

TABLE OF CONTENTS

4	NOISE.....	4-1
4.1	Introduction.....	4-1
4.2	Environmental Legislation, Standards and Assessment Criteria	4-1
4.3	Description of Existing Environment	4-6
4.4	Identification of Noise Sensitive Receivers	4-7
4.5	Construction Noise Impact Assessment	4-16
4.6	Road Traffic Noise Impact Assessment.....	4-26
4.7	Fixed Noise Sources Impact Assessment.....	4-51
4.8	Airborne Rail Noise Impact Assessment.....	4-61
4.9	Ground-borne Rail Noise Impact Assessment.....	4-61
4.10	Environmental Acceptability of Schedule 2 Designated Projects	4-62
4.11	Environmental Monitoring and Audit	4-63
4.12	Conclusion.....	4-64

LIST OF TABLES

Table 4.1	Area Sensitivity Ratings.....	4-2
Table 4.2	Construction Noise Criteria for Activities other than Percussive Piling	4-2
Table 4.3	Noise Criteria for Road Traffic Noise.....	4-4
Table 4.4	Acceptable Noise Levels for Fixed Noise Sources.....	4-4
Table 4.5	Acceptable Noise Levels for Airborne Rail Noise	4-5
Table 4.6	Criteria for Ground-borne Rail Noise	4-6
Table 4.7	Prevailing Background Noise	4-7
Table 4.8	Representative Noise Assessment Points for Construction Noise Impact Assessment	4-8
Table 4.9	Representative Noise Assessment Points for Road Traffic Noise Impact Assessment	4-10
Table 4.10	Representative Noise Assessment Points for Fixed Noise Sources Impact Assessment	4-13
Table 4.11	Representative Noise Assessment Points for Airborne Rail Noise Impact Assessment	4-16
Table 4.12	Representative Noise Assessment Points for Ground-borne Rail Noise Impact Assessment	4-16
Table 4.13	Tentative Plant Inventory for Key Construction Activities.....	4-17
Table 4.14	List of Concurrent Projects	4-18
Table 4.15	Requirements of Quantitative Construction Noise Assessment in Pre-tender Stage and Pre-construction Stage of Relevant Construction Activities	4-25
Table 4.16	Summary of Predicted Road Traffic Noise Assessment Results under Unmitigated Scenario (Year 2051)	4-29
Table 4.17	Summary of Indicative Design Parameters Adopted in the RODP	4-34
Table 4.18	Extent and Locations of Proposed Direct Noise Mitigation Measures	4-36
Table 4.19	Summary of Predicted Road Traffic Noise Assessment Results under Mitigated Scenario (Year 2051)	4-43
Table 4.20	Number of Existing Dwellings/Rooms Benefited and Protected under Mitigated Scenario.....	4-49
Table 4.21	Number of Planned Dwellings/Rooms Benefited and Protected under Mitigated Scenario.....	4-49

Table 4.22	Estimated Number of Existing Dwellings, Classrooms and Other NSRs Exposed to Noise Exceedance.....	4-50
Table 4.23	Estimated Number of Planned Dwellings, Classrooms and Other NSRs Exposed to Noise Exceedance.....	4-50
Table 4.24	List of Existing and Planned Fixed Noise Sources.....	4-52
Table 4.25	Requirements of Quantitative Fixed Noise Assessment of the Project.....	4-60

LIST OF FIGURES

<u>Figure 4.1a</u>	Assessment Area for Noise Impact Assessment and Locations of Noise Sensitive Receivers
<u>Figure 4.1b</u>	Uses of Planned Building Structures within Development Area
<u>Figure 4.2</u>	Locations of Noise Assessment Points for Construction Noise Impact Assessment (Key Plan)
<u>Figure 4.2.1</u>	Locations of Noise Assessment Points for Construction Noise Impact Assessment (Sheet 1 of 3)
<u>Figure 4.2.2</u>	Locations of Noise Assessment Points for Construction Noise Impact Assessment (Sheet 2 of 3)
<u>Figure 4.2.3</u>	Locations of Noise Assessment Points for Construction Noise Impact Assessment (Sheet 3 of 3)
<u>Figure 4.3</u>	Locations of Noise Assessment Points for Road Traffic Noise Impact Assessment (Residential Premises and Educational Institutions) (Key Plan)
<u>Figure 4.3.1</u>	Locations of Noise Assessment Points for Road Traffic Noise Impact Assessment (Residential Premises and Educational Institutions) (Sheet 1 of 5)
<u>Figure 4.3.2</u>	Locations of Noise Assessment Points for Road Traffic Noise Impact Assessment (Residential Premises and Educational Institutions) (Sheet 2 of 5)
<u>Figure 4.3.3</u>	Locations of Noise Assessment Points for Road Traffic Noise Impact Assessment (Residential Premises and Educational Institutions) (Sheet 3 of 5)
<u>Figure 4.3.4</u>	Locations of Noise Assessment Points for Road Traffic Noise Impact Assessment (Residential Premises and Educational Institutions) (Sheet 4 of 5)
<u>Figure 4.3.5</u>	Locations of Noise Assessment Points for Road Traffic Noise Impact Assessment (Residential Premises and Educational Institutions) (Sheet 5 of 5)
<u>Figure 4.4</u>	Locations of Noise Assessment Points for Road Traffic Noise Impact Assessment (Proposed Kindergartens)
<u>Figure 4.5</u>	Locations of Noise Assessment Points for Road Traffic Noise Impact Assessment (Proposed Social Welfare Facilities)
<u>Figure 4.6</u>	Locations of Noise Assessment Points for Fixed Noise Sources Impact Assessment
<u>Figure 4.7</u>	Locations of Noise Assessment Points for Rail Noise Impact Assessment
<u>Figure 4.8</u>	Roads Sections for Road Traffic Noise Impact Assessment
<u>Figure 4.9</u>	Locations of Existing, Planned and Proposed Traffic Noise Mitigation Measures (Key Plan)
<u>Figure 4.9.1</u>	Locations of Existing, Planned and Proposed Traffic Noise Mitigation Measures (Sheet 1 of 5)
<u>Figure 4.9.2</u>	Locations of Existing, Planned and Proposed Traffic Noise Mitigation Measures (Sheet 2 of 5)
<u>Figure 4.9.3</u>	Locations of Existing, Planned and Proposed Traffic Noise Mitigation Measures (Sheet 3 of 5)
<u>Figure 4.9.4</u>	Locations of Existing, Planned and Proposed Traffic Noise Mitigation Measures (Sheet 4 of 5)
<u>Figure 4.9.5</u>	Locations of Existing, Planned and Proposed Traffic Noise Mitigation Measures (Sheet 5 of 5)

LIST OF APPENDICES

<u>Appendix 4.1</u>	Background Noise Measurement Locations
<u>Appendix 4.2</u>	Photographs of Representative Noise Sensitive Receivers
<u>Appendix 4.3</u>	Traffic Forecast Data
<u>Appendix 4.4</u>	Transport Department's Endorsement on the Traffic Forecast Methodology
<u>Appendix 4.5</u>	Computation Plot of Traffic Noise Model
<u>Appendix 4.6</u>	Detailed Results of Road Traffic Noise Assessment (Unmitigated Scenario)
<u>Appendix 4.7</u>	Detailed Results of Road Traffic Noise Assessment (Mitigated Scenario)
<u>Appendix 4.8</u>	Eligibility Assessment for Indirect Technical Remedies

4 NOISE

4.1 Introduction

4.1.1 This section presents the assessment on the potential noise impacts associated with the construction and operation of the Project. The noise quality impact assessment has been conducted in accordance with the requirement in Annexes 5 and 13 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) and the requirements in Section 3.4.4 and Appendix C of the EIA Study Brief (ESB-363/2023).

4.2 Environmental Legislation, Standards and Assessment Criteria

General

4.2.1 The criteria of evaluating noise impacts and the guidelines for noise impact assessments are laid down in the Technical Memoranda (TM) under the Noise Control Ordinance (NCO), the EIAO-TM, and the relevant guidance notes (GNs) under Environmental Impact Assessment Ordinance (EIAO).

4.2.2 The NCO and EIAO provide the statutory framework for noise control. Assessment procedures and standards are set out in the following TM/GNs:

- Annexes 5 and 13 of the Technical Memorandum on the Environmental Impact Assessment Process (EIAO-TM);
- Technical Memorandum on Noise from Percussive Piling (PP-TM);
- Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM);
- Technical Memorandum on Noise from Construction Work in Designated Areas (DA-TM);
- Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM);
- Preparation of Construction Noise Impact Assessment Under the Environmental Impact Assessment Ordinance (EIAO Guidance Note No. 9/2023);
- Road Traffic Noise Impact Assessment Under the Environmental Impact Assessment Ordinance (EIAO Guidance Note No. 12/2023); and
- Preparation of Fixed Noise Sources Impact Assessment Under the Environmental Impact Assessment Ordinance (EIAO Guidance Note No. 16/2023).

General Construction Works other than Percussive Piling

4.2.3 Noise from construction activities taking place at 0700 – 1900 hours on any day not being a Sunday or general holiday is subject to the Noise Standards for Daytime Construction Activities stated in Table 1B of Annex 5 in the EIAO-TM. The noise limit is $L_{eq(30 \text{ minutes})}$ 75 dB(A) at all domestic premises, temporary housing accommodation, hostels, convalescent homes and homes for the aged; and $L_{eq(30 \text{ minutes})}$ 70 dB(A) at places of public worship, courts of law, hospitals and medical clinics and educational institutions (including kindergartens and nurseries) (with

criterion of $L_{eq(30 \text{ minutes})}$ 65 dB(A) during examinations). The above standards apply to uses which rely on opened windows for ventilation and are assessed at 1 m from the external façade.

General Construction Works during Restricted Hours

- 4.2.4 On all days between 1900 and 0700 hours or at any time on Sundays and general holidays (i.e. the restricted hours), the use of powered mechanical equipment (PME) for the purpose of carrying out construction works is prohibited unless a Construction Noise Permit (CNP) has been obtained. A CNP may be granted provided that the Acceptable Noise Levels (ANLs) for the Noise Sensitive Receivers (NSRs) determined in accordance with the GW-TM and DA-TM can be complied with.
- 4.2.5 The determination of ANLs for NSRs is based on the Basic Noise Levels (BNLs) stipulated in the GW-TM and DA-TM corresponding to respective Area Sensitivity Ratings (ASR) of the NSR. The ASR is determined according to the characteristics of the area within which the NSR is located, and the degree of the effect on the NSR by the "influencing factors" (IF) (such as the presence of industrial area or major roads) (see **Table 4.1**).

Table 4.1 Area Sensitivity Ratings

Type of Area Containing NSR	Degree to which NSR is affected by Influencing Factor		
	Not Affected	Indirectly Affected	Directly Affected
Rural area, including country parks or village type developments	A	B	B
Low density residential area consisting of low-rise or isolated high-rise developments	A	B	C
Urban area	B	C	C
Area other than those above	B	B	C

Remarks:

- (1) "Country park" means an area that is designated as a country park pursuant to section 14 of the Country Parks Ordinance;
- (2) "Directly affected" means that the NSR is at such a location that noise generated by the IF is readily noticeable at the NSR and is a dominant feature of the noise climate of the NSR;
- (3) "Indirectly affected" means that the NSR is at such a location that noise generated by the IF, whilst noticeable at the NSR, is not a dominant feature of the noise climate of the NSR;
- (4) "Not affected" means that the NSR is at such a location that noise generated by the IF is not noticeable at the NSR; and
- (5) "Urban area" means an area of high density, diverse development including a mixture of such elements as industrial activities, major trade or commercial activities and residential premises.

- 4.2.6 The BNLs depending upon the ASRs as stipulated in the GW-TM are given in **Table 4.2**.

Table 4.2 Construction Noise Criteria for Activities other than Percussive Piling

Time Period	Basic Noise Level (BNLs), dB(A)		
	ASR A	ASR B	ASR C
All days during the evening (1900 to 2300 hours), and general holidays (including Sundays) during the daytime and evening (0700 to 2300 hours)	60	65	70
All days during the night-time (2300 to 0700 hours)	45	50	55

4.2.7 Under the DA-TM, the use of five types of Specified Powered Mechanical Equipment (SPME), namely the hand-held breaker, bulldozer, concrete lorry mixer, dump truck and hand-held vibratory poker within a designated area during restricted hours would be subject to a more stringent BNLs. Such BNLs are 15 dB(A) lower than those listed in the GW-TM (**Table 4.2** refers), with a view to offer additional protection to the population. As defined in the Designated Areas – Yuen Long, Tin Shui Wai, Mai Po Shek Kong and Kwu Tung under NCO (i.e. Plan No. EPD/AN/NT-01), the western part of the Project Site falls within the designated area.

4.2.8 The Noise Control Authority will consider a well-justified CNP application for general construction works within restricted hours as guided by the GW-TM and DA-TM. The Noise Control Authority will assess if relevant ANLs and criteria stipulated in the GW-TM and DA-TM can be met, and take into account of contemporary conditions / situations of adjoining land uses and any previous complaints against construction activities at the site before making his decision in granting a CNP. Nothing in this EIA shall bind the Noise Control Authority in making his decision. If a CNP is to be issued, the Noise Control Authority shall include in it any condition he thinks fit. Failure to comply with any such conditions will lead to cancellation of the CNP and prosecution action under the NCO.

4.2.9 Under the DA-TM, carrying out of the following three types of Prescribed Construction Work (PCW) within a designated area during restricted hours would also require a valid CNP:

- Erecting or dismantling of formwork or scaffolding;
- Loading, unloading or handling of rubble, wooden boards, steel bars, wood or scaffolding material; and
- Hammering.

4.2.10 In general, it should not be presumed that a CNP may be granted for carrying out PCW within a designated area during restricted hours only if the location of work being carried out is screened by solid barriers, such as purpose-designed acoustic screens, buildings or topographical features.

Percussive Piling

4.2.11 Percussive piling is prohibited between 1900 and 0700 hours on any weekday not being a general holiday and at any time on Sunday or general holiday under the NCO. A CNP is required for the carrying out of percussive piling between 0700 and 1900 hours on any day not being a general holiday. PP-TM sets out the requirements for working and determination of the permitted hours of operations for the CNP applications. The permitted hours of operations would be 3, 5 or 12

hours per day depending on the types of percussive piling and the predicted noise impact at NSRs.

Road Traffic Noise

- 4.2.12 For road traffic noise, the $L_{10(1 \text{ hour})}$ criteria as stipulated in Annex 5, Table 1A of EIAO-TM shall be adopted for different types of NSRs which rely on opened windows for ventilation are presented in **Table 4.3**.

Table 4.3 Noise Criteria for Road Traffic Noise

Uses	Road Traffic Noise Peak Hour Traffic ⁽¹⁾ , $L_{10(1hr)}$, dB(A)
<ul style="list-style-type: none"> All domestic premises Temporary housing accommodation Hostels Convalescent homes, and Homes for the aged 	70
<ul style="list-style-type: none"> Educational institutions (including kindergartens and nurseries) Places of public worship, and Courts of law 	65
<ul style="list-style-type: none"> Hospitals and medical clinics 	55

Note:

(1) The above standards, or equivalent, apply to uses which rely on opened windows for ventilation and are assessed at 1 m from the external façade.

Fixed Noise Sources

- 4.2.13 Fixed noise sources are controlled by Section 13 of the NCO and IND-TM. For the protection of noise sensitive developments against impacts from existing fixed noise sources, IND-TM has stipulated appropriate ANLs. Annex 5 of EIAO-TM stipulates the noise criteria for planned fixed noise sources, which is 5 dB(A) below the appropriate ANL or the prevailing background noise levels (for quiet areas with level 5 dB(A) below the ANL). The ANLs and criteria for different ASRs are summarised in **Table 4.4** below.

Table 4.4 Acceptable Noise Levels for Fixed Noise Sources

Time Period	Acceptable Noise Levels ⁽¹⁾ (ANLs), ($L_{eq \ 30 \text{ min}}$, dB(A))					
	ANL, dB(A) for Existing Fixed Noise Sources			ANL-5, dB(A) for Planned Fixed Noise Sources		
	ASR A	ASR B	ASR C	ASR A	ASR B	ASR C
Day (0700 to 1900 hrs)	60	65	70	55	60	65
Evening (1900 to 2300 hrs)	60	65	70	55	60	65
Night (2300 to 0700 hrs)	50	55	60	45	50	55

Note:

(1) The above standards, or equivalent, apply to uses which rely on opened windows for ventilation and are assessed at 1 m from the external façade.

- 4.2.14 The criteria associated with prevailing background noise levels would generally apply to areas with low ambient noise levels such as suburban areas. For areas without major nearby noise sources such as road and rail traffic, NSRs adjacent to

these locations would be subject to low ambient noise levels which could be lower than the ANL by more than 5 dB(A).

- 4.2.15 In any event, the ASRs adopted in this EIA Report is for indicative assessment only. Therefore, the Noise Control Authority shall determine noise impact from concerned fixed noise sources on the basis of prevailing legislation and practices being in force, and taking account of contemporary conditions / situations of adjoining land uses. Nothing in this EIA Report shall bind the Noise Control Authority in the context of law enforcement against any of the fixed noise sources being assessed.

Airborne Rail Noise

- 4.2.16 The EIAO-TM and IND-TM stipulate the appropriate ANLs for airborne rail noise. The ANLs are dependent on ASRs of the NSRs and are shown in **Table 4.5**.

Table 4.5 Acceptable Noise Levels for Airborne Rail Noise

Uses	Acceptable Noise Levels ⁽¹⁾ (ANLs), ($L_{eq\ 30min}$, dB(A))					
	Daytime and Evening time (0700 to 2300 hrs)			Night-time (2300 to 0700 hrs)		
	ASR A	ASR B	ASR C	ASR A	ASR B	ASR C
<ul style="list-style-type: none"> Domestic premises, Temporary housing accommodation, Hostels, Convalescent homes, Homes for the aged, and Hospitals 	60	65	70	50	55	60
<ul style="list-style-type: none"> Places of public worship, Courts of law, Medical clinics, and Educational institutions 	60	65	70	_(2)		

Notes:

(1) The above standards, or equivalent, apply to uses which rely on opened windows for ventilation and are assessed at 1 m from the external façade.

(2) Places of public worship, courts of law, medical clinics, and educational institutions are considered to be noise sensitive during daytime and evening time only.

Ground-borne Rail Noise

- 4.2.17 The noise criterion for assessing ground-borne rail noise is given in **Table 4.6**. The IND-TM under the NCO stipulates that noise transmitted primarily through the structural elements of building, or buildings, shall be 10 dB(A) less than the relevant ANLs.

Table 4.6 Criteria for Ground-borne Rail Noise

Uses / Assessment Point ⁽¹⁾	Ground-borne Noise Criteria, ($L_{eq, 30min}$, dB(A)) ⁽²⁾	
	Daytime and Evening (0700 to 2300 hrs)	Night-time (2300 to 0700 hrs)
<ul style="list-style-type: none"> Domestic premises, Temporary housing accommodation, Hostels, Convalescent homes, Homes for the aged, and Hospitals 	60 for ASR C / 55 for ASR B / 50 for ASR A	50 for ASR C / 45 for ASR B / 40 for ASR A
<ul style="list-style-type: none"> Places of public worship, Courts of law, Medical clinics, and Educational institutions 		- ⁽³⁾

Notes:

(1) Assessment point locates at an internal location of a building in which the ground-borne noise sensitive receiver (GBNSR) is located.

(2) Ground-borne noise is deemed not to be affected by IF. Therefore, the effect of IF should not be considered to determine the appropriate noise criteria.

(3) No sensitive use / activity during this period.

4.3 Description of Existing Environment

4.3.1 The Project Site is surrounded by indigenous villages to its north and south. Tam Mei Barracks is located to its north, while Ngau Tam Mei Water Treatment Works (NTMWTW) is located to its immediate east. To its further north and south are dominated by hill and mountainous terrain. The Project Site is predominantly a rural area, mainly with low-rise private residential buildings, scattered village houses and industrial use.

4.3.2 The ambient noise climate within the Project Site is dominated by the traffic on San Tin Highway, Castle Peak Road and San Tam Road. The scattered industrial operations, including open storage and warehouse facilities, throughout the Project Site also contribute to the overall ambient noise levels. Prevailing background noise at Ngau Tam Mei New Development Area (NTM NDA) was measured and reported in the approved Northern Link (NOL) EIA report (Register No.: AEIAR-259/2024)¹ (hereinafter referred to as "NOL Main Line EIA report"). A site survey was conducted in January 2024 to verify the applicability of these earlier prevailing background noise measurements. Based on the site survey findings and a review of existing land uses, no significant changes were identified in the environmental context in the vicinity of the NTM NDA. The existing noise climate of the NTM NDA is expected to remain similar to the conditions during the prevailing background noise measurement presented in the NOL Main Line EIA report, therefore, the measurement results are considered applicable to the Project. The prevailing background noise levels for the NTM NDA were referenced from **Appendix 4.1** of the approved NOL Main Line EIA report, and the relevant results are extracted and presented in **Table 4.7**.

¹ Approved NOL EIA Report (Register No.: AEIAR-259/2024)
(https://www.epd.gov.hk/eia/files/applications/en/pp_346/eia_1992/progress/action_1365/eia_3012023/HTML/index.htm)

Table 4.7 Prevailing Background Noise

Location ID (1)	Measurement Location	Measured Noise Level ⁽²⁾ , (L ₉₀ 1hr, dB(A))			
		Day and Evening (0700 to 2300 hrs)		Night (2300 to 0700 hrs)	
		Weekday	Weekend	Weekday	Weekend
M06	Lamp Post (FA3637) along Wang Ping Shan South Road	47	48	42	42
M07	Lamp Post (H4696) along Chuk Yau Road	54	56	49	48
M08	Lamp Post (FA3637) along the local road from Greenacres Villa to Tam Mei Barracks	45	45	38	39
M12	Near Wetland Seasons Park along Wetland Park Road ⁽³⁾	58	59	54	52

Notes:

(1) Measurement locations are shown in **Appendix 4.1**.

(2) Measurement was conducted under free-field condition. A +3 dB(A) façade correction was included to account for the façade effect.

(3) Reference was made to the background noise measurement results presented in the approved NOL Main Line EIA report. Background noise measurement was conducted at Tin Shui Wai (near Wetland Seasons Park Phase 1) under the same type of area (i.e. "Area other than those above") with prevailing background noise dominated by road traffic on Wetland Park Road, for determination of comparable background noise at the NTM NDA. The noise climate at the NTM NDA would be dominated by a planned District Distributor road (i.e. Road D1), some local roads within the Development Area and the existing roads (e.g. San Tin Highway). Hence, the future background noise at the planned NSRs near Road D1 is expected to be similar to that measured at Wetland Seasons Park.

4.4 Identification of Noise Sensitive Receivers

4.4.1 The assessment area for noise impact assessment is defined by a distance of 300 m from the boundary of the Project Site in accordance with Sections 2.2.1(a), 3.2.1(a) and 4.2.1(a) of Appendix C of the EIA Study Brief and is shown in **Figure 4.1a**. Existing and planned NSRs within the assessment area have been identified, based on the observations from site visits in January 2024, review of relevant land use plans including Outline Zoning Plans (OZPs), Development Permission Area Plans, Outline Development Plans, Layout Plans and other relevant published use and development applications approved by Town Planning Board, the Recommended Outline Development Plan (RODP) confirmed by relevant government departments including Planning Department and Lands Department (LandsD), and building massing confirmed by Planning Department. Photographs of the existing NSRs are presented in **Appendix 4.2**.

4.4.2 For the planned NSR of the Project (i.e. PN01), central air-conditioning will be provided to the UniTown in Site G.6, G.10, Site G.11 and Site G.12 (except their staff quarters and student hostels), the Integrated Hospital in Site G.8, and the proposed schools at Site E.1 and Site E.2. As these facilities will not rely on opened windows for ventilation (**Figure 4.1b** refers), no noise assessment points (NAPs) were assigned to these facilities for the airborne construction and road traffic noise impact assessments.

4.4.3 The Transitional Housing Project at Ngau Tam Mei South (Chun Shin Road), Yuen Long (i.e. PN02) is located in the western portion of the Project Site. The transitional housing will be demolished and the site will be handed over for the proposed development under the Project. As such, NAPs of PN02 were assigned for the airborne construction noise impact assessment only.

- 4.4.4 The development at the southern portion of San Tin Technopole (STT) (i.e. PN03) will be located at more than 400 m from the Development Area, but will be situated in proximity to the proposed road connection to/from STT. Accordingly, NAPs of PN03 were selected with reference to Figure 4.4 of the approved EIA report for San Tin/Lok Ma Chau Development Node (STLMC DN) (Register No.: AEIAR-261/2024) and were assigned for the road traffic noise impact assessment only. In addition, according to the approved STLMC DN EIA report, district cooling system will be provided for the proposed educational institutions of the project, such that these facilities will not rely on opened windows for ventilation. Thus, these facilities were not selected as NAPs in the road traffic noise impact assessment.
- 4.4.5 The Residential Development at Various Lots in D.D. 104 and the Adjoining Government Land in Yuen Long, N.T. (i.e. PN04) will be located to the west of the Project Site. As there is no confirmed implementation programme of this development during the preparation of this EIA Report, no NAPs of PN04 were assigned for the airborne construction noise impact assessment. Give that this residential development is classified as a Designated Project (DP) under Item P.1, Part 1, Schedule 2 of the EIAO (i.e. a residential or recreational development, other than New Territories exempted houses within Deep Bay Buffer Zone 1 or 2), the project proponent of PN04 will be required to conduct an EIA study and recommend appropriate mitigation measures, where necessary, to ensure that no adverse impacts arising from the construction and operation of the residential development. Therefore, no NAPs were assigned for the road traffic noise and fixed noise sources impact assessments in this assessment.
- 4.4.6 The proposed Low-rise and Low-density Residential Development at Various Lots and their Adjoining Government Land in D.D. 104, East of Kam Pok Road, Mai Po, Yuen Long, N.T. (i.e. PN05) will be marginally within the 300 m assessment area of the Project (i.e. approximately 280 m from the nearest Project Site). The associated environmental impacts arising from this project were assessed in the approved EIA report (Register No.: AEIAR-205/2017). According to its approved EIA report and planning application (Application No.: A/YL-MP/287) which was approved in 2020, there will be no planned noise sensitive use within the 300 m assessment area of the Project. Therefore, no NAPs were assigned for this planned development under this noise impact assessment.

Noise Assessment Points

- 4.4.7 Only the first layer of NSRs directly facing the noise sources were selected as representative NSRs, considering that it would provide acoustic shielding to those NSRs at further behind, and would represent the worst-case scenario.
- 4.4.8 The NAPs assigned for the first layer of NSRs are presented in **Table 4.8** to **Table 4.12**, with their locations indicated in **Figure 4.2** to **Figure 4.7**.

Table 4.8 Representative Noise Assessment Points for Construction Noise Impact Assessment

Representative NSR	NSR ID	NAP ID	Land Use ⁽¹⁾	Number of Storey	Noise Criteria, $L_{eq(30min)}$, dB(A)
<i>Existing NSR</i>					
EMINENT EIS International Preschool	N34	EIS-C1	E	1	70
Elegant Park	N09	EP-C1	R	3	75
Greenacres Villa	N15	GV-C1	R	3	75

Representative NSR	NSR ID	NAP ID	Land Use ⁽¹⁾	Number of Storey	Noise Criteria, $L_{eq(30min)}$, dB(A)
Hongtai Home for the Aged ⁽²⁾	N41	HHA-C1	HA	3	75
Ha San Wai	N33	HSW-C1 to HSW-C2	R	1 - 3	75
Ian Court	N43	IC-C1	R	3	75
Kadoorie Villas	N42	KV-C1 to KV-C3	R	3	75
Long Ha	N23	LH-C1	R	2	75
La Maison Vineyard	N07	LMV-C1 to LMV-C2	R	2	75
Meister House	N27	MH-C1	R	2	75
Pok Wai	N26	PW-C1	R	3	75
Sheung Chuk Yuen	N39	SCY-C1 to SCY-C4	R	2 - 3	75
San Wai Tsuen	N19	SWT-C1	R	3	75
Tam Mei Barracks ⁽³⁾	N16	TMB-C1	O	1	75
Village Houses at the South of Proposed Road D1	N17	TS(D1)-C1 to TS(D1)-C11	R	1 - 2	75
Village Houses at the East of Project Site	N18	TS(D1)-C12	R	1	75
The Vineyard	N11	TV-C1 to TV-C2	R	2	75
Tai Yuen Villa	N37	TYV-C1 to TYV-C2	HA	3	75
Wah On Villa	N44	WOV-C1	R	3	75
Village House near Wang Ping Shan South Road	N22	WPSSR-C1	R	2	75
Wai Tsai Tsuen	N08	WTT-C1 to WTT-C3	R	2 - 3	75
Yau Mei San Tsuen	N01	YMST-C1	R	2	75
Planned NSR					
Proposed Staff Quarters at G.5	PN01	G.5-PC1	R	24	75
Proposed Dedicated Rehousing Estate at RSc.1	PN01	RSc.1-PC1 to RSc.1-PC5	R	25 - 42	75
Proposed Residential Development at R.4	PN01	R.4-PC1	R	42	75
Transitional Housing Project at Ngau Tam Mei South (Chun Shin Road), Yuen Long	PN02	THP-C1 to THP-C3	R	4 ⁽⁴⁾	75

Notes:

(1) E – Educational Institution; R – Residential; HA – Homes for the Aged; O – Others.

(2) Based on the information provided in Social Welfare Department Elderly Information Website (<https://www.elderlyinfo.swd.gov.hk/en/content/hongtai-home-aged-limited>), no diagnostic rooms or wards is provided in the Hongtai Home for the Aged. Therefore, it is not classified as medical clinics in this assessment.

(3) Detailed uses of Tam Mei Barracks are not available. NAPs within Tam Mei Barracks were assigned with the noise criterion for residential use as a conservative assumption for indicative assessment purposes.

(4) Information based on the further information in Town Planning Board's website (https://www.tpb.gov.hk/uploads/page/meetings/RNTPC/A_YL-NTM_470/A_YL-NTM_470_Plans.pdf).

Table 4.9 Representative Noise Assessment Points for Road Traffic Noise Impact Assessment

Representative NSR	NSR ID	NAP ID	Land Use ⁽¹⁾	Number of Storey	Noise Criteria, L _{10(1 hr)} dB(A)
<i>Existing NSR</i>					
China Bible Seminary	N14	CBS-1	E	2	65
Casa Paradizo	N05	CP-1	R	2	70
EMINENT EIS International Preschool	N34	EIS-1	E	1	65
Elegant Park	N09	EP-1a to EP-1b, EP2, EP-3a to EP-3b, EP4	R	3	70
Greenacres Villa	N15	GV-1a to GV-1b	R	3	70
Hang Fook Garden	N36	HFG-1	R	4	70
Hongtai Home for the Aged ⁽²⁾	N41	HHA-1 to HHA-3	HA	3	70
Ha San Wai	N33	HSW-1 to HSW-3	R	1 - 3	70
Ian Court	N43	IC-1	R	3	70
Kadoorie Villas	N42	KV-1 to KV-5	R	3	70
Long Ha	N23	LH-1	R	2	70
La Maison Vineyard	N07	LMV-1 to LMV-2, LMV-3a to LMV-3b, LMV-4 to LMV-5	R	2	70
Meister House	N27	MH-1 to MH-3	R	2	70
Pok Wai	N26	PW-1 to PW-2	R	3 - 4	70
Sheung Chuk Yuen	N39	SCY-1, SCY-2a to SCY-2b, SCY-3 to SCY-4, SCY-5a to SCY-5b	R	1 - 3	70
San Wai Tsuen	N19	SWT-1 to SWT-6	R	2 - 3	70
Tam Mei Barracks ⁽³⁾	N16	TMB-1	O	1	70
Village Houses at the south of Proposed Road D1 ⁽⁴⁾	N18	TS(D1)-1 to TS(D1)-11, TS(D1)-12a to TS(D1)-12b, TS(D1)-13 to TS(D1)-14	R	1 - 2	70
The Vineyard	N11	TV-1 to TV-3	R	3	70
Tai Yuen Villa	N37	TYV-1 to TYV-4	R	3	70
Wah On Villa	N44	WOV-1	R	3	70
Village House near Wang Ping Shan South Road	N22	WPSSR-1	R	2	70
Wai Tsai Tsuen	N08	WTT-1, WTT-2a to WTT-2b, WTT3, WTT-4a to WTT-4b, WTT-5,	R	2 - 3	70

Representative NSR	NSR ID	NAP ID	Land Use ⁽¹⁾	Number of Storey	Noise Criteria, L _{10(1 hr)} dB(A)
		WTT-6a to WTT-6b, WTT-7			
Yau Mei San Tsuen	N01	YMST-1	R	2	70
<i>Planned NSR</i>					
Proposed Staff Quarters at G.5	PN01	G.5-1a to G.5-1c, G.5-2a to G.5-2b, G.5-3a to G.5-3b	R	24	70
Proposed Staff Quarters at G.12	PN01	G.12-Q3a to G.12-Q3c	R	20	70
Proposed Student Hostel at G.12	PN01	G.12-S15a to G.12-S15b, G.12-S16a to G.12-S16b, G.12-S17a to G.12-S17c	R	27	70
Proposed Dedicated Rehousing Estate at RSc.1	PN01	RSc.1-1a to RSc.1-1f, RSc.1-2a to RSc.1-2e (Residential)	R	25 - 42	70
Proposed Residential Development at R.1	PN01	R.1-1a to R.1-1d, R.1-2a to R.1-2d, R.1-3a to R.1-3d, R.1-4a to R.1-4f (Residential)	R	37	70
		R.1-K1 to R.1-K3 (Kindergarten)	E	2	65
Proposed Residential Development at R.2	PN01	R.2-1a to R.2-1c, R.2-2a, R.2-5a to R.2-5c, R.2-6a to R.2-6c, R.2-7a to R.2-7c, R.2-8a to R.2-8c	R	43	70
Proposed Residential Development at R.3	PN01	R.3-2a to R.3-2b, R.3-3a to R.3-3c, R.3-4a to R.3-4e (Residential)	R	41 - 42	70
		R.3-K1 (Kindergarten)	E	1	65
Proposed Residential Development at R.4	PN01	R.4-1a to R.4-1c, R.4-2a to R.4-2c (Residential)	R	42 - 43	70
		R.4-S1 to R.4-S4 (Social Welfare Facilities)	G/IC	2	70
Proposed Residential Development atop Ngau Tam Mei Depot at OU(RDCRD).1	PN01	OU(RDCRD)-1a to OU(RDCRD)-1c, OU(RDCRD)-2a to OU(RDCRD)-2c, OU(RDCRD)-3a to OU(RDCRD)-	R	35 - 47	70

Representative NSR	NSR ID	NAP ID	Land Use ⁽¹⁾	Number of Storey	Noise Criteria, L _{10(1 hr)} dB(A)
		3c, OU(RDCRD)-6a, OU(RDCRD)-8a to OU(RDCRD)-8b, OU(RDCRD)-9a to OU(RDCRD)-9b, OU(RDCRD)-12a, OU(RDCRD)-14a, OU(RDCRD)-15a, OU(RDCRD)-16a to OU(RDCRD)-16b, OU(RDCRD)-17a to OU(RDCRD)-17b, OU(RDCRD)-18a, OU(RDCRD)-19a to OU(RDCRD)-19c			
Planned Public Housing Development in San Tin Technopole	PN03	ST-RSc23-R148 to ST-RSc23-R154, ST-RSc23-R161 to ST-RSc23-R163, ST-RSc23-R184 to ST-RSc23-R187	R	47	70

Notes:

- (1) E – Educational Institution; R – Residential; HA – Homes for the Aged; G/IC – Government, Institution or Community; O – Others.
- (2) Based on the information provided in Social Welfare Department Elderly Information Website (<https://www.elderlyinfo.swd.gov.hk/en/content/hongtai-home-aged-limited>), no diagnostic rooms or wards is provided in the Hongtai Home for the Aged. Therefore, it is not classified as medical clinics in this assessment.
- (3) Detailed uses of Tam Mei Barracks are not available. NAPs within Tam Mei Barracks were assigned with the noise criterion for residential use as a conservative assumption for indicative assessment purposes.
- (4) All the structures of the N18 within the Project Site will be demolished. The assigned NAPs at the N18 are expected to be the first layer of NSRs.

Table 4.10 Representative Noise Assessment Points for Fixed Noise Sources Impact Assessment

Representative NSR	NSR ID	NAP ID	Land Use ⁽¹⁾	Type of Area	Influencing Factor	Degree to which NSR is Affected	Area Sensitive Rating ⁽²⁾	ANL-5 (Daytime & Evening Time / Nighttime) [1]	Reference Noise Monitoring ID	Measured Prevailing Noise Levels (Day & Evening Time / Nighttime) [2]	Criteria dB(A) (Day & Evening Time / Nighttime) Min. of [1] & [2]
<i>Existing NSR</i>											
La Maison Vineyard	N07	LMV-F1 to LMV-F2	R	Low density residential area	San Tin Highway	Not Affected	A	55/45	M07	54/48	54/45
Sheung Chuk Yuen	N39	SCY-F1 to SCY-F2	R	Area other than those above ⁽³⁾	San Tin Highway	Not Affected	B	60/50	M07	54/48	54/48
Hongtai Home for the Aged	N41	HHA-F1	HA	Area other than those above ⁽⁴⁾	-	-	B	60/50	M07	54/48	54/48
Tam Mei Barracks ⁽⁷⁾	N16	TMB-F1 to TMB-F3	O	Low density residential area	-	-	A	55/45	M08	45/38	45/38
Village Houses at the south of Proposed Road D1	N18	TS(D1)-F1 to TS(D1)-F2	R	Area other than those above ⁽⁵⁾	-	-	B	60/50	M06	47/42	47/42
Village House near Wang Ping Shan South Road	N22	WPSSR-F1	R	Area other than those above ⁽³⁾	-	-	B	60/50	M06	47/42	47/42
Wai Tsai Tsuen	N08	WTT-F1	R	Low density residential area	-	-	A	55/45	M07	54/48	54/45
<i>Planned NSR</i>											
Proposed Staff Quarters at G.5	PN01	G.5-PF1 to G.5-PF2	R	Area other than those above ⁽⁶⁾	-	-	B	60/50	M12	58/52	58/50
Proposed Student Hostel and Staff	PN01	G.12-PF1 to G.12-PF2	R	Area other than those above ⁽⁶⁾	-	-	B	60/50	M08	45/38	45/38

Representative NSR	NSR ID	NAP ID	Land Use ⁽¹⁾	Type of Area	Influencing Factor	Degree to which NSR is Affected	Area Sensitive Rating ⁽²⁾	ANL-5 (Daytime & Evening Time / Nighttime) [1]	Reference Noise Monitoring ID	Measured Prevailing Noise Levels (Day & Evening Time / Nighttime) [2]	Criteria dB(A) (Day & Evening Time / Nighttime) Min. of [1] & [2]
Quarters at G.12		G.12-PF3 to G.12-PF6	R	Area other than those above ⁽⁶⁾	-	-	B	60/50	M12	58/52	58/50
Proposed Dedicated Rehousing Estate at RSc.1	PN01	RSc.1-PF1	R	Area other than those above ⁽⁶⁾	-	-	B	60/50	M12	58/52	58/50
Proposed Residential Development at R.1	PN01	R.1-PF1 to R.1-PF4	R	Area other than those above ⁽⁶⁾	-	-	B	60/50	M07	54/48	54/48
Proposed Residential Development at R.2	PN01	R.2-PF1 to R.2-PF2	R	Area other than those above ⁽⁶⁾	-	-	B	60/50	M07	54/48	54/48
		R.2-PF3 to R.2-PF5							M12	58/52	58/50
Proposed Residential Development and Kindergarten at R.3	PN01	R.3-PF1 to R.3-PF5	R & E	Area other than those above ⁽⁶⁾	-	-	B	60/50	M07	54/48	54/48
Proposed Residential Development at R.4	PN01	R.4-PF1 to R.4-PF6	R	Area other than those above ⁽⁶⁾	-	-	B	60/50	M07	54/48	54/48
Proposed Residential Development atop Ngau Tam Mei Depot at OU(RDCRD).1	PN01	OU(RDCRD)-PF1 to OU(RDCRD)-PF2	R	Area other than those above ⁽⁶⁾	-	-	B	60/50	M07	54/48	54/48
		OU(RDCRD)-PF3 to OU(RDCRD)-PF6							M12	58/52	58/50
		OU(RDCRD)-PF7 to OU(RDCRD)-PF8							M07	54/48	54/48

Notes:

- (1) E – Educational Institution; R – Residential; HA – Homes for the aged; O – Others.
- (2) The corresponding ASRs of the NSRs are determined based on the best available information and are for indicative assessment only. The Noise Control Authority shall determine noise impact from concerned noise sources on the basis of prevailing legislation and practices being in force, and the ASRs determined in this EIA Report should not bind the Authority when enforcing the NCO based on the contemporary conditions. The ASRs would be reviewed as necessary based on the contemporary conditions/situations such as adjoining land uses, IFs or the latest new development areas.
- (3) The NAP is located in the vicinity of an open storage/industrial uses. Therefore, the type of area was considered to be “Area other than those above”.
- (4) The NAP is located in the vicinity of the future Ngau Tam Mei Depot (NTD) under NOL Main Line project and the proposed medium to high-density residential area. Therefore, the type of area was considered to be “Area other than those above”.
- (5) The NAP is located in the vicinity of the proposed medium to high-density residential area. Therefore, the type of area was considered to be “Area other than those above”.
- (6) Based on the latest massing layout plan, these buildings will be developed to a medium to high-density residential area. The type of area was therefore considered to be “Area other than those above”.
- (7) Detailed uses of Tam Mei Barracks are not available. NAPs within Tam Mei Barracks were assigned with the noise criterion for residential use as a conservative assumption for indicative assessment purposes.

Table 4.11 Representative Noise Assessment Points for Airborne Rail Noise Impact Assessment

Representative NSR	NSR ID	NAP ID	Land Use ⁽¹⁾	Number of Storey
Proposed Residential Development atop NTD at OU(RDCRD).1	PN01	OU(RDCRD)-PR1 to OU(RDCRD)-PR2	R	47

Notes:

(1) R – Residential.

(2) Although NOL Main Line is an underground railway, potential airborne rail noise is expected at a short trough section where the tunnel portal connects to NTD. The trough section will be covered by noise canopies according to the approved NOL Main Line EIA report. The locations of the noise canopies and the tunnel portal is shown in [Figure 4.7](#).

Table 4.12 Representative Noise Assessment Points for Ground-borne Rail Noise Impact Assessment

Representative NSR	NSR ID	NAP ID	Land Use ⁽¹⁾	Number of Storey
Proposed Staff Quarters at G.5	PN01	G.5-PG1	R	24
Proposed Residential Development at R.2	PN01	R.2-PG1 to R.2-PG2	R	43
Proposed Residential Development at R.3	PN01	R.3-PG1 to R.3-PG2	R	41 - 42
Proposed Residential Development at R.4	PN01	R.4-PG1	R	42
Proposed Integrated Hospital	PN01	G.8-PG1	G/IC	8 - 25
Proposed Residential Development atop Ngau Tam Mei Depot at OU(RDCRD).1	PN01	OU(RDCRD)-PG1	R	37

Note:

(1) R – Residential; G/IC - Government, Institution or Community

4.5 Construction Noise Impact Assessment

Assessment Methodology

4.5.1 Referring to Section 2.1.2 of Appendix C of the EIA Study Brief, a qualitative assessment is required to demonstrate no adverse construction noise impact would be associated with the Project by adopting quieter construction method and equipment during the construction phase. The general approach of this qualitative construction noise impact assessment, with reference to Sections 5.3 and 5.4 of Annex 13 of the EIAO-TM and EIAO Guidance Note No. 9/2023, is summarised below:

- Determine 300 m assessment area from the Project Site Boundary which includes the associated works required under the Project;
- Identify representative NSRs which would most likely be affected by noise from the construction works;
- Collate PME for each key construction works, based on available information or agreed plant inventories;
- Evaluate potential construction noise impact on the NSRs qualitatively;

- Evaluate cumulative construction noise impact from concurrent projects qualitatively;
- Examine and recommend all practical mitigation measures, such as adoption of alternative construction methodology, quiet plant, silencer, enclosure, etc., to alleviate any potential noise impacts as much as practicable with reference to Annex 13 of EIAO-TM and EIAO Guidance Note No. 9/2023; and
- Propose to submit a Construction Noise Management Plan (CNMP), which contains quantitative construction noise impact assessment, to Environmental Protection Department (EPD).

Inventory of Noise Sources

4.5.2 Potential sources of noise impact during construction phase of the Project would be the use of PME for various construction activities. The major construction activities would include site clearance, site formation, excavation, backfilling, road works, infrastructure works, foundation and building works, revitalization and landscaping works. Piling works would be carried out for the foundation works. No percussive piling works will be required within the Project Site. Alternative piling methods have been considered and adopted in lieu of percussive piling method. The tentative plant inventory, as listed in **Table 4.13** below, is referenced to the construction of similar infrastructure works/facilities, and their validity was confirmed by government departments and/or the construction professionals of CEDD to be practical and suitable for proposed works.

Table 4.13 Tentative Plant Inventory for Key Construction Activities

Key Construction Activities	Possible PME Required ⁽¹⁾	
Road works and infrastructure works - junction and slip roads to San Tin Highway and cycle bridge	<ul style="list-style-type: none"> - Excavator/loader - Lorry - Concrete lorry mixer - Generator - Road roller - Piling, large diameter bored - Concrete pump 	<ul style="list-style-type: none"> - Dump truck - Saw - Vibratory poker - Asphalt paver - Air compressor - Bar bender, cutter - Mobile crane - Water pump
Road works and infrastructure works - Road D1, L1, L2, L3, Chuk Yau Road, Ngau Tam Mei Road, San Tam Road and road connection to/from San Tin Technopole (STT)	<ul style="list-style-type: none"> - Excavator/loader - Lorry - Concrete lorry mixer - Generator - Road roller - Piling, large diameter bored - Concrete pump 	<ul style="list-style-type: none"> - Dump truck - Saw - Vibratory poker - Asphalt paver - Air compressor - Bar bender, cutter - Mobile crane - Water pump
Site clearance and site formation for housing sites	<ul style="list-style-type: none"> - Excavator/loader - Bulldozer - Breaker, handheld - Generator 	<ul style="list-style-type: none"> - Dump truck - Saw - Road roller
Foundation and building works for housing developments	<ul style="list-style-type: none"> - Excavator/loader - Lorry - Concrete lorry mixer - Generator - Piling, large diameter bored - Concrete pump - Concrete mixer 	<ul style="list-style-type: none"> - Dump truck - Vibratory poker - Air compressor - Bar bender, cutter - Mobile crane - Water pump - Tower crane

Key Construction Activities	Possible PME Required ⁽¹⁾	
Site clearance and site formation for G/IC sites, schools and retention tanks	- Excavator/loader - Bulldozer - Breaker, handheld - Generator	- Dump truck - Saw - Road roller
Foundation and building works for G/IC sites, schools and retention tanks	- Excavator/loader - Lorry - Concrete lorry mixer - Generator - Piling, large diameter bored - Concrete pump - Concrete mixer	- Dump truck - Vibratory poker - Air compressor - Bar bender, cutter - Mobile crane - Water pump - Tower crane
Revitalisation of Ngau Tam Mei Drainage Channel	- Excavator/loader - Lorry - Road roller - Concrete lorry mixer - Generator - Concrete pump - Concrete mixer	- Dump truck - Vibratory poker - Air compressor - Bar bender, cutter - Mobile crane - Water pump
Site clearance and site formation for UniTown	- Excavator/loader - Bulldozer - Breaker, handheld - Generator	- Dump truck - Saw - Road roller
Site clearance and site formation for the Integrated Hospital	- Excavator/loader - Bulldozer - Breaker, handheld - Generator	- Dump truck - Saw - Road roller
Open space around Ngau Tam Mei Station	- Excavator/loader - Lorry - Road roller - Concrete lorry mixer - Generator - Concrete pump - Concrete mixer	- Dump truck - Vibratory poker - Air compressor - Bar bender, cutter - Mobile crane - Water pump

Note:

(1) Quiet equipment or quality powered mechanical equipment (QPME) would be adopted where applicable and practicable.

4.5.3 In case of any construction activities during restricted hours (i.e. hours from 1900 to 0700 or at any time on a general holiday), it would be the contractor's responsibility to ensure compliance with the NCO and the relevant TMs. The contractor would be required to submit CNP application to the Noise Control Authority and abide by any conditions stated in the CNP, should one be issued.

4.5.4 The construction of the Project is anticipated to commence in Year 2027 and be completed in Year 2036. The tentative construction programme for the Project is provided in **Appendix 2.2**. Potential concurrent projects within the 300 m assessment area and their respective tentative construction period are listed in **Table 4.14**. The locations of the potential concurrent projects are shown in **Figure 2.5**.

Table 4.14 List of Concurrent Projects

Potential Concurrent Projects	Tentative Construction Period
NOL Main Line, Ngau Tam Mei Station and Ngau Tam Mei Depot	2025 - 2034

Potential Concurrent Projects	Tentative Construction Period
Northern Metropolis Highway – San Tin Section	Under study (to be completed in or before 2036)
Ngau Tam Mei Water Treatment Works Extension	2025 - 2030
Retrofitting of Noise Barriers on San Tin Highway	Under planning
Site Formation and Infrastructure Works for Public Housing Development at Sha Po, Yuen Long	2025 - 2031
First Phase Development of the New Territories North - San Tin/Lok Ma Chau Development Node (STLMC DN)	2024 - 2039
Proposed Residential Development at Various Lots in D.D. 104 and the adjoining government land in Yuen Long, N.T.	Under planning
Proposed Low-rise and Low-density Residential Development at Various Lots and their Adjoining Government Land in D.D. 104, East of Kam Pok Road, Mai Po, Yuen Long, N.T.	Under planning

- 4.5.5 The potential concurrent projects listed in **Table 4.14** will be located within / in the vicinity of the Project Site such that cumulative construction noise impacts are expected. The contractors of this Project should closely liaise with the corresponding parties of these potential concurrent projects to schedule and arrange works being carried out concurrently at the same interfacing areas flexibly and efficiently to minimise the cumulative construction noise impacts. Cumulative construction noise impact should be assessed in the CNMP, which includes quantitative construction noise impact assessment, noise mitigation measures, monitoring and audit programme, event and action plan and implementation schedule.

Evaluation of Construction Noise Impact

Construction works within the Development Area

- 4.5.6 Based on the best available information during the preparation of this EIA Report, the major construction activities within the Project Site would include site clearance, site formation, excavation, backfilling, road works, infrastructure works, foundation works and building works, revitalization and landscaping works. The representative NSRs include Tam Mei Barracks and the existing villages adjacent to the Project Site, such as Sheung Chuk Yuen, La Maison Vineyard, Wai Tsai Tsuen, Elegant Park, The Vineyard, Greenacres Villa and village houses at the south of the Project Site. Some of the NSRs are located at less than 10 m from the Project Site. Since the construction works and land resumption would be carried out in phases, the Transitional Housing at Ngau Tam Mei South (i.e. NAPs THP-C1 to THP-C3) which is located within the Project Site would experience potential construction noise impact before these residents moved out from their premises. In addition, the proposed residential developments of the Project (i.e. Site R.3, Site R.4 and Site RSc.1) and proposed staff quarters at Site G.5 are expected to be occupied before the completion of the construction works at the proposed UniTown and the proposed residential development atop Ngau Tam Mei Depot at Site OU(RDCRD).1. Hence, the potential construction noise impact on these NSRs is also anticipated. Effective ways to mitigate the adverse construction noise impact include adoption of good site practice, use of QPME / quieter construction methods, and use of movable noise barrier / noise insulation fabric / noise enclosure. Particular attention should be given to those NSRs (e.g. Sheung Chuk Yuen, La Maison Vineyard, The Vineyard, Elegant Park, etc.) that are located very close (i.e. less than 10 m) to road construction works. It is recommended to install site hoarding with higher surface density (i.e. not less than 10 kg/m²) and height (i.e. not less than 2.4 m) to enhance noise reduction for the proposed road

construction works and to locate mobile plants far away from NSRs, where practicable.

- 4.5.7 The use of construction vehicles (e.g. lorry, dump truck and concrete lorry mixer, etc.) for the transportation of construction materials/wastes in and out the Project Site could also potentially cause nuisances to nearby NSRs. Where possible, haul roads within the construction sites should be situated far from existing and occupied planned NSRs. If the haul roads must be located close to the existing and occupied planned NSRs, temporary noise barriers along the haul road should be used to mitigate any adverse impacts.

Proposed Road Connection to/from San Tin Technopole

- 4.5.8 The major construction activities for the proposed road connection to/from STT would include site clearance, slope cutting, foundation works, and construction of the new road connection. The representative NSR is identified as Tam Mei Barracks which is located at about 14 m from the Project Site. The effective ways to mitigate the adverse construction noise impact include adoption of good site practice, use of QPME / quieter construction methods, and use of movable noise barrier / noise insulation fabric / noise enclosure. With reference to the approved EIA report for STL MC DN (Register No.: AEIAR-261/2024), the planned NSRs of San Tin Technopole near the proposed road connection were identified in Sites OU(MU)1.2.1, RSc.2.6 and RSc.2.4. Since the population intake for Site OU(MU)1.2.1 would occur after the completion of the proposed road works, no construction noise impact on this planned NSR is anticipated. Planned NSRs in Site RSc.2.4 and Site RSc.2.6 would be located relatively far away (i.e. more than 100 m) from the proposed road works. Given good site practice, use of QPME / quieter construction methods, and use of movable noise barrier / noise insulation fabric / noise enclosure will be implemented, adverse construction noise impact is not anticipated.

Road Works and Infrastructure Works (Junction and Slip Roads to San Tin Highway)

- 4.5.9 New road junction and elevated slips roads will be constructed for connecting Road D1 to San Tin Highway. The representative NSRs are identified as the village houses along San Tin Highway which are located at about 10 m to 100 m from the boundary of the Project Site. Effective mitigation measures for alleviating the adverse construction noise impact include adoption of good site practice, use of QPME / quieter construction methods, and use of movable noise barrier / noise insulation fabric / noise enclosure. In addition, use of pre-cast viaduct segment instead of cast-in-situ construction will be explored in detailed design stage, wherever possible, to further minimise the construction noise impacts.

Consideration of Cumulative Impact

- 4.5.10 Based on the best available information at the time of preparation of this EIA Report, among the identified concurrent projects in **Table 4.14**, the potential cumulative construction noise impact has been reviewed and is discussed below.

Northern Link Main Line

- 4.5.11 According to Section 4.5 of the approved NOL Main Line EIA report, the key construction works in the vicinity of the Project Site during the overlapping period would be construction of railway tunnel, Ngau Tam Mei Station and Ngau Tam Mei Depot. Considering that the associated works area of NOL Main Line would be relatively close to NSRs in Sheung Chuk Yuen, potential cumulative construction noise impact to these NSRs would be expected. Nevertheless, based on the finding of the construction noise impact assessment presented in NOL Main Line EIA

report, with the implementation of mitigation measures including the use of QPME, quieter construction methods, and noise enclosures and barriers, no adverse construction noise impact would be anticipated at NSRs in Sheung Chuk Yuen. In addition, further review on the cumulative construction noise impact will be assessed by the contractor of NOL Main Line and the Project in the respective CNMP(s) to ensure no adverse cumulative impact will be resulted. Therefore, no adverse cumulative construction noise impact would be anticipated.

Northern Metropolis Highway – San Tin Section

- 4.5.12 According to the Project Profile (Application No.: PP-683/2025) for Northern Metropolis (NM) Highway – San Tin Section, the project is required to be commissioned in 2036, and therefore cumulative construction noise impact is expected. The key construction works in the vicinity of the Project Site during the overlapping period include tunneling, piling for foundation, excavation and concreting, etc.. The nearest existing NSR is the village house located near the proposed Road D1 and is very close (i.e. less than 10 m) to both the Project Site and NM Highway – San Tin Section. Further review of the cumulative construction noise impact will be conducted in the EIA study of NM Highway – San Tin Section and in the respective CNMP(s) by future contractors of the Project and NM Highway – San Tin Section to ensure that no adverse cumulative construction noise impact would be resulted.

Ngau Tam Mei Water Treatment Works Extension

- 4.5.13 For NTMWTW Extension, the key construction works would involve provision of additional treatment facilities, construction of an extension of NTM Fresh Water Primary Service Reservoir, modification of an existing raw water tunnel junction and laying of water trunk mains. The modification of an existing chamber would be located at more than 100 m from the existing NSRs in the vicinity of the NTM NDA. Hence, the cumulative construction noise impact is expected to be minimal. Nevertheless, potential cumulative construction noise impact is still expected from the trunk mains laying works along Ching Yau Road. Given that the trunk mains laying works would be carried out in sections and in small scale, the noise impact to the NSRs in the vicinity of the NTM NDA is considered minor and adverse cumulative construction noise impact is not expected. In addition, further review on the cumulative construction noise impact will be assessed by the contractor of NTMWTW Extension and the Project in the respective CNMP(s) to ensure no adverse cumulative impact will be resulted. Therefore, no adverse cumulative construction noise impact would be anticipated.

Retrofitting of Noise Barriers on San Tin Highway

- 4.5.14 This concurrent project, which is located in the vicinity of the Project Site, is currently under study without a confirmed implementation programme. As such, detailed information on the construction activities, timeline, and use of PME is not available at the time of this assessment. Therefore, cumulative construction noise impact with this concurrent project is not included in this EIA Report.

Site Formation and Infrastructure Works for Public Housing Development at Sha Po, Yuen Long

- 4.5.15 Road works from this concurrent project near Long Ha may pose potential cumulative construction noise impact to the nearby NSRs (e.g. Meister House and village houses in Long Ha). Liaison between the contractor of this Project and the corresponding parties of this concurrent project should be carried out to schedule and arrange works being carried out concurrently in the same interfacing areas flexibly and efficiently. Hence, cumulative construction noise impact can be controlled and minimised.

First Phase Development of the New Territories North of San Tin/Lok Ma Chau Development Node (STLMC DN)

- 4.5.16 Based on the information provided in the approved EIA report for STLMC DN (Register No.: AEIAR-261/2024), site formation and site development at the housing site north of Tam Mei Barracks will be carried out from 2032 to 2037. Potential cumulative construction noise impact is anticipated at Tam Mei Barracks when the construction of the proposed road connection to/from STT is underway. Nevertheless, due to the large separation between Tam Mei Barracks and the works areas of STLMC DN (i.e. >200 m), no adverse construction noise impact was predicted in the approved EIA report for STLMC DN. With the implementation of mitigation measures including the use of QPME, quieter construction methods, and noise enclosures and barriers for the construction works of the proposed road connection to/from STT, no adverse cumulative construction noise impact is anticipated.

Proposed Residential Development at Various Lots in D.D. 104 and the adjoining government land in Yuen Long, N.T.

- 4.5.17 This proposed residential development is located at approximately 140 m west of the Project Site and is currently under study without a confirmed implementation programme. As such, detailed information on the construction activities, timeline, and use of PME is not available at the time of this assessment. Therefore, cumulative construction noise impact with this concurrent project is not included in this EIA Report. Nevertheless, this concurrent project constitutes DP under Item P.1, Part 1, Schedule 2 of the EIAO (i.e. a residential or recreational development, other than New Territories exempted houses within Deep Bay Buffer Zone 1 or 2). Further review of the cumulative construction noise impact will be conducted in the EIA study of this concurrent project and in the respective CNMP(s) by future contractors of the Project and this concurrent project to ensure that no adverse cumulative construction noise impact would be resulted.

Proposed Low-rise and Low-density Residential Development at Various Lots and their Adjoining Government Land in D.D. 104, East of Kam Pok Road, Mai Po, Yuen Long, N.T.

- 4.5.18 This proposed residential development is located approximately 280 m west of the Project Site. Environmental impacts from this proposed residential development were evaluated in the approved EIA report (Register No.: AEIAR-205/2017), and its planning application was approved in 2020 (**Section 4.4.6** refers). The construction noise impact of this concurrent project was quantitatively assessed in its approved EIA report. According to its approved EIA report, the predicted construction noise levels at Ha San Wai (i.e. NSR IDs. N16 and N17) under the mitigated scenario ranged from 58 to 59 dB(A), which is more than 10 dB(A) below the relevant noise criterion (i.e. 75 dB(A) for domestic premises). Therefore, the cumulative construction noise impacts at the Project's identified NAPs in Ha San Wai (i.e. NAPs HSW-C1, HSW-C2 and EIS-C1) are anticipated to be complying with noise criteria (i.e. 75 dB(A) for domestic premises and 70 dB(A) for educational institutions). Further review of the cumulative construction noise impact, if any, will be conducted in the respective CNMP(s) by the contractors of the Project to ensure that no adverse cumulative construction noise impact would be resulted.

Mitigation of Construction Noise Impact

- 4.5.19 Given that some construction works will be carried out in proximity to existing NSRs, the following mitigation measures should be considered to alleviate the potential construction noise impact:

- Good site practices;
- Use of QPME and quieter construction methods; and
- Use of temporary movable noise barriers, noise insulating fabric or noise enclosure.

Good Site Practice

4.5.20 Although the noise mitigation effects are not easily quantifiable, and the benefits may vary with site conditions and operating conditions, good site practices are easy to implement and do not impact upon the works schedule. The site practices listed below should be followed during construction phase:

- Only well-maintained PME to be operated on-site and should be serviced regularly during construction works;
- Silencers or mufflers on construction equipment should be utilised (if appropriate) and should be properly maintained during construction;
- Mobile plant, if any, should be sited as far away from NSRs as possible;
- Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;
- Plant known to emit noise strongly in one direction should, wherever possible, be orientated to direct noise away from the nearby NSRs; and
- Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.

Use of QPME and Quieter Construction Method

4.5.21 The use of QPME is considered a practicable means to mitigate the construction noise impact. QPME is defined as a PME having actual SWL lower than the value specified in the GW-TM.

4.5.22 It is recommended to minimise the use of percussive breaker to carry out site clearance and demolition works. To mitigate noise impacts associated with demolition activities, the quieter construction methods including but not limited to the following should be considered and implemented by the contractor as far as practicable:

- Use of high pressure water jetting instead of traditional jackhammers and drill hammers;
- Use of hydraulic crushers for concrete breaking and non-explosive chemical expansion agent for building/structure demolition instead of traditional excavator-mounted breakers;
- Use of quieter type wire saws or diamond wire saws for cutting large areas and heavily reinforced concrete;
- Use of quieter type blade saws utilising diamond blades with higher speeds and smoother blades reduces excitation of vibration;
- Use of penetrating cone fracture method instead of general chemical explosives;

- Use of ex-situ demolition methods away from NSRs; and
- Use of diamond coring tools instead of traditional drilling tool.

4.5.23 For site formation, excavation and lateral support and foundation works, the quieter construction methods including but not limited to the following should be considered and implemented by the contractor as far as practicable:

- Use of silent piling by press-in method instead of traditional massive augering and piling machines or drop hammer for sheet piling / channel planking installation work;
- Use of a bursting system to replace traditional handheld percussive breakers;
- Use of non-explosive chemical expansion agents instead of explosive chemicals or expansive compounds;
- Use of a sheet piling noise reducer such as a suitable shock absorber to reduce collisions between sheet pile / channel planking and holding parts;
- Use of pile driving impact cushions to reduce noise generated by piling impact;
- Pre-augering/pre-trench/boring pile holes to remove underground obstruction for avoiding hard driving / soften the ground; and
- Use of crack inducers instead of traditional percussive breakers.

4.5.24 Where practicable, the use of a rubber head poker vibrator or self-compacting concrete should be adopted for concrete compacting, instead of the conventional vibratory poker.

4.5.25 Prefabricated construction involves assembling components made in a factory, which are then transported to the construction site for installation. The adoption of prefabricated structures (e.g. bridges, facades, staircases and semi-precast slabs) as alternatives to in-situ construction methods not only significantly reduces the duration of on-site activities but also minimises the need for on-site PME during construction since much of the work is completed off-site. Furthermore, the reduced amount of PME decreases the overall noise impact at the NSRs. Subject to the actual site conditions, implementation of prefabricated components should be considered by the contractor where appropriate.

Use of Temporary Movable Noise Barrier / Noise Insulation Fabric / Noise Enclosure

4.5.26 Movable noise barriers that can be placed close to the construction equipment and moved along with the PME are effective for screening noise from particular item(s) of PME. A typical design is a wooden framed barrier with a cantilevered upper portion of superficial density no less than 7 kg/m² on a skid footing with internal sound absorptive lining. The direct line-of-sight between the PME and the NSRs should be totally screened by a substantial barrier such that the PME will not be visible when viewed from any window, door or other opening in any façade of the NSR. Reference should be made to the EPD webpage² for the design of noise barrier. Subject to the work arrangement in construction stage, the contractor may propose other form of mitigation measures to achieve the full compliance. It is anticipated that properly designed noise barriers would achieve a 5 dB(A) reduction for mobile PME and a 10 dB(A) reduction for static PME. Acoustic mat with surface mass of not less than 7 kg/m² would be used for plant items such as piler and a 10

² https://www.epd.gov.hk/epd/misc/construction_noise/contents/index.php/en/general-building-works/item/157-construction-noise-barrier.html

dB(A) noise reduction is anticipated. The use of full enclosure could be considered to shelter relatively static plant including ventilation fan, generator and air compressor. This type of enclosure is expected to provide approximately 15 dB(A) noise reduction.

Construction Noise Management Plan (CNMP)

4.5.27 In accordance with Section 2.4.1 of Appendix C of the EIA Study Brief, a CNMP shall be submitted to the Director of Environmental Protection (DEP). The CNMP(s) for each DP (i.e. DP1 – construction and operation of new distributor road (Road D1) and associated road works at San Tin Highway; and DP2 – part of revitalization of Ngau Tam Mei Drainage Channel and river diversion works located less than 300 m from the nearest boundary of an existing conservation area) should be prepared in accordance with the EIAO Guidance Note No. 9/2023 and should contain a quantitative construction noise impact assessment, the adopted quieter construction method and equipment, noise mitigation measures, the construction noise impact monitoring and audit programme, event and action plan and implementation schedule, with reference to the updated and identified noise mitigation measures once available, before tender invitation and before the commencement of construction of the DPs. The implementation schedule should clearly list out the mitigation measures, the implementation party, location and timing of implementation. For DPs, further review on the cumulative construction noise impact should be conducted as necessary in the later CNMP(s) when the information of the concurrent project is available, and an updated CNMP should be submitted to the DEP, no later than one month before the implementation of any change to the construction noise mitigation measures and/or plant inventory recommended in the submitted CNMP(s). For other non-DPs, CNMP(s) should be submitted to DEP, following the requirements of Professional Persons Environmental Consultative Committee Practice Notes 1/24 (ProPECC PN 1/24) *Minimizing Noise from Construction Activities*, before tender invitation and before the commencement of the construction of the non-DPs. Mitigation measures recommended and requirements specified in the CNMP(s) should be fully implemented. A summary of the submission of CNMP for DPs and non-DPs are listed in **Table 4.15**.

Table 4.15 Requirements of Quantitative Construction Noise Assessment in Pre-tender Stage and Pre-construction Stage of Relevant Construction Activities

Construction Activity	Responsible Party	Mechanism of Conducting Construction Noise Assessment	Relevant Noise Guidelines
Designated Project			
Construction of Road D1 and associated road works at San Tin Highway	Project Proponent	CNMP required under EP of the designated project	EIAO-TM and EIAO-GN 9/2023
Revitalisation of Ngau Tam Mei Drainage Channel and river diversion Works located less than 300 m from the nearest boundary of an existing conservation area			
Non-Designated Project			
Site clearance and site formation works within the Project Site	Project Proponent	CNMP to be submitted to	ProPECC PN1/24 ⁽¹⁾

Construction Activity	Responsible Party	Mechanism of Conducting Construction Noise Assessment	Relevant Noise Guidelines
Roads works of non-DP roads and Infrastructure works		DEP for record	
Revitalisation of Ngau Tam Mei Drainage Channel and river diversion Works located at more than 300 m from the nearest boundary of an existing conservation area			

Note:

- (1) ProPECC PN 1/24 stated that, for minimisation of construction noise impact from the construction activities during non-restricted hours, the requirements and implementation of the noise control measures given under the Recommended Pollution Control Clauses for Construction Contracts in EPD's website should be followed. In addition to the requirements under the Recommended Pollution Control Clauses for Construction Contracts, the project proponents should consider to adopt further measures for construction works containing noisy construction activities, e.g. site formation / foundation, piling, building demolition, concreting and tunneling, in close proximity to NSRs.

- 4.5.28 The CNMP(s) for both DPs and non-DPs should be certified by Certified Noise Modelling Professional of Hong Kong Institute of Qualified Environmental Professionals (HKIQEP) or equivalent.

4.6 Road Traffic Noise Impact Assessment

Assessment Methodology

- 4.6.1 Road traffic noise was predicted based on the traffic flows, following strictly the procedures as stipulated in the "Calculation of Road Traffic Noise" (1988) published by Department of Transport, UK. Road traffic noise is presented in terms of noise levels exceeded for 10% of the one-hour period having the peak traffic flow, i.e. $L_{10}(1 \text{ hour})$ dB(A). The modelling methodology was agreed by EPD. A 2.5 dB(A) façade reflection and correction factors for effects due to gradient, distance, view angle, road surface and barriers were included in the assessment.
- 4.6.2 Road traffic noise impact from the Project was predicted based on the worst-case year traffic forecast within 15 years upon commencement of operation of the Project according to Annex 13 of the EIAO-TM and EIAO Guidance Note No. 12/2023. The full population intake of the Project would be Year 2036. The assessment year should be the maximum traffic projection between Year 2036 and Year 2051. Therefore, Year 2051 was adopted as assessment year in road traffic noise assessment due to its peak traffic prediction in Traffic Impact Assessment of the Project. The peak traffic of prevailing scenario at Year 2027 and "with Project" at Year 2051 are presented in **Appendix 4.3**. The Study was commissioned in November 2021 and the technical assessments under the Study (**Section 1.1.4** refers) involving the adoption of traffic data in assessments were based on the Task Force Planning data which had been widely adopted in other studies for NM. Transport Department (TD) also has no objection in principle to adopting the traffic forecast methodology. The endorsement letter from TD is provided in **Appendix 4.4**.
- 4.6.3 The following scenarios were studied in the assessment:
- Unmitigated scenario in Year 2051;

- Mitigated scenario in Year 2051; and
- Prevailing scenario in Year 2027 for indirect technical remedies (ITR) eligibility assessment.

4.6.4 Under the scope of this Project, road sections were classified as the following categories for the purpose of the road traffic noise assessment:

- “Project roads” – Refers to roads that are either completely new or are substantially altered by the Project. In this Project, Road D1 and the associated road works at San Tin Highway, Road L1, Road L2, Road L3, Proposed Road Connection to/from San Tin Technopole, Ngau Tam Mei Road and Chuk Yau Road within the Development Area, and section of San Tam Road to be widened were identified as “Project roads”.
- “Existing / Planned roads” – Refers to roads that remain unchanged or are newly constructed under other planned project(s).

4.6.5 Road traffic noise from the road network within the assessment area, including both the Project roads and the existing / planned roads would be the major noise sources during the operational phase. Road sections within 300 m assessment area were included in the assessment, and the extent of Project roads and the existing / planned roads are presented in **Figure 4.8**. Agreement on the road sections was obtained from EPD in accordance with Section 3.2.2(a) of Appendix C of the EIA Study Brief. Drawings of road-plots of the traffic noise model showing the road segments, barriers and noise assessment points are provided in **Appendix 4.5**. The characteristics of the road network such as road width, surface type, traffic flow, the use of low noise road surfacing (LNRS), the existing and planned noise mitigation measures were also considered.

4.6.6 As mentioned in **Section 2.10**, the concurrent project of Retrofitting of Noise Barriers on San Tin Highway is currently under planning without a confirmed implementation schedule during the preparation of this EIA Report. Thus, the planned noise barriers under this concurrent project were not adopted in this road traffic noise impact assessment.

4.6.7 Direct mitigation measures should be proposed if adverse road traffic noise impact is predicted from the Project roads. If the NSRs are also affected by noise from overall road traffic noise, direct mitigation measures are required to reduce the noise from the Project roads to a level that it:

- is not higher than the noise standard; and
- has no significant contribution (i.e. less than 1.0 dB(A)) to the cumulative noise level, if the overall noise level (i.e. noise from the Project roads together with Existing/Planned roads) exceeds the noise standard.

4.6.8 If any façades of existing NSRs are still exposed to the traffic noise levels exceeding the relevant noise criteria after the implementation of all practicable direct mitigation measures, provision of ITR in the form of acoustic insulation and air-conditioning should be considered under EIAO-TM. The eligibility for ITR has been tested against the following three criteria:

- the predicted overall noise level, $L_{10(1\text{hour})}$, from the Project roads, together with other roads in the vicinity must be above the standard laid down in Annex 5 of the EIAO-TM (for example, 70 dB(A) for domestic premises and 65 dB(A) for educational institutions);

- the predicted overall road traffic noise level is at least 1.0 dB(A) more than the prevailing road traffic noise level; and
- the contribution to the increase in the predicted overall road traffic noise level from the Project roads must be at least 1.0 dB(A).

4.6.9 The following concurrent projects have been considered in the traffic forecast for road traffic noise assessment:

- First Phase Development of the New Territories North - San Tin/Lok Ma Chau Development Node; and
- Northern Metropolis Highway – San Tin Section.

Prediction and Evaluation of Road Traffic Noise Impact (Unmitigated Scenario)

Prediction of Noise Impact (Unmitigated Scenario)

4.6.10 Road traffic noise assessment has been conducted for the representative NSRs in the worst-case Year 2051. The predicted road traffic noise levels at the representative NSRs under the unmitigated scenario are presented in **Table 4.16** while the detailed noise assessment results are presented in **Appendix 4.6**.

Table 4.16 Summary of Predicted Road Traffic Noise Assessment Results under Unmitigated Scenario (Year 2051)

NSR Description (1)	NAP ID	Land Use ⁽²⁾	Noise Criterion, L _{10(1hr)} dB(A)	Predicted Unmitigated Noise Level, dB(A) ^{(3) & (4)}			Max. Project Roads Contribution when Overall Noise Level Exceeds Criterion ^{(5), (6) & (7)}	Estimated Number of Dwellings, Classrooms or Other NSRs with Overall Noise Level Exceeding the Criterion ⁽⁵⁾	Mitigation Measures on Project Roads Required ⁽⁵⁾
				Overall	Project Roads	Existing and Planned Roads			
Existing NSR									
China Bible Seminary	CBS-1	E	65	62 - 63	62 - 63	<50	-	-	-
Casa Paradizo	CP-1	R	70	77 - 81	57	77 - 81	0.1	2	N
EMINENT EIS International Preschool	EIS-1	E	65	77	57	77	0.0	1	N
Elegant Park	EP-1a to EP-1b, EP2, EP-3a to EP-3b, EP4	R	70	64 - 73	64 - 73	<50 - 65	*	6	Y
Greenacres Villa	GV-1a to GV-1b	R	70	64 - 70	64 - 70	<50	-	-	-
Hang Fook Garden	HFG-1	R	70	69 - 73	58 - 64	69 - 73	0.5	2	N
Hongtai Home for the Aged	HHA-1 to HHA-3	HA	70	59 - 73	59 - 73	<50	*	6	Y
Ha San Wai	HSW-1 to HSW-3	R	70	75 - 82	53 - 62	75 - 82	0.1	7	N
Ian Court	IC-1	R	70	70 - 82	60 - 69	70 - 82	0.2	2	N
Kadoorie Villas	KV-1 to KV-5	R	70	61 - 83	53 - 75	60 - 82	0.8	9	Y
Long Ha	LH-1	R	70	80	60 - 62	80	0.1	2	N
La Maison Vineyard	LMV-1 to LMV-2, LMV-3a to LMV-3b, LMV-4 to LMV-5	R	70	56 - 80	56 - 73	<50 - 79	5.0	5	Y
Meister House	MH-1 to MH-3	R	70	70 - 78	54 - 65	70 - 78	0.3	5	N
Pok Wai	PW-1 to PW-2	R	70	71 - 80	53 - 67	71 - 80	0.3	7	N

NSR Description ⁽¹⁾	NAP ID	Land Use ⁽²⁾	Noise Criterion, L _{10(1hr)} dB(A)	Predicted Unmitigated Noise Level, dB(A) ^{(3) & (4)}			Max. Project Roads Contribution when Overall Noise Level Exceeds Criterion ^{(5), (6) & (7)}	Estimated Number of Dwellings, Classrooms or Other NSRs with Overall Noise Level Exceeding the Criterion ⁽⁵⁾	Mitigation Measures on Project Roads Required ⁽⁵⁾
				Overall	Project Roads	Existing and Planned Roads			
Sheung Chuk Yuen	SCY-1, SCY-2a to SCY-2b, SCY-3 to SCY-4, SCY-5a to SCY-5b	R	70	65 - 84	61 - 76	59 - 83	2.4	6	Y
San Wai Tsuen	SWT-1 to SWT-6	R	70	70 - 82	57 - 75	69 - 82	1.5	15	Y
Tam Mei Barracks	TMB-1	O	70	56	56	<50	-	-	-
Village Houses at the south of Proposed Road D1	TS(D1)-1 to TS(D1)-11, TS(D1)-12a to TS(D1)-12b, TS(D1)-13 to TS(D1)-14	R	70	62 - 76	62 - 73	<50 - 74	*	6	Y
The Vineyard	TV-1 to TV-3	R	70	61 - 71	61 - 70	<50 - 68	6.4	2	Y
Tai Yuen Villa	TYV-1 to TYV-4	R	70	73 - 78	58 - 66	73 - 78	0.3	12	N
Wah On Villa	WOV-1	R	70	81 - 82	73 - 74	80 - 81	0.8	3	Y
Village House near Wang Ping Shan South Road	WPSSR-1	R	70	61	51 - 54	61	-	-	-
Wai Tsai Tsuen	WTT-1, WTT-2a to WTT-2b, WTT3, WTT-4a to WTT-4b, WTT-5, WTT-6a to WTT-6b, WTT-7	R	70	68 - 75	66 - 71	<50 - 74	*	17	Y
Yau Mei San Tsuen	YMST-1	R	70	69 - 78	55 - 61	69 - 78	0.1	1	N
<i>Planned NSR</i>									

NSR Description (1)	NAP ID	Land Use ⁽²⁾	Noise Criterion, L _{10(1hr)} dB(A)	Predicted Unmitigated Noise Level, dB(A) ^{(3) & (4)}			Max. Project Roads Contribution when Overall Noise Level Exceeds Criterion ^{(5), (6) & (7)}	Estimated Number of Dwellings, Classrooms or Other NSRs with Overall Noise Level Exceeding the Criterion ⁽⁵⁾	Mitigation Measures on Project Roads Required ⁽⁵⁾
				Overall	Project Roads	Existing and Planned Roads			
Proposed Staff Quarters at G.5	G.5-1a to G.5-1c, G.5-2a to G.5-2b, G.5-3a to G.5-3b	R	70	63 - 69	63 - 69	<50 - 50	-	-	-
Proposed Staff Quarters at G.12	G.12-Q3a to G.12-Q3c	R	70	66 - 74	66 - 71	<50 - 72	8.0	20	Y
Proposed Student Hostel at G.12	G.12-S15a to G.12-S15b, G.12-S16a to G.12-S16b, G.12-S17a to G.12-S17c	R	70	74 - 82	63 - 71	71 - 82	3.2	81	Y
Proposed Dedicated Rehousing Estate at RSc.1	RSc.1-1a to RSc.1-1f, RSc.1-2a to RSc.1-2e (Residential)	R	70	70 - 79	62 - 73	70 - 78	2.7	67	Y
Proposed Residential Development at R.1	R.1-1a to R.1-1d, R.1-2a to R.1-2d, R.1-3a to R.1-3d, R.1-4a to R.1-4f (Residential)	R	70	50 - 77	<50 - 70	<50 - 76	4.4	140	Y
	R.1-K1 to R.1-K3 (Kindergarten)	E	65	58 - 68	57 - 61	51 - 67	1.1	2	Y ⁽⁸⁾
Proposed Residential Development at R.2	R.2-1a to R.2-1c, R.2-2a, R.2-5a to R.2-5c, R.2-6a to R.2-6c, R.2-7a to R.2-7c, R.2-8a to R.2-8c	R	70	61 - 71	60 - 71	<50 - 61	*	1	Y

NSR Description ⁽¹⁾	NAP ID	Land Use ⁽²⁾	Noise Criterion, L _{10(1hr)} dB(A)	Predicted Unmitigated Noise Level, dB(A) ^{(3) & (4)}			Max. Project Roads Contribution when Overall Noise Level Exceeds Criterion ^{(5), (6) & (7)}	Estimated Number of Dwellings, Classrooms or Other NSRs with Overall Noise Level Exceeding the Criterion ⁽⁵⁾	Mitigation Measures on Project Roads Required ⁽⁵⁾
				Overall	Project Roads	Existing and Planned Roads			
Proposed Residential Development at R.3	R.3-2a to R.3-2b, R.3-3a to R.3-3c, R.3-4a to R.3-4e (Residential)	R	70	56 - 70	56 - 70	<50	-	-	-
	R.3-K1 (Kindergarten)	E	65	61	61	<50	-	-	-
Proposed Residential Development at R.4	R.4-1a to R.4-1c, R.4-2a to R.4-2c (Residential)	R	70	57 - 67	57 - 67	<50	-	-	-
	R.4-S1 to R.4-S4 (Social Welfare Facilities)	G/IC	70	65 - 68	65 - 68	<50	-	-	-
Proposed Residential Development atop Ngau Tam Mei Depot at OU(RDCRD). 1	OU(RDCRD)-1a to OU(RDCRD)-1c, OU(RDCRD)-2a to OU(RDCRD)-2c, OU(RDCRD)-3a to OU(RDCRD)-3c, OU(RDCRD)-6a, OU(RDCRD)-8a to OU(RDCRD)-8b, OU(RDCRD)-9a to OU(RDCRD)-9b, OU(RDCRD)-12a, OU(RDCRD)-14a, OU(RDCRD)-15a, OU(RDCRD)-16a to OU(RDCRD)-16b,	R	70	54 - 69	54 - 69	<50 - 52	-	-	-

NSR Description (1)	NAP ID	Land Use ⁽²⁾	Noise Criterion, L _{10(1hr)} dB(A)	Predicted Unmitigated Noise Level, dB(A) ^{(3) & (4)}			Max. Project Roads Contribution when Overall Noise Level Exceeds Criterion ^{(5), (6) & (7)}	Estimated Number of Dwellings, Classrooms or Other NSRs with Overall Noise Level Exceeding the Criterion ⁽⁵⁾	Mitigation Measures on Project Roads Required ⁽⁵⁾
				Overall	Project Roads	Existing and Planned Roads			
	OU(RDCRD)-17a to OU(RDCRD)-17b, OU(RDCRD)-18a, OU(RDCRD)-19a to OU(RDCRD)-19c								
Planned Public Housing Development in San Tin Technopole	ST-RSc23-R148 to ST-RSc23-R154, ST-RSc23-R161 to ST-RSc23-R163, ST-RSc23-R184 to ST-RSc23-R187	R	70	58 - 69	58 - 69	<50 - 65	-	-	-

Notes:

- (1) The assessment only included NSRs which rely on opened windows for ventilation.
- (2) E – Educational Institution; R – Residential; HA – Homes for the Aged; G/IC – Government, Institution or Community; O – Others.
- (3) **Boldfaced** and underlined values indicate exceedance to relevant noise criteria.
- (4) Noise levels are rounded to nearest integer to determine the compliance with relevant noise criteria.
- (5) “-” indicates overall noise level complies with relevant noise criteria.
- (6) **Boldfaced** and underlined values indicate the contribution from Project roads to the overall noise level is equal to or higher than 1.0 dB(A).
- (7) “**” indicates Project roads as dominant noise source.
- (8) Given that the exact locations for the proposed social welfare facilities and kindergarten are not yet confirmed during the preparation of this EIA Report, mitigation measures on Project roads are considered not necessary. The recommendations on the design of the proposed social welfare facilities and kindergarten to avoid adverse road traffic noise impacts are provided in **Section 4.6.18**.

4.6.11 Referring to **Table 4.16** and **Appendix 4.6**, some planned NSRs within the Development Area could comply with the relevant noise criteria under unmitigated scenario with the indicative design parameters based on the RODP, as listed in **Table 4.17**. In addition, as central air-conditioning will be provided to the UniTown in Site G.6, G.10, Site G.11 and Site G.12 (except their staff quarters and student hostels), the Integrated Hospital in Site G.8, and the proposed schools at Site E.1 and Site E.2, no NAPs were therefore assigned for these facilities in the road traffic noise impact assessment (**Section 4.4.2** refers). Should there be any changes to the indicative design parameters in **Table 4.17** that may lead to higher road traffic noise exposure, a detailed road traffic noise impact assessment (RTNIA) should be conducted by future developers / project proponents via funding / land lease mechanism in accordance with the requirements of the HKPSG to address road traffic noise impacts based on their proposed building layouts.

Table 4.17 Summary of Indicative Design Parameters Adopted in the RODP

NSR / Land Use ⁽¹⁾ Description	Site ID	Approx. Minimum Setback Distance of Noise Sensitive Façade from Nearest Major Project Road ⁽²⁾⁽³⁾	First Level of Noise Sensitive Use ⁽²⁾ (mPD)	Building Orientation ⁽²⁾ / Design
UniTown (except their staff quarters and student hostels)	G.6, G.10, G.11 & G.12	-	-	Central air-conditioning
Integrated Hospital	G.8	-	-	Central air-conditioning
Schools	E.1 & E.2	-	-	Central air-conditioning
Proposed Staff Quarters at G.5	G.5	16 m from proposed Road D1	56	Full view to Proposed Road D1
Proposed Residential Development and Kindergarten at R.3	R.3	11 m from proposed Road L2	Tower 1 and Tower 2: 41 Tower 3 and Tower 4: 37 Kindergarten: 10	North façade: full view to Ngau Tam Mei Road East façade: full view to Proposed Road L2
Proposed Residential Development and Social Welfare Facilities at R.4	R.4	24 m from proposed Road L2	Tower 1 and Tower 2: 47 Tower 3: 43 Social Welfare Facilities: 18	Full view to Proposed Road L2
Proposed Residential Development atop Ngau Tam Mei Depot at OU(RDCRD).1	OU(RDCRD).1	20 m from proposed Road D1	Tower 1 to Tower 7: 61 Tower 8 to Tower 12 and Tower 20: 55 Tower 13 to Tower 19: 57	Full view to Proposed Road D1

Notes:

- (1) This table only presents the planned NSRs within the Development Area with the predicted noise levels complying with relevant criteria under unmitigated scenario, and the facilities with no NAPs assigned for the road traffic noise impact assessment.
- (2) Design parameters are indicative for the purpose of this EIA study only, and are subject to changes in detailed design.
- (3) Major Project roads include proposed Road D1 and Road L2.

4.6.12 While the predicted noise levels at some representative NSRs are up to 84 dB(A), exceeding the relevant noise criteria, direct mitigation measures should be considered to alleviate the adverse traffic noise impact.

Mitigation of Road Traffic Noise Impact

Direct Mitigation Measures

- 4.6.13 With reference to Annex 13 of the EIAO-TM, where the predicted noise impacts exceed the applicable noise criteria, direct mitigation measures, such as treatment of source, LNRS and acoustic windows/balconies, have been considered and evaluated in an appropriate manner.
- 4.6.14 With the implementation of direct mitigation measures, including the provision of LNRS, vertical and cantilevered absorptive type noise barriers at the concerned road sections, as well as acoustic windows/balconies or acoustic windows/balconies lined with sound absorptive material at residential sites (i.e. Site RSc.1 and Site R.1), all planned NSRs within the Development Area would comply with relevant traffic noise criteria. The locations of the proposed direct mitigation measures are shown in **Figure 4.9** with details in **Table 4.18**.
- 4.6.15 The proposed at-receiver mitigation measures i.e. acoustic windows/balconies and acoustic windows/balconies lined with sound absorptive material at the planned residential sites (i.e. Site RSc.1 and Site R.1) demonstrated the feasibility of the direct mitigation measures at-receiver end based on the best available indicative layout at the time of this EIA Report and are subject to further study by future developers. No insurmountable road traffic noise impact on the Project is anticipated with the proposed mitigation measures (**Section 4.6.14** refers). Indicative noise reduction of the required at-receiver measures is shown in **Table 4.18**. A RTNIA with reference to Chapter 9 of the HKPSG for the planned residential sites (i.e. Site RSc.1 and Site R.1) should be conducted by the future developers/project proponent during the detailed design stage to review and develop other direct mitigation measures, such as further setbacks, extended podium, building orientation, architectural features, special building design, together with the recommended acoustic windows/acoustic balconies or acoustic windows/acoustic balconies lined with sound absorptive material to address road traffic noise impacts based on their proposed building layouts.
- 4.6.16 With the implementation of the proposed direct noise mitigation measures, including the provision of LNRS, absorptive type noise barriers, and acoustic windows/balconies and acoustic windows/balconies lined with sound absorptive material, the noise levels at most of the representative NSRs would comply with the traffic noise criteria. However, exceedance of traffic noise level would still be predicted at some of the representative existing NSRs due to traffic from existing roads, and at the representative planned NSRs at Site G.12 due to the planned NM Highway – San Tin Section, of which the traffic noise impact will be assessed separately by its EIA study. Therefore, additional noise mitigation measures are considered not required. The predicted overall noise levels of all the NSRs with the implementation of proposed direct mitigation measures are summarised in **Table 4.19** and presented in **Appendix 4.7**.

Table 4.18 Extent and Locations of Proposed Direct Noise Mitigation Measures

ID	Type	Required At-receiver Noise Reduction, dB(A)	Vertical Height, m	Approx. Length, m	Location	NSR to be Protected / Benefited	Implementation Schedule
LNRS1	LNRS	N/A	N/A	260	San Tam Road	La Maison Vineyard, Proposed Dedicated Rehousing Estate at RSc.1 and Proposed Residential Development at R.1	Commencement of Operation of the Widened San Tam Road
LNRS2	LNRS	N/A	N/A	511	San Tam Road	Sheung Chuk Yuen, Kadoorie Villa and San Wai Tsuen	Commencement of Operation of the Widened San Tam Road
LNRS3	LNRS	N/A	N/A	80	Road L1	Wai Tsai Tsuen and Elegant Park	Commencement of Operation of the Proposed Road L1
LNRS4	LNRS	N/A	N/A	68	Road L1	Proposed Residential Development at R.1 and R.2	Commencement of Operation of the Proposed Road L1
LNRS5	LNRS	N/A	N/A	151	Ngau Tam Mei Road	La Maison Vineyard and Wai Tsai Tsuen	Commencement of Operation of the Widened Ngau Tam Mei Road
LNRS6	LNRS	N/A	N/A	101	Ngau Tam Mei Road	Wai Tsai Tsuen and Elegant Park	Commencement of Operation of the Widened Ngau Tam Mei Road
LNRS7	LNRS	N/A	N/A	110	Ngau Tam Mei Road	Wai Tsai Tsuen and The Vineyard	Commencement of Operation of the Widened Ngau Tam Mei Road
LNRS8	LNRS	N/A	N/A	197	Road D1	Proposed Dedicated Rehousing Estate at RSc.1 and Proposed Residential Development at R.1	Commencement of Operation of the Proposed Road D1
LNRS9	LNRS	N/A	N/A	42	Road D1	Hongtai Home for the Aged	Commencement of Operation of the Proposed Road D1

ID	Type	Required At-receiver Noise Reduction, dB(A)	Vertical Height, m	Approx. Length, m	Location	NSR to be Protected / Benefited	Implementation Schedule
LNRS10	LNRS	N/A	N/A	55	Road D1	Village Houses at the south of the Proposed Road D1	Commencement of Operation of the Proposed Road D1
LNRS11	LNRS	N/A	N/A	294	Road D1	Village Houses at the south of the Proposed Road D1	Commencement of Operation of the Proposed Road D1
LNRS12	LNRS	N/A	N/A	103	Chuk Yau Road	Hongtai Home for the Aged	Commencement of Operation of the Widened Chuk Yau Road
LNRS13	LNRS	N/A	N/A	79	San Tam Road	Wah On Villa and San Wai Tsuen	Commencement of Operation of the Widened San Tam Road
AW1	Acoustic Windows / Balconies lined with Sound Absorptive Material	6.1 - 6.5	N/A	N/A	Site RSc.1 (17 th to 25 th Floor of NAP RSc.1-2e)	Proposed Dedicated Rehousing Estate at RSc.1	Population Intake of RSc.1
AW2	Acoustic Windows / Balconies lined with Sound Absorptive Material	6.1 - 6.6	N/A	N/A	Site RSc.1 (13 th to 33 rd Floor of NAP RSc.1-1f)	Proposed Dedicated Rehousing Estate at RSc.1	Population Intake of RSc.1

ID	Type	Required At-receiver Noise Reduction, dB(A)	Vertical Height, m	Approx. Length, m	Location	NSR to be Protected / Benefited	Implementation Schedule
AW3	Acoustic Windows / Balconies	0.1 - 5.8	N/A	N/A	Site RSc.1 (8 th to 25 th Floor of NAP RSc.1-2a; 5 th to 25 th Floor of NAP RSc.1-2b; 4 th to 25 th Floor of NAP RSc.1-2c; 3 rd to 25 th Floor of NAP RSc.1-2d; 1 st to 16 th Floor of NAP RSc.1-2e)	Proposed Dedicated Rehousing Estate at RSc.1	Population Intake of RSc.1
AW4	Acoustic Windows / Balconies	0.4 - 6.0	N/A	N/A	Site RSc.1 (1 st to 42 nd Floor of NAPs RSc.1-1a to RSc.1-1b; 12 th to 42 nd Floor of NAP RSc.1-1c; 1 st to 42 nd Floor of RSc.1-1d; 9 th to 42 nd Floor of RSc.1-1e; 1 st to 12 th and 34 th to 42 nd Floor of RSc.1-1f)	Proposed Dedicated Rehousing Estate at RSc.1	Population Intake of RSc.1

ID	Type	Required At-receiver Noise Reduction, dB(A)	Vertical Height, m	Approx. Length, m	Location	NSR to be Protected / Benefited	Implementation Schedule
AW5	Acoustic Windows / Balconies	0.1 - 4.5	N/A	N/A	Site R.1 (8 th to 37 th Floor of NAP R.1-1a; 2 nd to 37 th Floor of NAP R.1-1b; 5 th to 37 th Floor of NAP R.1-1c; 24 th to 37 th Floor of NAP R.1-1d)	Proposed Residential Development at R. 1	Population Intake of R. 1
AW6	Acoustic Windows / Balconies	0.1 - 0.9	N/A	N/A	Site R.1 (1 st to 37 th Floor of NAP R.1-2d)	Proposed Residential Development at R. 1	Population Intake of R. 1
AW7	Acoustic Windows / Balconies	0.2 - 2.4	N/A	N/A	Site R.1 (26 th to 37 th Floor of NAP R.1-3a; 23 rd to 37 th Floor of NAP R.1-3b; 6 th to 37 th Floor of NAPs R.1-3c to R.1-3d)	Proposed Residential Development at R. 1	Population Intake of R. 1
AW8	Acoustic Windows / Balconies	0.1 - 1.0	N/A	N/A	Site R.1 (11 th to 37 th Floor of NAP R.1-4a; 10 th to 37 th Floor of NAP R.1-4b)	Proposed Residential Development at R. 1	Population Intake of R. 1

ID	Type	Required At-receiver Noise Reduction, dB(A)	Vertical Height, m	Approx. Length, m	Location	NSR to be Protected / Benefited	Implementation Schedule
NB1	Vertical Noise Barrier	N/A	7	53	San Tin Highway	La Maison Vineyard, Proposed Dedicated Rehousing Estate at RSc.1 and Proposed Residential Development at R.1 and R.2	Population Intake of RSc.1
NB2	Vertical Noise Barrier	N/A	4.5	31	San Tam Road	Sheung Chuk Yuen and Kadoorie Villa	Commencement of Operation of the Widened San Tam Road
NB3	Vertical Noise Barrier	N/A	2.5	43	San Tam Road	Kadoorie Villa and San Wai Tsuen	Commencement of Operation of the Widened San Tam Road
NB4	Vertical Noise Barrier	N/A	2	18	San Tam Road	San Wai Tsuen and Wah On Villa	Commencement of Operation of the Widened San Tam Road
NB5	Vertical Noise Barrier	N/A	2.5	24	San Tam Road	San Wai Tsuen and Wah On Villa	Commencement of Operation of the Widened San Tam Road
NB6	Vertical Noise Barrier	N/A	4	10	San Tam Road	Wah On Villa	Commencement of Operation of the Widened San Tam Road
NB7	Vertical Noise Barrier	N/A	4	8	San Tam Road	Wah On Villa	Commencement of Operation of the Widened San Tam Road
NB8	Vertical Noise Barrier	N/A	2	48	Road D1	Hongtai Home for the Aged	Commencement of Operation of the Proposed Road D1

ID	Type	Required At-receiver Noise Reduction, dB(A)	Vertical Height, m	Approx. Length, m	Location	NSR to be Protected / Benefited	Implementation Schedule
NB9	Vertical Noise Barrier	N/A	3	189	Road D1	Village Houses at the south of the Proposed Road D1	Commencement of Operation of the Proposed Road D1
NB10	Vertical Noise Barrier	N/A	5.5	80	Road D1	Village Houses at the south of the Proposed Road D1	Commencement of Operation of the Proposed Road D1
NB11	Vertical Noise Barrier	N/A	3	25	Road D1	Village Houses at the south of the Proposed Road D1	Commencement of Operation of the Proposed Road D1
NB12	Vertical Noise Barrier	N/A	4	71	Road D1	Village Houses at the south of the Proposed Road D1	Commencement of Operation of the Proposed Road D1
NB13	Vertical Noise Barrier	N/A	2.5	47	Site A.4	Hongtai Home for the Aged	Commencement of Operation of the Proposed Road D1
NB14	Vertical Noise Barrier	N/A	2	44	Road L1	Wai Tsai Tsuen and Elegant Park	Commencement of Operation of the Proposed Road L1
CB1	7 m (H) Vertical Noise Barrier with 3 m Cantilever at 45 Degree	N/A	7	193	San Tin Highway	La Maison Vineyard, Proposed Dedicated Rehousing Estate at RSc.1 and Proposed Residential Development at R.1 and R.2	Population intake of RSc.1

ID	Type	Required At-receiver Noise Reduction, dB(A)	Vertical Height, m	Approx. Length, m	Location	NSR to be Protected / Benefited	Implementation Schedule
CB2	7 m (H) Vertical Noise Barrier with 3 m Cantilever at 45 Degree	N/A	7	118	San Tin Highway	Proposed Dedicated Rehousing Estate at RSc.1 and Proposed Residential Development at R.1 and R.2	Population intake of RSc.1

Remark:

- (1) Some of the proposed noise barriers, which would be located in close proximity to existing NSRs, may obstruct views. The Project Proponent should engage relevant stakeholders for the implementation of such noise barriers and take into account the opinion received when reviewing the extent and scale of the concerned noise barriers before the commencement of construction works, and the consensus reached should be documented.

Table 4.19 Summary of Predicted Road Traffic Noise Assessment Results under Mitigated Scenario (Year 2051)

NSR Description (1)	NAP ID	Land Use ⁽²⁾	Noise Criterion, L _{10(1hr)} dB(A)	Predicted Mitigated Noise Level, dB(A) ⁽³⁾ & ⁽⁴⁾			Max. Project Roads Contribution when Overall Noise Level Exceeds Criterion ^{(5), (6) & (7)}	Estimated Number of Dwellings, Classrooms or Other NSRs with Overall Noise Level Exceeding the Criterion ⁽⁵⁾	Additional Noise Mitigation Measure Required ⁽⁵⁾	Minimum Reduction Required, dB(A) ^{(5), (10)}	Compliance after Additional Noise Mitigation Measure ^{(5) & (10)}
				Overall	Project Roads	Existing and Planned Roads					
Existing NSR											
China Bible Seminary	CBS-1	E	65	62 - 63	62 - 63	<50	-	-	-	-	-
Casa Paradizo	CP-1	R	70	<u>77</u> - <u>81</u>	56	<u>77</u> - <u>81</u>	0.1	2	N	-	-
EMINENT EIS International Preschool	EIS-1	E	65	<u>77</u>	56	<u>77</u>	0.0	1	N	-	-
Elegant Park	EP-1a to EP-1b, EP2, EP-3a to EP-3b, EP4	R	70	63 - 70	63 - 70	<50 - 58	-	-	-	-	-
Greenacres Villa	GV-1a to GV-1b	R	70	64 - 70	64 - 70	<50	-	-	-	-	-
Hang Fook Garden	HFG-1	R	70	69 - <u>73</u>	57 - 62	69 - <u>73</u>	0.3	2	N	-	-
Hongtai Home for the Aged	HHA-1 to HHA-3	HA	70	57 - 70	57 - 70	<50	-	-	-	-	-
Ha San Wai	HSW-1 to HSW-3	R	70	<u>75</u> - <u>82</u>	53 - 61	<u>75</u> - <u>82</u>	0.1	7	N	-	-
Ian Court	IC-1	R	70	70 - <u>82</u>	59 - 67	70 - <u>82</u>	0.2	2	N	-	-
Kadoorie Villas	KV-1 to KV-5	R	70	61 - <u>82</u>	52 - 70	60 - <u>82</u>	0.5	9	N	-	-
Long Ha	LH-1	R	70	<u>80</u>	58 - 59	<u>80</u>	0.1	2	N	-	-
La Maison Vineyard	LMV-1 to LMV-2, LMV-3a to LMV-3b, LMV-4 to LMV-5	R	70	54 - <u>79</u>	54 - 70	<50 - <u>79</u>	0.9	3	N	-	-
Meister House	MH-1 to MH-3	R	70	70 - <u>78</u>	54 - 65	70 - <u>78</u>	0.3	5	N	-	-
Pok Wai	PW-1 to PW-2	R	70	<u>71</u> - <u>80</u>	52 - 67	<u>71</u> - <u>80</u>	0.3	7	N	-	-

NSR Description (1)	NAP ID	Land Use ⁽²⁾	Noise Criterion, L _{10(1hr)} dB(A)	Predicted Mitigated Noise Level, dB(A) ⁽³⁾ & ⁽⁴⁾			Max. Project Roads Contribution when Overall Noise Level Exceeds Criterion ^{(5), (6) & (7)}	Estimated Number of Dwellings, Classrooms or Other NSRs with Overall Noise Level Exceeding the Criterion ⁽⁵⁾	Additional Noise Mitigation Measure Required ⁽⁵⁾	Minimum Reduction Required, dB(A) ^{(5), (10)}	Compliance after Additional Noise Mitigation Measure ^{(5) & (10)}
				Overall	Project Roads	Existing and Planned Roads					
Sheung Chuk Yuen	SCY-1, SCY-2a to SCY-2b, SCY-3 to SCY-4, SCY-5a to SCY-5b	R	70	62 - 80	60 - 70	55 - 79	0.9	4	N	-	-
San Wai Tsuen	SWT-1 to SWT-6	R	70	70 - 82	56 - 69	69 - 82	0.6	15	N	-	-
Tam Mei Barracks	TMB-1	O	70	56	56	<50	-	-	-	-	-
Village Houses at the south of Proposed Road D1	TS(D1)-1 to TS(D1)-11, TS(D1)-12a to TS(D1)-12b, TS(D1)-13 to TS(D1)-14	R	70	62 - 74	61 - 70	<50 - 74	0.9	2	N	-	-
The Vineyard	TV-1 to TV-3	R	70	61 - 70	61 - 68	<50 - 66	-	-	-	-	-
Tai Yuen Villa	TYV-1 to TYV-4	R	70	73 - 78	56 - 63	73 - 78	0.2	12	N	-	-
Wah On Villa	WOV-1	R	70	78 - 82	65 - 70	78 - 81	0.3	3	N	-	-
Village House near Wang Ping Shan South Road	WPSSR-1	R	70	61	51 - 54	61	-	-	-	-	-
Wai Tsai Tsuen	WTT-1, WTT-2a to WTT-2b, WTT3, WTT-4a to WTT-4b, WTT-5, WTT-6a to WTT-6b, WTT-7	R	70	67 - 74	63 - 70	<50 - 74	0.8	3	N	-	-
Yau Mei San Tsuen	YMST-1	R	70	69 - 78	53 - 59	69 - 78	0.1	1	N	-	-
Planned NSR											

NSR Description (1)	NAP ID	Land Use ⁽²⁾	Noise Criterion, L _{10(1hr)} dB(A)	Predicted Mitigated Noise Level, dB(A) ⁽³⁾ & (4)			Max. Project Roads Contribution when Overall Noise Level Exceeds Criterion ^{(5), (6) & (7)}	Estimated Number of Dwellings, Classrooms or Other NSRs with Overall Noise Level Exceeding the Criterion ⁽⁵⁾	Additional Noise Mitigation Measure Required ⁽⁵⁾	Minimum Reduction Required, dB(A) ^{(5), (10)}	Compliance after Additional Noise Mitigation Measure ^{(5) & (10)}
				Overall	Project Roads	Existing and Planned Roads					
Proposed Staff Quarters at G.5	G.5-1a to G.5-1c, G.5-2a to G.5-2b, G.5-3a to G.5-3b	R	70	63 - 69	63 - 69	<50 - 50	-	-	-	-	-
Proposed Staff Quarters at G.12	G.12-Q3a to G.12-Q3c	R	70	65 - 73	65 - 69	<50 - 72	3.0	20	Y ⁽⁸⁾	N/A	N/A
Proposed Student Hostel at G.12	G.12-S15a to G.12-S15b, G.12-S16a to G.12-S16b, G.12-S17a to G.12-S17c	R	70	73 - 82	61 - 69	71 - 82	2.1	81	Y ⁽⁸⁾	N/A	N/A
Proposed Dedicated Rehousing Estate at RSc.1	RSc.1-1a to RSc.1-1f, RSc.1-2a to RSc.1-2e (Residential)	R	70	67 - 77	61 - 72	62 - 76	4.5	67	Y (Acoustic Windows/ Acoustic Balconies or Acoustic Windows/Acoustic Balconies lined with Sound Absorption Material)	0.1 - 6.6	Y
Proposed Residential Development at R.1	R.1-1a to R.1-1d, R.1-2a to R.1-2d, R.1-3a to R.1-3d, R.1-4a to R.1-4f (Residential)	R	70	<50 - 75	<50 - 70	<50 - 75	5.4	133	Y (Acoustic Windows/ Acoustic Balconies)	0.1 - 4.5	Y

NSR Description (1)	NAP ID	Land Use ⁽²⁾	Noise Criterion, L _{10(1hr)} dB(A)	Predicted Mitigated Noise Level, dB(A) ⁽³⁾ & ⁽⁴⁾			Max. Project Roads Contribution when Overall Noise Level Exceeds Criterion ^{(5), (6) & (7)}	Estimated Number of Dwellings, Classrooms or Other NSRs with Overall Noise Level Exceeding the Criterion ⁽⁵⁾	Additional Noise Mitigation Measure Required ⁽⁵⁾	Minimum Reduction Required, dB(A) ^{(5), (10)}	Compliance after Additional Noise Mitigation Measure ^{(5) & (10)}
				Overall	Project Roads	Existing and Planned Roads					
	R.1-K1 to R.1-K3 (Kindergarten)	E	65	56 - 63	55 - 59	<50 - 61	-	-	-	-	-
Proposed Residential Development at R.2	R.2-1a to R.2-1c, R.2-2a, R.2-5a to R.2-5c, R.2-6a to R.2-6c, R.2-7a to R.2-7c, R.2-8a to R.2-8c	R	70	60 - 70	60 - 70	<50 - 61	-	-	-	-	-
Proposed Residential Development at R.3	R.3-2a to R.3-2b, R.3-3a to R.3-3c, R.3-4a to R.3-4e (Residential)	R	70	56 - 70	56 - 70	<50	-	-	-	-	-
	R.3-K1 (Kindergarten)	E	65	61	61	<50	-	-	-	-	-
Proposed Residential Development at R.4	R.4-1a to R.4-1c, R.4-2a to R.4-2c (Residential)	R	70	57 - 67	57 - 67	<50	-	-	-	-	-
	R.4-S1 to R.4-S4 (Social Welfare Facilities)	G/IC	70	65 - 68	65 - 68	<50	-	-	-	-	-
Proposed Residential Development atop Ngau Tam Mei	OU(RDCRD) -1a to OU(RDCRD) -1c,	R	70	54 - 69	54 - 69	<50 - 52	-	-	-	-	-

NSR Description ⁽¹⁾	NAP ID	Land Use ⁽²⁾	Noise Criterion, L _{10(1hr)} dB(A)	Predicted Mitigated Noise Level, dB(A) ⁽³⁾ & ⁽⁴⁾			Max. Project Roads Contribution when Overall Noise Level Exceeds Criterion ^{(5), (6) & (7)}	Estimated Number of Dwellings, Classrooms or Other NSRs with Overall Noise Level Exceeding the Criterion ⁽⁵⁾	Additional Noise Mitigation Measure Required ⁽⁵⁾	Minimum Reduction Required, dB(A) ^{(5), (10)}	Compliance after Additional Noise Mitigation Measure ^{(5) & (10)}
				Overall	Project Roads	Existing and Planned Roads					
Depot at OU(RDCRD).1	OU(RDCRD) -2a to OU(RDCRD) -2c, OU(RDCRD) -3a to OU(RDCRD) -3c, OU(RDCRD) -6a, OU(RDCRD) -8a to OU(RDCRD) -8b, OU(RDCRD) -9a to OU(RDCRD) -9b, OU(RDCRD) -12a, OU(RDCRD) -14a, OU(RDCRD) -15a, OU(RDCRD) -16a to OU(RDCRD) -16b, OU(RDCRD) -17a to OU(RDCRD) -17b, OU(RDCRD) -18a, OU(RDCRD) -19a to OU(RDCRD) -19c										

NSR Description (1)	NAP ID	Land Use ⁽²⁾	Noise Criterion, L _{10(1hr)} dB(A)	Predicted Mitigated Noise Level, dB(A) ⁽³⁾ & ⁽⁴⁾			Max. Project Roads Contribution when Overall Noise Level Exceeds Criterion ^{(5), (6) & (7)}	Estimated Number of Dwellings, Classrooms or Other NSRs with Overall Noise Level Exceeding the Criterion ⁽⁵⁾	Additional Noise Mitigation Measure Required ⁽⁵⁾	Minimum Reduction Required, dB(A) ^{(5), (10)}	Compliance after Additional Noise Mitigation Measure ^{(5) & (10)}
				Overall	Project Roads	Existing and Planned Roads					
Planned Public Housing Development in San Tin Technopole	ST-RSc23-R148 to ST-RSc23-R154, ST-RSc23-R161 to ST-RSc23-R163, ST-RSc23-R184 to ST-RSc23-R187	R	70	58 - 69	58 - 69	<50 - 65	-	-	-	-	-

Notes:

- (1) The assessment only includes NSRs which rely on opened windows for ventilation.
- (2) E – Educational Institution; R – Residential; HA – Homes for the Aged; G/IC – Government, Institution or Community; O – Others.
- (3) **Boldfaced** and underlined values indicate exceedance to relevant noise criteria.
- (4) Noise levels are rounded to nearest integer to determine the compliance with relevant noise criteria.
- (5) “-” indicates overall noise level complies with relevant noise criteria.
- (6) **Boldfaced** and underlined values indicate the contribution from Project roads to the overall noise level is equal to or higher than 1.0 dB(A).
- (7) “*” indicates Project roads as dominant noise source.
- (8) The major contribution to the overall road traffic noise level is predicted from the future NM Highway – San Tin Section, while the predicted noise levels from Project roads were within relevant criteria. The adverse noise impact cannot be effectively mitigated without adopting direct noise mitigation measures on the planned NM Highway – San Tin Section. Since the cumulative road traffic noise will be assessed and appropriate noise mitigation will be recommended in a separate EIA for the NM Highway – San Tin Section, no adverse traffic noise impact would be anticipated.
- (9) Given that the exact locations for the proposed social welfare facilities and kindergarten are not yet confirmed during the preparation of this EIA Report, mitigation measures on Project roads are considered not necessary.
- (10) N/A – Not Applicable.

- 4.6.17 Noise exceedances were predicted at the planned staff quarters and student hostels for the UniTown at Site G.12. However, the major contribution to the overall road traffic noise level is predicted from the future NM Highway – San Tin Section, while the predicted noise levels from Project roads were within relevant criteria. The adverse noise impact cannot be effectively mitigated without adopting direct noise mitigation measures on the planned NM Highway – San Tin Section. Since the cumulative road traffic noise will be assessed and appropriate noise mitigation will be recommended in a separate EIA for the NM Highway – San Tin Section, no adverse traffic noise impact to the planned student hostels and staff quarters for the UniTown at Site G.12 would be anticipated.
- 4.6.18 The exact locations for the proposed social welfare facilities and kindergarten are not yet confirmed during the preparation of this EIA Report. Hence, a sensitivity test on the possible locations has been conducted. According to the findings presented in **Table 4.19**, no exceedances have been predicted at the proposed social welfare facilities and kindergartens with the proposed direct noise mitigation measures as listed in **Table 4.18**.
- 4.6.19 With reference to Section 3.4.1(b) of Appendix C of the EIA Study Brief, the estimated total number of existing dwellings, classrooms and other NSRs that will be benefited and protected are summarised in **Table 4.20** while the estimated total number of the planned NSRs are summarised in **Table 4.21**.

Table 4.20 Number of Existing Dwellings/Rooms Benefited and Protected under Mitigated Scenario

Description (1)(2)	No. of Existing Residential Dwellings	No. of Existing Classrooms	No. of Other Existing NSRs (i.e. home for the aged)	Total
Benefited	61	0	9	70
Protected	35	0	6	41

Notes:

- (1) Benefited – Exposed dwellings with a noise reduction of 1.0 dB(A) or greater in overall noise level with the noise mitigation measures in place.
(2) Protected – Exposed dwellings with an overall noise level not greater than relevant noise criteria with the noise mitigation measures in place.

Table 4.21 Number of Planned Dwellings/Rooms Benefited and Protected under Mitigated Scenario

Description (1)(2)	No. of Planned Residential Dwellings	No. of Planned Classrooms (3)	No. of Other Planned NSRs (i.e. staff quarters, student hostels and social welfare facilities) (4)	Total
Benefited	188	-	101	289
Protected	200	-	87	287

Notes:

- (1) Benefited – Exposed dwellings with a noise reduction of 1.0 dB(A) or greater in overall noise level with the noise mitigation measures in place.
(2) Protected – Exposed dwellings with an overall noise level not greater than relevant noise criteria with the noise mitigation measures in place.
(3) Central air-conditioning will be provided to the proposed schools at Site E.1 and Site E.2, and UniTown in Site G.6, G.10, Site G.11 and Site G.12 such that these facilities will not rely on opened windows for ventilation.
(4) Central air-conditioning will be provided to the Integrated Hospital in Site G.8 such that it will not rely on opened windows for ventilation.

- 4.6.20 With reference to Section 3.3.2(c), Appendix C of the EIA Study Brief, the estimated total number of existing and planned dwellings, classrooms and other

NSRs that will be exposed to road traffic noise levels exceeding the respective criteria are presented in **Table 4.22** and **Table 4.23** respectively.

Table 4.22 Estimated Number of Existing Dwellings, Classrooms and Other NSRs Exposed to Noise Exceedance

Scenario	Estimated Number Exposed to Noise Exceedance ⁽¹⁾			Total
	No. of Existing Residential Dwellings	No. of Existing Classrooms	No. of Other Existing NSRs (i.e. home for the aged)	
Prevailing in Year 2027	87	1	0	88
Unmitigated in Year 2051	109	1	6	116
Mitigated in Year 2051	79	1	0	80

Note:

(1) Exposed dwellings - dwellings with noise level greater than the noise criteria.

Table 4.23 Estimated Number of Planned Dwellings, Classrooms and Other NSRs Exposed to Noise Exceedance

Scenario	Estimated Number Exposed to Noise Exceedance ⁽¹⁾			Total
	No. of Planned Residential Dwellings	No. of Planned Classrooms ⁽²⁾	No. of Other Planned NSRs (i.e. staff quarters, student hostels, social welfare facilities) ⁽³⁾	
Unmitigated in Year 2051	208	-	103	311
Mitigated in Year 2051	0	-	0	0

Notes:

(1) Exposed dwellings - dwellings with noise level greater than the noise criteria.

(2) Central air-conditioning will be provided to the proposed schools at Site E.1 and Site E.2, and UniTown in Site G.6, Site G.10, Site G.11 and Site G.12 such that these facilities will not rely on opened windows for ventilation.

(3) Central air-conditioning will be provided to the Integrated Hospital in Site G.8 such that it will not rely on opened windows for ventilation.

4.6.21

Prior to the commencement of the Project, it is estimated that 88 existing dwellings, classroom and other NSRs have already been subject to traffic noise impact due to the existing roads. Without any noise mitigation measures, the Project will induce additional traffic noise impact and an increase in the number of existing dwellings, classroom and other NSRs within the assessment area of the Project subject to excessive traffic noise by 28, i.e. 116 dwellings, classroom and other NSRs. Upon exhausting all practicable direct noise mitigation measures, it is estimated that the number of dwellings, classroom and other NSRs subject to exceedance will be 80, which is less than that prior to the commencement of the Project. These existing NSRs are outside Development Area and their noise exceedances are due to the traffic noise from existing roads.

Evaluation of Residual Road Traffic Noise Impact

- 4.6.22 For the existing NSRs with traffic noise levels exceeding the relevant noise criteria, all practicable direct mitigation measures such as noise barriers and LNRS have been considered such that the predicted noise levels from Project roads would be below the relevant noise criteria, and the noise contribution from the Project roads to the overall noise levels at all existing NSRs would also be less than 1.0 dB(A). No further direct mitigation measures are therefore required for the existing NSRs.
- 4.6.23 An eligibility assessment for ITR has been conducted in accordance with the EIAO-TM to review whether provision of ITR is required for the existing NSRs with traffic noise levels exceeding the relevant noise criteria. Due to high prevailing noise levels and/or dominant noise contribution from the existing roads, none of the existing NSRs are eligible for consideration for ITR under the EIAO-TM. Results of the eligibility assessment for ITR is presented in **Appendix 4.8**.
- 4.6.24 For the planned NSRs, with the implementation of the proposed direct mitigation measures, including LNRS, absorptive type noise barriers, and acoustic windows/balconies or acoustic windows/balconies lined with sound absorptive material, the predicted traffic noise levels at the planned NSRs within the Development Area would comply with the road traffic noise criteria.
- 4.6.25 With the implementation of all the proposed direct noise mitigation measures, no residual road traffic noise impact on existing and planned NSRs is anticipated.

4.7 Fixed Noise Sources Impact Assessment

Assessment Methodology

- 4.7.1 A qualitative assessment has been conducted according to according to Annex 13 of the EIAO-TM and Section 4.1.2 of Appendix C of the EIA Study Brief to demonstrate that there would be no adverse fixed noise sources impact associated with the Project by committing the adoption of appropriate noise mitigation measures during the operation period. The key steps for conducting the qualitative fixed noise sources impact assessment include:
- Determine the assessment area;
 - Identify and locate representative NSRs that may be affected by the fixed noise sources;
 - Identify the inventory of the fixed noise sources;
 - Determine the noise criteria for both daytime and nighttime;
 - Evaluate the potential qualitative impact at the NSRs;
 - Recommend practical mitigation measures such as use of quiet plants, acoustic louvres, silencers, enclosures, etc., to minimise potential noise impacts as much as practicable; and
 - Propose to submit a Fixed Noise Sources Management Plan (FNMP) to DEP for approval.

Inventory of Noise Sources

- 4.7.2 Existing and planned fixed noise sources have been identified and are summarised in **Table 4.24**. The validity of the Project's fixed noise source was

confirmed by government departments and/or relevant professional of the project proponent. The locations of the identified fixed noise sources are presented in **Figure 4.6**.

Table 4.24 List of Existing and Planned Fixed Noise Sources

Type	Fixed Noise Sources	Site Reference	Sound Power Levels, dB(A)	SWL Reference
Existing Sources	Tam Mei Barracks Firing Range	N/A ⁽¹⁾	119.5 per shot	Approved EIA report for STLMC DN (Register No.: AEIAR-261/2024)
	Crowd Noise at Tam Mei Barracks	N/A ⁽¹⁾	105 ⁽²⁾	Approved EIA report for Tung Chun New Town Extension (TCNTE) (Register No.: AEIAR-196/2016)
	Ngau Tam Mei Ventilation Building for High Speed Rail (HSR)	N/A ⁽¹⁾	61 - 88 ⁽³⁾	Commissioning Test Report for Fixed Plant Noise at Mai Po (MPV), Ngau Tam Mei (NTV), Shing Mun (SMV) Ventilation Buildings; ERS Plant Building – North (SPN), ERS Plant Building – South (SPS) (July 2018)
	Ngau Tam Mei Animal Waste Composting Plant (NTM AWCP)	N/A ⁽¹⁾	76	Environmental Review Report (ERR) of the Animal Waste Treatment Plant
	Ngau Tam Mei Water Treatment Works (NTMWTW)	N/A ⁽¹⁾	101 ⁽⁴⁾	Approved EIA report for In-situ Reprovisioning of Sha Tin Water Treatment Works - South Works (STWTW) (Register No.: AEIAR-187/2015)
	Industrial Uses within Industrial Zone outside Development Area	N/A ⁽¹⁾	91 - 99 ⁽⁵⁾	Approved EIA report for Proposed Low-rise and Low-density Residential Development at Various Lots and their Adjoining Government Land in D.D. 104, East of Kam Pok Road, Mai Po, Yuen Long, N.T (Register No.: AEIAR-205/2017)
Planned Sources	Sewage Pumping Station	G.1	88	Approved EIA report for Development of Tseung Kwan O Area

Type	Fixed Noise Sources	Site Reference	Sound Power Levels, dB(A)	SWL Reference
under this Project				137 and Associated Reclamation Sites (TKO 137) (Register No.: AEIAR-265/2025)
	Refuse Collection Point and Community Recycling Centre	G.4	_(6)	_(6)
	Fire Station Cum Ambulance Depot	G.5	115	Approved EIA report for TKO 137 (Register No.: AEIAR-265/2025)
	Centralised Cooling System, Public Transport Terminus, Sports Grounds within UniTown	G.10, G.11 and G.12	71 -109 for Centralised cooling system ⁽⁷⁾ 79 for Public Transport Terminus ⁽⁸⁾ 105 for Sports Ground ⁽²⁾	<ul style="list-style-type: none"> Approved EIA report for STL MC DN (Register No.: AEIAR-261/2024) for Centralised cooling system Approved EIA report for TKO 137 (Register No.: AEIAR-265/2025) for Public Transport Terminus Approved EIA report for TCNTE (Register No.: AEIAR-196/2016) for Sports Grounds
	Indoor Sport Centre	R.1	100 ⁽⁹⁾	Approved EIA report for TKO 137 (Register No.: AEIAR-265/2025)
	Transport Interchange Hub	R.2	70 ⁽⁸⁾	Approved EIA report for TKO 137 (Register No.: AEIAR-265/2025)
Planned Sources under Concurrent Projects	Ngau Tam Mei Station	OU(RS).1	63 - 85 ⁽¹⁰⁾	Approved EIA report for NOL (Register No.: AEIAR-259/2024)
	Ngau Tam Mei Depot	OU(RDPOS).1 and OU(RDCRD).1		
	Railway Facility	OU(RF).1		
	NTMWTW Extension	_(1)	101 ⁽⁴⁾	Approved EIA report for STWTW (Register No. AEIAR-187/2015)

Notes:

- (1) N/A – Not applicable. Major fixed noise sources of other facilities are located outside the Development Area.
- (2) Crowd noise at Tam Mei Barracks was included as an existing fixed noise source with reference to the approved San Tin/Lok Ma Chau Development Node (STLMC DN) EIA report (Register No.: AEIAR-261/2024). As the major noise sources from crowd noise are PA system, the sound power level should be similar to sports ground. Reference was made to the approved EIA report for Tung Chun New Town Extension (Register No.: AEIAR-196/2016).

- (3) There are 13 façades in Ngau Tam Mei Ventilation Building. SWLs range from 61 to 88 dB(A) for individual façades.
- (4) Reference was made to the approved EIA report for In-situ Reprovisioning of Sha Tin Water Treatment Works - South Works (Register No.: AEIAR-187/2015). Sum of maximum allowable SWL for each source.
- (5) Major noise source is the operation of open storage which involves various activities. The SWLs quoted in the above table represent individual SWL from different activities as reference to the approved EIA report for Proposed Low-rise and Low-density Residential Development at Various Lots and their Adjoining Government Land in D.D. 104, East of Kam Pok Road, Mai Po, Yuen Long, N.T. (Register No.: AEIAR-205/2017).
- (6) No fixed noise source is expected in Refuse Collection Point and Community Recycling Centre.
- (7) Reference was made to district cooling system in the approved EIA report for STL MC DN (Register No.: AEIAR-261/2024).
- (8) Reference was made to Public Transport Interchange in the approved EIA report for Development of Tseung Kwan O Area 137 and Associated Reclamation Sites (TKO 137) (Register No.: AEIAR-265/2025).
- (9) Reference was made to Government Office Complex cum Sports Centre in the approved EIA report for TKO 137 (Register No.: AEIAR-265/2025).
- (10) Maximum allowable SWLs range from 63 to 85 dB(A) for individual fixed noise sources according to the approved NOL Main Line EIA report (Register No.: AEIAR-259/2024).

Evaluation of Fixed Noise Sources Impact

Tam Mei Barracks Firing Range

- 4.7.3 According to Section 4.7.2 and Appendix 4.11 of the approved EIA report for San Tin/Lok Ma Chau Development Node (Register No.: AEIAR-261/2024), the predicted shooting noise level from Tam Mei Barracks Firing Range complies with the relevant noise criterion at a NAP which is located at 189 m away with a direct line of sight to the firing range. Given the nearest planned NSR within the Development Area would be at least 600 m from the firing range, adverse noise impact from the firing range is not expected.

Crowd Noise from Tam Mei Barracks

- 4.7.4 The separation distance between training ground in Tam Mei Barracks to nearest planned NSR at Site R.3 (i.e. R.3-PF3) that rely on opened window for ventilation is approximately 350 m. With consideration of the large separation distance (>300 m), adverse crowd noise impact on planned NSRs within the Development Area is not anticipated.

Ngau Tam Mei Ventilation Building for High Speed Rail (HSR)

- 4.7.5 According to the approved *Commissioning Test Report for Fixed Plant Noise at Mai Po (MPV), Ngau Tam Mei (NTV), Shing Mun (SMV) Ventilation Buildings; ERS Plant Building – North (SPN), ERS Plant Building – South (SPS)*¹, the predicted fixed noise sources levels from Ngau Tam Mei Ventilation Building (NTV) at village houses in Yau Tam Mei, which is located at about 35 m away and have direct line of sight to NTV, comply with the relevant noise criteria. The separation distance between NTV to the nearest planned NSR that rely on opened windows for ventilation within the Development Area (i.e. Site G.5) is over 300 m. With consideration of the large separation distance, adverse fixed noise source impact from NTV on the planned NSRs within the Development Area is not anticipated.

¹ Commissioning Test Report for Fixed Plant Noise at Mai Po (MPV), Ngau Tam Mei (NTV), Shing Mun (SMV) Ventilation Buildings; ERS Plant Building – North (SPN), ERS Plant Building – South (SPS) (July 2018) submitted under EP Condition 2.35 of Environmental Permit (EP-349/2009/M) for High Speed Rail (<https://www.epd.gov.hk/eia/register/english/permit/vep5422018/documents/ctrspss/pdf/ctrspss.pdf>)

Ngau Tam Mei Animal Waste Composting Plant

- 4.7.6 The key fixed noise sources at the NTM AWCP include ventilation equipment, conveyors, hoppers, mixers, etc. Most of the fixed noise sources are either housed inside buildings or enclosed. The separation distance between NTM AWCP to the nearest planned NSR that rely on opened windows for ventilation within the Development Area (i.e. Site G.5) is approximately 590 m. With consideration of the large separation distance (>300 m), adverse fixed noise sources impact from NTM AWCP on the planned NSRs within the Development Area is not anticipated.

Ngau Tam Mei Water Treatment Works and Planned Ngau Tam Mei Water Treatment Works Extension

- 4.7.7 For the existing NTMWTW, most of equipment (e.g. pumps, ventilation fans, etc.) are housed inside buildings (e.g. fresh water pumping station, administration building, etc.), thus the key fixed noise sources are the ventilation louvres, plant room exhaust, etc. within NTMWTW. The separation distance between NTMWTW and the nearest planned NSR that rely on opened window for ventilation within the Development Area (i.e. the proposed student hostel and staff quarters at Site G.12) is over 250 m. Considering this large separation distance and the fact that most fixed plant sources are housed inside the buildings, adverse fixed noise sources impact from NTMWTW on planned NSRs within the Development Area is not anticipated.
- 4.7.8 According to the approved EIA report for NTMWTW Extension (Register No.: AEIAR-262/2024), the planned fixed noise sources from NTMWTW Extension will include ventilation exhaust/louvre vents from additional facilities of NTMWTW and ventilation building of Chamber G. It is anticipated that the project proponent of this concurrent project will adopt appropriate noise mitigation measures to ensure the noise compliance at the nearby NSRs. Therefore, adverse fixed noise sources impact from NTMWTW Extension on the planned NSRs within the Development Area is not anticipated.

Industrial Uses within Industrial Zone Outside Development Area

- 4.7.9 According to the latest Ngau Tam Mei OZP No. S/YL-NTM/14, an existing industrial zone is located to the south of Chuk Yau Road. A large portion of this zone, which includes open storages and other industrial operations within Development Area, will be resumed under the Project, while the area of this zone outside Development Area will remain. Site observations revealed that the existing industrial zone outside the Development Area mainly consist of village houses for residential purposes, with no industrial operations observed. Therefore, no fixed noise sources impact is anticipated. Based on the approved OZP, only rural/light industries are always permitted, therefore the anticipated fixed noise source impact is limited to the planned NSRs within the Development Area.

Planned Sewage Pumping Station

- 4.7.10 A planned sewage pumping station (SPS) will be located in Site G.1, which is situated at the western part of the Development Area. The nearest NSRs, including La Maison Vineyard and the proposed residential development at Site R.1, are situated approximately 50 m and 100 m away from the SPS respectively. Noise sources, including pumps, transformers, etc., are expected to be housed within the reinforced concrete building. The major noise source is expected to be the mechanical ventilation system. Mitigation measures such as selection of quieter equipment, proper orientation of the key louvers and the use of acoustic silencers for ventilation fans should be incorporated as appropriate in detailed design stage

to minimise the fixed noise sources impact. The proposed mitigation measures are considered feasible and practical. With the implementation of mitigation measures, adverse fixed noise sources impact is not anticipated. A quantitative fixed noise sources impact assessment (FNIA) with consideration of the latest available information and cumulative impacts with recommendation of appropriate mitigation measures should be conducted at a later stage of the Project via various planning and funding mechanism in accordance with the requirements of the HKPSG.

Planned Refuse Collection Point and Community Recycling Centre

- 4.7.11 The planned refuse collection point (RCP) and community recycling centre (CRC) are located in Site G.4. The nearest existing NSRs are the village houses in Sheung Chuk Yuen and the nearest proposed NSRs include the residential development at Site R.2. The shortest separation distance between RCP and the nearest NSRs is approximately 30 m. Given the limited scale of the proposed facility, no major noise source is expected and quantitative FNIA is considered not necessary at a later stage of the Project. Nevertheless, should there be any change in the scale of the facility where fixed noise source(s) will be installed, a quantitative FNIA should be conducted at a later stage by the project proponent of the RCP and CRC.

Planned Fire Station Cum Ambulance Depot

- 4.7.12 A Fire Station Cum Ambulance Depot (FSAD) is proposed in Site G.5 to provide public emergency services. The nearest NSR is the proposed staff quarters which will be situated atop the depot. The major noise sources from depot operations include loudspeakers, sirens and fire engine, while the associated potential fixed noise sources impact only occur for the emergency duties, last for short duration and infrequent. Fixed plants (e.g. ventilation fans, chillers, and cooling towers) will be installed for ventilation and cooling purpose. According to Environmental Report 2017² issued by Fire Services Department, the following measures were adopted at fire stations/ambulance depots to minimise the potential fixed noise sources impact:

- Using volume control timers for emergency broadcasting systems;
- Tuning down the volume of the broadcasting systems during night time; and
- Switching off the audio warning devices (e.g. siren) or using them intermittently when practicable.

- 4.7.13 Furthermore, the following additional mitigation measures were also proposed for the planned fire station cum ambulance depot with departmental quarters at On Yu Road³:

- The siren noise of the fire appliance and ambulance can be adjusted to lower level upon travelling out from the station so as to minimise potential noise impact on the surrounding NSRs; and

² Hong Kong Fire Services Department Environmental Report 2017 (https://www.hkfsd.gov.hk/eng/source/environmental_report_2017_eng_20181122_173303.pdf)

³ Preliminary Environmental Review Report for Proposed Fire Station cum Ambulance Depot with Departmental Quarters at On Yu Road, Anderson Road Quarry Development Area (2023) (https://www.ozp.tpb.gov.hk/api/Doc/Papers?fileName=MPC%2fMPC-20231027%2fK%2fA_K14_827%2fAppendices/A_K14_827+Appendix+lb.pdf&dType=in)

- The call-out system could be directional to an angle to avoid any direct noise impact on the surrounding NSRs.

4.7.14 The mitigation measures discussed in **Section 4.7.12** and **Section 4.7.13** are considered feasible and practical. With the implementation of mitigation measures, adverse fixed noise sources impact is not anticipated. A quantitative FNIA with consideration of latest available information and cumulative impacts with recommendation of appropriate mitigation measures should be conducted at a later stage of the Project by the proponent of the FSAD via planning and funding mechanism in accordance with the requirements of the HKPSG.

Planned Facilities within UniTown

4.7.15 Three major fixed noise sources, including a potential centralised cooling system, a Public Transport Terminus (PTT) and sports grounds in Site G.10, Site G.11 and Site G.12 will be located in the UniTown. The nearest NSRs are Tam Mei Barracks and the proposed student hostel and staff quarters in Site G.12, with the shortest separation distance of approximately 70 m.

4.7.16 The major noise sources of the potential centralised cooling system would be the pump system, which will be enclosed within the plant room, and the mechanical ventilation system. It is recommended to orient the major louvers away from nearby NSRs as far as practicable. Mitigation measures such as selection of quieter equipment, proper orientation of the key louvers and the use of acoustic silencers for ventilation fans should be incorporated as appropriate in detailed design stage to minimise the fixed noise sources impact. The proposed mitigation measures are considered feasible and practical. With the implementation of mitigation measures, adverse fixed noise sources impact is not anticipated.

4.7.17 The PTT would be constructed under the building structure of the proposed UniTown and designed to avoid direct line-of-sight at the NSRs in the vicinity. Given that the planned PTT would be decked, it is anticipated that the major fixed noise sources of the planned PTT would be the ventilation fans, and the noise from vehicles movements at the ingress and egress points of the proposed PTT. Mitigation measures, including locating the ingress and egress points away from the NSRs as far as possible, selection of quieter equipment, proper orientation of the key louvers and the use of acoustic silencers for ventilation fans should be incorporated as appropriate in detailed design stage to minimise the fixed noise sources impact. Furthermore, adoption of administrative controls for further reduction of potential impact should be considered during the operation of PTT. The proposed mitigation measures are considered feasible and practical. Subject to the detailed design of PTT, in the event that the PTT adopts an open-air design, proper acoustic design measures (e.g. provision of canopy/covered platform) should be incorporated to avoid direct line-of-sight to the nearby NSRs, if any, for minimisation of potential fixed noise sources impact. With the implementation of mitigation measures, adverse fixed noise sources impact is not anticipated.

4.7.18 The closest NSRs to the proposed sports grounds are Tam Mei Barracks and the proposed residential development at Site R.3, with the shortest separation distance of over 200 m from these sports grounds. The major noise sources will be sports events and the public address (PA) systems during the operation of these sports grounds. The noise impact will depend on several factors, such as the location, size and orientation of spectator area, and the location, power and the directionality of the PA systems, which are all subject to detailed design. To minimise noise impact, the following design and measures should be considered as appropriate:

- Position the spectator area as far from the residential development at Site R.3 as possible;
- Where practicable, orient the spectator area to point away from the nearby NSRs and adopt architectural feature for noise screening;
- Use a cluster of small power loudspeakers instead of a few large power loudspeakers; and
- Use directional loudspeakers and orientate them to point towards the audience and away from the nearby NSRs.

4.7.19 With proper event management, the noise from outdoor activities can be controlled and adverse noise impact on the nearby NSRs would be minimised. The proposed design and measures as mentioned above are considered feasible and practical. With the implementation of the above mitigation measures, adverse fixed noise sources impact is not anticipated.

4.7.20 A quantitative FNIA with consideration of the latest available information and cumulative impacts with recommendation of appropriate mitigation measures should be conducted at a later stage of the Project by the developer of the UniTown via planning/funding/land lease mechanism in accordance with the requirements of the HKPSG.

Planned Indoor Sports Centre

4.7.21 An indoor sports centre will be located at Site R.1. The nearest NSR is the proposed residential development at the same site. Noise sources, including pumps, transformers, etc., are expected to be housed within plant rooms, and thus the major fixed noise sources of these facilities would be the mechanical ventilation system. Mitigation measures such as selection of quieter equipment, proper orientation of the key louvers and the use of acoustic silencers for ventilation fans should be incorporated as appropriate in detailed design stage to minimise the fixed noise sources impact. The proposed mitigation measures are considered feasible and practical. With the implementation of mitigation measures, adverse fixed noise sources impact is not anticipated. A quantitative FNIA with consideration of the latest available information and cumulative impacts with recommendation of appropriate mitigation measures should be conducted at a later stage of the Project by the proponent of indoor sports centre via planning/funding/land lease mechanism in accordance with the requirements of the HKPSG.

Planned Transport Interchange Hub (TIH)

4.7.22 The planned TIH will be situated in Site R.2. For the planned TIH, the closest NSRs are the proposed residential development directly above the TIH. Given that the planned TIH would be decked, it is anticipated that the major fixed noise sources of the planned TIH would be the ventilation fans, and the noise from vehicles movements at the ingress and egress points of the planned TIH. Mitigation measures, including locating the ingress and egress points away from the NSRs as far as possible, selection of quieter equipment, proper orientation of the key louvers and the use of acoustic silencers for ventilation fans should be incorporated as appropriate in detailed design stage to minimise the fixed noise sources impact. Furthermore, adoption of administrative controls for further reduction of potential impact should be considered during the operation of TIH. The proposed mitigation measures are considered feasible and practical. With the implementation of mitigation measures, adverse fixed noise sources impact is not

anticipated. A quantitative FNIA with consideration of latest available information and cumulative impacts with recommendation of appropriate mitigation measures should be conducted at a later stage of the Project by the future developer of the proposed TIH via land lease mechanism in accordance with the requirements of the HKPSG.

*Planned Ngau Tam Mei (NTM) Station and Ngau Tam Mei Depot (NTD)
(Concurrent Project)*

- 4.7.23 The future NTM Station and NTD, which will be constructed and operated under NOL Main Line project, are located within the Development Area. The nearest NSRs are the proposed residential development in Site OU(RDCRD).1 which will be directly situated atop the NTD. The proposed residential development in Site R.2 and Site R.4, and the proposed staff quarter in Site G.5 will be located at about 40 m to 70 m from the NTM Station and / or NTD. According to the approved NOL Main Line EIA report, the major fixed noise sources from NTM Station include the intake and discharge of ventilation system and cooling towers, while that from NTD would comprise ventilation fans, traction substation, maintenance facilities including a train wash, running maintenance track, lifting track, workshop, a loco shed and plantrooms to support the operation of NOL Main Line. The NTD will be designed with concrete deck and vertical walls. Majority of fixed plant at NTD including the loco shed, train wash, running maintenance track, lifting track and workshop will be located under the concrete deck of the NTD and away from the depot's ingress/egress/openings (i.e. no direct paths for the transmission of noise from noise sources within depot to nearby NSRs), such that noise impact from these facilities to surroundings are considered minimal. Other fixed noise sources such as traction substation, a ventilation building at Site OU(RF).1, louvres and cooling towers which will be located outside the concrete deck were assessed in the approved NOL Main Line EIA report, and MTRCL would install appropriate noise mitigation measures to ensure the compliance with the relevant criteria. Given that the fixed noise source assessment points of residential towers atop NTD, Site R.2, Site R.4 and Site G.5 have a greater setback from the noise sources than those assumed in the approved NOL Main Line EIA Report, noise impact from the fixed noise sources would be lower than those predicted in the approved NOL Main Line EIA report. In addition, according to the NOL Main Line EIA report, MTRCL will also prepare FNMP(s) before the issuance of tender invitation, if any, and before commencement of the implementation of fixed noise sources at NTM Station and NTD, and submit Fixed Noise Audit Report(s) for NOL Main Line including NTM Station and NTD to demonstrate the compliance of the requirements in the EIAO-TM. Therefore, adverse fixed noise sources impact on the planned NSRs within the Development Area is not anticipated.

Mitigation of Fixed Noise Sources Impact

- 4.7.24 As there is no design information on the proposed fixed plants, the following tentative noise mitigation measures are recommended for the planned fixed noise sources which are located near to the existing and planned NSRs:
- All the pumps and noisy plants should be enclosed inside the building structure where practicable;
 - Proper selection of quiet plant aiming to reduce the tonality at NSRs;
 - Installation of silencer/acoustic enclosure/acoustic louvre for the exhaust of ventilation system; and

- Openings of ventilation systems should be located away from NSRs as far as practicable.

4.7.25 For the proposed FSAD at Site G.5, noise sources related to emergency duties include sirens, vehicle sirens and station loudspeakers are of short duration and infrequent. With incorporation of noise mitigation design features for the FSAD (**Section 4.7.12** and **Section 4.7.13** refer) as appropriate, adverse fixed noise sources impact at the NSRs is not anticipated.

Quantitative Fixed Noise Sources Impact Assessment

4.7.26 For planned/proposed fixed noise sources of non-DPs within the Project Site, quantitative fixed noise sources impact assessment should be carried out via various planning/funding/land lease mechanism in accordance with the requirements of the HKPSG. A summary of the submission of quantitative fixed noise assessment for fixed noise sources of non-DPs are listed in **Table 4.25**.

Table 4.25 Requirements of Quantitative Fixed Noise Assessment of the Project

Fixed Noise Source	Site ID	Responsible Party	Mechanism of Conducting Fixed Noise Assessment ⁽¹⁾	Relevant Noise Guidelines
Sewage Pumping Station	G.1	Proponent of the proposed fixed noise source	Public Works funding mechanism	HKPSG
Fire Station Cum Ambulance Depot	G.5	Proponent of the proposed fixed noise source	Public Works funding mechanism	HKPSG
Centralised Cooling System, Public Transport Terminus, Sports Grounds within UniTown	G.10/G.11/G.12	Proponent of the proposed fixed noise source	Public Works funding mechanism / Lease condition	HKPSG
Indoor Sport Centre	R.1	Developer of Site R.1	Lease condition	HKPSG
Transport Interchange Hub	R.2	Developer of Site R.2	Lease condition	HKPSG

Note:

- (1) Preliminary Environmental Review (PER) shall be submitted by proponents of the fixed noise sources in accordance with Technical Circular (Works) No. 13/2003 - *Guidelines and Procedures for Environmental Impact Assessment of Government Projects and Proposals*.

4.8 Airborne Rail Noise Impact Assessment

Inventory of Noise Sources

- 4.8.1 With reference to the approved NOL Main Line EIA report, the future NOL Main Line alignment would be located underground except a short trough section, which would be covered with noise canopies, at the tunnel portal connecting to NTD (**Figure 4.7** refers). Also, the future NTD will be located within the Development Area but has been designed with concrete deck and vertical walls, of which the internal surfaces would be lined with noise absorption materials with due consideration of engineering and operation constraints, to avoid noise nuisance to the nearby NSRs from train operation within NTD. The source of airborne rail noise impact therefore includes rolling noise generated by train movements at the short trough section.

Evaluation of Airborne Noise Impact

- 4.8.2 According to Section 4 of the approved NOL Main Line EIA report, the future NOL Main Line is an underground railway corridor with only a short trough section at the tunnel portal connecting to NTD. The nearest NSRs (i.e. OU(RDCRD)-PR1 and OU(RDCRD)-PR2) are the proposed residential development atop NTD, with separation distances about 40 m to the trough section. The short trough section would be covered by noise canopies and vertical louvre walls with natural ventilation feature. With such design, there would be no direct line of sight from any planned NSRs to the airborne rail noise sources. The future NTD has also been designed with concrete deck and vertical walls to avoid noise nuisance to the nearby NSRs from train operation within NTD. Therefore, adverse airborne rail noise impact due to the operation of NOL Main Line and NTD is not anticipated.

4.9 Ground-borne Rail Noise Impact Assessment

Inventory of Noise Sources

- 4.9.1 Potential ground-borne rail noise is anticipated from the operation of future NOL Main Line and existing HSR due to their underground tunnels running under the Development Area (**Figure 4.7** refers). When trains operate in tunnels that are located in proximity to building structures, there is a possibility that vibrations associated with train passbys can be transmitted through the ground and structure and be radiated as noise in the spaces within the structure. The transmitted noise through structures may have potential impact on the GBNSRs.

Evaluation of Ground-borne Noise Impact

- 4.9.2 Ground-borne rail noise impact from the NOL Main Line operation was assessed in the approved NOL Main Line EIA report. According to the approved NOL Main Line EIA report, the GBNSR NTM-PG01, which was identified as the representative GBNSR for the planned residential development in the Development Area, is located at approximately 43 m away from the nearest NOL Main Line track. The predicted operational ground-borne noise impact at this GBNSR was <20 dB(A), at least 25 dB(A) below the statutory criteria of both day/evening time and night-time periods (Table 5.10 of the approved NOL Main Line EIA report refers). Based on the latest building massing layout provided by the Project Engineer, there would be no GBNSR to be located at less than 43 m from the NOL Main Line alignment. Thus, it is expected that the ground-borne rail

noise impact to the planned GBNSRs within the Development Area would comply with the relevant noise criteria.

- 4.9.3 Apart from the NOL Main Line, the operation of the HSR may also pose potential ground-borne rail noise impact to the planned GBNSRs located close to the HSR. A preliminary review was conducted to evaluate the ground-borne rail noise impact, based on the approved HSR EIA report (Register No.: AEIAR- 143/2009), Updated Operational Ground-borne Noise Prediction Report (UOGNPR)¹ and the Commissioning Test Report for HSR².
- 4.9.4 According to the approved HSR EIA report, the operational ground-borne rail noise impact was predicted to be insignificant at the GBNSRs including the existing GBNSRs GN35, GN36, GN37, GN37a, GN38, GN38a and GN38b which were located within or near the Development Area. The findings of UOGNPR for HSR indicated that the highest mitigated daytime/evening and night-time ground-borne rail noise levels at these GBNSRs are only 21 dB(A) and 16 dB(A) respectively. The Commissioning Test Report for HSR also confirmed that the measured ground-borne rail noise levels at GBNSR GN38 were at least 20 dB(A) and 15 dB(A) below the statutory criteria during daytime/evening and night-time periods respectively.
- 4.9.5 Although the nearest planned NSR will be located in Site R.4 with separation distance over 20 m away from the HSR alignment, unlike the existing GBNSRs mentioned above, the planned GBNSRs within the Development Area are high-rise buildings. The large masonry buildings generally provide higher ground-borne noise attenuation than smaller and lighter structures. Therefore, the ground-borne noise impacts at the planned GBNSRs within the Development Area are expected to be similar or less than those existing GBNSRs which are 1 to 2 storey village houses. Moreover, those existing GBNSRs are located very close or directly above the HSR alignment, no adverse ground-borne rail noise impact arising from the operation of HSR to the planned GBNSRs located farther away from the HSR alignment is therefore anticipated.

4.10 Environmental Acceptability of Schedule 2 Designated Projects

Construction and operation of new District Distributor Road (Road D1) and associated road works at San Tin Highway (DP1)

- 4.10.1 With proper implementation of the recommended mitigation measures for construction activities (as detailed in **Section 4.5**), as well as the mitigation measures to reduce traffic noise impact during the operational phase (as described in **Section 4.6**), no adverse noise impact would be resulted from the construction and operation of these DP roads. A CNMP should be prepared during pre-tender stage and pre-construction stage to verify the inventory of noise sources, and to assess the effectiveness and practicality of all identified measures for mitigating the construction noise impact of this DP.

Part of Revitalisation of Ngau Tam Mei Drainage Channel and River Diversion Works located less than 300 m from the nearest Boundary of an Existing Conservation Area (DP2)

¹ Updated Operational Ground-borne Noise Prediction Report (August 2013) submitted under EP Condition 2.26 of Environmental Permit (EP-349/2009/J) for High Speed Rail (<http://www.epd.gov.hk/eia/register/english/permit/vep4072013/documents/ogbnpr/pdf/ogbnpr.pdf>).

² Commissioning Test Report (September 2018) submitted under EP Condition 2.36 of Environmental Permit (EP-349/2009/N) for High Speed Rail (<https://www.epd.gov.hk/eia/register/english/permit/vep5442018/documents/ctr/pdf/ctr.pdf>).

- 4.10.2 With the proper implementation of recommended mitigation measures for construction activities (as detailed in **Section 4.5**), no adverse noise impact would be resulted from the construction of this DP. No potential noise impact would be arisen from the operation of this DP. A CNMP should be prepared during pre-tender stage and pre-construction stage to verify the inventory of noise sources, and to assess the effectiveness and practicality of all identified measures for mitigating the construction noise impact of this DP.

4.11 Environmental Monitoring and Audit

Construction Noise

- 4.11.1 It is recommended to establish an EM&A Programme during the construction phase. A CNMP, which contains a quantitative construction noise impact assessment, noise mitigation measures, monitoring and audit programme, event and action plan and implementation schedule, should be submitted during pre-tender stage and pre-construction stage to evaluate the potential construction noise impacts and assess the effectiveness and practicality of all proposed noise mitigation measures for the Project. The implementation of the mitigation measures recommended in CNMP for the Project should also be audited as part of the EM&A programme. Regular site environmental audit during construction phase is recommended to ensure proper implementation of mitigation measures and good site practices. Details of the EM&A programme are provided in a stand-alone EM&A Manual.

Road Traffic Noise

- 4.11.2 No adverse road traffic noise impact is anticipated from the Project roads with the proposed mitigation measures in place. Road traffic noise levels should be monitored at the selected representative NSRs located in the vicinity of the proposed at-source mitigation measures, during the first year of road opening and population intake of protected NSRs. The purpose of the monitoring is to ascertain that the recommended mitigation measures are effective in reducing the noise levels. Details of the EM&A programme are provided in a stand-alone EM&A Manual.

Fixed Noise Sources

- 4.11.3 A quantitative FNIA with consideration of latest available information and cumulative impacts with recommendation of appropriate mitigation measures should be conducted during detailed design stage via various planning/funding/land lease mechanism in accordance with the requirements of the HKPSG for the non-DPs.

Rail Noise

- 4.11.4 With reference to the assessment results in the approved EIA reports for NOL Main Line and HSR, no adverse airborne and ground-borne rail noise impact would be anticipated. Noise monitoring for rail noise is not required during operational phase of the Project.

4.12 Conclusion

Construction Noise

- 4.12.1 Assessment on potential construction noise impact arising from the Project has been conducted qualitatively. The assessment results indicate that with implementation of appropriate mitigation measures including quieter construction methods, good site practices and temporary barriers, etc., no adverse construction noise impact would be anticipated. A CNMP, which contains the quantitative construction noise impact assessment, the proposed quieter construction method and equipment, noise mitigation measures, the construction noise impact monitoring and audit programme, event and action plan and implementation schedule, should be prepared by a Certified Noise Modelling Professional as recognised by the HKIQEP, or equivalent as agreed by the DEP. Regular construction noise monitoring and site environmental audit during construction phase is recommended to ensure proper implementation of mitigation measures and good site practices.

Road Traffic Noise

- 4.12.2 Road traffic noise impact assessment has been conducted. The predicted overall noise levels would exceed the respective noise criteria at a number of NSRs in the unmitigated scenario. Notably, according to **Table 4.22**, it is estimated that 88 existing NSRs have already been experiencing traffic noise impact due to the existing roads, and only an addition of 28 existing NSRs would be subject to noise exceedance due to the Project. Direct noise mitigation measures such as provision of LNRS, absorptive type noise barriers, and acoustic windows/balconies or acoustic windows/balconies lined with sound absorptive material have been considered to alleviate the potential traffic noise impact.
- 4.12.3 For the existing NSRs with traffic noise levels exceeding the relevant noise criteria, all practicable direct mitigation measures such as noise barrier and LNRS have been considered such that the predicted noise levels from Project roads would all be below the relevant noise criteria, and the noise contribution from the Project roads to the overall noise levels at all existing NSRs would be less than 1.0 dB(A). No further direct mitigation measures are therefore required for these NSRs. In addition, these NSRs would not be eligible for ITR due to high prevailing noise levels and/or dominant noise contribution from the existing roads.
- 4.12.4 For the planned NSRs, with implementation of the recommended noise mitigation measures, the noise levels at all planned NSRs within the Development Area would comply with the road traffic noise criteria.

Fixed Noise Sources

- 4.12.5 In view of the large separation distance between the existing fixed noise sources and the planned NSRs, and that the impact from the planned fixed noise sources could be effectively mitigated by implementing at-source noise control measures during the detailed design stage, no adverse impact from both the existing and proposed fixed noise sources of the Project would be anticipated. A quantitative FNIA with consideration of latest available information and cumulative impacts with recommendation of appropriate mitigation measures should be conducted during detailed design stage via various planning/funding/land lease mechanism in accordance with the requirements of the HKPSG for the non-DPs.

Rail Noise

4.12.6 No adverse airborne and ground-borne rail noise impact would be anticipated.