

**CONTRACT NO. HY/99/02  
WIDENING OF FO TAN ROAD AND RELATED  
IMPROVEMENT MEASURES IN FO TAN**

**ENVIRONMENTAL MONITORING AND  
AUDIT REPORT NO. 39  
(for the month of April 2003)**

**MAY 2003**

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**Issue & Revision Record**

<b>Rev.</b>	<b>Date</b>	<b>Originator</b>	<b>Checked By</b>	<b>Approved</b>	<b>Description</b>
A	May 2002	Danny Ng	Anne Watker-Zeris (Environmental Team Leader)	K W Lee (Engineer)	Monthly Progress Report
Signature					

**Project Title:**

**Contract No.: HY/99/02  
Widening of Fo Tan Road and  
Related Improvement Measures in Fo Tan**

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## 1. EXECUTIVE SUMMARY

### Background

- 1.1 Highways Department Contract HY/99/02, “Widening of Fo Tan Road and Related Improvement Measures in Fo Tan”, has been awarded to Shun Yuen Construction/CNCEC Joint Venture, and work commenced on 1<sup>st</sup> Dec 1999. Physical works, as stated in Part B of the Variation of Environmental Permit, EP No.: [VEP-015/2000/B/EP-030](#), commenced in Feb 2000 for completion by end of 2002.

### Air Quality Monitoring

- 1.2 Air quality impact monitoring was carried out at one monitoring station (Rooftop of House No. 76 in Fo Tan Village) as shown in Figure 5.1 in [April 2003](#). The results are summarized in Table 1.1.

**Table 1.1 Summary of Air Quality Monitoring Results**

Parameter	Range of Results	No. of Exceedances	
		Action Levels	Limit Levels
1-hr TSP	106 $\mu\text{g}/\text{m}^3$ – 227 $\mu\text{g}/\text{m}^3$	0	0
24-hr TSP	28 $\mu\text{g}/\text{m}^3$ – 90 $\mu\text{g}/\text{m}^3$	0	0

### Noise Level Monitoring

- 1.3 The results for noise level impact monitoring at locations [CN3](#), [CN6](#), [CN8](#), [CN11](#), [CN12](#) and [CN13](#) as shown in Figure 6.2 during the Unrestricted Period in [April 2003](#) are summarized as Table 1.2.

**Table 1.2 Summary of Noise Level Monitoring Results**

Parameter	Location	Range of Results	No. of date of exceedance	
			Action Levels	Limit Levels
Unrestricted Period $L_{eq}$ (30min)	CN3	All below baseline	0	0
	CN6	57.1 dB(A) – 64.9 dB(A)	0	0
	CN8	All below baseline	0	0
	CN11	All below baseline	0	0
	CN12	66.9 dB(A) – 68.7 dB(A)	0	0
	CN13	55.4 dB(A) – 67.9 dB(A)	0	0

### Water Quality Monitoring

- 1.4 No water samples were taken from Sedimentation Pond Nos. 1, 2, 3, 4 and 5 in this reporting month, as there was no generation of wastewater from construction activities (i.e. no pre-bored H-piling works were carried out for the month of April 2003).

### Observations

- 1.5 No site inspection was conducted by EPD, LCO in the month of April 2003.
- 1.6 The wind data monitoring equipment recorded data at 5-minute intervals for the month of April 2003. The wind data recorded in the reporting month are contained in Appendix H. Please note that there was a theft in the site office on the evening of 29 April 2003, hence the equipment for downloading the necessary wind data was lost. As a result, wind data from 23 April 2003 onward has not been recorded. The losing equipment will be resumed as soon as possible.

### **Complaints**

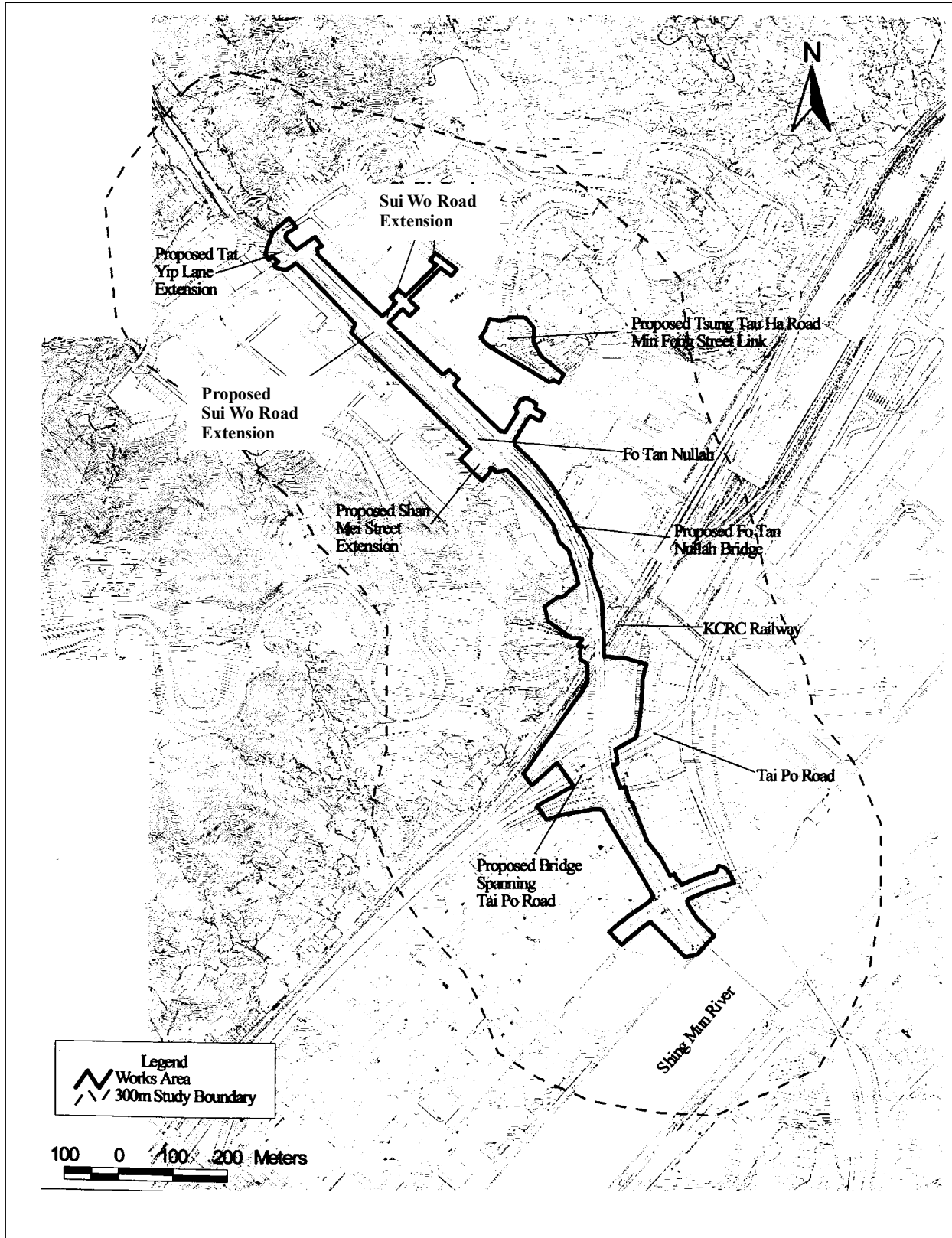
- 1.7 No complaints were received during April 2003.
- 1.8 A total of three (3) complaints have been received since the start of the Contract.


## 2. INTRODUCTION

### Scope of Works

- 2.1 Fo Tan Road is the only road providing access to the Fo Tan Industrial Area and the residential area of Sui Wo. According to the findings in the Working Paper 13 (September 94) of the Shatin and Ma On Shan (STMOS) District Traffic Study commissioned by Transport Department (TD), the critical junctions along Fo Tan Road were overloaded by between 10 % and 30 % in the morning peak hours and by between 10 % and 20% in the evening peak hours in 1994. The study predicted that upon full development of the Fo Tan area, the Fo Tan Road will be operating beyond its design capacity, and recommended that the existing Fo Tan Road was widened as a measure to improve the traffic congestion problems in Fo Tan, Shatin.
- 2.2 The proposed Sui Wo Road extension from Fo Tan Road to Kwei Tei Street also provides an additional access from Fo Tan Road to the eastern part of the industrial area. The additional entry route would help spread the traffic loading amongst the two critical junctions at Fo Tan Road/Tsung Tau Ha Road and Fo Tan Road/Min Fong Street which are currently overloaded by 10% during the morning peak hour.
- 2.3 At present, traffic accessing the south-eastern part of the Fo Tan industrial area have to use the two junctions at Fo Tan Road/Tsung Tau Ha Road and Fo Tan Road/Min Fong Street for ingress and egress. These two junctions are currently overloaded by 10% during the morning peak hour. The proposed new road linking Tsung Tau Ha Road and Min Fong Street will provide an additional route connecting the north-eastern part and the south-eastern part of the industrial area, thus alleviating the traffic congestion problem currently being experienced at these junctions.
- 2.4 The existing Tat Yip Lane comprises two cul-de-sac. Heavy goods vehicles, in particular container trucks, often experience difficulties when reversing in the cul-de-sac and cause obstructions to other vehicles entering and leaving the adjacent industrial buildings. The proposed extension of Tat Yip Lane to Kwei Tei Street will remove the cul-de-sac on the western half thus alleviating the traffic problems resulting from the reversing of heavy goods vehicles.
- 2.5 In May 1995, TD proposed implementation of the above improvement works to include the Project in the 1996 CWRP RAE for completion within the following five years (2 years for planning and design works plus another 3 years for construction). The tentative scheduling for the construction period is between 1999 and 2002.
- 2.6 The works area of the Contract: HY/99/02 is shown in Figure 2.1
- 2.7 The key environmental issues of this project include air quality, water quality and construction noise. Air and water quality monitoring has been performed by the Contractor, under the supervision of Engineer's Representative (ER). Noise level monitoring is carried out by the Resident Site Staff (RSS) using equipment and qualified assistants provided by the Contractor.
- 2.8 According to section 1.4 of the revised EM&A Manual (Revision C), the ET will report directly to the Engineer. Hence, all EM&A reports, including the subject report, are prepared on behalf of the Engineer.





	Title:	Mott Connell Limited
	<b>Fo Tan Road Study Area</b>	Contract No.: HY/99/02
		Drawing No.: Figure 2.1

## Project Organization

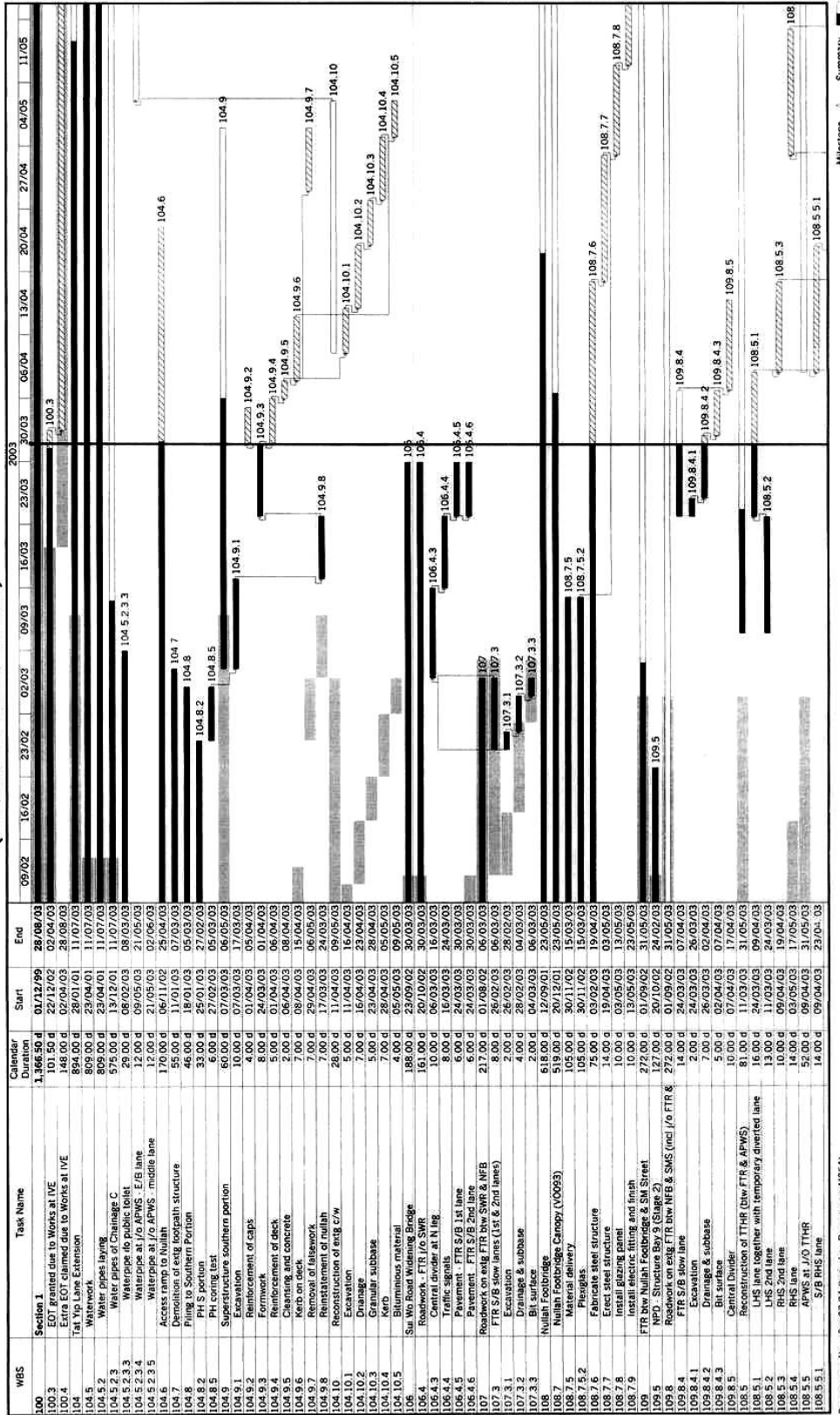
2.9 The project organization of the Contract is shown as follows:

<b>THE CLIENT</b> <b>(HyD/NT, Government of HKSAR)</b>	
Contact Person:	Mr Greg Leung (Tel.: 2762 3518) (Fax.:2715 3573)
<b>THE ENGINEER</b> <b>(Mott Connell Limited – MCL)</b>	
Director:	Mr K W Lee (Tel.: 2828 5757) (Fax.: 2827 1823)
Head Office	Resident Site Staff
Project Engineer: Dr H T Cheng (Tel.: 2828 5898)	Senior Resident Engineer: Mr Bill Reynolds (Tel.: 21454909)
Environmental Team Leader: Dr Anne Watker-Zeris (Tel.: 2828 5793)	
<b>Contractor:</b> <b>Shun Yuen Construction &amp; CNCEC JV</b>	
Site Agent:	Mr K. O. Sheng (Tel.: 2690 1293) (Fax.:2690 1639)

## Programme

2.10 The most up-to-date Master Programme which has been submitted by the contractor is attached as Figure 2.2.

**HY/99/02 - Widening of Fo Tan Road  
 Three Months Rolling Programme  
 (Situation as on 31/3/2003)**

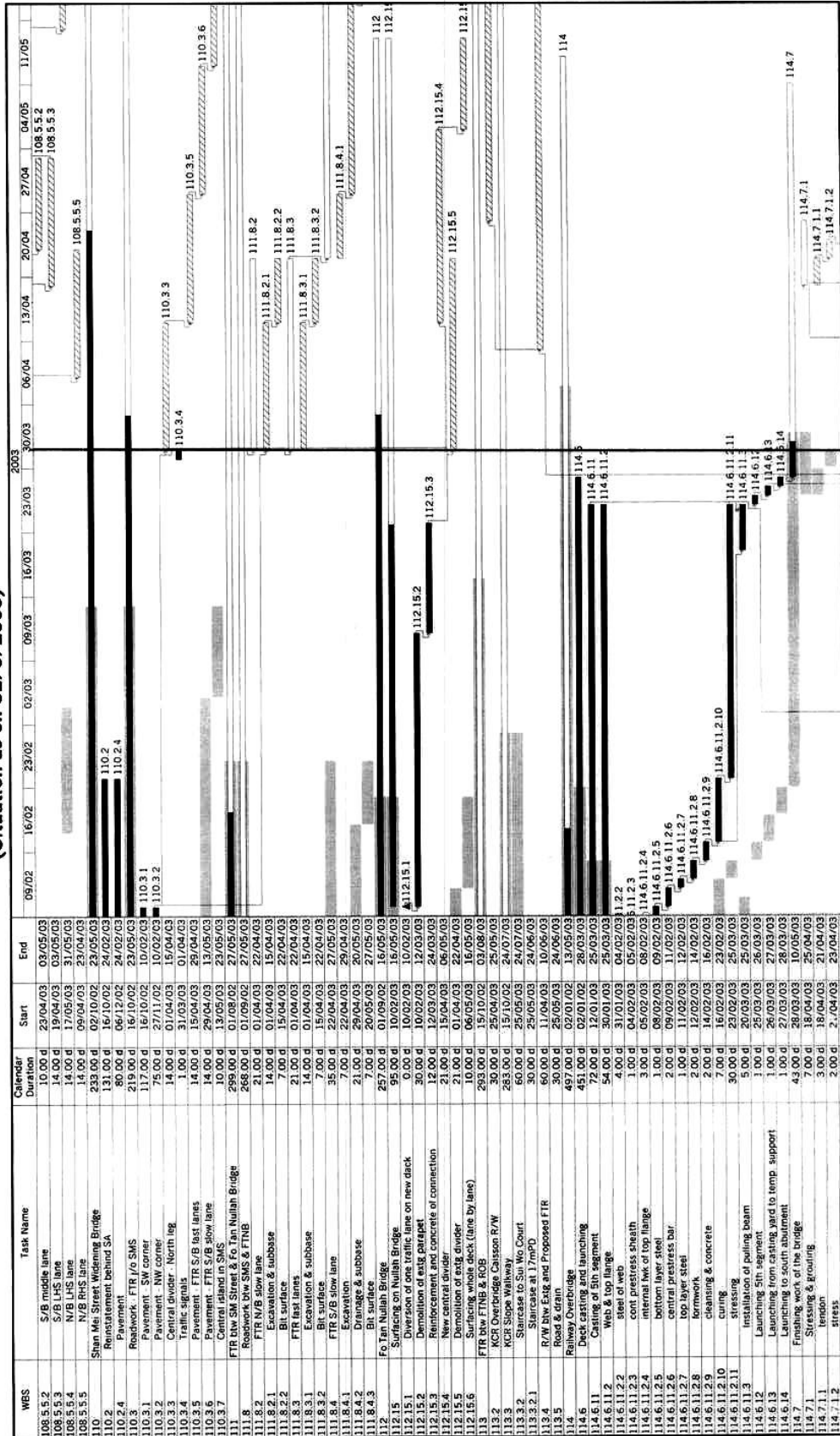


Programme No.: 3m.03.04 (based on Programme M06A)  
 Programme Date: 1/4/2003  
 Page: 1/4

Figure 2.2 – Sheet 1 of 4



**HY/99/02 - Widening of Fo Tan Road  
 Three Months Rolling Programme  
 (Situation as on 31/3/2003)**



Programme No. 3m 03 04 (based on Programme M064)  
 Program Date: 17/4/2003  
 Page: 274

Figure 2.2 – Sheet 2 of 4

**HY/99/02 - Widening of Fo Tan Road  
 Three Months Rolling Programme  
 (Situation as on 31/3/2003)**

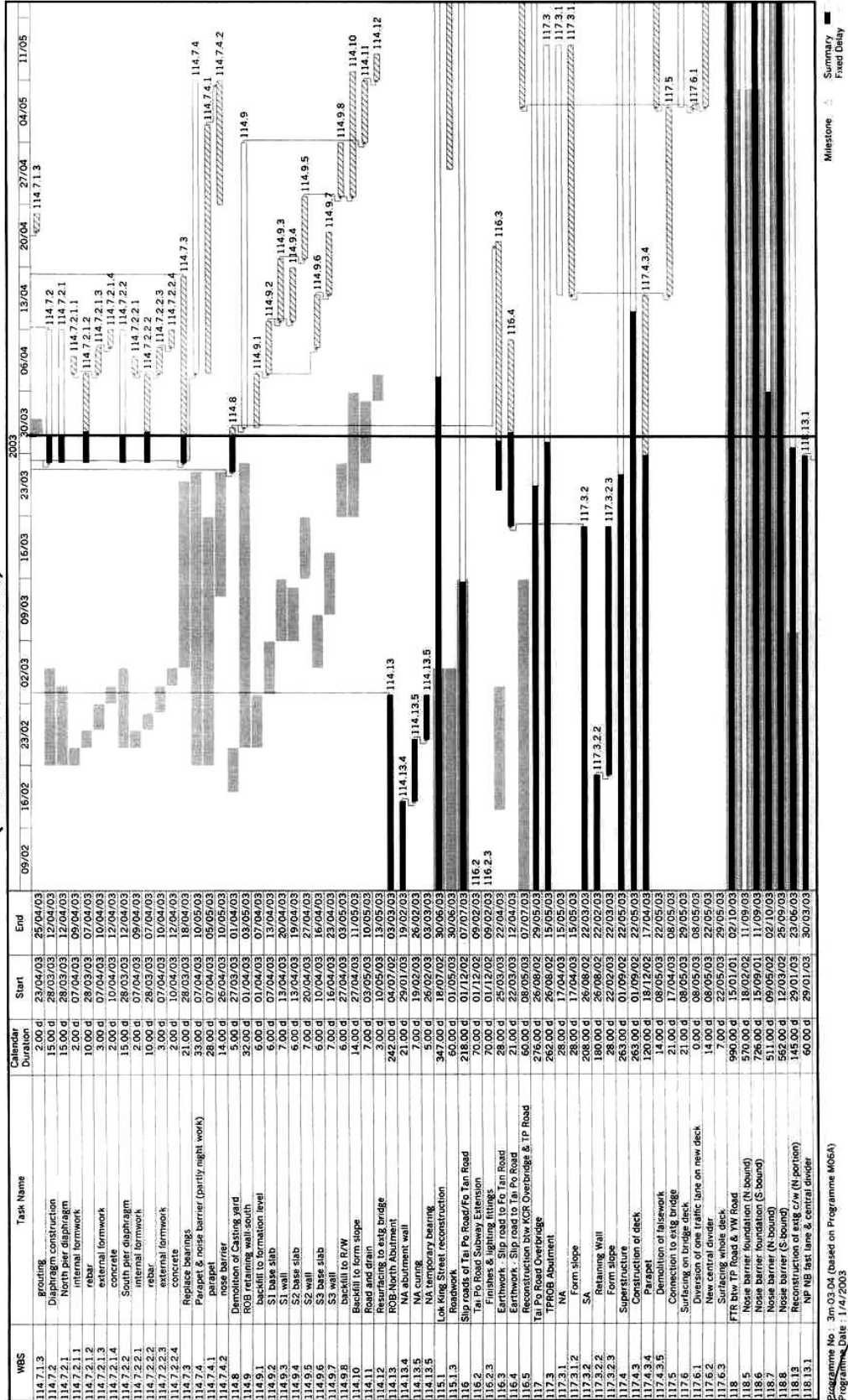
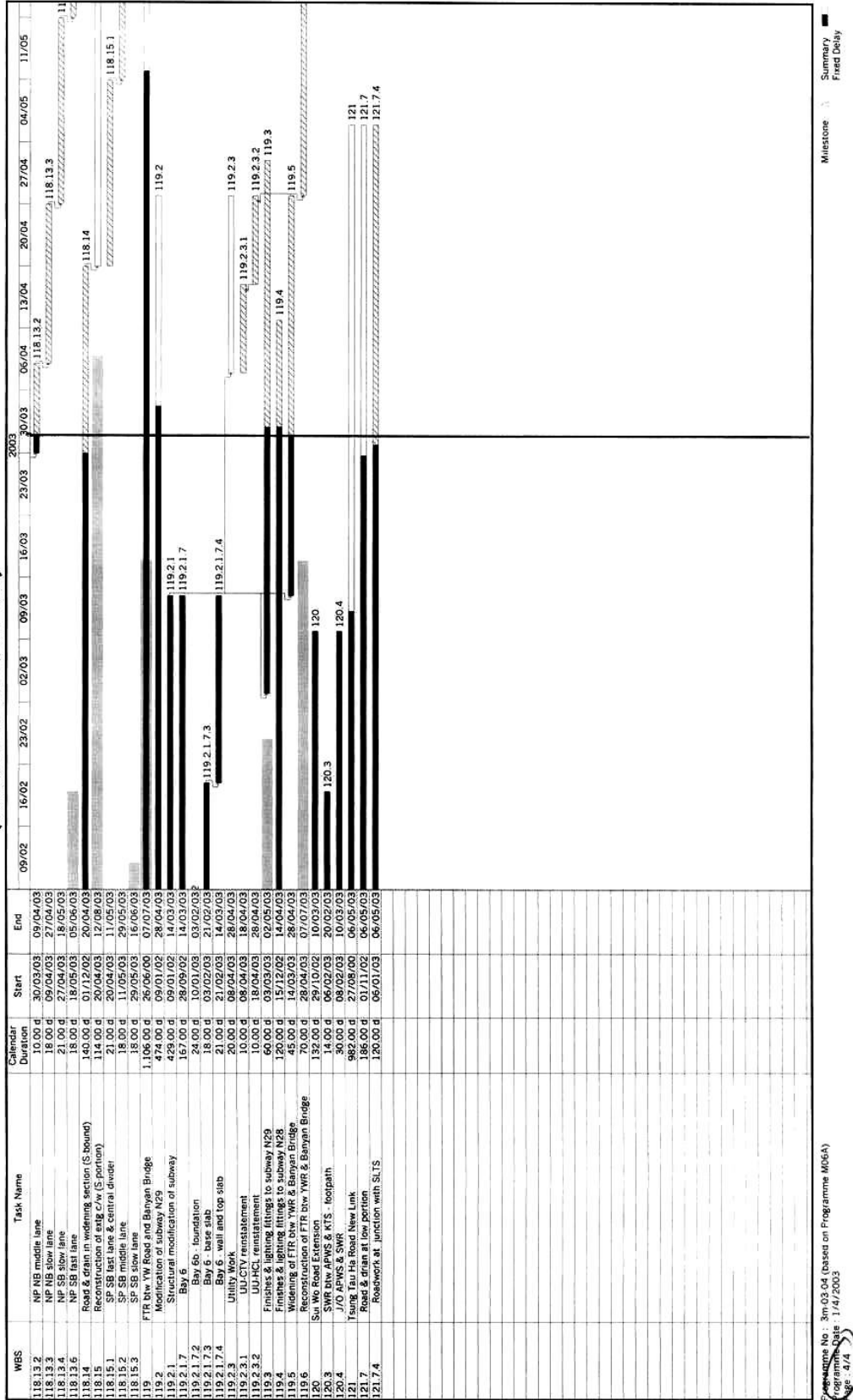


Figure 2.2 – Sheet 3 of 4

**HY/99/02 - Widening of Fo Tan Road  
 Three Months Rolling Programme  
 (Situation as on 31/3/2003)**



Programme No.: 3m.03.04 (based on Programme M06.6)  
 Programme Date: 1/4/2003  
 Page: 4/4

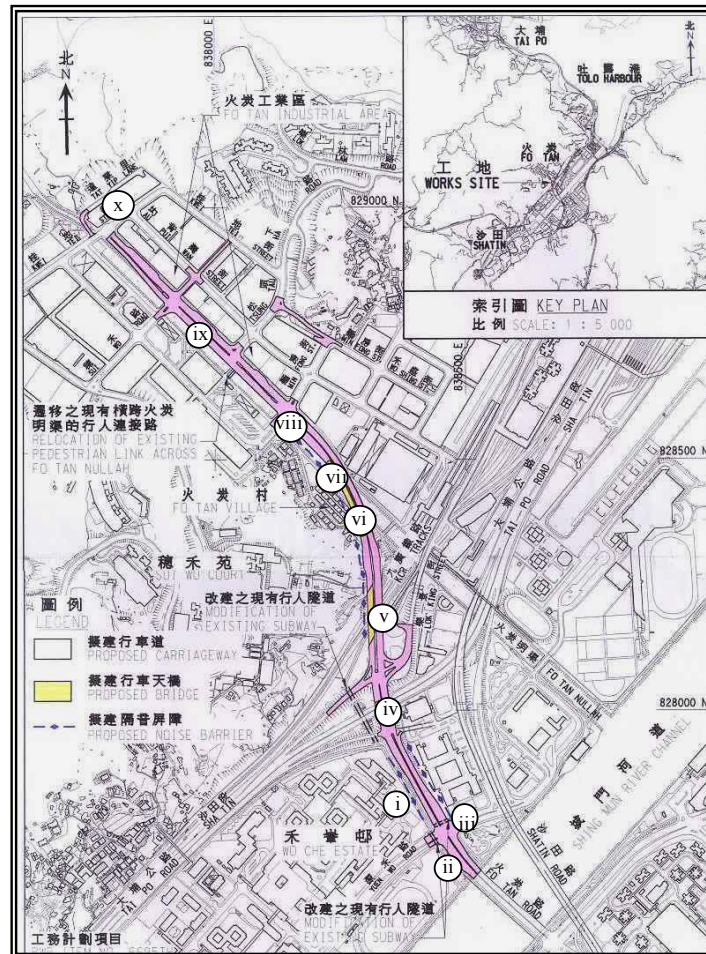
Figure 2.2 – Sheet 4 of 4



### 3. WORK UNDERTAKEN DURING THIS MONTH

3.1 Major works carried out in Contract HY/99/02 Contractor in this reporting period included:

- (i) Construction of noise barriers adjacent to Wo Che Estate and IVE(ST) – anticipated to be completed by 29/5/03.
- (ii) Installation of roof canopy of Subway NS29 adjacent to Sha Tin Sports Ground – anticipated to be completed by 31/5/03.
- (iii) Finishes and lighting fittings to Subway NS28 adjacent to IVE(ST) – anticipated to be completed by 31/5/03.
- (iv) Construction of Central Divider of Tai Po Road Overbridge – anticipated to be completed by 8/5/03.
- (v) Construction of bridge segments of Railway Overbridge – has been completed.
- (vi) Deck stitching between new and existing Fo Tan Nullah Bridge – has been completed.
- (vii) Construction of staircase at Turning Tee “A” at Fo Tan Village – has been completed.
- (viii) Construction of pavement of Shan Mei Street Widening Bridge – has been completed.
- (ix) Re-construction of existing carriageway at Nullah Partial Decking – anticipated to be completed by 31/5/03.
- (x) Deck construction at Tat Yip Lane Extension – has been completed.



#### 4. BRIEF SUMMARY OF EM&A REQUIREMENTS

##### Air Quality Monitoring

4.1 The following air quality parameters are required:

- (a) 24 - hr TSP; and
- (b) 1 - hr TSP.

4.2 Environmental quality performance limits (Action and Limit levels)

**Table 4.1 Action and Limit Levels for Air Quality**

Parameters	Action	Limit
24 Hour TSP Level in $\mu\text{g}/\text{m}^3$	For baseline level $<108 \mu\text{g}/\text{m}^3$ , Action level = average of baseline level plus 30% and Limit level For baseline level $>108 \mu\text{g}/\text{m}^3$ , and baseline level $< 154 \mu\text{g}/\text{m}^3$ , Action Level = $200 \mu\text{g}/\text{m}^3$ For baseline level $>154 \mu\text{g}/\text{m}^3$ , Action level = 130% of baseline level	260
1 Hour TSP Level in $\mu\text{g}/\text{m}^3$	For baseline level $<154 \mu\text{g}/\text{m}^3$ , Action level = average of baseline level plus 30% and Limit level For baseline level $>154 \mu\text{g}/\text{m}^3$ , and baseline level $< 269 \mu\text{g}/\text{m}^3$ , Action Level = $350 \mu\text{g}/\text{m}^3$ For baseline level $>269 \mu\text{g}/\text{m}^3$ , Action level = 130% of baseline level	500

4.3 Event-Action Plans

**Table 4.2 Action Plan for Air Quality**

Event	Response		
	ET	Engineer	Contractor
<b>ACTION LEVEL</b>			
1 Exceedance for one sample	1 Identify source 2 Inform Engineer 3 Repeat measurement to confirm finding 4 Increase monitoring frequency to daily	1 Notify Contractor 2 Check monitoring data and Contractor's working methods	1 Rectify any unacceptable practice 2 Amend working methods if appropriate
2. Exceedance for two or more consecutive samples	1 Identify source 2 Inform Engineer 3 Repeat measurements to confirm findings 4 Increase monitoring frequency to daily 5 Discuss with Engineer for remedial actions required 6 If exceedance continues, arrange meeting with Engineer 7 If exceedance stops, cease additional monitoring	1 Confirm receipt of notification of failure in writing 2 Notify Contractor 3 Check monitoring data and Contractor's working methods 4 Discuss with Environmental Supervisor and Contractor on potential remedial actions 5 Ensure remedial actions properly implemented	1 Submit proposals for remedial actions to Engineer within 3 working days of notification 2 Implement the agreed proposals 3 Amend proposal if appropriate



Event	Response		
	ET	Engineer	Contractor
<b>LIMIT LEVEL</b>			
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1 Identify source</li> <li>2 Inform Engineer</li> <li>3 Repeat measurement to confirm finding</li> <li>4 Increase monitoring frequency to daily</li> <li>5 Assess effectiveness of Contractor's remedial actions and keep the Engineer informed of the results</li> </ol>	<ol style="list-style-type: none"> <li>1 Confirm receipt of notification of failure in writing</li> <li>2 Notify Contractor</li> <li>3 Check monitoring data and Contractor's</li> <li>4 Discuss with Environmental Team Leader and Contractor potential remedial actions</li> <li>5 Ensure remedial actions properly implemented</li> </ol>	<ol style="list-style-type: none"> <li>1 Take immediate action and avoid further exceedance</li> <li>2 Submit proposals for remedial actions to Engineer within 3 working days of notification</li> <li>3 Implement the agreed proposals</li> <li>4 Amend proposal if appropriate</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1 Identify source</li> <li>2 Inform Engineer of the causes and actions taken for the exceedance</li> <li>3 Repeat measurement to confirm findings</li> <li>4 Increase monitoring frequency to daily</li> <li>5 Investigate the causes of exceedance</li> <li>6 Arrange meeting with the Engineer to discuss the remedial actions to be taken</li> <li>7 Assess effectiveness of Contractor's remedial actions and keep the Engineer informed of the results</li> <li>8 If exceedance stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1 Confirm receipt of notification of failure in writing</li> <li>2 Notify Contractor</li> <li>3 Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented</li> <li>4 Discuss amongst Environmental Team Leader and the Contractor potential remedial actions</li> <li>5 Review Contractor's remedial actions whenever necessary to assure their effectiveness</li> <li>6 If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance</li> <li>2 Submit proposals for remedial actions to Engineer within 3 working days of notification</li> <li>3 Implement the agreed proposals</li> <li>4 Resubmit proposals if problem still not under control</li> <li>5 Stop the relevant portion of works as determined by the Engineer until the exceedance is abated</li> </ol>

#### 4.4 Environmental mitigation measures

The EIA report has recommended construction air pollution control and mitigation measures. The Contractor shall be responsible for the design and implementation of dust suppression measures such as:

- use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads. Up to 75% reduction in dust emission can be achieved by watering once every 1.5 hours with complete coverage;

- use of frequent watering for particularly dusty static construction areas and areas where construction operations are taking place;
- side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines;
- tarpaulin covering of all dusty vehicle loads transported to, from and between site locations;
- imposition of speed controls for vehicles on unpaved site roads. The recommended limit is 20 kmh<sup>-1</sup>;
- establishment and use of vehicle wheel and body washing stations at the exit points of the site, combined with cleaning of public roads where necessary; and
- instigation of a dust monitoring and audit plan in order to enforce controls and modify methods of work if dusty conditions arise.

If the above measures are not sufficient to restore the air quality to acceptable levels the ET Leader, will advise the Contractor on alternative mitigation measures.

#### Noise Level Monitoring

4.5 The following noise level monitoring parameters are required:

- a) L<sub>eq</sub>(30 min),
- b) L<sub>10</sub>(30 min),
- c) L<sub>90</sub>(30 min).

Note: 1) All construction noise level shall be measured in terms of the A-weighted level.  
 2) Measuring Time: 0700 – 1900 (normal weekdays)

4.6 Environmental quality performance limits (Action and Limit levels)

**Table 4.3 Action and Limit Levels for Noise Level Monitoring**

Time Period	Action	Limit
0700-1900 hrs on normal weekdays	When one documented complaint is received	75* dB(A)
0700-2300 hrs on holidays; and 1900-2300 hrs on all other days		60/65/70** dB(A)
2300-0700 hrs on all days		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 Sensitivity Rating.

4.7 Event-Action Plans

**Table 4.4 Action Plan for Noise Level Monitoring**

Event	Action	
	ET Leader or Engineer	Contractor
Action Level	1 Notify Contractor 2 Analyse investigation 3 Require Contractor to propose measures for the analysed noise problem 4 Increase monitoring frequency to check mitigation effectiveness	1 Submit noise mitigation proposals to Environmental Team Leader/Engineer's Representative 2 Implement noise mitigation proposals
Limit Level	1 Notify Contractor 2 Require contractor to implement mitigation measures. Increase monitoring frequency to check mitigation effectiveness	1 Implement mitigation measures 2 Prove to Environmental Team Leader and the Engineer effectiveness of measures applied

4.8 Environmental mitigation measures

The EIA report has recommended construction noise control and mitigation measures. The Contractor shall be responsible for the design and implementation of measures recommended in the EIA, such as:

- A rigorous EM&A programme should be undertaken, and should focus on those Noise Sensitive Receivers (NSRs) of particular concern, in order to identify and rectify any problems at the earliest possible stage;
- conditions from EPD's Recommended Pollution Control Clauses should be incorporated into future contract documents and implemented;
- the appointed contractor should liaise with those that are affected by noise to identify areas of particular concern. For example, in practice it may be the case that only certain items of PME cause the most annoyance to residents;
- construction activities should be programmed so that parallel operation of several sets of equipment close to a given receiver is avoided unless essential;
- noisy equipment and activities should be sited by the contractor as far from sensitive receivers as is practical. Also, temporary site office etc. should be located, as far as is possible, such that sensitive receivers are screened from the line of sight of the construction areas;
- noisy plant or processes should be replaced by quieter alternatives where possible. For example, pneumatic concrete breakers can be silenced with mufflers and bit dampers. Silenced diesel and gasoline generators and power units, as well as silenced and super-silenced air compressors, can be readily obtained. The power units of non-electric stationary plant and earth-moving plant can be quieted by vibration isolation and partial or full acoustic enclosures for individual noise-generating components;
- intermittent noisy activities should be scheduled to minimise exposure of nearby NSRs to high levels of construction noise. For example, noisy activities can be scheduled at times coinciding with periods when dwellings are unoccupied. Prolonged operation of noisy equipment close to dwellings should be avoided;

- idle equipment should be turned off or throttled down. Noisy equipment should be properly maintained and used no more than is necessary; and
- construction plant should be properly maintained and operated. Construction equipment often has silencing measures built in or added on, eg bulldozer silencers, compressor panels, and mufflers. Silencing measures should be properly maintained and utilized.

If the above measures are not sufficient to restore the construction noise level to an acceptable level the ET Leader will advise the Contractor on other mitigation measures.

### **Water Quality Monitoring**

4.9 The following water quality parameters are required:

- (a) pH (pH units);
- (b) Suspended Solids, SS (mg/l);
- (c) Oil & Grease (mg/l);
- (d) Dissolved Oxygen, DO (mg/l);
- (e) Turbidity (NTU); and
- (f) Temperature (°C).

4.10 Event and Action Plan for Surface Water Quality

All effluent subject to control by the TM is required to be licensed. Therefore, the discharges shall be required to comply with the effluent standard of effluent discharged into Tolo Harbour Coastal Waters and is shown in Table 4.5.

**Table 4.5 Selection of Effluent Standards Discharged into Coastal Waters of Tolo Water Control Zone**

<b>Measurement Parameter</b>	<b>Effluent Standard</b>
pH	6-9 (pH units)
Suspended solids	30 (mg/l)
Oil & Grease	20 (mg/l)

Source: Technical Memorandum on Effluent Standards, Table 7

4.11 Event-Action Plans

**Table 4.6 Action Plan for Water Quality Monitoring**

<b>Event</b>	<b>ET</b>	<b>Contractor</b>	<b>Engineer</b>
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>1 Repeat in-situ measurement to confirm findings;</li> <li>2 Identify source(s) of impact;</li> <li>3 Inform contractor;</li> <li>4 Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5 Discuss mitigation measures with Engineer and Contractor;</li> <li>6 Ensure mitigation measures are implemented; and</li> <li>7 Increase the monitoring frequency to daily until no exceedance of Limit level</li> </ol>	<ol style="list-style-type: none"> <li>1 Inform the Engineer and confirm notification of the non-compliance in writing;</li> <li>2 Rectify unacceptable practice</li> <li>3 Check all plant and equipment;</li> <li>4 Consider changes of working methods;</li> <li>5 Propose mitigation measures to Engineer within 3 working days and discuss with ET and Engineer;</li> <li>6 Implement the agreed mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1 Discuss with ET and Contractor on the proposed mitigation measures;</li> <li>2 Repeat Contractor to critically review the working methods;</li> <li>3 Make agreement on the mitigation measures to be implemented; and</li> <li>4 Assess the effectiveness of the implemented mitigation measures</li> </ol>
Limit level being exceeded by more than two consecutive sampling days	<ol style="list-style-type: none"> <li>1 Repeat in-situ measurement to confirm findings;</li> <li>2 Identify source(s) of impact;</li> <li>3 Inform contractor;</li> <li>4 Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5 Discuss mitigation measures with Engineer and Contractor;</li> <li>6 Ensure mitigation measures are implemented; and</li> <li>7 Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.</li> </ol>	<ol style="list-style-type: none"> <li>1 Inform the Engineer and confirm notification of the non-compliance in writing;</li> <li>2 Rectify unacceptable practice</li> <li>3 Check all plant and equipment;</li> <li>4 Consider changes of working methods;</li> <li>5 Propose mitigation measures to Engineer within 3 working days and discuss with ET and Engineer;</li> <li>6 Implement the agreed mitigation measures; and</li> <li>7 As directed by the Engineer, to slow down or stop all or part of the construction activities.</li> </ol>	<ol style="list-style-type: none"> <li>1 Discuss with ET and Contractor on the proposed mitigation measures;</li> <li>2 Repeat Contractor to critically review the working methods;</li> <li>3 Make agreement on the mitigation measures to be implemented; and</li> <li>4 Assess the effectiveness of the implemented mitigation measures; and</li> <li>5 Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the work until no exceedance of Limit Level.</li> </ol>

#### 4.12 Environmental mitigation measures

The Practice Note for Professional Persons with regard to site drainage (ProPECC PN 1/94) advises that the following mitigation measures should be undertaken, where applicable, to minimize the impact on water quality during construction:

- Construction of the foundations for the deck above the nullah, and its related flow diversion works, should be carried out carefully to prevent contaminants from entering the nullah. Potential impact from activities that would not be protected by sheet piles should be reduced by a stringent programme and careful timing of the activities. It is recommended to shorten the duration of these activities as much as possible in order to mitigate the impacts;
- For site areas that are close to the nullah and are not enclosed by sheet piles, it is recommended to construct a silt fence along the boundary of the nullah to trap any silts/sediments from accidentally entering into the waters of the nullah;
- Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent debris, soil, sand etc. from entering public sewers/drains;
- Site surface runoff should be settled to remove sand/silt before it is discharged into the existing storm drains. It is recommended that the sand/silt removal facilities (silt traps, sediment basins) and oil interceptors should be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site. It is also recommended that, where necessary, temporary catchpits, and perimeter channels be constructed in addition to the existing channel system within the site prior to the site formation works and earthworks;
- Wastewater generated from concreting, clearing of works and similar activities should not be discharged into the stormwater drains. All storm catch basins/inlets, if any, receiving stormwater runoff from construction areas should be covered with wire mesh filters, which have on their upper surface crushed stone, in order to prevent sediment from entering inlet structure and to reduce potential sediment loading to the receiving waters. It is recommended this wastewater should be discharged into foul sewers, after the removal of settleable solids, and pH adjustment as necessary. All sewage discharges from the study area should meet the TM standards and approval from EPD through the licensing process is required;
- Grease traps should be provided with sufficient retention time for canteen effluent;
- Sand traps, oil interceptors and other pollution prevention installations should be properly cleaned and maintained;
- Open stockpiles should be covered with tarpaulin or similar materials to avoid weather erosion which may wash fines into stormwater during the wet season, and prevent dust arisings during the dry season;
- Any wash-water from the wheel washing basins located at each site exit should have sand and silt settled out before discharging into storm drains; and
- All fuels should be stored in bunded areas such that spillage can be easily collected.

With the above mitigation measures properly undertaken, the potential water quality impact of the scheme should be local and minimal.

## 5. AIR QUALITY MONITORING

### Air Quality Parameters

- 5.1 Monitoring and audit of Total Suspended Particulates (TSP) levels was carried out by the ET to ensure that any deteriorating air quality could be readily detected and timely action taken to rectify the situation.
- 5.2 One-hour and 24-hour TSP levels were measured to indicate the impacts of construction dust on air quality. The 24-hour TSP levels were measured by following the standard high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50). Upon approval of the Engineer, 1-hour TSP levels can be measured by direct reading methods which are capable of producing comparable results as that by the high volume sampling method, to indicate short event impacts.

### Monitoring Equipment

- 5.3 One High Volume Sampler (HVS) in compliance with the following specifications was provided by the Contractor as mentioned in the Particular Specification of the Contract for carrying out the TSP monitoring:
- (a) 0.6 -1.7 m<sup>3</sup> /min (20-60 SCFM) adjustable flow range;
  - (b) equipped with a timing/control device with  $\pm 5$  minutes accuracy for 24 hours operation;
  - (c) installed with elapsed-time meter with  $\pm 2$  minutes accuracy for 24 hours operation;
  - (d) capable of providing a minimum exposed area of 406 cm<sup>2</sup> (63 in<sup>2</sup>);
  - (e) flow control accuracy:  $\pm 2.5\%$  deviation over 24-hour sampling period;
  - (f) equipped with a shelter to protect the filter and sampler;
  - (g) incorporated with an electronic mass flow rate controller or other equivalent devices;
  - (h) equipped with a flow recorder for continuous monitoring;
  - (i) provided with a peaked roof inlet;
  - (j) incorporated with a manometer;
  - (k) able to hold and seal the filter paper to the sampler housing at horizontal position;
  - (l) easy to change the filter; and
  - (m) capable of operating continuously for 24-hour period.
- 5.4 The HVS was equipped with an electronic mass flow controller and can be calibrated against a traceable standard at regular intervals. All the equipment, calibration kit, filter papers, etc. were clearly labelled.
- 5.5 Initial calibration of dust monitoring equipment had been conducted upon installation and thereafter at bimonthly intervals. The transfer standard shall be traceable to the internationally recognised primary standard and be calibrated annually. The calibration data shall be properly documented for future reference. All the data shall be converted into standard temperature, and pressure condition.
- 5.6 The flow-rate of the sampler before and after the sampling exercise with the filter in position shall be verified to be constant and be recorded in the data sheet.
- 5.7 If the ET leader proposes to use a direct reading dust meter to measure 1-hr TSP levels, he/she shall submit sufficient information to the Engineer to prove that the instrument is capable of achieving comparable results as the HVS and may be used for the 1-hr sampling. The instrument should also be calibrated regularly, and the 1-hr sampling shall be determined periodically by HVS to check the validity and accuracy of the results measured by direct reading method.

5.8 Wind data monitoring equipment shall also be provided and set up at conspicuous locations for logging wind speed and wind direction near to the dust monitoring locations. The equipment installation location shall be proposed by the ET Leader and agreed with the Engineer. For installation and operation of wind data monitoring equipment, the following points shall be observed:

- the wind sensors shall be installed on masts at an elevated level 10m above ground so that they are clear of obstructions or turbulence caused by any buildings;
- the wind data shall be captured by a data logger and to be downloaded for processing at least once a month;
- the wind data monitoring equipment shall be re-calibrated at least once every six months; and
- wind direction shall be divided into 16 sectors of 22.5 degrees each.

5.9 In exceptional situations, the ET leader may propose alternative methods to obtain representative wind data upon approval from the Engineer.

#### **Laboratory Measurement/Analysis**

5.10 A clean laboratory with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments, to handle the dust samples collected, shall be available for sample analysis, and equipment calibration and maintenance. The laboratory should be HOKLAS accredited.

5.11 If an independent site laboratory is set up or a non-HOKLAS accredited laboratory is appointed to carry out the laboratory analysis, the laboratory equipment shall be approved by the Engineer and the measurement procedures shall be witnessed by the Engineer. The ET Leader shall provide the Engineer with one copy of the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50).

5.12 Clean filter paper with no pin holes, of size 8" x 10" shall be labelled before sampling. Filter paper shall be conditioned in a humidity controlled chamber for 24-hours and pre-weighed prior to use in any sampler.

5.13 After sampling, the filter paper loaded with dust shall be kept in a clean and tightly sealed plastic bag. The filter paper should then be returned to the laboratory for reconditioning in a humidity controlled chamber followed by precision weighing using an electronic balance which, is capable of weighing down to 0.1 mg. The balance shall be regularly calibrated against a traceable standard.

5.14 All the collected samples shall be kept in a good condition for 6 months before disposal.

#### **Monitoring Locations**

5.15 The air quality sensitive receivers identified in the EIA study are shown in Figure 5.1 and the co-ordinates of monitoring station is shown in Table 5.1. As recommended in the revised EM&A Manual, a monitoring station (Rooftop of House No. 76 in Fo Tan Village) is used for dust monitoring.

**Table 5.1 Co-ordinates of the Air Quality Monitoring Station**

<b>Station No.</b>	<b>Location</b>	<b>Northing</b>	<b>Easting</b>
Fo Tan Village	Rooftop of House No. 76 in Fo Tan Village	828385.7	838257.2



5.16 If an alternative monitoring location is proposed in future, the following criteria should be followed:-

- at the site boundary or such location close to the major dust emission source;
- close to the sensitive receptors; and
- take into account the prevailing meteorological conditions.

5.17 During positioning the samplers, the following points shall be noted:

- (a) a horizontal platform with appropriate support to secure the samplers against gusty wind should be provided;
- (b) the distance between the sampler and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the sampler;
- (c) a minimum of 2 metres of separation from walls, parapets and penthouses is required for rooftop samplers;
- (d) a minimum of 2 metres separation from any supporting structure, measured horizontally is required;
- (e) no furnace or incinerator flue is nearby;
- (f) airflow around the sampler is unrestricted;
- (g) the sampler is more than 20 metres from any dripline;
- (h) any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring;
- (i) permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
- (j) a secure supply of electricity is available.

#### Action and Limit Level

5.18 Table 5.2 indicates the format for calculating the Action and Limit Levels. The Action and Limit (AL) Level for Contract HY/99/02 are  $178\mu\text{g}/\text{m}^3$  and  $260\mu\text{g}/\text{m}^3$  (24-hr TSP), and  $323\mu\text{g}/\text{m}^3$  and  $500\mu\text{g}/\text{m}^3$  (1-hr TSP) respectively. The AL level obtains from baseline study which are being used as a reference which may be revised at a later stage if deemed necessary.

**Table 5.2 Format for calculating Action and Limit Levels**

Parameters	Action	Limit
24 Hour TSP (Level in $\mu\text{g}/\text{m}^3$ )	178	260
1 Hour TSP (Level in $\mu\text{g}/\text{m}^3$ )	323	500

#### Air Quality Impact Monitoring Results

5.19 Major works carried out in Contract HY/99/02 Contractor in this report period are shown in Section 3.

- 5.20 Impact monitoring shall be carried out throughout the construction period. As suggested by the revised EM&A approved by EPD, regular impact monitoring for 24-hr TSP have been taken at frequency of once in every six-days. 1-hr TSP are also monitored at frequency of three times in every six-days.
- 5.21 The specific time to start and stop the 24-hr TSP monitoring have be clearly defined and strictly followed by the ET for each location.
- 5.22 Air quality impact monitoring was carried out at one monitoring station (Rooftop of House No. 76 in Fo Tan Village) as shown in Figure 5.1 in [April 2003](#). The results are summarized in Table 5.3.

**Table 5.3 Summary of Air Quality Monitoring Results**

Parameter	Range of Results	No. of Exceedances	
		Action Levels	Limit Levels
1-hr TSP	106 µg/m <sup>3</sup> – 227 µg/m <sup>3</sup>	0	0
24-hr TSP	28 µg/m <sup>3</sup> – 90 µg/m <sup>3</sup>	0	0

- 5.23 The 1-hr TSP levels ranged between 106 µg/m<sup>3</sup> and 277 µg/m<sup>3</sup>. The 24-hr TSP levels ranged between 28 µg/m<sup>3</sup> and 90 µg/m<sup>3</sup>.
- 5.24 Table 5.4 shows the total number of samples taken, the number of AL Levels being exceeded and their corresponding date of exceedance at designated station - Rooftop of House No. 76 in Fo Tan Village. In this reporting period, no exceedance was found in both 1-hr TSP and 24-hr TSP monitoring.

**Table 5.4 Total no. of measurements and exceedances of the AL Levels for air quality monitoring**

1-hr TSP Monitoring				24-hr TSP Monitoring					
No. of samples	No. and Date of Exceedances			No. of samples	No. and Date of Exceedances				
	Action	Limit			Action	Limit			
15	0	-	0	-	5	0	-	0	-

Note: Limit Level exceedence excludes Action Level.

- 5.25 Air quality impact monitoring data are presented in tabular and graphical format in Tables 5.5 and 5.6. [The results indicate that no TSP exceedance was recorded in this reporting period and no measurements had to be cancelled due to adverse weather condition.](#)

5.26 **Table 5.5 1-hr TSP Monitoring Results**

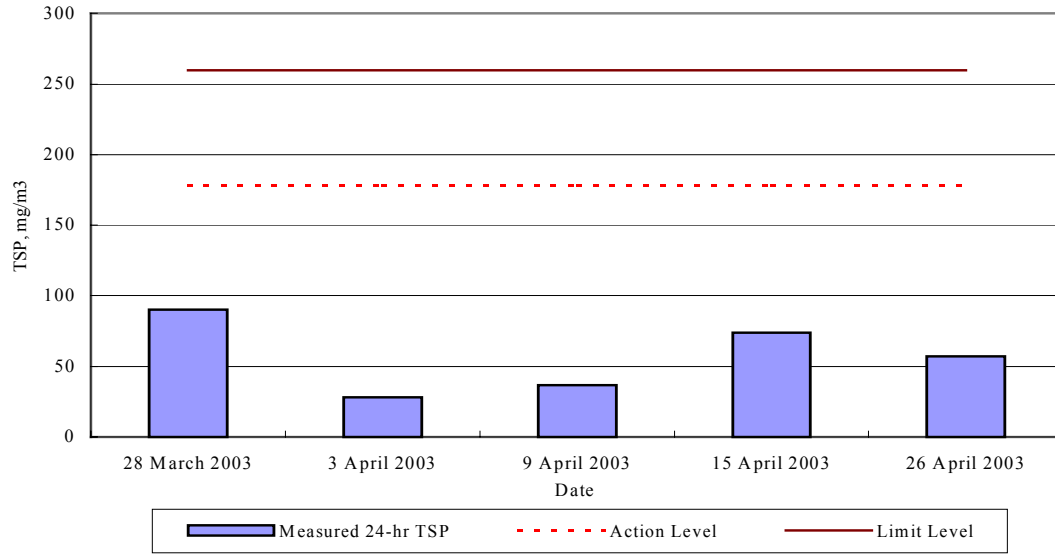
Date	Sampling time (Hours)	Average flow rate (m <sup>3</sup> /min)	TSP (µg/m <sup>3</sup> )	No. of exceedances	
				Action	Limit
28 March 2003	1	1.10	227	0	0
29 March 2003	1	1.10	212		
31 March 2003	1	1.10	152		
	Mean		197		
3 April 2003	1	1.10	106	0	0
4 April 2003	1	1.10	121		
7 April 2003	1	1.10	167		
	Mean		131		
9 April 2003	1	1.10	136	0	0
10 April 2003	1	1.10	106		
11 April 2003	1	1.10	119		
	Mean		120		
15 April 2003	1	1.15	130	0	0
16 April 2003	1	1.15	130		
17 April 2003	1	1.12	119		
	Mean		126		
26 April 2003	1	1.12	179	0	0
28 April 2003	1	1.17	114		
29 April 2003	1	1.17	142		
	Mean		145		
	Total no. of exceedances		0	0	0
	Maximum		227	-	-
	Minimum		106	-	-
	Mean		144	-	-

**Table 5.6 24-hr TSP Monitoring Results**

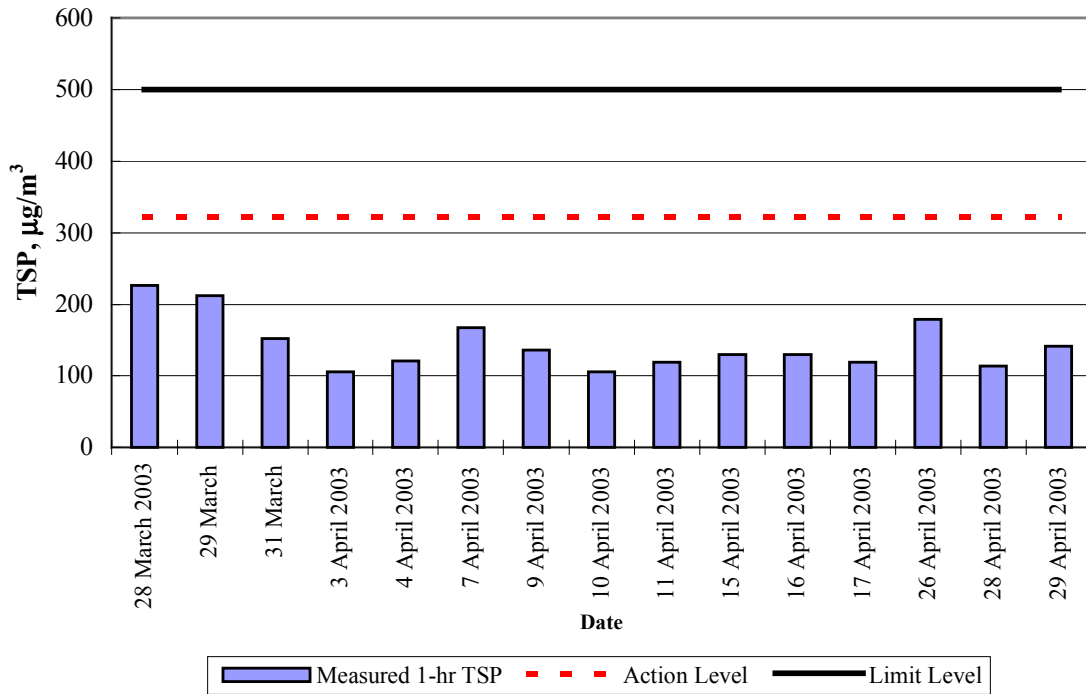
Date	Sampling time (Hours)	Average flow rate (m <sup>3</sup> /min)	TSP (µg/m <sup>3</sup> )	No. of exceedances	
				Action	Limit
28 March 2003	24	1.10	90	0	0
3 April 2003	24	1.10	28	0	0
9 April 2003	24	1.10	37	0	0
15 April 2003	24	1.15	74	0	0
26 April 2003	24	1.12	57	0	0
	Total no. of exceedances		0	0	0
	Maximum		90	-	-
	Minimum		28	-	-
	Mean		57	-	-

Note :

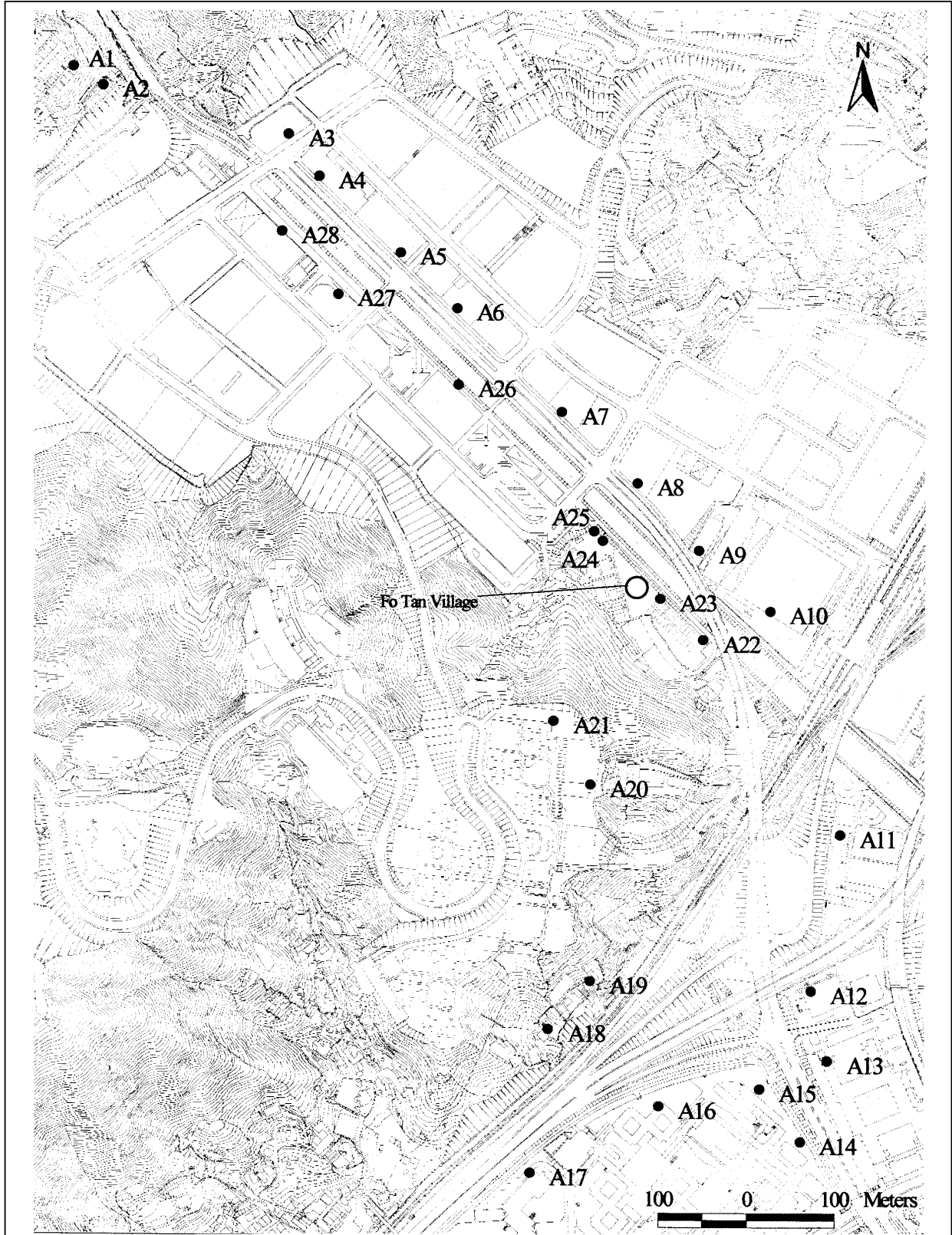
- 1- 28 March 2003, 3, 9, 15 and 26 April 2003 were selected for 24-hour air quality sampling as the activities carried out on the above days potentially generate the highest dust nuisance to the residents.




### 24-hr TSP in Fo Tan Village



### 1-hr TSP in Fo Tan Village



	Title:	Mott Connell Limited
	<b>Air Quality Sensitive Receivers with the Suggested Dust Monitoring Location for Air Quality Impact Monitoring</b>	
	Contract No.: HY/99/02	
Drawing No.: Figure 5.1		

## 6. NOISE LEVEL MONITORING

### Noise Parameters

- 6.1 The construction noise level was measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ).  $L_{eq}(30 \text{ min})$  shall be used as the monitoring parameter for the time period between 0700-1900 hours on normal weekdays.
- 6.2 In addition to the foregoing, information for data auditing statistical results such as  $L_{10}$  and  $L_{90}$  were also obtained for reference. A sample data record sheet is shown in Table 6.2 for reference.

### Monitoring Equipment

- 6.3 Two sound level meters, which comply with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications and a acoustic calibrator were provided by the Contractor and used for the monitoring of site activities related to this Contract. The accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency, immediately prior to and following each noise measurement. Measurements may be accepted as valid only if the calibration level before and after taking the noise measurements are accurate to within 1.0dB.
- 6.4 Noise measurements should not be made in the presence of fog, rain, wind with a steady speed exceeding  $5\text{ms}^{-1}$ , or wind with gusts exceeding  $10 \text{ms}^{-1}$ . The wind speed was checked with a portable anemometer capable of measuring the wind speed in  $\text{ms}^{-1}$ .
- 6.5 The ET Leader is responsible for the provision of the monitoring equipment. He/she ensures that sufficient noise measuring equipment and associated instrumentation are available for carrying out the baseline monitoring regular impact monitoring and ad hoc monitoring. All the equipment and associated instrumentation shall be clearly labelled.

### Monitoring Locations

- 6.6 The construction noise sensitive receivers identified in EIA study are shown in Figure 6.1 and the co-ordinates are shown in Table 6.1. Based on the Section 3.5-Construction Noise Monitoring of revised EM&A Manual (Revision C), the selected representative locations of the noise sensitive receivers for the month of April 2003 are [CN3](#), [CN6](#), [CN8](#), [CN11](#), [CN12](#) and [CN13](#) as shown in Figure 6.2. These NSR's have been selected as the construction activities were conducted at various locations along Fo Tan Road as shown in Section 3. Details of the recommended monitoring schedules are given in Sections 6.8 to 6.11. Monitoring at these stations is to be undertaken when noisy construction activities are undertaken. These monitoring locations should not be considered to be contractually binding and should the ET find that there are practical reasons for changing these the details should be presented to the Engineer for agreement. Any alternative monitoring locations should reflect the need to protect NSR's from major site activities which are likely to have noise impacts. Care should be taken to avoid disturbance to the occupants during monitoring.

**Table 6.1 Co-ordinates of the Noise Monitoring Stations**

Station No.	Location	Northing	Easting
CN1	Kwai Tei New Village	832306.5	834352.6
CN2	Pak Tak Yuen	832302.3	834420.7
CN3	Shan Mei Street Junction	828542.9	838135.8
CN4	Village House, south of nullah	828520.3	838170.5
CN5	Village House, south of nullah	828460.7	838220.5
CN6	House No. 76, Fo Tan Village	828400.1	838267.2
CN7	Village House, north west of Tai Po Road	828000.8	838140.6
CN8	Jockey Club Ti-I College	828095.8	838392.9
CN9 & 12	Sha Tin Institute of Vocational Education	828010.1	838375.8
CN10	High rise, Wo Che Estate	827870.6	838220.5
CN11	Wo Che Estate	827864.3	838351.5
CN13	HK WCA Wong Ming Him Memorial School	827815.7	838387.2
CN14	Belair Gardens	827450.1	838645.4
CN15	Pat Tsz Wo Village	832285.4	834425.9

6.7 The monitoring station shall normally be at a point 1m from the exterior of the sensitive receivers building facade and be a position 1.2m above the floor level. If there is a problem with access to the normal monitoring position, an alternative position may be chosen, and a correction to the measurements shall be made. For reference, a correction of +3 dB(A) shall be made to the free field measurements. The ET Leader shall agree with the Engineer on the monitoring position and the corrections adopted. Once the positions for the monitoring stations have been agreed, the baseline monitoring and the impact monitoring shall be carried out at the same positions.

**Impact Monitoring Requirements**

6.8 Construction noise monitoring shall be carried out for one 30 minute period six times per week (i.e. 30 minutes x 6 times per week = 3 hours per week) at each selected representative noise monitoring station when construction noise monitoring is made at locations and the construction periods are as covered by Table 7.4.1 of the approved EIA report (i.e. CN3, CN4, CN5, CN6, CN9, CN11, CN12 and CN13).

6.9 For the remaining construction noise monitoring made at locations and construction periods not covered by Table 7.4.1 (i.e. CN1, CN2, CN7, CN8, CN10, CN14 and CN15), noise monitoring shall be carried out for one 30 minute period three times per week on separate days (i.e. 30 minutes x 3 times per week = 1.5 hours per week) at each selected representative noise monitoring station.

6.10 A minimum of three locations should be selected for noise monitoring during any time of the construction period. These three locations whether covered by Table 7.4.1 or not, are chosen according to those which are closest to ongoing construction activities. The priority of the selection of these representative construction noise monitoring locations should be made at the locations and construction periods covered by Table 7.4.1 (i.e. CN3, CN4, CN5, CN6, CN9, CN11, CN12 and CN13), especially the locations at CN3, CN6 and CN13 (i.e. with the long duration of exceedances arising from construction activities predicted in the approved EIA report).

6.11 Additionally, noise monitoring ( $L_{eq}$  (30 min)) shall be carried out at the two schools during the school examination periods. The ET Leader shall liaise with the school's personnel and the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the contract.

6.12 In case of non-compliance with the construction noise criteria, more frequent monitoring as specified in the Action Plan in Table 4.4 shall be carried out. Additional monitoring will continue until the recorded noise levels are rectified or proved to be unrelated to the construction activities.



**Table 6.2 Noise Monitoring Field Record Sheet**

Contract No. HY/99/02  
 Widening of Fo Tan Road and Related Improvement Measures in Fo Tan

Noise Monitoring Field Record Sheet

Date of Monitoring : \_\_\_\_\_

Measurement Time Length (min) : 30min / reading

Calibrator Model/Identification : Brüel & Kjær 4241

Noise Meter Model/Identification : 2238 (2KS000202-1) & (2KS000202-2)

Description of Location : CN1: Kwei Tei New Village; CN2: Pak Tak Yuen; CN3: Shan Mei Street

[ ( ) = Daytime/Evening/Night Time : Junction (75.1/73.6/73.4); CN6: No. 66 Fo Tan Village (65.3/61.2/59.6);

Baseline Monitoring Data] CN8: Jockey Club Ti-I College (73.9/71.5/70.8)

CN9 & 12 = Shan Tin Institute of Vocational Education (69.4/66.2/65.7) ;

CN11: Wo Che Estate (Roof: 73.4/68.0/67.9, Ground: 67.1/62.0/64.1);

CN13: Wo Che School (70.9/65.5/64.2); CN15: Pat Tsz Wo Village

				Measurement Results		
Station				CN		CN
Equipment used				1 / 2		1 / 2
Reading 1	Measurement Start Time (hh:mm)					
	L <sub>eq</sub> / L <sub>90</sub> / L <sub>10</sub> (dB(A))		/ /		/ /	
	Major Construction Noise Source(s) During Monitoring	Activities				
		Plants				
	Other Noise Source(s) During Monitoring					
	Wind speed (m/s)					
	Measurement Start Time (hh:mm)					
Reading 2	L <sub>eq</sub> / L <sub>90</sub> / L <sub>10</sub> (dB(A))		/ /		/ /	
	Major Construction Noise Source(s) During Monitoring	Activities				
		Plants				
	Other Noise Source(s) During Monitoring					
	Wind speed (m/s)					
	Record by					
	Remarks					

Notes:

- This record to be kept in file no. 39 (Environmental record)
- Noise measurements should not be made in the presence of fog, rain, wind with a steady speed exceeding 5ms<sup>-1</sup>, or wind with gusts exceeding 10ms<sup>-1</sup>.
- Collect equipment at General office and return it after use



### Action and Limit Levels

6.13 The Action and Limit noise levels for this Contract are presented in Table 6.3.

**Table 6.3 Action and Limit Levels for Noise Level Monitoring**

Time Period	Action	Limit
0700-1900 hrs on normal weekdays	When one documented complaint is received	75* dB(A)
0700-2300 hrs on holidays; and 1900-2300 hrs on all other days		60/65/70** dB(A)
2300-0700 hrs on all days		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 Sensitivity Rating.

### Noise Level Impact Monitoring Results

6.14 Major works carried out in Contract HY/99/02 Contractor in this report period as shown in Section 3.

6.15 The results for noise level impact monitoring at locations:

CN3 (Shan Mei Street Junction),  
 CN6 (House No. 76, Fo Tan Village);  
 CN8 (Jockey Club T-I College);  
 CN11 (Wo Che Estate);  
 CN12 (Hong Kong Institute of Vocational Education, Sha Tin); and  
 CN13 (HK WCA Wong Ming Him Memorial School)

as shown in Figure 6.2 during the Unrestricted Period in April 2003 are summarized in Table 6.4. The limit level of 75 dB(A) for domestic premises, of 70dB(A) for schools and 65dB(A) during school examination periods were not breached in this reporting period.

**Table 6.4 Total no. of measurements and exceedances of AL Levels for noise level monitoring**

Parameter	Location	Range of Results	No. of date of exceedance				No. of measurement
			Action Levels		Limit Levels		
Unrestricted Period $L_{eq}$ (30min)	CN3	All below baseline	0	-	0	-	22
	CN6	57.1 dB(A) – 64.9 dB(A)	0	-	0	-	18
	CN8	All below baseline	0	-	0	-	8
	CN11	All below baseline	0	-	0	-	24
	CN12	66.9 dB(A) – 68.7 dB(A)	0	-	0	-	11
	CN13	55.4 dB(A) – 67.9 dB(A)	0	-	0	-	18
Total			0		0		101

- 6.16 There was no examination in the month of April at Hong Kong Institute of Vocational Education, Sha Tin (i.e. CN12), the Jockey Club Ti-I College (i.e. CN8) and the WCA Wong Ming Him Memorial School (i.e. CN13).
- 6.17 All noise impact measurements are tabulated and presented graphically in Table 6.5. The results indicate that the limit level of 75dB(A) for domestic premises and 70dB(A) for schools and 65dB(A) for examination period were not breached in this reporting period. Noise monitoring on 02/04/03, 03/04/03, 04/04/03, 07/04/03, 10/04/03 and 29/04/03pm at CN3, CN6, CN8, CN11, CN12 and CN13. were cancelled due to adverse weather conditions. Due to the continued adverse weather condition, no alternative noise measurements could be made within these periods. It should be noted from the tables below that during those periods when noise levels were recorded, full compliance with the standards was achieved for the same construction activities.

**Table 6.5 All measurements from noise level monitoring in April 2003**

CN3	Major Construction Activities	Activities in Table 7.4.1 of EIA
Week 1: 1 Apr (Tue) – 6 Apr (Sun)	1. Site preparation 2. Restatement ofEVA 3. Roadworks	N N N
Week 2: 7 Apr (Mon) – 13 Apr (Sun)	4. Site Preparation 5. Restatement ofEVA 6. Roadworks	N N N
Week 3: 14 Apr (Mon) – 20 Apr (Sun)	7. Site Preparation 8. Restatement ofEVA 9. Roadworks	N N N
Week 4: 21 Apr (Mon) – 27 Apr (Sun)	10. Site Preparation 11. Restatement ofEVA 12. Roadworks	N N N
Week 5: 28 Apr (Mon) – 30 Apr (Wed)	13. Site Preparation 14. Restatement ofEVA 15. Roadworks	N N N

CN3		Time	Measured Leq(30min)	Baseline Reading Used	L <sub>eq</sub> (30min) after deduction from baseline	Noise Standards
1-Apr-03	Tue	09:30	73.6	<i>76.6</i>	#	75
		13:15	73.2	<i>75.7</i>	#	75
9-Apr-03	Wed	09:10	73.4	<i>76.6</i>	#	75
		13:15	73.1	<i>75.7</i>	#	75
11-Apr-03	Fri	09:00	73.1	<i>76.6</i>	#	75
		13:30	73.2	<i>75.7</i>	#	75
14-Apr-03	Mon	09:00	73.4	<i>76.6</i>	#	75
		13:10	72.9	<i>75.7</i>	#	75
16-Apr-03	Wed	09:10	73.2	<i>76.6</i>	#	75
		13:10	73.4	<i>75.7</i>	#	75
17-Apr-03	Thur	09:15	73.1	<i>76.6</i>	#	75
		13:15	72.9	<i>75.7</i>	#	75
22-Apr-03	Tue	09:30	74.1	<i>76.6</i>	#	75
		13:30	73.8	<i>75.7</i>	#	75
23-Apr-03	Wed	09:30	73.2	<i>76.6</i>	#	75
		13:15	72.8	<i>75.7</i>	#	75
25-Apr-03	Fri	09:00	73.3	<i>76.6</i>	#	75
		13:10	73.6	<i>75.7</i>	#	75
28-Apr-03	Mon	09:05	73.1	<i>76.6</i>	#	75
		13:10	73.4	<i>75.7</i>	#	75
30-Apr-03	Wed	09:10	73.6	<i>76.6</i>	#	75
		13:20	73.8	<i>75.7</i>	#	75
Min Level, dB(A)				#		
Max Level, dB(A)				#		

Notes:

- Noise standards for domestic premises, for schools and for schools during examination period are 75dB(A), 70dB(A) and 65dB(A) respectively.
- Refer to baseline report for details of data collected over specified time period i.e. impact monitoring carried out at 9:35am has baseline data ascribed for 9:30am-10:00am.
- Reading shown as 'Italics' denotes that for impact monitoring conducted for periods out with those for baseline, the closest relevant time period was used. The logic behind the selection of the time slot was that as traffic noise dominates, then the period of day which most closely resembles the traffic conditions should be used. For example, impact monitoring at 15:30pm on Tai Po road, falls within a traffic flow of 6420 vehicles/hr and 53% HGV which equates to period between 11:00am and 12:00pm. So, the relevant baseline can be used.
- Reading shown as '# #' denotes measurement after deduction from the background noise is below the respective baseline reading.
- The following scheduled noise measurement was cancelled due to typhoon or rain: 03/04/03 and 07/04/03

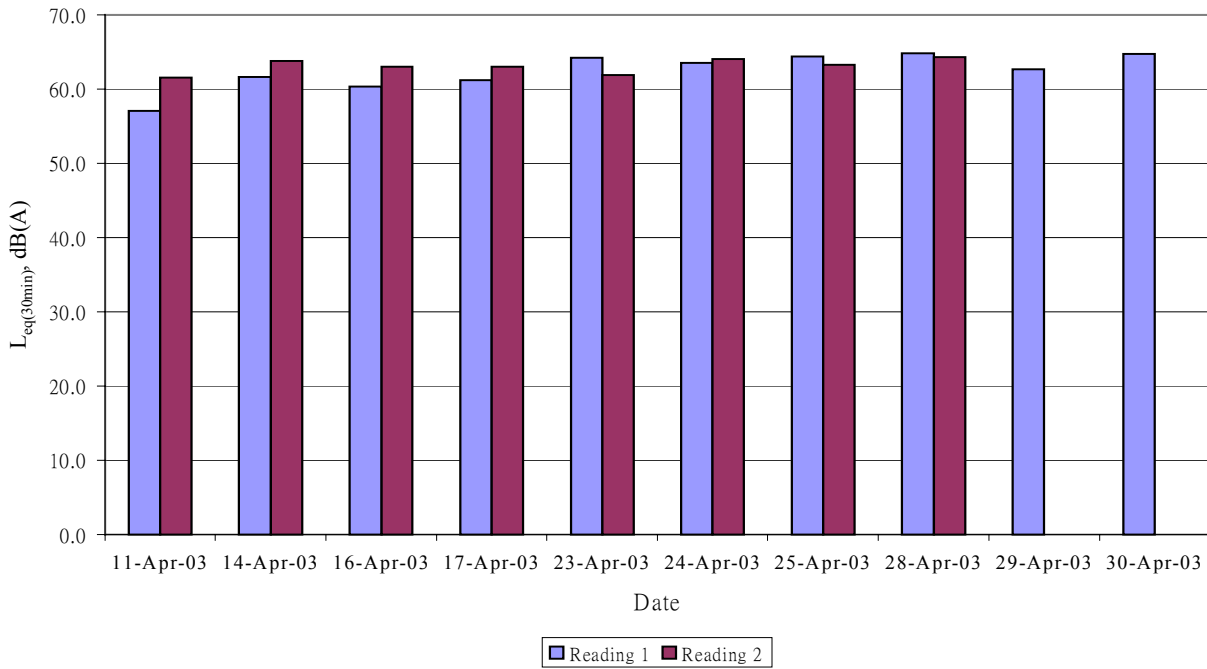
CN6	Major Construction Activities	Activities in Table 7.4.1 of EIA
Week 1: 1 Apr (Tue) – 6 Apr (Sun)	1. Site Preparation 2. Reinstatement of Nullah apron & slope	Y N
Week 2: 7 Apr (Mon) – 13 Apr (Sun)	3. Site Preparation 4. Reinstatement of turning tee A 5. Reinstatement of Nullah apron & slope	Y Y N
Week 3: 14 Apr (Mon) – 20 Apr (Sun)	6. Site Preparation 7. Reinstatement of turning tee A 8. Reinstatement of Nullah apron & slope	Y Y N
Week 4: 21 Apr (Mon) – 27 Apr (Sun)	9. Site Preparation 10. Reinstatement of turning tee A 11. Reinstatement of Nullah apron & slope	Y Y N
Week 5: 28 Apr (Mon) – 30 Apr (Wed)	12. Site Preparation 13. Reinstatement of turning tee A 14. Reinstatement of Nullah apron & slope	Y Y N

CN6		Time	Measured Leq(30min)	Baseline Reading Used	L <sub>eq</sub> (30min) after deduction from baseline	Noise Standards
11-Apr-03	Fri	09:40	66.7	66.2	57.1	75
		14:10	66.9	65.4	61.6	75
14-Apr-03	Mon	09:40	67.5	66.2	61.6	75
		13:45	67.7	65.4	63.8	75
16-Apr-03	Wed	09:45	67.2	66.2	60.3	75
		13:45	67.4	65.4	63.1	75
17-Apr-03	Thur	09:50	68.1	67.1	61.2	75
		13:50	67.4	65.4	63.1	75
23-Apr-03	Wed	10:05	68.9	67.1	64.2	75
		13:50	67.0	65.4	61.9	75
24-Apr-03	Thur	09:00	68.1	66.2	63.6	75
		13:15	67.8	65.4	64.1	75
25-Apr-03	Fri	09:35	68.4	66.2	64.4	75
		13:45	67.5	65.4	63.3	75
28-Apr-03	Mon	09:40	68.6	66.2	64.9	75
		13:45	67.9	65.4	64.3	75
29-Apr-03	Tue	09:30	67.8	66.2	62.7	75
30-Apr-03	Wed	09:50	69.1	67.1	64.8	75
Min Level, dB(A)		57.1				
Max Level, dB(A)		64.9				

Notes:

- Noise standards for domestic premises, for schools and for schools during examination period are 75dB(A), 70dB(A) and 65dB(A) respectively.
- Refer to baseline report for details of data collected over specified time period i.e. impact monitoring carried out at 9:35am has baseline data ascribed for 9:30am-10:00am
- Reading shown as 'Italics' denotes that for impact monitoring conducted for periods out with those for baseline, the closest relevant time period was used. The logic behind the selection of the time slot was that as traffic noise dominates, then the period of day which most closely resembles the traffic conditions should be used. For example, impact monitoring at 15:30pm on Tai Po road, falls within a traffic flow of 6420 vehicles/hr and 53% HGV which equates to period between 11:00am and 12:00pm. So, the relevant baseline can be used.
- Reading shown as '# ' denotes measurement after deduction from the background noise is below the respective baseline reading.
- The following scheduled noise measurement was cancelled due to typhoon or rain: 02/04/03, 03/04/03, 07/04/03, 10/04/03 and 29/04/03pm

### Noise Impact Monitoring at CN6 (Unrestricted Period)



CN8	Major Construction Activities	Activities in Table 7.4.1 of EIA
Week 1: 1 Apr (Tue) – 6 Apr (Sun)	1. Site Preparation 2. Drainage works 3. Roadworks	N N N
Week 2: 7 Apr (Mon) – 13 Apr (Sun)	4. Site Preparation 5. Drainage works 6. Roadworks	N N N
Week 3: 14 Apr (Mon) – 20 Apr (Sun)	7. Site Preparation 8. Drainage works 9. Roadworks	N N N
Week 4: 21 Apr (Mon) – 27 Apr (Sun)	10. Site Preparation 11. Drainage works 12. Roadworks	N N N
Week 5: 28 Apr (Mon) – 30 Apr (Wed)	13. Site Preparation 14. Drainage works 15. Roadworks	N N N

CN8		Time	Measured Leq(30min)	Baseline Reading Used	L <sub>eq</sub> (30min) after deduction from baseline	Noise Standards
1-Apr-03	Tue	10:10	72.1	74	#	70
8-Apr-03	Tue	09:00	71.8	74	#	70
15-Apr-03	Tue	09:00	71.8	74	#	70
22-Apr-03	Tue	10:05	72.1	74	#	70
24-Apr-03	Thur	09:35	72.1	74	#	70
25-Apr-03	Fri	10:15	72.1	74	#	70
28-Apr-03	Mon	10:20	72.2	74.7	#	70
29-Apr-03	Tue	10:10	71.4	74	#	70
Min Level, dB(A)		#				
Max Level, dB(A)		#				

Notes:

- Noise standards for domestic premises, for schools and for schools during examination period are 75dB(A), 70dB(A) and 65dB(A) respectively.
- Refer to baseline report for details of data collected over specified time period i.e. impact monitoring carried out at 9:35am has baseline data ascribed for 9:30am-10:00am
- Reading shown as 'Italics' denotes that for impact monitoring conducted for periods out with those for baseline, the closest relevant time period was used. The logic behind the selection of the time slot was that as traffic noise dominates, then the period of day which most closely resembles the traffic conditions should be used. For example, impact monitoring at 15:30pm on Tai Po road, falls within a traffic flow of 6420 vehicles/hr and 53% HGV which equates to period between 11:00am and 12:00pm. So, the relevant baseline can be used.
- Reading shown as '# ' denotes measurement after deduction from the background noise is below the respective baseline reading.
- The following scheduled noise measurement was cancelled due to typhoon or rain: 02/04/03am, 04/04/03am and 07/04/03am.

CN11	Major Construction Activities	Activities in Table 7.4.1 of EIA
Week 1: 1 Apr (Tue) – 6 Apr (Sun)	1. Site preparation 2. Road works 3. Renovation of Subway 39	Y Y N
Week 2: 7 Apr (Mon) – 13 Apr (Sun)	4. Site preparation 5. Road works 6. Renovation of Subway 39	Y Y N
Week 3: 14 Apr (Mon) – 20 Apr (Sun)	7. Site preparation 8. Road works 9. Renovation of Subway 39	Y Y N
Week 4: 21 Apr (Mon) – 27 Apr (Sun)	10. Site preparation 11. Road works 12. Renovation of Subway 39	Y Y N
Week 5: 28 Apr (Mon) – 30 Apr (Wed)	13. Site preparation 14. Road works 15. Renovation of Subway 39	Y Y N

CN11		Time	Measured Leq(30min)	Baseline Reading Used	L <sub>eq</sub> (30min) after deduction from baseline	Noise Standards
1-Apr-03	Tue	10:50	66.5	68.1	#	75
		14:10	67.1	67.9	#	75
4-Apr-03	Fri	13:10	65.4	65.8	#	75
8-Apr-03	Tue	09:40	67.1	67.4	#	75
		13:15	64.9	65.8	#	75
9-Apr-03	Wed	10:25	66.9	67.9	#	75
		13:55	67.1	67.9	#	75
14-Apr-03	Mon	10:20	66.4	67.9	#	75
		14:25	66.8	70.1	#	75
15-Apr-03	Tue	09:40	66.4	67.4	#	75
		13:10	65.6	65.8	#	75
16-Apr-03	Wed	11:00	66.7	68.1	#	75
		14:25	67.1	70.1	#	75
22-Apr-03	Tue	10:45	67.1	67.9	#	75
		14:10	67.8	67.9	#	75
23-Apr-03	Wed	10:45	67.1	67.9	#	75
		14:30	67.4	70.1	#	75
24-Apr-03	Thur	10:15	66.8	67.4	#	75
		14:10	67.1	67.9	#	75
28-Apr-03	Mon	11:00	67.8	68.1	#	75
		14:25	69.2	70.1	#	75
29-Apr-03	Tue	10:50	67.4	68.1	#	75
30-Apr-03	Wed	10:25	67.8	67.9	#	75
		14:00	66.9	67.9	#	75
Min Level, dB(A)					#	
Max Level, dB(A)					#	

Notes:

- Noise standards for domestic premises, for schools and for schools during examination period are 75dB(A), 70dB(A) and 65dB(A) respectively.
- Refer to baseline report for details of data collected over specified time period i.e. impact monitoring carried out at 9:35am has baseline data ascribed for 9:30am-10:00am
- Reading shown as 'Italics' denotes that for impact monitoring conducted for periods out with those for baseline, the closest relevant time period was used. The logic behind the selection of the time slot was that as traffic noise dominates, then the period of day which most closely resembles the traffic conditions should be used. For example, impact monitoring at 15:30pm on Tai Po road, falls within a traffic flow of 6420 vehicles/hr and 53% HGV which equates to period between 11:00am and 12:00pm. So, the relevant baseline can be used.
- Reading shown as '# ' denotes measurement after deduction from the background noise is below the respective baseline reading.
- The following scheduled noise measurement was cancelled due to typhoon or rain: 02/04/03, 04/04/03am, 10/04/03 and 29/04/03pm.

CN12	Major Construction Activities	Activities in Table 7.4.1 of EIA
Week 1: 1 Apr (Tue) – 6 Apr (Sun)	1. Site preparation 2. Roadworks 3. Drainage works	N Y N
Week 2: 7 Apr (Mon) – 13 Apr (Sun)	4. Site preparation 5. Roadworks 6. Drainage works	N Y N
Week 3: 14 Apr (Mon) – 20 Apr (Sun)	7. Site preparation 8. Roadworks 9. Drainage works	N Y N
Week 4: 21 Apr (Mon) – 27 Apr (Sun)	10. Site preparation 11. Roadworks 12. Drainage works	N Y N
Week 5: 28 Apr (Mon) – 30 Apr (Wed)	13. Site preparation 14. Roadworks 15. Drainage works	N Y N

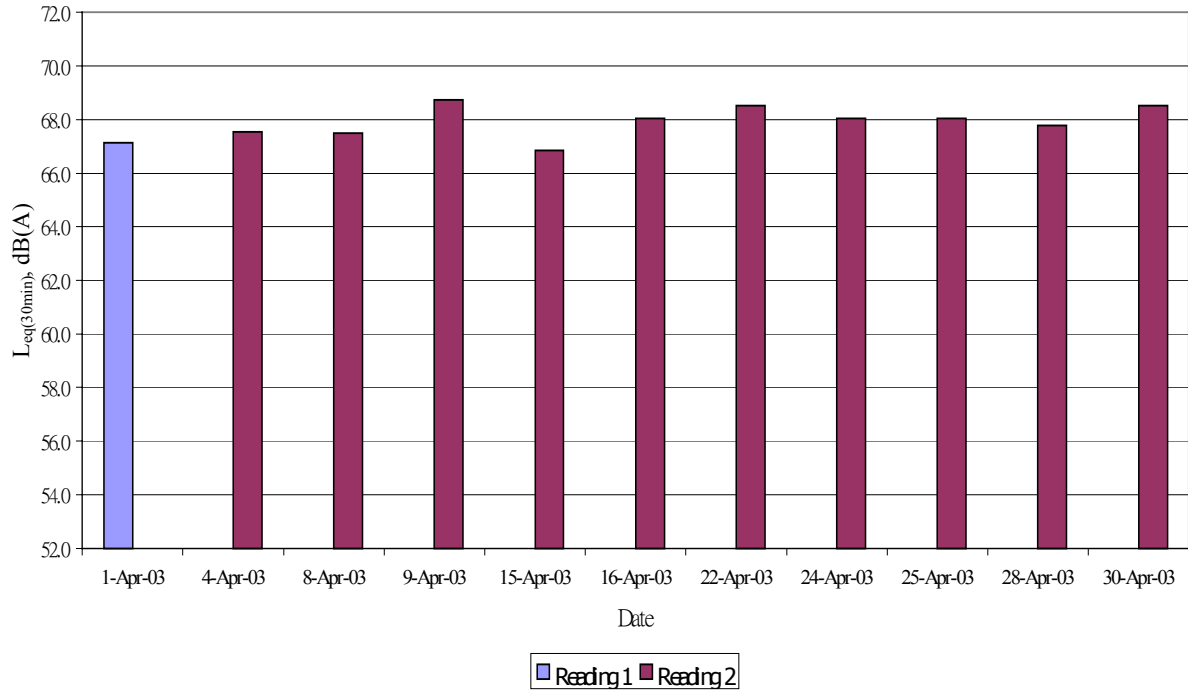
CN12		Time	Measured Leq(30min)	Baseline Reading Used	L <sub>eq</sub> (30min) after Deduction from baseline	Noise Standards
1-Apr-03	Tue	11:30	71.3	<i>69.2</i>	67.1	70
4-Apr-03	Fri	14:25	71.7	<i>69.6</i>	67.5	70
8-Apr-03	Tue	13:50	72.4	<i>70.7</i>	67.5	70
9-Apr-03	Wed	14:30	72.2	<i>69.6</i>	68.7	70
15-Apr-03	Tue	14:05	72.2	<i>70.7</i>	66.9	70
16-Apr-03	Wed	15:10	71.9	<i>69.6</i>	68.0	70
22-Apr-03	Tue	14:45	72.1	<i>69.6</i>	68.5	70
24-Apr-03	Thur	16:05	71.9	<i>69.6</i>	68.0	70
25-Apr-03	Fri	14:25	71.9	<i>69.6</i>	68.0	70
28-Apr-03	Mon	16:10	71.8	<i>69.6</i>	67.8	70
30-Apr-03	Wed	16:10	72.1	<i>69.6</i>	68.5	70
Min Level, dB(A)		66.9				
Max Level, dB(A)		68.7				

Notes:

- Noise standards for domestic premises, for schools and for schools during examination period are 75dB(A), 70dB(A) and 65dB(A) respectively.
- Refer to baseline report for details of data collected over specified time period i.e. impact monitoring carried out at 9:35am has baseline data ascribed for 9:30am-10:00am
- Reading shown as 'Italics' denotes that for impact monitoring conducted for periods out with those for baseline, the closest relevant time period was used. The logic behind the selection of the time slot was that as traffic noise dominates, then the period of day which most closely resembles the traffic conditions should be used. For example, impact monitoring at 15:30pm on Tai Po road, falls within a traffic flow of 6420 vehicles/hr and 53%HGVS which equates to period between 11:00am and 12:00pm. So, the relevant baseline can be used.
- Reading shown as '# ' denotes measurement after deduction from the background noise is below the respective baseline reading
- The following scheduled noise measurement was cancelled due to typhoon or rain: 02/04/03pm, 07/04/03pm and 29/04/03pm



## Noise Impact Monitoring at CN12 (Unrestricted Period)



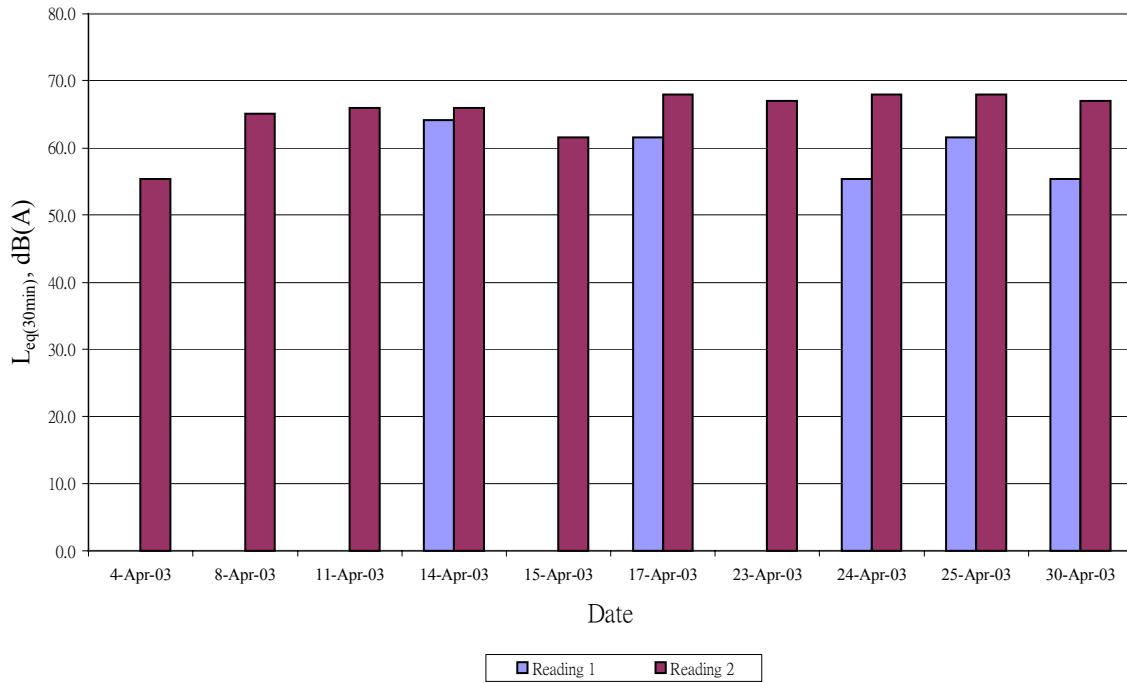
CN13	Major Construction Activities	Activities in Table 7.4.1 of EIA
Week 1: 1 Apr (Tue) – 6 Apr (Sun)	1. Site preparation 2. Extract sheet-pile of NS29 3. Renovation work of NS 28, 29	Y N N
Week 2: 7 Apr (Mon) – 13 Apr (Sun)	4. Site preparation 5. Renovation work of NS 28, 29	Y N
Week 3: 14 Apr (Mon) – 20 Apr (Sun)	6. Site preparation 7. Renovation work of NS 28, 29 8. Roadworks	Y N Y
Week 4: 21 Apr (Mon) – 27 Apr (Sun)	9. Site preparation 10. Renovation work of NS 28, 29 11. Roadworks	Y N Y
Week 5: 28 Apr (Mon) – 30 Apr (Wed)	12. Site preparation 13. Renovation work of NS 28, 29 14. Roadworks	Y N Y

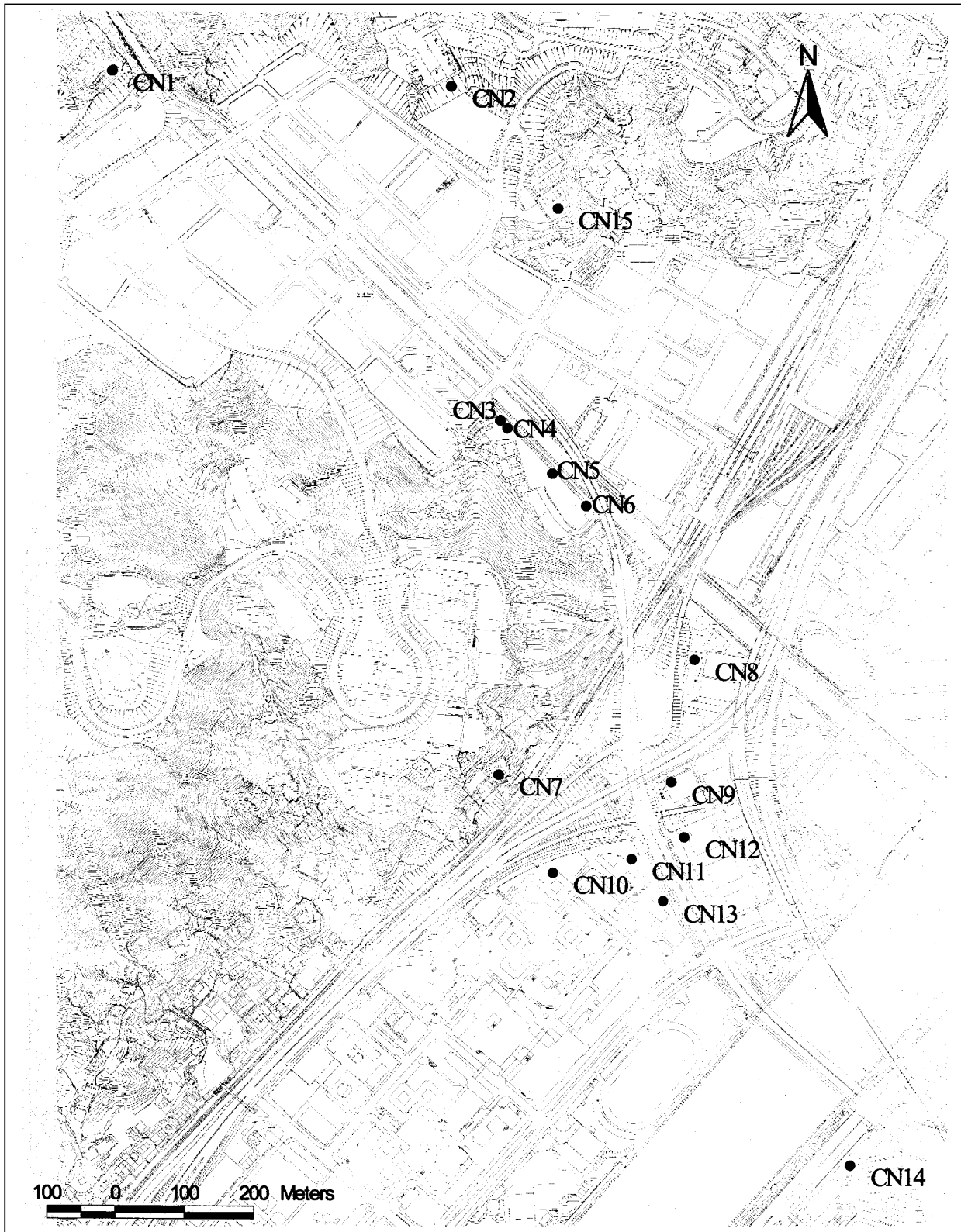
CN13		Time	Measured Leq(30min)	Baseline Reading Used	L <sub>eq</sub> (30min) after deduction from baseline	Noise Standards
4-Apr-03	Fri	13:45	71.8	71.7	55.4	70
8-Apr-03	Tue	10:20	72.1	72.7	#	70
		14:25	71.6	70.5	65.1	70
11-Apr-03	Fri	10:20	72.4	72.7	#	70
		14:50	71.8	70.5	65.9	70
14-Apr-03	Mon	10:55	72.4	71.7	64.1	70
		16:00	71.8	70.5	65.9	70
15-Apr-03	Tue	10:30	71.8	72.7	#	70
		13:45	72.1	71.7	61.5	70
17-Apr-03	Thur	11:10	72.1	71.7	61.5	70
		14:30	72.4	70.5	67.9	70
23-Apr-03	Wed	11:25	71.9	72	#	70
		16:00	72.1	70.5	67.0	70
24-Apr-03	Thur	10:50	71.8	71.7	55.4	70
		14:45	72.4	70.5	67.9	70
25-Apr-03	Fri	11:00	72.1	71.7	61.5	70
		16:05	72.4	70.5	67.9	70
30-Apr-03	Wed	11:00	71.8	71.7	55.4	70
Min Level, dB(A)		55.4				
Max Level, dB(A)		67.9				

Notes:

- Noise standards for domestic premises, for schools and for schools during examination period are 75dB(A), 70dB(A) and 65dB(A) respectively.
- Refer to baseline report for details of data collected over specified time period i.e. impact monitoring carried out at 9:35am has baseline data ascribed for 9:30am-10:00am
- Reading shown as 'Italics' denotes that for impact monitoring conducted for periods out with those for baseline, the closest relevant time period was used. The logic behind the selection of the time slot was that as traffic noise dominates, then the period of day which most closely resembles the traffic conditions should be used. For example, impact monitoring at 15:30pm on Tai Po road, falls within a traffic flow of 6420 vehicles/hr and 53%HGVS which equates to period between 11:00am and 12:00pm. So, the relevant baseline can be used.
- Reading shown as '# ' denotes measurement after deduction from the background noise is below the respective baseline reading
- The following scheduled noise measurement was cancelled due to typhoon or rain: 03/04/03, 04/04/03am and 10/04/03.

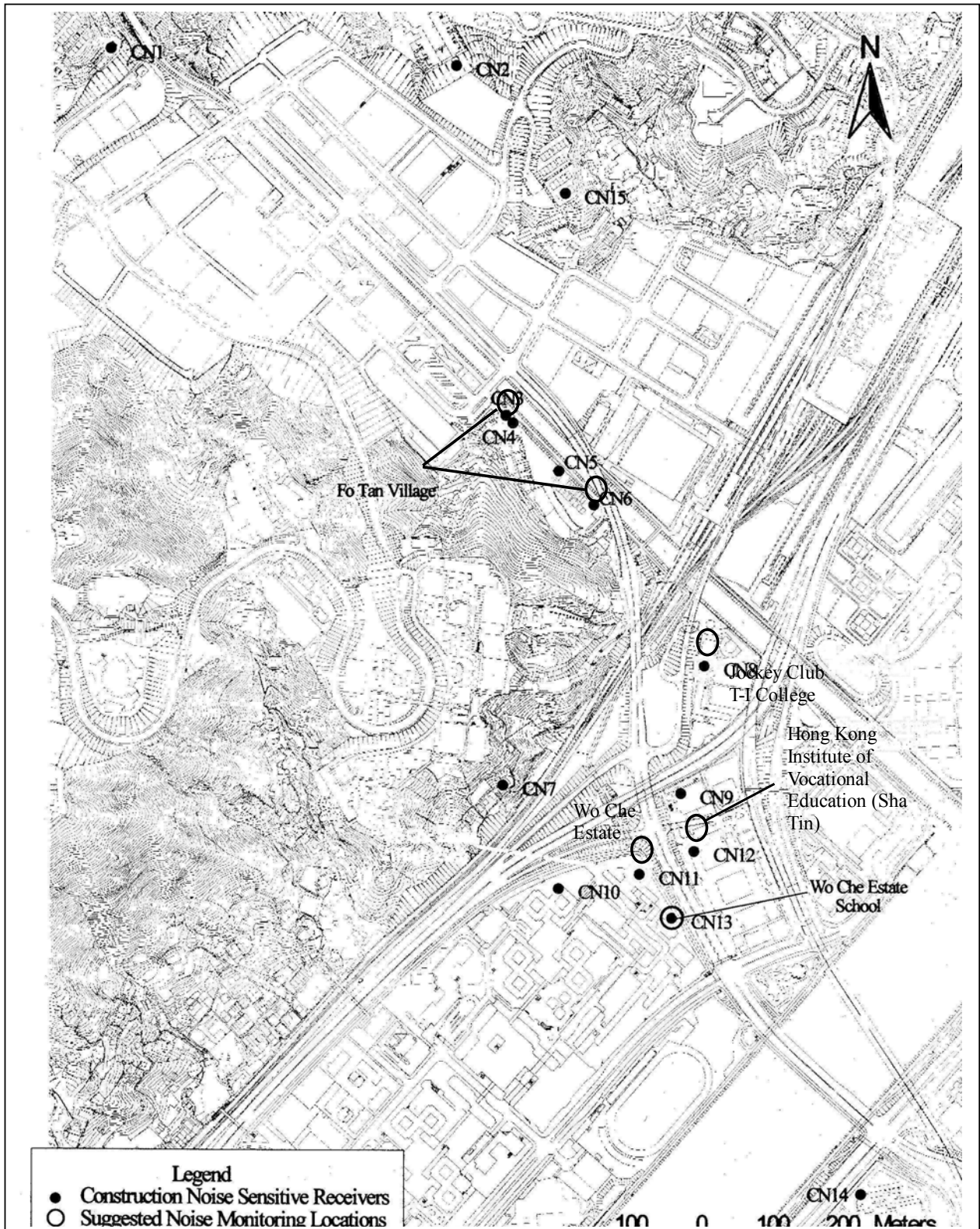
## Noise Impact Monitoring at CN13 (Unrestricted Period)






	Title:	Mott Connell Limited
	<b>Construction Noise Sensitive Receiver Locations</b>	Contract No.: HY/99/02
		Drawing No.: Figure 6.1





	Title: <b>Construction Noise Sensitive Receiver                  Locations with Suggested Locations for                  Impact Noise Monitoring</b>	<b>Mott Connell Limited</b>
		<b>Contract No.: HY/99/02</b>
		<b>Drawing No.: Figure 6.2</b>

## 7. WATER QUALITY MONITORING

### Water Quality Parameters

- 7.1 Monitoring for dissolved oxygen (DO), temperature, turbidity, suspended solids (SS), shall be undertaken at designated monitoring stations. The purpose of which is to ensure that any deterioration in water quality can be readily detected and timely action can be taken to resolve any problems. Also monitoring for temperature, pH, SS and oil & grease at the outlets of sedimentation tanks should be carried out. It should be noted that DO, temperature, turbidity and pH should be measured in-situ and the remaining parameters assayed in a laboratory.
- 7.2 In association with the water quality parameters, other relevant data shall also be measured, such as monitoring location/position, time, weather conditions, and any special phenomena and description of work underway at the construction site etc.

### Monitoring Equipment

- 7.3 The following equipment and facilities shall be provided by the ET and used for the monitoring of water quality impacts:

#### 7.3.1 Dissolved Oxygen and Temperature Measuring Equipment

- (a) The instrument should be portable and weatherproof using a DC power source. The equipment should be capable of measuring:
- a DO level in the range of 0-20 mg/l and 0-200% saturation; and
  - a temperature of between 0-45 degree Celsius.
- (b) It should have a membrane electrode with automatic temperature compensation complete with a cable.

#### 7.3.2 Turbidity Measurement Instrument

The instrument should be a portable, weatherproof, and use a DC power source. It should have a photoelectric sensor capable for measuring turbidity between 0-1000 NTU, such as a Hach model 2100P or a similar approved instrument.

#### 7.3.3 Sample Containers and Storage

- (a) Water samples for SS analysis should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen), delivered to the laboratory, and analysed as soon as possible after collection.
- (b) Water samples for oil & grease measurement should be stored in glass bottles, acidified to pH 2 or lower with 1:1 HCl, packed in ice (cooled to 4°C without being frozen), and delivered to the laboratory as soon as possible after collection.

#### 7.3.4 Calibration of In-Situ Instruments

All pH meters, DO meters and turbidimeters shall be checked and calibrated prior to use. DO meters and turbidimeters shall be calibrated by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes shall be checked with certified standard solutions before each use. Wet bulb calibrations for all DO meters shall be carried out before measurement at each monitoring location.

For the on site calibration of field equipment, BS 127:1993, "Guide to field and on-site test methods for the analysis of waters" should be observed.

7.3.5 Laboratory Measurement/Analysis

Analysis shall be carried out in a HOKLAS or other international accredited laboratory. If a site laboratory is set up or a non-HOKLAS or non-international accredited laboratory is hired for carrying out the laboratory analysis, the laboratory equipment, analytical procedures, and quality control shall be approved by the Engineer.

7.4 Sample volume and maximum storage time for each analytical parameter carried out in the laboratory are shown below in Table 7.1.

**Table 7.1 Water Sample Handling Requirements**

Analytical Parameter	Sample Volume Taken (ml)	Storage Temperature	Maximum Storage Time After Sampling
SS	500	4°C	24 hours
Oil & Grease	1000	4°C	7 days

7.5 Each sample shall be analysed in accordance with the APHA Standard Methods for the Examination of Water and Wastewater, 19th edition, or an equivalent method approved by the Engineer. If in-house or non-standard method is proposed, details of the method verification may be required to be submitted to the Engineer. In any circumstance, the sample testing shall comply with a comprehensive quality assurance and quality control programme. The laboratory should be prepared to demonstrate the quality programmes to the Engineer when requested.

**Monitoring Locations**

7.6 Water quality monitoring should be undertaken at all discharge points from the works area, which are normally outlets of the sedimentation tanks or desilting pits. The actual number of monitoring stations depends on the number of discharge points and may vary as construction proceeds.

7.7 No water quality samples were taken from any Sedimentation Pond Nos. 1, 2, 3, 4 and 5 in this reporting month, as there was no generation of wastewater from construction activities (i.e. no pre-bored H-piling works were carried out for the month of April 2003).

**Event and Action Level for Surface Water Quality**

7.9 All effluent subject to control by the TM are required to be licensed. Therefore, the discharges shall be required to comply with the effluent standard of effluent discharged into Tolo Harbour Coastal Waters and is shown in Table 7.2.

**Table 7.2 Selection of Effluent Standards Discharged into Coastal Waters of Tolo Water Control Zone**

Measurement Parameter	Effluent Standard
pH	6-9 (pH units)
Suspended solids	30 (mg/L)
Oil & Grease	20 (mg/L)



### **Water Quality Impact Monitoring Results**

- 7.9 During the course of the construction works, water samples at the discharge points shall be collected three days per week and tested for pH and SS, and sampled once per week for oil and grease analysis.
- 7.10 No water samples were taken from Sedimentation Pond Nos. 1, 2, 3, 4 and 5 in this reporting month, as there was no generation of wastewater from construction activities (i.e. no pre-bored H-piling works were carried out for the month of April 2003)

## **8. OBSERVATIONS**

- 8.1 No site inspection was conducted by EPD. No Inspection Record was issued during this reporting month.
- 8.2 Regular water spray on site preventing construction dust emission is on-going.
- 8.3 The wind data monitoring equipment for better air quality monitoring was recorded at 5-minute intervals for the month of April 2003. The wind data recorded in the reporting month at 5-minute intervals are contained in Appendix G. Please note that there was a theft in the site office on the evening of 29 April 2003, hence the equipment for downloading the necessary wind data was lost. As a result, wind data from 23 April 2003 onward has not been recorded. The losing equipment will be resumed as soon as possible.
- 8.4 Summary of observations and the environmental outcomes are summarized in Table 8.1.
- 8.5 The compliance status of the permit conditions is summarized in Appendix A.
- 8.6 EPD's comment concerning previous reports is summarized in Appendix B.
- 8.7 Valid licenses are summarized in Appendix C.
- 8.8 Log for site surveillance by EPD is summarized in Appendix D.
- 8.9 Conviction history log is summarized in Appendix E.

**Table 8.1 Summary of Observations and Environmental Outcome**

<b>Environmental Parameters</b>	<b>Date</b>	<b>Observation(s)</b>	<b>Mitigation Works</b>	<b>Environmental Outcome</b>
-	-	-	-	-

## **9. COMPLAINTS**

9.1 No complaints were received in April 2003.

**Table 9.1 Summary of Complaints and Follow-up Actions**

<b>Environmental Parameters</b>	<b>Date</b>	<b>Complaint(s)</b>	<b>Mitigation Works</b>	<b>Follow-up Action(s)</b>
-	-	Nil to report		

## 10. QUARTERLY REVIEW OF THE EM&A PROGRAMME

10.1 This quarterly review provides a summary and an audit of the monitoring results recorded from 1 February to 30 April 2003 for Widening of Fo Tan Road and Related Improvement Measures in Fo Tan, Contract No HY/99/02. Trend Analyses and Implementation Status of EIA recommendations for the reporting period are included in this chapter.

### Summary of Action and Limit Level Exceedances

10.2 The action and limit levels breached in the reporting period (1 February 2003 to 30 April 2003) are summarised in Table 10.1.

**Table 10.1 Action and Limit Level non-compliances within the reporting months (1 February 2003 to 31 April 2003) for Contract HY/99/02**

Environmental Parameters		February 2003				March 2003				April 2003			
		Total	A	L	%	Total	A	L	%	Total	A	L	%
Noise	Unrestricted Period	123	0	0	0	108	0	0	0	102	0	0	0
Air	1-hr TSP	14	0	0	0	12	0	0	0	15	0	0	0
	24-hr TSP	5	0	0	0	4	1	0	25	5	0	0	0
Water	PH	0	0	0	0	0	0	0	0	0	0	0	0
	SS	0	0	0	0	0	0	0	0	0	0	0	0
	Oil & Grease	0	0	0	0	0	0	0	0	0	0	0	0

Note: Total = Total number of monitoring events undertaken  
 A = Number of monitoring events with results exceeding the Action Level  
 L = Number of monitoring events with results exceeding the Limit Level  
 % = Percentage of exceedance

### Audit of Results

10.3 Water Quality

10.3.1 No exceedance is recorded in the reporting months.

10.4 Air Quality

10.4.1 One action limit exceedance in 24-hr TSP monitoring on 5 March 2003 is recorded in the reporting months.

10.5 Noise Level

10.5.1 The noise level monitoring results indicate that the limit level of 75dB(A) for domestic premises and 70dB(A) for schools and 65dB(A) for examination period were not breached in this reporting period.

### **Summary of Observations**

#### 10.6 Water Quality

10.6.1 No exceedance of water quality level has been recorded during this quarter.

10.6.2 No site inspection was conducted by EPD in the reporting months. No Inspection Record was issued during the reporting months.

#### 10.7 Air Quality

10.7.1 One action limit exceedance in 24-hr TSP monitoring on 5 March 2003 is recorded in the reporting months.

10.7.2 MCL recorded that the air quality monitoring results of measured 24-hr TSP level starting 5 March 2003 exceeded the action level and requested the Contractor to identify the source causing the exceedance in a letter addressed to the Contractor dated 2 April 2003 as shown in Appendix F in EM&A report No. 38. The Contractor responded with record photographs in a letter addressed to MCL dated 3 April 2003 showing causing the exceedance as shown in Appendix G in EM&A report No.39.

10.7.3 The wind data monitoring equipment for better air quality monitoring was recorded at 5-minute intervals for the period February 2003 to April 2003. Please note that there was a theft in the site office on the evening of 29 April 2003, hence the equipment for downloading the necessary wind data was lost. As a result, wind data from 23 April 2003 onward has not been recorded. The losing equipment will be resumed as soon as possible.

#### 10.8 Noise Level

10.8.1. No exceedance of noise level monitoring has been recorded during this quarter.

### **Summary of Complaints**

10.9.1. No complaint has been received between 1 February 2003 and 30 April 2003.

### **Trend Analyses of Environmental Qualities**

10.10 For Contract HY/99/02, the representative air quality monitoring station is selected at the roof in 66, Fo Tan Village as recommended in the EM&A Manual. The trend of 1-hr and 24-hr TSP monitoring are shown in Figures 10.1 and 10.2.

10.11 The noise level monitoring trends are summarized in Figures 10.3 to 10.8.



**Table 10.2 Summary of Complaints and Environmental Outcome**

Environ-mental Parameters	Date	Complaint(s)	Mitigation Works	Follow-up Action(s)
-	-	Nil to report		

Figure 10.1

## Trend Analysis of Air Quality (From February 2003 to April 2003)

### 1-hour Total Suspended Particulates (TSP)

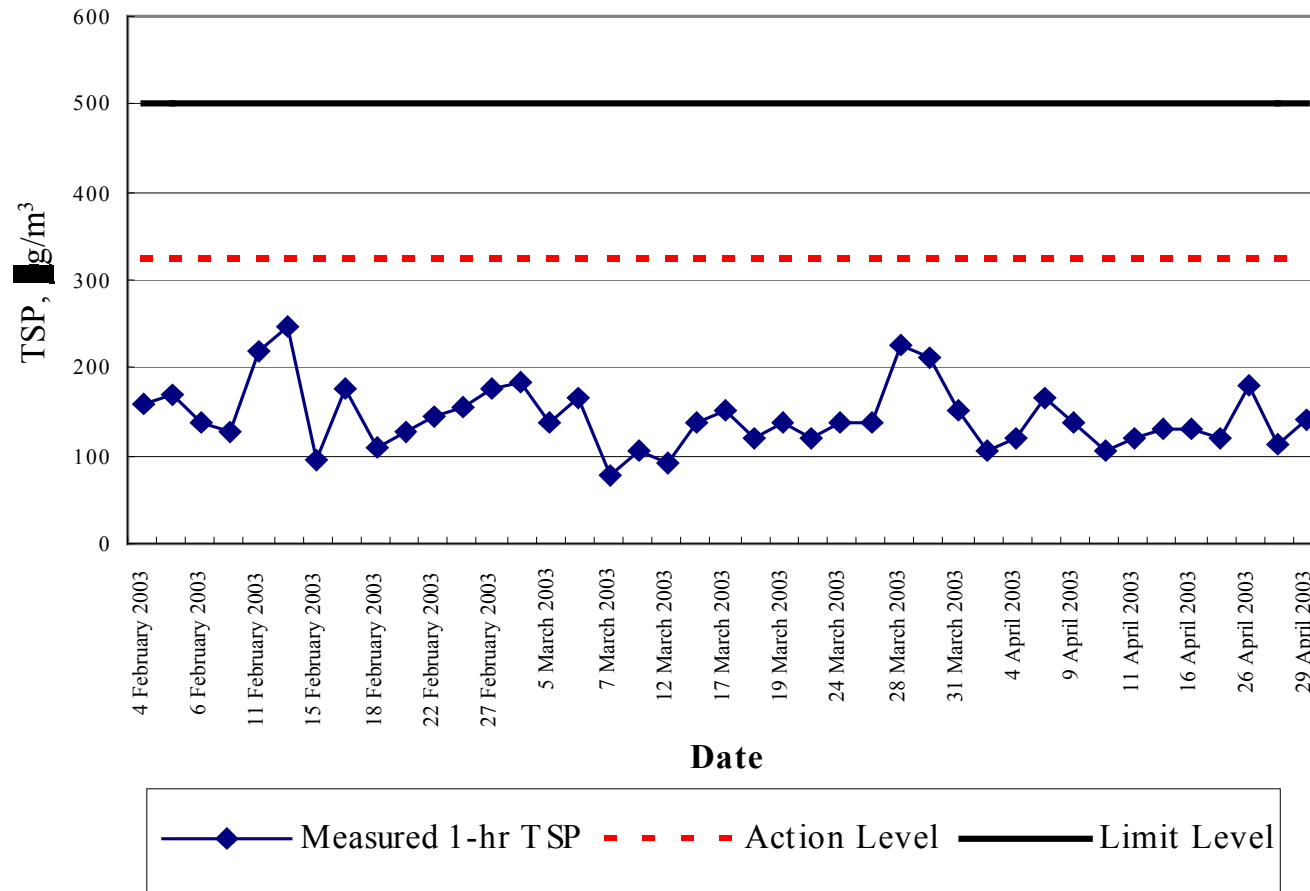
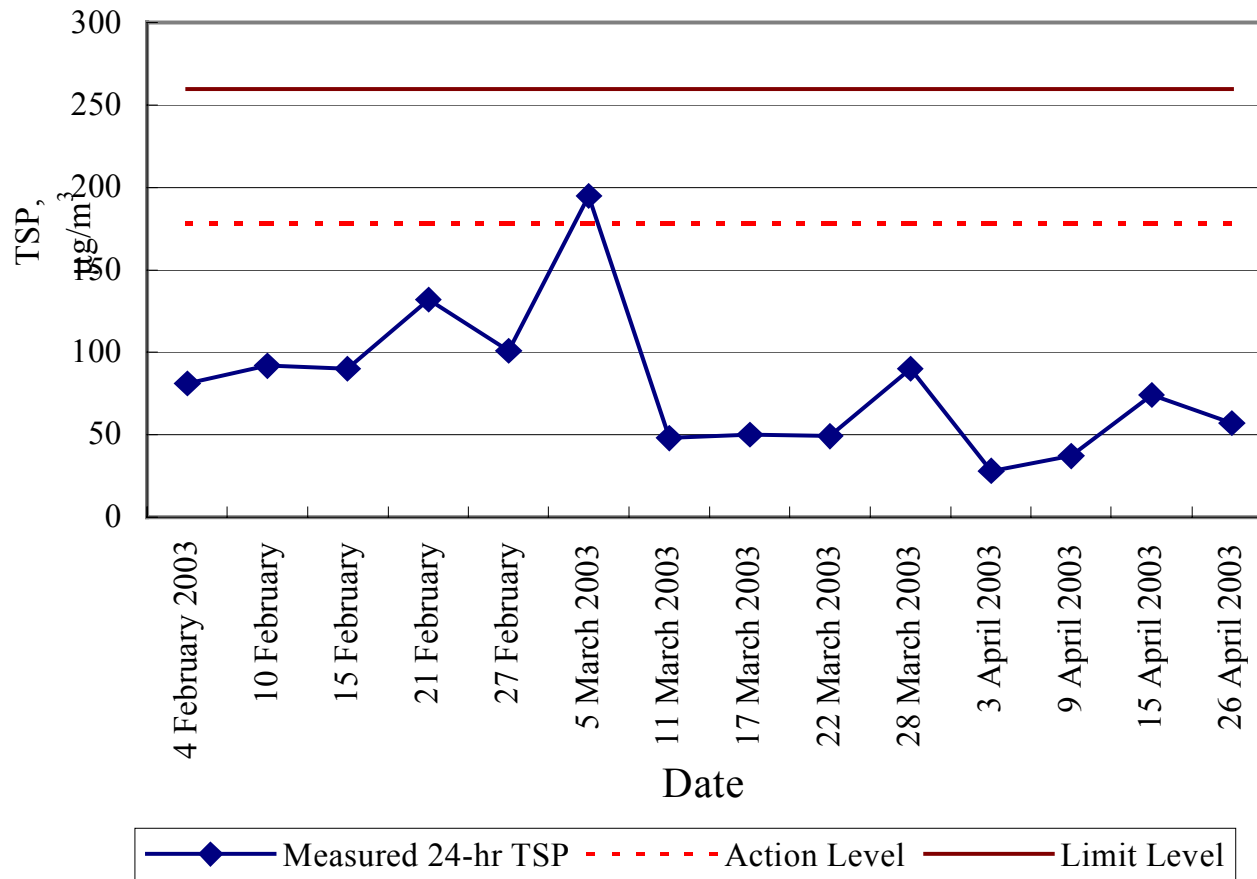


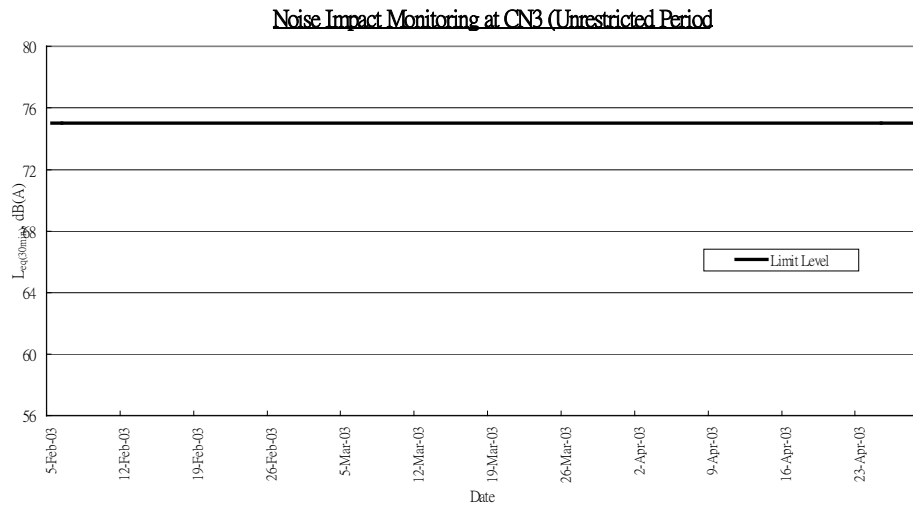
Figure 10.2

### **Trend Analysis of Air Quality (From February 2003 to April 2003)**

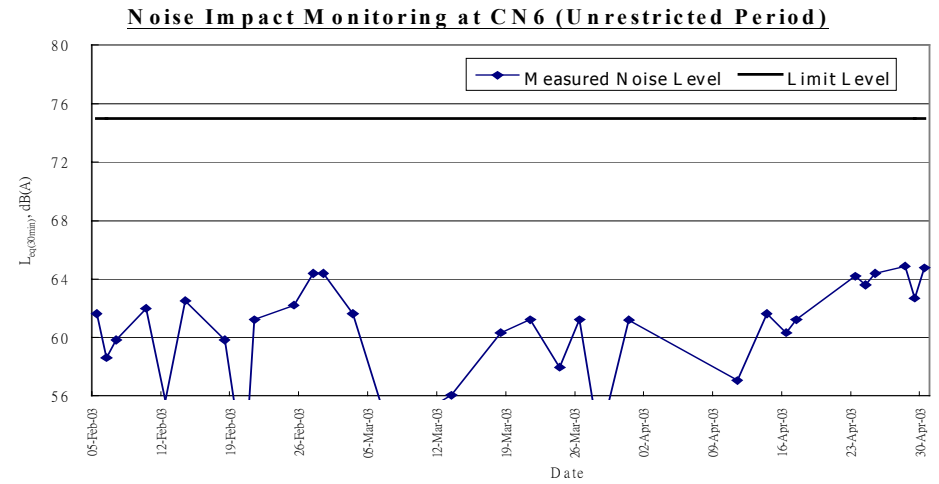
#### **24-hour Total Suspended Particulates (TSP)**



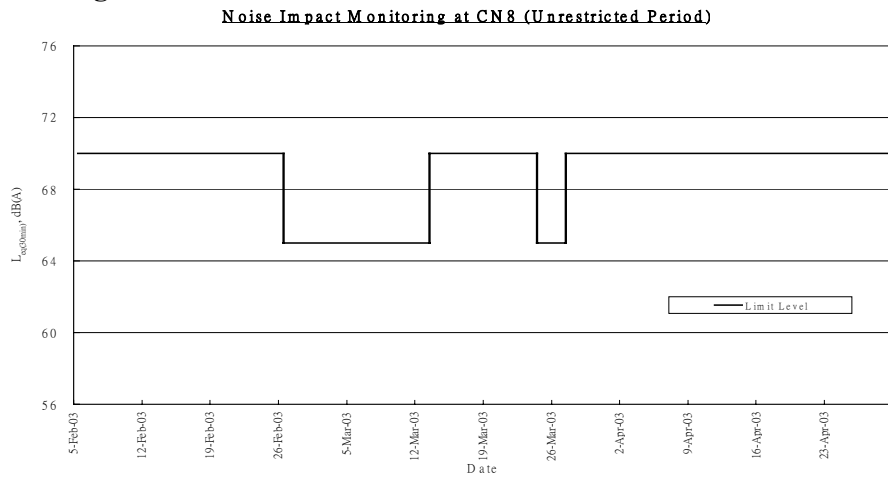
**Figure 10.3**



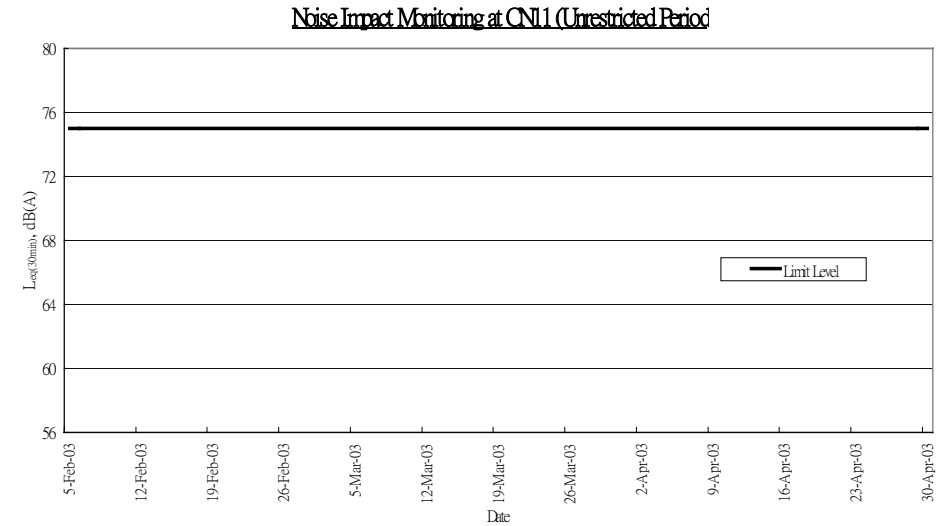
**Figure 10.4**



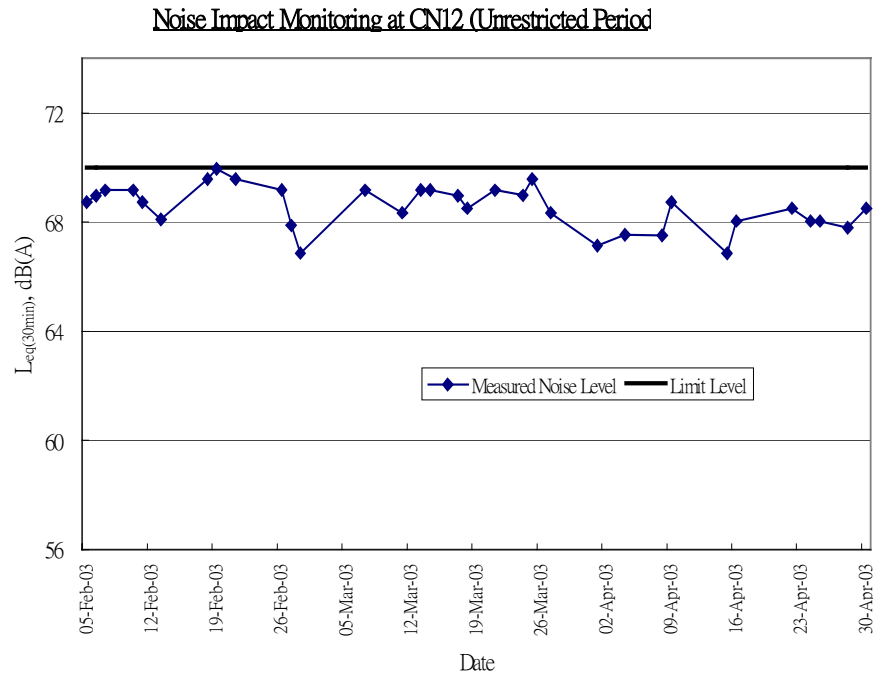
**Figure 10.5**



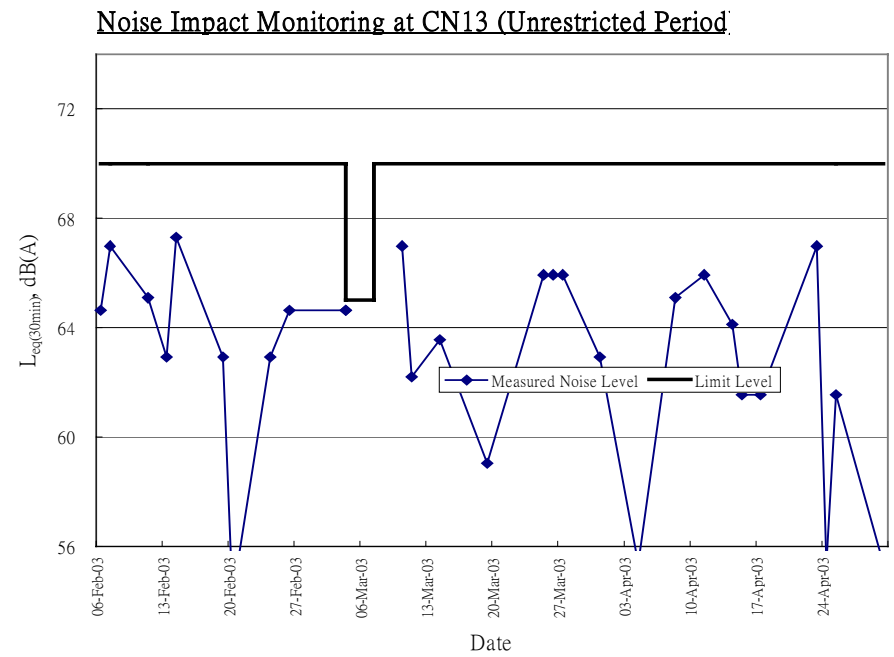
**Figure 10.6**



**Figure 10.7**



**Figure 10.8**



**Note:** Starting from June 2001, the presented/plotted data is the adjusted value that has been deducted from the background noise. As such, they may not appear in the trend figure as the measured data is below the baseline value.

## 11. FUTURE KEY ISSUES

11.1 There was one action limit exceedance in 24-hr TSP air monitoring recorded on 5 March 2003 and immediate action has been taken according to the action plan for air quality shown in Table 4.2. As advised by ET, the contractor was asked to identify the source which caused the exceedance. However, based on the preliminary findings, the exceedance of 24-hr TSP was due to the religious activity performed by nearby resident of Fo Tan Village and there was no major construction activity around the area from our part that might cause the exceeding of TSP level. Although the cause of pollution was from external sources, site inspection at the identified locations will be increased and ensure the forthcoming record data complying with the air quality requirements. Although no exceedances at noise and water sensitive receivers have been identified in the report month, it is pertinent to keep in action plan for noise level shown in Table 4.4, and for water quality shown in Table 4.6, which outlines the measures to be taken by the Engineer and the Contractor in the event of the action and limit levels being exceeded.

11.2 Major construction activities in the coming months:

- (i) Construction of noise barriers adjacent to Wo Che Estate and IVE(ST) – anticipated to be completed by 29/5/03.
- (ii) Installation of roof canopy of Subway NS29 adjacent to Sha Tin Sports Ground – anticipated to be completed by 31/5/03.
- (iii) Finishes and lighting fittings to Subway NS28 adjacent to IVE(ST) – anticipated to be completed by 31/5/03.
- (iv) Construction of Central Divider of Tai Po Road Overbridge – anticipated to be completed by 8/5/03.
- (v) Construction of parapet and noise barrier of Railway Overbridge – anticipated to be completed by 10/5/03.
- (vi) Construction of Central Divider of Fo Tan Nullah Bridge – anticipated to be completed by 10/5/03.
- (vii) Re-construction of existing carriageway at Nullah Partial Decking – anticipated to be completed by 31/5/03.
- (viii) Installation of roof canopy of nullah footbridge – anticipated to be completed by 23/5/03.