

Section 11
EIA REPORT IMPACT SUMMARY AND IMPLEMENTATION
SCHEDULE OF MITIGATION MEASURES

- 11 **EIA REPORT SUMMARY AND IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES**
- 11.1 **EIA Report Summary**
- 11.1.1 The EIA Report Summary is provided in *Table 11.1a*.
- 11.2 **Implementation Schedule of Mitigation Measures**
- 11.2.1 The Implementation schedule of mitigation measures during construction and operation are provided in *Table 11.1b* and *11.1c*.

Table 11.1a EIA Report Impacts Summary

Issue	Construction Phase	Operational Phase
Noise	<p>Residual impacts of up to 5 dB(A) above the criterion are likely at Hoi Bun School. It is recommended that construction works close to this school are scheduled to coincide with the school holidays. If this is not possible Type I glazing as described in EIAOTM should be provided to this NSR.</p> <p>It is recommended that construction works close to schools which require particularly noise items of plant are scheduled to avoid examination periods which are, in general, more sensitive to noise.</p> <p>Potential noise impacts, at all other NSRs, resulting from the construction of WCR can be avoided through the use of suitable mitigation measures such as the use of quiet plant and construction techniques, movable noise barriers and reducing the number of plant operating simultaneously.</p> <p>Since the Lei Yue Mun and Yau Tong areas fall within a Designated Area, the use of any Specified Powered Mechanical Equipment or Prescribed Construction Works in these areas, during restricted hours, shall require a valid Construction Noise Permit.</p>	<p>Unmitigated, the operation of the WCR is likely to result in exceedances of the noise criteria at 39 of a total of 66 APs considered in this assessment. This equates to approximately 2,820 residential dwellings and 75 classrooms.</p> <p>The proposed mitigation measures outlined in this assessment will protect a total of 2,090 dwellings and 55 classrooms from EIAO-TM criteria exceedances. It is estimated that this mitigation will benefit approximately 2,700 dwellings and 100 classrooms by at least 1 dB(A).</p> <p>Residual impacts attributable to WCR are likely at a total of 200 dwellings and 20 classrooms. Those affected fall within proposed or planned developments.</p> <p>It is recommended that all residual impacts at future or proposed NSRs are abated using Type I glazing as described in the EIAO-TM and air-conditioning. This includes NSRs within the following developments; Yau Tong Housing Estate (N402 and N404), Ko Chiu Rd Estate (N503) and schools within Eastern Harbour Crossing Site (N801 and N802).</p>
Air Quality	<p>Dust will be the major pollutant during the construction of the WCR. Fugitive Dust Modelling was undertaken for a worst case conservative scenario. In the absence of any mitigation measures, high dust impacts are predicted at Ma Shan Tsuen west. Specific mitigation measures and EM&A recommendations are required regarding the APCO (Construction Dust) Regulation to reduce the dust impacts at the ASRs and to ensure the air quality meets the dust criteria. EM&A have also been recommended to ensure the TSP dust criteria would be complied at the ASRs and will be presented separately in the EM&A Manual.</p>	<p>Vehicle exhaust is expected to be the major pollutant source during the operation of the WCR. Air quality modelling has been carried out for the alignment, tunnel and noise enclosure. The results indicate that air quality at identified ASRs will satisfy the AQO requirements, adverse air quality impacts at the ASRs are therefore not expected.</p> <p>For tunnel air quality, it has been predicted that the air quality within the tunnel near Ma Shan Tsuen, will meet the TAQG, if an air exchange of at least 8 is maintained for the ventilation inside the tunnel. It was predicted that the air quality inside the proposed noise enclosure near Sam Ka Tsuen will meet the TAQG, if an air exchange of at least 4 is maintained.</p>

Table 11.1a EIA Report Impacts Summary

Issue	Construction Phase	Operational Phase
<p>Water Quality</p>	<p>Assessment of the proposed reclamation in the TKO Section has been undertaken to assess the potential impacts generated during the construction phase. Results of the comparative assessment of the SS plume modelling used in the Area 131 Study show that the placement of fill is unlikely to lead to impacts due to the relatively small volumes of material used and long distances from sensitive receivers. However, suitable mitigation measures have been recommended as good site practice to ensure that the water quality impacts are minimised.</p> <p>For the reclamation at Yau Tong, SS modelling results have predicted an exceedance of the WSD criteria at both intakes assessed. However, it is anticipated that the employment of the mitigation measures recommended will be able to minimise SS impacts to within the upper limit 20 mgL^{-1} of WSD criteria. Provided that the recommended mitigation measures are incorporated, there should be no insurmountable residual water quality impacts due to the proposed construction of the WCR.</p> <p>Impacts from the construction of the WCR Yau Tong Bay reclamation have been considered in isolation, which assumes that there will be no cumulative impacts from other projects. This is based on the assumption that construction work for the SEKR will commence after the WCR and so there will be no overlap in the construction works. The Yau Tong Bay CDA reclamation has not started and so the WSD intakes will be in their current positions. Should either of the above assumptions change at a later date when the construction programmes for the SEKR and the Yau Tong Bay CDA reclamation become available then it will be necessary to carry out further modelling to examine cumulative impacts.</p>	<p>A comparative assessment has been undertaken to assess the difference in reclamation size between the Area 131 reclamation and the WCR TKO Section reclamation and showed that there should not be an impact in water flow.</p> <p>Hydrodynamic modelling was undertaken for the proposed Yau Tong reclamation to confirm that there is not a reduction in the flushing of the Yau Tong Bay. The results of the simulations showed that the reclamation has a minor effect on the local hydrodynamics in terms of the local flow pattern as well as the water exchange of Yau Tong Bay.</p> <p>With improvement in sewerage and collection of sewage for treatment at Kwun Tong proposed in the <i>Development of a Master Plan for Sewage Disposal for East Kowloon Study</i>, it is expected that no insurmountable impacts will arise from the operation of the WCR.</p> <p>As part of this project, the Yau Tong (YT) salt water pumping station will eventually be relocated to the new waterfront. The findings of the Water Quality Impact Assessment showed that water quality at the Cha Kwo Ling pumping station will not be impacted during the operation of the WCR project.</p> <p>No cumulative impacts on the operation of the WCR were considered for the Yau Tong Bay CDA reclamation and the SEKR. The Yau Tong Bay CDA reclamation has not started and is not a confirmed project which means that there are no details as to the likely timing. There was thus no good information available that indicated that the Yau Tong Bay CDA reclamation should be included in the operational modelling. The SEKR has not started either, particularly the breakwater adjacent to the WCR reclamation at Yau Tong Bay. There is no firm information on the likely timing and layout for the SEKR, in fact there have been a number of objections lodged concerning that project which will likely mean that changes to the layout/construction phasing for the project. There was therefore no sound information available to set up the model for the operational phase which included any part of the SEKR. Should either of the above assumptions change at a later date when the construction programmes and layouts for the SEKR and the Yau Tong Bay CDA reclamation become available then it will be necessary to carry out further modelling to examine cumulative impacts.</p>

Table 11.1a EIA Report Impacts Summary

Issue	Construction Phase	Operational Phase
Waste Management	<p>The following quantities of waste are expected to arise during the construction of the WCR as summarised in Table 6.4g: dredged materials (approximately 228,000 m³ for Yau Tong Bay and 299,000 m³ for TKO); excavated materials (360,000 m³ which can be reused on site); construction and demolition waste (16,000 m³); chemical waste (small quantity); and general refuse (60 kg per day).</p> <p>Mitigation measures relating to good practice have been recommended to ensure that adverse environmental impacts are prevented and that opportunities for waste minimisation and recycling are followed.</p> <p>Provided that the recommendations put forward in this report are conscientiously acted upon, no waste related regulatory noncompliance should occur as a result of the storage, handling, collection, transport, and disposal of wastes arising from the construction and operation of the WCR.</p>	
Ecology	<p><i>Terrestrial Ecology</i></p> <p>The terrestrial ecological resource of the Study area has been identified through field surveys. Given the poor ecological conditions of the Study area, the potential ecological impacts arising from the WCR proposal is considered low and it is considered that there would be no adverse residual terrestrial ecology impacts, particularly with the implementation of planting as proposed as part of the landscape assessment which would provide more than 4 ha of dense tree and shrub woodland planting and more than 0.4 ha of ornamental planting. However, recommendations have been made to minimise disturbance to the surrounding habitats during construction, particularly the scrubland /grassland mosaic habitat near the northern end, the Black Kite nest and the patches of protected Chinese New Year Flower (<i>Enkianthus quinqueflorus</i>). No impact is expected on protected orchids <i>Arundina chinensis</i> and <i>Habenaria linguella</i> which are located outside the work site boundary.</p> <p><i>Marine Ecology</i></p> <p>Literature reviews of existing information coupled with field surveys of marine ecological resources have been undertaken for this impact assessment. Information on baseline conditions indicate that intertidal and subtidal hard surface habitats are of medium ecological value. Soft bottom habitats identified in the review were regarded as of low ecological value. The only marine ecological sensitive receiver identified in the review was the Tung Lung Chau Fish Culture Zone. The impact assessment indicated that impacts to this location were predicted to be within acceptable levels as defined by the Water Quality Objectives. No sightings of marine mammals have been reported from the vicinity and therefore the area is not considered as an important habitat for Hong Kong's resident dolphin and porpoise populations.</p>	

Table 11.1a EIA Report Impacts Summary

Issue	Construction Phase	Operational Phase
	<p>Potential impacts to marine ecological and fisheries resources and sensitive receivers during the construction phase of the project may arise from direct disturbances to habitats, or through changes to key water quality parameters, as a result of the reclamation for the Western Coast Road. The natural coastline inside Junk Bay along the TKO section of the Western Coast Road will be lost as a result of the reclamation activities which will cover a total area of 7.52 ha. This will result in the loss of 3 ha of medium ecological value intertidal habitat, 3 ha of medium ecological value subtidal hard bottom habitat and 1.52 ha of low ecological value soft bottom habitat.</p> <p>The reclamation in between Yau Tong Bay and the Sam Mun Tsai Typhoon Shelter will result in the loss of 500 m of artificial seawalls that support low ecological value assemblages. However, they will be replaced by 800m of artificial seawalls on which it is expected assemblages of similar ecological value will colonise. The reclamation will also involve the loss of 6.4 ha of low ecological value soft bottom assemblages. The low ecological value of these assemblages and polluted nature of the habitat reduces the severity of these impacts to acceptable levels.</p> <p>Mitigation measures specific to marine ecology include the provision of > 6 ha of tetrapod seawalls along the TKO Section of the reclamation to facilitate colonisation by soft and hard corals, low density assemblages of which will be lost as a result of the construction of the reclamation. Other mitigation measures designed to mitigate impacts to water quality to acceptable levels (compliance with water quality objectives), including constraints on dredging and filling operations, are also expected to mitigate impacts to marine ecological and fisheries resources.</p> <p>The residual impacts occurring as a result of construction and operation of the Western Coast Road are the direct loss of the low ecological value soft bottom subtidal assemblages, medium ecological value intertidal and subtidal hard bottom assemblages present within the reclamation site. The loss of the habitat within the reclamation site can be partially mitigated through the provision of tetrapod seawalls on which soft and hard coral assemblages (lost during the reclamation) can colonise and grow. This mitigation measure coupled with the finding that the habitat ranges from low to medium ecological value combine to reduce the magnitude of the residual impact to acceptable levels. In the light of this the residual impact is not considered to be unacceptable.</p>	

Table 11.1a EIA Report Impacts Summary

Issue	Construction Phase	Operational Phase
<p>Visual and Landscape Impact</p>	<p>The Construction phase will impact on the VSR's as follows:</p> <ul style="list-style-type: none"> • Yau Tong and Hong Kong Island VSR's will have clear views of the construction of the bridge and elevated slip roads in Yau Tong Bay this will include increased boating and barge activity associated with the works; • Lei Yue Mun VSR's will have views of the hillside interrupted by construction activity; and • Construction of the road along the coastline and at the base of Devil's Peak including increased barge and boat traffic will impact on Hong Kong Island VSR's. <p>The proposals will result in differing degrees of impact to the landscape character between the Yau Tong and Devil's Peak parts of the Study Area. These are:</p> <ul style="list-style-type: none"> • Construction works will increase boating and barging traffic in Yau Tong Bay changing Yau Tong Bay's character into one of an active construction site; • Lei Yue Mun landscape character will change as it is cut off from it's hillside resource by construction activity; and; • The landscape character of the coastal edge will be disturbed and turned into an active construction site. <p>In accordance with Annex 10 of the EIAO Technical Memorandum, the overall level of impact is considered acceptable with mitigation measures.</p>	<p>Landscape/Visual Operational Impacts</p> <p>The proposed WCR is expected to result in differing degrees of impact to the landscape character between the Yau Tong and Devil's Peak parts of the Study Area. Potential significant adverse impacts could occur due to:</p> <ul style="list-style-type: none"> • The loss of the Lei Yue Mun headland and TKO Bay coastline; • Changes in the harbour frontage of Yau Tong Bay and landscape impacts due to the intrusion to the future housing at Ko Chiu Road and Lei Yue Mun Supplementary Housing Site; • Potential for adverse landscape impacts at Lei Yue Mun due to: demolition of housing; disturbance to patterns of settlement in the Lei Yue Mun fishing village settlements; loss of natural coastline and landform in the vicinity of Lei Yue Mun headland; segregation of Ma San Tsuen and its hillside resource; and, loss of hillside vegetation. • Potential moderate adverse impacts could also occur at Cha Kwo Ling and one of the Sam Ka Tsuen Typhoon Shelter sitting-out areas. <p>The proposed WCR is expected to result in major adverse visual impacts to views from:</p> <ul style="list-style-type: none"> • the Lei Yue Mun fishing village settlements both up Devil's Peak and towards Hong Kong; • highrise residential developments towards Devil's Peak and towards Hong Kong Island; • Sam Ka Tsuen Recreation Ground and Typhoon Shelter Sitting-out areas towards Devil's Peak and the overbridge; • Lei Yue Mun Gap Boat Traffic towards the whole of the site area, and, the south from the future housing developments Ko Chiu Road Housing Estate and Lei Yue Mun Supplementary Housing Site. <p>Mitigation measures have been recommended for both landscape and visual impacts. Measures to reduce potential adverse impacts include: co-ordination of the design of hard materials finishes, noise barriers and newly formed slopes for visual improvements; provision of dense screen buffer tree and shrub planting; co-ordination of finished colour to concrete drainage channels; and vetting of design of the bridge structures, including noise barriers, by the ACABAS. As there is limited scope for mitigation measures for the elevated sections of the WCR alignment, particularly those across stretches of water, such measures must be considered within the context that the proposed structures will be major landscape and visual elements.</p> <p>In accordance with Annex 10 of the EIAO Technical Memorandum the overall level of impact is considered acceptable with mitigation.</p>

Table 11.1a EIA Report Impacts Summary

Issue	Construction Phase	Operational Phase
Cultural Heritage	<p>The WCR will avoid physical encroachment/interference with the Tin Hau Temples, Devil's Peak Fort and Military Installations, Ming Chiu Tong and the Lei Yue Mun Village Burial Ground. Impacts will however result from conflict of the proposed road alignment with some of the cliff faces of the historic quarry landscape. The road alignment, where it impacts with the cliff faces, will be reviewed at the design stage in order to make every effort to retain a significant section of the quarry. The proposed WCR is considered to be acceptable with mitigation measures from the cultural heritage point of view.</p>	

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
<i>Noise</i>				
Tseung Kwan O Section	Table A4a	Quiet plant + barriers (Mit 2)	TDD	(A) Site Clearance
		Quiet plant + Barriers + Limiting no. of bulldozers to 1 (Mit 3)	TDD	(B) Site clearance and Dredging for seawall trenches
		Quiet Plant + barriers (Mit 2)	TDD	(C) Dredging for seawall trench and construction
		Quiet Plant + barriers (Mit 2)	TDD	(D) Seawall construction
		Quiet Plant + barriers (Mit 2)	TDD	(E) Seawall construction and Reclamation
		Quiet Plant + barriers (Mit 2)	TDD	(F) Reclamation
		Quiet Plant (Mit 1)	TDD	(G) Piling
		Quiet Plant + barriers (Mit 2)	TDD	(H) Piling, pile capping and abutment construction
		Quiet Plant + barriers (Mit 2)	TDD	(I) Pile capping and abutment construction
		Quiet Plant + barriers (Mit 2)	TDD	(J) Pile capping, abutment and bridge deck construction
		Quiet Plant (Mit 1)	TDD	(K) Bridge deck construction and drainage
		Quiet Plant + barriers (Mit 2)	TDD	(L) Bridge deck construction and Roadworks
		Quiet Plant + barriers (Mit 2)	TDD	(M) Roadworks
		Quiet Plant + barriers (Mit 2)	TDD	(N) Landscaping

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
Cut and Cover Tunnel Section	Table A4b	Quiet Plant + barriers (Mit 2)	TDD	(A) Site Clearance
		Quiet Plant + barriers (Mit 2)	TDD	(B) Excavation
		Quiet Plant + barriers (Mit 2)	TDD	(C) Tunnel Construction
		Quiet Plant (Mit 1)	TDD	(D) Backfilling and Slopeworks
		Quiet Plant + barriers (Mit 2)	TDD	(E) Backfilling, Slopeworks and Drainage
		Quiet Plant (Mit 1)	TDD	(F) Drainage
		Quiet Plant + barriers (Mit 2)	TDD	(G) Landscaping
		Quiet plant +movable barriers. Restrict plant to allow only one bulldozer to operate at a time. Close to Ko Chiu Road and Yau Tong Estates motor grader and bulldozer should not operate simultaneously (Mit 3)	TDD	(A) Site Clearance
		Mit 2 + reduce plant to include only one excavator and two lorries and provided movable barriers around working cells for each. At Ko Chiu Road Estate also need to provide movable barriers around working cells for loaders and vibratory roller. (Mit 3)	TDD	(B) Cut and fill slopes and retaining walls
		Quiet Plant + barriers (Mit 2)	TDD	(C) Piling
Lei Yue Mun Section	Table A4c	Quiet plant + barriers. Backfilling to be carried out separately. Movable barriers around excavator working cell. (Mit 3)	TDD	(D) Pile capping
		Quiet Plant + barriers (Mit 2)	TDD	(E) Abutment construction
		Quiet Plant + barriers (Mit 2)	TDD	(F) Bridge deck construction
		Quiet Plant + barriers (Mit 2)	TDD	(G) Utilities, sewage and drainage works
		Quiet Plant + barriers (Mit 2)	TDD	

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
Reclamation Works	Table A4d	Quiet plant + movable barriers around working cells. Split into subtasks levelling of new road, laying base and subbase, laying new surface. Each to be carried out separately. (Mit 3)	TDD	(H) Road construction
		Quiet plant + movable barriers around working cells. (Mit 3)	TDD	(I) Equipment for paving
		Quiet plant + movable barriers around working cells for excavator. (Mit 3)	TDD	(J) Landscaping
		Quiet plant plus movable barriers around working cells. Restrict plant to include only one bulldozer and two lorries. Bulldozer, scraper and motor grader to operate separately. (Mit 3)	TDD	(A) Site clearance
		Quiet plant + barriers and restrict plant teams to one of each plant type. Further mitigation not practical. Criteria exceedance likely at Hoi Bun School. (Mit 3).	TDD	(B) Dredging for seawall/ seawall trenches
		Quiet plant + barriers and restrict plant teams to one of each plant type. Further mitigation not practical. Criteria exceedance likely at Hoi Bun School. (Mit 3)	TDD	(C) Seawall construction
		Quiet plant + barriers. Restrict numbers of barges, bulldozers and lorries to one and provide movable barriers for bulldozer and lorry. (Mit 3)	TDD	(D) Reclamation
		Quiet Plant + barriers (Mit 2)	TDD	(E) Land Piling
		Quiet Plant + barriers (Mit 2)	TDD	(F) Pile capping
		Quiet Plant + barriers (Mit 2)	TDD	(G) Column construction
		Quiet Plant + barriers (Mit 2)	TDD	(H) Bridge deck construction
		Quiet Plant + barriers (Mit 2)	TDD	(I) Drainage
		Quiet plant + barriers. Movable barriers around working cells to be provided for grader, bulldozer and roller. (Mit 3)	TDD	(J) Roadworks

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
Marine Section		Quiet plant + movable barriers around working cells. (Mit 3)	TDD	(K) Paving
		Quiet plant + movable barriers around working cells. (Mit 3)	TDD	(L) Landscaping
	Table A4e	Quiet plant + barriers. Plant team limited. Bulldozer, scraper and motor grader must operate separately with movable barriers around working cells. (Mit 3)	TDD	(A) Mobilisation
		Quiet Plant + barriers (Mit 2)	TDD	(B) Submerged Reef Construction
		Separate tasks. Quiet plant + barriers. (Mit 3)	TDD	(C) Submerged reef construction and marine piling
		Quiet Plant + barriers (Mit 2)	TDD	(D) Marine piling works
		Quiet plant + barriers (in general) Separate tasks close to Cha Kwo Ling, quiet plant + barriers (Mit 2/Mit3)	TDD	(E) Pile capping and column construction
		Quiet plant + barriers (in general) Separate tasks close to Cha Kwo Ling, quiet plant + barriers (Mit 2/Mit3)	TDD	(F) Pile capping, column and marine deck construction
		Quiet Plant (Mit 1)	TDD	(G) Marine deck construction
		Quiet plant + barriers (in general) Separate tasks close to Cha Kwo Ling and Yau Tong Bay Schools, quiet plant + barriers (Mit 2/Mit3)	TDD	(H) Marine deck construction and drainage
		Quiet plant (in general) Separate tasks close to Cha Kwo Ling and Yau Tong Bay Schools, quiet plant + barriers (Mit 1/Mit3)	TDD	(I) Drainage

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
<i>Air Quality</i> Within the WCR Study Boundary	Section 4.5.13	<p>The construction work may generate high dust impact at some ASRs. The dust control measures stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i> should be incorporated in the Contract Specification and implemented to reduce dust impact to within the acceptable dust criteria of 500 μgm^{-3} arising from the works. Typical control measures are:</p> <ul style="list-style-type: none"> the heights from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading; all dusty materials should be sprayed with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet; the haul road should be located away from sensitive receivers and 20 kph of vehicle speed and water spray of road are recommended for the cut and fill section work; every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; the load on the vehicles should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle; and the working area of any excavation should be sprayed with water before, during and immediately after the operation so as to maintain the entire surface wet. 	TDD	During the construction period
<i>Water Quality</i> Yau Tong and TKO Reclamation Area	Section 5.5.52	<p><i>Mitigation Measures for Reclamation Activities</i></p> <p>In accordance with EIAO TM, and based on the results of the water impact assessment, mitigation measures have been developed, refined, finalised and recommended below to effectively reduce water quality impacts predicted from the reclamation activities associated with the proposed reclamation.</p>	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 5.5.53	<p><i>Mitigation Measures for Reclamation Activities</i></p> <p>The maximum rates of working for the TKO Section are as follows:</p> <ul style="list-style-type: none"> • Dredging at the seawall trench is restricted to 1,644 m³ day⁻¹; and • Sandfilling at the seawall trench is restricted to 2,177 m³ day⁻¹. 	TDD	During the construction period
	Section 5.5.54	<p><i>Yau Tong and TKO Section</i></p> <p>The maximum rates of working for the Yau Tong Section are as follows:</p> <ul style="list-style-type: none"> • Dredging at the seawall trench is restricted to 1,892 m³ day⁻¹; and • Sandfilling at the seawall trench is restricted to 900 m³ day⁻¹. 	TDD	During the construction period
	Section 5.5.55	<p>In addition to the above requirements on seawall construction, sand filling for both the TKO and Yau Tong Section should be carried out behind completed seawalls. This will ensure that any fines in the sandfill are retained behind the seawalls and therefore minimise impacts to sensitive receivers.</p>	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 5.5.56	<p>Mitigation measures to control impacts resulting from the generation, transport, and disposal of dredged or excavated material during the construction phase recommended for the proposed reclamations at Yau Tong and TKO Section include:</p> <ul style="list-style-type: none"> • the use of containment structures such as silt curtains or screens around the construction site; • the use of closed clamshell grab dredgers to remove seriously contaminated (Class C) material; • the prohibition of stockpiling of any moderately or seriously contaminated (Class B and C) material, and careful control of stockpiling of any uncontaminated (Class A) material to prevent runoff, resuspension and odour nuisances; • minimising dredging/reclamation activities near the intakes of WSD's salt water pumping stations and preferably carried out during non-peak hours when the abstraction rate at the Salt Water Pumping Stations (SWPS) is low in order to maintain water quality at the SWPS. A schedule of dredging/reclamation activities near the intakes should be provided to WSD prior to commencement of construction works. 	TDD	During the construction period
	Section 5.5.57	<p>It should be noted that currents may reduce the efficacy of silt curtains. Previous research indicates that rates of 0.5 m s^{-1} would be the upper limit for protection from semi-permanent silt curtains. At times when the tidal currents are too high for effective deployment of silt curtains, the works should be suspended.</p>	TDD	During the construction period
	Section 5.5.58	<p>Mitigation measures should also include, but not limited to, construction method and phasing, control over dredging and filling rates, restriction on fine content of fill materials, filling and reclamation to be conducted behind completed seawall, pretreatment of effluent arising from construction activities for compliance with TM standards and provision of proper covering to stockpiles. In regard to the storage of chemical classifiable as dangerous goods, reference should be made of the <i>Dangerous Goods Ordinance</i> and relevant standards.</p>	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
	<p>TDD to Assume Responsibility For The Implementation Of All The Measures</p> <p>Section 5.5.59</p>	<p>Marine dredging and disposal of contaminated sediments requires special mitigation measures as follows:</p> <ul style="list-style-type: none"> • all vessels should be sized such that adequate clearance is maintained between vessels 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; • all barges and hopper dredgers should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; • loading of barges and hoppers should be controlled to prevent splashing of dredged material to the surrounding water, and barges or hoppers should not be filled to a level which will cause the overflow of materials or polluted water during loading or transportation; and • the construction works should cause no visible foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds. 	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
	<p>TDD to Assume Responsibility For The Implementation Of All The Measures</p> <p>Section 5.5.60</p>	<p>Additional provisions will be required where sediments are contaminated. The locations and depths of any areas of contaminated sediments should be indicated in the construction contract following the completion of the sediment quality survey. The Contractor should be required to ensure that contaminated sediments are dredged, transported and placed in approved special dumping grounds in accordance with the <i>EPDTC 1-1-92</i>, <i>WBTC 22/92</i> and <i>WBTC 6/92</i>. Typical mitigation measures to minimise the loss of contaminated material to the water column are listed below:</p> <ul style="list-style-type: none"> • use of new specialized water tight grabs to control sediment loss; • transport of contaminated mud to the marine disposal site should, wherever possible, be by split barge of not less than 750 m³ capacity, well maintained and capable of rapid opening and discharge at the disposal site; • the material should be placed in the pit by bottom dumping, at a location within the pit specified by the FMC; • discharge should be undertaken rapidly and the hoppers should then immediately be closed, material adhering to the sides of the hopper should not be washed out of the hopper and the hopper should remain closed until the barge next returns to the disposal site; • the dumping vessel should be stationary throughout the dumping operation; • the Contractor must be able to position the dumping vessel to an accuracy of +/-10 m; • monitoring of the barge loading to ensure that loss of material does not take place during transportation; • transport barges or vessels shall be equipped with automatic selfmonitoring devices; and • on site audit of the equipment and plant is essential to ensure it is used in the correct manner. 	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 5.5.62	<p><i>Further Mitigation Measure for WSD Seawater Pumping Stations at Yau Tong Bay</i></p> <p>Further mitigation measures are recommended to reduce these impacts at the Yau Tong Bay and Cha Kwo Ling saltwater pumping stations to within WSD water quality criteria. The proposed measures will involve the use of a silt curtain around the WSD intakes during dredging and filling activities.</p>	TDD	During the construction period
	Section 5.5.65	<p>Other mitigation measures could include reducing the dredging and filling rate during reclamation activities to further reduce the SS levels to within WSD water quality criteria, if necessary. However, it should be noted that reducing the dredging and filling rate may impose constraints on the proposed project programme. This would only be required for Stage 1 prior to the construction of the seawall. It is expected that once the seawall is constructed that filling will occur behind the seawall and the Yau Tong WSD intake will be reprovided to the new proposed waterfront. The need for reducing the dredging rate will be confirmed during EM&A which will monitor suspended sediment concentrations at the WSD intakes. EM&A results will be provided to WSD for review.</p>	TDD	During the construction period
	Section 5.5.66	<p>The assessment of impacts to the Yau Tong WSD Saltwater Pumping Station during construction of the WCR reclamation assume that the pumping station had not been reprovioned to the seaward face of the WCR reclamation. According to the construction programme, as described in <i>Sections 2.3.7 and 2.3.11</i>, the new pumping station will be constructed as part of Phase 2 of the reclamation and the old pumping station will be demolished as part of Phase 3. In order to keep the SS at the intake at, or below, the levels presented above the existing pumping station should be kept in operation until the completion of the sea wall dredging. Once the outfall is reprovioned there will be no impact from the reclamation filling because the sediment will be retained by the sea walls.</p>	TDD	During the construction period
	Section 5.5.67	<p><i>Mitigation Measures for Cooling and Stormwater Discharge</i></p> <p>Potential water quality impacts may arise from the accumulation of stormwater discharge into the temporary embayment formed during the construction phase. Diversion schemes of all the existing outfalls should be incorporated into the Preliminary Design to ensure that all stormwater discharges will be diverted prior to Phases 1 and 2 seawall placement. It is therefore expected that these discharges will not have any insurmountable impacts on water quality.</p>	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 5.5.68	<p><i>Mitigation Measures for Floating Debris</i></p> <p>Floating refuse and debris is not only unsightly but may also lead to deterioration of water quality, if left for a long period. Although the accumulation of floating refuse will be prevented through the adoption of a configuration and phasing scheme that maximise flushing, it is still recommended that collection and removal of floating refuse be performed at regular intervals, on a twice daily basis, and more frequently when considerable amount of refuse is observed. The Contractor of the construction works should be responsible for the collection of floating refuse within the site boundary as well as outside the site boundary, if floating refuse is attributed to the WCR construction works.</p>	TDD	During the construction period
General Study Area	Section 5.5.69	<p><i>Mitigation Measures for General Construction Activities</i></p> <p>All site construction runoff should be controlled and treated to prevent high levels of SS entering surrounding waters. All effluent and waste water arising from construction activities should only with the ProPECC and the WPCO. The following measures, which constitute good site practices, should be undertaken by the contractor during construction and should be included in the contract documents.</p> <ul style="list-style-type: none"> • Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a sediment trap/sediment retention basin, prior to discharge. • Permanent drainage channels should also incorporate sediment basins or traps, and baffles to enhance deposition rates. • All traps (temporary and permanent) should also incorporate oil and grease removal facilities. • Sediment traps must be regularly cleaned and maintained by the contractor. Daily inspections of such facilities should be required of the contractor. • Concrete batching plants should be bunded to contain the surface water runoff. 	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
		<ul style="list-style-type: none"> • Water from concrete batching plants must also pass through sediment traps and settlement tanks prior to runoff into watercourses. These must be regularly cleaned and maintained by the contractor. • Collection of spent bentonite/other grouts in a separate slurry collection system for either cleaning and reuse/disposal to landfill. • Maintenance and plant areas should be bunded and constructed on a hard standing with the provision of sediment traps and petrol interceptors. • All drainage facilities must be adequate for controlled release of storm flows. • Minimising of exposed soil areas to reduce the potential for increased siltation and contamination of runoff. • All chemical stores shall be contained (bunded) such that spills are not allowed to gain access to water bodies. Chemical waste arising from site should be properly stored, handled, treated and disposed of complying with the requirements stipulated under the Waste Disposal (Chemical Waste) (General) Regulation. • Chemical toilets will be required to handle the sewage from the onsite construction workforce. 		
	Section 5.5.70	<ul style="list-style-type: none"> • In order to prevent any deterioration in water quality, it will be important that appropriate measures are implemented to control runoff and drainage, and thereby prevent high loadings of SS from entering the nearby rivers or water bodies. Proper site management will be essential to minimise surface water runoff and good housekeeping practices should be implemented to ensure that debris and rubbish does not enter water bodies. 	TDD	During the construction period
	Section 5.5.71	<p><i>Construction Runoff</i></p> <p>The following mitigation measures should be implemented prior to the commencement of site preparation works.</p> <ul style="list-style-type: none"> • The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. 	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 5.5.72	<p>Construction runoff should be controlled in the following manner to prevent runoff with high levels of SS.</p> <ul style="list-style-type: none"> • Traps (temporary or permanent) should incorporate oil and grease removal facilities such as oil interceptors at areas where there are high risk of oil/grease pollution. • Oil interceptors should be installed for the maintenance workshop and storage areas in compliance with EPD regulations. These should be emptied regularly and should have a bypass to prevent flushing during periods of heavy rain. • Ditches which tie into the temporary cut off drains or tarpaulin covers should be provided to reduce sediment runoff. • Slope exposure during the wet season should be minimised through avoiding primary earthworks movements during the wet season and adopting, wherever possible, a construction sequence which reduces the exposed areas through maintaining short work faces. • Spent cement mix or other paving materials should be collected in a separate collection system for either cleaning and reuse or disposal to landfill. 	TDD	During the construction period
		<ul style="list-style-type: none"> • Hydroseeding is recommended, wherever practical, to minimise exposed soil areas and reduce the potential for increased siltation and contamination of runoff. • Disposal of any solid materials, litter or wastes to the stream should be prohibited. • Accidental release of soil, debris or solid wastes into adjoining land and streams should be prevented by the installation of boarding at the site boundary, particularly along stream banks. 		
	Section 5.5.73	<p><i>Oils and Solvents</i></p> <p>To prevent spillages of fuel oils or other polluting fluids to coastal water, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110 % of the storage capacity of the largest tank.</p>	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 5.5.74	<i>Sewage</i> Portable toilets should be provided for the onsite construction workforce. Appropriate treatment and discharge should be in compliance with the TM.	TDD	During the construction period
	Section 5.5.75	<i>Stream Culverting</i> Stream Culverting is proposed for several of the streams in the Study Area. The stream courses currently discharging into Sam Ka Tsuen Typhoon Shelter will be culverted in 2004. For other stream course discharges, the timing of culverting is unknown. Impacts to the water quality of these streams should be minimised as far as possible. In addition, temporary diversions of the streams should be constructed so as to allow the water flow to discharge without overflow, erosion or washout. The areas concerned should be properly reinstated after diversion to their original conditions so that the drainage pattern would not be affected.	TDD	During the construction period
<i>Waste Management</i>				
Within the WCR Site Boundary	Section 6.3.53	<i>Waste Management Hierarchy</i> The various waste management options can be categorised in terms of preference from an environmental viewpoint. The options considered to be more preferable have the least impacts and are more sustainable in a long term context. Hence, the hierarchy is as follows: <ul style="list-style-type: none"> • avoidance and minimisation, ie not generating waste through changing or improving practices and design; • reuse of materials, thus avoiding disposal (generally with only limited reprocessing); • recovery and recycling, thus avoiding disposal (although reprocessing may be required); and • treatment and disposal, according to relevant laws, guidelines and good practice. 	TDD	During the construction period
	Section 6.3.54	The Waste Disposal Authority should be consulted by the Contractor on the final disposal of wastes.	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 6.3.55	This hierarchy should be used to evaluate waste management options, thus allowing maximum waste reduction and often reducing costs. For example, by reducing or eliminating over-ordering of construction materials, waste is avoided and costs are reduced both in terms of purchasing of raw materials and in disposing of wastes.	TDD	During the construction period
	Section 6.3.56	<i>Dredged Material</i> The volume of material dredged should be minimised by limiting dredging during reclamation to seawall formation. Other no dredge options could also be investigated, subject to engineering feasibility.	TDD	During the construction period
	Section 6.3.57	Potential impacts associated with the exposure to and disposal of contaminated sediments could be mitigated by adopting the following measures: <ul style="list-style-type: none"> • minimising exposure to any contaminated material by the wearing of protective gear such as gloves, providing adequate hygiene and washing facilities and preventing eating during dredging; • any contaminated sediment dredged should not be allowed to stockpile on site and should be immediately removed from site once dredged; • all vessels for marine transportation of dredged sediment should be fitted with tight fitting seals to their bottom openings to prevent leakage of materials; and • loading of barges and hoppers should be controlled to prevent splashing of dredged material to the surrounding water, and barges or hoppers should under no circumstances be filled to a level which will cause the overflowing of materials or polluted water during loading or transportation. 	TDD	During the construction period
	Section 6.3.58	Other suitable mitigation measures for handling of dredged material are dealt with, in Section 5 of the EIA.	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 6.3.59	<p><i>Excavated Materials</i></p> <p>Excavated materials are not considered likely to cause adverse impacts with respect to their disposal, since they will be reused onsite as far as possible. If any surplus uncontaminated inert materials do arise then they may be delivered to public filling areas.</p>	TDD	During the construction period
	Section 6.3.60	<p>Excavated materials should be segregated from other wastes to avoid possible contamination, thereby allowing disposal at public filling areas. Inert excavated materials are not considered likely to cause adverse impacts with respect to their disposal as there is sufficient space available in TKO Public Filling Area during the construction of the WCR.</p>	TDD	During the construction period
	Section 6.3.61	<p><i>Construction and Demolition Waste</i></p> <p>In order to minimise waste arisings and keep environmental impacts within acceptable levels, the mitigation measures described below should be adopted.</p>	TDD	During the construction period
	Section 6.3.62	<p>Careful design, planning and good site management can minimise over ordering and generation of waste materials such as concrete, mortars and cement grouts. If feasible, the noise enclosures used at each site should be designed so that they are reusable, after they have been dismantled and removed, thereby not generating construction waste. The design of formwork should maximise the use of standard wooden panels so that high reuse levels can be achieved. Alternatives such as steel formwork or plastic facing should be considered to increase the potential for reuse.</p>	TDD	During the construction period
	Section 6.3.63	<p>The Contractor should recycle as much as possible of the C&D material on-site. Proper segregation of wastes on site will increase the feasibility that certain components of the waste stream can be recycled specialised contractors. Concrete and masonry, for example can be crushed and used as fill and steel reinforcing bar can be used by scrap steel mills. Different areas of the work sites can be designated for such segregation and storage depending on site specific conditions.</p>	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 6.3.64	The requirements for surface run-off and the handling and disposal of bentonite slurries should follow the <i>Practice Note For Professional Persons, Construction Site Drainage, Professional Persons Consultative Committee, 1994 (ProPECC PN 1/94)</i> which require a WPCO discharge license for any discharge into any drainage on sewerage system and include measures such as those described in Section 5.5 of the EIA to reduce impacts to surrounding waters.	TDD	During the construction period
	Section 6.3.65	The public filling area at the vicinity of WCR is the TKO Public Filling Area. If landfill disposal has to be used, the wastes will most likely be delivered to the SENT Landfill.	TDD	During the construction period
	Section 6.3.66	At present, Government is developing a charging policy for the disposal of waste to landfill. When it is implemented, this will provide additional incentive to reduce the volume of waste generated and to ensure proper segregation to allow free disposal of inert material to public filling areas.	TDD	During the construction period
	Section 6.3.67	C&D materials should be segregated on site into different waste and material types. Wherever possible, materials should be reused or recycled with the remaining inert materials before being disposed of at public filling areas. Waste containing putrescible materials should be disposed of at landfill.	TDD	During the construction period
	Section 6.3.68	In order to minimise the impacts of the demolition works these wastes must be cleared as quickly as possible after demolition. The demolition and clearance works should therefore be undertaken simultaneously.	TDD	During the construction period
	Section 6.3.69	<i>Chemical Waste</i> For those processes which generate chemical waste, it may be possible to find alternatives which generate reduced quantities or even no chemical waste, or less dangerous types of chemical waste.	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 6.3.70	<p>Chemical waste that is produced, as defined by <i>Schedule 1 of the Waste Disposal (General Waste) (General) Regulation</i>, should be handled in accordance with the <i>Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i>. Any person who produce chemical waste are required to register as a chemical waste producer with EPD. Containers used for the storage of chemical wastes should:</p> <ul style="list-style-type: none"> • be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; • have a capacity of less than 450 l unless the specifications have been approved by the EPD; and • display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations. 	TDD	During the construction period
	Section 6.3.71	<p>The storage area for chemical wastes should:</p> <ul style="list-style-type: none"> • be clearly labelled and used solely for the storage of chemical waste; • be enclosed on at least 3 sides; • have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • have adequate ventilation; • be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); and • be arranged so that incompatible materials are adequately separated. 	TDD	During the construction period
	Section 6.3.72	<p>Disposal of chemical waste should:</p> <ul style="list-style-type: none"> • be via a licensed waste collector, and • be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility which also offers a chemical waste collection service and can supply the necessary storage containers, or • be to a reuser of the waste, under approval from the EPD. 	TDD	During the construction period
	Section 6.3.73	<p>The Centre for Environmental Technology operates a Waste Exchange Scheme which can assist in finding receivers or buyers.</p>	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 6.3.75	<p><i>General Refuse</i></p> <p>General refuse generated on-site should be stored in enclosed bins or compaction units separate from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily or every second day basis to minimise odour, pest and litter impacts. The burning of refuse on construction sites is prohibited by law.</p>	TDD	During the construction period
	Section 6.3.76	<p>General refuse is generated largely by food service activities on site, so reusable rather than disposable dishware should be used if feasible. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated or easily accessible, so separate, labelled bins for their deposit should be provided if feasible.</p>	TDD	During the construction period
	Section 6.3.77	<p>Office wastes can be reduced through recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered if one is available.</p>	TDD	During the construction period
	Section 6.3.77	<p><i>Biogas</i></p> <p>As a good working practice, prior to entry into any confined space (ie drainage manhole) within the reclamation site (such as underground manholes, culvers and utility casings), the gas atmosphere within the confined space should be monitored for oxygen, methane, carbon dioxide and hydrogen sulphide. The working practices should follow the EPD Landfill Gas Hazard Assessment Guidance Note, Waste Facilities Development Group, EPD, 1997 guidelines as follows:</p> <ul style="list-style-type: none"> Any chamber, manhole or culvert which is large enough to permit access to personnel should be subject to entry safety procedures. Such work in confined spaces is controlled by the Factories and Industrial Undertakings (Confined Spaces) Regulations of the Factories and Industrial Undertakings Ordinance. Following the Safety Guide to Working in Confined Spaces ensures compliance with the above regulations. 	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
	<p>TDD to Assume Responsibility For The Implementation Of All The Measures</p> <p>Section 6.3.78</p>	<p>The key issues with regards to confined spaces which are at risk of landfill gas build-up are set out below:</p> <ul style="list-style-type: none"> The entry or access point should be clearly marked with a warning notice (in English and Chinese) which states that there is the possibility of flammable and asphyxiating gases accumulated within. The warning notice should also give the telephone number of an appropriate competent person who can advise on the safety precautions to be followed before entry and during occupation of the manhole. Personnel should be made aware of the dangers of entering confined spaces potentially containing hazardous gases and, where appropriate, should be trained in the use of gas detection equipment. 	TDD	During the construction period
		<ul style="list-style-type: none"> Prior to entry, the atmosphere within the chamber should be checked for oxygen, methane and carbon dioxide concentrations. The chamber may then only be entered if oxygen is greater than 18% by volume, methane is less than 10% of the Lower Explosive Limit (LEL), which is equivalent to 0.5% by volume (approximately), and carbon dioxide is less than 0.5% by volume. If either carbon dioxide or methane are higher, or oxygen lower, than the values given above, then entry to the chamber should be prohibited and expert advice sought. Even if conditions are safe for entry, no worker should be permitted to enter the chamber without having another worker present at the surface. The worker who enters the chamber should wear an appropriate safety/recovery harness and, preferably, should carry a portable methane, carbon dioxide and oxygen meter. 		

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 6.3.79	In general, when work is being undertaken in confined spaces sufficient approved resuscitation equipment, breathing apparatus and safety torches should be available. Persons involved in or supervising such work should be trained and practised in the use of such equipment. A permit-to-work system for entry into confined spaces should be developed by an appropriately qualified person and consistently employed.	TDD	During the construction period
	Section 6.3.81	<i>Other Waste Management Requirements</i> This section describes waste management requirements and provides practical actions which can be taken to minimise the impacts arising as a result of the generation, storage, handling, transport and disposal of wastes.	TDD	During the construction period
	Section 6.3.81	Waste reduction is best achieved at the planning and design stage, as well as by ensuring that processes are run in the most efficient way. Good management and control can prevent the generation of significant amounts of waste. For unavoidable wastes, reuse, recycling and optimal disposal are most practical when segregation occurs on the construction site, as follows: <ul style="list-style-type: none"> • dredged material for disposal at marine disposal sites; • excavated material (inert) suitable for reclamation or fill; • Inert C&D material (public fill) for reuse at public filling areas; • C&D waste for landfill; • chemical waste; and • general refuse. 	TDD	During the construction period
	Section 6.3.82	The criteria for sorting solid waste is described in <i>New Disposal Arrangements for Construction Waste</i> . Waste containing in excess of 20% by volume of inert should be segregated from waste with a larger proportion of putrescible material.	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
	<p>TDD to Assume Responsibility For The Implementation Of All The Measures</p> <p>Section 6.3.83</p>	<p>Proper storage and site practices will minimise the damage or contamination of construction materials. On site measures may be implemented which promote the proper disposal of wastes once off-site. For example having separate skips for inert (rubble, sand, stone, etc) and non-inert (wood, organics, etc) wastes would help to ensure that the former are taken to public filling areas, while the latter are properly disposed of at controlled landfills. Since waste brought to public filling areas will not attract a charge, while that taken to landfill may attract some future charge, separating waste may also help to reduce waste disposal costs, should landfill charging be introduced.</p>	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	ELA Reference Section	Mitigation Measure	Agent	Timing
	<p>Section 6.3.84</p>	<p>TDD to Assume Responsibility For The Implementation Of All The Measures</p> <p>Specifically, it is recommended that:</p> <ul style="list-style-type: none"> • A sediment testing programme should be carried out during the detailed design stage to determine the quantity and quality of sediments to be removed for allocation to a disposal site. • wastes should be handled and stored in a manner which ensures that they are held securely without loss or leakage thereby minimising the potential for pollution; • only reputable waste collectors authorised to collect the specific category of waste concerned should be employed; • removal of demolition wastes should be arranged to coincide with the demolition work; • appropriate measures should be employed to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • the necessary waste disposal permits should be obtained from the appropriate authorities, if they are required, in accordance with the <i>Waste Disposal Ordinance (Cap 354)</i>, <i>Waste Disposal (Chemical Waste) (General) Regulation (Cap 354)</i> and the <i>Crown Land Ordinance (Cap 28)</i>; • collection of general refuse should be carried out frequently, preferably daily; • waste should only be disposed of at licensed sites and site staff and the civil engineering Contractor should develop procedures to ensure that illegal disposal of wastes does not occur; • waste storage areas should be well maintained and cleaned regularly; • records should be maintained of the quantities of wastes generated, recycled and disposed (determined by weighing each load or by another method); and 	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
		<ul style="list-style-type: none"> during demolition, the Contractor should adopt selective demolition measures so that reusable material, like wood and metal, can be disposed of at landfills; and inert demolition materials can be reused on site or delivered to public filling areas, public filling points or land formation sites. 		
	Section 6.3.85	Training and instruction of construction staff should be given at the site to increase awareness and draw attention to waste management issues and the need to minimise waste generation. The training requirements should be included in the site waste management plan.	TDD	During the construction period
<i>Ecology</i>				
General Terrestrial Mitigation Within Study Area Boundary	Section 7.5.10	<p>The following mitigation measures are recommended to minimise disturbance to the surrounding environment :</p> <ul style="list-style-type: none"> fences should be erected along the boundary of construction sites, before the commencement of works, to prevent tipping, vehicle movements, and encroachment of personnel into the scrubland patches on the hill slopes where the protected plant species are located. regular checks to ensure that the work site boundaries are not exceeded and that no damage to surrounding areas. wild and uncontrolled open fires should be prohibited within the work site boundary, and install fire fighting equipment in the work area. the alignment of temporary works area should avoid the scrubland grassland mosaic area in the northern end of the Study area, where practicable, so as to protect the Chinese New Year Flower and maintain the integrity of the habitat. 	TDD	During the construction period (2001 to 2007)

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
		<ul style="list-style-type: none"> • survey and collect individuals of the protected Chinese New Year Flower <i>Enkianthus quinqueflorus</i> prior to work commencement for transplanting to unaffected scrubland grassland mosaic area outside the work site boundary if, during the delineation of the work site areas, the scrubland grassland mosaic area will be affected. The survey should be undertaken by qualified personnel (eg botanist, while the transplanting works should be carried out by Government listed Landscape Specialist Contractor. The survey area should include areas within 10 m of the proposed work site areas. • noisy activities should be programmed to avoid as much as practicable the breeding season (approximately January to April) of the Black Kite to minimise indirect impact on them. • planting works should be incorporated into the construction programme as early as possible. These planting works would be undertaken by TDD and maintained by RSD. Tree species used for planting should take reference from the species listed in Section 8.7, and the location is shown in Figure 8.23 of the EIA. 		
Section 7.5.11		<p>The mitigation measures should be included into contract clauses for the WCR development. The implementation of the measures should be checked as part of the environmental monitoring and audit procedures during the construction period, the procedures of which are presented in the separate EM&A Manual.</p>	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
Marine Ecology and Fisheries Resources	Section 7.6.22	<p>Operational constraints during construction of the TKO Section have been recommended in order to avoid impacts to marine ecological resources by minimising impacts to water quality. This has been achieved through the following (detailed in full in <i>Section 5.5</i> of the EIA):</p> <ul style="list-style-type: none"> • the use of containment structures such as silt curtains or screens around the construction site; • the use of closed clamshell grab dredgers to remove seriously contaminated (Class C) material; • the prohibition of stockpiling of any moderately or seriously contaminated (Class B and C) material, and careful control of stockpiling of any uncontaminated (Class A) material to prevent runoff, resuspension and odour nuisances; 	TDD	During the construction period
		<ul style="list-style-type: none"> • at times when the tidal currents are too high (>0.5 m s⁻¹) for effective deployment of silt curtains the works should be suspended; and, • mitigation measures should also include, but not limited to, construction method and phasing, control over dredging and filling rates, restriction on fine content of fill materials, filling and reclamation to be conducted behind completed seawall, pretreatment of effluent arising from construction activities for compliance with TM standards, provision of proper covering to stockpiles and so on. 		
	Section 7.6.23	Should adverse impacts to water quality be detected during the construction activities then the appropriate mitigation measures will be introduced (ie a reduction of the allowable dredging rate). These constraints, recommended to control water quality impacts to within acceptable levels, are also expected to control impacts to marine ecological resources.	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 7.6.24	<p>In order to assist in post-construction rehabilitation of the WCR seawalls tetrapods will be used. The total surface area provided by the tetrapod seawalls along the length of the WCR will exceed 6 ha. Tetrapod seawalls offer a highly heterogeneous habitat which will provide a large surface area (larger than 3 ha) and a wide variety of habitats for marine organisms to colonise. It has been demonstrated that marine organisms have recolonised such seawalls after construction⁽⁹⁾. The "HJack" structure on the seaward side of the High Island Reservoir has recently been surveyed as part of an ongoing Study on Hong Kong's coral communities by Hong Kong University. The site has a well established coral community dominated by two species, <i>Montipora</i> and <i>Acropora</i>. The latter species has become rare in the Territory and this represents one of the last remaining mature and reproductive populations. This indicates that seawalls of this design would be useful in recreating habitats lost through development of the WCR. It is anticipated that assemblages of soft corals, gorgonians and hard corals will settle on and recolonise the newly constructed seawalls, as environmental conditions would be similar to existing conditions that have allowed the growth of the hard and soft corals, and gorgonians reported from field surveys in the area. The habitat provided by the total surface area of the tetrapod seawalls is expected to effectively mitigate (>3 ha) the loss of low density assemblages of gorgonians and soft and hard corals within the reclamation area (3 ha). The location of these tetrapod seawalls is shown on <i>Figure 7.6b</i>.</p>	TDD	During the construction period
	Section 7.6.25	<p>The Fish Culture Zone is not predicted to be impacted by the Yau Tong or TKO reclamations and, therefore, specific mitigation measures for this area are not required.</p>	TDD	During the construction period

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
<i>Landscape/Visual</i>				
General constructions mitigation within Study Area	Section 8.7.1	<p>The existing landscape character and the visually dominant location of the site particularly for those VSR's on Hong Kong Island, Yau Tong, and Lei Yue Mun means that the impact of construction works associated with the Project will need to be mitigated where possible. In areas where bridge construction and elevated flyovers will be constructed, there is little opportunity to mitigate their visual impact, however, where works are at grade and are contained within residential areas the use of decorative hoarding should be employed. In areas where works will be carried out adjacent to vegetated slopes soil erosion preventive measures should be employed to prevent unsightly soil slips on the hill face. Further to this the programming of works should be organised so that proposed screen planting works are carried out as early as possible within the contract period. Advanced screen planting will not only help screen the construction phase of the works but also ensure the planting has the maximum amount of time to establish before contract completion and therefore provide a more effective visual screen once the construction works are complete. With implementation of recommended mitigation measures, residual impacts are considered acceptable.</p> <ul style="list-style-type: none"> • Provision of decorative hoarding where works are at grade and within residential areas. • Use of erosion preventive measures to prevent unsightly soil slips. • Organisation of works programme to ensure advance tree planting is carried out within the construction phase. 	TDD	During the construction period
<i>Cultural Heritage</i>				

Table 11.1b Environmental Mitigation Implementation Schedule for Construction Phase

Location	EIA Reference Section	Mitigation Measure	Agent	Timing
TDD to Assume Responsibility For The Implementation Of All The Measures				
	Section 9.4.2	The WCR road alignment options will, apart from the historic quarry landscape, avoid interference with the existing historical / cultural sites and buildings.	TDD	During construction
	Section 9.4.3	The WCR will avoid interference with the Lei Yue Mun Tin Hau Temple. However, mitigation measures should be taken for the Cha Kwo Ling Tin Hau Temple during the construction and operation stage in respect of noise and visual impact, as suggested in <i>Sections 3 and 8</i> of the EIA Report.	TDD	During construction
	Section 9.4.4	The cliff faces of the Historic Quarry will be retained where possible. The road alignment, where it impacts with the cliff face, will be reviewed at the design stage in order to make every effort to retain a significant section of the quarry.	TDD	During construction

Table 11.1c Environmental Mitigation Implementation Schedule for Operation Phase

Location	EIA Reference Section	Mitigation Measure	Agent/Timing	
			I	M
<i>Noise</i>				
Lei Yue Mun Slip Road Noise Enclosure	Section 3.6.16, Figure 3.6f	<p>Noise enclosure is 210 m in length extending from the abutment (CH 430.00) to just before Lei Yue Mun Roundabout (approximately CH 640.00).</p> <p>The 130 m section closest to the roundabout will be enclosed on both sides as well as the roof.</p> <p>The second section (CH 510.00 - CH 430.00), 80 m in length, will be open along the western side.</p>	TDD	HyD
Cantilever Noise Barriers along WCR at Cha Kwo Ling	Section 3.6.27, Figure 3.6j	<p>Absorptive cantilever barriers with a maximum vertical height of 6 m will be provided on the northern edges of both WCR carriageways in the vicinity of Cha Kwo Ling (CH 1500.00 - CH 1700.00). the dimensions of the barriers area as follows:</p> <p><i>eastbound carriageway</i> - 200 m long barrier comprised of a 5 m vertical section with a cantilever section extending 3 m horizontally and 1 m vertically.</p> <p><i>westbound carriageway</i> - 200 m long barrier comprised of a 5 m vertical section with a cantilever section extending 2 m horizontally and 1 m vertically.</p>	TDD	HyD
Semi-enclosure along WCR Alignment	Section 3.6.28, Figures 3.6c-e, Figures 3.6g-h	<p>Semi-enclosure 1.2 km in length extending from the Sam Ka Tsuen Typhoon Shelter to Western end of the Yau Tong Bay CDA Site (CH 2900.00 - CH 1700.00)</p> <p>The semi enclosure will be 6.8 m in height and will span the width of the eastern bound carriageway and will include a 2.5 m section overhang of the western bound carriageway. In areas where additional vertical clearance is required for gantry signage a 8 m semi-enclosure will be provided (for this configuration the 2.5 m overhang will not be necessary).</p>	TDD	HyD
Vertical Barrier along Slip Road D01	Section 3.6.30, Figure 3.6i	<p>A 150 m long noise barrier along the outside of the eastern bound carriageway of the Slip Road D01 (CH 150.00 - CH 300.00).</p> <p>The barrier will be a vertical barrier of height 2 m for the first 100 m (CH 150.00 - CH 200.00) increasing to 3 m in height for the remaining 50 m.</p>	TDD	HyD
Cantilever Barrier adjacent to Yau Tong Bay Development	Section 3.6.31, Figures 3.6c-d, 3.6k	<p>Cantilever barriers comprising of a 5 m vertical section and a 2 m cantilevered section positioned at a distance of 3m from the road edge.</p> <p>(Note since this barrier is along Cha Kwo Ling Road there is no relevant Chainage reference)</p>	TDD	HyD

Table 11.1c Environmental Mitigation Implementation Schedule for Operation Phase

Location	EIA Reference Section	Mitigation Measure	Agent/Timing	
			I	M
Development Constraints in planned NSRs	Section 3.6.20	Development constraints for Yau Tong Estate (phase 50 and Ko Chiu Road (Phase 5) the provision of podium, podium barriers and setback from the podium edge.	HA	HA
	Section 3.6.35 and 3.6.36	Yau Tong Industrial Area • a 30 m minimum setback from WCR	PlanD	PlanD
Indirect Technical Remedies	Section 3.6.20, Section 3.6.37	Noise Insulation Works (NIW) in the form of acoustic glazing (as described in the EIAO-TM) and air conditioning for the following NSRs: (a) Yau Tong Housing Site (N402 and N404) and Ko Chiu Road Site (N503); and (b) Eastern Harbour Crossing Site School (N801 and N802)	HA Dev	HA ED
Reprovisioned Fish Market	Annex I, Figure I4.3	The fish market will be partially enclosed. The requirements for this partial enclosure area as follows: (a) roof/canopy covering the entire site except the fish landing area, (b) a boundary wall extending the full height of the fish market (with no gap between wall and roof/canopy) along the rear of the site with two 6 m wide openings for egress and ingress; (c) a boundary wall (approximately 30 m in length) along the northern side; and (d) a boundary wall (approximately 30 m in length) along the southern side.	TDD	FMO
<i>Note: All barriers and semi-enclosures shall be designed and constructed in such a way as to ensure that no gap exists between either the barrier and its footing or between individual panels making up the noise barrier.</i>				
Air Quality				
Short Tunnel and Noise Enclosure	Section 4.6.17	An air exchange of at least 8 is maintained for the ventilation inside the tunnel section near Ma Shan Tsuen to meet TAQG. An air exchange of at least 4 is maintained within the noise enclosure at the sliproad near Sam Ka Tsuen to meet TAQG.	TDD	DEMS
Water Quality				
Within WCR Study Area	Section 5.6.20	Although the modelling has predicted that there will not be significantly reduced flushing of Yau Tong Bay it is still recommended that the proposed culverts through the submerged breakwater be implemented. This will further improve the flushing of Yau Tong Bay following the construction of the Yau Tong section of the WCR.	TDD	n/a

Table 11.1c Environmental Mitigation Implementation Schedule for Operation Phase

Location	EIA Reference Section	Mitigation Measure	Agent/Timing	
			I	M
	Section 5.6.21	It is recommended that if the reclamation at Yau Tong Bay is constructed prior to the WCR, that the stormwater discharges in Yau Tong Bay be reprovided to the new waterfront to further avoid any embayment of polluted discharges. The phasing of the salt water pumping station intake relocation will need to be determined during the detailed design stage. However, it is recommended that the existing pumping station be relocated is to be maintained operational at its existing location until all seawall dredging has been completed. The Engineering Team will liaise with WSD on the timing of the relocation during the detailed design.	TDD	n/a
	Section 5.6.22	Berthing facilities for the Kwun Tong Wholesale Fish Market, Sam Ka Tsuen Ferry Pier and CED Maintenance Depot should be sited more than 100 m from the Yau Tong Salt Water Pumping Station intake.	TDD	n/a
	Section 5.6.23	The following mitigation measures for road runoff should be implemented in order to ensure compliance with WPCO. <ul style="list-style-type: none"> Silt traps in gully inlets and oil interceptors should be installed along the route to minimise pollution to stormwater systems; and Silt traps and oil interceptors should be cleaned and maintained regularly to ensure that they function properly 	TDD	HyD
Waste				
Within the reclamation area	Section 6.3.76 - 6.3.78	As a good working practice, prior to entry into any confined space (ie drainage manhole) within the reclamation site (such as underground manholes, culverts and utility casings), the gas atmosphere within the confined space should be monitored for oxygen, methane, carbon dioxide and hydrogen sulphide.	TDD	DSD

Table 11.1c Environmental Mitigation Implementation Schedule for Operation Phase

Location	EIA Reference Section	Mitigation Measure	Agent/Timing	
			I	M
<i>Visual and Landscape</i>				
Within the Study Boundary	Section 8.7.3	<p>In general, mitigation measures for of the WCR are (refer to Figure 8.23):</p> <ul style="list-style-type: none"> co-ordination of the design of hard materials finishes to all elevated road structures, particularly those with semi or fully enclosed noise mitigation barriers, to create landscape and visual elements that are integrated with, and features of, the surrounding environment, co-ordination of the slip road column design layout should ensure that they are kept in line for enhanced visual impact; provision and implementation of dense screen buffer tree and shrub planting on both sides of the road on the reclaimed areas adjacent to Yau Tong. This will screen the proposed road and noise barriers from Hong Kong Island and the Boat Traffic. The reclamation base itself will not be able to be screened, however in the context that the existing views are of industrial frontage this area will be a visual improvement; co-ordination of the design of noise barriers, including those on elevated structures, to create elements integrated within the scheme and surrounding landscape, care should be taken to avoid any abrupt changes in height of the noise barriers; co-ordination of the design of all new formed slopes to have natural looking contours within the context of the existing surrounding topography, particularly in regards to any sections on Devil's Peak; provision and implementation of tree and shrub planting to all new formed slopes to replace vegetation removed during works, and to provide a natural visual screen. Species sympathetic to the surrounding vegetation will be used. Shotcrete and chunam to be avoided wherever possible; co-ordination of the finished colour to concrete drainage channels on new engineered slopes to reflect the tonal qualities of the adjacent vegetation; co-ordination of the design of hard materials finishes and associated soft landscape to the tunnel portals at Lei Yue Mun Point to fully integrated them into the surrounding landscape, it should be ensured that planting areas are provided for screening purposes. 	TDD	USD/ RSD
			TDD	USD/ RSD
			TDD	n/a
			TDD	n/a
			TDD	USD/ RSD
			TDD	HyD
			TDD	USD/ RSD

Table 11.1c Environmental Mitigation Implementation Schedule for Operation Phase

Location	EIA Reference Section	Mitigation Measure	Agent/Timing	
			I	M
	Section 8.7.3 (Cont')	<ul style="list-style-type: none"> the implementation of screening by use of tree and shrub planting along both sides of the road, on all new slopes and within any available amenity areas in the section between Lei Yue Mun Point and Chiu Keng Wan; screening and use of tree and shrub planting to all amenity strips, central medians and the roundabout island adjacent to Cha Kwo Ling; and vetting of the design of the bridge structure, including noise barriers, by the Advisory Committee on the Appearance of Bridges and Associated Structures during the detailed design. 	TDD	USD/ RSD
	Section 8.7.5	All proposed mitigation measures will be developed at the detail design stage a landscape architect should be employed to ensure the appropriate required quality is achieved for both hard and soft proposals the planting design should ensure that all areas where mitigation planting is proposed is addressed with appropriate plant selection and specification. As the proposed alignment will be coastal and for a large section located on marine sand fill, species selection and soil amelioration should be carefully considered to ensure rapid and successful plant establishment. Typical plant species are described in Section 8.7.5 of the EIA.	TDD	RSD

Note: I - Implementation (before operation of the road)
M - Maintenance (during operation of the road)
n/a - no agent required