13 SCHEDULE OF RECOMMENDED MITIGATION MEASURES

13.1 Introduction

13.1.1 A schedule of all mitigation measures recommended in this EIA Report is given in within below within Tables 13.1 to 13.6 for each environmental aspect..

Table 13.1 Air Quality - Schedule of Recommended Mitigation Measures

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
Advance Works			
• Regular watering of all haul roads with complete coverage (once every 2 hours in normal conditions and hourly in dry/windy conditions). • Speed control for all on-site vehicle movement to 10km/h. • Covering/dampening all stockpiles over 50m^3 during dry/windy conditions for all sites	Throughout the advance work.	CED	N.A.
General			
• Limit the height from which materials are dropped from plant during loading/unloading. • Dampen or cover all stockpiles with tarpaulin. • Vehicles used for transporting materials/spoils should be covered with tarpaulin or similar material. The cover shall extend over the edges of the side and tail boards. • Where applicable, wheel washing facilities should be provided at the site exit to avoid material deposited on public roads. • Materials should be dampened before transportation.	Throughout the advance work.	CED	N.A.
Main Construction Works			
• Regular watering of all haul roads with complete coverage (once every 2 hours in normal conditions and hourly in dry/windy conditions). • Speed control for all on-site vehicle movement to 10km/h in all sites. • Covering/dampening all stockpiles over 50m^3 during dry/windy conditions for all sites.	Throughout the whole construction work.	TDD	N.A.
Route 7 Construction			
• Watering of all haul roads with complete coverage twice daily.	All phases of Route 7 construction.	HyD	N.A.
• Speed control for all on-site vehicle movement to 10km/h in all sites.	Phase 2 (i.e., work in the area directly adjacent to Telegraph Bay Development).		
General			
• Limit the height from which materials are dropped from plant during loading/unloading. • Dampen or cover all stockpiles with tarpaulin. • Vehicles used for transporting materials/spoils should be covered with tarpaulin or similar material. The cover shall extend over the edges of the side and tail boards.	Throughout the TBD and Route 7 construction.	TDD/HyD	N.A.

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
• Where applicable, wheel washing facilities should be provided at the site exit to avoid material deposited on public roads. • Materials should be dampened before transportation.			
Deodorization System Provision of deodorization system for sewage treatment works with the following specifications: • Removal efficiency of 99.5% at 5 ppm H_2S, or • Less than a maximum discharge concentration of 25 pbb.	Throughout the operation of sewage treatment works.	TDD	DSD

Table 13.2 Noise Impacts - Schedule of Recommended Mitigation Measures

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
Advance Works • Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant • Erect a 3m tall noise barrier (can form part of the hoarding) along the northern site boundary (site 1).	Throughout the Phases I to VI of the advance works.	CED	N.A.
Main Construction Work • Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant	Throughout the main construction works and Route 7 Construction	TDD/HyD	N.A.
• Erect a 3m tall noise barrier (can form part of the hoarding) along the northern site boundary (site 1).	Throughout the main construction works.	TDD/HyD	N.A.
• Use of acoustic barriers. These barriers should be placed between the noise sources and receivers and as close to the source as possible. Equipment to be shielded : Phase 3 - concrete pumps Phase 4 - breakers, backhoes, drilling rigs, pokers, concrete pumps and compressors.	The examination periods of Lui Ming Choi Secondary School and Pui Ying Secondary School throughout the Phase 3 and Phase 4 of the main construction work	TDD	N.A.
• Use of acoustic barrier for breakers, pokers and concrete pumps.	For the examination periods of proposed school in Site 2 throughout the Route 7 construction	HyD	N.A.
• Specify the no. of vehicles to off-site work areas to the following in contracts conditions: WA1 – construction vehicle 12 trips/day, private car: 6 trips/day; and WA2 – construction vehicle 36 trips/day, private car: 18 trips/day.	During the use of the off-site work areas.	TDD	N.A.
Road D2 • Roadside noise barrier 5.5m high with a 3.5m cantilever (at 30° from horizontal) (approx. 128m in length). • 3m high roadside barrier (approx. 128m in length).	Before commissioning	TDD	HyD
Road D1 • Roadside noise barrier 5.5m high with a 3.5m cantilever (at 30° from horizontal) (approx. 175m in length). • 3.5m high roadside barrier (approx. 172m in length).	Before commissioning	TDD	HyD
Southern Access Road • Approximately 36m in length partial noise enclosure.	Before commissioning	TDD	HyD

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
• Roadside barriers comprise of 6.0m high with 3.5m cantilever (at 30° from horizontal) (approx. 267m in length), 6.0m high (approx. 211m in length) and 4.5m high vertical barriers (approx. 128m in length). The heights of the barriers vary along the road.			
Site 5 • A 3.0m parapet wall with 3m cantilever (at 30° from horizontal) at the podium level along Towers 2 and 3 (approx. 111m in length).	Before commissioning	Property Developer (Site 5)	Property Developer (Site 5)
Route 7 • Use of friction course road surfacing material for the Route 7 - section between Sandy Bay and Waterfall Bay (approx. 1462m in length). • Noise barrier 5.5m high with a 3.5m cantilever (at 30° from horizontal) along roadside (approx. 900m in length) and central reserve (approx. 200m in length). • 5m high vertical barriers at the central reserve (approx. 984m in length). • 5.5m high vertical barriers at roadside (approx. 423m in length). • 3m high (approx. 203m in length)and 5.5m high (approx. 28m in length) vertical barrier along slip roads	Before commissioning	HyD	HyD

Table 13.3 Water Quality - Schedule of Recommended Mitigation Measures

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
Advance Works			
Material Transfer and Surcharging	During advance works	CED	N.A.
• Vessels should be sufficiently sized to allow adequate water clearance between the vessel bottom 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.			
• Excess material should be cleaned from the decks and exposed fittings of barges and dredgers before the vessel is moved.			
• Loading of barges should be controlled to prevent splashing of fill material to the surrounding water and barges should not be filled to a limit which would cause overflow of material or polluted water during loading or transportation.			
• Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action.			
• The works should not cause visible foam, scum, oil, grease, litter or other objectionable matter to be present on the water within the disposal area.			
• Pipe leakages should be repaired promptly and plant should not be operated with leaking pipes.			
• Barges should be fitted with tight seals to their bottom opening to prevent leakage of materials. Vessels used for disposal should be capable of rapid-discharge bottom dumping at the designated marine disposal site.			
Domestic Sewage			
• Grey waters, which in this case would be food preparation/wash-up waters, should pass through a grease trap prior to discharge to the environment.	During advance works	CED	N.A.
• Chemical toilets should be provided at appropriate locations across the site. No direct discharge of foul water off-site.			
Surface Run-off			
• Works should be programmed to avoid the rainy season whenever possible to minimise storm runoff. If work during rainy seasons cannot be avoided, precautions should be taken to prevent soil erosion.	During advance works	CED	N.A.
• The site should be kept clean and tidy with construction materials and waste being stored such that they are not washed off-site.			
• All surface run-off should be diverted to pass through the silt/sand traps.			
• Channel or earth bunds should be constructed to direct the runoff to the sedimentation basin.			
• Perimeter channels should be constructed to stop the storm runoff from washing across the site.			
• Silt removal facilities should be checked and cleaned regularly to ensure these facilities are working in good condition.			

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
• Vehicle washing area should be drained to settlement basin. "Treated" waters should be recycled on site, e.g. for dust suppression, whenever possible.			
• Surface runoff from areas likely to be contaminated with oil or fuel, e.g. vehicle or plant parking areas, equipment refuelling areas should be directed to an oil separator prior to entering the general site drainage stream. • Stockpiles of construction materials on site should be covered with tarpaulins or similar fabric to prevent surface erosion. Minimisation of stockpiling in the wet season will reduce the chance of silt laden surface runoff from entering the ocean. • Prohibited substances, as specified in the Technical Memorandum for Standards for Effluents into Drainage and Sewerage Systems, Inland and Coastal Waters, should be avoided on site. • Minimise the volume of dust suppression purpose water as far as possible. Wheel wash basin shall be used to minimise the water usage. *Spillage* • Any spillage should be cleaned up immediately and the resulting contaminated absorbent material properly managed. Spills should be contained to avoid spreading and contaminating the water resources. • Oil and fuels should be stored in designated area, preferably under hard cover. The storage areas should be provided with locks and be sited on sealed areas with a storage capacity of 110% of the largest tank. Any spill should be cleaned up immediately to avoid spreading. • Maintenance and storage areas should be covered and equipped with pollution prevention measures. The drainage of these areas should be directed to a petrol interceptor prior connecting to storm water drains to remove the oil and grease. • Spent oil shall be collected / stored and disposed of in accordance with the Waste Disposal Ordinance.	During advance works.	CED	N.A.
Dredging • Dredging operations should be scheduled to avoid adverse impacts to sensitive receivers. • Silt curtains should be provided at the seawater intake. • Minimise disturbance to the seabed during dredging and disposal activities. • Prevent discharge of dredged material except at approved locations. • The use of closed grab dredging techniques to minimise sediment losses and leakage of dredged material during lifting and dumping activities. • Pipe leakages should be repaired promptly and plant should not be operated with leaking pipes. • Barges and dredgers should be fitted with tight seals to their bottom opening to prevent leakage of materials. Vessels used for disposal should be capable of rapid-discharge bottom dumping at the designated marine disposal site.	During dredging of the submarine outfall.	TDD	N.A.

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
Southern Access Road Construction • The realignment of the Southern Stream should be completed prior to the access road construction.	Project Design	TDD	N.A.
Realignment of Southern Stream • Design of realignment of stream should avoid any significant changes in the flow hydraulics. Main the natural stream environment as far as practicable, e.g. by lining with gabions. • Adopt an appropriate work methods such as start excavating at the downstream location and work upward and use of submersible pump to withdraw the rainwater from the trench.	Project Design During the stream training	TDD TDD	N.A. N.A.
Domestic Sewage • Grey waters, which in this case would be food preparation/wash-up waters, should pass through a grease trap prior to discharge to the environment. • Chemical toilets should be provided at appropriate locations across the site. No direct discharge of foul water off-site.	During construction phases of TBD and Route 7.	TDD/HyD	N.A.
Surface Run-off • Works should be programmed to avoid the rainy season whenever possible to minimise storm runoff. If work during rainy seasons cannot be avoided, precautions should be taken to prevent soil erosion. • The site should be kept clean and tidy with construction materials and waste being stored such that they are not washed off-site. • All surface run-off should be diverted to pass through the silt/sand traps. • Channel or earth bunds should be constructed to direct the runoff to the sedimentation basin. • Perimeter channels should be constructed to stop the storm runoff from washing across the site. • Silt removal facilities should be checked and cleaned regularly to ensure these facilities are working in good condition. • Vehicle washing area should be drained to settlement basin. "Treated" waters should be recycled on site, e.g. for dust suppression, whenever possible. • Surface runoff from areas likely to be contaminated with oil or fuel, e.g. vehicle or plant parking areas, equipment refuelling areas should be directed to an oil separator prior to entering the general site drainage stream. • Stockpiles of construction materials on site should be covered with tarpaulins or similar fabric to prevent surface erosion. Minimisation of stockpiling in the wet season will reduce the chance of silt laden surface runoff from entering the ocean.	During construction phases of TBD and Route 7.	TDD/HyD	N.A.
• Prohibited substances, as specified in the Technical Memorandum for Standards for Effluents into Drainage and Sewerage Systems, Inland and Coastal Waters, should be avoided on site.			

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
• Minimise the volume of dust suppression purpose water as far as possible. Wheel wash basin shall be used to minimise the water usage.			
Spillage • Any spillage should be cleaned up immediately and the resulting contaminated absorbent material properly managed. Spills should be contained to avoid spreading and contaminating the water resources. • Oil and fuels should be stored in designated area, preferably under hard cover. The storage areas should be provided with locks and be sited on sealed areas with a storage capacity of 110% of the largest tank. Any spill should be cleaned up immediately to avoid spreading. • Maintenance and storage areas should be covered and equipped with pollution prevention measures. The drainage of these areas should be directed to a petrol interceptor prior connecting to storm water drains to remove the oil and grease. • Spent oil shall be collected / stored and disposed of in accordance with the Waste Disposal Ordinance.	All construction phases including TBD and Route 7 construction	TDD/ HyD	N.A.
Operational Phase *Domestic Sewage* The provision of a Sewage Treatment Work within the Telegraph Bay Development Site to handle and treat the sewage generated from the future residents, users as well as the existing residents in Baguio Villas, Kong Sin Wan Tsuen. *Washwater / surface runoff* Equip the drainage systems of the Public Transport Interchange and the open carpark areas with petrol interceptors and grit traps.	Before commissioning Before commissioning	TDD TDD	DSD DSD

Table 13.4 Waste - Schedule of Recommended Mitigation Measures

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
Advance Works			
General	Throughout the advance works.	CED	N.A.
• Maintenance of records of quantities of waste generated, recycled and disposed, including disposal locations.			
• Different types of wastes should be segregated, stockpiled and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal.			
• Good site management, planning and design considerations to reduce over-ordering and waste generation.			
• Educate workers on the concepts of site cleanliness and appropriate waste management procedures.			
Stockpiles			
• Locate stockpiles to minimise visual impacts and nuisance related to noise and air quality (dust).	Throughout the advance works.	CED	N.A.
• Minimise land-take by reducing the size of the stockpiles and associated working areas.			
• Provide fencing to separate sensitive habitats and landscape areas to prevent accidental stockpiling in these areas.			
• Designate appropriate haulage routes.			
• Keep material covered in heavy rainfall.			
• Keep movement of stockpiled material to a minimum.			
• Optimise reuse of suitable material on site to reduce the volume of materials to be disposed to public filling areas.			
• Use appropriate dust suppression techniques.			
• Prevent surface water pollution by use of appropriate bunding, interceptors and direction of run-off into settlement ponds.			
Construction Wastes			
• Wastes segregation where practical.	Throughout the advance works.	CED	N.A.
• For wastes with <20% of non-inert materials, should be segregated and disposed of to public filling area.			
• Waste collection by an approved licensed waste collectors.			
• All necessary waste disposal permits should be obtained.			
Chemical Wastes			
• Store appropriately and isolate from current working areas.	Throughout the advance works.	CED	N.A.
• Secure storage area should be provided by the Project proponent. Containment area should be set up for chemical waste storage (refer to '*Practice on the Package, Labelling and Storage of Chemical Wastes').*			
• Erect appropriate fence and signs beside the chemical waste storage area.			
• Minimise waste production and careful handling of waste fuel and oil residues.			
• Supply spill absorbent material and emulsifiers on site in case of spillages.			
• Store wastes remote from sensitive receivers.			

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
Municipal Waste • The Project proponent should set up a temporary refuse collection facility. • Wastes should be stored in black refuse bags prior to collection and disposal. • Frequent collection of general refuse. • Regular maintenance and cleaning of the waste storage areas. • Storage of material in suitable containers. • Sewage generated on the site should be controlled through the use of chemical toilets or sewage holding tanks. Either would require regular cleaning with the resulting sewage disposed of appropriately.	Throughout the advance works.	CED	N.A.
General • Maintenance of accurate waste records. • Segregation according to waste type to facilitate recycling or reuse (where practical). • Good site management, planning and design considerations to reduce over-ordering and waste generation.	Throughout construction phases.	TDD / HyD	N.A.
Stockpiles • Locate stockpiles to minimise visual impacts and nuisance related to noise and air quality (dust). • Minimise land-take by reducing the size of the stockpiles and associated working areas. • Provide fencing to separate sensitive habitats and landscape areas to prevent accidental stockpiling in these areas. • Designate appropriate haulage routes. • Keep material covered in heavy rainfall. • Keep movement of stockpiled material to a minimum. • Optimise reuse of suitable material on site to reduce the volume of materials to be disposed to public filling areas. • Use appropriate dust suppression techniques. • Prevent surface water pollution by use of appropriate bunding, interceptors and direction of run-off into settlement ponds.	Throughout construction phases.	TDD / HyD	N.A.
Construction Wastes • Wastes segregation where practical. • For wastes with <20% of non-inert materials, should be segregated and disposed of to public filling area. • Waste collection by an approved licensed waste collectors. • All necessary waste disposal permits should be obtained.	Throughout construction phases.	TDD / HyD	N.A.

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
Chemical Wastes • Store appropriately and isolate from current working areas. • Secure storage area should be provided by the Project proponent. Containment area should be set up for chemical waste storage (refer to '*Practice on the Package, Labelling and Storage of Chemical Wastes').* • Erect appropriate fence and signs beside the chemical waste storage area. • Minimise waste production and careful handling of waste fuel and oil residues. • Supply spill absorbent material and emulsifiers on site in case of spillages. • Store wastes remote from sensitive receivers. • Educate workers on the concepts of site cleanliness and appropriate waste management procedures.	Throughout construction phases.	TDD / HyD	N.A.
Municipal Waste • The Project proponent should set up a temporary refuse collection facility. • Wastes should be stored in black refuse bags prior to collection and disposal. • Frequent collection of general refuse. • Regular maintenance and cleaning of the waste storage areas. • Storage of material in suitable containers. • Sewage generated on the site should be controlled through the use of chemical toilets or sewage holding tanks. Either would require regular cleaning with the resulting sewage disposed of appropriately.	Throughout construction phases.	TDD / HyD	N.A.
Operational Wastes • Municipal wastes should be stored in suitable containers, within a designated storage area which is kept clean and tidy. • Regular, daily collections are required by an approved waste collector.	Throughout the operational phase	Property management	Property management
• Sludge material from the CETP requiring landfill disposal must satisfy specific criteria with respect to percentage solid content (in general 70% moisture content are acceptable at Hong Kong's strategic landfill sites).	Throughout the operational phase	DSD	DSD

Table 13.5 Ecology - Schedule of Recommended Mitigation Measures

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
Advance Works *Loss of Woodland / shrubland* • Boundary of woodland and construction area should be separated by hoarding. There should also be no lighting of fires within the working area. *Dust generation* • Introduction of dust tolerant species and fencing along the perimeter of the woodland/access road and hoarding along the perimeter of the construction site. • Good housekeeping practices to be followed, including water spraying at working area surfaces on site, covering of spoils, suitable storage of waste materials, surface run-off should be diverted to pass through the silt/sand traps. *Noise and disturbance* • The erection of hoarding around the construction site. *Site run off and dredging* • Surface run-off should be diverted to pass through the silt/sand traps and re-used on-site where practicable. • Oil separation provided for runoff from areas with potential oil or grease contamination. • Dredging conducted with a closed grab and silt curtain. • Sewage treated on-site in a package plant before discharge. *General* • Site monitoring to ensure that measures to mitigate the effects of construction are in place and working successfully. Remedial action to correct problems where these have arisen.	Project Design and during advance works.	CED	N.A.
Loss of Woodland / shrubland • Phased removal of woodland which is to be lost during road construction to allow associated mobile species to re-locate. • Boundary of woodland and construction area should be separated by hoarding. There should also be no lighting of fires within the working area. • Compensatory tree planting as outlined in Appendix 9.6.	Project Design and during construction phase Prior to and during construction phase Post construction	TDD TDD / developers	N.A. USD / developer
Stream alignment • The use of gabions and mimicking of the existing stream course. • Construction of new streamcourse and gabions prior to the release of stream water flow and filling in of old streamcourse, to minimise the release of sediments into streamcourse.	Project Design Stream alignment and construction phase	TDD TDD	N.A. N.A.
Dust generation • Water spraying at working area surfaces on site, covering of spoils.	Construction Phase	TDD	N.A.

Mitigation Measures	Time of Implementation Construction and operational stage	Implementation Agent TDD	Maintenance Agent USD / developer
• Introduction of dust tolerant species and fencing along the perimeter of the woodland/access road and hoarding along the perimeter of the construction site.			
• Good housekeeping practices to be followed, including water spraying at working area surfaces on site, covering of spoils, suitable storage of waste materials, surface run-off should be diverted to pass through the silt/sand traps.	Construction stage.	TDD	N.A.
Noise and disturbance • The erection of hoarding around the construction site. • The erection of fences along the perimeter of the existing woodland areas.	Prior to and during construction period. Prior to and during operational period.	TDD	USD / developer
Site run off and dredging • Surface run-off should be diverted to pass through the silt/sand traps and re-used on-site where practicable. • Oil separation provided for runoff from areas with potential oil or grease contamination. • Dredging conducted with a closed grab and silt curtain. • Sewage treated on-site in a package plant before discharge.	Throughout construction period.	TDD	N.A.
Sewage • Sewage discharge will be treated by chemically enhanced primary treatment prior to discharge.	Operational phase.	TDD	DSD
General • Site monitoring to ensure that measures to mitigate the effects of construction are in place and working successfully. Remedial action to correct problems where these have arisen.	Throughout and following construction.	TDD	N.A.

Table 13.6 Landscape and Visual- Schedule of Recommended Mitigation Measures

Mitigation Measures	Time of Implementation	Implementation Agent	Maintenance Agent
Roads D1 and D2 Roadside hardworks and planting.	Project design and TBD construction phase.	TDD	USD
Route 7 Roadside hardworks and planting. Tree and shrub planting is proposed in the amenity strips along both sides of all roads.	Project design and TBD construction phase.	HyD	USD
Route 7 Along Route 7, a 15 metre wide landscape buffer strip is proposed between the road and the residential developments - to comprise dense tree and shrub planting and will act as an effective buffer to the road.	Project design and TBD construction phase.	Private developer	Private developer
Local Open Space (Sites 1 to 5).	Project design and construction phase of individual housing sites.	Private developer	USD / developer
District Open Space between Sites 1 & 2 and east of access road.	Project design and TBD construction phase.	TDD / USD / private developer	USD
Amenity Areas to provide visual relief and contribute towards a better environment. Amenity areas to include inaccessible roadside areas and slopes. Shade trees should be planted along the roads for shade and to create a green corridor through the development.	Project design and TBD construction phase.	TDD / private developer	USD
Noise Barriers should be designed to be as visually recessive and as unobtrusive as possible.	Project design and TBD construction phase.	TDD	HyD
Podium level noise barriers should be designed as visually recessive and as unobtrusive as possible.	Project design and TBD construction phase.	Private developer	Private developer