

## 5.0 NOISE IMPACT ASSESSMENT

### 5.1 Noise Sensitive Receivers

Representative Noise Sensitive Receivers (NSRs) have been identified in accordance with the criteria set out in the Environmental Impact Assessment Ordinance (EIAO) Technical Memorandum on the Environmental Impact Assessment Process (TMEIA) and other relevant control ordinances and the EIA Study Brief contained in the Project Brief. Confirmation of existing NSRs was carried out by site visits. In addition, land use plans were reviewed for the identification of future NSRs and land uses for which potential NSRs could be developed were modelled for potential operational noise impacts.

In accordance with the Study Brief, the NSRs were identified in an area of 300m either side along the full stretch of the proposed works using the Study Area as shown in Figure 1.2. The Project is situated in an area which is highly developed. The NSRs in this area primarily comprise residential blocks and isolated houses situated directly adjacent to Tai Po Road (Sha Tin Section), however local schools, churches, kindergartens and House Ownership Scheme (HOS) development (confirmed with Housing Department) in Fung Wo Lane are also found within the Study Area and are considered to be NSRs.

The NSRs with direct line of sight to the road network in the Study Area have been identified as well as the NSRs in the Study Area that are acoustically shielded by other buildings. The NSRs that are acoustically shielded are listed in Table 5.1

**Table 5.1: Acoustically Shielded Noise Sensitive Receivers**

NSR	Name	Type Classification	Development Obstructing Direct Line of Sight
08	New Town Tower	Offices	New Town Plaza, Wai Wah Centre and New Town Plaza
09	Royal Park Hotel	Hotel	New Town Plaza, Wai Wah Centre and New Town Plaza
10	Sha Tin Law Courts	Institutional Use	Royal Park Hotel, New Town Tower and New Town Plaza
11	Sha Tin Central Library	Institutional Use	Royal Park Hotel, New Town Tower and New Town Plaza
12	Government Office	Institutional Use	Sha Tin Central Library, Sha Tin Town Hall and New Town Plaza
13	Sha Tin Town Hall	Performing Art Centre / Auditoria	Sha Tin Central Library, Sha Tin Centre and New Town Plaza
14	Clinic	Clinic	Lek Yuen Estate
41	Shatin Baptist Social Services Building	Public Worship	Lek Yuen Estate

The acoustically shielded NSRs are shown in Figure 5.1 and have not been assessed for impacts.

The NSRs with direct line of sight to the road network in the Study Area which may be impacted by the Project construction and operation activities are listed in Table 5.2. These NSRs also include three planned future NSRs zoned R(B) of the

Outline Zoning Plan (OZP) in the study area. The R(B) zone is on Lai Chi Yuen and Tung Lo Wan.

**Table 5.2 Noise Sensitive Receivers (NSRs) with Direct Line of Sight to Roadway**

NSR	Name	Type / Classification
1-1 to 1-4	Scenery Court	Residential use
2-1 to 2-4	Hilton Plaza	Residential use
3-1 to 3-6	New Town Plaza	Residential use
4-1 to 4-4	Wai Wah Centre	Residential use
5-1 to 5-4	Shatin Plaza	Residential use
6-1 to 6-2	Sha Tin Centre	Residential use
7-1 to 7-3	Lucky Plaza	Residential use
15-1, 15-2, 16-1, 16-2, 17-1, 17-2, 18-1, 18-2, 22	Lek Yuen Estate	Residential Use
19-1 to 19-2	Shatin Tsung Tsin School	School
20-1 to 20-2	Lek Yuen Community Hall	Institutional Use
21-1 to 21-2	Sky Holy Spirit Primary School	School
26	Shatin Fire Stations Quarters (Government Quarters)	Residential Use
27-1, 27-2, 28-1, 29-1, 29-2, 34-1, 34-2, 36-1 to 36-5 39-1 to 39-3	Wo Che Estate	Residential Use
31	Wo Che Lutheran School Ko Fook Lu Memorial School	School
33	Kiangsu-Chekiang College (Shatin)	School
35-1 to 35-2	Pui Ying College (Sha Tin)	School
45-1 to 45-2	Shatin Technical Institute	School
N1, 46-1 to 46-2	Sui Wo Court	Residential use
47-1 to 47-2	Kindergarten	School
50	Po Leung Kuk Siu Hon-sum Primary School	School

NSR	Name	Type / Classification
51-1, 51-4	Jockey Club Ti - I College	School
52-1 to 52-3	Chun Hang Court Chun Yat Court Chun Hei Court	Residential use
53-1 to 53-7	Ha Wo Che	Residential Villages
54-1 to 54-7	Sheung Wo Che	Residential Villages
55-1 to 55-2	Pai Tau	Residential Villages
56-1 to 56-4	Tin Liu	Residential Villages
57-1 to 57-4	Villa Le Parc	Residential Use
58	Villa Augustana	Residential Use
60	Church	Public Worship
R3 to R5	Proposed Development Area near Lai Chi Yuen	Residential Use
S1	Shatin Clinic	Clinic
S2 to S4	Regional Council Heritage Museum	Institutional
N2 to N3	Isolated House in Fo Tan	Residential
32	HOS Development in Fung Wo Lane	Residential
R1 to R2	Isolated Houses near Sui Wo Court	Residential

The NSRs are shown in Figures 5.2a - 5.2c.

## 5.2 Existing Environment

The existing noise environment in the area is dominated by noise from traffic and the KCR. Tai Po Road, Lion Rock Tunnel Road, Shing Mun Tunnel Road, Sha Tin Rural Committee Road and Fo Tan Road are main roads in the area.

## 5.3 Impacts During Construction Work

Noise may be generated from each stage of the construction works. The construction equipment and working scenarios for each stage of the project are shown in Table 5.3-5.4 and includes the sound power level (SWL) of the equipment as listed in the *Technical Memorandum on Noise From Construction Work Other Than Percussive Piling*.

Table 5.3 Equipment Used during Reconstruction and Widening

Type	SWL dB(A)
Asphalt paver (CNP004)	109
Breaker, excavator mounted (CNP027)	122
Air Compressor (CNP002)	102
Breaker, hand held (CNP024)	108
Lorry (CNP141)	112
Crane, mobile/barge mounted (CNP048)	112
Piling, earth auger, auger (CNP167)	114
Roller (CNP186)	108

Different mitigation measures are proposed to reduce the noise impact and the sound power level for each of these scenarios are shown in Table 5.4:

Table 5.4 Total Sound Power Level (SWL) for each working scenario (1 to 7)

Type	SWL, dB	Qty.	Working Scenarios							
			1	2	3	4	5	6	7	
Asphalt paver (CNP004)	109	1							√ (1)	
Breaker, excavator mounted (CNP027)	122	1	√		√	√	√			
Air Compressor (CNP002)	102	1			√					
Breaker, hand held (CNP024)	108	1		√	√					
Lorry (CNP141)	112	2	√			√	√	√		
Crane, mobile/barge mounted (CNP048)	112	1				√				√
Piling, earth auger, auger (CNP167)	114	2	√	√	√	√	√	√	√	
Roller (CNP186)	108	1							√ (1)	
Total Sound Power, dB			123.8	120.5	123.8	124.2	122.9	115.8	112.0	

(1) Either roller or asphalt paver could be used at an activity. The higher sound power level of these is selected to calculate the total sound power level for assessment.

Scenarios 1 – 7 represent typical construction works, including the installation of noise barriers. The construction activities of the works involve the use of different construction equipment of this project. These seven scenarios are the most critical cases of the construction works. For details of construction activities, please refer section 2.2 of this report.

The noisiest construction work is working scenario 4. The construction works are set out (based on 5 months per 100m section of roadworks) on the basis that three sections of the roadwork (including north and south bounds) will be carried out any one time. To ensure the noise impact can be reduced, the minimum distance from one construction section to the next section should be at least 300m. The construction works will be carried out during daytime periods from 08:00 to 19:00.

The noise calculations are based on the construction programme taking into consideration the types of equipment which will be used at any one time, the number of segments worked on at any one time and the distance between works being carried out in the area. Noise levels were calculated using the worst case construction period based on the above programme. The maximum noise levels at the NSRs during construction works (without mitigation) at the closest facade to the works are shown in Table 5.5. The complete set of noise modelling results for the construction phase are provided in Appendix B-1.

**Table 5.5 Maximum Noise Level at NSRs during Construction (without mitigation)**

NSR	Name	Noise Standard, dB(A)	Maximum Noise Level, dB(A)	Shortest distance from site to NSR
1-1 to 1-4	Scenery Court	75	86	45
2-1 to 2-4	Hilton Plaza	75	91	26
3-1 to 3-6	New Town Plaza	75	85	52
4-1 to 4-4	Wai Wah Centre	75	96	14
5-1 to 5-4	Shatin Plaza	75	91	24
6-1 to 6-2	Sha Tin Centre	75	83	64
7-1 to 7-3	Lucky Plaza	75	92	23
15-1, 15-2, 16-1, 16-2, 17-1, 17-2, 18-1, 18-2, 22	Lek Yuen Estate	75	99	10
19-1 to 19-2	Shatin Tsung Tsin School	70	93	19
20-1 to 20-2	Lek Yuen Community Hall	75	86	47
21-1 to 21-2	Sky Holy Spirit Primary School	70	83	64

NSR	Name	Noise Standard, dB(A)	Maximum Noise Level, dB(A)	Shortest distance from site to NSR
26	Shatin Fire Stations Quarters (Government Quarters)	75	95	15
27-1, 27-2, 28-1, 29-1, 29-2, 34-1, 34-2, 36-1 to 36-5, 39-1 to 39-3	Wo Che Estate	75	92	22
31	Wo Che Lutheran Middle School Ko Fook lu Memorial School	70	84	54
33	Kiangsu-Chekiang College (Shatin)	70	85	48
35-1 to 35-2	Pui Ying College (Sha Tin)	70	94	18
45	Shatin Technical Institute	70	98	11
NI, 46-1 to 46-2	Sui Wo Court	75	79	102
47-1 to 47-2	Kindergarten	70	76	134
50	Po Leung Kuk Siu Hon-sum Primary School	70	74	187
51-1 to 51-4	Jockey Club Ti - I College	70	103	6
52-1 to 52-3	Chun Hang Court Chun Yat Court Chun Hei Court	75	82	68
53-1 to 53-7	Ha Wo Che	75	91	25
54-1 to 54-7	Sheung Wo Che	75	93	20
55-1 to 55-2	Pai Tau	75	83	64
56-1 to 56-4	Tin Liu	75	85	48
57-1 to 57-4	Villa Le Parc	75	82	98
58	Villa Augustana	75	70	290
60	Church	70	70	240
S1	Shatin Clinic	65	70	300
S2 - S4	RC Heritage Museum	70	72	220

NSR	Name	Noise Standard, dB(A)	Maximum Noise Level, dB(A)	Shortest distance from site to NSR
N2 – N3	Isolated Houses in Fo Tan	70	73	200
32	HOS Development in Fung Wo Lane	75	94	18
R1 to R2	Isolated Houses near Sui Wo Court	75	82	65

As shown in Table 5.6, noise levels will exceed the day time noise criteria of 75dB(A) for the residential developments and 70dB(A) for the schools in the area (65 dB(A) during examinations). Mitigation measures are, therefore, required to reduce the noise levels during construction to meet the acceptable noise criteria. The noise mitigation considered appropriate for use include the use of silencers installed at the exhaust pipes of the lorries, and during piling (for a reduction of 5 dB(A)), the installation of mufflers on air compressors and breakers (for a reduction of 5 dB(A)), and the use of temporary barrier along the construction site boundary (for a reduction of 10dB(A)). With the implementation of mitigation measures during construction works, the maximum noise levels at the NSRs are shown in Table 5.6.

**Table 5.6 Maximum Noise Level at NSRs During Construction (with mitigation)**

NSR	Name	Noise Standard, dB(A)	Maximum Noise Level, dB(A)	Shortest distance from site to NSR
1-1 to 1-4	Scenery Court	75	68	45
2-1 to 2-4	Hilton Plaza	75	72	26
3-1 to 3-6	New town Plaza	75	66	52
4-1 to 4-4	Wai Wah Centre	75	74 <sup>(1)</sup>	14
5-1 to 5-4	Shatin Plaza	75	72	24
6-1 to 6-2	Sha Tin Centre	75	6	64
7-1 to 7-3	Lucky Plaza	75	73	23
15-1, 15-2, 16-1, 16-2, 17-1, 17-2, 18-1, 18-2, 22	Lek Yuen Estate	75	75 <sup>(1)</sup>	10
19-1 to 19-2	Shatin Tsung Tsin School	70/65	74 <sup>(2)</sup>	19
20-1 to 20-2	Lek Yuen Community Hall	75	67	47

NSR	Name	Noise Standard, dB(A)	Maximum Noise Level, dB(A)	Shortest distance from site to NSR
21-1 to 21-2	Sky Holy Spirit Primary School	70/65	64	64
26	Shatin Fire Stations Quarters (Government Quarters)	75	75 <sup>(1)</sup>	15
27-1,27-2, 28-1, 29-1, 29-2, 34-1, 34-2, 36-1 to 36-5 39-1 to 39-3	Wo Che Estate	75	73	22
31	Wo Che Lutheran Middle School Ko Fook lu Memorial School	70/65	65	54
33	Kiangsu-Chekiang College (Shatin)	70/65	65 <sup>(1)</sup>	48
35-1 to 35-2	Pui Ying College (Sha Tin)	70/65	75 <sup>(2)</sup>	18
45	Shatin Technical Institute	70/65	73 <sup>(2)</sup>	11
N1, 46-1 to 46-2	Sui Wo Court	75	60	102
47-1 to 47-2	Kindergarten	70/65	57	134
50	Po Leung Kuk Siu Hon-sum Primary School	70/65	55	187
51-1 to 51-4	Jockey Club Ti - I College	70/65	75 <sup>(2)</sup>	6
52-1 to 52-3	Chun Hang Court Chun Yat Court Chun Hei Court	75	63	68
53-1 to 53-7	Ha Wo Che	75	72	25
54-1 to 54-7	Sheung Wo Che	75	74	20
55-1 to 55-2	Pai Tau	75	64	64
56-1 to 56-4	Tin Liu	75	66	48
57-1 to 57-4	Villa Le Parc	75	63	98
58	Villa Augustana	75	51	290
60	Church	70	52	240
S1	Shatin Clinic	65	52	300
S2 - S4	RC Heritage Museum	75	53	220



NSR	Name	Noise Standard, dB(A)	Maximum Noise Level, dB(A)	Shortest distance from site to NSR
N2 – N3	Isolated Houses in FoTan	75	54	200
32	HOS Development in Fung Wo Lane	75	75	18
R1 to R2	Isolated Houses near Sui Wo Court	75	63	65

<sup>(1)</sup> See Item 8 of Section 5.2 for additional information.

<sup>(2)</sup> See Item 9 of Section 5.2 for additional information.

For school NSRs, they have already been equipped with indirect noise mitigation comprising air conditioners and glazing. For the other NSRs exceeding the noise standard, the contractor can reduce the number of mechanical equipment and working hours to ensure the contractor can comply with the noise limit. The contractor must ensure that the construction noise level must not exceed the statutory noise limit during construction. Construction works should not be carried out in the vicinity of the site during examinations if the noise level should not comply with the noise limit.

#### 5.4 Mitigation Measures During Construction

As shown in Table 5.6, the maximum noise levels during construction work without the implementation of noise mitigation measures may result in significant daytime noise impacts at the NSRs which are above the construction noise criteria. The sound reduction is estimated based on current noise control technologies and BS5228. Therefore, the following mitigation are recommended to be incorporated during construction works and should be included in the Contract Specifications and appropriate sections of the EM&A Manual.

- (1) The construction activities should be carried out in the daytime hours (08.00-19.00) wherever possible. If construction is required during evening or night time hours, a noise control permit will be required to be obtained by the Contractor.
- (2) Silencers should be installed at the exhaust pipes of the dump truck, lorry, concrete lorry mixers and piling plant and the noise levels can be reduced by 5 dB(A) (BS5228: Part 1: 1997, Table B1).
- (3) Mufflers should be installed at air compressors and breakers and the noise levels can be reduced by 5 dB(A) (BS5228: Part 1: 1997, Table B1).
- (4) For the pneumatic breaker, fit suitably designed muffler or sound reduction equipment to reduce noise without impairing machine efficiency with no air leaks can reduced the noise by 15 dB(A) (BS5228: Part 1: 1997, Table B1).

- (5) Construction of temporary barrier along the construction site boundary such that the eye of sight between the construction equipment and NSRs will be blocked. The noise level can be reduce by 10 dB(A) as stated in the TM.
- (6) For the schools inside the study area, construction works should not be carried out during the examination period as noise levels would exceed the examination noise criteria at this location. Because a number of the schools are very close to the construction works, it is further recommended that the Contractor contact the schools listed as sensitive receivers in the area and provide contact information for them to notify the Contractor during examinations. The Contractor should avoid work in the area of the schools until examinations are completed.
- (7) In addition, the following should be included in the project construction works:
  - (i) good site practice to limit noise emissions at source;
  - (ii) avoidance of simultaneous noisy activities
  - (iii) selection of quiet plant and working methods;
  - (iv) reduction in the numbers of plant operating in critical areas close to NSRs; and
  - (v) environmental monitoring and audit as discussed in Chapter 12 of this report.
- (8) For those receivers still exceed the noise standard under the above mitigation, further mitigation, as restriction on time of operation of PME would be adopted. It can be applied on NSR4, 16, 26 and 33. When the operation time is restricted by 50%, 30%, 80% and 80% for NSR 4, 16, 26 and 33, the predicted noise level would be 74dB(A), 75dB(A), 75dB(A) and 65 dB(A) respectively.
- (9) For NSR 19, 35, 45 and 51, the noise level is not acceptable during school days. Therefore, by using the above method, including the restriction of PME operating time in (8), the construction is only allowed during school holidays but not public holidays. The noise standard then becomes 75dB(A) during such days. There is no restriction of operation time of PME for NSR 19, 35. When the operation time is restricted by 25% and 12.5 % for NSR 45 and 51, the predicted noise level would be 73dB(A) and 75dB(A) respectively.

With the implementation of the above mitigation measures, noise impacts during construction works will be below the noise impact criteria.

## 5.5 Impacts During Operation

### 5.5.1 Assessment Methodology

#### Presentation of Prevailing Noise Level

The calculation of road traffic noise was based on the procedures and methodology in Calculation of Road Traffic Noise (CRTN), published by the UK Department of Transport in 1988. SoundPlan, which is a noise model developed by Braunstein + Berndt International, was used to build the noise model.

SoundPlan is a noise modelling program that follows all the requirements in CRTN.

Prevailing noise, including existing unaltered roads and other roads in the vicinity of the Study Area, was considered using the peak hour traffic flow for the year 2003, the year just before the construction would be started. The traffic speeds used in the modelling were the speed limits of 70km/hr for the main carriageway, and 50km/hr for other roads. The prevailing noise levels have been calculated in L10(1 hour) for the peak hour at all NSRs at every five floors on high rise buildings and all floors on low rise buildings and these are summarised in Table 5.7.

For planned uses, noise was predicted at a position 10m inside the boundary of the development zone and at representative receiver heights according to the type of planning zone considered.

#### Prediction of Unmitigated Future Noise Level

Prediction of unmitigated traffic noise levels in the future was carried out following the same modelling procedure as discussed above. The peak traffic flow of year 2021, shown on Table 4.1, has been used for the noise modelling. The road networks within the Study Area and any roads outside the Study Area that could contribute to the impact have been included in the noise model.

Low road noise surfacing between Wai Wah Centre and Lek Yuen Estate (as for existing conditions) will be used and this has been allowed for in the modelling. The traffic noise levels at NSRs were calculated in respect of each road segment and the overall noise level then calculated. Sample SoundPlan model output is shown in Appendix B and the unmitigated noise levels are summarised in Table 5.8.

#### Prediction of Future Mitigated Noise Level

Prediction of traffic noise levels in the future was undertaken following the same modelling procedure as discussed above. According to the Study Brief, if a road section undergoes major modification which will result in 25% increase in lanes or substantial alterations in alignment or traffic character, it should be regarded as a new road for purpose of traffic noise impact assessment. The widened sections of Tai Po Road described in Section 2.1 and Figures 2.1a - 2.1c are classified as new roads in this study. Roads classified as "existing" roads include those will remain either unchanged or which will undergo only reconstruction only.

Calculations for future road traffic noise were based on the peak hour traffic flow in respect of the maximum traffic projection for year 2021. The traffic noise levels at NSRs were calculated in respect of each road segment and overall noise level from both new and existing road sections and the overall noise level was then calculated. It was also assumed that low noise road surfacing would be incorporated into both the widened and reconstructed sections, as for the unmitigated scenario. Other direct noise mitigation, such as canopies, barriers and partial enclosures, have been proposed if necessary. Sample SoundPlan model output is shown in Appendix B and the mitigated noise levels are summarised in Table 5.9.

Assessment of Future Noise Level for NSRs in the vicinity of the Widened Section Only

NSRs within 300m of the widened section of Tai Po Road, as shown in Figure 2.1, have been selected for the prediction of future noise levels, following the requirement of the TM. The widened section forms the Designated Project, where noise mitigation should be provided. The reconstructed section is outside the Designated Project and noise mitigation is not required on this section to meet the requirements of the TM. Noise mitigation has, however, been provided on the reconstructed section to meet the recommendations in the report on Noise Impact Assessment for 24 hour opening for border crossings as discussed later in this report.

Traffic noise impacts were assessed using the TM noise limits of L10, 1 hour 70 dB(A) and 70/65 dB(A) for residential uses and educational institutions respectively. Any predicted levels exceeding such limits are considered to constitute significant impacts and practicable direct mitigation will be recommended.

Development of Noise Mitigation

Practicable direct noise mitigation is recommended when significant adverse noise impacts are predicted at NSRs. The civil, structure and traffic engineering constraints of the project have been considered when the noise mitigation is designed. These constraints are discussed later in this section.

In case noise mitigation to achieve the standards could not be incorporated, residual impacts for NSRs are assessed against a second criterion to consider when indirect noise mitigation would be required for these NSRs. The traffic noise impacts are further assessed in accordance with the three Eligibility Criteria for Indirect Technical Remedies defined under the ExCo directive "Equitable Redress for Persons Exposed to Increased Noise Resulting from the Use of New Roads". The three criteria are:

- (1) The predicted overall noise level from the new road together with other traffic noise in the vicinity must be above 70dB(A) for domestic premises and 65 dB(A) for schools;
- (2) The predicted overall noise level is at least 1.0 dB(A) more than the prevailing traffic noise level; i.e. the total traffic noise level existing before the works to construct the road were commenced; and
- (3) The contribution to the increase in the predicted overall noise level from the new roads must be at least 1.0 dB(A).

*5.5.2 Evaluation of Impacts*

The predicted road traffic noise levels at NSRs for the years of 2003 and 2021 are discussed below. Assessment has been undertaken at different receiver heights (every 5 floors for high rise receivers and every floor for lower rise receivers) and unmitigated predicted noise levels are summarised in Tables 5.7 and 5.8 for the year 2003 and 2021 respectively. Detailed calculations on the traffic noise assessment are enclosed in Appendix B.

Noise from Prevailing Traffic

Table 5.7 shows that most of the predicted noise level at NSRs of residential uses would exceed the criterion. A maximum noise level of 84 dB(A), was predicted at Lek Yuen Estate, HOS Development in Fung Wo Lane and Pui Ying College (Sha Tin).

**Table 5.7 Prevailing Traffic Noise Level (Year 2003), L10 (1 hour)**

NSR	Name	Noise standard	Predicted Noise
1-1 to 1-4	Scenery Court	70	70 to 82
2-1 to 2-4	Hilton Plaza	70	70 to 81
3-1 to 3-6	New Town Plaza	70	58 to 75
4-1 to 4-4	Wai Wah Centre	70	58 to 82
5-1 to 5-4	Shatin Plaza	70	69 to 79
6-1 to 6-2	Sha Tin Centre	70	62 to 70
7-1 to 7-3	Lucky Plaza	70	73 to 80
15-1, 15-2, 16-1, 16-2, 17-1, 17-2, 18-1, 18-2, 22	Lek Yuen Estate	70	62 to 84
19-1 to 19-2	Shatin Tsung Tsin School	70	72 to 78
20-1 to 20-2	Lek Yuen Community Hall	70	71 to 72
21-1 to 21-2	Sky Holy Spirit Primary School	65	70 to 73
26	Shatin Fire Stations Quarters	70	78 to 81
27-1, 27-2, 28-1, 29-1, 29-2, 34-1, 34-2, 36-1 to 36-5, 39-1 to 39-3	Wo Che Estate	70	67 to 81
31	Wo Che Lutheran Middle School, Ko Fook lu Memorial School	65	75 to 76
33	Kiangsu-Chekiang College (Shatin)	65	77 to 78
35-1 to 35-2	Pui Ying College (Sha Tin)	65	81 to 84
45	Shatin Technical Institute	65	72 to 77
NI, 46-1 to 46-2	Sui Wo Court	70	73 to 75
47-1 to 47-2	Kindergarten	65	70 to 73
50	Po Leung Kuk Siu Hon-sum Primary School	65	68 to 70

NSR	Name	Noise standard	Predicted Noise
51-1, 51-4	Jockey Club Ti - I College	65	80 to 83
52-1 to 52-3	Chun Hang Court, Chun Yat Court, Chun Hei Court	70	76 to 81
53-1 to 53-7	Ha Wo Che	70	77 to 80
54-1 to 54-7	Sheung Wo Che	70	72 to 80
55-1 to 55-3	Pai Tau	70	64 to 70
56-1 to 56-4	Tin Liu	70	70 to 77
57-1 to 57-4	Villa Le Paro	70	71 to 79
58	Villa Augustana	70	79 to 80
60	Church	70	81 to 82
R3 - R5	Proposed Development Area near, Lai Chi Yuen	70	78 to 81
S1	Shatin Clinic	55	79 to 80
S2 - S4	RC Heritage Museum	70	75 to 80
N2	Isolated Houses in Fo Tan	70	74 to 75
N3	Isolated Houses in Fo Tan	70	71 to 74
32	HOS Development in Fung Wo Lane	70	78 to 84
R1, R2	Isolated Houses near Sui Wo Court	70	76 to 79

#### Future Unmitigated Noise Level

Most of the NSRs facing Tai Po Road will be exposed to noise levels more than 70dB(A) in 2021. The predicted noise level at NSRs of residential uses will exceed the criterion by up to 16dB(A) and a maximum noise level of 86 dB(A) was predicted at Wai Wah Centre and HOS Development in Fung Wo Lane. It should be noted that in case the project is not implemented, that is the road is not either widened or reconstructed, most of these NSRs will be exposed to noise levels more than 70 dB(A) due to the high volume traffic on Tai Po Road. The noise levels are shown in Table 5.8.

Table 5.8: Unmitigated Future Noise Level (Year 2021), L10 (1 hour)

NSR	Name	Noise standard	Predicted Noise
1-1 to 1-4	Scenery Court	70	68 to 82
2-1 to 2-4	Hilton Plaza	70	70 to 82
3-1 to 3-6	New Town Plaza	70	59 to 77
4-1 to 4-4	Wai Wah Centre	70	62 to 85
5-1 to 5-4	Shatin Plaza	70	70 to 80
6-1 to 6-2	Sha Tin Centre	70	62 to 71
7-1 to 7-3	Lucky Plaza	70	73 to 78
15-1, 15-2, 16-1, 16-2, 17-1, 17-2, 18-1, 18-2, 22	Lek Yuen Estate	70	64 to 82
19-1 to 19-2	Shatin Tsung Tsin School	65	74 to 82
20-1 to 20-2	Lek Yuen Community Hall	70	73 to 75
21-1 to 21-2	Sky Holy Spirit Primary School	65	74 to 75
26	Shatin Fire Stations Quarters	70	80 to 83
27-1, 27-2, 28-1, 29-1, 29-2, 34-1, 34-2, 36-1 to 36-5 39-1 to 39-3	Wo Che Estate	70	70 to 83
31	Wo Che Lutheran Middle School, Ko Fook lu Memorial School	65	78 to 79
33	Kiangsu-Chekiang College (Shatin)	65	79 to 80
35-1 to 35-2	Pui Ying College (Sha Tin)	65	83 to 85
45	Shatin Technical Institute	65	73 to 78
NI, 46-1 to 46-2	Sui Wo Court	70	75 to 77
47-1 to 47-2	Kindergarten	65	71 to 74
50	Po Leung Kuk Siu Hon-sum Primary School	65	69 to 71
51-1 to 51-4	Jockey Club Ti - I College	65	79 to 84
52-1 to 52-3	Chun Hang Court, Chun Yat Court, Chun Hei Court	70	77 to 81
53-1 to 53-7	Ha Wo Che	70	66 to 81
54-1 to 54-7	Sheung Wo Che	70	64 to 78
55-1 to 55-2	Pai Tau	70	66 to 71

NSR	Name	Noise standard	Predicted Noise
56-1 to 56-4	Tin Liu	70	74 to 80
57-1 to 57-4	Villa Le Paro	70	72 to 79
58	Villa Augustana	70	78 to 79
60	Church	70	80 to 81
R3 - R5	Proposed Development Area near Lai Chi Yuen	70	77 to 80
S1	Shatin Clinic	55	78 to 79
S2 - S4	RC Heritage Museum	70	72 to 77
N2	Isolated Houses in Fo Tan	70	72 to 77
N3	Isolated Houses in Fo Tan	70	72 to 75
32	HOS Development in Fung Wo Lane	70	80 to 86
R1, R2	Isolated Houses near Sui Wo Court	70	77 to 82

### 5.5.3 Noise Mitigation Measures

The assessment results indicated that many of the NSRs in the vicinity of the Project would be impacted by road traffic noise during the operational phase and direct noise mitigation must be provided. However the nature of improvement works and the scope of the Project imposes constraints which limit the application of roadside barriers for mitigating the identified impacts. These potential constraints include:

1. The slip roads of the diamond shape interchange connecting Sha Tin Rural Committee Road and Tai Po Road (Sha Tin Section) will only be locally improved. The existing retaining structures supporting the slip roads will remain unchanged. The structural capacities of the existing structures have been assessed to identify that these structures could only accommodate additional loadings (vertical and horizontal) due to a 1m high vertical noise barrier on the parapet wall. That means only a 2m high vertical noise barrier (incorporating the solid parapet) from the local ground can be provided.
2. For the slip roads leading from the existing diamond shape interchange (the Interchange) to merge with Tai Po Road, it is necessary to maintain sufficient sight lines (one of the important road safety requirements) for the traffic merging at the intersection of the slip road and Tai Po Road (the main carriageway). TD had specified that this safety requirement must be maintained. The absolute minimum sight line that has to provide is 125m. It is estimated that no structures could be built on a 120m stretch of the area bound between these slip roads and the main road.



3. The noise mitigation will be built along the widening section only, under the guidelines on EIA process. (Note, however that additional mitigation has been provided on the reconstructed section to meet the recommendations of the report on Noise Impact Assessment for 24 Hour Opening for Border Crossings as discussed below).
4. As stated clearly by TD, sufficient visibility (minimum 135m sight distance) to the existing and proposed gantries for the directional signs must be maintained. Therefore, when canopies or enclosures are proposed, the height of such mitigation must be above the sign gantries. The minimum height of the noise structure thus needs to be about 11m (including the depth of the canopy structure and maintenance space between the canopy and the signs), in order to maintain the sight line to the directional signs on top of the sign gantries. The sight line rise from 6m at a distance of 50m from the sign gantry to 11m at the gantry. It is thus possible to slope the top of the noise barrier along this line. The noise barrier design has allowed for step along the slope at height of 11m, 8.5m and 6m. Figure 5.4 shows the typical arrangement.
5. The modification of the Interchange will involve in providing an extra lane across Tai Po Road by adding bridge decking on the existing structures. Apart from the sight line requirement on the Interchange, any noise mitigation measures will impose additional loads on the existing structures and foundations of the Interchange. The existing structures and foundations have been checked that they will not be able to cater for such additional loads and thus no noise barriers can be built on these structures.
6. Alongside the Tai Po Road northbound (Tai Po bound), the KCRC boundary is close to the verge of the carriageway at some locations. The space available at these locally narrow areas might pose constraint to the foundations of massive noise mitigation. Land take from KCRC may be necessary but this may not be acceptable to KCRC.

The noise mitigation has been developed taking account of these constraints. Tai Po Road is a noisy road with a high volume of traffic and the sensitive users are mainly high rise and are close to the main carriageway. A canopy or partial enclosure will be needed to screen off the noise for most NSRs, where this is practicable. The height of the canopy is restricted to be at least 11 m by the sign gantries as discussed above. The width of the canopy will vary for different locations.

The mitigation has been designed to reduce the noise to meet the statutory limit. However, for those locations which have constraints on building mitigation to meet the standard, the mitigation will be less and the reasons for this are discussed later on this section.

A noise mitigation scheme which provides the maximum practicable mitigation within these constraints has been designed. This noise mitigation scheme combines the mitigation required to comply with the EIA TM requirements and those of the Noise Impact Assessment of 24 Hour Opening for Border Crossings (24 Hour NIA) (see Section 5.6 of this report). The mitigation schemes for both requirements are listed here. The mitigation recommended in the 24 Hour NIA report also has a

mitigatory effect on some NSRs in the widened section of the project identified under the TM requirements, and vice versa. The locations of the noise mitigation are shown on Figure 5.3 and the mitigation is described as follows:

- (a) Low noise road surfacing will be used along both the widened and reconstructed section of the works, as specified in the Study Brief (Clause 2.7).
- (b) A "top bent" barrier, 11m high and with a width of 7m, 8.5m high and with a width of 7m, and 6m high and with a width of 10m will be built in front of Wai Wah Centre on the reconstructed section of the project, open on the side away from the NSR. This barrier is needed to meet the requirement of the 24 Hour NIA report. The barrier height takes account of the sight line requirement of the sign gantries.
- (c) A "top bent" barrier, approximately 11m high and approximately 5.2m wide (open on the side away from the NSRs) will be built on the widened section of the project near Shatin Plaza. This barrier is required to meet the requirements of the TM.
- (d) A 5m high barrier will be built on the central median along the widened section of the project near Pai Tau, Sheung Wo Che, Sha Tin Plaza and Lek Yuen Estate. This barrier is required to meet the requirements of the TM.
- (e) A "top bent" barrier, approximately 11m high and approximately 5m wide (open on the side away from the NSRs) will be built on the widened section of the project near Lek Yuen Estate. This barrier is required to meet the requirements of the TM.
- (f) 6m high barriers, approximately 3m wide (open on the side away from the NSRs) will be constructed along the slip road to the diamond interchange on the widened section of the project near Lek Yuen Estate. These barriers are required to meet the requirements of the TM.
- (g) 1m high barriers on the parapets (total height 2m) will be constructed along the slip road to the diamond interchange on the widened section of the project near Sheung Wo Che. These barriers are required to meet the requirements of the TM.
- (h) A 6m high barrier will be built along the widened section of the project section between Sheung Wo Che and Ha Wo Che and in front of Siu Wo Court. This barrier is required to meet the requirements of the TM.
- (i) A series of 11m high 10m wide, 6m high 10m wide and 6m high 7m wide barriers will be built on the widened and reconstructed section of the project near Lek Yuen Estate and Wo Che Estate to meet the requirement of the TM.

- (j) A "top bent" barrier, 11m high and with a width of 3m, 8.5m high and with a width of 4m, and 6m high and with a width of 5m (open on the side away from the NSRs) will be built along the reconstructed section of the road towards the eastern end of Wo Che Estate. This barrier is needed to meet the requirements of the NIA for 24 Hour Opening of Border Crossings. The barrier height takes account of the sight line requirement for the sign gantries.
- (k) A 5m high barrier will be built along the slip road connecting Fo Tan Road and Tai Po Road along the reconstructed section of the project. This barrier is required to meet the requirements of the 24 Hour NIA report.

Engineering calculations have shown that this mitigation scheme is practicable. A typical section across the road showing the noise mitigation is shown in Figure 5.4 -5.6.

*Future Noise Level for Vicinity NSRs of the Widened Sections Only*

The statutory noise limits, which are L10 (1hour) 70dB(A) for residential development and 70/65dB(A) for education institutes only apply for NSRs within 300m of the widening section only as this is the Designated Project under the EIAO. The NSRs within this area are presented in Table 5.9 to show the mitigated noise level, with comparison with the statutory noise standard.

**Table 5.9 Maximum Future Mitigated Noise Level for NSRs in vicinity of the Widened Section, L10 (1 hour)**

NSR	Name	Noise standard	Predicted Noise with Mitigation
3-1 to 3-6	New Town Plaza	70	52 to 68
4-1 to 4-4	Wai Wah Centre	70	57 to 73
5-1 to 5-4	Shatin Plaza	70	64 to 70
6-1 to 6-2	Sha Tin Centre	70	60 to 65
7-1 to 7-3	Lucky Plaza	70	67 to 77
15-1, 15-2, 16-1, 16-2, 17-1, 17-2, 18-1, 18-2, 22	Lek Yuen Estate	70	46 to 82
19-1 to 19-2	Shatin Tsung Tsin School	65	61 to 65
20-1 to 20-2	Lek Yuen Community Hall	70	61 to 65
21-1 to 21-2	Sky Holy Spirit Primary School	65	51 to 60
26	Shatin Fire Stations Quarters	70	59 to 62
27-1,27-2, 28-1, 29-1, 34-1, 34-2, 36-1 to 36-5, 39-1 to 39-3	Wo Che Estate	70	47 to 78

NSR	Name	Noise standard	Predicted Noise with Mitigation
31	Wo Che Lutheran Middle School, Ko Fook lu Memorial School	65	54 to 56
33	Kiangsu-Chekiang College (Shatin)	65	53 to 56
35-1 to 35-2	Pui Ying College (Sha Tin)	65	63 to 65
45-1, 45-2	Shatin Technical Institute	65	71 to 76
NI, 46-1 to 46-2	Sui Wo Court	70	64 to 72
47-1 to 47-2	Kindergarten	65	66 to 69
53-1 to 53-7	Ha Wo Che	70	64 to 67
54-1 to 54-7	Sheung Wo Che	70	66 to 69
55-1 to 55-3	Pai Tau	70	58 to 67
56-1 to 56-4	Tin Liu	70	69 to 76
R3 - R5	Proposed Development Area near Lai Chi Yuen	70	76 to 80
32	HOS Development in Fung Wo Lane	70	62 to 69
R1, R2	Isolated Houses near Sui Wo Court	70	68 to 76

Table 5.9 shows that some NSRs will still be exposed to noise in excess of the standards. The residual impacts are discussed below.

#### Residual Impacts at Schools

All the schools facing the widening part of Tai Po Road can meet the noise standard.

#### Residual Impacts at Residential NSRs

The noise impacts at many of the residential NSRs exceed the standards even with the mitigation scheme. Further consideration has been given to providing more extensive noise mitigation for the NSRs but this is not possible for the reasons given below:

##### 1. Wai Wah Centre

Wai Wah Centre is one of closest residential developments to Tai Po Road and so the noise level is high when there is no mitigation. When the proposed mitigation is applied, the predicted noise level can be reduced to lower than 70 dB(A) at most receivers. A few NSRs on higher floors of Block 1 (NSR4-1) and Block 2 (NSR4-2) would exceed 70 dB(A) but this is due to the contribution from existing roads, not the new road (see Table

5.10 which shows, for example, that the total noise at NSR 4-1 is 72.6 dB(A) of which 72.4 dB(A) is from existing roads and only 59.6 dB(A) is from the new roads). Therefore, it is considered that the proposed project will not contribute to any cumulative noise impact as the new road noise contribution is less than 1dB(A).

2. Lek Yuen Estate

When the proposed mitigation is applied, the predicted noise level can be reduced into lower than 70 dB(A) at most receivers for Lek Yuen Estate. A few NSRs (NSR 15-2, 16-1 and 17-1) would exceed 70 dB(A) but this is due to the contribution from existing roads, not the new road (see Table 5.10). Therefore, it is considered that the proposed project will not contribute to any cumulative noise impact as the new road noise contribution is less than 1dB(A).

3. Wo Che Estate

The noise impact along the facades facing Tai Po Road are within the statutory standards, except some facades in Man Wo House but this is due to contribution from other roads, not the new road section in this project (see Table 5.10). Therefore, it is considered that the proposed project will not contribute to any cumulative noise impact as the new road noise contribution is less than 1dB(A).

4. Lucky Plaza

When the proposed mitigation is applied, the predicted noise level can be reduced into lower than 70 dB(A) for NSR 7-1. NSR 7-2 and 7-3 would exceed 70 dB(A) but this is due to the contribution from existing roads, not the new road (see Table 5.10). Therefore, it is considered that the proposed project will not contribute to any cumulative noise impact as the new road noise contribution is less than 1dB(A).

5. Sui Wo Court

The maximum cumulative noise impact with the mitigation proposed is 72 dB(A), compared with a prevailing noise level of 75 dB(A) and a noise level without mitigation of 77 dB(A). The mitigation proposed for Siu Wo Court is a 6m high noise barrier and this reduces the noise impact from the new road to less than 70 dB(A) as shown in Table 5.10. The total noise level at NSR 46-2 would exceed 70 dB(A) but this is due to the contribution from existing roads, not the new road (see Table 5.10). Therefore, it is considered that the proposed project will not contribute to any cumulative noise impact as the new road noise contribution is less than 1dB(A).

#### Eligibility for Indirect Noise Mitigation

As direct technical remedies could not be incorporated into the design of the Project, further assessment on the eligibility of provision of noise insulation at existing residential NSRs, as a last resort, should be considered to minimize the predicted noise impacts. The assessment on the eligibility of provision of noise insulation is discussed below.

The noise impacts at existing NSRs have been assessed against the noise insulation criteria given in Section 5.5.1. The assessment was undertaken based on the predicted noise level and compared with the three noise criteria. The results of the assessment are presented in Table 5.10.

The eligibility of providing noise insulation for particular NSRs, as a last resort to reduce the impacts from road traffic noise, was checked if these three criteria were satisfied. No NSRs are eligible to be considered for indirect technical remedies as shown in Table 5.10.

Table 5.10 Eligibility for Indirect Noise Mitigation

NSR	Name of Receiver	floor	Height (m)	Statutory Noise Standard, L10, dB(A)	Before Construction		Unmitigated max noise in year 2021	Mitigated Future Noise		Eligibility Test on Indirect Technical Remedies			Indirect Noise Mitigation Required (Yes/No)	
					Current Noise Level in year 2003	(B)		Mitigated Noise Level in Year 2021	(D) - (E) + (F)	(E)	Mitigated Widening Sections (New Road) in Year 2021	Criteria 1 (Yes/No)		Criteria 2 (Yes/No)
	Scenery Court													
1-1		1	15.2	70	82.2	71.3	71.3	71.3	71.3	0.0	Yes	No	No	No
1-1		6	29.2	70	81.1	77.6	77.6	77.6	77.6	0.0	Yes	No	No	No
1-1		11	43.2	70	80.2	77.3	77.3	77.3	77.3	0.0	Yes	No	No	No
1-1		16	57.2	70	80.2	76.7	76.7	76.7	76.7	0.0	Yes	No	No	No
1-1		21	71.2	70	79.5	76.1	76.1	76.1	76.1	0.0	Yes	No	No	No
1-2		1	15.2	70	74.1	66.2	66.2	66.2	66.2	37.8	No	No	No	No
1-2		6	29.2	70	79.6	76.7	76.7	76.7	76.7	37.8	Yes	No	No	No
1-2		11	43.2	70	79.4	77.3	77.3	77.3	77.3	37.8	Yes	No	No	No
1-2		16	57.2	70	78.8	76.9	76.9	76.9	76.9	38.0	Yes	No	No	No
1-2		21	71.2	70	78.1	76.4	76.4	76.4	76.4	40.0	Yes	No	No	No
1-3		1	15.2	70	75.2	68.1	67.9	67.9	67.9	0.0	No	No	No	No
1-3		6	29.2	70	80.7	78.0	77.7	77.7	77.7	0.0	Yes	No	No	No
1-3		11	43.2	70	80.6	77.9	77.6	77.6	77.6	0.0	Yes	No	No	No
1-3		16	57.2	70	79.9	77.2	76.9	76.9	76.9	0.0	Yes	No	No	No
1-3		21	71.2	70	79.2	76.6	76.2	76.2	76.2	0.0	Yes	No	No	No
1-4		1	15.2	70	69.6	66.8	66.6	66.6	66.6	38.5	No	No	No	No
1-4		6	29.2	70	79.0	78.1	75.1	75.1	75.1	38.4	Yes	No	No	No
1-4		11	43.2	70	79.5	78.8	75.3	75.3	75.3	38.3	Yes	No	No	No
1-4		16	57.2	70	79.0	78.2	74.7	74.7	74.7	39.2	Yes	No	No	No
1-4		21	71.2	70	78.3	77.6	74.1	74.1	74.1	41.0	Yes	No	No	No
2-1	Hilton Plaza													
2-1		1	15.2	70	73.5	70.3	67.3	67.3	67.3	0.0	No	No	No	No
2-1		6	29.2	70	74.9	72.3	71.5	71.5	71.5	0.0	Yes	No	No	No
2-1		11	43.2	70	74.9	72.8	71.7	71.7	71.7	0.0	Yes	No	No	No
2-1		16	57.2	70	74.6	71.8	71.5	71.5	71.5	0.0	Yes	No	No	No
2-1		21	71.2	70	74.3	71.5	71.1	71.1	71.1	0.0	Yes	No	No	No
2-2		1	15.2	70	73.9	71.6	65.6	65.6	65.6	0.0	No	No	No	No
2-2		6	29.2	70	78.5	74.4	74.6	74.6	74.6	0.0	Yes	No	No	No
2-2		11	43.2	70	78.9	78.8	75.3	75.3	75.3	0.0	Yes	No	No	No
2-2		16	57.2	70	78.6	78.1	74.7	74.7	74.7	0.0	Yes	No	No	No
2-2		21	71.2	70	78.2	77.5	74.0	74.0	74.0	0.0	Yes	No	No	No
2-3		1	15.2	70	81.0	81.5	76.4	76.4	76.4	0.0	Yes	No	No	No
2-3		6	29.2	70	80.4	80.6	75.7	75.7	75.7	0.0	Yes	No	No	No
2-3		11	43.2	70	79.9	79.8	75.0	75.0	75.0	0.0	Yes	No	No	No
2-3		16	57.2	70	79.2	79.0	76.4	76.4	76.4	0.0	Yes	No	No	No
2-3		21	71.2	70	79.2	79.0	76.4	76.4	76.4	0.0	Yes	No	No	No
2-4		1	15.2	70	70.1	72.0	61.3	61.3	61.3	40.3	No	No	No	No
2-4		6	29.2	70	80.1	82.2	66.3	66.3	66.3	39.9	No	No	No	No
2-4		11	43.2	70	79.6	81.7	66.1	66.1	66.1	39.9	No	No	No	No
2-4		16	57.2	70	78.9	80.9	67.7	67.7	67.7	40.9	No	No	No	No
2-4		21	71.2	70	78.2	80.2	71.6	71.6	71.6	42.9	Yes	No	No	No
3-1	New Town Plaza													
3-1		1	15.2	70	67.8	66.6	65.0	65.0	65.0	0.0	No	No	No	No
3-1		6	29.2	70	69.9	68.3	68.0	68.0	68.0	0.0	No	No	No	No
3-1		11	43.2	70	69.9	68.9	67.9	67.9	67.9	0.0	No	No	No	No
3-1		16	57.2	70	70.0	69.5	67.8	67.8	67.8	0.0	No	No	No	No
3-1		21	71.2	70	70.0	69.7	67.6	67.6	67.6	0.0	No	No	No	No
3-2		1	15.2	70	58.4	59.2	56.2	56.2	56.2	0.0	No	No	No	No
3-2		6	29.2	70	64.2	65.0	62.3	62.3	62.3	0.0	No	No	No	No

NSR	Name of Receiver	floor	Height (m)	Statutory Noise Standard, L10, dB(A)	Before Construction		Unmitigated max noise in year 2021 (C)	Mitigated Future Noise			Eligibility Test on Indirect Technical Remedies			Indirect Noise Mitigation Required (Yes/No)
					Current Noise Level in year 2003 (B)	(A)		Mitigated Noise Level in Year 2021 (D) = (E) + (F)	Mitigated Noise, other than widening sections in Year 2021 (E)	Mitigated Widening Sections (New Roads) in Year 2021 (F)	Criteria 1 (Yes/No) (D-A) > -0.5dB(A)	Criteria 2 (Yes/No) (D-B) > -1dB(A)	Criteria 3 (Yes/No) (D-E) > -1dB(A)	
3-2		11	43.2	70	67.1	68.4	62.7	62.7	62.7	0.0	No	No	No	No
3-2		16	57.2	70	68.4	69.7	63.2	63.2	63.2	0.0	No	No	No	No
3-2		21	71.2	70	68.8	70.3	63.5	63.5	63.5	0.0	No	No	No	No
3-3		1	15.2	70	59.3	61.3	52.5	52.5	52.5	0.0	No	No	No	No
3-3		6	29.2	70	67.2	69.4	56.6	56.6	56.6	0.0	No	No	No	No
3-3		11	43.2	70	70.3	72.2	57.4	57.4	57.4	0.0	No	No	No	No
3-3		16	57.2	70	71.2	73.1	58.3	58.3	58.3	0.0	No	No	No	No
3-3		21	71.2	70	71.3	73.3	58.5	58.5	58.5	0.0	No	No	No	No
3-4		1	15.2	70	69.6	71.3	55.2	55.2	55.2	0.0	No	No	No	No
3-4		6	29.2	70	74.2	75.6	63.3	63.3	63.3	0.0	No	No	No	No
3-4		11	43.2	70	75.1	76.6	64.6	64.6	64.6	0.0	No	No	No	No
3-4		16	57.2	70	75.1	76.7	65.3	65.3	65.3	0.0	No	No	No	No
3-4		21	71.2	70	74.8	76.6	65.3	65.3	65.3	42.4	No	No	No	No
3-5		1	15.2	70	70.9	66.2	52.0	52.0	51.5	43.9	No	No	No	No
3-5		6	29.2	70	71.6	71.7	52.9	52.9	52.3	46.0	No	No	No	No
3-5		11	43.2	70	71.6	71.8	53.8	53.8	53.0	48.7	No	No	No	No
3-5		16	57.2	70	71.8	74.2	55.3	55.3	54.2	50.7	No	No	Yes	Yes
3-5		21	71.2	70	71.6	74.0	57.1	57.1	56.0	51.4	No	No	Yes	Yes
3-6		1	15.2	70	62.0	64.0	52.0	52.0	51.4	43.6	No	No	No	No
3-6		6	29.2	70	69.6	71.5	53.1	53.1	52.2	45.8	No	No	No	No
3-6		11	43.2	70	70.9	73.4	54.0	54.0	52.8	48.1	No	No	No	No
3-6		16	57.2	70	71.4	74.0	55.2	55.2	53.5	50.3	No	No	Yes	Yes
3-6		21	71.2	70	71.4	74.0	56.8	56.8	55.0	52.1	No	No	Yes	Yes
4-1	Wai Wah Centre	1	15.2	70	73.6	76.7	64.9	64.9	64.8	48.6	No	No	No	No
4-1		6	29.2	70	82.1	85.3	67.7	67.7	67.6	50.3	No	No	No	No
4-1		11	43.2	70	80.9	84.1	69.3	69.3	69.1	51.6	No	No	No	No
4-1		16	57.2	70	79.9	83.1	70.8	70.8	70.5	59.4	Yes	No	No	No
4-1		21	71.2	70	79.0	82.2	72.6	72.6	72.4	59.6	Yes	No	No	No
4-2		1	15.2	70	70.8	74.5	63.6	63.6	63.5	46.3	No	No	No	No
4-2		6	29.2	70	80.9	84.7	67.0	67.0	66.9	49.8	No	No	No	No
4-2		11	43.2	70	80.0	83.7	69.2	69.2	69.0	55.8	No	No	No	No
4-2		16	57.2	70	79.1	82.8	69.0	69.0	68.3	60.5	No	No	No	No
4-2		21	71.2	70	78.4	82.0	70.5	70.5	70.0	60.5	Yes	No	No	No
4-3		1	15.2	70	69.6	72.9	64.4	64.4	64.4	41.7	No	No	No	No
4-3		6	29.2	70	79.8	83.7	67.3	67.3	67.2	49.6	No	No	No	No
4-3		11	43.2	70	79.4	83.2	67.1	67.1	66.8	54.6	No	No	No	No
4-3		16	57.2	70	78.9	82.6	69.3	69.3	69.0	57.9	No	No	No	No
4-3		21	71.2	70	78.1	81.9	70.3	70.3	69.8	61.1	No	No	No	No
4-4		1	15.2	70	58.2	61.7	56.5	56.5	56.2	45.4	No	No	No	No
4-4		6	29.2	70	68.6	71.4	60.3	60.3	59.8	50.5	No	No	No	No
4-4		11	43.2	70	75.5	79.9	62.1	62.1	60.7	56.5	No	No	Yes	Yes
4-4		16	57.2	70	77.7	81.8	62.2	62.2	66.4	59.6	No	No	No	No
4-4		21	71.2	70	77.4	81.4	69.0	69.0	68.0	62.3	No	No	Yes	Yes
5-1	Sham Plaza	1	15.2	70	68.7	70.3	64.0	64.0	60.5	61.1	No	No	Yes	Yes
5-1		6	29.2	70	78.0	79.8	63.5	63.5	63.5	67.0	No	No	Yes	Yes
5-1		11	43.2	70	77.9	79.8	69.0	69.0	64.5	67.1	No	No	Yes	Yes
5-1		16	57.2	70	77.8	79.8	69.0	69.0	65.1	66.7	No	No	Yes	Yes



NSR	Name of Receiver	floor	Heights (mpd)	Statutory Noise Standard, L10, dB(A)	Before Construction		Unmitigated max noise in year 2021	Mitigated Future Noise			Eligibility Test on Indirect Technical Remedies			Indirect Noise Mitigation Required (Yes/No)
					Current Noise Level in year 2003	(B)		(A)	Mitigated Noise Level in Year 2021	Mitigated Noise other than widening sections in Year 2021	Mitigated Widening Sections (New Roads) in Year 2021	Criteria 1 (Yes/No)	Criteria 2 (Yes/No)	
5-1		21	71.2	70	77.4	79.5	69.1	(D) - (E) + (F)	(E)	(F)	(D-A) > -0.5dB(A)	(D-B) > -1dB(A)	(D-E) > -1dB(A)	No
5-2		1	15.2	70	69.5	70.8	64.6		65.7	62.4	No	No	Yes	No
5-2		6	29.2	70	78.4	80.0	69.5		60.7	68.1	No	No	Yes	No
5-2		11	43.2	70	78.2	79.8	69.8		64.8	68.1	No	No	Yes	No
5-2		16	57.2	70	77.9	79.5	69.7		65.2	67.8	No	No	Yes	No
5-2		21	71.2	70	77.5	79.2	69.7		65.7	67.4	No	No	Yes	No
5-3		1	15.2	70	70.2	71.2	65.2		60.9	63.2	No	No	Yes	No
5-3		6	29.2	70	78.5	79.8	69.8		64.0	68.5	No	No	Yes	No
5-3		11	43.2	70	78.4	79.7	70.2		65.5	68.4	No	No	Yes	No
5-3		16	57.2	70	78.0	79.4	70.2		65.9	68.1	No	No	Yes	No
5-3		21	71.2	70	77.7	79.1	70.1		66.1	67.9	No	No	Yes	No
5-4		1	15.2	70	72.0	72.8	65.3		62.2	62.3	No	No	Yes	No
5-4		6	29.2	70	78.6	79.6	70.1		65.0	68.5	No	No	Yes	No
5-4		11	43.2	70	78.5	79.6	70.4		66.2	68.3	No	No	Yes	No
5-4		16	57.2	70	78.2	79.4	70.4		66.5	68.2	No	No	Yes	No
5-4		21	71.2	70	77.8	79.0	70.3		66.6	68.0	No	No	Yes	No
6-1	Shaun Centre	1	15.2	70	61.6	61.6	59.8		59.2	51.1	No	No	No	No
6-1		6	29.2	70	66.0	66.8	63.2		62.6	54.4	No	No	No	No
6-1		11	43.2	70	67.7	68.3	64.1		63.2	56.7	No	No	No	No
6-1		16	57.2	70	67.9	68.6	64.3		63.4	57.1	No	No	No	No
6-1		21	71.2	70	68.5	69.5	64.4		63.4	57.1	No	No	Yes	No
6-2		1	15.2	70	64.8	65.0	61.4		60.7	53.1	No	No	No	No
6-2		6	29.2	70	68.4	69.0	64.0		63.3	55.5	No	No	No	No
6-2		11	43.2	70	69.6	70.2	64.9		63.9	57.7	No	No	Yes	No
6-2		16	57.2	70	69.7	70.3	65.2		64.1	58.4	No	No	Yes	No
6-2		21	71.2	70	70.2	71.0	65.2		64.1	58.7	No	No	Yes	No
7-1	Lucky Centre	1	15.2	70	72.6	72.7	66.5		65.7	58.4	No	No	No	No
7-1		6	29.2	70	74.6	74.7	69.4		68.3	62.9	No	No	Yes	No
7-1		11	43.2	70	75.1	75.3	69.9		68.7	64.0	No	No	Yes	No
7-1		16	57.2	70	75.0	75.3	69.9		68.5	64.1	No	No	Yes	No
7-1		21	71.2	70	75.0	75.5	69.6		68.2	64.1	No	No	Yes	No
7-2		1	15.2	70	73.9	73.7	68.9		68.3	58.8	No	No	No	No
7-2		6	29.2	70	75.9	75.7	71.4		70.8	62.4	Yes	No	No	No
7-2		11	43.2	70	76.1	76.1	71.4		70.6	63.5	Yes	No	No	No
7-2		16	57.2	70	75.9	76.0	71.0		70.1	63.6	Yes	No	No	No
7-2		21	71.2	70	75.8	76.2	70.4		69.5	63.2	No	No	No	No
7-3		1	15.2	70	74.7	73.0	72.3		71.3	54.2	Yes	No	No	No
7-3		6	29.2	70	79.6	77.9	77.3		77.3	56.9	Yes	No	No	No
7-3		11	43.2	70	78.2	76.7	75.9		75.8	60.0	Yes	No	No	No
7-3		16	57.2	70	77.1	75.9	74.8		74.6	59.8	Yes	No	No	No
7-3		21	71.2	70	76.3	75.2	71.8		71.7	59.8	Yes	No	No	No
16-1	Lok Yuen Estate	1	9.0	70	79.9	79.4	71.2		72.8	62.1	Yes	No	No	No
16-1		6	23.0	70	80.3	80.5	71.5		73.1	63.4	Yes	No	No	No
16-1		11	37.0	70	79.7	80.5	71.8		71.8	63.4	Yes	No	No	No
16-1		16	51.0	70	79.0	80.2	71.3		70.5	63.6	Yes	No	No	No
16-1		21	65.0	70	78.4	79.8	70.5		69.6	63.0	Yes	No	No	No
16-2		1	9.0	70	71.4	71.9	63.4		59.6	61.1	No	No	Yes	No

NSR	Name of Receiver	floor	Height (m)	Statutory Noise Standard, L10, dB(A)	Before Construction		Unmitigated max noise in year 2021 (C)	Mitigated Future Noise			Eligibility Test on Indirect Technical Remedies			Indirect Noise Mitigation Required (Yes/No)
					Current Noise Level in year 2003 (B)	(A)		Mitigated Noise Level in Year 2021 (D) = (E) + (F)	Mitigated Noise, other than widening sections in Year 2021 (E)	Mitigated Widening Sections (New Roads) in Year 2021 (F)	Criteria 1 (Yes/No)	Criteria 2 (Yes/No)	Criteria 3 (Yes/No)	
16-2		6	23.0	70	76.0	77.5	65.9	61.9	61.6	63.6	No	No	Yes	No
16-2		11	37.0	70	77.3	79.2	67.9	63.6	63.9	65.9	No	No	Yes	No
16-2		16	51.0	70	77.4	79.4	69.1	64.9	64.9	67.1	No	No	Yes	No
16-2		21	65.0	70	77.2	79.2	69.3	64.9	64.9	67.4	No	No	Yes	No
15-1		1	9.0	70	83.9	82.0	81.7	81.7	81.7	57.1	Yes	No	No	No
15-1		6	23.0	70	82.3	80.5	80.0	80.0	80.0	60.0	Yes	No	No	No
15-1		11	37.0	70	80.4	78.8	78.1	78.0	78.0	62.4	Yes	No	No	No
15-1		16	51.0	70	79.1	77.7	76.6	76.5	76.5	63.3	Yes	No	No	No
15-1		21	65.0	70	78.1	76.9	75.5	75.3	75.3	62.2	Yes	No	No	No
15-2		1	9.0	70	84.3	82.3	82.3	82.3	82.3	51.1	Yes	No	No	No
15-2		6	23.0	70	81.9	79.9	79.8	79.8	79.8	53.7	Yes	No	No	No
15-2		11	37.0	70	79.8	78.0	77.7	77.6	77.6	56.6	Yes	No	No	No
15-2		16	51.0	70	78.4	76.6	76.2	76.2	76.2	56.9	Yes	No	No	No
15-2		21	65.0	70	77.3	75.7	75.1	75.1	75.1	57.4	Yes	No	No	No
17-1		1	9.0	70	73.2	71.2	71.2	71.1	71.1	53.1	Yes	No	No	No
17-1		6	23.0	70	73.9	72.0	71.6	71.6	71.6	55.3	Yes	No	No	No
17-1		11	37.0	70	73.9	72.5	71.2	71.2	71.2	57.2	Yes	No	No	No
17-1		16	51.0	70	73.5	72.2	72.0	71.2	71.2	64.2	Yes	No	No	No
17-1		21	65.0	70	74.9	74.8	74.8	74.8	74.8	45.8	No	No	Yes	No
17-2		1	9.0	70	61.6	63.7	46.3	36.5	36.5	46.6	No	No	Yes	No
17-2		6	23.0	70	62.4	64.5	47.2	38.3	38.3	46.6	No	No	Yes	No
17-2		11	37.0	70	62.8	64.9	50.9	40.9	40.9	50.4	No	No	Yes	No
17-2		16	51.0	70	63.0	65.1	55.0	48.0	48.0	54.0	No	No	Yes	No
17-2		21	65.0	70	71.8	74.0	59.5	48.9	48.9	59.1	No	No	Yes	No
18-1		1	9.0	70	70.0	72.9	53.7	46.5	46.5	52.8	No	No	Yes	No
18-1		6	23.0	70	70.9	73.8	55.7	47.4	47.4	55.0	No	No	Yes	No
18-1		11	37.0	70	72.4	74.9	61.3	59.1	59.1	57.4	No	No	Yes	No
18-1		16	51.0	70	72.9	75.4	62.5	59.8	59.8	59.2	No	No	Yes	No
18-1		21	65.0	70	73.3	75.7	66.2	62.8	62.8	63.5	No	No	Yes	No
18-1		1	9.0	70	69.3	72.5	55.4	48.8	48.8	54.3	No	No	Yes	No
18-2		6	23.0	70	70.4	73.6	57.5	51.0	51.0	56.4	No	No	Yes	No
18-2		11	37.0	70	73.3	76.0	61.4	56.4	56.4	59.7	No	No	Yes	No
18-2		16	51.0	70	73.8	76.4	63.2	59.2	59.2	61.0	No	No	Yes	No
18-2		21	65.0	70	76.6	78.8	64.3	60.2	60.2	62.1	No	No	Yes	No
22-1		1	9.0	70	76.6	78.8	53.4	45.6	45.6	52.6	No	No	Yes	No
22-1		6	23.0	70	77.3	79.5	54.8	47.0	47.0	54.0	No	No	Yes	No
22-1		11	37.0	70	77.1	79.3	56.1	47.9	47.9	55.3	No	No	Yes	No
22-1		16	51.0	70	76.7	78.9	57.5	50.2	50.2	56.7	No	No	Yes	No
22-1		21	65.0	70	76.3	78.4	58.9	52.1	52.1	57.9	No	No	Yes	No
20-1	Lek Yuen Court Hall	1	7.2	70	71.1	73.1	61.4	56.2	56.2	59.8	No	No	Yes	No
20-2		1	7.2	70	71.9	74.8	60.6	55.3	55.3	59.1	No	No	Yes	No
26-1	FSD Quarter	1	7.2	70	80.3	82.2	58.6	56.0	56.0	55.2	No	No	Yes	No
26-1		6	21.2	70	80.6	82.6	59.8	56.8	56.8	56.9	No	No	Yes	No
26-1		11	35.2	70	79.8	81.8	60.7	57.2	57.2	58.1	No	No	Yes	No
26-1		16	49.2	70	78.9	80.9	61.5	57.3	57.3	59.4	No	No	Yes	No
26-1		21	63.2	70	78.1	80.1	62.3	57.4	57.4	60.7	No	No	Yes	No
27-1	Wo Che Estate	1	9.0	70	70.0	72.5	47.1	40.6	40.6	46.0	No	No	Yes	No

NSR	Name of Receiver	floor	Height (mupd)	Statutory Noise Standard, L10, dB(A)	Before Construction		Unmitigated max noise in year 2021	Mitigated Future Noise			Eligibility Test on Indirect Technical Remedies			Indirect Noise Mitigation Required (Yes/No)
					(A)	(B)		(C)	Mitigated Noise Level in Year 2021	(E)	(F)	Criteria 1 (Yes/No)	Criteria 2 (Yes/No)	
27-1		6	23.0	70	70.8	73.3	47.7	41.5	46.6	No	Yes	(D-A) > 0.5dB(A)	(D-E) > -1dB(A)	No
27-1		11	37.0	70	71.1	73.6	48.6	42.4	47.5	No	Yes			No
27-1		16	51.0	70	71.5	74.0	49.9	43.5	48.7	No	Yes			No
27-1		21	65.0	70	71.6	74.0	51.3	45.3	50.1	No	Yes			No
27-2		1	9.0	70	67.4	69.6	49.2	44.0	47.6	No	Yes			No
27-2		6	23.0	70	68.3	70.5	50.7	45.8	49.0	No	Yes			No
27-2		11	37.0	70	68.6	70.8	52.3	48.6	49.9	No	Yes			No
27-2		16	51.0	70	68.9	71.1	54.4	50.8	51.8	No	Yes			No
27-2		21	65.0	70	69.2	71.3	56.2	52.1	54.0	No	Yes			No
29-1		1	9.0	70	72.1	74.6	51.4	48.1	48.7	No	Yes			No
29-1		6	23.0	70	73.0	75.4	52.9	50.3	49.4	No	Yes			No
29-1		11	37.0	70	73.7	76.2	54.7	52.8	50.1	No	Yes			No
29-1		16	51.0	70	74.1	76.5	57.6	56.6	50.9	No	Yes			No
29-1		21	65.0	70	74.2	76.5	58.5	57.4	51.6	No	Yes			No
34-1		1	9.0	70	70.0	73.3	55.7	54.3	50.3	No	Yes			No
34-1		6	23.0	70	70.8	73.1	56.8	55.5	51.1	No	Yes			No
34-1		11	37.0	70	73.1	75.5	57.4	55.9	51.9	No	Yes			No
34-1		16	51.0	70	74.2	76.5	59.0	57.9	52.4	No	Yes			No
34-1		21	65.0	70	74.6	77.0	59.7	58.7	52.7	No	Yes			No
34-2		1	9.0	70	69.3	70.9	55.9	54.5	50.3	No	Yes			No
34-2		6	23.0	70	70.1	71.7	57.3	55.9	51.5	No	Yes			No
34-2		11	37.0	70	73.3	75.5	57.9	56.4	52.4	No	Yes			No
34-2		16	51.0	70	74.6	77.0	59.9	58.9	52.8	No	Yes			No
34-2		21	65.0	70	75.6	78.0	60.5	59.7	53.2	No	Yes			No
36-1		1	9.0	70	71.0	72.9	50.9	43.4	50.0	No	Yes			No
36-1		6	23.0	70	71.8	73.7	52.4	45.6	51.3	No	Yes			No
36-1		11	37.0	70	73.4	75.7	53.5	46.7	52.5	No	Yes			No
36-1		16	51.0	70	74.6	77.0	54.8	49.6	53.2	No	Yes			No
36-1		21	65.0	70	75.6	77.8	55.9	51.9	53.6	No	Yes			No
36-2		1	9.0	70	76.2	77.9	55.9	51.4	52.2	No	Yes			No
36-2		6	23.0	70	77.0	78.7	57.3	55.0	53.4	No	Yes			No
36-2		11	37.0	70	77.3	79.2	60.5	59.2	54.4	No	Yes			No
36-2		16	51.0	70	77.7	79.6	62.8	61.9	55.4	No	Yes			No
36-2		21	65.0	70	77.5	79.4	62.9	61.8	56.3	No	Yes			No
36-3		1	9.0	70	70.0	71.9	51.2	49.3	46.9	No	Yes			No
36-3		6	23.0	70	70.8	72.8	52.6	51.0	47.4	No	Yes			No
36-3		11	37.0	70	71.1	73.0	58.5	58.1	48.0	No	Yes			No
36-3		16	51.0	70	71.4	73.2	63.0	62.8	48.9	No	Yes			No
36-3		21	65.0	70	71.9	73.6	66.7	66.6	50.2	No	Yes			No
36-4		1	9.0	70	80.7	82.0	58.2	55.6	54.8	No	Yes			No
36-4		6	23.0	70	81.2	82.6	62.4	61.2	56.4	No	Yes			No
36-4		11	37.0	70	80.9	82.3	69.4	69.1	57.6	No	Yes			No
36-4		16	51.0	70	80.3	81.8	70.7	70.5	58.8	Yes	No			No
36-4		21	65.0	70	79.7	81.2	70.8	70.4	60.1	Yes	No			No
36-5		1	9.0	70	78.9	79.8	57.1	56.3	49.4	No	Yes			No
36-5		6	23.0	70	79.5	80.5	60.7	60.3	50.6	No	Yes			No
36-5		11	37.0	70	79.3	80.3	71.3	71.3	50.6	Yes	No			No

NSR	Name of Receiver	floor	Height (mptd)	Statutory Noise Standard, L10, dB(A)	Before Construction		Unmitigated max noise in year 2021 (C)	Mitigated Future Noise			Flightability Test on Indirect Technical Remedies			Indirect Noise Mitigation Required (Yes/No)
					Current Noise Level in year 2003 (B)	Statutory Noise Level in year 2021 (D) = (E) + (F)		Mitigated Noise, other than widening sections in Year 2021 (E)	Mitigated Widening Sections (New Roads) in Year 2021 (F)	Criteria 1 (Yes/No) (D-A) > -0.5dB(A)	Criteria 2 (Yes/No) (D-B) > -1dB(A)	Criteria 3 (Yes/No) (D-E) > -1dB(A)		
36-5		16	51.0	70	78.9	79.9	79.9	72.5	50.8	Yes	No	No	No	
36-5		21	65.0	70	78.6	79.6	79.6	75.2	51.4	Yes	No	No	No	
39-1		1	9.0	70	74.3	74.9	74.9	64.4	0.0	No	No	No	No	
39-1		6	23.0	70	75.2	75.9	75.9	66.4	0.0	No	No	No	No	
39-1		11	37.0	70	75.5	76.1	76.1	72.1	0.0	Yes	No	No	No	
39-1		16	51.0	70	75.4	75.9	75.9	72.7	0.0	Yes	No	No	No	
39-1		21	65.0	70	75.2	75.7	75.7	72.7	0.0	Yes	No	No	No	
39-2		1	9.0	70	73.2	74.2	74.2	55.2	46.6	No	No	No	No	
39-2		6	23.0	70	73.9	75.0	75.0	55.6	47.5	No	No	No	No	
39-2		11	37.0	70	73.9	75.0	75.0	63.2	48.3	No	No	No	No	
39-2		16	51.0	70	73.7	74.8	74.8	64.3	48.6	No	No	No	No	
39-2		21	65.0	70	73.3	74.4	74.4	63.9	49.1	Yes	No	No	No	
39-3		1	9.0	70	76.8	77.4	77.4	73.4	0.0	Yes	No	No	No	
39-3		6	23.0	70	77.9	78.4	78.4	74.4	0.0	Yes	No	No	No	
39-3		11	37.0	70	77.9	78.4	78.4	76.4	0.0	Yes	No	No	No	
39-3		16	51.0	70	77.9	79.3	79.3	77.9	0.0	Yes	No	No	No	
39-3		21	65.0	70	79.0	79.3	79.3	77.9	0.0	Yes	No	No	No	
46-1	Sui Wo Court	1	58.8	70	72.6	74.8	74.8	63.6	37.3	No	No	Yes	No	
46-1		6	72.8	70	74.3	76.6	76.6	65.4	61.6	No	No	Yes	No	
46-1		11	86.8	70	74.4	76.7	76.7	66.0	63.3	No	No	Yes	No	
46-1		16	100.8	70	74.4	76.6	76.6	66.1	63.4	No	No	Yes	No	
46-1		21	114.8	70	74.3	76.5	76.5	66.1	63.6	No	No	Yes	No	
46-1		26	128.8	70	74.1	76.3	76.3	66.7	64.1	No	No	Yes	No	
46-1		31	142.8	70	74.0	76.1	76.1	67.1	64.7	No	No	Yes	No	
46-1		36	156.8	70	73.8	75.9	75.9	67.4	65.1	No	No	Yes	No	
46-1		41	170.8	70	73.6	75.7	75.7	67.7	65.5	No	No	Yes	No	
46-1		46	184.8	70	73.4	75.5	75.5	68.0	66.0	No	No	Yes	No	
46-2		1	58.8	70	73.6	75.3	75.3	69.5	66.0	No	No	No	No	
46-2		6	72.8	70	74.5	76.4	76.4	70.4	57.2	No	No	No	No	
46-2		11	86.8	70	74.7	76.6	76.6	71.0	58.0	Yes	No	No	No	
46-2		16	100.8	70	74.7	76.6	76.6	71.2	58.9	Yes	No	No	No	
46-2		21	114.8	70	74.7	76.5	76.5	71.3	59.7	Yes	No	No	No	
46-2		26	128.8	70	74.6	76.3	76.3	71.5	60.5	Yes	No	No	No	
46-2		31	142.8	70	74.6	76.2	76.2	71.6	61.3	Yes	No	No	No	
46-2		36	156.8	70	74.3	76.0	76.0	71.7	62.1	Yes	No	No	No	
46-2		41	170.8	70	74.4	76.0	76.0	72.1	63.0	Yes	No	No	No	
46-2		46	184.8	70	74.2	75.8	75.8	72.2	63.8	Yes	No	No	No	
52-1	HKJC	1	11.0	70	76.4	76.5	76.5	76.4	42.2	Yes	No	No	No	
52-1		6	25.0	70	77.2	77.3	77.3	77.2	43.3	Yes	No	No	No	
52-1		11	39.0	70	77.3	77.5	77.5	77.3	43.3	Yes	No	No	No	
52-1		16	53.0	70	77.3	77.5	77.5	77.2	43.1	Yes	No	No	No	
52-1		21	67.0	70	77.0	77.3	77.3	77.0	42.9	Yes	No	No	No	
52-2		1	11.0	70	77.8	77.9	77.9	77.9	43.5	Yes	No	No	No	
52-2		6	25.0	70	78.5	78.5	78.5	77.9	44.1	Yes	No	No	No	
52-2		11	39.0	70	78.3	78.4	78.4	78.5	47.2	Yes	No	No	No	
52-2		16	53.0	70	78.0	78.2	78.2	78.0	48.7	Yes	No	No	No	
52-2		21	67.0	70	77.6	77.9	77.9	77.6	48.2	Yes	No	No	No	

NSR	Name of Receiver	floor	Height (m)	Statutory Noise Standard, L10, dB(A)	Before Construction		Unmitigated max noise in year 2021	Mitigated Future Noise			Eligibility Tests on Indirect Technical Remedies			Indirect Noise Mitigation Required (Yes/No)	
					Current Noise Level in year 2003	(A)		(B)	(C)	(D) - (E) + (F)	(E)	(F)	Criteria 1 (Yes/No)		Criteria 2 (Yes/No)
52.3		1	11.0	70	80.9	80.9	80.9	80.9	80.9	13.0	Yes	(D-A) >= 0.5dB(A)	No	No	No
52.3		6	25.0	70	80.9	80.9	80.9	80.9	80.9	44.3	Yes	(D-B) >= 1dB(A)	No	No	No
52.3		11	39.0	70	80.1	80.1	80.1	80.1	80.1	47.9	Yes	(D-E) >= 1dB(A)	No	No	No
52.3		16	53.0	70	79.3	79.3	79.3	79.3	79.3	51.7	Yes	(D-E) >= 1dB(A)	No	No	No
52.3		21	67.0	70	78.6	78.6	78.6	78.6	78.6	51.1	Yes	(D-E) >= 1dB(A)	No	No	No
53.1	Village	1	10.8	70	78.7	78.7	72.7	64.8	53.0	64.5	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.1		2	13.6	70	79.0	79.0	77.7	65.5	53.3	65.2	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.1		3	16.4	70	79.2	79.2	80.4	66.6	54.0	66.4	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.2		1	11.0	70	77.2	77.2	70.6	64.4	58.6	63.1	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.2		2	13.8	70	77.6	77.6	73.8	64.3	58.9	63.6	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.2		3	16.6	70	77.8	77.8	76.7	65.2	59.2	64.0	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.3		1	11.0	70	79.1	79.1	73.6	64.9	57.8	64.0	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.3		2	13.8	70	79.5	79.5	79.2	65.7	58.1	64.9	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.3		3	16.6	70	79.6	79.6	81.1	67.0	58.4	64.1	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.4		1	11.0	70	79.0	79.0	73.0	65.0	59.6	63.5	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.4		2	13.8	70	79.4	79.4	78.5	65.7	59.9	64.3	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.4		3	16.6	70	79.5	79.5	81.0	66.0	60.0	64.8	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.5		1	11.0	70	78.8	78.8	72.4	65.3	61.0	63.3	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.5		2	13.8	70	79.1	79.1	77.8	65.8	61.2	63.9	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.5		3	16.6	70	79.3	79.3	80.7	66.0	61.4	64.2	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.6		1	11.0	70	78.4	78.4	71.6	63.5	56.0	62.6	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.6		2	13.8	70	78.7	78.7	77.0	63.9	56.2	63.1	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.6		3	16.6	70	78.9	78.9	80.3	64.2	56.2	63.4	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.7		1	6.8	70	79.4	79.4	66.2	65.3	62.8	61.6	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.7		2	9.6	70	79.8	79.8	70.2	65.7	63.3	62.1	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
53.7		3	12.4	70	80.0	80.0	77.1	66.0	63.4	62.6	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.1		1	5.2	70	73.9	73.9	72.3	67.2	62.6	65.4	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.1		2	8.0	70	74.3	74.3	72.9	68.3	63.3	66.6	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.1		3	10.8	70	74.6	74.6	71.4	69.0	64.1	67.3	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.2		1	5.2	70	72.3	72.3	70.0	65.8	58.7	64.8	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.2		2	8.0	70	72.8	72.8	70.8	66.7	59.5	65.8	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.2		3	10.8	70	73.0	73.0	71.4	67.3	60.2	66.3	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.3		1	5.2	70	72.5	72.5	66.8	65.3	56.9	64.7	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.3		2	8.0	70	73.0	73.0	68.2	66.1	57.5	65.4	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.3		3	10.8	70	73.3	73.3	69.2	66.4	58.3	65.7	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.4		1	5.2	70	73.4	73.4	63.8	66.4	56.8	65.9	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.4		2	8.0	70	73.9	73.9	67.1	67.1	57.5	66.6	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.4		3	10.8	70	74.3	74.3	69.4	67.5	58.1	67.0	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.5		1	5.2	70	74.2	74.2	63.7	66.7	56.4	66.3	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.5		2	8.0	70	74.7	74.7	66.7	67.4	57.1	67.0	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.5		3	10.8	70	75.1	75.1	71.6	67.9	57.8	67.5	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.6		1	5.2	70	77.4	77.4	63.9	67.0	51.7	66.7	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.6		2	8.0	70	77.8	77.8	67.8	67.6	55.6	67.3	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.6		3	10.8	70	78.1	78.1	73.6	68.3	56.3	68.0	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.7		1	6.1	70	79.4	79.4	66.6	67.3	57.2	66.9	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.7		2	8.9	70	79.8	79.8	70.7	68.3	57.7	68.0	No	(D-A) >= 0.5dB(A)	Yes	Yes	No
54.7		3	11.7	70	80.0	80.0	78.2	69.1	57.9	68.7	No	(D-A) >= 0.5dB(A)	Yes	Yes	No

NSR	Name of Receiver	floor	Height (mnpd)	Statutory Noise Standard, L10, dB(A)	Before Construction		Unmitigated max noise in year 2021	Mitigated Future Noise			Eligibility Test on Indirect Technical Remedies			Indirect Noise Mitigation Required (Yes/No)
					Current Noise Level in year 2003	(A)		(B)	(C)	Mitigated Noise Level in Year 2021	Mitigated Noise, other than widening sections in Year 2021	Mitigated Widening Sections (New Roads) in Year 2021	Criteria 1 (Yes/No)	
55-1		1	6.7	70	64.1	65.7	58.4	(D) - (E) + (F)	(E)	(F)	(D-A) >= 0.5dB(A)	(D-B) > -1dB(A)	(D-E) > -1dB(A)	No
55-1		2	9.5	70	65.0	66.0	61.7		61.0	53.4	No	No	No	No
55-1		3	12.3	70	65.7	66.0	62.6		62.0	53.6	No	No	No	No
55-2		1	6.7	70	67.3	68.2	62.5		59.1	59.9	No	No	Yes	No
55-2		2	9.5	70	67.7	68.6	63.0		63.2	60.3	No	No	Yes	No
55-2		3	12.3	70	68.0	68.8	66.0		64.5	60.6	No	No	Yes	No
55-3		1	6.7	70	69.1	70.2	64.1		62.9	57.8	No	No	Yes	No
55-3		2	9.5	70	69.5	70.6	66.4		65.6	58.5	No	No	No	No
55-3		3	12.3	70	69.7	70.9	66.6		65.8	58.8	No	No	No	No
56-1		1	12.0	70	70.4	73.5	69.3		69.3	36.5	No	No	No	No
56-1		2	14.8	70	70.8	73.9	69.7		69.7	37.7	No	No	No	No
56-1		3	17.6	70	71.0	74.1	70.0		70.0	38.2	No	No	No	No
56-2		1	12.0	70	75.4	78.8	74.8		74.8	0.0	Yes	No	No	No
56-2		2	14.8	70	75.8	79.2	75.2		75.2	0.0	Yes	No	No	No
56-2		3	17.6	70	76.0	79.4	75.4		75.4	0.0	Yes	No	No	No
56-3		1	12.0	70	75.9	78.8	74.8		74.8	39.4	Yes	No	No	No
56-3		2	14.8	70	76.3	79.2	75.2		75.2	39.8	Yes	No	No	No
56-3		3	17.6	70	76.5	79.4	75.5		75.5	40.3	Yes	No	No	No
56-4		1	21.0	70	72.2	75.4	71.5		71.5	43.3	Yes	No	No	No
56-4		2	23.8	70	72.6	75.8	72.0		72.0	43.5	Yes	No	No	No
56-4		3	26.6	70	72.8	76.0	72.2		72.2	43.8	Yes	No	No	No
57-1	Villa Le Parc	1	43.9	70	72.5	71.8	71.4		71.4	45.3	Yes	No	No	No
57-1		2	46.7	70	78.2	77.8	77.0		77.0	46.1	Yes	No	No	No
57-1		3	49.5	70	78.8	78.5	77.7		77.7	46.4	Yes	No	No	No
57-2		1	43.9	70	70.8	69.8	69.7		69.7	0.0	No	No	No	No
57-2		2	46.7	70	76.6	75.4	75.3		75.3	0.0	Yes	No	No	No
57-2		3	49.5	70	78.2	77.1	76.9		76.9	0.0	Yes	No	No	No
57-3		1	43.9	70	71.4	70.3	70.2		70.2	36.1	No	No	No	No
57-3		2	46.7	70	76.4	75.2	75.2		75.2	37.1	Yes	No	No	No
57-3		3	49.5	70	77.6	76.5	76.3		76.3	40.8	Yes	No	No	No
57-4		1	43.9	70	72.7	71.5	71.5		71.5	0.0	Yes	No	No	No
57-4		2	46.7	70	76.3	75.1	75.1		75.1	0.0	Yes	No	No	No
57-4		3	49.5	70	77.4	76.1	76.1		76.1	0.0	Yes	No	No	No
58	Villa Augustana	1	15.3	70	78.6	77.7	77.3		77.3	0.0	Yes	No	No	No
58		2	18.1	70	79.4	78.4	78.2		78.2	0.0	Yes	No	No	No
58		3	20.9	70	79.9	78.7	78.7		78.7	0.0	Yes	No	No	No
60	Church	1	10.8	70	81.0	79.7	79.7		79.7	37.2	Yes	No	No	No
60		2	13.6	70	81.8	80.5	80.4		80.4	38.0	Yes	No	No	No
51-1	Sch	1	7.4	65	82.5	83.1	82.9		82.9	47.2	Yes	No	No	No
51-1		2	10.2	65	82.9	83.5	83.3		83.3	47.4	Yes	No	No	No
51-1		3	13.0	65	83.0	83.5	83.3		83.3	47.6	Yes	No	No	No
51-1		4	15.8	65	82.9	83.5	83.2		83.2	47.8	Yes	No	No	No
51-1		5	18.6	65	82.7	83.3	83.0		83.0	48.0	Yes	No	No	No
51-1		1	7.4	65	78.9	78.9	79.0		79.0	43.5	Yes	No	No	No
51-1		2	10.2	65	79.4	79.4	79.4		79.4	43.3	Yes	No	No	No
51-1		3	13.0	65	79.6	79.6	79.6		79.6	43.8	Yes	No	No	No
51-1		4	15.8	65	79.8	79.8	79.8		79.8	43.2	Yes	No	No	No

NSR	Name of Receiver	floor	Height (mptd)	Statutory Noise Standard, L10, dB(A)	Before Construction		Unmitigated max noise in year 2021 (C)	Mitigated Future Noise			Eligibility Test on Indirect Technical Remedies			Indirect Noise Mitigation Required (Yes/No)
					Current Noise Level in year 2003 (B)	(A)		Mitigated Noise Level in Year 2021 (D) - (E) + (F)	Mitigated Noise, other than widening sections in Year 2021 (E)	Mitigated Widening Sections (New Roads) in Year 2021 (F)	Criteria 1 (Yes/No) (D-A) > = 0.5dB(A)	Criteria 2 (Yes/No) (D-B) > = 1dB(A)	Criteria 3 (Yes/No) (D-E) > = 1dB(A)	
51-4		5	18.6	65	79.8	79.8	79.8	79.8	79.8	44.1	Yes	No	No	No
45-1		1	6.6	65	76.0	76.3	76.3	74.3	74.3	42.4	Yes	No	No	No
45-1		2	9.4	65	76.6	77.0	77.0	74.9	74.9	42.5	Yes	No	No	No
45-1		3	12.2	65	76.9	77.3	77.3	75.3	75.3	42.7	Yes	No	No	No
45-1		4	15.0	65	77.2	77.6	77.6	75.6	75.6	42.9	Yes	No	No	No
45-1		5	17.8	65	77.3	77.7	77.7	75.7	75.7	43.0	Yes	No	No	No
45-2		1	6.6	65	72.4	72.6	72.6	71.3	71.3	38.9	Yes	No	No	No
45-2		2	9.4	65	73.0	73.2	73.2	72.0	72.0	39.0	Yes	No	No	No
45-2		3	12.2	65	73.5	73.7	73.7	72.5	72.5	39.2	Yes	No	No	No
45-2		4	15.0	65	73.9	74.1	74.1	73.0	73.0	39.4	Yes	No	No	No
45-2		5	17.8	65	74.4	74.6	74.6	73.6	73.6	39.6	Yes	No	No	No
35-1		1	6.8	65	82.6	83.6	83.6	64.2	63.3	56.9	No	No	No	No
35-1		2	9.6	65	83.3	84.3	84.3	64.8	64.0	57.2	No	No	No	No
35-1		3	12.4	65	83.5	84.6	84.6	65.1	64.3	57.5	No	No	No	No
35-1		4	15.2	65	83.6	84.7	84.7	65.3	64.5	57.8	No	No	No	No
35-1		5	18.0	65	83.6	84.8	84.8	65.4	64.5	58.1	No	No	No	No
35-2		1	6.8	65	81.7	82.9	82.9	62.8	61.9	55.7	No	No	No	No
35-2		2	9.6	65	82.4	83.6	83.6	63.4	62.6	56.0	No	No	No	No
35-2		3	12.4	65	82.7	83.9	83.9	63.7	62.9	56.2	No	No	No	No
35-2		4	15.2	65	82.8	84.1	84.1	63.9	63.1	56.5	No	No	No	No
35-2		5	18.0	65	82.8	84.2	84.2	64.1	63.2	56.7	No	No	No	No
31		1	6.8	65	76.7	78.9	78.9	53.0	46.6	51.8	No	No	Yes	No
33		2	9.6	65	77.4	79.6	79.6	53.4	47.7	52.0	No	No	Yes	No
33		3	12.4	65	77.7	79.9	79.9	54.0	49.4	52.2	No	No	Yes	No
33		4	15.2	65	77.9	80.1	80.1	54.9	51.1	52.5	No	No	Yes	No
33		5	18.0	65	78.1	80.2	80.2	55.5	52.1	52.8	No	No	Yes	No
31		1	6.6	65	75.0	78.1	78.1	53.8	48.6	52.3	No	No	Yes	No
31		2	9.4	65	75.7	78.8	78.8	54.2	49.5	52.5	No	No	Yes	No
31		3	12.2	65	76.0	79.1	79.1	54.8	50.6	52.7	No	No	Yes	No
31		4	15.0	65	76.2	79.3	79.3	55.2	51.5	52.9	No	No	Yes	No
31		5	17.8	65	76.4	79.4	79.4	55.7	52.3	53.0	No	No	Yes	No
19-1		1	7.2	65	77.0	81.2	81.2	60.5	52.0	59.8	No	No	Yes	No
19-1		2	10.0	65	77.7	81.8	81.8	61.1	52.6	60.4	No	No	Yes	No
19-1		3	12.8	65	78.0	82.1	82.1	61.7	52.9	61.1	No	No	Yes	No
19-1		4	15.6	65	78.1	82.1	82.1	63.4	53.1	61.0	No	No	Yes	No
19-1		5	18.4	65	78.1	82.0	82.0	64.1	53.2	63.7	No	No	Yes	No
19-2		1	7.2	65	72.2	73.6	73.6	61.9	58.9	58.8	No	No	Yes	No
19-2		2	10.0	65	73.0	74.3	74.3	63.2	59.4	60.8	No	No	Yes	No
19-2		3	12.8	65	76.6	77.4	77.4	63.5	59.6	61.3	No	No	Yes	No
19-2		4	15.6	65	78.0	79.7	79.7	63.8	59.8	61.6	No	No	Yes	No
19-2		5	18.4	65	78.3	80.1	80.1	65.0	60.7	62.9	No	No	Yes	No
21-1		1	7.2	65	70.1	73.5	73.5	57.9	52.4	56.5	No	No	Yes	No
21-1		2	10.0	65	70.8	74.1	74.1	58.5	53.1	57.0	No	No	Yes	No
21-1		3	12.8	65	71.1	74.5	74.5	58.9	53.7	57.4	No	No	Yes	No
21-1		4	15.6	65	71.3	74.7	74.7	59.4	54.2	57.8	No	No	Yes	No
21-1		5	18.4	65	71.5	74.8	74.8	60.0	54.9	58.3	No	No	Yes	No
21-2		1	7.2	65	71.4	73.6	73.6	50.8	36.0	50.6	No	No	Yes	No

NSR	Name of Receiver	Floor	Height (m)	Statutory Noise Standard, L10, dB(A)	Before Construction		Unmitigated max noise in year 2021 (C)	Mitigated Future Noise			Eligibility Test on Indirect Technical Remedies			Indirect Noise Mitigation Required (Yes/No)	
					(A)	(B)		(C)	(D) = (E) + (F)	Mitigated Noise, other than widening sections in Year 2021 (E)	Mitigated Widening Sections (New Roads) in Year 2021 (F)	Criteria 1 (Yes/No)	Criteria 2 (Yes/No)		Criteria 3 (Yes/No)
21-2		2	10.0	65	72.1	74.3	50.9	36.0	50.8	No	Yes	(D-A) > 0.5dB(A)	(D-B) > 1dB(A)	(D-E) > 1dB(A)	No
21-2		3	12.8	65	71.4	74.6	51.1	36.0	51.0	No	Yes				No
21-2		4	15.6	65	72.6	74.8	51.3	36.0	51.2	No	Yes				No
21-2		5	18.4	65	72.7	74.9	51.5	36.0	51.3	No	Yes				No
40		1	6.6	65	68.6	69.1	67.9	67.9	0.0	Yes	No				No
40		2	9.4	65	69.3	69.9	68.7	68.7	0.0	Yes	No				No
40		3	12.2	65	69.9	70.4	69.4	69.4	0.0	Yes	No				No
40		4	15.0	65	70.7	71.1	70.2	70.2	0.0	Yes	No				No
40		5	17.8	65	71.7	72.1	71.3	71.3	0.0	Yes	No				No
47-1		1	55.8	65	69.5	70.6	65.9	65.7	51.9	Yes	No				No
47-1		2	58.6	65	70.3	71.5	66.6	66.5	51.1	Yes	No				No
47-1		3	61.4	65	70.7	72.0	67.0	66.8	51.3	Yes	No				No
47-1		4	64.2	65	71.0	72.3	67.3	67.1	51.5	Yes	No				No
47-1		5	67.0	65	71.3	72.7	67.4	67.2	51.6	Yes	No				No
47-2		1	55.8	65	70.9	72.0	67.4	67.2	51.2	Yes	No				No
47-2		2	58.6	65	71.8	73.0	68.3	68.1	51.4	Yes	No				No
47-2		3	61.4	65	72.2	73.5	68.7	68.6	51.6	Yes	No				No
47-2		4	64.2	65	72.6	73.9	69.1	68.9	51.8	Yes	No				No
47-2		5	67.0	65	72.8	74.2	69.2	69.1	51.9	Yes	No				No
50		1	49.4	65	67.8	68.9	68.1	68.0	46.1	Yes	No				No
50		2	52.2	65	68.5	69.6	68.7	68.7	46.4	Yes	No				No
50		3	55.0	65	68.9	70.0	69.1	69.1	46.7	Yes	No				No
50		4	57.8	65	69.3	70.4	69.5	69.4	47.0	Yes	No				No
50		5	60.6	65	69.7	70.7	69.8	69.7	47.3	Yes	No				No
R1		1	7.2	70	75.5	76.9	74.3	74.2	51.5	Yes	No				No
R1		6	21.2	70	76.5	77.8	75.6	75.5	55.3	Yes	No				No
R2		1	7.2	70	78.0	80.5	67.7	66.9	60.0	No	No				No
R2		6	21.2	70	78.8	81.5	69.0	68.0	62.1	No	No				No
R3		1	7.2	70	78.2	77.0	76.3	76.3	0.0	Yes	No				No
R3		6	21.2	70	79.5	78.3	77.8	77.8	0.0	Yes	No				No
R3		11	35.2	70	79.5	78.4	78.0	77.7	0.0	Yes	No				No
R3		16	49.2	70	79.1	78.0	77.7	77.2	0.0	Yes	No				No
R3		21	63.2	70	78.6	77.6	77.2	77.2	0.0	Yes	No				No
R4		1	7.2	70	79.3	78.1	77.8	77.8	39.8	Yes	No				No
R4		6	21.2	70	80.4	79.3	79.0	79.0	40.3	Yes	No				No
R4		11	35.2	70	80.4	79.4	79.1	79.1	41.9	Yes	No				No
R4		16	49.2	70	80.0	79.0	78.7	78.7	43.5	Yes	No				No
R4		21	63.2	70	79.4	78.4	78.2	78.2	45.4	Yes	No				No
R5		1	7.2	70	80.2	78.9	78.9	78.9	0.0	Yes	No				No
R5		6	21.2	70	81.3	80.1	80.1	80.1	0.0	Yes	No				No
R5		11	35.2	70	81.1	79.8	79.8	79.8	0.0	Yes	No				No
R5		16	49.2	70	80.4	79.1	79.1	79.1	0.0	Yes	No				No
R5		21	63.2	70	79.5	78.3	78.3	78.3	0.0	Yes	No				No
S1		1	63.2	70	79.4	78.4	78.1	78.1	44.3	Yes	No				No
S1		2	63.2	70	80.1	79.0	78.9	78.9	44.7	Yes	No				No
S2		1	63.2	70	78.6	75.0	75.2	75.2	37.2	Yes	No				No
S2		2	63.2	70	79.3	75.7	75.9	75.9	37.3	Yes	No				No



NSR	Name of Receiver	floor	Height (mupd)	Statutory Noise Standard, L10, dB(A)	Before Construction		Unmitigated max noise in year 2021 (C)	Mitigated Future Noise			Eligibility Test on Indirect Technical Remedies			Indirect Noise Mitigation Required (Yes/No)
					Current Noise Level in year 2003 (B)	(B)		Mitigated Noise Level in Year 2021 (D) = (E) + (F)	Mitigated Noise, other than widening sections in Year 2021 (E)	Mitigated Widening Sections (New Road) in Year 2021 (F)	Criteria 1 (Yes/No)	Criteria 2 (Yes/No)	Criteria 3 (Yes/No)	
S2		3	63.2	70	79.5	76.1	76.3	76.3	76.3	37.4	Yes	No	No	No
S2		4	63.2	70	79.7	76.5	76.7	76.7	76.7	37.4	Yes	No	No	No
S2		5	63.2	70	79.9	77.2	77.3	77.3	77.3	37.6	Yes	No	No	No
S3		1	63.2	70	75.9	72.4	72.4	72.4	72.4	35.6	Yes	No	No	No
S3		2	63.2	70	76.5	73.1	73.1	73.1	73.1	35.7	Yes	No	No	No
S3		3	63.2	70	76.8	73.6	73.6	73.6	73.6	35.8	Yes	No	No	No
S3		4	63.2	70	76.9	74.0	74.0	74.0	74.0	35.9	Yes	No	No	No
S3		5	63.2	70	77.1	74.4	74.4	74.4	74.4	35.9	Yes	No	No	No
S4		1	63.2	70	75.0	73.9	73.9	73.9	73.9	34.6	Yes	No	No	No
S4		2	63.2	70	75.6	74.5	74.5	74.5	74.5	34.7	Yes	No	No	No
S4		3	63.2	70	75.8	74.8	74.8	74.8	74.8	34.8	Yes	No	No	No
S4		4	63.2	70	75.9	74.9	74.9	74.9	74.9	35.0	Yes	No	No	No
S4		5	63.2	70	76.0	75.0	75.0	75.0	75.0	35.0	Yes	No	No	No
N1		1	63.2	70	65.4	66.3	65.7	65.7	65.7	43.7	No	No	No	No
N1		6	63.2	70	68.1	68.9	68.0	68.0	68.0	45.5	No	No	No	No
N1		11	63.2	70	69.2	69.9	68.9	68.9	68.9	47.6	No	No	No	No
N1		16	63.2	70	69.9	70.7	69.4	69.4	69.4	48.9	No	No	No	No
N1		21	63.2	70	71.2	72.2	69.7	69.7	69.7	48.8	No	No	No	No
N1		26	63.2	70	72.1	73.3	70.6	70.6	70.6	50.7	Yes	No	No	No
N1		31	63.2	70	72.1	73.3	70.7	70.7	70.6	51.1	Yes	No	No	No
N1		36	63.2	70	72.1	73.2	70.7	70.7	70.7	51.5	Yes	No	No	No
N2		1	63.2	70	74.2	75.1	72.3	72.3	72.2	54.4	Yes	No	No	No
N2		2	63.2	70	74.9	75.9	73.0	73.0	72.9	55.0	Yes	No	No	No
N2		3	63.2	70	75.4	76.5	73.2	73.2	73.2	55.3	Yes	No	No	No
N2		1	63.2	70	70.9	72.3	71.2	71.2	71.2	48.8	Yes	No	No	No
N3		2	63.2	70	71.8	73.1	72.0	72.0	72.0	49.0	Yes	No	No	No
N3		3	63.2	70	73.7	74.7	73.8	73.8	73.8	49.0	Yes	No	No	No
N3		1	10.0	70	84.2	85.4	82.4	82.4	82.4	58.1	No	No	Yes	No
N3		2	12.8	70	84.4	85.7	82.7	82.7	82.7	58.4	No	No	Yes	No
N3		3	15.6	70	84.3	85.7	83.0	83.0	83.0	58.8	No	No	Yes	No
N3		4	18.4	70	84.2	85.6	83.2	83.2	83.2	59.1	No	No	Yes	No
N3		5	21.2	70	84.0	85.5	83.4	83.4	83.4	59.3	No	No	Yes	No
N3		6	24.0	70	83.8	85.3	83.5	83.5	83.5	59.6	No	No	Yes	No
N3		7	26.8	70	83.6	85.2	83.6	83.6	83.6	59.9	No	No	Yes	No
N3		8	29.6	70	83.3	85.0	83.7	83.7	83.7	60.1	No	No	Yes	No
N3		9	32.4	70	83.1	84.8	83.9	83.9	83.9	60.4	No	No	Yes	No
N3		10	35.2	70	82.9	84.6	84.0	84.0	84.0	60.7	No	No	Yes	No
N3		11	38.0	70	82.6	84.4	84.1	84.1	84.1	61.0	No	No	Yes	No
N3		12	40.8	70	82.4	84.2	84.2	84.2	84.2	61.3	No	No	Yes	No
N3		13	43.6	70	82.2	84.1	84.4	84.4	84.4	61.5	No	No	Yes	No
N3		14	46.4	70	82.0	83.9	84.5	84.5	84.5	61.8	No	No	Yes	No
N3		15	49.2	70	81.8	83.7	84.7	84.7	84.7	62.1	No	No	Yes	No
N3		16	52.0	70	81.6	83.5	84.8	84.8	84.8	62.4	No	No	Yes	No
N3		17	54.8	70	81.4	83.3	85.0	85.0	85.0	62.6	No	No	Yes	No
N3		18	57.6	70	81.2	83.2	85.2	85.2	85.2	62.9	No	No	Yes	No
N3		19	60.4	70	81.0	83.0	85.3	85.3	85.3	63.1	No	No	Yes	No
N3		20	63.2	70	80.9	82.8	85.5	85.5	85.5	63.4	No	No	Yes	No

NSR	Name of Receiver	Floor	Height (mptd)	Statutory Noise Standard, L10, dB(A)	Before Construction		Unmitigated max noise in year 2021	Mitigated Future Noise			Eligibility Test on Indirect Technical Remedies			Indirect Noise Mitigation Required (Yes/No)
					(A)	(B)		(C)	(D) - (E) + (F)	(E)	(F)	Criteria 1 (Yes/No)	Criteria 2 (Yes/No)	
32		21	66.0	70	80.7	82.7	65.7	61.3	63.7	(D-A) > -0.5dB(A)	No	No	Yes	No
32		22	68.8	70	80.5	82.5	65.8	61.3	63.9	(D-B) > -1dB(A)	No	No	Yes	No
32		23	71.6	70	80.4	82.4	66.2	61.3	64.5	(D-E) > -1dB(A)	No	No	Yes	No
32		24	74.4	70	80.2	82.2	66.3	61.3	64.7	(D-E) > -1dB(A)	No	No	Yes	No
32		25	77.2	70	80.1	82.1	66.5	61.3	64.9	(D-E) > -1dB(A)	No	No	Yes	No
32		26	80.0	70	79.9	82.0	66.6	61.2	65.1	(D-E) > -1dB(A)	No	No	Yes	No
32		27	82.8	70	79.8	81.8	66.8	61.2	65.5	(D-E) > -1dB(A)	No	No	Yes	No
32		28	85.6	70	79.6	81.7	67.0	61.2	65.7	(D-E) > -1dB(A)	No	No	Yes	No
32		29	88.4	70	79.5	81.6	67.2	61.2	65.9	(D-E) > -1dB(A)	No	No	Yes	No
32		30	91.2	70	79.4	81.5	67.4	61.2	66.1	(D-E) > -1dB(A)	No	No	Yes	No
32		31	94.0	70	79.2	81.3	67.5	61.3	66.3	(D-E) > -1dB(A)	No	No	Yes	No
32		32	96.8	70	79.1	81.2	67.9	61.3	66.9	(D-E) > -1dB(A)	No	No	Yes	No
32		33	99.6	70	79.0	81.1	68.1	61.3	67.1	(D-E) > -1dB(A)	No	No	Yes	No
32		34	102.4	70	78.9	81.0	68.2	61.4	67.2	(D-E) > -1dB(A)	No	No	Yes	No
32		35	105.2	70	78.8	80.9	68.4	61.4	67.5	(D-E) > -1dB(A)	No	No	Yes	No
32		36	108.0	70	78.7	80.8	68.6	61.4	67.7	(D-E) > -1dB(A)	No	No	Yes	No
32		37	110.8	70	78.6	80.7	68.7	61.4	67.9	(D-E) > -1dB(A)	No	No	Yes	No
32		38	113.6	70	78.5	80.6	68.9	61.4	68.1	(D-E) > -1dB(A)	No	No	Yes	No
32		39	116.4	70	78.4	80.5	69.2	61.4	68.4	(D-E) > -1dB(A)	No	No	Yes	No
32		40	119.2	70	78.3	80.4	69.4	61.4	68.7	(D-E) > -1dB(A)	No	No	Yes	No

## 5.6 Noise Impact Assessment of 24 Hour Opening of Border Study

The Highways Department commissioned a study to undertake the noise impact assessment of 24 hours opening of border crossings in 1994. The study was titled the "Noise Impact Assessment for 24-Hour Opening of Border Crossings." The objectives of the study were to enable the Government to have a comprehensive overview of the effectiveness and practicability of longer term measures for reducing the noise impact from border traffic on residential dwellings close to the roads between Lok Ma Chau and Sha Tin. Noise mitigation measures were recommended for certain areas to reduce the noise impact.

The assessment criterion adopted in the NIA of 24 Hour Opening of Border Crossings is to reduce the noise contribution from the cross border traffic in 2006 to a level which is equal to or more than 10 dB(A) below the corresponding prevailing noise levels at the relevant NSRs before the introduction of 24 hour opening of border crossing in 1994.

In accordance with this criterion, the NIA of 24 Hour Opening of Border Crossings deduced the following noise attenuation required at the respective facades to off-set the increase in noise from additional border traffic during night time for general reference:

Scenery Court	6.3 dB(A)
Wai Wah Centre	6.9 dB(A)
Shatin Plaza	8.5 dB(A)
Lek Yuen Estate	8.5 dB(A)
Wo Che Estate	6.6 dB(A)

The proposed long term noise mitigation measures that were recommended in the NIA for 24 Hour Opening of Border Crossings for the Sha Tin Area (Section 7.3.2 of that Study) are summarised below:

- (1) For Scenery Court and Wai Wah Centre, the Study recommended that a noise canopy is constructed as a long term method for reducing noise levels at these NSRs.
- (2) For the residential building at Villa Le Paro in Lai Chi Yuen, the Study identified this building as being well insulated with air-conditioning and not requiring noise mitigation.
- (3) For the Sha Tin Plaza and Lek Yuen Estate (identified as Kwai Wo House and Lek Chuen House) the study recommended that a detailed study should be undertaken as part of the proposed modification to the interchange at Tai Po Road (Sha Tin) and Sha Tin Rural Committee Road and that further noise mitigation measures should be deferred until the form of changes to the interchange is finalised.
- (4) For Wo Che Estate, the Study recommended that a noise canopy was recommended to reduce noise levels.

The noise reductions achieved or the noise calculated in accordance to the criterion at the NSRs identified in the NIA for 24 Hour Opening of Border Crossing report by the mitigation scheme recommended in this Study are shown in Table 5.11. All the receivers can meet the requirement of the Study.

It should be noted that the Study of 24 Hour Opening of Border Crossing Study recommended 5.5m high canopies to reduce the noise. This Study has concluded that these would not be practicable as they would conflict with sight lines and the sign gantries. Higher barriers of up to 11m height have therefore been recommended in those constraint areas.

Table 5.11 Noise Reduction Calculation for 24 Hour NIA Report

NSR ID	Floor	NSR ID of 24hr	Mitigated	Unmitigated	Gain (Unmitigated - Mitigated), =B-A	Requirement in NIA	Meet NIA requirement	Noise, only for cross border flow in Year 2006 C	Prevailing Noise in Year 1994 D	Meeting the requirement : C<D at least 10 dB(A)
		NIA	A	B		NIA		C	D	
32	1	F15	62.1	83.8	21.7	6.6	Yes			
32	2	F15	62.4	84.1	21.7	6.6	Yes			
32	3	F15	62.8	84.2	21.4	6.6	Yes			
32	4	F15	62.7	84.2	21.5	6.6	Yes			
32	5	F15	63.0	84.1	21.1	6.6	Yes			
32	6	F15	63.2	84.0	20.8	6.6	Yes			
32	7	F15	63.4	83.9	20.5	6.6	Yes			
32	8	F15	63.4	83.7	20.3	6.6	Yes			
32	9	F15	63.6	83.6	19.9	6.6	Yes			
32	10	F15	64.4	83.4	19.1	6.6	Yes			
32	11	F15	63.8	83.3	19.5	6.6	Yes			
32	12	F15	63.8	83.1	19.3	6.6	Yes			
32	13	F15	63.7	83.0	19.2	6.6	Yes			
32	14	F15	63.9	82.8	18.9	6.6	Yes			
32	15	F15	63.8	82.6	18.8	6.6	Yes			
32	16	F15	64.0	82.5	18.5	6.6	Yes			
32	17	F15	64.1	82.3	18.2	6.6	Yes			
32	18	F15	64.2	82.2	18.0	6.6	Yes			
32	19	F15	64.3	82.0	17.7	6.6	Yes			
32	20	F15	64.3	81.9	17.6	6.6	Yes			
32	21	F15	64.5	81.7	17.2	6.6	Yes			
32	22	F15	64.7	81.6	16.9	6.6	Yes			
32	23	F15	65.2	81.5	16.3	6.6	Yes			
32	24	F15	65.4	81.3	16.0	6.6	Yes			
32	25	F15	65.5	81.2	15.7	6.6	Yes			
32	26	F15	65.7	81.1	15.4	6.6	Yes			
32	27	F15	66.0	80.9	15.0	6.6	Yes			
32	28	F15	66.1	80.8	14.7	6.6	Yes			
32	29	F15	66.4	80.7	14.3	6.6	Yes			
32	30	F15	66.6	80.6	14.0	6.6	Yes			
32	31	F15	66.7	80.5	13.7	6.6	Yes			

NSR ID	Floor	NSR ID of 24hr	Mitigated	Unmitigated	Gain (Unmitigated - Mitigated)	Requirement in NIA	Meet NIA requirement	Noise, only for cross border flow in Year 2006	Prevailing Noise in Year 1994	Meeting the requirement : C<D at least 10 dB(A)
32	32	F15	A 67.2	B 80.4	=B-A 13.1	6.6	Yes	C	D	
32	33	F15	67.4	80.2	12.8	6.6	Yes			
32	34	F15	67.6	80.1	12.6	6.6	Yes			
32	35	F15	67.8	80.0	12.2	6.6	Yes			
32	36	F15	68.0	79.9	12.0	6.6	Yes			
32	37	F15	68.2	79.8	11.7	6.6	Yes			
32	38	F15	68.4	79.7	11.4	6.6	Yes			
32	39	F15	68.7	79.6	10.9	6.6	Yes			
32	40	F15	68.9	79.5	10.6	6.6	Yes			
1-1	1		68.2	68.2	0.0	6.3	No	39	69	Yes
1-1	6		69.4	69.4	0.0	6.3	No	51	71	Yes
1-1	11		69.0	69.0	0.0	6.3	No	49	71	Yes
1-1	16		68.5	68.5	0.0	6.3	No	51	70	Yes
1-1	21		67.9	67.9	0.0	6.3	No	55	70	Yes
1-2	1		50.7	59.8	9.1	6.3	Yes			
1-2	6		51.5	68.5	17.1	6.3	Yes			
1-2	11		52.2	69.8	17.6	6.3	Yes			
1-2	16		52.9	69.5	16.6	6.3	Yes			
1-2	21		53.9	69.1	15.2	6.3	Yes			
1-3	1	F9	62.4	62.9	0.5	6.3	No	39	69	Yes
1-3	6	F9	66.0	68.2	2.2	6.3	No	53	71	Yes
1-3	11	F9	66.1	68.2	2.1	6.3	No	52	71	Yes
1-3	16	F9	65.8	67.8	1.9	6.3	No	53	70	Yes
1-3	21	F9	65.6	67.4	1.8	6.3	No	56	70	Yes
1-4	1		53.3	63.8	10.4	6.3	Yes			
1-4	6		54.4	73.1	18.7	6.3	Yes			
1-4	11		55.4	73.7	18.3	6.3	Yes			
1-4	16		56.4	73.2	16.8	6.3	Yes			
1-4	21		57.5	72.7	15.2	6.3	Yes			
4-1	1	F10	62.1	74.7	12.6	6.9	Yes			

NSR ID	Floor	NSR ID of 24hr	Mitigated	Unmitigated	Gain (Unmitigated - Mitigated) =B-A	Requirement in NIA	Meet NIA requirement	Noise, only for cross border flow in Year 2006 C	Prevailing Noise in Year 1994 D	Meeting the requirement : C<D at least 10 dB(A)	
		NIA	A	B		NIA		C	D		
4-1	6	F10	65.5	82.8	17.2	6.9	Yes				
4-1	11	F10	67.6	81.6	14.0	6.9	Yes				
4-1	16	F10	69.7	80.6	10.8	6.9	Yes				
4-1	21	F10	72.0	79.7	7.7	6.9	Yes				
4-2	1		61.3	72.6	11.3	6.9	Yes				
4-2	6		65.5	82.2	16.7	6.9	Yes				
4-2	11		67.9	81.2	13.3	6.9	Yes				
4-2	16		68.0	80.3	12.4	6.9	Yes				
4-2	21		69.8	79.5	9.8	6.9	Yes				
4-3	1		60.2	70.7	10.5	6.9	Yes				
4-3	6		63.4	81.1	17.7	6.9	Yes				
4-3	11		64.5	80.7	16.2	6.9	Yes				
4-3	16		67.9	80.1	12.2	6.9	Yes				
4-3	21		69.3	79.4	10.1	6.9	Yes				
4-4	1		55.6	60.8	5.2	6.9	No	43	72		Yes
4-4	6		59.6	69.6	10.0	6.9	Yes				
4-4	11		61.3	77.5	16.2	6.9	Yes				
4-4	16		66.9	79.4	12.5	6.9	Yes				
4-4	21		68.8	78.9	10.1	6.9	Yes				
5-1	1	F11	62.5	69.7	7.1	8.5	No	42	64		Yes
5-1	6	F11	68.9	78.6	9.7	8.5	Yes				
5-1	11	F11	69.1	79.0	9.8	8.5	Yes				
5-1	16	F11	68.9	78.9	9.9	8.5	Yes				
5-1	21	F11	68.9	78.5	9.6	8.5	Yes				
5-2	1		63.2	70.2	7.1	8.5	No	42	64		Yes
5-2	6		69.8	79.1	9.3	8.5	Yes				

NSR ID	Floor	NSR ID of 24hr	Mitigated	Unmitigated	Gain (Unmitigated - Mitigated)	Requirement in NIA	Meet NIA requirement	Noise, only for cross border flow in Year 2006	Prevailing Noise in Year 1994	Meeting the requirement: C<D at least 10 dB(A)
		NIA	A	B	=B-A	NIA		C	D	
5-2	11		70.0	79.1	9.2	8.5	Yes			
5-2	16		69.8	78.8	9.0	8.5	Yes			
5-2	21		69.6	78.4	8.8	8.5	Yes			
5-3	1		63.5	70.6	7.1	8.5	No	41	64	Yes
5-3	6		70.0	79.0	9.1	8.5	Yes			
5-3	11		70.0	79.1	9.0	8.5	Yes			
5-3	16		69.8	78.7	8.9	8.5	Yes			
5-3	21		69.6	78.3	8.7	8.5	Yes			
5-4	1		64.0	71.5	7.6	8.5	No	40	64	Yes
5-4	6		70.0	79.0	9.0	8.5	Yes			
5-4	11		69.9	78.9	9.1	8.5	Yes			
5-4	16		69.6	78.6	9.0	8.5	Yes			
5-4	21		69.3	78.2	8.9	8.5	Yes			
16-1	1		62.7	76.7	13.9	8.5	Yes			
16-1	6		65.9	79.1	13.2	8.5	Yes			
16-1	11		66.6	79.3	12.8	8.5	Yes			
16-1	16		67.6	79.0	11.5	8.5	Yes			
16-1	21		69.6	78.6	9.0	8.5	Yes			
16-2	1	F12	60.5	73.3	12.9	8.5	Yes			
16-2	6	F12	62.3	76.3	14.0	8.5	Yes			
16-2	11	F12	64.3	78.1	13.8	8.5	Yes			
16-2	16	F12	65.5	78.2	12.8	8.5	Yes			
16-2	21	F12	65.9	78.1	12.1	8.5	Yes			
18-1	1		53.1	63.8	10.7	8.5	Yes			
18-1	6		55.3	65.5	10.2	8.5	Yes			
18-1	11		57.5	72.8	15.3	8.5	Yes			
18-1	16		59.3	73.3	14.0	8.5	Yes			
18-1	21		61.3	73.7	12.4	8.5	Yes			



NSR ID	Floor	NSR ID of 24hr	Mitigated	Unmitigated	Gain (Unmitigated - Mitigated)	Requirement in NIA	Meet NIA requirement	Noise, only for cross border flow in Year 2006 C	Prevailing Noise in Year 1994 D	Meeting the requirement : C<D at least 10 dB(A)
		NIA	A	B	=B-A	NIA		C	D	
18-2	1		54.3	70.4	16.1	8.5	Yes			
18-2	6		56.2	71.3	15.1	8.5	Yes			
18-2	11		58.3	73.9	15.6	8.5	Yes			
18-2	16		59.8	74.3	14.6	8.5	Yes			
18-2	21		60.7	74.5	13.8	8.5	Yes			
22-1	1	F13	53.0	77.2	24.2	8.5	Yes			
22-1	6	F13	54.4	77.9	23.5	8.5	Yes			
22-1	11	F13	55.7	77.7	22.0	8.5	Yes			
22-1	16	F13	57.0	77.4	20.4	8.5	Yes			
22-1	21	F13	58.2	76.9	18.7	8.5	Yes			
26-1	1	F14	56.3	81.3	25.0	6.6	Yes			
26-1	6	F14	57.9	81.9	24.0	6.6	Yes			
26-1	11	F14	58.9	81.3	22.4	6.6	Yes			
26-1	16	F14	60.1	80.6	20.6	6.6	Yes			
26-1	21	F14	61.2	79.9	18.7	6.6	Yes			
27-1	1		46.6	71.0	24.4	8.5	Yes			
27-1	6		47.2	71.9	24.6	6.6	Yes			
27-1	11		48.1	72.2	24.0	6.6	Yes			
27-1	16		49.3	72.9	23.6	6.6	Yes			
27-1	21		50.6	73.0	22.4	6.6	Yes			
27-2	1		47.3	68.6	21.3	6.6	Yes			
27-2	6		48.2	69.4	21.2	6.6	Yes			
27-2	11		49.2	69.8	20.6	6.6	Yes			
27-2	16		50.3	70.3	19.9	6.6	Yes			
27-2	21		52.2	70.7	18.5	6.6	Yes			
34-1	1		51.4	67.1	15.7	6.6	Yes			
34-1	6		53.0	67.9	15.0	6.6	Yes			
34-1	11		53.8	70.6	16.8	6.6	Yes			
34-1	16		54.4	72.0	17.7	6.6	Yes			
34-1	21		54.8	72.8	18.0	6.6	Yes			

NSR ID	Floor	NSR ID of 24hr	Mitigated	Unmitigated	Gain (Unmitigated - Mitigated)	Requirement in NIA	Meet NIA requirement	Noise, only for cross border flow in Year 2006	Prevailing Noise in Year 1994	Meeting the requirement : C<D at least 10 dB(A)
		NIA	A	B	=B-A			C	D	
34-2	1		51.4	67.7	16.3	6.6	Yes			
34-2	6		53.4	68.5	15.1	6.6	Yes			
34-2	11		54.3	71.1	16.8	6.6	Yes			
34-2	16		55.0	73.2	18.2	6.6	Yes			
34-2	21		55.4	74.5	19.0	6.6	Yes			
36-1	1		50.3	70.4	20.1	6.6	Yes			
36-1	6		51.4	71.2	19.8	6.6	Yes			
36-1	11		52.6	72.2	19.6	6.6	Yes			
36-1	16		53.5	73.7	20.3	6.6	Yes			
36-1	21		54.2	74.7	20.5	6.6	Yes			
36-2	1	F16	53.0	75.0	22.0	6.6	Yes			
36-2	6	F16	54.9	75.8	20.9	6.6	Yes			
36-2	11	F16	55.9	76.1	20.2	6.6	Yes			
36-2	16	F16	57.0	76.4	19.4	6.6	Yes			
36-2	21	F16	57.7	76.3	18.6	6.6	Yes			
36-3	1		48.5	68.6	20.1	6.6	Yes			
36-3	6		49.2	69.4	20.2	6.6	Yes			
36-3	11		51.0	69.7	18.7	6.6	Yes			
36-3	16		58.6	70.0	11.4	6.6	Yes			
36-3	21		62.7	70.5	7.7	6.6	Yes			
36-4	1	F17	56.5	77.2	20.7	6.6	Yes			
36-4	6	F17	59.8	77.8	18.1	6.6	Yes			
36-4	11	F17	60.7	78.2	17.5	6.6	Yes			
36-4	16	F17	62.8	78.8	16.0	6.6	Yes			
36-4	21	F17	65.1	78.6	13.5	6.6	Yes			
36-5	1		54.3	61.1	6.7	6.6	Yes			
36-5	6		58.3	61.7	3.4	6.6	No	54	72	Yes
36-5	11		64.2	71.4	7.2	6.6	Yes			

NSR ID	Floor	NSR ID of 24hr	Mitigated	Unmitigated	Gain (Unmitigated - Mitigated) =B-A	Requirement in NIA	Meet NIA requirement	Noise, only for cross border flow in Year 2006 C	Prevailing Noise in Year 1994 D	Meeting the requirement : C<D at least 10 dB(A)
		NIA	A	B		NIA				
36-5	16		66.0	76.0	9.9	6.6	Yes			
36-5	21		68.3	76.4	8.2	6.6	Yes			
39-1	1		47.0	48.4	1.4	6.6	No	40	70	Yes
39-1	6		53.9	55.6	1.7	6.6	No	45	72	Yes
39-1	11		65.2	68.0	2.8	6.6	No	59	72	Yes
39-1	16		65.8	71.7	5.9	6.6	No	60	71	Yes
39-1	21		65.8	71.4	5.6	6.6	No	60	70	Yes
39-2	1		49.7	58.6	8.9	6.6	Yes			
39-2	6		50.6	59.7	9.1	6.6	Yes			
39-2	11		51.4	59.9	8.5	6.6	Yes			
39-2	16		51.4	68.5	17.2	6.6	Yes			
39-2	21		51.5	70.3	18.9	6.6	Yes			
39-3	1		65.7	65.8	0.1	6.6	No	55	70	Yes
39-3	6		66.7	66.8	0.1	6.6	No	57	72	Yes
39-3	11		68.1	68.8	0.8	6.6	No	58	71	Yes
39-3	16		69.1	73.5	4.4	6.6	No	59	71	Yes
39-3	21		69.5	73.6	4.1	6.6	No	60	70	Yes

Mitigated Noise Levels

Noise impacts at all NSRs in the Study Area with the implementation of the mitigation scheme for the TM and the 24 hour border crossing report are summarised in Table 5.12.

Table 5.12 Mitigated Traffic Noise Level, L10 (1 hour)

NSR	Name	Noise standard	Predicted Noise (Maximum)
1-1 to 1-4	Scenery Court	70	78
2-1 to 2-4	Hilton Plaza	70	76
3-1 to 3-6	New Town Plaza	70	68
4-1 to 4-4	Wai Wah Centre	70	73
5-1 to 5-4	Shatin Plaza	70	70
6-1 to 6-2	Sha Tin Centre	70	65
7-1 to 7-3	Lucky Plaza	70	77
15-1, 15-2, 16-1, 16-2, 17-1, 17-2, 18-1, 18-2, 22	Lek Yuen Estate	70	82
19-1 to 19-2	Shatin Tsung Tsun School	65	65
20-1 to 20-2	Lek Yuen Community Hall	70	61
21-1 to 21-2	Sky Holy Spirit Primary School	65	60
26	Shatin Fire Stations Quarters	70	62
27-1, 27-2, 28-1, 29-1, 29-2, 34-1, 34-2, 36-1 to 36-5, 39-1 to 39-3	Wo Che Estate	70	78
31	Wo Che Lutheran Middle School, Ko Fook lu Memorial School	65	56
33	Kiangsu-Chekiang College (Shatin)	65	56
35-1 to 35-2	Pui Ying College (Sha Tin)	65	65
45-1, 45-2	Shatin Technical Institute	65	76
NI, 46-1 to 46-2	Sui Wo Court	70	74
47-1 to 47-2	Kindergarten	65	69
50	Po Leung Kuk Siu Hon-sum Primary School	65	70

NSR	Name	Noise standard	Predicted Noise (Maximum)
51-1 to 51-4	Jockey Club Ti - I College	65	83
52-1 to 52-3	Chun Hang Court, Chun Yat Court, Chun Hei Court	70	81
53-1 to 53-7	Ha Wo Che	70	67
54-1 to 54-7	Sheung Wo Che	70	69
55-1 to 55-2	Pai Tau	70	67
56-1 to 56-4	Tin Liu	70	76
57-1 to 57-4	Villa Le Paro	70	78
58	Villa Augustana	70	79
60	Church	70	81
R3 - R5	Proposed Development Area near Lai Chi Yueh	70	80
S1	Shatin Clinic	55	79
S2 - S4	RC Heritage Museum	70	77
N2	Isolated Houses in Fo Tan	70	73
N3	Isolated Houses in Fo Tan	70	74
32	HOS Development in Fung Wo Lane	70	69
R1, R2	Isolated Houses near Sui Wo Court	70	76

## 5.7 Conclusions

During construction activities, noise from heavy equipment may generate noise levels above the noise criteria unless mitigation is applied. With the implementation of the recommended noise mitigation measures, construction noise impacts will be within the acceptable noise criteria without residual impacts. The contractor is responsible to make sure that the noise level does meet the standards during construction.

For operational noise impacts, the modelling has shown that future (year 2021) noise levels at NSRs in the Project Area can be reduced to a less than 1.0 dB(A) change from prevailing (year 2003) conditions. However, the existing, as well as future, noise levels are above the noise criteria at most of the NSRs in the area. Therefore, the long term residual impact will be the continuation of the existing exceedance of noise criteria at these sensitive receivers.