



# Expansion of Shek Wu Hui Sewage Treatment Works

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First Quarterly EM&A Report  
(Dec 05 – Feb 06)

March 2006

Report no: 01284R0091

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**Report no:** EA01284R0091

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**Certified by Environmental Team Leader**  
Sharifah Or



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# 1 Executive Summary

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The expansion of Shek Wu Hui Sewage Treatment Works (SWHSTW) aims to increase the treatment capacity of the existing SWHSTW to cope with the increasing wastewater flows and loads as a result of the population growth in the catchment area of Fanling/Sheung Shui and the committed extension of sewerage system to unsewered areas. It is considered as a project constituting a material change to an exempted designated project under Schedule 2 of EIAO. Thus, the procedures under the EIAO have been followed and an Environmental Monitoring and Audit (EM&A) Programme has to be carried out. The present report documents the outcomes of the EM&A Works undertaken between December 2005 and February 2006.

## Breaches of Action and Limit Levels

### *Noise*

No non-compliance of action/limit level was recorded at all monitoring stations for noise during the reporting period.

### *1-hr TSP*

No non-compliance of action/limit level was recorded at all monitoring stations for 1-hr TSP during the reporting period.

### *24-hr TSP*

No non-compliance of action/limit level was recorded at all monitoring stations for 24-hr TSP during the reporting period.

## Complaints Log

During this reporting period, no environmental complaint was received.

## Notifications of Any Summons and Successful Prosecutions

During the site preparation stage, EPD issued a yellow ticket to the Contractor due to the construction dust impact on 2 November 2005. Low humidity is considered as the main reason for the construction dust impact. Mitigation measures such as increasing the frequency of water spraying and provision of fencing along the site boundary were implemented on 3 November 2005. EPD inspected the site on 4 November 2005 and found the condition acceptable.

During the reporting period, no notification of summons or successful prosecution was recorded.

## Reporting Changes

There was no reporting change during the reporting period.

## Future Key Issues

The construction activities for the coming three months will include the construction of permanent H-piles, the setup of loading tests for the piles, cable / utilities diversion, the relocation of FeCl<sub>3</sub> tank, sheet piling work, sub-structure and superstructure construction and excavation works.

## 2 Introduction

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### 2.1 Basic Information

Shek Wu Hui Sewage Treatment Works (SWHSTW) provides treatment to the wastewater generated from Fanling/Sheung Shui areas before discharge it into Mai Po Inner Deep Bay Ramsar Site through River Indus and Shenzhen River, thus helps protecting the water quality of River Indus, Shenzhen River and Mai Po Inner Deep Bay Ramsar Site. The expansion of SWHSTW aims to expand the treatment capacity of the existing SWHSTW to cope with the increasing wastewater flows and loads as a result of the population growth in the catchment area of Fanling/Sheung Shui and the committed extension of sewerage system to unsewered areas.

In accordance with Section 9(2)(g) of the Environmental Impact Assessment Ordinance (EIAO), the SWHSTW is an exempted designated project as the existing SWHSTW has been in operation before the EIAO came into effect on 1 April 1998. However, since the proposed works involve physical expansion and alternation to the existing SWHSTW (hereafter called “the Project”) and may cause adverse environmental impacts if mitigation measures are not in place, it shall be considered as a project constituting a material change to an exempted designated project under Schedule 2 of EIAO. Hence the procedures under the EIAO have been followed. A Project Profile (PP) for direct application of the EP (Application No.DIR-121/2005) was approved by Environmental Protection Department (EPD) in May 2005 and an environmental permit (EP-218/2005) was obtained prior to the commencement of the expansion works.

Drainage Services Department (DSD) awarded the civil contract of the expansion of SWHSTW to Maeda Corporation (Maeda) in September 2005. Maeda appointed Hyder Consulting Limited (HCL) as the Contractor’s Environmental Team (ET) during the construction period. CH2M-IDC Hong Kong Limited is the independent environmental checker (IEC). The construction contract commenced in September 2005 and the total construction period is approximately 36 months. The notified commencement date of work to the Director of EPD is 14 December 2005.

### 2.2 Management Structure and Project Organisation

The Engineer (DSD) is responsible for overseeing the construction works and ensuring that they are undertaken by the Contractor (Maeda) in accordance with the specification and contractual requirements. The Contractor shall report to the Engineer. The ET is employed by the Contractor and is responsible for conducting the EM&A programme. The IEC shall advise the Engineer on the environmental issues related to the Project.

The key personnel contact names and telephone number are summarised in Table 2-1. The project organisation is shown in Appendix 1.

Party	Position	Name	Telephone number
Project Proponent – DSD	Project Manager	Raymond Lee	2594 7457
	Engineer's Representative	Tim Tsoi	2594 7460
Contractor – Maeda	Site Agent	George Cheung	9268 1918
ET - Hyder	ET Leader	Sharifah Or	2911 2730
IEC – CH2M-IDC	IEC	David Yeung	2872 2934

**Table 2-1 Key Personnel Contact Names and Telephone Number for the Project**

## 2.3 Construction Programme

Construction programme of the Project is attached in Appendix 2.

## 2.4 Works Undertaken during the Reporting Quarter

Works undertaken during the reporting period included:

- fencing erection;
- ground investigation work;
- setting up of engineer's site office;
- construction of preliminary pile;
- construction of permanent pile;
- cable / utilities division;
- set up of loading tests for the piles; and
- excavation work.

## 2.5 Status of Environmental Permit/ Licence

The status of the Environmental Permit/Licence for the Project is shown below.

Permit/Licence	Application Date	Date of issue	Ref. No.	Valid Until
Environmental Permit	21 May 2005	16 June 2005	EP-218/2005	N/A
Notification was made to EPD pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation (Form NA was submitted)	22 Sep 2005	-	-	-
Registration as a chemical waste producer	26 Sep 2005	4 Nov 2005	WPN: 5213-624-M2446-06	-
Effluent Discharge Licence	11 Nov 2005	20 Dec 2005	Licence No.:	19 Dec 2010

Permit/Licence	Application Date	Date of issue	Ref. No.	Valid Until
			W5/11287/1	
Application for Exemption Account for Disposal of Construction Waste	12 Dec 2005	Approved by EPD on 31 Dec 05	Application No.: RN/00134	25 Sep 2008
CNP (For 2 Generators operating between 0700 and 2300 on General Holiday and between 1900 and 2300 on Any Day not being a General Holiday at Site Office)	25 Nov 2005	12 Dec 2005	GW-RN0597-05	Cancelled with effect on 13 Feb 2006

**Table 2-2 Status of Permit/Licence for the Project**

## 3 Environmental Status

### 3.1 Project and Work Area, Environmental Sensitive Receivers and Monitoring Locations

The site is located at the existing Shek Wu Hui Sewage Treatment Plant, next to Chuk Wan Street. It has been subdivided into different Works Areas/Portions as illustrated in Appendix 3. Project area, environmental sensitive receivers and monitoring locations are shown in Appendix 4.

## 4 Brief Summary of EM&A Requirements

### 4.1 Monitoring Parameters

#### 4.1.1 Air Quality

During the construction phase impact monitoring, 1-hour and 24-hour Total Suspended Particulates (TSP) levels should be measured at the selected air monitoring locations in accordance with the EM&A Manual. These two parameters are aimed to indicate the impacts of construction dust on air quality.

#### 4.1.2 Noise

The construction noise level should be measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ) for 30 minutes.  $L_{eq(30\text{ min})}$  is used as the monitoring parameter for the period between 0700 and 1900 hours on normal weekdays. For all other time periods, three consecutive  $L_{eq(5\text{ min})}$  are employed for comparison with the Noise Control Ordinance (NCO) criteria.



Other noise parameters such as  $L_{10}$  and  $L_{90}$  should also be obtained for reference.

## 4.2 Action and Limit Levels

### 4.2.1 Air Quality

The baseline monitoring results documented in the Baseline Monitoring Report for the Project (our report ref.: EA01284R0012) form the basis for derivation of the Action and Limit Levels for air quality impact monitoring. Appendix 5 shows the derived Action and Limit Levels for the Project. If the air quality criteria are exceeded due to the Project, the Event/Action Plan summarised in Table 4-3 should be triggered immediately.

### 4.2.2 Noise

The Action and Limit Levels for construction noise are defined in Appendix 5. If valid non-compliance of the criteria occurs, actions in accordance with the Event and Action Plan in Table 4-4 should be implemented. If construction works are undertaken during the restricted hours, a construction noise permit under NCO shall be obtained by the Contractor.

## 4.3 Event and Action Plans

The Event and Action Plans for air quality and noise monitoring are shown in Tables 4-3 and 4-4, respectively.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
<b>ACTION LEVEL</b>				
Exceedance for one sample	<ul style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC and ER;</li> <li>Repeat measurement to confirm finding.</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method.</li> </ul>	<ul style="list-style-type: none"> <li>Notify Contractor.</li> </ul>	<ul style="list-style-type: none"> <li>Rectify any unacceptable practice;</li> <li>Amend working methods if appropriate.</li> </ul>
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> <li>Identify source, investigate the cause of exceedance and propose remedial measures ;</li> <li>Inform IEC and ER;</li> <li>Advise ER on the effectiveness of the proposed remedial measures;</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ET on the</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Submit proposals for remedial to ER within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ul>

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	<ul style="list-style-type: none"> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Discuss with IEC and Contractor on remedial actions required;</li> <li>If exceedance continues, arrange meeting with IEC and ER;</li> <li>If exceedance stops, cease additional monitoring.</li> </ul>	<p>effectiveness of the proposed remedial measures;</p> <ul style="list-style-type: none"> <li>Supervise Implementation of remedial measures.</li> </ul>		
<b>LIMIT LEVEL</b>				
Exceedance for one sample	<ul style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC, ER, Contractor and EPD;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> <li>If exceedance stops, cease additional monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise ER on the effectiveness of the proposed remedial measures;</li> <li>Supervise implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ul>
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> <li>Notify IEC, ER, Contractor and EPD;</li> <li>Identify source, investigate the cause of exceedance and propose remedial measures;</li> <li>Repeat measurement to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be</li> </ul>	<ul style="list-style-type: none"> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>Ensure remedial measures properly implemented;</li> <li>If exceedance continues, consider what portion of the work is responsible</li> </ul>	<ul style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Resubmit proposals if problem still not under control;</li> <li>Stop the relevant portion of works as determined by ER until the exceedance is abated.</li> </ul>

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	<ul style="list-style-type: none"> <li>implemented;</li> <li>Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ul>		<ul style="list-style-type: none"> <li>and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ul>	

**Table 4-3 Event/ Action Plan for Air Quality Monitoring**

EVENT	Action			
	ET	IEC	ER	CONTRACTOR
Action Level	<ul style="list-style-type: none"> <li>Notify IEC and ER;</li> <li>Carry out investigation;</li> <li>Report the results of investigation to the IEC, ER and Contractors;</li> <li>Discuss with the Contractor and formulate remedial measures;</li> <li>Increase monitoring frequency to check mitigation effectiveness.</li> </ul>	<ul style="list-style-type: none"> <li>Review the analysed results submitted by the ET;</li> <li>Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>Supervise the implementation of remedial measure.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>Ensure remedial measures are properly implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Submit noise mitigation proposal to IEC;</li> <li>Implement noise mitigation proposals.</li> </ul>
Limit Level	<ul style="list-style-type: none"> <li>Identify source;</li> <li>Inform IEC, ER, EPD and Contractor;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to check mitigation effectiveness;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>Inform IEC, ER and EPD the causes and actions taken for the exceedances;</li> </ul>	<ul style="list-style-type: none"> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>Ensure remedial measures properly implemented;</li> <li>If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is</li> </ul>	<ul style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Resubmit proposals if problem still not under control;</li> <li>Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ul>

EVENT	Action			
	ET	IEC	ER	CONTRACTOR
	<ul style="list-style-type: none"> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ul>		abated.	

**Table 4-4** Event/ Action Plan for Noise Monitoring

## 4.4 Environmental Mitigation Measures and Requirements

The recommended measures for mitigating air quality, water quality, noise, waste and all other possible environmental impacts due to the construction works have been stated clearly in the EM&A Manual. The details of the measures implemented by the Contractor are shown in Appendix 6.

## 5 Implementation Status of Environmental Protection and Pollution Control/ Mitigation Measures

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The status of the mitigation measures implemented by the Contractor is listed in Appendix 6.

## 6 Monitoring Results

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### 6.1 Graphical Plots of Monitoring Parameters

Graphical plots of the monitoring results are summarized in Appendix 7.

### 6.2 Factors Which Might Affect the Monitoring Results

Dust from other sources such as roads with the movement of heavy vehicles in the vicinity of the monitoring stations would affect the air quality monitoring results.

## 7 Non-compliance, Complaints, Notifications of Summons and Successful Prosecutions

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### 7.1 Non-compliance of Action and Limit Levels

No non-compliance of Action or Limit Level was recorded for air quality and noise monitoring.

### 7.2 Complaints Received

In case of an environmental complaint received, all related parties should follow the complaints response procedures specified in the EM&A Manual.

During this reporting quarter, no environmental complaint was received. Cumulative number of environmental complaint is shown in Appendix 8.

### 7.3 Notifications of Summons and Successful Prosecutions

No notification of summons or successful prosecution was recorded during the reporting period. However, during the site preparation stage, EPD issued a yellow ticket to the Contractor due to the construction dust impact on 2 November 2005. Low humidity is considered the main reason for the construction dust impact. Mitigation measures such as increasing the frequency of water spraying and the erection of site hoarding along the site boundary were implemented on 3 November 2005. EPD inspected the site on 4 November 2005 and found the condition acceptable. The cumulative number of notifications of summons and successful prosecutions are shown in Appendix 8.

### 7.4 Review of the Reasons and Implications of Non-compliance, Complaints, Summons and Prosecutions

#### 7.4.1 Non-compliance of Acton/Limit Level

No non-compliance was recorded during the reporting period.

#### 7.4.2 Complaints, Summons and Prosecutions

No complaints, summons and prosecutions were recorded during the reporting period.

## 7.5 Site Inspections

Weekly site inspections have been carried out during the reporting period. The findings of the site inspections and appropriate mitigation measures were recorded in the site inspection checklists. The observations raised during the site inspections, corresponding recommendations and rectification status are summarised in Table 7-5.

Inspection Date	Deficiencies	Recommendation	Status	Note / Reminder
14-Dec-05	<ol style="list-style-type: none"> <li>1. Cement works to seal the bottom of hoarding was being undertaken during the site inspection. Some cement was deposited on public area.</li> <li>2. Bare ground was dry.</li> <li>3. Concrete waste was found near the trees.</li> <li>4. Muddy trails on DSD access road were identified.</li> </ol>	<ol style="list-style-type: none"> <li>1. It is reminded that any cement deposited on public area outside the hoarding should be avoided and cleaned up as necessary.</li> <li>2. Frequent water spraying is needed.</li> <li>3. The trees retained on site should be properly maintained and no construction material or waste should be placed under the trees.</li> <li>4. Wheel washing should be performed within the site to avoid bringing any dirt or mud outside the site.</li> </ol>	<ol style="list-style-type: none"> <li>1. The condition was rectified on 21 Dec 2005.</li> <li>2. The condition was rectified on 21 Dec 2005.</li> <li>3. The condition was rectified on 21 Dec 2005.</li> <li>4. The condition was rectified on 21 Dec 2005.</li> </ol>	<ol style="list-style-type: none"> <li>1. Stockpiles of waste were observed on site. As advised by the Contractor, waste could be removed on 16 Dec 05.</li> <li>2. Rubbish bins/ skips were not found. The provision of bins/ skips is needed in the future.</li> </ol>
21-Dec-05	<ol style="list-style-type: none"> <li>1. No observation.</li> </ol>	<ol style="list-style-type: none"> <li>1. N.A.</li> </ol>	<ol style="list-style-type: none"> <li>1. N.A.</li> </ol>	<ol style="list-style-type: none"> <li>1. Cement powder should be covered with impervious sheet when cement works were not undertaken.</li> <li>2. Surface channel should be maintained and inspected to avoid any blockage.</li> <li>3. Segregation of waste should be carried out. All workers should be reminded to perform this at all sites.</li> <li>4. Sedimentation tanks and wastewater treatment plants for piling works at Portion 2 were available on site. Soakaway and reuse of wastewater were adopted during the site inspection as the</li> </ol>

Inspection Date	Deficiencies	Recommendation	Status	Note / Reminder
				quantity of wastewater generated from piling was not much.
28-Dec-05	1. General refuse was accumulated in the surface channel at the site office area.	1. Prompt cleaning-up is needed.	1. The Contractor reported that the condition was rectified on 29 Dec 2005. The condition would be checked again in the next site inspection.	1. Chemical waste store should be available on site as soon as possible. 2. Rubbish bins and skips for segregation of waste should be provided on site.
4-Jan-06	1. It was observed that silty wheel wash water drained into the existing manhole.	1. Sandbags or bund should be prepared to block the silty water.	1. The manhole was sealed as observed on 11 Jan 06.	1. Sand bags should be put along the surface channels next to the works area to prevent washing away of sand into the channel. 2. A small pile was stored on site for drying prior to disposal. The Contractor was reminded to remove this pile as soon as possible after drying.
11-Jan-06	1. Oil drum without drip tray was observed at Portion 2.	1. The provision of drip tray was recommended	1. The oil drum was removed as observed on 18 Jan 06.	1. The Contractor was reminded to carry out water spraying more frequently during the dry season.
18-Jan-06	1. The gully opposite to Portion 3 was not properly sheltered.	1. The gully should be sheltered by sand bag to avoid silty water entering into the drainage system.	1. The gully opposite to Portion 3 was sheltered 21 January 2006.	1. In order to avoid accumulation of rainwater inside the refuse bin, the hole on the lid should be covered. 2. Condition of sandbags surrounding the manhole should be closely monitored. The Contractor was reminded to replace broken sandbags.
25-Jan-06	1. Broken sandbags were observed along the existing U-channel at Portion 2 to prevent sand and silt entering into the drains. Removal of broken sand bag is required.	1. It was recommended to provide proper protection to the existing U channel.	1. The Contractor reported that appropriate actions would be implemented to rectify the situation.	1. Piling works will commence soon. The Contractor was reminded to provide adequate wastewater treatment system.
3-Feb-06	1. Oil leakage from	1. Proper maintenance	1. The plant was checked	1. Equipment oil and

Inspection Date	Deficiencies	Recommendation	Status	Note / Reminder
	<p>drilling rig was observed on site.</p> <p>2. The cap of water barrier on site was missing.</p>	<p>works should be carried out.</p> <p>2. Provision of cap is required to avoid mosquito breeding.</p>	<p>and was filled before operation.</p> <p>2. The inlet of water barrier was sealed.</p>	<p>lubricant replacement should be performed in a bunded area only. After that, all oil drum and lubricant should be placed in a bunded storage area.</p>
6-Feb-06	<p>1. Broken gravel bags were found in the U channels close to manhole which is near the slaughter house.</p> <p>2. It was observed that there was oil stain next to the diesel cap of the air compressor.</p>	<p>1. The Contractor was recommended to remove the gravel in the U channels and replace the broken gravel bags with new one.</p> <p>2. The Contractor was recommended to remove the contaminated soil and provide a drip tray to prevent oil spillage.</p>	<p>1. The gravel bag in the U-channels was removed and the gravel bag along the U-channel was grouted by cement.</p> <p>2. The oil stain and contaminated soil were removed.</p>	<p>1. There was no wastewater discharge. However, the Contractor was recommended to provide adequate treatment facilities to cater the surface run-off during the wet season.</p> <p>2. No fugitive dust emission was observed during the site inspection. However, the Contractor was reminded to water the bare ground frequently during dry days.</p>
15-Feb-06	<p>1. No observation.</p>	<p>1. N.A.</p>	<p>1. N.A.</p>	<p>1. Unloading of cement bag was observed during the inspection. The Contractor was reminded to cover the cement bags after unloading.</p> <p>2. No proper enclosure was provided for cement mixing works. The Contractor was reminded to shelter the cement mixing machine by tarpaulin sheet completely. (Action was done immediately.)</p>
24-Feb-06	<p>1. Accumulated water was observed in drip tray at Portion 2.</p> <p>2. Wetsep and sedimentation tanks at Portion 2 were full of mud.</p>	<p>1. Removal of stagnant water or larvicide application should be conducted to prevent mosquito breeding.</p> <p>2. The Contractor was reminded to remove the mud more</p>	<p>1. Larvicide was applied to the water in drip tray properly.</p> <p>2. Mud and silt in sedimentation tank and Wetsep were removed.</p>	<p>1. Nil</p>



Inspection Date	Deficiencies	Recommendation	Status	Note / Reminder
		frequently.		

Table 7-5 Summaries of Site Inspections and Recommendations

## 8 Waste Management Status

According to the information provided by the Contractor, Table 8-5 shows waste materials were generated during the reporting period.

Type of Waste	Dec 05	Jan 06	Feb 06
Inert C&D material (m <sup>3</sup> )	299	19.5	104
General Refuse (m <sup>3</sup> )	78	19.5	32.5

Table 8-6 The Quantity of Waste Generation

Inert C&D materials were disposed of at Tuen Mun Area 38 public fill. General refuse was collected and disposed of at NENT Landfill. No chemical waste was produced during the reporting period. Trip ticket system was implemented and disposal records were in order on site. The Waste Management Plan was followed.

## 9 Comments, Recommendations and Conclusions

EM&A works have been undertaken between December 2005 and February 2006 for the Project based on the requirements set in the EM&A Manual.

All monitoring equipments have been calibrated and all monitoring protocols have been carried out properly according to the EM&A Manual.

No valid exceedance of Action/Limit Level was recorded during the reporting period.

No compliant, notification of summons or successful prosecution was recorded during the reporting period.

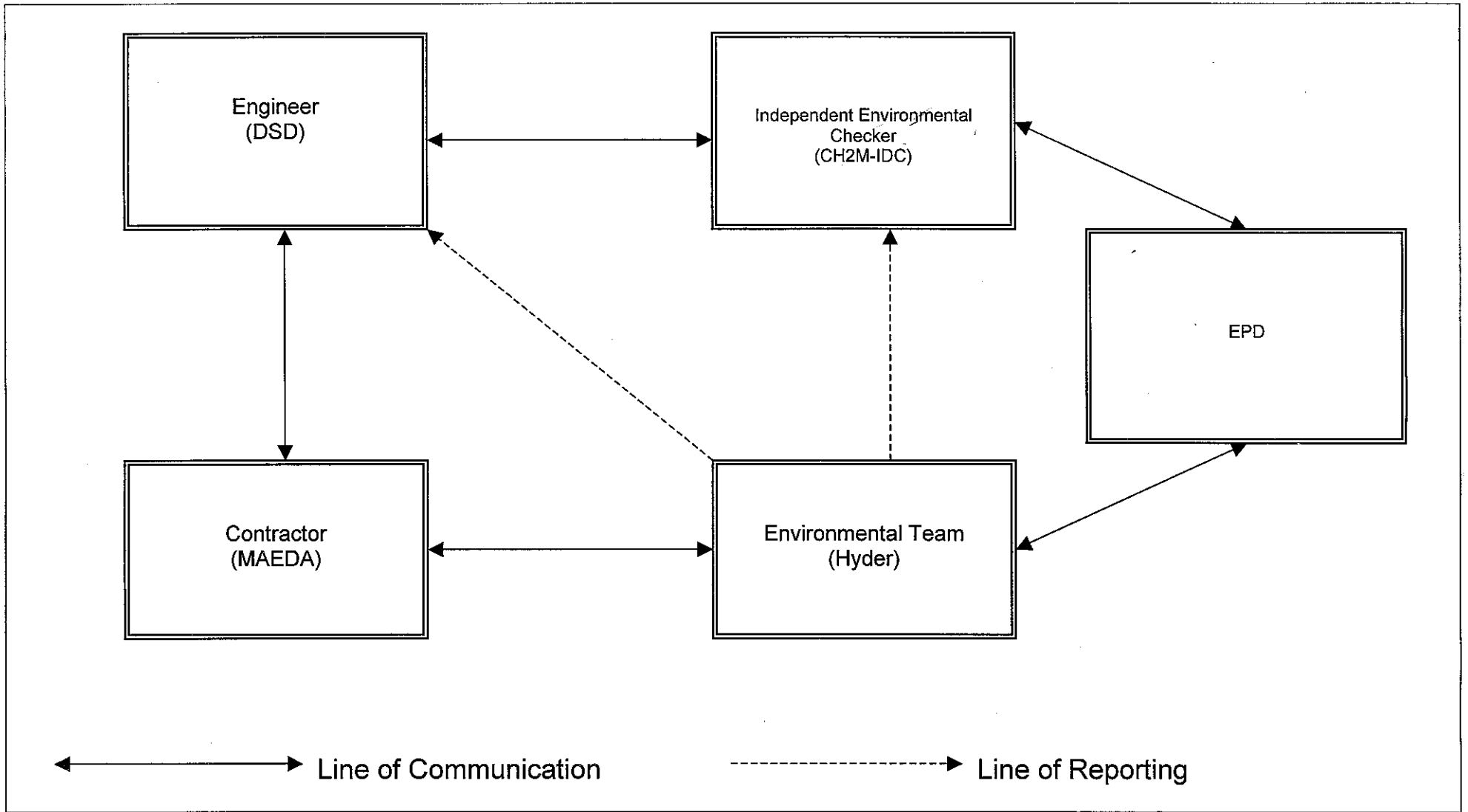
The overall EM&A programme is considered efficient during the reporting period and no material and technical changes are considered necessary.



# Appendix 1

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## Project Organization

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		Title Expansion of Shek Wu Hui Sewage Treatment Works – Project Organization	Date Dec 2005
			Figure N.A.
			Scale NTS

# Appendix 2

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Construction Programme

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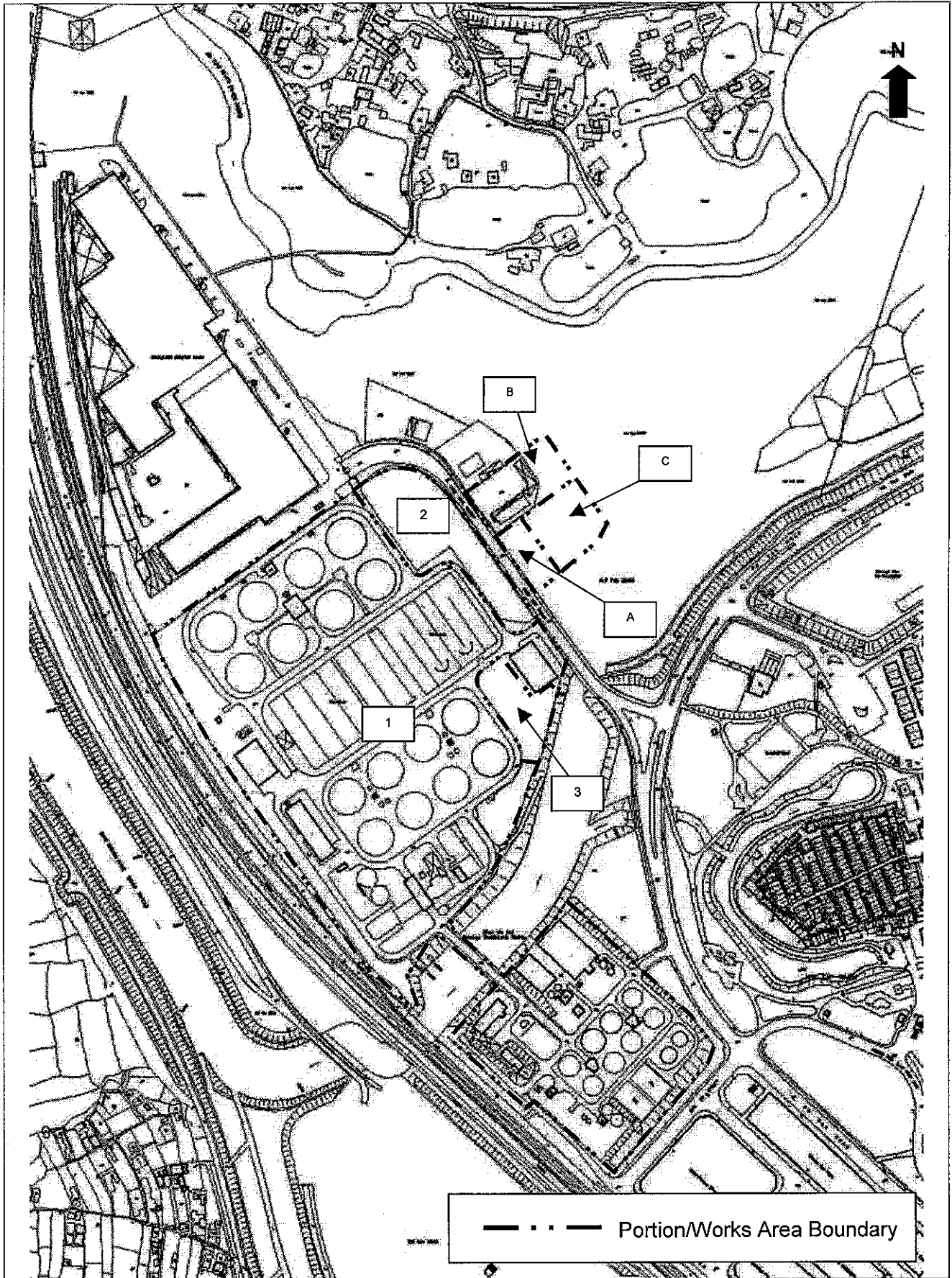


# Appendix 3



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Works Area

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--- · · --- Portion/Works Area Boundary

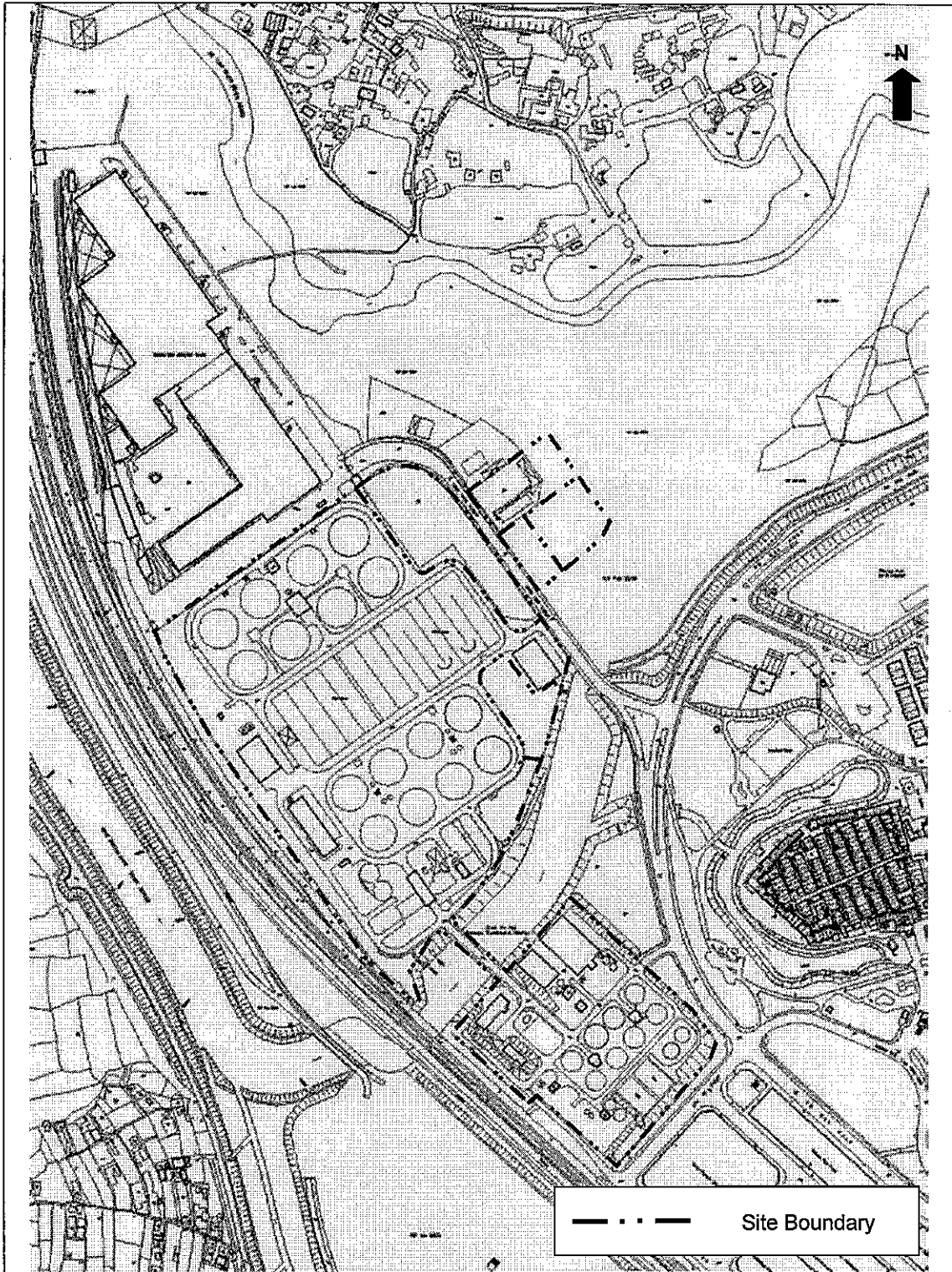
		<p>Title</p> <p>Expansion of Shek Wu Hui Sewage Treatment Works – Location of Portion/Works Area</p>	<p>Date</p> <p>Dec 2005</p>
			<p>Figure</p> <p>N.A.</p>
			<p>Scale</p> <p>NTS</p>

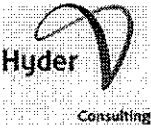
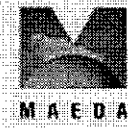
# Appendix 4

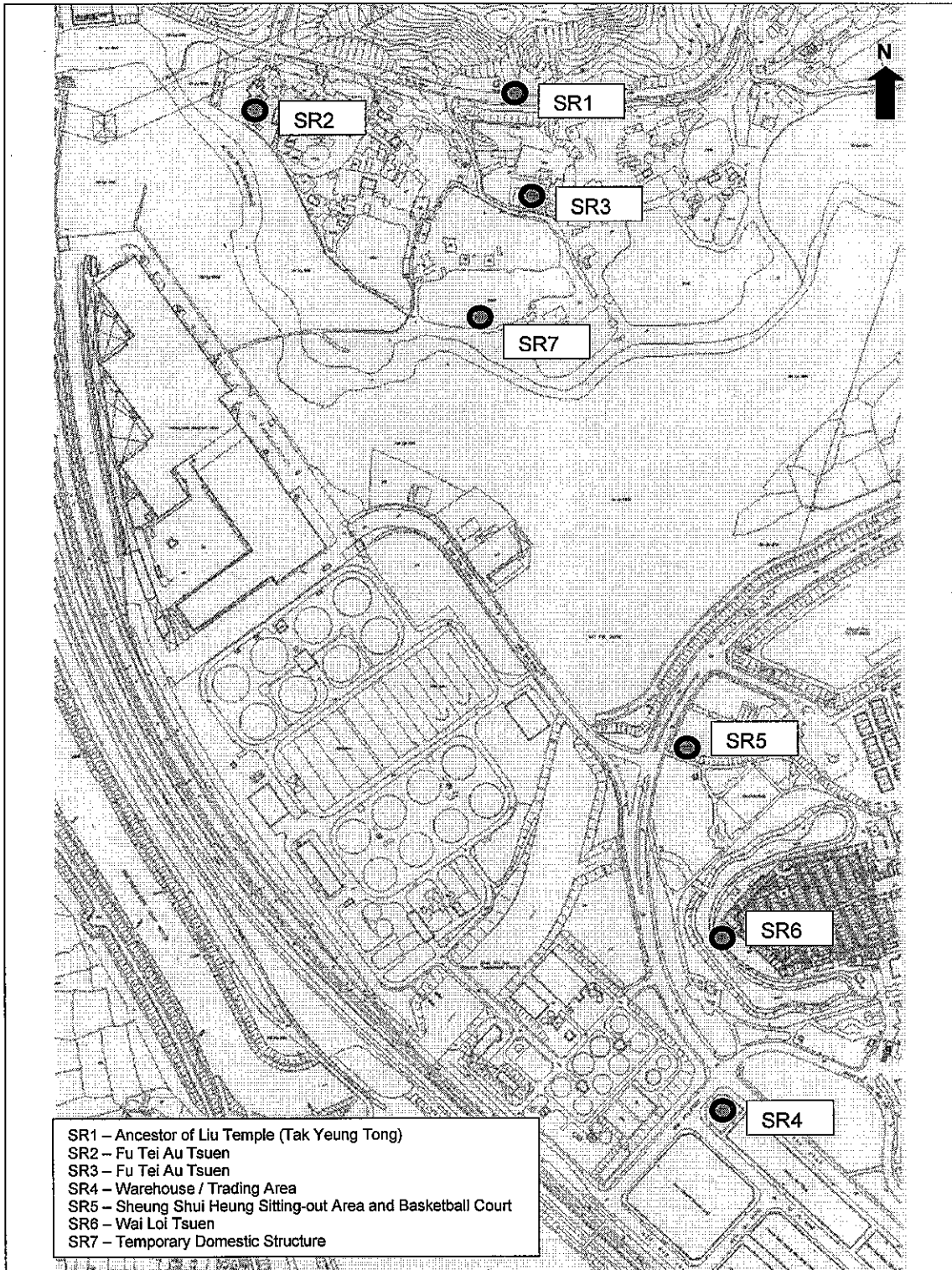
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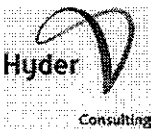

Project Area, Environmental Sensitive Receiver and  
Monitoring Location

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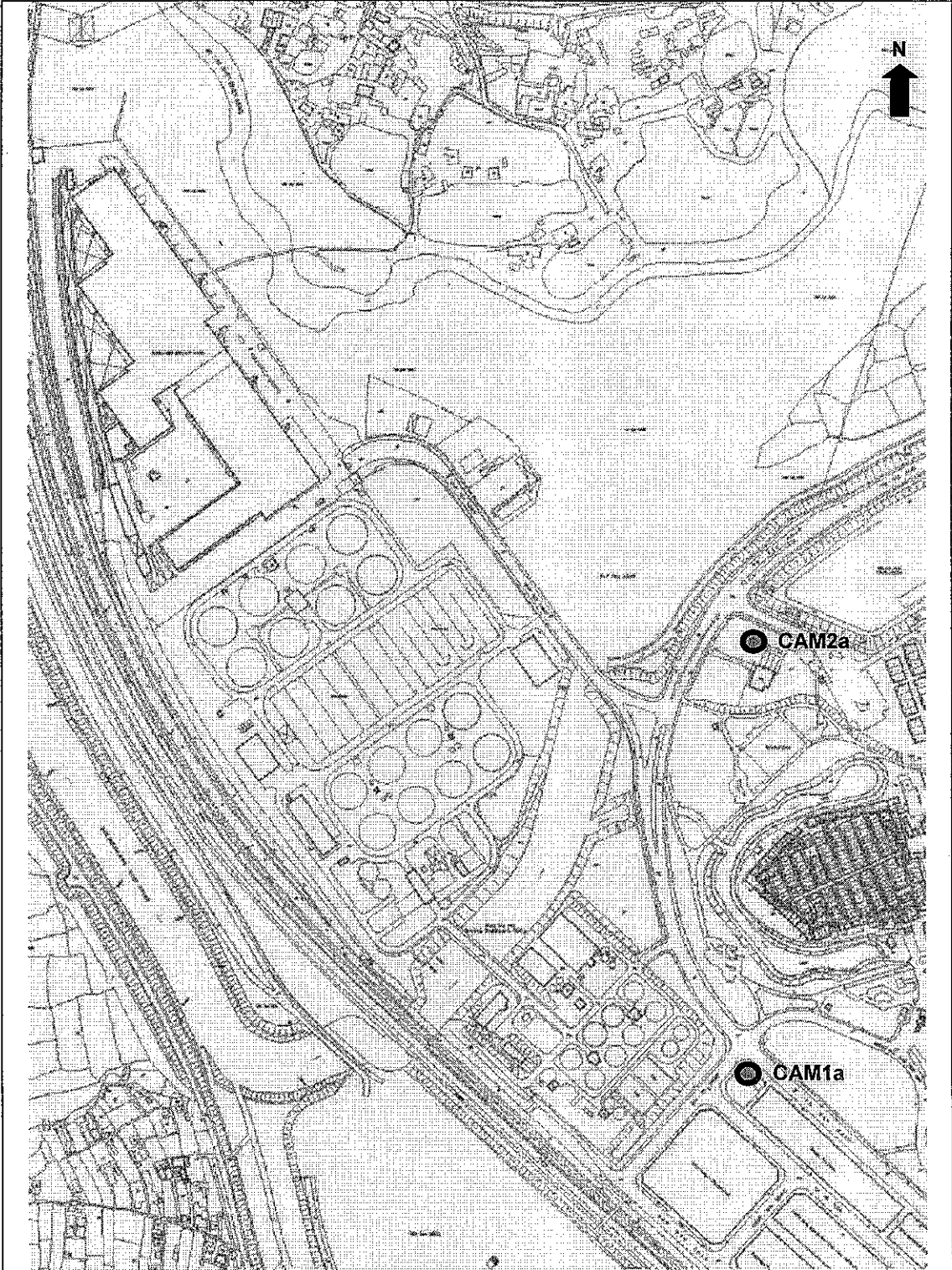


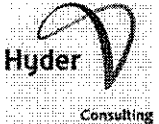

		<p>Title</p> <p><b>Expansion of Shek Wu Hui Sewage Treatment Works – Project Area</b></p>	Date	Dec 2005
			Figure	N.A.
			Scale	NTS

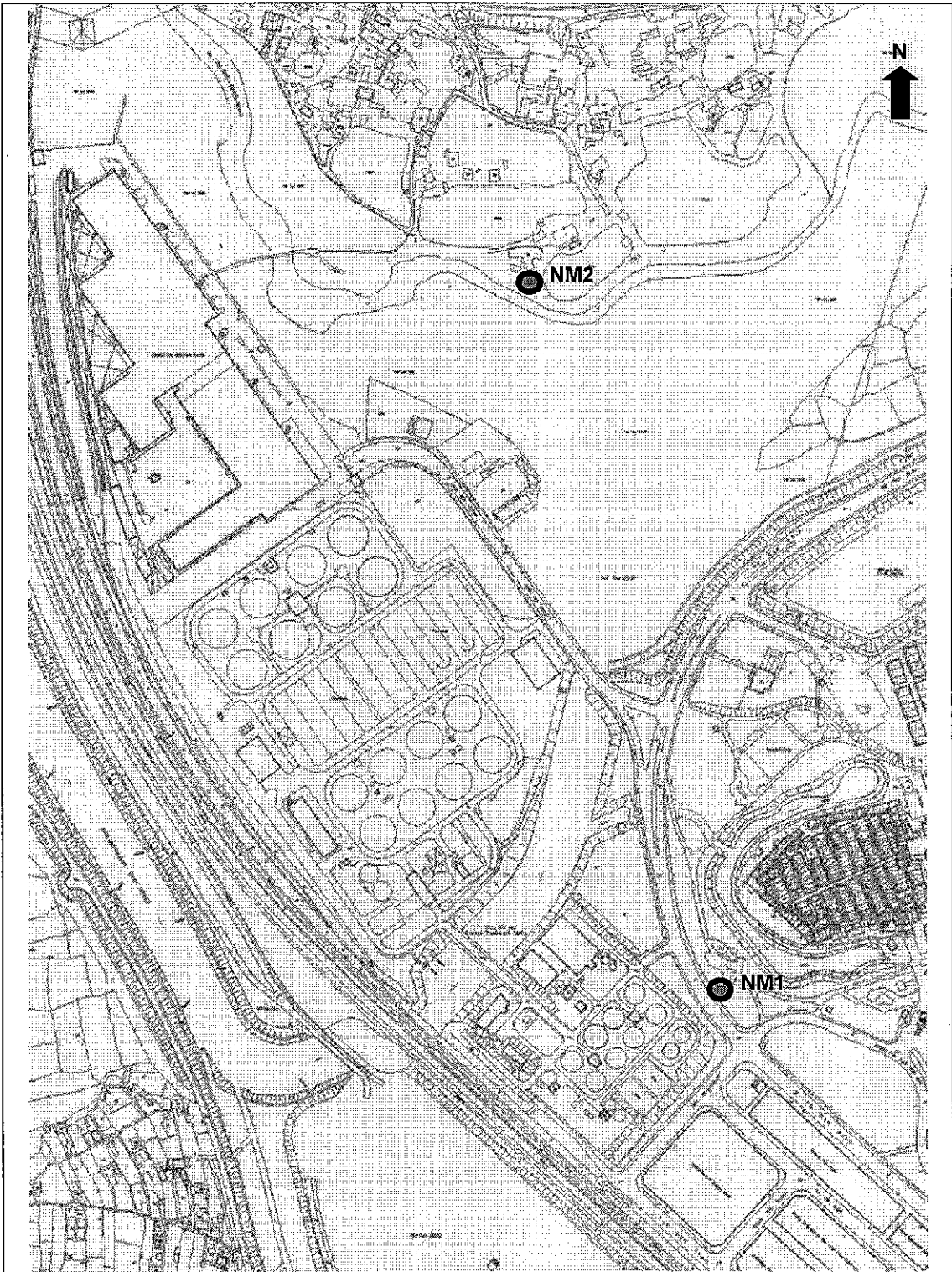


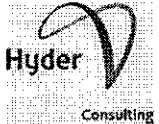

		Title <b>Expansion of Shek Wu Hui Sewage Treatment Works – Environmental Sensitive Receiver</b>	Date <b>Dec 2005</b>
			Figure <b>N.A.</b>
			Scale <b>NTS</b>





		<b>Title</b> Expansion of Shek Wu Hui Sewage Treatment Works – Location of Air Quality Monitoring Station	<b>Date</b> Dec 2005
			<b>Figure</b> N.A.
			<b>Scale</b> NTS



		<b>Title</b> Expansion of Shek Wu Hui Sewage Treatment Works – Location of Noise Monitoring Station	<b>Date</b> Dec 2005
			<b>Figure</b> N.A.
			<b>Scale</b> NTS



# Appendix 5

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## Action and Limit Levels

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Monitoring Station ID	1-hour TSP Level in ( $\mu\text{g}/\text{m}^3$ )		24-hour TSP Level in ( $\mu\text{g}/\text{m}^3$ )	
	Action Level	Limit Level	Action Level	Limit Level
CAM1a	342.7	500	203.3	260
CAM2a	340.2		201.6	

**Action and Limit Levels for Air Quality**

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

**Action and Limit Levels for Noise**

# Appendix 6

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## Environmental Requirements and Implementation Status

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## IMPLEMENTATIONS STATUS OF MITIGATION MEASURES

### Implementation Status for Air Quality Control

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex I S1.7.1	Dust mitigation measures stipulated in the <i>Air Pollution Control (construction Dust)</i> Regulation shall be incorporated to control dust emission from the Site. Notice shall be given to the authority prior to commencement of works.	Works sites / during construction period	Contractor	<ul style="list-style-type: none"> <li>Bare ground was found dry on 14 Dec 05.</li> </ul>	<ul style="list-style-type: none"> <li>The condition was rectified on 21 Dec 05.</li> </ul>

# The section number in the Project Profile for Expansion of Shek Wu Hui Sewage Treatment works (Application No. DIR-121/2005)

## Implementation Status for Water Quality Control

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 2 S2.4.4	The practice outlined in Practice Note for Professional Persons on Construction Site Drainage, Professional Person Environmental Protection Department, 1994 (ProPECC PN 1/94) including the use of sediment traps, wheel washing facilities for vehicles leaving the site, adequate maintenance of drainage systems to prevent flooding and overflow, sewage collection and treatment, and comprehensive waste management (collection, handling, transportation, disposal) procedures should be adopted to minimize the potential water quality impact from construction site runoff and various construction activities.	Works sites / During the construction period	Contractor	Properly Implemented	N/A
Annex 2 S2.4.4	<p><i>Construction Runoff and Drainage</i></p> <ul style="list-style-type: none"> <li>At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed and internal drainage works and erosion and sedimentation control facilities implemented. Channels, earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</li> <li>The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of <math>0.1\text{m}^3\text{s}^{-1}</math> a sedimentation basin of <math>30\text{m}^3</math> would be required and for a flow rate of <math>0.5\text{m}^3\text{s}^{-1}</math> the basin would be <math>150\text{m}^3</math>. The detailed design of the sand/silt traps will be undertaken by the contractor prior to the commencement of construction.</li> <li>Ideally, construction works should be programmed to minimize surface excavation works during the rainy season (April to September). All exposed earth areas should be compacted and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.</li> </ul>	Works sites / During the construction period	Contractor	Properly implemented as appropriate	N/A

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 2 S2.4.4	<p><i>Construction Runoff and Drainage (Cont'd)</i></p> <ul style="list-style-type: none"> <li>The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all trafficked areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</li> <li>All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.</li> <li>Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.</li> <li>Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m<sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</li> <li>Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</li> <li>Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storms events, especially for areas located near steep slopes.</li> </ul>	Works sites / During the construction period	Contractor	<ul style="list-style-type: none"> <li>It was observed that silty wheel wash water drained into the existing manhole on 4 Jan 06.</li> <li>The gully opposite to Portion 3 was not properly sheltered on 18 Jan 06.</li> <li>Broken sandbags were observed along the existing U-channel at Portion 2 on 25 Jan 06.</li> <li>The cap of water barrier on site was found missing on 3 Feb 06.</li> <li>Broken gravel bags were found in the U channels close to manhole which was close to the slaughter house on 6 Feb 06.</li> <li>Wetsep and sedimentation tanks at Portion 2 were full of mud on 24 Feb 06.</li> </ul>	<ul style="list-style-type: none"> <li>The manhole was sealed as observed on 11 Jan 06.</li> <li>The gully opposite to Portion 3 was sheltered 21 January 2006.</li> <li>The Contractor reported that appropriate actions would be implemented to rectify the situation.</li> <li>The inlet of water barrier was sealed.</li> <li>The gravel bag in the U-channels was removed and the gravel bag along the U-channel was grouted by cement.</li> <li>Mud and silt in sedimentation tank and wetsep has been removed.</li> </ul>

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 2 S2.4.4	<p><i>Construction Runoff and Drainage</i></p> <ul style="list-style-type: none"> <li>All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing bay should be provided at every site exits and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfill toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</li> <li>On-site drainage system should be equipped with oil interceptors to separate oil/fuel from contaminated storm water.</li> </ul>	Works site / During the construction period	Contractor	<ul style="list-style-type: none"> <li>Muddy trails on DSD access road were identified on 14 Dec 05.</li> </ul>	<ul style="list-style-type: none"> <li>The condition was rectified on 21 Dec 05.</li> </ul>
Annex 2 S2.4.4	<p><i>General Construction Activities</i></p> <ul style="list-style-type: none"> <li>Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.</li> <li>All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 100% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.</li> </ul>	Works site / During the construction period	Contractor	Properly Implemented as appropriate	N/A
Annex 2 S2.4.4	<p><i>Sewage from Construction Workforce</i></p> <ul style="list-style-type: none"> <li>Sewage from construction workforce should be handled by portable chemical toilets or sewage holding tanks with the sewage regularly collected by a reputable sewage collector for disposal at, for example, SWHSTW. Sewage from on-site toilets should be diverted to and stored within sewage holding tanks for later disposal.</li> </ul>	Works site / During the construction period	Contractor	Properly implemented	N/A

# The section number in the Project Profile for Expansion of Shek Wu Hui Sewage Treatment works (Application No. DIR-121/2005)

## Implementation Status for Waste Management

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 3 S3.5.1	<p><i>Waste Reduction Measures of Construction Stage</i></p> <ul style="list-style-type: none"> <li>• Measures recommended in the ETWB TCW No. 15/2003 should be followed to require the contractor to prepare and implement an enhanced Waste Management Plan (WMP) to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction.</li> <li>• For the demolition works, the contractor shall submit a method statement for the works as part of the WMP. The Contractor shall include in the method statement the sequence of demolition and the work programme to facilitate effective recovery of reusable and/or recyclable portions of the C&amp;D materials at the earliest stage, so as to minimise the need for subsequent sorting.</li> <li>• Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.</li> <li>• Separate labelled bins shall be provided to segregate aluminium cans from other general refuse generated by the work force, and to encourage collection of by individual collectors.</li> <li>• Any unused chemicals or those with remaining functional capacity shall be recycled.</li> <li>• Maximising the use of reusable steel formwork to reduce the amount of C&amp;D material.</li> <li>• Prior to disposal of C&amp;D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quality of waste to be disposed of to landfill.</li> <li>• Proper storage and site practices to minimise the potential for damage or contamination of construction materials.</li> <li>• Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> <li>• Minimize over ordering of concrete, mortars and cement grout by doing careful check before ordering.</li> </ul>	Work site / During the construction period	Contractor	Properly implemented as appropriate	N/A



PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 3 S3.5.2 – S3.5.5	<p><i>Good Site Practices</i></p> <ul style="list-style-type: none"> <li>• Nomination of approved personnel, such as a site manager, to be responsible for good site practices, and making arrangements for collection of all wastes generated at the site and effective disposal to an appropriate facility.</li> <li>• Training of site personnel in proper waste management and chemical waste handling procedures;</li> <li>• Provision of sufficient waste disposal points and regular collection for disposal;</li> <li>• Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</li> <li>• Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;</li> <li>• A Waste Management Plan should be prepared and should be submitted to the engineer for approval; and</li> <li>• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed.</li> <li>• In order to monitor the disposal of C&amp;D material at landfills and public filling facilities, as appropriate, and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements to be implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. The measures recommended in ETWB TCW No. 31/2004 should be followed.</li> </ul>	Work site / During the construction period	Contractor	<ul style="list-style-type: none"> <li>• Cement works to seal the bottom of hoarding was being undertaken during the site inspection on 14 Dec 05. Some cement was deposited on public area.</li> <li>• Oil drum without drip tray was observed at Portion 2 on 11 Jan 06</li> <li>• Oil leakage from drilling rig was observed on site on 3 Feb 06.</li> <li>• It was observed that there was oil stain next to the diesel cap of the air compressor on 6 Feb 06.</li> <li>• Accumulated water was observed in drip tray at Portion 2 on 24 Feb 06.</li> </ul>	<ul style="list-style-type: none"> <li>• The condition was rectified on 21 Dec 05.</li> <li>• The oil drum was removed as observed on 18 Jan 06.</li> <li>• The plant was checked and was filled before operation.</li> <li>• The oil stain and contaminated soil were removed.</li> <li>• Larvicide has been applied to the water in drip tray properly.</li> </ul>
Annex 3 S3.5.6	<p><i>General Refuse</i></p> <ul style="list-style-type: none"> <li>• General refuse should be stored in enclosed bins or compaction units separate from C&amp;D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&amp;D material. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material;</li> </ul>	Work site / During the construction period	Contractor	<ul style="list-style-type: none"> <li>• General refuse was accumulated in the surface channel at the site office area on 28 Dec 05.</li> </ul>	<ul style="list-style-type: none"> <li>• The condition was found rectified in Jan 06.</li> </ul>

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 3 S3.5.7	<p><i>Construction and Demolition Material</i></p> <ul style="list-style-type: none"> <li>The C&amp;D material generated from the site formation and demolition works should be sorted on-site into inert C&amp;D material (that is, public fill) and C&amp;D waste. In order to minimise the impact resulting from collection and transportation of C&amp;D material for off-site disposal, the excavated material comprising fill material should be reused on-site as backfilling material as far as practicable. C&amp;D waste, such as wood, plastic, steel and other metals should be reused or recycled and, as a last resort, disposed of to landfill. A suitable area should be designated within the site for temporary stockpiling of C&amp;D material and to facilitate the sorting process.</li> </ul>	Work site / During the construction period	Contractor	<ul style="list-style-type: none"> <li>Concrete waste was found near the trees on 14 Dec 05.</li> </ul>	<ul style="list-style-type: none"> <li>The condition was rectified on 21 Dec 05.</li> </ul>
Annex 3 S3.5.8	<p><i>Chemical Wastes</i></p> <ul style="list-style-type: none"> <li>When chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the requirements stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used. Appropriate labels should be securely attached on each chemical waste container indicating the chemical characteristics of the chemical waste, such as explosives, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed waste collector to transport and dispose of the chemical wastes in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</li> </ul>	Work site / During the construction period	Contractor	Implemented in Feb06	N/A

# The section number in the Project Profile for Expansion of Shek Wu Hui Sewage Treatment works (Application No. DIR-121/2005)

## Implementation Status for Noise Control

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 4 S4.7.1	Use of quiet PME	Work sites / During the construction period	Contractor	Properly Implemented	N/A
Annex 4 S4.7.3	<p><i>Good Site Practice</i></p> <ul style="list-style-type: none"> <li>• Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction phase;</li> <li>• Silencers or mufflers on construction equipment should be utilised, if found necessary, to further reduce noise, and should be properly maintained during the construction phase;</li> <li>• Mobile plant should be sited as far away from NSRs as possible;</li> <li>• Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>• Plant known to emit noise strongly in one direction, should, where possible, be orientated so that the noise is directed away from nearby NSRs; and</li> <li>• Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.</li> </ul>	Work sites / During the construction period	Contractor	Properly Implemented	N/A

# The section number in the Project Profile for Expansion of Shek Wu Hui Sewage Treatment works (Application No. DIR-121/2005)

# Appendix 7

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## Monitoring Results and Graphical Plots

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Shek Wu Hui Sewage Treatment Works

Air Quality Impact Monitoring Results (1-Hour TSP) Dec 2005

Location	Monitoring Date	Weather Conditions	Wind Speed (m/s)	Wind Direction	Temp (oC)	Time (mins)	Flow-I (m3/min)	Flow-F (m3/min)	Flow-avg (m3/min)	Volume (m3)	Weight (g)	1-hr TSP (ug/m3)	Average 1-Hr TSP (ug/m3)	Action/Limit Levels (ug/m3)	Remark			
San Po Street Pumping Station CAM1a	14-Dec-05	Cloudy	2.1	S	15.5	64.2	1.550895	1.519145	1.53502	98.55	0.0253	256.7	252.1	342.7/500				
		Cloudy	2.5	S	15.5	68.4	1.582645	1.519145	1.550895	106.08	0.0266	250.8						
		Cloudy	2	S	15.5	78.0	1.550895	1.519145	1.53502	119.73	0.0298	248.9						
	20-Dec-05	-	-	-	-	-	-	-	-	-	-	-	-		HVS was out of order			
		-	-	-	-	-	-	-	-	-	-	-						
		-	-	-	-	-	-	-	-	-	-	-						
	22-Dec-05	Cloudy	4	NE	13.6	60.6	1.456105	1.456105	1.456105	88.24	0.0214	242.5	222.7		342.7/500			
		Cloudy	2	NE	13.6	59.4	1.486426	1.456105	1.471265	87.39	0.0202	231.1						
		Cloudy	3.5	NE	13.6	59.4	1.486426	1.456105	1.471265	87.39	0.0170	194.5						
	28-Dec-05	Rainy	1.1	S	19.8	60.0	1.334823	1.304503	1.319663	79.18	0.0231	291.7	280.6			342.7/500		
		Rainy	2.7	S	19.8	58.8	1.304503	1.304503	1.304503	76.70	0.0222	289.4						
		Rainy	3.2	S	19.8	56.4	1.274182	1.243862	1.259022	71.01	0.0185	260.5						
Sheung Shui Heung Floodwater Pumping Station CAM2a	14-Dec-05	Cloudy	3	S	17	66.6	1.777714	1.718238	1.747976	116.42	0.0237	203.6	195.3	340.2/500				
		Cloudy	3.2	S	17	69.0	1.569548	1.599286	1.584417	109.32	0.0219	200.3						
		Cloudy	2.7	S	17	67.8	1.896666	1.747976	1.822321	123.55	0.0225	182.1						
	20-Dec-05	Fine	3.7	E	18.7	61.8	1.6885	1.658762	1.673631	103.43	0.0186	179.8	162.7				340.2/500	
		Fine	3.6	E	18.7	60.0	1.53981	1.53981	1.53981	92.39	0.0146	158.0						
		Fine	3.5	E	18.7	61.8	1.420858	1.420858	1.420858	87.81	0.0132	150.3						
	28-Dec-05	Rainy	0.4	S	19.3	58.2	1.658762	1.629024	1.643893	95.67	0.0220	229.9	219.1		340.2/500			
		Rainy	0.3	S	19.3	58.8	1.599286	1.569548	1.584417	93.16	0.0196	210.4						
		Rainy	0.5	S	19.3	57.0	1.510072	1.480334	1.495203	85.23	0.0185	217.1						

"Shading" indicates an exceedance of Action Level. "Bold and shading" indicates an exceedance of Limit Level.

Shek Wu Hui Sewage Treatment Works

Air Quality Impact Monitoring Results (1-Hour TSP) Jan 06

Location	Monitoring Date	Weather Conditions	Wind Speed with Direction (m/s)	Temp (°C)	Timer-1	Timer-F	Time (mins)	Flow-1 (CFM/Inches)	Flow-F (CFM/Inches)	Flow-1 (m³/min)	Flow-F (m³/min)	Flow-avg (m³/min)	Volume (m³)	Weight-H (g)	Weight-F (g)	Weight-diff. (g)	1-hr TSP (µg/m³)	Average 1-Hr TSP (ug/m3)	Action/Limit Levels (ug/m3)	Remark
San Po Street Pumping Station CAM1A	03-Jan-06	Sunny	1.4NE	15	357805	357900	57.0	35	35	1.1832206	1.15290015	1.1690604	66.58	2.8782	2.8894	0.0112	158.2	145.3	342.7/500	
		Sunny	1.4NE	15	357900	357997	58.2	37	36	1.2135411	1.18322064	1.19838089	69.75	2.8668	2.8772	0.0104	149.1			
		Sunny	1.4NE	15	357997	358098	60.5	37	36	1.2135411	1.18322064	1.19838089	72.52	2.8515	2.8601	0.0086	118.4			
	09-Jan-06	Cloudy	0.5NE	14	360497	360595	58.8	37	37	1.2135411	1.21354113	1.21354113	71.36	3.5609	3.5786	0.0177	248.1			
		Cloudy	0.5NE	14	360595	360691	57.6	37	37	1.2135411	1.21354113	1.21354113	69.30	3.5574	3.5732	0.0158	226.0			
		Cloudy	0.5NE	14	360691	360785	56.4	38	37	1.2438816	1.21354113	1.22870137	69.30	3.5547	3.5706	0.0159	226.4			
	14-Jan-06	Fine	0.7N	14	413520	413721	60.5	32	32	1.1106389	1.11063888	1.11063888	67.30	2.8721	2.8698	0.0023	173.8			
		Fine	0.7N	14	413721	413818	58.2	33	32	1.1412368	1.11063888	1.12537353	65.63	2.8500	2.8676	0.0176	131.2			
		Fine	0.7N	14	413818	413918	60.0	33	32	1.1412368	1.11063888	1.12537353	67.56	2.8482	2.8590	0.0108	115.5			
	20-Jan-06	Cloudy	1.0NE	20	416312	416407	57.0	34	33	1.1718348	1.14123677	1.15653571	65.92	2.843	2.8528	0.0098	146.7			
		Cloudy	1.0NE	20	416407	416511	52.4	33	32	1.1412368	1.11063888	1.12593783	70.26	2.8525	2.8601	0.0076	108.2			
		Cloudy	1.0NE	20	416511	416605	56.4	33	31	1.1412368	1.080041	1.11063888	62.64	2.8527	2.8604	0.0077	122.9			
	26-Jan-06	Cloudy	0.8N	16	418598	419098	58.4	32	31	1.1106389	1.080041	1.09533994	65.08	2.8788	2.8903	0.0115	207.5			
		Cloudy	0.8N	16	419098	419195	58.2	32	32	1.1106389	1.11063888	1.11063888	64.64	2.8487	2.8596	0.0111	171.7			
		Cloudy	0.8N	16	419195	419288	55.8	32	32	1.1106389	1.11063888	1.11063888	61.87	2.8735	2.8819	0.0084	135.5			
Sheung Shui Heung Floodwater Pumping Station CAM2a	03-Jan-06	Sunny	1.8NE	15	493118	493216	58.8	41	40	1.4803343	1.45059625	1.46546525	88.17	2.8306	2.8415	0.0109	129.5			
		Sunny	1.8NE	15	493216	493330	58.4	41	40	1.4803343	1.45059625	1.46546525	100.24	2.8690	2.8787	0.0107	106.7			
		Sunny	1.8NE	15	493330	493432	61.2	41	40	1.4803343	1.45059625	1.46546525	89.69	2.8657	2.8749	0.0092	102.6			
	09-Jan-06	Cloudy	1.5NE	14	495834	495929	57.0	40	40	1.4505962	1.45059625	1.45059625	82.68	3.5451	3.5588	0.0148	179.0			
		Cloudy	1.5NE	14	495929	496027	58.8	40	40	1.4505962	1.45059625	1.45059625	85.30	3.5667	3.5817	0.0150	175.9			
		Cloudy	1.5NE	14	496027	496124	58.2	40	40	1.4505962	1.45059625	1.45059625	84.42	3.5536	3.5676	0.0140	165.8			
	14-Jan-06	Fine	1.8NE	14	498519	498618	59.4	40	40	1.4505962	1.45059625	1.45059625	86.17	2.8544	2.8634	0.0090	104.5			
		Fine	1.8NE	14	498618	498717	59.4	40	40	1.4505962	1.45059625	1.45059625	86.17	2.8372	2.8440	0.0068	78.9			
		Fine	1.8NE	14	498717	498816	58.4	40	40	1.4505962	1.45059625	1.45059625	86.17	2.8548	2.8614	0.0066	76.6			
	20-Jan-06	Cloudy	0.5NE	20	500083	500178	57.0	31	31	1.1829542	1.18295417	1.18295417	87.43	2.8698	2.8779	0.0080	118.6			
		Cloudy	0.5NE	20	500178	500276	58.8	33	32	1.2424302	1.21259218	1.22750119	72.18	2.8606	2.8661	0.0055	76.2			
		Cloudy	0.5NE	20	500276	500375	58.4	32	31	1.2125922	1.18295417	1.19782318	71.15	2.8552	2.8617	0.0065	81.4			
	26-Jan-06	Cloudy	1.5N	17	502771	502868	58.2	34	34	1.2721682	1.2721682	1.2721682	74.04	2.8445	2.8536	0.0091	118.9			
		Cloudy	1.5N	17	502868	502968	60.0	34	34	1.2721682	1.2721682	1.2721682	76.33	2.8887	2.8978	0.0091	106.1			
		Cloudy	1.5N	17	502968	503062	56.4	34	33	1.2721682	1.24243018	1.25729819	70.91	2.8602	2.8679	0.0077	106.6			

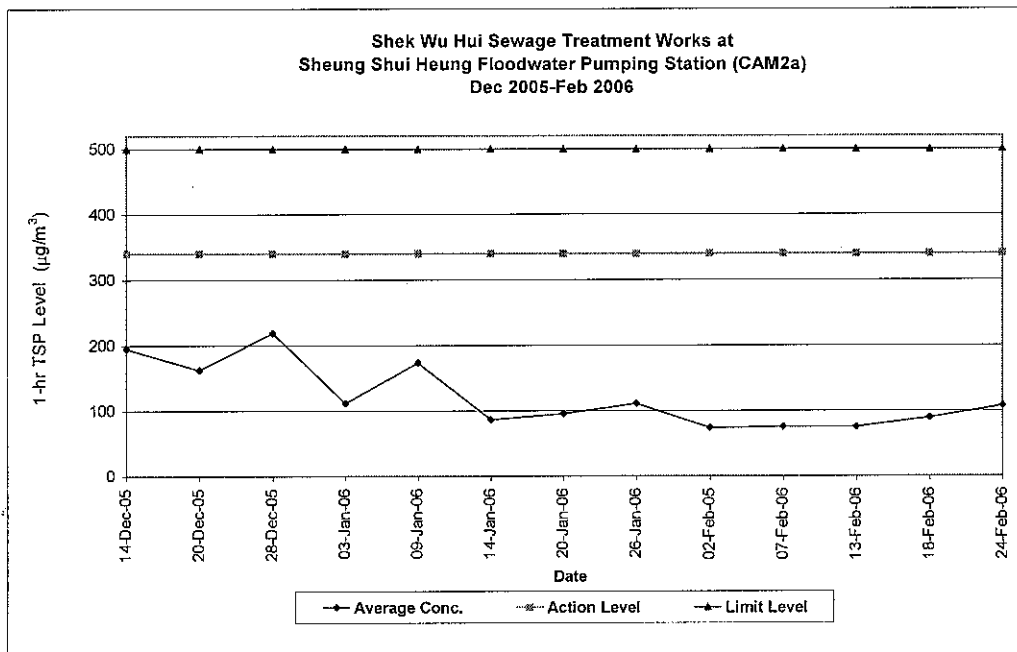
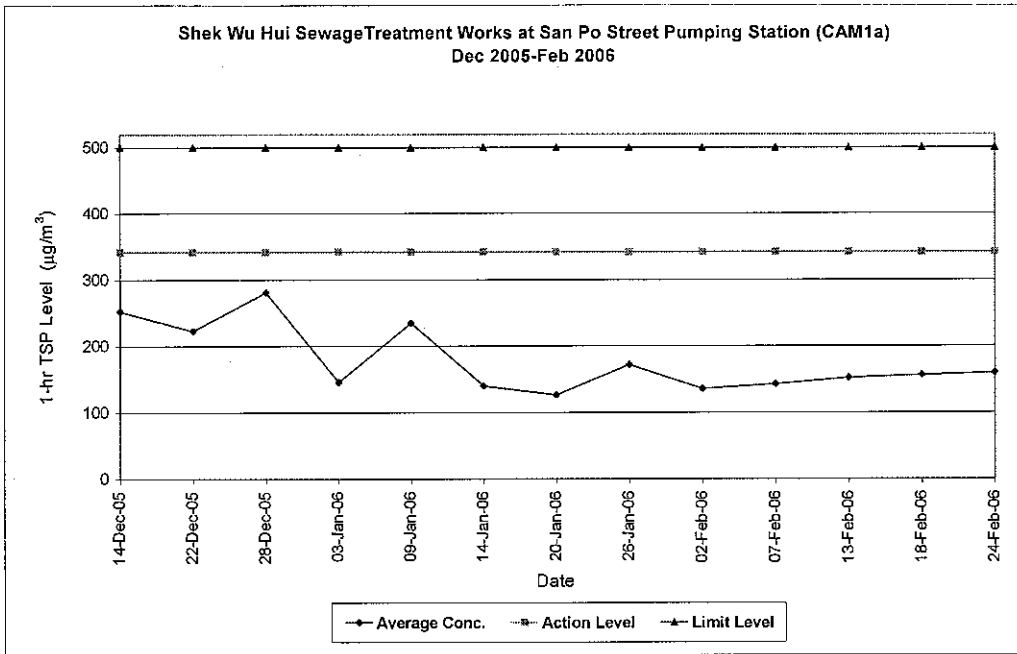
\*Shading\* indicates an exceedance of Action Level. \*Bold and shading\* indicates an exceedance of Limit Level.

Shek Wu Hui Sewage Treatment Works

Air Quality Impact Monitoring Results (1-Hour TSP) Feb 06

Location	Monitoring Date	Weather Conditions	Wind Speed with Direction (m/s)	Temp (°C)	Timer-I	Timer-F	Time (mins)	Flow-I (CFM/Inches)	Flow-F (CFM/Inches)	Flow-I (m³/min)	Flow-F (m³/min)	Flow-avg (m³/min)	Volume (m³)	Weight-I (g)	Weight-F (g)	Weight diff. (g)	1-hr TSP (ug/m³)	Average 1-Hr TSP (ug/m³)	Action/Limit Levels (ug/m³)	Remark
San Po Street Pumping Station CAM1A	02-Feb-06	Fine	0.1N	21	421581	421778	58.2	32	32	1.11	1.11	1.11	64.67	2.8611	2.8694	0.0083	128.4	135.6	342.7/500	
		Fine	0.1N	21	421778	421878	60.0	33	33	1.14	1.14	1.14	69.48	2.8632	2.8731	0.0099	144.6			
		Fine	0.1N	21	421878	421972	56.4	33	32	1.14	1.11	1.13	63.52	2.8465	2.8550	0.0085	133.8			
	07-Feb-06	Fine	0.1NE	21.5	424365	424466	60.6	30	30	1.05	1.05	1.05	63.68	2.8717	2.8818	0.0099	155.5	142.4		
		Fine	0.1NE	21.5	424466	424568	61.2	31	30	1.08	1.08	1.07	68.23	2.8555	2.8656	0.0101	154.8			
		Fine	0.1NE	21.5	424568	424667	59.4	30	30	1.05	1.05	1.05	62.41	2.8779	2.8852	0.0073	117.0			
	13-Feb-06	Sunny	0.5NE	20.5	427060	427154	58.4	32	32	1.11	1.11	1.11	62.67	3.6154	3.6287	0.0123	196.3	152.5		
		Sunny	0.5NE	20.5	427154	427250	57.6	32	32	1.11	1.11	1.11	64.00	3.6072	3.6166	0.0094	146.9			
		Sunny	0.5NE	20.5	427250	427351	60.6	32	31	1.11	1.08	1.10	66.42	3.6348	3.6424	0.0076	114.4			
	18-Feb-06	Rainy	0.3N	19.5	429747	429847	60.0	33	32	1.14	1.11	1.13	67.57	2.8756	2.8963	0.0207	306.3	156.4		
		Rainy	0.3N	19.5	429847	429940	55.8	32	32	1.11	1.11	1.11	62.00	2.8644	2.8698	0.0054	87.1			
		Rainy	0.3N	19.5	429940	430045	63.0	32	32	1.11	1.11	1.11	70.00	2.8539	2.8592	0.0053	75.7			
	24-Feb-06	Cloudy	0.8N	23.4	432440	432540	60.0	32	32	1.11	1.11	1.11	66.67	2.8701	2.8836	0.0135	202.5	159.5		
		Cloudy	0.8N	23.4	432540	432640	60.0	32	32	1.11	1.11	1.11	66.67	2.8616	2.8709	0.0093	139.5			
		Cloudy	0.8N	23.4	432640	432740	60.0	32	32	1.11	1.11	1.11	66.67	2.8612	2.8703	0.0091	136.5			
Sheung Shui Heung Floodwater Pumping Station CAM2a	02-Feb-06	Fine	0.2N	21	505455	505550	57.0	32	32	1.21	1.21	1.21	69.07	2.8583	2.8635	0.0052	76.3	74.2		
		Fine	0.2N	21	505550	505650	60.0	33	33	1.24	1.24	1.24	74.47	2.8449	2.8498	0.0049	65.8			
		Fine	0.2N	21	505650	505745	57.0	33	32	1.24	1.21	1.23	69.91	2.8640	2.8597	0.0057	81.5			
	07-Feb-06	Sunny	0.5NE	21	508139	508235	57.6	32	32	1.21	1.21	1.21	69.80	2.8653	2.8714	0.0061	87.4	75.7		
		Sunny	0.5NE	21	508235	508338	61.8	32	32	1.21	1.21	1.21	74.89	2.8455	2.8519	0.0064	85.5			
		Sunny	0.5NE	21	508338	508442	62.4	32	32	1.21	1.21	1.21	75.62	2.8451	2.8492	0.0041	54.2			
	13-Feb-06	Sunny	1.0NE	20.1	510836	510929	55.8	32	32	1.21	1.21	1.21	67.62	3.5589	3.5654	0.0065	81.3	75.4		
		Sunny	1.0NE	20.1	510929	511028	59.4	32	32	1.21	1.21	1.21	71.88	3.5989	3.6025	0.0056	77.8			
		Sunny	1.0NE	20.1	511028	511127	59.4	32	30	1.21	1.15	1.18	70.24	3.6039	3.6086	0.0047	66.9			
	18-Feb-06	Rainy	0.8N	19.5	513521	513623	61.2	32	32	1.21	1.21	1.21	74.16	2.8412	2.8544	0.0132	178.0	89.5		
		Rainy	0.8N	19.5	513623	513718	57.0	32	32	1.21	1.21	1.21	69.07	2.8574	2.8597	0.0023	33.3			
		Rainy	0.8N	19.5	513718	513824	63.6	32	32	1.21	1.21	1.21	77.07	2.8703	2.8747	0.0044	57.1			
	24-Feb-06	Cloudy	0.1N	23.4	516220	516320	60.0	32	32	1.21	1.21	1.21	72.71	2.8554	2.8676	0.0122	167.8	107.7		
		Cloudy	0.1N	23.4	516320	516420	60.0	32	32	1.21	1.21	1.21	72.71	2.8682	2.8748	0.0066	90.8			
		Cloudy	0.1N	23.4	516420	516520	60.0	32	32	1.21	1.21	1.21	72.71	2.8658	2.8703	0.0047	54.6			

\*Shading\* indicates an exceedance of Action Level. \*Bold and shading\* indicates an exceedance of Limit Level.





Shek Wu Hui Sewage Treatment Works

Air Quality Impact Monitoring Results (24-Hour TSP) Dec 05

Location	Monitoring Date	Weather Conditions	Wind Speed (m/s)	Wind Direction	Temp (oC)	Timer-I	Timer-F	Time (mins)	Flow-I (m <sup>3</sup> /min)	Flow-F (m <sup>3</sup> /min)	Volume (m <sup>3</sup> )	Weight-I (g)	Weight-f (g)	Weight. (g)	24-hr TSP (ug/m <sup>3</sup> )	Action/Limit Levels (ug/m <sup>3</sup> )	Remark
San Po Street Pumping Station CAM1a	14-Dec-05	Cloudy	2	S	15.5	450429	452824	1437	1.55	1.55	2228.64	2.8834	2.956	0.0726	32.6	203.3/260	HVS was out of order
	20-Dec-05	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	22-Dec-05	Cloudy	5.2	NE	13.6	352720	355116	1437.6	1.49	1.49	2136.89	2.8767	3.0838	0.2071	96.9		
	28-Dec-05	Rainy	1.2	S	19.8	355410	357805	1437	1.18	1.06	1613.15	2.8686	2.9483	0.0797	49.4		
Sheung Shui Heung Floodwater Pumping Station CAM2a	14-Dec-05	Cloudy	2.5	S	17	481275	483671	1437.6	1.78	1.75	2534.27	2.8644	3.3454	0.481	189.8	201.6/260	
	20-Dec-05	Fine	3.5	E	18.7	483978	486373	1437	1.78	1.78	2554.58	2.8839	3.1779	0.294	115.1		
	28-Dec-05	Rainy	0.2	S	19.3	488693	491090	1438.2	1.68	1.68	2413.15	2.8689	3.0698	0.2009	83.3		

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Shek Wu Hui Sewage Treatment Works

Air Quality Impact Monitoring Results (24-Hour TSP) Jan 06

Location	Monitoring Date	Weather Conditions	Wind Speed with Direction (m/s)	Temp (oC)	Pressure (mmHg)	Timer-I	Timer-F	Time (mins)	Flow-I (CFM/ Inches)	Flow-F (CFM/ Inches)	Flow-I (m³/min)	Flow-F (m³/min)	Flow-avg (m³/min)	Volume (m³)	Weight-I (g)	Weight-F (g)	Weight-diff. (g)	24-hr TSP (ug/m³)	Action/Limit Levels (ug/m³)	Remark
San Po Street Pumping Station CAM1a	03-Jan-06	Sunny	1.4NE	15	762.9	358098	360497	1439.4	36	36	1.18	1.18	1.18	1703.13	2.8743	2.9386	0.0643	37.8	203/260	
	09-Jan-06	Cloudy	0.5NE	14	766.3	360785	363180	1437	37	37	1.21	1.21	1.21	1743.86	3.5808	3.6674	0.1066	61.1		
	14-Jan-06	Fine	0.7N	14	762.1	413918	416312	1436.4	33	32	1.14	1.11	1.13	1617.30	2.8557	3.0897	0.214	132.3		
	20-Jan-06	Cloudy	1.0NE	20	760	416605	418998	1435.8	34	33	1.17	1.14	1.16	1660.55	2.842	2.9437	0.1017	61.2		
	25-Jan-06	Cloudy	0.8N	16	767.1	419288	421681	1435.8	32	32	1.11	1.11	1.11	1584.66	2.8562	3.0469	0.1907	119.6		
Sheung Shui Heung Floodwater Pumping Station CAM2a	03-Jan-06	Sunny	1.8NE	15	762.9	493432	495832	1440	41	41	1.48	1.48	1.48	2131.68	2.8894	3.0481	0.1587	74.4	201/260	
	09-Jan-06	Cloudy	1.5NE	14	766.3	496124	498518	1436.4	41	40	1.48	1.45	1.47	2104.99	3.5612	3.9599	0.3987	189.4		
	14-Jan-06	Fine	1.8NE	14	762.1	498816	500081	759	40	40	1.45	1.45	1.45	1101.00	2.8415	2.9274	0.0859	78.0		
	20-Jan-06	Cloudy	0.5NE	20	760	500375	502770	1437	33	32	1.24	1.21	1.23	1764.01	2.8543	2.91	0.0557	31.6		
	26-Jan-06	Cloudy	1.5NE	17	767.1	503062	505455	1435.8	34	33	1.27	1.24	1.26	1805.23	2.8614	3.006	0.1446	80.1		

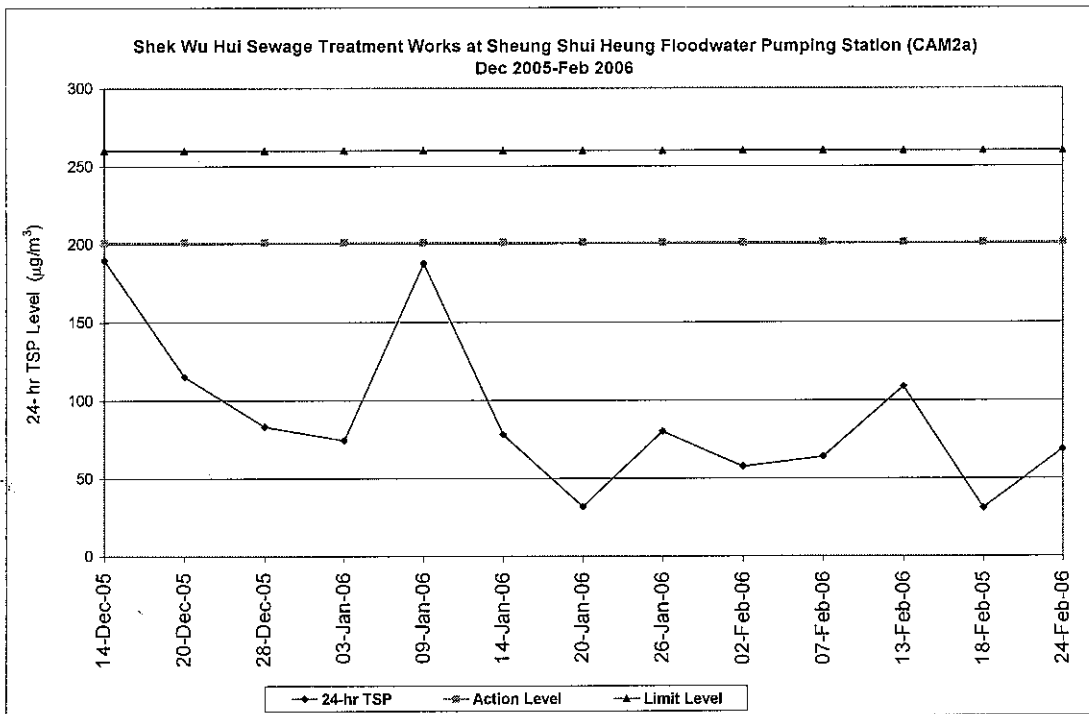
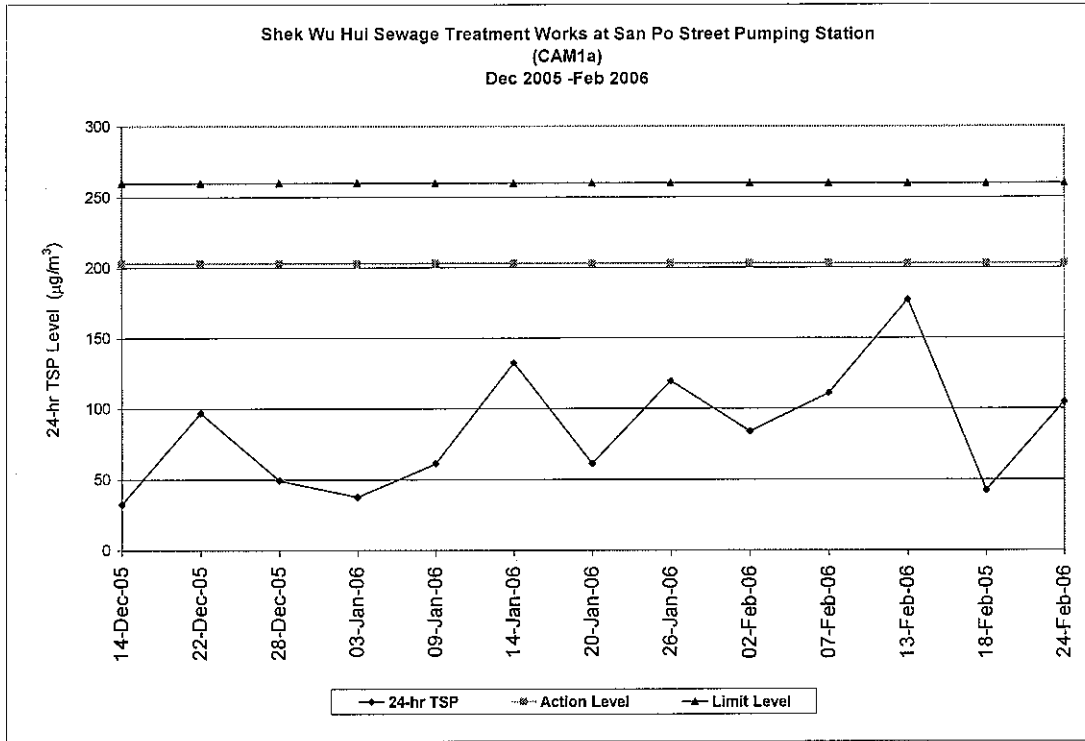
\*Shading indicates an exceedance of Action Level. \*Bold and shading indicates an exceedance of Limit Level.

Shek Wu Hui Sewage Treatment Works

Air Quality Impact Monitoring Results (24-Hour TSP) Feb 06

Location	Monitoring Date	Weather Conditions	Wind Speed with Direction (m/s)	Temp (oC)	Pressure (mmHg)	Timer-I	Timer-F	Time (mins)	Flow-I (CFM/ Inches)	Flow-F (CFM/ Inches)	Flow-I (m³/min)	Flow-F (m³/min)	Flow-avg (m³/min)	Volume (m³)	Weight-I (g)	Weight-f (g)	Weight-diff. (g)	24-hr TSP (ug/m³)	Action/Limit Levels (ug/m³)	Remark
San Po Street Pumping Station CAM1a	02-Feb-06	Fine	0.1N	21	766.7	421972	424367	1437	33	33	1.14	1.14	1.14	1640.03	2.8728	3.0104	0.1375	83.8	203/260	
	07-Feb-06	Fine	0.1N	21.5	766.3	424667	427060	1435.8	30	30	1.05	1.05	1.05	1508.68	2.8505	3.018	0.1675	111.0		
	13-Feb-06	Sunny	0.5NE	20.5	764.2	427351	429427	1245.6	32	32	1.11	1.11	1.11	1384.00	3.584	3.8292	0.2452	177.2		
	18-Feb-05	Rainy	0.3N	19.5	765.7	430045	432440	1437	32	33	1.11	1.14	1.13	1618.35	2.8603	2.9286	0.0683	42.2		
	24-Feb-06	Cloudy	0.8N	23.4	759.6	432740	435133	1435.8	32	32	1.11	1.11	1.11	1595.33	2.8261	2.9931	0.167	104.7		
Sheung Shui Heung Floodwater Pumping Station CAM2a	02-Feb-06	Fine	0.2N	21	766.7	505745	508141	1437.6	33	32	1.24	1.21	1.23	1763.17	2.8588	2.9604	0.1016	57.6	201/260	
	07-Feb-06	Sunny	0.5NE	21	765.3	508442	510835	1435.8	32	32	1.21	1.21	1.21	1739.81	2.8319	2.9429	0.111	63.8		
	13-Feb-06	Sunny	1.0NE	20.1	764.2	511127	513522	1437	32	31	1.21	1.18	1.20	1720.29	3.6152	3.8027	0.1875	109.0		
	18-Feb-05	Rainy	0.8N	19.5	765.7	513824	516220	1437.6	32	31	1.21	1.18	1.20	1721.01	2.8516	2.9046	0.053	30.8		
	24-Feb-06	Cloudy	0.1N	23.4	759.6	516520	518917	1438.2	32	32	1.21	1.21	1.21	1742.82	2.8556	2.9751	0.1185	68.6		

"Shading" indicates an exceedance of Action Level. "Bold and shading" indicates an exceedance of Limit Level.



Shek Wu Hui Sewage Treatment Works

Noise Impact Monitoring Results (Dec 05)

Monitoring Locations	Date	Weather Conditions	Temperature	Wind Speed	Wind	Start Time	End Time	Limit Levels dB(A)	L <sub>eq(30min)</sub>	L <sub>10(30min)</sub>	L <sub>90(30min)</sub>	Remark
			(°C)	(m/s)	Direction				dB(A)	dB(A)	dB(A)	
Wai Loi Tsuen NM1	14-Dec-05	Cloudy	14.7	0.9	S	10:00	10:30	75	65.8	67.5	58.5	
	20-Dec-05	Sunny	18.7	2.4	E	10:10	10:40		60.6	63.0	56.5	
	28-Dec-05	Cloudy	18.7	5	S	09:45	10:15		61.1	63.0	56.0	
Temporary Domestic Structure NM2	14-Dec-05	Cloudy	14.7	1	S	11:20	11:50	75	54.4	56.2	50.8	
	20-Dec-05	Sunny	18.7	2.9	E	11:20	11:50		52.1	54.0	47.3	
	28-Dec-05	Cloudy	18.7	5	S	10:45	11:15		52.9	54.0	47.3	

A façade correction of 3 dB(A) was applied to each measurement result. "Shading" indicates an Limit Level exceedance.

Shek Wu Hui Sewage Treatment Works

Noise Impact Monitoring Results (Jan 06)

Monitoring Locations	Date	Weather Conditions	Temperature	Wind Speed	Wind	Start Time	End Time	Limit Levels dB(A)	L <sub>eq(30min)</sub>	L <sub>10(30min)</sub>	L <sub>90(30min)</sub>	Remark
			(°C)	(m/s)	Direction				dB(A)	dB(A)	dB(A)	
Wai Loi Tsuen NM1	03-Jan-06	Sunny	21.4	1.4	NE	12:10	12:40	75	57.3	59.4	53.2	
	09-Jan-06	Cloudy	14	0.5	NE	09:35	10:05	75	57.3	59.4	53.8	
	20-Jan-06	Cloudy	20	1	N	11:35	12:05	75	59.6	61.4	55.9	
	26-Jan-06	Cloudy	16	0.8	N	10:45	11:15	75	60.0	62.1	54.5	
Temporary Domestic Structure NM2	03-Jan-06	Sunny	21.1	1.8	NE	11:02	11:32	75	53.9	55.4	52.2	
	09-Jan-06	Cloudy	14	1.5	NE	10:35	11:05	75	50.2	52.1	46.7	
	20-Jan-06	Cloudy	20	0.5	N	10:30	11:00	75	61.6	65.1	50.0	
	26-Jan-06	Cloudy	17	1.5	N	09:50	10:20	75	50.5	52.3	47.3	

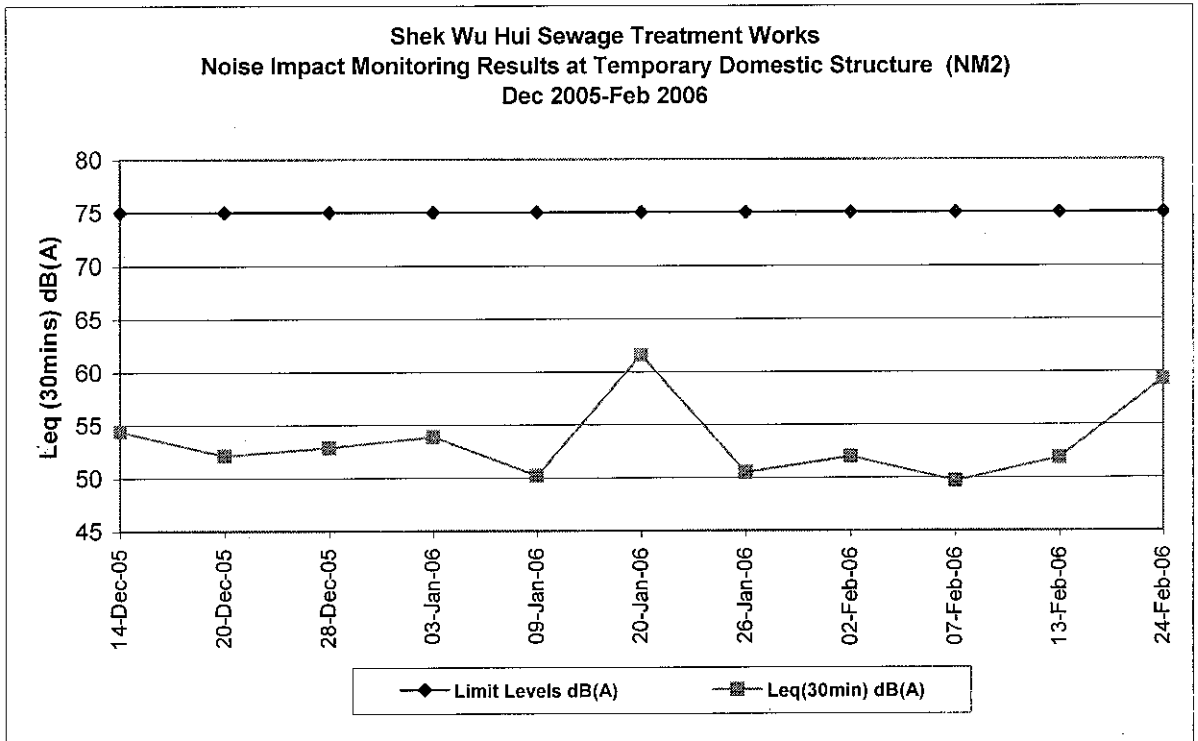
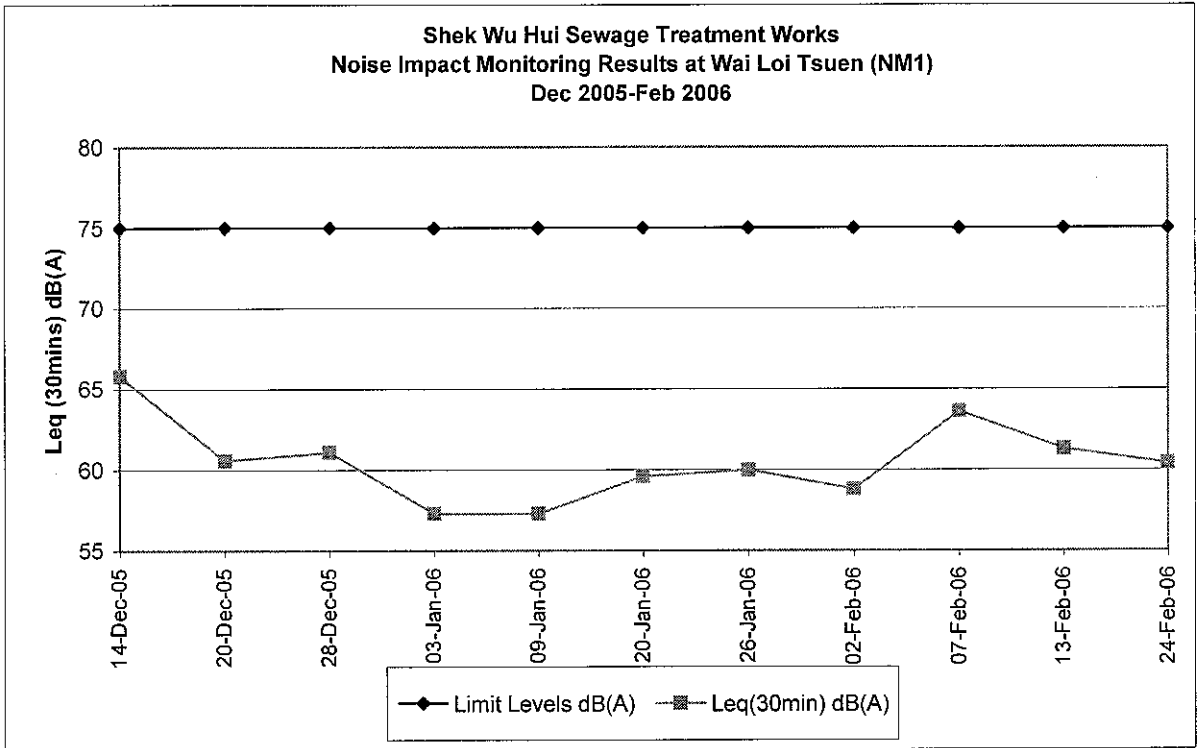
A façade correction of 3 dB(A) was applied to each measurement result. "Shading" indicates an Limit Level exceedance.

## Shek Wu Hui Sewage Treatment Works

### Noise Impact Monitoring Results (Feb 06)

Monitoring Locations	Date	Weather Conditions	Temperature	Wind Speed	Wind	Start Time	End Time	Limit Levels dB(A)	L <sub>eq(30min)</sub>	L <sub>10(30min)</sub>	L <sub>90(30min)</sub>	Remark
			(°C)	(m/s)	Direction				dB(A)	dB(A)	dB(A)	
Wai Loi Tsuen NM1	02-Feb-06	Fine	21	0.1	NE	10:00	10:30	75	58.8	61.4	54.4	
	07-Feb-06	Fine	21	0.1	NE	09:45	10:15	75	63.6	65.1	61.6	
	13-Feb-06	Sunny	20.5	0.5	N	10:30	11:00	75	61.3	63.4	56.7	
	24-Feb-06	Cloudy	22.1	0.1	N	13:00	13:30	75	60.4	62.4	55.9	
Temporary Domestic Structure NM2	02-Feb-06	Fine	21	0.2	NE	11:00	11:30	75	52.0	53.6	49.4	
	07-Feb-06	Fine	21	0.1	NE	10:45	11:15	75	49.7	50.9	47.5	
	13-Feb-06	Sunny	20.1	1	N	11:25	11:55	75	51.9	53.7	49.1	
	24-Feb-06	Cloudy	21.3	0.8	N	14:50	15:20	75	59.3	61.9	52.7	

A façade correction of 3 dB(A) was applied to each measurement result. "Shading" indicates an Limit Level exceedance.





# Appendix 8

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Cumulative Statistics of Complaint, Notification of  
Summons and Successful Prosecution

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## Cumulative Number of Environmental Complaint

Reporting Month	Number Received in the Reporting Month				Cumulative Number			
	Complaint	Notification of Summon	Successful Prosecution	EPD Site Inspection Record	Complaint	Notification of Summon	Successful Prosecution	EPD Site Inspection Record
December 2005	0	0	0	0	0	0	0	1 (Yellow Ticket issued in Nov 05) <sup>(1)</sup>
January 2006	0	0	0	0				
February 2006	0	0	0	0				

(1) During the site preparation stage, EPD issued a yellow ticket to the Contractor due to the construction dust impact on 2 November 2005. Low humidity is considered as the main reason for the construction dust impact. Mitigation measures such as increasing the frequency of water spraying and the erection of site hoarding along the site boundary were implemented on 3 November 2005. EPD inspected the site on 4 November 2005 and found the condition acceptable.