

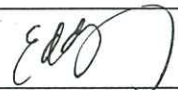

Kin Shing Construction Co. Ltd.

Contract No. KL 39/03

**South East Kowloon Development
Site Preparation and Drainage Works
At North Apron Area of Kai Tak Airport**

**Final EM&A Review Report for
Construction Phase**

November 2007

	Name	Signature
Reviewed & Checked:	Eddie Yang	
Approved:	Y T Tang	

Version:	0	Date: 6 November 2007
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The information contained in this report is, to the best of our knowledge, correct at the time of printing. The interpretation and recommendations in the report are based on our experience, using reasonable professional skill and judgment, and based upon the information that was available to us. These interpretations and recommendations are not necessarily relevant to any aspect outside the restricted requirements of our brief. This report has been prepared for the sole and specific use of our client and ENSR Asia (HK) Ltd. accepts no responsibility for its use by others.

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ENSR Asia (HK) Ltd.

11/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong
Tel: (852) 2893 1551 Fax: (852) 2891 0305 www.ensr.aecom.com www.maunsell.aecom.com



Enpro Environmental Technologies Co. Ltd.

Maunsell Environmental Management Consultant Ltd

5 November 2007

11/F Grand Central Plaza,
Tower 2, 138 Shatin Rural Committee Road,
Shatin, N.T., HK

Attn: Mr. Y T Tang

RE: Contract No. KL39/03 South East Kowloon Development Site Preparation and Drainage Works at North Apron Area of Kai Tak Airport

With reference to your email about the draft Final EM&A Summary Report, IEC has no comment to the captioned reports.

Please do not hesitate to call the undersigned at 3104 1533, if you have any questions.

Yours faithfully,


Mr. Magnum K.W. FAN

IEC

cc. ER - Mr. G W Tsai
Kin Shing - Mr. Keung

By Fax (2382 1909)
By Fax (2845 2716)

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EXECUTIVE SUMMARY

This is the Final Environmental Monitoring and Audit (EM&A) Summary Report prepared by ENSR Asia (HK) Ltd. (formerly Maunsell Environmental Management Consultants Ltd.), the designated Environmental Team (ET), for “Contract KL39/03 - South East Kowloon Development Site Preparation and Drainage Works at North Apron Area of Kai Tak Airport” under the works scope of designated project “Kai Tak Airport North Apron Decommissioning”. Majority of construction works completed in June 2007. The EM&A programme ceased on 7 August 2007.

This report summarizes the EM&A works performed in the period of the whole EM&A programme from August 2004 to 7 August 2007.

Environmental Monitoring Works

Air Quality

Both 1-hour Total Suspended Particulates (TSP) and 24-hour TSP were monitored at four designated locations (AM1, AM2, AM3 and AM4) during the reporting period. There were 48 Action Level and 1 Limit Level exceedances recorded.

Noise

Construction noise was monitored at four designated locations (NM1, NM2, NM3 and NM4). One Limit Level exceedance was recorded on Sunday and it was considered not related to the Project. Two Action Level exceedances about noise complaints were also recorded during the reporting period.

Water Quality

Water quality monitoring was conducted when wastewater treatment facilities were in operation during the period from 14 October 2004 to 29 September 2005. There were 18 suspended solids (SS), 3 chemical oxygen demand (COD) and 2 oil & grease (O&G) exceedances recorded during the reporting period.

Environmental Complaints and Prosecutions

There were 15 environmental complaints received during the reporting period, in which 12 complaints might be fully or partly due to the Project's work. All valid complaints were properly followed up and rectified.

One successful prosecution was made against the Project since commencement regarding an improper handling of dusty material storage. The Contractor was convicted of the charge of failure to cover entirely by impervious sheeting or spray with water maintain the entire surface wet for the stockpiling of dusty materials on 16 March 2006.

1. INTRODUCTION

Background

- 1.1 Maunsell Environmental Management Consultants Limited (MEMCL) (hereinafter called the “ET”), which changed the name to ENSR Asia (HK) Ltd. on 1 May 2007 was appointed by Kin Shing Construction Co., Ltd (hereinafter called the “Contractor”) to undertake EM&A programme for “Contract KL39/03 - South East Kowloon Development Site Preparation and Drainage Works at North Apron Area of Kai Tak Airport” (hereinafter called the “Project”), which is under the works scope of a designated project “Kai Tak Airport North Apron Decommissioning”.. Under the requirements of Condition 3.6 (b) of Environmental Permit EP-006/1998 for the designated project, EM&A programme as set out in the EM&A Manual ^[2] is required to be implemented.
- 1.2 In accordance with the EM&A Manual ^[2], environmental monitoring of air quality, noise and water quality are required for the Project. The major construction period of the Project lasted for 32 months from August 2004 to June 2007.
- 1.3 The relocation of the Kai Tak Airport (KTA) to the new airport at Chek Lap Kok in July 1998 provides an opportunity to develop the existing airport site to meet Hong Kong’s urgent need for more housing and infrastructure. In order to meet the housing development programme and enable development of the housing sites and construction works to proceed, there is an urgent need to implement appropriate remediation measures to clean up the affected areas immediately after the airport closes. The primary objectives of the Kai Tak Airport North Apron decommissioning were to clean-up the contaminated areas at the NAKTA and to undertake demolition of existing buildings, underground structures, services and removal of ground slabs and site preparation for the apron site. The layout of the site is provided in Figure 1.1.

2. PROJECT CHARACTERISTICS

Project Organization and Contacts of Key Management

- 2.1 The Project Proponent was Civil Engineering and Development Department (CEDD); the Engineer Representative (ER) was Ove Arup & Partners Hong Kong Limited; the Contractor was Kin Shing Construction Ltd; the Independent Environmental Checker (IEC) was Enpro ETC Ltd, and the ET was ENSR.
- 2.2 The responsibilities of respective parties are detailed in Section 1.4 of the EM&A Manual ^[2].
- 2.3 An Organization Chart of the Project is provided in Appendix A.

Construction Activities

- 2.4 The major construction works commenced on 9 August 2004 and completed in June 2007, whereas minor rectification works were also mostly completed in July 2007.
- 2.5 The Project consists of preparation works of the Project Site and the drainage construction works at the North Apron area of the former Kai Tak Airport, which includes the following works:
- Demolition of buildings and structure in the North Apron Area, including:
 - The Passenger Terminal Building (PTB);
 - The Multi-Storey Carpark Building (MSCB);
 - Group of smaller buildings and minor structures located at Dakota Drive, Skymaster Drive and Electra Drive;
 - Associated podium, Bridge links and ramps of the PTB and MSCB;
 - General site formation works to existing roads and open spaces including removal and demolition of street furniture, traffic sign gantries, traffic signs, planters and the suchlike; and
 - Partial demolition of Subway SW1 and undertake the maintenance of the remaining section;
 - Execution of asbestos abatement works prior to the demolition works of the abovementioned buildings and structures;
 - Site preparing works after demolition of the above-mentioned buildings and structures, including backfilling, provision of fencings, temporary drainage system and removal / sealing of decommissioned utilities and services;
 - Execution of ground investigation, sampling, testing and reporting for land contamination assessment;
 - Construction of Culvert V4 but excludes its upstream section;
 - Abandonment of existing storm water drains and sewers; and
 - Environmental protection works including EM&A.
- 2.6 A general layout plan of the Project is provided in Figure 2.1.

3. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Monitoring Parameters and Locations

- 3.1 The EM&A Manual ^[2] designates locations for the ET to monitor environmental impacts in terms of air quality (dust and benzene (only applicable during decontamination process), noise, water quality and land contamination (carried out by the Contractor and their in-house specialist).
- 3.2 The monitoring station AM1 was originally proposed at S.K.H. Holy Trinity Church. However, as it was not allowed to install high volume sampler at the church, AM1 was finally established at Emmanuel Primary School.
- 3.3 The monitoring station AM2 was originally a sensitive receiver in Kowloon City Area. However, since there was no proper location available, the station was set up at the northwest site boundary within the Project limit. During the period from 21 November 2005 to 11 August 2006, the monitoring station was moved to the bridge near Regal Oriental Hotel because there were construction works at the original location. The station was suspended from 30 June 2007 as no power supply was available from that day onwards.
- 3.4 Water quality monitoring was carried out at the early stage of the Project (August 2004 – June 2005) when there was runoff/wastewater discharged upon treatment from the Project. The sampling location was usually the discharge outlet of the treatment tank. As informed by the Contractor, runoff was temporarily kept on site from June 2005 onwards for reuse purpose. The water quality monitoring was also suspended from that day onwards.
- 3.5 The air quality and noise monitoring stations for this Project are shown in Figure 3.1 to 3.2 respectively. Appendix B gives the details of the monitoring requirements.

Environmental Quality Performance Limits (Action and Limit Levels)

- 3.6 The environmental quality performance limits, i.e. Action and Limit levels (AL Levels) were derived from the baseline monitoring results ^[3] & ^[4] and/or other approaches as detailed in the EM&A Manual ^[2]. In the event the measured environmental quality parameters exceed the AL Levels, the respective action plans would be implemented. The AL Levels for each environmental parameter are given in Appendix C.

Environmental Mitigation Measures

- 3.7 Relevant mitigation measures as recommended in the Project EIA Report ^[1] had been stipulated in the EM&A Manual ^[2] for the Contractor to adopt. A list of mitigation measures is given in Appendix H.

4. MONITORING RESULTS

4.1 A summary of monitoring conducted in the reporting period are summarized in Table 4.1.

Table 4.1 Summary of monitoring conducted in the reporting period

Parameter	No. of session	Period
Air Quality		
1-hour Total Suspended Particulates (TSP) monitoring	2220 sessions	11 Aug 2004 to 01 Aug 2007
24-hour TSP monitoring	700 sessions	10 Aug 2004 to 31 Jul 2007
Benzene	12 sessions	24 Jan 2006 to 20 Jan 2007
Water Quality		
SS	148 sessions	14 Oct 2004 to 9 Sep 2005
COD	50 sessions	
O&G	50 sessions	
Noise*		
0700-1900hrs on weekdays	624 sessions	11 Aug 2004 to 1 Aug 2007
1900-2300hrs on weekdays	471 sessions	9 Jun 2005 to 25 Jan 2007
2300-0700hrs of next day	471 sessions	
0700-1900hrs on general holidays	366 sessions	19 Dec 2004 to 6 May 2007

Remarks: * Environmental complaint, which constitutes an action level exceedance, under the EM&A Manual is not considered in the calculation of exceedance and % compliance in the Table.

Air Quality

- 4.2 Air quality monitoring covers 1-hour TSP and 24-hour TSP monitoring at four designated monitoring stations and benzene monitoring at one designated monitoring station.
- 4.3 All the 1-hour TSP and benzene monitoring results complied with the AL Levels during the construction period.
- 4.4 A total of 49 exceedances (48 Action Level and 1 Limit Level) for 24-hour TSP were recorded. Table 4.2 summarizes the number of air quality exceedances.

Table 4.2 Summary of Air Quality Exceedances

Station	1-hour TSP		24-hour TSP		Benzene		Total
	Action	Limit	Action	Limit	Action	Limit	
AM1	0	0	9	0	-	-	9
AM2	0	0	20	0	-	-	20
AM3	0	0	9	0	0	0	9
AM4	0	0	10	1	-	-	11
Total	0	0	48	1	0	0	49

- 4.5 Graphical presentations of 1-hour TSP, 24-hour TSP and benzene monitoring results in the reporting period are provided in Appendix E.
- 4.6 It was observed that higher TSP levels were generally recorded between October and March of the next year in each year. Such elevation of TSP levels was likely triggered by the elevated ambient dust and general air quality pollution level during dry season. In fact, as the baseline monitoring for air quality was carried out in July 2004, during which the weather condition was mainly wet, the baseline TSP level was relatively low. As most construction works had completed since April 2007, the TSP levels gradually returned to the baseline level. It was believed that the TSP levels were much affected by the change in ambient air quality and weather condition.
- 4.7 A low benzene level was usually recorded and the results were below the Limit Level during the period from January 2006 to January 2007. There was no significant influence on benzene level from the

decontamination works.

Noise

- 4.8 For daytime on weekdays, the measured noise levels were usually below the limit level. Regarding the noise monitoring results during the restricted hour periods, including evening time, night time, Sundays and general holidays, in view of a high background noise due to road traffic at the monitoring stations, a corrected noise level (CNL) was evaluated by comparison of the baseline/background and impact noise monitoring results. It was used to assess if the noise levels attributable to the construction works of the project were below the target limit level. All the CNL complied with the limit levels for evening time and night time noise periods whereas one exceedance was recorded for holiday daytime noise period. Upon completion of most construction works in 2007, noise levels were consistently lower than Limit Level.
- 4.9 All corrected daytime noise monitoring results at NM1, NM2, NM3 and NM4, evening time noise monitoring and night time noise monitoring results at NM2 and NM3 were below the Limit Level in the reporting period.
- 4.10 There was an exceedance for holiday daytime noise period on 9 January 2007. As road traffic around the monitoring station was the major noise source during the monitoring event, the exceedance was considered not related to the Project. Table 4.3 shows the summary of noise exceedance.

Table 4.3 Summary of Noise Exceedances

Station	Limit Level Exceedance				Total
	Period A	Period B	Period C	Period D	
NM1	0	0	0	1	1
NM2	0	0	0	0	0
NM3	0	0	0	0	0
NM4	0	0	0	0	0
Total	0	0	0	1	1

Remarks:

Period A: Daytime (0700 – 1900 on all weekdays)

Period B: Evening Time (1900 – 2300 on all weekdays)

Period C: Night Time (2300 – 0700 of Next Day on all days)

Period D: Daytime (0700 – 2300 on all holidays, including Sundays)

- 4.11 Two Action Level exceedance was recorded in the reporting period regarding two noise complaints received on May 2005 and May 2007. Details are given in Section 8.
- 4.12 The graphical presentations of the noise monitoring results are provided in Appendix F.

Water Quality

- 4.13 In accordance with the EM&A Manual ^[2], water quality monitoring had been conducted when wastewater was discharged. Suspended solids (SS), chemical oxygen demand (COD) and oil & grease (O&G) were the monitoring parameters.
- 4.14 Graphical presentations of all the monitoring results are provided in Appendix G.
- 4.15 A total of 23 water quality exceedances (18 SS, 3 COD and 2 O&G) were recorded in October 2004, January 2005 and April to August 2005. Generally, the monitoring results in these exceedance events only marginally exceeded the target levels. There was a greater fluctuation in the monitoring results of SS, turbidity and COD during the period from May to July 2005, when both quantity and quality of influent was much affected by rainy weather condition. The treatment tanks were sometimes insufficient, particularly under heavy rainy weather condition. In addition, the Contractor did not perform proper operation and maintenance for the wastewater facilities occasionally.
- 4.16 As informed by the Contractor, water discharge was not made after November 2005. All the site runoff

was temporarily kept on site and reused for spraying on exposed areas and haul roads.

- 4.17 Regarding O&G level in the treated effluent, the monitoring results were consistently low but only two monitoring results exceeded the target level in August and September 2005. Since there was no discharge made on the days of monitoring, the monitoring results were not considered as exceedances.

5. AUDIT RESULTS

Implementation Status of Environmental Mitigation Measures

- 5.1 The Contractor generally implemented proper mitigation measures to minimize the environmental impacts due to construction activities. Regarding a few minor observations as noted during ET's site inspections, the Contractor rectified most of the problems and no major environmental deficiency was induced.
- 5.2 The implementation status of environmental mitigation measures (EMIS) is given in Appendix H.

Status of Environmental Licensing and Permitting

- 5.3 Environmental licenses and permits including Environmental Permit for the Project, construction noise permit and effluent discharge license were in place and valid during the Construction Phase. The Contractor also registered as the chemical waste producer. A summary status of licences and permits is given in Appendix I.

Advice on Solid and Liquid Waste Management Status

- 5.4 The major solid waste generated from the Project consisted of inert and non-inert C&D wastes from demolition works. Sorting facilities and crushers were deployed to separate broken concrete and bricks from other non-inert wastes. This inert waste was reused in other construction sites. Some recyclable wastes, such as metal, were also delivered for recycling. Table 5.1 summarizes the actual waste generated in the construction period (up to 6 July 2007).

Table 5.1 Actual Waste Generation during the Construction Period (up to 6 July 2007)

Waste Type	Examples	Quantity	Disposal Locations
Inert Waste	Broken concrete	159,600m ³	Other construction site
	Metals	24,658,180kg	Recycler
Non-inert Waste	Timber	460m ³	SENT Landfill
	Paper	420kg	SENT Landfill
	Plastic	4,030kg	SENT Landfill
	General Refuse	11,000kg	SENT Landfill
Chemical waste	Spent oil	12,770kg	Dunwell

6. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS)

Summary of Exceedances

- 6.1 All measured 1-hour TSP and benzene concentrations were below the Action and Limit Levels.
- 6.2 A total of 48 Action Level and 1 Limit Level 24-hour TSP exceedances were recorded.
- 6.3 For noise monitoring, only one exceedance was recorded for holiday daytime noise monitoring. Two Action Level exceedances for noise monitoring were recorded as 2 complaints were received.
- 6.4 For water quality monitoring, a total of 23 exceedances (18 SS, 3 COD and 2 O&G) were recorded in the reporting period.

Review of the Reasons for and the Implications of Non-compliance

- 6.5 Regarding the exceedances recorded for 24-hour TSP concentration, the identified dust sources were different in each event but included dust generated from the project activities, wind erosion on exposed areas, traffic emissions and poor ambient air quality.
- 6.6 The only noise limit level exceedance was considered not related to the Project. Road traffic noise was the major noise source during the monitoring event. The noise complaints were considered invalid as the Contractor followed CNP's specification in carrying out the construction works on the day of complaint.
- 6.7 The water quality exceedances were likely due to insufficient treatment capacity and improper operation and maintenance of the treatment tanks. In addition, under a fluctuating quality and quantity of influent during wet season, the performance of treatment tanks appeared less effective and might be a reason of some exceedances.

Summary of Actions Taken

- 6.8 ET investigated each individual exceedance and recommended necessary mitigation measures. For the exceedance related to the Project activities, the Contractor usually implemented the recommended mitigation measures to rectify the problems.

7. COMPARISON OF EM&A DATA WITH EIA PREDICTION

1-hour TSP, 24-hour TSP and Benzene Monitoring

- 7.1 The predicted 1-hour TSP and 24-hour TSP assessment results were presented in the form of air pollutant concentrations contours in the EIA Report^[1]. Since the Project was only part of the designated project under the EIA study and there were also variations in the construction methods and locations of major dust sources during the construction phase, difference was noted between the predicted maximum dust level and the actual measured results. It was found that the 1-hour TSP levels at AM1 – AM4 were all below the predicted levels. On the other hand, the 24-hour TSP results were much affected by the ambient air qualities and weather conditions. The monitoring results fluctuated above and below the predicted dust levels though they were mostly below the AL levels.
- 7.2 There was no incineration stack for soil treatment installed on site in the Project. However, excavation of contaminated soil was carried out at the ex-OCTF. The actual excavation rate was relatively slower than the expected rate as suggested the EIA Report^[1]. The monitoring station was set up at AM3, Ng Wah Catholic School, which is about 200m from the centre of Hotspot A. Since no benzene prediction was estimated at a location more than 150m away from the centre of excavation pit, it is considered that the benzene level should be roughly at the background level, i.e. 32 ug/m³. The actual monitoring results were even lower than the background level throughout the monitoring periods.

Noise Monitoring

- 7.3 Three of the four monitoring stations, NM1, NM3 & NM4, were studied in the EIA Stage. In the scenario with mitigation measures implemented, the worst noise levels were predicted when demolition of existing structures was undertaken. The predicted noise levels at NM1 and NM3 reached 73.5 dB(A) and 71.7 dB(A) respectively and both exceeded the limit level of 70 dB(A) whereas the predicted noise level at NM4 was 74.1 dB(A). For apron concrete removal, the predicted noise level at NM1 also reached 72.1 dB(A) and exceeded the limit level. Nevertheless, since there was no façade at NM1 facing the Project site and NM3 was air conditioned already as illustrated in the EIA Report^[1], the construction noise impacts were considered acceptable.
- 7.4 During the construction phase, the major activities were demolition of the ex-passenger terminal building on weekdays and hauling of broken concrete. The noise monitoring results were all below the limit levels of 70 dB(A) for the daytime period on weekdays at NM1 & NM2. Since these major noisy works were conducted at the northern boundary of project site but not close to NM4, the noise source at this station was usually not related to the Project.

Water Quality Monitoring

- 7.5 Construction site runoff and wastewater was monitored for the Project. There was no predicted data in the EIA Report^[1]. However, the EIA study predicted that the quality of discharge should comply with the standards for effluent discharged into the inshore waters of the Victoria Harbour Water Control Zone provided that the mitigation measures were adequately implemented. It was noted that there were a few exceedances recorded during the construction phase owing to insufficient treatment capacity or improper operation and maintenance of the treatment systems.

Review of Environmental Monitoring Methodology and EM&A Programme

- 7.6 The environmental monitoring methodologies and procedures were regularly reviewed by the ET. No modification to the existing monitoring methodology was made during the construction period.
- 7.7 The EM&A programme, the effectiveness and efficiency of the mitigation measures were successful during the construction period.

Environmental Acceptability of the Project

- 7.8 Although there were 49 exceedances of air quality, 3 exceedances of noise and 23 exceedances of water quality during the construction phase of the Project, most of them were not related to the Project. For those exceedances related to the Project, the Contractor usually followed up the problems properly. The site audit records also indicated that the construction activities in general complied with the relevant environmental requirements and were environmentally acceptable.

8. ENVIRONMENTAL COMPLAINTS

- 8.1 All complaints were handled in accordance with the EM&A Manual^[2]. The complaint handling procedure is provided in Appendix J.
- 8.2 There were 15 complaints received during the construction period. A total of 13 complaints were about dust issue and 2 noise complaints were made against the Project. Most complaints about dust problems were received during the demolition works of PTB and subsequent hauling of broken concrete during the period from 2004 to 2006. ET investigated each individual complaint. The 12 complaints, which were considered due to the project activities, were usually followed up by the Contractor immediately.
- 8.3 Summary record of the complaints, investigation and follow-up actions undertaken are provided in Appendix J.

9. NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

- 9.1 One successful prosecution about violation of Air Pollution Control (Construction Dust) Regulation –

Section 18 & 22 was made against the Project. The Contractor was convicted of the charge of failure to cover entirely by impervious sheeting or spraying with water to maintain the entire surface wet for the stockpiling of dusty materials. The hearings completed on 16 March 2006.

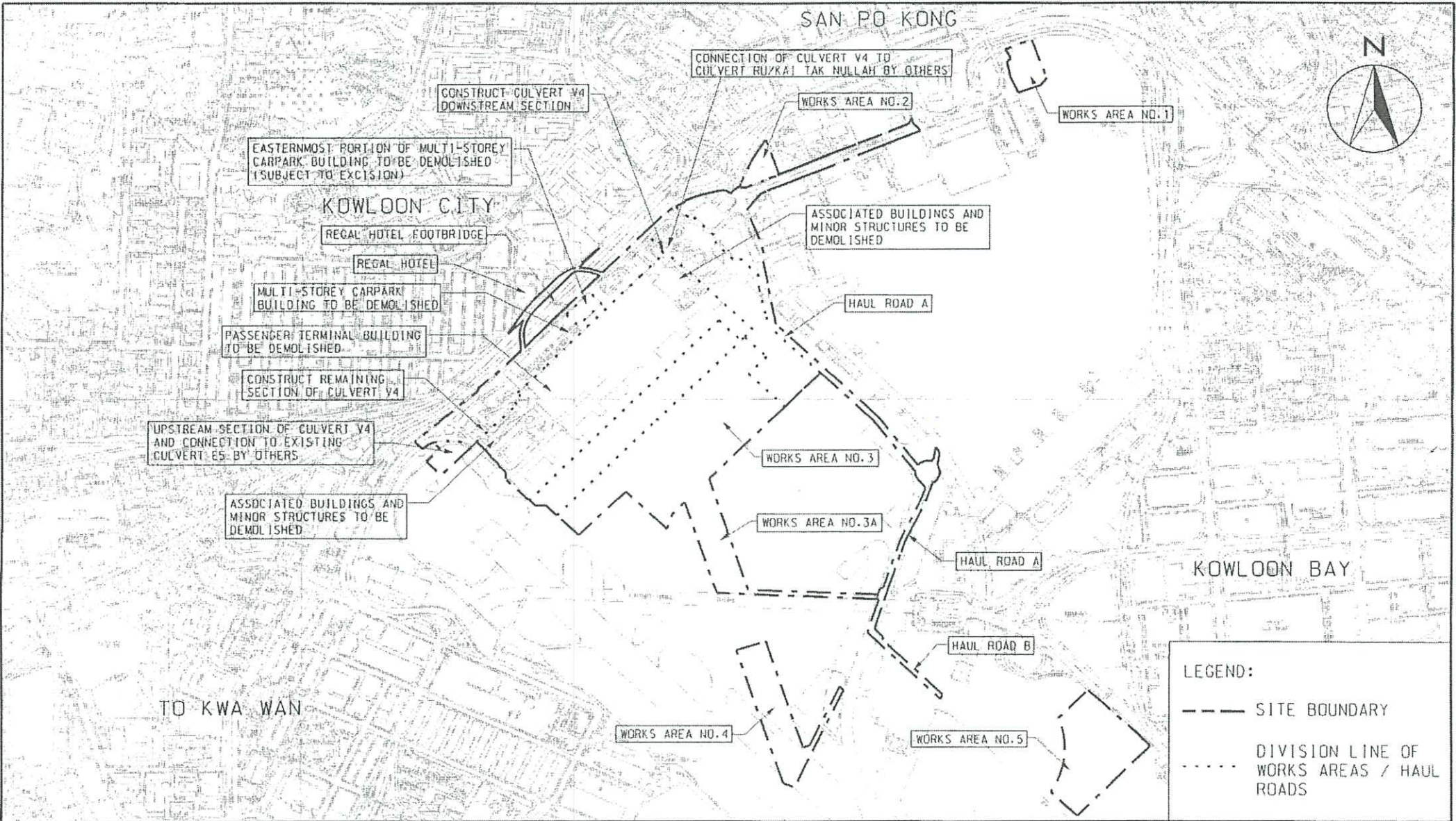
10. COMMENTS AND CONCLUSIONS

- 10.1 The ET carried out monitoring for air quality, noise and water quality (when wastewater was discharge) and weekly site inspections in accordance with the EM&A Manual^[2].
- 10.2 No exceedance of AL Levels for 1-hour TSP and benzene monitoring was recorded in the reporting period.
- 10.3 There were 49 exceedances for 24-hour TSP concentration recorded in the reporting period. For the exceedances related to the Project activities, the Contractor carried out necessary mitigation measures. In general, the implementation of dust mitigation measures was acceptable.
- 10.4 There was 1 Limit Level exceedance for holiday daytime noise monitoring and 2 Action Level exceedances about 2 noise complaints. All these exceedances were concluded not due to the Project activities. In general, the Contractor implemented proper mitigation measures to minimize noise impact.
- 10.5 Water quality monitoring was conducted when wastewater treatment facilities were in operation. There were 18 suspended solids (SS), 3 chemical oxygen demand (COD) and 2 oil & grease (O&G) exceedances recorded during the reporting period.
- 10.6 In addition to the above 2 noise complaints, there were 13 dust complaints made against this Project since commencement of the Project and 12 of them were considered fully or partially due to the Project activities. All complaints were followed up and rectified.
- 10.7 One successful prosecution was made against the Project about dust emission during the reporting period.
- 10.8 Most of the construction activities completed in June 2007. The exposed areas were either compressed or hydroseeded. Besides, all the broken concrete and bricks were handed over to other contractors for reuse. As observed during the site inspections in July 2007, only minor rectification works were undertaken and the environmental impacts due to the Project were minimal. The monitoring data also showed no significant impact from the Project since 2007. Therefore, it was agreed by EPD that the EM&A programme for the Project could be suspended on 7 August 2007.
- 10.9 The implemented EM&A programme ensured that any environmental impacts to the receivers would be readily detected and timely actions could be taken to rectify any non-compliance. Assessment and analysis of monitoring results collected demonstrated the environmental acceptability of the Project. Weekly site inspections checked that the EIA's recommended mitigation measures were effectively implemented. No particular recommendation was advised for improvement in the EM&A programme.

11. REFERENCES

- [1] Maunsell Consultants Asia Ltd. June 1998. Agreement No. CE 86/97 South East Kowloon Development at Kai Tak Airport Design and Construction for Decontamination and Site Preparation - Environmental Impact Assessment Report (Amended Version)
- [2] Maunsell Consultants Asia Ltd. June 1998. Agreement No. CE 86/97 South East Kowloon Development at Kai Tak Airport Design and Construction for Decontamination and Site Preparation - Environmental Monitoring and Audit Manual (Amended Version)
- [3] Maunsell Environmental Management Consultants Ltd. August 2004. Contract No. KL 39/03 South East Kowloon Development Site Preparation and Drainage Works at North Apron Area of Kai Tak Airport – Baseline Monitoring Report (1-hour & 24-hour TSP and Noise)
- [4] Maunsell Environmental Management Consultants Ltd. August 2004. Contract No. KL 39/03 South East Kowloon Development Site Preparation and Drainage Works at North Apron Area of Kai Tak Airport – Baseline Monitoring Report (Benzene)

FIGURES



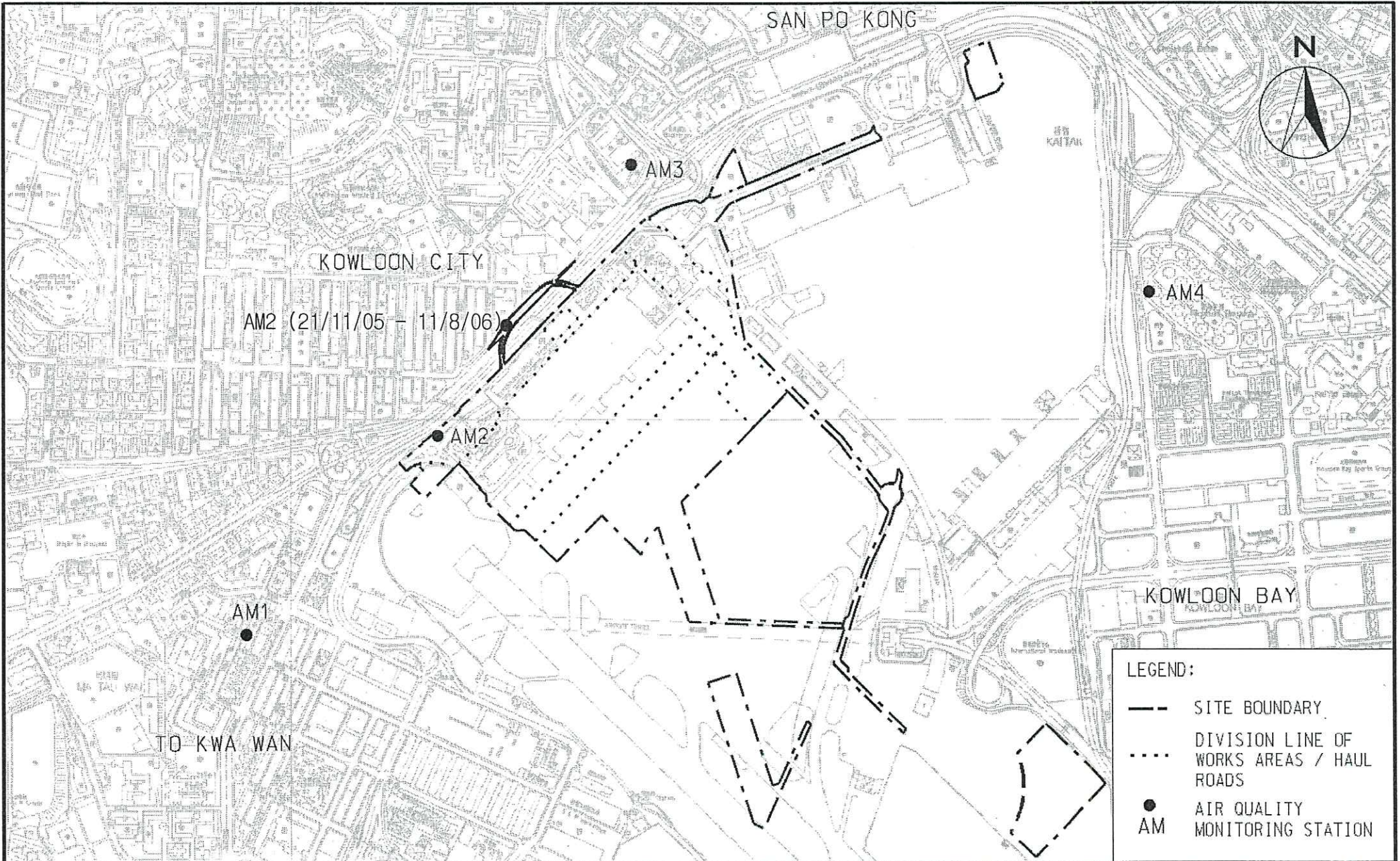
CONTRACT NO: KL 39/03 SOUTH EAST KOWLOON DEVELOPMENT SITE PREPARATION AND DRAINAGE WORKS AT NORTH APRON AREA OF KAI TAK AIRPORT

MAUNSELL | AECOM

Maunsell Environmental
 Consulting and Construction Ltd

LAYOUT OF WORK SITE

SCALE	A4 1:10000	DATE	2005
CHECK	EWNY	DRAWN	AHCM
JOB No.	S03304	DRAWING No.	2.1
		REV	-



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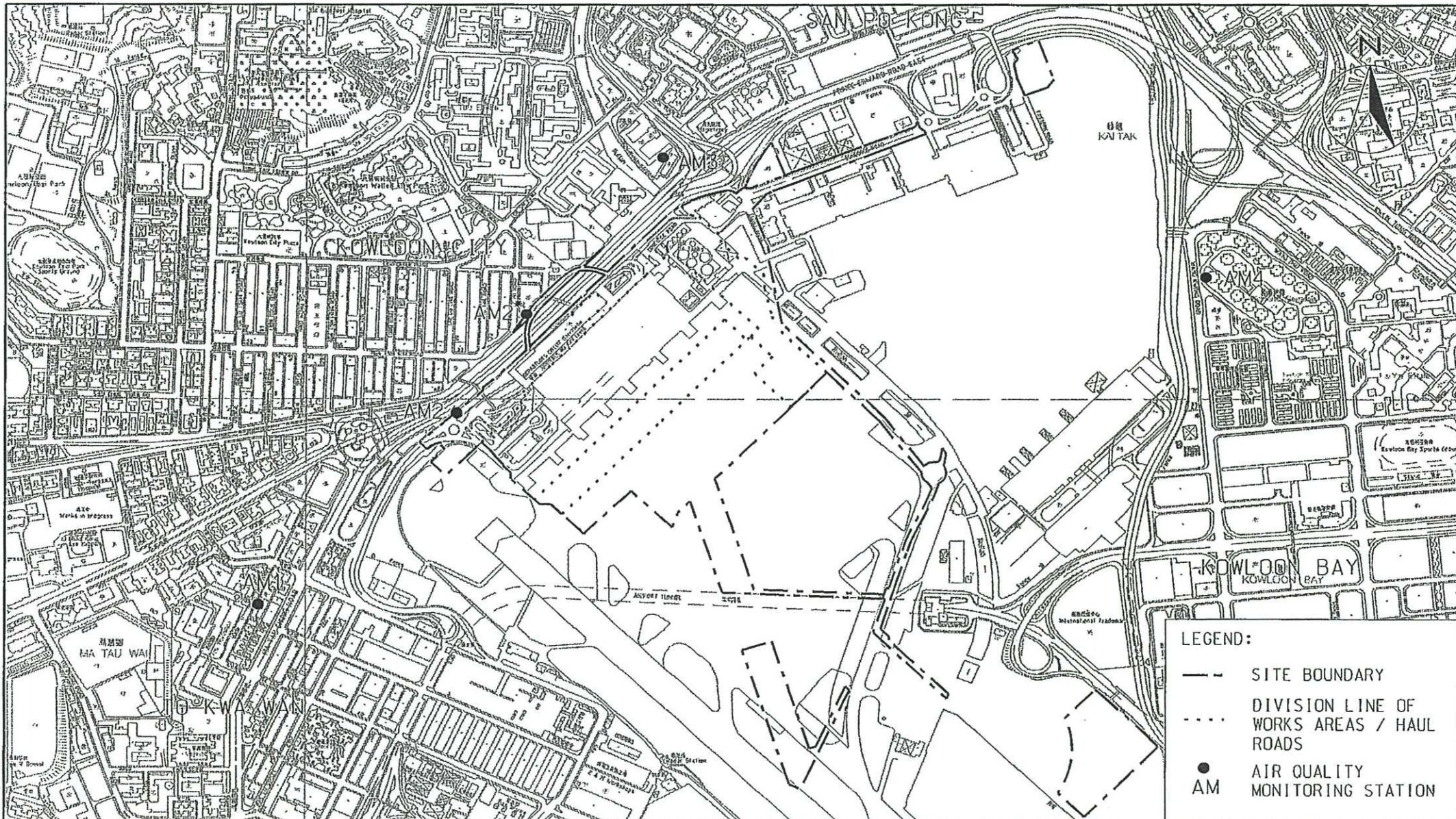
- SITE BOUNDARY
- DIVISION LINE OF WORKS AREAS / HAUL ROADS
- AIR QUALITY MONITORING STATION
- AM

CONTRACT NO: KL 39/03 SOUTH EAST KOWLOON DEVELOPMENT SITE PREPARATION AND DRAINAGE WORKS AT NORTH APRON AREA OF KAI TAK AIRPORT

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LOCATIONS OF AIR QUALITY MONITORING STATIONS

SCALE	A4 1:10000	DATE	2007
CHECK	EWNY	DRAWN	LLMC
JOB No.	S03304	DRAWING No.	3.1
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LEGEND:
 --- SITE BOUNDARY
 DIVISION LINE OF WORKS AREAS / HAUL ROADS
 ● AIR QUALITY MONITORING STATION
 AM

CONTRACT NO: KL 39/03 SOUTH EAST KOWLOON DEVELOPMENT SITE PREPARATION AND DRAINAGE WORKS AT NORTH APRON AREA OF KAI TAK AIRPORT

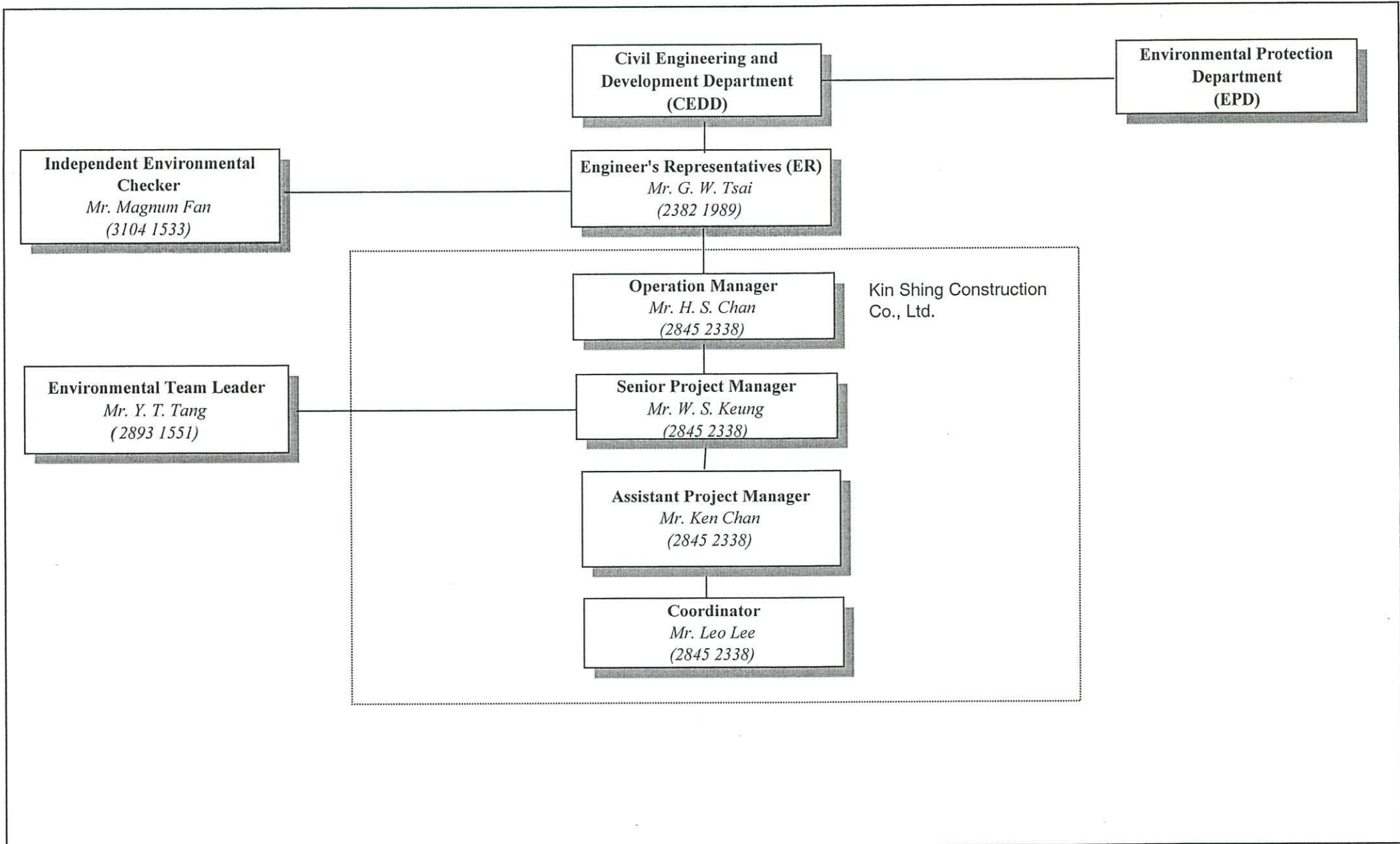
MAUNSELL | AECOM

Maunsell Environmental Management Consultants Ltd

LOCATIONS OF AIR QUALITY MONITORING STATIONS

SCALE	A4 1:10000	DATE	2005
CHECK	EWNY	DRAWN	YPK
JOB No.	S03304	DRAWING No.	3.2
		REV	1

**APPENDIX A
PROJECT ORGANISATION CHART**



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Contract No.: KL 39/03
 Site Preparation and Drainage Works at North Apron Area of Kai Tak Airport

Project Organization Chart

SCALE	N.T.S.	DATE	2007
CHECK	EWNY	DRAWN	YSL
JOB NO.	60016775	APPENDIX No.	A
		Rev.	-

**APPENDIX B
DETAILS OF MONITORING REQUIREMENT**

Appendix B Details of Monitoring Requirement

(Air Quality and Noise Level)

Type of Monitoring	Parameter	Frequency	Location
Air Quality	1-hour TSP	3 times every 6 days	<ul style="list-style-type: none"> AM1 (Emmanuel Primary School) AM2 (North West Site Boundary, Kai Tak Airport) AM3 (Ng Wah Catholic Secondary School) AM4 (Block 6, Richland Gardens)
	24-hour TSP	Once every 6 days	
	Benzene	Once per month at AM3 during decontamination process	
Noise	Daytime: L_{eq} , L_{90} & L_{10} at 30 minute intervals between 0700 and 1900	Once per week	<ul style="list-style-type: none"> NM1 (S. K. H. Holy Trinity Church) NM2 (North West Site Boundary, Kai Tak Airport) NM3 (Ng Wah Catholic Secondary School) NM4 (Block 6, Richland Gardens)
	Daytime: L_{eq} , L_{90} & L_{10} at 5 minute intervals between 0700 and 1900 on holidays		
	Evening time: L_{eq} , L_{90} & L_{10} at 5 minute intervals between 1900 and 2300		<ul style="list-style-type: none"> NM2 (North West Site Boundary, Kai Tak Airport) NM3 (Ng Wah Catholic Secondary School)
	Night time: L_{eq} , L_{90} & L_{10} at 5 minute intervals between 2300 and 0700 of next day		

(Water Quality)

Monitoring Stations	Parameter, unit	Frequency
Discharge Outlet of the Wastewater Treatment Tank	<ul style="list-style-type: none"> Turbidity, NTU SS, mg/L 	Three times per week if offsite discharge is made
	<ul style="list-style-type: none"> COD, mg/L O&G, mg/L 	Once per week if offsite discharge is made

**APPENDIX C
ENVIRONMENTAL QUALITY
PERFORMANCE (ACTION AND LIMIT
LEVELS)**

Appendix C Environmental Quality Performance Limits (Action & Limit Levels)

Table C1 Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM1	164.8	260
AM2	160.9	260
AM3	154.4	260
AM4	157.4	260

Table C2 Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM1	277.2	500
AM2	273.4	500
AM3	281.0	500
AM4	274.4	500

Table C3 Action and Limit Levels for Benzene

Monitoring Station	Benzene Concentration ($\mu\text{g}/\text{m}^3$)	
	Action Level	Limit Level
AM3	185 (58.1 ppbv)	185 (58.1 ppbv)

Table C4 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
0700 – 1900 hours on normal weekdays	When one documented complaint is received	75 dB(A) ⁽¹⁾
0700 – 2300 hours on public holidays including Sundays and 1900 – 2300 hours on all days		70 dB(A) ⁽²⁾
2300 – 0700 hours on all days		55 dB(A) ⁽²⁾

(1) Acceptable Noise Levels for Area Sensitivity Rating of A/B/C. Reduce to 70dB(A) for schools and 65dB(A) during school examination periods.

(2) Based on Area Sensitivity Rating "C"

Table C5 Summary of Noise Monitoring Results (0700-1900 hours on normal weekdays)

0700-1900 hours on normal weekdays	(Average) & Range of Noise Levels, dB(A)		
	L _{eq} (30 min)	L ₁₀	L ₉₀
NM1	(72.1) 70.5 – 73.0	72.2 – 74.0	67.5 – 71.1
NM2	(68.9) 68.0 – 70.1	69.2 – 71.5	64.5 – 68.0
NM3	(72.9) 72.0 – 73.6	73.0 – 74.8	70.5 – 72.2
NM4	(68.1) 66.7 – 69.8	68.3 – 70.9	65.2 – 67.0

Table C6 Summary of Noise Monitoring Results for the Period (0700 – 2300 hours on public holidays including Sundays and 1900 – 2300 hours on all days)

0700 – 2300 hours on public holidays including Sundays and 1900 – 2300 hours on all days	(Average) & Range of Noise Levels, dB(A)		
	L _{eq} (5 min)	L ₁₀	L ₉₀
NM1	(71.1) 70.8 – 71.3	72.9 – 73.3	67.5 – 68.1
NM2	(69.1) 68.9 – 69.2	70.2 – 70.6	64.5 – 66.3
NM3	(72.2) 72.1 – 72.4	73.8 – 74.1	71.1 – 71.2
NM4	(69.2) 68.9 – 69.4	71.0 – 71.2	65.9 – 66.4

Table C7 Summary of Noise Monitoring Results (1900-2300 hours on all days)

1900-2300 hours on all days	(Average) & Range of Noise Levels, dB(A)		
	L _{eq} (5 min)	L ₁₀	L ₉₀
NM1	(77.1) 70.5 – 78.3	72.2 – 81.5	68.0 – 73.5
NM2	(62.9) 60.7 – 65.1	62.0 – 66.0	58.5 – 62.5
NM4	(61.5) 57.3 – 66.0	59.0 – 68.0	56.6 – 64.0

Table C8 Summary of Noise Monitoring Results (1900-0700 hours of next days on all days)

Station	(Average) & Range of Noise Levels, dB(A)		
	L _{eq} (5 min)	L ₁₀	L ₉₀
NM1	(77.0) 74.0 – 78.7	77.2 – 81.5	67.0 – 72.5
NM2	(62.4) 60.5 – 63.8	62.0 – 65.0	58.0 – 62.5
NM4	(59.8) 57.3 – 63.2	58.5 – 65.5	55.5 – 62.5

**APPENDIX D
EVENT ACTION PLAN**

Appendix D Event Action Plan

EVENT	EVENT/ACTION PLAN FOR AIR QUALITY			
	ACTION			
	ET	IC(E)	ER	Contractor
ACTION LEVEL				
1. Exceedance for one sample	<ul style="list-style-type: none"> Identify source Inform IC(E) and ER Repeat measurement to confirm finding Increase monitoring frequency to daily 	<ul style="list-style-type: none"> Check monitoring data submitted by ET Check Contractor's working method 	<ul style="list-style-type: none"> Notify Contractor 	<ul style="list-style-type: none"> Rectify any unacceptable practice Amend working methods if appropriate
2. Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> Identify source Inform IC(E) and ER Repeat measurements to confirm findings Increase monitoring frequency to daily Discuss with IC(E) and Contractor on remedial actions required If exceedance continues, arrange meeting with IC(E) and ER If exceedance stops, cease additional monitoring 	<ul style="list-style-type: none"> Checking monitoring data submitted by ET Check the Contractor's working method Discuss with ET and Contractor on possible remedial measures Advise the ER on the effectiveness of the proposed remedial measures Supervise implementation of remedial measures 	<ul style="list-style-type: none"> Confirm receipt of notification of failure in writing Notify Contractor Ensure remedial measures are properly implemented 	<ul style="list-style-type: none"> Submit proposals for remedial actions to IC(E) within 3 working days of notification Implement the agreed proposals Amend proposal if appropriate
LIMIT LEVEL				
1. Exceedance for one sample	<ul style="list-style-type: none"> Identify source Inform ER and EPD Repeat measurement to confirm finding Increase monitoring frequency to daily Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results 	<ul style="list-style-type: none"> Checking monitoring data submitted by ET Check Contractor's working method Discuss with ET and Contractor on possible remedial measures Advise the ER on the effectiveness of the proposed remedial measures Supervise implementation of remedial measures 	<ul style="list-style-type: none"> Confirm receipt of notification of failure in writing Notify Contractor Ensure remedial measures are properly implemented 	<ul style="list-style-type: none"> Take immediate action to avoid further exceedance Submit proposals for remedial actions to IC(E) within 3 working days of notification Implement the agreed proposals Amend proposal if appropriate

<p>2. Exceedance for two or more consecutive samples</p>	<ul style="list-style-type: none"> • Notify IC(E), ER, Contractor and EPD • Identify source • Repeat measurement to confirm findings • Increase monitoring frequency to daily • Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented • Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken • Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results • If exceedance stops, cease additional monitoring 	<ul style="list-style-type: none"> • Discuss amongst ER, ET and Contractor on the potential remedial actions • Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly • Supervise the implementation of remedial measures 	<ul style="list-style-type: none"> • Confirm receipt of notification of failure in writing • Notify Contractor • In consultation with the IC(E), agree with the Contractor on the remedial measures to be implemented • Ensure remedial measures are properly implemented • If exceedances continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ul style="list-style-type: none"> • Take immediate action to avoid further exceedance • Submit proposals for remedial actions to IC(E) within 3 working days of notification • Implement the agreed proposals • Resubmit proposals if problem still not under control • Stop the relevant portion of works as determined by the ER until the exceedance is abated
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EVENT/ACTION PLAN FOR CONSTRUCTION NOISE

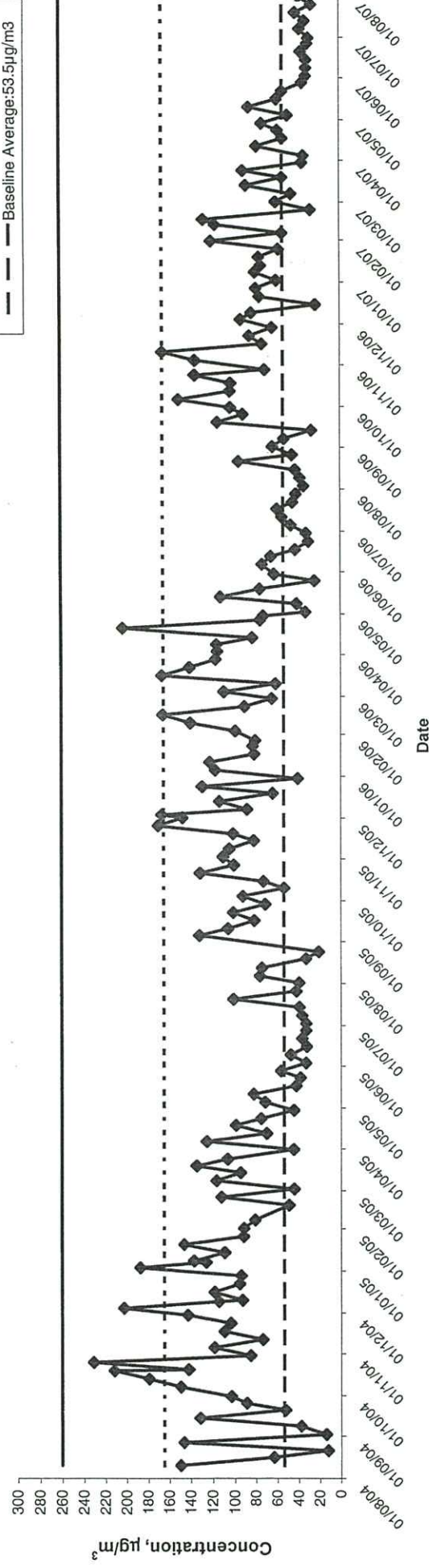
EVENT	ACTION			
	ET	IC(E)	ER	Contractor
Action Level	<ul style="list-style-type: none"> Notify the IC(E) and Contractor Carry out investigation Report the results of investigation to the IC(E) and the Contractor Discuss with the Contractor and formulate remedial measures Increase monitoring frequency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

Event	EVENT AND ACTION PLAN FOR WATER QUALITY			
	ACTION			
	ET Leader	IC(E)	ER	Contractor
1. Limit level being exceeded by one sampling day	<ul style="list-style-type: none"> Repeat measurement on next day of exceedance to confirm findings Identify source(s) of impact Inform IC(E), Contractor, ER & EPD Check monitoring data, all plant, equipment & contractor's working methods Discuss mitigation measures with IC(E), Contractor & ER 	<ul style="list-style-type: none"> Checking monitoring data submitted by ET & Contractor's working method Discuss with ET & Contractor on the possible mitigation measures Review the proposed mitigation measures submitted by Contractor & advise the ER accordingly 	<ul style="list-style-type: none"> Confirm receipt of notification failure in writing Discuss with IC(E), ET & Contractor on the proposed mitigation measures Request Contractor to review the working methods Ensure remedial measures are properly implemented 	<ul style="list-style-type: none"> Inform the ER & confirm notification of the non-compliance in writing Rectify unacceptable practice Check all plant & equipment & consider changes of working methods Discuss with ET, IC(E) and ER and propose mitigation measures to ER and IC(E) within 3 working days Implement the agreed mitigation measures
2. Limit level being exceeded by two or more consecutive sampling days	<ul style="list-style-type: none"> Repeat measurement on the next day of exceedance to confirm findings Identify source(s) of impact Inform IC(E), Contractor, ER & EPD Check monitoring data, all plant, equipment & Contractor's working methods Discuss mitigation measures with IC(E), Contractor & ER Ensure mitigation measures are implemented Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days 	<ul style="list-style-type: none"> Checking monitoring data submitted by ET & Contractor's working method Discuss with ET & Contractor on potential remedial actions Review Contractor's mitigation measures whenever necessary to assure their effectiveness & advise the ER accordingly Supervise the implementation of mitigation measures 	<ul style="list-style-type: none"> Discuss with IC(E), ET & Contractor on the proposed mitigation measures Request Contractor to critically review the working methods Making agreement on the mitigation measures to be implemented Ensure remedial measures are properly implemented Consider & instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level 	<ul style="list-style-type: none"> Take immediate action to avoid further exceedance Discuss with ET, IC(E) and ER and propose mitigation measures to ER and IC(E) within 3 working days Implement the agreed mitigation measures Resubmit proposals of mitigation measures if problem still not under control As directed by the Engineer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level

**APPENDIX E
GRAPHICAL PRESENTATION OF AIR
QUALITY MONITORING RESULTS**

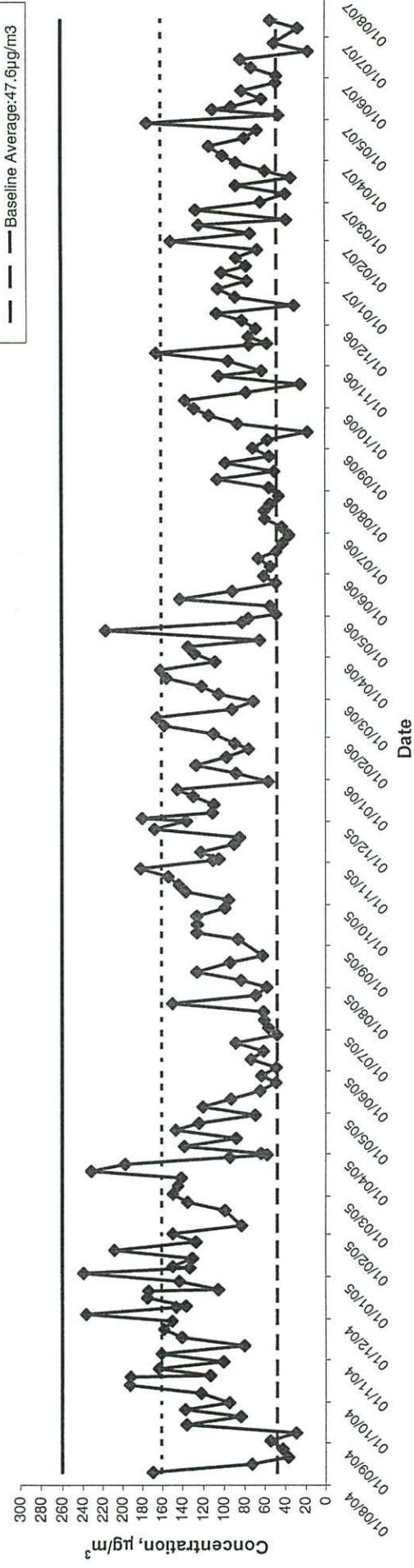
24-hour TSP Monitoring Results at AM1

AM1
 Action Level: 164.8 µg/m³
 Limit Level: 260.0 µg/m³
 Baseline Average: 53.5 µg/m³



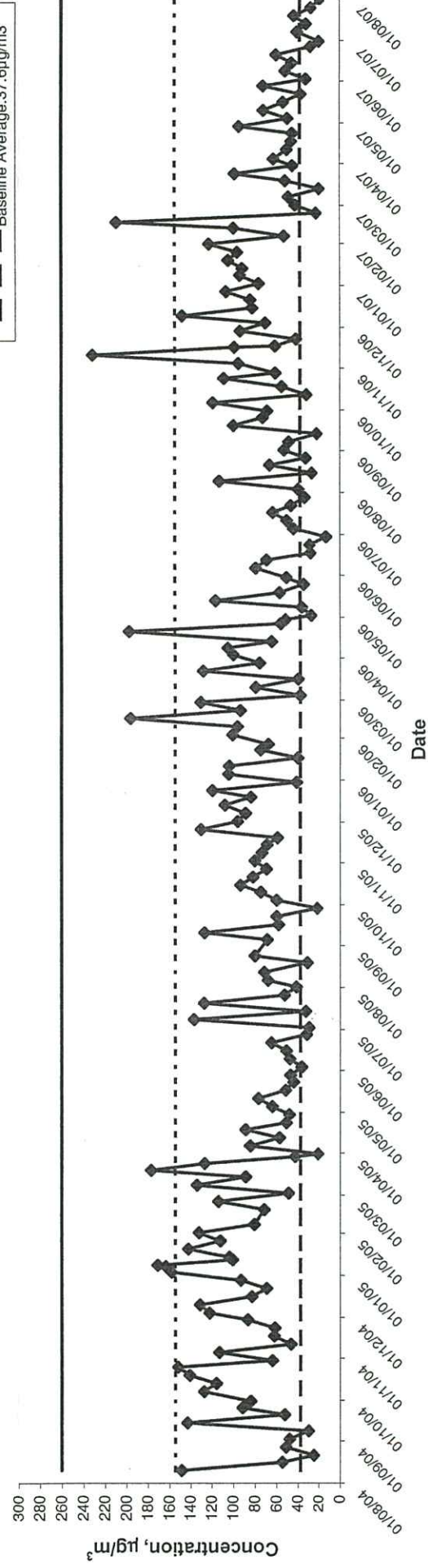
24-hour TSP Monitoring Results at AM2

AM2
 Action Level: 160.9 µg/m³
 Limit Level: 260.0 µg/m³
 Baseline Average: 47.6 µg/m³



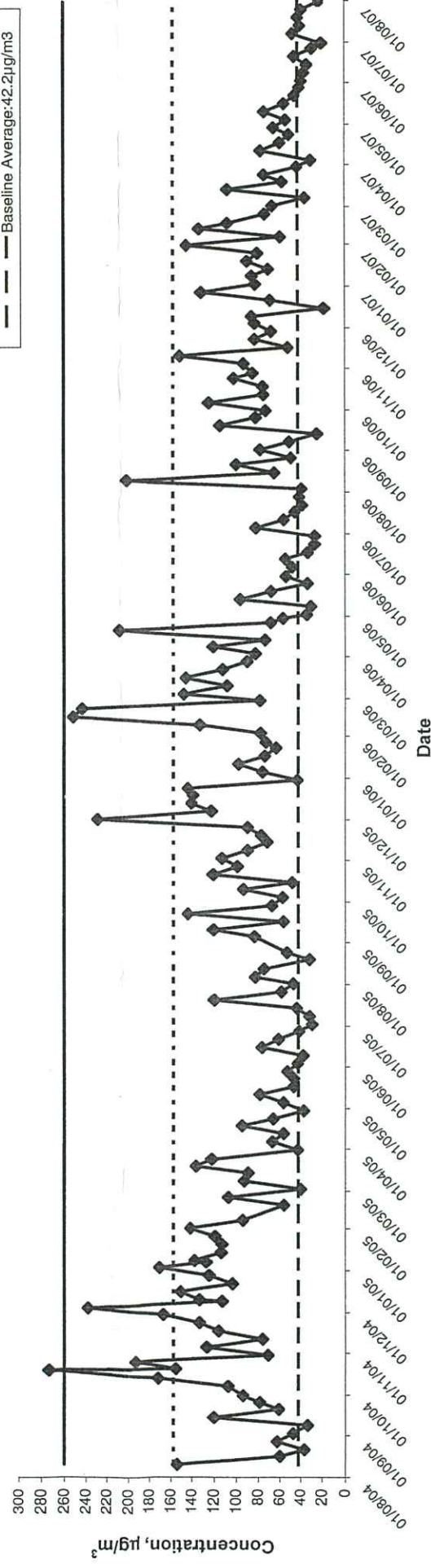
24-hour TSP Monitoring Results at AM3

AM3
 Action Level: 154.4 µg/m³
 Limit Level: 260.0 µg/m³
 Baseline Average: 37.6 µg/m³



24-hour TSP Monitoring Results at AM4

AM4
 Action Level: 157.4 µg/m³
 Limit Level: 260.0 µg/m³
 Baseline Average: 42.2 µg/m³



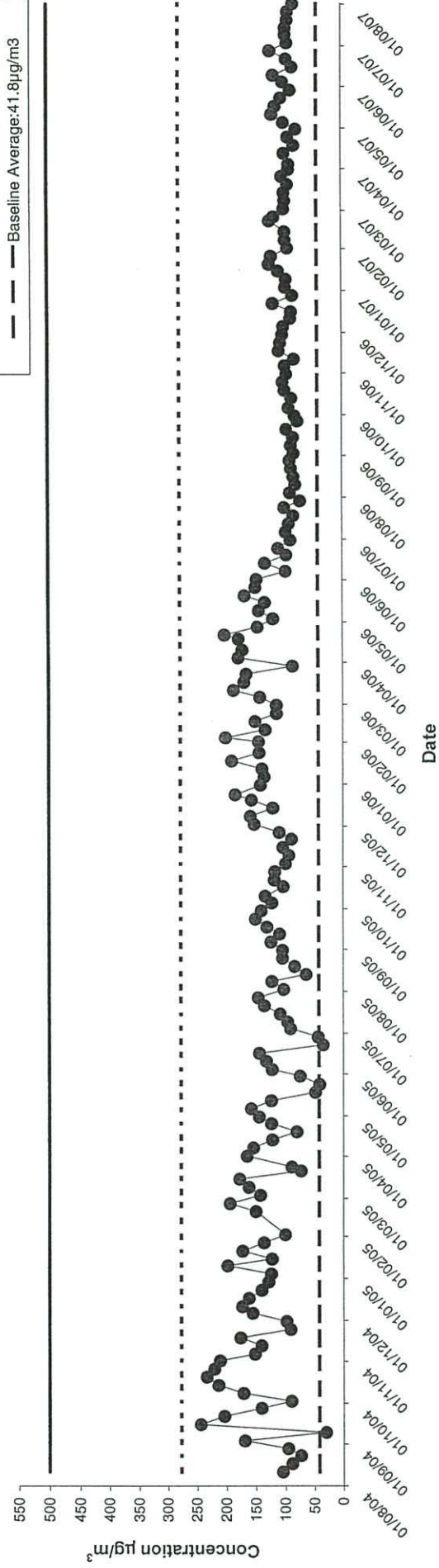
Contract No: KL 39/03

South East Kowloon Development Site Preparation and
 Drainage Works at North Apron Area of Kai Tak Airport
**Graphical Presentation of 24-hour TSP
 Monitoring Results**

SCALE	N.T.S.	DATE	2007
CHECK	EWNY	DRAWN	YSL
JOB NO.	60016775	Attachment	E

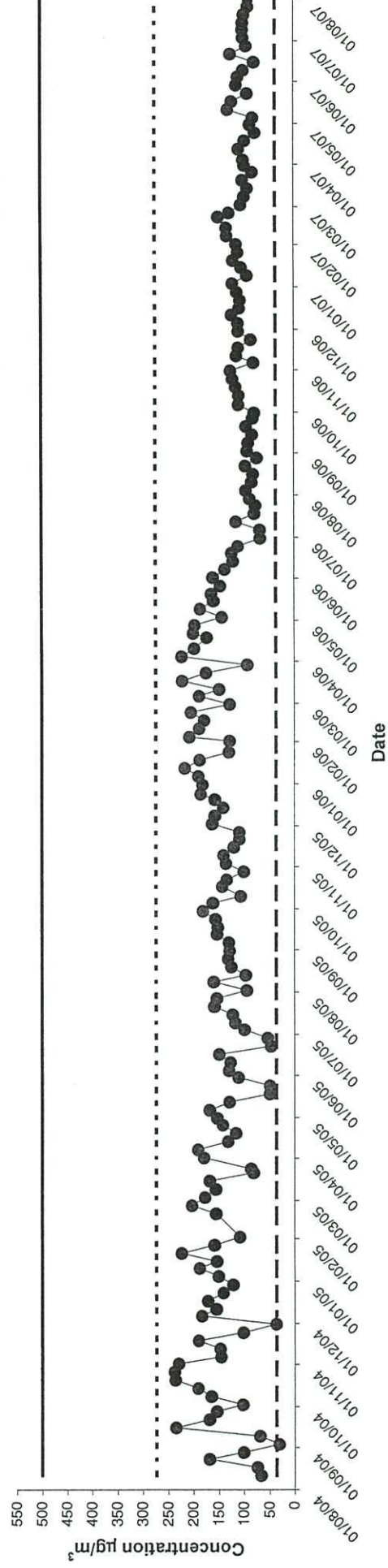
1-hour TSP Monitoring Results at AM1

- - - Action Level: 277.2 µg/m³
 ——— Limit Level: 500.0 µg/m³
 ● Weekly Average
 - - - Baseline Average: 41.8 µg/m³



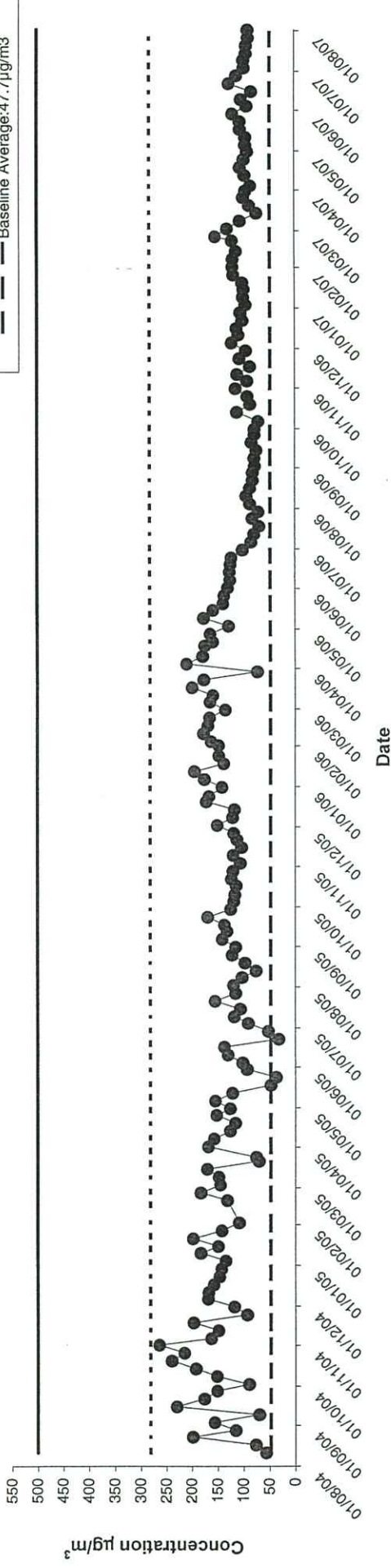
1-hour TSP Monitoring Results at AM2

- - - Action Level: 273.4 µg/m³
 ——— Limit Level: 500.0 µg/m³
 ● Weekly Average
 - - - Baseline Average



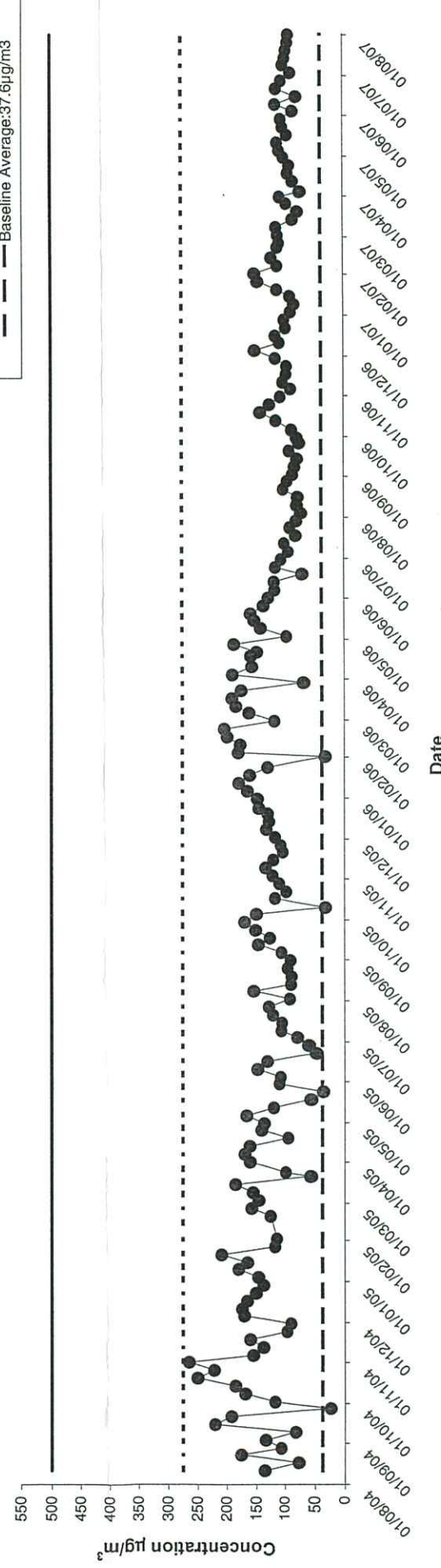
1-hour TSP Monitoring Results at AM3

- - - Action Level: 281.0 µg/m³
 ——— Limit Level: 500.0 µg/m³
 ● Weekly Average
 - - - Baseline Average: 47.7 µg/m³



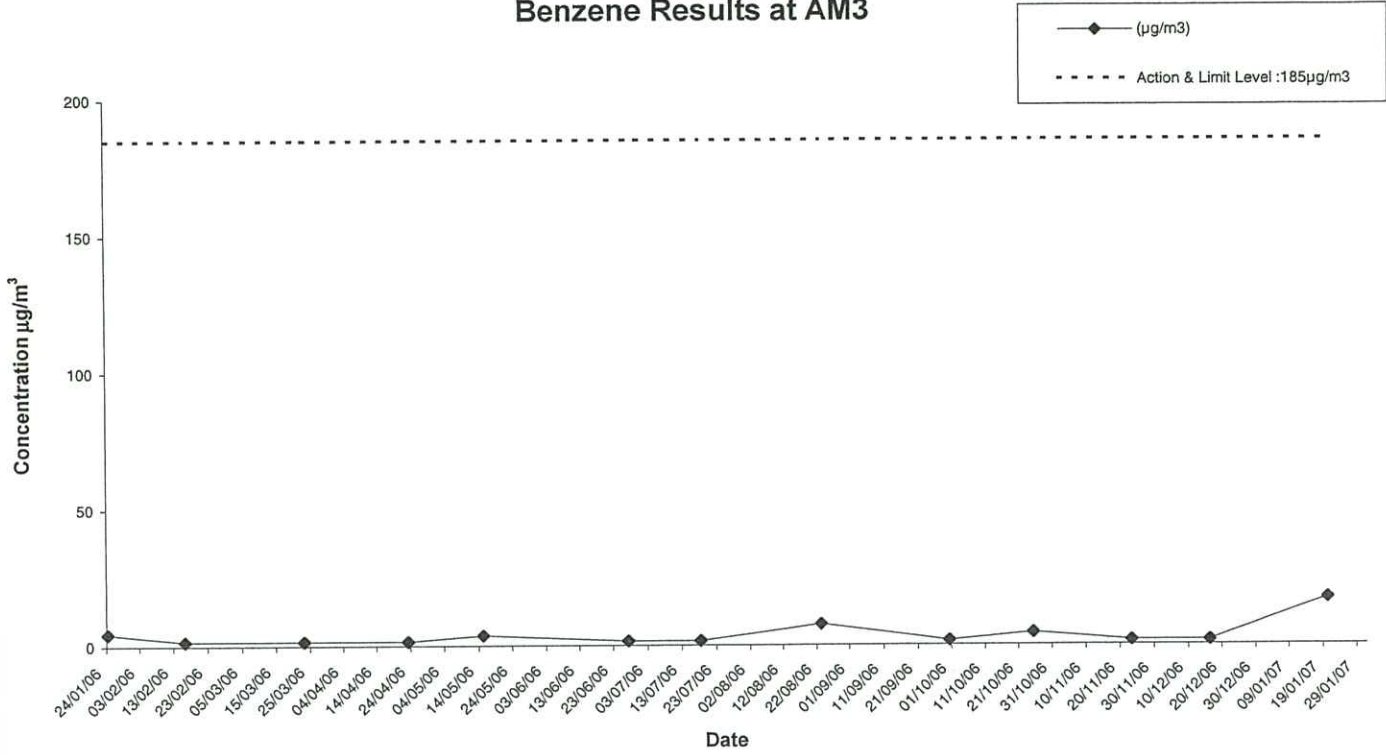
1-hour TSP Monitoring Results at AM4

- - - Action Level: 274.4 µg/m³
 ——— Limit Level: 500.0 µg/m³
 ● Weekly Average
 - - - Baseline Average: 37.6 µg/m³



SCALE	N.T.S.	DATE	2007
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Benzene Results at AM3



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South East Kowloon Development Site Preparation and Drainage Works at North Apron Area of Kai Tak Airport

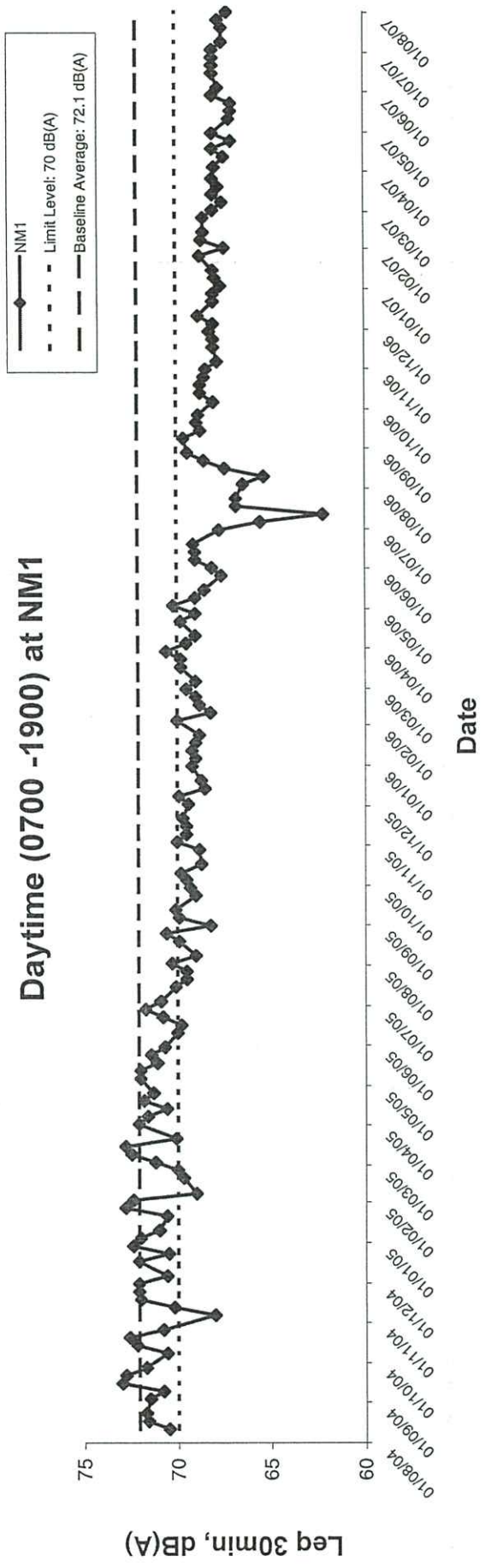
Graphical Presentation of Benzene Monitoring Results

SCALE	N.T.S.	DATE	2007
CHECK	EWNY	DRAWN	YSL
JOB NO.	60016775	APPENDIX No.	E
		Rev.	-

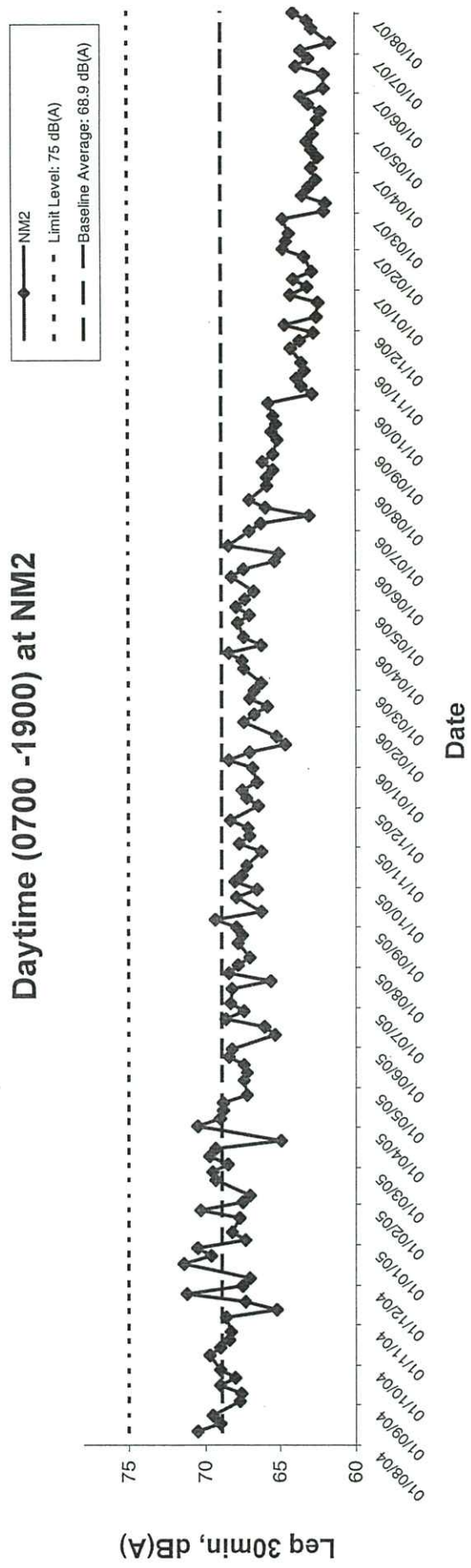
**APPENDIX F
GRAPHICAL PRESENTATION OF NOISE
MONITORING RESULTS**

Noise Monitoring Results

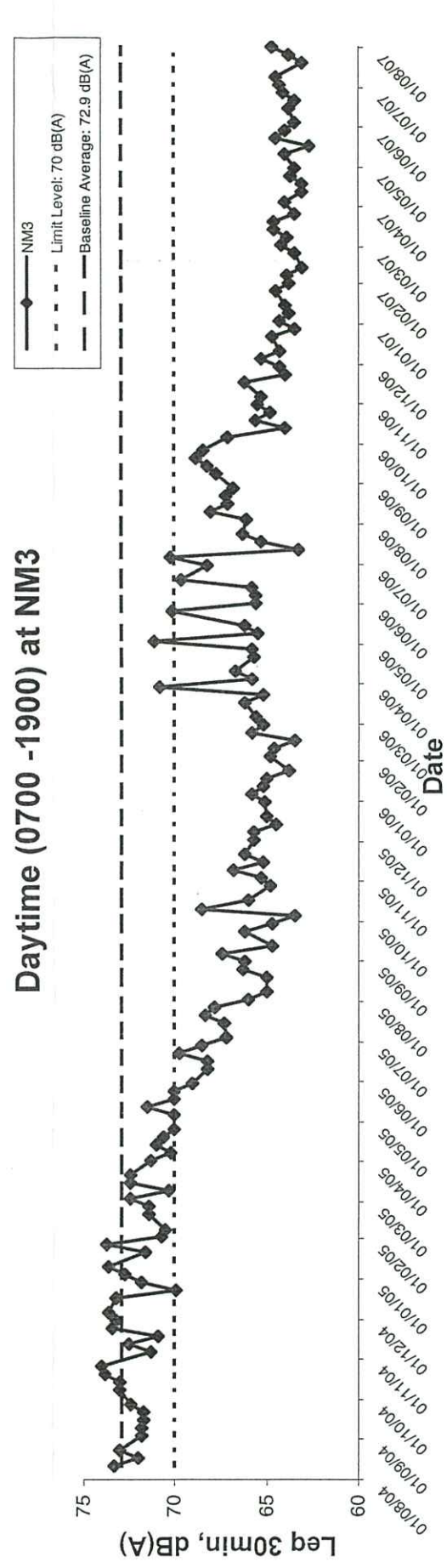
Daytime (0700 -1900) at NM1



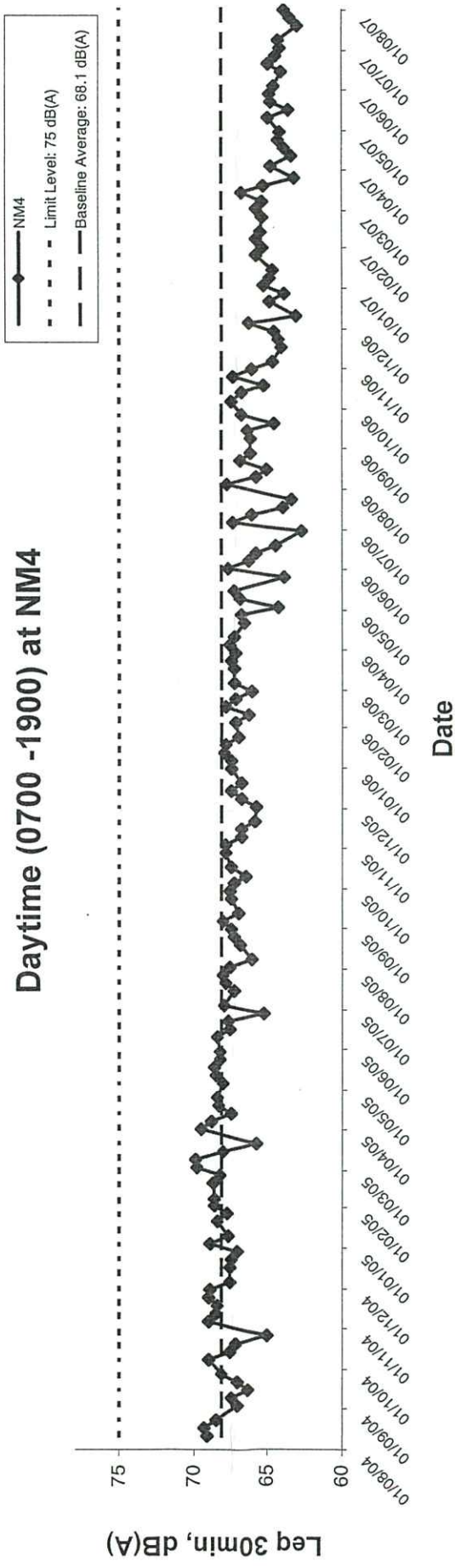
Daytime (0700 -1900) at NM2



Daytime (0700 -1900) at NM3

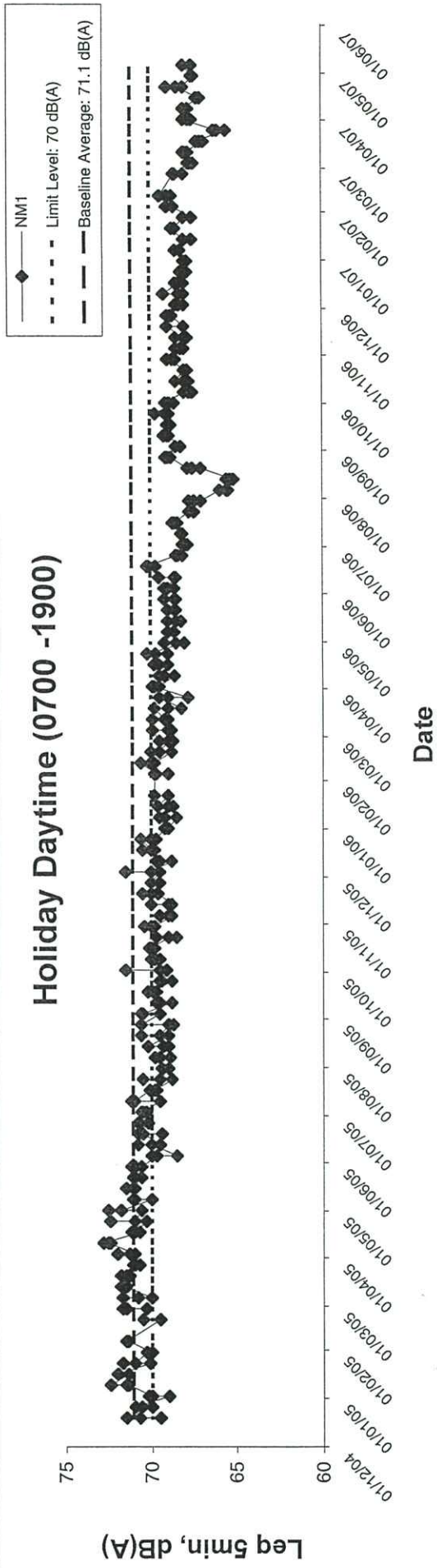


Daytime (0700 -1900) at NM4

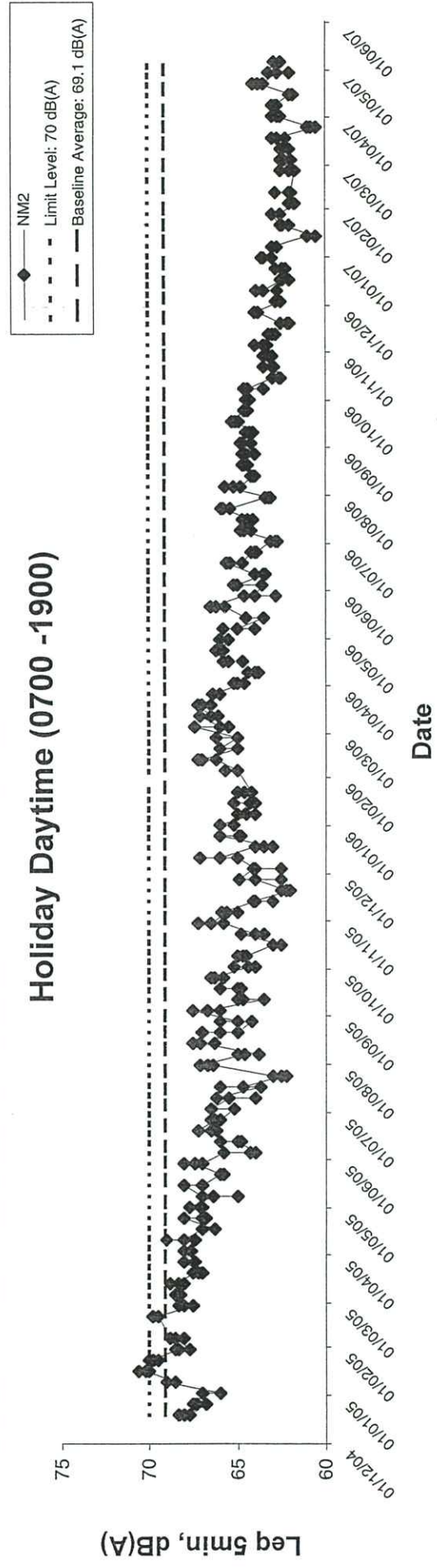


Noise Monitoring Results

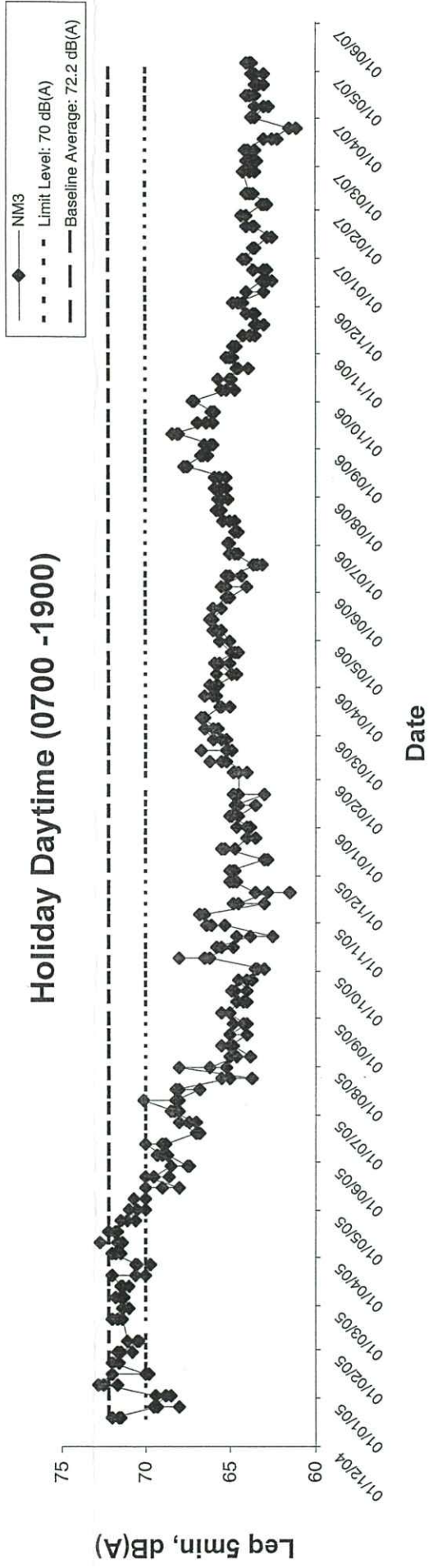
Holiday Daytime (0700 -1900)



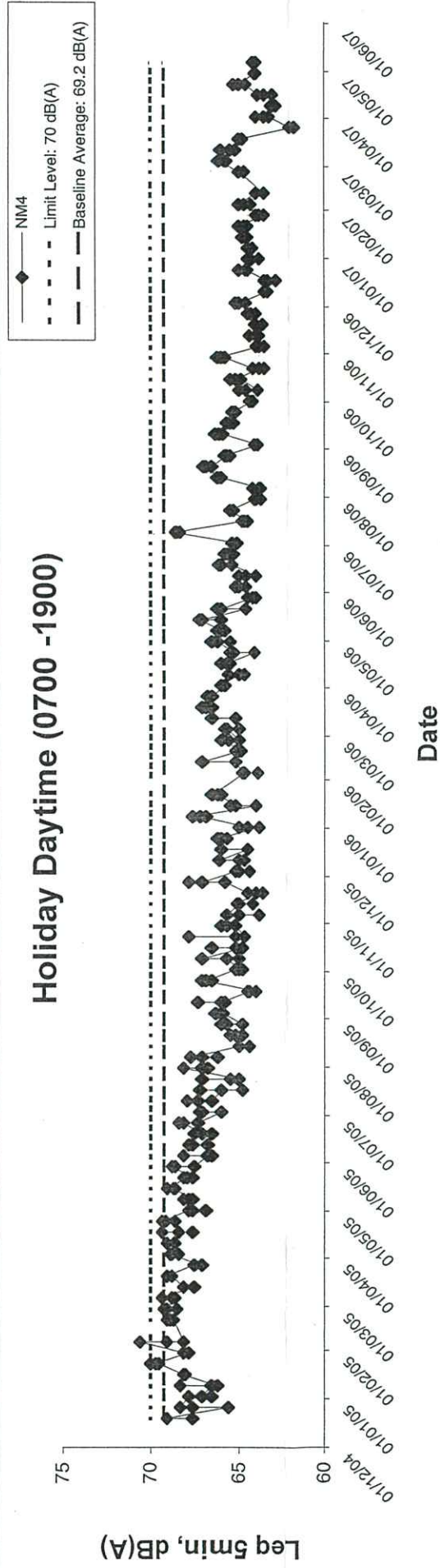
Holiday Daytime (0700 -1900)



Holiday Daytime (0700 -1900)

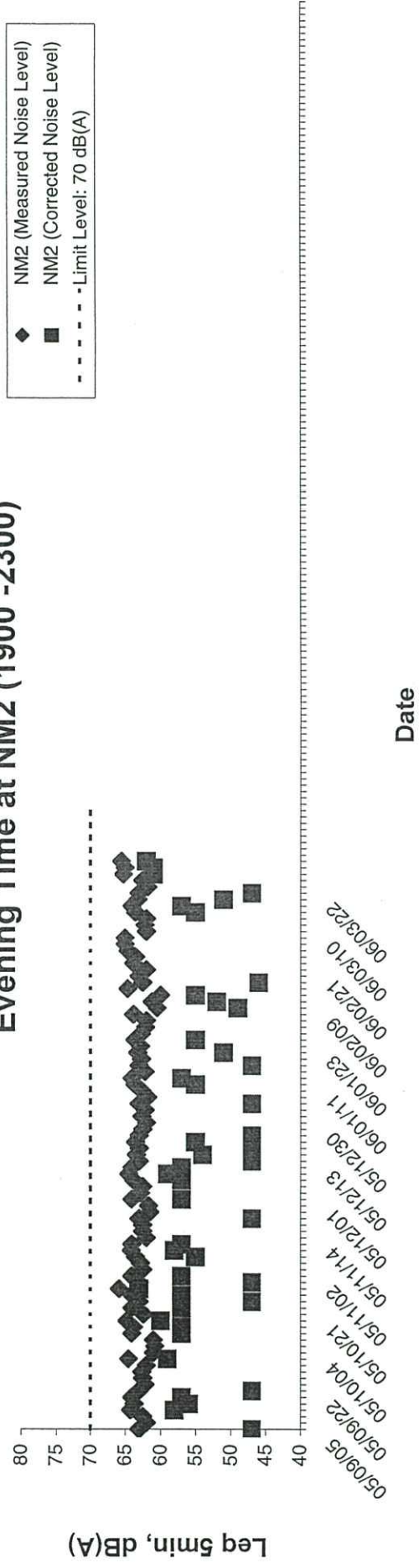


Holiday Daytime (0700 -1900)

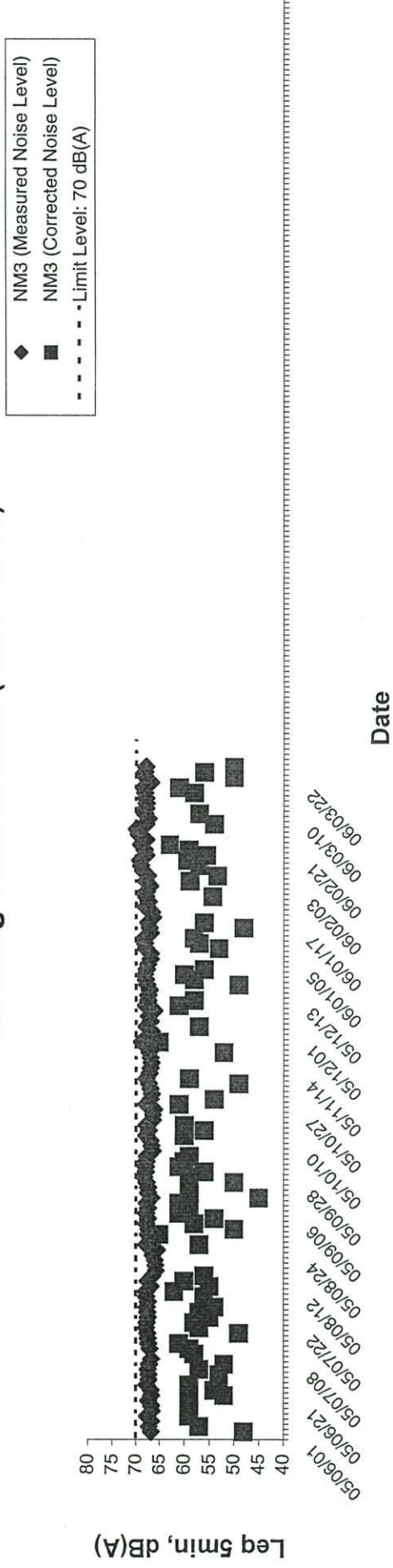


Noise Monitoring Results

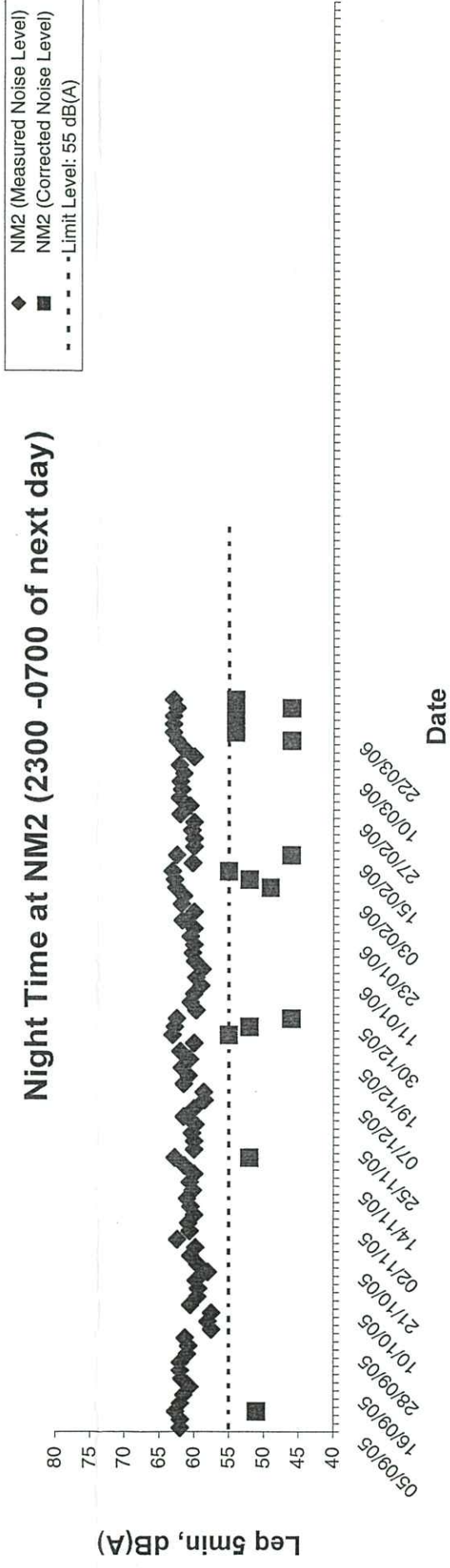
Evening Time at NM2 (1900 -2300)



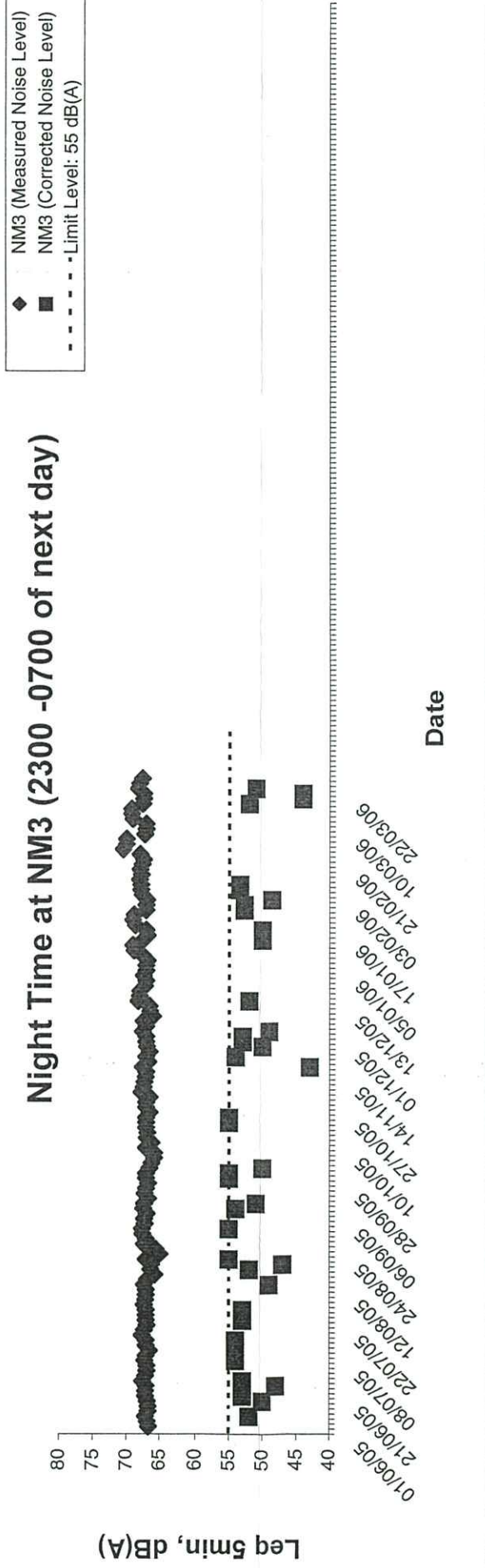
Evening Time at NM3 (1900 -2300)



Night Time at NM2 (2300 -0700 of next day)



Night Time at NM3 (2300 -0700 of next day)



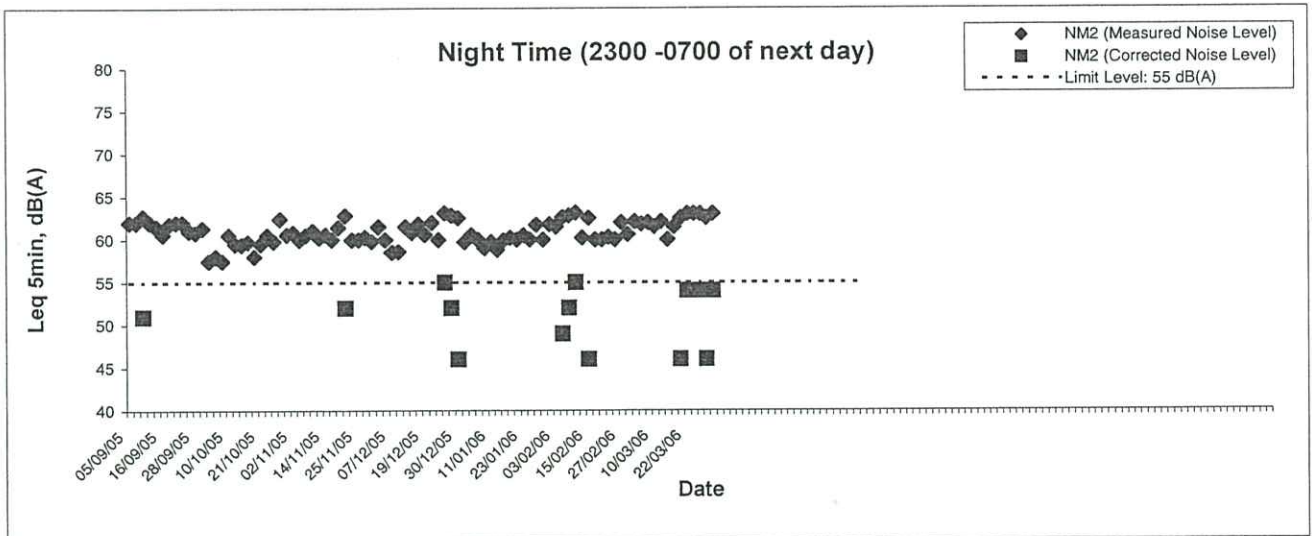
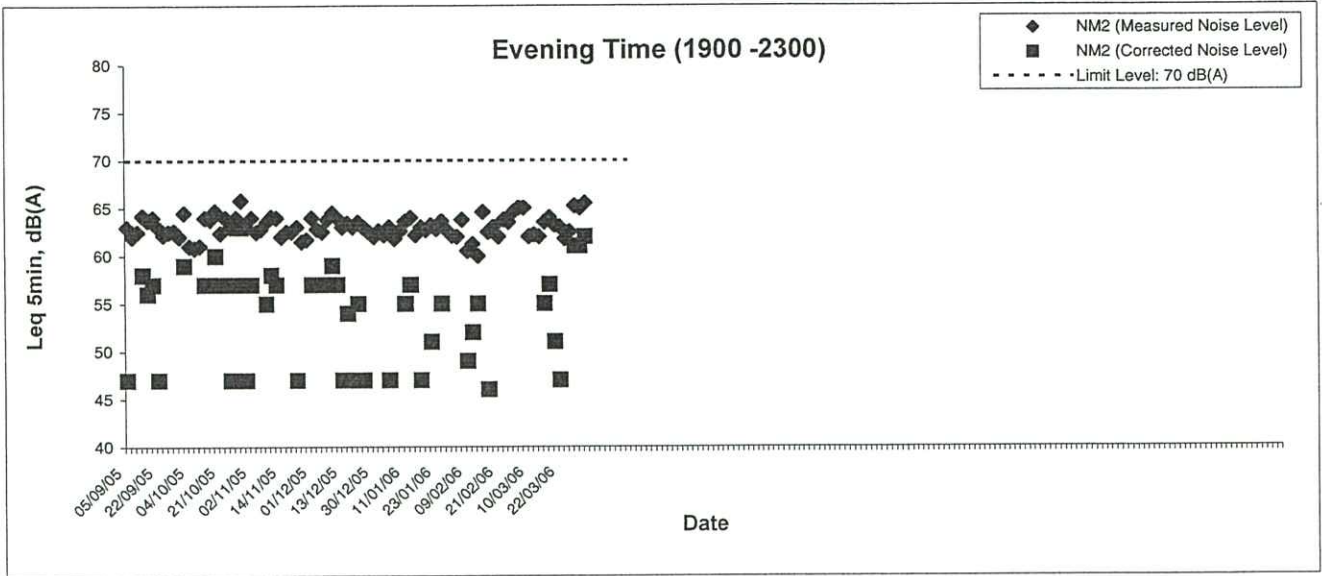
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Contract No: KL 39/03
 South East Kowloon Development Site Preparation and
 Drainage Works at North Apron Area of Kai Tak Airport
**Graphical Presentation of Noise Monitoring
 Results**

SCALE	N.T.S.	DATE	2006
CHECK	EWNY	DRAWN	YSL
JOB NO.	60016775	APPENDIX No.	F
		Rev.	-

Noise Monitoring Results

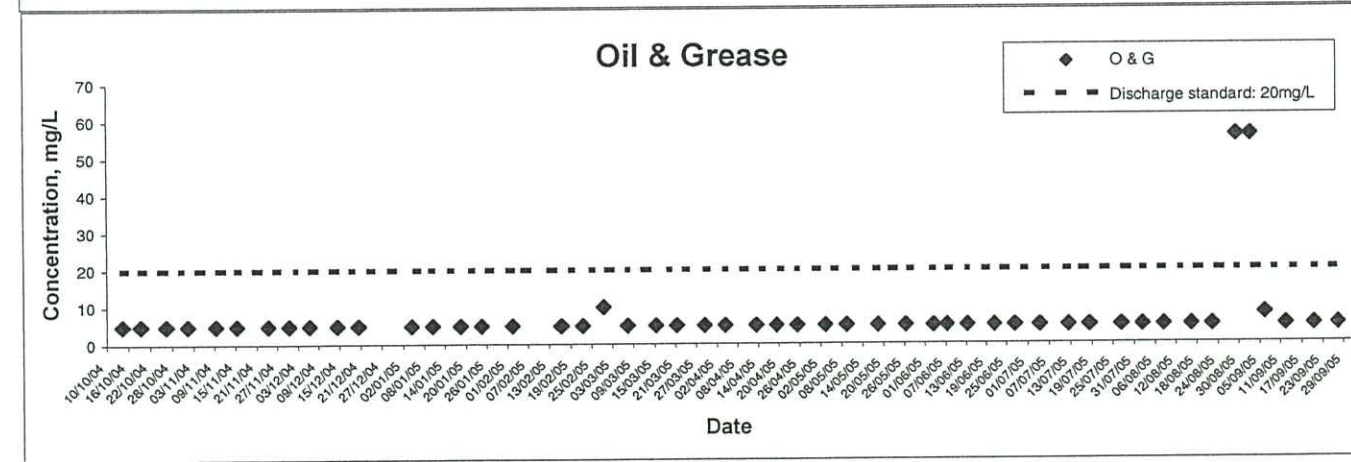
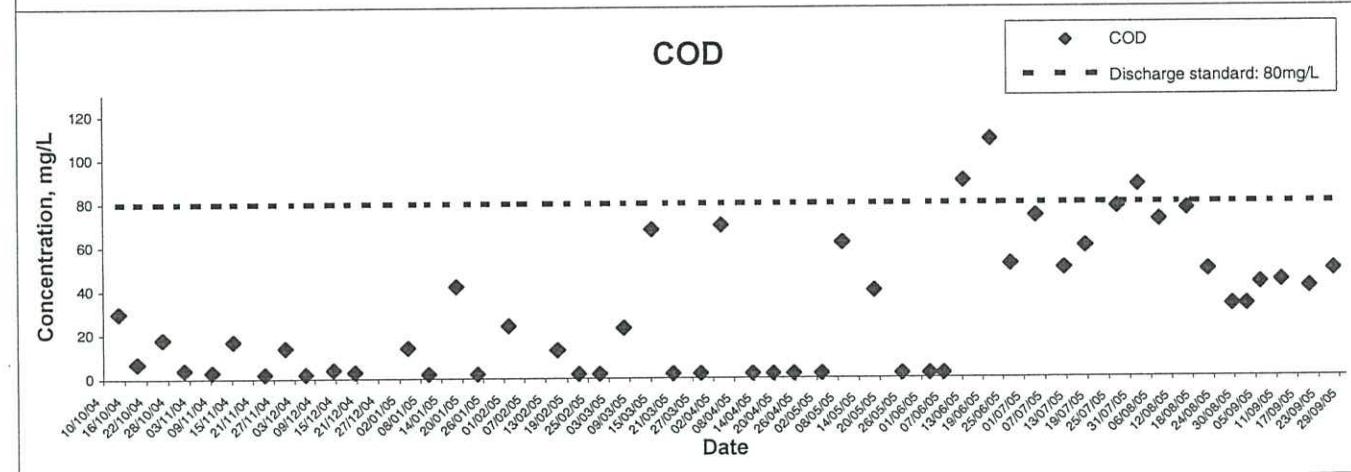
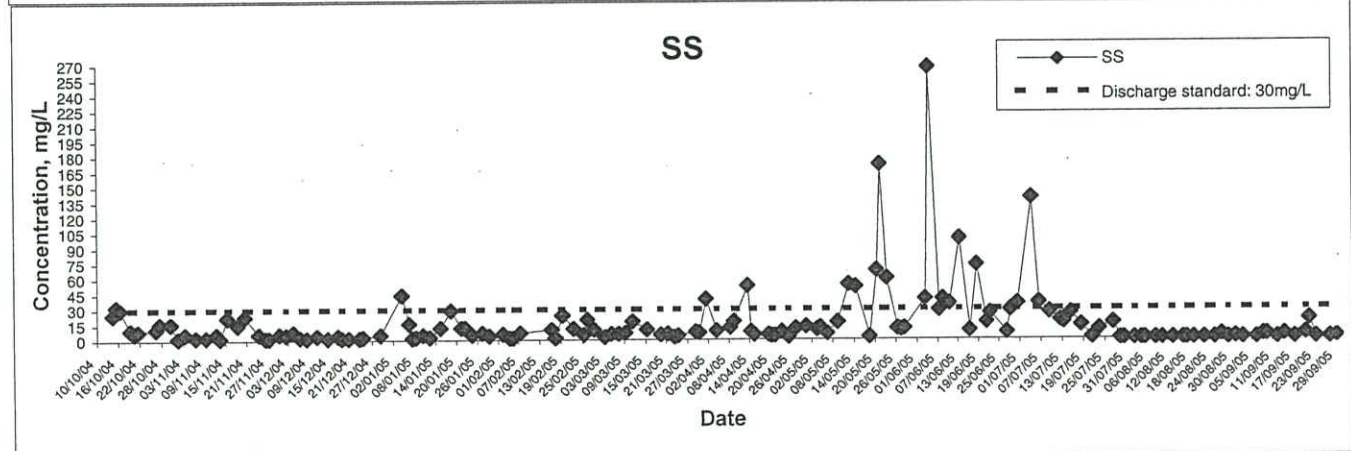
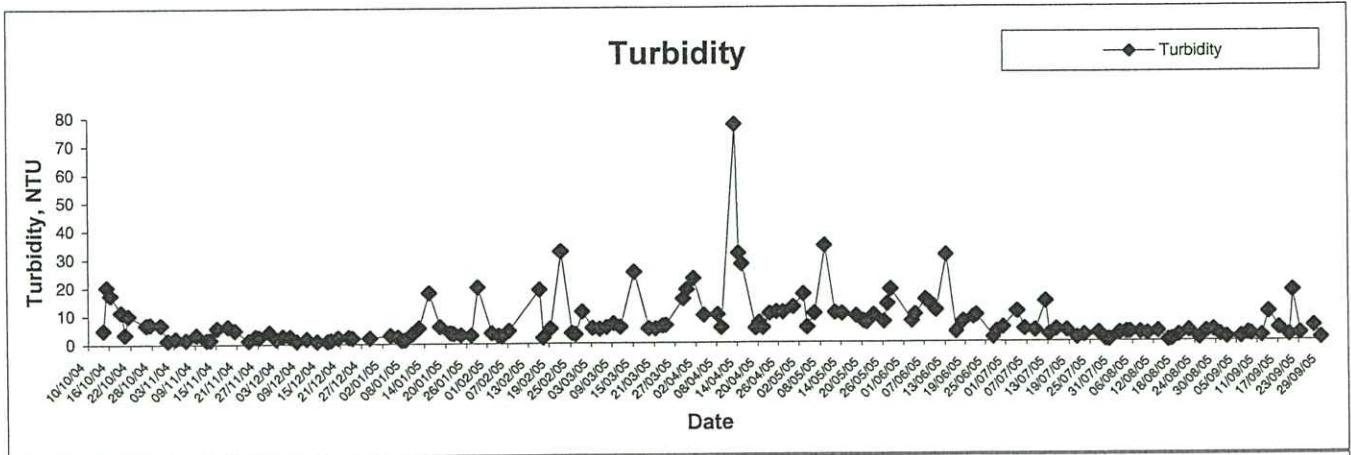


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Contract No: KL 39/03
 South East Kowloon Development Site Preparation and
 Drainage Works at North Apron Area of Kai Tak Airport
**Graphical Presentation of Noise Monitoring
 Results**

SCALE	N.T.S.	DATE	2006
CHECK	EWNY	DRAWN	YSL
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		Rev.	-

**APPENDIX G
GRAPHICAL PRESENTATION OF WATER
QUALITY MONITORING RESULTS**



Contract No: KL 39/03

South East Kowloon Development Site Preparation and
Drainage Works at North Apron Area of Kai Tak Airport
**Graphical Presentation of Water Quality
Monitoring Results**

SCALE	N.T.S.	DATE	2007
CHECK	EWNY	DRAWN	YSL
JOB NO.	60016775	Attachment	
			G

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**APPENDIX H
IMPLEMENTATION STATUS OF
ENVIRONMENTAL MITIGATION
MEASURES (EMIS)**

Contract No.: KL 39/03 South East Kowloon Development
 Site Preparation and Drainage Works At North Apron Area of Kai Tak Airport

Appendix H Implementation Status of Environmental Mitigation Measures (EMIS)

Environmental Protection Measures		Location / Time	Implementation Status
Air Quality			
Regular watering the entire site		Work site / during construction	✓
Frequent watering for particularly dusty static areas close to site boundary and sensitive receivers		Work site / during construction	✓
Side enclosure and covering of any aggregate or dusty material storage piles		Work site / during construction	✓
Covering stockpiles and placing them away from receivers		Work site / during construction	✓
Providing barriers where possible		Work site / during construction	✓
Covering all dusting vehicle loads transported to, from and between site locations with tarpaulin		Vehicles / during transportation	✓
Establishing and using vehicle and body washing facilities at the exit points		Site exit points / during construction	✓
Providing wind shield and dust extractor, as well as using water sprinklers at loading and unloading points		Loading and unloading points / during construction	✓
Imposing speed control for vehicles on dusty site areas		Dusty site areas / during construction	✓
Routing vehicles and positioning plant away from receivers where possible		Work site / during construction	✓
Installing a crusher feedback with a minimum number of openings and use of rubber curtains for the crushing plant		Crushing plant / during its operation	✓
Choking fed the crusher to reduce air entrainment and dust emission		Crushing plant / during its operation	✓
A catalytic incinerator should be installed to exhaust fuel and oil vapour extracted from the contaminated site prior to their discharge to atmosphere		Work site / during decontamination	✓
Covering the biopile and venting the gas to a catalytic incinerator		Work site / during decontamination	✓
Limiting the excavation rates to allow adequate vapour dispersion		Work site / during decontamination	✓
Instigating a monitoring programme during the demolition & decontamination		Work site / during demolition & decontamination	✓
Noise			
Careful programming construction activities to avoid parallel operation of several sets of equipment, reducing concurrently operating items of plant and minimise exposure of nearby receivers		Work site / during construction	✓
Siting noisy equipment away from receivers as far as practical		Work site / during construction	✓
Turning off or throttled down idle equipment		Work site / during construction	✓
Properly maintaining and operating construction equipment.		Work site / during construction	✓
Properly maintaining and using silencing equipment		Work site / during construction	✓
Use of quieter equipment		Work site / during construction	✓
Instigating a noise monitoring programme		Closest NSR / during construction	✓

Remarks:

- ✓ Implemented
- @ Partially implemented
- X Not implemented
- N/A Not Applicable

Contract No.: KL 39/03 South East Kowloon Development
 Site Preparation and Drainage Works At North Apron Area of Kai Tak Airport

Environmental Protection Measures		Location / Time	Implementation Status
Water			
Providing perimeter channels to intercept run-off from outside the site.		Around the work area / beginning of construction	✓
Providing of sand/silt traps, oil inceptors and septic tank/ or chemical toilets. Proper maintaining these facilities		Work site / beginning of construction	✓
Recycling production water where practical		Work site / during construction	
Protecting exposed soil by shotcrete or hydroseedings and road by crushed gravel		Work site / during construction	
Covering stockpile with tarpaulin or similar material during rainstorms and placing stockpiles away from water course		Work site / during construction	✓
Protecting drains from spillages of excess materials and sealing drains prior to demolition work		Work site / prior to demolition	
Connecting drainage servicing an open oil filling point a petrol interceptor prior to discharge		Work site / prior to demolition	
Lining biopile at the bottom, covering it at the top and weighting down by sand bags to prevent water from sipping through. Construction a perimeter berm to contain leachate. Collected leachate should be disposed off as chemical waste. Treating the entrained liquid in the SVE vapour line prior to discharge Schedule excavation in dry season		Decontamination sites / during decontamination	
Using containment (e.g. sand bag and temporary bund) during demolition of fuel tanks to prevent oil spill.		OCTF decontamination site / during decontamination	
Soaking up small patches of spilled oil by oil adsorbent and disposed of as chemical waste		Discharge points / during construction	✓
Instigating a water quality monitoring programme			
C & D Waste			
Providing storage areas and processing (crushing plant) facilities for construction and demolition material		Work site / during construction	✓
Separating non-inert and inert waste and responsible for their disposal to appropriate locations		Work site / during construction	✓
Storing chemical waste separately and engaging a licensed chemical contractors to disposal the waste to Tsing Yi Chemical Waste Treatment Plant		Work site / during construction	✓
Providing on-site refuse collection points		Work site /during construction	✓
Conducting investigation for the presence of asbestos		Buildings / prior to demolition	
Register with EPD as chemical waste producer		Prior to construction	✓
Land Contamination			
Construction and operation of SVE/AS plant for Hotspot B		Work site / during construction	
Excavation and biopiling of soil form Hotspot A and Hotspot C		Work site / during construction	
Free product recovery wells (if required following recommendation of pilot plant)		Work site / during construction	
Excavation and biopiling of soil from free product areas from hotspot B (Fall back option)		Work site / during construction	
Site closure assessment		Work site / during construction	
Post remediation monitoring		Work site / during construction	

Remarks:

- ✓ Implemented
- @ Partially implemented
- X Not implemented
- N/A Not Applicable

**APPENDIX I
STATUS OF ENVIRONMENTAL LICENSES
AND PERMITS**

Appendix I Summary of Environmental Licensing and Permit Status

Description	Permit No.	Valid Period		Remarks
		From	To	
Environmental Permit	EP-006/1998	4/9/1998	-	<ul style="list-style-type: none"> Decontamination, demolition and removal of buildings and apron pavement, and site formation in North Kai Tak Airport
Wastewater Discharge Licence	EP482/286/0037/1	30/6/2004	30/6/2009	<ul style="list-style-type: none"> Trade effluent arising from the premises Sedimentation Tank
Chemical Waste Producer Registration	WPN5292-286-K1081-04	7/12/2005	-	<ul style="list-style-type: none"> For disposal of spent lubricating oil, spent battery parts, asbestos waste, spent mineral oil & spent solvent
Construction Noise Permit	GW-RE5060-05	5/6/2005	4/12/2005	<ul style="list-style-type: none"> Operation of designated PME on all days between 1900 – 0700 hours of the next day and 0700 – 1900 hours on general holidays including Sundays
Construction Noise Permit	GW-RE5092-05	21/8/2005	20/2/2006	<ul style="list-style-type: none"> Operation of designated PME on all days between 1900 – 0700 hours of the next day and 0700 – 1900 hours on general holidays including Sundays
Construction Noise Permit	GW-RE5107-05	18/9/2005	12/3/2006	<ul style="list-style-type: none"> Operation of designated PME on general holidays including Sundays between 0700 – 1900 hours
Construction Noise Permit	GW-RE5156-05	5/12/2005	4/6/2006	<ul style="list-style-type: none"> Operation of designated PME on all days between 1900 – 0700 hours of the next day and 0700 – 1900 hours on general holidays including Sundays
Construction Noise Permit	GW-RE5201-05	21/2/2006	19/8/2006	<ul style="list-style-type: none"> Operation of designated PME on all days between 1900 – 0700 hours of the next day and 0700 – 1900 hours on general holidays including Sundays
Construction Noise Permit	GW-RE5004-06	19/3/2006	13/8/2006	<ul style="list-style-type: none"> Operation of designated PME on general holidays including Sundays between 0700 – 1900 hours

Construction Noise Permit	GW-RE5067-06	11/5/2006	9/11/2006	<ul style="list-style-type: none"> • Operation of air blowers and power generation set on all days between 1900 – 0700 hours of the next day and 0700 – 1900 hours on general holidays including Sundays
Construction Noise Permit	GW-RE5171-06	17/7/2006	18/9/2006	<ul style="list-style-type: none"> • Operation of water pumps on all days between 1900 – 0700 hours of the next day and 0700 – 1900 hours on general holidays including Sundays
Construction Noise Permit	GW-RE5255-06	10/11/2006	9/5/2007	<ul style="list-style-type: none"> • Operation of air blowers and power generation set on all days between 1900 – 0700 hours of the next day and 0700 – 1900 hours on general holidays including Sundays
Construction Noise Permit	GW-RE5294-06	7/1/2007	27/5/2007	<ul style="list-style-type: none"> • Operation of either three backhoes or two backhoes and one dump truck on all general holidays including Sundays between 0700 – 1900 hours

**APPENDIX J
COMPLAINT FLOW DIAGRAM AND
COMPLAINT LOG**

Appendix J

Environmental Complaint Log

Log Ref.	Location	Complaint/ Date of Contact	Details of Complaint	Investigation/Mitigation Action	Status
001	Passenger Terminal Building	21/4/2005	EPD received one complaint about construction dust from the demolition works	ET conducted investigation works for all construction dust complaints, which were received in April and May 2005, upon notification from EPD in late May 2005. All the air quality monitoring results in April and May 2005 complied with the AL levels and indicated that the impact on the nearby sensitive receivers were not significant. However, dust emission was occasionally observed from the Project activities. The Contractor followed up the recommendations to provide covers for the stockpiles and sprayed water for the breaking activities. The Contractor was recommended to erect dust screen at the east end of the PTB as soon as possible.	Closed
002	Passenger Terminal Building	26/4/2005	EPD received one complaint about construction dust from the demolition works	Same as Item 1	Closed
003	Passenger Terminal Building	3/5/2005	EPD received one complaint about Sunday construction noise	There was no evidence that the Contractor violated the CNP conditions during their construction works on 1 and 2 May 2005. Moreover, the monitoring results also complied with the limit level on 1 May 2005, which indicated that the noise impact should be acceptable at the sensitive receivers. Nevertheless, the Contractor was recommended to follow the CNP conditions strictly. Besides, barriers should be erected as far as practicable.	Closed
004	Passenger Terminal Building	14/5/2005	EPD received one complaint about construction dust from the demolition works	Same as Item 1	Closed
005	Passenger Terminal Building	9/6/2005	EPD received one complaint about construction dust from the demolition works	The Contractor generally implemented sufficient dust mitigation measures. Water spraying was provided for breaking activities, dusty operations and haul roads. Exposed slopes on the concrete stockpiles were covered properly. The demolition works were also enclosed by the existing building structures of PTB and MSCB as well as the erected dust screens. In conclusion, the complaint incident was considered an isolated event. Nevertheless, the Contractor was reminded to maintain sufficient dust mitigation measures on site.	Closed

006	Passenger Terminal Building	1/9/2005	EPD received one complaint about construction dust from the demolition works	The Contractor generally implemented sufficient dust mitigation measures. Water spraying was provided for breaking activities, dusty operations and haul roads. Exposed slopes on the concrete stockpiles were covered mostly. The demolition works were also screened off by the section 2 of MSCB as well as the erected dust screens. In addition, all the monitoring results complied with the AL levels. In conclusion, the complaint incident was considered an isolated event.	Closed
007	Passenger Terminal Building	4/11/2005	A dust complaint was transferred by Oriental Daily News about dust emission from the demolition works	In reviewing the EM&A results of the Project in late October and early November 2005, there were some deficiencies in the implementation of dust mitigation measures. Nevertheless, the Contractor improved the condition and a significant improvement was noted in early November 2005.	Closed
008	Passenger Terminal Building	11/1/2006	EPD received one complaint about construction dust from the Project activities	The Contractor generally implemented sufficient dust mitigation measures and no dust emission was noted from the Project activities in early January, 2006. In addition, all the monitoring results complied with the AL levels. In conclusion, the complaint incident was considered an isolated event.	Closed
009	Site Boundary opposite Lee Kau Yan Memorial School	3/4/2006	A complaint about uncovered stockpiles of dusty material was received by Integrated Call Centre (ICC)	The complainant observed uncovered stockpiles of more than 100 tonnes were near the site boundary and induced dust nuisance around the works area. However, as the stockpiles were in active operation for excavation and backfilling, the Contractor sprayed with water instead of covered them. As observed by the ET during the site inspection, dust emission was generally avoided.	Closed
010	Site Boundary opposite Kowloon City Area	11/4/2006	A complaint about uncovered stockpiles of dusty material and dust emission was received by Integrated Call Centre (ICC)	The complainant observed uncovered stockpiles and dust emissions from the Project activities. Around the works area, the large stockpile of excavated material was mostly covered whereas several small stockpiles were in active operation for excavation and backfilling. The Contractor sprayed with water regularly to suppress dust emission. The observation was considered an isolated incident.	Closed
011	General	26/5/2006	A complaint about uncovered stockpiles of dusty material and potential dust emission was received by Integrated Call Centre (ICC)	The complainant observed uncovered stockpiles, which would likely induce dust emissions from the Project site. As observed from ET's site inspections, most exposed surfaces were covered whereas several small stockpiles were in active operation for excavation and backfilling. The Contractor sprayed with water regularly to suppress dust emission. The complaint was considered invalid.	Closed

012	General	5/7/2006	A complaint about dust nuisance and insufficient signboard was received by Integrated Call Centre (ICC)	The complainant complained about dust nuisance from the Project activities. However, based on the ET's regular site inspections and monitoring results, the dust impact from the Project was considered insignificant. Regarding the complaint on quantity of signboard, the problem was not related to environmental issue and was inspected by others. In conclusion, the complaint regarding dust nuisance was considered invalid.	Closed
013	General	11/8/2006	A complaint about dust nuisance received by Integrated Call Centre (ICC)	The complainant complained about dust nuisance from several projects, including this Project. Based on ET's regular site inspections, dust nuisance was observed under dry and hot weather conditions. Although the dust impact was considered insignificant at the sensitive receiver, as indicated by the monitoring results, the Contractor was reminded to improve the implementation of mitigation measures. Several recommendations were also provided by ET in the investigation report to improve the conditions.	Closed
014	General	25/9/2006	A complaint about dust nuisance received by Integrated Call Centre (ICC)	The complainant complained about dust nuisance from the Project. Dust nuisance was noted from the Project as observed during the site inspection on 25 September 2006. Although the dust impact was considered insignificant at the sensitive receivers, the Contractor should improve the implementation of mitigation measures. ET recommended the Contractor to effectively operate dust mitigation measures, enhance water spraying practices and dampening practice on the haul roads, provide and maintain the covers on the exposed surfaces of the stockpiles and provide hydroseeding, if possible.	Closed
015	General	6/5/2007	EPD received one complaint about Sunday construction noise	The complainant complained that a backhoe breaker, which is not on the approved equipment list under the valid CNP, was deployed on Sunday. Upon ET's investigation, there was no evidence that the Contractor had operated backhoe breaker on the day complaint.	Closed