

JOB No.: TCS00502/09

DSD CONTRACT NO.: DE/2009/02

HARBOUR AREA TREATMENT SCHEME STAGE 2A -
PROVISION OF COVERS AND DEODOURISATION
FACILITIES TO THE EXISTING SEDIMENTATION TANKS
AT STONECUTTERS ISLAND SEWAGE TREATMENT
WORKS

BASELINE MONITORING REPORT

PREPARED FOR

ATAL ENGINEERING LIMITED

Quality Index

| Date | Reference No. | Prepared By | Certified By |
|-----------------|-------------------------|-------------|--------------|
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EXECUTIVE SUMMARY

ES.01. ATAL Engineering Limited (hereinafter 'ATAL') has been awarded the *Contract DE/2009/02 – Harbour Area Treatment Scheme Stage 2A - Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works* (the Project) by the Drainage Services Department (DSD) on 30 October 2009. The duration of the project is about 972 days from 30 October 2009 to 27 June 2012.

ES.02. The scope of Harbour Area Treatment Scheme (HATS) Stage 2A is an overall plan approved under a statutory EIA (Register No. AEIAR-121/2008) commissioned by the then Drainage Services Department (DSD). An Environmental Permit (No. EP-322/2008) has been obtained by the DSD on 19 November 2008 for the relevant works as below:

- Upgrading of existing preliminary treatment works (PTW) at North Point, Wan Chai East, Central, Sandy Bay, Cyberport, Wah Fu, Aberdeen, and Ap Lei Chau on Hong Kong Island;
- Extension of the deep tunnel network to collect and transfer sewage from the above preliminary treatment works to Stonecutters Island for treatment and disposal;
- Expansion of the existing chemical treatment capacity at Stonecutters Island from the present design level of 1.7 million cubic metres daily to ultimately 2.8 million cubic metres; and
- Provision of disinfection to all HATS effluent before discharge into the harbour.

ES.03. Due to the Project DE/2009/02 is a part of the Harbour Area Treatment Scheme Stage 2 of expansion of the existing chemical treatment capacity at Stonecutters Island, so all the work should be undertaken in accordance with the Environment Permit. Also, the permit was varied on 2 November 2009 as EP-322/2008/B.

ES.04. Before the Project award, there have one past contract and two current projects, under the Harbour Area Treatment Scheme (HATS) Stage 2A, were commenced by DSD at Stonecutters Island Sewage Treatment Works. Those contracts as included:-

Contract No. DC/2007/20 under the EP-295/2007

Harbour Area Treatment Scheme Stage 2A – Construction of Advance Disinfection Facilities at SCISTW (the contract was completed end of November 2009)

Contract No. DC/2007/23 under the EP-322/2008/B

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island (current project)

Contract No. DC/2009/05 under the EP-322/2008/B

Harbour Area Treatment Scheme stage 2A - Construction of Interconnection Tunnel and Diaphragm Wall for Main Pumping Station at SCISTW (current project)

ES.05. During HATS Stage 2A work commencement at Stonecutters Island in June 2008, all monitoring stations including air and noise stipulated in the project EM&A Manuals were denied by the owners of the premises while the three contracts award. New monitoring stations of AM6, AM7 & AM8 for air quality, and NM5 & NM6 for construction noise were recommended by the three projects representative Environmental Team sequentially and accepted by IEC.

- ES.06. All proposed monitoring station under the project HATS Stage 2A of EM&A works at Stonecutters Island were sequential commenced by the three projects ET such as AM8 for ET of DC/2007/20, AM6 & NM5 for ET of DC/2007/23; and AM7 & NM6 for ET of DC/2009/05. Also, baseline monitoring in compliance with the project EM&A Manual requirements was carried out between June 2008 and November 2009 under the different contract.
- ES.07. Since contract DC/2007/20 completion in end of November 2009, DE/2009/02 is requested to take over the monitoring work at AM8 under the permit (EP-322/2008/B).
- ES.08. Action-United Environmental Services and Consulting (AUES) has been commissioned by ATAL to be an Environmental Team (ET) to implement the EM&A program in compliance with the project EM&A Manual. According to the project EM&A Manual requirements, the nature ambient environmental conditions including air and noise should demonstrate before major construction works under the Project commencement. Action and Limit Level of environmental performance criteria should set up to be used for the impact monitoring results with air quality and construction noise comparison.
- ES.09. Due to baseline monitoring of AM8 was undertaken by previous contract DC/2007/20 dated between 8 June 2008 and 21 June 2008, no baseline monitoring is therefore carried out by DE/2009/02 accordingly. However, baseline report should be complied in accordance with the PS requirements to establish A/L levels for the Project. It will be used to evaluate the environmental impact in association with the construction of the project DE/2009/02 and to evaluate the effectiveness of the Contractor mitigation measures implement on-site during the construction period.
- ES.10. Action and Limit (A/L) levels for air quality and noise is established to be based on the other contracts measurement results, which is established according to the criteria set out in the EM&A Manual are proposed in Table ES-1 and ES-2

Table ES-1 Action and Limit Levels for Air Quality Monitoring

| Monitoring Stations | Action Level ($\mu\text{g}/\text{m}^3$) | | Limit Level ($\mu\text{g}/\text{m}^3$) | |
|---------------------|---|---------|--|---------|
| | 1-Hour | 24-Hour | 1-Hour | 24-Hour |
| AM6 | 346 | 196 | 500 | 260 |
| AM7 | 322 | 207 | 500 | 260 |
| AM8 | 307 | 158 | 500 | 260 |

Table ES-2 Action and Limit Levels for Construction Noise Monitoring

| Monitoring Stations | Time Period | Action Level | Limit Level in dB(A) |
|---------------------|--|---|----------------------|
| NM5 NM6 | 0700-1900 hours on normal weekdays | When one documented complaint is received | 75 |
| | 0700-2300 hrs on holidays; and 1900-2300 hrs on all other days | | 70 |
| | 2300-0700 hrs of next day | | 55 |

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1.0 INTRODUCTION

- 1.01 ATAL Engineering Limited (hereinafter ‘ATAL’) has been awarded the *Contract DE/2009/02 – Harbour Area Treatment Scheme Stage 2A - Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works* (the Project) by the Drainage Services Department (DSD) on 30 October 2009. The Project is a part of the Harbour Area Treatment Scheme Stage 2 of expansion of the existing chemical treatment capacity at Stonecutters Island, so all the work should be undertaken in accordance with the Environment Permit. Also, the permit was revised on 2 November 2009 as EP-322/2008/B. The site layout plan for the captioned work under this project is showing in **Appendix A**. The Project’s major construction works are included the following items:
- (a) Construction of covers for flocculation tanks, prototype tanks, main distribution channels, sedimentation tanks, scum chambers and effluent drop structures
 - (b) Two deodourisation facilities;
 - (c) Piling Works of Foundation;
 - (d) Construction of Foundation for Deodourisation facilities;
 - (e) Erection of Structure of Control Room at DOU Foundation;
 - (f) Construction of public access road with footpath;
 - (g) Water main laying works;
 - (h) Associated ancillary works;
 - (i) Tree transplanting, landscaping works; and all other works as required under the Contract
- 1.02 According to the Particular Specification (PS) and **Appendix 22** of the Project, ATAL should establish an Environmental Team to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the Environmental Monitoring and Audit (EM&A) Manual.
- 1.03 Action-United Environmental Services and Consulting (AUES) has been appointed by ATAL as the project Environmental Team (ET) to implement the required EM&A program. Organization chart of the Environmental Team for the Project is shown in **Appendix B**.
- 1.04 During HATS Stage 2A work at Stonecutters Island (DC/2007/20) commencement in June 2008, all monitoring stations including air and noise stipulated in the project EM&A Manual were denied by the owners of the premises. Therefore, new monitoring stations of AM6, AM7 & AM8 for air quality, and NM5 & NM6 for construction noise were sequential commenced by the three projects ET such as AM8 for ET of DC/2007/20, AM6 & NM5 for ET of DC/2007/23; and AM7 & NM6 for ET of DC/2009/05. Also, baseline monitoring in compliance with the project EM&A Manual requirements was carried out between June 2008 and November 2009.
- 1.05 In order to do, baseline report under this Project should compile and submit for IEC verification in accordance with the contract requirements, although baseline monitoring was completed by the prior contracts.
- 1.06 This “Baseline Monitoring Report” is present including the project background, monitoring methodology and also established the proposed Action/Limit (A/L) levels for air quality and noise for the subsequent EM&A program during the construction period for the Project.

REPORT STRUCTURE

1.05 The “Baseline Monitoring Report” is structured into the following sections:

| | |
|------------------|--|
| SECTION 1 | INTRODUCTION |
| SECTION 2 | SUMMARY OF BASELINE MONITORING REQUIREMENTS |
| SECTION 3 | BASELINE MONITORING METHODOLOGY |
| SECTION 4 | BASELINE MONITORING RESULTS |
| SECTION 5 | CONCLUSION |

2.0 SUMMARY OF BASELINE MONITORING REQUIREMENTS

ENVIRONMENTAL ASPECT

- 2.01 According to the Project EM&A Manual (hereafter “*the Manual*”), air quality and noise have been stipulated to be the key monitoring parameters during the baseline and impact phase for the construction of the Project.
- 2.02 The baseline monitoring requirements for two environmental aspects are presented in the Section 2 and 3 of the Manual. Summary of the requirements for air quality and noise are shown in *Table 2-1*.

Table 2-1 Summary of EM&A Requirements

| Environmental Aspect | Monitoring Parameters |
|----------------------|--|
| Air Quality | <ul style="list-style-type: none"> • 1-Hour TSP • 24-Hour TSP |
| Noise | <ul style="list-style-type: none"> • Leq(30min) during the normal working hours; and • 3 consecutive Leq(5min) for construction work during the restricted hours |

MONITORING LOCATION

- 2.03 During HATS Stage 2A work at Stonecutters Island (DC/2007/20) commencement in June 2008, all monitoring stations including air and noise stipulated in the project EM&A Manual were denied by the owners of the premises while the three prior contracts commencement. The new designated monitoring stations of AM6, AM7 & AM8 for air quality, and NM5 & NM6 for construction noise were recommended by the representative Environmental Team of prior contracts sequentially and accepted by IEC before the baseline monitoring commencement. The current monitoring stations are shown in *Appendix C*. Also, the history of the current monitoring stations undertaken is summarized in *Table 2-2*.

Table 2-2 History of Monitoring Locations Undertaken at Stonecutters Island

| Aspect | Location ID | Location | History Undertaken by the Contract | Time Period | Under the Environmental Permit |
|--------------------|-------------|--|------------------------------------|-----------------|--------------------------------|
| Air Quality | AM6 | Works site boundary of DC/2007/23 | DC/2007/23 | Currently | EP-322/2008/B |
| | AM7 | North West Kowloon Sewage Pumping | DC/2009/05 | Currently | EP-322/2008/B |
| | *AM8 | Block A of Government Dockyard | DC/2007/20 | Jun 08 - Nov 09 | EP-295/2007 |
| Construction Noise | NM5 | Near FSD Diving Rescue and Training Centre | DC/2007/23 | Currently | EP-322/2008/B |
| | NM6 | Customs Marine Base | DC/2009/05 | Currently | EP-322/2008/B |

Remarks:

- (*) DE/2009/02 will take over monitoring station for DC/2007/20 to undertake the EM&A program under EP-322/2008/B

MONITORING FREQUENCY AND DURATION

- 2.04 According to the Manual Sections 2.4 and 3.4, the requirements of air quality and noise baseline monitoring at the proposed monitoring station are presented as follow:

Air Quality

Frequency : Three times per day for 1-hour TSP and daily for 24-hour TSP

Duration : 14 Consecutive Days

Construction Noise

Frequency : Daily

Duration : 2 weeks

DETERMINATION OF AIR AND NOISE CRITERIA

2.05 According to the Manual Section 2.30 and 3.19, the baseline monitoring results form the basis for determining the air quality and construction noise criteria set up, namely Action and Limit levels. **Table 2-3** and **Table 2-4** below shows the air quality and construction noise criteria to be used.

Table 2-3 Derivation of Action and Limit Levels for Air Quality

| Parameters | Action Level in $\mu\text{g}/\text{m}^3$ | Limit Level in $\mu\text{g}/\text{m}^3$ |
|--|--|---|
| 24-hour TSP ($\mu\text{g}/\text{m}^3$) | For baseline level $\leq 200 \mu\text{g}/\text{m}^3$ Action level = (Baseline * 1.3 + Limit level)/2; For baseline level $\geq 200 \mu\text{g}/\text{m}^3$ Action level = Limit level | 260 |
| 1-hour TSP ($\mu\text{g}/\text{m}^3$) | For baseline level $\leq 384 \mu\text{g}/\text{m}^3$ Action level = (Baseline * 1.3 + Limit level)/2; For baseline level $\geq 384 \mu\text{g}/\text{m}^3$ Action level = Limit level | 500 |

Table 2-4 Derivation of Action and Limit Levels for Construction Noise

| Time Period | Action Level | Limit Level in dB(A) |
|--|---|----------------------|
| Normal Hours 0700-1900 hours on normal weekdays | When one documented complaint is received | 75 |
| Restricted Hours 0700-2300 hrs on holidays; and 1900-2300 hrs on all other days | | 70 |
| Restricted Hours 2300-0700 hrs of next day | | 55 |

2.06 Action and Limit levels set up to be used for the impact monitoring results with air quality and construction noise comparison. Should non-compliance of the air quality and construction noise criteria occur, the relevant action should be undertaken as stipulated in the Manual **Table 2-4** and **Table 3-3** “*Event/Action Plan (Air Quality and Construction Noise)*”, which is attached in **Appendix D**.

3.0 BASELINE MONITORING METHODOLOGY

- 3.01 All proposed monitoring station under the project HATS Stage 2A of EM&A works at Stonecutters Island were sequential commenced by the three projects ET such as AM8 for ET of DC/2007/20, AM6 & NM5 for ET of DC/2007/23; and AM7 & NM6 for ET of DC/2009/05. Also, baseline monitoring was completed before December 2009. Due to baseline monitoring was undertaken by the others, therefore the methodology of baseline monitoring presentation do not written in this report, which was stipulated in each previous baseline reports as submitted by the contracts DC/2007/20, DC/2007/23 and DC/2009/05.

4.0 BASELINE MONITORING RESULTS

4.01 The baseline monitoring of air quality and noise under the project HATS Stage 2 was sequential undertaken by the three projects DC/2007/20, DC/2007/23 and DC2009/05. The monitoring results of air and noise were provided in previous reports as submitted by the prior three contracts.

DERIVATION OF ACTION/LIMIT LEVELS FOR AIR QUALITY

4.02 Based on the monitoring results measured by three contracts and following the criteria shown in **Table 2-3** in this report, the Action and Limit Levels for 1-Hour and 24-Hour TSP for each approval air (AM6, AM7 and AM8) locations have been derived and illustrated in **Tables 4-1**.

Table 4-1 Action and Limit Levels of Air Quality Monitoring

| Monitoring Stations | Action Level ($\mu\text{g}/\text{m}^3$) | | Limit Level ($\mu\text{g}/\text{m}^3$) | |
|---------------------|---|-------------|--|-------------|
| | 1-Hour TSP | 24-Hour TSP | 1-Hour TSP | 24-Hour TSP |
| AM6 | 346 | 196 | 500 | 260 |
| AM7 | 322 | 207 | 500 | 260 |
| AM8 | 307 | 158 | 500 | 260 |

4.03 Due to DE2009/02 will take over the air monitoring station AM8 (Block A of Government Dockyard), so the average value and data range of baseline data was extracted from the baseline report of DC/2007/20 for reference. The detailed baseline monitoring results were listed in **Table 4-2** as below.

Table 4-2 Results of 24-hour and 1-hour TSP Monitoring at AM8 (Block A of Government Dockyard)

| Date | 24-hour TSP ($\mu\text{g}/\text{m}^3$) | 1-hour TSP ($\mu\text{g}/\text{m}^3$) Measurement | | | |
|-----------------|--|---|--------------------------------------|----------------------|----------------------|
| | | Running Time Period | 1 st Hour | 2 nd Hour | 3 rd Hour |
| 8-Jun-08 | 36.3 | 08:00 – 11:15 | 113.1 | 25.9 | 72.3 |
| 9-Jun-08 | 62.8 | 08:00 – 11:10 | 56.1 | 85.0 | 209.7 |
| 10-Jun-08 | 34.5 | 08:00 – 11:20 | 126.4 | 291.3 | 162.2 |
| 11-Jun-08 | 34.0 | 09:00 – 12:00 | 112.8 | 51.7 | 200.0 |
| 12-Jun-08 | 42.9 | 09:00 – 12:10 | 61.6 | 46.6 | 72.6 |
| 13-Jun-08 | 51.8 | 09:00 – 12:10 | 90.5 | 112.4 | 93.7 |
| 14-Jun-08 | 54.7 | 09:00 – 12:05 | 99.6 | 96.8 | 121.5 |
| 15-Jun-08 | 53.7 | 09:00 – 12:00 | 87.3 | 99.7 | 91.5 |
| 16-Jun-08 | 50.9 | 08:00 – 11:00 | 98.5 | See the note | 343.5 |
| 17-Jun-08 | 30.0 | 08:00 – 11:10 | 75.1 | 80.6 | 45.1 |
| 18-Jun-08 | 38.2 | 08:00 – 11:10 | 21.8 | 32.8 | 28.7 |
| 19-Jun-08 | 31.4 | 08:00 – 11:50 | 13.6 | 57.3 | 34.1 |
| 20-Jun-08 | 29.2 | 08:00 – 11:30 | 49.3 | 20.5 | 17.8 |
| 21-Jun-08 | 46.7 | 08:00 – 11:30 | 46.7 | 12.4 | 42.6 |
| Average (Range) | 42.7 (29.2 – 62.8) | Average (Range) | 87.6 (12.4 – 343.5) | | |

Note:

According to the baseline report Section 3.15, white fume was observed emitted from the vessel maintenance activities inside Government Dockyard on 16th June 2008 morning. The Measured 1-hour TSP on that day (start time: 09:00am of 16th June 08) is abnormally high as 1141 $\mu\text{g}/\text{m}^3$. Therefore, this data was excluded in the average value, data range and A/L Levels calculation.,

DERIVATION OF ACTION/LIMIT LEVELS FOR CONSTRUCTION NOISE

4.04 Based on the criteria of *Table 2-4*, the Action and Limit levels for construction noise during the construction phase of the Project are illustrated in *Table 4-3*.

Table 4-3 Action and Limit Levels of Construction Noise Monitoring

| Monitoring Stations | Time Period | Action Level | Limit Level in dB(A) |
|---------------------|---|---|----------------------|
| NM5 NM6 | 0700-1900 hours on normal weekdays | When one documented complaint is received | 75 |
| | 0700-2300 hrs on holidays; and 1900-2300 hrs on all other days | | 70 |
| | 2300-0700 hrs of next day | | 55 |

5.0 CONCLUSION

- 5.01 During HATS Stage 2A work at Stonecutters Island (DC/2007/20) commencement in June 2008, all monitoring stations including air and noise stipulated in the project EM&A Manual were denied by the authorities of sensitive receivers. Therefore, three new proposed air monitoring stations AM6, AM7 & AM8 and two proposed construction noise monitoring stations NM5 & NM6 were sequential commenced by the three projects ET such as AM8 for ET of DC/2007/20 under EP-295/2007, AM6 & NM5 for ET of DC/2007/23 under EP-322/2008/B; and AM7 & NM6 for ET of DC/2009/05 under EP-322/2008/B.
- 5.02 Baseline monitoring was also carried out in compliance with the project EM&A Manual requirements before the major construction activities commencement. AM8 was undertaken period from 6 June 2008 to 21 June 2008 by the Contract DC2007/20; AM6, AM7, NM5 and NM6 were separated to two contracts DC/2007/23 and DC/2009/05 which baseline monitoring have been completed.
- 5.03 Although baseline monitoring under the contract DE/2009/02 do not need to perform as instructed by ER, however baseline report is ordered to submit in accordance with the PS requirement. Action and Limit (A/L) levels for the air quality and noise have been developed respectively according to the criteria as set out in the Manual. The A/L levels will be used to evaluate the environmental impact in association with the construction of the project and to evaluate the effectiveness of the project mitigation measures.
- 5.04 Based on the baseline monitoring results finding, the recommended environmental performance criteria for those three prior contracts for air quality and construction noise are summarized as follows *Table 5-1* and *Table 5-2*:

Table 5-1 Summary of Action and Limit Levels of Air Quality Monitoring of the Project

| Monitoring Stations | Action Level ($\mu\text{g}/\text{m}^3$) | | Limit Level ($\mu\text{g}/\text{m}^3$) | | Recommended by DSD Contract |
|---------------------|---|-------------|--|-------------|-----------------------------|
| | 1-Hour TSP | 24-Hour TSP | 1-Hour TSP | 24-Hour TSP | |
| AM6 | 346 | 196 | 500 | 260 | DC/2007/23 |
| AM7 | 322 | 207 | 500 | 260 | DC/2009/05 |
| AM8 | 307 | 158 | 500 | 260 | DC/2007/20 |

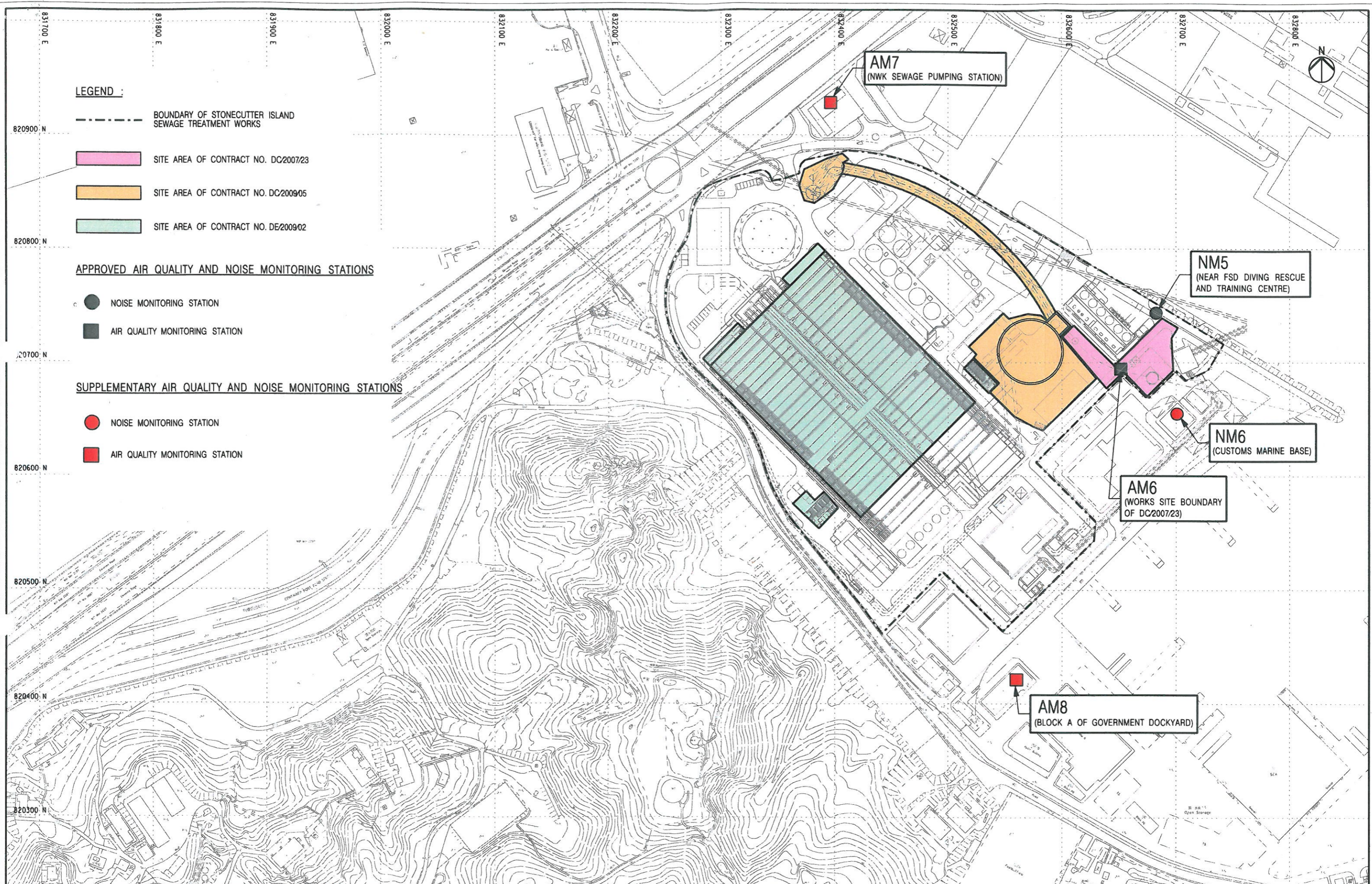
Table 5-2 Summary of Action and Limit Levels of Construction Noise Monitoring of the Project

| Recommended Action & Limit Levels of Construction Noise | | |
|---|---|--|
| Monitoring Location | Action Level | Limit Level |
| | 0700-1900 hours on normal weekdays | |
| NM5 NM6 | When one or more documented complaints are received | 75 dB(A) of Leq(30min) during normal hours from 0700 to 1900 hours on normal weekdays, |

- 5.05 Environmental performance criteria of A/L Limits as set by those three contracts is also accepted by the contract DE/2009/02 accordingly.

Appendix A

Site Locations Plan of DE/2009/02



ARUP
Ove Arup & Partners HK Ltd

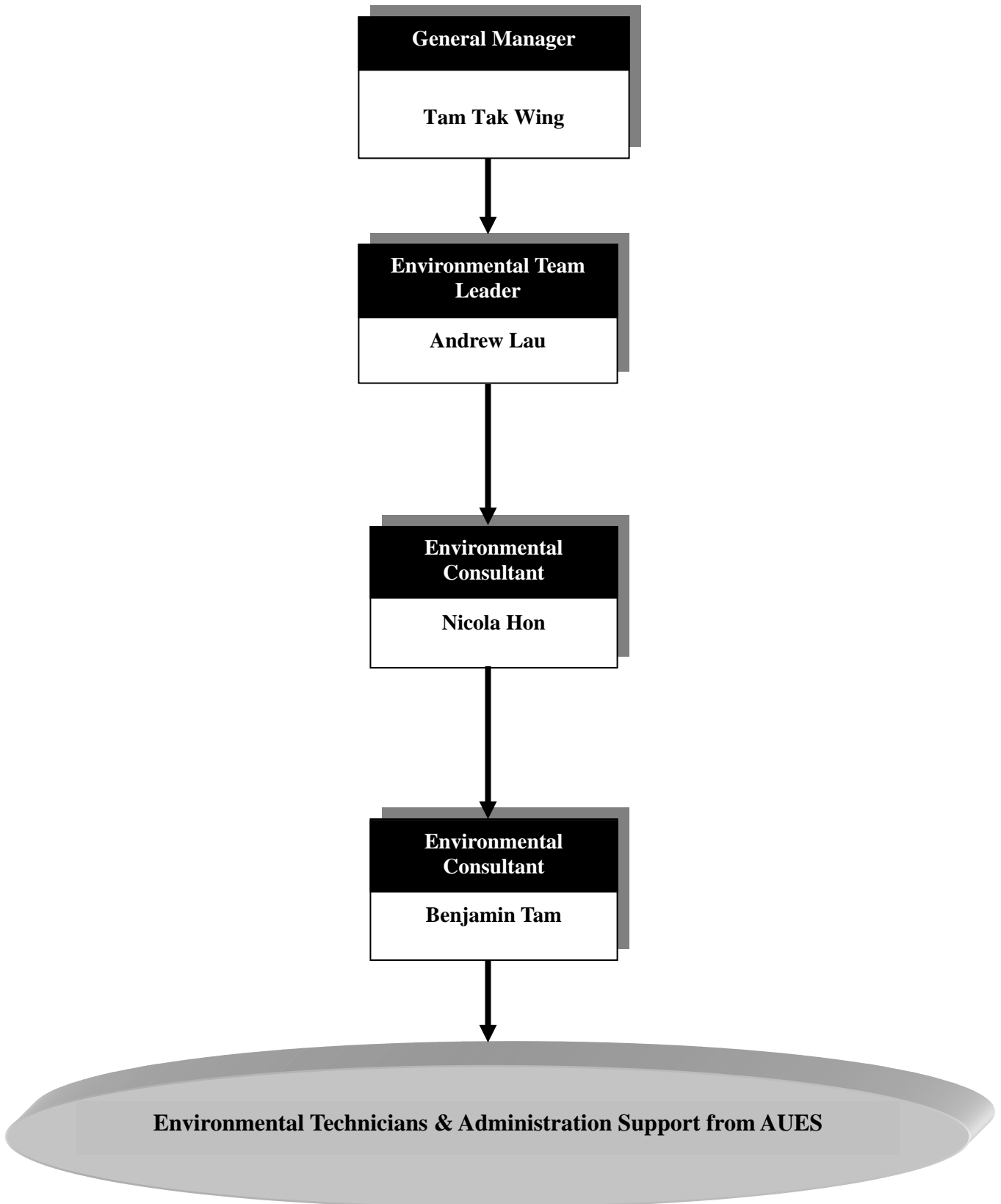
Job Title : HARBOUR AREA TREATMENT SCHEME STAGE 2A - CONSTRUCTION OF INTERCONNECTION TUNNEL AND DIAPHRAGM WALL FOR MAIN PUMPING STATION AT STONECUTTERS ISLAND SEWAGE TREATMENT WORKS
 Project No. : DC0905 Contract No. : DC/2009/05
 Sketch No. : DC/2009/05/SK/0017 Rev : 1

Sketch Title : LOCATIONS OF AIR AND NOISE MONITORING STATIONS AT STONECUTTER ISLAND SEWAGE TREATMENT WORKS
 Scale : 1:3000 @ A3 Issue Date : 15-12-2009

| | | |
|---------------------|-----------------------|---------------|
| Drawn: KH | Checked: WY | Approved: GA |
| Other Related Ref.: | Working Dwg. No.: N/A | DAN No.: N/A |
| | | IN-0 No.: N/A |
| | | RFI No.: N/A |
| | | Others: N/A |

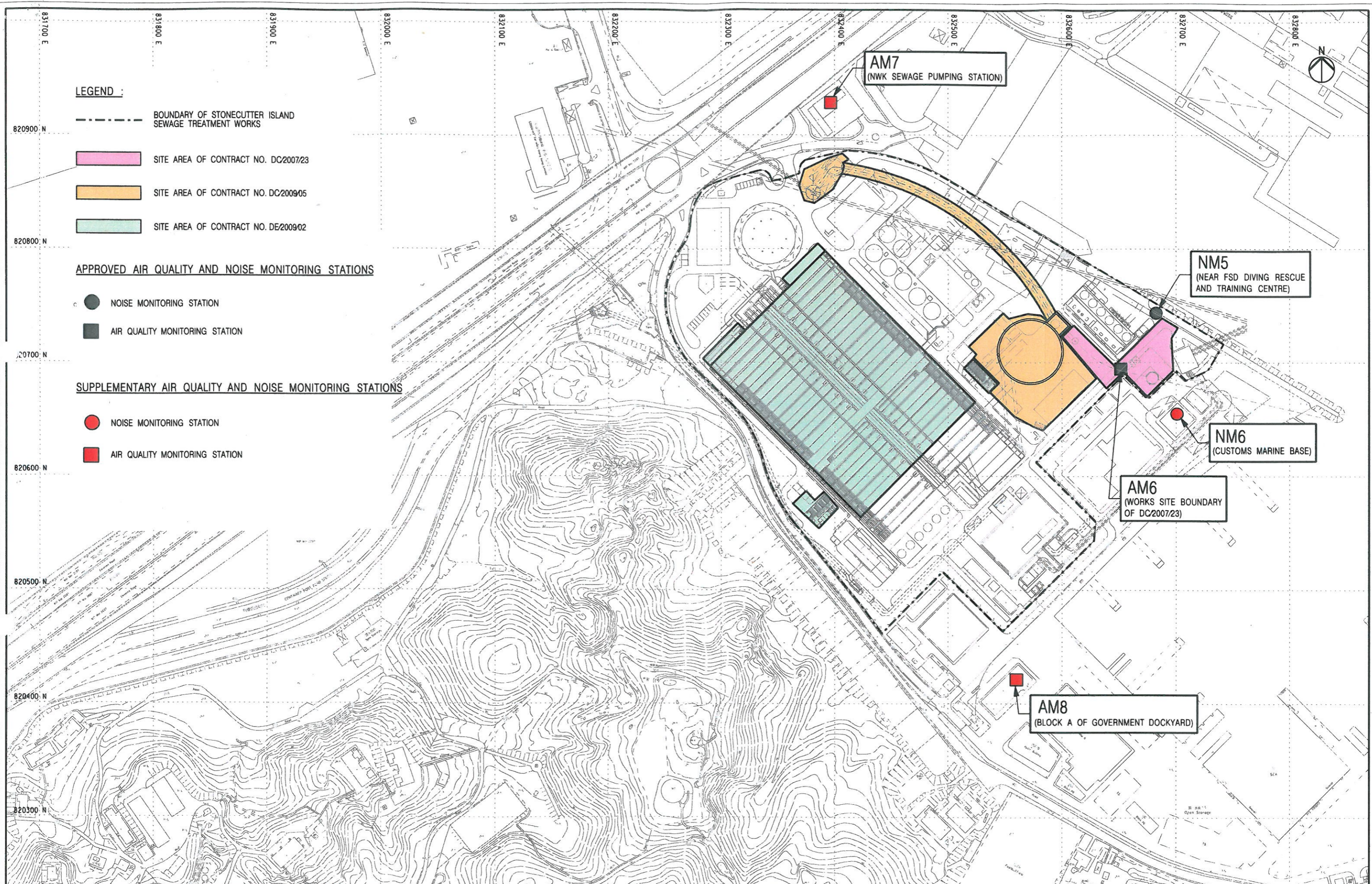
Appendix B

Organization Chart of Environmental Team



Appendix C

Locations Plan for the Monitoring Stations (Air Quality and Noise)



Job Title : HARBOUR AREA TREATMENT SCHEME STAGE 2A - CONSTRUCTION OF INTERCONNECTION TUNNEL AND DIAPHRAGM WALL FOR MAIN PUMPING STATION AT STONECUTTERS ISLAND SEWAGE TREATMENT WORKS
 Project No. : DC0905 Contract No. : DC/2009/05
 Sketch No. : DC/2009/05/SK/0017 Rev : 1

Sketch Title : LOCATIONS OF AIR AND NOISE MONITORING STATIONS AT STONECUTTER ISLAND SEWAGE TREATMENT WORKS
 Scale : 1:3000 @ A3 Issue Date : 15-12-2009

| | | |
|---------------------|-----------------------|------------------------|
| Drawn: KH | Checked: WY <i>WY</i> | Approved: GA <i>GA</i> |
| Other Related Ref.: | Working Dwg. No.: N/A | DAN No.: N/A |
| | | IN-0 No.: N/A |
| | | Others: N/A |

Appendix D

Event/Action Plan

Air Quality

Baseline Monitoring Report

| Event | ET | IEC | ER | Contractor |
|---|--|--|---|---|
| ACTION LEVEL | | | | |
| 1. Exceedance for one sample | 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. | 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. | 1. Notify Contractor. | 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate. |
| two or more consecutive samples | 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring. | 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. | 1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate. |
| LIMIT LEVEL | | | | |
| 1. Exceedance for one sample | 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. | 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. | 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate. |
| 2. Exceedance for two or more consecutive samples | 1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. | 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 5. Supervise the implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. 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. | 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated. |

Construction Noise

Baseline Monitoring Report

| Event | Action | | | |
|-----------------------------|---|---|--|---|
| | ET | IEC | ER | Contractor |
| Action Level being exceeded | <ol style="list-style-type: none"> 1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. | <ol style="list-style-type: none"> 1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. | <ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. |
| Limit Level being exceeded | <ol style="list-style-type: none"> 1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated. |