

Annex

## Sample Proforma and Implementation Schedule

## Noise Monitoring Field Record Sheet

Monitoring Location		
Description of Location		
Date of Monitoring		
Measurement Start Time (hh:mm)		
Measurement Time Length (min.)		
Noise Meter Model/Identification		
Calibrator Model/Identification		
Measurement Results	L <sub>90</sub> (dB(A))	
	L <sub>10</sub> (dB(A))	
	Leq (dB(A))	
Major Construction Noise Source(s) During Monitoring		
Other Noise Source(s) During Monitoring		
Remarks		

Name & Designation

Signature

Date

Recorded By : \_\_\_\_\_

Checked By : \_\_\_\_\_

### Data Sheet for TSP Monitoring

Monitoring Location		
Details of Location		
Sampler Identification		
Date & Time of Sampling		
Elapsed-time Meter Reading	Start (min.)	
	Stop (min.)	
Total Sampling Time (min.)		
Weather Conditions		
Site Conditions		
Initial Flow Rate, Qsi	Pi (mmHg)	
	Ti (°C)	
	Hi (in.)	
	Qsi (Std. m <sup>3</sup> )	
Final Flow Rate, Qsf	Pf (mmHg)	
	Tf (°C)	
	Hf (in.)	
	Qsf (Std. m <sup>3</sup> )	
Average Flow Rate (Std. m <sup>3</sup> )		
Total Volume (Std. m <sup>3</sup> )		
Filter Identification No.		
Initial Wt. of Filter (g)		
Final Wt. of Filter (g)		
Measured TSP Level (µg/m <sup>3</sup> )		

	<u>Name &amp; Designation</u>	<u>Signature</u>	<u>Date</u>
Field Operator :			
Laboratory Staff :			
Checked by :			

**Sample Template for Interim Notifications of Environmental Quality  
Limits Exceedances**

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Incident Report on Action Level or Limit Level Non-compliance

Project	
Date	
Time	
Monitoring Location	
Parameter	
Action & Limit Levels	
Measured Level	
Possible reason for Action or Limit Level Non-compliance	
Actions taken / to be taken	
Remarks	

**Location Plan**

Prepared by : \_\_\_\_\_

Designation : \_\_\_\_\_

Signature : \_\_\_\_\_

Date : \_\_\_\_\_

Table A

Implementation Schedule for Construction Phase Environmental Mitigation Measures

Environmental Issue	Environmental Mitigation Measure	Location/Timing	Implementation Agent
Noise	<p data-bbox="201 1373 225 1547"><i>Good Site Practice</i></p> <p data-bbox="256 947 368 1547">Good site practice and noise management can considerably reduce the noise impact from construction site activities on nearby NSRs. The following package of measures shall be followed during each phase of construction:</p> <ul data-bbox="400 898 1034 1547" style="list-style-type: none"> <li data-bbox="400 898 480 1547">• only well-maintained plant shall be operated on-site and plant should be serviced regularly during the construction phase;</li> <li data-bbox="512 898 592 1547">• machines and plant that may be in intermittent use should be shut down between work periods or shall be throttled down to a minimum;</li> <li data-bbox="624 898 703 1547">• plant known to emit noise strongly in one direction shall, where possible, be orientated to direct noise away from nearby NSRs;</li> <li data-bbox="735 898 815 1547">• silencers or mufflers on construction equipment shall be utilised and shall be properly maintained during the construction works;</li> <li data-bbox="847 898 927 1547">• mobile plant shall be sited as far away from NSRs as possible; and</li> <li data-bbox="943 898 1034 1547">• material stockpiles and other structures shall be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>	The whole site during the construction period of the Tuen Mun Area 54 development	Contractor responsible for implementation.  Contractor to discuss the work methods with the ET and IC(E) and the proposed work methods should be agreed with the ER.

Environmental Issue	Environmental Mitigation Measure	Location/Timing	Implementation Agent
<p><i>Selecting Quieter Plant and Working Methods</i></p> <p>The Contractor may be able to obtain particular models of plant that are quieter than standard types given in GW-TM. The benefits achievable in this way will depend on the details of the Contractors' chosen methods of working, and it is considered too restrictive to specify that a Contractor has to use specific items of plant for the construction operations. It is therefore both preferable and practical to specify an overall plant noise performance specification to apply to the total SWL of all plant to be used on site so that the Contractor is allowed some flexibility to select plant to suit his needs.</p> <p>Quiet plant is defined as PME whose actual SWL is less than the value specified in GW-TM for the same piece of equipment. Examples of SWLs for specific silenced PME taken from the British Standard <i>Noise Control on Construction and Open Sites, BS5228: Part 1: 1997</i>, are listed below:</p>	<p><u>PME</u></p> <p><u>BS5228 Ref</u></p> <p><u>SWL, dB(A)<sub>max</sub></u></p> <p>Breaker Table C.2 Ref 10 110</p> <p>Bulldozer Table C.3 Ref 65 110</p> <p>Mobile Crane Table C.7 Ref 110 106</p> <p>Air Compressor Table C.7 Ref 25 98</p> <p>Concrete Pump Table C.6 Ref 36 106</p> <p>Dump Truck Table C.9 Ref 29 109</p> <p>Excavator</p> <p>- for trenching Table C.3 Ref 97 105</p> <p>- ground excavation Table C.3 Ref 35 106</p> <p>Generator Table C.7 Ref 62 100</p> <p>Lorry Table C.9 Ref 27 105</p> <p>Loader Table C.3 Ref 97 105</p> <p>Concrete Lorry Mixer Table C.6 Ref 35 100</p> <p>Vibratory Roller Table C.3 Ref 115 102</p> <p>Grader Table C.3 Ref 76 111</p> <p>Road Roller Table C.8 Ref 27 104</p> <p>Poker Vibrator Table C.6 Ref 32 100</p>	<p>The whole site during the construction period of the Tuen Mun Area 54 development</p>	<p>Contractor responsible for implementation.</p> <p>Contractor to discuss the work methods with the ET and IC(E) and the proposed work methods should be agreed with the ER.</p>

Environmental Issue	Environmental Mitigation Measure	Location/Timing	Implementation Agent
<p><i>Use of Temporary and Movable Noise Barriers</i></p>	<p>It is anticipated that a movable noise barrier with a suitable footing and a small cantilevered upper portion can be located within a few metres of a static plant and within about 5 m of more mobile equipment such as excavator and mobile crane etc. such that the line of sight could be blocked by the barriers viewed from the NSRs. The estimated noise reduction by means of screening, provided that the barriers are carefully located, can provide at least 10 dB(A) noise attenuation for static plant and 5 dB(A) for mobile plant.</p>	<p>The whole site during the construction period of the Tuen Mun Area 54 development</p>	<p>Contractor responsible for implementation.  Contractor to discuss the work methods with the ET and IC(E) and the proposed work methods should be agreed with the ER.</p>
<p><i>Restriction of Plant Usage On-site During Critical Construction Stages</i></p>	<p>The percentage of time that the noisy equipment is in operation may need to be controlled so as to reduce the noise emissions during critical construction stages. Imposing restriction on PME usage by limiting the operating time of PMEs to 50% (ie. PMEs in operation for 15 minutes within a 30 minutes time slot), could achieve a reduction in noise emission by 3 dB(A).</p>	<p>The whole site during the construction period of the Tuen Mun Area 54 development</p>	<p>Contractor responsible for implementation.  Contractor to discuss the work methods with the ET and IC(E) and the proposed work methods should be agreed with the ER.</p>

Environmental Issue	Environmental Mitigation Measure	Location/Timing	Implementation Agent
Air Quality	<p>The following control measures are recommended to minimise dust emissions:</p> <ul style="list-style-type: none"> <li>• excavated dusty material shall be covered by impervious sheeting and sprayed with water to keep the entire surface wet;</li> <li>• the haul roads shall be sprayed with water to keep the entire road surface wet;</li> <li>• every vehicle shall be washed to remove dusty materials from its body and wheels before leaving a construction site;</li> <li>• the load carried by vehicle shall be covered by impervious sheeting to ensure no leakage of dusty materials from the vehicle;</li> <li>• the heights from which fill materials are dropped shall be controlled to a practical level to minimise the fugitive dust arising from unloading;</li> <li>• the haul roads shall be located away from ASRs; and</li> <li>• maximum vehicle speed within construction sites shall be maintained at 20 km hr<sup>-1</sup> or below.</li> </ul>	The whole site during the construction period of the Tuen Mun Area 54 development	Contractor responsible for implementation.  Contractor to discuss the work methods with the ET and IC(E) and the proposed work methods should be agreed with the ER.



Environmental Issue	Environmental Mitigation Measure	Location/Timing	Implementation Agent
Water Quality	<ul style="list-style-type: none"> <li>• A temporary drainage channel shall be provided to divert any runoff away from the site.</li> <li>• Channels, earth bunds or sand bag barriers shall be provided on site to direct storm water to silt removal facilities. The design of efficient silt removal facilities shall be based on the guidelines in <i>Appendix A1</i> of ProPECC PN 1/94.</li> <li>• The overall slope of the site shall be kept to a minimum to reduce the erosive potential of surface water flows.</li> <li>• All entrances and exits of construction sites shall be protected by coarse stone ballast.</li> <li>• Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m<sup>3</sup> capacity, are recommended as a general mitigation measure which can be used for settling storm water prior to disposal.</li> <li>• All drainage facilities and erosion and sediment control structures shall be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms.</li> <li>• Measures shall be taken to minimise the ingress of any site drainage into excavations.</li> <li>• Particular attention shall be paid to the control of silty surface runoff during storms events, especially for areas located near steep slopes.</li> <li>• All vehicles and mechanical plant shall be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads.</li> <li>• The bentonite, grouting and cement materials shall only be delivered to the construction site when they are to be used.</li> <li>• Dusty materials shall be stored in a covered warehouse and the excess amount should be removed from the site</li> </ul>	<p>The whole site during the construction period of the Tuen Mun Area 54 development</p>	<p>Contractor responsible for implementation.</p> <p>Contractor to discuss the work methods with the ET and IC(E) and the proposed work methods should be agreed with the ER.</p>

Environmental Issue	Environmental Mitigation Measure	Location/Timing	Implementation Agent
Waste Management	<ul style="list-style-type: none"> <li>• construction solid waste, debris and rubbish on site shall be collected, handled and disposed of properly</li> <li>• handle and store wastes in a manner which ensures that they are held securely without loss or leakage, thereby minimising the potential for pollution;</li> <li>• use waste hauliers authorised or licensed to collect specific category of waste e.g. chemical wastes;</li> <li>• remove wastes in a timely manner;</li> <li>• maintain and clean waste storage areas regularly;</li> <li>• minimise windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed containers;</li> <li>• obtain the necessary waste disposal permits from the appropriate authorities;</li> <li>• dispose of waste at licensed waste disposal facilities;</li> <li>• develop procedures such as a ticketing system to facilitate tracking of loads, particularly for chemical waste, and to ensure that illegal disposal of wastes does not occur; and</li> <li>• maintain records of the quantities of wastes generated, recycled and disposed.</li> <li>• surplus excavated materials shall be reused as fill material at public filling areas (PFA).</li> <li>• control measures shall be taken at the stockpiling area to prevent the generation of dust and pollution of stormwater channels.</li> <li>• wetting the surface of the stockpiled soil with water when necessary especially during the dry season.</li> <li>• chemical waste produced should be handled in accordance with the relevant guidelines and regulations</li> </ul>	<p>The whole site during the construction period of the Tuen Mun Area 54 development</p>	<p>Contractor responsible for implementation.</p> <p>Contractor to discuss the work methods with the ET and IC(E) and the proposed work methods should be agreed with the ER.</p>

Environmental Issue	Environmental Mitigation Measure	Location/Timing	Implementation Agent
Terrestrial Ecology	<ul style="list-style-type: none"> <li>• protected tree species <i>Titcheria spectabilis</i> near the stream in Woodland 3 shall be avoided. If avoidance is not possible due to engineering constraints, tree individuals shall be collected for transplanting to similar habitats nearby tree planting area under the Project;</li> <li>• the locations of storage and works areas etc shall be selected to avoid the ecologically sensitive woodland areas as far as possible or otherwise minimise disturbance;</li> <li>• the woodland area to be encroached upon by the development shall be well-defined and minimised as far as possible;</li> <li>• no construction activities of any nature shall be allowed within the woodland 2 area that supports rare or protected plant species;</li> <li>• fences shall be erected along the boundary of construction sites before the commencement of works to prevent tipping, vehicle movements, and encroachment of personnel into adjacent wooded areas;</li> <li>• regular checks shall be made to ensure that the work site boundaries are not exceeded and that no damage is being caused to the surrounding areas; and</li> <li>• any damage that may occur to individual major trees in the woodland area adjacent to the construction sites shall be treated with surgery;</li> <li>• if there is any loss of the adjacent woodland because of the temporary landtake during the construction phase, the area shall be returned to the original status immediately after completion of the Project by on-site tree replanting, using tree species recommended as in Section 7.6 of the EIA Final Assessment Report;</li> <li>• building debris shall be removed and adequate site preparation shall be undertaken prior to compensatory planting;</li> </ul>	The whole site during the construction period of the Tuen Mun Area 54 development	Contractor responsible for implementation.  Contractor to discuss the work methods with the ET and IC(E) and the proposed work methods should be agreed with the ER.

Table B

## Implementation Schedule for Environmental Mitigation Measures During the other Stages of the Proposed Development

Location	Recommendations	Funding Agent/Implementation Agent/Maintenance Agent	Timing
<b>SCHEDULE 3 DESIGNATED PROJECT - HOUSING DEVELOPMENT IN TUEN MUN AREA 54</b>			
Within the Tuen Mun Area 54 works boundary	Environmental pollution control measures for minimising construction impacts.	TDD/Contractor/TDD	During the construction period (2002 - 2008)
Development constraints for Sites 1, 2, and 3 (Figure 3.8a refers)	Podia of appropriate scale, screening structures including multi-storey carparks and commercial centres, description as follows:  For Site 1, the podium is of 13.5 m high and a distance of at least more than 40 m is used as setback from the proposed Road D7  For Site 2, a 2-storey commercial centre with a 4-storey car park are recommended  For Site 3, single aspect design used for building blocks and the car park block recommended is about 2 levels high and the commercial block is about 3 storeys high	HKHA/HKHS/Developer according to lease conditions imposed by DLO/TM (Site 1) HKHA according to lease conditions imposed by DLO/TM (Site 2 and Site 4) HKHA/Developer according to lease conditions imposed by DLO/TM (Site 3)	Before completion of construction works for housing developments
LRT reserve	A separate EIA Study need to be conducted	KCRC (if LRT development is committed)	Before detailed design stage of LRT extension
Public Transport Interchanges (PTIs) in Site 2 and Site 3 - Noise Impact	Building structures on top to mitigate noise generated  Suitable acoustic treatment to be incorporated into the design of the PTIs  Ingress and egress of the PTIs should be located away from the nearby noise sensitive developments	HKHA according to lease conditions imposed by DLO/TM (Site 2) HKHA/Developer according to lease conditions imposed by DLO/TM (Site 3)	Detailed design stage
Public Transport Interchanges (PTIs) in Site 2 and Site 3 - Air Impact	Air quality required to meet TTAQO and ProPECC PNI/98	HKHA according to lease conditions imposed by DLO/TM (Site 2) HKHA/Developer according to lease conditions imposed by DLO/TM (Site 3)	Before completion of construction works for PTIs

Location	Recommendations	Funding Agent/Implementation Agent/Maintenance Agent	Timing
Within the Tuen Mun Area 54 works boundary - Water Quality	Appropriate sewage collection facilities should be incorporated into the design of the housing developments	TDD/TDD & DSD/DSD	Detailed Design Stage
	Sewerage systems for residential development should be installed and designed according to the EPD's guidelines	TDD/TDD & DSD/DSD	
	Upgrading of existing drainage facilities and provision of new facilities to minimise the impact of flooding during heavy rainfalls at low lying and poor drainage area	TDD/DSD/DSD	Detailed Design Stage
	New drainage systems designed according to the guidelines from the EPD and the DSD	TDD/DSD/DSD	Detailed Design Stage
	Provision of the possible interim sewage holding tank prior to the completion of the sewerage system under the Tuen Mun and Tsing Yi Sewerage Master Plans.	TDD/TDD/TDD to sort out the maintenance responsibility prior to its construction	Detailed Design Stage
	Measures to avoid stormwater pollution, e.g. sufficient wastewater disposal facilities in markets, carparks and garages	TDD/DSD/HKHA	Detailed Design Stage
Within the Tuen Mun Area 54 works boundary	Compensatory replanting scheme & Woodland Management Plan	Compensatory planting scheme - TDD Woodland Management Plan - TDD Woodland Management Work - AFD	After civil engineering construction works is completed & during operation of the project
Within the Tuen Mun Area 54 works boundary	Planting works	TDD/TDD/AFD	Before completion of construction phase
Within the Tuen Mun Area 54 works boundary	Archaeological investigation/survey/rescue work in two areas of archaeological deposits and uninvestigated open storage areas	TDD (provision of funds) AMO (management of investigation and rescue work)	Before commencement of site clearance and formation works
	Field survey required which should include a full photographic recording of each face of the grave sites and a detailed recording of the stone tablet inscriptions for AMO's record	TDD/Contractor or investigator/-	Before relocation of graves is to be started

Location	Recommendations	Funding Agent/Implementation Agent/Maintenance Agent	Timing
Within the Tuen Mun Area 54 works boundary	Implement landscape and visual mitigation measures of the Master Landscape Plan (MLSP) on green belt zoning, existing woodland, view corridors, primary pedestrian corridors, local open space, landscape design for roads as recommended in Section 8.7.2 of the EIA Report.	TDD/TDD/-	Detailed design stage and during project implementation
Within the Tuen Mun Area 54 works boundary	Implement landscape and visual mitigation measures including tree preservation, minimisation of glare, views of construction works, topsoils reservation as recommended in Section 8.7.3 in the EIA Report during the construction phase.	TDD/TDD/-	During construction phase of the development.
Within the Tuen Mun Area 54 works boundary	Implement landscape and visual mitigation measures after construction as recommended in Section 8.7.3 in the EIA Report which include roadside hardworks, roadside planting, landscape work in open space within housing development, amenity areas, conservation areas and the implementation of the noise barriers.	Roadside hardworks: TDD/HyD/HyD Roadside planting: TDD/RSD/RSD Open space within housing development: HD/PSPS developer /HD/HD Amenity Areas: TDD/RSD/ASD or RSD Conservation Areas: TDD/TDD/AFD Noise Barrier: TDD/HyD/HyD (TDD confirmed to obtained agreements from the responsible departments on funding, management/ maintenance of the above measures)	After construction of the development (operation phase)
Within the Tuen Mun Area 54 works boundary	Land contamination investigation in accordance with the EPD-approved Contamination Assessment Plan, preparation of a Contamination Assessment Report, formulation of remediation measures in a Remediation Action Plan (if land contamination is confirmed) for approval by EPD, and implementation of remediation measures in accordance with the EPD-approved Remediation Action Plan (if land contamination is confirmed)	TDD/TDD or investigator/-	Before commencement of site clearance and formation works

Location	Recommendations	Funding Agent/Implementation Agent/Maintenance Agent	Timing
<b>SCHEDULE 2 DESIGNATED PROJECT: ROAD D7 IN TUEN MUN AREA 54</b>			
Along specific locations of Road D7 ( <i>Figure A1 refers</i> ).	<p>5 m roadside cantilever barriers (reflective) at locations between:</p> <p>- 51 m north of CH300 to 18 m south of CH500 (a total length of about 135 m) to protect N7 (Siu Hang Tsuen)</p> <p>Material used can be: aluminum panels with mineral wool claddings</p>	TDD/Contractor/HyD	Before completion of roadworks
Along Road D7 adjacent to Site 1 ( <i>Figure A1 refers</i> )	<p>Noise semi-enclosure of 280 m in length along Road D7 at locations between:</p> <p>- 30 m north of CH500 to 21 m north of CH800 to protect N2 (Planned SH at Site 1)</p>	TDD/Contractor/HyD	Before completion of roadworks
Along specific locations of Road D7 ( <i>Figure A1 refers</i> )	<p>1 m roadside vertical barriers (reflective) at locations between:</p> <p>- 60 m south of CH900 to 39 m west of CH1600 (a total length of 714 m) to protect N3 (Planned Educational Uses at Site 1A), N4 (Po Tong Ha) and N27 (Village extension area north of Po Tong Ha)</p> <p>Material used can be: aluminum panels with mineral wool claddings</p>	TDD/Contractor/HyD	Before completion of roadworks
Along specific locations of Road D7 ( <i>Figure A1 refers</i> )	<p>5 m roadside cantilever barriers (absorptive) at locations between:</p> <p>- 39 m west of CH1600 to 45 m east of CH1900 (a total length of about 354 m) to protect N5 (Village house, north of Tsz Tin Tsuen) and N6 (Tsz Tin Tsuen)</p> <p>Material used can be: aluminum panels with mineral wool claddings</p>	TDD/Contractor/HyD	Before completion of roadworks

Location	Recommendations	Funding Agent/Implementation Agent/Maintenance Agent	Timing
Along specific locations of Road D7 ( <i>Figure A1 refers</i> )	5 m roadside cantilever barriers (absorptive) at locations between:  -45 m east of CH1800 to 45 m east of CH1900 (a total length of about 100 m) to protect N26 (Rezoning area south of San Hing Tsuen)	TDD/Contractor/HyD	Before completion of roadworks
VIH Development in Area 29 Siu Hong Court	Material used can be: aluminum panels with mineral wool claddings  Window insulations and air-conditioning for residential units expose to residual traffic noise impacts	TDD/Contractor/ -	Before commencement of operation of Road D7 and the widened Tsing Lun Road
Yau Tze Tin Memorial College	Window insulation should be checked	-	Before commencement of operation of Road D7 and the widened Tsing Lun Road
G/IC Site 6	Not suitable for noise sensitive development	TDD	-



Location	Recommendations	Funding Agent/Implementation Agent/Maintenance Agent	Timing
<b><u>SCHEDULE 2 DESIGNATED PROJECT: PROPOSED TSING LUN ROAD WIDENING</u></b>			
Along specific sections of the proposed widening section of Tsing Lun Road ( <i>Figure A1 refers</i> )	<p>5 m roadside cantilever and vertical barriers (absorptive and reflective) of various lengths along the widening section of Tsing Lun Road.</p> <p>- a 115 m in length absorptive barrier from Lam Tei Interchange at western side of Tsing Lun Road and a 65 m in length absorptive barrier at eastern side to protect the housing development at Site 2 and Yau Tze Tin Memorial College respectively</p> <p>- a total length of 114 m reflective barriers (56 m cantilever barrier and 58 m vertical barrier) at eastern side of Tsing Lun Road to protect Siu Hong Court</p> <p>Material used can be: aluminum panels with mineral wool claddings</p>	TDD/Contractor/HyD	Before completion of the widening of Tsing Lun Road
<b><u>SCHEDULE 2 DESIGNATED PROJECT: PROPOSED SEWAGE PUMPING STATION IN SITE 2</u></b>			
Sewage pumping station near Site 2 (tentative arrangement subject to findings of the Tuen Mun Sewage Master Plan Review Study)	<p>-A separate EIA Study conducted for the pumping station</p> <p>-Installation of suitable acoustic louvres, silencers, dampers and noise absorptive lining</p>	DSD/Contractor/DSD	Before detailed design of sewage pumping station

**FIGURE A1**

