Annex B

Environmental Mitigation Implementation Schedule

Annex B Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	When to implement the measure? (1) D C O/R A	What requirements or standards for the measure to achieve?	Implementation Status and Remarks
Air Quali	ty - Cons	struction Phase						
4.8.1	AQ1	Blasting	To minimise	Blasting area	SENTX	✓	Air Pollution Control	Not applicable.
		• The area within 30m of the blasting area will be wetted prior to blasting.	potential dust nuisance	and 30m of blasting area	Contractor		(Construction Dust) Regulations	Blasting is not required in the latest landfill design
		 Blasting will not be carried out when the strong wind signal or tropical cyclone warning signal No. 3 or higher is hoisted, unless this is with the express prior permission of the Commissioner of Mines. 						O
		 loose material and stones in the Site will be removed prior to the blast operation 						
		 During blasting, blast nets, screens and other protective covers will be used to prevent the projection of flying fragments and material resulting from blasting 						
4.8.1	AQ2	Rock Drilling	To minimise	Rock drilling	SENTX	✓	Air Pollution Control	Not applicable.
		 Watering will be carried out at the rock drilling activities to avoid fugitive dust emissions. 	potential dust nuisance	area	Contractor		(Construction Dust) Regulations	Rock drilling is not required in the latest landfill design
4.8.1	AQ3	Site Access Road	To minimise	Main haul	SENTX	✓	Air Pollution Control	Implemented

⁽¹⁾ D=Design; C=Construction; O/R=Operation/Restoration; A=Aftercare

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		The main haul road will be kept clear of dusty materials or sprayed with water.	potential dust nuisance	road	Contractor		(Construction Dust) Regulations	
		• The main haul road will be paved with aggregate or gravel.					HKAQO and EIAO-TM Annex 4	
		• Vehicle speed will be limited to 10kph.						
4.8.1	AQ4	Stockpiling of Dusty Materials	To minimise	All	SENTX	✓	Air Pollution Control	Deficiency of
		 Any stockpile of dusty materials will be covered entirely by impervious sheeting 	potential dust nuisance	construction works area	Contractor		(Construction Dust) Regulations	mitigation measures but rectified by the Contractor
		or placed in an area sheltered on the top and three sides or sprayed with water so as to ensure that the entire surface is wet.					HKAQO and EIAO-TM Annex 4	
4.8.1	AQ5	Loading, unloading or transfer of dusty materials	To minimise potential dust	All construction works area	SENTX Contractor	✓	Air Pollution Control (Construction Dust) Regulations	Implemented
		 All dusty materials will be sprayed with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty material wet. 	nuisance	works area			HKAQO and EIAO-TM Annex 4	
4.8.1	AQ6	Site Boundary and Entrance	To minimise	Site boundary	SENTX	✓	Air Pollution Control	Not applicable
		Where a site boundary adjoins a road, street, service lane or other area accessible	potential dust nuisance	and entrance	Contractor		(Construction Dust) Regulations	
		to the public, hoarding of height not less than 2.4m from ground level will be provided along the entire length of that portion of the site boundary except for the site entrance or exit.					HKAQO and EIAO-TM Annex 4	
4.8.1	AQ7	Excavation Works	To minimise	All	SENTX	✓	Air Pollution Control	Implemented

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		Working area of any excavation or earth moving operation will be sprayed with water immediately before, during and immediately after the operation so as to ensure that the entire surface is wet.	potential dust nuisance	construction works area	Contractor		(Construction Dust) Regulations HKAQO and EIAO-TM Annex 4	
4.8.1	AQ8	 Building Demolition The area where the demolition works are planned to take place will be sprayed with water immediately prior to, during and immediately after the demolition activities. Any dusty materials remaining after a stockpile is removed will be wetted with water and cleared from the surface of roads or street. 	To minimise potential dust nuisance	All construction works area	SENTX Contractor	•	Air Pollution Control (Construction Dust) Regulations HKAQO and EIAO-TM Annex 4	Implemented
4.8.1	AQ9	 Construction of the Superstructure of Building Effective dust screens, sheeting or netting will be provided to enclose the scaffolding from the ground level up to the highest level of the scaffolding. 	To minimise potential dust nuisance	All construction works area	SENTX Contractor	✓	Air Pollution Control (Construction Dust) Regulations HKAQO and EIAO-TM Annex 4	Implemented
4.8.1	AQ10	Should a stone crushing plant be needed on site, the control measures recommended in the Best Practicable Means Requirement for Mineral Works (Stone Crushing Plants) BPM 11/1 should be implemented.	To minimise potential dust nuisance	Stone crushing plant/ construction phase	SENTX Contractor	✓	Best Practicable Means Requirement for Mineral Works (Stone Crushing Plants) BPM 11/1	Not applicable. Stone crushing plant is not required in the latest landfill design

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4.8.1	AQ11	Good site practices such as regular maintenance and checking of the diesel powered mechanical equipment will be adopted to avoid any black smoke emissions and to minimize gaseous emissions.	To minimise potential dust nuisance	All construction works area	SENTX Contractor		✓	HKAQO and EIAO-TM Annex 4	Implemented
4.10.1	AQ12	Dust monitoring once every 6 days	Ensure the dust generated from the project meets the air quality requirement	At monitoring locations shown in <i>Figure 3.2a</i>	SENTX Contractor		✓	HKAQO and EIAO-TM Annex 4	Implemented
Air Quali	ty – Opei	ation, Restoration and Aftercare Phases							
4.8.2	AQ13	Odour • Enclosing the weighbridge area	To minimise odour nuisance	Weighbridge area	SENTX Contractor	✓	✓	EIAO-TM Annex 4	Not Applicable. As SENTX will receive construction waste only which is significantly less odorous, enclosing the weighbridge area is not necessary
4.8.2	AQ14	Providing a vehicle washing facility before the exit of SENTX and providing sufficient signage to remind RCV drivers to pass through the facility before leaving SENTX		Vehicle washing facility	SENTX Contractor	✓	✓	EIAO-TM Annex 4	Implemented
4.8.2	AQ15	Reminding the RCV drivers to empty the liquor collection sump and close the valve	To minimise odour nuisance	Tipping face	SENTX Contractor		✓	EIAO-TM Annex 4	Not Applicable. As SENTX will receive construction waste

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		before leaving the tipping face						only, which is relatively dry, the amount of liquor generated is expected to minimal
4.8.2	AQ16	8	To minimise odour nuisance	SENTX Site	SENTX Contractor	•	EIAO-TM Annex 4	Not Applicable. As SENTX will receive construction waste only, which is relatively dry, the amount of liquor generated is expected to minimal.
4.8.2	AQ17	Reminding operators to properly maintain their RCVs and ensure that liquor does not leak from the vehicles		SENTX Site	SENTX Contractor	•	EIAO-TM Annex 4	Not Applicable. As SENTX will receive construction waste only, which is relatively dry, the amount of liquor generated is expected to minimal.
4.8.2	AQ18	0	To minimise odour nuisance	SENTX Site	SENTX Contractor	√	EIAO-TM Annex 4	Implemented

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4.8.2	AQ19	•	Progressive restoration of the areas which reach the finished profile (a final capping system including an impermeable liner will be put in place) and installation of a permanent landfill gas extraction system	To minimise odour nuisance	SENTX Site	SENTX Contractor	√		✓	√	EIAO-TM Annex 4	Implemented
4.8.2	AQ20	•	Installing deodorizers along the site boundary adjacent to the ASRs	To minimise odour nuisance	SENTX Site boundary	SENTX Contractor			√	✓	EIAO-TM Annex 4	Not Applicable. As SENTX will receive construction waste only which is significantly less odorous, installation of deodorizers is not necessary.
4.8.2	AQ21	•	Erecting a vertical barrier, wall or structure softened by planting rows of trees/shrubs or landscape feature along the site boundary, particularly in the areas near the ASRs	To minimise odour nuisance	SENTX Site boundary	SENTX Contractor	✓		✓	✓	EIAO-TM Annex 4	Implemented
4.8.2 and SENTX latest design	AQ22	•	Maintaining the size of the active tipping face not greater than 1,200 m ²	To minimise odour nuisance	Active tipping face	SENTX Contractor			✓		EIAO-TM Annex 4	Implemented
4.8.2	AQ23	•	Promptly covering the MSW with soil or selected inert materials to control odour emissions	To minimise odour nuisance	Active tipping face	SENTX Contractor			✓		EIAO-TM Annex 4	Not Applicable. SENTX will not receive MSW.

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4.8.2	AQ24	•	Maintaining the size of the special waste trench not greater than 6m (l) \times 2.5m (w)	To minimise odour nuisance	Special waste trench	SENTX Contractor	✓	EIAO-TM Annex 4	Not Applicable. SENTX will not have any special waste trench.
4.8.2 and SENTX latest design	AQ25	•	Covering daily covered area with a tarpaulin sheet or 300mm of soil after the landfill operating hours	To minimise odour nuisance	Daily covered area	SENTX Contractor	✓	EIAO-TM Annex 4	Implemented
4.8.2	AQ26	•	Covering special waste trench with 600 mm of soil and an impervious liner after 5 pm	To minimise odour nuisance	Special waste trench	SENTX Contractor	✓	EIAO-TM Annex 4	Not Applicable. SENTX will not have any special waste trench.
4.8.2	AQ27	•	Covering the non-active tipping face with 600mm of soil and an impermeable liner (on top of the intermediate cover), which will not only control odour emissions from landfilled waste but also enhance landfill gas extraction by the landfill gas extraction system	To minimise odour nuisance	Intermediate cover	SENTX Contractor	√	EIAO-TM Annex 4	Implemented
4.8.2	AQ28	•	Applying deodorizers or odour suppression agents to control odour emissions from the active tipping face and special waste trench, if any, through spraying or fogging equipment	To minimise odour nuisance	Active tipping face and special waste trench	SENTX Contractor	√	EIAO-TM Annex 4	Not Applicable. As SENTX will receive construction waste only which is significantly less odorous, installation of deodorizers is not necessary.

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										Moreover, SENTX will not have any special waste trench.
4.8.2	AQ29	 Providing a mobile cover with retractable or suitable opening to cover up the opening of the special waste trench except during waste deposition and a suitable odour removal unit. The mobile cover should be equipped with powered extraction and suitable odour removal unit for purifying the trapped gas inside the trench before release into the atmosphere 	To minimise odour nuisance	Special waste trench	SENTX Contractor		√		EIAO-TM Annex 4	Not Applicable. SENTX will not have any special waste trench.
4.8.2 and SENTX latest design	AQ30	Providing a thermal oxidizer for the leachate treatment plant	To minimise odour nuisance as a result of breakdown of thermal oxidizer	Leachate treatment plant	SENTX Contractor	✓	✓	✓	EIAO-TM Annex 4	Implemented
4.8.2 and SENTX latest design	AQ31	• Enclosing all the leachate storage and treatment tanks (except for the Sequential Batch Reactor (SBR) or Membrane Bioreactor (MBR) tanks) and diverting the exhaust air from these tanks to a thermal oxidizer or flare to avoid potential odour emissions from the LTP	To minimise odour nuisance	Leachate treatment plant	SENTX Contractor	√	✓	✓	EIAO-TM Annex 4	Implemented
4.8.2	AQ32	Rescheduling of waste filling activities on- site by avoiding waste filling activities	To minimise odour nuisance	SENTX Site	SENTX Contractor		✓		EIAO-TM Annex 4	Not Applicable. As SENTX will receive

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		carrying out at the northern area of the site in the summer months between July to November						construction waste only which is significantly less odorous, rescheduling of waste filling activities is not necessary.
4.8.2 and SENTX latest	AQ33	Dust, Gaseous Emission and LFG including Volatile Organic Compounds (VOCs)	To minimise dust nuisance	SENTX Site	SENTX Contractor	✓	HKAQO and EIAO-TM Annex 4	Implemented
design		• Keeping the main haul road to the waste filling area wet by regular watering;						
4.8.2	AQ34	 Compacting the exposed daily and intermediate covered areas well to avoid fugitive dust emission; 	To minimise dust nuisance	SENTX Site	SENTX Contractor	✓	HKAQO and EIAO-TM Annex 4	Implemented
4.8.2	AQ35	• Limiting the vehicle speed within SENTX site boundary;	To minimise dust nuisance	SENTX Site	SENTX Contractor	✓	HKAQO and EIAO-TM Annex 4	Implemented
4.8.2	AQ36	 Providing vehicle washing bay to avoid vehicles carrying dust to public roads; 	To minimise dust nuisance	SENTX Site	SENTX Contractor	✓	HKAQO and EIAO-TM Annex 4	Implemented
4.8.2	AQ37	• Switching off the engine when the diesel-driven equipment is idling;	To minimise gaseous emissions	SENTX Site	SENTX Contractor	✓ ✓	-	Implemented
4.8.2	AQ38	Maintaining the construction equipment properly to avoid any black smoke	To minimise gaseous	SENTX Site	SENTX Contractor	✓ ✓	-	Implemented

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4.8.2	AQ39	emissions; Providing sufficient underground landfill gas collection system to capture the landfill gas generated as much as possible; and	To minimise gaseous emissions, including LFG and VOCs	SENTX Site	SENTX Contractor		✓	✓	EIAO-TM Annex 4	Implemented
4.8.2	AQ40	Periodic inspections of the final cover should be undertaken to ensure that the capping layer is in good conditions at all times.	To minimise gaseous emissions, including LFG and VOCs	SENTX Site	SENTX Contractor		✓	✓	EIAO-TM Annex 4	Implemented
4.10.2	AQ41	Monitoring of ambient TSP once every 6 days	Ensure the dust emission from the project meets the dust requirement	shown in	SENTX Contractor	~	'		HKAQO and EIAO-TM Annex 4	Implemented
4.10.2	AQ42	Monitoring of ambient VOCs, ammonia and H_2S , quarterly	Ensure the gaseous emission from the project meets the air quality requirement	At monitoring locations shown in Figure 11.3a	SENTX Contractor		√	✓	Odour thresholds or 1% of Occupational Exposure Limit (OEL) as stipulated in the "UK Health and Safety Executive (HSE) EH 40/05 Occupational Exposure Limits", whichever is lower.	Implemented

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4.10.2 and SENTX latest design	AQ43	Monitoring of parameters for thermal oxidizer, flares and generator in accordance with requirements stated in Tables 3.4a, 3.5a and 3.6a of the EM&A Manual respectively.	Ensure the gaseous emission from the project meets the air quality requirement	At the flares and thermal oxidizer stacks when they are in operation	SENTX Contractor	✓ ✓ (1)	Emission Limits specified in Contract	Implemented
4.10.2	AQ44	To confirm design assumption of ammonia, it is recommended that the ammonia concentration in the flue gas of the thermal oxidiser be monitored during the commissioning stage of the thermal oxidiser. If required, an emission standard will be set for ammonia for the thermal oxidiser based on the monitoring results. If no ammonia is detected in the flue gas during the decommissioning stage, the monitoring of ammonia in the flue gas of the thermal oxidiser could be discontinued.	Ensure the gaseous emission from the project meets the air quality requirement	At the thermal oxidizer stack during commissioning . If ammonia is detected during commissioning stage, the monitoring will continue.	Contractor	•	Emission Limits determined during commissioning stage	Implemented
4.10.2 and SENTX latest design	AQ45	Odour patrol in accordance with requirements stated in Table 3.7a of the EM&A Manual.	Ensure the odour emission from the project meets the odour requirement	-	SENTX Contractor	✓	EIAO-TM Annex 4	Implemented
4.10.2	AQ46	Monitoring of meteorological station, continuously	Collect site specific	At meteorological	SENTX Contractor	√ √ √	-	Implemented

⁽¹⁾ For LFG flare and LFG generator only.

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			meteorological data	station shown in <i>Figure 11.3a</i>				
Noise - C	onstruction	on Phase						
5.7.1	N1	Adopt good site practice listed below: Only well-maintained plant will be operated on-site and plant should be serviced regularly during the construction program;	To minimise potential construction noise nuisance.	All construction works area	SENTX Contractor	✓	Noise Control Ordinance (NCO) and EIAO-TM Annex 5	Implemented
		• Silencers or mufflers on construction equipment should be utilized and will be properly maintained during the construction program;						
		• Mobile plant, if any, will be sited as far from NSRs as possible;						
		 Machines and plant (such as trucks) that may be in intermittent use will be shut down between work periods or should be throttled down to a minimum; 						
		Plant known to emit noise strongly in one direction will, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and						
		Material stockpiles and other structures will be effectively utilised, wherever practicable, in screening noise from on-site						

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5.8	N2	Weekly noise monitoring	Ensure noise generated from the project meets the criteria	At monitoring locations shown in Figure 6.4a	SENTX Contractor	✓	Noise Control Ordinance (NCO) and EIAO-TM Annex 5	Implemented
Noise - O	peration/	Restoration Phase						
5.7.2	N3	Adopt good site practice listed below: • Choose quieter PME;	To minimise potential operational noise nuisance.	Within the SENTX Site	SENTX Contractor	✓	Noise Control Ordinance (NCO) and EIAO-TM Annex 5	Implemented
		Include noise levels specification when ordering new plant items;					-	Implemented
		• Locate fixed plant items or noise emission points away from the NSRs as far as practicable;					-	Implemented
		Locate noisy machines in completely enclosed plant rooms or buildings; and					-	Implemented
		Develop and implement a regularly scheduled plant maintenance programme so that plant items are properly operated and serviced. The programme should be implemented by properly trained personnel.					-	Implemented
5.8	N4	Weekly noise monitoring	Ensure noise generated from	At monitoring locations	SENTX Contractor	✓	Noise Control Ordinance (NCO) and EIAO-TM	Implemented

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			the project meets the criteria	shown in Figure 6.4a			Annex 5	
Water Qu	ality - C	onstruction Phase						
6.8.1	WQ1	Construction Runoff						
		• Exposed soil areas will be minimised to	To minimise	All	SENTX	✓	ProPECC PN 1/94	Deficiency of
		reduce the contamination of runoff and erosion.	potential water quality impacts arising from the construction works	construction works area	Contractor		EIAO-TM Annex 6	mitigation measures but rectified by the Contractor
6.8.1	WQ2	Perimeter channels will be constructed in advance of site formation works and	To minimise	All	SENTX	✓ ✓	ProPECC PN 1/94	Implemented
		advance of site formation works and earthworks and intercepting channels will be provided for example along the edge of	potential water quality impacts arising from the	construction works area	Contractor		Water Pollution Control Ordinance (WPCO)	
		excavation.	construction works				EIAO-TM Annex 6	
6.8.1	WQ3	Silt removal facilities, channels and	To minimise	All	SENTX	✓	ProPECC PN 1/94	Deficiency of
		manholes will be maintained and the deposited silt and grit should be removed	potential water quality impacts	construction works area	Contractor		WPCO	mitigation measures but rectified by the
		regularly to ensure they are functioning properly at all times.	arising from the construction works	works area			EIAO-TM Annex 6	Contractor
6.8.1	WQ4	Temporary covers such as tarpaulin will	To minimise	All	SENTX	✓	ProPECC PN 1/94	Implemented
		also be provided to minimise the generation of high SS runoff.	potential water quality impacts arising from the construction works	construction works area	Contractor		WPCO	

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6.8.1	WQ5	The surface runoff contained any oil and grease will pass through the oil interceptors.	To minimise potential water quality impacts arising from the construction works	All construction works area	SENTX Contractor	✓	ProPECC PN 1/94 WPCO EIAO-TM Annex 6	Implemented
6.8.1	WQ6	All sewer and drains will be sealed to prevent building debris, soil etc from entering public sewers/drains before commencing any demolition works	To minimise potential water quality impacts arising from the demolition works	Infrastructure area at existing SENT Landfill	SENTX Contractor	✓	ProPECC PN 1/94 WPCO EIAO-TM Annex 6	Not applicable
6.8.1	WQ7	During the excavation works for the twin drainage tunnels, the recycle water for cooling the cutter head of the TBM will be conveyed to the sedimentation tanks for treatment and most of the treated water will be reused, where applicable and as much as possible, in the boring operations.	To minimise potential water quality impacts arising from the tunnel works	Tunnel boring sites	SENTX Contractor	✓	ProPECC PN 1/94 WPCO EIAO-TM Annex 6	Not applicable. Excavation of drainage tunnels is not required in the latest landfill design.
6.8.1	WQ8	The fuel and waste lubricant oil from the on-site maintenance of machinery and equipment will be collected by a licensed chemical waste collector.	To minimise potential water quality impacts arising from improper handling of fuel and oil	SENTX Site	SENTX Contractor	✓	ProPECC PN 1/94 WPCO Waste Disposal Ordinance (WDO)	Implemented
6.8.1	WQ9	Implementation of excavation schedules, lining and covering of excavated stockpiles	To minimise contaminated stormwater runoff from the	All construction works	SENTX Contractor	✓	ProPECC PN 1/94 WPCO EIAO-TM Annex 6	Implemented

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6.13	WQ10	Monitoring of surface water quality will be conducted on a regular basis as stated in the EM&A Manual.	To minimise potential water quality impacts on surface water arising from the construction works	SENTX Site	SENTX Contractor	✓	WPCO Water-TM	Implemented
6.8.2	WQ11	Sewage Effluents						
		• Sufficient chemical toilets will be provided for the construction workforce.	To minimise potential water quality impacts arising from the sewage effluents	SENTX Site	SENTX Contractor	✓	WPCO	Implemented
6.8.2	WQ12	Untreated sewage will not be allowed to discharge into the surrounding water body.	To minimise potential water quality impacts arising from the sewage effluents	SENTX Site	SENTX Contractor	✓	WPCO WDO	Implemented
6.8.2	WQ13	A licensed waste collector will be employed to clean the chemical toilets on a regular basis.	To minimise potential water quality impacts arising from the sewage effluents	SENTX Site	SENTX Contractor	✓	WPCO WDO	Implemented
Water Qu	ality - O	peration/Restoration and Aftercare Phases						
6.9.1	WQ14	Surface Water Management • Inspections of the drainage system, sand	To minimise	SENTX Site	SENTX	✓	WPCO Technical Memorandum	Implemented

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		traps, settlement ponds and surface water channels will be performed regularly to identify areas necessary for maintenance, cleaning or repair.	potential water quality impacts on surface water arising from the landfill operations.		Contractor		Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Inshore Waters (Water- TM)	
							EIAO-TM Annex 6	
6.9.1	WQ15	1	To minimise	SENTX Site	SENTX	✓	WPCO	Implemented
		conducted to prevent degradation from affecting the performance of the capping system.	potential water quality impacts on surface water arising from the landfill operations.		Contractor		Water-TM	
							EIAO-TM Annex 6	
6.9.1	WQ16	Monitoring of surface water quality will be conducted on a regular basis as stated in the EM&A Manual.	To minimise potential water quality impacts on surface water arising from the landfill operations.	SENTX Site	SENTX Contractor	✓ ✓	WPCO Water-TM	Implemented
6.9.2 and	WQ17	Groundwater Management						Implemented
SENTX latest		The groundwater management facilities	To minimise	SENTX Site	SENTX	✓ ✓	WPCO	
design		including the groundwater monitoring	potential water		Contractor		Water-TM	
		wells will be inspected regularly during routine groundwater monitoring programme.	quality impacts on groundwater arising from the landfill operations.				EIAO-TM Annex 6	

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6.9.2	WQ18	Monitoring of groundwater water quality will be conducted on a regular basis as stated in the EM&A Manual.	To minimise potential water quality impacts on groundwater arising from the landfill operations.	SENTX Site	SENTX Contractor	✓	✓	WPCO Water-TM EIAO-TM Annex 6	Implemented
SENTX latest design	WQ19	 Sewage All sewage from the operation staff will be diverted to the LTP for treatment or public sewer, if available. 	To ensure proper handling of sewage	SENTX Site	SENTX Contractor	✓	√	-	Implemented
6.9.3	WQ20	Leachate Management The leachate pump houses and related ancillary equipment will be inspected regularly and repairs, if necessary.	To minimise potential water quality impacts on surrounding water bodies arising from the landfill operations.	Leachate pump houses and related ancillary equipment	SENTX Contractor	✓	✓	WPCO Water-TM EIAO-TM Annex 6	Implemented
6.9.3	WQ21	For equipment such as pumps that require routine scheduled maintenance, the maintenance will be performed following manufacturer's recommended frequency.	To minimise potential water quality impacts on surrounding water bodies arising from the landfill operations.	Leachate pumps	SENTX Contractor	✓	✓	WPCO Water-TM	Implemented

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6.9.3	WQ22	Preventive maintenance will be implemented so that the possibility for forced shutdown during wet season will be kept to minimal.	To minimise potential water quality impacts on surrounding water bodies arising from the landfill operations.	Leachate treatment plant	SENTX Contractor	✓	√	WPCO Water-TM EIAO-TM Annex 6	Implemented
6.9.3	WQ23	• Emergency procedures or a contingency plan will be established when the LTP is malfunctioned.	To minimise potential water quality impacts on surrounding water bodies arising from the landfill operations.	Leachate treatment plant	SENTX Contractor	✓	√	WPCO Water-TM EIAO-TM Annex 6	Implemented
6.9.3 and SENTX latest design	WQ24	• There will be sufficient redundancy in the system to handle the leachate flow even if one treatment train is down for maintenance. The leachate may be required to temporarily store within the landfill if the leachate storage lagoon are full and leachate cannot be transported to the LTP for treatment.	To minimise potential water quality impacts on surrounding water bodies arising from the landfill operations.	Leachate treatment plant	SENTX Contractor	✓	√	WPCO Water-TM EIAO-TM Annex 6	Implemented
6.13	WQ25	Monitor the quality of effluent discharged from the LTP	To ensure discharge quality comply with WPCO requirement	Leachate treatment plant discharge point	SENTX Contractor	✓	✓	WPCO Water-TM	Implemented

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6.10.1	WQ26	 Potential Leakage of Leachate Regular groundwater quality monitoring will be carried out to monitor the 	To minimise potential water	SENTX Site	SENTX Contractor		✓	✓	WPCO	Implemented
		performance of the leachate containment system.	quality impacts on surrounding water bodies arising from the landfill operations.						Water-TM	
6.10.1	WQ27	 Maintenance and replacement of the capping system should be carried out, if necessary, to prevent control infiltration and leachate seepage from any damaged cap. 	To minimise potential water quality impacts on surrounding water bodies arising from the leachate leakage.	SENTX Site	SENTX Contractor		✓	✓	WPCO Water-TM EIAO-TM Annex 6	Implemented
6.10.1	WQ28	Maintaining control of the leachate level through extraction	To minimise potential water quality impacts on surrounding water bodies arising from surface breakout of leachate.	SENTX Site	SENTX Contractor		✓	✓	WPCO Water-TM EIAO-TM Annex 6	Implemented
Waste Ma	anagemen	t – Construction Phase								
7.6.1	WM1	All the necessary waste disposal permits are obtained prior to the commencement of construction work.	To ensure compliance with relevant statutory	Before construction works	SENTX Contractor	✓ ∨			WDO	Implemented

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			requirements	commence				
7.6.1	WM2	Management of Waste Disposal						
		The construction contractor will open a	To ensure that	SENTX Site	SENTX	✓	WDO	Implemented
	construction waste or public fill load to be transferred to the Government waste disposal is facilities such as public fill reception facilities, parting facilities, landfills will required a valid "chit" which contains the information of the account holder to facilitate waste transaction recording and billing to the waste	transferred to the Government waste disposal facilities such as public fill reception facilities,	-		Contractor		Waste Disposal (Charges for Disposal of Construction Waste) Regulation;	
						Works Bureau Technical Circular No.31/2004; and		
		producer. A trip-ticket system will also be established to monitor the disposal of construction waste at the SENT Landfill and to control fly-tipping. The trip-ticket system will be included as one of the contractual requirements and implemented by the contractor.					Annex 5 and Annex 6 of Appendix G of ETWBTC No. 19/2005)	
		A recording system for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established.						
7.6.1	WM3	Measures for the Reduction of Construction Waste Generation						
		Inert and non-inert construction waste will be segregated and stored in different containers or skips to facilitate reuse or recycling of the inert waste and proper disposal of the non-	To reduce construction waste generation	SENTX Site	SENTX Contractor	✓	WDO EIAO-TM Annex 7	Implemented

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		inert construction waste. Specific areas of the work site will be designated for such segregation and storage if immediate use is not practicable.						
7.6.1	WM4	Chemical Waste						
		The construction contractor will register as a chemical waste producer with the EPD. Chemical waste will be handled in accordance with the <i>Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i> .	To ensure proper handling of chemical waste	SENTX Site	SENTX Contractor	✓	WDO Code of Practice on the Packaging, Handling and Storage of Chemical Wastes	Implemented
7.6.1	WM5	<u>Sewage</u>						
		An adequate number of portable toilets will be provided at the site to ensure that sewage from site staff is properly collected. The portable toilets will be desludged and maintained regularly by a specialist contractor.	To ensure proper handling of sewage	SENTX Site	SENTX Contractor	✓	WDO EIAO-TM Annex 7	Implemented
7.6.1 and	WM6	General Refuse						
SENTX latest design		General refuse will be stored in enclosed bins separately from construction and chemical	handling of	SENTX Site	SENTX Contractor	✓	WDO EIAO-TM Annex 7	Deficiency of mitigation measures
design		wastes. The general refuse will be delivered to a transfer station or other landfill, separately from construction and chemical wastes, on a daily basis to reduce odour, pest and litter impacts.						but rectified by the Contractor
		Recycling bins will be provided at strategic locations to facilitate recovery of aluminium						

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		can and waste paper from the SENTX Site. Materials recovered will be sold for recycling.						
7.6.1	WM7	Staff Training						
		At the commencement of the construction works, training will be provided to workers on the concepts of site cleanliness and on appropriate waste management procedures, including waste reduction, reuse and recycling.	To ensure that adverse environmental impacts are prevented	SENTX Site	SENTX Contractor	√		Implemented
7.8	WM8	Environmental Monitoring & Audit Requirements						
		Weekly audits of the waste management practices will be carried out during the construction phase. The audits examine all aspects of waste management including waste generation, storage, recycling, transport and disposal.	To ensure that adverse environmental impacts are prevented	SENTX Site	SENTX Contractor	~	WDO	Implemented
Waste Ma	anagemen	nt - Operation/Restoration Phase						
7.6.2 and SENTX latest design	WM9	Sludge In case off-site disposal is required, the Contractor will ensure that sludge generated from the LTP will be delivered in closed container to other waste disposal facility e.g. other landfills or a sludge treatment facility, for proper disposal on a daily basis.	To ensure proper handling of sludge	SENTX Site	SENTX Contractor	✓	WDO EIAO-TM Annex 7	Implemented

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7.6.2	WM10	Chemical Waste						Implemented
		The construction contractor will register as a	To ensure proper	SENTX Site	SENTX	✓	WDO	
		chemical waste producer with the EPD. Chemical waste will be handled in	handling of chemical waste		Contractor		EIAO-TM Annex 7	
		accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.					Code of Practice on the Packaging, Handling and Storage of Chemical Wastes	
7.6.2	WM11	Sewage						Moved to mitigation
		All sewage from the operation staff will be	To ensure proper	r SENTX Site	SENTX	✓	WDO	measure under water quality
		diverted to the LTP for treatment or public handling of sewer, if available. handling of sewage	~		Contractor		EIAO-TM Annex 7	WQ19. It is a measure for water quality rather than waste management.
7.6.2 and	WM12	General Refuse						Implemented
SENTX latest		General refuse will be stored in enclosed bins		SENTX Site	SENTX	✓	WDO	
design		and disposed of at other landfills or transfer station on a daily basis to reduce odour, pest and litter impacts.	handling of general refuse		Contractor		EIAO-TM Annex 7	
		Recycling bins will be provided at strategic locations to facilitate recovery of aluminium can and waste paper from the SENTX Site. Materials recovered will be sold for recycling.						
Landfill G	Gas Hazaı	rds - Design and Construction Phase						
8.6.2 and	LFG1	Precautionary measures to be adopted by the	To protect	All	SENTX	✓	Paragraphs 8.3 to 8.49 of	Implemented

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SENTX latest design		contractors at the Project site and the adjacent development site within the landfill consultation zone are outlined in Paragraphs 8.3 to 8.49 of EPD's Landfill Gas Hazard Assessment Guidance Notes (the Guidance Note). Those precautionary measures applicable to the SENTX will be confirmed in the detailed Qualitative Landfill Gas Hazard Assessment to be submitted by the contractor.	workers from landfill gas risk	construction works area	Contractor		EPD's Landfill Gas Hazards Assessment Guidance Note EIAO-TM Annex 7	
8.6.2	LFG2	Monitoring will be undertaken when construction works are carried out in confined space within the consultation zone with reference to the monitoring requirements and procedures specified in Paragraphs 8.23 to 8.28 of EPD's <i>Guidance Note</i> will be followed.	To protect workers from landfill gas risk	Confined space within the construction works area	SENTX Contractor	✓		Implemented
		In the event of the trigger levels being exceeded, it is recommended that a person, such as the Safety Officer, is nominated, with deputies, to be responsible for dealing with any emergency which may occur due to landfill gas. In an emergency situation, the nominated person, or his deputies, shall have the necessary authority and shall ensure that the confined space is evacuated and the necessary works implemented for reducing the concentrations of gas. The appropriate organisations shall be contact.						
8.6.3	LFG4	Implementation of engineering measures according to Contract Specification	To protect workers from	SENTX Site	SENTX Contractor	√ √ √	EIAO-TM Annex 7	Implemented

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		requirements. These measures will include the placement of liner and installation of landfill gas management system to contain, manage and control landfill gas.	landfill gas risk					
8.6.3	LFG5	Engineering measures to significant engineering measures will be required in the design of the SENTX to protect the staff working in the infrastructure area. These measures include a combination of passive and active systems (examples are recommended in EPD's <i>Guidance Notes</i>). Landfill gas monitoring boreholes will be installed at the edge of the waste slope between the waste and the new infrastructure area to monitor the migration of landfill gas, if any.	To protect workers from landfill gas risk	Infrastructure Area	SENTX Contractor		EPD's Landfill Gas Hazards Assessment Guidance Note EIAO-TM Annex 7	Implemented
Landfill G Phases	Gas Hazar	rds – Operation, Restoration and Aftercare						
8.6.4	LFG7	To train and ensure staff to take appropriate precautions at all times when entering enclosed spaces or plant rooms. Undertake regular monitoring of landfill gas at the perimeter boreholes to detect if there are any signs of off-site landfill gas migration. Prepare and implement emergency plan in case off-site landfill gas migration is detected. A permanent gas monitoring system with	To protect workers from landfill gas risk	SENTX Site	SENTX Contractor	✓ ✓	Landfill Gas Hazards Assessment Guidance Note	Implemented
		alarm will be installed and operated in all occupied on-site buildings.						

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8.7 and SENTX latest design	LFG8	Environmental Monitoring & Audit Requirements Undertake regular monitoring of landfill gas within the SENTX and along the SENTX boundary as required by the Contract Specification.	To protect workers from landfill gas risk	Within the SENTX and along the SENTX boundary	SENTX Contractor	√	Landfill Gas Hazards Assessment Guidance Note	Implemented
Ecology -	Construc	ction Phase						
9.10.2	EC1	 Measures to control construction runoff: Exposed soil areas will be minimised to reduce the contamination of runoff and erosion; To prevent stormwater runoff from washing across exposed soil surfaces, perimeter channels will be constructed 	To minimise potential water quality impacts affecting ecological resources	All construction works area	SENTX Contractor	✓	EIAO-TM Annex 16 ProPECC PN 1/94 Water Pollution Control Ordinance (WPCO) EIAO-TM Annex 6	Implemented
		 in advance of site formation works and earthworks and intercepting channels will be provided for example along the edge of excavation; Silt removal facilities, channels and manholes will be maintained and the deposited silt and grit will be removed regularly to ensure they are functioning properly at all times; 					-	Implemented

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		• Temporary covers such as tarpaulin will also be provided to minimise the generation of high suspended solids runoff;					-	Implemented
		The surface runoff contained any oil and grease will pass through the oil interceptors; and,					-	Implemented
		Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site.					-	Implemented
9.10.2	EC2	Good Construction Practice:						
and SENTX latest design		• Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas.	To minimise potential ecological impacts arising from the Project	SENTX Site	SENTX Contractor	✓	EIAO-TM Annex 16	Implemented
		• The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas.						
Ecology -	Operatio	n, Restoration and Aftercare Phases						
9.10.2	EC3	<u>Measures for Controlling Leakage of Landfill</u> <u>Leachate</u>						Implemented

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		Leachate will be contained within the SENTX Site by the proposed impermeable leachate containment system and collected by the installation of drainage system to prevent potential migration of leachate to habitats in the vicinity. Measures for Controlling Migration of	To minimise potential water quality impact affecting the ecological resources	SENTX Site	SENTX Contractor			✓	•	✓	EIAO-TM Annex 16 WPCO Water-TM EIAO-TM Annex 6	
9.10.2	EC4	Landfill Gas Disturbance to habitat in the vicinity and associated wildlife due to migration of landfill gas will be prevented by proper management of the landfill gas generated from the SENTX. Ignition fires will be prohibited to occur within the boundary of the SENTX Site. Surface emission and offsite migration of landfill gas will be regularly monitored.	To minimise potential landfill gas migration affecting ecological resources	SENTX Site	SENTX Contractor			✓		√	EIAO-TM Annex 16	Implemented
9.10.3 and SENTX latest design	EC5	 The following compensation planting is recommended as the mitigation measures for the habitat affected due to the SENTX: Provision of 6 ha of mixed woodland planting to compensate the loss of shrubland; and Provision of a mosaic of grassland and shrubland in the remaining areas of the SENTX Site. Compensatory planting and restoration of the SENTX can be implemented progressively according to the filling plan of SENTX. 	Compensation of habitat loss due to the Project	SENTX Site	SENTX Contractor			✓	,	•	EIAO-TM Annex 16	Implemented

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9.10.3	EC6	The mixture of grassland, shrubland and woodland habitats are recommended to diversify the habitats for supporting various wildlife in particular butterflies, birds and herpetofauna and blend into the existing undisturbed ecological environment.	To diversify habitats	SENTX Site	SENTX Contractor				✓	√	EIAO-TM Annex 16	Implemented
9.10.3	EC7	Indigenous plant species of shallow root system, softwood in nature and adaptive to sea shore habitat are recommended to be used in the restoration plan, which can establish well in coastal area with exposure to strong wind and salt spray, with sand soil base. Taking consideration of the relative poor substrate and the difficulties of establishment of some native trees in Hong Kong, it is recommended to include approximately 20% of non-native tree species in the compensatory woodland. The non-native tree species can serve as a nurse species to facilitate the establishment of the native tree species, especially the shading, and it can be replaced by established native tree species progressively. Plant species can also make reference to food plants of butterfly species (in particularly butterfly species of conservation interests recorded within the CWBCP).	To enhance ecological value of the habitats	SENTX Site	SENTX Contractor				✓	•	EIAO-TM Annex 16	Implemented
9.10.3	EC8	It is also recommended that a trial nursery for native plant species be set up to fine tone the planting matrix and management intensity of the recommended indigenous tree species for	To select the most suitable indigenous tree species for the	SENTX Site	SENTX Contractor	✓			✓	✓	EIAO-TM Annex 16	Implemented

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		the restoration of the SENTX. It should be noted that native shrubs and tree species had been used for restoration of the existing SENT Landfill, native plant species that could not successfully be established on the existing SENT Landfill should be reviewed before the preparation of the compensatory planting list. Special care and intensive management of native plant should be implemented in order to ensure proper establishment of the native plants.	SENTX					
9.12.1	EC9	Environmental Monitoring & Audit Requirements The implementation of the ecological mitigation measures should be checked as part of the environmental monitoring and audit procedures during the construction period.	To ensure that adverse ecological impacts are prevented	SENTX	SENTX Contractor	✓ ✓ ✓	EIAO-TM Annex 16	Implemented
Landscap	e and Visi	ual – Construction Phase						
10.6.5	LV1	CM1 - The construction area and area allowed for the contractor's office, leachate treatment plant and laboratory areas will be minimised to a practical minimum, to avoid impacts on adjacent landscape.	To minimise the landscape and visual impacts	SENTX Site	SENTX Contractor	✓	EIAO-TM Annex 18 and ETWBC 3/2006	Implemented
10.6.5	LV2	CM2 - Topsoil, where identified, will be stripped and stored for re-use in the construction of the soft landscape works, where practical. The Contract Specification	To minimise the landscape and visual impacts	All construction works area	SENTX Contractor	✓	EIAO-TM Annex 18	Not applicable

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		will include storage and reuse of topsoil as appropriate.						
10.6.5	LV3	CM3 - All existing trees at the edges of the landfill will be carefully protected during construction. Detailed Tree Protection Specification will be provided in the Contract Specification. Under this Specification, the Contractor will be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in Contractor's works areas.	To minimise the landscape and visual impacts	Potential impacted area	SENTX Contractor		EIAO-TM Annex 18 and ETWBC 3/2006	Not applicable
10.6.5	LV4	CM4 - Trees unavoidably affected by the works will be transplanted, where necessary and practical. A detailed Tree Transplanting Specification will be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods will be allowed in the project programme.	To minimise the landscape and visual impacts	Potential impacted area	SENTX Contractor	✓ ✓	EIAO-TM Annex 18 and ETWBC 3/2006	Implemented
10.6.5 and SENTX latest design	LV5	CM5 - Within 3 months of taking possession of the SENTX Site, the Contractor will plant advance screen planting of native species at Light Standard size at 1.5m centres along the High Junk Peak Trail so as to screen views of the Works from the trail. Tree planting locations will be agreed with AFCD. Works will be completed within 9 months of taking possession of the SENTX Site.	To minimise the landscape and visual impacts	At High Junk Peak Hiking Trail	SENTX Contractor	✓	EIAO-TM Annex 18	Implemented

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10.6.5	LV6	CM6 - The Contractor's office, leachate treatment plant and laboratory will be given an aesthetic treatment in earth tones to reduce their visual impact and albedo and blend them into the surrounding landscape.	To minimise the landscape and visual impacts	Infrastructure area	SENTX Contractor	✓	✓	EIAO-TM Annex 18	Implemented
10.6.5	LV7	CM7 - The Contractor's office, leachate treatment plant and laboratory will be surrounded by a minimum of 5m wide and 0.75m high earth bund on the west and south sides planted with a dense screen of tree and shrub vegetation. Additional tree planting will be provided in unused spaces with thin infrastructure site, along access roads and in and around car parks. This will be supplemented with shrub planting, where appropriate.	To minimise the landscape and visual impacts	Infrastructure area	SENTX Contractor	✓	•	EIAO-TM Annex 18 and ETWBC 7/2002	Not applicable
10.6.5	LV8	CM8 - Planting trials will be carried out in an on-site nursery prior to implementation of the first phase of restoration to establish the best planting matrix and management intensity of the recommended plant materials for the restoration.		SENTX Site	SENTX Contractor		✓	EIAO-TM Annex 18	Implemented
and SENTX latest design	LV9	During the preparation of the detailed landscape design plan, the design submission will be audited against the recommendation proposed in the <i>ER Report</i> by the Registered Landscape Architect from the ET.	To ensure the implementation of mitigation measures proposed in this EIA Report	SENTX Site	SENTX Contractor/ET	✓	✓	EIAO-TM Annex 18	Implemented

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Landscap	e and Vis	ual – Operation/Restoration Phase						
10.6.5 and SENTX latest design	LV10	OM1 - Landfill materials will be covered with general fill material or tarpaulin sheet on a daily basis to reduce visual impact.	To minimise the landscape and visual impacts	Tipping area	SENTX Contractor	✓	EIAO-TM Annex 18	Implemented
10.6.5 and SENTX latest design	LV11	OM2 - Filling and restoration will be phased during the course of operations in a minimum of 4 phases, the restoration of each phase to commence immediately on the completion of filling in that phase.	To minimise the landscape and visual impacts	Tipping area	SENTX Contractor	✓	EIAO-TM Annex 18	Implemented
10.6.5	LV12	OM3 - Catch fences will be erected at the perimeter of the waste boundary, to ensure that all waste stays within the site and is not blown into surrounding areas.	To minimise the landscape and visual impacts	Tipping area	SENTX Contractor	✓	EIAO-TM Annex 18	Implemented
10.6.5	LV13	OM4 - All night-time lighting will be reduced to a practical minimum both in terms of number of units and lux level and will be hooded and directional.	To minimise the landscape and visual impacts	Tipping area	SENTX Contractor	✓	EIAO-TM Annex 18	Implemented
and SENTX latest design	LV14	The condition of the restoration plantation will be audited at monthly intervals by a Registered Landscape Architect from the ET.	To check the restoration plantation	SENTX Site	SENTX Contractor/ET	✓	EIAO-TM Annex 18	Implemented