The Hong Kong Jockey Club

# 2008 Olympic Equestrian Event

Monthly Environmental Monitoring and Audit Report - May 2008

**Final**

The Hong Kong Jockey Club

# 2008 Olympic Equestrian Event

## Monthly Environmental Monitoring and Audit Report – May 2008

June 2008

This report takes into account the particular instructions and requirements of our client.
It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party

**Ove Arup & Partners Hong Kong Ltd**
Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong, Kowloon, Hong Kong
Tel +852 2528 3031 Fax +852 2268 3950
www.arup.com

Job number 24469

ARUP

**Document Verification**



| | | | |
|---|---|---|---|
| Job title | 2008 Olympic Equestrian Event | | Job number 24469 |
| Document title | Monthly Environmental Monitoring and Audit Report – May 2008 | | File reference |

| Revision | Date | | | | |
|---|---|---|---|---|---|
| Final | 20/06/08 | Filename | 22-MAY-08.doc | | |
| | | Description | Final submission | | |
| | | | Prepared by | Checked by | Approved by |
| | | Name | Mitch Law | Fanny Wong | Sam Tsoi |
| | | Signature | p.p. | | |
| | | Filename | | | |
| | | Description | | | |
| | | | Prepared by | Checked by | Approved by |
| | | Name | | | |
| | | Signature | | | |
| | | Filename | | | |
| | | Description | | | |
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# Executive Summary

This is the twenty-second monthly environmental monitoring and audit (EM&A) report presenting the progress of environmental monitoring and audit work for Main Arena of the 2008 Olympic Equestrian Event for the period from 1 to 31 May 2008, including noise monitoring and landscape and visual audit. Noise was measured in terms of $L_{eq(30min)}$ with $L_{10}$ and $L_{90}$ measurements for reference.

A total of 5 sets of daytime (0700 – 1900 hours) noise monitoring was conducted on 2, 8, 15, 22 and 29 May 2008. The highest noise level of 69.2 dB(A) was recorded on the roof of Chung Cheung Court, HKJC Staff Quarters (NM1) on 29 May 2008 while the lowest noise level of 54.8 dB(A) was recorded on the podium of Ravana Garden (NM3) on 8 May 2008. There was no exceedance of noise A/L Levels recorded during the reporting period.

A total of 2 landscape and visual audits were carried out on 5 and 19 May 2008. The Registered Landscape Architect (RLA) has the following observations:

- Planting Work has been completed.
- Transplanted trees and planted trees are generally in fair condition.

A total of 4 environmental site audits were conducted weekly on 8, 16, 23 and 30 May 2008. There were no major environmental issues observed.

No Construction and Demolition (C&D) waste was disposed of during the reporting period. No C&D material (public fill) were disposed of at Public Filling Area in May 2008. No chemical waste was disposed of during the reporting period.

No environmental complaint was received during the reporting period.

No new construction noise permit was granted during the reporting period.

No exceedance of noise monitoring action/limit levels was recorded during the reporting period.

There was neither notification of summons nor prosecution received during the reporting period.

# 1 Introduction

## 1.1 Project Background

Having considered the advantage of established international equine import and export protocols as well as the supporting facilities already in place, the International Olympic Committee (IOC) has accepted the Beijing Organising Committee for the Games of the 29th Olympiad (BOCOG)'s proposal of staging the 2008 Olympic and Paralympic Equestrian Events in Hong Kong.

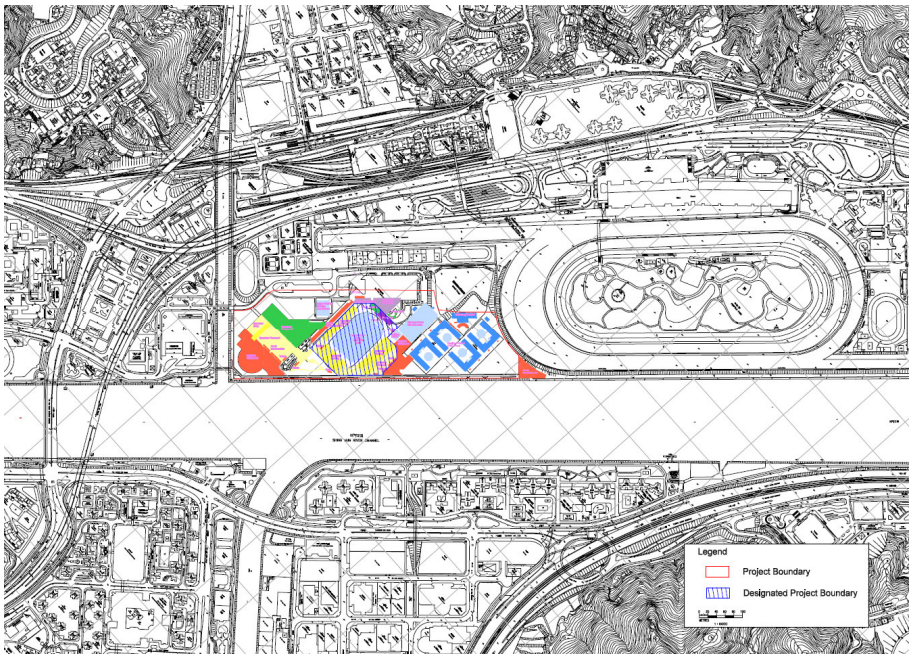
Given the very tight schedule of the project, Hong Kong Sports Institute (HKSI) in Shatin will be temporarily converted into the core competition venues for the Olympic Equestrian Event. Facilities to be provided on the core venues include:

- Main Competition Arena for 20,000 spectators
- Stable Complex
- Training Arenas
- Logistic Compound
- Spectator Entry & Broadcast Compound
- Food & Merchandise

The venues will be in operation for approximately one month during the Olympic event, with the competition expected to last from between 10 to 14 days. 14 days after the Olympic Events, the Paralympic competition will be staged, which will last for a few days.

One year before the 2008 Olympic Event, the site will be occupied for the Test Event, which is used by all divisions of the Olympic Organising Committee to test their organisational capabilities for the Games and Event Management to trail the equine facilities and the footing (riding surface) of the Main Arena, Stables and Training Facilities. These mock up events are known as the 'Test Event Mode', and limited public access will be given.

**Figure 1-1:** Location plan of the project



The implementation of the Project is scheduled from July 2006 to December 2008. Table 1-1 gives the tentative project timetable and phasing.

**Table 1-1:** Timetable and phasing for the Project

| Task | Start | Finish |
|---|---|---|
| Pre- Test Event Construction | July 2006 | June 2007 |
| Test Event | August 2007 (2 weeks) | |
| Post Test Event Construction | December 2007 | June 2008 |
| Olympic Event | August 2008 (2 weeks) | |
| Paralympic Event | September 2008 (1 week) | |
| Reinstatement of HKSI | October 2008 | December 2008 |

The Main Arena of the 2008 Olympic Equestrian Event is classified as a Designated Project (DP) under item O7, Part 1, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) – an outdoor sporting facility with a capacity to accommodate more than 10,000 persons.

In accordance with the requirements of Section 5(1) of the EIAO, a project profile (No. PP-266/2005) was submitted to Environmental Protection Department (EPD) for the application of an EIA Study Brief on 17 October 2005. Pursuant to Section 5(7)(a) of the EIAO, EPD issued to The Hong Kong Jockey Club (HKJC) a study brief (ref: EIA Study Brief No: ESB-136/2005 dated 7 November 2005) to carry out an EIA study.

The EIA Report for the Project (EIA-118/2005) was approved and an Environmental Permit (EP) (EP-236/2006) granted by EPD on 24 and 25 March 2006 respectively.

On 13 May 2008, the amended EP (EP-236/2006/A) was issued to cover changes of the project.

### 1.2 Project Organisation

The Project Proponent is the Hong Kong Jockey Club (HKJC); the Engineer's Representative (ER) is Ove Arup & Partners Hong Kong Ltd (Arup); the Contractor for Pre-Test Event construction is China State Construction Engrg (HK) Ltd; the Contractor for Post-Test Event construction is Paul Y Engineering; the Contractor for Post-Test Event overlay works is GL Events Hong Kong Ltd.; the Independent Environmental Checker (IEC) is Meinhardt Infrastructure and Environment Ltd; the Environmental Team (ET) is Arup.

### 1.3 Scope of Impact EM&A

The impact environmental monitoring and audit for the Project included noise monitoring, landscape and visual audit, and environmental site audit.

### 1.4 Purpose of the Report

The purpose of this monthly EM&A report is to provide information on monitoring methodology, monitoring results, environmental permit status, site audit findings, recommendations and conclusions of the EM&A of the project.

This is the twenty-second monthly EM&A report prepared by Arup for the submission to the HKJC summarising the implementation of the EM&A programme from 1 to 31 May 2008.

## 2 Scope of Construction Works

### 2.1 Construction Programme

The construction works commenced on 15 August 2006. Pre-Test Event construction works was completed in mid July 2007. Post-test event construction work started on 10 December

2007 and was completed in March 2008. The Post-Test event overlay works started in early February 2008. The construction programme has been provided to EPD and IEC by post

### 2.2 Construction Activities of the Month

- Finalisation of the Installation of spectator stands and semi-permanent tents

# 3 Summary of EM&A Requirements

Noise monitoring shall be conducted by the ET at specified monitoring locations during the construction stage. Landscape and visual audits and environmental site audits shall also carried out. The monitoring schedule for the month of May 2008 and the tentative schedule for June 2008 are attached in **Appendix B**.

### 3.1 Construction Noise

#### 3.1.1 Monitoring Parameters

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

#### 3.1.2 Monitoring Frequency

Noise monitoring was performed on a weekly basis in accordance with the EM&A Manual. The monitoring time periods, parameters and frequency are summarised in Table 3-1.

**Table 3-1:** Construction noise monitoring parameters and frequency

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

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

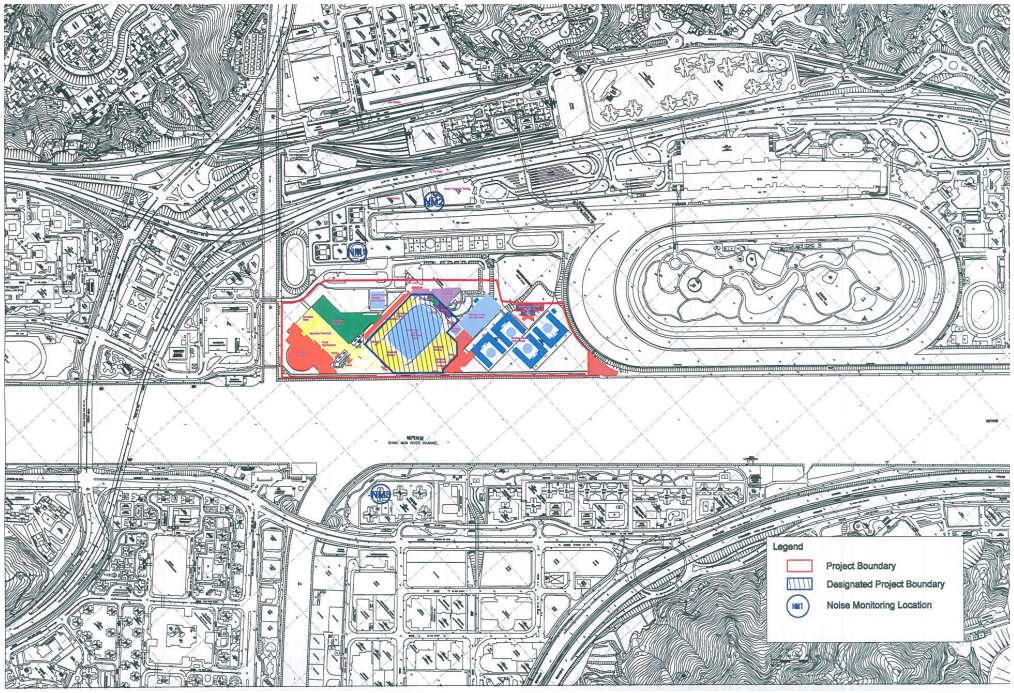
#### 3.1.3 Monitoring Locations

A total of three locations were specified for the noise monitoring as shown in Table 3-2 and Figure 3-1. Measurements were conducted at a position 1.2m above ground and kept away from reflective surface.

**Table 3-2**: Construction noise monitoring locations

| Monitoring Station ID | Location | Monitoring Point |
|---|---|---|
| NM1 | Chung Cheung Court, HKJC Staff Quarters | On the roof, 1 meter from façade, facing the main works area |
| NM2 | Racecourse Villa | On the roof, 1meter from façade, facing the main works area |
| NM3 | Ravana Garden | On the podium outside Block 1, 1 meter from façade, facing the main works area. |

**Figure 3-1:** Noise Monitoring Location




## 3.2 Landscape and Visual

### 3.2.1 Audit Parameters

All landscape and visual mitigation measures implemented by both the Contractor Team (CT) and the Landscape Contractor during the construction phase and the first year of the operational phase shall be audited by a landscape auditor, to ensure compliance with the aims of the mitigation measures.

### 3.2.2 Audit Frequency

The landscape and visual monitoring and audit shall be undertaken once every two weeks throughout the construction, operation and reinstatement phases.

### 3.2.3 Audit Location

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

## 3.3 Performance Limits and Event-Action Plans

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

### 3.3.1 Construction Noise

The A/L Levels for construction noise have been established in accordance with TM-EIAO as summarised in Table 3-3.

**Table 3-3**: Action and Limit Levels for construction noise

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

The action required to be taken by different parties in the case of occurrence of exceedance of A/L Levels are summarised in the Event and Action Plan in Table 3-4.

**Table 3-4:** Event and Action Plan for construction noise exceedance

| Event | Action | | | |
|---|---|---|---|---|
| | ET Leader | IEC | ER | Contractor |
| **Action Level** | 1. Notify IEC, ER and the Contractor within 24 hours of identification of the exceedance.<br>2. Carry out investigation.<br>3. Report the results of investigation to IEC, ER and the Contractor.<br>4. Discuss with the Contractor and formulate remedial measures.<br>5. Increase monitoring frequency to check mitigation measures. | 1. Review with analysed results submitted by ET.<br>2. Review the proposed remedial measures by the Contractor and advise ER accordingly.<br>3. Supervise the implementation of remedial measures. | 1. Confirm receipt of notification of exceedance in writing.<br>2. Notify the Contractor.<br>3. Require the Contractor to propose remedial measures for the analysed noise problem.<br>4. Ensure remedial measures are properly implemented. | 1. Submit noise mitigation proposals to ER and IEC.<br>2. Implement noise mitigation proposals. |
| **Limit Level** | 1. Identify the source.<br>2. Notify IEC, ER, EPD and the Contractor within 24 hours of identification of the exceedance.<br>3. Repeat measurement to confirm findings.<br>4. Increase monitoring frequency.<br>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented.<br>6. Inform IEC, ER, and EPD the causes & actions taken for the exceedances.<br>7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and ER informed of the results.<br>8. If exceedance stops, cease additional monitoring<br>9. Report the results of investigation to the IEC, EPD and ER. | 1. Discuss amongst ER, ET Leader and the Contractor on the potential remedial actions.<br>2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly.<br>3. Supervise the implementation of remedial measures. | 1. Confirm receipt of notification of exceedance in writing.<br>2. Notify the Contractor.<br>3. Require the Contractor to propose remedial measures for the analysed noise problem.<br>4. Ensure remedial measures are properly implemented.<br>5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated. | 1. Take immediate action to avoid further exceedance.<br>2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification.<br>3. Implement the agreed proposals.<br>4. Resubmit proposals if problem still not under control.<br>5. Stop the relevant activity of works as determined by the ER until the exceedance is abated. |

## 3.4 Site Inspection and Environmental Complaint Handling

### 3.4.1 Site Inspection

Site inspections provide a direct means to trigger and enforce the specified environmental protection and pollution control measures. They shall be undertaken routinely to inspect the construction activities to ensure appropriate environmental protection and pollution control/ mitigation measures are properly implemented. With well-defined pollution control and mitigation specifications and a well-established site inspection, deficiency and action reporting system, site inspection is one of the most effective tools to enforce the environmental protection requirements on the construction site.

The ET Leader shall be responsible for formulating the environmental site inspection, deficiency and action reporting system, and carrying out the site inspection works. He shall

submit a proposal on site inspection, deficiency and action reporting procedures within 21 days prior to construction commencement to the Contractor for approval by the ER and IEC.

Regular site inspections shall be carried out at least once per week. The areas of inspection shall not be limited to the environmental conditions, pollution control and mitigation measures within the site. It should also review the environmental condition outside the site area which is likely to be affected, directly or indirectly, by the site activities. The ET Leader shall make reference to the following information in conducting the inspection:

- the EIA recommendations on environmental protection and pollution control mitigation measures;
- works progress and programme;
- individual works methodology (which shall include proposal on associated pollution control measures);
- Contract Specifications on environmental protection;
- relevant environmental protection and pollution control laws; and
- previous site inspection results.

The Contractor shall update ET Leader with all relevant information of the construction Contract for him to carry out the site inspections. The inspection results and its associated recommendations on improvements to the environmental protection and pollution control works shall be submitted to ER, IEC and the Contractor within 1 working day for reference and for taking immediate actions. The Contractor shall follow the procedures and time-frame as stipulated in the environmental site inspection, deficiency and action reporting system formulated by the ET Leader to report on any remedial measures subsequent to the site inspections.

Ad hoc site inspections shall also be carried out if significant environmental problems are identified. Inspections may also be required subsequent to receipt of an environmental complaint, or as part of the investigation work, as specified in the Action Plan for environmental monitoring and audit.

### 3.4.2 Environmental Complaints

Complaints shall be referred to the ET Leader for carrying out complaint investigation. The ET Leader shall undertake the following procedures upon receipt of the complaints:

- log complaint and date of receipt onto the complaint database;
- investigate the complaint to determine its validity, and to assess whether the source of the problem is due to works activities;
- identify mitigation measures if a complaint is valid and due to works;
- advise the Contractor accordingly if mitigation measures are required;
- review the Contractor's response on the identified mitigation measures and the updated situation;
- submit interim report to ER on status of the complaint investigation and follow-up action within the time frame assigned by the ER;
- undertake additional monitoring and audit to verify the situation if necessary, and review that any valid reason for complaint does not recur;
- report the investigation results and the subsequent actions to the source of complaint for responding to complainant (If the source of complaint is EPD, the results should be reported within the time frame assigned by EPD); and
- record the complaint, investigation, the subsequent actions and the results in the monthly EM&A reports.

The Contractor and the ER shall also be notified of the nature of complaints. An investigation shall be initiated to determine the validity of the complaint and to identify the source of the problem. As necessary, the ER shall undertake the following steps:

- Investigate and identify the source of the problem;
- Liaise with the ET and IEC to identify remedial measures;
- Require the Contractor to take action to mitigate the situation;
- Repeat monitoring to check compliance with Action and Limit level; and
- Repeat review procedures to identify further possible areas of improvement if monitoring results show exceedances.

The outcome of the investigation and the action taken shall be documented on the complaints proforma. Where possible, a formal response to each complaint received shall be prepared, within a maximum of seven days, so as to notify the concerned person(s) that action has been taken.

All enquires which trigger this process shall be reported in the monthly EM&A reports which shall include results of inspections undertaken by site staff, and details of the measures taken, and additional monitoring results. It should be noted that the receipt of complaints or enquiries will not, in itself be sufficient reason to introduce additional mitigation measures. They will however initiate the Event/Action Plan and these procedures may lead to the introduction of mitigation measures if they are considered necessary. In all cases the complainant shall be notified of the findings of the Event/Action Plan and audit procedures put in place to ensure that the problem does not recur.

During the complaint investigation work, the Contractor and ER shall cooperate with the ET Leader in providing all the necessary information and assistance for completion of the investigation. If mitigation measures are identified in the investigation, the Contractor shall promptly carry out the mitigation. The ER shall ensure that the measures have been carried out by the Contractor.

The Contractor should provide a manned hotline (tape recording is not acceptable) to serve as the community liaison channel to complaints, comments, suggestions or requests for information during the construction and reinstatement of the Project, so that action can be immediately taken to reduce the environmental nuisance in response to complaints raised by nearby residents or relayed from other Government Department.

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

## 3.5 Environmental Mitigation Measures

Environmental mitigation measures as recommended in the EIA report were stipulated in the EM&A Manual for the Contractor to adopt. A list of mitigation measures and their implementation status are given in **Appendix C**.

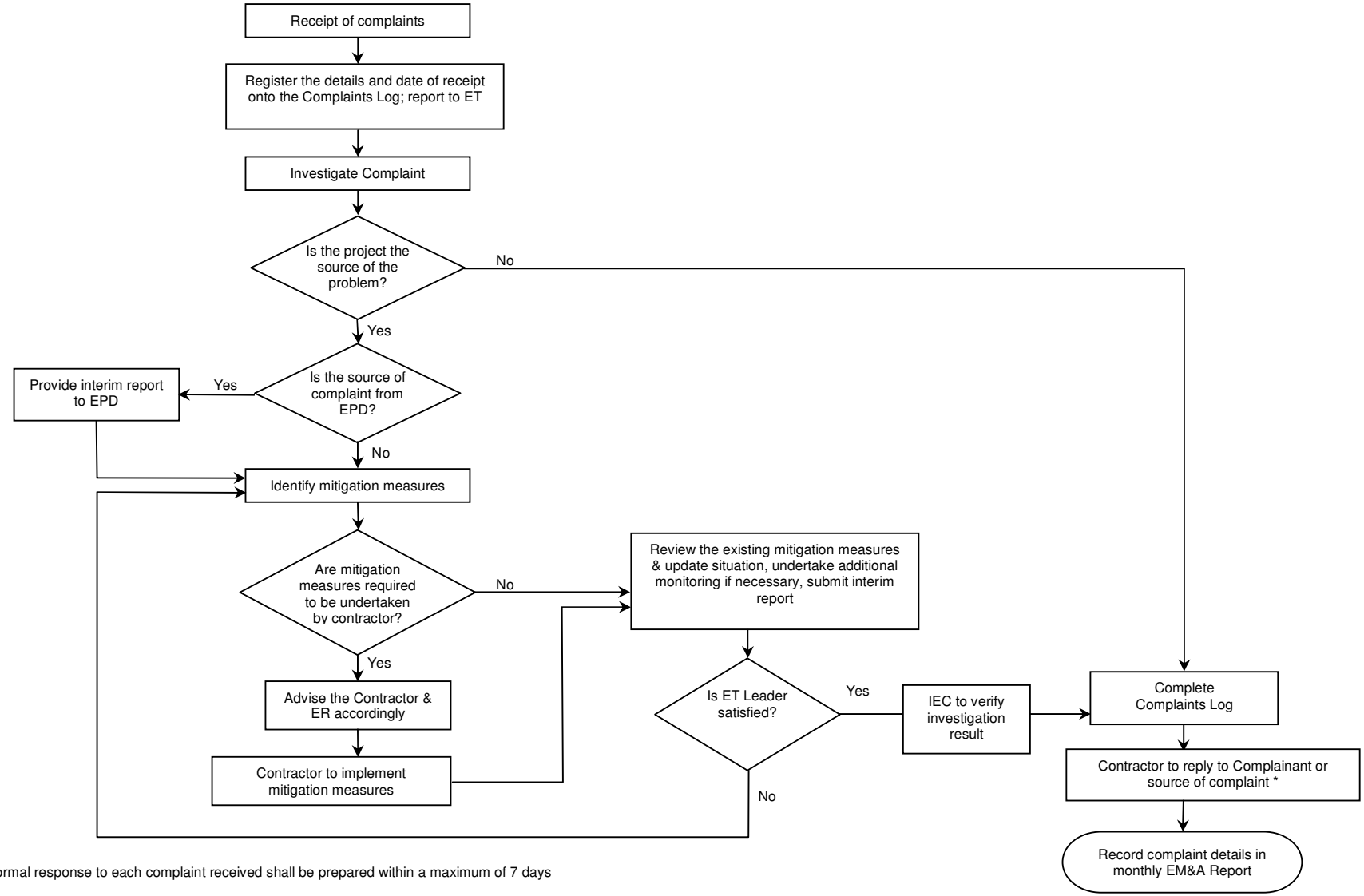



**Figure 3-2:** Flow chart of complaint response procedures

# 4 Noise Monitoring

## 4.1 Monitoring Equipment

Details of the integrating sound level meters used in the noise monitoring are shown in Table 4-1.

**Table 4-1:** Equipment list for construction noise monitoring

| Equipment | Manufacturer & Model No. | Precision Grade | Qty. |
|---|---|---|---|
| Integrating sound level meter | Brüel & Kjær 2238 | IEC 651 Type 1 | 3 |
| Windshield | Brüel & Kjær UA0237 | IEC 804 Type 1 | 3 |
| Acoustical calibrator | Brüel & Kjær 4231 | IEC 942 Type 1 | 1 |
| LCD wind speed indicator | Kestrel Vane Anemometer | -- | 1 |

## 4.2 Methodology

### 4.2.1 Field Measurement

- The sound level meter and battery were checked to ensure that they were in proper condition.
- The sound level meter was set on a tripod at 1.2m above ground and at 1m from the exterior of the building façade.
- Before conducting the measurement, the sound level meter was calibrated by an acoustical calibrator.
- The measurement parameter was set to A-weighted sound pressure level. The time weighting was set in fast response and the time period of measurement at 30 minutes.
- The wind speed was checked during noise monitoring to ensure the steady wind speed did not exceed 5m/s, or wind with gusts did not exceed 10m/s.
- Any abnormal conditions that generated intrusive noise during the measurement were recorded on the field record sheet.
- After each measurement, the equivalent continuous sound pressure level (Leq), L10 and L90 were recorded on the field record sheet.
- The sound level meter was re-calibrated by the acoustical calibrator to confirm that there was no significant drift of reading.

### 4.2.2 Equipment Maintenance and Calibration

All sound level meters comply with the standards of IEC 651 (Fast, Slow, Impulse RMS detector tests) and IEC 804 ($L_{eq}$ functions). The calibration certificates of the noise monitoring equipment are attached in **Appendix D**.

## 4.3 Results and Observations

### 4.3.1 Weather Conditions and Other Factors

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

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

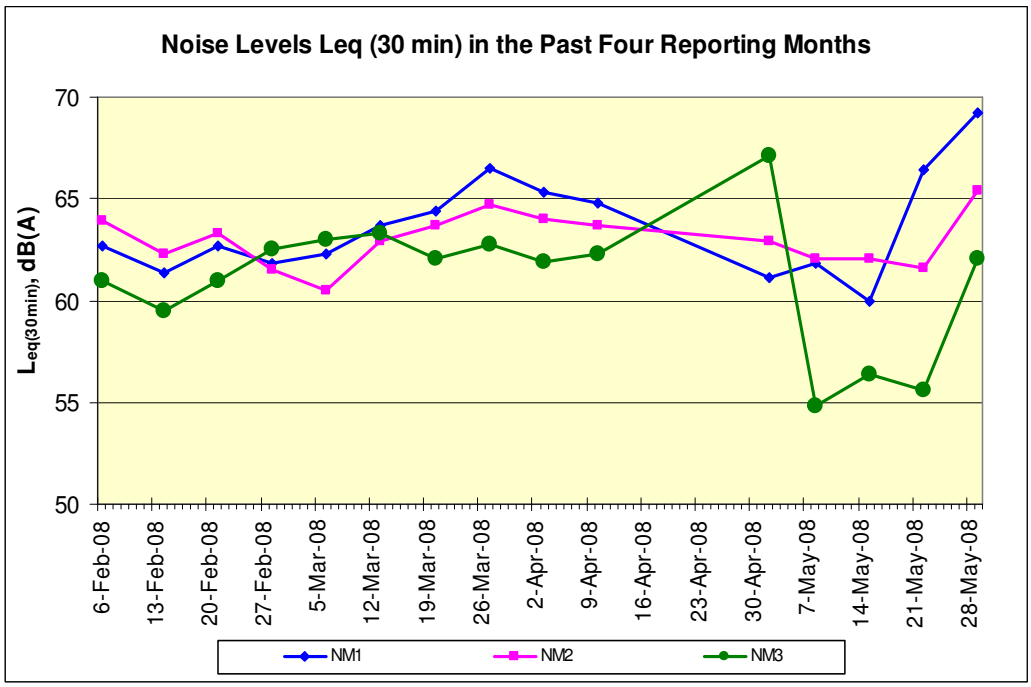
### 4.3.2 Summary of Results

A total of 5 sets of daytime (0700 – 1900 hours) noise monitoring was conducted on 2, 8, 15, 22 and 29 May 2008.

A total of 5 sets of daytime (0700 – 1900 hours) noise monitoring was conducted on 2, 8, 15, 22 and 29 May 2008. The highest noise level of 69.2 dB(A) was recorded on the roof of Chung Cheung Court, HKJC Staff Quarters (NM1) on 29 May 2008 while the lowest noise level of 54.8 dB(A) was recorded on the podium of Ravana Garden (NM3) on 8 May 2008. There was no exceedance of noise A/L Levels recorded during the reporting period.

Detailed construction noise monitoring results are attached in **Appendix E** and graphical presentation of the noise levels at each monitoring location is illustrated in Figure 4-1.

**Figure 4-1:** Graphical presentation of day-time noise levels




# 5 Landscape and Visual Monitoring and Audit

## 5.1 Summary of Inspection

Landscape and visual monitoring and site audits were carried on 5th and 19th May 2008. Stables have been constructed. Planting Work has been completed. Transplanted trees and planted trees are generally in fair condition. The audit findings and recommendations are recorded in a detailed report in **Appendix F.**

## 5.2 Audit Schedule

Upcoming audits are scheduled for 3, 17 and 30 June 2008.

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

## 6.1 Site Audit Findings

Four weekly environmental site audits were carried out in May 2008. The findings of the site audits are summarised in Table 6-1.

**Table 6-1:** Findings of weekly environmental site audit in May 2008

| Date of Issue Raised | Observation | Advice from EA | CT's Response / Environmental Outcomes | Closing Date |
|---|---|---|---|---|
| 8 May 2008 | No new adverse environmental observations. | N/A | N/A | N/A |
| 16 May 2008 | No mew adverse environmental observations. | N/A | N/A | N/A |
| 23 May 2008 | No new adverse environmental observations. | N/A | N/A | N/A |
| 30 May 2008 | No new adverse environmental observations. | N/A | N/A | N/A |

## 6.2 Waste Disposal

The waste disposal quantity during the reporting period is summarised in Table 6-2.

**Table 6-2:** Waste disposal quantity in May 2008

| Type of waste or material | | Disposal at | No. of loads or quantities |
|---|---|---|---|
| C&D waste | | SENT Landfill | 0 tonne |
| C&D material | | Public Filling Area in TKO 137 | 0 tonne |
| Chemical waste | Spent lube oil | Collected by licensed collector | 0 L |

## 6.3 Complaint Record

No environmental complaint was received during the reporting period.

A log record on the environmental complaints is given in **Appendix G** and a cumulative statistics on environmental complaints is given in Table 6-3.

**Table 6-3 :** Cumulative statistics on environmental complaints

| No. of complaints received in the reporting month | No. of outstanding complaints | Cumulative no. of complaints received since the commencement of project |
|---|---|---|
| 0 | 0 | 23 |

### 6.4 Exceedance

There was no exceedance of environmental monitoring data for A/L Levels during the reporting period.

### 6.5 Notification of Summons and Successful Prosecution

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

### 6.6 Environmental Licenses

No new CNP was granted in the reporting period. A summary of the valid environmental licenses is given in Table 6-4.

**Table 6-4:** Summary of valid environmental licenses

| Type of Licence | Reference No. | Valid from | Valid to | Remarks |
|---|---|---|---|---|
| Environmental Permit | EP-236/2006/A | 13 May 2008 | -- | - |
| Construction Noise Permit | GW-RN0053-08 | 6 Feb 2008 | 5 Aug 2008 | - |

## 7 Future Key Issue

### 7.1 Forecast of Works Programme

Pre-Test Event construction works was completed in mid July 2007. Post-test event construction works commenced on 10 December 2007 and finished in mid-March 2008. The overlay works commenced in early February 2008 by GL Events Hong Kong Ltd.

### 7.2 Key Issues for Coming Month

The following key issue is anticipated in the coming month:

- Final works of the Installation of spectator stands and semi-permanent tents

## 8 Comments, Recommendations and Conclusion

### 8.1 Comments and Recommendations

According to the environmental site inspections performed during the reporting period, the following observations and recommendations were provided:

- Water Quality
  - Nil.
- Air Quality
  - Nil.
- Construction Noise
  - Nil.
- Waste / Chemical Management
  - Nil.
- Landscape & Visual
  - Most transplanted and retained trees were generally in fair condition but some of the retained trees and transplanted trees were dead. The Contractor shall keep on regular watering to ensure the healthy establishment of planted vegetation.

### 8.2 Conclusion

Construction phase impact monitoring and audit were conducted in the reporting month. Monitoring and audit programme included construction noise monitoring, landscape and visual monitoring and audit, and weekly site inspection.

Daytime noise levels were monitored at 3 monitoring locations during the reporting month. No exceedance of Limit Level was recorded.

Weekly site inspections were conducted in the reporting month. Remedial measures were advised for those deficiencies observed for the Contractor to follow up.

No new Construction Noise Permit was obtained in the reporting month.

No environmental complaint was received during the reporting period.

There was neither notification of summons nor prosecution received during the reporting period.

# 9 References

[1] Ove Arup & Partners Hong Kong Ltd. June 2006. Main Arena of the 2008 Olympic Equestrian Event – Environmental Monitoring & Audit Manual

[2] Ove Arup & Partners Hong Kong Ltd. July 2006. Main Arena of the 2008 Olympic Equestrian Event – Environmental Baseline Monitoring Report

Appendix A

# Construction Programme

Due to large content, Appendix A has been given in advance as separate document.

Appendix B

# Monitoring Schedule for May and June 2008

# Monitoring Schedule - May 2008

| May 2008 | | | | | | |
|---|---|---|---|---|---|---|
| **Sunday** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** | **Saturday** |
| | | | | 1 | 2<br>Noise Monitoring | 3 |
| 4 | 5<br>Landscape Audit | 6 | 7 | 8<br>Noise Monitoring<br>Site Inspection | 9 | 10 |
| 11 | 12 | 13 | 14 | 15<br>Noise Monitoring | 16<br>Site Inspection | 17 |
| 18 | 19<br>Landscape Audit | 20 | 21 | 22<br>Noise Monitoring | 23<br>Site Inspection | 24 |
| 25 | 26 | 27 | 28 | 29<br>Noise Monitoring | 30<br>Site Inspection | 31 |

# Tentative Monitoring Schedule - June 2008

| June 2008 | | | | | | |
|---|---|---|---|---|---|---|
| **Sunday** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** | **Saturday** |
| 1 | 2 | 3<br>Landscape Audit | 4 | 5<br>Noise Monitoring | 6<br>Site Inspection | 7 |
| 8 | 9 | 10 | 11 | 12<br>Noise Monitoring | 13<br>Site Inspection | 14 |
| 15 | 16 | 17<br>Landscape Audit | 18 | 19<br>Noise Monitoring | 20<br>Site Inspection | 21 |
| 22 | 23 | 24 | 25 | 26<br>Noise Monitoring | 27<br>Site Inspection | 28 |
| 29 | 30<br>Landscape Audit | | | | | |

Appendix C

# Environmental Mitigation Implementation Schedule

**Environmental Mitigation Implementation Schedule**
**Main Arena of 2008 Olympic Equestrian Events**

| EIA Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to implement the measures? | Implementation | What requirements or standards for the measures to achieve? |
|---|---|---|---|---|---|---|---|
| S3.8 | The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation<br>• Any excavated of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;<br>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads or streets;<br>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;<br>• Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;<br>• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;<br>• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;<br>• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;<br>• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;<br>• Any skip hoist for material transport should be totally enclosed by impervious sheeting; | Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria. | Contractor | Entire construction site | Construction stage | ✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>N/A<br>✓ | • To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1-hr and 24hr TSP levels are 500 $\mu gm^{-3}$ and 260 $\mu gm^{-3}$, respectively) |

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|---|---|---|---|---|---|---|---|
| S3.8.2 | The Contract shall adopt adequate measures to mitigate the odour impact to acceptable level:<br>• A sanitary environment will always be maintained in the stable area. The current waste management practices will be extended to cover the new stable area at HKSI. Detailed design of stable will cater for the health, safety and environmental protection considerations in accordance with the HKJC policy and practice;<br>• Regular maintenance of the odour removal system, such as carbon filter system will be carried out to maintain the odour removal efficiency; and<br>• Enclosed containers, similar to those at the existing stables near HKSI, will be provided for the stockpiling of waste. | minimize the potential odour impact to nearby sensitive receivers | Contractor | Stables | Operational Phase | N/A<br>N/A | • TM-EIA, Annex 4<br>• 5 odour units based on averaging time of 5 seconds |
| S4.8.1.1 | 1) Use of good site practices to limit noise emissions by considering the following:<br>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;<br>• machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;<br>• plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;<br>• silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;<br>• mobile plant should be sited as far away from NSRs as possible and practicable;<br>• material stockpiles, mobile container site officer and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. | Control construction airborne noise by means of good site practices | Contractor | Entire construction site | Construction stage | ✓<br>✓<br>✓<br>✓<br>✓<br>✓ | • Noise Control Ordinance |

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**Main Arena of 2008 Olympic Equestrian Events**

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|---|---|---|---|---|---|---|---|
| S4.8.1.2 | 2) Install temporary hoarding of 2.4m high located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period. | Reduce the construction noise levels at low-level zone of NSRs through partial screening. | Contractor | Entire construction site | Construction stage | ✓ | • Noise Control Ordinance<br>• Annex 5, TM-EIA<br>• Hoarding should have no openings and a superficial surface density of at least 14kg/$m^2$. |
| S4.8.1.3 | 3) Install movable noise barriers (typically density @14kg/$m^2$), acoustic mat close to noisy plants including air compressor, water pump, hand-held breaker and pipe pile rigs. | Screen the noisy plant items to be used at all construction sites | Contractor | Entire construction site | Construction stage | N/A | • Noise Control Ordinance<br>• Annex 5, TM-EIA<br>• 75dB(A) for residential premises and 70dB(A) for schools during daytime<br>• The movable barrier should achieve at least 5dB(A) and the full enclosure should be designed to achieve 10dB(A) |

**Environmental Mitigation Implementation Schedule**
**Main Arena of 2008 Olympic Equestrian Events**

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|---|---|---|---|---|---|---|---|
| S4.8.1.4 | 4) Liaise with the school representative(s) including, but not limited to Hong Kong Institute of Vocational Education (Shatin), Jockey Club Ti-1 College, International Christian School – Elementary and Leung Kui Kau Primary School to obtain the examination schedule and avoid noisy construction activities during school examination period. | Schedule the construction works outside school examination periods to less intrusive periods | Contractor | Construction sites near the schools such as Hong Kong Institute of Vocational Education (Shatin), Jockey Club Ti-1 College, International Christian School – Elementary and Leung Kui Kau Primary School | Construction stage | N/A | • Noise Control Ordinance<br>• Annex 5, TM-EIA<br>• To comply with the daytime construction noise criterion of 65dB(A) at school during the examination periods, |
| S4.8.1.5 | 5) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM standards. | Reduce the noise levels of plant items | Contractor | Entire construction site | Construction stage | N/A | • Noise Control Ordinance & its TM<br>• Annex 5, TM-EIA |
| S4.8.1.6 | 6) Sequencing operation of construction plant equipment. | Operate sequentially within the same work site to reduce the construction airborne noise | Contractor | Entire construction site where practicable | Construction stage | ✓ | • Noise Control Ordinance<br>• Annex 5, TM-EIA |
| S4.8.4.1 | 1) The Louvres should be orientated away from adjacent NSRs where possible, preferably onto Sha Tin Racecourse which are less sensitive. | Control operational noise from fixed sources | Designers | E&M plant items | Design stage | ✓ | • HKPSG |
| S4.8.4.1 | 2) Adequate direct noise mitigation measures including silencers, acoustic louvers, acoustic enclosures should be allowed for in the design. | Control operational noise from fixed sources | Designers | E&M plant items | Design stage | ✓ | • HKPSG |
| S4.8.4.2 | 3) A cluster of small power rated loudspeakers should be used instead of a few large power rated loudspeakers | Control operational noise from fixed sources | Designers | PA system | Design stage | ✓ | • HKPSG |

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**Main Arena of 2008 Olympic Equestrian Events**

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|---|---|---|---|---|---|---|---|
| S4.8.4.2 | 4) Directional loudspeakers should be used and orientated them to point towards the audience and away from the nearby noise sensitive receivers | Control operational noise from fixed sources | Designers | PA system | Design stage | ✓ | • HKPSG |
| S5.6.1 | 1) Follow the site practices outlined in ProPECC PN 1/94 as far as practicable in order to minimise surface runoff and the chance of erosion, and to reduce any suspended solids prior to discharge. | Good site practice to control construction water quality | Contractor | Entire construction site | Construction stage | ✓ | • Requirements laid down in ProPECC PN 1/94 |
| S5.6.1 | *Sewage Effluent*<br>1) Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. | Control sewage effluent arising from the sanitary facilities provided for the on-site construction workforce | Contractor | On-site sanitary facilities | Construction stage | ✓ | • ProPECC PN 1/94<br>• Water Pollution Control Ordinance<br>• Waste Disposal Ordinance |

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**Main Arena of 2008 Olympic Equestrian Events**

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|---|---|---|---|---|---|---|---|
| S5.6.1 | *Construction Runoff and Site Drainage*<br>• At the start of site establishment (including the barging facility), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities.<br>• The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates.<br>• The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions.<br>• Construction works should be programmed to minimize surface excavation works during the rainy seasons (April to September). All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.<br>• The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all trafficked areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.<br>• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. | Control construction runoff and erosion from site surface, drainage channel, stockpiles, barging facility, wheel washing facilities, etc to minimize water quality during construction stage | Contractor | Entire construction site | Construction stage | ✓<br>B<br>✓<br>✓<br>✓<br>✓ | • ProPECC PN 1/94<br>• Water Pollution Control Ordinance |

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|---|---|---|---|---|---|---|---|
| | • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. | | | | | ✓ | |
| | • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50 $m^3$ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. | | | | | ✓ | |
| | • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. | | | | | ✓ | |
| | • Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. | | | | | ✓ | |
| | • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing bay should be provided at every construction site exit. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. | | | | | ✓ | |
| | • Oil interceptors should be provided in the site drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. | | | | | B | |

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|---|---|---|---|---|---|---|---|
| | • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. Requirements for solid waste management are detailed in Section 6 of the EIA Report.<br>• All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. | | | | | ✓<br>✓ | |
| S5.6.2.1 | A low flow interceptor drainage system should be constructed to intercept the first foul flush and convey it to a storage tank from where it is pumped to the foul drainage system. The catchment area of the low flow interceptor drainage covers the area of Main Stable Complex. Sand traps will also be provided at the stable to prevent sand from being conveyed into the pipe system. | Control surface runoff | Scheme designers and/or Operator | Drainage system | Design and/or operational stage | ✓ | • TM-water<br>• Water Pollution Control Ordinance |
| S5.6.2.2 | A new 450mm public gravity sewer should be constructed along the pathway of the Shing Mun River and be connected to the existing 450mm public sewer at the southeastern corner of HKSI to collect the sewage from the new Stable Complex and the low flow interceptor system. | Control sewage collection | Scheme designers | Sewage System | Design stage | ✓ | • Water Pollution Control Ordinance<br>• TM-water |
| S6.5.1.1 | 1) The requirements as recommended in ETWB TC 15/2003 Waste Management on Construction Sites and its latest version, and other relevant guidelines, should be included in the Particular Specification as appropriate. | Develop waste management strategies and minimize construction waste disposal | Scheme Designer | Entire construction site | Design stage | ✓ | • Waste Disposal Ordinance<br>• ETWB TC 15/2003 |
| S6.5.1.1 | 2) Prior to the commencement of construction work, the Contractor should prepare a WMP to provide an overall framework for waste management and reduction. | Develop waste management and reduction strategies | Contractor | Entire construction site | Construction stage | ✓ | • Waste Disposal Ordinance<br>• ETWB TC 15/2003<br>• Wste Disposal (Chemical Waste) (General) Regulation<br>• ETWBTC 34/2002 |

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**Main Arena of 2008 Olympic Equestrian Events**

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|---|---|---|---|---|---|---|---|
| S6.5.1.2 & S6.5.1.3 | *Construction and Demolition Material*<br>• Opportunity for re-using of fill material for back filling should be optimized.<br>• Excavated materials that cannot be recycled should be transported to public filling areas.<br>• Careful design, planning and good site management can minimise over-ordering and waste materials such as concrete, mortars and cement grouts. The design of formwork should maximise the use of standard wooden panels so that high reuse levels can be achieved. Alternatives such as steel formwork or plastic fencing should be considered to increase the potential for reuse.<br>• The contractor should recycle as much as possible of the construction waste on-site. Proper segregation of wastes on site will increase the feasibility of recycling certain components of the waste stream by recycling contractors. Concrete and masonry can be used as general fill and steel reinforcement bars can be used by scrap steel mills. Different areas should be designated for such segregation and storage wherever site conditions permit.<br>• Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement.<br>• Surplus artificial hard materials should be delivered to Tuen Mun Area 38 recycling plant or its successor for recycling into subsequent useful products.<br>• On-site sorting and segregation facility of all type of wastes is considered as one of the best practice in waste management and hence, should be implemented in all projects generating construction waste. The sorted public fill and construction & demolition (C&D) waste should be disposed to public filling areas and landfills, respectively. | Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal | Contractor | Entire construction site | Construction stage | ✓<br>✓<br>✓<br>✓<br>✓<br>✓<br>✓ | • Land (Miscellaneous Provisions) Ordinance<br>• Waste Disposal Ordinance<br>• ETWB TC 15/2003 |

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|---|---|---|---|---|---|---|---|
| | • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate.<br>• Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified.<br>• Implement an enhanced Waste Management Plan similar to ETWB TC(W) No. 15/2003 – "Waste Management on Construction Sites" to encourage on-sitting sorting of C&D materials and to minimize their generation during the course of construction. | | | | | ✓<br>✓<br>✓ | |
| S6.5.1.4 | *Chemical Waste*<br>• Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.<br>• Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation.<br>• The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.<br>• Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. | Control the chemical waste and ensure proper storage, handling and disposal. | Contractor | Entire construction site | Construction stage | N/A<br>N/A<br>N/A<br>N/A | • Waste Disposal (Chemical Waste) General) Regulation<br>• Code of Practice on the Packaging, Labelling and Storage of Chemical Waste |

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| S6.5.1.6 | *Sewage*<br>• Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly. | Proper handling of sewage from worker to avoid odour, pest and litter impacts | Contractor | Entire construction site | Construction stage | ✓ | • Waste Disposal Ordinance |
| S6.5.1.5 | *General Refuse*<br>• General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.<br>• A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.<br>• Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.<br>• Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminium cans, plastic bottles etc., should be provided. | Minimize production of the general refuse and avoid odour, pest and litter impacts | Contractor | Entire construction site | Construction stage | ✓<br>✓<br>✓<br>✓ | • Waste Disposal Ordinance |

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| S6.5.2.1 | *Municipal Waste*<br>• Recycling bins will be provided at shops and food service locations to collect cardboard containers. Personnel in office will be provided with bins to recycle office paper.<br>• Aluminium can recycling bins will be placed at prominent locations for collection<br>• Recycling bins for plastic bottle recovery should be set up at prominent places to facilitate visitors' participation in material recovery activities.<br>• The landscaping works will generate a certain amount of grass clippings, leaves, bush and tree trimmings. However, the handling capacity of the existing Sha Ling composting facility is limited and is currently composting livestock wastes. The facility is unlikely to be able to handle the green waste generated from the Project site. Should there be a market or facility which could process the green waste arising from the Project site, the establishment of a recycling programme for green waste should be considered.<br>• The venue operator should make arrangements with the laser printer toner cartridge suppliers to collect and recycle used toner cartridges for laser printers to avoid disposal of the cartridge at landfills as far as practicable. | Storage and handing of waste | Operator | Entire project site | Operational stage | B<br>B<br>B<br>N/A<br>B | • Waste Disposal Ordinance |
| S6.5.2.2 | *Waste from Stables*<br>• Waste from horse stables (mainly the horse manure) would be collected on a regular basis following HKJC's sanitary practices. | Storage and handing of waste | Operator | Entire project site | Operational stage | B | • Waste Disposal Ordinance |

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| S9.3 & S9.7 | 1) An Independent Environmental Checker needs to be employed as per the EM&A Manual.<br>2) Establish a telephone hotline which enables the public to raise any matters of concern regarding the project such as complaints, comments, suggestions or requests for information. | Control EM&A Performance | Project Proponent | All construction sites | Construction stage | ✓<br>B | • EIAO Guidance Note No.4/2002<br>• TM-EIAO |
| S9.5 | 1) An Environmental Team needs to be employed as per the EM&A Manual.<br>2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.<br>3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.<br>4) Real-time reporting of monitoring data for the Project through a dedicated internet website need to be provided and maintained by the Environmental Team | Perform environmental monitoring & auditing | Contractor | All construction sites | Construction stage | ✓<br>✓<br>✓<br>✓ | • EIAO Guidance Note No.4/2002<br>• TM-EIAO |

Note: ✓ - Implemented
○ - Partially implemented
B - To be implemented
N/A - Not applicable

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|---|---|---|---|---|---|---|---|
| **Measures to Mitigate Construction Noise Impact** | | | | | | | |
| 3.1 | Noise reduction measures in the form of movable barrier or site hoarding shall be adopted to alleviate the construction noise impacts. A purpose built temporary noise barriers of 2.4 m high shall be built along the site boundaries. Movable barrier with a wooden or steel frame of vertical/cantilever type shall be adopted and located close to the noise generating part of Powered Mechanical Equipment (PME). The barrier material shall have a surface mass of not less than 14 kg/$m^2$ on a skid footing with 25mm thick internal sound absorptive lining to achieve the maximum screening effect | To mitigate construction noise impact | Contractor | Entire project site | Construction Stage | B | Environmental Permit No. EP-236/2006/A |
| 3.2 | The permit holder shall liaise with the school representative(s) including but not limited to Hong Kong Institute of Vocational Education (Shatin), Jockey Club Ti-I College, International Christian School – Elementary and Leung Kui Kau Primiary School to obtain the examination schedule to avoid noisy construction activities during the school examination period | | Contractor / Project Proponent | | Construction Stage | ✓ | |
| 3.3 | The Permit Holder shall ensure the implementation of noise mitigation measures are in full compliance with the details as set out in Conditions 3.1 above | | Project Proponent | Entire project site | Construction Stage | ✓ | |
| 3.4 | No percussive piling shall be carried out | | Contractor | Entire project site | Construction Stage | ✓ | |
| **Measures to Mitigate Landscape Impact** | | | | | | | |
| 3.5 | All tree felling and transplanting activities shall strictly be conducted in accordance with the Tree Survey Schedule at Appendix 1 | To mitigate landscape impact | Contractor | Entire project site | Construction Stage | ✓ | Environmental Permit No. EP-236/2006/A |

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| EP Condition Ref | Mitigation Measures | Objectives of the Recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to implement the measures? | Implementation | What requirements or standards for the measures to achieve? |
|---|---|---|---|---|---|---|---|
| 3.6 | The Permit Holder shall submit three sets of the landscape impact mitigation plan for the Olympic mode (including the details of tree felling, transplanting and retention, methodology for transplanting and protection of retained trees, tree compensation plan and landscape plan) to the Director for approval at least three months before commencement of construction. Compensation of trees shall be in a ratio of at least 2 new trees for every tree felled. Similarly the landscape impact mitigation plan for the reinstatement works shall be submitted at least three months before commencement of reinstatement works. Implementation of all works in the landscape impact mitigation plans shall be certified by the IEC and as built drawings shall be deposited with the Director upon completion of the works. | | Project Proponent | | Construction Stage | O (The landscape impact mitigation plan for Olympic Mode was submitted 3 months before commencement of construction) | |
| **Measures to Mitigate Operational Noise Impact** | | | | | | | |
| 4.1 | A limiter device shall be installed and operated in the Public Address System to ensure full control of setting the maximum output sound level during the Test Event, Olympic Event and Paralympic Event.<br>The PAS shall be tested for compliance well before the Olympic Event. A noise compliance plan todetermine the "near-field" control sound level and action plan for noise compliance during the event period shall be submitted to the Director for deposit, no later than 4 weeks prior to the "Testing and Commissioning" period for the PAS for the Olympic Event. | To mitigate operational noise impact | Operator | Entire project site | Operational Stage | ✓<br>B | |
| 4.2 | Directional loudspeakers shall be used for the Public Address System | | Operator | Entire project site | Operational Stage | ✓ | |
| **Measures to Mitigate Odour Impact** | | | | | | | |
| 4.3 | Two rounds of odour patrol shall be conducted; one during the Test Event and the other just prior to the Olympic Event after the arrival of all competition horses in order to ascertain the odour impact | To mitigate odour impact | Project Proponent | Entire project site | Operational Stage | O (Odour patrol during Test Event has been partially conducted) | |
| **Measures to Mitigate Water Quality Impact** | | | | | | | |
| 4.4 | A low flow interceptor drainage system shall be constructed and in operation to intercept surface runoff. | To mitigate water quality impact | Contractor | Entire project site | Construction Stage | ✓ | |

**Environmental Mitigation Implementation Schedule**
**Main Arena of 2008 Olympic Equestrian Events**

| EP Condition Ref | Mitigation Measures | Objectives of the Recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to implement the measures? | Implementation | What requirements or standards for the measures to achieve? |
|---|---|---|---|---|---|---|---|
| 4.5 | A new sewer shall be constructed along the pathway of the Shing Mun River to collect the sewage from the low flow interceptor drainage system. | | Contractor | Entire project site | Construction Stage | ✓ | |
| **Measures to Mitigate Glare Impact** | | | | | | | |
| 4.6 | The use of the floodlights at the Main Arena shall be restricted to competition hours only. The floodlight at the Main Arena shall be operated according to the most updated competition and training schedule. For off-event activities, i.e. night-time preparation and setting up works, the floodlight shall be operated at an illumination level of no more than 500 lux with additional local lighting to be provided if higher illumination for fine works is required. | To mitigate glare impact | Operator | Entire project site | Operational Stage | B | |
| 4.7 | Each floodlight unit at the Main Arena shall have a built-in antiglare baffle and visor shield to limit the glare | | Operator | Entire project site | Operational Stage | ✓ | |
| 4.8 | Each floodlight unit at the Main Arena shall not be equipped with metal halide lamps of more than 2000W. | | Operator | Entire project site | Operational Stage | ✓ | |
| 4.9 | The illuminance level of floodlight units shall be reduced to that of the existing racecourse after the 2008 Olympic and Paralympic Equestrian Events. The Permit Holder shall submit information on the existing illumination level of the existing racecourse before construction of the Main Arena for this purpose | | Operator / Project Proponent | Entire project site | Operational Stage | ○ (The existing illumination level of the racecourse was included in the Baseline Environmental Monitoring Report submitted before construction stage) | |

Note: ✓ - Implemented
○ - Partially implemented
B - To be implemented
N/A - Not applicable

Appendix D

# Calibration certificates of noise monitoring equipment

**Summary of Equipment Calibration Details**

| Equipment Type | Model | Serial No. | Last Calibration Date | Next Calibration Date |
|---|---|---|---|---|
| Integrating sound level meter with microphone | Brüel & Kjær 2238 | 2320694 | 1 Sep 2007 | 31 August 2008 |
| | | 2274284 | | |
| | Brüel & Kjær 4188 | 2320696 | 1 Sep 2007 | 31 August 2008 |
| | | 2274286 | | |
| | | 2320707 | 1 Sep 2007 | 31 August 2008 |
| | | 2179479 | | |
| Acoustical calibrator | Brüel & Kjær 4231 | 2314016 | 1 Sep 2007 | 31 August 2008 |

# CERTIFICATE OF CALIBRATION

Issued by: **Brüel & Kjær UK Ltd.**

Date of Issue: 01 FEB 2007 Certificate Number: 15784

UKAS CALIBRATION

0174

**Brüel & Kjær**

Bedford House, Rutherford Close, Stevenage.
Hertfordshire. SG1 2ND
Telephone: 01438 739100 Fax.: 01438 739199
E-Mail : ukservice@bksv.com



Approved signatory

*Name:* A.M. HAMM

*Signature:* A M Hamm

# CALIBRATION OF MULTI FREQUENCY CALIBRATOR TYPE 4226

**("Free Field and Random" version)**

Client: ARUP ACOUSTICS
PARKIN HOUSE
8 ST. THOMAS STREET
WINCHESTER SO23 9HE

Calibrator Type 4226, S/No: 1531372

With Coupler UA0915, S/No: 1531372

Client Inventory Number: -

Manufacturer: Brüel & Kjær

Equipment Received on: 23 JAN 2007

Calibration Date: 01 FEB 2007

Brüel & Kjær Reference No: 1-97267724

Measurement Method

The Calibration was performed to Laboratory Procedure TWI-103.

Sound pressure level in the 1/2 inch coupler of the calibrator was measured with a laboratory grade condenser microphone Type 4180, used as a working standard, calibrated by the National Physical Laboratory.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

# CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0174

Certificate Number

15784



The measured sound pressure was compared with that generated in the coupler of a working standard pistonphone calibrated by the National Physical Laboratory whose output was cross checked against a reference standard pistonphone, also calibrated by the National Physical Laboratory, using the same microphone and at the same ambient conditions. Appropriate corrections for atmospheric pressure conditions during calibration and for the measurement frequency and level response were taken into account.

Sound pressure level results are the mean of 5 measurements.

Results apply directly to the following settings on the calibrator, pressure, linear, calibration, 94dB, microphone group a, b, c.

Results for frequency and distortion are the result of a single measurement.

Results for 104 and 114dB are only at 125Hz, 1kHz and 8kHz, compared with the output at 94dB.

Calibration results apply at ambient conditions during the process of calibration.

Calibrations marked (Not UKAS Accredited) in this certificate have been included for completeness.

# CALIBRATION RESULTS

**4226 Settings: Linear, Pressure, 94dB, Microphone Group c.**

| Frequency Setting Hz | Sound Pressure Level in dB re 20μPa | Frequency Hz (Not UKAS Accredited) | Distortion % (Not UKAS Accredited) |
|---|---|---|---|
| 31.5 | 94.13 | 31.63 | 0.5 |
| 63 | 94.07 | 63.13 | 0.2 |
| 125 | 94.04 | 125.9 | 0.2 |
| 250 | 94.02 | 251.3 | 0.2 |
| 500 | 94.00 | 502.5 | 0.2 |
| 1k | 94.04 | 1.005 k | 0.2 |
| 2k | 94.02 | 1.979 k | 0.4 |
| 4k | 94.07 | 3.957k | 0.7 |
| 8k | 94.16 | 7.915k | 0.3 |
| 12.5k | 94.08 | 12.66 k | 0.2 |

# CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0174

Certificate Number

15784



**Expanded uncertainty of calibration:**

| | |
|---|---|
| Sound Pressure Level: | ±0.15dB from 31.5Hz to 2kHz,<br>±0.20dB at 4kHz and 8kHz,<br>±0.25dB at 12.5kHz |
| Frequency: | ±1 last significant digit reported. |
| Distortion: | ±0.3% distortion. |

**The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor *k*=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.**

# ADDITIONAL TESTS

**Sound Pressure Levels at Settings of 94, 104 and 114 dB**

| Frequency | Difference 104-94dB | Difference 114-94dB |
|---|---|---|
| 125 Hz | 9.99 | 19.97 |
| 1kHz | 10.00 | 19.98 |
| 8kHz | 9.96 | 19.93 |

Result of a single measurement, expanded uncertainty ±0.15dB

**Inverted "A" Weighting, Readings Relative to 1kHz in dB**

| Frequency Hz | 31.5 | 63 | 125 | 250 | 500 | 1 k | 2 k | 4 k | 8 k | 12.5 k |
|---|---|---|---|---|---|---|---|---|---|---|
| Target Value | +39.4 | +26.2 | +16.1 | +8.6 | +3.2 | 0 | -1.2 | -1.0 | +1.1 | +4.3 |
| Reading | 39.6 | 26.2 | 16.1 | 8.6 | 3.2 | 0.0 | -1.2 | -1.0 | 1.2 | 4.3 |

Target values according to BS EN 60651 - 1994 - results of a single measurement, values rounded to 0.1 dB, expanded uncertainty ±0.3dB.

# CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0174

Certificate Number

15784



**Free Field and Random settings**

| | Free Field Setting | | | | | | Random | |
|---|---|---|---|---|---|---|---|---|
| | Microphone Group a | | Microphone Group b | | Microphone Group c | | Microphone Group b | |
| Freq. Hz | Target Value dB | Reading dB | Target Value dB | Reading dB | Target Value dB | Reading dB | Target Value dB | Reading dB |
| 250 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| 500 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| 1k | +0.15 | 0.15 | +0.20 | 0.19 | +0.10 | 0.10 | +0.05 | 0.03 |
| 2k | +0.50 | 0.49 | +0.45 | 0.44 | +0.35 | 0.34 | +0.10 | 0.09 |
| 4k | +1.35 | 1.34 | +1.05 | 1.04 | +0.95 | 0.93 | +0.15 | 0.13 |
| 8k | +4.50 | 4.47 | +2.80 | 2.78 | +2.60 | 2.58 | +0.40 | 0.38 |
| 12.5k | +7.35 | 7.29 | +5.60 | 5.54 | +5.05 | 5.00 | +1.50 | 1.48 |

Target values as specified in the manufacturer's manual, result of a single measurement, expanded uncertainty ±0.2dB.

**Ambient conditions during calibration were:**

Atmospheric Pressure ..... 101.7 .....kPa

Temperature ..... 23 .....° C

Relative Humidity ..... 47 .....%

**Checked by:**

ArupAcoustics

ARUP

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

Tel: +852 2268 3216

Fax: +852 2268 3950

AAc Certificate No. 2007004

## *CERTIFICATE OF CONFORMITY*

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

Date of Test: 01 September 2007

Carried out by: Raymond Liu

Signature: Raymond

Approved by: William Ng

Signature: William Ng

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

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

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

| | |
|---|---|
| Certificate of Calibration Serial No. | 15784 |
| By Brüel & Kjær (UK) Ltd Calibration Date: | 01 February 2007 |
| NAMAS Accredited Calibration Laboratory No. | 0174 |

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

Footnote:

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

ArupAcoustics

ARUP

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

Tel: +852 2268 3216

Fax: +852 2268 3950

AAc Certificate No. 2007005

## *CERTIFICATE OF CONFORMITY*

| Description of Test Instrument | Type No | Serial No |
|---|---|---|
| Brüel & Kjær Sound Level Meter Kit | 2238 | 2320696 |
| Brüel & Kjær ½ " Microphone Kit | 4188 | 2274286 |

Date of Test: 01 September 2007

Carried out by: Raymond Liu

Signature: Raymond

Approved by: William Ng

Signature: William Ng

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

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

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| | |
|---|---|
| Certificate of Calibration Serial No. | 15784 |
| By Brüel & Kjær (UK) Ltd Calibration Date: | 01 February 2007 |
| NAMAS Accredited Calibration Laboratory No. | 0174 |

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

Footnote:

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Table 7.31 | MC1 | Site offices, construction yard and holding nursery:<br>· Site offices and the construction yard shall be decommissioned after construction.<br>· Construction roads shall be decommissioned and landscape areas be restored to its original or newly proposed state.<br>· The holding nursery for decorative plants at show jumps shall be decommissioned after the Olympic events. | At concealed location | HKJC's Contractor | x | | x | Construction:<br>To commence.<br><br>Reinstatement:<br>To commence | Nil. |
| Table 7.31 | MC 2 | Height of site offices:<br>The height of site offices shall be controlled in order to avoid visual impacts.<br>u | At concealed location | HKJC's Contractor | x | | x | Construction:<br>Complied.<br><br>Reinstatement:<br>To commence. | Nil. |
| Table 7.31 | MC 3 | Hoarding and screening:<br>Where practical the site offices areas, construction yard0fTd (r)Tj 3.2462 0 Td (d)Tj 5.2901 0 Td (0 T f 3324 4043 2.999Tj 2.0439 0 Td (o)Tj 5.2901 0 | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Table 7.31 | MC 4 | Construction plant and building material:<br>▪ Shall be orderly and carefully stored in order to appear neat and avoid visibility from outside where practical;<br>▪ Excess materials shall be removed from site as soon as practical; and<br>▪ All construction plant shall be removed from site upon completion of construction works. | All areas with construction plant and building material | HKJC's Contractor | x | | x | Construction: Generally satisfactory.<br><br>Reinstatement: To commence | Nil. |
| Table 7.31 | MC 5 | Construction light:<br>▪ To be oriented away from the viewing location of VSRs; and<br>▪ All construction lights shall have frosted diffusers and reflective covers. | All construction lights | HKJC's Contractor | x | | x | No construction lights at present. | Nil. |
| Table 7.31 | MC 6 | Vegetation:<br>▪ Temporary construction sites shall be restored to standards as good as, or better than, the original condition;<br>▪ The potential for soil erosion shall be reduced at the construction stage by minimizing the extent of vegetation disturbance on site and by providing a protective cover over exposed ground; and<br>▪ No construction equipment or building materials shall be stored under the dripline of retained trees and no vehicle movement or other construction activities like washing, concrete mixing etc shall be carried out under the dripline of trees. | Affected vegetation areas | HKJC's Contractor | x | | x | Construction: Complied. Most of the retained and transplanted trees have been fenced off.<br><br>Reinstatement: To commence. | Nil. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Table 7.31 | MT 1 | Compensation for losses:<br>▪ The tree compensation to tree loss ratio shall be 1:2; and<br>▪ At least 82 new trees of light standard or larger size shall be planted. | At available areas suitable for healthy tree growth | HKJC's Contractor | x | | x | Construction: Complied.<br><br>Reinstatement: Not Required. | Nil. |
| Table 7.31 | MT 2 | The majority of compensation species shall comprise of species that already occurs within the LIA boundaries. | General | HKJC's Contractor | x | | x | Construction: Complied.<br><br>Reinstatement: Not Required. | Nil. |
| Table 7.31 | MT 3 | Where practical, trees that require removal shall be transplanted on Site. | At available areas suitable for healthy tree growth | HKJC's Contractor | x | | x | Construction: Complied.<br><br>Reinstatement: Not required. | ETWB TCW N0. 2/2004, WBTC No. 3/2006 BD PNAP No. 267 |
| Table 7.31 | MT 4 | Planting Works:<br>▪ New trees, bamboos and shrubs shall be planted in groups in order to screen visual impacts and to provide additional shade. | At available areas suitable for healthy tree growth and along approach footpath | HKJC's Contractor | x | | x | Construction: Complied.<br><br>Reinstatement: To commence. | Nil. |
| Table 7.31 | MT 5 | Tree Planting on Slopes:<br>▪ New slopes with a gradient larger than $30^{o}$ shall have shrub, groundcover or grass planting. | On affected slopes | HKJC's Contractor | x | | x | Construction: Complied.<br><br>Reinstatement: To commence | WBTC No. 17/2000 WBTC No. 25/93 BD PNAP No. 270 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Table 7.31 | MT 6 | Tree Preservation:<br>▪ No tree shall be transplanted or felled without prior approval by relevant Government departments;<br>▪ All trees that are marked for retention shall be fenced off with a 1.2m high fence; and<br>▪ Transplant preparation works shall be carried as soon as possible after commencement of construction. Rootball and crown pruning shall be carried out over a period of at least 1 month. | At existing locations of retained trees and transplantation areas, which should be suitable for healthy tree growth. | HKJC's Contractor | x | | x | Construction: Tree protection has been recorded.<br><br>Reinstatement: To commence. | Nil |
| Table 7.31 | MT 7 | Existing shrub and ground cover planting areas that will not be removed shall be maintained in good condition and enhanced where practical. | All retained planting areas | HKJC's Contractor | x | | x | Construction: Generally satisfactory.<br><br>Reinstatement: To commence. | Nil |
| | MS 8 | Site formation works at slopes shall be followed with hydroseeding as soon as practical or be covered with shrubs and groundcovers. | Slope areas | Event Operator HKJC's Contractor | x | | x | Construction: Complied.<br><br>Reinstatement: To commence | Nil |
| Table 7.31 | MS 9 | Grassing shall be carried out as soon as practical after construction of footing stratum at one of the General Training Arenas. | General Training Arena | Event Operator | x | | | Construction: Complied. | Nil. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Table 7.31 | MF 1 | All floodlight units on the floodlight poles shall be properly aimed at the competition and practice areas of the Main and Warm-up arenas. In this regards, the central light focus of each floodlight unit shall always be aimed on the arena areas and not on any other adjacent area. | Main Arena and Warm-up Arena | HKJC's Contractor | | x | x | Operation: Complied.<br><br>Reinstatement: To commence. | Nil. |
| Table 7.31 | MF 2 | Each floodlight unit shall have a built-in anti-glare baffle and visor shield to limit the glare. | Main Arena and Warm-up Arena | HKJC's Contractor | x | | | Construction: Complied. | Nil. |
| Table 7.31 | MF 3 | Operational hours of the floodlights shall be restricted to competition hours only. Floodlights shall be turned off when spectators have left the seating area. | Main Arena and Warm-up Arena | Event Operator | | x | x | Operation: Complied.<br><br>Reinstatement: To commence. | Nil. |

* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.
** C=Construction, O=Operation R=Reinstatement
N/A Not applicable

## 2. Recommendations and Conclusion

The Contractor shall keep on regular watering to ensure the healthy establishment of planted vegetation and replace all dead planted trees or shrubs.

Appendix G

# Log records and details of environmental complaints

**Log Record on Environmental Complaints**

| No. | Date of Complaint Received | Description | Investigation Result and Proposed Actions | Completion Date | Remarks |
|---|---|---|---|---|---|
| 001 | 28 Aug 2006 | Discharge of muddy water into Shing Mun River | No evidence had shown the source of the muddy water discharge from subjected site. In fact, there were three main contractors working inside the HKSI area and all share the same discharge outlet. However, contractor had carried out the following measures to prevent any further discharge of muddy water from the subject site areas:<br>1. Keep closely checking on the performance of the wastewater treatment system;<br>2. Closely monitoring of the discharge outlet at Shing Mun River and tracing of the source origin immediately if muddy water was observed;<br>3. Made use of the shallow ground areas on site to temporary trap stormwater inside the site to prevent any direct discharge;<br>4. Construction of temporary drainage channel and use of water pump to properly divert the trapped stormwater to the temporary sump pit;<br>5. Control pumping of all muddy water collected from the sump pit to the wastewater treatment plant within its treatment capacity before discharging. | 1 Sept 2006 | EPD inspected the site drainage system on 1 Sept 2006 and was satisfied. |

| No. | Date of Complaint Received | Description | Investigation Result and Proposed Actions | Completion Date | Remarks |
|---|---|---|---|---|---|
| 002 | 27 Sep 2006 | Construction dust from construction site at HKSI | No direct evidence was found during Contractor's investigation. The Contractor had reviewed the site dust mitigation measures, including more frequent haul road watering and covering the dusty materials. | 27 Sep 2006 | EPD was replied on 28 Sept 2006 by email. |
| 003 | 8 Nov 2006 | Construction Noise generated from area at HKSI on 5 Nov 2006 (Sunday) | Rectification action:<br>1. Introduction of the Permit to Work system for works to be carried out during restricted hours.<br>2. Consider to apply for a more realistic CNP for the construction works. | 12 Nov 2006 | EPD was replied on 10 Nov 2007 by email. |
| 004 | 9 Nov 2006 | Dust nuisance from construction site of HKSI | Rectification action:<br>1. Avoid stockpile of dusty materials on site.<br>2. Compact the exposed areas when watering on these areas is not effective. | 9 Nov 2006 | EPD inspected on 10 Nov 2006. There was no adverse comment. |
| 005 | 15 Nov 2006 | Dump trucks not covering their load were found at the dumping sites | Rectification action:<br>1. Enhancement of the current checking system at vehicular entrance by security personnel.<br>2. Give warning to subcontractors and establish penalty measures.<br>3. Give warning to the security company for the site and request them to enhance the checking system for every dump truck leaving the site. | 17 Nov 2006 | EPD inspected on 23 Nov 2006. The rectify actions were introduced and they had no further comment. |
| 006 | 21 Nov 2006 | Muddy water from construction site at HKSI | Muddy water was observed during Amber rainstorm. Rectification action included installing more water pumps to direct surface runoff. | 22 Nov 2006 | EPD was replied on 21 Nov 2006 by email. |
| 007 | 8 Jan 2007 | Dust and effluent from construction | Investigation Result: | 9 Jan 2007 | EPD inspected on 9 |

| No. | Date of Complaint Received | Description | Investigation Result and Proposed Actions | Completion Date | Remarks |
|---|---|---|---|---|---|
| | | site at HKSI | 1. Dust and muddy water spread to cycle track during the drilling processes.<br>Rectification action:<br>1. Clean cycle track regularly<br>2. Erect screen along the cycle track | | Jan 2007. They were satisfied with the improvement works. EPD was replied on 12 Jan 2007 by email. |
| 008 | 15 Jan 2007 | Construction dust from construction site at HKSI | Investigation Result:<br>2. Dust and muddy water spread to cycle track during the drilling processes.<br>Rectification action:<br>1. Additional screen was erected and worker was arranged to clean the cycle track regularly. | 15 Jan 2007 | EPD believed it was the same complaint as the one on 8 Jan 2007. EPD was replied on 15 and 16 2007 by email. |
| 009 | 2 Apr 2007 | Discharge of muddy water to Shing Mun River Channel | Rectification action:<br>1. Installation of additional water pump at the last manhole to direct as much muddy water as possible during rainfall to the on-site treatment facility. | 3 Apr 2007 | The discharge of muddy water occurred after a heavy rainfall on 2 April 2007. EPD was replied on 3 April 2007 by email. |
| 010 | 2 Apr 2007 | Dust and night time construction noise from construction site at HKSI | Investigation result:<br>1. No construction activity was scheduled during the concerned period.<br>Rectification action:<br>1. more frequent haul road watering<br>2. covering dusty material with tarpaulin sheets. | 2 Apr 2007 | EPD was replied on 3 April 2007 by email. |

| No. | Date of Complaint Received | Description | Investigation Result and Proposed Actions | Completion Date | Remarks |
|---|---|---|---|---|---|
| 011 | 10 Apr 2007 | Public holiday construction noise and muddy water in Shing Mun River near the construction site at Yuen Wo Road | Investigation result:<br>1. The rainfall on 8 Apr 2007 was 0.3mm, overflowing of site drainage did not occur<br>2. Only internal finishing works was arranged on 8 Apr 2007, which did not lead to excessive noise<br>The complaint was not substantiated. | 10 Apr 2007 | EPD inspected on 10 April and no further comment. |
| 012 | 17 Apr 2007 | Construction dust from construction site at HKSI | Rectification action:<br>1. more frequent haul road watering<br>2. covering dusty material with tarpaulin sheets | 17 Apr 2007 | EPD was replied on 19 and 22 Apr 2007 by email. |
| 013 | 18 Apr 2007 | Polluted effluent discharged from the construction site at HKSI | Investigation result:<br>1. Muddy water was observed after the rainfall on 17 Apr 2007.<br>Rectification action:<br>1. More pumps were installed at the last manhole | 18 Apr 2007 | On site checking with EPD on the same day revealed that muddy water was caused by the tide washing over the river sediment. |
| 014 | 25 Apr 2007 | Muddy water from construction site at HKSI | Investigation result:<br>1. Muddy water was observed at outfall, but the source of the muddy water could not be traced. The Contractor will keep tracing the source of pollutant. | 25 Apr 2007 | EPD was replied on 27 and 29 Apr 2007 by email. |
| 015 | 9 May 2007 | No water spraying during granite polishing | Investigation result:<br>1. Check cutting processes in all stable areas<br>2. EPD was replied by email and the complaint was not substantiated | 9 May 2007 | EPD was replied on 9 May 2007. |

| No. | Date of Complaint Received | Description | Investigation Result and Proposed Actions | Completion Date | Remarks |
|---|---|---|---|---|---|
| 016 | 23 May 2007 | Discharge of muddy material to Shing Mun River | Investigation result:<br>1. Checking drainage system to prevent any leakage of untreated surface runoff<br>Rectification action:<br>1. Install more water pumps to direct surface runoff<br>2. Arrange workers entering the manholes to clear all settled soil | 31 May 2007 | EPD was replied on 31 May 2007 |
| 017 | 31 May 2007 | Strong light effect from lighting test | Rectification Action:<br>1. Switch off the light within 15 mins after receipt of complaint<br>2. Respond to complainant about the rectification action taken<br>3. Check the angle of the light to ensure it is not directed to the residential buildings<br>4. Self-checking of light at night | 1 June 2007 | The complainants were informed on 31 May and 1 June of the rectification action taken |
| 018 | 13 June 2007 | Light nuisance from HKSI after 11:00pm | Rectification Action:<br>1. Cancellation of light test on 13 June 2007.<br>2. The complainant was contacted and agreed to shorten the light test to 10:00pm.<br>3. All antiglare baffles and visor shields were checked on 14 June to be properly installed.<br>4. The electricians were reminded on 14 June to aim the flood lights at the main arena and warm up arena before switching on the lights. | 16 June 2007 | EPD was replied on 16 June 2007. |
| 019 | 26 Jun 2007 | Discharge of muddy water to Shing Mun River from outfall near the site office and wastewater treatment unit | Investigation result:<br>1. The Hong Kong Observatory record was checked which showed that raining occurred in Shatin during the concerned period.<br>Rectification Action:<br>1. Checking of drainage system on 26 June to ensure no leakage of untreated water to Shing Mun River Channel occurred.<br>2. Checking of water pumps on 26 June to ensure they were well functioned and that | 27 June 2007 | EPD was replied on 27 June 2007. |

| No. | Date of Complaint Received | Description | Investigation Result and Proposed Actions | Completion Date | Remarks |
|---|---|---|---|---|---|
| | | | all surface runoff was diverted to the wastewater treatment unit.<br>3. Checking of wastewater treatment unit on 26 June to ensure that it was well functioned. | | |
| 020 | 29 June 2007 | Dust and night time construction noise beyond 12:00am | Investigation Result:<br>1. Muddy water absorbed on the cycle track was suspected to lead to the dust complaint.<br>2. No construction works was arranged beyond 11:00pm. It was estimated the operation of the permanent ventilation system arisen the misunderstanding.<br>Rectification Result:<br>1. Covering the exposed slope to prevent soil from washing to cycle track during rain on 1 July.<br>2. Intercepting the site boundary along cycle track on 3 July to prevent leakage.<br>3. Clearing up the cycle track on 4 July. | 4 July 2007 | EPD was replied on 4 July 2007. |
| 021 | 30 June 2007 | Discharge of muddy materials into Shing Mun River channel and cycle track | Investigation Result:<br>1. Seeping of minor muddy water to Shing Mun River occurred after heavy rainfall from the outfall near the wastewater treatment unit.<br>2. Some soil was washed to cycle track due to the removal of site hoarding.<br>Rectification Result:<br>1. Checking of water pumps on 30 June 2007 to ensure they functioned well and all surface runoff was diverted to the wastewater treatment unit<br>2. Checking of wastewater treatment unit on 30 June 2007 to ensure it was well functioned.<br>3. Covering the exposed slope to prevent soil from washing to cycle track during rain on 1 July. | 4 July 2007 | EPD was replied on 4 July 2007. |

| No. | Date of Complaint Received | Description | Investigation Result and Proposed Actions | Completion Date | Remarks |
|---|---|---|---|---|---|
| | | | 4. Intercepting the site boundary along cycle track on 3 July to prevent leakage.<br>5. Clearing up the cycle track on 4 July. | | |
| 022 | 27 July 2007 | Light nuisance from HKSI beyond 10:00pm till 11:00pm | Investigation Result:<br>1. Light testing for all Arenas were completed on 14 July and the whole HKSI venue was locked down on 16 July 2007. There was no light testing carried out sine 15 July 2007 and no more light testing was anticipated to be required.<br>Rectification Result:<br>1. Agreed to address to EC via HKJC to notify the public in advance if there is any emergent light testing. | 27 July 2007 | EPD was replied on 27 July 2007. |
| 023 | 14 August 2007 | Floodlight nuisance after completion of Test Event | Rectification Result:<br>1. To notify the public in advance if there is any light testing.<br>2. To review the conditions in the EP. | 27 December 2007 | |