

Contract No. : DC/2007/06
**River Improvement Works in Upper Lam Tsuen,
She Shan River and Upper Tai Po River**

ENVIRONMENTAL MONITORING AND AUDIT

MONTHLY EM&A REPORT of

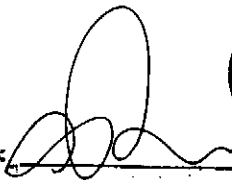
UPPER TAI PO RIVER

for March 2011

Environmental Pioneers & Solutions Limited
Flat B, 6/F Hop Shi Factory Building,
29, Lee Chung Street, Chai Wan, Hong Kong
Tel: 2556 9172 Fax: 2856 2010

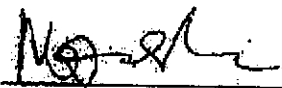
The Contents of this report have been

Certified by:

Signature: 
Miss. Patricia Chung
(Environmental Team Leader)

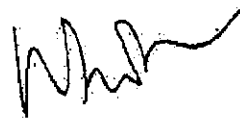


Date: 18/5/2011

Signature: 
Dr. Mark Shea
(Ecologist)

Date: 12/05/2011

and verified by:

Signature: 
Ms. Winnie Ko
(Independent Environment Checker)

Date: 18/5/2011

Report submission and revision:
First submission on 18th April 2011
Second submission on 3rd May 2011
Third submission on 8th May 2011

TABLE OF CONTENTS

TABLE OF CONTENTS	3
Executive summary	4
1.0 Introduction	6
2.0 Environmental status	6
2.1 Project area	6
2.2 Construction programme	6
2.3 Proposed construction sequences	7
2.4 Construction activities for the reporting period	9
2.5 Construction activities for the next reporting period	9
2.6 Non-compliance with the environmental performance limits	9
2.7 Summary of complaints	9
3.0 Ecological monitoring results	11
4.0 Noise monitoring results	11
5.0 Vibration monitoring results	12
6.0 Environmental issues and actions	12
6.1 Site inspections and key environmental issues	12
6.2 Non-compliance	15
6.3 Recommendations	16
6.4 Implementation status and effectiveness of the mitigation measures	16
7.0 Waste management status	17
8.0 Status of environmental licensing and permit	18
9.0 Future key issues	19
10.0 Conclusion	20
Appendix A: Event and action plan for ecology	21
Appendix B: Action and limit level for construction noise	24
Appendix C: Reference standards for vibration	26
Appendix D: Noise monitoring results, graphical plots and location plan	28
Appendix E: Monitoring schedule for the present and next reporting period	40
Appendix F: Cumulative complaint log	43
Appendix G: Implementation status of environmental protection and mitigation measures	44
Appendix H: Cumulative waste flow table	48
Appendix I: Construction programme (Rev. No. 15)	49
Appendix J: Complaint Investigation Reports and Log	64

Executive summary

This is the thirty-first monthly Environmental Monitoring and Audit (EM&A) Report for the river improvement works at Upper Tai Po River under Drainage Services Department Contract No. DC/2007/06 entitled “River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River”. This report concludes the impact monitoring for the activities undertaken during the period from 1st March 2011 to 31st March 2011. Construction of footbridge, retaining wall, gabion wall, box culvert, and provision of temporary protective measures for the coming wet season were major site activities being carried out in this reporting period.

The Environmental Team (ET) is responsible for the EM&A works required in the EM&A manual. Site inspections were carried out on weekly basis to investigate and audit the equipment and work methodologies with respect to pollution control and environmental mitigation. The weekly inspections records and photos taken were kept.

The next ecological impact monitoring was arranged in July 2011. The summary of ecological site inspection findings and implementation status of environmental protection and mitigation for ecology, prepared by the Ecologist, are provided in table 6.2 and Appendix G respectively.

Environmental Team had carried out construction noise monitoring on weekly basis and two exceedances were recorded on 4th March 2011. Noise monitoring records for the reporting month and the data is presented in Section 4. The location plan and the graphical plots presenting the data are provided in Appendix D.

Piling works has been omitted. Therefore, no vibration monitoring was conducted by ET during the reporting month.

Two non-compliance events regarding insufficient of mitigation measures for site water control and protection of bared earth surface were recorded in this reporting month. Details of the events and recommendations given please refer to Section 6.2

Three complaint incidents regarding excessive noise generation, air quality concern and muddy effluent discharge from project works have been referred by EPD on 2nd,

7th and 16th March 2011 respectively. ET has conducted investigations for the incidents and details of findings, recommendations and outcome please refer to Section 2.7 and Appendix J.

There were two breaches of limit level for noise on 4th March 2011 due to boulder breaking activities. No exceedance was recorded on the re-measurements on 5th March 2011 after the implementation of mitigation measures.

There was no reporting change for this month.

Construction of retaining wall, gabion wall and provision of temporary protection measures for the coming wet season will be the major construction activities to be carried out in the upcoming month.

ET has reminded the contractor to provide environmental pollution control measures wherever necessary and to keep a good environmental management at site practice.

1.0 Introduction

This is the thirty-first monthly Environmental Monitoring and Audit (EM&A) Report for the river improvement works at Upper Tai Po River under Drainage Services Department Contract No. DC/2007/06 entitled “River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River”. The site layout plan is shown in Figure 2.1. The Environmental Team, Environmental Pioneers & Solutions Limited appointed by Chiu Hing Construction and Transportation Company Limited, prepares the report. The report is to be submitted to the Contractor, the Engineer and the IEC.

This report presents the results of the environmental monitoring of the project activities for Upper Tai Po River conducted during the month of March 2011. This included regular site inspections once per week for verification of implementation of the mitigation measures as recommended in the Environmental Permit (EP-223/2005/A) (EP), EM&A Manual and the Contractor’s Environmental Management Plan (EMP).

2.0 Environmental status

2.1 Project area

The location of the project site – Upper Tai Po River starting from Ta Tit Yan of Yai Mo Shan, the Upper Tai Po River flows from southeast to northeast alongside Wilson Trail, turning northward before joining the Lam Tsuen River and then runs towards Tai Po Market. To the east of the river, there are active and abandoned cultivated lands. While the village settlements are mainly located on the west and northeast side of the river bank, where the San Uk Ka and Lai Chi Shan establishment also lie. The Project site is indicated in **Figure 2.1**.

2.2 Construction programme

Approximately 0.6km of Upper Tai Po River will be improved to enhance the hydraulic performance of the river. The improvement works comprise the following:

- (1) Re-profiling and realignment of the Channel;
- (2) Inclusion of gabions and retaining wall for bank protection whilst providing a natural channel bed; and
- (3) Re-provisioning of footbridges and footpaths along the channel

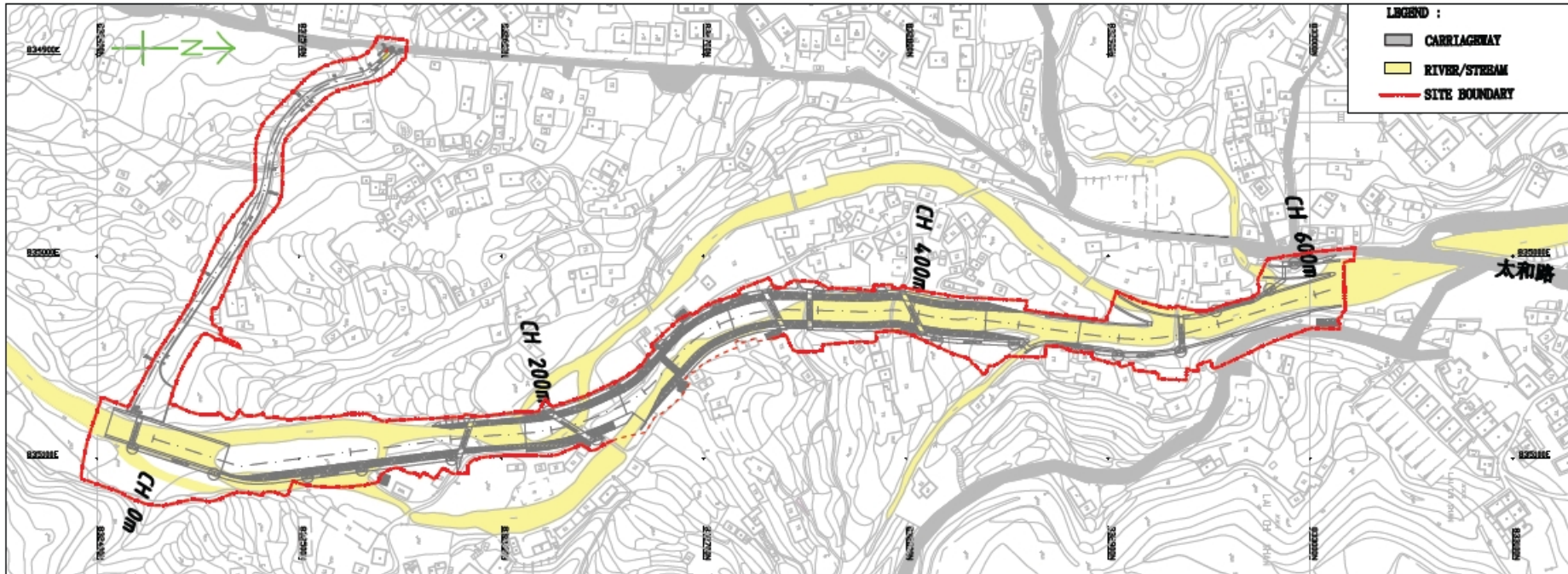
The construction of the proposed improvement works for Upper Tai Po River has been commenced on September 15th 2008 and anticipated to complete in April 2012.

2.3 Proposed construction sequences

The proposed construction sequence is shown in the following sequences:

- (1) Site clearance and preparation works
- (2) Construction of the maintenance access which involves the construction of retaining walls
- (3) River channel construction and excavation, involving the excavation works, construction of retaining walls and gabion walls
- (4) Re-provisioning of footbridges
- (5) Construction of footpaths
- (6) Landscaping works

Fig 2.1 Layout of construction area



Upper Tai Po River

2.4 Construction activities for the reporting period

Major construction activities carried out by the contractor during this reporting period include:

- 1.) provision of temporary protective measures for the coming wet season;
- 2.) construction of retaining wall;
- 3.) construction of footbridge;
- 4.) construction of gabion wall; and
- 5.) construction of box culvert

2.5 Construction activities for the next reporting period

Major construction activities carried out by the contractor anticipated for the coming month would be mainly construction of retaining wall, gabion wall and provision of temporary protective measures for the coming wet season.

2.6 Non-compliance with the environmental performance limits

Two exceedances of the limit level of noise were recorded on 4th March 2011 due to boulder breaking activities. No exceedance of noise level was recorded after the implementation of mitigation measures.

The event and action plan for Ecology is shown in Appendix A. The action and limit level for Noise is shown in Appendix B. The reference standards for vibration are shown in Appendix C.

2.7 Summary of complaints

Three complaint incidents regarding excessive noise generation, air quality concern and muddy effluent discharge from project works have been referred by EPD on 2nd, 7th and 16th March 2011 respectively.

ET has conducted investigations with representatives from Contractor, Independent Environmental Check and Residential Engineer to resolve the incident and seek for remedial works to minimize environmental impacts generated from project works. The complaint investigation reports were then submitted to Environmental Protection Department (EPD) in accordance with the requirement stated in EM&A manual. For the complaint incident of muddy effluent discharge Contractor has also assigned a third party laboratory to carry out routine water quality monitoring at upper and lower

stream area from the project site. Monitored results were separately submitted to EPD and no further comments were given in this stage as reported by Contractor.

Totally, fourteen complaints had been received since the commencement of the contract. The cumulative complaint log is shown in Appendix F.

3.0 Ecological monitoring results

No ecological survey was carried out in this reporting period. The next ecological impact monitoring was arranged in July 2011.

4.0 Noise monitoring results

In accordance with the EM&A Manual, monitoring locations were established at 11 N.S.R. locations. The description of all 11 N.S.R. are shown in Table 4.1.

TABLE 4.1 Description of Noise Sensitive Receivers

Sensitive Receiver No.	Location and Description
UTP1	54B, Sheung Wun Yiu
UTP2	Village House in Lai Chi Shan
UTP3	Village House near Upper Tai Po River
UTP4	Village House near Upper Tai Po River
UTP5	Village House near Upper Tai Po River
UTP6	Village House near Upper Tai Po River
UTP7	Village House near Upper Tai Po River
UTP8	Village House near Upper Tai Po River
UTP9	49A, Pun Shan Chau
UTP10	Village House near the proposed access road
UTP11	49G, San Uk Ka

Noise monitoring was carried out by the Environmental Team on weekly basis for this reporting month on 4th, 11th, 18th and 25th March 2011. Measured $L_{eq(30min)}$ results ranged from 53.3dB(A) to 78.9dB(A). Two exceedances were recorded on 4th March 2011 at UTP8 and UTP9 due to boulder breaking activities.

An additional noise monitoring was conducted on 5th March after the implementation of noise mitigation measures, including warping of the breaker tips of hydraulic breakers with noise insulating materials, and scheduling the operation of boulder breaking activities with a 15-minute break for every 30 minutes of operation. No exceedance of noise level was recorded during the re-measurement. For further details of the exceedance event, please refer to Appendix J.

For further details of the monitoring results, graphical plots and the location plan, please refer to the Appendix D.

5.0 Vibration monitoring results

There was no vibration monitoring results for this reporting month. Vibration monitoring will be started once the piling works start in Upper Tai Po River.

6.0 Environmental issues and actions

6.1 Site inspections and key environmental issues

Site inspections were undertaken routinely to inspect the construction activities in Upper Tai Po River to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented. Implementation status of environmental protection and mitigation measures is shown in Appendix G.

Within this reporting month, site inspections were conducted on 2nd, 9th, 16th, 23rd and 30th March 2011. A detailed checklist of each site inspection together with comments and relevant photos have been filed and kept. The findings from inspection were summarized in Table 6.1.

Ecological inspections by the Ecologist Dr. Mark Shea were carried out on 1st, 5th, 12th, 19th, 26th and 31st March 2011. Details of findings were summarized in Table 6.2.

Table 6.1 Summary results of site inspections findings

Date	Findings	Identification	Advice from ET	Action taken	Closing date	Remarks
16 Feb 11	Site water seepage into river channel was observed from surface of haul access at ch.200	Observation	Contractor was recommended to provide proper temporary site drainage system for site water diversion to proper treatment before discharge	Although seepage of site water was ceased no follow up action taken by Contractor could be observed	2 Mar 11	--
08 Dec 10, 02, 16, 23 & 30 Mar 11	Implementation of water quality mitigation measure for construction site of footbridge from ch.150 to 600 was outstanding	Observation	Contractor was recommended to implement necessary protective measures, such as provision of bund wall and geo-textile coverings, to avoid water contamination from site works	Still outstanding. To be followed during the next period	Ongoing	--
10 Feb 11 &	River water was observed to be muddy along the	Observation	Contractor was seriously recommended to review their	Still outstanding. To be followed during the next	Ongoing	--

Date	Findings	Identification	Advice from ET	Action taken	Closing date	Remarks
02 Mar 11	channel from ch.250		site condition and implement necessary mitigation measures prior to the commencement of abovementioned activities as to avoid contamination of water quality	reporting period		
23 Feb , 09, 16 & 23 Mar 11	Wheel washing bay at ch.600 was accumulated with muddy water	Observation	Contractor was advised to well maintain the wheel washing facility to prevent muddy water was brought onto the public access through site vehicles	Maintenance and cleaning were provided as reported by Contractor	30 Mar 11	--
09 Mar 11	Noise mitigation measure was found absence for the hydraulic breaker occupied at ch.500	Observation	Contractor was advised to warp up the breaker tip with noise insulating material to minimize noise impact to the nearby sensitive receivers	Follow up action was taken as advised	16 Mar 11	--
09, 16, 23 & 30 Mar 11	Site water generated at construction site at ch.300 was found directly discharged and caused contamination to the river	Non-compliance	Contractor was request to stop such practice and to implement corrective actions immediately	Still outstanding. Such incident was identified as non-compliance since same defects were consecutively observed	Ongoing	--
09, 16, 23 & 30 Mar 11	Site water generated from construction site at ch.200 was found diverted to and ineffective treatment system and then discharged to the river channel	Non-compliance	Contractor was recommended to enhance their site water treatment as to ensure effluent discharged fulfilled with statutory requirements	Still outstanding. Such incident was identified as non-compliance since same defects were consecutively observed	Ongoing	--
09 & 16 Mar 11	Oil stains were observed left on the conveyor belt of backhoe, which was occupied at ch.200 during inspection	Observation	Contractor was recommended to provide regular maintenance to their site equipments and handle the earth materials contaminated with leaked oil as chemical waste for storage and disposal	Follow up action was taken as reported by Contractor	23 Mar 11	--
09, 16, 23 & 30 Mar 11	Tree without identification at ch.300 was observed to be damaged by operation of backhoe	Observation	Contractor was advised to check the status of the tree and implement necessary protective measures for preserved trees before commencement of works	Still outstanding. To be followed during the next reporting period	Ongoing	--
23 Feb & 16 Mar 11	No secondary containment measure was provided for the air compressors occupied at ch.180 and 600 respectively	Observation	Contractor was advised to provide proper drip tray for the concerned air compressor as to prevent oil spillage	The concerned air compressors were removed from site prior to the inspection on 23 Mar 11	23 Mar 11	--
16 & 30 Mar 11	Site surface was observed to be dry and dusty	Observation	Contractor was advised to provide regular water spraying to dusty static area for dust suppression	Still outstanding. To be followed during the next reporting period	Ongoing	--
30 Mar 11	General wastes and abandoned site materials were observed along the haul access at approximate ch.600	Observation	Contractor was advised to maintain good housekeeping condition and to remove observed waste during daily cleaning process	To be followed during next reporting period	Ongoing	--
30 Mar 11	There was no proper protective measures implemented for the bared earth surface, riverbanks, earth bunds and earthy	Non-compliance	Contractor was recommended to implement necessary mitigation measures to avoid erosion of the concerned earth surface and stockpiles from	Still outstanding. Such incident was identified as non-compliance since same defects were consecutively observed	Ongoing	--

Date	Findings	Identification	Advice from ET	Action taken	Closing date	Remarks
	stockpiles along the construction site		causing water pollution.			

The summary of ecological inspection prepared by the Ecologist, Dr. Mark Shea is shown in Table 6.2.

Date	Observations	Advice from Ecologist	Action Taken	Closing Date
01 Mar 2011	No major findings for this inspection	No Advice is required	No Action is required to be taken	N/A
05 Mar 2011	No major findings for this inspection	No Advice is required	No Action is required to be taken	N/A
12 Mar 2011	No major findings for this inspection	No Advice is required	No Action is required to be taken	N/A
19 Mar 2011	No major findings for this inspection	No Advice is required	No Action is required to be taken	N/A
26 Mar 2011	No major findings for this inspection	No Advice is required	No Action is required to be taken	N/A
31 Mar 2011	No major findings for this inspection	No Advice is required	No Action is required to be taken	N/A

6.2 Non-compliance

The two following non-compliance events were recorded in this reporting month.

- Proper water quality mitigation measures for site water control, especially of provision of effective site water treatment facilities, were not observed. Turbid effluent was consecutively discharged from the treatment system formed by primary sedimentation tank and soak-away pit at approximate ch.200 and 300 during inspections.
- A large quantity of earth material has been tipped and formed as haul access and part of the river channel has been diverted for site activities. However, no proper protective measure was implemented prior to the formation of new haul access and no follow up actions for those bared earth surface were observed.

The above mal-practices were considered as non-compliance events according to the findings from the weekly inspections. No effective mitigation measures were implemented according to advices given by RE, IEC and ET.

Contractor was seriously reminded all muddy water, wastewater, underground water arisen from construction activities should be diverted to proper site water treatment system before discharge to fulfill statutory requirements. Quality of discharge should meet requirements stated in the applied discharged license. Contractor was also recommended to conduct assessment to the quantity and nature of silt water generated from site activities. Sedimentation tanks with sufficient capacity should be provided as to maintain appropriate flow rate of effluent discharge as well as the hydraulic detention time for sedimentation. Coagulation and flocculation process should be adopted to enhance efficiency of sedimentation should site water contain large amount of silt and fine grade suspended solids.

Bared earth surface, such as riverbanks, earth bund, should be protected by geo-textile covering. Excessive storage of earth material should be prevented and C&D wastes should be collected and disposed by licensed collector immediately.

By the end of the reporting month there was still no proper follow up actions were observed. Contractor was urged to implement necessary mitigation measures and corrective actions as to avoid violation of environmental ordinance and/or regulations. Implementation status of follow up actions will be checked and reported from the weekly inspections in the next reporting month.

6.3 Recommendations

Contractor was recommended to implement necessary measures in mitigating water quality impact arisen from construction activities. Prior to excavation, bund walls wrapped by geo-textile should be formed as an enclosed environment for excavation activities to prevent any earth material and site water from entering into the river channel. Riverbanks and earth bunds should be covered with geo-textile coverings to prevent erosion. Contractor should also prevent excessive storage of any earth materials on site as to avoid soil debris from washing into the river channel by surface runoff.

Sufficient and effective site water treatment facilities should be provided on site. Any wastewater, underground water and muddy effluent within site area should be diverted for treatment before discharge.

Contractor should also provide regular maintenance to powered mechanical equipments as to avoid black smoke emission and/or excessive noise generation due to poor condition of equipments.

6.4 Implementation status and effectiveness of the mitigation measures

Refer to the table 6.1 and Section 6.2, contractor was seriously recommended to implement necessary mitigation measures to address environmental problem arisen from site activities, especially issue of site water control and protection of bared earth surfaces as well as the earthy stockpiles.

7.0 Waste management status

It is the contractor's responsibility to ensure that all wastes produced during construction phase for the drainage improvement works are handled, stored and disposed of in accordance with good waste management practices and EPD's regulation and requirement. Waste materials generated during construction activities such as construction and demolition(C&D) material, chemical wastes and general refuse, are recommended to be audited at regular intervals to ensure that proper storage, transportation and disposal practices are being implemented. **Table 7.1** is the Waste Disposal recorded by the Contractor in this month.

From the report of Contractor, C&D materials generated, were all reused and therefore no inert waste was disposed from the project.

The following table showed amount of waste generation, reused and disposed from this project site in this reporting month.

Table 7.1 Summary of Waste generated and disposed in March 2011

Type of waste	Amount generated	Amount reused	Amount disposed
Inert waste	927 m ³	927 m ³	0
Non-inert waste	47 kg	0	47 kg
Chemical waste	0	N/A	0

The cumulative waste flow table is shown in Appendix H.

8.0 Status of environmental licensing and permit

This project requires different permits and licenses to be run legally. **Table 8.1** is the summary of permits/ licenses for this project.

Table 8.1 Summary of Environmental Licensing and Permit Status

Description	License / Permit No.	Date of Issue	Date of Expiry	Remarks
Environmental Permit	EP-223/2005	31 st Aug, 2005	N/A	Superseded
Amended Environmental Permit	EP-223/2005/A	18 th Nov, 2008	N/A	Issued
Construction Noise Permit	N/A	N/A	N/A	N/A
Effluent Discharge License	3678	14 th Mar, 2008	31 st Mar, 2013	Issued
Registration as a Chemical Waste Producer	5213-724-C3251-03	19 th Dec, 2007	Not applicable	Issued
Billing Account for Disposal of Construction Waste	7006101	N/A	N/A	N/A

9.0 Future key issues

Construction of retaining wall, gabion wall and provision of temporary protective measures for the coming wet season will still be major construction activities to be carried out in the upcoming month. The construction activities for these items will generate environmental impacts in several aspects.

To minimize water quality impact arising from construction activities within river channel, water quality mitigation measures should be implemented as far as practicable. Any muddy water, underground water or wastewater generated from construction activities should be diverted to proper treatment facility prior to discharge.

For the proposed construction activities, heavy plants and vehicles may be occupied and those would generate certain noise impacts to the sensitive receivers. To minimize noise generation, noisy activities should be well planned and scheduled to avoid parallel operation of multiple plants. Erection of noise barriers and/or movable barriers should be implemented whenever necessary.

Contractor was reminded to provide regular water spraying to dusty static area for dust suppression. Excessive storage of earthy stockpile and/or C&D wastes should be prevented to minimize air quality impact arisen by wind erosion.

Aforementioned construction works may generate wastes on site. Contractor is advised to assign a site area for temporary waste storage and segregation. Wastes accumulation should be prevented on site; licensed waste collection and disposal should be implemented regularly for hygiene issues.

10.0 Conclusion

Construction of footbridge, retaining wall, gabion wall, box culvert, and provision of temporary protective measures for the coming wet season were major site activities carried out by the Contractor in this reporting period.

Regular site meetings and inspection audits led by the seniors for discussing environmental issues were held among project proponent, Contractor and the Environmental Team on weekly basis.

Environmental Team had carried out construction noise monitoring on weekly basis. Two exceedances were recorded at UTP8 and UTP9 on 4th March 2011. Mitigation measures were implemented to reduce noise level and no exceedance was recorded during the additional noise monitoring conducted on 5th March 2011.

Piling works has been omitted. Therefore, no vibration monitoring was conducted during the reporting month.

From the summary of ecological site inspection findings and implementation status of environmental protection and mitigation for ecology, prepared by the Ecologist Dr. Mark Shea, there is no abnormal finding observed in the reporting month. The ecologist has no further advice and no action suggested to the contractor.

Two non-compliance events regarding site water control, protection of bared earth surface and handling of earthy stockpiles have been recorded in this reporting month. Contractor was urged to implement necessary mitigation measures and corrective actions as soon as possible.

Three environmental complaints regarding, excessive noise generation, dust concerns and muddy effluent discharged were recorded within this reporting month. ET has conducted site investigation and the report was submitted to EPD for their information and consideration. Contractor was also reminded to pay serious attention to prevent causing environmental concerns in the future by implementing good site practices. ET has reminded the contractor to provide environmental pollution control measures wherever necessary; and to keep a good environmental management at site practice.

The ET will continue to implement the environmental monitoring & audit programme in accordance with the EM&A Manual and Environmental Permit requirement.

Appendix A: Event and action plan for ecology

Event and action plan for ecology

In the event of non-compliance, the Event / Action plan prepared by the ecologist shall be followed. Detailed Event/ Action plan was shown in **Appendix Table 1** for reference.

It is not proposed to set population size of the three species (i.e. Three-lined Chinese Stream Catfish, Predaceous and the Hong Kong Newt) or other faunal species for the Action Level and Limit Level in the revised EM&A manual in considering the following reasons:

- I. The schedule capture surveys would let to decrease in the populations of the target species; and
- II. The planned drainage works would also temporally de-fauna the stream habitat.

It is considered logical and appropriate to audit non-compliance events in relation with ecological mitigation measures, which were specified in the EP and the PS of the project.

APPENDIX TABLE 1 Event / Action plan table for Ecology

Event	Action			
	ET	ER	IEC	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures, 4. Advise the Contractor on effectiveness of proposed remedial measures 5. Check implementation of remedial measures 	<ol style="list-style-type: none"> 1. Ensure Remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the IEC and the ER 3. Increase monitoring frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the Contractor on effectiveness of proposed remedial measures 5. Check implementation of remedial measures 	<ol style="list-style-type: none"> 1. Ensure Remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Amend working methods 2. Rectify damage and undertake any necessary replacement

Appendix B: Action and limit level for construction noise

The Action and Limit levels for construction noise are defined in **Appendix Table 2**

Appendix Table 2: Action and Limit Levels for Construction Noise

Time Period	Action	Limit
0700 – 1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)*
0700 – 2300hrs on holidays; and 1900 – 2300 hrs on all other days		Subject to the control of Noise Control Ordinance
2300 – 0700 hrs of next day		Subject to the control of Noise Control Ordinance

*Limit level set in accordance with Particular Specification Section 26

Appendix C: Reference standards for vibration

Guidance regarding vibration limits is provided by the following British Standards (or their equivalent ISO standards):

BS 7385 - Measurement and evaluation of vibration in buildings. Part 2: Guide to damage levels from ground borne vibration.

BS 7385 suggests vibration levels, below which damage is unlikely to occur in 95% of buildings. For cosmetic damage, the level is 15 mm/s at 4 Hz, increasing to 20 mm/s at 15 Hz, increasing to 50 mm/s at 40 Hz and above. Minor structural damage is possible at vibration levels twice those given above, major damage at four times the levels given.

Appendix Table 3: Transient vibration guide values for cosmetic building damage (BS7385:Part 2 1993)

	Type of Building	Peak component particle velocity (mm/s) in frequency range of predominant pulse
1	Reinforced or framed structures	50 at 4 Hz and above
2	Un-reinforced or light framed structures	15 at 4 Hz, increasing to 20 at 15 Hz, increasing to 50 at 40 Hz and above.

The vibration magnitudes and frequencies refer to Peak Particle Velocities (PPV) occurring in any single direction, measured on the ground level of the building concerned.

Appendix D: Noise monitoring results, graphical plots and location plan

Location	Leq 30min	L ₁₀ 30min	L ₉₀ 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP 1	67.5	70.8	55.4	4-Mar-11	09:30-10:00	Drilling on slope surface	Background noise from traffic	Sunny	Façade
UTP 2	69.4	71.0	56.2	4-Mar-11	08:57-09:27	Drilling on slope surface	Background noise from traffic, Public noise	Sunny	Façade
UTP 3	67.0	70.9	59.8	4-Mar-11	10:05-10:35	Boulder movement & drilling on slope surface	N/A	Sunny	Façade
UTP 4	57.3	60.5	51.1	4-Mar-11	10:39-11:09	The measured noise level was dominated by the background noise as no construction activity was being carried out	N/A	Sunny	Façade
UTP 5	66.3	68.9	54.4	4-Mar-11	11:10-11:40	Boulder movement	N/A	Sunny	Façade
UTP 6	67.5	70.2	53.0	4-Mar-11	13:32-14:02	Boulder movement & boulder breaking	N/A	Sunny	Façade
UTP 7	70.5	73.5	55.4	4-Mar-11	14:03-14:33	Boulder movement & boulder breaking	N/A	Sunny	Façade
UTP 8	78.9	83.0	66.5	4-Mar-11	10:02-10:32	Boulder movement & boulder breaking	N/A	Sunny	Façade
UTP 9	76.9	80.9	65.2	4-Mar-11	10:35-11:05	Boulder movement & boulder breaking	N/A	Sunny	Façade
UTP 10	54.2	54.5	41.8	4-Mar-11	15:43-16:13	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	N/A	Sunny	Façade
UTP 11	56.8	57.1	45.2	4-Mar-11	16:16-16:46	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	N/A	Sunny	*Freefield
UTP 8	73.4	79.7	64.8	5-Mar-11**	10:02-10:32	Boulder movement & boulder breaking	N/A	Sunny	Façade
UTP 9	74.4	80.8	64.3	5-Mar-11**	10:35-11:05	Boulder movement & boulder breaking	N/A	Sunny	Façade

Note:* An Additional of 3dB(A) had been added to the measurement result due to Free Field Correction

** Ad-hoc noise monitoring was conducted for UTP8 and UTP9 on 5th March 2011 as exceedance was recorded on the noise monitoring conducted on 4th March 2011. Please refer to Appendix J for further detail of the exceedance event.

Location	Leq 30min	L ₁₀ 30min	L ₉₀ 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP 1	68.3	72.5	58.6	11-Mar-11	08:45-09:15	Drilling noise & boulder breaking	Background noise from traffic	Sunny	Façade
UTP 2	70.8	74.0	61.4	11-Mar-11	09:20-09:50	Drilling noise & boulder breaking	Background noise from traffic	Sunny	Façade
UTP 3	68.8	70.3	64.4	11-Mar-11	09:55-10:25	Drilling noise & boulder breaking	N/A	Sunny	Façade
UTP 4	63.4	66.6	53.2	11-Mar-11	11:04-11:34	Boulder movement & operation of backhoe	N/A	Sunny	Façade
UTP 5	65.4	70.3	52.4	11-Mar-11	10:32-11:02	Boulder movement & operation of backhoe	N/A	Sunny	Façade
UTP 6	68.3	72.6	60.3	11-Mar-11	13:00-13:30	Boulder movement & operation of backhoe	N/A	Sunny	Façade
UTP 7	72.8	77.6	63.4	11-Mar-11	13:34-14:04	Boulder breaking & movement, operation of backhoe	N/A	Sunny	Façade
UTP 8	73.4	79.4	64.3	11-Mar-11	14:07-14:37	Boulder breaking & operation of backhoe	N/A	Sunny	Façade
UTP 9	67.3	68.4	50.2	11-Mar-11	14:41-15:11	Operation of backhoe & noise from air compressor	N/A	Sunny	Façade
UTP 10	54.2	54.2	41.3	11-Mar-11	16:04-16:34	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	N/A	Sunny	Façade
UTP 11	57.3	57.6	45.2	11-Mar-11	15:30-16:00	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	N/A	Sunny	*Freefield

Note* An Additional of 3dB(A) had been added to the measurement result due to Free Field Correction

Location	Leq 30min	L ₁₀ 30min	L ₉₀ 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP 1	70.0	74.7	62.2	18-Mar-11	13:38-14:08	Drilling noise & boulder breaking	Background noise from traffic	Sunny	Façade
UTP 2	73.3	76.8	63.2	18-Mar-11	13:00-13:30	Drilling noise & boulder breaking	Background noise from traffic	Sunny	Façade
UTP 3	70.7	72.4	68.6	18-Mar-11	14:13-14:43	Drilling noise & boulder breaking	N/A	Sunny	Façade
UTP 4	67.8	69.4	53.2	18-Mar-11	14:52--15:22	Boulder movement & operation of backhoe	N/A	Sunny	Façade
UTP 5	65.5	70.3	41.8	18-Mar-11	15:23-15:53	Boulder movement & operation of backhoe	N/A	Sunny	Façade
UTP 6	69.3	73.8	60.7	18-Mar-11	15:58-16:28	Boulder movement & breaking	N/A	Sunny	Façade
UTP 7	74.2	79.3	69.9	18-Mar-11	11:28-11:58	Boulder breaking	N/A	Sunny	Façade
UTP 8	72.6	76.3	64.8	18-Mar-11	10:55-11:25	Boulder breaking	N/A	Sunny	Façade
UTP 9	66.4	68.0	53.1	18-Mar-11	10:19-10:49	Boulder breaking & operation of backhoe	N/A	Sunny	Façade
UTP 10	57.2	57.8	42.2	18-Mar-11	09:36-10:06	Boulder breadking	N/A	Sunny	Façade
UTP 11	55.5	55.6	43.2	18-Mar-11	09:03-09:33	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	N/A	Sunny	*Freefield

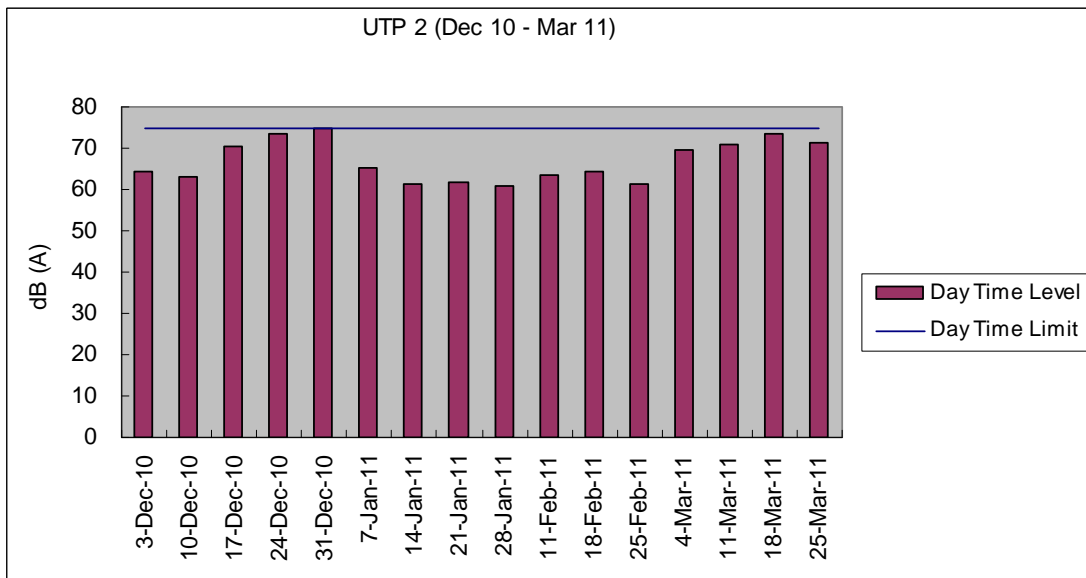
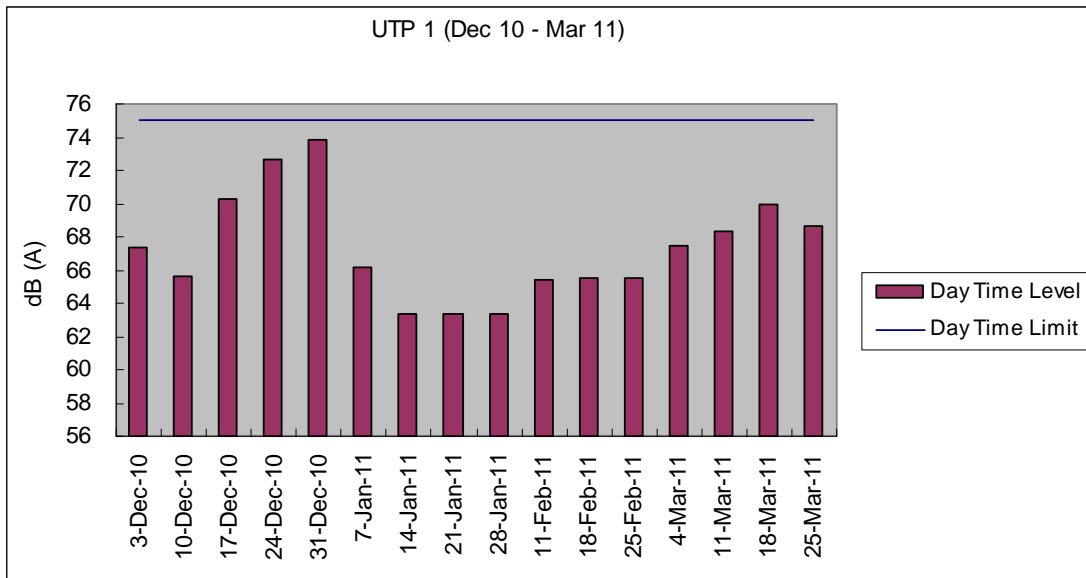
Note* An Additional of 3dB(A) had been added to the measurement result due to Free Field Correction

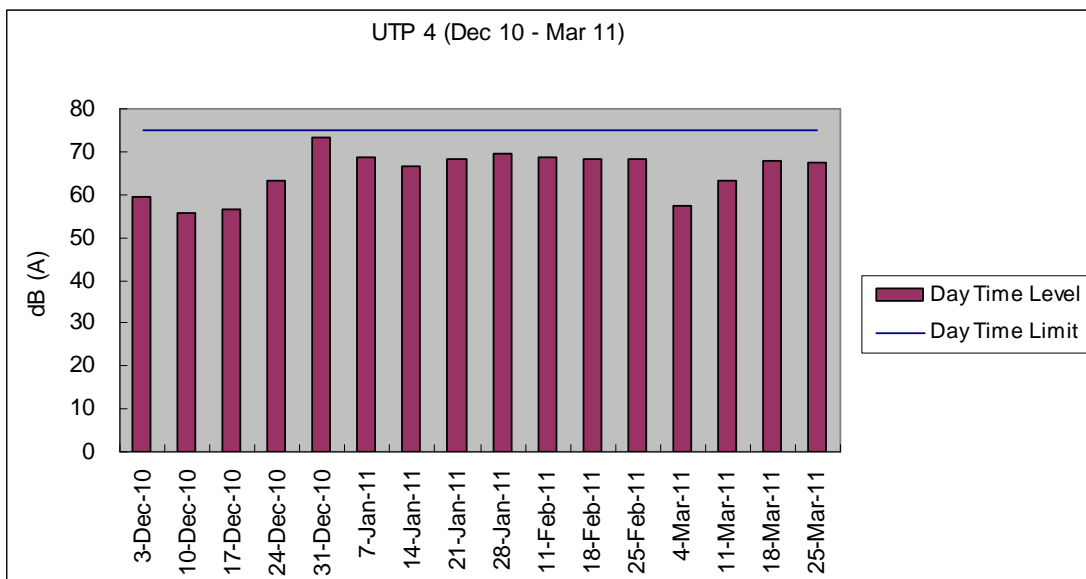
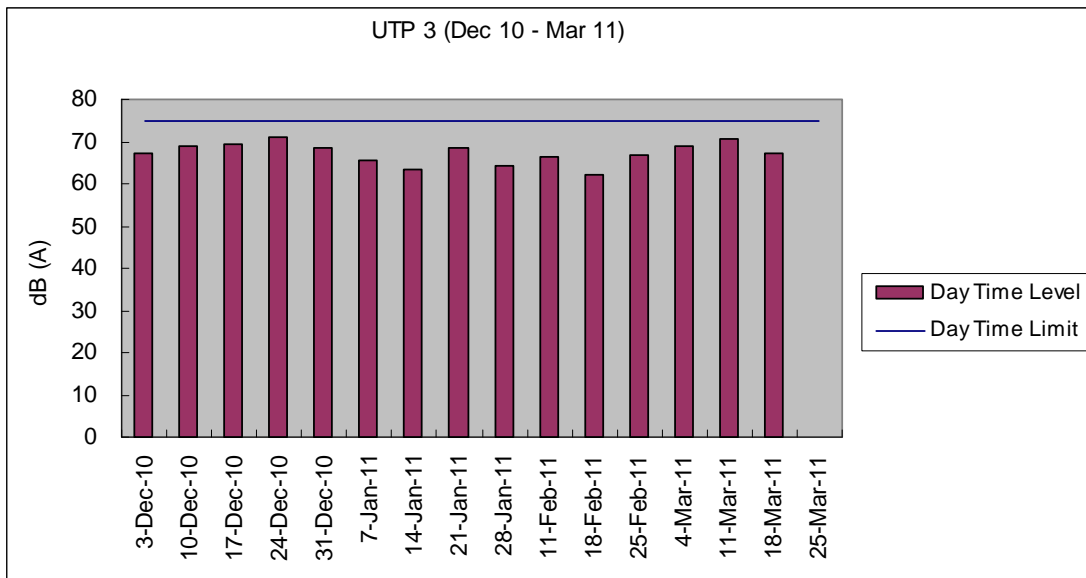
Location	Leq 30min	L ₁₀ 30min	L ₉₀ 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP 1	68.7	72.2	57.3	25-Mar-11	13:38-14:08	Drilling noise & boulder breaking	N/A	Cloudy	Façade
UTP 2	71.1	75.0	58.3	25-Mar-11	13:00-13:30	Drilling noise & boulder breaking	N/A	Cloudy	Façade
UTP 3	67.4	69.9	63.8	25-Mar-11	14:14-14:44	Drilling noise & boulder breaking	N/A	Cloudy	Façade
UTP 4	67.4	71.3	57.2	25-Mar-11	14:50-15:20	Boulder movement & operation of backhoe	N/A	Cloudy	Façade
UTP 5	70.9	75.8	58.2	25-Mar-11	15:22-15:52	Boulder movement & operation of backhoe	N/A	Cloudy	Façade
UTP 6	71.8	77.5	55.6	25-Mar-11	15:56-16:26	Boulder movement & operation of backhoe & boulder breaking	N/A	Cloudy	Façade
UTP 7	72.2	77.5	60.7	25-Mar-11	11:27-11:57	Boulder breaking & operation of backhoe	N/A	Cloudy	Façade
UTP 8	70.7	74.2	58.2	25-Mar-11	10:55-11:25	Boulder breaking	N/A	Cloudy	Façade
UTP 9	64.7	66.6	50.8	25-Mar-11	10:20-10:50	Boulder movement & boulder breaking	N/A	Cloudy	Façade
UTP 10	53.3	53.8	44.2	25-Mar-11	09:42-10:12	Boulder breaking	N/A	Cloudy	Façade
UTP 11	56.3	56.5	43.4	25-Mar-11	09:08-09:38	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	N/A	Cloudy	*Freefield

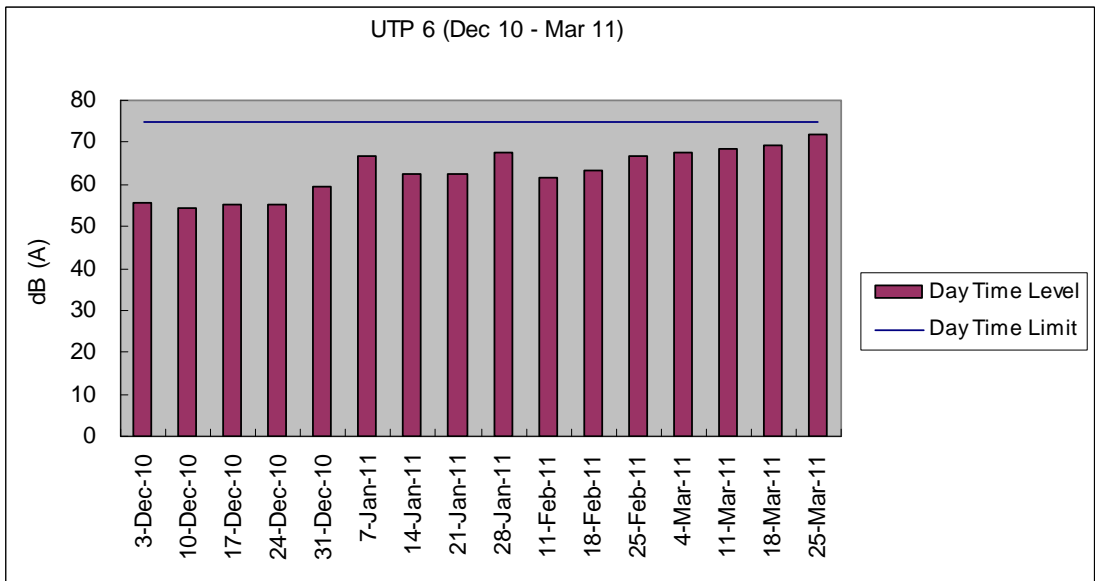
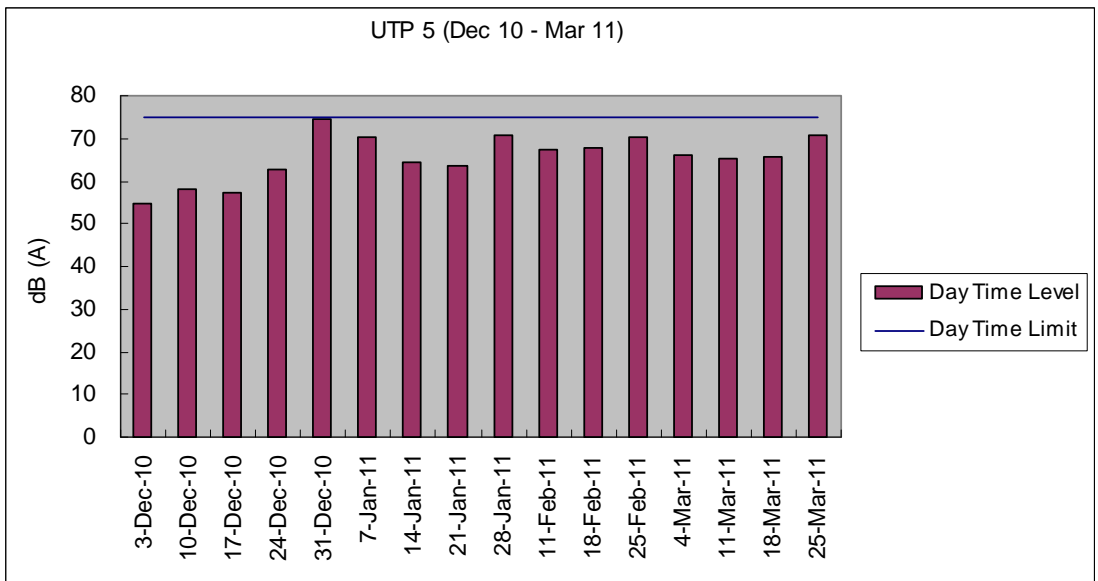
Note* An Additional of 3dB(A) had been added to the measurement result due to Free Field Correction

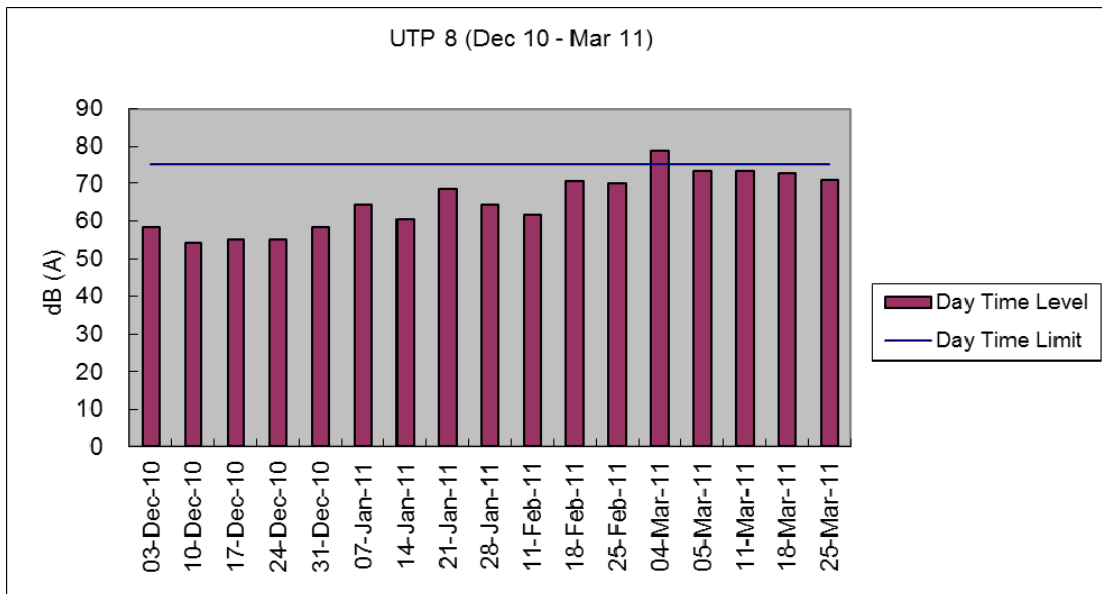
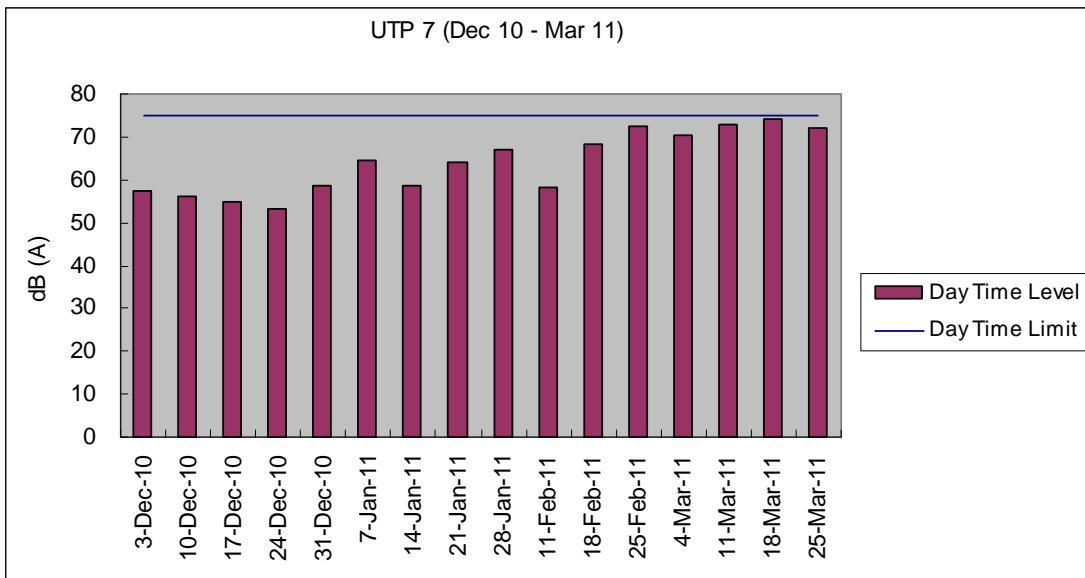
Graphical plot for noise measurements

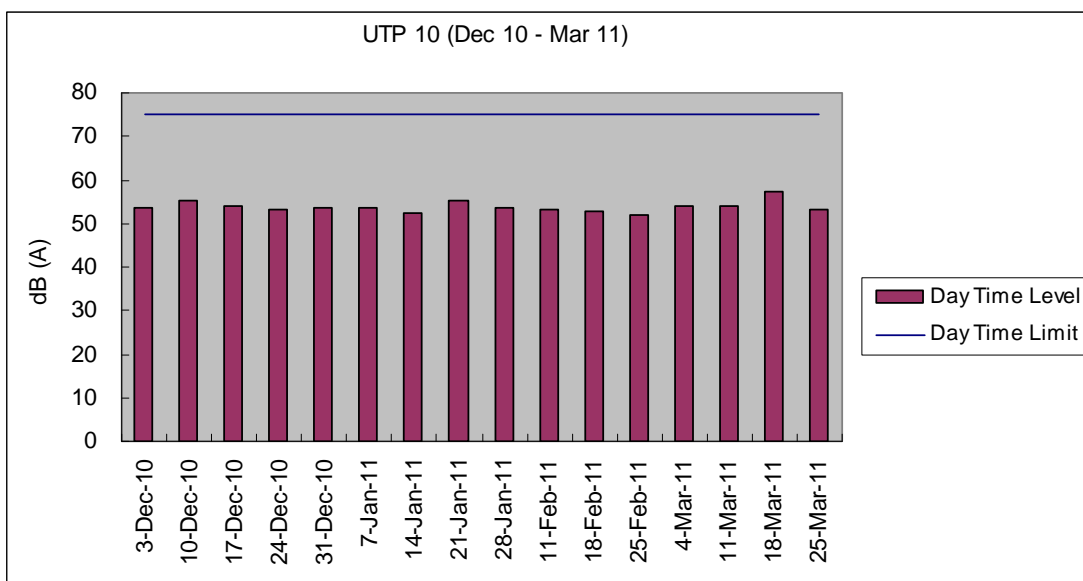
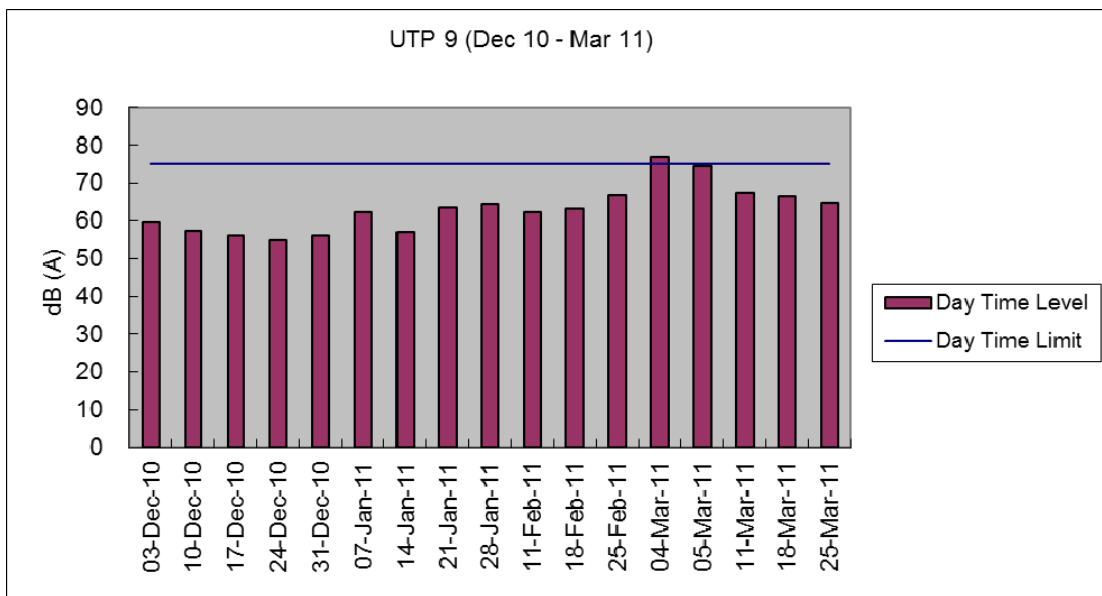
The followings were the graphical plots for the 11 monitoring locations. Each plot showed the date of measurement taken, day time limit of 75 dB(A) as well as the measured daytime level for each location. The graphs contain the data recorded from December 2010 to March 2011.

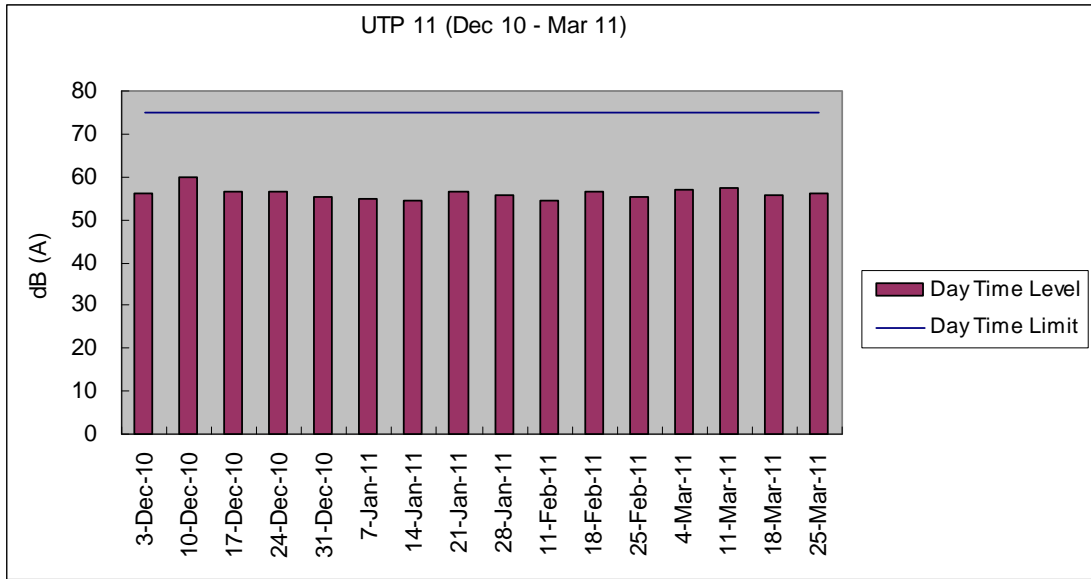


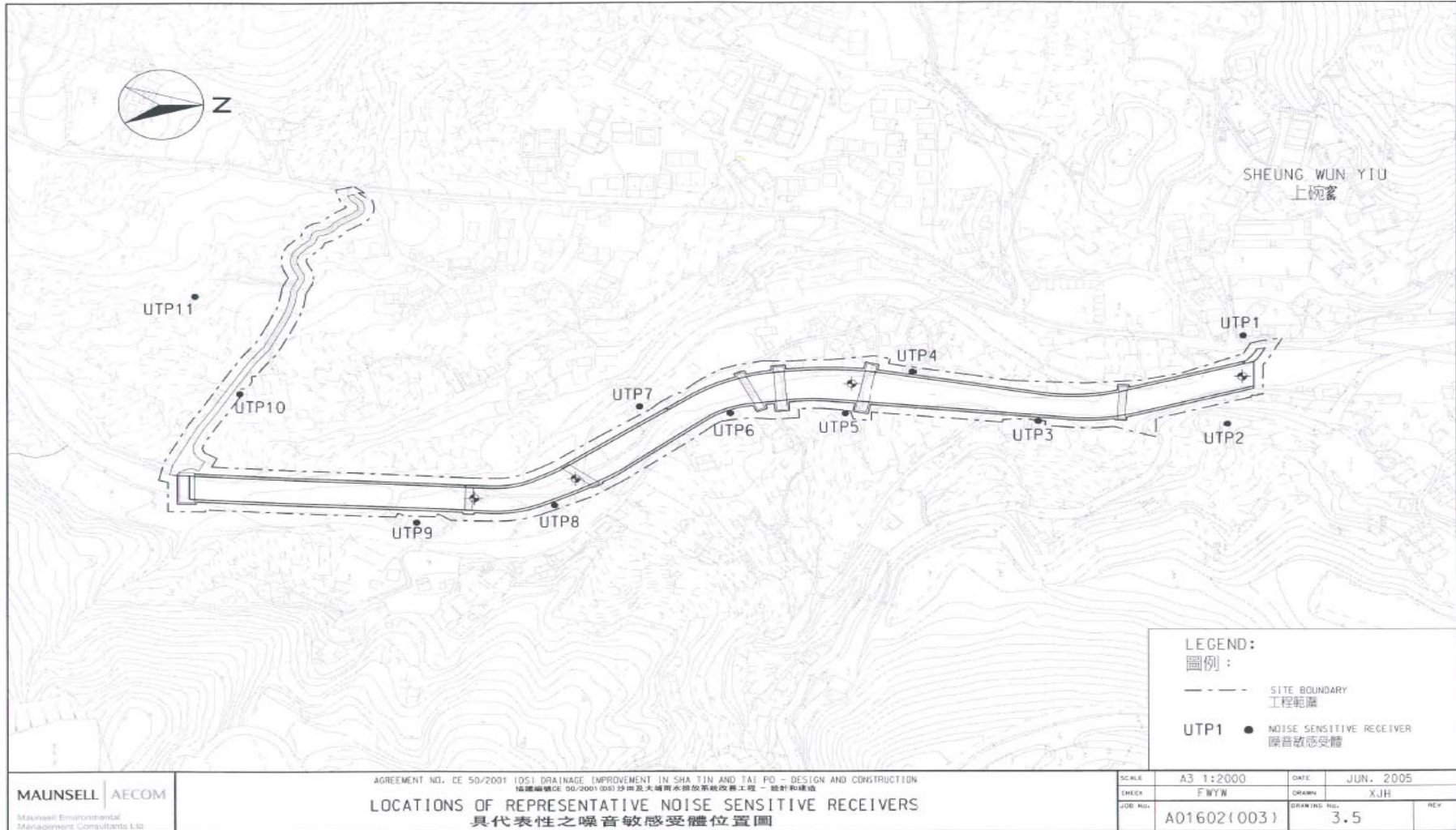












Appendix E: Monitoring schedule for the present and next reporting period

Master Schedule of EM&A works in March 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27/02	28/02	01/03	02/03	03/03	04/03	05/03
		Ecological site inspection	Site inspection at morning		Noise monitoring	Noise monitoring (re-measurement) Ecological site inspection
06/03	07/03	08/03	09/03	10/03	11/03	12/03
			Site inspection at afternoon		Noise monitoring	Ecological site inspection
13/03	14/03	15/03	16/03	17/03	18/03	19/03
			Site inspection at afternoon		Noise monitoring	Ecological site inspection
20/03	21/03	22/03	23/03	24/03	25/03	26/03
			Site inspection and SSEMC at morning		Noise monitoring	Ecological site inspection
27/03	28/03	29/03	30/03	31/03		
			Site inspection at afternoon	Ecological site inspection		

Master Schedule of EM&A works in April 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					01/04	02/04
					Noise monitoring	
03/04	04/04	05/04	06/04	07/04	08/04	09/04
	Ecological site inspection		Site inspection at afternoon		Noise monitoring	
10/04	11/04	12/04	13/04	14/04	15/04	16/04
	Ecological site inspection		Site inspection at afternoon		Noise monitoring	
17/04	18/04	19/04	20/04	21/04	22/04	23/04
	Ecological site inspection		Site inspection and SSEMC at morning	Noise monitoring		
24/04	25/04	26/04	27/04	28/04	29/04	30/04
		Ecological site inspection	Site inspection at afternoon		Noise monitoring	

Appendix F: Cumulative complaint log

Environmental Parameters	Cumulative no. Brought forward	No. of complaint March 2011	Overall Total
Air/Dust	1	1	2
Noise	2	1	3
Water	8	1	9
House Keeping Hygiene	0	0	0
Chemical waste	0	0	0
Total	11	3	14

Appendix G: Implementation status of environmental protection and mitigation measures

Implementation status of environmental protection and mitigation

Environmental Aspect	Protection / Mitigation Measures	Implementation status	Follow-up action
Construction Noise	No percussive piling shall be carried out	Implemented	Not required
	-Use well maintained construction plant	Implemented	Not required
	-Shut down plants between work periods	Implemented	Not required
	-Install silencers on construction equipment	Implemented	Not required
	-Locate mobile plant far away from NSRs	Implemented	Not required
	-Quiet plants should be used	Implemented	Not required
	-2m high temporary noise barriers, as stipulated in EP condition 2.9, shall be installed	Implemented	Not required
Fugitive Dust Emission	-Implement regular watering and vehicle washing facilities	Implemented	Not required
	-Cover excavated or stockpile of dusty material by impervious sheeting or sprayed with water	Implemented	Not required
	-Use tarpaulin to cover dusty materials on vehicles	Implemented	Not required
Water Quality	Excavation works within the Tai Po River within the Project shall be carried out in stages and excavation area for each stage shall be limited to section of half width of the channel and less than 100m long at any one time in order to maintain water flow within the river during construction stage	Implemented	Not required
	Land-based plant shall be employed and site run-off shall be directed towards regularly cleaned and maintained silt traps and oil / grease separators to minimize leakage and loss of sediments during excavation	Implemented	Not required
	Large boulders removed from the Tai Po River within the Project during excavation shall be re-instated upon completion of works A section of 150m long natural riverbank on the western side of the river channel (Ch0 –Ch150) shall be retained	Implemented	Not required
	The excavation area shall be enclosed with bunds or barriers and dewatered prior to excavation to minimize the impacts upon the downstream of the Tai Po River	Non-compliance identified	Ongoing

	Provide silt trap and oil interceptor to remove the oil, lubricants, grease, silt, grit and debris from the wastewater before pumped to the public storm water drainage system	Non-compliance identified	Ongoing
	Provide site toilet facilities	Implemented	Not required
Waste Management	Reuse excavated material as far as possible	Implemented	Not required
	Recycle scrap metals or abandoned equipment	Implemented	Not required
	Adopt a trip ticket system for the disposal of C&D materials	Implemented	Not required
	All general refuse should be segregated and stored in enclosed bins or compaction units	Implemented	Not required
Vibration	Percussive piling is to be replaced by bore-hole piling to minimize vibration impacts to the two identified Declared monuments	Not applicable at this stage	Not required
	Carrying out of vibration monitoring to ensure that vibration associated with the construction phase do not exceed the threshold limit otherwise contractor have to review the work method and construction activities have to be slow down or rescheduled to reduce the impacts	Not applicable at this stage	Not required
	Close monitoring and measurement on the cracks of the external wall of Fan Sin Temple during construction works will be carried out. Any changes on the cracks will be recorded for the contractor to slow down the construction activities accordingly; and to review the work methods and equipments immediately	Not Applicable at this stage	Not required

Implementation status of environmental protection and mitigation for ecology,
prepared by the Ecologist, Dr. Mark Shea.

Environmental Aspect	Protection / Mitigation Measures	Implementation status	Follow-up action
Ecology	Large boulders will be returned to the riverbed following the excavation works.	Not applicable	Not required
	Construction works from Ch. 0.0m – Ch. 150m would be along one side of the river only	Concerns raised due to the flood incident on 22 Jul 10 and the follow up flood relief works	To be followed
	Approximately 150m of the existing natural riverbank on the western side of the river would be retained.	Implemented	Not required
	Excavation works within the river channel should be restricted to an enclosed dewater section of the river, and would be limited to sections 50-100m long at any one time.	Implemented	Not required
	Flows to the area downstream shall be maintained at all times during the construction phase	Implemented	Not required
	Capture survey shall be conducted within the Tai Po River before commencement of works. The captured target species shall be relocated to areas of the watercourse upstream of the watercourse upstream of the Tai Po River	Capture surveys had been conducted at the beginning of the Contract, during the wet season July/August 2008, 4 th November 2008, 27 th , 28 th October 2009, 15 th October and 9 th November 2010	Not required
	Temporary noise barriers should be constructed to control noise impacts to habitats and associated wildlife within and adjacent to the proposed works area	Implemented	Not required
	Excavation works shall be carried out by land based plant within enclosed dry section of river channel.	Implemented	Not required
	Compensatory planting of trees and other vegetation along the banks of the newly improved drainage channel should be provided to compensate for the loss of riparian vegetation.	Not applicable	Not required
Operation phase activities in the improved drainage channel would be limited to periodic channel maintenance such as de-silting.	Not applicable	Not required	

Appendix H: Cumulative waste flow tableCumulative waste flow table showing amount of wastes generated, reused and disposed since 15th September 2008

Type of waste	Inert Waste			Non-Inert Waste			Chemical Waste	
	Amount generated	Amount reused	Amount disposed	Amount generated	Amount reused	Amount disposed	Amount generated	Amount disposed*
Year 2008 to 2009	36.9m ³	0	36.9m ³	2.000 tonnes	0	2.000 tonnes	20kg	20kg
Year 2010	1955m ³	1955m ³	0	0.192 tonnes	0	0.192 tonnes	0	0
January 2011	117m ³	117m ³	0	0.040 tonnes	0	0.040 tonnes	0	0
February 2011	581m ³	581m ³	0	0.045 tonnes	0	0.045 tonnes	0	0
March 2011	927m ³	927m ³	0	0.047 tonnes	0	0.047 tonnes	0	0
Total	3616.9m³	3452m³	36.9m³	2.324 tonnes	0	2.324 tonnes	20kg	20kg

Remark*: Chemical wastes generated from the project sites including Upper Tai Po River, Lam Tsuen River and She Shan River were centralized for disposal.

Appendix I: Construction programme (Rev. No. 15)

Drainage Services Department
 Contract No. DC/2007/06
River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River

Revised Master Programme Rev (15)

ID	任務名稱	Duration	Start	Finish	2010				2011				2012				2013	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
1072	Install Stone Facing	14 days	2/6/2011	18/6/2011														
1073	Reinstatement of river bed	3 days	20/6/2011	22/6/2011														
1074	Variation Order No. 178	37 days	23/6/2011	5/8/2011														
1075	Temp. Haul Rd/Diversion	7 days	23/6/2011	30/6/2011														
1076	Excavation	14 days	20/7/2011	18/7/2011														
1077	Formwork	7 days	19/7/2011	26/7/2011														
1078	Rc-BAR	7 days	27/7/2011	3/8/2011														
1079	Concrete	2 days	4/8/2011	5/8/2011														
1080	Programme of Upper Tai Po River	1747 days?	28/9/2007	31/10/2012														
1081	Excavation and Formation	184 days	14/2/2010	1/10/2010														
1082	Wet Season of 2010	183 days	1/4/2011	1/11/2011														
1083	Wet Season of 2011	184 days	19/3/2012	31/10/2012														
1084	Wet Season of 2012	42 days?	7/11/2010	18/12/2010														
1085	Works Suspended Due to Villager's Rail	1615 days?	28/9/2007	24/5/2012														
1086	Ch. 230-330	40 days	28/1/2011	9/3/2011														
1087	Gabion Wall (Ch. 230-275 RHS) TG1/TG1A	20 days	28/1/2011	16/2/2011														
1088	Excavation and Formation	14 days	17/2/2011	2/3/2011														
1089	Gabion Wall Construction (Ch. 235-275 LHS)	6 days	3/3/2011	9/3/2011														
1090	Backfilling	220 days?	3/3/2011	25/11/2011														
1091	Reinforcing Wall (Ch. 275-330 RHS) TR1 (replaced by AD1)	12 days	3/3/2011	16/3/2011														
1092	Excavation and Formation	12 days	17/3/2011	30/3/2011														
1093	Laying Concrete block and gabion units (Ch.275-330 RHS)	6 days	3/3/2011	7/4/2011														
1094	Backfilling	7 days	12/11/2011	19/11/2011														
1095	Excavation and Formation	4 days	25/11/2011	24/11/2011														
1096	Laying Concrete block and gabion units (Ch.320-330 RHS)	1 day?	31/0/2011	27/10/2011														
1097	Backfilling	21 days	3/10/2011	27/10/2011														
1098	Drainage & Footpath (Ch. 275-320 RHS)	16 days	10/2/2012	28/2/2012														
1099	Excavation and Formation	7 days	18/2/2012	25/2/2012														
1100	Gabion Wall (Ch. 315-530 LHS) TG2A	2 days	27/2/2012	28/2/2012														
1101	Excavation and Formation	4 days	6/2/2012	9/2/2012														
1102	Gabion Wall Construction (Ch. 315-530 LHS)	4 days	6/2/2012	9/2/2012														
1103	Backfilling	14 days	27/2/2012	13/3/2012														
1104	Maintenance Staircase (Ch. 315 LHS)	14 days	27/2/2012	13/3/2012														
1105	Formwork and concreting	14 days	27/2/2012	13/3/2012														
1106	Drainage & Footpath (Ch. 307-330 LHS)	14 days	27/2/2012	13/3/2012														
1107	Construction of drainage & footpath	171 days	29/8/2011	24/3/2012														
1108	Temp Utility and Pedestrian Diversion at Ch.230	39 days	29/8/2011	15/10/2011														
1109	Temp UU diversion near Ch.230	119 days	1/11/2011	24/3/2012														
1110	Temp Pedestrian diversion	7 days	12/11/2011	19/11/2011														
1111	Demolition of Interim Footbridge at Ch.230	7 days	12/11/2011	19/11/2011														
1112	Demolition of Interim Footbridge	1615 days?	28/9/2007	24/5/2012														
1113	Gabion Wall (Ch. 230-257 LHS) TG2/TG2A/TG2B	14 days	21/11/2011	6/12/2011														
1114	Excavation and Formation	7 days	7/12/2011	14/12/2011														
1115	Gabion Wall Construction (Ch. 230-257 LHS)	3 days	15/12/2011	17/12/2011														
1116	Backfilling	4 days	19/12/2011	22/12/2011														
1117	Maintenance Staircase (Ch. 242 LHS)	4 days	19/12/2011	22/12/2011														
1118	Formwork and concreting	11 days	23/12/2011	7/1/2012														
1119	Gabion Wall (Ch. 257-270 LHS) TG4	5 days	23/12/2011	30/12/2011														
1120	Excavation and Formation	3 days	31/12/2011	4/1/2012														
1121	Gabion Wall Construction (Ch. 257-270 LHS)	3 days	5/1/2012	7/1/2012														
1122	Backfilling	46 days	9/1/2012	5/3/2012														
1123	Retaining Wall (Ch. 275-315 LHS) TR1 (replaced by AD1)	21 days	9/1/2012	4/2/2012														
1124	Excavation and Formation	18 days	6/2/2012	25/2/2012														
1125	Laying Concrete block and gabion units	7 days	27/2/2012	5/3/2012														
1126	Backfilling	60 days	19/12/2011	3/3/2012														
1127	Drainage & Footpath (Ch. 200-307 LHS)																	

Revised Master Prog Rev. 15
 日期: 22/2/2011

任務進度
 里程碑
 摘要
 上層型任務
 上層型里程碑

外部任務
 專案摘要

摘要詳細
 限制

分割

Drainage Services Department
Contract No. DC/2007/06
River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River

Revised Master Programme Rev (15)

ID	任務名稱	Duration	Start	Finish	2010				2011				2012				2013		
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2			
1131	Construction of drainage & forepools (Ch 200-307 LHS)	60 days	19/12/2011	5/3/2012															
1132	Step 2 (Ch 236)	8 days	15/12/2011	23/12/2011															
1133	Construction of Step 2 (Ch 236)	8 days	15/12/2011	23/12/2011															
1134	Cascade (Ch 275)	8 days	27/2/2012	6/3/2012															
1135	Construction of Cascade (Ch 275)	8 days	27/2/2012	6/3/2012															
1136	Step 3 (Ch 307)	8 days	7/3/2012	15/3/2012															
1137	Construction of Step 3 (Ch 307)	8 days	7/3/2012	15/3/2012															
1138	River Bed formation (Ch 230-330)	20 days	16/3/2012	12/4/2012															
1139	Piling Grade 500 (see Scope)	20 days	16/3/2012	12/4/2012															
1140	Lighting at CH 250-320	45 days	5/3/2012	2/5/2012															
1141	Construction of Downpits / Ductings	21 days	5/3/2012	28/3/2012															
1142	Public lighting installation (CE2318)	12 days	29/3/2012	16/4/2012															
1143	Public lighting installation (CE2317)	12 days	29/3/2012	16/4/2012															
1144	T&C	6 days	17/4/2012	23/4/2012															
1145	Removal of existing lighting (VA131-21)	6 days	24/4/2012	2/5/2012															
1146																			
1147	Footbridge TB04 (Ch 330)	113 days	21/11/2011	11/4/2012															
1148	Construction of Abutment A (LHS)	22 days	18/2/2012	14/3/2012															
1149	Excavation and Blinding	5 days	18/2/2012	23/2/2012															
1150	Formwork and rebar fixing for base slab	5 days	24/2/2012	29/2/2012															
1151	Concreting of base slab	1 day	1/3/2012	1/3/2012															
1152	Stripping off formwork	3 days	2/3/2012	5/3/2012															
1153	Rebar fixing and shuttering formwork for column	5 days	6/3/2012	10/3/2012															
1154	Concreting of column	1 day	12/3/2012	12/3/2012															
1155	Stripping off formwork	2 days	13/3/2012	14/3/2012															
1156	Construction of Abutment B (RHS)	23 days	21/11/2011	16/12/2011															
1157	Excavation and Blinding	5 days	26/11/2011	1/12/2011															
1158	Formwork and rebar fixing for base slab	1 day	2/12/2011	2/12/2011															
1159	Concreting of base slab	3 days	3/12/2011	6/12/2011															
1160	Stripping off formwork	1 day	7/12/2011	7/12/2011															
1161	Rebar fixing and shuttering formwork for column	5 days	7/12/2011	12/12/2011															
1162	Concreting of base slab	1 day	13/12/2011	13/12/2011															
1163	Stripping off formwork	3 days	14/12/2011	16/12/2011															
1164	Construction of decking	27 days	7/3/2012	11/4/2012															
1165	Formwork and rebar fixing for decking	10 days	7/3/2012	17/3/2012															
1166	Concreting	1 day	19/3/2012	19/3/2012															
1167	Stripping off formwork	14 days	20/3/2012	5/4/2012															
1168	Railing installation	2 days	10/4/2012	11/4/2012															
1169	Demolition of Bridge TB-A	1 day	31/3/2012	31/3/2012															
1170	Demolition works	1 day	31/3/2012	31/3/2012															
1171	Lighting at Footbridge TB04	11 days	19/3/2012	30/3/2012															
1172	Construction of Downpits / Ductings	7 days	19/3/2012	28/3/2012															
1173	Public lighting installation (CE2315)	3 days	27/3/2012	29/3/2012															
1174	Public lighting installation (CE2316)	3 days	27/3/2012	29/3/2012															
1175	T&C	1 day	30/3/2012	30/3/2012															
1176	Construction of Gabion Wall at TB-A	5 days	2/4/2012	11/4/2012															
1177	Excavation and Formation	2 days	2/4/2012	3/4/2012															
1178	Gabion Wall Construction (Ch 230-257 LHS)	2 days	5/4/2012	10/4/2012															
1179	Backfilling	1 day	11/4/2012	11/4/2012															
1180																			
1181	Footbridge TB05 (Ch 350)	129 days	21/11/2011	2/5/2012															
1182	Construction of Abutment A (LHS)	21 days	24/2/2012	19/3/2012															
1183	Excavation and Blinding	5 days	24/2/2012	29/2/2012															
1184	Formwork and rebar fixing for base slab	4 days	1/3/2012	5/3/2012															
1185	Concreting of base slab	1 day	6/3/2012	6/3/2012															
1186	Stripping off formwork	3 days	7/3/2012	9/3/2012															
1187	Rebar fixing and shuttering formwork for column	4 days	10/3/2012	14/3/2012															
1188	Concreting of column	1 day	15/3/2012	15/3/2012															
1189	Stripping off formwork	3 days	16/3/2012	19/3/2012															

Revised Master Prog Rev. 15
 日期: 2/2/2011

任務
 進度

里程碑
 摘要

上欄型任務
 里程碑

上欄型進度
 分期

外部任務
 專案摘要

摘要詳細
 期限

Drainage Services Department
 Contract No. DC/2007/06
River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River

Revised Master Programme Rev (15)

ID	任務名稱	Duration	Start	Finish	2010				2011				2012		2013	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1249	Formwork and rebar fixing for decking	18 days	23/9/2011	13/4/2011												
1250	Concreting	1 day	14/4/2011	14/4/2011												
1251	Stripping off formwork	14 days	15/4/2011	4/5/2011												
1252	Raining installation	7 days	26/9/2011	2/4/2011												
1253	Lighting at Footbridge TB02	51 days	3/1/2012	5/9/2012												
1254	Construction of Drawpits / Ductings	21 days	3/1/2012	30/1/2012												
1255	Public lighting Installation (CE2308)	12 days	31/1/2012	13/2/2012												
1256	Public lighting Installation (CE2309)	12 days	14/2/2012	27/2/2012												
1257	Removal of existing lighting (VA2642-A1)	6 days	28/2/2012	5/3/2012												
1258																
1259																
1260	River Bed formation (Ch 50-150)	20 days	4/4/2011	30/4/2011												
1261	Paving Grade 500 ice Stone	20 days	4/4/2011	30/4/2011												
1262																
1263	Gabion Wall (Ch 150-178 LHS) TG3A	25 days	24/1/2011	22/1/2011												
1264	Excavation and formation	10 days	24/1/2011	5/1/2011												
1265	Gabion Wall construction (Ch 150-178 LHS)	10 days	6/1/2011	16/1/2011												
1266	Backfilling	5 days	17/1/2011	22/1/2011												
1267	Gabion Wall (Ch 178-230 LHS) TG5A/TG2	15 days	12/1/2011	29/1/2011												
1268	Gabion Wall construction (Ch 178-230 LHS)	10 days	12/1/2011	23/1/2011												
1269	Backfilling	5 days	24/1/2011	29/1/2011												
1270	Maintenance Staircase (Ch 178 LHS)	5 days	17/1/2011	21/1/2011												
1271	Formwork and concrete	4 days	17/1/2011	21/1/2011												
1272	Drainage & Footpath (Ch 150-Ch230 LHS)	21 days	3/10/2011	27/10/2011												
1273	Drainage & Footpath	21 days	3/10/2011	27/10/2011												
1274	Gabion Wall (Ch 100-150 RHS) TG2	25 days	6/1/2011	6/1/2012												
1275	Excavation and formation	4 days	6/1/2011	9/1/2011												
1276	Gabion Wall construction (Ch 100-150 RHS)	15 days	10/1/2011	29/1/2011												
1277	Backfilling	6 days	30/1/2011	6/1/2012												
1278	Maintenance Staircase (Ch 130 RHS)	4 days	7/1/2012	11/1/2012												
1279	Formwork and concrete	4 days	7/1/2012	11/1/2012												
1280	Drainage & Footpath (Ch 0-50 RHS)	28 days	7/1/2012	11/2/2012												
1281	Construction of drainage & footpath	28 days	7/1/2012	11/2/2012												
1282																
1283	Gabion Wall (Ch 150-160 RHS) TG4A	14 days	12/1/2011	28/1/2011												
1284	Excavation and formation	4 days	12/1/2011	16/1/2011												
1285	Gabion Wall Construction (Ch 150-160 RHS)	6 days	17/1/2011	23/1/2011												
1286	Backfilling	4 days	24/1/2011	28/1/2011												
1287	Gabion Wall (Ch 160-178 RHS) TG4A	16.5 days?	28/9/2007	24/5/2012												
1288	Excavation and formation	4 days	29/1/2011	2/1/2011												
1289	Construction of Gabion Wall (Ch 160-178 RHS)	6 days	3/1/2011	9/1/2011												
1290	Backfilling	4 days	10/1/2011	14/1/2011												
1291																
1292	Footbridge TB03 (Ch 200)	83 days	12/1/2011	23/2/2012												
1293	Construction of Abutment B (RHS)	29 days	12/1/2011	15/1/2011												
1294	Excavation and Blinding	12 days	12/1/2011	25/1/2011												
1295	Formwork and rebar fixing of base slab	5 days	26/1/2011	1/2/2011												
1296	Concreting of base slab	1 day	2/1/2011	2/1/2011												
1297	Stripping off formwork	3 days	3/1/2011	6/1/2011												
1298	Rebar fixing and shuttering formwork for column	5 days	7/1/2011	12/1/2011												
1299	Concreting	1 day	13/1/2011	13/1/2011												
1300	Stripping off formwork	2 days	14/1/2011	15/1/2011												
1301	Construction of Decking (TB03)	27 days	16/1/2011	19/1/2012												
1302	Formwork and rebar fixing for decking	10 days	16/1/2011	29/1/2011												
1303	Concreting	1 day	30/1/2011	30/1/2011												
1304	Stripping off formwork	14 days	3/1/2011	17/1/2012												
1305	Railing installation	2 days	18/1/2012	19/1/2012												
1306	Lighting at Footbridge TB03	27 days	20/1/2012	23/2/2012												
1307	Construction of Drawpits / Ductings	12 days	20/1/2012	6/2/2012												

Revised Master Prog Rev 15
 日期: 22/3/2011

任務進度:

里程碑:

摘要:

上層型任務:

上層型里程碑:

分割:

上層型進度:

外部任務:

專案摘要:

摘要詳細:

期限:

Drainage Services Department
 Contract No. DC/2007/06
River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River

Revised Master Programme Rev (15)

ID	任務名稱	Duration	Start	Finish	2010				2011				2012				2013	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
1308	Public lighting Installation (CE2321)	6 days	7/2/2012	13/2/2012														
1309	Public lighting Installation (CE2322)	6 days	14/2/2012	20/2/2012														
1310	T&C	1 day	21/2/2012	21/2/2012														
1311	Removal of existing lighting (VA1309-Z1)	2 days	22/2/2012	23/2/2012														
1312	Step 1 (Ch 178)	13 days	28/9/2007	10/10/2007														
1313	Excavation and Blinding	7 days	28/9/2007	4/10/2007														
1314	Formwork and rebar fixing for base slab	4 days	5/10/2007	8/10/2007														
1315	Centering of base slab	1 day	9/10/2007	9/10/2007														
1316	Stripping of formwork	1 day	10/10/2007	10/10/2007														
1317	River Bed formation (Ch 150-180)	6 days	11/10/2007	16/10/2007														
1318	Piling Grade 500 Ice Stone	6 days	11/10/2007	16/10/2007														
1319																		
1320	Gabion Wall (Ch 178-210 RHS) TG1/TG1A	34 days	16/12/2011	31/1/2012														
1321	Excavation and formation	20 days	16/12/2011	11/1/2012														
1322	Construction of Gabion Wall (Ch 178-210 RHS)	10 days	12/1/2012	26/1/2012														
1323	Backfilling	4 days	27/1/2012	31/1/2012														
1324	Gabion Wall (Ch 210-222 RHS) TG1	14 days	27/1/2012	11/2/2012														
1325	Excavation and formation	4 days	27/1/2012	31/1/2012														
1326	Construction of Gabion Wall (Ch 210-225 RHS)	6 days	1/2/2012	7/2/2012														
1327	Backfilling	4 days	8/2/2012	11/2/2012														
1328	Lighting CH 175-250	21 days	5/3/2012	26/3/2012														
1329	Construction of Drawpits / Ductings	12 days	5/3/2012	17/3/2012														
1330	Public lighting Installation (CE2319)	6 days	19/3/2012	24/3/2012														
1331	Public lighting Installation (CE2320)	6 days	19/3/2012	24/3/2012														
1332	Public lighting Installation (CE2323)	6 days	19/3/2012	24/3/2012														
1333	Public lighting Installation (CE2324)	6 days	19/3/2012	24/3/2012														
1334	T&C	1 day	26/3/2012	26/3/2012														
1335	Removal of existing lighting (VE2641-A1)	2 days	27/3/2012	28/3/2012														
1336	Removal of existing lighting (VA1310-A1)	2 days	27/3/2012	28/3/2012														
1337	River Bed formation (Ch 180-230)	14 days	18/1/2012	6/2/2012														
1338	Piling Grade 500 Ice Stone	14 days	18/1/2012	6/2/2012														
1339																		
1340	Ch -23-110	534 days	30/8/2010	8/8/2012														
1341	Retaining Wall at Access D (Boulder Trap)	41 days	18/9/2010	11/10/2010														
1342	Retaining Wall (RHS)	41 days	19/9/2010	11/10/2010														
1343	Excavation and blinding	6 days	19/9/2010	6/9/2010														
1344	Construction of Base Slab, Bay 2 and 4	8 days	7/9/2010	14/9/2010														
1345	Formwork and rebar fixing	4 days	7/9/2010	10/9/2010														
1346	Centering	1 day	11/9/2010	11/9/2010														
1347	Stripping of formwork	3 days	12/9/2010	14/9/2010														
1348	Construction of Base Slab, Bay 1 and 3	8 days	15/9/2010	22/9/2010														
1349	Formwork and rebar fixing	4 days	15/9/2010	18/9/2010														
1350	Centering	1 day	19/9/2010	19/9/2010														
1351	Stripping of formwork	3 days	20/9/2010	22/9/2010														
1352	Construction of Wall Stem, Bay 2 and 4	8 days	23/9/2010	30/9/2010														
1353	Formwork and rebar fixing	4 days	23/9/2010	26/9/2010														
1354	Centering	1 day	27/9/2010	27/9/2010														
1355	Stripping of formwork	3 days	28/9/2010	30/9/2010														
1356	Construction of Wall Stem, Bay 1 and 3	11 days	1/10/2010	11/10/2010														
1357	Formwork and rebar fixing	4 days	1/10/2010	4/10/2010														
1358	Centering	1 day	5/10/2010	5/10/2010														
1359	Stripping of formwork	3 days	6/10/2010	8/10/2010														
1360	Backfill the Retaining Wall	3 days	9/10/2010	11/10/2010														
1361	Filling Work at Boulder Trap (RHS of downstream)	6 days	30/8/2010	4/9/2010														
1362	Filling works	6 days	30/8/2010	4/9/2010														
1363	Dwarf Wall (Ch 60-75) RHS	23 days	12/11/2011	8/12/2011														
1364	Excavation and Blinding	4 days	12/11/2011	16/11/2011														
1365	Formwork and rebar fixing of base slab	5 days	17/11/2011	22/11/2011														
1366	Centering of base slab	1 day	23/11/2011	23/11/2011														

Revised Master Prog Rev_15
 日期: 22/3/2011

任務進度:

里程碑:

摘要:

上層型任務:

上層型里程碑:

分期:

外部任務:

摘要母組:

期限:

Drainage Services Department
 Contract No. DC/2007/06
 River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River

Revised Master Programme Rev (15)

ID	任務名稱	Duration	Start	Finish	2010				2011				2012				2013	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
1485																		
1486	Lighting at CH 350-380	23 days	24/2/2012	21/3/2012														
1487	Construction of Drains / Ductings	14 days	24/2/2012	10/3/2012														
1488	Public lighting Installation (CE23)2	7 days	12/3/2012	19/3/2012														
1489	T&C	2 days	20/3/2012	21/3/2012														
1491																		
1492	Ch 450-525	1615 days?	28/9/2007	24/5/2012														
1493	Retaining Wall (ch 450-500) TR2 (RHS)	57 days	12/11/2011	20/1/2012														
1494	Excavation and Formation	15 days	12/11/2011	29/11/2011														
1495	Base Slab Construction Bay 1 (RHS)	8 days	30/11/2011	8/12/2011														
1496	Formwork and rebar fixing	6 days	30/11/2011	6/12/2011														
1497	Concreting	1 day	7/12/2011	7/12/2011														
1498	Stripping off formwork	1 day	8/12/2011	8/12/2011														
1499	Wall Stem Construction Bay 1 (RHS)	6 days	9/12/2011	15/12/2011														
1500	Formwork and rebar fixing	4 days	9/12/2011	13/12/2011														
1501	Concreting	1 day	14/12/2011	14/12/2011														
1502	Stripping off formwork	1 day	15/12/2011	15/12/2011														
1503	Base Slab Construction Bay 2 (RHS)	8 days	9/12/2011	17/1/2012														
1504	Formwork and rebar fixing	6 days	9/12/2011	15/12/2011														
1505	Concreting	1 day	16/12/2011	16/12/2011														
1506	Stripping off formwork	1 day	17/12/2011	17/12/2011														
1507	Wall Stem Construction Bay 2 (RHS)	6 days	19/12/2011	24/1/2012														
1508	Formwork and rebar fixing	4 days	19/12/2011	22/12/2011														
1509	Concreting	1 day	23/12/2011	23/12/2011														
1510	Stripping off formwork	1 day	24/12/2011	24/12/2011														
1511	Base Slab Construction Bay 3 (RHS)	8 days	30/11/2011	8/12/2011														
1512	Formwork and rebar fixing	6 days	30/11/2011	6/12/2011														
1513	Concreting	1 day	7/12/2011	7/12/2011														
1514	Stripping off formwork	1 day	8/12/2011	8/12/2011														
1515	Wall Stem Construction Bay 3 (RHS)	6 days	9/12/2011	15/12/2011														
1516	Formwork and rebar fixing	4 days	9/12/2011	13/12/2011														
1517	Concreting	1 day	14/12/2011	14/12/2011														
1518	Stripping off formwork	1 day	15/12/2011	15/12/2011														
1519	Base Slab Construction Bay 4 (incl. Step 6)(RHS)	10 days	9/12/2011	20/1/2012														
1520	Formwork and rebar fixing	8 days	9/12/2011	17/1/2012														
1521	Concreting	1 day	19/12/2011	19/12/2011														
1522	Stripping off formwork	1 day	20/12/2011	20/12/2011														
1523	Wall Stem Construction Bay 4 (RHS)	6 days	21/12/2011	29/12/2011														
1524	Formwork and rebar fixing	4 days	21/12/2011	24/12/2011														
1525	Concreting	1 day	28/12/2011	28/12/2011														
1526	Stripping off formwork	1 day	29/12/2011	29/12/2011														
1527	Base Slab Construction Bay 5 (incl. Step 6) (RHS)	13 days	29/12/2011	13/1/2012														
1528	Formwork and rebar fixing	8 days	29/12/2011	7/1/2012														
1529	Concreting	1 day	9/1/2012	9/1/2012														
1530	Stripping off formwork	4 days	10/1/2012	13/1/2012														
1531	Wall Stem Construction Bay 5 (RHS)	6 days	14/1/2012	20/1/2012														
1532	Formwork and rebar fixing	4 days	14/1/2012	18/1/2012														
1533	Concreting	1 day	19/1/2012	19/1/2012														
1534	Stripping off formwork	1 day	20/1/2012	20/1/2012														
1535																		
1536	Retaining Wall (ch 450-500) TR2 (LHS)	70 days	28/12/2011	22/3/2012														
1537	Demolition of House 2 Sha Po Tsai	7 days	28/12/2011	5/1/2012														
1538	Excavation and Formation	15 days	20/1/2012	9/2/2012														
1539	Base Slab Construction Bay 1 (LHS)	8 days	10/2/2012	18/2/2012														
1540	Formwork and rebar fixing	6 days	10/2/2012	16/2/2012														
1541	Concreting	1 day	17/2/2012	17/2/2012														
1542	Stripping off formwork	1 day	18/2/2012	18/2/2012														
1543	Wall Stem Construction Bay 1 (LHS)	5 days	18/2/2012	23/2/2012														
1544	Formwork and rebar fixing	4 days	18/2/2012	22/2/2012														

Revised Master Prog Rev. 15
 日期: 22/3/2011

任務進度:

里程碑:

上層型任務:

上層型進度:

分割:

外部任務:

專案摘要:

摘要:

期限:

Drainage Services Department
 Contract No. DC/2007/06
River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River

Revised Master Programme Rev (15)

ID	任務名稱	Duration	Start	Finish	2010				2011				2012				2013	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
1603																		
1604	Retaining Wall (Ch 500-530) TR3 (LHS)	34 days	7/2/2012	16/3/2012														
1605	Excavation and Formation	6 days	7/2/2012	13/2/2012														
1606	Base Slab Construction Bay 1 (incl. Step 7)(LHS)	8 days	14/2/2012	22/2/2012														
1607	Formwork and rebar fixing	6 days	14/2/2012	20/2/2012														
1608	Concreting	1 day	21/2/2012	21/2/2012														
1609	Stripping off formwork	1 day	22/2/2012	22/2/2012														
1610	Wall Stem Construction Bay 1 (LHS)	6 days	23/2/2012	29/2/2012														
1611	Formwork and rebar fixing	4 days	23/2/2012	27/2/2012														
1612	Concreting	1 day	28/2/2012	28/2/2012														
1613	Stripping off formwork	1 day	29/2/2012	29/2/2012														
1614	Base Slab Construction Bay 2 (incl. Step 7)(LHS)	8 days	1/3/2012	9/3/2012														
1615	Formwork and rebar fixing	6 days	1/3/2012	7/3/2012														
1616	Concreting	1 day	8/3/2012	8/3/2012														
1617	Stripping off formwork	1 day	9/3/2012	9/3/2012														
1618	Wall Stem Construction Bay 2 (LHS)	6 days	10/3/2012	16/3/2012														
1619	Formwork and rebar fixing	4 days	10/3/2012	14/3/2012														
1620	Concreting	1 day	15/3/2012	15/3/2012														
1621	Stripping off formwork	1 day	16/3/2012	16/3/2012														
1622	Drainage & Footpath (Ch 490-525 RHS)	14 days	29/4/2011	16/5/2011														
1623	Construction of drainage & footpath	14 days	29/4/2011	16/5/2011														
1624																		
1625																		
1626	Footbridge TB07 (Ch 525)	102 days	12/11/2011	16/3/2012														
1627	Temporary Pedestrian Division	3 days	12/11/2011	15/11/2011														
1628	Temporary Pedestrian Division (at grade)	3 days	12/11/2011	15/11/2011														
1629	Demolition of existing Footbridge TB-D (Ch 525)	3 days	16/11/2011	18/11/2011														
1630	Demolition works	3 days	16/11/2011	18/11/2011														
1631	Construction of Abutment A	28 days	14/2/2012	16/3/2012														
1632	Excavation and Blinding	12 days	14/2/2012	27/2/2012														
1633	Formwork and rebar fixing for base slab	4 days	28/2/2012	2/3/2012														
1634	Concreting of base slab	1 day	3/3/2012	3/3/2012														
1635	Stripping off formwork	3 days	5/3/2012	7/3/2012														
1636	Rebar fixing and shuttering formwork for column	4 days	8/3/2012	12/3/2012														
1637	Concreting	1 day	13/3/2012	13/3/2012														
1638	Stripping off formwork	3 days	14/3/2012	16/3/2012														
1639	Construction of Abutment B	28 days	19/11/2011	21/2/2012														
1640	Excavation and Blinding	12 days	19/11/2011	21/2/2012														
1641	Formwork and rebar fixing for base slab	4 days	3/12/2011	7/12/2011														
1642	Concreting of base slab	1 day	8/12/2011	8/12/2011														
1643	Stripping off formwork	3 days	9/12/2011	12/12/2011														
1644	Rebar fixing and shuttering formwork for column	4 days	13/12/2011	16/12/2011														
1645	Concreting	1 day	17/12/2011	17/12/2011														
1646	Stripping off formwork	3 days	19/12/2011	21/12/2011														
1647																		
1648	Footbridge TB07 (Ch 525)	44 days	14/3/2012	10/5/2012														
1649	Construction of decking	29 days	14/3/2012	20/4/2012														
1650	Formwork and rebar fixing for decking	12 days	14/3/2012	27/3/2012														
1651	Concreting	1 day	28/3/2012	28/3/2012														
1652	Stripping off formwork	14 days	29/3/2012	18/4/2012														
1653	Railing installation	2 days	19/4/2012	20/4/2012														
1654	Footbridge TB07 Lighting	15 days	21/4/2012	10/5/2012														
1655	Construction of Drawpits / Ducting	7 days	21/4/2012	30/4/2012														
1656	Public Lighting Installation (CE2328)	6 days	2/5/2012	8/5/2012														
1657	Public Lighting Installation (CE2329)	6 days	2/5/2012	8/5/2012														
1658	T&C	2 days	9/5/2012	10/5/2012														
1659																		
1660	Ch 525-615	471 days	15/10/2010	16/4/2012														
1661	Retaining Wall (Ch 535-546) TR4 (RHS)	26 days	30/3/2011	3/5/2011														

Drainage Services Department
 Contract No. DC/2007/06
 River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River

Revised Master Programme Rev (15)

ID	任務名稱	Duration	Start	Finish	2010				2011				2012				2013			
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2				
1662	Excavation and Formation	5 days	30/3/2011	4/4/2011																
1663	Base Slab Construction Bay 1 (RHS)	8 days	6/4/2011	14/4/2011																
1664	Formwork and rebar fixing	6 days	6/4/2011	12/4/2011																
1665	Concreting	1 day	13/4/2011	13/4/2011																
1666	Stripping off formwork	1 day	14/4/2011	14/4/2011																
1668	Wall Stem Construction Bay 1 (RHS)	6 days	15/4/2011	21/4/2011																
1669	Formwork and rebar fixing	4 days	15/4/2011	19/4/2011																
1670	Concreting	1 day	20/4/2011	20/4/2011																
1671	Stripping off formwork	1 day	21/4/2011	21/4/2011																
1672	Base Slab Construction Bay 2 (RHS)	8 days	14/4/2011	28/4/2011																
1673	Formwork and rebar fixing	6 days	14/4/2011	20/4/2011																
1674	Concreting	1 day	21/4/2011	21/4/2011																
1675	Stripping off formwork	1 day	26/4/2011	26/4/2011																
1676	Wall Stem Construction Bay 2 (RHS)	6 days	27/4/2011	3/5/2011																
1677	Formwork and rebar fixing	4 days	27/4/2011	30/4/2011																
1678	Concreting	1 day	1/5/2011	1/5/2011																
1679	Stripping off formwork	1 day	3/5/2011	3/5/2011																
1680	Retaining Wall (Ch 535-546) TR4 (LHS)	38 days	28/2/2012	16/4/2012																
1681	Excavation and Formation	8 days	28/2/2012	7/3/2012																
1682	Base Slab Construction Bay 1 (LHS)	8 days	8/3/2012	16/3/2012																
1683	Formwork and rebar fixing	6 days	8/3/2012	14/3/2012																
1684	Concreting	1 day	15/3/2012	15/3/2012																
1685	Stripping off formwork	1 day	16/3/2012	16/3/2012																
1686	Wall Stem Construction Bay 1 (LHS)	6 days	17/3/2012	23/3/2012																
1687	Formwork and rebar fixing	4 days	17/3/2012	21/3/2012																
1688	Concreting	1 day	22/3/2012	22/3/2012																
1689	Stripping off formwork	1 day	23/3/2012	23/3/2012																
1690	Base Slab Construction Bay 2 (LHS)	8 days	24/3/2012	2/4/2012																
1691	Formwork and rebar fixing	6 days	24/3/2012	30/3/2012																
1692	Concreting	1 day	31/3/2012	31/3/2012																
1693	Stripping off formwork	1 day	2/4/2012	2/4/2012																
1694	Wall Stem Construction Bay 2 (LHS)	8 days	3/4/2012	16/4/2012																
1695	Formwork and rebar fixing	6 days	3/4/2012	13/4/2012																
1696	Concreting	1 day	14/4/2012	14/4/2012																
1697	Stripping off formwork	1 day	16/4/2012	16/4/2012																
1698	Retaining Wall TR5 Ch (546-596 LHS) TR5 (AD)	190 days	15/10/2010	5/5/2011																
1700	Construction of temp haul road	25 days	15/10/2010	8/11/2010																
1701	Demolition of Existing structure at slope crest	8 days	9/11/2010	16/11/2010																
1702	Suspension of Work due to villagers rally	17 days	20/12/2010	18/1/2011																
1703	Construction of temporary ground beam	5 days	19/1/2011	23/1/2011																
1704	Trimming of rock slope (from downstream to upstre	73 days	24/1/2011	7/3/2011																
1705	Install rock dowel	45 days	22/2/2011	14/4/2011																
1706	Construction of skin wall (from D/S to U/S, from to	45 days	10/3/2011	5/5/2011																
1707	Retaining Wall TR5A CH546-596 LHS	38 days	12/11/2011	28/1/2011																
1709	River diversion, Excavation and Formation	14 days	12/11/2011	28/11/2011																
1710	Base Slab Construction TR5A Bay 1 LHS	10 days	29/11/2011	9/12/2011																
1711	Formwork and rebar fixing	8 days	29/11/2011	7/12/2011																
1712	Concreting	1 day	8/12/2011	8/12/2011																
1713	Stripping off formwork	1 day	9/12/2011	9/12/2011																
1714	Wall Stem Construction TR5A Bay 1 LHS	6 days	10/12/2011	16/12/2011																
1715	Formwork and rebar fixing	4 days	10/12/2011	14/12/2011																
1716	Concreting	1 day	15/12/2011	15/12/2011																
1717	Stripping off formwork	1 day	16/12/2011	16/12/2011																
1718	Base Slab Construction TR5A Bay 2 LHS	8 days	10/12/2011	19/12/2011																
1719	Formwork and rebar fixing	6 days	10/12/2011	16/12/2011																
1720	Concreting	1 day	17/12/2011	17/12/2011																

Revised Master Prog Rev. 15
 日期: 22/3/2011

任務進度

里程碑

摘要

上欄型任務

上欄型里程碑

分期

外部任務

專案摘要

摘要群組

期限

Drainage Services Department
 Contract No. DC/2007/06
River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River

Revised Master Programme Rev (15)

ID	任務名稱	Duration	Start	Finish	2010				2011				2012				2013		
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q1	Q2	
1721	Stripping off formwork	1 day	19/12/2011	19/12/2011															
1722	Wall Stem Construction TR5A Bay 2 LHS	6 days	20/12/2011	28/12/2011															
1723	Formwork and rebar fixing	4 days	20/12/2011	23/12/2011															
1724	Concreting	1 day	24/12/2011	24/12/2011															
1725	Stripping off formwork	1 day	28/12/2011	28/12/2011															
1726	Base Slab Construction TR5A Bay 3 LHS	8 days	29/12/2011	7/1/2012															
1727	Formwork and rebar fixing	6 days	29/12/2011	5/1/2012															
1728	Concreting	1 day	6/1/2012	6/1/2012															
1729	Stripping off formwork	1 day	7/1/2012	7/1/2012															
1730	Wall Stem Construction TR5A Bay 3 LHS	6 days	8/1/2012	14/1/2012															
1731	Formwork and rebar fixing	4 days	8/1/2012	12/1/2012															
1732	Concreting	1 day	13/1/2012	13/1/2012															
1733	Stripping off formwork	1 day	14/1/2012	14/1/2012															
1734	Box Culvert TB02 (ch 580)	30 days ²	22/2/2012	7/3/2012															
1735	River diversion, Excavation and Blinding	1 day ²	22/2/2012	22/2/2012															
1736	Construction of Base Slab	8 days	3/2/2012	11/2/2012															
1737	Formwork and rebar fixing	6 days	3/2/2012	9/2/2012															
1738	Concreting	1 day	10/2/2012	10/2/2012															
1739	Stripping off formwork	1 day	11/2/2012	11/2/2012															
1740	Construction of Wall Stem and Top Slab	21 days	13/2/2012	7/3/2012															
1741	Formwork and rebar fixing	6 days	13/2/2012	18/2/2012															
1742	Concreting	1 day	20/2/2012	20/2/2012															
1743	Stripping off formwork	14 days	21/2/2012	7/3/2012															
1744	Retaining Wall TR5A & TR6 CHSS5-595 LHS	39 days	10/2/2012	26/3/2012															
1745	River/Trail Road Diversion (to TR3 and TR5 RHS)	3 days	10/2/2012	13/2/2012															
1746	Excavation and Blinding	7 days	14/2/2012	21/2/2012															
1747	Base Slab Construction TR6 Bay 1 LHS	10 days	22/2/2012	3/3/2012															
1748	Formwork and rebar fixing	8 days	22/2/2012	1/3/2012															
1749	Concreting	1 day	2/3/2012	2/3/2012															
1750	Stripping off formwork	1 day	3/3/2012	3/3/2012															
1751	Wall Stem Construction TR6 Bay 1 RHS	6 days	5/3/2012	10/3/2012															
1752	Formwork and rebar fixing	4 days	5/3/2012	8/3/2012															
1753	Concreting	1 day	9/3/2012	9/3/2012															
1754	Stripping off formwork	1 day	10/3/2012	10/3/2012															
1755	Base Slab Construction TR5A Bay 4 LHS	8 days	3/3/2012	12/3/2012															
1756	Formwork and rebar fixing	6 days	3/3/2012	9/3/2012															
1757	Concreting	1 day	10/3/2012	10/3/2012															
1758	Stripping off formwork	1 day	12/3/2012	12/3/2012															
1759	Wall Stem Construction TR5A Bay 4 LHS	6 days	13/3/2012	19/3/2012															
1760	Formwork and rebar fixing	4 days	13/3/2012	16/3/2012															
1761	Concreting	1 day	17/3/2012	17/3/2012															
1762	Stripping off formwork	1 day	19/3/2012	19/3/2012															
1763	Base Slab Construction TR5A Bay 5 LHS	8 days	10/3/2012	19/3/2012															
1764	Formwork and rebar fixing	6 days	10/3/2012	16/3/2012															
1765	Concreting	1 day	17/3/2012	17/3/2012															
1766	Stripping off formwork	1 day	19/3/2012	19/3/2012															
1767	Wall Stem Construction TR5A Bay 5 LHS	6 days	20/3/2012	26/3/2012															
1768	Formwork and rebar fixing	4 days	20/3/2012	23/3/2012															
1769	Concreting	1 day	24/3/2012	24/3/2012															
1770	Stripping off formwork	1 day	26/3/2012	26/3/2012															
1771	Retaining Wall (ch 595-615) TR3 (Bay 3)	37 days	15/12/2011	22/2/2012															
1772	River diversion, Excavation and Formation	13 days	15/12/2011	31/12/2011															
1773	Base Slab Construction Bay 5 LHS	12 days	3/1/2012	16/1/2012															
1774	Formwork and rebar fixing	10 days	3/1/2012	13/1/2012															
1775	Concreting	1 day	14/1/2012	14/1/2012															

Revised Master Prog Rev. 15
 日期: 22/3/2011

任務進度 里程碑 摘要 上週型任務 上週型里程碑 分期 外部任務 專案摘要 摘要群組 期限

Drainage Services Department
 Contract No. DC/2007/06
River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River

Revised Master Programme Rev (15)

ID	任務名稱	Duration	Start	Finish	2010				2011				2012				2013		
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2			
1780	Stripping off formwork	1 day	16/12/2012	16/12/2012															
1781	Wall Stem Construction TR3 Bay 3 RHS	6 days	17/12/2012	26/12/2012															
1782	Formwork and rebar fixing	4 days	17/12/2012	20/12/2012															
1783	Concreting	1 day	21/12/2012	21/12/2012															
1784	Stripping off formwork	1 day	26/12/2012	26/12/2012															
1785	Wall Stem Construction TR3 Bay 3 LHS	6 days	27/12/2012	2/2/2012															
1786	Formwork and rebar fixing	4 days	27/12/2012	31/12/2012															
1787	Concreting	1 day	1/2/2012	1/2/2012															
1788	Stripping off formwork	1 day	2/2/2012	2/2/2012															
1789																			
1790	Concrete Slab (C15/46 - C15/96)	27 days	5/3/2012	5/4/2012															
1791	Bay 1	9 days	5/3/2012	14/3/2012															
1792	Excavation/Blinding	3 days	5/3/2012	7/3/2012															
1793	Formwork and rebar fixing	4 days	8/3/2012	12/3/2012															
1794	Concreting	1 day	13/3/2012	13/3/2012															
1795	Stripping off formwork	1 day	14/3/2012	14/3/2012															
1796	Bay 2	9 days	15/3/2012	24/3/2012															
1797	Excavation/Blinding	3 days	15/3/2012	17/3/2012															
1798	Formwork and rebar fixing	4 days	19/3/2012	22/3/2012															
1799	Concreting	1 day	23/3/2012	23/3/2012															
1800	Stripping off formwork	1 day	24/3/2012	24/3/2012															
1801	Bay 3	9 days	5/3/2012	14/3/2012															
1802	Excavation/Blinding	3 days	5/3/2012	7/3/2012															
1803	Formwork and rebar fixing	4 days	8/3/2012	12/3/2012															
1804	Concreting	1 day	13/3/2012	13/3/2012															
1805	Stripping off formwork	1 day	14/3/2012	14/3/2012															
1806	Bay 4	9 days	15/3/2012	24/3/2012															
1807	Excavation/Blinding	3 days	15/3/2012	17/3/2012															
1808	Formwork and rebar fixing	4 days	19/3/2012	22/3/2012															
1809	Concreting	1 day	23/3/2012	23/3/2012															
1810	Stripping off formwork	1 day	24/3/2012	24/3/2012															
1811	Bay 5	9 days	26/3/2012	5/4/2012															
1812	Excavation/Blinding	3 days	26/3/2012	28/3/2012															
1813	Formwork and rebar fixing	4 days	29/3/2012	2/4/2012															
1814	Concreting	1 day	3/4/2012	3/4/2012															
1815	Stripping off formwork	1 day	5/4/2012	5/4/2012															
1816																			
1817	Drainage and Footpath (C15/25-615 LHS & RHS)	48 days	12/3/2012	12/5/2012															
1818	Construction of footpath & drainage works	48 days	12/3/2012	12/5/2012															
1819	Lighting at CH 550-610	10 days	14/5/2012	24/5/2012															
1820	Construction of Draw pits / Ducting	6 days	14/5/2012	19/5/2012															
1821	Public lighting Installation (CE2325)	2 days	21/5/2012	22/5/2012															
1822	Public lighting Installation (CE2326)	2 days	21/5/2012	22/5/2012															
1823	Public lighting Installation (CE2327)	2 days	21/5/2012	22/5/2012															
1824	T&C	1 day	23/5/2012	23/5/2012															
1825	Removal of existing lighting (CE1600-B2)	1 day	24/5/2012	24/5/2012															
1826																			
1827	Section 4 - Box Culvert at Ping Long	0 days	9/11/2009	9/11/2009															
1828	Section 4 - Box Culvert (Area A)	0 days	9/11/2009	9/11/2009															
1829	Completion of Work at Section 4	0 days	9/11/2009	9/11/2009															
1830																			
1831	Section 5 - Landscape Establishment Works (Portion B, C, D, E, F, G, H & I)	1666 days?	28/9/2007	25/7/2012															
1832	Section 5 Landscape Works	1665 days	28/9/2007	24/7/2012															
1833	Commencement of Works	1 day	28/9/2007	28/9/2007															
1834	Material Submission	120 days	29/9/2007	26/1/2008															
1835	Submission Approval	0 days	9/2/2008	9/2/2008															
1836	Landscape Hardworks	1541 days?	13/11/2007	19/4/2012															
1837	Landscape Softworks	365 days	31/1/2011	18/4/2012															
1838	Submission of Tree Survey	400 days	29/9/2007	1/11/2008															

Revised Master Prog Rev. 15
 日期: 22/9/2011

任務進度:

里程碑:

摘要:

上圖型任務:

上圖型里程碑:

分期:

外部任務:

專案摘要:

摘要詳細:

期限:

Appendix J: Complaint Investigation Reports and Log



大成環境科技拓展有限公司
Environmental Pioneers & Solutions Limited

Our ref. no.: DC0706-CL-110302(EPD)

By Fax and Mail

9th March 2011

To: Distribution List

Dear Sirs or Madams,

Contract No. DC/2007/06

Drainage Improvement works in Upper Tai Po River, Lam Tsuen River and She Shan River


Complaint Investigation Report and Log

Based on the complaint incident received from EPD with details of:

EPD complaint ref.:	EP3/N05/RN/00003752-11
Date received:	02/03/2011
Incident location:	Upper Tai Po River, nearby Sheung Wun Yiu
Description:	Complaint against noise nuisance arisen from boulder breaking activities

Enclosed please find the complaint investigation reports and log sheets of the incident as for your record.

Yours faithfully,



Patricia Chung
ET leader

Environmental Pioneers and Solutions Limited

c.c. SRE/Maunsell (Mr. KY Chan)
RE/Maunsell (Mr. Adrian Ng)
IEC/ERM (Ms. Winnie Ko)
Chiu Hing Project Manager (Mr. Samson Lam)
Chiu Hing Site Agent (Mr. Daniel Tai)
Chiu Hing Environmental Officer (Mr. Pui-Shing Chan)

Report for Complaint/ Concern

Our Ref.: DC0706-CL-110302(EPD)

EPD Case Ref. No.: EP3/N05/RN/00003752-11

Sheet: 1 of 2

RECIPIENT

Name: Chiu Hing Construction & Transportation Co., Ltd,

Details: Complaint was referred by EPD that a resident complained against noise nuisance arisen from boulder breaking activities within project site along Upper Tai Po River (UTPR), nearby Sheung Wun Yiu

Received Date: 2nd March 2011

Received Time: N/A

COMPLAINANT / Concern

Name: N/A

Tel: N/A

Address: N/A

COMPLAINT

Noise Air quality/Dust Water Odour Environment Traffic/Pedestrian
Safety Others

Event Date and Time: 2nd March 2011

Location: A complaint was recorded for noise nuisance arisen from boulder breaking activities in the project site at Upper Tai Po River, nearby Sheung Wun Yiu.

INVESTIGATION RESULTS, RECOMMENDATIONS & MITIGATION MEASURES

1. A complaint on 2nd March 2011 was recorded regarding noise concern generated from boulder breaking activities within project site at UTPR. Environmental Team (ET) was informed by email on the same day by the Residential Engineer (RE).
2. ET has conducted a site investigation on 4th March 2011 with representative from Contractor to resolve the concerns. Routine noise monitoring was also scheduled on the same day.
3. Findings from the investigation showed major noise source was generated from boulder breaking activities being carried out at approximate ch.250. Due to size of boulders to be broken and difficulty of transportation, as reported by Contractor boulder breaking activities were confined within the abovementioned location.
4. During the course of boulder breaking activities noise measurement was carried out at the nearest noise sensitive receivers (i.e.: UTP7, 8 & 9) from the noise source. Exceedance of limit level (i.e.: >75 dB) was recorded at UTP8 ($L_{eq\ 30min}$: 78.9dB) and UTP9 ($L_{eq\ 30min}$: 76.9dB) respectively.
5. To minimize noise generation from the concerned activities, Contractor was recommended to further enhance mitigation measures immediately, which should at least include:
 - Existing noise barriers should be well-maintained.
 - Tips of hydraulic breakers should be warped up with sound insulation material to minimize noise generation.
 - Noisy activities should be well scheduled, by means such as rotation and time buffering, to avoid consecutive / excessive exposure of nearby sensitive receivers to high levels of construction noise.
 - Noisy activities should be site away from the noise sensitive receivers whenever it is practicable.

6. Due to the reason of exceedance of limit level at UTP8 and 9 on 4th March 2011 and as a follow up investigation to check the implementation status of mitigation measures and rectification works, an ad-hoc noise monitoring and second site investigation were carried out on 5th March 2011.
7. During the course of ad-hoc monitoring, by observation and reporting of Contractor the following mitigation measures and follow up actions has been implemented:
 - Breaker tips of hydraulic breakers were wrapped up with noise insulation materials (Fig.1).
 - Schedule for operation of boulder breaking has been planned and implemented; there would have a 15-minute break for every 30 minutes of such operation.
 - Liaison with local villagers has been made for explanation of current site situation and implementation status of relevant noise mitigation measures.
8. No further exceedance was recorded during the course of re-measurement taken at UTP8 (Leq: 73.4dB) and 9 (Leq: 74.4dB). Details of the results please refer to the raw data sheet in the Appendix.
9. Contractor was reminded to maintain proper practices and noise mitigation measures, such as the administrative planning and public liaison as mentioned in item 7, to minimize noise impact to the vicinity sensitive receivers. Other noise minimization features by means of insulation or screening should be regularly reviewed and maintained to ensure they are in good condition and functional.
10. ET has reminded the contractor to pay serious attention on not arising possible environmental impacts in the future.



Signature:

Patricia Chung Chi Ping, ET Leader

Date: 09-03-2011

Fig.1 – Breaker Tips of Hydraulic Breaker was warped up with noise insulation material



Appendix

大成環境科技拓展有限公司
Environmental Pioneers and Solutions Limited

Contract No: DC/2007/06 Noise Monitoring Sheet for Upper Tai Po River

	Before Use	After Use	Before Use	After Use	Before Use	After Use	Before Use	After Use
Calibration	94.0	94.0	94.0	94.0	94.0	94.0		
Location	UTP 9		UTP 10		UTP 11			
Weather	Sunny		Sunny		Sunny			
Location	Freefield		Freefield		Freefield		Freefield	
Description	Façade		Façade		Façade		Façade	
Date	5.3.11		4.3.11		4.3.11			
Wind Speed	0.1		0.1					
Time Duration	10:35-11:05		15:43-16:13		16:16-16:46			
Duration	30 Minutes							
Noise Meter Model	SVAN 949 (S/N: 8569)							
Measurement Results								
Leq	74.4		54.2		51.3 +3 (56.8)			
L10	80.8		54.5		54.1 +3 (57.1)			
L90	64.3		41.8		42.2 +3 (45.2)			
Construction Noise Source During Monitoring	- Boulder movement - Boulder breaking		- noise source was too far away...		- noise source was too far away			
Other Noise source during monitoring and remarks	- Background noise		- Background noise		- Background noise			

Monitored BY: RONAN CHAN

Signed: 

Approved BY: Patricia Chung

Signed: 

大成環境科技拓展有限公司
Environmental Pioneers and Solutions Limited

Contract No: DC/2007/06 Noise Monitoring Sheet for Upper Tai Po River

	Before Use	After Use	Before Use	After Use	Before Use	After Use	Before Use	After Use
Calibration	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0
Location	UTP 1		UTP 2		UTP 3		UTP 4	
Weather	Sunny		Sunny		Sunny		Sunny	
Location Description	Freefield Façade		Freefield Façade		Freefield Façade		Freefield Façade	
Date	4.3.11		4.3.11		4.3.11		4.3.11	
Wind Speed	0.8		0.4		0.2		0.3	
Time Duration	9:30-10:00		8:57-9:27		10:05-10:35		10:39-11:09	
Duration	30 Minutes							
Noise Meter Model	SVAN 949 (S/N: 8569.)							
Measurement Results								
Leq	67.5		69.4		67.0		57.3	
L10	70.8		71.0		70.9		60.5	
L90	55.4		56.2		59.8		51.1	
Construction Noise Source During Monitoring	- Drilling on slope surface		- Drilling on slope surface		- Boulder movement. - Drilling on slope surface		No construction activity was being carried out during measurement	
Other Noise source during monitoring and remarks	- Traffic noise		- Traffic noise - Public noise		- Background noise		- Background noise	

Monitored BY: RONAN CHAN

Signed: 

Approved BY: Patricia Chung

Signed: 

大成環境科技拓展有限公司

Environmental Pioneers and Solutions Limited

Contract No: DC/2007/06 Noise Monitoring Sheet for Upper Tai Po River

	Before Use	After Use	Before Use	After Use	Before Use	After Use	Before Use	After Use
Calibration	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0
Location	UTP 5		UTP 6		UTP 7		UTP 8	
Weather	Sunny		Sunny		Sunny		Sunny	
Location	Freefield		Freefield		Freefield		Freefield	
Description	Façade		Façade		Façade		Façade	
Date	4-3-11		4-3-11		4-3-11		5-3-11	
Wind Speed	0.4		0.2		0.3		0.2	
Time Duration	11:10 - 11:40		13:32 - 14:02		14:03 - 14:33		10:02 - 10:32	
Duration	30 Minutes							
Noise Meter Model	SVAN 949 (S/N: 8569)							
Measurement Results								
Leq	66.3		67.5		70.5		73.4	
L10	68.9		70.2		73.5		79.7	
L90	54.4		53.0		58.4		64.8	
Construction Noise Source During Monitoring	- Boulder movement		- Boulder movement - Boulder breaking		- Boulder movement - Boulder breaking		- Boulder movement - Boulder breaking	
Other Noise source during monitoring and remarks	- Background noise		- Background noise		- Background noise		- Background noise	

Monitored BY: RONAN CHAN

Signed: 

Approved BY: Patricia Chung

Signed: 

COMPLAINT / CONCERN LOG

Ref: DC0706-CL-110302 (EPD)

Log Ref	Event Date/Location	Complainant/Date of Contact	Details of Complaint	Investigation/Mitigation Action	File Closed
<p>Our REF: DC0706-CL-110302(EPD)</p> <p>EPD Case Ref. No.: EP3/N05/RN/00003752-11</p>	<p>2nd March 2011, project site at Upper Tai Po River, nearby Sheung Wun Yiu</p>	<p>A Complaint was referred by EPD 2nd March 2011</p>	<p>A complaint was recorded regarding late construction activities in the project site at Upper Tai Po River (UTPR).</p>	<p>1. A complaint on 2nd March 2011 was recorded regarding noise concern generated from boulder breaking activities within project site at UTPR. Environmental Team (ET) was informed by email on the same day by the Residential Engineer (RE).</p> <p>2. ET has conducted a site investigation on 4th March 2011 with representative from Contractor to resolve the concerns. Routine noise monitoring was also scheduled on the same day.</p> <p>3. Findings from the investigation showed major noise source was generated from boulder breaking activities being carried out at approximate ch.250. Due to size of boulders to be broken and difficulty of transportation, as reported by Contractor boulder breaking activities were confined within the abovementioned location.</p> <p>4. During the course of boulder breaking activities noise measurement was carried out at the nearest noise sensitive receivers (i.e.: UTP7, 8 & 9) from the noise source. Exceedance of limit level (i.e.: >75 dB) was recorded at UTP8 ($L_{eq\ 30min}$: 78.9dB) and UTP9 ($L_{eq\ 30min}$: 76.9dB) respectively.</p> <p>5. To minimize noise generation from the concerned activities, The following recommendations has been given to the Contractor:</p>	<p>Yes</p>

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

- i. Existing noise barriers should be well-maintained.
- ii. Tips of hydraulic breakers should be wrapped up with sound insulation material to minimize noise generation.
- iii. Noisy activities should be well scheduled, by means such as rotation and time buffering, to avoid consecutive / excessive exposure of nearby sensitive receivers to high levels of construction noise.
- iv. Noisy activities should be site away from the noise sensitive receivers whenever it is practicable.

6. Due to the reason of exceedance of limit level at UTP8 and 9 on 4th March 2011 and as a follow up investigation to check the implementation status of mitigation measures and rectification works, an ad-hoc noise monitoring and second site investigation were carried out on 5th March 2011.

- 7. During the course of ad-hoc monitoring, by observation and reporting of Contractor the following mitigation measures and follow up actions has been implemented:
 - i. Breaker tips of hydraulic breakers were warped up with noise insulation materials.
 - ii. Schedule for operation of boulder breaking has been planned and implemented; there would have a 15-minute break for every 30 minutes of such operation.

			<p>iii. Liaison with local villagers has been made for explanation of current site situation and implementation status of relevant noise mitigation measures.</p> <p>8. No further exceedance was recorded during the course of remeasurement taken at UTP8 (Leq: 73.4dB) and 9 (Leq: 74.4dB).</p> <p>9. Contractor was reminded to maintain proper practices and noise mitigation measures, such as the administrative planning and public liaison as mentioned in item 7, to minimize noise impact to the vicinity sensitive receivers. Other noise minimization features by means of insulation or screening should be regularly reviewed and maintained to ensure they are in good condition and functional.</p> <p>10. ET has reminded the contractor to pay serious attention on not arising possible environmental impacts in the future.</p>	
--	--	--	--	--

Filed by Environmental Team Leader:



Date: 9th March 2011



大成環境科技拓展有限公司
Environmental Pioneers & Solutions Limited

Our ref. no.: DC0706-CL-110307(DSD)

By Fax and Mail
14th March 2011

To: Distribution List

Dear Sirs or Madams,

Contract No. DC/2007/06

Drainage Improvement works in Upper Tai Po River, Lam Tsuen River and She Shan River

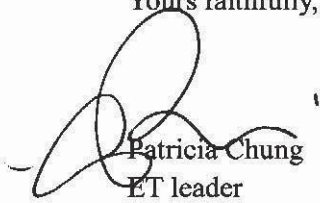
Complaint Investigation Report and Log

Based on the complaint incident received from EPD with details of:

DSD ECRS request no.: 3270
Date received: 7th March 2011
Incident location: Upper Tai Po River, nearby Sheung Wun Yiu
Description: Complaint was referred by DSD regarding dust emission and earth deposition to public area from the project site

Enclosed please find the complaint investigation reports and log sheets of the incident as for your record.

Yours faithfully,



Patricia Chung
ET leader

Environmental Pioneers and Solutions Limited

c.c. SRE/Maunsell (Mr. KY Chan)
RE/Maunsell (Mr. Adrian Ng)
IEC/ERM (Ms. Winnie Ko)
Chiu Hing Project Manager (Mr. Samson Lam)
Chiu Hing Site Agent (Mr. Daniel Tai)
Chiu Hing Environmental Officer (Mr. Pui-Shing Chan)

DSD Project – River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River

Report for Complaint/ Concern

Our Ref.: DC0706-CL-110307(DSD)

DSD Enquiry / Complaint Recording System (ECRS) Request No.: 3270

Sheet: 1 of 2

RECIPIENT

Name: Chiu Hing Construction & Transportation Co., Ltd,

Details: Complaint was referred by DSD regarding dust emission and earth deposition to public area from the project site at Upper Tai Po River (UTPR), nearby Sheung Wun Yiu

Received Date: 7th March 2011

Received Time: N/A

COMPLAINANT / Concern

Name: N/A

Tel: N/A

Address: N/A

COMPLAINT

Noise Air quality/Dust Water Odour Environment Traffic/Pedestrian
 Safety Others

Event Date and Time: 7th March 2011

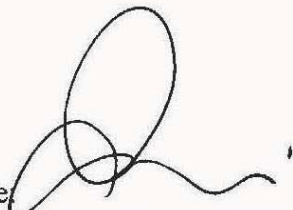
Location: Upper Tai Po River, nearby Sheung Wun Yiu

INVESTIGATION RESULTS, RECOMMENDATIONS & MITIGATION MEASURES

1. A complaint on 7th March 2011 was recorded regarding dust emission and earth deposition to public area from project site at UTPR. Environmental Team (ET) was informed by email on the same day by the Residential Engineer (RE).
2. ET has conducted a site investigation on 9th March 2011 with representatives from RE, Independent Environmental Checker and Contractor to resolve the concerns.
3. According to details provided by the complainant, no wheel washing facility was provided for vehicle washing that caused earth deposition to the public access and further caused dust generation. However, during the investigation vehicle washing facility such as high jet water sprayers and wheel washing area were provided at site entrance of ch.600 and Access Road D respectively.
4. Accumulation of used water was found in the wheel washing bay at ch.600 (Fig.4). As such, Contractor was recommended to clean and maintain the wheel washing area regularly to maintain good condition as to avoid site vehicles from bringing muddy water to public area.
5. Contractor was also recommended to pay serious attention on their site practices and implement necessary mitigation measures to avoid dust emission, which should at least include:
 - Dust accumulated on site should be regularly removed by means of washing and/or scrubbing.
 - Haul access that was frequently used by site equipments and/or vehicles should be regularly water sprayed.
 - Regular water spraying should be provided for site activities which were known to be main sources of dust emission, such as excavation, boulder breaking and earth movement works.
 - Earthy stockpiles and exposed earth surfaces should be protected with fabric coverings to prevent erosion from causing air quality impact.

6. Contractor considered recommendations given by ET and implement rectification works on 10th March 2011 including:
- Briefing to frontline staffs about prevention of dust generation, especially of issue of vehicles washing, has been made during morning assembly (Fig.6.1 & 6.2).
 - Wheel washing bay has been checked and cleaned at every morning as well as after works. Immediate cleaning would be conducted should condition of wheel washing bay be unsatisfactory (e.g.: full of mud and used water).
7. ET has reminded the contractor to pay serious attention on not arising possible environmental impacts in the future.

Signature:



Patricia Chung Chi Ping, ET Leader

Date: 14-03-2011

Fig.4 – Condition of Wheel Washing Bay at site entrance located at ch.600



Fig.6.1 – Wheel Washing Bay is cleaned before and after works everyday



Fig.6.2 – Briefing has been given to staff to remind importance of vehicle washing before leaving site



COMPLAINT / CONCERN LOG

Ref: DC0706-CL-110307(DSD)

Log Ref	Event Date/Location	Complainant/Date of Contact	Details of Complaint	Investigation/Mitigation Action	File Closed
<p>Our REF: DC0706-CL-110307(DSD)</p> <p>DSD ECRS request no.: 3270</p>	<p>7th March 2011, project site at Upper Tai Po River, nearby Sheung Wun Yiu</p>	<p>A Complaint was referred by DSD on 7th March 2011</p>	<p>A complaint was recorded regarding dust emission and earth deposition at public area from site activities at Upper Tai Po River (UTPR).</p>	<p>1. A complaint on 7th March 2011 was recorded regarding dust emission and earth deposition to public area from project site at UTPR. Environmental Team (ET) was informed by email on the same day by the Residential Engineer (RE).</p> <p>2. ET has conducted a site investigation on 9th March 2011 with representatives from RE, Independent Environmental Checker and Contractor to resolve the concerns.</p> <p>3. According to details provided by the complainant, no wheel washing facility was provided for vehicle washing that caused earth deposition to the public access and further caused dust generation. However, during the investigation vehicle washing facility such as high jet water sprayers and wheel washing area were provided at site entrance of ch.600 and Access Road D respectively.</p> <p>4. Accumulation of used water was found in the wheel washing bay at ch.600. As such, Contractor was recommended to clean and maintain the wheel washing area regularly to maintain good condition as to avoid site vehicles from bringing muddy water to public area.</p> <p>5. Contractor was also recommended to pay serious attention on their site practices and implement</p>	<p>Yes</p>

				<p>necessary mitigation measures to avoid dust emission, which should at least include:</p> <ol style="list-style-type: none"> i. Dust accumulated on site should be regularly removed by means of washing and/or scrubbing. ii. Haul access that was frequently used by site equipments and/or vehicles should be regularly water sprayed. iii. Regular water spraying should be provided for site activities which were known to be main sources of dust emission, such as excavation, boulder breaking and earth movement works. iv. Earthy stockpiles and exposed earth surfaces should be protected with fabric coverings to prevent erosion from causing air quality impact. <p>6. Contractor considered recommendations given by ET and implement rectification works on 10th March 2011 including:</p> <ol style="list-style-type: none"> i. Briefing to frontline staffs about prevention of dust generation, especially of issue of vehicles washing, has been made during morning assembly. ii. Wheel washing bay has been checked and cleaned at every morning as well as after works. Immediate cleaning would be conducted should condition of wheel washing bay be unsatisfactory (e.g.: full of mud and used water).
--	--	--	--	---



大成環境科技拓展有限公司
Environmental Pioneers & Solutions Limited

Our ref. no.: DC0706-CL-110317(EPD)

By Fax and Mail
24th March 2011

To: Distribution List

Dear Sirs or Madams,

Contract No. DC/2007/06

Drainage Improvement works in Upper Tai Po River, Lam Tsuen River and She Shan River

Complaint Investigation Report and Log

Based on the complaint incident received from EPD with details of:

EPD complaint ref.:	EP3/N05/RN/00004753-11
Date received:	17/03/2011
Incident location:	Upper Tai Po River, nearby Sheung Wun Yiu
Description:	Complaint against contamination of riverwater caused by project site works

Enclosed please find the complaint investigation reports and log sheets of the incident as for your record.

Yours faithfully,



Patricia Chung
ET leader

Environmental Pioneers and Solutions Limited

c.c. SRE/Maunsell (Mr. KY Chan)
RE/Maunsell (Mr. Adrian Ng)
IEC/ERM (Ms. Winnie Ko)
Chiu Hing Project Manager (Mr. Samson Lam)
Chiu Hing Site Agent (Mr. Daniel Tai)
Chiu Hing Environmental Officer (Mr. Pui-Shing Chan)

DSD Project – River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River

Report for Complaint/ Concern

Our Ref.: DC0706-CL-110317(EPD)

EPD Case Ref. No.: EP3/N05/RN/00004753-11

Sheet: 1 of 4

RECIPIENT

Name: Chiu Hing Construction & Transportation Co., Ltd,

Details: EPD formally informed Drainage Services Department on 11th November 2010 regarding consecutive complaints on observation of muddy water at section of Upper Tai Po River (UTPR) near Wun Yiu.

Received Date: 17th March 2011

Received Time: N/A

COMPLAINANT / Concern

Name: N/A

Tel: N/A

Address: N/A

COMPLAINT

Noise Air quality/Dust Water Odour Environment Traffic/Pedestrian
Safety Others

Event Date and Time: 16th March 2011

Location: Section of UTPR near Sheung Wun Yiu

INVESTIGATION RESULTS, RECOMMENDATIONS & MITIGATION MEASURES

1. A complaint on 16th March 2011 was recorded about observation of muddy water along the UTPR. Such incident was referred by EPD on 17th March 2011 and Environmental Team (ET) was informed by Residential Engineer (RE) on the same day.
2. A Routine site inspection covering site area at UTPR was carried out on 16th March 2011 with representatives from RE, ET, Contractor and Independent Environmental Checker. During the inspection improper effluent discharge causing water quality impact to the downstream area was observed at excavated site at approximate ch.200 (Fig.2.1 to 2.3). As such, Contractor was requested to implement immediate corrective actions to stop further deterioration of water quality.
3. As reported by Contractor they also had a joint site inspection with representative from EPD on 17th March 2011 to trace source of muddy effluent. Findings of investigation were reported by Contractor that improper discharge of site water was observed at approximate ch.400 within project site. Immediate corrective actions were implemented including:
 - Barriers formed by sandbags were provided to avoid site water seepage into river channel (Fig.3.1)
 - Site water arisen from construction activities was diverted to sedimentation tank for de-silting before discharge (Fig.3.2).
4. Contractor assigned a third-party laboratory to carry out water quality monitoring at several spots along UTPR on 18th March 2011 (Fig.4). As reported by the Contractor the recorded results were all within acceptable level (Details of the test report please find the submission by the Contractor).
5. As a follow up investigation, second site inspection was carried out on 23rd March 2011 to check if proper follow up actions and mitigation measures were implemented for the spots of ch.200 and 400. During the investigation no improper discharge was observed (Fig.5.1 & 5.2). However, it was observed that no further action was

observed to protect the exposed riverbanks along site and to enhance effectiveness of site water treatment system at ch.200.

6. Contractor was seriously recommended to review their site conditions and implement necessary water quality mitigation measures to avoid further deterioration of river water quality, which should at least include:
 - Proper temporary drainage system should be provided on site for site water diversion as to avoid surface runoff and site water seepage from entering into river channel.
 - Haul access and excavated area should be enclosed with proper bund walls.
 - Riverbanks, soil slopes and earth bunds should be covered with geo-textile materials to avoid erosion by water.
 - Any site water, wastewater, underground water and runoff arisen from construction activities should be diverted to proper site water treatment system before discharge; sedimentation tank using chemicals (i.e.: facility at ch.400) to enhance its treatment effectiveness should be adopted for silty water whenever it is necessary.
 - Site water treatment facilities should be regularly checked and maintained as to ensure those are in good condition and functional.
 - Excessive storage of earth materials should be prevented on site; earthy materials should not be stockpiled next to the river channel as to avoid soil runoff.

7. ET has reminded the contractor again to pay serious attention on not arising possible environmental impacts in the future.

Signature:



Patricia Chung Chi Ping, ET Leader

Date: 24-03-2011

Fig.2.1 – Muddy water arisen from excavation at ch.200



Fig.2.1 – Effluent discharge from ch.200 on 16/03/11



Fig.2.3 – River water at approximate ch.500 on 16/03/11



Fig.3.1 – Sandbags barriers was formed to form enclosed environment for construction activities carrying out at ch.400

(Photo taken by Contractor)



Fig.3.2 – Site water from construction activities at ch.400 was diverted to sedimentation tank (photo taken by Contractor)



Fig.4 – Technician from third party laboratory for water quality monitoring (photo taken by Contractor)



Fig.5.1 – Water quality at ch.200 on 23/03/11



Fig.5.2 – Water quality at ch.600 on 23/03/11



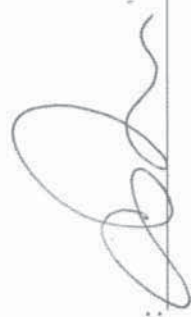
COMPLAINT / CONCERN LOG

Ref: DC0706-CL-110317 (EPD)

Log Ref	Event Date/Location	Complainant/Date of Contact	Details of Complaint	Investigation/Mitigation Action	File Closed
<p>Our REF: DC0706-CL-110317(EPD)</p> <p>EPD Case Ref. No.: EP3/N05/RN/00004753-11</p>	<p>16th March 2011, project site at Upper Tai Po River, nearby Sheung Wun Yiu</p>	<p>A Complaint was referred by EPD on 17th March 2011</p>	<p>A complaint was recorded about observation of muddy water along the Upper Tai Po River (UTPR).</p>	<p>1. A complaint on 16th March 2011 was recorded about observation of muddy water along the UTPR. Such incident was referred by EPD on 17th March 2011 and Environmental Team (ET) was informed by Residential Engineer (RE) on the same day.</p> <p>2. A Routine site inspection covering site area at UTPR was carried out on 16th March 2011 with representatives from RE, ET, Contractor and Independent Environmental Checker. During the inspection improper effluent discharge causing water quality impact to the downstream area was observed at excavated site at approximate ch.200. As such, Contractor was requested to implement immediate corrective actions to stop further deterioration of water quality.</p> <p>3. As reported by Contractor they also had a joint site inspection with representative from EPD on 17th March 2011 to trace source of muddy effluent. Findings of investigation were reported by Contractor that improper discharge of site water was observed at approximate ch.400 within project site. Immediate corrective actions were implemented including:</p> <ul style="list-style-type: none"> - Barriers formed by sandbags were provided to avoid site water seepage into river channel - Site water arisen from construction activities was diverted to sedimentation tank for 	<p>Yes</p>

	de-silting before discharge.	<p>4. Contractor assigned a third-party laboratory to carry out water quality monitoring at several spots along UTPR on 18th March 2011. As reported by the Contractor the recorded results were all within acceptable level and the test results issued by the laboratory was kept and recorded by Contractor.</p> <p>5. As a follow up investigation, second site inspection was carried out on 23rd March 2011 to check if proper follow up actions and mitigation measures were implemented for the spots of ch.200 and 400. During the investigation no improper discharge was observed. However, it was observed that no further action was observed to protect the exposed riverbanks and enhance the site water treatment system at ch.200.</p> <p>6. The following recommendations have been given to Contractor by ET:</p> <ul style="list-style-type: none"> i. Proper temporary drainage system should be provided on site for site water diversion as to avoid surface runoff and site water seepage from entering into river channel. ii. Haul access and excavated area should be enclosed with proper bund walls. iii. Riverbanks, soil slopes and earth bunds should be covered with geo-textile materials to avoid erosion by water. iv. Any site water, wastewater, underground water and runoff arisen from construction activities should be diverted
--	------------------------------	--

				<p>to proper site water treatment system before discharge; sedimentation tank using chemicals (i.e.: facility at ch.400) to enhance its treatment effectiveness should be adopted for silty water whenever it is necessary.</p> <p>v. Site water treatment facilities should be regularly checked and maintained as to ensure those are in good condition and functional.</p> <p>vi. Excessive storage of earth materials should be prevented on site; earthy materials should not be stockpiled next to the river channel as to avoid soil runoff.</p> <p>7. ET has reminded the contractor again to pay serious attention on not arising possible environmental impacts in the future.</p>
--	--	--	--	--



Filed by Environmental Team Leader:

Date: 24th March 2011