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 2009

Environmental Pioneers & Solutions Limited
8/F, Chaiwan Industrial Centre Building
20 Lee Chung Street, Chaiwan, Hong Kong
Tel: 28890569 Fax: 2856 2010

The Contents of this report have been

Certified by:

Signature: _____ Date: 28-4-2009

Miss. Patricia Chung
(Environmental Team Leader)

Signature: _____ Date: 28-4-2009

Dr. Mark Shea
(Ecologist)

and Verified by:

Signature: _____ Date: 28/4/2009

Mr. Marcus IP
(Independent Environment Checker)

Report submission and revision:
First submission on 8th April 2009
First revision on 21st April 2009

TABLE OF CONTENTS

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....10
4.0 Noise monitoring location....10
4.1 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....19
6.3 Recommendations....19
6.4 Implementation status and effectiveness of the mitigation measures....20
7.0 Waste management status....20
8.0 Status of environmental licensing and permit....21
9.0 Future key issues....21
10.0 Conclusion....22
Appendix A: Event and action plan for ecology....24
Appendix B: Action and limit level for construction noise....27
Appendix C: Reference standards for vibration....29
Appendix D: Noise monitoring results, graphical plots and location plan....31
Appendix E: Monitoring schedule for the present and next reporting period....45
Appendix F: Cumulative complaint log....48
Appendix G: Implementation status of environmental protection and mitigation measures....49
Appendix H: Cumulative waste flow table....53
Appendix I: Construction programme....54
Appendix J: Noise complaint report and log on March 25th 2009....59

Executive summary

This is the seventh monthly Environmental Monitoring and Audit (EM&A) Report for the river improvement works at Upper Tai Po River under Drainage Service Department Contract No. DC/2007/06 entitled "River Improvement Works in Upper Lam Tsuen River, She Shan River and Tai Po River". This report concludes the impact monitoring for the activities undertaken during the period form 1st March 2009 to 31st March 2009. The major construction activities carried out by the contractor during this reporting period include construction of boulder trap and gabion wall.

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.

Ecological Impact Monitoring prepared by the Ecologist Dr. Mark Shea was not scheduled in this month hence no related information was included in this reporting month. The summary of ecological site inspection findings and implementation status of environmental protection and mitigation for ecology, prepared by the Ecologist Dr. Mark Shea, are provided in table 6.2 and Appendix G respectively.

Construction noise monitoring was carried out on weekly basis. The noise monitoring results were within limits. However there was a complaint received regarding excessive noise generated at the project site, which triggered the action level of construction noise criteria. For further details, please refer to section 2.6 and 2.7. 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 were not scheduled for this month. Therefore, no vibration monitoring was conducted during the reporting month.

A non-compliance event has been identified during the reporting period when a documented complaint regarding excessive noise generation from site received by the 1823 Call Centre of the Government on 23rd March 2009 and referred by DSD on 25th March 2009. For detailed information of the complaint, please refer to section 2.7 and

appendix J.

There was no breach of action and limit levels for this month.

There was no reporting change for this month.

Key construction activities in the coming month will include construction of boulder trap, gabion wall and footbridge foundation. It is expected that noise impacts, runoff impacts and waste disposal will be generated on site.

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 seventh monthly Environmental Monitoring and Audit (EM&A) Report for the river improvement works at Upper Tai Po River under Drainage Service 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 was 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 2009. 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

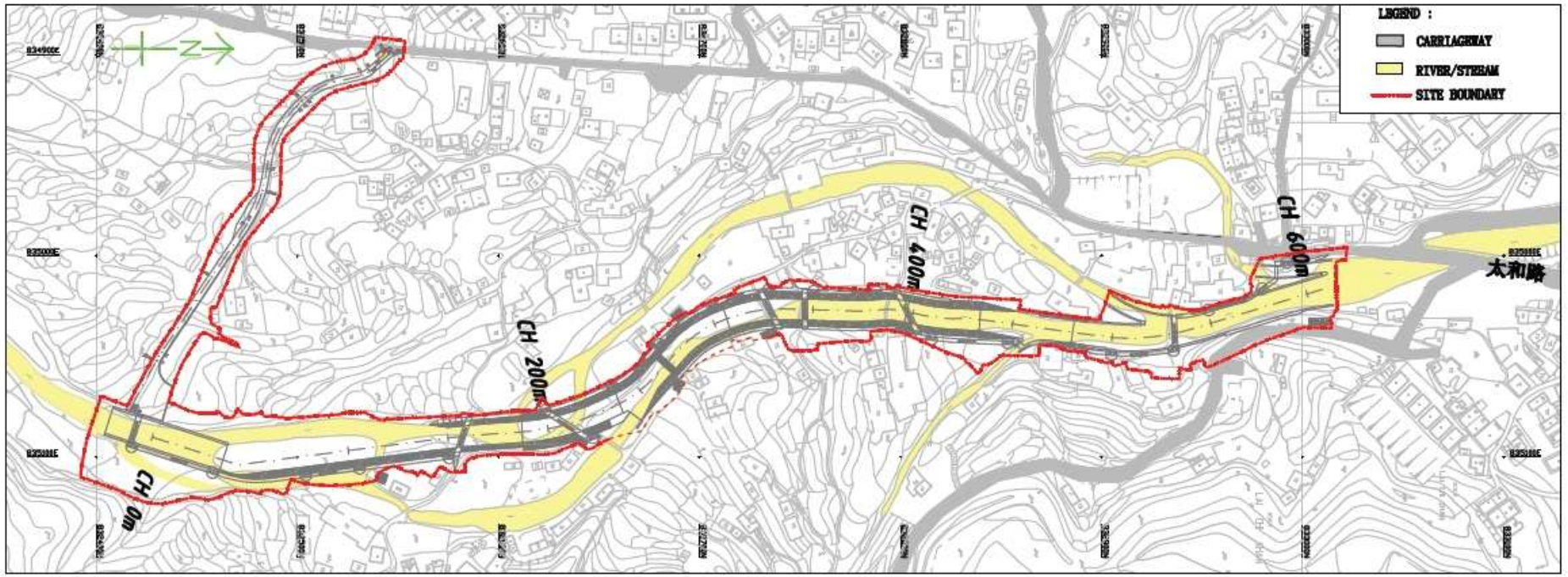
The construction of the proposed improvement works for Upper Tai Po River has been commenced on September 15th 2008 and anticipated to complete in April 2011.

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



2.4 Construction activities for the reporting period

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

(1) Construction of boulder trap
(2) Construction of gabion wall

2.5 Construction activities for the next reporting period

Major construction activities carried out by the contractor anticipated for the coming month include:

(1) Construction of boulder trap
(2) Construction of gabion wall
(3) Construction of footbridge foundation

2.6 Non-compliance with the environmental performance limits

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.

There was a non-compliance of construction noise criteria recorded due to a documented complaint received regarding excessive noise generation from the work site at upper Tai Po River, which affect the complainant living nearby. For further details of the complaint, please refer to section 2.7.

2.7 Summary of complaints

There was one complaint received by the 1823 Call Centre of the Government on 23rd March 2009 and referred by DSD on 25th March 2009 that a resident complained against excessive noise generated by construction activities in the project site at Upper Tai Po River (UTPR), nearby Sha Po Chai Village.

ET conducted two site investigations on 25th March 2009 and 1st April 2009 respectively, to find out the causes and suggest corrective actions to the contractor. Also two additional sets of noise monitoring were carried out on 27th March 2009 and

the results were below the noise limit of 75.0dB(A).

For further details of the investigation and recommendations, please refer to the complaint report and log in Appendix J. For the graphical plots and the detailed results of the additional monitoring, please refer to Appendix D. For the impact noise monitoring results, please refer to section 4.1.

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

3.0 Ecological monitoring results

Capture survey and ecological impact monitoring conducted by Dr. Mark Shea was not scheduled for this month. The next ecological impact monitoring is scheduled in July 2009 and the next capture survey is scheduled in November 2009.

4.0 Noise monitoring location

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. The location plan is shown in Appendix D.

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

4.1 Noise monitoring results

Noise monitoring was carried out by the Environmental Team as weekly basis for this month on 3rd, 4th, 10th, 17th, 27th, and 31st March 2009 and the $L_{eq\ (30min)}$ results ranged from 48.6dB(A) to 73.4dB(A). Noise monitoring on 27th March 2009 for UTP 3, 5, 10 and 11 were cancelled due to heavy rain. Due to the fact that a documented complaint was received regarding excessive noise generation from the project site, this triggered the action level of the construction noise criteria. In accordance with the Event/ Action plan for construction noise stated in EM&A manual, ET conducted site investigation and additional sets of noise monitoring at location UTP 7 on 27th March 2009. Details of investigation and recommendation were shown in the complaint report and log in Appendix J.

For further details of the monitoring results, graphical plots and the location plan, please refer to 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 starts in Upper Tai Po River.

6.0 Environmental issues and actions

6.1 Site inspections and key environmental issues

As mentioned in Section 8.1 of the EM&A manual, 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.

Site inspections were conducted on 4th, 11th, 19th and 25th March 2009. 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, the ecological inspection prepared by the Ecologist, Dr. Mark Shea were summarized in Table 6.2.

Table 6.1 Summary results of site inspection findings

Date	Observations	Observation or Non-compliance	Advice from ET	Action Taken	Closing date	Remarks
March 4th 2009 (Follow up site inspection for Feb 25th 2009)	1.Bonnet of the air compressor was opened at UTPR.	Observation	Noise minimizing bonnet of the air compressor was found opened during inspection. Contractor should remind their staff to always keep such noise minimizing features for plants in function.	The bonnet of the air compressor was closed prior to the March 4th site inspection	March 4th 2009	
	2.Solidified concrete waste was poorly dumped at site entrance of UTPR	Observation	The contractor was advised to remove the solidified concrete waste dumped at site entrance of UTPR. The contractor should assign a designated spot with effective containment, to collect the concrete waste left over by concreting works.	The concrete waste was removed off site prior to the March 4th site inspection	March 4th 2009	
	3.Defective sedimentation tank was found at UTPR.	Observation	The sedimentation tank at UTPR (ch. 150) did not effectively treat the site water during inspection. Contractor was advised to stop further discharge	The water discharged from the sedimentation tank was still muddy prior to March 4th site inspection.	To be followed up	

Table 6.1 Summary results of site inspection findings

Date	Observations	Observation or Non-compliance	Advice from ET	Action Taken	Closing date	Remarks
			from the tank to the river channel and rectify the deficiencies immediately.			
	4.Open stockpile without proper covering at UTPR access road D.	Observation	Contractor was advised to cover the open stockpile at UTPR access road D.	The open stockpile was covered with tarpaulin covering. Prior to the March 4th site inspection	March 4th 2009.	
	5.Broken sandbags should be replaced at access road D of UTPR.	Observation	Contractor was reminded to remove the broken sandbags at the Road D area of UTPR to avoid any earth materials entering the stream of UTPR.	The broken sandbags were replaced prior to the March 4th site inspection	March 4th 2009.	
	6.Earth bunds without proper covering at UTPR ch. 150 approximately.	Observation	Earth bunds were found poorly covered at ch. 50 & 150 of UTPR. Contractor was advised to rectify such discrepancy as soon as possible.	The contractor rectified the earth bund prior to the March 4th site inspection.	March 4th 2009.	

Table 6.1 Summary results of site inspection findings

Date	Observations	Observation or Non-compliance	Advice from ET	Action Taken	Closing date	Remarks
Mar 4th 2009	1.Water discharged from sedimentation tank was still muddy	Observation	The sedimentation / De-silting tanks and soak away pond occupied along UTPR and LTR were found defective and site water couldn't be well treated from the facilities. Contractor was advised to check silt removal facilities and ensure they are well functioned.	Effluent from the sedimentation tank was still turbid prior to the March 11th site inspection.	To be followed up	--
	2. Chemical tanks and drums were found poorly stored at the steel storage area in UTPR.	Observation	Chemical tanks and drums were found stored poorly at the steel storage area in UTPR. Contractor was advised to provide drip pans as well as proper housekeeping practices to the chemicals temporarily stored on site	Chemical tanks and drums were found poorly stored at the steel storage area prior to the March 11th site inspection.	To be followed up	--
Mar 11th 2009	1. Sedimentation tank were not in use due to a major breakdown.	Observation	The sedimentation tank installed in UTPR was reported not in operation due to a major breakdown. Contractor should ensure the de-silting facility is always functional for water treatment, and all site water should be treated	Effluent from the sedimentation tanks was found turbid prior to March 19th site inspection	To be followed up	--

Table 6.1 Summary results of site inspection findings

Date	Observations	Observation or Non-compliance	Advice from ET	Action Taken	Closing date	Remarks
			before entering public drains.			
	2.Chemical tanks and drums were found poorly stored at the steel storage area in UTPR.	Observation	Housekeeping issues of the arrangement of chemical tanks were still outstanding in UTPR. Contractor was reminded again to provide drip pans as well as proper housekeeping practices to the chemicals temporarily stored on site.	Chemical containers were removed off site prior to the March 19th site inspection	March 19th 2009	--
Mar 19th 2009	1.Effluent form the sedimentation tank at UTPR was still turbid.	Observation	The sedimentation tank was found being functioned during inspection. However effluent from the facility was still turbid. Contractor was advised to check the condition of the de-silting facility and rectify its treatment effectiveness.	Turbid water was found from the de-silting tank prior to the Mar 25th site inspection	To be followed up	--

Table 6.1 Summary results of site inspection findings

Date	Observations	Observation or Non-compliance	Advice from ET	Action Taken	Closing date	Remarks
	2.Noise barriers with gaps were found at UTPR	Observation	Gaps were observed at the noise barriers installed at UTPR ch.210 & ch. 180 approximately. Contractor was advised to rectify the discrepancies in order to fulfill with the requirements in Environmental permit.	Noise barriers were not erected prior to the March 25th site inspection	To be followed up	--
Mar 25th 2009	1.Surface runoff was observed entering the river channel from the gaps of rock bunds to the UTPR channel.	Observation	Surface runoff was found entering the stream of UTPR from the gaps of rock bunds at ch.50. Contractor was advised by ER to take immediate actions of providing sand bags and fine aggregates to block the muddy water further entering the river channel.	To be reported in the Monthly EM&A Report for April 2009.	To be reported in the Monthly EM&A Report for April 2009	--
	2. Turbid water was found discharged from the de-silting facility to the river channel	Observation	De-silting facilities installed UTPR did not function properly during inspection. Contractor was advised to take immediate action to repair those	To be reported in the Monthly EM&A Report for April 2009.	To be reported in the Monthly EM&A Report for April 2009	--

Table 6.1 Summary results of site inspection findings

Date	Observations	Observation or Non-compliance	Advice from ET	Action Taken	Closing date	Remarks
			facilities, and ensure the de-silting facilities always in normal operation.			
	3. Contractor should erect the noise barriers properly in accordance with the designs and/or requirements stated in the project documents.	Observation	Noise barriers along ch. 250 of UTPR were still not set up properly during inspection. Contractor should erect the noise barriers properly in accordance with the designs and/or requirements stated in the project documents (i.e. EP, PS and PP).	To be reported in the Monthly EM&A Report for April 2009.	To be reported in the Monthly EM&A Report for April2009	--
	4. Turbid water was observed at the stream of UTPR, which was mainly caused by surface runoff and discharge from de-silting tank	Observation	Muddy water observed along the project areas of UTPR was mainly caused by surface runoff from exposed soil surface, defective bunds, barriers and weirs. Contractor was advised to review the conditions of their site and take corrective actions to rectify the discrepancies as soon as possible	To be reported in the Monthly EM&A Report for April 2009.	To be reported in the Monthly EM&A Report for April 2009	--

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

Table 6.2 Summary results of ecological site inspection findings

Date	Observations	Advice from Ecologist	Action Taken	Closing Date
4 Mar 2009	No Major findings for this inspection	No Advice is required	No Action is required to be taken	11 Mar 2009
11 Mar 2009	No Action is required to be taken	No Advice is required	No Action is required to be taken	18 Mar 2009
19 Mar 2009	No Action is required to be taken	No Advice is required	No Action is required to be taken	25 Mar 2009
25 Mar 2009	No Action is required to be taken	No Advice is required	No Action is required to be taken	1 Apr 2009

6.2 Non-compliance

There was a Non-compliance of construction noise criteria recorded on March 25th 2009. For further details, please refer to section 2.6.

6.3 Recommendations

The contractor should be aware of the conditions of de-silting tanks for site water treatment. Immediate actions should be taken to check and fix the silt removal facility when it was found not functioned properly. Site water should not be directly discharged to the river channel before the facilities were fixed and treated by the de-silting facilities.

The contractor should be aware of the condition as well as effectiveness of mitigation measures for water quality implemented. The defective bunds should be rectified once they were found on site. Broken bunds and barriers with geo-textile materials should be replaced immediately to avoid site water being discharged directly into the stream.

Contractor was advised to ensure noise barriers provided on site are erected according to the requirements stipulated in the EP, as to minimize noise impacts to the vicinity of sensitive receivers. Noisy construction activities should be well planned and scheduled as far as practicable to avoid excessive noise generation.

6.4 Implementation status and effectiveness of the mitigation measures

During the inspection, it was found that the de-silting facilities were not in proper condition. Proper maintenance of the de-silting facilities was advised to the contractor in order to treat site water properly before discharging it to the stream.

The ET had reminded the contractor two weeks consecutively regarding the erection of noise barriers on site. Should there be any construction activities, proper noise barriers should be provided on site in accordance with EP.

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 general reuse are recommended to be audited 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.

Table 7.1 Summary of Waste Disposal for the reporting month.

Type of waste	Inert Waste	Non-Inert Waste	Chemical Waste
March 2009	0	0	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	31st Aug, 2005	N/A	Issued
Amended Environmental Permit	EP-223/2005/A	18th Nov, 2008	N/A	Issued
Construction Noise Permit	N/A	N/A	N/A	N/A
Effluent Discharge License	3678	14th Mar, 2008	31st Mar, 2013	Issued
Registration as a Chemical Waste Producer	5213-724-C3251-03	19th Dec, 2007	Not applicable	Issued
Billing Account for Disposal of Construction Waste	7006101	N/A	N/A	N/A

9.0 Future key issues

Key construction activity in the coming month will be the construction of boulder trap, gabion wall and footbridge foundation. The construction activities for these items will generate several environmental impacts. These include air, noise, water and waste.

Site construction activities may generate dust impact to the vicinity of sensitive receivers. Contractor is advised to provide regular water spraying to the dusty static area. Open stockpiles should also be covered with tarpaulin to prevent erosion.

The construction machines and plants would generate noise. These machines and plants may be in intermittent use should be shut down between work periods or should be throttled down to a minimum in order to minimize the noise impact from the construction activities.

Boulder breaking activities by the hydraulic breaker will generate construction noise. Such noisy activities should be well planned and scheduled to avoid parallel operation of multiple plants, so as to minimize noise impacts to the nearby sensitive receivers.

The construction of boulder trap and the gabion wall may generate runoff and water concern at the site. The contractor shall implement proper barriers formed by bunds, rocks and geo-textile or wastewater treatment facilities to avoid muddy water being discharged into the stream.

It is expected that construction waste would be generated on site for the boulder trap and the gabion wall construction. Contractor shall assign proper site storage area with proper label to indicate the relative construction materials.

Site reinstatement to the river based construction area is required due to wet season. The contractor should pay attention to the construction facilities by not affecting the river channel. The contractor should maintain proper environmental mitigation measures on site.

10.0 Conclusion

The major construction activities carried out by the contractor during this reporting period include construction of boulder trap and gabion wall.

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

Environmental Team had carried out construction noise monitoring on weekly basis. All results obtained were within limit in this reporting month unless a documented complaint regarding noise concern was received on 23rd March 2009 by the 1823 Call Centre of the Government and referred by DSD on 25th March 2009.

Piling works were not scheduled for this month. 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.

As one documented complaint was received by the 1823 Call Centre of the Government on 23rd March 2009 and referred by DSD on 25th March 2009, such event was handled by ET and for further details please refer to section 2.6 and 2.7.

A non-compliance recorded for the reporting month, please refer to section 2.6 and 6.2 for further details.

There was a complaint recorded for the reporting month, please refer to section 2.7 for the summary of complaint and Appendix J for the completed complaint report and log.

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	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	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	1. Ensure Remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non conformity	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	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	1. Ensure Remedial measures are properly implemented	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		L90 30min	L10 30min	Leq 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP	1	58.4	71.5	68.4	Mar 3rd 2009	13:00-13:30	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	1 Traffic noise, 2 Public noise, 3 Water flowing noise, 4 Hand breaking noise by other construction activities.	Cloudy	Façade
UTP	2	48.9	56.4	52.1	Mar 4th 2009	9:10-9:40	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	1 Traffic noise	Cloudy	Façade
UTP	3	45.2	53.1	51.9	Mar 3rd 2009	15:25-15:55	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	1. Public noise, 2 Birds noise	Cloudy	Façade
UTP	4	50.9	58.9	57.8	Mar 3rd 2009	13:35-14:05	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	1 Traffic noise, 2 Public noise, 3 Water flowing noise	Cloudy	Façade
UTP	5	48.3	49.5	48.6	Mar 3rd 2009	14:08-14:38	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	1 Public noise, 2 Traffic noise	Cloudy	Façade
UTP	6	52.8	54.4	52.8	Mar 3rd 2009	10:30-11:00	1. Excavator noise, 2 Boulder breaking noise	1 Public noise, 2 Birds noise, 3 Dog barking noise	Cloudy	Façade
UTP	7	46.4	52.4	50.4	Mar 3rd 2009	11:02-11:32	1. Excavator noise, 2 Boulder breaking noise	1 Public noise	Cloudy	Façade
UTP	8	50.9	61.9	59.2	Mar 3rd 2009	16:00-16:30	1 Excavator noise, 2 Boulder breaking noise	1, Public noise	Cloudy	Façade
UTP	9	61.0	76.5	73.4	Mar 3rd 2009	14:48-15:18	1 Excavator noise, 2 Boulder breaking noise, 3 Hammering noise	1. Public noise	Cloudy	Façade
UTP	10	51.9	65.8	62.0	Mar 3rd 2009	9:50-10:20	1. Excavator noise, 2 Boulder breaking noise, 3 Construction truck noise	None	Cloudy	Façade
UTP	11	47.5	59.5	55.7	Mar 3rd 2009	9:15-9:45	1 Excavator noise, 2 Boulder breaking noise, 3 Construction truck noise	1 Birds noise	Cloudy	***Free field**

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

Location		L90 30min	L10 30min	Leq 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP	1	66.3	75.6	73.3	Mar 10th2009	9:46-10:16	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	1. Traffic noise, 2 Public noise, 3 Hammering noise and excavator noise from another construction site activities.	Cloudy	Façade
UTP	2	53.2	65.3	63.9	Mar 10th2009	9:13-9:43	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	1. Traffic noise, 2 Public noise, 3 Hammering noise and excavator noise from another construction site activities.	Cloudy	Façade
UTP	3	44.7	54.8	54.2	Mar 10th2009	15:20-15:50	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	1. Public noise	Cloudy	Façade
UTP	4	54.2	58.6	57.1	Mar 10th2009	10:18-10:48	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	1 Traffic noise, 2 Public noise, 3 Water flowing noise, 4 Birds noise	Cloudy	Façade
UTP	5	49.3	57.9	56.3	Mar 10th2009	14:07-14:37	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	1. Dog barking noise, 2 Public noise, 3 Traffic noise, 4 Water flowing noise	Cloudy	Façade
UTP	6	44.8	54.5	53.2	Mar 10th2009	15:53-16:23	1. Boulder breaking noise, 2 Excavator noise	1 Public noise, 2 Birds noise	Cloudy	Façade
UTP	7	47.7	61.1	57.0	Mar 10th2009	10:50-11:20	1. Boulder breaking noise, 2 Excavator noise	1. Helicopter noise, 2 Public noise, 3 Birds noise	Cloudy	Façade
UTP	8	49.5	69.3	64.8	Mar 10th2009	11:21-11:51	1. Boulder breaking noise, 2 Excavator noise	1. Helicopter noise, 2 Public noise, 3 Birds noise	Cloudy	Façade
UTP	9	62.1	74.1	70.0	Mar 10th2009	14:44-15:14	1 Excavator noise, 2 Boulder breaking noise, 3 Boulder removing noise	1. Public noise	Cloudy	Façade
UTP	10	53.8	69.0	65.1	Mar 10th2009	13:32-14:02	1. Boulder breaking noise, 2 Excavator noise	1. Birds noise	Cloudy	Façade
UTP	11	51.8	68.8	66.3	Mar 10th2009	13:00-13:30	1. Boulder breaking noise, 2 Excavator noise	1. Birds noise, 2 Helicopter noise, 3 Dog barking noise	Cloudy	***Free field**

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

Location		L90 30min	L10 30min	Leq 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP	1	54.2	67.2	65.7	Mar 17th2009	13:50-14:20	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	1. Traffic noise, 2 Public noise	Sunny	Façade
UTP	2	53.1	63.3	62.2	Mar 17th2009	13:15-13-45	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	1. Traffic noise, 2 Public noise	Sunny	Façade
UTP	3	53.5	41.9	52.9	Mar 17th2009	15:45-16:15	1. Excavator noise, 2. Boulder breaking noise	1. Public noise	Sunny	Façade
UTP	4	53.5	65.9	63.5	Mar 17th2009	14:30-15:00	1. Excavator noise	1 Traffic noise, 2 Public noise, 3 Water flowing noise	Sunny	Façade
UTP	5	53.1	63.2	59.8	Mar 17th2009	15:05-15:35	1. Excavator noise	1. Public noise	Sunny	Façade
UTP	6	51.1	61.1	58.7	Mar 17th2009	1130-12:00	1. Excavator noise	1 Public noise, 2 Water flowing noise, 3. Dog barking noise	Sunny	Façade
UTP	7	48.1	55.7	54.3	Mar 17th2009	10:55-11:25	1. Boulder breaking noise, 2 Excavator noise	1 Public noise, 2 Water flowing noise	Sunny	Façade
UTP	8	52.3	64.1	63.1	Mar 17th2009	10:20-10:50	1. Boulder breaking noise, 2 Excavator noise, 3. Power generator noise	1. Public noise	Sunny	Façade
UTP	9	63.1	77.1	73.3	Mar 17th2009	09:40-10:10	1 Excavator noise, 2 Boulder breaking noise, 3. Power generator noise	1. Public noise	Sunny	Façade
UTP	10	52.3	66.1	62.3	Mar 17th2009	16:30-17:00	1. Boulder breaking noise, 2 Excavator noise	1. Dog barking noise	Sunny	Façade
UTP	11	46.3	57.1	55.3	Mar 17th2009	17:05-17:35	1. Boulder breaking noise, 2 Excavator noise	1. Dog barking noise	Sunny	***Free field**

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

Location		L90 30min	L10 30min	Leq 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP	1	54.3	68.3	67.2	Mar 27th 2009	13:40-14:10	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	1. Traffic noise, 2 Public noise	Overcast	Façade
UTP	2	52.7	59.7	58.5	Mar 27th 2009	13:05-13:35	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	1. Traffic noise	Overcast	Façade
UTP	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Rain	N/A
UTP	4	53.9	61.1	60.4	Mar 27th 2009	16:15-16:45	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	1.Public noise, 2 Water flowing noise, 3 Traffic noise	Overcast	Façade
UTP	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Rain	N/A
UTP	6	48.5	56.9	53.7	Mar 27th 2009	11:30-12:00	1. Boulder breaking noise	1 Public noise, 2 Water flowing noise	Overcast	Façade
UTP	7	49.8	62.7	60.2	Mar 27th 2009	10:55-11:25	1. Excavator noise	1. Public noise	Overcast	Façade
UTP	8	59.2	69.3	68.1	Mar 27th 2009	10:20-10:50	1. Excavator noise	1. Public noise	Overcast	Façade
UTP	9	51.3	69.4	65.6	Mar 27th 2009	09:40-10:10	1 Excavator noise, 2 Boulder breaking noise	1. Dog barking noise	Overcast	Façade
UTP	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Rain	N/A
UTP	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Rain	N/A

Note* UTP 3, 5, 10, 11 noise monitoring was cancelled due to heavy rain on March 27th 2009

Location	L90 30min	L10 30min	Leq 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP 7 Note* 1	49.9	59.7	55.4	Mar 27th 2009	14:25-14:55	1. Excavator noise, 2 boulder breaking noise	1. Public noise	Overcast	Façade
UTP 7 Note* 2	50.5	58.9	54.9	Mar 27th 2009	16:55-17:25	1. Excavator noise, 2 boulder breaking noise	1. Public noise	Overcast	Façade

Note #1 First additional noise monitoring for UTP 7 on March 27th 2009 from 14:25pm to 14:55pm was conducted due to the complaint on noise recorded on March 23rd 2009 from the nearby N.S.R.

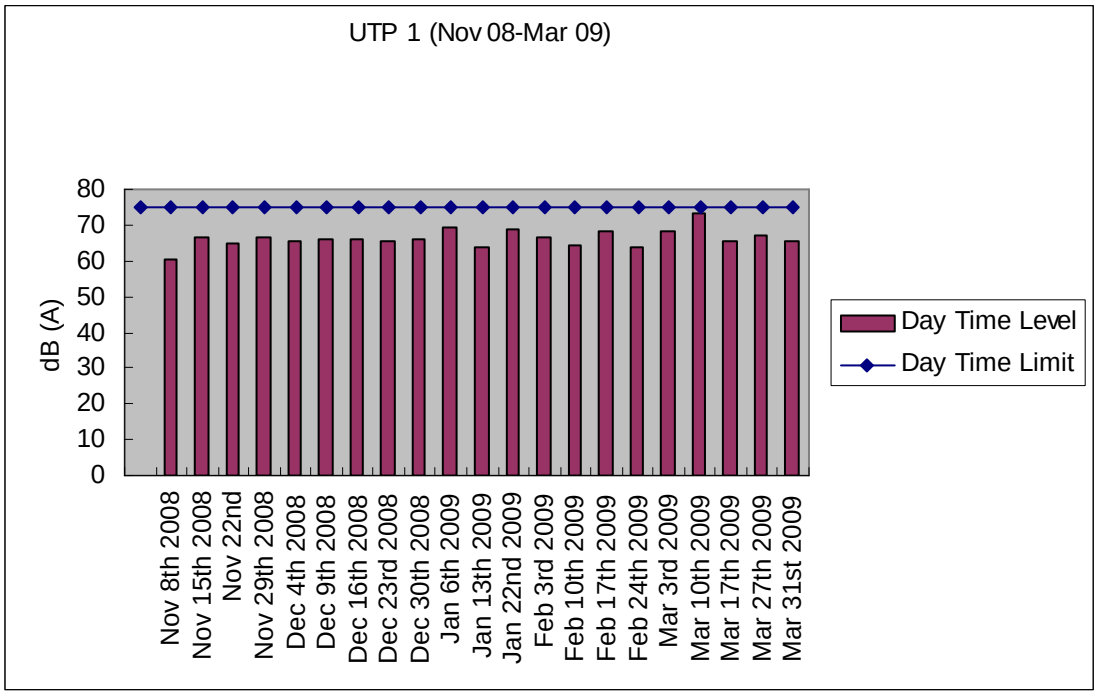
Note #2 Second additional noise monitoring for UTP 7 on March 27th 2009 from 16:55pm to 17:25pm was conducted due to the complaint on noise recorded on March 23rd 2009 from the nearby N.S.R.

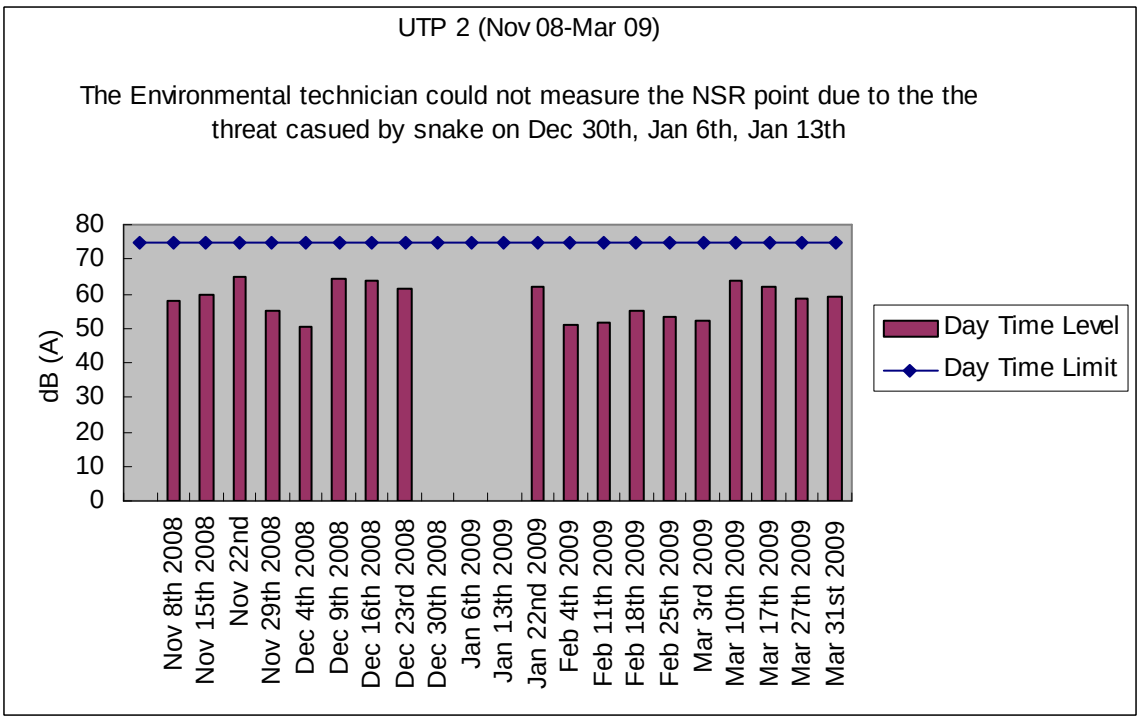
Location		L90 30min	L10 30min	Leq 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP	1	55.3	67.0	65.7	Mar 31st 2009	10:45-11:15	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	1 Traffic noise, 2 Public noise, 3 Water flowing noise, 4. Birds noise	Sunny	Façade
UTP	2	53.1	60.5	59.4	Mar 31st 2009	11:20-11:50	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	1 Traffic noise, 2 Public noise, 3 Water flowing noise, 4. Birds noise	Sunny	Façade
UTP	3	47.6	57.6	56.3	Mar 31st 2009	16:45-17:15	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	1 Traffic noise, 2 Public noise, 3 Water flowing noise, 4. Dog barking noise	Sunny	Façade
UTP	4	53.1	59.5	58.1	Mar 31st 2009	13:00-13:30	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	1 Traffic noise, 2 Public noise, 3 Birds noise, 4 Water flowing noise	Sunny	Façade
UTP	5	50.4	57.0	54.8	Mar 31st 2009	13:35-14:05	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	1 Traffic noise, 2 Public noise, 3 Water flowing noise, 4. Radio noise from the local family, 5. Dog barking noise	Sunny	Façade
UTP	6	47.5	56.5	54.3	Mar 31st 2009	16:10-16:40	1 Excavator noise, 2 Boulder breaking noise	1. Public noise, 2. Birds noise	Sunny	Façade
UTP	7	52.1	63.6	61.2	Mar 31st 2009	15:35-16:05	1 Boulder breaking noise, 2 Excavator noise	1. Public noise, 2. Birds noise	Sunny	Façade
UTP	8	57.0	75.9	72.1	Mar 31st 2009	15:00-15:30	1 Excavator noise, 2 Boulder breaking noise, 3 Boulder removing noise	1. Public noise, 2. Birds noise	Sunny	Façade
UTP	9	60.5	69.6	66.2	Mar 31st 2009	14:25-14:55	1 Excavator noise, 2 Boulder breaking noise, 3 Boulder removing noise	1. Public noise, 2. Birds noise	Sunny	Façade
UTP	10	54.5	70.5	66.0	Mar 31st 2009	09:30-10:00	1. Excavator noise, 2 Boulder breaking noise	1. Public noise, 2. Birds noise	Sunny	Façade
UTP	11	53.6	63.1	60.4	Mar 31st 2009	10:05-10:35	1 Excavator noise, 2 Boulder breaking noise	1 Birds noise, 2. Public noise, 3. Dog barking noise	Sunny	***Free field**

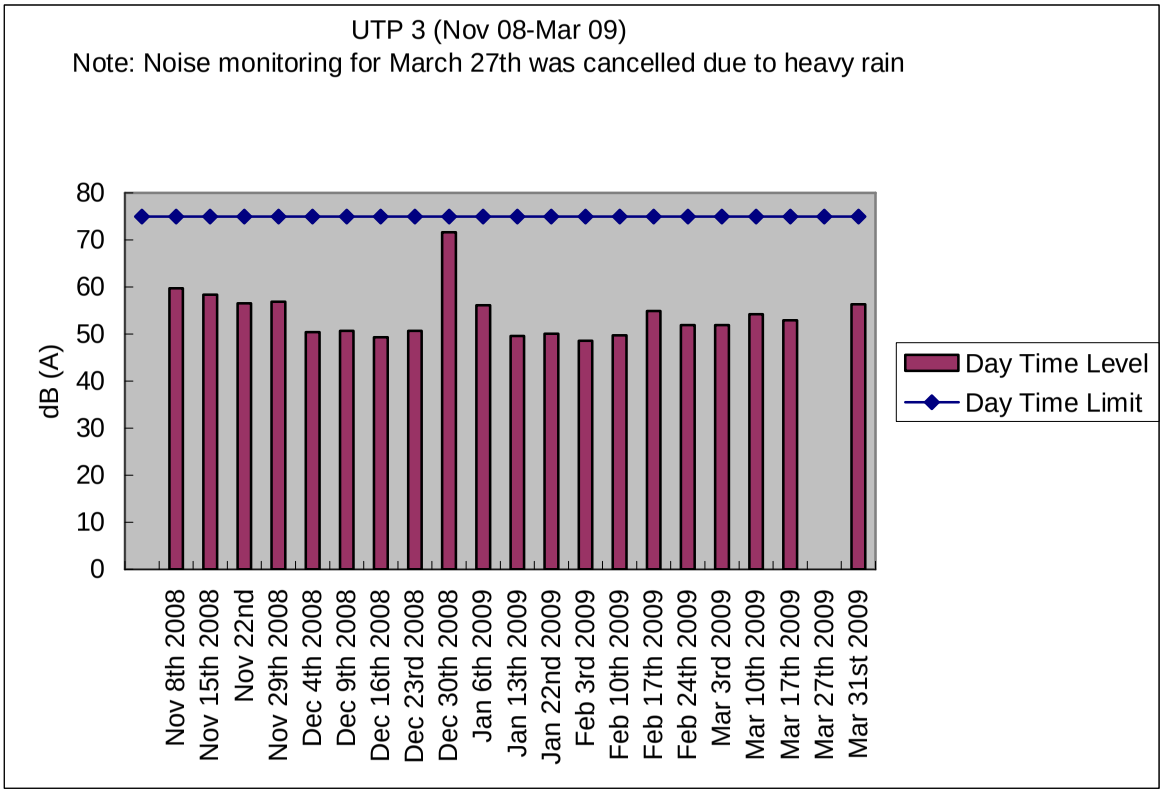
Note* An Additional of 3dB(A) had been added to the measurement result due to Free Field Location status

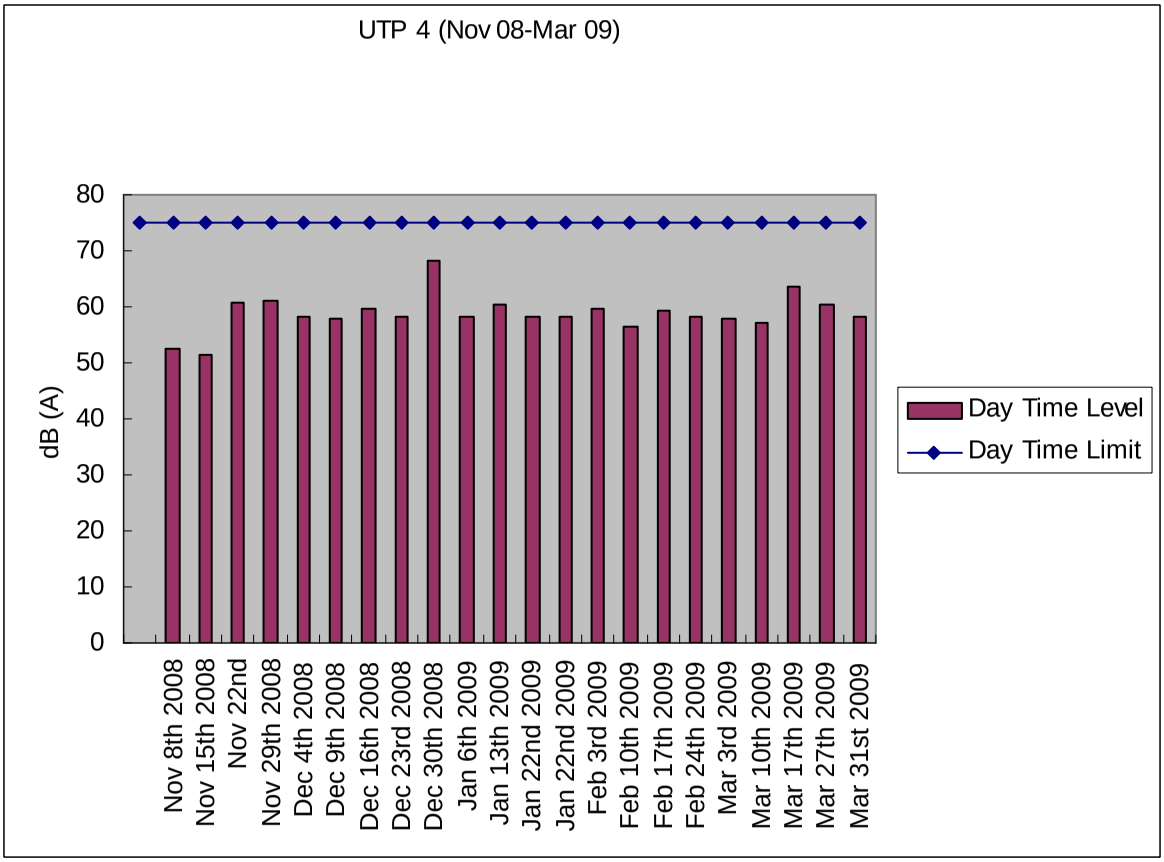
Graphical plot for noise measurements

The following plots were the graphical plots for the 11 monitoring locations. Each plot showed the day time limit 75 dB(A), daytime level, date and the measured dB(A) results as in Leq 30min for each location. The graph contains the data recorded from Nov 2008 to March 2009.



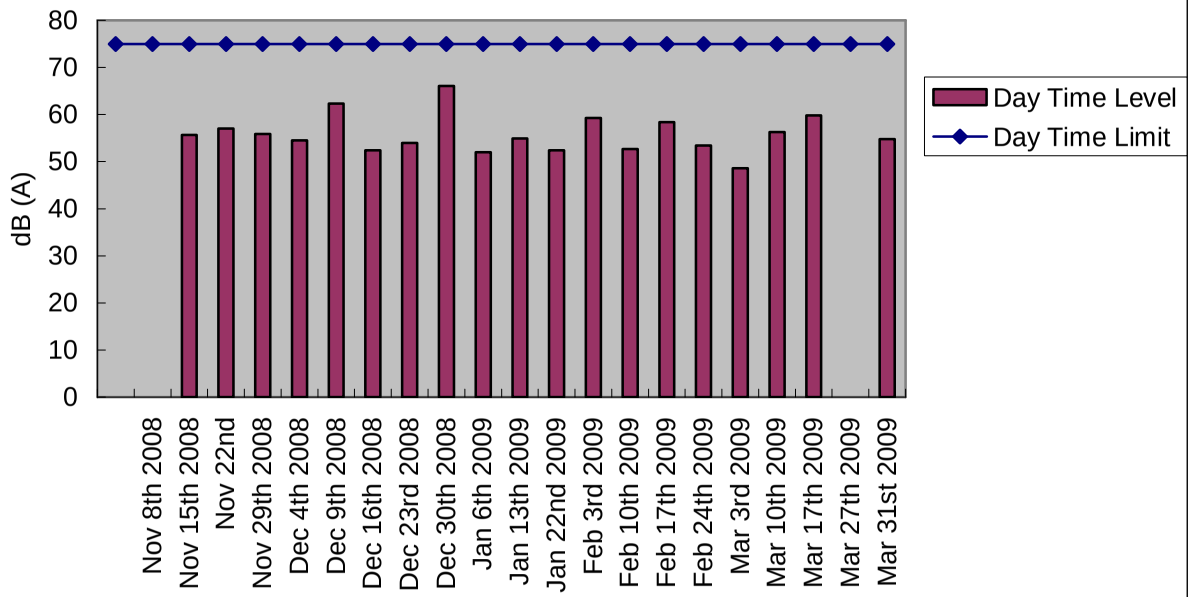



UTP 3 (Nov 08-Mar 09)
Note: Noise monitoring for March 27th was cancelled due to heavy rain
dB (A)
0
10
20
30
40
50
60
70
80
Nov 8th 2008
Nov 15th 2008
Nov 22nd
Nov 29th 2008
Dec 4th 2008
Dec 9th 2008
Dec 16th 2008
Dec 23rd 2008
Dec 30th 2008
Jan 6th 2009
Jan 13th 2009
Jan 22nd 2009
Feb 3rd 2009
Feb 10th 2009
Feb 17th 2009
Feb 24th 2009
Mar 3rd 2009
Mar 10th 2009
Mar 17th 2009
Mar 27th 2009
Mar 31st 2009
Day Time Level
Day Time Limit

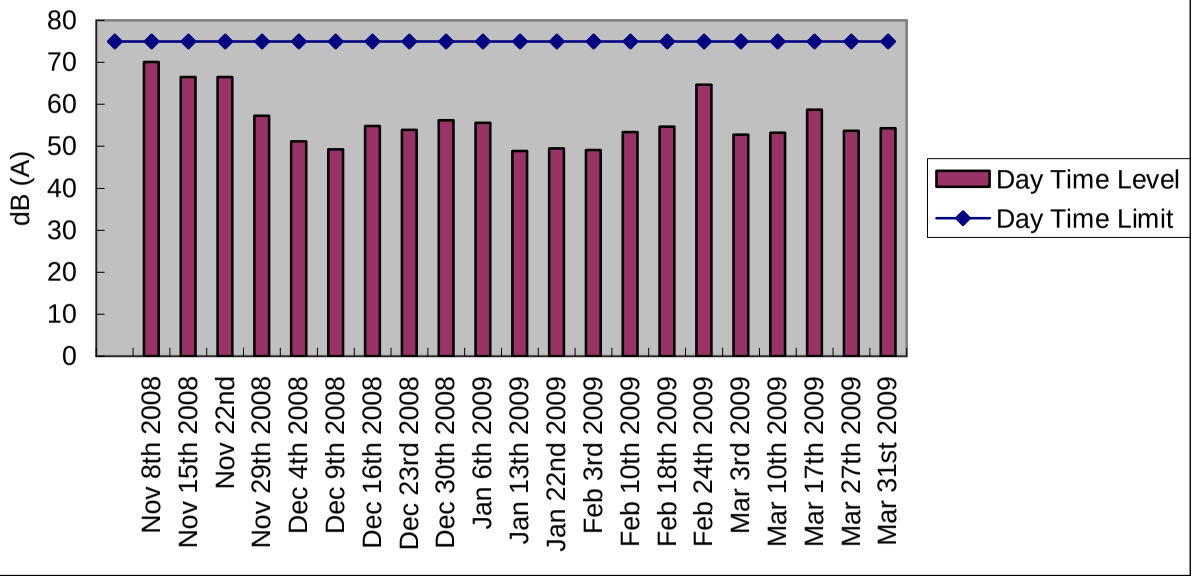

UTP 4 (Nov 08-Mar 09)
dB (A)
0
10
20
30
40
50
60
70
80
Nov 8th 2008
Nov 15th 2008
Nov 22nd
Nov 29th 2008
Dec 4th 2008
Dec 9th 2008
Dec 16th 2008
Dec 23rd 2008
Dec 30th 2008
Jan 6th 2009
Jan 13th 2009
Jan 22nd 2009
Jan 22nd 2009
Feb 3rd 2009
Feb 10th 2009
Feb 17th 2009
Feb 24th 2009
Mar 3rd 2009
Mar 10th 2009
Mar 17th 2009
Mar 27th 2009
Mar 31st 2009
Day Time Level
Day Time Limit

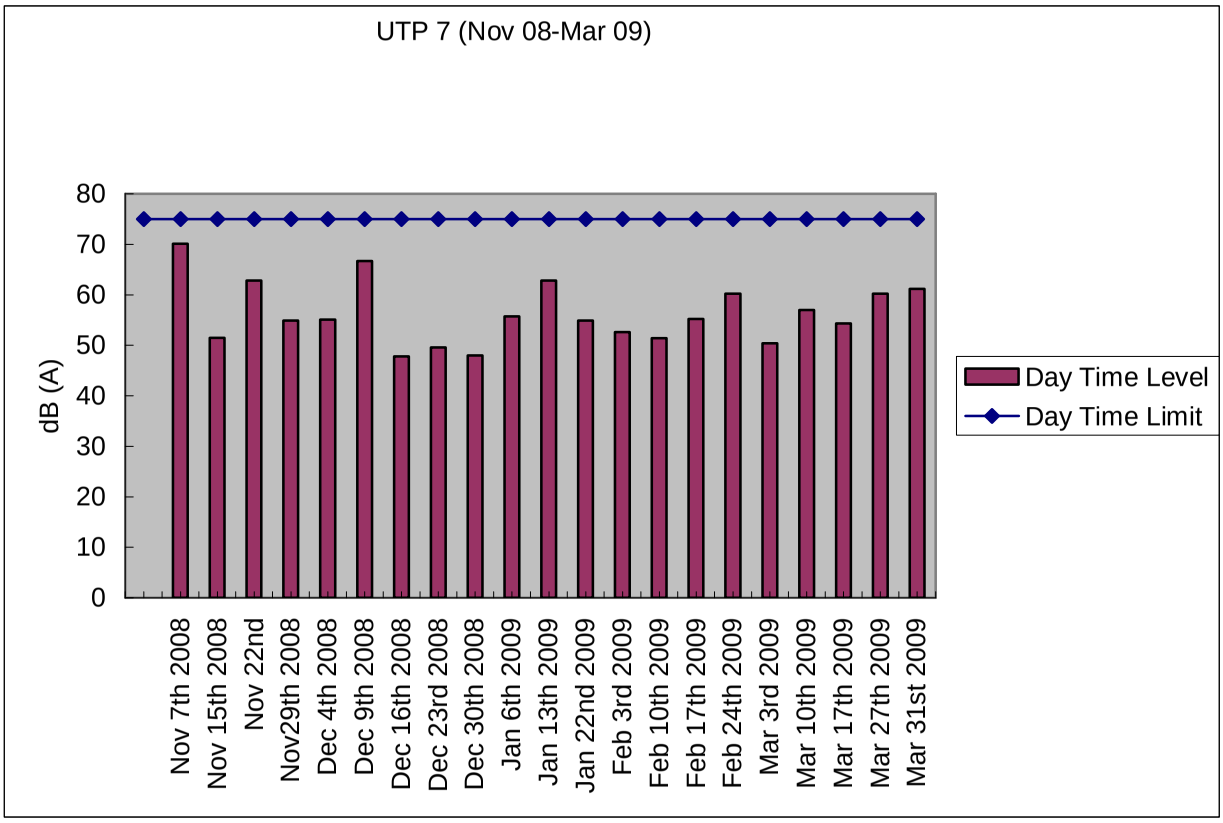
UTP 5 (Nov 08-Mar 09)

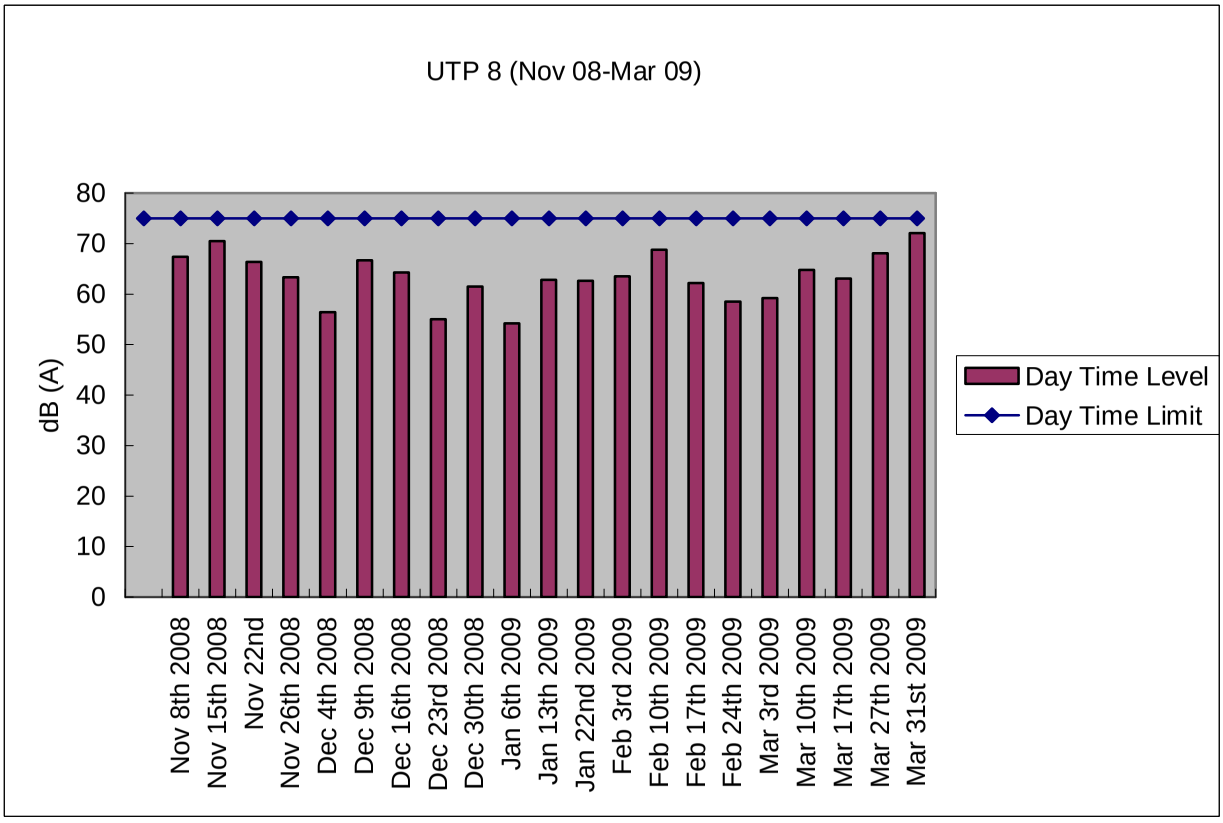
Note: The environmental technician cannot get into the location for noise measurement due to the danger caused by dogs on Nov 8th, Noise monitoring for March 27th was cancelled due to heavy rain.

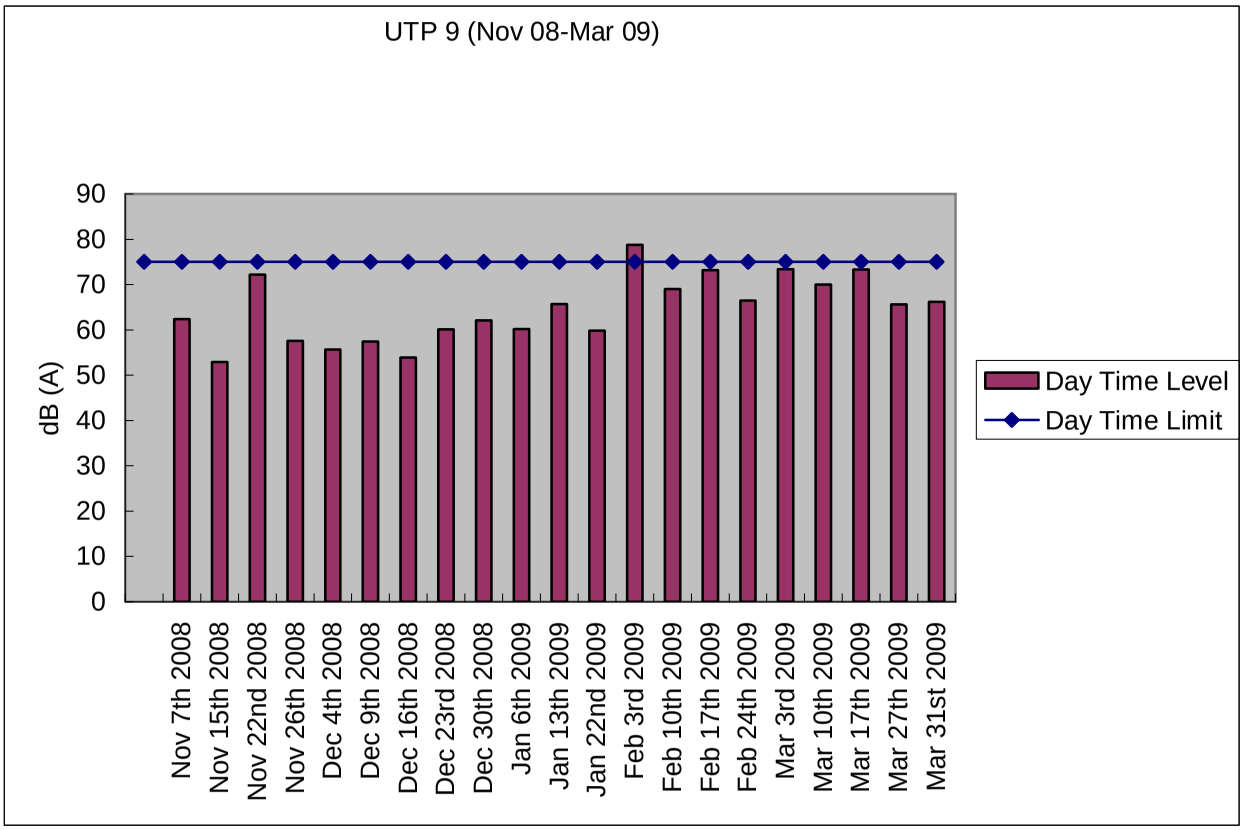


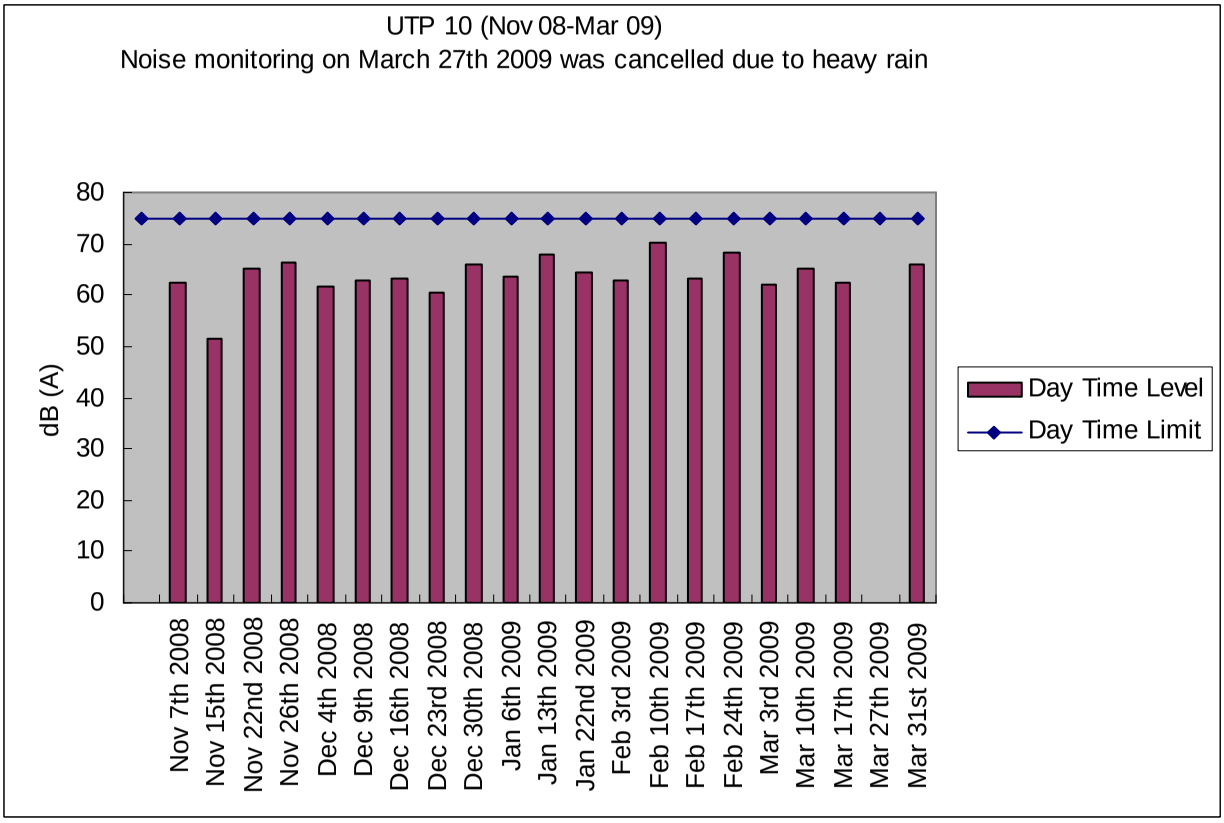
UTP 6 (Nov 08-Mar 09)




UTP 7 (Nov 08-Mar 09)
dB (A)
0
10
20
30
40
50
60
70
80
Nov 7th 2008
Nov 15th 2008
Nov 22nd
Nov29th 2008
Dec 4th 2008
Dec 9th 2008
Dec 16th 2008
Dec 23rd 2008
Dec 30th 2008
Jan 6th 2009
Jan 13th 2009
Jan 22nd 2009
Feb 3rd 2009
Feb 10th 2009
Feb 17th 2009
Feb 24th 2009
Mar 3rd 2009
Mar 10th 2009
Mar 17th 2009
Mar 27th 2009
Mar 31st 2009
Day Time Level
Day Time Limit

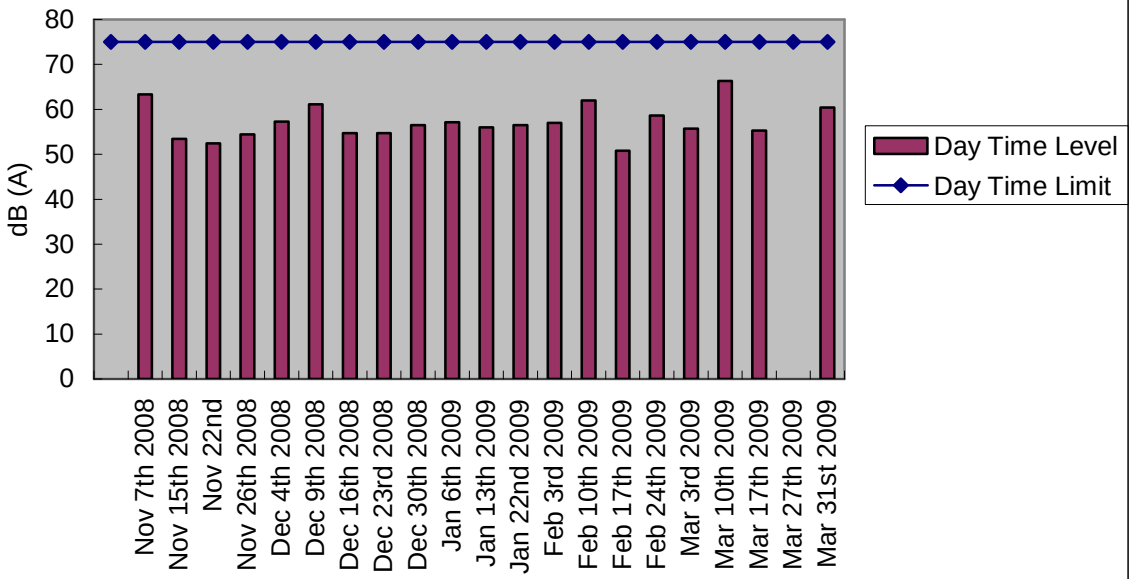

UTP 8 (Nov 08-Mar 09)
dB (A)
0
10
20
30
40
50
60
70
80
Nov 8th 2008
Nov 15th 2008
Nov 22nd
Nov 26th 2008
Dec 4th 2008
Dec 9th 2008
Dec 16th 2008
Dec 23rd 2008
Dec 30th 2008
Jan 6th 2009
Jan 13th 2009
Jan 22nd 2009
Feb 3rd 2009
Feb 10th 2009
Feb 17th 2009
Feb 24th 2009
Mar 3rd 2009
Mar 10th 2009
Mar 17th 2009
Mar 27th 2009
Mar 31st 2009
Day Time Level
Day Time Limit


UTP 9 (Nov 08-Mar 09)
dB (A)
90
80
70
60
50
40
30
20
10
0
Nov 7th 2008
Nov 15th 2008
Nov 22nd 2008
Nov 26th 2008
Dec 4th 2008
Dec 9th 2008
Dec 16th 2008
Dec 23rd 2008
Dec 30th 2008
Jan 6th 2009
Jan 13th 2009
Jan 22nd 2009
Feb 3rd 2009
Feb 10th 2009
Feb 17th 2009
Feb 24th 2009
Mar 3rd 2009
Mar 10th 2009
Mar 17th 2009
Mar 27th 2009
Mar 31st 2009
Day Time Level
Day Time Limit

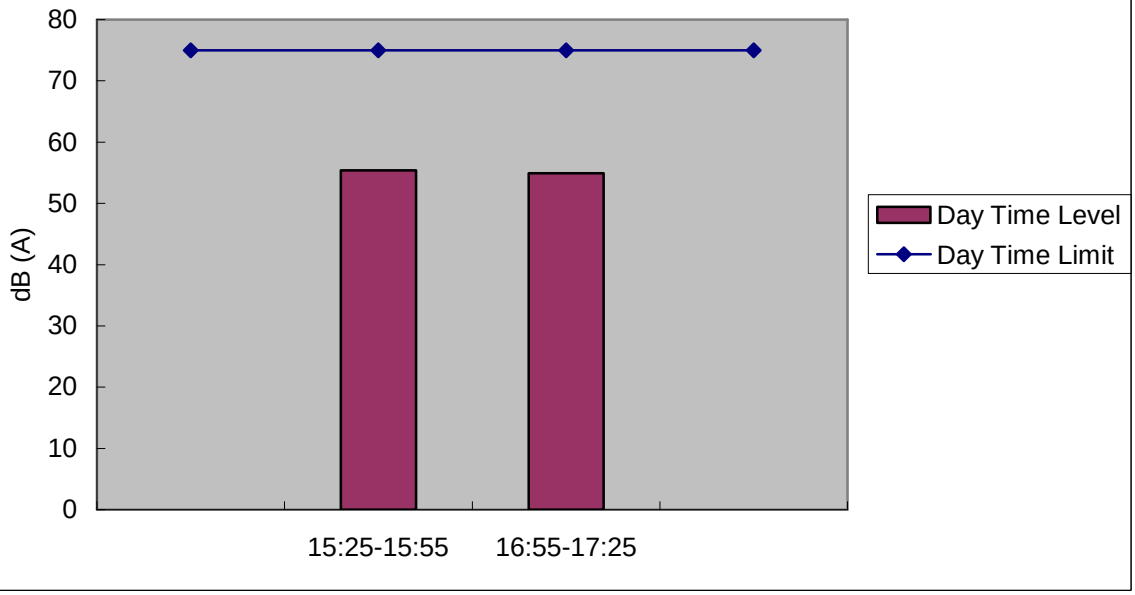

UTP 10 (Nov 08-Mar 09)
Noise monitoring on March 27th 2009 was cancelled due to heavy rain
dB (A)
80
70
60
50
40
30
20
10
0
Nov 7th 2008
Nov 15th 2008
Nov 22nd 2008
Nov 26th 2008
Dec 4th 2008
Dec 9th 2008
Dec 16th 2008
Dec 23rd 2008
Dec 30th 2008
Jan 6th 2009
Jan 13th 2009
Jan 22nd 2009
Feb 3rd 2009
Feb 10th 2009
Feb 17th 2009
Feb 24th 2009
Mar 3rd 2009
Mar 10th 2009
Mar 17th 2009
Mar 27th 2009
Mar 31st 2009
Day Time Level
Day Time Limit

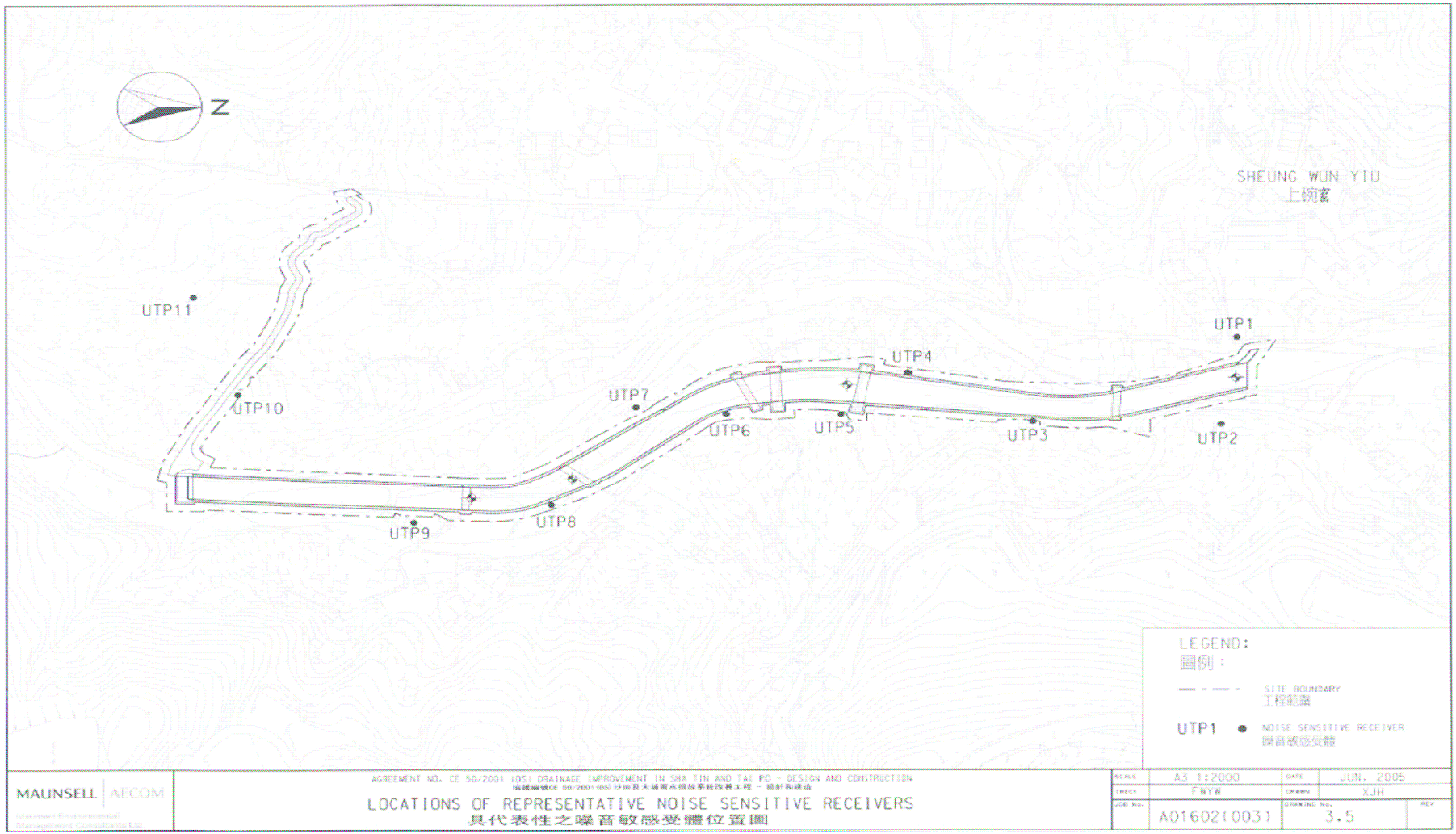
UTP 11 (Nov 08-Mar 09)

Noise monitoring for March 27th was cancelled due to heavy rain



Two additional noise monitoring were conducted on March 27th 2009 for UTP 7. The first additional monitoring result was 55.4dB(A), the second additional monitoring result was 54.9dB(A).




N
SHEUNG WUN YIU
上碗窰
UTP11
UTP10
UTP9
UTP8
UTP7
UTP6
UTP5
UTP4
UTP3
UTP2
UTP1
LEGEND:
圖例：
SITE BOUNDARY
工程範圍
UTP1
NOISE SENSITIVE RECEIVER
噪音敏感受體
MAUNSELL AECOM
AGREEMENT NO. CE 56/2001 (DS) DRAINAGE IMPROVEMENT IN SHA TIN AND TAI PO - DESIGN AND CONSTRUCTION
LOCATIONS OF REPRESENTATIVE NOISE SENSITIVE RECEIVERS
具代表性之噪音敏感受體位置圖
A3 1:2000
JUN. 2005
A0160210031
3.5

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

Master schedule of EM&A works in March 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
3/1	3/2	3/3	3/4	3/5	3/6	3/7
		Noise Monitoring	Site inspection in the afternoon			
3/8	3/9	3/10	3/11	3/12	3/13	3/14
		Noise Monitoring	Site inspection in the afternoon			
3/15	3/16	3/17	3/18	3/19	3/20	3/21
		Noise Monitoring	Site inspection and SSEMC meeting in the morning			
3/22	3/23	3/24	3/25	3/26	3/27	3/28
			Site inspection in the afternoon		Noise Monitoring	
3/29	3/30	3/31				
		Noise Monitoring				

Master schedule of EM&A works in April 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1/4	2/4	3/4	4/4
			Site inspection in the afternoon			
5/4	6/4	7/4	8/4	9/4	10/4	11/4
		Noise Monitoring	Site inspection in the afternoon			
12/4	13/4	14/4	15/4	16/4	17/4	18/4
		Noise Monitoring	Site inspection in the afternoon			
19/4	20/4	21/4	22/4	23/4	24/4	25/4
		Noise Monitoring	Site inspection and SSEMC meeting in the morning			
26/4	27/4	28/4	29/4	30/4		
		Noise Monitoring	Site inspection in the afternoon			

Appendix F: Cumulative complaint log

Environmental Parameters	Cumulative no. Brought forward	No. of complaint March 2009	Overall Total
Air/Dust	1	0	1
Noise	0	1	1
Water	2	0	2
House Keeping Hygiene	0	0	0
Chemical waste	0	0	0
Total	3	1	4

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	Not applicable	Not required
	-Use well maintained construction plant	Implemented	Not required
	-Shut down plants between work periods	Improvement required	To be followed up
	-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	Improvement required	To be followed up
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	Improvement required	To be followed up
	-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	Not applicable at this stage	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	Improvement required	To be followed up
	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	Improvement required	To be followed up
	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	Improvement required	To be followed up
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	Not applicable	Not required
	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 and 4th November 2008	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 table

Cumulative waste flow table since September 15th 2008

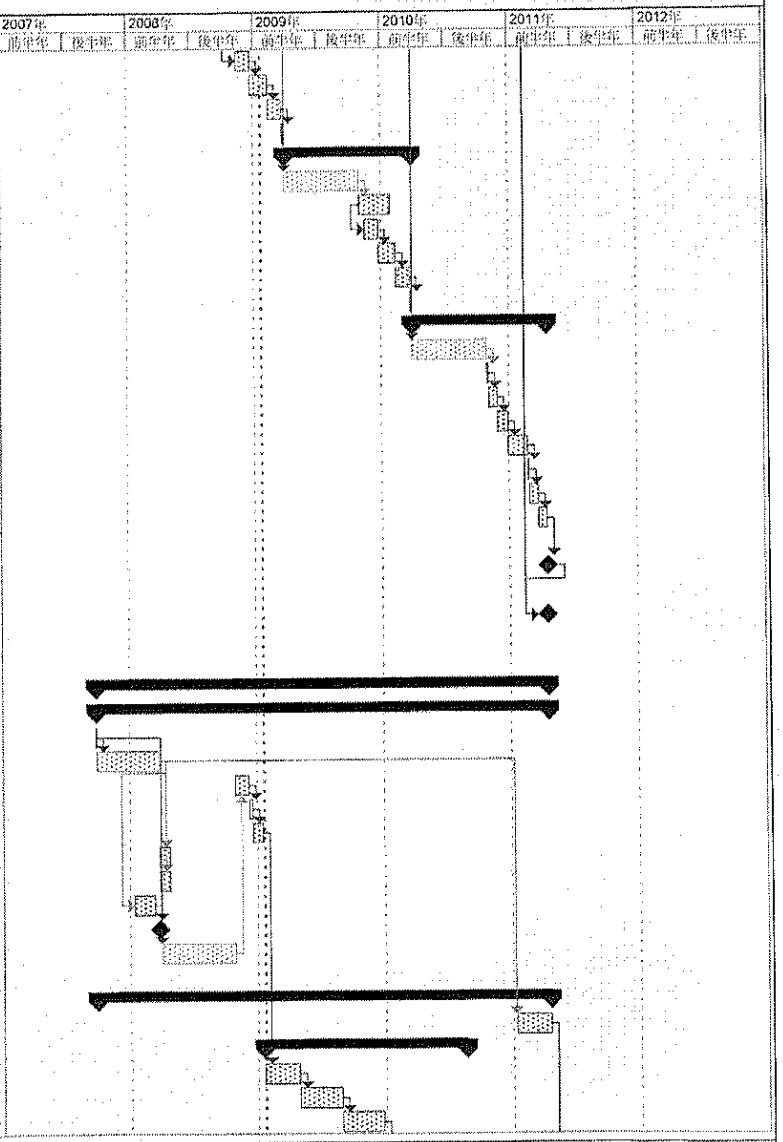
Type of waste	Inert Waste	Non-Inert Waste	Chemical Waste
September 2008	0	0	0
October 2008	0	2 tonnes	0
November 2008	$36m^3$	0	0
December 2008	0	0	0
January 2009	0	0	0
February 2009	0	0	0
March 2009	0	0	0
Total	$36m^3$	2 tonnes	0

Appendix I: Construction programme

Drainage Services Department

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

流水號	Task Name	工期	最早開始時間	最早完成時間	開始時間	完成時間
720	Rockfill & Blinding	40 days	2008/11/16	2008/12/25	2008/11/16	2008/12/25
721	Retaining Wall	50 days	2008/12/26	2009/2/13	2008/12/26	2009/2/13
722	Gabion Wall	40 days	2009/2/14	2009/3/25	2009/2/14	2009/3/25
723	Install Ducts/Fencing/Railings/Drainage	5 days	2009/3/26	2009/3/30	2009/3/26	2009/3/30
724	**From CHL 1700 to CHL 1550**	**364 days**	**2009/4/1**	**2010/3/30**	**2009/4/1**	**2010/3/30**
725	Wet Season (April to Oct 2009)	214 days	2009/4/1	2009/10/31	2009/4/1	2009/10/31
726	Excavation	90 days	2009/11/1	2010/1/29	2009/11/1	2010/1/29
727	Rockfill & Blinding	40 days	2009/11/16	2009/12/25	2009/11/16	2009/12/25
728	Retaining Wall	50 days	2009/12/26	2010/2/13	2009/12/26	2010/2/13
729	Gabion Wall	40 days	2010/2/14	2010/3/25	2010/2/14	2010/3/25
730	Install Ducts/Fencing/Railings/Drainage	5 days	2010/3/26	2010/3/30	2010/3/26	2010/3/30
731	**Footbridge, Platform and Fill Slope**	**384 days**	**2010/4/1**	**2011/4/19**	**2010/4/1**	**2011/4/19**
732	Wet Season (April to Oct 2010)	214 days	2010/4/1	2010/10/31	2010/4/1	2010/10/31
733	Provision of Temp. footbridge	5 days	2010/11/1	2010/11/5	2010/11/1	2010/11/5
734	Footing for footbridge	25 days	2010/11/6	2010/11/30	2010/11/6	2010/11/30
735	Dwarf Wall	30 days	2010/12/1	2010/12/30	2010/12/1	2010/12/30
736	Footbridge	55 days	2010/12/31	2011/2/23	2010/12/31	2011/2/23
737	Demolition of existing footbridge	5 days	2011/2/24	2011/2/28	2011/2/24	2011/2/28
738	Box Culvert	25 days	2011/3/1	2011/3/25	2011/3/1	2011/3/25
739	Footpaths Maintenance Stairway	25 days	2011/3/26	2011/4/19	2011/3/26	2011/4/19
740						
741	Completion of Area K	0 days	2011/4/19	2011/4/19	2011/4/19	2011/4/19
742						
743	Completion of Work at Section 2	0 days	2011/4/19	2011/4/19	2011/4/19	2011/4/19
744						
745						
746	**Section 3 - Upper Tai Po River (Area L, N & P)**	**1300 days**	**2007/9/28**	**2011/4/19**	**2007/9/28**	**2011/4/19**
747	**Section 3 - Upper Tai Po River (Area L)**	**1300 days**	**2007/9/28**	**2011/4/19**	**2007/9/28**	**2011/4/19**
748	Commencement of Work	1 day	2007/9/28	2007/9/28	2007/9/28	2007/9/28
749	Possession to Portion of the Site (Area L)	181 days	2007/9/29	2008/3/27	2007/9/29	2008/3/27
750	Temp. Site Access	40 days	2008/11/1	2008/12/10	2008/11/1	2008/12/10
751	Site Clearance	10 days	2008/12/11	2008/12/20	2008/12/11	2008/12/20
752	Chainlink Fencing Work / Hoarding	30 days	2008/12/21	2009/1/19	2008/12/21	2009/1/19
753	Initial Survey	30 days	2008/3/28	2008/4/26	2008/3/28	2008/4/26
754	Condition Surveys / Set up markers	30 days	2008/3/28	2008/4/26	2008/3/28	2008/4/26
755	Preparation of Temporary Works Design	60 days	2008/1/14	2008/3/13	2008/1/14	2008/3/13
756	Approval of Temporary Works Design	0 days	2008/3/27	2008/3/27	2008/3/27	2008/3/27
757	Wet Season (April to Oct 2008)	214 days	2008/4/1	2009/10/31	2008/4/1	2008/10/31
758						
759	**Chainage from CH 0 to CH130**	**1300 days**	**2007/9/28**	**2011/4/19**	**2007/9/28**	**2011/4/19**
760	Access to the Site	100 days	2011/1/10	2011/4/19	2011/1/10	2011/4/19
761	**Boulder Trap**	**580 days**	**2009/1/20**	**2010/8/22**	**2009/1/20**	**2010/8/22**
762	Excavation	100 days	2009/1/20	2009/4/29	2009/1/20	2009/4/29
763	Rockfill & Blinding Layer	120 days	2009/4/30	2009/8/27	2009/4/30	2009/8/27
764	Base Slab Structure	120 days	2009/8/28	2009/12/25	2009/8/28	2009/12/25



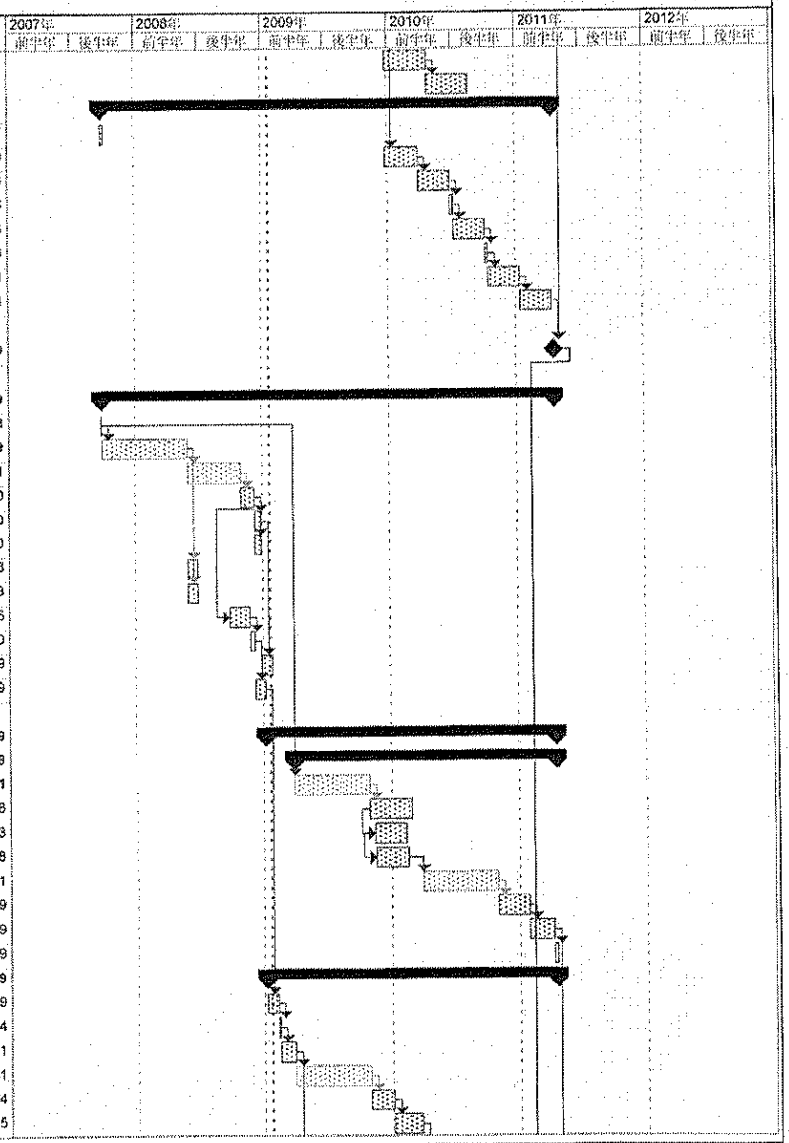
Project: Master Programme (REV.7)
Data Date: Jan 2009
Consultant: MCAL

Task | Task Progress | Critical Task | Critical Task Progress | Milestone | Summary | Rolled Up Task | Rolled Up Critical Task | Rolled Up Milestone | Rolled Up Progress | Split | External Tasks | Project Summary

Drainage Services Department

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

識別碼	Task Name	工期	最早開始時間	最早完成時間	開始時間	完成時間
765	Wall Structure	120 days	2009/12/26	2010/4/24	2009/12/26	2010/4/24
766	Cut/Fill Slope	120 days	2010/4/25	2010/8/22	2010/4/25	2010/8/22
767	**Footbridge, Platform and Fill Slope**	**1295 days**	**2007/9/28**	**2011/4/14**	**2007/9/28**	**2011/4/14**
768	Provision of Temp. footbridge	10 days	2007/9/28	2007/10/7	2007/9/28	2007/10/7
769	Footing for footbridge	95 days	2009/12/26	2010/3/30	2009/12/26	2010/3/30
770	Gabion Wall	90 days	2010/3/31	2010/6/28	2010/3/31	2010/6/28
771	Install Ducts/Fencing/Railings/Drainage	10 days	2010/6/29	2010/7/8	2010/6/29	2010/7/8
772	Footbridge (TB1)	90 days	2010/7/9	2010/10/6	2010/7/9	2010/10/6
773	Demolition of existing footbridge	10 days	2010/10/7	2010/10/16	2010/10/7	2010/10/16
774	Platform & Fill Slope & Maintenance stairway	90 days	2010/10/17	2011/1/14	2010/10/17	2011/1/14
775	Footpaths	90 days	2011/1/15	2011/4/14	2011/1/15	2011/4/14
776						
777	Completion of Area L	0 days	2011/4/19	2011/4/19	2011/4/19	2011/4/19
778						
779	**Section 3 - Upper Tai Po River (Area P)**	**1300 days**	**2007/9/28**	**2011/4/19**	**2007/9/28**	**2011/4/19**
780	Commencement of Work	1 day	2007/9/28	2007/9/28	2007/9/28	2007/9/28
781	Possession to Portion of the Site (Area P)	244 days	2007/9/29	2008/5/29	2007/9/29	2008/5/29
782	Wet Season	155 days	2008/5/30	2008/10/31	2008/5/30	2008/10/31
783	Temp. Site Access	40 days	2008/11/1	2008/12/10	2008/11/1	2008/12/10
784	Site Clearance	20 days	2008/12/11	2008/12/30	2008/12/11	2008/12/30
785	Chainlink Fencing Work	20 days	2008/12/11	2008/12/30	2008/12/11	2008/12/30
786	Initial Survey	30 days	2008/5/30	2008/6/28	2008/5/30	2008/6/28
787	Condition Surveys / Set up markers	30 days	2008/5/30	2008/6/28	2008/5/30	2008/6/28
788	Preparation of Temporary Works Design	60 days	2008/9/28	2008/11/26	2008/9/28	2008/11/26
789	Approval of Temporary Works Design	14 days	2008/11/27	2008/12/10	2008/11/27	2008/12/10
790	S.I. Works	30 days	2008/12/31	2009/1/29	2008/12/31	2009/1/29
791	Temp. Shoring Works	30 days	2008/12/11	2009/1/9	2008/12/11	2009/1/9
792						
793	**Chainage from CHL 250 to CHL 130**	**830 days**	**2009/1/10**	**2011/4/19**	**2009/1/10**	**2011/4/19**
794	**From CHL 250 to CHL 130**	**749 days**	**2009/4/1**	**2011/4/19**	**2009/4/1**	**2011/4/19**
795	Wet Season (April to Oct 2009)	214 days	2009/4/1	2009/10/31	2009/4/1	2009/10/31
796	Excavation	120 days	2009/11/1	2010/2/28	2009/11/1	2010/2/28
797	Rockfill & Blinding	90 days	2009/11/16	2010/2/13	2009/11/16	2010/2/13
798	Base Slab Structure	90 days	2009/11/21	2010/2/18	2009/11/21	2010/2/18
799	Wet Season (April to Oct 2010)	214 days	2010/4/1	2010/10/31	2010/4/1	2010/10/31
800	Wall Structure	90 days	2010/11/1	2011/1/29	2010/11/1	2011/1/29
801	Gabion Wall	70 days	2011/1/30	2011/4/9	2011/1/30	2011/4/9
802	Install Ducts/Fencing/Railings/Drainage	10 days	2011/4/10	2011/4/19	2011/4/10	2011/4/19
803	**Footbridge, Platform and Cut/Fill Slope**	**830 days**	**2009/1/10**	**2011/4/19**	**2009/1/10**	**2011/4/19**
804	Demolition of existing structure	31 days	2009/1/10	2009/2/9	2009/1/10	2009/2/9
805	Provision of Temp. footbridge	5 days	2009/2/10	2009/2/14	2009/2/10	2009/2/14
806	Footing for Footbridge (TB3)	45 days	2009/2/15	2009/3/31	2009/2/15	2009/3/31
807	Wet Season	214 days	2009/4/1	2009/10/31	2009/4/1	2009/10/31
808	Dwarf Wall	65 days	2009/11/1	2010/1/4	2009/11/1	2010/1/4
809	Footbridge (TB3)	80 days	2010/1/5	2010/3/25	2010/1/5	2010/3/25



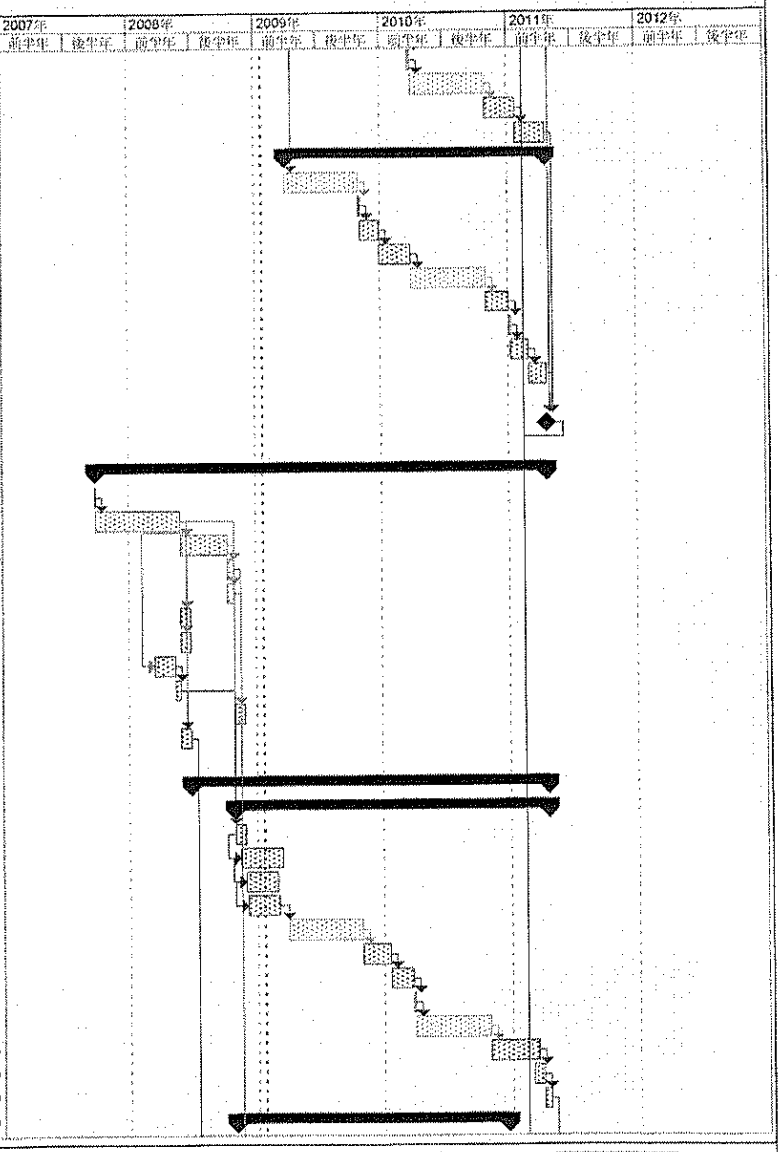
Project: Master Programme (REV.7)
Data Date: Jan 2009
Consultant: MCAL

Task | Task Progress | Critical Task | Critical Task Progress | Milestone | Summary | Rolled Up Task | Rolled Up Critical Task | Rolled Up Milestone | Rolled Up Progress | Split | External Tasks | Project Summary

Drainage Services Department

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

識別號	Task Name	工期	最早開始時間	最早完成時間	最新時間	完成時間
810	Demolition of existing footbridge	6 days	2010/3/26	2010/3/31	2010/3/26	2010/3/31
811	Wet Season	214 days	2010/4/1	2010/10/31	2010/4/1	2010/10/31
812	Platform & Cut/Fill Slope & Maintenance Stairway	85 days	2010/11/1	2011/1/24	2010/11/1	2011/1/24
813	Footpaths	85 days	2011/1/25	2011/4/19	2011/1/25	2011/4/19
814	**Footbridge, Platform and Cut/Fill Slope**	**749 days**	**2009/4/1**	**2011/4/19**	**2009/4/1**	**2011/4/19**
815	Wet Season	214 days	2009/4/1	2009/10/31	2009/4/1	2009/10/31
816	Provision of Temp. footbridge	5 days	2009/11/1	2009/11/5	2009/11/1	2009/11/5
817	Footing for Footbridge (TB2)	55 days	2009/11/6	2009/12/30	2009/11/6	2009/12/30
818	Dwarf Wall	91 days	2009/12/31	2010/3/31	2009/12/31	2010/3/31
819	Wet Season	214 days	2010/4/1	2010/10/31	2010/4/1	2010/10/31
820	Footbridge (TB2)	65 days	2010/11/1	2011/1/4	2010/11/1	2011/1/4
821	Demolition of existing footbridge	5 days	2011/1/5	2011/1/9	2011/1/5	2011/1/9
822	Platform & Cut/Fill Slope & Maintenance Stairway	50 days	2011/1/10	2011/2/28	2011/1/10	2011/2/28
823	Footpaths	50 days	2011/3/1	2011/4/19	2011/3/1	2011/4/19
824						
825	Completion of Area P	0 days	2011/4/19	2011/4/19	2011/4/19	2011/4/19
826						
827	**Section 3 - Upper Tai Po River (Area N)**	**1300 days**	**2007/9/28**	**2011/4/19**	**2007/9/28**	**2011/4/19**
828	Commencement of Work	1 day	2007/9/28	2007/9/28	2007/9/28	2007/9/28
829	Possession to Portion of the Site (Area N)	244 days	2007/9/29	2008/5/29	2007/9/29	2008/5/29
830	Temp. Site Access (XP/TTA)	135 days	2008/5/30	2008/10/11	2008/5/30	2008/10/11
831	Site Clearance	20 days	2008/10/12	2008/10/31	2008/10/12	2008/10/31
832	Chainlink Fencing Work	20 days	2008/10/12	2008/10/31	2008/10/12	2008/10/31
833	Initial Survey	30 days	2008/5/30	2008/6/28	2008/5/30	2008/6/28
834	Condition Surveys / Set up markers	30 days	2008/5/30	2008/6/28	2008/5/30	2008/6/28
835	Preparation of Temporary Works Design	60 days	2008/3/17	2008/5/15	2008/3/17	2008/5/15
836	Approval of Temporary Works Design	14 days	2008/5/16	2008/5/29	2008/5/16	2008/5/29
837	S.I. Works	30 days	2008/11/1	2008/11/30	2008/11/1	2008/11/30
838	Temp. Shoring Works	30 days	2008/5/30	2008/6/28	2008/5/30	2008/6/28
839						
840	**Chainage from CHL 230 to CHL 600**	**1025 days**	**2008/6/29**	**2011/4/19**	**2008/6/29**	**2011/4/19**
841	**From CHL 230 to CHL 380**	**900 days**	**2008/11/1**	**2011/4/19**	**2008/11/1**	**2011/4/19**
842	Temp. Shoring Works	30 days	2008/11/1	2008/11/30	2008/11/1	2008/11/30
843	Excavation	120 days	2008/11/16	2009/3/15	2008/11/16	2009/3/15
844	Rockfill & Blinding	90 days	2008/12/1	2009/2/28	2008/12/1	2009/2/28
845	Base Slab Structure	90 days	2008/12/6	2009/3/5	2008/12/6	2009/3/5
846	Wet Season (April to Oct 2009)	214 days	2009/4/1	2009/10/31	2009/4/1	2009/10/31
847	Wall Structure	80 days	2009/11/1	2010/1/19	2009/11/1	2010/1/19
848	Gabion Wall	65 days	2010/1/20	2010/3/25	2010/1/20	2010/3/25
849	Install Ducts/Fencing/Railings/Drainage	6 days	2010/3/26	2010/3/31	2010/3/26	2010/3/31
850	Wet Season (April to Oct 2010)	214 days	2010/4/1	2010/10/31	2010/4/1	2010/10/31
851	Footbridge (TB4 & TB5)	135 days	2010/11/1	2011/3/15	2010/11/1	2011/3/15
852	Dwarf Wall	30 days	2011/3/1	2011/3/30	2011/3/1	2011/3/30
853	Demolition of Existing Footbridge	20 days	2011/3/31	2011/4/19	2011/3/31	2011/4/19
854	**Construction of Retaining Wall (TR5)**	**780 days**	**2008/11/1**	**2010/12/20**	**2008/11/1**	**2010/12/20**



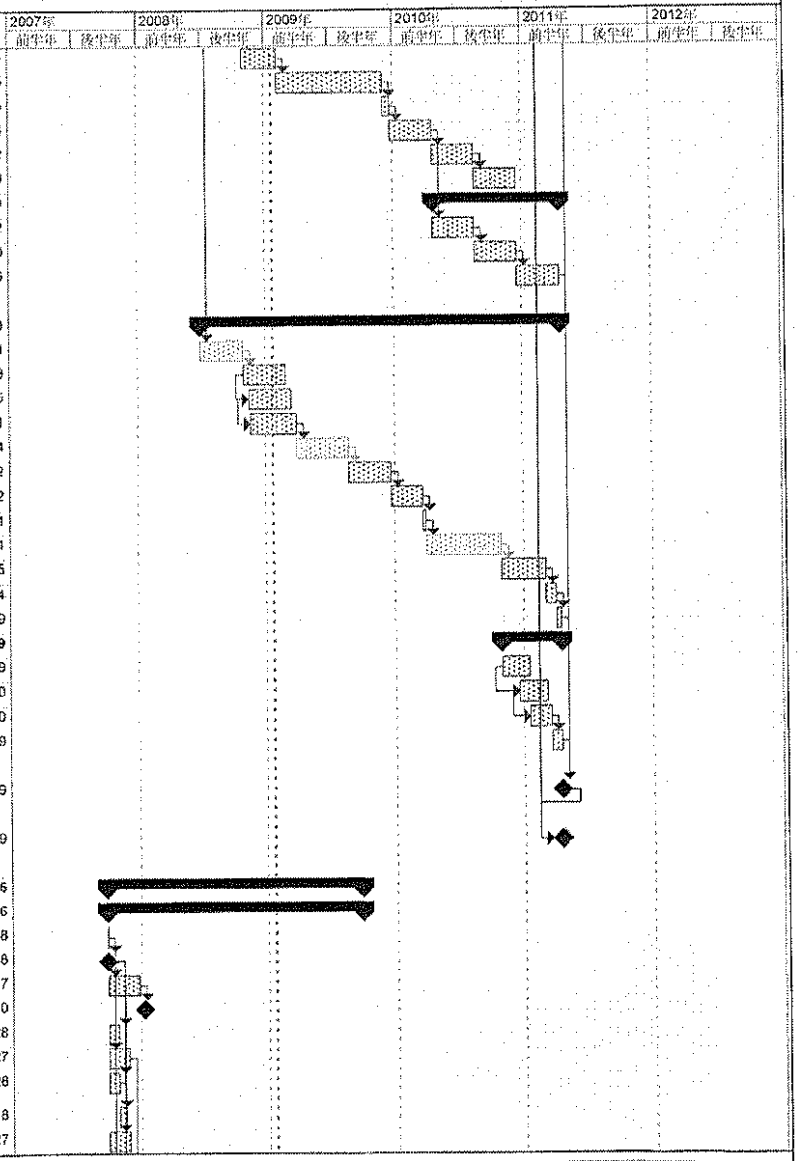
Project: Master Programme (REV.7)
Data Date: Jan 2009
Consultant: MCAL

Task | Task Progress | Critical Task | Critical Task Progress | Milestone | Summary | Rolled Up Task | Rolled Up Critical Task | Rolled Up Milestone | Rolled Up Progress | Split | External Tasks | Project Summary

Drainage Services Department

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

識別號	Task Name	工期	最早開始時間	最早完成時間	開始時間	完成時間
855	Cut Rock Slope	100 days	2008/11/1	2009/2/8	2008/11/1	2009/2/8
856	Pre-bored H-Pile (76 Nos)	300 days	2009/2/9	2009/12/5	2009/2/9	2009/12/5
857	Loading test for piles	20 days	2009/12/6	2009/12/25	2009/12/6	2009/12/25
858	Excavation	120 days	2009/12/26	2010/4/24	2009/12/26	2010/4/24
859	Base Slab	120 days	2010/4/25	2010/8/22	2010/4/25	2010/8/22
860	Wall Stem	120 days	2010/8/23	2010/12/20	2010/8/23	2010/12/20
861	**Construction of Retaining Wall (TR4)**	**360 days**	**2010/4/25**	**2011/4/19**	**2010/4/25**	**2011/4/19**
862	Excavation	120 days	2010/4/25	2010/8/22	2010/4/25	2010/8/22
863	Base Slab	120 days	2010/8/23	2010/12/20	2010/8/23	2010/12/20
864	Wall Stem	120 days	2010/12/21	2011/4/19	2010/12/21	2011/4/19
865						
866	**From CH380 to CH530**	**1025 days**	**2008/6/29**	**2011/4/19**	**2008/6/29**	**2011/4/19**
867	Wet Season (April to Oct 2009)	125 days	2008/6/29	2008/10/31	2008/6/29	2008/10/31
868	Excavation	120 days	2008/11/1	2009/2/28	2008/11/1	2009/2/28
869	Rockfill & Blinding	120 days	2008/11/16	2009/3/15	2008/11/16	2009/3/15
870	Base Slab Structure	131 days	2008/11/21	2009/3/31	2008/11/21	2009/3/31
871	Wet Season (April to Oct 2010)	146 days	2009/4/1	2009/8/24	2009/4/1	2009/8/24
872	Wall Structure	120 days	2009/8/25	2009/12/22	2009/8/25	2009/12/22
873	Gabion Wall	90 days	2009/12/23	2010/3/22	2009/12/23	2010/3/22
874	Install Ducts/Fencing/Railings/Drainage	9 days	2010/3/23	2010/3/31	2010/3/23	2010/3/31
875	Wet Season	214 days	2010/4/1	2010/10/31	2010/4/1	2010/10/31
876	Footbridge (TB6 & TB7)	125 days	2010/11/1	2011/3/5	2010/11/1	2011/3/5
877	Dwarf Wall	30 days	2011/3/6	2011/4/4	2011/3/6	2011/4/4
878	Demolition of Existing Footbridge	15 days	2011/4/5	2011/4/19	2011/4/5	2011/4/19
879	**Footbridge, Platform and Cut/Fill Slope**	**170 days**	**2010/11/1**	**2011/4/19**	**2010/11/1**	**2011/4/19**
880	Platform & Cut/Fill Slope & Maintenance Stairway	80 days	2010/11/1	2011/1/19	2010/11/1	2011/1/19
881	Footpaths	80 days	2010/12/21	2011/3/10	2010/12/21	2011/3/10
882	Box Culverts	60 days	2011/1/20	2011/3/20	2011/1/20	2011/3/20
883	Construct Cascade	30 days	2011/3/21	2011/4/19	2011/3/21	2011/4/19
884						
885	Completion of Area N	0 days	2011/4/19	2011/4/19	2011/4/19	2011/4/19
886						
887	Completion of Work at Section 3	0 days	2011/4/19	2011/4/19	2011/4/19	2011/4/19
888						
889	**Section 4 - Box Culvert at Ping Long**	**730 days**	**2007/9/28**	**2009/9/26**	**2007/9/28**	**2009/9/26**
890	**Section 4 - Box Culvert (Area A)**	**730 days**	**2007/9/28**	**2009/9/26**	**2007/9/28**	**2009/9/26**
891	Commencement of Works	1 day	2007/9/28	2007/9/28	2007/9/28	2007/9/28
892	Possession to Portion of the Site (Area A)	0 days	2007/9/28	2007/9/28	2007/9/28	2007/9/28
893	Material Submission	90 days	2007/9/29	2007/12/27	2007/9/29	2007/12/27
894	Material Submission Approval	0 days	2008/1/10	2008/1/10	2008/1/10	2008/1/10
895	Initial Survey	30 days	2007/9/29	2007/10/28	2007/9/29	2007/10/28
896	Application of Excavation Permit	60 days	2007/9/29	2007/11/27	2007/9/29	2007/11/27
897	Preparation and Submission of TTA on Lam Kam Road to RMO and TD	30 days	2007/9/29	2007/10/28	2007/9/29	2007/10/28
898	Approval of TTA	21 days	2007/10/29	2007/11/18	2007/10/29	2007/11/18
899	Site Clearance	60 days	2007/9/29	2007/11/27	2007/9/29	2007/11/27



Project: Master Programme (REV.7)
Data Date: Jan 2009
Consultant: MCAL

Task | Task Progress | Critical Task | Critical Task Progress | Milestone | Summary | Rolled Up Task | Rolled Up Critical Task | Rolled Up Milestone | Rolled Up Progress | Split | External Tasks | Project Summary

Appendix J: Noise complaint report and log on March 23rd 2009

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-081118(ICC)
ICC Case Ref. No.: 1-174345035
Sheet: 1 of 2

RECIPIENT

Name: Chiu Hing Construction & Transportation Co., Ltd,
Details: Complaint was received by the 1823 Call Centre of the Government on 23rd March 2009 and referred by DSD on 25th March 2009 that a resident complained against excessive noise generated by construction activities in the project site at Upper Tai Po River (UTPR), nearby Sha Po Chai Village.

Received Date: 23rd March 2009 Received Time: _____

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: 23rd March 2009
Location: A complaint was recorded for noise pollution generated from the work site at Upper Tai Po River, which affected the complainant living nearby.

INVESTIGATION RESULTS & MITIGATION MEASURES

1. A complaint on 23rd March 2009 was referred by DSD on 25th March 2009 was recorded regarding noise concern generated by river improvement works at UTPR. Environmental Team (ET) was verbally informed during the regular site inspection on the same day; and immediate site investigation was carried out in the concerned area as per the EM&A manual section 8.3. Findings from the investigation showed that set up of the noise barriers were defective and contractor was seriously reminded to take corrective actions as soon as possible (Fig.1).

2. ET received a formal written notice from the Contractor about the complaint on 26th March 2009.

3. In accordance with the instruction in EM&A manual section 5.5, the complaint also triggered the action level of construction noise. ET followed the guidance of Event/ Action plan and proposed additional noise monitoring at the complainant's premise that was identified as one of the designated monitoring location (UTP7).

4. ET arranged one regular monitoring two additional noise monitoring on site on 27th March 2009 in the concerned area. The monitoring results conducted at the location UTP7 and time period of the measurements were summarized as follows:
   - Time period: 10:55 to 11:25, $L_{eq(30min)}$: 60.2dB(A) (Regular Monitoring)
   - Time period: 14:25 to 14:55, $L_{eq(30min)}$: 55.4dB(A) (Additional Monitoring)
   - Time period: 16:55 to 17:25, $L_{eq(30min)}$: 54.9dB(A) (Additional Monitoring)

5. During investigation and additional monitoring, noisy activities in the project site mainly consisted of boulder breaking and excavation by heavy plants at approximately ch.210 of site. However the above activities were not being carried out frequently hence the measured noise level were low.

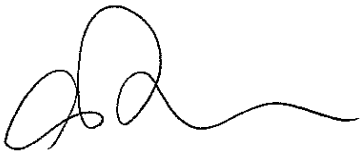
6. Regular noise monitoring was carried out on 31st March 2009 and noise level ($L_{eq\ 30min}$) measured at same location UTP7 was 61.2dB(A) therefore no further exceedance was found.

7. On 1st April 2009, ET conducted a second site investigation on the concerned area. Findings of the investigation showed that noisy construction activities such as boulder breaking have been sited away from the concerned area (ch.180 to 230). Temporary noise barriers have been being erected as to avoid noise nuisance to the nearby sensitive receivers (Fig.7.1 – 7.3).

8. ET has reminded the contractor to be cautious on noise emission due to their site activities, and to minimize the dust generated by works as far as practicable.

RECOMMENDATIONS

1. Contractor was reminded to ensure the installed 2m high temporary noise barriers were met with the requirements stated in EP (EP-223/2005/A) condition 2.9 and Figure 3, as to provide well protection to the sensitive receivers nearby.
2. Contractor should always check the condition of their temporary noise barriers provided along the site, if any damages or deficiencies were found, immediate actions should be taken for rectification.
3. Contractor should consider of providing mitigation measures such as movable barriers, acoustic mats for the noisy construction activities.
4. Noisy equipment and activities shall be sited by the contractor as far from close proximity sensitive receivers as is practical.
5. Noisy activities should be scheduled to minimize exposure of nearby sensitive receivers to high levels of construction noise (E.g.: noisy activities can be scheduled for midday).
6. Construction activities should be planned so that parallel operation of several sets of equipment can be avoided thus noise generation can be minimized.

Signed: 

Date: 20-04-2009

Fig.1 – Some of the sections without erection of noise barriers (photo taken on 25th March)

Fig.7.1 – Temporary noise barriers have been erected for noise protection (photo taken on 1st April)

Fig.7.2 – Noise barriers have been relocated for protection to nearby sensitive receivers (Photo taken on 1st April)

Fig.7.3 - Noise barriers have been relocated for protection to nearby sensitive receivers (photo taken on 1st April)

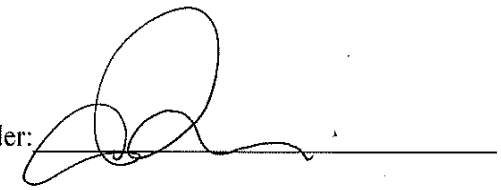
COMPLAINT / CONCERN LOG

Ref: DC0706-CL-081118(ICC)

Log Ref	Event Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/Mitigation Action	File Closed
Our REF: DC0706-CL-081118(ICC) ICC Case Ref. No.: 1-174345035	23rd March 2009, A complaint was recorded for noise pollution generated from the work site at Upper Tai Po River, nearby Sha Po Chai Village	Complaint was received by the 1823 Call Centre of the Government on 23rd March 2009 and referred by DSD on 25th March 2009 that a resident complained against excessive noise generated by construction activities in the project site at Upper Tai Po River (UTPR)	A complaint was recorded for noise pollution generated from the work site at Upper Tai Po River, which affected the complainant living nearby.	1. A complaint referred by DSD on 25th March 2009 was recorded regarding noise concern generated by river improvement works at UTPR. Environmental Team (ET) was verbally informed during the regular site inspection on the same day; and immediate site investigation was carried out in the concerned area as per the EM&A manual section 8.3. Findings from the investigation showed that set up of the noise barriers were defective and contractor was seriously reminded to take corrective actions as soon as possible (Fig.1). 2. ET received a formal written notice from the Contractor about the complaint on 26th March 2009. 3. In accordance with the instruction in EM&A manual section 5.5, the complaint also triggered the action level of construction noise. ET followed the guidance of Event/ Action plan and proposed additional noise monitoring at the complainant's premise that was identified as one of the designated monitoring location (UTP7). 4. ET arranged one regular monitoring two additional noise monitoring on site on 27th March 2009 in the concerned area. The monitoring results conducted at the location UTP7 and time period of the measurements were summarized as follows:	Yes

				- Time period: 10:55 to 11:25, $L_{eq(30min)}$: 60.2dB(A) (Regular Monitoring) - Time period: 14:25 to 14:55, $L_{eq(30min)}$: 55.4dB(A) (Additional Monitoring) - Time period: 16:55 to 17:25, $L_{eq(30min)}$: 54.9dB(A) (Additional Monitoring) 5. During investigation and additional monitoring, noisy activities in the project site mainly consisted of boulder breaking and excavation by heavy plants at approximately ch.210 of site. However the above activities were not being carried out frequently hence the measured noise level were low. 6. Regular noise monitoring was carried out on 31st March 2009 and noise level ($L_{eq\ 30min}$) measured at same location UTP7 was 61.2dB(A) therefore no further exceedance was found. 7. On 1st April 2009, ET conducted a second site investigation on the concerned area. Findings of the investigation showed that noisy construction activities such as boulder breaking has been sited away from the concerned area (ch.180 to 230). Temporary noise barriers have been being erected as protection to the nearby sensitive receivers (Fig.7). 8. ET has reminded the contractor to be cautious on noise emission due to their site activities, and to minimize the dust generated by works as far as practicable.	

				9. Contractor was reminded to ensure the installed 2m high temporary noise barriers were met with the requirements stated in EP (EP-223/2005/A) condition 2.9 and Figure 3, as to provide well protection to the sensitive receivers nearby. 10. Contractor should always check the condition of their temporary noise barriers provided along the site, if any damages or deficiencies were found, immediate actions should be taken for rectification. 11. Contractor should consider of providing mitigation measures such as movable barriers, acoustic mats for the noisy construction activities. 12. Noisy equipment and activities shall be sited by the contractor as far from close proximity sensitive receivers as is practical. 13. Noisy activities should be scheduled to minimize exposure of nearby sensitive receivers to high levels of construction noise (E.g.: noisy activities can be scheduled for midday). 14. Construction activities should be planned so that parallel operation of several sets of equipment can be avoided thus noise generation can be minimized.	

Filed by Environmental Team Leader: 

Date: 20th April 2009