



Dragages (HK) Joint Venture
法國寶嘉（香港）聯營

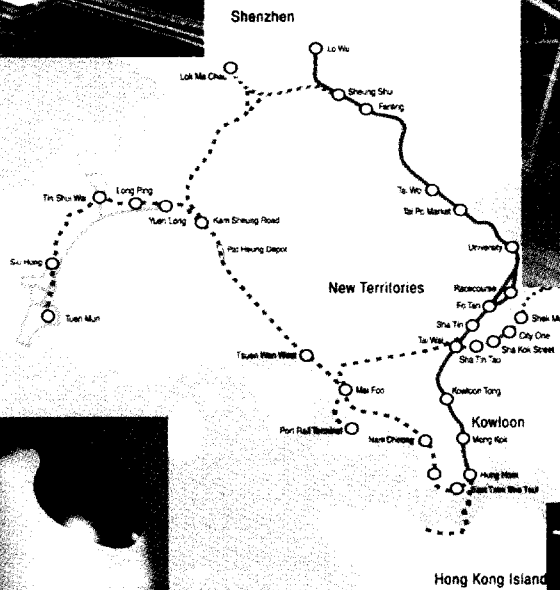
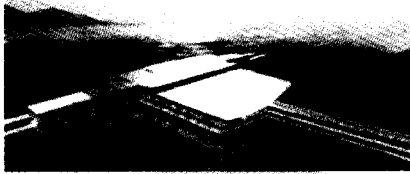


東鐵支線
East Rail Extensions

Contract No. LDB201 Sheung Shui to Chau Tau Tunnels

Project Environmental Monitoring and Audit Quarterly Report – December 2002 to March 2003

LDB201/00/ENV/834/A



		KLC	JEG/CWL	PhB	First Issue
A	25 April 2003	KLC	JEG/CWL	PhB	First Issue
Revision	Date	Prepared	Checked	Approved	Comments

COPYRIGHT RESERVED ©	This document is certified by	ET Leader:	 Schroeder Tam	Date:	25 April 2003
-------------------------	-------------------------------	------------	-------------------	-------	---------------



法國寶嘉
(香港)聯營
Dragages (HK)
Joint Venture

East Rail Extensions Contract No. LDB201
Sheung Shui to Chau Tau Tunnels

Revision	Details
A	First Issue



LIST OF FIGURES

- Figure 1.1 Works Areas and Environmental Monitoring Stations (Sheets 1 to 5)
Figure 1.2 Project Environmental Organization Chart
Figure 1.3 Project Construction Programme

LIST OF APPENDICES

- Appendix A Graphical Plots of Noise, Air Quality and Water Quality Monitoring Data
Appendix B Event and Action Plan for Noise, Air Quality and Water Quality
Appendix C Updated Environmental Mitigation Implementation Schedule (EMIS)



TABLE OF CONTENTS

Executive Summary	E.1
1. Introduction	1
1.1 Background	1
1.2 Purpose of this Quarterly EM&A Summary Report	1
1.3 Project Environmental Organization and Programme	1
1.4 Project Construction Programme and Works in the reporting quarter	1
1.5 Structure of the Quarterly EM&A Summary Report	2
2. Summary of Environmental Monitoring and Audit (EM&A) Requirements	3
2.1 Monitoring Parameters	3
2.2 Action and Limit Levels	3
2.3 Monitoring Stations	5
2.4 Environmental Mitigation and Implementation Schedule (EMIS)	6
3. Summary of Noncompliance of the Environmental Quality Performance Limits and Follow-up Actions Taken in the Event of Noncompliance	7
3.1 Noise	7
3.2 Air Quality	7
3.3 Water Quality	7
3.4 Summary	7
4. Waste Management	8
4.1 Summary of Spoil Disposal	8
4.2 Other wastes	8
5. Summary of Complaints, Summons and Prosecutions	9
5.1 Complaints	9
5.2 EPD Warnings	9
6. Comments and Conclusions	10

LIST OF TABLES

Table 2.1	Summary of Monitored Parameters	3
Table 2.2	Action and Limit Levels of Daytime, Evening and Night-time Noise Monitoring	4
Table 2.3	Action and Limit Levels for 1-hour Average TSP and 24-hour TSP Monitoring	4
Table 2.4	Action and Limit Levels for Water Quality Monitoring	5
Table 2.5	Construction Noise Monitoring Locations	6
Table 2.6	1-hr / 24 hr Dust Monitoring Locations	6
Table 2.7	Monitoring Locations for Water Quality	6



EXECUTIVE SUMMARY

Before the commencement of works under the East Rail Extension Contract LDB201, Dragages (HK) Joint Venture set an environmental monitoring and audit (EM&A) programme for the construction works. The aim of the programme is to ensure that all the on-site activities should comply with the statutory guidelines and legislations. This quarterly report summarized the findings in the period from December 2002 to March 2003. The month December 2002 was added in this quarterly report was avoiding confusion to the coming quarterly reports.

The construction works of LDB201 commenced from late November 2002 and this is the first quarter report. During this quarter, the main construction activities were the site clearance, hoarding erection and site installation for the Works Area at Sheung Shui Area, Kwu Tung Area, East EAP Area and West Approach Area. Slurry wall and ground substitution at the DSD Channel at River Sutlej and Launching shaft construction, including reinforcement, concreting and strutting. During the weekly site inspections, all the Works Areas were generally in compliance with the site audit checklist, however improvement was required at the specific items during each inspection.

In this reporting quarter, there were two 1-hour TSP exceedances (one in January 2003 and one in February 2003) and one 24-hour TSP exceedance in January 2003 recorded according to the Action and Limit Levels established from the baseline monitoring results. The major causes of exceedances were the concrete breaking of diaphragm wall by the subcontractor and the truck traveling along the dry access road. However follow up observations were conducted and the conditions were acceptable since the access road was watered regularly and the concrete breaking works was completed one week after the exceedance found.

One noise exceedance in January 2003 was noted in this reporting quarter and the cause of exceedance was the same as the 24-hour TSP exceedance, i.e. the concrete breaking of diaphragm wall by the subcontractor. As mentioned in the previous paragraph, the condition was recovered since the concrete breaking works was completed one week after the exceedance found.

For the water quality, three dissolved oxygen (DO) exceedances in December 2002 and one suspended solids (SS) exceedance in February 2003 was found in this reporting quarter. The main attribute was the natural variations and the surface runoff from the branch of River Sutlej. Besides, works from the adjacent construction sites were another causing sources since our construction works commenced from early December 2002.

Excess excavated materials and spoils of 8,900m³ was disposed by dump truck to Kai Tak Public Filling Barging Point (KTPF); 3,029m³ of demolition waste was delivered to North East New Territories Landfill Site (NENT); and waste generated from the site clearance and demolition of 4,557m³ was sent to Tuen Mun Public Filling Site (Area 38).

In order to make maximum use of suitable materials available rather than go to the public fill, approximate 18,350m³ excess excavated spoils were went to the EPD project at North East New Territories (Contract No. EP/SP/12/92). About 5050m³ and 2772m³ of excavated spoils were dumped at DSD project at Mai Po (Contract No. DC2000/08) and KCRC West Rail Contract CC609 East Access Road Construction respectively. In addition, around 2135m³ of excavated spoil was transported to the Works Areas at West Approach side. All the above-captioned figures are up to 29 March 2003.



One public complaint and three EPD warnings were received in this reporting quarter. The public complaint was received on 18 December 2002 from a villager of Yin Kong claimed that the piezometers works caused damaged on the vegetables of the cultivators. However it is an unrelated complaint since we had not conducted any works during the complaint period at that area.

The EPD warnings (yellow notice) were obtained from their visit on 19 December 2002, 20 January 2003 and 20 March 2003 respectively and summarized as follows:

- The first warning was claimed that our worker using a water hose to clear the mud on the concrete paving between the site hoarding and the ex-KMB depot chain link fence, discharged site effluent produced after cleansing via the storm drain into River Sutlej.
- The second warning was noted that the main access road (around the main site office at Sheung Shui) was dry and dusty.
- The third warning was about the overflow of unpolluted water at one of the cross passages works area (CP9) to the aside water channel by our subcontractor – IBJV.

As per construction activities scheduled for the coming quarter, it is recommended that the appropriate mitigation measures which set out in the Environmental Management Plan (EMP) [Doc. No. LDB201/00/ENV/801] should be continual implemented on site.

1. INTRODUCTION

1.1 Background

1.1.1 Kowloon Canton Railway Corporation (KCRC) proposed a Spur Line (from Sheung Shui to Lok Ma Chau) to alleviate the over-crowding conditions at Lo Wu on peak days and provide an alternative entry point to Shenzhen. Dragages (HK) Joint Venture (DJV) has been awarded a contract (Contract No. LDB 201) of Spur Line for the construction of tunnels between Sheung Shui to Chau Tau. Under this contract, two parallel 5.2km tunnels (1.7km of cut and cover, and 3.5km of tunnel boring machine (TBM)) would be constructed. A number of Works Areas would be located along the alignment and showed in Figure 1.1.

1.2 Purpose of this Quarterly EM&A Summary Report

1.2.1 This report reviews the progress of the environmental monitoring and audit works at all Works Areas under the East Rail Extension Contract No. LDB 201 – Sheung Shui to Chau Tau Tunnels for the first quarter from December 2002 to March 2003.

1.3 Project Environmental Organization and Programme

1.3.1 Under the requirement of EM&A Manual, Environmental Permit and the Further Environmental Permit, Contractor's Environmental Team was set up, comprising an Environmental Manager, Environmental Team Leader (ETL), Environmental Engineer and the Environmental Monitoring Team. The project environmental organization chart is shown in Figure 1.2. Meanwhile the contacts of key management for this captioned project are shown in Table 1.1.

Table 1.1 Contacts of Key Management

Company	Contact Person	Position	Telephone No.
KCRC/Environmental	Simeon Cheng	Senior Env. Specialist	2684 8532
KCRC/RSS	Monte Cheung	ERep (Env.)	3476 0812
Dragages (HK) Joint Venture	Jon Eggington	Env. Manager	3476 0310
	Schroeder Tam	Env. Team Leader	3476 0315
Hyder Consulting Ltd	Jacquelyn Anderson	Independent Env. Checker	2911 2233
Furgo Technical Services Ltd – MaterialLab Division	John Ho	Env. Monitoring Team Supervisor	2452 7136
Environmental Protection Department	Eddie Lui	Senior EPO	2411 9602

1.4 Project Construction Programme and Works in the reporting quarter

1.4.1 The construction programme commenced in late November 2002 and is anticipated to be completed in mid June 2006. The construction programme would be attached in Figure 1.3.



1.4.2 The progress (synopsis of works) in the first reporting quarter including the following activities:

- Site clearance, hoarding erection and site installation for the Works Area at Sheung Shui Area, Kwu Tung Area, East EAP Area and West Approach Area.
- Slurry wall and ground substitution at the DSD Channel at River Sutlej and Launching shaft construction, including reinforcement, concreting and strutting.

1.5 Structure of the Quarterly EM&A Summary Report

1.5.1 Following the introductory section, this report is set out as follows:

- Section 2 gives a brief summary of the EM&A requirements;
- Section 3 summarized the noncompliance and their follow-up actions;
- Section 4 reported the status of the waste management;
- Section 5 concluded the complaints, summons and prosecutions received in the reporting period; and
- Section 6 presented the comments and conclusions.

2. SUMMARY OF ENVIRONMENTAL MONITORING AND AUDIT (EM&A) REQUIREMENTS

2.1 Monitoring Parameters

2.1.1 In accordance with the EM&A requirements, impact monitoring for air quality, noise and water quality should be undertaken at designated monitoring stations during the construction phase. The impact monitoring was started on early December 2002 and is on going currently. The monitored parameters are summarized in Table 2.1

Table 2.1 Summary of Monitored Parameters

Parameter	Monitored Item	No. of Monitoring Station	Frequency
Air Quality	Total Suspended Particulates (TSP) 1 no. of 24-hour sample; and 3 no. of 1-hour samples	2	Once every six days
Noise	Noise level of Leq (30 mins) 6 consecutive no. of Leq (5-min) between 0700 and 1900 hours during the normal weekdays	9	Once per week
Water Quality	In-situ measurements: • Dissolved Oxygen (DO) • pH • Water Temperature • Turbidity	4	Twice per week
	Laboratory Analysis: • Suspended Solids (SS) • Oil and Grease	4	Once per week Biweekly

2.2 Action and Limit Levels

2.2.1 The Action and Limit Levels are established based on the data from the Baseline Report (Issue 00), which was issued in August 2002. The monitoring results should be audited for the compliance of the Action and Limit Levels for noise, air quality and water quality. The Action and Limit Levels for each parameter are summarized in Tables 2.2 to 2.4. Should the monitoring results indicate any noncompliance of Action and Limit Levels, action according to the Event and Action Plan in Appendix B should be followed and appropriate mitigation measures should be implemented to rectify the situation.

2.2.2 The Action and Limit Noise Levels are based on the number of independently documented complaints received during the construction in weekly basis and the specific noise limits, if applicable.

Table 2.2 Action and Limit Levels of Daytime, Evening and Night-time Noise Monitoring

Time Period	Action Level	Limit Level (Leq (30-min)), dB(A)
0700-1900 hrs on normal weekdays	On receipt of more than one independently documented complaints about construction noise in a one week period.	75*dB(A)
0700-2300 hrs on holidays; and 1900-2300 hrs on all other days		60/65/70**dB(A)
2300-0700 hrs of next day		45/50/55**dB(A)

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

** : To be selected based on Area Sensitive Rating.

2.2.3 The Action and Limit Levels for Total Suspended Particulates (TSP) are formulated based on the pooled baseline monitoring data at the selected monitoring stations.

Table 2.3 Action and Limit Levels for 1-hour Average TSP and 24-hour TSP Monitoring

Monitoring Location	1-Hr TSP Concentration, $\mu\text{g}/\text{m}^3$		24-Hr TSP Concentration, $\mu\text{g}/\text{m}^3$	
	Action Level	Limit Level	Action Level	Limit Level
AM1	382	500	181	260
AM2	354	500	149	260

2.2.4 The Action and Limit Levels for water quality monitoring are derived from the baseline monitoring data at the selected monitoring stations.

Table 2.4 Action and Limit Levels for Water Quality Monitoring

Parameter, Unit		Water Quality Monitoring Stations	
		Mid-Ebb Tide	
		RS1	RB1
DO, mg/L	Action	1.63	2.16
	Limit	1.61	1.97
Turbidity, NTU	Action	115.0	79.0
		or 120% of upstream control station's Turbidity at the same tide of the same day	
	Limit	115.4	110.6
		or 130% of upstream control station's Turbidity at the same tide of the same day	
pH	Action	<6.8 or >7.7	<6.7 or >7.7
	Limit	<6.0 or >10.0	<6.0 or >10.0
Total Suspended Solid (TSS), mg/L	Action	129.3	60.3
		or 120% of upstream control station's TSS at the same tide of the same day	
	Limit	161.9	62.5
		or 130% of upstream control station's TSS at the same tide of the same day	
Oil & grease, mg/L	Limit	17.8	10.5
Upstream Control Station		URS	URB

Notes:

- For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the Action/Limit Levels.
- For Turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the Action/Limit Levels.
- For pH, non-compliance of the water quality limits occurs when results is outside the range of Action/Limit Levels.
- The Limit Level for Oil & grease is the average value of the baseline monitoring results.

2.3 Monitoring Stations

2.3.1 In the first reporting quarter, nine noise monitoring stations (one commenced in December 2002 while the other eight commenced in March 2003), two air quality monitoring stations (one commenced in December 2002 and the other one commenced in March 2003) and four water quality monitoring stations (two at River Sutlej commenced in December 2002 and two at River Beas commenced in March 2003) were selected to carry out the monitoring. The detailed locations of the monitoring stations are presented in Tables 2.5 to 2.7 and Figure 1.1.

Table 2.5 Construction Noise Monitoring Locations

Station ID	Equivalent NSRs in EIA	Description
NM1	1	Moon Wah Building, Sheung Shui
NM2	3	Choi Ying House, Sheung Shui
NM3	4	Village house, Tsung Pak Long (near the River Sutlej)
NM4	5	Village house, Long Valley (near the River Beas)
NM5	8	Village house, Kwu Tung
NM6	9	Sheung Shui Pui Yau Kindergarden, Kwu Tung
NM7	11	Kwu Tung Public Oi Wai School, Kwu Tung
NM8	14	Village House, Kwu Tung
NM9	16	Village, Pak Shek Au

Table 2.6 1-hr / 24 hr Dust Monitoring Locations

Station ID	Equivalent ASRs in EIA	Description
AM1	4	In front of Village House in Tsung Pak Lung
AM2	14	In front of Village House in Kwu Tung

Table 2.7 Monitoring Locations for Water Quality

Station ID	Description
URS	River Sutlej – upstream of the River
RS1	River Sutlej – downstream of the River
URB	River Beas – upstream of the River
RB1	River Beas – downstream of the River

Notes: URS and URB are used as the control stations for the water quality monitoring.

2.4 Environmental Mitigation and Implementation Schedule (EMIS)

- 2.4.1 Under the requirement of environmental permit, an EMIS should be prepared for each Works Area before commencement of works and the mitigation measures should be fully implemented throughout the whole construction period. The condition would be checked by the Contractor's Environmental Team (CET) at the weekly site inspection and the Independent Environmental Checker (IEC) at the monthly audit and would be reported in the monthly EM&A reports. The updated EMIS would be presented in Appendix C for easy reference.



3. SUMMARY OF NONCOMPLIANCE OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS AND FOLLOW-UP ACTIONS TAKEN IN THE EVENT OF NONCOMPLIANCE

3.1 Noise

3.1.1 One noise exceedance in January 2003 was noted in this reporting quarter and the cause of exceedance was the concrete breaking of diaphragm wall by the subcontractor. However follow up observations were conducted and the condition was recovered since the concrete breaking works was completed one week after the exceedance found.

3.2 Air Quality

3.2.1 In this reporting quarter, there were two 1-hour TSP exceedances (one in January 2003 and one in February 2003) and one 24-hour TSP exceedance in January 2003 recorded according to the Action and Limit Levels established from the baseline monitoring results. The major causes of exceedances were the concrete breaking of diaphragm wall by the subcontractor and the truck traveling along the dry access road. However follow up observations were conducted and the conditions were acceptable since the access road was watered regularly and the concrete breaking works was completed one week after the exceedance found.

3.3 Water Quality

3.3.1 For the water quality, three dissolved oxygen (DO) exceedances in December 2002 and one suspended solids (SS) exceedance in February 2003 was found in this reporting quarter. The main attribute was the natural variations and the surface runoff from the branch of River Sutlej. Besides, works from the adjacent construction sites were another causing sources since our construction works commenced from early December 2002.

3.3.2 Besides, all the monitoring results for pH, Turbidity and Oil & grease were complied with the Action and Limit Levels.

3.4 Summary

3.4.1 Exceedances were found on all the monitored parameters, however the conditions were recovered and reported in the follow-up actions. But the site team would be advised to continue and maintain all recommended mitigation measures as stated in the EMIS in order to alleviate the potential impact incurred from the ongoing construction activities. The graphical plots of the trends of the monitored parameters in this reporting period would be included Appendix A.



4. WASTE MANAGEMENT

4.1 Summary of Spoil Disposal

4.1.1 Excess excavated materials and spoils of 8,900m³ were disposed by dump truck to Kai Tak Public Filling Barging Point (KTPF) in this reporting quarter. This designated dumping point is agreed with Civil Engineering Department (CED) during the discussion in late December 2002.

4.1.2 Besides, in order to make maximum use of suitable materials available rather than go to the public fill, approximate 18,350m³ excess excavated spoils were went to the EPD project at North East New Territories (Contract No. EP/SP/12/92). About 5050m³ and 2772m³ of excavated spoils were dumped at DSD project at Mai Po (Contract No. DC2000/08) and KCRC West Rail Contract CC609 East Access Road Construction respectively.

4.1.3 In addition, around 2135m³ of excavated spoil was transported to the Works Areas at West Approach side. All the above- captioned figures are up to 29 March 2003.

4.2 Other wastes

4.2.1 3,029m³ of demolition waste was delivered to North East New Territories Landfill Site (NENT); and waste generated from the site clearance and demolition of 4,557m³ was sent to Tuen Mun Public Filling Site (Area 38) in this reporting quarter.

4.2.2 No chemical waste was disposed in this reporting quarter, however we have registered as chemical waste producer and a licensed waste collector would be employed for collecting chemical waste as necessary.

5. SUMMARY OF COMPLAINTS, SUMMONS AND PROSECUTIONS

5.1 Complaints

- 5.1.1 One public complaint was received in this reporting quarter. The public complaint was received on 18 December 2002 from a villager of Yin Kong claimed that the piezometers works caused damaged on the vegetables of the cultivators.
- 5.1.2 Follow-up action was undertaken and found that we had not conducted any hydrological survey during the complaint period, therefore it was concluded that the complaint was not related to our works.
- 5.1.3 Even though it was an unrelated complaint, our survey team was reminded to maintain a good relationship with the villager when carrying the monitoring or survey works especially in Long Valley.

5.2 EPD Warnings

- 5.2.1 Three EPD warnings (yellow notice) were obtained from their visit on 19 December 2002, 20 January 2003 and 20 March 2003 respectively and summarized as follows:

- i. The first warning was claimed that our worker using a water hose to clear the mud on the concrete paving between the site hoarding and the ex-KMB depot chain link fence, discharged site effluent produced after cleansing via the storm drain into River Sutlej.

In order to avoid the problem again several mitigation measures are going to implemented, such as the gap under the existing site hoarding was being sealed with concrete to ensure all site surface runoff should not be gone offsite directly and a toolbox talk would be provided to the frontline supervisors and workers to enhance their awareness on the compliance of the environmental requirements.

- ii. The second warning was noted that the main access road (around the main site office at Sheung Shui) was dry and dusty.

In order to avoid the problem again, several mitigation measures are going to implemented. A series of rotating sprinkler along the access road was installed and operated by a trained staff. In addition, two additional water hoses were provided around the access road near Sutlej River and controlled by trained staff to spray the area frequently.

- iii. The third warning was about the recycling water in wastewater storage tank for soil investigation at one of the cross passages works area (CP9) overflowed and illegally discharged into the aside water channel by our subcontractor – IBJV.

The cause of this mal-operation was that one of the workers put water pipe into the storage tank but without attention, so the stored water spilled when the tank was full. The mal-operation was ceased immediately and the spread wastewater was cleared up, too. A toolbox talk was delivered on 21 March 03 for all relevant workers to ensure that good housekeeping should be kept on site.



6. COMMENTS AND CONCLUSIONS

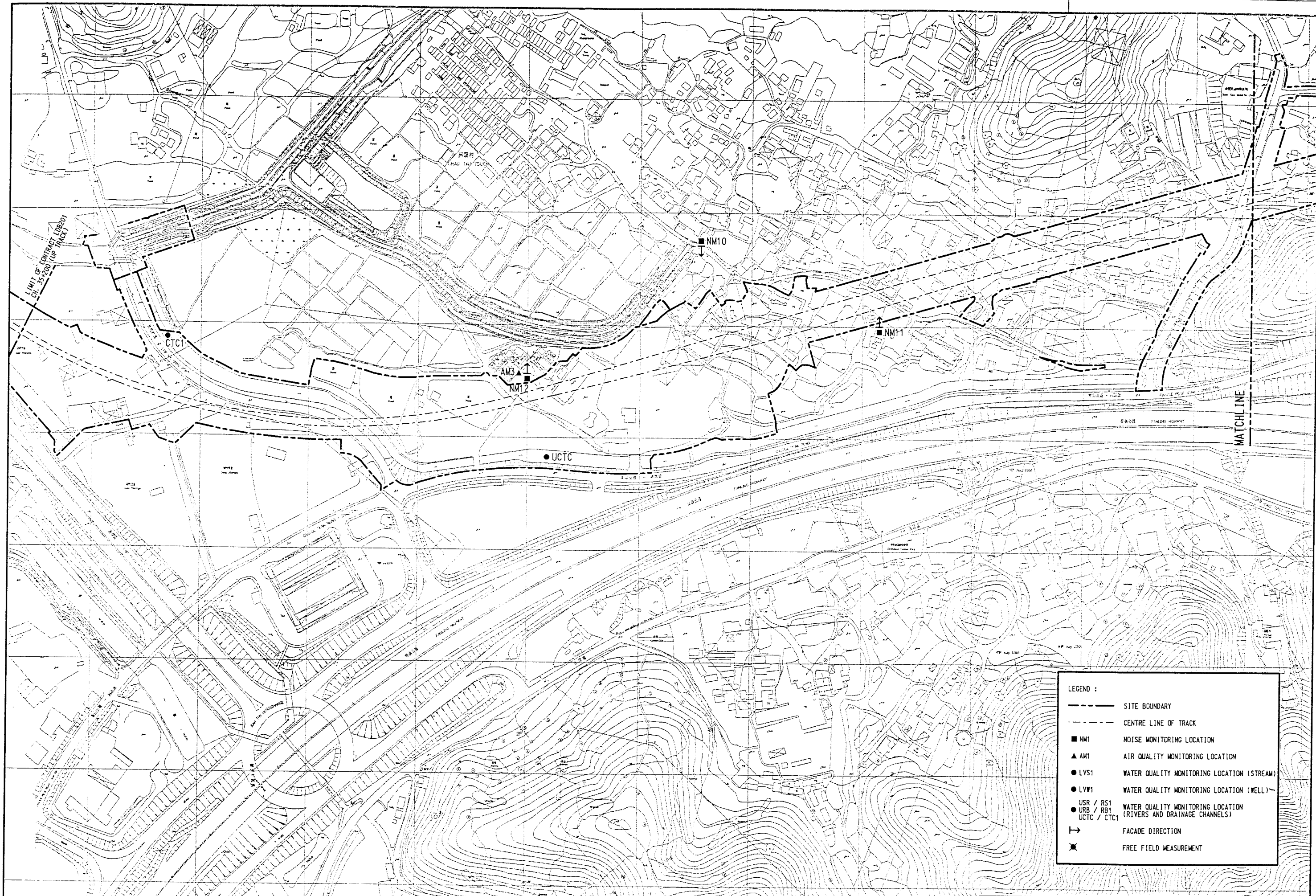
- 6.1.1 The monitoring results in this reporting quarter revealed that about 94% of the noise measurements complied with the Action and Limit Levels. 96% of 1-hour TSP and 90% of 24-hr TSP results complied with the criteria. The compliance rate on the water quality monitoring was 85%. The exceedances were mainly caused by insufficient mitigation measures on site such as no enough watering the unpaved area, no provision of noise protector at the powered mechanical plant during concrete breaking and lack of environmental awareness of the front-line workers.
- 6.1.2 However, in general, the first quarterly construction activities were not found to create too much nuisance to the adjacent sensitive receivers. All recommended mitigation measures and preventive actions as stated in the EMP were effective and fully implemented on site continually. However improvement was required, especially provision of sufficient water hoses or sprinklers on site to reduce the dust nuisance, suitable silencers for the noisy plant and to strengthen the environmental awareness of the front-line workers by toolbox talk.



法國寶嘉
(香港)聯營
Dragages (HK)
Joint Venture

East Rail Extensions Contract No. LDB201
Sheung Shui to Chau Tau Tunnels

Figures

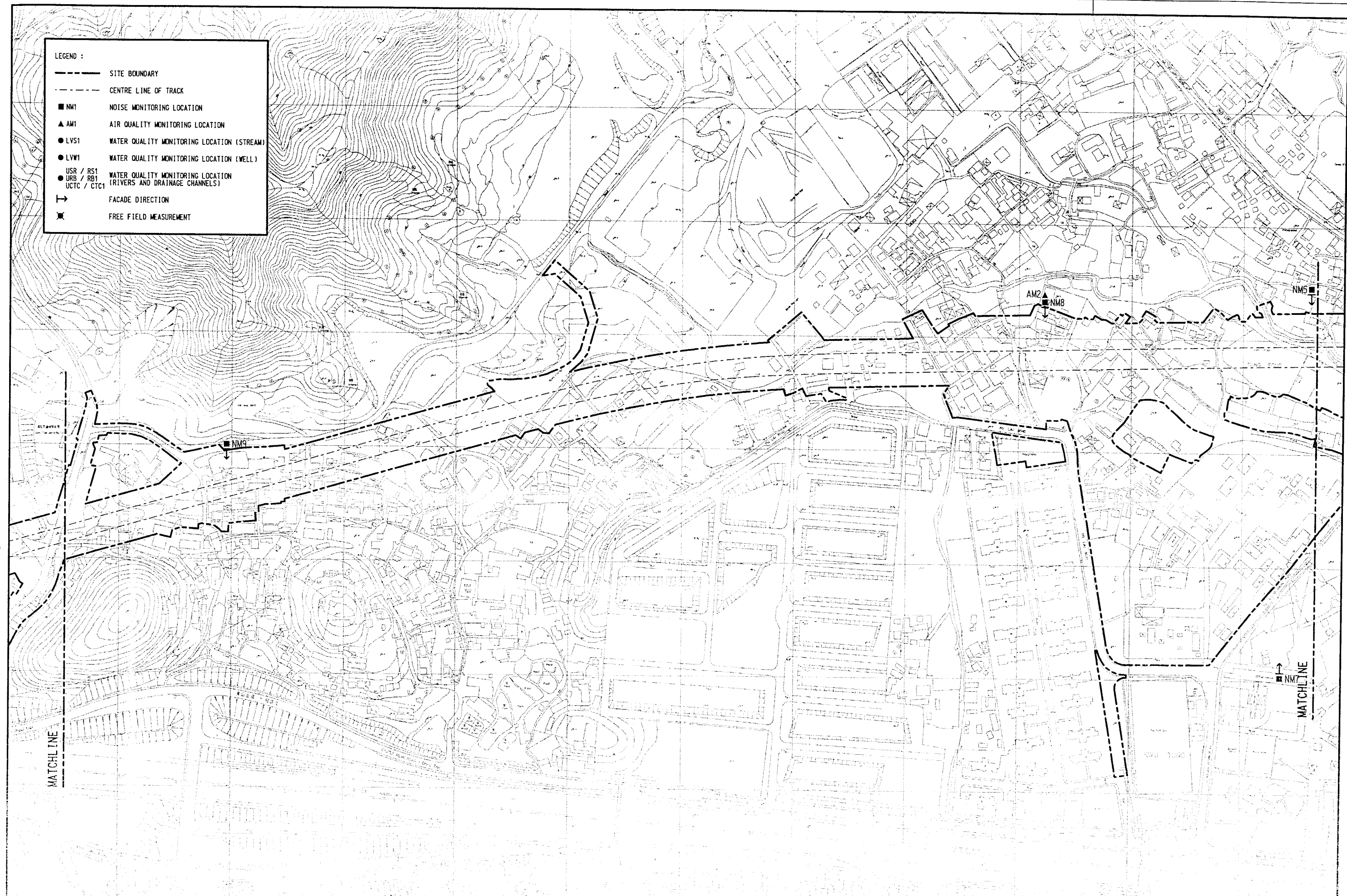


LEGEND :

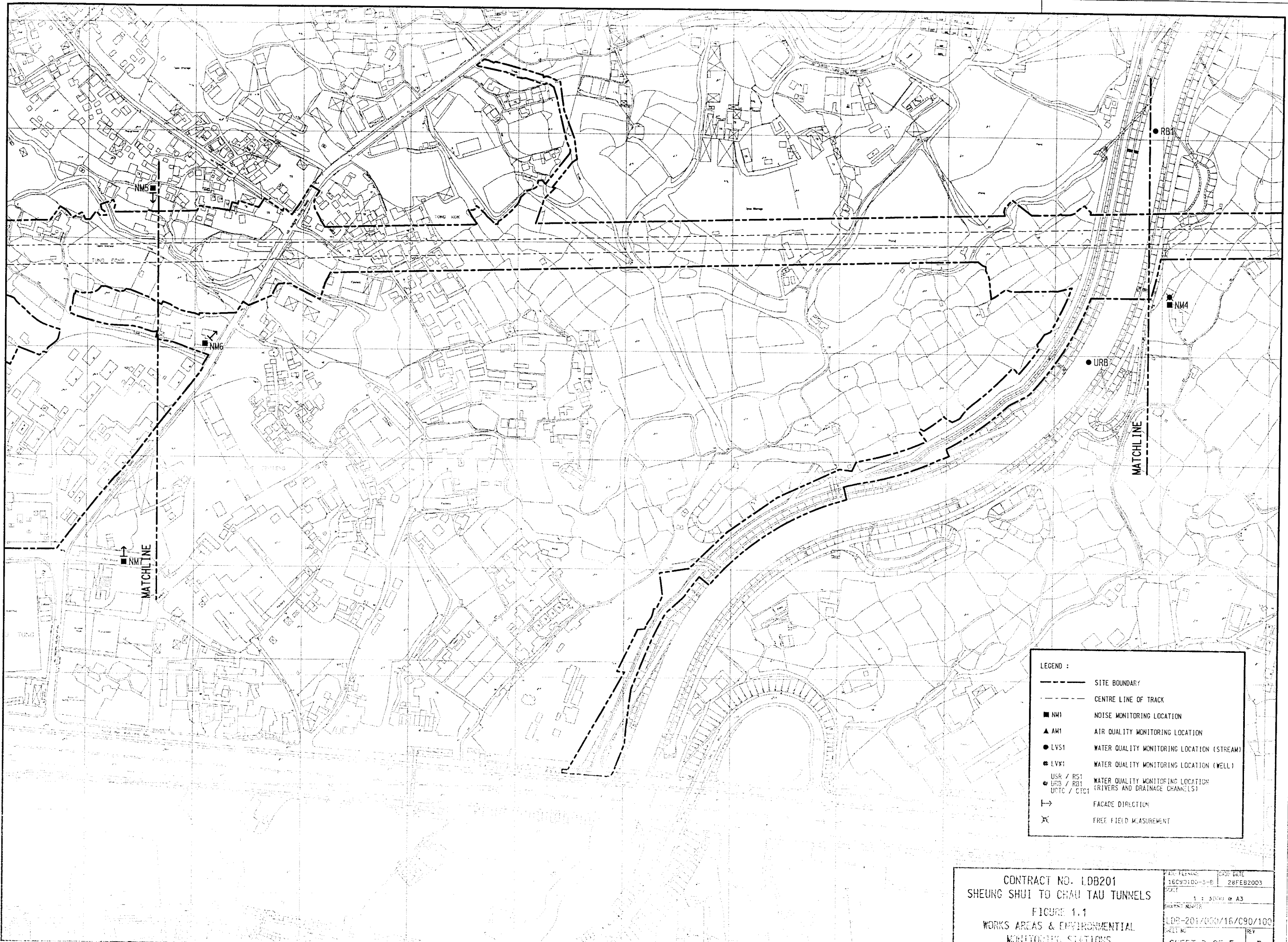
--- (dashed line)	SITE BOUNDARY
- - - (dash-dot line)	CENTRE LINE OF TRACK
■ (square)	NOISE MONITORING LOCATION
▲ (triangle)	AIR QUALITY MONITORING LOCATION
● (circle)	WATER QUALITY MONITORING LOCATION (STREAM)
● (circle)	WATER QUALITY MONITORING LOCATION (WELL)
● (circle)	WATER QUALITY MONITORING LOCATION (RIVERS AND DRAINAGE CHANNELS)
→ (arrow)	FACADE DIRECTION
✱ (star)	FREE FIELD MEASUREMENT

CONTRACT NO. LDB201 SHEUNG SHUI TO CHAU TAU TUNNELS		CADD FILENAME 16C90100-1-B	CADD DATE 28FEB2003
FIGURE 1.1 WORKS AREAS & ENVIRONMENTAL MONITORING STATIONS		SCALE 1 : 3000 @ A3	DRAWING NUMBER LDB-201/000/16/C90/100
SHEET NO 5	REV B	SHEET 1 OF 5	

- LEGEND :
- SITE BOUNDARY
 - - - - CENTRE LINE OF TRACK
 - NM1 NOISE MONITORING LOCATION
 - ▲ AM1 AIR QUALITY MONITORING LOCATION
 - LVS1 WATER QUALITY MONITORING LOCATION (STREAM)
 - LVM1 WATER QUALITY MONITORING LOCATION (WELL)
 - USR / RS1 WATER QUALITY MONITORING LOCATION (RIVERS AND DRAINAGE CHANNELS)
 - URB / RB1 UCTC / CTC1
 - FACADE DIRECTION
 - ✱ FREE FIELD MEASUREMENT



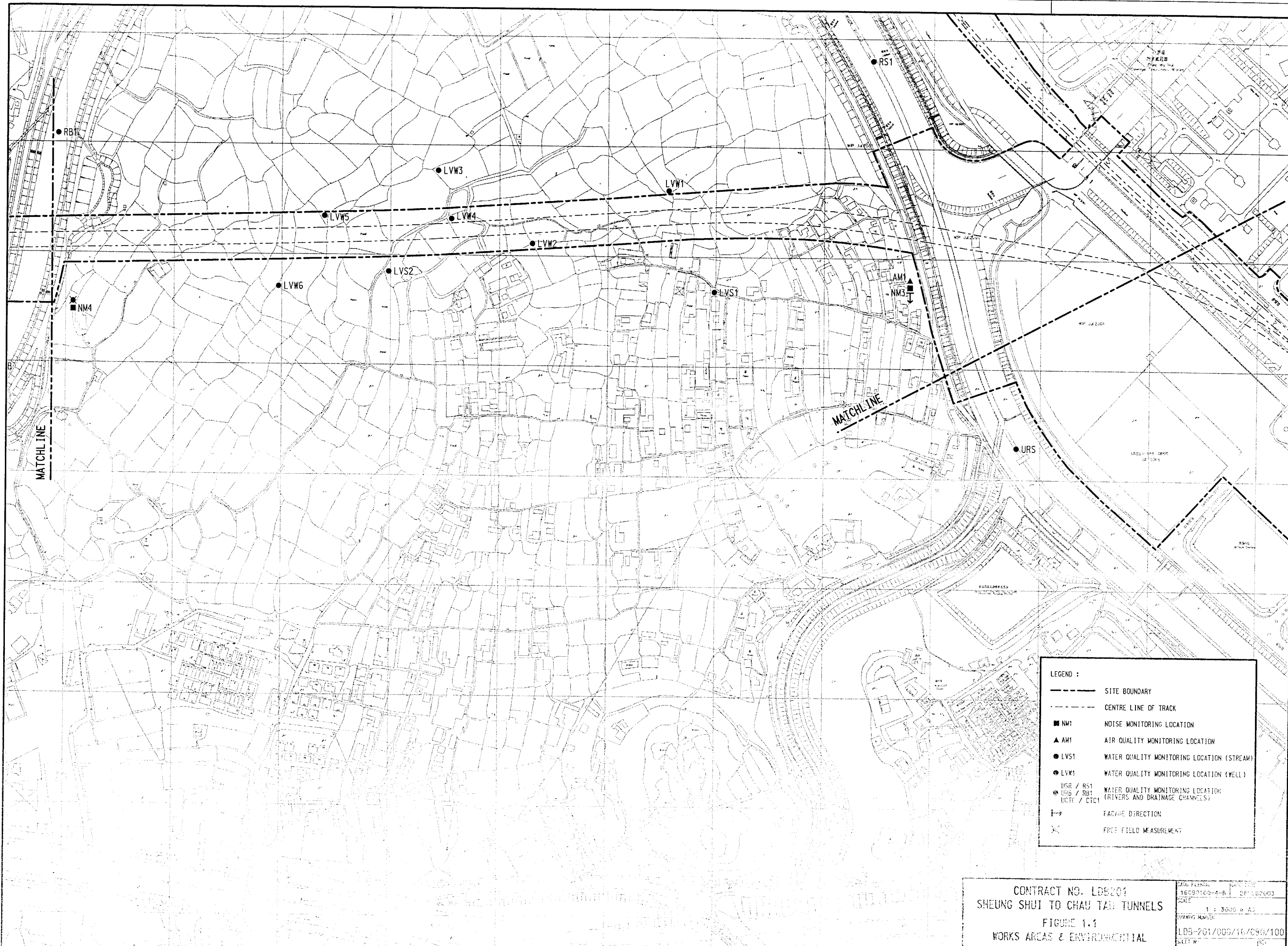
CONTRACT NO. LDB201		REVISION DATE
SHEUNG SHUI TO CHAU TAU TUNNELS		16/09/00-2-B 28FEB0005
SCALE		1 : 3000 @ A3
PROJECT NUMBER		LDB-201/000/16/C90/100
SHEET NO		REV
SHEET 2 OF 5		6



LEGEND :

- SITE BOUNDARY
- - - CENTRE LINE OF TRACK
- NM1 NOISE MONITORING LOCATION
- ▲ AM1 AIR QUALITY MONITORING LOCATION
- LVS1 WATER QUALITY MONITORING LOCATION (STREAM)
- LWS1 WATER QUALITY MONITORING LOCATION (WELL)
- URB / RB1 WATER QUALITY MONITORING LOCATION (RIVERS AND DRAINAGE CHANNELS)
- UCTC / CTC1
- FACADE DIRECTION
- ✕ FREE FIELD MEASUREMENT

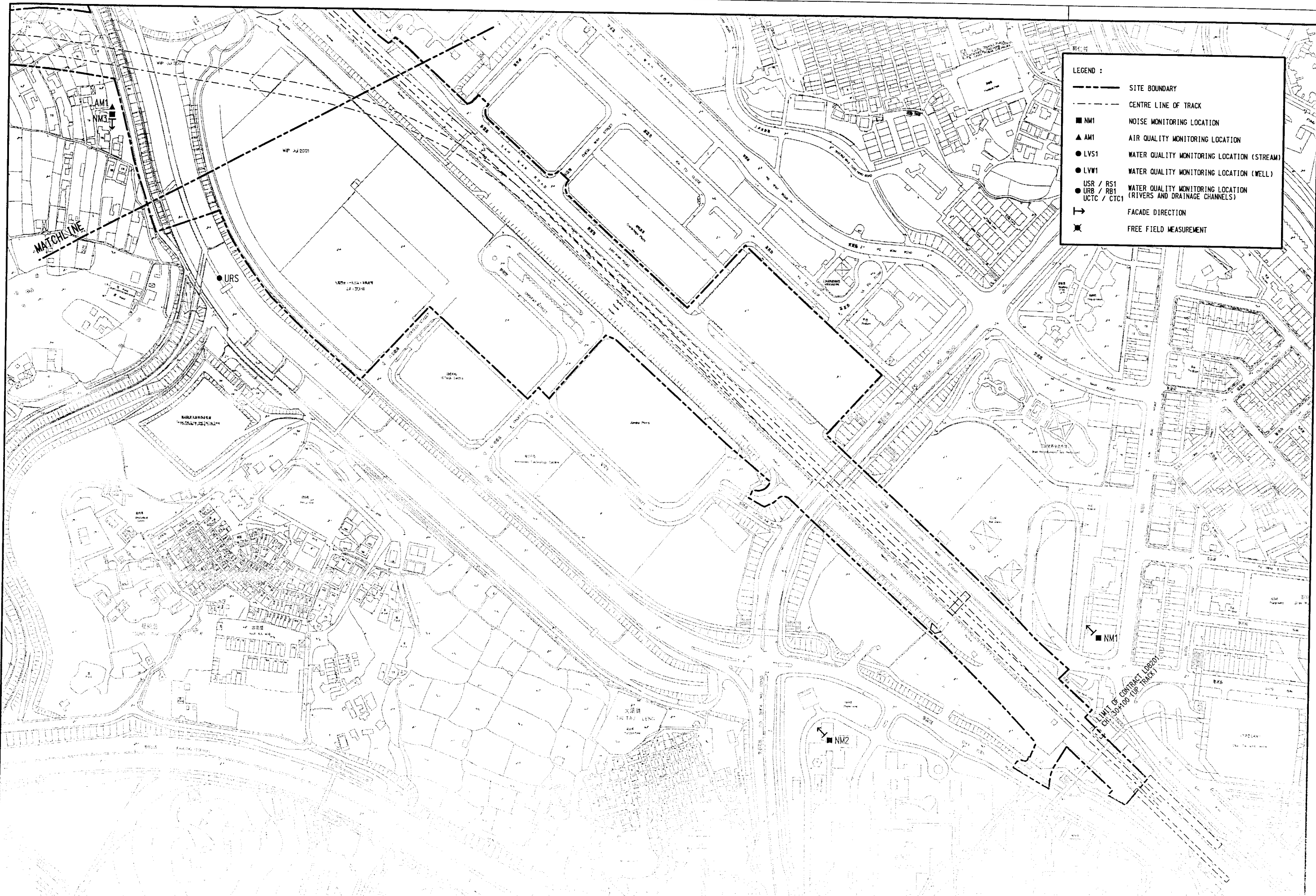
CONTRACT NO. LDB201 SHEUNG SHUI TO CHAU TAU TUNNELS		DATE PREPARED: 16C92100-3-B SCALE: 1 : 5000 @ A3 DRAWN BY: LDB-201/000/16/C90/100 SHEET NO: SHEET 3 OF 5	DATE: 28FEB2003 REV: B
FIGURE 1.1 WORKS AREAS & ENVIRONMENTAL MONITORING STATIONS			



LEGEND :

---	SITE BOUNDARY
- - - -	CENTRE LINE OF TRACK
■ NM1	NOISE MONITORING LOCATION
▲ AM1	AIR QUALITY MONITORING LOCATION
● LVS1	WATER QUALITY MONITORING LOCATION (STREAM)
● LVW1	WATER QUALITY MONITORING LOCATION (WELL)
⊙ URS / RS1	WATER QUALITY MONITORING LOCATION (RIVERS AND DRAINAGE CHANNELS)
⊙ RB1 / CTC1	
→	FACADE DIRECTION
✕	FREE FIELD MEASUREMENT

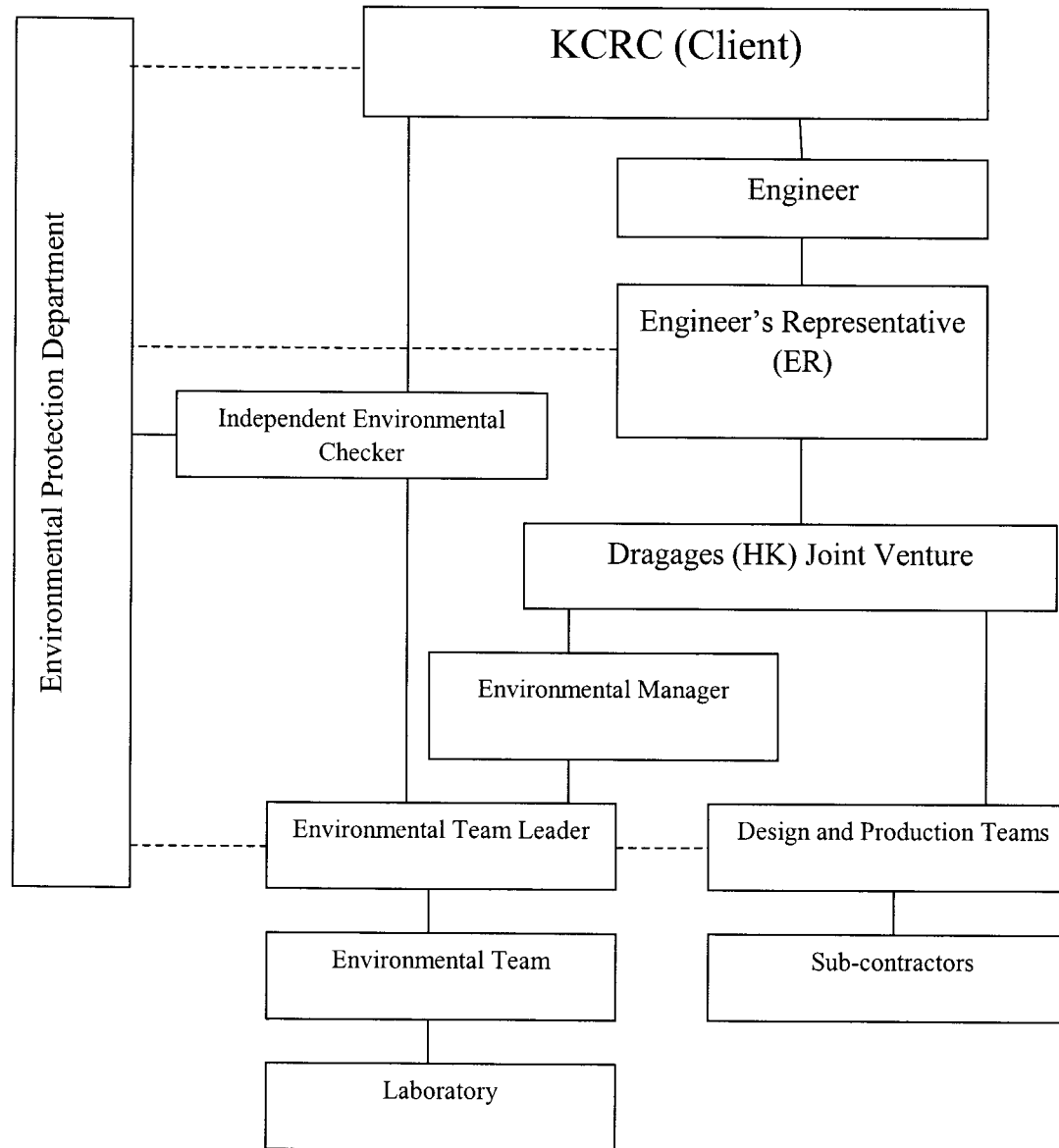
CONTRACT NO. LD9201		DRAW NUMBER	SCALE
SHEUNG SHUI TO CHAU TAU TUNNELS		16090100-4-B	1 : 3000 & AS
FIGURE 1.1		DRAWING NUMBER	LD9-201/009/16/090/100
WORKS AREAS & ENVIRONMENTAL		SHEET NO.	4 OF 5
MONITORING STATIONS		REV.	B



LEGEND :

---	SITE BOUNDARY
- - - -	CENTRE LINE OF TRACK
■	NM1 NOISE MONITORING LOCATION
▲	AM1 AIR QUALITY MONITORING LOCATION
●	LVS1 WATER QUALITY MONITORING LOCATION (STREAM)
●	LVW1 WATER QUALITY MONITORING LOCATION (WELL)
●	URS / RS1 WATER QUALITY MONITORING LOCATION (RIVERS AND DRAINAGE CHANNELS)
●	URB / RB1 UCTC / CTC1
→	FACADE DIRECTION
✱	FREE FIELD MEASUREMENT

CONTRACT NO. LDB201 SHEUNG SHUI TO CHAU TAU TUNNELS FIGURE 1.1 NOISE AREAS & ENVIRONMENTAL MONITORING STATIONS		CAD: TRENAC 16C90100-5-B SCALE 1 : 5000 @ A3 DRAWING NUMBER LDB-201/003/16/C90/100 SHEET NO. SHEET 5 OF 5	DATE 28FEB2003 DRAWN BY B
---	--	--	------------------------------------



法國寶嘉
(香港)聯營
Dragages (HK)
Joint Venture

East Rail Extensions Contract No. LDB201
Sheung Shui to Chau Tau Tunnels

Figure 1.2

Environmental Organisation Chart

