# *A1 IMPLEMENTATION SCHEDULE*

This *Annex* provides a consolidation of the mitigation measures recommended for the Project. The *Implementation Schedule* has the following column headings:

***EIA Ref***

This denotes the section number or reference from the EIA Report (*EIA Register Number: AEIAR-089/2005*) Main text.

***EM&A Log Ref***

This denotes the sequential number of each of the recommended mitigation measures specified in the *Implementation Schedule*.

***Environmental Protection Measures***

This denotes the recommended mitigation measures, courses of action or subsequent deliverables that are to be adopted, undertaken or delivered to avoid, minimise or ameliorate predicted environmental impacts.

***Objectives***

This denotes the objectives of the recommended mitigation measures and main concerns to address.

***Location/Duration of Measures/Timing of Completion of Measures***

This indicates the spatial area in which the recommended mitigation measures are to be implemented together with details of the programming or timing of their implementation.

***Implementation Agent***

This denotes where the responsibility lies for the implementation of the recommended mitigation measures.

***Implementation Stage***

This denotes the stage at which the recommended mitigation measures are to be implemented either during the Design, Construction, Operation or Decommissioning.

***Relevant Legislation***

This section defines the controlling legislation that is required to be compiled with.

*Table 1.1 Implementation Schedule for the South Brothers Contaminated Sediment Disposal Facility*

| EIA Ref | EM&A Log Ref | Environmental Protection Measures | Objectives | Location/ Duration of Measures/ Timing of Completion of Measures | Implementation Agents | Implementation Stage | | | | Relevant Legislation & Guidelines |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Des | C | O | Dec | |
| | | *WATER QUALITY* | | | | | | | | |
| S 4.6 | | Although there is no requirement for constraints on timing or sequencing apparent from the assessment, as all scenarios have been demonstrated to be acceptable with the required mitigation measures in place. The following operational constraints shall be implemented to ensure no unacceptable water quality impacts. | | | | | | | | |
| | 1 | • CMP 1 (the upper pit) of the proposed Facility should be constructed and operated first for backfilling of contaminated sediment. | To avoid Potential interface issues with the proposed Brothers Island Marine Park | During project planning and design | CEDD | ✓ | ✓ | ✓ | | |
| S 4.6 | 2 | • Dredging operation within the SB facility should not exceed 100,000 $m^3$ $week^{-1}$ | To avoid unacceptable water quality impacts during dredging | At the work site, throughout the whole duration of the dredging works | Contractor | | ✓ | | | *Water Pollution Control Ordinance* |
| S 4.6 | 3 | • Backfilling operations within the Facility do not exceed a disposal rate of 26,700 $m^3day^{-1}$. | To avoid unacceptable water quality impacts during backfilling | At the work site, throughout the whole duration of backfilling | CEDD | | | ✓ | | *Water Pollution Control Ordinance* |
| S 4.6 | 4 | • Capping operations within the Facility do not exceed a capping rate of 26,700 $m^3day^{-1}$. | To avoid unacceptable water quality impacts during capping | At the work site, throughout the whole duration of capping | Contractor | | | ✓ | | *Water Pollution Control Ordinance* |

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| | | | | | | Des | C | O | Dec | |
| S 4.6 | 5 | To verify the calculated prediction in the EIA Review water quality impact assessment taking into account latest programmes of construction and operation of the SB facility with the presence of other latest concurrent projects as well as coastline changes due to these projects, a water quality remodelling exercise will be carried out prior to project construction works commencing. | To avoid Unacceptable water quality impacts during dredging | During project planning and design | CEDD | ✓ | | | | *Water Pollution Control Ordinance* |
| S 4.6 | 6 | Dredged marine mud shall be disposed of in a gazetted marine disposal area in accordance with the *Dumping at Sea Ordinance (DASO)* permit conditions. | To avoid Unacceptable water quality impacts during dredging | At the work site, throughout the whole duration of the construction period | Contractor | | ✓ | | | *Water Pollution Control Ordinance* |
| S 4.6 | 7 | All disposal vessels should be fitted with tight bottom seals in order to prevent leakage of material during transport. | To prevent leakage of material during transport | At the work site, throughout the whole duration of the construction and operation period | Contractor | | | ✓ | | *Water Pollution Control Ordinance* |
| S 4.6 | 8 | All barges should be filled to a level which ensures that material does not spill over during transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action. | To ensure that material does not spill over during transport and the decks are not washed by wave action | At the work site, throughout the whole duration of the construction and operation period | Contractor | | ✓ | ✓ | | *Water Pollution Control Ordinance* |
| S 4.6 | 9 | After dredging, any excess materials should be cleaned from decks and exposed fittings before the vessel is moved from the dredging area. | To avoid potential adverse water quality impacts associated with dredging | At the dredging sites, throughout the dredging period | Contractor | | ✓ | | | *Water Pollution Control Ordinance* |
| S 4.6 | 10 | The contractor(s) should ensure that the works cause no visible foam, oil, grease, litter, or other objectionable matter to be present in the water within and adjacent to the dredging site | To avoid potential adverse water quality impacts associated with dredging | At the dredging site through the dredging period | Contractor | | ✓ | | | *Water Pollution Control Ordinance* |

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| | | | | | | Des | C | O | Dec | |
| S 4.6 | 11 | If installed degassing systems should be used to avoid irregular cavitations within the pump | To avoid adverse water quality impacts due to irregular cavitation within the pump | At the work site, throughout the whole duration of the construction and operation period | Contractor | | ✓ | | | *Water Pollution Control Ordinance* |
| S 4.6 | 12 | Monitoring and automation systems should be used to improve the crews information regarding the various dredging parameters to improve dredging accuracy and efficiency | To improve dredging accuracy and efficiency | At the dredging site, throughout the dredging period | Contractor | | ✓ | | | *Water Pollution Control Ordinance* |
| S 4.6 | 13 | Control and monitoring systems should be used to alert the crew to leaks or any other potential risks. | To alert the crew to leaks or any other potential risks | At the work site, throughout the whole duration of the construction and operation period | Contractor | | ✓ | ✓ | | *Water Pollution Control Ordinance* |
| S 4.6 | 14 | When the dredging material has been unloaded at the disposal area, any material that has accumulated on the deck on other exposed parts of the vessel should be removed and placed in the hold of a hopper. Under no circumstance should the decks be washed in a way that permits material to be released overboard | To prevent release of dredged material overboard | At the dredging sites, throughout the dredging period | Contractor | | ✓ | | | *Water Pollution Control Ordinance* |
| S 4.6 | 15 | All dredgers should be maintained adequate clearance between vessels and the seabed at all states of the tide and reduced operations speed to ensue that excessive turbidity is not generated by turbulence from vessel movement or propeller wash | To ensure that undervessel turbidity is not generated by turbulence from vessel movement or propeller wash | At the dredging sites, throughout the dredging period | Contractor | | ✓ | | | *Water Pollution Control Ordinance* |

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| | | | | | | Des | C | O | Dec | |
| S 4.8 | 16 | Water quality monitoring will be required for the following activities at:<br>- Dredging of each pit;<br>- Backfilling of each pit with contaminated mud; and<br>- Capping of each pit. | To avoid impacts to water quality during dredging, backfilling and capping | At the work sites, throughout the dredging, backfilling and capping period | Contractor | | ✓ | | | *Water Pollution Control Ordinance* |
| S 4.8 | 17 | Sediment quality monitoring will be required for the backfilling activities | To avoid impacts to water quality during backfilling | At the work sites, throughout the backfilling period | Contractor | | ✓ | | | Water Pollution Control Ordinance |
| | | *MARINE ECOLOGY & FISHERIES* | | | | | | | | |
| S 5.6 | 18 | In accordance with the guidelines in the EIAO-TM, the general policy for mitigating impacts to marine ecological resources shall be applied in order of the following priority:<br>- **Avoidance**: Potential impacts should be avoided to the maximum extent practicable by adopting suitable alternatives;<br>- **Minimisation**: Unavoidable impacts should be minimised by taking appropriate and practicable measures such as constraints on the intensity of works operations (eg dredging rates, timing of works operations); and<br>- **Compensation**: The loss of important species and habitats may be provided for elsewhere as compensation. Enhancement and other conservation measures should always be considered whenever possible. | To avoid potential impacts to marine ecology | During project planning and design | Design Team | ✓ | | | | EIAO-TM |
| S 5.6 | 19 | Sediment toxicity monitoring will be conducted to assess the potential toxicity impacts to marine life due to backfilling activities. | To avoid impacts to marine life due to backfilling activities | At SB throughout the backfilling period | Contractor | | | ✓ | | |
| S 5.6 | 20 | Marine biota monitoring will be conducted to assess the potential impacts to fisheries resources due to backfilling activities. | To avoid impacts to fisheries due to backfilling activities | At SB throughout the backfilling period | Contractor | | | ✓ | | |

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| | | | | | | Des | C | O | Dec | |
| | 21 | Benthic recolonisation monitoring will be required to assess the recolonisation status of benthic fauna on capped pits. | To assess the recolonisation status of benthic fauna on capped pits | At SB, after capping of mud pits | Contractor | | | ✓ | | |
| | | *HAZARD TO HEALTH* | | | | | | | | |
| S 7 | 22 | A risk assessment to verify that no unacceptable risk are occurring to either human health or marine mammals as a result of consuming prey species from the waters in the vicinity of the pits will be required. | To assess hazard to health of humans and marine mammals | In the vicinity of SB, throughout the disposal period | Contractor | | | ✓ | | |