Expansion of Shek Wu Hui Sewage Treatment Works

Monthly EM&A Report

(January 2006)

February 2006

Report no: 01284R0052

Hyder Consulting Ltd
Incorporated in Hong Kong with limited liability—COI Number 126012
47th Floor, Hopewell Centre, 183 Queens Road East, Wanchai, Hong Kong
Tel: +852 2911 2233 Fax: +852 2805 5028
www.hyderconsulting.com

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Author: Claudine Lee

Checker: Sharifah Or

Approver: Guiyi Li

Report no: EA01284R0052 **Date:** February 2006

Certified by Environmental Team Leader
Sharifah Or

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1 Executive Summary

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 during January 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 month.

1-hr TSP

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

24-hr TSP

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

Complaints Log

During this reporting month, no environmental complaint was received.

Notifications of Any Summons and Successful Prosecutions

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

Reporting Changes

There was no reporting change during January 2006.

Future Key Issues

The construction activities for the coming three months will include the construction of preliminary and permanent mini-piles and permanent H-piles, loading test for the piles, cable diversion and the relocation of $FeCl_3$ tank.

2 Introduction

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 Month

Works undertaken during the reporting month included:

- construction of preliminary H-pile;
- loading tests for the piles; and
- excavation for trial pits.

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 under APCO	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.: W5/1I287/1	19 Dec 2010
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	12 Jun 2006
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

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

3 Environmental Status

3.1 Works Undertaken during the Month with Illustrations

The site has been subdivided into different Works Areas/Portions as illustrated in Appendix 3. The construction of preliminary H-pile was carried out at Portions 2 and 3. Loading test for the piles was carried out at Portion 3. Excavation of trial pits was conducted at Portion 1.

3.2 Project 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. 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. $L_{eq(30\ min)}$ is used as the monitoring parameter for the period between 0700 and 1900 hours on normal weekdays. For all other time periods, three consecutive $L_{eq(5min)}$ 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
ACTION LEVEL				
Exceedance for one sample	• Identify source, investigate the causes of exceedance and propose remedial measures; • Inform IEC and ER; • Repeat measurement to confirm finding.	• Check monitoring data submitted by ET; • Check Contractor's working method.	• Notify Contractor.	• Rectify any unacceptable practice; • Amend working methods if appropriate.
Exceedance for two or more consecutive samples	• Identify source, investigate the cause of exceedance and propose remedial measures ; • Inform IEC and ER; • Advise ER on the effectiveness of the proposed remedial measures; • Repeat measurements to confirm findings;	• Check monitoring data submitted by ET; • Check Contractor's working method; • Discuss with ET and Contractor on possible remedial measures; • Advise the ET on the effectiveness of the proposed remedial measures;	• Confirm receipt of notification of exceedance in writing; • Notify Contractor; • Ensure remedial measures properly implemented.	• Submit proposals for remedial to ER within 3 working days of notification; • Implement the agreed proposals; • Amend proposal if appropriate.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	• Increase monitoring frequency to daily; • Discuss with IEC and Contractor on remedial actions required; • If exceedance continues, arrange meeting with IEC and ER; • If exceedance stops, cease additional monitoring.	• Supervise Implementation of remedial measures.		
LIMIT LEVEL				
Exceedance for one sample	• Identify source, investigate the causes of exceedance and propose remedial measures; • Inform IEC, ER, Contractor and EPD; • Repeat measurement to confirm finding; • Increase monitoring frequency to daily; • Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. • If exceedance stops, cease additional monitoring.	• Check monitoring data submitted by ET; • Check Contractor's working method; • Discuss with ET and Contractor on possible remedial measures; • Advise ER on the effectiveness of the proposed remedial measures; • Supervise implementation of remedial measures.	• Confirm receipt of notification of exceedance in writing; • Notify Contractor; • Ensure remedial measures properly implemented.	• Take immediate action to avoid further exceedance; • Submit proposals for remedial actions to IEC within 3 working days of notification; • Implement the agreed proposals; • Amend proposal if appropriate.
Exceedance for two or more consecutive samples	• Notify IEC, ER, Contractor and EPD; • Identify source, investigate the cause of exceedance and propose remedial measures; • Repeat measurement to confirm findings; • Increase monitoring frequency to daily; • Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; • Arrange meeting with IEC and ER to	• Discuss amongst ER, ET, and Contractor on the potential remedial actions; • Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly; • Supervise the implementation of remedial measures.	• Confirm receipt of notification of exceedance in writing; • Notify Contractor; • In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; • Ensure remedial measures properly implemented; • If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work	• Take immediate action to avoid further exceedance; • Submit proposals for remedial actions to IEC within 3 working days of notification; • Implement the agreed proposals; • Resubmit proposals if problem still not under control; • Stop the relevant portion of works as determined by ER until the exceedance is abated.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	discuss the remedial actions to be taken; • Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; • If exceedance stops, cease additional monitoring.		until the exceedance is abated.	

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

EVENT	Action			
	ET	IEC	ER	CONTRACTOR
Action Level	• Notify IEC and ER; • Carry out investigation; • Report the results of investigation to the IEC, ER and Contractors; • Discuss with the Contractor and formulate remedial measures; • Increase monitoring requrency to check mitigation effectiveness.	• Review the analysed results submitted by the ET; • Review the proposed remedial measures by the Contractor and advise the ER accordingly; • Supervise the implementation of remedial measure.	• Confirm receipt of notification of failure in writing; • Notify Contractor; • Require Contractor to propose remedial measures for the analysed noise problem; • Ensure remedial measures are properly implemented.	• Submit noise mitigation proposal to IEC; • Implement noise mitigation proposals.
Limit Level	• Identify source; • Inform IEC, ER, EPD and Contractor; • Repeat measurements to confirm findings; • Increase monitoring frequency to check mitigation effectiveness; • Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; • Inform IEC, ER and EPD the causes and actions taken for the exceedances; • Assess effectiveness of Contractor's remedial actions and	• Discuss amongst ER, ET, and Contractor on the potential remedial actions; • Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; • Supervise the implementation of remedial measures.	• Confirm receipt of notification of failure in writing; • Notify Contractor; • Require Contractor to propose remedial measures for the analysed noise problem; • Ensure remedial measures properly implemented; • 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 abated.	• Take immediate action to avoid further exceedance; • Submit proposals for remedial actions to IEC within 3 working days of notification; • Implement the agreed proposals; • Resubmit proposals if problem still not under control; • Stop the relevant portion of works as determined by th ER until the exceedance is abated.

EVENT	Action			
	ET	IEC	ER	CONTRACTOR
	keep IEC, EPD and ER informed of the results; • If exceedance stops, cease additional monitoring.			

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

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

6 Monitoring Results

6.1 Monitoring Methodology

6.1.1 Air Quality

1-hr and 24-hr TSP monitoring works were undertaken by the ET using high volume samplers (HVS). The sampling procedures followed the standard sampling method as set out in High Volume Method for Total Suspended Particulates, Part 50 Chapter 1 Appendix B, Title 40 of the Code of Federal Regulations of the USEPA.

During the sampling, dust laden air was drawn through a HVS fitted with a conditioned, pre-weighted filter paper, at a controlled rate. After sampling for 1 hour and 24 hours, the filter paper with retained particles was collected and returned to the laboratory for drying in a desiccator followed by accurate weighing. Respective 1-hour and 24-hour TSP levels were calculated from the ratio of the mass of particulates retained on the filter paper to the total volume of air sampled.

The HVSs were equipped with an electronic mass flow controller and calibrated against a traceable standard at regular intervals. All equipment, calibration kit and filter papers were clearly labelled.

The sampling procedures and specifications were the same for 1-hour and 24-hour baseline air quality monitoring except the sampling duration. The specifications were as follows:

- 0.6-1.7 m^3/min (20-60SCFM);
- Equipped with a timing/control device with +/- 5 minutes accuracy for 24 hours operation;
- Installed with elapsed time meter with +/- 2 minutes accuracy for 24 hours operation;
- Capable of providing a minimum exposed area of 406 cm^2 (63in^2);
- Flow control accuracy: +/- 2.5% deviation over 24-hr sampling period;
- Equipped with a shelter to protect the filter and sampler;
- Incorporated with an electronic mass flow rate controller or other equivalent devices;
- Equipped with a flow recorder for continuous monitoring;
- Provided with a peaked roof inlet;
- Incorporated with a manometer;
- Able to hold and seal the filter paper to the sampler housing at horizontal position;
- Easy to change the filter; and
- Capable of operating continuously for a 24-hour period.

Relevant environmental data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and other special phenomena observed and work progress of the concerned site were also recorded.

Filter papers of size 8"x10" were labelled before sampling. They were inspected clean with no pin holes and conditioned in a humidity-controlled chamber for over 24-hr and be pre-weighed before use for the sampling.

After sampling, the filter papers loaded with dust were kept in a clean and tightly sealed plastic bag, and then returned for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with a readout down to 0.1 mg. All the collected samples would be kept in a good condition for 6 months before disposal.

The weight of filter paper was measured by a HOKLAS accredited laboratory.

6.1.2 Noise

Weatherproof logging sound level meters which comply with the International Electrotechnical Commission Publication 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications were used to measure the construction noise at the designated monitoring locations. Noise parameters of the A-weighted levels L_{eq}, L_{10} and L_{90} were measured with a sampling period of 5 minutes throughout the monitoring. The average of six consecutive 5-minute readings was used to provide $L_{eq(30\ minutes)}$ for non-

restricted hours. A facade correction of 3dB(A) would be applied to all free field measurements.

During the impact monitoring, information such as date, weather condition, equipment used, measurement results and major noise sources were recorded on the field data record sheet. Noise measurements would not be made in fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed would be checked with a portable wind speed meter capable of measuring wind speed in m/s. All measurements were recorded to the nearest 0.1dB(A).

6.2 Name of Laboratory, Types of Equipment Used and Calibration Details

6.2.1 Name of Laboratory

Filter papers used for air quality monitoring were sent to ALS Environmental, a HOKLAS accredited laboratory, for weighing. Other sampling and analytical works were conducted by Hyder Consulting Limited, the ET.

6.2.2 Types of Equipment Used and Calibration Details

HVS - Model GBM2000H1, manufactured by Anderson Instruments Inc., was used for TSP monitoring. It complies with the USEPA specifications in Appendix B Part 50 - Reference Method for the Determination of Suspended Particulate matter in the Atmosphere (High-Volume Method) of the Code of Federal Regulation dated July 1, 1991. Initial calibration of dust monitoring equipment was conducted upon installation and prior to commissioning. One point flow rate calibration would be carried out every two months. Five-point calibration would be carried out every six months. All the calibration data were converted into standard temperature and pressure condition.

Orific HVS Calibration Kit model G2523 was used for the calibration of HVSs. Calibration of calibration kit would be carried out annually. Appendix 7 presents the monitoring equipment calibration record.

For noise monitoring, Bruel & Kjaer (B&K) Precision Integrating Sound Level Meters of Type 2238 in compliance with the International Electrotechnical Commission Publication 651: 1979 (Type 1) and 804: 1985 (Type 1) Specifications were used.

Prior to and following each noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator (B&K Type 4230) generating a known sound pressure level at a known frequency. Measurements were considered as valid only if the calibration level from before and after the noise measurement agree to within 1dB. All sound level meters and calibrators would be calibrated annually. Appendix 7 presents the monitoring equipment calibration records.

Table 6-5 summarises the types of monitoring and calibration equipment.

Equipment Type	Manufacturer	Model	Serial Number/I.D.
Sound Level Meter	B&K	Type 2238	2448529
Sound Level Meter	B&K	Type 2238	2285726
Sound Level Calibrator	B&K	Type 4231	1770806
High Volume Sampler(1)	Anderson	GBM 2000 H1	1191
High Volume Sampler	Anderson	GBM 2000 H1	0134
High Volume Sampler(2)	Anderson	GBM 2000 H1	1101
Orific HVS Calibration Kit	Tisch Environmental	G2523	517N

Note: (1) The HVS was used before 14 January 2006
(2) The HVS was used on and after 14 January 2006

Table 6-5 Monitoring Equipment

6.3 Parameters Monitored

Parameters monitored are described in Sections 4.1.1 and 4.1.2.

6.4 Monitoring Locations

There are two designated air quality monitoring locations identified in the EM&A Manual. Due to the access constraint, alternative monitoring locations were selected and approved by ER and IEC prior the commencement of monitoring. These alternative locations for air quality monitoring are summarised in Table 6-6 and shown in Appendix 4.

Monitoring Station ID	Name of Premises	Monitoring Location
CAM1a	San Po Street Pumping Station	Ground floor level
CAM2a	Sheung Shui Heung Floodwater Pumping Station	Ground floor level

Table 6-6 Air Quality Monitoring Locations

There are two designated noise monitoring locations identified in the EM&A Manual and their locations are described below and shown in Appendix 4.

Monitoring Station ID	Name of Premises	Monitoring Location
NM1	Wai Loi Tsuen	1.2m above ground
NM2	Temporary Domestic Structure	1.2m above ground

Table 6-7 Noise Monitoring Locations

6.5 Monitoring Date, Time, Frequency and Duration, Weather Condition and Other Factors

Monitoring frequency for 1-hr TSP and 24-hr TSP is 3 times every 6 days and once every 6 days, respectively. One set of noise measurements will be conducted between 0700 and 1900 on normal weekdays at each monitoring station on a weekly basis, when noise-generating activities are underway. Monitoring date, time and duration for noise and air quality monitoring and all other factors related to the monitoring result, such as weather condition, are listed in the following tables.

Station	Date	Time	Duration	Weather Condition
1-hr TSP				
CAM1a	3-Jan-06	0934-1243	3 X 1 hour	Fine
	9-Jan-06	0915-1216	3 X 1 hour	Cloudy
	14-Jan-06	0955-1302	3 X 1 hour	Fine
	20-Jan-06	0906-1213	3 X 1 hour	Cloudy
	26-Jan-06	0925-1224	3 X 1 hour	Cloudy
CAM2a	3-Jan-06	0946-1255	3 X 1 hour	Fine
	9-Jan-06	0925-1224	3 X 1 hour	Cloudy
	14-Jan-06	1006-1305	3 X 1 hour	Fine
	20-Jan-06	0920-1224	3 X 1 hour	Cloudy
	26-Jan-06	0935-1233	3 X 1 hour	Cloudy
24-hr TSP				
CAM1a	3-Jan-06	1320-1319	24 hours	Fine
	9-Jan-06	1219-1217	24 hours	Cloudy
	14-Jan-06	1350-1350	24 hours	Fine
	20-Jan-06	1217-1217	24 hours	Cloudy
	26-Jan-06	1224-1224	24 hours	Cloudy
CAM2a	3-Jan-06	1331-1330	24 hours	Fine
	9-Jan-06	1230-1227	24 hours	Cloudy
	14-Jan-06	1340-1340	24 hours	Fine
	20-Jan-06	1228-1228	24 hours	Cloudy
	26-Jan-06	1233-1233	24 hours	Cloudy

Table 6-8 Sampling Schedule of Air Quality Monitoring

Station	Date	Time	Duration	Weather Condition
NM1	3-Jan-06	1210-1240	30 minutes	Fine
	9-Jan-06	0935-1005	30 minutes	Cloudy
	20-Jan-06	1135-1205	30 minutes	Cloudy
	26-Jan-06	1045-1115	30 minutes	Cloudy
NM2	3-Jan-06	1102-1132	30 minutes	Fine
	9-Jan-06	1035-1105	30 minutes	Cloudy
	20-Jan-06	1030-1100	30 minutes	Cloudy
	26-Jan-06	0950-1020	30 minutes	Cloudy

Table 6-9 Sampling Schedule of Noise Monitoring

6.6 Results and Graphical Plots of Monitoring Parameters

Air quality monitoring results of 1-hour and 24-hour TSP are summarised in Table 6-10 and detailed in Appendix 8. Graphical plots of the monitoring results are also provided in Appendix 8.

Station	Date	Measured Level (μg/m³)		Action/Limit Level (μg/m³)	
		1-hr TSP	24-hr TSP	1-hr TSP	24-hr TSP
CAM1a	3-Jan-06	168.2	37.8	342.7/500	203.3/260
		149.1			
		118.4			
	9-Jan-06	248.1	61.1		
		226.0			
		229.4			
	14-Jan-06	173.8	132.3		
		131.2			
		115.5			
	20-Jan-06	148.7	61.2		
		108.2			
		122.9			

Station	Date	Measured Level (µg/m³)		Action/Limit Level (µg/m³)	
		1-hr TSP	24-hr TSP	1-hr TSP	24-hr TSP
	26-Jan-06	207.5	119.6		
		171.7			
		135.5			
CAM2a	3-Jan-06	126.5	74.4	340.2/500	201.6/260
		106.7			
		102.6			
	9-Jan-06	179.0	189.4		
		175.9			
		165.8			
	14-Jan-06	104.5	78.0 (1)		
		78.9			
		76.6			
	20-Jan-06	118.6	31.6		
		76.2			
		91.4			
	26-Jan-06	118.9	80.1		
		106.1			
		106.6			

* Shaded area indicates an exceedance of Action/Limit Level.

(1) Due to the power failure, the dust monitoring was sampled for 12 hours.

Table 6-10 Air Quality Monitoring Results

Noise monitoring results are summarised in Table 6-11 and detailed in Appendix 8. Graphical plots of the monitoring results are also provided in Appendix 8. As all monitoring was conducted at free field condition, a facade correction of 3dB(A) was applied to each of the noise measurements.

Station	Date	Measured Noise Level, dB(A)			Limit Level, dB(A)
		$L_{90(30min)}$	$L_{10(30min)}$	$L_{eq\ (30min)}$	
NM1	3-Jan-06	53.2	59.4	57.3	75
	9-Jan-06	53.8	59.4	57.3	
	20-Jan-06	55.9	61.4	59.6	
	26-Jan-06	54.5	62.1	60.0	
NM2	3-Jan-06	52.2	55.4	53.9	75
	9-Jan-06	46.7	52.1	50.2	
	20-Jan-06	50.0	65.1	61.6	
	26-Jan-06	47.3	52.3	50.5	

Note : (1) Shaded area indicates an exceedance of Limit Level.

(2) A facade correction of 3dB(A) was applied to each of noise measurements.

Table 6-11 Noise Monitoring Results

6.7 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.

6.8 QA/QC Results and Detection Limit

The quality assurance (QA) / quality control (QC) results and detection limit are shown in Appendix 9.

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

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 month, no environmental complaint was received. Cumulative number of environmental complaint is shown in Appendix 10.

7.3 Notifications of Summons and Successful Prosecutions

No notification of summons or successful prosecution was recorded during the reporting month. The cumulative number of notifications of summons and successful prosecutions are shown in Appendix 10.

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 Inspection

Weekly site inspections were carried out on 4, 11, 18 and 25 January 2006. 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 7-12.

Inspection date	Deficiencies	Recommendation	Status
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.
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.
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.
25-Jan-06	1. Broken sandbags were observed along the existing	1. It was recommended to provide proper protection	1. The Contractor reported that appropriate actions

Inspection date	Deficiencies	Recommendation	Status
	U-channel at Portion 2 to prevent sand and silt entering into the drains. Removal of broken sand bag is required.	to the existing U channel.	would be implemented to rectify the situation.

Table 7-12 Summaries of Site Inspections and Recommendations

The site audit conducted by IEC was carried out on 25 January 2006. The Contractor has undertaken appropriate actions in responses to the IEC's findings.

There was no outstanding issue or deficiency.

8 Waste Management Status

According to the information provided by the Contractor, the following waste materials were generated during the reporting month:

- Inert C&D materials – 19.5 m^3; and
- General Refuse – 19.5 m^3.

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

9 Future Key Issues

The construction activity for the coming three months is summarized below:

- construction of preliminary and permanent mini-piles
- construction of permanent H-piles
- loading test for the piles
- cable diversion
- relocation of $FeCl_3$ tank

The upcoming EM&A schedule for the future three months is shown in Appendix 12.

10 Comments, Recommendations and Conclusions

EM&A works have been undertaken in January 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.

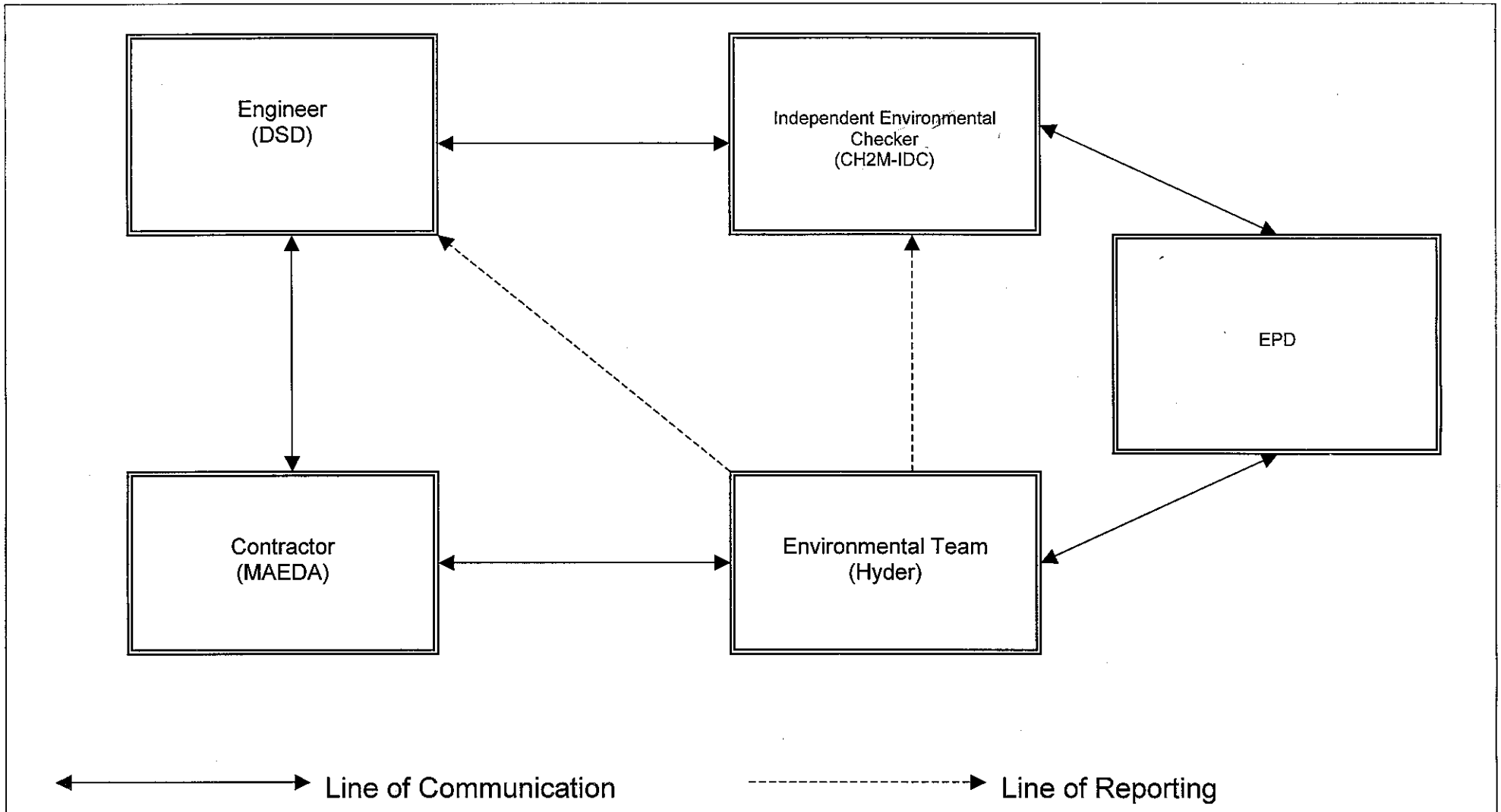
No valid exceedance of Action/Limit Level was recorded during the reporting month.

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

Four weekly site inspections were carried out during the reporting month. In response to the observations raised by ET, the Contractor has undertaken follow-up actions to rectify the condition.

Appendix 1

Project Organization



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

Appendix 2

Construction Programme

Start Date	26/09/05
Finish Date	24/09/08
Data Date	26/09/05
Run Date	31/10/05 12:36

Early Bar
Progress Bar
Critical Activity

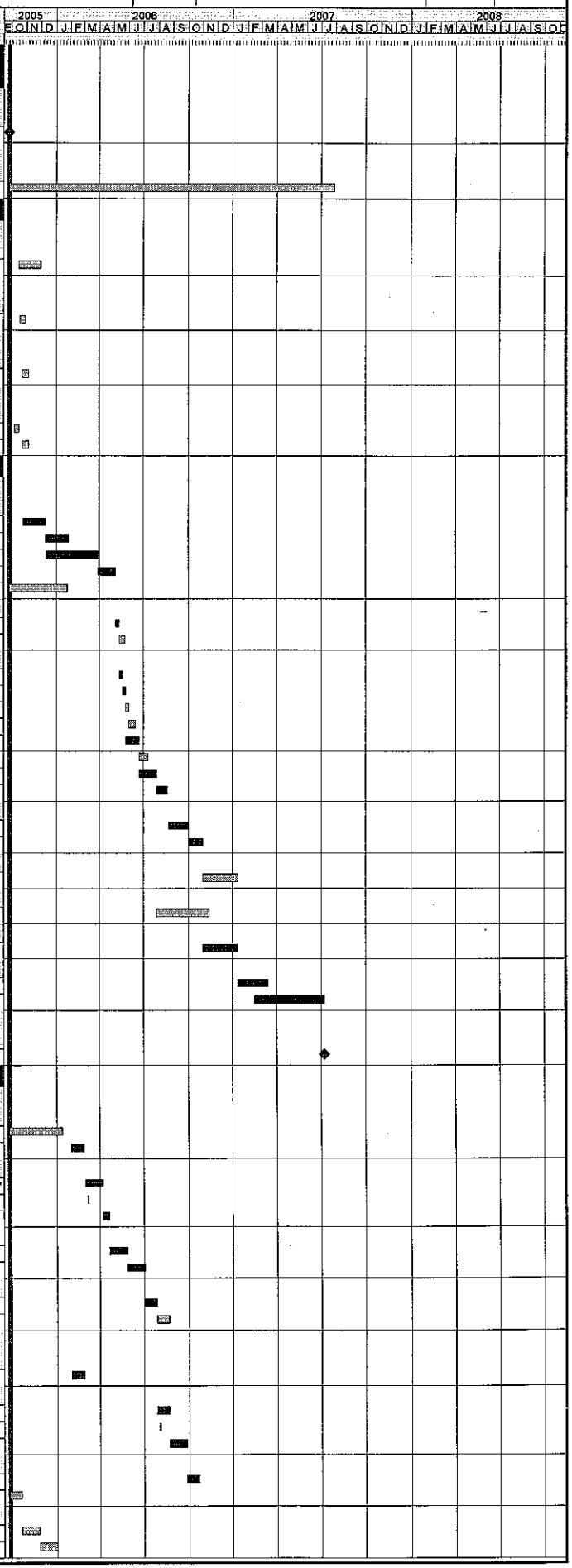
D5DA

Sheet 1 of 5

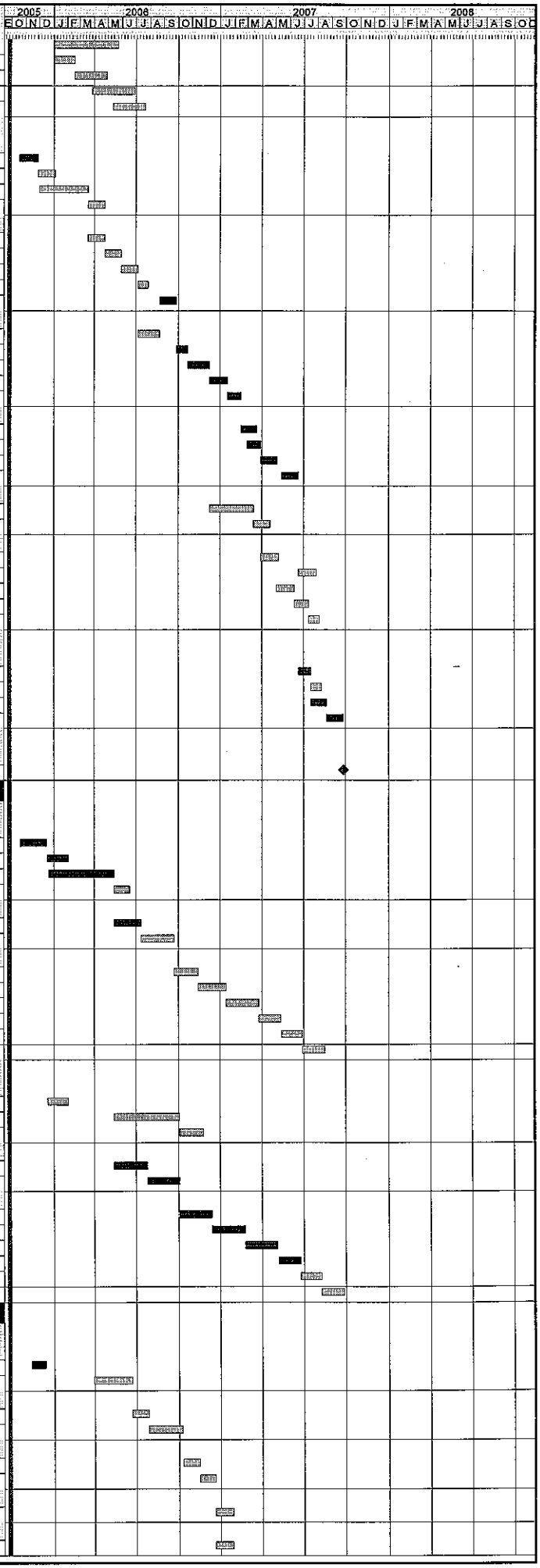
Contract No. DC/2005/01
EXPANSION OF SHEK WU HUI
SEWAGE TREATMENT WORKS AND
UPGRADING OF TING KOK ROAD PUMPING STN NO.5

Date	Revision	Checked	Approved

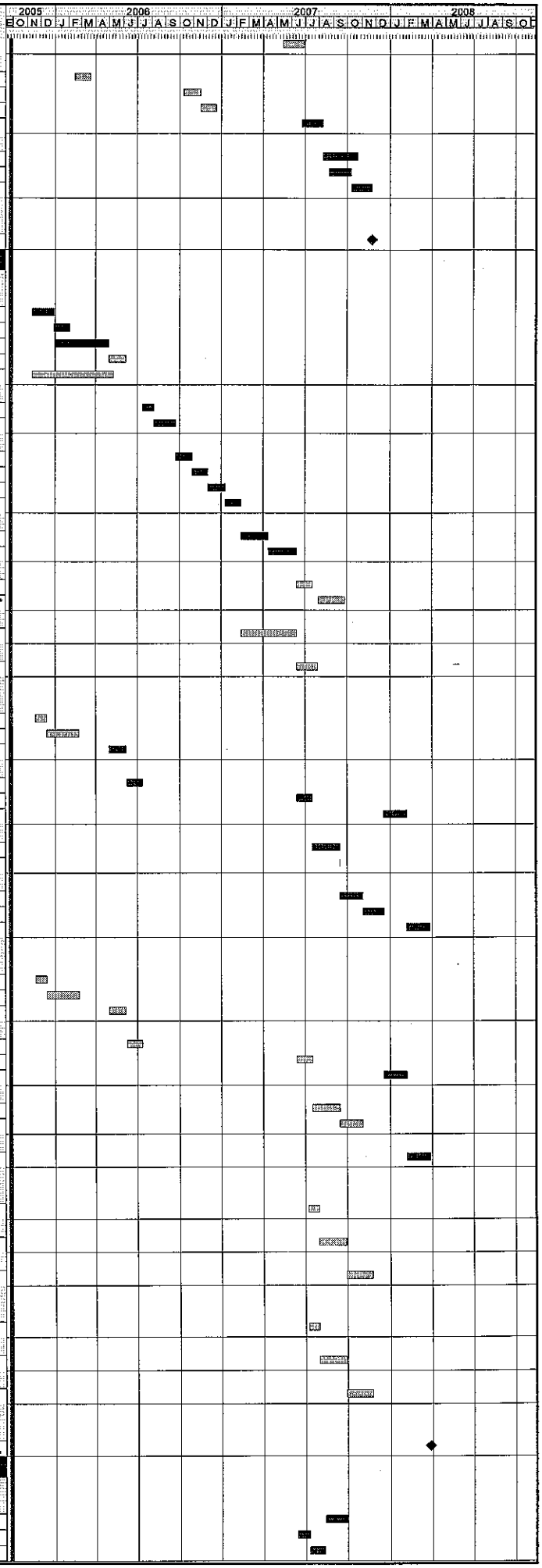
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Predecessors
Shek Wu Hui					
Contract No. DC/2005/01					
Contract Dates					
D004	Commencement of the Works	0	26/09/05		
Air Blower House No.2					
D014	Completion of Section 1 of the Works	670	26/09/05	27/07/07	
BN01: Preliminaries					
Area A					
DC0104	The Engineer's Site Accommodation	40	17/10/05	01/12/05	DC0132*
Area B					
DC0112	Contractor's office erection	11	18/10/05	29/10/05	D004*
Area A, B & C					
DC0122	Hoarding erection	12	24/10/05	05/11/05	D004*
Portion 2					
DC0132	Site clearance	8	07/10/05	15/10/05	D004*
DC0134	Fencing erection	12	24/10/05	05/11/05	DC0132*
BN02: Section 1 of Works					
Air Blower House No.2					
Foundation					
DC0202	GI works (Predrilling & reporting)	40	25/10/05*	09/12/05	DC0132
DC0204	Preliminary H-piles (1nos.)	40	10/12/05	26/01/06	DC0202*
DC0206	Permanent H-piles (21nos.)	90	13/12/05	28/03/06	DC0204*
DC0208	Proof Load Test (1nos.)	30	29/03/06	03/05/06	DC0206*
DC0210	Utility Detecton and Diversion	100	27/09/05	24/01/06	
Earthworks					
DC0216	Excavation, Grid 1 - 6/K-L (5.3mPD)	6	04/05/06	10/05/06	DC0208*, DC0210
DC0218	Excavation Grid A-K (5.3mPD)	10	12/05/06	23/05/06	DC0212*, DC0216*
Substructure					
DC0222	Pilecaps, 6nos. Grid 1-3/K-L + Ground Beams	6	12/05/06	18/05/06	DC0216*
DC0224	Pilecaps, 6nos. Grid 4-6/K-L + Ground Beams	6	19/05/06	25/05/06	DC0222*
DC0226	Pilecaps, 6nos. Grid 4-6/F-J + Ground Beams	6	26/05/06	01/06/06	DC0224*
DC0228	Pilecaps, 6nos. Grid 4-6/A-F + Ground Beams	9	02/06/06	13/06/06	DC0226*
DC0232	Base slabs, Grid K-L	21	26/05/06	20/06/06	DC0224*
DC0234	Base slabs, Grid 4-6/A-K	15	21/06/06	08/07/06	DC0232*
DC0236	Structural works up to ground level	30	21/06/06	26/07/06	DC0232*
DC0238	Ground floor slab	20	28/07/06	19/08/06	DC0220*, DC0236*
Superstructure					
DC0242	Structural framing & slab at lev 11.80mPD	35	21/08/06	30/09/06	DC0238*
DC0244	Concrete structure up to roof	24	02/10/06	30/10/06	DC0242*
Internal Finishes					
DC0246	Internal Finishes	60	31/10/06	10/01/07	DC0244*
E&M installation					
DC0248	Pipework & drainage/ducts in structures	92	27/07/06	13/11/06	DC0236*
External Finishes					
DC0252	External finishes	60	31/10/06	10/01/07	DC0244*
External Works					
DC0260	External Works	52	12/01/07	13/03/07	DC0240*, DC0252*
DC0262	Covered Walkway	120	15/02/07	07/07/07	DC0260*
Key Date					
DC02K1	Completion of the Section 1	0		07/07/07	D004*, DC0262*
BN03: Section 2 of Works					
Flow Division Pump Pit Nos. 1					
Foundation					
DC0360	Utilities Diversion	91	27/09/05	13/01/06	
DC0364	Permanent Mini-pile (4nos.)	24	01/02/06*	28/02/06	
Earthworks					
DC0368	Install temporary retaining wall (sheetpile)	30	02/03/06	06/04/06	DC0334, DC0360, DC0364*
DC0370	Demolition of existing pipes No.1, temp closure	1	07/03/06	07/03/06	DC0368*
DC0372	Excavation & temp. supporting	12	07/04/06	20/04/06	DC0366*, DC0368*
Structure					
DC0376	Pilecaps	30	21/04/06	26/05/06	DC0372*
DC0378	Concrete works & pipework	30	27/05/06	03/07/06	DC0376*
External Works					
DC0382	Backfilling, remove temp. retaining wall	20	04/07/06	26/07/06	DC0378*
DC0384	Installation, handrail/plate/ladder	23	27/07/06	22/08/06	DC0380*, DC0382*
Flow Division Pit Nos. 2					
Foundation					
DC0334	Mini-piling, Pit 2, 4 nos.	24	01/02/06*	28/02/06	DC0330*
Earthworks					
DC0342	Installation of temp. retaining wall	23	27/07/06	22/08/06	DC0382*
DC0344	Demolition of existing pipes No.2, temp. closure	1	02/08/06	02/08/06	DC0342*, DC0368
DC0346	Excavation & temp. supporting	30	23/08/06	27/09/06	DC0340*, DC0342*,
Structure					
DC0386	Pilecaps	20	28/09/06	21/10/06	DC0346*
DC0388	Concrete work & pipework	20	27/09/05	21/10/05	DC0348*
External Works					
DC0390	Backfill to Pit 2, remove temp. retaining wall	30	22/10/05	25/11/05	DC0388*
DC0392	Installation, handrail/plate/ladder	30	26/11/05	31/12/05	DC0390*



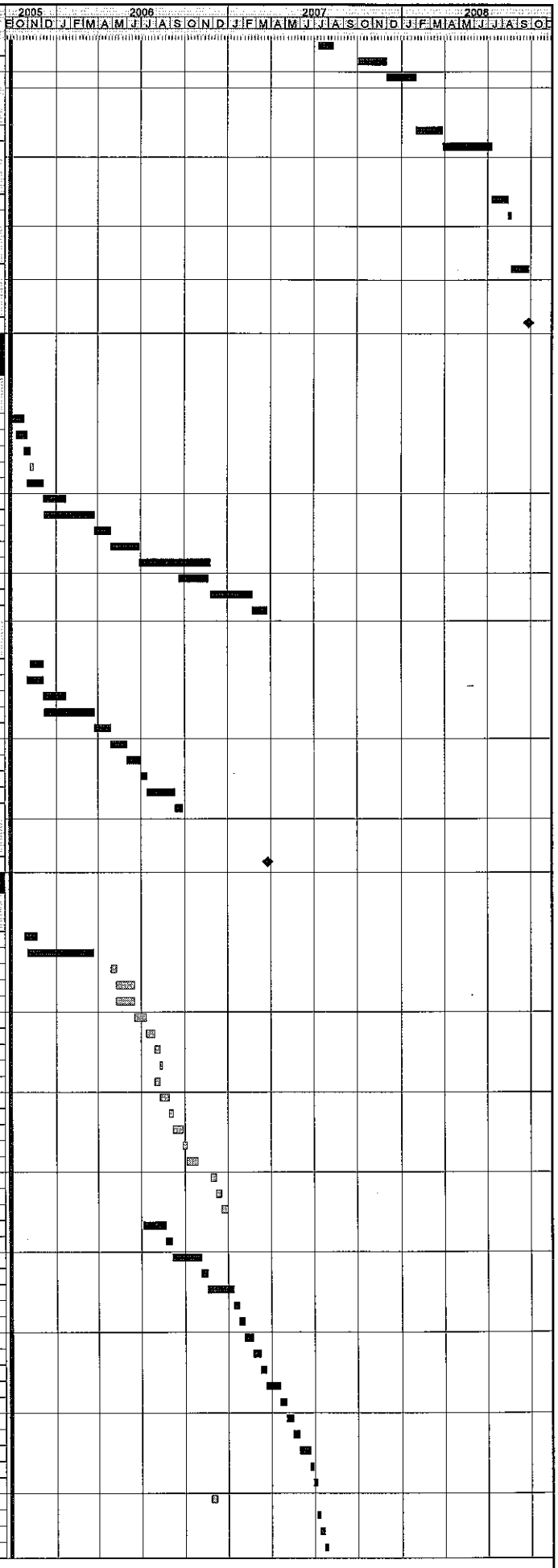
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Predecessors
DC0394	Pipeworks	120	02/01/06	23/05/06	DC0392*
DC0396	Pipelaying & connection, Pit 1 to 2	40	02/01/06	16/02/06	DC0394*
DC0398	Excavate trench	58	17/02/06	26/04/06	DC0396*
DC0400	Pipelaying & connection Pit 2 to Bioreactor No.5	76	28/03/06	27/06/06	DC0398*
DC0402	Backfill & reinstate trench	57	12/05/06	19/07/06	DC0400*
Bioreactor No.5 Structure					
Foundation					
DC0302	GI works (predrilling & reporting)	35	20/10/05*	29/11/05	
DC0304	Preliminary H-piles (1no.)	30	30/11/05	04/01/06	DC0302*
DC0306	Permanent H -piles (21nos)	90	02/12/05	17/03/06	DC0304*
DC0308	Proof Load Test (1nos.)	30	18/03/06	22/04/06	DC0306*
Earthworks					
DC0312	Install temp. retaining wall (sheetpile)	30	18/03/06	22/04/06	DC0306*
DC0314	Excavation & temp. supporting, 1/2 depth, north	30	24/04/06	29/05/06	DC0312*
DC0316	Excavation & temp. supporting, remain, north	30	30/05/06	05/07/06	DC0314*
DC0318	Excavation & temp. supporting, 1/2 depth, south	20	06/07/06	28/07/06	DC0316*
DC0320	Excavation & temp. supporting, remain, south	30	23/08/06	27/09/06	DC0316, DC0342*
Substructure					
DC0322	Pilecaps, 32nos. Bay1-4	40	06/07/06	21/08/06	DC0316*
DC0324	Pilecaps, 24nos. Bay5-6	20	28/09/06	21/10/06	DC0320*, DC0346*
DC0326	Base slab, Bay 1 & 3	40	23/10/06	07/12/06	DC0322, DC0324*,
DC0328	Base slab, Bay 2 & 5	32	08/12/06	16/01/07	DC0324, DC0326*
DC0338	Base slab, Bay 4 & 6	25	17/01/07	14/02/07	DC0328*
Superstructure					
DC0352	Wall, Bay 4&6	30	15/02/07	21/03/07	DC0338*
DC0354	Wall, Bay 2&5	25	01/03/07	29/03/07	DC0352*
DC0356	Wall, Bay 1&3	30	31/03/07	05/05/07	DC0354*
DC0358	Remaining structural work	30	15/05/07	19/06/07	DC0356*
E&M installation					
DC0374	Plumbing & pipework, incl. testing	80	08/12/06	13/03/07	DC0326*
DC0404	Place alum. flooring & install handrailing	30	14/03/07	18/04/07	DC0374*
External Works					
DC0410	Backfill, remove temp. retaining wall	32	30/03/07	07/05/07	DC0354*
DC0412	Water retaining test	34	20/06/07	28/07/07	DC0358*
DC0414	Concrete butterfly pit & flowmeter chamber 5&6	30	04/05/07	09/06/07	DC0410*
DC0416	Plumbing & pipework, dumy pipe provided by other	28	11/06/07	12/07/07	DC0414*
DC0418	Place multi-part/precast cover	20	13/07/07	04/08/07	DC0416*
Final Sedimentation Tank Distribution Chamber					
E&M installation					
DC0422	Internal installation, intermediate platform etc	23	20/06/07	16/07/07	DC0358*
DC0426	Place alum. flooring & install handrailing	20	17/07/07	08/08/07	DC0422*
DC0428	Pipelaying, manholes & connection	30	17/07/07	20/08/07	DC0422*
DC0430	Reinstatement around area	30	21/08/07	25/09/07	DC0428*
Key Date					
DC03K2	Completion of the Section 2	0		25/09/07	DC0418, DC0430*
BN04: Section 3 of Works					
Final Sedimentation Tank Nos. 9					
Foundation					
DC0432	GI Works (predrilling & reporting)	50	21/10/05	17/12/05	DC0302*
DC0434	Preliminary H-piles (1nos)	40	19/12/05	03/02/06	DC0432*
DC0436	Permanent H-piles, 21 nos.	120	21/12/05	12/05/06	DC0434*
DC0438	Proof Load Test (1nos)	30	13/05/06	17/06/06	DC0436*
Earthworks					
DC0442	Install temp. retaining wall (sheetpile)	50	13/05/06	12/07/06	DC0436*
DC0444	Excavation	60	13/07/06	21/09/06	DC0442*
Substructure					
DC0431	Pipelaying, surrounding	45	22/09/06	14/11/06	DC0444*
DC0433	Pilecaps/Base slab, cast in pipe	50	15/11/06	13/01/07	DC0431*
DC0435	Wall concrete	60	15/01/07	24/03/07	DC0433*
DC0437	Internal finishing	40	26/03/07	12/05/07	DC0435*
DC0439	Water retaining test	40	14/05/07	29/06/07	DC0437*
DC0441	Backfill & remove temp. retaining wall	40	30/06/07	15/08/07	DC0439*
Final Sedimentation Tank Nos. 10					
Foundation					
DC0456	Preliminary H-piles (1nos)	40	19/12/05	03/02/06	DC0432*
DC0458	Permanent H-piles (41nos.)	120	13/05/06	03/10/06	DC0436*, DC0456
DC0460	Proof Load Test (1nos)	45	04/10/06	25/11/06	DC0458*
Earthworks					
DC0462	Install temp. retaining wall (sheetpile)	60	13/05/06	24/07/06	DC0442*
DC0464	Excavation	60	25/07/06	03/10/06	DC0462*
Substructure					
DC0466	Pipelaying, surrounding	60	04/10/06	13/12/06	DC0464*
DC0468	Pilecaps, Base slab, cast in pipe	60	14/12/06	23/02/07	DC0466*
DC0470	Wall concrete	60	24/02/07	05/05/07	DC0468*
DC0472	Internal finishing	40	07/05/07	23/06/07	DC0470*
DC0474	Water retaining test	40	25/06/07	09/08/07	DC0472*
DC0476	Backfill & remove temp. retaining wall	40	10/08/07	26/09/07	DC0470, DC0474*
BN05: Section 3 of Works					
RAS/SAS Pumping Station - Main Station/Switch Rm					
Foundation					
DC0502	GI works (predrilling & reporting)	26	14/11/05*	13/12/05	
DC0504	Permanent H-pile (6nos.)	70	29/03/06	21/06/06	DC0206*, DC0502
Earthworks					
DC0506	Install temp. retaining wall (sheetpile)	30	22/06/06	27/07/06	DC0504*
DC0508	Excavation	60	28/07/06	07/10/06	DC0506*
Substructure					
DC0516	Pilecaps/tie beams	30	12/10/06	15/11/06	DC0508*
DC0518	Concrete structure up to Lev. 7.4mPD	30	16/11/06	20/12/06	DC0516*
Superstructure					
DC0520	Concrete structure up to roof	30	21/12/06	26/01/07	DC0516, DC0518*
E&M installation					
DC0522	Pipework/plumbing & opening	30	21/12/06	26/01/07	DC0518*



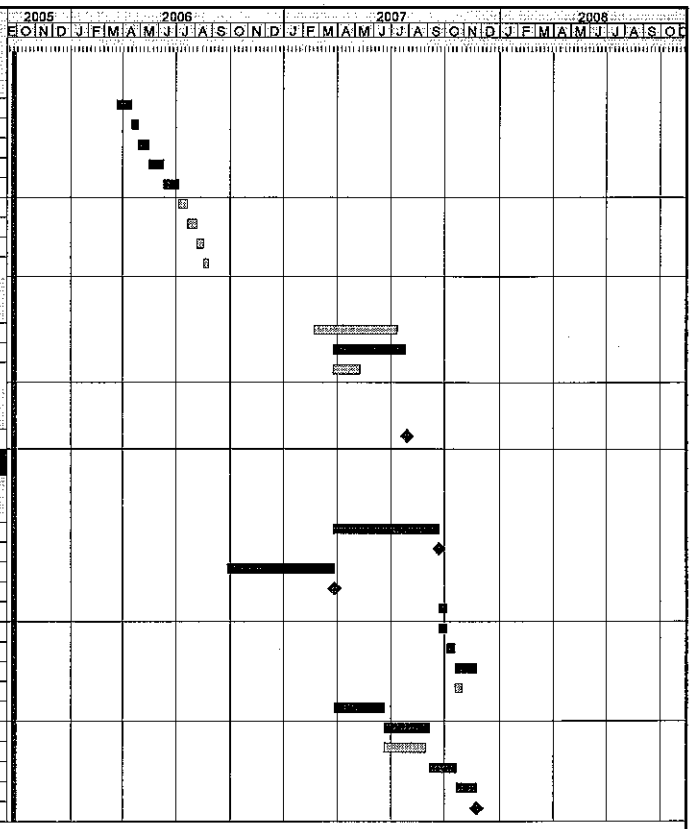
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Predecessors
DC0524	Internal/External finishes	40	14/05/07	29/06/07	DC0437*, DC0522
Switch Room					
DC0532	Permanent Mini-pile (6nos.)	30	14/02/06*	20/03/06	DC0502
DC0534	Excavation, blinding, pilecaps	30	12/10/06	15/11/06	DC0508*, DC0532
DC0536	Structural works	30	16/11/06	20/12/06	DC0534*
DC0538	Internal/External finishing	40	25/06/07	09/08/07	DC0472*, DC0536
External Works					
DC054000	External manholes/pits construction	60	10/08/07	22/10/07	DC0538*
DC054200	Pipelaying, surround & connection	39	22/08/07	09/10/07	DC054000*
DC056200	Backfill & reinstatement	40	10/10/07	24/11/07	DC0476, DC054200*
Key Date					
DC04K3	Completion of the Section 3	0		24/11/07	DC0441, DC056200*
BN06: Section 4 of Works					
Sludge Press House Extension					
Foundation					
DC0610	GI works (pre-drilling & reporting)	40	14/11/05	30/12/05	DC0502*
DC0612	Preliminary mini piling (1nos)	30	31/12/05	03/02/06	DC0610*
DC0614	Permanent Mini-piles (17nos.)	100	03/01/06	29/04/06	DC0612*
DC0616	Proof load test	30	01/05/06	05/06/06	DC0614*
DC0618	Utility Diversion	150	14/11/05	09/05/06	DC0610*
External Works (FeCl3 tank relocation)					
DC0622	Construction new FeCl3 storage tank	20	13/07/06	04/08/06	DC0676*
DC0624	Relocate the FeCl3 storage tank	40	05/08/06	21/09/06	DC0622*
Earthworks					
DC0630	Demolition of existing FeCl Storage tank	30	22/09/06	27/10/06	DC0624*
DC0632	Demolition of existing wall, Sludge Press House	30	28/10/06	01/12/06	DC0630*
DC0634	Excavation & pilecaps, 10 nos.	30	02/12/06	08/01/07	DC0632*
DC0636	Backfill & compaction	30	09/01/07	12/02/07	DC0634*
Superstructure					
DC0638	Structre up to 1st floor	50	13/02/07	12/04/07	DC0636*
DC0640	Structre up to roof	50	13/04/07	12/06/07	DC0638*
Internal Finishes					
DC0644	Internal finishes works & openings	30	13/06/07	17/07/07	DC0640*
DC0646	Fitting out: doors, railings etc.	50	30/07/07	26/09/07	DC0644, DC0648, DC0650*
E&M Installation					
DC0648	Pipework & ducting	100	13/02/07	12/06/07	DC0638*
External Finishes					
DC0650	External finishes works	40	13/06/07	28/07/07	DC0640*
Sludge Conditioning Tank No.3					
Foundation					
DC0666	GI works (pre-drilling & reporting)	20	21/11/05	13/12/05	DC0610*
DC0670	Permanent Mini-piles (6nos.)	60	14/12/05	22/02/06	DC0666*
DC0672	Proof load test (1/2Nos.)	30	01/05/06	05/06/06	DC0614*
Earthworks					
DC0676	Install temp. retaining walls (sheetpile)	30	07/06/06	12/07/06	DC0672*
DC0678	Excavation	30	13/06/07	17/07/07	DC0640*, DC0676
DC0680	Backfill & rockfill underneath pit	40	20/12/07	06/02/08	DC0658*
Structure					
DC0682	Concrete works	50	18/07/07	14/09/07	DC0640, DC0678*
DC0684	Installation: handrailing/ladders/mesh etc.	0	15/09/07	14/09/07	DC0682*
External Works					
DC0656	Pipelaying of pipeline No.11 & 12	40	15/09/07	02/11/07	DC0682*
DC0658	Connection to existing systems	40	03/11/07	19/12/07	DC0656*
DC0660	Sump pit construction	44	07/02/08	28/03/08	DC0680*
Sludge Conditioning Tank No.4					
Foundation					
DC0702	GI works (pre-drilling & reporting)	20	21/11/05	13/12/05	DC0666*
DC0704	Permanent Mini-piles (6nos.)	60	14/12/05	22/02/06	DC0702*
DC0706	Proof load test (1/2Nos.)	30	01/05/06	05/06/06	DC0614*
Earthworks					
DC0710	Install temp. retaining walls (sheetpile)	30	07/06/06	12/07/06	DC0706*
DC0712	Excavation	30	13/06/07	17/07/07	DC0640*, DC0710
DC0714	Backfill & rockfill underneath pit	40	20/12/07	06/02/08	DC0658*
Structure					
DC0716	Concrete works	50	18/07/07	14/09/07	DC0712*
DC0718	Installation: handrailing/ladders/mesh etc.	40	15/09/07	02/11/07	DC0716*
External Works					
DC0724	Sump pit construction	44	07/02/08	28/03/08	DC0714*
Dangerous Goods (cat.5) Storeroom					
Earthworks					
DC0732	Excavation, rockfill & blinding	20	09/07/07	31/07/07	DC0262*
Superstructure					
DC0734	Structures	50	01/08/07	28/09/07	DC0732*
Finishing					
DC0736	Internal & external finishing	45	29/09/07	22/11/07	DC0538, DC0734*
Chemical Waste storeroom No.1 & 2					
Earthworks					
DC0742	Excavation, rockfill & blinding	20	09/07/07	31/07/07	DC0732*
Superstructure					
DC0744	Structures	50	01/08/07	28/09/07	DC0742*
Finishing					
DC0746	Internal & external finishing	45	29/09/07	22/11/07	DC0744*
Key Date					
DC06K4	Completion of the Section 4	0		28/03/08	D004*, DC0660*, DC0724*,
BN07: Section 5 of Works					
Cover & Shelter to Existing Structure					
DC0752	Shelter for UV channel	41	13/08/07	29/09/07	DC0756*, DC0758*
DC0754	Cover for Inlet Pumping Station	24	13/06/07	10/07/07	DC0640*
DC0756	Cover for Flume channels	28	11/07/07	11/08/07	DC0754*



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Predecessors
DC0758	Cover for Grit channels	28	11/07/07	11/08/07	DC0754*
DC0760	Cover for Sedimentation tank No. 1-8	50	02/10/07	29/11/07	DC0752*
DC0762	Cover for Sludge Hoarding Tank No. 1-4	50	01/12/07	30/01/08	DC0760*
Roadworks					
DC0764	Portion 1	50	31/01/08	28/03/08	DC0762*
DC0766	Portion 2&3	86	29/03/08	10/07/08	DC0764*
Soft Landscaping Works					
DC0770	Planting works (Portion 2)	28	11/07/08	12/08/08	DC0766*
DC0772	Hydroseeding	6	13/08/08	19/08/08	DC0770*
Establishment Works					
DC079200	General establishment works	30	20/08/08	24/09/08	DC0772*
Key Date					
DC07K5	Completion of the Section 5	0		24/09/08	D004*, DC0772,
Upgrading of Ting Kok Road Pumping Station No.5					
BN08: Section 6 of Works					
Pumping Station					
DC0806	Initial Survey	22	27/09/05	24/10/05	D004*
DC0808	Site Clearance + Tree Felling	18	11/10/05	31/10/05	DC0806*
DC0810	Hoarding Erection	12	25/10/05	07/11/05	DC0808*
DC0812	Demolition of Existing Boundary Wall (partial)	7	08/11/05	15/11/05	DC0810*
DC0814	G.I./Pre-drilling	30	01/11/05	05/12/05	DC0808*
DC0818	Prelim Pile (1no) (Pile Installation+Setting up)	40	06/12/05	21/01/06	DC0814*
DC0820	Mini Piling (66 nos.)	90	08/12/05	23/03/06	DC0818*
DC0822	Pile Load Test (1 nos) (Selection of Piles)	30	24/03/06	28/04/06	DC0820*
DC0830	Sheetpiling + Walling + Excavation (ELS)	50	29/04/06	28/06/06	DC0822*
DC0840	Substructure	125	29/06/06	24/11/06	DC0830*
DC0842	Backfilling	51	21/09/06	20/11/06	DC0840*
DC0844	Superstructure (incl. roof)	75	25/11/06	22/02/07	DC0840*, DC0842
DC0848	Internal Finishes (Plumbing, Cat ladder, etc)	26	23/02/07	24/03/07	DC0844*
Transformer House					
DC0852	Site Clearance+Tree Felling+Tree Transplanting	24	08/11/05	05/12/05	DC0810*
DC0854	G.I./Pre-drilling	30	01/11/05	05/12/05	DC0808*
DC0856	Prelim Pile (1no) (Pile Installation+Setting up)	40	06/12/05	21/01/06	DC0852*, DC0854*
DC0858	Mini Piling (10 nos.)	90	08/12/05	23/03/06	DC0856*
DC0860	Pile Load Test (1 nos) (Selection of Piles)	30	24/03/06	28/04/06	DC0858*
DC0862	Excavation (Open excavation) (2.05m depth)	26	29/04/06	30/05/06	DC0860*
DC0864	Substructure	26	31/05/06	30/06/06	DC0862*
DC0866	Backfilling	11	03/07/06	14/07/06	DC0864*
DC0868	Superstructure (incl. roof)	50	15/07/06	11/09/06	DC0866*
DC0870	Internal Finishes	12	12/09/06	26/09/06	DC0868*
Key Date					
DC08K6	Completion of the Section 6	0		24/03/07	D004*, DC0848*, DC0870
BN09: Section 7 of Works					
Sewers, Rising Mains (by Open Excavation)					
DC0922	Initial Survey	24	25/10/05	21/11/05	DC0806*
DC0924	Documents Submission (eg. Pipeline Schedule)	120	02/11/05	22/03/06	DC0922*
DC0926	Laying Sewer MH6 - MH5 (7m)	10	28/04/06	09/05/06	DC0905*, DC0924
DC0928	Construct MH5	30	10/05/06	15/06/06	DC0926*
DC0930	Construct MH6	30	10/05/06	15/06/06	DC0926*
DC0932	Laying Sewer MH5 - MH4 (32m)	20	16/06/06	10/07/06	DC0928*
DC0936	Construct MH4	17	11/07/06	29/07/06	DC0932*
DC0938	Laying Sewer MH4 - MH2 (8m)	9	31/07/06	09/08/06	DC0936*
DC0940	Modify F2	5	10/08/06	15/08/06	DC0938*
DC0942	Laying Sewer MH4 - MH3 (8m)	9	31/07/06	09/08/06	DC0936*
DC0944	Construct MH3	16	10/08/06	28/08/06	DC0942*
DC0946	Laying Sewer MH3 - MH2 (13m)	8	29/08/06	06/09/06	DC0944*
DC0948	Construct MH2	17	07/09/06	27/09/06	DC0946*
DC0950	Laying Sewer MH2 - MH1 (8m)	7	28/09/06	05/10/06	DC0948*
DC0958	Construct MH1	18	07/10/06	27/10/06	DC0950*
DC0960	Laying Sewer P/S - MH6 (5m)	10	25/11/06	06/12/06	DC0840*, DC0958
DC0962	Pressure Testing (section 1)	10	07/12/06	18/12/06	DC0960*
DC0964	CCTV Inspection (section 1)	10	19/12/06	30/12/06	DC0962*
DC0966	Laying Rising Mains CH.0+00-CH.1+00 (100m)	42	05/07/06	22/08/06	DC0912*
DC0968	Construct VIC (CH.1+00)	11	23/08/06	04/09/06	DC0966*
DC0970	Laying Rising Mains CH.1+00-CH.2+25 (125m)	50	05/09/06	03/11/06	DC0968*
DC0972	Construct WOIC (CH.2+25)	12	04/11/06	17/11/06	DC0970*
DC0974	Laying Rising Mains CH.2+25 - CH.3+32(107m)	44	18/11/06	10/01/07	DC0972*
DC0976	Pressure Testing (section 2)	10	11/01/07	22/01/07	DC0974*
DC0978	CCTV Inspection (section 2)	10	23/01/07	02/02/07	DC0976*
DC0980	Construct MH7	15	03/02/07	20/02/07	DC0978*
DC0982	Laying Sewer MH7 - MH8 (33m)	14	21/02/07	08/03/07	DC0980*
DC0984	Construct MH8	10	09/03/07	20/03/07	DC0982*
DC0986	Laying Sewer MH8 - MH9 (62m)	25	21/03/07	19/04/07	DC0984*
DC0988	Construct MH9	12	20/04/07	03/05/07	DC0986*
DC0990	Laying Sewer MH9 - MH10 (26m)	11	04/05/07	17/05/07	DC0988*
DC0992	Construct MH10	11	18/05/07	30/05/07	DC0990*
DC0994	Laying Sewer MH10 - STW (45m)	19	31/05/07	22/06/07	DC0992*
DC0996	Pressure Testing (section 3)	6	23/06/07	29/06/07	DC0994*
DC0998	CCTV Inspection (section 3)	6	30/06/07	06/07/07	DC0996*
DC1000	Laying Sewer P/S - existing box culvert (5m)	10	25/11/06	05/12/06	DC0840*
DC1002	Modify STW	6	07/07/07	13/07/07	DC0998*
DC1004	Collection to existing STW	6	14/07/07	20/07/07	DC1002*
DC1006	Collection to existing Box Culvert	6	21/07/07	27/07/07	DC1004*

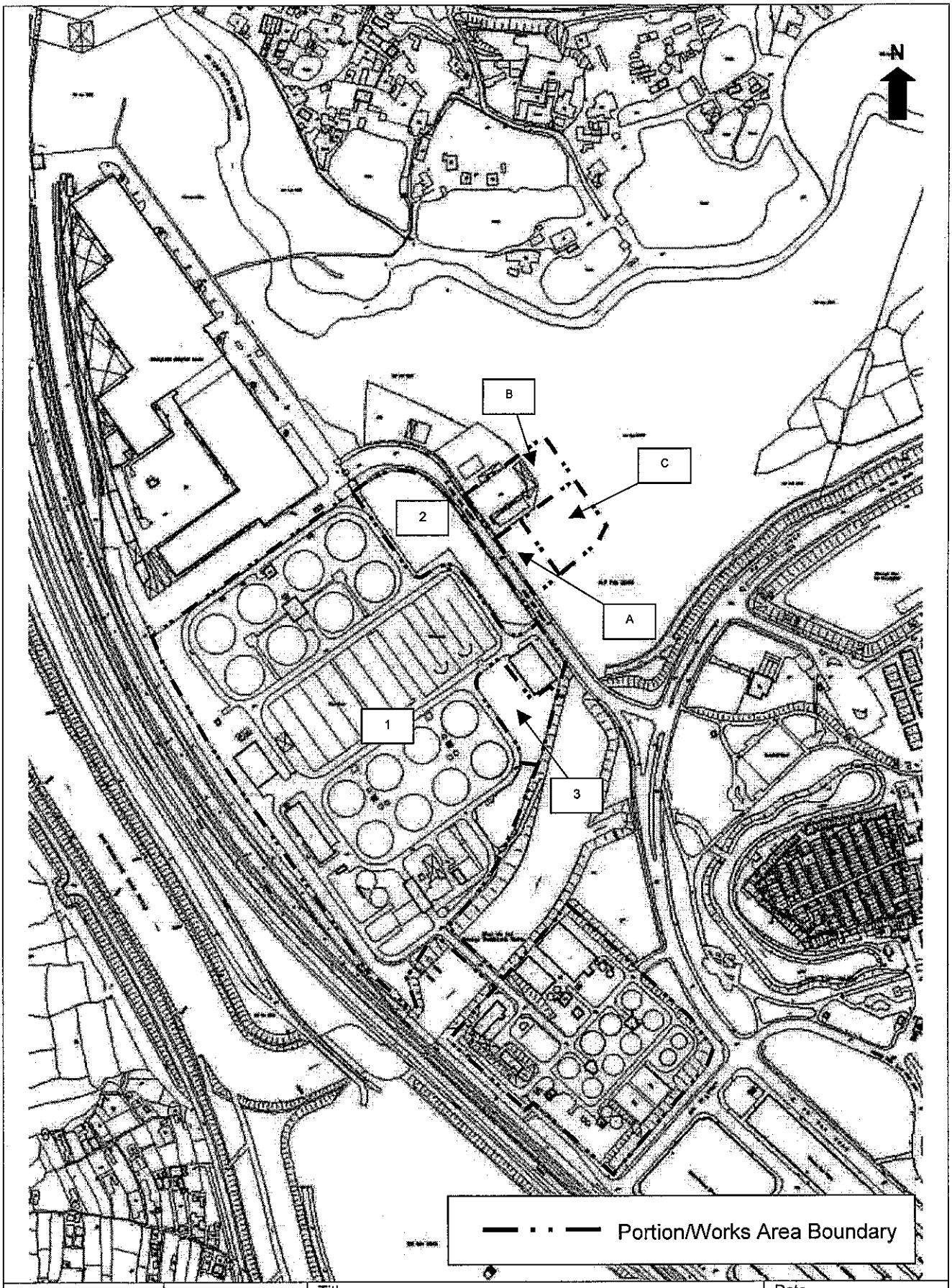


Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Predecessors
Sewers, Rising Mains (by Trenchless)					
DC0902	Working pits construction for TL1	20	23/03/06	15/04/06	DC0812, DC0924*
DC0906	Laying Sewer MH6 - MH5 (underneath box culvert)	10	17/04/06	27/04/06	DC0902*
DC0908	Dismantling & Removal of Equipments (TL1)	15	28/04/06	16/05/06	DC0906*
DC0910	Working pits construction for TL2	20	17/05/06	09/06/06	DC0908*
DC0912	Laying Rising Mains CH.0+30 - CH.0+25	20	10/06/06	04/07/06	DC0910*
DC0914	Dismantling & Removal of Equipments (TL2)	15	05/07/06	21/07/06	DC0912*
DC0916	Working pits construction for TL3	12	22/07/06	04/08/06	DC0914*
DC0918	Laying Rising Mains CH.2+19 - CH.2+14	11	05/08/06	17/08/06	DC0916*
DC0920	Dismantling & Removal of Equipments (TL3)	8	18/08/06	26/08/06	DC0918*
Remaining works of P/S & T/H					
DC0952	Civil Works for E&M Installation (cable duct)	117	23/02/07	12/07/07	DC0844*
DC0954	External Finishes	103	26/03/07	26/07/07	DC0848*
DC0956	Roofing Finishes	38	26/03/07	09/05/07	DC0848*
Key Date					
External Works					
DC09K7	Completion of the Section 7	0		27/07/07	D004*, DC0952, DC0954,
BN10/11: Section 8 of Works					
All remaining works (Tai Po)					
DC1012	E&M Installation (Pumping Station) (by others)	180	25/03/07	20/09/07	DC0848*
DC1014	Testing & commissioning of Pumping Station	0	21/09/07		DC1012, DC1012*
DC1016	E&M Installation (Transformer House) (by others)	181	27/09/06	26/03/07	DC0870*
DC1018	Testing & commissioning of Transformer House	0	27/03/07		DC1016*
DC1020	Collection to existing F2	10	22/09/07	04/10/07	DC1014*, DC1032
DC1022	Collection of existing sewer to MH1	10	22/09/07	04/10/07	DC1014*
DC1024	Demolition of existing pump pit	10	05/10/07	17/10/07	DC1020*, DC1022*
DC1026	Grouting existing sewer/raising mains	33	18/10/07	24/11/07	DC1024*
DC1028	Demolition of existing boundary wall	10	18/10/07	29/10/07	DC1024*
DC1030	Boundary Wall construction	70	27/03/07	19/06/07	DC0848, DC1016*
DC1032	External Cable duct & Drainage, Catchpit	67	20/06/07	05/09/07	DC1030*
DC1034	Pavement works	60	20/06/07	28/08/07	DC1030*
DC1036	Soft Landscaping works	35	06/09/07	19/10/07	DC1032*, DC1034
DC1038	Establishment works	30	20/10/07	23/11/07	DC1036*
DC1040	Completion of the Section 8	0		24/11/07	D004*, DC1016, DC1026*,



Appendix 3

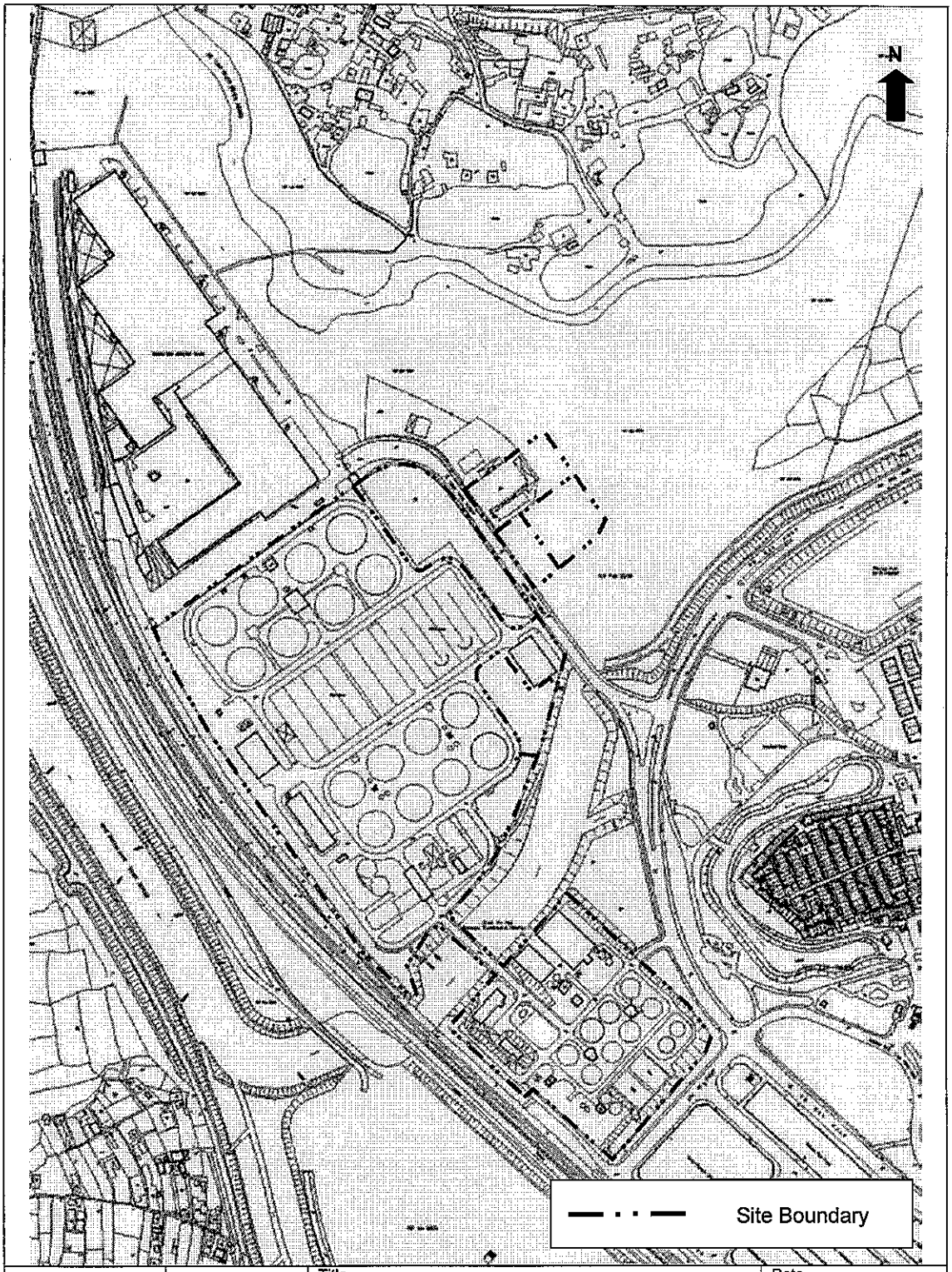
Location of Works



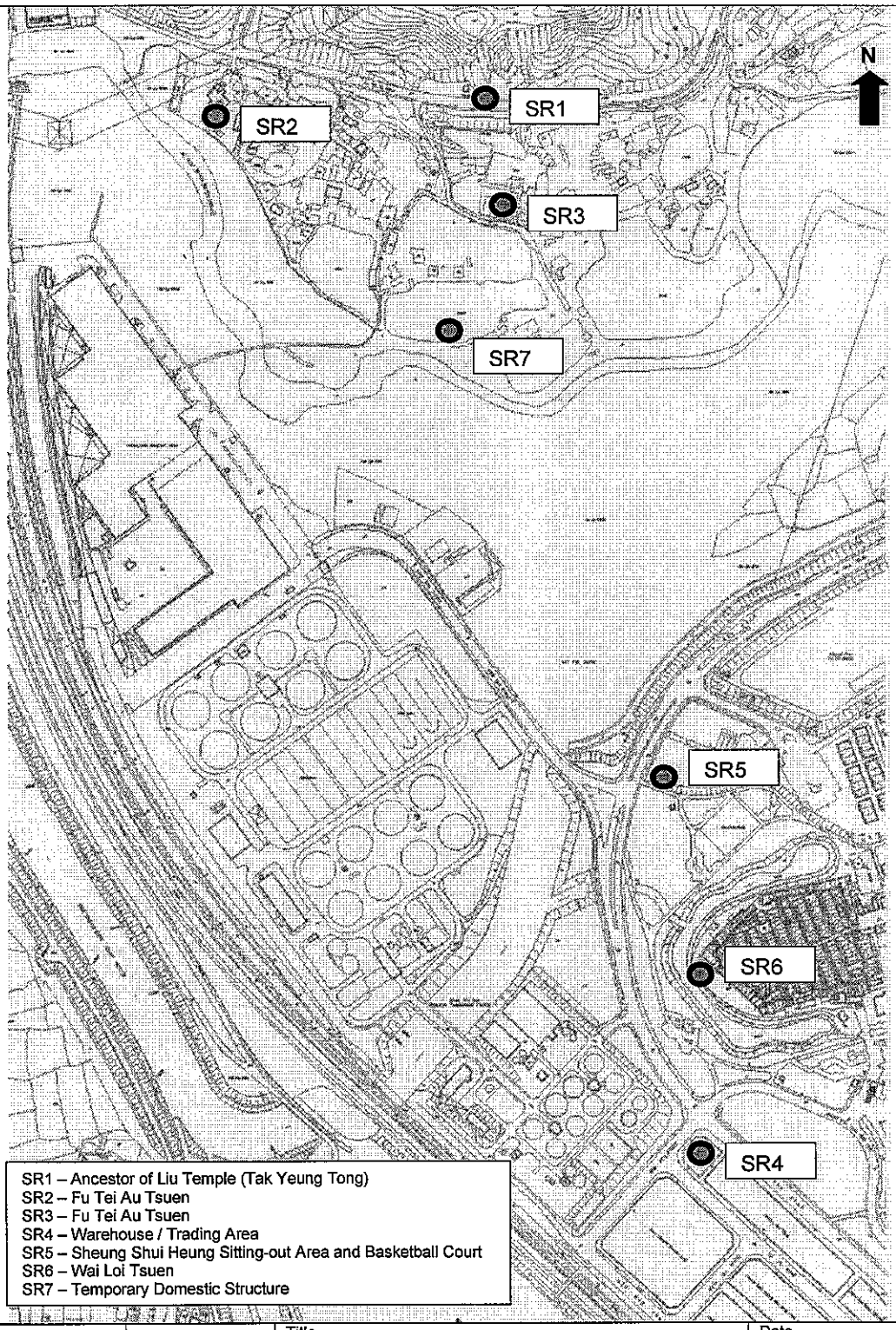
Hyder Consulting	MAEDA	Title: Expansion of Shek Wu Hui Sewage Treatment Works – Location of Portion/Works Area	Date: Dec 2005 Figure: N.A. Scale: NTS

Appendix 4

Project Area, Environmental Sensitive Receiver and Monitoring Location



Hyder Consulting	MAEDA	Title: Expansion of Shek Wu Hui Sewage Treatment Works – Project Area	Date: Dec 2005 Figure: N.A. Scale: NTS



Hyder Consulting

MAEDA

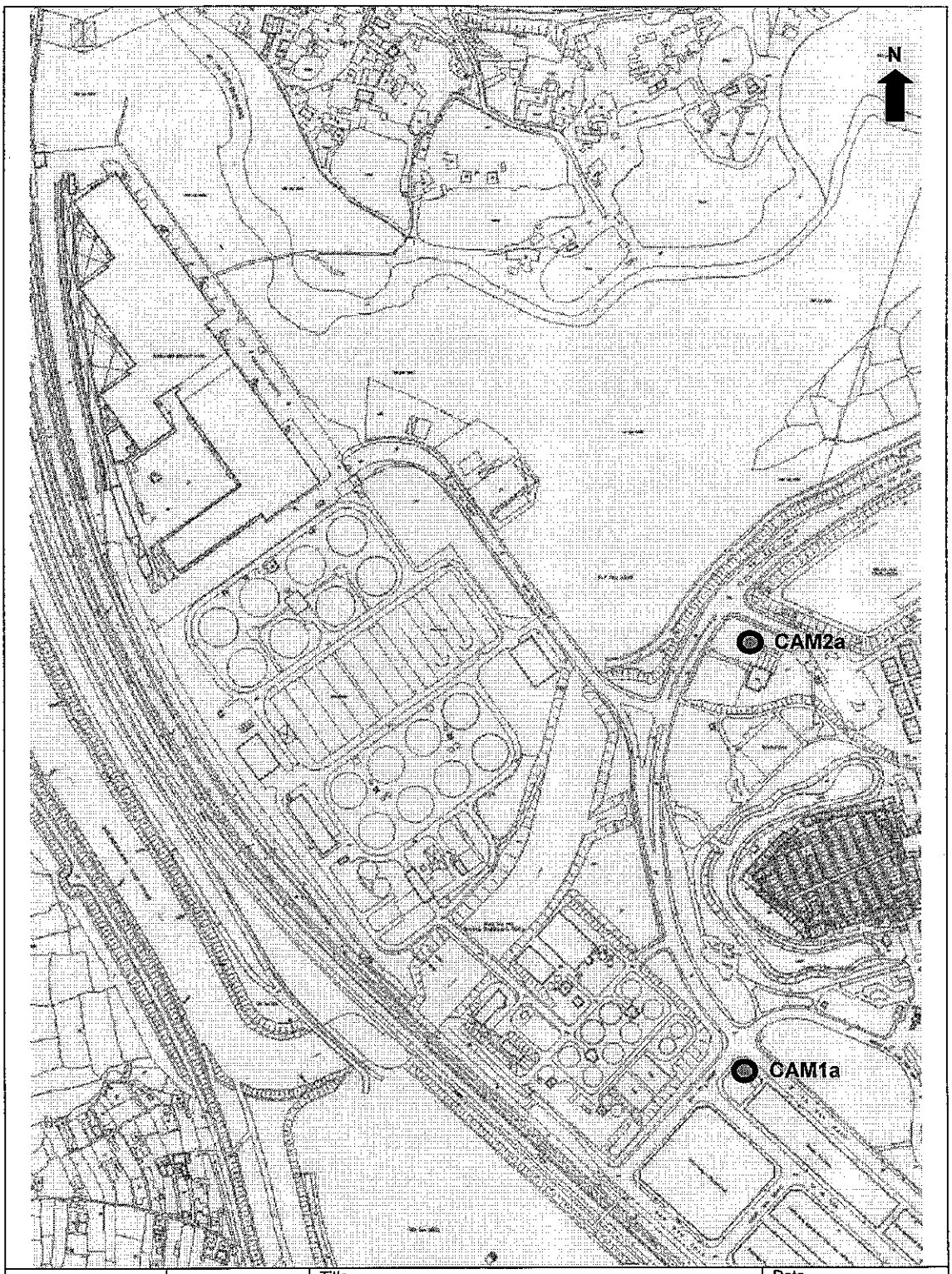
Title

Expansion of Shek Wu Hui Sewage Treatment Works – Environmental Sensitive Receiver

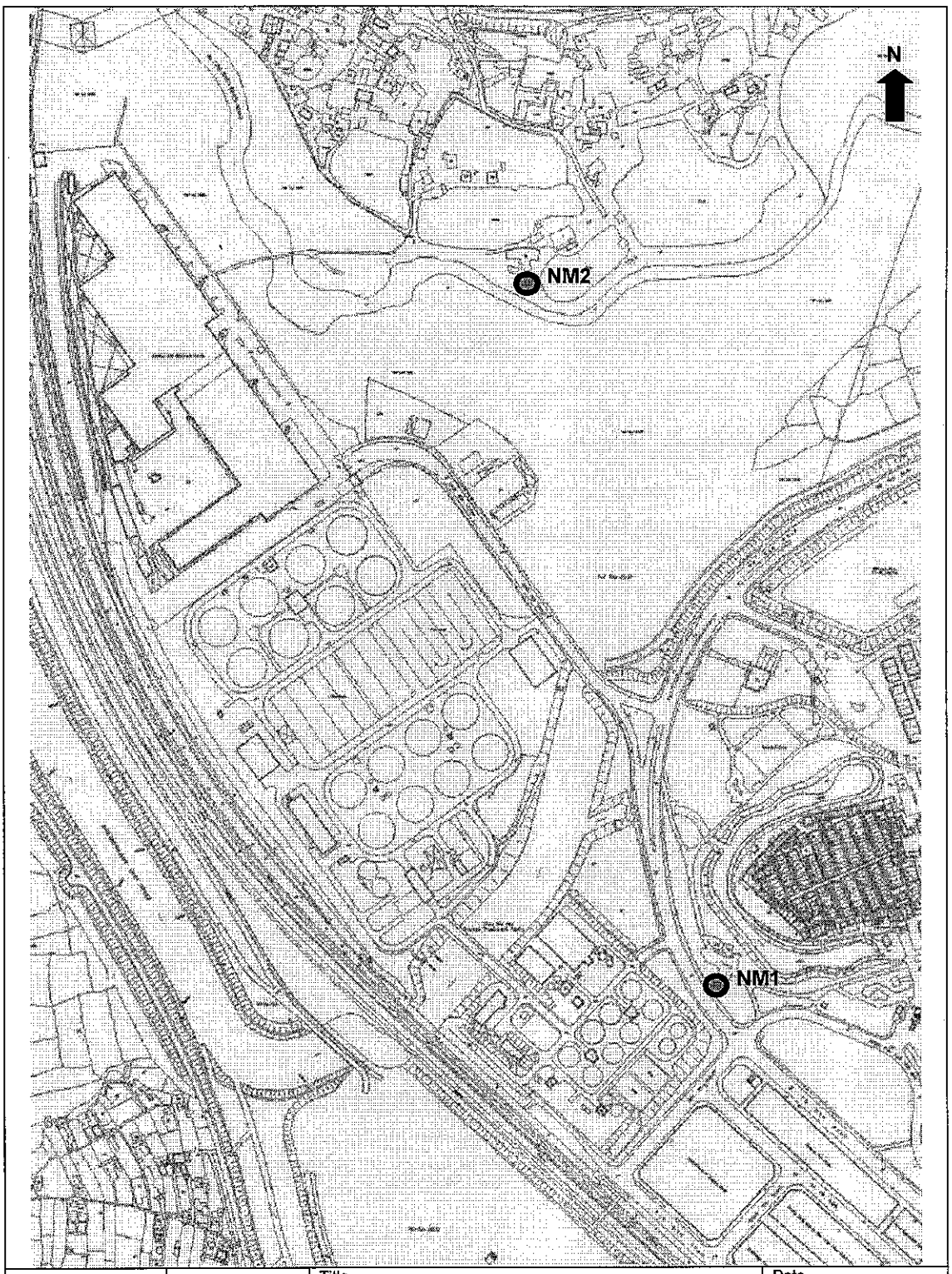
Date: Dec 2005

Figure: N.A.

Scale: NTS



Hyder Consulting	MAEDA	Title: Expansion of Shek Wu Hui Sewage Treatment Works – Location of Air Quality Monitoring Station	Date: Dec 2005 Figure: N.A. Scale: NTS



Hyder Consulting	MAEDA	Title: Expansion of Shek Wu Hui Sewage Treatment Works – Location of Noise Monitoring Station	Date: Dec 2005 Figure: N.A. Scale: NTS

Appendix 5

Action and Limit Levels

Monitoring Station ID	1-hour TSP Level in (μg/m³)		24-hour TSP Level in (μg/m³)	
	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

Environmental Requirements and Implementation Status

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 *Air Pollution Control (construction Dust)* 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	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 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	*Construction Runoff and Drainage* • 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 facilitates. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. • 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 $0.1m^3s^{-1}$ a sedimentation basin of $30m^3$ would be required and for a flow rate of $0.5m^3s^{-1}$ the basin would be $150m^3$. The detailed design of the sand/silt traps will be undertaken by the contractor prior to the commencement of construction. • 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.	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	*Construction Runoff and Drainage (Cont'd)* • 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. • 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. • 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. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than $50m^3$ 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. • 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. • 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.	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	*Construction Runoff and Drainage* • 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. • On-site drainage system should be equipped with oil interceptors to separate oil/fuel from contaminated storm water.	Works site / During the construction period	Contractor	Properly implemented as appropriate	N/A
Annex 2 S2.4.4	*General Construction Activities* • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • 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 nearly.	Works site / During the construction period	Contractor	Properly Implemented as appropriate	N/A
Annex 2 S2.4.4	*Sewage from Construction Workforce* • 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.	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	*Waste Reduction Measures of Construction Stage* • 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&D materials and to minimize their generation during the course of construction. • 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&D materials at the earliest stage, so as to minimise the need for subsequent sorting. • 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. • 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. • Any unused chemicals or those with remaining functional capacity shall be recycled. • Maximising the use of reusable steel formwork to reduce the amount of C&D material. • Prior to disposal of C&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. • Proper storage and site practices to minimise the potential for damage or contamination of construction materials. • Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. • Minimize over ordering of concrete, mortars and cement grout by doing careful check before ordering.	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	*Good Site Practices* • Nomination of approved personnel, such as a site manager, to be responsible for good site practices, ad making arrangements for collection of all wastes generated at the site and effective disposal to an appropriate facility. • Training of site personnel in proper waste management and chemical wast handling procedures; • Provision of sufficient waste disposal points and regular collection for disposal; • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; • A Waste Management Plan should be prepare and should be submitted to the engineer for approval; and • A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed. • In order to monitor the disposal of C&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.	Work site / During the construction period	Contractor	Properly Implemented	N/A
Annex 3 S3.5.6	*General Refuse* • General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material;	Work site / During the construction period	Contractor	Properly Implemented	N/A

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 3 S3.5.7	*Construction and Demolition Material* • The C&D material generated from the site formation and demolition works should be sorted on-site into inert C&D material (that is, public fill) and C&D waste. In order to minimise the impact resulting from collection and transportation of C&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&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&D material and to facilitate the sorting process.	Work site / During the construction period	Contractor	Properly Implemented	N/A
Annex 3 S3.5.8	*Chemical Wastes* • 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 computable 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 license wast collector to transport and dispose of the chemical wastes in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Work site / During the construction period	Contractor	Would be implemented at later stages	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	*Good Site Practice* • Only well-maintained plant should be operated on-site and plant should be services regularly during the construction phase; • 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; • Mobile plant should be sited as far away from NSRs as possible; • 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; • 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 • Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.	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

Calibration Records

High Volume Air Sampler Calibration Worksheet

Project Title: Expansion of Shek Wu Hui Sewage Treatment Works
Monitoring Location: Flood Balancing Pumping Station at Po Wan Road near Wai Loi Tsuen (CAM2a))
Date: 10-Nov-05
Time: 10:15

Sampler Model:	GBM2000H1
Calibrator Orifice no.:	517N
Slope (m):	2.00063
Intercept (b):	0.007984
Correction coeff. (r)	0.999944
Serial No.:	0134

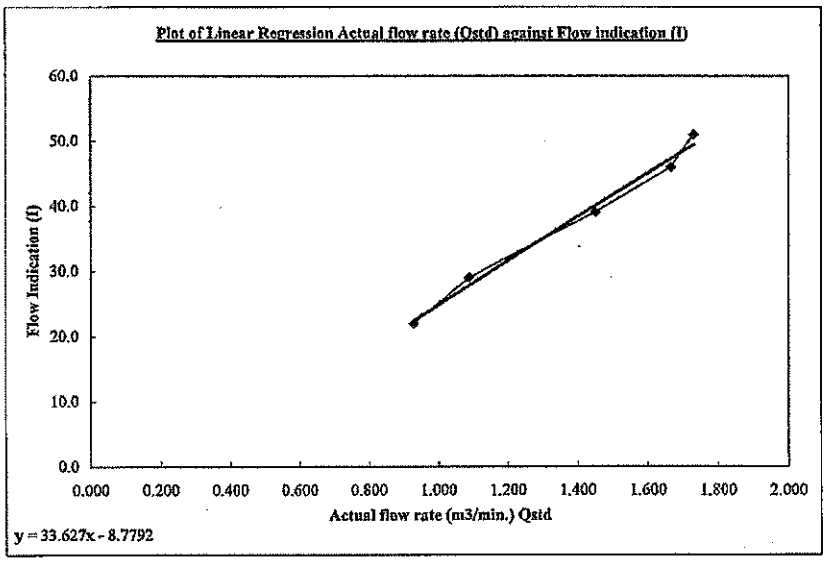
$$Flow(corrected) = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

Standard pressure (mmHg) Pstd:	760.0
Standard temp. (K) Tstd:	297.18
Calibration pressure (mmHg) Pa:	759.5
Calibration temp. (K) Ta:	298.9

$$Qstd = \frac{1}{m} \times \left(\sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b\right)$$

Sample no.	Pressure Drop (H), inch	Flow (corrected), m^3/min	Actual flow rate (Qstd), m^3/min	Flow indication (I), arbitrary
1	12.1	3.472	1.732	51.0
2	11.2	3.341	1.666	46.0
3	8.5	2.910	1.451	39.0
4	4.8	2.187	1.089	29.0
5	3.5	1.867	0.929	22.0

Correlation Coefficient : 0.9943



Remark
Qstd Range 0.6 - 1.7
1HPa = 0.750062 mmHg

Calibrated by: Kenneth H.C. Choi ( ) **Date:** 10/11/05

Checked by: Adi Lee ( ) **Date:** 11/11/05

High Volume Air Sampler Calibration Worksheet

Project Title: Expansion of Shek Wu Hui Sewage Treatment Works
Monitoring Location: Sewage Pumping Station at j/o San Po Street and Po Wan Road (CAM1a)
Date: 14-Jan-06
Time: 09:30

Sampler Model:	GBM2000H1
Calibrator Orifice no.:	517N
Slope (m):	2.00063
Intercept (b):	0.007984
Correction coeff. (r)	0.999944
Serial No.:	1101

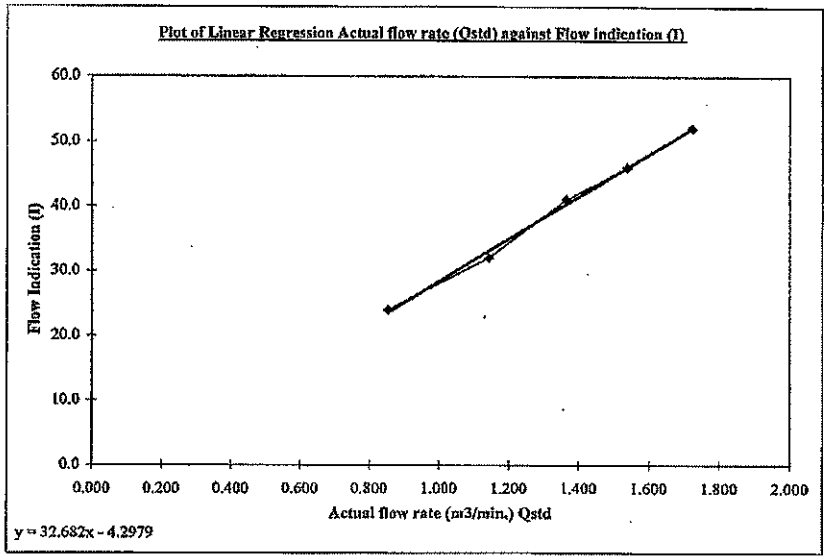
$$Flow(corrected) = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

Standard pressure (mmHg) Pstd:	760.0
Standard temp. (K) Tstd:	297.18
Calibration pressure (mmHg) Pa:	762.1
Calibration temp. (K) Ta:	294.9

$$Qstd = \frac{1}{m} \times \left(\sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b\right)$$

Sample no.	Pressure Drop (H), inch	Flow (corrcted), m^3/min	Actual flow rate (Qstd), m^3/min	Flow indication (I), arbitrary
1	11.8	3.458	1.724	52.0
2	9.4	3.086	1.539	46.0
3	7.4	2.738	1.365	41.0
4	5.2	2.295	1.143	32.0
5	2.9	1.714	0.853	24.0

Correlation Coefficient : 0.9982



Remark
Qstd Range 0.6 - 1.7
1HPa = 0.750062 mmHg

Calibrated by: Kenneth H.C. Choi ( ) **Date:** 14-01-06

Checked by: Adi Lee ( ) **Date:** 16/1/06

High Volume Air Sampler Calibration Worksheet

Project Title: Expansion of Shek Wu Hui Sewage Treatment Works
Monitoring Location: Sewage Pumping Station at j/o San Po Street and Po Wan Road (CAM1a)
Date: 22-Dec-05
Time: 9:15

Sampler Model:	GBM2000H1
Calibrator Orifice no.:	517N
Slope (m):	2.00063
Intercept (b):	0.007984
Correction coeff. (r)	0.999944
Serial No.:	1191

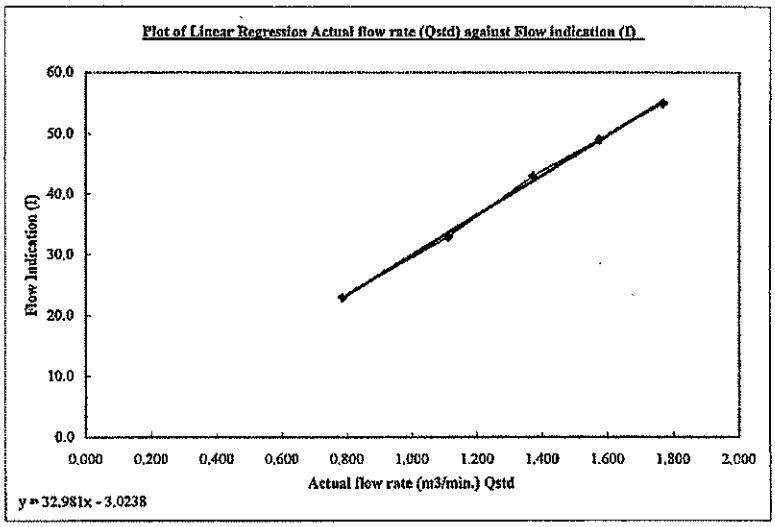
$$Flow(corrected) = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

Standard pressure (mmHg) Pstd:	760.0
Standard temp. (K) Tstd:	297.18
Calibration pressure (mmHg) Pa:	759.5
Calibration temp. (K) Ta:	286.6

$$Qstd = \frac{1}{m} \times \left(\sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b\right)$$

Sample no.	Pressure Drop (H), inch	Flow (corrected), m^3/min	Actual flow rate (Qstd), m^3/min	Flow indication (I), arbitrary
1	12.1	3.546	1.768	55.0
2	9.6	3.158	1.575	49.0
3	7.3	2.754	1.373	43.0
4	4.8	2.233	1.112	33.0
5	2.4	1.579	0.785	23.0

Correlation Coefficient : 0.9991



Remark
Qstd Range 0.6 - 1.7
1HPa = 0.750062 mmHg

Calibrated by: Choi Hung Cho ( ) **Date:** 22-Dec-05

Checked by: Adi Lee ( ) **Date:** 23/12/05

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 16, 2005 Rootsmeter S/N 9833620 Ta (K) - 294
Operator Tisch Orifice I.D. - 517N Pa (mm) - 753.62

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4090	3.2	2.00
2	NA	NA	1.00	0.9950	6.3	4.00
3	NA	NA	1.00	0.8910	7.8	5.00
4	NA	NA	1.00	0.8490	8.6	5.50
5	NA	NA	1.00	0.7010	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0008	0.7103	1.4178		0.9957	0.7067	0.8833
0.9967	1.0017	2.0051		0.9916	0.9966	1.2492
0.9946	1.1163	2.2418		0.9895	1.1106	1.3966
0.9936	1.1703	2.3512		0.9886	1.1644	1.4648
0.9882	1.4098	2.8356		0.9832	1.4026	1.7666
Qstd slope (m) =		2.02844		Qa slope (m) =		1.27017
intercept (b) =		-0.02391		intercept (b) =		-0.01489
coefficient (r) =		0.99999		coefficient (r) =		0.99999
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

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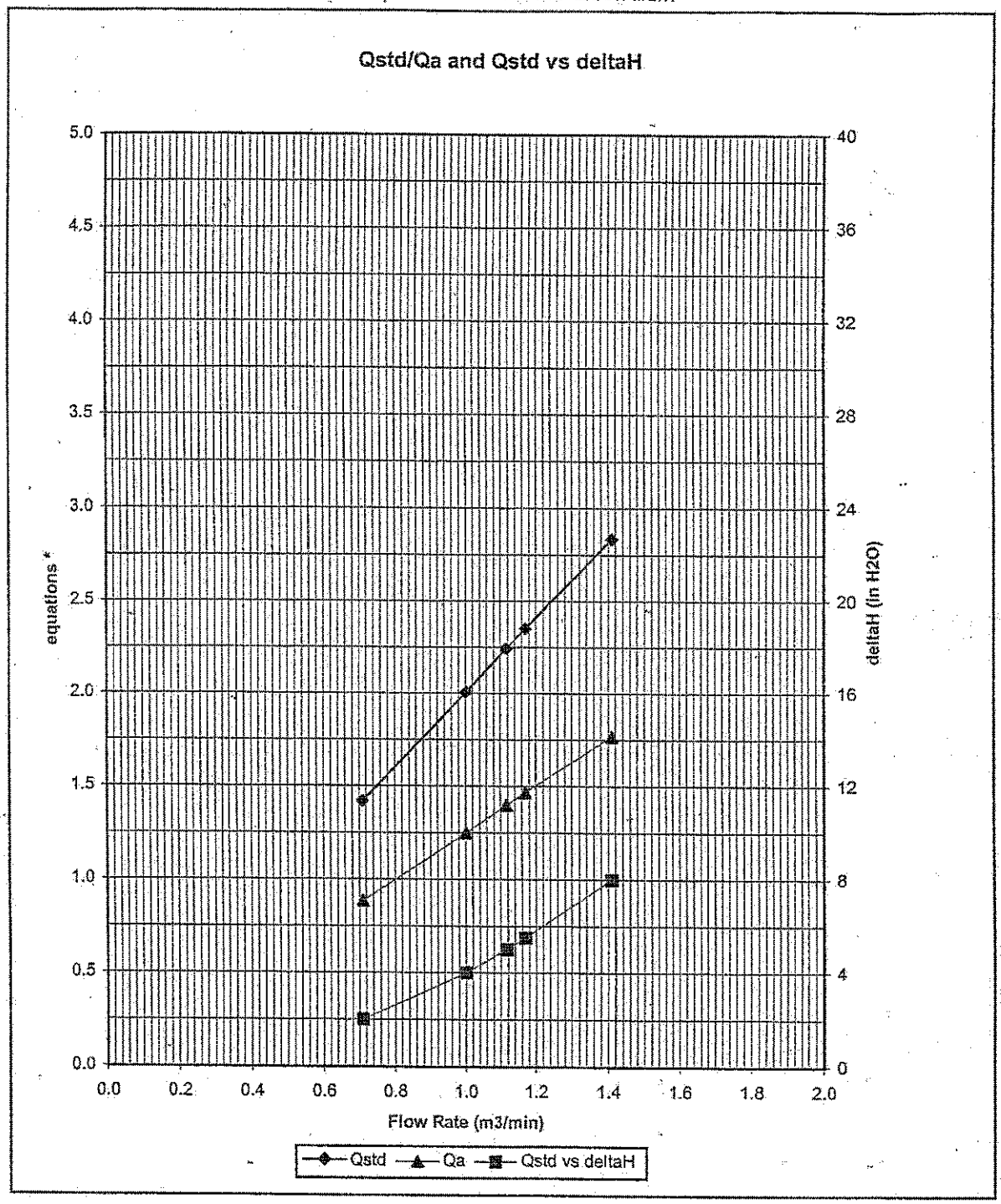
AIR POLLUTION MONITORING EQUIPMENT



*** y-axis equations:**

Qstd series: $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$

Qa series: $\sqrt{(\Delta H\ (Ta\ /\ Pa))}$

#517N

Hong Kong Calibration Ltd.
香 港 校 正 有限公司

Calibration Certificate

Certificate No. **55747** Page 1 of 2 Pages

Customer : Hyder Consulting Limited

Address : 47/F., Hopewell Centre, 183 Queen's Road East, Wan Chai, Hong Kong

Order No. : Q52108 **Date of receipt :** 7-Dec-05

Item Tested

Description : Sound Level Calibrator

Manufacturer : B&K

Model : Type 4231 **Serial No. :** 1770806

Test Conditions

Date of Test : 15-Dec-05 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check according to customer's requirement.

Calibration procedure : F21, Z02.

Test Results

All results were within the manufacturer's, IEC 942 Class 1 specification.

The results are shown in the attached page(s).

Test equipment used:

Equipment No.	Cert. No.	Due Date	Traceable to
S014	53024	7-Jul-06	PRC-NIM
S024	S41431	22-May-06	PRC-NIM
S041	53972	26-Aug-06	HKGSCL

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : _____ **Approved by :** _____
Dorothy Cheuk

Date: 15-Dec-05

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. Level Accuracy

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	94.0	± 0.3 dB
114	114.0	

Uncertainty : ± 0.2 dB

2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	1.005 kHz	± 2 %

Uncertainty : $\pm 3.6 \times 10^{-6}$

3. Level Stability : 0.0 dB
IEC 942 Class 1 Spec. : ± 0.1 dB
Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.4 %
IEC 942 Class 1 Spec. : < 3 %
Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test
2. The above measured values are the mean of 3 measurements.
3. The uncertainty claimed is for a confidence probability of not less than 95%.
4. Atmospheric Pressure : 1 004 hPa.

---------- END ----------

Brüel & Kjær

SPECTRIS CHINA LIMITED
思百吉中國有限公司

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS051204-1 **Page 1 of 2**

Calibration of :

Description	:	Sound Level Meter	,	Microphone
Manufacture	:	Brüel & Kjær		
Type No.	:	2238	,	4188
Serial No.	:	2285726	,	2462195

Client :

Hyder Consulting Limited
47/F, Hopewell Centre,
183 Queen's Road East,
Wanchai, Hong Kong.

Calibration Conditions :

Air Temperature	:	23.0	°C
Air Pressure	:	101.1	kPa
Relative Humidity	:	61	%

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

The measurements has been performed with the assistance of :
Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration : 08 December, 2005
Calibrated By :

Dai Bin

Certificate issued : 09 December, 2005
Approved signatory :

Jacky Leung

Unit 706 7/F, Miramar Tower, 132 Nathan Road, Tsim Sha Tsui, Kowloon, Hong Kong
香港九龍尖沙咀彌敦道132號美麗華大廈7樓706室

Tel : (852) 2548 7486
Fax : (852) 2858 1168

spectris

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS051204-1 **Page 2 of 2**

Results :

List of performed (sub) test with test status:
"OK" Means the result of the (sub)test is Inside the tolerances stated in the test specifications.
" - " Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Level Range Control	1000 Hz	OK
Linearity Range	SPL 10dB 4000 Hz	OK
Linearity Range	SPL 1dB 1000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging		OK
Pulse Range		OK
Overload	SPL	OK
Overload	SEL	OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999

Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to:
Digital Multi-meter	Datron 1281	27361	05 Oct, 2005	HKSCL (HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1551627	11 Jul, 2005	NPL via B&K (UKAS)

Calibrated By :
Date : 08 December, 2005

Checked By :
Date : 09 December, 2005

Brüel & Kjær

SPECTRIS CHINA LIMITED
思百吉中國有限公司

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS050510-1 **Page** 1 **of** 2

Calibration of :

Description	:	Sound Level Meter	,	Microphone
Manufacture	:	Brüel & Kjær		
Type No.	:	2238	,	4188
Serial No.	:	2448529	,	2461996

Client :

Hyder Consulting Limited
47/F, Hopewell Centre,
183 Queen's Road East,
Wanchai, Hong Kong.

Calibration Conditions :

Air Temperature	:	23.0	**°C**
Air Pressure	:	101.1	**kPa**
Relative Humidity	:	61	**%**

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

The measurements has been performed with the assistance of :
Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration : 30 May, 2005
Calibrated By :

Fox Ng

Certificate issued : 31 May, 2005
Approved signatory :

Jacky Leung

Unit 706 7/F, Miramar Tower, 132 Nathan Road, Tsim Sha Tsui, Kowloon, Hong Kong
香港九龍尖沙咀彌敦道132號美麗華大廈7樓706室

Tel : (852) 2548 7486
Fax : (852) 2858 1168

spectris

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS050510-1 **Page** 2 **of** 2

Results :

List of performed (sub) test with test status:
"OK" Means the result of the (sub)test is Inside the tolerances stated in the test specifications.
" - " Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Level Range Control	1000 Hz	OK
Linearity Range	SPL 10dB 4000 Hz	OK
Linearity Range	SPL 1dB 1000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging		OK
Pulse Range		OK
Overload	SPL	OK
Overload	SEL	OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999

Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to:
Digital Multi-meter	Datron 1281	27361	28 Sep, 2004	HKSCL (HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1551627	22 Jun, 2004	NPL via B&K (UKAS)

Calibrated By : Fox Ng
Date : 30 May, 2005

Checked By : Tsang
Date : 31 May, 2005

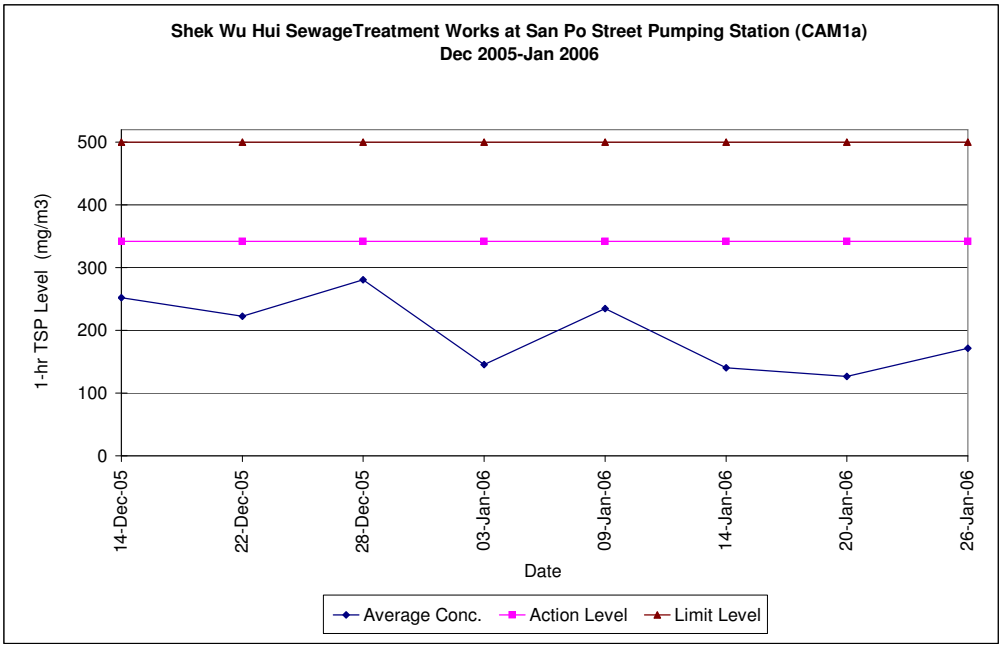
Appendix 8

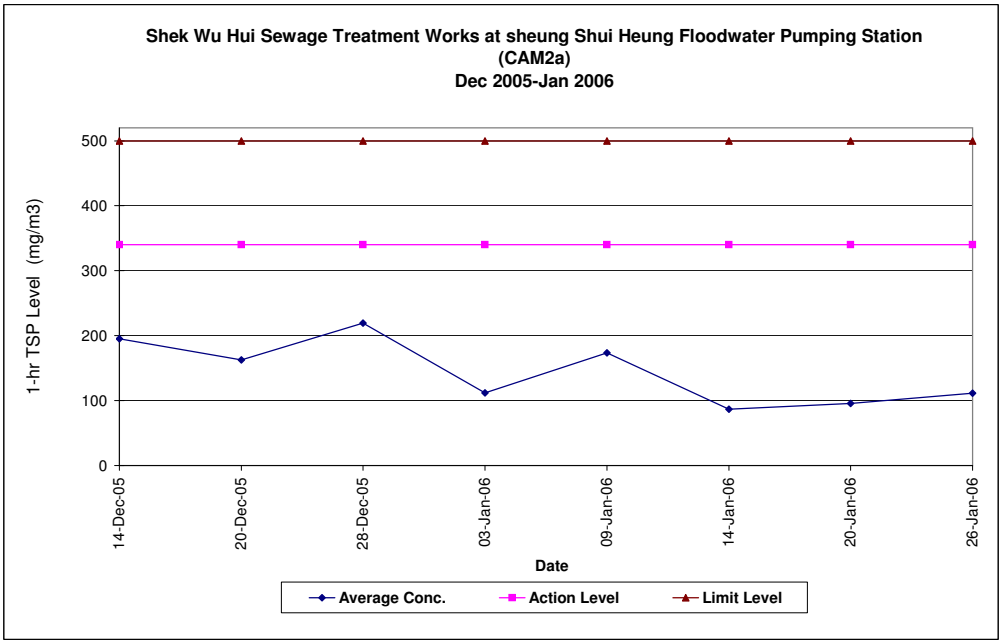
Monitoring Results and Graphical Plots

Shek Wu Hui Sewage Treatment Works

Air Quality Impact Monitoring Results (1-Hour TSP)

Location	Monitoring Date	Weather Conditions	Wind Speed with Direction (m/s)	Temp (oC)	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 (mg/m3)	Average 1-Hr TS (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	36	35	1.1832206	1.15290015	1.1680604	66.58	2.8782	2.8894	0.0112	168.2	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	60.6	37	36	1.2135411	1.18322064	1.19838089	72.62	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	234.5		
		Cloudy	0.5NE	14	360595	360691	57.6	37	37	1.2135411	1.21354113	1.21354113	69.90	3.5574	3.5732	0.0158	226.0			
		Cloudy	0.5NE	14	360691	360785	56.4	38	37	1.2438616	1.21354113	1.22870137	69.30	3.5547	3.5706	0.0159	229.4			
	14-Jan-06	Fine	0.7N	14	413620	413721	60.6	32	32	1.1106389	1.11063888	1.11063888	67.30	2.8721	2.8838	0.0117	173.8	140.2		
		Fine	0.7N	14	413721	413818	58.2	33	32	1.1412368	1.11063888	1.12593783	65.53	2.8590	2.8676	0.0086	131.2			
		Fine	0.7N	14	413818	413918	60.0	33	32	1.1412368	1.11063888	1.12593783	67.56	2.8482	2.8560	0.0078	115.5			
	20-Jan-06	Cloudy	1.0NE	20	416312	416407	57.0	34	33	1.1718346	1.14123677	1.15653571	65.92	2.843	2.8528	0.0098	148.7	126.6		
		Cloudy	1.0NE	20	416407	416511	62.4	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	418999	419098	59.4	32	31	1.1106389	1.080041	1.09533994	65.06	2.8768	2.8903	0.0135	207.5	171.6		
		Cloudy	0.8N	16	419098	419195	58.2	32	32	1.1106389	1.11063888	1.11063888	64.64	2.8487	2.8598	0.0111	171.7			
		Cloudy	0.8N	16	419195	419288	55.8	32	32	1.1106389	1.11063888	1.11063888	61.97	2.8735	2.8819	0.0084	135.5			
Sheung Shui Heung Floodwater Pumping Station CAM2a	03-Jan-05	Sunny	1.8NE	15	493118	493216	58.8	41	40	1.4803343	1.45059625	1.46546525	86.17	2.8306	2.8415	0.0109	126.5	111.9	340/500	
		Sunny	1.8NE	15	493216	493330	68.4	41	40	1.4803343	1.45059625	1.46546525	100.24	2.8680	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	3.5599	0.0148	179.0	173.6		
		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	86.7		
		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	59.4	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	67.43	2.8699	2.8779	0.0080	118.6	95.4		
		Cloudy	0.5NE	20	500178	500276	58.8	33	32	1.2424302	1.21269218	1.22756119	72.18	2.8606	2.8661	0.0055	76.2			
		Cloudy	0.5NE	20	500276	500375	59.4	32	31	1.2126922	1.18295417	1.19782318	71.15	2.8552	2.8617	0.0065	91.4			
	26-Jan-06	Cloudy	1.5N	17	502771	502868	58.2	34	34	1.2721682	1.2721682	1.2721682	74.04	2.8448	2.8536	0.0088	118.9	111.2		
		Cloudy	1.5N	17	502868	502968	60.0	34	34	1.2721682	1.2721682	1.2721682	76.33	2.8897	2.8978	0.0081	106.1			
		Cloudy	1.5N	17	502968	503062	56.4	34	33	1.2721682	1.24243019	1.25729919	70.91	2.8602	2.8679	0.0077	108.6			

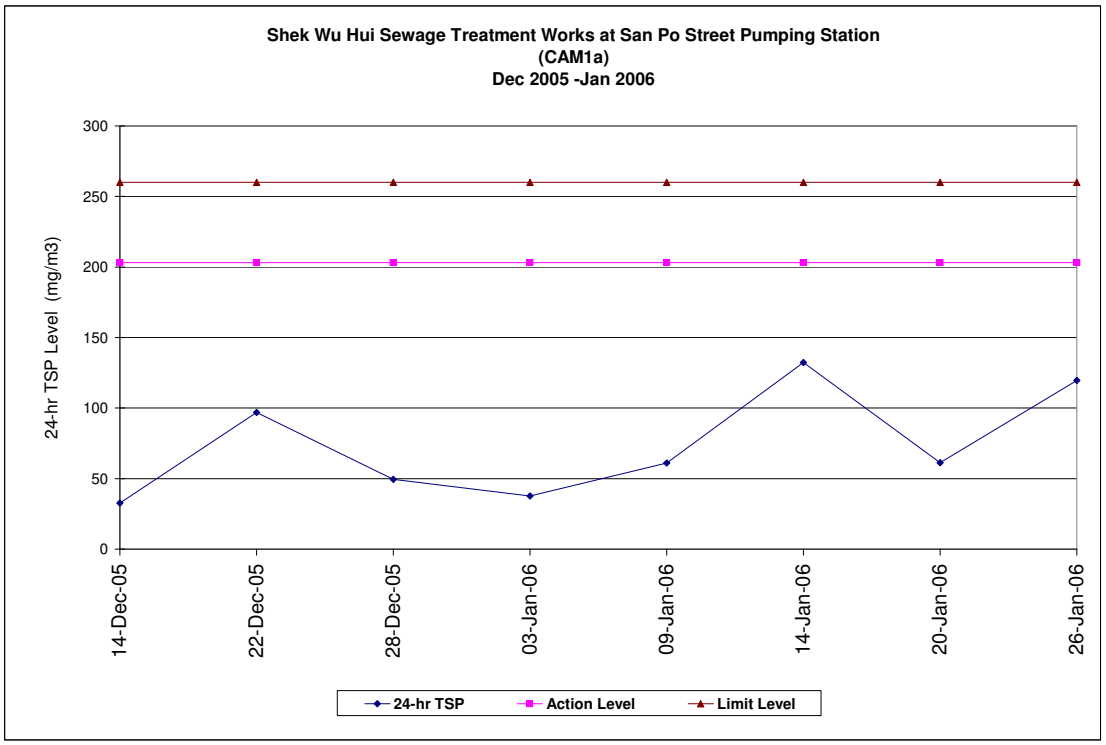

Shek Wu Hui SewageTreatment Works at San Po Street Pumping Station (CAM1a)
Dec 2005-Jan 2006
1-hr TSP Level (mg/m3)
500
400
300
200
100
0
14-Dec-05
22-Dec-05
28-Dec-05
03-Jan-06
09-Jan-06
14-Jan-06
20-Jan-06
26-Jan-06
Date
Average Conc.
Action Level
Limit Level

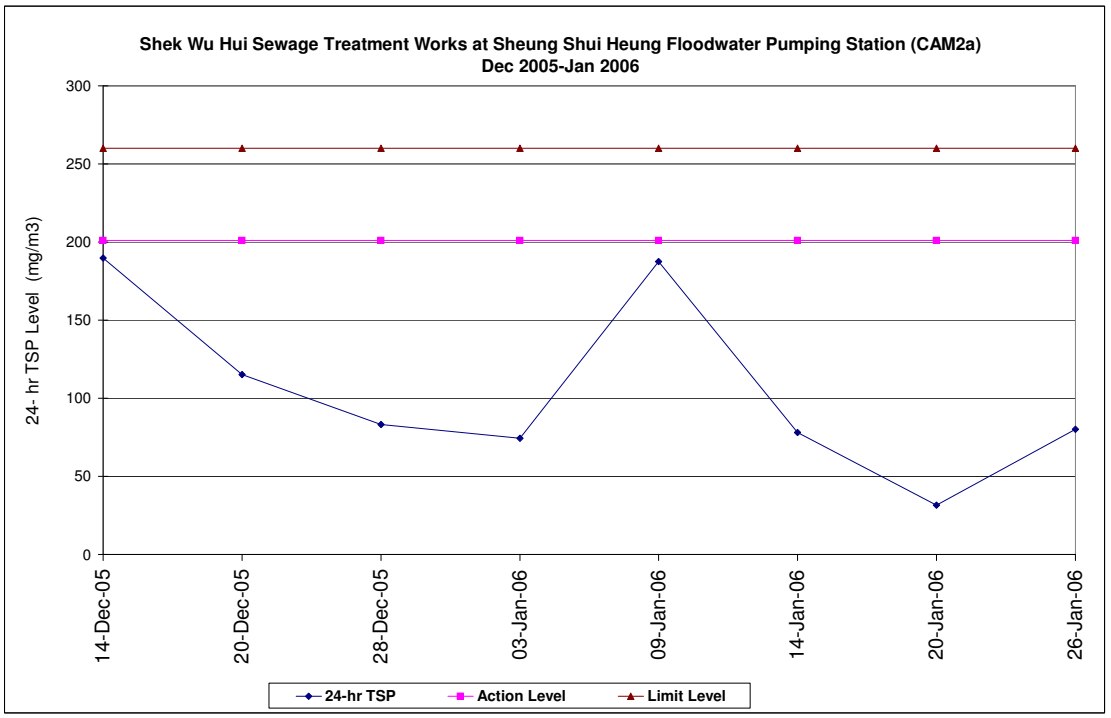

Shek Wu Hui Sewage Treatment Works at sheung Shui Heung Floodwater Pumping Station (CAM2a)
Dec 2005-Jan 2006
1-hr TSP Level (mg/m3)
500
400
300
200
100
0
14-Dec-05
20-Dec-05
28-Dec-05
03-Jan-06
09-Jan-06
14-Jan-06
20-Jan-06
26-Jan-06
Date
Average Conc.
Action Level
Limit Level

Shek Wu Hui Sewage Treatment Works

Air Quality Impact Monitoring Results (24-Hour TSP)

Location	Monitoring Date	Weather Conditions	Wind Speed with Direction (m/s)	Temp (oX)	Pressure (mmHg)	Timer-I	Timer-F	Time (mins)	Flow-I (CFM/ Inches)	Flow-F (CFM/ Inches)	Flow-I (m^3/min)	Flow-F (m^3/min)	Flow-avg (m^3/min)	Volume (m^3)	Weight-I (g)	Weight-f (g)	Weight-diff. (g)	24-hr TSP (ug/m^3)	Action/Limit Levels (ug/m^3)	Remark
San Po Street	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		
Pumping Station	09-Jan-06	Cloudy	0.5NE	14	766.3	360785	363180	1437	37	37	1.21	1.21	1.21	1743.86	3.5608	3.6674	0.1066	61.1		
CAM1a	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	3.0697	0.214	132.3	203/260	
	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		
	26-Jan-06	Cloudy	0.8N	16	767.1	419288	421681	1435.8	32	32	1.11	1.11	1.11	1594.66	2.8562	3.0469	0.1907	119.6		
Sheung Shui Heung	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		
Floodwater	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		
Pumping Station	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	201/260	
CAM2a	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		


Shek Wu Hui Sewage Treatment Works at San Po Street Pumping Station
(CAM1a)
Dec 2005 -Jan 2006
24-hr TSP Level (mg/m3)
300
250
200
150
100
50
0
14-Dec-05
22-Dec-05
28-Dec-05
03-Jan-06
09-Jan-06
14-Jan-06
20-Jan-06
26-Jan-06
24-hr TSP
Action Level
Limit Level

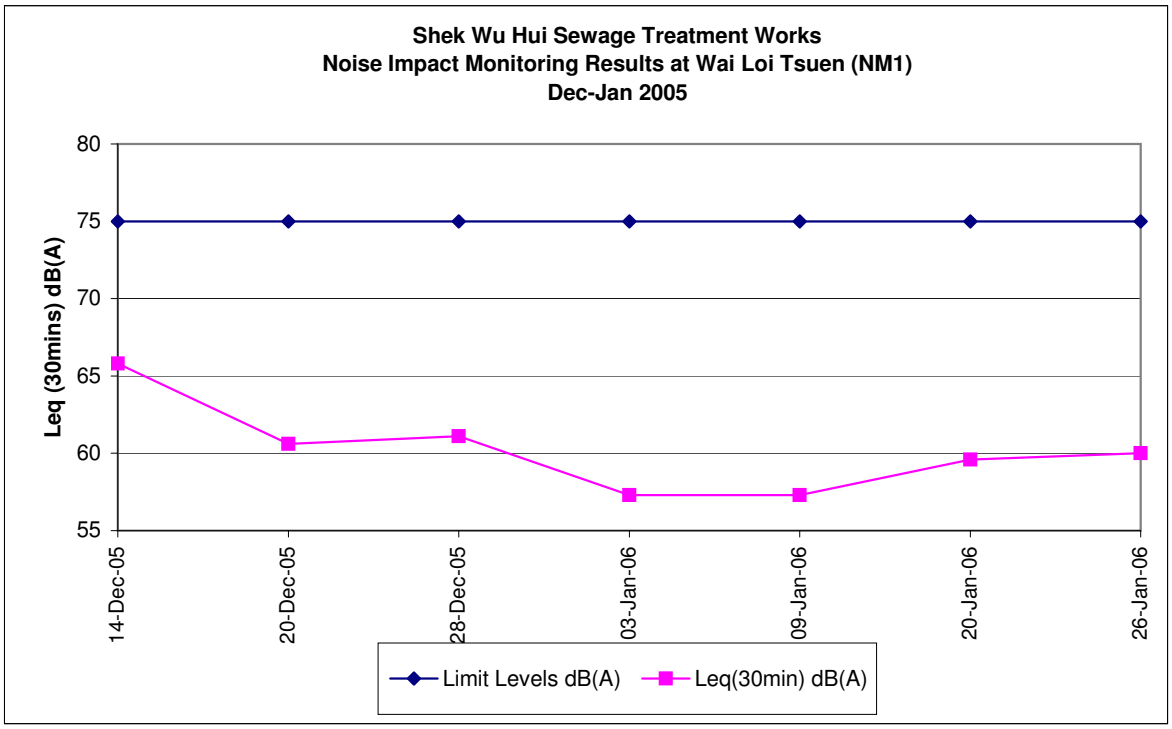

Shek Wu Hui Sewage Treatment Works at Sheung Shui Heung Floodwater Pumping Station (CAM2a)
Dec 2005-Jan 2006
24- hr TSP Level (mg/m3)
300
250
200
150
100
50
0
14-Dec-05
20-Dec-05
28-Dec-05
03-Jan-06
09-Jan-06
14-Jan-06
20-Jan-06
26-Jan-06
24-hr TSP
Action Level
Limit Level

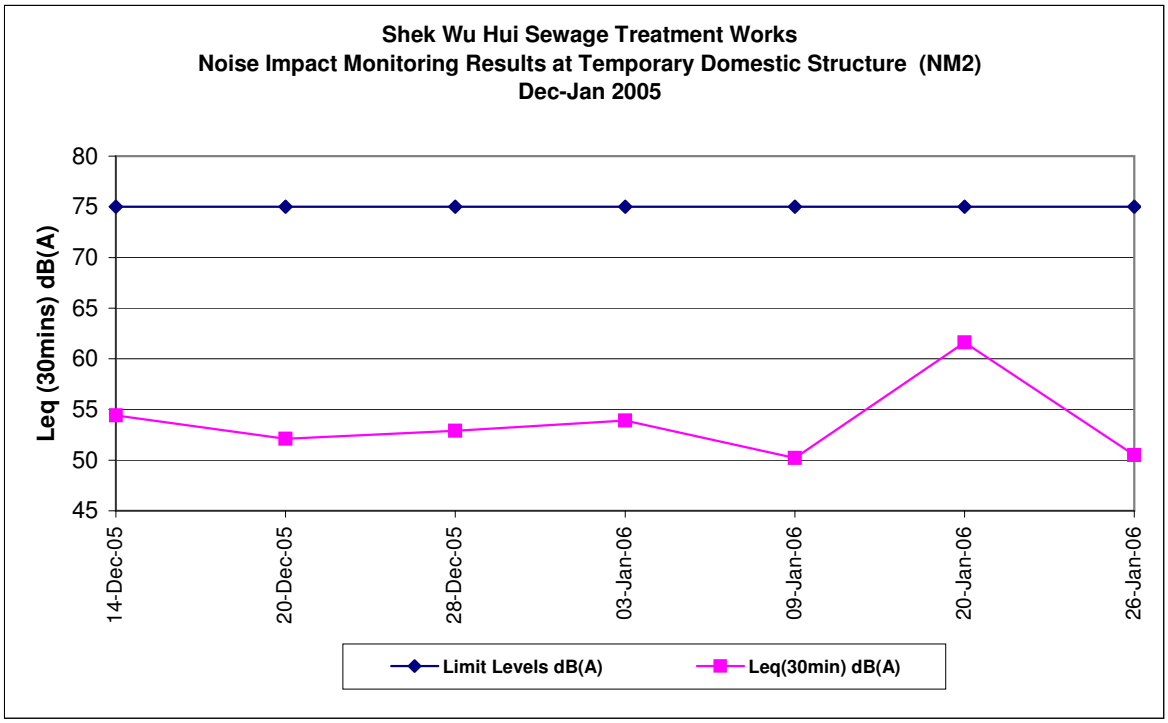
Shek Wu Hui Sewage Treatment Works

Noise Impact Monitoring Results

Monitoring Locations	Date	Weather Conditions	Temperature (^{o}C)	Wind Speed (m/s)	Wind Direction	Start Time	End Time	Limit Levels dB(A)	$L_{eq(30min)}$ dB(A)	$L_{10(30min)}$ dB(A)	$L_{90(30min)}$ dB(A)	Remark
Wai Loi Tsuen	03-Jan-06	Sunny	21.4	1.4	NE	12:10	12:40	75	57.3	59.4	53.2	
NM1	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	03-Jan-06	Sunny	21.1	1.8	NE	11:02	11:32	75	53.9	55.4	52.2	
Structure	09-Jan-06	Cloudy	14	1.5	NE	10:35	11:05	75	50.2	52.1	46.7	
NM2	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	

Note: A façade correction of 3 dB(A) was applied to each measurement result.


Shek Wu Hui Sewage Treatment Works
Noise Impact Monitoring Results at Wai Loi Tsuen (NM1)
Dec-Jan 2005
Leq (30mins) dB(A)
80
75
70
65
60
55
14-Dec-05
20-Dec-05
28-Dec-05
03-Jan-06
09-Jan-06
20-Jan-06
26-Jan-06
Limit Levels dB(A)
Leq(30min) dB(A)


Shek Wu Hui Sewage Treatment Works
Noise Impact Monitoring Results at Temporary Domestic Structure (NM2)
Dec-Jan 2005
Leq (30mins) dB(A)
80
75
70
65
60
55
50
45
14-Dec-05
20-Dec-05
28-Dec-05
03-Jan-06
09-Jan-06
20-Jan-06
26-Jan-06
Limit Levels dB(A)
Leq(30min) dB(A)

Appendix 9

QA/QC Results and Detection Limit

MONTHLY SUMMARY QC REPORT

Client: HYDER CONSULTING LTD
Contact: Mr Tony Nip
Date of Issue: 2/2/2006
Client Reference:

ANALYSIS DESCRIPTION		Total Suspended Particulate			
		Initial Weight	Final Weight	Weighing Date	Total Suspended Particulates
UNIT		(gram)	(gram)		(gram)
SAMPLE DESCRIPTION					
HK48451	LAB BLANK	3.5383	3.5384	05/01/2006	<0.0010
HK48489	LAB BLANK	3.5583	3.5580	06/01/2006	<0.0010
HK48605	LAB BLANK	3.5344	3.5345	10/01/2006	<0.0010
HK48622	LAB BLANK	3.5580	3.5583	12/01/2006	<0.0010
HK48747	LAB BLANK	3.5344	3.5345	16/01/2006	<0.0010
HK48755	LAB BLANK	3.5344	3.5343	17/01/2006	<0.0010
HK48910	LAB BLANK	3.5344	3.5345	23/01/2006	<0.0010
HK48940	LAB BLANK	3.3697	3.3696	24/01/2006	<0.0010

Alice W M Wong
Laboratory Manager - Hong Kong

Appendix 10

Cumulative Statistics of Complaint, Notification of Summons and Successful Prosecution

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
January 2006	0	0	0	0	0	0	0	1 (Yellow Ticket)

Cumulative Number of Environmental Complaint

Appendix 11

Upcoming EM&A Schedule

Expansion of Shek Wu Hui Sewage Treatment Works

Impact Monitoring Programme – February 2006 (Tentative)

Date		Air	Noise	Site Inspection
1 Feb 06	Wed			
2 Feb 06	Thu	✓	✓	
3 Feb 06	Fri			✓
4 Feb 06	Sat			
5 Feb 06	Sun			
6 Feb 06	Mon			
7 Feb 06	Tue	✓	✓	
8 Feb 06	Wed			✓
9 Feb 06	Thu			
10 Feb 06	Fri			
11 Feb 06	Sat			
12 Feb 06	Sun			
13 Feb 06	Mon	✓	✓	
14 Feb 06	Tue			
15 Feb 06	Wed			✓
16 Feb 06	Thu			
17 Feb 06	Fri			
18 Feb 06	Sat	✓		
19 Feb 06	Sun			
20 Feb 06	Mon			
21 Feb 06	Tue			
22 Feb 06	Wed			✓
23 Feb 06	Thu			
24 Feb 06	Fri	✓	✓	
25 Feb 06	Sat			
26 Feb 06	Sun			
27 Feb 06	Mon			
28 Feb 06	Tue			

Note:

Shaded area indicates public holiday.

Air – Monitoring of three 1-hour TSP and 24-hour TSP at both CAM1a and CAM2a

Noise – Noise measurements at both CNM1 and CNM2 between 0700 and 1900 on normal weekdays

Expansion of Shek Wu Hui Sewage Treatment Works

Impact Monitoring Programme – March 2006 (Tentative)

Date		Air	Noise	Site Inspection
1 Mar 06	Wed			✓
2 Mar 06	Thu	✓	✓	
3 Mar 06	Fri			
4 Mar 06	Sat			
5 Mar 06	Sun			
6 Mar 06	Mon			
7 Mar 06	Tue			
8 Mar 06	Wed	✓	✓	✓
9 Mar 06	Thu			
10 Mar 06	Fri			
11 Mar 06	Sat			
12 Mar 06	Sun			
13 Mar 06	Mon			
14 Mar 06	Tue	✓	✓	
15 Mar 06	Wed			✓
16 Mar 06	Thu			
17 Mar 06	Fri			
18 Mar 06	Sat			
19 Mar 06	Sun			
20 Mar 06	Mon	✓	✓	
21 Mar 06	Tue			
22 Mar 06	Wed			✓
23 Mar 06	Thu			
24 Mar 06	Fri			
25 Mar 06	Sat	✓		
26 Mar 06	Sun			
27 Mar 06	Mon			
28 Mar 06	Tue			
29 Mar 06	Wed			✓
30 Mar 06	Thu			
31 Mar 06	Fri	✓	✓	

Note:

Shaded area indicates public holiday.

Air – Monitoring of three 1-hour TSP and 24-hour TSP at both CAM1a and CAM2a

Noise – Noise measurements at both CNM1 and CNM2 between 0700 and 1900 on normal weekdays

Expansion of Shek Wu Hui Sewage Treatment Works

Impact Monitoring Programme – April 2006 (Tentative)

Date		Air	Noise	Site Inspection
01-Apr-06	Sat	✓	✓	
02-Apr-06	Sun			
03-Apr-06	Mon			
04-Apr-06	Tue			
05-Apr-06	Wed			
06-Apr-06	Thu			✓
07-Apr-06	Fri	✓	✓	
08-Apr-06	Sat			
09-Apr-06	Sun			
10-Apr-06	Mon			
11-Apr-06	Tue			
12-Apr-06	Wed			✓
13-Apr-06	Thu	✓	✓	
14-Apr-06	Fri			
15-Apr-06	Sat			
16-Apr-06	Sun			
17-Apr-06	Mon			
18-Apr-06	Tue			
19-Apr-06	Wed	✓	✓	✓
20-Apr-06	Thu			
21-Apr-06	Fri			
22-Apr-06	Sat			
23-Apr-06	Sun			
24-Apr-06	Mon			
25-Apr-06	Tue	✓	✓	
26-Apr-06	Wed			✓
27-Apr-06	Thu			
28-Apr-06	Fri			
29-Apr-06	Sat			
30-Apr-06	Sun			

Note:

Shaded area indicates public holiday.

Air – Monitoring of three 1-hour TSP and 24-hour TSP at both CAM1a and CAM2a

Noise – Noise measurements at both CNM1 and CNM2 between 0700 and 1900 on normal weekdays