

4a. NOISE IMPACT (TTAL SITE)

4a.1 Introduction

4a.1.1.1 The study area for the potential noise impacts from the construction and operation of the IWMF is 300m from the boundary of the facilities. After carrying out detailed desktop review and site survey, no noise sensitive receiver (NSR) was identified within the study area. Hence no assessment was carried out for the potential noise impacts from the construction and operation of the proposed facilities.

4a.1.1.2 However, during the operation phase of the IWMF, extra traffic to the IWMF are anticipated. Assessment for the potential off-site traffic noise impact at NSRs along Lung Kwu Tan Road is deemed necessary.

4a.1.1.3 This section presents the assessment for the potential off-site traffic noise impact at the NSRs and compares the traffic noise impact for scenarios with and without the operation of the IWMF.

4a.2 Environmental Legislation, Policies, Plans, Standards and Criteria

4a.2.1 Traffic Noise Criteria under Environmental Impact Assessment Ordinance

4a.2.1.1 The potential noise impact from the off-site traffic generated from the IWMF at TTAL site was assessed in accordance with Annex 5 “Criteria for Evaluating Noise Impact” and Annex 13 “Guidelines for Noise Assessment” of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). Annex 5 of the EIAO-TM defines the criteria L10 (1 hour) for road traffic noise at various NSRs:

- 70 dB(A) at the façades of dwellings, hotels, offices;
- 65 dB(A) at the façades of schools, places of public worship, courts of law, place where unaided voice communication is required; and
- 55 dB(A) at the façades of hospital.

4a.2.1.2 In the case of any façades of NSRs are exposed to predicted noise levels exceeding the relevant noise criteria and noise induced by the IWMF contribute significantly to the overall traffic noise level by 1.0 dB(A) or more, direct mitigation measures shall be proposed.

4a.3 Assessment Area

4a.3.1.1 The assessment area for the off-site traffic noise is the area within 300m from the curb side of the Lung Kwu Tan Road from Castle Peak Power Station A to Lung Kwu Sheung Tan. The location of the assessment area is shown in **Figure 4a.1** and fall in the area not covered by any statutory plan but the area is currently used for village housing.

4a.4 Existing and Planned Sensitive Receivers

4a.4.1.1 In accordance with Annex 13 of the EIAO-TM, 5 numbers of representative NSRs were identified along Lung Kwu Tan Road for this traffic noise impact assessment. All of these representative NSRs are located in the area not covered by any outline zoning plan.

4a.4.1.2 No statutory planned use in the area is known currently. Many land lots within the assessment area are privately owned. Some land lots are with existing buildings and

some are vacant lands. Should a land owner wish to construct a building within his/her land lots, he/she has to apply for a building licence from the Lands Department. The permission of the application is subject to the decision of the Lands Department.

- 4a.4.1.3 In view of this situation, there is a potential that new sensitive receivers would exist in the assessment area at any time. However, as the existing NSRs are already located in close proximity along Lung Kwu Tan Road, future NSR, if any, should be in a similar condition of traffic noise exposure.
- 4a.4.1.4 Same set of representative NSRs in the approved WENT Landfill Extensions EIA Report were adopted for this Assessment. The details of the NSRs are given in **Table 4a.1**. The relative locations of the IWWMF and the NSRs are shown in **Figure 4a.1**. The photographs of the representative NSRs are shown in **Appendix 4.1**.

Table 4a.1 Summary of Representative Noise Sensitive Receivers

NSR ID	Description	Use	No. of Floors
NSR-2	Lung Kwu Sheung Tan	Village House	3
NSR-3a	Pak Long	Village House	3
NSR-3b	Tin Hau Temple at Pak Long	Temple	1
NSR-4	Sha Po	Village House	3
NSR-5	Lung Tsai	Village House	3

Note: Information is extracted from the approved WENT Landfill Extensions EIA Report

4a.5 Assessment Methodology

- 4a.5.1.1 The forecasted peak hour traffic flow for the Year 2010 and Year 2020 in the approved WENT Landfill Extensions EIA Report were adopted. The mixed MSW that would be delivered from various existing refuse transfer stations (RTSs) in Hong Kong to the site by marine vessels, some of the mixed MSW originally planned to deliver to the WENT Landfill Extension by land transport might also be diverted to the IWWMF for treatment. Therefore, the IWWMF at the TTAL site is not anticipated to attract additional MSW delivery vehicles/trucks travelling along Lung Kwu Tan Road. The additional peak hour traffic generated from the IWWMF would be trucks delivering maintenance equipment and coach for employee and visitors. These additional traffic peak hour traffic data was added to the Year 2020 forecasted peak hour traffic flow. The forecasted peak hour traffic are shown in **Table 4a.2**.
- 4a.5.1.2 Three scenarios, namely the “Without project end (2010s)”, “Without project end (2020s)” and “With project” scenarios have been considered to assess whether the Project would result in adverse traffic noise impact on the NSRs. It is considered that the Project would induce adverse traffic noise impact on the NSRs if the predicted traffic noise levels at the NSRs in “With project” scenario exceeds that in “Without project” scenarios by more than 1.0 dB(A).
- 4a.5.1.3 Road traffic noise levels at the representative NSRs were calculated based on the procedures given in “Calculation of Road Traffic Noise” (CRTN) prepared by the UK Department of Transport.
- 4a.5.1.4 According to the CRTN, the change in traffic noise levels is determined by the equation given as below:

$$\text{Increase in noise level due to changes in traffic flow, } L_{\text{flow}} \\ = 10 \log Q_1 - 10 \log Q_0$$

where Q_0 = Initial Traffic Flow in vehicle per hour and;
 Q_1 = Increased Traffic Flow in vehicle per hour

Increase in noise level due to changes in % of heavy vehicles, L_{phv}
 $= 10 \log (1+5p_1/v) - 10 \log (1+5p_0/v)$
 where p_0 = Initial % of heavy vehicle and;
 p_1 = Increased % of heavy vehicle
 v = Mean traffic speed (km/hr)

Overall increase in noise level due to changes in traffic flow and % of heavy vehicles, $L = L_{flow} + L_{phv}$

Table 4a.2 Projected Peak Hour Off-site Traffic Flow

Road section	Peak Traffic Flow			
	Before Landfill Extension at end 2010s ⁽¹⁾	After Landfill Extension at end 2020s ⁽²⁾	Additional Traffic generated by the IWMF	Total Traffic at end 2020s ⁽²⁾
No. of Refuse Vehicle/hour	118	141 ⁽¹⁾	-	141
No. of Heavy Vehicle/hour	-	-	4	4
No. of Light Vehicle/hour	193	225	10	235
Total No. of Vehicle/hour	311	366	14	380
Percentage of Heavy Vehicle	38%	39%	29%	38%
Speed, kph	50	50	50	50

Notes: (1) Data extracted from the approved WENT Landfill Extensions EIA Report.
 (2) The traffic data are based on the BDTM model developed by Transport Department (TD) and the methodology on the preparation of required traffic data have been agreed by the TD. The correspondences with TD are shown in **Appendix 4.2**.

4a.6 Evaluation of Potential Traffic Noise Impact

4a.6.1.1 The potential traffic noise impact at representative NSRs was assessed based on the peak traffic data in **Table 4a.2**. **Table 4a.3** summarized the predicted road traffic noise levels at the representative NSRs for the “Without Project” and “With Project”.

Table 4a.3 Predicted Noise Levels at Representative NSRs

NSR ID	Noise Criteria, dB(A)	Predicted Noise levels, dB(A)			Difference, dB(A)	
		Before Landfill Extension ⁽¹⁾ (i.e. without Project (end 2010s))	After Landfill Extension (i.e. Without Project (end 2020s))	With Project	Without Project (end 2020s) – Without Project (end 2010s)	With Project – Without Project (end 2020s)
NSR-2	70	66.8	67.6	67.7	0.8	0.1
NSR-3a	70	72.8	73.6	73.7	0.8	0.1
NSR-3b	65	68.7	69.5	69.6	0.8	0.1
NSR-4	70	72.0	72.8	72.9	0.8	0.1
NSR-5	70	70.2	71.0	71.1	0.8	0.1

Note: (1) Data extracted from the approved WENT Landfill Extensions EIA Report.

- 4a.6.1.2 As revealed from the assessment results shown in **Table 4a.3**, the predicted traffic noise levels at all representative NSRs (except NSR-2) for both the 2010 prevailing scenario and the 2020 “With Project” scenario would exceed the noise criteria stipulated in the EIAO-TM. Since the changes in predicted noise levels are all below 1 dB(A), the potential off-site traffic noise impact on the identified NSRs due to the operation of the IWMF would be considered insignificant.

4a.7 Conclusion

- 4a.7.1.1 The assessment focused on the traffic noise impact due to the off-site traffic generated from the operation of the IWMF. A traffic noise impact assessment was carried out for the scenarios “With Project” and “Without Project”. Assessment results indicated that the predicted traffic noise due to the off-site traffic generated from the IWMF would not result in significant increase in traffic noise impact on the NSRs along Lung Kwu Tan Road.