Contract No. SS M333

Reprovisioning of Diamond Hill Crematorium

Monthly EM&A Report for May 2006

June 2006

	Name	Signature
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Approved: (ET Leader)	Y T Tang	

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BY POST & FAX (2524 8194)

9 June 2006

Architectural Services Department
Queensway Government Offices
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Hong Kong

Your Ref:

Our Ref: 1148-06/E06-30770

For attention of: Mr Michael Mak

Dear Michael

Reprovisioning of Diamond Hill Crematorium
Monthly EM&A Report for May 2006 (Revision 0)

We refer to the emails of 8 June 2006, which was copied to us, with the enclosure of the draft monthly EM&A Report for May 2006 (Revision 0) from MEMCL.

We have no comment and hereby verified the captioned EM&A report.

Should you have any queries, please do not hesitate to contact the undersigned on 2911 2719 or Adi Lee on 2911 2729.

Yours sincerely

Coleman Ng
Independent Environmental Checker
HYDER CONSULTING LIMITED

cc MEMCL – Mr. Y. T. Tang/Ms Florence Yuen (Fax: 2891 0305)
CRCCL – Mr. Eric To (Fax: 2827 2921)

CN/AL

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EXECUTIVE SUMMARY

Introduction

Maunsell Environmental Management Consultants Limited (MEMCL) is the designated Environmental Team (ET) for "Reprovisioning of Diamond Hill Crematorium" (The Project). This is the nineteenth monthly Environmental Monitoring and Audit (EM&A) report prepared by MEMCL for the Project. The EM&A programme for the Project commenced on 29 October 2004. This report documents the findings of EM&A Works conducted in the month of May 2006 (1 to 31 May 2006).

As informed by the Contractor, construction activities in the reporting period were:

- Backfilling of soil and compaction;
- Steel fixing, erect formwork and concreting for footings, internal and external walls (including fair-face concrete wall), columns and slabs;
- Welding/dismantling of steel waling and strutting to sheet pile / pipe pile wall;
- Transportation and installation of E&M components for cremator at Cremator Plant Room; and
- Erection of Steel Platform at G/F of Cremator Plant Room.

A summary of monitoring and audit activities conducted in the reporting period is listed below:

1-hour TSP monitoring	15 sessions
24-hour TSP monitoring	5 sessions
Daytime noise monitoring	5 sessions
Environmental site inspection	4 sessions

Breaches of Action and Limit Levels

Air Quality

All 1-hour and 24-hour TSP monitoring results recorded in the month complied with the Action and Limit Levels.

Construction Noise

All noise monitoring results recorded in the month complied with the Action and Limit Levels.

Implementation Status of Environmental Mitigation Measures

In general, the Contractor satisfactorily implemented all the required mitigation measures and was reasonably responsive to the ET's recommendations on any discrepancy observed during the weekly environmental site inspection.

Environmental Complaints, Notification of Summons and Successful Prosecutions

No environmental complaint, notification of summons or successful prosecution was received or made against this Project in the month.

Reporting Changes

No reporting change was required in the month.

Future Key Issues

Key issues to be considered in the coming month include:

- Generation of dust from activities on-site;
- Noise impact from operating equipment and machinery on-site;
- Generation of site surface runoffs and wastewater from activities on-site;

- Storage and disposal of general refuse and construction waste from activities on-site;
- Management of chemicals and avoidance of oil spillage.

摘要

簡介

茂盛環境管理顧問有限公司乃「重置鑽石山火葬場」[下稱(工程項目)] 的指定環境小組。本冊是茂盛爲工程項目製作的第十九份每月環境監察及審核報告。工程項目的環境監察及審核由二零零四年十月廿九日開始、本報告記錄了二零零六年五月份(二零零六年五月一日至五月三十一日)所進行的環境監察及審核工作。

根據承建商的資料，本月有以下的建築活動：

- 泥土回填及壓緊
- 鋼根固定, 支架構成及混凝土澆灌
- 把鋼支腰樑焊接或拆卸於樁上
- 把電機結構運送至及安裝於焚化爐機房的焚化爐上
- 豎立鋼鐵台架於焚化爐機房地面

本月有下列幾項的監察及審核活動：

一小時總懸浮粒子監察	15 次
廿四小時總懸浮粒子監察	5 次
日間噪音監察	5 次
環境巡查	4 次

違反監察標準

空氣質素
本月所有一小時及二十四小時總懸浮粒子監測結果皆符合行動水平和極限水平。

建築噪音
本月所有噪音監測結果皆符合行動水平和極限水平。

環境影響緩和措施

承建商大致上完成所需的緩和措施，同時已對環境小組在每週的環境巡查中的建議作出合理的回應及跟進。

有關環境的投訴，傳票及檢控

本月沒有收到有關環境的投訴，傳票及檢控。

報告修訂

本月並沒有修訂報告。

預計要注意的事項

下月要注意事項包括：
－工程活動所產生的塵埃
－操作中儀器及機器產生的噪音影響
－工程活動所產生的污水
－普通廢物與建築廢物的暫貯及棄置
－化學品的管理及防止意外漏油

1. INTRODUCTION

Background

1.1 Maunsell Environmental Management Consultants Limited (MEMCL) (hereinafter called the "ET") was appointed by China Resources Construction Company Limited (CRC) (hereinafter called the "Contractor") to undertake Environmental Monitoring and Audit for "Reprovisioning of Diamond Hill Crematorium" (hereinafter called the "Project"). Under the requirements of Section 4 of Environmental Permit EP-179/2004, EM&A programme as set out in the approved EM&A Manual is required to be implemented. In accordance with the approved EM&A Manual, environmental monitoring of air quality and noise and environmental site inspections are required for the Project.

Scope of Report

1.2 The EM&A programme for the Project commenced on 29 October 2004. This report presents a summary of the environmental monitoring and audit works, list of activities, and mitigation measures for the Project in May 2006 (from 1 to 31 May 2006).

Project Organisation

1.3 The organisation of the environmental management team is shown in Figure 1.1. Key personnel contacts are presented in Appendix A.

Environmental Status in the Reporting Month

1.4 The construction programme of the Project is provided in Appendix B. In the month, the following activities took place for the construction of the Project:

- Backfilling of soil and compaction;
- Steel fixing, erect formwork and concreting for footings, internal and external walls (including fair-face concrete wall), columns and slabs;
- Welding/dismantling of steel waling and strutting to sheet pile / pipe pile wall;
- Transportation and installation of E&M components for cremator at Cremator Plant Room; and
- Erection of Steel Platform at G/F of Cremator Plant Room.

1.5 Layout plan of the Project work site is provided in Figure 1.2.

Summary of EM&A Requirements

1.6 The description and detailed locations of sensitive receivers and monitoring stations for air quality and noise are shown in Figures 2.1 and 3.1 respectively and relevant sections of this Report.

1.7 The EM&A programme require environmental monitoring for air quality and noise and environmental site inspections for air quality, noise, water quality, landscape and visual, and waste management. The EM&A requirements for each parameter described in the following sections include:

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

1.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarised in Appendix J of the Report.

2. AIR QUALITY

Monitoring Requirements

2.1 1-hour TSP and 24-hour TSP levels at two designated monitoring stations were monitored in the month in accordance with the EM&A Manual. Appendix C shows the established Action and Limit Levels for the environmental monitoring works.

2.2 The monitoring schedule for the month is shown in Appendix D. Air quality monitoring stations for 24-hour TSP and 1-hour TSP measurements are shown in Figure 2.1.

Monitoring Equipment

2.3 Portable dust meter was used to carry out 1-hour TSP monitoring. High volume sampler (HVS - Model GMWS-2310 Accu-Vol) completed with the appropriate sampling inlets was installed for 24-hour TSP sampling. The HVS meet all the requirements as specified in the approved EM&A Manual. Table 2.1 summarised the equipment that were used in the dust-monitoring programme.

Table 2.1 Air Quality Monitoring Equipment

Equipment	Model
Dust Meter (for 1-hour TSP measurement	Laser Dust Monitor – Model LD-1/LD-3
HVS (for 24-hour TSP measurement)	GMWS 2310 Accy-Vol system
Calibration Kit (for HVS)	GMW 25

Monitoring Parameters, Frequency and Duration

2.4 Table 2.2 summarised the monitoring parameters, frequency and duration of impact air quality monitoring.

Table 2.2 Air Quality Monitoring Parameters, Frequency and Duration

Parameter	Duration	Frequency
1-hour TSP	1 hour	3 times every six days
24-hour TSP	24 hours	Once every six days

Monitoring Locations

2.5 In accordance with the EM&A Manual, two air quality monitoring stations, as shown in Figure 2.1 were selected for 24-hour TSP and 1-hour TSP sampling. Table 2.3 describes the location of the air quality monitoring stations.

Table 2.3 Locations of Air Quality Monitoring Stations

Monitoring Station	Identity / Description	Level
ASR8	Po Leung Kuk Grandmont Primary School	Roof top level of 7 storey building

ASR17	Staff Quarter for Diamond Hill Crematorium	Roof top level of 1 storey building

Monitoring Methodology

1-hour TSP Monitoring

Monitoring Procedure

2.6 The measuring procedures of 1-hour TSP by a portable dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

- Set POWER to "ON", push BATTERY button, make sure that the meter's indicator is in the range with a red line and allow the instrument to stand for about 3 minutes (Then, the air sampling inlet has been capped).
- Push the knob at MEASURE position.
- Push "O-ADJ" button. (Then meter's indication is 0).
- Push the knob at SENSI ADJ position and set the meter's indication to S value described on the Test Report using the trimmer for SENSI ADJ.
- Pull out the knob and return it to MEASURE position.
- Push "START" button.

Maintenance and Calibration

- The 1-hour TSP dust meters are verified at 1-year intervals throughout all stages of the impact air quality monitoring.
- Calibration details for the dust meters are provided in Appendix E.

24-hour TSP Monitoring

Installation

2.7 The HVSs were installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVSs:

- A horizontal platform with appropriate support to secure the samplers against gusty wind was provided.
- The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
- A minimum of 2 meters separation from walls, parapets and penthouses was provided for rooftop sampler.
- No furnace or incinerator flues were nearby.
- Airflow around the sampler was unrestricted.
- Permission was obtained to set up the sampler and to obtain access to the monitoring stations.
- A secure supply of electricity was obtained to operate the sampler.

Preparation of Filter papers

- Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
- All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.
- *ALS Technichem (HK) Pty Ltd.* is a HOKLAS accredited laboratory which has comprehensive quality assurance and quality control programmes.

Monitoring Procedures

- The power supply was checked to ensure the HVSs work properly.
- The filter holder and the area surrounding the filter were cleaned.
- The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
- The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges.
- Then the shelter lid was closed and secured with the aluminum strip.
- The HVSs were warmed-up for about 5 minutes to establish run-temperature conditions.
- A new flowrate record sheet was set into the flow recorder.
- The flow rate of the HVS was checked and adjusted at around 1.1 m^3/min. The range was between 0.6-1.7 m^3/min.
- The programmable timer was set for a sampling period of 24 hrs $\pm$ 1 hr, and the starting time, weather condition and the filter number were recorded.
- The initial elapsed time was recorded.
- At the end of sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
- It was then be placed in a clean plastic envelope and sealed.
- All monitoring information was recorded on a standard data sheet.
- Filters were sent to *ALS Technichem (HK) Pty Ltd.* for analysis.

Maintenance and Calibration

- The HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVSs are calibrated at bi-monthly intervals using GMW-25 Calibration Kit throughout all stages of the impact air quality monitoring.
- Calibration details for the HVSs are provided in Appendix E.

Results and Observations

2.8 Dust monitoring was conducted for both 1-hour TSP and 24-hour TSP at all designated monitoring stations in the month. Air quality monitoring results and graphical presentations are provided in Appendix F.

1-hour TSP Monitoring

2.9 All measured 1-hour TSP levels complied with the Action and Limit Levels in the month. A summary of 1-hour TSP monitoring results is presented in Table 2.4.

Table 2.4 Summary of Impact 1-hour TSP Monitoring Results

Monitoring Station	1-hour TSP ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	No. of Exceedance	
	Range			Action	Limit
ASR8	109.7 – 166.5	408.1	500.0	Nil	Nil
ASR17	126.5 – 169.7	408.4	500.0	Nil	Nil

24-hour TSP Monitoring

2.10 All measured 24-hour TSP levels complied with the Action and Limit Levels in the month. A summary of 24-hour TSP monitoring results is presented in Table 2.5.

Table 2.5 Summary of Impact 24-hour TSP Monitoring Results

Monitoring Station	24-hour TSP ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	No. of Exceedance	
	Range			Action	Limit
ASR8	30.1 – 107.2	195.0	260.0	Nil	Nil
ASR17	31.4 – 88.3	174.1	260.0	Nil	Nil

3. NOISE

Monitoring Requirements

3.1 Noise levels at three designated monitoring stations were monitored in the month in accordance with the EM&A Manual. Appendix C shows the established Action and Limit Levels for the environmental monitoring works.

3.2 The monitoring schedule for the month is shown in Appendix D. Noise monitoring stations are shown in Figure 3.1.

Monitoring Equipment

3.3 Integrating Sound Level Meter was employed for noise monitoring. They were Type 1 sound level meters capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x). They comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). Portable electronic wind speed indicator capable of measuring wind speed in m/s was employed to check the wind speed. Table 3.1 details the noise monitoring equipment used.

Table 3.1 Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Rion NL-18/31
Calibrator	Rion NC-73

Monitoring Parameters, Frequency and Duration

3.4 Table 3.2 summarised the monitoring parameters, period, frequency and duration of impact noise monitoring.

Table 3.2 Noise Monitoring Parameters, Frequency and Duration

Time Period	Parameters	Duration (min)	Frequency
Daytime (0700 to 1900 on normal weekdays)	L_{eq}	30	Once per week

Monitoring Locations

3.5 In accordance with the EM&A Manual, three noise monitoring stations, as shown in Figure 3.1 were selected for noise monitoring. Table 3.3 describes the location of this monitoring station.

Table 3.3 Locations of Noise Monitoring Stations

Monitoring Station	Identity / Description	Level
SR3	International Christian Quality Music Secondary and Primary School	Roof top level of 7 storey building
SR4	Po Leung Kuk Grandmont Primary School	Roof top level of 7 storey building
SR6	Staff Quarter for Diamond Hill Crematorium	Roof top level of 1 storey building

Monitoring Methodology

Monitoring Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2 m above the ground.
- Façade measurements were made at all three monitoring locations.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting: A
  - time weighting: Fast
  - time measurement: L_{eq}(30 minutes) during non-restricted hours i.e. between 07:00 and 19:00 on normal weekdays
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with a portable wind meter.
- During the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.
- Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator is cleaned with soft cloth at quarterly intervals.
- The meter and calibrator are sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- Calibration details for the sound level meter and calibrator are provided in Appendix E.

Results and Observations

3.6 Noise monitoring was conducted at all designated monitoring stations as scheduled in the month. Noise monitoring results and graphical presentations are provided in Appendix G.

3.7 All measured noise levels complied with the Action and Limit Levels in the month. A summary of noise monitoring results is presented in Table 3.4.

Table 3.4 Summary of Impact Noise Monitoring Results during 07:00 – 19:00 on Normal Weekdays

Monitoring Station	Measured Noise Level, dB(A) $L_{eq\ (30\ min)}$	Calculated Construction Noise Level, dB(A)	Limit Level	No. of Exceedance	
	Average and Range	Average and Range		Action*	Limit
SR3	65.1 (64.0 – 66.2)	# (51.8 - 59.7)	70/65##	Nil	Nil
SR4	64.1 (63.2 – 64.9)	# (# - #)	70/65##	Nil	Nil
SR6	62.9 (61.3 – 64.3)	# (# - #)	75	Nil	Nil

* - Action Level is triggered by receipt of a noise complaint
\# - Measured noise level is less than the baseline noise level
- reduce to 70dB(A) for schools and 65dB(A) during school examination periods

4. ENVIRONMENTAL SITE INSPECTION

Site Inspections

4.1 Site inspection was carried out on a weekly basis to monitor the timely implementation of proper environmental pollution control and mitigation measures for the Project. In the month, four site inspections were carried out in the month. The summary of weekly environmental site inspections observations and environmental site inspection checklists are attached in Appendix H.

Review of Environmental Monitoring Procedures

4.2 The monitoring works conducted by the Environmental Team were inspected regularly. Observations have been recorded for the monitoring works as follows:

Air Quality Monitoring

- The monitoring team recorded the observations around the monitoring stations within and outside of the construction site.
- The monitoring team recorded the temperature and general weather condition on the monitoring day.

Noise Monitoring

- The monitoring team recorded the observations around the monitoring stations, which might affect the results.
- Major noise sources were identified and recorded.

Advice on Waste Management Status

4.3 The actual quantities of inert C&D materials and non-inert C&D wastes generated by activities of the Project in the month are provided in Table 4.1. Trip ticket system was implemented for all offsite waste disposal.

Table 4.1 Summary of Waste Disposal in the Month

Type of Waste Material		Disposed Quantity	Destination
Inert C&D materials		Nil	Not Applicable
Non-inert C&D waste	Metals	Nil	Not Applicable
	Paper/cardboard packaging	Nil	Not Applicable
	Plastics	Nil	Not Applicable
	Chemical waste	Nil	Not Applicable
	Others, e.g. general refuse	18 m^3	SENT Landfill

Status Environmental Licences and Permits

4.4 The status of all permits/licences obtained/in-use in the month is summarised in Appendix I.

Implementation Status of Environmental Mitigation Measures

4.5 An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in Appendix J.

4.6 During the weekly site inspection conducted by the Environmental Team in the month, the following observations and recommendations were made.

Water Quality
- The drainage system was not well maintained and water was stored on the ground. The contractor was reminded to pump it out as soon as possible.

Air Quality
- The temporary exposed slopes were not properly covered. The contractor was reminded to cover them as soon as possible.

Noise
- No particular observations and recommendations were made during the weekly site inspections in the month.

Waste or Chemical Management
- General refuse was not disposed properly and regularly. The contractor was reminded to dispose it as soon as possible.
- The chemical wastes were not stored in proper storage areas. The contractor was reminded to store it properly as soon as possible.

Landscape and Visual
- No particular observations and recommendations were made during the weekly site inspections in the month.

Others
- No particular observations and recommendations were made during the weekly site inspections in the month.

Summary of Exceedances of Environmental Quality Performance Limit

4.7 The Event and Action Plans for air quality and noise are presented in Appendix K.

4.8 No exceedance of Action and Limit Levels for 1-hour and 24-hour TSP and noise was recorded in the month.

Summary of Environmental Complaints, Notifications of Summons and Successful Prosecutions

4.9 Figure 4.1 presents the environmental complaint flow diagram of the Project and Table 4.2 presents the statistics of complaints, notification of summons and successful prosecution since the commencement of the Project.

Table 4.2 Summary of Environmental Complaints and Prosecutions

Complaints logged		Summons served		Successful Prosecution	
May 2006	*Cumulative*	*May 2006*	*Cumulative*	*May 2006*	*Cumulative*
0	0	0	0	0	0

4.10 No environmental complaint, notification of summons and prosecution was received or made against the Project in the month.

5. FUTURE KEY ISSUES

Key Issues and Recommendations for Coming Month

5.1 Key issues to be considered in the coming month include:

- Generation of dust from activities on-site;
- Noise impact from operating equipment and machinery on-site;
- Generation of site surface runoffs and wastewater from activities on-site;
- Storage and disposal of general refuse and construction waste from activities on-site; and
- Management of chemicals and avoidance of oil spillage.

5.2 Recommendations for the coming month include:

- Provide water spray to haul roads and unpaved areas;
- Provide regular maintenance to wheel wash facilities on-site;
- Cover the stockpiles on-site entirely;
- Store all chemicals on site in the chemical storage area;
- Ensure general refuse are sorted, recycled and disposed properly; and
- Ensure construction waste are disposed off-site properly and regularly.

Environmental Monitoring and Audit Schedule for the Coming Months

5.3 The tentative schedules for environmental monitoring and audit for the next three months are provided in Appendix D.

6. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

6.1 Environmental monitoring and audit was performed in May 2006. All monitoring and audit results in the month were checked and reviewed.

6.2 All 1-hour and 24-hour TSP monitoring results recorded in the month complied with the Action and Limit Levels.

6.3 All noise monitoring results recorded in the month complied with the Action and Limit Levels.

6.4 In general, the Contractor satisfactorily implemented all the required mitigation measure and was reasonably responsive to the ET's recommendations on any discrepancy observed during the weekly environmental site inspection.

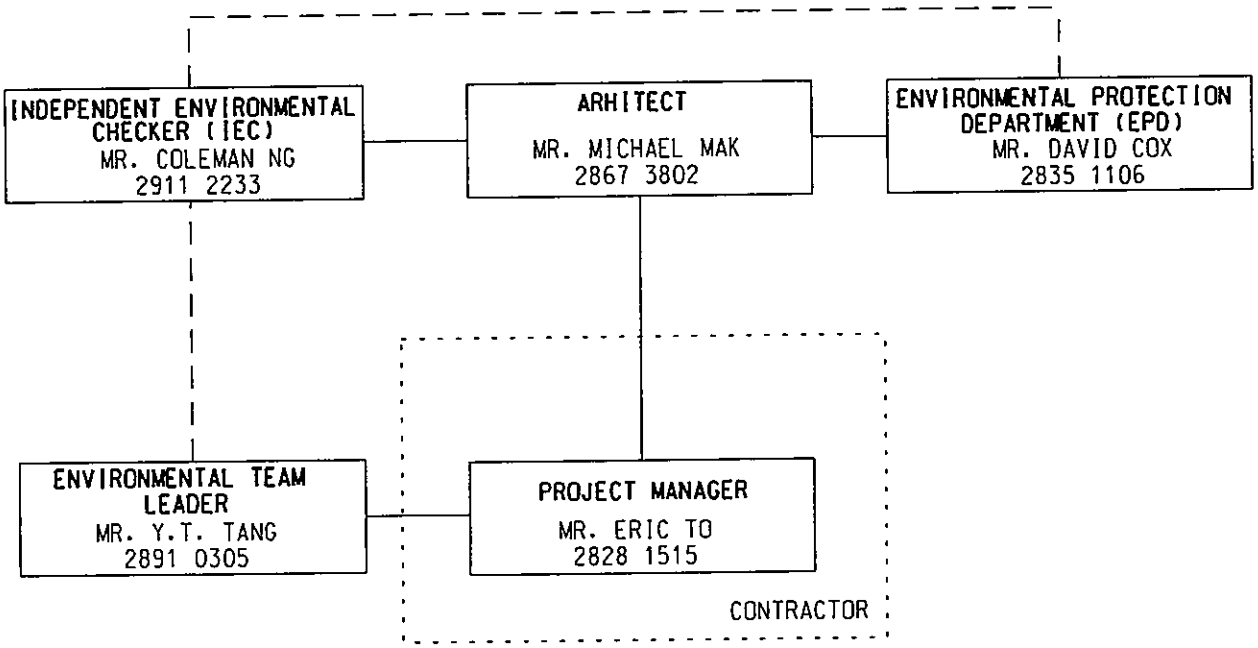
6.5 No environmental complaint, notification summons or successful prosecution was received or made against this Project in the month.

Recommendations

6.6 According to results of weekly environmental site inspections performed in the month and the construction programme for the coming month, recommendations for air quality, construction noise, water quality and waste and chemical management are detailed in Sections 5.1 and 5.2.

FIGURES

PROJECT ORGANIZATION FOR ENVIRONMENTAL MANAGEMENT



LEGEND:

——— DIRECT COMMUNICATION

– – – LIAISON

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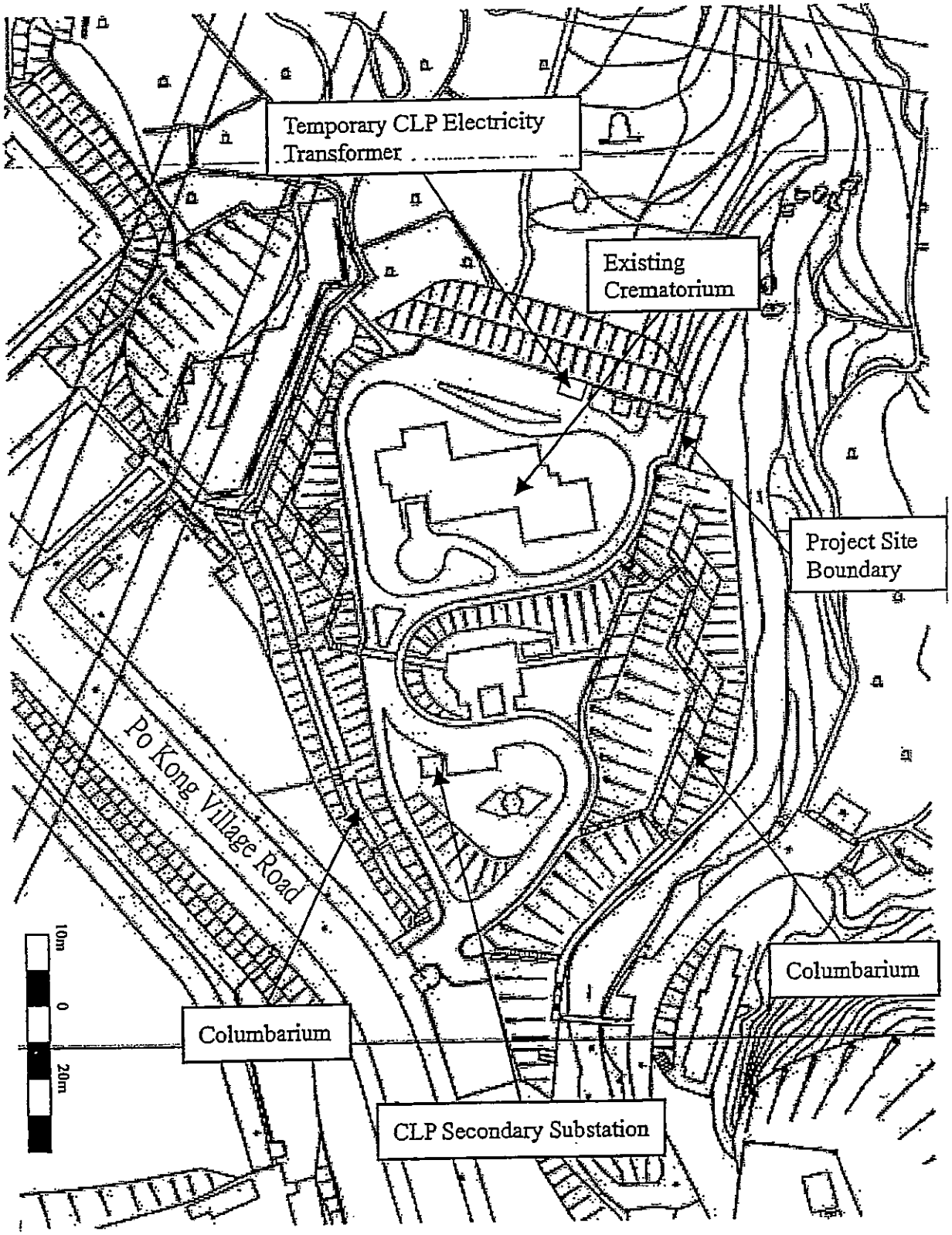

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CONTRACT NO: SS M333 - REPROVISIONING OF DIAMOND HILL CREMATORIUM

LAYOUT OF WORK SITE

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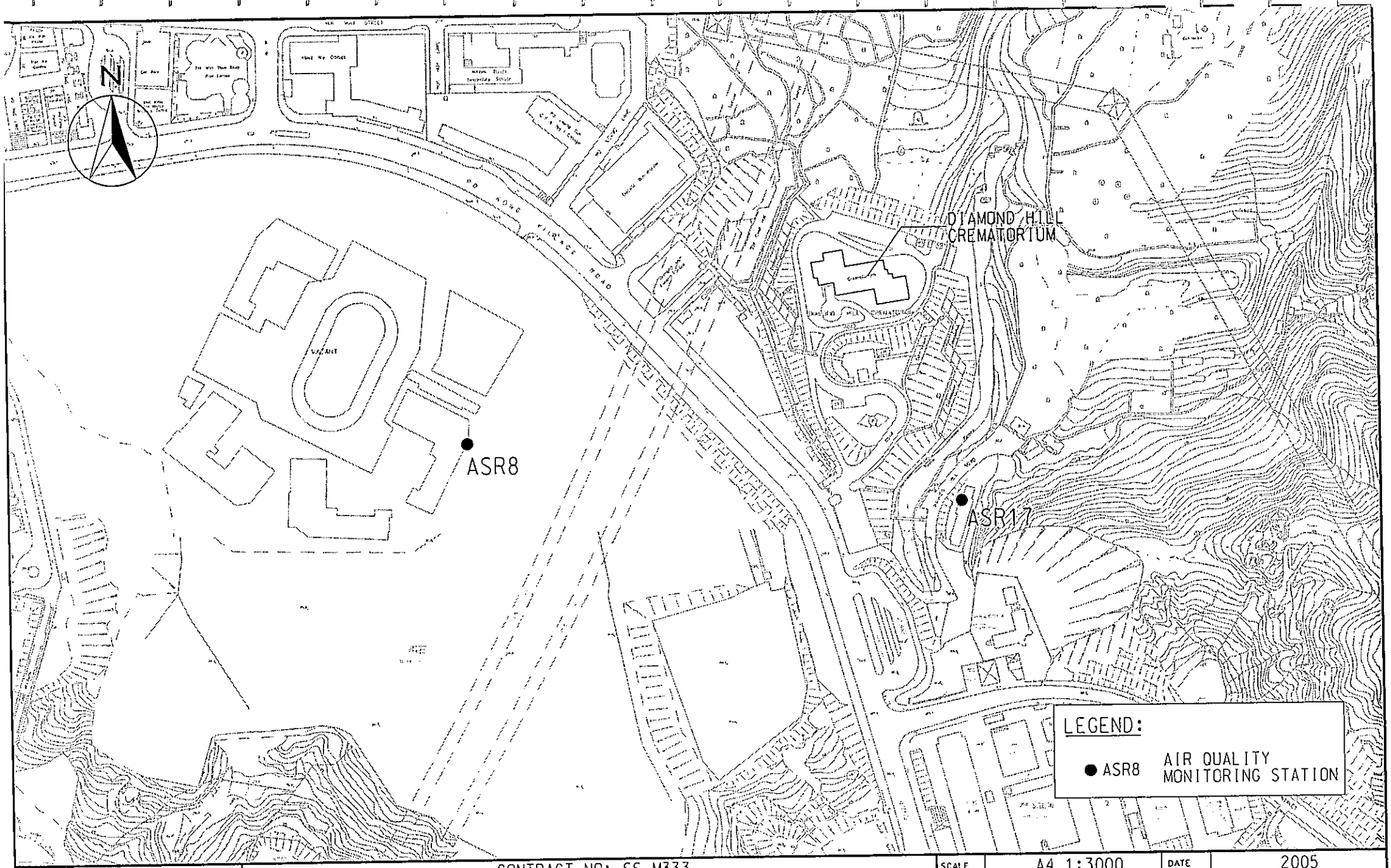

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Maunsell Environmental Management Consultants Ltd

CONTRACT NO: SS M333

REPROVISIONING OF DIAMOND HILL CREMATORIUM

LOCATIONS OF AIR QUALITY MONITORING STATIONS

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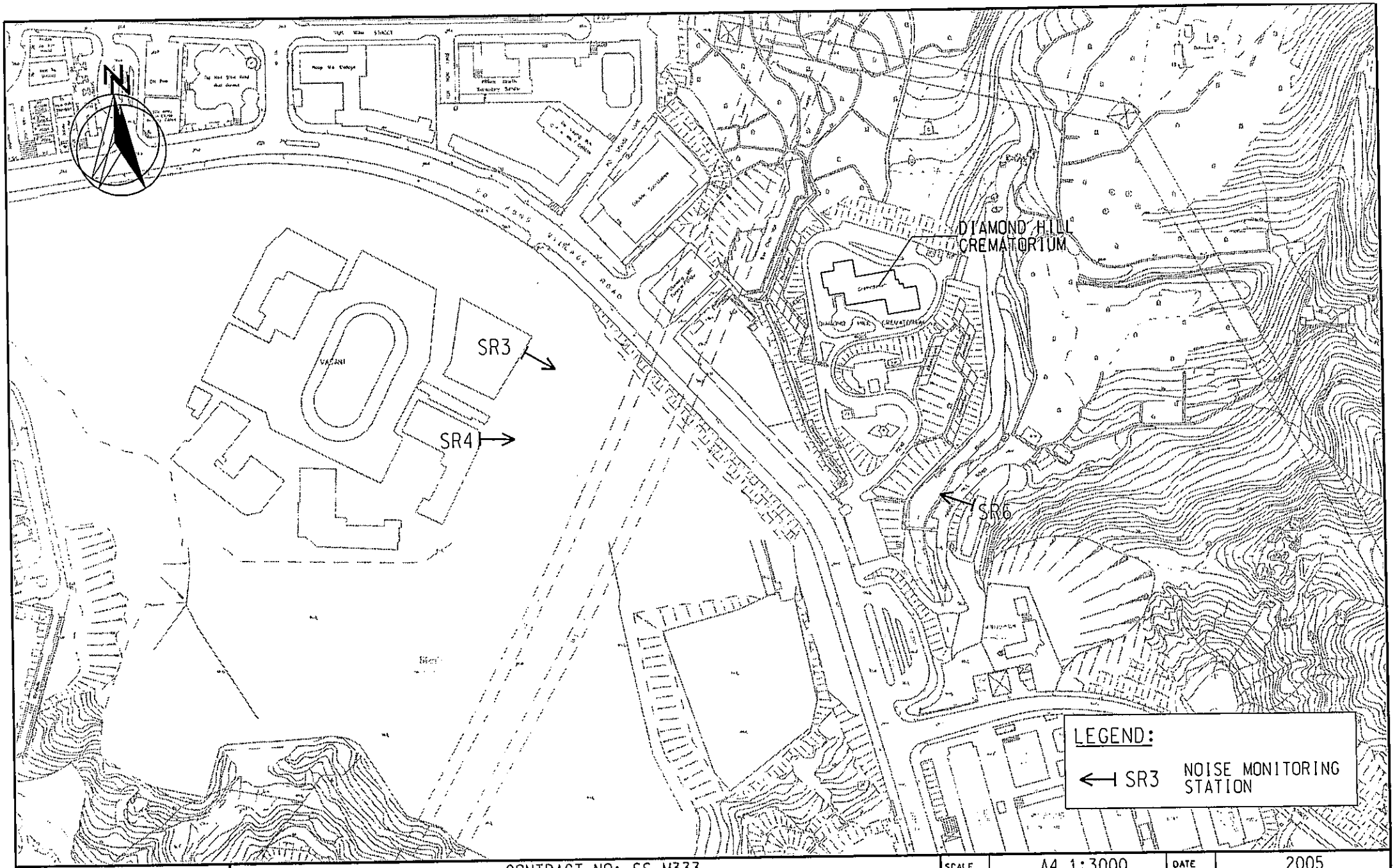


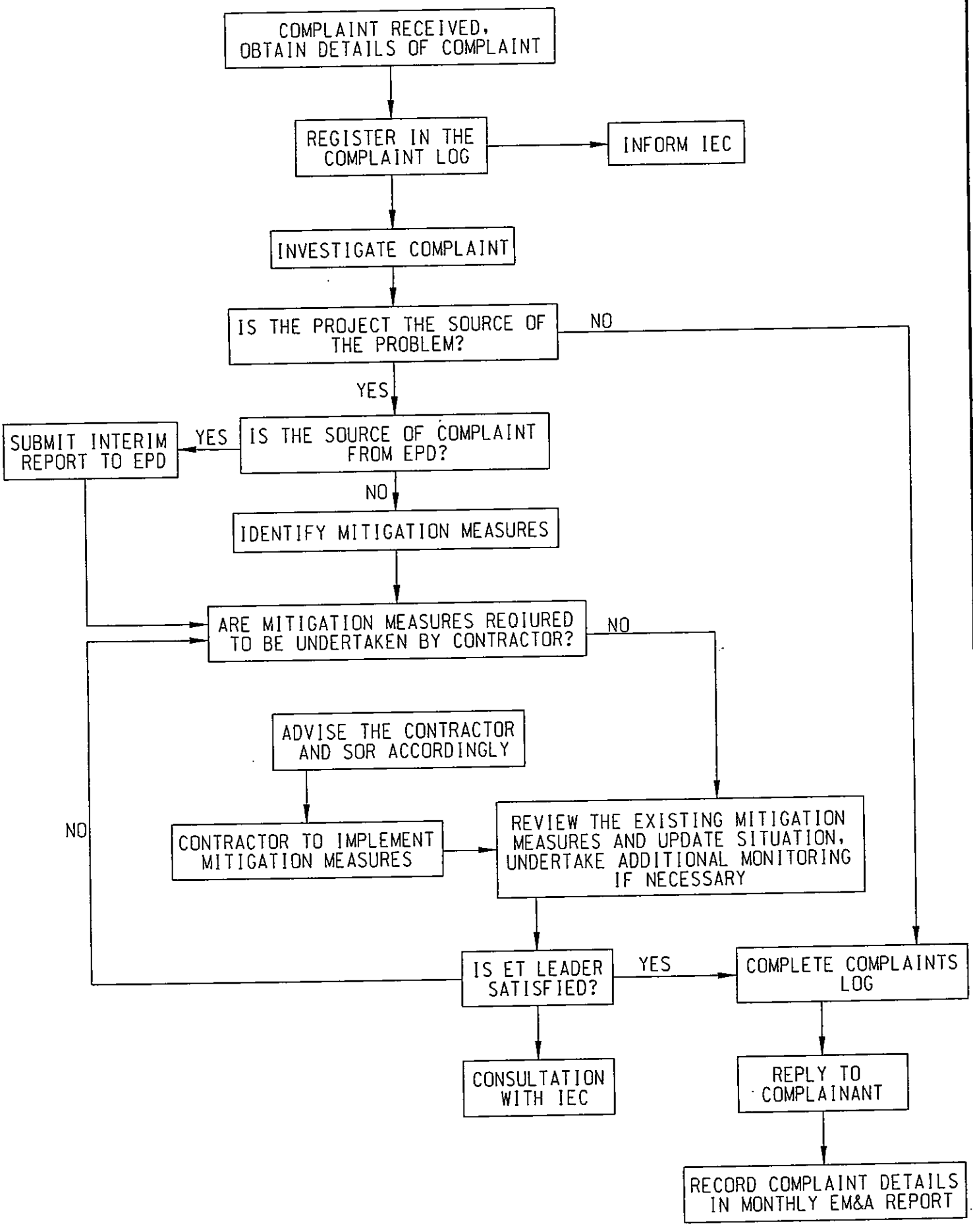
MAUNSELL | AECOM

Maunsell Environmental Management Consultants Ltd

CONTRACT NO: SS M333
REPROVISIONING OF DIAMOND HILL CREMATORIUM

LOCATIONS OF CONSTRUCTION NOISE MONITORING STATIONS

SCALE	A4 1:3000	DATE	2005
CHECK	FSYY	DRAWN	LLMC
JOB No.	S07904	DRAWING No. 3.1	REV -



MAUNSELL | AECOM

Maunsell Environmental Management Consultants Ltd

CONTRACT NO: SS M333 - REPROVISIONING OF DIAMOND HILL CREMATORIUM

COMPLAINT FLOW DIAGRAM

SCALE	N.T.S.	DATE	2005
CHECK	FSYY	DRAWN	LLMC
JOB NO.	S07904	DRAWING NO.	4.1
		REV	–

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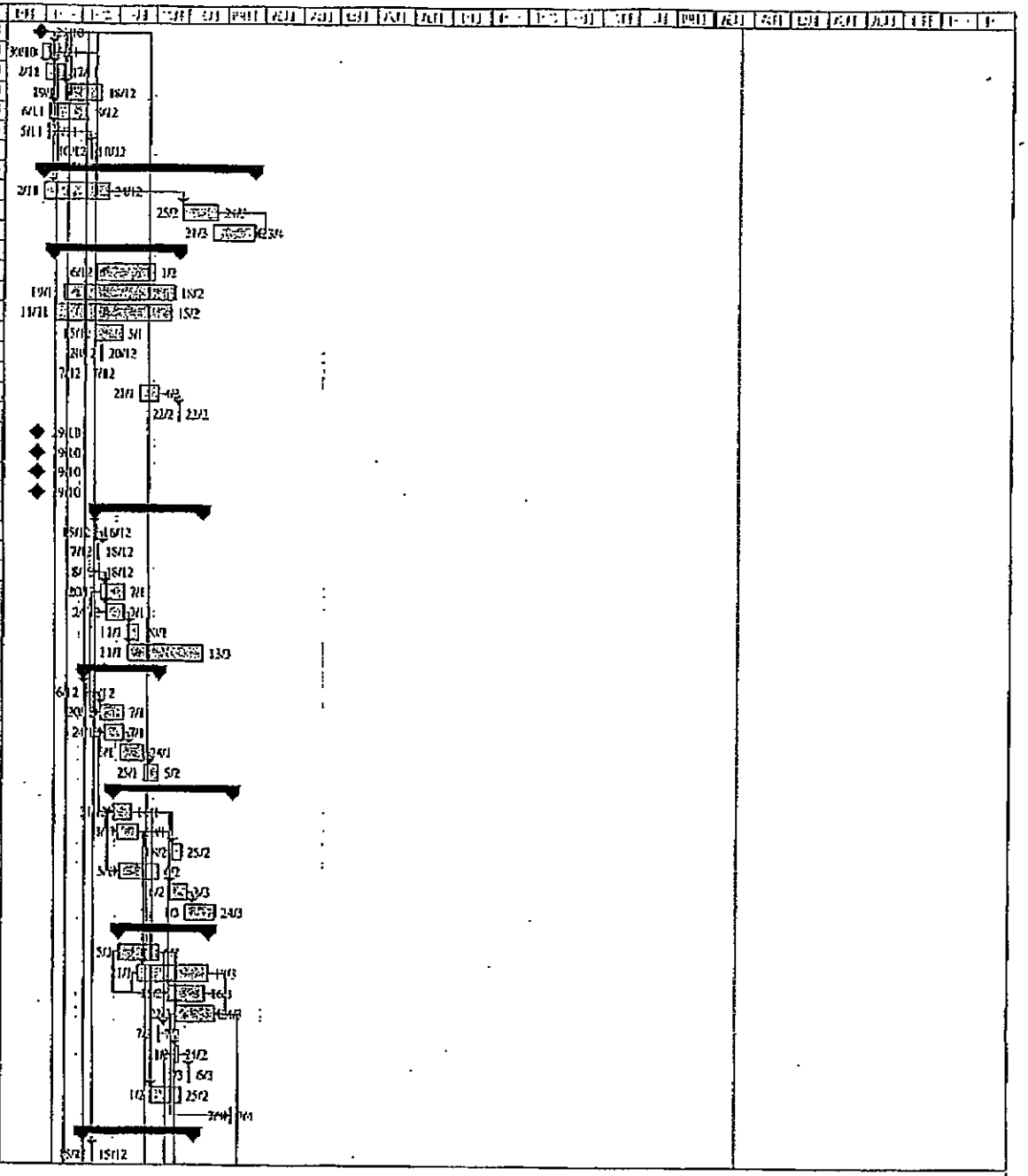
APPENDIX A
KEY CONTACTS OF ENVIRONMENTAL PERSONNEL

Appendix A Key Contacts of Environmental Personnel

Party	Name	Telephone No.	Fax No.
Environmental Protection Department			
SEPO	Mr. David Cox	2835 1106	2591 0558
EPO	Ms. Marlene Ho	2835 1186	2591 0558
EPO (ECD)	Mr. Charles Wu	2117 7540	2756 8588
Architect			
Architectural Services Department			
Project Architect	Mr. Michael Mak	2867 3802	2524 8194
Assistant Architect	Ms. Catty Chan	2867 3598	2524 8194
Independent Environmental Checker			
Hyder Consulting Limited			
IEC	Mr. Coleman Ng	2911 2233	2805 5028
Assistant to IEC	Mr. Adi Lee	2911 2233	2805 5028
Contractor			
China Resources Construction Company Limited			
Project Manager	Mr. Eric To	2828 1515	2827 2921
Environmental Team			
Maunsell Environmental Management Consultants Limited			
ET Leader	Mr. Y.T. Tang	2893 1551	2891 0305
Audit Team Leader	Ms. Florence Yuen	2893 1551	2891 0305
Monitoring Team Leader	Mr. Eddie Yang	2893 1551	2891 0305

APPENDIX B
CONSTRUCTION PROGRAMME

		Task Name	Duration	Start	Finish
1		Site Possession (Section 1)	1 days	29/10/2004	29/10/2004
2		Mobilization	7 days	30/10/2004	5/11/2004
3		Initial Survey	16 days	8/11/2004	17/11/2004
4		Site Office Set Up	30 days	15/11/2004	15/12/2004
5		Tree Survey Report	33 days	6/11/2004	8/12/2004
6		Submit Waste Management Plan	1 day	5/11/2004	5/11/2004
7		Approval of WMP	1 day	10/12/2004	10/12/2004
8		Hoarding Erection	173 days	29/11/2004	23/4/2005
9		Area B (Type 3)	53 days	29/11/2004	24/12/2004
10		Section 1 (Type 1 & 2)	28 days	25/2/2005	24/3/2005
11		Section 1 (Remaining Type 1)	36 days	21/3/2005	23/4/2005
12		CSD for UG Utilities Diversion	104 days	11/11/2004	22/3/2005
13		Revised UG P&D Drawings from ASD	48 days	16/12/2004	1/3/2005
14		Revised UG FS Pipework Drawings from ASD	92 days	19/11/2004	18/2/2005
15		Revised street lighting layout from ASD	97 days	11/11/2004	15/2/2005
16		Locating/ Outing Cable Ducts/ Draw pit Routing	22 days	15/12/2004	5/1/2005
17		Approval of Incoming Cable Ducts / Draw Pit Routing by CLP	1 day	20/12/2004	20/12/2004
18		Submission of CSD (Preliminary)	1 day	7/12/2004	7/12/2004
19		Submission of CSD (Final)	15 days	21/1/2005	4/2/2005
20		Approval of CSD	1 day	22/3/2005	22/3/2005
21		Road Diversion & UG Utilities Diversion	0 days	29/10/2004	29/10/2004
22		Area A - Hexagon Head (Deleted)	0 days	29/10/2004	29/10/2004
23		Area C	0 days	29/10/2004	29/10/2004
24		Area C1 (West Section 1)	0 days	29/10/2004	29/10/2004
25		Site Clearance	89 days	15/12/2004	13/3/2005
26		Relocate Fir. Brick (FEHD)	2 days	15/12/2004	16/12/2004
27		Demolish Exig Planter/ Pavement	2 days	17/12/2004	18/12/2004
28		Temp. Road Paving	1 day	18/12/2004	18/12/2004
29		Hoarding Erection	19 days	20/12/2004	7/1/2005
30		Break Up Existing Pavement	15 days	24/12/2004	7/1/2005
31		Lay Water Pipes (Diversion)	80 days	11/1/2005	26/4/2005
32		Lay Soil & Waste Pipes	62 days	11/1/2005	13/3/2005
33		Area C2 (Near New Tx Room)	62 days	6/12/2004	5/2/2005
34		Demolish Planters & Reparrel	3 days	6/12/2004	8/12/2004
35		Hoarding Erection	19 days	20/12/2004	7/1/2005
36		Break Up Existing Pavement	15 days	24/12/2004	7/1/2005
37		Draupits & Cable Ducts	20 days	5/1/2005	24/1/2005
38		Backfilling & Tarmac (Area C1 & C2)	12 days	25/1/2005	5/2/2005
39		Area B	98 days	31/12/2004	7/4/2005
40		Break Up Exig Road Paving	15 days	31/12/2004	14/1/2005
41		Demolish Exig Tunnel & Backfill	18 days	3/1/2005	20/1/2005
42		Construct Lamp Pole Footing	8 days	18/2/2005	25/2/2005
43		Construct Cable Duct / Draw Pit	33 days	5/1/2005	6/2/2005
44		Reconstruct Catch Pit & Surface Channel	15 days	16/2/2005	2/3/2005
45		Construct New Walkway (1.6m Wide)	24 days	1/3/2005	24/3/2005
46		Construct & Lay UG Services Pipework	34 days	5/1/2005	19/2/2005
47		Draw Pits & Cable Ducts	33 days	5/1/2005	6/2/2005
48		Drainage Pipe & Manholes	55 days	21/1/2005	19/3/2005
49		Watermains (F.S.)	30 days	15/2/2005	16/3/2005
50		Backfill & Connect Road Slab	31 days	22/2/2005	24/3/2005
51		Handover of Draw Pit & Cable Duct	1 day	7/2/2005	7/2/2005
52		Cable Laying by CLP	4 days	24/2/2005	28/2/2005
53		Cable Termination in New Tx Room	2 days	5/3/2005	6/3/2005
54		Diversion of FCCW Cable	25 days	17/2/2005	23/3/2005
55		Set Up Traffic Control Point for Section 1	1 day	7/4/2005	7/4/2005
56		B.S. Installation in New Temp Tx Room (V.O.)	92 days	7/12/2004	8/4/2005
57		Confirm & Issue Design Details of Tx Room & Main Switch Room	1 day	15/12/2004	15/12/2004



		Task Name	Duration	Start	Finish
58		Submission & Approval of MandE Equipment	15 days	7/12/2004	21/12/2004
59		Equipment Ordering & Delivery	30 days	21/12/2004	29/12/2005
60		H.S. Installation Work in Tx Room	28 days	21/12/2004	27/1/2005
61		Handover of Tx Room to CLP	5 days	18/1/2005	25/1/2005
62		Installation Work by CLP	27 days	25/1/2005	26/2/2005
63		Energize New Temp. Tx Room (CLP)	1 day	7/3/2005	7/3/2005
64		Installation of LV Main Switch Board	7 days	28/1/2005	4/2/2005
65		Site test of LV Main Switch Board	1 day	5/2/2005	5/2/2005
66		CLP inspection of LV Main Switch Board	1 day	17/2/2005	17/2/2005
67		Outgoing UG cable laying	5 days	21/2/2005	25/2/2005
68		Cable termination at LV Main Switch Board	2 days	26/2/2005	27/2/2005
69		Power suspension for change of load and resume power	2 days	7/3/2005	8/3/2005
70		SCA for Existing Tx Room	146 days	22/11/2004	14/6/2005
71		Submit Sampling and Analysis Plan	1 day	22/11/2004	22/11/2004
72		Submit SCA Report	3 day	14/6/2005	14/6/2005
73		Demolition Works	175 days	12/11/2004	5/8/2005
74		Submit Demolition Plan	1 day	12/11/2004	12/11/2004
75		Approval of Demolition Plan	105 days	13/11/2004	27/2/2005
76		Temporary Hoarding	3 days	1/3/2005	3/3/2005
77		Relocate top soil from existing Garden of Remembrance	1 day	18/12/2004	18/12/2004
78		Demolish Pavilion	2 days	4/3/2005	5/3/2005
79		Demolish Toilet & Planter	3 days	5/3/2005	7/3/2005
80		Demolish Existing Tx Room	52 days	15/3/2005	5/5/2005
81		Demolish Superstructure	5 days	21/3/2005	25/3/2005
82		Soil Test & Report	30 days	15/3/2005	30/3/2005
83		Submission & Approval by EPD	17 days	19/4/2005	5/5/2005
84		Demolish Floor Slab	1 day	24/3/2005	24/3/2005
85		VEP Submission & Approval	62 days	28/1/2005	30/3/2005
86		Pipe Pile/ Sheet Pile	69 days	13/4/2005	20/6/2005
87		Site Formation (incl. Demolish retaining wall)	175 days	9/4/2005	30/8/2005
88		Foundation Work (Plant Room Area)	97 days	26/8/2005	30/11/2005
89		Foundation Work (Rear Area)	347 days	29/6/2005	18/6/2006
90		Removal of ELS	209 days	4/11/2005	31/5/2006
91		UG service pipework /drainage (Inside Building)	255 days	8/11/2005	20/7/2006
92		LG1 floor slab construction (Plant Room Area)	45 days	1/12/2005	14/1/2006
93		LG1 floor slab construction (Rear Area)	43 days	13/1/2006	24/2/2006
94		Mock-up sample for Fair-face Concrete Wall Panel	182 days	8/4/2005	21/7/2005
95		Preparation of Mock-up sample	102 days	8/4/2005	31/7/2005
96		Inspection & Approval	52 days	31/5/2005	21/7/2005
97		Superstructure	457 days	1/7/2005	30/9/2006
98		Submission & Approval of Temp. Works Design	197 days	26/8/2005	10/5/2006
99		Approval of Delivery Access of Heavy Plants	122 days	1/7/2005	31/10/2005
100		LG/F-G/F (Plant Room Area)	306 days	13/10/2005	26/12/2006
101		LG/F-G/F (Rear Area)	212 days	1/2/2006	31/8/2006
102		G/F-1/F (Plant Room Area)	63 days	11/7/2006	14/9/2006
103		G/F-1/F (Rear Area)	82 days	1/7/2006	20/9/2006
104		1/F-R/F (level 91.35) (Plant Room Area)	98 days	15/5/2006	26/8/2006
105		1/F-R/F (level 91.35) (Rear Area)	61 days	1/8/2006	31/8/2006
106		Level 91.35-102.52 (Plant Room Area)	56 days	1/5/2006	25/5/2006
107		Water Test to Water Tank	61 days	1/4/2006	31/5/2006
108		Internal finishing	471 days	1/9/2005	15/12/2006
109		Plastering & Tiling	150 days	25/5/2006	2/11/2006
110		Sprinkler	144 days	25/5/2006	15/10/2006
111		Blockwork	14 days	2/10/2006	15/10/2006
112		Ceiling Plaster	145 days	1/6/2006	23/10/2006
113		Wall Plaster	139 days	10/6/2006	26/10/2006
114		Wall Tiling	138 days	1/7/2006	15/11/2006

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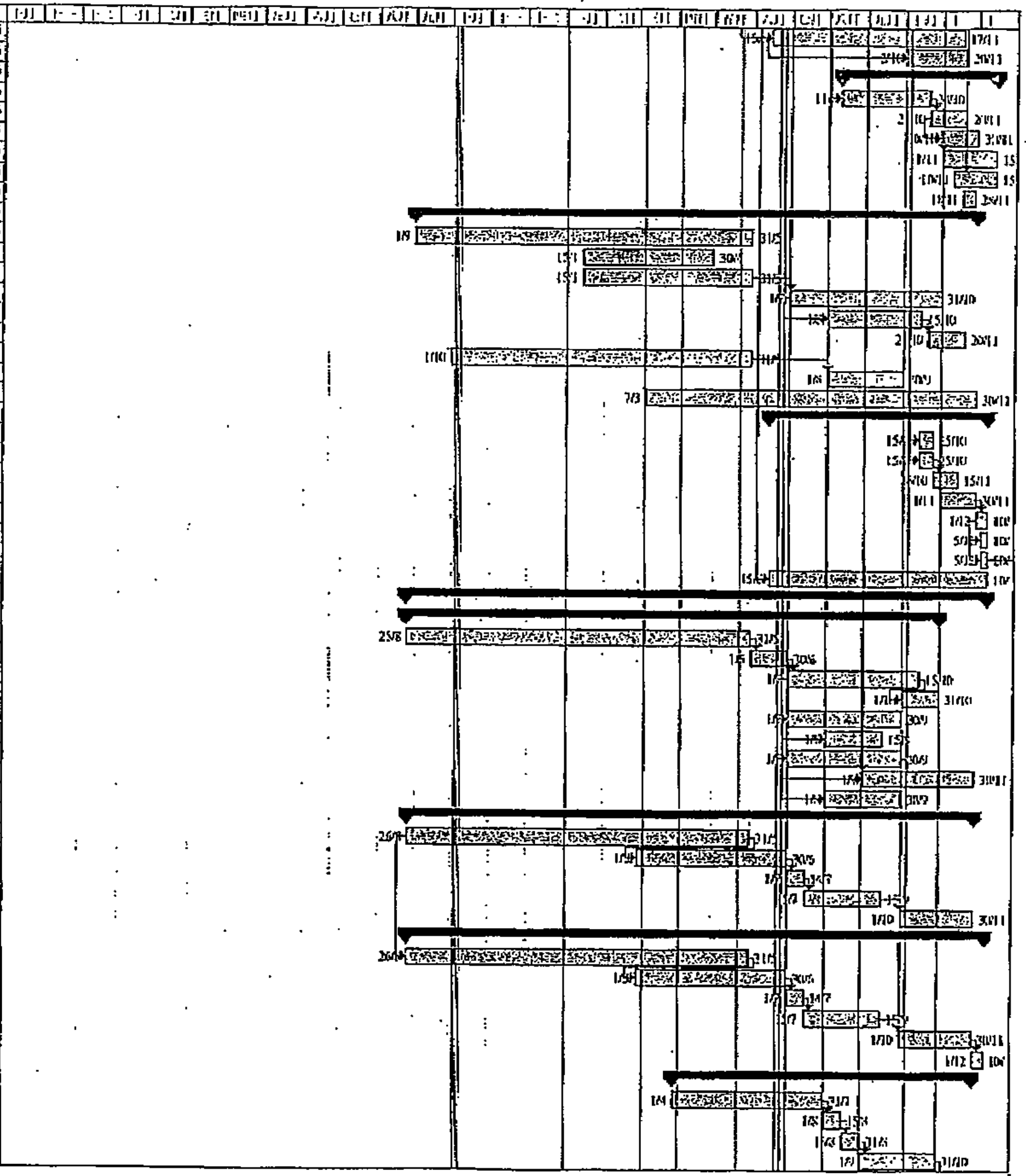
Master Programme for Reconditioning of Diamond Hill Crematorium at Po Kong Village Road, Kowloon, Hong Kong

P 2 of 7

ID	[illegible]	Task Name	[illegible]	[illegible]	[illegible]
115		Floor Screed	156 days	15/6/2006	17/11/2006
116		Floor Tiling	50 days	2/10/2006	20/11/2006
117		Carpentry & Joinery	127 days	11/8/2006	15/12/2006
118		Door Frame Installation	71 days	11/8/2006	20/10/2006
119		Door Installation	31 days	21/10/2006	20/11/2006
120		Ironmongery	32 days	30/10/2006	30/11/2006
121		Cabinet, Vanity Top & Reception Counter	45 days	1/11/2006	15/12/2006
122		Lockers, Access Panel etc	36 days	10/11/2006	15/12/2006
123		Toilet Partition	11 days	18/11/2006	28/11/2006
124		Steel & Metalwork	456 days	1/9/2005	30/11/2006
125		Shop Drawing Submission & Approval	273 days	1/9/2005	31/5/2006
126		Submit & Approval of Fabrication Procedure	106 days	15/1/2006	30/4/2006
127		Sub. & App. of Galvanization & Installation Procedure	137 days	15/1/2006	31/5/2006
128		Handrail & Railing	123 days	1/7/2006	31/10/2006
129		Steel Door Frame	76 days	1/8/2006	15/10/2006
130		Steel Door Installation	31 days	21/10/2006	20/11/2006
131		Shop Drawing Submission and Approval of Roller Shutter	243 days	1/10/2005	31/5/2006
132		Roller Shutter Installation	61 days	1/8/2006	30/9/2006
133		Steel & Metal Work (Miscellaneous)	269 days	7/3/2006	30/11/2006
134		Suspended Ceiling Installation	179 days	15/6/2006	10/12/2006
135		Gypsum Board Ceiling	11 days	15/10/2006	25/10/2006
136		Acoustic false ceiling grid	11 days	15/10/2006	25/10/2006
137		Acoustic false ceiling panel	21 days	26/10/2006	15/11/2006
138		Acoustic Wall Panel	30 days	1/11/2006	30/11/2005
139		Carpet Flooring	10 days	1/12/2006	10/12/2005
140		PVC / S. Steel Tactile	6 days	5/12/2006	10/12/2006
141		Floor Mat	6 days	5/12/2006	10/12/2006
142		Painting	179 days	15/6/2006	10/12/2006
143		External Finishing	473 days	25/8/2005	10/12/2006
144		Aluminium Window & Composite Windows	433 days	25/8/2005	31/10/2006
145		Shop Drawing Submission & Approval	280 days	25/8/2005	31/5/2006
146		Manufacturing & Delivery	30 days	1/6/2006	30/6/2006
147		Window frame and sash	109 days	1/7/2006	15/10/2006
148		Glazing & Sealant	31 days	1/10/2006	31/10/2006
149		External Wall Plastering	92 days	1/7/2006	30/9/2006
150		Recycled Brick Laying	46 days	1/8/2006	15/9/2006
151		External Rubble Stone (Wet Fixing)	92 days	1/7/2006	30/9/2006
152		External Wall Painting	91 days	1/9/2006	30/11/2006
153		Metal Louvre Installation	61 days	1/8/2006	30/9/2006
154		Glass Canopy Installation	462 days	26/8/2005	30/11/2006
155		Shop Drawing Submission & Approval	279 days	26/8/2005	31/5/2006
156		Preparation of Mock Up Sample	122 days	1/3/2006	30/6/2006
157		Visual Inspection & Approval	14 days	1/7/2006	14/7/2006
158		Manufacturing & Delivery	63 days	15/7/2006	15/9/2006
159		Site Installation	61 days	1/10/2006	30/11/2006
160		Skylight Installation	432 days	26/8/2005	10/12/2006
161		Shop Drawing Submission & Approval	279 days	26/8/2005	31/5/2006
162		Preparation of Mock Up Sample	122 days	1/3/2006	30/6/2006
163		Performance Test	14 days	1/7/2006	14/7/2006
164		Manufacturing & Delivery	63 days	15/7/2006	15/9/2006
165		Site Installation	61 days	1/10/2006	30/11/2006
166		Field Test	10 days	1/12/2006	10/12/2006
167		Glass Parapet Wall (Deleted)	244 days	1/4/2006	30/11/2006
168		Shop Drawing Submission & Approval	122 days	1/4/2006	31/7/2006
169		Preparation of Mock Up Sample	15 days	1/8/2006	15/8/2006
170		Visual Inspection & Approval	16 days	16/8/2006	31/8/2006
171		Manufacturing & Delivery	61 days	1/9/2006	31/10/2006



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Dated 22 May 2006
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Master Programme for Reprovisioning of Diamond Hill Crematorium at Po Kong Village Road, Kowloon, Hong Kong

		Task Name	Duration	Start	Finish
172		Site Installation	30 days	30/11/2005	29/12/2005
173		Roofing	138 days	1/7/2005	15/12/2005
174		Cement & Sand Screed	117 days	3/7/2005	25/10/2005
175		Waterproofing	107 days	15/7/2005	28/10/2005
176		Water Test / Ultra Red Scanning	108 days	21/7/2005	31/10/2005
177		Insulation Board	106 days	23/7/2005	5/11/2005
178		Roof Tile	111 days	28/7/2005	15/11/2005
179		BD Shopdrawing & Material Submission	490 days	17/12/2004	31/3/2006
180		Material Submission	490 days	17/12/2004	31/3/2006
181		Shopdrawing Submission	138 days	21/5/2005	5/10/2005
182		LG1	9 days	21/5/2005	29/5/2005
183		G/F	28 days	31/8/2005	7/9/2005
184		1/F	27 days	26/8/2005	21/9/2005
185		R/F	26 days	10/9/2005	5/10/2005
186		Plumbing & Drainage Installation	658 days	26/7/2005	15/12/2006
187		Submit Form WWO 846 Pt. I & II to WWO	1 day	26/7/2005	26/7/2005
188		WWO Acceptance of WWO 846 Pt. III	1 day	7/9/2005	7/9/2005
189		1st Installation - Concealed Piping / Pipe Sleeve	313 days	13/10/2005	30/11/2006
190		2nd Installation - Piping and Riser	62 days	15/8/2006	15/10/2006
191		Sanitary Fitting	19 days	16/10/2006	3/11/2006
192		Testing and Commission	26 days	20/11/2006	15/12/2006
193		Handover Pump Room	1 day	30/9/2006	30/9/2006
194		Pump Room Installation	31 days	1/10/2006	31/10/2006
195		Roadside Pipe Duct	38 days	24/8/2006	3/10/2006
196		Submit Form WWO 846 Pt. IV to WWO	1 day	4/12/2006	4/12/2006
197		WWO Inspection	14 days	11/12/2006	30/12/2006
198		Water Connection	1 day	25/12/2006	25/12/2006
199		UG Drainage Installation / Plumbing / Cable Draw Pits	124 days	15/5/2006	15/9/2006
200		External Area	61 days	17/7/2006	15/9/2006
201		Excavation	15 days	17/7/2006	31/7/2006
202		Laying & Testing	30 days	1/8/2006	30/8/2006
203		Backfilling	16 days	31/8/2006	15/9/2006
204		Drainage Connection to Public System	124 days	15/5/2006	15/9/2006
205		Permit Application	60 days	15/5/2006	13/7/2006
206		Excavation	18 days	14/7/2006	31/7/2006
207		Laying & Testing	26 days	1/8/2006	26/8/2006
208		Backfilling and Reinstatement	20 days	27/8/2006	15/9/2006
209		Submission & Approval for E.S. installation	450 days	6/1/2005	31/3/2006
210		CSD & CWD Submission and Approval	289 days	30/5/2005	14/3/2006
211		LG1	185 days	30/5/2005	30/11/2005
212		G/F	35 days	8/9/2005	12/10/2005
213		1/F	138 days	22/9/2005	10/1/2006
214		R/F	160 days	6/10/2005	14/3/2006
215		Electrical Shopdrawing & Material Submission	429 days	27/12/2005	31/3/2006
216		Material Submission	429 days	27/12/2005	31/3/2006
217		Shopdrawing Submission & Approval	170 days	19/4/2005	5/10/2005
218		LG1	41 days	19/4/2005	29/5/2005
219		G/F	75 days	25/6/2005	7/9/2005
220		1/F	59 days	25/7/2005	21/9/2005
221		R/F	30 days	6/9/2005	5/10/2005
222		E.S. Shopdrawing & Material Submission	423 days	2/2/2005	31/3/2006
223		Material Submission	423 days	2/2/2005	31/3/2006
224		Shopdrawing Submission & Approval	155 days	4/5/2005	5/10/2005
225		LG1	26 days	4/5/2005	29/5/2005
226		G/F	75 days	25/6/2005	7/9/2005
227		1/F	59 days	25/7/2005	21/9/2005
228		R/F	35 days	1/9/2005	5/10/2005

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dtd 22 May 2006

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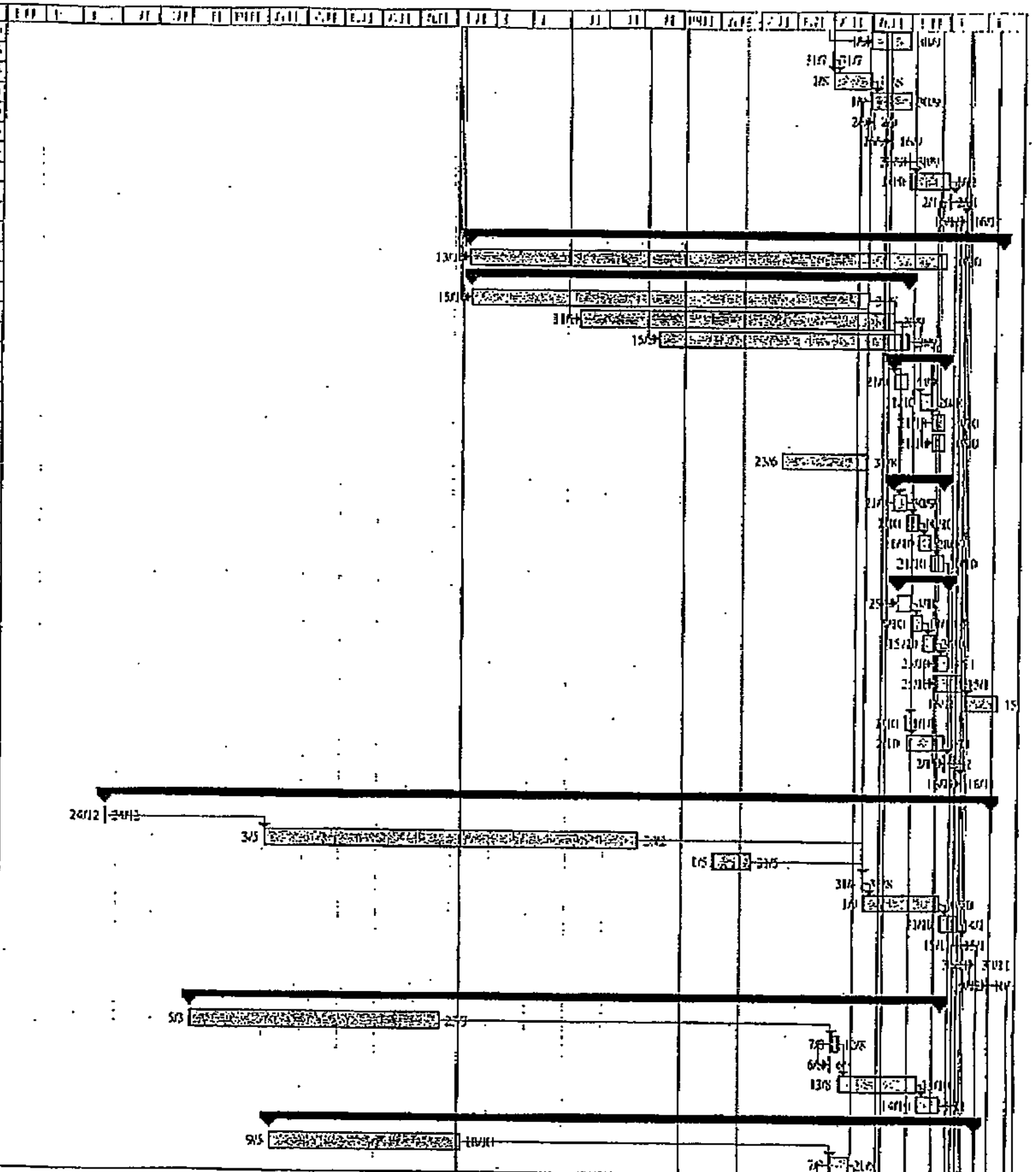
Master Programme for Reprovisioning of Diamond Hill Crematorium at Po Kong Village Road, Kowloon, Hong Kong

P.4 of 7

		Task Name	Duration	Start	Finish
229		HVAC Shopdrawing & Material Submission	315 days	6/1/2005	16/11/2005
230		Material Submission	315 days	6/1/2005	16/11/2005
231		Shopdrawing Submission & Approval	168 days	20/4/2005	5/10/2005
232		LG	38 days	20/4/2005	29/5/2005
233		GF	75 days	25/6/2005	7/10/2005
234		1F	59 days	25/7/2005	21/9/2005
235		RF	35 days	1/9/2005	5/10/2005
236		Electrical Installation	383 days	13/10/2005	30/10/2006
237		1st Fixing - Conduit & Wiring	363 days	13/10/2005	30/10/2006
238		Concealed Conduit Installation	353 days	13/10/2005	30/10/2006
239		LG - GF	323 days	13/10/2005	31/8/2006
240		GF - 1F	253 days	1/11/2005	20/9/2006
241		1F - RF	203 days	15/12/2005	30/9/2006
242		Wiring Works for ELV & Final Submain	40 days	21/9/2006	30/10/2006
243		LG	10 days	21/9/2006	30/9/2006
244		GF	10 days	1/10/2006	20/10/2006
245		1F	10 days	21/10/2006	30/10/2006
246		RF	10 days	21/10/2006	30/10/2006
247		Final Fixing - Fittings	45 days	1/10/2006	14/11/2006
248		Light Fitting & Accessories	45 days	1/10/2006	14/11/2006
249		LG	15 days	1/10/2006	15/10/2006
250		GF	15 days	21/10/2006	31/10/2006
251		1F	15 days	1/11/2006	14/11/2006
252		RF	15 days	1/11/2006	14/11/2006
253		Testing and Commission	47 days	15/10/2006	30/11/2006
254		ELV System Installation	40 days	1/11/2006	10/12/2006
255		Handover of Permanent Tx Room (GF)	1 day	6/6/2006	6/6/2006
256		BS Installation at permant Transformer Room	9 days	7/8/2006	15/8/2006
257		CLP Inspection of permanent Transformer Room	8 days	16/8/2006	23/8/2006
258		Handover permanent Transformer Room to CLP	1 day	24/8/2006	24/8/2006
259		Tx Room Installation	30 days	25/8/2006	23/9/2006
260		Energization to permant Transformer	1 day	24/9/2006	24/9/2006
261		Handover Main Switch Room	1 day	6/6/2006	6/6/2006
262		Factory Tests for LV Switchboard	7 days	28/7/2006	3/8/2006
263		Delivery of LV Switchboard	3 days	4/8/2006	6/8/2006
264		LV Switchboard Installation	22 days	7/8/2006	28/8/2006
265		CLP Inspection	3 days	25/8/2006	27/8/2006
266		Handover of Switch Cupboard	35 days	1/9/2006	5/10/2006
267		Handover UG Cable Ducts and Drawpits	1 day	24/8/2006	24/8/2006
268		Power On (Public)	1 day	28/9/2006	28/9/2006
269		Power On (All Area)	1 day	16/10/2006	16/10/2006
270		Fire Services Installation	12 days	5/12/2005	16/12/2005
271		Submit. Form WWO 046 Pt. I & II to WWO	1 day	5/12/2005	5/12/2005
272		WWO Acceptance of WWO 046 Pt. III	11 days	6/12/2005	16/12/2005
273		1st Fixing - Conduit, Piping and Wiring	600 days	13/10/2005	16/11/2006
274		Concealed Conduit Installation	353 days	13/10/2005	30/9/2006
275		LG - GF	333 days	13/10/2005	31/8/2006
276		GF - 1F	253 days	1/11/2005	20/9/2006
277		1F - RF	203 days	15/12/2005	30/9/2006
278		Cable Wiring	40 days	21/9/2006	30/10/2006
279		LG	10 days	21/9/2006	30/9/2006
280		GF	10 days	11/10/2006	20/10/2006
281		1F	10 days	21/10/2006	30/10/2006
282		RF	10 days	21/10/2006	30/10/2006
283		Water Pipe Installation (Sprinkler pipework)	62 days	1/9/2006	31/8/2006
284		Pipe Hanger Installation	62 days	1/9/2006	31/8/2006
285		Pipework Installation	31 days	1/9/2006	31/8/2006

ID	Task Name	Duration	Start	Finish
286	Final Fixing	30 days	1/8/2006	30/8/2006
287	Handover F.S. Pump Room (L/F)	1 day	31/7/2006	31/7/2006
288	Pump Room Installation	31 days	1/8/2006	31/8/2006
289	Form 314	30 days	1/9/2006	30/9/2006
290	Submit Form WWO 046 Pt. IV to WWO	1 day	2/9/2006	2/9/2006
291	WWO Inspection	1 day	16/9/2006	16/9/2006
292	Water Connection (F.S. Water)	1 day	30/9/2006	30/9/2006
293	Testing and Commission	32 days	1/10/2006	1/11/2006
294	Form 501	1 day	2/11/2006	2/11/2006
295	F.S. Inspection	1 day	16/11/2006	16/11/2006
296	MVAC Installation	429 days	13/10/2005	15/12/2006
297	1st Fixing - Conduit & Wiring	383 days	13/10/2005	30/10/2006
298	Concealed Conduit Installation	351 days	15/10/2005	30/9/2006
299	L/G - G/F	321 days	15/10/2005	31/8/2006
300	G/F - 1/F	253 days	1/1/2006	20/9/2006
301	1/F - R/F	200 days	15/3/2006	30/9/2006
302	Cable Wiring	40 days	21/9/2006	30/10/2006
303	L/G	10 days	21/9/2006	30/9/2006
304	G/F	10 days	11/10/2006	20/10/2006
305	1/F	10 days	21/10/2006	30/10/2006
306	R/F	10 days	21/10/2006	30/10/2006
307	2nd Fixing - Air Ducts, Ventilation Fan and A/C Units	70 days	23/6/2006	31/8/2006
308	Duct Work & Pipework Installation	40 days	21/9/2006	30/10/2006
309	L/G	10 days	21/9/2006	30/9/2006
310	G/F	10 days	1/10/2006	10/10/2006
311	1/F	10 days	11/10/2006	20/10/2006
312	R/F	10 days	21/10/2006	30/10/2006
313	Split Type System, VRV FAP & Ventilation Fan Installation	41 days	25/9/2006	4/11/2006
314	L/G	10 days	25/9/2006	4/10/2006
315	G/F	10 days	5/10/2006	14/10/2006
316	1/F	10 days	15/10/2006	24/10/2006
317	R/F	11 days	25/10/2006	4/11/2006
318	Final Fixing Diffusers Controls etc	22 days	23/10/2006	15/11/2006
319	Testing and Commission	30 days	16/11/2006	15/12/2006
320	Handover of AHU Plant Room (1/F)	1 day	1/10/2006	1/10/2006
321	Plant Room Installation	31 days	2/10/2006	1/11/2006
322	Form 501	1 day	2/11/2006	2/11/2006
323	Ventilation Inspection	1 day	16/11/2006	16/11/2006
324	Lift Installation	717 days	24/12/2004	10/12/2006
325	Nomination of Lift NSC	1 day	24/12/2004	24/12/2004
326	Shopdrawing and Material Submission & Approval	302 days	3/5/2005	28/2/2006
327	Design Submission of Temp.Work Platform inside Lift Shaft	31 days	1/5/2006	31/5/2006
328	Handover Lift Machine Room & Shaft	1 day	31/8/2006	31/8/2006
329	Lift Installation	60 days	1/9/2006	30/10/2006
330	Testing and Commission	15 days	31/10/2006	14/11/2006
331	Form 5	1 day	15/11/2006	15/11/2006
332	EMSD Inspection	3 day	30/11/2006	30/11/2006
333	Lift Certificate	1 day	10/12/2006	10/12/2006
334	Emergency Gen Set Installation	607 days	5/3/2005	1/11/2006
335	Shop Drawing and Material Submission & Approval	203 days	5/5/2005	23/11/2005
336	Delivery of Material / Equipment	6 days	7/8/2006	12/8/2006
337	Handover of E.Gen Set Room (G/F)	1 day	6/8/2006	6/8/2006
338	Gen Set Installation	62 days	13/8/2006	13/10/2006
339	Testing and Commissioning	19 days	14/10/2006	1/11/2006
340	Filtration System	571 days	9/5/2005	30/11/2006
341	Shop Drawing and Material Submission & Approval	155 days	9/5/2005	10/10/2005
342	Delivery of Material / Equipment	15 days	7/8/2006	21/8/2006



med by : Mr Kevin Chin
gramme ref.: DHC/MP/SL/001 Rev.11
ed : 22 May 2006
roved by :

Master Programme for Reprovisioning of Diamond Hill Crematorium at Po Kong Village Road, Kowloon, Hong Kong

		Task Name	Duration	Start	Finish
343		Handover of Filtration Fuel Room (GF)	1 day	6/4/2006	6/4/2006
344		Pipework Installation & Filtration Plant Installation	55 days	22/8/2006	15/10/2006
345		Testing and Commissioning	30 days	16/10/2006	30/11/2006
346		Chemalox Plant Installation (HSC)	721 days	28/12/2004	13/12/2006
347		Shop Drawing & Equipment Submission and Approval	270 days	28/12/2004	23/01/2006
348		Sub. & App. of Method Statement for Erection of Steelwork inside Chimney	61 days	16/12/2006	31/12/2006
349		Chemalox Plant Installation	166 days	5/6/2006	17/9/2006
350		Testing & Commissioning	92 days	18/9/2006	18/12/2006
351		Works by Specialist Contractors / Public Utility	62 days	16/10/2006	16/12/2006
352		CCTV & PA System	61 days	16/10/2006	15/12/2006
353		Client's fittings and fixtures	61 days	16/10/2006	15/12/2006
354		Handover of TBE Room	1 day	16/11/2006	16/11/2006
355		Telephone Installation	30 days	17/11/2006	16/12/2006
356		External works	342 days	11/7/2005	18/12/2006
357		EVA Construction	263 days	11/1/2006	30/12/2006
358		Excavation for Footing	151 days	11/1/2006	1/9/2006
359		Concrete Footing	162 days	25/1/2006	15/9/2006
360		Concrete Wall	130 days	13/3/2006	30/8/2006
361		UG Services	45 days	1/8/2006	15/9/2006
362		Backfilling	16 days	16/9/2006	3/10/2006
363		Road Slab	31 days	1/8/2006	31/8/2006
364		Precast Wall	30 days	1/8/2006	30/8/2006
365		UG Fuel Tank Construction	101 days	17/1/2006	27/6/2006
366		Installation of Fuel Tank	20 days	15/9/2006	3/10/2006
367		DG Inspection & License	31 days	1/8/2006	31/8/2006
368		Planter & Planter Curb	30 days	16/8/2006	15/9/2006
369		Finishes to Planters	46 days	16/10/2006	30/11/2006
370		Granite Paver	46 days	16/10/2006	30/11/2006
371		External Works Fencing	61 days	16/10/2006	15/12/2006
372		Temporary Staircase - Design Submission & Approval	61 days	1/8/2006	31/8/2006
373		Temporary Staircase - Construction	31 days	1/9/2006	31/10/2006
374		Soft landscape	30 days	16/11/2006	15/12/2006
375		Removal of Scaffolding	31 days	1/10/2006	31/10/2006
376		Removal of Tower Crane	5 days	1/10/2006	5/10/2006
377		Facad cleaning	18 days	1/12/2006	18/12/2006
378		Project Key Milestone Date	161 days	1/8/2006	18/12/2006
379		CLP Inspection	3 days	25/8/2006	27/8/2006
380		Permanent Power On	0 days	28/8/2006	28/8/2006
381		Seberic WWD#1 (Part IV) (Fr & Fl)	0 days	4/11/2006	4/11/2006
382		WWO Inspection	0 days	11/11/2006	11/11/2006
383		Permanent Water Supply (Fr & Fl)	0 days	23/11/2006	23/11/2006
384		Submit Form 5	0 days	15/11/2006	15/11/2006
385		EMSD inspection	0 days	30/11/2006	30/11/2006
386		Lift certificate	0 days	18/12/2006	18/12/2006
387		Submit & Approval of Final GBP	31 days	1/9/2006	31/10/2006
388		Submit & Approval of Form 314	30 days	1/9/2006	30/9/2006
389		Submit Form 501	0 days	2/11/2006	2/11/2006
390		F.S. Inspection	1 day	16/11/2006	16/11/2006
391		F.S. Certificate	1 day	1/12/2006	1/12/2006
392		Handover of Section 1	1 day	18/12/2006	18/12/2006

APPENDIX C
ENVIRONMENTAL ACTION AND LIMIT LEVELS

Appendix C Environmental Action and Limit Levels

Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
ASR8	195.0	260
ASR17	174.1	260

Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
ASR8	408.1	500
ASR17	408.4	500

Action and Limit Levels (L_{eq}) for Construction Noise

<table>
<tr><th rowspan="2">Time Period</th><th rowspan="2">Action Level</th><th colspan="3">Limit Level</th></tr>
<tr><th>SR3</th><th>SR4</th><th>SR6</th></tr>
<tr><td>0700 – 1900 hours on normal weekdays</td><td rowspan="3">When one documented complaint is received from any one of the sensitive receivers</td><td>70/65*</td><td>70/65*</td><td>75</td></tr>
<tr><td>0700 – 2300 hours on public holidays including Sundays and
1900 – 2300 hours on all days</td><td colspan="3" rowspan="2">Subject to requirements stipulated in future Construction Noise Permits</td></tr>
<tr><td>2300 – 0700 on all days</td></tr>
</table>

*reduce to 70dB(A) for schools and 65dB(A) during school examination periods

APPENDIX D
ENVIRONMENTAL MONITORING AND AUDIT SCHEDULES

Reprovisioning of Diamond Hill Crematorium
Impact Air Quality and Noise Monitoring and Audit Schedule for May 2006

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30-Apr	01-May	02-May	03-May	04-May	05-May	06-May
	[redacted]		Site Environmental Audit	24-hour TSP	[redacted]	1-hour TSP Noise
07-May	08-May	09-May	10-May	11-May	12-May	13-May
			24-hour TSP Site Environmental Audit	1-hour TSP Noise		
14-May	15-May	16-May	17-May	18-May	19-May	20-May
		24-hour TSP	Site Environmental Audit	1-hour TSP Noise		
21-May	22-May	23-May	24-May	25-May	26-May	27-May
	24-hour TSP	1-hour TSP Noise	Site Environmental Audit			24-hour TSP
28-May	29-May	30-May	31-May			
	1-hour TSP Noise		[redacted]			

The schedule is subject to change due to unforeseeable circumstances (adverse weather, etc)

Reprovisioning of Diamond Hill Crematorium
Tentative Impact Air Quality and Noise Monitoring and Audit Schedule for June 2006

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				01-Jun	02-Jun	03-Jun
				Site Environmental Audit	24-hour TSP	1-hour TSP
04-Jun	05-Jun	06-Jun	07-Jun	08-Jun	09-Jun	10-Jun
			Site Environmental Audit	24-hour TSP	1-hour TSP Noise	
11-Jun	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun	17-Jun
			24-hour TSP Site Environmental Audit	1-hour TSP Noise		
18-Jun	19-Jun	20-Jun	21-Jun	22-Jun	23-Jun	24-Jun
		24-hour TSP	1-hour TSP Noise Site Environmental Audit			
25-Jun	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun	
	24-hour TSP	1-hour TSP Noise	Site Environmental Audit		24-hour TSP	

The schedule is subject to change due to unforeseeable circumstances (adverse weather, etc)

Reprovisioning of Diamond Hill Crematorium
Tentative Impact Air Quality and Noise Monitoring and Audit Schedule for July 2006

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Jul
02-Jul	03-Jul	04-Jul	05-Jul	06-Jul	07-Jul	08-Jul
	1-hour TSP Noise		Site Environmental Audit		24-hour TSP	1-hour TSP
09-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	15-Jul
			Site Environmental Audit	24-hour TSP	1-hour TSP Noise	
16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul
			24-hour TSP Site Environmental Audit	1-hour TSP Noise		
23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul
		24-hour TSP	1-hour TSP Noise Site Environmental Audit		24-hour TSP	
30-Jul	31-Jul					
	24-hour TSP					

The schedule is subject to change due to unforeseeable circumstances (adverse weather, etc)

Reprovisioning of Diamond Hill Crematorium
Tentative Impact Air Quality and Noise Monitoring and Audit Schedule for August 2006

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		01-Aug	02-Aug	03-Aug	04-Aug	05-Aug
		1-hour TSP Noise	Site Environmental Audit			24-hour TSP
06-Aug	07-Aug	08-Aug	09-Aug	10-Aug	11-Aug	12-Aug
	1-hour TSP Noise		Site Environmental Audit		24-hour TSP	1-hour TSP
13-Aug	14-Aug	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug
			Site Environmental Audit	24-hour TSP	1-hour TSP Noise	
20-Aug	21-Aug	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug
			24-hour TSP Site Environmental Audit	1-hour TSP Noise		
27-Aug	28-Aug	29-Aug	30-Aug	31-Aug	01-Sep	02-Sep
		24-hour TSP	1-hour TSP Noise Site Environmental Audit			

The schedule is subject to change due to unforeseeable circumstances (adverse weather, etc)

APPENDIX E
CALIBRATION DETAILS

Maunsell Environmental Management Consultants Ltd.
TSP High Volume Sampler
Field Calibration Report

Station	Po Leung Kuk Grandmont Primary School (ASR8)	Operator:	Porky Chu
Cal. Date:	06-Apr-06	Next Due Date:	06-Jun-06
Equipment No.:	A-001-69T	Serial No.	0716

Ambient Condition			
Temperature, Ta (K)	297	Pressure, Pa (mmHg)	761.9

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	2.00878	Intercept, bc	0.00015
Last Calibration Date:	15-Nov-05	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	15-Nov-06	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) X - axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	13.7	3.71	1.85	53.0	53.16
13	12.4	3.53	1.76	49.0	49.14
10	8.7	2.96	1.47	41.0	41.12
7	7.3	2.71	1.35	36.0	36.11
5	3.1	1.77	0.88	22.0	22.06

By Linear Regression of Y on X

Slope , mw = 31.7179 **Intercept, bw =** -6.0309

Correlation Coefficient* = 0.9977

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $IC = \{ mw \times Qstd + bw \} \times [(760 / Pa) \times (Ta / 298)]^{1/2} =$ 35.10

Remarks:

QC Reviewer: Eddie Jang Signature: Eddie Date: 14.4.2006

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Maunsell Environmental Management Consultants Ltd.
TSP High Volume Sampler
Field Calibration Report

Station	Staff Quarter For Diamond Hill Crematorium (ASR17)	Operator:	Porky Chu
Cal. Date:	06-Apr-06	Next Due Date:	06-Jun-06
Equipment No.:	A-001-21T	Serial No.	10278

Ambient Condition			
Temperature, Ta (K)	297	Pressure, Pa (mmHg)	761.9

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	2.00878	Intercept, bc	0.00015
Last Calibration Date:	15-Nov-05	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	15-Nov-06	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) X - axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	12.8	3.59	1.79	48.0	48.14
13	11.7	3.43	1.71	46.0	46.13
10	9.2	3.04	1.51	40.0	40.12
7	7.8	2.80	1.39	37.0	37.11
5	3.6	1.90	0.95	25.0	25.07

By Linear Regression of Y on X

Slope , mw = 27.5671 Intercept, bw = -1.2073

Correlation Coefficient* = 0.9991

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $IC = (mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2}$ = 34.53

Remarks:

QC Reviewer: Eddie Jong Signature: Date: 14.4.2006

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MAUNSELL | AECOM

EQUIPMENT CALIBRATION RECORD

Type: *Laser Dust Monitor*
Manufacturer/Brand: *SIBATA*
Model No.: *LD-1*
Equipment No.: *A.005.05a*
Sensitivity Adjustment Scale Setting: *510 CPM*

Operator: *Eddie Yang (EWNY)*

Standard Equipment

Equipment: *Rupprecht & Patashnick TEOM®*
Venue: *Cyberport (Pui Ying Secondary School)*
Model No.: *Series 1400AB*
Serial No: Control: *140AB219899803*
Sensor: *1200C143659803* K_o: *12500*
Last Calibration Date*: *18 June 2005*

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): *510* CPM
Sensitivity Adjustment Scale Setting (After Calibration): *510* CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration (mg/m³) Y-axis	Total Count[2]	Count/ Minute[3] X-axis
			Temp (°C)	R.H. (%)			
1	*09-07-05*	*10:00 - 11:00*	*27.3*	*90*	*0.04908*	*2087*	*34.78*
2	*09-07-05*	*14:00 - 15:00*	*28.6*	*85*	*0.03566*	*1711*	*28.52*
3	*09-07-05*	*15:00 - 16:00*	*28.2*	*84*	*0.03059*	*1495*	*24.92*
4	*09-07-05*	*16:00 - 17:00*	*28.3*	*84*	*0.02393*	*1189*	*19.82*

Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®
2. Total Count was logged by Laser Dust Monitor
3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X
Slope (K-factor): *0.0013*
Correlation coefficient: *0.9311*

Validity of Calibration Record: *9 July 2006*

Remarks:

QC Reviewer: *Eddie Yang* Signature: Date: 9/7/2005

MAUNSELL | AECOM

EQUIPMENT CALIBRATION RECORD

Type: *Laser Dust Monitor*
Manufacturer/Brand: *SIBATA*
Model No.: *LD-3*
Equipment No.: *A.005.07a*
Sensitivity Adjustment Scale Setting: *557 CPM*

Operator: *Eddie Yang (EWNY)*

Standard Equipment

Equipment: *Rupprecht & Patashnick TEOM®*
Venue: *Cyberport (Pui Ying Secondary School)*
Model No.: *Series 1400AB*
Serial No: Control: *140AB219899803*
Sensor: *1200C143659803* K_o: *12500*
Last Calibration Date*: *18 June 2005*

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): *557* CPM
Sensitivity Adjustment Scale Setting (After Calibration): *557* CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration[1] (mg/m^3) Y-axis	Total Count[2]	Count/ Minute[3] X-axis
			Temp (°C)	R.H. (%)			
1	19-06-05	10:00 - 11:00	29.3	81	0.02866	731	12.18
2	19-06-05	11:00 - 12:00	29.3	80	0.02849	721	12.02
3	19-06-05	12:00 - 13:00	29.4	80	0.02709	695	11.58
4	19-06-05	15:00 - 16:00	28.9	82	0.02740	707	11.78

Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®
2. Total Count was logged by Laser Dust Monitor
3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X
Slope (K-factor): *0.0023*
Correlation coefficient: *0.9169*

Validity of Calibration Record: *19 June 2006*

Remarks:

QC Reviewer: *Eddie Yang* Signature: Date: 19/6/2005

SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 8/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. Tel : (852) 2873 6860
Fax : (852) 2555 7533
E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

Certificate No.: 06CA0525 01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Class I)	Microphone	Preamp
Manufacturer:	Rion, Co., Ltd.	Rion, Co. Ltd.	Rion, Co. Ltd.
Type/Model No.:	NL-31	UC-53A	NH-21
Serial/Equipment No.:	00320528	102439	03575
Adaptors used:	-	-	

Item submitted by

Client: Maunsell Environmental Management Consultants Ltd.
Request No.: -
Date of request: 25-May-2006

Date of test: 26-May-2006

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	11-Jan-2007	CIGISMEC
Measuring amplifier	B&K 2610	2346941	30-Nov-2006	SCM
Signal generator	DS 360	33873	30-Nov-2006	SCM
Signal generator	DS 360	61227	06-Jun-2006	NIM

Ambient conditions

Temperature: (22 ± 1) °C
Relative humidity: (65 ± 10) %
Air pressure: (1000 ± 10) hPa

Test specifications

1. The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
2. The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
3. The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheet.

Approved Signatory: Huang Jian Min Date: 26-May-2006 Company Chop: SOILS & MATERIALS ENGINEERING CO. LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
香港黃竹坑道37號利達中心地下、9樓、12樓、13樓及20樓
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Tel : (852) 2873 6860
Fax : (852) 2555 7533
HOKLAS 028

CERTIFICATE OF CALIBRATION

Certificate No.: 05CA0708 01-07 **Page:** 1 of 2

Item tested

Description:	Sound Calibrator (Class 1)
Manufacturer:	Rion Co., Ltd.
Type/Model No.:	NC-73
Serial/Equipment No.:	10307216 / N.004.06
Adaptors used:	-

Item submitted by

Client:	Maunsell Environmental Management Consultants Ltd.
Request No.:	-
Date of request:	08-Jul-2005

Date of test: 13-Jul-2005

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	10-Nov-2005	NIM
Preamplifier	B&K 2673	2239857	09-Nov-2005	NIM
Measuring amplifier	B&K 2610	2346941	09-Nov-2005	NIM
Signal generator	DS 360	61227	06-Jun-2006	NIM
Digital multi-meter	34401A	US36087050	22-Nov-2005	SCM
Audio analyzer	8903B	GB41300350	08-Nov-2005	NIM
Universal counter	53132A	MY40003662	08-Jun-2006	NIM

Ambient conditions

Temperature:	23 ± 1 °C
Relative humidity:	60 ± 10 %
Air pressure:	1000 ± 10 hPa

Test specifications

1. The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
2. The calibrator was tested with its axis vertical facing downwards at the specific frequency using equivalent insert voltage technique.
3. The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Huang Jian Min **Date:** 13-Jul-2005 **Company Chop:**

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

APPENDIX F
AIR QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATION

APPENDIX F: Air Quality Monitoring Results

1-hour TSP Monitoring Results at Station ASR8

Date	Starting Time	Concentration, μg/m3			
		1st	2nd	3rd	Average
6-May-06	13:00	141.3	141.0	142.2	141.5
11-May-06	10:30	166.5	163.2	162.2	164.0
18-May-06	14:00	112.2	109.7	111.7	111.2
23-May-06	13:00	121.2	122.9	128.0	124.0
29-May-06	14:00	139.3	140.8	140.2	140.1
				Min.	109.7
				Max.	166.5
				Average	136.2

1-hour TSP Monitoring Results at Station ASR17

Date	Starting Time	Concentration, μg/m3			
		1st	2nd	3rd	Average
6-May-06	13:00	154.0	152.9	154.6	153.8
11-May-06	10:30	169.7	160.2	163.3	164.4
18-May-06	14:00	134.0	127.4	126.9	129.4
23-May-06	13:00	135.7	142.3	142.2	140.1
29-May-06	14:00	129.2	126.5	126.6	127.4
				Min.	126.5
				Max.	169.7
				Average	143.0

Remark: Bold value indicated an Action level exceedance
Bold & Italic value indicated an Limit level exceedance

APPENDIX F: Air Quality Monitoring Results

24-hour TSP Monitoring Results at Station ASR8

Date	Filter Weight (g)		Flow Rate (m^3/min.)		Elapse Time		Sampling Time(hrs.)	Conc. ($\mu g/m^3$)	Weather Condition	Particulate weight(g)	Av. flow (m^3/min)	Total vol. (m^3)
	Initial	Final	Initial	Final	Initial	Final						
4-May-06	3.4518	3.6590	1.34	1.34	2510.2	2534.2	24.0	107.2	Sunny	0.21	1.34	1932.5
10-May-06	3.5306	3.6044	1.37	1.37	2534.2	2558.2	24.0	37.5	Sunny	0.07	1.37	1969.9
16-May-06	3.5413	3.6083	1.22	1.22	2534.2	2558.2	24.0	38.2	Cloudy	0.07	1.22	1753.9
22-May-06	3.5232	3.6037	1.34	1.34	2558.2	2582.2	24.0	41.7	Cloudy	0.08	1.34	1932.5
27-May-06	3.6144	3.6725	1.34	1.34	2582.2	2606.2	24.0	30.1	Cloudy	0.06	1.34	1932.5

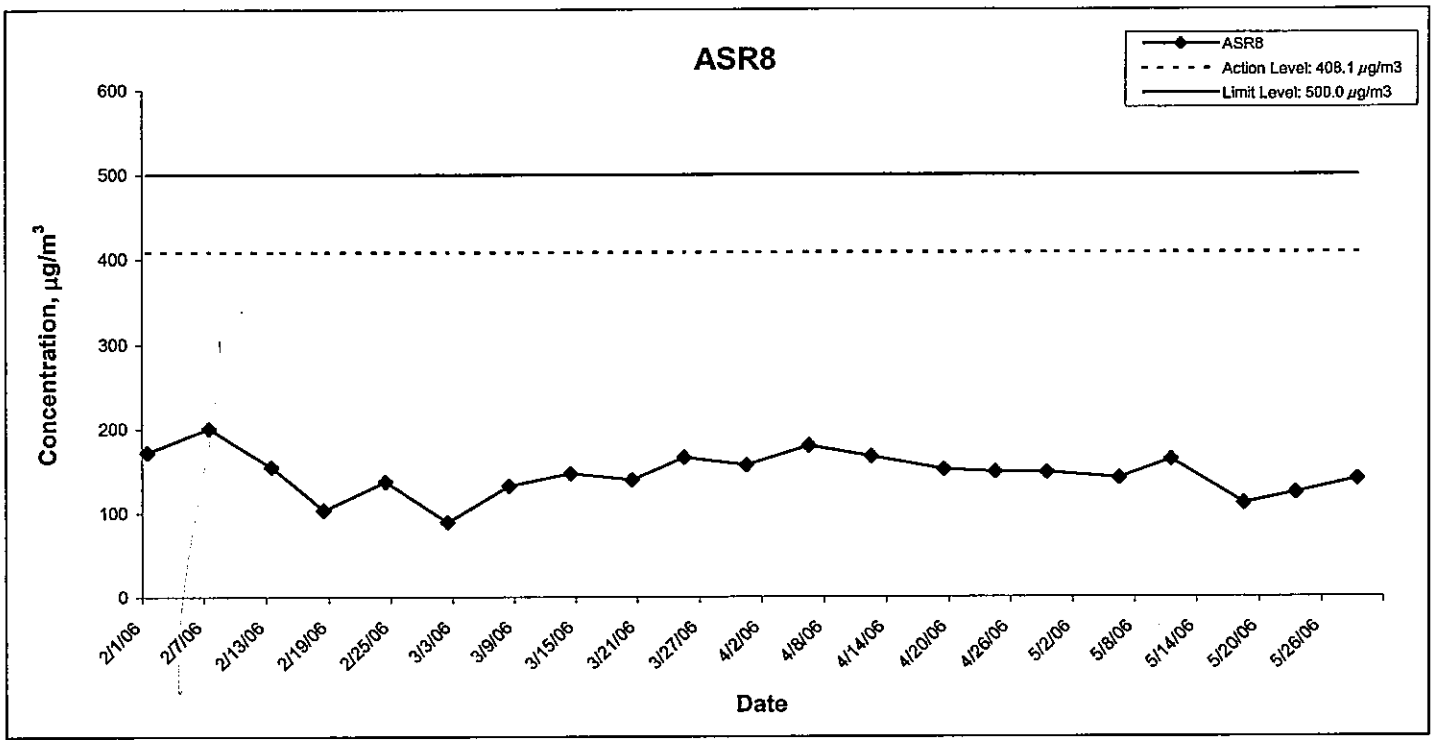
Min	30.1
Max	107.2
Average	50.9

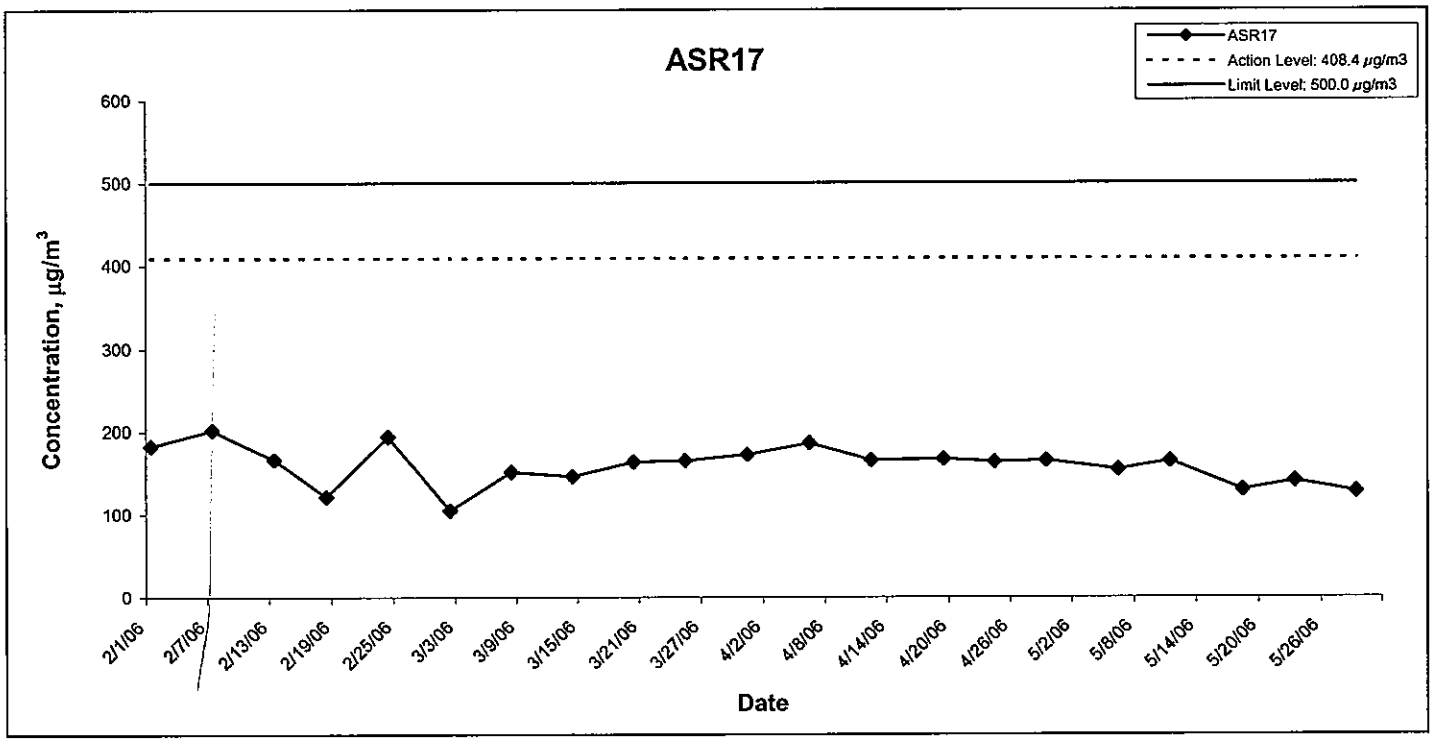
24-hour TSP Monitoring Results at Station ASR17

Date	Filter Weight (g)		Flow Rate (m^3/min.)		Elapse Time		Sampling Time(hrs.)	Conc. ($\mu g/m^3$)	Weather Condition	Particulate weight(g)	Av. flow (m^3/min)	Total vol. (m^3)
	Initial	Final	Initial	Final	Initial	Final						
4-May-06	3.4576	3.6092	1.19	1.19	16605.4	16629.4	24.0	88.3	Sunny	0.15	1.19	1716.5
10-May-06	3.5506	3.6157	1.44	1.44	16629.4	16653.4	24.0	31.4	Sunny	0.07	1.44	2075.0
16-May-06	3.6298	3.7688	1.12	1.12	16629.4	16653.4	24.0	86.4	Cloudy	0.14	1.12	1608.5
22-May-06	3.5139	3.6092	1.37	1.37	16653.4	16677.4	24.0	48.2	Cloudy	0.10	1.37	1975.7
27-May-06	3.6116	3.6959	1.37	1.37	16677.4	16701.4	24.0	42.7	Cloudy	0.08	1.37	1975.7

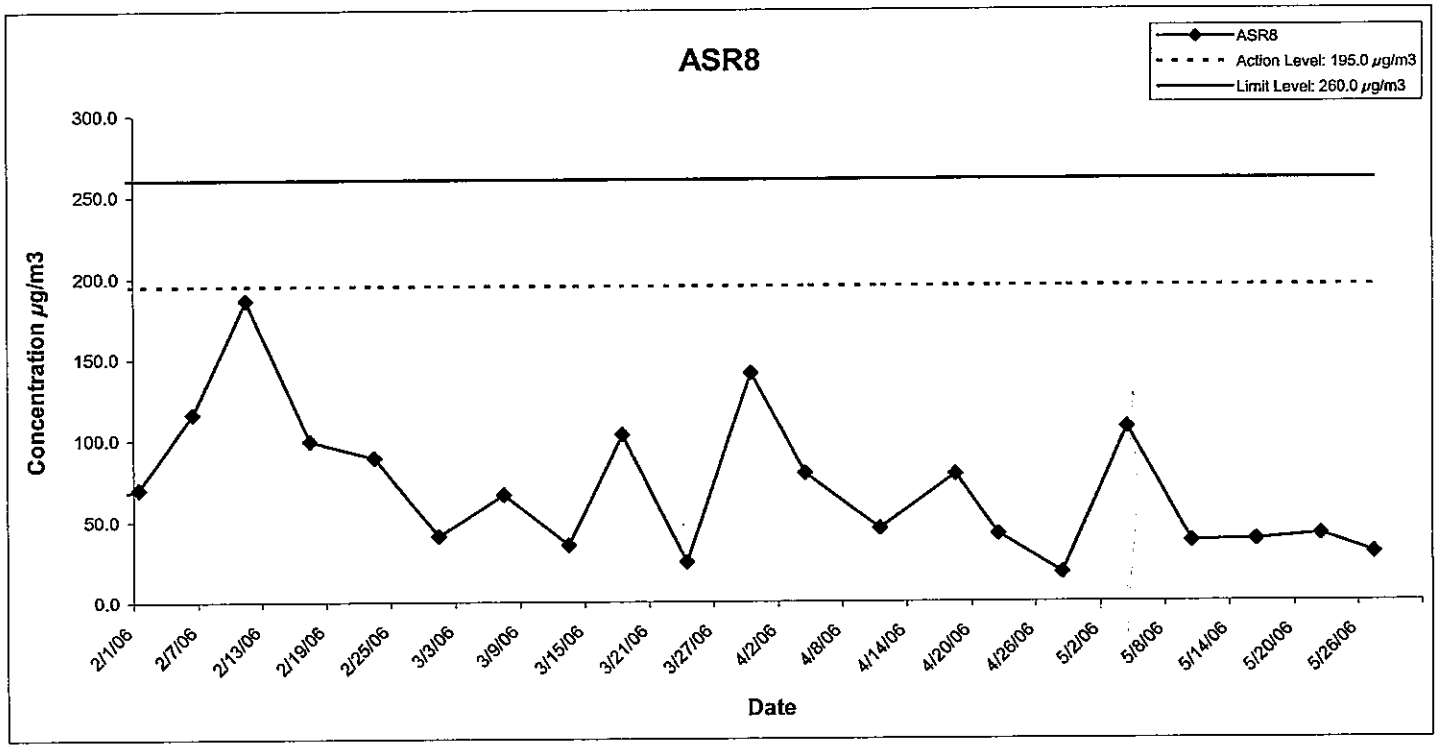
Min	31.4
Max	88.3
Average	59.4

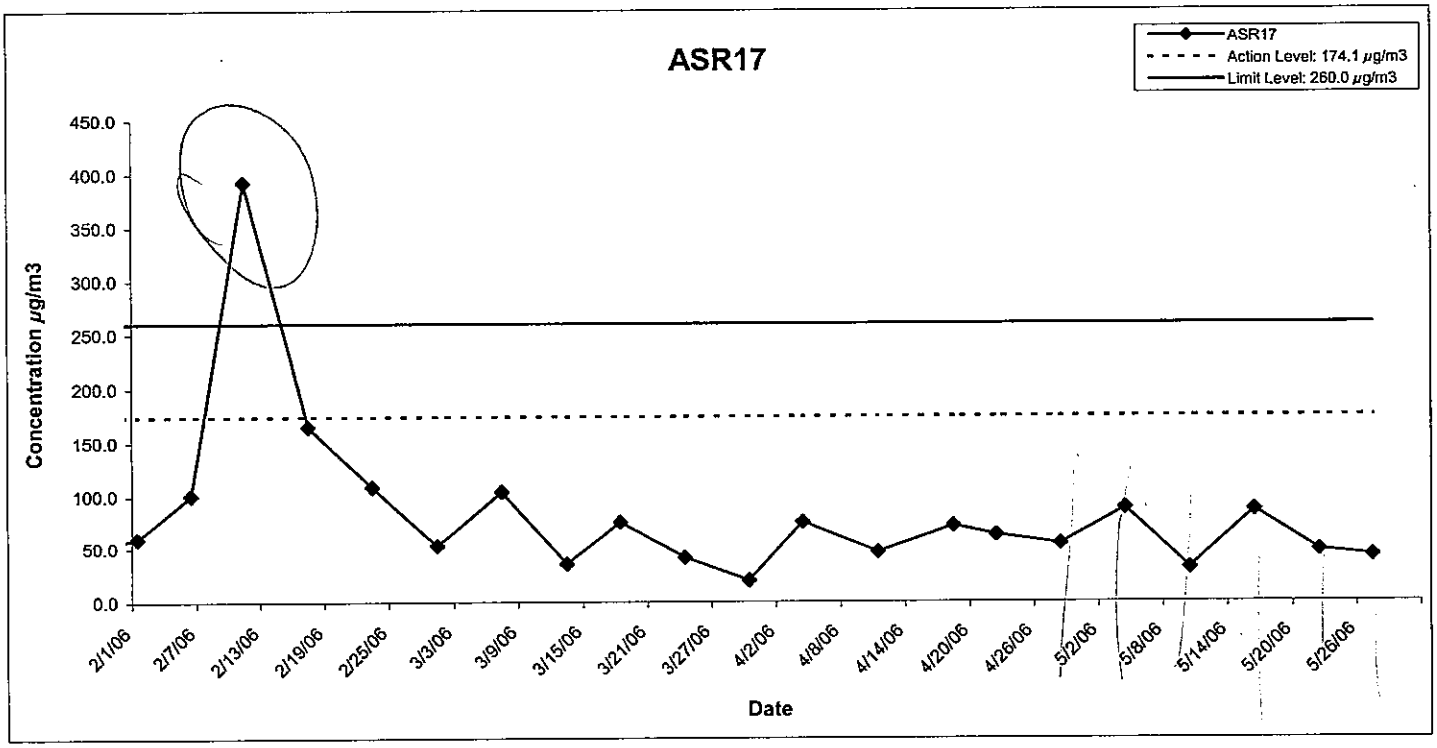
Remark: Bold value indicated an Action level exceedance
Bold & Italic value indicated an Limit level exceedance





MAUNSELL | AECOM Maunsell Environmental Management Consultants Ltd	Contract No. SS M333 Reprovisioning of Diamond Hill Crematorium **Graphical Presentation of 1-hour TSP Monitoring Results for Location ASR8 and ASR17**	SCALE	N.T.S.	DATE	2006
		CHECK	FLWY	DRAWN	LLMC
		JOB NO.	S07904	APPENDIX F	Rev -





MAUNSELL | AECOM Maunsell Environmental Management Consultants Ltd	Contract No. SS M333 Reprovisioning of Diamond Hill Crematorium **Graphical Presentation of 24-hour TSP Monitoring Results for Location ASR8 and ASR17**	SCALE	N.T.S.	DATE	2006
		CHECK	FLWY	DRAWN	LLMC
		JOB NO.	S07904	APPENDIX F	Rev -

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix G Noise Monitoring Results

Daytime Noise Monitoring Results at Station SR3

Date	Weather Condition	Noise Level for 30-min, dB(A)+				Baseline Noise Level, dB(A)	Calculated Construction Noise Level, dB(A)	Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
6-May-06	Sunny	15:18	63.0	67.2	65.8	65.1	57.5	70	N
11-May-06	Sunny	15:50	62.1	65.7	64.0	65.1	*Note	70	N
18-May-06	Sunny	10:50	62.5	67.0	65.3	65.1	51.8	70	N
23-May-06	Cloudy	14:32	64.9	68.1	66.2	65.1	59.7	70	N
29-May-06	Cloudy	15:00	62.5	66.0	64.1	65.1	*Note	70	N
		Min	62.1	65.7	64.0				
		Max	64.9	68.1	66.2				
		Average	63.0	66.8	65.1				

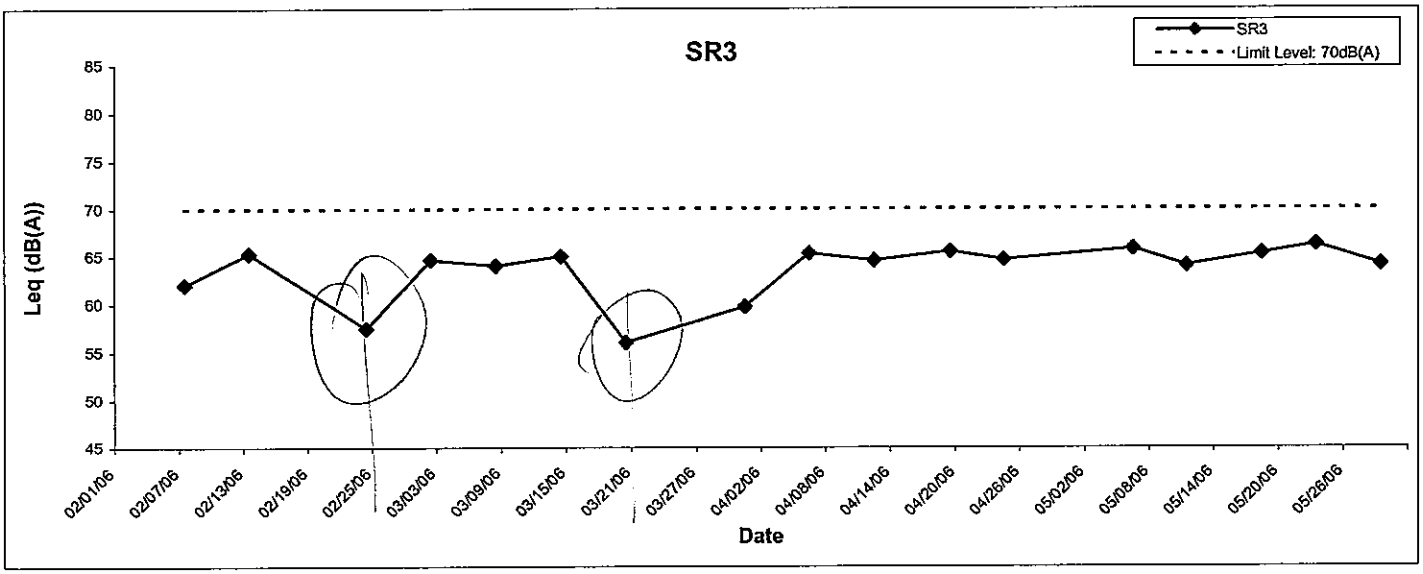
Daytime Noise Monitoring Results at Station SR4

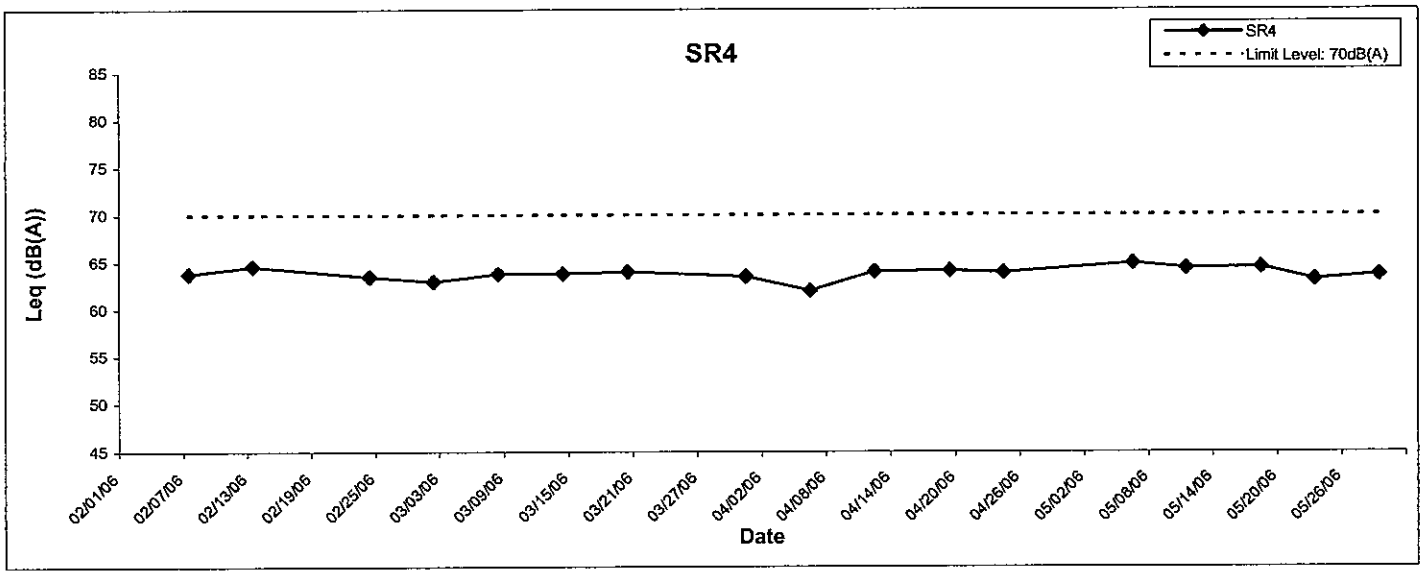
Date	Weather Condition	Noise Level for 30-min, dB(A)+				Baseline Noise Level, dB(A)	Calculated Construction Noise Level, dB(A)	Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
6-May-06	Sunny	15:15	62.5	66.5	64.9	65.6	*Note	70	N
11-May-06	Sunny	11:30	62.0	66.2	64.4	65.6	*Note	70	N
18-May-06	Sunny	10:45	62.2	66.8	64.5	65.6	*Note	70	N
23-May-06	Cloudy	13:50	61.9	65.4	63.2	65.6	*Note	70	N
29-May-06	Cloudy	14:50	60.0	65.2	63.7	65.6	*Note	70	N
		Min	60.0	65.2	63.2				
		Max	62.5	66.8	64.9				
		Average	61.7	66.0	64.1				

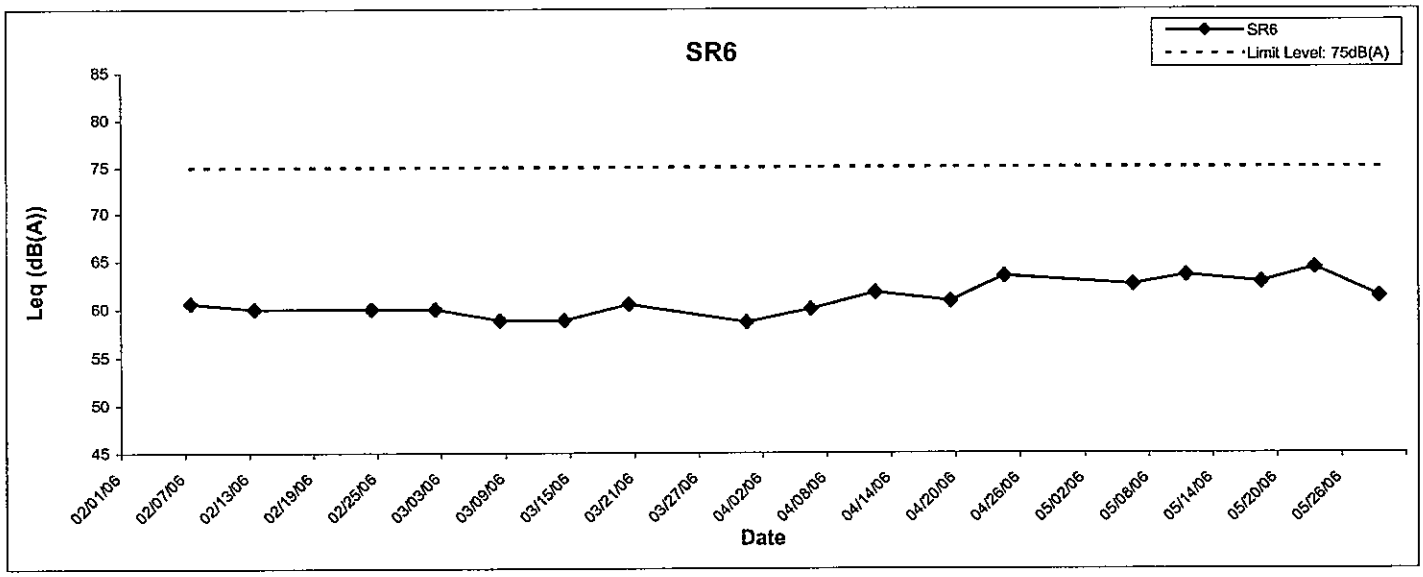
Daytime Noise Monitoring Results at Station SR6

Date	Weather Condition	Noise Level for 30-min, dB(A)+				Baseline Noise Level, dB(A)	Calculated Construction Noise Level, dB(A)	Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
6-May-06	Sunny	14:30	60.0	64.8	62.5	68.5	*Note	75	N
11-May-06	Sunny	10:45	61.0	65.6	63.5	68.5	*Note	75	N
18-May-06	Sunny	11:30	60.0	65.2	62.8	68.5	*Note	75	N
23-May-06	Cloudy	14:10	61.8	66.7	64.3	68.5	*Note	75	N
29-May-06	Cloudy	14:00	60.0	63.5	61.3	68.5	*Note	75	N
		Min	60.0	63.5	61.3				
		Max	61.8	66.7	64.3				
		Average	60.6	65.2	62.9				

+ - Façade measurement
Bold & Italic value indicated an Limit level exceedance
Note: Measured noise level is less than the baseline noise level.







MAUNSELL | AECOM Maunsell Environmental Management Consultants Ltd	Contract No. SS M333 Reprovisioning of Diamond Hill Crematorium **Graphical Presentation of Noise Monitoring Results for Location SR3, SR4 and SR6**	SCALE	N.T.S.	DATE	2006
		CHECK	FLWY	DRAWN	LLMC
		JOB NO.	S07904	APPENDIX	G
				Rev	-

APPENDIX H
SUMMARY OF WEEKLY ENVIRONMENTAL SITE INSPECTION OBSERVATIONS

Appendix H Summary of Weekly Environmental Site Inspection Observations

Inspection Information

Date	3 May 2006
Time	9:40 – 11:30 am

Remarks/Observations

Water Quality

1. No violation was observed in this site inspection.

Air Quality

2. No violation was observed in this site inspection.

Noise

3. No violation was observed in this site inspection.

Waste/Chemical Management

4. General refuse was not disposed properly and regularly. The contractor was reminded to dispose it as soon as possible.

Landscape and Visual

5. No violation was observed in this site inspection.

Others

6. No violation was observed in this site inspection.

Inspection Information

Date	10 May 2006
Time	9:30 – 11:30 am

Remarks/Observations

Water Quality

1. No violation was observed in this site inspection.

Air Quality

2. The temporary exposed slopes were not properly covered. The contractor was reminded to cover them as soon as possible.

Noise

3. No violation was observed in this site inspection.

Waste/Chemical Management

4. Following the previous inspection, general refuse was also not disposed properly and regularly. The contractor was reminded to dispose it as soon as possible.

Landscape and Visual

5. No violation was observed in this site inspection.

Others

6. No violation was observed in this site inspection.

Inspection Information

Date	17 May 2006
Time	9:30 am – 12:30 pm

Remarks/Observations

Water Quality

1. The drainage system was not well maintained and water was stored on the ground. The contractor was reminded to pump it out as soon as possible.

Air Quality

2. No violation was observed in this site inspection.

Noise

3. No violation was observed in this site inspection.

Waste/Chemical Management

4. Following the previous inspection, general refuse was also not disposed properly and regularly. The contractor was reminded to dispose it as soon as possible.

Landscape and Visual

5. No violation was observed in this site inspection.

Others

6. No violation was observed in this site inspection.

Inspection Information

Date	24 May 2006
Time	9:30 am – 12:30 pm

Remarks/Observations

Water Quality

1. Following the previous inspection, the drainage system was well maintained and water was stored on the ground.

Air Quality

2. Temporary exposed slopes were not properly covered. The contractor was reminded to cover it as soon as possible.

Noise

3. No violation was observed in this site inspection.

Waste/Chemical Management

4. Following the previous inspection, general refuse was also not disposed properly and regularly. The contractor was reminded to dispose it as soon as possible.
5. The chemical wastes were not stored in proper storage areas. The contractor was reminded to store it properly as soon as possible.

Landscape and Visual

6. No violation was observed in this site inspection.

Others

7. No violation was observed in this site inspection.

APPENDIX I
STATUS OF ENVIRONMENTAL PERMITS/LICENCES

Appendix I Status of Environmental Permits/Licenses

Permit No.	Valid Period		Section	Status
	From	To		
Environmental Permit & Further Environmental Permit				
EP-179/2004/B	14 Feb 2005	N/A	Reprovisioning of Diamond Hill Crematorium	Valid
Registration as a Chemical Waste Producer				
5213-288-C3108-10	6 Dec 2004	N/A	Reprovisioning of Diamond Hill Crematorium	Valid
Water Discharge License				
RE/C0202/288/1	9 Mar 2005	31 Mar 2010	Reprovisioning of Diamond Hill Crematorium	Valid
Construction Noise Permit				
GW-RE0003-06	10 Feb 2006	9 Jul 2006	Reprovisioning of Diamond Hill Crematorium	Valid

APPENDIX J
IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

Appendix J – Environmental Mitigation Implementation Schedule

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
Air Quality Mitigation Measures					
Special air pollution control systems shall be installed and operate to reduce the emissions of air pollutants to acceptable levels	New cremators in New Crematorium	Arch SD	Design, Construction, Demolition and Operation stage	BPM/APCO	√
FEHD shall apply for a Specified Process License under the APCO	New Cremators in the New Crematorium / prior to operation	FEHD	Construction, Demolition and Operation stage	APCO	N/A
The efflux velocity of chimney shall be at least 15 m/s, the design diameter of the chimneys shall be 0.22 m and 0.30 m, the design chimney height shall be 101mP.D. (28.5m above ground), for 170 kg and 250 kg cremators respectively	Chimney of New Crematorium / design and construction stages	Arch SD	Design and Construction stage	BPM/APCO	N/A
If the interior wall of existing cremators and chimney are confirmed dioxins contaminated, special precautions shall be taken avoid fugitive emissions of dioxin contaminated materials	Cremator room and chimney in Existing Crematorium / demolition	Arch SD/Contractor	Demolition stage		N/A
Sufficient water spraying should be applied during the construction work, the fugitive dust generated from general construction dust would be reduced by 90%	Project site / construction and demolition stages	Arch SD, contractor	Construction and Demolition stage	APCO	√
Carry out a confirmatory test of dioxins in the depositions on chimney wall, flue gas ducting and combustion chambers when the existing Crematorium is shut down	Chimney, flue and cremators in Existing Crematorium / decommissioning	FEHD, Arch SD	Demolition stage		N/A
If the dioxin level of surface deposition is between 1 and 10 ppb I-TEQ, it is classified as moderately contaminated with dioxins. The demolition work site should be covered up to avoid emission of fugitive dust during demolition	Chimney, flue and cremators in Existing Crematorium / decommissioning	Arch SD 3	Demolition stage		N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
If the dioxin level of surface deposition exceeds 10 ppb I-TEQ, it is classified as severely dioxin-contaminated waste. If it is confirmed that the existing facilities are severely contaminated with dioxins, a special decommissioning method – Containment method – would be adopted	Chimney, flue and cremators in Existing Crematorium / decommissioning	Arch SD 3	Demolition stage		N/A
All the demolition waste would be carefully handled, sealed and treated as chemical waste. The waste collector shall be responsible for preventing fugitive dust emission when handling the demolition waste	Chimney, flue and cremators in Existing Crematorium / demolition stage	Arch SD, contractor	Demolition stage		√
Employ a registered asbestos contractor to remove asbestos containing material during the demolition of the existing crematorium building	Cremator room in Existing Crematorium / decommissioning	Arch SD, contractor	Demolition stage	APCO	N/A
Submit a formal AIR and Asbestos Abatement plan signed by a registered asbestos consultant to the Authority for approval under APCO 28 days prior to the start of any asbestos abatement work.	Cremator room in Existing Crematorium / decommissioning	Arch SD, consultant	Demolition stage	APCO	N/A
When removing asbestos containing materials, enclosure of the work area; containment and sealing for the asbestos containing waste; provision of personal decontamination facility; use of personal respiratory/protection equipment; use of vacuum cleaner equipped with highefficiency air particulate (HEPA) filter for cleaning up the work area; and carry out air quality monitoring during the asbestos abatement work	Cremator room in Existing Crematorium / decommissioning	Arch SD, consultant	Demolition stage	APCO	N/A
Appoint qualified personnel to carry out the asbestos containing material removal work, including a registered asbestos contractor to carry out the work; a registered asbestos supervisor to supervise the work; a registered asbestos laboratory to monitor the air quality, and a registered asbestos consultant to supervise and certify the asbestos abatement work.	Cremator room in Existing Crematorium / decommissioning	Arch SD, consultant	Demolition stage	APCO	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
Erect a site barrier with the height of no less than 2.4m to enclose the construction site Apply frequent water spraying to ensure the surface of the construction site sufficiently wet to reduce fugitive dust due to wind erosion and transportation on unpaved haul road Cover up stockpiles of fill material and dusty material Install a vehicle-cleaning system at the main entrance of the construction site to clean up the vehicles before leaving the site The Air Pollution Control (Construction Dust) Regulation shall be followed for fugitive dust control	Project site / construction and demolition stages	Contractor	Construction and Demolition stage	APCO, Air Pollution Control (Construction Dust) Regulation	•
No more than 6 cremators (including both the existing and new ones) are in operation during commissioning test of new cremators. The commissioning test of each new cremator shall be recorded by a log book	Existing and new cremators in Exiting and New Crematorium / text and commissioning	Arch SD/FEHD/ Contractor	Construction stage		N/A
Special air pollution control systems shall be installed and operate to reduce the emissions of air pollutants to acceptable levels	New cremators in New Crematorium / all stages	Arch SD	Design, Construction, Demolition and Operation stage	BPM/APCO	N/A
Conduct baseline and regular 1-hour and 24-hour TSP monitoring.	A8 and A17 / baseline monitoring prior to Phase I & II works and regular monitoring throughout Phase I & II works	Contractor	Construction and Demolition stage	APCO, EM&A Guidelines for Development Projects in Hong Kong	√
When the demolition material is confirmed to have ACM, monitoring for asbestos fibre would be carried out at the boundary of the construction site for reassurance purposes as per the requirement of future	Construction site boundary / demolition	Contractor	Demolition stage	Asbestos Study Report, AIR and AAP to be submitted under	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
license for asbestos abatement, though it is not expected that asbestos fibre would be liberated from the demolition of the Existing Crematorium building.				APCO, future licence for asbestos abatement (if any)	
Noise Mitigation Measures					
Select quiet plant, which is defined as PME with a sound power level lower than that specified in GW-TM. Examples of quiet plant can be referred to those listed in British Standard BS5228.	Project site / construction and demolition stages	Contractor	Construction and Demolition stages	GW-TM	√
Where practicable, use movable barriers of 3 to 5 m height with a small cantilevered upper portion and skid footing can be located within a few metres from a stationary plant (e.g. generator, compressor, etc.) and within about 5 m for a mobile equipment (e.g. breaker, excavator, etc.), especially in the vicinity of SR3, SR4 and SR6. The purpose-built noise barriers or screens shall be constructed of appropriate materials with a minimum superficial density of 15kg/m2.	Project site / construction and demolition stages	Contractor	Construction and Demolition stages	NCO	N/A
• Only well-maintained plant should be operated on site and plant should be regularly serviced during the construction works • Plant that is used intermittently should be turned off or throttled down when not in active use • Plant that is known to emit noise strongly in one direction should be oriented to face away from NSRs • Silencers, mufflers and enclosures for plant should be used where possible and maintained adequately throughout the works • Where possible mobile plant should be sited away from NSRs	Project site / construction and demolition stages	Contractor	Construction and Demolition stages	NCO	√

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
• Stockpiles of excavated materials and other structures such as site buildings should be used effectively to screen noise from the works					
Liaise with the school and the Examination Authority to ascertain the dates and times of examination periods during the course of the construction/ demolition works so as to avoid any noisy activities during these periods. Programme of the on-site works should hence be well programmed such that the noisier construction activities would not be coincided with the examination of the schools.	Project site / construction and demolition stages	Contractor	Demolition stage	NCO	√
Conduct regular noise monitoring.	SR 3, SR 4 and SR 6 / Phase I & II works	Contractor	Demolition stage	NCO, EM&A Guidelines for Development Projects in Hong Kong	√
Land Contamination Mitigation Measures					
Additional site investigations in areas of the site that are currently in use and cannot be readily accessed. These investigations will be carried out once the existing facility has been decommissioned. The additional site investigations are required in the vicinity of the existing CLP secondary substation, and around the cremators and flues inside the crematorium building. Once access to these areas is available, a sampling and analysis plan will be prepared for approval by EPD, additional investigations will take place, and the need for remedial works will be determined. Any remedial works required will be in addition to those described in this current report.	CLP secondary substation and cremator room/ demolition stage (Phase I – CLP secondary substation; Phase II – cremator room)	Contractor	Demolition stage	ProPECC PN 3/94	√
Once the Existing Crematorium has ceased operating during Phase II, confirmatory surface	Locations S1 to S6 specified in the	Contractor	Demolition stage	ProPECC PN 3/94	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
samples will be taken from the samples points S1 to S6 at a depth of 0.1m, and these samples will be analysed for the same suite of determinands (i.e. dioxins, metals and PAH) in order to confirm that no further contamination has occurred. The Remediation Action Plan will be revised on the basis of these results.	CAP/demolition				
The underground fuel storage tank and associated pipework will be removed as part of the site formation works. The base of the excavations will be inspected during and after tank removal by a suitably experienced environmental specialist in order to determine whether there is any visual or olfactory evidence of fuel contamination. If such contamination is suspected, then confirmatory soil sampling will be carried out, and the samples analysed for TPH.	Underground fuel storage tank/during and after tank removal	Contractor	Demolition stage	ProPECC PN 3/94 and Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair / Dismantling Workshops	N/A
Summary of remediation works at locations S3 and S5:					
1. Mark out 5m radius around S3 and S5 2. Excavate to depth of 0.5m 3. Transport to landfill site for final disposal4. Take 4 samples from edges of excavation and one sample from base of excavation, analyse for lead and tin 5. If the results exceed Dutch B Levels, extend excavation to a further 5 m radius and 0.5 m depth in the quadrant where the contaminated samples is encountered and repeat steps 3 and 4 6. If the results less than Dutch B Levels, then remediation completed.	Locations S3 and S5 specified in CAP/demolition	Contractor	Demolition stage	ProPECC PN3/94	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
During removal of the underground fuel storage tank, appropriate precautions should be taken to avoid contamination. All fuel tanks and associated pipework should be emptied prior to any demolition work being undertaken. Any remaining sludge or sediment in the tanks or pipework should be removed and disposed of as chemical waste in accordance with the appropriate regulations for disposal of such material.	Underground fuel storage tank / Phase II demolition	Agent Contractor	Demolition stage	ProPECC PN 3/94 and Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair / Dismantling Workshops	N/A
Should contamination be encountered beneath the fuel tank or the CLP secondary substation, further remedial work will be required. Such potential contamination would consist of either TPH (in the case of the fuel tank) or PCBs (in the case of the CLP secondary substation). As a realistic worst-case estimate, the PCB contaminated soil at CLP secondary substation may require stabilisation with cement prior to disposal to landfill. A realistic worst case estimate is that the volume of TPH contaminated soil at underground storage tank would require landfill disposal.	CLP secondary substation /Phase I demolition and underground fuel tank / Phase II demolition	Contractor	Demolition stage	ProPECC PN 3/94 and Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair / Dismantling Workshops	N/A
Health and Safety Precautions during Remedial Works					
The site workers engaged in the remedial works should be provided with adequate personal protective equipment, which should include: • Protective footwear; • Gloves; • Dust masks; and • Overalls. A clean area should be provided, equipped with washing facilities. Eating, drinking and smoking should only be permitted within designated "clean" areas after washing. Excavated material should not be stockpiled, but should immediately be treated/transported to landfill on a daily basis ..	All areas requiring remedial works in Project site / demolition during Phases I and II	Contractor	Demolition stage	ProPECC PN 3/94 and Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair / Dismantling	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
				Workshops	
Avoidance of Impacts on Water Quality during Remedial Works In order to avoid impacts on water quality during remedial works, care will be taken to minimise the mobilisation of sediment during excavation and transport. Measures to be adopted will be based on the recommendations set out in Practice Note for Professional Persons ProPECC PN1/94 "Construction Site Drainage". The results of the site investigation suggest that there is unlikely to be any requirement for dewatering of excavations, since groundwater was not encountered in any of the exploratory holes. The contractor carrying out the remedial works will be required to submit a method statement detailing the measures to be taken to avoid water quality impacts. Typical measures would include; • Carry out the works during the dry season (i.e. October to March) if possible; • Use bunds or perimeter drains to prevent run-off water entering excavations; • Sheet or otherwise cover excavations whenever rainstorms are expected to occur; • Minimise the requirements for stockpiling of material and ensure any stockpiles are covered; • Temporary on-wit stockpiling of contaminated materials should be avoided, and all excavated contaminated soils/materials should be disposed of on a daily basis; • Ensure that any discharges to storm drains pass through an appropriate silt trap.	All areas requiring remedial works in Project site / demolition during Phases I and II	Agent Contractor	Demolition stage	ProPECC PN 3/94, ProPECC PN1/94 and Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair / Dismantling Workshops	N/A
Waste Disposal Requirements during Remedial Works					
An application for permission to dispose of excavated material should be made to the Facilities Management Group of EPD three months prior to disposal. A "trip-ticket" system should be implemented. Each load of contaminated soil despatched to landfill should be	All areas requiring remedial works in Project site / demolition during Phases I and II	Contractor	Demolition stage	ProPECC PN 3/94, Waste Disposal Ordinance (Cap. 354), WBTC No. 21/2002 and	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
accompanied by an admission ticket. Vehicles leaving the site should be adequately sheeted to prevent dispersion of contaminated material during transport. The wheels of vehicles should be cleaned prior to leaving site, to prevent contaminated material leaving site on the wheels of vehicles.				Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair / Dismantling Workshops	
Compliance Report for Remedial Works					
Following completion of remediation works, a Remediation Report should be compiled and submitted, to demonstrate that the remediation works have been carried out in accordance with the Remediation Action Plan. The Remediation Report should include details of the excavation works carried out, records of material taken to landfill, and results of confirmatory testing, and should be submitted to EPD for approval before the commencement of building works.	All areas requiring remedial works in Project site / after completion of remediation works	Agent Contractor	Demolition stage	ProPECC PN 3/94 and Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair / Dismantling Workshops	N/A
Land Contamination Mitigation Measures					
Conduct supplementary site investigation for TPH and PCB in soil samples.	CLP substation / after decommissioning but prior to demolition during Phase I work	Contractor	Demolition stage	CAR, RAP, future sampling and analysis plan	√
Conduct confirmatory testing of PAH, dioxins and metals (the "Dutch List") in soil samples.	S1 to S6 / Phase II work	Contractor	Construction and Demolition stages	CAR, RAP, future sampling and analysis plan	N/A
If fuel contamination underneath the underground fuel tank is suspected, confirmatory soil sampling will be carried out for analysis of TPH.	Underneath the underground fuel tank / Phase II	Contractor	Demolition stages	CAR, RAP, future sampling and analysis plan	N/A
Conduct confirmatory testing of tin and lead in soil	S3 and S5 / during	Contractor	Construction and	CAR, RAP, future	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
samples to confirm all contaminated soil has been excavated.	Phase II work following excavation at each location		Demolition stages	sampling and analysis plan	
Waste Management Mitigation Measures					
Good Site Practice • Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354) and the Land (Miscellaneous Provision) Ordinance(Cap. 28) • Prepare a Waste Management Plan approved by the Engineers / Supervising Officer of the Project in accordance with Environment, Transport and Works Bureau Technical Circular (Works) (ETWBTC(W)) 15/2003, Waste Management On Construction Sites • Nominate an approved person, such as site manager, to be responsible for good site practice, arrangements for collection and effective disposal of all types of wastes generated on-site to appropriate facility • Use waste haulier authorized or licensed to collect specific category of waste • Establish trip ticket system as contractual requirement (with reference to Works Branch Technical Circular (WBTC) No. 21/2002) for monitoring of public fill and C&D waste at public filling facilities and landfills. Such activities should be monitored by the Environmental Team • Provide training to site staff in terms of proper waste management and chemical waste handling procedures • Separate chemical wastes for special handling and dispose them at licensed facility for treatment • Establish routine cleaning and maintenance programme for drainage systems, sumps and oil interceptors • Provide sufficient waste disposal points and regular	Project site/ design, construction and demolition stages	Contractor	Design, Construction and Demolition stages	Waste Disposal Ordinance (Cap. 354), Waste Disposal(Chemical Waste) (General) Regulation(Cap. 354) Land(Miscellaneous Provision) Ordinance(Cap. 28) WDO, ETWBTC(W) 15/2003, WBTC No. 21/2002	√

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
collection for disposal • Adopt measures to minimize windblown litter and dust during transportation of waste, such as covering trucks or transporting wastes in enclosed containers • Establish recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites)					
Waste Management Plan The contractor should submit the Waste Management Plan to Engineer/Supervising Officer of the Project for approval. The Waste Management Plan should describe the arrangements for avoidance, reuse, recovery and recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the activities of the Project and indicate the disposal location(s) of all waste. A trip ticket system shall be included in the Waste Management Plan.	Project site / design, construction and demolition stages	Contractor	Design, Construction and Demolition stages	Waste Disposal Ordinance (Cap. 354)	√
Waste Reduction Measures • Minimize the damage or contamination of construction material by proper storage and site practices • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste • Prior to disposal of C&D waste, wood, steel and other metals should be separated for reuse and / or recycling to minimize the quantity of waste to be disposed of to landfill • Minimize use of wood and reuse non-timber formwork to reduce the amount of C&D waste • Recycle any unused chemicals or those with remaining functional capacity as far as practicable • As far as practicable, segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal • Encourage collection of aluminium cans, plastic bottles and packaging material (e.g. carton boxes) and office paper by individual collectors, separate labeled	Project site / construction and demolition stages	Agent Contractor	Construction and Demolition stages	WBTC No. 32/92, 5/98 and 19/99	√

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
bins should be provided to help segregate this waste from other general refuse generated by the work force					
Excavated Material Rock and soil generated from excavation should be reused for site formation as far as possible. In addition, excavated material from foundation work can be reused for landscaping as far as practicable to avoid disposal off-site.	Project site / construction and demolition stages	Contractor	Construction and Demolition stages	WBTC 12/2000	√
Construction and Demolition Material Careful design, planning and good site management can minimize over-ordering and generation of waste materials such as concrete, mortar and cement grouts. Standard formwork should be used as far as practicable, wooden formwork should be replaced by metal ones whenever possible. Alternatives such as plastic fencing and reusable site office structures can also minimize C&D waste generation. The contractor should recycle as much as possible of the C&D material on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Materials such as concrete and masonry can be crushed and used as fill and steel reinforcing bar can be used by scrap steel mills. Different areas of sites should be designated for such segregation and storage. To maximize landfill life, government policy discourages the disposal of C&D materials with more than 20% inert material by volume (or 30% inert material by weight) at landfill. Inert C&D material (public fill) should be directed to an approved public filling area, where it has the added benefit of offsetting the need for removal of materials from borrow areas for reclamation purposes.	Project site / construction and demolition stages	Contractor	Design, Construction and Demolition stages	WBTC 5/98 and19/99	√
Contaminated Material – Further Contamination	CLP secondary	Contractor	Demolition	ProPECC PN	N/A

Recommended Mitigation Measures			Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
Location	Investigation Parameter	Investigation Period					
Cremators/ flue/chimney and surrounding areas	Asbestos (building structure)	Phase II					
CLP secondary substation	PCB, TPH (soil samples)	Phase I					
Cremators/ flue/chimney and surrounding areas	Dioxins, heavy metals, PAH (ash waste)	Phase II					
Surface soil around Existing Crematorim	Dioxins, heavy metals, PAH (soil sample)	Phase II					
Further contamination investigation shall provide information on the extent of contamination at cremators /flues / chimney as well as the quantity of contaminated materials requiring treatment and disposal.							

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
Samples of ash/particulate matters should be collected from within the cremators (including the bottom ash), chimney walls, flues and surrounding area of the Existing Crematorium for analysis of dioxin, heavy metals and PAHs by a HOKLAS accredited laboratory. A consultant experienced in the abatement of chemical wastes particularly the handling of DCM, should be appointed in order to assist with the evaluation of the information and prepare an abatement plan for the ash waste. Such a plan shall be submitted to EPD and the Labour Department (LD) to establish an acceptable and safe method for these potentially hazardous wastes. The abatement plan should identify the method of abatement, the performance criteria for the protection of workers and the environment and any emergency procedures and contingency measures required.					
It must be ensured that the treatment of ash wastes will comply with all routine construction site safety procedures would apply as well as statutory requirements under the Occupational Safety and Health Ordinance and Factories and Industrial Undertakings Ordinance. Due to the difficulties in establishing permanent and effective engineering controls, the protection of workers is likely to be at the worker level. A safe system of work must be provided, and training and suitable personal protective equipment as well as hygienic decontamination facilities should be provided. It is recommended that the methods to be adopted by the contractor for disposal of the ash waste should be agreed with LD and EPD.	Cremator room in Existing Crematorium / before demolition and after decommission	Contractor	Demolition stage	ProPECC PN 3/94	N/A
Sufficient time should be allocated to abate all ash waste with DCM/HMCM/PAHCM. The contractor should ensure the implications of dust				ProPECC PN 3/94 Code of Practice on	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
containing DCM/HMCM on air quality and workers health during the clean up work are mitigated. Since DCM is chemically related to Polychlorinated Biphenyl (PCB) wastes, the requirements of the *Code of Practice on the Handling, Transportation and Disposal of (PCB) Wastes* should be referenced when developing the abatement plan.				the Handling, Transportation and Disposal of (PCB) Wastes	
A land contamination site investigation was carried out under this EIA to determine disposal requirements for contaminated soil. Further site investigation on soil around CLP secondary substation is needed when decommissioned, which will be during Phase I of the works. In addition, confirmatory testing on DCM level in locations S1 to S6 will be required to identify the appropriate remediation and disposal requirements during Phase II of the works.	Locations S1 to S6 in CAP / prior to Phase II demolition		Demolition stage		N/A
Asbestos Containing Materials (ACM) Further asbestos assessment should be carried out when access to the cremators /flue /chimney is accessible after decommissioning and before demolition. An AMP should be prepared. The AAP should be prepared and submitted to EPD for approval prior to commencement of demolition works in accordance to the APCO. It is preferable to remove all ACM before actual demolition. A registered asbestos removal contractor should be employed to remove all ACM in accordance with the approved AAP which will be prepared in due course in accordance with the *Code of Practice* (COP) *on Asbestos Control* for *Safe Handling of Low Risk ACM* and *Asbestos Work Using Full Containment or Mini Containment Method* published by EPD. A registered asbestos consultant should also be employed to	Cremator room in Existing Crematorium / before demolition and after decommission	Contractor	Demolition stage	Code of Practice (COP) on Asbestos Control for Safe Handling of Low Risk ACM and Asbestos Work Using Full Containment or Mini Containment Method COP on Handling, Transportation and Disposal of Asbestos Waste under the Waste Disposal	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
supervise abatement works. For the disposal of ACM, the contractor should observe the *COP on Handling, Transportation and Disposal of Asbestos Waste* under the *Waste Disposal (Chemical Waste) (General) Regulation*.				(Chemical Waste) (General) Regulation APCO	
Dioxin Containing Materials (DCM) / Heavy Metal Containing Materials (HMCM) / Polyaromatic Hydrocarbon Containing Materials (PAHCM) from Demolition of the Existing Crematorium Proposed Contamination Classification for Ash Waste with DCM/HMCM	Cremator room in Existing Crematorium / before demolition and after decommission	Contractor	Demolition	ProPECC PN3/94 USEPA dioxin assessment criterion	N/A

Classification of Contamination	Dioxin Level in Ash Waste	Heavy Metal Level in Ash Waste
Low/Non Contaminated by DCM / HMCM / PAHCM	< 1 ppb TEQ	< Dutch "B" List
Moderately/ Severely Contaminated HMCM / PAHCM	< 1 ppb TEQ	≥ *Dutch "B" List*
Moderately Contaminated DCM	≥ 1 and <10 ppb TEQ	Any level

Recommended Mitigation Measures			Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
Severely Contaminated DCM	≥10 ppb TEQ	Any level					
Demolition, Handling, Treatment and Disposal of Low/Non-Contaminated DCM /HMCM / PAHCM from Demolition of Existing Crematorium Where the ash waste contains low/non contaminated DCM/HMCM/PAHCM, the contractor should avoid ash waste becoming airborne during demolition. General dust suppression measures mentioned in Section 4 should be followed. All such ash waste can be directly disposal of at landfill. Subject to the findings of the further asbestos investigation, building structures where such ash waste is found but contaminated with asbestos should be dealt in accordance to 7.7.16.			Cremator room in Existing Crematorium / demolition	Contractor	Demolition stage	APCO	N/A
Demolition, Handling, Treatment and Disposal of Moderately Contaminated DCM and Moderately/Severely Contaminated HMCM / PAHCM from Demolition of the Existing Crematorium Procedure on demolition, handling, treatment and disposal of Moderately Contaminated *DCM and Moderately/Severely Contaminated HMCM / PAHCM is listed below* Item: Procedure			Cremator room in Existing Crematorium / demolition	Contractor	Demolition stage	Waste Disposal (Chemical Waste) (General) Regulation	N/A

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
Site Preparation	The contractor should ensure the impacts of dust containing dioxin and/or heavy metals on air quality and workers health during the handling and transportation of the contaminated materials are mitigated. Except the cremators/flue/chimney, all removable items where moderately contaminated DCM or moderately/severely contaminated HMCM / PAHCM is identified should be removed as far as practicable to avoid obstructing the decontamination activities. Preliminary site decontamination of all debris shall be carried out using HEPA vacuum cleaner. The top portion of the chimney above the roof shall be enclosed by a chamber with three layers of polyethene sheets. At the entrance to the cremators /flues /chimney, a 3-chamber decontamination unit shall be constructed for entry and exit from the work area. The 3-chamber decontamination unit shall comprise a dirty room, a shower room and a clean room of at least 1m x 1m base each with 3 layers of fire retardant polyethene sheet where all workers shall carry out decontamination procedures before leaving the work area. Warning signs in both Chinese and *English should be put up in conspicuous areas.*					

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
	All workers shall wear full protective equipment, disposable protective coverall (such as Tyvek) (with hood and shoe covers), nitrile gloves, rubber boots (or boot covers), and full-face positive pressure respirators equipped with a combination cartridge that filters particulate and removes organic vapour. The organic vapour protection is an added protection against the unlikely exposure to any vapour.					
	If ACM is identified in building structures where moderately contaminated DCM or moderately/severely contaminated HMCM / PAHCM is found, relevant abatement measures for building structures described in the AAP (see *7.7.16*) should be implemented prior to the above site preparation.					
Decontamination, demolition and handling	The cremators/flue/chimney shall be removed from top down starting from the chimney. Any ash or residues attached to the cremators/flue/chimney or any other building structures shall be removed by scrubbing and HEPA vacuuming. Wastes generated from the containment or decontamination unit including the protection clothing of the workers such as the coverall, nitrile glove, rubber boots and materials used for wet wiping shall be disposed of at landfill site.	Cremator room in Existing Crematorium / demolition	Contractor	Demolition stage	Waste Disposal (Chemical Waste) (General) Regulation	N/A

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
	After completion of removal, decontaminate all surfaces by HEPA vacuum.					
	If ACM is identified in building structures where moderately contaminated DCM or moderately/severely contaminated HMCM / PAHCM is found, relevant abatement measures for building structures described in the AAP (see *7.7.16*) should be implemented prior to the above decontamination, demolition and handling measures.					
Treatment	The ash waste contains dioxin/heavy metals and in its untreated state would be classified as a chemical waste under the *Waste Disposal (Chemical Waste) (General) Regulation*. While the quantity of DCM/HMCM is not expected to be significant, the levels of dioxin and heavy metals would affect the treatment option. Immobilization of the contaminated materials by mixing with cement followed by disposal at landfill (if landfill disposal criteria can be met) would be the most preferable option.					
	Rather than treating the already incinerated ash waste by incineration, the ash waste with moderately contaminated					

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
	DCM or moderately/severely contaminated HMCM / PAHCM should be collected and stabilized to meet landfill disposal criteria of the Facilities Management Group (FMG) of EPD. In this case it is envisaged that the process would involve collection and mixing of the ash waste with cement. Pilot mixing and TCLP tests should be carried out to establish the appropriate ratio of cement to ash waste to the satisfaction of EPD. It is envisaged that the pilot tests would involve the mixing of say 5%, 10% and 15% ratios of cement to ash waste and three replicate of 300 mm cube blocks for each ratio. TCLP tests should then be used to establish the correct ratio of cement to ash waste to the satisfaction of EPD.					

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
Disposal	After immobilization of the ash waste by mixing with cement in the correct ratio as determined by the pilot mixing and TCLP test, the waste materials should be placed inside polyethene lined steel drums for disposal at landfill. Transparent plastic sheeting of 0.15 mm thickness low-density polyethene or PVC should be employed. The drums should be 16 gauge steel or thicker and fitted with double bung fixed ends adequately sealed and well labelled in new or good condition. The drums should be clearly marked "DANGEROUS CHEMICAL WASTE" in English and Chinese. Prior agreement of the disposal criteria from the FMG of EPD and agreement to disposal from the landfill *operator must be obtained.*	Cremator room in Existing Crematorium / demolition	Contractor	Demolition stage	Waste Disposal (Chemical Waste) (General) Regulation	N/A
	As a fall back option, if the landfill disposal criteria cannot be met after immobilization of the ash waste, disposal at the CWTC should be considered.					
	The building structures will be disposal of at landfill.					

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
	If ACM is identified in building structures where moderately contaminated DCM or moderately/severely contaminated HMCM / PAHCM is found, relevant disposal measures for building structures described in the AAP (see *7.7.16*) should be implemented instead.					
Demolition, Handling, Treatment and Disposal of Severely Contaminated DCM from Demolition of the Existing Crematorium Procedure for demolition, handling, treatment and disposal of Severely Contaminated DCM is listed below		Cremator room in Existing Crematorium / demolition	Contractor	Demolition stage	Waste Disposal (Chemical Waste) (General) Regulation	N/A
Item	Procedure					
Site Preparation	Except the cremators/flue/chimney, all removable items where severely contaminated DCM is identified should be removed from the cremator room as far as practicable to avoid obstructing the decontamination activities. Preliminary site decontamination of all debris shall be carried out using HEPA vacuum cleaner. The walls, floor and ceiling of the cremator room where severely contaminated DCM located shall be lined with 3 layers of fire retardant polyethene sheets. The top portion of the chimney above the roof shall be enclosed by a chamber with three layers of polyethene sheets. At the entrance to the cremators/flues/chimney, a 3-chamber					

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
	decontamination unit shall be constructed for entry and exit from the work area. The 3-chamber decontamination unit shall comprise a dirty room, a shower room and a clean room of at least 1m x 1m base each with 3 layers of fire retardant polyethene sheet where all workers shall carry out decontamination procedures before leaving the work area. Warning signs in both Chinese and English should be put up in conspicuous areas.					
	Air movers should be installed at the cremator room, and at the bottom of the chimney to exhaust air from the work area. A stand-by air mover shall also be installed with each of the air movers. Sufficient air movement shall be maintained to give a minimum of 6 air changes per hour to the work area, and maintain a negative pressure of 0.05-0.15 inches of water within the work area throughout the entire course of the decommissioning works. A pressure monitor with printout records and audible alarm shall be installed at an easily accessible location to demonstrate that negative pressure is maintained. New pre-filters and HEPA filters shall be used on the air movers.					
	A copy of the maintenance records of					

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
	the air movers should be kept on site for inspection upon request. The appointed contractor shall also check the differential pressure of the air mover to make sure the filter is not blocked. A differential pressure above 0.2 inches of water indicates that the filters would need to be changed.					
	Smoke Test: before commencement of the decommissioning work, a smoke test with non-toxic smoke shall be carried out to ensure the air-tightness of the containment. Also check whether there are stagnant air pockets indicated by an aggregate of smoke that cannot effectively be extracted. After a successful test, switch on the air mover to exhaust smoke from the containment and to give a minimum of 6 air changes per hour, and check visually to see that the filters screen out the smoke effectively and if the pressure gauges read normal. If not, the air mover shall be sealed up and returned to the supplier workshop for necessary servicing, and replaced by a tested air mover. The normal reading pressure range for maintaining 6 air changes per hour shall be 1.5-4 mm/0.05-0.15 inches of water or equivalent	Cremator room in Existing Crematorium / demolition	Contractor	Demolition stage	Waste Disposal (Chemical Waste) (General) Regulation	N/A

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
	(negative pressure). The audible alarm's integrity should also be checked and the trigger shall be at <1.5 mm/0.05 inches of water (negative pressure). Otherwise securely seal up all openings before switching off the air mover.					
	Treatment of Waste/Workers Safety Protection: the contractor shall be required to register as a Chemical Waste Producer. All workers shall wear full protective equipment, disposable protective coverall (such as Tyvek) (with hood and shoe covers), nitrile gloves, rubber boots (or boot covers), and full-face positive pressure respirators equipped with a combination cartridge that filters particulate and removes organic vapour. The organic vapour protection is an added protection against the unlikely exposure to any vapour as a necessary measure.					
	If ACM is identified in building structures where severely contaminated DCM is found, relevant abatement measures for building structures described in the AAP (see 7.7.16) should be implemented prior to the above site preparation.					

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
Decontamination, demolition and handling	The cremators/flue/chimney shall be removed from top down starting from the chimney. Any ash or residues attaching to the cremators/flue/chimney or any other building structures shall be removed by scrubbing and HEPA vacuuming. The detached sections of the building structures where severely contaminated DCM is located shall be wrapped with 2 layers of fire retardant polyethene sheets. A third layer shall then be wrapped and secured with duct tape. Decontaminate the outer layer of the wrapped flue sections by wet wiping.	Cremator room in Existing Crematorium / demolition	Contractor	Demolition stage	Waste Disposal (Chemical Waste) (General) Regulation	N/A
	Wastes generated from the containment or decontamination unit including the fire retardant polyethene sheets, protection clothing of the workers such as the coverall, nitrile glove, rubber boots and materials used for wet wiping shall be disposed of at landfill site.	Cremator room in Existing Crematorium / demolition	Contractor	Demolition stage	Waste Disposal (Chemical Waste) (General) Regulation	N/A

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
	The quantity of wastewater generated from the decontaminated process will be very small but the contractor should take precautionary measures as to minimize the quantity of contaminated water arising. Nevertheless, if any contaminated wastewater needs to be discharged out of the site, it has to be properly treated to WPCO requirements with prior agreement from EPD on discharge standards.					
	After completion of removal, decontaminate the surface where severely contaminated DCM was located, including the wrapped incinerator furnace and flue sections left within the containment, by wet wiping and HEPA vacuum. Then spray the innermost layer of the fire retardant polyethene sheet covering the wall, ceiling and floor with PVA. Upon drying, peel off this innermost layer of the polyethene sheet covering the containment and dispose of at landfill site.					

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
	Repeat the above decontamination procedure for the second innermost layer of fire retardant polyethene sheet by wet wiping and HEPA vacuuming. After spraying with PVA, peel off this second innermost layer of the polyethene sheet covering the wall, ceiling and floor and dispose of at landfill site. Finally, the last layer of polyethene sheet shall then be taken down after spaying with PVA and be disposed as contaminated wastes.					
	If ACM is identified in building structures where severely contaminated DCM is found, relevant abatement measures for building structures described in the AAP (see *7.7.16*) should be implemented prior to the above decontamination, demolition and handling measures.					
Treatment and disposal	Waste to be disposed to CWTC: all contaminated ash waste with severely contaminated DCM removed and the used HEPA filters shall be sent to CWTC in Tsing Yi. The total volume should be confirmed by further site investigation.	Cremator room in Existing Crematorium / demolition	Contractor	Demolition stage	Waste Disposal (Chemical Waste) (General) Regulation	N/A

Recommended Mitigation Measures		Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
	Waste to be Disposed of at Landfill: other wastes including the building structures and its associated panels as well as wastes generated from this decommissioning works are also considered as contaminated waste and shall be disposed of at a designated landfill. Wastes generated from this decommissioning works refer to the polyethene wrapping sheets for the building structures, waste generated from the dismantlement of the containment and decontamination units, and cloth used in wet wrapping, etc. as previously described in this section. They shall be placed into appropriate containers such as drums, jerricans, or heavy duty and leak-proof plastic as a prudent approach. A disposal permit has to be obtained from the Authority. The disposal trip ticket is required to be made available as record after disposal.					
	If ACM is identified in building structures where severely contaminated DCM is found, relevant disposal measures for building structures described in the AAP (see *7.7.16*) should be implemented in prior to the above disposal measures.					

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
Dioxin Containing Materials (DCM) / Heavy Metal Containing Materials (HMCM) /Polyaromatic Hydrocarbon Containing Materials (PAHCM) / Total Petroleum Hydrocarbon Containing Materials (TPHCM) / Polychlorinated Biphenyls Containing Materials (PCBCM) from Soil Remediation at the Project Site					
According to the CAR and RAP, less than 100 m3 of soil would require disposal at landfill. Relevant health and safety procedure, waste disposal requirements and compliance report are as detailed in Figure 6.3. Mitigation measures to avoid fugitive dust emission mentioned in S.4.7.2 should also be observed.	Locations S3 and S5 of CAP / demolition	Contractor	Demolition stage	ProPECC PN3/94 APCO	N/A
In addition, after decommissioning but before demolition of the Existing Crematorium, further investigations during Phase I of the works at the vicinity of CLP secondary substation should also be carried out to determine if additional remediation (in addition to the current RAP) is required. Confirmatory test on levels of DCM, HMCM and PAHCM in locations S1 to S6 during Phase II of the works is also required to determine any further remediation /treatment/disposal. In addition, the ash waste in cremator/chimney/flues should also be collected for the testing of DCM/HMCM/PAHCM during Phase II of the works. The sampling and analysis plan should be prepared and submitted to EPD for approval.	CLP secondary substation / after decommission and before demolition	Contractor	Demolition stage	ProPECC PN3/94	N/A
All the aforementioned ACM / DCM / HMCM / PAHCM / TPHCM / PCBCM are classified as chemical waste. In addition to the measures mentioned above, the packaging, labelling and storage practices of chemical waste as stipulated in the following paragraphs should also be applied to these contaminated materials.	Project site / demolition	Contractor	Demolition stage	Waste Disposal (Chemical Waste) (General) Regulation	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
Chemical Waste All the chemical waste should be handled according to the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.* The Contractor should register as a chemical waste producer. The chemical waste should be stored and collected by an approved contractor for disposal at a licensed facility in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation.* Containers used for the storage of chemical waste should:	Project site / demolition	Contractor	Demolition stage	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Waste Disposal (Chemical Waste) (General) Regulation.	•
• Be suitable for the substance they are holding, resistant to corrosion, maintained in good condition, and securely closed; • Have a capacity of less than 450 L unless the specifications have been approved by the EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in *Schedule 2* of the *Waste Disposal (Chemical Waste) (General) Regulation.*					
The storage area for chemical waste should: • Be clearly labeled and used solely for the storage of chemical waste; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • Have adequate ventilation; • Be covered to prevent rainfall from entering (water collected within the bund must be tested and disposal as chemical waste if necessary); and • Be properly arranged so that incompatible					

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
materials are adequately separated.					
The chemical waste should be disposed of by: • A licensed waste collector; • A facility licensed to receive chemical waste, such as the CWTC at Tsing Yi, which offers chemical waste collection service and can supply the necessary storage containers; and/or • A waste recycling plant as approved by EPD.	Project site / demolition	Contractor	Demolition stage	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Waste Disposal (Chemical Waste) (General) Regulation.	N/A
General Refuse General refuse should be stored in enclosed bins or compaction units separated from C&D and chemical wastes. A reliable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D and chemical wastes, on a daily or every second day basis to minimize odour, pest and litter impacts. The burning of refuse on construction sites is prohibited by law. Aluminum cans are often recovered from the waste stream by individual collectors if they are segregated or easily accessible. Therefore, separately labeled bins for deposit of these cans should be provided if feasible. Similarly, plastic bottles and carton package material generated on-site should be separated for recycling as far as practicable. Site office waste should be reduced through recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered if one is available.	Project site / construction and demolition stages	Contractor	Construction and Demolition stage		•
Conduct supplementary site investigation for asbestos in building structures and for dioxins, metals (the "Dutch List") and PAH in ash/particular	Around existing cremators, chimney and flues	Contractor	Demolition stage	AIR, AMP/AAP to be submitted under	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
matter samples.	inside cremator room / after decommissioning but prior to demolition during Phase II work			APCO, future supplementary site investigation plan	
Landscape and Visual Mitigation Measures					
The identification of the landscape and visual impacts will highlight those sources of conflict requiring design solutions or modifications to reduce the impacts and, if possible, blend the development with the surrounding landscape. The proposed landscape mitigation measures will be described and illustrated by means of site plans and photomontage and take into account factors including: • Screen planting • Transplanting of mature trees with good amenity value where appropriate • Conservation of topsoil for reuse • Sensitive alignment of structures to minimise disturbance to surrounding vegetation • Reinstatement of areas disturbed during construction • The design and finishes / colours of architectural and engineering structures such as terminals and pylons • Existing views, views of the development with no mitigation, views with mitigation at day one of operation and after 10 years of operation	Project site / design, construction and demolition stages	Contractor/FEH D/Arch SD	Construction and Demolition stage	EIAO-TM	N/A
Tree transplanting: The tree survey has identified the trees which will be affected by the development and which could be considered for	Project site / construction and demolition as well	Contractor/Arch SD	Construction and Demolition stage	WBTC 7/2002, WBTC 14/2002, EIAO-TM	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
transplanting prior to commencement of construction work. Felling is considered as a last resort and every effort should be made to transplant the many good trees of high amenity value to either nearby suitable sites within the cemetery or to available space in FEHD's Wo Hop Shek Crematorium pending identification of an alternative site. The feasibility of transplanting will depend on a number of factors such as size, health and species of the tree. Adequate time (a minimum of 4 months) should be allowed for preparing trees for transplanting. Weekly inspection of tree protection measures as well as monitoring of tree transplant operations during both phases should be implemented. Particular care should be taken to save the 9 nos. mature and semi-mature protected tree species and 12 nos. protected shrub and immature tree species identified. To give the protected species the best possible chance of survival it is recommended that they are relocated to sheltered and well maintained planted areas within the cemetery. The following measures for tree transplanting should be adopted: (a) Appoint a landscape contractor for the establishment and maintenance of the transplanted trees as well as any new tree planting for 12 months upon completion of the works. (b) Careful co-ordination of Phase I and II works to allow tree transplanting from Phase II site directly to Phase I site.	as operation stages				
Tree protection: Trees to be retained adjacent to works areas will be carefully protected by strong hoarding and if necessary additional protection to individual tree trunks to avoid damage by machinery. The hoarding will also prevent	Project site / construction and demolition stages	Arch SD	Construction and Demolition stage	WBTC 7/2002, WBTC 14/2002, EIAO-TM	N/A

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
contractors from compacting soil around tree roots or dumping materials. Reference should be made to the guidelines for tree protection in the Government publication "Tree Planting and Maintenance in Hong Kong".					
Topsoil conservation: Any topsoil excavated during construction will be carefully saved and stored to one side of the works area for reuse upon completion.	Project site / upon completion of construction works for each phase	Arch SD	Construction and Demolition stage	WBTC 7/2002, WBTC 14/2002, EIAO-TM	N/A
Replanting: Upon completion planting of ornamental trees and shrubs will be provided to the periphery of the new crematorium building to help screen and soften the overall appearance of the structure. In addition, a reprovisioned memorial garden with a lotus pond and ornamental planting will be incorporated in the deck area of the building. Since the majority of the new planting will be on the deck structure the selection of species will be more limited with emphasis on smaller trees and ornamental shrubs to comply with loading restrictions. Notwithstanding this site constraint on tree selection, a minimum of 1.2m soil depth will be provide for tree planting on the podium / roof structure for healthy establishment of the new tree planting.	Project site / upon completion of construction works for each phase	Arch SD	Construction and Demolition stage	WBTC 7/2002, WBTC 14/2002, EIAO-TM	N/A
Weekly inspections of tree protection measures as well as monitoring of tree transplant operations.	Project site / Phase I & II works	Project Landscape Architect	Construction and Demolition stage	Landscape Master Plan, Tree Planting and Maintenance in Hong Kong	N/A
Water Quality Mitigation Measures					
Construction and Demolition Phases – General To safeguard the water quality of the WSRs potentially affected by the Project works, the	Project site / construction and demolition stages	Contractor	Construction and Demolition stage	ProPECC PN 1/94	√

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
contractor should implement appropriate mitigation measures with reference to the *Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94)* published by EPD. Such measures are highlighted as follows.					
Construction and Demolition Phases - Construction and Demolition Run-off and Drainage Exposed soil areas should be minimized to reduce the potential for increased siltation, contamination of run-off and erosion. Any effluent discharge from the Project site is subject to the control of Water Pollution Control Ordinance (WPCO) discharge license and should be treated to meet the discharge standard set out in the relevant license. In addition, no site run-off should enter the stream on the eastern side of the Project site. Run-off impacts associated with the construction and demolition activities can be readily controlled through the use of appropriate mitigation measures, which include: • Temporary ditches should be provided to facilitate run-off discharge into appropriate watercourses, via a silt retention pond • Boundaries of earthworks should be marked and surrounded by dykes • Open material storage stockpiles should be covered with tarpaulin or similar fabric to prevent material washing away • Exposed soil areas should be minimized to reduce the potential for increased siltation and contamination of run-off • Earthwork final surfaces should be well compacted and subsequent permanent work should be immediately performed • Use of sediment traps wherever necessary	Project site / construction and demolition stages	Contractor	Construction and Demolition stage	ProPECC PN 1/94	√

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
• Maintenance of drainage systems to prevent flooding and overflow					
All temporary drainage pipes and culverts provided to facilitate run-off discharge should be adequately designed to facilitate rapid discharge of storm flows. All sediment traps should be regularly cleaned and maintained. The temporarily diverted drainage should be reinstated to its original condition, when the construction/demolition work is completed.					√
Sand and silt in wash water from wheel washing facilities should be settled out and removed from discharge into temporary drainage pipes or culverts. A section of the haul road between the wheel washing bay and the public road should be paved with backfall to prevent wash water or other site run-off from entering public road drains.					√
Oil interceptors should be provided in the drainage system downstream of any significant oil and grease sources. They should be regularly maintained to prevent the release of oil and grease into the storm water drainage system after accidental spillage. The inceptor should have a bypass to prevent flooding during periods of heavy rain, as specified in *ProPECC PN 1/94*.	Project site / construction and demolition stages	Contractor	Construction and Demolition stage	ProPECC PN 1/94	N/A
Construction and Demolition Phases - General Construction and Demolition Activities All the solid waste and chemical waste generated on site should be collected, handled and disposed of properly to avoid affecting the water quality of the nearby WSRs. The proper waste management measures are detailed in S.7.7.5-S.7.7.6.	Project site / construction and demolition stages	Contractor	Construction and Demolition stage	ProPECC PN 1/94	√
Construction and Demolition Phases - Sewage Generated from On-site Workforce	Project site / construction and	Contractor	Construction and Demolition stage	ProPECC PN 1/94	√

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
The sewage from construction work force is expected to be handled by portable chemical toilets if the existing toilets in the Project site are not adequate. Appropriate and adequate portable toilets should be provided by licensed contractors who will be responsible for appropriate disposal and maintenance of these facilities.	demolition stages				
Construction and Demolition Phases - Soil Remediation Activities Mitigation measures will need to be implemented during the currently identified soil remediation activities. If further land contamination investigation results (at CLP secondary substation during Phase I and at locations S1 to S6 during Phase II) confirm the needs for further soil remediation prior to demolition of the Existing Crematorium, relevant water quality mitigation measures (in addition to the current RAP) will need to be identified and implemented by the contractor. In addition, the mitigation measures recommended for minimizing water quality impacts for construction and demolition run-off and drainage as well as for general construction and demolition activities should also be adopted where applicable. In order to avoid impacts on water quality during further remedial works, care will be taken to minimise the mobilisation of sediment during excavation and transport. Measures to be adopted will be based on the recommendations set out in *Practice Note for Professional Persons ProPECC PN1/94 "Construction Site Drainage"*. The results of the site investigation suggest that there is unlikely to be any requirement for dewatering of	Project site / construction and demolition stages	Contractor	Construction and Demolition stage	ProPECC PN 1/94	√

Recommended Mitigation Measures	Location and Timing	Who to Implement?	When to Implement?	What Requirements or Standards to Achieve?	Status
excavations, since groundwater was not encountered in any of the exploratory holes. The contractor carrying out the remedial works will be required to submit a method statement detailing the measures to be taken to avoid water quality impacts. Typical measures would include: : Carry out the works during the dry season (i.e. October to March) if possible : Use bunds or perimeter drains to prevent run-off water entering excavations : Sheet or otherwise cover excavations whenever rainstorms are expected to occur : Minimise the requirements for stockpiling of material and ensure any stockpiles are covered : Temporary on-site stockpiling of contaminated materials should be avoided, all excavated contaminated soils/materials should be disposed of on a daily basis : Ensure that any discharges to storm drains pass through an appropriate silt trap					

Note:

√	Compliance of mitigation measure
×	Non-compliance of mitigation measures
•	Non-compliance but rectified by the contractor
N/A	Not applicable

APPENDIX K
EVENT AND ACTION PLANS

Appendix K Event and Action Plans

Table K.1 Event and Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	AR	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the cause of exceedance and propose remedial measures; 2. Inform IEC and AR; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily, if ET assessment indicates that exceedance is due to contractor's construction works.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source, investigate the cause of exceedance and propose remedial measures; 2. Inform IEC and AR; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily, if ET assessment indicates that exceedance is due to contractor's construction works; 5. Discuss with IEC and Contractor on remedial actions required; 6. If exceedance continues, arrange meeting with IEC and AR; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the AR 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 Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the cause of exceedance and propose remedial measures; 2. Inform IEC, AR and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily, if ET assessment indicates that exceedance is due to contractor's construction works; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, AR and EPD informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the AR 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 Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify Contractor, IEC, AR and EPD; 2. Identify source, investigate the cause of exceedance and propose remedial measures; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily, if ET	1. Discuss amongst AR, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the AR accordingly;	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification;

EVENT	ACTION			
	ET	IEC	AR	CONTRACTOR
	assessment indicates that exceedance is due to contractor's construction works; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and AR to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, AR and EPD informed of the results; 8. If exceedance stops, cease additional monitoring.	3. Supervise the implementation of remedial measures.	measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the AR until the exceedance is abated.

Table K.2 Event and Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	AR	CONTRACTOR
Action Level	1. Notify Contractor and IEC; 2. Carry out investigation; 3. Report the results of investigation to the IEC and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness, if ET assessment indicates that exceedance is due to contractor's construction work.	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the AR accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Require Contractor 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 Contractor, IEC, AR and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency, if ET assessment indicates that exceedance is due to contractor's construction work; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, AR and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, AR and EPD informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst AR, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the AR accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	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 portion of works as determined by the AR until the exceedance is abated.