MONTHLY EM&A REPORT

Gammon Construction Limited

# Contract No. DC/2007/23 Harbour Area Treatment Scheme Stage 2A Construction of Sewage Conveyance System from North Point to Stonecutters Island: *Thirty-third Monthly EM&A Report*

September 2012

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Gammon Construction Limited

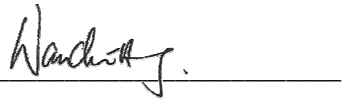
# Contract No. DC/2007/23 Harbour Area Treatment Scheme Stage 2A Construction of Sewage Conveyance System from North Point to Stonecutters Island: *Thirty-third Monthly EM&A Report*

September 2012

Reference 0104887

For and on behalf of
ERM-Hong Kong, Limited

Approved by: Frank Wan

Signed: 

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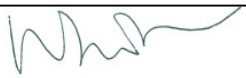
Certified by: 
(Environmental Team Leader – Winnie Ko)

Date: 14 September 2012

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*EXECUTIVE SUMMARY*

The construction works of **DC/2007/23 of Harbour Area Treatment Scheme Stage 2A (HATS2A) - Construction of Sewage Conveyance System from North Point to Stonecutters Island (the Project)** commenced on 1 December 2009. This is the 33rd monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A activities carried out during the period from 1 to 31 August 2012 in accordance with the EM&A Manual.

*North Point Production and Drop Shafts*

Summary of Construction Works undertaken during the Reporting Month

The major construction works undertaken during the reporting month include:

- Drop Shaft works site has been handed over to Contract DC/2009/23;
- Pumping system and service installation at Production Shaft; and
- Tunnel communication system installation at Production Shaft.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

| | |
|---|---|
| • 24-hour averaged TSP Monitoring at each monitoring station (AM1 and AM2) | 5 sets |
| • 1-hour averaged TSP Monitoring at each monitoring station (AM1 and AM2) | 15 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM1 | 4 times |
| • Construction Noise Monitoring during Restricted Hours at NM1 | 4 times |
| • Joint Environmental Site Inspection | 5 times |
| • Landscape & Visual Monitoring | 1 time |

Air Quality

5 sets of 24-hour average TSP and 15 sets of 1-hr averaged TSP measurements were carried out at each of the designated monitoring stations during the reporting period. No exceedance was recorded during the reporting period.

Noise

4 sets of 30-minute construction noise measurements were carried out at the monitoring station NM1 during normal weekdays of the reporting period. 4 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 0700 and 2300 hours on Sundays and public holidays) during the reporting month. No Exceedance of the limit level was recorded during normal working hours and restricted hours.

Landscape & Visual

Landscape and visual monitoring commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 3.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting month as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 10,131.36 tonnes of inert C&D materials and 30.71 tonnes of non-inert C&D materials were generated during the reporting period. 200l of chemical waste was generated during reporting period. No marine deposit requiring type 1, 2, or 3 disposal methods was generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. The inert C&D materials and general refuse generated from the Project were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill, respectively. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

Environmental Site Inspection

Five weekly joint environmental site inspections were carried out by the representatives of the Contractor, the Engineer and Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 3.6*.

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

No exceedance of Action and Limit Levels of construction noise was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

No environmental complaint and summon/prosecution was received in this reporting period.

Future Key Issues

Works to be undertaken in the next two months include:

- Drop Shaft works site has been handed over to Contract DC/2009/23; and
- Installation of Tunnel Services at Production shaft.

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, site runoffs and waste management.

*Wan Chai East Production and Drop Shafts*

Summary of Construction Works undertaken during Reporting Month

The major construction works undertaken during the reporting month include:

- Conducting pilot drilling at Drop shaft
- Chiller installation and commission at Production shaft.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

| | |
|---|---|
| • 24-hour averaged TSP Monitoring at AM3 | 5 sets |
| • 1-hour averaged TSP Monitoring at AM3 | 15 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM2 | 4 times |
| • Construction Noise Monitoring during Restricted hours at NM2 | 4 times |
| • Joint Environmental Site Inspection | 4 times |
| • Landscape & Visual Monitoring | 1 time |

Air Quality

5 sets of 24-hour average TSP and 15 sets of 1-hr TSP measurements were carried out at the designated monitoring station during the reporting period. No exceedance was recorded during the reporting period.

Noise

4 sets of 30-minute construction noise measurements were carried out at the monitoring station NM2 during normal weekdays of the reporting period. 4 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 0700 and 2300 hours on Sundays and public holidays) during the reporting month. No Exceedance of the limit level was recorded during normal working hours and restricted hours.

Landscape & Visual

Landscape and visual monitoring commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 4.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting month as the blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings mentioned in the EM&A Manual.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 10,131.36 tonnes of inert C&D materials and 30.71 tonnes of non-inert C&D materials were generated during the reporting period. 200l of chemical waste was generated during reporting period. No marine deposit requiring type 1, 2, or 3 disposal methods was generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. The inert C&D materials and general refuse generated from the Project were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill, respectively. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

Environmental Site Inspection

Four weekly joint environmental site inspections were carried out by the representatives of the Contractor, the Engineer and Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 4.6*.

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

No exceedance of Action and Limit Levels of construction noise was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

No environmental complaint and summon/prosecution was received in this reporting period.

No summon/prosecution was received in this reporting period.

Future Key Issues

Works to be undertaken in the next two months include:

- Raise boring at Drop Shaft; and
- Installation of Tunnel Services at Production Shaft.

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, site runoffs and waste management.

*Central Drop Shaft*

Summary of Construction Works undertaken during Reporting Month

The major construction works undertaken during the reporting month include:

- Minor excavation for trial pits.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

| | |
|---|---|
| • 24-hour averaged TSP Monitoring at AM4 | 5 sets |
| • 1-hour averaged TSP Monitoring at AM4 | 15 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM3 | 4 times |
| • Joint Environmental Site Inspection | 4 times |
| • Landscape & Visual Monitoring | 1 time |

Air Quality

5 sets of 24-hour average TSP and 15 sets of 1-hr averaged TSP measurements were carried out at the designated monitoring station during the reporting period. No exceedance was recorded during the reporting period.

Noise

4 sets of 30-minute construction noise measurements were carried out at the monitoring station NM3 during normal weekdays of the reporting period. No exceedance was recorded during the reporting period.

Landscape & Visual

Landscape and visual monitoring commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 5.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting month as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 10,131.36 tonnes of inert C&D materials and 30.71 tonnes of non-inert C&D materials were generated during the reporting period. 200l of chemical waste was generated during reporting period. No marine deposit requiring type 1, 2, or 3 disposal methods was generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. The inert C&D materials and general refuse generated from the Project were disposed of at the Tuen Mun Area 38/Tseung Kwan O

Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill, respectively. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

Environmental Site Inspection

Four weekly joint environmental site inspections were carried out by the representatives of the Contractor, the Engineer and the Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 5.6*.

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

No exceedance was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

No environmental complaint and summon/prosecution was received in this reporting period.

Future Key Issues

Works to be undertaken in the next two months include:

- Pre-excavation grouting for raise boring.

*Sai Ying Pun Junction Shaft*

Summary of Construction Works undertaken during Reporting Month

The major construction works undertaken during the reporting month include:

- Bunton, services and FSD ladderway installation; and
- Shaft sump construction.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

| | |
|---|---|
| • 24-hour average TSP Monitoring at AM5 | 6 sets |
| • 1-hour average TSP Monitoring at AM5 | 18 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM4 | 4 times |
| • Construction Noise Monitoring during Restricted hours at NM4 | 4 times |
| • Joint Environmental Site Inspection | 5 times |
| • Landscape & Visual Monitoring | 1 time |

Air Quality

6 sets of 24-hour averaged TSP and 18 sets of 1-hr averaged TSP measurements were carried out at the designated monitoring station during the reporting period. No exceedance was recorded during the reporting period.

Noise

4 sets of 30-minute construction noise measurements were carried out at the monitoring station NM4 during normal weekdays of the reporting period. 4 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours during reporting month. No exceedances of the limit level was recorded during normal working hours and restricted hours.

Landscape & Visual

Landscape and visual monitoring commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 6.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting month as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 10,131.36 tonnes of inert C&D materials and 30.71 tonnes of non-inert C&D materials were generated during the reporting period. 200l of chemical waste was generated

during reporting period. No marine deposit requiring type 1, 2, or 3 disposal methods was generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. The inert C&D materials and general refuse generated from the Project were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill, respectively. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

Environmental Site Inspection

Five weekly joint environmental site inspections were carried out by the representatives of the Contractor, the Engineer and Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 6.6*.

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

No exceedance of Action and Limit Levels of construction noise was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

No environmental complaint and summon/prosecution was received in this reporting period.

Future Key Issues

Works to be undertaken in the next two months include:

- Installation of Shaft & Tunnel Services;
- Shaft sump construction;
- Erect Tunnel Hoist & Muck-Out System; and
- Rail track installation.

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, site runoffs and waste management.

*Stonecutters Island Production and Riser Shafts*

Summary of Construction Works undertaken during the Reporting Month

The major construction works undertaken during the reporting month include:

- Alimak installation at Production shaft;
- Bunton, services and FSD ladderway installation at Production shaft;
- Shaft sump construction at Production shaft; and
- Pre-excavation grouting at Riser shaft.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

| | |
|---|---|
| • 24-hour averaged TSP Monitoring at AM6 | 6 sets |
| • 1-hour averaged TSP Monitoring at AM6 | 18 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM5 | 4 times |
| • Construction Noise Monitoring during Restricted Hours at NM5 | 4times |
| • Joint Environmental Site Inspection | 5 times |
| • Landscape & Visual Monitoring | 1 time |

Air Quality

6 sets of 24-hour averaged TSP and 18 sets of 1-hr averaged TSP measurements were carried out at the designated monitoring station during the reporting period. No exceedance was recorded during the reporting period.

Noise

4 sets of 30-minute construction noise measurements were carried out at the monitoring station NM5 during normal weekdays of the reporting period. 4 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours during reporting month. No exceedance of the limit level was recorded during normal working hours and restricted hours.

Landscape & Visual

Landscape and visual monitoring commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 7.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting month as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 10,131.36 tonnes of inert C&D materials and 30.71 tonnes of non-inert C&D materials were generated during the reporting period. 200l of chemical waste was generated during reporting period. No marine deposit requiring type 1, 2, or 3 disposal methods was generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. The inert C&D materials and general refuse generated from the Project were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill, respectively. No plastic was generated but 62 kg of paper/cardboard packaging and 8kg of steels generated were sent to recyclers for recycling.

Environmental Site Inspection

Five weekly joint environmental site inspections were carried out by the representatives of the Contractor, the Engineer and Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 7.6*.

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

No exceedance of Action and Limit Levels of construction noise was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

No environmental complaint and summon/prosecution was received in this reporting period.

Future Key Issues

Works to be undertaken in the next two months include:

- Installation of Shaft Services at Production Shaft;
- Shaft sump construction at Production Shaft;
- Erect Tunnel Hoist & Muck-Out System at Production Shaft; and
- Pre-excavation grouting at Riser Shaft.

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, site runoffs and waste management.

# 1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) has been appointed by Gammon Construction Limited (the Contractor) as the Environmental Team (ET) to undertake an Environmental Monitoring and Audit (EM&A) programme for the Contract - *No. DC/2007/23 of Harbour Area Treatment Scheme Stage 2A (HATS2A) - Construction of Sewage Conveyance System from North Point to Stonecutters Island* (the Project).

## 1.1 PURPOSE OF THE REPORT

This is the 33rd EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from **1 to 31 August 2012**.

## 1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

**Section 1 : Introduction**
It details the scope and structure of the report.

**Section 2 : Project Information**
It summarises background and scope of the project, site description, project organization and contact details

**Section 3 : North Point Production and Drop Shafts**

- **Construction Activities**
  It summarises the construction activities conducted during the reporting month.
- **Status of Environmental Approval Documents**
  It summarises the environmental documents submissions under the EP condition during the reporting month.
- **Environmental Monitoring Requirement**
  It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency, and locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.
- **Implementation Status on Environmental Mitigation Measures**
  It summarises the implementation of environmental protection measures during the reporting period.
- **Monitoring Results**
  It summarises the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

It summarises the audit findings of the weekly site inspections undertaken within the reporting period.

- **Environmental Non-conformance**
  It summarises any monitoring exceedance, environmental complaints and summons within the reporting period.
- **Future Key Issues**
  It summarises the impact forecast and monitoring schedule for the next three months.

**Section 4 : Wan Chai East Production and Drop Shafts**

- **Construction Activities**
  It summarises the construction activities conducted during the reporting month.
- **Status of Environmental Approval Documents**
  It summarises the environmental documents submitted under the EP condition during the reporting month.
- **Environmental Monitoring Requirement**
  It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency, and locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.
- **Implementation Status on Environmental Mitigation Measures**
  It summarises the implementation of environmental protection measures during the reporting period.
- **Monitoring Results**
  It summarises the monitoring results obtained in the reporting period.
- **Environmental Site Inspection**
  It summarises the audit findings of the weekly site inspections undertaken within the reporting period.
- **Environmental Non-conformance**
  It summarises any monitoring exceedance, environmental complaints and summons within the reporting period.
- **Future Key Issues**
  It summarises the impact forecast and monitoring schedule for the next three months.

**Section 5 : Central Drop Shaft**

- **Construction Activities**
  It summarises the construction activities conducted during the reporting month.
- **Status of Environmental Approval Documents**
  It summarises the environmental documents submitted under the EP condition during the reporting month.
- **Environmental Monitoring Requirement**
  It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency, and locations, Action and Limit Levels, Event and Action Plans,

environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

- **Implementation Status on Environmental Mitigation Measures**
  It summarises the implementation of environmental protection measures during the reporting period.
- **Monitoring Results**
  It summarises the monitoring results obtained in the reporting period.
- **Environmental Site Inspection**
  It summarises the audit findings of the weekly site inspections undertaken within the reporting period.
- **Environmental Non-conformance**
  It summarises any monitoring exceedance, environmental complaints and summons within the reporting period.
- **Future Key Issues**
  It summarises the impact forecast and monitoring schedule for the next three months.

**Section 6 : Sai Ying Pun Junction Shaft**

- **Construction Activities**
  It summarises the construction activities conducted during the reporting month.
- **Status of Environmental Approval Documents**
  summarises the environmental documents submissions under the EP condition during the reporting month.
- **Environmental Monitoring Requirement**
  It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency, and locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.
- **Implementation Status on Environmental Mitigation Measures**
  It summarises the implementation of environmental protection measures during the reporting period.
- **Monitoring Results**
  It summarises the monitoring results obtained in the reporting period.
- **Environmental Site Inspection**
  It summarises the audit findings of the weekly site inspections undertaken within the reporting period.
- **Environmental Non-conformance**
  It summarises any monitoring exceedance, environmental complaints and summons within the reporting period.
- **Future Key Issues**
  It summarises the impact forecast and monitoring schedule for the next three months.

**Section 7 : Stonecutters Island Production and Riser Shafts**

- **Construction Activities**

It summarises the construction activities conducted during the reporting month.

- **Status of Environmental Approval Documents**
  It summarises the environmental documents submitted under the EP condition during the reporting month.
- **Environmental Monitoring Requirement**
  It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency, and locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.
- **Implementation Status on Environmental Mitigation Measures**
  It summarises the implementation of environmental protection measures during the reporting period.
- **Monitoring Results**
  It summarises the monitoring results obtained in the reporting period.
- **Environmental Site Inspection**
  It summarises the audit findings of the weekly site inspections undertaken within the reporting period.
- **Environmental Non-conformance**
  It summarises any monitoring exceedance, environmental complaints and summons within the reporting period.
- **Future Key Issues**
  It summarises the impact forecast and monitoring schedule for the next three months.

**Section 8 : Conclusions**

# 2 PROJECT INFORMATION

## 2.1 BACKGROUND AND GENERAL SITE DESCRIPTION

The Project comprises the construction of production shafts, drop shafts and riser shaft and approximately 12 km of tunnel excavation from North Point via Sai Ying Pun to Stonecutters Island. Shafts with 10 – 12 m diameter vary in depth from 140 m and 170 m below ground. Tunnel face area ranges from 16 $m^2$ to 23 $m^2$. Embedded drainage pipelines will be installed upon the completion of tunnel excavation.

Construction works to be carried out under this Contract include the following major items:

- construction of sewage conveyance system (SCS) from North Point Preliminary Treatment Works (NP PTW) to Stonecutters Island Sewage Treatment Works (SCI STW) via Wan Chai East Preliminary Treatment Works (WCE PTW), Central Preliminary Treatment Works (CEN PTW) and Fung Mat Street Sai Ying Pun (SYP) junction shaft;
- construction of drop shafts at NP PTW, WCE PTW and CEN PTW;
- construction of riser shaft at SCI STW;
- construction of junction shaft at SYP;
- construction of temporary production shafts at NP, WCE and SCI to provide access for the construction of SCS;
- construction of connection channels, pipes, chambers and tunnel connecting the proposed drop shafts / riser shaft to the facilities of the preliminary treatment works / sewage treatment works;
- carrying out survey of existing buildings, taking over of existing and installation of new piezometers and ground settlement markers and subsequent monitoring thereof and vibration monitoring along the alignment of the SCS;
- miscellaneous building, civil, electrical and mechanical works; and
- landscape works.

The potential environmental impacts of the Project have been studied in the *"Harbour Area Treatment Scheme (HATS) Stage 2A"* (EIAO Register No: AEIAR-121/2008). The EIA was approved on 2 June 2008 under the *Environmental Impact Assessment Ordinance* (EIAO) and an updated Environmental Permit (EP-322/2008/E) for the works was granted on 24 November 2010. Under the requirements of Condition 4.1 of Environmental Permit EP-322/2008/E,

EM&A programme as set out in the EM&A Manual is required to be implemented.

The construction works of this Project commenced on 1 December 2009 and are scheduled to be completed by 2014.

The general layout plan of the Project is shown in *Annex A*.

## 2.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS AND REQUIRED SUBMISSIONS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 is presented in *Table 2.1.*

***Table 2.1 Summary of Environmental Licensing, Notification and Permit Status for the Contract*** [(a)]

| Permit/ Licences/ Notification | Reference | Validity Period | Remarks |
|---|---|---|---|
| Environmental Permit | EP-322/2008 | Expired on 10 July 2009 | • Permit granted on 19 November 2008<br>• Superseded on 10 July 2009 |
| | EP-322/2008/A | Expired on 2 November 2009 | • Permit granted on 10 July 2009<br>• Superseded on 2 November 2009 |
| | EP-322/2008/B | Expired on 14 May 2010 | • Permit granted on 2 November 2009<br>• Superseded on 14 May 2010 |
| | EP-322/2008/C | Expired on 14 July 2010 | • Permit granted on 14 May 2010<br>• Superseded on 14 July 2010 |
| | EP-322/2008/D | Expired on 24 November 2010 | • Permit granted on 14 July 2010<br>• Superseded on 24 November 2010 |
| | EP-322/2008/E | Throughout the Contract | • Permit granted on 24 November 2010 |
| Notification of Construction Works under Air Pollution Control APC (Construction Dust) Regulation | -- | 04 August 2009 – 06 November 2013 | • Reference number for Notification Pursuant to APC (Construction Dust) Regulation: 308136 |
| Marine Dumping Permits [(b)] | | | |
| Type 1 Marine Deposit | EP/MD/11-136 | 20 February 2011 – 29 June 2011 | - |
| Type 2 Marine Deposit | EP/MD/11-118 | 20 February 2011 – 21 April 2011 | - |
| Type 3 Marine | 8771 | 23 July 2010 – 22 | - |

| Permit/ Licences/ Notification | Reference | Validity Period | Remarks |
|---|---|---|---|
| Deposit | | January 2011 | |

**Note:**

(a) The status on environmental licensing and permit for each worksite is discussed in the following sections.

(b) Marine deposits from all sites have been disposed of in accordance with their respective disposal methods (ie Type 1, 2, or 3 disposal methods), and no further marine deposit is anticipated to generate. When marine deposits are encountered, relevant dumping permits will be obtained and they will be disposed of properly.

Status of required submissions under the EP during the reporting period is presented in *Table 2.2*.

***Table 2.2 Status of Required EP Submission for all Sites***

| EP Condition | Submission | Submission Date |
|---|---|---|
| Condition 4.4 | Submission of Thirty-second Monthly EM&A Report | 14 August 2012 |

## *2.3 PROJECT ORGANISATION*

The project organization chart and contact details are shown in *Annex B*.

# 3 NORTH POINT PRODUCTION AND DROP SHAFTS

## 3.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING MONTH

A summary of the major construction activities undertaken in this reporting period is shown in *Table 3.1*. The locations of the construction activities are shown in *Annex C1*.

***Table 3.1 Summary of Construction Activities Undertaken from 1 to 31 August 2012 at the North Point Production and Drop Shafts***

| Worksite | Construction Activities Undertaken |
|---|---|
| Production Shaft | • Pumping system and service installation; and<br>• Tunnel communication system installation |
| Drop Shaft | • Handed over to Contract no. DC/2009/23 |

## 3.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 is presented in *Table 3.2*.

*Table 3.2* ***Summary of Environmental Licensing, Notification and Permit Status at North Point Production and Drop Shafts***

| Permit/ Licences/ Notification | Reference | Validity Period | Remarks |
|---|---|---|---|
| Wastewater Discharge License | North Point PTW Drop Shaft WT00005153-2009 | 12 October 2009 - 31 October 2014 | -- |
| | North Point Production Shaft WT00007055-2010 | 9 July 2010 - 31 March 2015 | -- |
| Chemical Waste Producer Registration | North Point Production Shaft 5213-153-G2484-01 | -- | -- |
| | North Point PTW Drop Shaft 5213-153-G2483-01 | -- | -- |
| Construction Noise Permit CNP | North Point Production shaft | 15 March 2011 – 14 September 2012 | -- |
| | North Point PTW Drop Shaft GW-0101-12 | 23 February 2012 – 22 August 2012 | Expired. No CNP is required as no works will take place during restricted hours. |

## *3.3 ENVIRONMENTAL MONITORING REQUIREMENTS*

### *3.3.1 Air Quality Monitoring*

*Monitoring Location*

In accordance with the EM&A Manual, 24-hour and 1-hour average Total Suspended Particulates (TSP) levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were denied or not available, alternative locations, therefore, were proposed and agreed by the Engineer Representative (ER) and the Independent Environmental Checker (IEC). Due to security issue of the High Volume Sampler (HVS) mounted on the existing monitoring location (rooftop of Water Supplies Department office) especially under adverse weather conditions, an alternative location, which is one floor below the existing rooftop was identified and agreed with the ER and IEC in July 2010.

The construction air quality monitoring stations for this Contract are listed in *Table 3.3* and shown in *Annex C2*.

*Table 3.3* ***Construction Phase Air Monitoring Location at North Point Production and Drop Shafts***

| Worksite | Construction Air Quality Monitoring Stations | | | |
|---|---|---|---|---|
| | ID in EM&A Manual | ID | Location | Remark |

| Worksite | Construction Air Quality Monitoring Stations | | | |
|---|---|---|---|---|
| | ID in EM&A Manual | ID | Location | Remark |
| North Point | - | AM1 | Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School) | • Access for station setup to K.Wah Centre (CM_NP1) and Tin Chiu Street Children's Playground (CM_NP3) was rejected. |
| | CM_NP2 | AM2 | Hong Kong & Islands Regional Office, Water Supplies Department | |

*Monitoring Parameters, Frequency and Programme*

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 3.4*). The monitoring programme for this reporting period is shown in *Annex C3*.

***Table 3.4 TSP Monitoring Parameter and Frequency***

| Parameter | Frequency |
|---|---|
| 24-hour average TSP | Once in every 6 days |
| 1-hour average TSP | 3 times in every 6 days |

*Monitoring Equipment*

Continuous 24-hour averaged and three 1-hour averaged TSP monitoring were performed using High Volume Samplers (HVS) with appropriate sampling inlets installed and located at the designated monitoring stations. The performance specification of HVS complied with the standard method "*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*" as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. *Table 3.5* summarises the equipment that were deployed for the 24-hour and 1-hour averaged TSP monitoring respectively.

***Table 3.5 TSP Monitoring Equipment for North Point Production and Drop Shafts Sites***

| Monitoring Station | Monitoring Equipment (HVS and Calibrator) |
|---|---|
| *24-hr and 1-hr TSP* | |
| AM1 | GMW GS-2310 (S/N 1808), CM-AIR-43 (S/N 0438320) |
| AM2 | GMW GS-2310 (S/N 0145), CM-AIR-43 (S/N 0438320) |

*Monitoring Methodology*

Installation

The setup locations of the HVSs at monitoring stations were listed in *Table 3.3*. All HVSs were free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind were provided at AM1 and AM2;

- a minimum of 2 m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues was nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and the area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- the shelter lid was closed and secured with the aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flowrate record sheet was set into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 $m^3min^{-1}$ which were within the range specified in the EM&A Manual (ie 0.6 – 1.7 $m^3min^{-1}$);

- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folder in half so that only surfaces with collected particulate matter were in contact;
- the filter paper was then placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller was calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipments were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration records for the HVSs are given in *Annex H*.

Wind Data

The nearest weather station to North Point Production and Drop Shafts is Kai Tak Station. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological station at Kai Tak of the Hong Kong Observatory (HKO) and are presented in *Annex C5*.

*Action and Limit Levels*

The Action and Limit (A/L) levels have been established and are presented in *Table 3.6*.

***Table 3.6 Action and Limit Levels for Air Quality at North Point Production and Drop Shafts***

| Parameter | Air Monitoring Station | Action Level, $\mu gm^{-3}$ | Limit Level, $\mu gm^{-3}$ |
|---|---|---|---|
| 24-hour average TSP | AM1 | 185 | 260 |
| | AM2 | 182 | 260 |
| 1-hour average TSP | AM1 | 340 | 500 |
| | AM2 | 352 | 500 |

*Event and Action Plan*

The Event and Action Plan (EAP) for air quality monitoring is presented in *Annex I*.

### *3.3.2 Noise Monitoring*

*Monitoring Location*

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was denied or not available; alternative locationswere proposed and agreed by the ER and the IEC. Construction activities were conducted at restricted hours (1900 – 2300 on all days and 0700 – 2300 on general holidays and Sundays) during the reporting month. As the constraint of Chan's Creative School's schedule (closed from 1900 to 0700 on normal week days and from 0000 to 2400 on public holidays as well as Sundays), the school (noise monitoring station NM1) is not accessible during restricted hours, noise monitoring during restricted hours would be conducted on the pedestrian walkway adjacent to the school boundary along Tin Chiu Street, which was agreed by the ER and the IEC. The construction noise monitoring location for this Contract is listed in *Table 3.7* and is shown in *Annex C2*.

***Table 3.7 Construction Phase Noise Monitoring Station at North Point Production and Drop Shafts***

| Worksite | Proposed Construction Noise Monitoring Station | | | | |
|---|---|---|---|---|---|
| | ID in EM&A Manual | ID | Location | Type of Measurement | Remark |
| North Point | M1 | NM1 | Rooftop of Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School) | Façade | 0700 to 1900 on Monday to Saturday |
| | | | Pedestrian walkway adjacent to Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School) boundary along Tin Chiu Street | Façade | Restricted hours (1900 – 2300 on all days and 0700 – 2300 on general holidays and Sundays) |

*Monitoring Parameters, Frequency and Programme*

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring were also conducted as per required in the EM&A Manual when works were carried out during restricted periods. The monitoring programme for this reporting period is shown in *Annex C3*.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level ($L_{eq}$) in decibels dB(A). $L_{eq\ (30min)}$

were used as the monitoring parameter for the period between 0700 – 1900 hours on normal weekdays, and $L_{eq\ (5min)}$ were used as the monitoring parameter for all restricted periods. Supplementary information for data auditing (two statistical sound levels $L_{10}$ and $L_{90}$ which are the levels exceeded for 10 and 90 percent of the time respectively) were also monitored for reference. The measured noise levels were logged every 5 minutes throughout the impact monitoring period.

*Monitoring Equipment and Methodology*

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures* of *Technical Memorandum on Noise from Construction Work other than Percussive Piling* (*GW-TM*) issued under the *Noise Control Ordinance* (*NCO*) (Cap.400).

The sound level meters and calibrator used for the noise measurement, as listed in *Table 3.8*, comply with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

***Table 3.8 Noise Monitoring Equipment at North Point Production and Drop Shafts***

| Monitoring Station | Monitoring Equipment (Sound Level Meter and Calibrator) |
|---|---|
| NM1 | • Calibrator: RION - NC73 (S/N 10997142)<br>• Sound Level Meters: Rion NL-52 (S/N 00710259) |

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

*Action and Limit Levels*

The limit levels for noise monitoring during different monitoring periods are summarised in *Table 3.9*.

***Table 3.9 Limit Levels for Noise Monitoring at North Point Production and Drop Shafts***

| Noise Monitoring Location | Measurement Parameter | Limit Level (dB(A)) | Remark |
|---|---|---|---|
| NM1 | $L_{eq(30mins)}$ | 70 | During normal teaching period |
| | $L_{eq(30mins)}$ | 69 [(a)] | During the school examination period |
| | $L_{eq(30mins)}$ | 75 | During school holidays |
| | $L_{eq(5mins)}$ | 70 | Evening (1900-2300); and<br>Sundays and public holidays (0700-2300) |
| | $L_{eq(5mins)}$ | 55 | Night-time (2300-0700) |

| Noise Monitoring Location | Measurement Parameter | Limit Level (dB(A)) | Remark |
|---|---|---|---|

**Note:**

(a) With reference to the Baseline Monitoring Report, the average $L_{Aeq,30min}$ measured at NM1 between 0700 and 1900 hours is 69.0 dB(A), exceeding the Limit Level of daytime construction noise during examination periods (65 dB(A)), It will therefore be adopted as the Limit Level during the examination period at NM1.

*Event and Action Plan*

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I*.

### *3.3.3 Cultural Heritage*

No vibration monitoring is required for this reporting month as no blasting of tunnel / shaft works was carried out.

### *3.3.4 Landscape and Visual Monitoring*

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring was carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

*Event and Action Plan*

The Event and Action Plan (EAP) for landscape and visual monitoring is presented in *Annex I*.

## *3.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS*

The Contractor has implemented environmental mitigation measures and fulfilled requirements as stated in the EIA Report, Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarised in *Annex C4*.

## *3.5 MONITORING RESULTS*

### *3.5.1 Air Quality*

A total of 5 sets of 24-hour averaged and 15 sets of 1-hour averaged TSP measurements were carried out at AM1 and AM2 respectively during the reporting period. The monitoring data for 24-hour and 1-hour averaged TSP together with wind data and graphical presentations are presented in *Annex C5*.

The weather condition during the monitoring period varied from sunny to cloudy. The local impacts near the monitoring stations of AM1 to AM2 were

mainly associated with vehicle emissions. No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

### *3.5.2 Noise*

A total of 4 sets of 30-minute construction noise measurements were carried out at the monitoring station NM1 during normal weekdays of the reporting period. The local impacts at normal hours during weekdays observed near the monitoring stations of NM1 included traffic noise from King's Road, Java Road and nearby roads; school bell rings; student noise and the construction works by other parties undertaken in the vicinity. No exceedance of limit level for noise monitoring during normal working hours was recorded.

4 sets of 3 x 5-minute construction noise measurements were carried out at NM1 during restricted hours (between 1900 and 0700 hours on weekdays and any time on Sundays and public holidays) on 5, 14, 19 and 28 August 2012. No exceedance of limit level for noise monitoring during restricted hours was recorded. The local impacts during restricted hours observed included traffic noise from King's Road, Java Road and nearby roads and the construction works by other parties undertaken in the vicinity.

The monitoring results together with graphical presentations are presented in *Annex C6*.

### *3.5.3 Landscape and Visual*

Implementation and maintenance of landscape and visual mitigation measures are fully implemented and no major finding was made during the reporting month.

### *3.5.4 Cultural Heritage*

No vibration monitoring was conducted for this reporting month as the blasting of tunnel/ shaft works has not commenced.

### *3.5.5 Waste Management*

Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials, and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. No marine deposits requiring Type 1, 2, and 3 disposal methods was generated during the reporting month. Reference has been made to the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*). The waste statistics provided in this section represents the cumulative quantity of wastes generated from all sites in this Project. With reference to the relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 3.10*. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung

Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill respectively. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

*Table 3.10 Quantities of Waste Generated from the Project for all Sites*

| Month / Year | Quantity | | | | | |
|---|---|---|---|---|---|---|
| | C&D Materials (inert) [a] | C&D Materials (non-inert) [b] | Chemical Waste | Marine Deposit | | |
| | | | | Type 1 | Type 2 | Type 3 |
| August 2012 | 10,131.36 tonnes | 30.71 tonnes | 200 l | 0 $m^3$ | 0 $m^3$ | 0 tonnes |

**Notes:**

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. 5,422.03 tonnes of inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point and 4,709.33 tonnes of broken rock have been transferred to SENT Landfill for use.

(b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

## 3.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, the Engineer and the ET. Site inspections were conducted on 2, 9, 16, 23 and 30 August 2012. The representative of the IEC joined the site inspection on 30 August 2012. No non-compliance was recorded during the site inspections.

Major findings and recommendations are summarised as follows:

*Production Shaft*

- On 30 August, oil spillage on the ground was observed near the chemical storage area. The Contractor was reminded to remove the spillage and oil stains by using absorbent materials and emulsifiers properly.

*Drop Shaft*

- Nil.

## 3.7 ENVIRONMENTAL NON-CONFORMANCE

### 3.7.1 Summary of Monitoring Exceedance

No exceedance of the A/L Levels of 1-hour averaged and 24-hour averaged TSP was recorded at the monitoring stations during the reporting period.

No exceedance of the Noise Limit Levels was recorded at the monitoring station during both normal working hours and restricted hours in the reporting period.

### *3.7.2 Summary of Environmental Non-Compliance*

No non-compliance event was recorded during the reporting period.

### *3.7.3 Summary of Environmental Complaint*

No complaint was received during the reporting period. The cumulative complaint log is shown in *Annex C7*.

### *3.7.4 Summary of Environmental Summon and Successful Prosecution*

No summon was received during the reporting period. The cumulative summons/prosecution log is shown in *Annex C7*.

## *3.8 FUTURE KEY ISSUES*

### *3.8.1 Key Issues for the Coming Months*

Works to be undertaken in the coming two monitoring periods are summarised in *Table 3.12.*

***Table 3.11 Construction Works to be Undertaken in the Coming Two Months at North Point Production and Drop Shafts***

| **Work to be taken** |
|---|
| *Production Shaft* |
| • Installation of Tunnel Services. |
| *Drop Shaft* |
| • Hand over to Contract DC/2009/23 |

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, site runoffs and waste management.

### *3.8.2 Monitoring Schedule for the Next Month*

The tentative schedule of TSP and noise monitoring for the next reporting period is presented in *Annex C3*. Environmental monitoring will be conducted at the same monitoring locations in the reporting period.

### *3.8.3 Construction Programme for Next Month*

The most up-to-date construction programme for the Project is presented in *Annex C8*.

## 4.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING MONTH

A summary of the major construction activities undertaken in this reporting period is shown in *Table 4.1*. The locations of the construction activities are shown in *Annex D1*.

***Table 4.1 Summary of Construction Activities Undertaken from 1 to 31 August 2012 at the Wan Chai East Production and Drop Shafts***

| Worksite | Construction Activities Undertaken |
|---|---|
| Production Shaft | • Chiller installation and commission. |
| Drop Shaft | • Conducting pilot drilling. |

## 4.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 is presented in *Table 4.2*.

***Table 4.2 Summary of Environmental Licensing, Notification and Permit Status at Wan Chai East Production and Drop Shafts***

| Permit/ Licences/ Notification | Reference | Validity Period | Remarks |
|---|---|---|---|
| Wastewater Discharge License | Wan Chai East Production Shaft and Drop Shaft WT00007023-2010 | 13 July 2010 - 31 October 2014 | Superseded by WT00008533-2011 |
| | Wan Chai East Production Shaft and Drop Shaft WT00008533-2011 | 21 February 2011 - 31 October 2014 | -- |
| Chemical Waste Producer Registration | Wan Chai East Production Shaft and Drop Shaft 5213-135-G2308-03 | -- | -- |
| Construction Noise Permit (CNP) | Wan Chai East Production Shaft GW-RS0209-12 | 29 February 2012 – 26 August 2012 | Expired. No CNP is required as no works will take place during restricted hours. |
| | Wan Chai East Drop Shaft GW-RS0801-12 | 30 July 2012 – 29 January 2013 | -- |

## 4.3 ENVIRONMENTAL MONITORING REQUIREMENTS

### 4.3.1 Air Quality Monitoring

*Monitoring Location*

In accordance with the EM&A Manual, 24-hour and 1-hour averaged Total Suspended Particulates (TSP) levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was denied or not available, alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction air quality monitoring station for this Contract is listed in *Table 4.3* and shown in *Annex D2*.

***Table 4.3 Construction Phase Air Monitoring Location at Wan Chai East Production and Drop Shafts***

| Worksite | Construction Air Quality Monitoring Station | | | |
|---|---|---|---|---|
| | ID in EM&A Manual | ID | Location | Remark |
| Wan Chai East | - | AM3 | Rooftop of Wan Chai East PTW | • The rooftop of the Society for the Prevention of Cruelty to Animals building (CM_WC1) was so crowded with existing facilities (eg water tanks) that the setup of HVSs for baseline monitoring was not feasible. |

*Monitoring Parameters, Frequency and Programme*

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 4.4*). The monitoring programme for this reporting period is shown in *Annex D3*.

***Table 4.4 TSP Monitoring Parameter and Frequency at Wan Chai East Production and Drop Shafts***

| Parameter | Frequency |
|---|---|
| 24-hour average TSP | Once in every 6 days |
| 1-hour average TSP | 3 times in every 6 days |

*Monitoring Equipment*

Continuous 24-hour and 1-hour averaged TSP monitoring were performed using High Volume Samplers (HVS) with appropriate sampling inlets installed, located at the designated monitoring station. The performance specification of HVS complied with the standard method "*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*" as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. *Table 4.5* summarises the equipment that was deployed for the 24-hour and 1-hour averaged TSP monitoring.

*Table 4.5 TSP Monitoring Equipment at Wan Chai East Production and Drop Shafts*

| Monitoring Station | Monitoring Equipment (HVS and Calibrator) |
|---|---|
| *24-hr and 1-hr TSP* | |
| AM3 | GMW GS-2310 (S/N 0481), CM-AIR-43 (S/N 0438320) |

*Monitoring Methodology*

Installation

The setup location of the HVS at monitoring stations was listed in *Table 4.3*. The HVS was free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the sampler against gusty wind was provided at AM3;
- a minimum of 2 m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues was nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and the area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;

- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- the shelter lid was closed and secured with the aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flow rate record sheet was set into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 $m^3min^{-1}$ which were within the range specified in the EM&A Manual (ie 0.6 – 1.7 $m^3min^{-1}$);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folder in half so that only surfaces with collected particulate matter were in contact;
- the filter paper was then placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller was calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipments were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration record for the HVS is given in *Annex H*.

Wind Data

The nearest weather station to Wan Chai East Production and Drop Shafts is located at King's Park. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological station

at King's Park of the Hong Kong Observatory (HKO) and are presented in *Annex D5*.

*Action and Limit Levels*

The Action and Limit levels have been established and are presented in *Table 4.6*.

***Table 4.6 Action and Limit Levels for Air Quality at Wan Chai East Production and Drop Shafts***

| Parameter | Air Monitoring Station | Action Level, $\mu gm^{-3}$ | Limit Level, $\mu gm^{-3}$ |
|---|---|---|---|
| 24-hour average TSP | AM3 | 181 | 260 |
| 1-hour average TSP | AM3 | 355 | 500 |

*Event and Action Plan*

The Event and Action Plan (EAP) for air quality monitoring is presented in *Annex I*.

### *4.3.2 Noise Monitoring*

*Monitoring Location*

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was denied or not available, alternative locationswere proposed and agreed by the ER and the IEC. The construction noise monitoring location for this Contract is listed in *Table 4.7* and shown in *Annex D2*.

***Table 4.7 Construction Phase Noise Monitoring Station at Wan Chai East Production and Drop Shafts***

| Worksite | Construction Noise Monitoring Station | | | | |
|---|---|---|---|---|---|
| | ID in EM&A Manual | ID | Location | Type of Measurement | Remark |
| Wan Chai East | - | NM2 | Rooftop of Hyde Building | Façade | • No guaranteed access for equipment set-up due to the non-existence of a caretaker of Kei Wah Building (M2)<br>• Alternative location, NM2, is located next to Kei Wah Building and is also the background noise monitoring station in the HATS2A EIA study. |

*Monitoring Parameters, Frequency and Programme*

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring was also conducted as per required in the EM&A Manual when works were carried out during restricted periods. The monitoring programme for this reporting period is shown in *Annex D3*.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level ($L_{eq}$) in decibels dB(A). $L_{eq\ (30min)}$ were used as the monitoring parameter for the time period between 0700 – 1900 hours on normal weekdays, and $L_{eq\ (5min)}$ were used as the monitoring parameter for all restricted periods. Supplementary information for data auditing (two statistical sound levels $L_{10}$ and $L_{90}$which are the levels exceeded for 10 and 90 percent of the time respectively)were also recorded during the monitoring period for reference. The measured noise levels were logged every 5 minutes throughout the impact monitoring period.

*Monitoring Equipment and Methodology*

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures* of *Technical Memorandum on Noise from Construction Work other than Percussive Piling* (*GW-TM*) issued under the *Noise Control Ordinance* (*NCO*) (Cap.400).

The sound level meters and calibrator used for the noise measurement, as listed in *Table 4.8*, comply with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

***Table 4.8 Noise Monitoring Equipment at Wan Chai East Production and Drop Shafts***

| Monitoring Station | Monitoring Equipment (Sound Level Meter and Calibrator) |
|---|---|
| NM2 | • Calibrator: RION - NC73 (S/N 10997142)<br>• Sound Level Meters: Rion NL-52 (S/N 00710259) |

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

*Action and Limit Levels*

The limit levels for noise monitoring during different monitoring periods are summarised in *Table 4.9*.

***Table 4.9 Limit Levels for Noise Monitoring at Wan Chai East Production and Drop Shafts***

| Noise Monitoring Location | Measurement Parameter | Limit Level (dB(A)) | Remark |
|---|---|---|---|
| NM2 | $L_{eq(30mins)}$ | 75 | Normal working hours during weekdays |

| Noise Monitoring Location | Measurement Parameter | Limit Level (dB(A)) | Remark |
|---|---|---|---|
| | $L_{eq(5mins)}$ | 70 | Evening (1900-2300); and<br>Sundays and public holidays (0700-2300) |
| | $L_{eq(5mins)}$ | 55 | Night-time (2300-0700) |

*Event and Action Plan*

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I*.

### *4.3.3 Cultural Heritage*

No vibration monitoring is required for this reporting month as blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings mentioned in EM&A manual.

### *4.3.4 Landscape and Visual Monitoring*

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring was carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

*Event and Action Plan*

The Event and Action Plan (EAP) for landscape and visual monitoring is presented in *Annex I*.

## *4.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS*

The Contractor has implemented environmental mitigation measures and fulfilled the requirements as stated in the EIA Report, Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarised in *Annex D4*.

## *4.5 MONITORING RESULTS*

### *4.5.1 Air Quality*

A total of 5 sets of 24-hour averaged and 15 sets of 1-hour averaged TSP measurements were made at AM3 during the reporting period. The monitoring data for 24-hour and 1-hour averagde TSP, together with the wind data and graphical presentations, are presented in *Annex D5*.

The weather condition during the monitoring period varied from sunny to cloudy. The local impacts near the monitoring stations of AM3 were mainly associated with vehicle emissions. No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

### *4.5.2 Noise*

A total of 4 sets of 30-minute construction noise measurements were carried out at the monitoring station NM2 during normal working hours in weekdays of the reporting period. No exceedance of limit level for noise monitoring during normal working hours was recorded.

4 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 1900 and 0700 hours on weekdays, and any time on Sundays and public holidays) on 10, 16, 22 and 28 August 2012. No exceedance of limit level for noise monitoring during restricted hours was recorded. The observed local impacts during restricted hours mainly arose from the traffic noise from Wan Chai Interchange

The monitoring results, together with graphical presentations, are presented in *Annex D6*. The local impacts observed near the monitoring stations of NM2 were due to traffic noise from Gloucester Road and Hung Hing Road.

### *4.5.3 Landscape and Visual*

Implementation and maintenance of landscape and visual mitigation measures are fully achieved and no major findingwas made during the reporting month.

### *4.5.4 Cultural Heritage*

No vibration monitoring is required for this reporting month as blasting of tunnel/shaft works was not carried out in the vicinity of the historical buildings mentioned in EM&A manual.

### *4.5.5 Waste Management*

Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials, and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. No marine deposits requiring Type 1, 2, and 3 disposal methods was generated during the reporting month. Reference has been made to the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*). The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to the relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 4.10*. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill respectively. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

***Table 4.10 Quantities of Waste Generated from the Project for all Sites***

| Month / Year | Quantity | | | | | |
|---|---|---|---|---|---|---|
| | C&D Materials (inert) [a] | C&D Materials (non-inert) [b] | Chemical Waste | Marine Deposit | | |
| | | | | Type 1 | Type 2 | Type 3 |
| August 2012 | 10,131.36 tonnes | 30.71 tonnes | 200 l | 0 $m^3$ | 0 $m^3$ | 0 tonnes |

**Notes:**

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. 5,422.03 tonnes of inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point and 4,709.33 tonnes of broken rock have been transferred to SENT Landfill for use.(b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

## *4.6 ENVIRONMENTAL SITE INSPECTION*

Weekly site inspections were carried out by representatives of the Contractor, Engineer and the ET. Site inspections were conducted on 2, 9, 16 and 23 August 2012. Due to the scheduled SSEMC meeting on 30 August 2012 immediately after the joint inspection, inspection was not arranged for the Wan Chai East Production and Drop Shafts on that day. There was no non-compliance recorded during the site inspections.

Major findings and recommendations are summarised as follows:

*Production Shaft*

- On 2 August, stagnant water was observed in the drip tray behind the workshop. The Contractor was reminded to remove the stagnant water to prevent breeding of mosquito.
- On 9 August, stagnant water was observed around chemical enhanced sedimentation facility. The Contractor was reminded to remove the stagnant water to prevent breeding of mosquito.
- On 16 August, chemical drums and containers without drip tray were observed. The Contractor was reminded to put them on the drip tray or store them in the designated chemical store.
- On 16 August, grouting water was stored in a pond at the back of noise enclosure and car washing bay. The Contractor was reminded to remove the grouting water and sediment regularly to avoid overflows into public drains.
- On 16 August, CNP and EP were not displayed on site. The Contractor was reminded to display them at site entrance.
- On 23 August, a truck leaving the site without car washing was observed during the site inspection. The Contractor was reminded to wash the truck before leaving the construction site.
- On 23 August, stagnant water with oil was observed inside the chemical store. The Contractor was reminded to remove the stagnant water properly and dispose of via licensed chemical collectors.
- On 23 August, a pool of stagnant water was still observed at the back of the noise enclosure. The Contractor was reminded to remove the stagnant water frequently to avoid overflows into public drains.

*Drop Shaft*

- Nil.

## 4.7 ENVIRONMENTAL NON-CONFORMANCE

### 4.7.1 Summary of Monitoring Exceedance

No exceedance of the A/L Levels of 1-hour and 24-hour averaged TSP was recorded at monitoring stations during the reporting period.

No exceedance of the Noise Limit Levels was recorded at monitoring stations during both normal working hours and restricted hours in the reporting period.

### 4.7.2 Summary of Environmental Non-Compliance

No non-compliance event was recorded during the reporting period.

### 4.7.3 Summary of Environmental Complaint

No complaint was received during the reporting period. The cumulative complaint log is shown in *Annex D7*.

### 4.7.4 Summary of Environmental Summon and Successful Prosecution

No summons was received during the reporting period. The cumulative summons/prosecution log is shown in *Annex D7*.

## 4.8 FUTURE KEY ISSUES

### 4.8.1 Key Issues for the Coming Month

Works to be undertaken for the coming two monitoring periods are summarised in *Table 4.11.*

**Table 4.11 Construction Works to be Undertaken in the Coming Two Months at Wan Chai East Production and Drop Shafts**

| Work to be taken |
|---|
| *Production Shaft* |
| • Installation of Tunnel Services. |
| *Drop Shaft* |
| • Raise boring |

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, site runoff and waste management.

### *4.8.2 Monitoring Schedule for Next Month*

The tentative schedule of TSP and noise monitoring for the next reporting period is presented in *Annex D3*. Environmental monitoring will be conducted at the same monitoring locations in the reporting period.

### *4.8.3 Construction Programme for the Next Month*

The most up-to-date construction programme for the Project is presented in *Annex D8*.

# 5 CENTRAL DROP SHAFT

## 5.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING MONTH

A summary of the major construction activities undertaken in this reporting period is shown in *Table 5.1*. The location of the construction activities is shown in *Annex E1*.

***Table 5.1 Summary of Construction Activities Undertaken from 1 to 31August 2012 at Central Drop Shaft***

| Construction Activities Undertaken |
|---|
| • Minor excavation for trial pits. |

## 5.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 is presented in *Table 5.2* below.

***Table 5.2 Summary of Environmental Licensing, Notification and Permit Status at Central Drop Shaft***

| Permit/ Licences/ Notification | Reference | Validity Period | Remarks |
|---|---|---|---|
| Wastewater Discharge License | Central PTW Drop Shaft WT0005131-2009 | 09 October 2009 -31 October 2014 | -- |
| Chemical Waste Producer Registration | Central PTW Drop Shaft 5213-115-G2347-06 | -- | -- |
| Construction Noise Permit CNP | Central Drop Shaft GW-RS0042-11 | 14 January 2011 – 4 July 2011 | Expired. No CNP is required as no works will take place during restricted hours. |

## 5.3 ENVIRONMENTAL MONITORING REQUIREMENTS

### 5.3.1 Air Quality Monitoring

*Monitoring Location*

In accordance with the EM&A Manual, 24-hour and 1-hour averaged Total Suspended Particulates (TSP) levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was denied or not available, alternative locations were proposed and agreed by the ER and IEC. The construction air

quality monitoring station for this Contract is listed in *Table 5.3* and shown in *Annex E2*.

***Table 5.3 Construction Phase Air Monitoring Location at Central Drop Shaft***

| Worksite | Construction Air Quality Monitoring Station | | | |
|---|---|---|---|---|
| | ID in EM&A Manual | ID | Location | Remark |
| Central | - | AM4 | A Location within the DSD Central PTW | • Access to Sheung Wan Fire Station (CM_C1) was rejected.<br>• All possible locations along Connaught Road West and Connaught Road East have been exhausted and no suitable location is identified due to the rejection by the premise owner, security reasons, the absence of guaranteed access or inaccessibilty. AM4 is the alternative location. |

*Monitoring Parameters, Frequency and Programme*

Air quality monitoring has been conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 5.4*). The monitoring programme for this reporting period is shown in *Annex E3*.

***Table 5.4 TSP Monitoring Parameter and Frequency at Central Drop Shaft***

| Parameter | Frequency |
|---|---|
| 24-hour average TSP | Once in every 6 days |
| 1-hour average TSP | 3 times in every 6 days |

*Monitoring Equipment*

Continuous 24-hour and 1-hour averaged TSP monitoring were performed using High Volume Samplers (HVS) with appropriate sampling inlets installed, located at the designated monitoring station. The performance specification of HVS complied with the standard method "*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*" as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. *Table 5.5* summarises the equipment that was deployed for the 24-hour and 1-hour averaged TSP monitoring.

***Table 5.5 TSP Monitoring Equipment at Central Drop Shaft***

| Monitoring Station | Monitoring Equipment (HVS and Calibrator) |
|---|---|
| *24-hr and 1-hr TSP* | |
| AM4 | GMW GS-2310 (S/N 9315), CM-AIR-43 (S/N 0438320) |

*Monitoring Methodology*

Installation

The setup location of the HVS at monitoring stations was listed in *Table 5.3*. The HVS was free-standing with no obstruction.

The following criteria have been considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind were provided at AM4;
- a minimum of 2 m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues were nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and the area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;

- then the shelter lid was closed and secured with the aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flowrate record sheet was set into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 $m^3min^{-1}$ which were within the range specified in the EM&A Manual (ie 0.6 – 1.7 $m^3min^{-1}$);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folder in half so that only surfaces with collected particulate matter were in contact;
- the filter paper was then placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller was calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipments were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration record for the HVS is given in *Annex H*.

Wind Data

The nearest weather stations to Central Drop Shaft are located at King's Park and Green Island. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological stations at Green Island and King's Park of the Hong Kong Observatory (HKO) and are presented in *Annex E5*.

*Action and Limit Levels*

The Action and Limit levels have been established and arepresented in *Table 5.6*.

*Table 5.6 Action and Limit Levels for Air Quality at Central Drop Shaft*

| Parameter | Air Monitoring Station | Action Level, $\mu gm^{-3}$ | Limit Level, $\mu gm^{-3}$ |
|---|---|---|---|
| 24-hour average TSP | AM4 | 211 | 260 |
| 1-hour average TSP | AM4 | 393 | 500 |

*Event and Action Plan*

The Event and Action Plan (EAP) for air quality monitoring is presented in *Annex I*.

### *5.3.2 Noise Monitoring*

*Monitoring Location*

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was denied or not available, alternative locationswas proposed and agreed by the ER and the IEC. The construction noise monitoring locations for this Contract are listed in *Table 5.7* and shown in *Annex E2*.

*Table 5.7 Construction Phase Noise Monitoring Station at Central Drop Shaft*

| Worksite | Construction Noise Monitoring Station | | | | |
|---|---|---|---|---|---|
| | ID in EM&A Manual | ID | Location | Type of Measurement | Remark |
| Central | - | NM3 | Rooftop of Goldfield Building | Façade | Chi Cheung Building (M4) is not accessible. |

*Monitoring Parameters, Frequency and Programme*

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring were also conducted as per required in the EM&A Manual when works were carried out during restricted periods. The monitoring programme for this reporting period is shown in *Annex E3*.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level ($L_{eq}$) in decibels dB(A). $L_{eq\ (30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq\ (5min)}$ were used as the monitoring parameter for all restricted periods. Supplementary information for data auditing (two statistical sound levels $L_{10}$ and $L_{90}$ which are the levels exceeded for 10 and 90 percent of the time respectively) were also recorded during the monitoring for reference. The measured noise levels were logged every 5 minutes throughout the impact monitoring period.*Monitoring Equipment and Methodology*

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures* of *Technical Memorandum on Noise from*

*Construction Work other than Percussive Piling* (*GW-TM*) issued under the *Noise Control Ordinance* (*NCO*) (Cap.400).

The sound level meters and calibrator used for the noise measurement, as listed in *Table 5.8*, comply with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

***Table 5.8 Noise Monitoring Equipment at Central Drop Shaft***

| Monitoring Station | Monitoring Equipment (Sound Level Meter and Calibrator) |
|---|---|
| NM3 | • Calibrator: RION - NC73 (S/N 10997142)<br>• Sound Level Meters: Rion NL-52 (S/N 00710259) |

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

*Action and Limit Levels*

The limit levels for the noise monitoring during different monitoring periods are summarised in *Table 5.9*.

***Table 5.9 Action and Limit Levels for Noise Monitoring at Central Drop Shaft***

| Noise Monitoring Location | Measurement Parameters | Limit Level (dB(A)) | Remark |
|---|---|---|---|
| NM3 | $L_{eq(30mins)}$ | 75 | Normal working hours during weekdays |
| | $L_{eq(5mins)}$ | 70 | Evening (1900-2300); and Sundays and public holidays (0700-2300) |
| | $L_{eq(5mins)}$ | 55 | Night-time (2300-0700) |

*Event and Action Plan*

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I*.

### *5.3.3 Cultural Heritage*

No vibration monitoring is required for this reporting month as no blasting of tunnel / shaft works was carried out.

### *5.3.4 Landscape and Visual Monitoring*

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring was carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

*Event and Action Plan*

The Event and Action Plan (EAP) for landscape and visual monitoring is presented in *Annex I*.

## 5.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented environmental mitigation measures and fulfilled requirements as stated in the EIA Report, Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarised in *Annex E4*.

## 5.5 MONITORING RESULTS

### 5.5.1 *Air Quality*

A total of 5 sets of 24-hour averaged and 15 sets of 1-hour averaged TSP measurements have been carried out at AM4 during the reporting period. The monitoring data for 24-hour and 1-hour average TSP together with wind data and graphical presentations are presented in *Annex E5*.

The weather condition during the monitoring period varied from sunny to cloudy. The local impacts near the monitoring stations of AM4 were mainly associated with vehicle emissions.

No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

### 5.5.2 *Noise*

A total of 4 sets of 30-minute construction noise measurements were carried out at the monitoring station NM3 during normal weekdays of the reporting period. The monitoring results together with graphical presentations are presented in *Annex E6*. The local impacts observed near the monitoring stations of NM3 were due to traffic noise from Connaught Road Central.

No exceedance of Action and Limit Levels of construction noise was recorded during the reporting period.

### 5.5.3 *Landscape and Visual*

Implementation and maintenance of landscape and visual mitigation measures are fully achieved and no major findings was made during the reporting month.

### 5.5.4 *Cultural Heritage*

No vibration monitoring was conducted for this reporting month as the blasting of tunnel / shaft works has not started.

### 5.5.5 *Waste Management*

Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials, and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. No marine deposits requiring Type 1, 2, and 3 disposal methods were generated during the reporting month. Reference has been made to the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*). The waste statistics provided in this section represents the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 5.10*. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill respectively. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

***Table 5.10 Quantities of Waste Generated from the Project for all Sites***

| Month / Year | Quantity | | | | | |
|---|---|---|---|---|---|---|
| | C&D Materials (inert) [a] | C&D Materials (non-inert) [b] | Chemical Waste | Marine Deposit | | |
| | | | | Type 1 | Type 2 | Type 3 |
| August 2012 | 10,131.36 tonnes | 30.71 tonnes | 200 l | 0 $m^3$ | 0 $m^3$ | 0 tonnes |

**Notes:**

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. 5,422.03 tonnes of inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point and 4,709.33 tonnes of broken rock have been transferred to SENT Landfill for use.

(a) (b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

## 5.6 *ENVIRONMENTAL SITE INSPECTION*

Weekly site inspections were carried out by representatives of the Contractor, Engineer and the ET. Site inspections were conducted on 2, 9, 16 and 23 August 2012. Due to the scheduled SSEMC meeting on 30 August 2012 immediately after the joint inspection, inspection was not arranged for the Central Drop Shaft site on that day. No non-compliance was recorded during the site inspections.

Major findings and recommendations are summarised as follows:

- Nil.

## 5.7 ENVIRONMENTAL NON-CONFORMANCE

### 5.7.1 Summary of Monitoring Exceedance

No exceedance of the Action and Limit Levels of 1-hour and 24-hour averaged TSP was recorded at the monitoring station during the reporting period.

No exceedance of the Action and Limit Levels of construction noise was recorded at the monitoring station during the reporting period.

### 5.7.2 Summary of Environmental Non-Compliance

No non-compliance event was recorded during the reporting period.

### 5.7.3 Summary of Environmental Complaint

No complaint was received during the reporting period. The cumulative complaint log is shown in *Annex E7*.

### 5.7.4 Summary of Environmental Summon and Successful Prosecution

No summons was received during the reporting period. The cumulative summons/prosecution log is shown in *Annex E7*.

## 5.8 FUTURE KEY ISSUES

### 5.8.1 Key Issues for the Coming Month

Works to be undertaken in the coming two monitoring periods are summarised in *Table 5.11.*

*Table 5.11 Construction Works to be Undertaken in the Coming Two Months at Central Drop Shaft*

| Work to be carried out |
|---|
| • Pre-excavation grouting for raise boring |

### *5.8.2 Monitoring Schedule for Next Month*

The tentative schedule of TSP and noise monitoring for the next reporting period is presented in *Annex E3*. Environmental monitoring will be conducted at the same monitoring locations in the reporting period.

### *5.8.3 Construction Programme for the Next Month*

The most up-to-date construction programme for the Project is presented in *Annex E8*.

# 6 SAI YING PUN JUNCTION SHAFT

## 6.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING MONTH

A summary of the major construction activities undertaken in this reporting period is shown in *Table 6.1*. The location of the construction activities is shown in *Annex F1*.

***Table 6.1 Summary of Construction Activities Undertaken from 1 to 31 August 2012 at the Sai Ying Pun Junction Shaft***

| Construction Activities Undertaken |
|---|
| • Bunton, services and Fire Service Department ladderway installation; and<br>• Shaft sump construction. |

## 6.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 is presented in *Table 6.2*.

***Table 6.2 Summary of Environmental Licensing, Notification and Permit Status at Sai Ying Pun Junction Shaft***

| Permit/ Licences/ Notification | Reference | Validity Period | Remarks |
|---|---|---|---|
| Wastewater Discharge License | Sai Ying Pun Junction Shaft WT00006884-2010 | 11 June 2010 - 31 October 2014 | -- |
| Chemical Waste Producer Registration | Sai Ying Pun Junction Shaft 5213-112-G2347-05 | -- | -- |
| Construction Noise Permit CNP | Sai Ying Pun Junction Shaft GW-RS0383-12 | 5 May 2012 – 4 November 2012 | -- |

## 6.3 ENVIRONMENTAL MONITORING REQUIREMENTS

### 6.3.1 *Air Quality Monitoring*

Due to contractual arrangements, air quality monitoring was implemented by the Environmental Team of Contract No. *DC/2007/24 of Harbour Area Treatment Scheme Stage 2A (HATS2A) - Construction of Sewage Conveyance System from Aberdeen to Stonecutters Island.*

*Monitoring Location*

In accordance with the EM&A Manual, 24-hour and 1-hour averaged Total Suspended Particulates (TSP) levels should be conducted at designated

monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was denied or not available, alternative locations were proposed and agreed by the ER and IEC. The construction air quality monitoring station for this Contract is listed in *Table 6.3* and shown in *Annex F2*.

***Table 6.3 Construction Phase Air Monitoring Location at Sai Ying Pun Junction Shaft***

| Worksite | Construction Air Quality Monitoring Station | | | |
|---|---|---|---|---|
| | ID in EM&A Manual | ID | Location | Remark |
| Fung Mat Street | CM_FM1 | AM5 | Western Wholesale Food Market | - |

*Monitoring Parameters, Frequency and Programme*

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 6.4*). The monitoring programme provided by *Contract No. DC/2007/24 – Harbour Area Treatment Scheme Stage 2A (HATS 2A) Construction of Sewage Conveyance System from Aberdeen to Sai Ying Pun* for this reporting period is shown in *Annex F3*.

***Table 6.4 TSP Monitoring Parameter and Frequency at Sai Ying Pun Junction Shaft***

| Parameter | Frequency |
|---|---|
| 24-hour average TSP | Once in every 6 days |
| 1-hour average TSP | 3 times in every 6 days |

*Wind Data Monitoring*

The nearest weather stations to Sai Ying Pun Junction Shaft are located at King's Park Station and Green Island. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological stations at Green Island and King's Park of the Hong Kong Observatory (HKO) and are presented in *Annex F5*.

*Action and Limit Levels*

The Action and Limit levels have been established and are presented in *Table 6.5*.

***Table 6.5 Action and Limit Levels for Air Quality at Sai Ying Pun Junction Shaft***

| Parameter | Air Monitoring Station | Action Level, $\mu gm^{-3}$ | Limit Level, $\mu gm^{-3}$ |
|---|---|---|---|
| 24-hour average TSP | AM5 | 188 | 260 |
| 1-hour average TSP | AM5 | 332 | 500 |

*Event and Action Plan*

The Event and Action Plan (EAP) for air quality monitoring is presented in *Annex I*.

### 6.3.2 *Noise Monitoring*

*Monitoring Location*

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was denied or not available; alternative locations were proposed and agreed by the ER and IEC. The construction noise monitoring location for this Contract is listed in *Table 6.6* and shown in *Annex F2*.

***Table 6.6 Construction Phase Noise Monitoring Station at Sai Ying Pun Junction Shaft***

| Worksite | Construction Noise Monitoring Station | | | | |
|---|---|---|---|---|---|
| | ID in EM&A Manual | ID | Location | Type of Measurement | Remark |
| Fung Mat Road | M3 | NM4 | Rooftop of Block A, Kwan Yick Building Phase III | Façade | - |

*Monitoring Parameters, Frequency and Programme*

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring were also conducted as per required in the EM&A Manual when works were carried out during restricted periods. The monitoring programme for this reporting period is shown in *Annex F3*.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level ($L_{eq}$) in decibels dB(A). $L_{eq\ (30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq\ (5min)}$ were used as the monitoring parameter for all restricted periods. Supplementary information for data auditing (two statistical sound levels $L_{10}$ and $L_{90}$ which are the levels exceeded for 10 and 90 percent of the time respectively) were also recorded during the monitoring for reference. The measured noise levels were logged every 5 minutes throughout the impact monitoring period.

*Monitoring Equipment and Methodology*

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures* of *Technical Memorandum on Noise from Construction Work other than Percussive Piling* (*GW-TM*) issued under the *Noise Control Ordinance* (*NCO*) (Cap.400).

The sound level meters and calibrator used for the noise measurement, as listed in *Table 6.7*, comply with IEC 651: 1979 and 804:1985 (Type 1) specifications. The calibration certificates of the sound level meters are included in *Annex H*.

***Table 6.7 Noise Monitoring Equipment at Sai Ying Pun Junction Shaft***

| Monitoring Station | Monitoring Equipment (Sound Level Meter and Calibrator) |
|---|---|
| NM4 | • Calibrator: RION - NC73 (S/N 10997142)<br>• Sound Level Meters: Rion NL-52 (S/N 00710259) |

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

*Action and Limit Levels*

The limit levels for the noise monitoring during different monitoring periods are summarised in *Table 6.8*.

***Table 6.8 Limit Levels for Noise Monitoring at Sai Ying Pun Junction Shaft***

| Noise Monitoring Location | Measurement Parameter | Limit Level (dB(A)) | Remark |
|---|---|---|---|
| NM4 | $L_{eq(30mins)}$ | 75 | Normal working hours during weekdays |
| | $L_{eq(5mins)}$ | 70 | Evening (1900-2300); and Sundays and public holidays (0700-2300) |
| | $L_{eq(5mins)}$ | 55 | Night-time (2300-0700) |

*Event and Action Plan*

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I*.

### *6.3.3 Cultural Heritage*

No vibration monitoring is required for this reporting month as no blasting of tunnel / shaft works was carried out.

### *6.3.4 Landscape and Visual Monitoring*

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring was carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

*Event and Action Plan*

The Event and Action Plan (EAP) for landscape and visual monitoring is presented in *Annex I*.

## 6.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented environmental mitigation measures and fulfilled requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarised in *Annex F4*.

## 6.5 MONITORING RESULTS

### 6.5.1 *Air Quality*

A total of 6sets of 24-hour averaged and 18 sets of 1-hour averaged TSP measurements were carried out at AM5 during the reporting period. The monitoring data for 24-hour and 1-hour averaged TSP together with wind data and graphical presentations are presented in *Annex F5*.

The weather condition during the monitoring period varied from sunny to hazy. The local impacts near the monitoring stations of AM5 were mainly associated with vehicle emissions.

No exceedanceof Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

### 6.5.2 *Noise*

A total of 4 sets of 30-minute construction noise measurements were carried out at the monitoring station NM4 during normal weekdays of the reporting period. No exceedance of limit level for noise monitoring during normal working hours was recorded.

4 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours on 10, 16, 22 and 28 August 2012. No exceedance of limit level for noise monitoring during restricted hours was recorded.

The monitoring results together with graphical presentations are presented in *Annex F6*. The local impacts observed near the monitoring stations of NM4 were due to traffic noise from Connaught Road West.

### 6.5.3 *Landscape and Visual*

Implementation and maintenance of landscape and visual mitigation measures are fully achieved and no major findings was made during the reporting month.

### 6.5.4 *Cultural Heritage*

No vibration monitoring was conducted for this reporting month as the blasting of tunnel / shaft works has not started.

### 6.5.5 *Waste Management*

Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials, and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. No marine deposits requiring Type 1, 2, and 3 disposal methods were generated during the reporting month. Reference has been made to the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*). The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 6.9*. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill respectively. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

***Table 6.9 Quantities of Waste Generated from the Project for all Sites***

| Month / Year | Quantity | | | | | |
|---|---|---|---|---|---|---|
| | C&D Materials (inert) [(a)] | C&D Materials (non-inert) [(b)] | Chemical Waste | Marine Deposit | | |
| | | | | Type 1 | Type 2 | Type 3 |
| August 2012 | 10,131.36 tonnes | 30.71 tonnes | 200 l | 0 $m^3$ | 0 $m^3$ | 0 tonnes |

**Notes:**

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. 5,422.03 tonnes of inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point and 4,709.33 tonnes of broken rock have been transferred to SENT Landfill for use.

(b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

## 6.6 *ENVIRONMENTAL SITE INSPECTION*

Joint site inspections were conducted by representatives of the Contractor, Engineer and the ET on 2, 9, 16, 23 and 30 August 2012. The representative of the IEC joined the site inspection on 30 August 2012. No non-compliance was recorded during the site inspections.

Major findings observed during the reporting period were summarised as follows:

- On 2 August, stagnant water was observed inside the two drip trays beside the chemical storage and also in the chemical storage. The Contractor was reminded to remove the stagnant water properly.
- On 16 August, stagnant water was observed in the three drip trays near the chemical store. The Contractor was reminded to remove the stagnant water to avoid mosquito breeding.
- On 23 August, stagnant water was observed near the site office. The Contractor was reminded to remove the stagnant water to avoid mosquito breeding.

## *6.7 ENVIRONMENTAL NON-CONFORMANCE*

### *6.7.1 Summary of Monitoring Exceedance*

No exceedance of the Action and Limit Levels of 1-hour and 24-hour averaged TSP was recorded at the monitoring station during the reporting period.

No exceedance of the Noise Limit Levels was recorded at the monitoring station during both normal working hours and restricted hours in the reporting period.

### *6.7.2 Summary of Environmental Non-Compliance*

No non-compliance event was recorded during the reporting period.

### *6.7.3 Summary of Environmental Complaint*

No complaint was received during the reporting period. The cumulative complaint log is shown in *Annex F7*.

### *6.7.4 Summary of Environmental Summon and Successful Prosecution*

No summons was received during the reporting period. The cumulative summons/prosecution log is shown in *Annex F7*.

## *6.8 FUTURE KEY ISSUES*

### *6.8.1 Key Issues for the Coming Month*

Works to be undertaken for the coming two monitoring periods are summarised in *Table 6.10.*

***Table 6.10 Construction Works to be Undertaken in the Coming Two Months at Sai Ying Pun Junction Shaft***

| **Work to be taken** |
|---|
| • Installation of Shaft & Tunnel Services; |
| • Shaft sump construction; |
| • Erect Tunnel Hoist & Muck-Out System; and |
| • Rail track installation. |

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, site runoffs and waste management.

### *6.8.2 Monitoring Schedule for Next Month*

The tentative schedule of TSP and noise monitoring for the next reporting period is presented in *Annex F3*. Environmental monitoring will be conducted at the same monitoring locations in the reporting period.

### *6.8.3 Construction Programme for the Next Month*

The most up-to-date construction programme for the Project is presented in *Annex F8*.

# 7 STONECUTTERS ISLAND PRODUCTION AND RISER SHAFTS

## 7.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING MONTH

A summary of the major construction activities undertaken in this reporting period is shown in *Table 7.1*. The locations of the construction activities are shown in *Annex G1*.

***Table 7.1 Summary of Construction Activities Undertaken from 1 to 31 August 2012 at the Stonecutters Island Production and Riser Shafts***

| **Construction Activities Undertaken** |
|---|
| *Riser Shaft* |
| • Pre-excavation grouting; |
| *Production Shaft* |
| • Alimak installation; |
| • Bunton, services and FSD ladderway installation; and |
| • Shaft sump construction. |

## 7.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 is presented in *Table 7.2*.

***Table 7.2 Summary of Environmental Licensing, Notification and Permit Status at Stonecutters Island Production and Riser Shafts***

| **Permit/ Licences/ Notification** | **Reference** | **Validity Period** | **Remarks** |
|---|---|---|---|
| Wastewater Discharge License | Stonecutters Island Production Shaft and Riser Shaft WT00005069-2009 | 11 August 2010 - 31 October 2014 | -- |
| Chemical Waste Producer Registration | Stonecutters Island Production Shaft and Riser Shaft 5213-269-G2449-07 | -- | -- |
| Construction Noise Permit CNP | Stonecutters Island Production and Riser Shaft GW-RW0523-12 | 4 July 2012 – 28 December 2012 | |

## 7.3 ENVIRONMENTAL MONITORING REQUIREMENTS

### 7.3.1 Air Quality Monitoring

*Monitoring Location*

In accordance with the EM&A Manual, 24-hour and 1-hour averaged Total Suspended Particulates (TSP) levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was denied or not available, alternative

locations were proposed and agreed by the ER and IEC. The construction air quality monitoring station for this Contract is listed in *Table 7.3* and shown in *Annex G2*.

***Table 7.3 Construction Phase Air Monitoring Location at Stonecutters Island Production and Riser Shafts***

| Worksite | Construction Air Quality Monitoring Station | | | |
|---|---|---|---|---|
| | ID in EM&A Manual | ID | Location | Remark |
| SCISTW | - | AM6 | Works Site Boundary | • Power Access supply for operation of HVS to the rooftop of Government Dockyard Offices (CM_SCI1) was not feasible.<br>• For COSCO HIT Terminal (CM_SCI2), access application was verbally rejected.<br>• Club House (CM_SCI3) is blocked by a high building, which will affect the dust levels during measurement.<br>• Work Site Boundary (near Ngong Shuen Chau Barracks Group 2 (CM_SCI4) was designed for the HATS2A Disinfection Facilities works and the station is separated by a small hill.<br>• Baseline dust monitoring data measured under HATS2A – Provision of Disinfection Facilities at SCISTW will also be obtained for the establishment of the action level for the impact monitoring. |

*Monitoring Parameters, Frequency and Programme*

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 7.4*). The monitoring programme for this reporting period is shown in *Annex G3*.

***Table 7.4 TSP Monitoring Parameter and Frequency at Stonecutters Island Production and Riser Shafts***

| Parameter | Frequency |
|---|---|
| 24-hour averaged TSP | Once in every 6 days |
| 1-hour averaged TSP | 3 times in every 6 days |

*Monitoring Equipment*

Continuous 24-hour and 1-hour averaged TSP monitoring were performed using High Volume Samplers (HVS) with appropriate sampling inlets installed, located at the designated monitoring station. The performance specification of HVS complied with the standard method "*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*" as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. *Table 7.5* summarises the equipment that was deployed for the 24-hour and 1-hour averaged TSP monitoring.

*Table 7.5* ***TSP Monitoring Equipment at Stonecutters Island Production and Riser Shafts***

| Monitoring Station | Monitoring Equipment (HVS and Calibrator) |
|---|---|
| *24-hr and 1-hr TSP* | |
| AM6 | GMW GS-2310 (S/N 1254), CM-AIR-43 (S/N 0438320) |

*Monitoring Methodology*

Installation

The setup location of the HVS at the monitoring station was listed in *Table 7.3*. The HVS was free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind was provided at AM6;
- a minimum of 2 m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues was nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and the area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;

- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- then the shelter lid was closed and secured with the aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flowrate record sheet was set into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 m3min-1 which were within the range specified in the EM&A Manual (ie 0.6 – 1.7 m3min-1);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folder in half so that only surfaces with collected particulate matter were in contact;
- the filter paper was then placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller were calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipments were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration record for the HVS is given in *Annex H*.

Wind Data

The nearest weather station to Stonecutters Island Production and Riser Shafts is located at Tsing Yi. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological station at Tsing Yi of the Hong Kong Observatory (HKO) and are presented in *Annex G5*.

*Action and Limit Levels*

The Action and Limit levels have been established and are presented in *Table 7.6*. The baseline air monitoring data (24-hr and 1-hr TSP average) measured under *HATS2A – Provision of Disinfection Facilities at SCISTW* (DF) are also included to establish the Action Level at AM6.

***Table 7.6 Action and Limit Levels for Air Quality at Stonecutters Island Production and Riser Shafts***

| Parameter | Air Monitoring Station | Action Level, $\mu gm^{-3}$ | Limit Level, $\mu gm^{-3}$ |
|---|---|---|---|
| 24-hour average TSP | AM6 (with 24-hr TSP data from DF project) | 196 | 260 |
| 1-hour average TSP | AM6 (with 1-hr TSP data from DF project) | 346 | 500 |

*Event and Action Plan*

The Event and Action Plan (EAP) for air quality monitoring is presented in *Annex I*.

### *7.3.2 Noise Monitoring*

*Monitoring Location*

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were denied or not available, alternative locations were proposed and agreed by the ER and IEC. The construction noise monitoring location for this Contract is listed in *Table 7.7* and shown in *Annex G2*.

*Table 7.7* ***Construction Phase Noise Monitoring Station at Stonecutters Island Production and Riser Shafts***

| Worksite | Construction Noise Monitoring Station | | | | |
|---|---|---|---|---|---|
| | ID in EM&A Manual | ID | Location | Type of Measurement | Remark |
| SCISTW | - | NM5 | A Location near the FSD Diving Rescue and Diving Training Centre near the Site Boundary | Free-Field (3dB(A) was added to the measured results) | • Access to FSD Fire Rescue and Diving Training Centre (M11) was rejected.<br>• NM5 is located next to the original proposed location. |

*Monitoring Parameters, Frequency and Programme*

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring was also conducted as per required in the EM&A Manual when works were carried out during restricted periods. The monitoring programme for this reporting period is shown in *Annex G3*.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level ($L_{eq}$) in decibels dB(A). $L_{eq\ (30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq\ (5min)}$ were used as the monitoring parameter for all restricted periods. Supplementary information for data auditing, two statistical sound levels ($L_{10}$ and $L_{90}$ which are the levels exceeded for 10 and 90 percent of the time respectively) were also recorded during the monitoring for reference. The measured noise levels were logged every 5 minutes throughout the impact monitoring period.

*Monitoring Equipment and Methodology*

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures* of *Technical Memorandum on Noise from Construction Work other than Percussive Piling* (*GW-TM*) issued under the *Noise Control Ordinance* (*NCO*) (Cap.400).

The sound level meters and calibrator used for the noise measurement, as listed in *Table 7.8*, comply with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

*Table 7.8* ***Noise Monitoring Equipment at Stonecutters Island Production and Riser Shafts***

| Monitoring Station | Monitoring Equipment (Sound Level Meter and Calibrator) |
|---|---|
| NM5 | • Calibrator: Rion NC-73 (S/N 10997142)<br>• Sound Level Meters: Rion NL-31 (S/N 00410224) |

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

A correction of +3 dB(A) was made to the free field measurement at NM5.

*Action and Limit Levels*

The limit levels for the noise monitoring during different monitoring periods are summarised in *Table 7.9*.

*Table 7.9* ***Limit Levels for Noise Monitoring at Stonecutters Island Production and Riser Shaft***

| Noise Monitoring Location | Measurement Parameter | Limit Level (dB(A)) | Remark |
|---|---|---|---|
| NM5 | $L_{eq(30mins)}$ | 75 | Normal working hours during weekdays |
| | $L_{eq(5mins)}$ | 70 | Evening (1900-2300); and Sundays and public holidays (0700-2300) |
| | $L_{eq(5mins)}$ | 55 | Night-time (2300-0700) |

*Event and Action Plan*

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I*.

### *7.3.3 Cultural Heritage*

No vibration monitoring is required for this reporting month as no blasting of tunnel / shaft works was carried out.

### *7.3.4 Landscape and Visual Monitoring*

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring was carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

*Event and Action Plan*

The Event and Action Plan (EAP) for landscape and visual monitoring is presented in *Annex I*.

## *7.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS*

The Contractor has implemented environmental mitigation measures and fulfilled the requirements as stated in the EIA Report, Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarised in *Annex G4*.

## *7.5 MONITORING RESULTS*

### *7.5.1 Air Quality*

A total of 6 sets of 24-hour averaged and 18 sets of 1-hour averaged TSP measurements were carried out at AM6 during the reporting period. The monitoring data for 24-hour and 1-hour averaged TSP together with wind data and graphical presentations are presented in *Annex G5*.

The weather condition during the monitoring period varied from sunny to rainy. The local impacts near the monitoring stations of AM6 were mainly associated with vehicle emissions.

No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

### *7.5.2 Noise*

A total of 4 sets of 30-minute construction noise measurements were carried out at the monitoring station NM5 during normal weekdays of the reporting period. No exceedance of limit level for noise monitoring during normal working hours was recorded.

Construction work was also conducted on public holidays and Sundays in this reporting month. 4 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours on 7, 12, 21 and 26 August 2012 during the reporting month. No exceedance of limit level for noise monitoring during restricted hours was recorded.

The monitoring results together with graphical presentations are presented in *Annex G6*. The local impacts observed near the monitoring stations of NM5 included operations at the Government Dockyard, other construction sites activities and traffic within the SCISTW in the vicinity.

### *7.5.3 Landscape and Visual*

Implementation and maintenance of landscape and visual mitigation measures are fully achieved and no major findings was made during the reporting month.

### *7.5.4 Cultural Heritage*

No vibration monitoring was conducted for this reporting month as the blasting of tunnel / shaft works has not started.

### *7.5.5 Waste Management*

Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials, and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. No marine deposits requiring Type 1, 2, and 3 disposal methods was generated during the reporting month. Reference has been made to the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*). The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 7.10*. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill respectively. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

Table 7.10 Quantities of Waste Generated from the Project for all Sites

| **Month / Year** | **Quantity** | | | | | |
|---|---|---|---|---|---|---|
| | **C&D Materials (inert) [a]** | **C&D Materials (non-inert) [b]** | **Chemical Waste** | **Marine Deposit** | | |
| | | | | **Type 1** | **Type 2** | **Type 3** |
| August 2012 | 10,131.36 tonnes | 30.71 tonnes | 200 l | 0 $m^3$ | 0 $m^3$ | 0 tonnes |

**Notes:**

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. 5,422.03 tonnes of inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point and 4,709.33 tonnes of broken rock have been transferred to SENT Landfill for use.

(b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No plastic was generated but 62 kg of paper/cardboard packaging and 8 kg of steels generated were sent to recyclers for recycling.

## 7.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by representatives of the Contractor, Engineer and the ET. Site inspections were conducted on 2, 9, 16, 23 and 30 August 2012. The representative of the IEC joined the site inspection on 30 August 2012. No non-compliance was recorded during the site inspections.

Major findings and recommendations are summarised as follows:

*Riser Shaft*

- Nil.

*Production Shaft*

- On 9 August, four chemical drums without labels were observed inside the noise enclosure of production shaft. The Contractor was reminded to put a label on the chemical container for clear identification.
- On 23 August, stagnant water with mosses inside was observed on the floor at the back of noise enclosure. The Contractor was reminded to remove the water and mosses to avoid mosquito breeding.
- On 30 August, a chemical drum without drip tray was observed near noise enclosure. The Contractor was reminded to provide a drip tray to the drum and cover them with impervious sheet when unused.

## 7.7 ENVIRONMENTAL NON-CONFORMANCE

### 7.7.1 *Summary of Monitoring Exceedance*

No exceedance of the Action and Limit Levels of 1-hour and 24-hour averaged TSP was recorded at monitoring station during the reporting period.

No exceedance of the Noise Limit Levels was recorded at monitoring station during both normal working hours and restricted hours in the reporting period.

### 7.7.2 *Summary of Environmental Non-Compliance*

No non-compliance event was recorded during the reporting period.

### 7.7.3 *Summary of Environmental Complaint*

No complaint was received during the reporting period. The cumulative complaint log is shown in *Annex G7*.

### 7.7.4 *Summary of Environmental Summon and Successful Prosecution*

No summon was received during the reporting period. The cumulative summons/prosecution log is shown in *Annex G7*.

## 7.8 FUTURE KEY ISSUES

### 7.8.1 Key Issues for the Coming Month

Works to be undertaken for the coming two monitoring periods are summarised in *Table 7.11.*

**Table 7.11 Construction Works to be Undertaken in the Coming Two Months at Stonecutters Island Production and Riser Shafts**

| Work to be taken |
|---|
| *Riser Shaft* |
| • Pre-excavation grouting; |
| *Production Shaft* |
| • Installation of Shaft Services; |
| • Shaft sump construction; and |
| • Erect Tunnel Hoist & Muck-Out System |

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, site runoffs and waste management.

### 7.8.2 Monitoring Schedule for the Next Month

The tentative schedule of TSP and noise monitoring for the next reporting period is presented in *Annex G3*. Environmental monitoring will be conducted at the same monitoring locations in this reporting period.

### 7.8.3 Construction Programme for the Next Month

The most updated construction programme for the Project is presented in *Annex G8*.

# 8 CONCLUSIONS

This Environmental Monitoring and Audit (EM&A) Report presents the EM&A programme undertaken during the period from 1 to 31 August 2012 in accordance with EM&A Manual and the requirement under EP-322/2008/E. The conclusions for the five different sites are summarised below.

## 8.1 NORTH POINT PRODUCTION AND DROP SHAFTS

No exceedance of Action and Limit Levels of 24-hour and 1-hour averaged TSP was recorded at the air quality monitoring stations during the reporting period.

No exceedance of Limit Levels for construction noise was recorded at the monitoring station during the reporting period.

No non-compliance event was recorded during the reporting period.

No complaint or summons/prosecution was received during the reporting period.

## 8.2 WAN CHAI EAST PRODUCTION AND DROP SHAFTS

No exceedance of Action and Limit Levels of 24-hour and 1-hour averaged TSP was recorded at the air quality monitoring station during the reporting period.

No exceedance of Limit Levels for construction noise was recorded at the monitoring station during the reporting period.

No non-compliance event was recorded during the reporting period.

No complaint or summons/prosecution was received during the reporting period.

## 8.3 CENTRAL DROP SHAFT

No exceedance of Action and Limit Levels of 24-hour and 1-hour averaged TSP was recorded at the air quality monitoring station during the reporting period.

No exceedance of Limit Levels for construction noise was recorded at the monitoring station during the reporting period.

No non-compliance event was recorded during the reporting period.

No complaint or summons/prosecution was received during the reporting period.

### *8.4 SAI YING PUN JUNCTION SHAFT*

No exceedance of Action and Limit Levels of 24-hour and 1-hour averaged TSP was recorded at the air quality monitoring station during the reporting period.

No exceedance of Limit Levels for construction noise was recorded at the monitoring station during the reporting period.

No non-compliance event was recorded during the reporting period.

No complaint or summon/prosecution was received during the reporting period.

### *8.5 STONECUTTERS ISLAND PRODUCTION AND RISER SHAFTS*

No exceedance of Action and Limit Levels of 24-hour and 1-hour averaged TSP was recorded at the air quality monitoring station during the reporting period.

No exceedance of Limit Levels for construction noise was recorded at the monitoring station during the reporting period.

No non-compliance event was recorded during the reporting period.

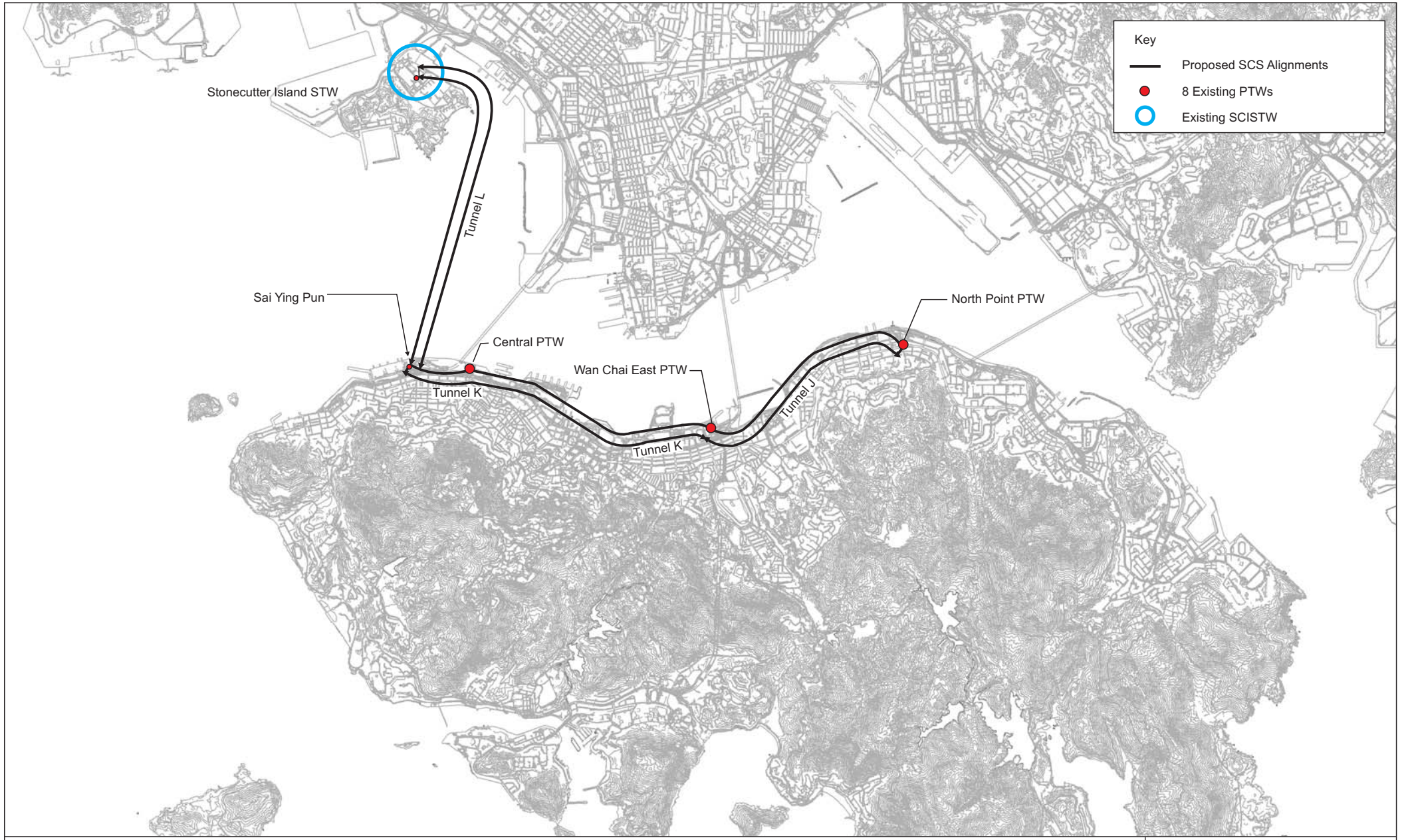
No complaint or summons/prosecution was received during the reporting period.

### *8.6 OVERALL*

The ET has managed the EM&A programme to monitor the compliance status of various environmental requirements, and verify the proper implementation of necessary mitigation measures.

Annex A

# Locations of Works Areas




Annex A

General Layout Plan of HATS Stage 2A

FILE: 0104887h5
DATE: 17/05/2010

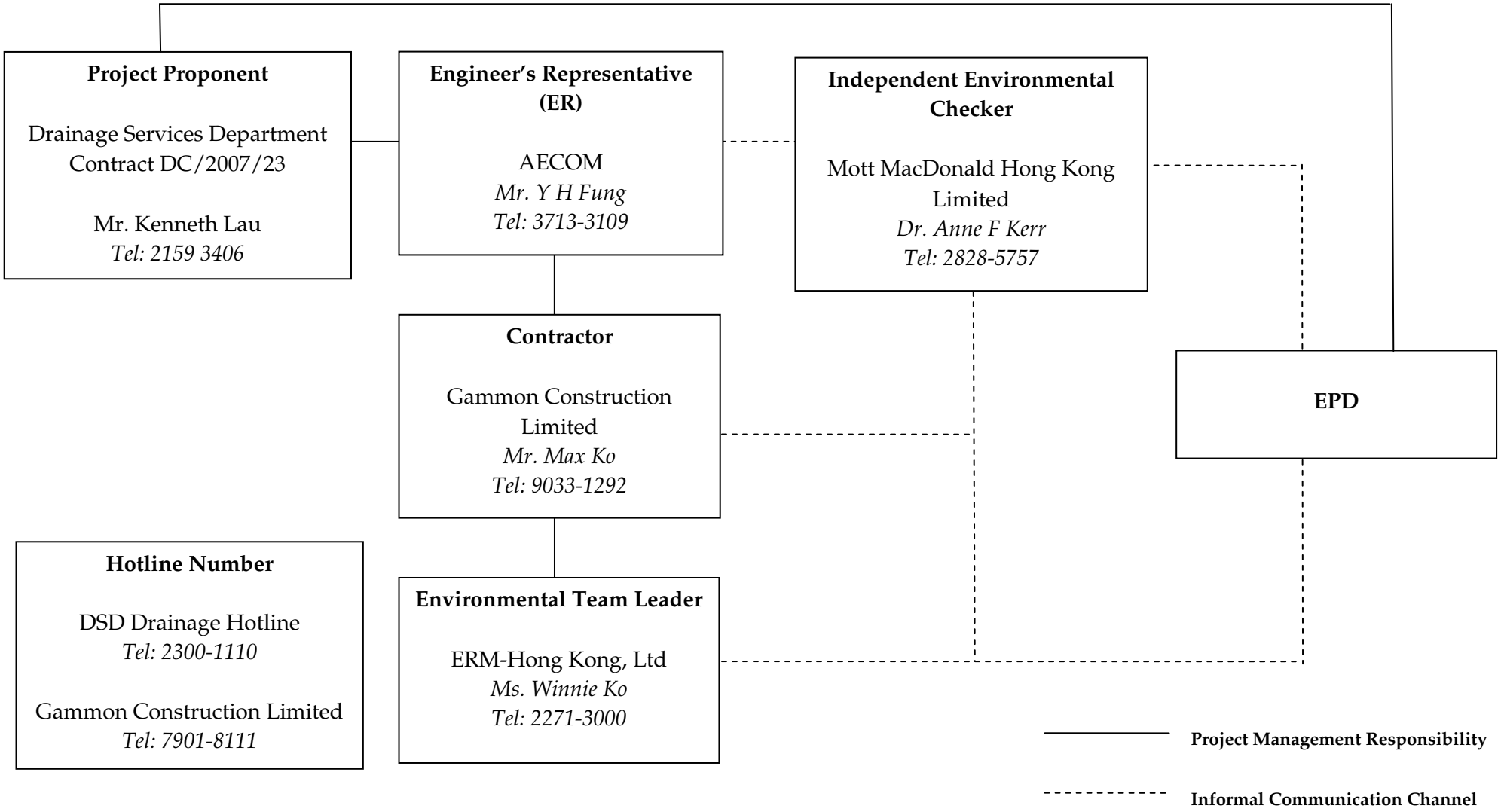
Environmental Resources Management

ERM

Annex B

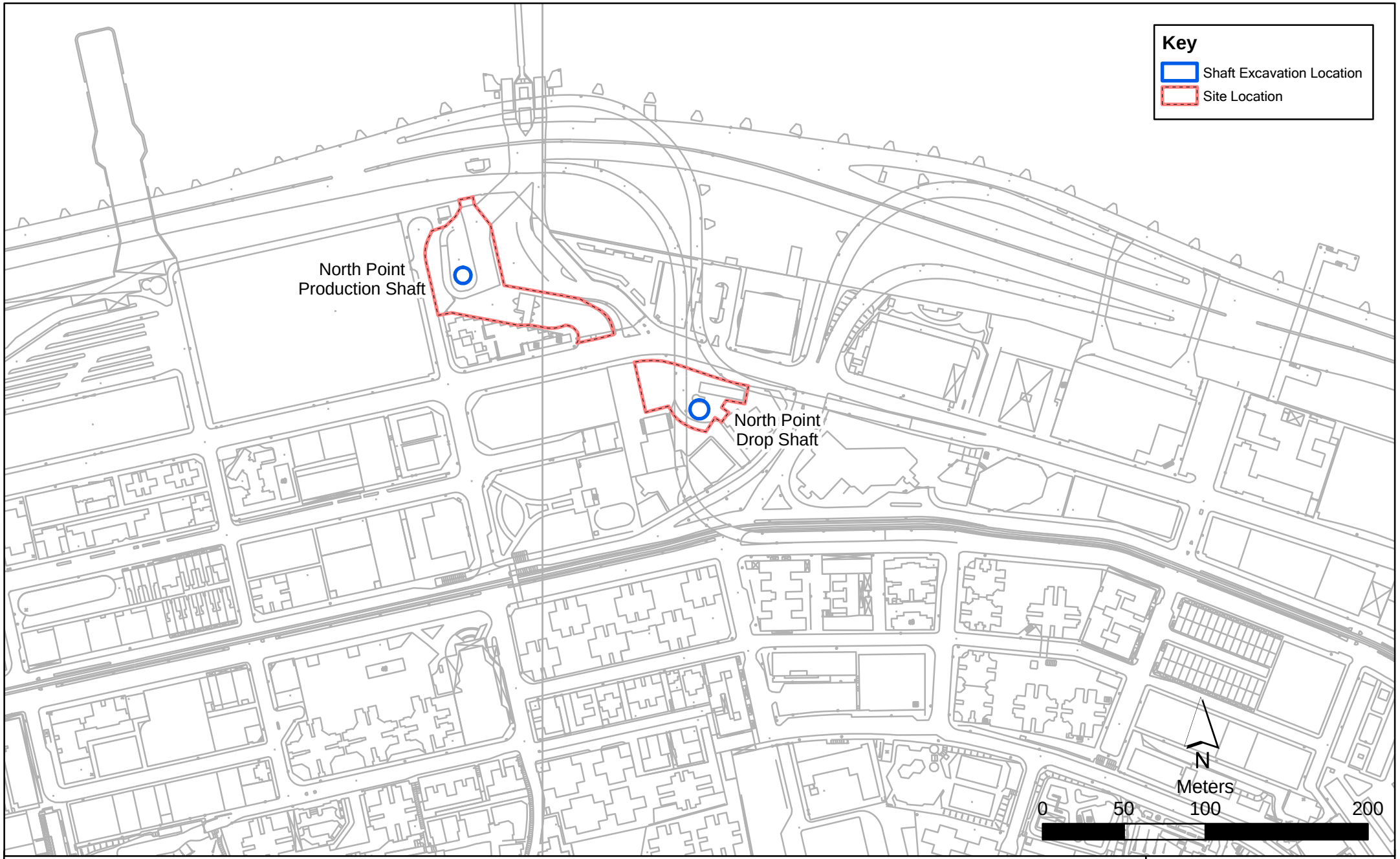
# Project Organization Chart and Contact Detail

***Project Organization***



Annex C

# North Point Production and Drop Shafts



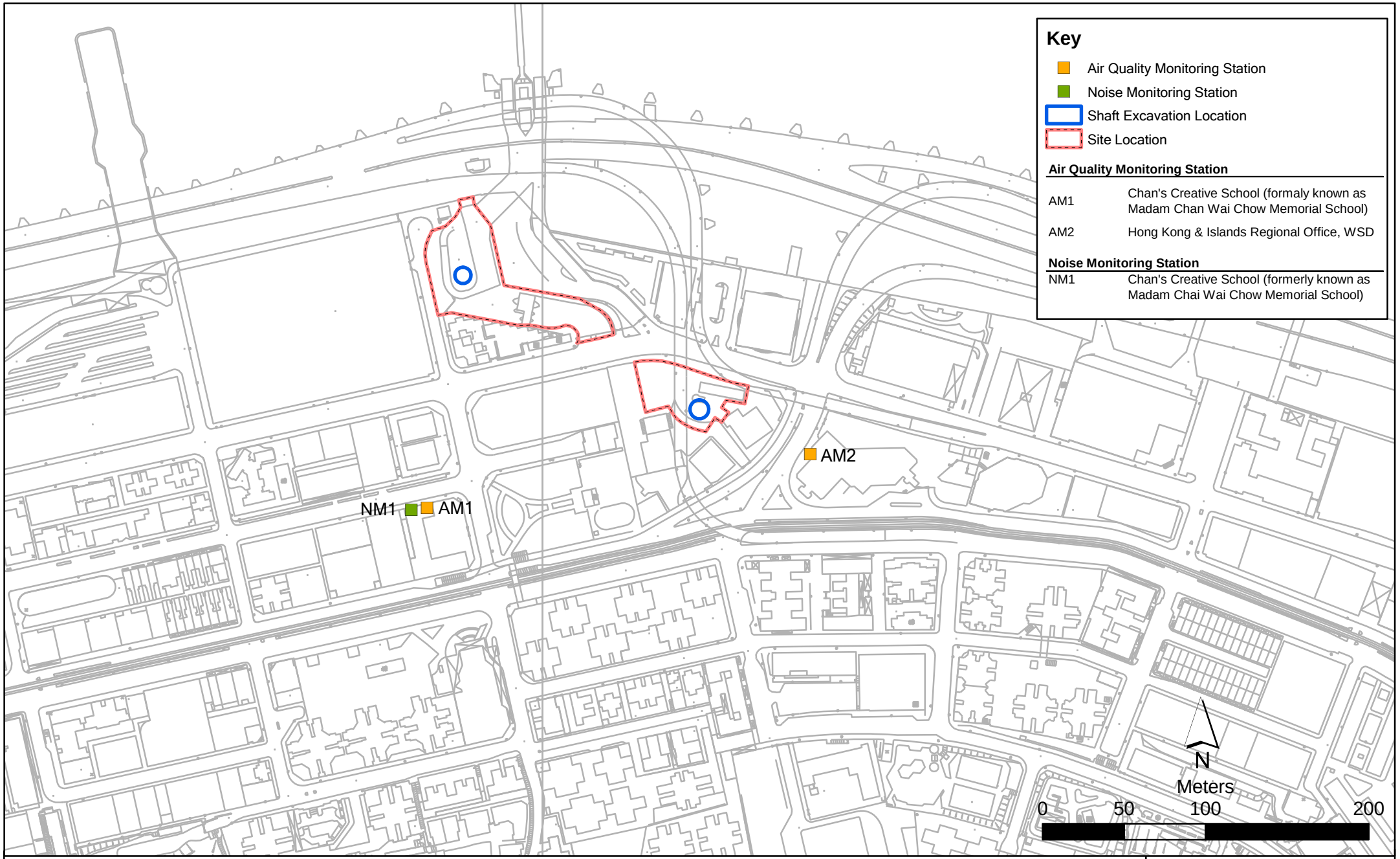

Annex C1

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
*Construction Site Locations at North Point*

File: EM&A and proposed station\0104887_North Point.mxd
Date: 29/10/2009

**Environmental Resources Management**

ERM




Annex C2

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
*Impact Air Quality & Noise Monitoring Stations (North Point)*

File: EM&A and proposed station\0104887_North Point_NMAM.mxd
Date: 03/03/2010

**Environmental Resources Management**

ERM

# Annex C3 Monitoring Schedule of the Reporting Month and Next Month

**DC/2007/23**

**Harbour Area Treatment Scheme Stage 2A**

**Construction of Sewage Conveyance System from North Point to Stonecutters Island**

**Impact Construction Air Quality Monitoring Schedule**

**AM1 - Chan's Creative School**

**Monitoring Month : August 2012**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | 01-Aug | 02-Aug | 03-Aug | 04-Aug |
| | | | | | | 1-hr and 24-hr Monitoring |
| 05-Aug | 06-Aug | 07-Aug | 08-Aug | 09-Aug | 10-Aug | 11-Aug |
| | | | | | 1-hr and 24-hr Monitoring | |
| 12-Aug | 13-Aug | 14-Aug | 15-Aug | 16-Aug | 17-Aug | 18-Aug |
| | | | | 1-hr and 24-hr Monitoring | | |
| 19-Aug | 20-Aug | 21-Aug | 22-Aug | 23-Aug | 24-Aug | 25-Aug |
| | | | 1-hr and 24-hr Monitoring | | | |
| 26-Aug | 27-Aug | 28-Aug | 29-Aug | 30-Aug | 31-Aug | |
| | | 1-hr and 24-hr Monitoring | | | | |

## Monitoring Month : September 2012

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | | | | 01-Sep |
| | | | | | | |
| 02-Sep | 03-Sep | 04-Sep | 05-Sep | 06-Sep | 07-Sep | 08-Sep |
| | 1-hr and 24-hr Monitoring | | | | | 1-hr and 24-hr Monitoring |
| 09-Sep | 10-Sep | 11-Sep | 12-Sep | 13-Sep | 14-Sep | 15-Sep |
| | | | | | 1-hr and 24-hr Monitoring | |
| 16-Sep | 17-Sep | 18-Sep | 19-Sep | 20-Sep | 21-Sep | 22-Sep |
| | | | | 1-hr and 24-hr Monitoring | | |
| 23-Sep | 24-Sep | 25-Sep | 26-Sep | 27-Sep | 28-Sep | 29-Sep |
| | | | 1-hr and 24-hr Monitoring | | | |
| 30-Sep | | | | | | |
| | | | | | | |

## Annex C3 Monitoring Schedule of the Reporting Month and Next Month

**DC/2007/23**
**Harbour Area Treatment Scheme Stage 2A**
**Construction of Sewage Conveyance System from North Point to Stonecutters Island**
**Impact Construction Air Quality Monitoring Schedule**

**AM2 - Hong Kong & Islands Regional Office, WSD**
**Monitoring Month : August 2012**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | 01-Aug | 02-Aug | 03-Aug | 04-Aug |
| | | | | | | 1-hr and 24-hr Monitoring |
| 05-Aug | 06-Aug | 07-Aug | 08-Aug | 09-Aug | 10-Aug | 11-Aug |
| | | | | | 1-hr and 24-hr Monitoring | |
| 12-Aug | 13-Aug | 14-Aug | 15-Aug | 16-Aug | 17-Aug | 18-Aug |
| | | | | 1-hr and 24-hr Monitoring | | |
| 19-Aug | 20-Aug | 21-Aug | 22-Aug | 23-Aug | 24-Aug | 25-Aug |
| | | | 1-hr and 24-hr Monitoring | | | |
| 26-Aug | 27-Aug | 28-Aug | 29-Aug | 30-Aug | 31-Aug | |
| | | 1-hr and 24-hr Monitoring | | | | |

## Monitoring Month : September 2012

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | | | | 01-Sep |
| | | | | | | |
| 02-Sep | 03-Sep | 04-Sep | 05-Sep | 06-Sep | 07-Sep | 08-Sep |
| | 1-hr and 24-hr Monitoring | | | | | 1-hr and 24-hr Monitoring |
| 09-Sep | 10-Sep | 11-Sep | 12-Sep | 13-Sep | 14-Sep | 15-Sep |
| | | | | | 1-hr and 24-hr Monitoring | |
| 16-Sep | 17-Sep | 18-Sep | 19-Sep | 20-Sep | 21-Sep | 22-Sep |
| | | | | 1-hr and 24-hr Monitoring | | |
| 23-Sep | 24-Sep | 25-Sep | 26-Sep | 27-Sep | 28-Sep | 29-Sep |
| | | | 1-hr and 24-hr Monitoring | | | |
| 30-Sep | | | | | | |
| | | | | | | |

## Annex C3 Monitoring Schedule of the Reporting Month and Next Month

**DC/2007/23**

**Harbour Area Treatment Scheme Stage 2A**

**Construction of Sewage Conveyance System from North Point to Stonecutters Island**

**Impact Construction Noise Quality Monitoring Schedule**

**NM1 - Chan's Creative School**

**Monitoring Month : August 2012**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | 01-Aug | 02-Aug | 03-Aug | 04-Aug |
| | | | | | | |
| 05-Aug | 06-Aug | 07-Aug | 08-Aug | 09-Aug | 10-Aug | 11-Aug |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | | | Noise Monitoring | |
| 12-Aug | 13-Aug | 14-Aug | 15-Aug | 16-Aug | 17-Aug | 18-Aug |
| | | Noise Monitoring (evening time) | | Noise Monitoring | | |
| 19-Aug | 20-Aug | 21-Aug | 22-Aug | 23-Aug | 24-Aug | 25-Aug |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | Noise Monitoring | | | |
| 26-Aug | 27-Aug | 28-Aug | 29-Aug | 30-Aug | 31-Aug | |
| | | Noise Monitoring (Day time and evening time) | | | | |

## Monitoring Month : September 2012

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | | | | 01-Sep |
| | | | | | | |
| 02-Sep | 03-Sep | 04-Sep | 05-Sep | 06-Sep | 07-Sep | 08-Sep |
| Noise Monitoring (during daytime of sundays/ public holidays) | Noise Monitoring | | | | | |
| 09-Sep | 10-Sep | 11-Sep | 12-Sep | 13-Sep | 14-Sep | 15-Sep |
| | | Noise Monitoring (evening time) | | | Noise Monitoring | |
| 16-Sep | 17-Sep | 18-Sep | 19-Sep | 20-Sep | 21-Sep | 22-Sep |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | | Noise Monitoring | | |
| 23-Sep | 24-Sep | 25-Sep | 26-Sep | 27-Sep | 28-Sep | 29-Sep |
| | | Noise Monitoring (evening time) | Noise Monitoring | | | |
| 30-Sep | | | | | | |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | | | | |

*ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| *Construction Phase* | | | |
| Air Quality | The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimize construction dust impact. Control measures relevant to this Project are listed below:<br>• skip hoist for material transport should be totally enclosed by impervious sheeting;<br>• every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site;<br>• the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;<br>• where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit;<br>• every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides;<br>• regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather;<br>• site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines;<br>• open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible;<br>• tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and<br>• instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. | All work sites / during construction | √ |

*ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Air Quality | The following watering measures for specific site would be required to control the fugitive dust impacts:<br>• watering twice per day within the worksites at North Point PTW; and<br>• watering 8 times per day within worksites at the SCS works area at North Point. | All work sites / during construction | √ |
| *Operational Phase* | | | |
| Air Quality | Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.<br>• Screens should be cleaned regularly to remove any accumulated organic debris<br>• Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit<br>• Grit and screened materials should be transferred to closed containers to minimize odour escape<br>• Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics<br>• Skim and remove floating solids and grease from primary clarifiers regularly<br>• Frequent sludge withdrawal from tanks is necessary to prevent the production of gases<br>• Sludge cake should be transferred to closed containers<br>• Sludge containers should be flushed with water regularly | All work sites / during construction | NA. Measures not required until commencement of operational phase |
| Air Quality | Commissioning tests for all deodorization system should be included in the Design and Construction Contract Document. | All PTW and SCISTW/ during operational phase | |
| *Construction Phase* | | | |
| Noise | Use of quiet PME, movable barriers and acoustic mats | All work sites / during construction | √ |

*ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Noise | Good Site Practice:<br>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program;<br>• silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program;<br>• mobile plant, if any, should be sited as far from NSRs as possible;<br>• machines and plant (such as trucks) 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 should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and<br>• material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities;<br><br>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented. | All work sites / during construction | √ |
| *Construction Phase* | | | |
| Water Quality | Construction Site Runoff and General Construction Activities<br>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable. | All work sites / during construction | √ |

*ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Effluent Discharge<br><br>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes. | All work sites / during construction | √ |
| Water Quality | Accidental Spillage of Chemicals<br><br>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes. | All work sites / during construction | √ |
| Water Quality | Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges. | All work sites / during construction | <> |

*ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.<br>General requirements are given as follows:<br>• Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.<br>• Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.<br>• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. | All work sites / during construction | √ |

*ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Construction Works in Close Proximity of Storm Drains or Seafront<br><br>To minimize the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.<br>• The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment.<br>• Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works.<br>• Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.<br>• Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers.<br>• Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.<br>• Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea | All work sites / during construction | √ |

*ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| *Operational Phase* | | | |
| Water Quality | Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimize the chance of emergency discharge. | SCISTW and all the Stage 2 PTWs / Operation Stage | NA. Measures not required until commencement of operational phase |
| Water Quality | Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs. | Stage 2 PTWs / Operation Stage | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |
| Waste | Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimize the use of timber formwork. | All work sites / during the construction period | √ |
| Waste | All waste materials should be segregated into categories covering:<br>• excavated materials suitable for reuse on-site;<br>• excavated materials suitable for public filling facilities;<br>• remaining C&D waste for landfill;<br>• chemical waste; and<br>• general refuse for landfill. | All work sites / during the construction period | √ |

*ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Recommendations to achieve waste reduction include:<br>• Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals;<br>• Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;<br>• Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force;<br>• Any unused chemicals or those with remaining functional capacity shall be recycled; and<br>• Proper storage and site practices to minimise the potential for damage or contamination of construction materials. | All work sites / during the construction period | √ |
| Waste | Recommendations for good site practices during construction activities include:-<br>• Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site<br>• Training of site personnel in proper waste management and chemical waste handling procedures<br>• Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials.<br>• Provision of sufficient waste disposal points and regular collection of waste<br>• Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors | All work sites / during the construction period | √ |
| Waste | Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage". | All work sites / during the construction period | √ |

*ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected. | All work sites / during the construction period | √ |
| Waste | General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill. | All work sites / during the construction period | √ |
| Waste | The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials. | All work sites / during the construction period | √ |
| Waste | If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. | All work sites / during the construction period | √ |

*ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results. | All work sites / during the construction period | √ |
| *Construction Phase* | | | |
| Landscape & Visual | • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.<br>• Existing trees to be retained on site should be carefully protected during construction.<br>• Trees unavoidably affected by the works should be transplanted where practical.<br>• Compensatory tree planting should be provided to compensate for felled trees.<br>• Control of night-time lighting.<br>• Erection of decorative screen hoarding compatible with the surrounding setting. | All the works areas, PTWs and SCISTW/ during the construction period | √ |
| *Operational Phase* | • | | |
| Landscape & Visual | • Aesthetic design of the façade of PTW and associated structures to harmonize with the surrounding settings.<br>• Shrub and Climbing Plants to soften proposed structures / Roof Greening.<br>• Buffer Tree and Shrub Planting to screen proposed associated structures.<br>• Reinstated of disturbed area | All the works areas, PTWs and SCISTW/ during the construction period | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |

*ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Cultural Heritage | The construction vibration control limit (ppv of 25mm/s) shall be strictly followed. | Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures | NA. Vibration monitoring has not been launched during the reporting period. |
| | Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme | Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures | NA. Vibration monitoring has not been launched during the reporting period. |

Remark:
√ Compliance of Mitigation Measures
<> Compliance of Mitigation but need improvement
x Non-compliance of Mitigation Measures
Δ Deficiency of Mitigation Measures but rectified by the Contractor
NA Not Applicable

## Annex C5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

**Station AM1**

| Date | Start Time | Finish Time | Weather | TSP Concentration ($\mu g/m^3$) | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) | Site Conditions / Observations / Remarks | Temperature (℃) | Wind Speed * (m/s) | Sampler ID | Filter ID |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 04-Aug-12 | 9:00 | 10:00 | Fine | 189 | 340 | 500 | Construction work in progress | 30 | <5 | 1808 | 4747 |
| | 10:02 | 11:02 | Fine | 196 | 340 | 500 | Construction work in progress | 30 | <5 | 1808 | 4748 |
| | 11:04 | 12:04 | Fine | 196 | 340 | 500 | Construction work in progress | 30 | <5 | 1808 | 4749 |
| 10-Aug-12 | 10:30 | 11:30 | Fine | 164 | 340 | 500 | Construction work in progress | 30 | <5 | 1808 | 4756 |
| | 11:32 | 12:32 | Fine | 186 | 340 | 500 | Construction work in progress | 30 | <5 | 1808 | 4757 |
| | 12:34 | 13:34 | Fine | 203 | 340 | 500 | Construction work in progress | 30 | <5 | 1808 | 4760 |
| 16-Aug-12 | 10:05 | 11:05 | Cloudy | 185 | 340 | 500 | Construction work in progress | 29 | <5 | 1808 | 4763 |
| | 11:07 | 12:07 | Cloudy | 183 | 340 | 500 | Construction work in progress | 29 | <5 | 1808 | 4765 |
| | 12:09 | 13:09 | Cloudy | 181 | 340 | 500 | Construction work in progress | 29 | <5 | 1808 | 5058 |
| 22-Aug-12 | 9:40 | 10:40 | Cloudy | 181 | 340 | 500 | Construction work in progress | 30 | <5 | 1808 | 5039 |
| | 10:42 | 11:42 | Cloudy | 138 | 340 | 500 | Construction work in progress | 30 | <5 | 1808 | 5040 |
| | 11:44 | 12:44 | Cloudy | 157 | 340 | 500 | Construction work in progress | 30 | <5 | 1808 | 5041 |
| 28-Aug-12 | 10:20 | 11:20 | Sunny | 194 | 340 | 500 | Construction work in progress | 32 | <5 | 1808 | 5053 |
| | 11:22 | 12:22 | Sunny | 200 | 340 | 500 | Construction work in progress | 32 | <5 | 1808 | 5052 |
| | 12:24 | 13:24 | Sunny | 213 | 340 | 500 | Construction work in progress | 32 | <5 | 1808 | 5049 |
| | | | **Min.** | **138** | | | | | | | |
| | | | **Max.** | **213** | | | | | | | |
| | | | **Average** | **184** | | | | | | | |

* Wind Speed data is presented in the Meteorological Data table

## Annex C5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

**Station AM2**

| Date | Start Time | Finish Time | Weather | TSP Concentration ($\mu g/m^3$) | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) | Site Conditions / Observations / Remarks | Temperature (℃) | Wind Speed * (m/s) | Sampler ID | Filter ID |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 04-Aug-12 | 9:20 | 10:20 | Fine | 210 | 352 | 500 | Construction work in progress | 30 | <5 | 0145 | 4751 |
| | 10:22 | 11:22 | Fine | 225 | 352 | 500 | Construction work in progress | 30 | <5 | 0145 | 4752 |
| | 11:24 | 12:24 | Fine | 201 | 352 | 500 | Construction work in progress | 30 | <5 | 0145 | 4753 |
| 10-Aug-12 | 10:50 | 11:50 | Fine | 158 | 352 | 500 | Construction work in progress | 30 | <5 | 0145 | 4755 |
| | 11:52 | 12:52 | Fine | 184 | 352 | 500 | Construction work in progress | 30 | <5 | 0145 | 4758 |
| | 12:54 | 13:54 | Fine | 197 | 352 | 500 | Construction work in progress | 30 | <5 | 0145 | 4759 |
| 16-Aug-12 | 10:25 | 11:25 | Cloudy | 175 | 352 | 500 | Construction work in progress | 29 | <5 | 145 | 4764 |
| | 11:27 | 12:27 | Cloudy | 165 | 352 | 500 | Construction work in progress | 29 | <5 | 0145 | 4766 |
| | 12:29 | 13:29 | Cloudy | 163 | 352 | 500 | Construction work in progress | 29 | <5 | 0145 | 5035 |
| 22-Aug-12 | 10:00 | 11:00 | Cloudy | 169 | 352 | 500 | Construction work in progress | 30 | <5 | 0145 | 5038 |
| | 11:02 | 12:02 | Cloudy | 178 | 352 | 500 | Construction work in progress | 30 | <5 | 0145 | 5057 |
| | 12:04 | 13:04 | Cloudy | 163 | 352 | 500 | Construction work in progress | 30 | <5 | 0145 | 5056 |
| 28-Aug-12 | 10:40 | 11:40 | Sunny | 197 | 352 | 500 | Construction work in progress | 32 | <5 | 0145 | 5047 |
| | 11:42 | 12:42 | Sunny | 210 | 352 | 500 | Construction work in progress | 32 | <5 | 0145 | 5051 |
| | 12:44 | 13:44 | Sunny | 210 | 352 | 500 | Construction work in progress | 32 | <5 | 0145 | 5050 |
| | | | **Min.** | **158** | | | | | | | |
| | | | **Max.** | **225** | | | | | | | |
| | | | **Average** | **187** | | | | | | | |

* Wind Speed data is presented in the Meteorological Data table

## Annex C5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

**Station AM1**

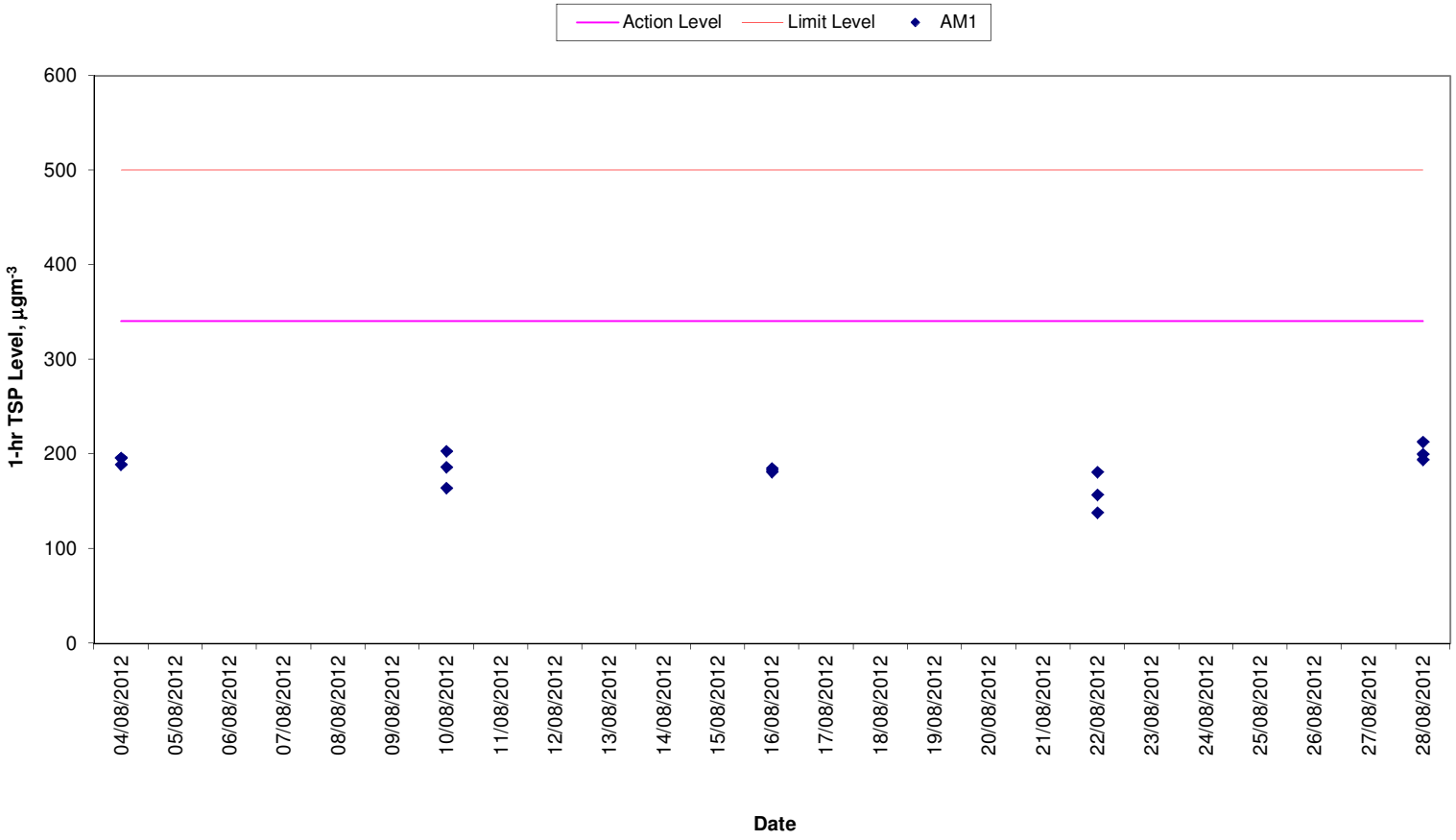
| Start | | Finish | | Weather | Filter Weight (g) | | Elapsed Time Reading | | Sampling Time (hrs) | Flow Rate ($m^3$/min) | | | TSP Conc. ($\mu g/m^3$) | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) | Observations / Remarks | Sampler ID | Filter ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Date | Time | | Initial | Final | Initial | Final | | Initial | Final | Average | | | | | | |
| 04-Aug-12 | 12:06 | 05-Aug-12 | 12:06 | Fine | 2.7887 | 2.9449 | 14622.03 | 14646.03 | 24.00 | 1.20 | 1.20 | 1.20 | 90 | 185 | 260 | Construction work in progress | 1808 | 4750 |
| 10-Aug-12 | 13:36 | 11-Aug-12 | 13:36 | Fine | 2.7887 | 2.9567 | 14649.03 | 14673.03 | 24.00 | 1.20 | 1.20 | 1.20 | 97 | 185 | 260 | Construction work in progress | 1808 | 4761 |
| 16-Aug-12 | 13:11 | 17-Aug-12 | 13:11 | Cloudy | 2.7799 | 2.9229 | 14676.03 | 14700.03 | 24.00 | 1.20 | 1.20 | 1.20 | 83 | 185 | 260 | Construction work in progress | 1808 | 5036 |
| 22-Aug-12 | 12:46 | 23-Aug-12 | 12:46 | Cloudy | 2.7511 | 2.9006 | 14703.03 | 14727.03 | 24.00 | 1.20 | 1.20 | 1.20 | 87 | 185 | 260 | Construction work in progress | 1808 | 5042 |
| 28-Aug-12 | 13:26 | 29-Aug-12 | 13:26 | Sunny | 2.7927 | 2.9564 | 14730.03 | 14754.03 | 24.00 | 1.20 | 1.20 | 1.20 | 95 | 185 | 260 | Construction work in progress | 1808 | 5048 |
| | | | | | | | | | | | | **Min.** | **83** | | | | | |
| | | | | | | | | | | | | **Max.** | **97** | | | | | |
| | | | | | | | | | | | | **Average** | **90** | | | | | |

24-hour TSP Monitoring Results

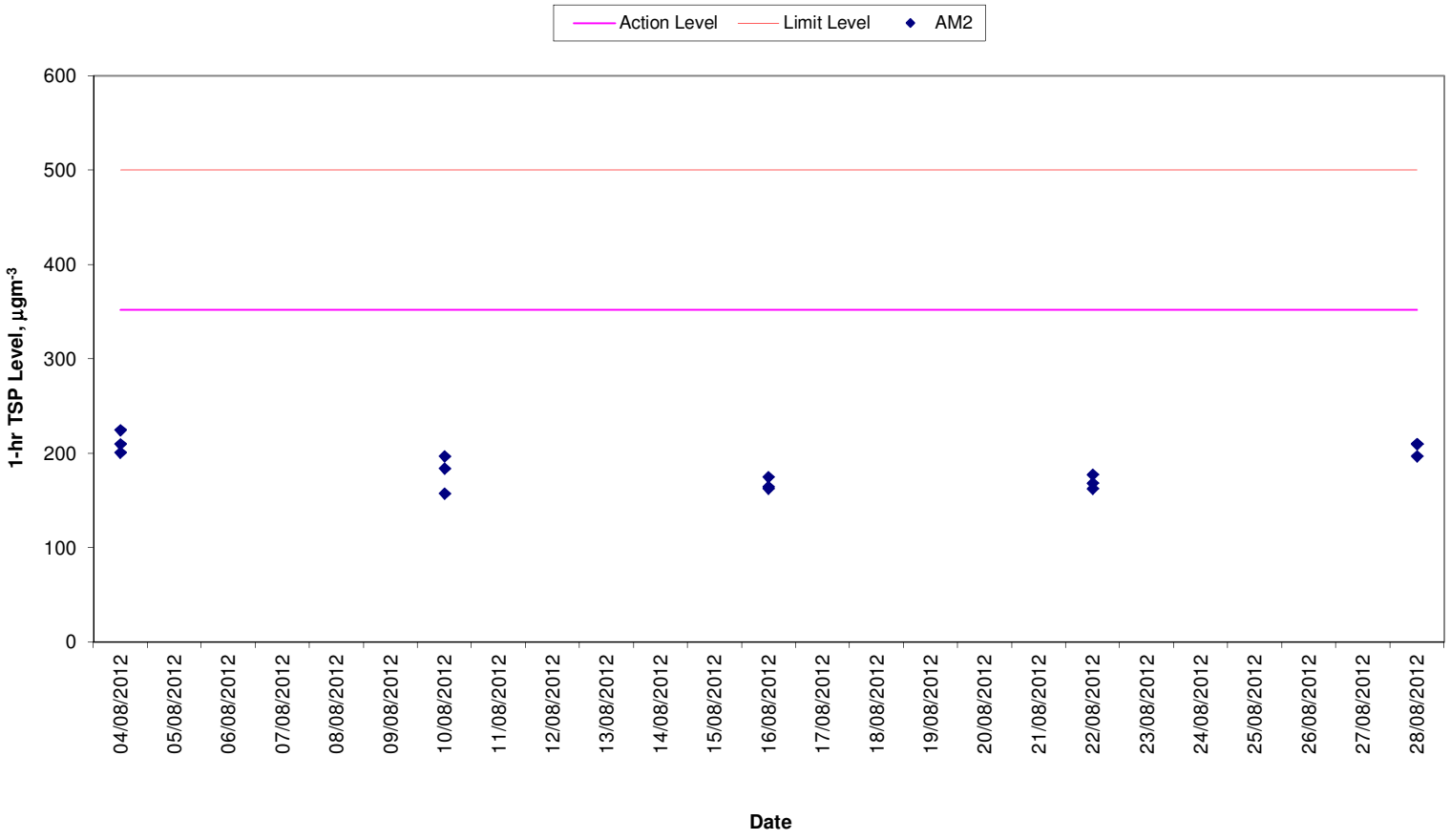
**Station AM2**

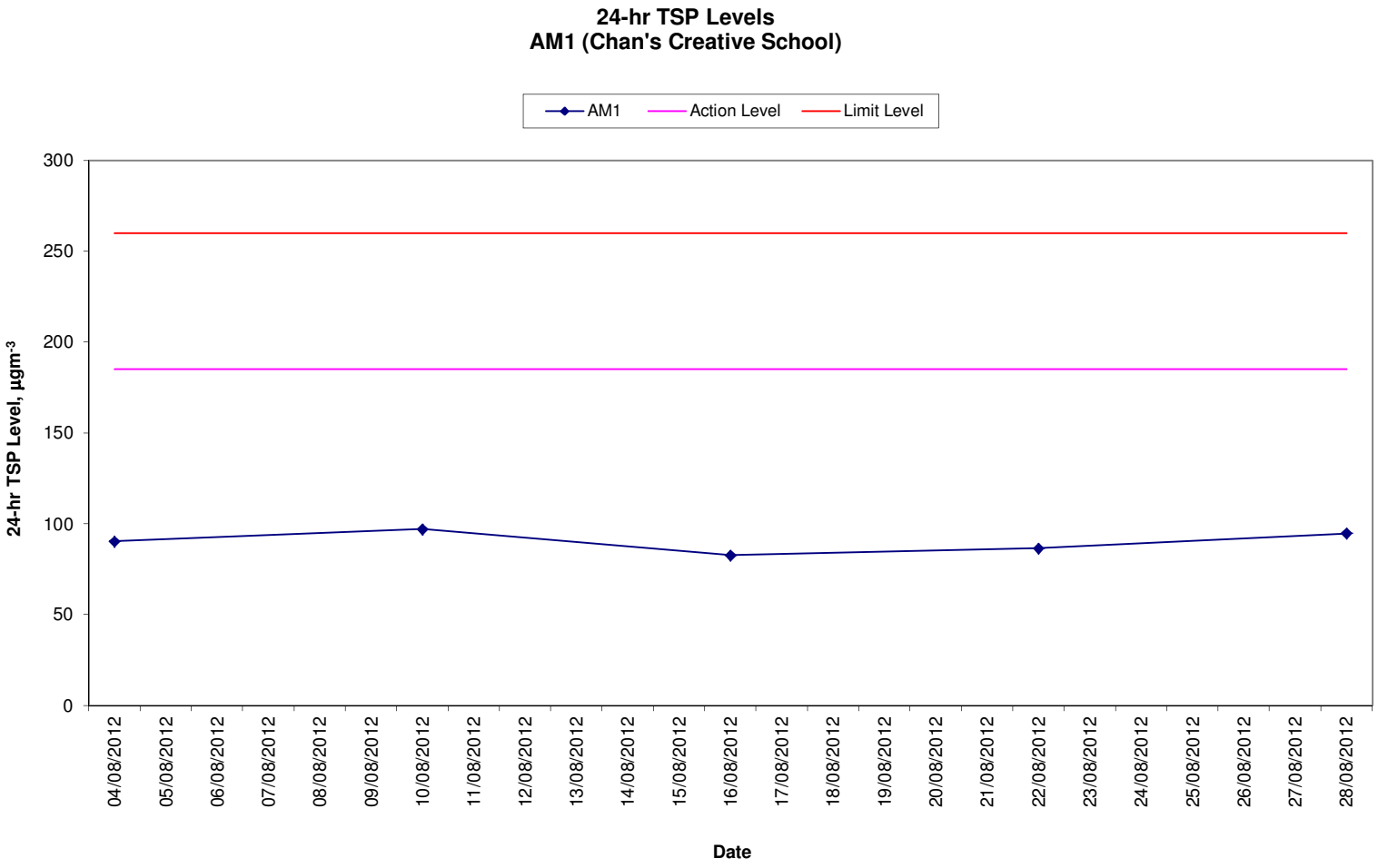
| Start | | Finish | | Weather | Filter Weight (g) | | Elapsed Time Reading | | Sampling Time (hrs) | Flow Rate ($m^3$/min) | | | TSP Conc. ($\mu g/m^3$) | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) | Observations / Remarks | Sampler ID | Filter ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Date | Time | | Initial | Final | Initial | Final | | Initial | Final | Average | | | | | | |
| 04-Aug-12 | 12:26 | 05-Aug-12 | 12:26 | Fine | 2.8001 | 2.9525 | 15318.93 | 15342.93 | 24.00 | 1.22 | 1.22 | 1.22 | 87 | 185 | 260 | Construction work in progress | 0145 | 4754 |
| 10-Aug-12 | 13:56 | 11-Aug-12 | 13:56 | Fine | 2.7948 | 2.9600 | 15345.93 | 15369.93 | 24.00 | 1.22 | 1.22 | 1.22 | 94 | 185 | 260 | Construction work in progress | 0145 | 4762 |
| 16-Aug-12 | 13:32 | 17-Aug-12 | 13:32 | Cloudy | 2.7825 | 2.9339 | 15372.93 | 15396.93 | 24.00 | 1.22 | 1.22 | 1.22 | 86 | 185 | 260 | Construction work in progress | 0145 | 5037 |
| 22-Aug-12 | 13:08 | 23-Aug-12 | 13:08 | Cloudy | 2.7911 | 2.9374 | 15799.93 | 15823.93 | 24.00 | 1.22 | 1.22 | 1.22 | 83 | 185 | 260 | Construction work in progress | 0145 | 5044 |
| 28-Aug-12 | 13:46 | 29-Aug-12 | 13:46 | Sunny | 2.7811 | 2.9595 | 15826.93 | 15850.93 | 24.00 | 1.22 | 1.22 | 1.22 | 102 | 185 | 260 | Construction work in progress | 0145 | 5046 |
| | | | | | | | | | | | | **Min.** | **83** | | | | | |
| | | | | | | | | | | | | **Max.** | **102** | | | | | |
| | | | | | | | | | | | | **Average** | **90** | | | | | |

**1-hr TSP Levels**
**AM1 (Chan's Creative School)**

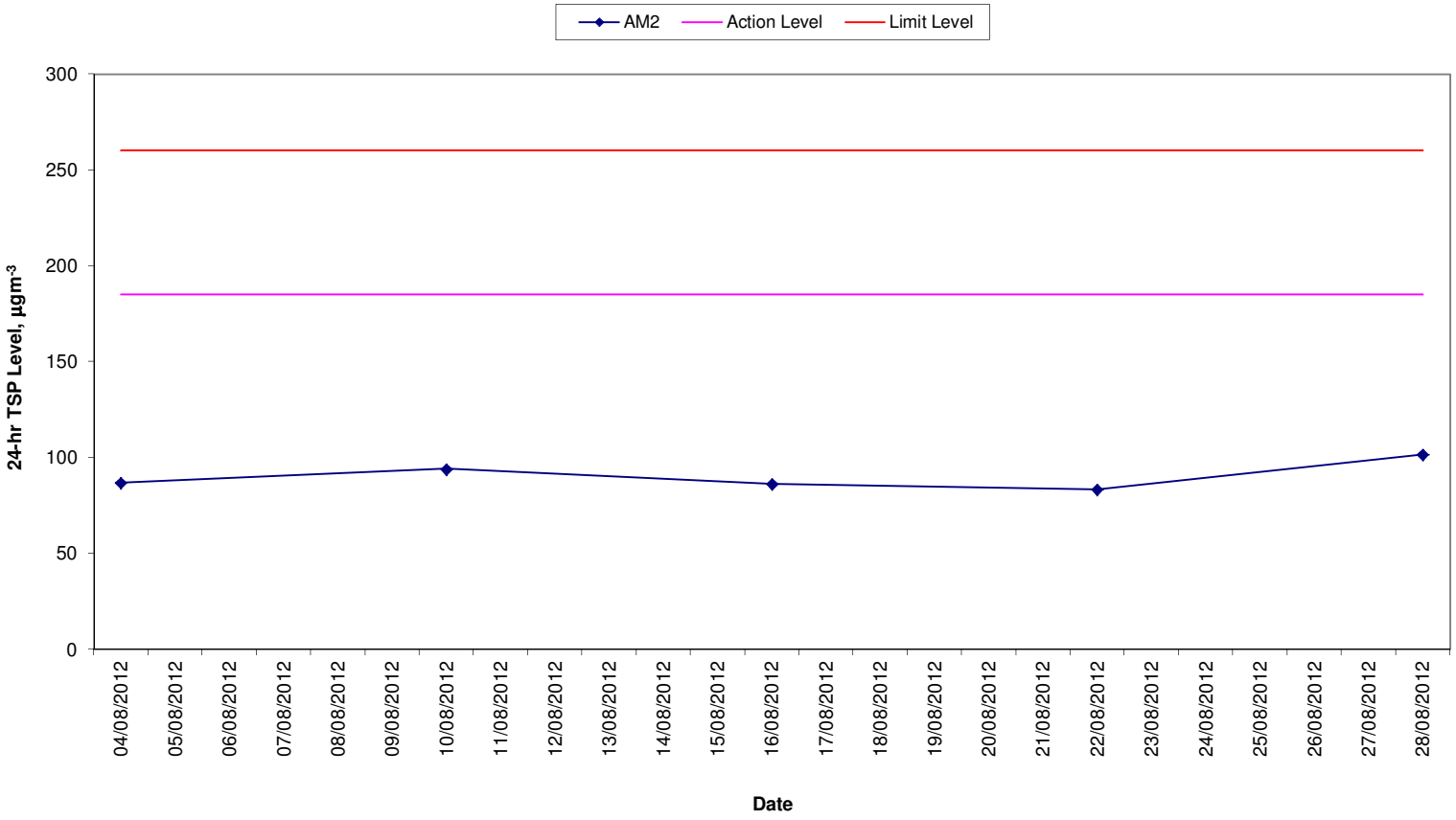


**1-hr TSP Levels**
**AM2 (Hong Kong & Island Regional Office, WSD)**




24-hr TSP Levels
AM1 (Chan's Creative School)
AM1
Action Level
Limit Level
24-hr TSP Level, µgm-3
300
250
200
150
100
50
0
04/08/2012
05/08/2012
06/08/2012
07/08/2012
08/08/2012
09/08/2012
10/08/2012
11/08/2012
12/08/2012
13/08/2012
14/08/2012
15/08/2012
16/08/2012
17/08/2012
18/08/2012
19/08/2012
20/08/2012
21/08/2012
22/08/2012
23/08/2012
24/08/2012
25/08/2012
26/08/2012
27/08/2012
28/08/2012
Date

**24-hr TSP Levels**
**AM2 (Hong Kong & Island Regional Office, WSD)**



**Meteorological Data Extracted from the Hong Kong Observatory**

| | | King's Park Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) | Average Relative Humiditiy (%) | Total Rainfall (mm) | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 8.0 | W |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 8.0 | W |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 9.5 | W |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 7.0 | S |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 5.0 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 5.5 | W |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 17.5 | E |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 6.3 | W |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 9.5 | W |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 7.1 | W |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 15.3 | N |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | - | W |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 6.8 | W |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

| | | Tsing Yi Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 29 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 9.9 | W |
| 09-08-2012 | Sunny | 30 | 73 | 0.0 | 3.5 | W |
| 10-08-2012 | Fine | 30 | 79 | 7.7 | 11.3 | S |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 7.8 | SE |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 10.0 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 7.4 | SE |
| 16-08-2012 | Cloudy | 30 | 81 | 15.4 | - | - |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 9.1 | S |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 9.0 | SE |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 9.3 | NW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 14.1 | NW |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | - | NW |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 9.4 | SE |
| 31-08-2012 | Sunny | 29 | 87 | 20.4 | - | - |

| | | Kai Tak Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) * | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 9.8 | SW |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 9.3 | W |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 14.9 | SW |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 8.9 | SE |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 8.2 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 11.3 | SE |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 7.5 | SE |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 9.2 | SE |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 11.3 | SW |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 9.0 | SW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 16.5 | NW |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | 7.6 | W |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 11.2 | SW |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

| | | Green Island Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) * | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 14 | S |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 11 | S |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 21 | SW |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 17 | S |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 15 | NE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 12 | S |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 8 | NW |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 13 | SW |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 16 | SW |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 12 | NW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 29 | N |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | 13 | NW |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 15 | S |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

* King's Park's data

\- Data were not available

\# less than 24 hourly observations per day

## Annex C6 Noise Monitoring Results

### Daytime Noise Monitoring Results

**Station NM1**

| Date | Start Time | End Time | Weather | Noise level (dB(A)), 30 min | | | Major Construction Noise Source(s) Observed | Other Noise Source(s) Observed | Remarks | Temp. (℃) | Wind Speed (m/s) | Noise Meter Model / ID | Calibrator Model / ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Leq | L10 | L90 | | | | | | | |
| 10-Aug-12 | 9:57 | 10:27 | Sunny | 66.4 | 68.5 | 63.6 | Minor noise from renovation work of school | Mainly Traffic noise | - | 30 | 0.4 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| 16-Aug-12 | 9:30 | 10:00 | Fine | 67.0 | 69.0 | 64.2 | Minor noise from renovation work of school | Mainly Traffic noise | - | 29 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| 22-Aug-12 | 9:05 | 9:35 | Cloudy | 66.9 | 69.5 | 62.6 | Noise from nearby recycling shop | Traffic noise | - | 30 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| 28-Aug-12 | 9:45 | 10:15 | Sunny | 68.6 | 71.1 | 64.3 | Noise from nearby playground | Traffic noise | - | 32 | 0.4 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | | | **Min.** | **66.4** | | | | | | | | | |
| | | | **Max.** | **68.6** | | | | | | | | | |

## Annex C6 Noise Monitoring Results

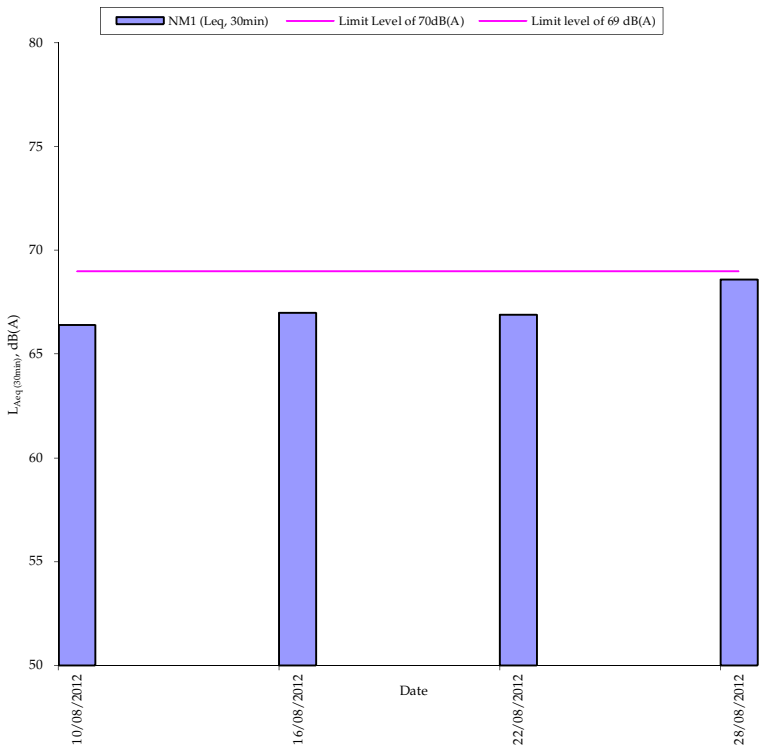
### Restricted Hours Noise Monitoring Results [1]

**Station NM1**

| Date | Start Time | End Time | Weather | Noise level (dB(A)), 5 min | | | Major Construction Noise Source(s) Observed | Other Noise Source(s) Observed | Remarks | Temp. (℃) | Wind Speed (m/s) | Noise Meter Model / ID | Calibrator Model / ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Leq | L10 | L90 | | | | | | | |
| 05-Aug-12 | 11:20 | 11:25 | Fine | 66.2 | 68.9 | 61.5 | Noise from nearby playground | Mainly traffic noise | - | 30 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | 11:25 | 11:30 | Fine | 65.4 | 67.6 | 62.0 | | | - | | | | |
| | 11:30 | 11:35 | Fine | 67.6 | 69.5 | 61.8 | | | - | | | | |
| | 11:20 | 11:35 | Fine | 66.5 | 68.7 | 61.8 | | | - | | | | |
| 14-Aug-12 | 21:30 | 21:35 | Fine | 65.4 | 67.2 | 62.3 | - | Mainly traffic noise | - | 28 | 0.2 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | 21:35 | 21:40 | Fine | 66.3 | 67.5 | 63.0 | | | - | | | | |
| | 21:40 | 21:45 | Fine | 65.1 | 67.0 | 62.8 | | | - | | | | |
| | 21:30 | 21:45 | Fine | 65.6 | 67.2 | 62.7 | | | | | | | |
| 19-Aug-12 | 14:22 | 14:27 | Sunny | 68.3 | 70.2 | 63.2 | Noise from nearby playground | Mainly traffic noise | - | 31 | 0.4 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | 14:27 | 14:32 | Sunny | 66.4 | 67.9 | 62.8 | | | - | | | | |
| | 14:32 | 14:37 | Sunny | 67.0 | 69.3 | 63.1 | | | - | | | | |
| | 14:22 | 14:37 | Sunny | 67.3 | 69.2 | 63.0 | | | - | | | | |
| 28-Aug-12 | 21:30 | 21:35 | Fine | 65.7 | 67.1 | 61.3 | Noise from nearby playground | Mainly traffic noise | - | 30 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | 21:35 | 21:40 | Fine | 66.7 | 68.9 | 62.0 | | | - | | | | |
| | 21:40 | 21:45 | Fine | 65.3 | 67.8 | 61.8 | | | - | | | | |
| | 21:30 | 21:45 | Fine | 65.9 | 68.0 | 61.7 | | | - | | | | |
| | | | **Min.** | **65.1** | | | | | | | | | |
| | | | **Max.** | **68.3** | | | | | | | | | |

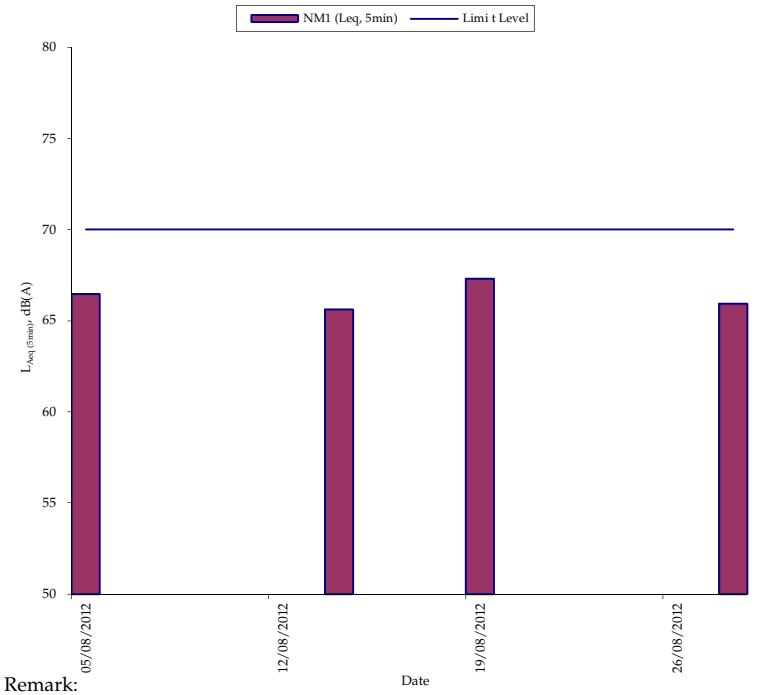
[1] No class was held at the school during all of the monitoring sessions within the reporting month.

Normal Weekdays Noise Monitoring Results at NM1 ($L_{eq, 30min}$)




Remark:
- 70dB(A) was adopted as the Limit Level during school normal teaching period in the reporting period

Restricted Hours Noise Monitoring Results at NM1 ($L_{eq, 5min}$)




Remark:
- No class was held at the school during all the measurement period.
- 70dB(A) was adopted as the Limit Level during restricted hours in the reporting period
- 55dB(A) was adopted as the Limit Level during night time period

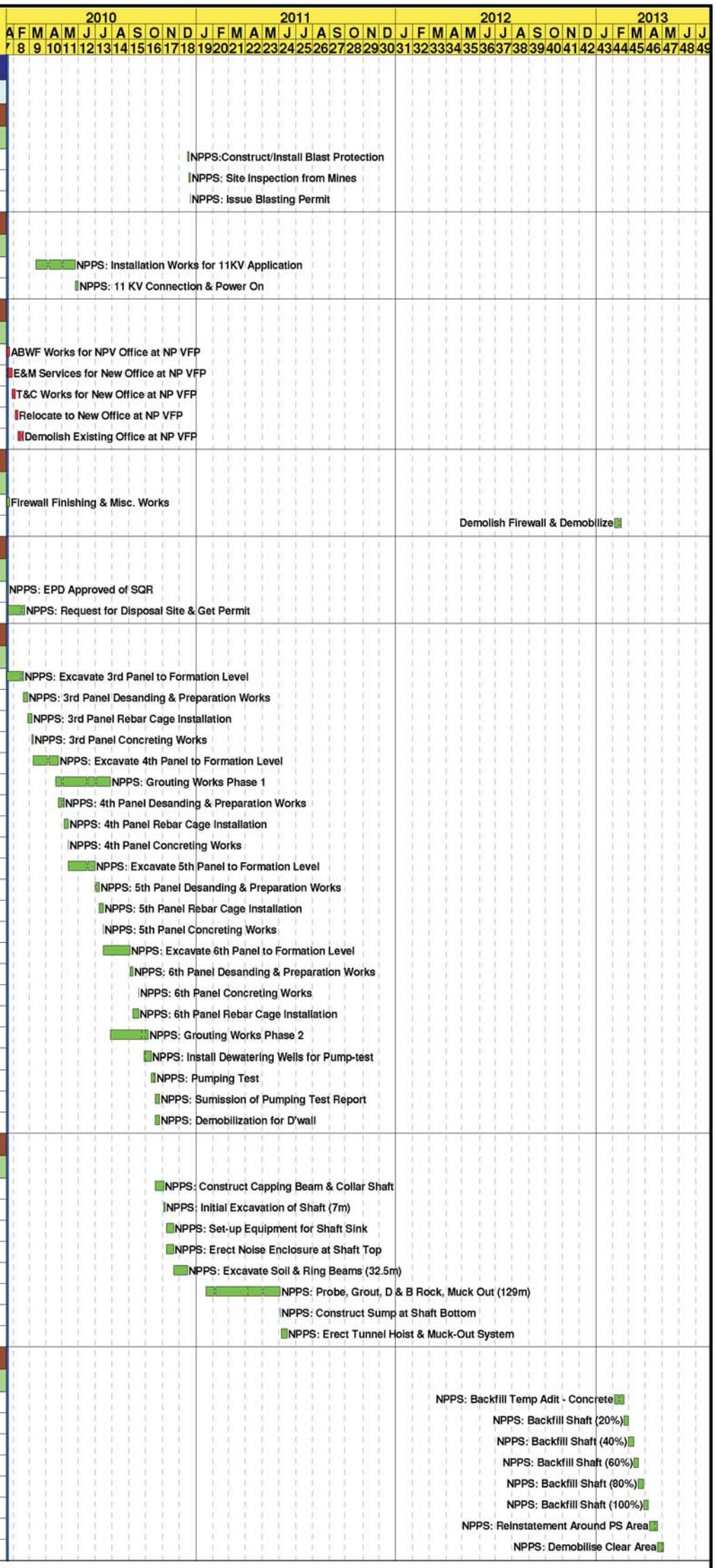
*Annex C7 Cumulative Complaint and Summons/Prosecutions Log*

| Reporting Month | Number of Complaints in Reporting Month | Number of Summons/Prosecutions in Reporting Month |
|---|---|---|
| December 2009 | 0 | 0 |
| January 2010 | 0 | 0 |
| February 2010 | 0 | 0 |
| March 2010 | 0 | 0 |
| April 2010 | 0 | 0 |
| May 2010 | 0 | 0 |
| June 2010 | 0 | 0 |
| July 2010 | 0 | 0 |
| August 2010 | 0 | 0 |
| September 2010 | 0 | 0 |
| October 2010 | 0 | 0 |
| November 2010 | 0 | 0 |
| December 2010 | 0 | 0 |
| January 2011 | 0 | 0 |
| February 2011 | 0 | 0 |
| March 2011 | 0 | 0 |
| April 2011 | 0 | 0 |
| May 2011 | 0 | 0 |

*Annex C7 Cumulative Complaint and Summons/Prosecutions Log*

| Reporting Month | Number of Complaints in Reporting Month | Number of Summons/Prosecutions in Reporting Month |
|---|---|---|
| June 2011 | 0 | 0 |
| July 2011 | 0 | 0 |
| August 2011 | 0 | 0 |
| September 2011 | 0 | 0 |
| October 2011 | 0 | 0 |
| November 2011 | 0 | 0 |
| December 2011 | 0 | 0 |
| January 2012 | 0 | 0 |
| February 2012 | 0 | 0 |
| March 2012 | 0 | 0 |
| April 2012 | 0 | 0 |
| May 2012 | 0 | 0 |
| June 2012 | 0 | 0 |
| July 2012 | 0 | 0 |
| August 2012 | 0 | 0 |
| Overall Total | 0 | 0 |

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish | % Comp |
|---|---|---|---|---|---|
| **HATS Stage 2A - Contract DC/2007/23** | | | | | |
| **North Point Production Shaft** | | | | | |
| **Preliminaries Works** | | | | | |
| NPPS10180 | NPPS:Construct/Install Blast Protection | 2 | 17DEC10 | 18DEC10 | 0 |
| NPPS10190 | NPPS: Site Inspection from Mines | 1 | 20DEC10 | 20DEC10 | 0 |
| NPPS10200 | NPPS: Issue Blasting Permit | 1 | 21DEC10 | 21DEC10 | 0 |
| **Electrical & Mechanical Installations** | | | | | |
| NPPS0620 | NPPS: Installation Works for 11KV Application | 60 | 15MAR10* | 25MAY10 | 0 |
| NPPS0625 | NPPS: 11 KV Connection & Power On | 4 | 26MAY10 | 29MAY10 | 0 |
| **Office at North Point Vehicular Ferry Pier** | | | | | |
| NPPS1055 | ABWF Works for NPV Office at NP VFP | 18 | 21DEC09A | 25JAN10 | 70 |
| NPPS1065 | E&M Services for New Office at NP VFP | 18 | 26DEC09A | 29JAN10 | 60 |
| NPPS1075 | T&C Works for New Office at NP VFP | 4 | 30JAN10 | 03FEB10 | 0 |
| NPPS1085 | Relocate to New Office at NP VFP | 4 | 04FEB10 | 08FEB10 | 0 |
| NPPS1090 | Demolish Existing Office at NP VFP | 6 | 09FEB10 | 18FEB10 | 0 |
| **Fire Wall** | | | | | |
| NPPS10120 | Firewall Finishing & Misc. Works | 12 | 12JAN10A | 25JAN10 | 60 |
| NPPS10130 | Demolish Firewall & Demobilize | 8 | 02FEB13 | 14FEB13 | 0 |
| **Marine Dumping Permit** | | | | | |
| NPPS02012 | NPPS: EPD Approved of SQR | 24 | 31OCT09A | 21JAN10 | 90 |
| NPPS02013 | NPPS: Request for Disposal Site & Get Permit | 24 | 22JAN10 | 22FEB10 | 0 |
| **Diaphragm Wall** | | | | | |
| NPPS0422 | NPPS: Excavate 3rd Panel to Formation Level | 40 | 08JAN10A | 19FEB10 | 40 |
| NPPS0424 | NPPS: 3rd Panel Desanding & Preparation Works | 6 | 20FEB10 | 26FEB10 | 0 |
| NPPS0426 | NPPS: 3rd Panel Rebar Cage Installation | 7 | 27FEB10 | 06MAR10 | 0 |
| NPPS0428 | NPPS: 3rd Panel Concreting Works | 1 | 08MAR10 | 08MAR10 | 0 |
| NPPS0432 | NPPS: Excavate 4th Panel to Formation Level | 40 | 09MAR10 | 24APR10 | 0 |
| NPPS0433 | NPPS: Grouting Works Phase 1 | 84 | 19APR10 | 28JUL10 | 0 |
| NPPS0434 | NPPS: 4th Panel Desanding & Preparation Works | 6 | 26APR10 | 03MAY10 | 0 |
| NPPS0436 | NPPS: 4th Panel Rebar Cage Installation | 7 | 04MAY10 | 11MAY10 | 0 |
| NPPS0438 | NPPS: 4th Panel Concreting Works | 1 | 12MAY10 | 12MAY10 | 0 |
| NPPS0440 | NPPS: Excavate 5th Panel to Formation Level | 40 | 13MAY10 | 29JUN10 | 0 |
| NPPS0442 | NPPS: 5th Panel Desanding & Preparation Works | 6 | 30JUN10 | 07JUL10 | 0 |
| NPPS0444 | NPPS: 5th Panel Rebar Cage Installation | 7 | 08JUL10 | 15JUL10 | 0 |
| NPPS0446 | NPPS: 5th Panel Concreting Works | 1 | 16JUL10 | 16JUL10 | 0 |
| NPPS0448 | NPPS: Excavate 6th Panel to Formation Level | 40 | 17JUL10 | 01SEP10 | 0 |
| NPPS0452 | NPPS: 6th Panel Desanding & Preparation Works | 6 | 02SEP10 | 08SEP10 | 0 |
| NPPS0454 | NPPS: 6th Panel Concreting Works | 1 | 17SEP10 | 17SEP10 | 0 |
| NPPS0456 | NPPS: 6th Panel Rebar Cage Installation | 7 | 09SEP10 | 16SEP10 | 0 |
| NPPS0460 | NPPS: Grouting Works Phase 2 | 56 | 29JUL10 | 04OCT10 | 0 |
| NPPS0462 | NPPS: Install Dewatering Wells for Pump-test | 12 | 27SEP10 | 11OCT10 | 0 |
| NPPS0464 | NPPS: Pumping Test | 6 | 12OCT10 | 19OCT10 | 0 |
| NPPS0466 | NPPS: Sumission of Pumping Test Report | 6 | 20OCT10 | 26OCT10 | 0 |
| NPPS0468 | NPPS: Demobilization for D'wall | 6 | 20OCT10 | 26OCT10 | 0 |
| **Shaft Excavation** | | | | | |
| NPPS0310 | NPPS: Construct Capping Beam & Collar Shaft | 12 | 20OCT10 | 02NOV10 | 0 |
| NPPS0320 | NPPS: Initial Excavation of Shaft (7m) | 4 | 03NOV10 | 06NOV10 | 0 |
| NPPS0330 | NPPS: Set-up Equipment for Shaft Sink | 12 | 08NOV10 | 20NOV10 | 0 |
| NPPS0333 | NPPS: Erect Noise Enclosure at Shaft Top | 12 | 08NOV10 | 20NOV10 | 0 |
| NPPS0340 | NPPS: Excavate Soil & Ring Beams (32.5m) | 22 | 22NOV10 | 16DEC10 | 0 |
| NPPS0355 | NPPS: Probe, Grout, D & B Rock, Muck Out (129m) | 110 | 20JAN11 | 02JUN11 | 0 |
| NPPS0450 | NPPS: Construct Sump at Shaft Bottom | 2 | 03JUN11 | 04JUN11 | 0 |
| NPPS0470 | NPPS: Erect Tunnel Hoist & Muck-Out System | 10 | 07JUN11 | 17JUN11 | 0 |
| **Backfill, Reinstatement & Landscaping** | | | | | |
| NPPS0900 | NPPS: Backfill Temp Adit - Concrete | 12 | 02FEB13 | 19FEB13 | 0 |
| NPPS0910 | NPPS: Backfill Shaft (20%) | 8 | 20FEB13 | 28FEB13 | 0 |
| NPPS0920 | NPPS: Backfill Shaft (40%) | 8 | 01MAR13 | 09MAR13 | 0 |
| NPPS0930 | NPPS: Backfill Shaft (60%) | 8 | 11MAR13 | 19MAR13 | 0 |
| NPPS0940 | NPPS: Backfill Shaft (80%) | 8 | 20MAR13 | 28MAR13 | 0 |
| NPPS0950 | NPPS: Backfill Shaft (100%) | 8 | 29MAR13 | 06APR13 | 0 |
| NPPS0960 | NPPS: Reinstatement Around PS Area | 14 | 08APR13 | 24APR13 | 0 |
| NPPS0970 | NPPS: Demobilise Clear Area | 6 | 25APR13 | 02MAY13 | 0 |




| | |
|---|---|
| Start Date | 31JUL09 |
| Finish Date | 15JAN15 |
| Data Date | 20JAN10 |
| Run Date | 01FEB10 09:20 |



Early Bar
Progress Bar
Critical Activity

WPU7 Sheet 1 of 1

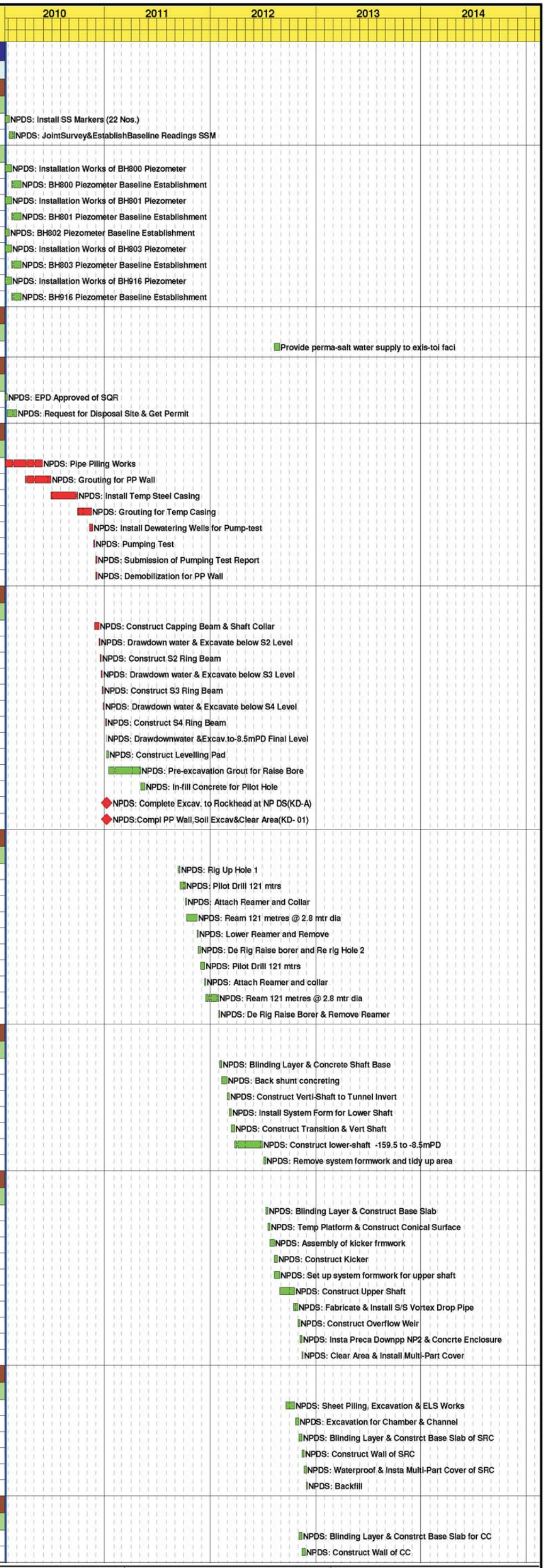
**Habour Area Treatment Scheme Stage 2A**
**Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island Programme**

**Annex C8 Construction Programme for the Project**

Gammon

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish | % Comp |
|---|---|---|---|---|---|
| **HATS Stage 2A - Contract DC/2007/23** | | | | | |
| **North Point PTW Drop Shaft** | | | | | |
| **EBS, Env. & Geotechnical Instrumentations** | | | | | |
| Markers/UMP's/Others(Same note as Piez.) | | | | | |
| NPDS0263 | NPDS: Install SS Markers (22 Nos.) | 50 | 19OCT09A | 02FEB10 | 76 |
| NPDS0264 | NPDS: JointSurvey&EstablishBaseline Readings SSM | 14 | 03FEB10 | 22FEB10 | 0 |
| Piezometers(NearbyPTWorPScovered inthisInstalln) | | | | | |
| NPDS0280 | NPDS: Installation Works of BH800 Piezometer | 21 | 18JAN10A | 10FEB10 | 10 |
| NPDS0290 | NPDS: BH800 Piezometer Baseline Establishment | 26 | 11FEB10 | 16MAR10 | 0 |
| NPDS0383 | NPDS: Installation Works of BH801 Piezometer | 21 | 18JAN10A | 10FEB10 | 10 |
| NPDS0385 | NPDS: BH801 Piezometer Baseline Establishment | 26 | 11FEB10 | 16MAR10 | 0 |
| NPDS0391 | NPDS: BH802 Piezometer Baseline Establishment | 26 | 23DEC09A | 04FEB10 | 46 |
| NPDS0395 | NPDS: Installation Works of BH803 Piezometer | 21 | 18JAN10A | 10FEB10 | 10 |
| NPDS0397 | NPDS: BH803 Piezometer Baseline Establishment | 26 | 11FEB10 | 16MAR10 | 0 |
| NPDS0401 | NPDS: Installation Works of BH916 Piezometer | 21 | 28DEC09A | 11FEB10 | 5 |
| NPDS0403 | NPDS: BH916 Piezometer Baseline Establishment | 26 | 12FEB10 | 17MAR10 | 0 |
| **Diversion of Existing Utilities** | | | | | |
| NPDS0100 | Provide perma-salt water supply to exis-toi faci | 18 | 09AUG12 | 29AUG12 | 0 |
| **Marine Dumping Permit** | | | | | |
| NPDS0212 | NPDS: EPD Approved of SQR | 24 | 24NOV09A | 27JAN10 | 70 |
| NPDS0213 | NPDS: Request for Disposal Site & Get Permit | 24 | 28JAN10 | 27FEB10 | 0 |
| **Pipe Piling** | | | | | |
| NPDS0305 | NPDS: Pipe Piling Works | 110 | 19JAN10A | 27MAY10 | 5 |
| NPDS0310 | NPDS: Grouting for PP Wall | 75 | 31MAR10 | 29JUN10 | 0 |
| NPDS0320 | NPDS: Install Temp Steel Casing | 76 | 30JUN10 | 28SEP10 | 0 |
| NPDS0330 | NPDS: Grouting for Temp Casing | 40 | 29SEP10 | 16NOV10 | 0 |
| NPDS0340 | NPDS: Install Dewatering Wells for Pump-test | 12 | 08NOV10 | 20NOV10 | 0 |
| NPDS0350 | NPDS: Pumping Test | 6 | 22NOV10 | 27NOV10 | 0 |
| NPDS0360 | NPDS: Submission of Pumping Test Report | 6 | 29NOV10 | 04DEC10 | 0 |
| NPDS0370 | NPDS: Demobilization for PP Wall | 6 | 29NOV10 | 04DEC10 | 0 |
| **Shaft Excavation** | | | | | |
| NPDS0400 | NPDS: Construct Capping Beam & Shaft Collar | 12 | 27NOV10 | 10DEC10 | 0 |
| NPDS0450 | NPDS: Drawdown water & Excavate below S2 Level | 5 | 11DEC10 | 16DEC10 | 0 |
| NPDS0460 | NPDS: Construct S2 Ring Beam | 2 | 17DEC10 | 18DEC10 | 0 |
| NPDS0470 | NPDS: Drawdown water & Excavate below S3 Level | 4 | 20DEC10 | 23DEC10 | 0 |
| NPDS0480 | NPDS: Construct S3 Ring Beam | 2 | 24DEC10 | 27DEC10 | 0 |
| NPDS0490 | NPDS: Drawdown water & Excavate below S4 Level | 4 | 28DEC10 | 31DEC10 | 0 |
| NPDS0500 | NPDS: Construct S4 Ring Beam | 2 | 03JAN11 | 04JAN11 | 0 |
| NPDS0510 | NPDS: Drawdownwater &Excav.to-8.5mPD Final Level | 3 | 05JAN11 | 07JAN11 | 0 |
| NPDS0512 | NPDS: Construct Levelling Pad | 6 | 08JAN11 | 14JAN11 | 0 |
| NPDS0514 | NPDS: Pre-excavation Grout for Raise Bore | 90 | 15JAN11 | 05MAY11 | 0 |
| NPDS0516 | NPDS: In-fill Concrete for Pilot Hole | 12 | 06MAY11 | 19MAY11 | 0 |
| NPDS0800 | NPDS: Complete Excav. to Rockhead at NP DS(KD-A) | 0 | | 07JAN11 | 0 |
| NPDS0810 | NPDS:Compl PP Wall,Soil Excav&Clear Area(KD- 01) | 0 | | 07JAN11 | 0 |
| **Raised Boring** | | | | | |
| NPDS0700 | NPDS: Rig Up Hole 1 | 5 | 12SEP11 | 17SEP11 | 0 |
| NPDS0710 | NPDS: Pilot Drill 121 mtrs | 15 | 19SEP11 | 07OCT11 | 0 |
| NPDS0720 | NPDS: Attach Reamer and Collar | 3 | 08OCT11 | 11OCT11 | 0 |
| NPDS0730 | NPDS: Ream 121 metres @ 2.8 mtr dia | 32 | 12OCT11 | 17NOV11 | 0 |
| NPDS0740 | NPDS: Lower Reamer and Remove | 3 | 18NOV11 | 21NOV11 | 0 |
| NPDS0750 | NPDS: De Rig Raise borer and Re rig Hole 2 | 5 | 22NOV11 | 26NOV11 | 0 |
| NPDS0760 | NPDS: Pilot Drill 121 mtrs | 15 | 28NOV11 | 14DEC11 | 0 |
| NPDS0770 | NPDS: Attach Reamer and collar | 3 | 15DEC11 | 17DEC11 | 0 |
| NPDS0780 | NPDS: Ream 121 metres @ 2.8 mtr dia | 32 | 19DEC11 | 30JAN12 | 0 |
| NPDS0790 | NPDS: De Rig Raise Borer & Remove Reamer | 3 | 31JAN12 | 02FEB12 | 0 |
| **Lower Shaft Construction** | | | | | |
| NPDS0895 | NPDS: Blinding Layer & Concrete Shaft Base | 6 | 03FEB12 | 09FEB12 | 0 |
| NPDS0900 | NPDS: Back shunt concreting | 18 | 10FEB12 | 01MAR12 | 0 |
| NPDS0905 | NPDS: Construct Verti-Shaft to Tunnel Invert | 6 | 02MAR12 | 08MAR12 | 0 |
| NPDS0955 | NPDS: Install System Form for Lower Shaft | 6 | 09MAR12 | 15MAR12 | 0 |
| NPDS0995 | NPDS: Construct Transition & Vert Shaft | 9 | 16MAR12 | 26MAR12 | 0 |
| NPDS1015 | NPDS: Construct lower-shaft -159.5 to -8.5mPD | 80 | 27MAR12 | 30JUN12 | 0 |
| NPDS1020 | NPDS: Remove system formwork and tidy up area | 6 | 03JUL12 | 09JUL12 | 0 |
| **Upper Shaft Construction** | | | | | |
| NPDS1025 | NPDS: Blinding Layer & Construct Base Slab | 9 | 10JUL12 | 19JUL12 | 0 |
| NPDS1065 | NPDS: Temp Platform & Construct Conical Surface | 6 | 20JUL12 | 26JUL12 | 0 |
| NPDS1110 | NPDS: Assembly of kicker frmwork | 12 | 27JUL12 | 09AUG12 | 0 |
| NPDS1135 | NPDS: Construct Kicker | 9 | 10AUG12 | 20AUG12 | 0 |
| NPDS1140 | NPDS: Set up system formwork for upper shaft | 16 | 10AUG12 | 28AUG12 | 0 |
| NPDS1145 | NPDS: Construct Upper Shaft | 44 | 29AUG12 | 20OCT12 | 0 |
| NPDS1305 | NPDS: Fabricate & Install S/S Vortex Drop Pipe | 12 | 15OCT12 | 29OCT12 | 0 |
| NPDS1345 | NPDS: Construct Overflow Weir | 6 | 30OCT12 | 05NOV12 | 0 |
| NPDS1385 | NPDS: Insta Preca Downpp NP2 & Concrte Enclosure | 9 | 06NOV12 | 15NOV12 | 0 |
| NPDS1395 | NPDS: Clear Area & Install Multi-Part Cover | 3 | 16NOV12 | 19NOV12 | 0 |
| **Scum Removal Chamber** | | | | | |
| NPDS1533 | NPDS: Sheet Piling, Excavation & ELS Works | 24 | 21SEP12 | 20OCT12 | 0 |
| NPDS1545 | NPDS: Excavation for Chamber & Channel | 9 | 22OCT12 | 01NOV12 | 0 |
| NPDS1585 | NPDS: Blinding Layer & Constrct Base Slab of SRC | 9 | 02NOV12 | 12NOV12 | 0 |
| NPDS1625 | NPDS: Construct Wall of SRC | 9 | 13NOV12 | 22NOV12 | 0 |
| NPDS1645 | NPDS: Waterproof & Insta Multi-Part Cover of SRC | 6 | 23NOV12 | 29NOV12 | 0 |
| NPDS1650 | NPDS: Backfill | 3 | 30NOV12 | 03DEC12 | 0 |
| **Connection Channel** | | | | | |
| NPDS1455 | NPDS: Blinding Layer & Constrct Base Slab for CC | 9 | 02NOV12 | 12NOV12 | 0 |
| NPDS1515 | NPDS: Construct Wall of CC | 12 | 13NOV12 | 26NOV12 | 0 |

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|---|---|
| Start Date | 31JUL09 |
| Finish Date | 15JAN15 |
| Data Date | 20JAN10 |
| Run Date | 01FEB10 09:50 |



Early Bar
Progress Bar
Critical Activity

WPU7 Sheet 1 of 2

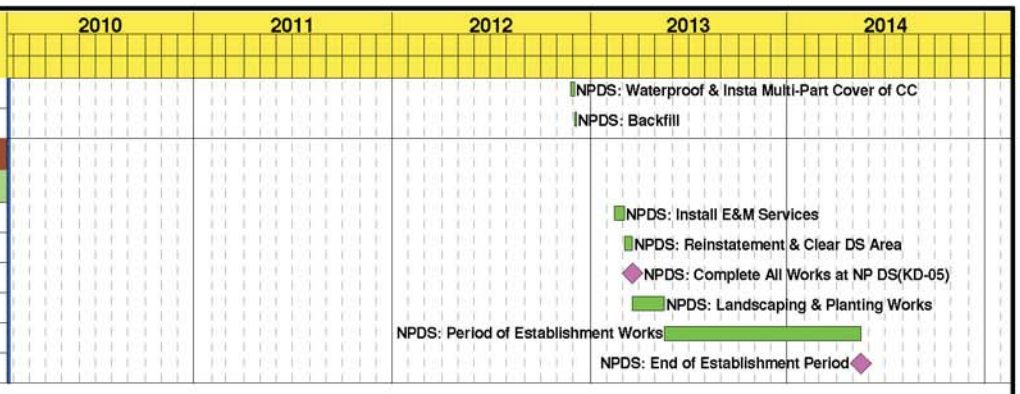
**Habour Area Treatment Scheme Stage 2A**
**Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island Programme**

**Annex C8 Construction Programme for the Project**

Gammon

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish | % Comp |
|---|---|---|---|---|---|
| NPDS1525 | NPDS: Waterproof & Insta Multi-Part Cover of CC | 6 | 27NOV12 | 03DEC12 | 0 |
| NPDS1540 | NPDS: Backfill | 3 | 04DEC12 | 06DEC12 | 0 |
| Miscellaneous Works | | | | | |
| NPDS2010 | NPDS: Install E&M Services | 18 | 14FEB13 | 06MAR13 | 0 |
| NPDS2020 | NPDS: Reinstatement & Clear DS Area | 12 | 07MAR13 | 20MAR13 | 0 |
| NPDS2025 | NPDS: Complete All Works at NP DS(KD-05) | 0 | | 20MAR13 | 0 |
| NPDS2030 | NPDS: Landscaping & Planting Works | 60 | 21MAR13* | 19MAY13 | 0 |
| NPDS2040 | NPDS: Period of Establishment Works | 360 | 20MAY13 | 14MAY14 | 0 |
| NPDS2050 | NPDS: End of Establishment Period | 0 | | 14MAY14 | 0 |

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|---|---|
| Start Date | 31JUL09 |
| Finish Date | 15JAN15 |
| Data Date | 20JAN10 |
| Run Date | 01FEB10 09:50 |



Early Bar
Progress Bar
Critical Activity

WPU7 Sheet 2 of 2

**Habour Area Treatment Scheme Stage 2A**
**Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island**
**Programme**

**Annex C8 Construction Programme for the Project**

Gammon

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |
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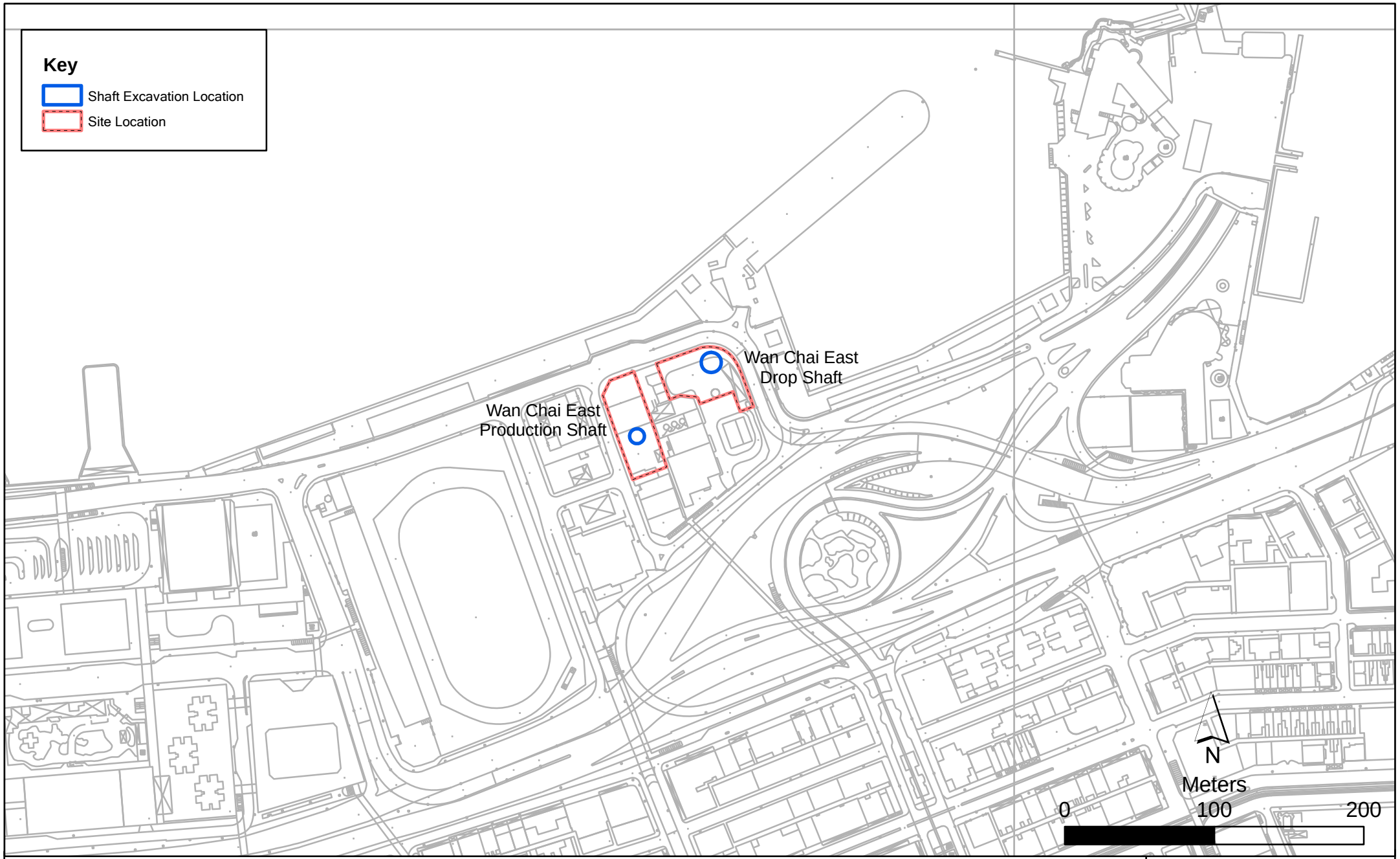
Annex D

# Wan Chai East Production and Drop Shafts



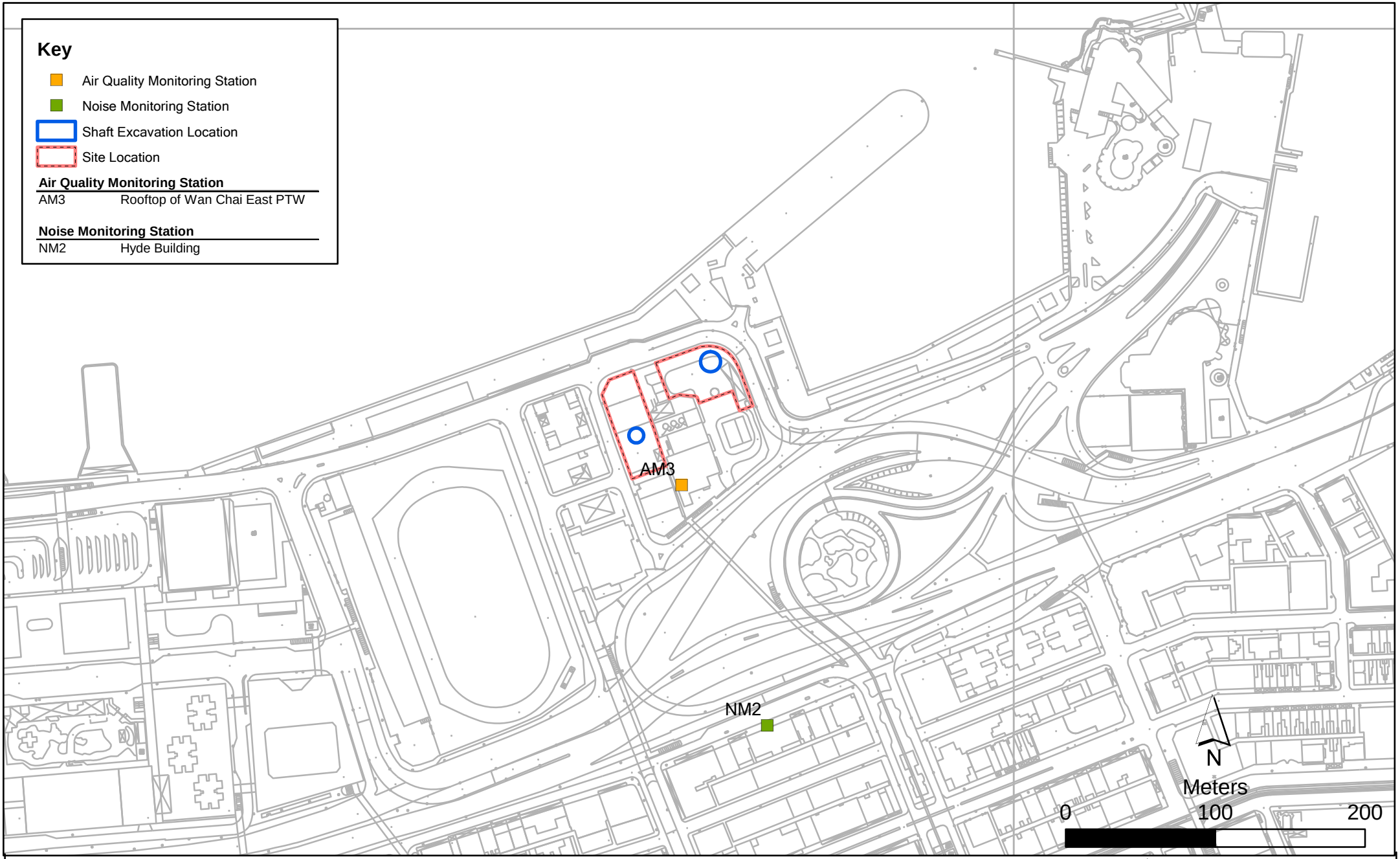

Annex D1

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
*Construction Site Locations at Wai Chai East*

File: EM&A and proposed station\0104887_Wan Chai.mxd
Date: 29/10/2009

**Environmental Resources Management**

ERM




Annex D2

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
*Impact Air Quality & Noise Monitoring Stations (Wan Chai East)*

File: EM&A and proposed station\0104887_Wan Chai_NMAM.mxd
Date: 03/03/2010

**Environmental Resources Management**

ERM

## Annex D3 Monitoring Schedule of the Reporting Month and Next Month

**DC/2007/23**
**Harbour Area Treatment Scheme Stage 2A**
**Construction of Sewage Conveyance System from North Point to Stonecutters Island**
**Impact Construction Air Quality Monitoring Schedule**

**AM3 - Wan Chai East PTW**
**Monitoring Month : August 2012**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | 01-Aug | 02-Aug | 03-Aug | 04-Aug |
| | | | | | | 1-hr and 24-hr Monitoring |
| 05-Aug | 06-Aug | 07-Aug | 08-Aug | 09-Aug | 10-Aug | 11-Aug |
| | | | | | 1-hr and 24-hr Monitoring | |
| 12-Aug | 13-Aug | 14-Aug | 15-Aug | 16-Aug | 17-Aug | 18-Aug |
| | | | | 1-hr and 24-hr Monitoring | | |
| 19-Aug | 20-Aug | 21-Aug | 22-Aug | 23-Aug | 24-Aug | 25-Aug |
| | | | 1-hr and 24-hr Monitoring | | | |
| 26-Aug | 27-Aug | 28-Aug | 29-Aug | 30-Aug | 31-Aug | |
| | | 1-hr and 24-hr Monitoring | | | | |

## Monitoring Month : September 2012

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | | | | 01-Sep |
| | | | | | | |
| 02-Sep | 03-Sep | 04-Sep | 05-Sep | 06-Sep | 07-Sep | 08-Sep |
| | 1-hr and 24-hr Monitoring | | | | | 1-hr and 24-hr Monitoring |
| 09-Sep | 10-Sep | 11-Sep | 12-Sep | 13-Sep | 14-Sep | 15-Sep |
| | | | | | 1-hr and 24-hr Monitoring | |
| 16-Sep | 17-Sep | 18-Sep | 19-Sep | 20-Sep | 21-Sep | 22-Sep |
| | | | | 1-hr and 24-hr Monitoring | | |
| 23-Sep | 24-Sep | 25-Sep | 26-Sep | 27-Sep | 28-Sep | 29-Sep |
| | | | 1-hr and 24-hr Monitoring | | | |
| 30-Sep | | | | | | |
| | | | | | | |

## Annex D3 Monitoring Schedule of the Reporting Month and Next Month

**DC/2007/23**
**Harbour Area Treatment Scheme Stage 2A**
**Construction of Sewage Conveyance System from North Point to Stonecutters Island**
**Impact Construction Noise Quality Monitoring Schedule**

**NM2 - Hyde Building**

**Monitoring Month : August 2012**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | 01-Aug | 02-Aug | 03-Aug | 04-Aug |
| | | | | | | |
| 05-Aug | 06-Aug | 07-Aug | 08-Aug | 09-Aug | 10-Aug | 11-Aug |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | | | Noise Monitoring | |
| 12-Aug | 13-Aug | 14-Aug | 15-Aug | 16-Aug | 17-Aug | 18-Aug |
| | | Noise Monitoring (evening time) | | Noise Monitoring | | |
| 19-Aug | 20-Aug | 21-Aug | 22-Aug | 23-Aug | 24-Aug | 25-Aug |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | Noise Monitoring | | | |
| 26-Aug | 27-Aug | 28-Aug | 29-Aug | 30-Aug | 31-Aug | |
| | | Noise Monitoring (Day time and evening time) | | | | |

## Monitoring Month : September 2012

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | | | | 01-Sep |
| | | | | | | |
| 02-Sep | 03-Sep | 04-Sep | 05-Sep | 06-Sep | 07-Sep | 08-Sep |
| Noise Monitoring (during daytime of sundays/ public holidays) | Noise Monitoring | | | | | |
| 09-Sep | 10-Sep | 11-Sep | 12-Sep | 13-Sep | 14-Sep | 15-Sep |
| | | Noise Monitoring (evening time) | | | Noise Monitoring | |
| 16-Sep | 17-Sep | 18-Sep | 19-Sep | 20-Sep | 21-Sep | 22-Sep |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | | Noise Monitoring | | |
| 23-Sep | 24-Sep | 25-Sep | 26-Sep | 27-Sep | 28-Sep | 29-Sep |
| | | Noise Monitoring (evening time) | Noise Monitoring | | | |
| 30-Sep | | | | | | |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | | | | |

*ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| *Construction Phase* | | | |
| Air Quality | The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimize construction dust impact. Control measures relevant to this Project are listed below:<br>• skip hoist for material transport should be totally enclosed by impervious sheeting;<br>• every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site;<br>• the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;<br>• where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit;<br>• every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides;<br>• regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather;<br>• site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines;<br>• open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible;<br>• tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and<br>• instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. | All work sites / during construction | √ |

*ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Air Quality | The following watering measures for specific site would be required to control the fugitive dust impacts:<br>• watering twice per day within the worksites at Wan Chai East PTW;<br>• the barging points should be continuous watering throughout the whole unloading process; and<br>• watering 8 times per day within worksites at the SCS works area at Wan Chai East. | All work sites / during construction | √ |
| *Operational Phase* | | | |
| Air Quality | Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.<br>• Screens should be cleaned regularly to remove any accumulated organic debris<br>• Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit<br>• Grit and screened materials should be transferred to closed containers to minimize odour escape<br>• Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics<br>• Skim and remove floating solids and grease from primary clarifiers regularly<br>• Frequent sludge withdrawal from tanks is necessary to prevent the production of gases<br>• Sludge cake should be transferred to closed containers<br>• Sludge containers should be flushed with water regularly | All work sites / during construction | NA. Measures not required until commencement of operational phase |
| Air Quality | Commissioning tests for all deodorization system should be included in the Design and Construction Contract Document. | All PTW and SCISTW/ during operational phase | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |
| Noise | Use of quiet PME, movable barriers and acoustic mats | All work sites / during construction | √ |

*ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Noise | Good Site Practice:<br>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program;<br>• silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program;<br>• mobile plant, if any, should be sited as far from NSRs as possible;<br>• machines and plant (such as trucks) 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 should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and<br>• material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities;<br><br>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented. | All work sites / during construction | √ |
| *Construction Phase* | | | |
| Water Quality | Construction Site Runoff and General Construction Activities<br>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable. | All work sites / during construction | <> |

*ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Effluent Discharge<br><br>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes. | All work sites / during construction | √ |
| Water Quality | Accidental Spillage of Chemicals<br><br>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes. | All work sites / during construction | √ |
| Water Quality | Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges. | All work sites / during construction | <> |

*ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.<br>General requirements are given as follows:<br>• Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.<br>• Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.<br>• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. | All work sites / during construction | √ |

*ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Construction Works in Close Proximity of Storm Drains or Seafront<br><br>To minimize the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.<br>• The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment.<br>• Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works.<br>• Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.<br>• Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers.<br>• Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.<br>• Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea | All work sites / during construction | √ |

*ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| *Operational Phase* | | | |
| Water Quality | Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimize the chance of emergency discharge. | SCISTW and all the Stage 2 PTWs / Operation Stage | NA. Measures not required until commencement of operational phase |
| Water Quality | Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs. | Stage 2 PTWs / Operation Stage | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |
| Waste | Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimize the use of timber formwork. | All work sites / during the construction period | √ |
| Waste | All waste materials should be segregated into categories covering:<br>• excavated materials suitable for reuse on-site;<br>• excavated materials suitable for public filling facilities;<br>• remaining C&D waste for landfill;<br>• chemical waste; and<br>• general refuse for landfill. | All work sites / during the construction period | √ |

*ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Recommendations to achieve waste reduction include:<br>• Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals;<br>• Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;<br>• Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force;<br>• Any unused chemicals or those with remaining functional capacity shall be recycled; and<br>• Proper storage and site practices to minimise the potential for damage or contamination of construction materials. | All work sites / during the construction period | √ |
| Waste | Recommendations for good site practices during construction activities include:-<br>• Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site<br>• Training of site personnel in proper waste management and chemical waste handling procedures<br>• Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials.<br>• Provision of sufficient waste disposal points and regular collection of waste<br>• Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors | All work sites / during the construction period | √ |
| Waste | Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage". | All work sites / during the construction period | √ |

*ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected. | All work sites / during the construction period | √ |
| Waste | General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill. | All work sites / during the construction period | √ |
| Waste | The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials. | All work sites / during the construction period | √ |
| Waste | If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. | All work sites / during the construction period | √ |

*ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results. | All work sites / during the construction period | √ |
| *Construction Phase* | | | |
| Landscape & Visual | • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.<br>• Existing trees to be retained on site should be carefully protected during construction.<br>• Trees unavoidably affected by the works should be transplanted where practical.<br>• Compensatory tree planting should be provided to compensate for felled trees.<br>• Control of night-time lighting.<br>• Erection of decorative screen hoarding compatible with the surrounding setting. | All the works areas, PTWs and SCISTW/ during the construction period | √ |
| *Operational Phase* | • | | |
| Landscape & Visual | • Aesthetic design of the façade of PTW and associated structures to harmonize with the surrounding settings.<br>• Shrub and Climbing Plants to soften proposed structures / Roof Greening.<br>• Buffer Tree and Shrub Planting to screen proposed associated structures.<br>• Reinstated of disturbed area | All the works areas, PTWs and SCISTW/ during the construction period | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |

*ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE*

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Cultural Heritage | The construction vibration control limit (ppv of 25mm/s) shall be strictly followed. | Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures | NA. Vibration monitoring has not been launched during the reporting period. |
| | Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme | Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures | NA. Vibration monitoring has not been launched during the reporting period. |

Remark:
√ Compliance of Mitigation Measures
<> Compliance of Mitigation but need improvement
x Non-compliance of Mitigation Measures
Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
NA Not Applicable

## Annex D5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

**Station AM3**

| Date | Start Time | Finish Time | Weather | TSP Concentration ($\mu g/m^3$) | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) | Site Conditions / Observations / Remarks | Temperature (°C) | Wind Speed * (m/s) | Sampler ID | Filter ID |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 04-Aug-12 | 8:10 | 9:10 | Fine | 188 | 355 | 500 | Construction work in progress | 30 | <5 | 0481 | 1567 |
| | 9:12 | 10:12 | Fine | 118 | 355 | 500 | Construction work in progress | 30 | <5 | 0481 | 1568 |
| | 10:14 | 11:14 | Fine | 138 | 355 | 500 | Construction work in progress | 30 | <5 | 0481 | 1569 |
| 10-Aug-12 | 8:10 | 9:10 | Fine | 121 | 355 | 500 | Construction work in progress | 30 | <5 | 0481 | 1572 |
| | 9:12 | 10:12 | Fine | 133 | 355 | 500 | Construction work in progress | 30 | <5 | 0481 | 1573 |
| | 10:15 | 11:15 | Fine | 124 | 355 | 500 | Construction work in progress | 30 | <5 | 0481 | 1574 |
| 16-Aug-12 | 8:05 | 9:05 | Fine | 128 | 355 | 500 | Construction work in progress | 30 | <5 | 0481 | 1576 |
| | 9:07 | 10:07 | Fine | 119 | 355 | 500 | Construction work in progress | 30 | <5 | 0481 | 1577 |
| | 10:10 | 11:10 | Fine | 122 | 355 | 500 | Construction work in progress | 30 | <5 | 0481 | 1578 |
| 22-Aug-12 | 12:00 | 13:00 | Cloudy | 111 | 355 | 500 | Construction work in progress | 30 | <5 | 0481 | 1591 |
| | 13:02 | 14:02 | Cloudy | 89 | 355 | 500 | Construction work in progress | 30 | <5 | 0481 | 1580 |
| | 14:04 | 15:04 | Cloudy | 118 | 355 | 500 | Construction work in progress | 30 | <5 | 0481 | 1593 |
| 28-Aug-12 | 8:00 | 9:00 | Sunny | 203 | 355 | 500 | Construction work in progress | 32 | <5 | 0481 | 5192 |
| | 9:02 | 10:02 | Sunny | 178 | 355 | 500 | Construction work in progress | 32 | <5 | 0481 | 5193 |
| | 10:04 | 11:04 | Sunny | 176 | 355 | 500 | Construction work in progress | 32 | <5 | 0481 | 5194 |
| | | | **Min.** | **89** | | | | | | | |
| | | | **Max.** | **203** | | | | | | | |
| | | | **Average** | **138** | | | | | | | |

* Wind Speed data is presented in the Meteorological Data table

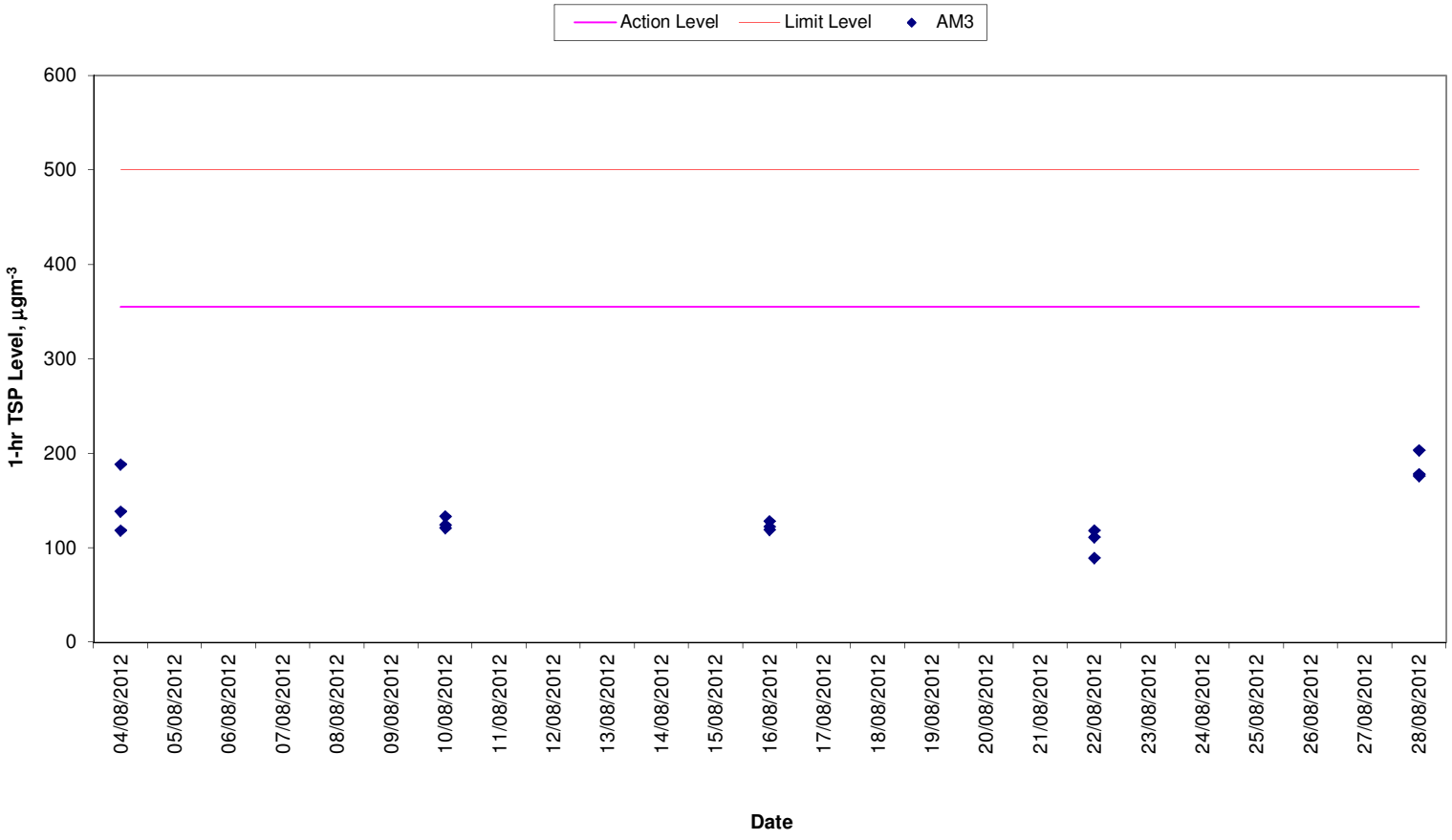
## Annex D5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

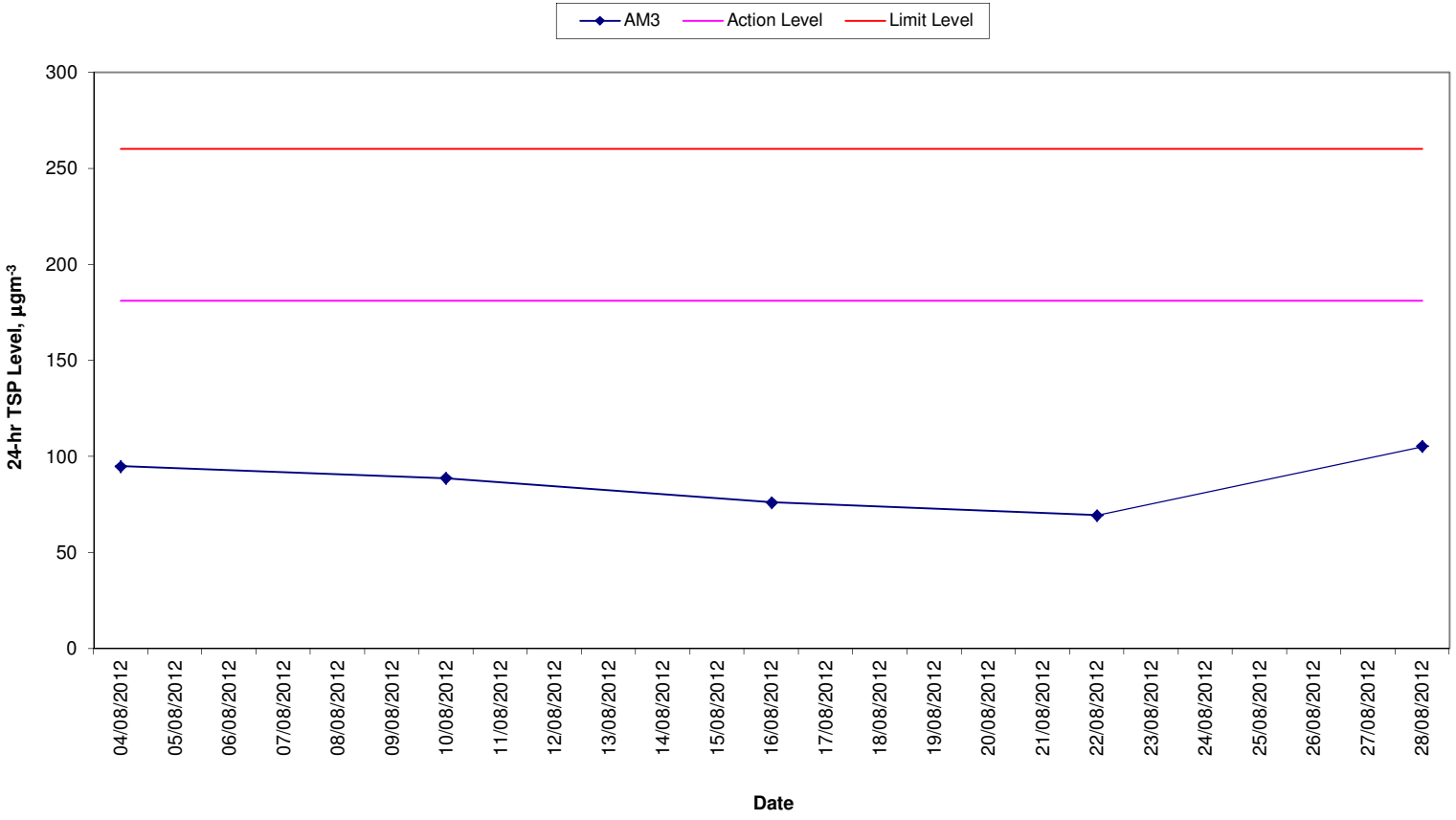
**Station AM3**

| Start | | Finish | | Weather | Filter Weight (g) | | Elapsed Time Reading | | Sampling Time | Flow Rate ($m^3$/min) | | | TSP Conc. | Action Level | Limit Level | Observations / Remarks | Sampler | Filter |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Date | Time | | Initial | Final | Initial | Final | (hrs) | Initial | Final | Average | ($\mu g/m^3$) | ($\mu g/m^3$) | ($\mu g/m^3$) | | ID | ID |
| 04-Aug-12 | 11:16 | 05-Aug-12 | 11:16 | Fine | 2.8134 | 2.9774 | 6924.32 | 6948.32 | 24.00 | 1.20 | 1.20 | 1.20 | 95 | 181 | 260 | Construction work in progress | 0481 | 1571 |
| 10-Aug-12 | 11:17 | 11-Aug-12 | 11:17 | Fine | 2.8042 | 2.9575 | 6951.32 | 6975.32 | 24.00 | 1.20 | 1.20 | 1.20 | 89 | 181 | 260 | Construction work in progress | 0481 | 1575 |
| 16-Aug-12 | 11:12 | 17-Aug-12 | 11:12 | Fine | 2.7894 | 2.9209 | 6978.32 | 7002.32 | 24.00 | 1.20 | 1.20 | 1.20 | 76 | 181 | 260 | Construction work in progress | 0481 | 1579 |
| 22-Aug-12 | 15:10 | 23-Aug-12 | 15:10 | Cloudy | 2.8212 | 2.9411 | 7005.32 | 7029.32 | 24.00 | 1.20 | 1.20 | 1.20 | 69 | 181 | 260 | Construction work in progress | 0481 | 1592 |
| 28-Aug-12 | 11:05 | 29-Aug-12 | 11:05 | Sunny | 2.7441 | 2.9261 | 7032.32 | 7056.32 | 24.00 | 1.20 | 1.20 | 1.20 | 105 | 181 | 260 | Construction work in progress | 0481 | 5195 |
| | | | | | | | | | | | | **Min.** | **69** | | | | | |
| | | | | | | | | | | | | **Max.** | **105** | | | | | |
| | | | | | | | | | | | | **Average** | **87** | | | | | |

**1-hr TSP Levels**
**AM3 (Wan Chai East PTW)**



**24-hr TSP Levels**
**AM3 (Wan Chai East PTW)**



**Meteorological Data Extracted from the Hong Kong Observatory**

| | | King's Park Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) | Average Relative Humiditiy (%) | Total Rainfall (mm) | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 8.0 | W |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 8.0 | W |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 9.5 | W |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 7.0 | S |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 5.0 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 5.5 | W |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 17.5 | E |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 6.3 | W |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 9.5 | W |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 7.1 | W |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 15.3 | N |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | - | W |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 6.8 | W |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

| | | Tsing Yi Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 29 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 9.9 | W |
| 09-08-2012 | Sunny | 30 | 73 | 0.0 | 3.5 | W |
| 10-08-2012 | Fine | 30 | 79 | 7.7 | 11.3 | S |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 7.8 | SE |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 10.0 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 7.4 | SE |
| 16-08-2012 | Cloudy | 30 | 81 | 15.4 | - | - |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 9.1 | S |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 9.0 | SE |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 9.3 | NW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 14.1 | NW |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | - | NW |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 9.4 | SE |
| 31-08-2012 | Sunny | 29 | 87 | 20.4 | - | - |

| | | Kai Tak Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) * | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 9.8 | SW |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 9.3 | W |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 14.9 | SW |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 8.9 | SE |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 8.2 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 11.3 | SE |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 7.5 | SE |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 9.2 | SE |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 11.3 | SW |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 9.0 | SW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 16.5 | NW |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | 7.6 | W |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 11.2 | SW |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

| | | Green Island Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) * | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 14 | S |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 11 | S |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 21 | SW |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 17 | S |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 15 | NE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 12 | S |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 8 | NW |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 13 | SW |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 16 | SW |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 12 | NW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 29 | N |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | 13 | NW |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 15 | S |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

* King's Park's data

\- Data were not available

\# less than 24 hourly observations per day

## Annex D6 Noise Monitoring Results

### Daytime Noise Monitoring Results

**Station NM2**

| Date | Start Time | End Time | Weather | Noise level (dB(A)), 30 min | | | Major Construction Noise Source(s) Observed | Other Noise Source(s) Observed | Remarks | Temp. (℃) | Wind Speed (m/s) | Noise Meter Model / ID | Calibrator Model / ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Leq | L10 | L90 | | | | | | | |
| 10-Aug-12 | 9:30 | 10:00 | Fine | 73.6 | 75.0 | 72.6 | Breaker (Near site) | Traffic noise | - | 30 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| 16-Aug-12 | 9:22 | 9:52 | Fine | 73.6 | 75.0 | 72.5 | Piling, excavation (DSD site) | Traffic noise | - | 29 | 0.4 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| 22-Aug-12 | 14:20 | 14:50 | Cloudy | 73.9 | 75.1 | 72.8 | Piling, excavation (DSD site) | Traffic noise | - | 30 | 0.5 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| 28-Aug-12 | 10:20 | 10:50 | Sunny | 73.1 | 74.3 | 72.1 | Excavation (DSD site) | Traffic noise | - | 32 | 0.5 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | | | **Min.** | **73.1** | | | | | | | | | |
| | | | **Max.** | **73.9** | | | | | | | | | |

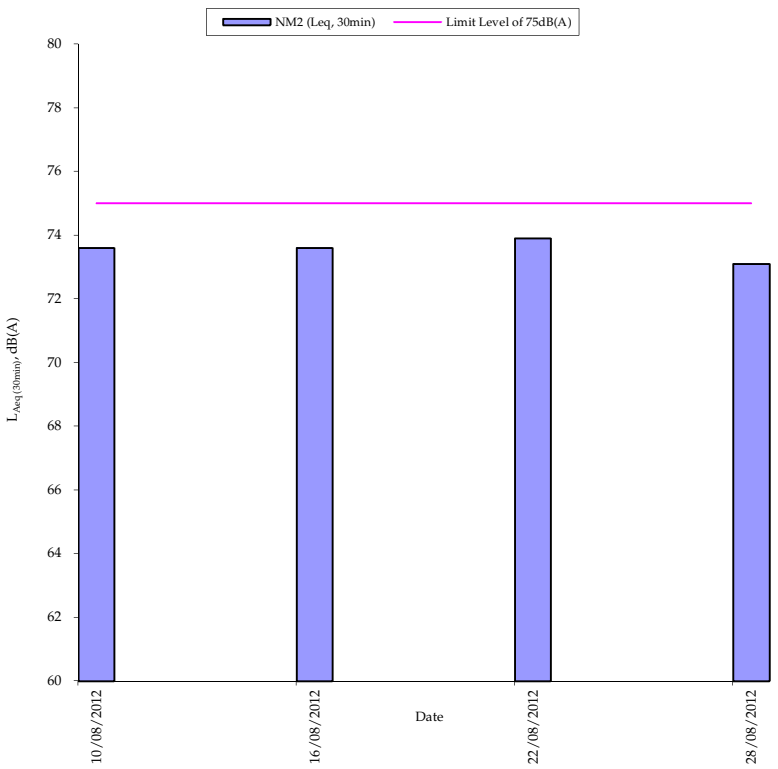
## Annex D6 Noise Monitoring Results

### Restricted Hours Noise Monitoring Results

**Station NM2**

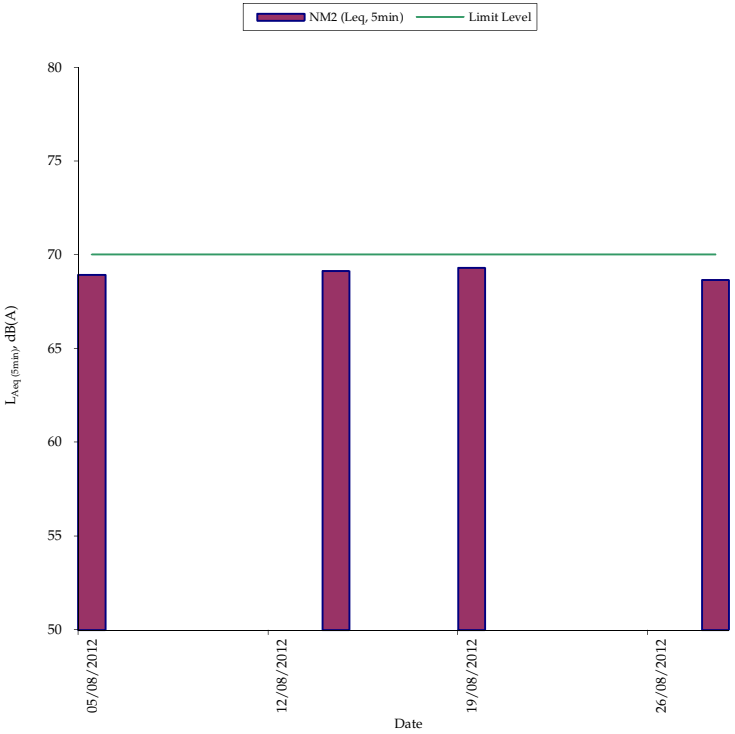
| Date | Start Time | End Time | Weather | Noise level (dB(A)), 5 min | | | Major Construction Noise Source(s) Observed | Other Noise Source(s) Observed | Remarks | Temp. (℃) | Wind Speed (m/s) | Noise Meter Model / ID | Calibrator Model / ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Leq | L10 | L90 | | | | | | | |
| 05-Aug-12 | 16:16 | 16:21 | Fine | 68.8 | 69.8 | 67.6 | No outdoor construction activity observed | Mainly traffic noise | - | 30 | 0.5 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | 16:21 | 16:26 | Fine | 68.9 | 69.9 | 67.8 | | | - | | | | |
| | 16:26 | 16:31 | Fine | 69.1 | 70.0 | 68.1 | | | - | | | | |
| | 16:16 | 16:31 | Fine | 68.9 | 69.9 | 67.8 | | | | | | | |
| 14-Aug-12 | 20:32 | 20:37 | Fine | 69.2 | 70.3 | 68.1 | No outdoor construction activity observed | Mainly traffic noise | - | 28 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | 20:37 | 20:42 | Fine | 68.8 | 69.8 | 68.0 | | | - | | | | |
| | 20:42 | 20:47 | Fine | 69.4 | 70.5 | 68.2 | | | - | | | | |
| | 20:32 | 20:47 | Fine | 69.1 | 70.2 | 68.1 | | | - | | | | |
| 19-Aug-12 | 13:10 | 13:15 | Sunny | 69.6 | 70.6 | 68.3 | No outdoor construction activity observed | Mainly traffic noise | - | 31 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | 13:15 | 13:20 | Sunny | 69.2 | 69.9 | 68.2 | | | - | | | | |
| | 13:20 | 13:25 | Sunny | 69.1 | 69.9 | 68.0 | | | - | | | | |
| | 13:10 | 13:25 | Sunny | 69.3 | 70.1 | 68.2 | | | - | | | | |
| 28-Aug-12 | 20:34 | 20:39 | Fine | 68.6 | 69.7 | 67.3 | No outdoor construction noise | Mainly traffic noise | - | 30 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | 20:39 | 20:44 | Fine | 68.6 | 69.6 | 64.7 | | | - | | | | |
| | 20:44 | 20:49 | Fine | 68.8 | 69.8 | 67.7 | | | - | | | | |
| | 20:34 | 20:49 | Fine | 68.7 | 69.7 | 66.8 | | | - | | | | |
| | | | **Min.** | **68.6** | | | | | | | | | |
| | | | **Max.** | **69.6** | | | | | | | | | |

Normal Weekdays Noise Monitoring Results at NM2 ($L_{eq, 30min}$)




Remark:
- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period

Restricted Hours Noise Monitoring Results at NM2 ($L_{eq, 5min}$)




Remark:
- 70dB(A) was adopted as the Limit Level during restricted hours in the reporting period
- 55dB(A) was adopted as the Limit Level during night time period

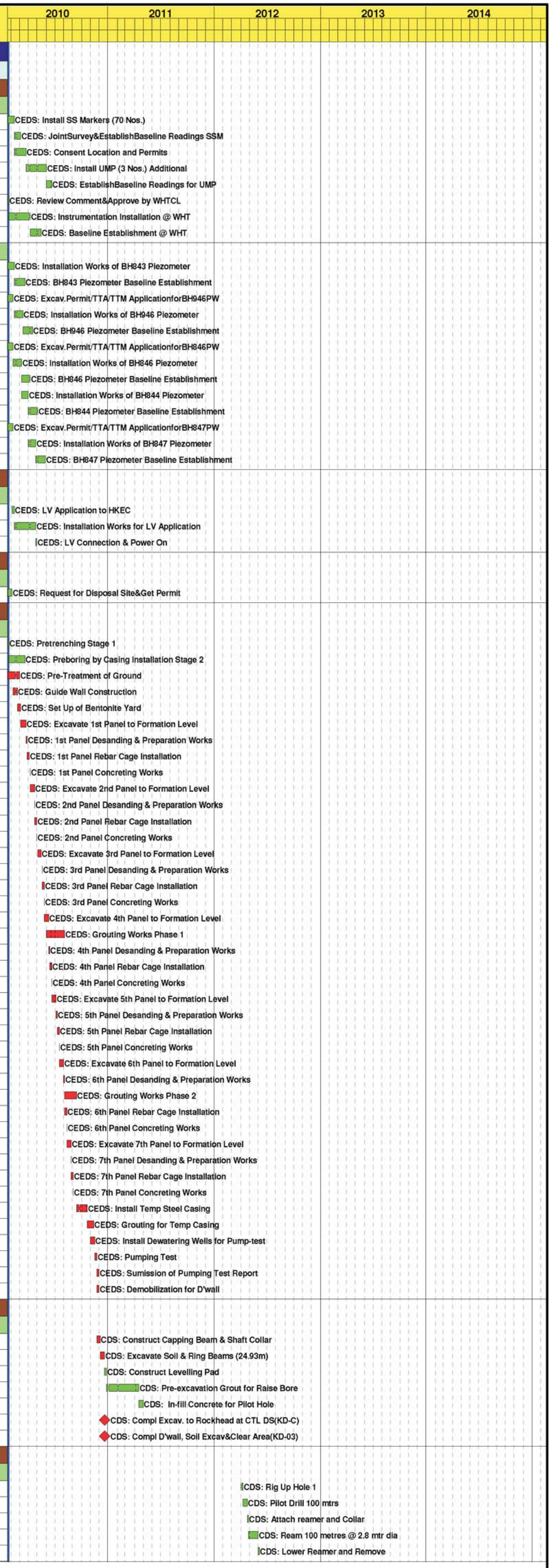
*Annex D7 Cumulative Complaint and Summons/Prosecutions Log*

| Reporting Month | Number of Complaints in Reporting Month | Number of Summons/Prosecutions in Reporting Month |
|---|---|---|
| December 2009 | 0 | 0 |
| January 2010 | 0 | 0 |
| February 2010 | 0 | 0 |
| March 2010 | 0 | 0 |
| April 2010 | 0 | 0 |
| May 2010 | 0 | 0 |
| June 2010 | 0 | 0 |
| July 2010 | 0 | 0 |
| August 2010 | 0 | 0 |
| September 2010 | 0 | 0 |
| October 2010 | 0 | 0 |
| November 2010 | 0 | 0 |
| December 2010 | 0 | 0 |
| January 2011 | 0 | 0 |
| February 2011 | 0 | 0 |
| March 2011 | 0 | 0 |
| April 2011 | 0 | 0 |
| May 2011 | 0 | 0 |

*Annex D7 Cumulative Complaint and Summons/Prosecutions Log*

| Reporting Month | Number of Complaints in Reporting Month | Number of Summons/Prosecutions in Reporting Month |
|---|---|---|
| June 2011 | 0 | 0 |
| July 2011 | 0 | 0 |
| August 2011 | 0 | 0 |
| September 2011 | 0 | 0 |
| October 2011 | 0 | 0 |
| November 2011 | 1 | 0 |
| December 2011 | 0 | 0 |
| January 2012 | 0 | 0 |
| February 2012 | 0 | 0 |
| March 2012 | 0 | 0 |
| April 2012 | 0 | 0 |
| May 2012 | 0 | 0 |
| June 2012 | 0 | 0 |
| July 2012 | 0 | 0 |
| August 2012 | 0 | 0 |
| Overall Total | 1 | 0 |

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish | % Comp |
|---|---|---|---|---|---|
| **HATS Stage 2A - Contract DC/2007/23** | | | | | |
| **Central PTW Drop Shaft** | | | | | |
| **EBS, Env. & Geotechnical Instrumentations** | | | | | |
| Markers/UMP's/Others(Same note as Piez.) | | | | | |
| CEDS0439 | CEDS: Install SS Markers (70 Nos.) | 50 | 21OCT09A | 11FEB10 | 60 |
| CEDS0441 | CEDS: JointSurvey&EstablishBaseline Readings SSM | 14 | 12FEB10 | 03MAR10 | 0 |
| CEDS0445 | CEDS: Consent Location and Permits | 30 | 12FEB10 | 22MAR10 | 0 |
| CEDS0447 | CEDS: Install UMP (3 Nos.) Additional | 60 | 23MAR10 | 02JUN10 | 0 |
| CEDS0449 | CEDS: EstablishBaseline Readings for UMP | 14 | 03JUN10 | 19JUN10 | 0 |
| CEDS0454 | CEDS: Review Comment&Approve by WHTCL | 25 | 28NOV09A | 23JAN10 | 84 |
| CEDS0456 | CEDS: Instrumentation Installation @ WHT | 60 | 25JAN10 | 08APR10 | 0 |
| CEDS0458 | CEDS: Baseline Establishment @ WHT | 28 | 09APR10 | 12MAY10 | 0 |
| Piezometers(NearbyPTWorPScovered inthisInstalln) | | | | | |
| CEDS0397 | CEDS: Installation Works of BH843 Piezometer | 21 | 20JAN10 | 12FEB10 | 0 |
| CEDS0399 | CEDS: BH843 Piezometer Baseline Establishment | 26 | 13FEB10 | 18MAR10 | 0 |
| CEDS0401 | CEDS: Excav.Permit/TTA/TTM ApplicationforBH946PW | 24 | 25SEP09A | 08FEB10 | 30 |
| CEDS0403 | CEDS: Installation Works of BH946 Piezometer | 21 | 13FEB10 | 12MAR10 | 0 |
| CEDS0405 | CEDS: BH946 Piezometer Baseline Establishment | 26 | 13MAR10 | 13APR10 | 0 |
| CEDS0407 | CEDS: Excav.Permit/TTA/TTM ApplicationforBH846PW | 24 | 28SEP09A | 08FEB10 | 30 |
| CEDS0409 | CEDS: Installation Works of BH846 Piezometer | 21 | 09FEB10 | 08MAR10 | 0 |
| CEDS0411 | CEDS: BH846 Piezometer Baseline Establishment | 26 | 09MAR10 | 08APR10 | 0 |
| CEDS0415 | CEDS: Installation Works of BH844 Piezometer | 21 | 09MAR10 | 01APR10 | 0 |
| CEDS0417 | CEDS: BH844 Piezometer Baseline Establishment | 26 | 02APR10 | 04MAY10 | 0 |
| CEDS0419 | CEDS: Excav.Permit/TTA/TTM ApplicationforBH847PW | 24 | 28SEP09A | 06FEB10 | 35 |
| CEDS0421 | CEDS: Installation Works of BH847 Piezometer | 21 | 02APR10 | 27APR10 | 0 |
| CEDS0423 | CEDS: BH847 Piezometer Baseline Establishment | 26 | 28APR10 | 28MAY10 | 0 |
| **Electrical & Mechanical Installations** | | | | | |
| CEDS0600 | CEDS: LV Application to HKEC | 6 | 04FEB10* | 10FEB10 | 0 |
| CEDS0605 | CEDS: Installation Works for LV Application | 60 | 11FEB10 | 26APR10 | 0 |
| CEDS0610 | CEDS: LV Connection & Power On | 4 | 27APR10 | 30APR10 | 0 |
| **Marine Dumping Permit** | | | | | |
| CEDS0390 | CEDS: Request for Disposal Site&Get Permit | 24 | 06JAN10A | 02FEB10 | 50 |
| **Diaphragm Wall** | | | | | |
| CEDS0205C | CEDS: Pretrenching Stage 1 | 14 | 09JAN10A | 22JAN10 | 79 |
| CEDS0205E | CEDS: Preboring by Casing Installation Stage 2 | 45 | 23JAN10 | 19MAR10 | 0 |
| CEDS0210 | CEDS: Pre-Treatment of Ground | 31 | 20JAN10 | 27FEB10 | 0 |
| CEDS0215 | CEDS: Guide Wall Construction | 12 | 06FEB10 | 23FEB10 | 0 |
| CEDS0220 | CEDS: Set Up of Bentonite Yard | 9 | 24FEB10 | 05MAR10 | 0 |
| CEDS0252 | CEDS: Excavate 1st Panel to Formation Level | 15 | 06MAR10 | 23MAR10 | 0 |
| CEDS0253 | CEDS: 1st Panel Desanding & Preparation Works | 4 | 24MAR10 | 27MAR10 | 0 |
| CEDS0254 | CEDS: 1st Panel Rebar Cage Installation | 6 | 29MAR10 | 03APR10 | 0 |
| CEDS0256 | CEDS: 1st Panel Concreting Works | 1 | 06APR10 | 06APR10 | 0 |
| CEDS0257 | CEDS: Excavate 2nd Panel to Formation Level | 12 | 07APR10 | 20APR10 | 0 |
| CEDS0259 | CEDS: 2nd Panel Desanding & Preparation Works | 3 | 21APR10 | 23APR10 | 0 |
| CEDS0261 | CEDS: 2nd Panel Rebar Cage Installation | 5 | 24APR10 | 29APR10 | 0 |
| CEDS0263 | CEDS: 2nd Panel Concreting Works | 1 | 30APR10 | 30APR10 | 0 |
| CEDS0265 | CEDS: Excavate 3rd Panel to Formation Level | 12 | 03MAY10 | 15MAY10 | 0 |
| CEDS0267 | CEDS: 3rd Panel Desanding & Preparation Works | 3 | 17MAY10 | 19MAY10 | 0 |
| CEDS0269 | CEDS: 3rd Panel Rebar Cage Installation | 5 | 20MAY10 | 25MAY10 | 0 |
| CEDS0271 | CEDS: 3rd Panel Concreting Works | 1 | 26MAY10 | 26MAY10 | 0 |
| CEDS0273 | CEDS: Excavate 4th Panel to Formation Level | 12 | 27MAY10 | 09JUN10 | 0 |
| CEDS0274 | CEDS: Grouting Works Phase 1 | 51 | 04JUN10 | 04AUG10 | 0 |
| CEDS0275 | CEDS: 4th Panel Desanding & Preparation Works | 3 | 10JUN10 | 12JUN10 | 0 |
| CEDS0277 | CEDS: 4th Panel Rebar Cage Installation | 5 | 14JUN10 | 19JUN10 | 0 |
| CEDS0279 | CEDS: 4th Panel Concreting Works | 1 | 21JUN10 | 21JUN10 | 0 |
| CEDS0281 | CEDS: Excavate 5th Panel to Formation Level | 12 | 22JUN10 | 06JUL10 | 0 |
| CEDS0283 | CEDS: 5th Panel Desanding & Preparation Works | 3 | 07JUL10 | 09JUL10 | 0 |
| CEDS0285 | CEDS: 5th Panel Rebar Cage Installation | 5 | 10JUL10 | 15JUL10 | 0 |
| CEDS0287 | CEDS: 5th Panel Concreting Works | 1 | 16JUL10 | 16JUL10 | 0 |
| CEDS0289 | CEDS: Excavate 6th Panel to Formation Level | 12 | 17JUL10 | 30JUL10 | 0 |
| CEDS0291 | CEDS: 6th Panel Desanding & Preparation Works | 3 | 31JUL10 | 03AUG10 | 0 |
| CEDS0292 | CEDS: Grouting Works Phase 2 | 34 | 05AUG10 | 13SEP10 | 0 |
| CEDS0293 | CEDS: 6th Panel Rebar Cage Installation | 5 | 04AUG10 | 09AUG10 | 0 |
| CEDS0295 | CEDS: 6th Panel Concreting Works | 1 | 10AUG10 | 10AUG10 | 0 |
| CEDS0297 | CEDS: Excavate 7th Panel to Formation Level | 12 | 11AUG10 | 24AUG10 | 0 |
| CEDS0299 | CEDS: 7th Panel Desanding & Preparation Works | 3 | 25AUG10 | 27AUG10 | 0 |
| CEDS0301 | CEDS: 7th Panel Rebar Cage Installation | 5 | 28AUG10 | 02SEP10 | 0 |
| CEDS0303 | CEDS: 7th Panel Concreting Works | 1 | 03SEP10 | 03SEP10 | 0 |
| CEDS0305 | CEDS: Install Temp Steel Casing | 28 | 14SEP10 | 19OCT10 | 0 |
| CEDS0306 | CEDS: Grouting for Temp Casing | 19 | 20OCT10 | 10NOV10 | 0 |
| CEDS0307 | CEDS: Install Dewatering Wells for Pump-test | 12 | 02NOV10 | 15NOV10 | 0 |
| CEDS0310 | CEDS: Pumping Test | 6 | 16NOV10 | 22NOV10 | 0 |
| CEDS0320 | CEDS: Sumission of Pumping Test Report | 6 | 23NOV10 | 29NOV10 | 0 |
| CEDS0330 | CEDS: Demobilization for D'wall | 6 | 23NOV10 | 29NOV10 | 0 |
| **Shaft Excavation** | | | | | |
| CEDS0400 | CDS: Construct Capping Beam & Shaft Collar | 12 | 22NOV10 | 04DEC10 | 0 |
| CEDS0410 | CDS: Excavate Soil & Ring Beams (24.93m) | 11 | 06DEC10 | 17DEC10 | 0 |
| CEDS0420 | CDS: Construct Levelling Pad | 6 | 18DEC10 | 24DEC10 | 0 |
| CEDS0430 | CDS: Pre-excavation Grout for Raise Bore | 90 | 27DEC10 | 15APR11 | 0 |
| CEDS0440 | CDS: In-fill Concrete for Pilot Hole | 12 | 16APR11 | 29APR11 | 0 |
| CEDS1580 | CDS: Compl Excav. to Rockhead at CTL DS(KD-C) | 0 | | 17DEC10 | 0 |
| CEDS1590 | CDS: Compl D'wall, Soil Excav&Clear Area(KD-03) | 0 | | 17DEC10 | 0 |
| **Raised Boring** | | | | | |
| CEDS0700 | CDS: Rig Up Hole 1 | 5 | 03APR12 | 09APR12 | 0 |
| CEDS0710 | CDS: Pilot Drill 100 mtrs | 14 | 10APR12 | 25APR12 | 0 |
| CEDS0720 | CDS: Attach reamer and Collar | 3 | 26APR12 | 28APR12 | 0 |
| CEDS0730 | CDS: Ream 100 metres @ 2.8 mtr dia | 27 | 30APR12 | 31MAY12 | 0 |
| CEDS0740 | CDS: Lower Reamer and Remove | 3 | 01JUN12 | 04JUN12 | 0 |




Start Date 31JUL09
Finish Date 15JAN15
Data Date 20JAN10
Run Date 01FEB10 09:59

Early Bar
Progress Bar
Critical Activity



WPU7 Sheet 1 of 2

**Habour Area Treatment Scheme Stage 2A**
**Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island Programme**

**Annex E8 Construction Programme for the Project**

Gammon

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish | % Comp |
|---|---|---|---|---|---|
| CEDS0750 | CDS: De Rig Raise borer and Re rig Hole 2 | 5 | 05JUN12 | 09JUN12 | 0 |
| CEDS0760 | CDS: Pilot Drill 100 mtrs | 14 | 11JUN12 | 27JUN12 | 0 |
| CEDS0770 | CDS: Attach Reamer and collar same | 3 | 28JUN12 | 30JUN12 | 0 |
| CEDS0780 | CDS: Ream 100 metres @ 2.8 mtr dia | 27 | 03JUL12 | 02AUG12 | 0 |
| CEDS0790 | CDS: De Rig Raise Borer & Remove Reamr | 3 | 03AUG12 | 06AUG12 | 0 |
| **Lower Shaft Construction** | | | | | |
| CEDS0835 | CDS: Blinding Layer & Concrete Base for LS | 6 | 07AUG12 | 13AUG12 | 0 |
| CEDS0840 | CDS: Back shunt concreting | 18 | 14AUG12 | 03SEP12 | 0 |
| CEDS0875 | CDS: Construct Vert Shaft to Tunnel Invert | 6 | 04SEP12 | 10SEP12 | 0 |
| CEDS0895 | CDS: Install System Form for LS | 6 | 11SEP12 | 17SEP12 | 0 |
| CEDS0935 | CDS: Construct Transition & Vert Shaft | 9 | 18SEP12 | 27SEP12 | 0 |
| CEDS0955 | CDS: Construct lower-shaft -153.5 to -22mPD | 78 | 28SEP12 | 02JAN13 | 0 |
| CEDS0960 | CDS: Remove system formwork and tidy up area | 6 | 03JAN13 | 09JAN13 | 0 |
| **Upper Shaft Construction** | | | | | |
| CEDS1015 | CDS: Blinding Layer & Base Slab for US | 9 | 10JAN13 | 19JAN13 | 0 |
| CEDS1045 | CDS: Temp Platform & Construct Conical Surface | 6 | 21JAN13 | 26JAN13 | 0 |
| CEDS1050 | CDS: Assembly of kicker formwork | 12 | 14JAN13 | 26JAN13 | 0 |
| CEDS1085 | CDS: Construct Kicker | 9 | 28JAN13 | 06FEB13 | 0 |
| CEDS1090 | CDS: Set up system formwork for upper shaft | 16 | 28JAN13 | 18FEB13 | 0 |
| CEDS1145 | CDS: Construct Upper Shaft | 72 | 19FEB13 | 15MAY13 | 0 |
| CEDS1265 | CDS: Fabricate & Install S/S Vortex Drop Pipe | 12 | 09MAY13 | 22MAY13 | 0 |
| CEDS1305 | CDS: Construct Overflow Weir | 6 | 23MAY13 | 29MAY13 | 0 |
| CEDS1315 | CDS: Clear Area & Install Multi-Part Cover | 3 | 30MAY13 | 01JUN13 | 0 |
| **Scum Removal Chamber** | | | | | |
| CEDS1463 | CEDS: Sheet Piling, Excavation & ELS Works | 24 | 16APR13 | 15MAY13 | 0 |
| CEDS1465 | CDS: Excavation for Chamber & Channel | 9 | 16MAY13 | 25MAY13 | 0 |
| CEDS1505 | CDS: Blinding Layer & Base Slab of SRC | 9 | 27MAY13 | 05JUN13 | 0 |
| CEDS1545 | CDS: Construct Wall of SRC | 9 | 06JUN13 | 17JUN13 | 0 |
| CEDS1565 | CDS: Waterproof & Install Multi-Part Cover | 6 | 18JUN13 | 24JUN13 | 0 |
| CEDS1570 | CDS: Backfill to Scum Removal Chamber | 3 | 25JUN13 | 27JUN13 | 0 |
| **Connection Channel** | | | | | |
| CEDS1375 | CDS: Blinding Layer & Base Slab of CC | 9 | 27MAY13 | 05JUN13 | 0 |
| CEDS1435 | CDS: Construct Wall of CC | 12 | 06JUN13 | 20JUN13 | 0 |
| CEDS1455 | CDS: Waterproof & Install Multi-Part Cover | 6 | 24JUN13 | 29JUN13 | 0 |
| CEDS1460 | CDS: Backfill to Connection Channel | 3 | 02JUL13 | 04JUL13 | 0 |
| **Miscellaneous Works** | | | | | |
| CEDS2010 | CDS: Install E&M Services | 18 | 05JUL13 | 25JUL13 | 0 |
| CEDS2020 | CDS: Reinstatement & Clear DS Area | 12 | 26JUL13 | 08AUG13 | 0 |
| CEDS2025 | CDS: Complete All Works at CTL DS (KD-09) | 0 | | 08AUG13 | 0 |
| CEDS2030 | CDS: Landsacping & Planting Works | 60 | 09AUG13* | 07OCT13 | 0 |
| CEDS2040 | CDS: Period of Establishment Works | 360 | 08OCT13 | 02OCT14 | 0 |
| CEDS2050 | CDS: End of Establishment Period | 0 | | 02OCT14 | 0 |


| | |
|---|---|
| Start Date | 31JUL09 |
| Finish Date | 15JAN15 |
| Data Date | 20JAN10 |
| Run Date | 01FEB10 09:59 |



Early Bar
Progress Bar
Critical Activity

WPU7 Sheet 2 of 2

**Habour Area Treatment Scheme Stage 2A**
**Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island**
**Programme**

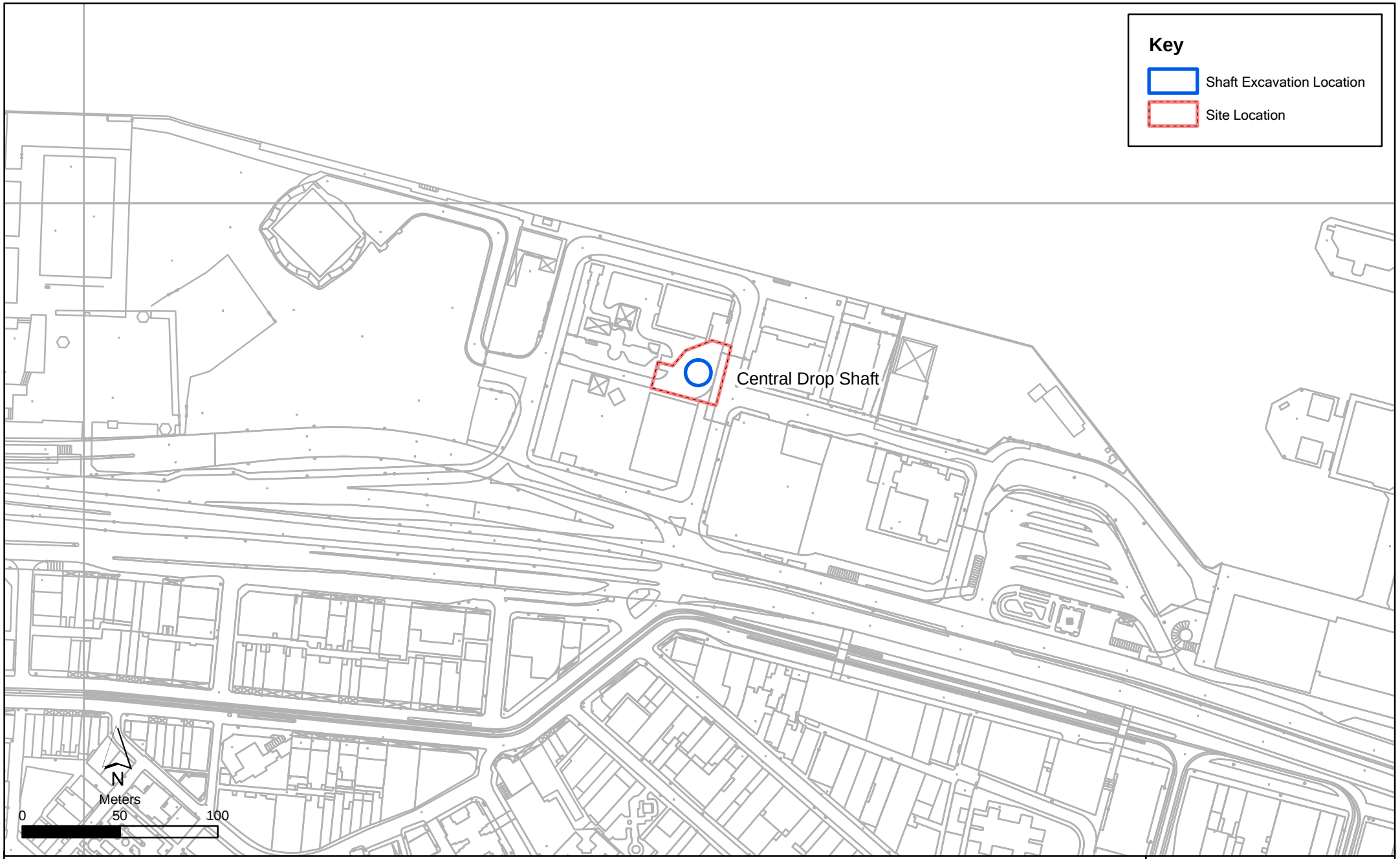
**Annex E8 Construction Programme for the Project**

Gammon

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Annex E

# Central Drop Shaft



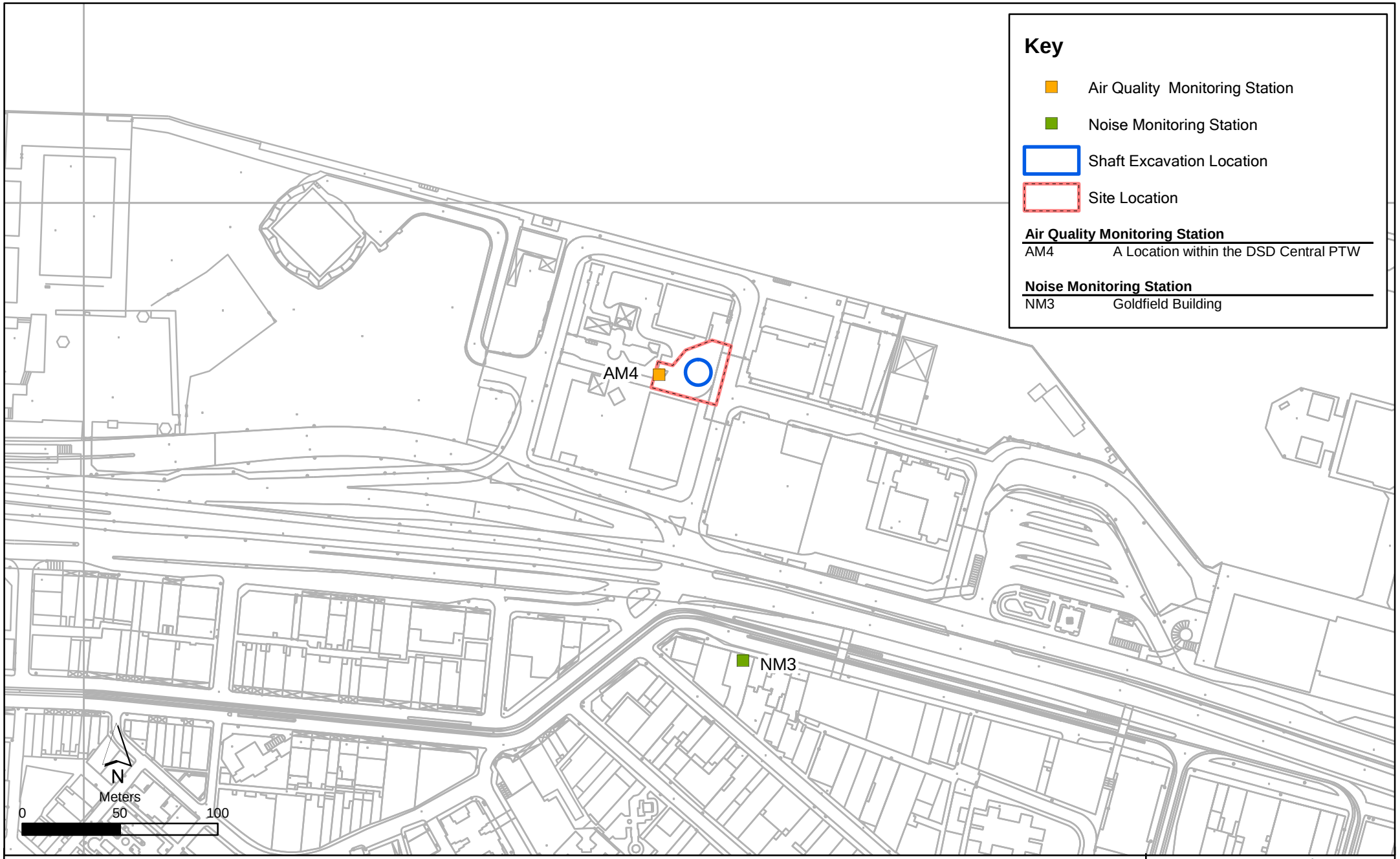

Annex E1

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
*Construction Site Locations at Central*

File: EM&A and proposed station\0104887_Central.mxd
Date: 03/03/2010

**Environmental Resources Management**

ERM




Annex E2

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
*Impact Air Quality & Noise Monitoring Stations (Central)*

File: EM&A and proposed station\0104887_Centra_NMAM.mxd
Date: 03/03/2010

**Environmental Resources Management**

ERM

## Annex E3 Monitoring Schedule of the Reporting Month and Next Month

**DC/2007/23**
**Harbour Area Treatment Scheme Stage 2A**
**Construction of Sewage Conveyance System from North Point to Stonecutters Island**
**Impact Construction Air Quality Monitoring Schedule**

**AM4 - A Location within the DSD Central PTW**
**Monitoring Month : August 2012**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | 01-Aug | 02-Aug | 03-Aug | 04-Aug |
| | | | | | | 1-hr and 24-hr Monitoring |
| 05-Aug | 06-Aug | 07-Aug | 08-Aug | 09-Aug | 10-Aug | 11-Aug |
| | | | | | 1-hr and 24-hr Monitoring | |
| 12-Aug | 13-Aug | 14-Aug | 15-Aug | 16-Aug | 17-Aug | 18-Aug |
| | | | | 1-hr and 24-hr Monitoring | | |
| 19-Aug | 20-Aug | 21-Aug | 22-Aug | 23-Aug | 24-Aug | 25-Aug |
| | | | 1-hr and 24-hr Monitoring | | | |
| 26-Aug | 27-Aug | 28-Aug | 29-Aug | 30-Aug | 31-Aug | |
| | | 1-hr and 24-hr Monitoring | | | | |

## Monitoring Month : September 2012

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | | | | 01-Sep |
| | | | | | | |
| 02-Sep | 03-Sep | 04-Sep | 05-Sep | 06-Sep | 07-Sep | 08-Sep |
| | 1-hr and 24-hr Monitoring | | | | | 1-hr and 24-hr Monitoring |
| 09-Sep | 10-Sep | 11-Sep | 12-Sep | 13-Sep | 14-Sep | 15-Sep |
| | | | | | 1-hr and 24-hr Monitoring | |
| 16-Sep | 17-Sep | 18-Sep | 19-Sep | 20-Sep | 21-Sep | 22-Sep |
| | | | | 1-hr and 24-hr Monitoring | | |
| 23-Sep | 24-Sep | 25-Sep | 26-Sep | 27-Sep | 28-Sep | 29-Sep |
| | | | 1-hr and 24-hr Monitoring | | | |
| 30-Sep | | | | | | |
| | | | | | | |

## Annex E3 Monitoring Schedule of the Reporting Month and Next Month

**DC/2007/23**
**Harbour Area Treatment Scheme Stage 2A**
**Construction of Sewage Conveyance System from North Point to Stonecutters Island**
**Impact Construction Noise Quality Monitoring Schedule**

**NM3 - Goldfield Building**
**Monitoring Month : August 2012**

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

## Monitoring Month : September 2012

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

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| *Construction Phase* | | | |
| Air Quality | The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimize construction dust impact. Control measures relevant to this Project are listed below:<br>• skip hoist for material transport should be totally enclosed by impervious sheeting;<br>• every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site;<br>• the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;<br>• where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit;<br>• every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides;<br>• regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather;<br>• site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines;<br>• open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible;<br>• tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and<br>• instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. | All work sites / during construction | √ |
| Air Quality | The following watering measures for specific site would be required to control the fugitive dust impacts:<br>• watering four times per day within worksites at the Central PTW. | All work sites / during construction | √ |
| *Operational Phase* | | | |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Air Quality | Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.<br>• Screens should be cleaned regularly to remove any accumulated organic debris<br>• Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit<br>• Grit and screened materials should be transferred to closed containers to minimize odour escape<br>• Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics<br>• Skim and remove floating solids and grease from primary clarifiers regularly<br>• Frequent sludge withdrawal from tanks is necessary to prevent the production of gases<br>• Sludge cake should be transferred to closed containers<br>• Sludge containers should be flushed with water regularly | All work sites / during construction | NA. Measures not required until commencement of operational phase |
| Air Quality | Commissioning tests for all deodorization system should be included in the Design and Construction Contract Document. | All PTW and SCISTW/ during operational phase | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |
| Noise | Use of quiet PME, movable barriers and acoustic mats | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Noise | Good Site Practice:<br>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program;<br>• silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program;<br>• mobile plant, if any, should be sited as far from NSRs as possible;<br>• machines and plant (such as trucks) 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 should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and<br>• material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities;<br><br>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented. | All work sites / during construction | √ |
| *Construction Phase* | | | |
| Water Quality | Construction Site Runoff and General Construction Activities<br>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable. | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Effluent Discharge<br><br>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes. | All work sites / during construction | √ |
| Water Quality | Accidental Spillage of Chemicals<br><br>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes. | All work sites / during construction | √ |
| Water Quality | Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges. | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.<br>General requirements are given as follows:<br>• Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.<br>• Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.<br>• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Construction Works in Close Proximity of Storm Drains or Seafront<br><br>To minimize the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.<br>• The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment.<br>• Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works.<br>• Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.<br>• Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers.<br>• Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.<br>• Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| *Operational Phase* | | | |
| Water Quality | Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimize the chance of emergency discharge. | SCISTW and all the Stage 2 PTWs / Operation Stage | NA. Measures not required until commencement of operational phase |
| Water Quality | Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs. | Stage 2 PTWs / Operation Stage | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |
| Waste | Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimize the use of timber formwork. | All work sites / during the construction period | √ |
| Waste | All waste materials should be segregated into categories covering:<br>• excavated materials suitable for reuse on-site;<br>• excavated materials suitable for public filling facilities;<br>• remaining C&D waste for landfill;<br>• chemical waste; and<br>• general refuse for landfill. | All work sites / during the construction period | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Recommendations to achieve waste reduction include:<br>• Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals;<br>• Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;<br>• Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force;<br>• Any unused chemicals or those with remaining functional capacity shall be recycled; and<br>• Proper storage and site practices to minimise the potential for damage or contamination of construction materials. | All work sites / during the construction period | √ |
| Waste | Recommendations for good site practices during construction activities include:-<br>• Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site<br>• Training of site personnel in proper waste management and chemical waste handling procedures<br>• Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials.<br>• Provision of sufficient waste disposal points and regular collection of waste<br>• Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors | All work sites / during the construction period | √ |
| Waste | Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage". | All work sites / during the construction period | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected. | All work sites / during the construction period | √ |
| Waste | General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill. | All work sites / during the construction period | √ |
| Waste | The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials. | All work sites / during the construction period | √ |
| Waste | If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. | All work sites / during the construction period | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results. | All work sites / during the construction period | √ |
| *Construction Phase* | | | |
| Landscape & Visual | • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.<br>• Existing trees to be retained on site should be carefully protected during construction.<br>• Trees unavoidably affected by the works should be transplanted where practical.<br>• Compensatory tree planting should be provided to compensate for felled trees.<br>• Control of night-time lighting.<br>• Erection of decorative screen hoarding compatible with the surrounding setting. | All the works areas, PTWs and SCISTW/ during the construction period | √ |
| *Operational Phase* | • | | |
| Landscape & Visual | • Aesthetic design of the façade of PTW and associated structures to harmonize with the surrounding settings.<br>• Shrub and Climbing Plants to soften proposed structures / Roof Greening.<br>• Buffer Tree and Shrub Planting to screen proposed associated structures.<br>• Reinstated of disturbed area | All the works areas, PTWs and SCISTW/ during the construction period | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Cultural Heritage | The construction vibration control limit (ppv of 25mm/s) shall be strictly followed. | Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures | NA. Vibration monitoring has not been launched during the reporting period. |
| | Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme | Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures | NA. Vibration monitoring has not been launched during the reporting period. |

Remark:
√ Compliance of Mitigation Measures
<> Compliance of Mitigation but need improvement
x Non-compliance of Mitigation Measures
Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
NA Not Applicable

## Annex E5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

**Station AM4**

| Date | Start Time | Finish Time | Weather | TSP Concentration ($\mu g/m^3$) | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) | Site Conditions / Observations / Remarks | Temperature (°C) | Wind Speed * (m/s) | Sampler ID | Filter ID |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 04-Aug-12 | 12:00 | 13:00 | Fine | 202 | 352 | 500 | Construction work in progress | 30 | <5 | 9315 | 1558 |
| | 13:02 | 14:02 | Fine | 184 | 352 | 500 | Construction work in progress | 30 | <5 | 9315 | 1559 |
| | 14:04 | 15:04 | Fine | 228 | 352 | 500 | Construction work in progress | 30 | <5 | 9315 | 1560 |
| 10-Aug-12 | 12:05 | 13:05 | Fine | 226 | 352 | 500 | Construction work in progress | 30 | <5 | 9315 | 1581 |
| | 13:07 | 14:07 | Fine | 144 | 352 | 500 | Construction work in progress | 30 | <5 | 9315 | 1584 |
| | 14:10 | 15:10 | Fine | 188 | 352 | 500 | Construction work in progress | 30 | <5 | 9315 | 1585 |
| 16-Aug-12 | 12:00 | 13:00 | Fine | 177 | 352 | 500 | Construction work in progress | 30 | <5 | 9315 | 1586 |
| | 13:02 | 14:02 | Fine | 187 | 352 | 500 | Construction work in progress | 30 | <5 | 9315 | 1587 |
| | 14:05 | 15:05 | Fine | 179 | 352 | 500 | Construction work in progress | 30 | <5 | 9315 | 1588 |
| 22-Aug-12 | 8:00 | 9:00 | Cloudy | 147 | 352 | 500 | Construction work in progress | 30 | <5 | 9315 | 1589 |
| | 9:02 | 10:02 | Cloudy | 138 | 352 | 500 | Construction work in progress | 30 | <5 | 9315 | 1590 |
| | 10:05 | 11:05 | Cloudy | 141 | 352 | 500 | Construction work in progress | 30 | <5 | 9315 | 1597 |
| 28-Aug-12 | 11:50 | 12:50 | Sunny | 190 | 352 | 500 | Construction work in progress | 32 | <5 | 9315 | 5196 |
| | 12:52 | 13:52 | Sunny | 187 | 352 | 500 | Construction work in progress | 32 | <5 | 9315 | 5197 |
| | 13:55 | 14:55 | Sunny | 184 | 352 | 500 | Construction work in progress | 32 | <5 | 9315 | 5198 |
| | | | **Min.** | **138** | | | | | | | |
| | | | **Max.** | **228** | | | | | | | |
| | | | **Average** | **180** | | | | | | | |

* Wind Speed data is presented in the Meteorological Data table

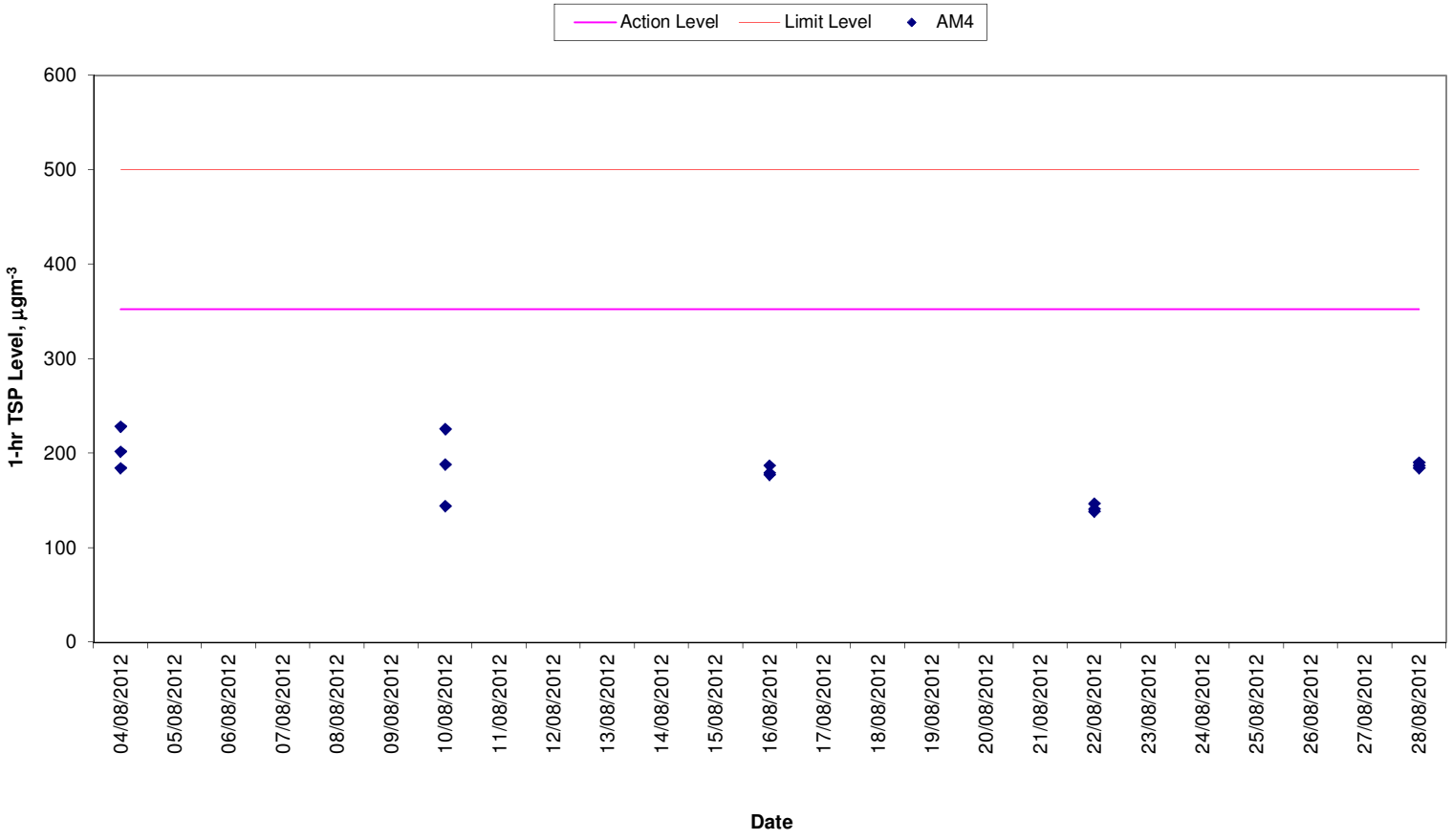
## Annex E5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

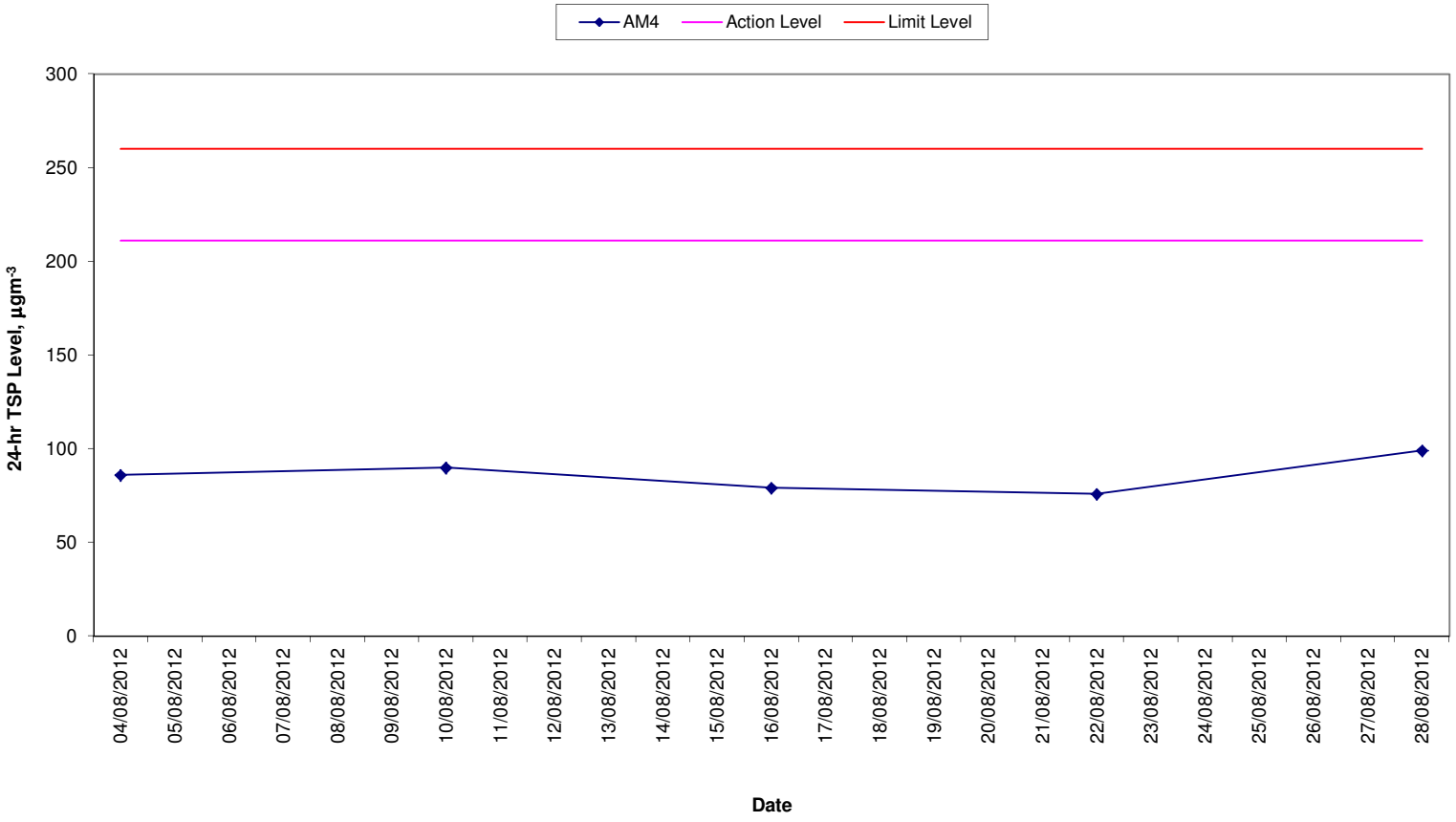
**Station AM4**

| Start | | Finish | | Weather | Filter Weight (g) | | Elapsed Time Reading | | Sampling Time | Flow Rate ($m^3$/min) | | | TSP Conc. | Action Level | Limit Level | Observations / Remarks | Sampler | Filter |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Date | Time | | Initial | Final | Initial | Final | (hrs) | Initial | Final | Average | ($\mu g/m^3$) | ($\mu g/m^3$) | ($\mu g/m^3$) | | ID | ID |
| 04-Aug-12 | 15:10 | 05-Aug-12 | 15:10 | Fine | 2.7984 | 2.9521 | 14852.85 | 14876.85 | 24.00 | 1.24 | 1.24 | 1.24 | 86 | 211 | 260 | Construction work in progress | 9315 | 1556 |
| 10-Aug-12 | 15:20 | 11-Aug-12 | 15:20 | Fine | 2.8107 | 2.9711 | 14879.85 | 14903.85 | 24.00 | 1.24 | 1.24 | 1.24 | 90 | 211 | 260 | Construction work in progress | 9315 | 1582 |
| 16-Aug-12 | 15:15 | 17-Aug-12 | 15:15 | Fine | 2.8101 | 2.9511 | 14906.05 | 14930.05 | 24.00 | 1.24 | 1.24 | 1.24 | 79 | 211 | 260 | Construction work in progress | 9315 | 1503 |
| 22-Aug-12 | 11:10 | 23-Aug-12 | 11:10 | Cloudy | 2.7935 | 2.9288 | 14933.85 | 14957.85 | 24.00 | 1.24 | 1.24 | 1.24 | 76 | 211 | 260 | Construction work in progress | 9315 | 1598 |
| 28-Aug-12 | 15:05 | 29-Aug-12 | 15:05 | Sunny | 2.7335 | 2.9105 | 14960.85 | 14984.85 | 24.00 | 1.24 | 1.24 | 1.24 | 99 | 211 | 260 | Construction work in progress | 9315 | 5199 |
| | | | | | | | | | | | | **Min.** | **76** | | | | | |
| | | | | | | | | | | | | **Max.** | **99** | | | | | |
| | | | | | | | | | | | | **Average** | **86** | | | | | |

**1-hr TSP Levels**
**AM4 (A Location within DSD Central PTW)**



**24-hr TSP Levels**
**AM4 (A Location within DSD Central PTW )**



**Meteorological Data Extracted from the Hong Kong Observatory**

| | | King's Park Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) | Average Relative Humiditiy (%) | Total Rainfall (mm) | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 8.0 | W |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 8.0 | W |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 9.5 | W |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 7.0 | S |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 5.0 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 5.5 | W |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 17.5 | E |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 6.3 | W |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 9.5 | W |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 7.1 | W |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 15.3 | N |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | - | W |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 6.8 | W |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

| | | Tsing Yi Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 29 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 9.9 | W |
| 09-08-2012 | Sunny | 30 | 73 | 0.0 | 3.5 | W |
| 10-08-2012 | Fine | 30 | 79 | 7.7 | 11.3 | S |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 7.8 | SE |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 10.0 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 7.4 | SE |
| 16-08-2012 | Cloudy | 30 | 81 | 15.4 | - | - |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 9.1 | S |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 9.0 | SE |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 9.3 | NW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 14.1 | NW |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | - | NW |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 9.4 | SE |
| 31-08-2012 | Sunny | 29 | 87 | 20.4 | - | - |

| | | Kai Tak Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) * | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 9.8 | SW |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 9.3 | W |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 14.9 | SW |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 8.9 | SE |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 8.2 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 11.3 | SE |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 7.5 | SE |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 9.2 | SE |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 11.3 | SW |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 9.0 | SW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 16.5 | NW |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | 7.6 | W |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 11.2 | SW |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

| | | Green Island Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) * | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 14 | S |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 11 | S |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 21 | SW |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 17 | S |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 15 | NE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 12 | S |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 8 | NW |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 13 | SW |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 16 | SW |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 12 | NW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 29 | N |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | 13 | NW |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 15 | S |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

* King's Park's data

\- Data were not available

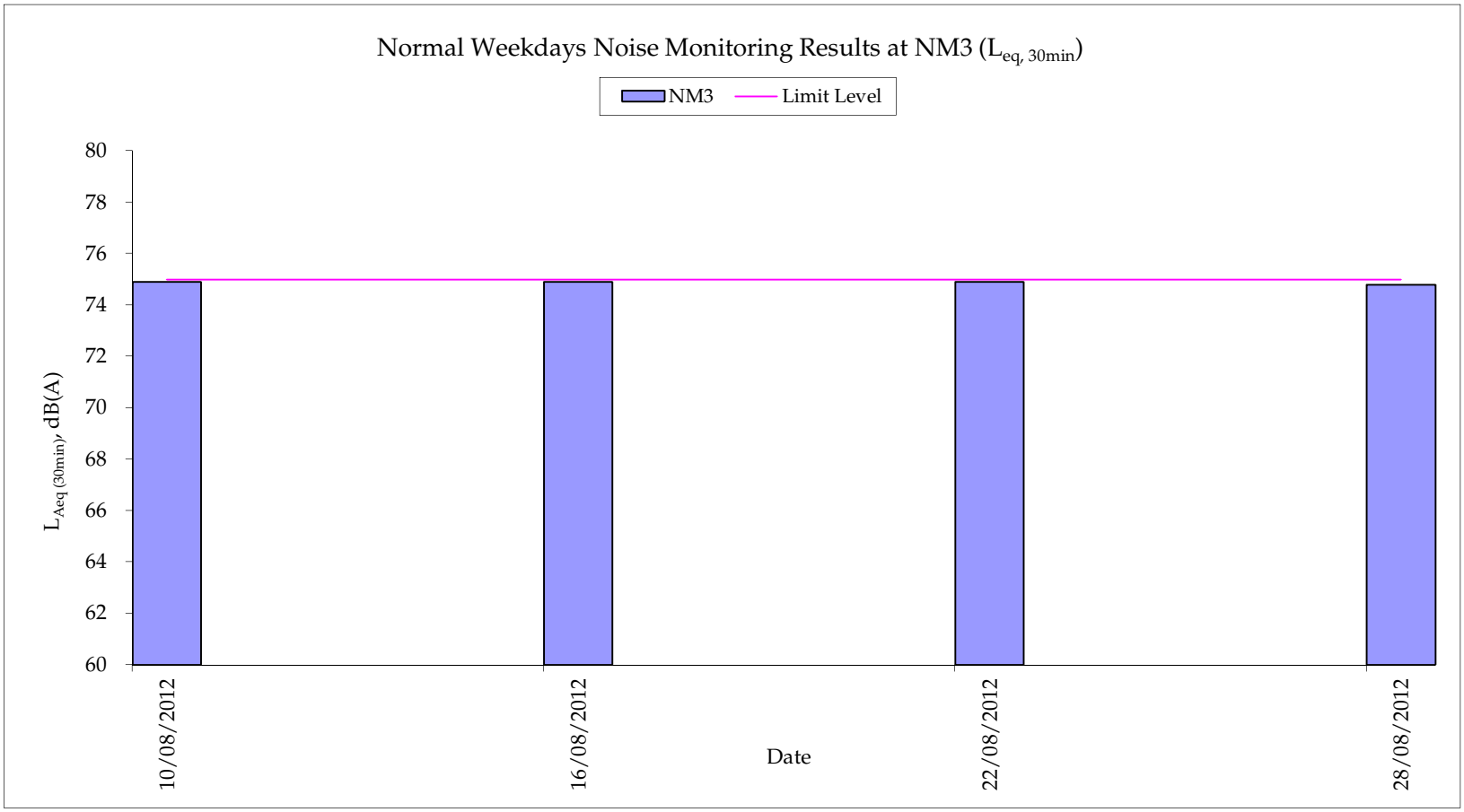
\# less than 24 hourly observations per day

## Annex E6 Noise Monitoring Results

### Daytime Noise Monitoring Results

**Station NM3**

| Date | Start Time | End Time | Weather | Noise level (dB(A)), 30 min | | | Major Construction Noise Source(s) Observed | Other Noise Source(s) Observed | Remarks | Temp. (℃) | Wind Speed (m/s) | Noise Meter Model / ID | Calibrator Model / ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Leq | L10 | L90 | | | | | | | |
| 10-Aug-12 | 13:20 | 13:50 | Fine | 74.9 | 76.2 | 73.2 | Piling (DSD site) | Mainly traffic noise | - | 30 | 0.5 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| 16-Aug-12 | 13:20 | 13:50 | Fine | 74.9 | 76.3 | 73.5 | Piling (DSD site) | Mainly traffic noise | - | 29 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| 22-Aug-12 | 9:18 | 9:48 | Cloudy | 74.9 | 76.2 | 73.2 | Piling (DSD site) | Mainly traffic noise | - | 30 | 0.4 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| 28-Aug-12 | 13:08 | 13:38 | Sunny | 74.8 | 76.2 | 73.3 | Piling (DSD site) | Mainly traffic noise | - | 32 | 0.5 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | | | **Min.** | **74.8** | | | | | | | | | |
| | | | **Max.** | **74.9** | | | | | | | | | |


Normal Weekdays Noise Monitoring Results at NM3 ($L_{eq, 30min}$)
NM3
Limit Level
80
78
76
74
72
70
68
66
64
62
60
$L_{Aeq\ (30min)}$, dB(A)
10/08/2012
16/08/2012
22/08/2012
28/08/2012
Date

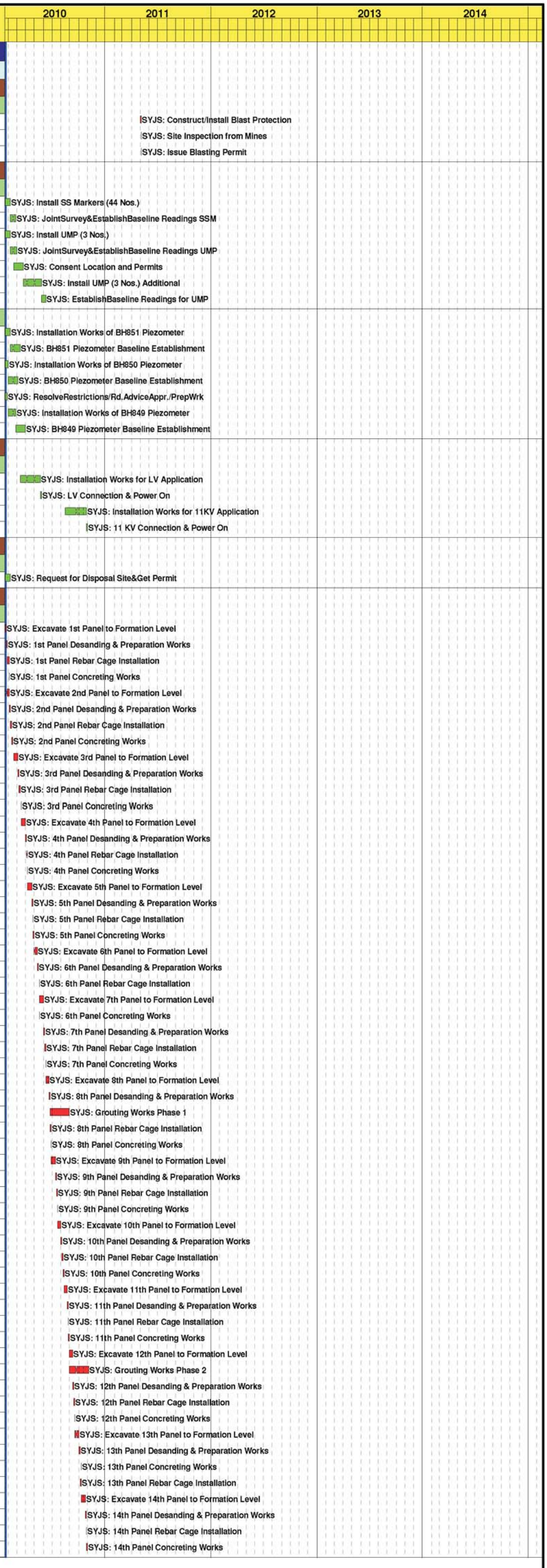
*Annex E7 Cumulative Complaint and Summons/Prosecutions Log*

| Reporting Month | Number of Complaints in Reporting Month | Number of Summons/Prosecutions in Reporting Month |
|---|---|---|
| December 2009 | 0 | 0 |
| January 2010 | 0 | 0 |
| February 2010 | 0 | 0 |
| March 2010 | 0 | 0 |
| April 2010 | 0 | 0 |
| May 2010 | 0 | 0 |
| June 2010 | 0 | 0 |
| July 2010 | 0 | 0 |
| August 2010 | 0 | 0 |
| September 2010 | 0 | 0 |
| October 2010 | 0 | 0 |
| November 2010 | 0 | 0 |
| December 2010 | 0 | 0 |
| January 2011 | 0 | 0 |
| February 2011 | 0 | 0 |
| March 2011 | 0 | 0 |
| April 2011 | 0 | 0 |
| May 2011 | 0 | 0 |

*Annex E7 Cumulative Complaint and Summons/Prosecutions Log*

| Reporting Month | Number of Complaints in Reporting Month | Number of Summons/Prosecutions in Reporting Month |
|---|---|---|
| June 2011 | 0 | 0 |
| July 2011 | 0 | 0 |
| August 2011 | 0 | 0 |
| September 2011 | 0 | 0 |
| October 2011 | 0 | 0 |
| November 2011 | 0 | 0 |
| December 2011 | 0 | 0 |
| January 2012 | 0 | 0 |
| February 2012 | 0 | 0 |
| March 2012 | 0 | 0 |
| April 2012 | 0 | 0 |
| May 2012 | 0 | 0 |
| June 2012 | 0 | 0 |
| July 2012 | 0 | 0 |
| August 2012 | 0 | 0 |
| Overall Total | 0 | 0 |

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish | % Comp |
|---|---|---|---|---|---|
| **HATS Stage 2A - Contract DC/2007/23** | | | | | |
| **Sai Ying Pun Junction/Production Shaft** | | | | | |
| **Preliminaries Works** | | | | | |
| SYJS10115 | SYJS: Construct/Install Blast Protection | 2 | 30APR11 | 03MAY11 | 0 |
| SYJS10120 | SYJS: Site Inspection from Mines | 1 | 04MAY11 | 04MAY11 | 0 |
| SYJS10125 | SYJS: Issue Blasting Permit | 1 | 05MAY11 | 05MAY11 | 0 |
| **EBS, Env. & Geotechnical Instrumentations** | | | | | |
| Markers/UMP's/Others(Same note as Piez.) | | | | | |
| SYJS0617 | SYJS: Install SS Markers (44 Nos.) | 50 | 24OCT09A | 06FEB10 | 68 |
| SYJS0619 | SYJS: JointSurvey&EstablishBaseline Readings SSM | 14 | 08FEB10 | 26FEB10 | 0 |
| SYJS0621 | SYJS: Install UMP (3 Nos.) | 75 | 01SEP09A | 08FEB10 | 78 |
| SYJS0623 | SYJS: JointSurvey&EstablishBaseline Readings UMP | 14 | 09FEB10 | 27FEB10 | 0 |
| SYJS0625 | SYJS: Consent Location and Permits | 30 | 18FEB10 | 24MAR10 | 0 |
| SYJS0627 | SYJS: Install UMP (3 Nos.) Additional | 50 | 25MAR10 | 24MAY10 | 0 |
| SYJS0629 | SYJS: EstablishBaseline Readings for UMP | 14 | 25MAY10 | 09JUN10 | 0 |
| Piezometers(NearbyPTWorPScovered inthisInstalln) | | | | | |
| SYJS0407 | SYJS: Installation Works of BH851 Piezometer | 21 | 14JAN10A | 08FEB10 | 20 |
| SYJS0409 | SYJS: BH851 Piezometer Baseline Establishment | 26 | 09FEB10 | 13MAR10 | 0 |
| SYJS0503 | SYJS: Installation Works of BH850 Piezometer | 21 | 07DEC09A | 29JAN10 | 57 |
| SYJS0507 | SYJS: BH850 Piezometer Baseline Establishment | 26 | 30JAN10 | 04MAR10 | 0 |
| SYJS0601A | SYJS: ResolveRestrictions/Rd.AdviceAppr./PrepWrk | 33 | 07NOV09A | 27JAN10 | 79 |
| SYJS0603 | SYJS: Installation Works of BH849 Piezometer | 21 | 30JAN10 | 26FEB10 | 0 |
| SYJS0607 | SYJS: BH849 Piezometer Baseline Establishment | 26 | 27FEB10 | 29MAR10 | 0 |
| **Electrical & Mechanical Installations** | | | | | |
| SYJS0705 | SYJS: Installation Works for LV Application | 60 | 11MAR10* | 21MAY10 | 0 |
| SYJS0710 | SYJS: LV Connection & Power On | 4 | 22MAY10 | 26MAY10 | 0 |
| SYJS0720 | SYJS: Installation Works for 11KV Application | 60 | 16AUG10* | 27OCT10 | 0 |
| SYJS0725 | SYJS: 11 KV Connection & Power On | 4 | 28OCT10 | 01NOV10 | 0 |
| **Marine Dumping Permit** | | | | | |
| SYJS0370 | SYJS: Request for Disposal Site&Get Permit | 24 | 05JAN10A | 05FEB10 | 38 |
| **Diaphragm Wall** | | | | | |
| SYJS0263 | SYJS: Excavate 1st Panel to Formation Level | 12 | 04JAN10A | 21JAN10 | 80 |
| SYJS0265 | SYJS: 1st Panel Desanding & Preparation Works | 5 | 22JAN10 | 27JAN10 | 0 |
| SYJS0267 | SYJS: 1st Panel Rebar Cage Installation | 4 | 28JAN10 | 01FEB10 | 0 |
| SYJS0269 | SYJS: 1st Panel Concreting Works | 1 | 02FEB10 | 02FEB10 | 0 |
| SYJS0271 | SYJS: Excavate 2nd Panel to Formation Level | 12 | 06JAN10A | 02FEB10 | 60 |
| SYJS0273 | SYJS: 2nd Panel Desanding & Preparation Works | 5 | 03FEB10 | 08FEB10 | 0 |
| SYJS0275 | SYJS: 2nd Panel Rebar Cage Installation | 4 | 09FEB10 | 12FEB10 | 0 |
| SYJS0277 | SYJS: 2nd Panel Concreting Works | 1 | 13FEB10 | 13FEB10 | 0 |
| SYJS0279 | SYJS: Excavate 3rd Panel to Formation Level | 12 | 18FEB10 | 03MAR10 | 0 |
| SYJS0281 | SYJS: 3rd Panel Desanding & Preparation Works | 5 | 04MAR10 | 09MAR10 | 0 |
| SYJS0283 | SYJS: 3rd Panel Rebar Cage Installation | 4 | 10MAR10 | 13MAR10 | 0 |
| SYJS0285 | SYJS: 3rd Panel Concreting Works | 1 | 15MAR10 | 15MAR10 | 0 |
| SYJS0287 | SYJS: Excavate 4th Panel to Formation Level | 12 | 16MAR10 | 29MAR10 | 0 |
| SYJS0289 | SYJS: 4th Panel Desanding & Preparation Works | 4 | 30MAR10 | 02APR10 | 0 |
| SYJS0291 | SYJS: 4th Panel Rebar Cage Installation | 3 | 03APR10 | 07APR10 | 0 |
| SYJS0293 | SYJS: 4th Panel Concreting Works | 1 | 08APR10 | 08APR10 | 0 |
| SYJS0296 | SYJS: Excavate 5th Panel to Formation Level | 10 | 09APR10 | 20APR10 | 0 |
| SYJS0298 | SYJS: 5th Panel Desanding & Preparation Works | 4 | 21APR10 | 24APR10 | 0 |
| SYJS0301 | SYJS: 5th Panel Rebar Cage Installation | 2 | 26APR10 | 27APR10 | 0 |
| SYJS0302 | SYJS: 5th Panel Concreting Works | 1 | 28APR10 | 28APR10 | 0 |
| SYJS0304 | SYJS: Excavate 6th Panel to Formation Level | 10 | 29APR10 | 11MAY10 | 0 |
| SYJS0306 | SYJS: 6th Panel Desanding & Preparation Works | 4 | 12MAY10 | 15MAY10 | 0 |
| SYJS0308 | SYJS: 6th Panel Rebar Cage Installation | 2 | 17MAY10 | 18MAY10 | 0 |
| SYJS0312 | SYJS: Excavate 7th Panel to Formation Level | 10 | 20MAY10 | 31MAY10 | 0 |
| SYJS0313 | SYJS: 6th Panel Concreting Works | 1 | 19MAY10 | 19MAY10 | 0 |
| SYJS0314 | SYJS: 7th Panel Desanding & Preparation Works | 4 | 01JUN10 | 04JUN10 | 0 |
| SYJS0316 | SYJS: 7th Panel Rebar Cage Installation | 2 | 05JUN10 | 07JUN10 | 0 |
| SYJS0318 | SYJS: 7th Panel Concreting Works | 1 | 08JUN10 | 08JUN10 | 0 |
| SYJS0321 | SYJS: Excavate 8th Panel to Formation Level | 10 | 09JUN10 | 21JUN10 | 0 |
| SYJS0322 | SYJS: 8th Panel Desanding & Preparation Works | 4 | 22JUN10 | 25JUN10 | 0 |
| SYJS0323 | SYJS: Grouting Works Phase 1 | 54 | 26JUN10 | 28AUG10 | 0 |
| SYJS0324 | SYJS: 8th Panel Rebar Cage Installation | 2 | 26JUN10 | 28JUN10 | 0 |
| SYJS0326 | SYJS: 8th Panel Concreting Works | 1 | 29JUN10 | 29JUN10 | 0 |
| SYJS0327 | SYJS: Excavate 9th Panel to Formation Level | 10 | 30JUN10 | 12JUL10 | 0 |
| SYJS0329 | SYJS: 9th Panel Desanding & Preparation Works | 4 | 13JUL10 | 16JUL10 | 0 |
| SYJS0331 | SYJS: 9th Panel Rebar Cage Installation | 2 | 17JUL10 | 19JUL10 | 0 |
| SYJS0333 | SYJS: 9th Panel Concreting Works | 1 | 20JUL10 | 20JUL10 | 0 |
| SYJS0335 | SYJS: Excavate 10th Panel to Formation Level | 10 | 21JUL10 | 31JUL10 | 0 |
| SYJS0337 | SYJS: 10th Panel Desanding & Preparation Works | 4 | 02AUG10 | 05AUG10 | 0 |
| SYJS0339 | SYJS: 10th Panel Rebar Cage Installation | 2 | 06AUG10 | 07AUG10 | 0 |
| SYJS0341 | SYJS: 10th Panel Concreting Works | 1 | 09AUG10 | 09AUG10 | 0 |
| SYJS0343 | SYJS: Excavate 11th Panel to Formation Level | 10 | 10AUG10 | 20AUG10 | 0 |
| SYJS0345 | SYJS: 11th Panel Desanding & Preparation Works | 4 | 21AUG10 | 25AUG10 | 0 |
| SYJS0347 | SYJS: 11th Panel Rebar Cage Installation | 2 | 26AUG10 | 27AUG10 | 0 |
| SYJS0349 | SYJS: 11th Panel Concreting Works | 1 | 28AUG10 | 28AUG10 | 0 |
| SYJS0351 | SYJS: Excavate 12th Panel to Formation Level | 10 | 30AUG10 | 09SEP10 | 0 |
| SYJS0352 | SYJS: Grouting Works Phase 2 | 54 | 30AUG10 | 03NOV10 | 0 |
| SYJS0353 | SYJS: 12th Panel Desanding & Preparation Works | 4 | 10SEP10 | 14SEP10 | 0 |
| SYJS0355 | SYJS: 12th Panel Rebar Cage Installation | 2 | 15SEP10 | 16SEP10 | 0 |
| SYJS0357 | SYJS: 12th Panel Concreting Works | 1 | 17SEP10 | 17SEP10 | 0 |
| SYJS0359 | SYJS: Excavate 13th Panel to Formation Level | 10 | 18SEP10 | 30SEP10 | 0 |
| SYJS0361 | SYJS: 13th Panel Desanding & Preparation Works | 4 | 02OCT10 | 06OCT10 | 0 |
| SYJS0365 | SYJS: 13th Panel Concreting Works | 1 | 09OCT10 | 09OCT10 | 0 |
| SYJS0367 | SYJS: 13th Panel Rebar Cage Installation | 2 | 07OCT10 | 08OCT10 | 0 |
| SYJS0368 | SYJS: Excavate 14th Panel to Formation Level | 10 | 11OCT10 | 22OCT10 | 0 |
| SYJS0369 | SYJS: 14th Panel Desanding & Preparation Works | 4 | 23OCT10 | 27OCT10 | 0 |
| SYJS0371 | SYJS: 14th Panel Rebar Cage Installation | 2 | 28OCT10 | 29OCT10 | 0 |
| SYJS0373 | SYJS: 14th Panel Concreting Works | 1 | 30OCT10 | 30OCT10 | 0 |

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|---|---|
| Start Date | 31JUL09 |
| Finish Date | 15JAN15 |
| Data Date | 20JAN10 |
| Run Date | 01FEB10 10:30 |

Early Bar
Progress Bar
Critical Activity



WPU7 Sheet 1 of 2

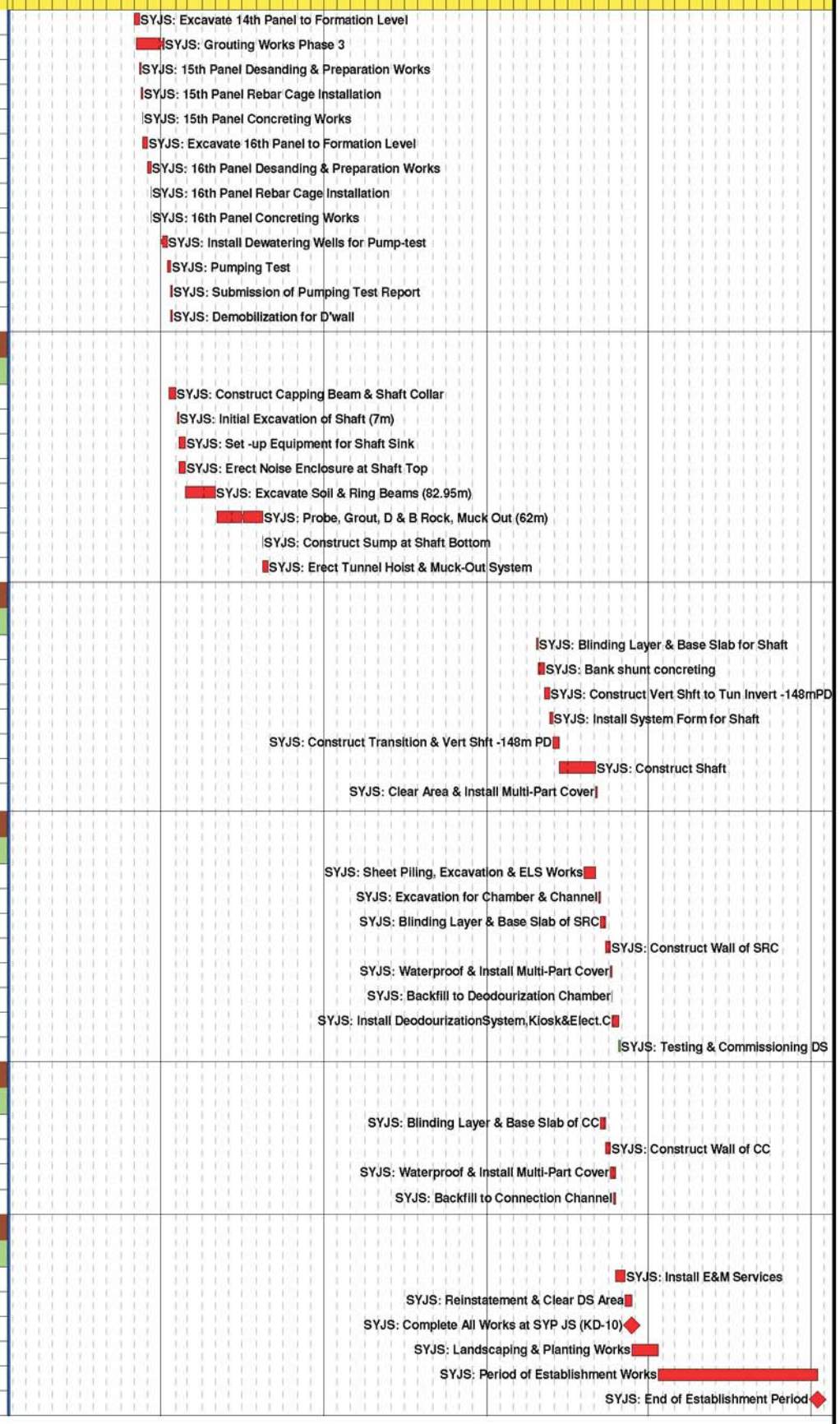
**Habour Area Treatment Scheme Stage 2A**
**Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island**
**Programme**

**Annex F8 Construction Programme for the Project**

Gammon

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish | % Comp |
|---|---|---|---|---|---|
| SYJS0375 | SYJS: Excavate 14th Panel to Formation Level | 10 | 01NOV10 | 11NOV10 | 0 |
| SYJS0376 | SYJS: Grouting Works Phase 3 | 52 | 04NOV10 | 05JAN11 | 0 |
| SYJS0377 | SYJS: 15th Panel Desanding & Preparation Works | 4 | 12NOV10 | 16NOV10 | 0 |
| SYJS0379 | SYJS: 15th Panel Rebar Cage Installation | 2 | 17NOV10 | 18NOV10 | 0 |
| SYJS0381 | SYJS: 15th Panel Concreting Works | 1 | 19NOV10 | 19NOV10 | 0 |
| SYJS0383 | SYJS: Excavate 16th Panel to Formation Level | 10 | 20NOV10 | 01DEC10 | 0 |
| SYJS0385 | SYJS: 16th Panel Desanding & Preparation Works | 4 | 02DEC10 | 06DEC10 | 0 |
| SYJS0387 | SYJS: 16th Panel Rebar Cage Installation | 2 | 07DEC10 | 08DEC10 | 0 |
| SYJS0389 | SYJS: 16th Panel Concreting Works | 1 | 09DEC10 | 09DEC10 | 0 |
| SYJS0392 | SYJS: Install Dewatering Wells for Pump-test | 12 | 29DEC10 | 12JAN11 | 0 |
| SYJS0394 | SYJS: Pumping Test | 6 | 13JAN11 | 19JAN11 | 0 |
| SYJS0397 | SYJS: Submission of Pumping Test Report | 6 | 20JAN11 | 26JAN11 | 0 |
| SYJS0411 | SYJS: Demobilization for D'wall | 6 | 20JAN11 | 26JAN11 | 0 |
| **Shaft Excavation** | | | | | |
| SYJS0500 | SYJS: Construct Capping Beam & Shaft Collar | 14 | 18JAN11 | 02FEB11 | 0 |
| SYJS0510 | SYJS: Initial Excavation of Shaft (7m) | 4 | 07FEB11 | 10FEB11 | 0 |
| SYJS0520 | SYJS: Set -up Equipment for Shaft Sink | 12 | 11FEB11 | 24FEB11 | 0 |
| SYJS0522 | SYJS: Erect Noise Enclosure at Shaft Top | 12 | 11FEB11 | 24FEB11 | 0 |
| SYJS0530 | SYJS: Excavate Soil & Ring Beams (82.95m) | 54 | 25FEB11 | 29APR11 | 0 |
| SYJS0575 | SYJS: Probe, Grout, D & B Rock, Muck Out (62m) | 85 | 06MAY11 | 15AUG11 | 0 |
| SYJS0635 | SYJS: Construct Sump at Shaft Bottom | 2 | 16AUG11 | 17AUG11 | 0 |
| SYJS0665 | SYJS: Erect Tunnel Hoist & Muck-Out System | 10 | 18AUG11 | 29AUG11 | 0 |
| **Shaft Construction** | | | | | |
| SYJS0835 | SYJS: Blinding Layer & Base Slab for Shaft | 4 | 23APR13* | 26APR13 | 0 |
| SYJS0840 | SYJS: Bank shunt concreting | 12 | 27APR13 | 11MAY13 | 0 |
| SYJS0865 | SYJS: Construct Vert Shft to Tun Invert -148mPD | 9 | 13MAY13 | 22MAY13 | 0 |
| SYJS0885 | SYJS: Install System Form for Shaft | 6 | 23MAY13 | 29MAY13 | 0 |
| SYJS0925 | SYJS: Construct Transition & Vert Shft -148m PD | 12 | 30MAY13 | 13JUN13 | 0 |
| SYJS0930 | SYJS: Construct Shaft | 70 | 14JUN13 | 04SEP13 | 0 |
| SYJS1055 | SYJS: Clear Area & Install Multi-Part Cover | 3 | 05SEP13 | 07SEP13 | 0 |
| **Deodourization Chamber** | | | | | |
| SYJS1463 | SYJS: Sheet Piling, Excavation & ELS Works | 24 | 08AUG13 | 04SEP13 | 0 |
| SYJS1465 | SYJS: Excavation for Chamber & Channel | 6 | 09SEP13 | 14SEP13 | 0 |
| SYJS1475 | SYJS: Blinding Layer & Base Slab of SRC | 8 | 16SEP13 | 25SEP13 | 0 |
| SYJS1485 | SYJS: Construct Wall of SRC | 8 | 26SEP13 | 05OCT13 | 0 |
| SYJS1495 | SYJS: Waterproof & Install Multi-Part Cover | 5 | 07OCT13 | 11OCT13 | 0 |
| SYJS1505 | SYJS: Backfill to Deodourization Chamber | 3 | 09OCT13 | 11OCT13 | 0 |
| SYJS1555 | SYJS: Install DeodourizationSystem,Kiosk&Elect.C | 14 | 09OCT13 | 25OCT13 | 0 |
| SYJS1565 | SYJS: Testing & Commissioning DS | 3 | 26OCT13 | 29OCT13 | 0 |
| **Connection Channel** | | | | | |
| SYJS1515 | SYJS: Blinding Layer & Base Slab of CC | 6 | 16SEP13 | 23SEP13 | 0 |
| SYJS1525 | SYJS: Construct Wall of CC | 9 | 24SEP13 | 04OCT13 | 0 |
| SYJS1535 | SYJS: Waterproof & Install Multi-Part Cover | 6 | 08OCT13 | 15OCT13 | 0 |
| SYJS1545 | SYJS: Backfill to Connection Channel | 3 | 15OCT13 | 17OCT13 | 0 |
| **Miscellaneous Works** | | | | | |
| SYJS2010 | SYJS: Install E&M Services | 18 | 18OCT13 | 07NOV13 | 0 |
| SYJS2020 | SYJS: Reinstatement & Clear DS Area | 12 | 08NOV13 | 21NOV13 | 0 |
| SYJS2025 | SYJS: Complete All Works at SYP JS (KD-10) | 0 | | 21NOV13 | 0 |
| SYJS2030 | SYJS: Landscaping & Planting Works | 60 | 22NOV13* | 20JAN14 | 0 |
| SYJS2040 | SYJS: Period of Establishment Works | 360 | 21JAN14 | 15JAN15 | 0 |
| SYJS2050 | SYJS: End of Establishment Period | 0 | | 15JAN15 | 0 |

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| Start Date | 31JUL09 |
| Finish Date | 15JAN15 |
| Data Date | 20JAN10 |
| Run Date | 01FEB10 10:30 |



Early Bar
Progress Bar
Critical Activity

WPU7 Sheet 2 of 2

**Habour Area Treatment Scheme Stage 2A**
**Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island**
**Programme**

**Annex F8 Construction Programme for the Project**

Gammon

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |
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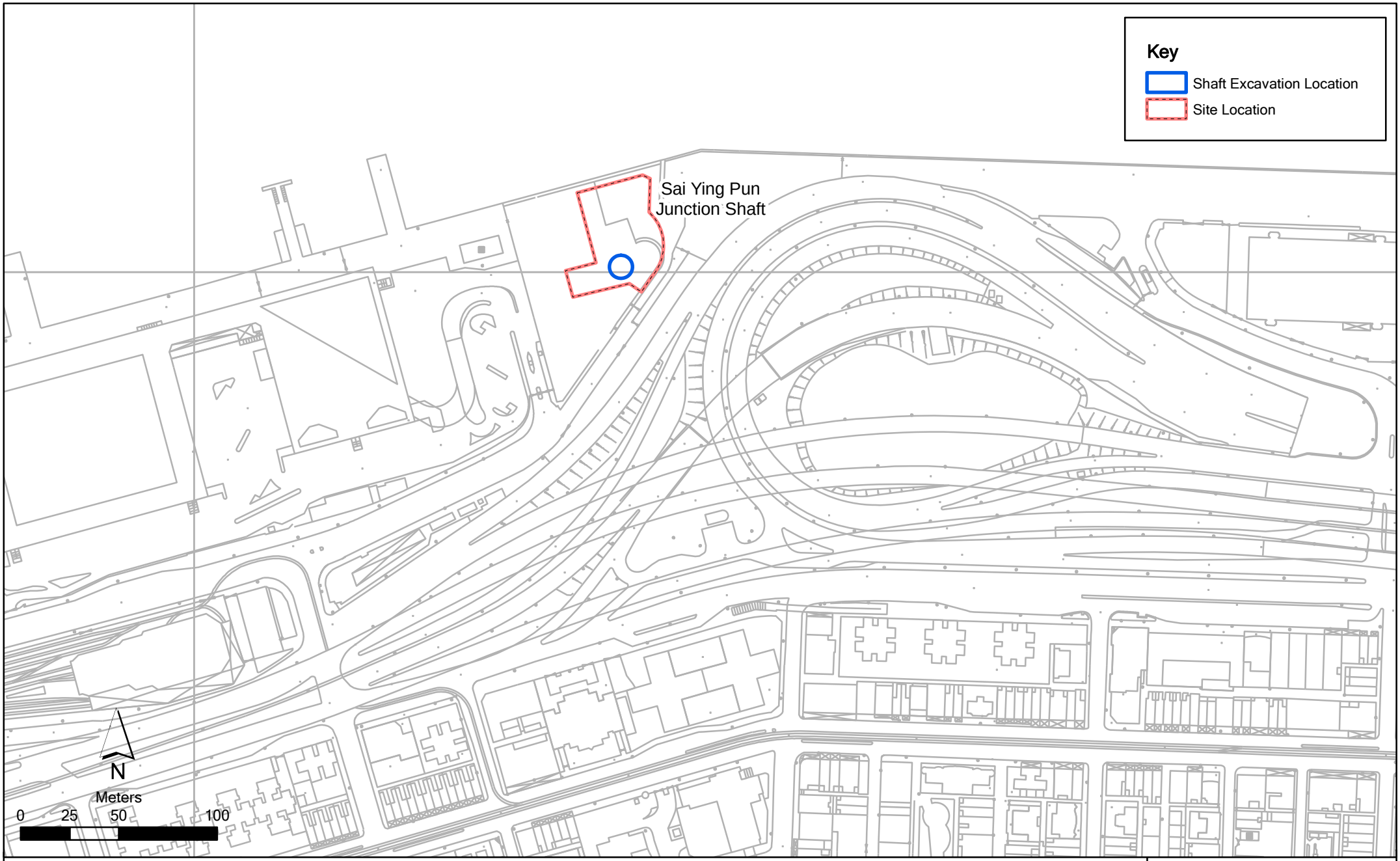
Annex F

# Sai Ying Pun Junction Shaft



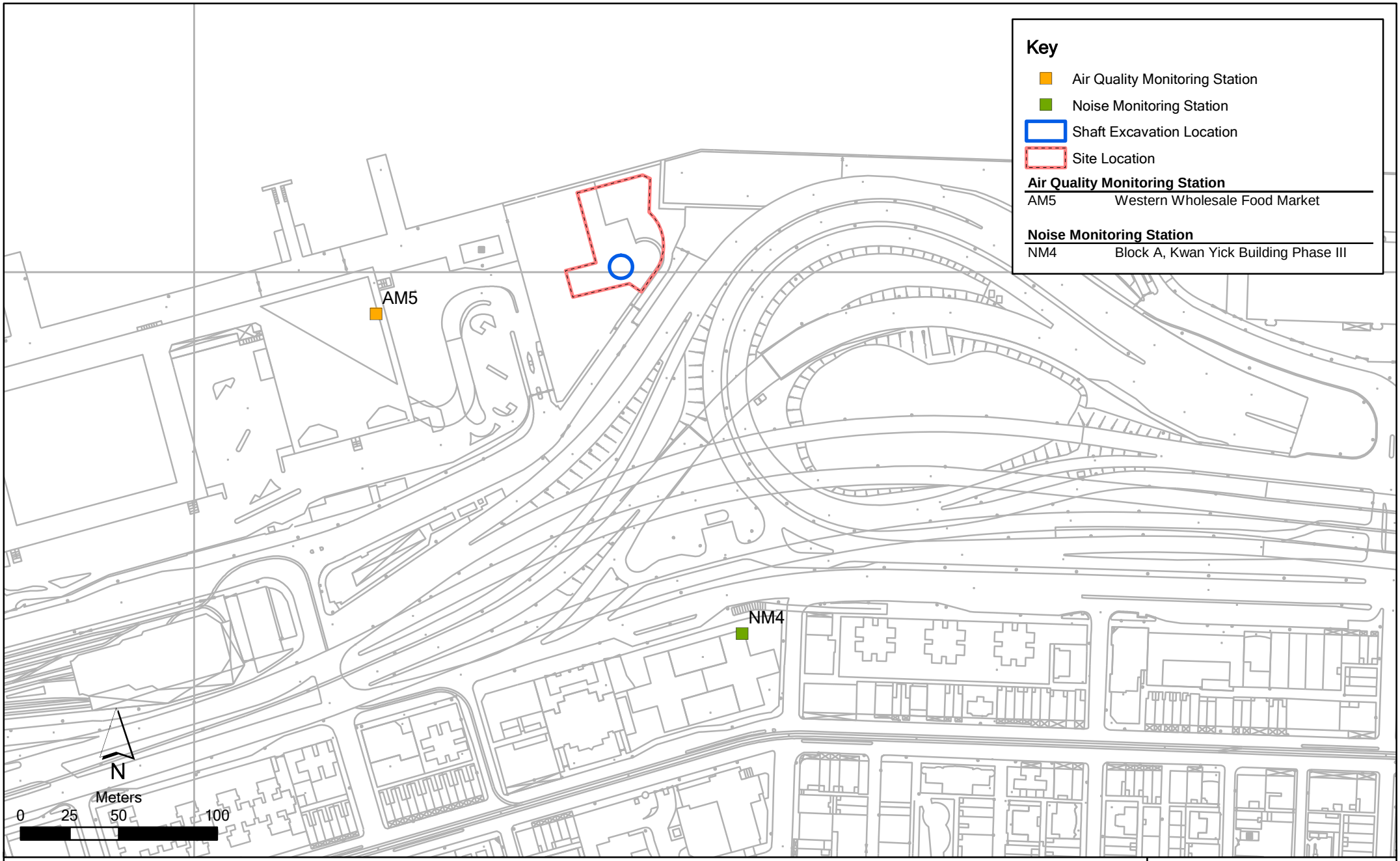

Annex F1

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
*Construction Site Locations at Sai Ying Pun*

File: EM&A and proposed station\0104887_Sai Ying Pun.mxd
Date: 03/03/2010

**Environmental Resources Management**

ERM




Annex F2

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
*Impact Air Quality & Noise Monitoring Stations (Fung Mat Road)*

File: EM&A and proposed station\
0104887_Sai Ting Pun_NMAM.mxd
Date: 03/03/2010

**Environmental Resources Management**

ERM

## Annex F3 Monitoring Schedule of the Reporting Month and Next Month

**DC/2007/23**
**Harbour Area Treatment Scheme Stage 2A**
**Construction of Sewage Conveyance System from North Point to Stonecutters Island**
**Impact Construction Air Quality Monitoring Schedule ***

**AM5 - Western Wholesale Food Market**
**Monitoring Month : August 2012**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | 01-Aug | 02-Aug | 03-Aug | 04-Aug |
| | | | | | 1-hr and 24-hr Monitoring | |
| 05-Aug | 06-Aug | 07-Aug | 08-Aug | 09-Aug | 10-Aug | 11-Aug |
| | | 1-hr and 24-hr Monitoring | | | | |
| 12-Aug | 13-Aug | 14-Aug | 15-Aug | 16-Aug | 17-Aug | 18-Aug |
| | 1-hr and 24-hr Monitoring | | | | 1-hr and 24-hr Monitoring | |
| 19-Aug | 20-Aug | 21-Aug | 22-Aug | 23-Aug | 24-Aug | 25-Aug |
| | | | | 1-hr and 24-hr Monitoring | | |
| 26-Aug | 27-Aug | 28-Aug | 29-Aug | 30-Aug | 31-Aug | |
| | | | 1-hr and 24-hr Monitoring | | | |

* Prepared by Contract No. DC/2007/24 Harbour Area Treatment Scheme Stage 2A (HATS 2A) Construction of Sewage Conveyance System from Aberdeen to Sai Ying Pun

## Monitoring Month : September 2012

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | | | | 01-Sep |
| | | | | | | |
| 02-Sep | 03-Sep | 04-Sep | 05-Sep | 06-Sep | 07-Sep | 08-Sep |
| | | 1-hr and 24-hr Monitoring | | | | |
| 09-Sep | 10-Sep | 11-Sep | 12-Sep | 13-Sep | 14-Sep | 15-Sep |
| | 1-hr and 24-hr Monitoring | | | | 1-hr and 24-hr Monitoring | |
| 16-Sep | 17-Sep | 18-Sep | 19-Sep | 20-Sep | 21-Sep | 22-Sep |
| | | | | 1-hr and 24-hr Monitoring | | |
| 23-Sep | 24-Sep | 25-Sep | 26-Sep | 27-Sep | 28-Sep | 29-Sep |
| | | 1-hr and 24-hr Monitoring | | | 1-hr and 24-hr Monitoring | |
| 30-Sep | | | | | | |
| | | | | | | |

# Annex F3 Monitoring Schedule of the Reporting Month and Next Month

**DC/2007/23**
**Harbour Area Treatment Scheme Stage 2A**
**Construction of Sewage Conveyance System from North Point to Stonecutters Island**
**Impact Construction Noise Quality Monitoring Schedule**

**NM4 - Block A, Kwan Yick Building Phase III**
**Monitoring Month : August 2012**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | 01-Aug | 02-Aug | 03-Aug | 04-Aug |
| | | | | | | |
| 05-Aug | 06-Aug | 07-Aug | 08-Aug | 09-Aug | 10-Aug | 11-Aug |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | | | Noise Monitoring | |
| 12-Aug | 13-Aug | 14-Aug | 15-Aug | 16-Aug | 17-Aug | 18-Aug |
| | | Noise Monitoring (evening time) | | Noise Monitoring | | |
| 19-Aug | 20-Aug | 21-Aug | 22-Aug | 23-Aug | 24-Aug | 25-Aug |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | Noise Monitoring | | | |
| 26-Aug | 27-Aug | 28-Aug | 29-Aug | 30-Aug | 31-Aug | |
| | | Noise Monitoring (Day time and evening time) | | | | |

## Monitoring Month : September 2012

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | | | | 01-Sep |
| | | | | | | |
| 02-Sep | 03-Sep | 04-Sep | 05-Sep | 06-Sep | 07-Sep | 08-Sep |
| Noise Monitoring (during daytime of sundays/ public holidays) | Noise Monitoring | | | | | |
| 09-Sep | 10-Sep | 11-Sep | 12-Sep | 13-Sep | 14-Sep | 15-Sep |
| | | Noise Monitoring (evening time) | | | Noise Monitoring | |
| 16-Sep | 17-Sep | 18-Sep | 19-Sep | 20-Sep | 21-Sep | 22-Sep |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | | Noise Monitoring | | |
| 23-Sep | 24-Sep | 25-Sep | 26-Sep | 27-Sep | 28-Sep | 29-Sep |
| | | Noise Monitoring (evening time) | Noise Monitoring | | | |
| 30-Sep | | | | | | |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | | | | |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| *Construction Phase* | | | |
| Air Quality | The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimize construction dust impact. Control measures relevant to this Project are listed below:<br>• skip hoist for material transport should be totally enclosed by impervious sheeting;<br>• every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site;<br>• the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;<br>• where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit;<br>• every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides;<br>• regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather;<br>• site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines;<br>• open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible;<br>• tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and<br>• instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Air Quality | The following watering measures for specific site would be required to control the fugitive dust impacts:<br>• watering twice per day within the worksites at Fung Mat Road Site;<br>• the barging points should be continuous watering throughout the whole unloading process. | All work sites / during construction | √ |
| *Operational Phase* | | | |
| Air Quality | Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.<br>• Screens should be cleaned regularly to remove any accumulated organic debris<br>• Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit<br>• Grit and screened materials should be transferred to closed containers to minimize odour escape<br>• Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics<br>• Skim and remove floating solids and grease from primary clarifiers regularly<br>• Frequent sludge withdrawal from tanks is necessary to prevent the production of gases<br>• Sludge cake should be transferred to closed containers<br>• Sludge containers should be flushed with water regularly | All work sites / during construction | NA. Measures not required until commencement of operational phase |
| Air Quality | Commissioning tests for all deodorization system should be included in the Design and Construction Contract Document. | All PTW and SCISTW/ during operational phase | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |
| Noise | Use of quiet PME, movable barriers and acoustic mats | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Noise | Good Site Practice:<br>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program;<br>• silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program;<br>• mobile plant, if any, should be sited as far from NSRs as possible;<br>• machines and plant (such as trucks) 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 should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and<br>• material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities;<br><br>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented. | All work sites / during construction | √ |
| *Construction Phase* | | | |
| Water Quality | Construction Site Runoff and General Construction Activities<br>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable. | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Effluent Discharge<br><br>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes. | All work sites / during construction | √ |
| Water Quality | Accidental Spillage of Chemicals<br><br>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes. | All work sites / during construction | √ |
| Water Quality | Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges. | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.<br>General requirements are given as follows:<br>• Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.<br>• Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.<br>• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Construction Works in Close Proximity of Storm Drains or Seafront<br><br>To minimize the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.<br>• The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment.<br>• Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works.<br>• Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.<br>• Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers.<br>• Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.<br>• Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| *Operational Phase* | | | |
| Water Quality | Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimize the chance of emergency discharge. | SCISTW and all the Stage 2 PTWs / Operation Stage | NA. Measures not required until commencement of operational phase |
| Water Quality | Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs. | Stage 2 PTWs / Operation Stage | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |
| Waste | Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimize the use of timber formwork. | All work sites / during the construction period | √ |
| Waste | All waste materials should be segregated into categories covering:<br>• excavated materials suitable for reuse on-site;<br>• excavated materials suitable for public filling facilities;<br>• remaining C&D waste for landfill;<br>• chemical waste; and<br>• general refuse for landfill. | All work sites / during the construction period | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Recommendations to achieve waste reduction include:<br>• Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals;<br>• Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;<br>• Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force;<br>• Any unused chemicals or those with remaining functional capacity shall be recycled; and<br>• Proper storage and site practices to minimise the potential for damage or contamination of construction materials. | All work sites / during the construction period | √ |
| Waste | Recommendations for good site practices during construction activities include:-<br>• Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site<br>• Training of site personnel in proper waste management and chemical waste handling procedures<br>• Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials.<br>• Provision of sufficient waste disposal points and regular collection of waste<br>• Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors | All work sites / during the construction period | √ |
| Waste | Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage". | All work sites / during the construction period | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected. | All work sites / during the construction period | √ |
| Waste | General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill. | All work sites / during the construction period | √ |
| Waste | The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials. | All work sites / during the construction period | √ |
| Waste | If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. | All work sites / during the construction period | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results. | All work sites / during the construction period | √ |
| *Construction Phase* | | | |
| Landscape & Visual | • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.<br>• Existing trees to be retained on site should be carefully protected during construction.<br>• Trees unavoidably affected by the works should be transplanted where practical.<br>• Compensatory tree planting should be provided to compensate for felled trees.<br>• Control of night-time lighting.<br>• Erection of decorative screen hoarding compatible with the surrounding setting. | All the works areas, PTWs and SCISTW/ during the construction period | √ |
| *Operational Phase* | • | | |
| Landscape & Visual | • Aesthetic design of the façade of PTW and associated structures to harmonize with the surrounding settings.<br>• Shrub and Climbing Plants to soften proposed structures / Roof Greening.<br>• Buffer Tree and Shrub Planting to screen proposed associated structures.<br>• Reinstated of disturbed area | All the works areas, PTWs and SCISTW/ during the construction period | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Cultural Heritage | The construction vibration control limit (ppv of 25mm/s) shall be strictly followed. | Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures | NA. Vibration monitoring has not been launched during the reporting period. |
| | Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme | Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures | NA. Vibration monitoring has not been launched during the reporting period. |

Remark:
√ Compliance of Mitigation Measures
<> Compliance of Mitigation but need improvement
x Non-compliance of Mitigation Measures
Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
NA Not Applicable

## Annex F5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

**Station AM5**

| Date | Start Time | Finish Time | Weather | TSP Concentration ($\mu g/m^3$) | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) | Site Conditions / Observations / Remarks | Temperature (℃) | Wind Speed * (m/s) | Sampler ID | Filter ID |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 03-Aug-12 | 10:12 | 11:12 | Haze | 303 | 331.9 | 500 | Loading and rock out | 31 | <5 | Western Wholesale Food Market | 1129 |
| | 11:17 | 12:17 | Haze | 248 | 331.9 | 500 | Loading and rock out | 31 | <5 | Western Wholesale Food Market | 1130 |
| | 13:00 | 14:00 | Haze | 218 | 331.9 | 500 | Loading and rock out | 31 | <5 | Western Wholesale Food Market | 1131 |
| 07-Aug-12 | 13:16 | 14:16 | Haze | 226 | 331.9 | 500 | Operation the grab truck and mucking | 30 | <5 | Western Wholesale Food Market | 1135 |
| | 14:22 | 15:22 | Haze | 251 | 331.9 | 500 | Operation the grab truck and mucking | 30 | <5 | Western Wholesale Food Market | 1137 |
| | 15:32 | 16:32 | Haze | 229 | 331.9 | 500 | Operation the grab truck and mucking | 30 | <5 | Western Wholesale Food Market | 1138 |
| 13-Aug-12 | 8:00 | 9:00 | Sunny | 201 | 331.9 | 500 | Shotcrete | 27.8 | <5 | Western Wholesale Food Market | 1144 |
| | 14:00 | 15:00 | Sunny | 85 | 331.9 | 500 | Shotcrete | 27.8 | <5 | Western Wholesale Food Market | 1145 |
| | 15:30 | 16:30 | Sunny | 83 | 331.9 | 500 | Shotcrete | 27.8 | <5 | Western Wholesale Food Market | 1146 |
| 17-Aug-12 | 8:00 | 9:00 | Sunny | 64 | 331.9 | 500 | Loading | 28 | <5 | Western Wholesale Food Market | 1152 |
| | 14:00 | 15:00 | Sunny | 56 | 331.9 | 500 | Loading | 28 | <5 | Western Wholesale Food Market | 1153 |
| | 15:30 | 16:30 | Sunny | 41 | 331.9 | 500 | Loading | 28 | <5 | Western Wholesale Food Market | 1154 |
| 23-Aug-12 | 8:00 | 9:00 | Sunny | 151 | 331.9 | 500 | Loading and operation of excavator | 29 | <5 | Western Wholesale Food Market | 1159 |
| | 9:45 | 10:45 | Sunny | 135 | 331.9 | 500 | Loading and operation of excavator | 29 | <5 | Western Wholesale Food Market | 1160 |
| | 11:00 | 12:00 | Sunny | 154 | 331.9 | 500 | Loading and operation of excavator | 29 | <5 | Western Wholesale Food Market | 1161 |
| 29-Aug-12 | 8:00 | 9:00 | Sunny | 92 | 331.9 | 500 | Loading and operation of excavator | 29 | <5 | Western Wholesale Food Market | 1166 |
| | 13:35 | 14:35 | Sunny | 64 | 331.9 | 500 | Loading and operation of excavator | 29 | <5 | Western Wholesale Food Market | 1167 |
| | 15:00 | 16:00 | Sunny | 73 | 331.9 | 500 | Loading and operation of excavator | 29 | <5 | Western Wholesale Food Market | 1168 |
| | | | **Min.** | **41** | | | | | | | |
| | | | **Max.** | **303** | | | | | | | |
| | | | **Average** | **149** | | | | | | | |

* Wind Speed data is presented in the Meteorological Data table

## Annex F5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

**Station AM5**

| Start | | Finish | | Weather | Filter Weight (g) | | Elapsed Time Reading | | Sampling Time | Flow Rate ($m^3$/min) | | | TSP Conc. | Action Level | Limit Level | Observations / Remarks | Sampler | Filter |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Date | Time | | Initial | Final | Initial | Final | (hrs) | Initial | Final | Average | ($\mu g/m^3$) | ($\mu g/m^3$) | ($\mu g/m^3$) | | ID | ID |
| 03-Aug-12 | 14:40 | 04-Aug-12 | 14:40 | Haze | 2.8047 | 3.0078 | 4394.34 | 4418.34 | 24.00 | 1.09 | 1.09 | 1.09 | 129 | 188.5 | 260 | Shotcrete | Western Wholesale Food Market | 1132 |
| 07-Aug-12 | 17:39 | 08-Aug-12 | 17:39 | Haze | 2.7213 | 2.9063 | 4421.36 | 4445.36 | 24.00 | 1.10 | 1.10 | 1.10 | 117 | 188.5 | 260 | Mucking | Western Wholesale Food Market | 1139 |
| 13-Aug-12 | 17:39 | 14-Aug-12 | 17:39 | Sunny | 2.7235 | 2.8055 | 4448.35 | 4472.35 | 24.00 | 1.10 | 1.10 | 1.10 | 52 | 188.5 | 260 | Mucking | Western Wholesale Food Market | 1147 |
| 17-Aug-12 | 17:00 | 18-Aug-12 | 17:00 | Sunny | 2.6988 | 2.7750 | 4475.35 | 4499.35 | 24.00 | 1.10 | 1.10 | 1.10 | 48 | 188.5 | 260 | Rock out and loading | Western Wholesale Food Market | 1155 |
| 23-Aug-12 | 17:00 | 24-Aug-12 | 17:00 | Sunny | 2.6709 | 2.8876 | 4502.35 | 4526.35 | 24.00 | 1.10 | 1.10 | 1.10 | 137 | 188.5 | 260 | Rock out and loading | Western Wholesale Food Market | 1162 |
| 29-Aug-12 | 16:10 | 30-Aug-12 | 16:10 | Sunny | 2.6783 | 2.7486 | 4529.36 | 4553.36 | 24.00 | 1.10 | 1.10 | 1.10 | 44 | 188.5 | 260 | oading and operation of excavato | Western Wholesale Food Market | 1169 |
| | | | | | | | | | | | | **Min.** | **44** | | | | | |
| | | | | | | | | | | | | **Max.** | **137** | | | | | |
| | | | | | | | | | | | | **Average** | **88** | | | | | |

**Meteorological Data Extracted from the Hong Kong Observatory**

| | | King's Park Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) | Average Relative Humiditiy (%) | Total Rainfall (mm) | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 8.0 | W |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 8.0 | W |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 9.5 | W |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 7.0 | S |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 5.0 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 5.5 | W |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 17.5 | E |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 6.3 | W |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 9.5 | W |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 7.1 | W |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 15.3 | N |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | - | W |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 6.8 | W |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

| | | Tsing Yi Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 29 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 9.9 | W |
| 09-08-2012 | Sunny | 30 | 73 | 0.0 | 3.5 | W |
| 10-08-2012 | Fine | 30 | 79 | 7.7 | 11.3 | S |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 7.8 | SE |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 10.0 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 7.4 | SE |
| 16-08-2012 | Cloudy | 30 | 81 | 15.4 | - | - |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 9.1 | S |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 9.0 | SE |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 9.3 | NW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 14.1 | NW |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | - | NW |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 9.4 | SE |
| 31-08-2012 | Sunny | 29 | 87 | 20.4 | - | - |

| | | Kai Tak Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) * | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 9.8 | SW |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 9.3 | W |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 14.9 | SW |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 8.9 | SE |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 8.2 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 11.3 | SE |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 7.5 | SE |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 9.2 | SE |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 11.3 | SW |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 9.0 | SW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 16.5 | NW |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | 7.6 | W |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 11.2 | SW |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

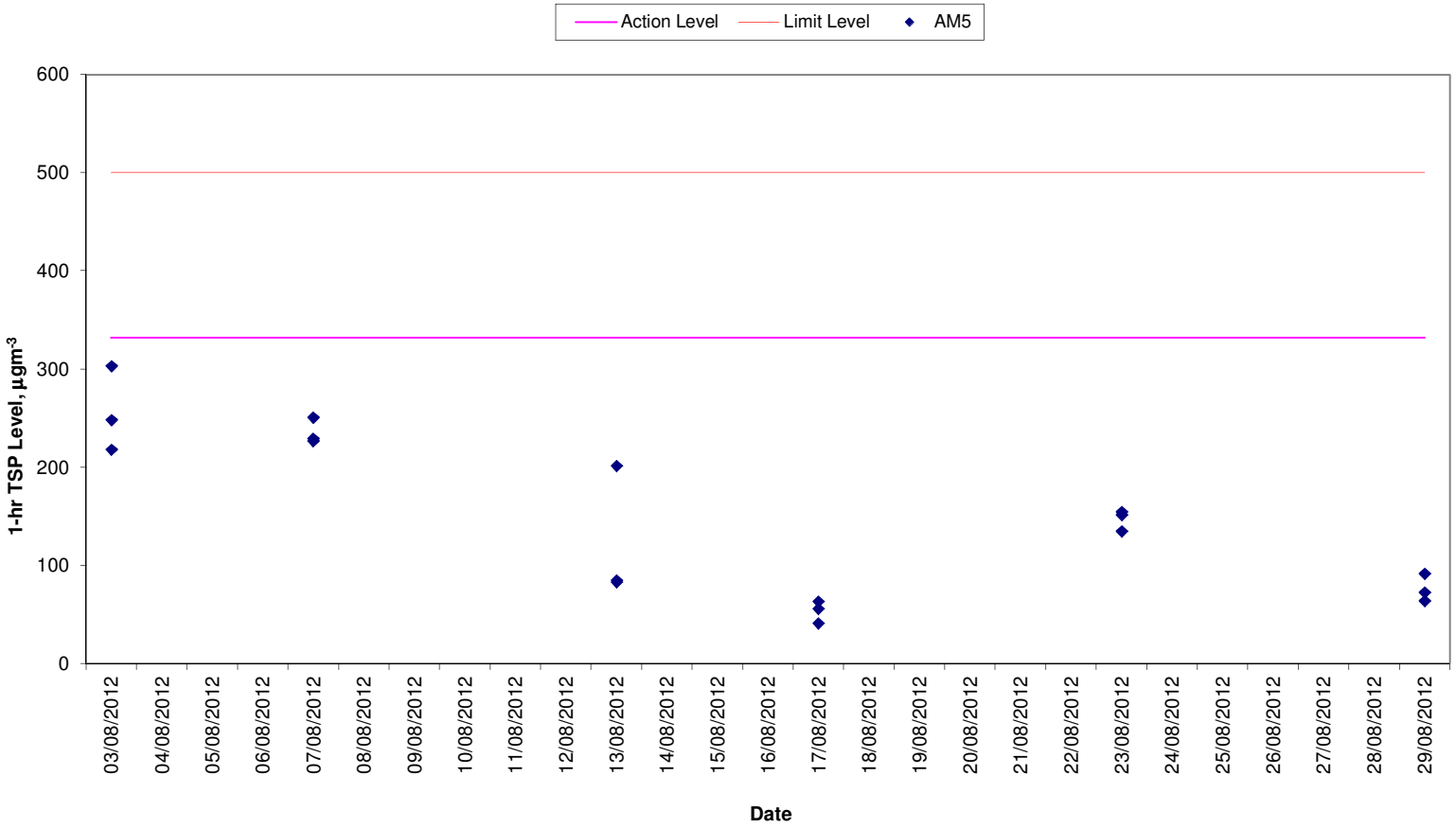
| | | Green Island Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) * | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 14 | S |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 11 | S |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 21 | SW |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 17 | S |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 15 | NE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 12 | S |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 8 | NW |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 13 | SW |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 16 | SW |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 12 | NW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 29 | N |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | 13 | NW |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 15 | S |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

* King's Park's data

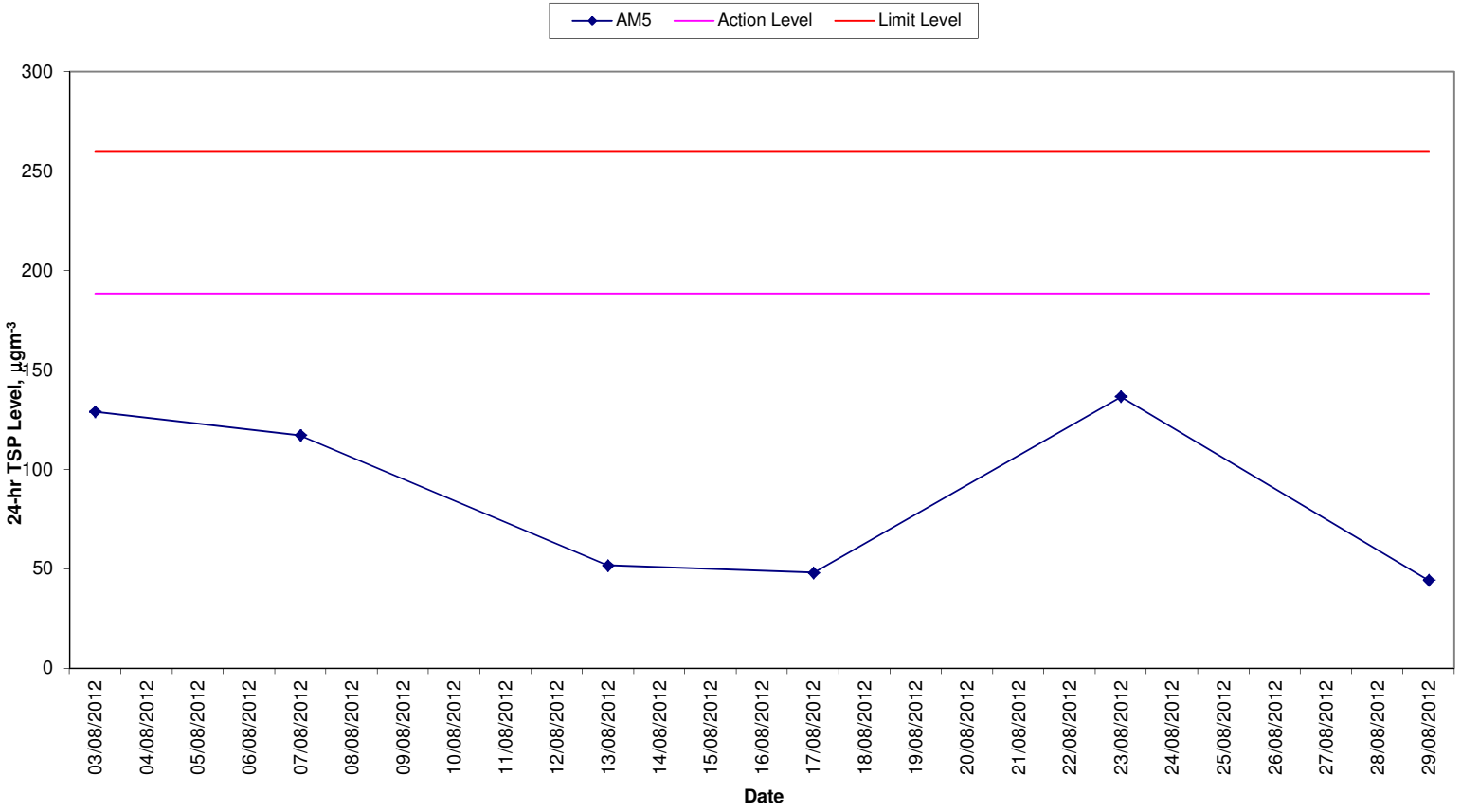
\- Data were not available

\# less than 24 hourly observations per day

**1-hr TSP Levels**
**AM5 (AFCD Western Wholesale Food Market)**



**24-hr TSP Levels**
**AM5 (AFCD Western Wholesale Food Market)**



## Annex F6 Noise Monitoring Results

### Daytime Noise Monitoring Results

**Station NM4**

| Date | Start Time | End Time | Weather | Noise level (dB(A)), 30 min | | | Major Construction Noise Source(s) Observed | Other Noise Source(s) Observed | Remarks | Temp. (℃) | Wind Speed (m/s) | Noise Meter Model / ID | Calibrator Model / ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Leq | L10 | L90 | | | | | | | |
| 10-Aug-12 | 14:30 | 15:00 | Fine | 67.1 | 68.5 | 65.8 | No outdoor construction | Traffic Noise | - | 30 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| 16-Aug-12 | 14:22 | 14:52 | Fine | 67.5 | 68.8 | 66.3 | No outdoor construction | Traffic Noise | - | 29 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| 22-Aug-12 | 10:22 | 10:52 | Cloudy | 66.6 | 68.2 | 65.6 | No outdoor construction | Traffic Noise | - | 30 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| 28-Aug-12 | 14:15 | 14:45 | Sunny | 66.5 | 68.1 | 65.3 | No outdoor construction | Traffic Noise | - | 32 | 0.5 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | | | **Min.** | **66.5** | | | | | | | | | |
| | | | **Max.** | **67.5** | | | | | | | | | |

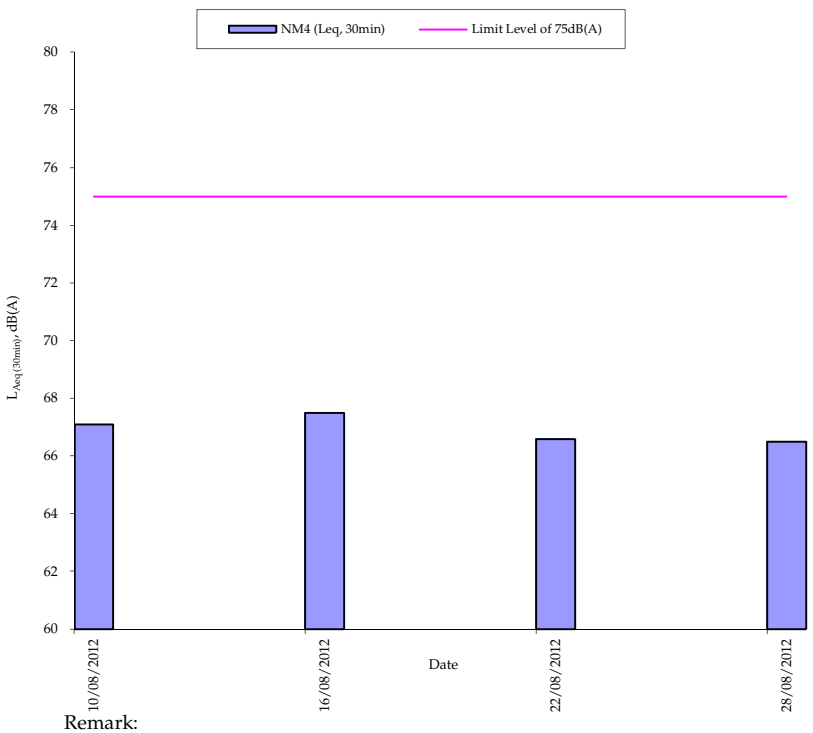
## Annex F6 Noise Monitoring Results

### Restricted Hours Noise Monitoring Results

**Station NM4**

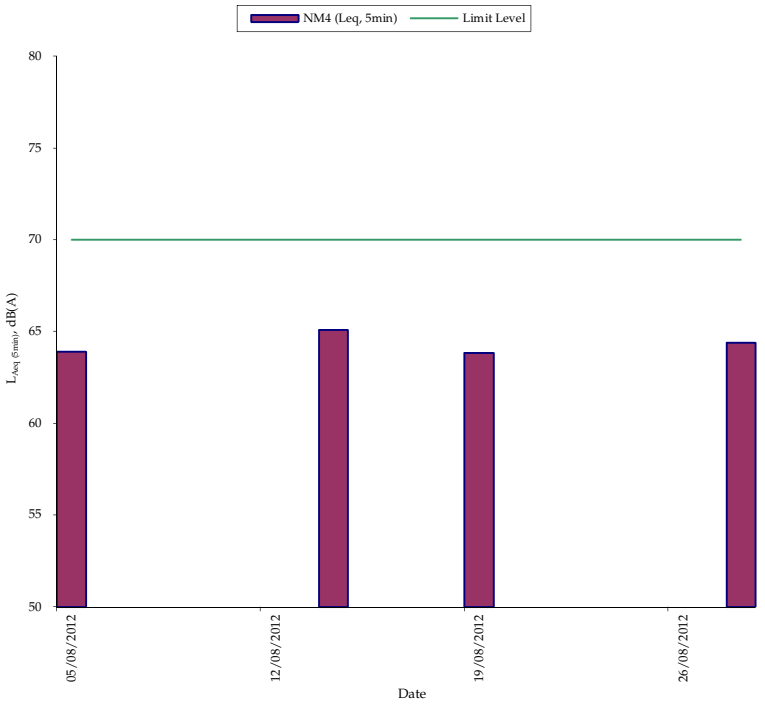
| Date | Start Time | End Time | Weather | Noise level (dB(A)), 5 min | | | Major Construction Noise Source(s) Observed | Other Noise Source(s) Observed | Remarks | Temp. (℃) | Wind Speed (m/s) | Noise Meter Model / ID | Calibrator Model / ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Leq | L10 | L90 | | | | | | | |
| 05-Aug-12 | 10:22 | 10:27 | Fine | 63.8 | 65.6 | 61.0 | No outdoor construction noise | Mainly traffic noise | - | 30 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | 10:27 | 10:32 | Fine | 63.5 | 65.0 | 61.5 | | | - | | | | |
| | 10:32 | 10:37 | Fine | 64.4 | 66.7 | 61.9 | | | - | | | | |
| | 10:22 | 10:37 | Fine | 63.9 | 65.8 | 61.5 | | | - | | | | |
| 14-Aug-12 | 19:37 | 19:42 | Fine | 65.1 | 66.6 | 63.3 | No outdoor construction noise | Mainly traffic noise | - | 28 | 0.4 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | 19:42 | 19:47 | Fine | 64.9 | 66.7 | 62.6 | | | - | | | | |
| | 19:47 | 19:52 | Fine | 65.3 | 67.7 | 62.6 | | | - | | | | |
| | 19:37 | 19:52 | Fine | 65.1 | 67.0 | 62.8 | | | - | | | | |
| 19-Aug-12 | 11:23 | 11:28 | Fine | 63.5 | 64.9 | 61.5 | No outdoor construction noise | Mainly traffic noise | - | 31 | 0.4 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | 11:28 | 11:33 | Fine | 64.1 | 65.5 | 61.7 | | | - | | | | |
| | 11:33 | 11:38 | Fine | 63.9 | 65.6 | 61.6 | | | - | | | | |
| | 11:23 | 11:38 | Fine | 63.8 | 65.3 | 61.6 | | | - | | | | |
| 28-Aug-12 | 19:18 | 19:23 | Fine | 64.3 | 65.8 | 62.5 | No outdoor construction noise | Mainly traffic noise | - | 30 | 0.3 | RION- NL52 (S/N 00710259) | RION - NC73 (S/N 10997142) |
| | 19:23 | 19:28 | Fine | 64.8 | 66.9 | 62.7 | | | - | | | | |
| | 19:28 | 19:33 | Fine | 64.1 | 65.6 | 62.2 | | | - | | | | |
| | 19:18 | 19:33 | Fine | 64.4 | 66.1 | 62.5 | | | - | | | | |
| | | | **Min.** | **63.5** | | | | | | | | | |
| | | | **Max.** | **65.3** | | | | | | | | | |

Normal Weekdays Noise Monitoring Results at NM4 ($L_{eq, 30min}$)




Remark:
- 75dB(A) was adopted as the Limit Level during normal

Restricted Hours Noise Monitoring Results at NM4 ($L_{eq, 5min}$)




Remark:
- 70dB(A) was adopted as the Limit Level during restricted hours in the reporting period
- 55dB(A) was adopted as the Limit Level during night time period

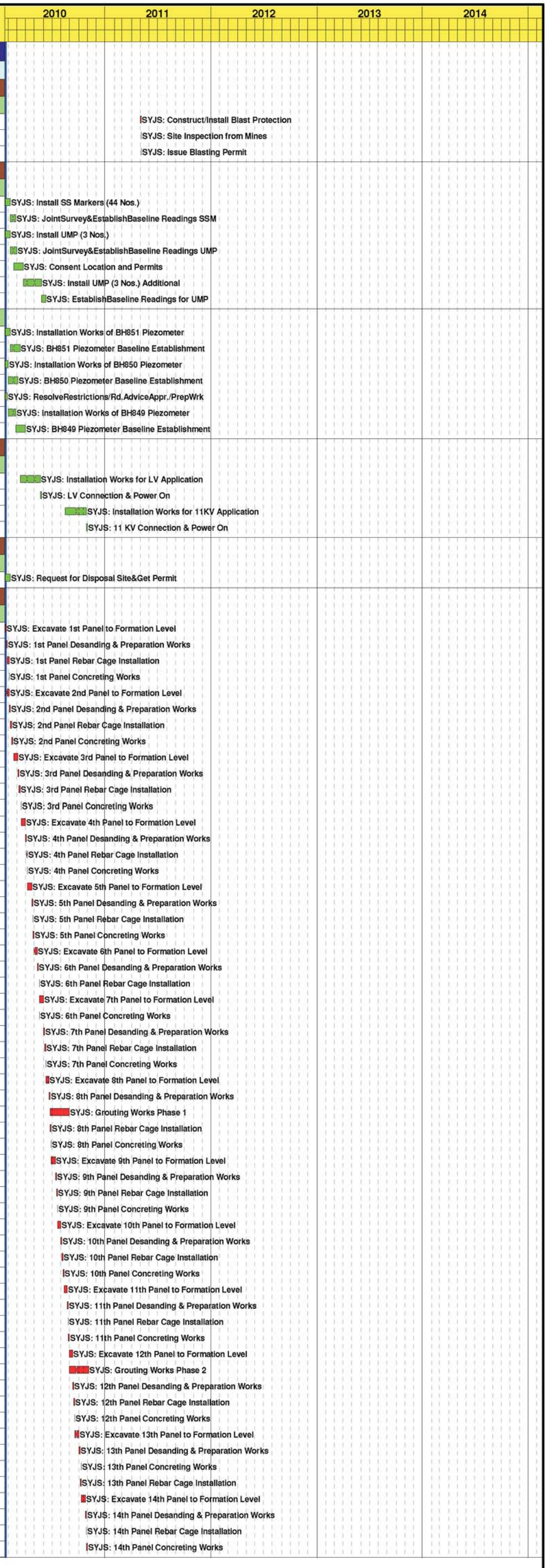
*Annex F7 Cumulative Complaint and Summons/Prosecutions Log*

| Reporting Month | Number of Complaints in Reporting Month | Number of Summons/Prosecutions in Reporting Month |
|---|---|---|
| December 2009 | 0 | 0 |
| January 2010 | 0 | 0 |
| February 2010 | 1 | 0 |
| March 2010 | 0 | 0 |
| April 2010 | 1 | 0 |
| May 2010 | 2 | 0 |
| June 2010 | 0 | 0 |
| July 2010 | 1 | 0 |
| August 2010 | 0 | 0 |
| September 2010 | 0 | 0 |
| October 2010 | 0 | 0 |
| November 2010 | 0 | 0 |
| December 2010 | 0 | 0 |
| January 2011 | 0 | 0 |
| February 2011 | 0 | 0 |
| March 2011 | 0 | 0 |
| April 2011 | 0 | 0 |
| May 2011 | 0 | 0 |

*Annex F7 Cumulative Complaint and Summons/Prosecutions Log*

| Reporting Month | Number of Complaints in Reporting Month | Number of Summons/Prosecutions in Reporting Month |
|---|---|---|
| June 2011 | 0 | 0 |
| July 2011 | 0 | 0 |
| August 2011 | 0 | 0 |
| September 2011 | 0 | 0 |
| October 2011 | 0 | 0 |
| November 2011 | 0 | 0 |
| December 2011 | 0 | 0 |
| January 2012 | 0 | 0 |
| February 2012 | 0 | 0 |
| March 2012 | 0 | 0 |
| April 2012 | 1 | 0 |
| May 2012 | 0 | 0 |
| June 2012 | 0 | 0 |
| July 2012 | 0 | 0 |
| August 2012 | 0 | 0 |
| Overall Total | 6 | 0 |

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish | % Comp |
|---|---|---|---|---|---|
| **HATS Stage 2A - Contract DC/2007/23** | | | | | |
| **Sai Ying Pun Junction/Production Shaft** | | | | | |
| **Preliminaries Works** | | | | | |
| SYJS10115 | SYJS: Construct/Install Blast Protection | 2 | 30APR11 | 03MAY11 | 0 |
| SYJS10120 | SYJS: Site Inspection from Mines | 1 | 04MAY11 | 04MAY11 | 0 |
| SYJS10125 | SYJS: Issue Blasting Permit | 1 | 05MAY11 | 05MAY11 | 0 |
| **EBS, Env. & Geotechnical Instrumentations** | | | | | |
| Markers/UMP's/Others(Same note as Piez.) | | | | | |
| SYJS0617 | SYJS: Install SS Markers (44 Nos.) | 50 | 24OCT09A | 06FEB10 | 68 |
| SYJS0619 | SYJS: JointSurvey&EstablishBaseline Readings SSM | 14 | 08FEB10 | 26FEB10 | 0 |
| SYJS0621 | SYJS: Install UMP (3 Nos.) | 75 | 01SEP09A | 08FEB10 | 78 |
| SYJS0623 | SYJS: JointSurvey&EstablishBaseline Readings UMP | 14 | 09FEB10 | 27FEB10 | 0 |
| SYJS0625 | SYJS: Consent Location and Permits | 30 | 18FEB10 | 24MAR10 | 0 |
| SYJS0627 | SYJS: Install UMP (3 Nos.) Additional | 50 | 25MAR10 | 24MAY10 | 0 |
| SYJS0629 | SYJS: EstablishBaseline Readings for UMP | 14 | 25MAY10 | 09JUN10 | 0 |
| Piezometers(NearbyPTWorPScovered inthisInstalln) | | | | | |
| SYJS0407 | SYJS: Installation Works of BH851 Piezometer | 21 | 14JAN10A | 08FEB10 | 20 |
| SYJS0409 | SYJS: BH851 Piezometer Baseline Establishment | 26 | 09FEB10 | 13MAR10 | 0 |
| SYJS0503 | SYJS: Installation Works of BH850 Piezometer | 21 | 07DEC09A | 29JAN10 | 57 |
| SYJS0507 | SYJS: BH850 Piezometer Baseline Establishment | 26 | 30JAN10 | 04MAR10 | 0 |
| SYJS0601A | SYJS: ResolveRestrictions/Rd.AdviceAppr./PrepWrk | 33 | 07NOV09A | 27JAN10 | 79 |
| SYJS0603 | SYJS: Installation Works of BH849 Piezometer | 21 | 30JAN10 | 26FEB10 | 0 |
| SYJS0607 | SYJS: BH849 Piezometer Baseline Establishment | 26 | 27FEB10 | 29MAR10 | 0 |
| **Electrical & Mechanical Installations** | | | | | |
| SYJS0705 | SYJS: Installation Works for LV Application | 60 | 11MAR10* | 21MAY10 | 0 |
| SYJS0710 | SYJS: LV Connection & Power On | 4 | 22MAY10 | 26MAY10 | 0 |
| SYJS0720 | SYJS: Installation Works for 11KV Application | 60 | 16AUG10* | 27OCT10 | 0 |
| SYJS0725 | SYJS: 11 KV Connection & Power On | 4 | 28OCT10 | 01NOV10 | 0 |
| **Marine Dumping Permit** | | | | | |
| SYJS0370 | SYJS: Request for Disposal Site&Get Permit | 24 | 05JAN10A | 05FEB10 | 38 |
| **Diaphragm Wall** | | | | | |
| SYJS0263 | SYJS: Excavate 1st Panel to Formation Level | 12 | 04JAN10A | 21JAN10 | 80 |
| SYJS0265 | SYJS: 1st Panel Desanding & Preparation Works | 5 | 22JAN10 | 27JAN10 | 0 |
| SYJS0267 | SYJS: 1st Panel Rebar Cage Installation | 4 | 28JAN10 | 01FEB10 | 0 |
| SYJS0269 | SYJS: 1st Panel Concreting Works | 1 | 02FEB10 | 02FEB10 | 0 |
| SYJS0271 | SYJS: Excavate 2nd Panel to Formation Level | 12 | 06JAN10A | 02FEB10 | 60 |
| SYJS0273 | SYJS: 2nd Panel Desanding & Preparation Works | 5 | 03FEB10 | 08FEB10 | 0 |
| SYJS0275 | SYJS: 2nd Panel Rebar Cage Installation | 4 | 09FEB10 | 12FEB10 | 0 |
| SYJS0277 | SYJS: 2nd Panel Concreting Works | 1 | 13FEB10 | 13FEB10 | 0 |
| SYJS0279 | SYJS: Excavate 3rd Panel to Formation Level | 12 | 18FEB10 | 03MAR10 | 0 |
| SYJS0281 | SYJS: 3rd Panel Desanding & Preparation Works | 5 | 04MAR10 | 09MAR10 | 0 |
| SYJS0283 | SYJS: 3rd Panel Rebar Cage Installation | 4 | 10MAR10 | 13MAR10 | 0 |
| SYJS0285 | SYJS: 3rd Panel Concreting Works | 1 | 15MAR10 | 15MAR10 | 0 |
| SYJS0287 | SYJS: Excavate 4th Panel to Formation Level | 12 | 16MAR10 | 29MAR10 | 0 |
| SYJS0289 | SYJS: 4th Panel Desanding & Preparation Works | 4 | 30MAR10 | 02APR10 | 0 |
| SYJS0291 | SYJS: 4th Panel Rebar Cage Installation | 3 | 03APR10 | 07APR10 | 0 |
| SYJS0293 | SYJS: 4th Panel Concreting Works | 1 | 08APR10 | 08APR10 | 0 |
| SYJS0296 | SYJS: Excavate 5th Panel to Formation Level | 10 | 09APR10 | 20APR10 | 0 |
| SYJS0298 | SYJS: 5th Panel Desanding & Preparation Works | 4 | 21APR10 | 24APR10 | 0 |
| SYJS0301 | SYJS: 5th Panel Rebar Cage Installation | 2 | 26APR10 | 27APR10 | 0 |
| SYJS0302 | SYJS: 5th Panel Concreting Works | 1 | 28APR10 | 28APR10 | 0 |
| SYJS0304 | SYJS: Excavate 6th Panel to Formation Level | 10 | 29APR10 | 11MAY10 | 0 |
| SYJS0306 | SYJS: 6th Panel Desanding & Preparation Works | 4 | 12MAY10 | 15MAY10 | 0 |
| SYJS0308 | SYJS: 6th Panel Rebar Cage Installation | 2 | 17MAY10 | 18MAY10 | 0 |
| SYJS0312 | SYJS: Excavate 7th Panel to Formation Level | 10 | 20MAY10 | 31MAY10 | 0 |
| SYJS0313 | SYJS: 6th Panel Concreting Works | 1 | 19MAY10 | 19MAY10 | 0 |
| SYJS0314 | SYJS: 7th Panel Desanding & Preparation Works | 4 | 01JUN10 | 04JUN10 | 0 |
| SYJS0316 | SYJS: 7th Panel Rebar Cage Installation | 2 | 05JUN10 | 07JUN10 | 0 |
| SYJS0318 | SYJS: 7th Panel Concreting Works | 1 | 08JUN10 | 08JUN10 | 0 |
| SYJS0321 | SYJS: Excavate 8th Panel to Formation Level | 10 | 09JUN10 | 21JUN10 | 0 |
| SYJS0322 | SYJS: 8th Panel Desanding & Preparation Works | 4 | 22JUN10 | 25JUN10 | 0 |
| SYJS0323 | SYJS: Grouting Works Phase 1 | 54 | 26JUN10 | 28AUG10 | 0 |
| SYJS0324 | SYJS: 8th Panel Rebar Cage Installation | 2 | 26JUN10 | 28JUN10 | 0 |
| SYJS0326 | SYJS: 8th Panel Concreting Works | 1 | 29JUN10 | 29JUN10 | 0 |
| SYJS0327 | SYJS: Excavate 9th Panel to Formation Level | 10 | 30JUN10 | 12JUL10 | 0 |
| SYJS0329 | SYJS: 9th Panel Desanding & Preparation Works | 4 | 13JUL10 | 16JUL10 | 0 |
| SYJS0331 | SYJS: 9th Panel Rebar Cage Installation | 2 | 17JUL10 | 19JUL10 | 0 |
| SYJS0333 | SYJS: 9th Panel Concreting Works | 1 | 20JUL10 | 20JUL10 | 0 |
| SYJS0335 | SYJS: Excavate 10th Panel to Formation Level | 10 | 21JUL10 | 31JUL10 | 0 |
| SYJS0337 | SYJS: 10th Panel Desanding & Preparation Works | 4 | 02AUG10 | 05AUG10 | 0 |
| SYJS0339 | SYJS: 10th Panel Rebar Cage Installation | 2 | 06AUG10 | 07AUG10 | 0 |
| SYJS0341 | SYJS: 10th Panel Concreting Works | 1 | 09AUG10 | 09AUG10 | 0 |
| SYJS0343 | SYJS: Excavate 11th Panel to Formation Level | 10 | 10AUG10 | 20AUG10 | 0 |
| SYJS0345 | SYJS: 11th Panel Desanding & Preparation Works | 4 | 21AUG10 | 25AUG10 | 0 |
| SYJS0347 | SYJS: 11th Panel Rebar Cage Installation | 2 | 26AUG10 | 27AUG10 | 0 |
| SYJS0349 | SYJS: 11th Panel Concreting Works | 1 | 28AUG10 | 28AUG10 | 0 |
| SYJS0351 | SYJS: Excavate 12th Panel to Formation Level | 10 | 30AUG10 | 09SEP10 | 0 |
| SYJS0352 | SYJS: Grouting Works Phase 2 | 54 | 30AUG10 | 03NOV10 | 0 |
| SYJS0353 | SYJS: 12th Panel Desanding & Preparation Works | 4 | 10SEP10 | 14SEP10 | 0 |
| SYJS0355 | SYJS: 12th Panel Rebar Cage Installation | 2 | 15SEP10 | 16SEP10 | 0 |
| SYJS0357 | SYJS: 12th Panel Concreting Works | 1 | 17SEP10 | 17SEP10 | 0 |
| SYJS0359 | SYJS: Excavate 13th Panel to Formation Level | 10 | 18SEP10 | 30SEP10 | 0 |
| SYJS0361 | SYJS: 13th Panel Desanding & Preparation Works | 4 | 02OCT10 | 06OCT10 | 0 |
| SYJS0365 | SYJS: 13th Panel Concreting Works | 1 | 09OCT10 | 09OCT10 | 0 |
| SYJS0367 | SYJS: 13th Panel Rebar Cage Installation | 2 | 07OCT10 | 08OCT10 | 0 |
| SYJS0368 | SYJS: Excavate 14th Panel to Formation Level | 10 | 11OCT10 | 22OCT10 | 0 |
| SYJS0369 | SYJS: 14th Panel Desanding & Preparation Works | 4 | 23OCT10 | 27OCT10 | 0 |
| SYJS0371 | SYJS: 14th Panel Rebar Cage Installation | 2 | 28OCT10 | 29OCT10 | 0 |
| SYJS0373 | SYJS: 14th Panel Concreting Works | 1 | 30OCT10 | 30OCT10 | 0 |




| | |
|---|---|
| Start Date | 31JUL09 |
| Finish Date | 15JAN15 |
| Data Date | 20JAN10 |
| Run Date | 01FEB10 10:30 |

Early Bar
Progress Bar
Critical Activity



WPU7 Sheet 1 of 2

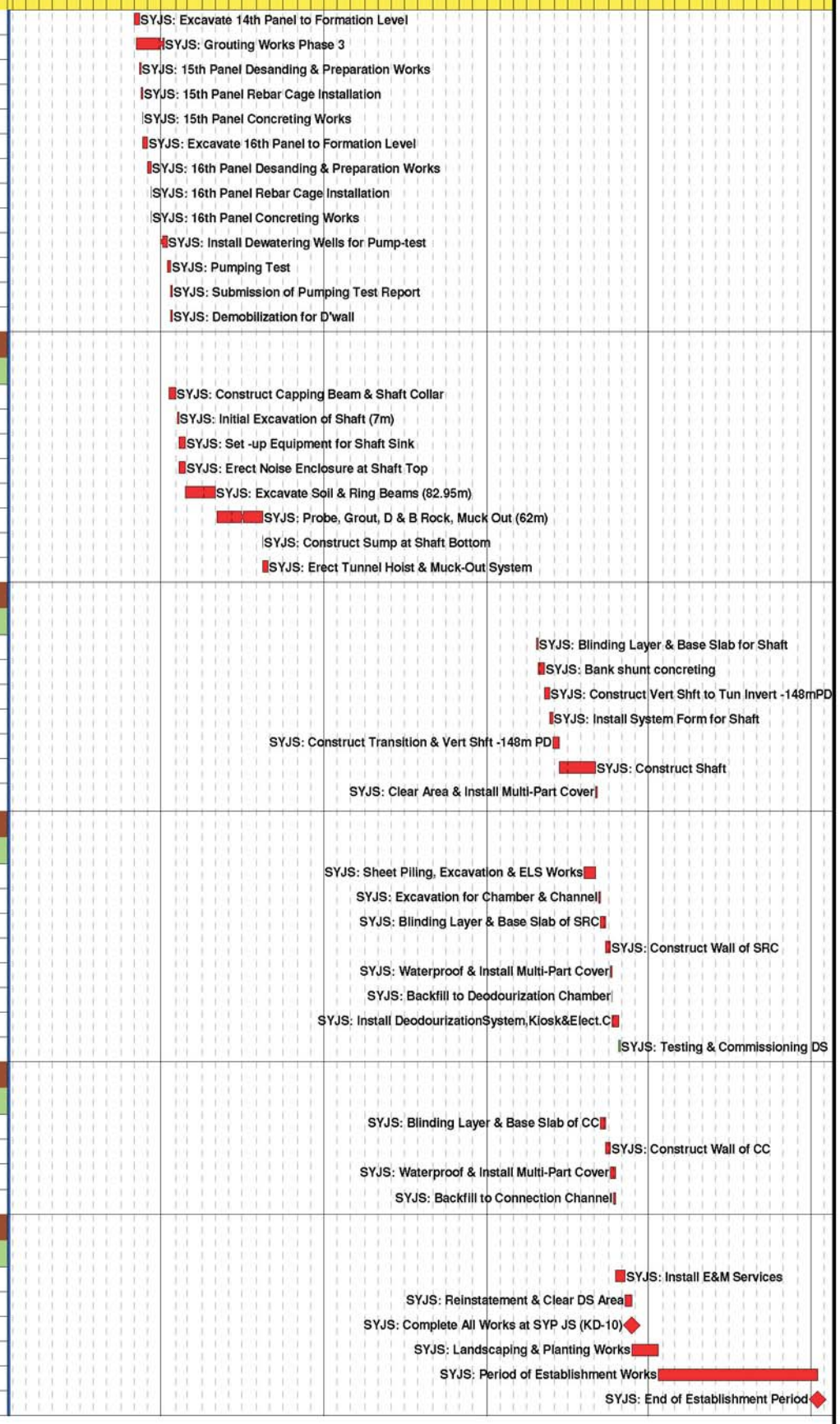
**Habour Area Treatment Scheme Stage 2A**
**Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island**
**Programme**

**Annex F8 Construction Programme for the Project**

Gammon

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish | % Comp |
|---|---|---|---|---|---|
| SYJS0375 | SYJS: Excavate 14th Panel to Formation Level | 10 | 01NOV10 | 11NOV10 | 0 |
| SYJS0376 | SYJS: Grouting Works Phase 3 | 52 | 04NOV10 | 05JAN11 | 0 |
| SYJS0377 | SYJS: 15th Panel Desanding & Preparation Works | 4 | 12NOV10 | 16NOV10 | 0 |
| SYJS0379 | SYJS: 15th Panel Rebar Cage Installation | 2 | 17NOV10 | 18NOV10 | 0 |
| SYJS0381 | SYJS: 15th Panel Concreting Works | 1 | 19NOV10 | 19NOV10 | 0 |
| SYJS0383 | SYJS: Excavate 16th Panel to Formation Level | 10 | 20NOV10 | 01DEC10 | 0 |
| SYJS0385 | SYJS: 16th Panel Desanding & Preparation Works | 4 | 02DEC10 | 06DEC10 | 0 |
| SYJS0387 | SYJS: 16th Panel Rebar Cage Installation | 2 | 07DEC10 | 08DEC10 | 0 |
| SYJS0389 | SYJS: 16th Panel Concreting Works | 1 | 09DEC10 | 09DEC10 | 0 |
| SYJS0392 | SYJS: Install Dewatering Wells for Pump-test | 12 | 29DEC10 | 12JAN11 | 0 |
| SYJS0394 | SYJS: Pumping Test | 6 | 13JAN11 | 19JAN11 | 0 |
| SYJS0397 | SYJS: Submission of Pumping Test Report | 6 | 20JAN11 | 26JAN11 | 0 |
| SYJS0411 | SYJS: Demobilization for D'wall | 6 | 20JAN11 | 26JAN11 | 0 |
| **Shaft Excavation** | | | | | |
| SYJS0500 | SYJS: Construct Capping Beam & Shaft Collar | 14 | 18JAN11 | 02FEB11 | 0 |
| SYJS0510 | SYJS: Initial Excavation of Shaft (7m) | 4 | 07FEB11 | 10FEB11 | 0 |
| SYJS0520 | SYJS: Set -up Equipment for Shaft Sink | 12 | 11FEB11 | 24FEB11 | 0 |
| SYJS0522 | SYJS: Erect Noise Enclosure at Shaft Top | 12 | 11FEB11 | 24FEB11 | 0 |
| SYJS0530 | SYJS: Excavate Soil & Ring Beams (82.95m) | 54 | 25FEB11 | 29APR11 | 0 |
| SYJS0575 | SYJS: Probe, Grout, D & B Rock, Muck Out (62m) | 85 | 06MAY11 | 15AUG11 | 0 |
| SYJS0635 | SYJS: Construct Sump at Shaft Bottom | 2 | 16AUG11 | 17AUG11 | 0 |
| SYJS0665 | SYJS: Erect Tunnel Hoist & Muck-Out System | 10 | 18AUG11 | 29AUG11 | 0 |
| **Shaft Construction** | | | | | |
| SYJS0835 | SYJS: Blinding Layer & Base Slab for Shaft | 4 | 23APR13* | 26APR13 | 0 |
| SYJS0840 | SYJS: Bank shunt concreting | 12 | 27APR13 | 11MAY13 | 0 |
| SYJS0865 | SYJS: Construct Vert Shft to Tun Invert -148mPD | 9 | 13MAY13 | 22MAY13 | 0 |
| SYJS0885 | SYJS: Install System Form for Shaft | 6 | 23MAY13 | 29MAY13 | 0 |
| SYJS0925 | SYJS: Construct Transition & Vert Shft -148m PD | 12 | 30MAY13 | 13JUN13 | 0 |
| SYJS0930 | SYJS: Construct Shaft | 70 | 14JUN13 | 04SEP13 | 0 |
| SYJS1055 | SYJS: Clear Area & Install Multi-Part Cover | 3 | 05SEP13 | 07SEP13 | 0 |
| **Deodourization Chamber** | | | | | |
| SYJS1463 | SYJS: Sheet Piling, Excavation & ELS Works | 24 | 08AUG13 | 04SEP13 | 0 |
| SYJS1465 | SYJS: Excavation for Chamber & Channel | 6 | 09SEP13 | 14SEP13 | 0 |
| SYJS1475 | SYJS: Blinding Layer & Base Slab of SRC | 8 | 16SEP13 | 25SEP13 | 0 |
| SYJS1485 | SYJS: Construct Wall of SRC | 8 | 26SEP13 | 05OCT13 | 0 |
| SYJS1495 | SYJS: Waterproof & Install Multi-Part Cover | 5 | 07OCT13 | 11OCT13 | 0 |
| SYJS1505 | SYJS: Backfill to Deodourization Chamber | 3 | 09OCT13 | 11OCT13 | 0 |
| SYJS1555 | SYJS: Install DeodourizationSystem,Kiosk&Elect.C | 14 | 09OCT13 | 25OCT13 | 0 |
| SYJS1565 | SYJS: Testing & Commissioning DS | 3 | 26OCT13 | 29OCT13 | 0 |
| **Connection Channel** | | | | | |
| SYJS1515 | SYJS: Blinding Layer & Base Slab of CC | 6 | 16SEP13 | 23SEP13 | 0 |
| SYJS1525 | SYJS: Construct Wall of CC | 9 | 24SEP13 | 04OCT13 | 0 |
| SYJS1535 | SYJS: Waterproof & Install Multi-Part Cover | 6 | 08OCT13 | 15OCT13 | 0 |
| SYJS1545 | SYJS: Backfill to Connection Channel | 3 | 15OCT13 | 17OCT13 | 0 |
| **Miscellaneous Works** | | | | | |
| SYJS2010 | SYJS: Install E&M Services | 18 | 18OCT13 | 07NOV13 | 0 |
| SYJS2020 | SYJS: Reinstatement & Clear DS Area | 12 | 08NOV13 | 21NOV13 | 0 |
| SYJS2025 | SYJS: Complete All Works at SYP JS (KD-10) | 0 | | 21NOV13 | 0 |
| SYJS2030 | SYJS: Landscaping & Planting Works | 60 | 22NOV13* | 20JAN14 | 0 |
| SYJS2040 | SYJS: Period of Establishment Works | 360 | 21JAN14 | 15JAN15 | 0 |
| SYJS2050 | SYJS: End of Establishment Period | 0 | | 15JAN15 | 0 |




| | |
|---|---|
| Start Date | 31JUL09 |
| Finish Date | 15JAN15 |
| Data Date | 20JAN10 |
| Run Date | 01FEB10 10:30 |



Early Bar
Progress Bar
Critical Activity

WPU7 Sheet 2 of 2

**Habour Area Treatment Scheme Stage 2A**
**Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island**
**Programme**

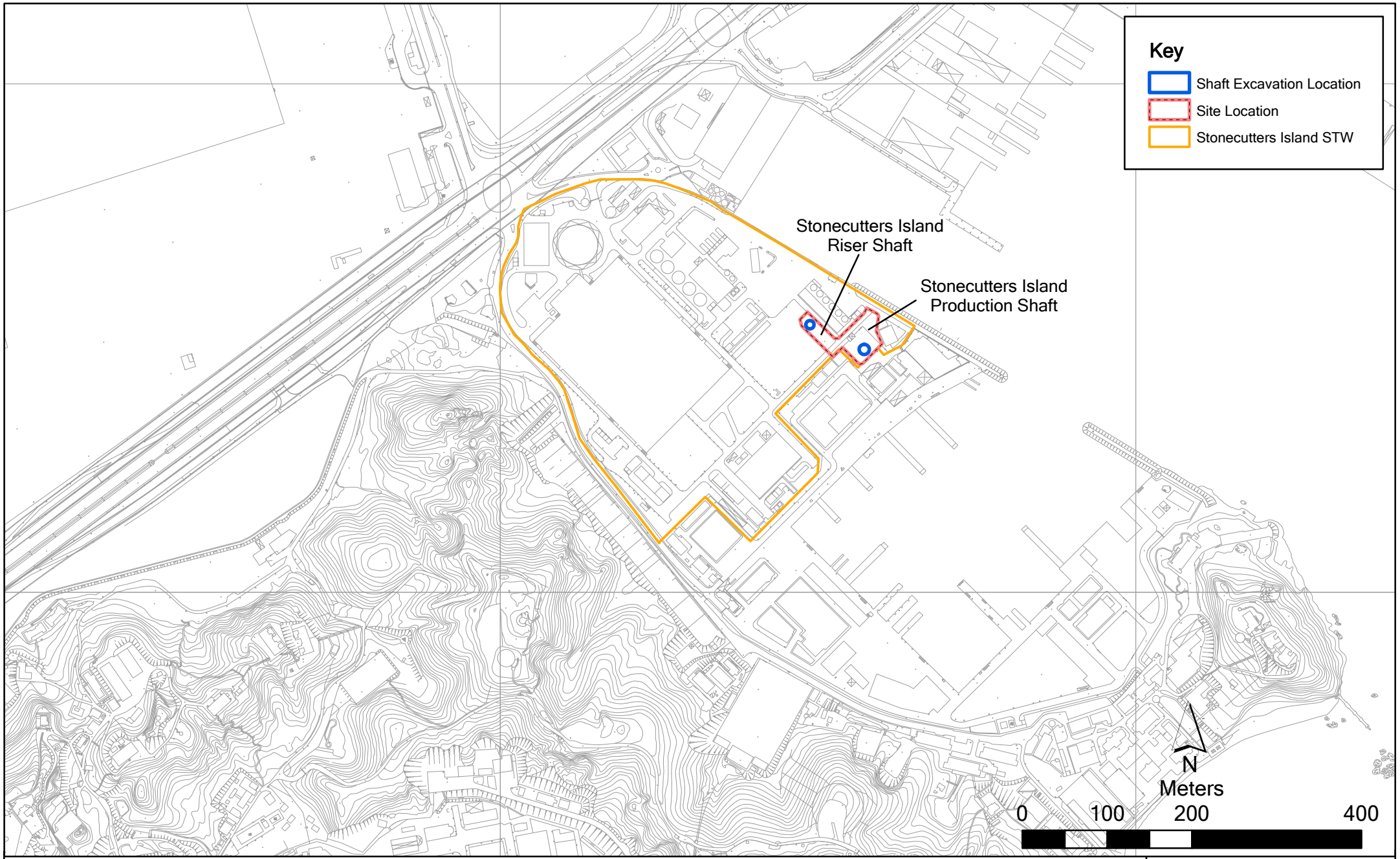
**Annex F8 Construction Programme for the Project**

Gammon

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Annex G

# Stonecutters Island Production and Riser Shafts



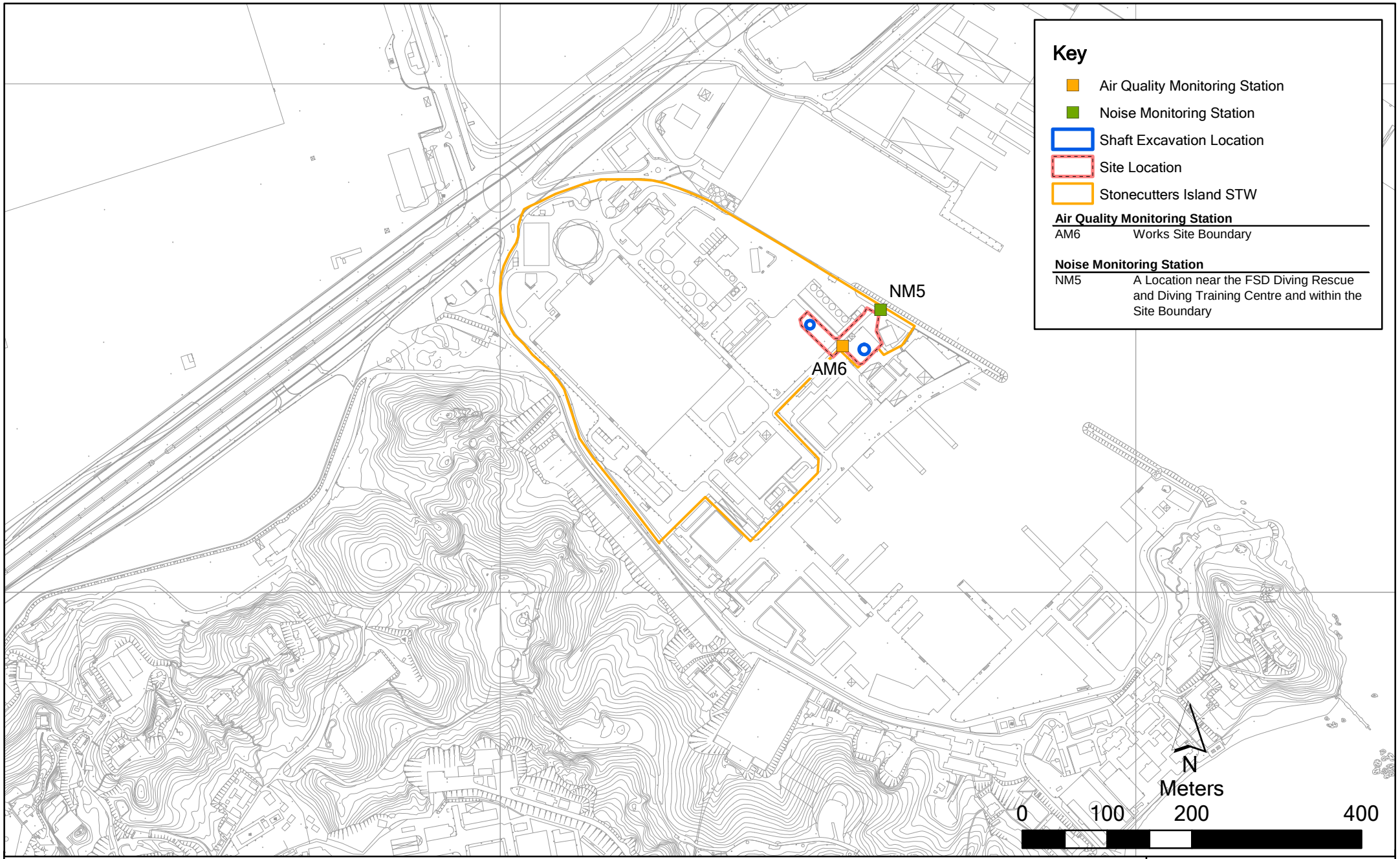

Annex G1

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
*Construction Site Locations at Stonecutters Island STW*

File: EM&A and proposed station\
0104887_Stonecutters Island.mxd
Date: 03/03/2010

**Environmental Resources Management**

ERM




Annex G2

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
*Impact Air Quality & Noise Monitoring Station (Stonecutters Island STW)*

File: EM&A and proposed station\
0104887_Stonecutters Island_NMAM.mxd
Date: 03/03/2010

**Environmental Resources Management**

ERM

## Annex G3 Monitoring Schedule of the Reporting Month and Next Month

**DC/2007/23**
**Harbour Area Treatment Scheme Stage 2A**
**Construction of Sewage Conveyance System from North Point to Stonecutters Island**
**Impact Construction Air Quality Monitoring Schedule**

**AM6 - Works Site Boundary**
**Monitoring Month : August 2012**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | 01-Aug | 02-Aug | 03-Aug | 04-Aug |
| | | | | | 1-hr and 24-hr Monitoring | |
| 05-Aug | 06-Aug | 07-Aug | 08-Aug | 09-Aug | 10-Aug | 11-Aug |
| | | | | 1-hr and 24-hr Monitoring | | |
| 12-Aug | 13-Aug | 14-Aug | 15-Aug | 16-Aug | 17-Aug | 18-Aug |
| | | | 1-hr and 24-hr Monitoring | | | |
| 19-Aug | 20-Aug | 21-Aug | 22-Aug | 23-Aug | 24-Aug | 25-Aug |
| | | 1-hr and 24-hr Monitoring | | | | |
| 26-Aug | 27-Aug | 28-Aug | 29-Aug | 30-Aug | 31-Aug | |
| | 1-hr and 24-hr Monitoring | | | | 1-hr and 24-hr Monitoring | |

## Monitoring Month : September 2012

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | | | | 01-Sep |
| | | | | | | |
| 02-Sep | 03-Sep | 04-Sep | 05-Sep | 06-Sep | 07-Sep | 08-Sep |
| | | | | 1-hr and 24-hr Monitoring | | |
| 09-Sep | 10-Sep | 11-Sep | 12-Sep | 13-Sep | 14-Sep | 15-Sep |
| | | | 1-hr and 24-hr Monitoring | | | |
| 16-Sep | 17-Sep | 18-Sep | 19-Sep | 20-Sep | 21-Sep | 22-Sep |
| | | 1-hr and 24-hr Monitoring | | | | |
| 23-Sep | 24-Sep | 25-Sep | 26-Sep | 27-Sep | 28-Sep | 29-Sep |
| | 1-hr and 24-hr Monitoring | | | | 1-hr and 24-hr Monitoring | |
| 30-Sep | | | | | | |
| | | | | | | |

## Annex G3 Monitoring Schedule of the Reporting Month and Next Month

**DC/2007/23**
**Harbour Area Treatment Scheme Stage 2A**
**Construction of Sewage Conveyance System from North Point to Stonecutters Island**
**Impact Construction Noise Quality Monitoring Schedule**

**NM5 - A Location near the FSD Diving Rescue and Diving Training Centre near the Site Boundary**
**Monitoring Month : August 2012**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | 01-Aug | 02-Aug | 03-Aug | 04-Aug |
| | | | | | | |
| 05-Aug | 06-Aug | 07-Aug | 08-Aug | 09-Aug | 10-Aug | 11-Aug |
| | | Noise Monitoring (evening time) | | Noise Monitoring | | |
| 12-Aug | 13-Aug | 14-Aug | 15-Aug | 16-Aug | 17-Aug | 18-Aug |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | Noise Monitoring | | | |
| 19-Aug | 20-Aug | 21-Aug | 22-Aug | 23-Aug | 24-Aug | 25-Aug |
| | | Noise Monitoring (Day time and evening time) | | | | |
| 26-Aug | 27-Aug | 28-Aug | 29-Aug | 30-Aug | 31-Aug | |
| Noise Monitoring (during daytime of sundays/ public holidays) | Noise Monitoring | | | | | |

## Monitoring Month : September 2012

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | | | | 01-Sep |
| | | | | | | |
| 02-Sep | 03-Sep | 04-Sep | 05-Sep | 06-Sep | 07-Sep | 08-Sep |
| | | Noise Monitoring (evening time) | | Noise Monitoring | | |
| 09-Sep | 10-Sep | 11-Sep | 12-Sep | 13-Sep | 14-Sep | 15-Sep |
| Noise Monitoring (during daytime of sundays/ public holidays) | | | Noise Monitoring | | | |
| 16-Sep | 17-Sep | 18-Sep | 19-Sep | 20-Sep | 21-Sep | 22-Sep |
| | | Noise Monitoring (Daytime and evening time) | | | | |
| 23-Sep | 24-Sep | 25-Sep | 26-Sep | 27-Sep | 28-Sep | 29-Sep |
| Noise Monitoring (during daytime of sundays/ public holidays) | Noise Monitoring | | | | | |
| 30-Sep | | | | | | |
| | | | | | | |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| *Construction Phase* | | | |
| Air Quality | The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimize construction dust impact. Control measures relevant to this Project are listed below:<br>• skip hoist for material transport should be totally enclosed by impervious sheeting;<br>• every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site;<br>• the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;<br>• where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit;<br>• every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides;<br>• regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather;<br>• site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines;<br>• open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible;<br>• tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and<br>• instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Air Quality | The following watering measures for specific site would be required to control the fugitive dust impacts:<br>• the barging points should be continuous watering throughout the whole unloading process; and<br>• watering 8 times per day within worksites at the SCS works area at SCISTW and the Disinfection Facilities of SCISTW. | All work sites / during construction | √ |
| *Operational Phase* | | | |
| Air Quality | Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.<br>• Screens should be cleaned regularly to remove any accumulated organic debris<br>• Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit<br>• Grit and screened materials should be transferred to closed containers to minimize odour escape<br>• Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics<br>• Skim and remove floating solids and grease from primary clarifiers regularly<br>• Frequent sludge withdrawal from tanks is necessary to prevent the production of gases<br>• Sludge cake should be transferred to closed containers<br>• Sludge containers should be flushed with water regularly | All work sites / during construction | NA. Measures not required until commencement of operational phase |
| Air Quality | To avoid excessive extraction of the foul air from the drop shafts of the sedimentation tanks and also from the effluent flume structure of SCISTW to deodorization system, the extraction vent(s) of the deodorization system should be located away from the top openings of the drop shafts. | SCISTW /during operational phase | NA. Measures not required until commencement of operational phase |
| Air Quality | Commissioning tests for all deodorization system should be included in the Design and Construction Contract Document. | All PTW and SCISTW/ during operational phase | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Noise | Use of quiet PME, movable barriers and acoustic mats | All work sites / during construction | √ |
| Noise | Good Site Practice:<br>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program;<br>• silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program;<br>• mobile plant, if any, should be sited as far from NSRs as possible;<br>• machines and plant (such as trucks) 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 should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and<br>• material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities;<br><br>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented. | All work sites / during construction | √ |
| *Construction Phase* | | | |
| Water Quality | Construction Site Runoff and General Construction Activities<br>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable. | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Effluent Discharge<br><br>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes. | All work sites / during construction | √ |
| Water Quality | Accidental Spillage of Chemicals<br><br>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes. | All work sites / during construction | <> |
| Water Quality | Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges. | All work sites / during construction | <> |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.<br>General requirements are given as follows:<br>• Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.<br>• Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.<br>• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Construction Works in Close Proximity of Storm Drains or Seafront<br><br>To minimize the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.<br>• The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment.<br>• Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works.<br>• Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.<br>• Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers.<br>• Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.<br>• Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea | All work sites / during construction | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | Temporary Sewage Bypass<br><br>It is recommended that the temporary sewage bypass required for (i) the modification to the existing pumping station at SCISTW and (ii) the interconnection between the existing main pumping station and the new pumping station on Stonecutters Island, if needed, should be scheduled at the same time as far as practicable in order to minimise the temporary discharge duration. It is also recommended that all the modification and interconnection to the existing facilities (including the modification to the existing NWKPS) should be programmed to avoid temporary sewage bypass in wet or bathing season (March to October) to minimize the potential impacts. Relevant government departments including EPD and LCSD should be informed of the planned sewage bypass prior to any discharge. During the sewage bypass period, water quality monitoring should be carried out at the water sensitive receivers to quantify the water quality impacts and to determine when the baseline water quality conditions are restored. Also, a framework of the response procedures has been formulated to minimize the impact of temporary discharges. Details are provided in the standalone EM&A Manual. | SCISTW/ construction period | √ |
| *Operational Phase* | | | |
| Water Quality | Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimize the chance of emergency discharge. | SCISTW and all the Stage 2 PTWs / Operation Stage | NA. Measures not required until commencement of operational phase |
| Water Quality | The response procedure and monitoring requirements for emergency discharge as stated in EM&A Manual should be followed. | SCISTW / Operation Stage | NA. Measures not required until commencement of operational phase |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Water Quality | In case of total power outage of the dechlorination plant, the uninterruptible power supply (UPS) system to be provided would switch the power supply of the sodium bisulphite dosing pump to a backup battery almost instantaneously, allowing continuous dosage of sodium bisulphite for at least half an hour so that sufficient time can be provided for shutting down the chlorination plant to avoid the possibility of discharge of chlorinated effluent. | SCISTW / Operation Stage | NA. Measures not required until commencement of operational phase |
| Water Quality | The model predicted that if Stage 2B is not implemented for HATS in 2021 as scheduled, the nutrient contents (both P and N) in the marine water would ultimately increase to exceed the baseline Stage 1 level when the HATS flow is reaching its design capacity of 2.45M m3/day. It is recommended that the future review study for Stage 2B should review the validity of the model predictions provided in this EIA and confirm the need of enhanced nutrient removal for HATS after 2021. | SCISTW / Operation Stage | NA. Measures not required until commencement of operational phase |
| Water Quality | It should be noted that the mixing zone for TIN predicted for Stage 2B was large with an area of about 30 km2 and the area of exceedance would encroach on the nearby water sensitive receivers (e.g. Ma Wan Fish Culture Zone). This is due to the elevated oxidized nitrogen assumed for the proposed nitrification process at Stage 2B as well as the increased HATS effluent flow assumed for Stage 2B. It is recommended that these water quality issues should be further investigated / assessed under the future EIA for Stage 2B. Further mitigation measures / alternative treatment designs should also be considered under the future EIA for Stage 2B to mitigate / minimize the potential TIN exceedances. | SCISTW / Operation Stage | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimize the use of timber formwork. | All work sites / during the construction period | √ |
| Waste | All waste materials should be segregated into categories covering:<br>• excavated materials suitable for reuse on-site;<br>• excavated materials suitable for public filling facilities;<br>• remaining C&D waste for landfill;<br>• chemical waste; and<br>• general refuse for landfill. | All work sites / during the construction period | √ |
| Waste | Recommendations to achieve waste reduction include:<br>• Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals;<br>• Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;<br>• Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force;<br>• Any unused chemicals or those with remaining functional capacity shall be recycled; and<br>• Proper storage and site practices to minimise the potential for damage or contamination of construction materials. | All work sites / during the construction period | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Recommendations for good site practices during construction activities include:-<br>• Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site<br>• Training of site personnel in proper waste management and chemical waste handling procedures<br>• Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials.<br>• Provision of sufficient waste disposal points and regular collection of waste<br>• Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors | All work sites / during the construction period | √ |
| Waste | Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage". | All work sites / during the construction period | √ |
| Waste | Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected. | All work sites / during the construction period | √ |
| Waste | General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill. | All work sites / during the construction period | √ |
| Waste | The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials. | All work sites / during the construction period | √ |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. | All work sites / during the construction period | √ |
| Waste | Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results. | All work sites / during the construction period | √ |
| *Operation Phase* | | | |
| Waste | The sludge tanks should be air-tighten. Rotating brushes or other alternative devises should be installed at the upper frame of the sludge tank washing facilities to provide better cleaning of the surface around the top loading opening of the sludge tanks. Prior to making such provision, the top covers of the sludge transfer tanks should be water cleaned manually after unloading. | SCISTW / Operation Stage | NA. Measures not required until commencement of operational phase |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Waste | Since the air tightness of tankers highly relies on the effectiveness of rubber seals at the loading openings and unloading doors, odour leakage from tankers are commonly resulted from the aging rubber seals. It is recommended to develop a preventive maintenance programme for rubber seals of loading openings and unloading doors of sludge transfer tanks to ensure the tightness of covers and doors. Rubber seals should be regularly replaced within its design life as specified by suppliers. | SCISTW / Operation Stage | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | | | |
| Landscape & Visual | • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.<br>• Existing trees to be retained on site should be carefully protected during construction.<br>• Trees unavoidably affected by the works should be transplanted where practical.<br>• Compensatory tree planting should be provided to compensate for felled trees.<br>• Control of night-time lighting.<br>• Erection of decorative screen hoarding compatible with the surrounding setting. | All the works areas, PTWs and SCISTW/ during the construction period | √ |
| *Operational Phase* | • | | |
| Landscape & Visual | • Aesthetic design of the façade of PTW and associated structures to harmonize with the surrounding settings.<br>• Shrub and Climbing Plants to soften proposed structures / Roof Greening.<br>• Buffer Tree and Shrub Planting to screen proposed associated structures.<br>• Reinstated of disturbed area | All the works areas, PTWs and SCISTW/ during the construction period | NA. Measures not required until commencement of operational phase |
| *Construction Phase* | • | | |

| Type of Impact | Environmental Protection Measures | Location/ Timing | Status |
|---|---|---|---|
| Cultural Heritage | The construction vibration control limit (ppv of 25mm/s) shall be strictly followed. | Identified historical buildings/structures as mentioned in Tables 15.10 and 15.11. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures | NA. Vibration monitoring has not been launched during the reporting period. |

Remark:

√ Compliance of Mitigation Measures
<> Compliance of Mitigation but need improvement
x Non-compliance of Mitigation Measures
Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
NA Not Applicable

## Annex G5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

**Station AM6**

| Date | Start Time | Finish Time | Weather | TSP Concentration ($\mu g/m^3$) | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) | Site Conditions / Observations / Remarks | Temperature (°C) | Wind Speed * (m/s) | Sampler ID | Filter ID |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 03-Aug-12 | 13:00 | 14:00 | Sunny | 129 | 346 | 500 | Construction work in progress | 32 | <5 | 1254 | 4811 |
| | 14:02 | 15:02 | Sunny | 104 | 346 | 500 | Construction work in progress | 32 | <5 | 1254 | 4812 |
| | 15:04 | 16:04 | Sunny | 177 | 346 | 500 | Construction work in progress | 32 | <5 | 1254 | 4813 |
| 09-Aug-12 | 9:10 | 10:10 | Sunny | 177 | 346 | 500 | Construction work in progress | 33 | <5 | 1254 | 4815 |
| | 10:12 | 11:12 | Sunny | 195 | 346 | 500 | Construction work in progress | 33 | <5 | 1254 | 4816 |
| | 11:14 | 12:14 | Sunny | 206 | 346 | 500 | Construction work in progress | 33 | <5 | 1254 | 4817 |
| 15-Aug-12 | 13:00 | 14:00 | Sunny | 215 | 346 | 500 | Construction work in progress | 31 | <5 | 1254 | 5083 |
| | 14:02 | 15:02 | Sunny | 185 | 346 | 500 | Construction work in progress | 31 | <5 | 1254 | 5084 |
| | 15:04 | 16:04 | Sunny | 215 | 346 | 500 | Construction work in progress | 31 | <5 | 1254 | 5085 |
| 21-Aug-12 | 13:35 | 14:35 | Sunny | 194 | 346 | 500 | Construction work in progress | 31 | <5 | 1254 | 5087 |
| | 14:37 | 15:37 | Sunny | 210 | 346 | 500 | Construction work in progress | 31 | <5 | 1254 | 5088 |
| | 15:39 | 16:39 | Sunny | 194 | 346 | 500 | Construction work in progress | 31 | <5 | 1254 | 5089 |
| 27-Aug-12 | 13:00 | 14:00 | Sunny | 179 | 346 | 500 | Construction work in progress | 31 | <5 | 1254 | 5091 |
| | 14:02 | 15:02 | Sunny | 196 | 346 | 500 | Construction work in progress | 31 | <5 | 1254 | 5092 |
| | 15:04 | 16:04 | Sunny | 173 | 346 | 500 | Construction work in progress | 31 | <5 | 1254 | 5093 |
| 31-Aug-12 | 13:10 | 14:10 | Sunny | 175 | 346 | 500 | Construction work in progress | 31 | <5 | 1254 | 5095 |
| | 14:12 | 15:12 | Sunny | 183 | 346 | 500 | Construction work in progress | 31 | <5 | 1254 | 5096 |
| | 15:14 | 16:14 | Sunny | 176 | 346 | 500 | Construction work in progress | 31 | <5 | 1254 | 5097 |
| | | | **Min.** | **104** | | | | | | | |
| | | | **Max.** | **215** | | | | | | | |
| | | | **Average** | **182** | | | | | | | |

* Wind Speed data is presented in the Meteorological Data table

## Annex G5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

**Station AM6**

| Start | | Finish | | Weather | Filter Weight (g) | | Elapsed Time Reading | | Sampling Time | Flow Rate ($m^3$/min) | | | TSP Conc. | Action Level | Limit Level | Observations / Remarks | Sampler | Filter |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Date | Time | | Initial | Final | Initial | Final | (hrs) | Initial | Final | Average | ($\mu g/m^3$) | ($\mu g/m^3$) | ($\mu g/m^3$) | | ID | ID |
| 03-Aug-12 | 16:06 | 04-Aug-12 | 16:06 | Sunny | 2.6912 | 2.8579 | 10221.03 | 10245.03 | 24.00 | 1.24 | 1.24 | 1.24 | 93 | 196 | 260 | Construction work in progress | 1254 | 4814 |
| 09-Aug-12 | 12:16 | 10-Aug-12 | 12:16 | Sunny | 2.7191 | 2.8679 | 10248.03 | 10272.03 | 24.00 | 1.24 | 1.24 | 1.24 | 83 | 196 | 260 | Construction work in progress | 1254 | 4818 |
| 15-Aug-12 | 16:06 | 16-Aug-12 | 16:06 | Sunny | 2.7859 | 2.9484 | 10275.03 | 10299.03 | 24.00 | 1.24 | 1.24 | 1.24 | 91 | 196 | 260 | Construction work in progress | 1254 | 5086 |
| 21-Aug-12 | 16:41 | 22-Aug-12 | 16:41 | Sunny | 2.7956 | 2.9691 | 10302.03 | 10326.03 | 24.00 | 1.24 | 1.24 | 1.24 | 97 | 196 | 260 | Construction work in progress | 1254 | 5090 |
| 27-Aug-12 | 16:06 | 28-Aug-12 | 16:06 | Sunny | 2.7741 | 2.9339 | 10329.03 | 10353.03 | 24.00 | 1.24 | 1.24 | 1.24 | 89 | 196 | 260 | Construction work in progress | 1254 | 5094 |
| 31-Aug-12 | 16:16 | 01-Sep-12 | 16:16 | Sunny | 2.7895 | 2.9441 | 10356.03 | 10380.03 | 24.00 | 1.24 | 1.24 | 1.24 | 87 | 196 | 260 | Construction work in progress | 1254 | 5098 |
| | | | | | | | | | | | | **Min.** | **83** | | | | | |
| | | | | | | | | | | | | **Max.** | **97** | | | | | |
| | | | | | | | | | | | | **Average** | **90** | | | | | |

**Meteorological Data Extracted from the Hong Kong Observatory**

| | | King's Park Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) | Average Relative Humiditiy (%) | Total Rainfall (mm) | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 8.0 | W |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 8.0 | W |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 9.5 | W |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 7.0 | S |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 5.0 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 5.5 | W |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 17.5 | E |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 6.3 | W |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 9.5 | W |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 7.1 | W |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 15.3 | N |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | - | W |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 6.8 | W |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

| | | Tsing Yi Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 29 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 9.9 | W |
| 09-08-2012 | Sunny | 30 | 73 | 0.0 | 3.5 | W |
| 10-08-2012 | Fine | 30 | 79 | 7.7 | 11.3 | S |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 7.8 | SE |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 10.0 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 7.4 | SE |
| 16-08-2012 | Cloudy | 30 | 81 | 15.4 | - | - |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 9.1 | S |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 9.0 | SE |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 9.3 | NW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 14.1 | NW |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | - | NW |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 9.4 | SE |
| 31-08-2012 | Sunny | 29 | 87 | 20.4 | - | - |

| | | Kai Tak Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) * | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 9.8 | SW |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 9.3 | W |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 14.9 | SW |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 8.9 | SE |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 8.2 | SE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 11.3 | SE |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 7.5 | SE |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 9.2 | SE |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 11.3 | SW |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 9.0 | SW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 16.5 | NW |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | 7.6 | W |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 11.2 | SW |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

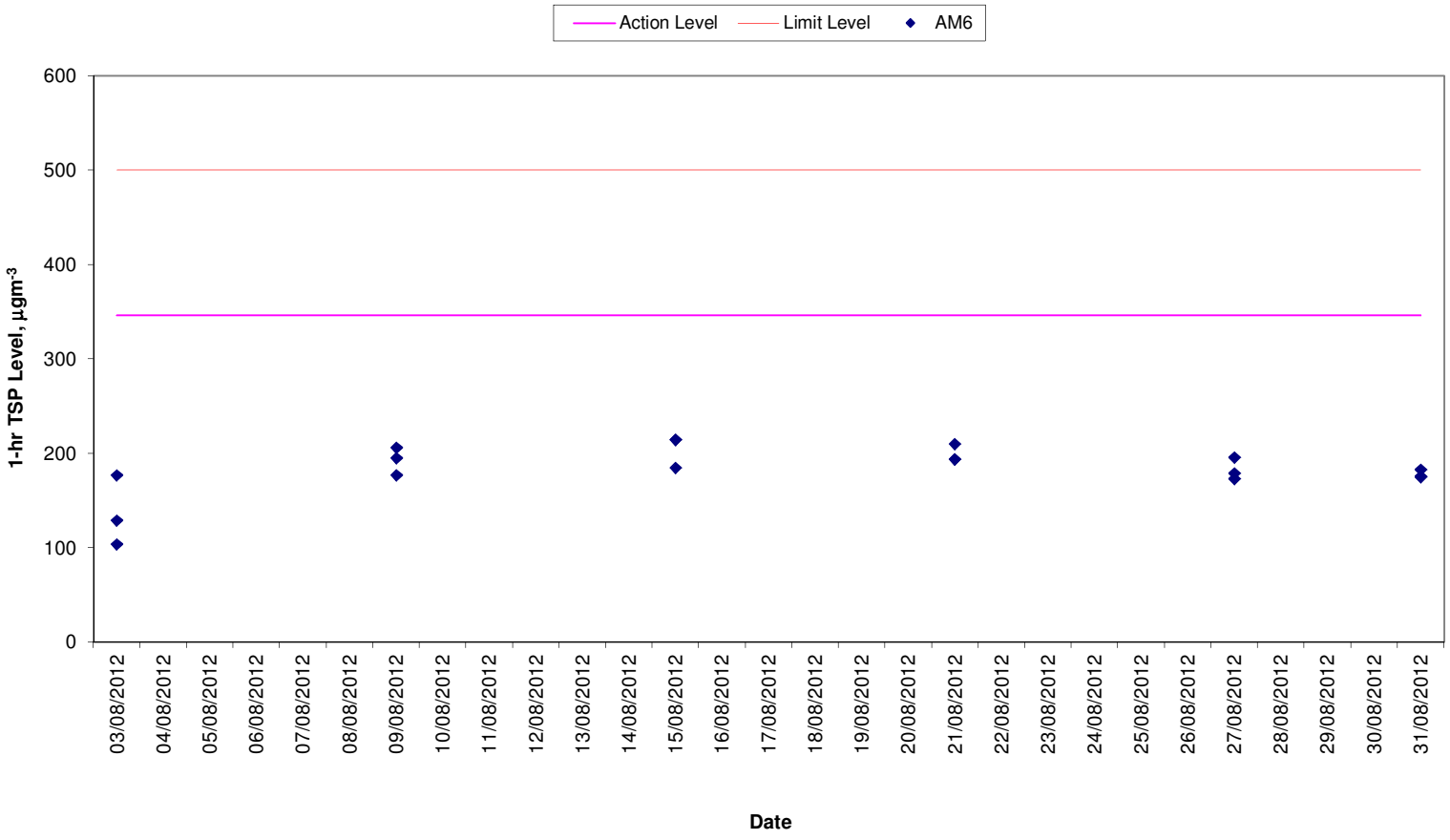
| | | Green Island Station | | | | |
|---|---|---|---|---|---|---|
| Date | Weather | Average Air Temperature (° C) * | Average Relative Humiditiy (%) * | Total Rainfall (mm) * | Average Wind Speed (km/h) | Wind Direction |
| 03-08-2012 | Sunny | 31 | 68 | 0.0 | - | - |
| 04-08-2012 | Fine | 30 | 81 | 0.4 | - | - |
| 05-08-2012 | Fine | 30 | 82 | 6.8 | - | - |
| 07-08-2012 | Cloudy | 30 | 76 | 0.0 | 14 | S |
| 09-08-2012 | Sunny | 31 | 73 | 0.0 | 11 | S |
| 10-08-2012 | Fine | 29 | 79 | 7.7 | 21 | SW |
| 12-08-2012 | Sunny | 27 | 86 | 12.4 | 17 | S |
| 14-08-2012 | Fine | 29 | 83 | 1.9 | 15 | NE |
| 15-08-2012 | Sunny | 30 | 76 | 0.0 | 12 | S |
| 16-08-2012 | Cloudy | 28 | 81 | 15.4 | 8 | NW |
| 19-08-2012 | Sunny | 29 | 77 | 0.0 | 13 | SW |
| 21-08-2012 | Sunny | 29 | 79 | 0.0 | 16 | SW |
| 22-08-2012 | Cloudy | 28 | 83 | 5.1 | 12 | NW |
| 26-08-2012 | Sunny | 30 | 61 | 0.0 | 29 | N |
| 27-08-2012 | Sunny | 31 | 61 | 0.0 | 13 | NW |
| 28-08-2012 | Sunny | 31 | 73 | 0.0 | 15 | S |
| 31-08-2012 | Sunny | 28 | 87 | 20.4 | - | - |

* King's Park's data

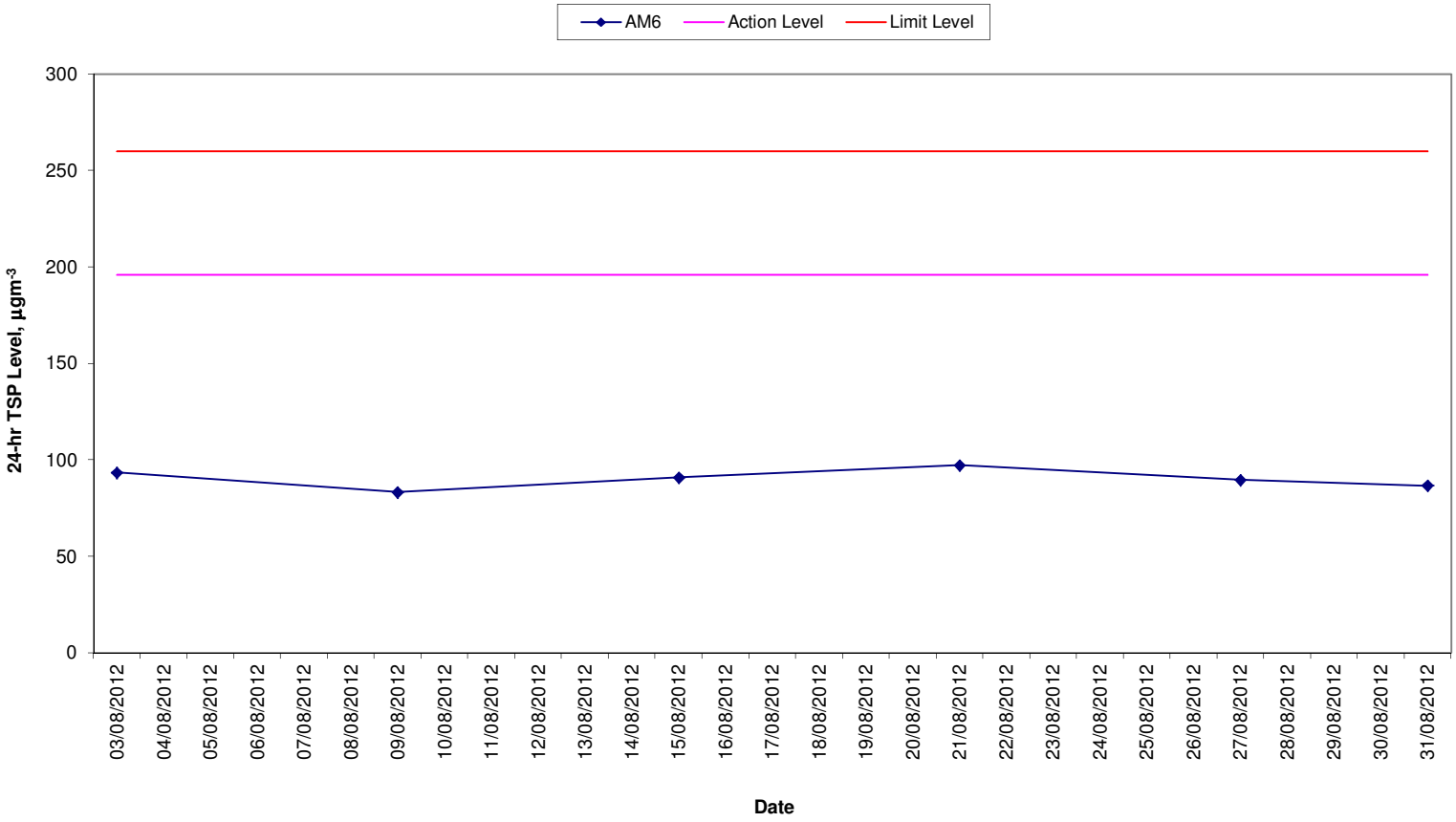
\- Data were not available

\# less than 24 hourly observations per day

**1-hr TSP Levels**
**AM6 (Stonecutters Island Sewage Treatment Works)**



**24-hr TSP Levels**
**AM6 (Stonecutters Island Sewage Treatment Works)**



## Annex G6 Noise Monitoring Results

### Daytime Noise Monitoring Results

**Station NM5**

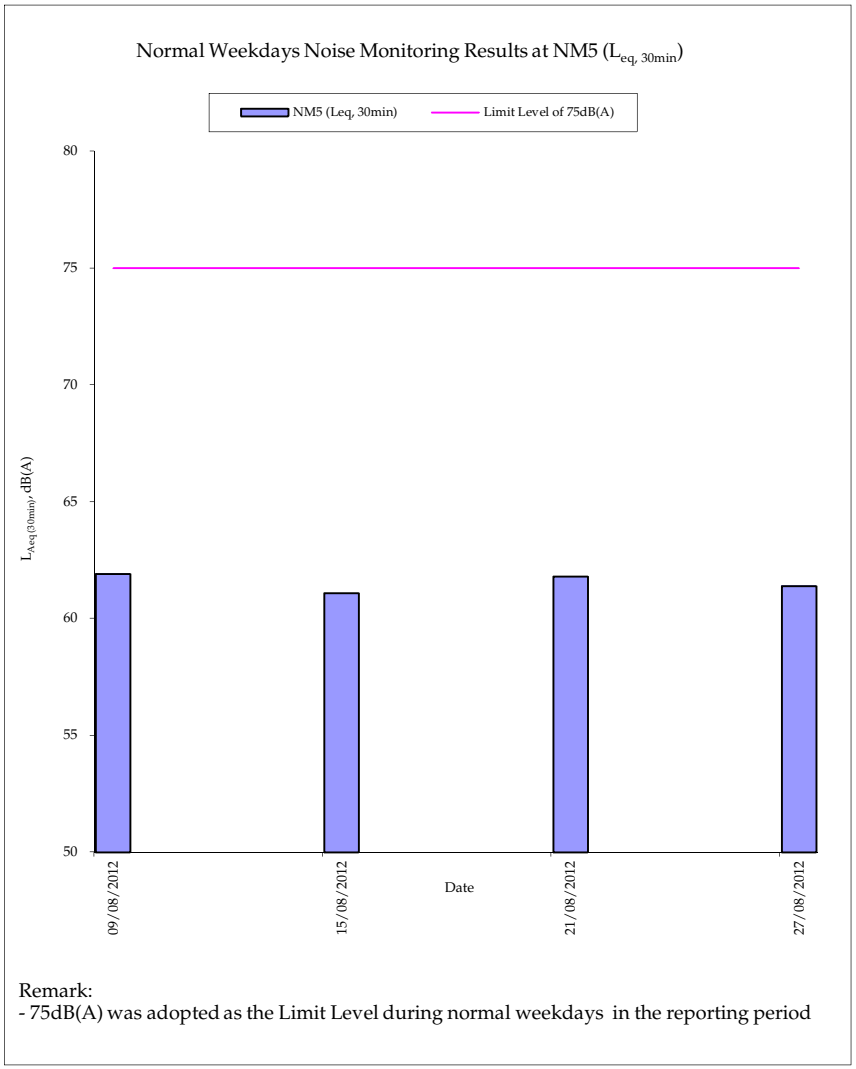
| Date | Start Time | End Time | Weather | Noise level (dB(A)), 30 min | | | Major Construction Noise Source(s) Observed | Other Noise Source(s) Observed | Remarks | Temp. (℃) | Wind Speed (m/s) | Noise Meter Model / ID | Calibrator Model / ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Leq | L10 | L90 | | | | | | | |
| 09-Aug-12 | 11:10 | 11:40 | Sunny | 61.9 | 63.7 | 59.1 | Drill rig | Traffic Noise | - | 33 | 0.5 | RION- NL31 (S/N 00410224) | RION - NC73 (S/N 10997142) |
| 15-Aug-12 | 15:20 | 15:50 | Sunny | 61.1 | 63.0 | 59.3 | Drill rig | Traffic Noise | - | 31 | 0.3 | RION- NL31 (S/N 00410224) | RION - NC73 (S/N 10997142) |
| 21-Aug-12 | 15:20 | 15:50 | Sunny | 61.8 | 63.0 | 60.1 | Drill rig, excavator | Traffic noise and aircraft noise | - | 31 | 0.4 | RION- NL31 (S/N 00410224) | RION - NC73 (S/N 10997142) |
| 27-Aug-12 | 15:30 | 16:00 | Sunny | 61.4 | 62.7 | 59.3 | Drill rig, excavator | Traffic noise and aircraft noise | - | 31 | 0.3 | RION- NL31 (S/N 00410224) | RION - NC73 (S/N 10997142) |
| | | | **Min.** | **61.1** | | | | | | | | | |
| | | | **Max.** | **61.9** | | | | | | | | | |

## Annex G6 Noise Monitoring Results

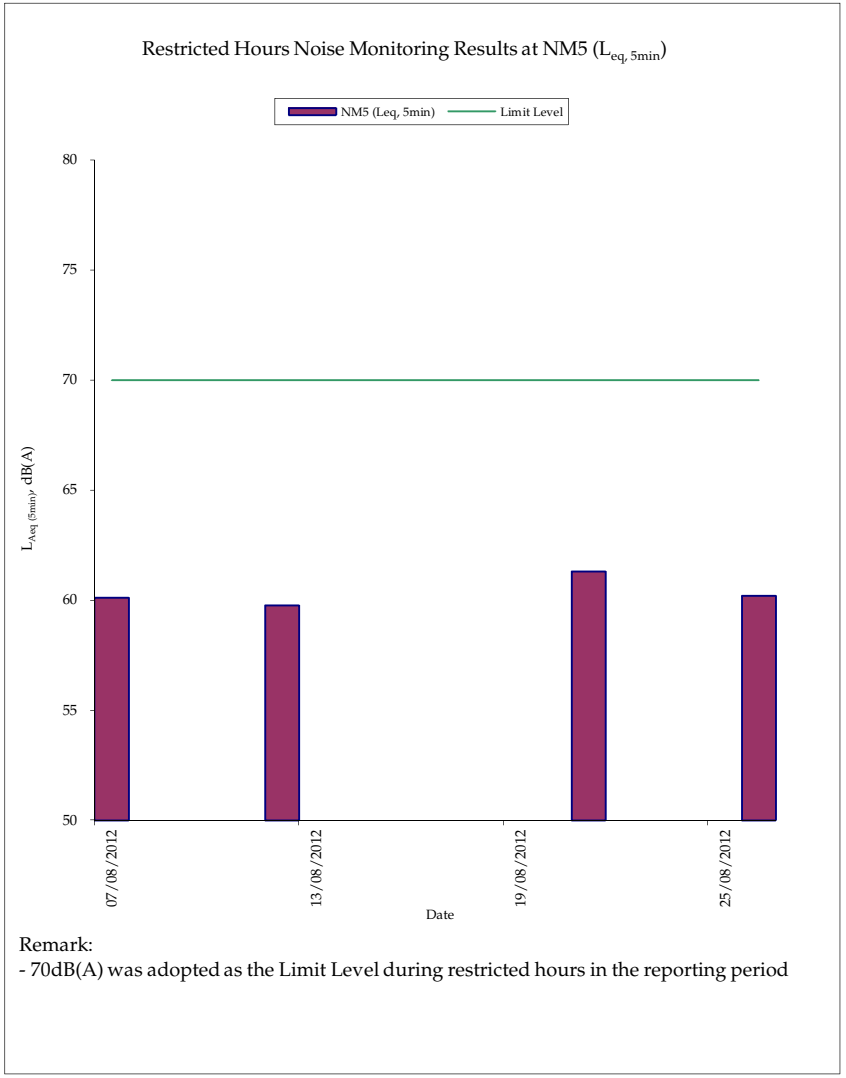
### Restricted Hours Noise Monitoring Results

**Station NM5**

| Date | Start Time | End Time | Weather | Noise level (dB(A)), 5 min | | | Major Construction Noise Source(s) Observed | Other Noise Source(s) Observed | Remarks | Temp. (℃) | Wind Speed (m/s) | Noise Meter Model / ID | Calibrator Model / ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Leq | L10 | L90 | | | | | | | |
| 07-Aug-12 | 19:10 | 19:15 | Cloudy | 60.1 | 61.4 | 58.6 | Drill rig | Traffic noise | - | 31 | 0.4 | RION- NL31 (S/N 00410224) | RION - NC73 (S/N 10997142) |
| | 19:15 | 19:20 | Cloudy | 60.1 | 61.5 | 58.4 | | | - | | | | |
| | 19:20 | 19:25 | Cloudy | 60.2 | 61.6 | 58.5 | | | - | | | | |
| | 19:10 | 19:25 | Cloudy | 60.1 | 61.5 | 58.5 | | | - | | | | |
| 12-Aug-12 | 16:00 | 16:05 | Sunny | 60.6 | 63.6 | 57.4 | Drill rig | Traffic noise | - | 30 | 0.3 | RION- NL31 (S/N 00410224) | RION - NC73 (S/N 10997142) |
| | 16:05 | 16:10 | Sunny | 59.9 | 62.3 | 57.1 | | | - | | | | |
| | 16:10 | 16:15 | Sunny | 58.6 | 59.5 | 56.7 | | | - | | | | |
| | 16:00 | 16:15 | Sunny | 59.8 | 62.1 | 57.1 | | | - | | | | |
| 21-Aug-12 | 19:05 | 19:10 | Sunny | 61.9 | 62.9 | 59.7 | Drill rig, excavator | Traffic noise & aircraft noise | - | 31 | 0.5 | RION- NL31 (S/N 00410224) | RION - NC73 (S/N 10997142) |
| | 19:10 | 19:15 | Sunny | 60.9 | 61.8 | 59.6 | | | - | | | | |
| | 19:15 | 19:20 | Sunny | 61.1 | 62.4 | 59.5 | | | - | | | | |
| | 19:05 | 19:20 | Sunny | 61.3 | 62.4 | 59.6 | | | - | | | | |
| 26-Aug-12 | 15:00 | 15:05 | Sunny | 59.7 | 61.4 | 57.7 | Drill rig | Traffic noise | - | 31 | 0.3 | RION- NL31 (S/N 00410224) | RION - NC73 (S/N 10997142) |
| | 15:05 | 15:10 | Sunny | 60.2 | 61.6 | 58.9 | | | - | | | | |
| | 15:10 | 15:15 | Sunny | 60.7 | 62.4 | 59.0 | | | - | | | | |
| | 15:00 | 15:15 | Sunny | 60.2 | 61.8 | 58.6 | | | - | | | | |
| | | | **Min.** | **58.6** | | | | | | | | | |
| | | | **Max.** | **61.9** | | | | | | | | | |




Remark:
- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period




Remark:
- 70dB(A) was adopted as the Limit Level during restricted hours in the reporting period

*Annex G7 Cumulative Complaint and Summons/Prosecutions Log*

| Reporting Month | Number of Complaints in Reporting Month | Number of Summons/Prosecutions in Reporting Month |
|---|---|---|
| December 2009 | 0 | 0 |
| January 2010 | 0 | 0 |
| February 2010 | 0 | 0 |
| March 2010 | 0 | 0 |
| April 2010 | 0 | 0 |
| May 2010 | 0 | 0 |
| June 2010 | 0 | 0 |
| July 2010 | 0 | 0 |
| August 2010 | 0 | 0 |
| September 2010 | 0 | 0 |
| October 2010 | 0 | 0 |
| November 2010 | 0 | 0 |
| December 2010 | 0 | 0 |
| January 2011 | 0 | 0 |
| February 2011 | 0 | 0 |
| March 2011 | 0 | 0 |
| April 2011 | 0 | 0 |
| May 2011 | 0 | 0 |

*Annex G7 Cumulative Complaint and Summons/Prosecutions Log*

| Reporting Month | Number of Complaints in Reporting Month | Number of Summons/Prosecutions in Reporting Month |
|---|---|---|
| June 2011 | 0 | 0 |
| July 2011 | 0 | 0 |
| August 2011 | 0 | 0 |
| September 2011 | 0 | 0 |
| October 2011 | 0 | 0 |
| November 2011 | 0 | 0 |
| December 2011 | 0 | 0 |
| January 2012 | 0 | 0 |
| February 2012 | 0 | 0 |
| March 2012 | 0 | 0 |
| April 2012 | 0 | 0 |
| May 2012 | 0 | 0 |
| June 2012 | 0 | 0 |
| July 2012 | 0 | 0 |
| August 2012 | 0 | 0 |
| Overall Total | 0 | 0 |

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish | % Comp |
|---|---|---|---|---|---|
| **HATS Stage 2A - Contract DC/2007/23** | | | | | |
| **Stonecutters Island STW Production Shaft** | | | | | |
| **Preliminaries Works** | | | | | |
| SCPS10070 | SCPS: Construct/Install Blast Protection | 2 | 22SEP10 | 24SEP10 | 0 |
| SCPS10075 | SCPS: Site Inspection from Mines | 1 | 25SEP10 | 25SEP10 | 0 |
| SCPS10080 | SCPS: Issue Blasting Permit | 1 | 27SEP10 | 27SEP10 | 0 |
| **EBS, Env. & Geotechnical Instrumentations** | | | | | |
| Markers/UMP's/Others(Same note as Piez.) | | | | | |
| SCPS0391 | SCPS: Install GS Markers (17 Nos.) | 74 | 01SEP09A | 01FEB10 | 85 |
| SCPS0393 | SCPS: JointSurvey&EstablishBaseline Readings GSM | 14 | 02FEB10 | 20FEB10 | 0 |
| Piezometers(NearbyPTWorPScovered inthisInstalln) | | | | | |
| SCPS0375 | SCPS: BH907 Piezometer Baseline Establishment | 26 | 10NOV09A | 23JAN10 | 85 |
| SCPS0381 | SCPS: BH908 Piezometer Baseline Establishment | 26 | 10NOV09A | 27JAN10 | 73 |
| SCPS0387 | SCPS: BH906 Piezometer Baseline Establishment | 26 | 15JAN10A | 06FEB10 | 40 |
| **Electrical & Mechanical Installations** | | | | | |
| SCPS0620 | SCPS: Installation Works for 11KV Application | 60 | 08APR10 | 18JUN10 | 0 |
| SCPS0625 | SCPS: 11 KV Connection & Power On | 4 | 19JUN10 | 23JUN10 | 0 |
| **Marine Dumping Permit** | | | | | |
| SCPS0370 | SCPS: Request for Disposal Site&Get Permit | 24 | 02JAN10A | 05FEB10 | 38 |
| **Diaphragm Wall** | | | | | |
| SCPS0279 | SCPS: Excavate 3rd Panel to Formation Level | 12 | 16JAN10A | 20JAN10 | 92 |
| SCPS0281 | SCPS: 3rd Panel Desanding & Preparation Works | 4 | 21JAN10 | 25JAN10 | 0 |
| SCPS0282 | SCPS: Grouting Works Phase 1 | 45 | 21JAN10 | 17MAR10 | 0 |
| SCPS0283 | SCPS: 3rd Panel Rebar Cage Installation | 3 | 26JAN10 | 28JAN10 | 0 |
| SCPS0285 | SCPS: 3rd Panel Concreting Works | 1 | 29JAN10 | 29JAN10 | 0 |
| SCPS0287 | SCPS: Excavate 4th Panel to Formation Level | 23 | 30JAN10 | 01MAR10 | 0 |
| SCPS0289 | SCPS: 4th Panel Desanding & Preparation Works | 9 | 02MAR10 | 11MAR10 | 0 |
| SCPS0291 | SCPS: 4th Panel Rebar Cage Installation | 6 | 12MAR10 | 18MAR10 | 0 |
| SCPS0292 | SCPS: Grouting Works Phase 2 | 45 | 18MAR10 | 11MAY10 | 0 |
| SCPS0293 | SCPS: 4th Panel Concreting Works | 1 | 19MAR10 | 19MAR10 | 0 |
| SCPS0297 | SCPS: Excavate 5th Panel to Formation Level | 8 | 20MAR10 | 29MAR10 | 0 |
| SCPS0299 | SCPS: 5th Panel Desanding & Preparation Works | 3 | 30MAR10 | 01APR10 | 0 |
| SCPS0301 | SCPS: 5th Panel Rebar Cage Installation | 2 | 02APR10 | 03APR10 | 0 |
| SCPS0303 | SCPS: 5th Panel Concreting Works | 1 | 06APR10 | 06APR10 | 0 |
| SCPS0307 | SCPS: Excavate 6th Panel to Formation Level | 23 | 07APR10 | 04MAY10 | 0 |
| SCPS0309 | SCPS: 6th Panel Desanding & Preparation Works | 9 | 05MAY10 | 14MAY10 | 0 |
| SCPS0310 | SCPS: Grouting Works Phase 3 | 50 | 12MAY10 | 10JUL10 | 0 |
| SCPS0311 | SCPS: 6th Panel Rebar Cage Installation | 6 | 15MAY10 | 21MAY10 | 0 |
| SCPS0313 | SCPS: 6th Panel Concreting Works | 1 | 22MAY10 | 22MAY10 | 0 |
| SCPS0317 | SCPS: Excavate 7th Panel to Formation Level | 8 | 24MAY10 | 01JUN10 | 0 |
| SCPS0319 | SCPS: 7th Panel Desanding & Preparation Works | 3 | 02JUN10 | 04JUN10 | 0 |
| SCPS0321 | SCPS: 7th Panel Rebar Cage Installation | 2 | 05JUN10 | 07JUN10 | 0 |
| SCPS0323 | SCPS: 7th Panel Concreting Works | 1 | 08JUN10 | 08JUN10 | 0 |
| SCPS0327 | SCPS: Excavate 8th Panel to Formation Level | 8 | 09JUN10 | 18JUN10 | 0 |
| SCPS0329 | SCPS: 8th Panel Desanding & Preparation Works | 3 | 19JUN10 | 22JUN10 | 0 |
| SCPS0331 | SCPS: 8th Panel Rebar Cage Installation | 2 | 23JUN10 | 24JUN10 | 0 |
| SCPS0333 | SCPS: 8th Panel Concreting Works | 1 | 25JUN10 | 25JUN10 | 0 |
| SCPS0335 | SCPS: Install Dewatering Wells for Pump-test | 12 | 05JUL10 | 17JUL10 | 0 |
| SCPS0337 | SCPS: Pumping Test | 6 | 19JUL10 | 24JUL10 | 0 |
| SCPS0338 | SCPS: Submission of Pumping Test Report | 6 | 26JUL10 | 31JUL10 | 0 |
| SCPS0341 | SCPS: Demobilization | 6 | 26JUL10 | 31JUL10 | 0 |
| **Shaft Excavation** | | | | | |
| SCPS0500 | SCPS: Construct Capping Beam & Shaft Collar | 12 | 26JUL10 | 07AUG10 | 0 |
| SCPS0510 | SCPS: Initial Excavation of Shaft (7m) | 4 | 09AUG10 | 12AUG10 | 0 |
| SCPS0520 | SCPS: Set-Up Equipment for Shaft Sink | 12 | 13AUG10 | 26AUG10 | 0 |
| SCPS0525 | SCPS: Erect Noise Enclosure at Shaft Top | 12 | 13AUG10 | 26AUG10 | 0 |
| SCPS0530 | SCPS: Excavate Soil & Ring Beams (50m) | 22 | 27AUG10 | 21SEP10 | 0 |
| SCPS0575 | SCPS: Probe, Grout, D&B Rock, Muck Out (87m) | 100 | 28SEP10 | 26JAN11 | 0 |
| SCPS0640 | SCPS: Construct Sump at Shaft Bottom | 2 | 27JAN11 | 28JAN11 | 0 |
| SCPS0665 | SCPS: Erect Tunnel Hoist & Muck Out System | 10 | 29JAN11 | 12FEB11 | 0 |
| **Backfill, Reinstatement & Landscaping** | | | | | |
| SCPS0910 | SCPS: Backfill Shaft (20%) | 8 | 12SEP13 | 21SEP13 | 0 |
| SCPS0920 | SCPS: Backfill Shaft (40%) | 8 | 23SEP13 | 02OCT13 | 0 |
| SCPS0930 | SCPS: Backfill Shaft (60%) | 8 | 03OCT13 | 11OCT13 | 0 |
| SCPS0940 | SCPS: Backfill Shaft (80%) | 8 | 12OCT13 | 22OCT13 | 0 |
| SCPS0950 | SCPS: Backfill Shaft (100%) | 8 | 23OCT13 | 31OCT13 | 0 |
| SCPS0960 | SCPS: Reinstatement Around PS Area | 12 | 01NOV13 | 14NOV13 | 0 |
| SCPS0970 | SCPS: Demobilise Clear Area | 6 | 15NOV13 | 21NOV13 | 0 |
| SCPS0975 | SCPS: Complete All Works at SCI PS (KD-11) | 0 | | 21NOV13 | 0 |
| SCPS0980 | SCPS: Landscaping & Planting Works | 60 | 22NOV13* | 20JAN14 | 0 |
| SCPS0990 | SCPS: Period of Establishment Works | 360 | 21JAN14 | 15JAN15 | 0 |
| SCPS1000 | SCPS: End of Establishment Period | 0 | | 15JAN15 | 0 |


| | |
|---|---|
| Start Date | 31JUL09 |
| Finish Date | 15JAN15 |
| Data Date | 20JAN10 |
| Run Date | 01FEB10 10:42 |



Early Bar
Progress Bar
Critical Activity

WPU7 Sheet 1 of 1

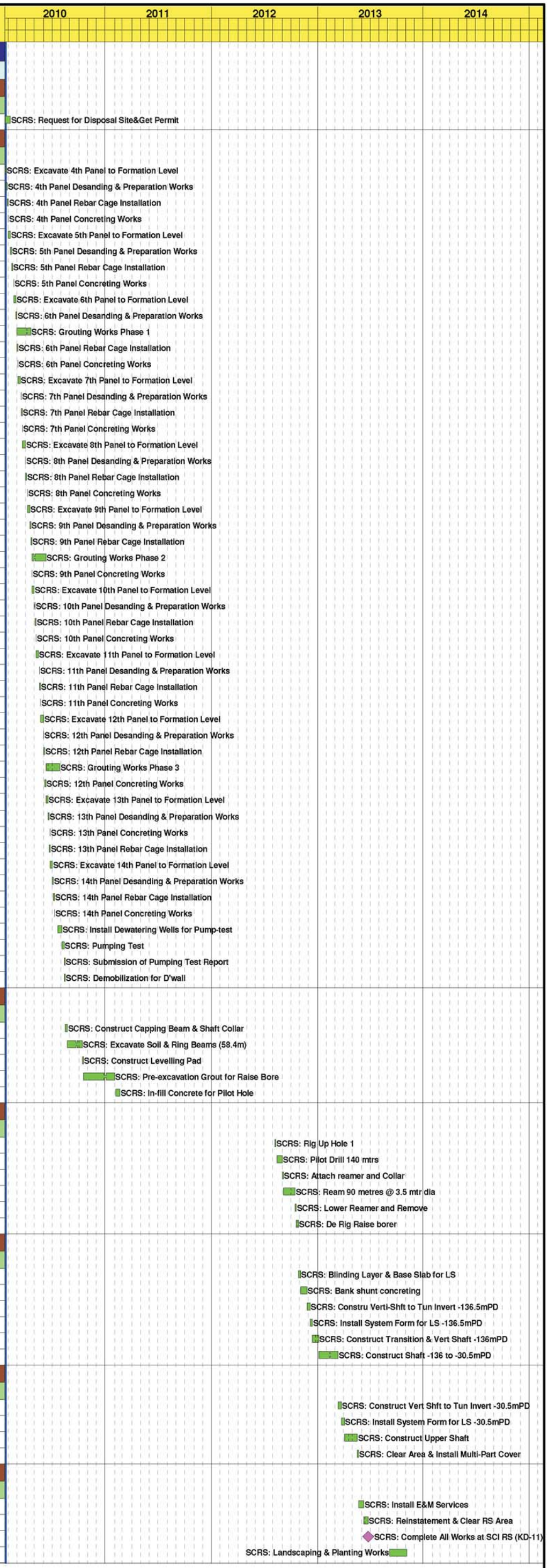
**Habour Area Treatment Scheme Stage 2A**
**Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island Programme**

**Annex G8 Construction Programme for the Project**

Gammon

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish | % Comp |
|---|---|---|---|---|---|
| **HATS Stage 2A - Contract DC/2007/23** | | | | | |
| **Stonecutters Island STW Riser Shaft** | | | | | |
| **Marine Dumping Permit** | | | | | |
| SCRS0370 | SCRS: Request for Disposal Site&Get Permit | 24 | 05JAN10A | 06FEB10 | 33 |
| **Diaphragm Wall** | | | | | |
| SCRS0287 | SCRS: Excavate 4th Panel to Formation Level | 7 | 09JAN10A | 23JAN10 | 50 |
| SCRS0289 | SCRS: 4th Panel Desanding & Preparation Works | 3 | 25JAN10 | 27JAN10 | 0 |
| SCRS0291 | SCRS: 4th Panel Rebar Cage Installation | 2 | 28JAN10 | 29JAN10 | 0 |
| SCRS0293 | SCRS: 4th Panel Concreting Works | 1 | 30JAN10 | 30JAN10 | 0 |
| SCRS0295 | SCRS: Excavate 5th Panel to Formation Level | 7 | 01FEB10 | 08FEB10 | 0 |
| SCRS0297 | SCRS: 5th Panel Desanding & Preparation Works | 3 | 09FEB10 | 11FEB10 | 0 |
| SCRS0299 | SCRS: 5th Panel Rebar Cage Installation | 2 | 12FEB10 | 13FEB10 | 0 |
| SCRS0301 | SCRS: 5th Panel Concreting Works | 1 | 18FEB10 | 18FEB10 | 0 |
| SCRS0303 | SCRS: Excavate 6th Panel to Formation Level | 7 | 19FEB10 | 26FEB10 | 0 |
| SCRS0305 | SCRS: 6th Panel Desanding & Preparation Works | 3 | 27FEB10 | 02MAR10 | 0 |
| SCRS0306 | SCRS: Grouting Works Phase 1 | 40 | 03MAR10 | 19APR10 | 0 |
| SCRS0307 | SCRS: 6th Panel Rebar Cage Installation | 2 | 03MAR10 | 04MAR10 | 0 |
| SCRS0309 | SCRS: 6th Panel Concreting Works | 1 | 05MAR10 | 05MAR10 | 0 |
| SCRS0311 | SCRS: Excavate 7th Panel to Formation Level | 7 | 06MAR10 | 13MAR10 | 0 |
| SCRS0313 | SCRS: 7th Panel Desanding & Preparation Works | 3 | 15MAR10 | 17MAR10 | 0 |
| SCRS0315 | SCRS: 7th Panel Rebar Cage Installation | 2 | 18MAR10 | 19MAR10 | 0 |
| SCRS0317 | SCRS: 7th Panel Concreting Works | 1 | 20MAR10 | 20MAR10 | 0 |
| SCRS0319 | SCRS: Excavate 8th Panel to Formation Level | 7 | 22MAR10 | 29MAR10 | 0 |
| SCRS0321 | SCRS: 8th Panel Desanding & Preparation Works | 3 | 30MAR10 | 01APR10 | 0 |
| SCRS0323 | SCRS: 8th Panel Rebar Cage Installation | 2 | 02APR10 | 03APR10 | 0 |
| SCRS0325 | SCRS: 8th Panel Concreting Works | 1 | 06APR10 | 06APR10 | 0 |
| SCRS0327 | SCRS: Excavate 9th Panel to Formation Level | 7 | 07APR10 | 14APR10 | 0 |
| SCRS0329 | SCRS: 9th Panel Desanding & Preparation Works | 3 | 15APR10 | 17APR10 | 0 |
| SCRS0331 | SCRS: 9th Panel Rebar Cage Installation | 2 | 19APR10 | 20APR10 | 0 |
| SCRS0332 | SCRS: Grouting Works Phase 2 | 40 | 21APR10 | 07JUN10 | 0 |
| SCRS0333 | SCRS: 9th Panel Concreting Works | 1 | 21APR10 | 21APR10 | 0 |
| SCRS0335 | SCRS: Excavate 10th Panel to Formation Level | 7 | 22APR10 | 29APR10 | 0 |
| SCRS0337 | SCRS: 10th Panel Desanding & Preparation Works | 3 | 30APR10 | 04MAY10 | 0 |
| SCRS0339 | SCRS: 10th Panel Rebar Cage Installation | 2 | 05MAY10 | 06MAY10 | 0 |
| SCRS0341 | SCRS: 10th Panel Concreting Works | 1 | 07MAY10 | 07MAY10 | 0 |
| SCRS0343 | SCRS: Excavate 11th Panel to Formation Level | 7 | 08MAY10 | 15MAY10 | 0 |
| SCRS0345 | SCRS: 11th Panel Desanding & Preparation Works | 3 | 17MAY10 | 19MAY10 | 0 |
| SCRS0347 | SCRS: 11th Panel Rebar Cage Installation | 2 | 20MAY10 | 21MAY10 | 0 |
| SCRS0349 | SCRS: 11th Panel Concreting Works | 1 | 22MAY10 | 22MAY10 | 0 |
| SCRS0351 | SCRS: Excavate 12th Panel to Formation Level | 7 | 24MAY10 | 31MAY10 | 0 |
| SCRS0353 | SCRS: 12th Panel Desanding & Preparation Works | 3 | 01JUN10 | 03JUN10 | 0 |
| SCRS0355 | SCRS: 12th Panel Rebar Cage Installation | 2 | 04JUN10 | 05JUN10 | 0 |
| SCRS0356 | SCRS: Grouting Works Phase 3 | 40 | 08JUN10 | 26JUL10 | 0 |
| SCRS0357 | SCRS: 12th Panel Concreting Works | 1 | 07JUN10 | 07JUN10 | 0 |
| SCRS0359 | SCRS: Excavate 13th Panel to Formation Level | 7 | 08JUN10 | 15JUN10 | 0 |
| SCRS0361 | SCRS: 13th Panel Desanding & Preparation Works | 3 | 17JUN10 | 19JUN10 | 0 |
| SCRS0365 | SCRS: 13th Panel Concreting Works | 1 | 23JUN10 | 23JUN10 | 0 |
| SCRS0366 | SCRS: 13th Panel Rebar Cage Installation | 2 | 21JUN10 | 22JUN10 | 0 |
| SCRS0367 | SCRS: Excavate 14th Panel to Formation Level | 7 | 24JUN10 | 02JUL10 | 0 |
| SCRS0369 | SCRS: 14th Panel Desanding & Preparation Works | 3 | 03JUL10 | 06JUL10 | 0 |
| SCRS0371 | SCRS: 14th Panel Rebar Cage Installation | 2 | 07JUL10 | 08JUL10 | 0 |
| SCRS0373 | SCRS: 14th Panel Concreting Works | 1 | 09JUL10 | 09JUL10 | 0 |
| SCRS0380 | SCRS: Install Dewatering Wells for Pump-test | 12 | 20JUL10 | 02AUG10 | 0 |
| SCRS0390 | SCRS: Pumping Test | 6 | 03AUG10 | 09AUG10 | 0 |
| SCRS0392 | SCRS: Submission of Pumping Test Report | 6 | 10AUG10 | 16AUG10 | 0 |
| SCRS0394 | SCRS: Demobilization for D'wall | 6 | 10AUG10 | 16AUG10 | 0 |
| **Shaft Excavation** | | | | | |
| SCRS0400 | SCRS: Construct Capping Beam & Shaft Collar | 6 | 17AUG10 | 23AUG10 | 0 |
| SCRS0410 | SCRS: Excavate Soil & Ring Beams (58.4m) | 42 | 24AUG10 | 13OCT10 | 0 |
| SCRS0420 | SCRS: Construct Levelling Pad | 3 | 14OCT10 | 18OCT10 | 0 |
| SCRS0430 | SCRS: Pre-excavation Grout for Raise Bore | 90 | 19OCT10 | 02FEB11 | 0 |
| SCRS0440 | SCRS: In-fill Concrete for Pilot Hole | 12 | 07FEB11 | 19FEB11 | 0 |
| **Raised Boring** | | | | | |
| SCRS0700 | SCRS: Rig Up Hole 1 | 5 | 07AUG12 | 11AUG12 | 0 |
| SCRS0710 | SCRS: Pilot Drill 140 mtrs | 16 | 13AUG12 | 30AUG12 | 0 |
| SCRS0720 | SCRS: Attach reamer and Collar | 3 | 31AUG12 | 03SEP12 | 0 |
| SCRS0730 | SCRS: Ream 90 metres @ 3.5 mtr dia | 35 | 04SEP12 | 16OCT12 | 0 |
| SCRS0740 | SCRS: Lower Reamer and Remove | 3 | 17OCT12 | 19OCT12 | 0 |
| SCRS0750 | SCRS: De Rig Raise borer | 5 | 20OCT12 | 26OCT12 | 0 |
| **Lower Shaft Construction** | | | | | |
| SCRS0835 | SCRS: Blinding Layer & Base Slab for LS | 6 | 27OCT12 | 02NOV12 | 0 |
| SCRS0840 | SCRS: Bank shunt concreting | 18 | 03NOV12 | 23NOV12 | 0 |
| SCRS0875 | SCRS: Constru Verti-Shft to Tun Invert -136.5mPD | 9 | 24NOV12 | 04DEC12 | 0 |
| SCRS0885 | SCRS: Install System Form for LS -136.5mPD | 9 | 05DEC12 | 14DEC12 | 0 |
| SCRS0935 | SCRS: Construct Transition & Vert Shaft -136mPD | 15 | 15DEC12 | 03JAN13 | 0 |
| SCRS0940 | SCRS: Construct Shaft -136 to -30.5mPD | 55 | 04JAN13 | 12MAR13 | 0 |
| **Upper Shaft Construction** | | | | | |
| SCRS0975 | SCRS: Construct Vert Shft to Tun Invert -30.5mPD | 9 | 13MAR13 | 22MAR13 | 0 |
| SCRS0995 | SCRS: Install System Form for LS -30.5mPD | 9 | 23MAR13 | 02APR13 | 0 |
| SCRS1045 | SCRS: Construct Upper Shaft | 36 | 03APR13 | 16MAY13 | 0 |
| SCRS1065 | SCRS: Clear Area & Install Multi-Part Cover | 3 | 17MAY13 | 20MAY13 | 0 |
| **Miscellaneous Works** | | | | | |
| SCRS2010 | SCRS: Install E&M Services | 18 | 21MAY13 | 10JUN13 | 0 |
| SCRS2020 | SCRS: Reinstatement & Clear RS Area | 12 | 11JUN13 | 25JUN13 | 0 |
| SCRS2025 | SCRS: Complete All Works at SCI RS (KD-11) | 0 | | 25JUN13 | 0 |
| SCRS2030 | SCRS: Landscaping & Planting Works | 60 | 08SEP13* | 06NOV13 | 0 |




| | |
|---|---|
| Start Date | 31JUL09 |
| Finish Date | 15JAN15 |
| Data Date | 20JAN10 |
| Run Date | 01FEB10 10:50 |

Early Bar
Progress Bar
Critical Activity



WPU7 Sheet 1 of 2

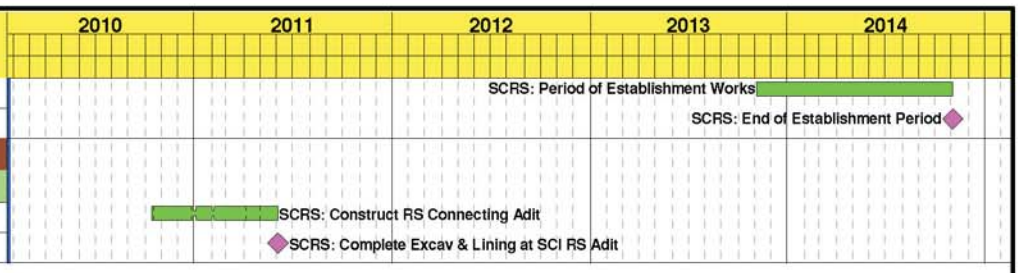
**Habour Area Treatment Scheme Stage 2A**
**Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island Programme**

**Annex G8 Construction Programme for the Project**

Gammon

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

| Activity ID | Activity Description | Orig Dur | Early Start | Early Finish | % Comp |
|---|---|---|---|---|---|
| SCRS2060 | SCRS: Period of Establishment Works | 360 | 07NOV13 | 01NOV14 | 0 |
| SCRS2070 | SCRS: End of Establishment Period | 0 | | 01NOV14 | 0 |
| Connecting Adit | | | | | |
| SCRS2040 | SCRS: Construct RS Connecting Adit | 192 | 14OCT10 | 03JUN11 | 0 |
| SCRS2050 | SCRS: Complete Excav & Lining at SCI RS Adit | 0 | | 03JUN11 | 0 |




| | |
|---|---|
| Start Date | 31JUL09 |
| Finish Date | 15JAN15 |
| Data Date | 20JAN10 |
| Run Date | 01FEB10 10:50 |



Early Bar
Progress Bar
Critical Activity

WPU7 Sheet 2 of 2

**Habour Area Treatment Scheme Stage 2A**
**Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island Programme**

**Annex G8 Construction Programme for the Project**

Gammon

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |
| | | | |
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Annex H

# Calibration Reports for Sound Level Meters for All Sites

*TSP Monitoring Equipment*

| Monitoring Station ID | Location | Monitoring Equipment | | Last Calibration Date | Next Calibration Date |
|---|---|---|---|---|---|
| *24-hr and 1-hr TSP* | | **HVS** | **Calibrator** | | |
| AM1 | Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School) | GMW GS-2310 (S/N 1808) | CM-AIR-43 (S/N 0438320) | 20 July 2012 | 20 September 2012 |
| AM2 | Rooftop of Hong Kong & Islands Regional Office, WSD | GMW GS-2310 (S/N 0145) | CM-AIR-43 (S/N 0438320) | 20 July 2012 | 20 September 2012 |
| AM3 | Rooftop of Wan Chai East PTW | GMW GS-2310 (S/N 0481) | CM-AIR-43 (S/N 0438320) | 20 July 2012 | 20 September 2012 |
| AM4 | A Location within the DSD Central PTW | GMW GS-2310 (S/N 9315) | CM-AIR-43 (S/N 0438320) | 20 July 2012 | 20 September 2012 |
| AM5 | Western Wholesale Food Market | GMW GS-2310 (S/N 2146) | CM-AIR-43 (S/N 0438320) | 13 July 2012 | 13 September 2012 |
| AM6 | Works Site Boundary | GMW GS-2310 (S/N 1254) | CM-AIR-43 (S/N 0438320) | 20 July 2012 | 20 September 2012 |

*Monitoring Equipment*

| Monitoring Station ID | Monitoring Equipment | Model & Serial No. | Last Calibration Date | Next Calibration Date |
|---|---|---|---|---|
| NM1 – NM5 [(a)] | Calibrator | Rion NC-73 (S/N 10786708) | 17 July 2012 | 17 July 2013 |
| | | Rion NC-73 (S/N 10997142) | 9 July 2012 | 9 July 2013 |
| | Sound Level Meter | Rion NL-52 (S/N 00710259) | 20 September 2011 | 20 September 2012 |
| | | Rion NL–31 (S/N 00410224) | 15 June 2012 | 15 June 2013 |

[(a)] The sound level meter ( Rion NL-52 (S/N 00710259) and Rion NL-31 (S/N 00410224)) and the calibrator (Rion NC-73 (S/N 10786708) or Rion NC-73 (S/N 10997142) ) is used in NM1, NM2, NM3, NM4 and NM5.

**Remarks**

| Monitoring Station ID | Location |
|---|---|
| NM1 | Rooftop of Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School) |
| NM2 | Rooftop of Hyde Building |
| NM3 | Rooftop of Goldfield Building |
| NM4 | Rooftop of Block A, Kwan Yick Building Phase III |
| NM5 | A Location near the FSD Diving Rescue and Diving Training Centre near the Site Boundary |

High-Volume TSP Sampler
5-Point Calibration Record

| | | |
|---|---|---|
| Location | : | AM1 |
| Calibrated by | : | K.T.Ho |
| Date | : | 20/07/2012 |

Sampler

| | | |
|---|---|---|
| Model | : | GMWS-2310 ACCU-VOL |
| Serial Number | : | S/N 1808 |

Calibration Orfice and Standard Calibration Relationship

| | | |
|---|---|---|
| Serial Number | : | 1378 |
| Service Date | : | 22 Feb 2012 |
| Slope (m) | : | 1.99405 |
| Intercept (b) | : | -0.00397 |
| Correlation Coefficient(r) | : | 0.99984 |

Standard Condition

| | | |
|---|---|---|
| Pstd (hpa) | : | 1013 |
| Tstd (K) | : | 298.18 |

Calibration Condition

| | | |
|---|---|---|
| Pa (hpa) | : | 1007 |
| Ta(K) | : | 303 |

| Resistance Plate | | dH [green liquid] (inch water) | Z | X=Qstd (cubic meter/min) | IC | Y |
|---|---|---|---|---|---|---|
| 1 | 18 holes | 11.5 | 3.353 | 1.684 | 62 | 61.3 |
| 2 | 13 holes | 9.2 | 2.999 | 1.506 | 55 | 54.4 |
| 3 | 10 holes | 6.4 | 2.501 | 1.256 | 45 | 44.5 |
| 4 | 7 holes | 4.8 | 2.166 | 1.088 | 38 | 37.6 |
| 5 | 5 holes | 2.6 | 1.594 | 0.802 | 26 | 25.7 |

Sampler Calibration Relationship

Slope(m):40.362 Intercept(b): -6.453 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan Date: 23/07/2012

High-Volume TSP Sampler
5-Point Calibration Record

| | | |
|---|---|---|
| Location | : | AM2 |
| Calibrated by | : | K.T.Ho |
| Date | : | 20/07/2012 |

Sampler

| | | |
|---|---|---|
| Model | : | GMWS-2310 ACCU-VOL |
| Serial Number | : | S/N 0145 |

Calibration Orfice and Standard Calibration Relationship

| | | |
|---|---|---|
| Serial Number | : | 1378 |
| Service Date | : | 22 Feb 2012 |
| Slope (m) | : | 1.99405 |
| Intercept (b) | : | -0.00397 |
| Correlation Coefficient(r) | : | 0.99984 |

Standard Condition

| | | |
|---|---|---|
| Pstd (hpa) | : | 1013 |
| Tstd (K) | : | 298.18 |

Calibration Condition

| | | |
|---|---|---|
| Pa (hpa) | : | 1007 |
| Ta(K) | : | 303 |

| Resistance Plate | | dH [green liquid] (inch water) | Z | X=Qstd (cubic meter/min) | IC | Y |
|---|---|---|---|---|---|---|
| 1 | 18 holes | 11.2 | 3.309 | 1.661 | 61 | 60.3 |
| 2 | 13 holes | 8.6 | 2.900 | 1.456 | 52 | 51.4 |
| 3 | 10 holes | 7.0 | 2.616 | 1.314 | 47 | 46.5 |
| 4 | 7 holes | 4.6 | 2.121 | 1.065 | 36 | 35.6 |
| 5 | 5 holes | 2.8 | 1.655 | 0.832 | 26 | 25.7 |

Sampler Calibration Relationship

Slope(m):41.567 Intercept(b): -8.712 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan Date: 23/07/2012

High-Volume TSP Sampler
5-Point Calibration Record

| | | |
|---|---|---|
| Location | : | AM3 |
| Calibrated by | : | K.T.Ho |
| Date | : | 20/07/2012 |

Sampler

| | | |
|---|---|---|
| Model | : | GMWS-2310 ACCU-VOL |
| Serial Number | : | S/N 0481 |

Calibration Orfice and Standard Calibration Relationship

| | | |
|---|---|---|
| Serial Number | : | 1378 |
| Service Date | : | 22 Feb 2012 |
| Slope (m) | : | 1.99405 |
| Intercept (b) | : | -0.00397 |
| Correlation Coefficient(r) | : | 0.99984 |

Standard Condition

| | | |
|---|---|---|
| Pstd (hpa) | : | 1013 |
| Tstd (K) | : | 298.18 |

Calibration Condition

| | | |
|---|---|---|
| Pa (hpa) | : | 1007 |
| Ta(K) | : | 303 |

| Resistance Plate | | dH [green liquid] (inch water) | Z | X=Qstd (cubic meter/min) | IC | Y |
|---|---|---|---|---|---|---|
| 1 | 18 holes | 11.5 | 3.353 | 1.684 | 62 | 61.3 |
| 2 | 13 holes | 8.6 | 2.900 | 1.456 | 52 | 51.4 |
| 3 | 10 holes | 7.0 | 2.616 | 1.314 | 46 | 45.5 |
| 4 | 7 holes | 4.6 | 2.121 | 1.065 | 34 | 33.6 |
| 5 | 5 holes | 2.8 | 1.655 | 0.832 | 24 | 23.7 |

Sampler Calibration Relationship

Slope(m):44.414 Intercept(b): -13.303 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan Date: 23/07/2012

High-Volume TSP Sampler
5-Point Calibration Record

| | | |
|---|---|---|
| Location | : | AM4 |
| Calibrated by | : | K.T.Ho |
| Date | : | 20/07/2012 |

Sampler

| | | |
|---|---|---|
| Model | : | GMWS-2310 ACCU-VOL |
| Serial Number | : | S/N 9315 |

Calibration Orfice and Standard Calibration Relationship

| | | |
|---|---|---|
| Serial Number | : | 1378 |
| Service Date | : | 22 Feb 2012 |
| Slope (m) | : | 1.99405 |
| Intercept (b) | : | -0.00397 |
| Correlation Coefficient(r) | : | 0.99984 |

Standard Condition

| | | |
|---|---|---|
| Pstd (hpa) | : | 1013 |
| Tstd (K) | : | 298.18 |

Calibration Condition

| | | |
|---|---|---|
| Pa (hpa) | : | 1007 |
| Ta(K) | : | 303 |

| Resistance Plate | | dH [green liquid] (inch water) | Z | X=Qstd (cubic meter/min) | IC | Y |
|---|---|---|---|---|---|---|
| 1 | 18 holes | 10.4 | 3.189 | 1.601 | 60 | 59.3 |
| 2 | 13 holes | 8.2 | 2.831 | 1.422 | 52 | 51.4 |
| 3 | 10 holes | 6.6 | 2.540 | 1.276 | 46 | 45.5 |
| 4 | 7 holes | 4.5 | 2.098 | 1.054 | 37 | 36.6 |
| 5 | 5 holes | 2.6 | 1.594 | 0.802 | 26 | 25.7 |

Sampler Calibration Relationship

Slope(m):41.722 Intercept(b): -7.651 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan Date: 23/07/2012

**ENVIROTECH SERVICES CO.**

**High-Volume TSP Sampler**
**5-Point Calibration Record**

| | | |
|---|---|---|
| **Location** | **:** | **Sai Ying Pun** |
| **Calibrated by** | **:** | **K.F.Ho** |
| **Date** | **:** | **13/07/2012** |

**Sampler**

| | | |
|---|---|---|
| **Model** | **:** | **TE-5170** |
| **Serial Number** | **:** | **S/N 2146** |

**Calibration Orfice and Standard Calibration Relationship**

| | | |
|---|---|---|
| **Serial Number** | **:** | **1378** |
| **Service Date** | **:** | **22 Feb 2012** |
| **Slope (m)** | **:** | **1.99405** |
| **Intercept (b)** | **:** | **-0.00397** |
| **Correlation Coefficient(r)** | **:** | **0.99984** |

**Standard Condition**

| | | |
|---|---|---|
| **Pstd (hpa)** | **:** | **1013** |
| **Tstd (K)** | **:** | **298.18** |

**Calibration Condition**

| | | |
|---|---|---|
| **Pa (hpa)** | **:** | **1006** |
| **Ta(K)** | **:** | **302** |

| Resistance Plate | | dH [green liquid] (inch water) | Z | X=Qstd (cubic meter/min) | IC | Y |
|---|---|---|---|---|---|---|
| 1 | 18 holes | 10.9 | 3.268 | 1.641 | 59 | 58.4 |
| 2 | 13 holes | 9.5 | 3.051 | 1.532 | 54 | 53.5 |
| 3 | 10 holes | 7.8 | 2.765 | 1.388 | 49 | 48.5 |
| 4 | 7 holes | 4.6 | 2.123 | 1.067 | 37 | 36.6 |
| 5 | 5 holes | 2.7 | 1.627 | 0.818 | 27 | 26.7 |

**Sampler Calibration Relationship**

**Slope(m):37.889 Intercept(b): -4.102 Correlation Coefficient(r): 0.9996**

**Checked by: Magnum Fan Date: 18/07/2012**

High-Volume TSP Sampler
5-Point Calibration Record9

| | | |
|---|---|---|
| Location | : | AM6 |
| Calibrated by | : | P.F.Yeung |
| Date | : | 20/07/2012 |

Sampler

| | | |
|---|---|---|
| Model | : | GMWS-2310 ACCU-VOL |
| Serial Number | : | S/N 1254 |

Calibration Orfice and Standard Calibration Relationship

| | | |
|---|---|---|
| Serial Number | : | 1378 |
| Service Date | : | 22 Feb 2012 |
| Slope (m) | : | 1.99405 |
| Intercept (b) | : | -0.00397 |
| Correlation Coefficient(r) | : | 0.99984 |

Standard Condition

| | | |
|---|---|---|
| Pstd (hpa) | : | 1013 |
| Tstd (K) | : | 298.18 |

Calibration Condition

| | | |
|---|---|---|
| Pa (hpa) | : | 1007 |
| Ta(K) | : | 303 |

| Resistance Plate | | dH [green liquid] (inch water) | Z | X=Qstd (cubic meter/min) | IC | Y |
|---|---|---|---|---|---|---|
| 1 | 18 holes | 9.1 | 2.983 | 1.498 | 62 | 61.3 |
| 2 | 13 holes | 7.4 | 2.690 | 1.351 | 55 | 54.4 |
| 3 | 10 holes | 5.8 | 2.381 | 1.196 | 49 | 48.4 |
| 4 | 7 holes | 3.8 | 1.927 | 0.969 | 39 | 38.6 |
| 5 | 5 holes | 2.2 | 1.467 | 0.737 | 29 | 28.7 |

Sampler Calibration Relationship

Slope(m):42.604 Intercept(b): -2.728 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan Date: 23/07/2012

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

# Certificate of Calibration
# 校正證書

Certificate No. : C123580
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC12-1472 )

| | | |
|---|---|---|
| Description / 儀器名稱 | : | Sound Level Meter |
| Manufacturer / 製造商 | : | Rion |
| Model No. / 型號 | : | NL-31 |
| Serial No. / 編號 | : | 00410224 |
| Supplied By / 委託者 | : | Envirotech Services Co.<br>Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,<br>Hong Kong |

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

**TEST SPECIFICATIONS / 測試規範**

Calibration check

**DATE OF TEST / 測試日期** : 15 June 2012

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : L K Yeung

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 15 June 2012



Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

# Certificate of Calibration
# 校正證書

Certificate No. : C123580
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

| Equipment ID | Description | Certificate No. |
|---|---|---|
| CL280 | 40 MHz Arbitrary Waveform Generator | C120016 |
| CL281 | Multifunction Acoustic Calibrator | DC110233 |

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| 30 - 120 | $L_A$ | A | Fast | 94.00 | 1 | 93.7 | ± 1.1 |

6.1.2 Linearity

| UUT Setting | | | | Applied Value | | UUT Reading (dB) |
|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | |
| 30 - 120 | $L_A$ | A | Fast | 94.00 | 1 | 93.7 (Ref.) |
| | | | | 104.00 | | 103.7 |
| | | | | 114.00 | | 113.7 |

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| 30 - 120 | $L_A$ | A | Fast | 94.00 | 1 | 93.7 | Ref. |
| | | | Slow | | | 93.6 | ± 0.3 |

# Certificate of Calibration
# 校正證書

Certificate No. : C123580
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| 30 - 120 | $L_A$ | A | Fast | 94.00 | 63 Hz | 67.3 | -26.2 ± 1.5 |
| | | | | | 125 Hz | 77.4 | -16.1 ± 1.5 |
| | | | | | 250 Hz | 85.0 | -8.6 ± 1.4 |
| | | | | | 500 Hz | 90.4 | -3.2 ± 1.4 |
| | | | | | 1 kHz | 93.7 | Ref. |
| | | | | | 2 kHz | 95.0 | +1.2 ± 1.6 |
| | | | | | 4 kHz | 94.8 | +1.0 ± 1.6 |
| | | | | | 8 kHz | 92.7 | -1.1 (+2.1 ; -3.1) |
| | | | | | 12.5 kHz | 89.8 | -4.3 (+3.0 ; -6.0) |

6.3.2 C-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| 30 - 120 | $L_C$ | C | Fast | 94.00 | 63 Hz | 92.8 | -0.8 ± 1.5 |
| | | | | | 125 Hz | 93.5 | -0.2 ± 1.5 |
| | | | | | 250 Hz | 93.7 | 0.0 ± 1.4 |
| | | | | | 500 Hz | 93.8 | 0.0 ± 1.4 |
| | | | | | 1 kHz | 93.7 | Ref. |
| | | | | | 2 kHz | 93.6 | -0.2 ± 1.6 |
| | | | | | 4 kHz | 93.1 | -0.8 ± 1.6 |
| | | | | | 8 kHz | 90.8 | -3.0 (+2.1 ; -3.1) |
| | | | | | 12.5 kHz | 88.0 | -6.2 (+3.0 ; -6.0) |

Remarks : - Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.35 dB
  250 Hz - 500 Hz : ± 0.30 dB
  1 kHz : ± 0.20 dB
  2 kHz - 4 kHz : ± 0.35 dB
  8 kHz : ± 0.45 dB
  12.5 kHz : ± 0.70 dB
  104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
  114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.



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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

# Certificate of Calibration
# 校正證書

Certificate No. : C124011
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC12-1674 )

| | | |
|---|---|---|
| Description / 儀器名稱 | : | Sound Level Calibrator |
| Manufacturer / 製造商 | : | Rion |
| Model No. / 型號 | : | NC-73 |
| Serial No. / 編號 | : | 10997142 |
| Supplied By / 委託者 | : | Envirotech Services Co.<br>Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,<br>Hong Kong |

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

**TEST SPECIFICATIONS / 測試規範**

Calibration check

**DATE OF TEST / 測試日期** : 9 July 2012

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K. Yeung
L K Yeung

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 10 July 2012

# Certificate of Calibration
# 校正證書

Certificate No. : C124011
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

| Equipment ID | Description | Certificate No. |
|---|---|---|
| CL130 | Universal Counter | C123541 |
| CL281 | Multifunction Acoustic Calibrator | DC110233 |
| TST150A | Measuring Amplifier | C120886 |

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

| UUT Nominal Value | Measured Value (dB) | Mfr's Spec. (dB) | Uncertainty of Measured Value (dB) |
|---|---|---|---|
| 94 dB, 1 kHz | 94.0 | ± 0.5 | ± 0.2 |

5.2 Frequency Accuracy

| UUT Nominal Value (kHz) | Measured Value (kHz) | Mfr's Spec. | Uncertainty of Measured Value (Hz) |
|---|---|---|---|
| 1 | 0.990 | 1 kHz ± 2 % | ± 1 |

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.



Sun Creation Engineering Limited – Calibration & Testing Laboratory
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Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

**RION CO., LTD.**

3-20-41 Higashimotomachi Kokubunji Tokyo 185-8533
Phone:042(359)7888, Facsimile:042(359)7442

# Certificate of Calibration

**Name** : **Precision sound level meter**

**Model** : **NL-52** **S/No. : 00710259**
**( NX-42EX installed )**

**Microphone** : **UC-59** **S/No. : 02695**

**Preamplifier** : **NH-25** **S/No. : 10253**

**Date of Calibration** : **September, 20, 2011**

We hereby certify that the above product was tested and calibrated according to the prescribed Rion procedures, and that it fulfills specification requirements.
The measuring equipment and reference devices used for testing and calibrating this unit are managed under the Rion traceability system and are traceable according to official Japanese standards and official standards of countries belonging to the International Committee of Weights and Measures.

RION CO., LTD.

Manager, Quality Control Department

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

# Certificate of Calibration
# 校正證書

Certificate No. : C124184
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC12-1770 )

Description / 儀器名稱 : Sound Level Calibrator
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-73
Serial No. / 編號 : 10786708
Supplied By / 委託者 : Envirotech Services Co.
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

**TEST SPECIFICATIONS / 測試規範**

Calibration check

**DATE OF TEST / 測試日期** : 17 July 2012

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested By 測試 : L K Yeung

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 18 July 2012



Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

# Certificate of Calibration
# 校正證書

Certificate No. : C124184
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

| Equipment ID | Description | Certificate No. |
|---|---|---|
| CL130 | Universal Counter | C123541 |
| CL281 | Multifunction Acoustic Calibrator | DC110233 |
| TST150A | Measuring Amplifier | C120886 |

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

| UUT Nominal Value | Measured Value (dB) | Mfr's Spec. (dB) | Uncertainty of Measured Value (dB) |
|---|---|---|---|
| 94 dB, 1 kHz | 93.9 | ± 0.5 | ± 0.2 |

5.2 Frequency Accuracy

| UUT Nominal Value (kHz) | Measured Value (kHz) | Mfr's Spec. | Uncertainty of Measured Value (Hz) |
|---|---|---|---|
| 1 | 0.990 | 1 kHz ± 2 % | ± 1 |

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.



Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
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WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

# ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 22, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
Operator Tisch Orifice I.D. - 1378 Pa (mm) - 740.41

| PLATE OR Run # | VOLUME START (m3) | VOLUME STOP (m3) | DIFF VOLUME (m3) | DIFF TIME (min) | METER DIFF Hg (mm) | ORFICE DIFF H2O (in.) |
|---|---|---|---|---|---|---|
| 1 | NA | NA | 1.00 | 1.3940 | 3.2 | 2.00 |
| 2 | NA | NA | 1.00 | 0.9740 | 6.4 | 4.00 |
| 3 | NA | NA | 1.00 | 0.8720 | 8.0 | 5.00 |
| 4 | NA | NA | 1.00 | 0.8340 | 8.8 | 5.50 |
| 5 | NA | NA | 1.00 | 0.6870 | 12.8 | 8.00 |

## DATA TABULATION

| Vstd | (x axis) Qstd | (y axis) | | Va | (x axis) Qa | (y axis) |
|---|---|---|---|---|---|---|
| 0.9799 | 0.7029 | 1.4029 | | 0.9957 | 0.7142 | 0.8927 |
| 0.9756 | 1.0017 | 1.9841 | | 0.9914 | 1.0178 | 1.2624 |
| 0.9734 | 1.1163 | 2.2183 | | 0.9891 | 1.1343 | 1.4114 |
| 0.9724 | 1.1660 | 2.3265 | | 0.9881 | 1.1848 | 1.4803 |
| 0.9671 | 1.4077 | 2.8059 | | 0.9827 | 1.4304 | 1.7853 |
| Qstd slope (m) = | | 1.99405 | | Qa slope (m) = | | 1.24864 |
| intercept (b) = | | -0.00397 | | intercept (b) = | | -0.00252 |
| coefficient (r) = | | 0.99984 | | coefficient (r) = | | 0.99984 |
| y axis = SQRT[H2O(Pa/760)(298/Ta)] | | | | y axis = SQRT[H2O(Ta/Pa)] | | |

## CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

Annex I

# Event /Action Plans for Air Quality, Noise and Landscape and Visual Monitoring

*Table I1 Event Action Plan for Air Quality Monitoring*

| Action Level/Limit Level | Environmental Team Leader (ETL) | Independent Environmental Checker (IEC) | Engineer's Representative (ER) | Contractor |
|---|---|---|---|---|
| *Action Level* | | | | |
| Exceedance for one sample | • Identify source, investigate the causes of exceedance and propose remedial measures;<br>• Inform IEC and ER;<br>• Repeat measurement to confirm finding; and,<br>• Increase monitoring frequency to daily. | • Check monitoring data submitted by ET; and,<br>• Check Contractor's working method. | • Notify Contractor | • Rectify any unacceptable practice; and,<br>• Amend working methods if appropriate. |
| Exceedance for two or more consecutive samples | • Identify source;<br>• Inform IEC and ER;<br>• Advise the ER on the effectiveness of the proposed remedial measures;<br>• Repeat measurements to confirm findings;<br>• Increase monitoring frequency to daily; and,<br>• Discuss with IEC and Contractor on remedial actions required; | • Check monitoring data submitted by ET;<br>• Check Contractor's working method;<br>• Discuss with ET and Contractor on possible remedial measures;<br>• Advise the ET on the effectiveness of the proposed remedial measures; and,<br>• Supervise Implementation of remedial measures. | • Confirm receipt of notification of failure in writing;<br>• Notify Contractor, and,<br>• Ensure remedial measures properly implemented. | • Submit proposals for remedial to ER within 3 working days of notification;<br>• Implement the agreed proposals;<br>• Amend proposal if appropriate. |

| Action Level/Limit Level | Environmental Team Leader (ETL) | Independent Environmental Checker (IEC) | Engineer's Representative (ER) | Contractor |
|---|---|---|---|---|
| *Limit Level* | | | | |
| Exceedance for one sample | • Identify source, investigate the causes of exceedance and propose remedial measures;<br>• Inform ER, Contractor and EPD;<br>• Repeat measurement to confirm finding;<br>• Increase monitoring frequency to daily; and,<br>• Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. | • Check monitoring data submitted by ET;<br>• Check Contractor's working method;<br>• Discuss with ET and Contractor on possible remedial measures;<br>• Advise the ER on the effectiveness of the proposed remedial measures; and,<br>• Supervise implementation of remedial measures. | • Confirm receipt of notification of failure in writing;<br>• Notify Contractor; and,<br>• Ensure remedial measures properly implemented. | • Take immediate action to avoid further exceedance;<br>• Submit proposals for remedial actions to IEC within 3 working days of notification;<br>• Implement the agreed proposals; and,<br>• Amend proposal if appropriate. |
| Exceedance for two or more consecutive samples | • Notify IEC, ER, Contractor and EPD;<br>• Identify source;<br>• Repeat measurement to confirm findings;<br>• Increase monitoring frequency to daily;<br>• Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;<br>• Arrange meeting with IEC and ER to discuss the remedial actions to be taken;<br>• Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and,<br>• If exceedance stops, cease additional monitoring. | • Check monitoring data submitted by ET;<br>• Check Contractor's working method;<br>• Discuss amongst ER, ET, and Contractor on the potential remedial actions;<br>• Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and,<br>• Supervise the implementation of remedial measures. | • Confirm receipt of notification of failure in writing;<br>• Notify Contractor;<br>• In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented;<br>• Ensure remedial measures properly implemented; and,<br>• If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. | • Take immediate action to avoid further exceedance;<br>• Submit proposals for remedial actions to IEC within 3 working days of notification;<br>• Implement the agreed proposals;<br>• Resubmit proposals if problem still not under control; and,<br>• Stop the relevant portion of works as determined by the ER until the exceedance is abated. |

*Table I2 Event Action Plan for Noise Monitoring*

| Action Level/Limit Level | Environmental Team Leader (ETL) | Independent Environmental Checker (IEC) | Engineer's Representative (ER) | Contractor |
|---|---|---|---|---|
| Action Level being exceeded | • Notify ER, IEC and Contractor;<br>• Carry out investigation;<br>• Report the results of investigation to the IEC, ER and Contractor;<br>• Discuss with the IEC and Contractor on remedial measures required; and,<br>• Increase monitoring frequency to check mitigation effectiveness. | • Review the investigation results submitted by the ET;<br>• Review the proposed remedial measures by the Contractor and advise the ER accordingly; and,<br>• Advise the ER on the effectiveness of the proposed remedial measures. | • Confirm receipt of notification of failure in writing;<br>• Notify Contractor;<br>• In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; and,<br>• Supervise the implementation of remedial measures. | • Submit noise mitigation proposals to IEC and ER; and,<br>• Implement noise mitigation proposals. |

| Action Level/Limit Level | Environmental Team Leader (ETL) | Independent Environmental Checker (IEC) | Engineer's Representative (ER) | Contractor |
|---|---|---|---|---|
| Limit Level being exceeded | • Inform IEC, ER, Contractor and EPD;<br>• Repeat measurements to confirm findings;<br>• Increase monitoring frequency;<br>• Identify source and investigate the cause of exceedance;<br>• Carry out analysis of Contractor's working procedures;<br>• Discuss with the IEC, Contractor and ER on remedial measures required;<br>• Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and,<br>• If exceedance stops, cease additional monitoring. | • Discuss amongst ER, ET, and Contractor on the potential remedial actions; and,<br>• Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. | • Confirm receipt of notification of failure in writing;<br>• Notify Contractor;<br>• In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented;<br>• Supervise the implementation of remedial measures; and,<br>• If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. | • Take immediate action to avoid further exceedance;<br>• Submit proposals for remedial actions to IEC and ER within 3 working days of notification;<br>• Implement the agreed proposals;<br>• Submit further proposal if problem still not under control; and,<br>• Stop the relevant portion of works as instructed by the ER until the exceedance is abated. |

*Table I3 Event and Action Plan for Landscape and Visual Impact - Construction Phase*

| Action Level | Environmental Team Leader (ETL) | Independent Environmental Checker (IEC) | Engineer's Representative (ER) | Contractor |
|---|---|---|---|---|
| Non-conformity on one occasion | Identify source<br>Inform the IEC and the ER<br>Discuss remedial actions with the IEC, the ER and the Contractor<br>Monitor remedial action until rectification has been completed | Check report<br>Check the Contractor's working method<br>Discuss with the ER and the Contractor on possible remedial measures<br>Advise the ER on effectiveness of proposed remedial measures | Notify the Contractor<br>Ensure remedial measures are properly implemented | Amend working methods<br>Rectify damage and undertake remedial measures or any necessary replacement |
| Repeated Non-conformity | Identify source<br>Inform the IEC and the ER<br>Increase monitoring (site audit) frequency<br>Discuss remedial actions with the IEC, the ER and the Contractor<br>Monitor remedial actions until rectification has been completed<br>If exceedance stops, cease additional monitoring (site audit) | Check report<br>Check the Contractor's working method<br>Discuss with the ER and the Contractor on possible remedial measures<br>Advise the ER on effectiveness of proposed remedial measures<br>Supervise implementation of remedial measures | Notify the Contractor<br>Ensure remedial measures are properly implemented | Amend working methods<br>Rectify damage and undertake remedial measures or any necessary replacement |

Annex J

# Waste Flow Table

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island

**Contract No. : DC/2007/23**

**Monthly Summary Waste Flow Table for 2009 (year)**

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Quantity Generated | Broken Concrete (see Note 4) | Reused in the Contract | Reused in other Projects | Disposed as Public Fill | | Metals (see Note 2) | Paper/ cardboard packaging (see Note 2) | Plastics (see Note 3) | Chemical Waste | Others, e.g. general refuse |
| | (in '000m³) | (in '000m³) | (in '000m³) | (in '000m³) | (in '000m³) | | (in '000kg) | (in '000kg) | (in '000kg) | (in'000kg / '000L) | (in '000m³) |
| Jan | | | | | | | | | | | |
| Feb | | | | | | | | | | | |
| Mar | | | | | | | | | | | |
| Apr | | | | | | | | | | | |
| May | | | | | | | | | | | |
| June | | | | | | | | | | | |
| Sub-total | | | | | | | | | | | |
| July | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| Aug | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| Sept | 0.016 | 0 | 0 | 0 | Dry | Wet | 0 | 0 | 0 | 0 | 0.068 |
| | | | | | 0.016 | 0 | | | | | |
| Oct | 0.523 | 0 | 0 | 0 | 0.523 | 0 | 0 | 0 | 0 | 0 | 0.086 |
| Nov | 2.331 | 0 | 0 | 0 | 2.275 | 0.056 | 99.2 | 0.036 | 0 | 0 | 0.129 |
| Dec | 3.803 | 0 | 0 | 0 | 3.004 | 0.799 | 1 | 0 | 0 | 0 | 0.120 |
| Total | 6.673 | 0 | 0 | 0 | 5.818 | 0.855 | 100.2 | 0.036 | 0 | 0 | 0.403 |

Notes:
(1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
(4) Broken concrete for recycling into aggregates
(5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 $m^3$ by volume.
(6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L).

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island

**Contract No. : DC/2007/23**

**Monthly Summary Waste Flow Table for 2010 (year)**

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Quantity Generated | Broken Concrete (see Note 4) | Reused in the Contract | Reused in other Projects | Disposed as Public Fill | | Metals (see Note 2) | Paper/ cardboard packaging (see Note 2) | Plastics (see Note 3) | Chemical Waste | Others, e.g. general refuse |
| | (in '000m³) | (in '000m³) | (in '000m³) | (in '000m³) | (in '000m³) | | (in '000kg) | (in '000kg) | (in '000kg) | (in'000kg / '000L) | (in '000m³) |
| Jan | 5.341 | 0 | 0 | 0 | Dry | Wet | 0 | 0.144 | 0 | 0.8 | 0.178 |
| | | | | | 3.066 | 2.275 | | | | | |
| Feb | 3.328 | 0 | 0 | 0 | 1.541 | 1.787 | 0 | 0 | 0 | 0 | 0.167 |
| Mar | 4.486 | 0 | 0 | 0 | 2.019 | 2.467 | 0 | 0.09 | 0 | 0 | 0.148 |
| Apr | 4.864 | 0 | 0 | 0 | 1.756 | 3.108 | 0 | 0.054 | 0 | 0 | 0.160 |
| May | 7.092 | 0 | 0 | 0 | 3.383 | 3.709 | 0 | 0.144 | 0 | 0.3 | 0.157 |
| June | 6.190 | 0 | 0 | 0 | 1.083 | 5.107 | 0 | 0.09 | 0 | 0.4 | 0.455 |
| Sub-total | 31.301 | 0 | 0 | 0 | 12.848 | 18.453 | 0 | 0.522 | 0 | 1.5 | 1.265 |
| July | 5.031 | 0 | 0 | 0 | 1.006 | 4.025 | 0 | 0.162 | 0 | 0 | 0.212 |
| Aug | 5.140 | 0 | 0 | 0.23 | 1.970 | 2.940 | 0 | 0.09 | 0 | 0.4 | 0.312 |
| Sept | 3.593 | 0.15 | 0 | 0.35 | 1.771 | 1.322 | 0 | 0.09 | 0 | 1 | 0.146 |
| Oct | 2.324 | 0 | 0 | 0 | 1.429 | 0.895 | 0 | 0.144 | 0 | 0 | 0.078 |
| Nov | 5.927 | 0 | 0 | 0 | 4.383 | 1.544 | 0 | 0 | 0 | 0.8 | 0.078 |
| Dec | 4.963 | 0 | 0 | 0 | 4.840 | 0.123 | 0 | 0.072 | 0 | 0 | 0.078 |
| Total | 58.279 | 0.15 | 0 | 0.58 | 28.247 | 29.302 | 0 | 1.080 | 0 | 3.7 | 2.169 |

Notes:
(1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
(4) Broken concrete for recycling into aggregates
(5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 $m^3$ by volume.
(6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L).

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island

**Contract No. : DC/2007/23**

**Monthly Summary Waste Flow Table for 2011 (year)**

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Quantity Generated | Broken Concrete (see Note 4) | Reused in the Contract | Reused in other Projects | Disposed as Public Fill | | Metals (see Note 2) | Paper/ cardboard packaging (see Note 2) | Plastics (see Note 3) | Chemical Waste | Others, e.g. general refuse |
| | (in '000m³) | (in '000m³) | (in '000m³) | (in '000m³) | (in '000m³) | | (in '000kg) | (in '000kg) | (in '000kg) | (in'000kg / '000L) | (in '000m³) |
| Jan | 8.423 | 0 | 0 | 0 | Dry | Wet | 0 | 0.09 | 0 | 1.2 | 0.124 |
| | | | | | 8.236 | 0.187 | | | | | |
| Feb | 7.794 | 0 | 0 | 0.799 | 6.814 | 0.181 | 0 | 0.09 | 0 | 0 | 0.138 |
| Mar | 9.641 | 0 | 0 | 0.576 | 9.007 | 0.058 | 0 | 0.19 | 0 | 0 | 0.059 |
| Apr | 8.841 | 0 | 0 | 2.014 | 6.730 | 0.097 | 0 | 0.09 | 0 | 0.2 | 0.069 |
| May | 5.416 | 0 | 0 | 0.887 | 4.280 | 0.249 | 0 | 0.09 | 0 | 0 | 0.077 |
| June | 7.507 | 0 | 0 | 0.665 | 6.245 | 0.597 | 0 | 0.337 | 0.028 | 1.0 | 0.072 |
| Sub-total | 47.622 | 0 | 0 | 4.941 | 41.312 | 1.369 | 0 | 0.887 | 0.028 | 2.4 | 0.539 |
| July | 5.31 | 0 | 0 | 2.372 | 2.795 | 0.143 | 0 | 0.162 | 0 | 0 | 0.109 |
| Aug | 5.381 | 0 | 0 | 2.553 | 2.530 | 0.298 | 0 | 0.248 | 0.035 | 0.4 | 0.097 |
| Sept | 6.963 | 0 | 0 | 2.814 | 3.974 | 0.175 | 0 | 0.289 | 0.032 | 0 | 0.155 |
| Oct | 5.330 | 0 | 0 | 0.794 | 4.385 | 0.151 | 0 | 0.254 | 0.015 | 0 | 0.128 |
| Nov | 5.009 | 0 | 0 | 0.995 | 3.760 | 0.254 | 0 | 0.270 | 0 | 0.6 | 0.116 |
| Dec | 5.429 | 0 | 0.159 | 1.430 | 3.522 | 0.318 | 0 | 0.216 | 0 | 0 | 0.117 |
| Total | 81.044 | 0 | 0.159 | 15.899 | 62.278 | 2.708 | 0 | 2.326 | 0.11 | 3.4 | 1.261 |

Notes:
(1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
(4) Broken concrete for recycling into aggregates
(5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 $m^3$ by volume.
(6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L).

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island

**Contract No. : DC/2007/23**

**Monthly Summary Waste Flow Table for 2012 (year)**

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Quantity Generated | Broken Concrete (see Note 4) | Reused in the Contract | Reused in other Projects | Disposed as Public Fill | | Metals (see Note 2) | Paper/ cardboard packaging (see Note 2) | Plastics (see Note 3) | Chemical Waste | Others, e.g. general refuse |
| | (in '000m³) | (in '000m³) | (in '000m³) | (in '000m³) | (in '000m³) | | (in '000kg) | (in '000kg) | (in '000kg) | (in'000kg / '000L) | (in '000m³) |
| Jan | 6,208 | 0 | 0 | 1.615 | Dry | Wet | 0 | 0.108 | 0 | 0.4 | 0.117 |
| | | | | | 4.277 | 0.316 | | | | | |
| Feb | 6.006 | 0 | 0 | 0.443 | 5.148 | 0.415 | 0 | 0.108 | 0 | 0 | 0.063 |
| Mar | 8.370 | 0 | 0 | 1.226 | 6.871 | 0.273 | 0 | 0.108 | 0 | 0 | 0.181 |
| Apr | 8.899 | 0 | 0 | 1.101 | 7.581 | 0.217 | 0 | 0.036 | 0 | 0 | 0.685 |
| May | 6.789 | 0 | 0 | 0.716 | 5.931 | 0.142 | 0 | 0.108 | 0 | 0.4 | 0.103 |
| June | 7.585 | 0 | 0.021 | 5.565 | 1.789 | 0.213 | 0.014 | 0.256 | 0 | 0.0 | 0.197 |
| Sub-total | 43.857 | 0 | 0.021 | 10.666 | 31.594 | 1.576 | 0.014 | 0.724 | 0 | 0.8 | 1.346 |
| July | 9.128 | 0 | 0 | 5.240 | 3.730 | 0.158 | 8.356 | 0.055 | 0 | 0.8 | 0.171 |
| Aug | 5.756 | 0 | 0 | 3.836 | 1.640 | 0.280 | 0.008 | 0.062 | 0 | 0.2 | 0.126 |
| Sept | | | | | | | | | | | |
| Oct | | | | | | | | | | | |
| Nov | | | | | | | | | | | |
| Dec | | | | | | | | | | | |
| Total | 58.741 | 0 | 0.021 | 19.742 | 36.964 | 2.014 | 8.378 | 0.841 | 0 | 1.8 | 1.643 |

Notes:
(1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
(4) Broken concrete for recycling into aggregates
(5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 $m^3$ by volume.
(6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L).