

13. SCHEDULE OF RECOMMENDED MITIGATION MEASURES

13.1 Introduction

Schedules of all mitigation measures recommended in this EIA Report are given within Tables 13.1 to 13.6 for each environmental aspect.

Table 13.1 Air Quality – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Responsibility
Air Quality during construction	Restricting heights from which materials are dropped, as far as practicable to minimise the fugitive dust arising from unloading/loading.	During construction	Contractor
	All stockpiles of excavated materials or spoil of more than 50m ³ shall be enclosed, covered or dampened during dry or windy conditions.	During construction	Contractor
	Effective water sprays shall be used to control potential dust emission sources such as unpaved haul roads and active construction areas.	During construction	Contractor
	All spraying of materials and surfaces shall avoid excessive water usage.	During construction	Contractor
	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.	During construction	Contractor
	Materials shall be dampened, if necessary, before transportation.	During construction	Contractor
	Travelling speeds shall be controlled to reduce traffic induced dust dispersion and re-suspension within the site from the operating haul trucks.	During construction	Contractor
	Vehicle washing facilities shall be provided to minimise the quantity of material deposited on public roads.	During construction	Contractor
Air Quality during Operation	Not required	N/A	N/A

Table 13.2 Noise – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Responsibility
Noise during construction	Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant.	During construction	Contractor
	Reduce the number of equipment and their percentage on-time.	During construction	Contractor
	3.5 m and 5.5 m high temporary noise barrier at culvert construction work area (Fig 5.6.1).	During construction	Contractor
	3 m high temporary noise barrier along the northern edge of Bridge 12 at ground level (Fig 5.6.2).	During construction	Contractor
	2 m high temporary noise barrier along the northern edge of Bridge 12 at bridge level (Fig 5.6.2).	During construction	Contractor
	2.5 m high temporary noise barrier along Tai Wo Service Road West (Fig 5.6.3).	During construction	Contractor
	3.5 m high temporary noise barrier along Tai Wo Service Road West near Wai Tau Tsuen (Fig 5.6.3).	During construction	Contractor
	3.5 m high temporary noise barrier along Tai Wo Service Road West near Tai Hang (Fig 5.6.3).	During construction	Contractor
	7 m high temporary noise barrier along Tai Wo Service Road West near Tai Wo Footbridge work area (Fig 5.6.4).	During construction	Contractor
7 m high temporary noise barrier near Kiu Tau Footbridge work area (Fig 5.6.4).	During construction	Contractor	
2.5 m high temporary noise barrier near river diversion work area (Fig 5.6.5).	During construction	Contractor	
Noise during operation	Noise barriers of varying heights as shown on Drawings 551/R/9002 to 9016.	During design	Designer to implement in the engineering design
	Low noise reducing surfacing along both the widened and reconstructed sections of the works	During design	Designer to implement in the engineering design

Table 13.3 Water Quality – Schedule of Recommended Mitigation Measures

Impact	Mitigation	Timing	Responsibility
Water quality during construction	Demolition and reconstruction of bridges <ul style="list-style-type: none"> • Prevent off-site migration through use of sheet piles. • Minimise duration of works as far as practical. • All sewer and drainage connections should be sealed to prevent debris, soil, sand etc, from entering public sewers/drains. • Site surface runoff should be settled to remove sand/silt before it is discharged into the existing storm drains. 	During construction	Contractor
	River training works <ul style="list-style-type: none"> • Inspection and testing of water quality in the nullah on the Tai Po River and in the Ma Wat River immediately downstream of culvert N490, between the rubber dam and the water intake channel. 	During construction	Contractor
	Road Widening Works and Earthworks <ul style="list-style-type: none"> • Wastewater generated from any concrete batching washdown of equipment or similar activities should be discharged into foul sewers, after the removal of settleable 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. • Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained. • 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. 	During construction	Contractor

Impact	Mitigation	Timing	Responsibility
Water Quality during operation	Contaminants present in the run off during normal operation will by their chemical nature be strongly absorbed onto the particulate phase. The use of silt or sand traps, preferably built into the road drainage system will control both the suspended solids in the run off and the contaminants absorbed onto them. These traps should be maintained regularly and frequently cleaned to prevent the accumulation of solids with the resultant reduction in retention time and thus efficiency.	During design	Designer to implement in the engineering design

Table 13.4 Waste – Schedule of Recommended Mitigation Measures

Impact	Mitigation	Timing	Responsibility
Waste management during construction	<p>General Waste</p> <ul style="list-style-type: none"> • 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. 	During construction	Contractor
	<p>Vegetation from site clearance</p> <ul style="list-style-type: none"> • 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	Contractor
	<p>Demolition Wastes</p> <ul style="list-style-type: none"> • Segregation of materials to facilitate disposal. • Appropriate stockpile management. 	During construction	Contractor
	<p>Excavated Materials</p> <ul style="list-style-type: none"> • Segregation of materials to facilitate disposal / reuse. • Appropriate stockpile management. • Re-use of excavated material on or off site (where possible). • Special handling and disposal procedures in the event that contaminated materials are excavated. 	During construction	Contractor
	<p>Construction Wastes</p> <ul style="list-style-type: none"> • 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. 	During construction	Contractor
	<p>Bentonite Slurries</p> <ul style="list-style-type: none"> • Bentonite slurries should be reused as far as possible. • Disposal in accordance with Practice Note For Professional Persons ProPECC PN 1/94. 	During construction	Contractor

Table 13.5 Ecology – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Responsibility
Ecology during construction	<p>Accurate Delineation of Works Area</p> <ul style="list-style-type: none"> • 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. 	During construction	Contractor
	<p>Vegetation Clearance</p> <ul style="list-style-type: none"> • No fires shall be lit within the works area for the purpose of burning cleared vegetation. • The Contractor shall give consideration to mulching the cleared vegetation for recycling within the works area / adjacent land. 	During construction	Contractor
	<p>Dust generation</p> <p>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:</p> <ul style="list-style-type: none"> • vehicle washing facilities to be provided at every discernible or designated vehicle exit point; • 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. 	During construction	Contractor
	<p>Surface Run-off</p> <p>In general, mitigation measures shall be in accordance with ProPECC PN1/94 on ‘Construction Site Drainage’. Key measures include:</p> <ul style="list-style-type: none"> • Bund and cover stock piles to avoid run-off; • Channel any run-off through a system of oil, grease and sediment / silt traps and re-use 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

Impact	Mitigation Measures	Timing	Responsibility
Ecological impact during operation phase	Compensatory ecological planting <ul style="list-style-type: none">To be conducted over approx. 15 hectares, including native and exotic species.Specific planting details as in Section 8.4 and Section 9 of the EIA.	During construction and operation	Contractor (during construction); LCSD/AFCD* (during operation)

Note: * The division of vegetation planting and maintenance responsibilities shall follow the guidelines stipulated in Works Branch Technical Circular (WBTC) 24/94.

Impact	Mitigation Measures	Timing	Responsibility
Landscape during operation	<p>Compensatory Planting</p> <ul style="list-style-type: none"> • The loss of existing vegetation would be a primary source of both the landscape and visual impacts. The road widening would be facilitated through the construction of extensions to the embankment and would have a soft finish. • The embankments and cuttings would be planted with a mix of tree and shrub planting. Identifying a corridor separate from the utility corridors that impede landscape works. • Tree and shrub screen planting including roadside and amenity planting. In certain locations, woodland planting would be appropriate with the species mix reflecting those affected with the eventual long-term objective of creating native woodland. • Create a fast vegetative cover to ensure soil stability and quick visual effect for planting of disturbed areas. The long-term aim would be to allow native species to become dominant. • Use of ornamental species in urban locations such as areas adjacent to residential development or on urban sections of the highway. • Use of low growing shrub planting in the central reserve of the highway where the forward visibility splays allow. Robust plant species would be used which have a low maintenance requirement. 	During Operation	Designer to implement during engineering design
Visual Impact during operation	<p>Engineering Structures</p> <ul style="list-style-type: none"> • The structures should aim to “touch” the ground as lightly as possible in order to minimise disturbance to the existing landscape and vegetation below the structures. Landform and vegetation in areas disturbed by construction works will be reinstated to blend with the existing landscape patterns; • Maintenance access roads shall be sensitively designed to minimise visual intrusion and physical disruption of the existing landscape. • Lighting along the roadside should be designed to avoid excessive light spillage raising the levels of ambient light levels in the local areas and in views from the VSR's. • New structures should aim to match those existing along Tolo Highway for visual compatibility. • Drainage should where possible be concealed in the structure. • Vegetation to be proposed below viaducts where light levels allow. • The advice of ACABAS should be incorporated into the detailed design. 	During Operation	Designer to implement during engineering design

Table 13.7 Cultural Heritage Impact – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Responsibility
Archaeological Impact during construction	Archaeological Monitoring works shall be carried out in areas defined in Figures 10.1 & 10.2 Specification clauses to be included in the construction contract to ensure that construction works in the proximity to Wun Yiu kiln and Yuen Chau Tsai is carried out as unobstructively as possible to avoid any damage and discourage visitors to the site.	During construction During design	Contractor/Resident Site Staff Designer to implement during engineering design