12 ENVIRONMENTAL MONITORING AND AUDIT

12.1 Introduction

12.1.1 This section further elaborates the requirements of EM&A for the construction and operation of the Project, based on the assessment results of various environmental issues.

12.1.2 The objectives of carrying out EM&A for the Project include the following:

- to provide a database against which any short or long term environmental impacts of the Project can be determined
- to provide an early indication should any of the environmental control measures or practices fail to achieve the acceptable standards
- to monitor the performance of the Project and the effectiveness of mitigation measures
- to verify the environmental impacts predicted in this EIA
- to determine project compliance with regulatory requirements, standards and government policies
- to take remedial action if unexpected problems or unacceptable impacts arise
- to provide data to enable an environmental audit.

12.1.3 The following sections summarise the recommended EM&A requirements. Details of EM&A are provided in a stand-alone EM&A Manual.

12.2 Air Quality Impact

Construction Phase

12.2.1 The construction work will inevitably lead to dust (TSP) emissions, mainly from excavation, filling activities, truck haulage and material handling. No exceedance of hourly and daily TSP criteria are predicted at air sensitive receivers (ASRs) in the vicinity of work sites with four times daily watering on active work areas.

12.2.2 With implementation of the proposed mitigation measures, dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation, good site practices and comprehensive dust monitoring and audit, the dust impact would be further diminished.

12.2.3 Dust monitoring is recommended in the EM&A Manual to ensure the efficacy of the control measures.

Operational Phase

12.2.4 There will be no exceedance of AQOs at the sensitive receivers. No mitigation measures or air quality monitoring are considered necessary during the operation phase of the Project. Although no air quality monitoring is required for the operation phase, the operator for the proposed CWB tunnel, HyD, will conduct air quality monitoring for the operation performance of the EVB ventilation shaft. The purpose of the air quality monitoring is to ensure that the ventilation system and/or air pollution control device to be installed at EVB will be performed as per the design specifications. Details of the air quality monitoring should be formulated in the detailed design stage subject to agreement between EPD and HyD.

12.2.5 During operational phase, this Project will not create any new odour source. However, odour nuisance associated with the Causeway Bay Typhoon Shelter is an existing environmental problem. In order to improve the environment, this Project will take the opportunities to mitigate the potential sources of odour nuisance within the Project area so as to alleviate this existing environmental problem as well as to provide an acceptable environment for the future land uses within the project area.

12.2.6 Enhancement measures have been formulated to alleviate this existing odour problem. These include rectification of expedient connections, regular collection of floating debris, dredging to remove sediments at the corner of CBTS and clean up the slime attached on CBTS shoreline seawall. With the implementation of these enhancement measures, the predicted odour levels in the vicinity of CBTS would be reduced significantly. In other words, this Project will alleviate the existing odour problems in the vicinity of CBTS to a large extent by implementing the proposed enhancement measures.

12.2.7 However, exceedances of the odour criterion are still predicted at two planned ASRs A100 and A101 under the worst case condition. Yet the residual odour impact at these two planned ASRs is not persistent, with the time of exceedance of the odour criterion at these two planned ASRs expected to be less than 0.2% of time (taking into account of 0.1% probability of exceeding the predicted odour concentration inherent in the calculation method) in a year. Furthermore, considering that no odour nuisance was detected at the northern breakwater of the typhoon shelter and at the Wan Chai waterfront during odour patrols conducted in 2006 and 2007, combined with the infrequent likelihood of exceedance of the odour criterion, no unacceptable adverse odour impact would be expected at the planned ASRs within the study area.

12.2.8 Monthly monitoring (from July to September) of odour impacts, for a period of 5 years, is therefore proposed during the operational phase of the Project to ascertain the effectiveness of the Enhancement Package over time, and to monitor any on-going odour impacts at the ASRs. If residual odour impact is still found at the end of the odour monitoring programme, further investigation would be carried out to review the odour problem and to identify the parties responsible for further remedial action.

12.3 Noise Impact

Construction Phase

12.3.1 Construction noise impacts from this Project, in addition to the concurrent construction tasks of other projects, including CRIII and HKCEC ALE projects, could be expected at the NSRs identified in this EIA. Appropriate mitigation measures are required in order to alleviate the impacts to meet the EIAO-TM criteria. Noise monitoring during construction phase will need to be carried out to ensure that such mitigation measures are implemented properly.

Operational Phase

12.3.2 After completion of the Project, traffic noise monitoring should be carried out at the NSRs in the vicinity of the recommended direct mitigation measures. The purpose of this monitoring is to ensure that the proposed mitigation measures are effective to alleviate traffic noise impact. The Highways Department will be responsible for the operational phase monitoring. Qualified environmental team should be employed to carry out the proposed monitoring. The parameters, monitoring equipment, locations and procedures are presented in detail in the EM&A Manual.

12.3.3 The assessment has indicated that the noise from ventilation buildings would comply with the EIAO-TM standards. As part of the design process, however, monitoring of operation noise from proposed EVB during the testing and commissioning stage would be recommended to verify the maximum sound power levels as assumed in the noise assessment in this EIA.

12.4 Water Quality Impact

Construction Phase

12.4.1 There would be potential water quality impacts upon the water sensitive receivers due to the marine works. Appropriate mitigation measures are recommended in order to minimize the potential impacts. Water quality monitoring and audit during construction phase will need to be carried out to ensure that such mitigation measures are implemented properly.

Operational Phase

12.4.2 No unacceptable water quality impacts would be expected from the Project. No monitoring programme specific for operational water quality would be required.

12.5 Waste Management

12.5.1 Waste management will be the contractor's responsibility to ensure that all wastes produced during the construction of the Project are handled, stored and disposed of in accordance with the recommended good waste management practices and EPD's regulations and requirements. The mitigation measures recommended in Section 6 should form the basis of the site Waste Management Plan to be developed by the Contractor at the construction stage.

12.5.2 It is recommended that the waste arisings generated during the construction activities should be audited periodically to determine if wastes are being managed in accordance with approved procedures and the site Waste Management Plan. The audits should look at all aspects of waste management including waste generation, storage, transport and disposal. An appropriate audit programme would be to undertake a first audit near the commencement of the construction works, and then to audit on a quarterly basis thereafter. In addition, the routine site inspections should check the implementation of the recommended good site practices and other waste management mitigation measures.

12.6 Land Contamination

12.6.1 One site (A King Marine Shipyard) had been identified in this EIA Study to have potential land contamination impacts to the proposed Project. If excavations, foundation works or other construction activities that may involve the handling of the underlying surface soil were to be carried out, soil remediation works in accordance with the RAP (attached in **Appendix 7.2**) will be required.

12.6.2 The site shall be remediated to acceptable standards as stipulated in the RAP endorsed by EPD before commencement of any construction works at the concerned site. Appropriate mitigation measures as stipulated in Section 7 of the EIA Report and RAP, shall be implemented.

12.7 Marine Ecology

12.7.1 As all the 19 coral colonies found in recent surveys were identified as feasible for transplantation, it is recommended to translocate all the coral colonies at coastlines within ex-PCWA Basin and along seawall at North Point to the nearby suitable habitats such as Junk Bay where similar hydrographic condition and healthy coral communities of the same coral species were recorded. A detailed translocation methodology (including baseline survey and monitoring of transplanted corals) should be drafted during the detailed design stage of the Project. The detailed methodology, monitoring proposal and ecologist involved in coral translocation should be approved by AFCD prior to commencement of this translocation exercises.

12.7.2 It is recommended to implement monitoring of the transplanted corals after translocation. The health status of each transplanted coral colony should be carefully recorded. For hard corals, this should include information on surface area with partial mortality and blanched / bleached area. For gorgonian coral, the percentage of branches affected by partial mortality and secretion of mucus should be recorded. Details of monitoring requirements are presented in the EM&A manual.

12.8 Landscape and Visual

Introduction

12.8.1 The EIA has recommended landscape and visual mitigation measures to be undertaken during construction and operation phases of the Project. This Section defines the EM&A requirements to ensure the proposed landscape and visual impact mitigation measures are effectively implemented.

12.8.2 The construction phase EM&A of the landscape and visual environment and mitigation works shall be carried out as part of the site audit programme. Specific EM&A during operation phase of the Project is not required as long as the proposed mitigation measures in the EIA and as depicted in the Landscape Mitigation Plan are fully implemented.

Baseline Monitoring

12.8.3 Baseline changes with respect to the landscape and visual environments should be carried out in reference to the recorded baseline conditions of the site as described in Section 10 of the EIA. The monitoring should in particular record changes of each landscape resource, landscape character area and the view conditions of each visually sensitive receiver. Parameters used to describe changes in each of the above should be the same as in Section 10 of the EIA.

12.8.4 The baseline monitoring should be conducted as a one-off site survey prior to commencement of any construction works.

Construction Phase

12.8.5 The proposed landscape and visual mitigation measures for the construction phase are described in Sections 10 and 13. The measures are on-site management measures to be undertaken by the Contractor. All mitigation measures proposed in the EIA and implemented by the Contractor should be audited by a landscape auditor, as a member of the Environmental Team, on a regular basis to ensure compliance with the intended aims of the measures. Site inspection should be undertaken at least once every two weeks throughout the construction period.

12.8.6 In particular, the extent of the agreed works areas should be regularly checked during the construction phase. Any trespass by the Contractor outside the limit of the works, including any damage to the existing trees, woodland and vegetation should be noted.

12.8.7 The landscape auditor should also audit the proposed operation phase mitigation measures in the EIA and as depicted in the Landscape Mitigation Plan to ensure that they are fully implemented within the Project design and construction.

Operation Phase

12.8.8 The proposed landscape and visual mitigation measures for the operation phase are described in Sections 10 and 13. The measures are design measures to be incorporated in the detailed planning and design of the reclamation, infrastructure and open spaces works. Landscape mitigation measures would be subsequently managed and maintained according to ETWB TCW 2/2004, subject to the possible amendment if CEDD has identified another implementation, management and maintenance agent for the waterfront open spaces.

12.8.9 Monitoring of design works against the recommendations of the landscape and visual impact assessment should be undertaken during the detailed design to ensure that the mitigation measures are satisfactorily incorporated into the design. Any changes to the design, include design changes on site should also be checked.

12.9 Cultural Heritage

12.9.1 There is no monitoring and audit requirement for the marine archaeology.