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TEST REPORT

Kaden Construction Limited

CONTRACT NO. DC/2007/18

**YUNG SHUE WAN AND
SOK KWU WAN VILLAGE SEWERAGE,
STAGE 1 WORKS**

**MONTHLY IMPACT MONITORING
REPORT NO.9**

(FEBRUARY 2009)

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Your reference:

Our reference: 05117/6/10/323531

Date: 16 April 2009

Attention: Mr. C K Au

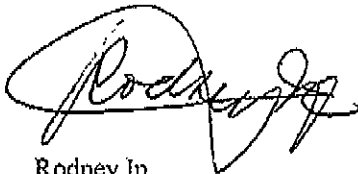
BY FAX ONLY

Dear Sir

Contract No. DC/2007/18
Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works
Monthly Impact Monitoring Report No. 9

I refer to the Environmental Permit (EP-281/2007) and the email from the environmental team, ETS-Testconsult Limited with the revised report, dated 16 April 2009. I do not have further comment and have verified the captioned report.

Yours faithfully
SCOTT WILSON CDM JOINT VENTURE



Rodney Ip

ANCP/ancp

cc	Kaden Construction Ltd	(Attn: Mr Stephen Leung)
	ETS-Testconsult	(Attn: Ms Linda Law)
	ER/LAMMA	(Attn: Mr Ian Jones)
	CDM	(Attn: Mr Mark Sin)



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EXECUTIVE SUMMARY

The Contractor, Kaden Construction Limited (Kaden), appointed Environmental Team of ETS-Testconsult Limited (ET) to undertake the environmental impact monitoring for "Contract No. DC/2007/18 Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works" (the Project) under the requirements and specifications of "the Environmental Permit (Application No. AEP-281/2007)" (the EP) and "the Final EM&A Manual – Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection, Treatment and Disposal Facilities" (the EM&A Manual).

This Monthly Impact Monitoring Report No.9 has been prepared by the ET of ETS-Testconsult Limited to document the impact monitoring works conducted for the Project in February 2009.

Construction Progress

The major construction works in this monitoring period were as below:

- Excavation of inspection pits;
- Sewer construction including trench excavation;
- PE pipe laying; and
- Backfilling and reinstatement of hard pavement.

Environmental Monitoring Progress

The summary of the monitoring activities in this monitoring period is listed below:

- Noise Monitoring (Day-time): 4 Occasions at 4 designated locations;
- 24-hour TSP Monitoring: 5 Occasions at 4 designated locations;
- 1-hour TSP Monitoring: 15 Occasions at 4 designated locations.

Impact Air Quality Monitoring

No exceedances of Action and Limit levels were recorded for 24-hr and 1-hr TSP monitoring in the reporting period.

Impact Noise Monitoring

No exceedances of Action and Limit Levels were recorded in this reporting month.

Waste Management

According to weekly site inspection, ET found that the Contractor followed the recommended procedures stipulated in the Waste Management Plan (WMP) on handling and disposal of wastes. In this reporting month, 5.1m³ Public Fill and 2.0m³ hard rock & broken concrete were generated and disposed to Sok Kwu Wan Refuse Transfer Station (SKWRTS) properly. Besides, 10.0m³ C&D materials were reused in the Contract.

Site Inspection

Environmental site inspections conducted in this reporting month are presented as follows:

<u>Concerned Parties</u>	<u>Dates of Audit / Inspection</u>
ET	05, 11, 17 and 23 February 2009
RE / IEC / Kaden / ET	17 February 2009

According to the summary of the weekly site inspections carried out in this month, it indicated that site practices of the Kaden were generally undertaken in an environmentally acceptable manner and the overall site environmental performance was satisfactory.

Summary of the site inspection findings in this reporting month is shown as below:



Item	Aspect	Finding	Action(s) to be taken by the Contractor	ET Verification
1	Water	The desilting plate inside the sedimentation tank at S165 was found to be not large enough to provide sufficient retention time to settle suspended matters before discharge during the weekly site inspection on 17/02/09.	The Contractor replied to replace the desilting plate by a larger one and reduce the flow rate in order to provide sufficient retention time to settle suspended matters before discharge..	During the subsequent weekly site inspection on 23/02/09, the desilting plate was replaced by larger one and the flow rate was reduced.
2	Site Practice	Unused wooden blocks and plates were found on the ground at S19 and S20 during the weekly site inspection on 17/02/09.	The Contractor replied to collect the unused wooden blocks and plated and reuse / dispose of them properly.	During the subsequent weekly site inspection on 23/02/09, the wooden blocks and plates was collected.
3	Site Practice	C&D wastes were noted on the ground at S171 during the weekly site inspection on 17/02/09.	The Contractor replied to collect and dispose of the C&D wastes properly	During the subsequent weekly site inspection on 23/02/09, the C&D waste at S171 was collected.

Environmental Complaints, Notifications of Summons and Successful Prosecutions

No complaints, notifications of summons and successful prosecutions were received in this reporting period.

Conclusion and Recommendations

The monitored environmental data indicated that no unacceptable environmental impacts arising from the Project had been caused to the surrounding sensitive receivers. The environmental mitigation measures had been effective in controlling potential impacts to within acceptable sensitive receivers. Besides, the Contractor was recommended to maintain good site practice in order to minimize the environmental impacts at the site.

Construction Programme for Coming Month

The Construction programme for the Project is shown in Appendix E.

As informed by the Contractor, the activities to be conducted by them in coming month included:

- Excavation of inspection pits;
- Sewer construction including trench excavation;
- PE pipe laying;
- Backfilling and reinstatement of hard pavement; and
- Trenchless excavation by Tunnel Boring Machine.

Future Key Issues

Based on the forecast of engineering works in the coming month, key issues to be considered are as follows:

- Noise and air quality impact due to construction works; and
- Maintain good site practice to minimize environmental impacts at the site.

Internet Website

The monthly EM&A report can be accessed on the web at <http://www.skwsewer.com>.

1.0 INTRODUCTION

The Customer, Kaden Construction Limited (Kaden), appointed Environmental Team of ETS-Testconsult Limited to undertake the environmental impact monitoring for "Contract No. DC/2007/18 Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works" (the Project) under the requirements and specifications of "the Environmental Permit (Application No. AEP-281/2007)" (the EP) and "the Final EM&A Manual – Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection, Treatment and Disposal Facilities" (the EM&A Manual).

In accordance with the Section 5 of the EP, EM&A programme as set out in the EM&A Manual is required to be implemented. In accordance with the EM&A manual, environmental monitoring of air quality and noise is required for the Project. The EM&A requirement for each parameter are described in details in subsequent sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event-Action Plans;
- Environmental mitigation measures, as recommended in the project EIA study report;
- Environmental requirements in contract documents.

This monthly EM&A report summarizes the impact monitoring in January 2009. This monthly EM&A report can be accessed on the web at <http://www.skwsewer.com>.

2.0 PROJECT INFORMATION

2.1 Background

Under this Project, Kaden is required to construct village sewerage in Yung Shue Wan and Sok Kwu Wan, Lamma Island.

Village sewage works will undertake in this Project. These will comprise laying approximately 1.4km of sewerage pipes from 220mm to 350mm diameter in Sok Kwu Wan Village. These works will carry out under a conventional Design, Bid, Build (DBB) contract, entirely separate from the single Design, Build and Operate (DBO) contract for Sewage Treatment Works (STW) construction.

As the main Contractor of the captioned project contracted by, Kaden will follow the environmental monitoring recommendation stated in the EM&A Manual that was prepared with reference to the EIA Report (Register No.: AEIAR-075/2003).

According to the EP and the EM&A Manual, the environmental programme is mainly focused on the construction activities of this Project in Sok Kwu Wan. At the same time, all air quality and noise monitoring stations proposed in the EM&A Manual are located in Sok Kwu Wan. The baseline report is prepared in accordance with EP (No. EP-281/2007) for the Designated Project "Outlying Islands Sewerage Stage 1 Phase 2 – Sok Kwu Wan Sewage Collection, Treatment and Disposal Facilities" and the EM&A Manual.

2.2 Site Description

The general layout plan of the project in Sok Kwu Wan is shown in Drawing No. 2005/C1/2004, 2005/C1/2005 and 2005/C1/2006.

Surrounding the construction site, there are air and noise sensitive receivers at Chung Mei Village, Sok Kwu Wan and Ta Shui Wan.

2.3 Construction Programme

The construction programme is shown in Appendix E.

2.4 Project Organization and Management Structure

The organization chart with respect to the on-site environmental management and monitoring program are shown in Appendix A.

2.5 Contact Details of Key Personnel

The key personnel contact names and telephone numbers, and construction programme are shown in table 2.1.

Table 2.1 Contact Details of Key Personnel

Organization	Project Role	Key Staff	Tel. No.	Fax No.
Scott Wilson CDM JV	Engineer Representative	Ir Ian J Jones	2982 0240	2982 4129
Scott Wilson CDM JV	Independent Environmental Checker	Mr. Rodney Ip	2410 3750	2428 9922
Kaden Construction Ltd	Contractor	Ir Stephen Leung	2454 9102	2465 1207
ETS-Testconsult Ltd	Environmental Team	Mr. C L Lau	2946 7791	2695 3944

2.6 Construction Progress in this reporting month

A summary of the major construction activities undertaken in this monitoring month were:

- Excavation of inspection pits;
- Sewer construction including trench excavation;
- PE pipe laying; and
- Backfilling and reinstatement of hard pavement.

3.0 IMPACT AIR QUALITY MONITORING

3.1 Monitoring Requirement

Both 1-hr and 24-hr TSP monitoring is required to be conducted in order to monitor the air quality of the environment during the construction period. For regular monitoring, a sampling frequency of at least one in every six days should be carried out at all designated monitoring stations.

3.2 Monitoring Equipment

24-hour TSP Monitoring

High volume sampler, as HVS, (Greasby GMWS2310) complete with appropriate sampling inlets are employed for 24-hour TSP. The sampler is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

Installation

The installation of HVS refers to the requirement stated in EM&A Manual.

Operation/Analytical Procedures

Operating/analytical procedures for the operation of HVS are as below:

Prior to the commencement of the air sampling, the flow rate of the high volume sampler was properly set (between 0.6m³/min and 1.7m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

- For TSP sampling, fiberglass filters (GA-55) were used.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated 5 minutes to establish thermal equilibrium before placing any filter media at designated air monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.

- The filter was aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter. Then the filter holder frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The programmable timer will be set for a sampling period of 24 hours. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number.).
- After sampling, the filter was transferred from the filter holder of the HVS to a sealed plastic bag and sent to the laboratory for weighting. The elapsed time was also recorded.
- Before weighting, all filters were equilibrated in a desiccator for 24 hour with the temperature of $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and the relative humidity (RH) $<50\% \pm 5\%$.

Maintenance & Calibration

- The HVS and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- The HVSs used were calibrated before the commencement of air quality monitoring, after maintenance and every two months. Five-point calibration by using calibration kit (e.g. Tisch TE-5025A) was performed to establish a relationship between the flow recorder meter reading in cfm (cubic feet per minute) and the standard flow rate, QStd, in m^3/min .

1-hour TSP Monitoring

1-hour TSP levels were measured by using 1-hour dust meter which are capable of producing comparable results as the by high volume sampling method, to indicate short event impacts.

Measuring Procedures

The measuring procedures of the 1-hr dust meter are in accordance with the Manufacturer's instruction Manual as follows:

- Set POWER to ON, check the battery indicator to ensure whether the power supply is enough to conduct the TSP monitoring;
- Calibrate the dust meter by zero check;
- Set the TIME CONSTANT of the dust meter;
- Press SAMPLE to start the TSP monitoring;
- Record the maximum, minimum and average reading directly from the dust meter by press STATISTICS when monitoring complete.

Maintenance & Calibration

- 1-hour dust meter should be checked at 6-month intervals throughout all stages of impact air quality monitoring. Through a five-point calibration by placing the dust meter and calibrated HVS under the same environmental condition, a relationship in TSP level ($\mu\text{g}/\text{m}^3$) between dust meter and HVS was established.

3.3 Laboratory Measurement / Analysis

Environmental Laboratory of ETS-Testconsult which is HOKLAS accredited, carried out the laboratory analysis.

A clean filter paper with no pinholes was used for each time of monitoring. Before sampling, the filter paper of size 8" x 10" was labelled and conditioned in a humidity controlled chamber for over 24 hours and pre-weighed before use for the sampling.

After sampling, the filter paper loaded with dust was kept in a clean and tightly sealed plastic bag. The filter paper then returned to the laboratory for reconditioning in the humidity controlled chamber following by accurate weighing by an electronic balance with readout down to 0.1mg. The balance was calibrated against a traceable standard.

All the analysis results and collected samples were kept in a good condition for 6 months after completion of the monitoring exercise before disposal.

3.4 Monitoring Parameters, Frequency and Duration

Table 3.1 summarizes the monitoring parameters, monitoring duration and frequencies of impact air quality monitoring.

Table 3.1 Monitoring parameters, duration and frequencies of impact air quality monitoring

<i>Parameter</i>	<i>Duration</i>	<i>Frequency</i>
24-hr TSP	24 hr (0000-2400)	One in every six days
1-hr TSP	1 hr (0700-1900)	3 times per day in every six days

3.5 Monitoring Locations

As the requirement in the EM&A Manual, three designated air monitoring stations were selected. Table 3.2 tabulates the air quality monitoring locations of this Project.

Table 3.2 Air monitoring stations

<i>Air monitoring station</i>	<i>Description of location</i>
AM1	Squatter house in Chung Mei Village
AM2	Squatter house in Chung Mei Village
AM3	Football Court

3.6 Action and Limit Levels

Action and Limit levels for 24-hr TSP and 1-hr TSP derived as illustrated in Table 3.3.

Table 3.3 Action and Limit levels for 24-hr TSP and 1-hr TSP

<i>Monitoring Station</i>	<i>24-hr TSP ($\mu\text{g}/\text{m}^3$)</i>		<i>1-hr TSP ($\mu\text{g}/\text{m}^3$)</i>	
	<i>Action Level</i>	<i>Limit Level</i>	<i>Action Level</i>	<i>Limit Level</i>
AM1	173	260	343	500
AM2	175	260	331	500
AM3	191	260	353	500

3.7 Event-Action Plans

Should the results of the monitoring parameters at any designated monitoring stations indicate that the air quality criteria are exceeded, the actions in accordance with the Event and Action Plan that summarized in Appendix D should be carried out.

3.8 Results

Totally 5 occasions of 24-hr TSP monitoring and 15 occasions of 1-hr TSP monitoring were carried out in this reporting period. All monitoring data of 1-hr and 24-hr TSP monitoring is provided in Appendix B2. Graphical presentation of both 1-hr and 24-hr TSP monitoring results for the reporting month is shown in Appendix B3.

No exceedances of Action and Limit Level of 1-hr and 24-hr TSP monitoring results were recorded during the reporting month. Table 3.4 summaries the 1-hr and 24-hr TSP monitoring results.

Table 3.4 Summary of 1-hr and 24-hr TSP Monitoring Results

1-hr TSP Monitoring									
Parameter	AM1			AM2			AM3		
Station	Time	Result	Exceed*	Time	Result	Exceed*	Time	Result	Exceed*
05/02/09	13:00	101	X	13:13	90	X	09:10	143	X
05/02/09	14:00	106	X	14:13	93	X	10:10	161	X
05/02/09	15:00	95	X	15:13	97	X	11:10	148	X
11/02/09	14:15	139	X	14:20	132	X	09:30	124	X
11/02/09	15:15	129	X	15:20	123	X	10:30	153	X
11/02/09	16:15	121	X	16:20	121	X	13:00	164	X
17/02/09	13:15	101	X	13:25	107	X	09:10	113	X
17/02/09	14:15	104	X	14:25	122	X	10:10	120	X
17/02/09	15:15	94	X	15:25	123	X	11:10	123	X
23/02/09	09:13	109	X	09:15	119	X	13:00	110	X
23/02/09	10:13	100	X	10:15	107	X	14:00	118	X
23/02/09	11:13	122	X	11:15	115	X	15:00	124	X
27/02/09	09:10	125	X	09:15	117	X	13:30	115	X
27/02/09	10:10	138	X	10:15	130	X	14:30	107	X
27/02/09	11:10	117	X	11:15	112	X	15:30	128	X

24-hr TSP Monitoring						
Parameter	AM1		AM2		AM3	
Station	Result	Exceed*	Result	Exceed*	Result	Exceed*
05/02/09	67	X	83	X	74	X
11/02/09	71	X	106	X	100	X
17/02/09	73	X	86	X	99	X
23/02/09	52	X	45	X	55	X
27/02/09	62	X	57	X	61	X

Remark (*): L=Limit Level exceedance, A=Action Level exceedance and X=not an exceedance

4.0 IMPACT NOISE MONITORING

4.1 Monitoring Requirements

As the requirement in the EM&A Manual, impact noise monitoring was conducted for a weekly basis at designated monitoring locations.

4.2 Monitoring Equipment

Integrating Sound Level Meters used for impact noise monitoring were Type 1 sound level meters capable of giving a continuous readout of the noise level reading including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x). They complied with International Electro technical Commission Publications 651:1979 (Type1) and speed in m/s was used to monitor the wind speed. Table 4.1 summarized the noise monitoring equipment model used during the impact monitoring. Copies of calibration certificates and Calibration Summary for noise meters and calibrators used are attached in Appendix C1.

Table 4.1 Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Rion NL-31 Sound Level Meter
Calibrator	Rion NC-73 Sound Level Meter
Portable Wind Speed Indicator	TSI Model 8340-M Air Velocity Meter

4.3 Monitoring Parameters, duration and Frequency

Impact noise monitoring for the A-weighted levels L_{eq} , L_{10} and L_{90} were recorded once per week. Data obtained from impact noise monitoring was processed and presented as below:

- Daytime: three sets of 30-minute noise level monitored between 0700-1900 hrs on normal weekdays;
 - Evening-time*: three sets of 5-minute noise level monitored between 1900-2300 hrs ;
 - Night-time*: three sets of 5-minute noise level monitored between 2300-0700 hrs of next day; and
 - Holiday*: three sets of 5-minute noise level monitored between 0700-1900 hrs on holiday.
- (*): Noise monitoring to be conducted only when there is construction work.

Duration, frequencies and parameters of noise measurement are presented in Table 4.2.

Table 4.2 Duration, Frequencies and Parameters of Noise Monitoring

Time period	Duration/min	Parameters
Day-time: 0700-1900 hrs on normal weekday	30	L_{eq} , L_{10} , L_{90}
Evening-time: 1900-2300 hrs	5	L_{eq} , L_{10} , L_{90}
Night-time: 2300-0700 hrs of next day	5	L_{eq} , L_{10} , L_{90}
Holiday: 0700-1900 hrs	5	L_{eq} , L_{10} , L_{90}

4.4 Monitoring Locations

Since the owner of 1B Sok Kwu Wan objected to set up the noise monitoring station NM3 at 1B Sok Kwu Wan (Eastern Façade), an alternative position, Sok Kwu Wan Sitting-out Area RNM3, which is just a 3m width footpath away from house 1B for the free field noise measurement, was proposed by ET. Under the approval from ER and agreement from the IEC and EPD, both baseline and impact noise monitoring was carried out at RNM3.

Hence, there were four noise monitoring locations NM1, NM2, RNM3 and NM4 required to carry out impact noise monitoring.

The details of noise monitoring stations are summarized in Table 4.3.

Table 4.3 Noise Monitoring Stations

Noise monitoring station	Description of location	Type of Measurement
NM1	1, Chung Mei Village	Façade
NM2	20, Sok Kwu Wan	Façade
RNM3	Sok Kwu Wan Sitting-out Area	Free Field
NM4	2-storey village house at Ta Shui Wan	Façade

4.5 Monitoring Methodology

Instrumentation

Integrating Sound Level Meters were employed for noise monitoring.

Operation/Analysis Procedures

- Sound Level Meter was set on a tripod at a height of 1.2m above the ground;
- For free field measurement, the meter was positioned away from any nearby reflective surfaces.
- The battery condition was checked to ensure the correct functioning of the meter;
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting : A
 - Time weighting : Fast
 - Time measurement : 5 mins



- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000HZ. If the difference in the calibration level before and after measurement was more than 1.0 dB(A), the measurement would be considered invalid and repeat measurement would be required after re-calibration or repair of the equipment;
- During the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet;
- Noise measurement may be paused during periods of high intrusive noise (e.g. dog barking directly towards the receiver of noise level meter). If noise measurement was paused during high intrusive noise, the noise level meter would be resumed and continued the noise measurement and the observations would also be recorded. Any pause intervals were not included in the measurement time; and
- Noise monitoring would be cancelled in the presence of fog, rain, storm, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator are cleaned with soft cloth at quarterly intervals; and
- The meters are sent to supplier or HOKLAS laboratory to check and calibrated at yearly intervals.

4.6 Actions and Limit Levels

The Action and Limit Levels (AL Levels) were established in accordance to the Clause 3.6.4 of the EM&A Manual. Table 4.4 presents the AL levels for noise monitoring.

Table 4.4 Action and Limit Levels for Noise Monitoring

<i>Time Period</i>	<i>Action</i>	<i>Limit</i>
<i>0700 – 1900 hrs normal weekdays</i>	<i>When one documented complaint is received</i>	<i>75 dB(A)</i>

4.7 Event-Action Plans

Should the results of the monitoring parameters at any designated monitoring stations indicate that the noise level criteria are exceeded, the actions in accordance with the Event and Action Plan that summarized in Appendix D should be carried out.

4.8 Results

Totally 4 occasions of Day-time noise monitoring were carried out at monitoring stations in this reporting month. No Evening-time, Night-time and Holiday noise monitoring were required since no construction works were processed during the night-time period.

No exceedances of Action Level of noise monitoring were recorded in this reporting month since no complaint on noise issue was received. Besides, no exceedances in Limit Level were recorded according to the results from Day-time noise monitoring. Table 4.5 summaries the noise daytime monitoring results in the reporting period.

Table 4.5 Summary of Noise Daytime Monitoring Results

<i>Monitoring Parameter</i>	<i>Date</i>	<i>NM1</i>		<i>NM2</i>		<i>RNM3[#]</i>		<i>NM4</i>	
		<i>Result</i>	<i>Exceedance*</i>	<i>Result</i>	<i>Exceedance*</i>	<i>Result</i>	<i>Exceedance*</i>	<i>Result</i>	<i>Exceedance*</i>
<i>Noise Daytime Monitoring</i>	<i>05/02/09</i>	<i>52.6</i>	<i>X</i>	<i>66.2</i>	<i>X</i>	<i>67.2</i>	<i>X</i>	<i>51.5</i>	<i>X</i>
	<i>11/02/09</i>	<i>53.4</i>	<i>X</i>	<i>69.4</i>	<i>X</i>	<i>59.6</i>	<i>X</i>	<i>57.7</i>	<i>X</i>
	<i>17/02/09</i>	<i>55.8</i>	<i>X</i>	<i>62.7</i>	<i>X</i>	<i>63.3</i>	<i>X</i>	<i>54.7</i>	<i>X</i>
	<i>23/02/09</i>	<i>60.1</i>	<i>X</i>	<i>70.5</i>	<i>X</i>	<i>73.2</i>	<i>X</i>	<i>51.1</i>	<i>X</i>

Remark (*): L = Limit Level exceedance, A = Action Level exceedance and X = not an Exceedance
(#): 3dB(A) correction had been added to the results since noise measurements at RNM3 were free-field.

5.0 SITE INSPECTION

During this reporting month, weekly site inspections were undertaken on 05, 11, 17 and 23 February 2009 by ET. Monthly joint site inspection at 17 February 2009 was carried out by Engineer's Representative, IEC, Kaden and ET. A summary of implementation status of mitigation measures on site inspections is presented in Appendix F.

5.1 Summary of the site inspection findings and Action(s) taken by Kaden and ET

According to the summary of the weekly site inspections carried out in this month, it indicated that site practices of the Kaden were generally undertaken in an environmentally acceptable manner and the overall site environmental performance was satisfactory. Summary of the site inspection findings in this reporting month is shown in Table 5.1.

Table 5.1 Summary of Site Inspection Findings and Action(s) taken by Kaden and ET

Item	Aspect	Finding	Action(s) to be taken by the Contractor	ET Verification
1	Water	The desilting plate inside the sedimentation tank at S165 was found to be not large enough to provide sufficient retention time to settle suspended matters before discharge during the weekly site inspection on 17/02/09.	The Contractor replied to replace the desilting plate by a larger one and reduce the flow rate in order to provide sufficient retention time to settle suspended matters before discharge..	During the subsequent weekly site inspection on 23/02/09, the desilting plate was replaced by larger one and the flow rate was reduced.
2	Site Practice	Unused wooden blocks and plates were found on the ground at S19 and S20 during the weekly site inspection on 17/02/09.	The Contractor replied to collect the unused wooden blocks and plates and reuse / dispose of them properly.	During the subsequent weekly site inspection on 23/02/09, the wooden blocks and plates was collected.
3	Site Practice	C&D wastes were noted on the ground at S171 during the weekly site inspection on 17/02/09.	The Contractor replied to collect and dispose of the C&D wastes properly	During the subsequent weekly site inspection on 23/02/09, the C&D waste at S171 was collected.

5.2 Recommendations on site inspection findings in Site Inspections of this month

Based on the site inspection findings, the recommendations are as below:

- Providing dust suppression measures (such as water spraying) during the construction works especially excavation and earth moving operation;
- Checking and maintaining all the site machines to prevent black smoke emission;
- Providing briefing to the concerned site staff on remedial actions, such as handling method of chemicals and chemical waste;
- Maintain good waste management at the site; and
- Remove all stagnant water and applied proper treatment facilities to wastewater before discharge.

6.0 Status of Environmental Permits

All permits/licenses obtained in this reporting month are summarized in Table 6.1.

Table 6.1 Summary of Environmental Licensing and Permit Status

Description	Permit No.	Valid Period		Section
		From	To	
Environmental Permit	EP-281/2007	29/06/07	End of Project	Valid
Water Discharge Licence	EP890/W2/XD 026	23/05/08	31/03/12	Valid Discharge of Industrial Trade Effluent arising from Construction Site to communal storm water drain
Notification under APCO	Application had been submitted to EPD on 15 April 2008			

7.0 WASTE MANAGEMENT

The quantities of waste for disposal from Sok Kwu Wan in this month are summarized in Table 7.1.

Table 7.1 Summary of Quantities of Waste for Disposal in this reporting month

Type of Waste		Quantity	Disposal Location	Cumulative Quantity*
Inert C&D Materials	Total Quantity Generated (in '000m ³)	0.0151		0.2553
	Broken Concrete (in '000m ³)	0.002	N/A	0.0085
	Reused in the Contract (in '000m ³)	0.01	For Stockpile / Reuse	0.075
	Reused in other Projects (in '000m ³)	0	N/A	0.09
	Disposal as Public Fill (in '000m ³)	0.0051	SKWRTS	0.0903
C&D Waste	Metals (in '000kg)	0	N/A	0
	Paper/Cardboard Packaging (in '000kg)	0	N/A	0
	Plastics (in '000kg)	0	N/A	0
	Chemical Waste (in '000kg)	0	N/A	0
	Other, e.g. General Refuse (tonne)	0	SKWRTS	1.50

Remark (*): The cumulative quantities of inert C&D materials and C&D waste were updated refer to the Monthly Summary Waste Flow Tables for Dec 08, Jan and Feb 09.

8.0 ECOLOGY

A comprehensive tree survey was carried out by Kaden in mid 2008. The two uncommon tree species (*Celtis timorensis* and *Celtis biondii*) could not be identified on site as per the Figure 4 of the EP. All sewerage works in the concerned areas will however be laid underground in the existing footpaths anyway.

9.0 ARCHAEOLOGY AND CULTURAL HERITAGE

Refer to the Section 9 of EM&A Manual, a watching brief was conducted in Chung Mei, Sok Kwu Wan by Archaeological Assessments Limited on 01 September 2008.

The watching brief took place along the length of sewer trench alignment between manholes MH52 and MH54. In overview, the sewer trench between manholes MH52 and MH54 has seen little or no human activity in the past and can be considered to have no archaeological potential.

The interim report from archaeological watching brief at Chung Mei presents in Appendix G.

10.0 ENVIRONMENTAL NON-CONFORMANCE

10.1 Summary of Air Quality and Noise monitoring

No exceedances of Action and Limit Level of 24-hour and 1-hour TSP monitoring results were recorded during the reporting period.

No exceedances of Action Level of noise monitoring were recorded in this reporting month since no complaint on noise issue was received. Besides, no exceedances in Limit Level were recorded according to the results from Day-time noise monitoring.

No evening-time, night-time and holiday noise monitoring were required since no construction works were processed during these periods.

10.2 Summary of Environmental Complaints, Notifications of Summons and Successful Prosecutions

No complaints, notifications of summons and successful prosecutions were received in this reporting month. A summary of environmental complaints, notifications of summons and successful prosecutions was given Table 9.1.

Table 10.1 Statistical Summary of Environmental Complaint-log

Reporting Period	Complaint logged		Summons served		Successful Prosecution	
	Frequency	Cumulative	Frequency	Cumulative	Frequency	Cumulative
June 2008	0	0	0	0	0	0
July 2008	0	0	0	0	0	0
August 2008	0	0	0	0	0	0
September 2008	0	0	0	0	0	0
October 2008	1	1	0	0	0	0
November 2008	0	1	0	0	0	0
December 2008	0	1	0	0	0	0
January 2009	0	1	0	0	0	0
February 2009	0	1	0	0	0	0

11.0 IMPLEMENTATION STATUS

11.1 Implementation Status of Environmental Mitigation Measures

Kaden has been implementing the required environmental mitigation measures indicating in Appendix A of the EM&A manual. A summary of the implementation status of the mitigation measures is presented in Appendix F.

11.2 Implementation Status of Event and Action Plan

No exceedances of Action and limit Levels of noise air quality monitoring were recorded in this reporting month and hence no further actions were required to be taken.

11.3 Implementation Status of Environmental Complaint Handling

No complaints was received in this reporting month and hence no further actions were required to be handled.

11.4 Implementation Status of Notification of Summons and Prosecution

There were no notifications of summons respect to environmental issues registered in this reporting month.

12.0 CONCLUSION AND DISCUSSION

According to the summary of noise and air quality monitoring results, no exceedances of Action and Limit Level were recorded during the reporting period.

According to the ET weekly site inspections carried out in this reporting month, it indicated that site practices of the Kaden were generally undertaken in an environmentally acceptable manner and the overall site environmental performance was satisfactory. Summary of the site inspection findings is shown in Table 5.1.

The monitored environmental results indicated that no unacceptable environmental impacts arising from the Project had been caused to the surrounding sensitive receivers. The environmental measures had been effective in controlling potential impacts to within acceptable sensitive receivers.

No complaints, notifications of summons and successful prosecutions were received in this reporting period.

13.0 FUTURE KEY ISSUES

13.1 Upcoming Environmental Monitoring Schedule in coming monitoring month

Proposed Environmental Monitoring program in coming month is presented as following table:



Table 13.1 Proposed Environmental Monitoring Schedule in coming month

March 2009						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5 1-hr TSP x 3 24-hr TSP NM Weekly SI	6	7
8	9	10	11 1-hr TSP x 3 24-hr TSP NM Weekly SI	12	13	14
15	16	17 1-hr TSP x 3 24-hr TSP NM Weekly SI	18	19	20	21
22	23 1-hr TSP x 3 24-hr TSP NM Weekly SI	24	25	26	27 1-hr TSP x 3 24-hr TSP	28
29	30	31				

13.2 Upcoming Construction Works Schedule in coming month

Major construction works planned to be carried out in coming month are shown as below:

- Excavation of inspection pits;
- Sewer construction including trench excavation;
- PE pipe laying;
- Backfilling and reinstatement of hard pavement; and
- Trenchless excavation by Tunnel Boring Machine.

13.3 Environmental Issues for the Coming Month

Key issues to be considered in the coming month include:

- Dust generated from the construction activities; and
- Noise generated from the noisy activities.

Mitigation measures to be required in the coming month:

Air Quality Impact

- To provide adequate water spraying on roads and working platform;
- To ensure implementation of the dust mitigation measures for the construction activities; and
- To provide proper maintenance for vehicles and machines on site.

Noise

- To switch off equipment if not in use;
- To operate silent equipment;
- To identify the noise sources inside and outside of the site; and
- To re-schedule the work activities in the event of valid noise exceedance.



Appendix A

Organization Chart and Lines of Communication

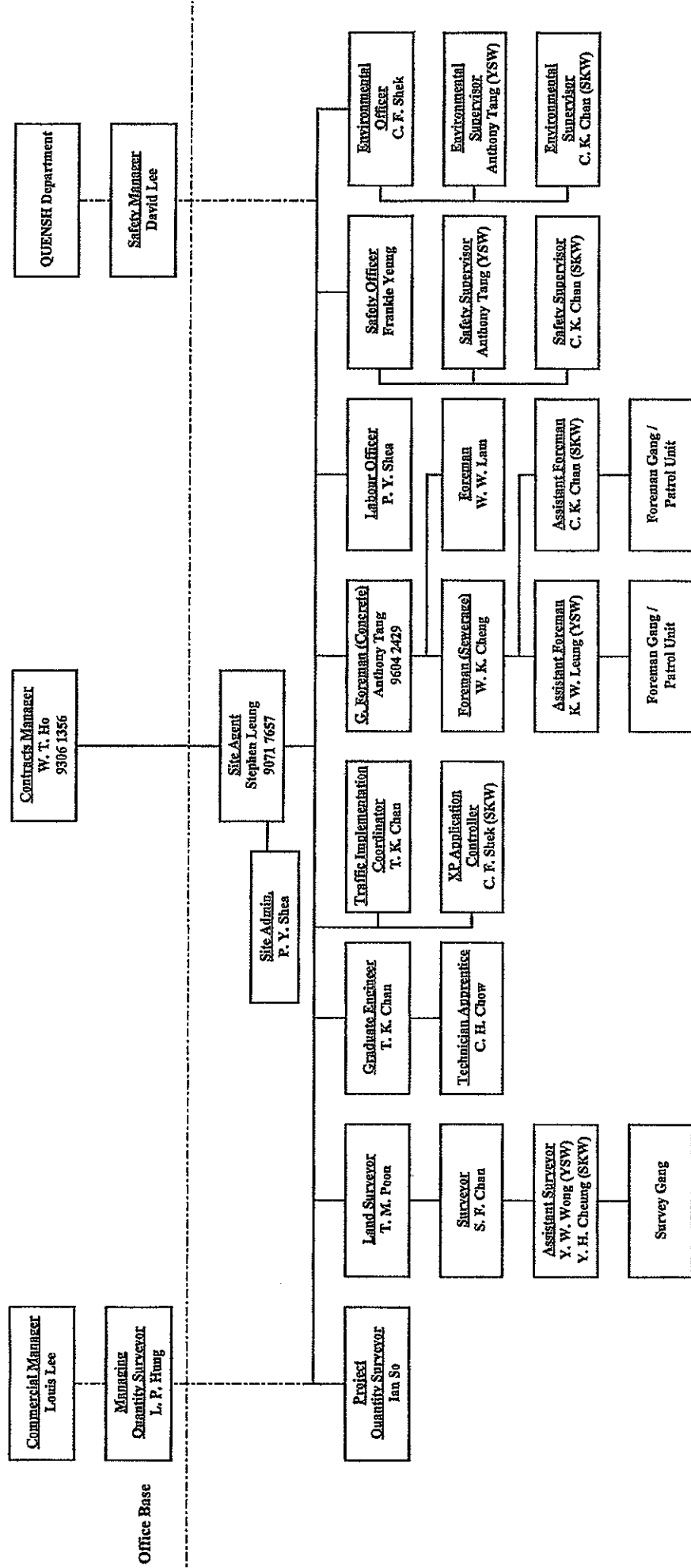
Kaden Construction Limited



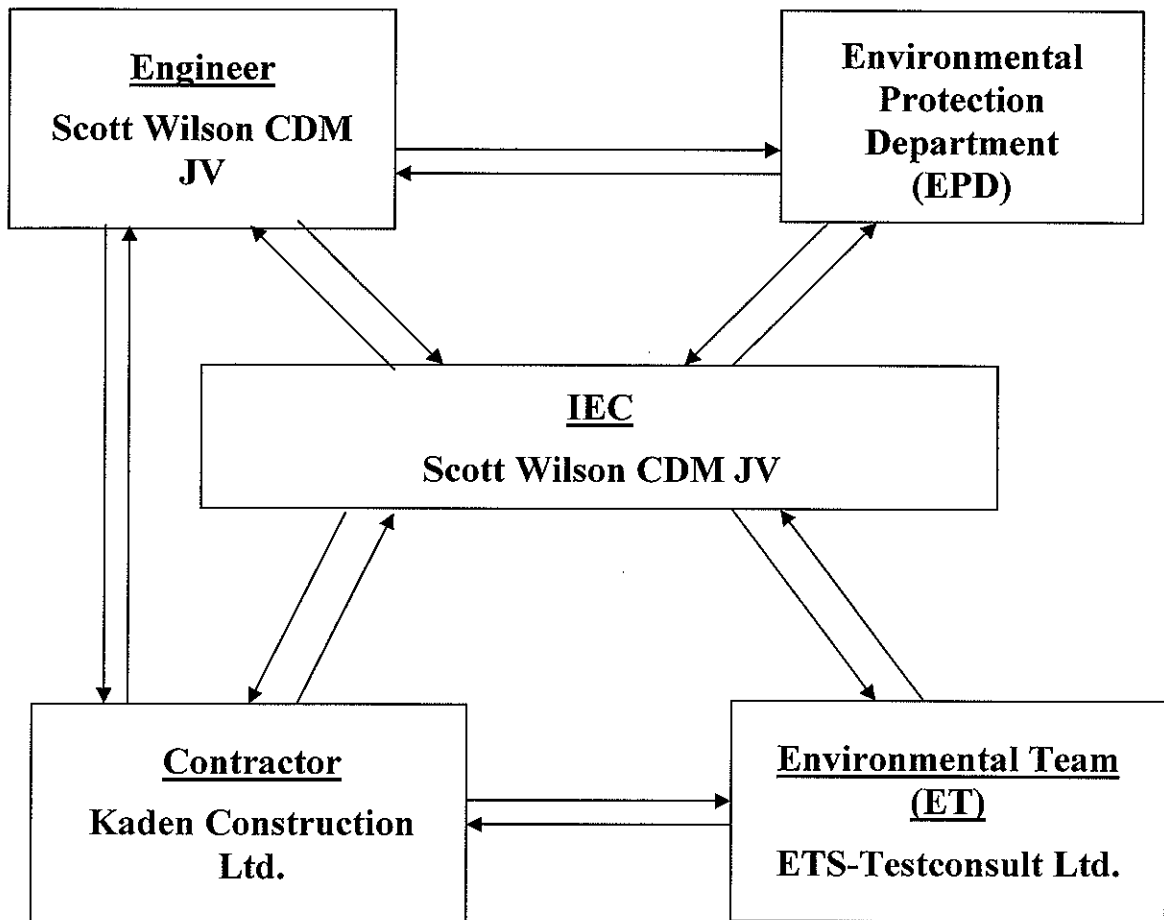
DSD Contract No. DC/2007/18

Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works

Project Organisation Chart (Rev. H)



Lines of Communication





Appendix B1

Calibration Certificates for Impact Air Quality Monitoring Equipments



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

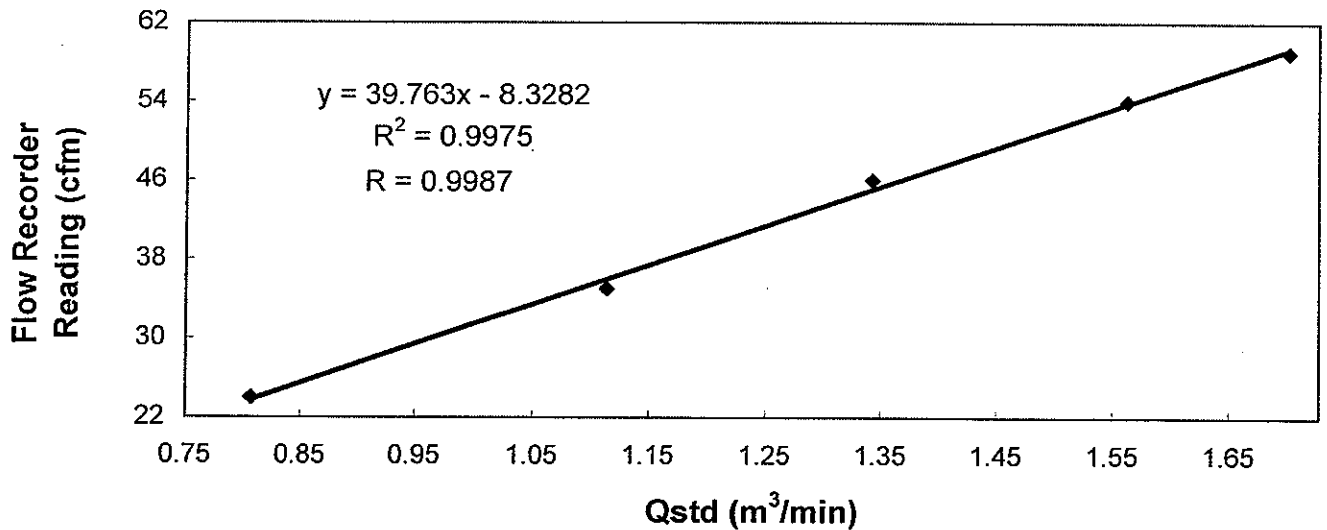
TEST REPORT

Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW **Date of Calibration** : 17 February 2009
Serial No. : 1173 (ET/EA/003/17) **Calibration Due Date** : 16 April 2009
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results	Flow recorder reading (cfm)	59	54	46	35	24
	Qstd (Actual flow rate, m ³ /min)	1.70	1.56	1.34	1.11	0.81
	Pressure : 766.56 mmHg	Temp. : 294 K				

Sampler 1173 Calibration Curve
Site: Sok Kwu Wan (AM-1)

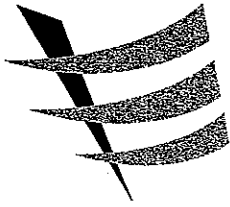


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after 5-point calibration

The high volume sampler complies* / does not comply* with the specified requirements and is deemed acceptable* / unacceptable* for use.

Calibrated by :
LI, Wan Lung
(Technician)

Approved by :
CHOW, Hoi Tat
(Assistant Environmental Officer)



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

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Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

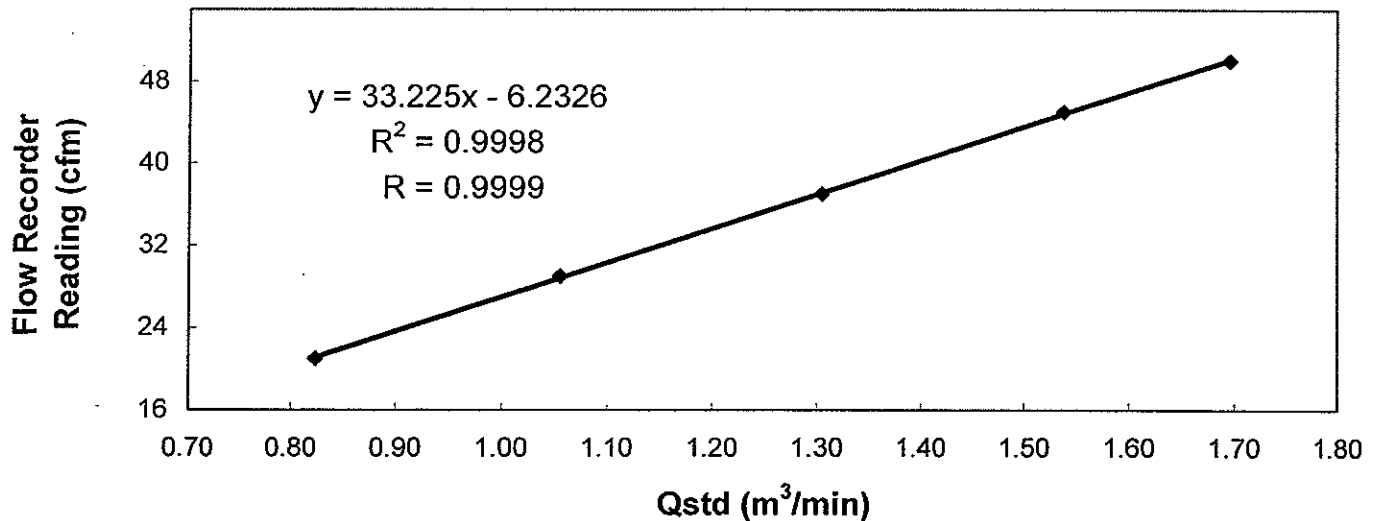
Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW **Date of Calibration** : 17 February 2009
Serial No. : 9865 (ET / EA / 003 / 14) **Calibration Due Date** : 16 April 2009
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results :

Flow recorder reading (cfm)	50	45	37	29	21
Qstd (Actual flow rate, m ³ /min)	1.70	1.54	1.30	1.06	0.82
Pressure :	766.56 mm Hg		Temp. :	294 K	

Sampler 9865 Calibration Curve
Site: Sok Kwu Wan (AM-2)



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies* / does not comply* with the specified requirements and is deemed acceptable*/ unacceptable* for use.

Calibrated by :
LI, Wan Lung
(Technician)

Approved by :
CHOW, Hoi Tat
(Assistant Environmental Officer)



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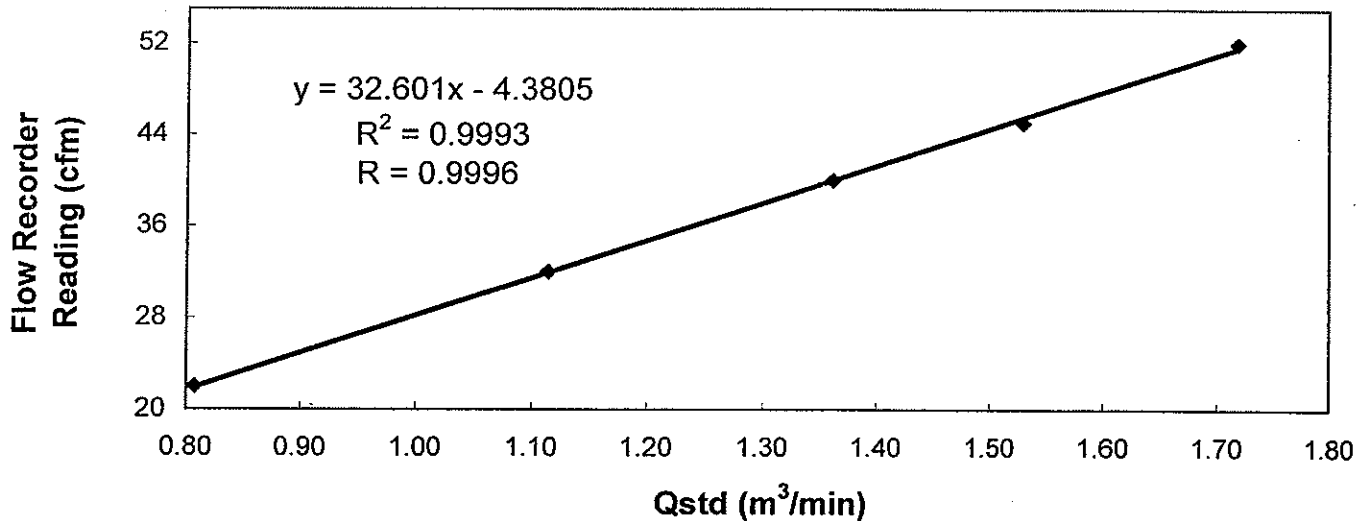
TEST REPORT

Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 17 February 2009
Serial No. : 9912 (ET / EA / 003 / 15) Calibration Due Date : 16 April 2009
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results	Flow recorder reading (cfm)	52	45	40	32	22
	Qstd (Actual flow rate, m ³ /min)	1.72	1.53	1.36	1.11	0.81
	Pressure : 766.56 mm Hg	Temp. : 294 K				

Sampler 9912 Calibration Curve
Site: Sok Kwu Wan (AM-3)

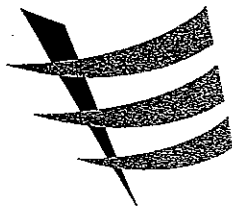


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies* / ~~does not comply*~~ with the specified requirements and is deemed acceptable*/ unacceptable* for use.

Calibrated by :
LI, Wan Lung
(Technician)

Approved by :
CHOW, Hoi Tat
(Assistant Environmental Officer)



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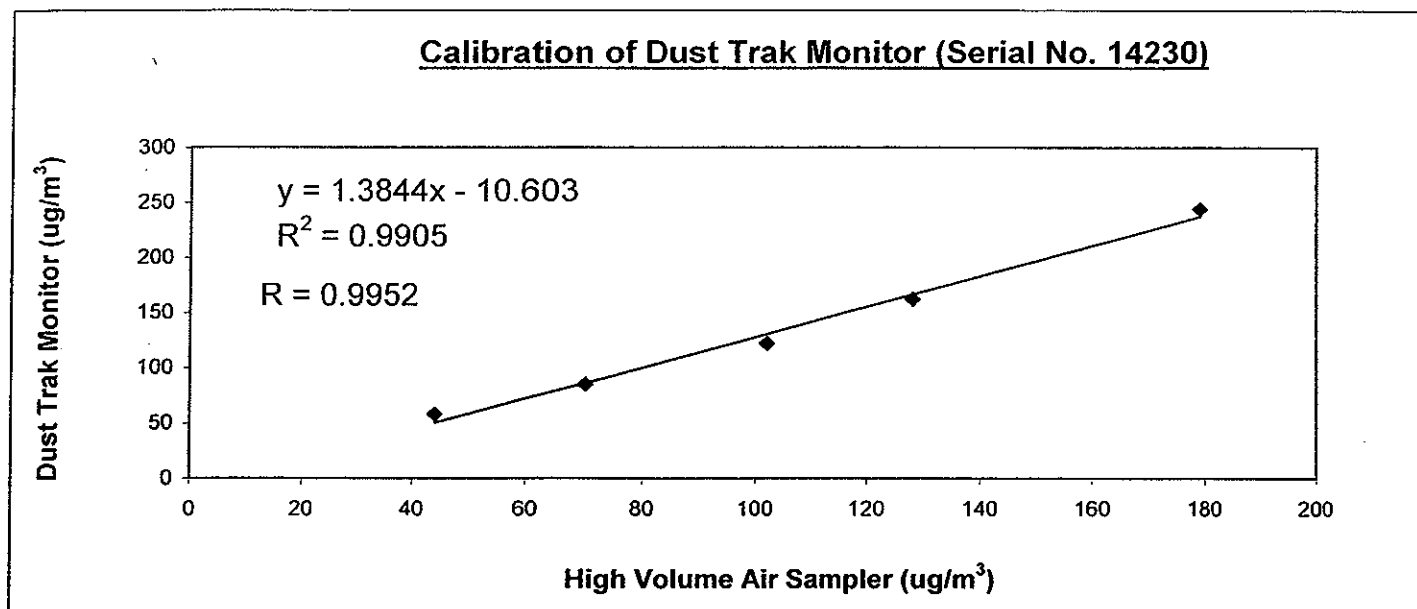
TEST REPORT

Internal Calibration Report
of
Dust Trak Monitor

Manufacturer : TSI - 8520 Dust Trak Date of Calibration : 13 January 2009
Serial No. : 14230 (ET/EA/001/04) Due Date : 12 July 2009
Method : Parallel measurement (five-point calibration) by placing the Dust Trak Monitor and High Volume Air Samper together under the same environmental condition

Results :

Dust Trak Monitor ($\mu\text{g}/\text{m}^3$)	58	85	155	162	244
High Volume Air Sampler ($\mu\text{g}/\text{m}^3$)	44	70	102	128	179
High Volume Air Sampler Serial No.: 1178			Calibration Due Date: 01 March 2009		



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a five point calibration

The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable * / ~~unacceptable~~ * for use.

Calibrated by : MAK, Kei Wai
MAK, Kei Wai
(Senior Site Technician)

Approved by : LAW, Sau Yee
LAW, Sau Yee
(Senior Environmental Officer)



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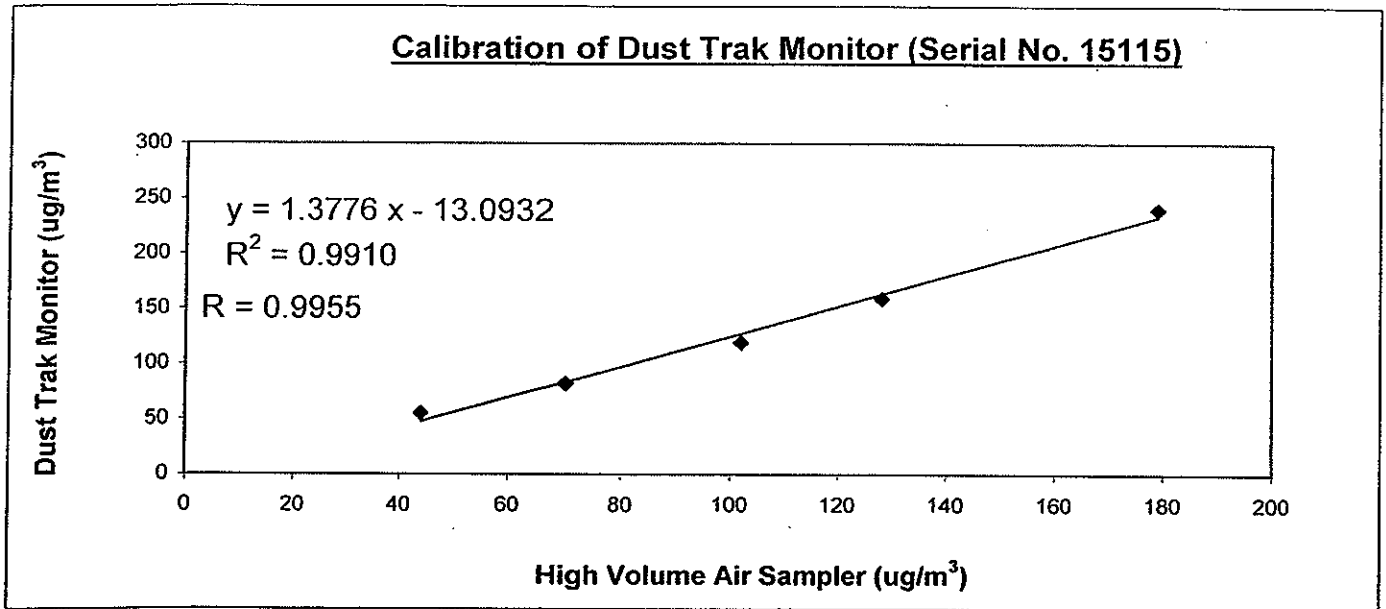
TEST REPORT

Internal Calibration Report
of
Dust Trak Monitor

Manufacturer : TSI - 8520 Dust Trak Date of Calibration : 13 January 2009
Serial No. : 15115 (ET/EA/001/02) Calibration Due Date : 12 July 2009
Method : Parallel measurement (five-point calibration) by placing the Dust Trak Monitor and High Volume Air Sampler together under the same environmental condition

Results :

Dust Trak Monitor (ug/m ³)	55	82	119	159	240
High Volume Air Sampler (ug/m ³)	44	70	102	128	179
Serial No of High Volume Air Sampler : 1178			Calibration Date: 01 March 2009		



Acceptance Criteria :

Correlation coefficient (r) of the calibration curve greater than 0.990 after a five point calibration

The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable * / unacceptable * for use.

Calibrated by : MAK Kei Wai
MAK, Kei Wai
(Senior Site Technician)

Approved by : LAW Sau Yee
LAW, Sau Yee
(Senior Environmental Officer)



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 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 14, 2008 Rootsometer S/N 9833620 Ta (K) - 295
 Operator Tisch Orifice I.D. - 1172 Pa (mm) - 750.57

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORIFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3800	3.1	2.00
2	NA	NA	1.00	0.9650	6.3	4.00
3	NA	NA	1.00	0.8630	7.9	5.00
4	NA	NA	1.00	0.8230	8.6	5.50
5	NA	NA	1.00	0.6770	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9935	0.7199	1.4125	0.9958	0.7216	0.8866
0.9893	1.0252	1.9976	0.9916	1.0276	1.2538
0.9870	1.1437	2.2334	0.9894	1.1464	1.4018
0.9862	1.1983	2.3424	0.9885	1.2011	1.4703
0.9807	1.4486	2.8251	0.9830	1.4521	1.7732
Qstd slope (m) = 1.94106			Qa slope (m) = 1.21546		
intercept (b) = 0.01311			intercept (b) = 0.00823		
coefficient (r) = 0.99996			coefficient (r) = 0.99996		

y axis = $\text{SQRT}[\text{H2O}(\text{Pa}/760)(298/\text{Ta})]$

y axis = $\text{SQRT}[\text{H2O}(\text{Ta}/\text{Pa})]$

CALCULATIONS

$V_{std} = \text{Diff. Vol}[(\text{Pa} - \text{Diff. Hg})/760](298/\text{Ta})$
 $Q_{std} = V_{std}/\text{Time}$

$V_a = \text{Diff Vol}[(\text{Pa} - \text{Diff Hg})/\text{Pa}]$
 $Q_a = V_a/\text{Time}$

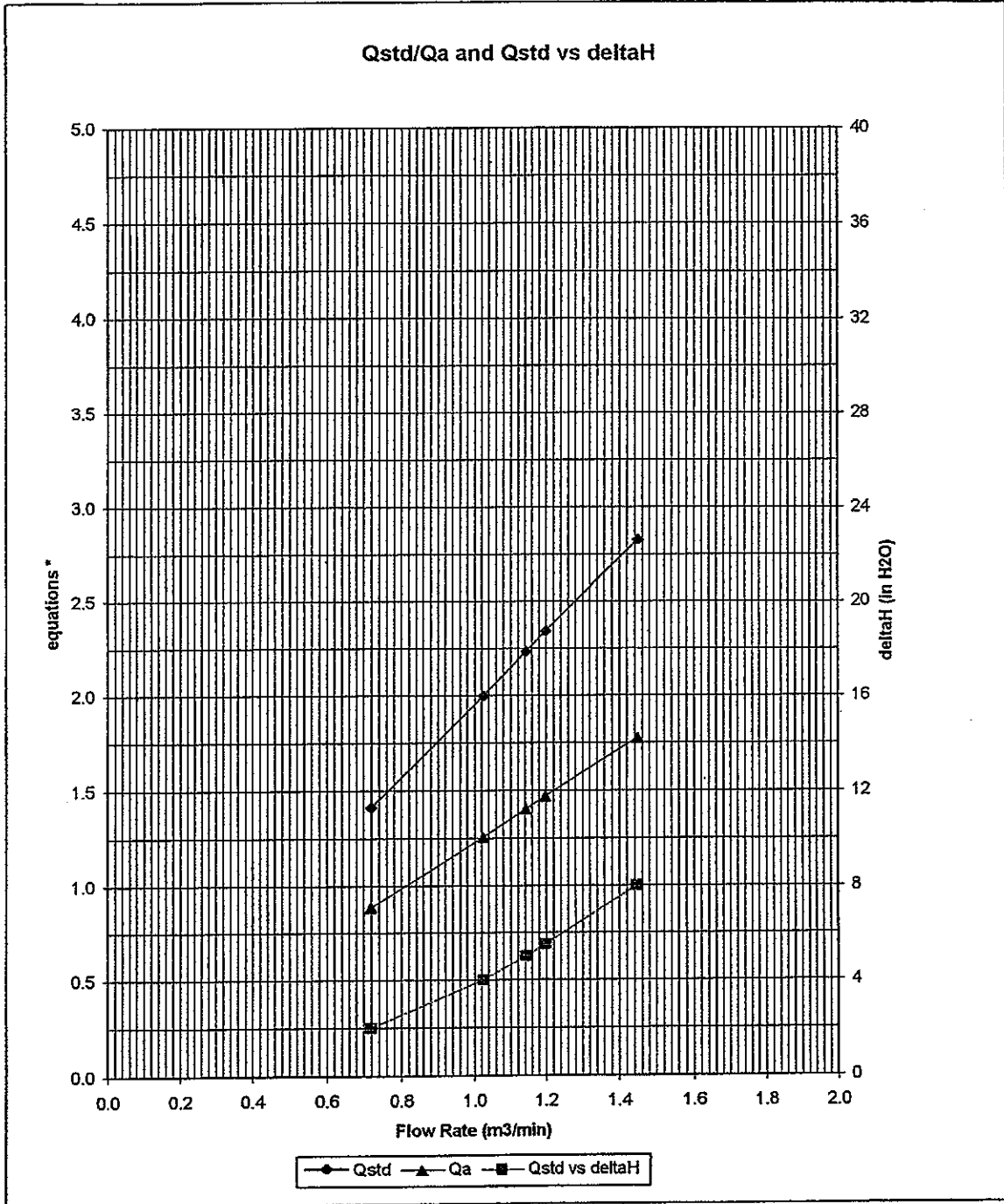
For subsequent flow rate calculations:

$Q_{std} = 1/m\{[\text{SQRT}(\text{H2O}(\text{Pa}/760)(298/\text{Ta}))] - b\}$
 $Q_a = 1/m\{[\text{SQRT}(\text{H2O}(\text{Ta}/\text{Pa}))] - b\}$



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AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series:

$$\sqrt{\Delta H \left(\frac{P_a}{P_{std}} \right) \left(\frac{T_{std}}{T_a} \right)}$$

Qa series:

$$\sqrt{(\Delta H (T_a / P_a))}$$

1172



Appendix B2

Impact Air Quality Monitoring Results

Summary of 24-hr TSP Monitoring Results

Monitoring Station : AM1

Start Date	Start Time	Finish Date	Finish Time	Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
				Initial	Final		Initial	Final		Initial	Final		
05/02/09	12:49	06/02/09	12:49	13727.25	13751.25	24.00	1.1668	1.1668	1.1668	2.7206	2.8326	67	Sunny
11/02/09	11:55	12/02/09	11:55	13751.25	13775.25	24.00	1.1173	1.1173	1.1173	2.6953	2.8090	71	Fine
17/02/09	10:54	18/02/09	10:54	13775.25	13799.25	24.00	1.1148	1.1148	1.1148	2.8034	2.9198	73	Cloudy
23/02/09	12:30	24/02/09	12:30	13799.25	13823.25	24.00	1.1148	1.1148	1.1148	2.8597	2.9437	52	Cloudy
27/02/09	11:30	28/02/09	11:30	13823.25	13847.25	24.00	1.1148	1.1148	1.1148	2.8650	2.9650	62	Cloudy

Monitoring Station : AM2

Start Date	Start Time	Finish Date	Finish Time	Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
				Initial	Final		Initial	Final		Initial	Final		
05/02/09	12:48	06/02/09	12:48	17763.03	17787.03	24.00	1.1587	1.1587	1.1587	2.7019	2.8407	83	Sunny
11/02/09	12:02	12/02/09	12:02	17787.03	17811.03	24.00	1.0973	1.0973	1.0973	2.7277	2.8946	106	Fine
17/02/09	10:59	18/02/09	11:00	17811.03	17835.04	24.01	1.1507	1.1507	1.1507	2.8040	2.9468	86	Cloudy
23/02/09	12:35	24/02/09	12:35	17835.04	17859.04	24.00	1.2109	1.2109	1.2109	2.8264	2.9053	45	Cloudy
27/02/09	11:35	28/02/09	11:35	17859.04	17883.04	24.00	1.2109	1.2109	1.2109	2.8352	2.9352	57	Cloudy

Monitoring Station : AM3

Start Date	Start Time	Finish Date	Finish Time	Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
				Initial	Final		Initial	Final		Initial	Final		
05/02/09	13:00	06/02/09	13:00	1823.51	1847.51	24.00	1.2251	1.2251	1.2251	2.7319	2.8631	74	Sunny
11/02/09	11:10	12/02/09	11:10	1847.51	1871.51	24.00	1.1335	1.1335	1.1335	2.7083	2.8712	100	Fine
17/02/09	09:22	18/02/09	09:22	1871.51	1895.51	24.00	1.0853	1.0853	1.0853	2.7990	2.9531	99	Cloudy
23/02/09	13:10	24/02/09	13:10	1895.51	1919.51	24.00	1.0546	1.0546	1.0546	2.8704	2.9533	55	Cloudy
27/02/09	11:05	28/02/09	11:05	1919.51	1943.51	24.00	1.1466	1.1466	1.1466	2.8489	2.9495	61	Sunny

Summary of 1-hr TSP Monitoring Results

Monitoring Station : AM1

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
05/02/09	13:00	14:00	46	481	101	Sunny
05/02/09	14:00	15:00	49	492	106	Sunny
05/02/09	15:00	16:00	43	466	95	Sunny
11/02/09	14:15	15:15	68	482	139	Sunny
11/02/09	15:15	16:15	62	437	129	Sunny
11/02/09	16:15	17:15	54	415	121	Sunny
17/02/09	13:15	14:15	50	410	101	Cloudy
17/02/09	14:15	15:15	52	449	104	Cloudy
17/02/09	15:15	16:15	47	390	94	Cloudy
23/02/09	09:13	10:13	65	412	109	Cloudy
23/02/09	10:13	11:13	46	427	100	Cloudy
23/02/09	11:13	12:13	62	440	122	Cloudy
27/02/09	09:10	10:10	57	342	125	Cloudy
27/02/09	10:10	11:10	64	384	138	Cloudy
27/02/09	11:10	12:10	52	359	117	Cloudy

Monitoring Station : AM2

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
05/02/09	13:13	14:13	39	447	90	Sunny
05/02/09	14:13	15:13	43	456	93	Sunny
05/02/09	15:13	16:13	44	490	97	Sunny
11/02/09	14:20	15:20	71	496	132	Sunny
11/02/09	15:20	16:20	65	464	123	Sunny
11/02/09	16:20	17:20	60	451	121	Sunny
17/02/09	13:25	14:25	59	478	107	Cloudy
17/02/09	14:25	15:25	67	535	122	Cloudy
17/02/09	15:25	16:25	65	541	123	Cloudy
23/02/09	09:15	10:15	62	428	119	Cloudy
23/02/09	10:15	11:15	58	402	107	Cloudy
23/02/09	11:15	12:15	49	419	115	Cloudy
27/02/09	09:15	10:15	61	298	117	Cloudy
27/02/09	10:15	11:15	69	409	130	Cloudy
27/02/09	11:15	12:15	56	354	112	Cloudy

Summary of 1-hr TSP Monitoring Results

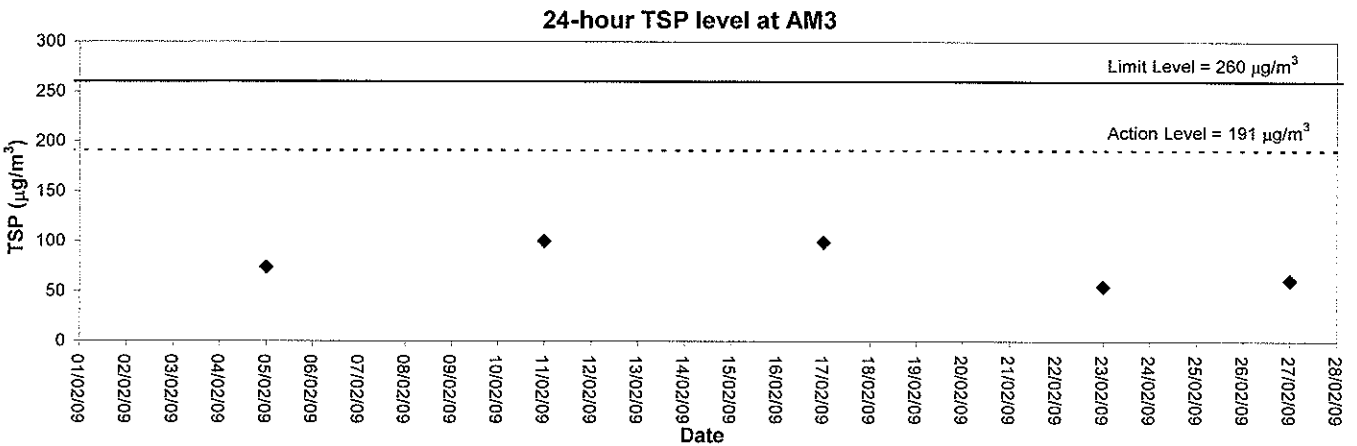
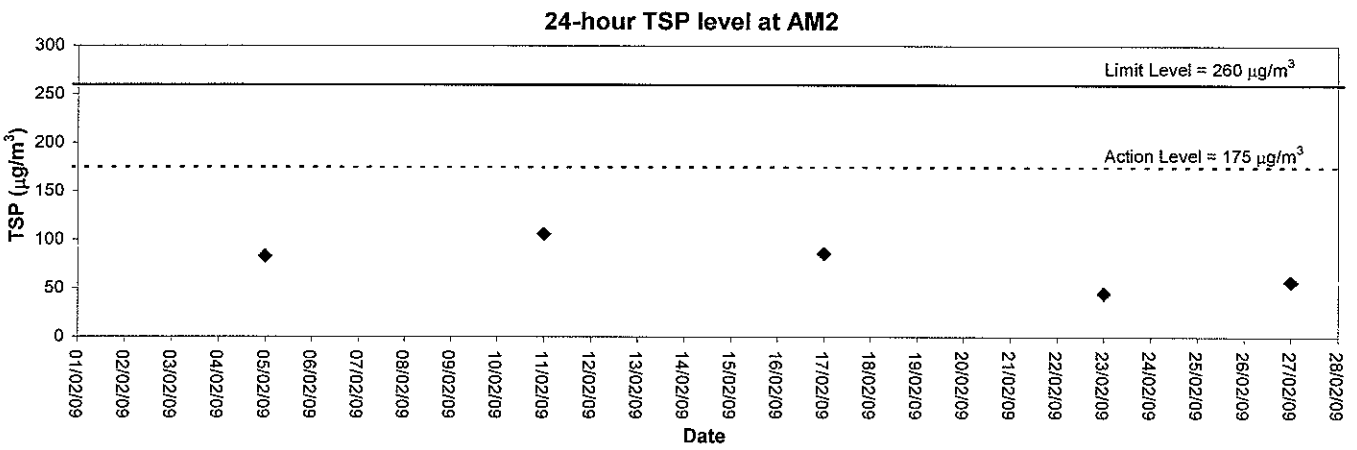
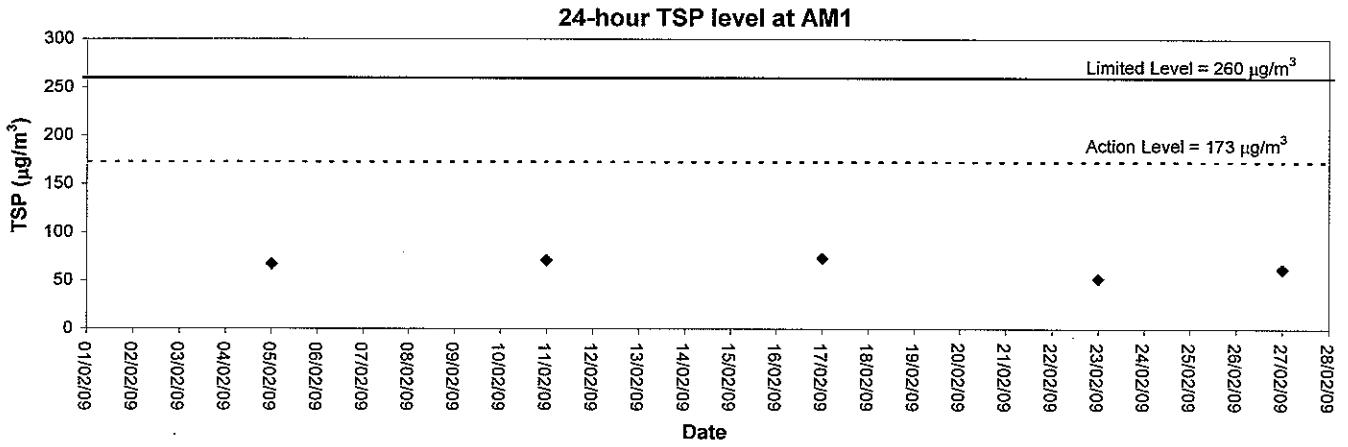
Monitoring Station : AM3

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
05/02/09	09:10	10:10	64	514	143	Sunny
05/02/09	10:10	11:10	71	631	161	Sunny
05/02/09	11:10	12:10	70	544	148	Sunny
11/02/09	09:30	10:30	59	424	124	Sunny
11/02/09	10:30	11:30	75	523	153	Sunny
11/02/09	13:00	14:00	81	596	164	Sunny
17/02/09	09:10	10:10	59	441	113	Cloudy
17/02/09	10:10	11:10	63	506	120	Cloudy
17/02/09	11:10	12:10	62	510	123	Cloudy
23/02/09	13:00	14:00	70	378	110	Cloudy
23/02/09	14:00	15:00	49	406	118	Cloudy
23/02/09	15:00	16:00	58	383	124	Cloudy
27/02/09	13:30	14:30	55	305	115	Cloudy
27/02/09	14:30	15:30	52	316	107	Cloudy
27/02/09	15:30	16:30	58	327	128	Cloudy



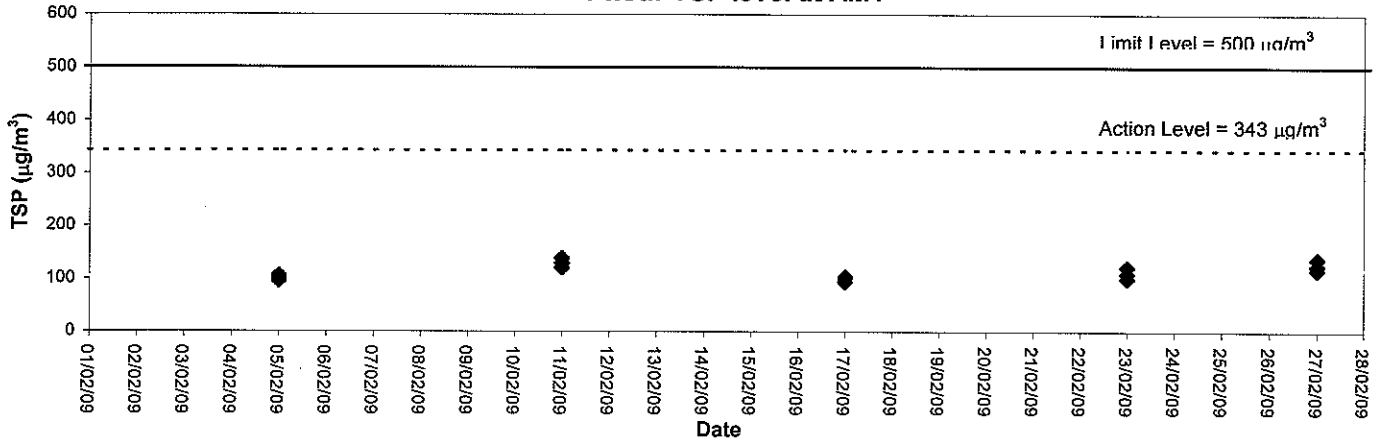
Appendix C3

Graphical Plots of Impact Air Quality Monitoring Data

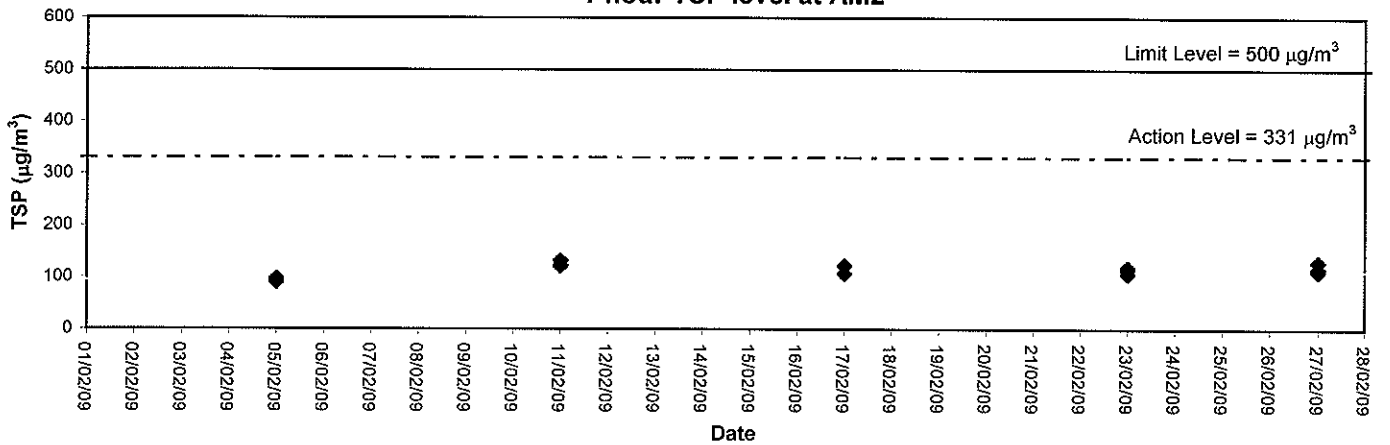




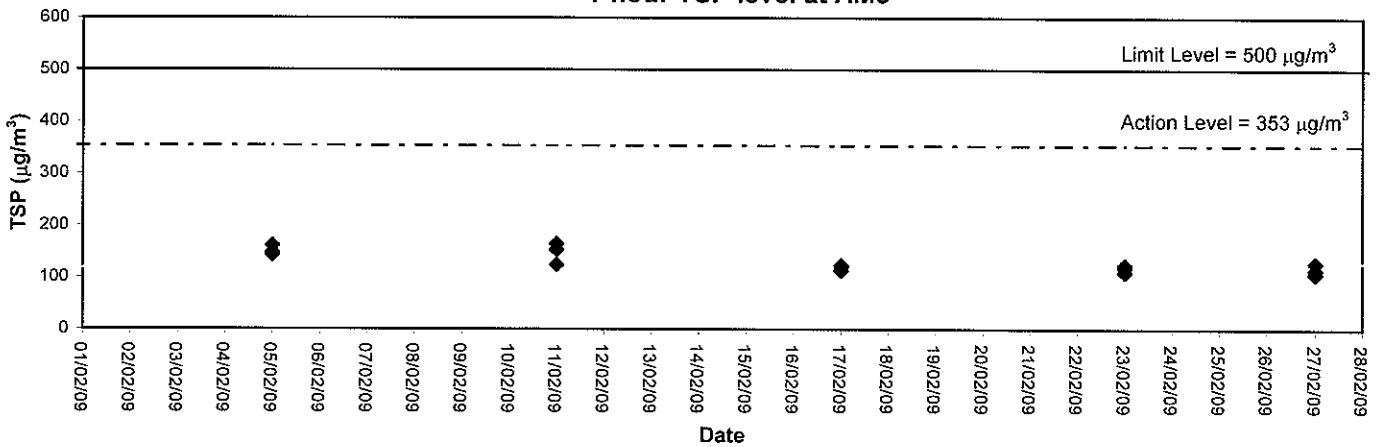
1-hour TSP level at AM1



1-hour TSP level at AM2



1-hour TSP level at AM3





Appendix C1

Calibration Certificates for Impact Noise Monitoring Equipments



Calibration Certificate

Certificate No. 81354

Page 1 of 4 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q80566

Date of receipt : 1-Apr-08

Item Tested

Description : Precision Integrating Sound Level Meter

Manufacturer : Rion

Model : NL-31

Serial No. : 00110024

Test Conditions

Date of Test : 3-Apr-08

Supply Voltage : --

Ambient Temperature : $(23 \pm 3)^{\circ}\text{C}$

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Calibration procedure : Z01.

Test Results

All results were within the IEC 651 Type 1 & IEC 804 Type 1 specification.

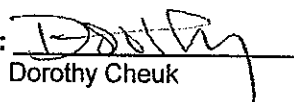
The results are shown in the attached page(s).

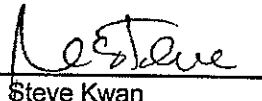
Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S017	Multi-Function Generator	C081456	18-Mar-09	SCL-HKSAR
S024	Sound Level Calibrator	71791	16-Jul-08	NIM-PRC & SCL-HKSAR

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 : 
Dorothy Cheuk

Approved by : 
Steve Kwan

Date: 3-Apr-08

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 8846



Calibration Certificate

Certificate No. 81354

Page 2 of 4 Pages

Results :

1. SPL Accuracy

UUT Setting			Applied Value (dB)	UUT Reading (dB)
Level Range (dB)	Weight	Response		
20 – 100	L _A	Fast	94.03	94.0
		Slow		94.0
	L _C	Fast		94.0
		L _p		Fast
30 – 120	L _A	Fast	94.03	94.0
		Slow		93.9
	L _C	Fast		94.0
	L _p	Fast		94.0
30 – 120	L _A	Fast	113.97	114.0
		Slow		113.9
	L _C	Fast		113.9
	L _p	Fast		113.9

IEC 651 Type 1 Spec. : ± 0.7 dB
Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB
IEC 651 Type 1 Spec. : ± 0.3 dB
Uncertainty : ± 0.01 dB



Calibration Certificate

Certificate No. 81354

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3. Linearity

3.1 Level Linearity

UUT Range	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec. (Primary Indicator Range)
130	114.0	114.1	+ 0.1	± 0.7 dB
130	104.0	104.0	0.0	
120	94.0	94.0 (Ref.)	--	
110	84.0	84.1	+ 0.1	
100	74.0	74.0	0.0	
90	64.0	64.1	+ 0.1	
80	54.0	54.2	+ 0.2	

Uncertainty : ± 0.1 dB

3.2 Differential level linearity

UUT Range	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	84.0	0.0	± 0.4 dB
	94.0	94.0 (Ref.)	--	
	95.0	95.1	+ 0.1	± 0.2 dB
	104.0	104.0	0.0	± 0.3 dB
	105.0	105.0	0.0	± 1.0 dB

Uncertainty : ± 0.1 dB

4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 39.7	- 39.4 dB, ± 1.5 dB
63 Hz	- 26.3	- 26.2 dB, ± 1.5 dB
125 Hz	- 16.2	- 16.1 dB, ± 1 dB
250 Hz	- 8.7	- 8.6 dB, ± 1 dB
500 Hz	- 3.3	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref.)	0 dB, ± 1 dB
2 kHz	+ 1.4	+ 1.2 dB, ± 1 dB
4 kHz	+ 1.2	+ 1.0 dB, ± 1 dB
8 kHz	- 1.0	- 1.1 dB, + 1.5 dB ~ - 3 dB
16 kHz	- 6.6	- 6.6 dB, + 3 dB ~ ∞

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 81354

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4. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	40.0	± 0.5 dB
1/10 ²	40.0	40.0	
1/10 ³	40.0	40.0	± 1.0 dB
1/10 ⁴	40.0	40.0	

Uncertainty : ± 0.1 dB

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 008 hPa.

----- END -----



Calibration Certificate

Certificate No. 81355

Page 1 of 2 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q80566

Date of receipt : 1-Apr-08

Item Tested

Description : Sound Level Calibrator

Manufacturer : Rion

Model : NC-73

Serial No. : 10196943

Test Conditions

Date of Test : 3-Apr-08

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Calibration procedure : F21, Z02.

Test Results

All results were within the manufacturer's specification.

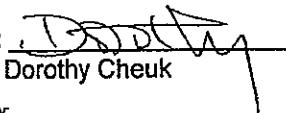
The results are shown in the attached page(s).

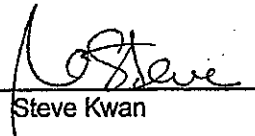
Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	73602	7-Jul-08	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	71791	16-Jul-08	NIM-PRC & SCL-HKSAR
S041	Universal Counter	73453	22-Aug-08	SCL-HKSAR

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 : 
Dorothy Cheuk

Approved by : 
Steve Kwan

Date: 3-Apr-08

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 8601 Fax: 2425 8646

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Calibration Certificate

Certificate No. 81355

Page 2 of 2 Pages

Results :

1. Level Accuracy (at 1 kHz)

UUT Nominal Value	Measured Value	Mfr's Spec.
94 dB	94.0 dB	± 1 dB

Uncertainty : ± 0.1 dB

2. Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.990 8 kHz	± 2 %

Uncertainty : ± 0.1 %

3. Level Stability : 0.0 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.1 %

Mfr's Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. The above measured values are the mean of 3 measurement.

4. Atmospheric Pressure : 1 005 hPa

----- END -----

Appendix C2

Impact Noise Monitoring Results



Day-time Noise Monitoring

Monitoring Station: NM1

Date	Weather Condition	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at the monitoring point, dB (A)			Wind Speed (m/s)
				Leq (30min)	L10	L90	
05/02/09	Sunny	09:30	10:00	52.6	58.7	46.8	1.3
11/02/09	Sunny	15:20	15:50	53.4	57.0	52.1	0.7
17/02/09	Cloudy	13:30	14:00	55.8	62.9	52.3	1.0
23/02/09	Cloudy	09:18	09:48	60.1	63.2	54.1	0.5

Monitoring Station: NM2

Date	Weather Condition	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at the monitoring point, dB (A)			Wind Speed (m/s)
				Leq (30min)	L10	L90	
05/02/09	Sunny	10:25	10:55	66.2	72.1	61.8	1.2
11/02/09	Sunny	14:38	15:08	69.4	74.8	62.5	0.4
17/02/09	Cloudy	14:20	14:50	62.7	69.2	58.7	1.8
23/02/09	Cloudy	09:55	10:25	70.5	74.3	63.0	0.4

Monitoring Station: RNM3

Date	Weather Condition	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at the monitoring point, dB (A)			Wind Speed (m/s)
				Leq (30min)	L10	L90	
05/02/09	Sunny	11:20	11:50	67.2	73.9	64.8	1.0
11/02/09	Sunny	10:15	10:45	59.6	63.2	56.4	1.1
17/02/09	Cloudy	15:18	15:48	63.3	70.4	59.4	1.7
23/02/09	Cloudy	10:31	11:01	73.2	76.2	60.6	0.3

Remark: 3dB(A) correction had been added to the results since noise measurements at RNM3 were free-field.

Monitoring Station: NM4

Date	Weather Condition	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at the monitoring point, dB (A)			Wind Speed (m/s)
				Leq (30min)	L10	L90	
05/02/09	Sunny	15:15	15:45	51.5	55.4	48.0	1.7
11/02/09	Sunny	09:40	10:10	57.7	61.4	52.5	1.5
17/02/09	Cloudy	11:20	11:50	54.7	57.1	50.4	2.4
23/02/09	Cloudy	11:15	11:45	51.1	53.2	46.7	0.3

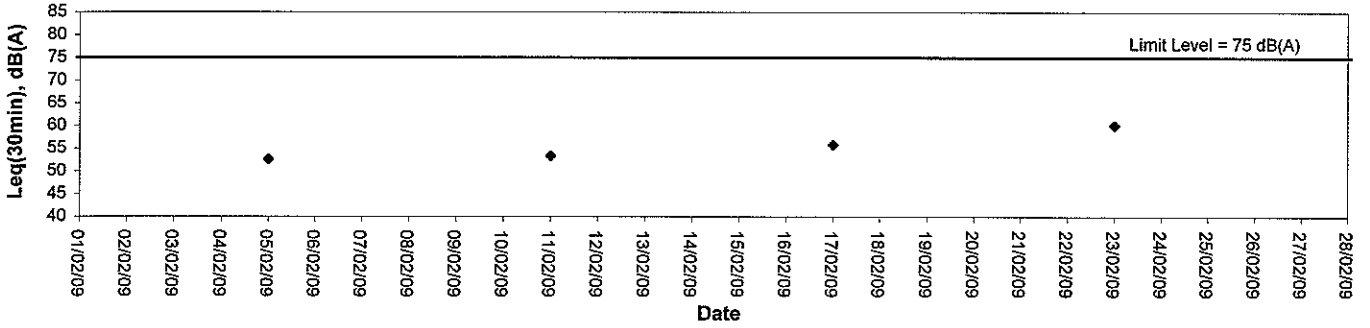
Appendix C3

Graphical Plots of Impact Noise Monitoring Data

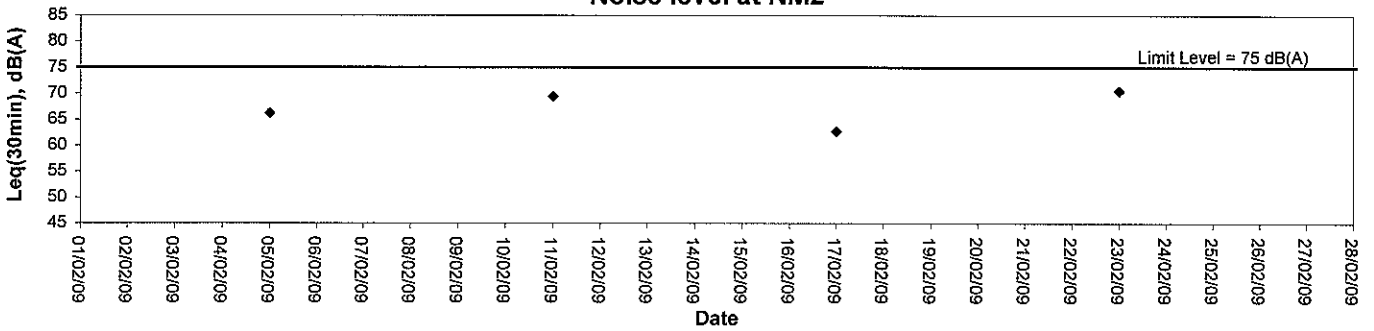


Noise Monitoring (Day-time)

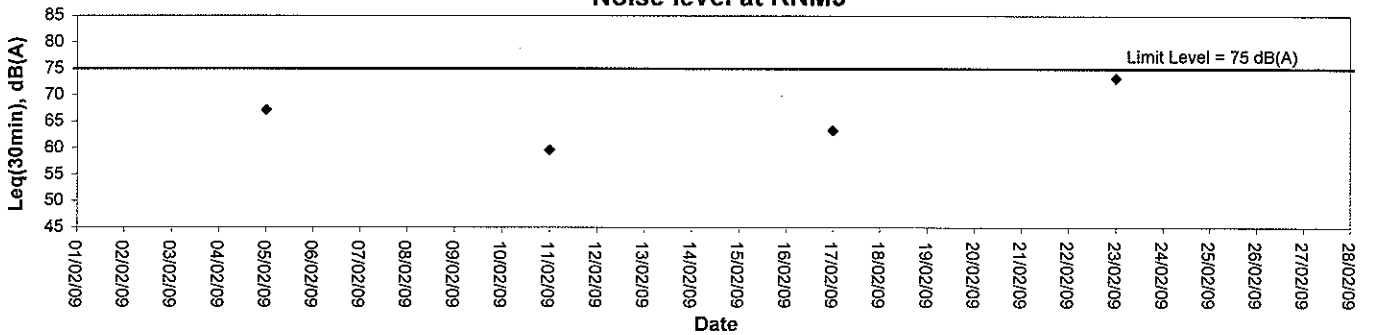
Noise level at NM1



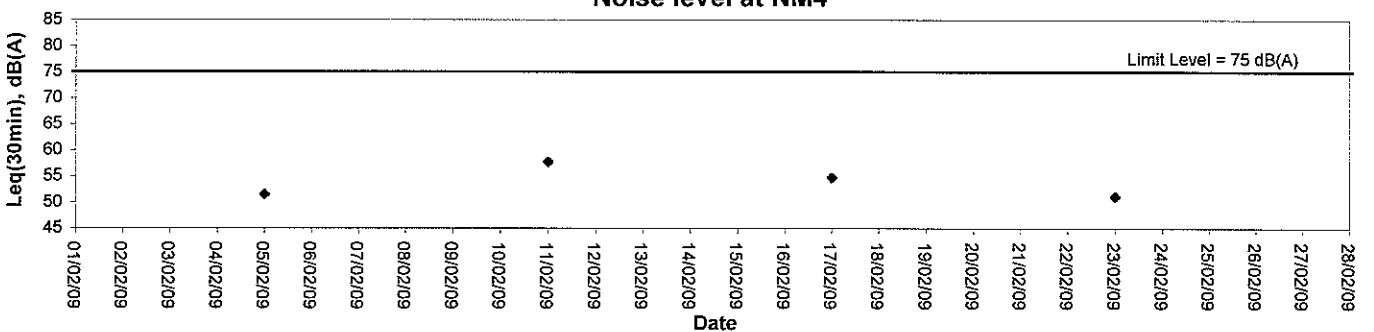
Noise level at NM2



Noise level at RNM3



Noise level at NM4





Appendix D

Event-Action Plans



Event / Action Plan for Air Quality

EVENT	ACTION			CONTRACTOR
	ET	IC(E)	ER	
Action Level				
Action Level being exceeded for one sample	<ol style="list-style-type: none"> Identify source, investigate the causes of Exceedance and propose remedial measures; Inform IC(E) and ER; Repeat measurement to confirm finding; Increase monitoring frequency to daily 	<ol style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method. 	<ol style="list-style-type: none"> Notify Contractor. 	<ol style="list-style-type: none"> Rectify any unacceptable practice; Amend working methods if appropriate.
Action Level being exceeded for two or more consecutive samples	<ol style="list-style-type: none"> Same as the above; Advise the ER on the effectiveness of the proposed remedial measures; Discuss with IC(E) and Contractor on remedial actions required; If exceedance continues, arrange meeting with IC(E) and ER; If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> Same as the above; Discuss with ET and Contractor on possible remedial measures; Advise the ET on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> Same as the above; Confirm receipt of notification of failure in writing; Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> Submit proposals for remedial actions to ER within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
Limit Level				
Limit Level being exceeded for one sample	<ol style="list-style-type: none"> Identify source; Inform ER, Contractor and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results. 	<ol style="list-style-type: none"> Checking monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on the possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial actions properly implemented. 	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IC(E) within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
Limit Level being exceeded for two or more consecutive samples	<ol style="list-style-type: none"> Same as the above; Carry our analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken; If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> Discuss with ER, ET and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> Same as the above; In consolidation with the IC(E), agree with the Contractor on the remedial measures to be 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. 	<ol style="list-style-type: none"> Same as the above; Resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Construction Noise

EVENT	ACTION				CONTRACTOR
	ET	IC(E)	ER	ER	
Action level	<ol style="list-style-type: none"> 1. Notify IC(E) and Contractor; Carry out investigation; 2. Report the results of investigation to the IC(E), ER and Contractor; 3. Discuss with the Contractor and formulate remedial measures ; 4. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review and investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure proper implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposal to IC(E); 2. Implement noise mitigation proposals. 	
Limit level	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IC(E), ER, EPD and Contractor; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IC(E), ER and EPD the causes and actions taken for the exceedances; 7. Assess the effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions to ensure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Same as above; 2. If exceedances continue, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E); 3. Implement the agreed proposals; 4. Resubmit proposals if problem still out of control; 5. Stop the relevant portion of works as determined by ER, until the exceedance is abated. 	



Appendix E

Construction Programme

Act ID	Activity Description	Rem Dur	Early Start	Early Finish	Late Start	Late Finish
CH5760	576-27	14	21 JUL 09	06 AUG 09	14 SEP 09	28 SEP 09
CH5760	576-169	14	06 AUG 09	22 AUG 09	30 SEP 09	17 OCT 09
CH5770	576-28	14	22 AUG 09	08 SEP 09	18 OCT 09	04 NOV 09
CH5780	576-32	14	08 SEP 09	24 SEP 09	05 NOV 09	20 NOV 09
CH5790	576-31	14	24 SEP 09	10 OCT 09	21 NOV 09	07 DEC 09
CH5800	576-32	14	10 OCT 09	26 OCT 09	08 DEC 09	24 DEC 09
CH5810	576-33	14	26 OCT 09	11 NOV 09	24 DEC 09	11 JAN 10
CH5820	576-34	14	11 NOV 09	27 NOV 09	24 DEC 09	12 FEB 10
CH5830	576-35	14	27 NOV 09	13 DEC 09	28 JAN 10	15 FEB 10
CH5840	576-36	14	13 DEC 09	29 DEC 09	28 JAN 10	19 FEB 10
CH5850	576-37	14	29 DEC 09	14 JAN 10	02 MAR 10	17 MAR 10
CH5860	576-38	28	14 JAN 10	12 SEP 09	19 AUG 09	14 SEP 09
CH5870	576-39	28	12 SEP 09	28 SEP 09	15 SEP 09	28 SEP 09
CH5880	576-40	28	28 SEP 09	14 OCT 09	28 SEP 09	14 OCT 09
CH5890	576-41	28	14 OCT 09	29 OCT 09	15 OCT 09	29 OCT 09
CH5900	576-42	28	29 OCT 09	19 NOV 09	19 OCT 09	19 NOV 09
CH5910	576-43	28	19 NOV 09	18 NOV 09	18 NOV 09	18 NOV 09
CH5920	576-44	28	18 NOV 09	17 NOV 09	17 NOV 09	17 NOV 09
CH5930	576-45	28	17 NOV 09	16 NOV 09	16 NOV 09	16 NOV 09
CH5940	576-46	28	16 NOV 09	15 NOV 09	15 NOV 09	15 NOV 09
CH5950	576-47	28	15 NOV 09	14 NOV 09	14 NOV 09	14 NOV 09
CH5960	576-48	28	14 NOV 09	13 NOV 09	13 NOV 09	13 NOV 09
CH5970	576-49	28	13 NOV 09	12 NOV 09	12 NOV 09	12 NOV 09
CH5980	576-50	28	12 NOV 09	11 NOV 09	11 NOV 09	11 NOV 09
CH5990	576-51	28	11 NOV 09	10 NOV 09	10 NOV 09	10 NOV 09
CH6000	576-52	28	10 NOV 09	09 NOV 09	09 NOV 09	09 NOV 09
CH6010	576-53	28	09 NOV 09	08 NOV 09	08 NOV 09	08 NOV 09
CH6020	576-54	28	08 NOV 09	07 NOV 09	07 NOV 09	07 NOV 09
CH6030	576-55	28	07 NOV 09	06 NOV 09	06 NOV 09	06 NOV 09
CH6040	576-56	28	06 NOV 09	05 NOV 09	05 NOV 09	05 NOV 09
CH6050	576-57	28	05 NOV 09	04 NOV 09	04 NOV 09	04 NOV 09
CH6060	576-58	28	04 NOV 09	03 NOV 09	03 NOV 09	03 NOV 09
CH6070	576-59	28	03 NOV 09	02 NOV 09	02 NOV 09	02 NOV 09
CH6080	576-60	28	02 NOV 09	01 NOV 09	01 NOV 09	01 NOV 09
CH6090	576-61	28	01 NOV 09	31 OCT 09	31 OCT 09	31 OCT 09
CH6100	576-62	28	31 OCT 09	30 OCT 09	30 OCT 09	30 OCT 09
CH6110	576-63	28	30 OCT 09	29 OCT 09	29 OCT 09	29 OCT 09
CH6120	576-64	28	29 OCT 09	28 OCT 09	28 OCT 09	28 OCT 09
CH6130	576-65	28	28 OCT 09	27 OCT 09	27 OCT 09	27 OCT 09
CH6140	576-66	28	27 OCT 09	26 OCT 09	26 OCT 09	26 OCT 09
CH6150	576-67	28	26 OCT 09	25 OCT 09	25 OCT 09	25 OCT 09
CH6160	576-68	28	25 OCT 09	24 OCT 09	24 OCT 09	24 OCT 09
CH6170	576-69	28	24 OCT 09	23 OCT 09	23 OCT 09	23 OCT 09
CH6180	576-70	28	23 OCT 09	22 OCT 09	22 OCT 09	22 OCT 09
CH6190	576-71	28	22 OCT 09	21 OCT 09	21 OCT 09	21 OCT 09
CH6200	576-72	28	21 OCT 09	20 OCT 09	20 OCT 09	20 OCT 09
CH6210	576-73	28	20 OCT 09	19 OCT 09	19 OCT 09	19 OCT 09
CH6220	576-74	28	19 OCT 09	18 OCT 09	18 OCT 09	18 OCT 09
CH6230	576-75	28	18 OCT 09	17 OCT 09	17 OCT 09	17 OCT 09
CH6240	576-76	28	17 OCT 09	16 OCT 09	16 OCT 09	16 OCT 09
CH6250	576-77	28	16 OCT 09	15 OCT 09	15 OCT 09	15 OCT 09
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CH6270	576-79	28	14 OCT 09	13 OCT 09	13 OCT 09	13 OCT 09
CH6280	576-80	28	13 OCT 09	12 OCT 09	12 OCT 09	12 OCT 09
CH6290	576-81	28	12 OCT 09	11 OCT 09	11 OCT 09	11 OCT 09
CH6300	576-82	28	11 OCT 09	10 OCT 09	10 OCT 09	10 OCT 09
CH6310	576-83	28	10 OCT 09	09 OCT 09	09 OCT 09	09 OCT 09
CH6320	576-84	28	09 OCT 09	08 OCT 09	08 OCT 09	08 OCT 09
CH6330	576-85	28	08 OCT 09	07 OCT 09	07 OCT 09	07 OCT 09
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CH6380	576-90	28	03 OCT 09	02 OCT 09	02 OCT 09	02 OCT 09
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CH6410	576-93	28	31 SEP 09	30 SEP 09	30 SEP 09	30 SEP 09
CH6420	576-94	28	30 SEP 09	29 SEP 09	29 SEP 09	29 SEP 09
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CH6440	576-96	28	28 SEP 09	27 SEP 09	27 SEP 09	27 SEP 09
CH6450	576-97	28	27 SEP 09	26 SEP 09	26 SEP 09	26 SEP 09
CH6460	576-98	28	26 SEP 09	25 SEP 09	25 SEP 09	25 SEP 09
CH6470	576-99	28	25 SEP 09	24 SEP 09	24 SEP 09	24 SEP 09
CH6480	576-100	28	24 SEP 09	23 SEP 09	23 SEP 09	23 SEP 09
CH6490	576-101	28	23 SEP 09	22 SEP 09	22 SEP 09	22 SEP 09
CH6500	576-102	28	22 SEP 09	21 SEP 09	21 SEP 09	21 SEP 09
CH6510	576-103	28	21 SEP 09	20 SEP 09	20 SEP 09	20 SEP 09
CH6520	576-104	28	20 SEP 09	19 SEP 09	19 SEP 09	19 SEP 09
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CH6570	576-109	28	15 SEP 09	14 SEP 09	14 SEP 09	14 SEP 09
CH6580	576-110	28	14 SEP 09	13 SEP 09	13 SEP 09	13 SEP 09
CH6590	576-111	28	13 SEP 09	12 SEP 09	12 SEP 09	12 SEP 09
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CH6640	576-116	28	08 SEP 09	07 SEP 09	07 SEP 09	07 SEP 09
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CH6660	576-118	28	06 SEP 09	05 SEP 09	05 SEP 09	05 SEP 09
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CH6740	576-126	28	29 AUG 09	28 AUG 09	28 AUG 09	28 AUG 09
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CH6780	576-130	28	25 AUG 09	24 AUG 09	24 AUG 09	24 AUG 09
CH6790	576-131	28	24 AUG 09	23 AUG 09	23 AUG 09	23 AUG 09
CH6800	576-132	28	23 AUG 09	22 AUG 09	22 AUG 09	22 AUG 09
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CH6850	576-137	28	18 AUG 09	17 AUG 09	17 AUG 09	17 AUG 09
CH6860	576-138	28	17 AUG 09	16 AUG 09	16 AUG 09	16 AUG 09
CH6870	576-139	28	16 AUG 09	15 AUG 09	15 AUG 09	15 AUG 09
CH6880	576-140	28	15 AUG 09	14 AUG 09	14 AUG 09	14 AUG 09
CH6890	576-141	28	14 AUG 09	13 AUG 09	13 AUG 09	13 AUG 09
CH6900	576-142	28	13 AUG 09	12 AUG 09	12 AUG 09	12 AUG 09
CH6910	576-143	28	12 AUG 09	11 AUG 09	11 AUG 09	11 AUG 09
CH6920	576-144	28	11 AUG 09	10 AUG 09	10 AUG 09	10 AUG 09
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CH6940	576-146	28	09 AUG 09	08 AUG 09	08 AUG 09	08 AUG 09
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CH6960	576-148	28	07 AUG 09	06 AUG 09	06 AUG 09	06 AUG 09
CH6970	576-149	28	06 AUG 09	05 AUG 09	05 AUG 09	05 AUG 09
CH6980	576-150	28	05 AUG 09	04 AUG 09	04 AUG 09	04 AUG 09
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CH7130	576-165	28	21 JUL 09	20 JUL 09	20 JUL 09	20 JUL 09
CH7140	576-166	28	20 JUL 09	19 JUL 09	19 JUL 09	19 JUL 09
CH7150	576-167	28	19 JUL 09	18 JUL 09	18 JUL 09	18 JUL 09



Appendix F

Summary of Implementation Status

of

Mitigation Measures during Site Inspection

Environmental Mitigation Implementation Schedule

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Air Quality					
<ul style="list-style-type: none"> ▪ Stockpiles of imported material kept on site should be contained within hoarding, dampened and / or covered during dry and windy weather. ▪ Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses. ▪ Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like. ▪ Any vehicle used for moving sands, aggregates and construction waste should have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin. ▪ Unpaved areas should be watered regularly to avoid dust generation. ▪ The enclosures should be around the main dust-generating activities. ▪ All plant and equipment should be well maintained e.g. without black smoke emission. ▪ Open burning should be prohibited. 	All areas		√		
Noise Impact					
<ul style="list-style-type: none"> ▪ Quite powered mechanical equipment (PME) or method should be used. ▪ The number plant should be restricted (1 item for each type of plant). ▪ Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works. ▪ Mobile plant, if any, should be sited as far away from NSRs as possible. ▪ Machines and plants 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 should be orientated so that the noise is directed away from nearby NSRs. ▪ The constructions works should be scheduled to minimize noise nuisance. ▪ Air compressors and hand held breakers should have noise labels. ▪ Compressors and generators should operate with door closed. 	All areas	√			
Water Quality					
General Construction Works					
<ul style="list-style-type: none"> ▪ Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby coastal water and stormwater drains. ▪ All fuel tanks and storage areas should be provided with locks and be sited on sealed area, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. ▪ Open drainage channels and culverts near the works areas should be covered to block the entrance of large debris and refuse. 	All areas	√			
	All areas	√			
	All areas	√			
	All areas	√			√
	All areas	√			



Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Waste Management					
General Site Wastes					
<ul style="list-style-type: none"> Appropriate measures, such as transporting wastes in enclosed containers, should be taken to minimize windblown litter and dust to nearby environment. 	All areas	√			
<ul style="list-style-type: none"> Sufficient waste disposal points and regular waste collection for disposal should be provided. 	All areas	√			
<ul style="list-style-type: none"> A collection area for construction site waste should be provided where waste can be stored prior to removal from site. 	All areas	√			
<ul style="list-style-type: none"> Good site practices should be adopted to clean the rubbish and litter on a regular basis so as to prevent the rubbish and litter from dropping into the nearby environment. 	All areas	√			
<ul style="list-style-type: none"> Records of the quantities of waste generated, recycled and disposed should be kept and maintained. 	All areas	√			
<ul style="list-style-type: none"> Different types of waste should be segregated and stored in different container, skips or stockpiles to enhance reuse or recycling of material and their proper disposal. 	All areas	√			
Chemical Wastes					
<ul style="list-style-type: none"> After use, chemical waste should be handled according to the Code of Practice on the Package, Labelling and Storage of Chemical Wastes. 	All areas	√			
<ul style="list-style-type: none"> Any unused chemicals or those with remaining functional capacity should be recycled. 	All areas	√			
<ul style="list-style-type: none"> Waste should be properly stored on site within suitably designed containers and should be collected by an approved licensed waste collectors for disposal at the Chemical Waste Treatment Facility or other licensed facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordinance. 	All areas	√			
<ul style="list-style-type: none"> Any service shop and minor maintenance facilities should be located on hard standing within a bunded area, and sumps and oil interceptors should be provided. 	All areas	√			
<ul style="list-style-type: none"> Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the designated areas equipped control these discharges. 	All areas	√			
Construction and Demolition (C&D) Wastes					
<ul style="list-style-type: none"> C&D waste should be separated on site before disposal. 	All areas	√			
<ul style="list-style-type: none"> Inert material, such as concrete and rubble, should be re-used on site. 	All areas	√			
<ul style="list-style-type: none"> Steel and other metals should be separated for re-use and / or recycling prior to disposal of C&D material. 	All areas	√			
Ecological Impact					
<ul style="list-style-type: none"> Labelling and fencing of the uncommon tree species. 	All areas	√			
<ul style="list-style-type: none"> Avoidance of use of woodland habitats as Works Area, in particular where trees located. 	All areas	√			



	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Environmental Protection Measures					
Landscape and Visual Impact					
• Existing trees should be retained.	All areas	√			
• Damage to vegetation should be minimized by close coordination and on site alignment adjusted of rising main and gravity sewer pipelines.	All areas	√			
• Short excavation and immediate backfilling section upon completion of works should be performed to reduce active site area.	All areas	√			
Site Practice					
• The Contractor assigned worker is responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.	All areas		√		
• Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	All areas		√		
• All generators, fuel and oil storage are within bundle areas.	All areas	√			
• Oil leakage from machinery, vehicle and plant should be prevented.	All areas	√			
• The Environmental Permit should be displaced conspicuously on site.	All areas	√			



Appendix G

Interim Report

for

Archaeological Watching Brief at Chung Mei

**DSD Contract No. DC/2007/18
Yung Shue Wan & Sok Kwu Wan Village Sewerage,
Stage 1 Works**

**Interim Report for Archaeological Watching Brief
at Chung Mei, Sok Kwu Wan**

By Archaeological Assessments Ltd.

(February 2009)

1. Introduction

Following an initial site visit, a watching brief was conducted as part of the above captioned project in Chung Mei, Sok Kwu Wan by Archaeological Assessments Limited on the 1st September 2008 (see Figure 1 for geographical setting). This interim report will present a brief account of the archaeological monitoring of the sewer trench excavation between manhole numbers MH52 and MH54, which comprised part of the area requiring watching brief – further archaeological monitoring will occur on adjacent lengths of the alignment.

The identification of an area of heightened archaeological potential at Chung Mei relates to the finding of historic period kiln-oven debris and Tang Dynasty pottery in a test pit excavated in the small valley immediately to the north of the present study area (AAL 2003).

In overview, the sewer trench between manholes (MH) S52 and S54 produced no evidence for archaeological remains apart from the surface find of one undiagnostic pottery sherd.

2. Area of Investigation

The watching brief took place along the length of sewer trench alignment between manholes MH52 and MH54 (see Plate 1 for overview). The alignment in question ran roughly east-west across the lower flank of a hill, which sloped downhill from south to north. The monitored sewer trench was c.25m long, with a highest point at MH S52 (surface level 8.00mPD) to MH S54 at the bottom (surface level 5.75mPD). As a result of the sewer trench's alignment relative to the hill slope, the north facing section was considerably higher than the south facing (see sketch showing trench transverse profile in Figure 2).

3. Site Visit

An initial site visit was conducted by Archaeological Assessments Limited staff (Ms. Kennis Yip, Ms. Ellen Cameron and Dr. Mick Atha) on Friday 28th August 2008. At the site meeting it was agreed that the monitoring works would commence the following Monday 1st September. The AMO was contacted by telephone to ascertain whether they would want to visit site during or on completion of the watching brief and they advised that an AMO site visit would be unnecessary in this instance.

4. Summary of Work Conducted

The location of the monitored trench (sewer alignment) is as shown in Figure 1. As Figure 2 shows in more detail, the sewer trench consisted of a 0.60m wide square-

sectioned machine-cut slot with an average depth (between manholes) of roughly 1-1.2m – when measured at the down slope (south facing) section. That said, at MH S52 the up slope (north facing) section was excavated to 2.4m deep (Plate 2), whilst at MH S53 the up slope section was 2m deep (Plate 3), and at MH S54 was 1.4m deep - Plate 4 shows the rather lower down slope (south facing) section at MH S54 to emphasise the effect of the slope. The machine excavation of the sewer trench was archaeologically monitored and a written, drawn, photographic and video record of the findings was made, which will form the core of the project archive.

5. Findings

In the text below, the following conventions should have been used: the alphanumeric codes used in deposit descriptions are taken from the Munsell system of soil colour charts (Gretagmacbeth 2000) and deposit/feature depths are maximum values. During the discussion below reference should be made to Plates 1-4, which show the trench overview and sections.

The excavation of the 25m long sewer trench revealed a very simple sequence of three naturally-formed deposits: the lowest of which was an at least 1.5m thick reddish yellow (7.5YR 6/8) clayey gravel (103); over which there was a 0.70-0.80m thick layer of strong brown (7.5YR 5/6) gravelly clay (102); whilst the uppermost layer was an approximately 0.1m thick greyish brown (10YR 5/2) slightly sandy, clayey silt (101). A modern electricity cable trench was noted running along the southern side of the sewer trench, but was not allocated a context number. Save for a single surface find of undiagnostic village ware pottery (Plate 5) all three deposits were sterile and can be interpreted as *in situ* decaying granite (103), overlain by associated hillwash or slope deposits (102), and topped with a naturally-accumulating forest soil (101). No cultural horizons/deposits were identified.

6. Conclusions

In summary, it can be concluded that the lower hill slope area traversed by the MH S52 to MH S54 sewer trench has seen little or no human activity in the past and can be considered to have no archaeological potential.

7. References

AAL 2003 Agreement No. CE 20/96 Outlying Islands Sewerage Stage 1 Phase II Package J – Sok Kwu Wan Sewage Collection, Treatment & Disposal Facilities, Archaeological Investigation. Unpublished excavation report.

Gretagmacbeth 2000 *Munsell Soil Colour Charts*. Gretagmacbeth: New Windsor, NY.

8. Figures

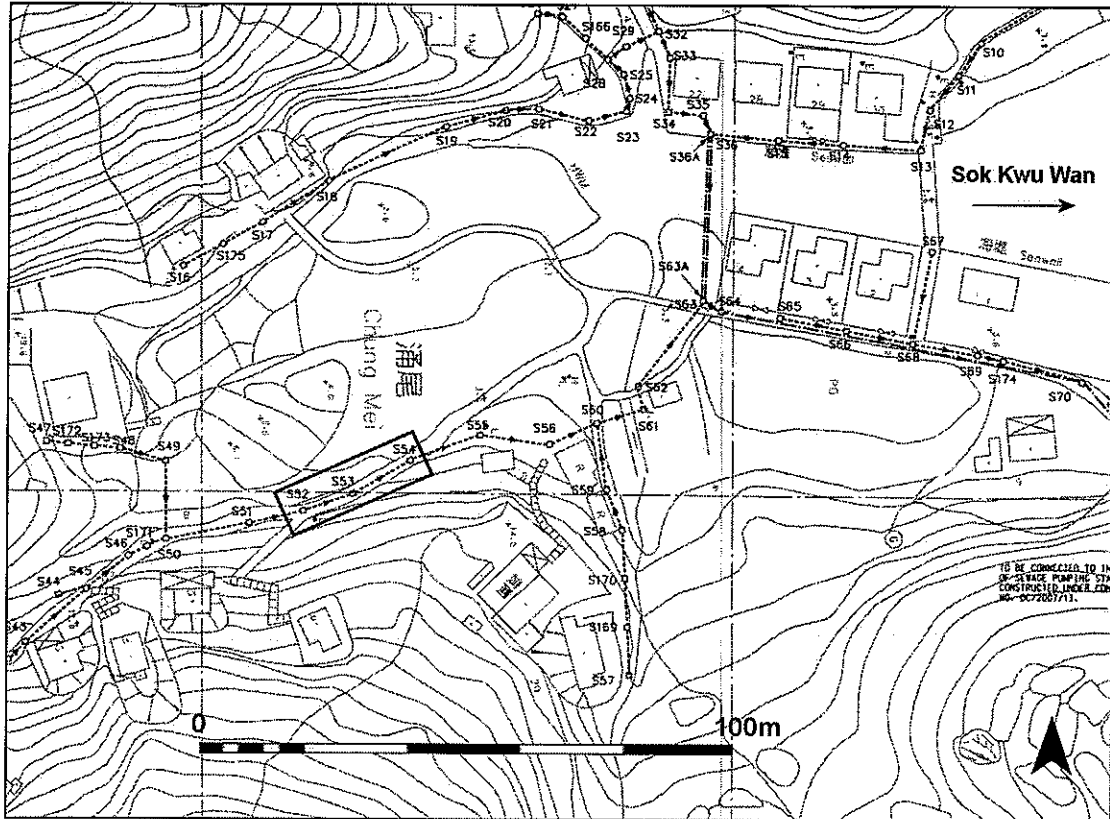


Figure 1: Plan showing location of sewage alignment at Chung Mei, with watching brief section between MH S52 and MH S54 highlighted.

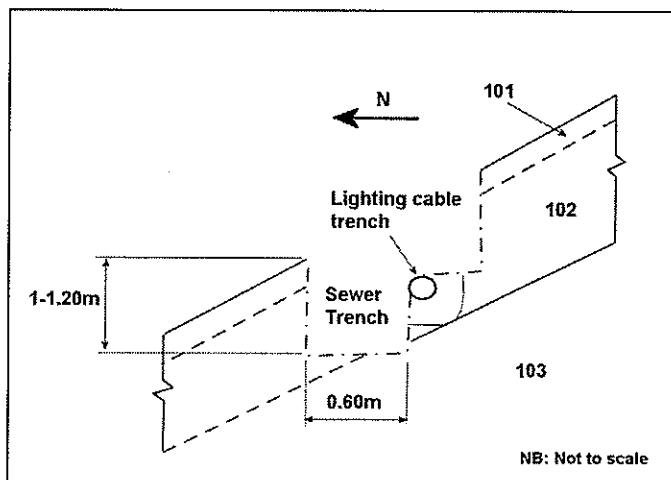


Figure 2: Transverse section across sewer trench (looking approximately east)

9. Plates



Plate 1: Overview of the machined alignment looking from MH S54 uphill towards MH S52 in the distance



Plate 2: Deeper excavations at MH S52 – view looking west



Plate 3: North facing section at MH S53 with modern (purple) electrical cable trench in foreground

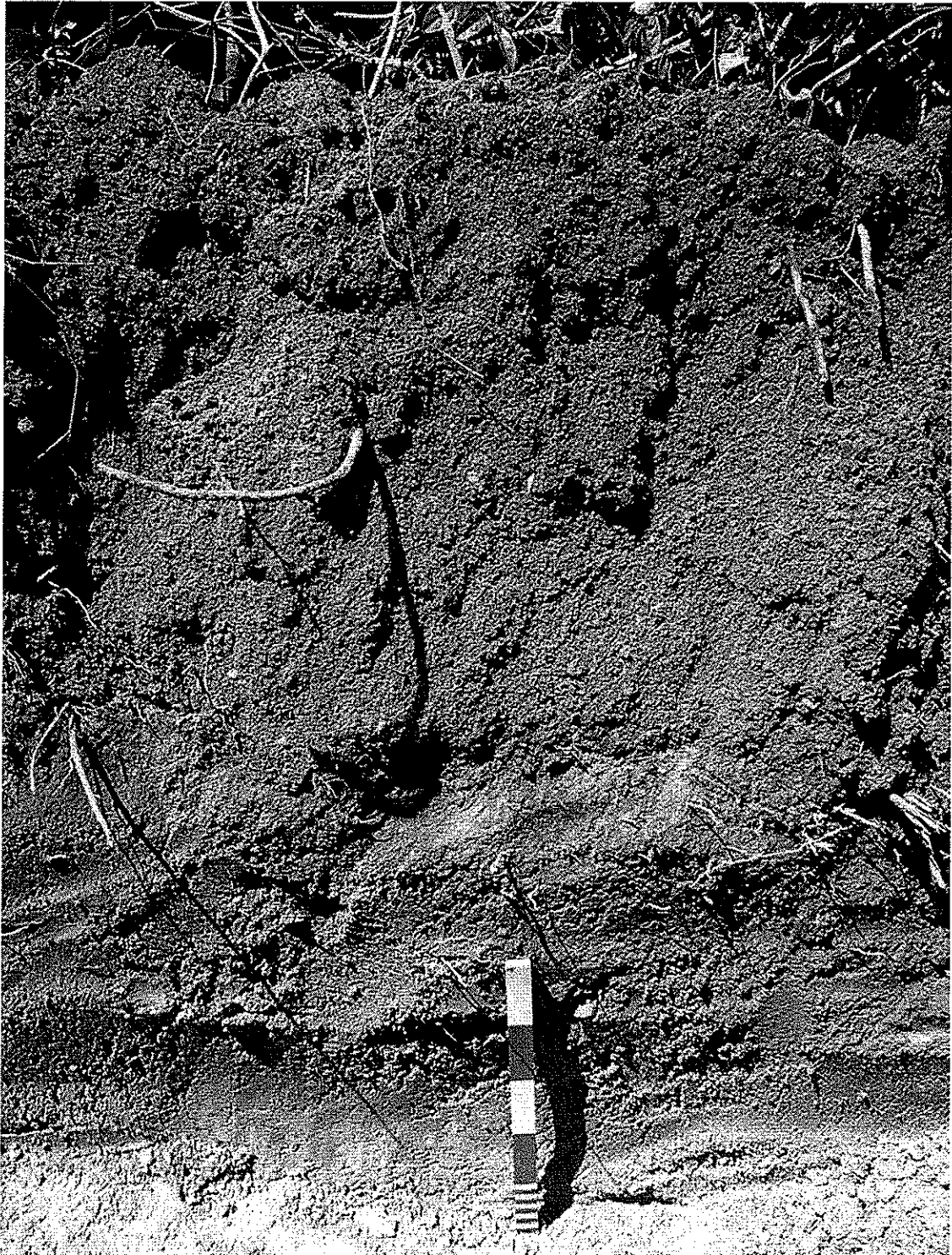


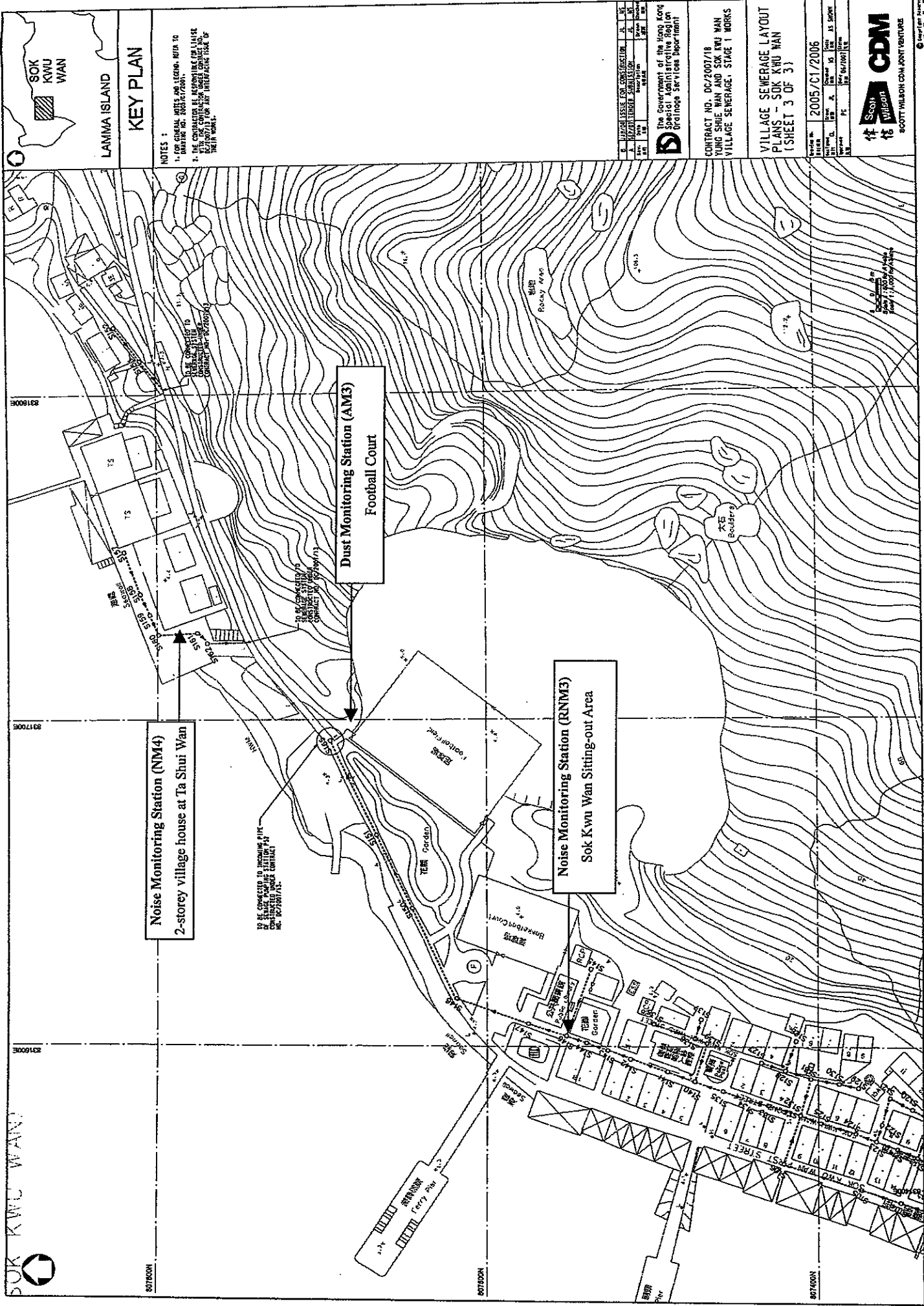
Plate 4: South facing section near location of MH S54



Plate 5: Undiagnostic village ware sherd found on surface of topsoil 101



Figures



KEY PLAN

LAMMA ISLAND



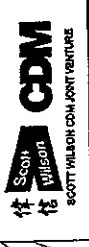
NOTES :
 1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 2005/C1/2001.
 2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE RELEVANT AUTHORITIES IN CONNECTION WITH THE WORKS.

DATE	BY	CHKD	APP'D
17/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
18/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
19/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
20/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
21/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
22/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
23/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
24/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
25/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
26/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
27/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
28/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
29/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
30/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN
31/07/2005	W. S. CHAN	W. S. CHAN	W. S. CHAN

CONTRACT NO. DC/2007/18
 YUNG SHUE WAN AND SOK KWU WAN
 VILLAGE SEWERAGE, STAGE 1 WORKS

VILLAGE SEWERAGE LAYOUT
 PLANS - SOK KWU WAN
 (SHEET 3 OF 3)

DATE: 2005/01/2005
 DRAWN BY: W. S. CHAN
 CHECKED BY: W. S. CHAN
 APPROVED BY: W. S. CHAN



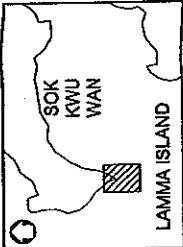
Noise Monitoring Station (NM4)
 2-storey village house at Ta Shui Wan

TO BE CONNECTED TO INCOMING PIPE
 OF SEWERAGE PUMPING STATION "A"
 BY CONTRACT NO. DC/2007/18

Dust Monitoring Station (AM3)
 Football Court

Noise Monitoring Station (RNM3)
 Sok Kwu Wan Sitting-out Area

SOK KWU WAN



KEY PLAN

NOTES 1
1. FOR GENERAL NOTES AND LEGEND, REFER TO SHEETING NO. 2005/C1/2001.

NO.	DATE	BY	CHKD.	DESCRIPTION
1	10/01/04	Y.S.	J.L.	ISSUED FOR TENDER
2	10/01/04	Y.S.	J.L.	ISSUED FOR TENDER
3	10/01/04	Y.S.	J.L.	ISSUED FOR TENDER
4	10/01/04	Y.S.	J.L.	ISSUED FOR TENDER
5	10/01/04	Y.S.	J.L.	ISSUED FOR TENDER
6	10/01/04	Y.S.	J.L.	ISSUED FOR TENDER
7	10/01/04	Y.S.	J.L.	ISSUED FOR TENDER
8	10/01/04	Y.S.	J.L.	ISSUED FOR TENDER
9	10/01/04	Y.S.	J.L.	ISSUED FOR TENDER
10	10/01/04	Y.S.	J.L.	ISSUED FOR TENDER

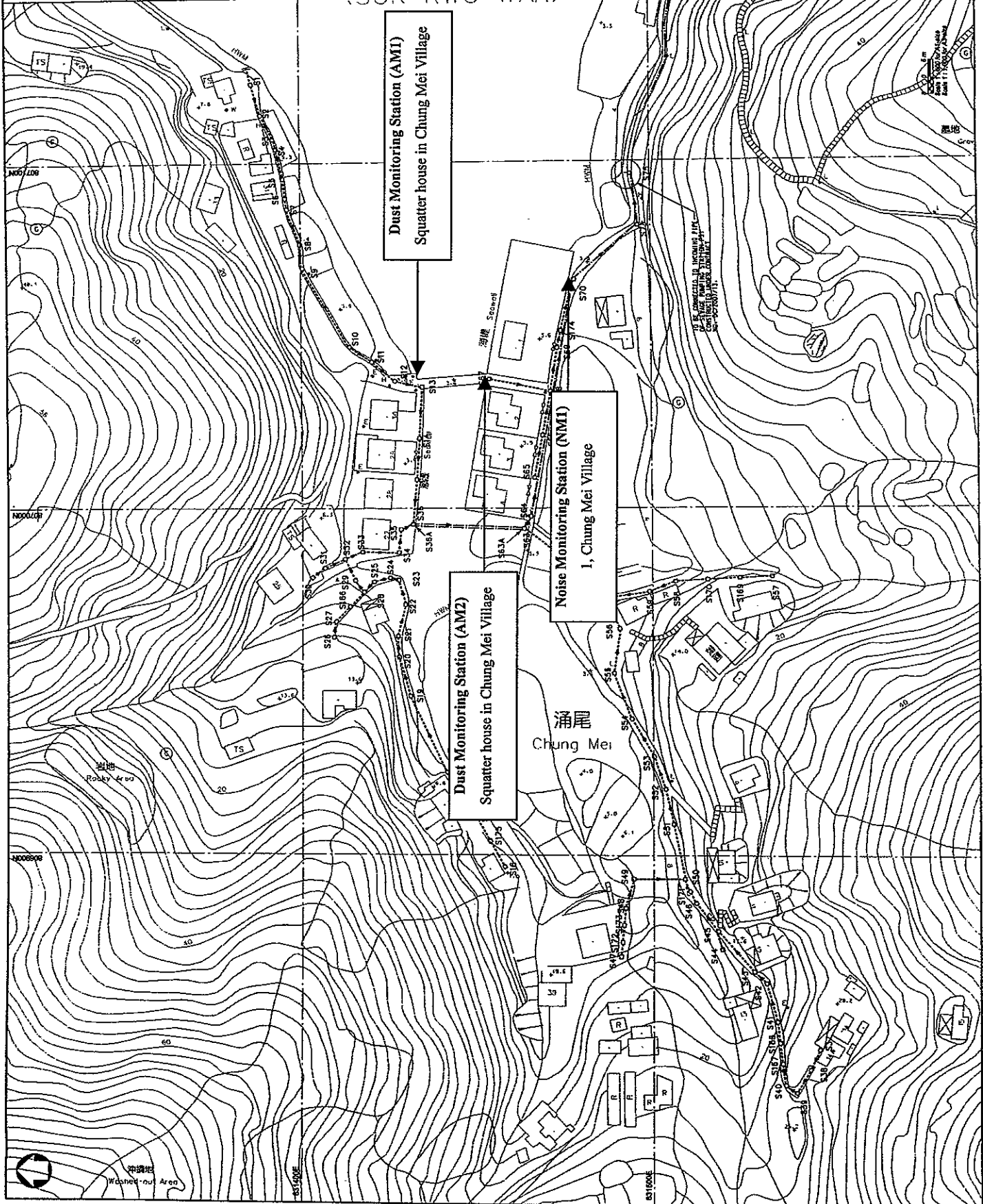
The Government of the Hong Kong Special Administrative Region
Drainage Services Department

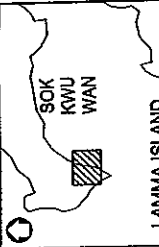
CONTRACT NO. DC/2007/18
YUNG SHUE WAN AND SOK KWU WAN
VILLAGE SEWERAGE, STAGE 1 WORKS

VILLAGE SEWERAGE LAYOUT
PLANS - SOK KWU WAN
(SHEET 1 OF 3)

DATE	2005/C1/2004
SCALE	AS SHOWN
PROJECT NO.	DC/2007/18
DATE OF ISSUE	10/01/04

SCOTT WILSON CDM JOINT VENTURE

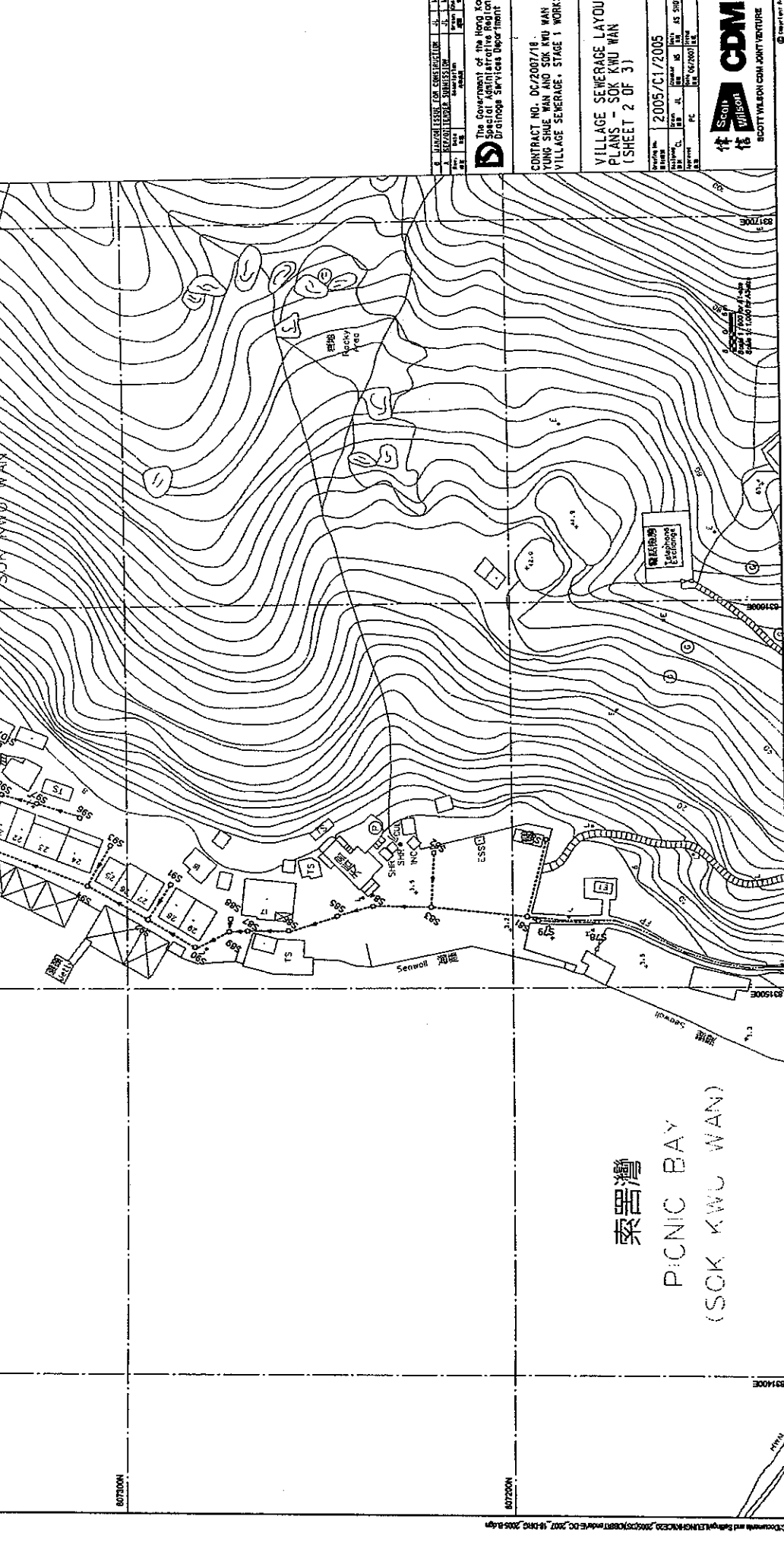




KEY PLAN

NOTES:
 1. FOR GENERAL NOTES AND DETAILS, REFER TO SHEET NO. DS05/1001.

Noise Monitoring Station (NM2)
 20, Sok Kwu Wan



索罟灣
 PICNIC BAY
 (SOK KWU WAN)

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
 DRAINAGE SERVICES DEPARTMENT

CONTRACT NO. DC/2007/18
 YUNG SHE WAN AND SOK KWU WAN
 VILLAGE SEWERAGE, STAGE 1 WORKS

VILLAGE SEWERAGE LAYOUT
 PLANS - SOK KWU WAN
 (SHEET 2 OF 3)

2005/C1/2005

