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Table 14-1 Implementation Schedule of Recommended Mitigation Measures

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
				D	C	O	
Section 3 3.3.4.3	<p style="text-align: center;"><u>Noise Mitigation</u></p> <p><u>Construction Mitigation Measures</u></p> <p><u>Selection and Programming of Construction Processes</u></p> <p>The timing and sequencing of the various construction activities shall be carefully arranged according to the actual site work situation, in order to limit the amount of concurrent activities and where applicable, to avoid parallel operation of noisy PME in order to minimize the total noise generated during construction periods. Limiting the quantity of PME to be operated concurrently and also their on-time percentage were recommended in the Project and incorporated in this assessment. The proposed quantity of PMEs and their percentage on-time have been confirmed feasible by the Project Engineer and the Proponent. In the case during school examination while more stringent construction noise criteria should be imposed, the potentially most disruptive construction activities should be avoided, and arranged to be conducted during school holidays as far as practicable. In particular, NSR 39 (Salvation Army Ng Kok Wai Memorial Kindergarten) is of close proximity to works area S5 and subject to high level of unmitigated construction noise. It is recommended that the work stages “transportation & utilities diversion” and “piling” shall not take place simultaneously during operation time of the kindergarten for the same location in works area S5, such that cumulative noise to this kindergarten is further minimized. This requirement will be specified in the EM&A Manual for Contractor to follow.</p>	<p>Within the boundaries of all construction sites / Operation Time (07:00-19:00 from Monday to Saturday except public holiday)</p>	HyD & Contractor		✓		TM on EIA Process, NCO

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				D	C	O	
3.3.4.4	<p><u>Use of “Quiet” Alternative Plant and Working Methods</u></p> <p>The use of particular plant with equipment noise levels quieter than those specified in the GW-TM.</p>	<p>Within the boundaries of all construction sites / Operation Time (07:00-19:00 from Monday to Saturday except public holiday)</p>	HyD & Contractor		✓		<p><u>TM on EIA Process, NCO</u></p> <p>Noise from Construction Work Other Than Percussive Piling (GW-TM)</p>
3.3.4.5	<p>“Quiet” plant is defined as a PME having actual Sound Power Levels (SWLs) lower than the values specified for PME in the GW-TM.</p>	<p>Within the boundaries of all construction sites / Operation Time (07:00-19:00 from Monday to Saturday except public holiday)</p>	HyD & Contractor		✓		<p><u>TM on EIA Process, NCO</u></p> <p>Noise from Construction Work Other Than Percussive Piling (GW-TM)</p>
3.3.4.7	<p>Temporary noise barriers provide noise attenuation by screening NSRs from stationary and mobile plants from direct line-of-sight in shadow zone. The use of 3m high movable barriers with skid footing and a small cantilevered upper portion can be adopted. The barrier material shall have a surface mass of not less than 14kg/m² on skid footing with 25mm thick internal sound absorptive lining to achieve the maximum screening effect.</p> <p>The temporary noise barriers should also be located along the working area in order to make sure that the construction plant could be screened during all kinds of construction activities as far as practicable.</p> <p>A solid hoarding will also be provided along the NSR 39 of height not less than 3m and length well cover the NSR39, so as to further reduce the construction noise impacts at NSR39.</p>	<p>Within the boundaries of all construction sites / Operation Time (07:00-19:00 from Monday to Saturday except public holiday)</p>	HyD & Contractor		✓		<p><u>TM on EIA Process, NCO</u></p> <p>Noise from Construction Work Other Than Percussive Piling (GW-TM)</p>

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3.3.4.8	<p>Depending on site situation, when temporary noise barriers are not practicable or noise reduction achieved is insufficient, noise jacket/muffler can be applied to cover the noisy part of the engine or at the engine exhaust of particular mobile plants respectively. Applicable PME with temporary noise barrier include road roller, excavator, mobile crane, hand-held breaker, poker vibrator, excavator mounted breaker, asphalt paver, vibratory roller and paint line marker.</p> <p>Considered the practicability, the site access of dump trucks would not be screened by temporary barrier; yet, the unloading activities of dump trucks should be screened by temporary noise barriers.</p>	<p>Within the boundaries of all construction sites / Operation Time (07:00-19:00 from Monday to Saturday except public holiday)</p>	HyD & Contractor		✓		<p><u>TM on EIA Process, NCO</u></p> <p>Noise from Construction Work Other Than Percussive Piling (GW-TM)</p>
3.3.4.9	<p>For the stationary plant bored pile oscillator, temporary noise barriers of sufficient height with skid footing and small cantilevered upper portion can provide total screening to the NSRs. It is estimated that temporary noise barriers of this type can provide full screening of 10 dB(A) to the NSRs. This is considered achievable by careful selection of insulation material, and, if necessary, acoustic mats at noisy mechanical parts of the equipment. Barrier material of surface density of at least 14 kg/m² is recommended in order to achieve the necessary screening effect.</p>	<p>Within the boundaries of all construction sites / Operation Time (07:00-19:00 from Monday to Saturday except public holiday)</p>	HyD & Contractor		✓		<p><u>TM on EIA Process, NCO</u></p> <p>Noise from Construction Work Other Than Percussive Piling (GW-TM)</p>
3.3.4.10	<p>Full noise enclosures, which completely cover the PME, can provide significant noise reduction up to 20 dB(A). The degree of reduction will vary depending on the nature of the material used for the enclosures.</p>	<p>Within the boundaries of all construction sites / Operation Time (07:00-19:00 from Monday to Saturday except public holiday)</p>	HyD & Contractor		✓		<p><u>TM on EIA Process, NCO</u></p> <p>Noise from Construction Work Other Than Percussive Piling (GW-TM)</p>

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3.3.4.11	<p>The use of good site practice/techniques can provide considerable reductions in noise emissions. Examples of these site practice include:</p> <ul style="list-style-type: none"> • use of well-maintained and regularly-serviced plant during the works; • plant operating on intermittent basis should be turned off or throttled down when not in active use; • plant that is known to emit noise strongly in one direction should be orientated to face away from the NSRs; • silencers, mufflers and enclosures for plant should be used where possible and maintained adequately throughout the works; • where possible fixed plants should be sited away from NSRs; and • stockpiles of excavated materials and other structures such as site buildings should be used effectively to screen noise from the works. 	<p>Within the boundaries of all construction sites / Operation Time (07:00-19:00 from Monday to Saturday except public holiday)</p>	HyD & Contractor		✓		<p><u>TM on EIA Process, NCO</u></p> <p>Noise from Construction Work Other Than Percussive Piling (GW-TM)</p>
3.3.7.1	<p>Environmental monitoring and audit measures are recommended during the construction phase of the Project. A proactive EM&A programme is necessary to be provided by the Contractor, in order to ensure that construction noise impact to the NSRs should be minimized as far as practicable. An appropriate path for noise complaints handling procedures is a key element of the EM&A programme.</p>	<p>Within the boundaries of all construction sites / Operation Time (07:00-19:00 from Monday to Saturday except public holiday)</p>	HyD & Contractor		✓		<p><u>TM on EIA Process, NCO</u></p> <p>Noise from Construction Work Other Than Percussive Piling (GW-TM)</p>



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Table 3-8	<p><u>Operational Mitigation Measures</u></p> <p>Proposed noise mitigation measures along the DP roads of the project include:</p> <p>(C1) 5.5m with 3.5m cantilevered barrier length of 200m (C2) 5.5m with 3.5m cantilevered barrier length of 371m (C3) 5.5m with 3.5m cantilevered barrier length of 560m (C4) 5.5m with 3.5m cantilevered barrier length of 104m (C5) 5.5m with 3.5m cantilevered barrier length of 635m (C6) 5.5m with 3.5m cantilevered barrier length of 334m (S1) Semi-enclosure length of 50m (S2) Semi-enclosure length of 229m (S3) Semi-enclosure length of 84m (S4) Semi-enclosure length of 105m (F1) Full enclosure length of 110m (F2) Full enclosure length of 93m (F3) Full enclosure length of 58m</p>	During the TWR Operation	HyD	✓	✓	✓	TM on EIA Process, NCO

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3.2.8.1	Road traffic noise monitoring is recommended at representative NSRs during the first year of the road opening.	During the TWR Operation				✓	
Section 4 4.6.3	<p style="text-align: center;"><u>Air Quality Mitigation</u></p> <p><u>Construction Mitigation Measures</u></p> <p>The following site practices are recommended to be fully implemented by Contractor, in order to suppress dust emissions during construction work. Recommendations are represented in the form of contractual clauses</p> <ul style="list-style-type: none"> The Contractor shall undertake at all times to prevent dust nuisance as a result of his activities. Dust suppression measures such as water spraying are necessary and should be installed to ensure that the air quality at the boundary of the site and at any sensitive receivers complies with the Hong Kong Air Quality Objectives The Contractor shall notify any specific construction work as stated in the Air Pollution Control (Construction Dust) Regulation to the Authority before the commencement of such work. The Contractor shall apply for a licence or permit under the requirements of the relevant legislation (e.g., Air Pollution Control Ordinance and its subsidiary regulations) wherever applicable. 	Within the boundaries of all construction sites / Operation Time (07:00 – 19:00 form Monday to Saturday except public holiday)	Contractor/HyD		✓		APCO Air Pollution Control (Construction Dust) Regulations AQOs TM (Annex 4)
4.6.3	<ul style="list-style-type: none"> Watering of unpaved areas, access roads, construction areas and dusty stockpiles shall be undertaken at least eight times daily during dry and windy weather. Watering of the haul road shall be undertaken four to eight times daily during dry or windy weather. Water sprays may be either fixed or mobile to follow individual areas to be wetted as and when required. Application of suitable wetting agents, such as dust suppression chemicals, shall be used in addition to water, especially during the dry season (November to March) 	Within the boundaries of all construction sites / Operation Time (07:00 – 19:00 form Monday to Saturday except public holiday)	Contractor/HyD		✓		APCO Air Pollution Control (Construction Dust) Regulations AQOs TM (Annex 4)

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	<ul style="list-style-type: none"> Effective water sprays shall be used during the delivery and handling of all raw sand and aggregate, and other similar materials, wet dust is likely to be created and to dampen all stored materials during dry and windy weather Stockpiles of sand, aggregate or any other dusty materials greater than 20 m³ shall be enclosed on three sides, with walls extending above the pile and 1 metre beyond the front of the pile Suitable chemical wetting agent such as dust suppression chemical shall be used on completed cuts and fills to reduce wind erosion. Areas within the construction site where there is a regular movement of vehicles shall have a paved surface and be kept clear of loose surface material. The Contractor shall restrict all motorized vehicles within the construction site, excluding those on public roads, to maximum speed of 20 km per hour and confine haulage and delivery vehicles to designated roadways inside the Site. 				<ul style="list-style-type: none"> ✓ ✓ ✓ ✓ ✓ 		
4.6.3	<ul style="list-style-type: none"> Construction working areas will be restricted to a minimum practicable size. The Contractor shall ensure that no earth, rock or debris is deposited on public or private rights of way as result of his activities, including any deposits arising from the movement of plant or vehicles. 	Within the boundaries of all construction sites / Operation Time (07:00 – 19:00 form Monday to Saturday except public holiday)	Contractor/HyD	<ul style="list-style-type: none"> ✓ 	<ul style="list-style-type: none"> ✓ ✓ 		APCO Air Pollution Control (Construction Dust) Regulations AQOs TM (Annex 4)

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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	<ul style="list-style-type: none"> The Contractor shall provide a wheel washing facility at the exits from work areas to the satisfaction of the Engineer and to the requirements of the Commissioner of Police. Water in wheel washing facilities and sediment shall be changed and removed respectively at least once a month. The Contractor shall submit details of the wheel washing facilities; such shall be usable prior to any earthworks excavation activity on the construction site. The Contractor shall also provide a hard-surfaced road between any washing facility and the public road. In the event of any spoil or debris from construction works being deposited on adjacent land, or streams, or any silt being washed down to any area, then all such spoil, debris or material and silt shall be immediately removed and the affected land and areas restored to their natural state by the Contractor to the satisfaction of the Engineer. If spoil cannot be immediately transported out of the Site, stockpiles should be stored in sheltered areas. 			✓	✓		
				✓	✓		
					✓		
					✓		
4.6.3	<ul style="list-style-type: none"> Plant and vehicles shall be inspected annually to ensure that they are operating efficiently and that exhaust emissions are not causing a nuisance. All Site vehicle exhausts should be directed vertically upwards or directed away from ground. Path for complaints and handling procedures should be set up and implement. 	Within the boundaries of all construction sites / Operation Time (07:00 – 19:00 form Monday to Saturday except public holiday)	Contractor/HyD		✓		APCO Air Pollution Control (Construction Dust) Regulations AQOs TM (Annex 4)
				✓	✓		

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4.7.1	With the implementation of the proposed dust suppression measures, good site practices and dust monitoring and audit programme, no adverse dust impact would be expected at the ASRs. Details of the monitoring requirements such as monitoring locations, frequency of baseline and impact monitoring are presented in the EM&A manual separate for this report.	Within the boundaries of all construction sites / Operation Time (07:00 – 19:00 form Monday to Saturday except public holiday)	Contractor/HyD		✓		TM on EIA process,
Section 5	<u>Water Quality Mitigation</u>						
5.7.1	<p><u>Construction Mitigation Measures</u></p> <p>Silt-laden surface run-off should be prevented from directly entering the sensitive receivers during the construction works. The mitigation measures described below for the construction phase are in accordance with <i>ProPECC PN 1/94</i>:</p> <p>a) Works sites and areas used for imported fill stockpiling should, as far as possible, avoid the water sensitive receivers.</p>	Within the boundaries of all construction sites / Operation Time (07:00 – 19:00 form Monday to Saturday except public holiday)	Contractor	✓	✓		TM on EIA process, WPCO, ProPECC PN 1/94
5.7.1	<p>b) Stripping of existing vegetation should be sequential to avoid exposure of large areas of embankment slopes;</p> <p>c) Special precautions should be taken when working in the near vicinity of nullahs and streams, especially when bridges along the TWR are being widened. This may involve the installation of temporary drainage works to ensure that runoff does not enter the nullahs directly; typical example of this type of measure is the provision of suitable temporary drainage system, such as peripheral channels around the site, to intercept all on-site runoff to water quality treatment devices such as sedimentation pond / sand trap. Only treated runoff from these devices will be discharged offsite. Sizes and arrangement details of these drainage works depend on local conditions and will be addressed during the detailed design stage.</p>	Within the boundaries of all construction sites / Operation Time (07:00 – 19:00 form Monday to Saturday except public holiday)	Contractor	✓	✓		TM on EIA process, WPCO, ProPECC PN 1/94

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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	<p>d) Perimeter cut-off drains to direct off-site water around the works sites should be constructed and internal drainage works and erosion and sedimentation control facilities implemented. Channels, earth bunds or sandbag barriers should be provided on site to direct stormwater to silt removal facilities. The design of efficient silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94;</p> <p>e) Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6-8 m3 capacity are adopted as a general mitigation measure which can be used for settling wastewaters prior to disposal. The tanks are readily available and used primarily for recycling water for bored piling operations. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped. Various physical and chemical filters such infiltration tank can be added should refinement of the sedimentation process be required;</p>			✓	✓		
5.7.1	<p>f) Construction works should be programmed to minimise surface excavations/ cutting during the rainy season (April to September). If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by a tarpaulin or other means. Other measures that need to be implemented before, during and after rainstorms are summarised in ProPECC PN 1/94. Particular attention should be paid to the control of silty surface run-off during storms events, especially for sites located near steep slopes;</p> <p>g) All exposed earth areas should be completed and re-vegetated promptly after earthworks have been completed, or alternately, within 14 days of the cessation of earthworks.</p> <p>h) Earthworks final surfaces should be well compacted and subsequent permanent work or surface protection should be carried out immediately after final surfaces are formed in order to prevent rainstorm erosion;</p>	<p>Within the boundaries of all construction sites / Operation Time (07:00 – 19:00 form Monday to Saturday except public holiday)</p>	Contractor	✓	✓		<p>TM on EIA process, WPCO, ProPECC PN 1/94</p>

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	<p>i) The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows and all trafficked areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows;</p> <p>j) Silt contained in ground water and drilling water collected from any boring operations, dewatering etc. should be removed with properly designed silt removal facilities, such as the specified portable sedimentation tanks referred to above, such that Technical Memorandum on Effluent Standards are achieved prior to the discharge of waters;</p>			✓	✓		
5.7.1	<p>k) All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed monthly and disposed of by spreading evenly over stable, non-sensitive vegetated areas;</p> <p>l) Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods (June – October) is necessary, they should be dug and backfilled in short sections. Water pumped out from trenches or foundation excavations should be discharged into the silt removal facilities;</p> <p>m) All open stockpiles of construction materials (e.g. aggregates, sand and fill material) should be covered with a tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system;</p> <p>n) Manholes (including newly constructed ones) should always be covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system;</p>	<p>Within the boundaries of all construction sites / Operation Time (07:00 – 19:00 form Monday to Saturday except public holiday)</p>	Contractor	✓	✓		<p>TM on EIA process, WPCO, ProPECC PN 1/94</p>

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5.7.1	<p>o) All vehicles and plant should be cleaned before leaving the construction site to ensure no earth, mud and debris is deposited on roads. An adequately designed and sited wheel washing bay should be provided at every site exit and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process.</p> <p>p) The section of access road leading to, and exiting from the wheel-wash bay to the public road should be paved with sufficient backfill toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains;</p> <p>q) Water used for construction purposes on site should, as far as practical, be recycled for use;</p> <p>r) Information detailing storm run-off and wastewater discharge points, and the corresponding maximum (or range of) volumes of discharges expected from the construction sites on a dry day should be provided in the WPCO license application. In general, assuming adequate information has been provided together with the license application, EPD would need at least 20 days for the processing of a license for a discharge. It is therefore recommended that the Contractor submit the licence application to EPD as early as possible before the commencement of any discharge.</p>	<p>Within the boundaries of all construction sites / Operation Time (07:00 – 19:00 form Monday to Saturday except public holiday)</p>	Contractor	✓	✓		<p>TM on EIA process, WPCO, ProPECC PN 1/94</p>

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5.7.3	<p><u>Construction Material</u></p> <p>In order to prevent water quality impact associated with construction material, the following mitigation techniques are recommended:</p> <p>a) Stockpiles of cement and other construction material should be kept covered when not being used;</p> <p>b) Stockpiles of cement and other construction material should not be located adjacent to nullahs and streams;</p> <p>c) Entry points into the surface drainage system should be fitted with oil interceptors;</p> <p>d) Waste oils and other chemical wastes as defined in the Waste Disposal (Chemical Waste) (General) Regulation will require disposal by an appropriate means and could require pre-notification to EPD prior to disposal. An appropriate disposal facility could be the Chemical Waste Treatment Centre (CWTC) at Tsing Yi. If chemical wastes are to be generated, the contractor will need to register with EPD as a chemical waste producer and observe the requirements for chemical waste storage, labelling, transportation and disposal.</p> <p>e) Impacts associated with spillages should be managed through careful handling procedures. Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. Fuel tanks and drums of fuel oils and other polluting fluids/chemicals should be provided with locks and banded to a capacity of 110% of the storage capacity of the largest tank. The bund should be drained of rain water after raining event.</p>	<p>Within the boundaries of all construction sites / Operation Time (07:00 – 19:00 form Monday to Saturday except public holiday)</p>	Contractor	✓	✓		<p>TM on EIA process, WPCO, ProPECC PN 1/94</p>

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5.7.4	<p><u>Sewage from Construction Workers</u></p> <p>Sewage effluent arising from the on-site construction workforce has the potential to cause water pollution. Therefore, plans for the collection, treatment and disposal of sewage wastewater during the construction phase must be specified. Sewage generated on site should be disposed of through connection of the sanitation facilities with the existing foul sewerage system. Where this is not possible, temporary portable chemical toilets, septic tanks or package sewage treatment plants may need to be used.</p>	Within the boundaries of all construction sites / Operation Time (07:00 – 19:00 form Monday to Saturday except public holiday)	Contractor	✓	✓		TM on EIA process, WPCO, ProPECC PN 1/94
Section 6 6.6.3	<p style="text-align: center;"><u>Waste Management</u></p> <p><u>Waste Management Plan</u></p> <p>In accordance with ETWBTC(W) No 15/2003 – Waste Management on Construction Site, the WMP should be prepared and submitted for approval by the Architect/ Engineer/ Supervising Officer prior to any construction activities. During the construction period the WMP should be used as a working document to detail the on-going management procedures and to record waste arising from construction works and import of fill throughout the Contract. The WMP shall be subject to audit under the requirements of the Environmental Monitoring and Audit (EM&A) Procedures set out in the EM&A Manual accompanying this EIA Report.</p>	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor	✓	✓		Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws ETWBTC(W) No 15/2003 – Waste Management on Construction Site

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6.6.4	<p>The WMP shall be developed and implemented according to a best-practice philosophy of waste management. There are various waste management options, which can be categorized 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. The hierarchy is as follows:</p> <ul style="list-style-type: none"> • avoidance and minimization, i.e. avoiding or 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. 	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor		✓		<p>Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws</p>

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6.6.5	The Waste Disposal Authority should be consulted by the Contractor on the final disposal of wastes.	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor		✓		Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws

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6.6.6	The suitability (or otherwise) of material for reuse on site shall be detailed in the WMP. If, for any reason, the recommendations cannot be implemented, full justification should be given in the WMP for approval by Architect/Engineer/Supervising Officer according to ETWBTC(W) No. 15/2003.	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor	✓	✓		Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws ETWBTC(W) No 15/2003 – Waste Management on Construction Site

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6.6.7	To facilitate adoption of the best-practice philosophy, training shall be provided to all personnel working on site. The training shall promote the concept of general site cleanliness and clearly explain the appropriate waste management procedures defined in the WMP. Overall, the training should encourage all workers to reduce, reuse and recycle wastes.	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor		✓		Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws

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6.6.8	During construction, the WMP should be kept up-to-date on a monthly basis with records of the actual quantities of wastes generated, recycled and disposed of off-site. Quantities shall be determined by weighing each load or other methods agreed to by the Engineer's Representative. Waste shall only be disposed of at licensed sites and the WMP should include procedures to ensure that illegal disposal of wastes does not occur. Only waste haulers authorized to collect the specific category of waste concerned should be employed and a trip ticket system shall be implemented for offsite disposal of C&D and solid waste at public filling facilities and landfills. Appropriate measures should be employed to minimize windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed containers.	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor		✓		Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws
6.6.9	Work site(s) shall be arranged and managed to facilitate the proper management of wastes and materials. The WMP shall include plans indicating specific areas designated for the storage of particular types of waste, reusable and recyclable materials as well as areas and management proposals for any stockpiling areas. Waste storage areas should be well maintained and cleaned regularly. Specific provisions for different types of material are outlined below. In general, these areas should be designed to avoid cross contamination of materials as well as pollution of the surrounding environment.	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor	✓	✓		Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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6.6.10	<p><u>Construction and Demolition Materials</u></p> <p>The design of formwork should maximise the use of standard wooden panels so that high reuse levels can be achieved.</p> <p>Alternatives such as steel formwork or plastic facing should be considered to increase the potential for reuse.</p>	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor	✓	✓		<p>Waste Disposal Ordinance (Cap 354)</p> <p>Waste Disposal (Chemical Waste)(General) Regulation (Cap 354)</p> <p>Land (Miscellaneous Provisions) Ordinance (Cap 28)</p> <p>Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws</p>
6.6.11	<p>C&D materials should be segregated on site into different waste and material types to increase the feasibility of certain components of the waste stream being recycled by specialised contractors.</p> <p>Where materials cannot be reused on site, opportunities for recycling materials off-site shall be explored.</p>	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor		✓		<p>Waste Disposal Ordinance (Cap 354)</p> <p>Waste Disposal (Chemical Waste)(General) Regulation (Cap 354)</p> <p>Land (Miscellaneous Provisions) Ordinance (Cap 28)</p> <p>Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws</p>

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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6.6.12	<p>Potential opportunities for recycling and reuse of C&D materials from the Project include:</p> <ul style="list-style-type: none"> • Milling wastes arising from regrading of the existing pavement could be recycled on site and reused as either road-base in the new carriageways or fill for new embankments; • Existing marginal roadside barriers comprise pre-cast units, it may be possible to re-use these following widening works; and • Existing bridge parapets comprise aluminium post and railings, these have a recyclable value and could be sold on for reconditioning or reused for scrap metal. 	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor	✓	✓		<p>Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws</p>
6.6.13	<p>Any stockpile should be sited away from existing watercourses and suitably covered to prevent wind erosion and impacts on air and water quality.</p>	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor	✓	✓		<p>Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws</p>

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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6.6.14	<p><u>Chemical Waste</u></p> <p>Chemical waste should be handled in accordance with the <i>Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i> as follows. 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 450L 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. 	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	<p>Contractor</p>		<p>✓</p>		<p>Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws</p>

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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6.6.15	<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. 	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor		✓		<p>Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws</p>
6.6.16	<p>The Contractor shall register with EPD as a Chemical Waste Producer. Waste oils and other chemical wastes as defined in the Waste Disposal (Chemical Waste) (General) Regulation will require disposal by appropriate means and could require pre-notification to EPD prior to disposal. Appropriate means include disposal:</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 • to a reuser of the waste, under approval from EPD. The Centre for Environmental Technology operates a Waste Exchange Scheme, which can assist in finding receivers or buyers. 	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor	✓	✓		<p>Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws</p>

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
				D	C	O	
6.6.17	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 minimize odour, pest and litter impacts. The burning of refuse on construction sites is prohibited by law.	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor		✓		Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws
6.6.18	General refuse is generated largely by food service activities on site, so reusable rather than disposable dishware should be used if feasible. Aluminum cans are often recovered from the waste stream by individual collectors if they are segregated or easily accessible. Therefore separate, labelled bins for their deposit should be provided if feasible.	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor		✓		Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
				D	C	O	
6.6.19	Office waste can be reduced through recycling of paper if volumes are large enough to warrant collection. Opportunities for participation in a local collection scheme should be investigated.	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor		✓		Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste)(General) Regulation (Cap 354) Land (Miscellaneous Provisions) Ordinance (Cap 28) Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws
Section 7	<u>Landfill Gas Hazard Mitigation Measures</u>						
7.7.1	Particular precautions will be required with respect to any trenching or excavation, and any creation of confined spaces at, near to or below ground level.	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor	✓	✓		Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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7.7.2	<p>Construction contractors should be made aware that methane and carbon dioxide are always likely to be present in the soil voids.</p> <p>There exists outside the boundary of GDBL localized pocketed of waste which were deposited during the operation of the landfill. Therefore it is necessary to state in the roadwork contract that waste materials may be encountered during the excavation work, and proper handling as well as disposal of the waste may be needed.</p>	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor		✓		Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
7.7.3	<p>In all construction work adjacent to GDBL, safety precautions should be implemented to minimize the risks of:</p> <ul style="list-style-type: none"> • Fires and explosions; • Asphyxiation of workers; and • Toxicity effects. 	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor		✓		Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
7.7.4	<p>Precautions should be clearly laid down and rigidly adhered to with respect to:</p> <ul style="list-style-type: none"> • Trenching and excavation; and • Creation of confined spaces at, near to or below ground level. 	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor	✓	✓		Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
7.7.5	<p>In addition to normal site safety procedures, gas detection equipment and appropriate breathing apparatus should be available and used when entering confined spaces or trenches deeper than 1m.</p>	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor		✓		Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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7.7.6	A Safety Officer, trained in the use of gas detection equipment and LFG related hazards should be present on site throughout the groundwork phase. The Safety Officer should be provided with an intrinsically safe portable instrument (or instruments)	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor		✓		Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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7.7.7	<p>The following safety measures should be implemented during the construction phase of the Project:</p> <ul style="list-style-type: none"> a) All personnel who work on site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of the excavations. Safety notices should be posted warning of the potential hazards. b) Those staff who work in, or have responsibility for “at risk” areas, including all excavation workers, supervisors and engineers working within the CZ, should receive appropriate training on working in areas susceptible to LFG, fire and explosion hazards. c) An excavation procedure or code of practice to minimize LFG related risk should be devised and carried out by the contractor. d) No worker should be allowed to work alone at any time in or near to any excavation. At least one other worker should be available to assist with a rescue if needed. e) Smoking, naked flames and all other sources of ignition should be prohibited within 15m of any excavation or ground-level confined space. “No Smoking” and No Naked Flame” notices should be posted prominently on the construction site and, if necessary, special areas designated for smoking. f) Welding, flame-cutting or other hot works should be confined to open areas at least 15m from any trench or excavation. Welding, flame cutting or other hot works may only be carried out in trenches or confined spaces when controlled by a “permit to work” procedure, properly authorised by the Safety Officer or other appropriately qualified person. 	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor		✓		Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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7.7.7	<p>g) The permit to work procedure should set down clearly the requirements for continuous monitoring for methane, carbon dioxide and oxygen throughout the period for which the hot works are in progress. The procedure should also require the presence of an appropriately qualified person in attendance outside the “confined area” who shall be responsible for reviewing the gas measurements as they are made, and who shall have executive responsibility for suspending the work in the event of unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise should be permitted to carry out hot works in confined areas.</p> <p>h) Ground level construction plant should be fitted with vertical exhausts at least 0.6m above ground level and with spark arrestors.</p> <p>i) Any electrical equipment, such as motors and extension cords, should be intrinsically safe.</p> <p>j) During piping assembly or construction, all valves/seals should be closed immediately after installation. As construction progresses, all valves/seals should be closed as installed to prevent the migration of gases through the pipeline/conduit. All piping/conducting should be capped at the end of each working day.</p> <p>k) Mobile offices, equipment stores, mess rooms etc should be located on an areas which has been proven to be gas free (by survey with portable gas detectors) and ongoing monitoring should be carried out to ensure that these areas remain gas free. The use of permanent gas detectors may be appropriate in some circumstances where there is a relatively high risk but for many developments it will be sufficient to have regular monitoring undertaken manually by the safety officer. The particular arrangements to be adopted at a specific site will need to be determined during the risk assessment/design of protection measures.</p>	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor		✓		<p>Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)</p>

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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7.7.7	<p>l) Alternatively, such buildings should be raised clear of the ground. If buildings are raised clear of the ground, a minimum clear separation distance (as measured from the highest point on the ground surface to the underside of the lowest floor joist) should be 500mm.</p> <p>m) During construction, adequate fire extinguishing equipment, fire-resistant clothing and breathing apparatus (BA) sets should be made available on site.</p> <p>n) The Contractor should formulate a health and safety policy, standards and instructions for site personnel to follow.</p>	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor		✓		Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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7.7.8	<p>The following should be noted for LFG monitoring:</p> <p>a) Periodically during groundwork construction, the works area should be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment.</p> <p>b) The monitoring frequency and areas to be monitored should be set down prior to commencement of groundworks by either the Safety Officer or by an appropriately qualified person.</p> <p>c) Routine monitoring should be carried out in all excavations, manholes and chambers and any other confined spaces that may have been created by, for example, the temporary storage of building materials on the site surface.</p> <p>d) All measurements in excavations should be made with the monitoring tube located not more than 10mm from the exposed ground surface,</p>	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor		✓		Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
7.7.8	<p>e) Monitoring of excavations should be undertaken as follows:</p> <p>i.) For excavations deeper than 1m, measurements should be made:</p> <ul style="list-style-type: none"> • At the ground surface before excavation commences; • Immediately before any workers enter the excavation; • At the beginning of each working day for the entire period the excavation remains open; and • Periodically through the working day whilst workers are in the excavation. <p>ii.) For excavations between 300mm and 1m deep, measurements should be made:</p> <ul style="list-style-type: none"> • Directly after the excavation has been completed; and • Periodically whilst the excavations remains open. <p>iii.) For excavations less than 300mm deep, monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person.</p>	<p>Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities</p>	Contractor		✓		Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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7.7.10	Drilling contractor should provide a Method Statement detailing the procedures to be followed, which should include: a) Provision of an intrinsically safe portable methane gas detector; b) no smoking to be allowed within 15m of a borehole; c) capping of casing at the end of each working day; and d) exhaust and air-intake stacks to be at least 1.5m above ground level.	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor		✓		Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
7.7.12	Realignment of or new utilities routes that are formed as part of the road-widening works are identified within the CZ. They should be designated as “special routes” and the utility companies notified accordingly, such that the necessary precautions can be implemented during maintenance or extension Any new utility routes passing through the boundary of the CZ should have a protective impermeable barrier installed at the boundary of the CZ	Within the boundaries of all construction sites as well as transportation routes to designated areas for off-site disposal of materials / Prior to and during construction activities	Contractor		✓	✓	Landfill Gas Hazard Assessment Guidance Note
Section 8	<u>Landscape and Visual Impacts</u>						
8.11.4	A total of 375, 243 and 589 trees were scheduled for felling, transplanting and retaining respectively (refer to Appendix 8-A). The locations of affected trees/palms are shown in Figure 8-19 .	Within the Project Site / Design prior to commencement of site clearance works , during the construction period following the phased completion of the engineering works.	Funding and implementation by CEDD Management and maintenance by HyD, LCSD since day 1 of operation	✓		✓	Allocation of Space for Urban Street Trees (Works Branch), WBTC No. 25/92; Tree Preservation, ETWBTC 3/2006.

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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8.11.6	<p>The mitigation measures include:</p> <ul style="list-style-type: none"> retention of 589 trees, transplantation of a total number of 243 trees landscape works including 375 compensatory trees following completion of the Project. Compensatory planting is provided in the Tree Survey – “CONCEPTUAL PLANTING PLAN” (refer to Appendix 8-B): All transplanting trees and compensatory trees (i.e. 618 trees) shall be planted within the Project site and properly maintained during operation of the Project. Any of these trees damaged during operation of the Project shall be replaced. Details of compensatory planting such as detailed location and compensatory plant species will be decided at the design stage. It is recommended, as stipulated in <i>ETWB TC(W) No.3/2006 Tree Preservation</i>, that the implementation of compensatory plant should not be less than 1:1 (i.e. not less than 375 nos. of trees in this project) and the compensatory planting trees should be at least of “heavy standard” type. 	<p>Within the Project Site / Design prior to commencement of site clearance works , during the construction period following the phased completion of the engineering works.</p>	<p>Funding and implementation by CEDD</p> <p>Management and maintenance by HyD, LCSD since day 1 of operation</p>	✓		✓	<p>Maintenance of Vegetation and Hard Landscape Features, ETWB TCW No. 2/2004;</p> <p>Allocation of Space for Urban Street Trees (Works Branch), WBTC No. 25/92;</p> <p>Tree Preservation, ETWBTC 3/2006.</p>

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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8.13.1	<p>The Conceptual Landscape Proposals (figures 8-5 to 8-9) indicated, inter alia, those landscape measures, which are proposed to mitigate significant visual and landscape effects identified through the assessment process. These measures include:</p> <ul style="list-style-type: none"> Regarding of cut slopes 	Whole alignment / Prior to commencement of site clearance works and construction works	CEDD	✓	✓		<p>Control of Visual Impact of Slopes (Works Branch), WBTC No. 25/93;</p> <p>Improvement to the Appearance of Slopes (Works Branch), WBTC No. 17/2000;</p> <p>Technical Guidelines on Landscape Treatment and Bio-engineering for Manmade Slopes and Retaining Walls (GEO Publication No. 1/2000);</p> <p>Tree Preservation, ETWBTC 3/2006.</p>

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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8.13.1	<ul style="list-style-type: none"> Revegetation of chunam slopes Tree planting 	<p>Whole alignment / During the construction period following the phased completion of the engineering works.</p> <p>Whole alignment / During the construction period following the phased completion of the engineering works.</p>	<p>Funding and implementation by CEDD</p> <p>Management and maintenance by HyD, LCSD since day 1 of operation</p> <p>Funding and implementation by CEDD</p> <p>Management and maintenance by HyD, LCSD since day 1 of operation</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p>	<p>Control of Visual Impact of Slopes (Works Branch), WBTC No. 25/93;</p> <p>Improvement to the Appearance of Slopes (Works Branch), WBTC No. 17/2000;</p> <p>Technical Guidelines on Landscape Treatment and Bio-engineering for Manmade Slopes and Retaining Walls (GEO Publication No. 1/2000);</p> <p>Tree Preservation, ETWBTC 3/2006.</p> <p>Maintenance of Vegetation and Hard Landscape Features, ETWB TCW No. 2/2004;</p> <p>Allocation of Space for Urban Street Trees (Works Branch), WBTC No. 25/92;</p> <p>Tree Preservation, ETWBTC 3/2006.</p>	

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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8.13.1	<ul style="list-style-type: none"> Screen walls Feature finishes to structures and floorscape Provision of new recreational/amenity facilities Amenity shrub, ground cover and climber planting 	Whole alignment / Prior to commencement of site clearance works	CEDD	✓	✓		The Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS), ETWBTC 36/2004. The Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS), ETWBTC 36/2004. Maintenance of Vegetation and Hard Landscape Features, ETWB TCW No. 2/2004 Maintenance of Vegetation and Hard Landscape Features, ETWB TCW No. 2/2004; Allocation of Space for Urban Street Trees (Works Branch), WBTC No. 25/92.
		Whole alignment / Prior to commencement of site clearance works	CEDD	✓	✓		
		Whole alignment / operation phase	HyD & LCSD			✓	
		Whole alignment / Prior to commencement of site clearance works	CEDD	✓	✓		

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
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8.24.1	<p>The assessment process has generated a range of practical landscape proposals, which will effectively mitigate those significant landscape and visual effects identified. These mitigation proposals include:</p> <ul style="list-style-type: none"> • MM1 - The replacement of amenity planting lost as a consequence of road widening and the remodelling of junctions; • MM2 - The re-use of areas beneath the elevated road deck as 3 public car parks, screened by feature granite block walls and amenity planting; • MM3 - The provision of feature granite block screen walls and raised planters around car parks and on traffic islands and meridians; • MM4 - Reinstatement of Tsuen Wan Park. 	Whole alignment / Design prior to commencement of site clearance works , during the construction period following the phased completion of the engineering works.	<p>Funding and implementation by CEDD</p> <p>Management and maintenance by HyD, LCSD since day 1 of operation</p>	✓	✓	✓	<p>Maintenance of Vegetation and Hard Landscape Features, ETWB TCW No. 2/2004;</p> <p>Allocation of Space for Urban Street Trees (Works Branch), WBTC No. 25/92.</p> <p>Tree Preservation, ETWBTC 3/2006.</p>
8.24.1	<ul style="list-style-type: none"> • MM5 - The provision of a visual/acoustic screen partially the noise barriers adjacent to the Clague Gardens Estate. <p>This should be achieved through the use of innovative form, recessive and muted colours and tones, and through use of materials. And green plant such as colorful shrubs and climbers is proposed to plant along part of the overall noise enclosure structure. The design of the engineering structure thus aims to minimize visual impact as far as possible and visually integrate as far as possible into the landscape context.</p>	Whole alignment / During construction phase and operation phase	<p>Funding and implementation by CEDD</p> <p>Management and maintenance by HyD, LCSD since day 1 of operation</p>	✓	✓	✓	<p>The Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS), ETWBTC 36/2004;</p> <p>Allocation of Space for Urban Street Trees (Works Branch), WBTC No. 25/92;</p> <p>Visibility of Directional Signs, HyDTC 10/2001;</p> <p>ETWBTC 10/2005 Planting on Footbridges and Flyovers;</p> <p>Maintenance of Vegetation and Hard Landscape Features, ETWB TCW No. 2/2004.</p>



EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
				D	C	O	
8.24.1	Design and Construction of the soft works recommended at MM 1 - 5 i) During the construction stages, soft landscape measures should be used where appropriate, employing native plant species as fast as practicable, to restore the green land cover and enhance the vegetated, urban environment. This includes tree/ shrub planting and HyDro-seeding in the peripheral site area, footpath side, access road, park and open spaces.	Whole alignment / During the construction period	CEDD	✓	✓		EIAO TM Allocation of Space for Urban Street Trees (Works Branch), WBTC No. 25/92. Tree Preservation, ETWBTC 3/2006.

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
				D	C	O	
8.24.1	<p>ii) During the operation stages, the newly planted trees, shrubs and grassed areas are maintained throughout the establishment period at the intervals established in the soft works specification, particularly in respect of the following:</p> <ul style="list-style-type: none"> - Regular grass cutting for reinstated areas frequently to be established in the soft works specification; - Firming up of trees after periods of strong winds periods to be established in the soft works specification; - Regular checks for and eradication of pests, fungal infections etc. frequently to be established in the soft works specification; - Pruning of dead or broken branches frequently to be established in the soft work specification; - Replacement of dead plants and resending of failed areas of grass as early as possible during the planting seasons, i.e. between March and September, although the optimum period is between April and July, to ensure the landscape mitigation measures fulfil their design intention - The management and maintenance authority will make regular bimonthly inspections of the planted areas during the establishment period to ensure the intended objectives of the landscape and visual mitigation measures are achieved. 	Whole alignment / operational phases	HyD & LCSD			✓	<p>Tree Preservation, ETWBTC 3/2006;</p> <p>Maintenance of Vegetation and Hard Landscape Features, ETWB TCW No. 2/2004.</p>
8.24.4	All barriers, including cantilever types, will be based on a single design theme to create a single family of structures, which will also be integrated with the engineering structures, avoiding excessive visual clutter along the road. All barriers are noise reflective type and can, therefore, be clear. The barriers will comprise semi-transparent panels with a colour tint supported by posts coloured in muted tones reflecting the local visual environment.	Whole alignment / Design phase prior to the finalization of engineering proposals.	CEDD	✓	✓		The Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS), ETWBTC 36/2004.

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
				D	C	O	
8.24.5	In a majority of locations the barriers will be required along the elevated bridge structure. At these locations, planting along the bridge structure will be used to screen the barriers. Moreover, greening panel has been taken into design consideration for mitigate the visual impact of noise barriers. All barriers required will be submitted to ACABAS for comment during the detail design stages	Whole alignment / Design phase prior to the finalization of engineering proposals.	CEDD	✓	✓		The Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS), ETWBTC 36/2004; Allocation of Space for Urban Street Trees (Works Branch), WBTC No. 25/92.
8.24.7	The funding and implementation of the proposed mitigation measures will be the responsibility of the Civil Engineering and Development Department. Once the day 1 operation started, the relevant departments, such as HyD, LCSD etc. will be the responsible for the management and maintenance of the proposed mitigation measures.	--	--			✓	--
Section 9 9.8.29	<p style="text-align: center;">Hazard to Life</p> <p>Nevertheless two measures previously recommended in the EIA for Route 8 (formerly Route 16) warrant consideration:</p> <ul style="list-style-type: none"> Introduce the 'no stopping zones' on the western part of Tsuen Wan Rd and on all major roads within the area where the individual risk levels exceed 1×10^{-9} (see Figure 8.3 in EIA Report). This measure (if not already implemented) would be particularly effective on Tuen Mun Rd. Provide traffic signals to stop in case of emergency the traffic on western part of Tsuen Wan Rd and other major roads within the area that could be affected by a chlorine spill at YKT WTW 	Within Site Boundary/During construction and operation phases	Contractor & HyD	✓	✓	✓	--

EIA Ref	Environment Protection Measures	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation and Guidelines
				D	C	O	
9.8.30	<p>Similarly, implementation of the following measures for protection of the Project construction workers should be considered:</p> <ul style="list-style-type: none"> The number of workers on site during construction stage should not exceed the levels assessed in this report. Emergency evacuation procedures should be formulated and all workers on site should be familiar with these procedures as well as the route to escape in case of gas release incident. Relevant Departments, such as WSD and FSD, should be consulted during the development of Emergency procedures. Diagram showing the escape routes to a safe place should be posted in the site notice boards and at the entrance/exit of site. The emergency procedures should specify means of providing a rapid and direct warning (e.g. Siren and Flashing Light) to construction workers in the event of chlorine gas release in the YKTWTW. The construction site officer should establish a communication channel with the YKTWTW operation personnel during construction stage. In case of any hazardous incidents in the treatment works, operation personnel of YKTWTW should advise the site officer to evacuate the construction workers. 	Within Site Boundary/During construction	Contractor		✓		

Notes:

D - Design, C - Construction, O – Operation
TWR – Tsuen Wan Road