	0	0	0
Dec	3.675	0.001	4.147	-0.473	0	0	0	0	0	0
Total	77.107	0.021	75.381	1.705	0.000	0.000	0.000	0.000	0.000	0.000

Notes: (1) The performance targets are given in PS Clause 28.10(14)
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/ containers, plastic sheets/ foam form packaging material
(4) Broken concrete for recycling into aggregates
(5) Negative numbers in “Reused in other Projects” indicate import of materials from other projects.