

6. WATER QUALITY

6.1 Water Quality Parameters

- 6.1.1 In accordance with the recommendations of the EIA, construction phase water quality EM&A is required when marine construction works are taking place within 1000m of the Lung Kwu Chau and Sha Chau Marine Park and along the length of the pipeline. Measurements of suspended solids (SS), turbidity in Nephelometric Turbidity Units (NTU) and dissolved oxygen (DO) in mg/L shall be undertaken by the ES at a number of Control and Impact Stations identified in Section 6.4, below. Measurements shall be taken on a daily basis on both flood and ebb tides to ensure that any deteriorating water quality could be readily detected and timely action be taken to rectify the situation. SS shall be determined in the laboratory whilst turbidity and DO shall be measured in-situ.
- 6.1.2 Baseline SS measurements shall be undertaken for a period of one week prior to construction on both flood and ebb tides. The baseline data shall be reviewed to identify any pre-project variability in the dataset and to confirm the suitability of the control stations to represent conditions at the impact stations in the absence of any construction activity associated with the project.
- 6.1.3 Concurrently with the water quality parameter measurements, associated data shall also be recorded, including the monitoring location, time, water depth, water temperature, salinity, pH, DO saturation, weather conditions, sea conditions and tidal stage. Observations on any special phenomena and work underway at the construction site at the time of sampling shall also be recorded. Water temperature, salinity and pH shall be measured in-situ using direct reading instrumentation. A sample monitoring record sheet is shown in Figure 6.1.
- 6.1.4 In addition, it is recommended that the Franchisee undertake some routine monitoring of water quality in the vicinity of the PAFF site to check the effectiveness of the proposed precautionary measures implemented for on-site spill control. The details of the monitoring to be undertaken, including the parameters, frequency and monitoring locations, will be prepared by the Franchisee as part of the PAFF Operations Manual and the details will be agreed with the relevant authorities within 3 months of the commencement of operation of the PAFF. However, the monitoring should include but not be limited to the parameters of TPH and PAH and reference should be made to the existing monitoring programme undertaken for the fuel tank farm on the HKIA platform. As such, the details of this monitoring are not specified in this Manual.

6.2 Monitoring Equipment

6.2.1 Dissolved oxygen and temperature measuring equipment

- 6.2.1.1 Dissolved oxygen and temperature measuring equipment shall be provided as follows:
- (a) The instrument shall be a portable, weatherproof dissolved oxygen measuring instrument complete with cable and use a DC power source. It shall be capable of measuring:-
- a dissolved oxygen level in the range of 0-20 mg/l and 0-200% saturation; and

- a temperature of 0-45 degree Celsius.
- (b) It shall have a membrane electrode with automatic temperature compensation complete with a cable (e.g. YSI model 59 meter, YSI 5739 probe, YSI 5795A submersible stirrer with reel and cable or an approved similar instrument). Sufficient stocks of spare electrodes and cables shall be available for replacement where necessary.
- (c) Should salinity compensation not be integrated in the DO equipment, in-situ salinity shall be measured to calibrate the DO equipment prior to each DO measurement.

6.2.2 Turbidity Measurement Instrument

6.2.2.1 The instrument shall be a portable, weatherproof turbidity-measuring instrument complete with comprehensive operation manual. The equipment shall use a DC power source. It shall have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU and be complete with a cable (e.g. Hach model 2100P or an approved similar instrument).

6.2.3 Suspended Solids

6.2.3.1 The equipment for measuring suspended solids shall be provided as follows:

- (a) A water sampler comprising a transparent PVC cylinder with a capacity of not less than 2 litres and which can be effectively sealed with latex cups at both ends. The sampler shall 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 (e.g. Kahlsico Water Sampler or an approved similar instrument).
- (b) Water samples for suspended solids measurement shall be collected in high density polythene bottles, packed in ice (cooled to 4°C without being frozen) and delivered to the laboratory as soon as possible after collection.

6.2.4 Water Depth Detector

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

6.2.5 Salinity

6.2.5.1 A portable salinometer capable of measuring salinity in the range of 0-40 ppt shall be provided for measuring salinity and, if necessary, setting salinity compensation on the Dissolved Oxygen Meter.

6.2.6 pH Measuring Equipment

6.2.6.1 A portable pH meter capable of measuring a range between 0.0 and 14.0 shall be provided to measure pH under the specified conditions (eg. Orion Model 250A or an approved similar instrument).

6.2.7 Location of the Monitoring Sites

6.2.7.1 A hand-held or boat-fixed type differential Global Positioning System (dGPS) or other equivalent instrument of similar accuracy shall be provided and used during monitoring to ensure the monitoring vessel is at the correct location before taking measurements. Marine anchors shall not be used when sampling the impact stations within or on the boundaries the marine park

6.2.8 Calibration of Equipment

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

6.2.8.2 For the on site calibration of field equipment, the BS 1427:1993, "Guide to Field and on-site test methods for the analysis of waters" shall be observed.

6.2.9 Back-up Equipment

6.2.9.1 Sufficient stocks of spare parts shall be maintained for replacements when necessary. Back-up monitoring equipment shall also be available so that monitoring can proceed uninterrupted even when some equipment is under maintenance, calibration, etc.

6.3 Measurement and Analysis

6.3.1 Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory. Water samples of about 500ml shall be collected at the monitoring stations for carrying out the laboratory SS determination. The SS determination work shall start within 24 hours after collection of the water samples. The SS determination shall follow TSS-SM25400 or equivalent methods subject to approval of the DEP.

6.3.2 The limits of detection for the in-situ and laboratory measurements that shall be obtained are shown in Table 6.1.

Table 6.1: Detection Limits and Precision for Water Quality Determinands

| Determinand | Limit of Detection | Precision |
|------------------|--------------------|-----------|
| Dissolved Oxygen | 0.1 mg/L | 1% |
| Salinity | 0.01 ppt | 1% |
| Temperature | 0.1 degree Celsius | 1% |
| pH | 0.01 units | 1% |
| Turbidity (NTU) | 0.1 NTU | 1% |
| Suspended Solids | 1 mg/L | 2% |

6.3.3 If a site laboratory is set up or a non-HOKLAS and non-international accredited laboratory is hired for carrying out the laboratory analysis, the laboratory equipment, analytical procedures and quality control shall be approved by the DEP. All the analytical procedures shall be witnessed by the Franchisee’s Site Representative (FSR). The ES shall provide the ER with one copy of the relevant chapters of the “Standard Methods for the Examination of Water and Wastewater” updated edition and any other relevant document for his reference.

6.4 Monitoring Locations

6.4.1 Water quality monitoring will be conducted place within 1 km of the Lung Kwu Chau and Sha Chau Marine Park and for dredging along the entire pipeline. The water quality monitoring locations are shown in Figure 6.2 and detailed in Table 6.2. A schedule for water quality monitoring shall be prepared by the Environmental Team Leader (ETL) (see Section 1) and approved by the Franchisee’s Site Representative (FSR), the Independent Environmental Checker (IEC) and the Environmental Protection Department (EPD) prior to the commencement of the monitoring.

Table 6.2 Location of Marine Water Quality Monitoring Stations

| Monitoring Station Identification | Type | Location | Nothings | Eastings |
|-----------------------------------|---------|----------------|----------|----------|
| MPB1 | Impact | Northeast Sha | 824172 | 807060 |
| MPB2 | Impact | East Sha Chau | 823184 | 807212 |
| MP | Impact | North Sha Chau | 824753 | 806140 |
| C1 (NM3) | Control | South Tuen | 824049 | 812527 |
| C2 (NM5) | Control | East Lung Kwu | 827245 | 807707 |
| C3 (NM6) | Control | North Airport | 820288 | 807584 |

6.4.2 The status and locations of water quality sensitive receivers and the marine activities sites may change after issuing this Manual. If required, the ETL in consultation with the Contractor shall propose updated monitoring locations and seek approval from the FSR, the IEC and the DEP.

6.4.3 Control stations are necessary to compare the water quality from potentially impacted sites with the ambient water quality. The control stations have been selected to be within the same body of water as the impact monitoring stations but shall be outside the area of

influence of the works and, as far as practicable, not affected by any other works. It should be noted that the control stations are located at the exact same co-ordinates as EPD's routine monitoring stations NM3, NM5 and NM6. This will facilitate reference with a substantial volume of baseline data should this later be found necessary.

- 6.4.4 Impact stations MPB1 and MPB2 have been selected at positions on the Marine Park boundary 500m from the nearest dredging point to assess any potential impacts that may be caused by the works. An additional impact station, MP is located within the main body of the Marine Park at a point approximately equidistant between the East Sha Chau Island cluster and Lung Kwu Chau.
- 6.4.5 For monitoring during other dredging activities, water quality impact monitoring stations shall be positioned 500m to the north/northwest and south/southeast of any dredger when operating at a distance greater than 1 km from the boundary of the Lung Kwu Chau and Sha Chau Marine Park. These stations will provide data on water quality when dredging is in progress outside the Marine Park. These stations shall be located upstream (IMO1) and downstream (IMO2) of the dredger and shall move on a daily basis so that they are in current streams that could be affected by the dredging.
- 6.4.6 All measurements shall be taken at 3 water depths, namely, 1m below water surface, mid-depth and 1m above sea bed. Duplicate *in-situ* measurements and samples collected from each independent sampling event are required for all parameters to ensure a robust statistically interpretable data set.

6.5 Baseline Monitoring

- 6.5.1 Baseline conditions for water quality shall be established and agreed with the IEC and the EPD prior to the commencement of works. The purpose of the baseline monitoring is to demonstrate the suitability of the proposed impact and control stations. The baseline conditions shall be established by measuring the water quality parameters specified above.
- 6.5.2 Measurements and samples shall be taken in duplicate at all designated monitoring stations (impact (MPB1, MPB2 and MP) and control stations (C1 to C3)) on a daily basis on both flood and ebb tides for a period of 1 week prior to the commencement of marine works. Baseline monitoring will commence no earlier than two months before construction works are due to commence.
- 6.5.3 Duplicate measurements and samples shall be taken at 3 water depths, namely, 1m below water surface, mid-depth and 1m above sea bed. In-situ measurements shall be made during both the descent and ascent of the sensor. If the difference between the measured values at any one depth is greater than 25%, the measurements shall be repeated until an acceptable match is made. If no match is achieved then the equipment shall be checked for accurate calibration or malfunction.
- 6.5.4 No marine construction activities shall be on-going in the vicinity of the stations during the baseline monitoring. The ETL shall be responsible for undertaking the baseline monitoring and submitting the results within 10 working days from the completion of the baseline monitoring work.

6.6 Impact Monitoring

- 6.6.1 In-situ measurements shall be taken at all designated monitoring stations on a daily basis on both flood and ebb tides whilst marine works is taking place within 1km of the Lung Kwu Chau and Sha Chau Marine Park. Measurements shall be taken at 3 depths, namely 1m below the surface, mid-depth and 1m above sea bed. In-situ measurements shall be made during the descent and ascent of the sensor. If the difference between the measured values at any one depth is greater than 25%, the measurements shall be repeated until an acceptable match is made. If no match is achieved then the equipment shall be checked for accurate calibration or malfunction
- 6.6.2 In addition, duplicate water samples for suspended solid analysis shall be collected at all the above stations and promptly forwarded to the laboratory for analysis. Results for suspended solids shall be received back from the laboratory within 3 days of receipt of the samples.
- 6.6.3 All three impact stations, MPB1, MPB2 and MP shall be sampled on every sampling event on both flood and ebb tides. The Control stations to the south and east of the works area, C1 and C3, shall be sampled on the flood tide only. The Control stations to the north-west of the works area, C2, shall be sampled on the ebb tide only. If sediment laden plumes from the works area or elsewhere are observed in the vicinity of the control stations during sampling, this shall be recorded and brought to the immediate attention of the ETL.

6.7 Event and Action Plan

- 6.7.1 The water quality criteria, namely Action and Limit levels, are shown in Table 6.3 below. Should the monitoring results of the water quality parameters at any designated monitoring stations indicate that the water quality criteria are exceeded, the actions in accordance with the Action Plan in Table 6.4 shall be carried out.
- 6.7.2 Any noticeable change to water quality shall be recorded in the survey reports and shall be investigated and remedial actions shall be undertaken to reduce impacts. Particular attention shall be paid to the Contractor's implementation of the recommended mitigation measures.
- 6.7.3 The key assessment parameters are dissolved oxygen and suspended sediment and thus Action and Limit Levels based on the assessment criteria are identified for these. However turbidity can also provide valuable instantaneous information on water quality and thus an Action Limit is also recommended for this parameter to facilitate quick responsive action in the event of any apparent unacceptable deterioration attributable to the works. The proposed Action and Limit Levels are shown in Table 6.3.

Table 6.3 Action and Limit Levels for Water Quality

| Parameters | Action (mg/L) | Limit (mg/L) |
|--|--|--|
| DO in mg/L (Depth Average & Bottom) | <u>Depth Average</u> 4.5 mg/l and upstream control stations' mean DO (at the same tide of the same day) | <u>Depth Average</u> 4.0 mg/l and upstream control stations' mean DO (at the same tide of the same day) |
| DO in mg/L (Depth Average & Bottom) | <u>Bottom</u> 2.5 mg/l and upstream control stations' mean DO (at the same tide of the same day) | <u>Bottom</u> 2.0 mg/l and upstream control stations' mean DO (at the same tide of the same day) |
| Suspended Solids (depth averaged) | 30 mg/l and 130% of upstream control stations' mean SS (at the same tide of the same day) | 39 mg/l and 130% of upstream control stations' mean SS (at the same tide of the same day) |
| Turbidity in NTU (depth averaged) | 130% of upstream control stations' mean Turbidity (at the same tide of the same day) | N/A |

Notes:

- For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
- For SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
- All the figures given in the table are for reference only and these may be amended with the agreement of DEP.
- "Depth Averaged" is calculated by taking the arithmetic mean of the in-situ parameters readings at all three depths. For suspended solids "depth averaged" is calculated by combining all three samples into one mixed sample which is analysed to produce a physical arithmetic mean.

6.7.4 The Independent Environmental Checker (IEC) shall be empowered to audit the environmental performance of construction, all aspects of the EM&A programme, validate and confirm the accuracy of monitoring results, monitoring equipment, monitoring locations and procedures. If any exceedance occurs, the IEC shall follow the actions stated in the Event and Action Plan in Table 6.4.

6.8 Water Quality Mitigation Measures

6.8.1 The EIA report has numerous recommended water quality mitigation measures. These are summarised in the Water Quality Environmental Mitigation Implementation Schedule provided in the Appendix A. Specifically the Contractor shall be responsible for the design and implementation of the following measures:

Works within Marine Park

- ◆ no working from shore;
- ◆ no deployment of anchors; and
- ◆ no deployment of trailer suction dredger.

Dredging

- ◆ no more than one actively working dredger at any one time;
- ◆ use of Lean Material Overboard (LMOB) systems shall be prohibited;
- ◆ mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted;
- ◆ barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
- ◆ any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
- ◆ loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
- ◆ excess material shall be cleaned from the decks and exposed fitting of barges and hopper dredges before the vessel is moved;
- ◆ adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action;
- ◆ all vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and
- ◆ the works shall not cause foam, oil, grease or litter or other objectionable matter to be present in the water within and adjacent to the works site.

Works on Land

- ◆ wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;
- ◆ sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided;
- ◆ storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks;
- ◆ silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm;
- ◆ temporary access roads should be protected by crushed stone or gravel;
- ◆ rainwater pumped out from trenches or foundation excavations should be discharged

- into storm drains via silt removal facilities;
- ◆ measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;
- ◆ open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;
- ◆ manholes (including any newly constructed ones) should 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;
- ◆ discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;
- ◆ all vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit;
- ◆ wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain;
- ◆ the section of construction road between the wheel washing bay and the public road should be protected with crushed stone or coarse gravel;
- ◆ wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects;
- ◆ vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal;
- ◆ the contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately;
- ◆ waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance;
- ◆ all fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank; and
- ◆ surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.



Table 6.4 Event and Action Plan for Water Quality

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



| EVENT | ACTION | | | |
|---|--|--|--|---|
| | ETL ⁽¹⁾ | IEC ⁽¹⁾ | FSR ⁽¹⁾ | Contractor |
| Limit Level being exceeded by one consecutive sampling day | <ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform the IEC, the Contractor and the DEP; 4. Check monitoring data, all plant, equipment and the Contractor's working methods; 5. Discuss mitigation measures with the IEC, the FSR and the Contractor; 6. Ensure mitigation measures are implemented; | <ol style="list-style-type: none"> 1. Discuss with the ETL/ Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by the Contractor and advise the FSR accordingly; 3. Access the effectiveness of the implemented mitigation measures. | <ol style="list-style-type: none"> 1. Discuss with the IEC, the ETL and the Contractor on the proposed mitigation measures; 2. Request the Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Access the effectiveness of the implemented mitigation measures. | <ol style="list-style-type: none"> 1. Inform the Engineer and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with the ETL, the IEC and the FSR and propose mitigation measures to the IEC and the FSR within 3 working days; 6. Implement the agreed mitigation measures. |
| Limit 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. Identify source(s) of impact; 3. Inform the IEC, the Contractor and DEP; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with the IEC, the FSR and the Contractor; 6. Ensure mitigation measures are implemented; | <ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by the Contractor and advise the FSR accordingly; 3. Access the effectiveness of the implemented mitigation measures. | <ol style="list-style-type: none"> 1. Discuss with the IEC, the ETL and the Contractor on the proposed mitigation measures; 2. Request Contractor to critically review working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Access effectiveness of the implemented mitigation measures; 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level. | <ol style="list-style-type: none"> 1. Inform the FSR and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with the ETL, the IEC and the FSR and propose mitigation measures to the IEC and the FSR within 3 working days; 6. Implement the agreed mitigation measures; 7. As directed by the FSR, slow down or stop all or part of the construction activities. |

Note: ETL = Environmental Team Leader, IEC = Independent Environment Checker, FSR = Franchisee's Site Representative



Figure 6.1 Water Quality Monitoring Data Record Sheet

| | | | | |
|----------------------------------|---------------------|---------|--------|--------|
| Location | | | | |
| Date | | | | |
| Start Time (hh:mm) | | | | |
| Weather | | | | |
| Sea Conditions | | | | |
| Tidal Mode | | | | |
| Water Depth (m) | | | | |
| Monitoring Depth | | Surface | Middle | Bottom |
| Salinity | | | | |
| Temperature (°C) | | | | |
| DO Saturation (%) | | | | |
| DO (mg/l) | | | | |
| Turbidity (NTU) | | | | |
| SS Sample Identification | | | | |
| SS (mg/l) | | | | |
| Observed Construction Activities | <100m from location | | | |
| | >100m from location | | | |
| Other Observations | | | | |

Name & Designation

Signature

Date

Recorded By :

Checked By :

Note: The SS results are to be filled in once they are available from the laboratory.