


MTR Corporation Limited

**Shatin to Central Link –
Hung Hom to Admiralty Section**

Monthly EM&A Report No. 30

[Period from 1 to 30 September 2016]

(November 2016)

Certified by: Richard Kwan 

Position: Environmental Team Leader

Date: 11 November 2016

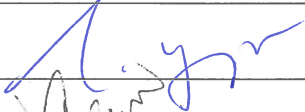

MTR Corporation Limited

Consultancy Agreements
No. C11033B

**Shatin to Central Link - Hung Hom to
Admiralty Section**

Monthly EM&A Report No. 30

[Period from 1 to 31 October 2016]

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Version: A

Date: 11 November 2016

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1 INTRODUCTION

1.1 Background

- 1.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai to Hung Hom via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH) and Stabling Sidings at Hung Hom Freight Yard (HHS); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 1.1.2 Shatin to Central Link – Hung Hom to Admiralty Section [SCL (HUH – ADM)] (hereafter referred to as “the Project”) is part of the SCL.
- 1.1.3 The Environmental Impact Assessment (EIA) Report for SCL (HUH-ADM) (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) (EP No.: EP-436/2012) was granted on 22 March 2012 for construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/D) was issued by Director of Environmental Protection (DEP) on 5 February 2016.

1.2 Project Programme

- 1.2.1 Seven civil construction works contracts of the Project have been awarded since January 2014. The construction of the Project commenced in May 2014 and is expected to complete in 2021¹. The Project will have to interface with other infrastructure projects, including Wan Chai Development Phase II and Central-Wan Chai Bypass. **Table 1.1** summarises the information of the awarded Works Contracts.

Table 1.1 Summary of Awarded Works Contracts

| Works Contract | Description | Construction Start Date | Contractor | Environmental Team |
|----------------------|---|-------------------------|--|--------------------------------------|
| 1121 | NSL Cross Harbour Tunnels | March 2015 | Penta-Ocean – China State JV | Cinotech Consultants Ltd. (Cinotech) |
| 1122 | Admiralty South Overrun Tunnel | August 2016 | Vinci Construction Grands Projects | AECOM Asia Co. Ltd. |
| 1123 | Exhibition Station and Western Approach Tunnels | June 2015 | Leighton – China State JV | AECOM Asia Co. Ltd. |
| 1126 ⁽¹⁾ | Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool | July 2014 | Kaden Leader JV | Cinotech Consultants Ltd. (Cinotech) |
| 1128 | South Ventilation Building to Admiralty Tunnels | November 2014 | Dragages Bouygues J.V. | AECOM Asia Co. Ltd. |
| 1129 ⁽²⁾ | SCL – Advance Works for NSL | May 2014 | Hsin Chong Construction Co. Ltd. | AECOM Asia Co. Ltd. |
| 11227 ⁽³⁾ | Advance Works for NSL Cross Harbour Tunnels | August 2014 | Concentric-Hong Kong River Joint Venture | Cinotech Consultants Ltd. (Cinotech) |

Note:

- (1) Construction works under Works Contract 1126 was completed on 17 May 2015.

¹ The commissioning date of SCL(HUH-ADM) will very likely be deferred to 2021 to allow flexibility for the topside development of the Exhibition Station, and to cater for the construction works under other infrastructure projects on Hong Kong Island.

- (2) Construction works under Works Contract 1129 was completed on 20 July 2015.
- (3) Construction works in Victoria Harbour and Shek O Casting Basin under Works Contract 11227 were completed on 15 and 20 December 2014 respectively.

1.3 Purpose of the Report

- 1.3.1 The Environmental Monitoring and Audit (EM&A) programme for the Project commenced in May 2014. This is the thirtieth EM&A Report for the Project which summarises the EM&A works undertaken by the respective Contractor's ETs during the period from 1 to 31 October 2016.

2 ENVIRONMENTAL MONITORING AND AUDIT

2.1 EM&A Results

- 2.1.1 The EM&A Report for Works Contracts 1128, 1121, 1123 and 1122 prepared by the respective Contractor's ETs are provided in **Appendices A to D** respectively. The EM&A Reports provide details of the project information, EM&A requirements, impact monitoring and audit results for the corresponding Contracts.
- 2.1.2 A summary of the major construction activities undertaken by the respective Contractors of various Works Contracts during the reporting period are presented in **Table 2.1**.

Table 2.1 Summary of Major Construction Activities in the Reporting Period

| Works Contract | Site | Construction Activities |
|----------------|---|---|
| 1121 | Shek O | <ul style="list-style-type: none"> • Construction of IMT Bottom Plate; • Steel Formwork Erection; • Base Slab Rebar Fixing Concreting; • Wall and Roof Rebar Fixing; • IMT Wall & Roof Concreting; • Collar Plate Installation; • Tunnel Lighting Installation; • Ballast Tank Installation; • Ballast Concrete Construction; • Waterproofing Work; and • Basin Anchor Installation. |
| | Victoria Harbour | <ul style="list-style-type: none"> • Excavation and Lateral Support Construction at Hung Hom; • Pumping Test at HUH; • Trench Dredging Works for IMT alignment; • Pile piling for the Wave Barrier Wall inside the CBTS; and • Reprovisioning for Seawall of Finger Pier at Hung Hom. |
| 1122 | Surface | <ul style="list-style-type: none"> • Gantry crane erection |
| | Shaft L10 | <ul style="list-style-type: none"> • Concrete infill • Drill and blast tunnel |
| 1123 | Exhibition Station (Zone 1 – PTI Area) | <ul style="list-style-type: none"> • Utilities Diversion/ Protection • Prebored socket H-Piles (PBSH) and King Post • Pipe Pile Wall • Diaphragm Wall Works |
| | Exhibition Station (Zone 3 – Swimming Pool Area) | <ul style="list-style-type: none"> • Diaphragm Wall Works |
| | Exhibition Station (Zone 4 - Tunnel at Tonnochy Road) | <ul style="list-style-type: none"> • Utilities Diversion/ Protection • Foundation |
| | Fleming Road Junction Area E | <ul style="list-style-type: none"> • Utilities Diversion/ Protection |
| | Western Vent Shaft and Western Approach Tunnel (WAT) Area C | <ul style="list-style-type: none"> • Diaphragm Wall Works |
| | WAT Area B | <ul style="list-style-type: none"> • Excavation and Lateral Support |
| 1128 | WAT Area A | <ul style="list-style-type: none"> • Diaphragm Wall Works |
| | Area W1 | <ul style="list-style-type: none"> • D/T TBM Excavation • U/T TBM Dismantling |
| | Area W2 – SOV/POC | <ul style="list-style-type: none"> • Construction of SOV Shaft • Construction of capping beam • Breaking of existing swimming pool |
| | Area W3.5 – SP5 | <ul style="list-style-type: none"> • SP5 Lean Mix Column Construction |
| | Area W4a - Canal Road Box Culvert | <ul style="list-style-type: none"> • Reinstatement of Canal Road Culvert |
| | Area W6 – Wan Shing St Marsh Road West | <ul style="list-style-type: none"> • Temporary Reinstatement of Wan Shing Street • Pile Removal |

| Works Contract | Site | Construction Activities |
|----------------|------------------------------------|--|
| | | <ul style="list-style-type: none"> • Drilling for Pile removal |
| | Area W8 | <ul style="list-style-type: none"> • Peanut Shaft - Base Slab Construction • D-Wall Stage 2 - D-wall Construction • 9+1 Grout Shaft - Horizontal Ground Treatment |
| | Area W14 – TBM establishment works | <ul style="list-style-type: none"> • STP Installation Works |

2.1.3 During the reporting month, impact monitoring for air quality, construction noise and water quality were conducted in accordance with the EM&A Manual. Continuous noise monitoring was not required in the reporting period according to the Continuous Noise Monitoring Plan (CNMP). No exceedances of the Action/Limit Levels of 24-hr TSP, construction noise and water quality parameters due to the Project construction were recorded. Results of air quality, construction noise and water quality monitoring are summarised in **Tables 2.2, 2.3 and 2.4** respectively. Details of the monitoring requirements, locations, equipment and methodology are presented in the EM&A Reports (**Appendices A to D**).

Table 2.2 Summary of 24-Hour TSP Monitoring Results in the Reporting Period

| Monitoring Station ID | Location | TSP Concentration ($\mu\text{g}/\text{m}^3$) | Action Level ($\mu\text{g}/\text{m}^3$) | Limit Level ($\mu\text{g}/\text{m}^3$) | Exceedance due to the Project Construction (Yes/No) |
|--|--|--|---|--|---|
| Works Contract 1121⁽¹⁾ | | | | | |
| Works Contract 1122⁽²⁾ | | | | | |
| Works Contract 1123 | | | | | |
| AM3 | Existing Harbour Road Sports Centre ⁽³⁾ | 33.6 – 87.2 | 169 | 260 | No |
| Works Contract 1123 and 1128 | | | | | |
| AM2 | Wan Chai Sports Ground ⁽⁴⁾⁽⁵⁾ | 44.0 – 107.2 | 160 | 260 | No |
| Works Contract 1128 | | | | | |
| AM4 | Pedestrian Plaza | 96.0– 126.7 | 198 | 260 | No |

Note:

- (1) The setup of the impact dust monitoring station at Harbourfront Horizon and the impact monitoring is currently carried out under Works Contract 1112. Upon termination of their EM&A programmes, the impact monitoring works would be taken up by Works Contract 1121.
- (2) No TSP monitoring is required under this works contract.
- (3) Dust monitoring at AM3 (Existing Harbour Road Sports Centre) was handed over from Works Contract 1126 to Works Contract 1123 in June 2015.
- (4) The spectator stand at Wan Chai Sports Ground was not available for impact dust monitoring, therefore impact monitoring was conducted at the existing water pump room area at Wan Chai Sports Ground.
- (5) Dust monitoring at AM2 (Wan Chai Sports Ground) was handed over to Works Contract 1123 from Works Contract 1128 on 28 October 2015.

Table 2.3 Summary of Construction Noise Monitoring Results in the Reporting Period

| Monitoring Station ID | Location | Noise Level ($L_{Aeq,30\text{mins}}$, dB(A)) | | | Limit Level (dB(A)) | Exceedance due to the Project Construction (Yes/No) |
|--|----------|--|----------|--------------------------|---------------------|---|
| | | Measured | Baseline | Corrected ⁽¹⁾ | | |
| Works Contract 1121⁽²⁾ | | | | | | |
| Works Contract 1122⁽²⁾ | | | | | | |
| Works Contract 1123 | | | | | | |

| Monitoring Station ID | Location | Noise Level (L _{Aeq,30mins} , dB(A)) | | | Limit Level (dB(A)) | Exceedance due to the Project Construction (Yes/No) |
|---|----------------|---|----------|--------------------------|---------------------|---|
| | | Measured | Baseline | Corrected ⁽¹⁾ | | |
| NM2 ⁽³⁾⁽⁴⁾⁽⁵⁾ | Harbour Centre | 64.2 – 68.6 | 69.6 | <Baseline | 75 | No |
| Work Contract 1128⁽⁶⁾ | | | | | | |
| NM1 | Hoi Kung Court | 69.4 – 71.2 | 71 | < Baseline – 57.7 | 75 | No |

Note:

- (1) The measured noise levels are corrected against the corresponding baseline noise levels.
- (2) No construction noise monitoring is required under this works contract.
- (3) The impact monitoring at NM2 was handed over from Works Contract 1126 to Works Contract 1123 in June 2015.
- (4) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring under Works Contract 1126. Alternative noise monitoring location proposed at Harbour Centre was approved by the ER, agreed by IEC and EPD's formal approval is awaited in August 2014. Impact noise monitoring was carried out at Harbour Centre from 20 August 2014 onwards.
- (5) Impact noise monitoring has been carrying out on 7/F of Harbour Centre between 20 August and 15 December 2014, and on 8/F from 19 December 2014 onwards.
- (6) Noise monitoring at NM1 (Hoi Kung Court) was handed over from Works Contract 1129 to Works Contract 1128 in August 2015.

Table 2.4 Summary of Marine Water Quality Monitoring Results in the Reporting Period ⁽¹⁾

| Locations | Parameters | | | |
|---|--|--------------------------------|--|------------|
| | Depth-averaged Dissolved Oxygen (mg/L) | Depth-averaged Turbidity (NTU) | Depth-averaged Suspended Solids (mg/L) | |
| Shek O Casting Basin ⁽²⁾ | | | | |
| Victoria Harbour (Dry Season) ⁽³⁾ | | | | |
| 21 | Mean | 5.7 | 4.3 | 4.6 |
| | Range | 5.0 – 6.5 | 2.2 – 6.6 | 3.0 – 7.8 |
| 34 | Mean | 5.7 | 4.6 | 4.3 |
| | Range | 5.0 – 6.5 | 3.1 – 6.4 | <2.5 – 7.5 |
| 9 | Mean | 5.4 | 2.8 | 4.3 |
| | Range | 4.7 – 7.5 | 2.8 – 6.2 | <2.5 – 7.5 |
| Action Level | | 3.3 | 12.2 | 8.0 |
| Limit Level | | 3.2 | 18.5 | 10.4 |
| Exceedance (Yes/No) | | No | No | No |
| A | Mean | 5.7 | 4.2 | 4.5 |
| | Range | 5.1 – 6.5 | 3.2 – 4.9 | <2.5 – 6.7 |
| WSD17 | Mean | 5.8 | 4.2 | 4.6 |
| | Range | 5.1 – 6.7 | 2.8 – 4.8 | <2.5 – 6.8 |
| WSD9 | Mean | 5.8 | 3.8 | 4.4 |
| | Range | 5.2 – 6.7 | 2.1 – 4.8 | 2.7 – 6.8 |
| Action Level | | <2.1 | 5.0 | 6.9 |
| Limit Level | | <2 | 7.0 | 6.9 |
| Exceedance (Yes/No) | | No | No | No |
| C1 | Mean | 5.8 | 3.9 | 4.5 |
| | Range | 5.1 – 6.5 | 2.4 – 4.8 | 2.8 – 6.8 |
| C2 | Mean | 5.9 | 4.2 | 4.3 |

| Locations | Parameters | | |
|-----------|--|--------------------------------|--|
| | Depth-averaged Dissolved Oxygen (mg/L) | Depth-averaged Turbidity (NTU) | Depth-averaged Suspended Solids (mg/L) |
| Range | 5.1 – 6.7 | 3.0 – 4.9 | 2.7 – 8.2 |

Notes:

- (1) Marine water quality monitoring was conducted in the reporting period under Works Contract 1121.
- (2) Removal of earth bunds at Shek O Casting Basin under Works Contract 1121 has not yet commenced in the reporting month, and thus no water quality monitoring was conducted during the reporting period.
- (3) Dredging / filling works within the Victoria Harbour commenced on 22 April 2015. Water Quality Monitoring at Station 8 and 14 is suspended as these water intakes are not in use.

2.1.4 No complaints, notification of summons and successful prosecutions were received in the reporting period. Log for environmental complaints, notification of summons and successful prosecutions is provided in **Table 2.5**.

Table 2.5 Log for Environmental Complaints, Notification of Summons and Successful Prosecutions for the Reporting Month

| Works Contract | Environmental Complaints | Notification of Summons | Successful Prosecutions |
|----------------|--------------------------|-------------------------|-------------------------|
| 1121 | 0 | 0 | 0 |
| 1122 | 0 | 0 | 0 |
| 1123 | 0 | 0 | 0 |
| 1128 | 0 | 0 | 0 |

2.1.5 Regular site inspections were conducted by the Contractor's ET on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-conformance was identified in the reporting period.

3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 The respective Contractors have implemented all mitigation measures and requirements as stated in the EIA Report, EM&A Manual and EP (EP-436/2012/D). The status of required submissions under the EP as of the reporting period are summarised in **Table 3.1**.

Table 3.1 Summary of EP Submissions Status

| EP Condition (EP-436/2012/D) | Submission | Submission date |
|------------------------------|--|---|
| Condition 1.11 | Notification of Commencement Date of Construction of the Project | 19 Dec 2012 |
| Condition 2.3 | Notification of Setup of Community Liaison Group | 3 Feb 2015 |
| Condition 2.5 | Management Organisation of Main Construction Companies | 22 Jun 2016 |
| Condition 2.6 | Construction Programme and EP Submission Schedule | 22 Jun 2016 |
| Condition 2.7 | Construction Noise Mitigation Measures Plan (CNMMP) Works Contract 1126: Construction Noise Mitigation Measures Plan (CNMMP) Works Contract 1123: Construction Noise Mitigation Measures Plan (CNMMP) | 9 Jun 2014 (1 st Submission) 24 Apr 2015 (1 st Submission) 7 Jul 2015 (2 nd Submission) 2 Oct 2015 (3 rd Submission) 2 June 2016 (4 th Submission) |
| Condition 2.8 | Continuous Noise Monitoring Plan (CNMP) Works Contract 1126: Continuous Noise Monitoring Plan (CNMP) Works Contract 1123: Continuous Noise Monitoring Plan (CNMP) | 9 Jun 2014 (1 st Submission) 24 Apr 2015 (1 st Submission) 7 Jul 2015 (2 nd Submission) 2 June 2016 (3 rd Submission) |
| Condition 2.9 | Construction and Demolition Materials Management Plan (C&DMMP) | 6 Jul 2012 (1 st Submission) 12 Sep 2012 (2 nd Submission) 15 Oct 2012 (approved) |
| Condition 2.10 | Works Contract 11227: Silt Curtain Deployment Plan for Trial Trenching in Victoria Harbour Works Contract 1121: Silt Curtain Deployment Plan for Hung Hom Landfall and Trial Trench in Victoria Harbour | 11 Jul 2014 17 Feb 2015 (1 st Submission) 2 Apr 2015 (2 nd Submission) 27 Oct 2015 (3 rd Submission) 29 March 2016 (4 th Submission) |
| Condition 2.11 | Works Contract 11227: Silt Screen Deployment Plan Works Contract 1121: Silt Screen Deployment Plan | 11 Jul 2014 13 Feb 2015 |
| Condition 2.12 | Sediment Management Plan | 6 Jul 2012 (1 st Submission) 12 Sep 2012 (2 nd Submission) 5 Oct 2012 (3 rd Submission) 15 Oct 2012 (approved) 3 Jul 2014 (4 th Submission) |
| Condition 2.14 | Visual, Landscape, Tree Planting & Tree Protection Plan | 14 Nov 2012 (1 st Submission) 3 Dec 2013 (2 nd Submission) 21 Aug 2014 (3 rd Submission) |



| EP Condition (EP-436/2012/D) | Submission | Submission date |
|------------------------------|--|---|
| | | 9 Feb 2015 (4 th Submission) 27 May 2016 (5 th Submission) |
| Condition 2.23.1 | Works Contract 11227: Silt Curtain Deployment Plan for Shek O Works Contract 1121: Silt Curtain Deployment Plan for Shek O | 23 Jul 2014 (1 st Submission) 31 Jul 2014 (approved) 4 Feb 2015 (1 st Submission) 4 Mar 2015 (2 nd Submission) 9 Mar 2015 (approved) |
| Condition 2.24 | Contamination Assessment Plan (CAP) and Contamination Assessment Report (CAR) Remedial Action Plan (RAP) for the above-ground diesel tanks for Wan Chai Swimming Pool | CAP: 25 Sep 2012 (1 st Submission) 12 Nov 2012 (2 nd Submission) 22 Nov 2012 (approved) CAR: 19 Mar 2013 (1 st Submission) 16 Apr 2013 (2 nd Submission) 21 May 2013 (3 rd Submission) 7 Jun 2013 (approved) |
| Condition 3.3 | Baseline Monitoring Report (for noise and air quality) | 4 Dec 2013 (1 st Submission) 5 Feb 2014 (2 nd Submission) |
| | Baseline Water Quality Monitoring Report | 23 Sep 2014 (1 st Submission) 18 Dec 2014 (2 nd Submission) |
| | Baseline Water Quality Monitoring Report for Temporary Marine Works at Shek O Casting Basin | 8 Jul 2014 (1 st Submission) 11 Aug 2014 (2 nd Submission) |
| Condition 3.4 | Monthly EM&A Reports No.1 - 28 Final EM&A Review Report for Works Contract 11227 Final EM&A Review Report for Works Contract 1126 Monthly EM&A Report No.29 | Reported in previous Monthly EM&A Reports 12 Feb 2015 25 Jun 2015 (1 st Submission) 4 Sep 2015 (2 nd Submission) 14 October 2016 |

Appendix A

**Monthly EM&A Report for October 2016 – SCL Works
Contract 1128 South Ventilation Building to Admiralty
Tunnels**

Dragages Bouygues J.V.**Shatin to Central Link -
Hung Hom to Admiralty Section****Works Contract 1128 -
South Ventilation Building (SOV) to Admiralty Tunnels****Monthly EM&A Report for
October 2016**

[October 2016]

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Version: 0

Date: 11 November 2016

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This Environmental Monitoring and Audit Report is prepared for Dragages Bouygues J.V. and is given for its sole benefit in relation to and pursuant to SCL1128 and may not be disclosed to, quoted to or relied upon by any person other than Dragages Bouygues J.V. without our prior written consent. No person (other than Dragages Bouygues J.V. into whose possession a copy of this Manual comes may rely on this plan without our express written consent and Dragages Bouygues J.V. may not rely on it for any purpose other than as described above.

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EXECUTIVE SUMMARY

Shatin to Central Link Contract 1128 – South Ventilation Building (SOV) to Admiralty Tunnels (hereafter called “the Project”) covers part of the construction of the Shatin to Central Link (SCL).

The Project comprises the Permanent Works and the associated temporary works necessary for TBM tunnels between SOV and Admiralty Tunnels, short sections of cut and cover tunnels near SOV and Fenwick Pier Emergency Egress Point (FPP), Re-provisioning, Remedial and Improvement Works (RRIW) for government and public bodies facilities.

The EM&A programme commenced on 17 November 2014. The impact EM&A for the Project includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 and 31 October 2016. As informed by the Contractor, major activities in the reporting period were:

| Location | Site Activities |
|------------------------------------|--|
| Area W1 | <ul style="list-style-type: none"> • D/T TBM Excavation • U/T TBM Dismantling |
| Area W2 – SOV/POC | <ul style="list-style-type: none"> • Construction of SOV Shaft • Construction of capping beam • Breaking of existing swimming pool |
| Area W3.5 - SP5 | <ul style="list-style-type: none"> • SP5 Lean Mix Column Construction |
| Area W4a- Canal Road Box Culvert | <ul style="list-style-type: none"> • Reinstatement of Canal Road Culvert |
| Area W6 - Wan Shing St | <ul style="list-style-type: none"> • Temporary Reinstatement of Wan Shing Street |
| Marsh Road West | <ul style="list-style-type: none"> • Pile Removal • Drilling for Pile removal |
| Area W8 | <ul style="list-style-type: none"> • Peanut Shaft - Base Slab Construction • D-Wall Stage 2 - D-wall Construction • 9+1 Grout Shaft - Horizontal Ground Treatment |
| Area W14 - TBM establishment works | <ul style="list-style-type: none"> • STP Installation Works |

Breaches of Action and Limit Levels for Air Quality

No exceedance of Action / Limit Level of air quality was recorded in the reporting month.

Breaches of Action and Limit Levels for Noise

Noise monitoring was handed-over from SCL Contract 1129 in August 2015.

No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.

No exceedance of Limit Level of noise was recorded in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

One (1) environmental complaint, regarding muddy water discharge at the temporary barging facility outside Lung Wo Road, was referred by EPD on 3 August 2016. Investigation was submitted to EPD. The summary and cumulative statistics on environmental complaints is provided in **Appendix J**.

No environmental related complaint, notification of summons and successful prosecution were received in the reporting month.

Reporting Changes

There was no reporting change in the reporting month.

Future Key Issues

Key issues to be considered in the coming month included:-

| Location | Site Activities |
|-----------------|--|
| Area W1 | <ul style="list-style-type: none"> • D/T TBM Excavation and precast tunnel ring installation • U/T TBM Dismantling |
| Area W2 | <ul style="list-style-type: none"> • Trim D-wall, capping beam construction & ELS works |
| Area W3.5.2 | <ul style="list-style-type: none"> • Lean Mix Column |
| Area W4a | <ul style="list-style-type: none"> • Canal Road box culvert middle island Reinstatement |
| Area W4b | <ul style="list-style-type: none"> • No activities |
| Area W6 | <ul style="list-style-type: none"> • Void filling and temporary reinstatement work |
| March Road | <ul style="list-style-type: none"> • Pile Removal Works |
| Area W8 & W10 | <ul style="list-style-type: none"> • Peanut Shaft – Base Slab Construction • D-wall Stage 2 – Pretreatment, guidewall and D-wall Construction for Middle wall • 9+1 Grout Shaft – Horizontal Ground Treatment |
| Area W14 | <ul style="list-style-type: none"> • STP Installation Civil Works |

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

1 INTRODUCTION

Dragages Bouygues J.V. (JV) was commissioned by MTR as the Civil Contractor for Works Contract 1128. AECOM Asia Company Limited (AECOM) was appointed by JV as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

1.1 Purpose of the Report

- 1.1.1 This is the twenty-fourth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period between 1 and 31 October 2016.

1.2 Report Structure

- 1.2.1 This monthly EM&A Report is organised as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection and Audit
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

- 2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 22 March 2012, which covers SCL (HUH-ADM) EP No.: EP-436/2012), for the construction and operation. Variation of EP (VEP) was subsequently applied and the latest EP (EP No. EP-436/2012/D) was issued by the Director of Environmental Protection (DEP) on 5 February 2016.
- 2.1.3 The construction of the SCL is divided into different civil construction works contracts and the Project comprises the Permanent Works and the associated temporary works necessary for TBM tunnels between SOV and Admiralty Tunnels, short sections of cut and cover tunnels near SOV and Fenwick Pier Emergency Egress Point (FPP), Re-provisioning, Remedial and Improvement Works (RRIW) for government and public bodies facilities under the EP.
- 2.1.4 The site layout plan of the Project is shown in **Figure 1.1**.

2.2 Site Description

- 2.2.1 The major construction activities under Works Contract 1128 include:
- (a) Taking over the 160m section of the SCL tunnels (ME4 Tunnel) constructed under the Central Wan Chai Bypass (CWB) project and construction of walkways, sealing, connection and various finishing works inside the tunnels;
 - (b) Construction of cut and cover tunnels connecting from South Ventilation Building (SOV) to the ME4 Tunnel;
 - (c) Removal of temporary reclamation and reinstatement of seawall;
 - (d) Construction of SOV;
 - (e) Bored tunnels between SOV and Exhibition Station (EXH);
 - (f) Construction of cut and cover tunnels connecting from the SCL tunnels under Convention Avenue by Contract 1123 to the bored tunnels as stated in sub-clause
 - (g) Construction of Fenwick Pier Emergency Egress Point (FPP);
 - (h) Bored tunnels between Fenwick Pier Emergency Egress Point (FPP) and Admiralty Station (ADM);
 - (i) Pile/obstruction detections and removals for construction of SCL running tunnels and for future North Island Line (NIL) running tunnels;
 - (j) Demolition of existing Police Officer's Club (POC);
 - (k) Re-provisioning of new POC;
 - (l) Other RRIW;
 - (m) Essential piling works at future Government, Institution and Community (GIC) site
 - (n) Diversion and modification of utilities and services;
 - (o) Modification, re-provisioning or reinstatement of footpath, carriageway or road features;
 - (p) Provisions for Designated and Interfacing Contracts;
 - (q) Tree felling, tree compensation, transplanting works and landscaping works;
 - (r) Permanent re-provisioning works at the Fleet Arcade;
 - (s) Miscellaneous signage; and
 - (t) External works comprising new and reinstated roads, footpaths, drains, landscaping, staircase, street furniture and the like.

2.3 Construction Programme and Activities

2.3.1 The major construction activities undertaken in the reporting month are summarised below:

| Location | Site Activities |
|------------------------------------|--|
| Area W1 | <ul style="list-style-type: none"> D/T TBM Excavation U/T TBM Dismantling |
| Area W2 – SOV/POC | <ul style="list-style-type: none"> Construction of SOV Shaft Construction of capping beam Breaking of existing swimming pool |
| Area W3.5 - SP5 | <ul style="list-style-type: none"> SP5 Lean Mix Column Construction |
| Area W4a- Canal Road Box Culvert | <ul style="list-style-type: none"> Reinstatement of Canal Road Culvert |
| Area W6 - Wan Shing St | <ul style="list-style-type: none"> Temporary Reinstatement of Wan Shing Street |
| Marsh Road West | <ul style="list-style-type: none"> Pile Removal Drilling for Pile removal |
| Area W8 | <ul style="list-style-type: none"> Peanut Shaft - Base Slab Construction D-Wall Stage 2 - D-wall Construction 9+1 Grout Shaft - Horizontal Ground Treatment |
| Area W14 - TBM establishment works | <ul style="list-style-type: none"> STP Installation Works |

2.3.2 The construction programme is presented in **Appendix A**.

2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 2.1**.

Table 2.1 Contact Information of Key Personnel

| Party | Role | Position | Name | Telephone | Fax |
|-----------|--------------------------------------|---------------------------------------|---------------------------------|-----------|-----------|
| MTR | Residential Engineer (ER) | Construction Manager | Mr. Thomas Neil De Rye, BARRETT | 2171 3610 | 2171 3609 |
| | | SCL Project Environmental Team Leader | Mr. Richard Kwan | 2688 1283 | 2993 7577 |
| Meinhardt | Independent Environmental Checker | Independent Environmental Checker | Mr. Fredrick Leong | 2859 1739 | 2540 1580 |
| JV | Contractor | Project Director | Mr. Alain Hervio | 6112 9197 | 2171 3715 |
| | | Environmental Manager | Mr. Marcus Cheung | 6628 2685 | |
| AECOM | Contractor's Environmental Team (ET) | ET Leader | Mr. Y T Tang | 3922 9393 | 2317 7609 |

2.5 Status of Environmental Licences, Notification and Permits

2.5.1 Relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting month are summarized in **Table 2.2**.

Table 2.2 Status of Environmental Licenses, Notifications and Permits

| Permit / License No. / Notification/ Reference No. | Valid Period | | Status | Remarks |
|--|--------------|--------------------|------------------------|--|
| | From | To | | |
| Environmental Permit | | | | |
| EP-436/2012/D | 5 Feb 2016 | End of the Project | Valid | The whole SCL |
| Construction Noise Permit | | | | |
| GW-RS0336-16 | 7 Apr 2016 | 4 Oct 2016 | Valid until 4 Oct 2016 | Construction site at Gloucester Road near Hung Hing Road (W4) – Jet Grouting |
| GW-RS0489-16 | 18 May 2016 | 16 Nov 2016 | Valid | Construction site on Wan Shing Street (W6) |
| GW-RS0693-16 | 1 Jul 2016 | 31 Dec 2016 | Valid | An area of Tunnel Approach Rest Garden near Hung Hing Flyover (W3) |
| GW-RS0704-16 | 5 Jul 2016 | 3 Jan 2017 | Valid | An area near Lung King Street (STP Slab) |
| GW-RS0797-16 | 21 Jul 2016 | 18 Jan 2017 | Valid | Construction site near Gloucester Road, Wan Chai (W3.5.2) |
| GW-RS0799-16 | 27 Jul 2016 | 30 Nov 2016 | Valid | An area near Wan Chai Sports Ground |
| GW-RS0802-16 | 29 Jul 2016 | 28 Jan 2017 | Valid | Construction Site near Ex-Police Officer Club, Wan Chai (W1) |
| GW-RS0808-16 | 28 Jul 2016 | 27 Jan 2017 | Valid | Gloucester Road near Marsh Road Station Building (W5) |
| GW-RS1024-16 | 30 Sep 2016 | 28 Mar 2017 | Valid | Construction site near Lung King Street and Convention Avenue (W8) - 24 hours Carven Excavation and Desander |
| GW-RS1031-16 | 8-Oct-16 | 4-Mar-17 | Valid | Construction site at Gloucester Road near Hung Hing Road (W4) – Jet Grouting – Renewal GW-RS0336-16 |
| Wastewater Discharge License | | | | |
| WT00020473-2014 | 9 Dec 2014 | 31 Dec 2019 | Valid | Gloucester Road near Hung Hing Road (W4) |
| WT00021519-2015 | 4 May 2015 | 31 May 2020 | Valid | Between Percival Street Footbridge and Hung Hing Road Flyover (W3) |
| WT00022596-2015 | 22 Sep 2015 | 30 Sep 2020 | Valid | Gloucester Road near Marsh Road Station Building (W5) |
| WT00022781-2015 | 3 Nov 2015 | 30 Nov 2020 | Valid | Works Area at Green Zone |

| Permit / License No. / Notification/ Reference No. | Valid Period | | Status | Remarks |
|--|--------------|--------------------|--------|---|
| | From | To | | |
| WT00023987-2016 | 10 Mar 2016 | 31 Mar 2020 | Valid | Junction of Lung King Street and Convention Avenue (W8) |
| WT00023988-2016 | 10 Mar 2016 | 31 Dec 2019 | Valid | Wang Shing Street (W6) |
| WT00023989-2016 | 10 Mar 2016 | 31 Dec 2019 | Valid | Lung King Street near DSD Screening Plant (W14) |
| WT00024759-2016 | 21 Jun 2016 | 31 Dec 2019 | Valid | Works Area at POC (W1 + W2) |
| WT00025076-2016 | 29 July 2016 | 31 July 2021 | Valid | Works Area on Marsh Road near Wan Chai Sports Centre |
| Chemical Waste Producer Registration | | | | |
| 5213-135-D2551-01 | 16 Dec 2014 | End of the Project | Valid | Gloucester Road near Hung Hing Road (W4) |
| 5213-134-D2552-01 | 16 Dec 2014 | End of the Project | Valid | Lung King Street near DSD Screening Plant (W14) |
| 5111-151-D2552-02 | 05 Jan 2015 | End of the Project | Valid | Victoria Park Road near POC (W1) |
| Billing Account for Construction Waste Disposal | | | | |
| 7020686 | 15 Sep 2014 | End of Contract | Valid | For disposal of C&D waste to public fills and landfills |
| Notification Under Air Pollution Control (Construction Dust) Regulation | | | | |
| 378806 | 2 Sep 2014 | End of Contract | Valid | For Wan Chai, Causeway Bay, Hong Kong Island |
| 380227 | 7 Oct 2014 | End of Contract | Valid | For Gloucester Road near Cross Harbour Tunnel |
| 380228 | 7 Oct 2014 | End of Contract | Valid | Near Convention Avenue and Fenwick Pier Street, HK Island |

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Construction Dust Monitoring

Monitoring Requirements

3.1.1 In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out for at least once every 6 days. The Action and Limit level of the air quality monitoring is provided in **Appendix D**.

Monitoring Equipment

3.1.2 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at the designated monitoring stations. The HVS meets all the requirements of the EM&A Manual. Brand and model of the equipment is given in **Table 3.1**.

Table 3.1 Air Quality Monitoring Equipment

| Equipment | Brand and Model |
|--------------------------------------|---|
| High Volume Sampler (24-hour TSP) | Andersen Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. GS 2310 (S/N:10273)) |
| Calibration Kit | TISCH Environmental Orifice (Model TE-5025A (Orifice I.D.: 0988)) |

Monitoring Locations

3.1.3 Two monitoring station were set up at the proposed location in accordance with the approved EM&A Manuals for SCL(HUH-ADM) as well as the works areas of the Project. The location of the construction dust monitoring stations are summarised in **Table 3.2** and shown in **Figure 3.1**.

Table 3.2 Locations of Construction Dust Monitoring Station

| ID | Air Sensitive Receiver (ASR) ID in EIA Report | Dust Monitoring Station |
|------|--|-------------------------|
| AM2* | EXA6 | Wanchai Sports Ground |
| AM4 | EXA4 | Pedestrian Plaza |

* The monitoring station at AM2 was handed-over from Contract SCL1126 in April 2015 and handed-over to Contract SCL1123 on 28 October 2015.

Monitoring Methodology

3.1.4 24-hour TSP Monitoring

- (a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS as far as practicable:-
 - (i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
 - (ii) Two samplers should not be placed less than 2m apart from each others;
 - (iii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
 - (iv) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
 - (v) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
 - (vi) No furnace or incinerator flues nearby.
 - (vii) Airflow around the sampler was unrestricted.
 - (viii) The sampler was located more than 20 meters from any dripline.

- (ix) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
 - (x) Permission was obtained to set up the samplers and access to the monitoring station.
 - (xi) A secured supply of electricity was obtained to operate the sampler.
- (b) Preparation of Filter Papers
- (i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
 - (ii) 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 < 50% and not variable by more than ± 5 %. A convenient working RH was 40%.
 - (iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.
- (c) Field Monitoring
- (i) The power supply was checked to ensure the HVS works properly.
 - (ii) The filter holder and the area surrounding the filter were cleaned.
 - (iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
 - (iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
 - (v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
 - (vi) Then the shelter lid was closed and was secured with the aluminium strip.
 - (vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
 - (viii) A new flow rate record sheet was set into the flow recorder.
 - (ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m³/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m³/min).
 - (x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
 - (xi) The initial elapsed time was recorded.
 - (xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
 - (xiii) The final elapsed time was recorded.
 - (xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
 - (xv) It was then placed in a clean envelope and sealed.
 - (xvi) All monitoring information was recorded on a standard data sheet.
 - (xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.
- (d) Maintenance and Calibration
- (i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
 - (ii) HVSs were calibrated using TE-5025A Calibration Kit upon installation and thereafter at bi-monthly intervals.
 - (iii) Calibration certificate of the TE-5025A Calibration Kit and the HVSs are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.1.5 The schedule for environmental monitoring in October 2016 is provided in **Appendix F**.

3.2 Construction Noise Monitoring

Monitoring Requirements

- 3.2.1 In accordance with the EM&A Manual, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.3** summarises the monitoring parameters, frequency and duration of impact noise monitoring. The Action and Limit level of the noise monitoring is provided in **Appendix D**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

| Parameter and Duration | Frequency |
|--|------------------------|
| 30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. Leq, L ₁₀ and L ₉₀ would be recorded. | At least once per week |

Monitoring Equipment

- 3.2.2 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.2**.

Table 3.4 Noise Monitoring Equipment for Regular Noise Monitoring

| Equipment | Brand and Model |
|------------------------------|--|
| Integrated Sound Level Meter | B&K (Model No. B&K2238 (S/N: 2800927), Model No. B&K2250-L (S/N: 2681366)) |
| Acoustic Calibrator | Rion (Model No. NC-73 (S/N: 10307223), Model No. B&K4231 (S/N: 3006428)) |

Monitoring Locations

- 3.2.3 The monitoring station for construction noise monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. Location of the noise monitoring station is summarised in **Table 3.4** and shown in **Figure 3.1**.

Table 3.5 Noise Monitoring Station during Construction Phase

| Identification No. | Noise Sensitive Receiver (NSR) ID in EIA Report | Noise Monitoring Station |
|--------------------|---|--------------------------|
| NM1* | CH2 | Hoi Kung Court |

* The noise monitoring at NM1 was handed-over from SCL Contract 1129 in August 2015.

Monitoring Methodology

- 3.2.4 Monitoring Procedure

- (a) Façade measurement was made at NM1.
- (b) The battery condition was checked to ensure the correct functioning of the meter.
- (c) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - (i) frequency weighting: A
 - (ii) time weighting: Fast
 - (iii) time measurement: L_{eq(30-minutes)} during non-restricted hours i.e. 0700 – 1900 on normal weekdays.

- (d) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94 dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- (e) During the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- (f) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.
- (g) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

3.2.5 Maintenance and Calibration

- (a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
- (b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- (c) Calibration certificates of the sound level meters and acoustic calibrators are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.2.6 The schedule for environmental monitoring in October 2016 is provided in **Appendix F**.

3.3 Landscape and Visual

3.3.1 As per the EM&A Manuals, the landscape and visual mitigation measures shall be implemented and site inspections should be undertaken once every two weeks during the construction period. A summary of the implementation status is presented in **Section 6**.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

4.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C**. Status of required submissions under the EP during the reporting period is summarised in **Table 4.1**.

Table 4.1 Status of Required Submission under Environmental Permit

| EP Condition | Submission | Submission Date |
|-------------------------------|--|-----------------|
| Condition 3.4 (EP-436/2012/D) | Monthly EM&A Report for September 2016 | 14 October 2016 |

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

5.1.1 The monitoring results for 24-hour TSP are summarised in **Table 5.1**. Detailed air quality monitoring results and wind monitoring data extracted from the nearest Automatic Weather Station are presented in **Appendix G**.

Table 5.1 Summary of 24-hour TSP Monitoring Result in the Reporting Period

| ID | Average ($\mu\text{g}/\text{m}^3$) | Range ($\mu\text{g}/\text{m}^3$) | Action Level ($\mu\text{g}/\text{m}^3$) | Limit Level ($\mu\text{g}/\text{m}^3$) |
|------------------|--------------------------------------|------------------------------------|---|--|
| AM2 [#] | 70.8 | 44.0 – 107.2 | 160 | 260 |
| AM4 | 109.8 | 96.0 – 126.7 | 198 | 260 |

[#] The monitoring station at AM2 was handed-over from Contract SCL1126 in April 2015 and handed-over to Contract SCL1123 on 28 October 2015.

5.1.2 No Action and Limit Level exceedance was recorded for 24-hour TSP monitoring at the monitoring location in the reporting month.

5.1.3 The event and action plan is annexed in **Appendix H**.

5.1.4 Major dust sources during the monitoring included construction dust, nearby traffic emission and other nearby construction sites.

5.2 Construction Noise Monitoring

5.2.1 Noise monitoring at NM1 was handed over from SCL Contract 1129 in August 2015.

5.2.2 The monitoring results for noise are summarized in **Table 5.2** and the monitoring data is provided in **Appendix H**.

Table 5.2 Summary of Construction Noise Monitoring Results in the Reporting Period

| ID | Range, dB(A), L_{eq} (30 mins) | Limit Level, dB(A), L_{eq} (30 mins) |
|---------|--|--|
| NM1 (*) | <Baseline – 57.7 | 75 |

(*) Baseline correction will be made to the measured L_{eq} when the measured noise level exceeded the corresponding baseline noise level and presented in the table.

5.2.3 No noise complaint was received in the reporting month; hence, no Action Level exceedance was recorded.

5.2.4 No Limit Level exceedance of noise was recorded at the monitoring station in the reporting month.

5.2.5 The event and action plan is annexed in **Appendix I**.

5.2.6 Major noise sources during the monitoring included construction noise from the Project site, nearby traffic noise and the community.

5.3 Waste Management

- 5.3.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 5.3.2 As advised by the Contractor 19,656.9 m³ of inert C&D material was generated (8,321.2 m³ was disposed of as fill bank at TKO137 and 11,318.2 m³ was reused in mainland) in the reporting month. 63.5 m³ of general refuse was generated in the reporting month. No metals, no paper/cardboard packaging material and no plastic was collected by recycling contractor in the reporting month. 17.6m³ of inert C&D materials was reused in SCL1103. No chemical waste was collected by licensed contractor. No marine dumping was undertaken in the reporting period.
- 5.3.3 SCL1128 has started to deliver the spoil to WDII and CWB for beneficial use since April 2016. Furthermore, delivery of spoil to SCL 1121 and SCL 1103 has started since August 2016 and September 2016 respectively. If spoil could not be fully utilized in these sites, spoil will be transported to Mainland China for reuse. The waste flow table is annexed in **Appendix K**.
- 5.3.4 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.
- 5.3.5 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practise on the Packaging, Labelling and Storage of Chemical Wastes.

5.4 Landscape and Visual

- 5.4.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 3, 17 and 31 October 2016. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix C**.

6.1.2 In the reporting month, 5 site inspections were carried out on 3, 11, 17, 24 and 31 October 2016. Joint inspection with the IEC, ER, the Contractor and the ET was conducted on 11 October 2016. No non-compliance was recorded during the site inspections. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

| Parameters | Date | Observations and Recommendations | Follow-up |
|----------------------------|--|--|---|
| Air Quality | 3 Oct 2016 | <ul style="list-style-type: none"> Mud trail was observed at the entrance in W21. The Contractor should clean the mud trail for dust suppression. | The item was rectified by the Contractor on 3 Oct 2016 |
| | 11 Oct 2016 | <ul style="list-style-type: none"> Muddy trail was observed at the vehicle exit of W1 and W2. The Contractor was reminded to wash the wheel and body of vehicles properly before they leave the site. | The item was rectified by the Contractor on 11 Oct 2016 |
| | 17 Oct 2016 | <ul style="list-style-type: none"> Muddy trail was observed at the vehicle exit of W21. The Contractor should clean the dusty material at the exit and provide sufficient wheel washing services to any vehicle leaving the site. | The item was rectified by the Contractor on 17 Oct 2016 |
| | | <ul style="list-style-type: none"> Reminder: The Contractor was reminded to spray water over the exposed area at W8 for dust suppression. | The item was rectified by the Contractor on 17 Oct 2016 |
| | 24 Oct 2016 | <ul style="list-style-type: none"> The dust screen was lowered at W1 during the typhoon visit. The Contractor was reminded to reinstate the dust screen at W1. | The item was rectified by the Contractor on 26 Oct 2016 |
| Noise | Nil | Nil | Nil |
| Water Quality | 11 Oct 2016 | <ul style="list-style-type: none"> Reminder: The wastewater treatment facility at Marsh Road should be maintained properly. | The item was rectified by the Contractor on 12 Oct 2016 |
| | 24 Oct 2016 | <ul style="list-style-type: none"> It was observed that the discharge at W1 was not complied with the water discharge license requirement. The Contractor was reminded to assure that the wastewater discharge complied with the water discharge license requirement. | The item was rectified by the Contractor on 24 Oct 2016 |
| Waste/ Chemical Management | 3 Oct 2016 | <ul style="list-style-type: none"> Chemical containers were observed without drip trays in W14. The Contractor should provide drip trays for chemical containers to avoid potential leakage. | The item was rectified by the Contractor on 4 Oct 2016 |
| | 11 Oct 2016 | <ul style="list-style-type: none"> Secondary Containment of the chemical waste storage was not plugged up at W14. The Contractor was reminded to plug up the drain hole of the secondary containment of the chemical waste storage. | The item was rectified by the Contractor on 13 Oct 2016 |
| | | <ul style="list-style-type: none"> Drips tray was not provided to chemical containers at W1, W3 and W4. The Contractor was reminded to provide drip trays for chemical containers. | The item was rectified by the Contractor on 13 Oct 2016 |
| | 17 Oct 2016 | <ul style="list-style-type: none"> Rubbish was observed over-accumulated in the skip at W14. The Contractor should remove rubbish timely. | The item was rectified by the Contractor on 19 Oct 2016 |
| | | <ul style="list-style-type: none"> No drip tray was provided to chemical containers at W14. The Contractor should provide drip trays for chemical containers to prevent chemical leakage. | The item was rectified by the Contractor on 18 Oct 2016 |
| | 24 Oct 2016 | <ul style="list-style-type: none"> Refuse skip was observed to be over-accumulated at W1. The Contractor should remove the refuse timely. | The item was rectified by the Contractor on 26 Oct 2016 |
| | | <ul style="list-style-type: none"> No drip tray was provided to chemical containers at W1. The Contractor should provide drip trays for chemical containers to prevent chemical leakage. | The item was rectified by the Contractor on 26 Oct 2016 |
| 31 Oct 2016 | <ul style="list-style-type: none"> No drip tray was provided to surface retarders at W8. The Contractor was reminded to provide proper storage for chemicals. | The item will be followed in Nov 2016 | |
| Landscape & Visual | Nil | <ul style="list-style-type: none"> Nil | Nil |
| Permits/ Licenses | Nil | Nil | Nil |

6.1.3 Most of the follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed into the following weekly site

Dragages Bouygues J.V.

inspection conducted during the reporting period. The observation recommended in the last site inspection will be followed up in next reporting month.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

- 7.1.1 All 24-hour TSP result was below the Action and Limit level at all monitoring locations in the reporting month.
- 7.1.2 No noise complaint was received in the reporting month; hence, no Action Level exceedance was recorded.
- 7.1.3 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.

7.2 Summary of Environmental Non-Compliance

- 7.2.1 No environmental non-compliance was recorded in the reporting month.

7.3 Summary of Environmental Complaints

- 7.3.1 One (1) environmental complaint, regarding muddy water discharge at the temporary barging facility outside Lung Wo Road, was referred by EPD on 3 August 2016. Investigation was submitted to EPD. No environmental related complaint was received in the reporting month. The summary and cumulative statistics on environmental complaints is provided in **Appendix J**.

7.4 Summary of Environmental Summon and Successful Prosecutions

- 7.4.1 No environmental related prosecution or notification of summons was received in the reporting month. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix J**.

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Next Three Month

8.1.1 The major construction works in between November 2016 and January 2017 will be:

| Location | Site Activities |
|---------------|--|
| Area W1 | <ul style="list-style-type: none"> • D/T TBM Excavation and precast tunnel ring installation • U/T TBM Dismantling |
| Area W2 | <ul style="list-style-type: none"> • Trim D-wall, capping beam construction & ELS works |
| Area W3.5.2 | <ul style="list-style-type: none"> • Lean Mix Column |
| Area W4a | <ul style="list-style-type: none"> • Canal Road box culvert middle island Reinstatement |
| Area W4b | <ul style="list-style-type: none"> • No activities |
| Area W6 | <ul style="list-style-type: none"> • Void filling and temporary reinstatement work |
| March Road | <ul style="list-style-type: none"> • Pile Removal Works |
| Area W8 & W10 | <ul style="list-style-type: none"> • Peanut Shaft – Base Slab Construction • D-wall Stage 2 – Pretreatment, guidewall and D-wall Construction for Middle wall • 9+1 Grout Shaft – Horizontal Ground Treatment |
| Area W14 | <ul style="list-style-type: none"> • STP Installation Civil Works |

8.2 Key Issues for the Coming Month

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

8.3 Monitoring Schedule for the Next Three Month

8.3.1 The tentative schedules for environmental monitoring between November 2016 and January 2017 are provided in **Appendix F**.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

- 9.1.1 24-hour TSP and noise monitoring were carried out in the reporting month.
- 9.1.2 All 24-hour TSP monitoring result complied with the Action / Limit Level at in the reporting month.
- 9.1.3 No noise complaint was received in the reporting month. Hence, no Action Level exceedance was recorded.
- 9.1.4 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.
- 9.1.5 5 nos. of environmental site inspections were carried out in October 2016. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.
- 9.1.6 One (1) environmental complaint, regarding muddy water discharge at the temporary barging facility outside Lung Wo Road, was referred by EPD on 3 August 2016. Investigation was submitted to EPD. No environmental related complaint was received in the reporting month.
- 9.1.7 Referring to the Contractor's information, no notification of summons and successful prosecution was received in the reporting month.

9.2 Recommendations

- 9.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:-

Air Quality Impact

- Implement effective measures such as vehicle washing, watering at exposed surface and dust screen enclosure for dusty process to avoid dust impact.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- Maintain wastewater treatment facility properly and monitor quality of water discharge;

Chemical and Waste Management

- Provide proper chemical and waste handling management; and
- Avoid waste over-accumulation at site.

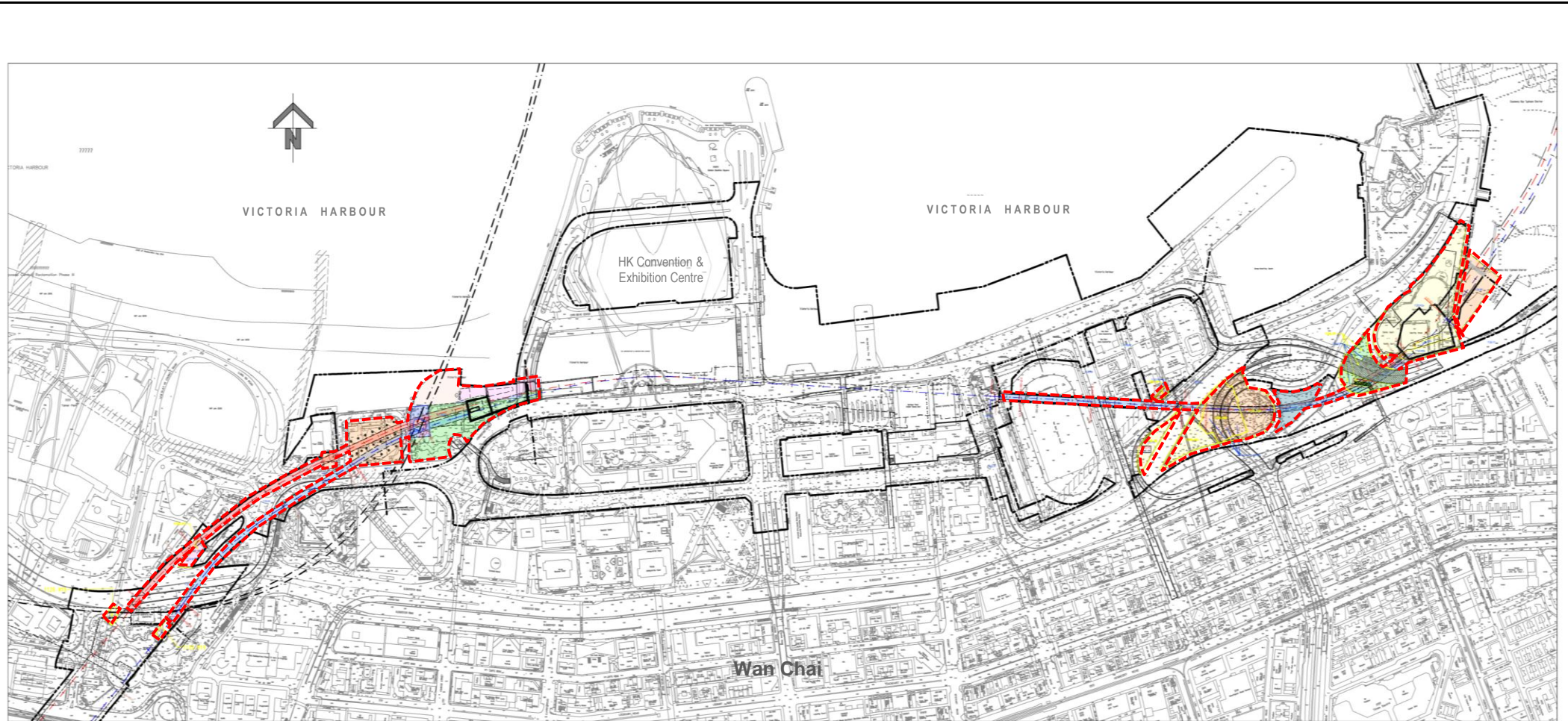
Landscape & Visual Impact

- No specific observation was identified in the reporting month.

Permits/licenses

- No specific observation was identified in the reporting month.

FIGURES



 Site Alignment

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SCL Contract 1128
South Ventilation Building to Admiralty Tunnels

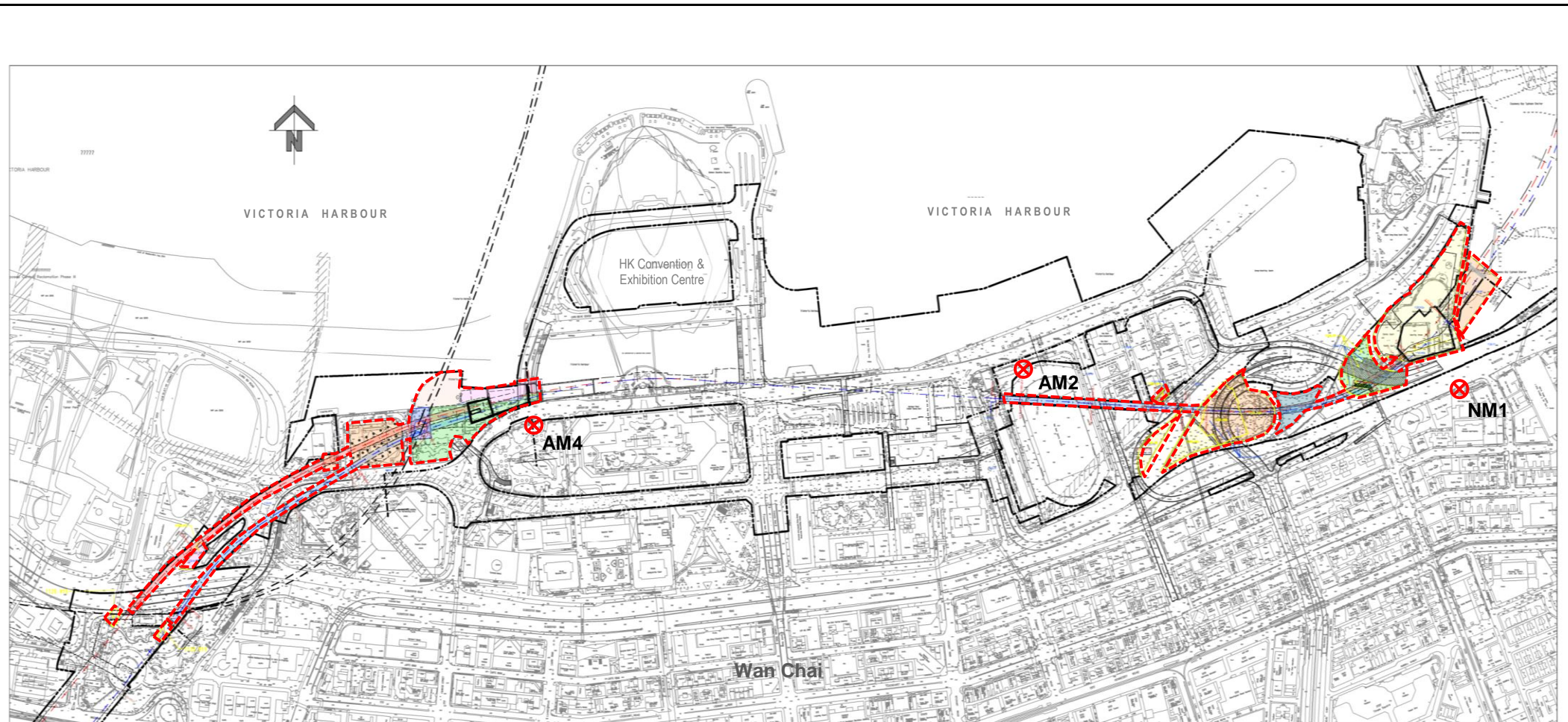


SITE LAYOUT PLAN of SCL1128

Project No.: 60331173

Date: February 2016

Figure 1.1



- Site Alignment
- ⊗ Monitoring Location

The air quality monitoring at AM2 was handed-over from Contract SCL1126 in April 2015 and handed-over to Contract SCL1123 on 28 October 2015.

* The noise monitoring at NM1 was handed-over from SCL1129 in August 2015.

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SCL Contract 1128
South Ventilation Building to Admiralty Tunnels

Air Quality and Noise Monitoring Locations



APPENDIX A

Construction Programme

DRAGAGES - BOUYGUES JOINT VENTURE

| Activity ID | Activity Name | Original Duration | Start | Finish | Activity % Complete | Remaining Duration | 2016 | | | |
|---|--|-------------------|-------------|-------------|---------------------|--------------------|--------|--------|--------|--|
| | | | | | | | Oct 27 | Nov 28 | Dec 29 | 2017 Jan 30 |
| Total | | 1195 | 10-Oct-15 A | 30-Sep-19 | | 825 | | | | |
| 3-Months Rolling Programme (Oct-16) | | 1195 | 10-Oct-15 A | 30-Sep-19 | | 825 | | | | |
| Contract Dates | | 0 | 31-Oct-16 | 31-Oct-16 | | 0 | | | | |
| Schedule of Access Dates for Works Areas | | 0 | 31-Oct-16 | 31-Oct-16 | | 0 | | | | |
| Early Possession Date / Access Date | | 0 | 31-Oct-16 | 31-Oct-16 | | 0 | | | | |
| 01128.EAD150 | 1128.W7d (1) (FPP) | 0 | 31-Oct-16* | | 0% | 0 | | | | 1128.W7d (1) (FPP) |
| 01128.EAD120 | 1128.W7a (FPP) | 0 | 31-Oct-16* | | 0% | 0 | | | | 1128.W7a (FPP) |
| 01128.EAD140 | 1128.W7c (FPP) | 0 | 31-Oct-16* | | 0% | 0 | | | | 1128.W7c (FPP) |
| 01128.EAD130 | 1128.W7b (FPP) | 0 | 31-Oct-16* | | 0% | 0 | | | | 1128.W7b (FPP) |
| Late Possession Date / Access Date | | 0 | 31-Oct-16 | 31-Oct-16 | | 0 | | | | |
| 01128.LAD120 | 1128.W7a (FPP) | 0 | 31-Oct-16* | | 0% | 0 | | | | 1128.W7a (FPP) |
| 01128.LAD150 | 1128.W7d (1) (FPP) | 0 | 31-Oct-16* | | 0% | 0 | | | | 1128.W7d (1) (FPP) |
| 01128.LAD130 | 1128.W7b (FPP) | 0 | 31-Oct-16* | | 0% | 0 | | | | 1128.W7b (FPP) |
| 01128.LAD140 | 1128.W7c (FPP) | 0 | 31-Oct-16* | | 0% | 0 | | | | 1128.W7c (FPP) |
| Cost Centre B - Cut & Cover Tunnel to SOV (Advance Shaft) | | 494 | 10-Oct-15 A | 30-Jun-17 | | 188 | | | | |
| Design Submission | | 305 | 05-Jan-16 A | 31-Jan-17 | | 74 | | | | |
| C&C Tunnel in Advance Launch Shaft at Area W1 (Alternative Scheme) | | 305 | 05-Jan-16 A | 31-Jan-17 | | 74 | | | | |
| C&C Tunnels within the W1 Shaft and Connection to TBM tunnels | | 305 | 05-Jan-16 A | 31-Jan-17 | | 74 | | | | |
| 01128.BDS00270 | Stage 1 - Draft Detailed Design Submission Preparation & Submission with ICE | 48 | 05-Jan-16 A | 04-Nov-16 | 95% | 5 | | | | Stage 1 - Draft Detailed Design Submission Preparation & Submission with ICE |
| 01128.BDS00280 | Stage 1 - DDS Review & Comments by Engineer | 14 | 05-Nov-16 | 18-Nov-16 | 0% | 14 | | | | Stage 1 - DDS Review & Comments by Engineer |
| 01128.BDS00290 | Stage 2 - Detailed Design Submission Preparation & Submission with ICE | 36 | 19-Nov-16 | 03-Jan-17 | 0% | 36 | | | | Stage 2 - Detailed Design Submission Preparation & Submission with ICE |
| 01128.BDS00300 | Stage 2 - DDS Review & Approval by BD/RDO | 28 | 04-Jan-17 | 31-Jan-17 | 0% | 28 | | | | Stage 2 - DDS Review & Approval by BD/RDO |
| Permanent Mined Vent. Tunnels and Connections to C&CT and SOV | | 69 | 31-Aug-16 A | 07-Nov-16 | | 8 | | | | |
| 01128.BDS00410 | Stage 2 - DDS Review & Approval by BD/RDO | 28 | 31-Aug-16 A | 01-Nov-16 | 95% | 2 | | | | Stage 2 - DDS Review & Approval by BD/RDO |
| 01128.BDS00420 | Stage 3 - Working Drawings Submission | 6 | 02-Nov-16 | 07-Nov-16 | 0% | 6 | | | | Stage 3 - Working Drawings Submission |
| D.Wall & Excavation | | 494 | 10-Oct-15 A | 30-Jun-17 | | 188 | | | | |
| Gantry crane | | 494 | 10-Oct-15 A | 30-Jun-17 | | 188 | | | | |
| 01128.CCB00500 | 30T Gantry crane | 494 | 10-Oct-15 A | 30-Jun-17 | 62% | 188 | | | | |
| C&S Works | | 139 | 03-Nov-16 | 29-Apr-17 | | 139 | | | | |
| C&C Tunnel Construction | | 77 | 18-Jan-17 | 29-Apr-17 | | 77 | | | | |
| 01128.CCB00340 | Invert & walkway for ME4 U/T & D/T (160m, 4m/d) | 77 | 18-Jan-17* | 29-Apr-17 | 0% | 77 | | | | |
| Mined Tunnel | | 71 | 03-Nov-16 | 27-Jan-17 | | 71 | | | | |
| 01128.CCB00370 | 1. Ventilation Tunnel Excavation (incl. D-wall coring) | 71 | 03-Nov-16* | 27-Jan-17 | 0% | 71 | | | | |
| Cost Centre C - South Ventilation Building (SOV) | | 1025 | 16-May-16 A | 30-Sep-19 | | 825 | | | | |
| Design Submission | | 116 | 31-Aug-16 A | 20-Jan-17 | | 68 | | | | |
| Temporary ELS - Part 2 Struting Design | | 50 | 31-Aug-16 A | 27-Oct-16 A | | 0 | | | | |
| 01128.CDS00190 | Stage 2 - DDS Review & Approval by BD/RDO | 28 | 31-Aug-16 A | 26-Oct-16 A | 100% | 0 | | | | Stage 2 - DDS Review & Approval by BD/RDO |
| 01128.CDS00200 | Stage 3 - Working Drawings Submission | 6 | 26-Oct-16 A | 27-Oct-16 A | 100% | 0 | | | | Stage 3 - Working Drawings Submission |
| SOV - Rock Face Stabilization | | 114 | 02-Sep-16 A | 20-Jan-17 | | 68 | | | | |
| 01128.CDS00220 | Stage 1 - DDS Review & Comments by Engineer | 14 | 02-Sep-16 A | 07-Nov-16 | 85% | 8 | | | | Stage 1 - DDS Review & Comments by Engineer |
| 01128.CDS00230 | Stage 2 - Detailed Design Submission Preparation & Submission with ICE | 34 | 08-Nov-16 | 16-Dec-16 | 0% | 34 | | | | Stage 2 - Detailed Design Submission Preparation & Submission with ICE |
| 01128.CDS00240 | Stage 2 - DDS Review & Approval by BD/RDO | 28 | 17-Dec-16 | 13-Jan-17 | 0% | 28 | | | | Stage 2 - DDS Review & Approval by BD/RDO |
| 01128.CDS00250 | Stage 3 - Working Drawings Submission | 6 | 14-Jan-17 | 20-Jan-17 | 0% | 6 | | | | Stage 3 - Working Drawings Submission |
| Foundation, Excavation & Structure | | 1025 | 16-May-16 A | 30-Sep-19 | | 825 | | | | |
| Excavation & Structure | | 1025 | 16-May-16 A | 30-Sep-19 | | 825 | | | | |

— Primary Baseline Critical Activity
 Actual Work ◆ Baseline Milestone
 Non Critical Activity ◆ Milestone

1128-3MRP161031 **SCL 1128 - SOV to Admiralty Tunnels**
 3-Months Rolling Programme (Nov-2016 to Jan-2017)

| 1128 | | | |
|-----------|-------------------------|---------|----------|
| Date | Revision | Checked | Approved |
| 29-Feb-16 | 1128 - RMP Ver.B, Rev.2 | | |

DRAGAGES - BOUYGUES JOINT VENTURE

| Activity ID | Activity Name | Original Duration | Start | Finish | Activity % Complete | Remaining Duration | 2016 | | | | 2017 |
|--|---|-------------------|-------------|-------------|---------------------|--------------------|---|--------|--------|--------|------|
| | | | | | | | Oct 27 | Nov 28 | Dec 29 | Jan 30 | |
| Soft Excavation | | | | | | | | | | | |
| 01128.CCC001005 | Steel platform installation | 8 | 17-Aug-16 A | 04-Feb-17 | 100% | 0 | Steel platform installation | | | | |
| 01128.CCC00995 | Demolition of swimming pool | 29 | 26-Sep-16 A | 13-Oct-16 A | 100% | 0 | Demolition of swimming pool | | | | |
| 01128.CCC00980 | Breaking/Trim D.wall | 28 | 17-Aug-16 A | 22-Oct-16 A | 100% | 0 | Breaking/Trim D.wall | | | | |
| 01128.CCC00990 | Capping beam construction | 30 | 05-Sep-16 A | 05-Nov-16 | 95% | 6 | Capping beam construction | | | | |
| 01128.CCC00280 | Soft Excavation for S1 +2.5mPD (9,145m3, 800m3/day) | 12 | 13-Oct-16 A | 12-Nov-16 | 35% | 12 | Soft Excavation for S1 +2.5mPD (9,145m3, 800m3/day) | | | | |
| 01128.CCC00290 | Install Steel waling & Struct S1 +3.5mPD | 6 | 14-Oct-16 A | 28-Nov-16 | 30% | 13 | Install Steel waling & Struct S1 +3.5mPD | | | | |
| 01128.CCC00300 | Soft Excavation for S2 -2.0 mPD (11,946m3, 800m3/day) | 34 | 14-Nov-16 | 22-Dec-16 | 0% | 34 | Soft Excavation for S2 -2.0 mPD (11,946m3, 800m3/day) | | | | |
| 01128.CCC00320 | Install Steel waling & Struct S2 -1.0 mPD | 33 | 29-Nov-16 | 09-Jan-17 | 0% | 33 | Install Steel waling & Struct S2 -1.0 mPD | | | | |
| 01128.CCC00330 | Soft Excavation for S3 -5.5mPD (11,946m3, 400m3/day) | 29 | 23-Dec-16 | 04-Feb-17 | 0% | 29 | Soft Excavation for S3 -5.5mPD (11,946m3, 400m3/day) | | | | |
| Tower crane TC1 | | | | | | | | | | | |
| 01128.CCC000110 | Tower Crane (TC1) | 1025 | 16-May-16 A | 30-Sep-19 | 19.51% | 825 | Tower Crane (TC1) | | | | |
| Cost Centre D - SOV to EXH TBM Tunnels | | | | | | | | | | | |
| Design Submission | | | | | | | | | | | |
| Sump Pit (SP5) Submission | | | | | | | | | | | |
| Temporary Support and Segmental Lining opening for Mid-tunnel Sumps (SP5) | | | | | | | | | | | |
| 01128.DDS01270 | Stage 2 - DDS Review & Approval by BD/RDO | 28 | 26-Aug-16 A | 15-Nov-16 | 80% | 16 | Stage 2 - DDS Review & Approval by BD/RDO | | | | |
| 01128.DDS01320 | Stage 3 - Working Drawings Submission | 6 | 16-Nov-16 | 22-Nov-16 | 0% | 6 | Stage 3 - Working Drawings Submission | | | | |
| SP5 excavation temporary support and permanent structure design | | | | | | | | | | | |
| 01128.DDS01030 | Stage 2 - DDS Review & Approval by BD/RDO | 28 | 30-Sep-16 A | 19-Nov-16 | 50% | 20 | Stage 2 - DDS Review & Approval by BD/RDO | | | | |
| 01128.DDS01080 | Stage 3 - Working Drawings Submission | 6 | 21-Nov-16 | 26-Nov-16 | 0% | 6 | Stage 3 - Working Drawings Submission | | | | |
| TBM (Slurry S988) Procurement, Manufacture & Delivery | | | | | | | | | | | |
| TBM (Slurry S988-1) | | | | | | | | | | | |
| 01128.CCD000300 | Disassembly TBM (Slurry S988-1) & Storage HTM | 176 | 16-Apr-16 A | 02-Nov-16 | 100% | 0 | Disassembly TBM (Slurry S988-1) & Storage HTM | | | | |
| 01128.CCD000310 | TBM (Slurry S988-1) - Transport to HK & Delivery on Site (FPP) | 13 | 27-Oct-16 A | 02-Nov-16 | 90% | 3 | TBM (Slurry S988-1) - Transport to HK & Delivery on Site (FPP) | | | | |
| Pre-cast Segment Fabrication | | | | | | | | | | | |
| 01128.CCD000110 | 4. Fabrication of Precast Segments (231 ring nos.) | 77 | 22-Jul-16 A | 04-Oct-16 A | 100% | 0 | 4. Fabrication of Precast Segments (231 ring nos.) | | | | |
| 01128.CCD00045 | 5. Fabrication of Precast Segments (216 ring nos.) | 75 | 05-Oct-16 A | 31-Dec-16 | 35% | 52 | 5. Fabrication of Precast Segments | | | | |
| 01128.CCD000120 | 6. Fabrication of Precast Segments (189 ring nos.) | 73 | 03-Jan-17 | 31-Mar-17 | 0% | 73 | 6. Fabrication of Precast Segments | | | | |
| Stage 2 - SOV to EXH UT | | | | | | | | | | | |
| 01128.CCD00170 | UT - Sealing of Shield. Dismantle Tunnel Services & Pullback TBM Back Up for West Up Track Tunnel | 10 | 11-Jul-16 A | 15-Oct-16 A | 100% | 0 | UT - Sealing of Shield. Dismantle Tunnel Services & Pullback TBM Back Up for West Up Track Tunnel | | | | |
| 01128.CCD00180 | UT - Dismantle Thrust Cylinders & Main Drive for West Up Track Tunnel | 36 | 11-Jul-16 A | 07-Nov-16 | 75% | 7 | UT - Dismantle Thrust Cylinders & Main Drive for West Up Track Tunnel | | | | |
| 01128.CCD00190 | UT - Dismantle Stone Crusher, Cutter Head & Shield and lift up to the yard | 14 | 08-Nov-16 | 23-Nov-16 | 0% | 14 | UT - Dismantle Stone Crusher, Cutter Head & Shield and lift up to the yard | | | | |
| 01128.CCD00200 | UT - Invert & walkway, 360m, 18m/d | 20 | 27-Jul-16 A | 07-Jan-17 | 50% | 57 | UT - Invert & walkway, 360m, 18m/d | | | | |
| 01128.CCD00210 | UT - Invert & walkway, 303m, 18m/d | 17 | 02-Aug-16 A | 27-Feb-17 | 40% | 37 | UT - Invert & walkway, 303m, 18m/d | | | | |
| In-situ Lining & Walkway at TBM shield | | | | | | | | | | | |
| 01128.CCD00220 | UT - Invert & Walkway (10m) | 8 | 09-Jan-17* | 17-Jan-17 | 0% | 8 | UT - Invert & | | | | |
| 01128.CCD00230 | UT - Polygonal lining walls (10m) | 15 | 18-Jan-17 | 10-Feb-17 | 0% | 15 | UT - Polygonal lining walls (10m) | | | | |
| Stage 2 - SOV to EXH DT | | | | | | | | | | | |
| 01128.CCD00280 | DT - TBM 97+794 - 97+770 | 5 | 23-Sep-16 A | 04-Oct-16 A | 100% | 0 | DT - TBM 97+794 - 97+770 | | | | |
| 01128.CCD00290 | DT - TBM 97+770 - 97+755 | 3 | 04-Oct-16 A | 05-Oct-16 A | 100% | 0 | DT - TBM 97+770 - 97+755 | | | | |
| 01128.CCD00300 | DT - TBM 97+755 - 97+705 | 10 | 05-Oct-16 A | 08-Oct-16 A | 100% | 0 | DT - TBM 97+755 - 97+705 | | | | |
| 01128.CCD00310 | DT - TBM 97+705 - 97+687 | 2 | 08-Oct-16 A | 12-Oct-16 A | 100% | 0 | DT - TBM 97+705 - 97+687 | | | | |
| 01128.CCD00320 | DT - TBM 97+687 - 97+667 | 3 | 12-Oct-16 A | 13-Oct-16 A | 100% | 0 | DT - TBM 97+687 - 97+667 | | | | |
| 01128.CCD00350 | DT - TBM 97+667 - 97+628 | 4 | 13-Oct-16 A | 18-Oct-16 A | 100% | 0 | DT - TBM 97+667 - 97+628 | | | | |

— Primary Baseline — Critical Activity
■ Actual Work ◆ Baseline Milestone
■ Non Critical Activity ◆ Milestone

1128-3MRP161031 SCL 1128 - SOV to Admiralty Tunnels
 3-Months Rolling Programme (Nov-2016 to Jan-2017)

| | | | |
|-----------|-------------------------|---------|----------|
| 1128 | | | |
| Date | Revision | Checked | Approved |
| 29-Feb-16 | 1128 - RMP Ver.B, Rev.2 | | |

DRAGAGES - BOUYGUES JOINT VENTURE

| Activity ID | Activity Name | Original Duration | Start | Finish | Activity % Complete | Remaining Duration | 2016 | | | | |
|--|--|-------------------|------------|------------|---------------------|--------------------|--------|--------|--------|-------------|--|
| | | | | | | | Oct 27 | Nov 28 | Dec 29 | 2017 Jan 30 | |
| 01128.CCD00360 | DT - TBM 97+628 - 97+618 | 1 | 18-Oct-16A | 19-Oct-16A | 100% | 0 | | | | | |
| 01128.CCD00370 | DT - TBM 97+618 - 97+577 | 4 | 19-Oct-16A | 23-Oct-16A | 100% | 0 | | | | | |
| 01128.CCD00371 | DT - TBM 97+577 - 97+535 | 5 | 23-Oct-16A | 29-Oct-16A | 100% | 0 | | | | | |
| 01128.CCD00380 | DT - TBM 97+535- 97+510 | 4 | 30-Oct-16A | 02-Nov-16 | 40% | 3 | | | | | |
| 01128.CCD00390 | DT - TBM 97+510 - 97+480 | 2 | 02-Nov-16 | 03-Nov-16 | 0% | 2 | | | | | |
| 01128.CCD00365 | DT - Removal of S988 TBM in W1 Shaft | 5 | 04-Nov-16 | 09-Nov-16 | 0% | 5 | | | | | |
| 01128.CCD00400 | DT - TBM 97+480 - 97+440 | 2 | 10-Nov-16 | 11-Nov-16 | 0% | 2 | | | | | |
| 01128.CCD00410 | DT - TBM 97+440 - 97+325 | 9 | 12-Nov-16 | 22-Nov-16 | 0% | 9 | | | | | |
| 01128.CCD00420 | DT - TBM 97+325 - 97+251 | 8 | 23-Nov-16 | 01-Dec-16 | 0% | 8 | | | | | |
| 01128.CCD00430 | DT - TBM 97+251 - 97+235 | 2 | 02-Dec-16 | 03-Dec-16 | 0% | 2 | | | | | |
| 01128.CCD00440 | DT - Allowance for Stoppages due to Obstruction (*12x2 + 7x7) | 73 | 05-Dec-16 | 06-Mar-17 | 0% | 73 | | | | | |
| Associated Works | | 102 | 29-Sep-16A | 07-Feb-17 | | 77 | | | | | |
| Grouting - Mid-tunnel Sump (SP5) | | 102 | 29-Sep-16A | 07-Feb-17 | | 77 | | | | | |
| 01128.CCD00584 | Lean Mix Column - A8 | 13 | 29-Sep-16A | 01-Nov-16 | 95% | 2 | | | | | |
| 01128.CCD00594 | Lean Mix Column - A9 | 13 | 02-Nov-16 | 16-Nov-16 | 0% | 13 | | | | | |
| 01128.CCD00604 | Lean Mix Column - A11 | 13 | 17-Nov-16 | 01-Dec-16 | 0% | 13 | | | | | |
| 01128.CCD00624 | Lean Mix Column - A12 | 13 | 02-Dec-16 | 16-Dec-16 | 0% | 13 | | | | | |
| 01128.CCD00634 | Lean Mix Column - A10 | 13 | 17-Dec-16 | 04-Jan-17 | 0% | 13 | | | | | |
| 01128.CCD00654 | Lean Mix Column - A15 | 13 | 05-Jan-17 | 19-Jan-17 | 0% | 13 | | | | | |
| 01128.CCD00664 | Lean Mix Column - A13 | 10 | 20-Jan-17 | 07-Feb-17 | 0% | 10 | | | | | |
| Cost Centre E - Tunnel Boring Machine Launching Shaft (FPP) | | 830 | 04-Jan-16A | 30-Nov-18 | | 593 | | | | | |
| Design Submission | | 313 | 04-Jan-16A | 11-Feb-17 | | 81 | | | | | |
| FPP - Area 2 Part 2 Horizontal Element (ELS) | | 285 | 04-Jan-16A | 03-Jan-17 | | 53 | | | | | |
| 01128.EDS00490 | Stage 1 - Draft Detailed Design Submission Preparation & Submission with ICE | 35 | 04-Jan-16A | 07-Nov-16 | 95% | 7 | | | | | |
| 01128.EDS00450 | Stage 1 - DDDS Review & Comments by Engineer | 14 | 08-Nov-16 | 21-Nov-16 | 0% | 14 | | | | | |
| 01128.EDS00460 | Stage 2 - Detailed Design Submission Preparation & Submission with ICE | 4 | 22-Nov-16 | 25-Nov-16 | 0% | 4 | | | | | |
| 01128.EDS00510 | Stage 2 - DDS Review & Approval by BD/RDO | 28 | 26-Nov-16 | 23-Dec-16 | 0% | 28 | | | | | |
| 01128.EDS00480 | Stage 3 - Working Drawings Submission | 6 | 24-Dec-16 | 03-Jan-17 | 0% | 6 | | | | | |
| C&C Tunnels at FPP Extension | | 81 | 31-Oct-16 | 11-Feb-17 | | 81 | | | | | |
| 01128.EDS00750 | Stage 1 - Draft Detailed Design Submission Preparation & Submission with ICE | 36 | 31-Oct-16* | 10-Dec-16 | 0% | 36 | | | | | |
| 01128.EDS00720 | Stage 1 - DDDS Review & Comments by Engineer | 14 | 11-Dec-16 | 24-Dec-16 | 0% | 14 | | | | | |
| 01128.EDS00730 | Stage 2 - Detailed Design Submission Preparation & Submission with ICE | 36 | 28-Dec-16 | 11-Feb-17 | 0% | 36 | | | | | |
| Area 1 | | 724 | 21-May-16A | 30-Nov-18 | | 593 | | | | | |
| Gantry crane | | 724 | 21-May-16A | 30-Nov-18 | | 593 | | | | | |
| 01128.CCE001130 | 30T & 140T Gantry crane | 724 | 21-May-16A | 30-Nov-18 | 18.09% | 593 | | | | | |
| Excavation | | 12 | 31-Aug-16A | 20-Oct-16A | | 0 | | | | | |
| 01128.CCE00430 | Plate Load Test | 12 | 31-Aug-16A | 20-Oct-16A | 100% | 0 | | | | | |
| Structure | | 124 | 18-Oct-16A | 27-Jan-17 | | 74 | | | | | |
| Base Slab Construction | | 88 | 27-Oct-16A | 13-Dec-16 | | 38 | | | | | |
| 01128.CCE001350 | Middle wall temporary base slab - UT base slab | 36 | 27-Oct-16A | 21-Nov-16 | 60% | 19 | | | | | |
| 01128.CCE001450 | Middle wall temporary base slab - wall and DT base slab | 19 | 22-Nov-16 | 13-Dec-16 | 0% | 19 | | | | | |
| Cut and Cover above track structure | | 42 | 18-Oct-16A | 05-Dec-16 | | 31 | | | | | |
| 01128.CCE001610 | Cut and cover above track structure - Wall and L11 | 17 | 18-Oct-16A | 05-Nov-16 | 85% | 6 | | | | | |
| 01128.CCE001630 | Cut and cover above track structure - Wall and L10 | 10 | 07-Nov-16 | 17-Nov-16 | 0% | 10 | | | | | |
| 01128.CCE001640 | Cut and cover above track structure - East Collar (DT) | 15 | 18-Nov-16 | 05-Dec-16 | 0% | 15 | | | | | |

- Primary Baseline
- Actual Work
- Non Critical Activity
- ◆ Critical Activity
- ◆ Baseline Milestone
- ◆ Milestone

1128-3MRP161031

SCL 1128 - SOV to Admiralty Tunnels 3-Months Rolling Programme (Nov-2016 to Jan-2017)

| 1128 | | | |
|-----------|-------------------------|---------|----------|
| Date | Revision | Checked | Approved |
| 29-Feb-16 | 1128 - RMP Ver.B, Rev.2 | | |
| | | | |

DRAGAGES - BOUYGUES JOINT VENTURE

| Activity ID | Activity Name | Original Duration | Start | Finish | Activity % Complete | Remaining Duration | 2016 | | | |
|--|--|-------------------|------------|------------|---------------------|--------------------|--|--------|--------|-------------|
| | | | | | | | Oct 27 | Nov 28 | Dec 29 | 2017 Jan 30 |
| Concrete bell construction | | | | | | | | | | |
| 01128.CCE001810 | DT base slab and UT roof - steel form installation | 11 | 24-Oct-16A | 26-Jan-17 | 70% | 5 | DT base slab and UT roof - steel form installation | | | |
| 01128.CCE001790 | DT base slab and UT roof - concrete bell stressing UT | 19 | 28-Oct-16A | 14-Nov-16 | 30% | 13 | DT base slab and UT roof - concrete bell stressing UT | | | |
| 01128.CCE001990 | DT base slab and UT roof - Installation of stel bell and cradle beam | 4 | 15-Nov-16 | 18-Nov-16 | 0% | 4 | DT base slab and UT roof - Installation of stel bell and cradle beam | | | |
| 01128.CCE002000 | DT wall | 12 | 08-Dec-16* | 21-Dec-16 | 0% | 12 | DT wall | | | |
| 01128.CCE002010 | DT roof | 28 | 22-Dec-16 | 26-Jan-17 | 0% | 28 | DT roof | | | |
| Collar and tympanum construction | | | | | | | | | | |
| 01128.CCE001980 | UT Wall & DT void area incl. West Collar (UT & DT) | 16 | 29-Oct-16A | 16-Nov-16 | 10% | 15 | UT Wall & DT void area incl. West Collar (UT & DT) | | | |
| 01128.CCE001960 | DT base slab and UT roof | 26 | 15-Nov-16 | 14-Dec-16 | 0% | 26 | DT base slab and UT roof | | | |
| 01128.CCE002020 | DT wall | 15 | 09-Dec-16 | 28-Dec-16 | 0% | 15 | DT wall | | | |
| 01128.CCE002030 | DT roof | 25 | 29-Dec-16 | 27-Jan-17 | 0% | 25 | DT roof | | | |
| Area 2 & B | | | | | | | | | | |
| Cofferdam | | | | | | | | | | |
| Works Area - Area 2 - Middle Wall Construction | | | | | | | | | | |
| 01128.CCE001025 | Panel - D16 | 24 | 20-Sep-16A | 17-Oct-16A | 100% | 0 | Panel - D16 | | | |
| 01128.CCE001240 | Panel, D13 | 11 | 13-Oct-16A | 25-Oct-16A | 100% | 0 | Panel, D13 | | | |
| 01128.CCE001035 | Panel, D17 | 17 | 18-Oct-16A | 05-Nov-16 | 70% | 6 | Panel, D17 | | | |
| 01128.CCE001250 | Panel, T7B | 11 | 26-Oct-16A | 07-Nov-16 | 40% | 7 | Panel, T7B | | | |
| 01128.CCE001210 | Panel, D14 | 13 | 01-Nov-16 | 15-Nov-16 | 0% | 13 | Panel, D14 | | | |
| 01128.CCE001260 | Panel, D20 | 13 | 11-Nov-16 | 25-Nov-16 | 0% | 13 | Panel, D20 | | | |
| 01128.CCE001220 | Panel, D15 | 11 | 16-Nov-16 | 28-Nov-16 | 0% | 11 | Panel, D15 | | | |
| 01128.CCE001270 | Panel, D18 | 12 | 29-Nov-16 | 12-Dec-16 | 0% | 12 | Panel, D18 | | | |
| 01128.CCE001230 | Panel, D19 | 13 | 13-Dec-16 | 29-Dec-16 | 0% | 13 | Panel, D19 | | | |
| 01128.CCE001280 | Panel, D12 | 10 | 22-Dec-16 | 05-Jan-17 | 0% | 10 | Panel, D12 | | | |
| 01128.CCE002040 | Panel, T6 | 10 | 22-Dec-16 | 05-Jan-17 | 0% | 10 | Panel, T6 | | | |
| 01128.CCE002041 | Shear pin (67 nos.) | 40 | 10-Dec-16* | 04-Feb-17 | 0% | 40 | Shear pin (67 nos.) | | | |
| 01128.CCE002043 | Toe grouting (79 nos.) | 54 | 21-Dec-16 | 03-Mar-17 | 0% | 54 | Toe grouting (79 nos.) | | | |
| Cost Centre F - FPP to ADM TBM Tunnels | | | | | | | | | | |
| Slurry Treatment Plant | | | | | | | | | | |
| 01128.CCF000100 | Set-up Slurry Treatment Plant 100% | 51 | 29-Sep-16A | 30-Nov-16 | 50% | 27 | Set-up Slurry Treatment Plant 100% | | | |
| Stage 2 - FPP to Adm UT | | | | | | | | | | |
| 01128.CCF00070 | UT - Setting Up TBM (Slurry S988-1) | 66 | 10-Nov-16 | 01-Feb-17 | 0% | 66 | UT - Setting Up TBM (Slurry S988-1) | | | |
| Associated Works | | | | | | | | | | |
| Grouting - TWL Crossing at SVB | | | | | | | | | | |
| Grouting - TWL Crossing at SVB | | | | | | | | | | |
| Fan Grout | | | | | | | | | | |
| 01128.CCF00690 | Horizontal Permeation Grout 20% Complete (DT Ch96+520) | 12 | 12-Sep-16A | 03-Oct-16A | 100% | 0 | Horizontal Permeation Grout 20% Complete (DT Ch96+520) | | | |
| 01128.CCF00691 | Horizontal Permeation Grout 40% Complete (DT Ch96+520) | 12 | 04-Oct-16A | 22-Oct-16A | 100% | 0 | Horizontal Permeation Grout 40% Complete (DT Ch96+520) | | | |
| 01128.CCF00692 | Horizontal Permeation Grout 60% Complete (DT Ch96+520) | 12 | 24-Oct-16A | 08-Nov-16 | 40% | 8 | Horizontal Permeation Grout 60% Complete (DT Ch96+520) | | | |
| 01128.CCF00693 | Horizontal Permeation Grout 80% Complete (DT Ch96+520) | 12 | 09-Nov-16 | 22-Nov-16 | 0% | 12 | Horizontal Permeation Grout 80% Complete (DT Ch96+520) | | | |
| 01128.CCF00694 | Horizontal Permeation Grout 100% Complete (DT Ch96+520) | 11 | 23-Nov-16 | 05-Dec-16 | 0% | 11 | Horizontal Permeation Grout 100% Complete (DT Ch96+520) | | | |
| Cost Centre G - Police Officers' Club (RRIW) | | | | | | | | | | |
| Design Submission | | | | | | | | | | |
| Temporary sheet pile cofferdam for POC basement | | | | | | | | | | |
| 01128.FDS00960 | Stage 1 - Draft Detailed Design Submission Preparation & Submission with ICE | 28 | 26-May-16A | 19-Nov-16 | 20% | 18 | Stage 1 - Draft Detailed Design Submission Preparation & Submission with ICE | | | |

— Primary Baseline Critical Activity
 Actual Work ◆ Baseline Milestone
 Non Critical Activity ◆ Milestone

1128-3MRP161031 **SCL 1128 - SOV to Admiralty Tunnels**
 3-Months Rolling Programme (Nov-2016 to Jan-2017)

| | | | |
|-----------|-------------------------|---------|----------|
| 1128 | | | |
| Date | Revision | Checked | Approved |
| 29-Feb-16 | 1128 - RMP Ver.B, Rev.2 | | |

DRAGAGES - BOUYGUES JOINT VENTURE

| Activity ID | Activity Name | Original Duration | Start | Finish | Activity % Complete | Remaining Duration | 2016 | | | | | | |
|---|--|-------------------|------------|------------|---------------------|--------------------|--------|--------|--------|-------------|--|--|--|
| | | | | | | | Oct 27 | Nov 28 | Dec 29 | 2017 Jan 30 | | | |
| 01128.FDS00970 | Stage 1 - DDDS Review & Comments by Engineer | 14 | 20-Nov-16 | 03-Dec-16 | 0% | 14 | | | | | | | |
| 01128.FDS00980 | Stage 2 - Detailed Design Submission Preparation & Submission with ICE | 36 | 05-Dec-16 | 18-Jan-17 | 0% | 36 | | | | | | | |
| 01128.FDS00990 | Stage 2 - DDS Review & Approval by BD/RDO | 28 | 19-Jan-17 | 15-Feb-17 | 0% | 28 | | | | | | | |
| Temporary site formation for ground beams and pile caps of future POC building | | 181 | 02-Jul-16A | 17-Feb-17 | | 86 | | | | | | | |
| 01128.FDS001010 | Stage 1 - Draft Detailed Design Submission Preparation & Submission with ICE (4.3) | 25 | 02-Jul-16A | 22-Nov-16 | 70% | 20 | | | | | | | |
| 01128.FDS001020 | Stage 1 - DDDS Review & Comments by Engineer | 14 | 23-Nov-16 | 06-Dec-16 | 0% | 14 | | | | | | | |
| 01128.FDS001030 | Stage 2 - Detailed Design Submission Preparation & Submission with ICE | 36 | 07-Dec-16 | 20-Jan-17 | 0% | 36 | | | | | | | |
| 01128.FDS001040 | Stage 2 - DDS Review & Approval by BD/RDO | 28 | 21-Jan-17 | 17-Feb-17 | 0% | 28 | | | | | | | |
| Permanent Concrete Deck for POC EVA | | 29 | 20-Jan-17 | 25-Feb-17 | | 29 | | | | | | | |
| 01128.FDS00910 | Stage 1 - Draft Detailed Design Submission Preparation & Submission with ICE (4.1) | 29 | 20-Jan-17 | 25-Feb-17 | 0% | 29 | | | | | | | |
| Cost Centre H - Other RRIW Works | | 286 | 04-Jan-16A | 04-Jan-17 | | 54 | | | | | | | |
| W3 area | | 276 | 04-Jan-16A | 20-Dec-16 | | 44 | | | | | | | |
| Pile Removal - Percival Street Footbridge (H16) | | 276 | 04-Jan-16A | 20-Dec-16 | | 44 | | | | | | | |
| Design Submission | | 276 | 04-Jan-16A | 20-Dec-16 | | 44 | | | | | | | |
| Temporary ELS (Footbridge reinstatement) | | 276 | 04-Jan-16A | 20-Dec-16 | | 44 | | | | | | | |
| 01128.HDS000100 | Stage 2 - Detailed Design Submission Preparation & Submission with ICE | 12 | 04-Jan-16A | 15-Nov-16 | 85% | 14 | | | | | | | |
| 01128.HDS000110 | Stage 2 - DDS Review & Approval by BD/RDO | 28 | 16-Nov-16 | 13-Dec-16 | 0% | 28 | | | | | | | |
| 01128.HDS000120 | Stage 3 - Working Drawings Submission | 6 | 14-Dec-16 | 20-Dec-16 | 0% | 6 | | | | | | | |
| TARG (Pile Removal: D03, H13, D04 & Trunk Sewers) | | 80 | 28-Sep-16A | 04-Jan-17 | | 54 | | | | | | | |
| Canal Rd. Box Culvert & Pile Removal (D03) - Twin Temporary Channel Scheme | | 80 | 28-Sep-16A | 04-Jan-17 | | 54 | | | | | | | |
| Stage 11 to Stage 16 (Formerly Stage 3b (2nd Dry & Wet Season - Mar-16 to Oct-16)) | | 20 | 28-Sep-16A | 17-Oct-16A | | 0 | | | | | | | |
| 01128.CCH01620 | Side and middle wall reinstatement | 20 | 28-Sep-16A | 17-Oct-16A | 100% | 0 | | | | | | | |
| Stage 17 & 18 (Formerly Stage 4 & 5 (3rd Dry Season - Nov-16 to Mar-17)) | | 65 | 18-Oct-16A | 04-Jan-17 | | 54 | | | | | | | |
| 01128.CCH01859 | Fill water for TBM passing | 10 | 18-Oct-16A | 28-Oct-16A | 100% | 0 | | | | | | | |
| 01128.CCH01860 | Backfill between SSP and box culvert and top soil | 10 | 29-Oct-16A | 09-Nov-16 | 15% | 9 | | | | | | | |
| 01128.CCH01861 | Placing of precast and top slab reinstatement | 20 | 10-Nov-16 | 02-Dec-16 | 0% | 20 | | | | | | | |
| 01128.CCH01863 | Backfill top soil | 5 | 03-Dec-16 | 08-Dec-16 | 0% | 5 | | | | | | | |
| 01128.CCH01870 | Remove bulkheadwall | 20 | 09-Dec-16 | 04-Jan-17 | 0% | 20 | | | | | | | |
| Works at W6 (Left-in Sheet piles) | | 31 | 29-Sep-16A | 05-Nov-16 | | 6 | | | | | | | |
| Wan Shing St. | | 24 | 29-Sep-16A | 28-Oct-16A | | 0 | | | | | | | |
| 01128.CCH04095 | Void filling | 3 | 29-Sep-16A | 05-Oct-16A | 100% | 0 | | | | | | | |
| 01128.CCH04115 | Temporary support for manhole | 13 | 06-Oct-16A | 21-Oct-16A | 100% | 0 | | | | | | | |
| 01128.CCH04125 | Temporary reinstatement | 6 | 22-Oct-16A | 28-Oct-16A | 100% | 0 | | | | | | | |
| Works at Marsh Rd. (Left-in Sheet piles) | | 30 | 30-Sep-16A | 05-Nov-16 | | 6 | | | | | | | |
| 01128.CCH01091 | Water Jetting operation for P2 | 6 | 30-Sep-16A | 05-Oct-16A | 100% | 0 | | | | | | | |
| 01128.CCH01101 | Modification of steel platform and relocate 800mm steel box for pile P2 | 1 | 06-Oct-16A | 07-Oct-16A | 100% | 0 | | | | | | | |
| 01128.CCH01111 | Repeat steps for pile P2 | 16 | 08-Oct-16A | 27-Oct-16A | 100% | 0 | | | | | | | |
| 01128.CCH01121 | Grouting | 2 | 28-Oct-16A | 29-Oct-16A | 100% | 0 | | | | | | | |
| 01128.CCH01131 | Demolition of the steel decking | 4 | 31-Oct-16A | 01-Nov-16 | 50% | 2 | | | | | | | |
| 01128.CCH01141 | Temporary reinstatement | 4 | 02-Nov-16 | 05-Nov-16 | 0% | 4 | | | | | | | |

- Primary Baseline
- Actual Work
- Non Critical Activity
- Critical Activity
- Baseline Milestone
- Milestone

1128-3MRP161031

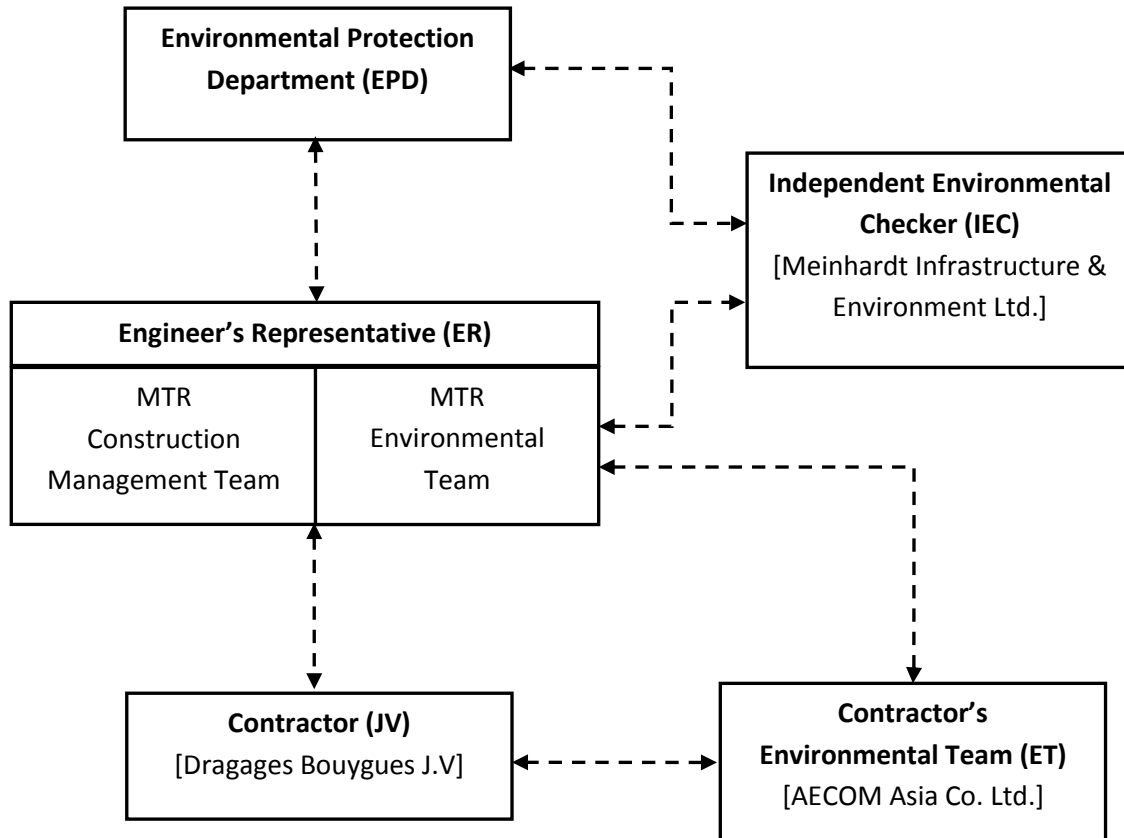
SCL 1128 - SOV to Admiralty Tunnels 3-Months Rolling Programme (Nov-2016 to Jan-2017)

| 1128 | | | |
|-----------|-------------------------|---------|----------|
| Date | Revision | Checked | Approved |
| 29-Feb-16 | 1128 - RMP Ver.B, Rev.2 | | |

APPENDIX B

Project Organization Structure

Appendix B Project Organisation Structure



APPENDIX C

**Implementation Schedule of Environmental Mitigation
Measures**

Dragages Bouygues J.V.

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|------------------------------------|---|--|--------------------------------|--|---------------------------------|-----------------------|
| Cultural Heritage Impact | | | | | | |
| S4.93 & Table 4.2 | Erection of decorative and sensibly designed hoarding along the boundary of the works area | To mitigate the temporary visual impact due to surface works. | Contractor | Works Areas in Causeway Bay and Wan Chai, and Works Shaft in Admiralty | Construction Phase | V |
| Ecological Impact | | | | | | |
| S5.134 | Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted. | To minimize the contamination of wastewater discharge | Contractor | All land based works areas | Construction Phase | N/A |
| Landscape and Visual Impact | | | | | | |
| Construction Phase | | | | | | |
| Table 7.9 | CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation. | Transplanting and reuse of affected trees. | MTR | Works Sites | Construction Phase | V |
| Table 7.9 | CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period. | Compensation for the removal of existing trees due to the Project. | MTR | Works Sites | Construction Phase | N/A |
| Table 7.9 | CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas. | Compensation for the removal of existing shrub planting due to the Project. | MTR | Works Sites | Construction Phase | N/A |
| Table 7.9 | CM3 - Control of night-time lighting glare | Minimize the night time glare due to the Project during construction phase | MTR | Works Sites | Construction Phase | N/A |
| Table 7.9 | CM4 - Erection of decorative screen hoarding compatible with the surrounding setting. | Minimize the visual impact of the Project during construction phase | MTR | Works Sites | Construction Phase | V |
| Table 7.9 | CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs | Control of height and deposition/ arrangement of temporary facilities in works areas | MTR | Works Sites | Construction Phase | N/A |
| Table 7.9 | CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like-to-like basis to the satisfaction of the relevant Government Departments. | Reinstatement of temporary works areas. | MTR | Works Sites | Construction Phase | N/A |
| / | All retained/exist trees shall be properly protected during construction period. | Tree protection | Contractor | Works areas | Construction phase | V |
| Air Quality | | | | | | |
| / | Emission from Vehicles and Plants <ul style="list-style-type: none"> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD) | Reduce air pollution emission from construction vehicles and plants | Contractor | Works areas | Construction phase | V V V |

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|------------------------------|---|--|--------------------------------|-------------------------|---------------------------------|--|
| S8.89 | Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall, provision of water spraying and flexible dust curtains to reduce dust emission | To minimize dust impact | Contractor | All barging points | Construction phase | N/A |
| S8.90 | Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: <ul style="list-style-type: none"> Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. Use of frequent watering for particularly dusty construction areas and areas close to ASRs. Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. Imposition of speed controls for vehicles on site haul roads. Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise | To minimize dust impacts | Contractor | Works areas | Construction phase | @ V V V V @ @ V V V V V |
| / | Dust suppression measures (con't) <ul style="list-style-type: none"> De-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement | To minimize dust impacts | Contractor | Works areas | Construction phase | V |
| Airborne Noise Impact | | | | | | |
| Construction Phase | | | | | | |
| S9.55 | The following good site practices shall be implemented: <ul style="list-style-type: none"> Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program Mobile plant, if any, shall be sited as far from NSRs as possible Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities | To minimize construction noise impact | Contractor | Works areas | Construction phase | V V V V V N/A |
| / | <ul style="list-style-type: none"> Install movable noise barriers, acoustic mat or full enclosure, screen the noisy plants during operation Air compressors shall be fitted with valid noise emission labels during operation | To minimize construction noise impact | Contractor | Works areas | Construction phase | V V |

Dragages Bouygues J.V.

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|----------------------------|--|--|--------------------------------|---|---------------------------------|--|
| S9.56 & Table 9.16 | The following quiet PME shall be used: <ul style="list-style-type: none"> • Crane lorry, mobile • Crane, mobile • Asphalt paver • Backhoe with hydraulic breaker • Breaker, excavator mounted (hydraulic) • Hydraulic breaker • Concrete lorry mixer • Poker, vibrator, hand-held • Concrete pump • Crawler crane, mobile • Mobile crane • Dump truck • Excavator • Truck • Rock drill • Lorry • Wheel loader • Roller vibratory | To minimize construction noise impact | Contractor | Works areas at: <ul style="list-style-type: none"> • Hung Hom • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel | Construction phase | N/A ✓ N/A ✓ N/A N/A N/A N/A N/A ✓ ✓ ✓ N/A N/A N/A N/A |
| S9.58 – S9.59 & Table 9.17 | Movable noise barrier shall be used for the following PME: <ul style="list-style-type: none"> • Air compressor • Asphalt paver • Backhoe with hydraulic breaker • Bar bender • Bar bender and cutter (electric) • Breaker, excavator mounted • Concrete pump • Concrete pump, stationary/lorry mounted • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete | To minimize construction noise impact | Contractor | Works areas at: <ul style="list-style-type: none"> • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel | Construction phase | N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A |
| S9.60 & Table 9.17 | Noise insulating fabric shall be used for <ul style="list-style-type: none"> • Drill rig, rotary type • Piling, diaphragm wall, bentonite filtering plant • Piling, diaphragm wall, grab and chisel • Piling, diaphragm wall, hydraulic extractor • Piling, large diameter bored, grab and chisel • Piling, hydraulic extractor • Piling, earth auger, auger • Rock drill, crawler mounted (pneumatic) | To minimize construction noise impact | Contractor | Works areas at: <ul style="list-style-type: none"> • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel | Construction phase | N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A |

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Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|-----------------------------|---|---|--------------------------------|--|---------------------------------|---|
| Water Quality Impact | | | | | | |
| Construction Phase | | | | | | |
| S11.216 | <p>The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close to the seafront:</p> <ul style="list-style-type: none"> • Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works. • Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage. • Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters. | To minimize release of construction wastes from construction works at or close to the seafront | Contractor | Construction works at or close to the seafront | Construction Phase | <p style="text-align: center;">V</p> <p style="text-align: center;">V</p> <p style="text-align: center;">N/A</p> |
| S11.222 to 11.245 | <p>The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" shall be followed where practicable.</p> <p><u>Surface Run-off</u></p> <ul style="list-style-type: none"> • Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks. • Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. • Construction works shall be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. | To minimize water quality impacts from construction site runoff and general construction activities | Contractor | Works areas | Construction Phase | <p style="text-align: center;">V</p> <p style="text-align: center;">@</p> <p style="text-align: center;">V</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">V</p> <p style="text-align: center;">V</p> <p style="text-align: center;">V</p> <p style="text-align: center;">V</p> |

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| | <p><u>Boring and Drilling Water</u></p> <ul style="list-style-type: none"> Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities. <p><u>Wheel Washing Water</u></p> <ul style="list-style-type: none"> All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road shall be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains. <p><u>Bentonite Slurries</u></p> <ul style="list-style-type: none"> Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be dewatered or mixed with inert fill material for disposal to a public filling area. If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS. <p><u>Water for Testing & Sterilization of Water Retaining Structures and Water Pipes</u></p> <ul style="list-style-type: none"> Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains. Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable. <p><u>Acid Cleaning, Etching and Pickling Wastewater</u></p> <ul style="list-style-type: none"> Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters. <p><u>Wastewater from Site Facilities</u></p> <ul style="list-style-type: none"> Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis. Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass. Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance. | | | | | <p style="text-align: center;">V</p> <p style="text-align: center;">@</p> <p style="text-align: center;">V</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> |
| S11.246 & 11.247 | <p>Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.</p> | <p>To minimize water quality impacts due to sewage generated from construction workforce</p> | <p>Contractor</p> | <p>Works areas</p> | <p>Construction Phase</p> | <p>N/A</p> |
| S11.248 | <p>In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps.</p> | <p>To minimize impact from discharge of uncontaminated groundwater</p> | <p>Contractor</p> | <p>Works areas</p> | <p>Construction Phase</p> | <p>N/A</p> |

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| S11.249 | If land contaminated site is identified from the Stage 2 SI work (refer to Sections 11.188 to 11.191 of the EIA Report), the following mitigation measures shall be implemented for the identified contaminated area. Any transient pile of contaminated soil / material shall be minimized and shall be bottom-lined, bunded and covered with impervious membrane during rain event to avoid generation of contaminated runoff. Appropriate intercepting channels and partial shelters shall be provided where necessary to prevent rainwater from collecting within trenches or footing excavations. Any contaminated water and wastewater generated from the decontamination process shall not be directly discharged to public sewers or site drainage. They shall be treated or tanked away as necessary for proper disposal in compliance with the TM-DSS. | To control site run-off generated from any potential contaminated works areas. | Contractor | Any potential contaminated areas to be identified from the Stage 2 SI | Construction Phase | N/A |
| S11.250 & S11.251 | No direct discharge of groundwater from contaminated areas shall be adopted. If land contamination impact and generation of contaminated groundwater is identified from the Stage 2 SI works (refer to Sections 11.189 to 11.192 of the EIA Report), the following mitigation measures shall be adopted. Any contaminated groundwater shall be either properly treated in compliance with the requirements of the TM-DSS or properly recharged into the ground. If wastewater treatment is deployed for treating the contaminated groundwater, the wastewater treatment unit shall deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as TPH) to an undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM-DSS and shall be discharged into the foul sewers. If groundwater recharging wells are deployed, the recharging wells shall be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells shall be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in Section 2.3 of the TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substance such as TPH products shall be removed as necessary by installing the petrol interceptor. The Contractor shall apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater. | To minimize potential water quality impact from discharge of contaminated groundwater | Contractor | Any potential contaminated areas to be identified from the Stage 2 SI | Construction Phase | N/A |
| S11.252 | The following good site practices shall be adopted for the proposed barging points: <ul style="list-style-type: none"> all vessels shall be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash all hopper barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site loading of barges and hoppers shall be controlled to prevent splashing of material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation | To minimize water quality impacts generated from the barging points. | Contractor | Barging points | Construction Phase | V V @ V |
| S11.253 | 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. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD. | To minimize water quality impact from effluent discharges from construction sites | Contractor | All construction works areas | Construction Phase | V |

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| S11.254 | 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 shall be observed and complied with for control of chemical wastes. | To minimize water quality impact from accidental spillage of chemical | Contractor | All construction works areas | Construction Phase | V |
| S11.255 | Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges. | To minimize water quality impact from accidental spillage of chemical | Contractor | All construction works areas | Construction Phase | N/A |
| S11.256 | Disposal of chemical wastes shall 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. General requirements are given as follows: <ul style="list-style-type: none"> Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area. | To minimize water quality impact from accidental spillage of chemical | Contractor | All construction works areas | Construction Phase | V V @ |
| Waste Management Implications | | | | | | |
| Construction Phase | | | | | | |
| S12.75 | Good Site Practices and Waste Reduction Measures <ul style="list-style-type: none"> Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; Provision of sufficient waste disposal points and regular collection of waste; Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and Separation of chemical wastes for special handling and appropriate treatment. | To reduce waste management impacts | Contractor | All Work Sites | Construction Phase | V V V N/A N/A V |
| S12.76 | Good Site Practices and Waste Reduction Measures (con’t) <ul style="list-style-type: none"> Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); 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; Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; Proper storage and site practices to minimize the potential for damage or contamination of construction materials; Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle. | To achieve waste reduction | Contractor | All Work Sites | Construction Phase | N/A V N/A V V V |
| S12.77 | Good Site Practices and Waste Reduction Measures (con’t) The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. | To achieve waste reduction | Contractor | All Work Sites | Construction Phase | V |

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| | The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis. | | | | | |
| S12.78 | Good Site Practices and Waste Reduction Measures (con't) C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort. | To achieve waste reduction | Contractor | All Work Sites | Construction Phase | V |
| S12.79 | Storage, Collection and Transportation of Waste Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: <ul style="list-style-type: none"> Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; Maintain and clean storage areas routinely; Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and Different locations shall be designated to stockpile each material to enhance reuse. | To minimize potential adverse environmental impacts arising from waste storage | Contractor | Work Sites | Construction Phase | V V V V |
| S12.80 | Storage, Collection and Transportation of Waste (con't) Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: <ul style="list-style-type: none"> Remove waste in timely manner Waste collectors shall only collect wastes prescribed by their permits Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) Waste shall be disposed of at licensed waste disposal facilities Maintain records of quantities of waste generated, recycled and disposed | To minimize potential adverse environmental impacts arising from waste collection and disposal | Contractor | Work Sites | Construction Phase | @ V V V V V |
| S12.81 | Storage, Collection and Transportation of Waste (con't) <ul style="list-style-type: none"> Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed. | To minimize potential adverse environmental impacts arising from waste collection and disposal | Contractor | Work Sites | Construction Phase | V |
| S12.83 – 12.86 | Sorting of C&D Materials <ul style="list-style-type: none"> Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach tunnels. | To minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials | Contractor | Work Sites | Construction Phase | V V V V |
| S12.88 | Sediments <ul style="list-style-type: none"> The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance. | To ensure the sediment to be disposed of in an authorized and least impacted way | Contractor | All works areas with sediments concern | Construction Phase | N/A |

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| S12.89 | <p>Sediments (con't)</p> <ul style="list-style-type: none"> The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works. | To determine the best handling and disposal option of the sediments | MTR / Contractor | All works areas with sediments concern | Detailed Design Stage and Construction Phase | N/A |
| S12.91 – 12.94 | <p>Sediments (con't)</p> <ul style="list-style-type: none"> Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site. | To ensure handling of sediments are in accordance to statutory requirements | Contractor | Work Sites, Sediment disposal sites | Construction Phase | N/A |
| S12.95 | <p>Sediments (con't)</p> <ul style="list-style-type: none"> A possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of fill retention by the geosynthetic fabrics, possible rupture of the containers and sediment loss due to impact of the container on the seabed have been addressed. | To ensure handling of sediments are in accordance to statutory requirements | Contractor | Work Sites, Sediment disposal sites | Construction Phase | N/A |
| / | <p>Accidental spillage</p> <p>To prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> Proper storage and handling facilities will be provided. All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. | To minimize potential adverse environmental impacts arising from accidental spillage | Contractor | Work Sites | Construction Phase | @ V V N/A |

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| S12.97 | <p>Containers for Storage of Chemical Waste The Contractor shall register with 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. Containers used for storage of chemical waste shall:</p> <ul style="list-style-type: none"> • Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; • Have a capacity of less than 450 liters unless the specifications have been approved by EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation. | To register with EPD as a Chemical waste producer and store chemical waste in appropriate containers | Contractor | Work Sites | Construction Phase | V N/A N/A |
| S12.98 | <p>Chemical Waste Storage Area</p> <ul style="list-style-type: none"> • Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • Have adequate ventilation; • Be covered to prevent rainfall from entering; and • Be properly arranged so that incompatible materials are adequately separated. | To prepare appropriate storage areas for chemical waste at works areas | Contractor | Work Sites | Construction Phase | V V @ V V V |
| S12.99 | <p>Chemical Waste</p> <ul style="list-style-type: none"> • Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place. | To clearly label the chemical waste at works areas | Contractor | Work Sites | Construction Phase | N/A |
| S12.100 | <p>Collection and Disposal of Chemical Waste A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulation</i>.</p> | To monitor the generation, reuse and disposal of chemical waste | Contractor | Work Sites | Construction Phase | N/A |
| S12.101 | <p>General Refuse General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.</p> | To properly store and separate from other C&D materials for subsequent collection and disposal | Contractor | Work Sites | Construction Phase | V |
| S12.102 | <p>General Refuse (con't) The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.</p> | To facilitate recycling of recyclable portions of refuse | Contractor | Work Sites | Construction Phase | V |
| S12.103 | <p>General Refuse (con't) The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders.</p> | To raise workers' awareness on recycling issue | Contractor | Work Sites | Construction Phase | V |

Dragages Bouygues J.V.

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|----------------------------------|--|---|--------------------------------|---|--|-----------------------|
| Land Contamination Impact | | | | | | |
| S13.23–13.24 | <p>For construction works at sites under the current stage of site investigation (Stage 1 SI):</p> <ul style="list-style-type: none"> • Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. The inspection process shall involve a visual observation of excavated soils for discolouration and the presence of oils, together with identifying the presence of odours, which may also indicate soil and/or groundwater contamination. • If soil materials suspected to be contaminated are encountered during excavation, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Shall concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the Contamination Assessment Report (CAR) and Remediation Action Plans (RAP). | To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover. | Contractor | Within Project Boundary where signs of contamination is identified | During excavation works for Cut-and-Cover | N/A |
| S13.30 | <p>For some sites with currently no SI proposed (i.e. sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28), to be conservative, visual inspection shall be conducted during demolition and excavation to detect any abnormal colour, smell or other characteristics of the soil, due to the nearby land use and/ or construction method. If abnormal colour, smell or other characteristics of contamination are identified for any of these sites, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Should the concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the CAR and RAP.</p> | To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover. | Contractor | Areas with no SI proposed (Sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28) | During excavation works for Cut-and-Cover | N/A |
| S13.36 – 13.38 | <p>For areas inaccessible for proper site appraisal and investigation (Stage 2 SI)</p> <p>(i) Site 2-15</p> <ul style="list-style-type: none"> • Upon site access being granted, visual inspection shall be carried out where intrusive works and soil excavation is encountered, for attention on any potential contamination due to its current operation • A supplementary CAP shall then be submitted to EPD for endorsement. • A CAR/RAP shall be prepared and submitted to EPD for endorsement on completion of the SI and analytical testing. • Shall remediation be undertaken a Remediation Report (RR) shall be prepared and submitted to EPD for endorsement to demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed CAR and RAP. Information such as soil treatment/ disposal records (including trip tickets), confirmatory sampling results, and photographs shall be included in the aforesaid RR. • No construction work shall be carried out prior to the endorsement of the RR by EPD. | <p>To identify areas with land contamination concern, report laboratory results and propose remediation measures if necessary.</p> <p>To ensure remediation works have been undertaken to before the commencement of any construction works of the Project.</p> | Contractor | Areas unable to be accessed during Stage 1 SI (Site 2-15) | After land resumption and prior to the construction works commencement at the site | N/A |
| S13.39 | <p>Potential Remediation of Contaminated Soil</p> <ul style="list-style-type: none"> • Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; • Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; • Supply of suitable clean backfill material is needed after excavation; • If remediation is required with chemical oxidation proposed as a contaminant mass reduction technology, chemicals will be securely and separately stored away from sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and personal protective equipment (PPE). • Vehicles containing any excavated materials shall be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates shall be sealed to prevent any discharge during transport or during wet conditions; • Speed control for the trucks carrying contaminated materials shall be enforced; • Vehicle wheel and body washing facilities at the site's exit points shall be established and used; and • Pollution control measures for air emissions e.g. from biopile blower, noise emissions e.g. from blower, and water discharges e.g. runoff control shall be implemented and complied with relevant regulations and guidelines. | To remediate contaminated soil | Contractor | Identified contaminated sites | Site remediation | N/A |

Dragages Bouygues J.V.

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|--------------------------|--|---|--------------------------------|-------------------------------|--|-----------------------|
| S13. 40 | In order to minimize the potential adverse effects on health and safety of construction workers during the course of site remediation, the Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations shall be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures shall be implemented as far as possible: <ul style="list-style-type: none"> • Set up a list of safety measures for site workers; • Provide written information and training on safety for site workers; • Keep a log-book and plan showing the contaminated zones and clean zones; • Maintain a hygienic working environment; • Avoid dust generation; • Provide face and respiratory protection gear to site workers; • Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers; and • Provide first aid training and materials to site workers. | To minimise the potentially adverse effects on health and safety of construction workers during the course of site remediation. | Contractor | Identified contaminated sites | Site remediation and prior to construction phase | N/A |

Legend: V = implemented;
 x = not implemented;
 @ = partially implemented;
 N/A = not applicable

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels

Table 1 Action and Limit Levels for 24-hour TSP

| ID | Location | Action Level | Limit Level |
|-----------|------------------|-----------------------|-----------------------|
| AM4 | Pedestrian Plaza | 198 µg/m ³ | 260 µg/m ³ |

**Table 2 Action and Limit Levels for Construction Noise
 (0700 – 1900 hrs of normal weekdays)**

| ID | Location | Action Level | Limit Level |
|-----------|-----------------|---|--------------------|
| NM1* | Hoi Kung Court | When one documented complaint is received | 75 dB(A) |

* The noise monitoring at NM1 was handed-over from SCL Contract 1129 in August 2015.

APPENDIX E

Calibration Certificates of Equipments

AECOM Asia Company Limited

TSP High Volume Sampler

Field Calibration Report

Station: Pedestrian Plaza Operator: Lui Tat Chung
 Cal. Date: 15-Sep-16 Next Due Date: 15-Nov-16
 Equipment No.: A-001-70T Serial No.: 10273

| Ambient Condition | | | |
|---------------------|-----|---------------------|-------|
| Temperature, Ta (K) | 304 | Pressure, Pa (mmHg) | 752.1 |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|-----------|---|---------|---------------|----------|
| Serial No: | 988 | Slope, mc | 1.99349 | Intercept, bc | -0.02737 |
| Last Calibration Date: | 31-May-16 | $mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$ | | | |
| Next Calibration Date: | 31-May-17 | | | | |

| Calibration of TSP Sampler | | | | | |
|----------------------------|----------------------------|--|-----------------------------------|-----------------------------|--|
| Resistance Plate No. | Orifice | | | HVS Flow Recorder | |
| | DH (orifice), in. of water | $[DH \times (Pa/760) \times (298/Ta)]^{1/2}$ | Qstd (m ³ /min) X-axis | Flow Recorder Reading (CFM) | Continuous Flow Recorder Reading IC (CFM) Y-axis |
| 18 | 7.6 | 2.72 | 1.38 | 45.0 | 44.32 |
| 13 | 6.2 | 2.45 | 1.24 | 40.0 | 39.40 |
| 10 | 4.6 | 2.11 | 1.07 | 33.0 | 32.50 |
| 7 | 3.2 | 1.76 | 0.90 | 26.0 | 25.61 |
| 5 | 2.1 | 1.43 | 0.73 | 20.0 | 19.70 |

By Linear Regression of Y on X
 Slope, mw = 38.4693 Intercept, bw = -8.6289
 Correlation Coefficient* = 0.9995
 *If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m³/min
 From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]^{1/2} = 42.01

Remarks: _____

QC Reviewer: WS CHAN Signature: [Signature] Date: 15/9/16



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 31, 2016 Rootmeter S/N 0438320 Ta (K) - 298
 Operator Tisch Orifice I.D. - 0988 Pa (mm) - 754.38

| PLATE OR Run # | VOLUME START (m3) | VOLUME STOP (m3) | DIFF VOLUME (m3) | DIFF TIME (min) | METER | ORFICE |
|----------------|-------------------|------------------|------------------|-----------------|--------------|----------------|
| | | | | | DIFF Hg (mm) | DIFF H2O (in.) |
| 1 | NA | NA | 1.00 | 1.3670 | 3.2 | 2.00 |
| 2 | NA | NA | 1.00 | 0.9750 | 6.4 | 4.00 |
| 3 | NA | NA | 1.00 | 0.8700 | 7.9 | 5.00 |
| 4 | NA | NA | 1.00 | 0.8260 | 8.7 | 5.50 |
| 5 | NA | NA | 1.00 | 0.6830 | 12.7 | 8.00 |

DATA TABULATION

| Vstd | (x axis) Qstd | (y axis) | Va | (x axis) Qa | (y axis) |
|------------------------------------|---------------|----------|---------------------------|-------------|----------|
| 0.9884 | 0.7230 | 1.4090 | 0.9957 | 0.7284 | 0.8888 |
| 0.9842 | 1.0094 | 1.9926 | 0.9915 | 1.0170 | 1.2570 |
| 0.9821 | 1.1289 | 2.2278 | 0.9894 | 1.1373 | 1.4054 |
| 0.9811 | 1.1878 | 2.3365 | 0.9884 | 1.1967 | 1.4740 |
| 0.9758 | 1.4288 | 2.8179 | 0.9831 | 1.4394 | 1.7777 |
| Qstd slope (m) = 1.99349 | | | Qa slope (m) = 1.24829 | | |
| intercept (b) = -0.02737 | | | intercept (b) = -0.01727 | | |
| coefficient (r) = 0.99988 | | | coefficient (r) = 0.99988 | | |
| 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}



CERTIFICATE OF CALIBRATION

Certificate No.: 16CA0704 03-01 Page 1 of 2

Item tested

| | | | |
|-----------------------|----------------------------|---|------------|
| Description: | Sound Level Meter (Type 1) | , | Microphone |
| Manufacturer: | B & K | , | B & K |
| Type/Model No.: | 2238 | , | 4188 |
| Serial/Equipment No.: | 2800927 / N.009.06 | , | 2791211 |
| Adaptors used: | - | , | - |

Item submitted by

Customer Name: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 04-Jul-2016

Date of test: 07-Jul-2016

Reference equipment used in the calibration

| Description: | Model: | Serial No. | Expiry Date: | Traceable to: |
|---------------------------------|----------|------------|--------------|---------------|
| Multi function sound calibrator | B&K 4226 | 2288444 | 18-Jun-2017 | CIGISMEC |
| Signal generator | DS 360 | 33873 | 18-Apr-2017 | CEPREI |
| Signal generator | DS 360 | 61227 | 18-Apr-2017 | CEPREI |

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1000 ± 5 hPa

Test specifications

- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

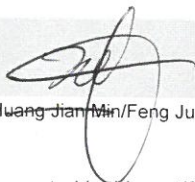
Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 09-Jul-2016

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 16CA0704 03-01 Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

| Test: | Subtest: | Status: | Expanded Uncertainty (dB) | Coverage Factor |
|-------------------------|--|---------|---------------------------|-----------------|
| Self-generated noise | A | Pass | 0.3 | |
| | C | Pass | 1.0 | 2.1 |
| | Lin | Pass | 2.0 | 2.2 |
| Linearity range for Leq | At reference range, Step 5 dB at 4 kHz | Pass | 0.3 | |
| | Reference SPL on all other ranges | Pass | 0.3 | |
| | 2 dB below upper limit of each range | Pass | 0.3 | |
| | 2 dB above lower limit of each range | Pass | 0.3 | |
| Linearity range for SPL | At reference range, Step 5 dB at 4 kHz | Pass | 0.3 | |
| | Frequency weightings | | | |
| Time weightings | A | Pass | 0.3 | |
| | C | Pass | 0.3 | |
| | Lin | Pass | 0.3 | |
| Peak response | Single Burst Fast | Pass | 0.3 | |
| | Single Burst Slow | Pass | 0.3 | |
| R.M.S. accuracy | Single 100µs rectangular pulse | Pass | 0.3 | |
| Time weighting I | Crest factor of 3 | Pass | 0.3 | |
| | Single burst 5 ms at 2000 Hz | Pass | 0.3 | |
| | Repeated at frequency of 100 Hz | Pass | 0.3 | |
| Time averaging | 1 ms burst duty factor 1/10 ³ at 4kHz | Pass | 0.3 | |
| | 1 ms burst duty factor 1/10 ⁴ at 4kHz | Pass | 0.3 | |
| Pulse range | Single burst 10 ms at 4 kHz | Pass | 0.4 | |
| Sound exposure level | Single burst 10 ms at 4 kHz | Pass | 0.4 | |
| Overload indication | SPL | Pass | 0.3 | |
| | Leq | Pass | 0.4 | |

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

| Test: | Subtest | Status | Expanded Uncertainty (dB) | Coverage Factor |
|-------------------|------------------------|--------|---------------------------|-----------------|
| Acoustic response | Weighting A at 125 Hz | Pass | 0.3 | |
| | Weighting A at 8000 Hz | Pass | 0.5 | |

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Date:

Fung Chi Yip
07-Jul-2016

Checked by:

Date:

Lam Tze Wai
09-Jul-2016

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 16CA0304 02 Page 1 of 2

Item tested

| | | | |
|-----------------------|----------------------------|------------|--------|
| Description: | Sound Level Meter (Type 1) | Microphone | Preamp |
| Manufacturer: | B & K | B & K | B & K |
| Type/Model No.: | 2250-L | 4950 | ZC0032 |
| Serial/Equipment No.: | 2681366 | 2879980 | 19428 |
| Adaptors used: | - (N-041.01) | - | - |

Item submitted by

Customer Name: AECOM ASIA CO LIMITED
Address of Customer: -
Request No.: -
Date of receipt: 04-Mar-2016

Date of test: 05-Mar-2016

Reference equipment used in the calibration

| Description: | Model: | Serial No. | Expiry Date: | Traceable to: |
|---------------------------------|----------|------------|--------------|---------------|
| Multi function sound calibrator | B&K 4226 | 2288444 | 19-Jun-2016 | CIGISMEC |
| Signal generator | DS 360 | 33873 | 16-Apr-2016 | CEPREI |
| Signal generator | DS 360 | 61227 | 16-Apr-2016 | CEPREI |

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min / Feng Jun Qi

Date: 08-Mar-2016

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 16CA0304 02 Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

| Test: | Subtest: | Status: | Expanded Uncertainty (dB) | Coverage Factor |
|-------------------------|--|---------|---------------------------|-----------------|
| Self-generated noise | A | Pass | 0.3 | |
| | C | Pass | 0.8 | |
| | Lin | Pass | 1.6 | |
| Linearity range for Leq | At reference range, Step 5 dB at 4 kHz | Pass | 0.3 | |
| | Reference SPL on all other ranges | Pass | 0.3 | |
| | 2 dB below upper limit of each range | Pass | 0.3 | |
| | 2 dB above lower limit of each range | Pass | 0.3 | |
| Linearity range for SPL | At reference range, Step 5 dB at 4 kHz | Pass | 0.3 | |
| | Frequency weightings | | | |
| Time weightings | A | Pass | 0.3 | |
| | C | Pass | 0.3 | |
| | Lin | Pass | 0.3 | |
| Peak response | Single Burst Fast | Pass | 0.3 | |
| | Single Burst Slow | Pass | 0.3 | |
| R.M.S. accuracy | Single 100µs rectangular pulse | Pass | 0.3 | |
| Time weighting I | Crest factor of 3 | Pass | 0.3 | |
| | Single burst 5 ms at 2000 Hz | Pass | 0.3 | |
| Time averaging | Repeated at frequency of 100 Hz | Pass | 0.3 | |
| | 1 ms burst duty factor 1/10 ³ at 4kHz | Pass | 0.3 | |
| Pulse range | 1 ms burst duty factor 1/10 ⁴ at 4kHz | Pass | 0.3 | |
| | Single burst 10 ms at 4 kHz | Pass | 0.4 | |
| Sound exposure level | Single burst 10 ms at 4 kHz | Pass | 0.4 | |
| Overload indication | SPL | Pass | 0.3 | |
| | Leq | Pass | 0.4 | |

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

| Test: | Subtest | Status | Expanded Uncertainty (dB) | Coverage Factor |
|-------------------|------------------------|--------|---------------------------|-----------------|
| Acoustic response | Weighting A at 125 Hz | Pass | 0.3 | |
| | Weighting A at 8000 Hz | Pass | 0.5 | |

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

| | |
|-------------------|-------------------|
| Calibrated by: | Checked by: |
| Date: 05-Mar-2016 | Date: 08-Mar-2016 |

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 15CA1203 03

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Rion Co., Ltd.
Type/Model No.: NC-73
Serial/Equipment No.: 10307223
Adaptors used: -

Item submitted by

Customer: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 03-Dec-2015

Date of test: 03-Dec-2015

Reference equipment used in the calibration

| Description: | Model: | Serial No. | Expiry Date: | Traceable to: |
|-------------------------|----------|------------|--------------|---------------|
| Lab standard microphone | B&K 4180 | 2341427 | 15-Apr-2016 | SCL |
| Preamplifier | B&K 2673 | 2239857 | 22-Apr-2016 | CEPREI |
| Measuring amplifier | B&K 2610 | 2346941 | 22-Apr-2016 | CEPREI |
| Signal generator | DS 360 | 61227 | 16-Apr-2016 | CEPREI |
| Digital multi-meter | 34401A | US36087050 | 17-Apr-2016 | CEPREI |
| Audio analyzer | 8903B | GB41300350 | 17-Apr-2016 | CEPREI |
| Universal counter | 53132A | MY40003662 | 16-Apr-2016 | CEPREI |

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 50 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

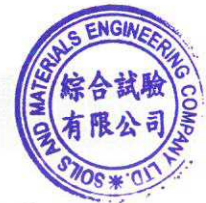
Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 04-Dec-2015

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA1203 03

Page: 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

| Frequency Shown Hz | Output Sound Pressure Level Setting dB | Measured Output Sound Pressure Level dB | (Output level in dB re 20 μ Pa) |
|-----------------------|---|--|--------------------------------------|
| | | | Estimated Expanded Uncertainty dB |
| 1000 | 94.00 | 94.04 | 0.10 |

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.002 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 987.5 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 0.4 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:

Date:

Fung Chi Yip
03-Dec-2015

- End -

Checked by:

Date:

Lam Tze Wai
04-Dec-2015

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 16CA0223 01

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: B & K
Type/Model No.: 4231
Serial/Equipment No.: 3006428
Adaptors used: -

N.004.03

Item submitted by

Customer: AECOM ASIA CO LIMITED
Address of Customer: -
Request No.: -
Date of receipt: 23-Feb-2016

Date of test: 25-Feb-2016

Reference equipment used in the calibration

| Description: | Model: | Serial No. | Expiry Date: | Traceable to: |
|-------------------------|----------|------------|--------------|---------------|
| Lab standard microphone | B&K 4180 | 2341427 | 15-Apr-2016 | SCL |
| Preamplifier | B&K 2673 | 2743150 | 22-Apr-2016 | CEPREI |
| Measuring amplifier | B&K 2610 | 2346941 | 22-Apr-2016 | CEPREI |
| Signal generator | DS 360 | 61227 | 16-Apr-2016 | CEPREI |
| Digital multi-meter | 34401A | US36087050 | 17-Apr-2016 | CEPREI |
| Audio analyzer | 8903B | GB41300350 | 17-Apr-2016 | CEPREI |
| Universal counter | 53132A | MY40003662 | 16-Apr-2016 | CEPREI |

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 27-Feb-2016

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

APPENDIX F

EM&A Monitoring Schedules

**Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels
Impact Monitoring Schedule for October 2016**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | | | | | 1-Oct |
| | | | | | | |
| 2-Oct | 3-Oct | 4-Oct | 5-Oct | 6-Oct | 7-Oct | 8-Oct |
| | Air Quality | Noise | | | | Air Quality |
| 9-Oct | 10-Oct | 11-Oct | 12-Oct | 13-Oct | 14-Oct | 15-Oct |
| | | Noise | | | Air Quality | |
| 16-Oct | 17-Oct | 18-Oct | 19-Oct | 20-Oct | 21-Oct | 22-Oct |
| | | | | Air Quality | | Noise |
| 23-Oct | 24-Oct | 25-Oct | 26-Oct | 27-Oct | 28-Oct | 29-Oct |
| | | | Air Quality | Noise | | |
| 30-Oct | 31-Oct | | | | | |
| | | | | | | |

Air Quality Monitoring Station

AM4 Pedestrian Plaza

Monitoring Frequency

24-hr TSP Once every 6 days

Noise Monitoring Station

NM1

Monitoring Frequency

Once per week

**Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels
Tentative Impact Monitoring Schedule for November 2016**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | 1-Nov | 2-Nov | 3-Nov | 4-Nov | 5-Nov |
| | | Air Quality | Noise | | | |
| 6-Nov | 7-Nov | 8-Nov | 9-Nov | 10-Nov | 11-Nov | 12-Nov |
| | Air Quality | Noise | | | | Air Quality |
| 13-Nov | 14-Nov | 15-Nov | 16-Nov | 17-Nov | 18-Nov | 19-Nov |
| | Noise | | | | Air Quality | |
| 20-Nov | 21-Nov | 22-Nov | 23-Nov | 24-Nov | 25-Nov | 26-Nov |
| | | | | Air Quality | Noise | |
| 27-Nov | 28-Nov | 29-Nov | 30-Nov | | | |
| | | | Air Quality | | | |

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM4 Pedestrian Plaza

Noise Monitoring Station

NM1

Monitoring Frequency

24-hr TSP Once every 6 days

Monitoring Frequency

Once per week

**Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels
Tentative Impact Monitoring Schedule for December 2016**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|-------------|-------------|-----------|-------------|-------------|-------------|
| | | | | 1-Dec | 2-Dec | 3-Dec |
| | | | | Noise | | |
| 4-Dec | 5-Dec | 6-Dec | 7-Dec | 8-Dec | 9-Dec | 10-Dec |
| | | Air Quality | Noise | | | |
| 11-Dec | 12-Dec | 13-Dec | 14-Dec | 15-Dec | 16-Dec | 17-Dec |
| | Air Quality | Noise | | | | Air Quality |
| 18-Dec | 19-Dec | 20-Dec | 21-Dec | 22-Dec | 23-Dec | 24-Dec |
| | Noise | | | | Air Quality | |
| 25-Dec | 26-Dec | 27-Dec | 28-Dec | 29-Dec | 30-Dec | 31-Dec |
| | | | | Air Quality | Noise | |

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM4 Pedestrian Plaza

Noise Monitoring Station

NM1

Monitoring Frequency

24-hr TSP Once every 6 days

Monitoring Frequency

Once per week

**Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels
Tentative Impact Monitoring Schedule for January 2017**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|-------------|-------------|-------------|----------|-------------|-------------|
| 1-Jan | 2-Jan | 3-Jan | 4-Jan | 5-Jan | 6-Jan | 7-Jan |
| | | | Air Quality | Noise | | |
| 8-Jan | 9-Jan | 10-Jan | 11-Jan | 12-Jan | 13-Jan | 14-Jan |
| | | Air Quality | Noise | | | |
| 15-Jan | 16-Jan | 17-Jan | 18-Jan | 19-Jan | 20-Jan | 21-Jan |
| | Air Quality | Noise | | | | Air Quality |
| 22-Jan | 23-Jan | 24-Jan | 25-Jan | 26-Jan | 27-Jan | 28-Jan |
| | Noise | | | | Air Quality | |
| 29-Jan | 30-Jan | 31-Jan | | | | |
| | | | | | | |

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM4 Pedestrian Plaza

Noise Monitoring Station

NM1

Monitoring Frequency

24-hr TSP Once every 6 days

Monitoring Frequency

Once per week

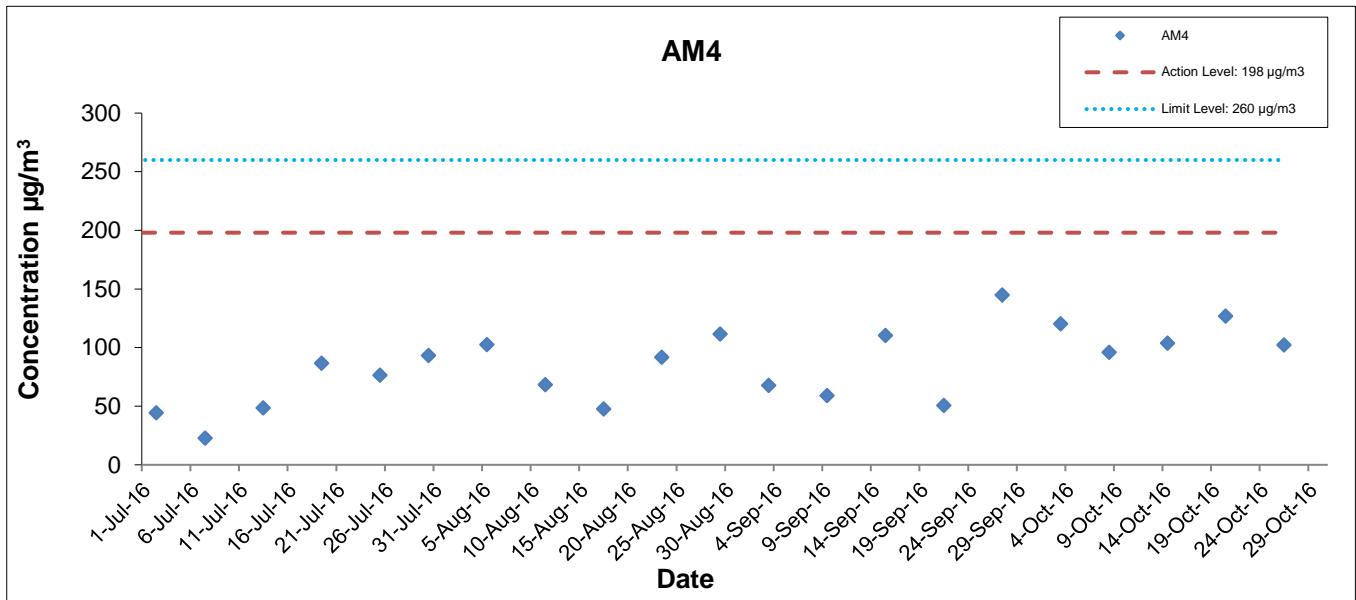
APPENDIX G

**Air Quality Monitoring Results and
their Graphical Presentations**

Appendix G
Air Quality Monitoring Results

24-hour TSP Monitoring Results at Station AM4 (Pedestrian Plaza)

| Start | | End | | Weather Condition | Air Temp. (°C) | Atmospheric Pressure (hPa) | Flow Rate (m ³ /min.) | | Av. flow (m ³ /min) | Total vol. (m ³) | Filter Weight (g) | | Particulate weight(g) | Elapse Time | | Sampling Time(hrs.) | Conc. (µg/m ³) |
|-------------|------|-------------|------|----------------------|-------------------|-------------------------------|----------------------------------|-------|-----------------------------------|---------------------------------|-------------------|--------|--------------------------|-------------|----------|------------------------|-------------------------------|
| Date | Time | Date | Time | | | | Initial | Final | | | Initial | Final | | Initial | Final | | |
| 3-Oct-2016 | 0:00 | 4-Oct-2016 | 0:00 | Fine | 27.5 | 1007.8 | 1.32 | 1.32 | 1.32 | 1902.2 | 2.8455 | 3.0743 | 0.2288 | 19809.00 | 19833.00 | 24.00 | 120.3 |
| 8-Oct-2016 | 0:00 | 9-Oct-2016 | 0:00 | Cloudy | 28.1 | 1006.8 | 1.32 | 1.32 | 1.32 | 1902.2 | 2.8051 | 2.9878 | 0.1827 | 19833.00 | 19857.00 | 24.00 | 96.0 |
| 14-Oct-2016 | 0:00 | 15-Oct-2016 | 0:00 | Sunny | 26.7 | 1013.2 | 1.32 | 1.32 | 1.32 | 1902.2 | 2.8039 | 3.0012 | 0.1973 | 19857.00 | 19881.00 | 24.00 | 103.7 |
| 20-Oct-2016 | 0:00 | 21-Oct-2016 | 0:00 | Fine | 27.3 | 1004.6 | 1.32 | 1.32 | 1.32 | 1902.2 | 2.8385 | 3.0796 | 0.2411 | 19881.00 | 19905.00 | 24.00 | 126.7 |
| 26-Oct-2016 | 0:00 | 27-Oct-2016 | 0:00 | Sunny | 27.1 | 1015.6 | 1.32 | 1.32 | 1.32 | 1902.2 | 2.8253 | 3.0199 | 0.1946 | 19905.00 | 19929.00 | 24.00 | 102.3 |
| | | | | | | | | | | | | | | | | Average | 109.8 |
| | | | | | | | | | | | | | | | | Minimum | 96.0 |
| | | | | | | | | | | | | | | | | Maximum | 126.7 |



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Shatin Central Link Contract No. 1128
South Ventilation Building to Admiralty Tunnels

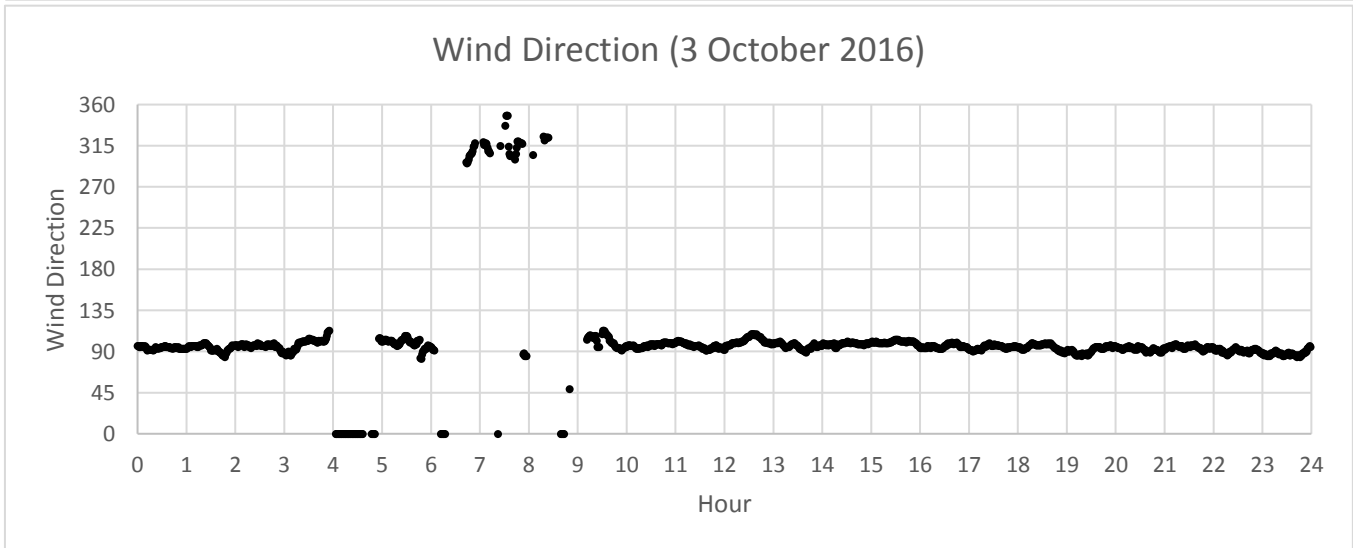
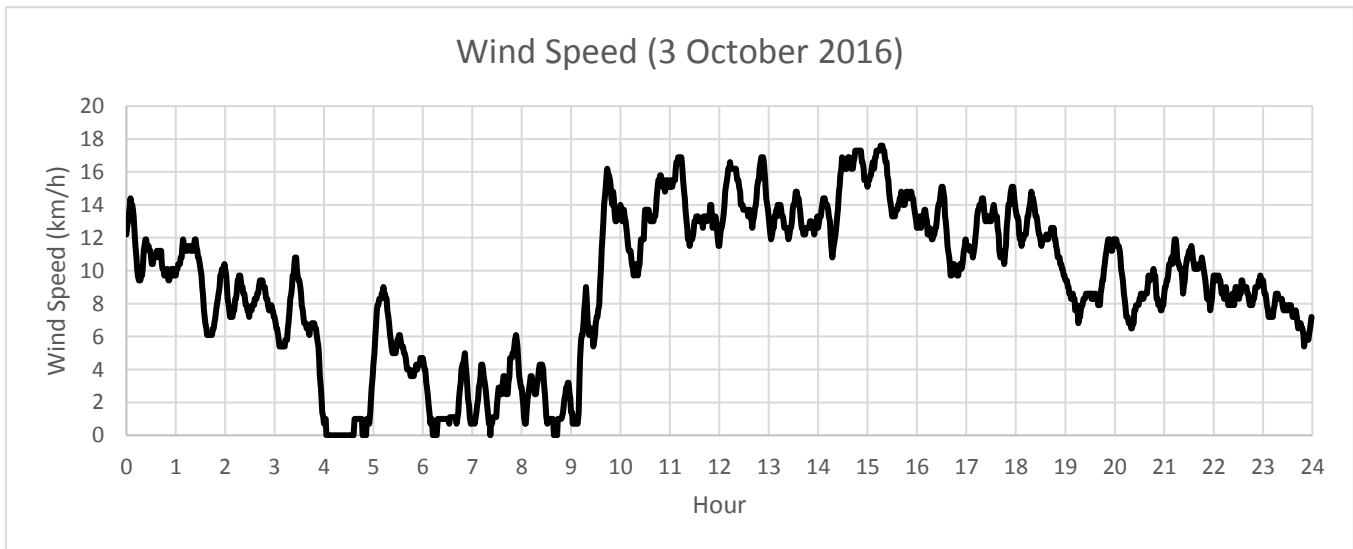


**Graphical Presentation of Impact 24-hr TSP
 Monitoring Results**

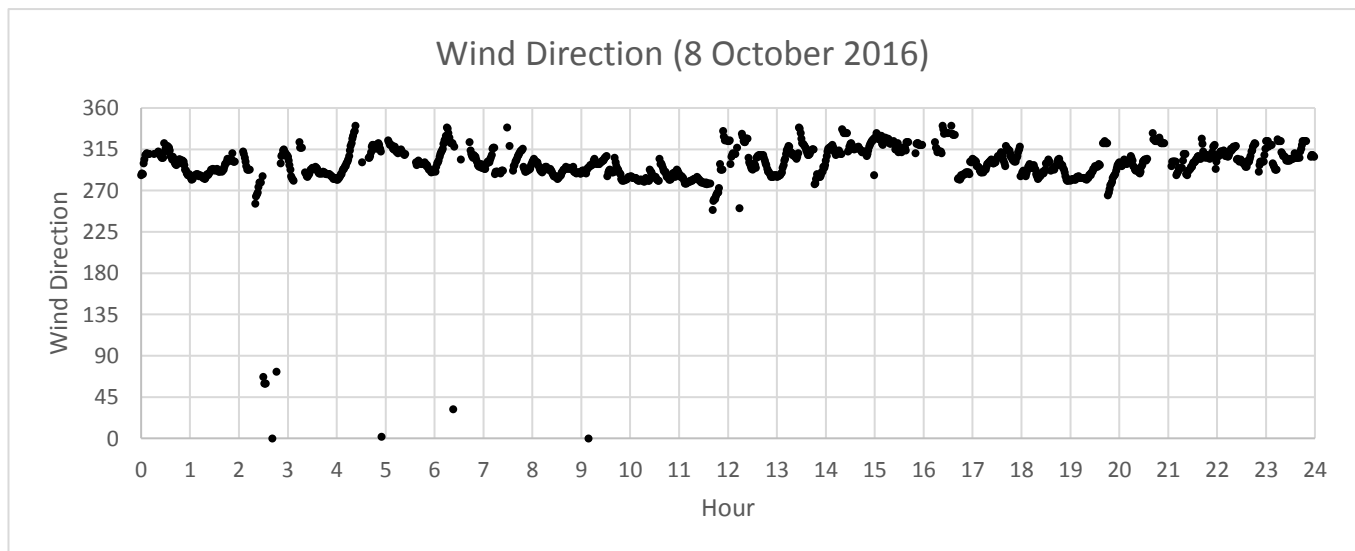
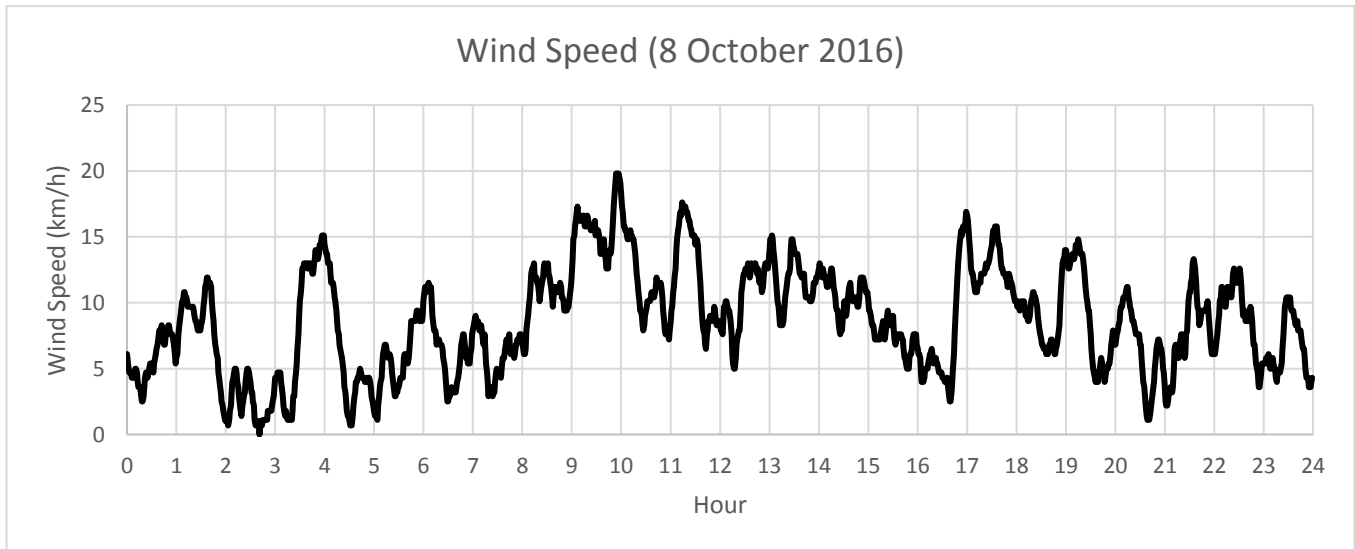
Date: November 2016

Appendix G

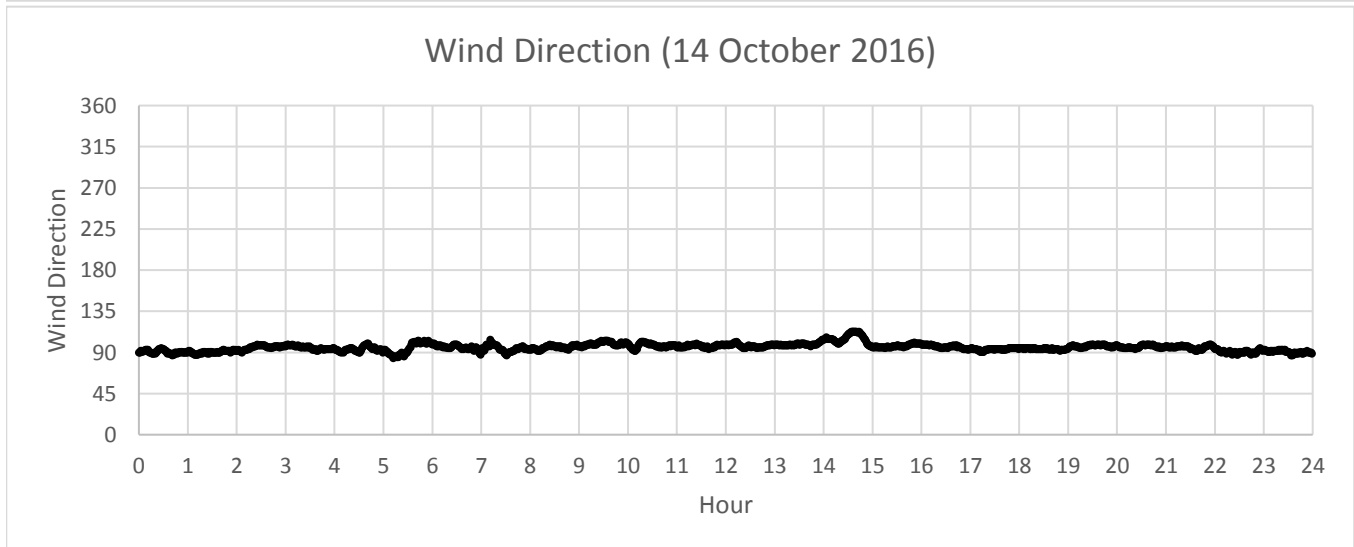
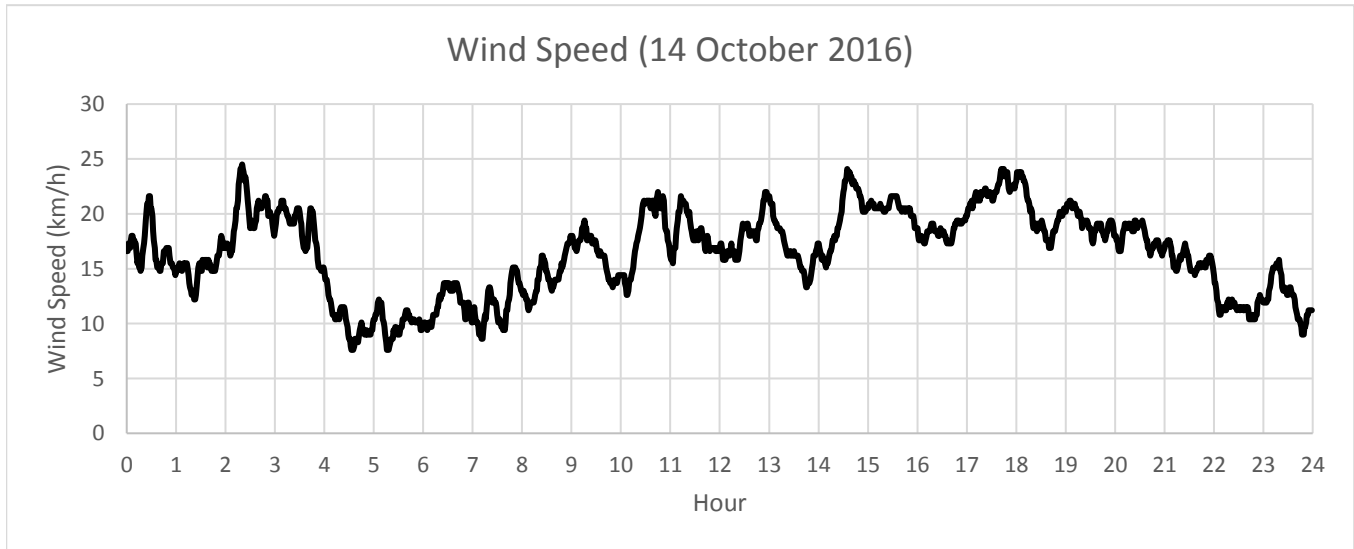
Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2016



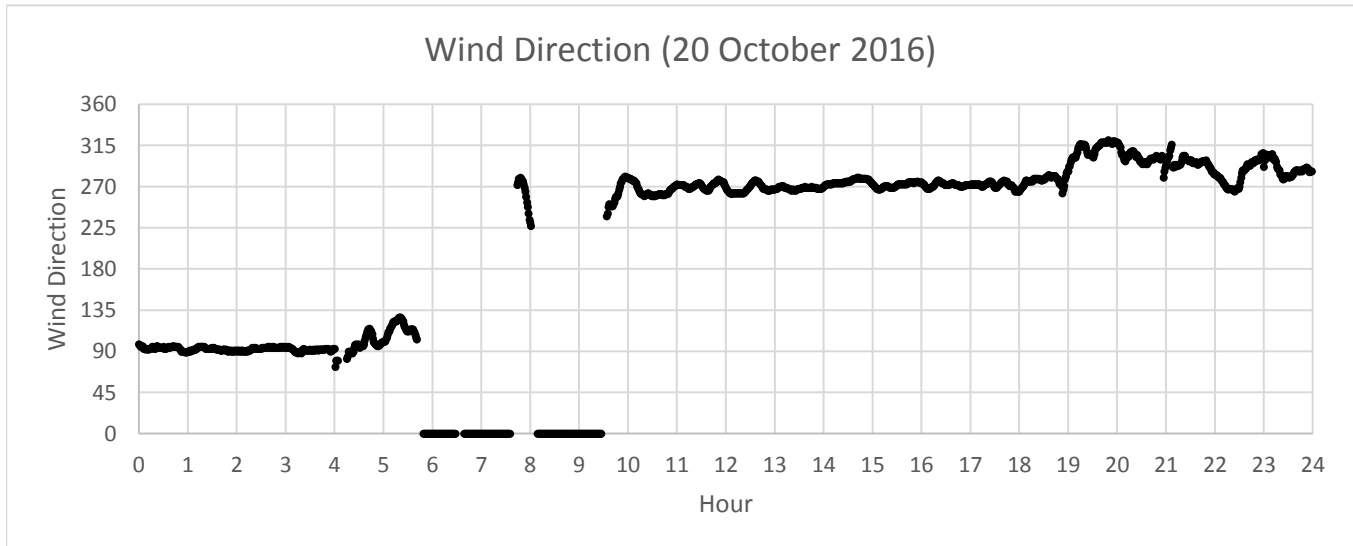
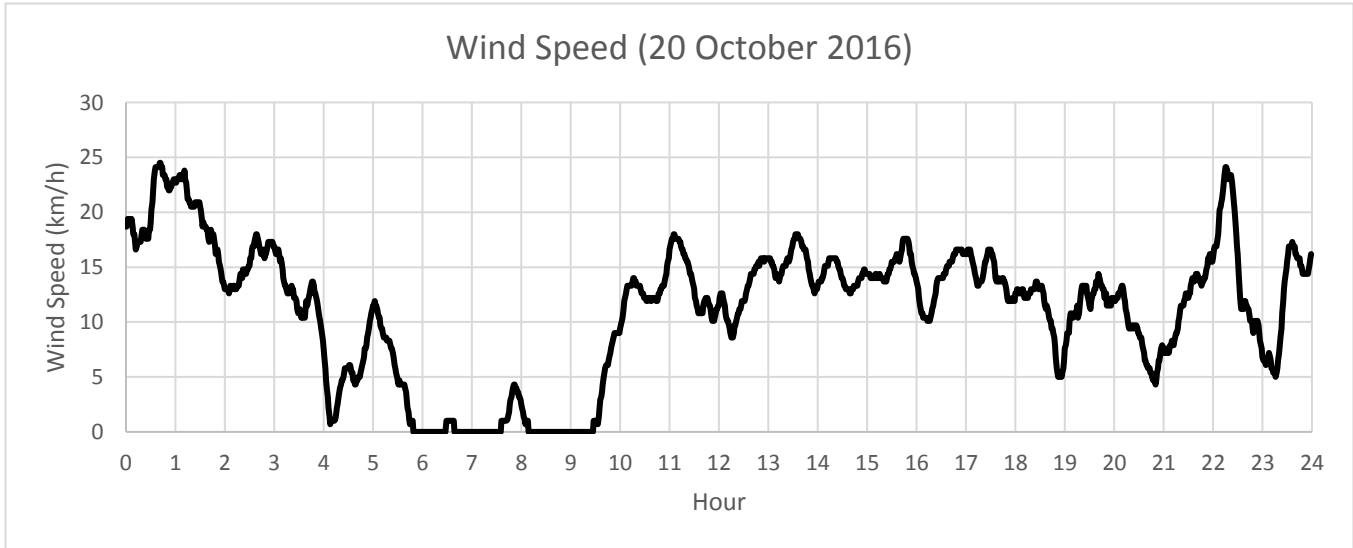
Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2016



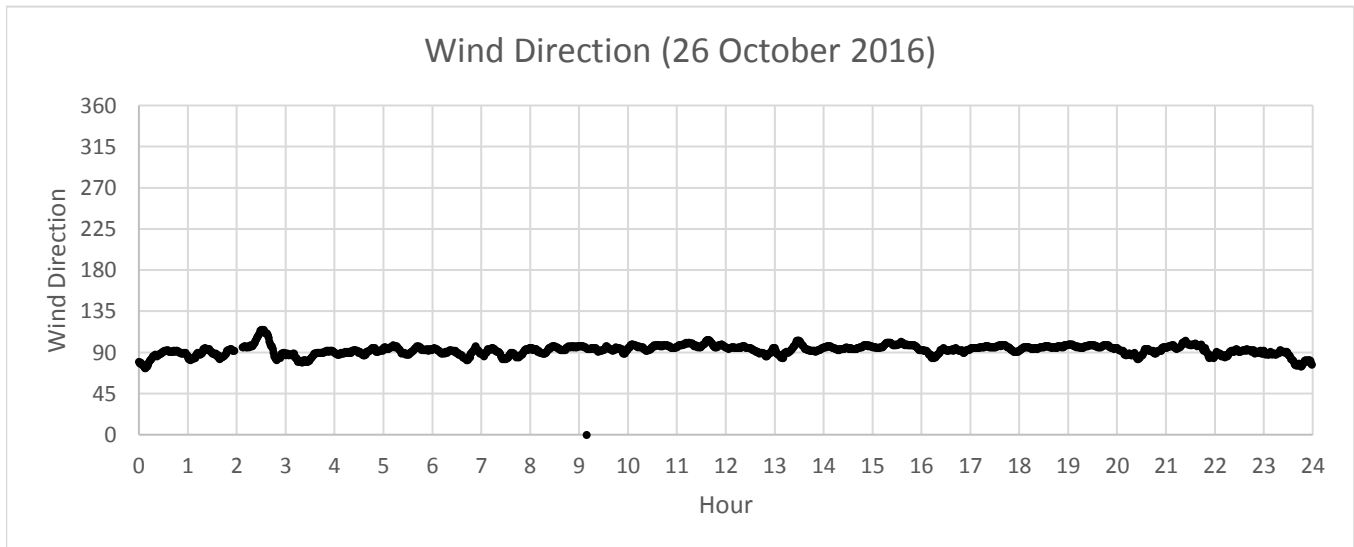
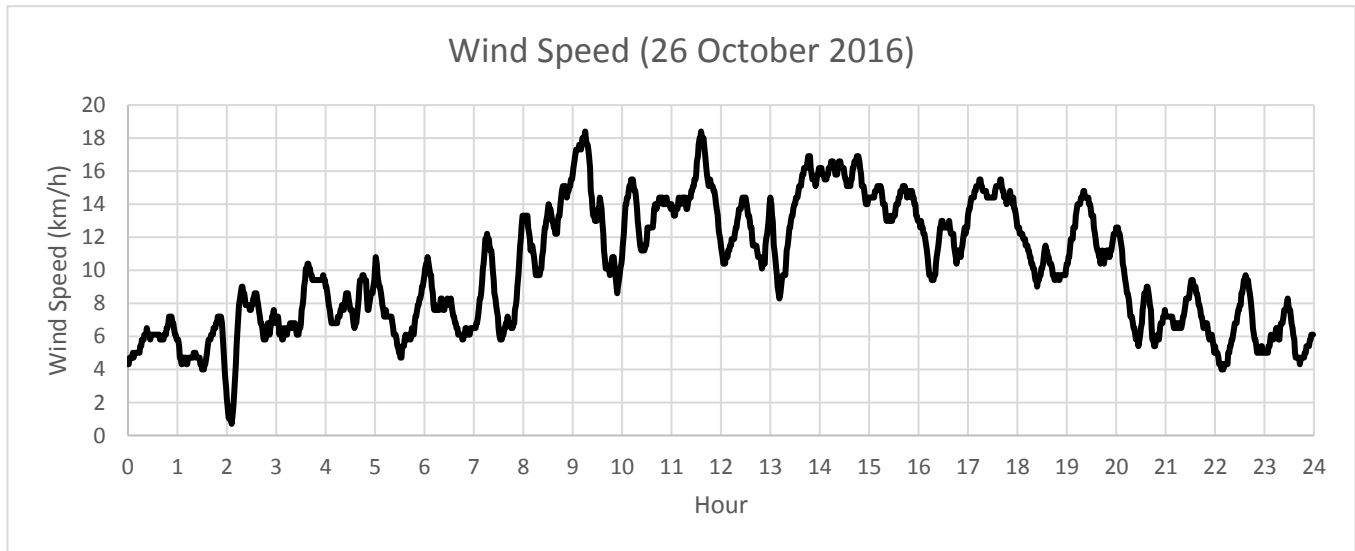
Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2016



Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2016



Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2016



APPENDIX H

**Noise Monitoring Results and
their Graphical Presentations**

Appendix H Regular Construction Noise Monitoring Results

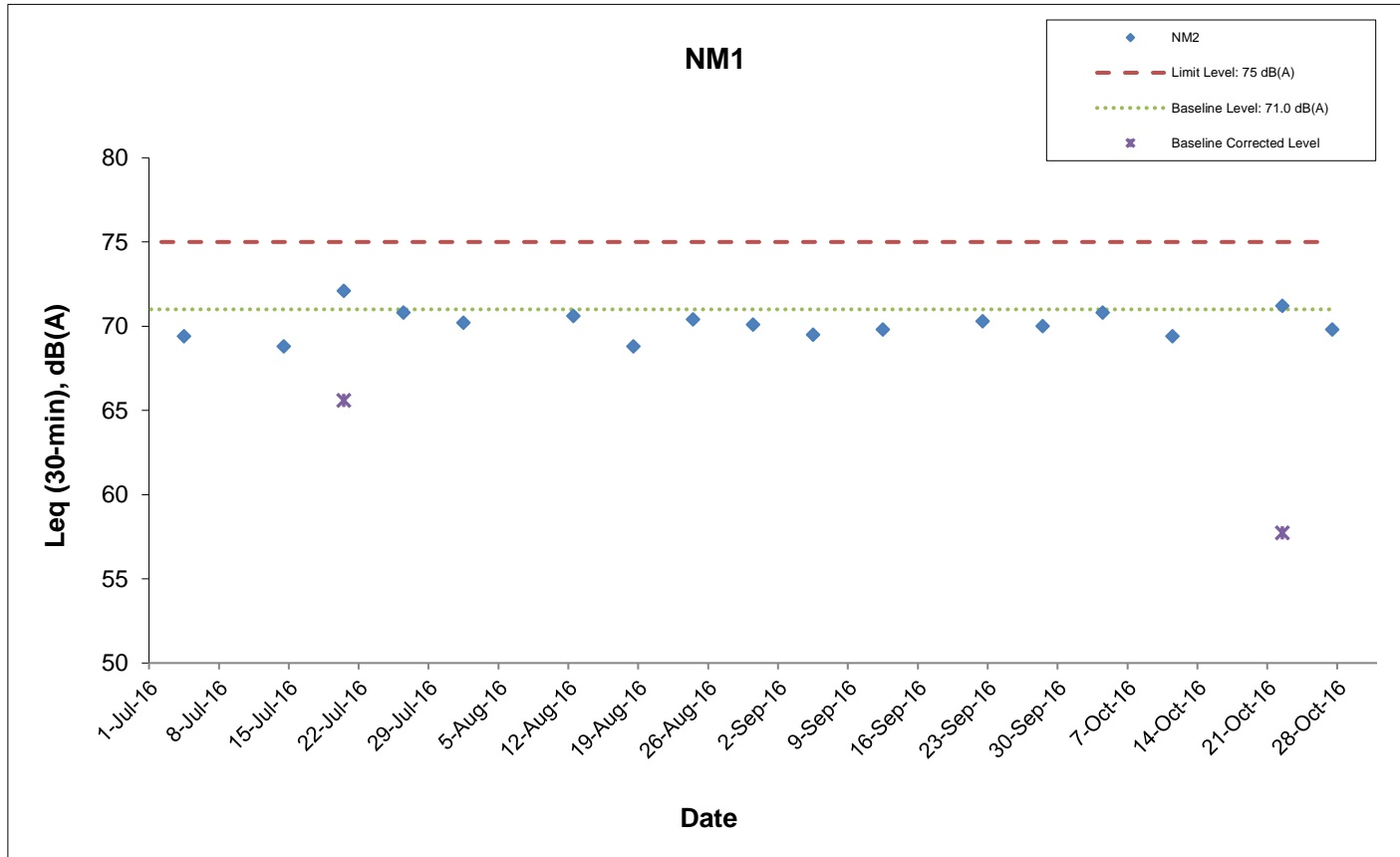
Daytime Noise Monitoring Results at Station NM1 (Hoi Kung Court)

| Date | Weather Condition | Noise Level for 30-min, dB(A) ⁺ | | | | Baseline Corrected Level, dB(A) | Baseline Noise Level, dB(A) | Limit Level, dB(A) | Exceedance (Y/N) |
|---------------|-------------------|--|------|------|------|---------------------------------|-----------------------------|--------------------|------------------|
| | | Time | L90 | L10 | Leq | | | | |
| 04-Oct-2016 | Fine | 14:10 | 68.2 | 73.9 | 70.8 | <Baseline | 71.0 | 75 | N |
| 11-Oct-2016 | Rainy | 14:36 | 66.8 | 71.2 | 69.4 | <Baseline | 71.0 | 75 | N |
| 22-Oct-2016 * | Sunny | 15:16 | 70.0 | 73.5 | 71.2 | 57.7 | 71.0 | 75 | N |
| 27-Oct-2016 | Sunny | 14:10 | 65.5 | 73.0 | 69.8 | <Baseline | 71.0 | 75 | N |

* This monitoring event was rescheduled to 22 Oct 2016 due to adverse weather on 21 Oct 2016.

⁺ - Façade measurement

Appendix H Regular Construction Noise Monitoring Results



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Shatin Central Link Contract No. 1128
 South Ventilation Building to Admiralty Tunnels

Graphical Presentation of Impact Noise
 Monitoring Results

Date: October 2016

Appendix H

APPENDIX I

Event Action Plan

Appendix I Event Action Plan

Event / Action Plan for Construction Dust Monitoring

| EVENT | ACTION | | | |
|--|---|--|---|---|
| | ET | IEC | ER | Contractor |
| ACTION LEVEL | | | | |
| Exceedance for one sample | <ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor and IEC on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing. | <ol style="list-style-type: none"> 1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate. |
| Exceedance for two or more consecutive samples | <ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise Implementation of remedial measures. | <ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate. |

Appendix I Event Action Plan

| EVENT | ACTION | | | |
|--|--|--|---|---|
| | ET | IEC | ER | Contractor |
| LIMIT LEVEL | | | | |
| Exceedance for one sample | <ol style="list-style-type: none"> 1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures. | <ol style="list-style-type: none"> 1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate. |
| Exceedance for two or more consecutive samples | <ol style="list-style-type: none"> 1. Notify Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; 7. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; 4. 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. | <ol style="list-style-type: none"> 1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated. |

Appendix I Event Action Plan

Event and Action Plan for Construction Noise Monitoring

| EVENT | ACTION | | | |
|----------------------------|--|---|---|--|
| | ET | IEC | ER | Contractor |
| Exceedance of Action Level | <ol style="list-style-type: none"> 1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness. | <ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures. | <ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals. |
| Exceedance of Limit Level | <ol style="list-style-type: none"> 1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. 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. | <ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated. |

APPENDIX J

**Cumulative Statistics of Complaints, Notification of Summons
and Successful Prosecutions**

**Appendix J
 Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions**

| | Date Received | Subject | Status | Total no. received in this month | Total no. received since project commencement |
|---------------------------------|----------------------|----------------|---------------|---|--|
| Environmental complaints | - | - | - | 0 | 2 |
| Notification of summons | - | - | - | 0 | 0 |
| Successful Prosecutions | - | - | - | 0 | 0 |

APPENDIX K

Waste Flow Table

SCL Contract 1128

Appendix K - Monthly Summary C&D Material Flow Table

| Latest Programme for Generation & Import of Materials in each Reporting Period | Quantity for off-site disposal of / resused Inert C&D materials (m ³) | | | | | | | | | Quantity for off-site disposal of Non-inert C&D materials | | | | | Quantities of Marine Dumping (Sediment) | | |
|--|---|-------------|--------------|-----------------|--------------------------|--------------|-------------|--------------|--------------------|---|------------------------|---------------|---------------------|---------------------------------|--|--------------|-------------|
| | Inert C&D material (m ³) | | | | | | | | | Metals (kg) | Paper / Cardboard (kg) | Plastics (kg) | Chemical Waste (kg) | General Waste (m ³) | Disposed as MD at Hung Hom Barging Point | | |
| | TKO137FB(1) | TKO137SF(2) | TM38FB(3) | CWPFBP(4) | Reused in Other Projects | | | | Reused in Mainland | | | | | | Total (m ³) | Total | Total |
| | | | | | WDII(5) | CWB(6) | SCL1121 (7) | SCL 1103(8) | | (m ³) | (m ³) | | | | | | |
| 2016/01 (Actual) | 2,621.5 | 0.0 | 18.0 | 1,105.5 | 0.0 | 0.0 | | | 0.0 | 3,745.0 | 0 | 0 | 0 | 0 | 40.6 | 0 | 0 |
| 2016/02 (Actual) | 3,489.9 | 0.0 | 168.8 | 184.6 | 0.0 | 0.0 | | | 0.0 | 3,843.3 | 0 | 0 | 0 | 0 | 24.4 | 0 | 0 |
| 2016/03 (Actual) | 4,937.3 | 0.0 | 16.3 | 257.8 | 0.0 | 0.0 | | | 0.0 | 5,211.4 | 0 | 0 | 0 | 0 | 29.6 | 0 | 0 |
| 2016/04 (Actual) | 5,385.1 | 0.0 | 26.0 | 747.0 | 4,814.0 | 207.3 | | | 0.0 | 11,179.4 | 0 | 0 | 0 | 0 | 27.3 | 0 | 0 |
| 2016/05 (Actual) | 7,126.9 | 0.0 | 7.4 | 3,863.9 | 1,525.8 | 764.5 | | | 0.0 | 13,288.5 | 0 | 0 | 0 | 0 | 31.3 | 0 | 0 |
| 2016/06 (Actual) | 4,768.4 | 0.0 | 7.2 | 11,516.9 | 232.0 | 0.0 | | | 13,766.1 | 30,290.5 | 0 | 0 | 0 | 0 | 43.7 | 147.7 | 31.0 |
| 2016 Sub-total | 28,329.1 | 0.0 | 243.6 | 17,675.7 | 6,571.8 | 971.8 | | | 13,766.1 | 67,558.0 | 0 | 0 | 0 | 0 | 196.9 | 147.7 | 31.0 |
| 2016/07 (Actual) | 2,085.8 | 0.0 | 22.6 | 1,407.3 | 0.0 | 0.0 | | | 12,369.5 | 15,885.1 | 0 | 0 | 0 | 0 | 29.5 | 47.5 | 46 |
| 2016/08 (Actual) | 1,259.5 | 0.0 | 199.4 | 2,599.8 | 0.0 | 0.0 | 15.5 | | 7,350.8 | 11,424.9 | 0 | 0 | 0 | 0 | 79.0 | 0 | 8.1 |
| 2016/09 (Actual) | 3,609.0 | 0.0 | 8.1 | 0.0 | 0.0 | 0.0 | 0.0 | 744.9 | 5,341.1 | 9,703.0 | 0 | 0 | 0 | 0 | 79.8 | 0 | 0 |
| 2016/10 (Actual) | 8,321.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.6 | 11,318.2 | 19,656.9 | 0 | 0 | 0 | 0 | 63.5 | 0 | 0 |
| 2016/11 | - | - | - | - | - | - | | | | 0.0 | - | - | - | - | - | - | - |
| 2016/12 | - | - | - | - | - | - | | | | 0.0 | - | - | - | - | - | - | - |
| 2016 Total | 43,604.6 | 0.0 | 473.6 | 21,682.8 | 6,571.8 | 971.8 | 15.5 | 762.5 | 50,145.6 | 124,228.0 | 0 | 0 | 0 | 0 | 448.7 | 195.2 | 85.4 |

Remark: *Assume the density is 2 tonnes per cubic metre for inert C&D materials, general waste and marine sediment.

- 1 TKO137FB Fill Bank at Tseung Kwan O Area 137
- 2 TKO137SF Sorting Facilities at Tseung Kwan O Area 137
- 3 TM38FB Fill Bank at Tuen Mun
- 4 CWPFBP Chai Wan Public Fill Barging Point
- 5 WDII HK/2009/01 Wan Chai Development Phase II - Central - Wan Chai Bypass at Hong Kong Convention and Exhibition Centre
- 6 CWB HK/2009/15 Central – Wan Chai Bypass - Tunnel (Causeway Bay Typhoon Shelter Section)
- 7 SCL1121 Cross Harbour Tunnels
- 8 SCL1103 Hin Keng to Diamond Hill tunnels and Fung Tak Public Transport Interchange

Appendix B

**Monthly EM&A Report for October 2016 – SCL Works
Contract 1121 NSL Cross Harbour Tunnels**

MTR Corporation Limited

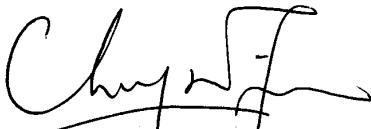
**Shatin to Central Link –
Hung Hom to Admiralty Section**

Monthly EM&A Report No. 20

[Period from 1 to 31 October 2016]

Works Contract 1121 – NSL Cross Harbour Tunnels

(November 2016)

Certified by: 
_____ Dr. Priscilla Choy _____

Position: Environmental Team Leader

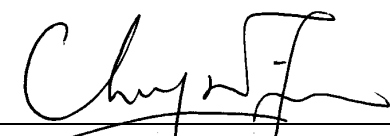
Date: 8th November 2016

Penta Ocean – China State Joint Venture

**Shatin to Central Link –
Contract 1121
NSL Cross Harbour Tunnels**

**Monthly Environmental
Monitoring and Audit Report
For October 2016**

(version 2.0)

Certified By 
Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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EXECUTIVE SUMMARY

Introduction

1. This is the 20th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1121 – NSL Cross Harbour Tunnels**. This report documents the findings of EM&A Works conducted from 1 to 31 October 2016.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:

Shek O

- Construction of IMT Bottom Plate;
- Steel Formwork Erection;
- Base Slab Rebar Fixing Concreting;
- Wall and Roof Rebar Fixing;
- IMT Wall & Roof Concreting;
- Collar Plate Installation;
- Tunnel Lighting Installation;
- Ballast Tank Installation;
- Ballast Concrete Construction;
- Waterproofing Work; and
- Basin Anchor Installation.

Victoria Harbour

- Excavation and Lateral Support Construction at Hung Hom;
- Pumping Test at HUH;
- Trench Dredging Works for IMT alignment;
- Pile piling for the Wave Barrier Wall inside the CBTS; and
- Reprovisioning for Seawall of Finger Pier at Hung Hom.

Environmental Monitoring and Audit Progress

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

Regular Water Quality Monitoring

- Water Quality Monitoring at each monitoring station (Shek O Casting Basin)⁽¹⁾ 0 times
- Water Quality Monitoring at each monitoring station (Victoria Harbour) 13 times

Remarks:

(1) Removal of earth bunds at Shek O Casting Basin under this Project has not yet commenced in the reporting month.

Waste Management

4. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. Details of waste management data is presented in Section 5 and **Appendix K**.

Landscape and Visual

5. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 5, 17 and 31 October 2016. Most of the necessary

mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

6. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 5, 11, 17, 24 and 31 October 2016. The representative of the IEC joined the site inspection on 24 October 2016. Details of the audit findings and implementation status are presented in Section 6.

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

7. No exceedance of the Action and Limit Levels of regular water quality monitoring was recorded during the reporting period.
8. No non-compliance event was recorded during the reporting period.
9. No environmental complaint and no notification of summons/successful prosecutions were received in this reporting period.

Reporting Changes

10. No reporting changes in this reporting period.

Future Key Issues

11. Major site activities for the coming reporting month will include:

Shek O

- Construction of IMT Bottom Plate;
- Steel Formwork Erection;
- Base Slab Rebar Fixing Concreting;
- Wall and Roof Rebar Fixing;
- IMT Wall & Roof Concreting;
- Collar Plate Installation;
- Tunnel Lighting Installation;
- Ballast Tank Installation;
- Ballast Concrete Construction;
- Waterproofing Work; and
- Basin Anchor Installation.

Victoria Harbour

- Excavation and Lateral Support Construction at Hung Hom;
- Reinforcement Concrete Works Construction of Cut & Cover Tunnel at Hung Hom;
- Collar Frame Installation of Cut & Cover Tunnel at Hung Hom;
- Cathodic Protection and Corrosion Monitoring at Hung Hom;
- Water Proofing at Hung Hom;
- CLP Draw Pit Construction at Hung Hom;
- Trench Dredging Works for IMT alignment; and
- Pile piling for the Wave Barrier Wall inside the CBTS.

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

1 INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) was appointed by Penta Ocean – China State Joint Venture (PCJV) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL) Works Contract 1121 – NSL Cross Harbour Tunnels (hereafter referred to as the Project).

Purpose of the Report

- 1.2 This is the 20th 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 October 2016. The major construction works for Contract 1121 commenced on 2 March 2015.

Structure of the Report

- 1.3 The structure of the report is as follows:

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

Section 2: **Project Information** - summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: **Environmental Monitoring Requirement** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: **Implementation Status on Environmental Mitigation Measures** - summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Monitoring Results** - summarises the monitoring results obtained in the reporting period.

Section 6: **Environmental Site Inspection** - summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: **Environmental Non-conformance** - summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: **Future Key Issues** - summarises the impact forecast and monitoring schedule for the next three months.

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 The Shatin to Central Link – Hung Hom to Admiralty Section (hereafter referred to as SCL (HUH-ADM)) is an approximately 6km extension of the East Rail Line including a rail harbor crossing from Hung Hom across the harbor to Admiralty on Hong Kong Island. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The Environmental Impact Assessment (EIA) Report for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, Environmental Permits (EP) (EP No: EP-436/2012) was granted on 22 March 2012 for their construction and operation.
- 2.3 The “Environmental Review Report – Design Changes of North Ventilation Building and Shek O Casting Basin” (ERR) was submitted to the EPD in February 2014 to identify and assess the likely environmental issues pertinent to the proposed design changes at North Ventilation (NOV) Building and Shek O Casting Basin, and to identify any additional environmental mitigation measures that may be required for compliance with environmental standards.
- 2.4 The “Environmental Review Report – Variation for IMT Extension” (ERR) was submitted to the EPD in February 2015 to identify and assess the likely environmental issues pertinent to the proposed alternative scheme of IMT extension. The “Supplementary Information Paper for Optimized Scheme for IMT Construction in CBTS” was submitted to the EPD in January 2016 to demonstrate that no unacceptable impacts would be resulted from the Optimized Scheme in CBTS. Variation of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/D) was issued by Director of Environmental Protection (DEP) on 5 February 2016.
- 2.5 The construction of the SCL (HUH-ADM) has been divided into a series of civil construction Works Contracts and this Works Contract 1121 comprises of the Permanent Works and the associated Temporary works required for the construction of the North Ventilation Building (NOV) at the Hung Hom Landfall, and construction of cut & cover tunnel and Immersed Tunnel (IMT) sections extending across the harbour from the NOV to the Causeway Bay Typhoon Shelter (CBTS). This construction contract was awarded to Penta Ocean – China State Joint Venture (PCJV) in December 2014.

General Site Description

- 2.6 The site layout plans for the Works Contract 1121 are shown in **Figure 1a-1b**.

Construction Programme and Activities

- 2.7 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.

Shek O

- Construction of IMT Bottom Plate;
- Steel Formwork Erection;
- Base Slab Rebar Fixing Concreting;
- Wall and Roof Rebar Fixing;
- IMT Wall & Roof Concreting;
- Collar Plate Installation;
- Tunnel Lighting Installation;
- Ballast Tank Installation;
- Ballast Concrete Construction;
- Waterproofing Work; and
- Basin Anchor Installation.

Victoria Harbour

- Excavation and Lateral Support Construction at Hung Hom;
- Pumping Test at HUH;
- Trench Dredging Works for IMT alignment;
- Pile piling for the Wave Barrier Wall inside the CBTS; and
- Re provisioning for Seawall of Finger Pier at Hung Hom.

Project Organisation

2.8 The project organizational chart and contact details are shown in **Figure 2**.

Status of Environmental Licences, Notification and Permits

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

Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits

| Permit / License No. | Valid Period | | Status |
|--|--------------|------------|--------|
| | From | To | |
| Environmental Permit (EP) | | | |
| EP-436/2012/D | 05/02/2016 | N/A | Valid |
| SP License | | | |
| L-3-248(1) | 10/09/2015 | 09/09/2017 | Valid |
| Notification pursuant to Air Pollution Control (Construction Dust) Regulation | | | |
| EPD Ref no.: 384777 | 28/01/2015 | N/A | Valid |
| EPD Ref no.: 384550 | 21/01/2015 | N/A | Valid |
| EPD Ref no.: 384281 | 14/01/2015 | N/A | Valid |
| Billing Account for Construction Waste Disposal | | | |
| Account No. 7021499 | 20/01/2015 | N/A | Valid |
| Registration of Chemical Waste Producer | | | |
| Waste Producer No. 5213-147-P3174-03 | 02/03/2015 | N/A | Valid |
| Waste Producer No. 5213-213-P3172-01 | 09/02/2015 | N/A | Valid |

| Permit / License No. | Valid Period | | Status |
|---|--------------|------------|-----------------------|
| | From | To | |
| Waste Producer No. 5111-197-P3174-01 | 27/02/2015 | N/A | Valid |
| Marine Dumping Permit | | | |
| EP/MD/16-144 | 25/04/2015 | 24/10/2016 | Expired on 24/10/2016 |
| EP/MD/16-199 | 13/04/2016 | 12/10/2016 | Expired on 12/10/2016 |
| EP/MD/17-098 | 29/09/2016 | 28/10/2016 | Expired on 28/10/2016 |
| EP/MD/17-089 | 15/09/2016 | 14/10/2016 | Expired on 14/10/2016 |
| EP/MD/17-104 | 28/09/2016 | 27/10/2016 | Expired on 27/10/2016 |
| EP/MD/17/110 | 29/10/2016 | 28/11/2016 | Valid |
| EP/MD/17-107 | 14/10/2016 | 13/04/2017 | Valid |
| EP/MD/17-114 | 25/10/2016 | 24/04/2017 | Valid |
| EP/MD/17-122 | 29/10/2016 | 28/11/2016 | Valid |
| Effluent Discharge License under Water Pollution Control Ordinance | | | |
| WT00021844-2015 | 25/06/2015 | 30/06/2020 | Valid |
| WT00021891-2015 | 18/08/2015 | 31/08/2020 | Valid |
| WT00022449-2015 | 29/09/2015 | 30/06/2020 | Valid |
| Construction Noise Permit (CNP) | | | |
| PP-RE0069-15 | 11/01/2016 | 10/10/2016 | Expired on 10/10/2016 |
| PP-RS0029-16 | 05/10/2016 | 02/03/2017 | Valid |
| GW-RE0341-16 | 15/04/2016 | 14/10/2016 | Expired on 14/10/2016 |
| GW-RS0395-16 | 29/04/2016 | 28/10/2016 | Expired on 28/10/2016 |
| GW-RE0699-16 | 13/07/2016 | 12/01/2017 | Valid |
| GW-RE0830-16 | 22/08/2016 | 21/02/2017 | Valid |
| GW-RS0612-16 | 15/06/2016 | 13/12/2016 | Valid |
| GW-RS1027-16 | 07/10/2016 | 04/04/2017 | Valid |
| GW-RS1052-16 | 29/10/2016 | 28/04/2017 | Valid |

Summary of EM&A Requirements

- 2.10 The EM&A programme under Works Contract 1121 requires regular dust and water quality monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
 - Action and Limit levels for all environmental parameters;
 - Event / Action Plans;
 - Environmental mitigation measures, as recommended in the Project EIA study final report; and
 - Environmental requirements in contract documents.
- 2.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely marine water quality monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Dust Monitoring

- 3.1 In accordance with the EM&A Manual, the setup of the impact dust monitoring station at Harbourfront Horizon and the impact monitoring is currently carried out by the MTR Contract 1112. Upon termination of their EM&A programmes, the impact monitoring works would be taken up by this Project.

Regular Water Quality Monitoring

- 3.2 In accordance with the EM&A Manual and the ERR, marine water quality monitoring should be carried out during the dredging and filling operation, and IMT construction within CBTS (for Station 9 only); and throughout the construction period of removal of earth bunds at Northern and Southern gates.
- 3.3 Water Quality Monitoring at Station 8 and 14 is suspended as the water intakes are not in use. The statuses of the intakes will be kept in view such that once the water intakes are occupied, water quality monitoring will resume. In the presence of temporary reclamation in the Causeway Bay Typhoon Shelter (CBTS) under this Project, only Dissolved Oxygen (DO) level monitoring would be maintained at Station 8 for checking of potential odour concern.
- 3.4 The water quality monitoring stations and control stations of Project are shown in **Figure 3**. The co-ordinates of the monitoring stations are listed in **Table 3.1**. As shown in **Table 3.1**, the locations are classified as Impact Station and Control Station according to their functions.

Table 3.1 Water Quality Monitoring Stations

| Station | Description | Coordinates | |
|-----------------------------|---|-------------|--------|
| | | Easting | North |
| <i>Shek O Casting Basin</i> | | | |
| GB3 | Turtle Cove Beach | 841120 | 810280 |
| C3 | Control Station for ebb tide | 841200 | 806210 |
| C4 | Control Station for flood tide | 843330 | 807320 |
| <i>Victoria Harbour</i> | | | |
| 8 | Cooling Water Intake for Excelsior Hotel and World Trade Centre / No. 27 – 63 Paterson Street | 837036 | 816008 |
| 9 | Cooling Water Intake for Windsor House | 837223 | 816150 |
| 14 | Flushing Water Intake for Kowloon Station | 834477 | 817891 |
| 21 | Cooling Water Intake for East Rail Extension | 836484 | 817642 |
| 34 | Cooling Water Intake for Metropolis | 836828 | 817844 |
| A | Wan Chai WSD Flushing Water Intake (Reprovisioned) ⁽¹⁾ | 836268 | 816045 |
| WSD9 | Tai Wan WSD Flushing Water Intake ⁽²⁾ | 837930 | 818357 |
| WSD17 | Quarry Bay WSD Flushing Water Intake | 839863 | 817077 |
| C1 | Control Station 1 | 833977 | 817442 |
| C2 | Control Station 2 | 841088 | 817223 |

Note:

- (1) According to the Baseline Water Quality Monitoring Report for SCL (MKK-HUH & HUH-ADM), the original coordinates of monitoring location A (Easting: 836286, Northing: 816024) is the exact location taken from the design of reprovisioned Wan Chai Salt Water Pumping Station and Salt Water Intake Culvert. Based on actual site condition for taking water sampling, minor adjustment was made on monitoring location.
- (2) According to the Baseline Water Quality Monitoring Report for SCL (MKK-HUH & HUH-ADM), the original coordinates of monitoring location WSD9 (Easting: 838133, Northing: 817790) as proposed in WQMP were moved closer to sensitive receiver according to the actual site condition.

Monitoring Parameter, Frequency and Programme

- 3.5 Water quality monitoring was conducted in accordance with the requirements stipulated in the approved SCL(HUH-ADM) EM&A Manual and the ERR. **Table 3.2** summarized the monitoring frequency and water quality parameters for the impact monitoring. The monitoring schedule for this reporting period is shown in **Appendix C**.

Table 3.2 Water Quality Impact Monitoring Programme

| | Impact Monitoring |
|--|--|
| Monitoring Period | <u>Victoria Harbour</u> During the dredging and filling operation <u>CBTS (Station 9 only)</u> During IMT construction within CBTS <u>Shek O Casting Basin</u> Throughout the construction period of removal of earth bunds at Northern and Southern gates. |
| Monitoring Frequency ⁽¹⁾ | 3 Days in a Week, at mid-flood and mid-ebb tides |
| Monitoring Locations ⁽³⁾ | GB3, C3, C4, 8, 9, 14, 21, 34, A, WSD9, WSD17, C1 and C2 |
| Monitoring Parameters ⁽²⁾ | DO, temperature, turbidity, pH, salinity and SS |
| Intervals between 2 Sets of Monitoring | Not less than 36 hours |
| Tidal Range | Individual flood and ebb tides not less than 0.5m |

Notes:

1. For selection of tides for in-situ measurement and water sampling, tidal range of individual flood and ebb tides should be not less than 0.5 m.
2. Turbidity, DO, pH, temperature and salinity should be measured in situ whereas SS should be determined by laboratory.
3. Water Quality Monitoring at Station 8 and 14 is suspended as the water intakes are not in use.

Monitoring Equipment and Methodology

pH Measurement Instrument

- 3.6 The instrument should consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It should be readable to 0.1pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 should be used for calibration of the instrument before and after use.

Dissolved Oxygen and Temperature Measuring Equipment

- 3.7 The Dissolved Oxygen (DO) measuring equipment should be portable and weatherproof. It should complete with cable and sensor, and a DC power source. The equipment should be capable of measuring:
- a DO level in the range of 0 - 20 mg·L⁻¹ and 0 - 200% saturation; and
 - a temperature of 0 - 45 degree Celsius (°C).
- 3.8 It should have a membrane electrode with automatic temperature compensation complete with a cable.
- 3.9 Should salinity compensation not be built-in to the DO equipment, in-situ salinity should be measured to calibrate the DO measuring equipment prior to each DO measurement.

Turbidity Measurement Instrument

- 3.10 The turbidity measuring instrument should be a portable and weatherproof using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU (for example, Hach model 2100P or an approved similar instrument).

Sampler

- 3.11 A water sampler is required for SS monitoring. It should comprise a transparent PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth (for example, Kahlsico Water Sampler or an approved similar instrument).

Water Depth Detector

- 3.12 A portable, battery-operated echo sounder should be used for the determination of water depth at each monitoring station. This unit can either be hand-held or affixed to the bottom of the work boat, if the same vessel is to be used throughout the monitoring programme.

Salinity

- 3.13 A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) should be provided for measuring salinity of the water at each monitoring station.

Sample Containers and Storage

- 3.14 Water samples for SS monitoring should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4 °C without being frozen) and delivered to the laboratory and analyzed as soon as possible after collection.

Monitoring Position Equipment

- 3.15 A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication and Radio Technical Commission for maritime (RTCM) Type 16 error message “screen pop-up” facilities (for real-time auto-display of error messages and DGPS corrections from the Hong Kong Hydrographic

Office), or other equipment instrument of similar accuracy, should be provided and used during marine water monitoring to ensure the monitoring vessel at the correct location before taking measurements.

Calibration of In-Situ Instruments

- 3.16 The pH meter, DO meter and turbidimeter shall be checked and calibrated before use. DO meter and turbidimeter shall be certified by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes should be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter shall be carried out before measurement at each monitoring location.
- 3.17 **Table 3.3** summarizes the equipment used in the water quality monitoring program. The calibration certificates for the in-situ instruments are presented in **Appendix E**.

Table 3.3 Water Quality Monitoring Equipment

| Equipment | Model and Make | Qty. |
|--------------------------------------|---------------------------------------|-------------|
| Water Sampler | Kahlsico Water-Bottle Model 135DW 150 | 1 |
| Multi-parameter Water Quality System | Aquaread AP-2000-D | 4 |
| Monitoring Position Equipment | “Magellan” Handheld GPS Model GPS-320 | 1 |
| Water Depth Detector | Fishfinder 140 | 1 |

- 3.18 Sufficient stocks of spare parts shall be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring can proceed uninterrupted even when some equipment are under maintenance, calibration, etc.

Laboratory Measurement / Analysis for Marine Water

- 3.19 Duplicate samples from each independent sampling event are required by EPD for all parameters. Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory. Sufficient water samples shall be collected at the monitoring stations for carrying out the laboratory SS determinations, with detection limit shown in **Table 3.4**. The SS determination work shall start within 24 hours after collection of the water samples. The analyses shall follow the standard methods according to **Table 3.4** and as described in “American Public Health Association (APHA) Standard Methods for the Examination of Water and Wastewater”, 19th edition, unless otherwise specified.

Table 3.4 Analytical Methods to be applied to Marine Water Quality Samples

| Determinant | Standard Method | Detection Limit |
|-------------------------|------------------------|------------------------|
| Suspended Solids (mg/L) | APHA 2540 D | 0.1 mg/L |

- 3.20 Quality Control Reports as attached in **Appendix F** are available for the SS analyzed in the HOKLAS-accredited laboratory, WELLAB Ltd.

Action and Limit Levels

- 3.21 The action and limit levels for water quality monitoring are presented in **Appendix B**.

Event and Action Plan

- 3.22 Should non-compliance of the criteria occur, action in accordance with the Event and Action Plan in **Appendix I** shall be carried out.

Landscape and Visual

- 3.23 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is summarised in **Table 6.1** of Section 6.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

- 4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit, EM&A Manual and the ERR. The implementation status of the environmental mitigation measures of the reporting period is summarized in **Appendix J**. Status of required submissions under the Environmental Permit (EP) of the reporting period is presented in **Table 4.1**.

Table 4.1 Status of Required Submissions under EP

| EP Condition | Submission | Submission Date |
|---------------------|---|------------------------|
| Condition 3.4 | Monthly EM&A Report (September 2016) | 14 October 2016 |

5 MONITORING RESULTS

Water Quality Monitoring

- 5.1 13 sets of water quality monitoring were carried out at the designated monitoring stations in Victoria Harbour in this reporting period. Water quality monitoring (mid-flood tide) on 17 October 2016 was cancelled due to hoist of Strong Wind Signal No.3. Water quality monitoring on 21 October 2016 was postponed to 22 October 2016 due to the hoist of Typhoon Signal No.8. The water quality impact monitoring schedule for this reporting period is shown in **Appendix C**.
- 5.2 Removal of earth bunds at Northern and Southern Gates has not yet commenced in Shek O Casting Basin. Therefore, no water quality monitoring in Shek O was carried out during this reporting period under this Project.
- 5.3 The monitoring results together with graphical presentations are shown in **Appendix D**.
- 5.4 Under consultancy agreement no. C11033B, Action and Limit Levels for water quality monitoring at the monitoring stations in **Table 3.2** were established in the baseline water quality monitoring conducted by AECOM during June and July 2014. Action and Limit Levels for water quality is summarised in **Appendix B**.
- 5.5 No exceedance of Action and Limit Levels of water quality was recorded during the reporting period.

Waste Management

- 5.6 Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine sediments. Non-inert C&D materials are made up of C&D waste which cannot be reused or recycled and has to be disposed of at the designated landfill sites. With reference to relevant handling records of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.1**. Details of waste management data is presented in **Appendix K**.
- 5.7 14,199 m³ inert C&D materials were generated during the reporting month by this Project. 112 m³, 3,004 m³, 13 m³, 273 m³ and 0 m³ inert C&D materials were received from SCL Contract 1111, 1112, 1114, 1123 and 1128 respectively. 17,600 m³ of these inert C&D materials were reused in the other Projects. No chemical waste was collected by licensed collector during the reporting month. No metal, no plastics and paper/cardboard packaging were generated during the reporting month.
- 5.8 No Type 1 sediments (Category L) were generated from construction activities of this Project during this reporting period. 0 m³, 0 m³ and 0 m³ of Type 1 sediments (Category L) were received from SCL Contract 1111, 1112 and 1128 respectively. Such materials were collected and none was disposed at Capping of the exhausted Confined Marine Disposal Facility at South Cheung Chau in the reporting period.
- 5.9 No contaminated materials - Type 1 (dedicated sites) and 11,318 m³ Type 2 - Confined Marine Disposal (Category M) sediments were generated from construction activities of this Project during this reporting period. No contaminated materials - Type 1 (dedicated sites) and Type 2 - Confined Marine Disposal (Category M) sediments were received from SCL Contract 1111, 1112 and 1128. Such materials were collected and none was

disposed at Capping of the exhausted Confined Marine Disposal Facility at South of The Brothers (or East of Sha Chau) in the reporting period.

- 5.10 No contaminated materials - Type 3 (Special Treatment Disposal) sediments were generated or disposed from construction activities of this Project during this reporting period. No contaminated materials - Type 3 (Special Treatment Disposal) sediments were received from SCL Contract 1111 and 1112.

Table 5.1 Quantities of Waste Generated from the Project

| Reporting Month | Quantity | | | | | | |
|-----------------|--------------------------------------|------------------------------|--|----------------|--------------------|-------------|-------------|
| | C&D Materials (inert) ^(a) | Sediments (in bulk volume) | C&D Materials (non-inert) ^(b) | | | | |
| | | | General Refuse | Chemical Waste | Recycled materials | | |
| | | Paper/ cardboard | | | Plastics | Metals | |
| October 2016 | 14,199 <i>m</i> ³ | 11,318 <i>m</i> ³ | 114 <i>tonne</i> | 0 <i>kg</i> | 0 <i>kg</i> | 0 <i>kg</i> | 0 <i>kg</i> |

Notes:

(a) Inert C&D materials include soft materials, rocks and artificial hard materials to be delivered to TKO 137 and TM 38 public fill reception sites or, alternatively, receptor sites to be identified for beneficial reuse as proposed by the Contractor.

(b) Non-inert C&D materials include C&D waste which cannot be reused or recycled and has to be disposed of at North East New Territories (NENT) Landfill. It also includes steel, paper/cardboard packaging waste, plastics. 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.

Landscape and Visual

- 5.11 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 5, 17 and 31 October 2016. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audit

- 6.1 Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audit are attached in **Appendix H**.
- 6.2 Site audits were conducted on 5, 11, 17, 24 and 31 October 2016 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 24 October 2016. No Site Inspection was conducted by the EPD during the reporting period. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

- 6.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix J**.
- 6.4 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

| Parameters | Date | Observations and Recommendations | Follow-up |
|-----------------------------|-------------------|---|--|
| <i>Water Quality</i> | 26 September 2016 | <u>Reminder</u> : To remove the general refuse observed in the water channel on the site boundary in Shek O basin. | The observation was observed to be improved/rectified by the Contractor during the audit session on 11 October 2016. |
| | 24 October 2016 | <u>Reminder</u> : To remove the construction material from the part of drainage channel near Element E9 in Shek O Casting Basin and at the Shek O bending yard. | The observation was observed to be improved/rectified by the Contractor during the audit session on 31 October 2016. |
| <i>Noise</i> | -- | -- | -- |
| <i>Landscape and Visual</i> | -- | -- | -- |
| <i>Air Quality</i> | 26 September 2016 | <u>Observation</u> : To provide the excavator with the NRMM label of designated format. (Hung Hom) | The observation was observed to be improved/rectified by the Contractor during the audit session on 5 October 2016. |
| | 5 October 2016 | <u>Reminder</u> : The haul road to jetty area was observed dry. Water spraying should be provided more frequently for dust suppression. | The observation was observed to be improved/rectified by the Contractor during the audit session on 11 October 2016. |
| | 24 October 2016 | <u>Reminder</u> : To provide regular water spraying to haul roads in Shek O Casting Basin to avoid dust generation. | The observation was observed to be improved/rectified by the Contractor during the audit session on 31 October 2016. |

| Parameters | Date | Observations and Recommendations | Follow-up |
|------------------------------------|---------------------|---|--|
| | 31 October 2016 | <u>Observation:</u> To provide sufficient water spray to the hopper at the jetty during conveyance of stockpile for dust suppression. | Follow up action will be reported in next reporting month. |
| <i>Waste / Chemical Management</i> | 5, 11 October 2016 | <u>Reminder:</u> Stagnant water observed in the drip trays for chemical containers on marine platform should be properly cleared. | The observation was observed to be improved/rectified by the Contractor during the audit session on 31 October 2016. |
| | 11, 17 October 2016 | <u>Reminder:</u> To clear the oil stain on the ground of Hung Hom marine platform and clear the stagnant water in the drip tray. | The observation was observed to be improved/rectified by the Contractor during the audit session on 31 October 2016. |
| | 24 October 2016 | <u>Observation:</u> Oil leakage and oil mixture observed on the ground and inside drip tray of Hung Hom marine platform. The Contractor was reminded to remove the oil leakage as “chemical waste”. | The observation was observed to be improved/rectified by the Contractor during the audit session on 31 October 2016. |
| | 31 October 2016 | <u>Reminder:</u> To provide the chemical containers observed next to the AquaSed with drip tray (Hung Hom Platform). | Follow up action will be reported in next reporting month. |
| <i>Permits/ Licenses</i> | -- | -- | -- |

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

- 7.1 No exceedance of Action and Limit Levels of water quality was recorded during the reporting period. The summary of exceedance is provided in **Appendix G**.

Summary of Environmental Non-Compliance

- 7.2 No environmental non-compliance was recorded in the reporting month.

Summary of Environmental Complaint

- 7.3 No environmental complaints were received in the reporting month. The Cumulative Complaint Log since the commencement of the Project is presented in **Appendix L**. The investigation status and result is also reported in **Appendix L**.

Summary of Environmental Summon and Successful Prosecution

- 7.4 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix L**.

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

- 8.1 A tentative construction programme is provided in **Appendix A**. The major construction activities in the coming month will include:

Shek O

- Construction of IMT Bottom Plate;
- Steel Formwork Erection;
- Base Slab Rebar Fixing Concreting;
- Wall and Roof Rebar Fixing;
- IMT Wall & Roof Concreting;
- Collar Plate Installation;
- Tunnel Lighting Installation;
- Ballast Tank Installation;
- Ballast Concrete Construction;
- Waterproofing Work; and
- Basin Anchor Installation.

Victoria Harbour

- Excavation and Lateral Support Construction at Hung Hom;
- Reinforcement Concrete Works Construction of Cut & Cover Tunnel at Hung Hom;
- Collar Frame Installation of Cut & Cover Tunnel at Hung Hom;
- Cathodic Protection and Corrosion Monitoring at Hung Hom;
- Water Proofing at Hung Hom;
- CLP Draw Pit Construction at Hung Hom;
- Trench Dredging Works for IMT alignment; and
- Pile piling for the Wave Barrier Wall inside the CBTS.

Key Issues in the Next Month

- 8.2 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, noise, water quality and waste management in both Shek O and Hung Hom.

Monitoring Schedule in the Next Month

- 8.3 The tentative schedule of regular water quality monitoring at all the monitoring locations in the next reporting period is presented in **Appendix C**. The regular construction water quality monitoring will be conducted at the same monitoring locations in the next reporting period.

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 October 2016 in accordance with EM&A Manual and the requirement under EP.
- 9.2 No exceedance of the Action and Limit Levels of regular water quality monitoring was recorded at the designated monitoring stations during the reporting month.
- 9.3 5 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 3 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.
- 9.4 No environmental complaint, no successful prosecution or notification of summons were received during the reporting month.
- 9.5 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

- 9.6 According to the environmental audit performed in the reporting month, the following recommendations were made:

Water Quality

- To remove the construction material from the part of drainage channel in Shek O Casting Basin

Landscape and Visual

- N/A

Noise

- N/A

Air Quality

- To provide sufficient water spray to the haul road and works area of Shek O Casting Basin, and to the hopper at the jetty during conveyance of stockpile for dust suppression; and

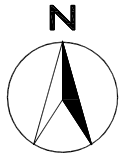
Waste/Chemical Management

- To remove the oil-water mixture in the drip tray and oil stain on ground found on Hung Hom marine platform; and
- To provide drip trays to chemical containers.

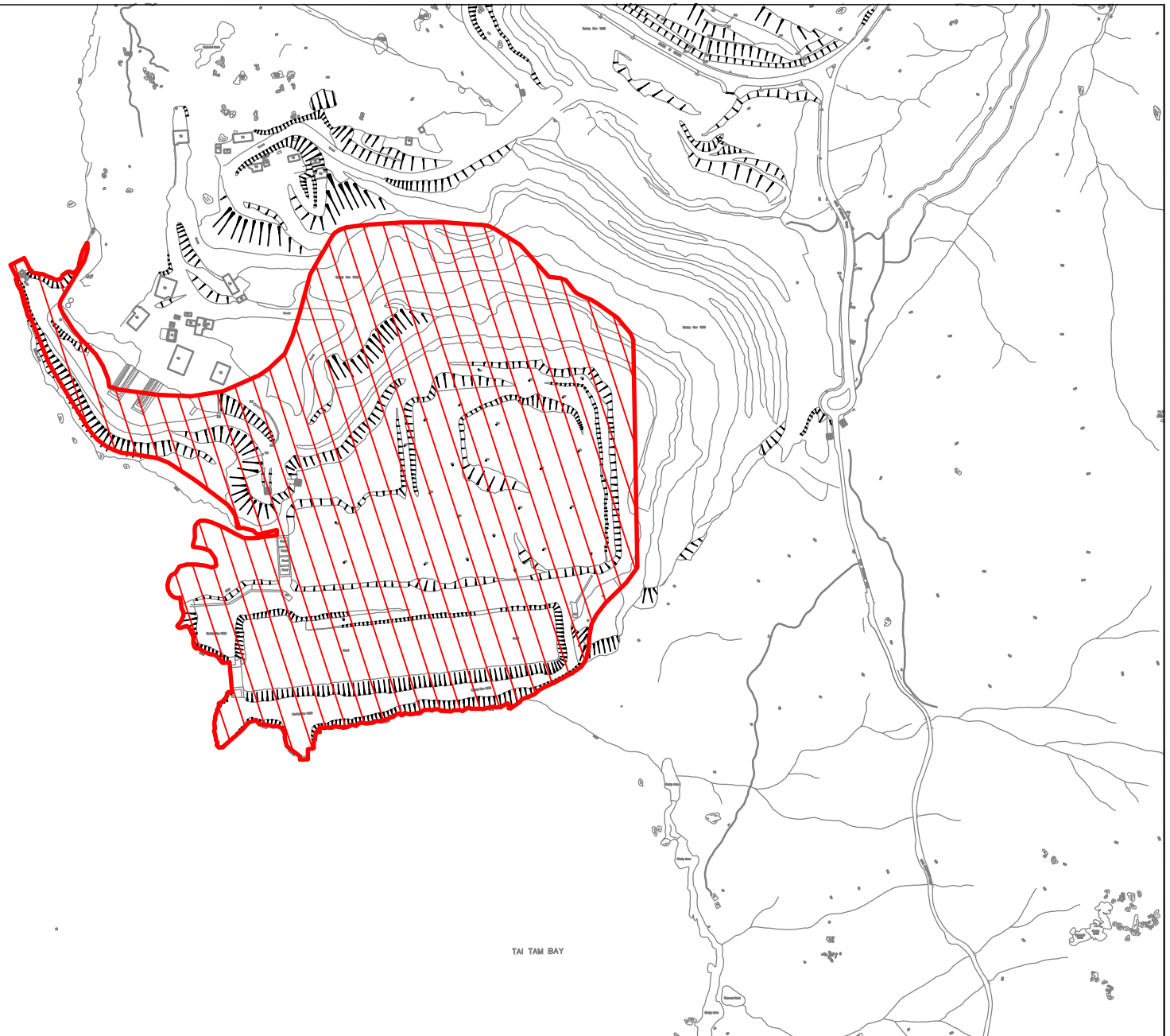
Permits/Licenses

- N/A

FIGURES

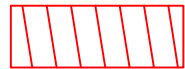


TAI TAM BAY



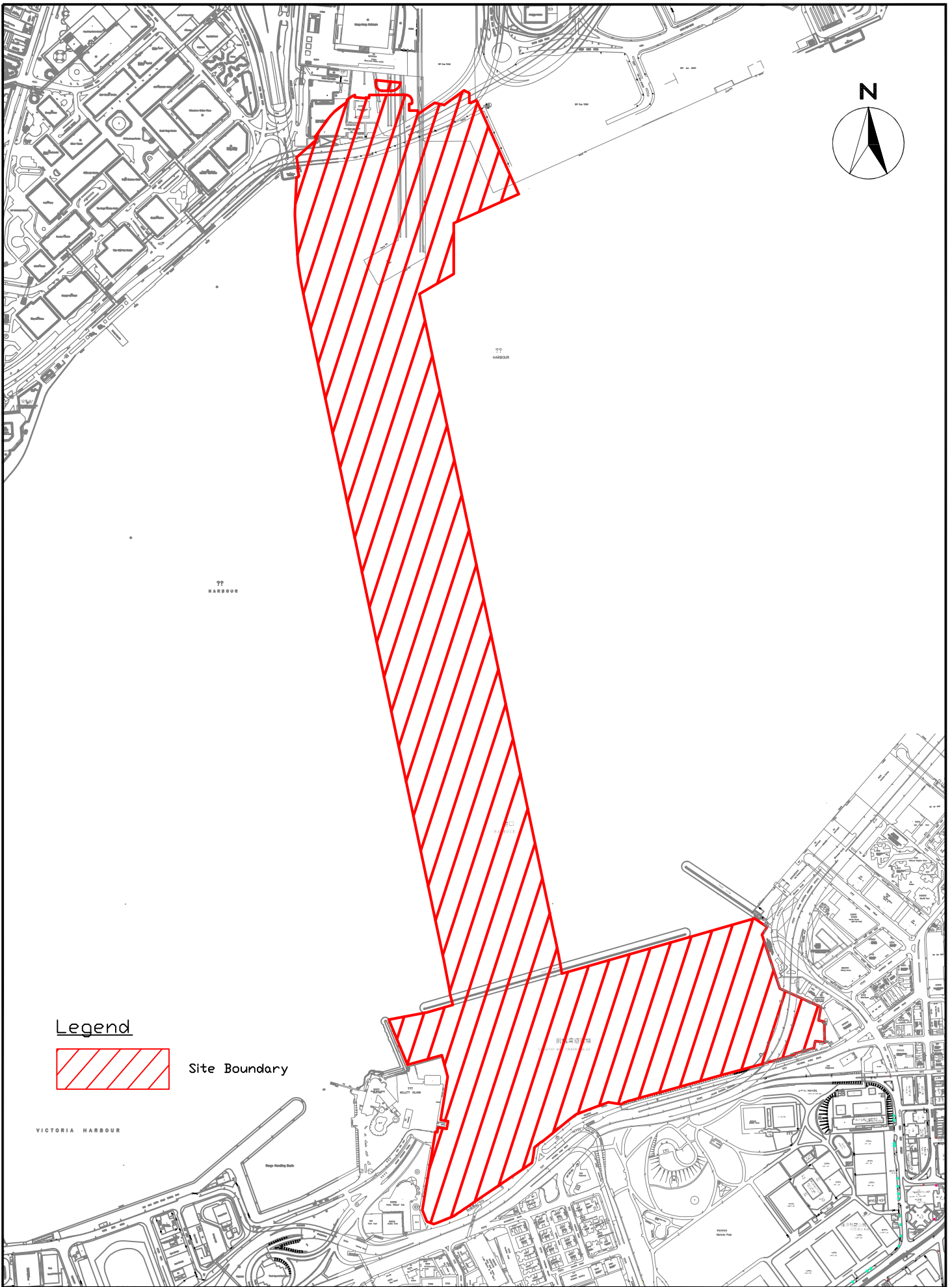
TAI TAM BAY

Legend



Site Boundary

| | | | |
|---------|---------|------------|---------|
| SCALE | 1:150 | DATE | 12/2014 |
| CHECK | CHECK | DRAWN | VW |
| JOB No. | MA14047 | FIGURE NO. | 1a |
| | | REV | - |



Legend

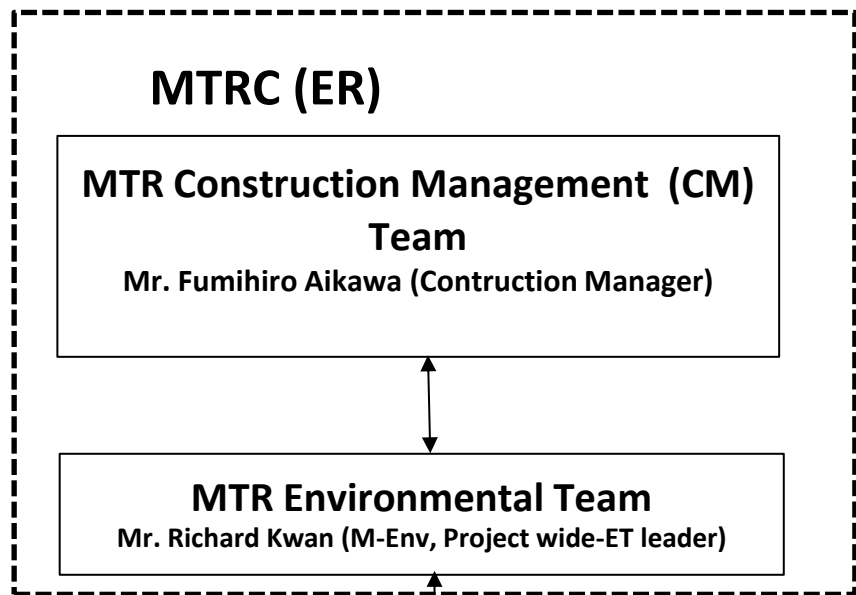


Site Boundary

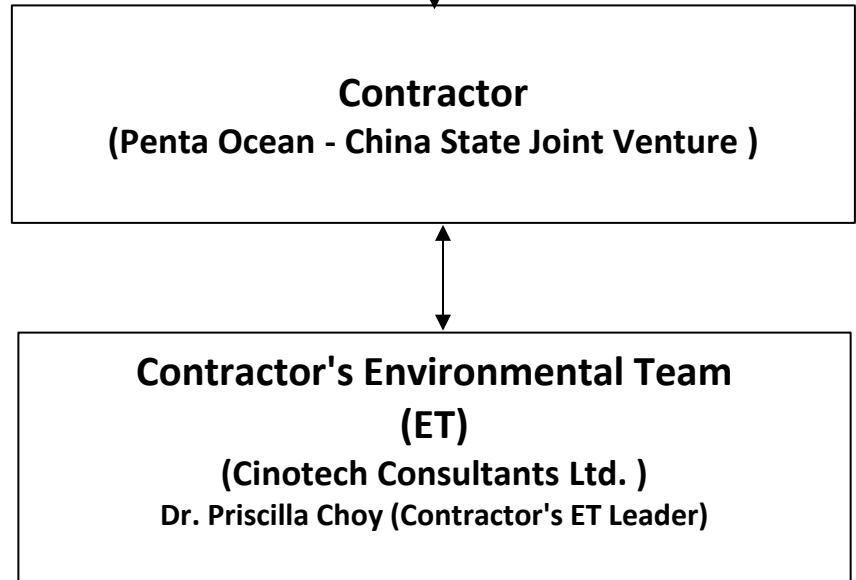


SCL 1121 - NSL Cross Harbour Tunnels
Site Layout Plan
 (Victoria Harbour)

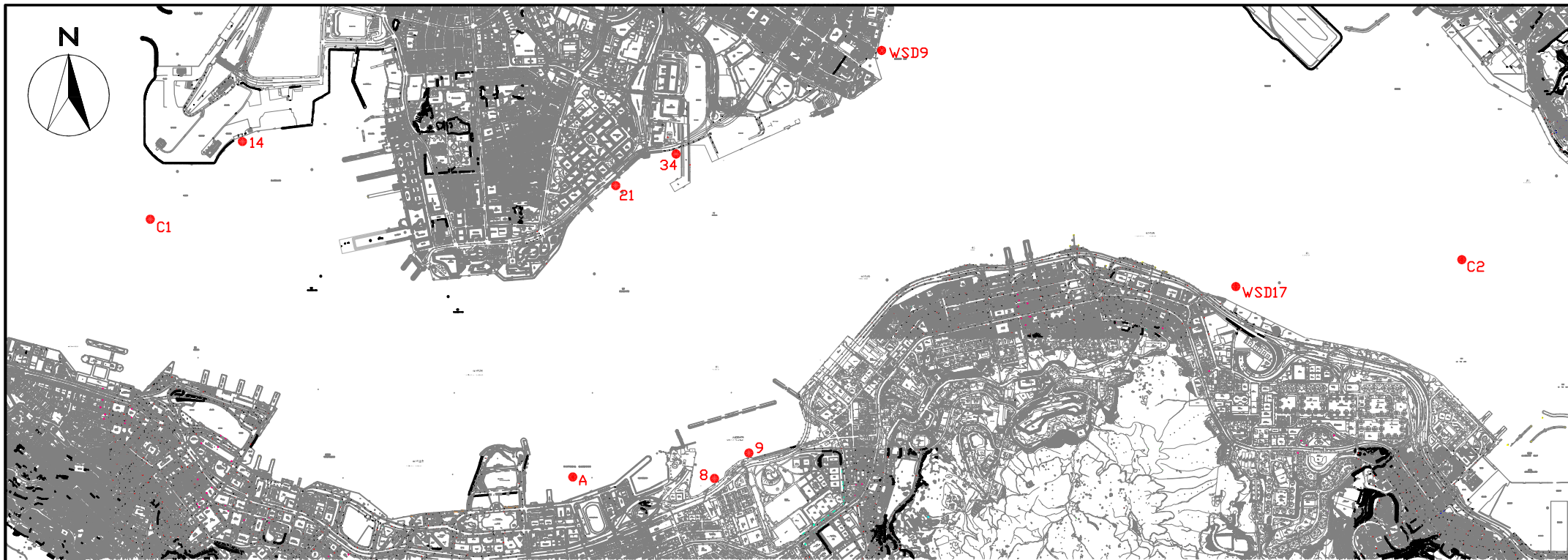
| | | | |
|---------|---------|------------|--------|
| SCALE | 1:220 | DATE | 1/2015 |
| CHECK | JF | DRAWN | VW |
| JOB No. | MA14047 | FIGURE NO. | 1b |
| | | REV | - |



↔ Line of communication



| | | | | | | |
|-------|--|-------|--------|-------------|---------|-----------------|
| Title | SCL Contract 1121 The Shatin to Central Link - NSL Cross Harbour Tunnels Project Organisation for Environmental Works | Scale | N.T.S | Project No. | MA14047 | CINOTECH |
| | | Date | Jan-15 | Figure | 2 | |



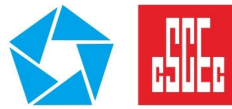
| COORDINATE | EASTING | NORTHING |
|------------|---------|----------|
| A | 836268 | 816045 |
| 14 | 834477 | 817891 |
| WSD9 | 837930 | 818357 |
| WSD17 | 839863 | 817077 |
| C1 | 833977 | 817442 |
| C2 | 841088 | 817223 |
| 8 | 837036 | 816008 |
| 9 | 837223 | 816150 |
| 21 | 836484 | 817642 |
| 34 | 836828 | 817844 |

LEGEND

● Water Quality Monitoring Station

| | | | |
|---------|---------|------------|--------|
| SCALE | 1:30 | DATE | 1/2015 |
| CHECK | JF | DRAWN | VW |
| JOB No. | MA14047 | FIGURE NO. | 3 |
| | | REV | - |

**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | | 2017 |
|---|--|-----------|---------------|-----------|------------|-------------|-----------|-------------|-------------|-------------|---------------------|------|-----|-----|-----|------|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan | Feb |
| 1121 - 23 - 3M Rolling Programme (10 - 12/2016) (Ref. to PMP Rev 1a) (Updates as of 28 Oct 2016) | | | | | | | | | | | | | | | | |
| SCHEDULE OF COMPLETION OBLIGATIONS AND MILESTONES SCHEDULE | | | | | | | | | | | | | | | | |
| Milestone Schedule | | | | | | | | | | | | | | | | |
| Cost Center A - General Preliminaries | | | | | | | | | | | | | | | | |
| 01121.MS10100 | Milestone A6 - (Implementation of Plans/Systems + Dwgs and Manuals/Plans Approvals) (Finish On 25-Sep-16) | | | 17-Sep-16 | 17-Sep-16 | 0 | 0 | 28-Oct-16 | 28-Oct-16 | 1526 | 0% | | | | | |
| Cost Center B - North Ventilation Building (NOV) | | | | | | | | | | | | | | | | |
| 01121.MS10210 | Milestone B3 - Complete 60% of Total Excavation for NOV (Finish On or Before 25 Sept 16) | | | 17-Sep-16 | 17-Sep-16 | 0 | 0 | 16-Oct-16 A | 16-Oct-16 A | | 100% | | | | | |
| Cost Center C - Hung Hom Landfall Tunnels | | | | | | | | | | | | | | | | |
| 01121.MS10320 | Milestone C4 - 60% Excavation for Land Cofferdam - 40% Excavation for Marine Cofferdam (Finish On or Before 28 Aug 16) | 58% | | 11-Aug-16 | 11-Aug-16 | 0 | 0 | 29-Oct-16 A | 29-Oct-16 A | | 100% | | | | | |
| Cost Center D - Immersed Tunnels | | | | | | | | | | | | | | | | |
| 01121.MS10430 | Milestone D4.2 - Complete 60% of Fabrication of IMT by number and 30% of Bulk Dredging (Finish on 16-Oct-16) | | | 24-Sep-16 | 24-Sep-16 | 0 | 0 | 16-Oct-16 A | 16-Oct-16 A | | 100% | | | | | |
| 01121.MS10440 | Milestone D5 - Complete All Fabrication of IMT Units (Excl out-fitting & Inspection) (Finish on 29-Jan-17) | | | 15-Dec-16 | 15-Dec-16 | 0 | 0 | 23-Dec-16 | 23-Dec-16 | 1469 | 0% | | | | | |
| Cost Centre E - CBTS Tunnels | | | | | | | | | | | | | | | | |
| 01121.MS10540 | Milestone E4 - Complete installation of Wave Protection Wall (Finish on 8-Jan-17) | | | 08-Oct-16 | 08-Oct-16 | 0 | 0 | 29-Dec-16 | 29-Dec-16 | 1463 | 0% | | | | | |
| Access and Vacation Dates for Works Areas | | | | | | | | | | | | | | | | |
| Access Dates for Works Areas | | | | | | | | | | | | | | | | |
| 01121.AD10120 | W1A(1) - Land, West HUH (Access assumed necessary for starting NOV construction) | | | 11-Dec-16 | | 0 | 0 | 11-Dec-16* | | 0 | 0% | | | | | |
| 01121.AD10130 | W1A(2) - Land, West HUH (Access assumed necessary for starting NOV construction) | | | 11-Dec-16 | | 0 | 0 | 11-Dec-16* | | 0 | 0% | | | | | |
| 01121.AD10140 | W1C - Land, North West HUH (Access assumed necessary for starting NOV construction) | | | 11-Dec-16 | | 0 | 0 | 11-Dec-16* | | 0 | 0% | | | | | |
| CONSTRUCTION | | | | | | | | | | | | | | | | |
| Cost Centre A - General Preliminary | | | | | | | | | | | | | | | | |
| A6 | | | | | | | | | | | | | | | | |
| 01121.15270 | A6 - NOV ABWF Shop Drawing & Material Submission (AIP) - Prepare, Submit and Approve | | | 23-Nov-15 | 17-Sep-16 | 300 | 0 | 30-Nov-15 A | 28-Oct-16 | 1202 | 10% | | | | | |
| A7 | | | | | | | | | | | | | | | | |
| 01121.15290 | A7 - Specified Plans - Implementation with Satisfactory from Engineer | | | 14-Sep-16 | 15-Feb-17 | 155 | 143 | 15-Sep-16 A | 19-Mar-17 | 68 | 8% | | | | | |
| 01121.15300 | A7 - Programming Management System - Implementation with Satisfactory from Engineer | | | 15-Sep-16 | 16-Feb-17 | 155 | 143 | 15-Sep-16 A | 19-Mar-17 | 253 | 8% | | | | | |
| 01121.15310 | A7 - CSD, SEM Drawings, Interface Spec., interface Test Plans (AIP) - Prepare, Submit and Approve | | | 18-Sep-16 | 17-Feb-17 | 153 | 153 | 28-Oct-16 | 29-Mar-17 | 1373 | 0% | | | | | |
| 01121.15320 | A7 - NOV Material Samples, Mock-Ips and Prototypes of ABWF - Prepare, Construct and Approve | | | 18-Sep-16 | 17-Feb-17 | 153 | 153 | 28-Oct-16 | 29-Mar-17 | 1373 | 0% | | | | | |
| A8 | | | | | | | | | | | | | | | | |
| 01121.15350 | A8 - NOV ABWF Shop Drawing & Material Submission (DDA) - Prepare, Submit and Approve | | | 18-Sep-16 | 16-Sep-17 | 364 | 324 | 18-Sep-16 A | 16-Sep-17 | 1202 | 0% | | | | | |
| 01121.15370 | A8 - NOV BS Shop Drawing & Material Submission (DDA) - Prepare, Submit and Approve | | | 18-Sep-16 | 16-Sep-17 | 364 | 324 | 18-Sep-16 A | 16-Sep-17 | 1202 | 0% | | | | | |
| Cost Centre B - North Ventilation Building NOV | | | | | | | | | | | | | | | | |
| AAAAA HUH Land Area C&C Tunnel and NOV | | | | | | | | | | | | | | | | |
| HUH Land Area Bulk Excavation and ELS | | | | | | | | | | | | | | | | |
| S3 to S4 | | | | | | | | | | | | | | | | |

Data Date: 28-Oct-16

- ◆ Current Milestone
- ▼ Baseline Milestone (PMP Rev. 1a)
- Actual Work
- Critical Remaining Work
- Remaining Work
- Baseline (PMP Rev.1a)
- Remaining Level of Effort
- 3M Rolling Prog (last month)

Updated 3M Rolling Programme Nov - Jan 2017
(Updated as of 20 Oct 2016)

| Date | Revision | Checked | Approved |
|-----------|----------|---------------|--------------|
| 04-Nov-16 | | Vincent Yeung | John MeCleod |



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | | 2017 |
|--|--|-------------------|-----------------|-----------|------------|-------------|-----------|-------------|-------------|-------------|---------------------|------|-----|-----|-----|------|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan | Feb |
| A11010 | NOV Area Zone 2 - excavate to S4 (2 muck-out) | 2200m3@50 84TL | | | | 0 | 0 | 29-Sep-16 A | 28-Oct-16 A | | 100% | | | | | |
| A11005 | NOV Area Zone 2 - excavate to S4 (1 muck-out) | 3000m3@37 63TL | | | | 0 | 0 | 29-Sep-16 A | 28-Oct-16 A | | 100% | | | | | |
| A11015 | Area Zone 2 - install ELS D-S4 at -7.2mPD & -8.0mPD | | | | | 0 | 18 | 28-Oct-16 | 17-Nov-16 | -14 | 0% | | | | | |
| A11025 | NOV Area Zone 1 - excavate to S4 | 4300m3@37 63TL | | | | 0 | 12 | 28-Oct-16 | 10-Nov-16 | 8 | 0% | | | | | |
| A11030 | Area Zone 1 - install ELS S4 at -8.0mPD | | | | | 0 | 14 | 11-Nov-16 | 26-Nov-16 | 8 | 0% | | | | | |
| S4 to S5 | | | | | | 0 | 33 | 18-Nov-16 | 28-Dec-16 | 5 | | | | | | |
| A11080 | NOV Area Zone 2 - excavate to S5 (-12.5mPD) | 3900m3@37 63TL | | | | 0 | 11 | 18-Nov-16 | 30-Nov-16 | -14 | 0% | | | | | |
| A11120 | Area Zone 2 - install ELS S5 at -10.5mPD & -11.5mPD | | | | | 0 | 18 | 01-Dec-16 | 21-Dec-16 | -14 | 0% | | | | | |
| A11140 | NOV Area Zone 1 - excavate to S5 (-11.5mPD) | 2800m3@37 63TL | | | | 0 | 8 | 01-Dec-16 | 09-Dec-16 | 5 | 0% | | | | | |
| A11180 | Area Zoen 1 - install ELS S5 at -10.5mPD | | | | | 0 | 14 | 10-Dec-16 | 28-Dec-16 | 5 | 0% | | | | | |
| S5 to Formation | | | | | | 0 | 57 | 22-Dec-16 | 04-Mar-17 | -8 | | | | | | |
| A11200 | NOV Area Zone 2 - excavate to formation (1 muck-out) | 2200m3@30 50TL | | | | 0 | 8 | 22-Dec-16 | 03-Jan-17 | -14 | 0% | | | | | |
| A11240 | NOV Area Zone 1 - excavate to formation (2 muck-out) | 2100m3@40 67TL | | | | 0 | 6 | 29-Dec-16 | 05-Jan-17 | 5 | 0% | | | | | |
| A11220 | Area Zone 2 - core stone breaking to formation | 1450m3@30 5TL | | | | 0 | 49 | 04-Jan-17 | 04-Mar-17 | -14 | 0% | | | | | |
| A11260 | Area Zone 1 - core stone breaking to formation | 1000m3@30 5TL | | | | 0 | 34 | 06-Jan-17 | 17-Feb-17 | 5 | 0% | | | | | |
| Cost Centre C - Hung Hom Cut and Cover Tunnels | | | | 13-May-16 | 14-Oct-16 | 127 | 112 | 19-Sep-16 A | 14-Mar-17 | 1439 | | | | | | |
| HUH Submerged Tunnel (Area B) | | | | | | 0 | 112 | 19-Sep-16 A | 14-Mar-17 | 1439 | | | | | | |
| HUH Area B - HUH Temp Cofferdam | | | | | | 0 | 112 | 19-Sep-16 A | 14-Mar-17 | 1439 | | | | | | |
| AAAAAAA HUH Area B1 B2 and C1 Excavation and ELS Installation | | | | | | 0 | 112 | 19-Sep-16 A | 14-Mar-17 | 1439 | | | | | | |
| Strut Layer S3 | | | | | | 0 | 11 | 19-Sep-16 A | 09-Nov-16 | -8 | | | | | | |
| A10500 | HUH Area B2 - S3 - excavate to -9.0mPD | 4024m3@27 45TL | | | | 0 | 0 | 19-Sep-16 A | 28-Oct-16 A | | 100% | | | | | |
| A10480 | HUH Area C1 - S3 - excavate to -9.0mPD | 1345m3@22 38TL | | | | 0 | 0 | 26-Sep-16 A | 28-Oct-16 A | | 100% | | | | | |
| A10460 | S3 - HUH Area B1 - install strut S3-1 to S3-3 | | 4 nos (S1 to 4) | | | 0 | 0 | 27-Sep-16 A | 07-Oct-16 A | | 100% | | | | | |
| A10520 | S3 - HUH Area B2 - install strut S3-4 to S3-7 | | | | | 0 | 11 | 29-Oct-16 A | 09-Nov-16 | -11 | 0% | | | | | |
| A10540 | S3 - HUH Area C1 - install strut S4-11 and S4-12 | | | | | 0 | 10 | 29-Oct-16 A | 08-Nov-16 | -10 | 0% | | | | | |
| Strut Layer S4 | | | | | | 0 | 45 | 26-Sep-16 A | 04-Jan-17 | -11 | | | | | | |
| A10550 | S4 - Pump Test / Dewatering | | | | | 0 | 0 | 26-Sep-16 A | 06-Oct-16 A | | 100% | | | | | |
| A10560 | HUH Area B1 - S4 - excavate to -11.5mPD | 1898m3@19 32TL | 2350m3 | | | 0 | 0 | 08-Oct-16 A | 20-Oct-16 A | | 100% | | | | | |
| A10580 | S4 - HUH Area B1 - install strut S4-1 to S4-3 | | 3nos (S1 - 3) | | | 0 | 0 | 22-Oct-16 A | 28-Oct-16 A | | 100% | | | | | |
| A10600 | HUH Area C1 - S4 - excavate to -11.5mPD | 748m3@187 32TL | | | | 0 | 4 | 10-Nov-16 | 14-Nov-16 | -11 | 0% | | | | | |
| A10620 | HUH Area B2 - S4 - excavate to -11.5mPD | 2234m3@75 13TL | | | | 0 | 30 | 15-Nov-16 | 19-Dec-16 | -11 | 0% | | | | | |
| A10660 | S4 - HUH Area C1 - install strut S5-11 and S5-truss | | | | | 0 | 10 | 15-Nov-16 | 25-Nov-16 | 20 | 0% | | | | | |
| A10640 | S4 - HUH Area B2 - install strut S4-4 to S4-7 | | | | | 0 | 11 | 20-Dec-16 | 04-Jan-17 | -11 | 0% | | | | | |
| Formation | | | | | | 0 | 112 | 28-Oct-16 | 14-Mar-17 | 1439 | | | | | | |
| A10680 | HUH Area B1 - excavate to formation | 2810m3@14 25TL | | | | 0 | 19 | 28-Oct-16 | 18-Nov-16 | 3 | 0% | | | | | |

Data Date: 28-Oct-16

- ◆ Current Milestone
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- Remaining Level of Effort
- 3M Rolling Prog (last month)

Updated 3M Rolling Programme Nov - Jan 2017
(Updated as of 20 Oct 2016)

| Date | Revision | Checked | Approved |
|-----------|----------|---------------|-------------|
| 04-Nov-16 | | Vincent Yeung | John Meclod |



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | | 2017 |
|---|---|-------------------|---------------|-----------|------------|-------------|-----------|-----------|-----------|-------------|---------------------|------|-----|-----|-----|------|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan | Feb |
| A10740 | HUH C&C Tunnel Bay 1 / 2 start (PMP 10 Nov 2016) | | | | | 0 | 0 | 19-Nov-16 | | 1532 | 0% | | | | | |
| A10700 | HUH Area B2 and C1 - excavate to formation | 3154m3@57 10TL | | | | 0 | 56 | 05-Jan-17 | 14-Mar-17 | -11 | 0% | | | | | |
| AAAAAAA HUH Tunnel Box Structure (Bay 1 to B6) | | | | | | | | | | | | | | | | |
| Bay 1 & 2 | | | | | | | | | | | | | | | | |
| Bay 1 & 2 Base Slab | | | | | | | | | | | | | | | | |
| A12075 | HUH Bay 1&2 - base - cast blinding concrete | | | | | 0 | 1 | 19-Nov-16 | 19-Nov-16 | 3 | 0% | | | | | |
| A12080 | HUH Bay 1&2 - base - erect base collar frame | | | | | 0 | 4 | 21-Nov-16 | 24-Nov-16 | 3 | 0% | | | | | |
| A12100 | HUH Bay 1&2 - base - erect external formwork | | | | | 0 | 2 | 25-Nov-16 | 26-Nov-16 | 3 | 0% | | | | | |
| A12120 | HUH Bay 1&2 - base - apply waterproofing | | | | | 0 | 2 | 28-Nov-16 | 29-Nov-16 | 3 | 0% | | | | | |
| A12140 | HUH Bay 1&2 - base - fix bottom rebar | | | | | 0 | 2 | 30-Nov-16 | 01-Dec-16 | 3 | 0% | | | | | |
| A12160 | HUH Bay 1&2 - base - install drain pipe / cast-in | | | | | 0 | 1 | 02-Dec-16 | 02-Dec-16 | 3 | 0% | | | | | |
| A12180 | HUH Bay 1&2 - base - fix top rebar | | | | | 0 | 2 | 03-Dec-16 | 05-Dec-16 | 3 | 0% | | | | | |
| A12200 | HUH Bay 1&2 - base - fix waterstop / anti-corrosion | | | | | 0 | 1 | 06-Dec-16 | 06-Dec-16 | 3 | 0% | | | | | |
| A12220 | HUH Bay 1&2 - base - erect shutter formwork and cleaning | | | | | 0 | 2 | 07-Dec-16 | 08-Dec-16 | 3 | 0% | | | | | |
| A12240 | HUH Bay 1&2 - base - cast concrete | | | | | 0 | 1 | 09-Dec-16 | 09-Dec-16 | 3 | 0% | | | | | |
| A12260 | HUH Bay 1&2 - base - curing & strike formwork | | | | | 0 | 2 | 10-Dec-16 | 12-Dec-16 | 3 | 0% | | | | | |
| A12280 | HUH Bay 1&2 - base - erect formwork for mass concrete fill at both side | | | | | 0 | 2 | 13-Dec-16 | 14-Dec-16 | 3 | 0% | | | | | |
| A12300 | HUH Bay 1&2 - base - cast mass concrete at both side | | | | | 0 | 1 | 15-Dec-16 | 15-Dec-16 | 3 | 0% | | | | | |
| A12320 | HUH Bay 1&2 - base - remove strut S4 (3 nos.) and strike mass concrete formwork | | | | | 0 | 3 | 16-Dec-16 | 19-Dec-16 | 3 | 0% | | | | | |
| Bay 1 & 2 Wall | | | | | | | | | | | | | | | | |
| A12340 | HUH Bay 1&2 - wall - erect scaffolding / falsework | | | | | 0 | 4 | 20-Dec-16 | 23-Dec-16 | 3 | 0% | | | | | |
| A12360 | HUH Bay 1&2 - wall - erect single side formwork | | | | | 0 | 4 | 24-Dec-16 | 30-Dec-16 | 3 | 0% | | | | | |
| A12350 | HUH Bay 1&2 - wall - install wall collar frame | | | | | 0 | 6 | 24-Dec-16 | 03-Jan-17 | 7 | 0% | | | | | |
| A12380 | HUH Bay 1&2 - wall - fix rebar | | | | | 0 | 3 | 31-Dec-16 | 04-Jan-17 | 3 | 0% | | | | | |
| A12400 | HUH Bay 1&2 - wall - erect remaining side formwork / shutter formwork | | | | | 0 | 3 | 05-Jan-17 | 07-Jan-17 | 3 | 0% | | | | | |
| A12420 | HUH Bay 1&2 - wall - fix waterstop / cast-in / anti-corrosion | | | | | 0 | 1 | 09-Jan-17 | 09-Jan-17 | 3 | 0% | | | | | |
| A12440 | HUH Bay 1&2 - wall - cast concrete | | | | | 0 | 1 | 10-Jan-17 | 10-Jan-17 | 3 | 0% | | | | | |
| A12460 | HUH Bay 1&2 - wall - curing & strike formwork | | | | | 0 | 4 | 11-Jan-17 | 14-Jan-17 | 3 | 0% | | | | | |
| A12480 | HUH Bay 1&2 - wall - apply epoxy cement / waterproofing | | | | | 0 | 3 | 16-Jan-17 | 18-Jan-17 | 3 | 0% | | | | | |
| A12500 | HUH Bay 1&2 - wall - erect formwork for mass concrete | | | | | 0 | 6 | 19-Jan-17 | 25-Jan-17 | 3 | 0% | | | | | |
| A12520 | HUH Bay 1&2 - wall - cast mass concrete | | | | | 0 | 1 | 26-Jan-17 | 26-Jan-17 | 3 | 0% | | | | | |
| A12540 | HUH Bay 1&2 - wall - remove S3 (3 struts) and strike mass concrete formwork | | | | | 0 | 3 | 27-Jan-17 | 02-Feb-17 | 3 | 0% | | | | | |
| Bay 1 Re-prop to South End Wall, Remove Temp Berm and Flooding | | | | | | | | | | | | | | | | |
| A18200 | HUH Bay 1 & 2 - complete bay 1&2 wall | | | | | 0 | 0 | | 14-Jan-17 | 30 | 0% | | | | | |
| A18220 | HUH Bay 1 & 2 - re-prop (S4, S3) from south end wall to bay 1 | | | | | 0 | 7 | 16-Jan-17 | 23-Jan-17 | 30 | 0% | | | | | |

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Updated 3M Rolling Programme Nov - Jan 2017
(Updated as of 20 Oct 2016)

| Date | Revision | Checked | Approved |
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| 04-Nov-16 | | Vincent Yeung | John MeCleod |



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | 2017 |
|---|--|-----------------|---------------|-----------|------------|-------------|-----------|-------------|-------------|-------------|---------------------|------|-----|-----|------|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan |
| A18240 | HUH Bay 1 & 2 - remove temporary berm (assume 230m3@25m3/d) | | | | | 0 | 20 | 24-Jan-17 | 18-Feb-17 | 30 | 0% | | | | |
| Hung Hom Finger Pier | | | | | | | | | | | | | | | |
| A&A Works to Finger Pier | | | | | | | | | | | | | | | |
| 01121.10790-1070 | HUH Finger Pier A&A works - construction seawall and backfill | | | | | 0 | 3 | 21-Sep-16 A | 31-Oct-16 | 116 | 90% | | | | |
| 01121.10790-1105 | HUH Finger Pier A&A works - submission of Form BA14 for completion of work | approx 250 nos. | | | | 0 | 7 | 01-Nov-16 | 08-Nov-16 | 116 | 0% | | | | |
| HUH Land base Tunnel (Area C) | | | | | | | | | | | | | | | |
| HUH Area C - Excavation and ELS (Area C2) | | | | | | | | | | | | | | | |
| 01121.12560 | HUH Area C2 - Excavate to -9mPD (CDG:1760m3 + Core Stone 440m3) | 2200 m3 | | 13-May-16 | 06-Jun-16 | 20 | 5 | 18-Oct-16 A | 02-Nov-16 | -2 | 70% | | | | |
| 01121.12570 | HUH Area C2 - Install strut S4 (-7.5) | | | 07-Jun-16 | 14-Jun-16 | 6 | 10 | 03-Nov-16 | 14-Nov-16 | -2 | 0% | | | | |
| 01121.12580 | HUH Area C2 - Excavate to -11.5 (CDG:220m3 + Core Stone 1990m3) | | | 15-Jun-16 | 01-Aug-16 | 40 | 13 | 15-Nov-16 | 29-Nov-16 | -2 | 0% | | | | |
| 01121.12590 | HUH Area C2 - Install Strut S5 (-10.5) | | | 02-Aug-16 | 08-Aug-16 | 6 | 13 | 30-Nov-16 | 14-Dec-16 | -2 | 0% | | | | |
| 01121.12600 | HUH Area C2 - Excavate to final level (Core stone : 1770m3) | | | 09-Aug-16 | 30-Sep-16 | 45 | 27 | 15-Dec-16 | 18-Jan-17 | -2 | 0% | | | | |
| 01121.12610 | HUH Area C2 - Final Leveling and preparation for Blinding Layer | | | 03-Oct-16 | 14-Oct-16 | 10 | 10 | 19-Jan-17 | 02-Feb-17 | -2 | 0% | | | | |
| Cost centre D - Immersed Tunnels | | | | | | | | | | | | | | | |
| Immersed Tunnel Units Fabrication (DRP Rev.0a) | | | | | | | | | | | | | | | |
| IMT Fabrication Recovery Programme | | | | | | | | | | | | | | | |
| Typical Bay Base Slab Construction | | | | | | | | | | | | | | | |
| Typical Base Formwork Set 2 | | | | | | | | | | | | | | | |
| A62922 | E9 - Base B5 (timber formwork) | | | | | 0 | 0 | 31-Aug-16 A | 07-Oct-16 A | | 100% | | | | |
| Typical Bay Wall & Roof Construction | | | | | | | | | | | | | | | |
| Typical Top Formwork Set 1 | | | | | | | | | | | | | | | |
| IMT E6 | | | | | | | | | | | | | | | |
| A10860-41 | E6 - top B2 curing and remove steel formwork | | | | | 0 | 0 | 30-Sep-16 A | 05-Oct-16 A | | 100% | | | | |
| Typical Top Formwork Set 2 | | | | | | | | | | | | | | | |
| IMT E9 | | | | | | | | | | | | | | | |
| A63902 | E9 - top B5 (by timber formwork) | | | | | 0 | 29 | 08-Oct-16 A | 30-Nov-16 | -1 | 50% | | | | |
| Typical Top Formwork Set 3 | | | | | | | | | | | | | | | |
| IMT E1 | | | | | | | | | | | | | | | |
| A63662 | E1 - top B8 | | | | | 0 | 0 | 20-Sep-16 A | 05-Oct-16 A | | 100% | | | | |
| A63682 | E1 - top B7 | | | | | 0 | 0 | 06-Oct-16 A | 26-Oct-16 A | | 100% | | | | |
| A63702 | E1 - top B6 | | | | | 0 | 9 | 27-Oct-16 A | 07-Nov-16 | 2 | 0% | | | | |
| A63722 | E1 - top B5 | | | | | 0 | 13 | 08-Nov-16 | 22-Nov-16 | 2 | 0% | | | | |
| A63642 | E1 - top B5 curing and remove steel formwork | | | | | 0 | 20 | 23-Nov-16 | 15-Dec-16 | 2 | 0% | | | | |
| Typical Top Formwork Set 4 | | | | | | | | | | | | | | | |
| IMT E1 | | | | | | | | | | | | | | | |

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Updated 3M Rolling Programme Nov - Jan 2017
(Updated as of 20 Oct 2016)

| Date | Revision | Checked | Approved |
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| 04-Nov-16 | | Vincent Yeung | John Meclod |



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | 2017 |
|--|--|-----------|---------------|-----------|------------|-------------|-----------|-------------|-------------|-------------|---------------------|------|-----|-----|------|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan |
| A64102 | E1 - top B2 | | | | | 0 | 0 | 26-Sep-16 A | 12-Oct-16 A | | 100% | | | | |
| A64122 | E1 - top B3 | | | | | 0 | 0 | 13-Oct-16 A | 28-Oct-16 A | | 100% | | | | |
| A64142 | E1 - top B4 | | | | | 0 | 14 | 28-Oct-16 | 12-Nov-16 | 10 | 0% | | | | |
| A64082 | E1 - top B4 curing and remove steel formwork | | | | | 0 | 20 | 14-Nov-16 | 06-Dec-16 | 10 | 0% | | | | |
| System Formwork for E5 & E7 | | | | | | | | | | | | | | | |
| IMT E7 | | | | | | | | | | | | | | | |
| A66022 | E7 - roof B2 (system fwk 1) | | | | | 0 | 9 | 19-Sep-16 A | 07-Nov-16 | 23 | 90% | | | | |
| A63342 | E7 - W&R B7 (steel fwk) | | | | | 0 | 0 | 28-Sep-16 A | 14-Oct-16 A | | 100% | | | | |
| A66002 | E7 - roof B3 (system fwk 1) | | | | | 0 | 0 | 29-Sep-16 A | 08-Nov-16 | 1542 | 0% | | | | |
| A66042 | E7 - shift wall system formwork to E5B4 | | | | | 0 | 0 | 29-Sep-16 A | 05-Oct-16 A | | 100% | | | | |
| A63362 | E7 - W&R B6 (steel fwk) | | | | | 0 | 7 | 15-Oct-16 A | 04-Nov-16 | 11 | 50% | | | | |
| A63382 | E7 - W&R B5 (steel fwk) | | | | | 0 | 14 | 05-Nov-16 | 21-Nov-16 | 11 | 0% | | | | |
| A66062 | E7 - shift roof system formwork to E5B4 | | | | | 0 | 4 | 08-Nov-16 | 11-Nov-16 | 23 | 0% | | | | |
| A63402 | E7 - W&R B4 (steel fwk) | | | | | 0 | 14 | 22-Nov-16 | 07-Dec-16 | 11 | 0% | | | | |
| IMT E5 | | | | | | | | | | | | | | | |
| A63182 | E5 - top B5 | | | | | 0 | 9 | 17-Sep-16 A | 07-Nov-16 | -1 | 60% | | | | |
| A63201 | E5 - wall B6 (system fwk 2) (W3&4) | | | | | 0 | 0 | 23-Sep-16 A | 06-Oct-16 A | | 100% | | | | |
| A63202 | E5 - wall B6 (system fwk 2) (W1&2) | | | | | 0 | 0 | 07-Oct-16 A | 17-Oct-16 A | | 100% | | | | |
| A63221 | E5 - wall B7 (system fwk 2) (W3&4) | | | | | 0 | 0 | 07-Oct-16 A | 17-Oct-16 A | | 100% | | | | |
| A63222 | E5 - wall B7 (system fwk 2) (W1&2) | | | | | 0 | 0 | 18-Oct-16 A | 24-Oct-16 A | | 100% | | | | |
| A63241 | E5 - wall B8 (system fwk 2) (W3&4) | | | | | 0 | 0 | 18-Oct-16 A | 29-Oct-16 A | | 100% | | | | |
| A63082 | E5 - roof slab B6 | | | | | 0 | 20 | 28-Oct-16 | 19-Nov-16 | 1194 | 0% | | | | |
| A63242 | E5 - wall B8 (system fwk 2) (W1&2) | | | | | 0 | 12 | 08-Nov-16 | 21-Nov-16 | 1205 | 0% | | | | |
| A63262 | E5 - top B4 | | | | | 0 | 14 | 08-Nov-16 | 23-Nov-16 | -1 | 0% | | | | |
| A63102 | E5 - roof slab B7 | | | | | 0 | 12 | 21-Nov-16 | 03-Dec-16 | 1194 | 0% | | | | |
| A63282 | E5 - top B3 | | | | | 0 | 14 | 24-Nov-16 | 09-Dec-16 | -1 | 0% | | | | |
| A63122 | E5 - roof slab B8 | | | | | 0 | 12 | 05-Dec-16 | 17-Dec-16 | 1194 | 0% | | | | |
| A57070 | E5 - top B2 | | | | | 0 | 12 | 10-Dec-16 | 23-Dec-16 | -1 | 0% | | | | |
| End Bay Construction | | | | | | | | | | | | | | | |
| End Bay Base Constructon | | | | | | | | | | | | | | | |
| IMT E6 End Bay Base | | | | | | | | | | | | | | | |
| A65082 | E6 - end bay base B1 | | | | | 0 | 10 | 29-Sep-16 A | 08-Nov-16 | 7 | 45% | | | | |
| IMT E9 End Bay Base | | | | | | | | | | | | | | | |
| A65262 | E9 - end bay base B9 | | | | | 0 | 0 | 24-Sep-16 A | 24-Oct-16 A | | 100% | | | | |
| A65282 | E9 - short bay base B1.1 | | | | | 0 | 15 | 28-Oct-16 | 14-Nov-16 | -8 | 0% | | | | |

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|---|---|-----------|---------------|-----------|------------|-------------|-----------|-------------|-------------|-------------|---------------------|------|-----|-----|------|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan |
| IMT E10 End Bay Base | | | | | | | | | | | | | | | |
| A65622 | E10 - end bay base B9 | | | | | 0 | 9 | 13-Oct-16 A | 07-Nov-16 | 3 | 45% | | | | |
| IMT E11 End Bay Base | | | | | | | | | | | | | | | |
| A65702 | E11 - short bay base B1.1 | | | | | 0 | 12 | 28-Oct-16 A | 10-Nov-16 | -9 | 0% | | | | |
| IMT E3 End Bay Base | | | | | | | | | | | | | | | |
| A65542 | E3 - end bay base B9 | | | | | 0 | 8 | 28-Oct-16 | 05-Nov-16 | 8 | 0% | | | | |
| IMT E1 End Bay Base | | | | | | | | | | | | | | | |
| A65802 | E1 - end bay base B1 | | | | | 0 | 13 | 20-Oct-16 A | 11-Nov-16 | 8 | 14% | | | | |
| A65782 | E1 - end bay base B9 | | | | | 0 | 13 | 22-Oct-16 A | 11-Nov-16 | 1 | 14% | | | | |
| IMT E7 End Bay Base | | | | | | | | | | | | | | | |
| A13635 | E7 - end bay base B1 | | | | | 0 | 8 | 29-Sep-16 A | 05-Nov-16 | 6 | 50% | | | | |
| A65942 | E7 - end bay base B9 | | | | | 0 | 8 | 24-Oct-16 A | 05-Nov-16 | 10 | 25% | | | | |
| IMT E5 End Bay Base | | | | | | | | | | | | | | | |
| A65882 | E5 - end bay base B9 | | | | | 0 | 7 | 21-Oct-16 A | 04-Nov-16 | 10 | 100% | | | | |
| A65862 | E5 - end bay base B1 | | | | | 0 | 8 | 22-Oct-16 A | 05-Nov-16 | 5 | 30% | | | | |
| End Bay Wall & Roof Construction | | | | | | | | | | | | | | | |
| IMT E6 Wall & Roof | | | | | | | | | | | | | | | |
| A64362 | E6 - erect collar frame at E6B1 | | | | | 0 | 6 | 09-Nov-16 | 15-Nov-16 | 7 | 0% | | | | |
| A64322 | E6 - end bay top B1 | | | | | 0 | 29 | 16-Nov-16 | 19-Dec-16 | 7 | 0% | | | | |
| IMT E9 Wall & Roof | | | | | | | | | | | | | | | |
| A64462 | E9 - end bay top B1 | | | | | 0 | 0 | 27-Aug-16 A | 26-Oct-16 A | | 100% | | | | |
| A64522 | E9 - erect collar frame at E9B9 | | | | | 0 | 6 | 28-Oct-16 | 03-Nov-16 | 10 | 0% | | | | |
| A64482 | E9 - end bay top B9 | | | | | 0 | 26 | 04-Nov-16 | 03-Dec-16 | 10 | 0% | | | | |
| A64562 | E9 - erect collar frame at E9 short bay | | | | | 0 | 6 | 15-Nov-16 | 21-Nov-16 | -8 | 0% | | | | |
| A64502 | E9 - short bay top B1.1 | | | | | 0 | 33 | 22-Nov-16 | 31-Dec-16 | -8 | 0% | | | | |
| IMT E2 Wall & Roof | | | | | | | | | | | | | | | |
| A64662 | E2 - end bay top B1 | | | | | 0 | 0 | 14-Sep-16 A | 01-Nov-16 A | | 100% | | | | |
| IMT E10 Wall & Roof | | | | | | | | | | | | | | | |
| A64902 | E10 - end bay top B1 | | | | | 0 | 0 | 31-Aug-16 A | 22-Oct-16 A | | 100% | | | | |
| A64922 | E10 - end bay top B9 | | | | | 0 | 30 | 08-Nov-16 | 12-Dec-16 | 3 | 0% | | | | |
| IMT E11 Wall & Roof | | | | | | | | | | | | | | | |
| A64982 | E11 - end bay top B7 | | | | | 0 | 0 | 03-Aug-16 A | 08-Oct-16 A | | 100% | | | | |
| A64962 | E11 - end bay top B1 | | | | | 0 | 0 | 29-Aug-16 A | 04-Oct-16 A | | 100% | | | | |
| A65042 | E11 - erect collar frame at E11 short bay | | | | | 0 | 6 | 11-Nov-16 | 17-Nov-16 | -9 | 0% | | | | |
| A65002 | E11 - short bay top | | | | | 0 | 36 | 18-Nov-16 | 31-Dec-16 | -9 | 0% | | | | |

Data Date: 28-Oct-16

- ◆ Current Milestone
- ◆ Baseline Milestone (PMP Rev. 1a)
- Actual Work
- Critical Remaining Work
- Remaining Work
- Baseline (PMP Rev.1a)
- Remaining Level of Effort
- 3M Rolling Prog (last month)

Updated 3M Rolling Programme Nov - Jan 2017
(Updated as of 20 Oct 2016)

| Date | Revision | Checked | Approved |
|-----------|----------|---------------|--------------|
| 04-Nov-16 | | Vincent Yeung | John MeCleod |



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | 2017 |
|--|--|-----------|---------------|-----------|------------|-------------|-----------|-------------|-----------|-------------|---------------------|------|-----|-----|------|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan |
| IMT E3 Wall & Roof | | | | | | | | | | | | | | | |
| A64742 | E3 - end bay top B1 | | | | | 0 | 38 | 19-Oct-16 A | 10-Dec-16 | 8 | | | | | |
| A64802 | E3 - erect collar frame at E3B9 | | | | | 0 | 6 | 07-Nov-16 | 12-Nov-16 | 8 | 0% | | | | |
| A64762 | E3 - end bay top B9 | | | | | 0 | 24 | 14-Nov-16 | 10-Dec-16 | 8 | 0% | | | | |
| IMT E1 Wall & Roof | | | | | | | | | | | | | | | |
| A64842 | E1 - erect collar frame at E1B9 | | | | | 0 | 6 | 12-Nov-16 | 18-Nov-16 | 1 | 0% | | | | |
| A64882 | E1 - erect collar frame at E1B1 | | | | | 0 | 6 | 12-Nov-16 | 18-Nov-16 | 8 | 0% | | | | |
| A64822 | E1 - end bay top B9 | | | | | 0 | 24 | 19-Nov-16 | 16-Dec-16 | 1 | 0% | | | | |
| A64862 | E1 - end bay top B1 | | | | | 0 | 23 | 19-Nov-16 | 15-Dec-16 | 8 | 0% | | | | |
| IMT E7 Wall & Roof | | | | | | | | | | | | | | | |
| A64262 | E7 - erect collar frame at E7B1 | | | | | 0 | 6 | 07-Nov-16 | 12-Nov-16 | 6 | 0% | | | | |
| A64282 | E7 - erect collar frame at E7B9 | | | | | 0 | 6 | 07-Nov-16 | 12-Nov-16 | 10 | 0% | | | | |
| A64242 | E7 - end bay top B9 | | | | | 0 | 26 | 14-Nov-16 | 13-Dec-16 | 10 | 0% | | | | |
| A64302 | E7 - end bay top B1 | | | | | 0 | 26 | 14-Nov-16 | 13-Dec-16 | 6 | 0% | | | | |
| IMT E5 Wall & Roof | | | | | | | | | | | | | | | |
| A64182 | E5 - erect collar frame at E5B9 | | | | | 0 | 6 | 05-Nov-16 | 11-Nov-16 | 10 | 0% | | | | |
| A64202 | E5 - erect collar frame at E5B1 | | | | | 0 | 6 | 07-Nov-16 | 12-Nov-16 | 5 | 0% | | | | |
| A64222 | E5 - end bay top B9 | | | | | 0 | 27 | 12-Nov-16 | 13-Dec-16 | 10 | 0% | | | | |
| A64162 | E5 - end bay top B1 | | | | | 0 | 31 | 14-Nov-16 | 19-Dec-16 | 5 | 0% | | | | |
| IMT Fitting Works-1 | | | | | | | | | | | | | | | |
| IMT E1 | | | | | | | | | | | | | | | |
| A58242 | E1 - Typical Bays completed | | | | | 0 | 0 | | 15-Dec-16 | 2 | 0% | | | | |
| A58202 | E1 - 1st end bays completed (E1B9) | | | | | 0 | 0 | | 16-Dec-16 | 1 | 0% | | | | |
| A58222 | E1 - 2nd end bays completed (E1B1) | | | | | 0 | 0 | | 16-Dec-16 | 7 | 0% | | | | |
| Works Start after 1st End Bay Completed | | | | | | | | | | | | | | | |
| A58262 | E1 - curing and remove formwork (1st end bay) | | | | | 0 | 8 | 17-Dec-16 | 28-Dec-16 | 1 | 0% | | | | |
| A58282 | E1 - install temporary lighting & support for temp vent duct & complete concrete repairing | | | | | 0 | 7 | 17-Dec-16 | 24-Dec-16 | 2 | 0% | | | | |
| A58382 | E1 - apply waterproofing (1st bay to 9th bay) | | | | | 0 | 16 | 28-Dec-16 | 16-Jan-17 | 2 | 0% | | | | |
| A58302 | E1 - install ballast tank at VD | | | | | 0 | 6 | 29-Dec-16 | 05-Jan-17 | 1 | 0% | | | | |
| A58322 | E1 - construct ballast concrete at DT | | | | | 0 | 6 | 29-Dec-16 | 05-Jan-17 | 1 | 0% | | | | |
| A58342 | E1 - install ballast tank at DT | | | | | 0 | 6 | 06-Jan-17 | 12-Jan-17 | 1 | 0% | | | | |
| A58362 | E1 - construct ballast concrete at UT | | | | | 0 | 6 | 06-Jan-17 | 12-Jan-17 | 1 | 0% | | | | |
| A58442 | E1 - install Gina plate and grouting (1st end bay) | | | | | 0 | 6 | 13-Jan-17 | 19-Jan-17 | 1 | 0% | | | | |
| A58402 | E1 - install corner fender (1st bay to 9th bay) | | | | | 0 | 10 | 17-Jan-17 | 27-Jan-17 | 2 | 0% | | | | |
| A58422 | E1 - install bulkhead (1st end bay) | | | | | 0 | 6 | 20-Jan-17 | 26-Jan-17 | 16 | 0% | | | | |

Data Date: 28-Oct-16

- ◆ Current Milestone
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- Actual Work
- Critical Remaining Work
- Remaining Work
- Baseline (PMP Rev.1a)
- Remaining Level of Effort
- 3M Rolling Prog (last month)

Updated 3M Rolling Programme Nov - Jan 2017
(Updated as of 20 Oct 2016)

| Date | Revision | Checked | Approved |
|-----------|----------|---------------|--------------|
| 04-Nov-16 | | Vincent Yeung | John MeCleod |



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | 2017 |
|--|--|-----------|---------------|-----------|------------|-------------|-----------|-------------|-----------|-------------|---------------------|------|-----|-----|------|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan |
| Works Start after 2nd End Bay Completed | | | | | | | | | | | | | | | |
| A58522 | E1 - curing and remove formwork (2nd end bay) | | | | | 0 | 34 | 17-Dec-16 | 01-Feb-17 | 1 | | | | | |
| A58502 | E1 - erect temp working platform, stressing and grout | | | | | 0 | 12 | 29-Dec-16 | 12-Jan-17 | 7 | 0% | | | | |
| A58562 | E1 - install Gina plate and grout (2nd end bay) | | | | | 0 | 8 | 20-Jan-17 | 01-Feb-17 | 1 | 0% | | | | |
| IMT E2 | | | | | | | | | | | | | | | |
| A58602 | E2 - 2nd end bays completed (B1) | | | | | 0 | 51 | 18-Jul-16 A | 28-Dec-16 | 40 | | | | | |
| Works Start after 1st End Bay Completed | | | | | | | | | | | | | | | |
| A58642 | E2 - install ballast tank at VD | | | | | 0 | 36 | 18-Jul-16 A | 08-Dec-16 | 55 | | | | | |
| A58682 | E2 - install ballast tank at DT | | | | | 0 | 14 | 18-Jul-16 A | 12-Nov-16 | 65 | 80% | | | | |
| A58782 | E2 - install Gina plate and grouting (B9) | | | | | 0 | 14 | 01-Aug-16 A | 12-Nov-16 | 65 | 80% | | | | |
| A58702 | E2 - install Gina plate and grouting (B9) | | | | | 0 | 6 | 19-Sep-16 A | 19-Nov-16 | 65 | 0% | | | | |
| A58702 | E2 - construct ballast concrete at UT | | | | | 0 | 12 | 28-Oct-16 | 10-Nov-16 | 67 | 0% | | | | |
| A58722 | E2 - apply waterproofing (1st bay to 8th bay) | | | | | 0 | 20 | 28-Oct-16 | 19-Nov-16 | 40 | 0% | | | | |
| A58742 | E2 - install corner fender (1st bay to 8th bay) | | | | | 0 | 10 | 21-Nov-16 | 01-Dec-16 | 40 | 0% | | | | |
| A58762 | E2 - install bulkhead (1st end bay) | | | | | 0 | 6 | 21-Nov-16 | 26-Nov-16 | 65 | 0% | | | | |
| A58822 | E2 - pour protective screeding (1st bay to 8th bay) | | | | | 0 | 6 | 02-Dec-16 | 08-Dec-16 | 40 | 0% | | | | |
| Works Start after 2nd End Bay Completed | | | | | | | | | | | | | | | |
| A58862 | E2 - curing and remove formwork (2nd end bay) | | | | | 0 | 51 | 28-Oct-16 | 28-Dec-16 | 40 | | | | | |
| A58862 | E2 - curing and remove formwork (2nd end bay) | | | | | 0 | 8 | 28-Oct-16 | 05-Nov-16 | 42 | 0% | | | | |
| A58842 | E2 - erect temp working platform, stressing and grout | | | | | 0 | 12 | 07-Nov-16 | 19-Nov-16 | 42 | 0% | | | | |
| A58902 | E2 - install Gina plate and grout (2nd end bay) | | | | | 0 | 8 | 21-Nov-16 | 29-Nov-16 | 42 | 0% | | | | |
| A58882 | E2 - install bulkhead (2nd end bay) | | | | | 0 | 6 | 30-Nov-16 | 06-Dec-16 | 42 | 0% | | | | |
| A58922 | E2 - final waterproofing (2nd end bay) | | | | | 0 | 4 | 09-Dec-16 | 13-Dec-16 | 40 | 0% | | | | |
| A58942 | E2 - install remaining corner fender and protective screeding (2nd end bay) | | | | | 0 | 4 | 14-Dec-16 | 17-Dec-16 | 40 | 0% | | | | |
| A58962 | E2 - install gina gasket and protection at end bay 9 | | | | | 0 | 7 | 19-Dec-16 | 28-Dec-16 | 40 | 0% | | | | |
| IMT E3 | | | | | | | | | | | | | | | |
| A58982 | E3 - 1st end bays completed (E3B1) | | | | | 0 | 67 | 07-Nov-16 | 27-Jan-17 | 15 | | | | | |
| A58982 | E3 - 1st end bays completed (E3B1) | | | | | 0 | 0 | | 07-Nov-16 | 23 | 0% | | | | |
| A59002 | E3 - 2nd end bays completed (E3B9) | | | | | 0 | 0 | | 10-Dec-16 | 8 | 0% | | | | |
| Works Start after 1st End Bay Completed | | | | | | | | | | | | | | | |
| A59022 | E3 - install temporary lighting & support for temp vent duct & complete concrete repairing | | | | | 0 | 42 | 08-Nov-16 | 28-Dec-16 | 40 | | | | | |
| A59022 | E3 - install temporary lighting & support for temp vent duct & complete concrete repairing | | | | | 0 | 18 | 08-Nov-16 | 28-Nov-16 | 23 | 0% | | | | |
| A59202 | E3 - curing and remove formwork (1st end bay) | | | | | 0 | 8 | 08-Nov-16 | 16-Nov-16 | 50 | 0% | | | | |
| A59042 | E3 - install ballast tank at VD | | | | | 0 | 6 | 29-Nov-16 | 05-Dec-16 | 40 | 0% | | | | |
| A59062 | E3 - construct ballast concrete at DT | | | | | 0 | 6 | 29-Nov-16 | 05-Dec-16 | 40 | 0% | | | | |
| A59122 | E3 - apply waterproofing (1st bay to 8th bay) | | | | | 0 | 14 | 29-Nov-16 | 14-Dec-16 | 23 | 0% | | | | |
| A59082 | E3 - install ballast tank at DT | | | | | 0 | 6 | 06-Dec-16 | 12-Dec-16 | 40 | 0% | | | | |
| A59102 | E3 - construct ballast concrete at UT | | | | | 0 | 6 | 06-Dec-16 | 12-Dec-16 | 40 | 0% | | | | |
| A59182 | E3 - install Gina plate and grouting (1st end bay) | | | | | 0 | 6 | 13-Dec-16 | 19-Dec-16 | 40 | 0% | | | | |

Data Date: 28-Oct-16

- ◆ Current Milestone
- ◆ Baseline Milestone (PMP Rev. 1a)
- Actual Work
- Critical Remaining Work
- Remaining Work
- Baseline (PMP Rev.1a)
- Remaining Level of Effort
- 3M Rolling Prog (last month)

Updated 3M Rolling Programme Nov - Jan 2017
(Updated as of 20 Oct 2016)

| Date | Revision | Checked | Approved |
|-----------|----------|---------------|-------------|
| 04-Nov-16 | | Vincent Yeung | John Meclod |



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | | 2017 |
|--|--|-----------|---------------|-----------|------------|-------------|-----------|-------------|-----------|-------------|---------------------|------|-----|-----|-----|------|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan | Feb |
| A59142 | E3 - install corner fender (1st bay to 8th bay) | | | | | 0 | 10 | 15-Dec-16 | 28-Dec-16 | 23 | 0% | | | | | |
| A59162 | E3 - install bulkhead (1st end bay) | | | | | 0 | 6 | 20-Dec-16 | 28-Dec-16 | 40 | 0% | | | | | |
| Works Start after 2nd End Bay Completed | | | | | | | | | | | | | | | | |
| A59262 | E3 - curing and remove formwork (2nd end bay) | | | | | 0 | 8 | 12-Dec-16 | 20-Dec-16 | 8 | 0% | | | | | |
| A59222 | E3 - erect temp working platform, stressing and grout | | | | | 0 | 12 | 21-Dec-16 | 06-Jan-17 | 8 | 0% | | | | | |
| A59242 | E3 - pour protective screeding (1st bay to 8th bay) | | | | | 0 | 6 | 07-Jan-17 | 13-Jan-17 | 16 | 0% | | | | | |
| A59302 | E3 - install Gina plate and grout (2nd end bay) | | | | | 0 | 8 | 07-Jan-17 | 16-Jan-17 | 8 | 0% | | | | | |
| A59282 | E3 - install bulkhead (2nd end bay) | | | | | 0 | 6 | 17-Jan-17 | 23-Jan-17 | 8 | 0% | | | | | |
| A59322 | E3 - install remaining corner fender and protective screeding (2nd end bay) | | | | | 0 | 4 | 24-Jan-17 | 27-Jan-17 | 8 | 0% | | | | | |
| IMT E4 | | | | | | | | | | | | | | | | |
| Works Start after 1st End Bay Completed | | | | | | | | | | | | | | | | |
| A59422 | E4 - install ballast tank at VD | | | | | 0 | 11 | 01-Aug-16 A | 09-Nov-16 | 71 | 45% | | | | | |
| A59462 | E4 - install ballast tank at DT | | | | | 0 | 11 | 01-Aug-16 A | 09-Nov-16 | 71 | 45% | | | | | |
| A59562 | E4 - install Gina plate and grouting (B1) | | | | | 0 | 3 | 26-Sep-16 A | 12-Nov-16 | 71 | 0% | | | | | |
| A59502 | E4 - apply waterproofing (1st bay to 8th bay) | | | | | 0 | 20 | 28-Oct-16 | 19-Nov-16 | 42 | 0% | | | | | |
| A59542 | E4 - install bulkhead (1st end bay) | | | | | 0 | 6 | 14-Nov-16 | 19-Nov-16 | 71 | 0% | | | | | |
| A59522 | E4 - install corner fender (1st bay to 8th bay) | | | | | 0 | 10 | 21-Nov-16 | 01-Dec-16 | 42 | 0% | | | | | |
| Works Start after 2nd End Bay Completed | | | | | | | | | | | | | | | | |
| A59642 | E4 - curing and remove formwork (2nd end bay) | | | | | 0 | 8 | 26-Sep-16 A | 05-Nov-16 | 38 | 0% | | | | | |
| A59682 | E4 - install Gina plate and grout (2nd end bay) | | | | | 0 | 8 | 03-Oct-16 A | 29-Nov-16 | 38 | 0% | | | | | |
| A59602 | E4 - erect temp working platform, stressing and grout | | | | | 0 | 12 | 07-Nov-16 | 19-Nov-16 | 38 | 0% | | | | | |
| A59662 | E4 - install bulkhead (2nd end bay) | | | | | 0 | 6 | 30-Nov-16 | 06-Dec-16 | 38 | 0% | | | | | |
| A59622 | E4 - pour protective screeding (1st bay to 8th bay) | | | | | 0 | 12 | 07-Dec-16 | 20-Dec-16 | 38 | 0% | | | | | |
| A59702 | E4 - install gina gasket and protection at end bay 9 | | | | | 0 | 7 | 21-Dec-16 | 30-Dec-16 | 38 | 0% | | | | | |
| IMT E5 | | | | | | | | | | | | | | | | |
| A52675 | E5 - 1st end bays completed (E5B9) | | | | | 0 | 0 | | 13-Dec-16 | 10 | 0% | | | | | |
| A59722 | E5 - 2nd end bays completed (E5B1) | | | | | 0 | 0 | | 19-Dec-16 | 5 | 0% | | | | | |
| A59742 | E5 - Typical Bay completed | | | | | 0 | 0 | | 23-Dec-16 | -1 | 0% | | | | | |
| Works Start after 1st End Bay Completed | | | | | | | | | | | | | | | | |
| A59922 | E5 - curing and remove formwork (1st end bay) | | | | | 0 | 8 | 24-Dec-16 | 05-Jan-17 | 3 | 0% | | | | | |
| A59962 | E5 - install temporary lighting & support for temp vent duct & complete concrete repairing | | | | | 0 | 12 | 24-Dec-16 | 10-Jan-17 | -1 | 0% | | | | | |
| A59982 | E5 - install ballast tank at VD | | | | | 0 | 6 | 11-Jan-17 | 17-Jan-17 | -1 | 0% | | | | | |
| A60002 | E5 - construct ballast concrete at DT | | | | | 0 | 6 | 11-Jan-17 | 17-Jan-17 | -1 | 0% | | | | | |
| A60062 | E5 - apply waterproofing (1st bay to 9th bay) | | | | | 0 | 14 | 11-Jan-17 | 26-Jan-17 | -1 | 0% | | | | | |
| A60022 | E5 - install ballast tank at DT | | | | | 0 | 6 | 18-Jan-17 | 24-Jan-17 | -1 | 0% | | | | | |

Data Date: 28-Oct-16

- ◆ Current Milestone
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- Actual Work
- Critical Remaining Work
- Remaining Work
- Baseline (PMP Rev.1a)
- Remaining Level of Effort
- 3M Rolling Prog (last month)

Updated 3M Rolling Programme Nov - Jan 2017
(Updated as of 20 Oct 2016)

| Date | Revision | Checked | Approved |
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| 04-Nov-16 | | Vincent Yeung | John MeCleod |



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | 2017 | |
|--|--|-----------|---------------|-----------|------------|-------------|-----------|-------------|-------------|-------------|---------------------|------|-----|-----|------|-----|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan | Feb |
| A60042 | E5 - construct ballast concrete at UT | | | | | 0 | 6 | 18-Jan-17 | 24-Jan-17 | -1 | 0% | | | | | |
| A59902 | E5 - install Gina plate and grouting (1st end bay) | | | | | 0 | 6 | 25-Jan-17 | 03-Feb-17 | -1 | 0% | | | | | |
| A59862 | E5 - install corner fender (1st bay to 9th bay) | | | | | 0 | 12 | 27-Jan-17 | 13-Feb-17 | -1 | 0% | | | | | |
| Works Start after 2nd End Bay Completed | | | | | | | | | | | | | | | | |
| A59782 | E5 - curing and remove formwork (2nd end bay) | | | | | 0 | 8 | 24-Dec-16 | 05-Jan-17 | 1 | 0% | | | | | |
| A59762 | E5 - erect temp working platform, stressing and grout | | | | | 0 | 12 | 06-Jan-17 | 19-Jan-17 | 1 | 0% | | | | | |
| A59822 | E5 - install Gina plate and grout (2nd end bay) | | | | | 0 | 8 | 20-Jan-17 | 01-Feb-17 | 1 | 0% | | | | | |
| IMT E6 | | | | | | | | | | | | | | | | |
| A60122 | E6 - 2nd end bays completed (B1) | | | | | 0 | 0 | | 19-Dec-16 | 7 | 0% | | | | | |
| Works Start after 1st End Bay Completed | | | | | | | | | | | | | | | | |
| A60202 | E6 - curing and remove formwork (1st end bay) | | | | | 0 | 0 | 24-Sep-16 A | 04-Oct-16 A | | 100% | | | | | |
| A60182 | E6 - install Gina plate and grouting (B9) | | | | | 0 | 6 | 08-Oct-16 A | 08-Dec-16 | 42 | 0% | | | | | |
| A60242 | E6 - install temporary lighting & support for temp vent duct & complete concrete repairing | | | | | 0 | 18 | 28-Oct-16 | 17-Nov-16 | 35 | 0% | | | | | |
| A60262 | E6 - install ballast tank at VD | | | | | 0 | 6 | 18-Nov-16 | 24-Nov-16 | 42 | 0% | | | | | |
| A60282 | E6 - construct ballast concrete at DT | | | | | 0 | 6 | 18-Nov-16 | 24-Nov-16 | 42 | 0% | | | | | |
| A60342 | E6 - apply waterproofing (1st bay to 8th bay) | | | | | 0 | 14 | 18-Nov-16 | 03-Dec-16 | 35 | 0% | | | | | |
| A60302 | E6 - install ballast tank at DT | | | | | 0 | 6 | 25-Nov-16 | 01-Dec-16 | 42 | 0% | | | | | |
| A60322 | E6 - construct ballast concrete at UT | | | | | 0 | 6 | 25-Nov-16 | 01-Dec-16 | 42 | 0% | | | | | |
| A60142 | E6 - install corner fender (1st bay to 8th bay) | | | | | 0 | 10 | 05-Dec-16 | 15-Dec-16 | 35 | 0% | | | | | |
| A60162 | E6 - install bulkhead (1st end bay) | | | | | 0 | 6 | 09-Dec-16 | 15-Dec-16 | 42 | 0% | | | | | |
| A60222 | E6 - install gina gasket and protection at end bay 9 | | | | | 0 | 7 | 16-Dec-16 | 23-Dec-16 | 42 | 0% | | | | | |
| Works Start after 2nd End Bay Completed | | | | | | | | | | | | | | | | |
| A60402 | E6 - curing and remove formwork (2nd end bay) | | | | | 0 | 5 | 20-Dec-16 | 24-Dec-16 | 7 | 0% | | | | | |
| A60362 | E6 - erect temp working platform, stressing and grout | | | | | 0 | 12 | 28-Dec-16 | 11-Jan-17 | 7 | 0% | | | | | |
| A60382 | E6 - pour protective screeding (1st bay to 8th bay) | | | | | 0 | 6 | 12-Jan-17 | 18-Jan-17 | 15 | 0% | | | | | |
| A60442 | E6 - install Gina plate and grout (2nd end bay) | | | | | 0 | 8 | 12-Jan-17 | 20-Jan-17 | 7 | 0% | | | | | |
| A60422 | E6 - install bulkhead (2nd end bay) | | | | | 0 | 6 | 21-Jan-17 | 27-Jan-17 | 7 | 0% | | | | | |
| IMT E7 | | | | | | | | | | | | | | | | |
| A60522 | E7 - typical bays completed | | | | | 0 | 0 | | 07-Dec-16 | 11 | 0% | | | | | |
| A60502 | E7 - 1st end bays completed (B1) | | | | | 0 | 0 | | 13-Dec-16 | 6 | 0% | | | | | |
| A60542 | E7 - 2nd end bays completed (B9) | | | | | 0 | 0 | | 13-Dec-16 | 10 | 0% | | | | | |
| Works Start after 1st End Bay Completed | | | | | | | | | | | | | | | | |
| A60762 | E7 - curing and remove formwork (1st end bay) | | | | | 0 | 8 | 14-Dec-16 | 22-Dec-16 | 6 | 0% | | | | | |
| A60622 | E7 - install temporary lighting & support for temp vent duct & complete concrete repairing | | | | | 0 | 12 | 23-Dec-16 | 09-Jan-17 | 6 | 0% | | | | | |
| A60722 | E7 - apply waterproofing (1st bay to 9th bay) | | | | | 0 | 14 | 23-Dec-16 | 11-Jan-17 | 8 | 0% | | | | | |

Data Date: 28-Oct-16

- ◆ Current Milestone
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- Actual Work
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- Remaining Work
- Baseline (PMP Rev.1a)
- Remaining Level of Effort
- 3M Rolling Prog (last month)

Updated 3M Rolling Programme Nov - Jan 2017
(Updated as of 20 Oct 2016)

| Date | Revision | Checked | Approved |
|-----------|----------|---------------|--------------|
| 04-Nov-16 | | Vincent Yeung | John MeCleod |



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | 2017 | |
|--|--|-----------|---------------|-----------|------------|-------------|-----------|-------------|-----------|-------------|---------------------|------|-----|-----|------|-----|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan | Feb |
| A60642 | E7 - install ballast tank at VD | | | | | 0 | 6 | 10-Jan-17 | 16-Jan-17 | 6 | 0% | | | | | |
| A60662 | E7 - construct ballast concrete at DT | | | | | 0 | 6 | 10-Jan-17 | 16-Jan-17 | 6 | 0% | | | | | |
| A60562 | E7 - install corner fender (1st bay to 9th bay) | | | | | 0 | 14 | 12-Jan-17 | 27-Jan-17 | 8 | 0% | | | | | |
| A60682 | E7 - install ballast tank at DT | | | | | 0 | 6 | 17-Jan-17 | 23-Jan-17 | 6 | 0% | | | | | |
| A60702 | E7 - construct ballast concrete at UT | | | | | 0 | 6 | 17-Jan-17 | 23-Jan-17 | 6 | 0% | | | | | |
| A60602 | E7 - install Gina plate and grouting (1st end bay) | | | | | 0 | 6 | 24-Jan-17 | 02-Feb-17 | 6 | 0% | | | | | |
| Works Start after 2nd End Bay Completed | | | | | | 0 | 41 | 14-Dec-16 | 06-Feb-17 | 10 | | | | | | |
| A60822 | E7 - curing and remove formwork (2nd end bay) | | | | | 0 | 8 | 14-Dec-16 | 22-Dec-16 | 10 | 0% | | | | | |
| A60802 | E7 - erect temp working platform, stressing and grout | | | | | 0 | 12 | 23-Dec-16 | 09-Jan-17 | 10 | 0% | | | | | |
| A60862 | E7 - install Gina plate and grout (2nd end bay) | | | | | 0 | 8 | 10-Jan-17 | 18-Jan-17 | 10 | 0% | | | | | |
| A60842 | E7 - install bulkhead (2nd end bay) | | | | | 0 | 6 | 19-Jan-17 | 25-Jan-17 | 10 | 0% | | | | | |
| A60782 | E7 - install gina gasket and protection (at bay 9) | | | | | 0 | 7 | 26-Jan-17 | 06-Feb-17 | 10 | 0% | | | | | |
| IMT E8 | | | | | | 0 | 67 | 28-Jun-16 A | 17-Jan-17 | 24 | | | | | | |
| Works Start after 1st End Bay Completed | | | | | | 0 | 60 | 28-Jun-16 A | 09-Jan-17 | 31 | | | | | | |
| A60982 | E8 - install ballast tank at DT | | | | | 0 | 10 | 28-Jun-16 A | 19-Nov-16 | 24 | 85% | | | | | |
| A60942 | E8 - install ballast tank at VD | | | | | 0 | 10 | 04-Jul-16 A | 08-Nov-16 | 24 | 85% | | | | | |
| A61082 | E8 - install End plate and grouting (1st end bay) (B1) | | | | | 0 | 6 | 07-Sep-16 A | 26-Nov-16 | 59 | 0% | | | | | |
| A61022 | E8 - apply waterproofing (1st bay to 8th bay) | | | | | 0 | 18 | 17-Oct-16 A | 10-Dec-16 | 24 | 25% | | | | | |
| A61062 | E8 - install bulkhead (1st end bay) | | | | | 0 | 6 | 28-Nov-16 | 03-Dec-16 | 59 | 0% | | | | | |
| A61042 | E8 - install corner fender (1st bay to 8th bay) | | | | | 0 | 10 | 12-Dec-16 | 22-Dec-16 | 24 | 0% | | | | | |
| A61122 | E8 - pour protective screeding (1st bay to 8th bay) | | | | | 0 | 12 | 23-Dec-16 | 09-Jan-17 | 24 | 0% | | | | | |
| Works Start after 2nd End Bay Completed | | | | | | 0 | 67 | 24-Sep-16 A | 17-Jan-17 | 24 | | | | | | |
| A61142 | E8 - erect temp working platform, stressing and grout | | | | | 0 | 2 | 24-Sep-16 A | 29-Oct-16 | 68 | 90% | | | | | |
| A61202 | E8 - install Gina plate and grout (2nd end bay) (B9) | | | | | 0 | 8 | 31-Oct-16 | 08-Nov-16 | 68 | 0% | | | | | |
| A61182 | E8 - install bulkhead (2nd end bay) | | | | | 0 | 6 | 09-Nov-16 | 15-Nov-16 | 68 | 0% | | | | | |
| A61222 | E8 - install gina gasket and protection at end bay 9 | | | | | 0 | 7 | 10-Jan-17 | 17-Jan-17 | 24 | 0% | | | | | |
| IMT E9 | | | | | | 0 | 78 | 28-Oct-16 | 02-Feb-17 | 13 | | | | | | |
| A61242 | E9 - 1st end bays completed (B1) | | | | | 0 | 0 | | 28-Oct-16 | 28 | 0% | | | | | |
| A61262 | E9 - Typical bays and end bays completed (except short bay) | | | | | 0 | 0 | | 30-Nov-16 | -1 | 0% | | | | | |
| A61282 | E9 - 2nd end bays completed (B9) | | | | | 0 | 0 | | 03-Dec-16 | 10 | 0% | | | | | |
| A55325 | E9 - short bay completed | | | | | 0 | 0 | | 31-Dec-16 | -8 | 0% | | | | | |
| Works Start after 1st End Bay Completed | | | | | | 0 | 42 | 01-Dec-16 | 21-Jan-17 | 20 | | | | | | |
| A61442 | E9 - install temporary lighting & support for temp vent duct & complete concrete repairing | | | | | 0 | 18 | 01-Dec-16 | 21-Dec-16 | -1 | 0% | | | | | |
| A61622 | E9 - curing and remove formwork (1st end bay) | | | | | 0 | 8 | 01-Dec-16 | 09-Dec-16 | 30 | 0% | | | | | |
| A61462 | E9 - install ballast tank at VD | | | | | 0 | 6 | 22-Dec-16 | 30-Dec-16 | 20 | 0% | | | | | |

Data Date: 28-Oct-16

- ◆ Current Milestone
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- Actual Work
- Critical Remaining Work
- Remaining Work
- Baseline (PMP Rev.1a)
- Remaining Level of Effort
- 3M Rolling Prog (last month)

Updated 3M Rolling Programme Nov - Jan 2017
(Updated as of 20 Oct 2016)

| Date | Revision | Checked | Approved |
|-----------|----------|---------------|--------------|
| 04-Nov-16 | | Vincent Yeung | John MeCleod |



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | | 2017 | |
|--|---|-----------|---------------|-----------|------------|-------------|-----------|-------------|-------------|-------------|---------------------|------|-----|-----|-----|------|-----|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan | Feb | Mar |
| A61482 | E9 - construct ballast concrete at DT | | | | | 0 | 6 | 22-Dec-16 | 30-Dec-16 | 20 | 0% | | | | | | |
| A61542 | E9 - apply waterproofing (1st bay to 8th bay) | | | | | 0 | 14 | 22-Dec-16 | 10-Jan-17 | -1 | 0% | | | | | | |
| A61502 | E9 - install ballast tank at DT | | | | | 0 | 6 | 31-Dec-16 | 07-Jan-17 | 20 | 0% | | | | | | |
| A61522 | E9 - construct ballast concrete at UT | | | | | 0 | 6 | 31-Dec-16 | 07-Jan-17 | 20 | 0% | | | | | | |
| A61602 | E9 - install Gina plate and grouting (1st end bay) | | | | | 0 | 6 | 09-Jan-17 | 14-Jan-17 | 20 | 0% | | | | | | |
| A61562 | E9 - install corner fender (1st bay to 8th bay) | | | | | 0 | 10 | 11-Jan-17 | 21-Jan-17 | -1 | 0% | | | | | | |
| A61582 | E9 - install bulkhead (1st end bay) | | | | | 0 | 6 | 16-Jan-17 | 21-Jan-17 | 20 | 0% | | | | | | |
| Works Start after 2nd End Bay Completed | | | | | | 0 | 45 | 05-Dec-16 | 01-Feb-17 | -1 | | | | | | | |
| A61682 | E9 - curing and remove formwork (2nd end bay) | | | | | 0 | 8 | 05-Dec-16 | 13-Dec-16 | 10 | 0% | | | | | | |
| A61642 | E9 - erect temp working platform, stressing and grout | | | | | 0 | 12 | 14-Dec-16 | 29-Dec-16 | 10 | 0% | | | | | | |
| A61722 | E9 - install Gina plate and grout (2nd end bay) | | | | | 0 | 8 | 30-Dec-16 | 09-Jan-17 | 10 | 0% | | | | | | |
| A61702 | E9 - install bulkhead (2nd end bay) | | | | | 0 | 6 | 10-Jan-17 | 16-Jan-17 | 10 | 0% | | | | | | |
| A61662 | E9 - pour protective screeding (1st bay to 8th bay) | | | | | 0 | 6 | 23-Jan-17 | 01-Feb-17 | -1 | 0% | | | | | | |
| Works at Short Bay | | | | | | 0 | 24 | 31-Dec-16 | 02-Feb-17 | -8 | | | | | | | |
| A61302 | E9 - short bay completed | | | | | 0 | 0 | | 31-Dec-16 | -8 | 0% | | | | | | |
| A61322 | E9 - short bay - curing and remove formwork & concrete remedial works | | | | | 0 | 12 | 03-Jan-17 | 16-Jan-17 | -8 | 0% | | | | | | |
| A61422 | E9 - short bay - waterproofing works at short bay | | | | | 0 | 12 | 10-Jan-17 | 23-Jan-17 | -8 | 0% | | | | | | |
| A61342 | E9 - short bay - install bulkhead | | | | | 0 | 6 | 24-Jan-17 | 02-Feb-17 | -8 | 0% | | | | | | |
| IMT E10 | | | | | | 0 | 77 | 22-Oct-16 A | 01-Feb-17 | 14 | | | | | | | |
| A61782 | E10 - 1st end bays completed (B1) | | | | | 0 | 0 | | 22-Oct-16 A | | 100% | | | | | | |
| A61802 | E10 - 2nd end bays completed (B9) | | | | | 0 | 0 | | 12-Dec-16 | 3 | 0% | | | | | | |
| Works Start after 1st End Bay Completed | | | | | | 0 | 42 | 28-Oct-16 | 15-Dec-16 | 49 | | | | | | | |
| A61822 | E10 - install temporary lighting & support for temp vent duct & complete concrete repairing | | | | | 0 | 18 | 28-Oct-16 | 17-Nov-16 | 28 | 0% | | | | | | |
| A62002 | E10 - curing and remove formwork (1st end bay) | | | | | 0 | 8 | 28-Oct-16 | 05-Nov-16 | 59 | 0% | | | | | | |
| A61842 | E10 - install ballast tank at VD | | | | | 0 | 6 | 18-Nov-16 | 24-Nov-16 | 49 | 0% | | | | | | |
| A61862 | E10 - construct ballast concrete at DT | | | | | 0 | 6 | 18-Nov-16 | 24-Nov-16 | 49 | 0% | | | | | | |
| A61922 | E10 - apply waterproofing (1st bay to 8th bay) | | | | | 0 | 14 | 18-Nov-16 | 03-Dec-16 | 28 | 0% | | | | | | |
| A61882 | E10 - install ballast tank at DT | | | | | 0 | 6 | 25-Nov-16 | 01-Dec-16 | 49 | 0% | | | | | | |
| A61902 | E10 - construct ballast concrete at UT | | | | | 0 | 6 | 25-Nov-16 | 01-Dec-16 | 49 | 0% | | | | | | |
| A61982 | E10 - install Gina plate and grouting (1st end bay) | | | | | 0 | 6 | 02-Dec-16 | 08-Dec-16 | 49 | 0% | | | | | | |
| A61942 | E10 - install corner fender (1st bay to 8th bay) | | | | | 0 | 10 | 05-Dec-16 | 15-Dec-16 | 28 | 0% | | | | | | |
| A61962 | E10 - install bulkhead (1st end bay) | | | | | 0 | 6 | 09-Dec-16 | 15-Dec-16 | 49 | 0% | | | | | | |
| Works Start after 2nd End Bay Completed | | | | | | 0 | 38 | 13-Dec-16 | 01-Feb-17 | 3 | | | | | | | |
| A62062 | E10 - curing and remove formwork (2nd end bay) | | | | | 0 | 8 | 13-Dec-16 | 21-Dec-16 | 3 | 0% | | | | | | |
| A62022 | E10 - erect temp working platform, stressing and grout | | | | | 0 | 12 | 22-Dec-16 | 07-Jan-17 | 3 | 0% | | | | | | |

Data Date: 28-Oct-16

- ◆ Current Milestone
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- Remaining Work
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- Remaining Level of Effort
- 3M Rolling Prog (last month)

Updated 3M Rolling Programme Nov - Jan 2017
(Updated as of 20 Oct 2016)

| Date | Revision | Checked | Approved |
|-----------|----------|---------------|-------------|
| 04-Nov-16 | | Vincent Yeung | John Meclod |



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | 2017 | |
|--|---|-----------|---------------|-----------|------------|-------------|-----------|-------------|-------------|-------------|---------------------|------|-----|-----|------|-----|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan | Feb |
| A62042 | E10 - pour protective screeding (1st bay to 8th bay) | | | | | 0 | 6 | 09-Jan-17 | 14-Jan-17 | 11 | 0% | | | | | |
| A62102 | E10 - install Gina plate and grout (2nd end bay) | | | | | 0 | 8 | 09-Jan-17 | 17-Jan-17 | 3 | 0% | | | | | |
| A62082 | E10 - install bulkhead (2nd end bay) | | | | | 0 | 6 | 18-Jan-17 | 24-Jan-17 | 3 | 0% | | | | | |
| A62122 | E10 - final waterproofing (2nd end bay) | | | | | 0 | 4 | 25-Jan-17 | 01-Feb-17 | 3 | 0% | | | | | |
| IMT E11 | | | | | | | | | | | | | | | | |
| A62202 | E11 - 2nd end bays completed (E11B1) | | | | | 0 | 0 | | 04-Oct-16 A | | 100% | | | | | |
| A62182 | E11 - 1st end bays completed (E11B7) | | | | | 0 | 0 | | 08-Oct-16 A | | 100% | | | | | |
| A56580 | E11 - Short bay completed | | | | | 0 | 0 | | 31-Dec-16 | -9 | 0% | | | | | |
| Works Start after 1st End Bay Completed | | | | | | | | | | | | | | | | |
| A62482 | E11 - install end plate and grouting (1st end bay) (B1) | | | | | 0 | 12 | 19-Oct-16 A | 09-Jan-17 | 19 | 0% | | | | | |
| A62322 | E11 - install temporary lighting & support for temp vent duct & complete concrete repairing | | | | | 0 | 24 | 28-Oct-16 | 24-Nov-16 | 12 | 0% | | | | | |
| A62502 | E11 - curing and remove formwork (1st end bay) | | | | | 0 | 8 | 28-Oct-16 | 05-Nov-16 | 35 | 0% | | | | | |
| A62342 | E11 - install ballast tank at VD | | | | | 0 | 12 | 25-Nov-16 | 08-Dec-16 | 19 | 0% | | | | | |
| A62362 | E11 - construct ballast concrete at DT | | | | | 0 | 12 | 25-Nov-16 | 08-Dec-16 | 19 | 0% | | | | | |
| A62422 | E11 - apply waterproofing (1st bay to 8th bay) | | | | | 0 | 20 | 25-Nov-16 | 17-Dec-16 | 12 | 0% | | | | | |
| A62382 | E11 - install ballast tank at DT | | | | | 0 | 12 | 09-Dec-16 | 22-Dec-16 | 19 | 0% | | | | | |
| A62402 | E11 - construct ballast concrete at UT | | | | | 0 | 12 | 09-Dec-16 | 22-Dec-16 | 19 | 0% | | | | | |
| A62442 | E11 - install corner fender (1st bay to 8th bay) | | | | | 0 | 10 | 19-Dec-16 | 31-Dec-16 | 12 | 0% | | | | | |
| A62462 | E11 - install bulkhead (1st end bay) | | | | | 0 | 12 | 10-Jan-17 | 23-Jan-17 | 19 | 0% | | | | | |
| Works Start after 2nd End Bay Completed | | | | | | | | | | | | | | | | |
| A62602 | E11 - install Gina plate and grout (2nd end bay) (B7) | | | | | 0 | 8 | 20-Oct-16 A | 29-Nov-16 | 38 | 0% | | | | | |
| A62582 | E11 - curing and remove formwork (2nd end bay) | | | | | 0 | 8 | 28-Oct-16 | 05-Nov-16 | 38 | 0% | | | | | |
| A62542 | E11 - erect temp working platform, stressing and grout | | | | | 0 | 12 | 07-Nov-16 | 19-Nov-16 | 38 | 0% | | | | | |
| A62562 | E11 - pour protective screeding (1st bay to 8th bay) | | | | | 0 | 6 | 03-Jan-17 | 09-Jan-17 | 12 | 0% | | | | | |
| A62522 | E11 - install gina gasket and protection (2nd end bay) | | | | | 0 | 7 | 10-Jan-17 | 17-Jan-17 | 12 | 0% | | | | | |
| Works at Short Bay | | | | | | | | | | | | | | | | |
| A62302 | E11 - short bay - waterproofing works at short bay | | | | | 0 | 14 | 03-Jan-17 | 18-Jan-17 | -9 | 0% | | | | | |
| A62282 | E11 - short bay - install bulkhead | | | | | 0 | 6 | 19-Jan-17 | 25-Jan-17 | -9 | 0% | | | | | |
| A62242 | E11 - short bay - install Gina plate and grout | | | | | 0 | 8 | 26-Jan-17 | 07-Feb-17 | -9 | 0% | | | | | |
| IMT Marine Works in Victoria Harbour | | | | 10-Mar-16 | 06-Dec-16 | 222 | 108 | 08-Mar-15 A | 09-Mar-17 | 1443 | | | | | | |
| IMT Bulk Dredging | | | | 10-Mar-16 | 06-Dec-16 | 222 | 108 | 08-Mar-15 A | 09-Mar-17 | 1443 | | | | | | |
| 01121.22840 | IMT1 - bulk dredging (remaining) | 38,539 m3 | 70% | 02-Nov-16 | 06-Dec-16 | 30 | 9 | 08-Mar-15 A | 27-Feb-17 | 36 | 70% | | | | | |
| 01121.23430 | IMT7 - bulk dredging | 71,479 m3 | 94% | 09-Jul-16 | 15-Aug-16 | 32 | 2 | 21-Mar-16 A | 10-Nov-16 | 55 | 94% | | | | | |
| 01121.22900 | IMT3 - bulk dredging | 55,036 m3 | 15% | 10-Mar-16 | 09-Apr-16 | 23 | 20 | 29-Mar-16 A | 24-Feb-17 | 90 | 15% | | | | | |
| 01121.23410-110 | IMT6 - bulk dredging (North) | 3,254 m3 | 86% | | | 0 | 6 | 22-Apr-16 A | 08-Nov-16 | 55 | 86% | | | | | |

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- ◆ Current Milestone
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- Remaining Work
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- Remaining Level of Effort
- 3M Rolling Prog (last month)

Updated 3M Rolling Programme Nov - Jan 2017
(Updated as of 20 Oct 2016)

| Date | Revision | Checked | Approved |
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| 04-Nov-16 | | Vincent Yeung | John MeCleod |



| Activity ID | Activity Name | Total Qty | Completed Qty | BL1 Start | BL1 Finish | BL Duration | Rem. Dur. | Start | Finish | Total Float | Physical % Complete | 2016 | | | | 2017 |
|---|---|-----------|---------------|-----------|------------|-------------|-----------|-------------|-------------|-------------|---------------------|------|-----|-----|-----|------|
| | | | | | | | | | | | | Oct | Nov | Dec | Jan | Feb |
| 01121.23400 | IMT5 - bulk dredging | 49,834 m3 | 86% | 11-May-16 | 10-Jun-16 | 25 | 4 | 28-Jun-16 A | 01-Nov-16 | 55 | 86% | | | | | |
| 01121.23360 | IMT4 - bulk dredging | 46,990 m3 | 4% | 11-Apr-16 | 10-May-16 | 25 | 81 | 18-Jul-16 A | 24-Feb-17 | 118 | 4% | | | | | |
| 01121.23450-1020 | IMT9 - bulk dredging (Remaining and During Type III dredging) | 37,080m3 | | | | 0 | 108 | 28-Oct-16 | 09-Mar-17 | 1 | 0% | | | | | |
| 01121.23440 | IMT8 - bulk dredging (remaining portion) | 66,480 m3 | | 16-Aug-16 | 20-Sep-16 | 30 | 36 | 11-Nov-16 | 22-Dec-16 | 55 | 0% | | | | | |
| Type III Dredging | | | | | | 0 | 85 | 27-Oct-16 A | 24-Feb-17 | 1454 | | | | | | |
| 01121.27930 | TYPE III 1st Trial | | | | | 0 | 0 | | 27-Oct-16 A | | 100% | | | | | |
| 01121.27940 | TYPE III 2nd Trial | | | | | 0 | 0 | | 04-Nov-16 A | | 100% | | | | | |
| 01121.27950 | TYPE III 3rd Trial | | | | | 0 | 0 | | 10-Nov-16* | 12 | 0% | | | | | |
| 01121.27960 | Obtain Type III Dumping Permit | | | | | 0 | 0 | | 16-Nov-16 | 12 | 0% | | | | | |
| 01121.27970 | Type III Dredging | 12,000m3 | | | | 0 | 80 | 17-Nov-16 | 24-Feb-17 | 12 | 0% | | | | | |
| Cost Centre E - CBTS Tunnels | | | | | | 0 | 67 | 27-Sep-16 A | 17-Jan-17 | 42 | | | | | | |
| VH3C & VH3D | | | | | | 0 | 67 | 27-Sep-16 A | 17-Jan-17 | 42 | | | | | | |
| Wave Barrier Wall inside CBTS | | | | | | 0 | 67 | 27-Sep-16 A | 17-Jan-17 | 42 | | | | | | |
| 01121.12360-1230 | CBTS Stage 3B (VH3C & VH3D) - Driving Zone A Pipe pile inside CBTS (SW, S & SE 72nos.) | 72 nos. | 72 nos | | | 0 | 0 | 27-Sep-16 A | 19-Oct-16 A | | 100% | | | | | |
| 01121.12360-1240 | CBTS Stage 3B (VH3C & VH3D) - Driving Zone B Pipe pile inside CBTS (E 99nos.) | 99 nos. | 40 nos | | | 0 | 15 | 20-Oct-16 A | 14-Nov-16 | 42 | 40% | | | | | |
| 01121.12360-1235 | CBTS Stage 3B (VH3C & VH3D) - Install waling & struts and steel walkway for 72 pipe piles | | | | | 0 | 0 | 20-Oct-16 A | 03-Nov-16 | 43 | 0% | | | | | |
| 01121.12360-1250 | CBTS Stage 3C (VH3C & VH3D) - Install waling & struts and steel walkway for 99 pipe piles | | | | | 0 | 25 | 01-Nov-16 | 29-Nov-16 | 42 | 0% | | | | | |
| 01121.12360-1290 | CBTS Stage 3B (VH3C & VH3D) - Driving Zone C Pipe pile inside CBTS (W 49nos.) | 49 nos. | | | | 0 | 12 | 30-Nov-16 | 13-Dec-16 | 42 | 0% | | | | | |
| 01121.12360-1300 | CBTS Stage 3C (VH3C & VH3D) - Install waling & struts and steel walkway for 49 pipe piles | | | | | 0 | 12 | 14-Dec-16 | 29-Dec-16 | 42 | 0% | | | | | |
| 01121.12360-3000 | CBTS (breakwater) - remove pipe pile at temporary marine access [37nos. @6nos/d] | 37 nos. | | | | 0 | 15 | 30-Dec-16 | 17-Jan-17 | 42 | 0% | | | | | |
| Cost Centre F - Associated Works | | | | 19-Sep-16 | 17-Mar-17 | 180 | 141 | 19-Sep-16 A | 17-Mar-17 | 461 | | | | | | |
| 01121.15530 | F4 - Management, Maintenance and Operation of Barging Point Facility | | | 19-Sep-16 | 17-Mar-17 | 180 | 141 | 19-Sep-16 A | 17-Mar-17 | 461 | 0% | | | | | |
| Cost Centre G - RRIW | | | | 10-May-17 | 14-Jun-17 | 30 | 30 | 28-Dec-16 | 04-Feb-17 | 108 | | | | | | |
| Reprovisioning of Fender Pile | | | | 10-May-17 | 14-Jun-17 | 30 | 30 | 28-Dec-16 | 04-Feb-17 | 108 | | | | | | |
| 01121.10610 | RRIW - HUH Area B - Fender Pile - Construct Piles (10 nos.) | | | 10-May-17 | 14-Jun-17 | 30 | 30 | 28-Dec-16 | 04-Feb-17 | 108 | 0% | | | | | |

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Updated 3M Rolling Programme Nov - Jan 2017
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| Date | Revision | Checked | Approved |
|-----------|----------|---------------|--------------|
| 04-Nov-16 | | Vincent Yeung | John MeCleod |

APPENDIX B
ACTION AND LIMIT LEVELS

APPENDIX B – Action and Limit Levels**Derived Action and Limit Levels for Water Quality (Wet Season)**

| Parameters | Action Level | Limit Level |
|---|---------------------|--------------------|
| WSD Salt Water Intake (Station 14, A, WSD9, WSD17) | | |
| DO in mg/L | <2.1 | <2 |
| SS in mg/L | 6.0 | 6.0 |
| Turbidity in NTU | 4.7 | 6.5 |
| Cooling Water Intake (Station 8, 9, 21 & 34) | | |
| DO in mg/L | 2.8 | 2.7 |
| SS in mg/L | 6.9 | 9.1 |
| Turbidity in NTU | 11.3 | 17.2 |
| GB3 | | |
| DO in mg/L | 5.5 | 5.3 |
| SS in mg/L | 4.5 | 4.5 |
| Turbidity in NTU | 2.1 | 2.4 |

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Derived Action and Limit Levels for Water Quality (Dry Season)

| Parameters | Action Level | Limit Level |
|---|--------------|-------------|
| WSD Salt Water Intake (Station 14, A, WSD9, WSD17) | | |
| DO in mg/L | <2.1 | <2 |
| SS in mg/L | 6.9 | 6.9 |
| Turbidity in NTU | 5.0 | 7.0 |
| Cooling Water Intake (Station 8, 9, 21 & 34) | | |
| DO in mg/L | 3.3 | 3.2 |
| SS in mg/L | 8.0 | 10.4 |
| Turbidity in NTU | 12.2 | 18.5 |
| GB3 | | |
| DO in mg/L | 6.8 | 6.5 |
| SS in mg/L | 9.3 | 9.3 |
| Turbidity in NTU | 5.0 | 5.6 |

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

**APPENDIX C
WATER QUALITY MONITORING
SCHEDULE**

Shatin to Central Link - Contract No. 1121
NSL Cross Harbour Tunnels
Water Quality Monitoring Schedule (October 2016)

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---------------|---------------------------------------|---------------------------------|---------------------------------|-----------------------------------|--|------------------------------------|
| | | | | | | 1-Oct |
| | | | | | | |
| 2-Oct | 3-Oct | 4-Oct | 5-Oct | 6-Oct | 7-Oct | 8-Oct |
| | | Mid-Flood 8:16 Mid-Ebb 14:15 | | Mid-Flood 9:40 Mid-Ebb * 15:24 | | Mid-Flood 11:56 Mid-Ebb * 16:56 |
| 9-Oct | 10-Oct | 11-Oct | 12-Oct | 13-Oct | 14-Oct | 15-Oct |
| | | Mid-Ebb 7:58 Mid-Flood 15:46 | | Mid-Ebb 9:48 Mid-Flood 16:46 | | Mid-Ebb 11:27 Mid-Flood 17:47 |
| 16-Oct | 17-Oct | 18-Oct | 19-Oct | 20-Oct | 21-Oct | 22-Oct |
| | Mid-Ebb 12:58 Mid-Flood Cancelled# | | Mid-Flood 8:40 Mid-Ebb 14:29 | | Mid-Flood Cancelled# Mid-Ebb * Cancelled# | Mid-Flood 12:08 Mid-Ebb * 17:18 |
| 23-Oct | 24-Oct | 25-Oct | 26-Oct | 27-Oct | 28-Oct | 29-Oct |
| | Mid-Ebb 7:29 Mid-Flood 14:57 | | Mid-Ebb 9:31 Mid-Flood 16:14 | | Mid-Ebb 11:00 Mid-Flood 17:11 | |
| 30-Oct | 31-Oct | | | | | |
| | Mid-Ebb 12:45 Mid-Flood 18:25 | | | | | |

Water Quality Monitoring Stations

C1, C2, 9, 21, 34, A, WSD9, WSD17

* indicates that the tidal range of individual flood or ebb tide is less than 0.5m

Remark: 1) Reference was made to the tidal information of Hong Kong Observatory (Quarry Bay Station)

2) The reasons for choosing the monitoring day (i.e 6, 8 and 21 October 2016) in which the tidal ranges are less than 0.5m include:

a) The tidal range of less than 0.5m occurs for 2 or more consecutive days

b) In compliance with the requirement of (i) three days per week at mid-ebb and mid-flood tide and (ii) the interval between two sets of monitoring not less than 36 hours

Water Quality Monitoring was cancelled due to adverse weather

- 17/10/16 (mid-flood): Strong Wind Signal No. 3

- 21/10/16: Typhoon Signal No. 8

Shatin to Central Link - Contract No. 1121
NSL Cross Harbour Tunnels
Tentative Water Quality Monitoring Schedule (November 2016)

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---------------|----------------------------------|------------------------------------|------------------------------------|---------------------------------|-----------------------------------|----------------------------------|
| | | 1-Nov | 2-Nov | 3-Nov | 4-Nov | 5-Nov |
| | | | Mid-Flood 8:06 Mid-Ebb 13:49 | | Mid-Flood 9:30 Mid-Ebb * 14:55 | |
| 6-Nov | 7-Nov | 8-Nov | 9-Nov | 10-Nov | 11-Nov | 12-Nov |
| | | Mid-Flood 14:07 Mid-Ebb * 19:38 | | Mid-Ebb 8:13 Mid-Flood 15:23 | | Mid-Ebb 10:12 Mid-Flood 16:33 |
| 13-Nov | 14-Nov | 15-Nov | 16-Nov | 17-Nov | 18-Nov | 19-Nov |
| | Mid-Ebb 11:52 Mid-Flood 17:48 | | Mid-Flood 7:44 Mid-Ebb 13:27 | | Mid-Flood 9:39 Mid-Ebb * 15:08 | |
| 20-Nov | 21-Nov | 22-Nov | 23-Nov | 24-Nov | 25-Nov | 26-Nov |
| | | Mid-Ebb 6:42 Mid-Flood 14:01 | | Mid-Ebb 8:53 Mid-Flood 15:27 | | Mid-Ebb 10:29 Mid-Flood 16:29 |
| 27-Nov | 28-Nov | 29-Nov | 30-Nov | | | |
| | Mid-Ebb 11:45 Mid-Flood 17:18 | | Mid-Ebb * 12:54 Mid-Flood 18:08 | | | |

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Water Quality Monitoring Stations

C1, C2, 9, 21, 34, A, WSD9, WSD17

* indicates that the tidal range of individual flood or ebb tide is less than 0.5m

Remark: 1) Reference was made to the tidal information of Hong Kong Observatory (Quarry Bay Station)

2) The reasons for choosing the monitoring day (i.e 4, 8, 18 and 30 November 2016) in which the tidal ranges are less than 0.5m include:

a) The tidal range of less than 0.5m occurs for 2 or more consecutive days

b) In compliance with the requirement of (i) three days per week at mid-ebb and mid-flood tide and (ii) the interval between two sets of monitoring not less than 36 hours

**APPENDIX D
WATER QUALITY MONITORING RESULTS
AND GRAPHICAL PRESENTATIONS**

Water Quality Monitoring Results at 21 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|-------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|-----|-----|--|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* | | |
| 4-Oct-16 | Fine | Rough | 14:46 | Surface | 1 | 28.2 | 28.2 | 8.2 | 8.2 | 25.9 | 25.8 | 91.9 | 91.7 | 6.2 | 6.2 | 6.1 | 4.2 | 4.2 | 6.0 | 3 | 3.5 | 4.5 | | |
| | | | | | | 28.2 | | 8.2 | | 25.7 | | 91.4 | | 6.2 | | | 4.1 | | | 4 | | | 4 | |
| | | | | Middle | 3.5 | 27.7 | 27.6 | 8.1 | 8.2 | 26.6 | 26.6 | 91.5 | 91.2 | 6.2 | 6.2 | | 6.5 | 6.6 | | 6.6 | 4 | | 4.0 | |
| | | 27.5 | | 8.2 | | 26.5 | | 90.9 | | 6.2 | | 6.6 | | 7.0 | 7.1 | 6 | 6.0 | | | | | | | |
| | | 27.4 | 27.6 | 8.1 | 8.1 | 27.1 | 27.2 | 85.5 | 85.6 | 5.8 | 5.8 | 5.8 | 5.8 | 7.1 | 7.1 | 6 | 6.0 | | | | | | | |
| | | 27.7 | | 8.1 | | 27.3 | | 85.7 | | 5.8 | | 5.8 | | 7.1 | | 6 | | | | | | | | |
| 6-Oct-16 | Sunny | Moderate | 15:54 | Surface | 1 | 28.8 | 28.8 | 8.0 | 8.0 | 28.9 | 29.0 | 78.5 | 78.5 | 5.2 | 5.2 | 5.2 | 4.9 | 4.9 | 5.0 | 3 | 3.0 | 3.0 | | |
| | | | | | | 28.8 | | 8.0 | | 28.7 | | 78.5 | | 5.2 | | | 4.8 | | | 3 | | | 3 | |
| | | | | Middle | 3.5 | 28.8 | 28.8 | 8.0 | 8.0 | 29.2 | 29.0 | 78.9 | 78.7 | 5.2 | 5.2 | | 4.8 | 4.8 | | 3 | 3.0 | | | |
| | | 28.8 | | 8.0 | | 29.2 | | 78.9 | | 5.2 | | 5.2 | | 5.1 | 5.2 | 3 | 3.0 | | | | | | | |
| | | 28.7 | 28.7 | 7.9 | 7.9 | 29.9 | 30.0 | 78.9 | 79.0 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 3 | 3.0 | | | | | | | |
| | | 28.7 | | 7.9 | | 30.0 | | 79.1 | | 5.2 | | 5.2 | | 5.2 | | 3 | | | | | | | | |
| 8-Oct-16 | Cloudy | Moderate | 17:27 | Surface | 1 | 28.6 | 28.7 | 7.8 | 7.8 | 33.3 | 33.3 | 88.4 | 88.6 | 5.7 | 5.7 | 5.7 | 2.1 | 2.2 | 2.2 | 3 | 3.0 | 4.3 | | |
| | | | | | | 28.8 | | 7.8 | | 33.3 | | 88.7 | | 5.7 | | | 2.2 | | | 3 | | | 3 | |
| | | | | Middle | 3.5 | 28.5 | 28.4 | 7.9 | 7.9 | 34.0 | 34.0 | 88.4 | 88.2 | 5.7 | 5.7 | | 2.3 | 2.3 | | 5 | 4.5 | | | |
| | | 28.2 | | 7.9 | | 33.9 | | 87.9 | | 5.7 | | 5.7 | | 2.3 | | 4 | | 4 | | | | | | |
| | | 28.2 | 28.2 | 7.9 | 7.9 | 34.2 | 34.2 | 88.2 | 88.2 | 5.7 | 5.7 | 5.7 | 5.7 | 2.2 | 2.2 | 5 | 5.5 | | | | | | | |
| | | 28.2 | | 7.9 | | 34.2 | | 88.2 | | 5.7 | | 5.7 | | 2.2 | | 6 | | | | | | | | |
| 11-Oct-16 | Sunny | Rough | 08:21 | Surface | 1 | 28.2 | 28.2 | 8.0 | 8.1 | 32.8 | 32.7 | 96.6 | 96.8 | 6.3 | 6.3 | 6.2 | 2.3 | 2.5 | 3.4 | 4 | 4.0 | 5.0 | | |
| | | | | | | 28.2 | | 8.1 | | 32.6 | | 97.0 | | 6.3 | | | 2.7 | | | 4 | | | 4 | |
| | | | | Middle | 3.5 | 27.8 | 28.0 | 8.1 | 8.1 | 33.1 | 33.1 | 95.1 | 94.9 | 6.2 | 6.2 | | 3.4 | 3.5 | | 5 | 4.5 | | | |
| | | 28.1 | | 8.1 | | 33.1 | | 94.7 | | 6.2 | | 6.2 | | 3.6 | | 4 | | 4 | | | | | | |
| | | 27.9 | 27.9 | 8.2 | 8.2 | 33.4 | 33.4 | 94.0 | 94.3 | 6.1 | 6.2 | 6.1 | 6.2 | 4.2 | 4.2 | 6 | 6.5 | | | | | | | |
| | | 27.8 | | 8.1 | | 33.4 | | 94.5 | | 6.2 | | 6.2 | | 4.2 | | 7 | | | | | | | | |
| 13-Oct-16 | Sunny | Moderate | 10:21 | Surface | 1 | 28.5 | 28.5 | 8.0 | 8.0 | 33.1 | 33.1 | 88.9 | 88.9 | 5.7 | 5.7 | 5.7 | 3.4 | 3.4 | 4.0 | 4 | 4.0 | 5.5 | | |
| | | | | | | 28.5 | | 8.0 | | 33.1 | | 88.9 | | 5.7 | | | 3.4 | | | 4 | | | 4 | |
| | | | | Middle | 3.5 | 28.4 | 28.4 | 8.1 | 8.1 | 33.1 | 33.2 | 87.2 | 87.2 | 5.6 | 5.6 | | 4.4 | 4.5 | | 3 | 3.5 | | | |
| | | 28.3 | | 8.1 | | 33.3 | | 87.1 | | 5.6 | | 5.6 | | 4.5 | | 4 | | 4 | | | | | | |
| | | 28.1 | 28.1 | 8.1 | 8.1 | 33.4 | 33.4 | 87.8 | 87.8 | 5.7 | 5.7 | 5.7 | 5.7 | 4.1 | 4.2 | 9 | 9.0 | | | | | | | |
| | | 28.1 | | 8.1 | | 33.4 | | 87.8 | | 5.7 | | 5.7 | | 4.3 | | 9 | | | | | | | | |
| 15-Oct-16 | Sunny | Moderate | 11:54 | Surface | 1 | 28.2 | 28.2 | 8.2 | 8.2 | 32.1 | 32.2 | 87.1 | 87.3 | 5.7 | 5.7 | 5.7 | 4.1 | 4.0 | 3.4 | 3 | 3.0 | 3.5 | | |
| | | | | | | 28.2 | | 8.2 | | 32.2 | | 87.4 | | 5.7 | | | 3.9 | | | 3 | | | 3 | |
| | | | | Middle | 3.5 | 28.1 | 28.1 | 8.2 | 8.2 | 32.6 | 32.6 | 88.0 | 88.1 | 5.7 | 5.7 | | 2.4 | 2.5 | | 4 | 4.5 | | | |
| | | 28.1 | | 8.2 | | 32.6 | | 88.1 | | 5.7 | | 5.7 | | 2.5 | | 5 | | 5 | | | | | | |
| | | 27.9 | 27.9 | 8.2 | 8.2 | 33.0 | 33.1 | 88.1 | 88.2 | 5.8 | 5.8 | 5.8 | 5.8 | 3.8 | 3.8 | 3 | 3.0 | | | | | | | |
| | | 27.8 | | 8.2 | | 33.1 | | 88.2 | | 5.8 | | 5.8 | | 3.7 | | 3 | | | | | | | | |
| 17-Oct-16 | Cloudy | Rough | 13:28 | Surface | 1 | 27.9 | 27.9 | 8.4 | 8.4 | 33.5 | 33.5 | 96.4 | 96.4 | 6.3 | 6.3 | 6.3 | 3.2 | 3.2 | 3.6 | 4 | 4.0 | 3.7 | | |
| | | | | | | 27.9 | | 8.4 | | 33.5 | | 96.4 | | 6.3 | | | 3.2 | | | 4 | | | 4 | |
| | | | | Middle | 3.5 | 27.8 | 27.8 | 8.4 | 8.4 | 33.3 | 33.4 | 95.9 | 96.0 | 6.3 | 6.3 | | 3.7 | 3.8 | | 4 | 4.0 | | | |
| | | 27.8 | | 8.4 | | 33.4 | | 96.1 | | 6.3 | | 6.3 | | 3.9 | | 4 | | 4 | | | | | | |
| | | 27.8 | 27.8 | 8.4 | 8.4 | 33.2 | 33.2 | 95.9 | 95.9 | 6.3 | 6.3 | 6.3 | 6.3 | 3.7 | 3.7 | 3 | 3.0 | | | | | | | |
| | | 27.8 | | 8.4 | | 33.1 | | 95.8 | | 6.3 | | 6.3 | | 3.6 | | 3 | | | | | | | | |
| 19-Oct-16 | Rainy | Rough | 14:43 | Surface | 1 | 27.9 | 27.9 | 7.8 | 7.9 | 31.1 | 31.1 | 91.9 | 92.2 | 6.1 | 6.1 | 6.0 | 2.3 | 2.4 | 2.4 | 6 | 5.5 | 5.8 | | |
| | | | | | | 27.8 | | 7.9 | | 31.1 | | 92.5 | | 6.1 | | | 2.4 | | | 5 | | | 5 | |
| | | | | Middle | 3.5 | 27.8 | 27.8 | 7.8 | 7.8 | 31.3 | 31.3 | 91.1 | 91.2 | 6.0 | 6.0 | | 2.5 | 2.5 | | 6 | 6.0 | | | |
| | | 27.8 | | 7.7 | | 31.3 | | 91.2 | | 6.0 | | 6.0 | | 2.5 | | 6 | | 6 | | | | | | |
| | | 27.7 | 27.7 | 7.9 | 7.9 | 31.3 | 31.3 | 90.5 | 90.4 | 6.0 | 6.0 | 6.0 | 6.0 | 2.3 | 2.3 | 6 | 6.0 | | | | | | | |
| | | 27.6 | | 7.9 | | 31.2 | | 90.3 | | 6.0 | | 6.0 | | 2.3 | | 6 | | | | | | | | |

Water Quality Monitoring Results at 21 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 22-Oct-16 | Cloudy | Rough | 17:29 | Surface | 1 | 26.5 26.6 | 26.6 | 8.1 8.1 | 8.1 | 32.6 32.6 | 32.6 | 97.7 98.1 | 97.9 | 6.5 6.6 | 6.6 | 6.5 | 4.2 4.2 | 4.2 | 5.5 | 6 5 | 5.5 | 7.5 |
| | | | | Middle | 3.5 | 25.8 26.1 | 26.0 | 8.2 8.2 | 8.2 | 33.0 32.9 | 33.0 | 96.1 96.5 | 96.3 | 6.5 6.5 | 6.5 | | 5.7 5.8 | 5.8 | | 6 6 | 6.0 | |
| | | | | Bottom | 6 | 26.1 26.0 | 26.1 | 8.2 8.3 | 8.3 | 33.5 33.4 | 33.5 | 95.3 96.4 | 95.9 | 6.4 6.5 | 6.5 | | 6.5 6.4 | 6.5 | | 11 11 | 11.0 | |
| 24-Oct-16 | Sunny | Moderate | 08:11 | Surface | 1 | 27.9 27.9 | 27.9 | 7.8 7.9 | 7.9 | 33.7 33.5 | 33.6 | 80.1 80.1 | 80.1 | 5.2 5.2 | 5.2 | 5.3 | 4.5 4.4 | 4.5 | 4.6 | 4 5 | 4.5 | 4.5 |
| | | | | Middle | 3.5 | 27.6 27.6 | 27.6 | 8.0 8.0 | 8.0 | 33.7 33.7 | 33.7 | 80.8 80.8 | 80.8 | 5.3 5.3 | 5.3 | | 4.6 4.5 | 4.6 | | 4 5 | 4.5 | |
| | | | | Bottom | 6 | 27.5 27.5 | 27.5 | 8.0 8.0 | 8.0 | 33.9 33.9 | 33.9 | 81.1 81.0 | 81.1 | 5.3 5.3 | 5.3 | | 4.6 4.6 | 4.6 | | 5 4 | 4.5 | |
| 26-Oct-16 | Sunny | Moderate | 10:11 | Surface | 1 | 27.8 27.8 | 27.8 | 7.8 7.8 | 7.8 | 33.7 33.7 | 33.7 | 80.3 79.9 | 80.1 | 5.2 5.2 | 5.2 | 5.2 | 3.2 3.2 | 3.2 | 3.9 | 4 3 | 3.5 | 4.0 |
| | | | | Middle | 3.5 | 27.7 27.7 | 27.7 | 8.0 8.0 | 8.0 | 33.9 33.9 | 33.9 | 79.0 79.1 | 79.1 | 5.2 5.2 | 5.2 | | 4.2 4.4 | 4.3 | | 3 4 | 3.5 | |
| | | | | Bottom | 6 | 27.7 27.7 | 27.7 | 8.0 8.0 | 8.0 | 34.1 34.1 | 34.1 | 78.5 78.4 | 78.5 | 5.1 5.1 | 5.1 | | 4.3 4.3 | 4.3 | | 5 5 | 5.0 | |
| 28-Oct-16 | Sunny | Moderate | 10:04 | Surface | 1 | 28.2 28.2 | 28.2 | 7.8 7.8 | 7.8 | 32.1 32.1 | 32.1 | 80.1 79.8 | 80.0 | 5.2 5.2 | 5.2 | 5.1 | 4.4 4.4 | 4.4 | 4.5 | 4 4 | 4.0 | 4.5 |
| | | | | Middle | 3.5 | 28.1 28.1 | 28.1 | 7.9 7.9 | 7.9 | 32.3 32.4 | 32.4 | 78.3 78.0 | 78.2 | 5.1 5.1 | 5.1 | | 4.3 4.3 | 4.3 | | 5 4 | 4.5 | |
| | | | | Bottom | 6 | 28.1 28.1 | 28.1 | 8.0 8.0 | 8.0 | 32.6 32.6 | 32.6 | 77.5 77.6 | 77.6 | 5.1 5.1 | 5.1 | | 4.7 4.7 | 4.7 | | 5 5 | 5.0 | |
| 31-Oct-16 | Sunny | Moderate | 15:19 | Surface | 1 | 29.0 29.0 | 29.0 | 8.0 8.0 | 8.0 | 31.8 31.7 | 31.8 | 77.3 77.0 | 77.2 | 5.0 5.0 | 5.0 | 5.0 | 6.5 6.8 | 6.7 | 6.5 | 3 4 | 3.5 | 5.0 |
| | | | | Middle | 3.5 | 28.9 28.9 | 28.9 | 8.0 8.0 | 8.0 | 31.9 31.9 | 31.9 | 77.3 77.2 | 77.3 | 5.0 5.0 | 5.0 | | 6.5 6.6 | 6.6 | | 4 5 | 4.5 | |
| | | | | Bottom | 6 | 28.8 28.8 | 28.8 | 7.9 7.9 | 7.9 | 31.8 31.8 | 31.8 | 77.6 77.7 | 77.7 | 5.0 5.0 | 5.0 | | 6.1 6.1 | 6.1 | | 7 7 | 7.0 | |

Remarks: *DA: Depth-Averaged
 **Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 21 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 4-Oct-16 | Fine | Rough | 09:02 | Surface | 1 | 28.4 28.2 | 28.3 | 8.2 8.2 | 8.2 | 25.8 26.0 | 25.9 | 92.2 92.3 | 92.3 | 6.2 6.2 | 6.2 | 6.1 | 4.5 4.0 | 4.3 | 6.6 | 7 7 | 7.0 | 6.2 |
| | | | | Middle | 3.5 | 27.7 27.9 | 27.8 | 8.2 8.2 | 8.2 | 26.5 26.7 | 26.6 | 91.8 92.2 | 92.0 | 6.2 6.2 | 6.2 | | 7.9 6.6 | 7.3 | | 5 5 | 5.0 | |
| | | | | Bottom | 6 | 27.5 27.6 | 27.6 | 8.1 8.2 | 8.2 | 27.3 27.2 | 27.3 | 86.4 85.6 | 86.0 | 5.9 5.8 | 5.9 | | 8.3 7.8 | 8.1 | | 6 7 | 6.5 | |
| 6-Oct-16 | Sunny | Moderate | 10:18 | Surface | 1 | 28.8 28.8 | 28.8 | 7.8 7.8 | 7.8 | 28.5 28.5 | 28.5 | 80.7 80.9 | 80.8 | 5.3 5.3 | 5.3 | 5.2 | 4.2 4.1 | 4.2 | 4.8 | 3 3 | 3.0 | 3.0 |
| | | | | Middle | 3.5 | 28.6 28.6 | 28.6 | 7.8 7.8 | 7.8 | 29.2 29.3 | 29.3 | 77.2 77.5 | 77.4 | 5.1 5.1 | 5.1 | | 4.2 4.2 | 4.2 | | 3 3 | 3.0 | |
| | | | | Bottom | 6 | 28.6 28.6 | 28.6 | 7.9 7.9 | 7.9 | 30.4 30.2 | 30.3 | 77.6 77.2 | 77.4 | 5.1 5.1 | 5.1 | | 5.8 5.9 | 5.9 | | 3 3 | 3.0 | |
| 8-Oct-16 | Cloudy | Moderate | 12:36 | Surface | 1 | 28.3 28.3 | 28.3 | 7.8 7.8 | 7.8 | 33.6 33.6 | 33.6 | 89.0 89.0 | 89.0 | 5.8 5.8 | 5.8 | 5.7 | 3.3 3.3 | 3.3 | 3.9 | 6 6 | 6.0 | 4.0 |
| | | | | Middle | 3.5 | 28.3 28.2 | 28.3 | 7.9 7.9 | 7.9 | 34.4 34.3 | 34.4 | 89.2 88.9 | 89.1 | 5.7 5.7 | 5.7 | | 3.6 3.6 | 3.6 | | 3 3 | 3.0 | |
| | | | | Bottom | 6 | 28.2 28.2 | 28.2 | 7.9 7.9 | 7.9 | 34.4 34.4 | 34.4 | 89.1 89.1 | 89.1 | 5.7 5.7 | 5.7 | | 4.9 4.9 | 4.9 | | 3 3 | 3.0 | |
| 11-Oct-16 | Fine | Rough | 15:56 | Surface | 1 | 27.9 28.2 | 28.1 | 8.1 8.1 | 8.1 | 33.1 33.1 | 33.1 | 98.5 99.4 | 99.0 | 6.4 6.5 | 6.5 | 6.4 | 3.0 2.8 | 2.9 | 4.1 | 4 5 | 4.5 | 4.0 |
| | | | | Middle | 3.5 | 27.5 27.7 | 27.6 | 8.2 8.1 | 8.2 | 33.6 33.4 | 33.5 | 96.1 97.8 | 97.0 | 6.3 6.4 | 6.4 | | 4.4 4.2 | 4.3 | | 4 5 | 4.5 | |
| | | | | Bottom | 6 | 27.6 27.7 | 27.7 | 8.1 8.2 | 8.2 | 34.0 33.9 | 34.0 | 96.3 96.5 | 96.4 | 6.3 6.3 | 6.3 | | 4.9 5.0 | 5.0 | | 3 3 | 3.0 | |
| 13-Oct-16 | Sunny | Moderate | 17:11 | Surface | 1 | 28.4 28.4 | 28.4 | 8.0 8.0 | 8.0 | 32.9 33.2 | 33.1 | 96.0 91.9 | 94.0 | 6.2 5.9 | 6.1 | 5.9 | 4.8 4.8 | 4.8 | 5.4 | 4 4 | 4.0 | 3.5 |
| | | | | Middle | 3.5 | 28.2 28.2 | 28.2 | 8.0 8.0 | 8.0 | 32.7 32.7 | 32.7 | 88.9 88.9 | 88.9 | 5.8 5.8 | 5.8 | | 5.9 5.9 | 5.9 | | 4 4 | 4.0 | |
| | | | | Bottom | 6 | 28.1 28.0 | 28.1 | 8.0 8.0 | 8.0 | 32.7 32.7 | 32.7 | 89.2 88.9 | 89.1 | 5.8 5.8 | 5.8 | | 5.6 5.5 | 5.6 | | <2.5 <2.5 | <2.5 | |
| 15-Oct-16 | Sunny | Moderate | 18:20 | Surface | 1 | 27.9 27.9 | 27.9 | 7.9 7.9 | 7.9 | 31.9 31.9 | 31.9 | 88.2 88.2 | 88.2 | 5.8 5.8 | 5.8 | 5.8 | 3.2 3.1 | 3.2 | 3.2 | 3 3 | 3.0 | 3.5 |
| | | | | Middle | 3.5 | 27.9 27.9 | 27.9 | 7.9 7.9 | 7.9 | 31.9 31.9 | 31.9 | 87.8 87.9 | 87.9 | 5.8 5.8 | 5.8 | | 2.2 2.3 | 2.3 | | 4 5 | 4.5 | |
| | | | | Bottom | 6 | 27.9 27.9 | 27.9 | 7.9 7.9 | 7.9 | 31.9 31.9 | 31.9 | 87.6 87.7 | 87.7 | 5.8 5.8 | 5.8 | | 3.9 4.1 | 4.0 | | 3 3 | 3.0 | |
| 19-Oct-16 | Rainy | Rough | 08:54 | Surface | 1 | 27.9 27.8 | 27.9 | 8.1 8.0 | 8.1 | 32.1 32.1 | 32.1 | 88.6 88.3 | 88.5 | 5.8 5.8 | 5.8 | 5.8 | 2.3 2.3 | 2.3 | 2.5 | 4 4 | 4.0 | 3.7 |
| | | | | Middle | 3.5 | 27.9 27.8 | 27.9 | 8.2 8.2 | 8.2 | 32.3 32.3 | 32.3 | 88.1 88.2 | 88.2 | 5.8 5.8 | 5.8 | | 2.4 2.4 | 2.4 | | 4 4 | 4.0 | |
| | | | | Bottom | 6 | 27.8 27.8 | 27.8 | 8.0 8.1 | 8.1 | 32.3 32.3 | 32.3 | 87.5 87.6 | 87.6 | 5.7 5.8 | 5.8 | | 2.9 2.9 | 2.9 | | 3 3 | 3.0 | |
| 22-Oct-16 | Cloudy | Rough | 12:24 | Surface | 1 | 25.9 26.6 | 26.3 | 8.2 8.2 | 8.2 | 32.0 31.9 | 32.0 | 93.4 96.3 | 94.9 | 6.3 6.5 | 6.4 | 6.3 | 3.3 3.5 | 3.4 | 4.0 | 6 6 | 6.0 | 7.8 |
| | | | | Middle | 3.5 | 25.8 25.9 | 25.9 | 8.3 8.2 | 8.3 | 32.4 32.2 | 32.3 | 92.7 92.8 | 92.8 | 6.3 6.3 | 6.3 | | 3.9 4.0 | 4.0 | | 8 7 | 7.5 | |
| | | | | Bottom | 6 | 25.8 25.9 | 25.9 | 8.3 8.3 | 8.3 | 32.6 32.7 | 32.7 | 92.1 91.7 | 91.9 | 6.2 6.2 | 6.2 | | 4.6 4.6 | 4.6 | | 10 10 | 10.0 | |

Water Quality Monitoring Results at 21 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|-------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 24-Oct-16 | Sunny | Moderate | 15:30 | Surface | 1 | 28.0 | 28.0 | 8.0 | 8.0 | 33.6 | 33.6 | 83.2 | 83.1 | 5.4 | 5.4 | 5.4 | 4.0 | 4.0 | 4.3 | 5 | 5.5 | 4.3 |
| | | | | | | 28.0 | | 8.0 | | 33.6 | | 83.0 | | 5.4 | | | 3.9 | | | 6 | | |
| | | | | Middle | 3.5 | 27.8 | 27.8 | 8.0 | 8.0 | 33.9 | 34.0 | 82.7 | 82.7 | 5.4 | 5.4 | | 4.2 | 4.3 | | 4 | 4.0 | |
| | | 27.8 | | 8.0 | | 34.0 | | 82.6 | | 5.4 | | 5.4 | 4.3 | | 4 | | | | | | | |
| | | 27.6 | 27.6 | 8.0 | 8.0 | 34.1 | 34.1 | 80.8 | 80.8 | 5.3 | 5.3 | 5.3 | 5.3 | 4.6 | 4.6 | 4 | 3.5 | | | | | |
| | | 27.6 | | 8.0 | | 34.1 | | 80.8 | | 5.3 | | 5.3 | 4.6 | | 3 | | | | | | | |
| 26-Oct-16 | Sunny | Moderate | 16:56 | Surface | 1 | 28.1 | 28.1 | 8.0 | 8.0 | 34.3 | 34.3 | 82.7 | 82.6 | 5.3 | 5.3 | 5.2 | 3.9 | 4.0 | 4.2 | 4 | 4.0 | 3.8 |
| | | | | | | 28.1 | | 8.0 | | 34.3 | | 82.5 | | 5.3 | | | 4.0 | | | 4 | | |
| | | | | Middle | 3.5 | 27.9 | 27.9 | 8.0 | 8.0 | 34.5 | 34.5 | 80.5 | 80.7 | 5.2 | 5.2 | | 4.1 | 4.1 | | 4 | 4.0 | |
| | | 27.9 | | 8.0 | | 34.5 | | 80.8 | | 5.2 | | 5.2 | 4.0 | | 4 | | | | | | | |
| | | 27.8 | 27.8 | 8.1 | 8.1 | 34.7 | 34.7 | 80.0 | 80.1 | 5.2 | 5.2 | 5.2 | 5.2 | 4.4 | 4.5 | 4 | 3.5 | | | | | |
| | | 27.8 | | 8.1 | | 34.7 | | 80.2 | | 5.2 | | 5.2 | 4.5 | | 3 | | | | | | | |
| 28-Oct-16 | Sunny | Moderate | 16:46 | Surface | 1 | 28.4 | 28.4 | 8.1 | 8.1 | 32.4 | 32.5 | 79.8 | 78.6 | 5.2 | 5.1 | 5.1 | 4.5 | 4.4 | 4.8 | 7 | 7.0 | 6.0 |
| | | | | | | 28.4 | | 8.1 | | 32.5 | | 77.3 | | 5.0 | | | 4.3 | | | 7 | | |
| | | | | Middle | 3.5 | 28.3 | 28.3 | 8.1 | 8.1 | 32.6 | 32.7 | 77.7 | 77.7 | 5.1 | 5.1 | | 5.0 | 4.9 | | 7 | 7.0 | |
| | | 28.3 | | 8.1 | | 32.7 | | 77.6 | | 5.0 | | 5.1 | 4.8 | | 7 | | | | | | | |
| | | 28.2 | 28.2 | 8.2 | 8.2 | 32.9 | 32.9 | 77.3 | 77.5 | 5.0 | 5.1 | 5.1 | 5.1 | 5.1 | 5.2 | 4 | 4.0 | | | | | |
| | | 28.2 | | 8.2 | | 32.8 | | 77.7 | | 5.1 | | 5.1 | 5.3 | | 4 | | | | | | | |
| 31-Oct-16 | Fine | Moderate | 18:59 | Surface | 1 | 29.4 | 29.4 | 7.7 | 7.7 | 31.1 | 31.1 | 82.2 | 82.0 | 5.3 | 5.3 | 5.2 | 2.6 | 2.5 | 4.9 | 4 | 4.5 | 5.0 |
| | | | | | | 29.3 | | 7.7 | | 31.1 | | 81.8 | | 5.3 | | | 2.4 | | | 5 | | |
| | | | | Middle | 3.5 | 29.2 | 29.2 | 7.9 | 7.9 | 31.5 | 31.5 | 79.2 | 79.1 | 5.1 | 5.1 | | 6.0 | 6.0 | | 7 | 7.0 | |
| | | 29.2 | | 7.9 | | 31.5 | | 78.9 | | 5.1 | | 5.1 | 6.0 | | 7 | | | | | | | |
| | | 29.1 | 29.1 | 7.8 | 7.8 | 31.8 | 31.9 | 78.2 | 78.3 | 5.0 | 5.1 | 5.1 | 5.1 | 6.2 | 6.2 | 4 | 3.5 | | | | | |
| | | 29.0 | | 7.8 | | 31.9 | | 78.3 | | 5.1 | | 5.1 | 6.2 | | 3 | | | | | | | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Water Quality Monitoring Results at 34 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | | | | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----------------|------------|---------|-------------------------|--------------|------------|------|--------------|--------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* | | | |
| 4-Oct-16 | Fine | Rough | 15:03 | Surface | 1 | 28.0 28.1 | 28.1 | 8.1 8.2 | 8.2 | 25.8 25.8 | 25.8 | 91.4 91.1 | 91.3 | 6.2 6.2 | 6.2 | 6.2 | 4.0 3.9 | 4.0 | 5.2 | 5 6 | 5.5 | 4.5 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | - |
| | | | | Bottom | 2.8 | 27.7 27.9 | 27.8 | 8.2 8.2 | 8.2 | 26.6 26.5 | 26.6 | 91.2 91.2 | 91.2 | 6.2 6.2 | 6.2 | | 6.2 | 6.2 | | 6.2 | 6.3 6.4 | | 6.4 | 4 3 | 3.5 |
| 6-Oct-16 | Sunny | Moderate | 16:17 | Surface | 1 | 28.7 28.7 | 28.7 | 7.9 7.9 | 7.9 | 28.6 28.6 | 28.6 | 82.0 82.0 | 82.0 | 5.4 5.4 | 5.4 | 5.4 | 4.7 4.8 | 4.8 | 4.9 | <2.5 <2.5 | <2.5 | <2.5 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.7 | 28.6 28.6 | 28.6 | 7.9 7.9 | 7.9 | 28.7 28.8 | 28.8 | 82.1 82.1 | 82.1 | 5.4 5.4 | 5.4 | | 5.4 | 5.4 | | 4.9 5.1 | 5.0 | | <2.5 <2.5 | <2.5 | |
| 8-Oct-16 | Cloudy | Moderate | 17:44 | Surface | 1 | 28.5 28.5 | 28.5 | 7.6 7.6 | 7.6 | 32.8 32.8 | 32.8 | 81.9 81.9 | 81.9 | 5.3 5.3 | 5.3 | 5.3 | 4.8 4.8 | 4.8 | 5.0 | 6 6 | 6.0 | 4.5 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.9 | 28.4 28.5 | 28.5 | 7.6 7.6 | 7.6 | 32.8 32.8 | 32.8 | 81.0 81.2 | 81.1 | 5.3 5.3 | 5.3 | | 5.3 | 5.3 | | 5.2 5.2 | 5.2 | | 3 3 | 3.0 | |
| 11-Oct-16 | Sunny | Rough | 08:38 | Surface | 1 | 28.7 28.6 | 28.7 | 8.1 8.1 | 8.1 | 32.8 32.8 | 32.8 | 97.1 96.3 | 96.7 | 6.3 6.2 | 6.3 | 6.3 | 2.6 2.7 | 2.7 | 3.5 | 7 6 | 6.5 | 5.5 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.8 | 28.1 28.2 | 28.2 | 8.2 8.1 | 8.2 | 33.0 33.1 | 33.1 | 94.9 94.1 | 94.5 | 6.2 6.1 | 6.2 | | 6.2 | 6.2 | | 4.4 4.0 | 4.2 | | 4 5 | 4.5 | |
| 13-Oct-16 | Sunny | Moderate | 10:42 | Surface | 1 | 28.3 28.3 | 28.3 | 8.1 8.1 | 8.1 | 33.7 33.6 | 33.7 | 95.9 95.5 | 95.7 | 6.2 6.2 | 6.2 | 6.2 | 5.9 5.9 | 5.9 | 5.9 | 3 3 | 3.0 | 3.0 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.8 | 28.2 28.2 | 28.2 | 8.1 8.1 | 8.1 | 33.6 33.6 | 33.6 | 94.4 94.4 | 94.4 | 6.1 6.1 | 6.1 | | 6.1 | 6.1 | | 5.8 5.8 | 5.8 | | 3 3 | 3.0 | |
| 15-Oct-16 | Sunny | Moderate | 12:13 | Surface | 1 | 28.3 28.2 | 28.3 | 8.2 8.2 | 8.2 | 31.8 31.8 | 31.8 | 90.7 90.4 | 90.6 | 5.9 5.9 | 5.9 | 5.9 | 4.3 4.4 | 4.4 | 4.8 | <2.5 <2.5 | <2.5 | 2.8 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.7 | 28.2 28.2 | 28.2 | 8.2 8.2 | 8.2 | 31.8 31.9 | 31.9 | 90.3 90.3 | 90.3 | 5.9 5.9 | 5.9 | | 5.9 | 5.9 | | 5.1 5.2 | 5.2 | | 3 3 | 3.0 | |
| 17-Oct-16 | Cloudy | Rough | 13:47 | Surface | 1 | 27.8 27.8 | 27.8 | 8.1 8.1 | 8.1 | 31.8 31.8 | 31.8 | 94.5 94.4 | 94.5 | 6.2 6.2 | 6.2 | 6.2 | 3.7 3.8 | 3.8 | 3.8 | 5 5 | 5.0 | 4.5 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.9 | 27.8 27.8 | 27.8 | 8.2 8.2 | 8.2 | 32.3 32.2 | 32.3 | 95.1 95.0 | 95.1 | 6.2 6.2 | 6.2 | | 6.2 | 6.2 | | 3.7 3.9 | 3.8 | | 4 4 | 4.0 | |
| 19-Oct-16 | Rainy | Rough | 15:01 | Surface | 1 | 28.1 28.0 | 28.1 | 7.9 7.9 | 7.9 | 30.8 30.8 | 30.8 | 88.9 88.6 | 88.8 | 5.9 5.8 | 5.9 | 5.9 | 2.9 3.0 | 3.0 | 3.2 | 4 5 | 4.5 | 4.8 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.8 | 27.9 27.8 | 27.9 | 7.9 7.9 | 7.9 | 30.9 30.9 | 30.9 | 88.2 88.2 | 88.2 | 5.8 5.8 | 5.8 | | 5.8 | 5.8 | | 3.3 3.2 | 3.3 | | 5 5 | 5.0 | |

Water Quality Monitoring Results at 34 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | | | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|-----|---|---|---|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* | | | |
| 22-Oct-16 | Cloudy | Rough | 17:49 | Surface | 1 | 26.4 26.0 | 26.2 | 8.2 8.1 | 8.2 | 32.7 32.5 | 32.6 | 97.1 95.3 | 96.2 | 6.5 6.4 | 6.5 | 6.5 | 4.4 4.6 | 4.5 | 4.9 | 6 5 | 5.5 | 6.3 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | - |
| | | | | Bottom | 3 | 26.3 25.9 | 26.1 | 8.1 8.2 | 8.2 | 32.9 32.8 | 32.9 | 95.9 94.3 | 95.1 | 6.4 6.4 | 6.4 | | 5.2 5.3 | 5.3 | | 7 7 | 7.0 | | | | |
| 24-Oct-16 | Sunny | Moderate | 08:32 | Surface | 1 | 27.4 27.4 | 27.4 | 8.1 8.1 | 8.1 | 33.4 33.4 | 33.4 | 81.2 81.2 | 81.2 | 5.3 5.3 | 5.3 | 5.3 | 5.3 5.2 | 5.3 | 5.0 | 5 5 | 5.0 | 4.5 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.7 | 27.4 27.5 | 27.5 | 8.1 8.1 | 8.1 | 33.5 33.5 | 33.5 | 81.1 80.9 | 81.0 | 5.3 5.3 | 5.3 | | 4.6 4.6 | 4.6 | | 4 4 | 4.0 | | | | |
| 26-Oct-16 | Sunny | Moderate | 10:33 | Surface | 1 | 27.6 27.6 | 27.6 | 8.1 8.1 | 8.1 | 34.1 34.0 | 34.1 | 77.9 77.9 | 77.9 | 5.1 5.1 | 5.1 | 5.1 | 4.2 4.2 | 4.2 | 4.3 | 5 5 | 5.0 | 5.0 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | | |
| | | | | Bottom | 2.7 | 27.6 27.6 | 27.6 | 8.1 8.0 | 8.1 | 34.1 34.2 | 34.2 | 78.0 78.0 | 78.0 | 5.1 5.1 | 5.1 | | 4.4 4.4 | 4.4 | | 5 5 | 5.0 | | | | |
| 28-Oct-16 | Sunny | Moderate | 10:23 | Surface | 1 | 28.0 28.0 | 28.0 | 8.0 8.0 | 8.0 | 32.8 32.9 | 32.9 | 78.1 78.1 | 78.1 | 5.1 5.1 | 5.1 | 5.1 | 3.8 3.9 | 3.9 | 4.0 | 3 3 | 3.0 | 3.0 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | | | |
| | | | | Bottom | 2.8 | 27.9 27.9 | 27.9 | 8.0 8.0 | 8.0 | 32.8 32.8 | 32.8 | 77.6 77.7 | 77.7 | 5.1 5.1 | 5.1 | | 3.9 4.0 | 4.0 | | 3 3 | 3.0 | | | | |
| 31-Oct-16 | Sunny | Moderate | 15:37 | Surface | 1 | 28.9 28.9 | 28.9 | 8.0 8.0 | 8.0 | 31.4 31.4 | 31.4 | 77.7 77.7 | 77.7 | 5.0 5.0 | 5.0 | 5.0 | 6.5 6.3 | 6.4 | 6.4 | 3 3 | 3.0 | 3.3 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | | | | | |
| | | | | Bottom | 2.6 | 28.8 28.8 | 28.8 | 8.0 8.0 | 8.0 | 31.6 31.6 | 31.6 | 77.5 77.5 | 77.5 | 5.0 5.0 | 5.0 | | 6.4 6.4 | 6.4 | | 4 3 | 3.5 | | | | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Water Quality Monitoring Results at 34 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | | | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|------|---|---|---|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* | | | |
| 4-Oct-16 | Fine | Rough | 09:18 | Surface | 1 | 28.2 28.1 | 28.2 | 8.1 8.2 | 8.2 | 25.7 25.8 | 25.8 | 92.4 92.0 | 92.2 | 6.3 6.2 | 6.3 | 6.3 | 4.8 5.5 | 5.2 | 6.3 | 7 7 | 7.0 | 6.3 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | - |
| | | | | Bottom | 2.9 | 27.9 27.8 | 27.9 | 8.2 8.3 | 8.3 | 26.7 26.6 | 26.7 | 92.0 92.0 | 92.0 | 6.2 6.2 | 6.2 | | 6.6 7.9 | 7.3 | | 6 5 | 5.5 | | | | |
| 6-Oct-16 | Sunny | Moderate | 10:40 | Surface | 1 | 28.8 28.8 | 28.8 | 7.7 7.7 | 7.7 | 28.8 28.8 | 28.8 | 81.1 81.2 | 81.2 | 5.3 5.3 | 5.3 | 5.3 | 3.9 4.0 | 4.0 | 4.2 | <2.5 <2.5 | <2.5 | 3.3 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.9 | 28.8 28.8 | 28.8 | 7.8 7.7 | 7.8 | 29.1 29.2 | 29.2 | 80.5 80.6 | 80.6 | 5.3 5.3 | 5.3 | | 4.4 4.3 | 4.4 | | 4 4 | 4.0 | | | | |
| 8-Oct-16 | Cloudy | Moderate | 12:53 | Surface | 1 | 28.4 28.4 | 28.4 | 7.7 7.7 | 7.7 | 33.0 33.0 | 33.0 | 83.0 83.0 | 83.0 | 5.4 5.4 | 5.4 | 5.4 | 4.4 4.5 | 4.5 | 5.0 | 5 6 | 5.5 | 4.0 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 3 | 28.4 28.4 | 28.4 | 7.7 7.7 | 7.7 | 33.2 33.2 | 33.2 | 82.1 82.0 | 82.1 | 5.3 5.3 | 5.3 | | 5.5 5.5 | 5.5 | | <2.5 <2.5 | <2.5 | | | | |
| 11-Oct-16 | Fine | Rough | 16:16 | Surface | 1 | 28.3 27.8 | 28.1 | 8.1 8.1 | 8.1 | 33.1 33.1 | 33.1 | 98.9 96.6 | 97.8 | 6.4 6.3 | 6.4 | 6.4 | 2.8 3.4 | 3.1 | 3.6 | 4 4 | 4.0 | 5.0 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.9 | 27.6 27.8 | 27.7 | 8.1 8.2 | 8.2 | 33.4 33.3 | 33.4 | 95.8 95.6 | 95.7 | 6.3 6.2 | 6.3 | | 4.0 4.0 | 4.0 | | 6 6 | 6.0 | | | | |
| 13-Oct-16 | Sunny | Moderate | 17:34 | Surface | 1 | 28.5 28.5 | 28.5 | 8.0 8.0 | 8.0 | 33.6 33.6 | 33.6 | 97.4 97.4 | 97.4 | 6.3 6.3 | 6.3 | 6.3 | 4.4 4.4 | 4.4 | 4.7 | 3 3 | 3.0 | 3.0 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.9 | 28.5 28.4 | 28.5 | 8.0 8.0 | 8.0 | 33.6 33.6 | 33.6 | 96.6 96.4 | 96.5 | 6.2 6.2 | 6.2 | | 4.9 4.9 | 4.9 | | 3 3 | 3.0 | | | | |
| 15-Oct-16 | Sunny | Moderate | 18:38 | Surface | 1 | 28.1 28.1 | 28.1 | 7.8 7.9 | 7.9 | 30.7 30.9 | 30.8 | 88.2 88.4 | 88.3 | 5.8 5.8 | 5.8 | 5.8 | 2.7 2.8 | 2.8 | 3.1 | <2.5 <2.5 | <2.5 | <2.5 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.8 | 28.0 28.0 | 28.0 | 7.9 7.9 | 7.9 | 30.8 31.0 | 30.9 | 88.1 88.2 | 88.2 | 5.8 5.8 | 5.8 | | 3.1 3.5 | 3.3 | | <2.5 <2.5 | <2.5 | | | | |
| 19-Oct-16 | Rainy | Rough | 09:11 | Surface | 1 | 27.9 27.9 | 27.9 | 7.9 7.9 | 7.9 | 31.7 31.7 | 31.7 | 86.7 86.6 | 86.7 | 5.7 5.7 | 5.7 | 5.7 | 3.5 3.6 | 3.6 | 4.2 | 3 3 | 3.0 | 3.8 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.9 | 27.8 27.8 | 27.8 | 7.9 7.9 | 7.9 | 31.8 31.8 | 31.8 | 85.9 86.0 | 86.0 | 5.7 5.7 | 5.7 | | 4.6 4.7 | 4.7 | | 4 5 | 4.5 | | | | |
| 22-Oct-16 | Cloudy | Rough | 12:41 | Surface | 1 | 26.4 26.6 | 26.5 | 8.2 8.2 | 8.2 | 32.1 32.1 | 32.1 | 94.4 95.0 | 94.7 | 6.4 6.4 | 6.4 | 6.4 | 3.3 3.5 | 3.4 | 4.1 | 7 7 | 7.0 | 7.5 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 3.1 | 26.1 26.4 | 26.3 | 8.3 8.3 | 8.3 | 32.4 32.3 | 32.4 | 92.5 93.3 | 92.9 | 6.2 6.3 | 6.3 | | 5.0 4.4 | 4.7 | | 8 8 | 8.0 | | | | |

Water Quality Monitoring Results at 34 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | | | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|-----|---|---|---|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* | | | |
| 24-Oct-16 | Sunny | Moderate | 15:51 | Surface | 1 | 27.6 27.6 | 27.6 | 8.0 8.0 | 8.0 | 32.8 32.7 | 32.8 | 82.8 82.7 | 82.8 | 5.4 5.4 | 5.4 | 5.5 | 4.6 4.6 | 4.6 | 4.7 | 3 4 | 3.5 | 6.0 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | - |
| | | | | Bottom | 2.9 | 27.6 27.5 | 27.6 | 8.0 8.0 | 8.0 | 32.9 32.9 | 32.9 | 83.1 82.9 | 83.0 | 5.5 5.5 | 5.5 | | 4.8 4.8 | 4.8 | | 9 8 | 8.5 | | | | |
| 26-Oct-16 | Sunny | Moderate | 17:18 | Surface | 1 | 27.9 27.9 | 27.9 | 8.2 8.2 | 8.2 | 34.5 34.3 | 34.4 | 80.8 80.6 | 80.7 | 5.2 5.2 | 5.2 | 5.2 | 3.1 3.1 | 3.1 | 3.2 | 4 4 | 4.0 | 3.5 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.8 | 27.8 27.8 | 27.8 | 8.1 8.2 | 8.2 | 34.7 34.7 | 34.7 | 80.6 80.6 | 80.6 | 5.2 5.2 | 5.2 | | 3.1 3.2 | 3.2 | | 3 3 | 3.0 | | | | |
| 28-Oct-16 | Sunny | Moderate | 17:06 | Surface | 1 | 28.1 28.1 | 28.1 | 8.0 8.0 | 8.0 | 32.2 32.3 | 32.3 | 79.9 80.0 | 80.0 | 5.2 5.2 | 5.2 | 5.2 | 4.3 4.3 | 4.3 | 4.4 | 6 6 | 6.0 | 6.0 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | | |
| | | | | Bottom | 2.9 | 28.1 28.0 | 28.1 | 8.1 8.1 | 8.1 | 32.7 32.8 | 32.8 | 80.0 79.9 | 80.0 | 5.2 5.2 | 5.2 | | 4.4 4.4 | 4.4 | | 6 6 | 6.0 | | | | |
| 31-Oct-16 | Fine | Moderate | 19:19 | Surface | 1 | 29.0 29.0 | 29.0 | 8.1 8.1 | 8.1 | 31.5 31.5 | 31.5 | 76.5 76.4 | 76.5 | 4.9 4.9 | 4.9 | 5.0 | 5.3 5.3 | 5.3 | 5.5 | 3 4 | 3.5 | 3.3 | | | |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | | - | | |
| | | | | Bottom | 2.8 | 29.0 29.0 | 29.0 | 8.1 8.1 | 8.1 | 31.6 31.7 | 31.7 | 76.5 76.7 | 76.6 | 4.9 5.0 | 5.0 | | 5.4 5.7 | 5.6 | | 3 3 | 3.0 | | | | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Water Quality Monitoring Results at 9 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|-------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|-----|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* | |
| 22-Oct-16 | Cloudy | Rough | 16:30 | Surface | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | Middle | 1.5 | 26.0 | 26.0 | 8.2 | 8.2 | 32.4 | 32.4 | 91.8 | 91.7 | 6.2 | 6.2 | 6.2 | 5.6 | 5.6 | 5.6 | 5 | 5 | 5.0 | 5.0 |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 24-Oct-16 | Sunny | Moderate | 07:07 | Surface | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | Middle | 1.5 | 28.0 | 28.0 | 6.8 | 6.9 | 33.2 | 33.1 | 73.0 | 72.7 | 4.8 | 4.8 | 4.8 | 4.8 | 4.7 | 4.7 | 4 | 4 | 4.0 | 4.0 |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26-Oct-16 | Sunny | Moderate | 09:09 | Surface | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | Middle | 1.5 | 27.9 | 27.9 | 7.2 | 7.3 | 33.4 | 33.4 | 74.0 | 73.4 | 4.8 | 4.8 | 4.8 | 3.3 | 3.1 | 3.2 | 5 | 4 | 4.5 | 4.5 |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 28-Oct-16 | Sunny | Moderate | 08:54 | Surface | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | Middle | 1.5 | 28.5 | 28.5 | 7.1 | 7.2 | 32.0 | 32.0 | 72.7 | 71.9 | 4.7 | 4.7 | 4.7 | 3.9 | 3.7 | 3.8 | 4 | 4 | 4.0 | 4.0 |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31-Oct-16 | Sunny | Moderate | 14:17 | Surface | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | Middle | 1.5 | 29.8 | 29.8 | 7.3 | 7.4 | 31.4 | 31.4 | 78.2 | 78.5 | 5.0 | 5.0 | 5.0 | 4.6 | 4.7 | 4.7 | 4 | 4 | 4.0 | 4.0 |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 9 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|------------|------------|-------------------------|---------|--------|-----|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* | | |
| 24-Oct-16 | Sunny | Moderate | 14:25 | Surface | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | Middle | 1.5 | 28.3 28.2 | 28.3 | 7.5 7.6 | 7.6 | 33.0 32.9 | 33.0 | 75.0 74.8 | 74.9 | 4.9 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 5.7 5.3 | 5.5 | 5.5 | 4 4 | 4 | 4.0 |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26-Oct-16 | Sunny | Moderate | 15:53 | Surface | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | Middle | 1.5 | 28.0 28.0 | 28.0 | 7.6 7.7 | 7.7 | 33.7 33.7 | 33.7 | 76.9 76.5 | 76.7 | 5.0 5.0 | 5.0 | 5.0 | 5.0 | 3.7 3.8 | 3.8 | 3.8 | 3 3 | 3 | 3.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 28-Oct-16 | Sunny | Moderate | 15:40 | Surface | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | Middle | 1.5 | 28.6 28.5 | 28.6 | 7.5 7.5 | 7.5 | 32.3 32.4 | 32.4 | 74.7 75.3 | 75.0 | 4.8 4.9 | 4.9 | 4.9 | 4.9 | 3.5 3.6 | 3.6 | 3.6 | 3 3 | 3 | 3.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31-Oct-16 | Fine | Moderate | 17:59 | Surface | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | Middle | 1.5 | 30.1 30.0 | 30.1 | 7.1 7.2 | 7.2 | 31.5 31.5 | 31.5 | 77.4 77.4 | 77.4 | 4.9 4.9 | 4.9 | 4.9 | 4.9 | 5.4 5.5 | 5.5 | 5.5 | 5 5 | 5 | 5.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Water Quality Monitoring Results at A - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 4-Oct-16 | Fine | Rough | 13:59 | Surface | 1 | 28.1 27.9 | 28.0 | 8.2 8.2 | 8.2 | 25.6 25.7 | 25.7 | 91.7 90.8 | 91.3 | 6.2 6.2 | 6.2 | 6.1 | 2.2 2.2 | 2.2 | 4.3 | 5 6 | 5.5 | 6.5 |
| | | | | Middle | 3 | 27.6 27.6 | 27.6 | 8.2 8.2 | 8.2 | 26.5 26.5 | 26.5 | 90.9 91.5 | 91.2 | 6.2 6.2 | 6.2 | | 3.9 4.0 | 4.0 | | 7 7 | 7.0 | |
| | | | | Bottom | 5 | 27.5 27.6 | 27.6 | 8.2 8.1 | 8.2 | 26.5 26.6 | 26.6 | 85.2 84.7 | 85.0 | 5.8 5.8 | 5.8 | | 6.5 6.7 | 6.6 | | 7 7 | 7.0 | |
| 6-Oct-16 | Sunny | Moderate | 15:07 | Surface | 1 | 28.7 28.7 | 28.7 | 7.9 7.9 | 7.9 | 30.6 29.4 | 30.0 | 83.9 83.6 | 83.8 | 5.5 5.5 | 5.5 | 5.4 | 3.2 3.3 | 3.3 | 4.3 | <2.5 <2.5 | <2.5 | 3.2 |
| | | | | Middle | 3 | 28.5 28.5 | 28.5 | 8.0 7.9 | 8.0 | 29.9 29.8 | 29.9 | 82.2 82.3 | 82.3 | 5.4 5.4 | 5.4 | | 4.5 4.5 | 4.5 | | 4 4 | 4.0 | |
| | | | | Bottom | 5 | 28.4 28.4 | 28.4 | 7.9 7.9 | 7.9 | 29.8 29.9 | 29.9 | 81.3 81.4 | 81.4 | 5.4 5.4 | 5.4 | | 5.2 5.2 | 5.2 | | 3 3 | 3.0 | |
| 8-Oct-16 | Cloudy | Moderate | 16:40 | Surface | 1 | 28.6 28.6 | 28.6 | 7.9 7.9 | 7.9 | 32.8 32.8 | 32.8 | 87.0 86.9 | 87.0 | 5.6 5.6 | 5.6 | 5.6 | 3.2 3.0 | 3.1 | 4.1 | 5 4 | 4.5 | 3.3 |
| | | | | Middle | 3.5 | 28.5 28.5 | 28.5 | 7.9 7.9 | 7.9 | 33.5 33.5 | 33.5 | 87.5 87.4 | 87.5 | 5.6 5.6 | 5.6 | | 3.7 3.6 | 3.7 | | 3 3 | 3.0 | |
| | | | | Bottom | 6 | 28.4 28.4 | 28.4 | 7.9 7.9 | 7.9 | 33.9 33.8 | 33.9 | 87.8 88.0 | 87.9 | 5.7 5.7 | 5.7 | | 5.6 5.5 | 5.6 | | <2.5 <2.5 | <2.5 | |
| 11-Oct-16 | Sunny | Rough | 07:28 | Surface | 1 | 28.4 28.4 | 28.4 | 8.1 8.1 | 8.1 | 32.4 32.4 | 32.4 | 99.0 98.3 | 98.7 | 6.4 6.4 | 6.4 | 6.3 | 3.1 3.0 | 3.1 | 4.7 | 4 4 | 4.0 | 5.2 |
| | | | | Middle | 3.5 | 27.9 28.2 | 28.1 | 8.1 8.1 | 8.1 | 32.8 32.7 | 32.8 | 96.4 96.9 | 96.7 | 6.3 6.3 | 6.3 | | 5.1 4.6 | 4.9 | | 6 6 | 6.0 | |
| | | | | Bottom | 6 | 28.1 28.2 | 28.2 | 8.1 8.1 | 8.1 | 33.0 33.1 | 33.1 | 96.4 95.8 | 96.1 | 6.3 6.2 | 6.3 | | 6.3 5.6 | 6.0 | | 5 6 | 5.5 | |
| 13-Oct-16 | Sunny | Moderate | 09:36 | Surface | 1 | 28.3 28.3 | 28.3 | 8.1 8.1 | 8.1 | 33.3 33.3 | 33.3 | 88.1 87.6 | 87.9 | 5.7 5.7 | 5.7 | 5.7 | 4.5 4.3 | 4.4 | 4.5 | 6 5 | 5.5 | 5.0 |
| | | | | Middle | 3 | 28.2 28.2 | 28.2 | 8.1 8.1 | 8.1 | 33.2 33.2 | 33.2 | 86.7 86.7 | 86.7 | 5.6 5.6 | 5.6 | | 3.7 3.7 | 3.7 | | 7 7 | 7.0 | |
| | | | | Bottom | 5 | 28.1 28.1 | 28.1 | 8.1 8.1 | 8.1 | 33.2 33.2 | 33.2 | 87.3 87.3 | 87.3 | 5.7 5.7 | 5.7 | | 5.4 5.6 | 5.5 | | <2.5 <2.5 | <2.5 | |
| 15-Oct-16 | Sunny | Moderate | 11:08 | Surface | 1 | 28.6 28.5 | 28.6 | 8.0 8.0 | 8.0 | 31.8 31.9 | 31.9 | 86.8 86.6 | 86.7 | 5.6 5.6 | 5.6 | 5.7 | 4.9 5.0 | 5.0 | 4.9 | 3 3 | 3.0 | 2.7 |
| | | | | Middle | 3 | 28.2 28.1 | 28.2 | 8.0 8.0 | 8.0 | 32.3 32.5 | 32.4 | 87.0 86.9 | 87.0 | 5.7 5.7 | 5.7 | | 4.4 4.4 | 4.4 | | <2.5 <2.5 | <2.5 | |
| | | | | Bottom | 5 | 28.0 28.0 | 28.0 | 8.1 8.1 | 8.1 | 32.5 32.6 | 32.6 | 87.0 87.3 | 87.2 | 5.7 5.7 | 5.7 | | 5.2 5.6 | 5.4 | | <2.5 <2.5 | <2.5 | |
| 17-Oct-16 | Cloudy | Rough | 12:33 | Surface | 1 | 28.1 28.1 | 28.1 | 8.4 8.4 | 8.4 | 34.0 34.0 | 34.0 | 95.5 95.5 | 95.5 | 6.2 6.2 | 6.2 | 6.1 | 3.2 3.4 | 3.3 | 3.4 | 4 4 | 4.0 | 4.3 |
| | | | | Middle | 3.5 | 28.1 28.1 | 28.1 | 8.4 8.4 | 8.4 | 33.8 33.8 | 33.8 | 94.7 94.7 | 94.7 | 6.1 6.1 | 6.1 | | 3.5 3.5 | 3.5 | | 5 5 | 5.0 | |
| | | | | Bottom | 6 | 28.1 28.1 | 28.1 | 8.4 8.4 | 8.4 | 33.6 33.6 | 33.6 | 94.1 94.1 | 94.1 | 6.1 6.1 | 6.1 | | 3.5 3.5 | 3.5 | | 4 4 | 4.0 | |
| 19-Oct-16 | Rainy | Rough | 13:51 | Surface | 1 | 27.9 27.9 | 27.9 | 7.8 7.7 | 7.8 | 31.2 31.2 | 31.2 | 93.0 92.8 | 92.9 | 6.1 6.1 | 6.1 | 6.1 | 3.3 3.1 | 3.2 | 3.2 | 6 6 | 6.0 | 6.3 |
| | | | | Middle | 3.5 | 27.7 27.7 | 27.7 | 7.9 7.9 | 7.9 | 31.3 31.4 | 31.4 | 92.0 91.9 | 92.0 | 6.1 6.1 | 6.1 | | 2.8 2.7 | 2.8 | | 8 8 | 8.0 | |
| | | | | Bottom | 6 | 27.6 27.6 | 27.6 | 7.9 7.9 | 7.9 | 31.5 31.5 | 31.5 | 91.5 91.6 | 91.6 | 6.1 6.1 | 6.1 | | 3.7 3.6 | 3.7 | | 5 5 | 5.0 | |

Water Quality Monitoring Results at A - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|-------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 22-Oct-16 | Cloudy | Rough | 16:42 | Surface | 1 | 26.1 | 26.1 | 8.1 | 8.2 | 32.3 | 32.4 | 93.9 | 95.1 | 6.3 | 6.4 | 6.3 | 2.8 | 2.8 | 4.5 | 8 | 7.5 | 6.7 |
| | | | | | | 26.1 | | 8.2 | | 32.4 | | 96.2 | | 6.5 | | | 2.8 | | | 7 | | |
| | | | | Middle | 3.5 | 25.9 | 26.0 | 8.1 | 8.1 | 33.0 | 33.0 | 93.8 | 94.2 | 6.3 | 6.4 | | 4.2 | 4.2 | | 7 | 7.0 | |
| | | 26.1 | | 8.1 | | 33.0 | | 94.6 | | 6.4 | | 6.4 | | 4.2 | | 7 | | | | | | |
| | | 25.9 | 25.8 | 8.2 | 8.2 | 33.3 | 33.3 | 92.5 | 92.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.5 | 6.6 | 6 | 5.5 | | | | | |
| | | 25.7 | | 8.2 | | 33.3 | | 91.9 | | 6.2 | | 6.2 | 6.6 | | 6.6 | 5 | | | | | | |
| 24-Oct-16 | Sunny | Moderate | 07:24 | Surface | 1 | 27.9 | 27.9 | 7.7 | 7.7 | 33.6 | 33.6 | 81.6 | 81.7 | 5.3 | 5.3 | 5.3 | 4.5 | 4.6 | 4.5 | 4 | 4.5 | 4.0 |
| | | | | | | 27.9 | | 7.7 | | 33.6 | | 81.7 | | 5.3 | | | 4.6 | | | 5 | | |
| | | | | Middle | 3 | 27.8 | 27.8 | 7.8 | 7.8 | 33.7 | 33.7 | 81.4 | 81.4 | 5.3 | 5.3 | | 4.4 | 4.4 | | 4 | 4.5 | |
| | | 27.8 | | 7.8 | | 33.7 | | 81.4 | | 5.3 | | 5.3 | 4.4 | | 5 | | | | | | | |
| | | 27.6 | 27.6 | 7.9 | 7.9 | 33.8 | 33.8 | 80.7 | 80.8 | 5.3 | 5.3 | 4.6 | 4.5 | 3 | 3.0 | | | | | | | |
| | | 27.6 | | 7.9 | | 33.8 | | 80.9 | | 5.3 | | 4.4 | | 3 | | | | | | | | |
| 26-Oct-16 | Sunny | Moderate | 09:26 | Surface | 1 | 27.8 | 27.8 | 7.6 | 7.6 | 34.4 | 34.4 | 83.0 | 82.8 | 5.4 | 5.4 | 5.3 | 3.3 | 3.3 | 3.5 | 5 | 5.0 | 4.7 |
| | | | | | | 27.8 | | 7.6 | | 34.4 | | 82.6 | | 5.4 | | | 3.3 | | | 5 | | |
| | | | | Middle | 3 | 27.7 | 27.7 | 7.9 | 7.9 | 34.4 | 34.4 | 80.8 | 80.8 | 5.3 | 5.3 | | 3.2 | 3.2 | | 4 | 4.5 | |
| | | 27.7 | | 7.9 | | 34.4 | | 80.8 | | 5.3 | | 5.3 | 3.2 | | 5 | | | | | | | |
| | | 27.7 | 27.7 | 8.0 | 8.0 | 34.4 | 34.5 | 79.8 | 79.8 | 5.2 | 5.2 | 4.1 | 4.1 | 5 | 4.5 | | | | | | | |
| | | 27.7 | | 8.0 | | 34.5 | | 79.8 | | 5.2 | | 5.2 | 4.1 | | 4 | | | | | | | |
| 28-Oct-16 | Sunny | Moderate | 09:07 | Surface | 1 | 28.3 | 28.3 | 7.5 | 7.5 | 31.9 | 31.9 | 77.6 | 77.7 | 5.1 | 5.1 | 5.1 | 3.7 | 3.7 | 4.2 | 4 | 4.0 | 5.0 |
| | | | | | | 28.3 | | 7.5 | | 31.9 | | 77.7 | | 5.1 | | | 3.7 | | | 4 | | |
| | | | | Middle | 3 | 28.3 | 28.3 | 7.7 | 7.7 | 32.4 | 32.5 | 77.8 | 77.7 | 5.1 | 5.1 | | 3.9 | 4.0 | | 3 | 3.0 | |
| | | 28.3 | | 7.7 | | 32.5 | | 77.5 | | 5.0 | | 5.1 | 4.0 | | 3 | | | | | | | |
| | | 28.2 | 28.2 | 7.8 | 7.8 | 32.7 | 32.7 | 77.5 | 77.5 | 5.0 | 5.0 | 5.0 | 4.9 | 8 | 8.0 | | | | | | | |
| | | 28.2 | | 7.8 | | 32.7 | | 77.4 | | 5.0 | | 5.0 | 4.8 | | 8 | | | | | | | |
| 31-Oct-16 | Sunny | Moderate | 14:30 | Surface | 1 | 29.5 | 29.5 | 7.9 | 7.9 | 33.4 | 33.4 | 83.1 | 83.0 | 5.3 | 5.3 | 5.2 | 5.1 | 5.1 | 4.8 | 3 | 3.0 | 3.0 |
| | | | | | | 29.5 | | 7.9 | | 33.4 | | 82.9 | | 5.3 | | | 5.0 | | | 3 | | |
| | | | | Middle | 3 | 29.4 | 29.4 | 7.9 | 7.9 | 32.3 | 32.4 | 80.3 | 80.2 | 5.1 | 5.1 | | 4.9 | 4.8 | | 3 | 3.0 | |
| | | 29.3 | | 7.9 | | 32.4 | | 80.0 | | 5.1 | | 5.1 | 4.7 | | 3 | | | | | | | |
| | | 29.7 | 29.4 | 8.0 | 8.0 | 33.1 | 33.2 | 80.5 | 80.0 | 5.1 | 5.1 | 4.4 | 4.6 | 3 | 3.0 | | | | | | | |
| | | 29.0 | | 8.0 | | 33.2 | | 79.4 | | 5.1 | | 5.1 | 4.8 | | 3 | | | | | | | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Water Quality Monitoring Results at A - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | | | |
|-----------|-------------------|-----------------|---------------|-----------|------|------------------|---------|-------|---------|--------------|---------|-------------------|---------|-------------------------|---------|------|-----------------|---------|-----|-------------------------|---------|------|------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* | | |
| 4-Oct-16 | Fine | Rough | 08:15 | Surface | 1 | 28.2 | 28.2 | 8.2 | 8.3 | 25.9 | 26.0 | 97.3 | 97.1 | 6.6 | 6.6 | 6.5 | 3.0 | 3.1 | 4.7 | 4 | 4.0 | 5.8 | | |
| | | | | | | 28.2 | | 8.3 | | 26.0 | | 96.8 | | 6.5 | | | 3.2 | | | 4 | | | 4 | |
| | | | | Middle | 3.5 | 27.5 | 27.6 | 8.2 | 8.2 | 25.8 | 25.8 | 95.5 | 96.0 | 6.5 | 6.6 | | 4.1 | 4.1 | | 7 | 7.5 | | | |
| | | 27.7 | | 8.2 | | 25.7 | | 96.5 | | 6.6 | | 6.6 | 4.0 | | 8 | | 6 | | 6.0 | | | | | |
| | | Bottom | 6 | 27.4 | 27.5 | 8.1 | 8.1 | 26.5 | 26.6 | 90.3 | 90.4 | 6.2 | 6.2 | 6.8 | 6.9 | 6 | 6.0 | | | | | | | |
| | | 27.5 | | 8.1 | | 26.6 | | 90.5 | | 6.2 | | 6.2 | 7.0 | | 6 | | | | | | | | | |
| 6-Oct-16 | Sunny | Moderate | 09:32 | Surface | 1 | 28.7 | 28.7 | 7.8 | 7.9 | 29.5 | 29.5 | 83.2 | 83.0 | 5.5 | 5.5 | 5.4 | 3.6 | 3.6 | 4.6 | <2.5 | <2.5 | 2.7 | | |
| | | | | | | 28.7 | | 7.9 | | 29.5 | | 82.7 | | 5.4 | | | 3.6 | | | <2.5 | | | <2.5 | |
| | | | | Middle | 3.5 | 28.7 | 28.7 | 7.9 | 7.9 | 30.0 | 30.1 | 81.6 | 81.6 | 5.3 | 5.3 | | 4.2 | 4.2 | | 4.2 | 4.2 | | <2.5 | <2.5 |
| | | 28.7 | | 7.9 | | 30.2 | | 81.5 | | 5.3 | | 5.3 | 4.2 | | 3 | | 3 | | 3.0 | | | | | |
| | | Bottom | 6 | 28.6 | 28.6 | 7.8 | 7.8 | 30.5 | 30.5 | 80.9 | 80.8 | 5.3 | 5.3 | 6.0 | 6.0 | 3 | 3.0 | | | | | | | |
| | | 28.6 | | 7.8 | | 30.4 | | 80.7 | | 5.3 | | 5.3 | 5.9 | | 3 | | | | | | | | | |
| 8-Oct-16 | Cloudy | Moderate | 11:47 | Surface | 1 | 28.5 | 28.5 | 7.8 | 7.8 | 32.3 | 32.3 | 88.6 | 88.6 | 5.8 | 5.8 | 5.7 | 3.0 | 3.1 | 4.1 | <2.5 | <2.5 | 3.3 | | |
| | | | | | | 28.5 | | 7.8 | | 32.3 | | 88.5 | | 5.7 | | | 3.2 | | | <2.5 | | | <2.5 | |
| | | | | Middle | 3.5 | 28.4 | 28.4 | 7.9 | 7.9 | 33.7 | 33.7 | 88.4 | 88.4 | 5.7 | 5.7 | | 4.2 | 4.1 | | 4 | 4.5 | | | |
| | | 28.4 | | 7.9 | | 33.7 | | 88.3 | | 5.7 | | 5.7 | 4.0 | | 5 | | 3 | | 3.0 | | | | | |
| | | Bottom | 6 | 28.4 | 28.4 | 7.9 | 7.9 | 34.1 | 34.1 | 89.1 | 89.1 | 5.7 | 5.7 | 5.1 | 5.1 | 3 | 3.0 | | | | | | | |
| | | 28.4 | | 7.9 | | 34.1 | | 89.1 | | 5.7 | | 5.7 | 5.0 | | 3 | | | | | | | | | |
| 11-Oct-16 | Fine | Rough | 15:09 | Surface | 1 | 27.7 | 27.8 | 8.1 | 8.2 | 32.7 | 32.8 | 96.1 | 96.2 | 6.3 | 6.3 | 6.2 | 2.7 | 2.7 | 4.2 | 8 | 8.5 | 5.7 | | |
| | | | | | | 27.8 | | 8.2 | | 32.8 | | 96.3 | | 6.3 | | | 2.6 | | | 9 | | | 8.5 | |
| | | | | Middle | 3.5 | 27.5 | 27.7 | 8.1 | 8.1 | 33.5 | 33.5 | 95.1 | 95.1 | 6.2 | 6.2 | | 4.6 | 4.5 | | 5 | 4.5 | | | |
| | | 27.8 | | 8.1 | | 33.5 | | 95.1 | | 6.2 | | 6.2 | 4.4 | | 4 | | 4.5 | | | | | | | |
| | | Bottom | 6 | 27.7 | 27.6 | 8.2 | 8.2 | 33.8 | 33.8 | 93.4 | 93.0 | 6.1 | 6.1 | 5.4 | 5.4 | 4 | 4.0 | | | | | | | |
| | | 27.4 | | 8.2 | | 33.8 | | 92.5 | | 6.1 | | 6.1 | 5.4 | | 4 | | | | | | | | | |
| 13-Oct-16 | Sunny | Moderate | 16:23 | Surface | 1 | 28.5 | 28.5 | 8.0 | 8.0 | 33.9 | 33.9 | 89.0 | 88.9 | 5.7 | 5.7 | 5.7 | 3.1 | 3.2 | 4.0 | <2.5 | <2.5 | 2.7 | | |
| | | | | | | 28.5 | | 8.0 | | 33.9 | | 88.8 | | 5.7 | | | 3.2 | | | <2.5 | | | <2.5 | |
| | | | | Middle | 3 | 28.2 | 28.2 | 8.0 | 8.0 | 34.2 | 34.2 | 88.7 | 88.7 | 5.7 | 5.7 | | 4.5 | 4.5 | | 3 | 3.0 | | | |
| | | 28.2 | | 8.0 | | 34.2 | | 88.7 | | 5.7 | | 5.7 | 4.5 | | 3 | | 3.0 | | | | | | | |
| | | Bottom | 5 | 28.1 | 28.1 | 8.0 | 8.0 | 34.5 | 34.5 | 89.6 | 89.6 | 5.8 | 5.8 | 4.3 | 4.4 | <2.5 | <2.5 | | | | | | | |
| | | 28.1 | | 8.0 | | 34.5 | | 89.6 | | 5.8 | | 5.8 | 4.4 | | <2.5 | | <2.5 | | | | | | | |
| 15-Oct-16 | Sunny | Moderate | 17:33 | Surface | 1 | 28.2 | 28.2 | 7.7 | 7.8 | 31.6 | 31.6 | 87.6 | 87.6 | 5.7 | 5.7 | 5.7 | 3.4 | 3.5 | 4.8 | <2.5 | <2.5 | <2.5 | | |
| | | | | | | 28.2 | | 7.8 | | 31.6 | | 87.6 | | 5.7 | | | 3.5 | | | <2.5 | | | <2.5 | |
| | | | | Middle | 3.5 | 28.1 | 28.0 | 7.7 | 7.7 | 31.4 | 31.5 | 86.9 | 86.8 | 5.7 | 5.7 | | 5.1 | 5.0 | | <2.5 | <2.5 | | | |
| | | 27.9 | | 7.7 | | 31.6 | | 86.7 | | 5.7 | | 5.7 | 4.9 | | <2.5 | | <2.5 | | | | | | | |
| | | Bottom | 6 | 27.9 | 27.9 | 7.7 | 7.7 | 31.3 | 31.3 | 86.5 | 86.5 | 5.7 | 5.7 | 5.9 | 5.9 | <2.5 | <2.5 | | | | | | | |
| | | 27.9 | | 7.7 | | 31.3 | | 86.5 | | 5.7 | | 5.7 | 5.9 | | <2.5 | | <2.5 | | | | | | | |
| 19-Oct-16 | Rainy | Rough | 08:03 | Surface | 1 | 28.0 | 28.0 | 8.0 | 8.0 | 31.4 | 31.4 | 87.8 | 88.0 | 5.8 | 5.8 | 5.7 | 3.1 | 3.2 | 3.9 | 6 | 6.5 | 5.8 | | |
| | | | | | | 28.0 | | 7.9 | | 31.3 | | 88.1 | | 5.8 | | | 3.3 | | | 7 | | | 6.5 | |
| | | | | Middle | 3.5 | 27.9 | 27.9 | 7.9 | 7.9 | 31.8 | 31.9 | 86.6 | 86.6 | 5.7 | 5.7 | | 4.3 | 4.2 | | 6 | 5.5 | | | |
| | | 27.9 | | 7.9 | | 31.9 | | 86.5 | | 5.7 | | 5.7 | 4.1 | | 5 | | 5.5 | | | | | | | |
| | | Bottom | 6 | 27.9 | 27.9 | 7.8 | 7.9 | 31.9 | 32.0 | 86.5 | 86.5 | 5.7 | 5.7 | 4.3 | 4.2 | 5 | 5.5 | | | | | | | |
| | | 27.9 | | 7.9 | | 32.0 | | 86.4 | | 5.7 | | 5.7 | 4.1 | | 6 | | | | | | | | | |
| 22-Oct-16 | Cloudy | Rough | 11:32 | Surface | 1 | 26.0 | 26.3 | 8.2 | 8.2 | 31.7 | 31.7 | 96.4 | 96.5 | 6.5 | 6.5 | 6.4 | 3.1 | 3.2 | 4.4 | 5 | 5.0 | 6.5 | | |
| | | | | | | 26.6 | | 8.2 | | 31.6 | | 96.6 | | 6.5 | | | 3.2 | | | 5 | | | 5.0 | |
| | | | | Middle | 3.5 | 26.2 | 26.3 | 8.1 | 8.2 | 32.1 | 32.0 | 95.4 | 95.0 | 6.4 | 6.4 | | 4.0 | 3.9 | | 5 | 5.0 | | | |
| | | 26.3 | | 8.3 | | 31.9 | | 94.6 | | 6.4 | | 6.4 | 3.8 | | 5 | | 5.0 | | | | | | | |
| | | Bottom | 6 | 26.3 | 26.3 | 8.2 | 8.3 | 32.2 | 32.3 | 94.4 | 94.7 | 6.4 | 6.4 | 6.1 | 6.2 | 10 | 9.5 | | | | | | | |
| | | 26.2 | | 8.3 | | 32.3 | | 95.0 | | 6.4 | | 6.4 | 6.2 | | 9 | | | | | | | | | |

Water Quality Monitoring Results at A - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|-------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 24-Oct-16 | Sunny | Moderate | 14:42 | Surface | 1 | 28.2 | 28.2 | 7.9 | 7.9 | 33.7 | 33.8 | 84.9 | 84.8 | 5.5 | 5.5 | 5.4 | 3.3 | 3.4 | 4.0 | 5 | 5.0 | 6.3 |
| | | | | | | 28.1 | | 7.9 | | 33.8 | | 84.6 | | 5.5 | | | 3.5 | | | 5 | | |
| | | | | Middle | 3.5 | 27.8 | 27.8 | 8.0 | 8.0 | 33.8 | 33.8 | 82.7 | 82.6 | 5.4 | 5.4 | | 4.0 | 4.0 | | 6 | 6.0 | |
| | | 27.8 | | 8.0 | | 33.8 | | 82.4 | | 5.4 | | 5.4 | 3.9 | | 6 | | | | | | | |
| | | 27.8 | 27.8 | 7.9 | 7.9 | 33.9 | 33.9 | 82.3 | 82.2 | 5.4 | 5.4 | 4.6 | 4.6 | 8 | 8.0 | | | | | | | |
| | | 27.8 | | 7.9 | | 33.9 | | 82.1 | | 5.3 | | 5.4 | 4.5 | | 8 | | | | | | | |
| 26-Oct-16 | Sunny | Moderate | 16:07 | Surface | 1 | 27.9 | 27.9 | 8.0 | 8.0 | 33.7 | 33.8 | 80.3 | 80.3 | 5.2 | 5.2 | 5.2 | 3.1 | 3.1 | 3.2 | 4 | 4.0 | 3.2 |
| | | | | | | 27.9 | | 8.0 | | 33.8 | | 80.3 | | 5.2 | | | 3.1 | | | 4 | | |
| | | | | Middle | 3.5 | 27.8 | 27.8 | 8.0 | 8.0 | 33.9 | 33.9 | 79.7 | 79.9 | 5.2 | 5.2 | | 3.1 | 3.1 | | <2.5 | <2.5 | |
| | | 27.8 | | 8.0 | | 33.9 | | 80.0 | | 5.2 | | 5.2 | 3.0 | | <2.5 | | | | | | | |
| | | 27.7 | 27.7 | 8.1 | 8.1 | 34.0 | 34.1 | 78.2 | 78.2 | 5.1 | 5.1 | 3.3 | 3.3 | 3 | 3.0 | | | | | | | |
| | | 27.7 | | 8.1 | | 34.1 | | 78.1 | | 5.1 | | 5.1 | 3.3 | | 3 | | | | | | | |
| 28-Oct-16 | Sunny | Moderate | 15:55 | Surface | 1 | 28.2 | 28.2 | 7.8 | 7.8 | 31.6 | 31.6 | 79.2 | 79.2 | 5.2 | 5.2 | 5.1 | 2.4 | 2.5 | 4.0 | 5 | 5.0 | 5.0 |
| | | | | | | 28.2 | | 7.8 | | 31.6 | | 31.6 | | 5.2 | | | 5.2 | | | 5 | | |
| | | | | Middle | 3.5 | 28.0 | 28.0 | 7.8 | 7.8 | 32.0 | 31.9 | 78.3 | 78.2 | 5.1 | 5.1 | | 4.7 | 4.7 | | 6 | 6.0 | |
| | | 28.0 | | 7.8 | | 31.8 | | 78.2 | | 5.1 | | 5.1 | 4.7 | | 6 | | | | | | | |
| | | 27.9 | 27.9 | 7.9 | 7.9 | 32.3 | 32.4 | 78.2 | 78.3 | 5.1 | 5.1 | 4.8 | 4.8 | 4 | 4.0 | | | | | | | |
| | | 27.9 | | 7.9 | | 32.4 | | 78.3 | | 5.1 | | 5.1 | 4.8 | | 4 | | | | | | | |
| 31-Oct-16 | Fine | Moderate | 18:13 | Surface | 1 | 30.1 | 30.1 | 7.7 | 7.7 | 31.8 | 31.8 | 83.8 | 83.7 | 5.3 | 5.3 | 5.2 | 4.2 | 4.3 | 4.8 | 4 | 4.0 | 4.2 |
| | | | | | | 30.1 | | 7.7 | | 31.8 | | 31.8 | | 5.3 | | | 5.3 | | | 4 | | |
| | | | | Middle | 3.5 | 29.7 | 29.7 | 7.9 | 7.9 | 32.1 | 32.2 | 81.2 | 81.2 | 5.2 | 5.2 | | 4.4 | 4.5 | | 3 | 3.0 | |
| | | 29.6 | | 7.9 | | 32.2 | | 81.2 | | 5.2 | | 5.2 | 4.5 | | 3 | | | | | | | |
| | | 29.5 | 29.5 | 7.9 | 7.9 | 33.7 | 33.7 | 82.6 | 82.6 | 5.2 | 5.2 | 5.5 | 5.5 | 5 | 5.5 | | | | | | | |
| | | 29.4 | | 7.9 | | 33.6 | | 82.6 | | 5.2 | | 5.2 | 5.5 | | 6 | | | | | | | |

Water Quality Monitoring Results at C1 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 4-Oct-16 | Fine | Rough | 14:26 | Surface | 1 | 27.8 27.9 | 27.9 | 8.1 8.2 | 8.2 | 26.7 26.8 | 26.8 | 99.8 98.8 | 99.3 | 6.8 6.7 | 6.8 | 6.5 | 2.4 2.3 | 2.4 | 3.4 | 4 4 | 4.0 | 4.3 |
| | | | | Middle | 7 | 27.4 27.3 | 27.4 | 8.3 8.3 | 8.3 | 27.4 27.4 | 27.4 | 94.4 94.4 | 94.4 | 6.4 6.4 | 6.4 | | 3.3 3.6 | 3.5 | | 3 4 | 3.5 | |
| | | | | Bottom | 13 | 27.3 27.4 | 27.4 | 8.3 8.3 | 8.3 | 27.5 27.3 | 27.4 | 93.0 93.8 | 93.4 | 6.3 6.4 | 6.4 | | 4.2 4.3 | 4.3 | | 6 5 | 5.5 | |
| 6-Oct-16 | Sunny | Moderate | 15:34 | Surface | 1 | 29.1 29.0 | 29.1 | 7.9 7.9 | 7.9 | 27.8 27.9 | 27.9 | 84.9 85.0 | 85.0 | 5.6 5.6 | 5.6 | 5.5 | 2.7 2.8 | 2.8 | 4.5 | 3 3 | 3.0 | 3.0 |
| | | | | Middle | 7 | 28.8 28.7 | 28.8 | 7.9 7.9 | 7.9 | 29.5 29.4 | 29.5 | 84.4 84.0 | 84.2 | 5.5 5.5 | 5.5 | | 4.2 4.2 | 4.2 | | 4 3 | 3.5 | |
| | | | | Bottom | 13 | 28.5 28.5 | 28.5 | 8.0 8.0 | 8.0 | 31.2 30.9 | 31.1 | 84.1 83.7 | 83.9 | 5.5 5.5 | 5.5 | | 6.5 6.5 | 6.5 | | <2.5 <2.5 | <2.5 | |
| 8-Oct-16 | Cloudy | Moderate | 17:07 | Surface | 1 | 28.6 28.6 | 28.6 | 7.9 7.9 | 7.9 | 32.5 32.6 | 32.6 | 88.3 88.3 | 88.3 | 5.7 5.7 | 5.7 | 5.6 | 2.7 2.6 | 2.7 | 4.1 | <2.5 <2.5 | <2.5 | 2.8 |
| | | | | Middle | 7 | 28.3 28.3 | 28.3 | 7.9 7.9 | 7.9 | 33.4 33.4 | 33.4 | 87.2 87.2 | 87.2 | 5.6 5.6 | 5.6 | | 4.3 4.4 | 4.4 | | 3 4 | 3.5 | |
| | | | | Bottom | 13 | 28.1 28.1 | 28.1 | 7.9 7.9 | 7.9 | 33.7 33.7 | 33.7 | 86.9 86.6 | 86.8 | 5.6 5.6 | 5.6 | | 5.1 5.2 | 5.2 | | <2.5 <2.5 | <2.5 | |
| 11-Oct-16 | Sunny | Rough | 07:52 | Surface | 1 | 28.4 28.4 | 28.4 | 8.0 8.1 | 8.1 | 32.8 32.8 | 32.8 | 99.7 100.5 | 100.1 | 6.5 6.5 | 6.5 | 6.3 | 3.2 2.8 | 3.0 | 4.5 | 5 5 | 5.0 | 5.7 |
| | | | | Middle | 7 | 28.1 28.0 | 28.1 | 8.1 8.2 | 8.2 | 33.4 33.3 | 33.4 | 94.6 94.6 | 94.6 | 6.1 6.2 | 6.2 | | 4.5 4.6 | 4.6 | | 4 4 | 4.0 | |
| | | | | Bottom | 13 | 28.2 27.8 | 28.0 | 8.2 8.1 | 8.2 | 33.6 33.5 | 33.6 | 93.3 93.0 | 93.2 | 6.0 6.1 | 6.1 | | 6.0 5.7 | 5.9 | | 8 8 | 8.0 | |
| 13-Oct-16 | Sunny | Moderate | 10:01 | Surface | 1 | 28.2 28.2 | 28.2 | 8.2 8.2 | 8.2 | 30.5 30.5 | 30.5 | 89.6 89.3 | 89.5 | 5.9 5.9 | 5.9 | 5.9 | 4.2 4.2 | 4.2 | 4.6 | 3 3 | 3.0 | 3.0 |
| | | | | Middle | 7 | 27.8 27.8 | 27.8 | 8.1 8.1 | 8.1 | 32.6 32.6 | 32.6 | 89.4 89.4 | 89.4 | 5.9 5.9 | 5.9 | | 4.3 4.3 | 4.3 | | 3 3 | 3.0 | |
| | | | | Bottom | 13 | 27.9 27.7 | 27.8 | 8.1 8.1 | 8.1 | 32.5 32.6 | 32.6 | 89.1 88.8 | 89.0 | 5.8 5.8 | 5.8 | | 5.3 5.3 | 5.3 | | 3 3 | 3.0 | |
| 15-Oct-16 | Sunny | Moderate | 11:32 | Surface | 1 | 27.9 28.0 | 28.0 | 8.3 8.3 | 8.3 | 32.5 32.6 | 32.6 | 88.3 88.7 | 88.5 | 5.8 5.8 | 5.8 | 5.8 | 2.6 2.7 | 2.7 | 3.1 | <2.5 <2.5 | <2.5 | 3.2 |
| | | | | Middle | 7 | 27.7 27.7 | 27.7 | 8.2 8.2 | 8.2 | 33.1 33.1 | 33.1 | 88.5 88.5 | 88.5 | 5.8 5.8 | 5.8 | | 2.8 2.8 | 2.8 | | 4 4 | 4.0 | |
| | | | | Bottom | 13 | 27.6 27.6 | 27.6 | 8.2 8.2 | 8.2 | 33.2 33.2 | 33.2 | 88.4 88.2 | 88.3 | 5.8 5.8 | 5.8 | | 3.6 3.7 | 3.7 | | 3 3 | 3.0 | |
| 17-Oct-16 | Cloudy | Rough | 13:02 | Surface | 1 | 28.0 28.0 | 28.0 | 8.4 8.4 | 8.4 | 33.1 33.1 | 33.1 | 93.5 93.2 | 93.4 | 6.1 6.1 | 6.1 | 6.1 | 2.6 2.9 | 2.8 | 2.8 | 4 4 | 4.0 | 4.2 |
| | | | | Middle | 7 | 27.9 27.9 | 27.9 | 8.4 8.4 | 8.4 | 33.0 33.0 | 33.0 | 93.8 93.9 | 93.9 | 6.1 6.1 | 6.1 | | 2.5 2.7 | 2.6 | | 4 3 | 3.5 | |
| | | | | Bottom | 13 | 27.9 27.9 | 27.9 | 8.4 8.4 | 8.4 | 33.0 33.0 | 33.0 | 93.9 94.2 | 94.1 | 6.1 6.2 | 6.2 | | 3.0 3.0 | 3.0 | | 5 5 | 5.0 | |
| 19-Oct-16 | Rainy | Rough | 14:13 | Surface | 1 | 27.7 27.6 | 27.7 | 8.1 8.1 | 8.1 | 30.7 30.7 | 30.7 | 94.1 94.0 | 94.1 | 6.2 6.2 | 6.2 | 6.1 | 2.8 2.7 | 2.8 | 2.6 | 5 5 | 5.0 | 4.8 |
| | | | | Middle | 7 | 27.7 27.5 | 27.6 | 8.1 8.1 | 8.1 | 31.3 31.4 | 31.4 | 92.1 91.7 | 91.9 | 6.1 6.1 | 6.1 | | 1.8 1.6 | 1.7 | | 5 5 | 5.0 | |
| | | | | Bottom | 13 | 27.5 27.5 | 27.5 | 8.1 8.1 | 8.1 | 31.6 31.6 | 31.6 | 90.5 90.3 | 90.4 | 6.0 6.0 | 6.0 | | 3.2 3.3 | 3.3 | | 4 5 | 4.5 | |

Water Quality Monitoring Results at C1 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|-------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 22-Oct-16 | Cloudy | Rough | 17:05 | Surface | 1 | 26.3 | 26.3 | 8.1 | 8.2 | 32.3 | 32.3 | 98.7 | 98.4 | 6.6 | 6.6 | 6.5 | 3.8 | 3.8 | 4.8 | 5 | 5.5 | 6.8 |
| | | | | | | 26.3 | | 8.2 | | 32.3 | | 98.1 | | 6.6 | | | 3.8 | | | 6 | | |
| | | | | Middle | 7.5 | 26.1 | 26.0 | 8.2 | 8.2 | 32.7 | 32.8 | 96.2 | 96.5 | 6.5 | 6.5 | | 4.4 | 4.3 | | 7 | 7.0 | |
| | | 25.8 | | 8.2 | | 32.8 | | 96.7 | | 6.5 | | 6.5 | 4.2 | | 7 | | | | | | | |
| | | 25.6 | 25.7 | 8.2 | 8.2 | 33.2 | 33.3 | 95.1 | 95.3 | 6.4 | 6.4 | 6.4 | 6.4 | 6.2 | 6.3 | 8 | 8.0 | | | | | |
| | | 25.8 | | 8.2 | | 33.3 | | 95.5 | | 6.4 | | 6.4 | 6.3 | | 8 | | | | | | | |
| 24-Oct-16 | Sunny | Moderate | 07:52 | Surface | 1 | 27.9 | 27.9 | 7.9 | 7.9 | 34.0 | 33.9 | 89.2 | 89.1 | 5.8 | 5.8 | 5.7 | 1.8 | 1.8 | 3.8 | 5 | 4.5 | 4.5 |
| | | | | | | 27.8 | | 7.9 | | 33.7 | | 88.9 | | 5.8 | | | 1.8 | | | 4 | | |
| | | | | Middle | 7 | 27.6 | 27.6 | 8.0 | 8.0 | 33.7 | 33.7 | 87.6 | 87.6 | 5.7 | 5.7 | | 4.7 | 4.7 | | 4 | 4.5 | |
| | | 27.6 | | 8.0 | | 33.7 | | 87.6 | | 5.7 | | 5.7 | 4.7 | | 5 | | | | | | | |
| | | 27.5 | 27.5 | 8.0 | 8.0 | 33.8 | 33.8 | 87.3 | 87.3 | 5.7 | 5.7 | 5.7 | 5.7 | 5.0 | 5.0 | 4 | 4.5 | | | | | |
| | | 27.5 | | 8.0 | | 33.8 | | 87.3 | | 5.7 | | 5.7 | 4.9 | | 5 | | | | | | | |
| 26-Oct-16 | Sunny | Moderate | 09:53 | Surface | 1 | 27.7 | 27.7 | 7.9 | 7.9 | 34.9 | 34.9 | 84.9 | 84.7 | 5.5 | 5.5 | 5.4 | 3.3 | 3.3 | 4.2 | 3 | 3.0 | 3.8 |
| | | | | | | 27.7 | | 7.9 | | 34.9 | | 84.4 | | 5.5 | | | 3.3 | | | 3 | | |
| | | | | Middle | 7 | 27.6 | 27.6 | 8.0 | 8.0 | 34.5 | 34.5 | 82.7 | 82.7 | 5.4 | 5.4 | | 4.3 | 4.3 | | 3 | 3.0 | |
| | | 27.6 | | 8.0 | | 34.4 | | 82.7 | | 5.4 | | 5.4 | 4.3 | | 3 | | | | | | | |
| | | 27.6 | 27.6 | 8.0 | 8.0 | 34.7 | 34.7 | 81.0 | 80.9 | 5.3 | 5.3 | 5.3 | 5.3 | 5.0 | 5.0 | 5 | 5.5 | | | | | |
| | | 27.6 | | 8.0 | | 34.7 | | 80.8 | | 5.3 | | 5.3 | 5.0 | | 6 | | | | | | | |
| 28-Oct-16 | Sunny | Moderate | 09:42 | Surface | 1 | 28.3 | 28.3 | 7.8 | 7.8 | 32.1 | 32.0 | 82.7 | 82.6 | 5.4 | 5.4 | 5.3 | 2.8 | 2.7 | 4.1 | <2.5 | <2.5 | 3.5 |
| | | | | | | 28.3 | | 7.8 | | 31.8 | | 82.4 | | 5.4 | | | 2.6 | | | <2.5 | | |
| | | | | Middle | 7 | 28.1 | 28.1 | 7.9 | 7.9 | 32.3 | 32.3 | 80.6 | 80.6 | 5.3 | 5.3 | | 4.7 | 4.6 | | 5 | 5.0 | |
| | | 28.1 | | 7.9 | | 32.3 | | 80.6 | | 5.3 | | 5.3 | 4.5 | | 5 | | | | | | | |
| | | 28.0 | 28.0 | 7.9 | 7.9 | 32.5 | 32.5 | 80.2 | 80.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.0 | 5.0 | 3 | 3.0 | | | | | |
| | | 28.0 | | 7.9 | | 32.5 | | 80.2 | | 5.2 | | 5.2 | 4.9 | | 3 | | | | | | | |
| 31-Oct-16 | Sunny | Moderate | 14:57 | Surface | 1 | 28.9 | 28.9 | 8.0 | 8.0 | 32.1 | 32.1 | 81.8 | 81.7 | 5.3 | 5.3 | 5.1 | 5.0 | 5.1 | 4.8 | 6 | 6.0 | 6.0 |
| | | | | | | 28.8 | | 8.0 | | 32.1 | | 81.6 | | 5.3 | | | 5.1 | | | 6 | | |
| | | | | Middle | 6.5 | 28.7 | 28.7 | 8.0 | 8.1 | 32.2 | 32.2 | 76.7 | 76.7 | 5.0 | 5.0 | | 4.9 | 4.8 | | 8 | 8.5 | |
| | | 28.7 | | 8.1 | | 32.2 | | 76.7 | | 5.0 | | 5.0 | 4.7 | | 9 | | | | | | | |
| | | 28.7 | 28.7 | 8.0 | 8.0 | 33.4 | 33.3 | 76.5 | 76.6 | 4.9 | 4.9 | 4.9 | 4.9 | 4.6 | 4.5 | 4 | 3.5 | | | | | |
| | | 28.7 | | 8.0 | | 33.2 | | 76.6 | | 4.9 | | 4.9 | 4.4 | | 3 | | | | | | | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Water Quality Monitoring Results at C1 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|-------|---------|--------------|---------|-------------------|---------|-------------------------|---------|------|-----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 4-Oct-16 | Fine | Rough | 08:39 | Surface | 1 | 27.8 | 27.8 | 8.2 | 8.2 | 26.1 | 26.2 | 93.0 | 92.8 | 6.3 | 6.3 | 6.3 | 2.8 | 2.7 | 3.5 | 3 | 3.5 | 5.5 |
| | | | | | | 27.7 | | 8.2 | | 26.2 | | 92.6 | | 6.3 | | | 2.5 | | | 4 | | |
| | | | | Middle | 7 | 27.7 | 27.7 | 8.2 | 8.3 | 26.7 | 26.8 | 92.0 | 92.4 | 6.2 | 6.3 | | 3.4 | 3.4 | | 7 | 7.0 | |
| | | 27.6 | | 8.3 | | 26.8 | | 92.7 | | 6.3 | | 6.3 | | 3.4 | | 7 | | | | | | |
| | | 27.4 | 27.5 | 8.3 | 8.3 | 26.6 | 26.6 | 91.4 | 91.3 | 6.2 | 6.2 | 6.2 | 6.2 | 4.3 | 4.5 | 6 | 6.0 | | | | | |
| | | 27.5 | | 8.3 | | 26.6 | | 91.2 | | 6.2 | | 6.2 | | 4.7 | | 6 | | | | | | |
| 6-Oct-16 | Sunny | Moderate | 09:58 | Surface | 1 | 29.0 | 28.9 | 8.0 | 8.0 | 28.2 | 28.4 | 84.2 | 84.0 | 5.5 | 5.5 | 5.4 | 3.8 | 3.8 | 4.0 | 3 | 3.0 | 3.0 |
| | | | | | | 28.8 | | 8.0 | | 28.5 | | 83.7 | | 5.5 | | | 3.8 | | | 3 | | |
| | | | | Middle | 7 | 28.7 | 28.7 | 7.9 | 8.0 | 29.8 | 29.9 | 81.9 | 82.0 | 5.4 | 5.4 | | 3.8 | 3.7 | | <2.5 | <2.5 | |
| | | 28.7 | | 8.0 | | 30.0 | | 82.0 | | 5.4 | | 5.4 | | 3.5 | | <2.5 | <2.5 | | | | | |
| | | 28.6 | 28.6 | 8.1 | 8.1 | 31.1 | 31.2 | 82.4 | 82.6 | 5.4 | 5.4 | 5.4 | 5.4 | 4.6 | 4.6 | 3 | 3.5 | | | | | |
| | | 28.6 | | 8.1 | | 31.2 | | 82.7 | | 5.4 | | 5.4 | | 4.5 | | 4 | | | | | | |
| 8-Oct-16 | Cloudy | Moderate | 12:14 | Surface | 1 | 28.3 | 28.3 | 7.8 | 7.8 | 32.0 | 32.0 | 87.6 | 87.6 | 5.7 | 5.7 | 5.7 | 2.6 | 2.5 | 3.9 | 5 | 5.0 | 4.8 |
| | | | | | | 28.3 | | 7.8 | | 32.0 | | 87.6 | | 5.7 | | | 2.3 | | | 5 | | |
| | | | | Middle | 7.5 | 28.0 | 28.0 | 7.9 | 7.9 | 33.7 | 33.7 | 87.7 | 87.7 | 5.7 | 5.7 | | 2.9 | 2.9 | | 6 | 6.0 | |
| | | 28.0 | | 7.9 | | 33.7 | | 87.7 | | 5.7 | | 5.7 | | 2.9 | | 6 | | | | | | |
| | | 28.0 | 28.0 | 7.9 | 7.9 | 33.9 | 33.9 | 87.8 | 87.8 | 5.7 | 5.7 | 5.7 | 5.7 | 6.2 | 6.3 | 3 | 3.5 | | | | | |
| | | 28.0 | | 7.9 | | 33.9 | | 87.8 | | 5.7 | | 5.7 | | 6.3 | | 4 | | | | | | |
| 11-Oct-16 | Fine | Rough | 15:32 | Surface | 1 | 28.2 | 28.2 | 8.1 | 8.1 | 32.8 | 32.8 | 100.0 | 99.9 | 6.5 | 6.5 | 6.4 | 2.3 | 2.3 | 3.4 | 7 | 7.5 | 5.7 |
| | | | | | | 28.2 | | 8.1 | | 32.8 | | 99.7 | | 6.5 | | | 2.2 | | | 8 | | |
| | | | | Middle | 7.5 | 28.0 | 27.9 | 8.1 | 8.1 | 33.2 | 33.3 | 97.4 | 97.7 | 6.3 | 6.4 | | 2.7 | 2.6 | | 7 | 6.5 | |
| | | 27.8 | | 8.1 | | 33.3 | | 97.9 | | 6.4 | | 6.4 | | 2.5 | | 6 | | | | | | |
| | | 27.6 | 27.6 | 8.1 | 8.1 | 33.7 | 33.8 | 96.4 | 96.6 | 6.3 | 6.3 | 6.3 | 6.3 | 5.2 | 5.2 | 3 | 3.0 | | | | | |
| | | 27.6 | | 8.1 | | 33.8 | | 96.8 | | 6.3 | | 6.3 | | 5.1 | | 3 | | | | | | |
| 13-Oct-16 | Sunny | Moderate | 16:50 | Surface | 1 | 28.2 | 28.2 | 8.1 | 8.1 | 31.1 | 31.2 | 91.4 | 91.4 | 6.0 | 6.0 | 5.9 | 4.3 | 4.2 | 4.7 | <2.5 | <2.5 | 2.8 |
| | | | | | | 28.2 | | 8.1 | | 31.2 | | 91.3 | | 6.0 | | | 4.1 | | | <2.5 | <2.5 | |
| | | | | Middle | 7 | 28.0 | 28.0 | 8.0 | 8.0 | 33.5 | 33.5 | 91.4 | 91.4 | 5.9 | 5.9 | | 4.7 | 4.8 | | 3 | 3.0 | |
| | | 28.0 | | 8.0 | | 33.5 | | 91.4 | | 5.9 | | 5.9 | | 4.8 | | 3 | | | | | | |
| | | 28.0 | 28.0 | 8.0 | 8.0 | 33.9 | 33.9 | 91.6 | 91.5 | 5.9 | 5.9 | 5.9 | 5.9 | 5.1 | 5.2 | 3 | 3.0 | | | | | |
| | | 27.9 | | 8.0 | | 33.8 | | 91.4 | | 5.9 | | 5.9 | | 5.2 | | 3 | | | | | | |
| 15-Oct-16 | Sunny | Moderate | 17:57 | Surface | 1 | 27.7 | 27.7 | 7.8 | 7.8 | 32.0 | 32.1 | 88.6 | 88.7 | 5.8 | 5.8 | 5.8 | 2.4 | 2.4 | 2.4 | <2.5 | <2.5 | 2.8 |
| | | | | | | 27.7 | | 7.8 | | 32.1 | | 88.7 | | 5.8 | | | 2.4 | | | <2.5 | <2.5 | |
| | | | | Middle | 7 | 27.7 | 27.7 | 7.8 | 7.8 | 32.1 | 32.1 | 87.7 | 88.1 | 5.8 | 5.8 | | 2.6 | 2.5 | | 4 | 3.5 | |
| | | 27.7 | | 7.8 | | 32.0 | | 88.4 | | 5.8 | | 5.8 | | 2.4 | | 3 | | | | | | |
| | | 27.6 | 27.6 | 7.8 | 7.8 | 31.9 | 31.9 | 87.4 | 87.4 | 5.8 | 5.8 | 5.8 | 5.8 | 2.4 | 2.4 | 2.4 | 2.4 | | | | | |
| | | 27.6 | | 7.8 | | 31.9 | | 87.4 | | 5.8 | | 5.8 | | 2.3 | | 2.3 | 2.4 | | | | | |
| 19-Oct-16 | Rainy | Rough | 08:27 | Surface | 1 | 27.9 | 27.9 | 8.1 | 8.1 | 31.1 | 31.1 | 90.2 | 90.1 | 6.0 | 6.0 | 5.9 | 2.6 | 2.5 | 3.0 | 7 | 6.5 | 6.2 |
| | | | | | | 27.9 | | 8.1 | | 31.0 | | 89.9 | | 5.9 | | | 2.4 | | | 6 | | |
| | | | | Middle | 7 | 27.9 | 27.9 | 8.1 | 8.1 | 31.6 | 31.7 | 89.7 | 89.5 | 5.9 | 5.9 | | 3.0 | 3.0 | | 6 | 6.0 | |
| | | 27.8 | | 8.1 | | 31.7 | | 89.3 | | 5.9 | | 5.9 | | 2.9 | | 6 | | | | | | |
| | | 27.6 | 27.6 | 8.0 | 8.0 | 32.1 | 32.2 | 87.2 | 87.0 | 5.8 | 5.8 | 5.8 | 5.8 | 3.3 | 3.4 | 6 | 6.0 | | | | | |
| | | 27.6 | | 8.0 | | 32.2 | | 86.8 | | 5.7 | | 5.8 | | 3.4 | | 6 | | | | | | |
| 22-Oct-16 | Cloudy | Rough | 11:55 | Surface | 1 | 26.6 | 26.5 | 8.2 | 8.3 | 32.0 | 32.0 | 98.4 | 98.1 | 6.6 | 6.6 | 6.3 | 3.4 | 3.4 | 4.7 | 5 | 5.0 | 6.5 |
| | | | | | | 26.4 | | 8.3 | | 32.0 | | 97.8 | | 6.6 | | | 3.4 | | | 5 | | |
| | | | | Middle | 7.5 | 25.7 | 25.9 | 8.3 | 8.3 | 32.6 | 32.6 | 91.4 | 92.4 | 6.2 | 6.3 | | 4.5 | 4.5 | | 9 | 9.0 | |
| | | 26.0 | | 8.3 | | 32.6 | | 93.3 | | 6.3 | | 6.3 | | 4.5 | | 9 | | | | | | |
| | | 25.9 | 25.9 | 8.2 | 8.3 | 32.8 | 32.8 | 90.8 | 90.6 | 6.1 | 6.1 | 6.1 | 6.1 | 6.3 | 6.3 | 5 | 5.5 | | | | | |
| | | 25.8 | | 8.3 | | 32.7 | | 90.4 | | 6.1 | | 6.1 | | 6.2 | | 6 | | | | | | |

Water Quality Monitoring Results at C1 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 24-Oct-16 | Sunny | Moderate | 15:10 | Surface | 1 | 28.0 28.0 | 28.0 | 8.0 8.0 | 8.0 | 33.8 33.8 | 33.8 | 90.5 90.2 | 90.4 | 5.9 5.9 | 5.9 | 5.7 | 2.8 2.7 | 2.8 | 4.2 | 4 4 | 4.0 | 6.0 |
| | | | | Middle | 7 | 27.7 27.7 | 27.7 | 8.1 8.1 | 8.1 | 33.8 33.8 | 33.8 | 87.5 87.5 | 87.5 | 5.7 5.7 | 5.7 | | 4.1 4.0 | 4.1 | | 5 5 | 5.0 | |
| | | | | Bottom | 13 | 27.7 27.7 | 27.7 | 8.1 8.1 | 8.1 | 34.0 34.0 | 34.0 | 85.7 85.5 | 85.6 | 5.6 5.6 | 5.6 | | 5.6 5.6 | 5.6 | | 9 9 | 9.0 | |
| 26-Oct-16 | Sunny | Moderate | 16:35 | Surface | 1 | 28.0 28.0 | 28.0 | 8.1 8.1 | 8.1 | 34.1 34.1 | 34.1 | 87.2 87.1 | 87.2 | 5.7 5.6 | 5.7 | 5.4 | 3.7 3.6 | 3.7 | 3.7 | 3 3 | 3.0 | 3.3 |
| | | | | Middle | 7 | 27.7 27.7 | 27.7 | 8.2 8.2 | 8.2 | 34.6 34.6 | 34.6 | 81.1 81.4 | 81.3 | 5.3 5.3 | 5.3 | | 3.2 3.1 | 3.2 | | 4 4 | 4.0 | |
| | | | | Bottom | 13 | 27.6 27.6 | 27.6 | 8.2 8.2 | 8.2 | 34.7 34.7 | 34.7 | 80.4 79.9 | 80.2 | 5.2 5.2 | 5.2 | | 4.2 4.2 | 4.2 | | 3 3 | 3.0 | |
| 28-Oct-16 | Sunny | Moderate | 16:24 | Surface | 1 | 28.5 28.5 | 28.5 | 8.0 8.0 | 8.0 | 32.3 32.4 | 32.4 | 83.7 83.9 | 83.8 | 5.4 5.4 | 5.4 | 5.3 | 3.6 4.0 | 3.8 | 4.7 | 7 7 | 7.0 | 4.8 |
| | | | | Middle | 7 | 28.2 28.2 | 28.2 | 8.0 8.0 | 8.0 | 32.6 32.6 | 32.6 | 81.1 80.7 | 80.9 | 5.3 5.3 | 5.3 | | 4.8 4.7 | 4.8 | | 3 3 | 3.0 | |
| | | | | Bottom | 13 | 28.0 27.9 | 28.0 | 8.0 8.1 | 8.1 | 32.8 32.8 | 32.8 | 79.1 79.0 | 79.1 | 5.2 5.2 | 5.2 | | 5.6 5.5 | 5.6 | | 5 4 | 4.5 | |
| 31-Oct-16 | Fine | Moderate | 18:40 | Surface | 1 | 29.1 29.1 | 29.1 | 7.9 7.9 | 7.9 | 31.6 31.6 | 31.6 | 81.9 81.7 | 81.8 | 5.3 5.3 | 5.3 | 5.2 | 3.0 3.3 | 3.2 | 4.1 | 7 7 | 7.0 | 6.3 |
| | | | | Middle | 7 | 28.8 28.8 | 28.8 | 8.0 8.0 | 8.0 | 32.1 32.1 | 32.1 | 80.5 80.5 | 80.5 | 5.2 5.2 | 5.2 | | 4.2 4.3 | 4.3 | | 8 8 | 8.0 | |
| | | | | Bottom | 13 | 28.8 28.8 | 28.8 | 8.1 8.1 | 8.1 | 33.9 33.9 | 33.9 | 80.2 80.2 | 80.2 | 5.1 5.1 | 5.1 | | 4.7 4.7 | 4.7 | | 4 4 | 4.0 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Water Quality Monitoring Results at C2 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 4-Oct-16 | Fine | Rough | 12:52 | Surface | 1 | 27.7 27.9 | 27.8 | 8.2 8.2 | 8.2 | 25.9 26.1 | 26.0 | 99.4 98.8 | 99.1 | 6.8 6.7 | 6.8 | 6.5 | 2.4 2.4 | 2.4 | 3.0 | 6 7 | 6.5 | 5.2 |
| | | | | Middle | 9.5 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 26.7 26.8 | 26.8 | 93.5 93.6 | 93.6 | 6.4 6.4 | 6.4 | | 3.1 3.2 | 3.2 | | 4 4 | 4.5 | |
| | | | | Bottom | 18 | 27.2 27.5 | 27.4 | 8.3 8.3 | 8.3 | 26.7 27.0 | 26.9 | 93.0 94.0 | 93.5 | 6.4 6.4 | 6.4 | | 3.3 3.7 | 3.5 | | 5 4 | 4.5 | |
| 6-Oct-16 | Sunny | Moderate | 13:58 | Surface | 1 | 28.7 28.6 | 28.7 | 8.0 8.1 | 8.1 | 29.4 29.7 | 29.6 | 90.1 90.9 | 90.5 | 5.9 6.0 | 6.0 | 5.8 | 4.4 4.4 | 4.4 | 4.8 | 3 3 | 3.0 | 3.7 |
| | | | | Middle | 10 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 31.4 31.1 | 31.3 | 87.0 86.8 | 86.9 | 5.7 5.7 | 5.7 | | 3.8 3.8 | 3.8 | | 5 5 | 5.0 | |
| | | | | Bottom | 19 | 28.2 28.2 | 28.2 | 8.2 8.2 | 8.2 | 31.8 32.0 | 31.9 | 86.3 86.5 | 86.4 | 5.6 5.7 | 5.7 | | 6.4 6.2 | 6.3 | | 3 3 | 3.0 | |
| 8-Oct-16 | Cloudy | Moderate | 15:30 | Surface | 1 | 28.6 28.6 | 28.6 | 7.9 7.9 | 7.9 | 31.6 31.6 | 31.6 | 89.4 89.4 | 89.4 | 5.8 5.8 | 5.8 | 5.8 | 2.0 2.0 | 2.0 | 3.4 | 3 3 | 3.0 | 3.3 |
| | | | | Middle | 9.5 | 28.2 28.2 | 28.2 | 7.9 7.9 | 7.9 | 33.5 33.6 | 33.6 | 89.7 89.8 | 89.8 | 5.8 5.8 | 5.8 | | 3.3 3.4 | 3.4 | | 4 4 | 4.0 | |
| | | | | Bottom | 18 | 27.8 27.8 | 27.8 | 7.9 7.9 | 7.9 | 33.7 33.7 | 33.7 | 89.1 89.1 | 89.1 | 5.8 5.8 | 5.8 | | 4.7 4.8 | 4.8 | | 3 3 | 3.0 | |
| 11-Oct-16 | Sunny | Rough | 06:36 | Surface | 1 | 28.0 28.1 | 28.1 | 8.1 8.1 | 8.1 | 31.8 31.8 | 31.8 | 100.4 100.2 | 100.3 | 6.6 6.6 | 6.6 | 6.4 | 2.0 2.2 | 2.1 | 3.6 | 4 4 | 4.0 | 3.8 |
| | | | | Middle | 10 | 28.2 28.3 | 28.3 | 8.1 8.1 | 8.1 | 32.4 32.3 | 32.4 | 97.3 96.4 | 96.9 | 6.3 6.3 | 6.3 | | 3.9 3.8 | 3.9 | | 4 3 | 3.5 | |
| | | | | Bottom | 19 | 28.1 27.9 | 28.0 | 8.1 8.1 | 8.1 | 32.7 32.7 | 32.7 | 95.8 95.0 | 95.4 | 6.2 6.2 | 6.2 | | 4.6 4.7 | 4.7 | | 4 4 | 4.0 | |
| 13-Oct-16 | Sunny | Moderate | 08:25 | Surface | 1 | 28.4 28.4 | 28.4 | 8.1 8.1 | 8.1 | 32.2 32.2 | 32.2 | 91.2 91.2 | 91.2 | 5.9 5.9 | 5.9 | 5.9 | 3.0 3.2 | 3.1 | 4.6 | <2.5 <2.5 | <2.5 | 2.7 |
| | | | | Middle | 9.5 | 28.0 28.0 | 28.0 | 8.1 8.1 | 8.1 | 32.2 32.2 | 32.2 | 89.8 89.8 | 89.8 | 5.9 5.9 | 5.9 | | 4.8 4.7 | 4.8 | | 3 3 | 3.0 | |
| | | | | Bottom | 18 | 27.9 27.9 | 27.9 | 8.1 8.1 | 8.1 | 32.2 32.2 | 32.2 | 89.4 89.4 | 89.4 | 5.9 5.9 | 5.9 | | 6.0 5.9 | 6.0 | | <2.5 <2.5 | <2.5 | |
| 15-Oct-16 | Sunny | Moderate | 10:01 | Surface | 1 | 28.0 28.0 | 28.0 | 8.3 8.3 | 8.3 | 31.9 32.0 | 32.0 | 90.8 90.7 | 90.8 | 6.0 5.9 | 6.0 | 5.9 | 3.6 3.4 | 3.5 | 4.9 | <2.5 <2.5 | <2.5 | 2.8 |
| | | | | Middle | 10 | 27.9 27.7 | 27.8 | 8.2 8.3 | 8.3 | 33.0 33.0 | 33.0 | 91.0 90.7 | 90.9 | 5.9 5.9 | 5.9 | | 5.3 5.7 | 5.5 | | 4 3 | 3.5 | |
| | | | | Bottom | 19 | 27.7 27.7 | 27.7 | 8.3 8.3 | 8.3 | 33.0 33.0 | 33.0 | 90.7 90.6 | 90.7 | 5.9 5.9 | 5.9 | | 5.5 5.8 | 5.7 | | <2.5 <2.5 | <2.5 | |
| 17-Oct-16 | Cloudy | Rough | 11:30 | Surface | 1 | 28.0 27.7 | 27.9 | 8.3 8.3 | 8.3 | 32.1 32.1 | 32.1 | 98.3 98.3 | 98.3 | 6.4 6.5 | 6.5 | 6.4 | 3.9 3.8 | 3.9 | 4.3 | 4 4 | 4.0 | 6.7 |
| | | | | Middle | 10 | 27.8 27.8 | 27.8 | 8.4 8.4 | 8.4 | 32.0 32.0 | 32.0 | 96.3 96.3 | 96.3 | 6.3 6.3 | 6.3 | | 4.2 4.2 | 4.2 | | 5 5 | 5.0 | |
| | | | | Bottom | 19 | 27.8 27.8 | 27.8 | 8.4 8.4 | 8.4 | 32.0 32.0 | 32.0 | 96.5 96.3 | 96.4 | 6.3 6.3 | 6.3 | | 4.9 4.6 | 4.8 | | 11 11 | 11.0 | |
| 19-Oct-16 | Rainy | Rough | 13:00 | Surface | 1 | 28.1 28.0 | 28.1 | 8.0 8.0 | 8.0 | 31.2 31.2 | 31.2 | 95.1 94.8 | 95.0 | 6.3 6.2 | 6.3 | 6.1 | 2.1 2.2 | 2.2 | 3.2 | 6 6 | 6.0 | 5.8 |
| | | | | Middle | 10 | 27.9 27.8 | 27.9 | 8.0 8.0 | 8.0 | 31.7 31.7 | 31.7 | 92.8 92.8 | 92.8 | 6.1 6.1 | 6.1 | | 3.4 3.5 | 3.5 | | 6 6 | 6.0 | |
| | | | | Bottom | 19 | 27.7 27.7 | 27.7 | 7.9 8.0 | 8.0 | 32.0 32.2 | 32.1 | 88.7 88.7 | 88.7 | 5.8 5.8 | 5.8 | | 3.8 3.9 | 3.9 | | 5 6 | 5.5 | |

Water Quality Monitoring Results at C2 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 22-Oct-16 | Cloudy | Rough | 15:49 | Surface | 1 | 26.1 26.2 | 26.2 | 8.2 8.1 | 8.2 | 32.7 32.8 | 32.8 | 99.6 83.6 | 91.6 | 6.7 5.6 | 6.2 | 6.2 | 3.6 3.4 | 3.5 | 4.4 | 5 5 | 5.0 | 6.0 |
| | | | | Middle | 10 | 26.0 26.4 | 26.2 | 8.2 8.2 | 8.2 | 33.1 33.2 | 33.2 | 97.1 97.5 | 97.3 | 6.5 6.5 | 6.5 | | 4.4 4.1 | 4.3 | | 7 6 | 6.5 | |
| | | | | Bottom | 19 | 25.9 25.9 | 25.9 | 8.2 8.2 | 8.2 | 33.8 33.8 | 33.8 | 81.0 95.7 | 88.4 | 5.4 6.4 | 5.9 | | 5.3 5.4 | 5.4 | | 7 6 | 6.5 | |
| 24-Oct-16 | Sunny | Moderate | 06:10 | Surface | 1 | 27.6 27.6 | 27.6 | 7.6 7.7 | 7.7 | 34.7 34.5 | 34.6 | 87.3 87.1 | 87.2 | 5.7 5.7 | 5.7 | 5.6 | 3.9 3.7 | 3.8 | 4.7 | 4 4 | 4.0 | 5.3 |
| | | | | Middle | 9.5 | 27.5 27.5 | 27.5 | 8.0 8.0 | 8.0 | 34.0 34.0 | 34.0 | 85.0 85.0 | 85.0 | 5.6 5.6 | 5.6 | | 4.2 4.2 | 4.2 | | 4 4 | 4.0 | |
| | | | | Bottom | 18 | 27.4 27.4 | 27.4 | 8.1 8.1 | 8.1 | 34.0 34.0 | 34.0 | 84.5 84.4 | 84.5 | 5.5 5.5 | 5.5 | | 6.2 6.1 | 6.2 | | 8 8 | 8.0 | |
| 26-Oct-16 | Sunny | Moderate | 08:10 | Surface | 1 | 27.7 27.7 | 27.7 | 8.1 8.1 | 8.1 | 33.9 33.9 | 33.9 | 85.8 85.6 | 85.7 | 5.6 5.6 | 5.6 | 5.3 | 3.4 3.5 | 3.5 | 4.5 | <2.5 <2.5 | <2.5 | 2.8 |
| | | | | Middle | 9.5 | 27.6 27.6 | 27.6 | 8.1 8.1 | 8.1 | 34.0 34.0 | 34.0 | 81.4 81.6 | 81.5 | 5.3 5.3 | 5.3 | | 4.8 4.4 | 4.6 | | 3 3 | 3.0 | |
| | | | | Bottom | 18 | 27.5 27.5 | 27.5 | 8.1 8.1 | 8.1 | 34.2 34.2 | 34.2 | 76.9 77.1 | 77.0 | 5.0 5.0 | 5.0 | | 5.5 5.5 | 5.5 | | 3 3 | 3.0 | |
| 28-Oct-16 | Sunny | Moderate | 08:02 | Surface | 1 | 28.0 28.0 | 28.0 | 7.5 7.5 | 7.5 | 32.9 33.0 | 33.0 | 88.7 88.6 | 88.7 | 5.8 5.8 | 5.8 | 5.3 | 3.2 3.4 | 3.3 | 4.3 | 3 3 | 3.0 | 4.0 |
| | | | | Middle | 9.5 | 27.7 27.7 | 27.7 | 7.9 7.9 | 7.9 | 33.4 33.4 | 33.4 | 79.9 79.8 | 79.9 | 5.2 5.2 | 5.2 | | 4.5 4.1 | 4.3 | | 5 5 | 5.0 | |
| | | | | Bottom | 18 | 27.5 27.5 | 27.5 | 8.0 8.0 | 8.0 | 33.6 33.7 | 33.7 | 76.5 76.9 | 76.7 | 5.0 5.0 | 5.0 | | 5.3 5.1 | 5.2 | | 4 4 | 4.0 | |
| 31-Oct-16 | Sunny | Moderate | 13:19 | Surface | 1 | 28.9 28.9 | 28.9 | 7.8 7.8 | 7.8 | 33.1 33.0 | 33.1 | 86.0 84.5 | 85.3 | 5.5 5.4 | 5.5 | 5.2 | 3.5 3.9 | 3.7 | 4.9 | 4 5 | 4.5 | 4.8 |
| | | | | Middle | 9.5 | 28.6 28.6 | 28.6 | 8.1 8.1 | 8.1 | 33.1 33.5 | 33.3 | 79.4 79.7 | 79.6 | 5.1 5.1 | 5.1 | | 5.0 5.0 | 5.0 | | 5 5 | 5.0 | |
| | | | | Bottom | 18 | 28.4 28.4 | 28.4 | 8.2 8.2 | 8.2 | 33.6 33.2 | 33.4 | 78.3 78.4 | 78.4 | 5.1 5.1 | 5.1 | | 6.1 6.1 | 6.1 | | 5 5 | 5.0 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough: White capped or rougher.

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Water Quality Monitoring Results at C2 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 4-Oct-16 | Fine | Rough | 07:05 | Surface | 1 | 27.9 28.0 | 28.0 | 8.2 8.2 | 8.2 | 26.0 26.2 | 26.1 | 99.9 100.9 | 100.4 | 6.8 6.8 | 6.8 | 6.7 | 3.5 3.5 | 3.5 | 4.2 | 4 4 | 4.0 | 8.2 |
| | | | | Middle | 9 | 27.6 27.6 | 27.6 | 8.2 8.2 | 8.2 | 26.8 26.8 | 26.8 | 97.1 97.0 | 97.1 | 6.6 6.6 | 6.6 | | 4.3 4.4 | 4.4 | | 8 8 | 8.0 | |
| | | | | Bottom | 17 | 27.3 27.4 | 27.4 | 8.3 8.2 | 8.3 | 26.9 26.9 | 26.9 | 97.1 97.4 | 97.3 | 6.6 6.6 | 6.6 | | 4.6 4.6 | 4.6 | | 12 13 | 12.5 | |
| 6-Oct-16 | Sunny | Moderate | 08:22 | Surface | 1 | 28.5 28.5 | 28.5 | 7.9 8.0 | 8.0 | 29.8 29.9 | 29.9 | 87.4 87.6 | 87.5 | 5.8 5.8 | 5.8 | 5.6 | 3.3 3.2 | 3.3 | 4.0 | 3 3 | 3.0 | 2.8 |
| | | | | Middle | 9.5 | 28.3 28.3 | 28.3 | 8.1 8.1 | 8.1 | 31.9 32.3 | 32.1 | 84.9 85.0 | 85.0 | 5.5 5.5 | 5.5 | | 3.4 3.4 | 3.4 | | <2.5 <2.5 | <2.5 | |
| | | | | Bottom | 18 | 28.3 28.3 | 28.3 | 8.0 8.0 | 8.0 | 32.6 33.2 | 32.9 | 84.4 84.5 | 84.5 | 5.5 5.5 | 5.5 | | 5.4 5.3 | 5.4 | | 3 3 | 3.0 | |
| 8-Oct-16 | Cloudy | Moderate | 10:30 | Surface | 1 | 28.3 28.3 | 28.3 | 7.8 7.9 | 7.9 | 32.1 32.1 | 32.1 | 90.1 90.1 | 90.1 | 5.9 5.9 | 5.9 | 5.9 | 3.7 3.7 | 3.7 | 4.9 | 4 4 | 4.0 | 3.0 |
| | | | | Middle | 9.5 | 28.0 28.0 | 28.0 | 7.9 7.9 | 7.9 | 33.7 33.7 | 33.7 | 90.0 90.1 | 90.1 | 5.8 5.9 | 5.9 | | 4.2 4.1 | 4.2 | | <2.5 <2.5 | <2.5 | |
| | | | | Bottom | 18 | 27.8 27.8 | 27.8 | 7.9 7.9 | 7.9 | 33.9 33.9 | 33.9 | 90.0 90.0 | 90.0 | 5.9 5.9 | 5.9 | | 6.7 6.6 | 6.7 | | <2.5 <2.5 | <2.5 | |
| 11-Oct-16 | Fine | Rough | 14:16 | Surface | 1 | 27.8 28.0 | 27.9 | 8.1 8.1 | 8.1 | 33.2 33.3 | 33.3 | 99.7 84.6 | 92.2 | 6.5 5.5 | 6.0 | 6.1 | 3.1 2.9 | 3.0 | 4.8 | 5 5 | 5.0 | 4.5 |
| | | | | Middle | 9.5 | 27.6 27.9 | 27.8 | 8.2 8.1 | 8.2 | 33.7 33.7 | 33.7 | 98.4 97.5 | 98.0 | 6.4 6.3 | 6.4 | | 4.7 4.7 | 4.7 | | 4 5 | 4.5 | |
| | | | | Bottom | 18 | 27.6 27.7 | 27.7 | 8.1 8.2 | 8.2 | 34.3 34.4 | 34.4 | 81.5 96.8 | 89.2 | 5.3 6.3 | 5.8 | | 6.7 6.6 | 6.7 | | 4 4 | 4.0 | |
| 13-Oct-16 | Sunny | Moderate | 15:20 | Surface | 1 | 28.6 28.6 | 28.6 | 8.0 8.0 | 8.0 | 32.9 32.8 | 32.9 | 94.8 94.5 | 94.7 | 6.1 6.1 | 6.1 | 6.1 | 3.9 3.9 | 3.9 | 4.3 | 3 3 | 3.0 | 2.8 |
| | | | | Middle | 9.5 | 28.2 28.2 | 28.2 | 8.0 8.0 | 8.0 | 33.2 33.1 | 33.2 | 93.6 93.2 | 93.4 | 6.1 6.1 | 6.1 | | 4.6 4.5 | 4.6 | | <2.5 <2.5 | <2.5 | |
| | | | | Bottom | 18 | 28.1 28.1 | 28.1 | 8.0 8.0 | 8.0 | 33.5 33.5 | 33.5 | 92.1 91.9 | 92.0 | 6.0 6.0 | 6.0 | | 4.3 4.3 | 4.3 | | 3 3 | 3.0 | |
| 15-Oct-16 | Sunny | Moderate | 16:20 | Surface | 1 | 27.8 27.8 | 27.8 | 8.0 8.0 | 8.0 | 32.4 32.4 | 32.4 | 91.7 91.7 | 91.7 | 6.0 6.0 | 6.0 | 6.0 | 3.7 3.7 | 3.7 | 4.3 | <2.5 <2.5 | <2.5 | 2.7 |
| | | | | Middle | 10 | 27.7 27.7 | 27.7 | 7.9 8.0 | 8.0 | 31.7 31.7 | 31.7 | 90.7 90.7 | 90.7 | 6.0 6.0 | 6.0 | | 4.8 4.6 | 4.7 | | <2.5 <2.5 | <2.5 | |
| | | | | Bottom | 19 | 27.7 27.7 | 27.7 | 7.9 7.9 | 7.9 | 31.7 31.7 | 31.7 | 90.4 90.4 | 90.4 | 6.0 6.0 | 6.0 | | 4.5 4.4 | 4.5 | | 3 3 | 3.0 | |
| 19-Oct-16 | Rainy | Rough | 07:14 | Surface | 1 | 28.0 27.9 | 28.0 | 8.1 8.1 | 8.1 | 32.2 32.3 | 32.3 | 93.2 93.0 | 93.1 | 6.1 6.1 | 6.1 | 5.9 | 3.8 3.8 | 3.8 | 4.3 | 6 5 | 5.5 | 5.2 |
| | | | | Middle | 10 | 27.7 27.7 | 27.7 | 8.1 8.1 | 8.1 | 32.4 32.5 | 32.5 | 91.6 91.3 | 91.5 | 6.0 6.0 | 6.0 | | 4.4 4.2 | 4.3 | | 5 5 | 5.0 | |
| | | | | Bottom | 19 | 27.7 27.7 | 27.7 | 8.1 8.1 | 8.1 | 32.8 32.8 | 32.8 | 87.1 87.3 | 87.2 | 5.7 5.7 | 5.7 | | 4.9 4.8 | 4.9 | | 5 5 | 5.0 | |
| 22-Oct-16 | Cloudy | Rough | 10:40 | Surface | 1 | 26.3 26.1 | 26.2 | 8.2 8.2 | 8.2 | 31.1 31.1 | 31.1 | 96.8 97.1 | 97.0 | 6.6 6.6 | 6.6 | 6.5 | 3.1 3.0 | 3.1 | 4.3 | 5 5 | 5.0 | 5.8 |
| | | | | Middle | 10 | 25.8 26.0 | 25.9 | 8.3 8.2 | 8.3 | 31.7 31.6 | 31.7 | 95.0 93.8 | 94.4 | 6.5 6.4 | 6.5 | | 4.5 4.7 | 4.6 | | 5 4 | 4.5 | |
| | | | | Bottom | 19 | 26.4 26.1 | 26.3 | 8.2 8.2 | 8.2 | 32.0 31.9 | 32.0 | 93.0 92.7 | 92.9 | 6.3 6.3 | 6.3 | | 5.2 5.4 | 5.3 | | 8 8 | 8.0 | |

Water Quality Monitoring Results at C2 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 24-Oct-16 | Sunny | Moderate | 13:28 | Surface | 1 | 27.8 27.8 | 27.8 | 8.0 8.0 | 8.0 | 33.5 33.3 | 33.4 | 89.7 89.2 | 89.5 | 5.9 5.8 | 5.9 | 5.6 | 2.8 2.7 | 2.8 | 3.9 | 7 6 | 6.5 | 5.2 |
| | | | | Middle | 9.5 | 27.6 27.5 | 27.6 | 8.1 8.1 | 8.1 | 34.2 34.2 | 34.2 | 86.1 86.4 | 86.3 | 5.6 5.6 | 5.6 | | 4.2 4.0 | 4.1 | | 6 5 | 5.5 | |
| | | | | Bottom | 18 | 27.4 27.4 | 27.4 | 8.2 8.1 | 8.2 | 34.3 34.3 | 34.3 | 81.5 81.9 | 81.7 | 5.3 5.4 | 5.4 | | 5.0 4.8 | 4.9 | | 4 3 | 3.5 | |
| 26-Oct-16 | Sunny | Moderate | 14:55 | Surface | 1 | 28.0 28.0 | 28.0 | 7.9 7.9 | 7.9 | 34.2 34.2 | 34.2 | 88.4 87.9 | 88.2 | 5.7 5.7 | 5.7 | 5.4 | 3.4 3.4 | 3.4 | 4.7 | 5 5 | 5.0 | 3.7 |
| | | | | Middle | 9.5 | 27.7 27.7 | 27.7 | 7.9 7.9 | 7.9 | 34.5 34.5 | 34.5 | 83.8 83.5 | 83.7 | 5.4 5.4 | 5.4 | | 4.5 4.5 | 4.5 | | 3 3 | 3.0 | |
| | | | | Bottom | 18 | 27.6 27.6 | 27.6 | 7.9 8.0 | 8.0 | 34.5 34.5 | 34.5 | 80.4 80.4 | 80.4 | 5.2 5.2 | 5.2 | | 6.1 6.0 | 6.1 | | 3 3 | 3.0 | |
| 28-Oct-16 | Sunny | Moderate | 14:45 | Surface | 1 | 28.3 28.2 | 28.3 | 8.0 8.0 | 8.0 | 32.3 32.4 | 32.4 | 85.9 85.5 | 85.7 | 5.6 5.6 | 5.6 | 5.2 | 3.1 3.2 | 3.2 | 3.8 | 3 3 | 3.0 | 3.0 |
| | | | | Middle | 9.5 | 27.7 27.8 | 27.8 | 7.9 8.0 | 8.0 | 32.7 32.8 | 32.8 | 78.2 78.1 | 78.2 | 5.1 5.1 | 5.1 | | 4.0 3.8 | 3.9 | | 3 3 | 3.0 | |
| | | | | Bottom | 18 | 27.7 27.7 | 27.7 | 7.9 7.9 | 7.9 | 33.3 33.3 | 33.3 | 75.7 76.2 | 76.0 | 5.0 5.0 | 5.0 | | 4.2 4.3 | 4.3 | | 3 3 | 3.0 | |
| 31-Oct-16 | Fine | Moderate | 17:03 | Surface | 1 | 29.1 29.1 | 29.1 | 8.2 8.2 | 8.2 | 33.5 33.4 | 33.5 | 82.0 82.1 | 82.1 | 5.2 5.2 | 5.2 | 5.1 | 3.0 3.2 | 3.1 | 3.6 | 6 5 | 5.5 | 4.5 |
| | | | | Middle | 9.5 | 28.7 28.7 | 28.7 | 8.2 8.2 | 8.2 | 34.0 33.1 | 33.6 | 77.9 77.7 | 77.8 | 5.0 5.0 | 5.0 | | 2.5 2.4 | 2.5 | | 3 3 | 3.0 | |
| | | | | Bottom | 18 | 28.5 28.5 | 28.5 | 8.3 8.3 | 8.3 | 34.9 34.9 | 34.9 | 77.6 77.6 | 77.6 | 5.0 5.0 | 5.0 | | 5.0 5.2 | 5.1 | | 5 5 | 5.0 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough: White capped or rougher.

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Water Quality Monitoring Results at WSD17 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|-------|---------|--------------|---------|-------------------|---------|-------------------------|---------|------|-----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 4-Oct-16 | Fine | Rough | 13:16 | Surface | 1 | 27.6 | 27.6 | 8.3 | 8.3 | 26.1 | 26.2 | 98.4 | 98.6 | 6.7 | 6.7 | 6.7 | 1.7 | 1.7 | 3.8 | 4 | 4.0 | 4.2 |
| | | | | | | 27.6 | | 8.3 | | 26.2 | | 98.8 | | 6.7 | | | 1.7 | | | 4 | 4.0 | |
| | | | | Middle | 6.5 | 27.2 | 27.3 | 8.3 | 8.3 | 26.7 | 26.7 | 97.8 | 97.7 | 6.7 | 6.7 | | 4.9 | 4.8 | | 4 | 4.5 | |
| | | 27.3 | | 8.3 | | 26.7 | | 97.5 | | 6.7 | | 6.7 | | 4.7 | | 5 | 4.5 | | | | | |
| | | 27.1 | 27.1 | 8.3 | 8.3 | 26.9 | 26.9 | 97.0 | 97.1 | 6.6 | 6.7 | 6.7 | 6.7 | 4.8 | 4.8 | 4 | 4.0 | | | | | |
| | | 27.1 | | 8.3 | | 26.8 | | 97.1 | | 6.7 | | 6.7 | | 4.8 | | 4 | 4.0 | | | | | |
| 6-Oct-16 | Sunny | Moderate | 14:23 | Surface | 1 | 28.7 | 28.7 | 8.0 | 8.0 | 28.5 | 28.6 | 83.0 | 83.1 | 5.5 | 5.5 | 5.4 | 3.6 | 3.7 | 4.7 | 3 | 3.0 | 3.7 |
| | | | | | | 28.7 | | 8.0 | | 28.6 | | 83.2 | | 5.5 | | | 3.7 | | | 3 | 3.0 | |
| | | | | Middle | 6.5 | 28.5 | 28.5 | 7.9 | 7.9 | 30.7 | 30.8 | 81.0 | 81.1 | 5.3 | 5.3 | | 4.6 | 4.6 | | 5 | 5.0 | |
| | | 28.5 | | 7.9 | | 30.8 | | 81.2 | | 5.3 | | 5.3 | | 4.6 | | 5 | 5.0 | | | | | |
| | | 28.5 | 28.5 | 8.0 | 8.0 | 31.6 | 31.6 | 81.5 | 81.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.8 | 5.9 | 3 | 3.0 | | | | | |
| | | 28.4 | | 8.0 | | 31.6 | | 81.1 | | 5.3 | | 5.3 | | 5.9 | | 3 | 3.0 | | | | | |
| 8-Oct-16 | Cloudy | Moderate | 15:55 | Surface | 1 | 29.0 | 29.0 | 7.9 | 7.9 | 31.6 | 31.6 | 89.5 | 89.5 | 5.8 | 5.8 | 5.8 | 2.7 | 2.7 | 4.5 | 3 | 3.0 | 3.5 |
| | | | | | | 29.0 | | 7.9 | | 31.6 | | 89.5 | | 5.8 | | | 2.7 | | | 3 | 3.0 | |
| | | | | Middle | 7 | 28.2 | 28.2 | 7.9 | 7.9 | 33.6 | 33.6 | 89.8 | 89.8 | 5.8 | 5.8 | | 4.8 | 4.9 | | 3 | 3.0 | |
| | | 28.2 | | 7.9 | | 33.6 | | 89.8 | | 5.8 | | 5.8 | | 4.9 | | 3 | 3.0 | | | | | |
| | | 28.0 | 28.0 | 7.9 | 7.9 | 33.7 | 33.7 | 89.5 | 89.5 | 5.8 | 5.8 | 5.8 | 5.8 | 5.7 | 5.8 | 5 | 4.5 | | | | | |
| | | 28.0 | | 7.9 | | 33.7 | | 89.5 | | 5.8 | | 5.8 | | 5.8 | | 4 | 4.5 | | | | | |
| 11-Oct-16 | Sunny | Rough | 06:52 | Surface | 1 | 28.1 | 28.2 | 8.1 | 8.1 | 32.4 | 32.5 | 94.7 | 94.6 | 6.2 | 6.2 | 6.1 | 2.5 | 2.8 | 4.7 | 4 | 4.0 | 5.8 |
| | | | | | | 28.2 | | 8.1 | | 32.5 | | 94.4 | | 6.2 | | | 2.5 | | | 4 | 4.0 | |
| | | | | Middle | 7 | 28.0 | 28.1 | 8.1 | 8.1 | 32.7 | 32.7 | 93.2 | 93.5 | 6.1 | 6.1 | | 4.6 | 4.8 | | 5 | 4.5 | |
| | | 28.2 | | 8.1 | | 32.7 | | 93.8 | | 6.1 | | 6.1 | | 4.9 | | 4 | 4.5 | | | | | |
| | | 28.0 | 28.1 | 8.1 | 8.1 | 33.0 | 33.1 | 93.0 | 92.7 | 6.1 | 6.1 | 6.1 | 6.1 | 6.5 | 6.4 | 9 | 9.0 | | | | | |
| | | 28.1 | | 8.1 | | 33.1 | | 92.4 | | 6.0 | | 6.1 | | 6.2 | | 9 | 9.0 | | | | | |
| 13-Oct-16 | Sunny | Moderate | 08:52 | Surface | 1 | 28.2 | 28.2 | 8.1 | 8.1 | 29.1 | 29.7 | 89.2 | 89.3 | 5.9 | 5.9 | 5.8 | 3.3 | 3.4 | 4.3 | 3 | 3.0 | 3.5 |
| | | | | | | 28.2 | | 8.1 | | 30.3 | | 89.4 | | 5.9 | | | 3.4 | | | 3 | 3.0 | |
| | | | | Middle | 6.5 | 28.0 | 28.0 | 8.1 | 8.1 | 32.5 | 32.5 | 89.4 | 89.4 | 5.8 | 5.8 | | 3.8 | 3.8 | | 4 | 3.5 | |
| | | 28.0 | | 8.1 | | 32.5 | | 89.4 | | 5.8 | | 5.8 | | 3.7 | | 4 | 3.5 | | | | | |
| | | 28.0 | 28.0 | 8.1 | 8.1 | 32.5 | 32.5 | 89.2 | 89.2 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 4 | 4.0 | | | | | |
| | | 28.0 | | 8.1 | | 32.5 | | 89.2 | | 5.8 | | 5.8 | | 5.8 | | 4 | 4.0 | | | | | |
| 15-Oct-16 | Sunny | Moderate | 10:27 | Surface | 1 | 27.7 | 27.7 | 8.2 | 8.2 | 30.5 | 30.5 | 91.3 | 91.4 | 6.1 | 6.1 | 6.0 | 3.7 | 3.8 | 4.5 | 5 | 5.0 | 3.8 |
| | | | | | | 27.7 | | 8.2 | | 30.5 | | 91.4 | | 6.1 | | | 3.8 | | | 5 | 5.0 | |
| | | | | Middle | 6.5 | 27.7 | 27.7 | 8.2 | 8.2 | 32.7 | 32.7 | 91.5 | 91.5 | 6.0 | 6.0 | | 4.7 | 4.6 | | 4 | 4.0 | |
| | | 27.7 | | 8.2 | | 32.7 | | 91.5 | | 6.0 | | 6.0 | | 4.4 | | 4 | 4.0 | | | | | |
| | | 27.6 | 27.6 | 8.0 | 8.0 | 32.9 | 32.9 | 90.8 | 90.8 | 6.0 | 6.0 | 6.0 | 6.0 | 5.0 | 5.1 | <2.5 | <2.5 | | | | | |
| | | 27.6 | | 8.0 | | 32.9 | | 90.8 | | 6.0 | | 6.0 | | 5.1 | | <2.5 | <2.5 | | | | | |
| 17-Oct-16 | Cloudy | Rough | 11:51 | Surface | 1 | 27.9 | 27.9 | 8.2 | 8.2 | 32.0 | 32.0 | 96.9 | 96.9 | 6.4 | 6.4 | 6.3 | 4.0 | 4.0 | 4.0 | 4 | 4.0 | 3.7 |
| | | | | | | 27.8 | | 8.2 | | 32.0 | | 96.9 | | 6.4 | | | 4.0 | | | 4 | 4.0 | |
| | | | | Middle | 6.5 | 27.8 | 27.8 | 8.1 | 8.1 | 32.0 | 32.0 | 96.5 | 96.4 | 6.3 | 6.3 | | 4.0 | 4.0 | | 4 | 4.0 | |
| | | 27.8 | | 8.1 | | 32.0 | | 96.3 | | 6.3 | | 6.3 | | 4.0 | | 4 | 4.0 | | | | | |
| | | 27.8 | 27.8 | 8.1 | 8.1 | 32.0 | 32.0 | 96.5 | 96.4 | 6.3 | 6.3 | 6.3 | 6.3 | 4.1 | 4.1 | 3 | 3.0 | | | | | |
| | | 27.8 | | 8.1 | | 32.0 | | 96.3 | | 6.3 | | 6.3 | | 4.1 | | 3 | 3.0 | | | | | |
| 19-Oct-16 | Rainy | Rough | 13:16 | Surface | 1 | 27.9 | 27.9 | 8.0 | 8.0 | 31.9 | 31.9 | 95.6 | 95.4 | 6.3 | 6.3 | 6.2 | 2.8 | 2.8 | 2.8 | 6 | 5.5 | 5.7 |
| | | | | | | 27.8 | | 8.0 | | 31.8 | | 95.2 | | 6.3 | | | 2.8 | | | 5 | 5.5 | |
| | | | | Middle | 7 | 27.8 | 27.8 | 8.0 | 8.0 | 31.4 | 31.4 | 93.9 | 94.0 | 6.2 | 6.2 | | 2.9 | 2.9 | | 6 | 6.0 | |
| | | 27.8 | | 7.9 | | 31.4 | | 94.0 | | 6.2 | | 6.2 | | 2.9 | | 6 | 6.0 | | | | | |
| | | 27.8 | 27.8 | 8.0 | 8.0 | 31.9 | 31.9 | 93.2 | 93.5 | 6.1 | 6.2 | 6.2 | 6.2 | 2.8 | 2.8 | 5 | 5.5 | | | | | |
| | | 27.8 | | 8.0 | | 31.9 | | 93.8 | | 6.2 | | 6.2 | | 2.8 | | 6 | 5.5 | | | | | |

Water Quality Monitoring Results at WSD17 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 22-Oct-16 | Cloudy | Rough | 16:05 | Surface | 1 | 26.3 25.9 | 26.1 | 8.2 8.2 | 8.2 | 32.5 32.3 | 32.4 | 97.3 96.0 | 96.7 | 6.5 6.5 | 6.5 | 6.4 | 3.8 3.4 | 3.6 | 4.6 | 8 8 | 8.0 | 6.3 |
| | | | | Middle | 7 | 26.2 26.0 | 26.1 | 8.2 8.2 | 8.2 | 32.9 32.8 | 32.9 | 95.0 94.7 | 94.9 | 6.4 6.4 | 6.4 | | 4.5 4.8 | 4.7 | | 5 5 | 5.0 | |
| | | | | Bottom | 13 | 25.8 25.9 | 25.9 | 8.2 8.2 | 8.2 | 33.3 33.3 | 33.3 | 93.7 94.6 | 94.2 | 6.3 6.4 | 6.4 | | 5.4 5.6 | 5.5 | | 6 6 | 6.0 | |
| 24-Oct-16 | Sunny | Moderate | 06:33 | Surface | 1 | 27.6 27.6 | 27.6 | 7.8 7.8 | 7.8 | 34.7 34.6 | 34.7 | 82.8 82.8 | 82.8 | 5.4 5.4 | 5.4 | 5.4 | 4.4 4.4 | 4.4 | 4.6 | 3 3 | 3.0 | 4.0 |
| | | | | Middle | 6.5 | 27.4 27.3 | 27.4 | 8.0 8.0 | 8.0 | 34.7 34.8 | 34.8 | 82.5 82.4 | 82.5 | 5.4 5.4 | 5.4 | | 4.1 4.1 | 4.1 | | 4 4 | 4.0 | |
| | | | | Bottom | 12 | 27.3 27.3 | 27.3 | 8.1 8.1 | 8.1 | 34.8 34.8 | 34.8 | 82.3 82.3 | 82.3 | 5.4 5.4 | 5.4 | | 5.2 5.2 | 5.2 | | 5 5 | 5.0 | |
| 26-Oct-16 | Sunny | Moderate | 08:40 | Surface | 1 | 27.8 27.8 | 27.8 | 8.2 8.2 | 8.2 | 33.4 33.4 | 33.4 | 83.6 83.9 | 83.8 | 5.5 5.5 | 5.5 | 5.4 | 4.1 4.1 | 4.1 | 4.2 | 6 6 | 6.0 | 5.0 |
| | | | | Middle | 6.5 | 27.6 27.6 | 27.6 | 8.2 8.2 | 8.2 | 33.7 33.7 | 33.7 | 82.2 82.2 | 82.2 | 5.4 5.4 | 5.4 | | 4.0 3.9 | 4.0 | | 5 5 | 5.0 | |
| | | | | Bottom | 12 | 27.6 27.5 | 27.6 | 8.2 8.3 | 8.3 | 34.1 34.1 | 34.1 | 81.1 81.2 | 81.2 | 5.3 5.3 | 5.3 | | 4.5 4.6 | 4.6 | | 4 4 | 4.0 | |
| 28-Oct-16 | Sunny | Moderate | 08:24 | Surface | 1 | 28.1 28.1 | 28.1 | 7.8 7.8 | 7.8 | 32.4 32.5 | 32.5 | 80.3 79.9 | 80.1 | 5.2 5.2 | 5.2 | 5.2 | 3.0 3.3 | 3.2 | 4.5 | 5 5 | 5.0 | 4.7 |
| | | | | Middle | 6.5 | 28.0 27.9 | 28.0 | 8.0 8.0 | 8.0 | 33.1 33.2 | 33.2 | 79.1 78.7 | 78.9 | 5.2 5.1 | 5.2 | | 4.0 4.1 | 4.1 | | 4 4 | 4.0 | |
| | | | | Bottom | 12 | 27.9 27.8 | 27.9 | 8.0 8.0 | 8.0 | 33.3 33.4 | 33.4 | 78.4 78.3 | 78.4 | 5.1 5.1 | 5.1 | | 6.2 5.9 | 6.1 | | 5 5 | 5.0 | |
| 31-Oct-16 | Sunny | Moderate | 13:44 | Surface | 1 | 28.8 28.8 | 28.8 | 8.2 8.2 | 8.2 | 33.2 33.2 | 33.2 | 81.4 81.4 | 81.4 | 5.2 5.2 | 5.2 | 5.2 | 4.9 4.8 | 4.9 | 4.8 | 6 6 | 6.0 | 5.5 |
| | | | | Middle | 6.5 | 28.7 28.7 | 28.7 | 8.2 8.2 | 8.2 | 33.5 33.5 | 33.5 | 80.9 81.0 | 81.0 | 5.2 5.2 | 5.2 | | 4.2 4.2 | 4.2 | | 6 6 | 6.0 | |
| | | | | Bottom | 12 | 28.6 28.6 | 28.6 | 8.2 8.3 | 8.3 | 33.6 33.6 | 33.6 | 81.0 81.0 | 81.0 | 5.2 5.2 | 5.2 | | 5.4 5.3 | 5.4 | | 4 5 | 4.5 | |

Remarks: *DA: Depth-Averaged
 **Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.
 The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Water Quality Monitoring Results at WSD17 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|-----|--------------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* | | |
| 4-Oct-16 | Fine | Rough | 07:29 | Surface | 1 | 27.8 27.8 | 27.8 | 8.3 8.3 | 8.3 | 26.0 26.3 | 26.2 | 94.6 94.5 | 94.6 | 6.4 6.4 | 6.4 | 6.4 | 2.3 2.5 | 2.4 | 4.4 | 8 9 | 8.5 | 6.0 | | |
| | | | | Middle | 7 | 27.9 27.7 | 27.8 | 8.3 8.3 | 8.3 | 26.7 26.8 | 26.8 | 93.8 94.3 | 94.1 | 6.3 6.4 | 6.4 | | 5.4 5.2 | | | 5.3 | | | 6 5 | 5.5 |
| | | | | Bottom | 13 | 27.6 27.7 | 27.7 | 8.3 8.2 | 8.3 | 26.9 27.0 | 27.0 | 93.7 93.3 | 93.5 | 6.4 6.3 | 6.4 | | 5.5 5.3 | | | 5.4 | | | 4 4 | 4.0 |
| 6-Oct-16 | Sunny | Moderate | 08:45 | Surface | 1 | 28.5 28.5 | 28.5 | 7.9 7.8 | 7.9 | 29.5 29.6 | 29.6 | 85.2 85.2 | 85.2 | 5.6 5.6 | 5.6 | 5.6 | 3.4 3.2 | 3.3 | 4.3 | 3 3 | 3.0 | 3.0 | | |
| | | | | Middle | 6.5 | 28.4 28.4 | 28.4 | 8.0 8.0 | 8.0 | 31.7 31.5 | 31.6 | 85.7 85.6 | 85.7 | 5.6 5.6 | 5.6 | | 3.6 3.7 | | | 3.7 | | | 3 3 | 3.0 |
| | | | | Bottom | 12 | 28.4 28.4 | 28.4 | 8.1 8.1 | 8.1 | 31.8 31.8 | 31.8 | 85.7 85.6 | 85.7 | 5.6 5.6 | 5.6 | | 5.7 5.8 | | | 5.8 | | | 3 3 | 3.0 |
| 8-Oct-16 | Cloudy | Moderate | 11:00 | Surface | 1 | 28.1 28.1 | 28.1 | 7.8 7.8 | 7.8 | 32.1 32.1 | 32.1 | 89.8 89.8 | 89.8 | 5.9 5.9 | 5.9 | 5.8 | 3.2 3.1 | 3.2 | 3.5 | 3 3 | 3.0 | 2.8 | | |
| | | | | Middle | 7 | 28.0 28.0 | 28.0 | 7.9 7.9 | 7.9 | 33.8 33.7 | 33.8 | 90.0 90.0 | 90.0 | 5.8 5.8 | 5.8 | | 3.3 3.3 | | | 3.3 | | | <2.5 <2.5 | <2.5 |
| | | | | Bottom | 13 | 27.8 27.8 | 27.8 | 7.9 7.9 | 7.9 | 33.9 33.9 | 33.9 | 89.8 89.8 | 89.8 | 5.8 5.8 | 5.8 | | 4.1 4.1 | | | 4.1 | | | 3 3 | 3.0 |
| 11-Oct-16 | Fine | Rough | 14:33 | Surface | 1 | 28.0 28.0 | 28.0 | 8.1 8.1 | 8.1 | 32.9 32.8 | 32.9 | 98.3 97.8 | 98.1 | 6.4 6.4 | 6.4 | 6.3 | 2.1 1.9 | 2.0 | 3.1 | 5 5 | 5.0 | 5.3 | | |
| | | | | Middle | 7 | 27.5 27.4 | 27.5 | 8.2 8.1 | 8.2 | 33.4 33.3 | 33.4 | 95.8 95.6 | 95.7 | 6.3 6.3 | 6.3 | | 3.3 3.3 | | | 3.3 | | | 5 5 | 5.0 |
| | | | | Bottom | 13 | 27.9 27.7 | 27.8 | 8.2 8.2 | 8.2 | 33.8 33.8 | 33.8 | 96.0 94.8 | 95.4 | 6.2 6.2 | 6.2 | | 3.9 3.9 | | | 3.9 | | | 6 6 | 6.0 |
| 13-Oct-16 | Sunny | Moderate | 15:45 | Surface | 1 | 28.2 28.2 | 28.2 | 8.1 8.1 | 8.1 | 33.0 33.1 | 33.1 | 91.8 91.7 | 91.8 | 6.0 6.0 | 6.0 | 6.0 | 3.6 3.7 | 3.7 | 3.9 | 3 3 | 3.0 | 2.8 | | |
| | | | | Middle | 7 | 28.0 28.0 | 28.0 | 8.0 8.0 | 8.0 | 33.5 33.4 | 33.5 | 91.9 91.4 | 91.7 | 6.0 5.9 | 6.0 | | 3.4 3.5 | | | 3.5 | | | 3 3 | 3.0 |
| | | | | Bottom | 13 | 28.9 28.9 | 28.9 | 8.0 8.0 | 8.0 | 33.8 33.8 | 33.8 | 93.3 93.3 | 93.3 | 6.0 6.0 | 6.0 | | 4.4 4.4 | | | 4.4 | | | <2.5 <2.5 | <2.5 |
| 15-Oct-16 | Sunny | Moderate | 16:48 | Surface | 1 | 27.8 27.8 | 27.8 | 8.0 8.0 | 8.0 | 31.6 31.6 | 31.6 | 91.2 91.5 | 91.4 | 6.0 6.0 | 6.0 | 6.0 | 4.1 4.0 | 4.1 | 4.7 | 3 4 | 3.5 | 3.2 | | |
| | | | | Middle | 6.5 | 27.7 27.7 | 27.7 | 8.0 8.0 | 8.0 | 31.6 31.6 | 31.6 | 90.8 90.8 | 90.8 | 6.0 6.0 | 6.0 | | 4.2 4.2 | | | 4.2 | | | 3 4 | 3.5 |
| | | | | Bottom | 12 | 27.2 27.7 | 27.5 | 8.0 8.0 | 8.0 | 31.6 31.7 | 31.7 | 90.0 90.8 | 90.4 | 6.0 6.0 | 6.0 | | 5.8 5.6 | | | 5.7 | | | <2.5 <2.5 | <2.5 |
| 19-Oct-16 | Rainy | Rough | 07:29 | Surface | 1 | 27.8 27.9 | 27.9 | 8.0 8.0 | 8.0 | 31.9 31.8 | 31.9 | 89.5 89.9 | 89.7 | 5.9 5.9 | 5.9 | 5.9 | 3.6 3.8 | 3.7 | 3.8 | 8 9 | 8.5 | 6.8 | | |
| | | | | Middle | 7 | 27.8 27.8 | 27.8 | 8.0 8.0 | 8.0 | 32.4 32.4 | 32.4 | 90.0 90.3 | 90.2 | 5.9 5.9 | 5.9 | | 3.4 3.4 | | | 3.4 | | | 6 6 | 6.0 |
| | | | | Bottom | 13 | 27.7 27.8 | 27.8 | 7.9 7.9 | 7.9 | 32.5 32.5 | 32.5 | 89.3 89.3 | 89.3 | 5.9 5.9 | 5.9 | | 4.3 4.2 | | | 4.3 | | | 6 6 | 6.0 |
| 22-Oct-16 | Cloudy | Rough | 10:56 | Surface | 1 | 26.3 26.7 | 26.5 | 8.1 8.2 | 8.2 | 31.8 31.8 | 31.8 | 92.6 94.0 | 93.3 | 6.3 6.3 | 6.3 | 6.2 | 3.8 3.9 | 3.9 | 4.2 | 7 7 | 7.0 | 5.7 | | |
| | | | | Middle | 7 | 26.3 26.3 | 26.3 | 8.2 8.3 | 8.3 | 32.0 32.0 | 32.0 | 91.9 93.2 | 92.6 | 6.2 6.3 | 6.3 | | 3.8 3.8 | | | 3.8 | | | 5 5 | 5.0 |
| | | | | Bottom | 13 | 25.8 25.6 | 25.7 | 8.2 8.3 | 8.3 | 32.2 32.3 | 32.3 | 90.1 89.8 | 90.0 | 6.1 6.1 | 6.1 | | 4.7 4.8 | | | 4.8 | | | 5 5 | 5.0 |

Water Quality Monitoring Results at WSD17 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 24-Oct-16 | Sunny | Moderate | 13:51 | Surface | 1 | 27.8 27.8 | 27.8 | 8.1 8.1 | 8.1 | 34.6 34.6 | 34.6 | 87.5 87.5 | 87.5 | 5.7 5.7 | 5.7 | 5.5 | 3.8 3.9 | 3.9 | 4.4 | 8 8 | 8.0 | 5.7 |
| | | | | Middle | 6.5 | 27.5 27.5 | 27.5 | 8.1 8.1 | 8.1 | 34.9 34.8 | 34.9 | 85.6 85.5 | 85.6 | 5.6 5.6 | 5.6 | | 4.3 4.3 | 4.3 | | 6 6 | 6.0 | |
| | | | | Bottom | 12 | 27.4 27.4 | 27.4 | 8.1 8.1 | 8.1 | 34.8 34.9 | 34.9 | 80.8 81.1 | 81.0 | 5.3 5.3 | 5.3 | | 5.0 5.0 | 5.0 | | 3 3 | 3.0 | |
| 26-Oct-16 | Sunny | Moderate | 15:22 | Surface | 1 | 28.1 28.0 | 28.1 | 8.1 8.1 | 8.1 | 34.1 34.1 | 34.1 | 86.0 85.7 | 85.9 | 5.6 5.6 | 5.6 | 5.5 | 3.5 3.4 | 3.5 | 4.4 | <2.5 <2.5 | <2.5 | <2.5 |
| | | | | Middle | 6.5 | 27.7 27.7 | 27.7 | 8.1 8.1 | 8.1 | 34.3 32.3 | 33.3 | 84.8 83.7 | 84.3 | 5.5 5.5 | 5.5 | | 4.5 4.6 | 4.6 | | <2.5 <2.5 | <2.5 | |
| | | | | Bottom | 12 | 27.6 27.6 | 27.6 | 8.0 8.0 | 8.0 | 34.6 34.5 | 34.6 | 83.4 83.5 | 83.5 | 5.4 5.4 | 5.4 | | 5.0 5.0 | 5.0 | | <2.5 <2.5 | <2.5 | |
| 28-Oct-16 | Sunny | Moderate | 15:08 | Surface | 1 | 28.3 28.3 | 28.3 | 8.0 8.0 | 8.0 | 31.9 32.0 | 32.0 | 81.9 82.1 | 82.0 | 5.3 5.4 | 5.4 | 5.3 | 3.5 3.3 | 3.4 | 4.2 | 8 8 | 8.0 | 5.0 |
| | | | | Middle | 7 | 28.0 28.0 | 28.0 | 8.1 8.1 | 8.1 | 32.5 33.0 | 32.8 | 79.9 80.3 | 80.1 | 5.2 5.2 | 5.2 | | 4.3 4.4 | 4.4 | | 4 4 | 4.0 | |
| | | | | Bottom | 13 | 27.9 27.9 | 27.9 | 8.0 8.0 | 8.0 | 33.0 32.7 | 32.9 | 78.7 78.9 | 78.8 | 5.1 5.2 | 5.2 | | 4.9 4.7 | 4.8 | | 3 3 | 3.0 | |
| 31-Oct-16 | Fine | Moderate | 17:29 | Surface | 1 | 28.9 28.9 | 28.9 | 8.0 8.0 | 8.0 | 33.3 33.3 | 33.3 | 81.8 81.6 | 81.7 | 5.2 5.2 | 5.2 | 5.1 | 3.5 3.7 | 3.6 | 4.0 | 5 6 | 5.5 | 6.2 |
| | | | | Middle | 6.5 | 28.8 28.8 | 28.8 | 8.1 8.1 | 8.1 | 33.6 33.5 | 33.6 | 79.7 79.9 | 79.8 | 5.1 5.1 | 5.1 | | 3.7 3.9 | 3.8 | | 6 6 | 6.0 | |
| | | | | Bottom | 12 | 28.8 28.8 | 28.8 | 8.1 8.1 | 8.1 | 33.8 33.8 | 33.8 | 79.7 79.7 | 79.7 | 5.1 5.1 | 5.1 | | 4.6 4.8 | 4.7 | | 7 7 | 7.0 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Water Quality Monitoring Results at WSD9 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 4-Oct-16 | Fine | Rough | 15:25 | Surface | 1 | 27.6 27.5 | 27.6 | 8.3 8.3 | 8.3 | 25.9 26.0 | 26.0 | 98.2 97.7 | 98.0 | 6.7 6.7 | 6.7 | 6.7 | 1.9 1.9 | 1.9 | 3.7 | 3 3 | 3.0 | 6.2 |
| | | | | Middle | 3.5 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 26.5 26.5 | 26.5 | 97.5 97.5 | 97.5 | 6.7 6.7 | 6.7 | | 4.2 4.0 | 4.1 | | 10 10 | 10.0 | |
| | | | | Bottom | 6 | 27.3 27.3 | 27.3 | 8.3 8.3 | 8.3 | 26.7 26.8 | 26.8 | 97.4 97.2 | 97.3 | 6.7 6.6 | 6.7 | | 5.1 5.0 | 5.1 | | 6 5 | 5.5 | |
| 6-Oct-16 | Sunny | Moderate | 16:36 | Surface | 1 | 28.8 28.8 | 28.8 | 7.9 7.9 | 7.9 | 28.5 28.6 | 28.6 | 80.7 80.9 | 80.8 | 5.3 5.3 | 5.3 | 5.2 | 3.9 3.9 | 3.9 | 3.8 | 3 3 | 3.0 | 3.3 |
| | | | | Middle | 3.5 | 28.6 28.7 | 28.7 | 7.9 7.9 | 7.9 | 28.9 28.9 | 28.9 | 78.9 79.1 | 79.0 | 5.2 5.2 | 5.2 | | 3.6 3.5 | 3.6 | | 3 3 | 3.0 | |
| | | | | Bottom | 6 | 28.6 28.6 | 28.6 | 7.9 7.9 | 7.9 | 29.2 29.1 | 29.2 | 78.6 78.4 | 78.5 | 5.2 5.2 | 5.2 | | 3.8 3.8 | 3.8 | | 4 4 | 4.0 | |
| 8-Oct-16 | Cloudy | Moderate | 17:59 | Surface | 1 | 28.1 28.1 | 28.1 | 7.8 7.8 | 7.8 | 32.4 32.3 | 32.4 | 89.2 89.2 | 89.2 | 5.8 5.8 | 5.8 | 5.8 | 1.9 1.9 | 1.9 | 2.7 | 3 3 | 3.0 | 3.2 |
| | | | | Middle | 3.5 | 28.1 28.1 | 28.1 | 7.7 7.8 | 7.8 | 32.9 32.9 | 32.9 | 89.0 89.1 | 89.1 | 5.8 5.8 | 5.8 | | 2.1 2.2 | 2.2 | | 3 3 | 3.0 | |
| | | | | Bottom | 6 | 27.8 27.8 | 27.8 | 7.7 7.7 | 7.7 | 32.9 32.9 | 32.9 | 88.4 88.5 | 88.5 | 5.8 5.8 | 5.8 | | 3.9 4.0 | 4.0 | | 4 3 | 3.5 | |
| 11-Oct-16 | Sunny | Rough | 08:58 | Surface | 1 | 28.5 28.5 | 28.5 | 8.1 8.1 | 8.1 | 33.1 33.2 | 33.2 | 97.5 98.1 | 97.8 | 6.3 6.3 | 6.3 | 6.2 | 4.1 4.0 | 4.1 | 4.6 | 4 5 | 4.5 | 4.5 |
| | | | | Middle | 3.5 | 28.2 27.9 | 28.1 | 8.1 8.1 | 8.1 | 33.4 33.2 | 33.3 | 96.0 94.2 | 95.1 | 6.2 6.1 | 6.2 | | 4.3 4.7 | 4.5 | | 5 5 | 5.0 | |
| | | | | Bottom | 6 | 27.8 27.8 | 27.8 | 8.1 8.2 | 8.2 | 33.8 33.7 | 33.8 | 93.9 92.4 | 93.2 | 6.1 6.0 | 6.1 | | 5.1 5.1 | 5.1 | | 4 4 | 4.0 | |
| 13-Oct-16 | Sunny | Moderate | 11:03 | Surface | 1 | 28.0 28.0 | 28.0 | 8.1 8.1 | 8.1 | 33.9 33.9 | 33.9 | 90.2 90.2 | 90.2 | 5.9 5.9 | 5.9 | 5.8 | 3.7 3.3 | 3.5 | 4.1 | 3 4 | 3.5 | 3.0 |
| | | | | Middle | 3.5 | 27.8 27.8 | 27.8 | 8.1 8.1 | 8.1 | 33.8 33.8 | 33.8 | 89.1 89.1 | 89.1 | 5.8 5.8 | 5.8 | | 4.0 4.1 | 4.1 | | <2.5 <2.5 | <2.5 | |
| | | | | Bottom | 6 | 27.7 27.7 | 27.7 | 8.1 8.1 | 8.1 | 33.7 33.7 | 33.7 | 88.8 88.8 | 88.8 | 5.8 5.8 | 5.8 | | 4.6 4.7 | 4.7 | | 3 3 | 3.0 | |
| 15-Oct-16 | Sunny | Moderate | 12:34 | Surface | 1 | 28.3 28.2 | 28.3 | 8.2 8.3 | 8.3 | 32.3 32.6 | 32.5 | 94.1 94.6 | 94.4 | 6.1 6.2 | 6.2 | 6.2 | 2.2 2.1 | 2.2 | 2.4 | <2.5 <2.5 | <2.5 | 3.2 |
| | | | | Middle | 3.5 | 28.2 28.2 | 28.2 | 8.3 8.3 | 8.3 | 32.6 32.6 | 32.6 | 94.6 94.7 | 94.7 | 6.2 6.2 | 6.2 | | 2.3 2.2 | 2.3 | | 4 4 | 4.0 | |
| | | | | Bottom | 6 | 28.1 28.1 | 28.1 | 8.3 8.3 | 8.3 | 32.7 32.7 | 32.7 | 94.4 94.7 | 94.6 | 6.2 6.2 | 6.2 | | 2.9 2.7 | 2.8 | | 3 3 | 3.0 | |
| 17-Oct-16 | Cloudy | Rough | 14:07 | Surface | 1 | 28.0 27.9 | 28.0 | 7.7 7.7 | 7.7 | 32.7 32.7 | 32.7 | 96.2 96.1 | 96.2 | 6.3 6.3 | 6.3 | 6.4 | 3.7 3.7 | 3.7 | 3.6 | 8 8 | 8.0 | 4.5 |
| | | | | Middle | 4 | 27.8 27.8 | 27.8 | 7.8 7.8 | 7.8 | 32.7 32.7 | 32.7 | 97.0 97.0 | 97.0 | 6.4 6.4 | 6.4 | | 3.7 3.6 | 3.7 | | 3 3 | 3.0 | |
| | | | | Bottom | 7 | 27.8 27.8 | 27.8 | 7.9 7.9 | 7.9 | 32.6 32.6 | 32.6 | 97.1 96.9 | 97.0 | 6.4 6.4 | 6.4 | | 3.5 3.5 | 3.5 | | <2.5 <2.5 | <2.5 | |
| 19-Oct-16 | Rainy | Rough | 15:18 | Surface | 1 | 27.8 27.8 | 27.8 | 7.9 7.9 | 7.9 | 31.1 31.1 | 31.1 | 94.2 94.2 | 94.2 | 6.2 6.2 | 6.2 | 6.2 | 2.1 2.0 | 2.1 | 2.1 | 6 6 | 6.0 | 6.3 |
| | | | | Middle | 3.5 | 27.8 27.8 | 27.8 | 8.0 8.0 | 8.0 | 31.2 31.3 | 31.3 | 93.0 93.3 | 93.2 | 6.1 6.2 | 6.2 | | 2.3 2.3 | 2.3 | | 5 6 | 5.5 | |
| | | | | Bottom | 6 | 27.7 27.6 | 27.7 | 7.9 7.9 | 7.9 | 31.3 31.3 | 31.3 | 92.6 92.6 | 92.6 | 6.1 6.1 | 6.1 | | 1.9 2.1 | 2.0 | | 8 7 | 7.5 | |

Water Quality Monitoring Results at WSD9 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | | |
|-----------|-------------------|-----------------|---------------|-----------|------|------------------|---------|-------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|-----|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* | |
| 22-Oct-16 | Cloudy | Rough | 18:07 | Surface | 1 | 26.4 | 26.4 | 8.2 | 8.2 | 31.9 | 32.0 | 94.9 | 95.1 | 6.4 | 6.4 | 6.4 | 3.8 | 3.5 | 4.5 | 7 | 7.0 | 6.8 | |
| | | | | | 26.4 | | 8.1 | 8.2 | 32.1 | 32.4 | 95.2 | 6.4 | 3.2 | | 7 | | 7.0 | | | | | | |
| | | | | Middle | 3.5 | 26.5 | 26.2 | 8.2 | 8.2 | 32.4 | 32.4 | 94.8 | 93.9 | 6.4 | 6.4 | | 4.8 | 4.8 | | 4.8 | 7 | | 7.0 |
| | | | | | 25.8 | | 8.1 | 8.2 | 32.3 | 32.4 | 93.0 | 6.3 | 4.8 | | 7 | | 7.0 | | | | | | |
| | | | | Bottom | 6 | 26.1 | 25.9 | 8.1 | 8.2 | 32.6 | 32.5 | 92.8 | 92.7 | 6.3 | 6.3 | | 5.1 | 5.1 | | 5.1 | 6 | | 6.5 |
| | | | | | 25.7 | | 8.2 | 8.2 | 32.4 | 32.5 | 92.6 | 6.3 | 6.3 | 5.1 | 5.1 | | 7 | 6.5 | | | | | |
| 24-Oct-16 | Sunny | Moderate | 08:51 | Surface | 1 | 27.9 | 27.9 | 7.7 | 7.8 | 33.2 | 33.3 | 87.2 | 87.2 | 5.7 | 5.7 | 5.6 | 4.3 | 4.5 | 4.8 | 3 | 3.0 | 3.3 | |
| | | | | | 27.8 | | 7.8 | 7.9 | 33.3 | 33.3 | 87.1 | 5.7 | 4.7 | | 3 | | 3.0 | | | | | | |
| | | | | Middle | 3.5 | 27.7 | 27.7 | 7.9 | 7.9 | 33.4 | 33.4 | 86.4 | 86.3 | 5.6 | 5.6 | | 5.0 | 5.2 | | 5.3 | 4 | | 4.0 |
| | | | | | 27.7 | | 7.9 | 7.9 | 33.4 | 33.4 | 86.2 | 5.6 | 5.6 | 4 | 4.0 | | | | | | | | |
| | | | | Bottom | 6 | 27.5 | 27.5 | 8.0 | 8.0 | 33.7 | 33.7 | 85.1 | 85.2 | 5.6 | 5.6 | | 4.7 | 4.7 | | 4.7 | 3 | | 3.0 |
| | | | | | 27.5 | | 8.0 | 8.0 | 33.7 | 33.7 | 85.3 | 5.6 | 5.6 | 4.7 | 4.7 | | 3 | 3.0 | | | | | |
| 26-Oct-16 | Sunny | Moderate | 10:55 | Surface | 1 | 28.1 | 28.1 | 7.6 | 7.6 | 34.2 | 34.2 | 83.4 | 83.4 | 5.4 | 5.4 | 5.3 | 3.6 | 3.6 | 3.8 | 5 | 5.0 | 4.7 | |
| | | | | | 28.1 | | 7.6 | 7.6 | 34.2 | 34.2 | 83.4 | 5.4 | 5.4 | 3.6 | 3.6 | | 5 | 5.0 | | | | | |
| | | | | Middle | 3.5 | 27.8 | 27.8 | 7.9 | 7.9 | 33.7 | 33.7 | 81.7 | 81.7 | 5.3 | 5.3 | | 3.4 | 3.3 | | 3.2 | 5 | | 5.0 |
| | | | | | 27.8 | | 7.9 | 7.9 | 33.7 | 33.7 | 81.7 | 5.3 | 5.3 | 3.2 | 3.3 | | 5 | 5.0 | | | | | |
| | | | | Bottom | 6 | 27.6 | 27.6 | 8.0 | 8.0 | 34.1 | 34.1 | 81.3 | 81.3 | 5.3 | 5.3 | | 4.5 | 4.5 | | 4.4 | 4 | | 4.0 |
| | | | | | 27.6 | | 8.0 | 8.0 | 34.1 | 34.1 | 81.2 | 5.3 | 5.3 | 4.4 | 4.5 | | 4 | 4.0 | | | | | |
| 28-Oct-16 | Sunny | Moderate | 10:45 | Surface | 1 | 28.4 | 28.4 | 7.5 | 7.6 | 32.0 | 32.1 | 81.1 | 81.2 | 5.3 | 5.3 | 5.3 | 3.4 | 3.5 | 4.2 | 4 | 4.0 | 3.7 | |
| | | | | | 28.4 | | 7.6 | 7.6 | 32.1 | 32.1 | 81.2 | 5.3 | 5.3 | 3.5 | 3.5 | | 4 | 4.0 | | | | | |
| | | | | Middle | 3.5 | 28.4 | 28.4 | 7.7 | 7.8 | 32.3 | 32.3 | 81.6 | 81.7 | 5.3 | 5.3 | | 4.0 | 3.9 | | 3.8 | 3 | | 3.0 |
| | | | | | 28.4 | | 7.8 | 7.8 | 32.3 | 32.3 | 81.7 | 5.3 | 5.3 | 3.8 | 3.9 | | 3 | 3.0 | | | | | |
| | | | | Bottom | 6 | 28.2 | 28.2 | 7.8 | 7.9 | 32.5 | 32.5 | 82.0 | 82.1 | 5.3 | 5.4 | | 5.4 | 5.3 | | 5.2 | 4 | | 4.0 |
| | | | | | 28.2 | | 7.9 | 7.9 | 32.5 | 32.5 | 82.2 | 5.4 | 5.4 | 5.2 | 5.3 | | 4 | 4.0 | | | | | |
| 31-Oct-16 | Sunny | Moderate | 15:58 | Surface | 1 | 29.1 | 29.1 | 8.0 | 8.0 | 32.7 | 32.7 | 80.7 | 80.8 | 5.2 | 5.2 | 5.2 | 3.3 | 3.4 | 3.5 | 3 | 3.0 | 3.5 | |
| | | | | | 29.1 | | 8.0 | 8.0 | 32.7 | 32.7 | 80.8 | 5.2 | 5.2 | 3.5 | 3.4 | | 3 | 3.0 | | | | | |
| | | | | Middle | 3.5 | 29.0 | 29.0 | 7.9 | 7.9 | 32.7 | 32.7 | 80.2 | 80.3 | 5.2 | 5.2 | | 3.4 | 3.5 | | 3.6 | 4 | | 3.5 |
| | | | | | 29.0 | | 7.9 | 7.9 | 32.7 | 32.7 | 80.4 | 5.2 | 5.2 | 3.6 | 3.5 | | 3 | 3.5 | | | | | |
| | | | | Bottom | 6 | 28.9 | 28.9 | 7.9 | 7.9 | 32.7 | 32.7 | 79.9 | 80.0 | 5.1 | 5.2 | | 3.6 | 3.6 | | 3.5 | 4 | | 4.0 |
| | | | | | 28.8 | | 7.9 | 7.9 | 32.7 | 32.7 | 80.0 | 5.2 | 5.2 | 3.5 | 3.6 | | 4 | 4.0 | | | | | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Water Quality Monitoring Results at WSD9 - Mid-Flood Tide

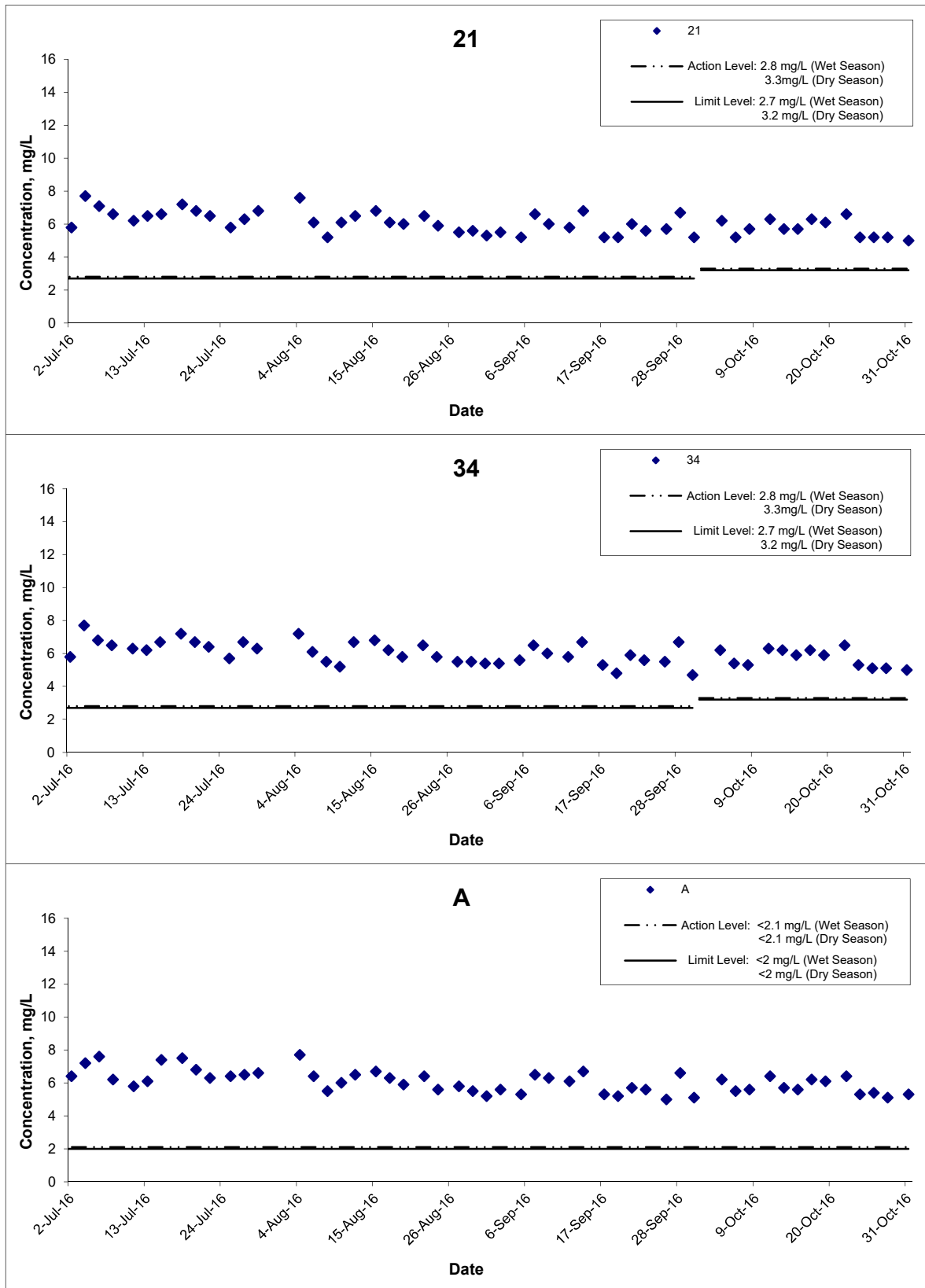
| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|-------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 4-Oct-16 | Fine | Rough | 09:39 | Surface | 1 | 27.8 | 27.8 | 8.2 | 8.3 | 26.0 | 26.1 | 94.8 | 94.7 | 6.4 | 6.4 | 6.4 | 2.5 | 2.6 | 4.1 | 8 | 8 | 5.7 |
| | | | | Middle | 3.5 | 27.7 | 27.7 | 8.3 | 8.3 | 26.6 | 26.7 | 94.5 | 94.6 | 6.4 | 6.4 | | 2.6 | 3.4 | | 5 | 5 | |
| | | | | Bottom | 6 | 27.7 | 27.6 | 8.2 | 8.3 | 26.8 | 27.0 | 94.3 | 94.7 | 6.4 | 6.4 | | 3.3 | 6.2 | | 4 | 4 | |
| | | | | | | 27.6 | 27.6 | 8.3 | 8.3 | 27.0 | 27.0 | 95.0 | 94.7 | 6.4 | 6.4 | | 6.2 | | 4 | 4 | | |
| | | | | | | 27.6 | 27.6 | 8.2 | 8.3 | 27.0 | 27.0 | 94.4 | 94.7 | 6.4 | 6.4 | | 6.2 | | 4 | 4 | | |
| 6-Oct-16 | Sunny | Moderate | 11:00 | Surface | 1 | 28.7 | 28.7 | 7.8 | 7.8 | 27.2 | 27.9 | 78.5 | 78.7 | 5.2 | 5.2 | 5.2 | 2.5 | 2.5 | 4.4 | <2.5 | <2.5 | 3.0 |
| | | | | Middle | 3.5 | 28.6 | 28.5 | 7.8 | 7.9 | 28.5 | 28.3 | 78.8 | 78.6 | 5.2 | 5.2 | | 2.5 | 4.7 | | <2.5 | <2.5 | |
| | | | | Bottom | 6 | 28.5 | 28.5 | 7.9 | 7.9 | 27.5 | 28.3 | 78.0 | 78.3 | 5.2 | 5.2 | | 4.6 | 6.1 | | <2.5 | <2.5 | |
| | | | | | | 28.5 | 28.5 | 7.9 | 7.9 | 28.9 | 29.1 | 79.3 | 79.3 | 5.2 | 5.2 | | 6.0 | | 4 | 4 | | |
| | | | | | | 28.5 | 28.5 | 7.8 | 7.9 | 29.2 | 29.1 | 79.2 | 79.3 | 5.2 | 5.2 | | 6.0 | | 4 | 4 | | |
| 8-Oct-16 | Cloudy | Moderate | 13:07 | Surface | 1 | 28.3 | 28.4 | 7.8 | 7.8 | 32.7 | 32.7 | 89.0 | 89.1 | 5.8 | 5.8 | 5.8 | 2.3 | 2.3 | 3.3 | <2.5 | <2.5 | 2.7 |
| | | | | Middle | 3.5 | 28.4 | 28.1 | 7.8 | 7.9 | 32.6 | 33.2 | 89.1 | 89.0 | 5.8 | 5.8 | | 2.3 | 4.0 | | <2.5 | <2.5 | |
| | | | | Bottom | 6 | 28.1 | 28.0 | 7.9 | 7.9 | 33.1 | 33.1 | 88.9 | 89.5 | 5.8 | 5.8 | | 3.9 | 3.5 | | <2.5 | <2.5 | |
| | | | | | | 28.0 | 28.0 | 7.8 | 7.9 | 33.1 | 33.1 | 89.5 | 89.5 | 5.8 | 5.8 | | 3.6 | | 3 | 3 | | |
| | | | | | | 28.0 | 28.0 | 7.9 | 7.9 | 33.1 | 33.1 | 89.5 | 89.5 | 5.8 | 5.8 | | 3.4 | | 3 | 3 | | |
| 11-Oct-16 | Fine | Rough | 16:34 | Surface | 1 | 28.0 | 28.1 | 8.0 | 8.1 | 32.4 | 32.5 | 96.2 | 95.8 | 6.3 | 6.3 | 6.2 | 2.3 | 2.2 | 3.1 | 3 | 4 | 5.8 |
| | | | | Middle | 3.5 | 28.1 | 27.9 | 8.1 | 8.1 | 32.5 | 32.9 | 95.4 | 94.7 | 6.2 | 6.2 | | 2.1 | 3.5 | | 7 | 6 | |
| | | | | Bottom | 6 | 27.8 | 27.4 | 8.1 | 8.1 | 32.8 | 33.1 | 95.0 | 92.7 | 6.2 | 6.1 | | 3.4 | 3.7 | | 6 | 7 | |
| | | | | | | 27.5 | 27.3 | 8.1 | 8.1 | 33.0 | 33.0 | 92.8 | 92.7 | 6.1 | 6.1 | | 3.6 | | 7 | 8 | | |
| | | | | | | 27.3 | 27.3 | 8.1 | 8.1 | 33.0 | 33.0 | 92.7 | 92.7 | 6.1 | 6.1 | | 3.7 | | 8 | 7 | | |
| 13-Oct-16 | Sunny | Moderate | 17:55 | Surface | 1 | 28.4 | 28.4 | 8.0 | 8.0 | 33.1 | 33.1 | 91.4 | 91.4 | 5.9 | 5.9 | 5.9 | 3.5 | 3.6 | 3.5 | <2.5 | <2.5 | 3.2 |
| | | | | Middle | 3.5 | 28.4 | 28.3 | 8.0 | 8.0 | 33.1 | 33.1 | 91.4 | 91.1 | 5.9 | 5.9 | | 3.6 | 3.2 | | <2.5 | <2.5 | |
| | | | | Bottom | 6 | 28.3 | 28.3 | 8.0 | 8.0 | 33.1 | 33.0 | 91.1 | 90.8 | 5.9 | 5.9 | | 3.2 | 3.8 | | 3 | 4 | |
| | | | | | | 28.3 | 28.2 | 8.0 | 8.0 | 33.0 | 33.0 | 90.9 | 90.7 | 5.9 | 5.9 | | 3.9 | | 4 | 4 | | |
| | | | | | | 28.2 | 28.3 | 8.0 | 8.0 | 33.0 | 33.0 | 90.7 | 90.7 | 5.9 | 5.9 | | 3.7 | | 4 | 4 | | |
| 15-Oct-16 | Sunny | Moderate | 19:00 | Surface | 1 | 28.3 | 28.3 | 8.0 | 8.0 | 32.1 | 32.1 | 93.9 | 93.9 | 6.1 | 6.1 | 6.1 | 3.9 | 3.9 | 3.8 | <2.5 | <2.5 | 2.7 |
| | | | | Middle | 3.5 | 28.3 | 28.2 | 7.9 | 7.9 | 32.0 | 32.4 | 93.9 | 93.4 | 6.1 | 6.1 | | 3.9 | 3.4 | | <2.5 | <2.5 | |
| | | | | Bottom | 6 | 28.2 | 28.1 | 7.9 | 7.9 | 32.5 | 31.4 | 93.5 | 92.7 | 6.1 | 6.1 | | 3.2 | 4.1 | | <2.5 | <2.5 | |
| | | | | | | 28.1 | 28.1 | 7.9 | 7.9 | 31.4 | 31.4 | 93.2 | 92.7 | 6.1 | 6.1 | | 3.3 | | 3 | 3 | | |
| | | | | | | 28.1 | 28.1 | 7.9 | 7.9 | 31.4 | 31.4 | 92.7 | 92.7 | 6.1 | 6.1 | | 4.1 | | 3 | 3 | | |
| 19-Oct-16 | Rainy | Rough | 09:31 | Surface | 1 | 27.7 | 27.7 | 7.9 | 7.9 | 31.7 | 31.8 | 89.8 | 89.7 | 5.9 | 5.9 | 6.0 | 2.5 | 2.5 | 3.1 | 6 | 5 | 6.2 |
| | | | | Middle | 3.5 | 27.7 | 27.6 | 7.9 | 7.9 | 31.8 | 31.8 | 89.5 | 90.4 | 5.9 | 6.0 | | 2.5 | 3.1 | | 6 | 6 | |
| | | | | Bottom | 6 | 27.6 | 27.6 | 7.9 | 7.9 | 31.8 | 31.7 | 90.4 | 90.0 | 6.0 | 6.0 | | 3.0 | 3.6 | | 6 | 7 | |
| | | | | | | 27.6 | 27.6 | 7.9 | 7.9 | 31.7 | 31.7 | 89.8 | 90.1 | 5.9 | 6.0 | | 3.7 | | 7 | 7 | | |
| | | | | | | 27.6 | 27.6 | 7.9 | 7.9 | 31.7 | 31.7 | 90.1 | 90.0 | 6.0 | 6.0 | | 3.5 | | 7 | 7 | | |
| 22-Oct-16 | Cloudy | Rough | 13:01 | Surface | 1 | 26.3 | 26.4 | 8.2 | 8.2 | 32.3 | 32.4 | 95.6 | 95.6 | 6.4 | 6.4 | 6.3 | 3.4 | 3.2 | 3.6 | 6 | 6 | 6.3 |
| | | | | Middle | 4 | 26.4 | 25.9 | 8.2 | 8.3 | 32.4 | 32.5 | 95.6 | 93.3 | 6.4 | 6.3 | | 3.0 | 3.6 | | 6 | 5 | |
| | | | | Bottom | 7 | 25.7 | 25.7 | 8.3 | 8.3 | 32.4 | 32.4 | 91.6 | 91.6 | 6.2 | 6.2 | | 3.5 | 4.1 | | 6 | 6 | |
| | | | | | | 26.0 | 26.1 | 8.2 | 8.3 | 33.0 | 32.9 | 92.4 | 92.1 | 6.2 | 6.2 | | 4.1 | | 8 | 7 | | |
| | | | | | | 26.1 | 26.1 | 8.3 | 8.3 | 32.8 | 32.9 | 91.7 | 92.1 | 6.2 | 6.2 | | 4.1 | | 7 | 7 | | |

Water Quality Monitoring Results at WSD9 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 24-Oct-16 | Sunny | Moderate | 16:09 | Surface | 1 | 27.8 27.7 | 27.8 | 7.9 7.9 | 7.9 | 33.4 33.5 | 33.5 | 85.7 85.6 | 85.7 | 5.6 5.6 | 5.6 | 5.5 | 3.0 3.1 | 3.1 | 4.1 | 5 5 | 5.0 | 5.7 |
| | | | | Middle | 3.5 | 27.6 27.6 | 27.6 | 7.9 8.0 | 8.0 | 33.6 33.7 | 33.7 | 84.2 84.1 | 84.2 | 5.5 5.5 | 5.5 | | 3.4 3.4 | 3.4 | | 4 4 | 4.0 | |
| | | | | Bottom | 6 | 27.6 27.6 | 27.6 | 7.9 7.9 | 7.9 | 33.8 33.8 | 33.8 | 84.1 83.7 | 83.9 | 5.5 5.5 | 5.5 | | 5.7 5.6 | 5.7 | | 8 8 | 8.0 | |
| 26-Oct-16 | Sunny | Moderate | 17:38 | Surface | 1 | 28.0 28.0 | 28.0 | 7.9 7.9 | 7.9 | 34.2 34.1 | 34.2 | 82.2 82.5 | 82.4 | 5.3 5.3 | 5.3 | 5.3 | 3.5 3.5 | 3.5 | 4.1 | 3 3 | 3.0 | 3.0 |
| | | | | Middle | 3.5 | 27.7 27.7 | 27.7 | 7.9 7.9 | 7.9 | 34.4 34.4 | 34.4 | 81.1 81.3 | 81.2 | 5.3 5.3 | 5.3 | | 3.2 3.3 | 3.3 | | <2.5 <2.5 | <2.5 | |
| | | | | Bottom | 6 | 27.7 27.7 | 27.7 | 7.9 7.9 | 7.9 | 34.6 34.6 | 34.6 | 81.1 80.6 | 80.9 | 5.3 5.2 | 5.3 | | 5.6 5.6 | 5.6 | | 3 4 | 3.5 | |
| 28-Oct-16 | Sunny | Moderate | 17:24 | Surface | 1 | 28.5 28.5 | 28.5 | 7.9 7.9 | 7.9 | 32.4 32.4 | 32.4 | 84.4 84.4 | 84.4 | 5.5 5.5 | 5.5 | 5.4 | 4.6 4.6 | 4.6 | 4.7 | 4 4 | 4.0 | 5.7 |
| | | | | Middle | 3.5 | 28.4 28.3 | 28.4 | 7.8 7.9 | 7.9 | 32.6 32.7 | 32.7 | 83.4 83.5 | 83.5 | 5.4 5.4 | 5.4 | | 4.5 4.4 | 4.5 | | 5 5 | 5.0 | |
| | | | | Bottom | 6 | 28.3 28.3 | 28.3 | 7.9 7.9 | 7.9 | 32.8 32.8 | 32.8 | 82.9 82.8 | 82.9 | 5.4 5.4 | 5.4 | | 5.0 5.2 | 5.1 | | 8 8 | 8.0 | |
| 31-Oct-16 | Fine | Moderate | 19:36 | Surface | 1 | 29.3 29.3 | 29.3 | 7.7 7.7 | 7.7 | 32.4 32.4 | 32.4 | 82.7 82.7 | 82.7 | 5.3 5.3 | 5.3 | 5.2 | 2.8 3.2 | 3.0 | 4.2 | 4 3 | 3.5 | 3.8 |
| | | | | Middle | 3.5 | 29.1 29.1 | 29.1 | 7.8 7.8 | 7.8 | 32.7 32.7 | 32.7 | 81.1 81.1 | 81.1 | 5.2 5.2 | 5.2 | | 4.7 4.5 | 4.6 | | 4 4 | 4.0 | |
| | | | | Bottom | 6 | 29.1 29.1 | 29.1 | 7.8 7.8 | 7.8 | 32.8 32.8 | 32.8 | 81.2 81.0 | 81.1 | 5.2 5.2 | 5.2 | | 5.0 5.0 | 5.0 | | 4 4 | 4.0 | |

Remarks: *DA: Depth-Averaged
 **Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.
 The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Dissolved Oxygen (Surface) at Mid-Ebb Tide



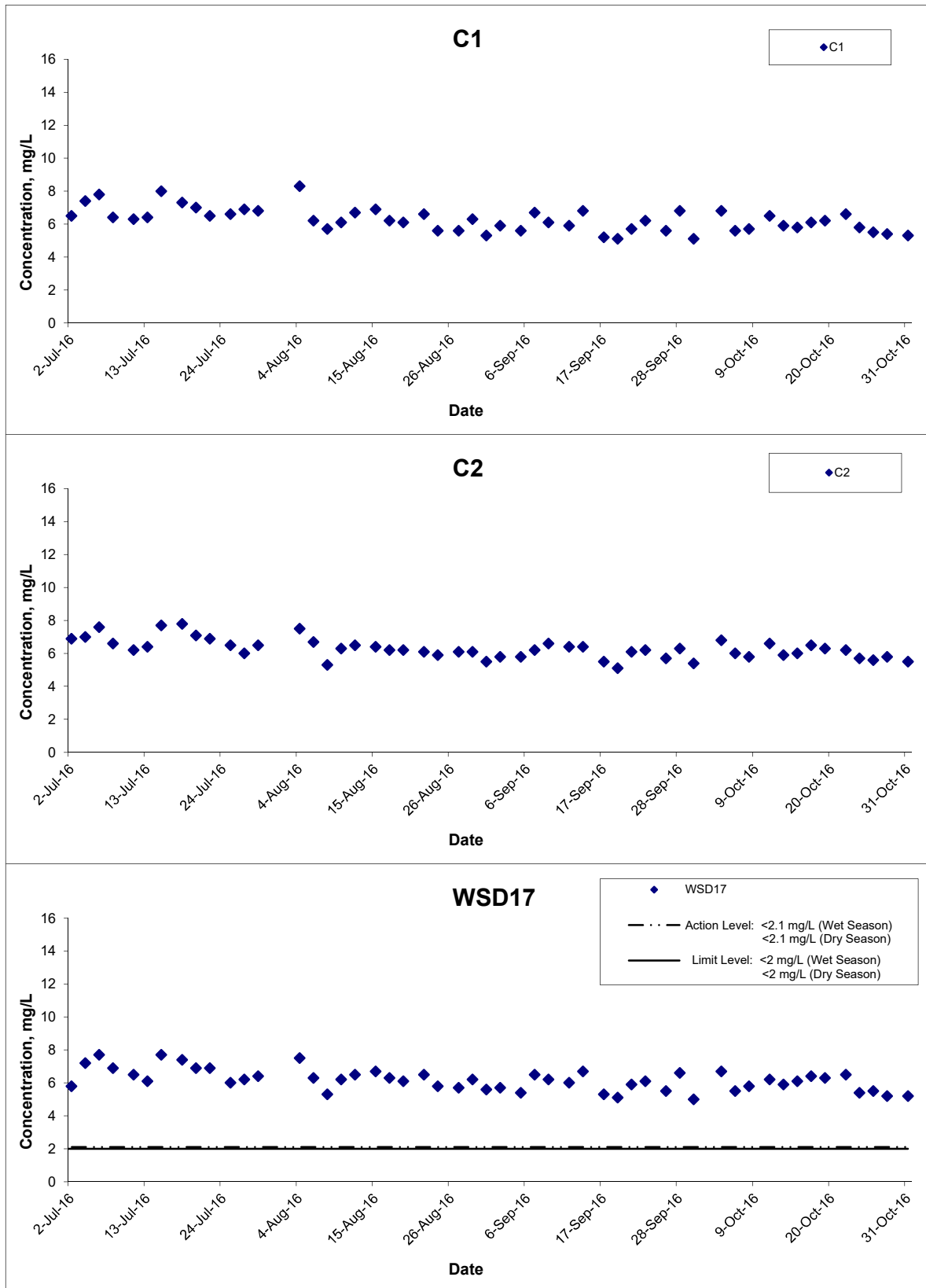
Title
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Dissolved Oxygen (Surface) at Mid-Ebb Tide



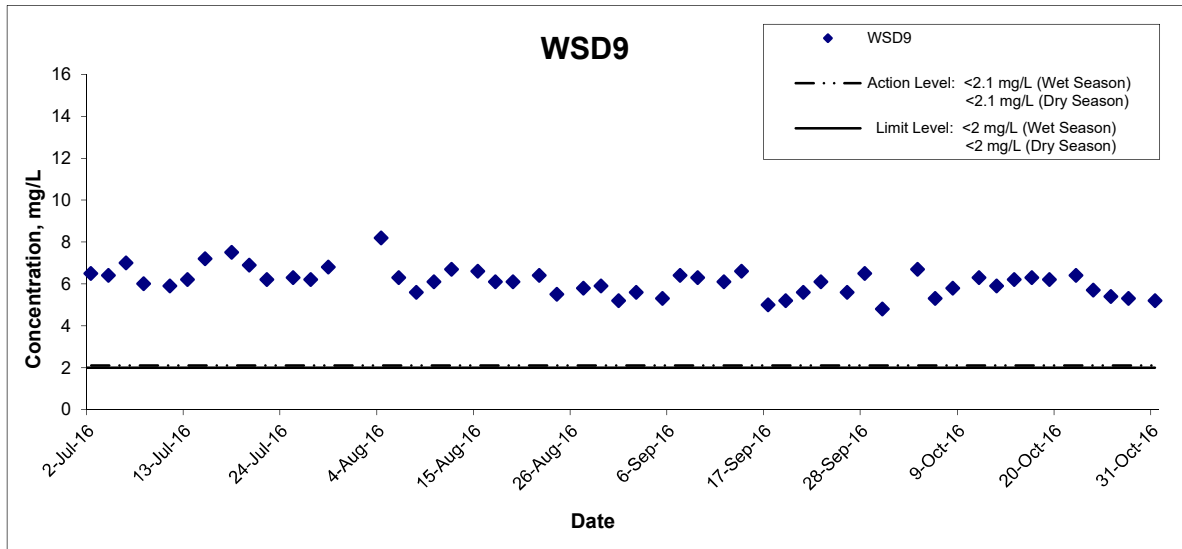
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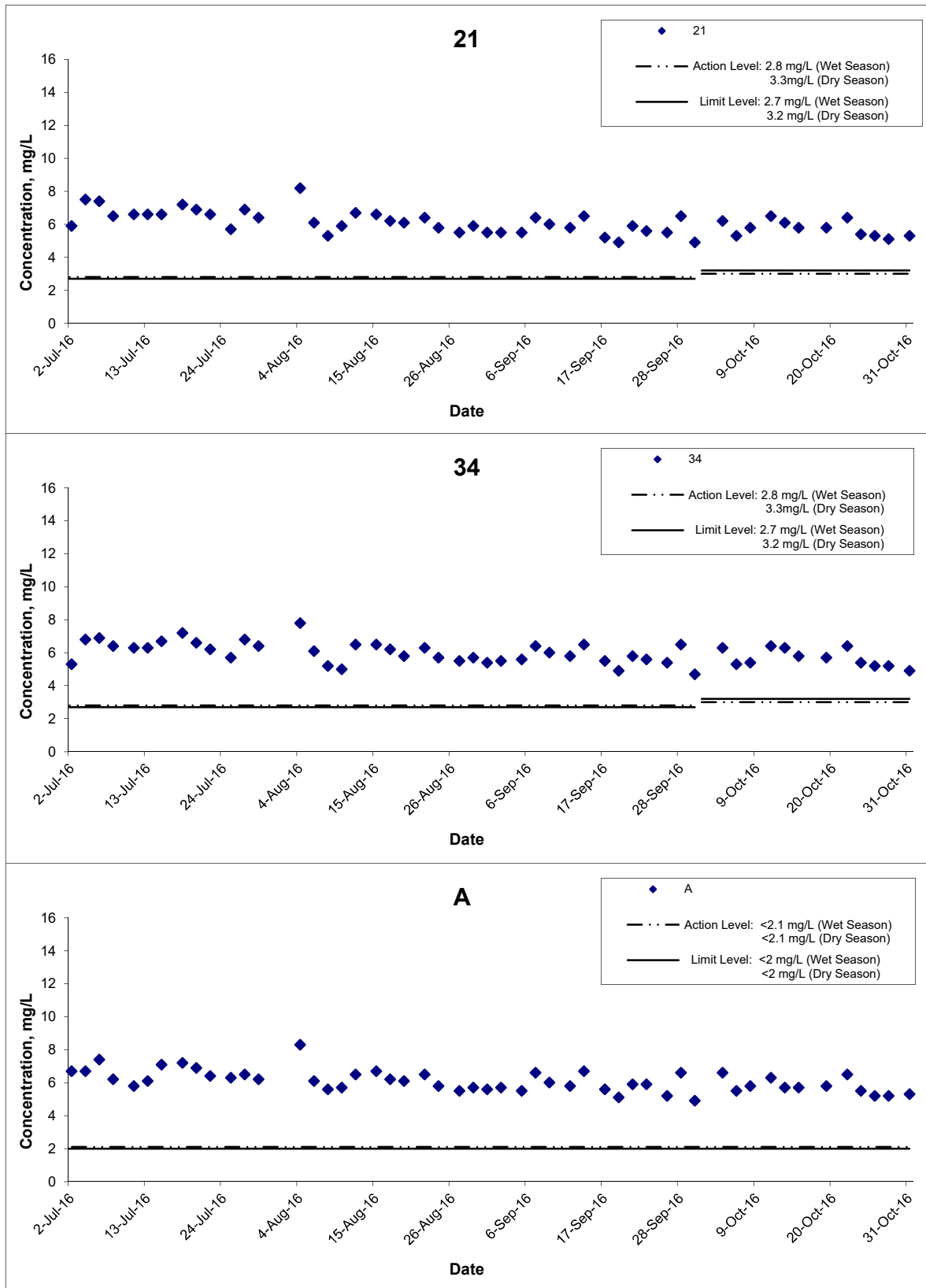
Dissolved Oxygen (Surface) at Mid-Ebb Tide



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| Title Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results | Scale | N.T.S | Project No. | MA14047 |
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Dissolved Oxygen (Surface) at Mid-Flood Tide



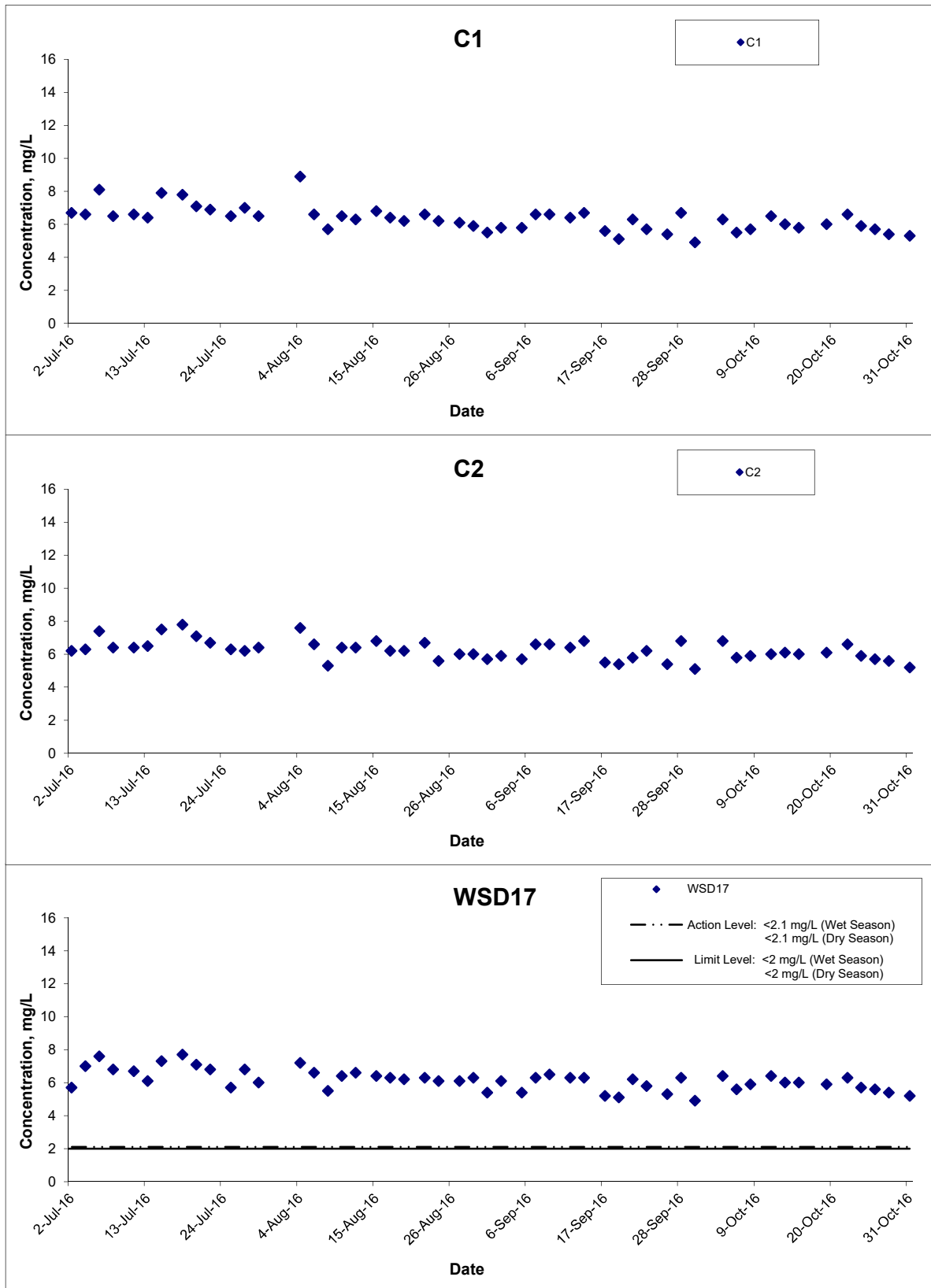
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Dissolved Oxygen (Surface) at Mid-Flood Tide



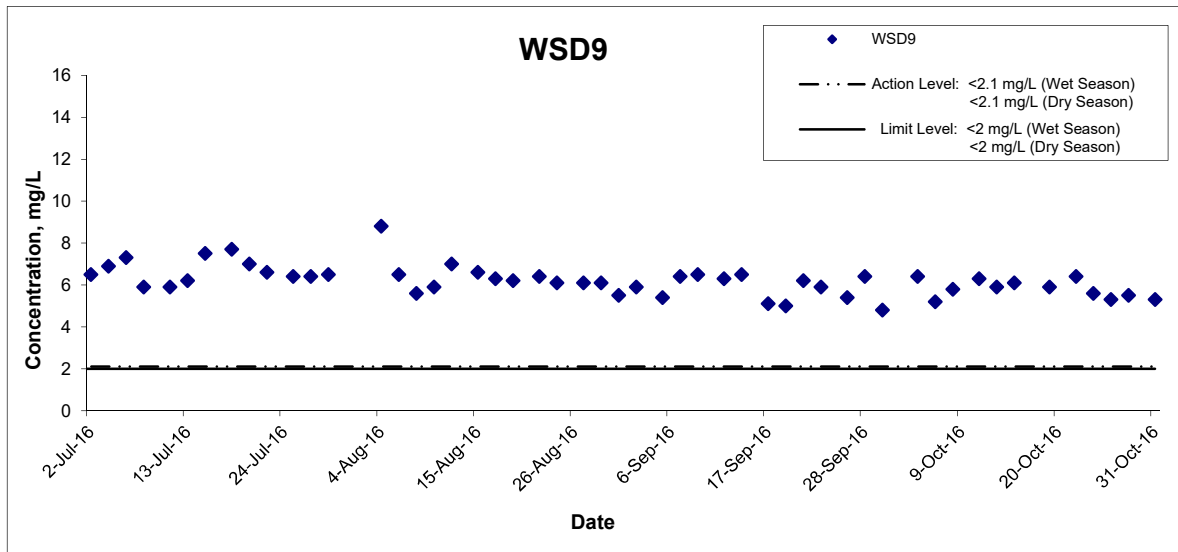
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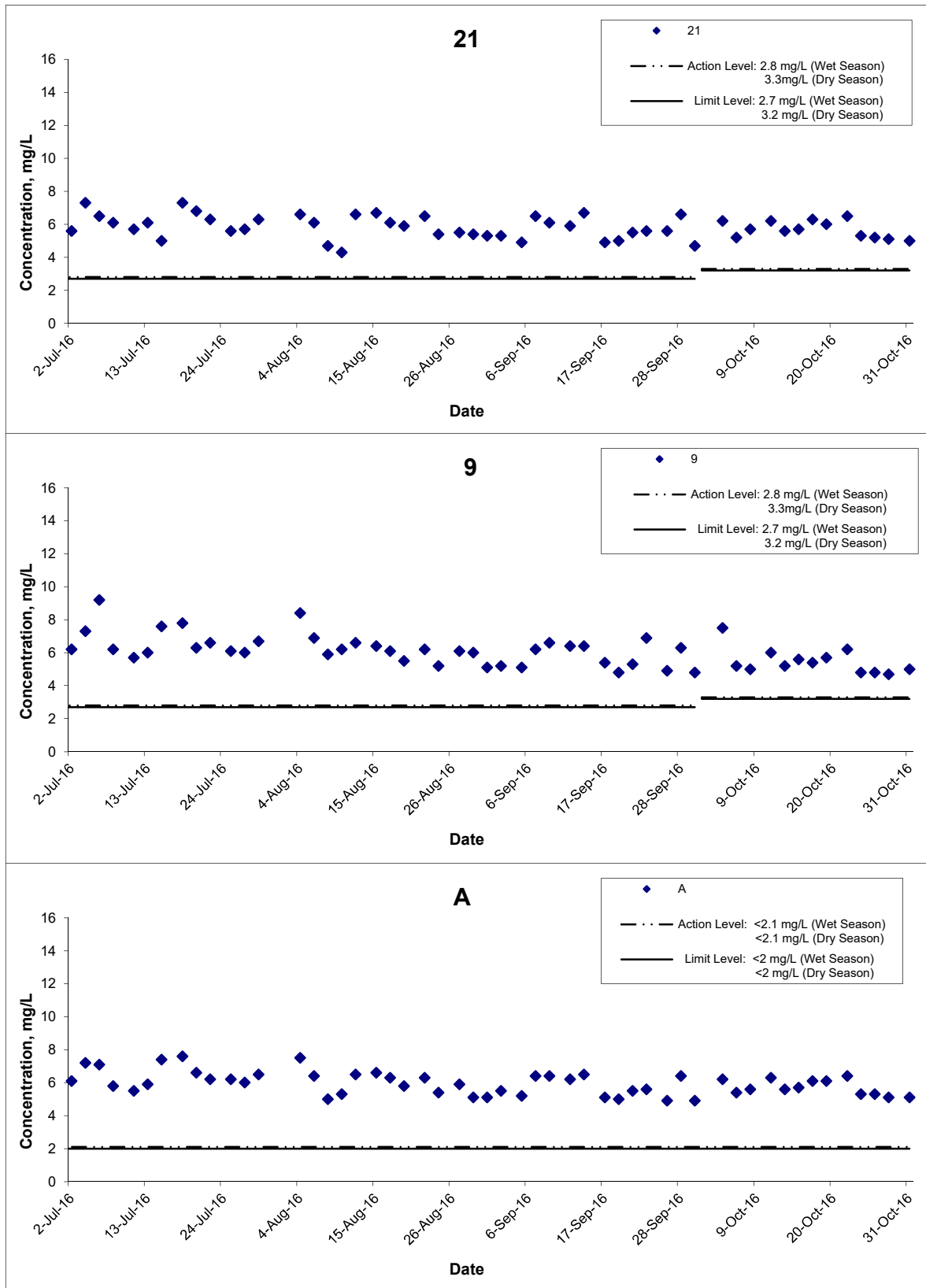


Dissolved Oxygen (Surface) at Mid-Flood Tide



| | | | |
|---|----------------|------------------------|--|
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Dissolved Oxygen (Middle) at Mid-Ebb Tide



Title
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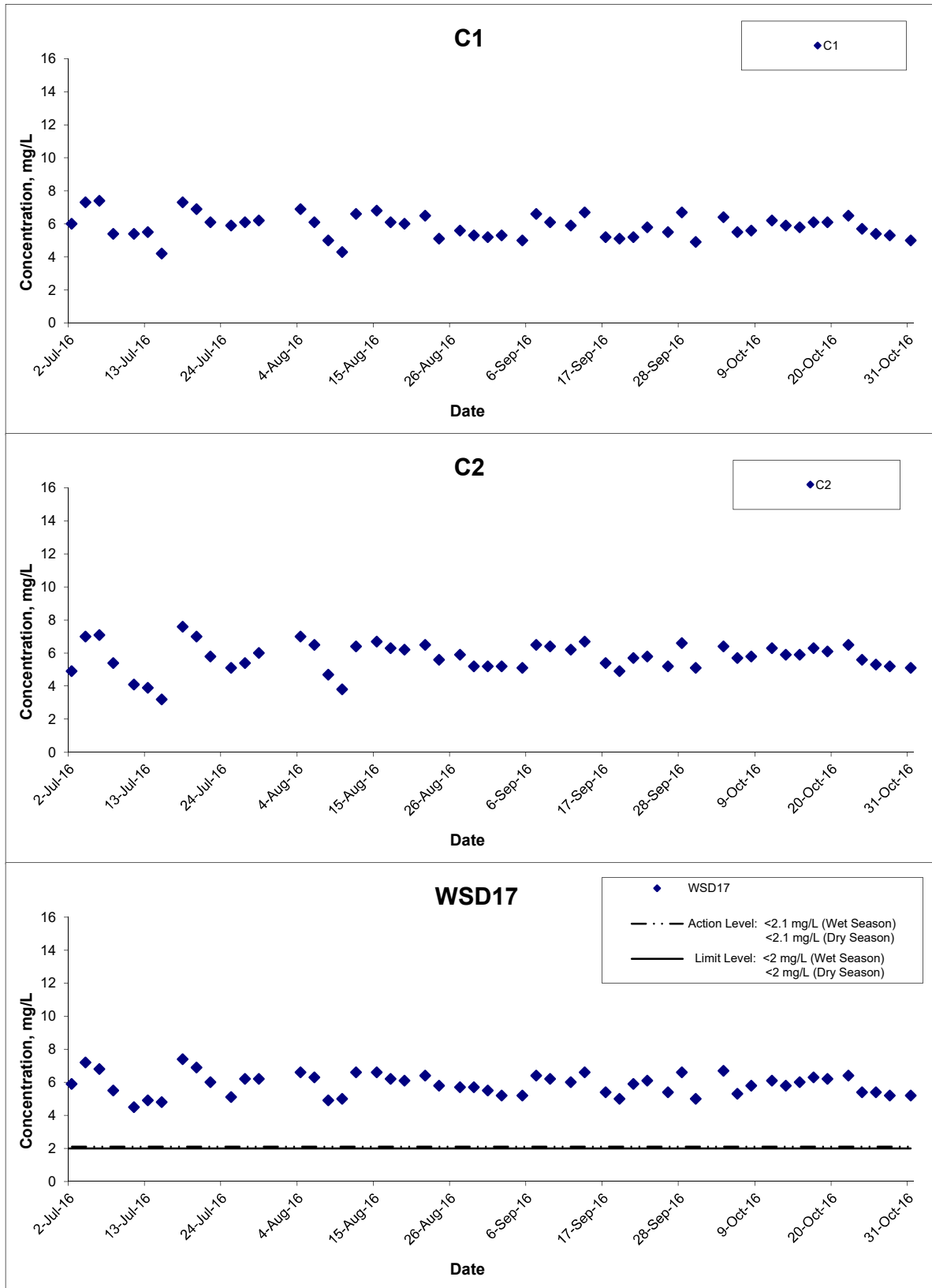
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Dissolved Oxygen (Middle) at Mid-Ebb Tide



Title
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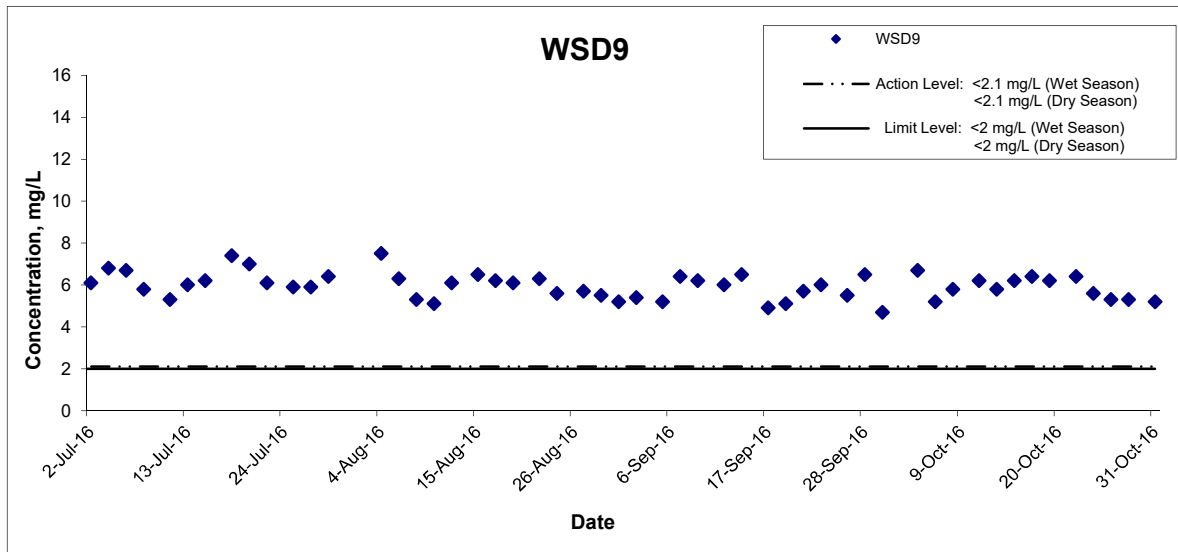
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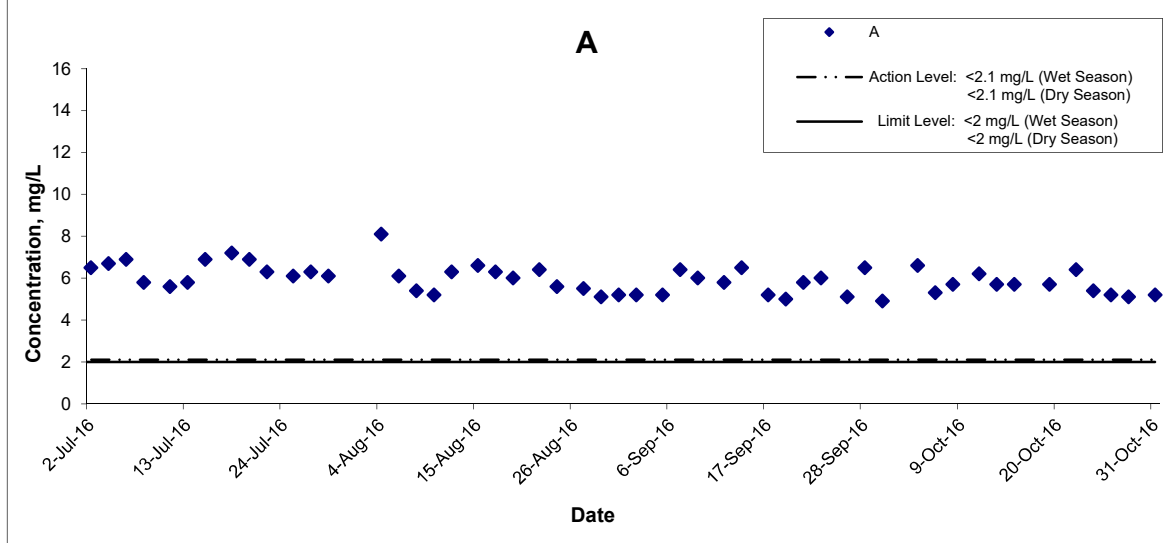
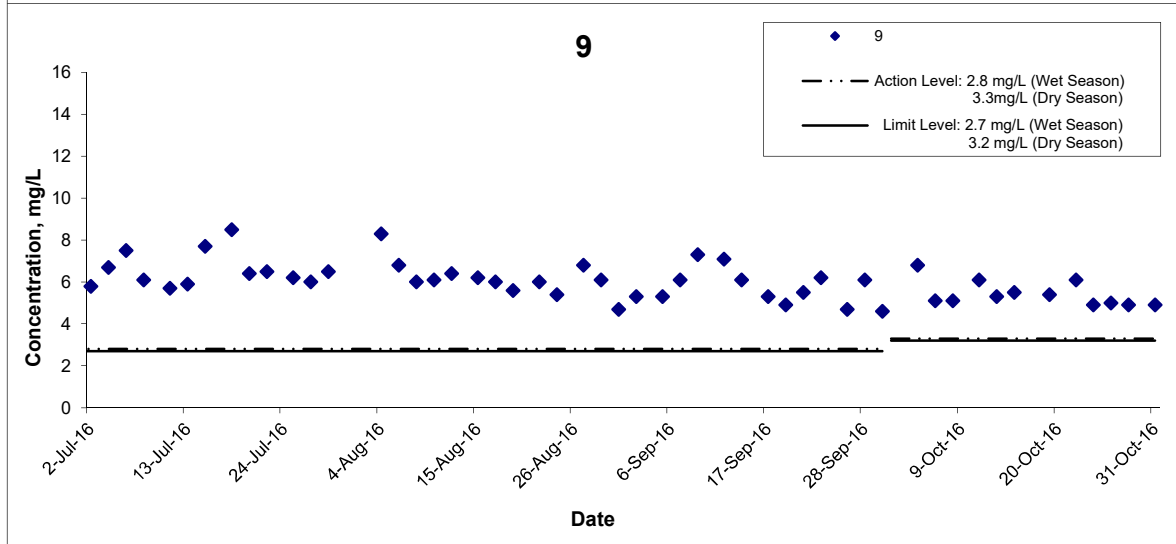
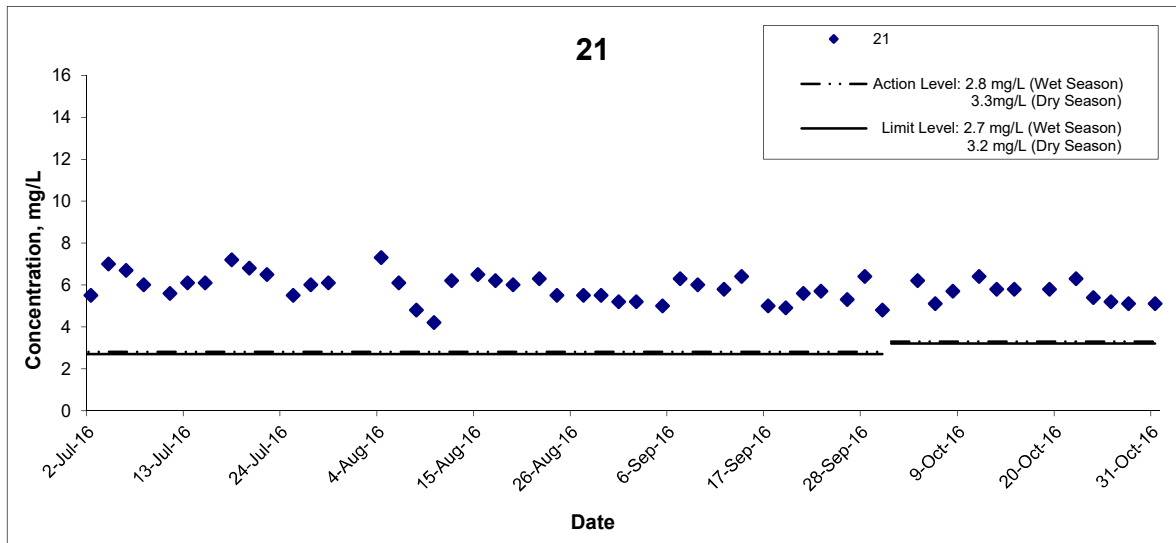


Dissolved Oxygen (Middle) at Mid-Ebb Tide



| | | | |
|---|----------------|------------------------|--|
| Title Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results | Scale N.T.S | Project No. MA14047 | |
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Dissolved Oxygen (Middle) at Mid-Flood Tide



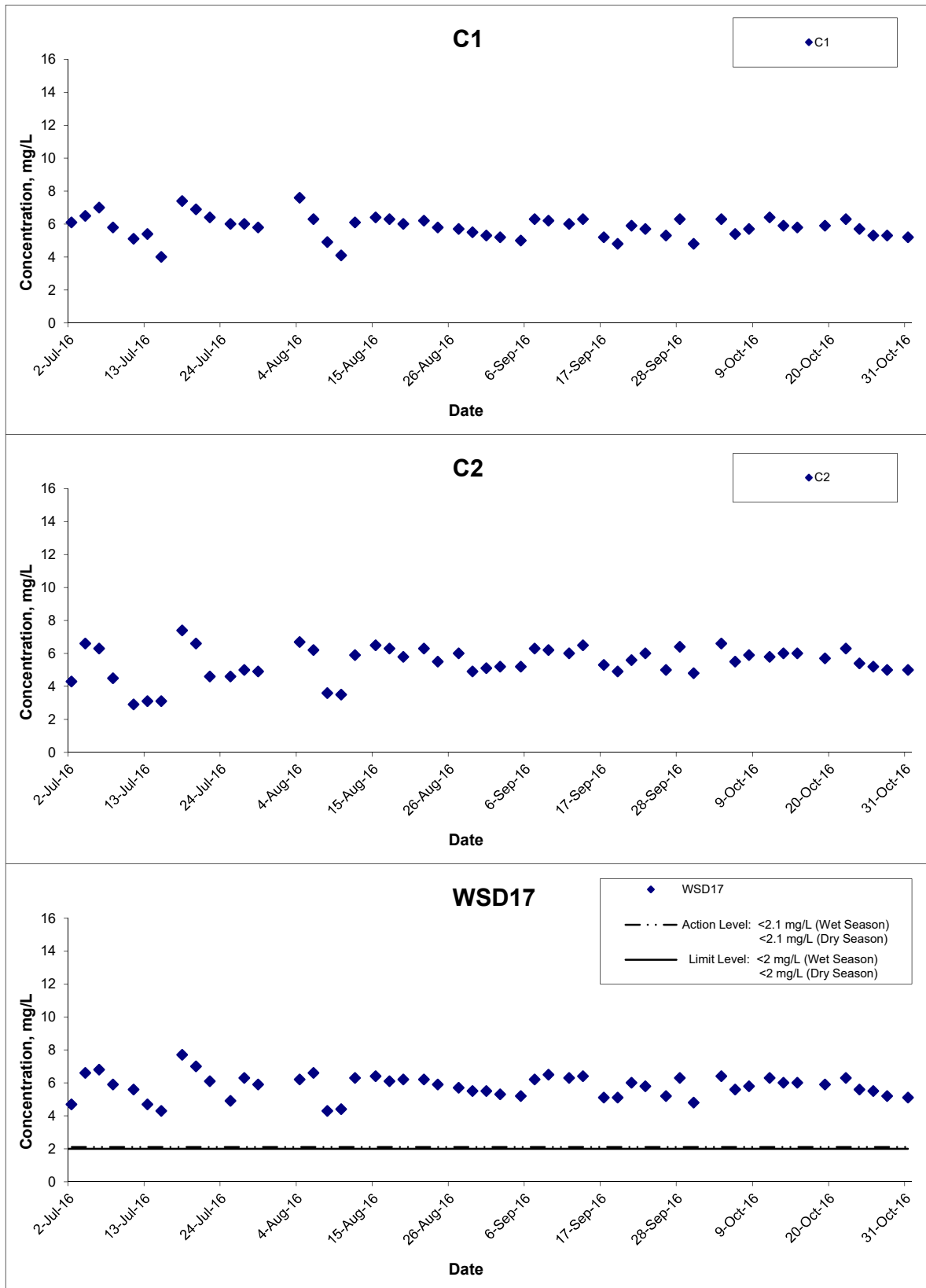
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Dissolved Oxygen (Middle) at Mid-Flood Tide



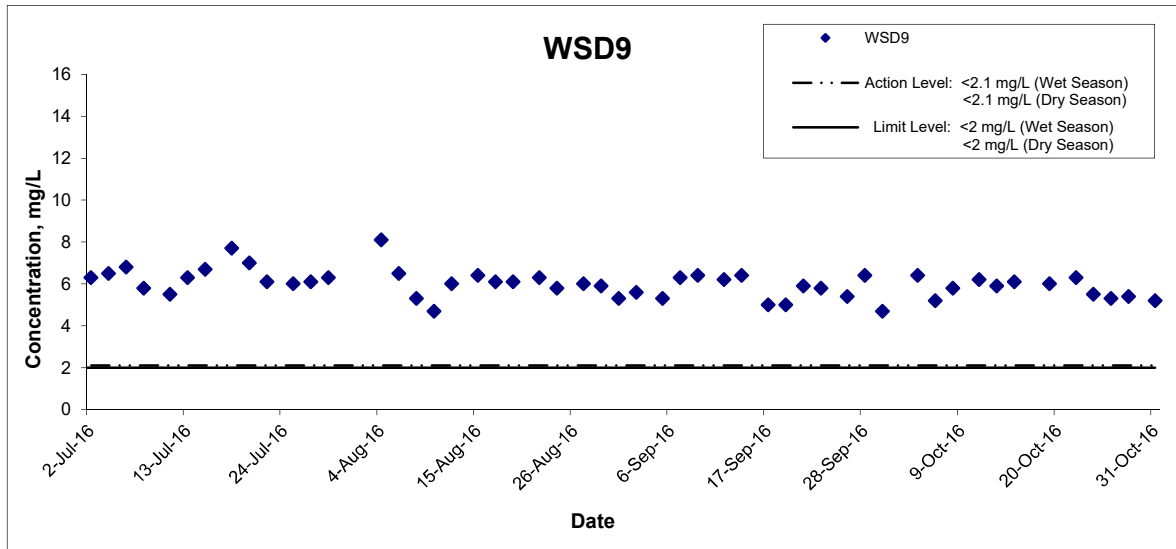
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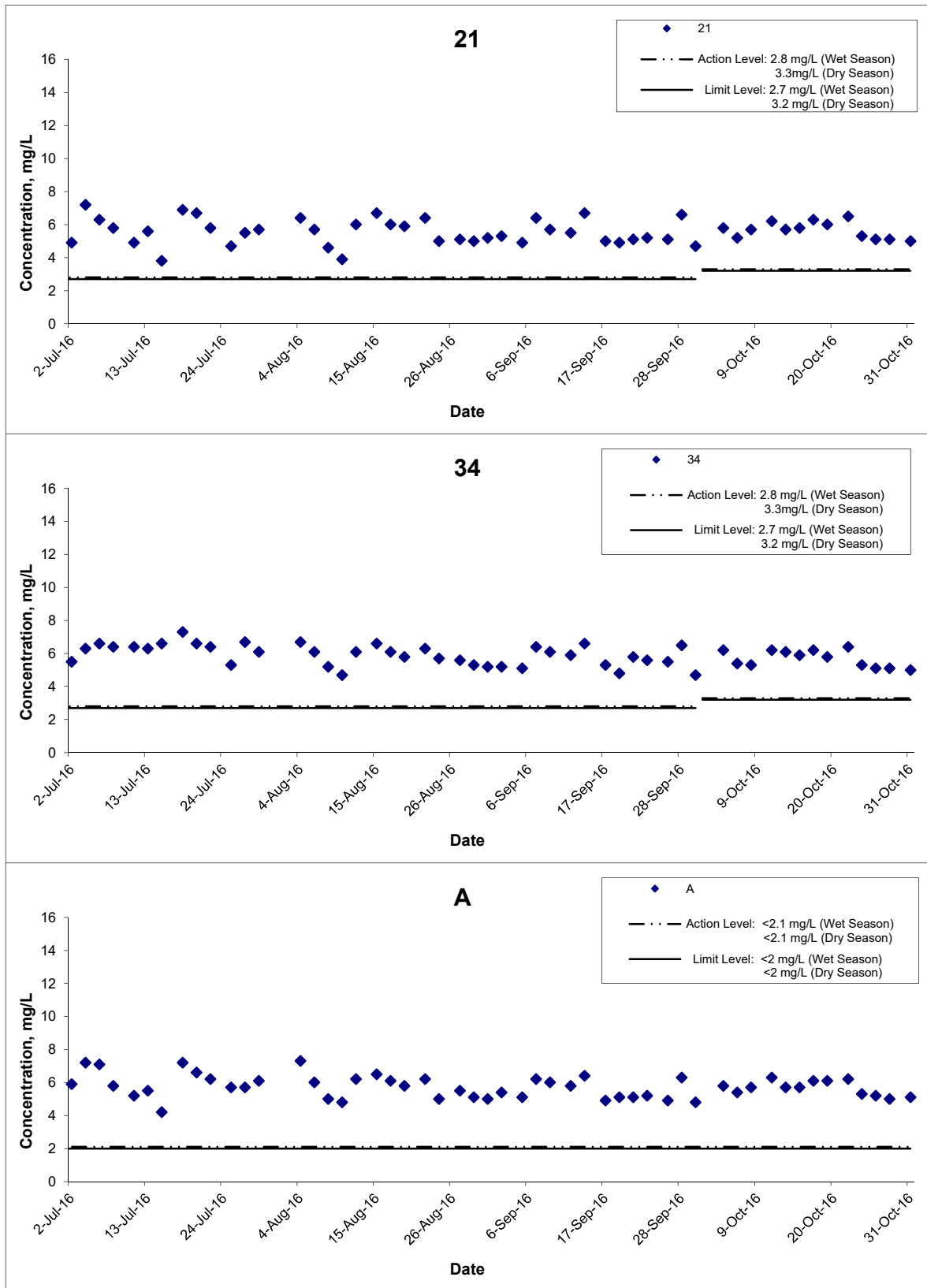


Dissolved Oxygen (Middle) at Mid-Flood Tide



| | | | |
|--|----------------|------------------------|--|
| Title Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results | Scale N.T.S | Project No. MA14047 | |
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Dissolved Oxygen (Bottom) at Mid-Ebb Tide



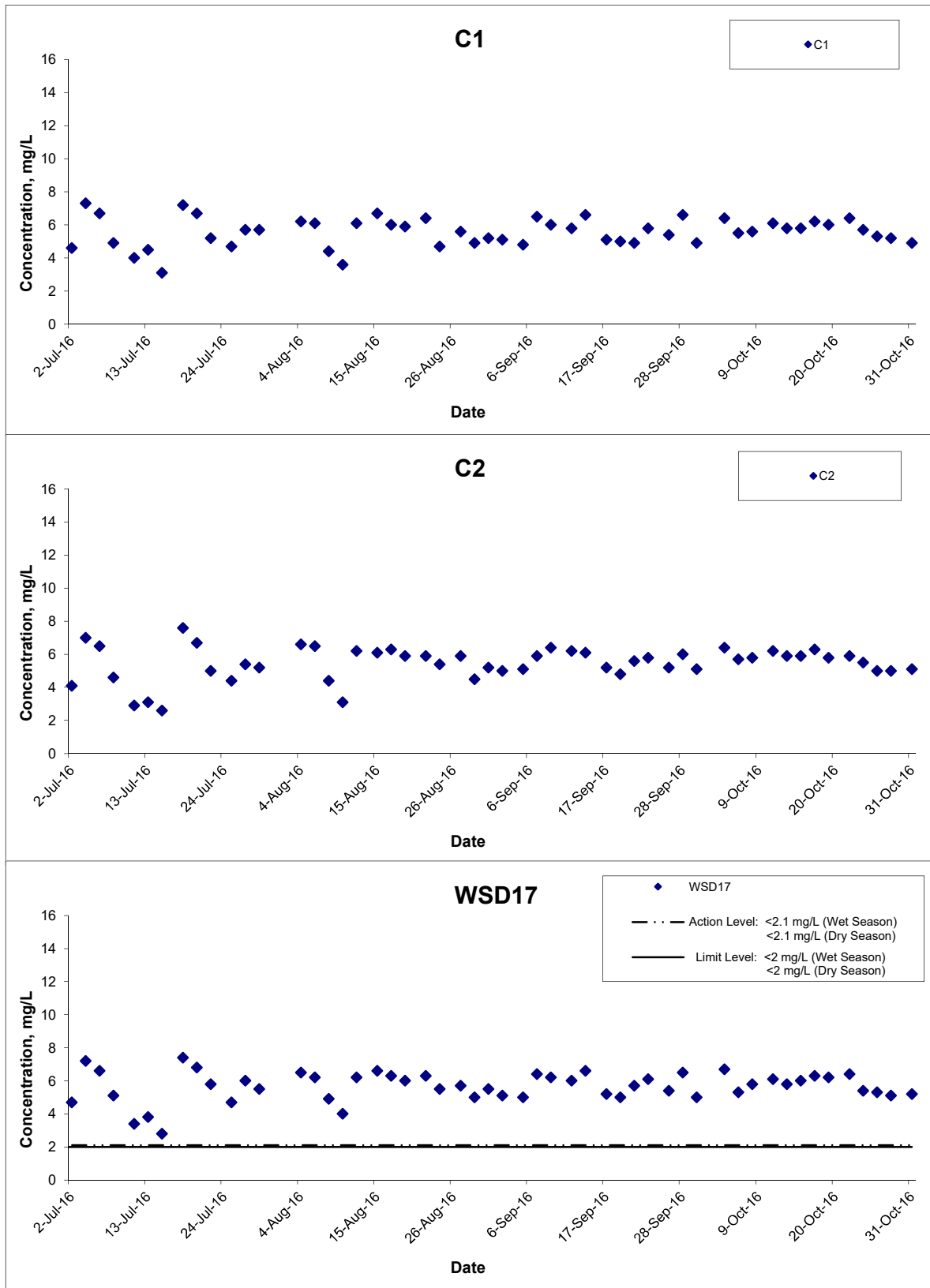
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Dissolved Oxygen (Bottom) at Mid-Ebb Tide



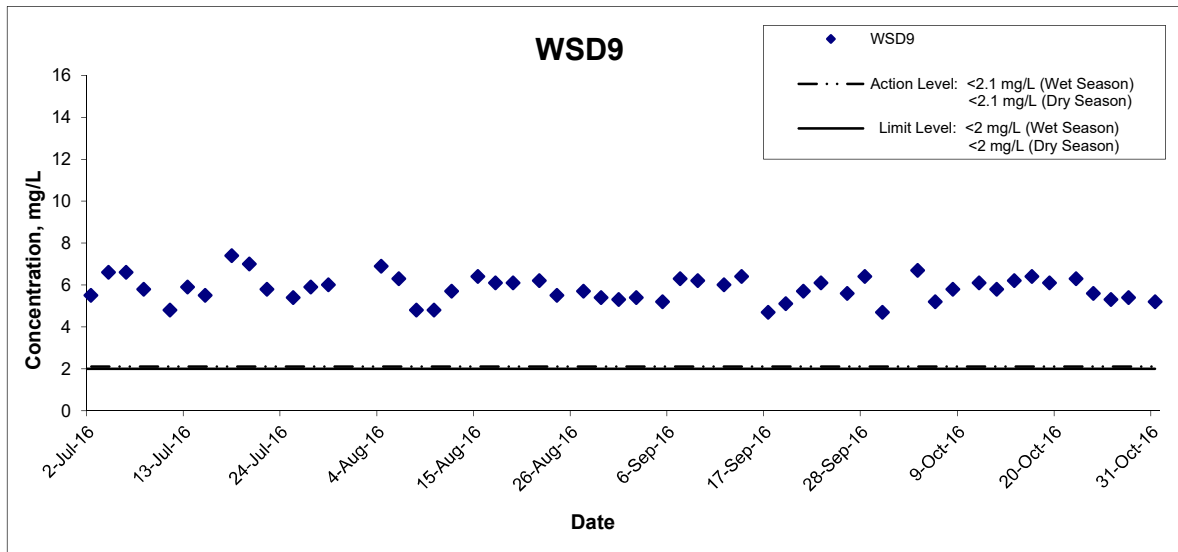
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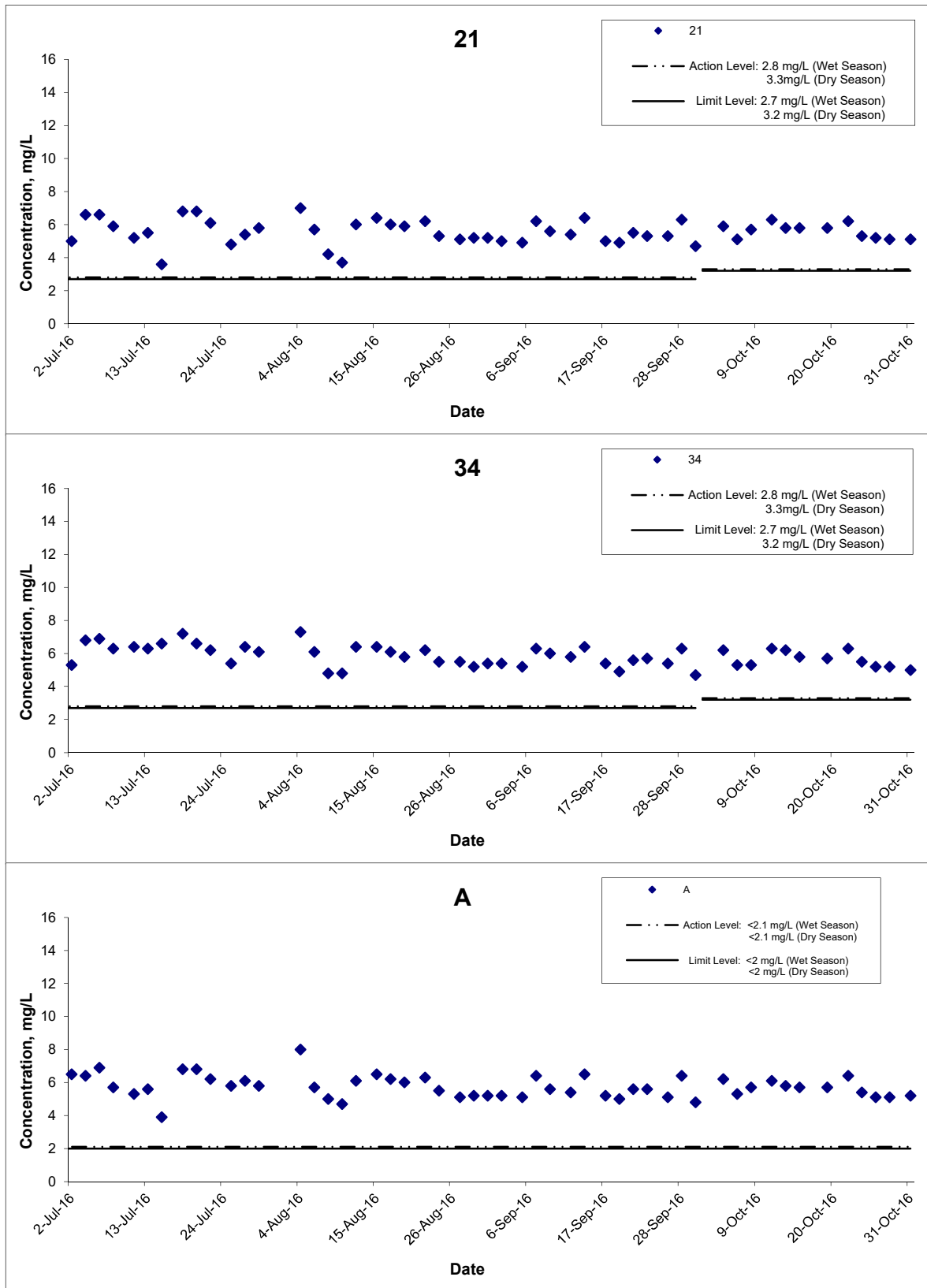


Dissolved Oxygen (Bottom) at Mid-Ebb Tide



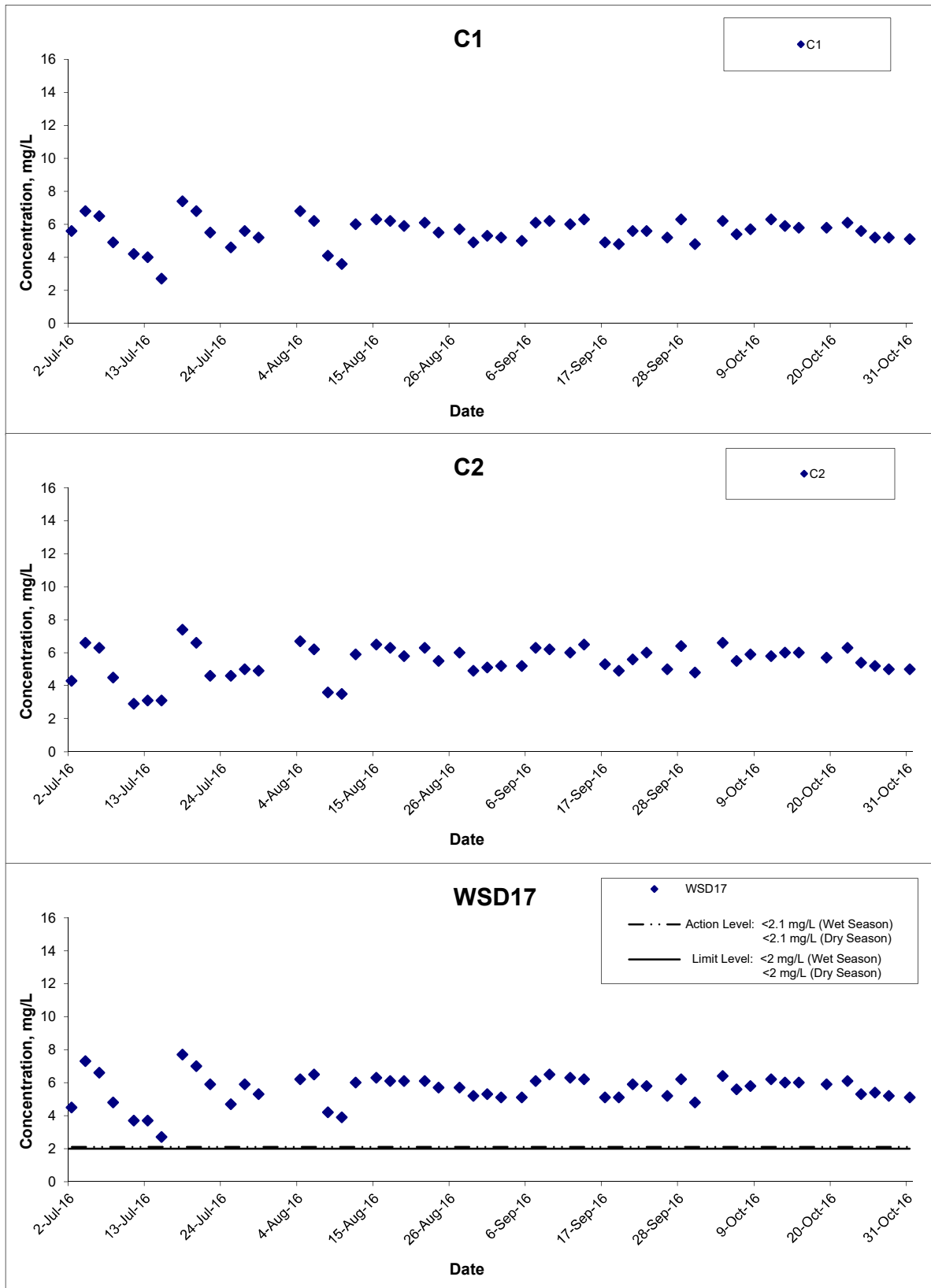
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| Title Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results | Scale N.T.S | Project No. MA14047 | |
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Dissolved Oxygen (Bottom) at Mid-Flood Tide



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|---|----------------|------------------------|----------|
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Dissolved Oxygen (Bottom) at Mid-Flood Tide



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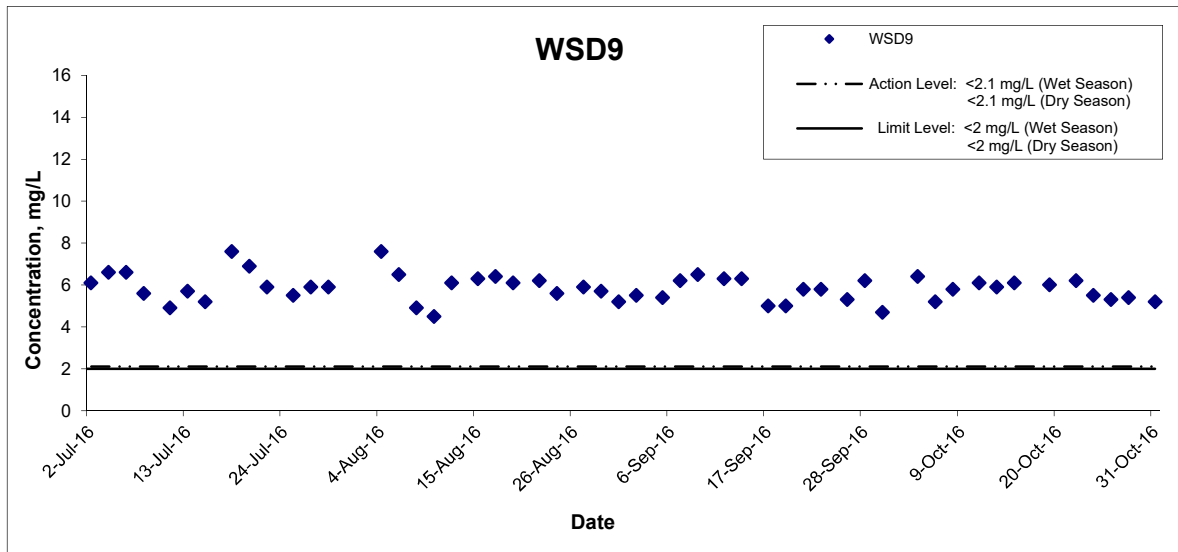
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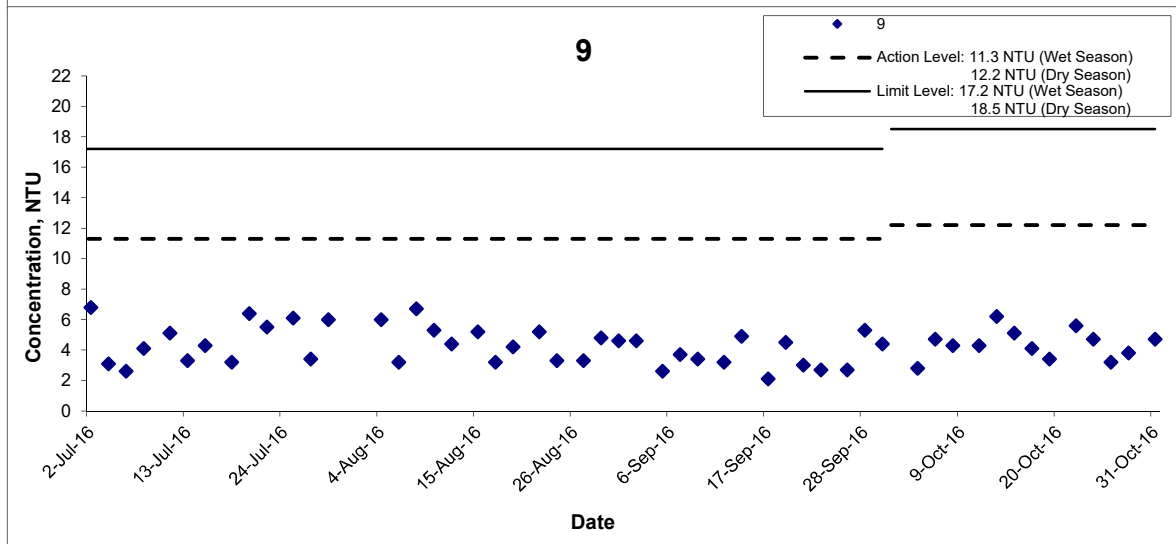
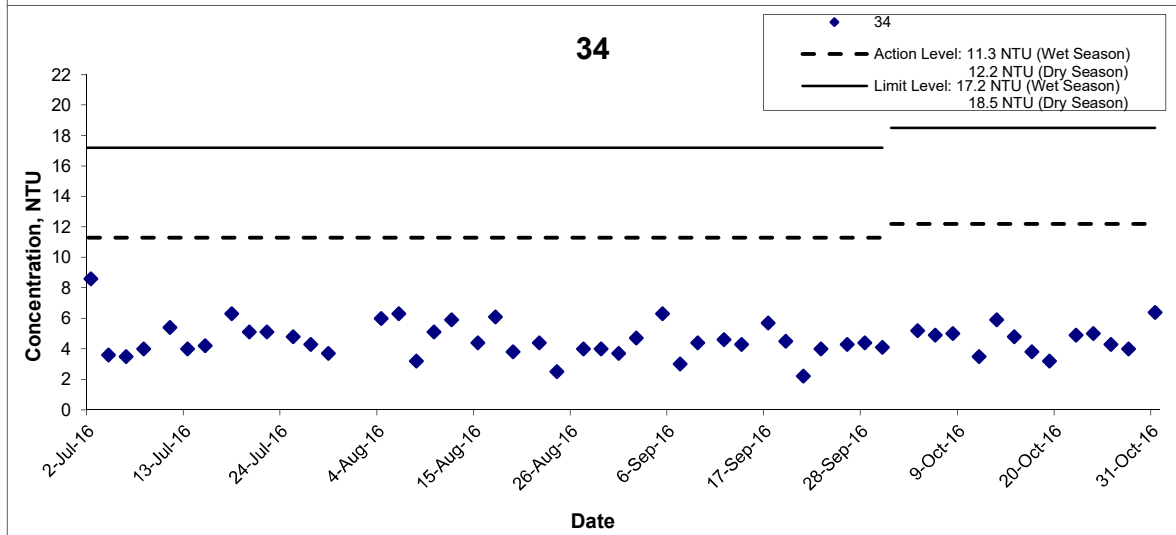
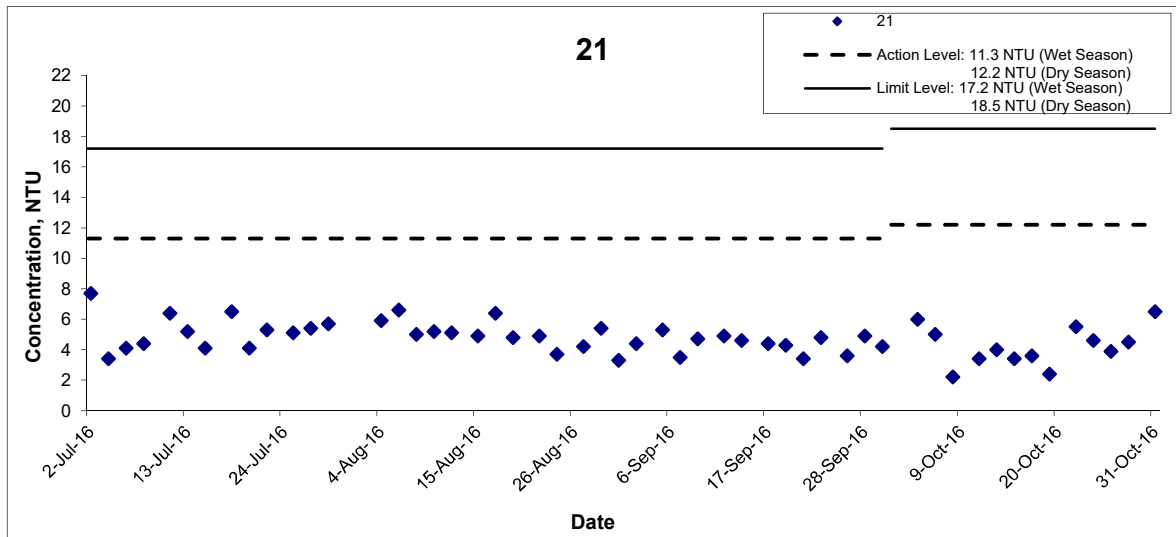


Dissolved Oxygen (Bottom) at Mid-Flood Tide



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|---|-------|--------|------------------------|-----------------|
| Title Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results | Scale | N.T.S | Project No. MA14047 | CINOTECH |
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Turbidity (Depth-averaged) at Mid-Ebb Tide



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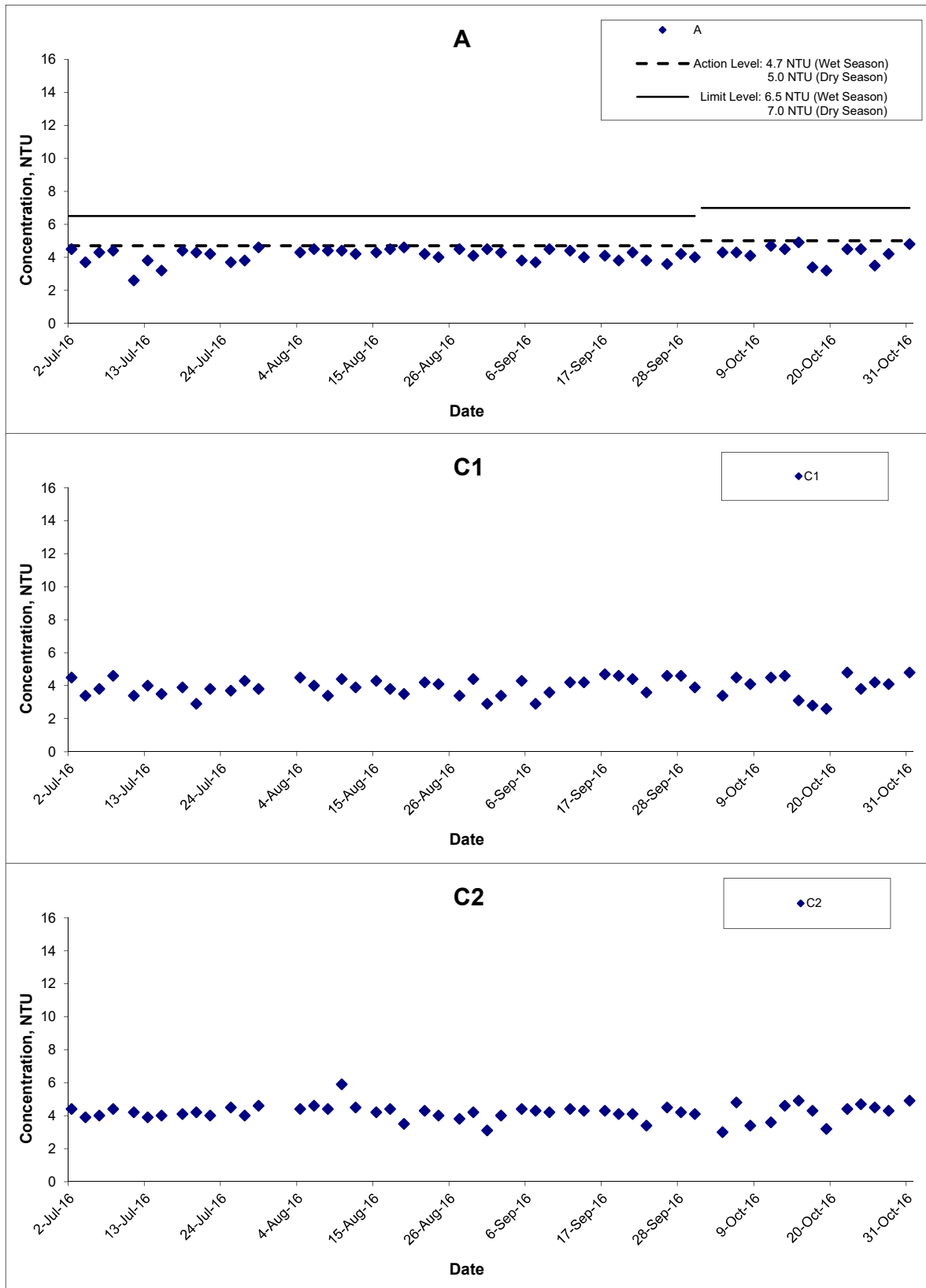
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Turbidity (Depth-averaged) at Mid-Ebb Tide



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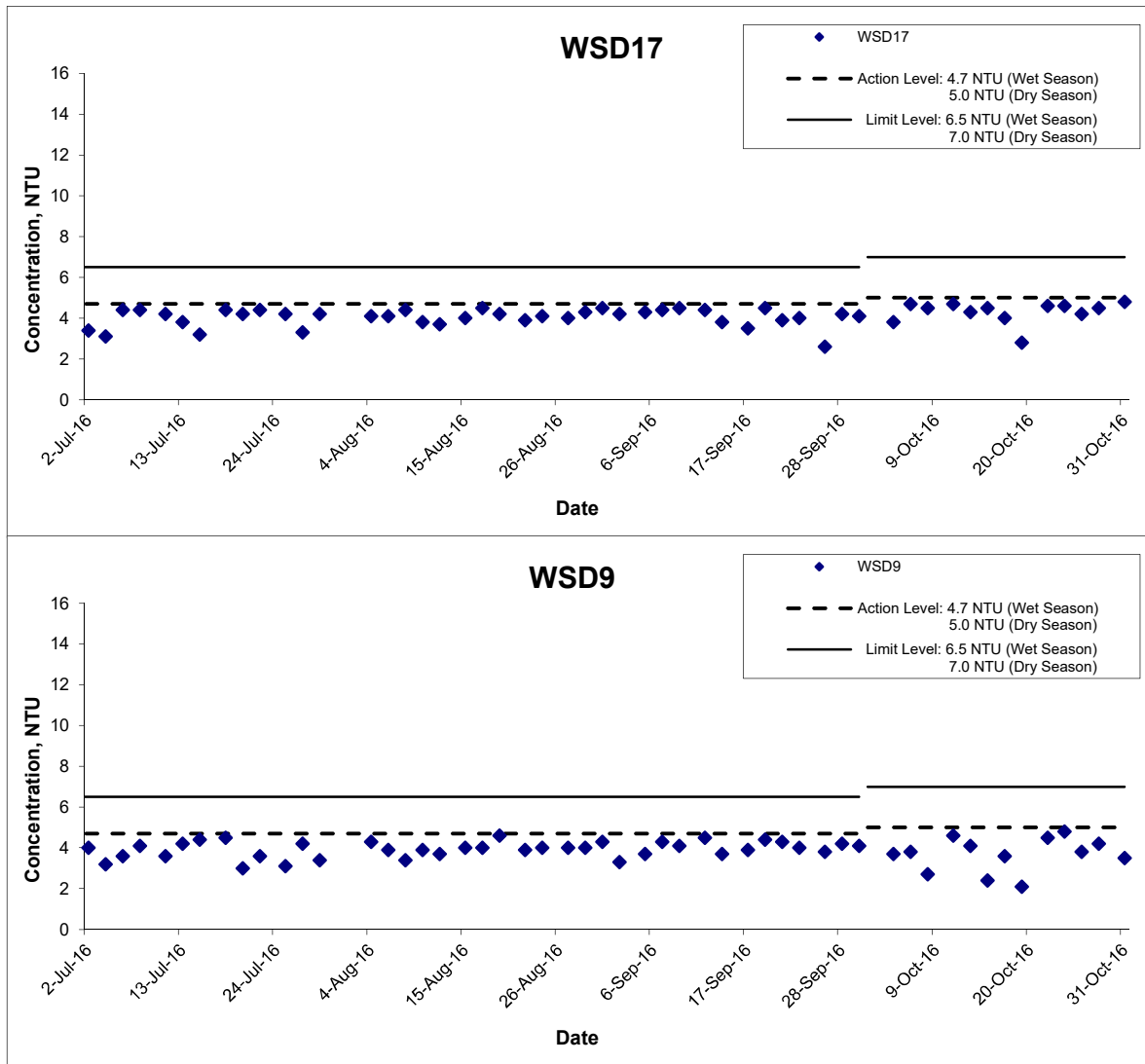
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Turbidity (Depth-averaged) at Mid-Ebb Tide



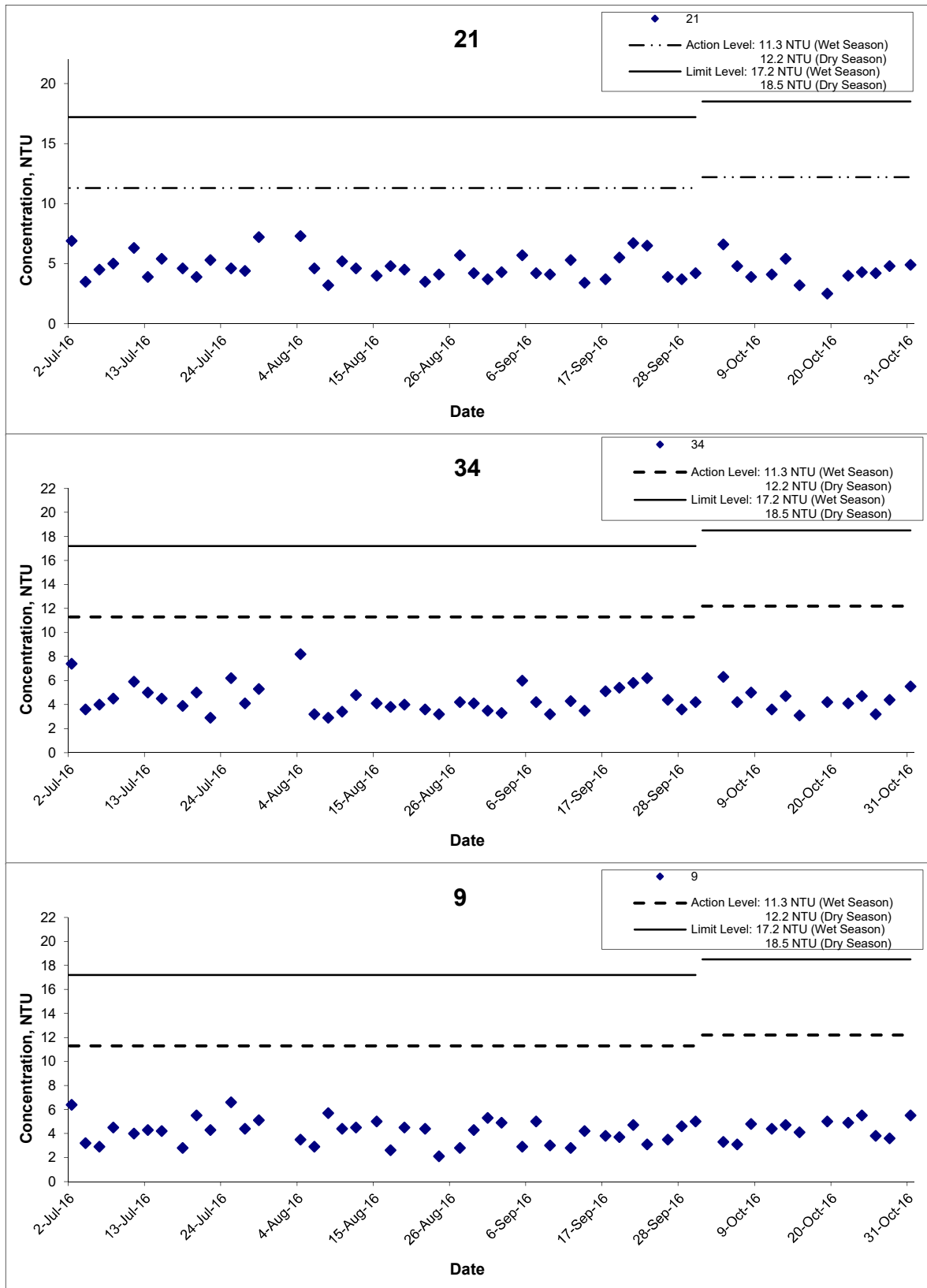
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Turbidity (Depth-averaged) at Mid-Flood Tide



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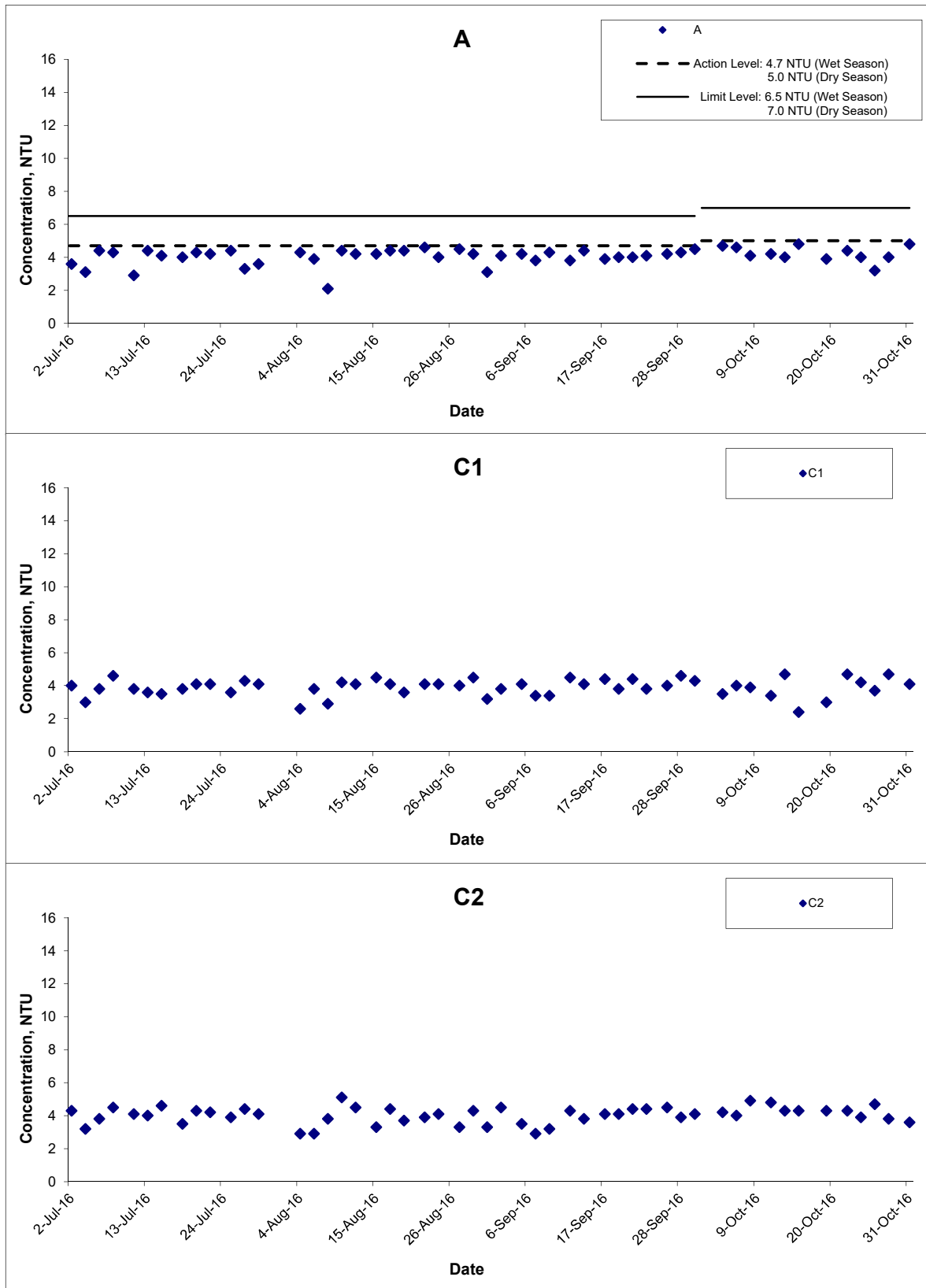
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Turbidity (Depth-averaged) at Mid-Flood Tide



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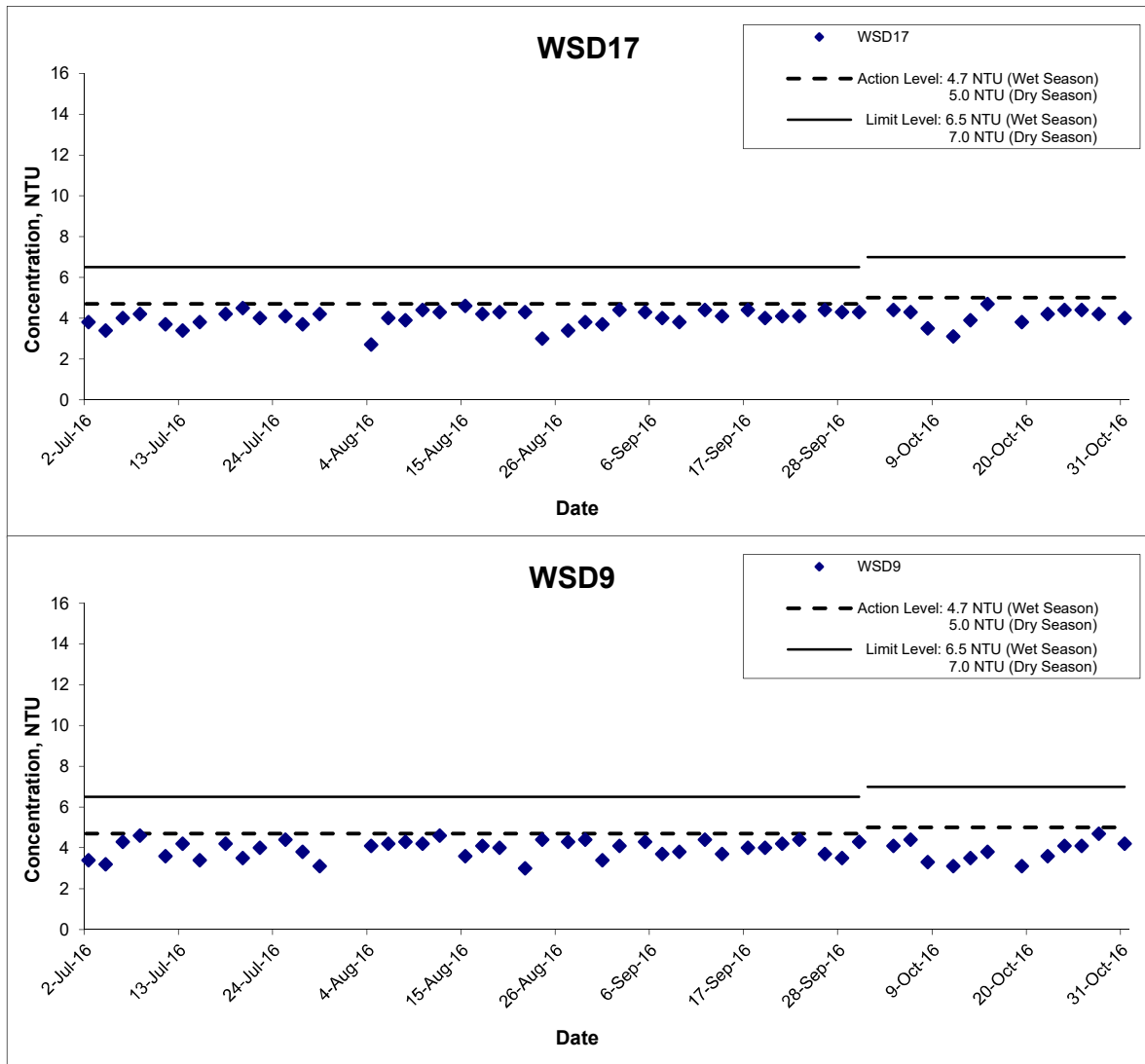
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Turbidity (Depth-averaged) at Mid-Flood Tide



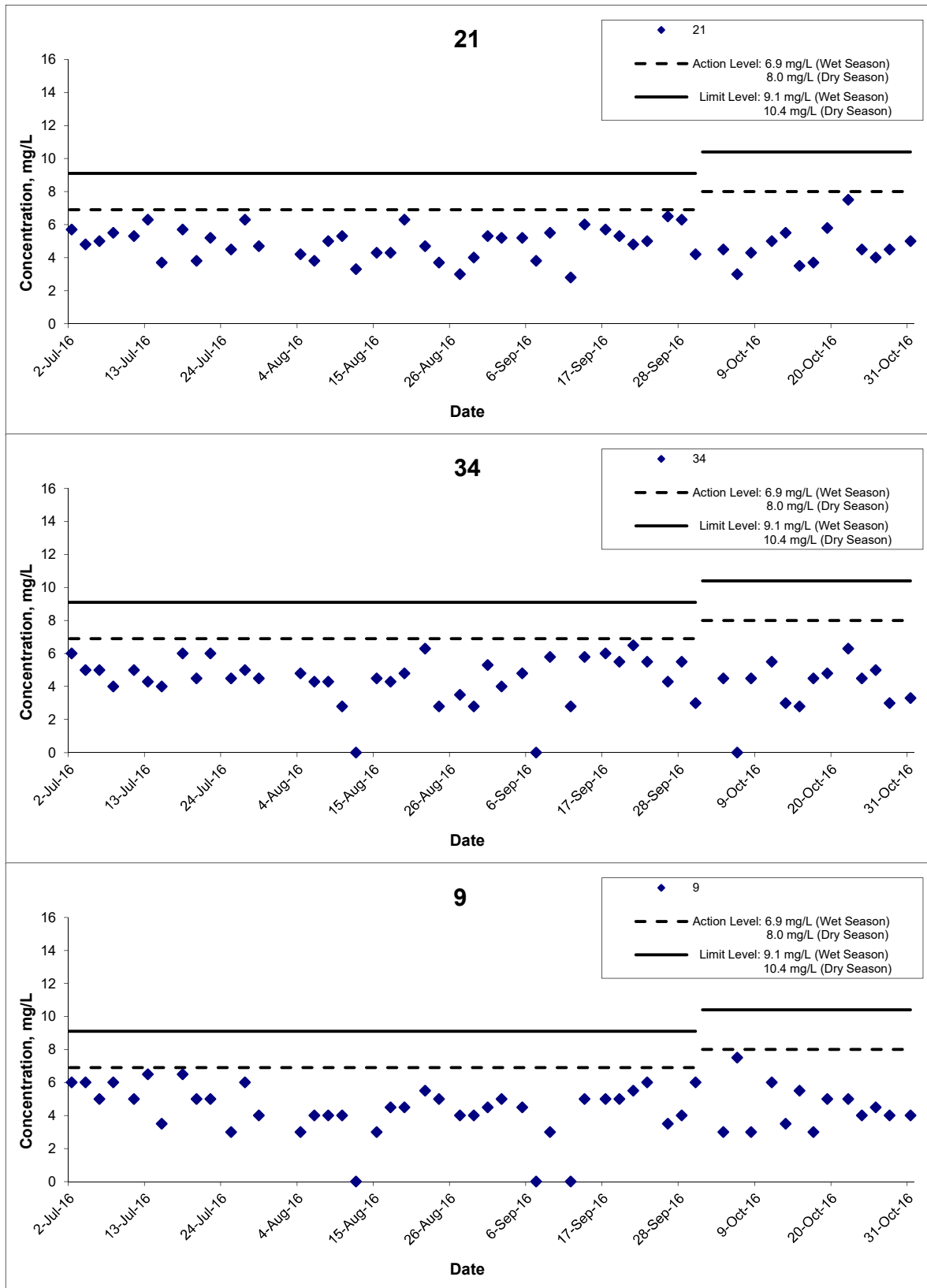
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 Advance Works for NSL Cross Harbour Tunnels
 Graphical Presentation of Water Quality Monitoring
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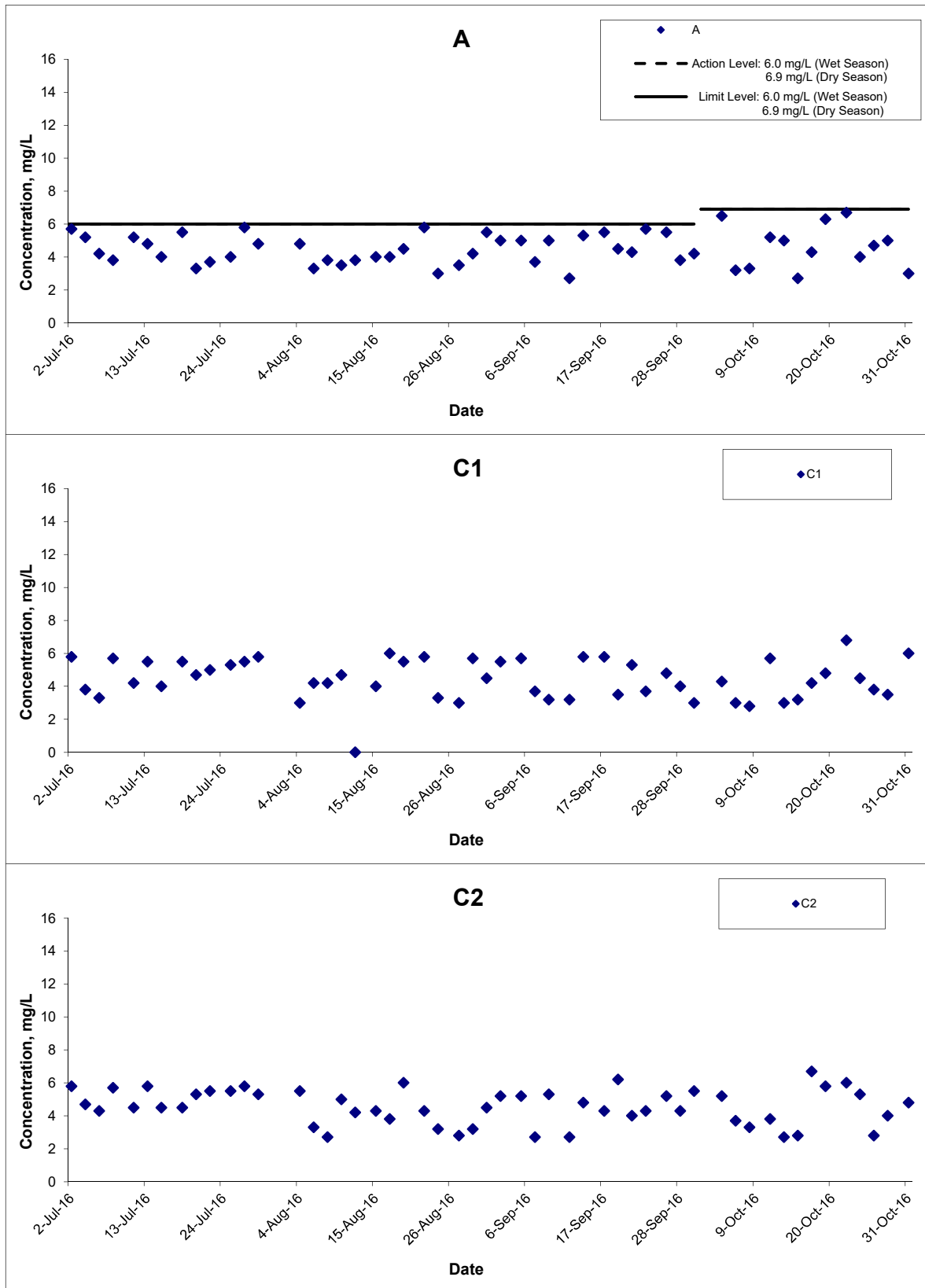
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

| | | | |
|--|----------------|------------------------|--|
| Title Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results | Scale N.T.S | Project No. MA14047 | |
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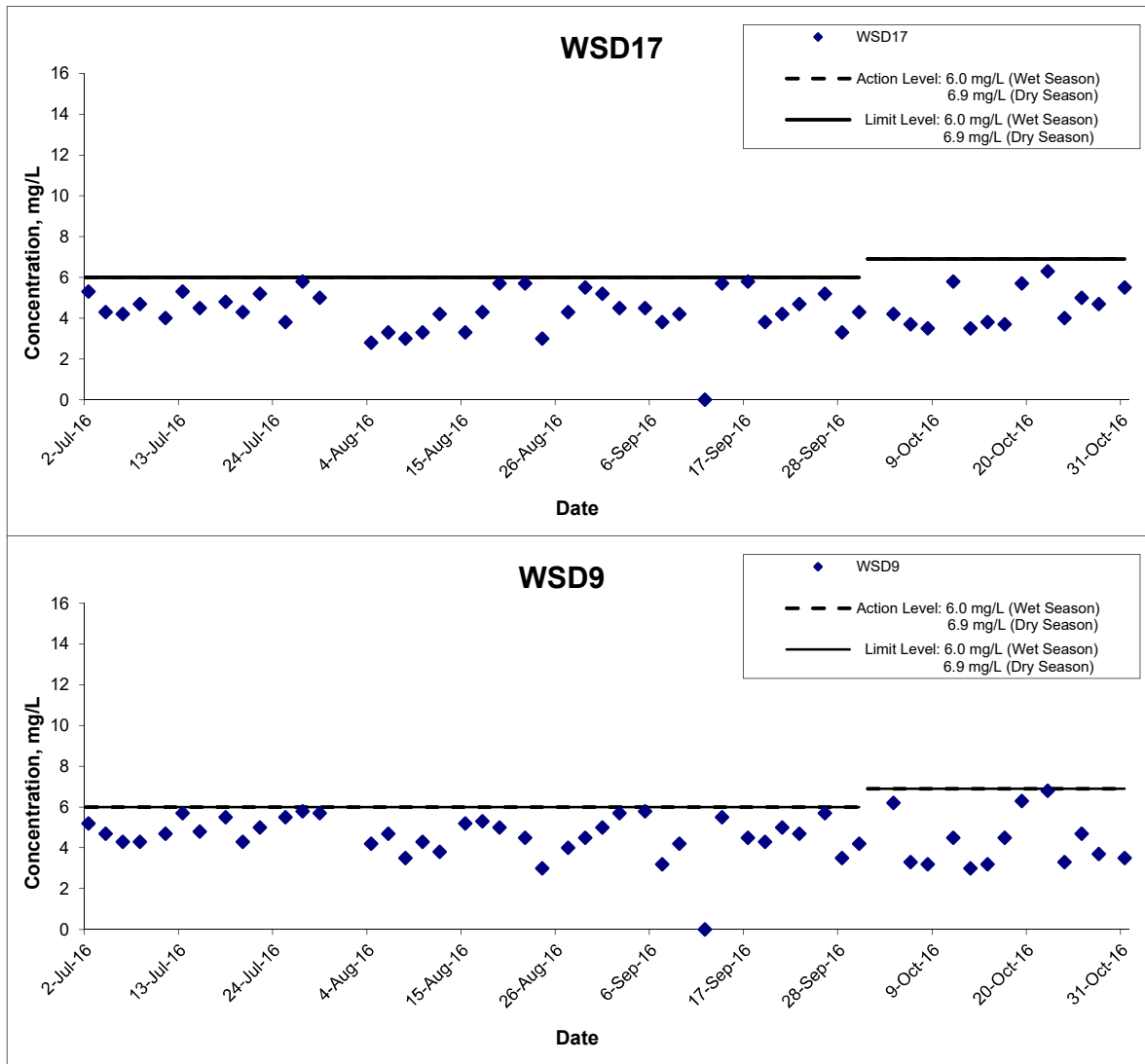
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

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|--|----------------|------------------------|----------|
| Title Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results | Scale N.T.S | Project No. MA14047 | CINOTECH |
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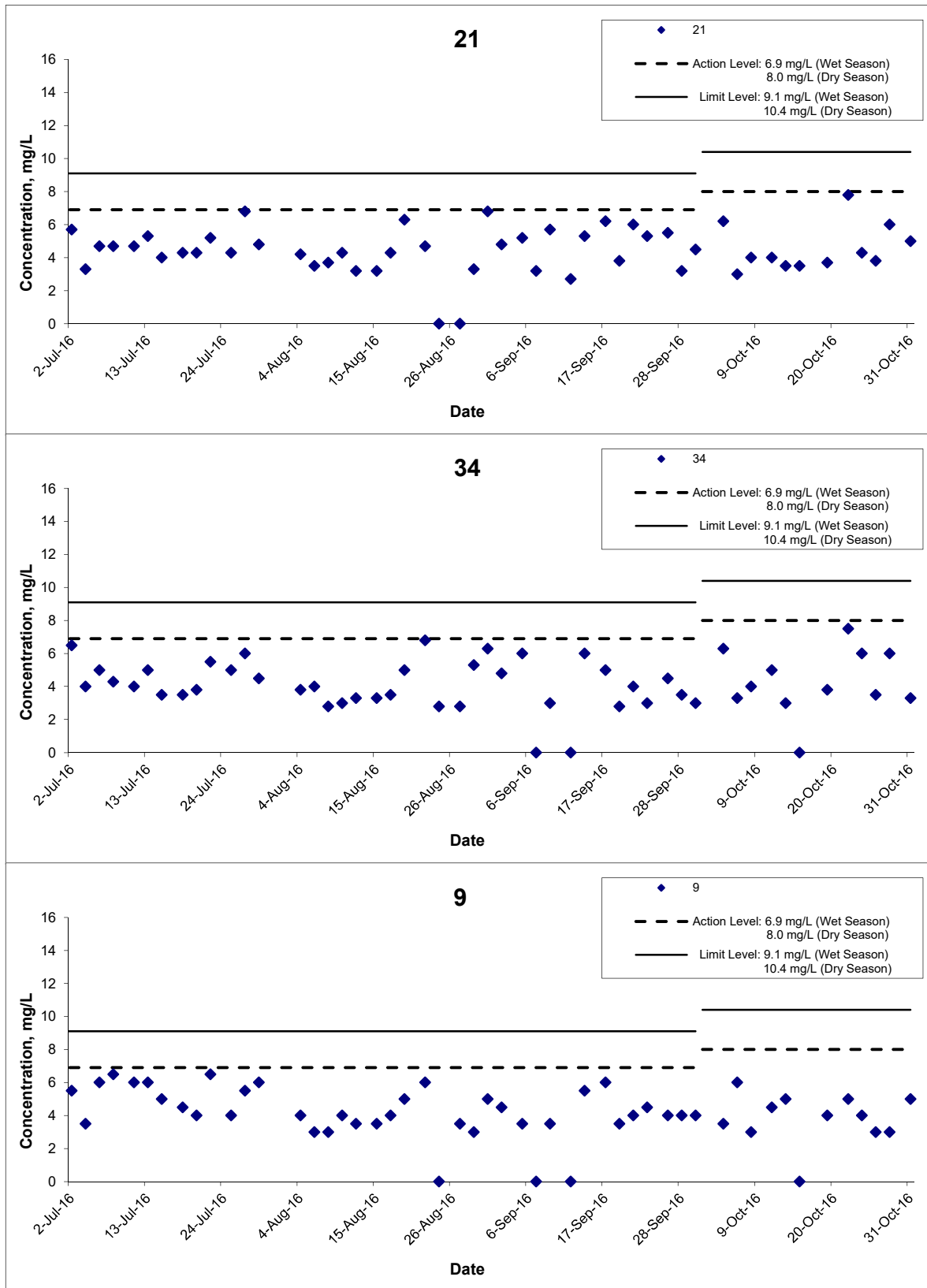
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

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|--|----------------|------------------------|--|
| Title Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results | Scale N.T.S | Project No. MA14047 | |
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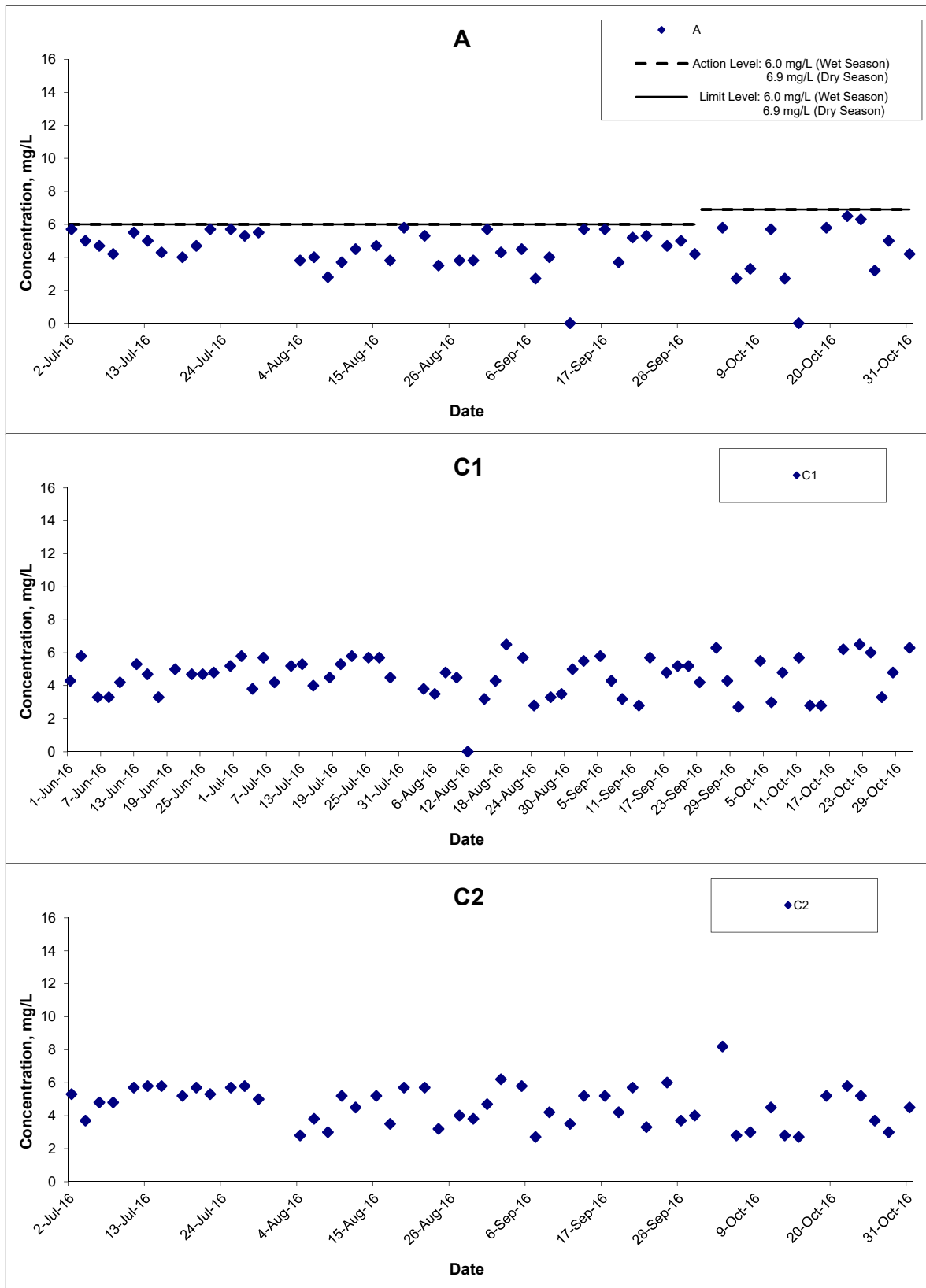
Suspended Solids (Depth-averaged) at Mid-Flood Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

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|---|----------------|------------------------|----------|
| Title Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results | Scale N.T.S | Project No. MA14047 | CINOTECH |
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Suspended Solids (Depth-averaged) at Mid-Flood Tide

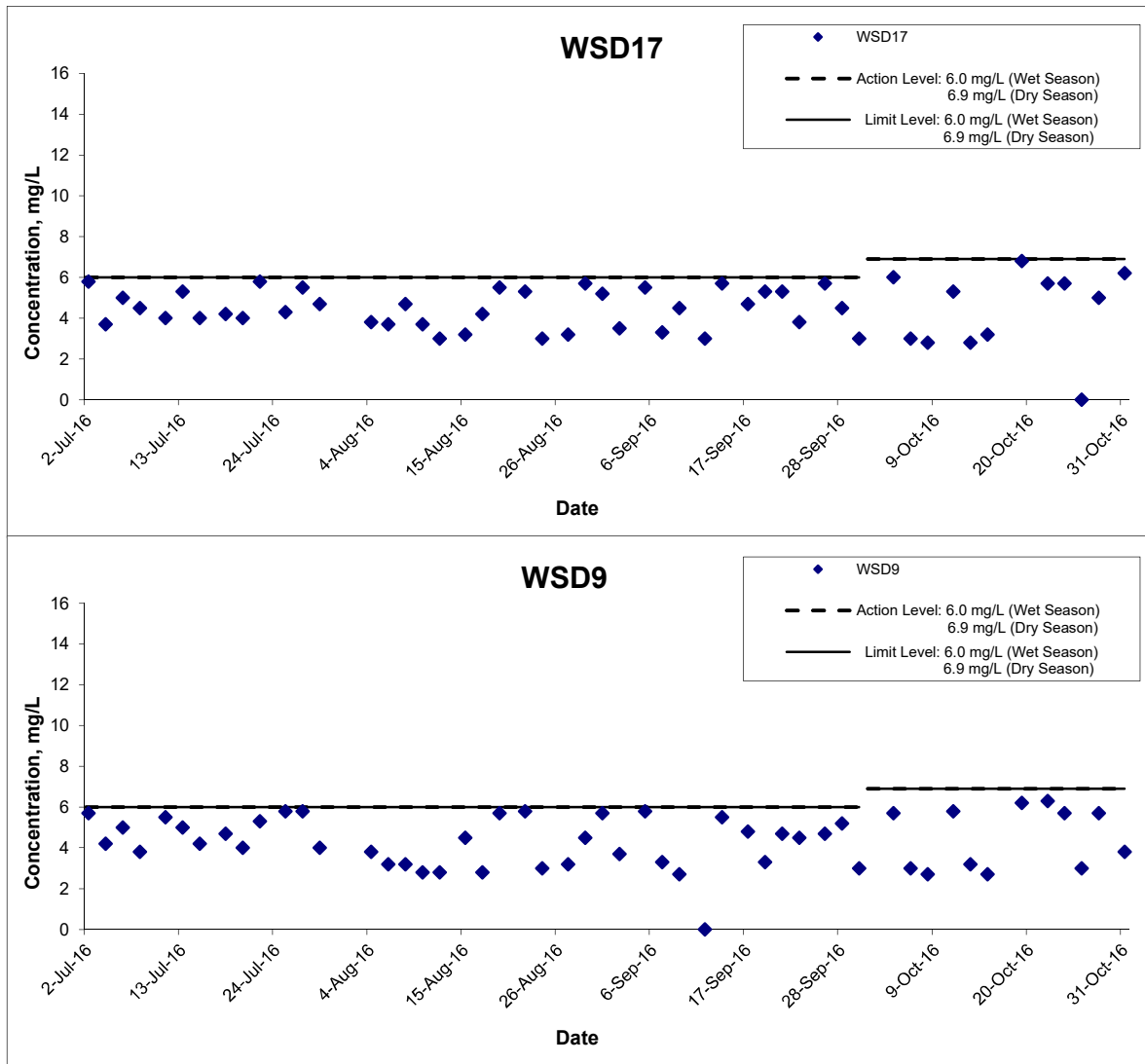


Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

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| Title Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results | Scale | N.T.S | Project No. | MA14047 |
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Suspended Solids (Depth-averaged) at Mid-Flood Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

| | | | |
|---|----------------|------------------------|--|
| Title Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results | Scale N.T.S | Project No. MA14047 | |
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APPENDIX E
COPIES OF CALIBRATION CERTIFICATES

TEST REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|------------------|------------|
| Test Report No.: | C/W/160820 |
| Date of Issue: | 2016-08-20 |
| Date Received: | 2016-08-20 |
| Date Tested: | 2016-08-20 |
| Date Completed: | 2016-08-20 |
| Next Due Date: | 2016-11-19 |

ATTN: Miss Mei Ling Tang

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Certificate of Calibration

Item for calibration:

| | |
|---------------|--------------------------------------|
| Description | : Multiparameter Water Quality Probe |
| Manufacturer | : Aquaread Ltd |
| Model No. | : AP-2000-D |
| Serial No. | : 122252120 |
| Equipment No. | : W.18.02 |

Test conditions:

| | |
|-------------------|---------------------|
| Room Temperature | : 25 degree Celsius |
| Relative Humidity | : 56% |

Test Specifications:

Performance checking for pH, Oxidation Reduction Potential (ORP), Dissolved oxygen (D.O.), Turbidity, Salinity, Conductivity and Temperature

Methodology:

According to manufacturer instruction manual, APHA 20e 4500-O C

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

| | |
|------------------|------------|
| Test Report No.: | C/W/160820 |
| Date of Issue: | 2016-08-20 |
| Date Received: | 2016-08-20 |
| Date Tested: | 2016-08-20 |
| Date Completed: | 2016-08-20 |
| Next Due Date: | 2016-11-19 |

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Certificate of Calibration

Results:

pH performance checking

| | Instrument Readings (pH unit) | Acceptance Criteria | Comment |
|-------------------|----------------------------------|---------------------|---------|
| pH QC buffer 4.01 | 4.06 | 4.01 ± 0.10 | Pass |
| pH QC buffer 6.86 | 6.70 | 6.86 ± 0.10 | Pass |
| pH QC buffer 9.18 | 9.16 | 9.18 ± 0.10 | Pass |

ORP performance checking

| | Instrument Readings (mV) | Acceptance Criteria | Comment |
|-----------------|--------------------------|---------------------|---------|
| Zobell Solution | 228.5 | 229 ± 10 | Pass |

D.O. performance checking

| Winkler Titration value (mg/L) | Instrument Readings (mg/L) | Acceptance Criteria | Comment |
|-----------------------------------|----------------------------|--|---------|
| 8.40 | 8.40 | Difference between Titration value and instrument reading <0.2mg/L | Pass |

Turbidity check

| Turbidity solution (NTU) | Instrument Readings (NTU) | Acceptance Criteria | Comment |
|--------------------------|---------------------------|---------------------|---------|
| 0.00 | 0.00 | 0.00 ± 0.05 | Pass |
| 100 | 100 | 100 ± 5 | Pass |
| 1000 | 1000 | 1000 ± 100 | Pass |

Salinity Performance check

| Salinity, ppt | | Acceptable range | Comment |
|--------------------|-------------------|------------------|---------|
| Instrument Reading | Theoretical Value | 30.0 ± 3 | Pass |
| 30.1 | 30.0 | | |

Conductivity performance checking

| | Instrument Readings (mV) | Acceptance Criteria | Comment |
|------------------------------------|--------------------------|---------------------|---------|
| KCl stock solution (2570 µs/cm) | 2584 | 2442-2698 | Pass |

Temperature performance checking

| Reference thermometer- E431 Readings (°C) | Instrument Readings (°C) | Correction (°C) | Comment |
|--|--------------------------|-----------------|---------|
| 24.1 | 24.0 | +0.1 | N/A |

*****END OF REPORT*****

TEST REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|------------------|-------------|
| Test Report No.: | C/W/160714C |
| Date of Issue: | 2016-07-14 |
| Date Received: | 2016-07-14 |
| Date Tested: | 2016-07-14 |
| Date Completed: | 2016-07-14 |
| Next Due Date: | 2016-10-13 |

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

| | |
|---------------|--------------------------------------|
| Description | : Multiparameter Water Quality Probe |
| Manufacturer | : Aquaread Ltd |
| Model No. | : AP-2000-D |
| Serial No. | : 122251420 |
| Equipment No. | : W.18.07 |

Test conditions:

| | |
|-------------------|---------------------|
| Room Temperature | : 21 degree Celsius |
| Relative Humidity | : 55% |

Test Specifications:

Performance checking for pH, Oxidation Reduction Potential (ORP), Dissolved oxygen (D.O.), Turbidity, Salinity, Conductivity and Temperature

Methodology:

According to manufacturer instruction manual, APHA 20e 4500-O C

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

| | |
|------------------|-------------|
| Test Report No.: | C/W/160714C |
| Date of Issue: | 2016-07-14 |
| Date Received: | 2016-07-14 |
| Date Tested: | 2016-07-14 |
| Date Completed: | 2016-07-14 |
| Next Due Date: | 2016-10-13 |

Page: 2 of 2

Certificate of Calibration

Results:

pH performance checking

| | Instrument Readings (pH unit) | Acceptance Criteria | Comment |
|-------------------|----------------------------------|---------------------|---------|
| pH QC buffer 4.01 | 4.05 | 4.01 ± 0.10 | Pass |
| pH QC buffer 6.86 | 6.87 | 6.86 ± 0.10 | Pass |
| pH QC buffer 9.18 | 9.14 | 9.18 ± 0.10 | Pass |

ORP performance checking

| | Instrument Readings (mV) | Acceptance Criteria | Comment |
|-----------------|--------------------------|---------------------|---------|
| Zobell Solution | 228.3 | 229 ± 10 | Pass |

D.O. performance checking

| Winkler Titration value (mg/L) | Instrument Readings (mg/L) | Acceptance Criteria | Comment |
|-----------------------------------|----------------------------|--|---------|
| 8.40 | 8.42 | Difference between Titration value and instrument reading <0.2mg/L | Pass |

Turbidity check

| Turbidity solution (NTU) | Instrument Readings (NTU) | Acceptance Criteria | Comment |
|--------------------------|---------------------------|---------------------|---------|
| 0.00 | 0.00 | 0.00 ± 0.05 | Pass |
| 100 | 100 | 100 ± 5 | Pass |
| 1000 | 1000 | 1000 ± 100 | Pass |

Salinity Performance check

| Salinity, ppt | | Acceptable range | Comment |
|--------------------|-------------------|------------------|---------|
| Instrument Reading | Theoretical Value | | |
| 30.0 | 30.0 | 30.0 ± 3 | Pass |

Conductivity performance checking

| | Instrument Readings (mV) | Acceptance Criteria | Comment |
|------------------------------------|--------------------------|---------------------|---------|
| KCl stock solution (2570 µs/cm) | 2591 | 2442-2698 | Pass |

Temperature performance checking

| Reference thermometer- E431 Readings (°C) | Instrument Readings (°C) | Correction (°C) | Comment |
|--|--------------------------|-----------------|---------|
| 24.1 | 24.3 | -0.2 | N/A |

*****END OF REPORT*****

TEST REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|------------------|------------|
| Test Report No.: | C/W/160808 |
| Date of Issue: | 2016-08-08 |
| Date Received: | 2016-08-08 |
| Date Tested: | 2016-08-08 |
| Date Completed: | 2016-08-08 |
| Next Due Date: | 2016-11-07 |

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

| | |
|---------------|--------------------------------------|
| Description | : Multiparameter Water Quality Probe |
| Manufacturer | : Aquaread Ltd |
| Model No. | : AP-2000-D |
| Serial No. | : 122430520 |
| Equipment No. | : W.18.08 |

Test conditions:

| | |
|-------------------|---------------------|
| Room Temperature | : 22 degree Celsius |
| Relative Humidity | : 63 % |

Test Specifications:

Performance checking for pH, Oxidation Reduction Potential (ORP), Dissolved oxygen (D.O.), Turbidity, Salinity, Conductivity and Temperature

Methodology:

According to manufacturer instruction manual, APHA 20e 4500-O C

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

| | |
|------------------|------------|
| Test Report No.: | C/W/160808 |
| Date of Issue: | 2016-08-08 |
| Date Received: | 2016-08-08 |
| Date Tested: | 2016-08-08 |
| Date Completed: | 2016-08-08 |
| Next Due Date: | 2016-11-07 |

Page: 2 of 2

Certificate of Calibration

Results:

pH performance checking

| | Instrument Readings (pH unit) | Acceptance Criteria | Comment |
|-------------------|----------------------------------|---------------------|---------|
| pH QC buffer 4.01 | 4.03 | 4.01 ± 0.10 | Pass |
| pH QC buffer 6.86 | 6.87 | 6.86 ± 0.10 | Pass |
| pH QC buffer 9.18 | 9.16 | 9.18 ± 0.10 | Pass |

ORP performance checking

| | Instrument Readings (mV) | Acceptance Criteria | Comment |
|-----------------|--------------------------|---------------------|---------|
| Zobell Solution | 229.5 | 229 ± 10 | Pass |

D.O. performance checking

| Winkler Titration value (mg/L) | Instrument Readings (mg/L) | Acceptance Criteria | Comment |
|-----------------------------------|----------------------------|--|---------|
| 8.40 | 8.41 | Difference between Titration value and instrument reading <0.2mg/L | Pass |

Turbidity check

| Turbidity solution (NTU) | Instrument Readings (NTU) | Acceptance Criteria | Comment |
|--------------------------|---------------------------|---------------------|---------|
| 0.00 | 0.00 | 0.00 ± 0.05 | Pass |
| 100 | 100 | 100 ± 5 | Pass |
| 1000 | 1000 | 1000 ± 100 | Pass |

Salinity Performance check

| Salinity, ppt | | Acceptable range | Comment |
|--------------------|-------------------|------------------|---------|
| Instrument Reading | Theoretical Value | 30.0 ± 3 | Pass |
| 30.0 | 30.0 | | |

Conductivity performance checking

| | Instrument Readings (mV) | Acceptance Criteria | Comment |
|------------------------------------|--------------------------|---------------------|---------|
| KCl stock solution (2570 µs/cm) | 2571 | 2442-2698 | Pass |

Temperature performance checking

| Reference thermometer- E431 Readings (°C) | Instrument Readings (°C) | Correction (°C) | Comment |
|--|--------------------------|-----------------|---------|
| 24.1 | 24.2 | -0.1 | N/A |

*****END OF REPORT*****

TEST REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|------------------|-------------|
| Test Report No.: | C/W/160714D |
| Date of Issue: | 2016-07-14 |
| Date Received: | 2016-07-14 |
| Date Tested: | 2016-07-14 |
| Date Completed: | 2016-07-14 |
| Next Due Date: | 2016-10-13 |

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

| | |
|---------------|--------------------------------------|
| Description | : Multiparameter Water Quality Probe |
| Manufacturer | : Aquaread Ltd |
| Model No. | : AP-2000-D |
| Serial No. | : 122251520 |
| Equipment No. | : W.18.12 |

Test conditions:

| | |
|-------------------|---------------------|
| Room Temperature | : 21 degree Celsius |
| Relative Humidity | : 55% |

Test Specifications:

Performance checking for pH, Oxidation Reduction Potential (ORP), Dissolved oxygen (D.O.), Turbidity, Salinity, Conductivity and Temperature

Methodology:

According to manufacturer instruction manual, APHA 20e 4500-O C

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

| | |
|------------------|-------------|
| Test Report No.: | C/W/160714D |
| Date of Issue: | 2016-07-14 |
| Date Received: | 2016-07-14 |
| Date Tested: | 2016-07-14 |
| Date Completed: | 2016-07-14 |
| Next Due Date: | 2016-10-13 |

Page: 2 of 2

Certificate of Calibration

Results:

pH performance checking

| | Instrument Readings (pH unit) | Acceptance Criteria | Comment |
|-------------------|----------------------------------|---------------------|---------|
| pH QC buffer 4.01 | 4.03 | 4.01 ± 0.10 | Pass |
| pH QC buffer 6.86 | 6.85 | 6.86 ± 0.10 | Pass |
| pH QC buffer 9.18 | 9.17 | 9.18 ± 0.10 | Pass |

ORP performance checking

| | Instrument Readings (mV) | Acceptance Criteria | Comment |
|-----------------|--------------------------|---------------------|---------|
| Zobell Solution | 229.4 | 229 ± 10 | Pass |

D.O. performance checking

| Winkler Titration value (mg/L) | Instrument Readings (mg/L) | Acceptance Criteria | Comment |
|-----------------------------------|----------------------------|--|---------|
| 8.40 | 8.43 | Difference between Titration value and instrument reading <0.2mg/L | Pass |

Turbidity check

| Turbidity solution (NTU) | Instrument Readings (NTU) | Acceptance Criteria | Comment |
|--------------------------|---------------------------|---------------------|---------|
| 0.00 | 0.00 | 0.00 ± 0.05 | Pass |
| 100 | 100 | 100 ± 5 | Pass |
| 1000 | 1000 | 1000 ± 100 | Pass |

Salinity Performance check

| Salinity, ppt | | Acceptable range | Comment |
|--------------------|-------------------|------------------|---------|
| Instrument Reading | Theoretical Value | 30.0 ± 3 | Pass |
| 30.0 | 30.0 | | |

Conductivity performance checking

| | Instrument Readings (mV) | Acceptance Criteria | Comment |
|------------------------------------|--------------------------|---------------------|---------|
| KCl stock solution (2570 µs/cm) | 2588 | 2442-2698 | Pass |

Temperature performance checking

| Reference thermometer- E43 I Readings (°C) | Instrument Readings (°C) | Correction (°C) | Comment |
|---|--------------------------|-----------------|---------|
| 24.1 | 24.2 | -0.1 | N/A |

*****END OF REPORT*****

**APPENDIX F
QUALITY CONTROL REPORTS FOR SS
LABORATORY ANALYSIS**

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25742 |
| Date of Issue: | 2016/10/05 |
| Date Received: | 2016/10/04 |
| Date Tested: | 2016/10/04 |
| Date Completed: | 2016/10/05 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121
- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/04

Number of Sample: 84

Custody No.: MA14047/161004

| Total Suspended Solids | Duplicate Analysis | | | QC Recovery, % |
|------------------------|--------------------|------------------|------------------|----------------|
| Sampling Point | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| WSD9se | 3 | 3 | 2 | 98 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25763 |
| Date of Issue: | 2016/10/07 |
| Date Received: | 2016/10/06 |
| Date Tested: | 2016/10/06 |
| Date Completed: | 2016/10/07 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121
- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/06

Number of Sample: 84

Custody No.: MA14047/161006

| Total Suspended Solids Sampling Point | Duplicate Analysis | | | QC Recovery, % |
|--|--------------------|------------------|------------------|----------------|
| | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| WSD9se | 3 | 3 | 3 | 99 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of WELLAB Ltd.



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25783 |
| Date of Issue: | 2016/10/11 |
| Date Received: | 2016/10/08 |
| Date Tested: | 2016/10/08 |
| Date Completed: | 2016/10/11 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121
- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/08

Number of Sample: 84

Custody No.: MA14047/161008

| Total Suspended Solids | Duplicate Analysis | | | QC Recovery, % |
|------------------------|--------------------|------------------|------------------|----------------|
| Sampling Point | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| WSD9se | 3 | 3 | 2 | 95 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25788 |
| Date of Issue: | 2016/10/12 |
| Date Received: | 2016/10/11 |
| Date Tested: | 2016/10/11 |
| Date Completed: | 2016/10/12 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121
- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/11

Number of Sample: 84

Custody No.: MA14047/161011

| Total Suspended Solids | Duplicate Analysis | | | QC Recovery, % |
|------------------------|--------------------|------------------|------------------|----------------|
| Sampling Point | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| WSD9se | 4 | 4 | 4 | 100 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25811 |
| Date of Issue: | 2016/10/14 |
| Date Received: | 2016/10/13 |
| Date Tested: | 2016/10/13 |
| Date Completed: | 2016/10/14 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121
- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/13

Number of Sample: 84

Custody No.: MA14047/161013

| Total Suspended Solids | Duplicate Analysis | | | QC Recovery, % |
|------------------------|--------------------|------------------|------------------|----------------|
| Sampling Point | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| WSD9se | 3 | 4 | 2 | 100 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25828 |
| Date of Issue: | 2016/10/17 |
| Date Received: | 2016/10/15 |
| Date Tested: | 2016/10/15 |
| Date Completed: | 2016/10/17 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121
- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/15

Number of Sample: 84

Custody No.: MA14047/161015

| Total Suspended Solids Sampling Point | Duplicate Analysis | | | QC Recovery, % |
|--|--------------------|------------------|------------------|----------------|
| | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| C2me | 4 | 3 | 3 | 98 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25834 |
| Date of Issue: | 2016/10/18 |
| Date Received: | 2016/10/17 |
| Date Tested: | 2016/10/17 |
| Date Completed: | 2016/10/18 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121
- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/17

Number of Sample: 42

Custody No.: MA14047/161017

| Total Suspended Solids | Duplicate Analysis | | | QC Recovery, % |
|------------------------|--------------------|------------------|------------------|----------------|
| Sampling Point | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| WSD9se | 8 | 8 | 3 | 99 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25849 |
| Date of Issue: | 2016/10/20 |
| Date Received: | 2016/10/19 |
| Date Tested: | 2016/10/19 |
| Date Completed: | 2016/10/20 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121
- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/19

Number of Sample: 84

Custody No.: MA14047/161019

| Total Suspended Solids | Duplicate Analysis | | | QC Recovery, % |
|------------------------|--------------------|------------------|------------------|----------------|
| Sampling Point | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| WSD9se | 6 | 6 | 3 | 95 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25879 |
| Date of Issue: | 2016/10/24 |
| Date Received: | 2016/10/22 |
| Date Tested: | 2016/10/22 |
| Date Completed: | 2016/10/24 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121

- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/22

Number of Sample: 84

Custody No.: MA14047/161022

| Total Suspended Solids | Duplicate Analysis | | | QC Recovery, % |
|------------------------|--------------------|------------------|------------------|----------------|
| Sampling Point | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| WSD9se | 7 | 7 | 3 | 102 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:

For and On Behalf of WELLAB Ltd.



PATRICK TSE

Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25883 |
| Date of Issue: | 2016/10/25 |
| Date Received: | 2016/10/24 |
| Date Tested: | 2016/10/24 |
| Date Completed: | 2016/10/25 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121
- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/24

Number of Sample: 84

Custody No.: MA14047/161024

| Total Suspended Solids | Duplicate Analysis | | | QC Recovery, % |
|------------------------|--------------------|------------------|------------------|----------------|
| Sampling Point | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| WSD9se | 3 | 3 | 0 | 90 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25908 |
| Date of Issue: | 2016/10/27 |
| Date Received: | 2016/10/26 |
| Date Tested: | 2016/10/26 |
| Date Completed: | 2016/10/27 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121
- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/26

Number of Sample: 84

Custody No.: MA14047/161026

| Total Suspended Solids Sampling Point | Duplicate Analysis | | | QC Recovery, % |
|--|--------------------|------------------|------------------|----------------|
| | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| WSD9se | 5 | 5 | 2 | 103 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25921 |
| Date of Issue: | 2016/10/31 |
| Date Received: | 2016/10/28 |
| Date Tested: | 2016/10/28 |
| Date Completed: | 2016/10/31 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121

- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/28

Number of Sample: 84

Custody No.: MA14047/161028

| Total Suspended Solids | Duplicate Analysis | | | QC Recovery, % |
|------------------------|--------------------|------------------|------------------|----------------|
| Sampling Point | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| WSD9se | 4 | 4 | 4 | 93 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

| | |
|-----------------|------------|
| Report No.: | 25929 |
| Date of Issue: | 2016/11/01 |
| Date Received: | 2016/10/31 |
| Date Tested: | 2016/10/31 |
| Date Completed: | 2016/11/01 |

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Project Name: Shatin to Central Link - Contract No. I121
- NSL Cross Harbour Tunnels

Sampling Date: 2016/10/31

Number of Sample: 84

Custody No.: MA14047/161031

| Total Suspended Solids | Duplicate Analysis | | | QC Recovery, % |
|------------------------|--------------------|------------------|------------------|----------------|
| Sampling Point | Trial 1, mg/L | Trial 2, mg/L | Difference, % | |
| WSD9se | 3 | 3 | 2 | 108 |

*****END OF REPORT*****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: October 2016

- a) Exceedance Report for Dust Monitoring (NIL)**
- b) Exceedance Report for Water Quality Monitoring (NIL)**

**APPENDIX H
SITE AUDIT SUMMARY**

*Shatin to Central Link -
Contract 1121 NSL Cross Harbour Tunnels*



Record Summary of Environmental Site Inspection

Inspection Information

| | |
|----------------------------|----------------------------|
| Checklist Reference Number | 161005 |
| Date | 5 October 2016 (Wednesday) |
| Time | 14:30 – 17:30 |

| Ref. No. | Non-Compliance | Related Item No. |
|----------|-----------------|------------------|
| - | None identified | - |

| Ref. No. | Remarks/Observations | Related Item No. |
|------------|--|------------------|
| 161005-R01 | <p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Ecology / Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> The haul road to jetty area was observed dry. Water spraying should be provided more frequently for dust suppression. <p>Part F – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. | E 5 |
| 161005-R02 | <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> Stagnant water observed in the drip trays for chemical containers on marine platform should be properly cleared. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I – Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:160926), all the environmental deficiencies were rectified/ improved by the Contractor. | G 10 |

| | Name | Signature | Date |
|-------------|--------------------|--|----------------|
| Recorded by | Kelvin Koo |  | 5 October 2016 |
| Checked by | Dr. Priscilla Choy |  | 5 October 2016 |

*Shatin to Central Link -
Contract 1121 NSL Cross Harbour Tunnels*


Record Summary of Environmental Site Inspection

Inspection Information

| | |
|----------------------------|---------------------------|
| Checklist Reference Number | 161011 |
| Date | 11 October 2016 (Tuesday) |
| Time | 14:30 – 17:30 |

| Ref. No. | Non-Compliance | Related Item No. |
|----------|-----------------|------------------|
| - | None identified | - |

| Ref. No. | Remarks/Observations | Related Item No. |
|----------|--|------------------|
| | <p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Ecology / Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:161005), follow up action is needed to be reviewed for item no. 161005-R02. | |

| | Name | Signature | Date |
|-------------|--------------------|---|-----------------|
| Recorded by | Kelvin Koo |  | 11 October 2016 |
| Checked by | Dr. Priscilla Choy |  | 11 October 2016 |

*Shatin to Central Link -
Contract 1121 NSL Cross Harbour Tunnels*

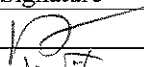
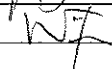
Record Summary of Environmental Site Inspection

Inspection Information

| | |
|----------------------------|--------------------------|
| Checklist Reference Number | 161017 |
| Date | 17 October 2016 (Monday) |
| Time | 14:00 – 17:00 |

| Ref. No. | Non-Compliance | Related Item No. |
|----------|-----------------|------------------|
| - | None identified | - |

| Ref. No. | Remarks/Observations | Related Item No. |
|------------|---|------------------|
| 161017-R01 | <p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Ecology / Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> To clear the oil stain on the ground of Hung Hom marine platform and clear the stagnant water in the drip tray. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:161011), item no. 161011-R01 is remarked as 161017-R01 and follow up action is needed to be reviewed. | G 9 |

| | Name | Signature | Date |
|-------------|--------------------|--|-----------------|
| Recorded by | Johnny Fung |  | 17 October 2016 |
| Checked by | Dr. Priscilla Choy |  | 17 October 2016 |

*Shatin to Central Link -
Contract 1121 NSL Cross Harbour Tunnels*



Record Summary of Environmental Site Inspection

Inspection Information

| | |
|----------------------------|--------------------------|
| Checklist Reference Number | 161024 |
| Date | 24 October 2016 (Monday) |
| Time | 14:00 – 17:00 |

| Ref. No. | Non-Compliance | Related Item No. |
|----------|-----------------|------------------|
| - | None identified | - |

| Ref. No. | Remarks/Observations | Related Item No. |
|------------|---|------------------|
| 161024-R01 | <p>Part B – Water Quality</p> <ul style="list-style-type: none"> To remove the construction material from the part of drainage channel near Element E9 in Shek O Casting Basin and at the Shek O bending yard. | B 7 |
| 161024-R02 | <p>Part C – Ecology / Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> To provide regular water spraying to haul roads in Shek O Casting Basin to avoid dust generation. | E 5 |
| 161024-O03 | <p>Part F - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> Oil leakage and oil mixture observed on the ground and inside drip tray of Hung Hom marine platform. The Contractor was reminded to remove the oil leakage as “chemical waste”. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:161017), item no. 161017-R01 is remarked as 161024-O03 and follow up action is needed to be reviewed. | G 9 |

| | Name | Signature | Date |
|-------------|--------------------|--|-----------------|
| Recorded by | Johnny Fung |  | 24 October 2016 |
| Checked by | Dr. Priscilla Choy |  | 24 October 2016 |

**Shatin to Central Link -
Contract 1121 NSL Cross Harbour Tunnels**

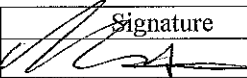
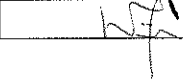
Record Summary of Environmental Site Inspection

Inspection Information

| | |
|----------------------------|--------------------------|
| Checklist Reference Number | 161031 |
| Date | 31 October 2016 (Monday) |
| Time | 14:00 – 17:00 |

| Ref. No. | Non-Compliance | Related Item No. |
|----------|-----------------|------------------|
| - | None identified | - |

| Ref. No. | Remarks/Observations | Related Item No. |
|------------|--|------------------|
| 161031-O01 | <p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Ecology / Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> To provide sufficient water spray to the hopper at the jetty during conveyance of stockpile for dust suppression. | E 21 |
| 161031-R02 | <p>Part F – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> To provide the chemical containers observed next to the AquaSed with drip tray (Hung Hom Platform). <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I – Others</p> <p>Follow-up on previous audit section (Ref. No.:161024), all environmental deficiencies were rectified/ improved by the Contractor.</p> | G 10 |

| | Name | Signature | Date |
|-------------|--------------------|--|-----------------|
| Recorded by | Benjamin Wong |  | 31 October 2016 |
| Checked by | Dr. Priscilla Choy |  | 31 October 2016 |

**APPENDIX I
EVENT AND ACTION PLANS**

Event and Action Plan for Marine Water Quality Monitoring

| EVENT | ACTION | | | |
|--|--|--|--|---|
| | ET | IEC | ER | CONTRACTOR |
| ACTION LEVEL | | | | |
| Action level being exceeded by one sampling day | <ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Check monitoring data, all plant, equipment and the Contractor's working methods; and 3. Discuss remedial measures with the IEC and Contractor. | <ol style="list-style-type: none"> 1. Discuss with the ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by the Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER the effectiveness of the implemented mitigation measures. | <ol style="list-style-type: none"> 1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Make agreement on the remedial measures to be implemented; and 3. Supervise the implementation of agreed remedial measures. | <ol style="list-style-type: none"> 1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment; 5. Consider changes of working methods; 6. Discuss with the ET, IEC and ER and propose remedial measures to IEC and ER; and 7. Implement the agreed remedial measures. |
| Action level being exceeded by more than one consecutive sampling days | <ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings; 2. Inform the Contractor, IEC and ER; 3. Check monitoring data, all plant, equipment and the Contractor's working methods; 4. Discuss remedial measures with the IEC and Contractor; and 5. Ensure remedial measures are implemented. | <ol style="list-style-type: none"> 1. Discuss with the ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by the Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER the effectiveness of the implemented remedial measures. | <ol style="list-style-type: none"> 1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Make agreement on the remedial measures to be implemented; and 3. Discuss with the ET and IEC on the effectiveness of the implemented remedial measures. | <ol style="list-style-type: none"> 1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment; 5. Consider changes of working methods; 6. Discuss with the ET, IEC and ER and propose remedial measures to IEC and ER within 3 working days of notification; and 7. Implement the agreed remedial measures. |

| EVENT | ACTION | | | |
|--|--|---|---|--|
| | ET | IEC | ER | CONTRACTOR |
| LIMIT LEVEL | | | | |
| 1. Limit level being exceeded by one sampling day | <ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings; Inform the Contractor, IEC, EPD and ER; Rectify unacceptable practice; Check monitoring data, all plant, equipment and the Contractor's working methods; Discuss with the ET and IEC and propose remedial measures to the IEC, EPD and ER; and Ensure the agreed remedial measures are implemented. | <ol style="list-style-type: none"> Discuss with the ET, ER and Contractor on the implemented mitigation measures; Review proposals on remedial measures submitted by Contractor and advise the ER accordingly; and Review and advise the ET and ER the effectiveness of the implemented remedial measures. | <ol style="list-style-type: none"> Discuss with the ET, IEC and Contractor on the implemented mitigation measures; Request the Contractor to critically review the working methods; Make agreement on the remedial measures to be implemented; and Assess the effectiveness of the implemented remedial measures. | <ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET , IEC and ER and propose remedial measures to IEC and ER within 3 working days of notification; and Implement the agreed remedial measures. |
| 2. Limit level being exceeded by more than one consecutive sampling days | <ol style="list-style-type: none"> Inform the Contractor, IEC, EPD and ER; Check monitoring data, all plant, equipment and the Contractor's working methods; Discuss remedial measures with the IEC, EPD, ER and Contractor; Ensure remedial measures are implemented; and Increase the monitoring frequency to daily until no exceedance of Limit level | <ol style="list-style-type: none"> Discuss with the ET, ER and Contractor on the implemented measures; Review proposals on remedial measures submitted by the Contractor and advise the ER accordingly; and Review and advise the ET and ER the effectiveness of the implemented remedial measures. | <ol style="list-style-type: none"> Discuss with the ET, IEC and Contractor on the implemented mitigation measures; Request the Contractor to critically review the working methods; Make agreement on the remedial measures to be implemented; Discuss with the the ET, IEC and Contractor on the effectiveness of the implemented remedial measures; and Consider and instruct, if necessary, | <ol style="list-style-type: none"> Identify source(s) of impact; Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with the ET, IEC and ER and propose remedial measures to IEC and ER within 3 working days of notification; Implement the agreed remedial measures; and |

| EVENT | ACTION | | | |
|-------|---------------------------|-----|---|---|
| | ET | IEC | ER | CONTRACTOR |
| | for two consecutive days. | | the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level. | 8. As directed by the ER, to slow down or to stop all or part of the marine works or construction activities. |

**APPENDIX J
UPDATED ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE**

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|---|---|--|--------------------------------|--|---------------------------------|---|---------------------|
| <i>Cultural Heritage Impact (Construction Phase)</i> | | | | | | | |
| S4.93 & Table 4.2 | Erection of decorative and sensibly designed hoarding along the boundary of the works area | To mitigate the temporary visual impact due to surface works. | Contractor | Works Areas in Causeway Bay and Wan Chai | Construction phase | EIAO | N/A |
| <i>Ecology (Construction Phase)</i> | | | | | | | |
| S 5.133 | The following mitigation measures in controlling water quality change shall be implemented: <ul style="list-style-type: none"> - Installation of silt curtains around the dredgers, where appropriate, during dredging activities; - Use of closed grab dredger during dredging; and - Reduction of dredging rate | To minimize changes in water quality impact on marine flora and fauna | Contractor | All reclamation and dredging works areas | Construction phase | • EIAO-TM | ^ ^ ^ |
| S5.134 | Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted | Minimise the contamination of wastewater discharge | Contractor | All land based works areas | Construction phase | • EIAO-TM | ^ |
| ERR S3.6.3 | Installation of floating type silt curtains around the area of construction and removal of earth bund | Minimize indirect impact to the nearby subtidal and intertidal flora and fauna | Contractor | Shek O Casting Basin | Construction phase | • EIAO-TM | ^ |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|---|--|---|--------------------------------|--|---------------------------------|---|--------|
| <i>Fisheries Impact</i> | | | | | | | |
| S5.132 | The size of the dredging and underwater blasting areas shall be minimized as much as possible | To minimize loss of fishing ground and fisheries resources | Contractor/ MTR | All dredging and underwater blasting works areas | Construction phase | • EIAO-TM | ^ |
| S5.133 | Mitigation measures recommended in Sections 11.200 to 11.207, 11.209 to 11.211 and 11.213 to 11.256 of the EIA Report to control water quality, i.e. use of effective site drainage in land-based construction site and installation of silt curtain surrounding the dredging point, use of closed grab dredger and reduction of dredging rate shall be implemented. | To minimize change in water quality impact on fisheries resources and operation | Contractor | Works Areas | Construction phase | • EIAO-TM | ^ |
| S6.59 | After completion of armour rock filling, the final surfaces of the protective armour rock layer shall be checked by ultrasonic sounding survey. Measures such as removing the rock or breaking the rock into pieces shall be implemented in case of non-compliance | To minimize the IMT protrusion above the seabed | Contractor | Along IMT laying works areas | Construction phase | • EIAO-TM | N/A |
| <i>Landscape & Visual (Construction Phase)</i> | | | | | | | |
| Table 7.9 | CM3 - Control of night-time lighting glare | Minimize the night time glare due to the Project during construction phase | MTR | All works sites | Construction phase | • EIAO-TM | ^ |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|--|---|---|--------------------------------|--|---------------------------------|---|--------|
| Table 7.9 | CM4 - Erection of decorative screen hoarding compatible with the surrounding setting. | Minimize the visual impact of the Project during construction phase | MTR | All works sites | Construction phase | • EIAO-TM | N/A |
| Table 7.9 | CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. | Control of height and deposition/arrangement of temporary facilities in works areas | MTR | All works sites | Construction phase | • EIAO-TM | N/A |
| Table 7.9 | CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like-to-like basis to the satisfaction of the relevant Government Departments. | Reinstatement of temporary works areas. | MTR | All works sites | Construction phase | • EIAO-TM | N/A |
| <i>Construction Dust Impact</i> | | | | | | | |
| EP 2.25 | All diesel fuelled construction plant used by the contractors within the works areas of the Project shall be powered by ultra-low sulphur diesel fuel. | Mitigating Aerial Emissions from Construction Plant | Contractor | All works areas | Construction phase | • EIAO-TM | ^ |
| Table 8.5 | Barging facilities: (i) Pave all road surfaces within the barging facilities and provide watering once along with the haul road for every | To minimize dust impacts | Contractor | Barging facility at Shek O Casting Basin | Construction phase | APCO | # |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|----------|---|---|--------------------------------|--------------------------|---------------------------------|---|--------|
| | <p>working hours to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m² once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.0L/m² to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual</p> <p>(ii) Vehicles leaving the barging facilities – Pass vehicles through the wheel washing facilities provided at site exits.</p> | | | | | | ^ |
| S8.63 | For concrete batching plant, the requirements and mitigation measures stipulated in the Guidance Note on the Best | To minimize dust impact | Contractor | Concrete Batching Plant | Construction phase | APCO | ^ |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|-----------|---|---|--------------------------------|--------------------------|---------------------------------|---|--|
| | Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93) shall be followed and implemented. | | | | | | |
| Table 8.6 | <p>During operation of concrete batching plant:</p> <p>(i) Unloading of aggregates from the tipper trucks to receiving hopper – unload the aggregates from the tipper trucks to the receiving hopper equipped with enclosures on 3 sides and top cover, and water spraying system.</p> <p>(ii) Unloading of cement and PFA from tankers into the silo – Directly load the cement and PFA into the silo via a flexible duct. Install dust collectors at cement/PFA silos.</p> <p>(iii) Storage of aggregates in overhead storage bins – Store the aggregates in fully enclosed overhead storage bins. Cover the top of overhead storage bins with cladding. Install water spraying system at the top of storage bins for watering the aggregates, and fully enclose aggregates storage bins.</p> <p>(iv) Weighing and batching of cementitious materials – Perform the whole process of weighing and mixing in a fully enclosed environment. Equip all the mixers with dust collectors.</p> <p>(v) Loading of concrete from mixer into transit mixer of a truck – Directly load the concrete from the mixer into the</p> | To minimize dust impact | Contractor | Concrete Batching Plant | Construction phase | APCO | <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|----------|--|---|--------------------------------|---|---------------------------------|---|------------|
| | <p>transit mixer of a truck in "wet form".</p> <p>(vi) Tipper trucks and cement tankers leaving the Concrete Batching Plant – Haul road within the site is unpaved. Install wheel washing pit at the gate of the concrete batching plant.</p> <p>(vii) Transportation of materials within the plant – Provide watering twice a day would be provided.</p> | | | | | | ^ ^ |
| S8.89 | <p>Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m² for Kowloon side and 1.0 L/m² for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m² for Kowloon side and 1.0 L/m² for Hong</p> | To minimize dust impact | Contractor | <p>Works areas at:</p> <ul style="list-style-type: none"> • Hung Hom • Cross Harbour section up to Breakwater of CBTS • Shek O Casting Basin | Construction phase | APCO | * |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|----------|--|---|--------------------------------|--|---------------------------------|---|--|
| | Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual. | | | | | | |
| S8.90 | <p>Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices:</p> <ul style="list-style-type: none"> - Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - Use of frequent watering for particularly dusty construction areas and areas close to ASRs. - Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. - Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. - Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. - Establishment and use of vehicle wheel and body | To minimize dust impact | Contractor | <p>Works areas at:</p> <ul style="list-style-type: none"> • Hung Hom • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV | Construction phase | APCO and Air Pollution Control (Construction Dust) Regulation | <p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|----------|--|---|--------------------------------|--------------------------|---------------------------------|---|---|
| | <p>washing facilities at the exit points of the site.</p> <ul style="list-style-type: none"> - Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. - Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. - Imposition of speed controls for vehicles on site haul roads. - Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. - Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. - Instigation of an environmental monitoring and auditing | | | | | | <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|--|---|---|--------------------------------|--------------------------|---------------------------------|---|-------------|
| | program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. | | | | | | |
| <i>Air Quality (Construction Phase)</i> | | | | | | | |
| / | Emission from Vehicles and Plants <ul style="list-style-type: none"> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD) | Reduce air pollution emission from construction vehicles and plants | Contractor | All construction sites | Construction stage | • APCO | ^ ^ ^ |
| / | Valid Non-road Mobile Machinery (NRMM) labels should be provided to regulated machines | Reduce air pollution emission from construction vehicles and plants | Contractor | All construction sites | Construction stage | • APCO | ^ |
| <i>Construction Noise (Airborne)</i> | | | | | | | |
| S9.55 | Implement the following good site practices: <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may | Control construction airborne noise | Contractor | Works areas | Construction phase | • EIAO-TM | ^ ^ |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|-------------------------------|---|---|--------------------------------|---|---------------------------------|---|---|
| | <p>be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</p> <ul style="list-style-type: none"> • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. | | | | | | <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> |
| <p>S9.56 & Table 9.16</p> | <p>The following quiet PME shall be used:</p> <ul style="list-style-type: none"> • Crane lorry, mobile • Crane, mobile • Asphalt paver • Backhoe with hydraulic breaker • Breaker, excavator mounted (hydraulic) | <p>To minimize construction noise impact</p> | <p>Contractor</p> | <p>Works areas at:</p> <ul style="list-style-type: none"> • Hung Hom • Cross Harbour section up to Breakwater of CBTS | <p>Construction stage</p> | <ul style="list-style-type: none"> • EIAO-TM | <p>N/A</p> |

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| | <ul style="list-style-type: none"> • Hydraulic breaker • Concrete lorry mixer • Poker, vibrator, hand-held • Concrete pump • Crawler crane, mobile • Mobile crane • Dump truck • Excavator • Truck • Rock drill • Lorry • Wheel loader • Roller vibratory | | | <ul style="list-style-type: none"> • Breakwater of CBTS to SOV | | | |
| S9.58 – S9.59 & Table 9.17 | Movable noise barrier shall be used for the following PME: <ul style="list-style-type: none"> • Air compressor • Asphalt paver • Backhoe with hydraulic breaker • Bar bender • Bar bender and cutter (electric) • Breaker, excavator mounted • Concrete pump | To minimize construction noise impact | Contractor | Works areas at: <ul style="list-style-type: none"> • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV | Construction stage | • EIAO-TM | N/A |

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| | <ul style="list-style-type: none"> • Concrete pump, stationary/lorry mounted • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete | | | | | | |
| S9.60 & Table 9.17 | Noise insulating fabric shall be used for <ul style="list-style-type: none"> • Drill rig, rotary type • Piling, diaphragm wall, bentonite filtering plant • Piling, diaphragm wall, grab and chisel • Piling, diaphragm wall, hydraulic extractor • Piling, large diameter bored, grab and chisel • Piling, hydraulic extractor • Piling, earth auger, auger • Rock drill, crawler mounted (pneumatic) | To minimize construction noise impact | Contractor | Works areas at: <ul style="list-style-type: none"> • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV | Construction stage | • EIAO-TM | N/A |
| Water Quality (Construction Phase) | | | | | | | |
| S11.200 & 201 | All excavation and tunnel construction works will be undertaken within the cofferdam and there will be no open dredging. Removal of fender piles of Hung Hom Bypass and minor | To minimize release of sediment and contaminants during temporary reclamation. | Contractor | Marine works at Hung Hom Landfall | Construction phase | • EIAO-TM • WPCO | N/A ^ |

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|----------|---|--|--------------------------------|---------------------------------------|---------------------------------|---|---|
| | <p>marine piling works will be carried out prior to the construction of the elevated platform adjacent to the cofferdam at Hung Hom Landfall. Reinstatement of the fender piles will be carried out upon completion of tunnel section. Potential release of sediment due to abovementioned works could be minimized by installation of silt curtains surrounding the works area as appropriate. All excavation and tunnel construction works will be undertaken within the cofferdam.</p> <p>No open dredging shall be allowed.</p> | | | | | | ^ |
| S11.202 | <p>All temporary reclamation works will adopt an approach where temporary seawalls will first be formed to enclose each phase of the temporary reclamation. Installation of diaphragm wall on temporary reclamation as well as any bulk filling will proceed behind the completed seawall. Any gaps that may need to be provided for marine access will be shielded by silt curtains to control sediment plume dispersion away from the site.</p> <p>Demolition of temporary reclamation including the demolition of the diaphragm wall and dredging to the existing seabed levels will also be carried out behind the temporary seawall.</p> | To minimize loss of fines and contaminants during temporary reclamations | Contractor | All temporary reclamation works areas | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> |

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| | Temporary seawall will be removed after completion of all excavation and dredging works for demolition of the temporary reclamation. | | | | | | N/A |
| S11. 202 | During construction of the temporary reclamation, temporary seawall will be partially constructed to protect the nearby seawater intakes from further dredging activities. For example, the seawalls along the southeast and northeast boundaries of PW1.1 shall be constructed first (above high water mark) so that the seawater intake at the inner water would be protected from the impacts from the remaining dredging activities along the northwest boundary. | To minimize water quality impact upon the cooling water intakes in CBTS from temporary reclamation works | Contractor | Temporary reclamation works areas in CBTS | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |
| S11. 202 | Dredging will be carried out by closed grab dredger to minimize release of sediment and other contaminants during dredging. | To minimize loss of fines and contaminants during dredging in CBTS | Contractor | All temporary reclamation and dredging works areas within CBTS | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |
| S11. 202 & Table 11.25 | Silt curtains will be deployed to fully enclose the closed grab dredger and shall be extended from water surface to the seabed, as far as practicable, during any dredging operation. | To minimize loss of fines and contaminants during dredging in CBTS | Contractor | All temporary reclamation and dredging works areas within CBTS | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |

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| S11. 202 & Table 11.23 | Silt screens will be installed at the cooling water intakes within the CBTS during the temporary reclamation period. | To minimize water quality impact upon the cooling water intakes in CBTS from marine construction activities | Contractor | Cooling water intakes inside CBTS | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |
| S11. 203 & Table 11.24 | No more than two dredgers (of about 8 m ³ capacity each) shall be operated for dredging within the typhoon shelter at any time for the tunnel construction works. Moreover, the combined dredging rate for all concurrent dredging works (include dredging works for concurrent projects such as WDII and CWB) to be undertaken within the CBTS shall not exceed 4,500 m ³ per day (and 281 m ³ per hour with a maximum working period of 16 hours per day) throughout the entire construction period. | To minimize loss of fines and contaminants during dredging in CBTS | Contractor | All dredging works areas within CBTS | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |
| ERR 6.7.1 | Closed grab dredger shall be used for any dredging operations, except at for removal of fill material at the gap at the IMT/ME4 interface, which will be carried out by air lift or sand pump method | To minimize water quality impact in CBTS from marine construction activities | Contractor | All marine works areas within CBTS | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |
| ERR 6.7.1 | Fill materials removed by air lift or sand pumping method shall be stored inside impermeable compartment of the barge | To minimize water quality impact in CBTS from marine construction | Contractor | All marine works areas within CBTS | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |

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|------------|--|--|--------------------------------|--|---------------------------------|---|--------|
| | | activities | | | | | |
| ERR 6.7.1 | Bulk filling operation within CBTS shall be carried out by closed grab dredger and/or by feeding the fill material into a down pipe for placing of fill materials | To minimize water quality impact in CBTS from marine construction activities | Contractor | All marine works areas within CBTS | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |
| EP 2.18.1a | Pipe piles shall be used to form temporary seawalls for IMT construction within CBTS. | To minimize water quality impact in CBTS from IMT construction | Contractor | IMT construction works within CBTS | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |
| EP 2.18.1b | The temporary seawalls shall not be removed before completion of all dredging or filling works for IMT construction, except for a small section of pipe piles adjoining IMT11 to facilitate the necessary dredging works for placing the IMT11. | To minimize water quality impact in CBTS from IMT construction | Contractor | IMT construction works within CBTS | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |
| EP 2.18.1j | Water quality monitoring shall be conducted at cooling water intake 9 for Windsor House during IMT construction within CBTS. The monitoring frequency, parameters, equipment and methodology shall follow those for dredging and filling as stipulated in the EM&A Manual. | To minimize water quality impact in CBTS from IMT construction | Contractor | IMT construction works within CBTS | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | ^ |
| S11. 204 | Bulk filling along the IMT tunnel alignment for SCL shall be carried out after the bulk dredging works along the IMT alignment are completed. Hence, bulk dredging and bulk | To minimize loss of fines and contaminants during IMT construction | Contractor | Marine works areas in Victoria Harbour | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |

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|----------|---|--|--------------------------------|---|---------------------------------|---|--------|
| | filling along the IMT alignment shall not be undertaken at the same time. | | | | | | |
| S11. 204 | Dredging for IMT and SCL2 construction shall be carried out by closed grab dredger to minimize release of sediment and other contaminants during dredging. | To minimize loss of fines and contaminants during dredging in the Victoria Harbour | Contractor | Marine works areas in Victoria Harbour | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |
| S11.204 | No more than one closed grab dredger shall be operated outside the CBTS in the open harbor for SCL construction. | To minimize loss of fines and contaminants from dredging in the Victoria Harbour | Contractor | Marine works areas in Victoria Harbour | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |
| S11. 204 | Dredging for temporary reclamation outside the CBTS (at SCL2) shall not be carried out concurrently with the dredging / filling works for IMT construction. | To minimize loss of fines and contaminants from dredging / filling in the Victoria Harbour | Contractor | Marine works areas in Victoria Harbour | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |
| S11. 205 | Floating type or frame type silt curtains shall be deployed around the dredging operations within 200m from the Hung Hom landfall. | To minimize loss of fines and contaminants from dredging in the Victoria Harbour | Contractor | Construction of northern IMT segment in the near shore region within 200 m from the Hung Hom landfall | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | ^ |

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| EP 2.19e | Frame type silt curtains shall be deployed around the dredging operations for the remaining IMT segments outside 200 m from the Hung Hom landfall. | To minimize water quality impacts in Victoria Harbour from IMT construction | Contractor | Construction of northern IMT segment in Victoria Harbour outside 200m from the Hung Hom landfall | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | ^ |
| S11. 205 & Table 11.23 | Silt screens shall be installed at the cooling water intakes for East Rail Extension, Metropolis and Hong Kong Coliseum (namely 21, 34 and 35 respectively) which are in close vicinity of the northern IMT segment. | To protect the beneficial use of water intakes along the Kowloon waterfront from dredging / filling activities | Contractor | Construction of northern IMT segment in the near shore region within 200 m from the Hung Hom landfall | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | ^ |
| S11.207 | <p>If underwater blasting is required for SCL construction, the following precautionary / mitigation measures shall be adopted:</p> <ul style="list-style-type: none"> • Charge shall be placed in cores within the rock in order that there will be no blast directly into the water. • In terms of the construction sequence, sediment dredging (within the planned IMT works area) shall be | To protect the water quality in Victoria Harbour from any possible underwater blasting | Contractor | Marine works areas in Victoria Harbour | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |

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| | conducted prior to any underwater blasting. | | | | | | |
| Table 11.23 | Silt screens shall be installed at the WSD Flushing Water Intakes at Kowloon Station, Tai Wan, Quarry Bay and Wan Chai (namely Intakes 14, WSD9, WSD17 and A respectively) during any dredging / filling works outside the CBTS for temporary reclamation at SCL2 or for IMT construction | To protect the beneficial use of flushing water intakes in Victoria Harbour from dredging / filling activities | Contractor | Flushing water intake points in Victoria Harbour | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |
| S11.210 - S11.211 & Table 11.24 ERR S6.7.1 | If the marine works for SCL are to be carried out concurrently with other dredging / filling activities in the Victoria Harbour, the production rates of any dredging / filling work to be undertaken outside the CBTS for SCL construction in the open harbour (including temporary reclamation at SCL2 and IMT construction, except for the area within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall) shall not exceed 2,500 m ³ per day at any time throughout the entire construction period. The hourly production rate for dredging or bulk filling within the open Victoria Harbour (outside the breakwater of CBTS, except for the area within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall) shall not exceed 156 m ³ per hour (if there are other concurrent marine works in Victoria Harbour) and the maximum working hour for | To minimize loss of fines and contaminants from dredging / filling in the Victoria Harbour | Contractor | Marine works areas in Victoria Harbour | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | N/A |

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| | <p>the dredging / bulk filling works shall be 16 hours per day. Silt screen shall be deployed at the Kowloon Station Intake to minimize the water quality impact. If the marine works for SCL are to be carried out with no other concurrent dredging / filling activities in the Victoria Harbour, the production rates of any dredging / filling work to be undertaken outside the CBTS for SCL construction in the open harbour (including temporary reclamation at SCL2 and IMT construction except for the area within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall) shall not exceed 4,500 m³ per day at any time throughout the entire construction period. The hourly production rate for dredging or bulk filling within the open Victoria Harbour (outside the breakwater of CBTS except for the area within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall) shall not exceed 281 m³ per hour (if there is no other concurrent marine works in Victoria Harbour) and the maximum working hour for the dredging / bulk filling works shall be 16 hours per day. Silt screen shall be deployed at the Kowloon Station Intake to minimize the water quality impact. Only one chiseling machine or hydraulic breaker shall be</p> | | | | | | |

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|----------|--|--|--------------------------------|--------------------------|---------------------------------|---|------------------------------|
| | <p>adopted for rock breaking.</p> <p>For any dredging / filling work for IMT construction within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall:</p> <ul style="list-style-type: none"> • The daily production rate shall not exceed 1,500m³ per day • the hourly production rate shall not exceed 93m³ | | | | | | N/A N/A |
| S11.215 | <p>The following good site practices shall be undertaken during filling and dredging:</p> <ul style="list-style-type: none"> • mechanical grabs, if used, shall be designed and maintained to avoid spillage and sealed tightly while being lifted; • all vessels shall be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • all hopper barges and dredgers shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material; • construction activities shall not cause foam, oil, | To minimize loss of fines and contaminants from dredging / filling | Contractor | Marine works areas | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | ^ ^ ^ ^ |

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|----------|--|---|--------------------------------|--|---------------------------------|---|------------|
| | <p>dusty materials shall be covered and located away from the seawater front and storm drainage.</p> <ul style="list-style-type: none"> • Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters. | | | | | | ^ |
| S11.217 | <p>The following mitigation measures are proposed to minimize the potential water quality impacts from any marine piling works:</p> <ul style="list-style-type: none"> • The potential release of sediment or excavated materials could be controlled through the installation of silt curtains surrounding the working area as necessary. • Spoil shall be collected by sealed hopper barges for proper disposal. | To minimize release of sediment and pollutants from marine piling activities | Contractor | Marine piling works areas | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | ^ ^ |
| S11.218 | <p>Silt screens are recommended to be deployed at the seawater intakes during the construction works period.</p> <p>Regular maintenance of the silt screens and refuse collection shall be performed at the silt screens at regular intervals on a daily basis. The Contractor shall be responsible for keeping the water behind the silt screen free from floating rubbish and debris during the impact monitoring period.</p> | To avoid the pollutant and refuse entrapment problems at the silt screens to be installed at the water intakes. | Contractor | Proposed silt screens at water intakes | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | ^ |
| S11.219 | It is recommended that collection and removal of floating | To minimize water | Contractor | Marine works | Construction | • EIAO-TM | ^ |

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| | refuse shall be performed within the marine construction areas at regular intervals on a daily basis. The Contractor shall be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish during the dredging works. | quality impacts from illegal dumping and littering from marine vessels and runoff from the coastal area | | area | phase | <ul style="list-style-type: none"> • WPCO • WDO | |
| S11.220 & 221 | Any wastewater including washdown waters and any concrete curing waters generated from the casting basin shall be drained to the wastewater treatment unit. Appropriate treatment process such as sedimentation and oil removal shall be employed for the wastewater treatment units so that any discharge from the casting basin will comply with standards stipulated in the TM-DSS. Recovered oil from any oil interceptor shall be properly contained, labeled and stored on site prior to collection by licensed collectors for disposal. During the flooding of the basin with seawater (accomplished by pumps) no escape of water could occur as the cofferdam will still be in place. Prior to opening a channel through the cofferdam, water inside the basin will be skimmed of floating debris. A period of settling of 24 hours before opening the basin to the sea would allow much of the suspended material to settle out. The channel through the cofferdam will only be | To minimize water quality impacts from the washdown, flooding and draining operation at Shek O Casting Basin | Contractor | Shek O Casting Basin | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO | ^ |

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| | opened with the approval of the Site Engineer to the effect that all reasonable steps had been taken to remove contaminants. | | | | | | |
| S11.222 to 11.245 | The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" shall be followed where practicable. | To minimize water quality impacts from construction site runoff and general construction activities | Contractor | Works areas | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO • TMDSS, • WDO, • ProPECC PN 1/94 | ^ |
| S11.246 & 11.247 | Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment. | minimize water quality impacts due to sewage generated from construction workforce | Contractor | All works areas | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS • WDO | ^ |

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| S11.253 | <p>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. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimize water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD.</p> | <p>To minimize water quality impact from effluent discharges from construction sites</p> | Contractor | All construction works areas | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS | * |
| S11.254 | <p>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</p> | <p>minimize water quality impact from accidental spillage of chemical</p> | Contractor | All construction works areas | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS • WDO | * |

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| | (Chemical Waste) (General) Regulation shall be observed and complied with for control of chemical wastes. | | | | | | |
| S11.255 | Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges. | minimize water quality impact from accidental spillage of chemical | Contractor | All construction works areas | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS • WDO | # |
| S11.256 | <p>Disposal of chemical wastes shall 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. General requirements are given as follows:</p> <ul style="list-style-type: none"> • Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area shall be selected at a safe location on site and | minimize water quality impact from accidental spillage of chemical | Contractor | All construction works areas | Construction phase | <ul style="list-style-type: none"> • EIAO-TM • WPCO • TM-DSS • WDO | <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|--|--|---|--------------------------------|--------------------------|---------------------------------|---|---|
| | adequate space shall be allocated to the storage area. | | | | | | |
| ERR S 8.5.1 | Floating type silt curtains would be installed around the area of construction and removal of earth bund during the respective works. | minimize water quality impact at Shek O Casting Basin | Contractor | Shek O Casting Basin | Construction phase | • WPCO | N/A |
| Waste Management (Construction Waste) | | | | | | | |
| S12.75 | <p>Good Site Practices and Waste Reduction Measures</p> <ul style="list-style-type: none"> - Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; - Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; - Provision of sufficient waste disposal points and regular collection of waste; - Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and - Separation of chemical wastes for special handling and appropriate treatment. | reduce waste management impacts | Contractor | All works sites | Construction phase | <ul style="list-style-type: none"> • Waste Disposal Ordinance (Cap. 354) • Land (Miscellaneous Provisions) Ordinance (Cap. 28) • DEVB TCW No. 6/2010 | <p style="text-align: right;">^</p> <p style="text-align: right;">^</p> <p style="text-align: right;">^</p> <p style="text-align: right;">^</p> <p style="text-align: right;">*</p> <p style="text-align: right;">^</p> |
| S12.76 | <p>Good Site Practices and Waste Reduction Measures</p> | achieve waste | Contractor | All works sites | Construction | • Waste Disposal | |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|----------|--|---|--------------------------------|--------------------------|---------------------------------|---|--------|
| | part of the EMP in accordance with ETWBTCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis. | | | | | | |
| S12.78 | C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort. | achieve waste reduction | Contractor | All works sites | Construction phase | • ETWB TCW No. 19/2005 | ^ |
| S12.79 | Storage, Collection and Transportation of Waste Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: | minimize potential adverse environmental impacts arising from waste storage | Contractor | All works sites | Construction phase | - | |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|----------|---|--|--------------------------------|--------------------------|---------------------------------|---|--|
| | <ul style="list-style-type: none"> - Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; - Maintain and clean storage areas routinely; - Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and - Different locations shall be designated to stockpile each material to enhance reuse | | | | | | ^ ^ ^ ^ |
| S12.80 | <p><i>Storage, Collection and Transportation of Waste (Con't)</i></p> <p>Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts:</p> <ul style="list-style-type: none"> - Remove waste in timely manner - Waste collectors shall only collect wastes prescribed by their permits - Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers | <p>minimize potential adverse environmental impacts arising from waste collection and disposal</p> | Contractor | All works sites | Construction phase | - | N/A ^ ^ N/A |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|----------------|--|--|--------------------------------|--------------------------|---------------------------------|---|---------------------|
| | <ul style="list-style-type: none"> - Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) - Waste shall be disposed of at licensed waste disposal facilities - Maintain records of quantities of waste generated, recycled and disposed | | | | | | ^ ^ ^ |
| S12.81 | <p><i>Storage, Collection and Transportation of Waste (Con't)</i></p> <ul style="list-style-type: none"> - Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed | minimize potential adverse environmental impacts arising from waste collection and disposal | Contractor | All works sites | Construction phase | • DEVB TCW No. 6/2010 | ^ |
| S12.83 – 12.86 | <p><i>Sorting of C&D Materials</i></p> <ul style="list-style-type: none"> - Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. - Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. | minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials | Contractor | All works sites | Construction phase | <ul style="list-style-type: none"> • DEVB TCW No. 6/2010 • ETWB TCW No. 33/2002 • ETWB TCW No. 19/2005 | ^ ^ |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|----------|---|--|--------------------------------|--|---------------------------------|---|--------|
| | <ul style="list-style-type: none"> - The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. - Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach | | | | | | ^ |
| S12.88 | <p>Sediments</p> <p>The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance</p> | To ensure the sediment to be disposed of in an authorized and least impacted way | Contractor | All works areas with sediments concern | Construction Phase | ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance | ^ |
| S12.89 | <p>Sediments</p> <p>The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on</p> | To determine the best handling and disposal option of the sediments | Contractor | All works areas with sediments concern | Construction Phase | ETWB TC(W) No. 34/2002 & Dumping at Sea | ^ |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|--------------|--|---|--------------------------------|-------------------------------------|---------------------------------|---|--------|
| | the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works. | | | | | Ordinance | |
| S12.91-12.94 | <p>Sediments</p> <ul style="list-style-type: none"> - Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, | To ensure handling of sediments are in accordance to statutory requirements | Contractor | Work Sites, Sediment disposal sites | Construction Phase | ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance | ^ |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|----------|---|---|--------------------------------|--------------------------|---------------------------------|---|--|
| | <p>if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO).</p> <ul style="list-style-type: none"> - In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. - The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic selfmonitoring devices as specified by the DEP. - In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear | | | | | | <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|----------|---|---|--------------------------------|-------------------------------------|---------------------------------|---|--------|
| | appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site. | | | | | | |
| S12.95 | <p>Sediments</p> <p>A possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of fill retention by the geosynthetic fabrics, possible rupture of the containers and sediment loss due to impact of the container on the seabed have been addressed.</p> | To ensure handling of sediments are in accordance to statutory requirements | Contractor | Work Sites, Sediment disposal sites | Construction Phase | ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance | N/A |
| S12.97 | <p>Containers for Storage of Chemical Waste</p> <p>The Contractor shall register with EPD as a chemical waste</p> | register with EPD as a Chemical waste | Contractor | All works sites | Construction phase | • Code of Practice on the | |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|----------|--|--|--------------------------------|--------------------------|---------------------------------|---|-------------------------------------|
| | <p>producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for storage of chemical waste shall:</p> <ul style="list-style-type: none"> - Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; - Have a capacity of less than 450 liters unless the specifications have been approved by EPD; and - Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation | <p>producer and store chemical waste in appropriate containers</p> | | | | <p>Packaging, Labelling and Storage of Chemical Wastes</p> | <p>*</p> <p>^</p> <p>^</p> |
| S12.98 | <p>Chemical Waste Storage Area</p> <ul style="list-style-type: none"> - Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; - Be enclosed on at least 3 sides; - Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; - Have adequate ventilation; | <p>prepare appropriate storage areas for chemical waste at works areas</p> | Contractor | All works sites | Construction phase | <ul style="list-style-type: none"> • Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes | <p>^</p> <p>^</p> <p>^</p> <p>^</p> |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

| EIA Ref. | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | What requirements or standards for the measures to achieve? | Status |
|----------|--|---|--------------------------------|--------------------------|---------------------------------|---|--------|
| | <ul style="list-style-type: none"> - Be covered to prevent rainfall from entering; and - Be properly arranged so that incompatible materials are adequately separated. | | | | | | ^ ^ |
| S12.99 | <p>Chemical Waste</p> <ul style="list-style-type: none"> - Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place. | clearly label the chemical waste at works areas | Contractor | All works sites | Construction phase | <ul style="list-style-type: none"> • Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes | ^ |
| S12.100 | <p>Collection and Disposal of Chemical Waste</p> <p>A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation</p> | To monitor the generation, reuse and disposal of chemical waste | Contractor | All works sites | Construction phase | <ul style="list-style-type: none"> • Waste Disposal (Chemical Waste) (General) Regulation | ^ |
| S12.101 | <p>General Refuse</p> <p>General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical</p> | properly store and separate from other C&D materials for | Contractor | All works sites | Construction phase | - | ^ |

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

- * Observation/reminder was made during site audit but improved/rectified by the contractor.
- # Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
- N/A Not Applicable

**APPENDIX K
WASTE GENERATION IN THE REPORTING
MONTH**

Monthly Summary Waste Flow Table for 2016 (year)

Contract No: SCL1121
Date Reported: October 2016

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | | | | | Actual Quantities of Non-inert C&D Wastes Generated Monthly | | | | |
|--------------|--|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---|----------------------------|-----------------------|----------------|-----------------------------|
| | Total Quantity Generated | Hard Rocks and Large Broken Concrete (See Note 3) | Reused in the Contract | Reused in other Projects | Disposed as Public Fill | Imported Fill from 1111 | Imported Fill from 1112 | Imported Fill from 1114 | Imported Fill from 1123 | Imported Fill from 1128 | Metals | Paper/ cardboard packaging | Plastics (see Note 2) | Chemical Waste | Others, e.g. general refuse |
| | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000kg) | (in '000kg) | (in '000kg) | (in'000kg) | (in '000tonne) |
| Jan | 0.531 | 0.000 | 0.000 | 19.544 | 0.000 | 7.242 | 13.218 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.111 |
| Feb | 0.308 | 0.000 | 0.000 | 8.572 | 0.000 | 3.812 | 4.306 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.081 |
| Mar | 0.2 | 0.000 | 0.000 | 8.095 | 0.000 | 4.132 | 3.478 | 0.000 | 0.000 | 0.000 | 0.000 | 0.462 | 0.000 | 0.000 | 0.123 |
| Apr | 0.66 | 0.000 | 0.000 | 16.374 | 0.000 | 3.691 | 11.359 | 0.000 | 0.000 | 0.000 | 0.000 | 0.377 | 0.000 | 0.000 | 0.171 |
| May | 5.795 | 0.000 | 0.000 | 1.47 | 0.124 | 1.728 | 2.080 | 0.000 | 0.000 | 0.000 | 0.000 | 0.363 | 0.000 | 0.000 | 0.185 |
| June | 1.15 | 0.000 | 0.000 | 4.377 | 0.000 | 2.627 | 2.381 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.204 |
| July | 5.509 | 0.000 | 0.000 | 7.743 | 0.000 | 1.209 | 8.502 | 0.000 | 0.000 | 0.000 | 0.000 | 0.307 | 0.000 | 0.000 | 0.141 |
| Aug | 4.915 | 0.000 | 0.000 | 13.977 | 0.000 | 0.733 | 1.953 | 0.041 | 0.246 | 0.015 | 0.000 | 0.399 | 0.000 | 0.000 | 0.123 |
| Sept | 7.253 | 0.000 | 0.000 | 16.754 | 0.000 | 0.275 | 1.437 | 0.071 | 1.404 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.142 |
| Oct | 14.199 | 0.000 | 0.000 | 17.6 | 0.000 | 0.112 | 3.004 | 0.013 | 0.273 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.114 |
| Nov | | | | | | | | | | | | | | | |
| Dec | | | | | | | | | | | | | | | |
| Total | 40.52 | 0.000 | 0.000 | 114.506 | 0.124 | 25.561 | 51.718 | 0.125 | 1.923 | 0.015 | 0.000 | 1.601 | 0.000 | 0.000 | 1.395 |

Notes:

- (1) The performance targets are given below:
 - All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
 - All metallic waste to be recovered for collection by recycling contractors;
 - All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
 - All chemical wastes to be collected and properly disposed of by specialist contractors; and
 - All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.
- (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- (3) Broken concrete for recycling into aggregates.
- (4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- (5) “*” The inert C&D was delivered to the Hong Hum Barging Point and disposed by 1112.



Monthly Summary of Marine Sediment Flow for 2016 (year)

Contract No: SCL1121
Date Reported: October 2016

| Month | Volume of Sediments Generated Monthly Bulk Volume) | | | | | | | | | | | | | | | | | |
|------------------|--|---------------------|---------------------|---------------------|---------------|---|---------------------|---------------------|---------------------|------------|-----------------------------------|---------------------|---------------------|---------------------|----------------|-------------------------------------|--------------|--|
| | Type 1 – Open Sea Disposal | | | | | Type 1 – Open Sea Disposal (Dedicated Site) | | | | | Type 2 – Confined Marine Disposal | | | | | Type 3 – Special Treatment Disposal | | |
| | Generated from 1111 | Generated from 1112 | Generated from 1121 | Generated from 1128 | Disposed | Generated from 1111 | Generated from 1112 | Generated from 1121 | Generated from 1128 | Disposed | Generated from 1111 | Generated from 1112 | Generated from 1121 | Generated from 1128 | Disposed | Generated from 1121 | Disposed | |
| Unit | (in '000m ³) | | | | | (in '000m ³) | | | | | (in '000m ³) | | | | | (in '000m ³) | | |
| Jan | 0.013 | 16.584 | 5.342 | N/A | 21.801 | 0 | 0 | 0 | N/A | 0 | 0 | 0.019 | 21.339 | N/A | 21.339 | 0 | 0 | |
| Feb | 0.003 | 1.253 | 10.172 | | 11.566 | 0 | 0 | 0 | | 0 | 0 | 4.041 | 11.611 | | 15.152 | 0 | 0 | |
| Mar | 0 | 3.850 | 10.842 | | 14.694 | 0 | 0 | 0 | | 0 | 0 | 2.298 | 29.771 | | 32.087 | 0 | 0 | |
| Apr | 0 | 0 | 6.253 | | 6.253 | 0 | 0 | 6.825 | | 6.825 | 0 | 0.358 | 31.814 | | 31.814 | 0.557 | 0.557 | |
| May | 0 | 0 | 12.046 | | 12.046 | 0 | 0 | 1.675 | | 1.675 | 0 | 4.057 | 31.508 | | 35.838 | 0.441 | 0.441 | |
| June | 0 | 0 | 6.775 | 0.148 | 6.775 | 0 | 0 | 0 | 0 | 0 | 6.4472 | 33.845 | 0.031 | 40.365 | 0 | 0 | | |
| Sub-Total | 0.016 | 21.687 | 51.43 | 0.148 | 73.135 | 0 | 0 | 8.5 | 0 | 8.5 | 0 | 17.220 | 159.888 | 0.031 | 176.595 | 0.998 | 0.998 | |
| July | 0 | 0 | 27.008 | 0.0475 | 27.056 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20.254 | 0.0464 | 20.254 | 0 | 0 | |
| Aug | 0 | 0 | 15.213 | 0 | 15.213 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12.034 | 0.008 | 12.034 | 0 | 0 | |
| Sept | 0 | 0 | 36.996 | 0 | 36.996 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5.272 | 0 | 5.272 | 0 | 0 | |
| Oct | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11.318 | 0 | 11.318 | 0 | 0 | |
| Nov | | | | | | | | | | | | | | | | | | |
| Dec | | | | | | | | | | | | | | | | | | |
| Total | 0.016 | 21.687 | 130.647 | 0.196 | 152.4 | 0 | 0 | 8.5 | 0 | 8.5 | 0 | 17.220 | 208.766 | 0.0774 | 225.473 | 0.998 | 0.998 | |

**APPENDIX L
CUMULATIVE LOG FOR COMPLAINT
LOGS, NOTIFICATION OF SUMMONS AND
SUCCESSFUL PROSECUTIONS**

Appendix L - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

| Log Ref. | Date/Location | Complainant/ Date of Contact | Details of Complaint | Investigation/ Mitigation Action | File Closed |
|----------|---------------|---------------------------------|----------------------|----------------------------------|-------------|
| -- | -- | -- | -- | -- | -- |

Cumulative Log for Notifications of Summons

| Log Ref. | Date/Location | Subject | Status | Total no. Received in this reporting month | Total no. Received since project commencement |
|----------|---------------|---------|--------|--|---|
| -- | -- | -- | -- | -- | -- |

Cumulative Log for Successful Prosecutions

| Log Ref. | Date/Location | Subject | Status | Total no. Received in this reporting month | Total no. Received since the commencement of the project |
|----------|---------------|---------|--------|--|--|
| -- | -- | -- | -- | -- | -- |

Appendix L - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecution

| Reporting Month | Number of Complaints in Reporting Month | Number of Summons in Reporting Month | Number of Prosecutions in Reporting Month |
|------------------------|--|---|--|
| March 2015 | 0 | 0 | 0 |
| April 2015 | 0 | 0 | 0 |
| May 2015 | 0 | 0 | 0 |
| June 2015 | 0 | 0 | 0 |
| July 2015 | 0 | 0 | 0 |
| August 2015 | 1 | 0 | 0 |
| September 2015 | 1 | 0 | 0 |
| October 2015 | 1 | 0 | 0 |
| November 2015 | 1 | 0 | 0 |
| December 2015 | 0 | 0 | 0 |
| January 2016 | 0 | 0 | 0 |
| February 2016 | 0 | 0 | 0 |
| March 2016 | 1 | 0 | 0 |
| April 2016 | 0 | 0 | 0 |
| May 2016 | 1 | 0 | 0 |
| June 2016 | 1 | 0 | 0 |
| July 2016 | 1 | 0 | 0 |
| August 2016 | 2 | 0 | 0 |
| September 2016 | 0 | 0 | 0 |
| October 2016 | 0 | 0 | 0 |
| Total | 10 | 0 | 0 |

Appendix C

**Monthly EM&A Report for October 2016 – SCL Works
Contract 1123 Exhibition Station and Western Approach
Tunnel**

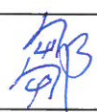

Leighton – China State J.V.

**Shatin to Central Link -
Hung Hom to Admiralty Section**

**Works Contract 1123 -
Exhibition Station and Western Approach Tunnel**

**Monthly EM&A Report for
October 2016**

[November 2016]

| | Name | Signature |
|---------------------------------|--|---|
| Prepared & Checked: | Ray Chow |  |
| Reviewed, Approved & Certified: | Y W Fung (Contractor's Environmental Team Leader) |  |

Version: 0

Date: 9 November 2016

Disclaimer

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EXECUTIVE SUMMARY

Shatin to Central Link Contract 1123 – Exhibition Station and Western Approach Tunnel (hereafter called “the Project”) covers part of the construction of the Shatin to Central Link (SCL).

The Project comprises the construction of an underground station (Exhibition Station) and 300 m of cut and cover tunnel (Western Approach Tunnel) along Convention Avenue.

The EM&A programme commenced on 1 June 2015. The impact EM&A for the Project includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 and 31 October 2016. As informed by the Contractor, major activities in the reporting period were:

| Location | Site Activities |
|---|---|
| Exhibition Station (Zone 1 - PTI Area) | <ul style="list-style-type: none"> • Utilities Diversion/ Protection • Prebored socket H-Piles (PBSH) and King Post • Pipe Pile Wall • Diaphragm Wall Works |
| Exhibition Station (Zone 3 - Swimming Pool Area) | <ul style="list-style-type: none"> • Diaphragm Wall Works |
| Exhibition Station (Zone 4 - Tunnel at Tonnochy Road) | <ul style="list-style-type: none"> • Utilities Diversion/ Protection • Foundation |
| Fleming Road Junction Area E | <ul style="list-style-type: none"> • Utilities Diversion/ Protection |
| Western Vent Shaft and Western Approach Tunnel (WAT) Area C | <ul style="list-style-type: none"> • Diaphragm Wall Works |
| WAT Area B | <ul style="list-style-type: none"> • Excavation and Lateral Support |
| WAT Area A | <ul style="list-style-type: none"> • Diaphragm Wall Works |

Breaches of Action and Limit Levels for Air Quality

No exceedance of Action / Limit Level of air quality was recorded in the reporting month.

Breaches of Action and Limit Levels for Noise

Regular Noise Monitoring

No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.

No exceedance of Limit Level of noise was recorded in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

No environmental related complaint, notification of summons and successful prosecution were received in the reporting month.

Reporting Changes

There was no reporting change in the reporting month.

Future Key Issues

Key issues to be considered in the next three month included:-

| Location | Site Activities |
|---|---|
| Exhibition Station (Zone 1 - PTI Area) | <ul style="list-style-type: none"> • Utilities Diversion/ Protection • Prebored socket H-Piles (PBSH) and King Post • Diaphragm Wall Works |
| Exhibition Station (Zone 3 - Swimming Pool Area) | <ul style="list-style-type: none"> • Diaphragm Wall Works |
| Exhibition Station (Zone 4 - Tunnel at Tonnochy Road) | <ul style="list-style-type: none"> • Utilities Diversion/ Protection • Ground Treatment • Foundation • Pipe Pile Wall |
| Fleming Road Junction Area E | <ul style="list-style-type: none"> • Utilities Diversion/ Protection • Foundation |
| Western Vent Shaft and WAT Area C | <ul style="list-style-type: none"> • Diaphragm Wall Works • Road Works |
| WAT Area B | <ul style="list-style-type: none"> • Excavation and Lateral Support |
| WAT Area A | <ul style="list-style-type: none"> • Diaphragm Wall Works • Excavation and Lateral Support |

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

1 INTRODUCTION

Leighton – China State Joint Venture (JV) was commissioned by MTR as the Civil Contractor for Works Contract 1123. AECOM Asia Company Limited (AECOM) was appointed by JV as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

1.1 Purpose of the Report

- 1.1.1 This is the seventeenth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period between 1 and 31 October 2016.

1.2 Report Structure

- 1.2.1 This monthly EM&A Report is organised as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection and Audit
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

- 2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 22 March 2012, which covers SCL (HUH-ADM) EP No.: EP-436/2012), for the construction and operation. Variation of EP (VEP) was subsequently applied and the latest EP (EP No. EP-436/2012/D) was issued by the Director of Environmental Protection (DEP) on 5 February 2016.
- 2.1.3 The construction of the SCL is divided into different civil construction works contracts and Works Contract 1123 – Exhibition Station and Western Approach involves the construction of an underground station (Exhibition Station) and 300m of cut and cover tunnel (Western Approach Tunnel) along Convention Avenue.
- 2.1.4 The site layout plan of the Project is shown in **Figure 1.1**.

2.2 Site Description

- 2.2.1 The major construction activities under Works Contract 1123 include:

- (a) Site preparation;
- (b) Demolition works;
- (c) Utilities works;
- (d) Box Culvert works;
- (e) Diaphragm wall construction and piling works;
- (f) Pile Removal works;
- (g) Excavation & Lateral Support (ELS) works; and
- (h) Re provisioning/ Reinstatement works.

2.3 Construction Programme and Activities

- 2.3.1 The major construction activities undertaken in the reporting month are summarised below:

| Location | Site Activities |
|---|---|
| Exhibition Station (Zone 1 - PTI Area) | <ul style="list-style-type: none"> • Utilities Diversion/ Protection • Prebored socket H-Piles (PBSH) and King Post • Pipe Pile Wall • Diaphragm Wall Works |
| Exhibition Station (Zone 3 - Swimming Pool Area) | <ul style="list-style-type: none"> • Diaphragm Wall Works |
| Exhibition Station (Zone 4 - Tunnel at Tonnochy Road) | <ul style="list-style-type: none"> • Utilities Diversion/ Protection • Foundation |
| Fleming Road Junction Area E | <ul style="list-style-type: none"> • Utilities Diversion/ Protection |
| Western Vent Shaft and Western Approach Tunnel (WAT) Area C | <ul style="list-style-type: none"> • Diaphragm Wall Works • |
| WAT Area B | <ul style="list-style-type: none"> • Excavation and Lateral Support • |
| WAT Area A | <ul style="list-style-type: none"> • Diaphragm Wall Works |

- 2.3.2 The construction programme is presented in **Appendix A**.

2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 2.1**.

Table 2.1 Contact Information of Key Personnel

| Party | Role | Position | Name | Telephone | Fax |
|-----------|--------------------------------------|---------------------------------------|--------------------|-----------|-----------|
| MTR | Residential Engineer (ER) | Construction Manager | Mr. Walter Lam | 3959 2128 | 3959 2200 |
| | | SCL Project Environmental Team Leader | Mr. Richard Kwan | 2688 1283 | 2993 7577 |
| Meinhardt | Independent Environmental Checker | Independent Environmental Checker | Mr. Fredrick Leong | 2859 1739 | 2540 1580 |
| JV | Contractor | Project Director | Mr. Jan Torka | 3973 0846 | 31051126 |
| | | Environmental Manager | Mr. Chris Chan | 6463 2318 | |
| AECOM | Contractor's Environmental Team (ET) | ET Leader | Mr. Y W Fung | 3922 9366 | 2317 7609 |

2.5 Status of Environmental Licences, Notification and Permits

2.5.1 Relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting month are summarized in **Table 2.2**.

Table 2.2 Status of Environmental Licenses, Notifications and Permits

| Permit / License No. / Notification/ Reference No. | Valid Period | | Status | Remarks |
|--|--------------|-------------|--|---|
| | From | To | | |
| Environmental Permit | | | | |
| EP-436/2012/D | 5 Feb 2016 | - | Valid | - |
| Construction Noise Permit | | | | |
| GW-RS0339-16 | 9 Apr 2016 | 6 Oct 2016 | Valid | An area near the junction of Convention Avenue and Fleming Road (W12T) |
| GW-RS0394-16 | 25 Apr 2016 | 21 Oct 2016 | Valid until superseded by GW-RS1065-16 | An area near Harbour Road Sports Centre (Zone 3) |
| GW-RS0396-16 | 25 Apr 2016 | 21 Oct 2016 | Valid until superseded by GW-RS1065-16 | An Area at Wan Chai Sports Ground (Zone 4) |
| GW-RS0692-16 | 2 Jul 2016 | 31 Dec 2016 | Valid | An area near Hong Kong Convention and Exhibition Centre (Area A & C) |
| GW-RS0708-16 | 7 Jul 2016 | 4 Jan 2017 | Valid until superseded by GW-RS1036-16 | An area near Hong Kong Convention and Exhibition Centre (Area A & C) |
| GW-RS0896-16 | 27 Aug 2016 | 24 Feb 2017 | Valid | Dwall and grouting works for Zone 3, 4 |
| GW-RS0919-16 | 1 Sep 2016 | 28 Feb 2017 | Valid | Dwall Construction, Road works, and grouting for pipe piling (Zone1 PTI and W15d) |
| GW-RS0934-16 | 15 Sep 2016 | 31 Oct 2016 | Valid | Water main and gas main diversion on Convention Avenue and Expo Drive East |
| GW-RE0925-16 | 20 Sep 2016 | 15 Mar 2017 | Valid | Kai Tak Barging point routine operations and maintenance |
| GW-RE0928-16 | 20 Sep 2016 | 15 Mar 2017 | Valid | Kai Tak Barging Point: routine operations and maintenance for haul road |
| GW-RS1029-16 | 9 Oct 2016 | 16 Oct 2016 | Valid until 16 Oct 2016 | Changeover for Road Junction J6 |
| GW-RS1032-16 | 6 Oct 2016 | 5 Apr 2017 | Valid | Plant mobilization for Dwall cutter, mobile crane and excavator (Zone 1) |
| GW-RS1036-16 | 7 Oct 2016 | 3 Apr 2017 | Valid | AreaA,B,C: Dwall wall Construction (AreaA,C), Grouting, and ELS at AreaB |
| GW-RS1065-16 | 21 Oct 2016 | 20 Apr 2017 | Valid | Plant mobilization for Dwall cutter, mobile crane and excavator (Zone 3,4) |
| Wastewater Discharge License | | | | |
| WT00022480-2015 | 4 Sep 2015 | 30 Sep 2020 | Valid | For site portion W1a, W1b |
| WT00022482-2015 | 4 Sep 2015 | 30 Sep 2020 | Valid | For site portion W9a, W9b |
| WT00023006-2015 | 26 Nov 2015 | 30 Nov 2020 | Valid | For site portion W6T |
| WT00025181-2016 | 3 Aug 2016 | 30 Apr 2020 | Valid | For site portion W12T |
| WT00025182-2016 | 3 Aug 2016 | 30 Jun 2020 | Valid | For site portions W15a, W16, W17 & W18a |

| Permit / License No. / Notification/ Reference No. | Valid Period | | Status | Remarks |
|--|--------------|-----------------|--------|--------------------------------|
| | From | To | | |
| WT00025856-2016 | 17-Oct-16 | 31-Oct-21 | Valid | For site portion W15d & W13 |
| Chemical Waste Producer Registration | | | | |
| 5213-135-L2881-01 | 2 Apr 2015 | End of Contract | Valid | For whole site at Wan Chi Area |
| 5213-247-L2532-02 | 23 Aug 2016 | End of Contract | Valid | Kai Tak Barging Point Area |
| Billing Account for Construction Waste Disposal | | | | |
| 7021736 | 16 Feb 2015 | End of Contract | Valid | For Disposal of C&D Waste |
| Notification Under Air Pollution Control (Construction Dust) Regulation | | | | |
| 385128 | 1 Mar 2015 | End of Contract | Valid | For whole site at Wan Chi Area |
| 405660 | 29 Jul 2016 | End of Contract | Valid | Kai Tak Barging Point Area |

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Construction Dust Monitoring

Monitoring Requirements

- 3.1.1 In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out for at least once every 6 days. The Action and Limit level of the air quality monitoring is provided in **Appendix D**.

Monitoring Equipment

- 3.1.2 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at the designated monitoring stations. The HVS meets all the requirements of the EM&A Manual. Brand and model of the equipment is given in **Table 3.1**.

Table 3.1 Air Quality Monitoring Equipment

| Equipment | Brand and Model |
|--------------------------------------|---|
| High Volume Sampler (24-hour TSP) | Andersen Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. GS 2310 (S/N:10380 and S/N:809)) |
| Calibration Kit | TISCH Environmental Orifice (Model TE-5025A (Orifice I.D.: 0988)) |

Monitoring Locations

- 3.1.3 The monitoring station for construction dust monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. The location of the construction dust monitoring stations are summarised in **Table 3.2** and shown in **Figure 3.1**.

Table 3.2 Locations of Construction Dust Monitoring Station

| ID | Air Sensitive Receiver (ASR) ID in EIA Report | Dust Monitoring Station |
|--------------------|--|-------------------------------------|
| AM2 ^[1] | EXA6 | Wanchai Sports Ground |
| AM3 ^[2] | EXA5 | Existing Harbour Road Sports Centre |

Note:

[1] The impact monitoring at AM2 was handed over from Contract SCL1128 on 28 October 2015.

[2] The impact monitoring at AM3 was handed over from Contract SCL1126 in June 2015.

Monitoring Methodology

3.1.4 24-hour TSP Monitoring

- (a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS as far as practicable:-
- (i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
 - (ii) Two samplers should not be placed less than 2m apart from each others;
 - (iii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
 - (iv) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
 - (v) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
 - (vi) No furnace or incinerator flues nearby.
 - (vii) Airflow around the sampler was unrestricted.
 - (viii) The sampler was located more than 20 meters from any dripline.

- (ix) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
 - (x) Permission was obtained to set up the samplers and access to the monitoring station.
 - (xi) A secured supply of electricity was obtained to operate the sampler.
- (b) Preparation of Filter Papers
- (i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
 - (ii) 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 < 50% and not variable by more than $\pm 5\%$. A convenient working RH was 40%.
 - (iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.
- (c) Field Monitoring
- (i) The power supply was checked to ensure the HVS works properly.
 - (ii) The filter holder and the area surrounding the filter were cleaned.
 - (iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
 - (iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
 - (v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
 - (vi) Then the shelter lid was closed and was secured with the aluminium strip.
 - (vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
 - (viii) A new flow rate record sheet was set into the flow recorder.
 - (ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m³/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m³/min).
 - (x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
 - (xi) The initial elapsed time was recorded.
 - (xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
 - (xiii) The final elapsed time was recorded.
 - (xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
 - (xv) It was then placed in a clean envelope and sealed.
 - (xvi) All monitoring information was recorded on a standard data sheet.
 - (xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.
- (d) Maintenance and Calibration
- (i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
 - (ii) HVSs were calibrated using TE-5025A Calibration Kit upon installation and thereafter at bi-monthly intervals.
 - (iii) Calibration certificate of the TE-5025A Calibration Kit and the HVSs are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.1.5 The schedule for environmental monitoring in October 2016 is provided in **Appendix F**.

3.2 Construction Noise Monitoring

Monitoring Requirements

- 3.2.1 In accordance with the EM&A Manual, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.3** summarises the monitoring parameters, frequency and duration of impact noise monitoring. The Action and Limit level of the noise monitoring is provided in **Appendix D**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

| Parameter and Duration | Frequency |
|--|------------------------|
| 30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. Leq, L ₁₀ and L ₉₀ would be recorded. | At least once per week |

Monitoring Equipment

- 3.2.2 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.4**.

Table 3.4 Noise Monitoring Equipment for Regular Noise Monitoring

| Equipment | Brand and Model |
|------------------------------|--|
| Integrated Sound Level Meter | B&K (Model No. B&K2238 (S/N: 2800927), Model No. B&K2250-L (S/N: 2681366)) |
| Acoustic Calibrator | Rion (Model No. NC-73 (S/N: 10307223), Model No. B&K4231 (S/N: 3006428)) |

Monitoring Locations

- 3.2.3 The monitoring station for construction noise monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. Location of the noise monitoring station is summarised in **Table 3.5** and shown in **Figure 3.1**.

Table 3.5 Noise Monitoring Station during Construction Phase

| Identification No. | Noise Sensitive Receiver (NSR) ID in EIA Report | Noise Monitoring Station | Alternative Noise Monitoring Location |
|--------------------|---|--------------------------|---------------------------------------|
| NM2 ^[1] | EX1 | Causeway Centre, Block A | Harbour Centre ^[2] |

Note:

[1] The impact monitoring at NM2 was handed over from Works Contract SCL1126 in June 2015.

[2] The Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring under Works Contract 1126. An alternative monitoring location at Harbour Centre was approved by the ER, agreed by IEC and EPD's formal approval is awaited in August 2014.

Monitoring Methodology

- 3.2.4 Monitoring Procedure

- (a) Façade measurements were made at NM2.
- (b) The battery condition was checked to ensure the correct functioning of the meter.
- (c) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

- (i) frequency weighting: A
 - (ii) time weighting: Fast
 - (iii) time measurement: $L_{eq(30\text{-minutes})}$ during non-restricted hours i.e. 0700 – 1900 on normal weekdays.
- (d) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94 dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- (e) During the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- (f) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.
- (g) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

3.2.5 Maintenance and Calibration

- (a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
- (b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- (c) Calibration certificates of the sound level meters and acoustic calibrators are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.2.6 The schedule for environmental monitoring in October 2016 is provided in **Appendix F**.

3.3 Continuous noise monitoring

3.3.1 According to EP conditions under EP-436/2012/D (Condition 2.7 and 2.8), the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) were submitted to EPD in June 2016, it is predicted that no residual air-borne construction noise impact exceeding the relevant noise criteria is anticipated. No continuous noise monitoring is required under this Contract.

3.4 Landscape and Visual

3.4.1 As per the EM&A Manuals, the landscape and visual mitigation measures shall be implemented and site inspections should be undertaken once every two weeks during the construction period. A summary of the implementation status is presented in **Section 6**.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

- 4.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C**. Status of required submissions under the EP during the reporting period is summarised in **Table 4.1**.

Table 4.1 Status of Required Submission under Environmental Permit

| EP Condition | Submission | Submission Date |
|-------------------------------|--|------------------------|
| Condition 3.4 (EP-436/2012/D) | Monthly EM&A Report for September 2016 | 14 October 2016 |

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

- 5.1.1 The monitoring station at AM2 was handed over from Contract SCL1128 on 28 October 2015.
- 5.1.2 The monitoring results for 24-hour TSP are summarised in **Table 5.1**. Detailed air quality monitoring results and wind monitoring data extracted from the nearest Automatic Weather Station are presented in **Appendix G**.

Table 5.1 Summary of 24-hour TSP Monitoring Result in the Reporting Period

| ID | Average ($\mu\text{g}/\text{m}^3$) | Range ($\mu\text{g}/\text{m}^3$) | Action Level ($\mu\text{g}/\text{m}^3$) | Limit Level ($\mu\text{g}/\text{m}^3$) |
|--------------------|--------------------------------------|------------------------------------|---|--|
| AM2 ^[1] | 70.8 | 44.0 – 107.2 | 160 | 260 |
| AM3 ^[2] | 53.4 | 33.6 – 87.2 | 169 | 260 |

Note:

[1] The impact monitoring at AM2 was handed over from Contract SCL1128 on 28 October 2015.

[2] The impact monitoring at AM3 was handed over from Contract SCL1126 in June 2015.

- 5.1.3 No Action and Limit Level exceedance was recorded for 24-hour TSP monitoring at the monitoring locations in the reporting month.
- 5.1.4 The event and action plan is annexed in **Appendix I**.
- 5.1.5 Major dust sources during the monitoring included construction dust, nearby traffic emission and other nearby construction sites.

5.2 Regular Construction Noise Monitoring

- 5.2.1 The monitoring results for noise are summarized in **Table 5.2** and the monitoring data is provided in **Appendix H**.

Table 5.2 Summary of Construction Noise Monitoring Results in the Reporting Period

| ID | Range, dB(A), L_{eq} (30 mins) | Limit Level, dB(A), L_{eq} (30 mins) |
|---------|-------------------------------------|---|
| NM2 (*) | <Baseline | 75 |

(*) Baseline correction will be made to the measured L_{eq} when the measured noise level exceeded the corresponding baseline noise level and presented in the table.

- 5.2.2 No noise complaint was received in the reporting month; hence, no Action Level exceedance was recorded.
- 5.2.3 No Limit Level exceedance of noise was recorded at the monitoring station in the reporting month.
- 5.2.4 The event and action plan is annexed in **Appendix I**.
- 5.2.5 Major noise sources during the monitoring included construction noise from the Project site, nearby traffic noise and the community.

5.3 Waste Management

- 5.3.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 5.3.2 As advised by the Contractor, 7,094m³ of inert C&D material was generated (5,268m³ was disposed of as public fill) in the reporting month. 1,339m³ of inert C&D material was reused on site, 488m³ of inert C&D materials were reused in other projects. 54m³ general refuse was generated in the reporting month. 15,166kg of metals, 544kg of paper/cardboard packaging material and 10kg of plastic was collected by recycling contractor in the reporting month. No chemical waste was collected by licensed contractor in the reporting period. The waste flow table is annexed in **Appendix K**.
- 5.3.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.
- 5.3.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practise on the Packaging, Labelling and Storage of Chemical Wastes.

5.4 Landscape and Visual

- 5.4.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 13 and 28 October 2016. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix C**.

6.1.2 In the reporting month, 4 site inspections were carried out on 6, 13, 18 and 28 October 2016. No non-compliance was recorded during the site inspection. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

| Parameters | Date | Observations and Recommendations | Follow-up |
|---|-------------|---|--|
| Air Quality | 29 Sep 2016 | <ul style="list-style-type: none"> The grout mixing facility at WAT (Area B) was observed covered partially. The Contractor shall provide 3 sides screening and top cover during mixing process. | The item was rectified by the Contractor on 3 Oct 2016. |
| | | <ul style="list-style-type: none"> Open stockpiles were observed at WAT and W15d. The Contractor shall provide sufficient dust suppression measures to the stockpiles. | The item was rectified by the Contractor on 3 Oct 2016. |
| | | <ul style="list-style-type: none"> Haul road and access road at WAT were observed dry. The Contractor shall provide sufficient water spraying to suppress dust and fulfill EP condition. | The item was rectified by the Contractor on 29 Sep 2016. |
| | 6 Oct 2016 | Reminder: <ul style="list-style-type: none"> The Contractor was reminded to wash the vehicles properly before leaving the site at Zone 1. | The item was rectified by the Contractor on 6 Oct 2016. |
| | | Reminder: <ul style="list-style-type: none"> The Contractor was reminded to provide sufficient dust suppression measure to exposed surface at WAT and W15d. | The item was rectified by the Contractor on 10 Oct 2016. |
| | 28 Oct 2016 | <ul style="list-style-type: none"> A stockpile of over 20 bags of cement bag was not covered with impervious sheeting or placed in a shelter with cover at 3 sides and at top at Zone 1. The Contractor was reminded to cover the stockpile of over 20 bags of cement bags with impervious sheeting or place it inside shelter with cover at 3 sides and at top. | The item was rectified by the Contractor on 28 Oct 2016. |
| | | Reminder <ul style="list-style-type: none"> The Contractor was reminded to provide sufficient dust suppression measure to the stockpile at W15d. | The item was rectified by the Contractor on 28 Oct 2016. |
| Noise | Nil | <ul style="list-style-type: none"> Nil | Nil |
| Water Quality | 29 Sep 2016 | <ul style="list-style-type: none"> Wastewater treatment facilities were observed connected improperly at WAT (Area B&C). The Contractor shall ensure all wastewater are collected and treated properly before discharge. | The item was rectified by the Contractor on 29 Sep 2016. |
| | | <ul style="list-style-type: none"> Seepage from site was observed on public road at WAT (Area E). The Contractor shall seal off the slits under water barriers to prevent seepage from site entering public roads. | The item was rectified by the Contractor on 3 Oct 2016. |
| | 13 Oct 2016 | Reminder: <ul style="list-style-type: none"> The pH meter of the wastewater treatment facility at WAT did not reflect the actual pH value according to on-site pH paper test. The Contractor was reminded to maintain the accuracy of the pH meter of the wastewater treatment facility regularly. | The item was rectified by the Contractor on 14 Oct 2016. |
| | 18 Oct 2016 | Reminder: <ul style="list-style-type: none"> The Contractor was reminded to prevent surface runoff and retain all wastewater within the site area. | The item was rectified by the Contractor on 25 Oct 2016. |
| Reminder: <ul style="list-style-type: none"> The Contractor was reminded to set up the wastewater treatment facility at Kai Tak Barging Point. | | The item was rectified by the Contractor on 31 Oct 2016. | |
| Waste/ Chemical Management | 29 Sep 2016 | <ul style="list-style-type: none"> Chemical containers were observed at without secondary containers. The Contractor shall provide drip trays to the containers to prevent land contamination. | The item was rectified by the Contractor on 3 Oct 2016. |
| | 6 Oct 2016 | <ul style="list-style-type: none"> An unplugged drain hole was observed at the drip tray of a drill rig at Zone 1 and oil leakage was observed at the drain hole. The Contractor should plug the drain hole, clean up the contaminated soil from the leakage and dispose of as chemical waste. | The item was rectified by the Contractor on 7 Oct 2016. |

| Parameters | Date | Observations and Recommendations | Follow-up |
|-------------------------------|-------------|--|--|
| | 28 Oct 2016 | <ul style="list-style-type: none"> A drain hole at the drip tray of an air compressor was not plugged up at Zone 1. The Contractor was reminded to provide proper drip tray to machinery. | The item was rectified by the Contractor on 28 Oct 2016. |
| Landscape & Visual | Nil | Nil | Nil |
| Permits/ Licenses | Nil | Nil | Nil |

- 6.1.3 All of the follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

- 7.1.1 All 24-hour TSP result was below the Action and Limit level at all monitoring locations in the reporting month.
- 7.1.2 No noise complaint was received in the reporting month; hence, no Action Level exceedance was recorded.
- 7.1.3 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.

7.2 Summary of Environmental Non-Compliance

- 7.2.1 No environmental non-compliance was recorded in the reporting month.

7.3 Summary of Environmental Complaints

- 7.3.1 No environmental related complaint were received in the reporting month. Cumulative statistics on environmental complaints is provided in **Appendix J**.

7.4 Summary of Environmental Summon and Successful Prosecutions

- 7.4.1 No environmental related prosecution or notification of summons was received in the reporting month. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix J**.

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Next Three Month

8.1.1 The major construction works between November 2016 and January 2017 will be:

| Location | Site Activities |
|--|---|
| Exhibition Station (Zone 1 - PTI Area) | <ul style="list-style-type: none"> • Utilities Diversion/ Protection • Prebored socket H-Piles (PBSH) and King Post • Diaphragm Wall Works |
| Exhibition Station (Zone 3 - Swimming Pool Area) | <ul style="list-style-type: none"> • Diaphragm Wall Works |
| Exhibition Station (Zone 4 - Tunnel at Tonnochy Road) | <ul style="list-style-type: none"> • Utilities Diversion/ Protection • Ground Treatment • Foundation • Pipe Pile Wall |
| Fleming Road Junction Area E | <ul style="list-style-type: none"> • Utilities Diversion/ Protection • Foundation |
| Western Vent Shaft and WAT Area C | <ul style="list-style-type: none"> • Diaphragm Wall Works • Road Works |
| WAT Area B | <ul style="list-style-type: none"> • Excavation and Lateral Support |
| WAT Area A | <ul style="list-style-type: none"> • Diaphragm Wall Works • Excavation and Lateral Support |

8.2 Key Issues for the Coming Month

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

8.3 Monitoring Schedule for the Next Three Month

8.3.1 The tentative schedules for environmental monitoring in between November 2016 and January 2017 are provided in **Appendix F**.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

- 9.1.1 24-hour TSP and noise monitoring were carried out in the reporting month.
- 9.1.2 All 24-hour TSP monitoring results complied with the Action / Limit Level at in the reporting month.
- 9.1.3 No noise complaint was received in the reporting month. Hence, no Action Level exceedance was recorded.
- 9.1.4 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.
- 9.1.5 4 nos. of environmental site inspections were carried out in October 2016. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.
- 9.1.6 Referring to the Contractor's information, no environmental related complaint, notification of summons and successful prosecution was received in the reporting month.

9.2 Recommendations

- 9.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:-

Air Quality Impact

- Implement effective/preventive measures to avoid dust impact; and
- Provide sufficient dust control measure to exposed surface and storage of dusty material.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- Implement effective/preventive measures to avoid water quality impact.

Chemical and Waste Management

- Provide proper chemical and waste handling management.

Landscape & Visual Impact

- No specific observation was identified in the reporting month.

Permits/licenses

- No specific observation was identified in the reporting month.

FIGURES

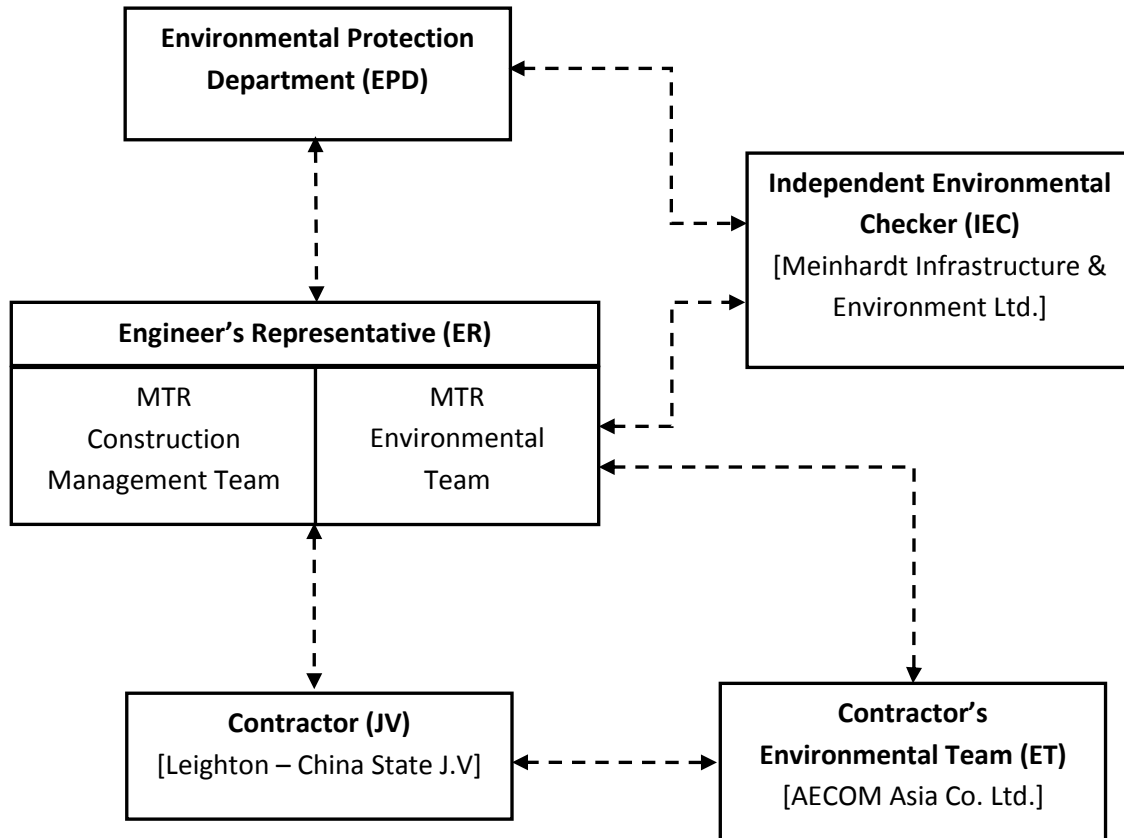
APPENDIX A

Construction Programme

APPENDIX B

Project Organization Structure

Appendix B Project Organisation Structure



APPENDIX C

**Implementation Schedule of Environmental Mitigation
Measures**

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|--------------------------|---|--|--------------------------------|-------------------------|---------------------------------|-----------------------|
| | tipping hall. Provide water spraying and flexible dust curtains at the discharge point for dust suppression. (iii) Vehicles leaving the barging facilities – Pass vehicles through the wheel washing facilities provided at site exits. | | | | | V |
| S8.63 | For concrete batching plant, the requirements and mitigation measures stipulated in the <i>Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93)</i> shall be followed and implemented. | To minimize dust impact | Contractor | Concrete Batching Plant | Construction phase | N/A |
| Table 8.6 | During operation of concrete batching plant: (i) Unloading of aggregates from the tipper trucks to receiving hopper – unload the aggregates from the tipper trucks to the receiving hopper equipped with enclosures on 3 sides and top cover, and water spraying system. (ii) Unloading of cement and PFA from tankers into the silo – Directly load the cement and PFA into the silo via a flexible duct. Install dust collectors at cement/PFA silos. (iii) Storage of aggregates in overhead storage bins – Store the aggregates in fully enclosed overhead storage bins. Cover the top of overhead storage bins with cladding. Install water spraying system at the top of storage bins for watering the aggregates, and fully enclose aggregates storage bins. (iv) Weighing and batching of cementitious materials – Perform the whole process of weighing and mixing in a fully enclosed environment. Equip all the mixers with dust collectors. (v) Loading of concrete from mixer into transit mixer of a truck – Directly load the concrete from the mixer into the transit mixer of a truck in “wet form”. (vi) Tipper trucks and cement tankers leaving the Concrete Batching Plant – Haul road within the site is unpaved. Install wheel washing pit at the gate of the concrete batching plant. (vii) Transportation of materials within the plant – Provide watering twice a day would be provided. | To minimize dust impacts | Contractor | Concrete Batching Plant | Construction phase | N/A |
| S8.89 | Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m ² for Kowloon side and 1.0 L/m ² for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m ² for Kowloon side and 1.0 L/m ² for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual. | To minimize dust impact | Contractor | Works areas | Construction Phase | @ |
| S8.89 | Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall, provision of water spraying and flexible dust curtains to reduce dust emission | To minimize dust impact | Contractor | All barging points | Construction phase | N/A |

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|------------------------------|---|---|--------------------------------|-------------------------|---------------------------------|--|
| S8.90 | Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: <ul style="list-style-type: none"> • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. • Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise | To minimize dust impacts | Contractor | Works areas | Construction phase | @ V @ V V @ N/A V N/A V @ V |
| / | Dust suppression measures (con't) <ul style="list-style-type: none"> • De-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement • The portion of any road where along the site boundary should be kept clear of dusty materials. • Use of frequent watering for any dusty construction process (e.g. breaking works) to reduce dust emissions. | To minimize dust impacts | Contractor | Works areas | Construction phase | V V V |
| / | Emission from Vehicles and Plants <ul style="list-style-type: none"> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD) | Reduce air pollution emission from construction vehicles and plants | Contractor | Works areas | Construction phase | V V V |
| Airborne Noise Impact | | | | | | |
| Construction Phase | | | | | | |
| S9.55 | The following good site practices shall be implemented: <ul style="list-style-type: none"> • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program • Mobile plant, if any, shall be sited as far from NSRs as possible • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs | To minimize construction noise impact | Contractor | Works areas | Construction phase | V N/A V V N/A |

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|----------------------------|---|--|--------------------------------|--|---------------------------------|---|
| | <ul style="list-style-type: none"> Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities | | | | | N/A |
| / | <ul style="list-style-type: none"> Install movable noise barriers, acoustic mat or full enclosure, screen the noisy plants during operation Air compressors shall be fitted with valid noise emission labels during operation | To minimize construction noise impact | Contractor | Works areas | Construction phase | <p>✓</p> <p>✓</p> |
| S9.56 & Table 9.16 | <p>The following quiet PME shall be used:</p> <ul style="list-style-type: none"> Crane lorry, mobile Crane, mobile Asphalt paver Backhoe with hydraulic breaker Breaker, excavator mounted (hydraulic) Hydraulic breaker Concrete lorry mixer Poker, vibrator, hand-held Concrete pump Crawler crane, mobile Mobile crane Dump truck Excavator Truck Rock drill Lorry Wheel loader Roller vibratory | To minimize construction noise impact | Contractor | <p>Works areas at:</p> <ul style="list-style-type: none"> Hung Hom Cross Harbour section up to Breakwater of CBTS Breakwater of CBTS to SOV SOV to EXH EXH EXH to open space at the junction of Expo Drive and Convention Avenue Open space at the junction of Expo Drive and Convention Avenue to north of ADM South of ADM to Overrun Tunnel | Construction phase | <p>✓</p> <p>✓</p> <p>N/A</p> <p>✓</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> |
| S9.58 – S9.59 & Table 9.17 | <p>Movable noise barrier shall be used for the following PME:</p> <ul style="list-style-type: none"> Air compressor Asphalt paver Backhoe with hydraulic breaker Bar bender Bar bender and cutter (electric) Breaker, excavator mounted Concrete pump Concrete pump, stationary/lorry mounted Excavator Generator Grout pump Hand held breaker Hydraulic breaker Saw, concrete | To minimize construction noise impact | Contractor | <p>Works areas at:</p> <ul style="list-style-type: none"> Cross Harbour section up to Breakwater of CBTS Breakwater of CBTS to SOV SOV to EXH EXH EXH to open space at the junction of Expo Drive and Convention Avenue Open space at the junction of Expo Drive and Convention Avenue to north of ADM South of ADM to Overrun Tunnel | Construction phase | <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> |
| S9.60 & Table 9.17 | <p>Noise insulating fabric shall be used for</p> <ul style="list-style-type: none"> Drill rig, rotary type Piling, diaphragm wall, bentonite filtering plant Piling, diaphragm wall, grab and chisel Piling, diaphragm wall, hydraulic extractor Piling, large diameter bored, grab and chisel Piling, hydraulic extractor Piling, earth auger, auger Rock drill, crawler mounted (pneumatic) | To minimize construction noise impact | Contractor | <p>Works areas at:</p> <ul style="list-style-type: none"> Cross Harbour section up to Breakwater of CBTS Breakwater of CBTS to SOV SOV to EXH EXH EXH to open space at the junction of Expo Drive and Convention Avenue Open space at the junction of Expo Drive and Convention Avenue to north of ADM South of ADM to Overrun Tunnel | Construction phase | <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> |

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|-----------------------------|--|---|--------------------------------|--|---------------------------------|---|
| Water Quality Impact | | | | | | |
| Construction Phase | | | | | | |
| S11.216 | <p>The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close to the seafront:</p> <ul style="list-style-type: none"> • Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works. • Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage. • Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters. | To minimize release of construction wastes from construction works at or close to the seafront | Contractor | Construction works at or close to the seafront | Construction Phase | <p style="text-align: center;">V</p> <p style="text-align: center;">V</p> <p style="text-align: center;">N/A</p> |
| S11.222 to 11.245 | <p>The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" shall be followed where practicable.</p> <p><u>Surface Run-off</u></p> <ul style="list-style-type: none"> • Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks. • Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. • Construction works shall be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. <p><u>Boring and Drilling Water</u></p> <ul style="list-style-type: none"> • Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as | To minimize water quality impacts from construction site runoff and general construction activities | Contractor | Works areas | Construction Phase | <p style="text-align: center;">@</p> <p style="text-align: center;">@</p> <p style="text-align: center;">V</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">V</p> <p style="text-align: center;">V</p> <p style="text-align: center;">V</p> |

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|--------------------------|---|---|--------------------------------|-------------------------|---------------------------------|---|
| | <p>practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities.</p> <p><u>Wheel Washing Water</u></p> <ul style="list-style-type: none"> All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road shall be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains. <p><u>Bentonite Slurries</u></p> <ul style="list-style-type: none"> Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be dewatered or mixed with inert fill material for disposal to a public filling area. If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS. <p><u>Water for Testing & Sterilization of Water Retaining Structures and Water Pipes</u></p> <ul style="list-style-type: none"> Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains. Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable. <p><u>Acid Cleaning, Etching and Pickling Wastewater</u></p> <ul style="list-style-type: none"> Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters. <p><u>Wastewater from Site Facilities</u></p> <ul style="list-style-type: none"> Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis. Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass. Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance. | | | | | <p style="text-align: center;">V</p> <p style="text-align: center;">V</p> <p style="text-align: center;">V</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> |
| S11.246 & 11.247 | <p>Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.</p> | To minimize water quality impacts due to sewage generated from construction workforce | Contractor | Works areas | Construction Phase | N/A |
| S11.248 | <p>In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps.</p> | To minimize impact from discharge of uncontaminated groundwater | Contractor | Works areas | Construction Phase | V |

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|--------------------------|--|---|--------------------------------|---|---------------------------------|-----------------------|
| S11.249 | If land contaminated site is identified from the Stage 2 SI work (refer to Sections 11.188 to 11.191 of the EIA Report), the following mitigation measures shall be implemented for the identified contaminated area. Any transient pile of contaminated soil / material shall be minimized and shall be bottom-lined, bunded and covered with impervious membrane during rain event to avoid generation of contaminated runoff. Appropriate intercepting channels and partial shelters shall be provided where necessary to prevent rainwater from collecting within trenches or footing excavations. Any contaminated water and wastewater generated from the decontamination process shall not be directly discharged to public sewers or site drainage. They shall be treated or tanked away as necessary for proper disposal in compliance with the TM-DSS. | To control site run-off generated from any potential contaminated works areas. | Contractor | Any potential contaminated areas to be identified from the Stage 2 SI | Construction Phase | N/A |
| S11.250 & S11.251 | No direct discharge of groundwater from contaminated areas shall be adopted. If land contamination impact and generation of contaminated groundwater is identified from the Stage 2 SI works (refer to Sections 11.189 to 11.192 of the EIA Report), the following mitigation measures shall be adopted. Any contaminated groundwater shall be either properly treated in compliance with the requirements of the TM-DSS or properly recharged into the ground. If wastewater treatment is deployed for treating the contaminated groundwater, the wastewater treatment unit shall deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as TPH) to an undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM-DSS and shall be discharged into the foul sewers. If groundwater recharging wells are deployed, the recharging wells shall be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells shall be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in Section 2.3 of the TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substance such as TPH products shall be removed as necessary by installing the petrol interceptor. The Contractor shall apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater. | To minimize potential water quality impact from discharge of contaminated groundwater | Contractor | Any potential contaminated areas to be identified from the Stage 2 SI | Construction Phase | N/A |
| S11.252 | The following good site practices shall be adopted for the proposed barging points: <ul style="list-style-type: none"> • all vessels shall be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash • all hopper barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material • construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site • loading of barges and hoppers shall be controlled to prevent splashing of material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation | To minimize water quality impacts generated from the barging points. | Contractor | Barging points | Construction Phase | N/A |
| S11.253 | 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. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD. | To minimize water quality impact from effluent discharges from construction sites | Contractor | All construction works areas | Construction Phase | V |

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|--------------------------------------|--|---|--------------------------------|------------------------------|---------------------------------|--------------------------------|
| S11.254 | 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 shall be observed and complied with for control of chemical wastes. | To minimize water quality impact from accidental spillage of chemical | Contractor | All construction works areas | Construction Phase | V |
| S11.255 | Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges. | To minimize water quality impact from accidental spillage of chemical | Contractor | All construction works areas | Construction Phase | N/A |
| S11.256 | Disposal of chemical wastes shall 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. General requirements are given as follows: <ul style="list-style-type: none"> Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area. | To minimize water quality impact from accidental spillage of chemical | Contractor | All construction works areas | Construction Phase | N/A N/A N/A |
| Waste Management Implications | | | | | | |
| Construction Phase | | | | | | |
| S12.75 | Good Site Practices and Waste Reduction Measures <ul style="list-style-type: none"> Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; Provision of sufficient waste disposal points and regular collection of waste; Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and Separation of chemical wastes for special handling and appropriate treatment. | To reduce waste management impacts | Contractor | All Work Sites | Construction Phase | V V V V N/A N/A |
| S12.76 | Good Site Practices and Waste Reduction Measures (con’t) <ul style="list-style-type: none"> Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); 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; Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; Proper storage and site practices to minimize the potential for damage or contamination of construction materials; Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle. | To achieve waste reduction | Contractor | All Work Sites | Construction Phase | N/A V V V V V |
| S12.77 | Good Site Practices and Waste Reduction Measures (con’t) The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. | To achieve waste reduction | Contractor | All Work Sites | Construction Phase | V |

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|--------------------------|--|---|--------------------------------|--|---------------------------------|------------------------------|
| | The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis. | | | | | |
| S12.78 | Good Site Practices and Waste Reduction Measures (con't) C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort. | To achieve waste reduction | Contractor | All Work Sites | Construction Phase | N/A |
| S12.79 | Storage, Collection and Transportation of Waste Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: <ul style="list-style-type: none"> Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; Maintain and clean storage areas routinely; Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and Different locations shall be designated to stockpile each material to enhance reuse. | To minimize potential adverse environmental impacts arising from waste storage | Contractor | Work Sites | Construction Phase | N/A N/A N/A |
| S12.80 | Storage, Collection and Transportation of Waste (con't) Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: <ul style="list-style-type: none"> Remove waste in timely manner Waste collectors shall only collect wastes prescribed by their permits Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) Waste shall be disposed of at licensed waste disposal facilities Maintain records of quantities of waste generated, recycled and disposed | To minimize potential adverse environmental impacts arising from waste collection and disposal | Contractor | Work Sites | Construction Phase | V V N/A V V V |
| S12.81 | Storage, Collection and Transportation of Waste (con't) <ul style="list-style-type: none"> Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed. | To minimize potential adverse environmental impacts arising from waste collection and disposal | Contractor | Work Sites | Construction Phase | V |
| S12.83 – 12.86 | Sorting of C&D Materials <ul style="list-style-type: none"> Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach tunnels. | To minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials | Contractor | Work Sites | Construction Phase | V N/A V N/A |
| S12.88 | Sediments <ul style="list-style-type: none"> The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance. | To ensure the sediment to be disposed of in an authorized and least impacted way | Contractor | All works areas with sediments concern | Construction Phase | N/A |

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| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|--------------------------|---|--|--------------------------------|--|--|--|
| S12.89 | <p>Sediments (con't)</p> <ul style="list-style-type: none"> The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works. | To determine the best handling and disposal option of the sediments | MTR / Contractor | All works areas with sediments concern | Detailed Design Stage and Construction Phase | N/A |
| S12.91 – 12.94 | <p>Sediments (con't)</p> <ul style="list-style-type: none"> Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site. | To ensure handling of sediments are in accordance to statutory requirements | Contractor | Work Sites, Sediment disposal sites | Construction Phase | N/A |
| S12.95 | <p>Sediments (con't)</p> <ul style="list-style-type: none"> A possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of fill retention by the geosynthetic fabrics, possible rupture of the containers and sediment loss due to impact of the container on the seabed have been addressed. | To ensure handling of sediments are in accordance to statutory requirements | Contractor | Work Sites, Sediment disposal sites | Construction Phase | N/A |
| S12.97 | <p>Containers for Storage of Chemical Waste</p> <p>The Contractor shall register with 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. Containers used for storage of chemical waste shall:</p> <ul style="list-style-type: none"> Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; Have a capacity of less than 450 litters unless the specifications have been approved by EPD; and Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation. | To register with EPD as a Chemical waste producer and store chemical waste in appropriate containers | Contractor | Work Sites | Construction Phase | <p style="text-align: center;">V</p> <p style="text-align: center;">V</p> <p style="text-align: center;">V</p> |

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|----------------------------------|--|---|--------------------------------|--|---|----------------------------|
| S12.98 | <p>Chemical Waste Storage Area</p> <ul style="list-style-type: none"> Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; Be enclosed on at least 3 sides; Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; Have adequate ventilation; Be covered to prevent rainfall from entering; and Be properly arranged so that incompatible materials are adequately separated. | To prepare appropriate storage areas for chemical waste at works areas | Contractor | Work Sites | Construction Phase | V V @ V V V |
| S12.99 | <p>Chemical Waste</p> <ul style="list-style-type: none"> Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place. | To clearly label the chemical waste at works areas | Contractor | Work Sites | Construction Phase | N/A |
| S12.100 | <p>Collection and Disposal of Chemical Waste A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</p> | To monitor the generation, reuse and disposal of chemical waste | Contractor | Work Sites | Construction Phase | N/A |
| S12.101 | <p>General Refuse General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.</p> | To properly store and separate from other C&D materials for subsequent collection and disposal | Contractor | Work Sites | Construction Phase | V |
| S12.102 | <p>General Refuse (con't) The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.</p> | To facilitate recycling of recyclable portions of refuse | Contractor | Work Sites | Construction Phase | V |
| S12.103 | <p>General Refuse (con't) The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders.</p> | To raise workers' awareness on recycling issue | Contractor | Work Sites | Construction Phase | V |
| / | <p>Accidental spillage To prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> Proper storage and handling facilities will be provided. All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. | To minimize potential adverse environmental impacts arising from accidental spillage | Contractor | Work Sites | Construction Phase | @ V V N/A |
| Land Contamination Impact | | | | | | |
| S13.23–13.24 | <p>For construction works at sites under the current stage of site investigation (Stage 1 SI):</p> <ul style="list-style-type: none"> Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. The inspection process shall involve a visual observation of excavated soils for discolouration and the presence of oils, together with identifying the presence of odours, which may also indicate soil and/or groundwater contamination. If soil materials suspected to be contaminated are encountered during excavation, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during | To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover. | Contractor | Within Project Boundary where signs of contamination is identified | During excavation works for Cut-and-Cover | N/A |

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| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|--------------------------|---|--|--------------------------------|---|--|-----------------------|
| | demolition, excavation and cut & cover construction shall be temporary stockpiled. Shall concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the Contamination Assessment Report (CAR) and Remediation Action Plans (RAP). | | | | | |
| S13.30 | For some sites with currently no SI proposed (i.e. sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28), to be conservative, visual inspection shall be conducted during demolition and excavation to detect any abnormal colour, smell or other characteristics of the soil, due to the nearby land use and/ or construction method. If abnormal colour, smell or other characteristics of contamination are identified for any of these sites, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Should the concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the CAR and RAP. | To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover. | Contractor | Areas with no SI proposed (Sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28) | During excavation works for Cut-and-Cover | N/A |
| S13.36 – 13.38 | For areas inaccessible for proper site appraisal and investigation (Stage 2 SI) (i) Site 2-15 <ul style="list-style-type: none"> Upon site access being granted, visual inspection shall be carried out where intrusive works and soil excavation is encountered, for attention on any potential contamination due to its current operation A supplementary CAP shall then be submitted to EPD for endorsement. A CAR/RAP shall be prepared and submitted to EPD for endorsement on completion of the SI and analytical testing. Shall remediation be undertaken a Remediation Report (RR) shall be prepared and submitted to EPD for endorsement to demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed CAR and RAP. Information such as soil treatment/ disposal records (including trip tickets), confirmatory sampling results, and photographs shall be included in the aforesaid RR. No construction work shall be carried out prior to the endorsement of the RR by EPD. | To identify areas with land contamination concern, report laboratory results and propose remediation measures if necessary. To ensure remediation works have been undertaken to before the commencement of any construction works of the Project. | Contractor | Areas unable to be accessed during Stage 1 SI (Site 2-15) | After land resumption and prior to the construction works commencement at the site | N/A |
| S13.39 | Potential Remediation of Contaminated Soil <ul style="list-style-type: none"> Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; Supply of suitable clean backfill material is needed after excavation; If remediation is required with chemical oxidation proposed as a contaminant mass reduction technology, chemicals will be securely and separately stored away from sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and personal protective equipment (PPE). Vehicles containing any excavated materials shall be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates shall be sealed to prevent any discharge during transport or during wet conditions; Speed control for the trucks carrying contaminated materials shall be enforced; Vehicle wheel and body washing facilities at the site's exit points shall be established and used; and Pollution control measures for air emissions e.g. from biopile blower, noise emissions e.g. from blower, and water discharges e.g. runoff control shall be implemented and complied with relevant regulations and guidelines. | To remediate contaminated soil | Contractor | Identified contaminated sites | Site remediation | N/A |
| S13. 40 | In order to minimize the potential adverse effects on health and safety of construction workers during the course of site remediation, the Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations shall be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures shall be implemented as far as possible: <ul style="list-style-type: none"> Set up a list of safety measures for site workers; Provide written information and training on safety for site workers; Keep a log-book and plan showing the contaminated zones and clean zones; Maintain a hygienic working environment; Avoid dust generation; Provide face and respiratory protection gear to site workers; | To minimise the potentially adverse effects on health and safety of construction workers during the course of site remediation. | Contractor | Identified contaminated sites | Site remediation and prior to construction phase | N/A |

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|--------------------------------|--|---|--------------------------------------|----------------------------|---------------------------------------|--------------------------|
| | <ul style="list-style-type: none"> • Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers; and • Provide first aid training and materials to site workers. | | | | | |

Legend: V = implemented;
 x = not implemented;
 @ = partially implemented;
 N/A = not applicable

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels**Table 1 Action and Limit Levels for 24-hour TSP**

| ID | Location | Action Level | Limit Level |
|------|-------------------------------------|------------------------------|------------------------------|
| AM2* | Wan Chai Sports Ground | 160 $\mu\text{g}/\text{m}^3$ | 260 $\mu\text{g}/\text{m}^3$ |
| AM3 | Existing Harbour Road Sports Centre | 169 $\mu\text{g}/\text{m}^3$ | 260 $\mu\text{g}/\text{m}^3$ |

* The monitoring station at AM2 was handed over from Contract SCL1128 on 28 October 2015.

**Table 2 Action and Limit Levels for Construction Noise
(0700 – 1900 hrs of normal weekdays)**

| ID | Location | Action Level | Limit Level |
|------|----------------|---|-------------|
| NM2* | Harbour Centre | When one documented complaint is received | 75 dB(A) |

* The Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring under Works Contract 1126. An alternative monitoring location at Harbour Centre was approved by the ER, agreed by IEC and EPD's formal approval is awaited in August 2014.

APPENDIX E

Calibration Certificates of Equipments

AECOM Asia Company Limited

TSP High Volume Sampler

Field Calibration Report

Station: Wanchai Sports Ground Operator: Lui Tat Chung
 Cal. Date: 15-Sep-16 Next Due Date: 15-Nov-16
 Equipment No.: A-001-72T Serial No.: 809

| Ambient Condition | | | |
|---------------------|-----|---------------------|-------|
| Temperature, Ta (K) | 304 | Pressure, Pa (mmHg) | 752.1 |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|-----------|---|---------|---------------|----------|
| Serial No: | 988 | Slope, mc | 1.99349 | Intercept, bc | -0.02737 |
| Last Calibration Date: | 31-May-16 | $mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$ | | | |
| Next Calibration Date: | 31-May-17 | | | | |

| Calibration of TSP Sampler | | | | | |
|----------------------------|----------------------------|---|-----------------------------------|-----------------------------|--|
| Resistance Plate No. | Orifice | | | HVS Flow Recorder | |
| | DH (orifice), in. of water | [DH x (Pa/760) x (298/Ta)] ^{1/2} | Qstd (m ³ /min) X-axis | Flow Recorder Reading (CFM) | Continuous Flow Recorder Reading IC (CFM) Y-axis |
| 18 | 7.1 | 2.62 | 1.33 | 45.0 | 44.32 |
| 13 | 6.0 | 2.41 | 1.22 | 40.0 | 39.40 |
| 10 | 4.6 | 2.11 | 1.07 | 33.0 | 32.50 |
| 7 | 3.3 | 1.79 | 0.91 | 26.0 | 25.61 |
| 5 | 2.2 | 1.46 | 0.75 | 20.0 | 19.70 |

By Linear Regression of Y on X
 Slope, mw = 42.4670 Intercept, bw = -12.5853
 Correlation Coefficient* = 0.9975

*If Correlation Coefficient < 0.990, check and recalibrate.

| Set Point Calculation |
|---|
| From the TSP Field Calibration Curve, take Qstd = 1.30m ³ /min |
| From the Regression Equation, the "Y" value according to |
| $mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$ |
| Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)] ^{1/2} = <u>43.27</u> |

Remarks: _____

QC Reviewer: WS CHAN Signature: [Signature] Date: 15/9/16

AECOM Asia Company Limited

TSP High Volume Sampler

Field Calibration Report

Station: Exiting Harbour Road Sports Centre (AM3) Operator: Lui Tat Chung
 Cal. Date: 15-Sep-16 Next Due Date: 15-Nov-16
 Equipment No.: A-001-15T Serial No.: 10380

| Ambient Condition | | | |
|---------------------|-----|---------------------|-------|
| Temperature, Ta (K) | 304 | Pressure, Pa (mmHg) | 752.1 |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|-----------|--|---------|---------------|----------|
| Serial No: | 988 | Slope, mc | 1.99349 | Intercept, bc | -0.02737 |
| Last Calibration Date: | 31-May-16 | $mc \times Q_{std} + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$ | | | |
| Next Calibration Date: | 31-May-17 | | | | |

| Calibration of TSP Sampler | | | | | |
|----------------------------|----------------------------|---|-----------------------------------|-----------------------------|--|
| Resistance Plate No. | Orifice | | | HVS Flow Recorder | |
| | DH (orifice), in. of water | [DH x (Pa/760) x (298/Ta)] ^{1/2} | Qstd (m ³ /min) X-axis | Flow Recorder Reading (CFM) | Continuous Flow Recorder Reading IC (CFM) Y-axis |
| 18 | 7.3 | 2.66 | 1.35 | 43.0 | 42.35 |
| 13 | 5.5 | 2.31 | 1.17 | 35.0 | 34.47 |
| 10 | 4.8 | 2.16 | 1.10 | 32.0 | 31.52 |
| 7 | 3.6 | 1.87 | 0.95 | 25.0 | 24.62 |
| 5 | 2.6 | 1.59 | 0.81 | 20.0 | 19.70 |

By Linear Regression of Y on X

Slope, mw = 42.5316 Intercept, bw = -15.2211

Correlation Coefficient* = 0.9978

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m³/min


From the Regression Equation, the "Y" value according to

$$mw \times Q_{std} + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]^{1/2} = 40.68

Remarks: _____

QC Reviewer: WS CHAN

Signature: 

Date: 15/9/16



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 31, 2016 Rootmeter S/N 0438320 Ta (K) - 298
 Operator Tisch Orifice I.D. - 0988 Pa (mm) - 754.38

| PLATE OR Run # | VOLUME START (m3) | VOLUME STOP (m3) | DIFF VOLUME (m3) | DIFF TIME (min) | METER | ORFICE |
|----------------|-------------------|------------------|------------------|-----------------|--------------|----------------|
| | | | | | DIFF Hg (mm) | DIFF H2O (in.) |
| 1 | NA | NA | 1.00 | 1.3670 | 3.2 | 2.00 |
| 2 | NA | NA | 1.00 | 0.9750 | 6.4 | 4.00 |
| 3 | NA | NA | 1.00 | 0.8700 | 7.9 | 5.00 |
| 4 | NA | NA | 1.00 | 0.8260 | 8.7 | 5.50 |
| 5 | NA | NA | 1.00 | 0.6830 | 12.7 | 8.00 |

DATA TABULATION

| Vstd | (x axis) Qstd | (y axis) | Va | (x axis) Qa | (y axis) |
|------------------------------------|---------------|----------|---------------------------|-------------|----------|
| 0.9884 | 0.7230 | 1.4090 | 0.9957 | 0.7284 | 0.8888 |
| 0.9842 | 1.0094 | 1.9926 | 0.9915 | 1.0170 | 1.2570 |
| 0.9821 | 1.1289 | 2.2278 | 0.9894 | 1.1373 | 1.4054 |
| 0.9811 | 1.1878 | 2.3365 | 0.9884 | 1.1967 | 1.4740 |
| 0.9758 | 1.4288 | 2.8179 | 0.9831 | 1.4394 | 1.7777 |
| Qstd slope (m) = 1.99349 | | | Qa slope (m) = 1.24829 | | |
| intercept (b) = -0.02737 | | | intercept (b) = -0.01727 | | |
| coefficient (r) = 0.99988 | | | coefficient (r) = 0.99988 | | |
| 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}



CERTIFICATE OF CALIBRATION

Certificate No.: 16CA0704 03-01 Page 1 of 2

Item tested

| | | | |
|-----------------------|----------------------------|---|------------|
| Description: | Sound Level Meter (Type 1) | , | Microphone |
| Manufacturer: | B & K | , | B & K |
| Type/Model No.: | 2238 | , | 4188 |
| Serial/Equipment No.: | 2800927 / N.009.06 | , | 2791211 |
| Adaptors used: | - | , | - |

Item submitted by

Customer Name: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 04-Jul-2016

Date of test: 07-Jul-2016

Reference equipment used in the calibration

| Description: | Model: | Serial No. | Expiry Date: | Traceable to: |
|---------------------------------|----------|------------|--------------|---------------|
| Multi function sound calibrator | B&K 4226 | 2288444 | 18-Jun-2017 | CIGISMEC |
| Signal generator | DS 360 | 33873 | 18-Apr-2017 | CEPREI |
| Signal generator | DS 360 | 61227 | 18-Apr-2017 | CEPREI |

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1000 ± 5 hPa

Test specifications

- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

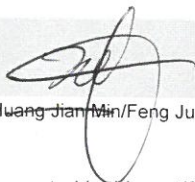
Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 09-Jul-2016

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 16CA0704 03-01 Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

| Test: | Subtest: | Status: | Expanded Uncertainty (dB) | Coverage Factor |
|-------------------------|--|---------|---------------------------|-----------------|
| Self-generated noise | A | Pass | 0.3 | |
| | C | Pass | 1.0 | 2.1 |
| | Lin | Pass | 2.0 | 2.2 |
| Linearity range for Leq | At reference range, Step 5 dB at 4 kHz | Pass | 0.3 | |
| | Reference SPL on all other ranges | Pass | 0.3 | |
| | 2 dB below upper limit of each range | Pass | 0.3 | |
| | 2 dB above lower limit of each range | Pass | 0.3 | |
| Linearity range for SPL | At reference range, Step 5 dB at 4 kHz | Pass | 0.3 | |
| | Frequency weightings | | | |
| Time weightings | A | Pass | 0.3 | |
| | C | Pass | 0.3 | |
| | Lin | Pass | 0.3 | |
| Peak response | Single Burst Fast | Pass | 0.3 | |
| | Single Burst Slow | Pass | 0.3 | |
| R.M.S. accuracy | Single 100µs rectangular pulse | Pass | 0.3 | |
| Time weighting I | Crest factor of 3 | Pass | 0.3 | |
| | Single burst 5 ms at 2000 Hz | Pass | 0.3 | |
| | Repeated at frequency of 100 Hz | Pass | 0.3 | |
| Time averaging | 1 ms burst duty factor 1/10 ³ at 4kHz | Pass | 0.3 | |
| | 1 ms burst duty factor 1/10 ⁴ at 4kHz | Pass | 0.3 | |
| Pulse range | Single burst 10 ms at 4 kHz | Pass | 0.4 | |
| Sound exposure level | Single burst 10 ms at 4 kHz | Pass | 0.4 | |
| Overload indication | SPL | Pass | 0.3 | |
| | Leq | Pass | 0.4 | |

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

| Test: | Subtest | Status | Expanded Uncertainty (dB) | Coverage Factor |
|-------------------|------------------------|--------|---------------------------|-----------------|
| Acoustic response | Weighting A at 125 Hz | Pass | 0.3 | |
| | Weighting A at 8000 Hz | Pass | 0.5 | |

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Date:

Fung Chi Yip
07-Jul-2016

Checked by:

Date:

Lam Tze Wai
09-Jul-2016

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 16CA0304 02 Page 1 of 2

Item tested

| | | | |
|-----------------------|----------------------------|------------|--------|
| Description: | Sound Level Meter (Type 1) | Microphone | Preamp |
| Manufacturer: | B & K | B & K | B & K |
| Type/Model No.: | 2250-L | 4950 | ZC0032 |
| Serial/Equipment No.: | 2681366 | 2879980 | 19428 |
| Adaptors used: | - (N-04(1.01)) | - | - |

Item submitted by

Customer Name: AECOM ASIA CO LIMITED
Address of Customer: -
Request No.: -
Date of receipt: 04-Mar-2016

Date of test: 05-Mar-2016

Reference equipment used in the calibration

| Description: | Model: | Serial No. | Expiry Date: | Traceable to: |
|---------------------------------|----------|------------|--------------|---------------|
| Multi function sound calibrator | B&K 4226 | 2288444 | 19-Jun-2016 | CIGISMEC |
| Signal generator | DS 360 | 33873 | 16-Apr-2016 | CEPREI |
| Signal generator | DS 360 | 61227 | 16-Apr-2016 | CEPREI |

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min / Feng Jun Qi

Date: 08-Mar-2016

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 16CA0304 02 Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

| Test: | Subtest: | Status: | Expanded Uncertainty (dB) | Coverage Factor |
|-------------------------|--|---------|---------------------------|-----------------|
| Self-generated noise | A | Pass | 0.3 | |
| | C | Pass | 0.8 | |
| | Lin | Pass | 1.6 | |
| Linearity range for Leq | At reference range, Step 5 dB at 4 kHz | Pass | 0.3 | |
| | Reference SPL on all other ranges | Pass | 0.3 | |
| | 2 dB below upper limit of each range | Pass | 0.3 | |
| | 2 dB above lower limit of each range | Pass | 0.3 | |
| Linearity range for SPL | At reference range, Step 5 dB at 4 kHz | Pass | 0.3 | |
| | Frequency weightings | | | |
| Time weightings | A | Pass | 0.3 | |
| | C | Pass | 0.3 | |
| | Lin | Pass | 0.3 | |
| Peak response | Single Burst Fast | Pass | 0.3 | |
| | Single Burst Slow | Pass | 0.3 | |
| R.M.S. accuracy | Single 100 μ s rectangular pulse | Pass | 0.3 | |
| Time weighting I | Crest factor of 3 | Pass | 0.3 | |
| | Single burst 5 ms at 2000 Hz | Pass | 0.3 | |
| Time averaging | Repeated at frequency of 100 Hz | Pass | 0.3 | |
| | 1 ms burst duty factor 1/10 ³ at 4kHz | Pass | 0.3 | |
| Pulse range | 1 ms burst duty factor 1/10 ⁴ at 4kHz | Pass | 0.3 | |
| | Single burst 10 ms at 4 kHz | Pass | 0.4 | |
| Sound exposure level | Single burst 10 ms at 4 kHz | Pass | 0.4 | |
| Overload indication | SPL | Pass | 0.3 | |
| | Leq | Pass | 0.4 | |

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

| Test: | Subtest | Status | Expanded Uncertainty (dB) | Coverage Factor |
|-------------------|------------------------|--------|---------------------------|-----------------|
| Acoustic response | Weighting A at 125 Hz | Pass | 0.3 | |
| | Weighting A at 8000 Hz | Pass | 0.5 | |

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Date:

Fung Chi Yip
05-Mar-2016

Checked by:

Date:

Lam Tze Wai
08-Mar-2016

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 15CA1203 03

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Rion Co., Ltd.
Type/Model No.: NC-73
Serial/Equipment No.: 10307223
Adaptors used: -

Item submitted by

Customer: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 03-Dec-2015

Date of test: 03-Dec-2015

Reference equipment used in the calibration

| Description: | Model: | Serial No. | Expiry Date: | Traceable to: |
|-------------------------|----------|------------|--------------|---------------|
| Lab standard microphone | B&K 4180 | 2341427 | 15-Apr-2016 | SCL |
| Preamplifier | B&K 2673 | 2239857 | 22-Apr-2016 | CEPREI |
| Measuring amplifier | B&K 2610 | 2346941 | 22-Apr-2016 | CEPREI |
| Signal generator | DS 360 | 61227 | 16-Apr-2016 | CEPREI |
| Digital multi-meter | 34401A | US36087050 | 17-Apr-2016 | CEPREI |
| Audio analyzer | 8903B | GB41300350 | 17-Apr-2016 | CEPREI |
| Universal counter | 53132A | MY40003662 | 16-Apr-2016 | CEPREI |

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 50 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 04-Dec-2015

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA1203 03

Page: 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

| Frequency Shown Hz | Output Sound Pressure Level Setting dB | Measured Output Sound Pressure Level dB | (Output level in dB re 20 μ Pa) |
|-----------------------|---|--|--------------------------------------|
| | | | Estimated Expanded Uncertainty dB |
| 1000 | 94.00 | 94.04 | 0.10 |

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.002 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 987.5 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 0.4 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:

Date:

Fung Chi Yip
03-Dec-2015

- End -

Checked by:

Date:

Lam Tze Wai
04-Dec-2015

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 16CA0223 01

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: B & K
Type/Model No.: 4231
Serial/Equipment No.: 3006428
Adaptors used: -

N.004.03

Item submitted by

Customer: AECOM ASIA CO LIMITED
Address of Customer: -
Request No.: -
Date of receipt: 23-Feb-2016

Date of test: 25-Feb-2016

Reference equipment used in the calibration

| Description: | Model: | Serial No. | Expiry Date: | Traceable to: |
|-------------------------|----------|------------|--------------|---------------|
| Lab standard microphone | B&K 4180 | 2341427 | 15-Apr-2016 | SCL |
| Preamplifier | B&K 2673 | 2743150 | 22-Apr-2016 | CEPREI |
| Measuring amplifier | B&K 2610 | 2346941 | 22-Apr-2016 | CEPREI |
| Signal generator | DS 360 | 61227 | 16-Apr-2016 | CEPREI |
| Digital multi-meter | 34401A | US36087050 | 17-Apr-2016 | CEPREI |
| Audio analyzer | 8903B | GB41300350 | 17-Apr-2016 | CEPREI |
| Universal counter | 53132A | MY40003662 | 16-Apr-2016 | CEPREI |

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 27-Feb-2016

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 16CA0223 01 Page: 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

| Frequency Shown Hz | Output Sound Pressure Level Setting dB | Measured Output Sound Pressure Level dB | (Output level in dB re 20 μ Pa) |
|-----------------------|---|--|--------------------------------------|
| | | | Estimated Expanded Uncertainty dB |
| 1000 | 94.00 | 94.14 | 0.10 |

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz STF = 0.002 dB

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz Actual Frequency = 999.9 Hz

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz TND = 0.4 %

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Date:

Fung Chi Yip
25-Feb-2016

Checked by:

Date:

Lam Tze Wai
27-Feb-2016

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

APPENDIX F

EM&A Monitoring Schedules

**Shatin to Central Link Contract 1123 - Exhibition Station and Western Approach Tunnel
Impact Monitoring Schedule for October 2016**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | | | | | 1-Oct |
| | | | | | | |
| 2-Oct | 3-Oct | 4-Oct | 5-Oct | 6-Oct | 7-Oct | 8-Oct |
| | Air Quality | Noise | | | | Air Quality |
| 9-Oct | 10-Oct | 11-Oct | 12-Oct | 13-Oct | 14-Oct | 15-Oct |
| | | Noise | | | Air Quality | |
| 16-Oct | 17-Oct | 18-Oct | 19-Oct | 20-Oct | 21-Oct | 22-Oct |
| | | | | Air Quality | | Noise |
| 23-Oct | 24-Oct | 25-Oct | 26-Oct | 27-Oct | 28-Oct | 29-Oct |
| | | | Air Quality | Noise | | |
| 30-Oct | 31-Oct | | | | | |
| | | | | | | |

Air Quality Monitoring Station

AM2 Wan Chai Sports Ground
AM3 Existing Harbour Road Sports Centre

Noise Monitoring Station

NM2 Harbour Centre

Monitoring Frequency

24-hr TSP Once every 6 days

Monitoring Frequency

Once per week

**Shatin to Central Link Contract 1123 - Exhibition Station and Western Approach Tunnel
Tentative Impact Monitoring Schedule for November 2016**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | 1-Nov | 2-Nov | 3-Nov | 4-Nov | 5-Nov |
| | | Air Quality | Noise | | | |
| 6-Nov | 7-Nov | 8-Nov | 9-Nov | 10-Nov | 11-Nov | 12-Nov |
| | Air Quality | Noise | | | | Air Quality |
| 13-Nov | 14-Nov | 15-Nov | 16-Nov | 17-Nov | 18-Nov | 19-Nov |
| | Noise | | | | Air Quality | |
| 20-Nov | 21-Nov | 22-Nov | 23-Nov | 24-Nov | 25-Nov | 26-Nov |
| | | | | Air Quality | Noise | |
| 27-Nov | 28-Nov | 29-Nov | 30-Nov | | | |
| | | | Air Quality | | | |

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM2 Wan Chai Sports Ground
AM3 Existing Harbour Road Sports Centre

Noise Monitoring Station

NM2 Harbour Centre

Monitoring Frequency

24-hr TSP Once every 6 days

Monitoring Frequency

Once per week

**Shatin to Central Link Contract 1123 - Exhibition Station and Western Approach Tunnel
Tentative Impact Monitoring Schedule for December 2016**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|-------------|-------------|-----------|-------------|-------------|-------------|
| | | | | 1-Dec | 2-Dec | 3-Dec |
| | | | | Noise | | |
| 4-Dec | 5-Dec | 6-Dec | 7-Dec | 8-Dec | 9-Dec | 10-Dec |
| | | Air Quality | Noise | | | |
| 11-Dec | 12-Dec | 13-Dec | 14-Dec | 15-Dec | 16-Dec | 17-Dec |
| | Air Quality | Noise | | | | Air Quality |
| 18-Dec | 19-Dec | 20-Dec | 21-Dec | 22-Dec | 23-Dec | 24-Dec |
| | Noise | | | | Air Quality | |
| 25-Dec | 26-Dec | 27-Dec | 28-Dec | 29-Dec | 30-Dec | 31-Dec |
| | | | | Air Quality | Noise | |

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM2 Wan Chai Sports Ground
AM3 Existing Harbour Road Sports Centre

Noise Monitoring Station

NM2 Harbour Centre

Monitoring Frequency

24-hr TSP Once every 6 days

Monitoring Frequency

Once per week

**Shatin to Central Link Contract 1123 - Exhibition Station and Western Approach Tunnel
Tentative Impact Monitoring Schedule for January 2017**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|-------------|-------------|-------------|----------|-------------|-------------|
| 1-Jan | 2-Jan | 3-Jan | 4-Jan | 5-Jan | 6-Jan | 7-Jan |
| | | | Air Quality | Noise | | |
| 8-Jan | 9-Jan | 10-Jan | 11-Jan | 12-Jan | 13-Jan | 14-Jan |
| | | Air Quality | Noise | | | |
| 15-Jan | 16-Jan | 17-Jan | 18-Jan | 19-Jan | 20-Jan | 21-Jan |
| | Air Quality | Noise | | | | Air Quality |
| 22-Jan | 23-Jan | 24-Jan | 25-Jan | 26-Jan | 27-Jan | 28-Jan |
| | Noise | | | | Air Quality | |
| 29-Jan | 30-Jan | 31-Jan | | | | |
| | | | | | | |

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM2 Wan Chai Sports Ground
AM3 Existing Harbour Road Sports Centre

Noise Monitoring Station

NM2 Harbour Centre

Monitoring Frequency

24-hr TSP Once every 6 days

Monitoring Frequency

Once per week

APPENDIX G

**Air Quality Monitoring Results and
their Graphical Presentations**

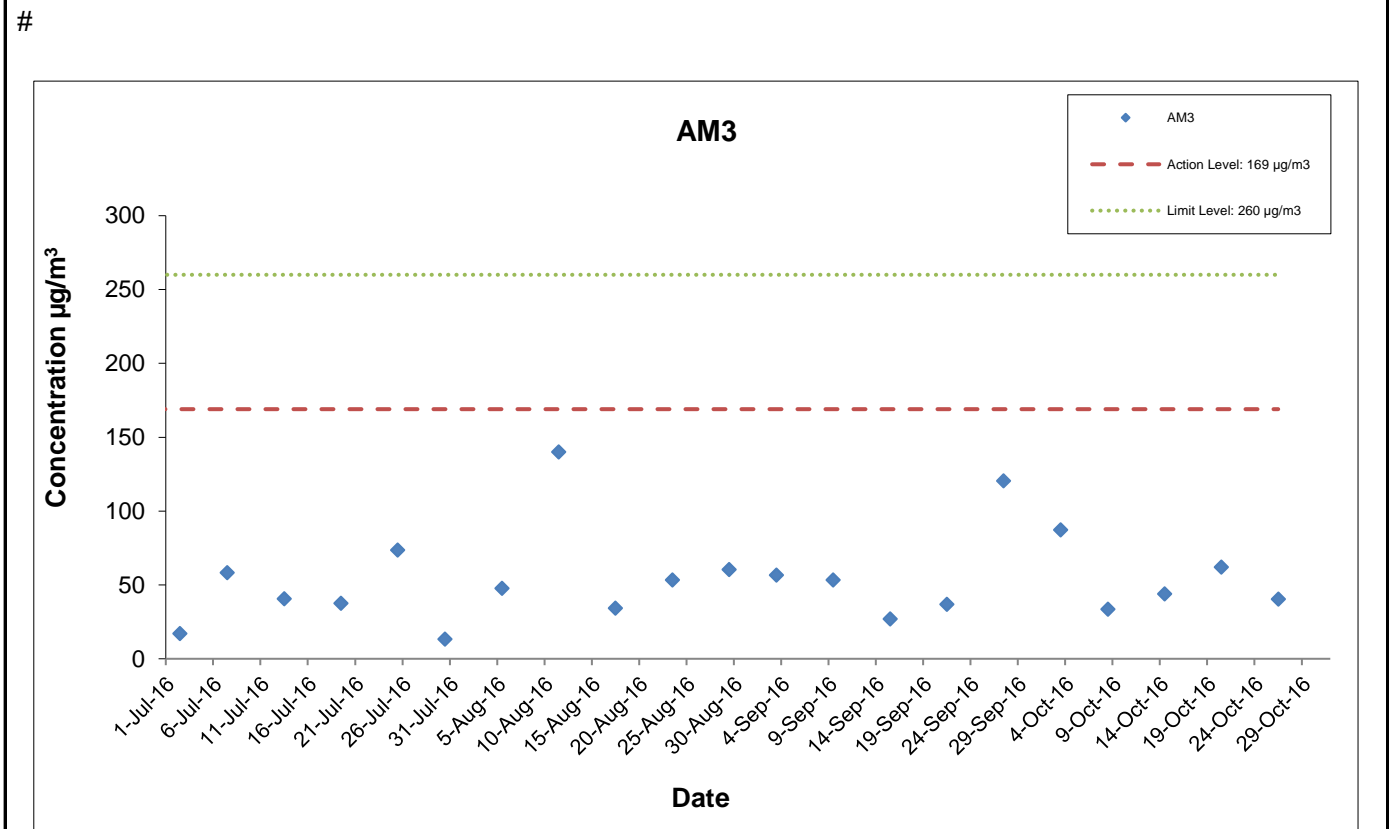
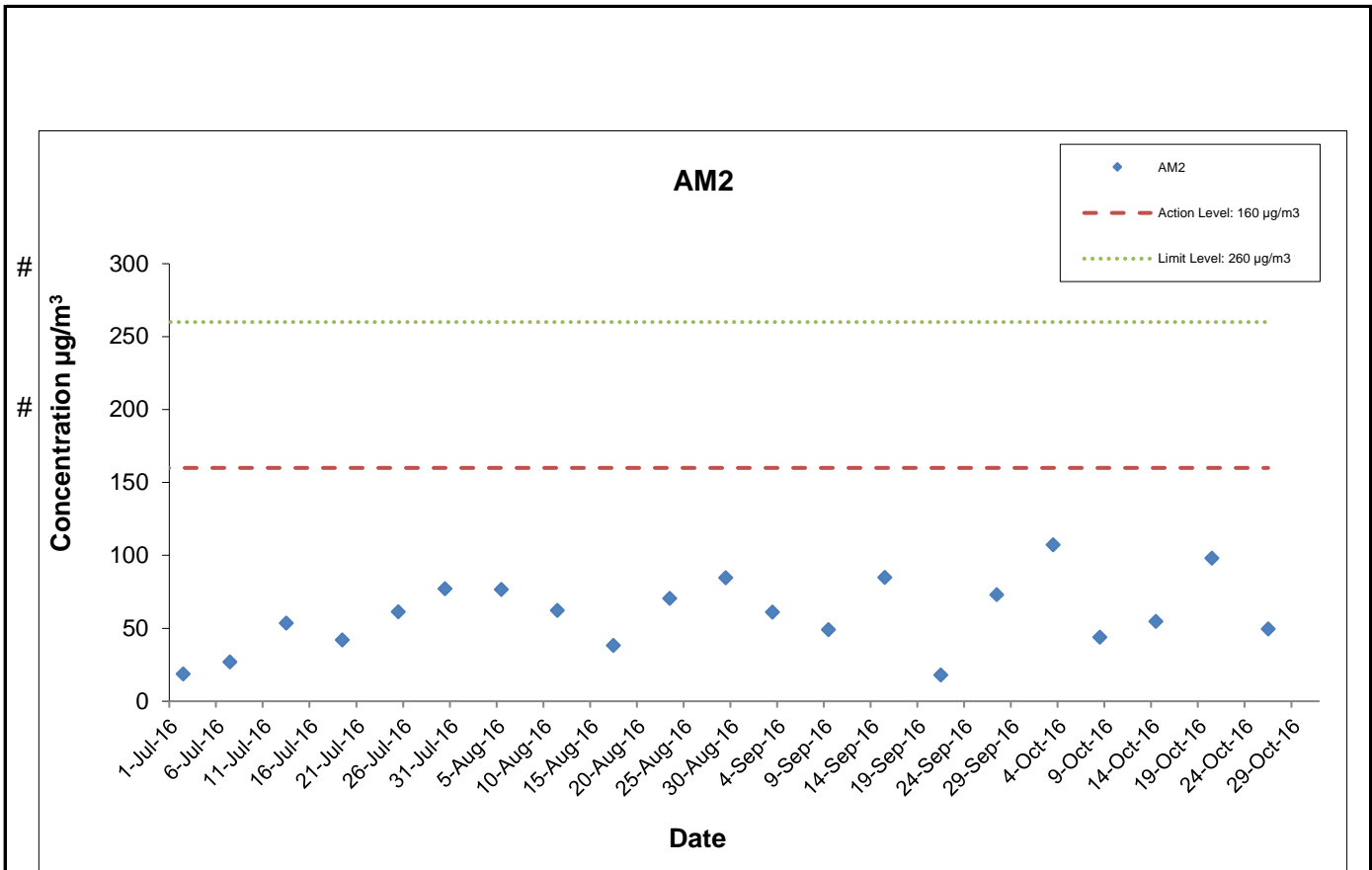
Appendix G
Air Quality Monitoring Results

24-hour TSP Monitoring Results at Station AM2 (Wan Chai Sports Ground)

| Start | | End | | Weather Condition | Air Temp. (°C) | Atmospheric Pressure (hPa) | Flow Rate (m ³ /min.) | | Av. flow (m ³ /min) | Total vol. (m ³) | Filter Weight (g) | | Particulate weight(g) | Elapse Time | | Sampling Time(hrs.) | Conc. (µg/m ³) |
|----------------|------|-----------|------|----------------------|-------------------|-------------------------------|----------------------------------|-------|-----------------------------------|---------------------------------|-------------------|--------|--------------------------|-------------|----------|------------------------|-------------------------------|
| Date | Time | Date | Time | | | | Initial | Final | | | Initial | Final | | Initial | Final | | |
| 3-Oct-16 | 0:00 | 4-Oct-16 | 0:00 | Fine | 27.5 | 1007.8 | 1.31 | 1.31 | 1.31 | 1890.7 | 2.8452 | 3.0479 | 0.2027 | 19170.04 | 19194.04 | 24.00 | 107.2 |
| 8-Oct-16 | 0:00 | 9-Oct-16 | 0:00 | Cloudy | 28.1 | 1006.8 | 1.31 | 1.31 | 1.31 | 1890.7 | 2.8185 | 2.9017 | 0.0832 | 19194.04 | 19218.04 | 24.00 | 44.0 |
| 14-Oct-16 | 0:00 | 15-Oct-16 | 0:00 | Sunny | 26.7 | 1013.2 | 1.31 | 1.31 | 1.31 | 1890.7 | 2.8067 | 2.9102 | 0.1035 | 19218.04 | 19242.04 | 24.00 | 54.7 |
| 20-Oct-16 | 0:00 | 21-Oct-16 | 0:00 | Fine | 27.3 | 1004.6 | 1.31 | 1.31 | 1.31 | 1890.7 | 2.8360 | 3.0217 | 0.1857 | 19242.04 | 19266.04 | 24.00 | 98.2 |
| 26-Oct-16 | 0:00 | 27-Oct-16 | 0:00 | Sunny | 27.1 | 1015.6 | 1.31 | 1.31 | 1.31 | 1890.7 | 2.8399 | 2.9338 | 0.0939 | 19266.04 | 19290.04 | 24.00 | 49.7 |
| Average | | | | | | | | | | | | | | | | 70.8 | |
| Minimum | | | | | | | | | | | | | | | | 44.0 | |
| Maximum | | | | | | | | | | | | | | | | 107.2 | |

24-hour TSP Monitoring Results at Station AM3 (Existing Harbour Road Sports Centre)

| Start | | End | | Weather Condition | Air Temp. (°C) | Atmospheric Pressure (hPa) | Flow Rate (m ³ /min.) | | Av. flow (m ³ /min) | Total vol. (m ³) | Filter Weight (g) | | Particulate weight(g) | Elapse Time | | Sampling Time(hrs.) | Conc. (µg/m ³) |
|----------------|------|-----------|------|----------------------|-------------------|-------------------------------|----------------------------------|-------|-----------------------------------|---------------------------------|-------------------|--------|--------------------------|-------------|---------|------------------------|-------------------------------|
| Date | Time | Date | Time | | | | Initial | Final | | | Initial | Final | | Initial | Final | | |
| 3-Oct-16 | 0:00 | 4-Oct-16 | 0:00 | Fine | 27.5 | 1007.8 | 1.30 | 1.30 | 1.30 | 1876.3 | 2.8371 | 3.0007 | 0.1636 | 5517.82 | 5541.82 | 24.00 | 87.2 |
| 8-Oct-16 | 0:00 | 9-Oct-16 | 0:00 | Cloudy | 28.1 | 1006.8 | 1.30 | 1.30 | 1.30 | 1876.3 | 2.8063 | 2.8694 | 0.0631 | 5541.82 | 5565.82 | 24.00 | 33.6 |
| 14-Oct-16 | 0:00 | 15-Oct-16 | 0:00 | Sunny | 26.7 | 1013.2 | 1.30 | 1.30 | 1.30 | 1876.3 | 2.7825 | 2.8648 | 0.0823 | 5565.82 | 5589.82 | 24.00 | 43.9 |
| 20-Oct-16 | 0:00 | 21-Oct-16 | 0:00 | Fine | 27.3 | 1004.6 | 1.30 | 1.30 | 1.30 | 1876.3 | 2.8383 | 2.9547 | 0.1164 | 5589.82 | 5613.82 | 24.00 | 62.0 |
| 26-Oct-16 | 0:00 | 27-Oct-16 | 0:00 | Sunny | 27.1 | 1015.6 | 1.30 | 1.30 | 1.30 | 1876.3 | 2.8518 | 2.9278 | 0.0760 | 5613.82 | 5637.82 | 24.00 | 40.5 |
| Average | | | | | | | | | | | | | | | | 53.4 | |
| Minimum | | | | | | | | | | | | | | | | 33.6 | |
| Maximum | | | | | | | | | | | | | | | | 87.2 | |



* The monitoring station at AM2 was handed over from Contract SCL1128 on 28 October 2015.

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Shatin Central Link Contract No. 1123
Exhibition Station and Western Approach Tunnel

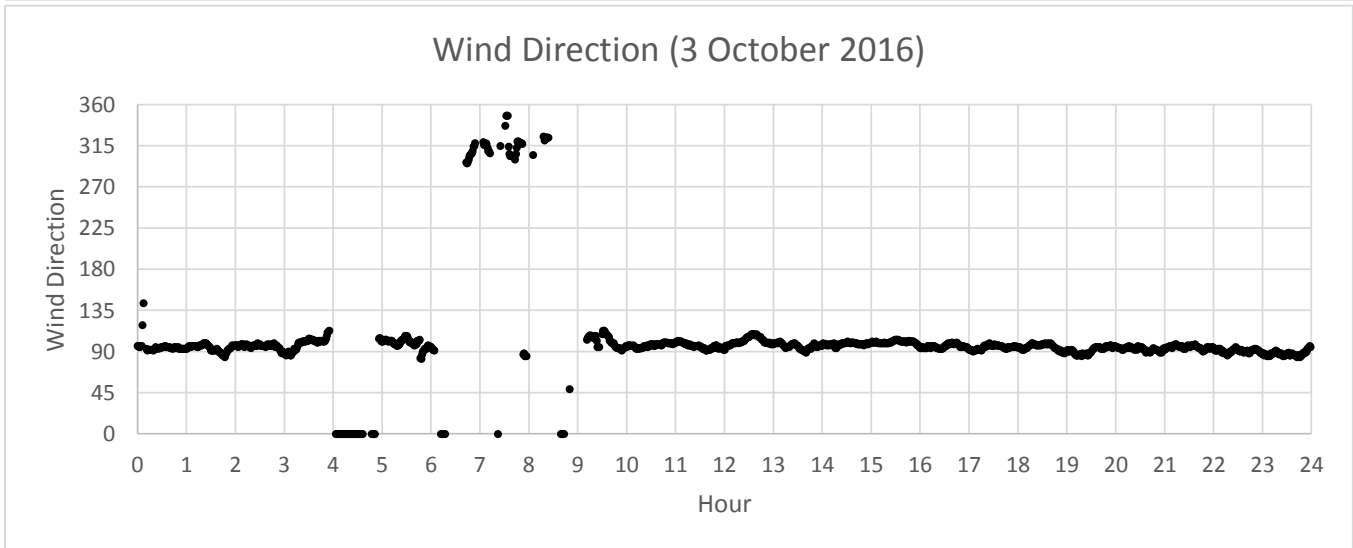
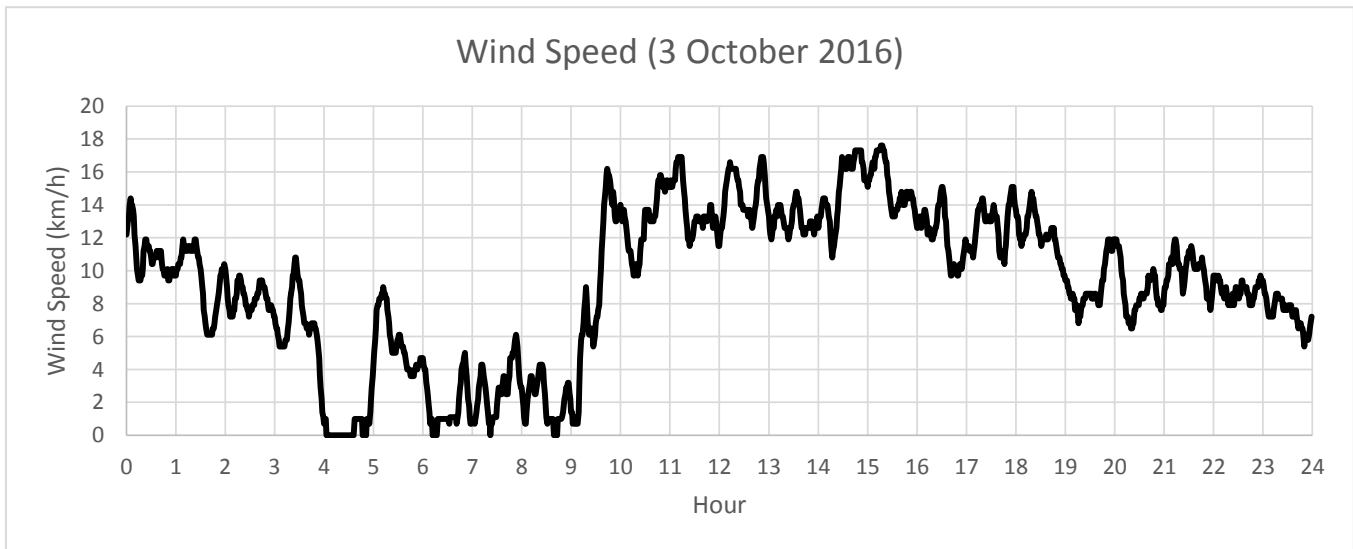


Graphical Presentation of Impact 24-hr TSP Monitoring Results

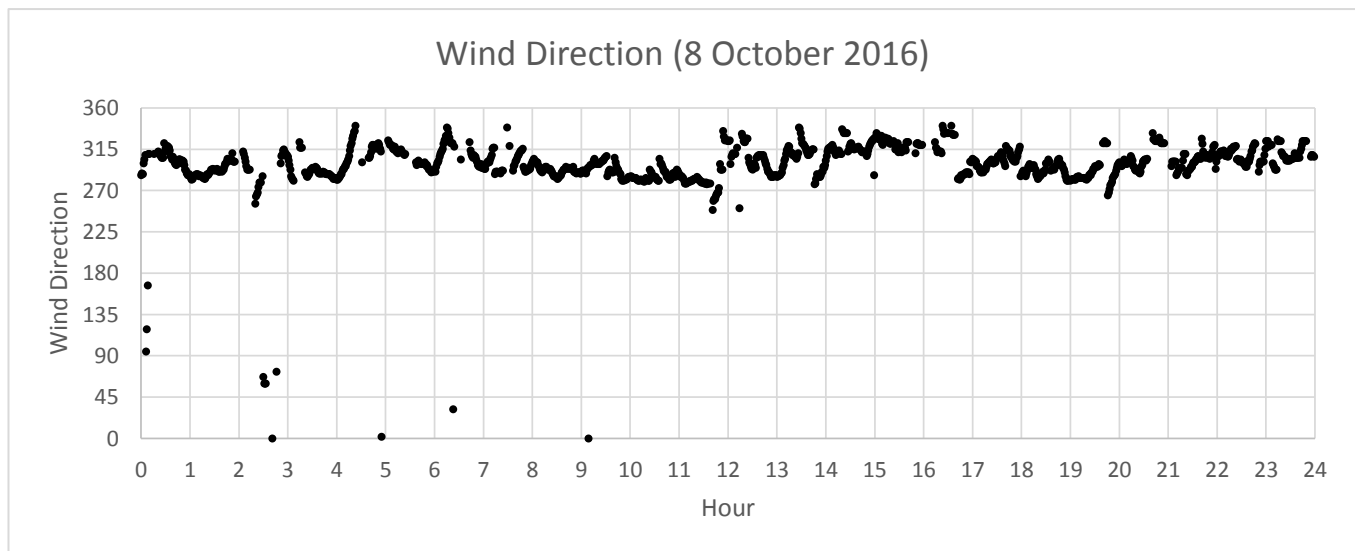
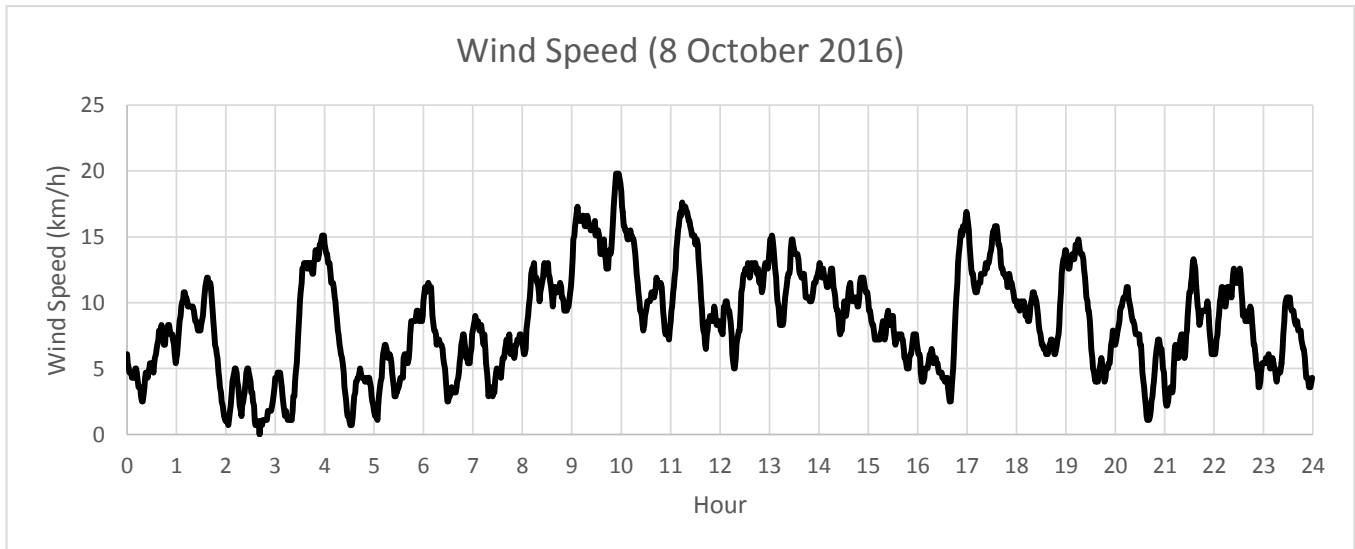
Date: November 2016

Appendix G

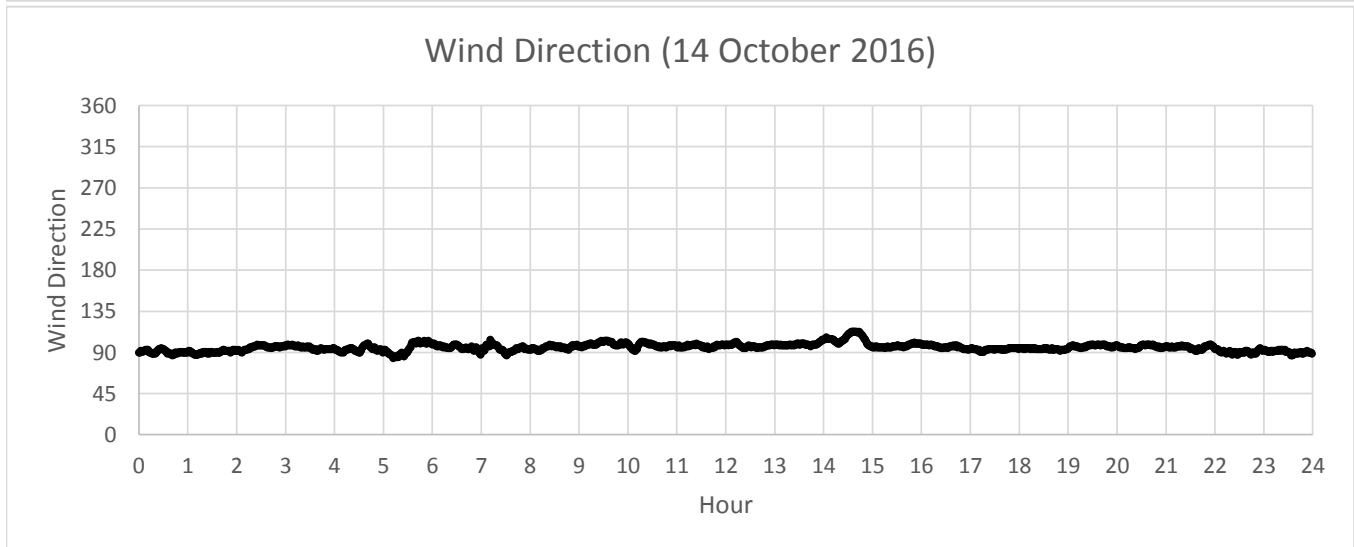
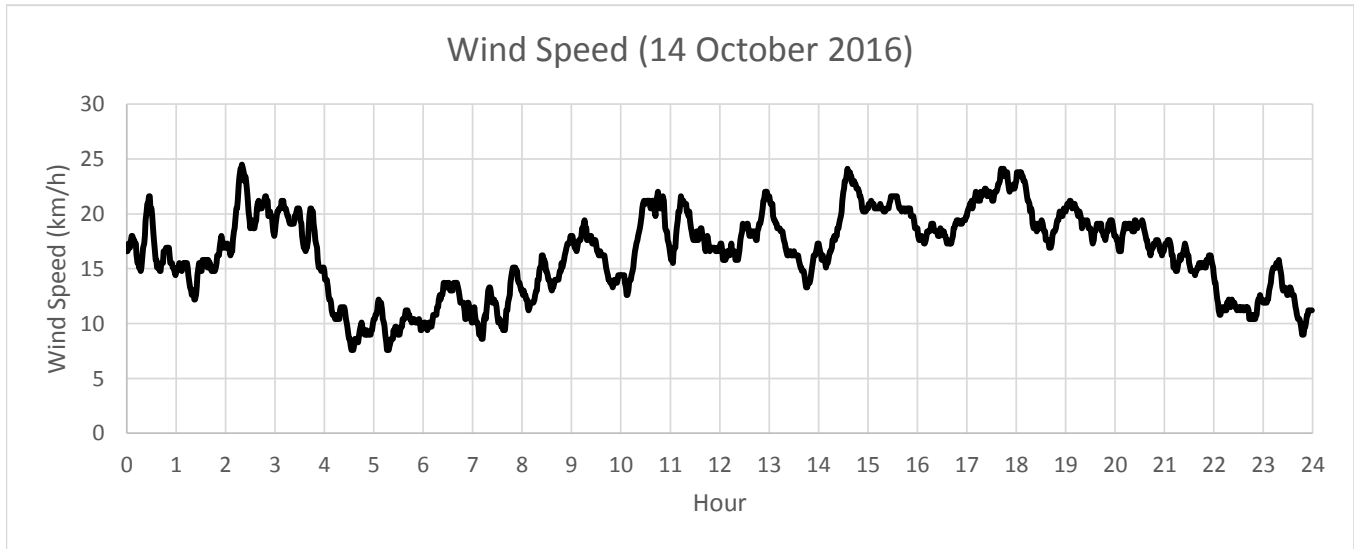
Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2016



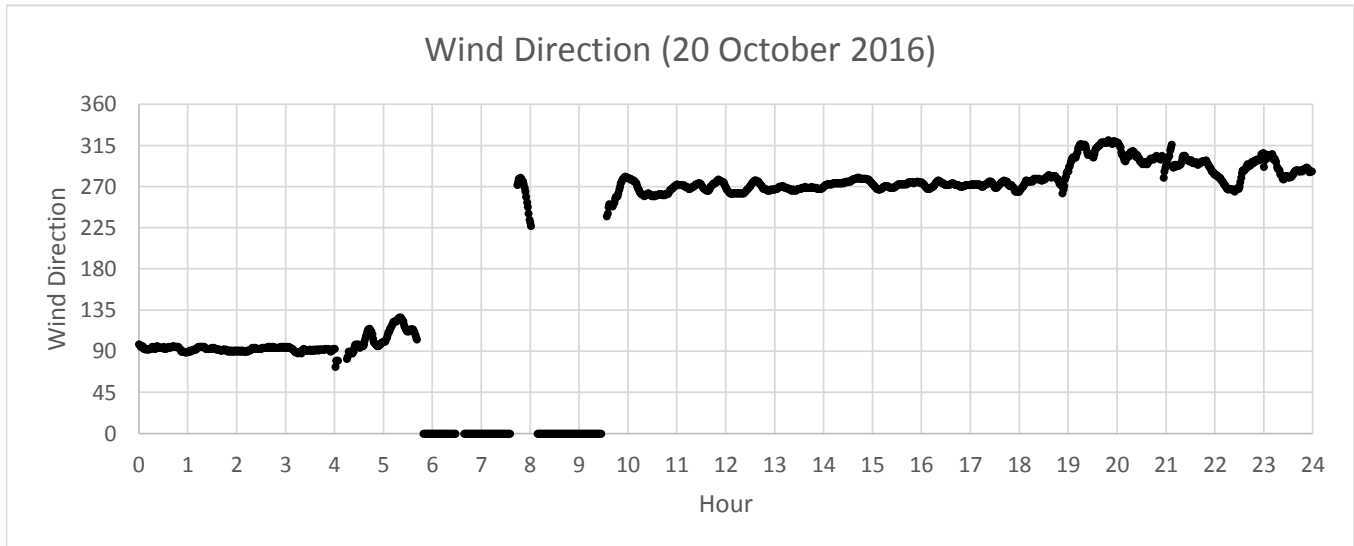
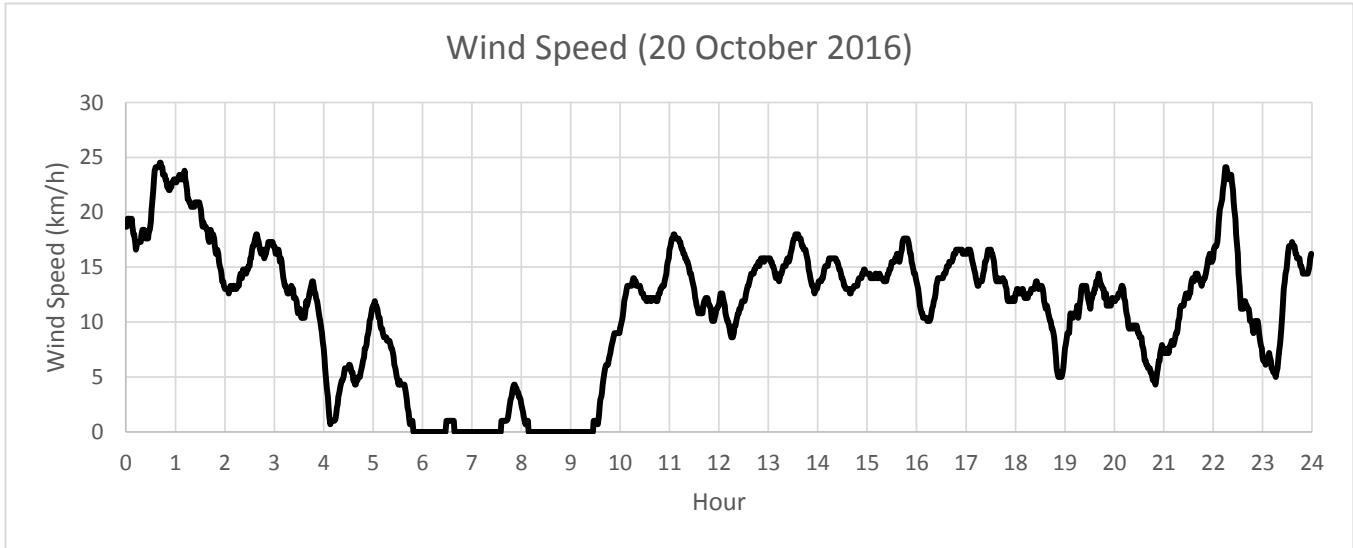
Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2016



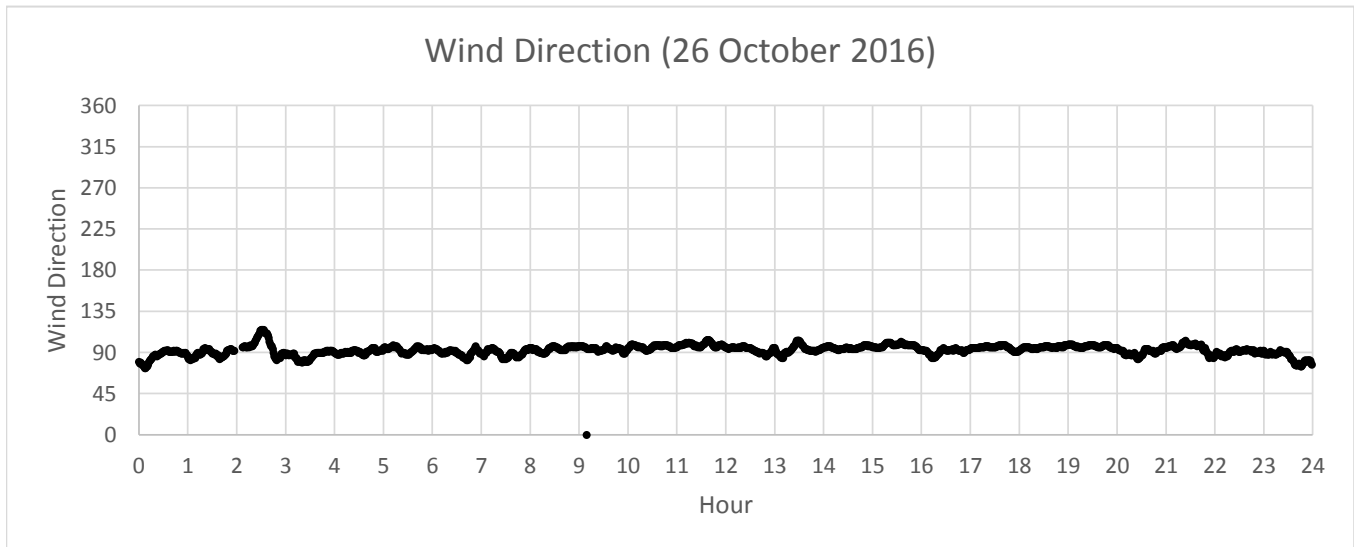
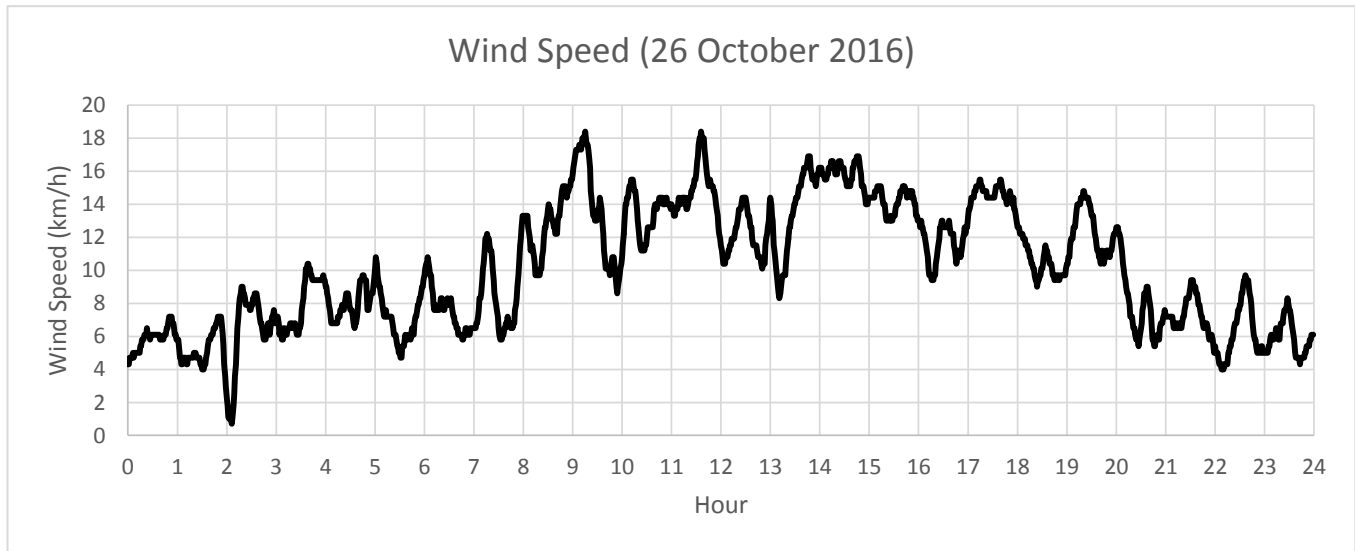
Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2016



Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2016



Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2016



APPENDIX H

**Noise Monitoring Results and
their Graphical Presentations**

Appendix H Regular Construction Noise Monitoring Results

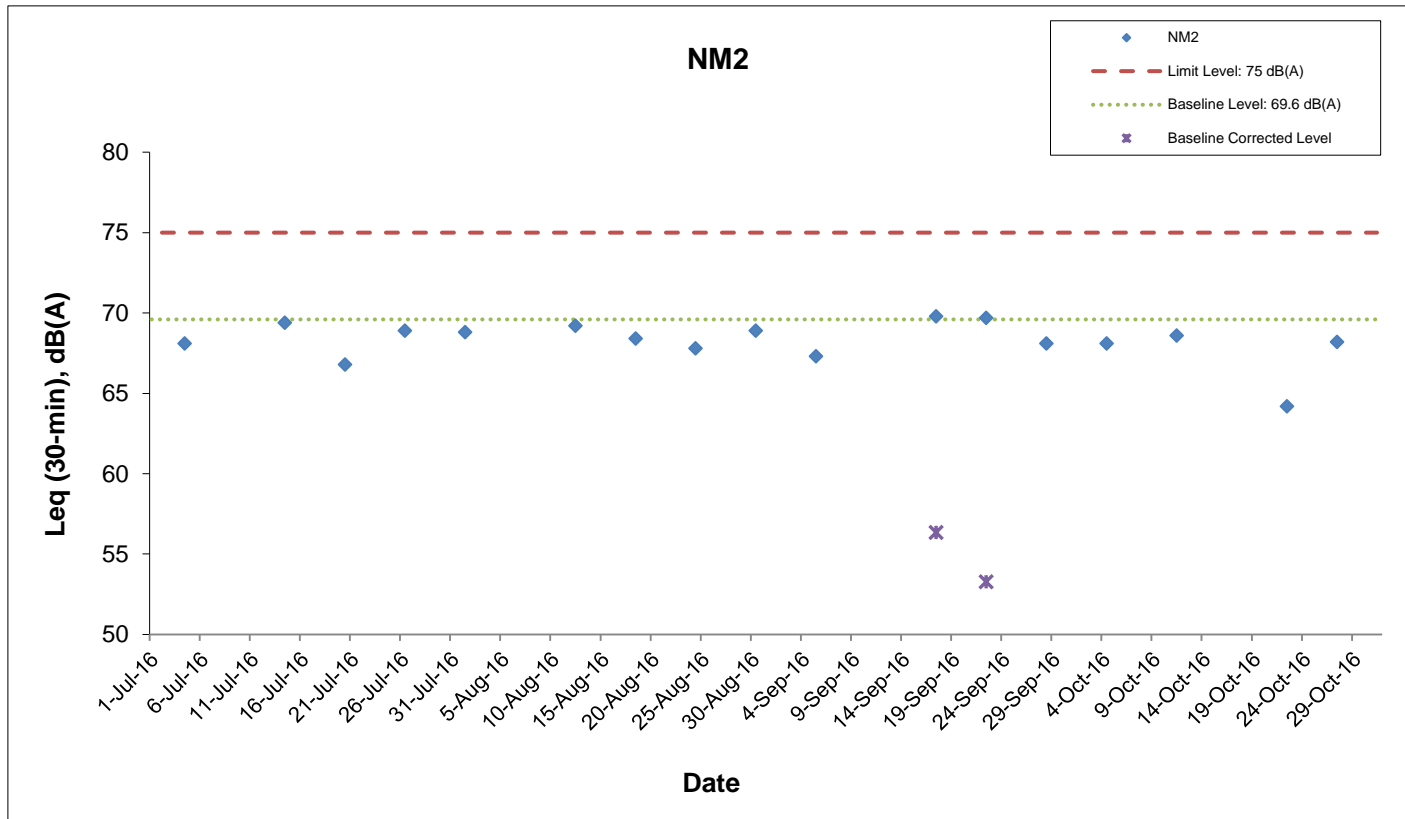
Daytime Noise Monitoring Results at Station NM2 (Harbour Centre)

| Date | Weather Condition | Noise Level for 30-min, dB(A) ⁺ | | | | Baseline Corrected Level, dB(A) | Baseline Noise Level, dB(A) | Limit Level, dB(A) | Exceedance (Y/N) |
|-------------|-------------------|--|------|------|------|---------------------------------|-----------------------------|--------------------|------------------|
| | | Time | L90 | L10 | Leq | | | | |
| 4-Oct-16 | Fine | 11:29 | 65.2 | 70.2 | 68.1 | <Baseline | 69.6 | 75 | N |
| 11-Oct-16 | Sunny | 19:12 | 66.8 | 70.8 | 68.6 | <Baseline | 69.6 | 75 | N |
| 22-Oct-16 * | Sunny | 16:08 | 63.0 | 65.5 | 64.2 | <Baseline | 69.6 | 75 | N |
| 27-Oct-16 | Sunny | 15:26 | 64.5 | 70.0 | 68.2 | <Baseline | 69.6 | 75 | N |

* This monitoring event was rescheduled to 22 Oct 2016 due to adverse weather on 21 Oct 2016.

⁺ - Façade measurement

Appendix H Regular Construction Noise Monitoring Results



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Shatin Central Link Contract No. 1123
Exhibition Station and Western Approach Tunnel

Graphical Presentation of Impact Noise Monitoring Results

Date: November 2016

Appendix H

APPENDIX I

Event Action Plan

Appendix I Event Action Plan

Event / Action Plan for Construction Dust Monitoring

| EVENT | ACTION | | | |
|--|---|--|---|---|
| | ET | IEC | ER | Contractor |
| ACTION LEVEL | | | | |
| Exceedance for one sample | <ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor and IEC on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing. | <ol style="list-style-type: none"> 1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate. |
| Exceedance for two or more consecutive samples | <ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise Implementation of remedial measures. | <ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate. |

Appendix I Event Action Plan

| EVENT | ACTION | | | |
|--|--|--|---|---|
| | ET | IEC | ER | Contractor |
| LIMIT LEVEL | | | | |
| Exceedance for one sample | <ol style="list-style-type: none"> 1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures. | <ol style="list-style-type: none"> 1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate. |
| Exceedance for two or more consecutive samples | <ol style="list-style-type: none"> 1. Notify Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; 7. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; 4. 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. | <ol style="list-style-type: none"> 1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated. |

Appendix I Event Action Plan

Event and Action Plan for Construction Noise Monitoring

| EVENT | ACTION | | | |
|----------------------------|--|---|---|--|
| | ET | IEC | ER | Contractor |
| Exceedance of Action Level | <ol style="list-style-type: none"> 1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness. | <ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures. | <ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals. |
| Exceedance of Limit Level | <ol style="list-style-type: none"> 1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. 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. | <ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated. |

Appendix I Event Action Plan

Event and Action Plan for Continuous Noise Monitoring

| EVENT | ACTION | | | |
|---------------------------|--|---|---|--|
| | ET | IEC | ER | CONTRACTOR |
| Action/Limit Level | 1. Identify source ; 2. Repeat measurement. If two consecutive measurements exceed Action/Limit Level, the exceedance is then confirmed; 3. If exceedance is confirmed, notify IEC, ER and Contractor; 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented; 5. Discuss jointly with the IEC, ER and Contractor and formulate remedial measures; and 6. Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results. | 1. Check monitoring data submitted by the Works Contract 1123 ET; 2. Check the Contractor's working method; 3. Discuss with the ER, Works Contract 1123 ET and Contractor on the potential remedial measures; and 4. Review and advise the Works Contract 1123 ET and ER on the effectiveness of the remedial measures proposed by the Contractor. | 1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the Works Contract 1123 ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Ensure the proper implementation of remedial measures; and 4. 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. Identify source with the Works Contract 1123 ET; 2. If exceedance is confirmed, investigation the cause of exceedance and take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET of notification; 4. Implement the agreed proposals; 5. Liaise with ER to optimize the effectiveness of the agreed mitigation; 6. Revise and resubmit proposals if problem still not under control; and 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated. |

APPENDIX J

**Cumulative Statistics of Complaints, Notification of Summons
and Successful Prosecutions**

**Appendix J
Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions**

| | Date Received | Subject | Status | Total no. received in this month | Total no. received since project commencement |
|---------------------------------|---------------|---------|--------|----------------------------------|---|
| Environmental complaints | - | - | - | 0 | 5 |
| Notification of summons | - | - | - | 0 | 0 |
| Successful Prosecutions | - | - | - | 0 | 0 |

APPENDIX K

Waste Flow Table

Appendix K
MONTHLY SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach Tunnel

Monthly Summary Waste Flow Table for 2016

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|-----------|--|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---|-----------------------------|-------------|----------------|-----------------------------|
| | Total Quantity Generated | Hard Rock and Large Broken Concrete | Reused in the Contract | Reused in Other Projects | Disposed as Public Fill | Imported Fill | Metals | Paper / Cardboard Packaging | Plastics | Chemical Waste | Others, e.g. general refuse |
| | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000m ³) |
| Jan | 4.845 | 0.000 | 0.000 | 0.000 | 4.659 | 0.186 | 16.083 | 0.755 | 0.010 | 0.000 | 0.031 |
| Feb | 4.795 | 0.000 | 0.000 | 0.000 | 4.795 | 0.000 | 2.620 | 0.000 | 0.990 | 0.000 | 0.020 |
| Mar | 5.456 | 0.000 | 0.000 | 0.055 | 5.401 | 0.000 | 19.242 | 0.480 | 0.018 | 0.000 | 0.033 |
| Apr | 4.944 | 0.000 | 0.000 | 0.012 | 4.514 | 0.418 | 13.115 | 0.350 | 0.010 | 0.400 | 0.064 |
| May | 4.232 | 0.000 | 0.000 | 0.000 | 3.845 | 0.388 | 16.340 | 0.500 | 0.020 | 0.000 | 0.099 |
| Jun | 8.968 | 0.000 | 0.000 | 0.000 | 7.029 | 1.939 | 14.145 | 0.400 | 0.798 | 0.000 | 0.041 |
| Sub-total | 33.240 | 0.000 | 0.000 | 0.067 | 30.243 | 2.930 | 81.545 | 2.485 | 1.846 | 0.400 | 0.288 |
| July | 8.467 | 0.000 | 0.000 | 0.000 | 7.232 | 1.235 | 38.230 | 0.320 | 0.569 | 0.000 | 0.069 |
| August | 7.372 | 0.000 | 0.000 | 0.298 | 6.086 | 0.989 | 17.700 | 0.830 | 0.030 | 0.000 | 0.082 |
| September | 9.005 | 0.000 | 0.128 | 1.998 | 6.879 | 0.000 | 20.505 | 0.250 | 1.317 | 0.000 | 0.079 |
| October | 7.094 | 0.000 | 1.339 | 0.488 | 5.268 | 0.000 | 15.166 | 0.544 | 0.010 | 0.000 | 0.054 |
| November | | | | | | | | | | | |
| December | | | | | | | | | | | |
| Total | 65.179 | 0.000 | 1.467 | 2.850 | 55.708 | 5.154 | 173.146 | 4.429 | 3.772 | 0.400 | 0.572 |

Comments:

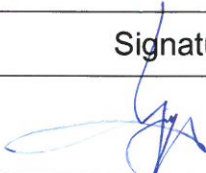

- 1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m³; the density of general refuse is 1.0 ton/m³; the density of waste oil is 1.0 kg/L.
- 2) The cut-off date of waste amount in October is 31/10/2016 for Public Fill facilities and Landfill.
- 3) The amounts of waste in October are 53.94 tons for Landfill and 10535.98 tons for Public Fill.
- 4) The cut-off date of C&D waste amount reused in other projects in October is 31/10/2016 for SCL 1121 Barging Point and SCL 1123 Kai Tak Barging Point.
- 5) The amounts of C&D waste reused in other projects in October are 545.36 tons for SCL 1121 Barging Point and 429.64 tons for SCL 1123 Kai Tak Barging Point.
- 6) The amounts of C&D waste reused in the project in October is approximately 2677.7 tons, for cut-off date as 31/10/2016.
- 7) The amount of import fill in October is 0 tons, for cut-off date as 31/10/2016.
- 8) The amount of metal waste generated in October is 15166 kg, for cut-off date as 31/10/2016.
- 9) The amount of paper waste generated in October is 544 kg, for cut-off date as 31/10/2016.
- 10) The amount of plastic waste generated in October is 10 kg, for cut-off date as 31/10/2016.

Appendix D

**Monthly EM&A Report for October 2016 – SCL Works
Contract 1122 Admiralty South Overrun Tunnel**

Vinci Construction Grands Projects**Shatin to Central Link -
Hung Hom to Admiralty Section****Works Contract 1122 -
Admiralty South Overrun Tunnel****Monthly EM&A Report for
October 2016**

[November 2016]

| | Name | Signature |
|---------------------------------|---|---|
| Prepared & Checked: | Oscar Yip |  |
| Reviewed, Approved & Certified: | Y W Fung (Contractor's Environmental Team Leader) |  |

Version: 0

Date: 8 November 2016

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EXECUTIVE SUMMARY

Shatin to Central Link Contract 1122 – Admiralty South Overrun Tunnel (hereafter called “the Project”) covers part of the construction of the Shatin to Central Link (SCL).

Admiralty Station will be the major interchange station between the Island Line (ISL), Tsuen Wan Line (TWL), South Island Line (East) (SIL(E)) and the Shatin to Central Link (North South Line) (SCL(NSL)). The Admiralty South Overrun Tunnel (ASOR) is located to the south of Hong Kong Park Ventilation Building (HKB) and is approximately 700m long.

The EM&A programme commenced on 8 August 2016.

This report documents the findings of EM&A works conducted in the period between 1 and 31 October 2016. As informed by the Contractor, major activities in the reporting period were:

| Location | Site Activities |
|-----------|---|
| Surface | <ul style="list-style-type: none"> Gantry crane erection |
| Shaft L10 | <ul style="list-style-type: none"> Concrete infill Drill and blast tunnel |

Complaint, Notification of Summons and Successful Prosecution

No environmental complaint and no notification of summons and successful prosecution were received in the reporting month.

Reporting Changes

There was no reporting change in the reporting month.

Future Key Issues

Key issues to be considered in the coming month included:-

| Location | Site Activities |
|-----------|--|
| Shaft L10 | <ul style="list-style-type: none"> Drill and blast tunnel |

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

1 INTRODUCTION

Vinci Construction Grands Projects (VCGP) was commissioned by MTR as the Civil Contractor for Works Contract 1122. AECOM Asia Company Limited (AECOM) was appointed by VCGP as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

1.1 Purpose of the Report

1.1.1 This is the third monthly EM&A Report which summaries audit findings for the Project during the reporting period from 1 to 31 October 2016.

1.2 Report Structure

1.2.1 This monthly EM&A Report is organized as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection and Audit
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).

2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 22 March 2012, which covers SCL (HUH-ADM) EP No.: EP-436/2012), for the construction and operation. Variation of EP (VEP) was subsequently applied and the latest EP (EP No. EP-436/2012/D) was issued by the Director of Environmental Protection (DEP) on 5 February 2016.

2.1.3 The site layout plan of the Project is shown in **Figure 1.1**.

2.2 Site Description

2.2.1 The scope of the major Permanent Works include the following:

- (a) Approx. 700m of single bore tunnel south of HKB including, among others, breakthrough of a temporary headwall in the tunnel stub at HKB, tunnel fan niche structure, drainage, secondary structures including overtrack ducts, plenums, side walls, protected corridors, walkways and all the related fitting-out works;
- (b) Secondary structures inside SCL Overrun Tunnel (SCLOR) including overtrack ducts, plenums, side walls, walkways and all the related fitting-out works;
- (c) Alteration and Addition Works (A&A Works) from Level L10 to Upper Roof Level of HKB including removal of precast planks at G/F;
- (d) Re-provisioning of LCSD Refuse Collection Point No. 2 (RCP);
- (e) Roadworks including drainage, traffic aids, road markings, lighting, signage, utilities diversion, demolition, reinstatement and TTM schemes to facilitate the construction works and any works require TTM submission;
- (f) Tree planting and soft and hard landscaping works;
- (g) Design and construction of ABWF at HKB, ASOR, SCLOR and RCP; and
- (h) Design and construction of building services works at HKB, ASOR, SCLOR and RCP

2.3 Construction Programme and Activities

2.3.1 The major construction activities undertaken in the reporting month are summarised below:

| Location | Site Activities |
|-----------|---|
| Surface | <ul style="list-style-type: none"> Gantry crane erection |
| Shaft L10 | <ul style="list-style-type: none"> Concrete infill Drill and blast tunnel |

2.3.2 The construction programme is presented in **Appendix A**.

2.4 Project Organisation

2.4.1 The project organisation structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 2.1**.

Table 2.1 Contact Information of Key Personnel

| Party | Role | Position | Name | Telephone | Fax |
|-----------|---|---------------------------------------|----------------------|-----------|-----------|
| MTR | Residential Engineer (ER) | Construction Manager | Mr. Brian Suen | 2176 2788 | 2171 3829 |
| | | SCL Project Environmental Team Leader | Mr. Richard Kwan | 2688 1283 | 2993 7577 |
| Meinhardt | Independent Environmental Checker (IEC) | Independent Environmental Checker | Mr. Fredrick Leong | 2859 1739 | 2540 1580 |
| VCGP | Contractor | Project Director | Mr. Francois Dudouit | 3765 5610 | 2824 2991 |
| | | Environmental Manager | Mr. Keith Lee | 5191 8251 | |
| AECOM | Contractor's Environmental Team (ET) | ET Leader | Mr. Y W Fung | 3922 9366 | 2317 7609 |

2.5 Status of Environmental Licences, Notification and Permits

2.5.1 Relevant valid environmental licenses, permits and/or notifications on environmental protection for this Project in the reporting month are summarized in **Table 2.2**.

Table 2.2 Status of Environmental Licenses, Notifications and Permits

| Permit / License No. / Notification/ Reference No. | Valid Period | | Status | Remarks |
|---|--------------|----------------|----------------|--|
| | From | To | | |
| <i>Environmental Permit</i> | | | | |
| EP-436/2012/D | 5-Feb-16 | - | Valid | - |
| <i>Construction Noise Permit</i> | | | | |
| GW-RS0989-16 | 27-Sep-16 | 26-Mar-17 | Valid | Crane + Rock Drill + Ventilation fan |
| <i>Wastewater Discharge License</i> | | | | |
| WT00024437-2016 | 13-May-16 | 31-Jul-21 | Valid | Owned by Nishimatsu Construction Co., Ltd. (The Contractor of Contract no. 902 Nam Fung Tunnel and Ventilation Buildings)* |
| <i>Chemical Waste Producer Registration</i> | | | | |
| 5213-124-V2232-01 | 12-May-16 | End of Project | Valid | - |
| <i>Billing Account for Construction Waste Disposal</i> | | | | |
| 7023777 | 20-Nov-15 | End of Project | Account Active | - |
| <i>Notification Under Air Pollution Control (Construction Dust) Regulation</i> | | | | |
| 405362 | 22-Jul-16 | End of Project | Notified | - |

* Treated wastewater produced from this Project are discharged to the discharge point currently listed in the discharge license granted by the Project SIL902. Another wastewater discharge license will be applied by the Contractor of this Project once the mentioned license was cancelled.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Landscape and Visual

- 3.1.1 As per the EM&A Manuals, the landscape and visual mitigation measures shall be implemented and site inspections should be undertaken once every two weeks during the construction period. A summary of the implementation status is presented in **Section 6**.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

- 4.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C**. Status of required submissions under the EP during the reporting period is summarised in **Table 4.1**.

Table 4.1 Status of Required Submission under Environmental Permit

| EP Condition | Submission | Submission Date |
|---------------------|--|------------------------|
| Condition 3.4 | Monthly EM&A Report for September 2016 | 14 October 2016 |

5 MONITORING RESULTS

5.1 Waste Management

- 5.1.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 5.1.2 As advised by the Contractor, 12m³ inert C&D material was generated and disposed as public fill in the reporting month. 102m³ of general refuse was generated in the reporting month. No metals, paper/cardboard packaging material or plastic was collected by recycling contractor in the reporting month. No inert C&D materials were reused on site. No chemical waste was collected by licensed contractor.
- 5.1.3 The waste flow table is annexed in **Appendix E**.
- 5.1.4 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.
- 5.1.5 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

5.2 Landscape and Visual

- 5.2.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 11 and 25 October 2016. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix C**.

6.1.2 In the reporting month, 4 site inspections were carried out on 4, 11, 18 and 25 October 2016. Joint inspection with the IEC, ER, the Contractor and the ET was conducted on 11 October 2016. No non-compliance was recorded during the site inspections. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

| Parameters | Date | Observations and Recommendations | Follow-up |
|---|-------------------|--|--|
| Air Quality | 16 August 2016 | <ul style="list-style-type: none"> Improper hoarding along site boundary was observed near the site entrance. The Contractor shall provide proper hoarding. | The item was rectified by the Contractor on 28 October 2016. |
| | 23 August 2016 | <ul style="list-style-type: none"> Reminder: The Contractor was reminded to provide proper hoarding along the site boundary. | The item was rectified by the Contractor on 28 October 2016. |
| | 30 August 2016 | <ul style="list-style-type: none"> Reminder: The Contractor was reminded to provide proper hoarding along site boundary. | The item was rectified by the Contractor on 28 October 2016. |
| | 13 September 2016 | <ul style="list-style-type: none"> Reminder: Improper hoarding was observed. The Contractor was reminded to set up a proper hoarding ASAP. | The item was rectified by the Contractor on 28 October 2016. |
| | 20 September 2016 | <ul style="list-style-type: none"> Reminder: Improper hoarding was observed. The Contractor was reminded to set up a proper hoarding ASAP. | The item was rectified by the Contractor on 28 October 2016. |
| | 27 September 2016 | <ul style="list-style-type: none"> Reminder: Improper hoarding was observed. The Contractor was reminded to set up a proper hoarding ASAP. | The item was rectified by the Contractor on 28 October 2016. |
| | 4 October 2016 | <ul style="list-style-type: none"> Reminder: Improper hoarding was observed. The Contractor was reminded to set up a proper hoarding ASAP. | The item was rectified by the Contractor on 28 October 2016. |
| | 11 October 2016 | <ul style="list-style-type: none"> Reminder: The Contractor was reminded to set up a proper hoarding ASAP. | The item was rectified by the Contractor on 28 October 2016. |
| | 18 October 2016 | <ul style="list-style-type: none"> Reminder: The Contractor was reminded to set up a proper hoarding ASAP. | The item was rectified by the Contractor on 28 October 2016. |
| | 25 October 2016 | <ul style="list-style-type: none"> Reminder: The Contractor was reminded to set up a proper hoarding ASAP. | The item was rectified by the Contractor on 28 October 2016. |
| <ul style="list-style-type: none"> Reminder: The Contractor was reminded to provide 3 sides screening and top cover to the grouting plant during mixing process. | | The item was rectified by the Contractor on 31 October 2016. | |
| Noise | Nil | Nil | Nil |

| Parameters | Date | Observations and Recommendations | Follow-up |
|-----------------------------------|-----------------|---|--|
| Water Quality | 11 October 2016 | <ul style="list-style-type: none"> Reminder: The Contractor was reminded to clean up the sedimentation tank regularly. | The item was rectified by the Contractor on 12 October 2016. |
| | 18 October 2016 | <ul style="list-style-type: none"> Reminder: The Contractor was reminded to ensure the wastewater treatment facility is well-connected and treat the wastewater properly before discharge. | The item was rectified by the Contractor on 19 October 2016. |
| Waste/ Chemical Management | 11 October 2016 | <ul style="list-style-type: none"> Reminder: The Contractor was reminded to plug the drain hole at the drip tray to prevent chemical leakage. | The item was rectified by the Contractor on 13 October 2016. |
| | 25 October 2016 | <ul style="list-style-type: none"> Reminder: The Contractor was reminded to provide trip tray to the chemical containers to prevent chemical leakage. | The item was rectified by the Contractor on 27 October 2016. |
| Landscape & Visual | Nil | Nil | Nil |
| Permits/ Licenses | Nil | Nil | Nil |

- 6.1.1 All the follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed into the following weekly site inspection conducted during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE**7.1 Summary of Environmental Non-Compliance**

7.1.1 No environmental non-compliance was recorded in the reporting month.

7.2 Summary of Environmental Complaints

7.2.1 No environmental related complaint was received in the reporting month. Cumulative statistics on environmental complaints is provided in **Appendix D**.

7.3 Summary of Environmental Summon and Successful Prosecutions

7.3.1 No environmental related prosecution or notification of summons was received in the reporting month. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix D**.

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Next Three Month

8.1.1 The tentative major construction works in between November 2016 and January 2017 will be:

| Location | Site Activities |
|-----------|--|
| Shaft L10 | <ul style="list-style-type: none">• Drill and blast tunnel |

8.2 Key Issues for the Coming Month

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

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

- 9.1.1 4 nos. of environmental site inspections were carried out in October 2016. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.
- 9.1.2 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

9.2 Recommendations

- 9.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:-

Air Quality Impact

- Implement effective measures to avoid dust impact, including provision of screening for grouting mixing process and proper hoarding along the site boundary.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- Ensure the effectiveness of wastewater treatment prior to discharge.

Chemical and Waste Management

- Implement effective measure to avoid chemical leakage.

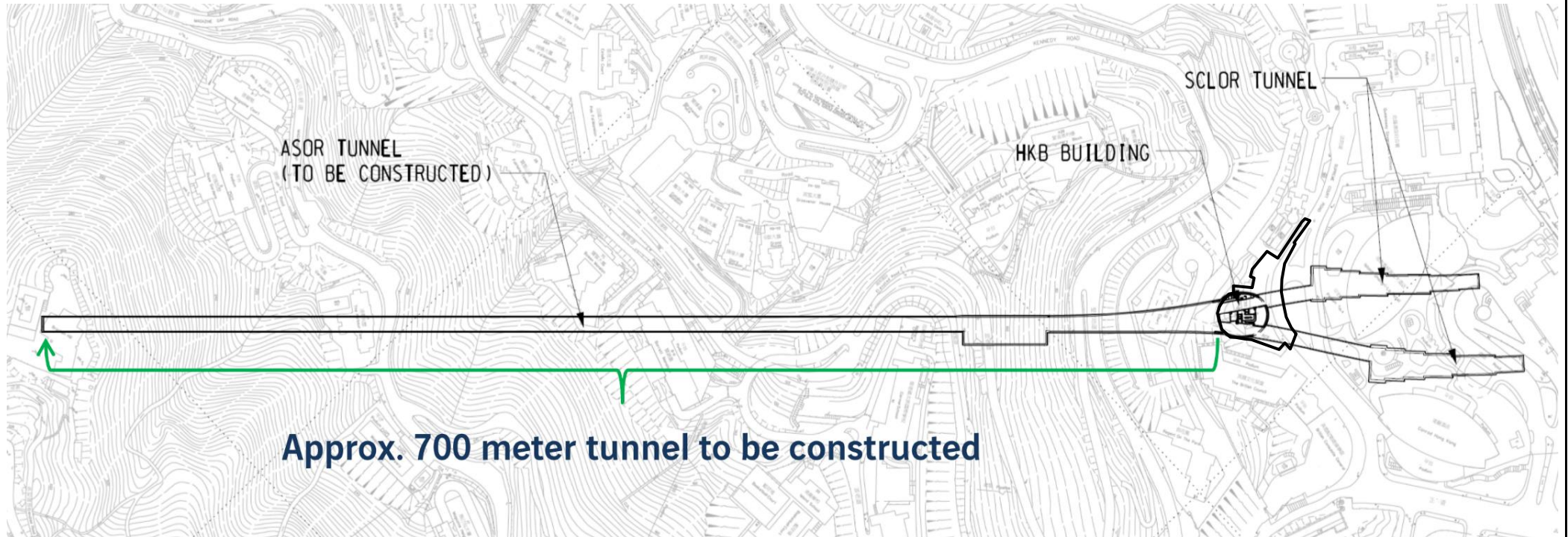
Landscape & Visual Impact

- No specific observation was identified in the reporting month.

Permits/licenses

- No specific observation was identified in the reporting month.

FIGURES



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SCL Contract 1122
Admiralty South Overrun Tunnel



SITE LAYOUT PLAN of SCL1122

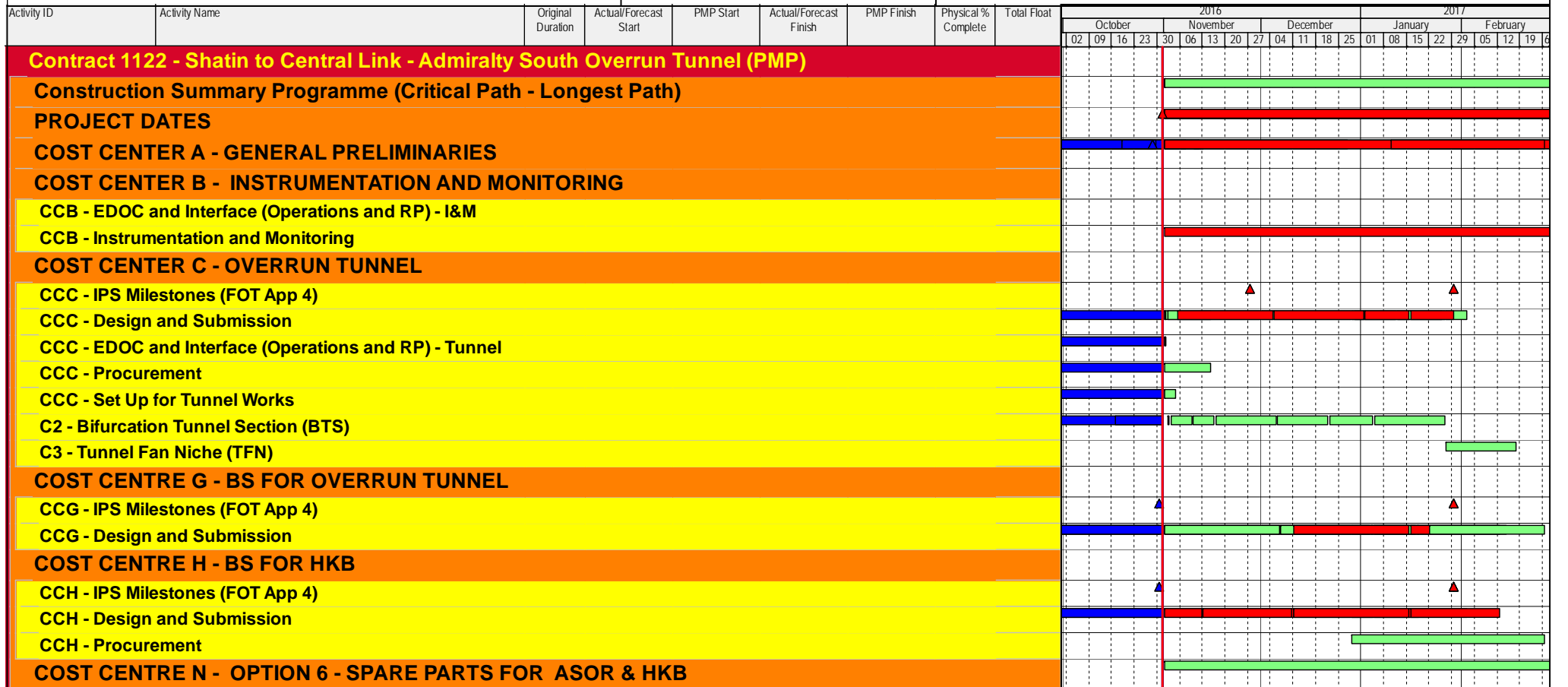
Project No.: 60515692

Date: October 2016

Figure 1.1

APPENDIX A

Construction Programme



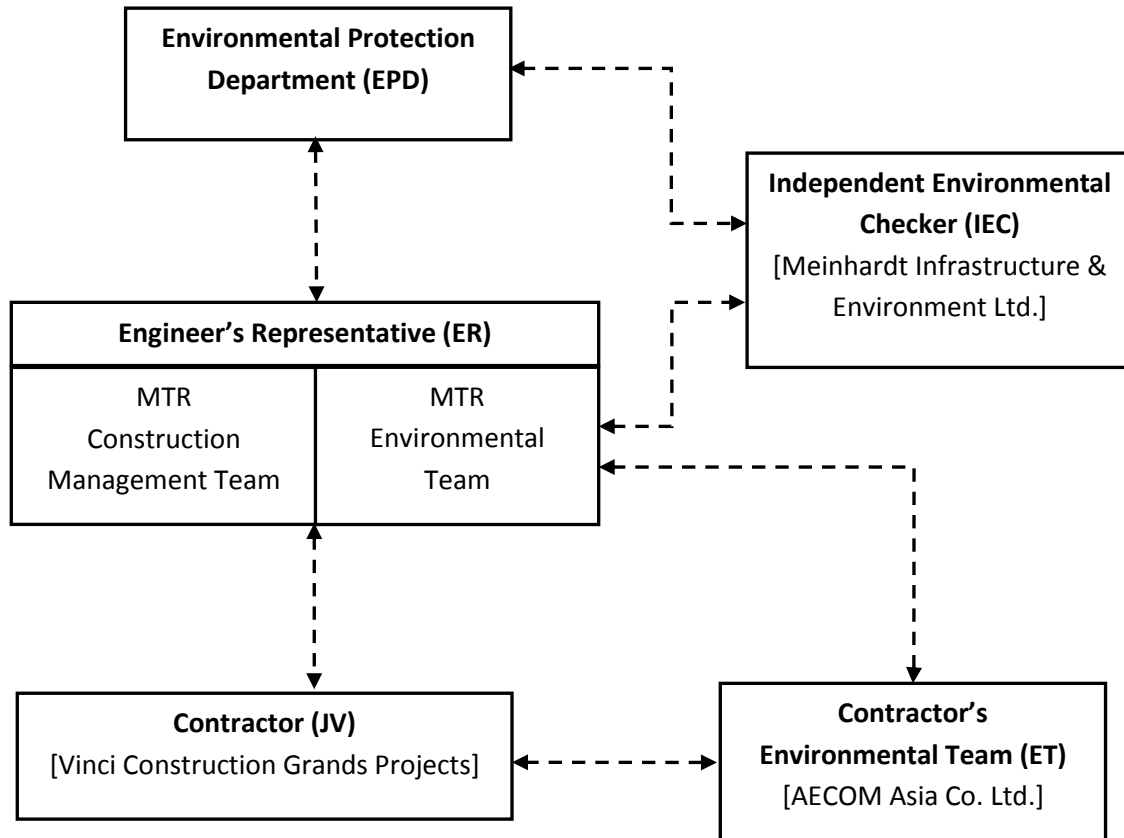
Three Month Rolling Programme
Data Date: 31-Oct-16

| Date | Revision | Checked | Approved |
|-----------|-------------------------------------|---------|----------|
| 31-Oct-16 | Submission of Monthly Report to MTR | QT | EC |

APPENDIX B

Project Organization Structure

Appendix B Project Organisation Structure



APPENDIX C

**Implementation Schedule of Environmental Mitigation
Measures**

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|------------------------------------|---|--|--------------------------------|--|---------------------------------|-----------------------|
| Cultural Heritage Impact | | | | | | |
| S4.93 & Table 4.2 | Erection of decorative and sensibly designed hoarding along the boundary of the works area | To mitigate the temporary visual impact due to surface works. | Contractor | Works Areas in Causeway Bay and Wan Chai, and Works Shaft in Admiralty | Construction Phase | V |
| Ecological Impact | | | | | | |
| S5.134 | Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted. | To minimize the contamination of wastewater discharge | Contractor | All land based works areas | Construction Phase | N/A |
| Landscape and Visual Impact | | | | | | |
| Construction Phase | | | | | | |
| Table 7.9 | CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation. | Transplanting and reuse of affected trees. | MTR | Works Sites | Construction Phase | V |
| Table 7.9 | CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period. | Compensation for the removal of existing trees due to the Project. | MTR | Works Sites | Construction Phase | N/A |
| Table 7.9 | CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas. | Compensation for the removal of existing shrub planting due to the Project. | MTR | Works Sites | Construction Phase | N/A |
| Table 7.9 | CM3 - Control of night-time lighting glare | Minimize the night time glare due to the Project during construction phase | MTR | Works Sites | Construction Phase | N/A |
| Table 7.9 | CM4 - Erection of decorative screen hoarding compatible with the surrounding setting. | Minimize the visual impact of the Project during construction phase | MTR | Works Sites | Construction Phase | V |
| Table 7.9 | CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs | Control of height and deposition/ arrangement of temporary facilities in works areas | MTR | Works Sites | Construction Phase | N/A |
| Table 7.9 | CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like-to-like basis to the satisfaction of the relevant Government Departments. | Reinstatement of temporary works areas. | MTR | Works Sites | Construction Phase | N/A |
| / | All retained/exist trees shall be properly protected during construction period. | Tree protection | Contractor | Works areas | Construction phase | V |
| Air Quality | | | | | | |
| / | Emission from Vehicles and Plants <ul style="list-style-type: none"> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD) | Reduce air pollution emission from construction vehicles and plants | Contractor | Works areas | Construction phase | V V V |

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|---------------------------------|--|--|--------------------------------|-------------------------|---------------------------------|-----------------------|
| Construction Dust Impact | | | | | | |
| Table 8.5 | <p>Barging facilities:</p> <ul style="list-style-type: none"> (i) Transportation of spoils to the barging point – Pave all road surfaces within the barging facilities and provide watering once along with the haul road for every working hours to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m² once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.0L/m² to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual. (ii) Unloading of spoil materials – Undertake the unloading process within a 3-sided screen with top tipping hall. Provide water spraying and flexible dust curtains at the discharge point for dust suppression. (iii) Vehicles leaving the barging facilities – Pass vehicles through the wheel washing facilities provided at site exits. | To minimize dust impacts | Contractor | All barging points | Construction phase | N/A |
| S8.63 | For concrete batching plant, the requirements and mitigation measures stipulated in the <i>Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93)</i> shall be followed and implemented. | To minimize dust impact | Contractor | Concrete Batching Plant | Construction phase | N/A |
| Table 8.6 | <p>During operation of concrete batching plant:</p> <ul style="list-style-type: none"> (i) Unloading of aggregates from the tipper trucks to receiving hopper – unload the aggregates from the tipper trucks to the receiving hopper equipped with enclosures on 3 sides and top cover, and water spraying system. (ii) Unloading of cement and PFA from tankers into the silo – Directly load the cement and PFA into the silo via a flexible duct. Install dust collectors at cement/PFA silos. (iii) Storage of aggregates in overhead storage bins – Store the aggregates in fully enclosed overhead storage bins. Cover the top of overhead storage bins with cladding. Install water spraying system at the top of storage bins for watering the aggregates, and fully enclose aggregates storage bins. (iv) Weighing and batching of cementitious materials – Perform the whole process of weighing and mixing in a fully enclosed environment. Equip all the mixers with dust collectors. (v) Loading of concrete from mixer into transit mixer of a truck – Directly load the concrete from the mixer into the transit mixer of a truck in “wet form”. (vi) Tipper trucks and cement tankers leaving the Concrete Batching Plant – Haul road within the site is unpaved. Install wheel washing pit at the gate of the concrete batching plant. (vii) Transportation of materials within the plant – Provide watering twice a day would be provided. | To minimize dust impacts | Contractor | Concrete Batching Plant | Construction phase | N/A |
| S8.89 | Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m ² for Kowloon side and 1.0 L/m ² for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m ² for Kowloon side and 1.0 L/m ² for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual. | To minimize dust impact | Contractor | Works areas | Construction Phase | V |

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| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|------------------------------|---|--|--------------------------------|-------------------------|---------------------------------|---|
| S8.89 | Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall, provision of water spraying and flexible dust curtains to reduce dust emission | To minimize dust impact | Contractor | All barging points | Construction phase | N/A |
| S8.90 | Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: <ul style="list-style-type: none"> Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. Use of frequent watering for particularly dusty construction areas and areas close to ASRs. Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. Imposition of speed controls for vehicles on site haul roads. Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise | To minimize dust impacts | Contractor | Works areas | Construction phase | V V V V V V V V V N/A V V V V V |
| / | Dust suppression measures (con't) <ul style="list-style-type: none"> De-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement | To minimize dust impacts | Contractor | Works areas | Construction phase | V |
| Airborne Noise Impact | | | | | | |
| Construction Phase | | | | | | |
| S9.55 | The following good site practices shall be implemented: <ul style="list-style-type: none"> Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program Mobile plant, if any, shall be sited as far from NSRs as possible Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities | To minimize construction noise impact | Contractor | Works areas | Construction phase | V V V V V N/A |
| / | <ul style="list-style-type: none"> Install movable noise barriers, acoustic mat or full enclosure, screen the noisy plants during operation Air compressors shall be fitted with valid noise emission labels during operation | To minimize construction noise impact | Contractor | Works areas | Construction phase | V V |

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| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
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| Water Quality Impact | | | | | | |
| Construction Phase | | | | | | |
| S11.216 | <p>The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close to the seafront:</p> <ul style="list-style-type: none"> • Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works. • Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage. • Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters. | To minimize release of construction wastes from construction works at or close to the seafront | Contractor | Construction works at or close to the seafront | Construction Phase | V V V |
| S11.222 to 11.245 | <p>The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" shall be followed where practicable.</p> <p><u>Surface Run-off</u></p> <ul style="list-style-type: none"> • Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks. • Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. • Construction works shall be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. | To minimize water quality impacts from construction site runoff and general construction activities | Contractor | Works areas | Construction Phase | V V V N/A V V V |

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| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
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| | <p><u>Boring and Drilling Water</u></p> <ul style="list-style-type: none"> Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities. <p><u>Wheel Washing Water</u></p> <ul style="list-style-type: none"> All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road shall be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains. <p><u>Bentonite Slurries</u></p> <ul style="list-style-type: none"> Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be dewatered or mixed with inert fill material for disposal to a public filling area. If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS. <p><u>Water for Testing & Sterilization of Water Retaining Structures and Water Pipes</u></p> <ul style="list-style-type: none"> Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains. Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable. <p><u>Acid Cleaning, Etching and Pickling Wastewater</u></p> <ul style="list-style-type: none"> Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters. <p><u>Wastewater from Site Facilities</u></p> <ul style="list-style-type: none"> Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis. Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass. Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance. | | | | | <p style="text-align: center;">V</p> <p style="text-align: center;">V</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> |
| S11.246 & 11.247 | <p>Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.</p> | <p>To minimize water quality impacts due to sewage generated from construction workforce</p> | <p>Contractor</p> | <p>Works areas</p> | <p>Construction Phase</p> | <p style="text-align: center;">N/A</p> |
| S11.248 | <p>In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps.</p> | <p>To minimize impact from discharge of uncontaminated groundwater</p> | <p>Contractor</p> | <p>Works areas</p> | <p>Construction Phase</p> | <p style="text-align: center;">N/A</p> |

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| S11.249 | If land contaminated site is identified from the Stage 2 SI work (refer to Sections 11.188 to 11.191 of the EIA Report), the following mitigation measures shall be implemented for the identified contaminated area. Any transient pile of contaminated soil / material shall be minimized and shall be bottom-lined, bunded and covered with impervious membrane during rain event to avoid generation of contaminated runoff. Appropriate intercepting channels and partial shelters shall be provided where necessary to prevent rainwater from collecting within trenches or footing excavations. Any contaminated water and wastewater generated from the decontamination process shall not be directly discharged to public sewers or site drainage. They shall be treated or tanked away as necessary for proper disposal in compliance with the TM-DSS. | To control site run-off generated from any potential contaminated works areas. | Contractor | Any potential contaminated areas to be identified from the Stage 2 SI | Construction Phase | N/A |
| S11.250 & S11.251 | No direct discharge of groundwater from contaminated areas shall be adopted. If land contamination impact and generation of contaminated groundwater is identified from the Stage 2 SI works (refer to Sections 11.189 to 11.192 of the EIA Report), the following mitigation measures shall be adopted. Any contaminated groundwater shall be either properly treated in compliance with the requirements of the TM-DSS or properly recharged into the ground. If wastewater treatment is deployed for treating the contaminated groundwater, the wastewater treatment unit shall deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as TPH) to an undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM-DSS and shall be discharged into the foul sewers. If groundwater recharging wells are deployed, the recharging wells shall be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells shall be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in Section 2.3 of the TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substance such as TPH products shall be removed as necessary by installing the petrol interceptor. The Contractor shall apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater. | To minimize potential water quality impact from discharge of contaminated groundwater | Contractor | Any potential contaminated areas to be identified from the Stage 2 SI | Construction Phase | N/A |
| S11.252 | The following good site practices shall be adopted for the proposed barging points: <ul style="list-style-type: none"> • all vessels shall be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash • all hopper barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material • construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site • loading of barges and hoppers shall be controlled to prevent splashing of material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation | To minimize water quality impacts generated from the barging points. | Contractor | Barging points | Construction Phase | N/A |
| S11.253 | 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. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD. | To minimize water quality impact from effluent discharges from construction sites | Contractor | All construction works areas | Construction Phase | V |

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| S11.254 | 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 shall be observed and complied with for control of chemical wastes. | To minimize water quality impact from accidental spillage of chemical | Contractor | All construction works areas | Construction Phase | V |
| S11.255 | Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges. | To minimize water quality impact from accidental spillage of chemical | Contractor | All construction works areas | Construction Phase | N/A |
| S11.256 | Disposal of chemical wastes shall 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. General requirements are given as follows: <ul style="list-style-type: none"> Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area. | To minimize water quality impact from accidental spillage of chemical | Contractor | All construction works areas | Construction Phase | V V V |
| Waste Management Implications | | | | | | |
| Construction Phase | | | | | | |
| S12.75 | Good Site Practices and Waste Reduction Measures <ul style="list-style-type: none"> Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; Provision of sufficient waste disposal points and regular collection of waste; Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and Separation of chemical wastes for special handling and appropriate treatment. | To reduce waste management impacts | Contractor | All Work Sites | Construction Phase | V V V N/A N/A V |
| S12.76 | Good Site Practices and Waste Reduction Measures (con’t) <ul style="list-style-type: none"> Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); 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; Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; Proper storage and site practices to minimize the potential for damage or contamination of construction materials; Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle. | To achieve waste reduction | Contractor | All Work Sites | Construction Phase | N/A V N/A V V V |
| S12.77 | Good Site Practices and Waste Reduction Measures (con’t) The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. | To achieve waste reduction | Contractor | All Work Sites | Construction Phase | V |

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| | The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis. | | | | | |
| S12.78 | Good Site Practices and Waste Reduction Measures (con't) C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort. | To achieve waste reduction | Contractor | All Work Sites | Construction Phase | V |
| S12.79 | Storage, Collection and Transportation of Waste Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: <ul style="list-style-type: none"> Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; Maintain and clean storage areas routinely; Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and Different locations shall be designated to stockpile each material to enhance reuse. | To minimize potential adverse environmental impacts arising from waste storage | Contractor | Work Sites | Construction Phase | V V V V |
| S12.80 | Storage, Collection and Transportation of Waste (con't) Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: <ul style="list-style-type: none"> Remove waste in timely manner Waste collectors shall only collect wastes prescribed by their permits Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) Waste shall be disposed of at licensed waste disposal facilities Maintain records of quantities of waste generated, recycled and disposed | To minimize potential adverse environmental impacts arising from waste collection and disposal | Contractor | Work Sites | Construction Phase | V V V V V V |
| S12.81 | Storage, Collection and Transportation of Waste (con't) <ul style="list-style-type: none"> Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed. | To minimize potential adverse environmental impacts arising from waste collection and disposal | Contractor | Work Sites | Construction Phase | V |
| S12.83 – 12.86 | Sorting of C&D Materials <ul style="list-style-type: none"> Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach tunnels. | To minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials | Contractor | Work Sites | Construction Phase | V V V V |
| S12.88 | Sediments <ul style="list-style-type: none"> The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance. | To ensure the sediment to be disposed of in an authorized and least impacted way | Contractor | All works areas with sediments concern | Construction Phase | N/A |

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|--------------------------|---|--|--------------------------------|--|--|-----------------------|
| S12.89 | <p>Sediments (con't)</p> <ul style="list-style-type: none"> The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works. | To determine the best handling and disposal option of the sediments | MTR / Contractor | All works areas with sediments concern | Detailed Design Stage and Construction Phase | N/A |
| S12.91 – 12.94 | <p>Sediments (con't)</p> <ul style="list-style-type: none"> Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site. | To ensure handling of sediments are in accordance to statutory requirements | Contractor | Work Sites, Sediment disposal sites | Construction Phase | N/A |
| S12.95 | <p>Sediments (con't)</p> <ul style="list-style-type: none"> A possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of fill retention by the geosynthetic fabrics, possible rupture of the containers and sediment loss due to impact of the container on the seabed have been addressed. | To ensure handling of sediments are in accordance to statutory requirements | Contractor | Work Sites, Sediment disposal sites | Construction Phase | N/A |
| / | <p>Accidental spillage</p> <p>To prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> Proper storage and handling facilities will be provided. All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. | To minimize potential adverse environmental impacts arising from accidental spillage | Contractor | Work Sites | Construction Phase | V V V N/A |

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|--------------------------|--|--|--------------------------------|-------------------------|---------------------------------|-----------------------|
| S12.97 | <p>Containers for Storage of Chemical Waste The Contractor shall register with 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. Containers used for storage of chemical waste shall:</p> <ul style="list-style-type: none"> • Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; • Have a capacity of less than 450 liters unless the specifications have been approved by EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation. | To register with EPD as a Chemical waste producer and store chemical waste in appropriate containers | Contractor | Work Sites | Construction Phase | V N/A N/A |
| S12.98 | <p>Chemical Waste Storage Area</p> <ul style="list-style-type: none"> • Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • Have adequate ventilation; • Be covered to prevent rainfall from entering; and • Be properly arranged so that incompatible materials are adequately separated. | To prepare appropriate storage areas for chemical waste at works areas | Contractor | Work Sites | Construction Phase | V V V V V |
| S12.99 | <p>Chemical Waste</p> <ul style="list-style-type: none"> • Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place. | To clearly label the chemical waste at works areas | Contractor | Work Sites | Construction Phase | N/A |
| S12.100 | <p>Collection and Disposal of Chemical Waste <i>A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation</i> to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulation</i>.</p> | To monitor the generation, reuse and disposal of chemical waste | Contractor | Work Sites | Construction Phase | N/A |
| S12.101 | <p>General Refuse General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.</p> | To properly store and separate from other C&D materials for subsequent collection and disposal | Contractor | Work Sites | Construction Phase | V |
| S12.102 | <p>General Refuse (con't) The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.</p> | To facilitate recycling of recyclable portions of refuse | Contractor | Work Sites | Construction Phase | V |
| S12.103 | <p>General Refuse (con't) The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders.</p> | To raise workers' awareness on recycling issue | Contractor | Work Sites | Construction Phase | V |

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|----------------------------------|--|---|--------------------------------|---|--|-----------------------|
| Land Contamination Impact | | | | | | |
| S13.23–13.24 | <p>For construction works at sites under the current stage of site investigation (Stage 1 SI):</p> <ul style="list-style-type: none"> Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. The inspection process shall involve a visual observation of excavated soils for discolouration and the presence of oils, together with identifying the presence of odours, which may also indicate soil and/or groundwater contamination. If soil materials suspected to be contaminated are encountered during excavation, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Shall concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the Contamination Assessment Report (CAR) and Remediation Action Plans (RAP). | To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover. | Contractor | Within Project Boundary where signs of contamination is identified | During excavation works for Cut-and-Cover | N/A |
| S13.30 | <p>For some sites with currently no SI proposed (i.e. sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28), to be conservative, visual inspection shall be conducted during demolition and excavation to detect any abnormal colour, smell or other characteristics of the soil, due to the nearby land use and/ or construction method. If abnormal colour, smell or other characteristics of contamination are identified for any of these sites, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Should the concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the CAR and RAP.</p> | To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover. | Contractor | Areas with no SI proposed (Sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28) | During excavation works for Cut-and-Cover | N/A |
| S13.36 – 13.38 | <p>For areas inaccessible for proper site appraisal and investigation (Stage 2 SI)</p> <p>(i) Site 2-15</p> <ul style="list-style-type: none"> Upon site access being granted, visual inspection shall be carried out where intrusive works and soil excavation is encountered, for attention on any potential contamination due to its current operation A supplementary CAP shall then be submitted to EPD for endorsement. A CAR/RAP shall be prepared and submitted to EPD for endorsement on completion of the SI and analytical testing. Shall remediation be undertaken a Remediation Report (RR) shall be prepared and submitted to EPD for endorsement to demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed CAR and RAP. Information such as soil treatment/ disposal records (including trip tickets), confirmatory sampling results, and photographs shall be included in the aforesaid RR. No construction work shall be carried out prior to the endorsement of the RR by EPD. | <p>To identify areas with land contamination concern, report laboratory results and propose remediation measures if necessary.</p> <p>To ensure remediation works have been undertaken to before the commencement of any construction works of the Project.</p> | Contractor | Areas unable to be accessed during Stage 1 SI (Site 2-15) | After land resumption and prior to the construction works commencement at the site | N/A |
| S13.39 | <p>Potential Remediation of Contaminated Soil</p> <ul style="list-style-type: none"> Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; Supply of suitable clean backfill material is needed after excavation; If remediation is required with chemical oxidation proposed as a contaminant mass reduction technology, chemicals will be securely and separately stored away from sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and personal protective equipment (PPE). Vehicles containing any excavated materials shall be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates shall be sealed to prevent any discharge during transport or during wet conditions; Speed control for the trucks carrying contaminated materials shall be enforced; Vehicle wheel and body washing facilities at the site's exit points shall be established and used; and Pollution control measures for air emissions e.g. from biopile blower, noise emissions e.g. from blower, and water discharges e.g. runoff control shall be implemented and complied with relevant regulations and guidelines. | To remediate contaminated soil | Contractor | Identified contaminated sites | Site remediation | N/A |

Appendix C – Environmental Mitigation Implementation Schedule

| EIA Ref. / EM&A Log Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measures & Main Concern to Address | Who to implement the measures? | Location of the measure | When to implement the measures? | Implementation Status |
|--------------------------------|---|---|--------------------------------------|-------------------------------|--|--------------------------|
| S13. 40 | <p>In order to minimize the potential adverse effects on health and safety of construction workers during the course of site remediation, the Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations shall be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures shall be implemented as far as possible:</p> <ul style="list-style-type: none"> • Set up a list of safety measures for site workers; • Provide written information and training on safety for site workers; • Keep a log-book and plan showing the contaminated zones and clean zones; • Maintain a hygienic working environment; • Avoid dust generation; • Provide face and respiratory protection gear to site workers; • Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers; and • Provide first aid training and materials to site workers. | To minimise the potentially adverse effects on health and safety of construction workers during the course of site remediation. | Contractor | Identified contaminated sites | Site remediation and prior to construction phase | N/A |

Legend: V = implemented;
x = not implemented;
@ = partially implemented;
N/A = not applicable

APPENDIX D

**Cumulative Statistics of Exceedances, Complaints,
Notification of Summons and Successful Prosecutions**

Appendix D**Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions**

Statistics on Complaints, Notifications of Summons and Successful Prosecutions in this reporting month

| | Date Received | Subject | Status | Total no. received in this month |
|---------------------------------|----------------------|----------------|---------------|---|
| Environmental complaints | - | - | - | 0 |
| Notification of summons | - | - | - | 0 |
| Successful Prosecutions | - | - | - | 0 |

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions since project commencement

| Reporting Month | Number of Complaints in Reporting Month | Number of Summons in Reporting Month | Number of Prosecutions in Reporting Month |
|------------------------|--|---|--|
| August 2016 | 0 | 0 | 0 |
| September 2016 | 0 | 0 | 0 |
| October 2016 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 |

APPENDIX E

Waste Flow Table

Appendix E
MONTHLY SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1122 - Admiralty South Overrun Tunnel

Monthly Summary Waste Flow Table for 2016

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|-----------|--|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---|-----------------------------|-------------|----------------|-----------------------------|
| | Total Quantity Generated | Hard Rock and Large Broken Concrete | Reused in the Contract | Reused in Other Projects | Disposed as Public Fill | Imported Fill | Metals | Paper / Cardboard Packaging | Plastics | Chemical Waste | Others, e.g. general refuse |
| | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000m ³) |
| January | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| February | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| March | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| April | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| May | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| June | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Sub-total | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| July | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| August | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.029 |
| September | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.065 |
| October | 0.012 | 0.000 | 0.000 | 0.000 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.102 |
| November | | | | | | | | | | | |
| December | | | | | | | | | | | |
| Total | 0.012 | 0.000 | 0.000 | 0.000 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.196 |

Comments:

- 1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m³; the density of general refuse is 1.0 ton/m³; the density of waste oil is 1.0 ton/m³.
- 2) The cut-off date of waste amount in Oct are 31/10/2016 for TKO137FB/TM38FB, NENT landfill.
- 3) The amounts of waste in Oct are 102.15 tons for NENT Landfill, 24.87 tons for TKO137FB/TKO137SF/TM38FB.
- 4) The amount of C&D waste reused in the Contract in Oct is 0 trucks, approximately 0 tons, for cut-off date as 31/10/2016.
- 5) The amount of chemical waste in Oct is 0L for cut-off date as 31/10/2016.