Chun Wo Construction & Engineering Co Ltd

Contract No HY/2005/06 Castle Peak Road Improvement – West of Tsing Lung Tau

Monthly Environmental Monitoring and Audit Report for Construction Works other than Reclamation – November 2006

First Issue

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December 2006

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Job number 24583

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By Fax (2492 6201) and Post

Meinhardt Halcrow JV
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Hong Kong

Attn : Mr. Michael S Harfoot

11 December 2006

Dear Sir,

Contract No. HY/2005/06
Castle Peak Road Improvement – West of Tsing Lung Tau
Monthly EM&A Report for Construction Works other than Reclamation – November 2006

We refer to the Monthly EM&A Report for Construction Works other than Reclamation – November 2006 received via emails on 8 December 2006 from Ove Arup & Partners Hong Kong Ltd., the Environmental Team (ET) of Castle Peak Road Improvement – West of Tsing Lung Tau (Remaining Contract).

The Monthly EM&A Report for Construction Works other than Reclamation – November 2006 is verified to be acceptable for onward submission to the Engineer, HyD, and EPD.

Should you have any inquiry or comment, please do not hesitate to contact the undersigned or our Miss Connie Wong at 3105 8530.

Yours faithfully
for and on behalf of
Maunsell Environmental
Management Consultants Ltd

Y T Tang
Independent Environmental Checker

cc	MHJV	-	Mr. Simon Illingworth	(Fax: 2559 1613)
	Arup	-	Mr. Sam Tsoi / Mr. Fredrick Leong	(Fax: 2268 3950)

ARUP

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Executive Summary

This is the ninth monthly environmental monitoring and audit (EM&A) report presenting the progress of environmental monitoring and audit works for the period between 1 November 2006 and 30 November 2006, including air quality monitoring and noise monitoring. Air quality was measured in terms of 1-hour Total Suspended Particulates (TSP) and 24-hour TSP. Noise was measured in terms of $L_{eq(30min)}$ with L_{10} and L_{90} measurements for reference. Environmental works included the weekly environmental audit and the bi-weekly landscape & visual monitoring and audit.

Air quality and noise monitoring at Bayside Villas and air quality monitoring at Grand Bay Villa were temporarily suspended as these premises were vacant with no resident.

Air Quality

A total of 5 sets of 3 consecutive 1-hour TSP measurements were conducted on 2, 8, 14, 20 and 27 November 2006 at Savoy Height, Hong Kong Garden (WA3). The highest 1-hour TSP level of 288.3 $\mu g/m^3$ was recorded on 2 November 2006 while lowest 1-hour TSP level of 180.4 $\mu g/m^3$ was recorded on 20 November 2006.

A total of 6 sets of 24-hour TSP measurement were conducted on 1, 7, 13, 18, 24 and 30 November 2006 at Savoy Height, Hong Kong Garden (WA3). The highest 24-hour TSP level of 144.0 $\mu g/m^3$ was recorded on 1 November 2006 while the lowest 24-hour TSP level of 45.9 $\mu g/m^3$ was recorded on 30 November 2006. There was no exceedance of the A/L Levels during the reporting period.

There was no exceedance of 1-hour and 24-hour TSP Action and Limit (A/L) Levels recorded during the reporting period.

Noise

A total of 5 sets of noise measurement were conducted between 0700-1900 hours on 2, 8, 14, 20 and 27 November 2006 at Savoy Height, Hong Kong Garden (WN6). The highest noise level of 64.1dB(A) was recorded on 20 and 27 November 2006 while the lowest noise level of 61.7dB(A) was recorded on 14 November 2006. There was no exceedance of A/L Levels during the reporting period.

There was no exceedance of noise A/L Levels recorded during the reporting period.

Landscape and Visual

A total of 2 landscape and visual monitoring and audits were carried out on a biweekly basis on 9 and 29 November 2006. The Registered Landscape Architect (RLA) has recommended the following:

- The Contractor was reminded to clear away all construction waste, scattered litter, garbage, etc as found on site, and to keep the site in a tidy condition at all times.
- The Contractor was reminded to provide better tree protection to existing trees to be transplanted or retained on site. Also, the Contractor was reminded to carry out proper tree root pruning with best horticultural practices to ensure the survival of the transplant trees.
- The Contractor was recommended to carry out watering of the site to prevent dust nuisance during dry periods.

Environmental Auditing

A total of 5 environmental site audits were conducted on a weekly basis in November 2006. No non-conformance to the environmental requirements was identified during the reporting period. The improvement actions against observations during the site audits for the CT included:

Air quality: CT was reminded to cover excavated materials and exposed slopes;

Water quality: Frequent clearing of mud trails and stagnant water; installation of silt curtain at Seawall B; provision of wheel washing facilities;

Waste Management: Frequent clearing of construction waste and general refuse; and

Chemical Waste Handling: Provision of driptray to oil drum.

Waste Disposal

A total of 61.8 tonnes of Construction & Demolition (C&D) waste and a total of 421.6 tonnes of C&D materials (transported by trucks) were disposed of at SENT/WENT Landfill and Public Filling Reception Facility at Tuen Mun Area 38 respectively in November 2006. No chemical waste was disposed of during the reporting period.

Complaint Records

No environmental complaint was received during the reporting period.

Exceedance

No exceedance for air quality and noise monitoring was recorded during the reporting period.

Notification of Summons and Successful Prosecution

No notification of summon and prosecution was received during the reporting period.

Environmental Licences

There was one environmental licence granted during the reporting period.

1 Introduction

Ove Arup & Partners Hong Kong Limited (Arup) was appointed by the Contractor (CT) – Chun Wo Construction & Engineering Co. Ltd (Chun Wo) as the Environmental Team (ET) for *Contract No. HY/2005/06 Castle Peak Road Improvements – West of Tsing Lung Tau*. In accordance with the EM&A Manual of the Project, environmental monitoring for air quality, noise, marine water quality and landscape & visual issues will be required during the construction and operational phases. The construction phase of the Project commenced on 28 February 2006 and will last for approximately 16 months.

1.1 Project Background

The Castle Peak Road (CPR) Improvement works consist of upgrading the existing CPR to provide a dual two-lane carriageway of "Rural Road A" classification between Area 2 (Tusen Wan) and Ka Loon Tsuen. The CPR Improvement project is divided into three contracts, namely HY/99/18 (West Contract), HY/99/19 (Middle Contract) and HY/2000/02 (East Contract).

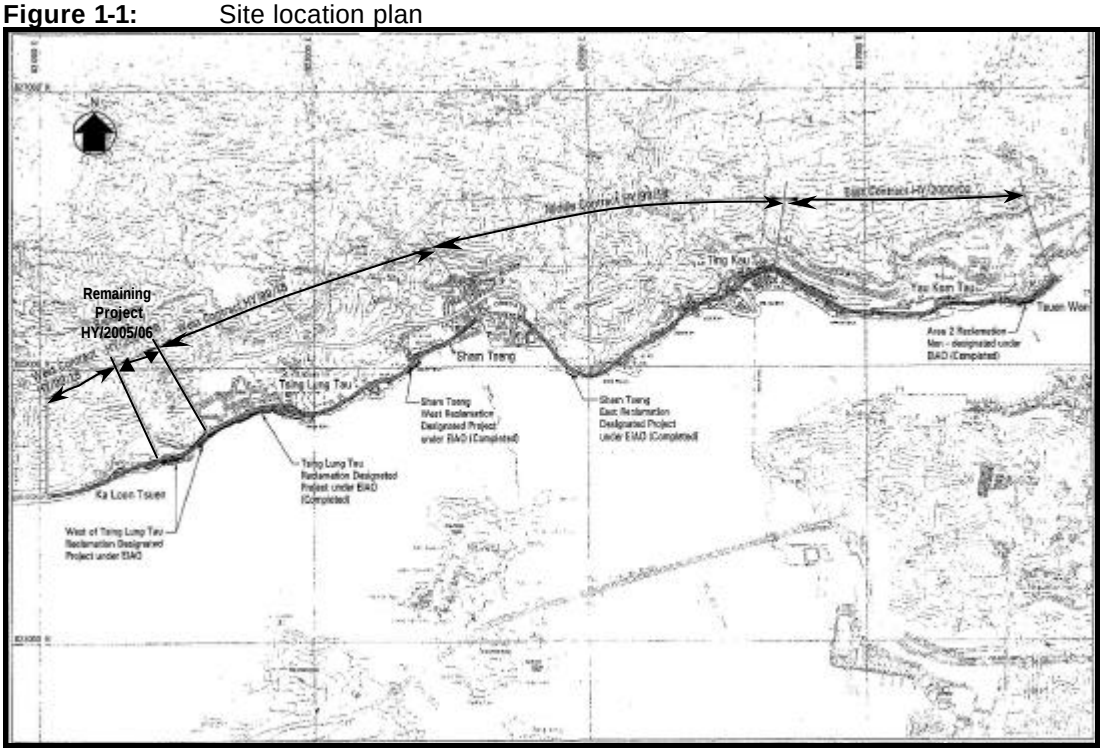
Prior to inviting tenders for Contract No. HY/99/18, a section of the proposed works, between Ch.1+800 and Ch.2+240, west of Tsing Lung Tau, was excised from the Project and entrusted to the Route 10 – North Lantau to Yuen Long Highway project. This 440m long section of CPR was located under the proposed Route 10 suspension bridge, and was to form part of the works area for the Route 10 project. The Route 10 project team revised the alignment of this section of CPR accordingly to suit the arrangement of the Route 10 suspension bridge.

Following subsequent developments, the Route 10 project was placed under review, and Government therefore decided to implement the excised section of CPR (the Remaining Project) under the original CPR Improvement project. **Figure 1-1** shows the site location plan.

The scope of the construction work covered by this contract is as follows:

- upgrading the alignment and widening to dual two-lane carriageway standards of the existing single carriageway Castle Peak Road;
- construction road drainage;
- construction of watermain over the length of the works; and
- landscape and establishment works along the length of the highway verges, embankment and reclamation area.

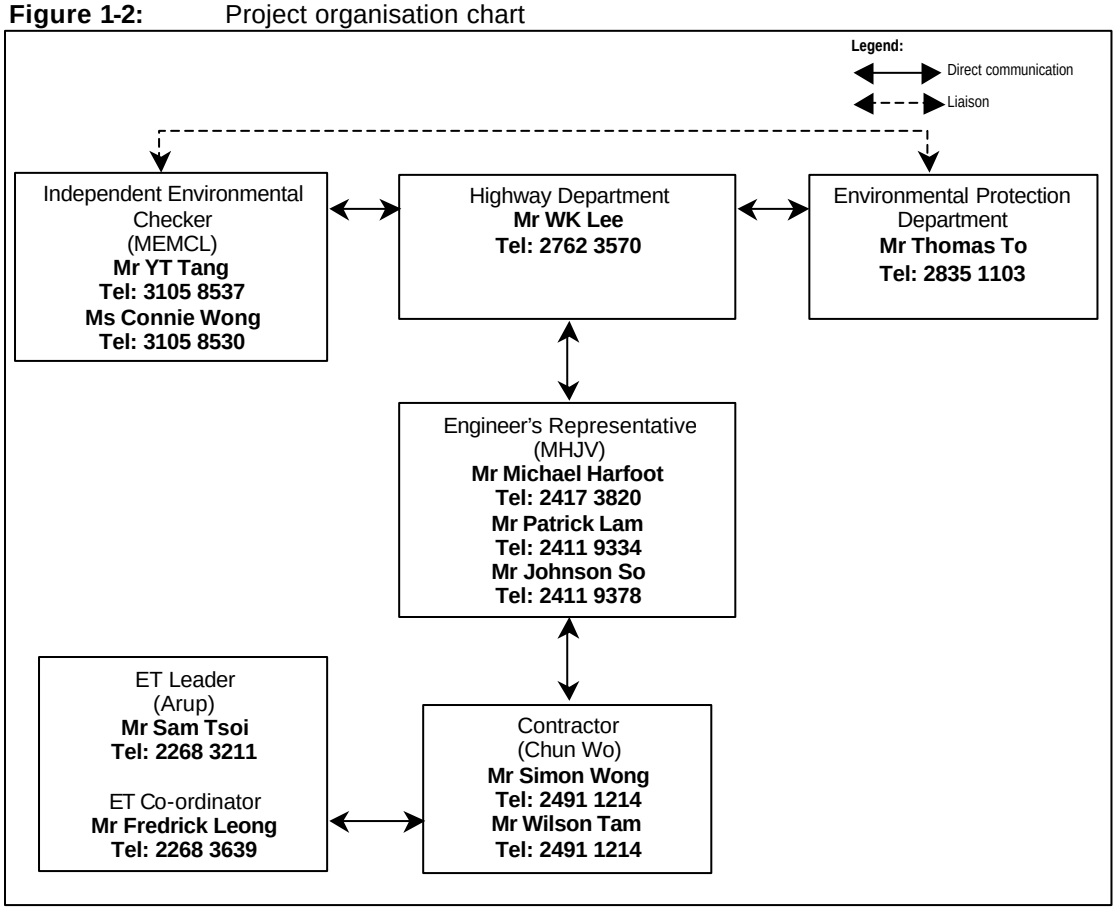
Figure 1-1: Site location plan



1.2 Project Organisation

The project organisation chart for environmental management is shown in **Figure 1-2**.

Figure 1-2: Project organisation chart



The Project Proponent is Highway Department (HyD); the Engineer's Representative (ER) is Meinhardt Halcrow Joint Venture (MHJV); the CT is Chun Wo; the Independent Environmental Checker (IEC) is Maunsell Environmental Management Consultants Ltd (MEMCL); the ET is Ove Arup & Partners Hong Kong Ltd (Arup).

The overall duties of ET Leader and the team are as follows:

- sampling, analysis and statistical evaluation of monitoring parameters with reference to the EIA study and subsequent reviews recommendations and requirements in respect of noise, dust and water quality;
- environmental site surveillance;
- audit of compliance with environmental protection and pollution prevention and control regulations;
- monitor the implementation of environmental mitigation measures;
- monitor compliance with the environmental protection clauses/specifications in the Contract;
- review construction programme and comment as necessary;
- review construction methodology and comment as necessary;
- complaint investigation, evaluation and identification of corrective measures;
- audit of the effectiveness of mitigation measures and EMS (if applicable) and recommend and implement any changes as appropriate.
- liaison with IEC on all environmental performance matters;
- advice to the CT on environmental improvement, awareness, enhancement matter, etc., on site; and
- Timely submission of the EM&A reports to the ER, IEC and DEP.

The duties of IEC include the following:

- review and audit all aspects of the EM&A programme;
- validate and confirm the accuracy of monitoring results, monitoring equipment, monitoring locations, monitoring procedures and locations of sensitive receivers;
- carry out random sample check and audit on monitoring data and sampling procedures, etc;
- conduct random site inspection;
- audit the EIA, subsequent reviews and Environmental Permit recommendations and requirements against the status of implementation of environmental protection measures on site.
- review the effectiveness of environmental mitigation measures and project environmental performance;
- audit the CT's construction methodology and agree the least impact alternative in consultation with ET Leader and the CT;
- check compliant cases and the effectiveness of corrective measures;
- review EM&A report submitted by the ET Leader; and
- feedback audit results to ET Leader by signing off relevant EM&A proformas.

1.3 Scope of Impact EM&A

The impact environmental monitoring and audit for the Project included air quality, noise, marine water quality, landscape and visual monitoring and environmental site audit. As the marine water quality and noise monitoring at Grand Bay Villa are covered in the scope under the Environmental Permit (EP No EP-219/2005) requirements, the findings will be reported in Castle Peak Road Improvement – West of Tsing Lung Tau Monthly EM&A Report for Reclamation Works.

1.4 Purpose of the Report

The purpose of the monthly EM&A report is to provide the information on monitoring methodology, monitoring results, environmental permit status, site audit findings, recommendations and conclusions for the scope of impact EM&A other than those specified under the EP. This is the ninth monthly EM&A report summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the air quality, noise, landscape and visual monitoring and environmental site audit from 1 November 2006 to 30 November 2006.

2 Scope of Construction Works

2.1 Construction Programme

The construction work was commenced on 28 February 2006. An up-to-date construction programme is attached in **Appendix A**.

2.2 Construction Activities of the Month

The major construction activities carried out by the CT in November 2006 included:

- Construction of upper RC retaining wall and backfilling at Seawall A;

3 Summary of EM&A Requirements

Air quality and noise monitoring will be conducted by the ET at specified monitoring locations during the construction stage. Landscape & visual monitoring and audit and environmental site audit will also be carried out. The monitoring schedule for November 2006 and the tentative schedule for December 2006 are attached in **Appendix B**.

3.1 Air Quality

3.1.1 Monitoring Parameters

Air quality monitoring will be measured in terms of the TSP levels for both 24-hour and 1-hour periods.

3.1.2 Monitoring Frequency

24-hour TSP and 1-hour TSP levels will be monitored during the construction stage. The monitoring parameters and frequency are summarised in **Table 3-1**.

Table 3-1: TSP monitoring parameters and frequency

Parameters	Monitoring Frequency	Time Period	No. of Measurement for Each Monitoring
24-hour TSP	Once every six days	0000 - 2400	1
1-hour TSP	Three times every six days	0700 - 1900	1

3.1.3 Monitoring Locations

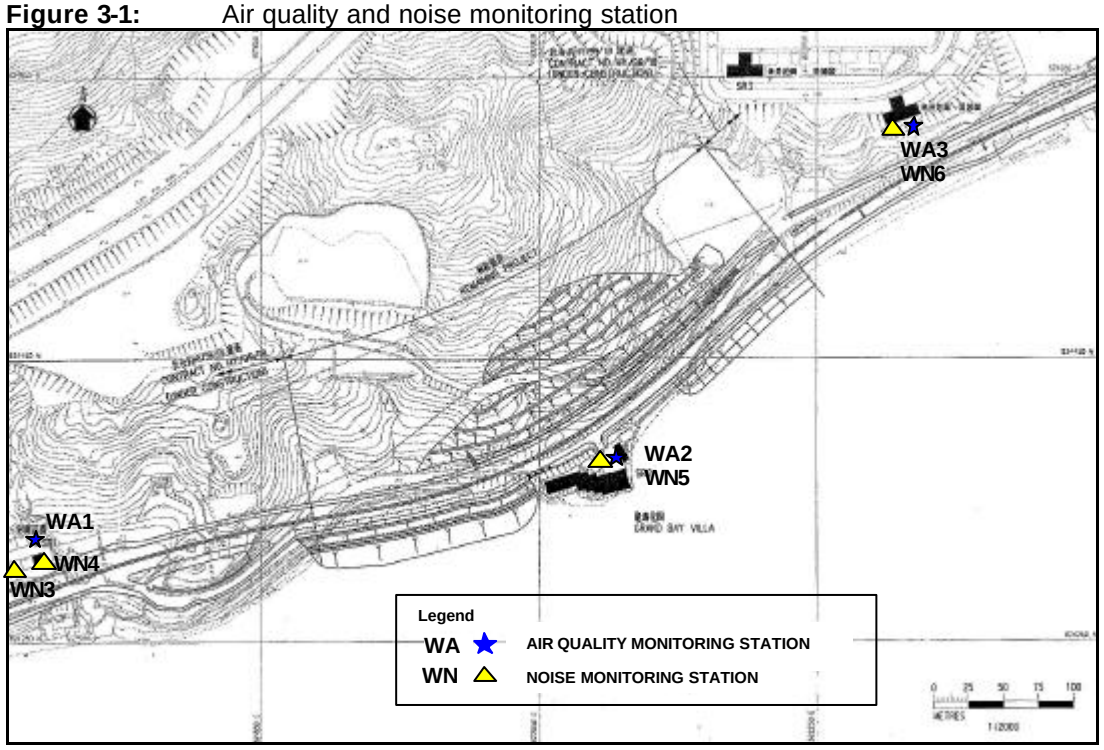
Two locations were specified for the air quality monitoring as summarised in **Table 3-2** and illustrated in **Figures 3-1**.

Table 3-2: Air quality monitoring locations

Air Monitoring Station No.	Location	Location description	Remarks
WA1	Bayside Villas	G/F near House 10	Monitoring temporarily suspended *
WA2	Grand Bay Villa	G/F, House 1	Monitoring temporarily suspended *
WA3	Hong Kong Garden	G/F, Savoy Height	-

* Bayside Villas and Grand Bay Villa are currently vacant with no residents during the reporting period. Air quality monitoring at WA1 and WA2 is temporarily suspended until they are occupied.

Figure 3-1: Air quality and noise monitoring station



3.1.4 Wind Monitoring

Wind monitoring data including wind speed and wind directions will be extracted from Hong Kong Observatory – Tsing Yi Wind Monitoring Station.

3.2 Construction Noise

3.2.1 Monitoring Parameters

Construction noise will be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). L_{10} and L_{90} will also be recorded as supplementary reference information for data auditing.

3.2.2 Monitoring Frequency

Noise measurements will be conducted on a weekly basis. The monitoring time periods, monitoring parameters and frequency are summarised in **Table 3-3**

Table 3-3: Construction noise monitoring parameters and frequency

Time Period (when construction activity is found)	Parameters	Monitoring Frequency	No. of Measurements for Each Monitoring
Between 0700-1900 hours on normal weekdays	$L_{eq(30\ min)}$	Once per week	1
Between 1900-2300 hours on normal weekdays	$L_{eq(5\ min)}$*		3 (consecutive)
Between 2300-0700 hours of next day			
Between 0700-1900 hours on holidays			

* The $L_{eq(5\ min)}$ will only be measured if construction activities are conducted on holidays and between the period of 1900 and 0700 hours during normal weekdays.

3.2.3 Monitoring Location

Noise monitoring will be conducted at three locations as shown in **Figure 3-1**. The details of the noise monitoring locations are given in **Table 3-4**. The measurements will be taken at a position 1m from the exterior of building façade and at a position of 1.2m above ground.

Table 3-4: Construction noise monitoring locations

Noise Monitoring Station No.	Location	Monitoring Point	Remark
WN3	Bayside Villas	G/F, House 3	Monitoring temporarily suspended *
WN4	Bayside Villas	G/F, House 1	
WN6	Hong Kong Garden	G/F, Savoy Height	-

* Bayside Villas are currently vacant with no resident. Construction noise monitoring at WN3 and WN4 is temporarily suspended until they are occupied.

3.3 Landscape and Visual Monitoring Audit

3.3.1 Audit Parameters

All landscape and visual mitigation measures undertaken by both the CT and the Landscape Contractor during the construction phase and the first year of operational phase will be audited by a Registered Landscape Architect, to ensure compliance with the intended aims of mitigation measures.

3.3.2 Audit Frequency

The landscape and visual monitoring and audit will be undertaken once every two weeks throughout the construction period and once every two months during the operational phase.

3.3.3 Audit Location

The landscape and visual monitoring and audit will be conducted throughout the entire site area.

3.4 Performance Limits and Event Action Plans

The monitoring results will be checked against appropriate standards and requirements. A two-tier system performance limits have been established in the Project specific EM&A Manual. The "Action Level" and the "Limit Level" (A/L) are established according to the EPD requirements. The ET, ER, IEC, and CT will take corresponding action in accordance with the Event-Action Plans if the monitoring results exceed the performance limits.

3.4.1 Air quality

The A/L levels for air quality have been established during the baseline monitoring as summarised in **Table 3-5**.

Table 3-5: Action and Limit Levels for air quality

Air Monitoring Station No.	1-hour TSP Level in μg/m³		24-hour TSP Level in μg/m³	
	Action Level	Limit Level	Action Level	Limit Level
WA1	396	500	185	260
WA2	387		177	
WA3	393		185	

The action required to be taken by different parties in case of occurrence of exceedances of A/L Levels are summarised in the Event and Action Plan in **Table3-6**.

Table 3-6: Event and Action Plan for air quality exceedance

Event	Action			
	ET Leader	IEC	ER	CT
Action Level				
1. Exceedance for one sample	1. Identify the source. 2. Inform IEC and ER. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET Leader. 2. Check CT's working method.	1. Notify CT.	1. Rectify any unacceptable practice. 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify the source. 2. Inform IEC and ER. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Discuss with IEC and the CT on remedial actions required. 6. If exceedance continues, arrange meeting with IEC and ER. 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET. 2. Check the CT's working method. 3. Discuss with the ET Leader and the CT on possible remedial measures. 4. Advise the ER on the effectiveness of the proposed remedial measures. 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the CT. 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within 3 working days of notification. 2. Implement the agreed proposals. 3. Amend proposal if appropriate.
Limit Level				
1. Exceedance for one sample	1. Identify the source. 2. Inform the ER and the DEP. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily. 5. Assess effectiveness of CT's remedial actions and keep the IEC, the DEP and the ER informed of the results.	1. Check monitoring data submitted by ET Leader. 2. Check the CT's working method. 3. Discuss with the ET Leader and the CT on possible remedial measures. 4. Advise the ER on the effectiveness of the proposed remedial measures. 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the CT. 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify the IEC, the ER, the DEP and the CT. 2. Identify the source. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Carry out analysis of the CT's working procedures to determine possible mitigation to be implemented. 6. Arrange meeting with the IEC and ER to discuss the remedial actions to be taken. 7. Assess effectiveness of the CT's remedial actions and keep the IEC, the DEP and the ER informed of the results. 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst the ER, the ET Leader and the CT on the potential remedial actions. 2. Review the CT's remedial actions whenever necessary and advise the ER accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the CT. 3. In consultation with the IEC, agree with the CT on the remedial measures to be implemented. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the CT to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.

3.4.2 Construction Noise

The A/L Levels for the construction noise have been established during the baseline monitoring as summarised in **Table 3-7**.

Table 3-7: Action and Limit Levels of construction noise

Time Period	Action Level	Limit Level
0700 - 1900 hours on any day not being a Sunday or public holiday	When one documented complaint is received	75dB(A)

The action required to be taken by different parties in the case of occurrence of exceedances of A/L Levels are summarised in the Event and Action Plan in **Table 3-8**.

Table 3-8: Event and Action Plan for construction noise exceedance

Event	Action			
	ET Leader	IEC	ER	CT
Action Level	1. Notify IEC and the CT. 2. Carry out investigation. 3. Report the results of investigation to the IEC and the CT. 4. Discuss with the CT and formulate remedial measures. 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review with the analysed results submitted by ET. 2. Review the proposed remedial measures by the CT and advise ER accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the CT. 3. Require the CT to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC. 2. Implement noise mitigation proposals.
Limit Level	1. Notify the IEC, the ER, the DEP and the CT. 2. Identify the source. 3. Repeat measurement to confirm findings. 4. Increase monitoring frequency. 5. Carry out analysis of CT's working procedures to determine possible mitigation to be implemented. 6. Inform the IEC, the ER, and the DEP the causes & actions taken for the exceedances. 7. Assess effectiveness of the CT's remedial actions and keep the IEC, the DEP and the ER informed of the results. 8. If exceedance stops, cease additional monitoring	1. Discuss amongst the ER, the ET Leader and the CT on the potential remedial actions. 2. Review the CT's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the CT. 3. Require the CT to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the CT to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.

3.5 Site Inspection and Environmental Complaint Handling

3.5.1 Site Inspection Frequency and Areas Covered

Regular site inspections will be carried out on a weekly basis. The areas of inspection cover the different environmental impacts, such as air quality, noise, water quality and waste, and their pollution controls and mitigation measures for both within and outside the site area. Site inspection for landscape and visual impact shall be carried out on a bi-weekly basis.

Ad hoc site inspection will be carried out if significant environmental non-compliance is identified. Inspections may also be carried out subsequent to receipt of any environmental complaints, or as part of the investigation work, as specified in the Event and Action Plans.

3.5.2 Site Inspection Procedures

a) The CT and/or ER will advise the Environmental Auditor (EA) of ET for all information on any environmental related aspects.

b) The EA will discuss with the CT and/or ER to forecast any potential environmental impact.

c) The EA will conduct a site walk with the CT and/or ER, particularly the areas with extensive construction works.

d) The EA will conduct inspection for the main environmental facilities and measures such as wheel washing facilities located at site exits, water spraying truck, temporary noise barrier, and internal noise-reducing measures of heavy equipment etc, to ensure that these environmental facilities operate normally and effectively.

e) The EA will fill up a site inspection checklist during the site inspection for recording any special observations.

f) The EA will conduct post-discussion with the CT and/or ER for the establishment of additional/special measures if any non-conformance is found. The completion date for such additional measures will be confirmed during the post-discussion.

g) The EA will propose a reasonable timeframe together with the CT and/or ER, for preparation of the proposal for remediation of environmental non-compliance.

h) The completed site inspection checklist will be signed by the EA, the CT and/or ER, for reference and for taking action in accordance with the agreed procedures, reporting systems and time frame.

3.5.3 Environmental Complaints

In accordance with the EM&A Manual, environmental complaints will be referred to the ET for initiation of the complaint investigation procedures. The ET will undertake the following procedures upon receipt of complaints:

a) The ET will record the details of the complaint and the date of receipt into the complaint database, and inform ER immediately.

b) The ET will perform complaint investigation to determine its validity and to assess whether the source of the problem is due to work activities.

c) The ER will instruct the CT to identify mitigation measures in consultation with the ET, if the complaint is valid and due to works.

d) The ET will liaise with the CT on their mitigation measure proposals and implementation, if required.

e) The ET will conduct review of the CT's response on the identified mitigation measures, and of the updated situation.

f) The ET will submit interim report to EPD if the complaint is received via EPD. The interim report will clearly state the status of the complaint investigation and the follow-up action within the time frame assigned by EPD.

g) The ET will undertake additional monitoring and audit to verify the situation if necessary, and ensure that any valid reason for complaint does not recur.

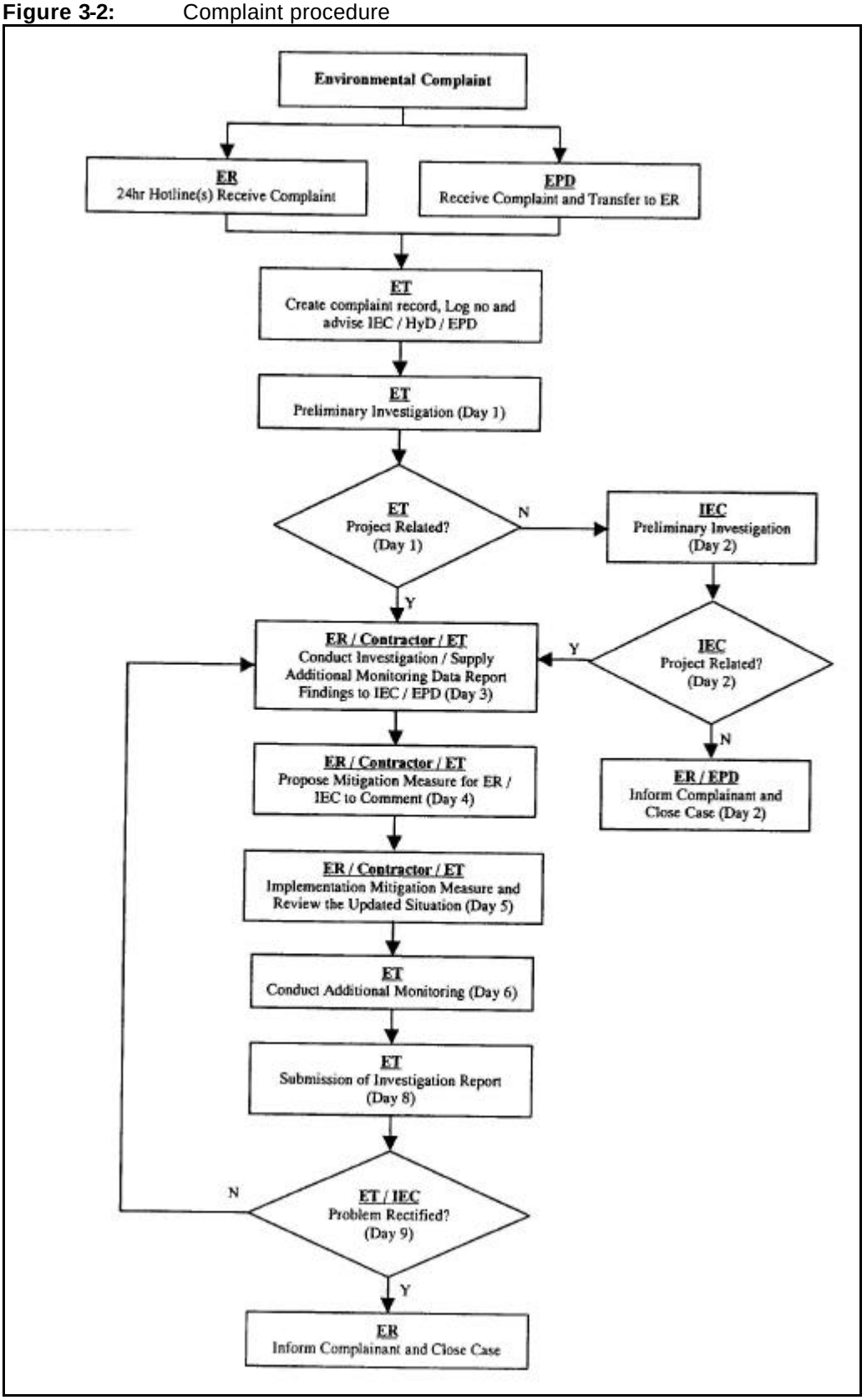
h) The ET will report on the investigation results and the subsequent actions to the source of complaint for responding to the complainant. If the source of complaint is via EPD, the results will be reported within the time frame assigned by EPD.

i) The ET will record the details of the complaint, investigation, subsequent actions and results in the monthly EM&A report.

During the complaint investigation work undertaken by the ET, CT and ER should cooperate with the ET on providing all the necessary information and assistance for completion of the investigation. If mitigation measures are identified as necessary after the investigation, the CT should promptly carry out the required mitigation to the satisfaction of ET. The ER should ensure that the CT has carried out such identified measures.

A flow chart of the complaint response procedures is shown in **Figure 3-2** for reference.

Figure 3-2: Complaint procedure



4 Air Quality Monitoring

4.1 Monitoring Parameters and Equipment

Impact air quality monitoring was conducted in terms of both 1-hour and 24-hour TSP using a direct reading meter, MIE Data-RAM Portable Real Time Aerosol Monitor (MIE) and High Volume Sampler (HVS) respectively. **Table 41** shows the equipment list for air quality monitoring.

Table 4-1: Equipment list for air quality monitoring

Equipment	Manufacturer & Model No.	Measurement Parameter	Qty.
High Volume Sampler	TE-5170	24-hour TSP	1
Fibreglass Filter	G810		--
HVS Calibration Kit	GMW-2535		1
Photometric Aerosol Monitor	MIE *personal*DataRAM	1-hour TSP	1
Hand Held Barometer	Cole-Parmer EB833	Pa, Temperature	1

4.2 Methodology

4.2.1 Occupancy Status of Bayside Villas and Grand Bay Villa

The property management company of Bayside Villas (WA1) and Grand Bay Villa (WA2) will be coordinated a monthly basis within 10 working days of each month to confirm the occupancy status of these premises. Once these locations are confirmed occupied, air quality monitoring will be resumed within 1 week.

4.2.2 1-hour TSP Monitoring

The procedure for 1-hour TSP monitoring is described as follows:

The MIE monitor was switched on by pressing the ON/OFF button. The NEXT button was pressed to select Run or Ready mode.

The NEXT button was pressed subsequently to check the following settings:

i. data logging function: on
ii. log period: 5 minutes
iii. tag number: storage
iv. analogue output: 0-4.000mg/m^3
v. calibration factor:1.0
vi. averaging time: 10s
vii. battery charge: $\geq$50%
viii. remaining memory: $\geq$10%

The monitoring was started by pressing ENTER. The real-time concentration would display "CONC" and the time-averaged concentration would display " TWA".

The monitoring was stopped by pressing EXIT and ENTER buttons.

The date and start time, weather, site condition and the downloaded monitoring results were recorded on specified field record sheet.

4.2.3 24-hour TSP Monitoring

The 24-hour TSP has measured by using a High Volume Sampler (HVS). All HVS comply with the following specifications:

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

4.2.4 Maintenance and Calibration

The HVS and their accessories were frequently checked and maintained in accordance with the manufacturer's operation & maintenance manual. Maintenance include the checking of the supporting screen and the gasket, and routine replacement of motor carbon brushes for the blower motor. The power cords and power supply were checked each time before sampling to ensure proper operation.

The HVS are calibrated at 2-month intervals using GMW-2535 Calibration Kit.

The calibration kit will be re-calibrated by the manufacturer after one year of use. The calibration certificates of the HVS and the calibration kit are attached in **Appendix C**.

The MIE monitor and its accessories were frequently checked and maintained in accordance with the manufacturer's operation & maintenance manual to ensure proper operation. Maintenance included the checking of batteries, zero and sensitive adjustment and filter replacement.

The MIE monitor is returned to the manufacturer for calibration bi-annually. The calibration certificates are attached in **Appendix D**. The next calibration dates for the MIE monitors are given in **Table 4-2**.

Table 4-2: Calibration dates of 1-hour TSP monitoring equipment

1-hour TPS monitoring equipment	Serial number	Last calibration date	Next calibration date (on or before)
MIE Data-RAM Portable Real Time Aerosol Monitor	4492	10-April-06	10-April-08

4.3 Results and Observations

4.3.1 Occupancy Status of Bayside Villas and Grand Bay Villa

In the reporting period, Bayside Villas (WA1) and Grand Bay Villa (WA2) were vacant with no resident and air quality monitoring was temporarily suspended.

4.3.2 Weather conditions and other factors

No adverse weather conditions, in particular adverse wind speed and wind direction that may significantly affect or invalidate the collected air quality monitoring data, were registered during the reporting period.

Neither unusual operation of the construction site nor abnormal TSP source was observed during the reporting period.

4.3.3 Summary of Results

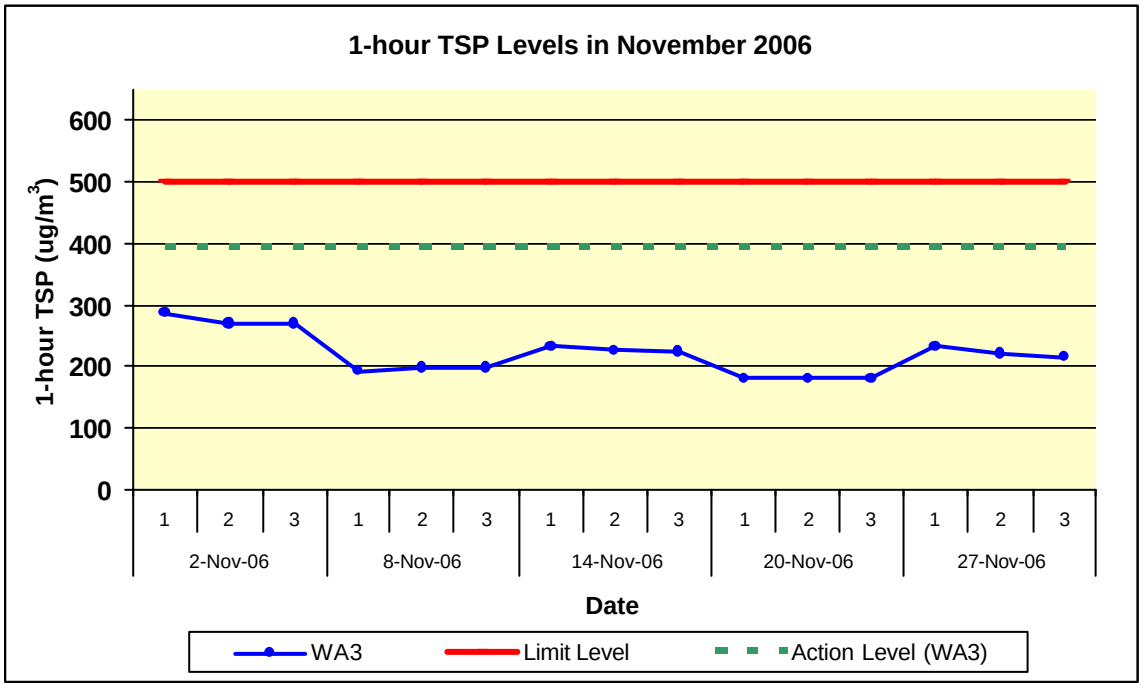
1-hour TSP

A total of 5 sets of 3 consecutive 1-hour TSP measurements were conducted on 2, 8, 14, 20 and 27 November 2006 at Savoy Height, Hong Kong Garden (WA3).

The highest 1-hour TSP level of 288.3 $\mu g/m^3$ was recorded on 2 November 2006 while lowest 1-hour TSP level of 180.4 $\mu g/m^3$ was recorded on 20 November 2006. There was no exceedance of the A/L Levels during the reporting period.

Detailed monitoring results of 1-hour TSP are attached in **Appendix E** and graphical presentation of the 1-hour TSP levels at WA3 is illustrated in **Figure 4-1.**

Figure 4-1: Graphical presentation of 1-Hour TSP levels for November 2006



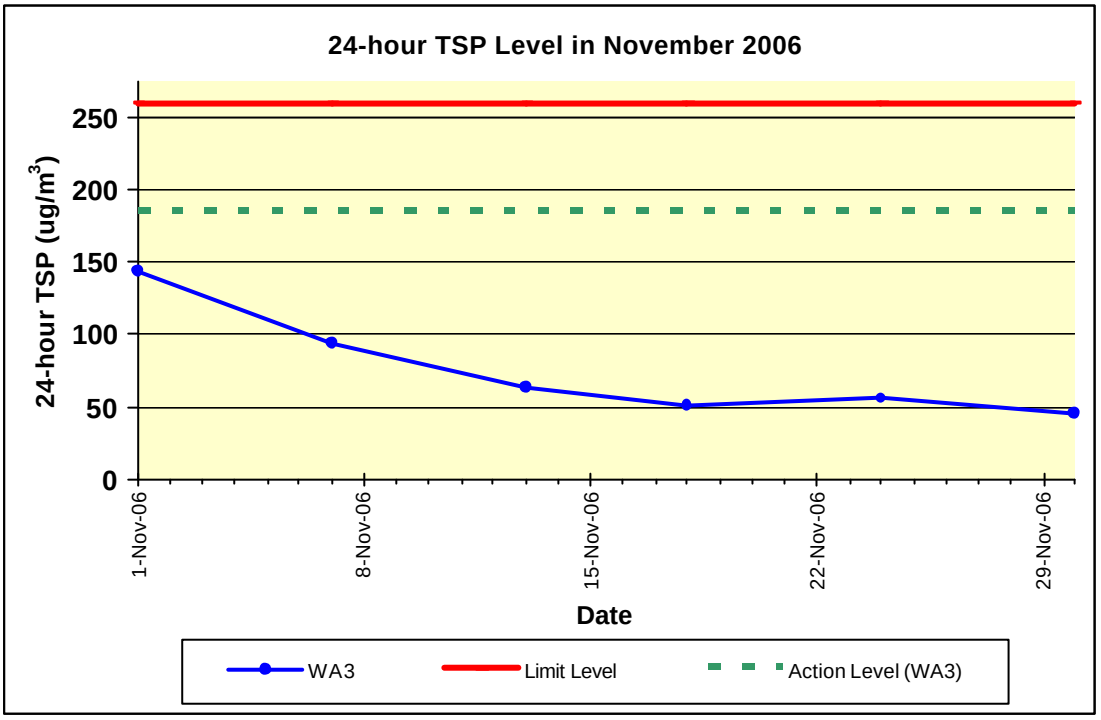
24-hour TSP

A total of 6 sets of 24-hour TSP measurement were conducted on 1, 7, 13, 18, 24 and 30 November 2006 at Savoy Height, Hong Kong Garden (WA3).

The highest 24-hour TSP level of 144.0 µg/m^3 was recorded on 1 November 2006 while the lowest 24-hour TSP level of 45.9 µg/m^3 was recorded on 30 November 2006. There was no exceedance of the A/L Levels during the reporting period.

Detailed monitoring results of 24-hour TSP are attached in **Appendix F** and graphical presentation of the 24-hour TSP levels at WA3 is illustrated in **Figure 4-2**.

Figure 4-2: Graphical presentation of 24-Hour TSP Levels for November 2006



4.3.4 Wind Monitoring Data

Detailed wind monitoring data for November 2006 were extracted from Hong Kong Observatory – Tsing Yi Wind Monitoring Station and attached in **Appendix G**.

5 Noise Monitoring

5.1 Monitoring Equipment

Details of the integrating sound level meters used in the noise monitoring are shown in **Table 5-1**.

Table 5-1: Equipment list for construction noise monitoring

Equipment	Manufacturer & Model No.	Precision Grade	Qty.
Integrating sound level meter	Rion NA-27	IEC 651 Type 1 IEC 804 Type 1	1
Windshield	Brüel & Kjær UA0237		1
Acoustical calibrator	Brüel & Kjær 4230		1
LCD wind speed indicator	Kestrel Vane Anemometer	--	1

5.2 Methodology

5.2.1 Occupancy Status of Bayside Villas and Grand Bay Villa

The property management company of Bayside Villas (WN3 and WN4) and Grand Bay Villa (WN5) will be coordinated on a monthly basis within 10 working days of each month to confirm the occupancy status of these premises. Once these locations are confirmed occupied, noise quality monitoring will be resumed within 1 week.

5.2.2 Field Measurement

- The sound level meter and battery were checked to ensure that they were in proper condition.
- The sound level meter was set on a tripod at 1.2m above ground and at 1m from the exterior of the building façade.
- Before conducting the measurement, the sound level meter was calibrated by an acoustical calibrator.
- The measurement parameter was set to A-weighted sound pressure level. The time weighting was set in fast response and the time period of measurement at 30 minutes.
- The wind speed was checked during noise monitoring to ensure the steady wind speed did not exceed 5m/s, or wind with gusts did not exceed 10m/s.
- Any abnormal conditions that generated intrusive noise during the measurement were recorded on the field record sheet.
- After each measurement, the equivalent continuous sound pressure level (L_{eq}), L_{10} and L_{90} were recorded on the field record sheet.
- The sound level meter was re-calibrated by the acoustical calibrator to confirm that there was no significant drift of reading.

5.2.3 Equipment Maintenance and Calibration

All sound level meters comply with the standards of IEC 651 (Fast, Slow, Impulse RMS detector tests) and IEC 804 (L_{eq} functions). The acoustical calibrator model no. 4226 complies with IEC 942. The calibration certificates of the noise monitoring equipment are attached in **Appendix H**.

5.3 Results and Observations

5.3.1 Occupancy Status of Bayside Villas and Grand Bay Villa

In the reporting period, Bayside Villas (WN3 and WN4) and Grand Bay Villa (WN5) were vacant with no resident and noise monitoring was temporarily suspended.

5.3.2 Weather Conditions and Other Factors

No adverse weather conditions, in particular adverse wind speed & wind direction and fog & rain that may significantly affect or invalidate the collected noise monitoring data, were recorded during the reporting period.

Neither unusual operation of the construction site nor abnormal noise source was observed during the reporting period.

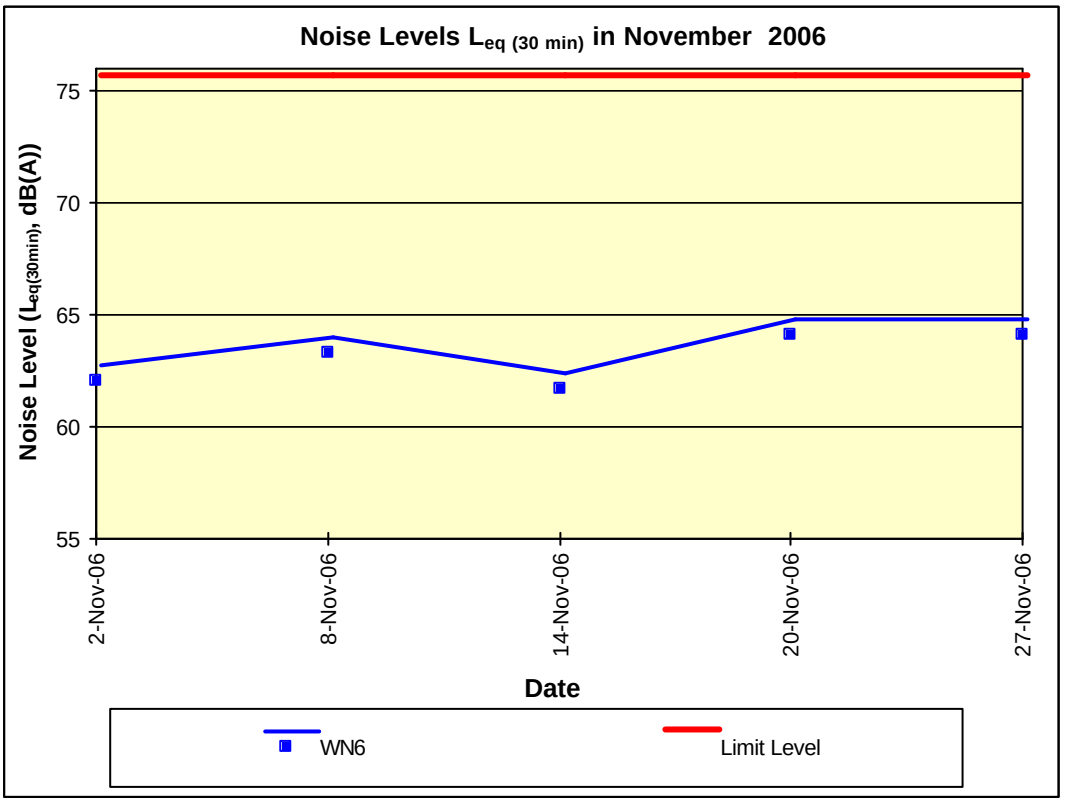
5.3.3 Summary of Results

A total of 5 sets of noise measurement were conducted between 0700-1900 hours on 2, 8, 14, 20 and 27 November 2006 at Savoy Height, Hong Kong Garden (WN6).

The highest noise level of 64.1dB(A) was recorded on 20 and 27 November 2006 while the lowest noise level of 61.7dB(A) was recorded on 14 November 2006. There was no exceedance of A/L Levels during the reporting period.

Detailed construction noise monitoring results are attached in **Appendix I** and graphical presentation of the noise levels at WN6 is illustrated in **Figure 5-1**.

Figure 5-1: Graphical presentation of day-time noise levels in November 2006



6 Landscape and Visual Monitoring and Audit

Landscape and visual monitoring and audits were carried out on 9 and 29 November 2006 by a Registered Landscape Architect. The audit findings and recommendations are included in a detailed report in **Appendix J** and summarised in the following paragraphs.

6.1 Summary of Inspection – 9 November 2006

6.1.1 Matters Arising from Previous Inspections

- The Contractor had cleared away construction waste and felled the 2 existing free standing trees at Slope 'A' area.
- Clearance of rock and fill materials surrounding the existing tree T113 was still found to be outstanding. The Contractor was reminded to clear it away as soon as possible to prevent further damage to the tree.
- Dry surface conditions were still observed at many areas of the Site. The Contractor was reminded to carry out more watering of the surface to prevent dust nuisance.

6.1.2 Site Clearance and Formation Works

- Site formation works were in progress at the proposed new Slopes A and B areas.
- Garbage pile was observed at the Site Office area. The Contractor was requested to clear it away as soon as possible.
- Construction waste piles were observed at the retaining wall RW – 02 area. The Contractor was requested to clear it away as soon as possible.
- Soil pile was observed to be left in an exposed condition. The Contractor was requested to provide temporary cover up of the pile to prevent dust nuisance.

6.1.3 Tree Felling and Transplanting Works

- No tree transplanting was observed during the reported period.
- The existing tree trunks of T507 & T200 were found to be used as rope anchor points for tying and support of construction works. The Contractor was warned that the practice is considered unacceptable as it would damage the trees. The Contractor was requested to immediately remove the works.

6.1.4 Recommendations

- The Contractor was reminded to clear away all construction waste, scattered litter, garbage, etc as found on site, and to keep the site in a tidy condition at all times.
- The Contractor was reminded to provide better tree protection to existing trees to be transplanted or retained.
- The Contractor was recommended to carry out watering of the site to prevent dust nuisance during dry periods.

6.2 Summary of Inspection – 29 November 2006

6.2.1 Matters Arising from Previous Inspections

- The Contractor had cleared rock and fill materials away from the immediate area surrounding the existing tree T113. The Contractor was reminded to transplant the tree as soon as possible to prevent further damage to the tree.
- The Contractor had cleared away the garbage pile and construction waste piles at the Site Office area and retaining wall RW – 02 area respectively.
- The Contractor had removed the ropes away from the existing tree trunks of T507 & T200.

- Dry surface condition was still observed at many areas of the Site. The Contractor was reminded to carry out more watering of the surface to prevent dust nuisance.

6.2.2 Site Clearance and Formation Works

- Site formation works were in progress at the proposed new Slopes A and B areas.
- Construction waste pile was observed at Slope 'A' access road area. The Contractor was requested to clear it away as soon as possible.

6.2.3 Tree Felling and Transplanting Works

- It was observed that one of the tree branches of existing tree T200 was ripped off, with another branch severely damaged by machinery. The Contractor was warned that the practice was considered unacceptable and should be more careful in carry out overhead works.
- Also, it was observed that the Contractor had carried out the tree transplanting work without proper preparation of the tree rootball for existing tree T109. The Contractor had carried out bared-root tree transplanting instead. The Contractor was warned that the practice was considered unacceptable as the transplant tree would most likely be dead afterward. The Contractor was again reminded to carry out tree transplanting in a proper manner and in accordance with the Particular Specification.

6.2.4 Recommendations

- The Contractor was reminded to clear away all construction waste, scattered litter, garbage, etc as found on site, and to keep the site in a tidy condition at all times.
- The Contractor was reminded to provide better tree protection to existing trees to be transplanted or retained on site. Also, the Contractor was reminded to carry out proper tree root preparation works for the transplant trees.
- The Contractor was recommended to carry out watering of the site to prevent dust nuisance during dry periods.

6.3 Audit Schedule

6.3.1 Audit Schedule for December 2006

- The next audits will be conducted on 8 and 21 December 2006.

7 Site Inspection, Waste Disposal, Environmental Complaints, Environmental Licenses and Non-compliance Records

7.1 Site Audit Findings

Five weekly environmental site audits were carried out on 1, 9, 17, 23 and 30 November 2006. The findings of the site audits are summarised in **Table 6-1**.

Table 7-1: Findings of weekly environmental site audit in November 2006

Date of Issue Raised	Observation	Advice from EA	CT's Response / Environmental Outcomes	Closing Date
1 November 2006 (WTLT 041)	1. Chemical waste and chemical are stored in the same location.	CT was reminded to separate the chemical waste and chemical.	Agreed with the ET's advice.	9 November 2006
	2. Water spraying system was not functioned at Seawall A, Seawall B and bored piling site.	CT was reminded to repair the system.	Agreed with the ET's advice.	17 November 2006
	3. General refuse was observed at Seawall A, Seawall B and bored piling site.	CT was reminded to clear the waste and provide rubbish bins.	Agreed with the ET's advice.	9 November 2006
	4. Exposed slope was observed.	CT was reminded to cover the slope.	Agreed with the ET's advice.	9 November 2006
	5. C&D waste is observed at Seawall A.	CT was reminded to clear the waste.	Agreed with the ET's advice.	9 November 2006
	6. No wheel wash facility was provided at exit of Seawall A.	CT was reminded to provide wheel wash facility at the exit.	Agreed with the ET's advice.	9 November 2006
	7. Oil was observed in the driptray at the bore piling site.	CT was reminded to collect oil and store it in the chemical waste area.	Agreed with the ET's advice.	17 November 2006
	8. Oil drums were observed without driptrays at the bored piling site.	CT was reminded to provide driptrays to all oil drums.	Agreed with the ET's advice.	9 November 2006
	9. Accumulation of wasted cement bags was observed.	CT was reminded to remove the waste.	Agreed with the ET's advice.	9 November 2006
9 November 2006 (WTLT 042)	1. Water was observed accumulated in driptray at chemical storage area.	CT was reminded to remove the water.	Agreed with the ET's advice.	17 November 2006

Date of Issue Raised	Observation	Advice from EA	CT's Response / Environmental Outcomes	Closing Date
17 November 2006 (WTLT 043)	2. Refuse was observed near to site office and nearby slope.	CT was reminded to clear the waste.	Agreed with the ET's advice.	17 November 2006
	3. Stockpile was partially covered near to site office.	CT was reminded to cover the stockpile.	Agreed with the ET's advice.	23 November 2006
	4. Accumulation of silt was observed at bored piling site.	CT was reminded to clear it more frequently.	Agreed with the ET's advice.	17 November 2006
	5. General refuse was observed at slope P2.	CT was reminded to clear the waste.	Agreed with the ET's advice.	17 November 2006
	1. Mud trails were observed.	CT was reminded to clear the mud trails.	Agreed with the ET's advice.	23 November 2006
	2. Dust was generated from soil nail operation.	CT was reminded to provide mitigation measures, such as enclosure or water spraying frequently.	Agreed with the ET's advice.	23 November 2006
	3. Stockpile was not covered at Seawall B.	CT was reminded cover the stockpile.	Agreed with the ET's advice.	7 December 2006
	4. Silt curtain was not installed at Seawall B.	CT was reminded to install the silt curtain.	Agreed with the ET's advice.	7 December 2006
	5. Sedimentation tank for site runoff was observed full of silt and broken pipe was observed.	CT was reminded to clear the silt as far as possible and repair the broken pipe.	Agreed with the ET's advice.	23 November 2006
	6. Concrete batching vehicles were observed on-site.	CT was reminded to provide wash-water containers to hold wastewater from the concrete batching vehicles.	Agreed with the ET's advice.	7 December 2006
23 November 2006 (WTLT 044)	1. General refuse was observed near Seawall A.	CT was reminded to clear the waste.	Agreed with the ET's advice.	30 November 2006
	2. Manual wheel washing without settling tank was observed at Seawall A.	CT was reminded to provide proper wheel washing facilities.	Agreed with the ET's advice.	30 November 2006
30 November 2006 (WTLT 045)	1. An oil drum was observed without driptray at Seawall B.	CT was reminded to provide driptray to all oil drums.	Agreed with the ET's advice.	7 December 2006
	2. General refuse was observed at bored piling site.	CT was reminded to clear the refuse regularly.	Agreed with the ET's advice.	7 December 2006

Date of Issue Raised	Observation	Advice from EA	CT's Response / Environmental Outcomes	Closing Date
	3. Scrapped and rusty metal fence were observed.	CT was reminded to clear the waste regularly.	Agreed with the ET's advice.	7 December 2006
	4. Wheel washing facilities were not observed in some exits.	CT was reminded to provide wheel washing facilities at every exit.	Agreed with the ET's advice.	On-going

7.2 Waste Disposal

Disposal of waste material during the reporting period generally complied with the corresponding waste disposal requirements. The waste disposal quantity during the reporting period is summarised in **Table 7-2**.

Table 7-2: Waste disposal quantity in November 2006

Type of waste or material		Disposal at	No. of loads or quantities
C&D waste		WENT Landfill	61.8 tonnes
C&D material	By truck	Public Filling Reception Facility in Tuen Mun Area 38	421.6 tonnes
Chemical waste		Collected by licensed collector	0

7.3 Complaint Record

There was no environmental complaint received in November 2006.

7.4 Exceedance

There was no exceedance for environmental monitoring parameters recorded in November 2006.

7.5 Notification of Summons and Successful Prosecution

No notification of summon and prosecution was received during the reporting month.

7.6 Environmental Licenses

A summary of the valid environmental licences is given in **Table 7-4.** A new Construction Noise Permit (CNP) was granted during the reporting month. A copy of the CNP is attached in **Appendix K**.

Table 7-4: Summary of valid environmental licences in November 2006

Type of Licence	Reference No.	Valid from	Valid to
Environmental Permit	EP-219/2005	20 Jun 2005	Not applicable
Registration of Chemical Waste Producer	5111-336-C2869-49	16 Feb 2006	Not applicable
Water Discharge Licence	EP760/336/011348 I	31 Mar 2006	31 Mar 2011
Construction Noise Permit	GW-RW0326-06	9 Jun 2006	8 Dec 2006
Construction Noise Permit	GW-RW0349-06	23 Jun 2006	22 Dec 2006
Construction Noise Permit	GW-RW0654-06	14 Nov 2006	15 Mar 2007

8 Conclusion

The EM&A programme has been conducted during the reporting period, including air quality, noise, landscape and visual monitoring and environmental site audit. Air quality and noise monitoring at Bayside Villas and air quality monitoring at Grand Bay Villa were temporarily suspended as these premises were vacant with no residents.

Exceedance of Action / Limit Level was not recorded for air and noise monitoring during the reporting period.

No complaint, summons or prosecution related to environmental issues was received during the reporting period.

Weekly environmental site audit was carried out during the reporting period. The major environmental concerns were related to air quality, water quality, waste management and chemical waste handling.

Biweekly landscape and visual monitoring and audit was conducted during the reporting period. The CT was reminded to keep the site in a tidy condition, provide better tree protection to existing trees to be transplanted or retained, and carry out watering of the site during dry periods.

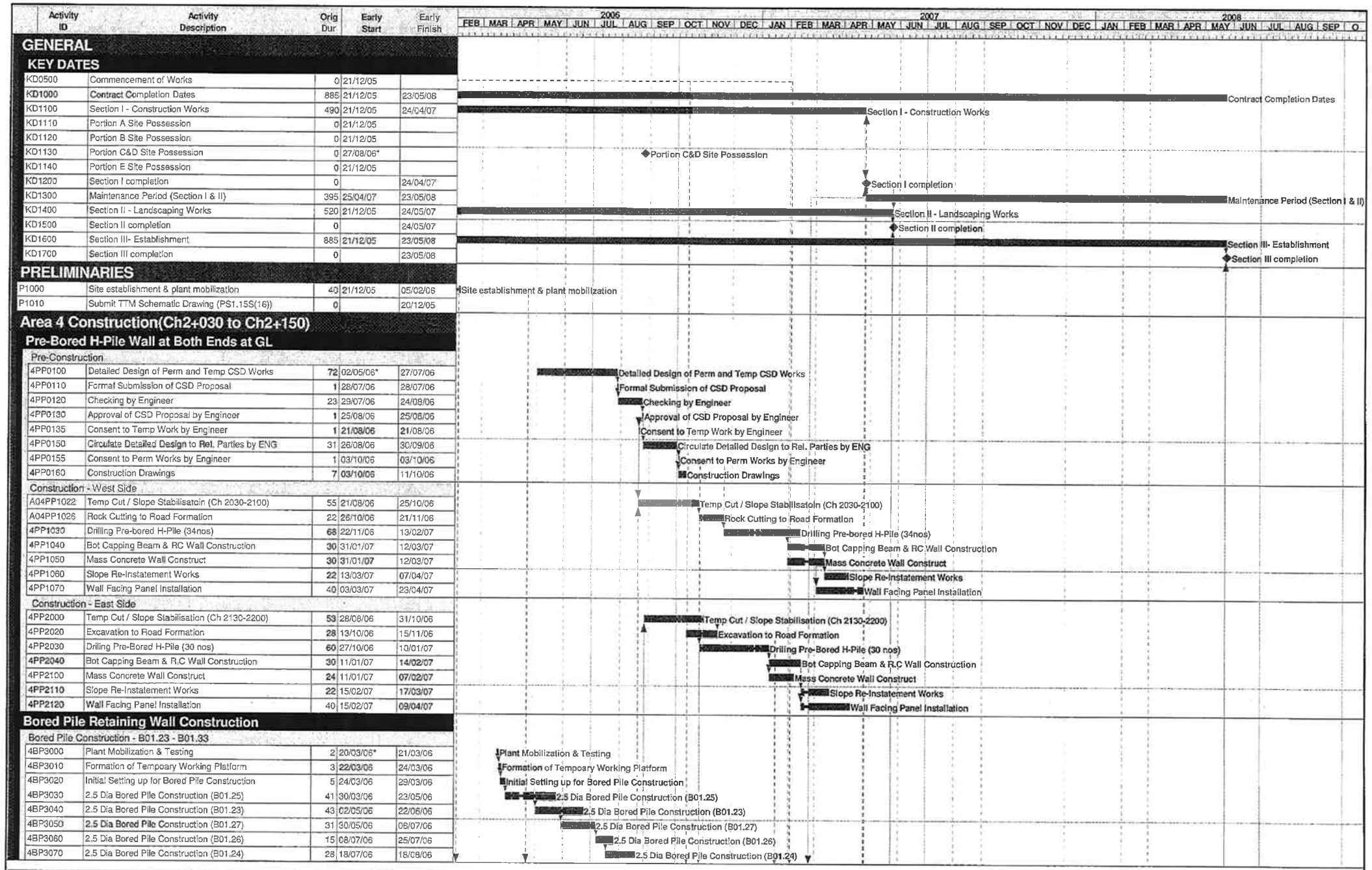
9 References

[1] Mouchel Halcrow Joint Venture. January 2006. Supplementary Agreement No.1 – Remaining Project EM&A Manual for Construction of Reclamation West of Tsing Lung Tau.

[2] Ove Arup & Partners Hong Kong Limited. April 2006. Contract No.HY2005/06 Castle Peak Road Improvement – West of Tsing Lung Tau. Environmental Baseline Monitoring Report for Construction Works other than Reclamation (First Issue)

Appendix A

Construction programme



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
GENERAL				
KEY DATES				
KD0500	Commencement of Works	0	21/12/05	
KD1000	Contract Completion Dates	885	21/12/05	23/05/08
KD1100	Section I - Construction Works	490	21/12/05	24/04/07
KD1110	Portion A Site Possession	0	21/12/05	
KD1120	Portion B Site Possession	0	21/12/05	
KD1130	Portion C&D Site Possession	0	27/08/06*	
KD1140	Portion E Site Possession	0	21/12/05	
KD1200	Section I completion	0		24/04/07
KD1300	Maintenance Period (Section I & II)	395	25/04/07	23/05/08
KD1400	Section II - Landscaping Works	520	21/12/05	24/05/07
KD1500	Section II completion	0		24/05/07
KD1600	Section III- Establishment	885	21/12/05	23/05/08
KD1700	Section III completion	0		23/05/08
PRELIMINARIES				
P1000	Site establishment & plant mobilization	40	21/12/05	05/02/06
P1010	Submit TTM Schematic Drawing (PS1.15S(16))	0		20/12/05
Area 4 Construction(Ch2+030 to Ch2+150)				
Pre-Bored H-Pile Wall at Both Ends at GL				
Pre-Construction				
4PP0100	Detailed Design of Perm and Temp CSD Works	72	02/05/06*	27/07/06
4PP0110	Formal Submission of CSD Proposal	1	28/07/06	28/07/06
4PP0120	Checking by Engineer	23	29/07/06	24/08/06
4PP0130	Approval of CSD Proposal by Engineer	1	25/08/06	25/08/06
4PP0135	Consent to Temp Work by Engineer	1	21/08/06	21/08/06
4PP0150	Circulate Detailed Design to Rel. Parties by ENG	31	26/08/06	30/09/06
4PP0155	Consent to Perm Works by Engineer	1	03/10/06	03/10/06
4PP0160	Construction Drawings	7	03/10/06	11/10/06
Construction - West Side				
A04PP1022	Temp Cut / Slope Stabilisatoin (Ch 2030-2100)	55	21/08/06	25/10/06
A04PP1026	Rock Cutting to Road Formation	22	26/10/06	21/11/06
4PP1030	Drilling Pre-bored H-Pile (34nos)	68	22/11/06	13/02/07
4PP1040	Bot Capping Beam & RC Wall Construction	30	31/01/07	12/03/07
4PP1050	Mass Concrete Wall Construct	30	31/01/07	12/03/07
4PP1060	Slope Re-Instatement Works	22	13/03/07	07/04/07
4PP1070	Wall Facing Panel Installation	40	03/03/07	23/04/07
Construction - East Side				
4PP2000	Temp Cut / Slope Stabilisation (Ch 2130-2200)	53	28/08/06	31/10/06
4PP2020	Excavation to Road Formation	28	13/10/06	15/11/06
4PP2030	Drilling Pre-Bored H-Pile (30 nos)	60	27/10/06	10/01/07
4PP2040	Bot Capping Beam & R.C Wall Construction	30	11/01/07	14/02/07
4PP2100	Mass Concrete Wall Construct	24	11/01/07	07/02/07
4PP2110	Slope Re-Instatement Works	22	15/02/07	17/03/07
4PP2120	Wall Facing Panel Installation	40	15/02/07	09/04/07
Bored Pile Retaining Wall Construction				
Bored Pile Construction - B01.23 - B01.33				
4BP3000	Plant Mobilization & Testing	2	20/03/06*	21/03/06
4BP3010	Formation of Tempoary Working Platform	3	22/03/06	24/03/06
4BP3020	Initial Setting up for Bored Pile Construction	5	24/03/06	29/03/06
4BP3030	2.5 Dia Bored Pile Construction (B01.25)	41	30/03/06	23/05/06
4BP3040	2.5 Dia Bored Pile Construction (B01.23)	43	02/05/06	22/06/06
4BP3050	2.5 Dia Bored Pile Construction (B01.27)	31	30/05/06	06/07/06
4BP3060	2.5 Dia Bored Pile Construction (B01.26)	15	08/07/06	25/07/06
4BP3070	2.5 Dia Bored Pile Construction (B01.24)	28	18/07/06	18/08/06

Start Date 21/12/05
Finish Date 23/05/08
Data Date 21/12/05
Run Date 22/08/06 15:00

?Primavera Systems, Inc.

Early Bar
Progress Bar
Critical Activity

CSD2

Sheet 1 of 5

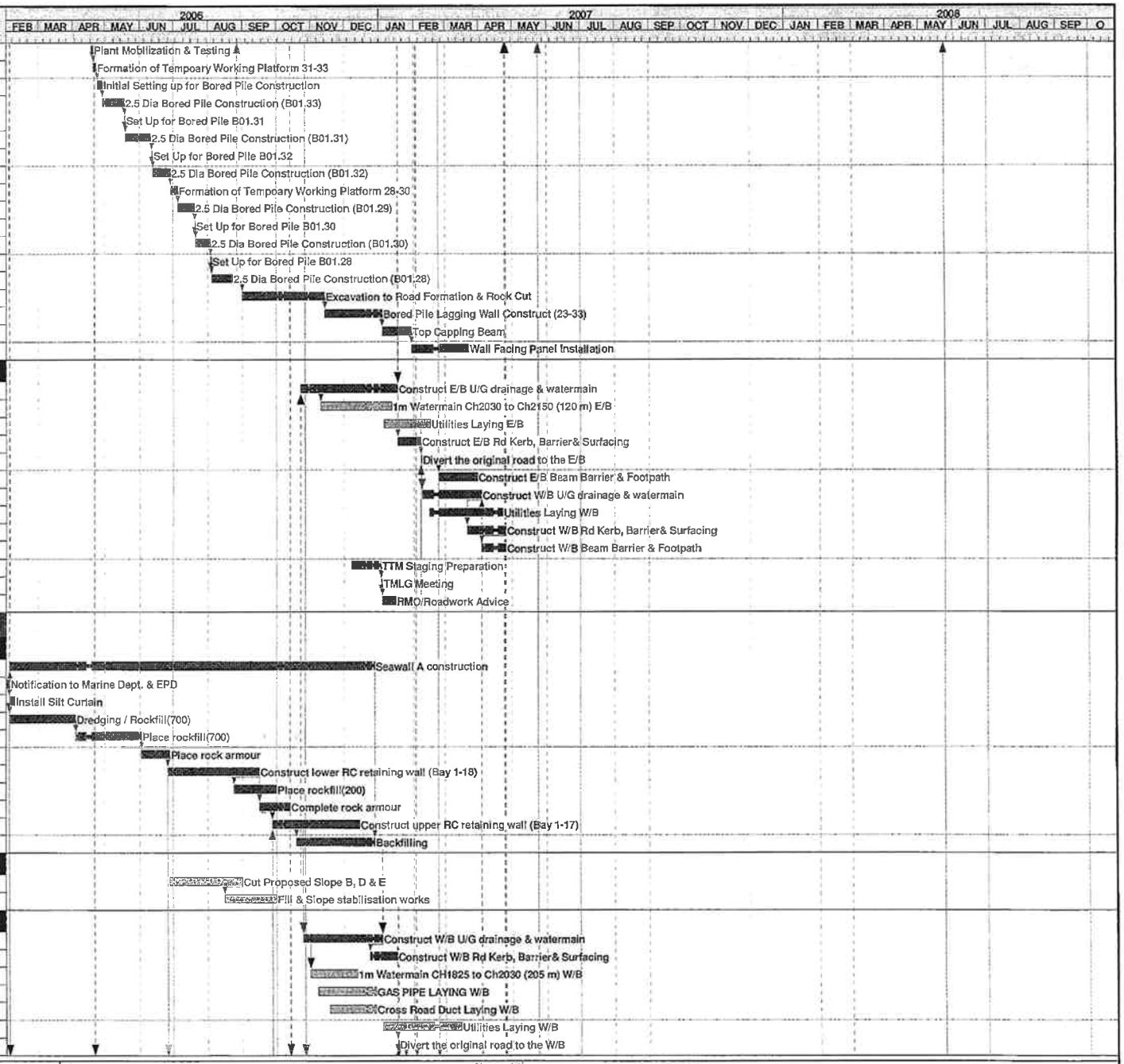
Chun Wo Construction & Eng. Co. Ltd

Contract No. HY/2005/06
Castle Peak Road Improvment West of Tsing Lung Tau

CSD Works Programme Rev 1

Date	Revision	Checked	Approved
02/08/06	0		
21/08/06	1		

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
4BP3080	Plant Mobilization & Testing	2	18/04/06*	19/04/06
4BP3090	Formation of Tempoary Working Platform 31-33	3	20/04/06	22/04/06
4BP3100	Initial Setting up for Bored Pile Construction	5	24/04/06	28/04/06
4BP3110	2.5 Dia Bored Pile Construction (B01.33)	15	29/04/06	18/05/06
4BP3115	Set Up for Bored Pile B01.31	1	19/05/06	19/05/06
4BP3120	2.5 Dia Bored Pile Construction (B01.31)	18	20/05/06	10/06/06
4BP3125	Set Up for Bored Pile B01.32	1	12/06/06	12/06/06
4BP3130	2.5 Dia Bored Pile Construction (B01.32)	14	13/06/06	28/06/06
4BP3131	Formation of Tempoary Working Platform 28-30	5	29/06/06	05/07/06
4BP3132	2.5 Dia Bored Pile Construction (B01.29)	13	06/07/06	20/07/06
4BP3133	Set Up for Bored Pile B01.30	1	21/07/06	21/07/06
4BP3134	2.5 Dia Bored Pile Construction (B01.30)	11	22/07/06	03/08/06
4BP3135	Set Up for Bored Pile B01.28	1	04/08/06	04/08/06
4BP3136	2.5 Dia Bored Pile Construction (B01.28)	16	05/08/06	23/08/06
4BP3150	Excavation to Road Formation & Rock Cut	60	01/09/06	13/11/06
4BP3160	Bored Pile Lagging Wall Construct (23-33)	40	14/11/06	03/01/07
4BP3170	Top Capping Beam	22	04/01/07	29/01/07
4BP3180	Wall Facing Panel Installation	40	30/01/07	22/03/07
Roadworks Construction				
4RW4100	Construct E/B U/G drainage & watermain	70	23/10/06	17/01/07
A0UU25900	1m Watermain Ch2030 to Ch2150 (120 m) E/B	50	10/11/06	11/01/07
A04RW4200	Utilities Laying E/B	35*	06/01/07	15/02/07
4RW4110	Construct E/B Rd Kerb, Barrier& Surfacing	18	18/01/07	07/02/07
4RW4500	Divert the original road to the E/B	1	08/02/07	08/02/07
4RW4505	Construct E/B Beam Barrier & Footpath	30	24/02/07	30/03/07
4RW4600	Construct W/B U/G drainage & watermain	40	09/02/07	02/04/07
A04RW4100	Utilities Laying W/B	48*	15/02/07	21/04/07
4RW4610	Construct W/B Rd Kerb, Barrier& Surfacing	26	21/03/07	24/04/07
4RW4615	Construct W/B Beam Barrier & Footpath	15	03/04/07	24/04/07
4RW4620	TTM Staging Preparation	19	07/12/06	02/01/07
4RW4630	TMLG Meeting	1	03/01/07	03/01/07
4RW4640	RMO/Roadwork Advice	10	04/01/07	15/01/07
Area 3 Construction(Ch1+825 to Ch2+030)				
Seawall A Construction				
3SWA0500	Seawall A construction	266*	04/02/06	27/12/06
3SWA0600	Notification to Marine Dept. & EPD	28	07/01/06	03/02/06
A03SWA100	Install Silt Curtain	4	04/02/06	08/02/06
3SWA1000	Dredging / Rockfill(700)	50	04/02/06	03/04/06
3SWA1100	Place rockfill(700)	45	04/04/06	02/06/06
3SWA1200	Place rock armour	21	03/06/06	27/06/06
3SWA1300	Construct lower RC retaining wall (Bay 1-18)	70	25/06/06	15/09/06
3SWA1400	Place rockfill(200)	32	25/08/06	30/09/06
3SWA1500	Complete rock armour	22	16/09/06	13/10/06
3SWA1600	Construct upper RC retaining wall (Bay 1-17)	64	28/09/06	14/12/06
3SWA1700	Backfilling	56	19/10/06	27/12/06
Slope Works				
3SW1000	Cut Proposed Slope B, D & E	55	28/05/06*	31/08/06
3SW2000	Fill & Slope stabilisation works	40	16/08/06	30/09/06
Roadworks Construction				
3RW2100	Construct W/B U/G drainage & watermain	56	25/10/06	03/01/07
3RW2110	Construct W/B Rd Kerb, Barrier& Surfacing	18	23/12/06	16/01/07
A0UU26200	1m Watermain CH1825 to Ch2030 (205 m) W/B	35	01/11/06	11/12/06
A03RW4200	GAS PIPE LAYING W/B	42	07/11/06	28/12/06
A03RW4100	Cross Road Duct Laying W/B	32*	18/11/06	28/12/06
A03RW4000	Utilities Laying W/B	56*	04/01/07	15/03/07
3RW2500	Divert the original road to the W/B	1	17/01/07	17/01/07



Start Date 21/12/05
Finish Date 23/05/08
Data Date 21/12/05
Run Date 22/08/06 15:00

Early Bar
Progress Bar
Critical Activity

?Primavera Systems, Inc.

CSD2 Sheet 2 of 5

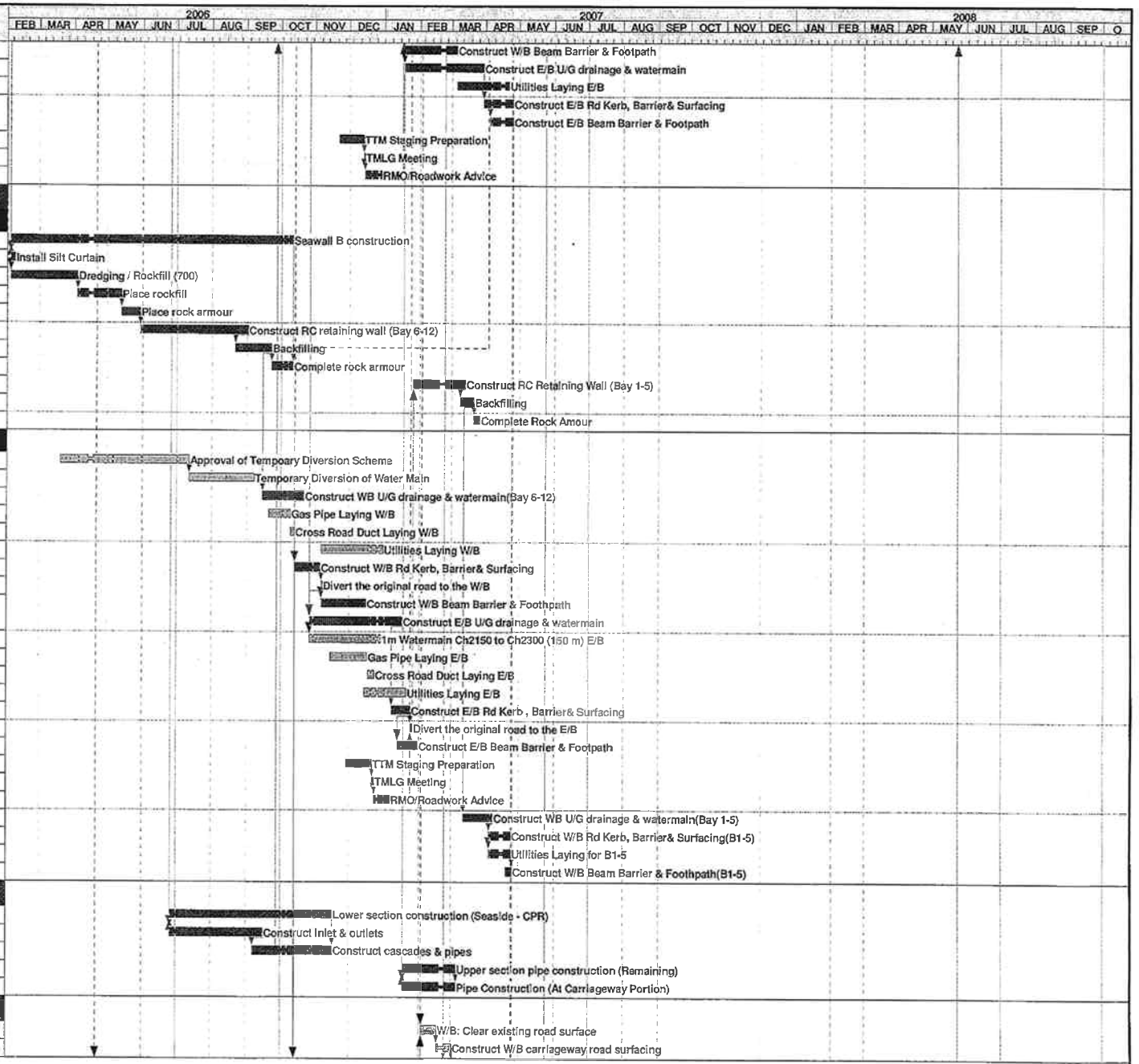
Chun Wo Construction & Eng. Co. Ltd

Contract No. HY/2005/06
Castle Peak Road Improvment West of Tsing Lung Tau

CSD Works Programme Rev 1

Date	Revision	Checked	Approved
02/08/06	0		
21/08/06	1		

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
3RW2505	Construct W/B Beam Barrier & Footpath	35	18/01/07	05/03/07
3RW2600	Construct E/B U/G drainage & watermain	56	18/01/07	29/03/07
A03RW4500	Utilities Laying E/B	36*	06/03/07	20/04/07
3RW2605	Construct E/B Rd Kerb, Barrier& Surfacing	18	30/03/07	24/04/07
3RW2608	Construct E/B Beam Barrier & Footpath	14	04/04/07	24/04/07
3RW2610	TTM Staging Preparation	19	21/11/06	12/12/06
3RW2620	TMLG Meeting	1	13/12/06	13/12/06
3RW2630	RMO/Roadwork Advice	10	14/12/06	28/12/06
Area 5 Construction(Ch2+150 to Ch2+300)				
Seawall B Construction				
2SWB0500	Seawall B construction	204*	04/02/06	11/10/06
A02SWB100	Install Silt Curtain	3	04/02/06	07/02/06
2SWB1000	Dredging / Rockfill (700)	50	04/02/06	03/04/06
2SWB1100	Place rockfill	28	04/04/06	12/05/06
2SWB1200	Place rock armour	14	13/05/06	29/05/06
2SWB1300	Construct RC retaining wall (Bay 6-12)	80	30/05/06	01/09/06
2SWB1400	Backfilling	28	22/08/06	22/09/06
2SWB1500	Complete rock armour	14	23/09/06	11/10/06
A02SWB0500	Construct RC Retaining Wall (Bay 1-5)	35	26/01/07	13/03/07
A02SWB1000	Backfilling	10	09/03/07	20/03/07
A02SWB1100	Complete Rock Amour	5	21/03/07	26/03/07
Roadworks Construction				
A02RW0100	Approval of Tempoary Diversion Scheme	90	20/03/06*	11/07/06
A02RW0500	Temporary Diversion of Water Main	50	12/07/06	07/09/06
2RW3000	Construct WB U/G drainage & watermain(Bay 6-12)	30	15/09/06	21/10/06
A02RW1900	Gas Pipe Laying W/B	14	21/09/06	09/10/06
A02RW1800	Cross Road Duct Laying W/B	4*	10/10/06	13/10/06
A02RW1600	Utilities Laying W/B	45*	06/11/06	30/12/06
2RW3010	Construct W/B Rd Kerb, Barrier& Surfacing	18	14/10/06	04/11/06
2RW3501	Divert the original road to the W/B	1	06/11/06	06/11/06
2RW3510	Construct W/B Beam Barrier & Foothpath	35	06/11/06	15/12/06
2RW3600	Construct E/B U/G drainage & watermain	65	27/10/06	16/01/07
A0UU26000	1m Watermain Ch2150 to Ch2300 (150 m) E/B	50	27/10/06	28/12/06
A02RW2100	Gas Pipe Laying E/B	28	15/11/06	18/12/06
A02RW2000	Cross Road Duct Laying E/B	4*	18/12/06	22/12/06
A02RW1700	Utilities Laying E/B	28*	15/12/06	20/01/07
2RW3610	Construct E/B Rd Kerb , Barrier& Surfacing	15	08/01/07	24/01/07
2RW3500	Divert the original road to the E/B	1	25/01/07	25/01/07
2RW3620	Construct E/B Beam Barrier & Footpath	15	13/01/07	30/01/07
2RW3700	TTM Staging Preparation	19	29/11/06	21/12/06
2RW3710	TMLG Meeting	1	22/12/06	22/12/06
2RW3720	RMO/Roadwork Advice	10	23/12/06	06/01/07
A02RW1100	Construct WB U/G drainage & watermain(Bay 1-5)	22	13/03/07	07/04/07
A02RW1300	Construct W/B Rd Kerb, Barrier& Surfacing(B1-5)	13	04/04/07	23/04/07
A02RW1200	Utilities Laying for B1-5	13	04/04/07	23/04/07
A02RW1400	Construct W/B Beam Barrier & Foothpath(B1-5)	5	19/04/07	24/04/07
OUTFALL EA & EB CONSTRUCTION				
3OF1000	Lower section construction (Seaside - CPR)	120*	26/06/06	16/11/06
3OF1100	Construct inlet & outlets	70	26/06/06	15/09/06
3OF1200	Construct cascades & pipes	58	07/09/06	16/11/06
3OF2000	Upper section pipe construction (Remaining)	35*	18/01/07	05/03/07
3OF2100	Pipe Construction (At Carriageway Portion)	35	18/01/07	05/03/07
Area 1 Construction (Ch1+600 to Ch1+705)				
5RW0500	W/B: Clear existing road surface	12	03/02/07	16/02/07
5RW1500	Construct W/B carriageway road surfacing	6	17/02/07	01/03/07



Start Date 21/12/05
Finish Date 23/05/08
Data Date 21/12/05
Run Date 22/08/06 15:00

?Primavera Systems, Inc.

Early Bar
Progress Bar
Critical Activity

CSD2

Chun Wo Construction & Eng. Co. Ltd

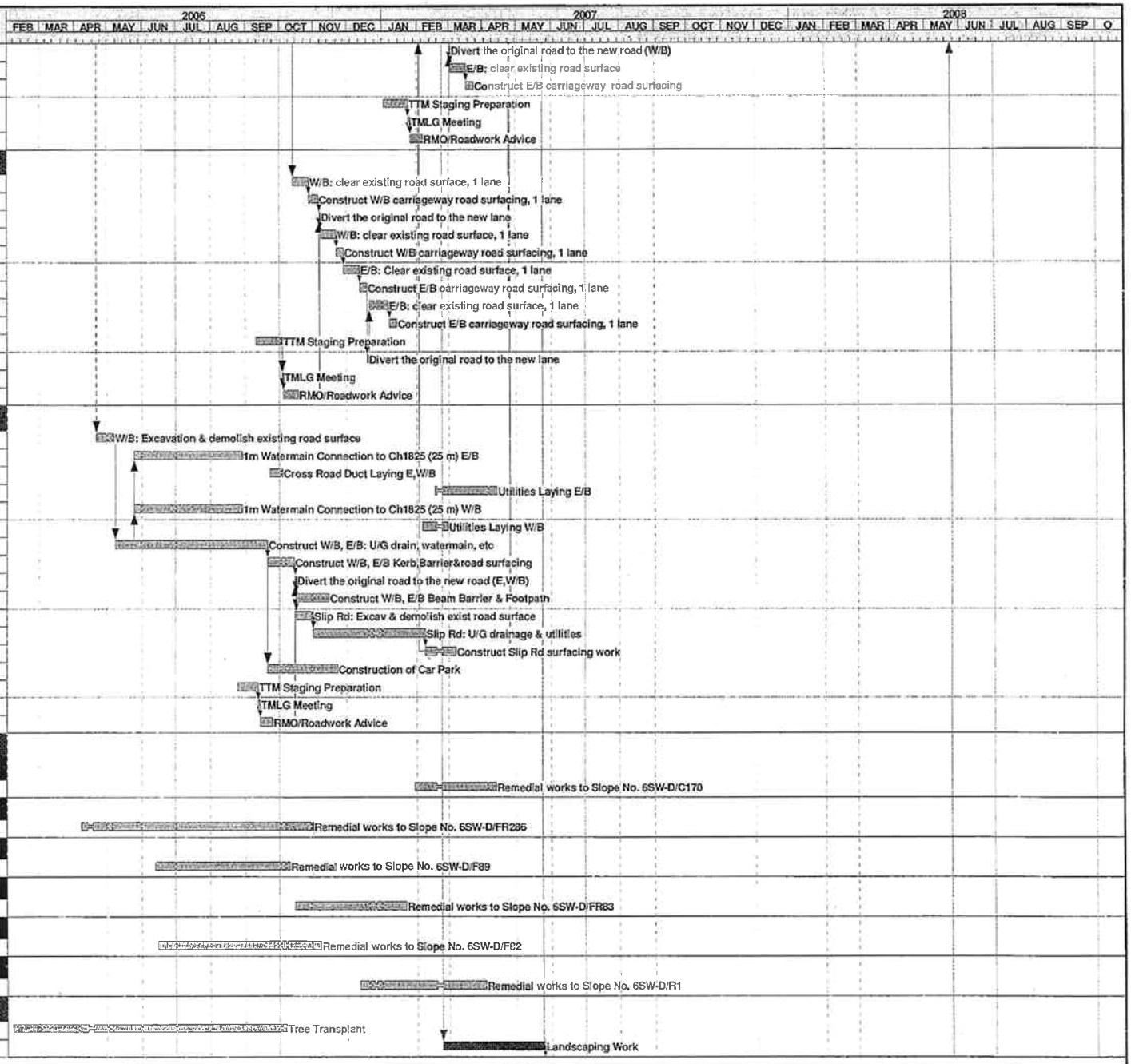
Contract No. HY/2005/06
Castle Peak Road Improvment West of Tsing Lung Tau

CSD Works Programme Rev 1

Sheet 3 of 5

Date	Revision	Checked	Approved
02/08/06	0		
21/08/06	1		

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
5RW2000	Divert the original road to the new road (W/B)	1	02/03/07	02/03/07
5RW2500	E/B: clear existing road surface	12	03/03/07	16/03/07
5RW3500	Construct E/B carriageway road surfacing	6	17/03/07	23/03/07
5RW3510	TTM Staging Preparation	19	03/01/07	24/01/07
5RW3520	TMLG Meeting	1	25/01/07	25/01/07
5RW3530	RMO/Roadwork Advice	10	26/01/07	06/02/07
Area 6 Construction(Ch2+300 to Ch2+400)				
6RW0500	W/B: clear existing road surface, 1 lane	12	14/10/06	27/10/06
6RW1500	Construct W/B carriageway road surfacing, 1 lane	6	28/10/06	04/11/06
6RW2000	Divert the original road to the new lane	1	06/11/06	06/11/06
6RW2100	W/B: clear existing road surface, 1 lane	12	07/11/06	20/11/06
6RW2200	Construct W/B carriageway road surfacing, 1 lane	6	21/11/06	27/11/06
6RW2500	E/B: Clear existing road surface, 1 lane	12	28/11/06	11/12/06
6RW3500	Construct E/B carriageway road surfacing, 1 lane	6	12/12/06	18/12/06
6RW3501	E/B: clear existing road surface, 1 lane	12	21/12/06	06/01/07
6RW3502	Construct E/B carriageway road surfacing, 1 lane	6	08/01/07	13/01/07
6RW3510	TTM Staging Preparation	19	11/09/06	03/10/06
6RW3511	Divert the original road to the new lane	1	19/12/06	19/12/06
6RW3520	TMLG Meeting	1	04/10/06	04/10/06
6RW3530	RMO/Roadwork Advice	10	05/10/06	17/10/06
Area 2 Construction(Ch1+705 to Ch1+825)				
1RW0500	W/B: Excavation & demolish existing road surface	12	21/04/06*	06/05/06
A0UU25700	1m Watermain Connection to Ch1825 (25 m) E/B	80	25/05/06	28/08/06
A01RW0800	Cross Road Duct Laying E,W/B	8	23/09/06	03/10/06
A01RW0600	Utilities Laying E/B	42*	17/02/07	13/04/07
A0UU26100	1m Watermain Connection to Ch1825 (25 m) W/B	80	25/05/06	28/08/06
A01RW0700	Utilities Laying W/B	14*	06/02/07	27/02/07
1RW1000	Construct W/B, E/B: U/G drain, watermain, etc	115	08/05/06	20/09/06
1RW1500	Construct W/B, E/B Kerb,Barrier&road surfacing	19	21/09/06	14/10/06
1RW2000	Divert the original road to the new road (E,W/B)	1	16/10/06	16/10/06
1RW2010	Construct W/B, E/B Beam Barrier & Footpath	24	17/10/06	14/11/06
1RW2500	Slip Rd: Excav & demolish exist road surface	12	17/10/06	31/10/06
1RW3000	Slip Rd: U/G drainage & utilities	82	01/11/06	08/02/07
1RW3500	Construct Slip Rd surfacing work	18	09/02/07	07/03/07
A01RW0500	Construction of Car Park	50	21/09/06	21/11/06
1RW3510	TTM Staging Preparation	15	26/08/06	12/09/06
1HW3520	TMLG Meeting	1	13/09/06	13/09/06
1RW3530	RMO/Roadwork Advice	10	14/09/06	25/09/06
Slope Remedial Works				
Remedial Work 6SW-D/C170				
SW3000	Remedial works to Slope No. 6SW-D/C170	57*	30/01/07	12/04/07
Remedial Work 6SW-D/FR286				
SW3500	Remedial works to Slope No. 6SW-D/FR286	167*	08/04/06	31/10/06
Remedial Work 6SW-D/F89				
SW4000	Remedial works to Slope No. 6SW-D/F89	100*	13/06/06	10/10/06
Remedial Work 6SW-D/FR83				
SW5000	Remedial works to Slope No. 6SW-D/FR83	80*	16/10/06	22/01/07
Remedial Work 6SW-D/F82				
SW5500	Remedial works to Slope No. 6SW-D/F82	120*	15/06/06	06/11/06
Remedial Work 6SW-D/R1				
SW6000	Remedial works to Slope No. 6SW-D/R1	87*	12/12/06	02/04/07
Section II - Landscaping Works				
A0LW1000	Tree Transplant	200	06/02/06*	06/10/06
LW1000	Landscaping Work	90	24/02/07	24/05/07



Start Date 21/12/05
Finish Date 23/05/08
Data Date 21/12/05
Run Date 22/08/06 15:00

Early Bar
Progress Bar
Critical Activity

?Primavera Systems, Inc.

CSD2

Sheet 4 of 5

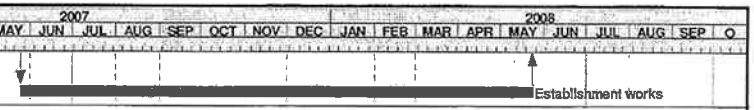
Chun Wo Construction & Eng. Co. Ltd

Contract No. HY/2005/06
Castle Peak Road Improvment West of Tsing Lung Tau

CSD Works Programme Rev 1

Date	Revision	Checked	Approved
03/08/06	0		
21/08/06	1		

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
Section III - Establishment Period				
EP1000	Establishment works	365	25/05/07	23/05/08



Start Date	21/12/05
Finish Date	23/05/08
Data Date	21/12/05
Run Date	22/08/06 15:00

?Primavera Systems, Inc.

Early Bar
Progress Bar
Critical Activity

CSD2

Sheet 5 of 5

Chun Wo Construction & Eng. Co. Ltd

Contract No. HY/2005/06
Castle Peak Road Improvment West of Tsing Lung Tau

CSD Works Programme Rev 1

Date	Revision	Checked	Approved
02/08/06	0		
21/08/06	1		

Appendix B

Monitoring schedule for November and December 2006

Environmental Monitoring and Audit Schedule - November 2006

Note 1: **L30** denotes $L_{eq(30\ min)}$ monitoring
Note 2: **TSP** denotes Total Suspended Particulate monitoring
Note 3: **MV** denotes marine water monitoring
Note 4: **L&V** denotes Landscape and Visual audit and monitoring

Nov-2006						
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
			1 24-hour TSP Site Inspection	2 L30 3 x 1-hour TSP	3	4
5	6	7 24-hour TSP	8 L30 3 x 1-hour TSP	9 Site Inspection L&V	10	11
12	13 24-hour TSP	14 L30 3 x 1-hour TSP	15	16	17 Site Inspection	18 24-hour TSP
19	20 L30 3 x 1-hour TSP	21	22	23 Site Inspection	24 24-hour TSP	25
26	27 L30 3 x 1-hour TSP	28	29 L&V	30 Site Inspection 24-hour TSP		

Tentative Environmental Monitoring and Audit Schedule - December 2006

Note 1: **L30** denotes $L_{eq(30\ min)}$ monitoring
Note 2: **TSP** denotes Total Suspended Particulate monitoring
Note 3: **MV** denotes marine water monitoring
Note 4: **L&V** denotes Landscape and Visual audit and monitoring

Dec-2006						
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
					1 3 x 1-hour TSP	2
3	4	5	6 24-hour TSP	7 Site Inspection L30 3 x 1-hour TSP	8 L&V	9
10	11	12 24-hour TSP	13 L30 3 x 1-hour TSP	14	15 Site Inspection	16
17	18 24-hour TSP	19 L30 3 x 1-hour TSP	20	21 Site Inspection L&V	22	23 24-hour TSP
24	25	26	27 L30 3 x 1-hour TSP	28 Site Inspection	29 24-hour TSP	30
31						

Appendix C

Calibration certificates of 24-hour TSP monitoring equipment

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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 01, 2006 Rootsmeter S/N 9833620 Ta (K) - 292
Operator Tisch Orifice I.D. - 1201 Pa (mm) - 746.76

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3650	3.2	2.00
2	NA	NA	1.00	0.9560	6.3	4.00
3	NA	NA	1.00	0.8580	7.8	5.00
4	NA	NA	1.00	0.8140	8.6	5.50
5	NA	NA	1.00	0.6730	12.5	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9985	0.7315	1.4162		0.9957	0.7294	0.8843
0.9943	1.0401	2.0028		0.9916	1.0372	1.2506
0.9922	1.1564	2.2392		0.9894	1.1532	1.3983
0.9912	1.2177	2.3485		0.9884	1.2143	1.4665
0.9859	1.4650	2.8323		0.9832	1.4609	1.7687
Qstd slope (m) =		1.93144		Qa slope (m) =		1.20944
intercept (b) =		0.00037		intercept (b) =		0.00023
coefficient (r) =		0.99991		coefficient (r) =		0.99991
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

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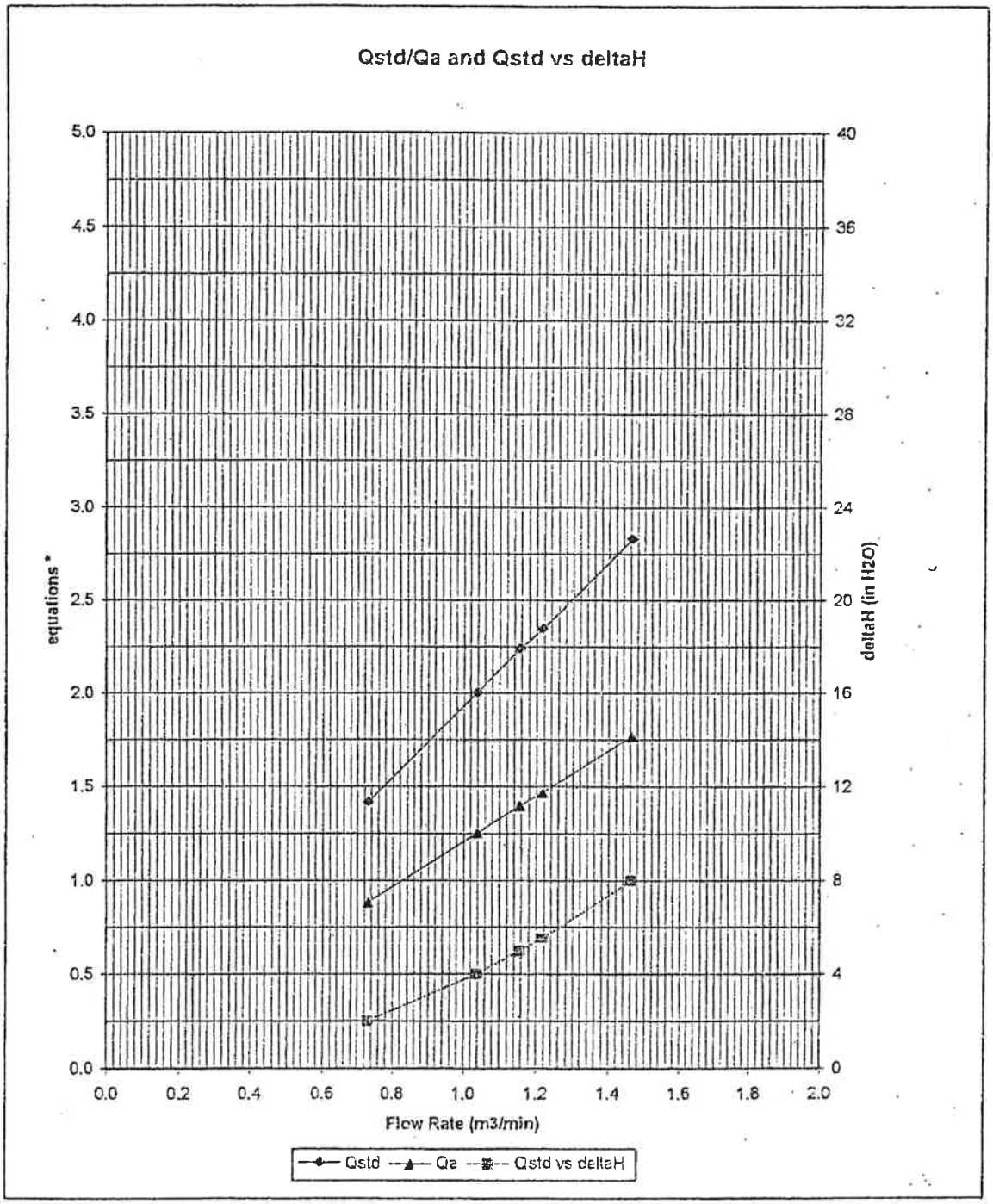
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

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

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

#1201

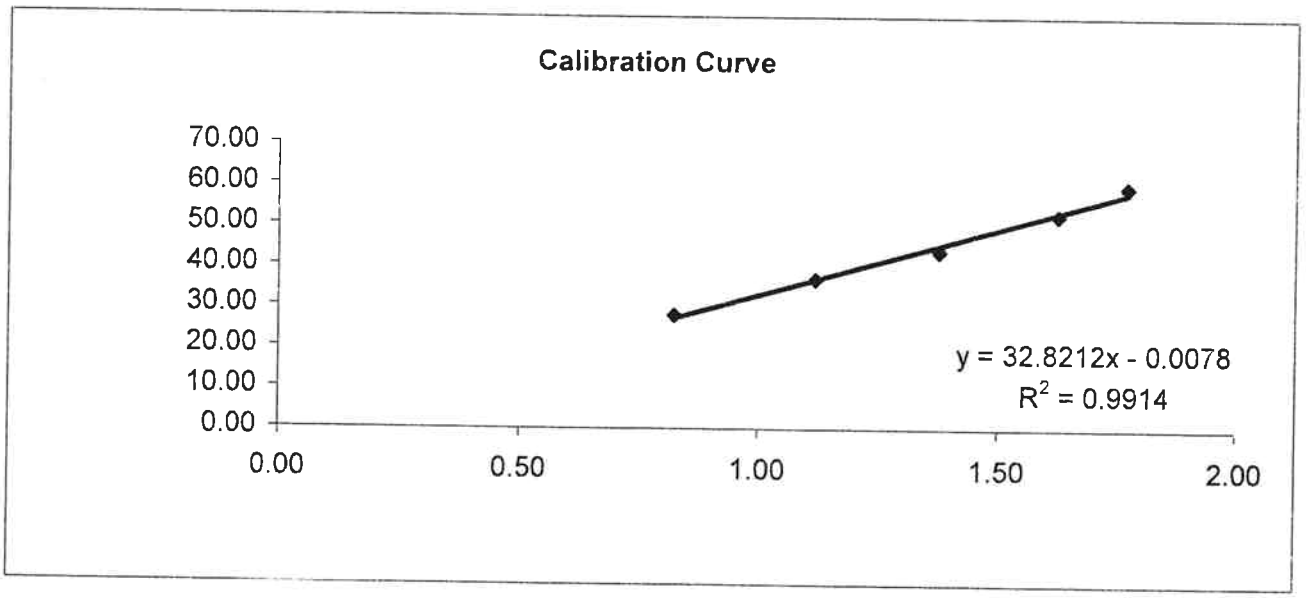
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	23-Oct-06	**Barometric pressure**	762 mm Hg
Calibration due date	22-Dec-06	**Tempature (°C)**	30 °C
Sampler location	WA3 - Hong Kong Garden (Savoy Heights)	**Tempature (K)**	303 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	1284	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	1378
Slope of the standard curve, m_s	2.00216
Intercept of the standard curve, b_s	-0.02053

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	2.70	28.00	0.83	27.80
7	5.00	37.00	1.12	36.74
10	7.60	44.00	1.38	43.69
13	10.60	53.00	1.63	52.63
18	12.60	60.00	1.77	59.58



Linear Regression

Sampler slope (m) :	**32.8212**
Sampler intercept (b) :	**-0.0078**
Correlation coefficient (R^2) :	**0.9914**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: Leon Date: 23-Oct-06

Checked by: KC Date: 27-Oct-06

Appendix D

Calibration certificates of 1-hour TSP monitoring equipment

THERMO ELECTRON
27 FORGE PARKWAY
FRANKLIN MA 02038
TOLL-FREE: 866-282-0430
TEL: 508-553-1211
FAX: 508-541-8366
WWW.THERMO.COM

MASTER # D325 LAST CALIBRATED : 3/14/06

PDR-1000 CALIBRATION CERTIFICATE

This calibration is traceable to the National Institute of Standards and Testing

SERIAL NUMBER: ---------- 4705

CALIBRATION RATIO: ---------- 1.011

AVG. PDR-1000 CONCENTRATION: ----------1.93 mg/m3

CALIBRATION MASTER AVG. CONCENTRATION: ---------- 1.68 mg/m3

DR BACKROUND CONCENTRATION: ---------- .211 mg/m3

TEMPERATURE: ---------- 73.8F

HUMIDITY: ---------- 24%

TECHNICIAN: -- DON MCELMAN

DATE: ---- 4/11/06

Appendix E

Detailed air quality (1-hour TSP) monitoring results

Details of 1-Hour TSP Monitoring

Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (μg/m³)	Remarks
			Start	Finish						
2-Nov-06	WA3	1	13:48	14:48	Fine	Normal Operation	26.0	760.0	288.3	
2-Nov-06	WA3	2	14:48	15:48	Fine	Normal Operation	26.0	760.0	270.1	
2-Nov-06	WA3	3	15:48	16:48	Fine	Normal Operation	26.0	760.0	270.9	
8-Nov-06	WA3	1	8:24	9:24	Fine	Normal Operation	27.0	764.0	193.5	
8-Nov-06	WA3	2	9:24	10:24	Fine	Normal Operation	27.0	764.0	199.1	
8-Nov-06	WA3	3	10:24	11:24	Fine	Normal Operation	27.0	764.0	198.2	
14-Nov-06	WA3	1	8:36	9:36	Cloudy	Normal Operation	26.0	764.0	231.6	
14-Nov-06	WA3	2	9:36	10:36	Cloudy	Normal Operation	26.0	764.0	226.5	
14-Nov-06	WA3	3	10:36	11:36	Cloudy	Normal Operation	26.0	764.0	223.6	
20-Nov-06	WA3	1	8:40	9:40	Fine	Normal Operation	26.0	762.0	181.6	
20-Nov-06	WA3	2	9:40	10:40	Fine	Normal Operation	26.0	762.0	181.4	
20-Nov-06	WA3	3	10:40	11:40	Fine	Normal Operation	26.0	762.0	180.4	
27-Nov-06	WA3	1	9:00	10:00	Cloudy	Normal Operation	25.0	761.0	231.7	
27-Nov-06	WA3	2	10:00	11:00	Cloudy	Normal Operation	25.0	761.0	221.0	
27-Nov-06	WA3	3	11:00	12:00	Cloudy	Normal Operation	25.0	761.0	217.0	

Appendix F

Detailed air quality (24-hour TSP) monitoring results

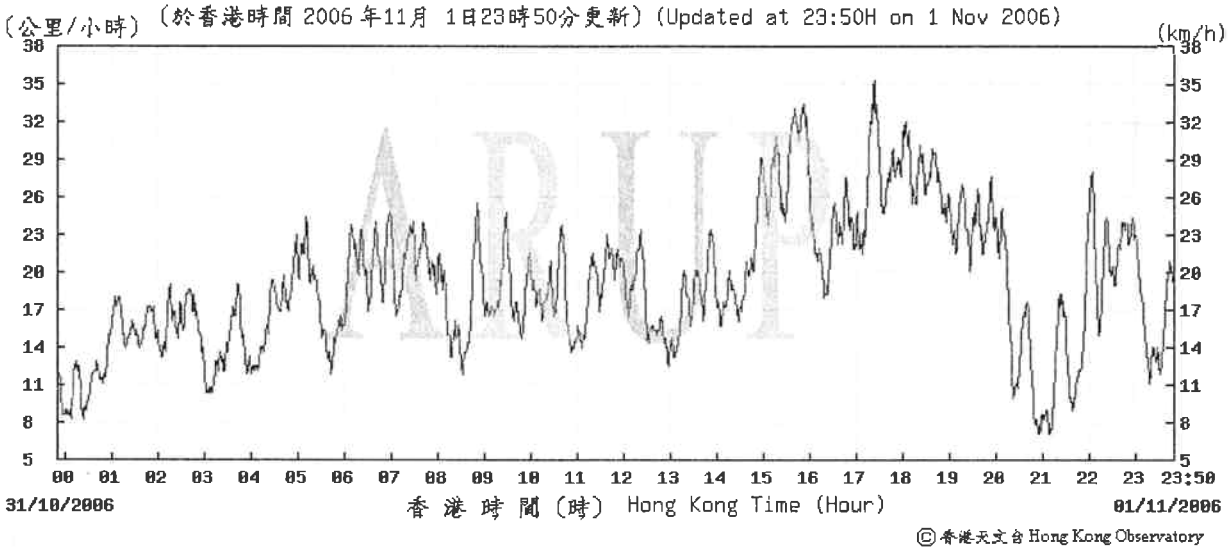
Details of 24-Hour TSP Monitoring

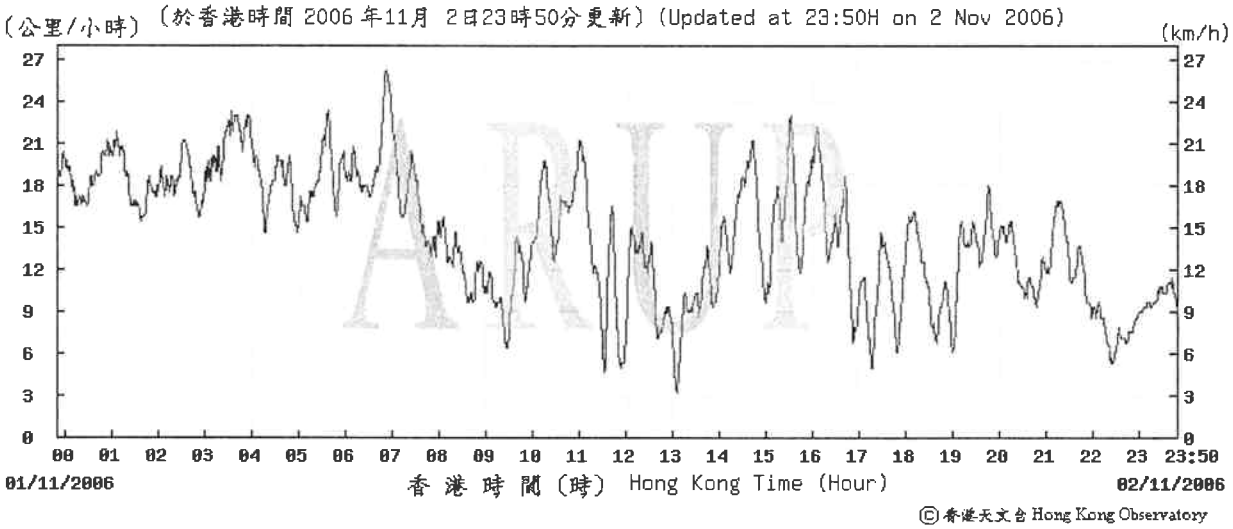
Date	Receptor No.	Weather condition	Site condition	Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level ($\mu g/m^3$)	Remarks
				Initial	Final		Initial	Final		Start	Finish				
1-Nov-06	WA3	Fine	Normal Operation	2.8351	3.0376	0.2025	0.9759	0.9775	0.9767	8958.05	8982.05	1440.00	1406.45	144.0	
7-Nov-06	WA3	Fine	Normal Operation	2.8791	3.0455	0.1664	1.2243	1.2271	1.2257	8982.05	9006.05	1440.00	1765.01	94.3	
13-Nov-06	WA3	Fine	Normal Operation	2.8641	2.9429	0.0788	0.8600	0.8579	0.8590	9006.05	9030.05	1440.00	1236.89	63.7	
18-Nov-06	WA3	Fine	Normal Operation	2.8858	2.9673	0.0815	1.1022	1.1011	1.1017	9030.05	9054.05	1440.00	1586.38	51.4	
24-Nov-06	WA3	Cloudy	Normal Operation	2.8519	2.9507	0.0988	1.2296	1.2247	1.2272	9054.05	9078.05	1440.00	1767.10	55.9	
30-Nov-06	WA3	Fine	Normal Operation	2.8742	2.9537	0.0795	1.2305	1.1729	1.2017	9078.05	9102.05	1440.00	1730.45	45.9	

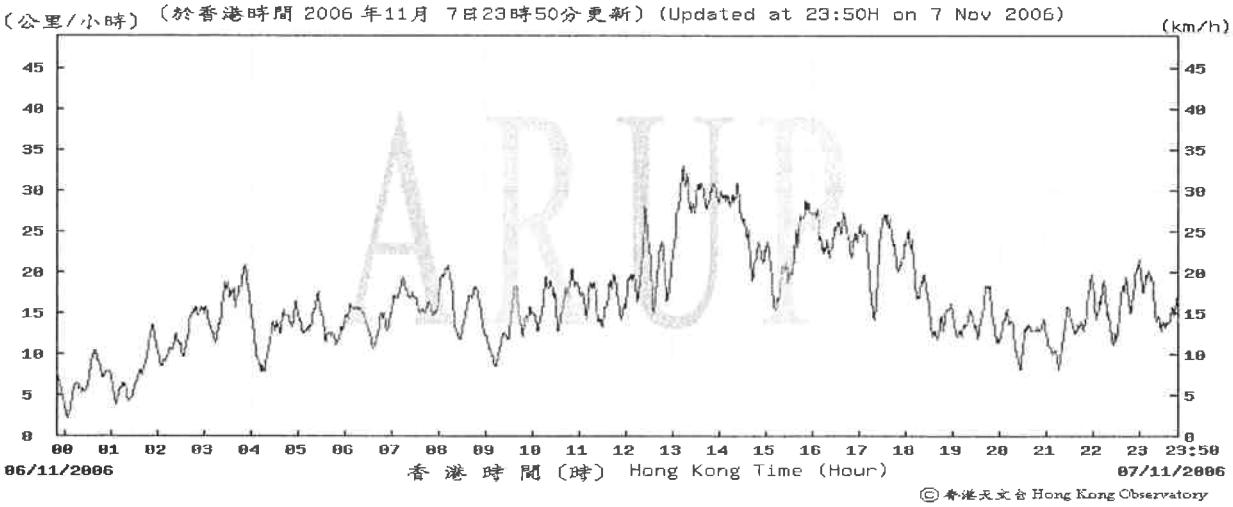
Appendix G

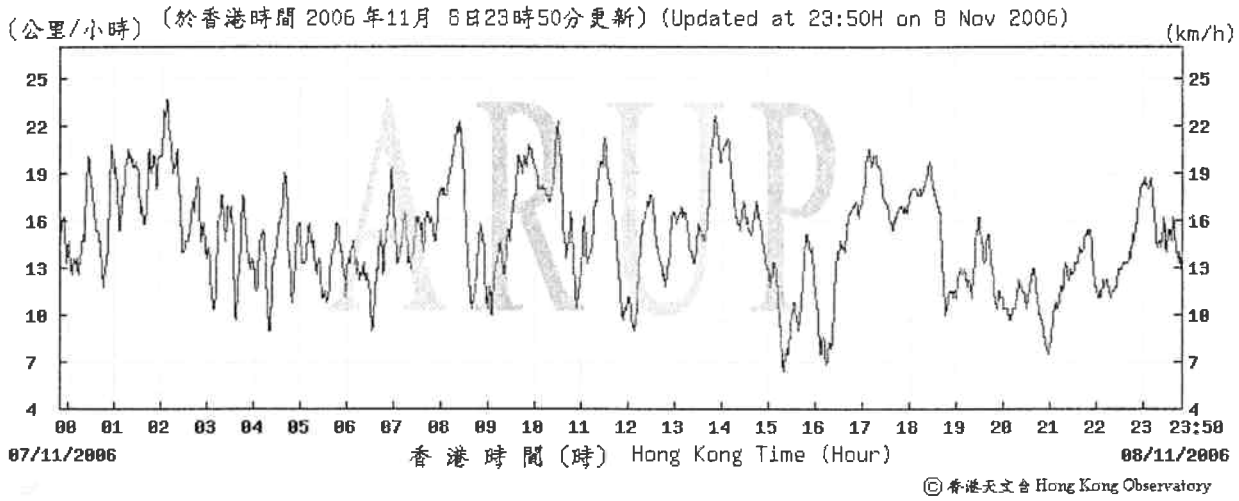
Detailed wind monitoring data for the air quality monitoring period

Wind Monitoring Data – Wind Speed during air quality monitoring in November 2006





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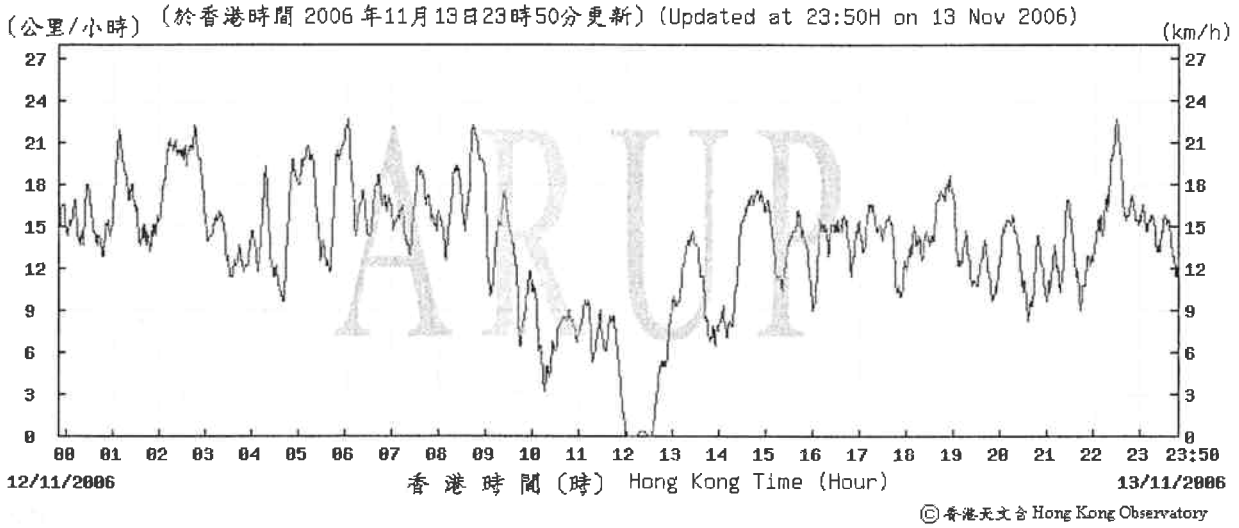
(km/h)
25 22 19 16 13 10 7 4
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:50
07/11/2006
香 港 時 間 (時) Hong Kong Time (Hour)
08/11/2006
© 香港天文台 Hong Kong Observatory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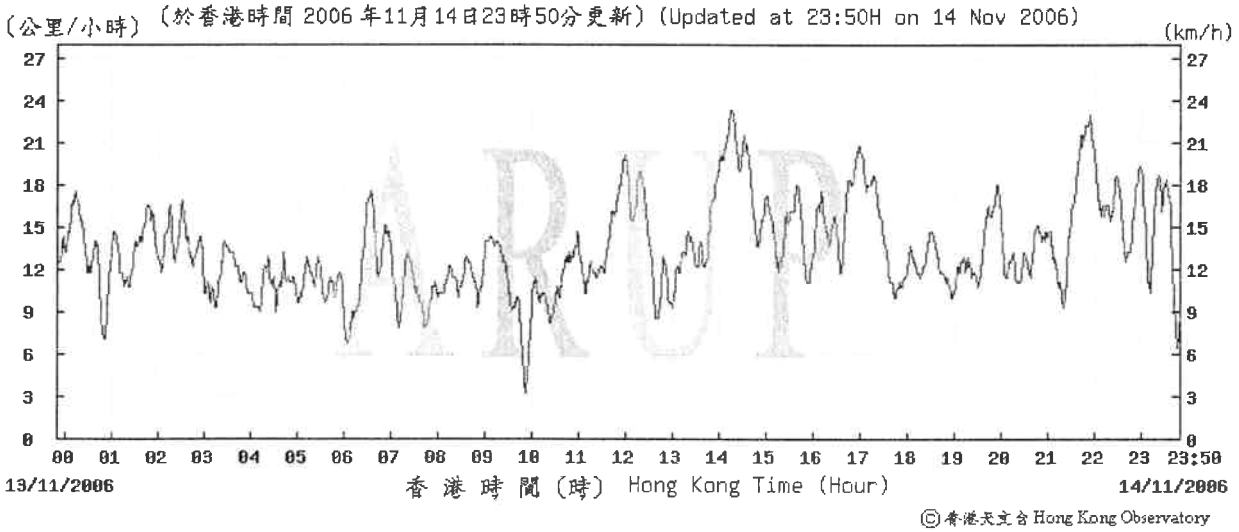
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:50
12/11/2006
香 港 時 間 (時) Hong Kong Time (Hour)
13/11/2006
© 香港天文台 Hong Kong Observatory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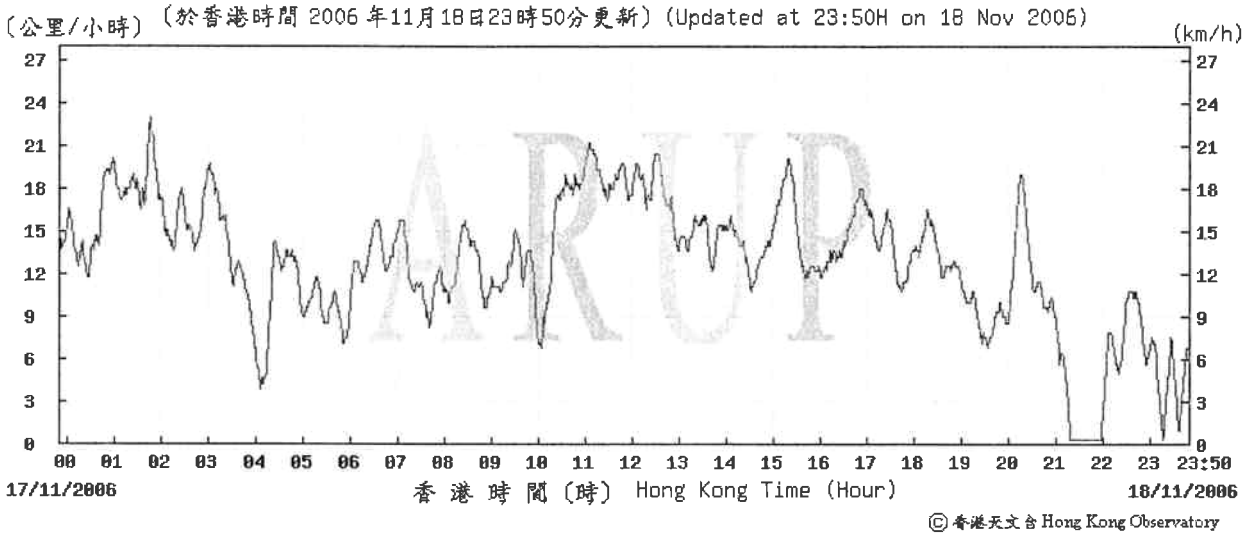
香 港 時 間 (時) Hong Kong Time (Hour)
14/11/2006
© 香港天文台 Hong Kong Observatory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24
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18
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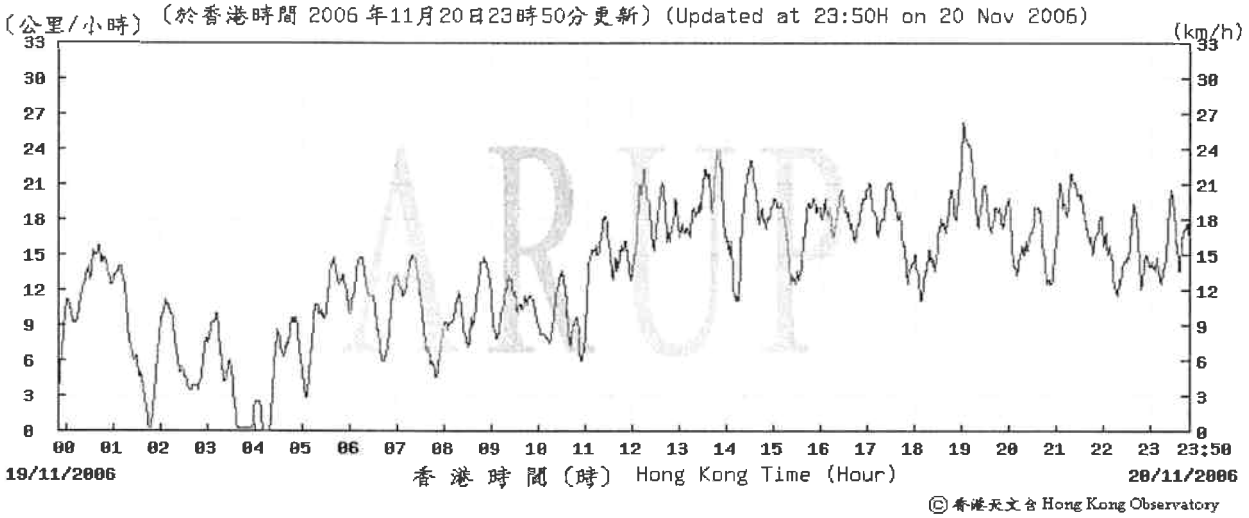
12
9
6
3
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:50
17/11/2006
香 港 時 間 (時) Hong Kong Time (Hour)
18/11/2006
© 香港天文台 Hong Kong Observatory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(km/h)
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30
27
24
21
18
15
12
9
6
3
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:50
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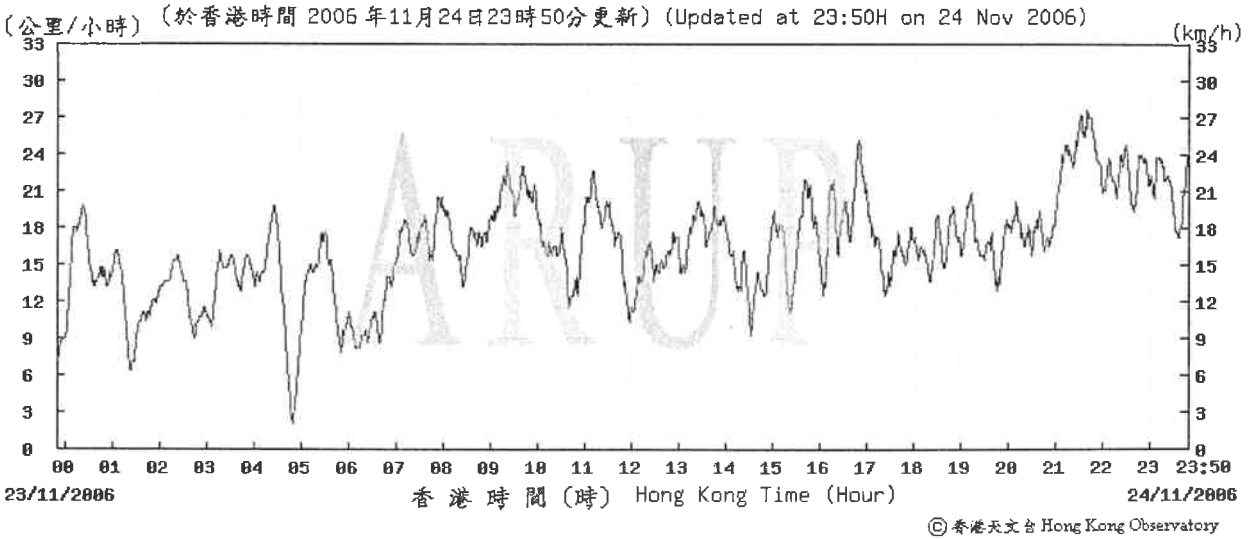
香 港 時 間 (時) Hong Kong Time (Hour)
20/11/2006
© 香港天文台 Hong Kong Observatory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(km/h)
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00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:50
23/11/2006
香 港 時 間 (時) Hong Kong Time (Hour)
24/11/2006
© 香港天文台 Hong Kong Observatory

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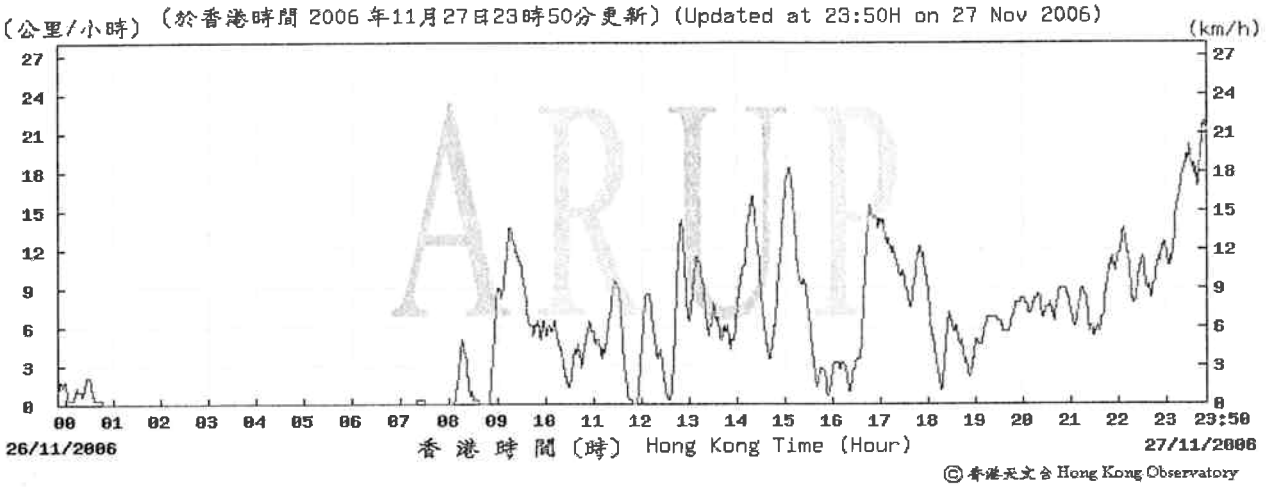

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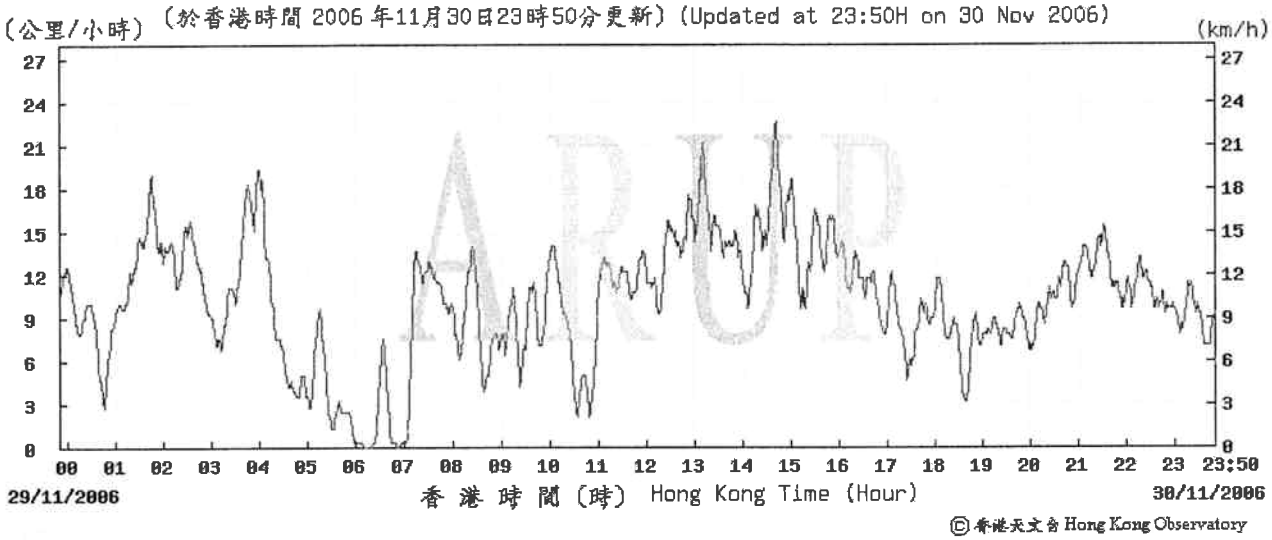
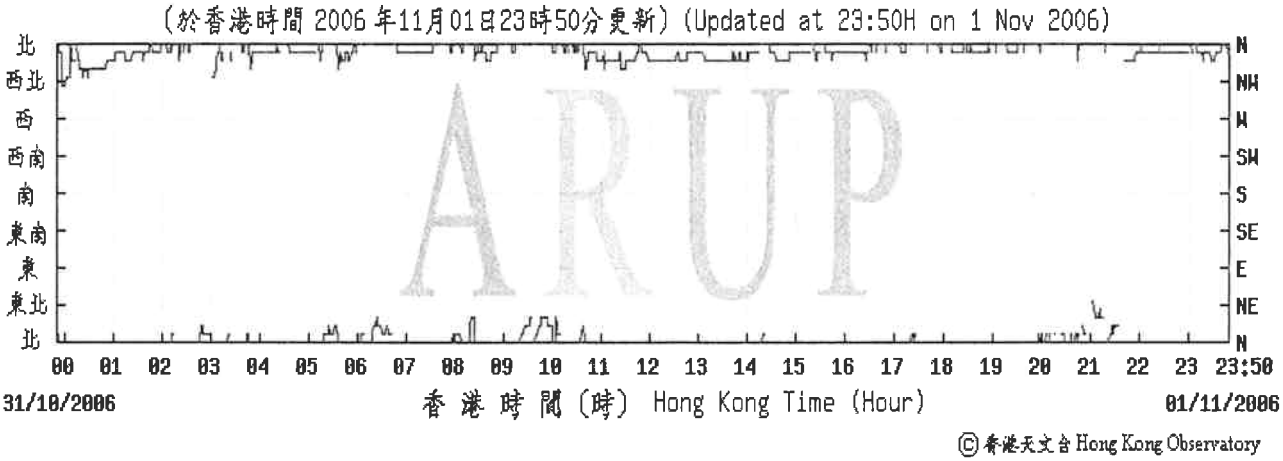
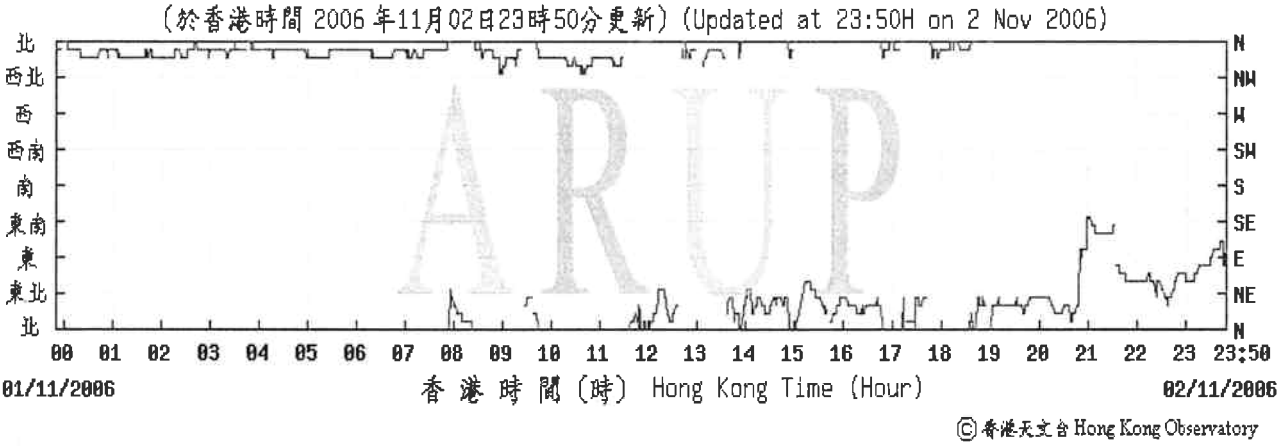
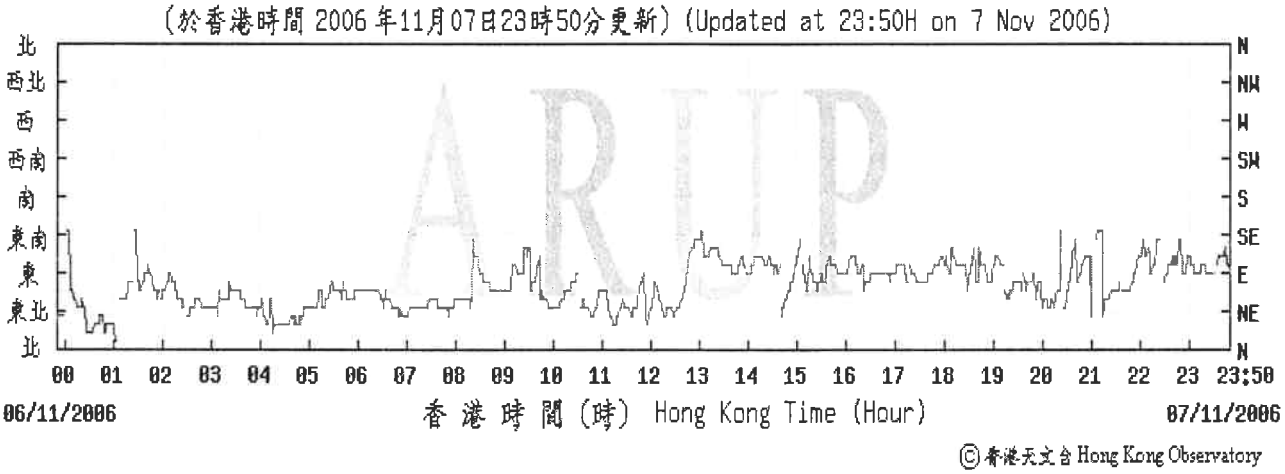


Wind Monitoring Data – Wind direction during air quality monitoring in November 2006







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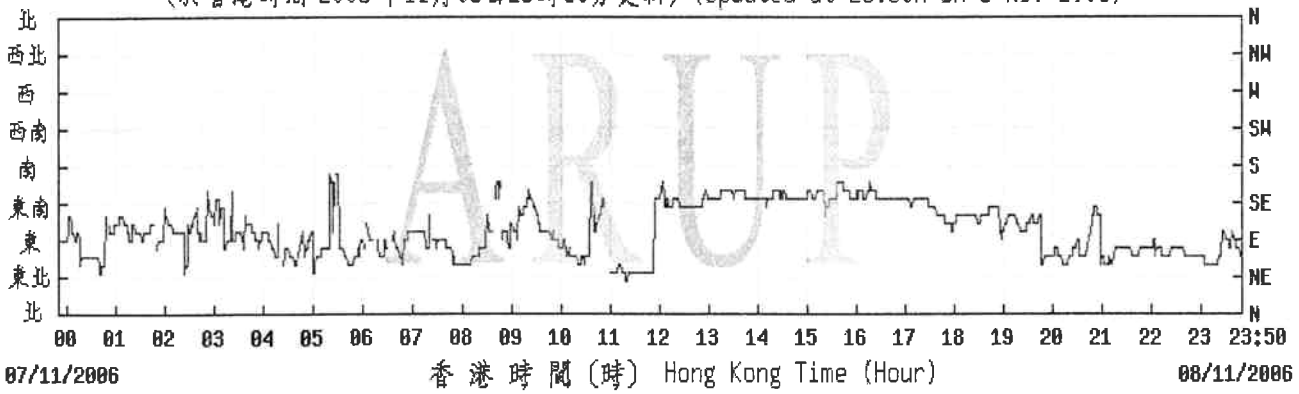

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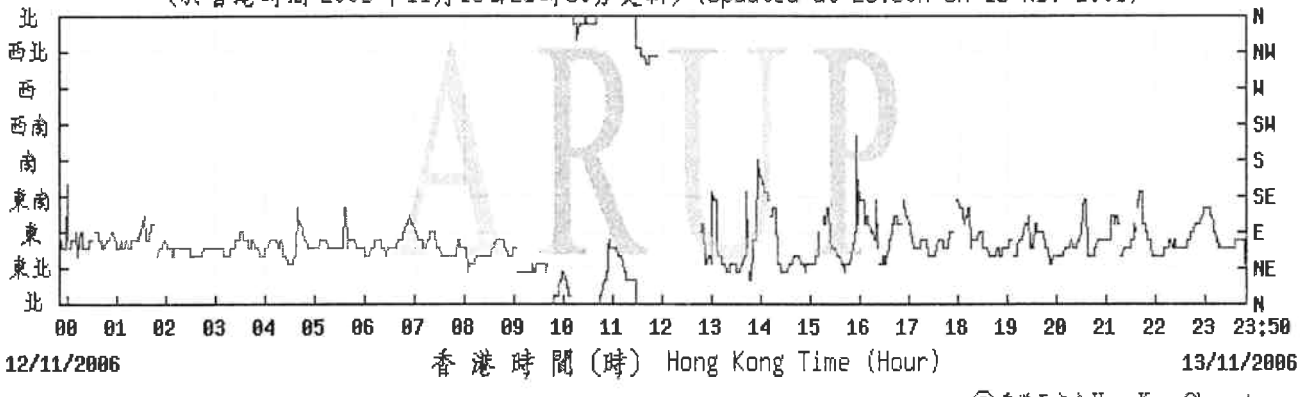

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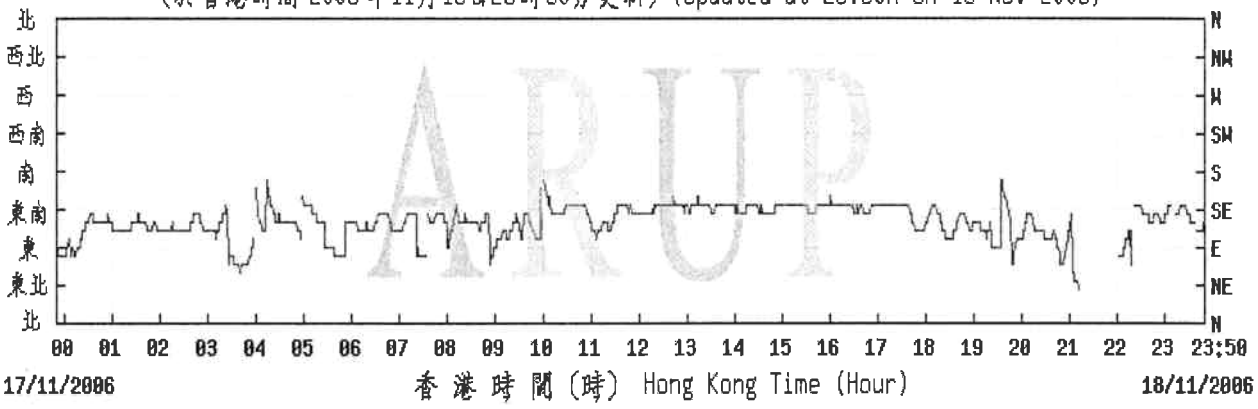

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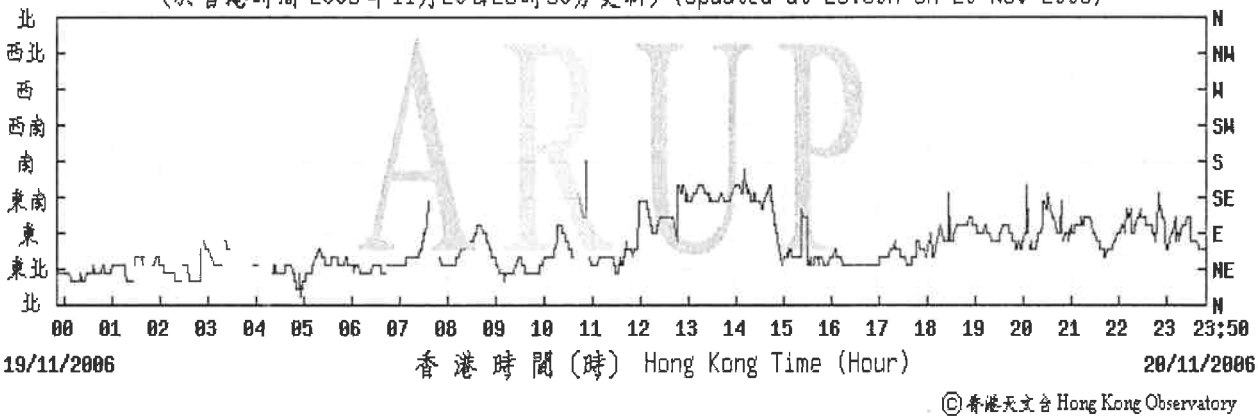

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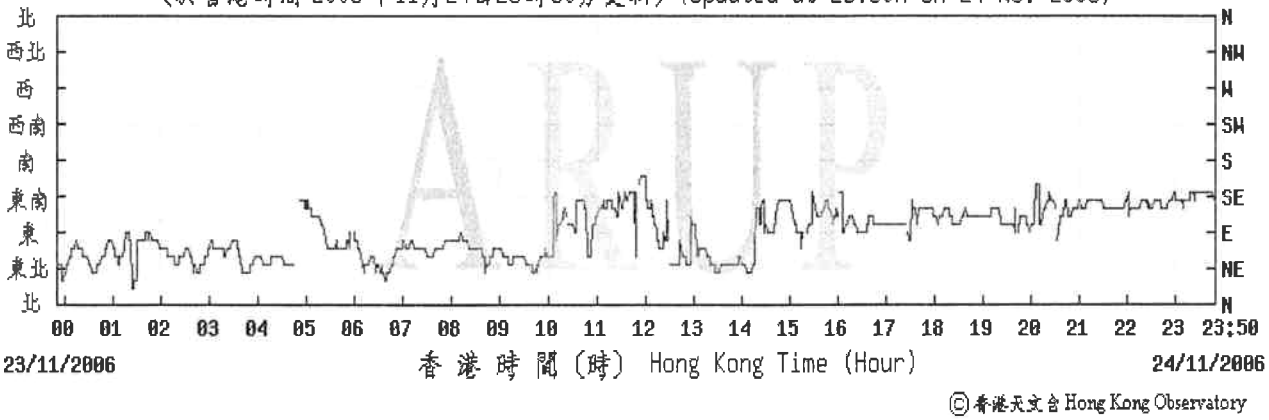

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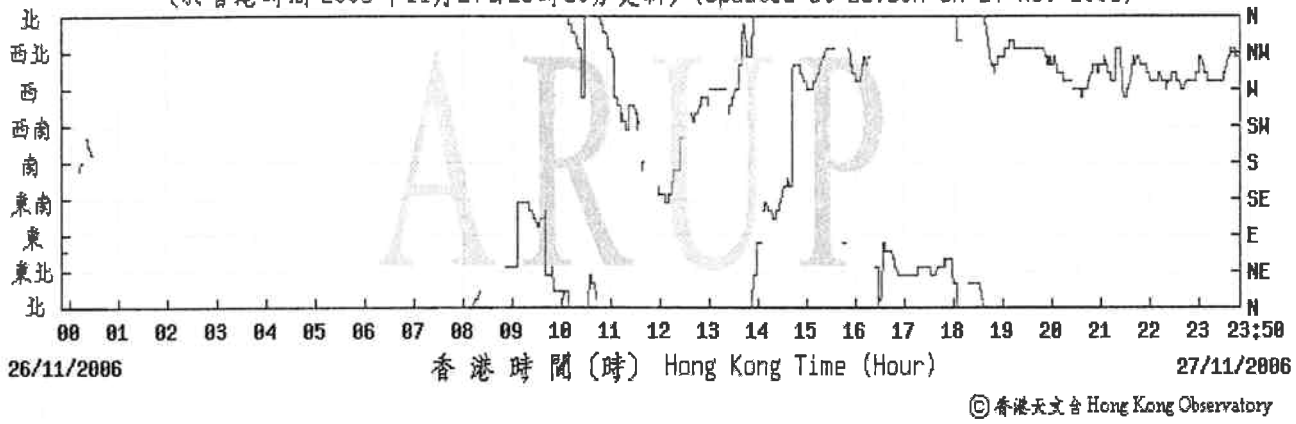

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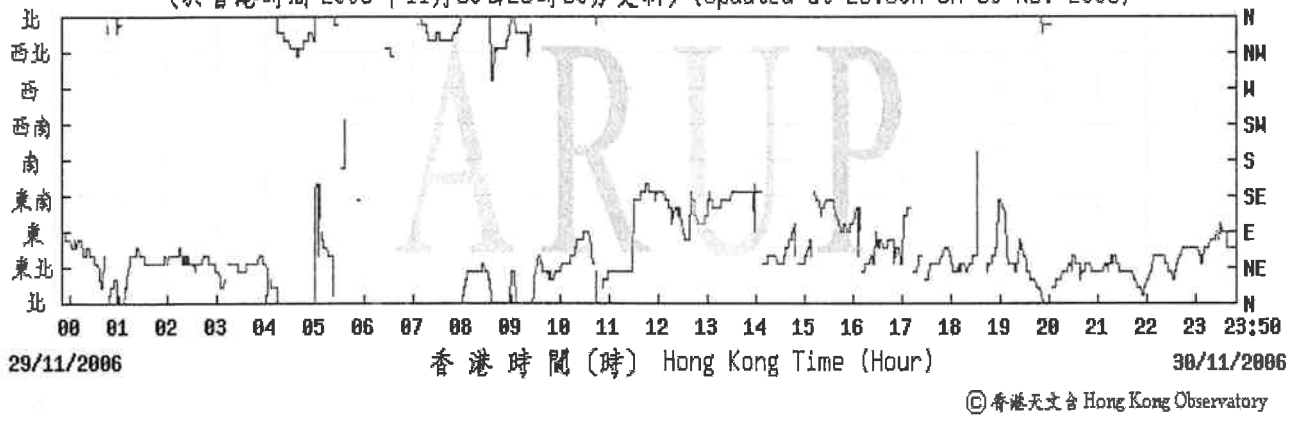


Appendix H

Calibration certificates of noise monitoring equipment

ArupAcoustics

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG

Tel: +852 2268 3216

Fax: +852 2268 3950

AAc Certificate No. 2006006

CERTIFICATE OF CONFORMITY

Description of Test Instrument	Type No	Serial No
Brüel & Kjær Sound Level Meter Kit	2238	2320694
Brüel & Kjær ½ " Microphone Kit	4188	2274284

Date of Test: 11 September 2006

Carried out by: Cissy Chan

Signature:

Approved by: William Ng

Signature:

Ambient Conditions During Test	
Atmospheric Pressure:	1KPa
Air Temperature:	21°C
Relative Humidity:	58%

This document is to certify that the above Test Instrumentation did conform to the manufacturer's original specification on the date of the test. Any adjustments that were required to bring the instrumentation back into specification are duly noted in this document. The tests were carried out using the reference calibrator described below.

Description of Reference Calibrator	Type No	Serial No
Brüel & Kjær Multi Frequency Calibrator	4226	1531372
Brüel & Kjær Coupler	UA0915	1531372

Certificate of Calibration Serial No.	14260
By Brüel & Kjær (UK) Ltd Calibration Date:	21 September 2005
NAMAS Accredited Calibration Laboratory No.	0174

The reference calibrator, Type 4226, has traceable calibration back to National Measurement Standards. As such it is used as Arup Acoustics own 'Primary Standard' and is used only for controlled laboratory calibration tests on all sound measuring equipment owned by Arup Acoustics.

Footnote:

Arup Acoustics is not a registered NAMAS accredited calibration laboratory. This certificate is for internal use only (unless otherwise authorised) and is part of Arup Acoustics development and commitment to QC and QA procedures.

ArupAcoustics

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG

Tel: +852 2268 3216

Fax: +852 2268 3950

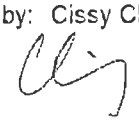
AAc Certificate No. 2006005

CERTIFICATE OF CONFORMITY

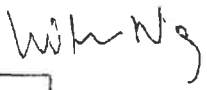
Description of Test Instrument	Type No	Serial No
Brüel & Kjær Sound Level Meter Kit	2238	2320707
Brüel & Kjær ½ " Microphone Kit	4188	2179479

Date of Test: 11 September 2006

Carried out by: Cissy Chan

Signature: 

Approved by: William Ng

Signature: 

Ambient Conditions During Test	
Atmospheric Pressure:	1KPa
Air Temperature:	21°C
Relative Humidity:	58%

This document is to certify that the above Test Instrumentation did conform to the manufacturer's original specification on the date of the test. Any adjustments that were required to bring the instrumentation back into specification are duly noted in this document. The tests were carried out using the reference calibrator described below.

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Brüel & Kjær Multi Frequency Calibrator	4226	1531372
Brüel & Kjær Coupler	UA0915	1531372

Certificate of Calibration Serial No.	14260
By Brüel & Kjær (UK) Ltd Calibration Date:	21 September 2005
NAMAS Accredited Calibration Laboratory No.	0174

The reference calibrator, Type 4226, has traceable calibration back to National Measurement Standards. As such it is used as Arup Acoustics own 'Primary Standard' and is used only for controlled laboratory calibration tests on all sound measuring equipment owned by Arup Acoustics.

Footnote:

Arup Acoustics is not a registered NAMAS accredited calibration laboratory. This certificate is for internal use only (unless otherwise authorised) and is part of Arup Acoustics development and commitment to QC and QA procedures.

Appendix I

Detailed noise monitoring results

Details of Noise Impact Monitoring

Date	NSR No.	Time periods		Weather condition	Avg. wind speed (m/s)	Noise Level dB(A)			Influencing factors/ Site condition
		Start	Finish			L_{eq}	L_{10}	L_{90}	
2-Nov-06	WN6	14:25	14:55	Fine	1.4	62.1	64.5	59.5	Normal operation
8-Nov-06	WN6	8:50	9:20	Fine	1.5	63.3	64.5	59.0	Normal operation
14-Nov-06	WN6	9:00	9:30	Cloudy	1.6	61.7	62.5	56.5	Normal operation
20-Nov-06	WN6	10:30	11:00	Fine	1.6	64.1	65.5	60.0	Normal operation
27-Nov-06	WN6	9:30	10:00	Cloudy	1.7	64.1	66.0	59.5	Normal operation

Appendix J

Landscape and visual monitoring and audit report

Contract No. HY/2005/06
Castle Peak Road Improvements – West of Tsing Lung Tau

Landscape & Visual Audit and Monitoring

Monthly Inspection Report No. 09

(November 2006)

Prepared by

URBIS LIMITED

Prepared by :	*Tran Tuan Huy*	6th December 2006
Approved by :	*Alexander Duggie*	6th December 2006

1.0 INTRODUCTION

This is a Landscape and Visual Audit conducted to fulfill the requirements of the EIA during the Construction and Operational Phases of the project, and is based on the procedures and requirements as set out in the Castle Peak Road Improvements – West of Tsing Lung Tau, Environmental Monitoring and Audit Manual.

Under the EIA, the proposed mitigation measures include both the planting works and treatment to structures. As stated in Section 6.4 of the EM & A, all measures undertaken by both the Contractor and the Landscape Contractor during the construction phase and the first 12 months of the operational phase shall be audited on a bi-weekly and bi-monthly basis respectively to ensure compliance with the intended aims of the mitigation measures.

2.0 SCOPE OF AUDIT

The broad scope of the audit on mitigation measures is as detailed below:

2.1 Planting Proposals

- Regular inspection of the agreed works areas to ensure no unnecessary intrusion by the Contractor outside the limit of the works;
- Regular review of the progress of engineering works to identify the earliest practical opportunity for the landscape works;
- Monitoring of tree transplanting and planting operations;
- Monitoring of works around the area of existing trees to be retained and protected;
- Monitoring of protection works for existing trees;
- Ensure planting works are carried out in accordance with the Specification and within the right planting season;
- Monitoring of the maintenance operations during the Establishment Period to ensure all plants are well watered and nutrients applied.

2.2 Standard Treatment to Structures

- Monitoring and review to ensure the proposed architectural treatments to retaining walls, viaducts, bridges, and noise barriers are implemented in accordance with the approved design, and where appropriate, to soften the hard edges to structures with planting works.

3.0 INSPECTIONS

3.1 Summary of Inspection – 9th November 2006

3.1.1 Matters Arising from Previous Inspections

- The Contractor had cleared away construction waste and felled the 2 existing free standing trees at Slope 'A' area.
- Clearance of rock and fill materials surrounding the existing tree T113 was still found to be outstanding. The Contractor was reminded to clear it away as soon as possible to prevent further damage to the tree.
- Dry surface conditions were still observed at many areas of the Site. The Contractor was reminded to carry out more watering of the surface to prevent dust nuisance.

3.1.2 Site Clearance and Formation Works

- Site formation works were in progress at the proposed new Slopes A and B areas.
- Garbage pile was observed at the Site Office area. The Contractor was requested to clear it away as soon as possible.
- Construction waste piles were observed at the retaining wall RW – 02 area. The Contractor was requested to clear it away as soon as possible.
- Soil pile was observed to be left in an exposed condition. The Contractor was requested to provide temporary cover up of the pile to prevent dust nuisance.

3.1.3 Tree Felling and Transplanting Works

- No tree transplanting was observed during the reported period.
- The existing tree trunks of T507 & T200 were found to be used as rope anchor points for tying and support of construction works. The Contractor was warned that the practice is considered unacceptable as it would damage the trees. The Contractor was requested to immediately remove the works.

3.1.4 Recommendations

- The Contractor was reminded to clear away all construction waste, scattered litter, garbage, etc as found on site, and to keep the site in a tidy condition at all times.
- The Contractor was reminded to provide better tree protection to existing trees to be transplanted or retained.
- The Contractor was recommended to carry out watering of the site to prevent dust nuisance during dry periods.

3.2 Summary of Inspection – 29th November 2006

3.2.1 Matters Arising from Previous Inspections

- The Contractor had cleared rock and fill materials away from the immediate area surrounding the existing tree T113. The Contractor was reminded to transplant the tree as soon as possible to prevent further damage to the tree.
- The Contractor had cleared away the garbage pile and construction waste piles at the Site Office area and retaining wall RW – 02 area respectively.
- The Contractor had removed the ropes away from the existing tree trunks of T507 & T200.
- Dry surface condition was still observed at many areas of the Site. The Contractor was reminded to carry out more watering of the surface to prevent dust nuisance.

3.2.2 Site Clearance and Formation Works

- Site formation works were in progress at the proposed new Slopes A and B areas.
- Construction waste pile was observed at Slope 'A' access road area. The Contractor was requested to clear it away as soon as possible.

3.2.3 Tree Felling and Transplanting Works

- It was observed that one of the tree branches of existing tree T200 was ripped off, with another branch severely damaged by machinery. The Contractor was warned that the practice was considered unacceptable and should be more careful in carry out overhead works.
- Also, it was observed that the Contractor had carried out the tree transplanting work without proper preparation of the tree rootball for existing tree T109. The Contractor had carried out bared-root tree transplanting instead. The Contractor was warned that the practice was considered unacceptable as the transplant tree would most likely be dead afterward. The Contractor was again reminded to carry out tree transplanting in a proper manner and in accordance with the Particular Specification.

3.2.4 Recommendations

- The Contractor was reminded to clear away all construction waste, scattered litter, garbage, etc as found on site, and to keep the site in a tidy condition at all times.
- The Contractor was reminded to provide better tree protection to existing trees to be transplanted or retained on site. Also, the Contractor was reminded to carry out proper tree root preparation works for the transplant trees.
- The Contractor was recommended to carry out watering of the site to prevent dust nuisance during dry periods.

4.0 AUDIT SCHEULE

4.1 Audit Schedule for November 2006

The next audits are scheduled to be conduct on 8th, and 21st December 2006.

Appendix K

Copy of new environmental licence

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RW0654-06

To : Chun Wo Construction & Engineering Company Limited

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed :

   Full address : Castle Peak Road – West of Tsing Lung Tau, Tsuen Wan, N.T.

   Lot No. ------

   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. *~~PART~~/WHOLE of the site falls *WITHIN/~~OUTSIDE~~ a designated area.

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	*Description of item of powered mechanical equipment*	*No. of units*
	Refer to attached sheet	

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:

      Date and time of commencement : 14 November 2006 at 1900 hours

      Days and hours : General holidays (including Sundays): 0700-2300 hours.

      Any day, not being a general holiday: 1900-2300 hours.

      This part of the permit expires on : 15 March 2007 at 2300 hours

   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

   d. Other conditions imposed on the use of the powered mechanical equipment:

      Refer to attached sheet

4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	*Description of type of prescribed construction work*
	Nil

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement : Not applicable at Not applicable

Days and hours : Not applicable

This part of the permit expires on : Not applicable at Not applicable

c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

d. Other conditions imposed on the carrying out of the prescribed construction work:

Not applicable

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular site entrances/exits for public information at all times when the powered mechanical equipment covered by this permit are being used for carrying out construction work.

Dated this 14th day of November 2006

ENVIRONMENTAL PROTECTION DEPARTMENT 環境保護署 HONG KONG

Signed:

(LEUNG Cho-shing)

for Authority

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例

(第400章)

第8(9)條

建築噪音許可證
爲進行建築工程（撞擊式打樁除外）而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號: GW-RW0654-06

致：俊和建築工程有限公司

本建築噪音許可證是按照《噪音管制條例》第 8 條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

條 件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

   詳細地址： 新界荃灣青龍頭西-青山公路

   地段編號: ------

   地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤~~部份~~/全部*位於指定範圍之內/~~外~~*。

3. 機動設備

   a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)	*各項機動設備的說明*	*數目*
	參見附頁	

   b. 可使用機動設備的建築噪音許可證有效期：

   生效日期及時間： 二零零六年十一月十四日 下午七時正

   日期及時間： 公眾假日(包括星期日): 上午七時正至晚上十一時正。

   公眾假日以外任何一天: 下午七時正至晚上十一時正。

   此部分許可證屆滿日期及時間： 二零零七年三月十五日 晚上十一時正

   日期 時間

   c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

   d. 規限使用機動設備的其他條件：

   參見附頁

EPD76B(s)

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	無

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間： 不適用

日期及時間： 不適用

此部分許可證屆滿日期及時間： 不適用

日期 時間

c. ~~本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的地點。該地盤圖則須存放於建築地盤供監督隨時查看。~~

d. 規限進行訂明建築工程的其他條件：

不適用

5. 本建築噪音許可證或其副本必須展示於建築地盤的 所有車輛進出口處，以便在使用此證內載列的機動設備進行建築工程的任何時候， 給予公眾人仕參閱。

日期： 二零零六年十一月十四日

ENVIRONMENTAL PROTECTION DEPARTMENT 環境保護署

簽署: （梁祖成 代行）

監督

* 刪去不適用者

Sheets Attached to
Construction Noise Permit No. GW-RW0654-06

3a. Items of powered mechanical equipment which may be used inside the site boundary:

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units	Work Zone
Group A			
------	Grout mixer	One	I & II
------	Grout pump	One	
------	Generator, with sound pressure level of ≦ 75 dB(A) measured at 7 m from the centre of the generator	Two	
CNP 283	Water pump, submersible (electric)	Six	
Group B			
------	Grout mixer	One	I & II
------	Grout pump	One	
------	Air Compressor, with Noise Emission Label showing a sound power level of ≦ 102 dB(A)	One	
Group C			
------	Generator, with sound pressure level of ≦ 75 dB(A) measured at 7 m from the centre of the generator	One	I & II
CNP 283	Water pump, submersible (electric)	Three	
Group D			
------	Generator, with sound pressure level of ≦ 75 dB(A) measured at 7 m from the centre of the generator	One	I & II
CNP 283	Water pump, submersible (electric)	Three	
------	Lorry, with crane, gross vehicle weight ≦ 38 tonnes	One	
Group E			
------	Generator, with sound pressure level of ≦ 75 dB(A) measured at 7 m from the centre of the generator	One	I
CNP 283	Water pump, submersible (electric)	Three	
CNP 081	Excavator, tracked	One	
Group F			
------	Generator, with sound pressure level of ≦ 75 dB(A) measured at 7 m from the centre of the generator	One	I & II
CNP 283	Water pump, submersible (electric)	Three	
CNP 065	Drill, hand-held (electric)	Three	
CNP 065	Grinder, hand-held (electric)	Three	
Group G			
CNP 045	Concrete mixer (electric)	One	I & II
------	Air Compressor, with Noise Emission Label showing a sound power level of ≦ 102 dB(A)	One	

3d. Other conditions imposed on the use of the powered mechanical equipment:

1. The powered mechanical equipment shall only be operated within the corresponding work zones specified in condition no. 3a above.

2 In each work zone, only one group of the powered mechanical equipment listed in condition no.3a shall be operated at any time.

3 All flaps and panels of the air compressors and the generators shall be closed when operated.

ENVIRONMENTAL PROTECTION DEPARTMENT

Signed: _____
(LEUNG Cho-shing)
for Authority

建築噪音許可證
編號 GW-RW0654-06 的附頁

3a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼〔如適用的話〕	各項機動設備的說明	數目	工作範圍
A 組			
-------	灌漿攪拌機	壹	I 及 II
-------	灌漿泵	壹	
-------	發電機，在距離發電機中心點的 7 米所量度的聲壓級 (A) ≦ 75 分貝(A)	貳	
CNP 283	潛水泵（電動）	陸	
B 組			
-------	灌漿攪拌機	壹	I 及 II
-------	灌漿泵	壹	
-------	空氣壓縮機，備有噪音標籤顯示聲功率級≦ 102 分貝(A)	壹	
C 組			
-------	發電機，在距離發電機中心點的 7 米所量度的聲壓級 (A) ≦ 75 分貝(A)	壹	I 及 II
CNP 283	潛水泵（電動）		
D 組			
-------	發電機，在距離發電機中心點的 7 米所量度的聲壓級 (A) ≦ 75 分貝(A)	壹	I 及 II
CNP 283	潛水泵（電動）		
-------	吊臂貨車，總重量≦ 38 噸	壹	
E 組			
-------	發電機，在距離發電機中心點的 7 米所量度的聲壓級 (A) ≦ 75 分貝(A)	壹	I
CNP 283	潛水泵（電動）		
CNP 081	挖土機， 履帶式	壹	
F 組			
-------	發電機，在距離發電機中心點的 7 米所量度的聲壓級 (A) ≦ 75 分貝(A)	壹	I 及 II
CNP 283	潛水泵（電動）		
CNP 065	鑽 ，手提型（電動）		
CNP 065	磨機，手提型（電動）		
G 組			
CNP 045	混凝土攪拌機（電動）	壹	I 及 II
-------	空氣壓縮機，備有噪音標籤顯示聲功率級≦ 102 分貝(A)	壹	

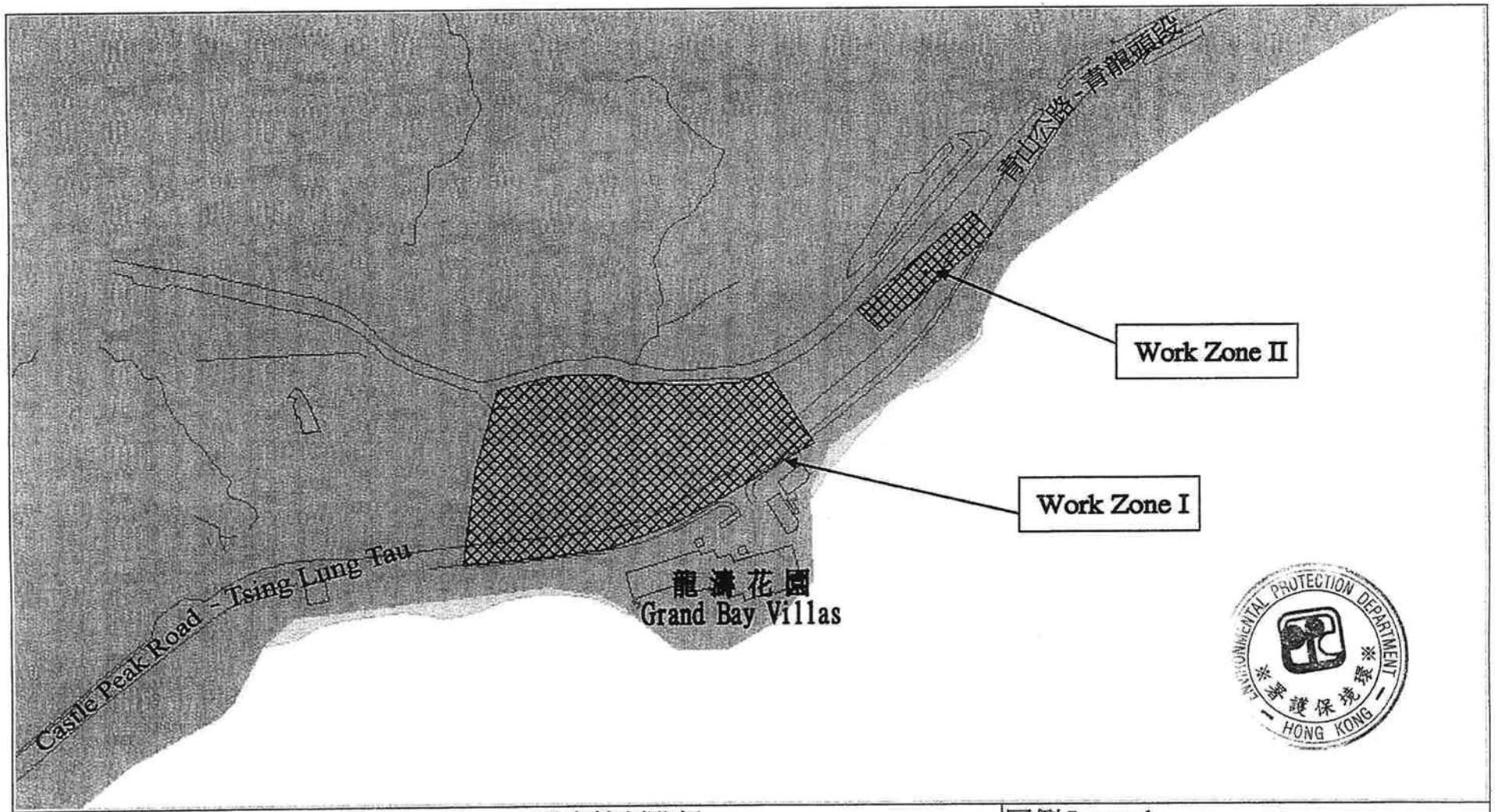
3d. 規限使用機動設備的其他條件：

1. 所有機動設備祇可在上述條件 3a 指定的工作範圍內操作。
2. 每個工作範圍內，在任何時間只可使用條件 3a 內載的其中一組機動設備。
3. 空氣壓縮機及發電機的所有覆蓋及嵌板於操作時必須關閉。

ENVIRONMENTAL PROTECTION DEPARTMENT 環境保護署 HONG KONG

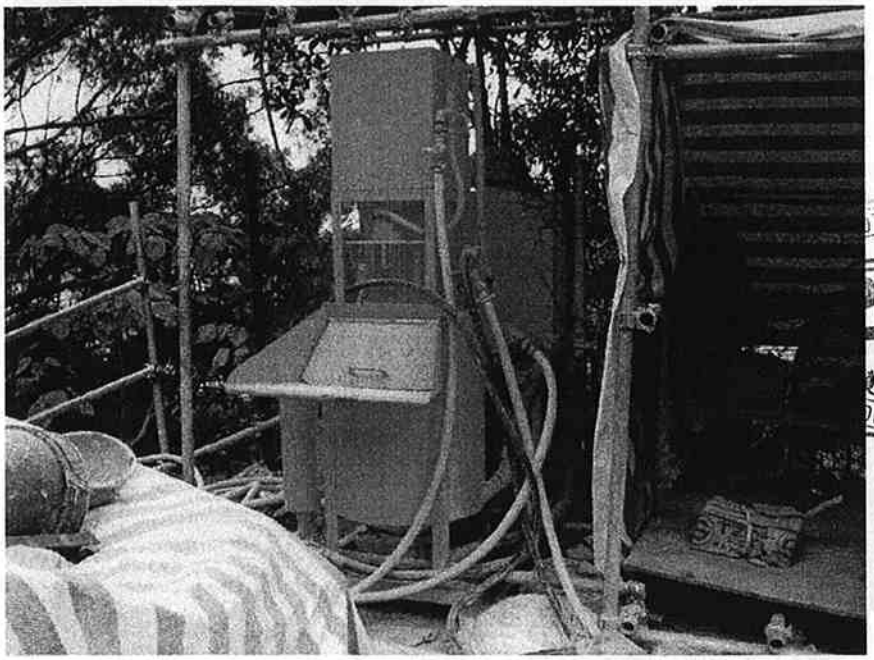
監督

(梁祖成 梁祖成 代行)

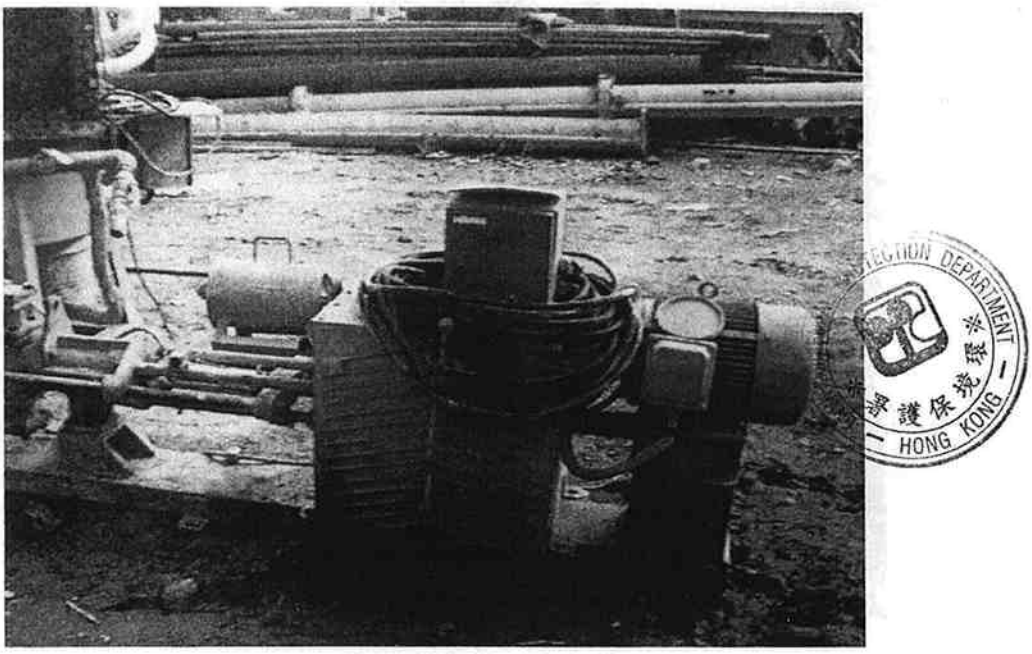


環境保護署 Environmental Protection Department	噪音管制監督 Noise Control Authority	圖例 Legend	建築地盤 Construction Site
建築噪音許可證編號 **GW-RW0654-06** 的附圖 Plan attached to Construction Noise Permit No. **GW-RW0654-06**			比例 Scale 1:2000

建築噪音許可證編號 GW-RW0654-06 的相片
Photographs attached to Construction Noise Permit No. GW-RW0654-06



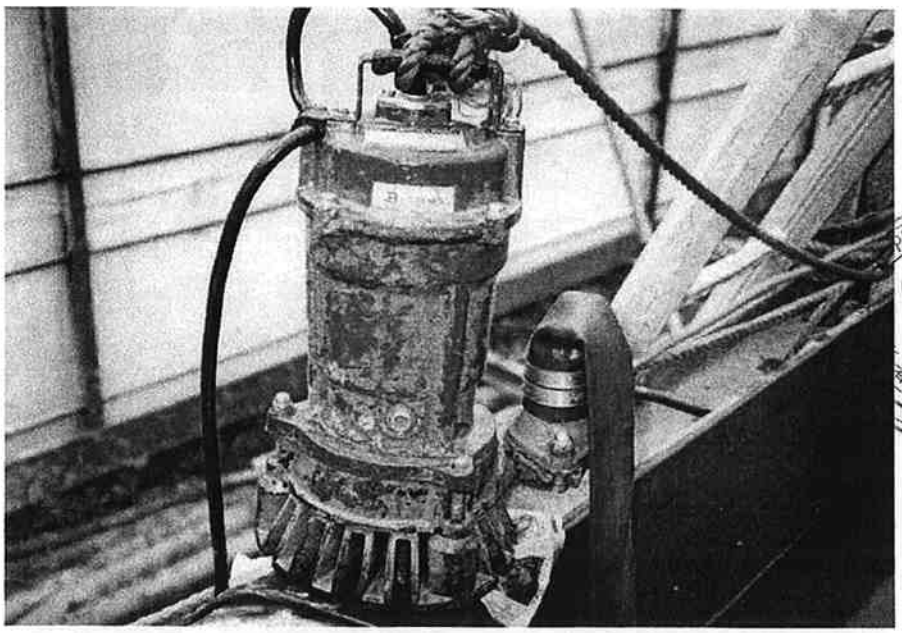
灌漿攪拌機
Grout mixer



灌漿泵
Grout pump

建築噪音許可證編號 GW-RW0654-06 的相片
Photographs attached to Construction Noise Permit No. GW-RW0654-06

發電機，在距離發電機中心點的 7 米所量度的聲壓級 (A) ≦ 75 分貝(A)
Generator, with sound pressure level of ≦ 75 dB(A) measured at 7 m from the centre of the generator



CNP 283 潛水泵 (電動)
Water pump, submersible (electric)

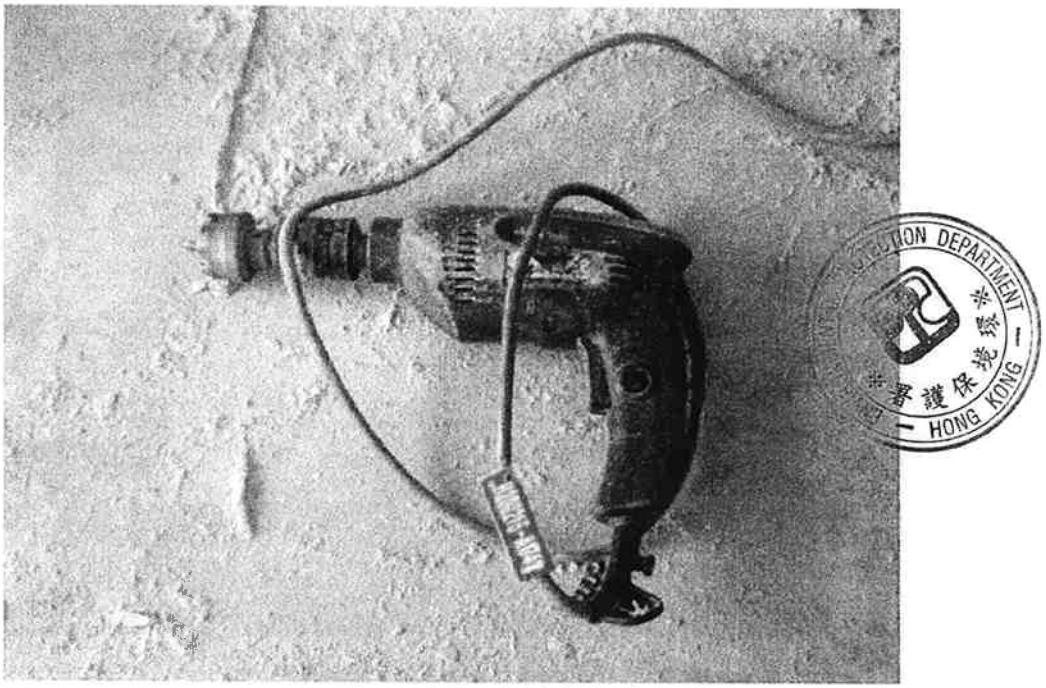
建築噪音許可證編號 GW-RW0654-06 的相片
Photographs attached to Construction Noise Permit No. GW-RW0654-06

空氣壓縮機，備有噪音標籤顯示聲功率級≦ 102 分貝(A)
Air Compressor, with Noise Emission Label showing
a sound power level of ≦ 102 dB(A)

吊臂貨車，總重量≦ 38 噸
Lorry, with crane, gross vehicle weight ≦ 38 tonnes

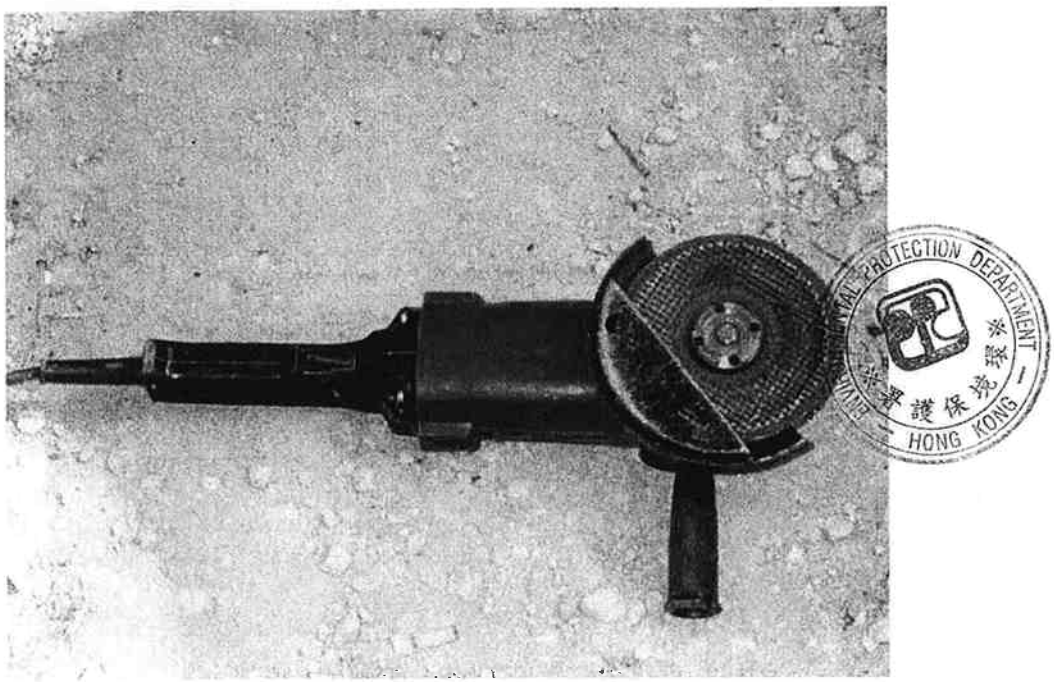
建築噪音許可證編號 GW-RW0654-06 的相片
Photographs attached to Construction Noise Permit No. GW-RW0654-06

CNP 081 挖土機，履帶式
Excavator, tracked



CNP 065 鑽，手提型 (電動)
Drill, hand-held (electric)

建築噪音許可證編號 GW-RW0654-06 的相片
Photographs attached to Construction Noise Permit No. GW-RW0654-06



CNP 065 磨機，手提型 (電動)
Grinder, hand-held (electric)

CNP 045 混凝土攪拌機 (電動)
Concrete mixer (electric)