Appendix D
Implementation Schedule of Environmental Mitigation Measures (EMIS)

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
Air Quality				
Air Quality during Construction	• Restricting heights from which materials are dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading. • All stockpiles of excavated materials or spoil of more than 50m^3 shall be enclosed, covered or dampened during dry or windy conditions. • Effective water sprays shall be used to control potential dust emission sources such as unpaved haul roads and active construction areas. • All spraying of materials and surfaces shall avoid excessive water usage. • Vehicles that have the potential to create dust while transporting materials shall be covered, with the cover properly secured and extended over the edges of the side and tail boards. • Materials shall be dampened, if necessary, before transportation. • Travelling speeds shall be controlled to reduce traffic induced dust dispersion and re-suspension within the site from the operating haul trucks. • Vehicle washing facilities shall be provided to minimise the quantity of material deposited on public roads.	During Construction	Contractor	✓ Rem./ Obs. Rem./ Obs. ✓ ✓ ✓ ✓ Obs.
Air Quality during Operation	Not required	N/A	N/A	N/A
Noise				
Noise during Construction	• Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant. • Reduce the number of equipment and their percentage on-time.	During Construction	Contractor	Obs. ✓
Noise during Operation	Not required	N/A	N/A	N/A
Water Quality				
Water Quality during Construction	<u>Road Widening Works, Earthworks and Culvert Extension Works</u> • Wastewater generated from any concrete batching washdown of equipment or similar activities should be discharged into foul sewers, after the removal of settable solids, and pH adjustment as necessary. All sewage discharges from the study area should meet the TM standards and approval from EPD through the licensing process is required.	During Construction	Contractor	Rem. / Obs.
	• Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained.			Obs.

Notes (#): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

	● Runoff from exposed working areas, unfinished slopes and from unlined temporary channels should be directed to stilling basins and/or silt traps before discharging to the drainage outfalls. ● Regular inspections of stilling basins and/or silt traps is required to ensure that sediment is not conveyed into the existing drainage system. ● Open stockpiles should be covered with a tarpaulin cover. ● During the wet season, any exposed top soils should be covered with a tarpaulin, shotcreted or hydroseeded. ● Sand and silt from wash-water from vehicle washing should be settled out before discharging into storm drains. ● Fuels should be stored in bunded areas such that spillage can be easily collected.			Rem. Rem. ✓ ✓ Obs. ✓
Water Quality during Operation	Not required	N/A	N/A	N/A
Waste Management				
Waste Management during Construction	<u>General Waste</u> ● Transport of wastes off site as soon as possible. ● Maintenance of accurate waste records. ● Minimisation of waste generation for disposal (via reduction/recycling/re-use). ● No on-site burning will be permitted. ● Use of re-useable metal hoardings/signboards. <u>Vegetation from site clearance</u> ● Segregation of materials to facilitate disposal. ● Mulching to reduce bulk and where possible review opportunities for the possible beneficial use within landscaping areas.	During Construction During Construction	Contractor Contractor	 Rem. ✓ Obs. ✓ ✓ ✓ ✓
	<u>Demolition Wastes</u> ● Segregation of materials to facilitate disposal. ● Appropriate stockpile management.	During Construction	Contractor	 ✓ ✓

Notes (#): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

	Excavated Materials	During Construction	Contractor	
	● Segregation of materials to facilitate disposal / reuse.			✓
	● Appropriate stockpile management.			✓
	● Re-use of excavated material on or off site (where possible).			N/A
	● Special handling and disposal procedures in the event that contaminated materials are excavated.			
	Construction Wastes	During Construction	Contractor	
	● Segregation of materials to facilitate recycling/reuse (within designated area in appropriate containers/stockpiles).			✓
	● Appropriate stockpile management.			✓
	● Planning to reduce over ordering and waste generation.			✓
	● Recycling and re-use of materials where possible (e.g. metal, wood from formwork)			✓
	● For material which cannot be re-used/recycled, collection should be carried out by an approved waste contractor for landfill disposal.			✓
	Bentonite Slurries	During Construction	Contractor	
	● Bentonite slurries should be reused as far as possible.			N/A
	● Disposal in accordance with Practice Note For Professional Persons ProPECC PN 1/94.			N/A
	Chemical Wastes	During Construction	Contractor	
	● Storage within locked, covered and bunded area.			Rem.
	● The storage area shall not be located adjacent to sensitive receivers e.g. drains.			Obs.
	● Minimise waste production and recycle oils/solvents where possible.			✓
	● A spill response procedure shall be in place and absorption material available for minor spillages.			✓
	● Use appropriate and labelled containers.			✓
	● Educate site workers on site cleanliness/waste management procedures.			✓

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	• If chemical wastes are to be generated, the contractor must register with EPD as a chemical waste producer. • The chemical wastes shall be collected by a licensed chemical waste collector. <u>Municipal Wastes</u> • Waste shall be stored within a temporary refuse collection facility, in appropriate containers prior to collection and disposal. • Regular, daily collections are required by an approved waste collector.	During Construction	Contractor	✓ ✓ ✓ ✓
Waste Management during Operation	Not required.	N/A	N/A	N/A
Ecology				
Ecology during Construction	<u>Accurate Delineation of Works Area</u> • Boundaries of proposed works areas shall be clearly identified and separated from external areas by a physical barrier to prevent encroachment of adjacent habitats. • Individual trees which fall within the works areas but which work plans show do not require removal are to be retained and fenced off to maximise protection. <u>Dust generation</u> There are a number of measures which shall be taken as specified in the Air Pollution Control (Construction Dust) Regulation on 'Dust Control Requirements, including the following key measures to be applied during construction: • vehicle washing facilities to be provided at every discernible or designated vehicle exit point;	During Construction During Construction	Contractor Contractor	✓ ✓ ✓
	• all temporary site access roads shall be sprayed with water to suppress dust as necessary; • all dusty materials should be sprayed with water immediately prior to any handling; and • all debris should be covered entirely by impervious sheeting or stored in a sheltered debris collection area.			✓ ✓ ✓

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	<u>Surface Run-off</u> In general, mitigation measures shall be in accordance with ProPECC PN1/94 on 'Construction Site Drainage'. Key measures include: ● Bund and cover stockpiles to avoid run-off; ● Channel any run-off through a system of oil, grease and sediment / silt traps and reuse water on site where ever practical; ● All vehicle maintenance to be undertaken within a bunded area; and ● Maximise vegetation retention on-site to maximise absorption (minimise transport).	During Construction	Contractor	 ✓ ✓ ✓ ✓
Ecology during Operation	● To conduct compensatory ecological planting as specified in the latest landscape plans approved by EPD (Clause 2.6 of the Environmental Permit refers).	During Construction and operation	Contractor (during construction) / LCSD* (during operation) (Note: * The division of vegetation planting and maintenance responsibilities shall follow the guidelines stipulated in ETWB TCW No. 2/2004.)	N/A
Landscape and Visual				
Landscape and Visual during Construction	<u>Preservation of Existing Vegetation</u> ● Trees identified for retention within the project limit would be protected during the works ● The tree transplanting and planting works shall be implemented by approved Landscape Contractors	During Construction	Contractor	 ✓ ✓
	<u>Temporary Works Areas</u> ● Where feasible the works areas would be screened using hoarding and existing vegetation would be retained where possible to reduce the landscape and visual impacts arising from the construction activity. The landscape of these works areas would be restored following the completion of the construction phase.	During Construction	Contractor	 ✓

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	Hoarding ● A hoarding would be erected where practicable in the most visually sensitive locations to screen the temporary construction works from the local VSRs. Top Soils ● The works will result in disturbance to extensive areas of topsoil. Topsoil worthy of retention should be stockpiled for use following completion of the civil engineering works. It should either be temporarily vegetated with hydroseeded grass or turned over on a regular basis. Protection of Important Landscape Features ● Important features such as temples, Island House and kilns within the study area, although remote from the proposed works retained and adequately protected.	During Construction During Construction During Construction	Contractor Contractor Contractor	 ✓ N/A N/A
Landscape and Visual during Operation	Not required.	N/A	N/A	N/A

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