BELCHER'S BAY LINK ENVIRONMENTAL ASSESSMENT REPORT

VOLUME I - NOISE



ENVIRONMENTAL ASSESSMENT REPORT

This Report consists of the following:

- A Introduction
- B. Volume I Noise
- C. Volume II Water Quality & Air Quality

ENVIRONMENTAL ASSESSMENT REPORT

INTRODUCTION

ENVIRONMENTAL ASSESSMENT REPORT

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- 1. Background of the Project
- 2. Method of Construction
- 3. Objective of the Assessment

ENVIRONMENTAL ASSESSMENT REPORT

1.	Background of the Project
1.1	In 1988, the "Western District Traffic Study" (WDTS) recommended the construction of Belcher Bay Link to improve the traffic conditions in the Western District.
1.2	On 7th March 1988, the Traffic & Transport Committee of the Central & Western District Board fully supported this scheme and advised Government to accord this scheme with priority.
1.3	This project was presented to the Traffic & Transport Committee of the Central & Western District Board on 22nd May 1991. Members were informed of the following major items of works constituting the Project (see Fig. 1):
	o the construction of a dual carriageway at ground level across the new reclamation at Belcher Bay to link up the existing upgraded Connaught Road West with Smithfield in Kennedy Town;
	o the construction of a Public Cargo Working Area (PCWA) along the new seafront for reprovisioning of existing cargo handling facilities along Kennedy Town Praya affected by the new reclamation; and
	o the ancillary seawall construction and reclamation works to form the new reclamation at Belcher Bay required for the road link and PCWA.
1.4	It is anticipated that the proposed works would take 44 months to complete.
1.5	The present proposed layout of the Belcher Bay Link is a temporary configuration and would last for around 10 years. Upon implementation of the larger Green Island Reclamation, Belcher Bay Link would be relocated to a more northerly alignment.
2.	Method of Construction
	Reclamation
2.1	The existing seabed will be dredged to remove the soft marine mud for the construction of seawall foundation.
2.2	The reclamation will be constructed with marine sand fill and other suitable material in three phases (see Fig. 2a, 2b and 2c). Placing of marine sand fill would be by barge open-bottom dumping or grabbing dependent upon the depth of water available.

Seawall

- 2.3 The majority of the seawall is of the traditional vertical concrete blockwork wall (see Fig. 3) constructed on sand fill and pell mell rubble mound foundation.
- 2.4 At the west end of the reclamation where dredging of the existing seabed will destabilise the existing seawall, a "Relief Platform" and "Portal Frame" type of seawall is adopted (see Fig. 4 and 5). These types of seawall involve installation of steel pipe piles, steel H-piles and a cast insitu reinforced concrete slab.

Roads and Drainage Works

- 2.5 The roads and drainage works would involve earth excavation, compaction by rollers and other common construction vehicles.
- 2.6 The stormwater collector box culvert to be constructed along the existing Kennedy Town Praya will be of cast insitu reinforced concrete and founded on precast concrete piles.

3. Objective of the Assessment

3.1 The objectives of the environmental assessment were:

- to identify sensitive receivers affected by construction and operation of the ground level road link and the construction of the associated reclamation;
- o to assess noise, air and water quality impacts arising from the construction phase;
- o to assess noise, air and water quality impacts arising from the operational phase;
- o to recommend direct mitigation measures to reduce impacts to acceptable standards; and
- to propose a series of monitoring programmes to ensure compliance with environmental quality standards during construction.

ENVIRONMENTAL ASSESSMENT REPORT

VOLUME I - NOISE

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1. ASSESSMENT OF CONSTRUCTION NOISE

1.1 Construction Works

- 1.1.1 The project involves construction of a reclamation, a ground level road and the associated drainage works (Fig. 1 Appendix I).
- 1.1.2 The sea bed would be dredged to remove soft marine mud for the seawall foundation. An area of approximately 10.3 ha would be reclaimed by marine sand fill.
- 1.1.3 The majority of the sea wall would be the traditional vertical concrete blockwork wall constructed by laying pell mell rubble mounds and concrete sea wall blocks with granite facing above 1.65 mCD.
- 1.1.4 Dredging for sea wall foundation would not be carried out within 25 metres in front of the existing sea wall of the Praya. This would avoid destabilising the existing sea wall during construction. Sea wall in the non-dredged area would take the form of "Relief Platform" or "Portal Frame" formed from steel sheet pipe piles, H-piles and a reinforced concrete slab.
- 1.1.5 Placing of marine sand fill and other suitable material would be by open-bottom barge or hydraulic pumping.
- 1.1.6 The roads and drainage works would involve excavation, compaction by rollers and other construction vehicles.

1.2 Technical Memoranda

- 1.2.1 Procedures for the assessment and control of noise from general construction and piling activities are given in the following Technical Memoranda (TM), of the Noise Control Ordinance (NCO).
 - a. Technical Memorandum on Noise from Construction work other than Percussive Piling; and
 - b. Technical Memorandum on Noise from Percussive Piling.
- 1.2.2 Contractors are required to obtain noise permits from the EPD for carrying out general construction works for time other than weekday daytime, whereas for percussive piling permits are needed in the weekday daytime and no operation is allowed other than these. Contractors' application will be assessed by the EPD in accordance with the two following Technical Memoranda.
 - Technical Memorandum on Noise from Construction work other than Percussive Piling.

For general construction work, no noise restriction is imposed during daytime hours of the normal working day (07.00 - 19.00 hrs., Monday - Saturday inclusive). Contractors are expected to carry out activities including dredging of marine mud, placing of marine sand, pell mell rubbles and seawall blocks, concreting, roadworks and drainage works during these times. However, for 19.00 - 23.00 hrs in the evening, 23.00 - 07.00 hrs at night, Sundays and Public Holidays, Acceptable Noise Levels (ANL) have been stipulated and shown in Table 1.1.

Table 1.1 Acceptable Noise Levels (ANL) for General Construction Work

	ASR			
Time Period	A	В	С	
All days during the evening (1900-2300 hours), and general holidays (including Sundays) during the daytime and evening (0700-2300 hours)	60	65	70	
All days during the night-time (2300-0700 hours)	45	50	55	

From the study of the surrounding noise environment carried out by the Green Island Reclamation Feasibility Study (Appendix VI), the Area Sensitivity Rating for the designated NSRs should be "C" as they are located in the urban area. The corresponding ANL for general construction works are 70 dB(A) at all evenings and daytime for public holidays and 55 dB(A) for night-time.

It is expected that general construction noise level due to the worst combination of dump trucks and excavators for processing land fill material adjacent to Kennedy Town Praya is around 92 dB(A) (see Appendix VI). This represents the worst case scenario and is highly unlikely to be persistent as after working close to Kennedy Town Praya for a few hours, the plants have to be moved to cover the reclamation area further away. Although there are no statutory requirements for limits daytime construction noise, the control of daytime noise will be exercised in the form of contract noise control clauses. The Contractor is required to incorporate mitigation measures approved by the Engineer, wherever necessary into their works to reduce daytime noise levels. Mitigation measures such as acoustic screening of plant equipment, use of silenced equipment and scheduling of construction activities shall be adopted.

b. Technical Memorandum on noise from percussive piling

The ANL for piling noise is generally 85 dB(A) for receivers with windows or other openings but without central air conditioning system. However, 10 dB(A) is subtracted from ANL for NSRs which are hospitals, medical clinics and educational institutions. This is not applicable in the case of Belcher Bay Link (BBL).

Installing the steel pipe piles by percussion method at the west end of the reclamation would have noise level in the order of 100 dB(A) (after applying the correction factor corresponds to a distance of 12 m. for NSRs along the land-side of the Praya). An alternative way of installation would be by boring. Techniques such as grab and chisel, and reverse circulation drill would have noise level reduced to 85 dB(A).

In the case of the steel raking piles further away from the Praya at the west end of the reclamation, it would appear that installation by percussive piling is the most efficient method in terms of subsequent pile performance. The expected noise level would be in the order of 100 dB(A). Some kind of shields would need to be provided to reduce the CNL to ANL. The shield may take the form of casing around the pile head.

1.3 Conclusions and Recommendations

- 1.3.1 As stipulated by the Noise Control Ordinance, the Contractor is required to obtain the necessary Construction Noise Permit to enable him to carry out the construction works within the specified time periods.
- 1.3.2 We would recommend the Contractor to carry out activities such as dredging of marine mud, placing of marine sand, pell mell rubbles, sea wall blocks and other suitable reclamation materials, concreting, roadworks and drainage works during the permitted normal daytime working hours (07.00 19.00 hrs., Monday Saturday inclusive). The Contractor would be required to observe the noise control requirements and propose mitigating measures for approval by EPD if he wished to carry out these works in other times.
- 1.3.3 Installing steel piles by percussive piling would give rise to CNL exceeding ANL. We would recommend that the Contractor should give consideration to alternative installation techniques which could reduce the construction noise level to the level acceptable by EPD. These techniques might include grab and chisel, reverse circulation drill and the use of shield in the form of casing around the pile head.

2. ASSESSMENT OF TRAFFIC NOISE

2.1 Traffic Scenarios

2.1.1 The following traffic scenarios are selected to establish the traffic noise level for comparison:

a. Design year 1991

Traffic flow figures (Fig. AII.1/3 - Appendix II) were obtained from WDTS. The flow figures were used to establish the existing traffic noise level.

b. Design year 1996 (without WHC and BBL)

Traffic flow figures (Fig. AII.2/1 - Appendix II) were obtained from WDTS. The flow figures represent the growth of traffic flow without implementation of WHC and BBL and thus the expected traffic noise level by 1996.

c. Design year 1996 (with WHC and BBL in place)

Traffic flow forecast (Fig. 2.1 - Appendix II) were obtained from a traffic model tailor-made for this project with the following assumptions:

Completion of:

- o Belcher Bay Link
- o Western Harbour Crossing
- o Smithfield Extension
- o Route 7 up to Belcher Bay reclamation
- o Widening of Kennedy Town Praya
- Kennedy Town Traffic Management Stage "3"

Results were used to establish the implication of Belcher Bay Link on traffic noise.

d. Design year 2006

Results obtained from the same model as described in 2.1 c. at 2006 (Fig. 2.2 - Appendix II) reflect the growth of traffic flow with WHC and BBL in place.

- 2.1.2 Peak hour traffic flows in PCUs and the equivalent number of vehicles for design years 1991, 1996 and 2006 shown in Appendix II.
- 2.2 Selection of Noise Sensitive Receivers (NSRs)
- 2.2.1 The layout of BBL is shown in Fig. I. The new road link runs close to Kennedy Town Praya near Queen's Road West. The NSRs in this area are selected for traffic noise assessment.
- 2.2.2 The NSRs (Fig. 2.3 Appendix III) selected for the assessment are:

a. No. 430 - 440 Kwan Yick Building
Des Voeux Road West

Building layout Multi-storey commercial / residential building with a podium

at 2/F and a set-back by 9 m for residential flats above.

Road layout BBL is covered by the elevated deck of Route 7.

The ground and 1/F shops and offices are not classified as NSRs. Dwellings from 2/F up are classified as NSRs. However, the presence of the elevated deck of Route 7 would effectively shield most of the noise from BBL. It is evident that BBL would be a small contributor at this location. Traffic noise calculations are therefore not necessary.

b. No. 453 - 462 Location A
Des Voeux Road West

Building layout 7 storey residential building from 1st floor up; and

Shops at ground level.

Road layout West bound down ramp of Route 7 lies between BBL and

NSRs.

This location is the closest point to both BBL and Route 7. Two levels, 6 m. and 22 m. (top floor) above ground are chosen to assess traffic noise. Shielding effect due to the Route 7 down ramp has been ignored. The calculated noise levels can therefore be expected to represent a high assessment.

c. No. 1 - 2 Kennedy Location B

Town Praya

Building layout Multi-storey commercial / residential building with a podium

at 4/F and a 3 m set-back for residential flats above; and

Shops at ground level.

Road layout The retaining wall of Route 7 down ramp acts as noise

barrier to BBL.

Two levels, 5 m. and 25 m. above ground are chosen to assess the traffic noise level.

d. No. 468 - 470

Location C

Des Voeux Road West Wo Fat Building

Building layout

Multi-storey residential building with a podium at 1/F and a

3m set back for residential flats from 2/F up; and

Garage at ground level.

Road layout

The retaining wall of Route 7 down ramp acts as noise

barrier to BBL.

e. Pearl Court

Location P

Kennedy Town Praya

Building layout

Multi-storey residential building.

Road layout

BBL is approximately 100 m. north of the building.

f. New Fortune House

Kennedy Town New Praya

Location Q

Building layout

Multi-storey residential building.

Road layout

Approximately 30 m. south of the eastbound carriageway of

BBL near the Smithfield junction.

Note: Two levels 7.3 m. and 28 m. above ground are chosen to calculate the traffic noise level for NSRs of a, b, c and d. Levels of 5 m. and 10.5 m. were chosen for NSRs of e. and f. respectively.

2.3 Reference of Calculations

2.3.1 General

The method of calculating traffic noise levels is that given in "The Calculation of Road Traffic Noise 1988" by U.K. Department of Transport as required by the Hong Kong Planning Standards & Guidelines. Road traffic noise is presented in terms of L10 (1 hour) dB(A) for both AM and PM peak traffic flows (Appendix V).

2.3.2 Vehicle speed and gradient

Design speed of BBL and Route 7 is 50 kph and 70 kph respectively. Vehicles along Kennedy Town Praya are observed travelling at lower speed of about 30 kph due to tram movements and loading and unloading activities. With the implementation of Kennedy Town Traffic Management Stage 3, traffic speed would be normalised to 50 kph. Gradient of the ramps and ground routes are 8% and approximately 0% respectively.

2.3.3 Pavement surfaces

An open texture wearing course has been recommended to be used on the Route 7 ramps whilst BBL and Kennedy Town Praya would have ordinary flexible pavement. Reclaimed land surface other than carriageway is assumed to have a noise absorbent nature and is classified as soft ground.

2.3.4 Barriers

Retaining structures of the Route 7 down ramp would act as a noise barrier to BBL. Concrete profile barriers on elevated structures and along central reserves of the ground level road are assumed to act as noise barriers not greater than 0.8m above carriageway, and have been incorporated into the model accordingly.

2.4 Traffic Noise Level

- 2.4.1 The summary of traffic noise levels and calculations are appended to this report (Appendix IV). Table 1 and 2 summarise the noise levels for the selected NSRs:
 - a. At 1991, traffic noise levels have been assessed at 76/77 dB(A) at the lower level and 71/72 dB(A) at the higher level along Des Voeux Road West and Kennedy Town Praya.

The traffic noise level increases by approximately 1 dB(A)(L10) from 1991 to 1996 in the absence of BBL.

b. With BBL and Route 7 down ramps in place, traffic noise levels at 2006 are predicted to be 77/78 dB(A) at the lower level and 75/76 dB(A) at the higher level along Des Voeux Road West and Kennedy Town Praya.

2.4.2 Conclusions

- a. The noise assessment shows a relative small increase of up to 2 dB(A) in noise level at lower floor levels by 2006 when compared with noise level at 1996 in the absence of BBL. Due to the redistribution of traffic flow with BBL in place, some of the selected NSRs would experience a slight reduction in noise level.
- b. Similarly, at higher floor levels, it is predicted that traffic noise level would be increased by 2 to 4 dB(A) by 2006. When compared with which denied at 1996 in the absence 3BLC
- c. The noise level contribution break down shows that Kennedy Town Praya, being the nearest to the NSRs, is the major contributor of traffic noise.

2.5 Mitigation Measures and Opportunities

2.5.1 Open Texture Friction Course

The use of open texture friction course on BBL would further reduce the traffic noise level contribution from BBL about by 2.5 dB(A) (ordinary flexible pavement has been assumed in the initial assessment). However, the overall improvement to NSRs at lower floor levels is found to be negligible as the major contribution of traffic noise comes from Kennedy Town Praya which would not have the benefit of open texture friction course. At the higher floor levels, a reduction of 1 dB(A) is predicted with the use of open texture friction course on BBL. The reduction of traffic noise levels resulted from the use of friction course is shown in Table 3 and 4 of the summary (Appendix IV).

2.5.2 Noise Barriers

Possible locations for installing noise barriers within BBL project area would be along the central reserve and the near-side of the west bound carriageway (fig. 2.3) and the corresponding shielding areas for the NSRs are shown in Fig. 2.3A-C of Appendix III.

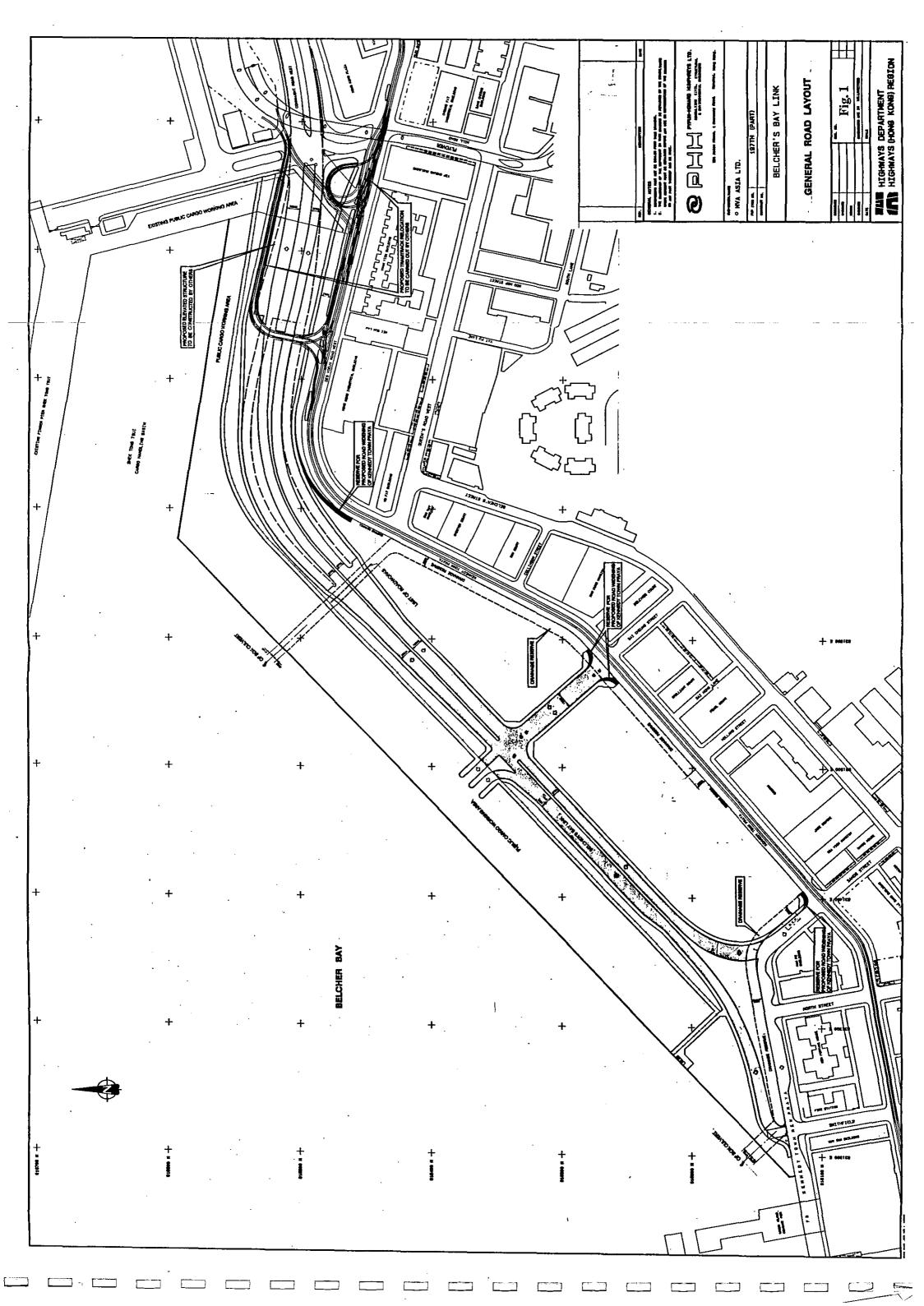
With BBL only contributing a marginal increase in traffic noise at lower floor levels, the installation of noise barriers along the central reserve and the near-side of the west bound carriageway would have little effect on reducing the overall traffic noise level.

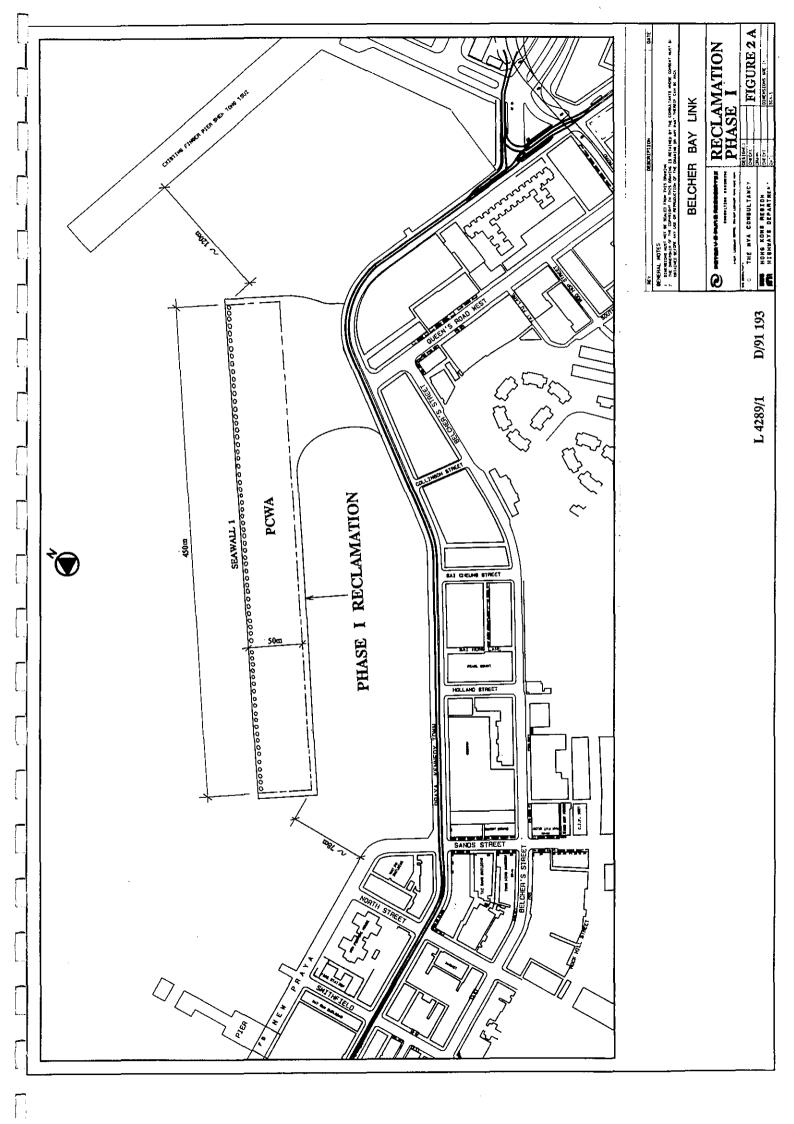
At higher floor levels, the maximum increase in traffic noise would be 4 dB(A) (Table 2 of Appendix IV) at Location A by 2006. Major contributions of the increase in traffic noise come from Kennedy Town Praya and Route 7 west bound down ramp. The installation of noise barriers within the limit of BBL would again have little effect on reducing the noise level (Table 7 and 8 - Appendix IV). Noise barriers up to 3 m. high on Route 7 down ramp would give rise to a reduction of 1 dB(A) in traffic noise at high floor levels (up to 22 m.). However, this would have implication on the temporary ramp structure and is outside the scope of this project.

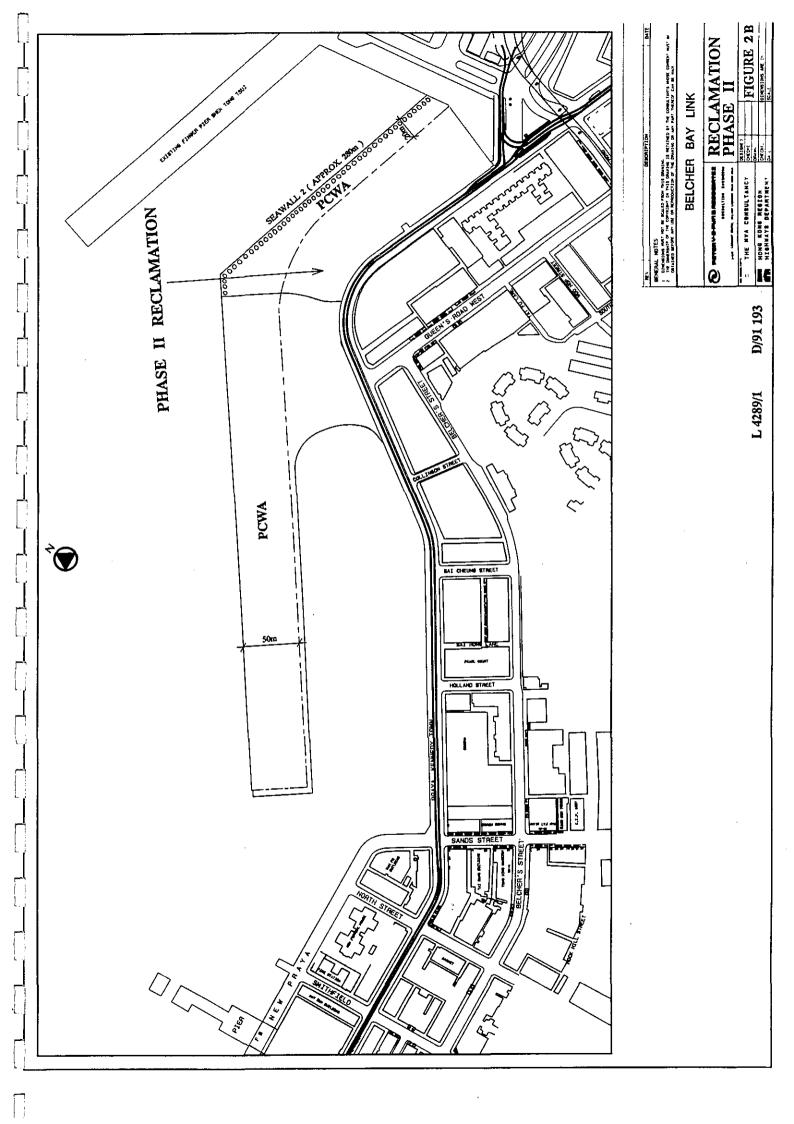
2.6 Conclusion and Recommendations

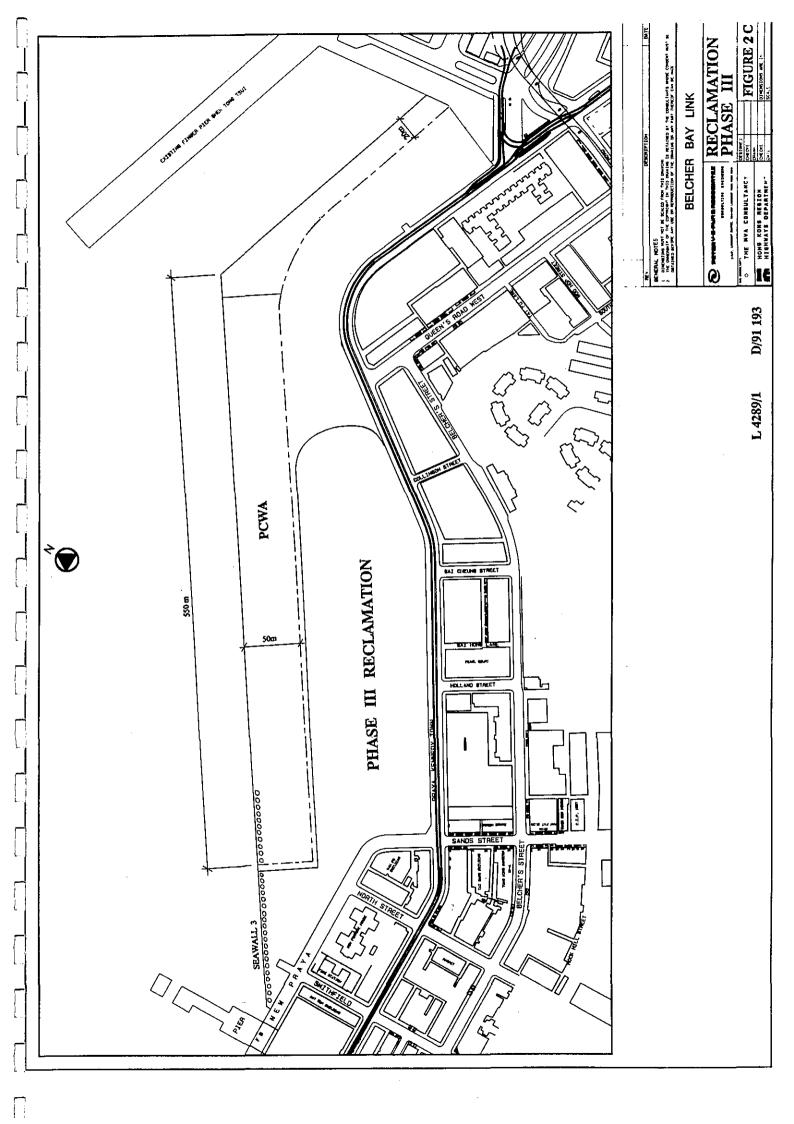
- 2.6.1 Traffic noise contributed by BBL to NSRs in the vicinity of Des Voeux Road West and Queen's Road West would be negligible at lower floor levels, based on the traffic model set up for BBL with the implementation of Kennedy Town Traffic Management Stage 3 and inclusion of Western Harbour Crossing and Route 7 up to Kennedy Town.
- 2.6.2 NSRs at higher floor levels would experience noise level increase up to 4 dB(A) by 2006 when compared with the predicted traffic noise level at 1996 in the absence of BBL. The main contribution of the increase in traffic noise level comes from Route 7 westbound down ramp and Kennedy Town Praya.
- 2.6.3 With the Route 7 down ramp and Kennedy Town Praya as the major contributor in traffic noise, mitigating measures implemented within BBL would not improve the overall noise level significantly. The improvements are limited to 1 dB(A). The installation of noise barriers within BBL boundaries is not recommended. However, it is recommended that suitable mitigation measures should, whenever possible, be incorporated into works associated with these major contributors.
- 2.6.4 The use of open texture friction course material for BBL road surface is predicted to reduce traffic noise level by 1 dB(A). The result is similar to the case of noise barriers. Because of the small improvement achieved, it can be concluded that the types of flexible road pavement material to be used on BBL would not have significant effects on noise reduction. The use of open texture material is not recommended for BBL.
- 2.6.5 Reduction of noise level for NSRs at higher floor levels as concluded in 2.6.2 should be obtained from mitigation measures on the major traffic noise contributors which include the Route 7 down ramp and Kennedy Town Praya. However, works in these areas are outside the limits of this project.

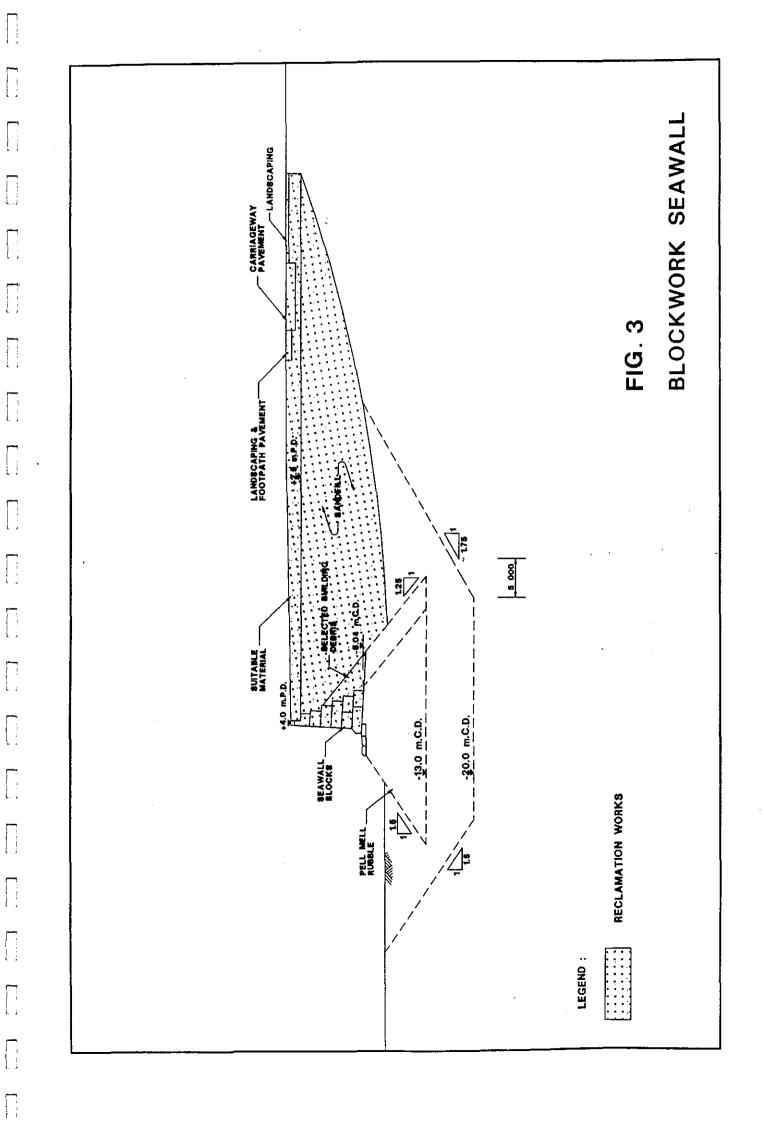
APPENDIX I

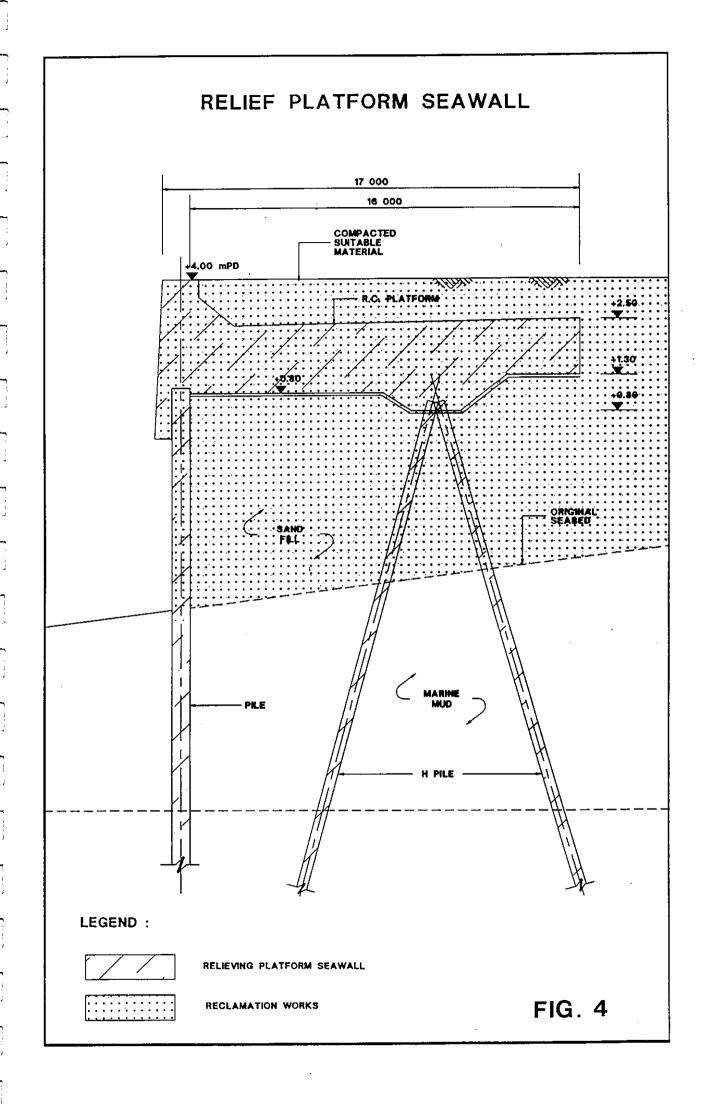


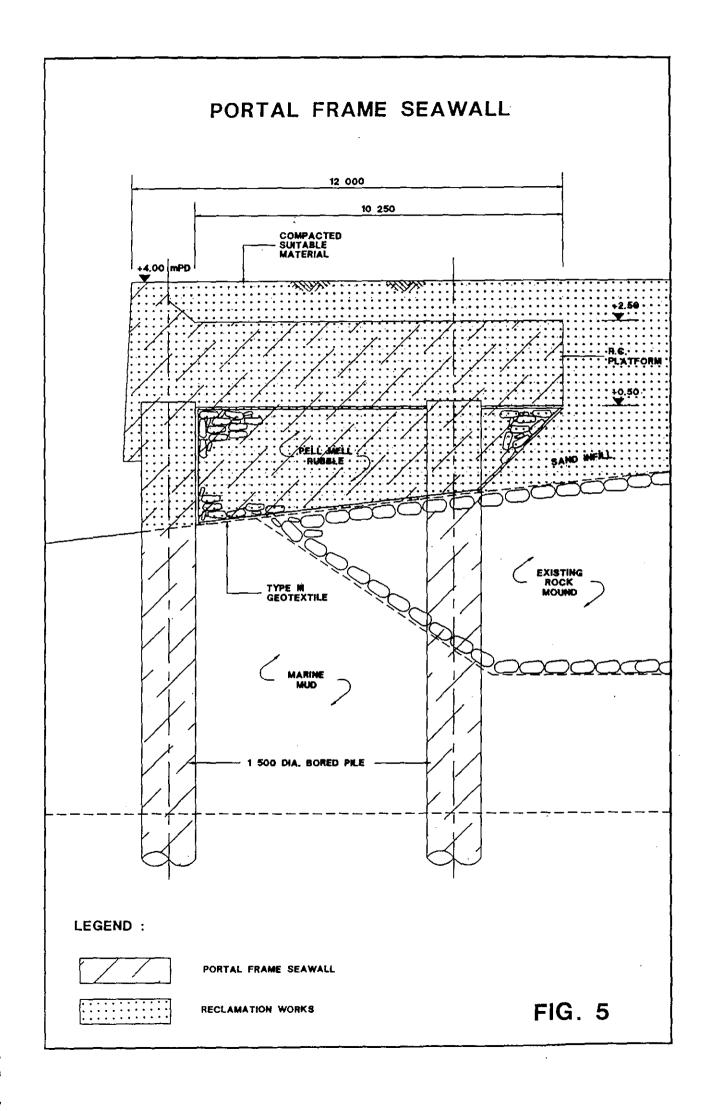










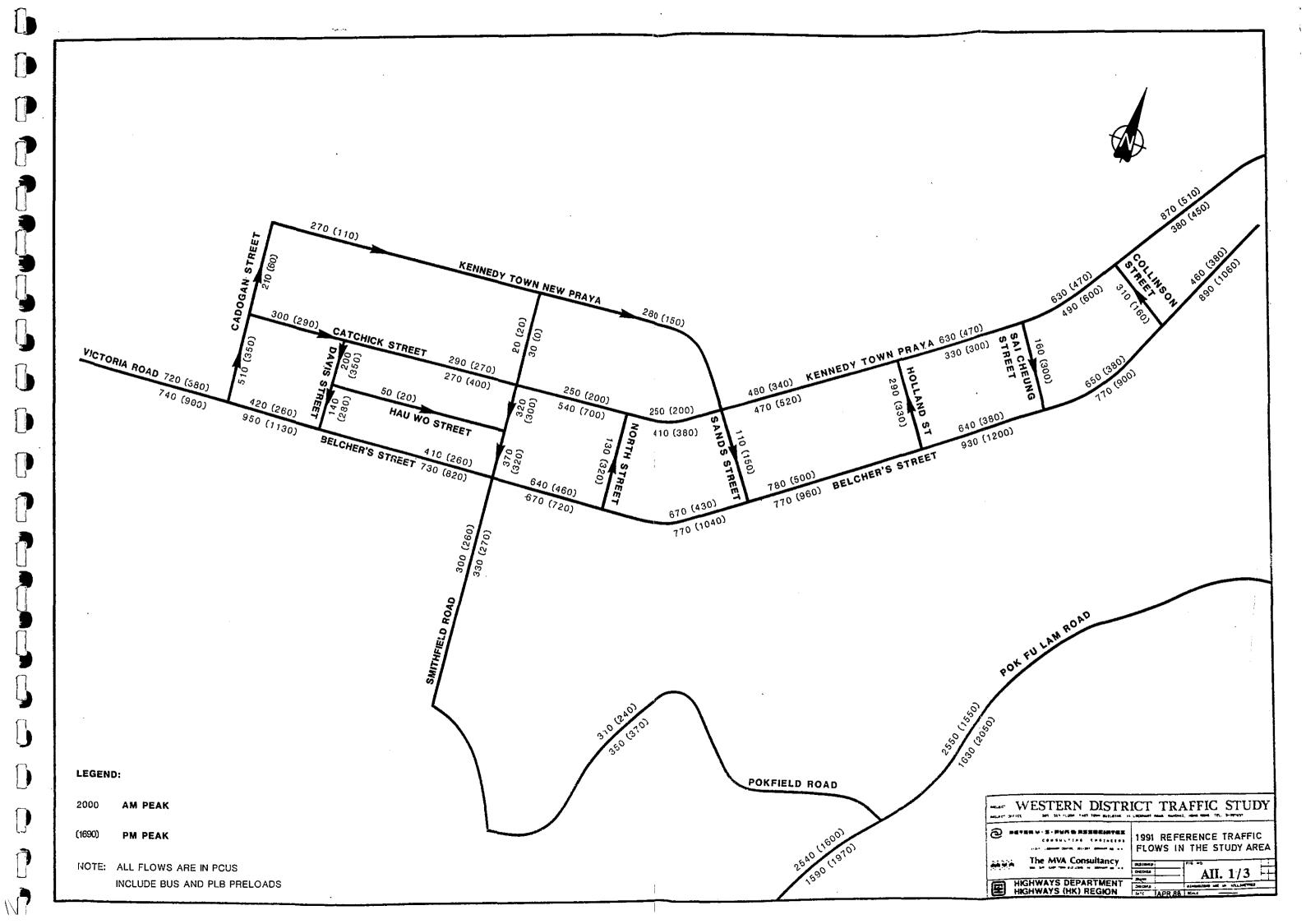


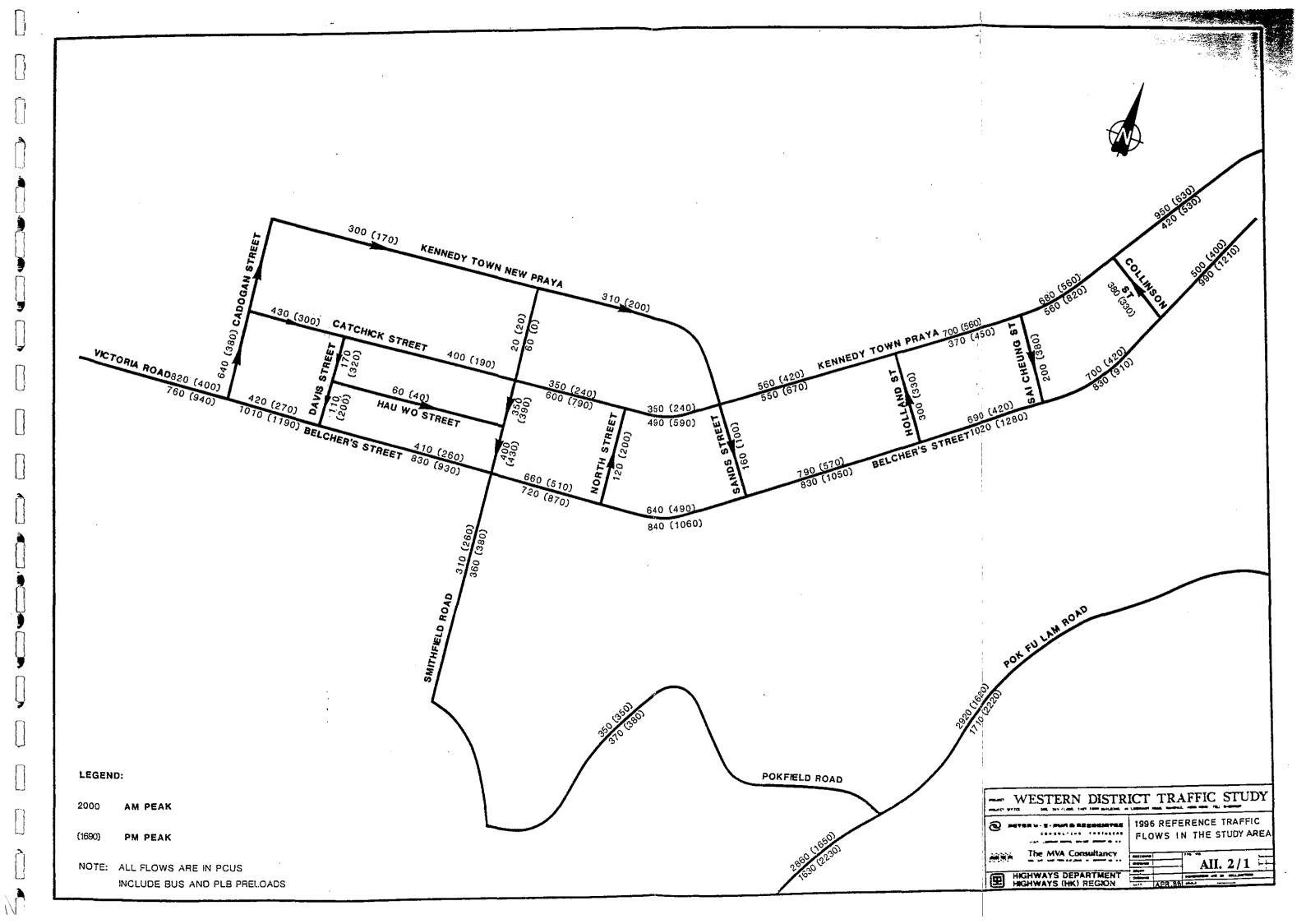
APPENDIX II

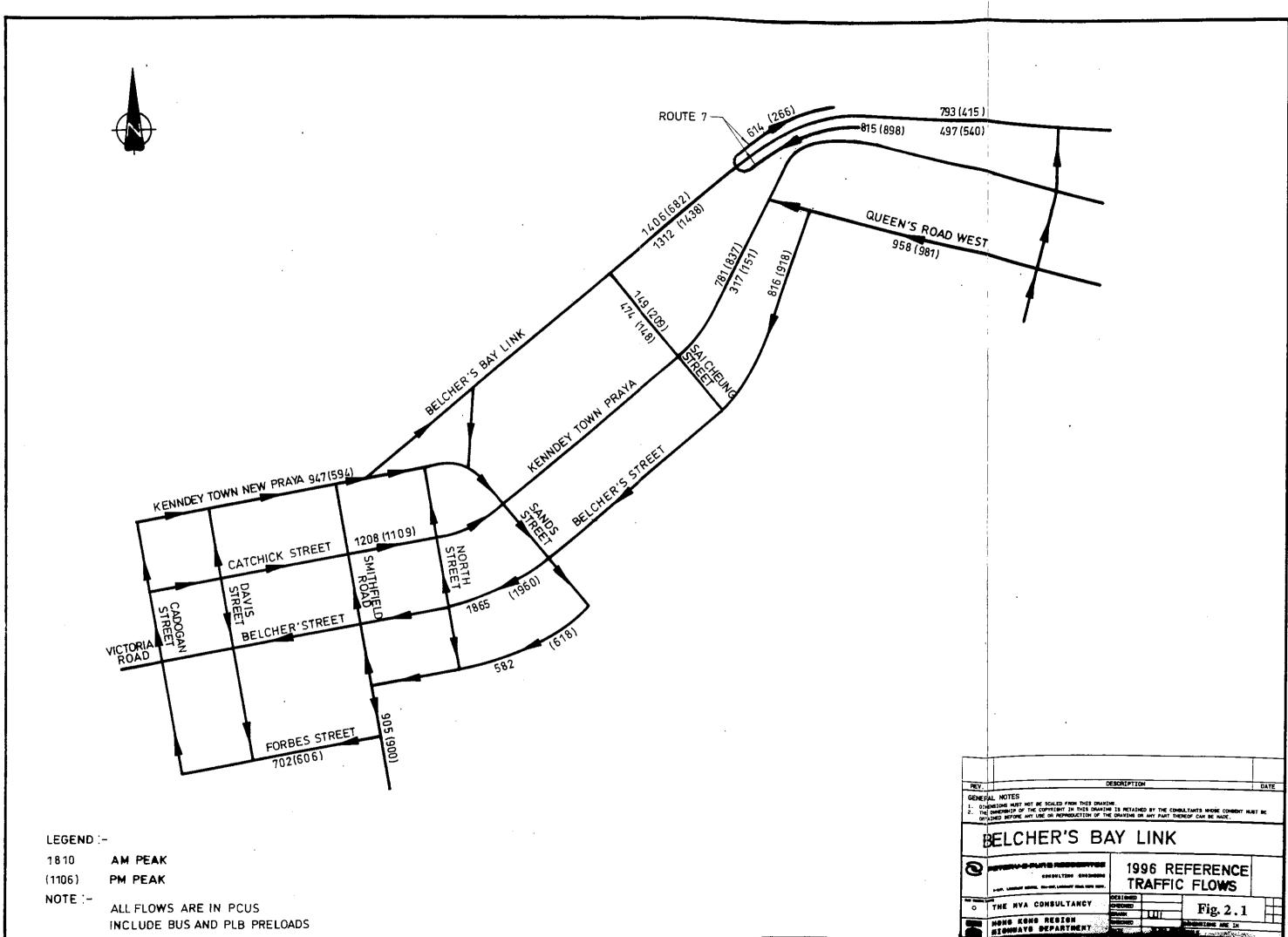
APPENDIX II : Traffic Flow Figures Diagram

Content

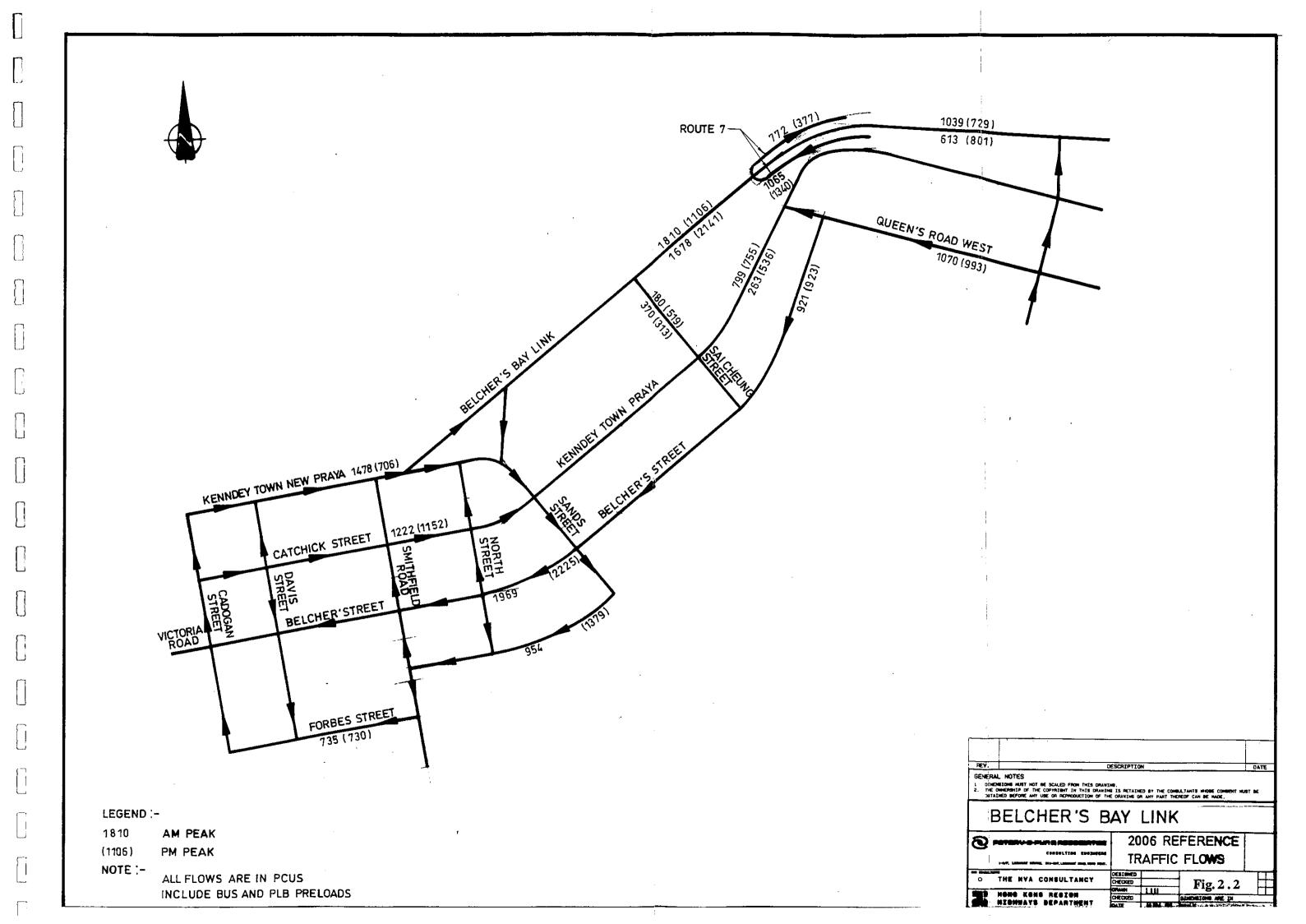
- 1. 1991 reference traffic flows Western District Traffic Study
- 2. 1996 reference traffic flows Western District Traffic Study
- 3. 1996 reference traffic flows Belcher's Bay Link
- 4. 2006 reference traffic flows Belcher's Bay Link







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APPENDIX III

<u>Table 1</u>

NSR Elevation :

Location A : 6m above ground Location B : 5m above ground Location C : 7.3m above ground

Mitigating Measure : NIL

(AM) PEAK

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	77	77 7t	76
1996	Kennedy Town Praya	77	78	77
2006	Route 7 down ramp	61.7	61.6	64.1
	BLL W/B	63.9	63.3	63.9
	BLL E/B	64.4	62.2	63.4
	Route 7 up ramp	60.0	57.4	60.2
	Kennedy Town Praya	76.4	76.3	76.0
	COMBINED	77	77	77

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	76	76	75
1996	Kennedy Town Praya	77	77	76
2006	Route 7 down ramp	62.7	62.6	65.1
	BLL W/B	65.0	64.4	65.0
	BLL E/B	62.9	60.3	61.6
	Route 7 up ramp	56.8	54.2	57.0
	Kennedy Town Praya	77.3	77.2	76.9
	COMBINED	78	78	78

Table 1A

NSR Elevation :

Location A : 6m above ground Location B : 5m above ground Location C : 7.3m above ground

Spanner

(AM) PEAK

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	77	77	76
1996	Kennedy Town Praya	77	78	77
1996	Route 7 down ramp	60.5	60.4	62.9
	BLL W/B	62.9	62.3	62.9
	BLL E/B	63.3	61.1	62.3
	Route 7 up ramp	59.0	56.4	59.2
	Kennedy Town Praya	76.7	76.6	76.3
	COMBINED	77	77	77

YEAR	LOCATION	А	В	C
1991	Kennedy Town Praya	76	76	75
1996	Kennedy Town Praya	77	77	76
1996	Route 7 down ramp	60.9	60.8	63.3
	BLL W/B	63.3	62.7	63.3
	BLL E/B	60.5	58.1	59.3
!	Route 7 up ramp	55.3	52.7	55.5
	Kennedy Town Praya	76.1	76.0	75.7
	COMBINED	77	76	76

Table 2

NSR Elevation :

Location A : 22m above ground Location B : 25m above ground Location C : 28m above ground

Mitigating Measure

: NIL

(AM) PEAK

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	73	72	72
1996	Kennedy Town Praya	74	73	72
2006	Route 7 down ramp	69.5	64.6	66.1
	BLL W/B	67.4	66.5	66.1
	BLL E/B	69.0	67.4	67.2
	Route 7 up ramp	64.9	62.2	63.9
	Kennedy Town Praya	72.6	71.7	71.2
	COMBINED	76	75	75

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	72	71	71
1996	Kennedy Town Praya	73	72	72
2006	Route 7 down ramp	70.5	65.6	67.1
	BLL W/B	68.5	67.6	67.2
	BLL E/B	67.5	65.5	65.5
	Route 7 up ramp	61.7	59.0	60.7
	Kennedy Town Praya	73.5	72.6	72.1
	COMBINED	77	75	75

Table 2A

NSR Elevation :

Location A : 22m above ground Location B : 25m above ground Location C : 28m above ground

Mitigating Measure : NIL

(AM) PEAK

YEAR	LOCATION	А	В	С
1991	Kennedy Town Praya	73	72	72
1996	Kennedy Town Praya	74	73	72
1996	Route 7 down ramp	68.3	62.2	64.9
 	BLL W/B	66.4	65.5	65.1
	BLL E/B	67.9	66.3	66.1
	Route 7 up ramp	63.9	60.3	62.9
	Kennedy Town Praya	72.9	72.0	71.5
	COMBINED	76	74	74

YEAR	LOCATION	А	В	С
1991	Kennedy Town Praya	72	71	71
1996	Kennedy Town Praya	73	72	72
1996	Route 7 down ramp	68.7	62.6	64.5
	BLL W/B	66.8	65.9	65.5
	BLL E/B	65.1	63.3	63.2
	Route 7 up ramp	60.2	56.6	58.7
	Kennedy Town Praya	72.3	71.4	70.9
	COMBINED	75	73	73

Table 3

NSR Elevation :

Location A : 6m above ground

Location B : 5m above ground

Location C : 7.3m above ground

Mitigating Measure

: Belcher's Bay Link with Friction course

(AM) PEAK

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	77	77	76
1996	Kennedy Town Praya	77	78	77
2006	Route 7 down ramp	61.7	60.1	62.9
	BLL W/B	61.4	60.8	61.4
	BLL E/B	61.9	59.7	60.9
	Route 7 up ramp	60.0	56.3	59.4
	Kennedy Town Praya	76.4	76.3	76.0
	COMBINED	77	77	77

YEAR	LOCATION	Α	В	C
1991	Kennedy Town Praya	76	76	75
1996	Kennedy Town Praya	77	77	76
2006	Route 7 down ramp	62.7	61.1	63.9
	BLL W/B	62.5	61.9	62.5
	BLL E/B	60.4	58.8	59.1
	Route 7 up ramp	56.8	53.1	56.2
	Kennedy Town Praya	77.3	77.2	76.9
	COMBINED	78	78	77

Table 3

No. 430 - 440 Des Voeux Road West Kwan Yick Building

Location X : 16m above ground

: 41m above ground

66m above ground

Mitigating Measure

: NIL

(AM) PEAK

YEAR	ELEVATION	16m	41m	66т
1991	Des Voeux Road West	67	70	68
1996	Des Voeux Road West	. 67	71	69
2006	Route 7 Eastbound	61.7	64.1	63.5
	Route 7 Westbound	64.8	66.7	65.8
	DVRW Eastbound	70.8	69.1	67.5
	DVRW Westbound	60.0	63.7	61.8
	COMBINED	72	72	71

YEAR	ELEVATION	16m	41m	66m
1991	Des Voeux Road West	66	69	67
1996	Des Voeux Road West	66	70	68
2006	Route 7 Eastbound	58.5	60.9	60.3
	Route 7 Westbound	65.8	67.7	66.8
	DVRW Eastbound	69.4	67.7	66.1
	DVRW Westbound	63.1	66.8	64.9
	COMBINED	72	73	71

Table 3A

No. 430 - 440 Des Voeux Road West Kwan Yick Building

NSR: Location X: 16m above ground

41m above ground

66m above ground

Mitigating Measure

: NIL

(AM) PEAK

YEAR	ELEVATION	16m	41m	66m
1991	Des Voeux Road West	67	70	68
1996	Des Voeux Road West	_/ 67	71	69
1996	Route 7 Eastbound	60.7	63.1	62.5
	Route 7 Westbound	63.6	65.5	64.6
	DVRW Eastbound	69.5	67.8	66.2
	DVRW Westbound	60.8	64.5	62.6
	COMBINED	71	72	70

YEAR	ELEVATION	16m	41m	66m
1991	Des Voeux Road West	66	69	67
1996	Des Voeux Road West	, 66	70	_/ 68
1996	Route 7 Eastbound	<pre></pre>	59.4	58.8
	Route 7 Westbound	64.0	65.9	65.0
	DVRW Eastbound	69.8	68.1	66.5
	DVRW Westbound	57.6	61.3	√ 59.4
	COMBINED	71 📺	71	₹70

Table 4

NSR Elevation : Location A : 22m above ground

Location B : 25m above ground Location C : 28m above ground

Mitigating Measure : Belcher's Bay Link with Friction course

(AM) PEAK

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	73	72	72
1996	Kennedy Town Praya	74	73	72
2006	Route 7 down ramp	69.5	63.4	65.3
	BLL W/B	64.9	64.0	63.6
	BLL E/B	66.5	64.9	64.7
	Route 7 up ramp	64.9	61.3	60.5
	Kennedy Town Praya	72.6	71.7	71.2
	COMBINED	76	74	74

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	72	71	71
1996	Kennedy Town Praya	73	72	72
2006	Route 7 down ramp	70.5	64.4	66.3
	BLL W/B	66.0	65.1	64.7
	BLL E/B	65.0	63.0	63.0
	Route 7 up ramp	61.7	58.1	60.2
	Kennedy Town Praya	73.5	72.6	72.1
	COMBINED	76	74	74

Table 5

NSR Elevation: Location A: 6m above ground

Location B : 5m above ground Location C : 7.3m above ground

Mitigating Measure : Belcher's Bay Link with Friction course

: Kennedy Town Praya with Friction course

(AM) PEAK

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	77	77	76
1996	Kennedy Town Praya	77	78	77
2006	Route 7 down ramp	61.7	60.1	62.9
	BLL W/B	61.4	60.8	61.4
	BLL E/B	61.9	59.7	60.9
	Route 7 up ramp	60.0	56.3	59.4
	Kennedy Town Praya	73.9	73.8	73.5
	COMBINED	75	74	74

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	76	76	75
1996	Kennedy Town Praya	77	77	76
2006	Route 7 down ramp	62.7	61.1	63.9
	BLL W/B	62.5	61.9	62.5
	BLL E/B	60.4	58.8	59.1
	Route 7 up ramp	56.8	53.1	56.2
	Kennedy Town Praya	74.8	74.7	74.4
	COMBINED	75	75	75

Table 6

NSR Elevation :

Location A : 22m above ground

Location B : 25m above ground

Location C : 28m above ground

Mitigating Measure

: Belcher's Bay Link with Friction course Kennedy Town Praya with Friction course

(AM) PEAK

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	73	72	72
1996	Kennedy Town Praya	74	73	72
2006	Route 7 down ramp	69.5	63.4	65.3
	BLL W/B	64.9	64.0	63.6
	BLL E/B	66.5	64.9	64.7
	Route 7 up ramp	64.9	61.3	60.5
	Kennedy Town Praya	70.1	69.2	68.7
	COMBINED	75	72	72

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	72	71	71
1996	Kennedy Town Praya	73	72	72
2006	Route 7 down ramp	70.5	64.4	66.3
	BLL W/B	66.0	65.1	64.7
	BLL E/B	65.0	63.0	63.0
	Route 7 up ramp	61.7	58.1	60.2
	Kennedy Town Praya	71.0	70.1	69.6
	COMBINED	75	73	73

Table 7

(PM) PEAK

NSR Elevation: Location A: 22m above ground

Location B : 25m above ground Location C : 28m above ground

Mitigating Measure

: 3m height Noise Barrier at central reserve of BBL

YEAR	LOCATION	A	В	C
1991	Kennedy Town Praya	72	71	71
1996	Kennedy Town Praya	73	72	72
2006	Route 7 down ramp	70.5	65,6	67.1
	BLL W/B	68.5	67.6	67.2
	BLL E/B	58.4	54.2	55.5
	Route 7 up ramp	61.7	58.0	60.4
	Kennedy Town Praya	73.5	72.6	72.1
	COMBINED	76	75	74

Mitigating Measure

: 3m height Noise Barrier at central reserve of BBL Belcher's Bay Link with Friction course

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	73	72	72
1996	Kennedy Town Praya	74	73	72
2006	Route 7 down ramp	70.5	64.4	66.3
	BLL W/B	65.0	65.1	64.7
	BLL E/B	56.0	51.7	53.0
	Route 7 up ramp	61.7	57.5	60.0
	Kennedy Town Praya	73.5	72.6	72.1
	COMBINED	76	74	74

Table 8

(PM) PEAK

NSR Elevation :

Location A : 22m above ground

Location B : 25m above ground Location C : 28m above ground

Mitigating Measure

: 3m height Noise Barrier at inner side of W/B of BBL

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	72	71	71
1996	Kennedy Town Praya	73	72	72
2006	Route 7 down ramp	70.5	62.7	65.6
	BLL W/B	62.5	65.5	64.7
	BLL E/B	67.8	63.0	65.5
	Route 7 up ramp	61.7	58.1	60.7
	Kennedy Town Praya	73.5	72.6	72.1
	COMBINED	76	74	74

Mitigating Measure

: 3m height Noise Barrier at inner side of W/B of BBL Belcher's Bay Link with Friction course

YEAR	LOCATION	A	В	С
1991	Kennedy Town Praya	73	72	72
1996	Kennedy Town Praya	74	73	72
2006	Route 7 down ramp	70.5	62.4	65.4
	BLL W/B	60.0	63.0	62.2
	BLL E/B	65.0	63.0	63.0
	Route 7 up ramp	61.7	58.1	60.2
	Kennedy Town Praya	73.5	72.6	71.2
	COMBINED	76	74	74 .

NSR Elevation :

Location P : PEARL COURT Location Q : NEW FORTUNE HOUSE

5m above ground 10.5m above ground

			_
YEAR	P (PM)	Q (AM)	
1991	76	67]
1996	77 \	68 🦙 -	
		17	
1996 BBL	76	72	by overall.
2006 BBL	78	73) over

NSR Elevation:

Location P : PEARL COURT

Location Q : NEW FORTUNE HOUSE

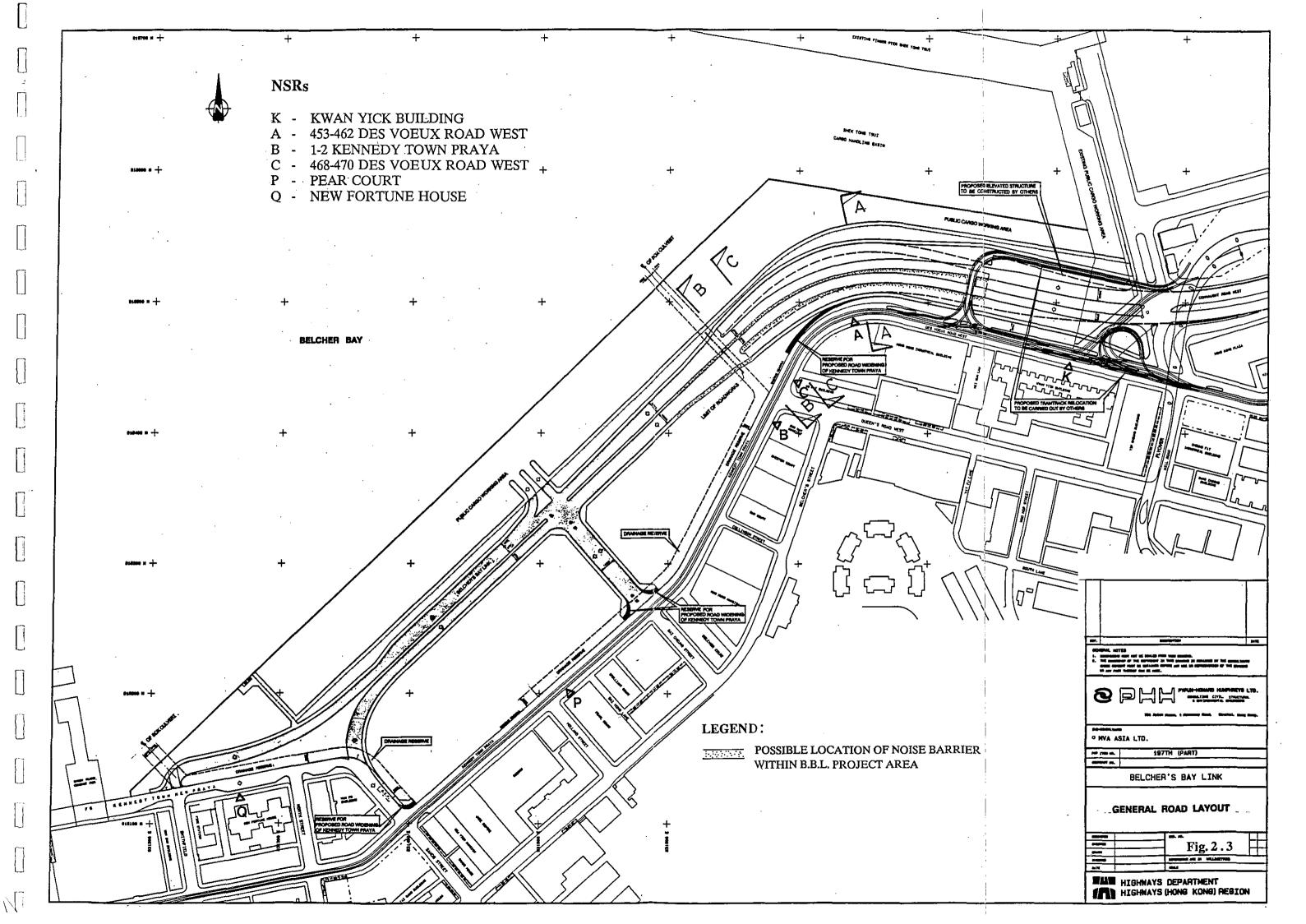
5m above ground 10.5m above ground

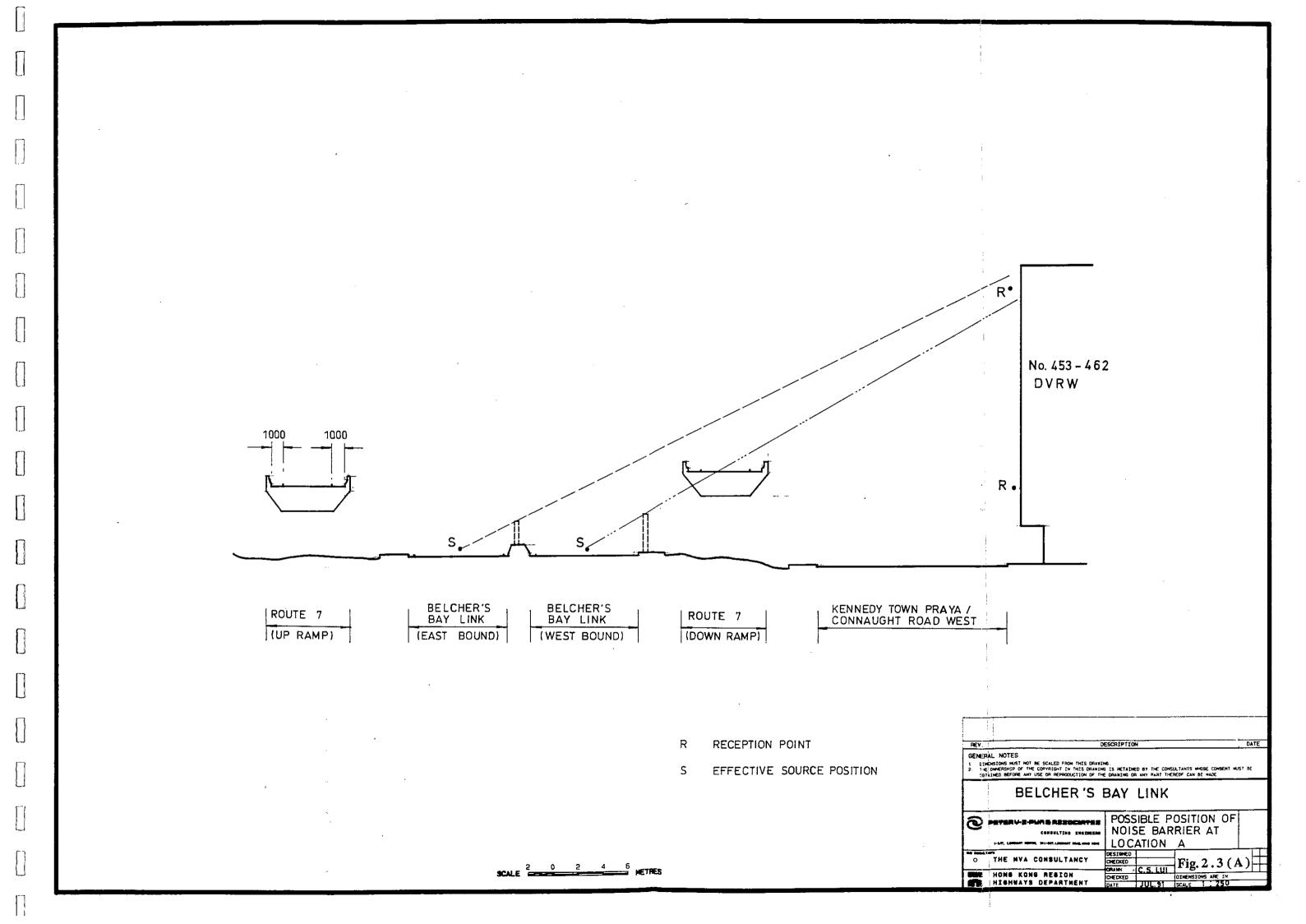
YEAR	P (PM)	Q (AM)
1991	76	67
1996	77 ु√	68
	3	
1996 BBL	/ 74 <u>)</u>	70
2006 BBL	75 .	71

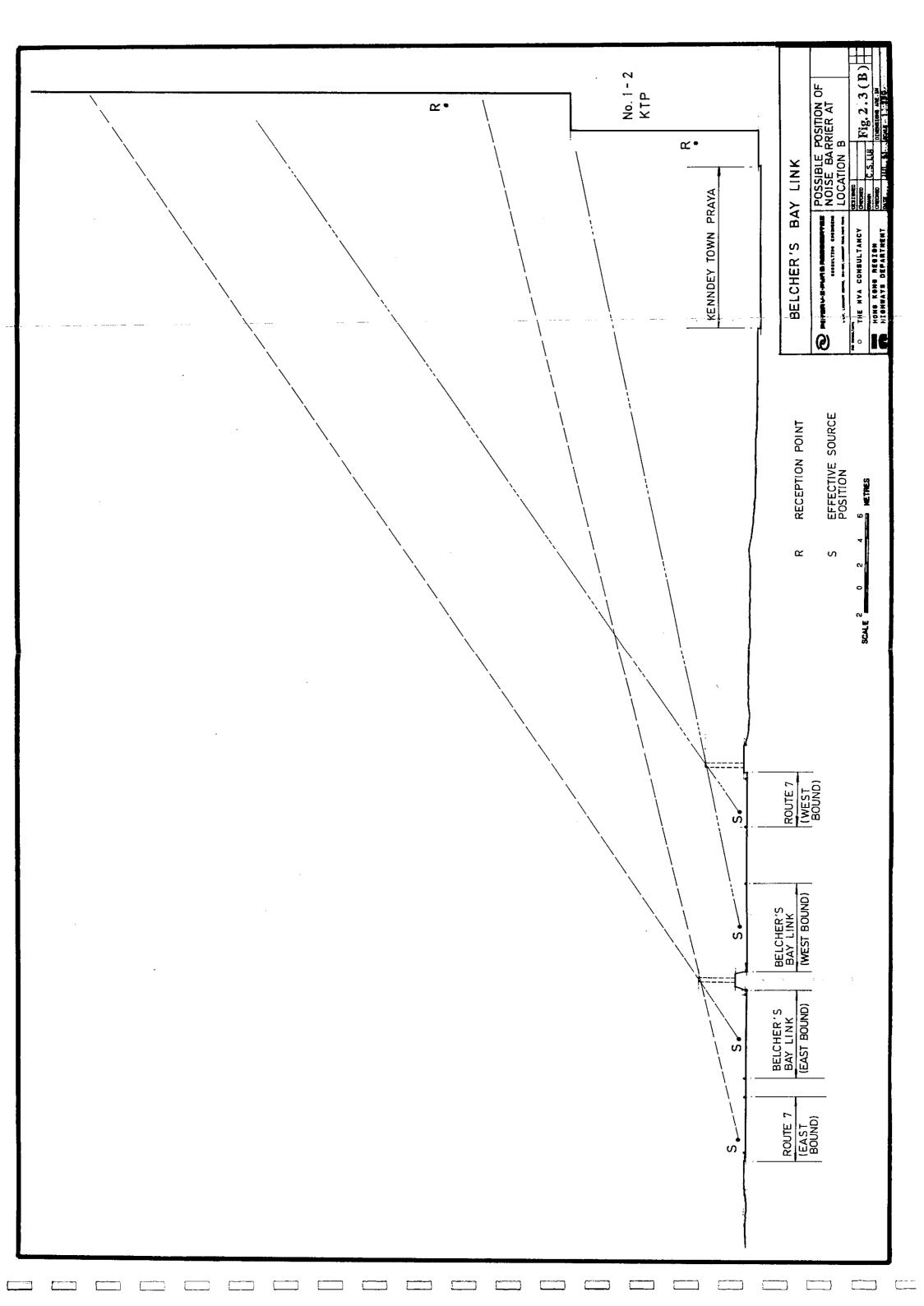
3 overal

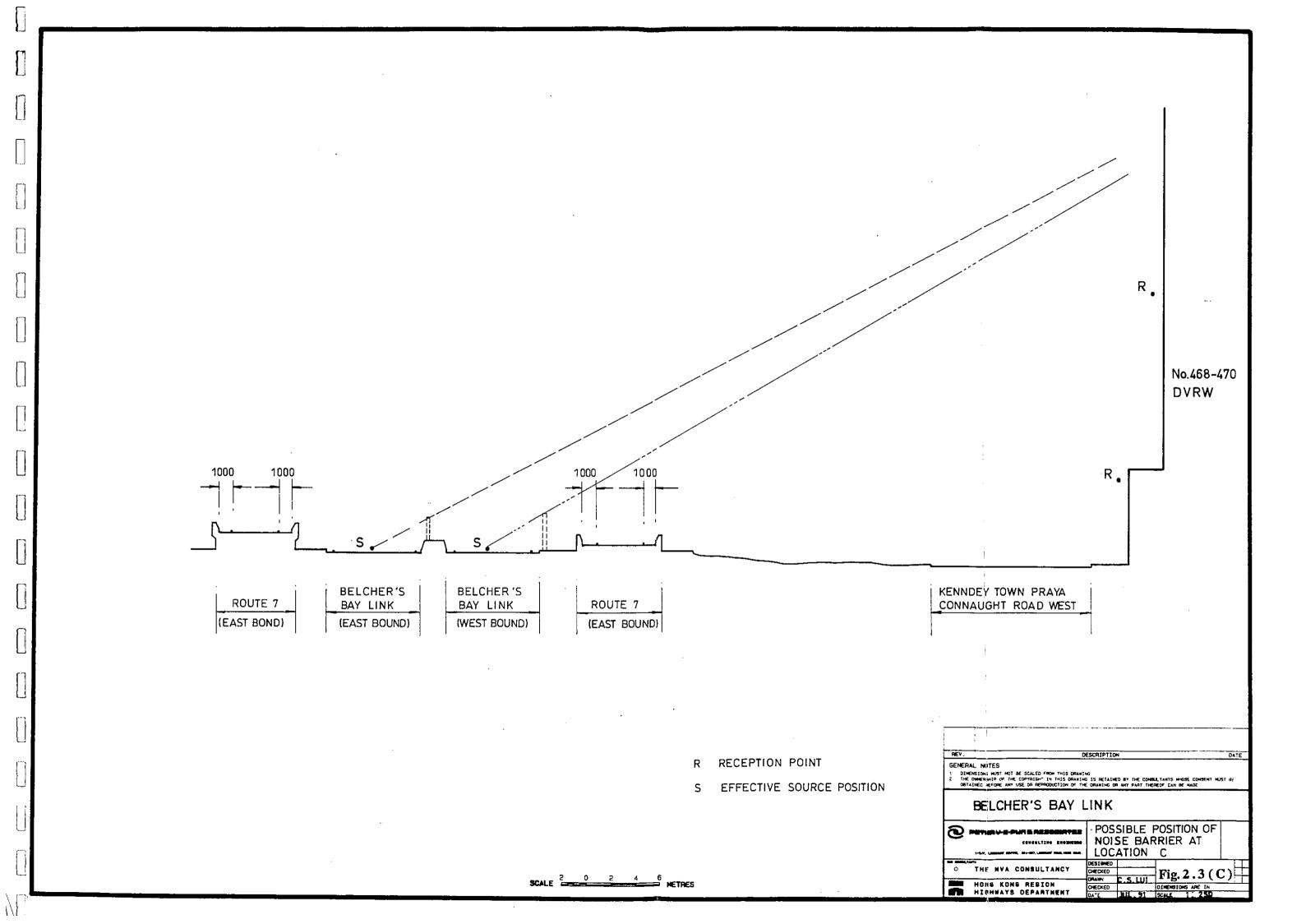
Mitigating Measure

: Belcher's Bay Link with Friction Course Kennedy Town New Praya with Friction Course APPENDIX IV

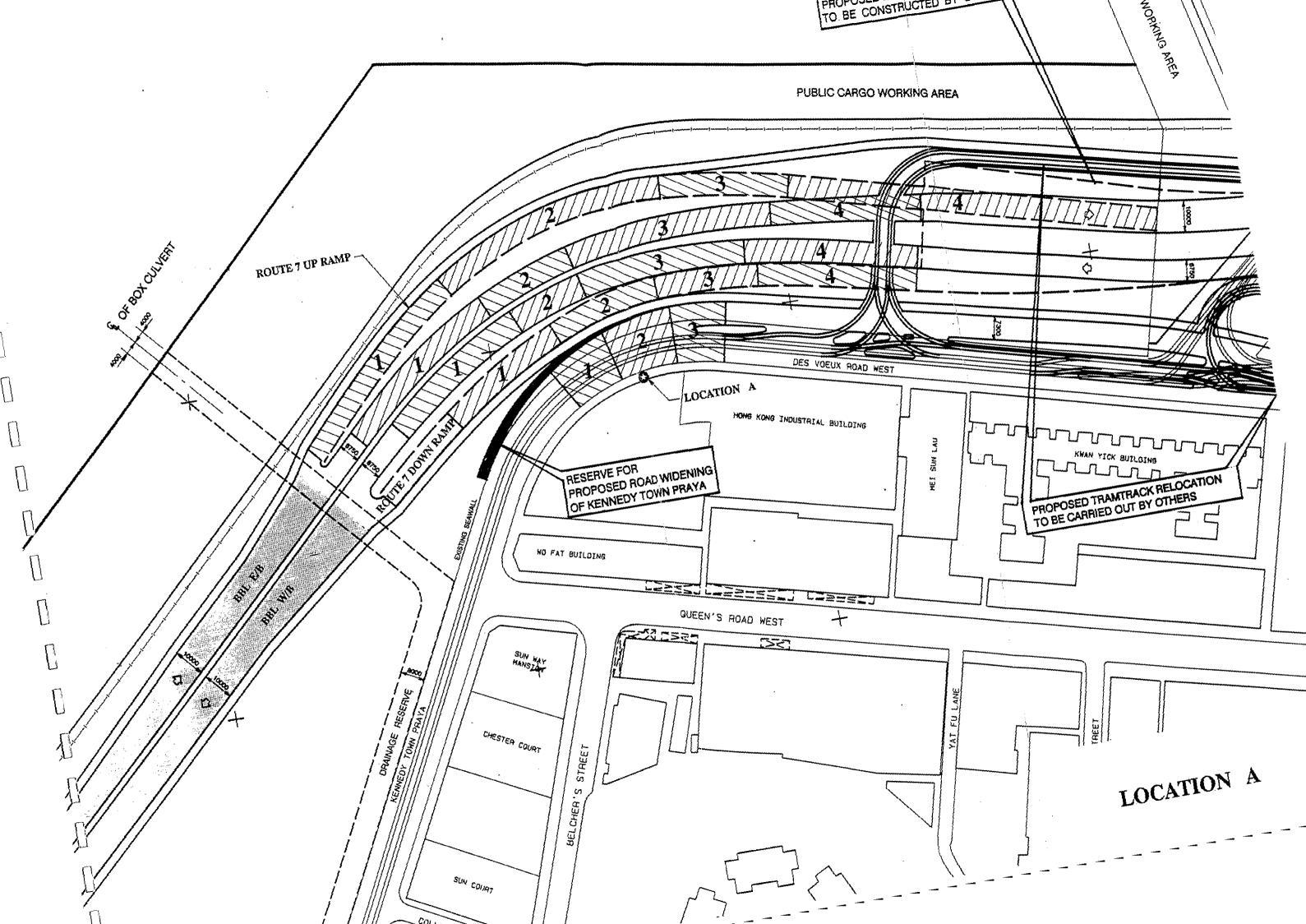


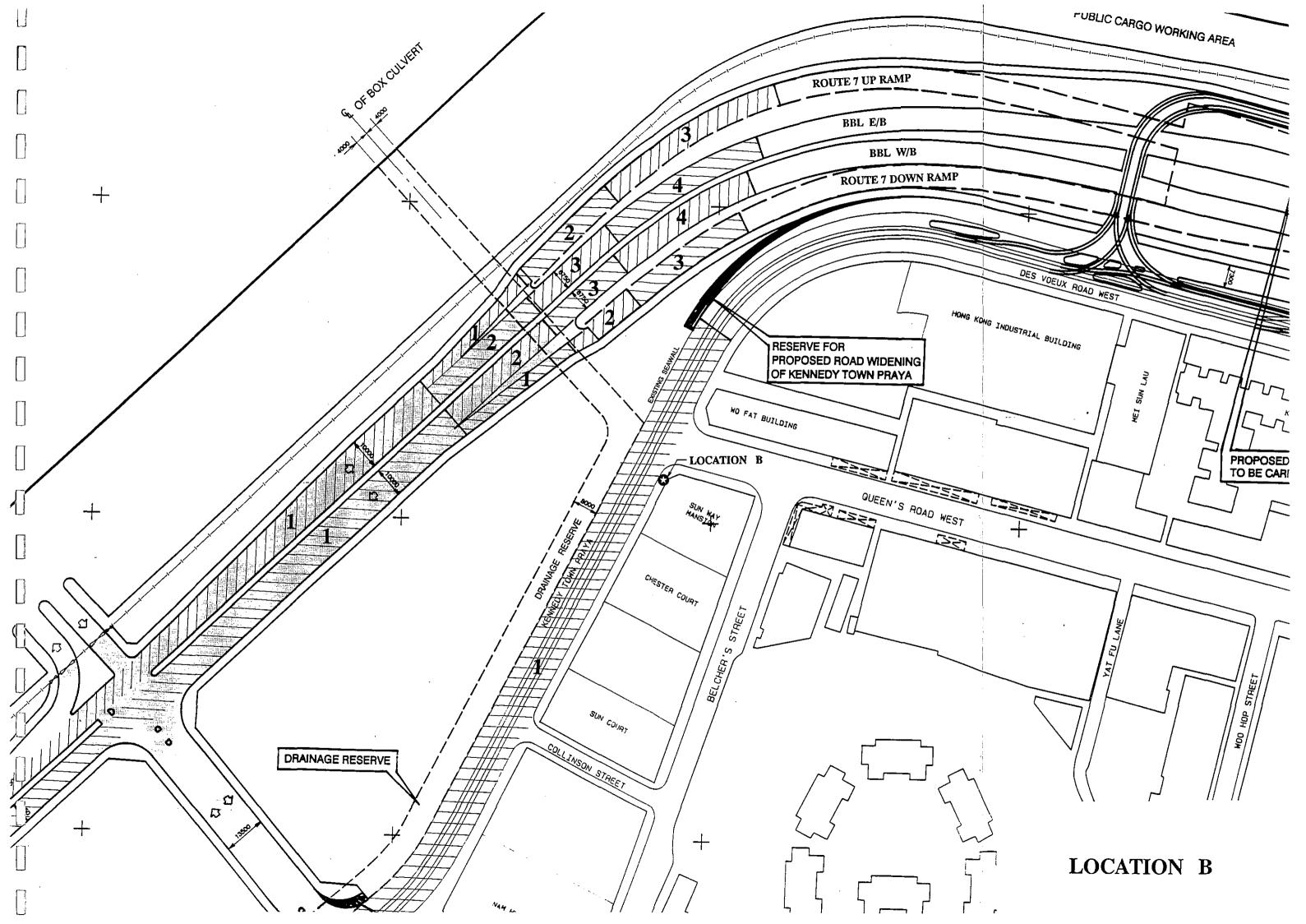


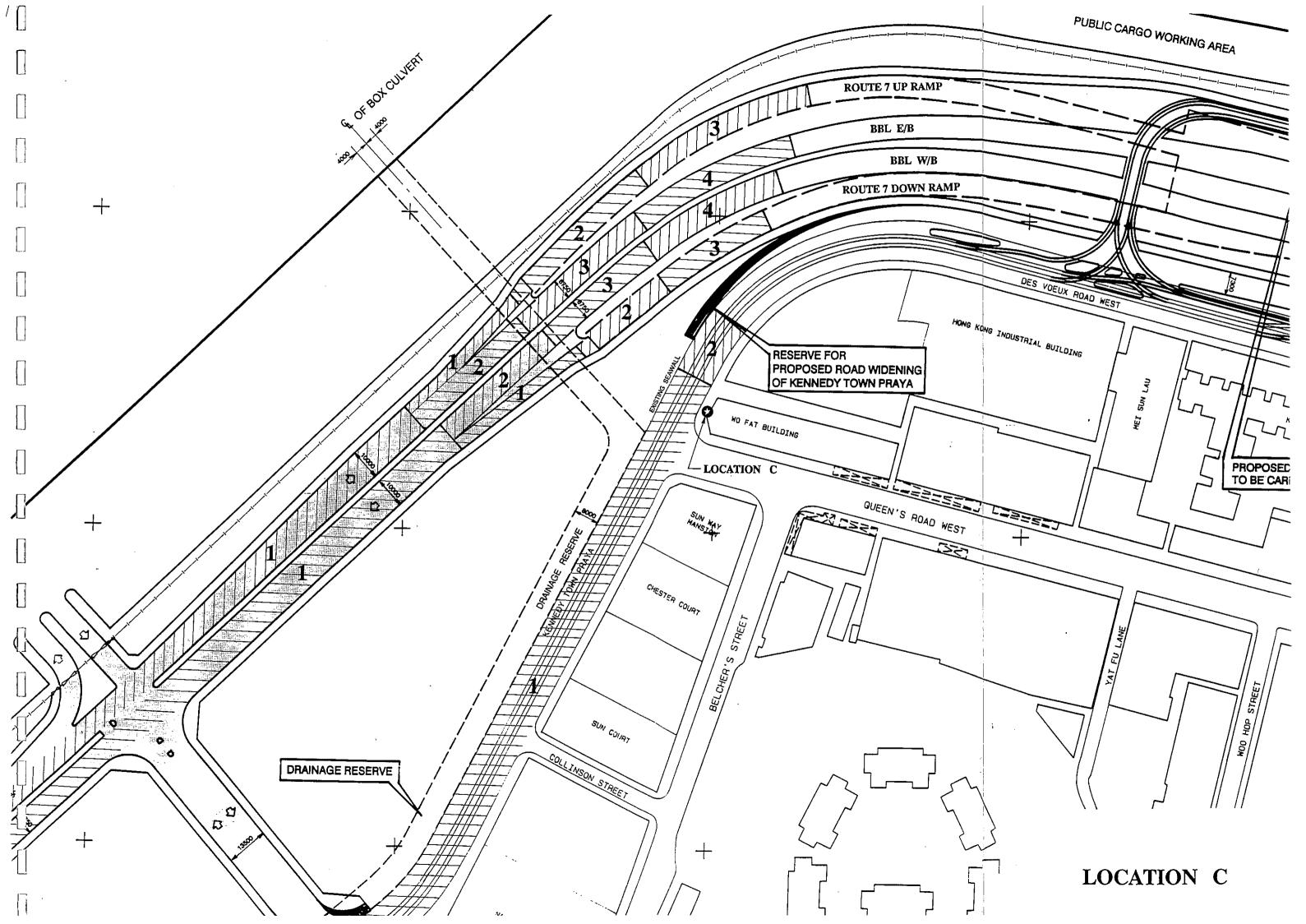




APPENDIX V







APPENDIX V : BASIC NOISE CALCULATION

Content

General Layout Showing Segments for Calculation

- 1. Location A
- 2. Location B
- 3. Location C

Location A (AM)	(NSR is at 6m above ground) 1991 Kennedy Town Praya 1996 Kennedy Town Praya 2006 Route 7 down ramp 2006 Belcher's Bay Link Westbound 2006 Belcher's Bay Link Eastbound 2006 Route 7 up ramp 2006 Kennedy Town Praya and COMBINED Noise Level
Location B (AM)	(NSR is at 5m above ground) 1991 Kennedy Town Praya 1996 Kennedy Town Praya 2006 Route 7 down ramp 2006 Belcher's Bay Link Westbound 2006 Belcher's Bay Link Eastbound 2006 Route 7 up ramp 2006 Kennedy Town Praya and COMBINED Noise Level
Location C (AM)	(NSR is at 7.3m above ground) 1991 Kennedy Town Praya 1996 Kennedy Town Praya 2006 Route 7 down ramp 2006 Belcher's Bay Link Westbound 2006 Belcher's Bay Link Eastbound 2006 Route 7 up ramp 2006 Kennedy Town Praya and COMBINED Noise Level
Location A (PM)	(NSR is at 6m above ground) 1991 Kennedy Town Praya 1996 Kennedy Town Praya 2006 Route 7 down ramp 2006 Belcher's Bay Link Westbound 2006 Belcher's Bay Link Eastbound 2006 Route 7 up ramp 2006 Kennedy Town Praya and COMBINED Noise Level
Location B (PM)	(NSR is at 5m above ground) 1991 Kennedy Town Praya 1996 Kennedy Town Praya 2006 Route 7 down ramp 2006 Belcher's Bay Link Westbound 2006 Belcher's Bay Link Eastbound 2006 Route 7 up ramp 2006 Kennedy Town Praya and COMBINED Noise Level

Location C (PM)	(NSR is at 7.3m above ground) 1991 Kennedy Town Praya 1996 Kennedy Town Praya 2006 Route 7 down ramp 2006 Belcher's Bay Link Westbound 2006 Belcher's Bay Link Eastbound 2006 Route 7 up ramp 2006 Kennedy Town Praya and COMBINED Noise Level
Location A (AM)	(NSR is at 22m above ground) 1991 Kennedy Town Praya 1996 Kennedy Town Praya 2006 Route 7 down ramp 2006 Belcher's Bay Link Westbound 2006 Belcher's Bay Link Eastbound 2006 Route 7 up ramp 2006 Kennedy Town Praya and COMBINED Noise Level
Location B (AM)	(NSR is at 5m above ground) 1991 Kennedy Town Praya 1996 Kennedy Town Praya 2006 Route 7 down ramp 2006 Belcher's Bay Link Westbound 2006 Belcher's Bay Link Eastbound 2006 Route 7 up ramp 2006 Kennedy Town Praya and COMBINED Noise Level
Location C (AM)	(NSR is at 7.3m above ground) 1991 Kennedy Town Praya 1996 Kennedy Town Praya 2006 Route 7 down ramp 2006 Belcher's Bay Link Westbound 2006 Belcher's Bay Link Eastbound 2006 Route 7 up ramp 2006 Kennedy Town Praya and COMBINED Noise Level
Location A (PM)	(NSR is at 22m above ground) 1991 Kennedy Town Praya 1996 Kennedy Town Praya 2006 Route 7 down ramp 2006 Belcher's Bay Link Westbound 2006 Belcher's Bay Link Eastbound 2006 Route 7 up ramp 2006 Kennedy Town Praya and COMBINED Noise Level
Location B (PM)	(NSR is at 25m above ground) 1991 Kennedy Town Praya 1996 Kennedy Town Praya 2006 Route 7 down ramp 2006 Belcher's Bay Link Westbound 2006 Belcher's Bay Link Eastbound 2006 Route 7 up ramp 2006 Kennedy Town Praya and COMBINED Noise Level

Location C (PM)	(NSR	is at 28m above ground)
200002011 0 (21-)	1991	Kennedy Town Praya
·	1996	
	2006	•
	2006	
	2006	Belcher's Bay Link Eastbound
	2006	Route 7 up ramp
	2006	
		nomica, 10## 115/5 mid 00#52##25 #0250 20702
		·
<u>Noise Barrier at Cen</u>	tral Re	eserve of BBL
Location A (PM)	(NSR	is at 22m above ground)
	(3	
	2006	Dalahamia Bar Timb Easthaumi
		Belcher's Bay Link Eastbound
	2006	Kennedy Town Praya and COMBINED Noise Level
Location B (PM)	(NSR	is at 25m above ground)
, ,	•	·
	2006	Belcher's Bay Link Eastbound
	2006	
	2006	Kennedy Town Praya and COMBINED Noise Level
Location C (PM)	(NSR	is at 28m above ground)
, ,	•	•
	2006	Belcher's Bay Link Eastbound
		· · · · · · · · · · · · · · · · · · ·
	2006	• •
	2006	Kennedy Town Praya and COMBINED Noise Level
Noise Barrier at Cen	tral Re	eserve of BBL with Friction Course at BBL
Location A (PM)	(NGD ·	is at 22m above ground)
Location A (III)	(Hon.	is at 22m above ground)
	2006	Belcher's Bay Link Eastbound
	2006	Kennedy Town Praya and COMBINED Noise Level
Location B (PM)	(NSR :	is at 25m above ground)
	(
	2006	Dalahamia Dan Timb Faathamai
	2006	Belcher's Bay Link Eastbound
	2006	Route 7 up ramp
	2006	Kennedy Town Praya and COMBINED Noise Level
Location C (PM)	(NSR	Is at 28m above ground)
	\ 	0-3mie/
	0006	Dalahamia Dan Timb Pasthanni
	2006	Belcher's Bay Link Eastbound
	2006	Route 7 up ramp
	2006	Kennedy Town Praya and COMBINED Noise Level
Noise Barrier at inn	ar eida	of W/R of RRI.
HOTSE DUTITED OF THU	er sine	OT HAD OF DAD

Location A	(PM) ((NSR	is	at	22m	above	ground)
------------	--------	------	----	----	-----	-------	---------

2006 Belcher's Bay Link Westbound 2006 Kennedy Town Praya and COMBINED Noise Level

Location	В	(PM)	(NSR 1 2006 2006 2006	Ls at 25m above ground) Route 7 down ramp Belcher's Bay Link Westbound Kennedy Town Praya and COMBINED Noise	Level
Location	C	(PM)	(NSR i 2006	is at 28m above ground) Route 7 down ramp	
			2006	Belcher's Bay Link Westbound	
			2006	Kennedy Town Praya and COMBINED Noise	Level

Noise Barrier at inner side of W/B of BBL with Friction Course at BBL

Location A	(PM) (NSF	is at 22m above ground)
	2006	Belcher's Bay Link Westbound
	2006	•
Location B	(PM) (NSF	. is at 25m above ground)
	2006	<u> </u>
	2006	Belcher's Bay Link Westbound
	2006	· · · · · · · · · · · · · · · · · · ·
Location C	(PM) (NSR	is at 28m above ground)
	2006	Route 7 down ramp
	2006	-
	2006	Kennedy Town Praya and COMBINED Noise Level

Remark: The calculation of road traffic noise after the introduction of friction course at BBL and KTP will not be duplicated as the calculation will be similar to the above.

BASE NOISE LEVEL - KENNEDY TOWN	PRAYA	<u>1991</u>							
			SEGMENT		- 1	1		SEGMENT	
	! 1	l 2	l 3	1 4	-! 	 1	I 2	1 3	1 4
Traffic flow q	<u> </u>	 	 	<u> </u>	-! Chart 2		i	1	1
veh/hour	911	911	911	i	L10 dB(A)	71.7	71.7	71.7	i
	į	İ	į	İ	İ	İ	ĺ	İ	j
Traffic speed V km/h	30	30	30		Chart 4	1			ŀ
Heavy vehicles p %	25	25	25	l	correction dB(A)	2.2	2.2	2.2	
	1				1	1			1
Gradient G %	ļ				Chart 6 correction dB(A)	0] 0	0	ļ
	!				l de de de de de de de de de de de de de			! .	ļ
Road surface	!	IMPRE	VIOUS		correction dB(A)	-1	-1	-1	
	I				Basic Noise Level dB(A)	1 72 0	72.9	72 0	! !
					Basic Noise Level CD(A)	1 72.7	1 12.7	12.7	ı
PROPAGATION									
	I		SEGMENT		_ 			SEGMENT	
	1_1_	1 2	3	4		1	2	3	4
Shortest horizontal		1		ĺ		Ì	Ì	1	Ì
distance d m	4	4	4	1	Chart 7	1.6	1.6	1.6	1
Height relative to source h m	5.5	5.5	5.5	1	correction dB(A)	1	1	1	
	!	<u> </u>		!		!		!	ļ
Ave. height of propagation H m	n/a	n/a	n/a	!	Chart 8	0	0	1 0	ļ
Absorbent ground cover I	 -	ļ	[i	correction dB(A)	j 1	1	l I	
Barrier path difference m	ļ 1]] 	<u> </u>	Chart 9 correction dB(A)	!	! !	! !	! :
Barrier path difference in	! i	ı	ı	i	Chart 7 Correction ab(x)	1	i i	i i	i
	i				Propagation Correction dB(A)	1.6	1.6	1.6	i
,	•					•	•	•	•
SITE LAYOUT	.——				- .				
			SEGMENT	1 /	.	ļ		SEGMENT.	
Facade	_1	2	3	4	_ composition dB(A)	2.5	2.5	2.5	4
racoue	I I	! !	! 	l I	correction dB(A)] 4.3	6.5 	6.3 	l I
Opposite facade angle deg.	!	! 	! 		reflection correction dB(A)	0	! 0	l 0	i
		i	<u> </u>			<u> </u>	i		
Angle of view segment deg.	34	120	21		Chart 10 correction dB(A)	-7.2	-1.8	-9.3	
		ĺ	j i		į	<u>i</u>	<u>i</u>	<u> </u>	
					Site Layout Correction dB(A)	-4.7	.7	-6.8	
						.——			
COMBINING NOISE LEVELS						<u></u>		SEGMENT	
					Basis Naisa Laval dmass	1 72 0	2	3	4
					Basic Noise Level dB(A)	72.9	12.9 	72.9	
					Propagation Correction dB(A)	1 1 6	1.6	1.6	
					Fropagation correction up(A)	1.6	•.• 	1.0 	
						!			

Site Layout Correction dB(A)

69.8 | 75.2 | 67.7 |

76.9

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1996

	l		SEGMENT		_[SEGMENT	
	1	2	3	4	j ·	11	2] 3	4
Traffic flow q		Ì	1	1	Chart 2	1	1	1	1
veh/hour	1000	1000	1000	ļ	L10 dB(A)	72.2	72.2	72.2	
raffic speed V km/h	 30	30	30	 	Chart 4		! 	 	
Heavy vehicles p %	25	25	25	ļ	correction dB(A)	2.2	2.2	2.2	
Gradient G %	 	ı	ı	I	Chart 6 correction dB(A)	0	0) 0	
Road surface		IMPRE	evious.		correction dB(A)	-1	-1	 -1	
•	I				Basic Noise Level dB(A)	73.4	73.4	73.4	
PROPAGATION					•				
	<u> </u>		SEGMENT.		.Į	<u> </u>		SEGMENT	
· · · · · · · · · · · · · · · · · · ·	<u> 1 </u>	2	13	4	.[1	2	3	4
Shortest horizontal	1	,		1	Chart 7	1 4 2		1 4	ļ i
listance d m	4	4	4	1	Chart 7	1.6	1.6	1.6	l i
eight relative to source h m	5.5 	5.5 	5.5 	ł 1	correction dB(A)	l I	 	 	
ve. height of propagation H m	n/a	n/a	i n/a	İ	Chart 8	0	i o	0	i İ
bsorbent ground cover I	į	į	į	į	correction dB(A)	į	į	į	į
Barrier path difference m	} 	 	1] }	Chart 9 correction dB(A)	!	! !	 	
!	l. 				Propagation Correction dB(A)	1.6	1.6	1.6	
SITE LAYOUT			SEGMENT			1	. :	SEGMENT	
j	<u> </u>	2	1 3	4	j	1	2	3	4
acade	[1	<u> </u>	correction dB(A)	2.5	2.5 	2.5	
opposite facade angle deg.	 	; [ļ !	! 	reflection correction dB(A)	0	0	0	
j	i	1	ŧ	!				 -9.3	
Angle of view segment deg.	34 	120 	21	[Chart 10 correction dB(A)	-/.2	-1.8	7.5	í
ingle of view segment deg.	34	120 	21	[Site Layout Correction dB(A)	-7.2 _ -4.7			
i	34 	120 	21	[İ	İi	.7	-6.8	
i	 34 	120	21	[İ	İi	.7	-6.8	
Angle of view segment deg.	34	120 	21		İ	İi	.7	-6.8	4
i	34	120	21		Site Layout Correction dB(A)	 -4.7 	.7	-6.8 -6.8 <u>6EGMENT</u> 3	_

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - ROUTE 7 DOWN	I RAMP								
	1——		SEGMENT		- 	1		SEGMENT	
		2	3	4	 _	1_1_	2	3	4
Traffic flow q	İ	Ì	İ	Ī	Chart 2	j	l	Ī	Ī
veh/hour	777	777 	777 	777 	L10 dB(A)	71.1 	71.1	71.1	71.1
Traffic speed V km/h	60	60	60	60	Chart 4				<u> </u>
Heavy vehicles p %	25	25 	25 	25 	correction dB(A)	3.2 	3.2	3.2 	3.2
Gradient G %	8	8	8	į	Chart 6 correction dB(A)	į o	0	j 0	į o
Road surface	DOWN PRE.	DOWN PRE.	DOWN PRE.	 PRE.	correction dB(A)	-3.5	-3.5	 -3.5	 -3.5
	I	1			 Basic Noise Level dB(A)	 70.8	70.8	70.8	70.8
PROPAGATION						·	•		•
TROCHOSTION	1		SEGMENT		- 	1		SEGMENT	············
	1	2	3	4	 _	<u>j</u> 1	2	3	4
Shortest horizontal	1	Ī	ĺ	ĺ	Ï	i	Ī	ĺ	İ
distance d m	27	21	24.5	30	Chart 7	-3.5	-2.6	-3.1	-3.9
Height relative to source h m	-1.3 	-2 . 1 	-2.5 	-4.8 	correction dB(A)	1] 	
Ave. height of propagation H m	n/a	n/a	n/a	n/a	Chart 8	0	0	, 0	, 0
Absorbent ground cover I	[correction dB(A)				
Barrier path difference m	.03	.06	.06	1 .11	Chart 9 correction dB(A)	-7.6	 -8.6	 -8.6	9.6
	i				Propagation Correction dB(A)	-11.1	-11.2	-11.7	-13.5
SITE LAYOUT									
SITE CATOO!			SEGMENT		- 1	1	:	SEGMENT	_
	1	2	3	4		1	2] 3	4
Facade		ĺ			correction dB(A)	2.5	2.5	2.5 	2.5
Opposite facade angle deg.	0	0	0	0	reflection correction dB(A)	0	0	0	 0
Angle of view segment deg.	40	72	42	21	Chart 10 correction dB(A)	-6.5	-4.0	 - 6.3	 -9.3
	t	l	l	I	Site Layout Correction dB(A)	-4.0	-1.5	-3.8	-6.8
									····
COMBINING NOISE LEVELS						<u> </u>		SEGMENT	
						1_1	2	3	4
					Basic Noise Level dB(A)	70.8 	70.8	70.8 	70.8
					Propagation Correction dB(A)	-11.1	-11.2	-11.7	-13.5

Site Layout Correction dB(A)

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

| 55.6 | 58.1 | 55.3 | 50.5 |

61.7

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK WESTBOUND

· · · · · · · · · · · · · · · · · · ·	SEGMENT					1	SEGMENT	T	
	1	1 2	l 3	4	 1	i 1	l 2	l 3	1 4
Traffic flow q		i	i	1	Chart 2	1	i	1	i
veh/hour	447	447	447	447	L10 dB(A)	68.7	68.7	68.7	68.
 Traffic speed V km/h	50	50	 50	 50	j Chart 4		 	 	
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	2.
Gradient G %		i	1	1	Chart 6 correction dB(A)	0	. 0	0	į
Road surface		PREVIO	JS		correction dB(A)	-1	 -1	-1	 -
l					Basic Noise Level dB(A)	70.3	 70.3	70.3	70.
PROPAGATION_					_				
			SEGMENT		.]	1	,	SEGMENT	
İ	1	2	3	4	.1	1_1_	2	3	4
Shortest horizontal		İ	İ	ĺ	İ	İ	İ	İ	ĺ
distance d m	40	30.5	j 30	37	Chart 7	-5.1	-4	-3.9	j -4.
Height relative to source h m	4.5	4.5	j 4	4	correction d8(A)	į	İ	ĺ	į
ا Ave. height of propagation H m	n/a	l ∤n/a	l n/a	l n/a	Chart 8	0	 0	0	
Absorbent ground cover I] !	 	 	correction dB(A)] !] 	
Barrier path difference m	.44	.01	.00	.00	Chart 9 correction dB(A)	-12.8	-3.9	-4.3	 -4.
İ					Propagation Correction dB(A)	-17.9	-7.9	-8.2	-9.
SITE LAYOUT									
<u> </u>			SEGMENT		1	 		SEGMENT	
i	1	1 2	3	4	Ï	1	2	3	4
Facade				İ	correction dB(A)	2.5	.2.5	2.5	2.
Opposite facade angle deg.	35	 33	! 0	 0	reflection correction dB(A)	1.5	 1.5	0	
Angle of view segment deg.	35	 33	1 77	27	Chart 10 correction dB(A)	-7.1	l -7.4	-3.7	! -8.
'		l	i	l	Site Layout Correction dB(A)	-3.1	-3.4	-1.2	-5.
COMBINING NOISE LEVELS								EGMENT	
					Basic Noise Level dB(A)	70.3	70.3	70.3	70.

Site Layout Correction dB(A)

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

49.3 | 59.0 | 61.0 | 55.2

63.9

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND

	BASE HOUSE LEVEL - GROOMS ETHE	<u> </u>	<u></u>							
7				SEGMENT		- 1	1		SEGMENT	
1		<u> 1 </u>	2	3	4	.	1	2] 3	4
•	Traffic flow q]	Ī	ĺ	1	Chart 2	İ	1	1	
-	veh/hour	758	758 	758] 758 1	L10 dB(A)	70.9	70.9 	70.9	70.9
į	Traffic speed V km/h	50	50	50	50	Chart 4	i	! 	!]	!
	Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	2.6
-	Gradient G %	 	l	ı	ı	Chart 6 correction dB(A)		 0	! 0 t	0
-	Road surface		IMPREV	IOUS		correction dB(A)	-1	-1	(-1	 -1
		1				Basic Noise Level dB(A)	72.5	72.5	72.5	72.5
-	PROPAGATION			···		-				
		<u> </u>		SEGMENT			ļ		SEGMENT	. ,
J	Shortest horizontal	<u> 1 </u>	2	3	4	.		2	3	4
,	distance d m	I I 50	l 41	 41	 45.5	 Chart 7	 -5.9	l l -5.2	-5.1	l -5.6
	Height relative to source h m	4.5	4.5	4	4	correction dB(A)				
•	Ave. height of propagation H m	 n/a	n/a	l In/a	 n/a	 Chart 8	0	l I 0	! 0	l 1 0
	Absorbent ground cover I			""-	""	correction dB(A)	i	İ		j
	Barrier path difference m	 .14	.00	 .00	 .00	Chart 9 correction dB(A)	 -10.0	 -4.6	-4.7	 -5
!		 				Propagation Correction dB(A)	-15.9	-9.8	-9.8	-10.6
	SITE LAYOUT			SEGMENT		I	ı——		SEGMENT	
		! <u> </u>	I 2	1 3	4	·1 	1	1 2	3	4
	Facade					correction dB(A)	2.5	2.5	2.5	2.5
	Opposite facade angle deg.	! 3 5 !	 33 	 0] 0	reflection correction dB(A)	1.5	1.5	0	0
	Angle of view segment deg.	 35 	 33 	 70	25	Chart 10 correction dB(A)	-7.1	-7.4	-4.1	-8.6
	•	•	ı	•	•	Site Layout Correction dB(A)	-3.1	-3.4	-1.6	-6.1
							,——		FOUFILE	
	COMBINING MOISE LEVELS						\	2	SEGMENT 3	4
						Basic Noise Level dB(A)	72.5	72.5		72.5
						Propagation Correction dB(A)	-15.9	-9.8	-9.8	-10.6
						Site Layout Correction dB(A)	-3.1	-3.4	-1.6	-6.1
						Noise Contribution dB(A)	53.5	59.3	61.1	55.8
							l .			

Chart 11 Combined Noise Level dB(A)

64.4

Rounding to the nearest whole number:

BASE NOISE LEVEL - ROUTE 7 UP RAMP

!	l		SEGMENT		.1	l	:	SEGMENT	
!	<u> 1 </u>	1_2_	3	4	.	11	2	3	4
Traffic flow q		ļ	ļ	!	Chart 2	<u> </u>		!	
veh/hour	564 	564 !	564 	564 	L10 d8(A)	69.7	69.7	69.7 	69.7
	•	50.1	50.1	60	Chart 4				
Heavy vehicles p %	25 	25 	25 	25 	correction dB(A)	2.6	2.6 	2.6] 3. 2
Gradient G %	8	8	8	į	Chart 6 correction dB(A)	2.4	2.4	2.4	0
Road surface	UP PRE.	UP PRE.	UP PRE.	 PRE.	correction dB(A)	-3.5	 -3.5	-3.5	 -3.5
Chart 5 (up ramp) V = 9.9 km/h	İ	l		I	Basic Noise Level dB(A)	71.2	71.2	71.2	69.4
PROPAGATION									
			SEGMENT		!	<u> </u>		SEGMENT	
Shortest horizontal		2	3	4		1_1	2	3	1 4
distance d m	i i 65	l I 5 5	57	I 61	l Chart 7	· -7	-6.3	 -6.5	 -6.8
Height relative to source h m	3	9	-2.1	-4.8	correction dB(A)	i		 I	
j	ĺ	j	j	i	İ	į	j	ĺ	į
Ave. height of propagation H m Absorbent ground cover I	n/a 	n/a 	n/a 	n/a 	Chart 8 correction dB(A)	0 	0 	[0 	0
Barrier path difference m	! .00	 .02	.02	 .05	Chart 9 correction dB(A)	 -4.9	 -6.9	-7.3	 -8.2
but fel path attrocolor iii		,	1	,	i	j		<u>i</u>	
	i				Propagation Correction dB(A)	-11.9	-13.2	-13.8	-15 . 0
SITE LAYOUT									
<u> </u>	l		SEGMENT			l		SEGMENT	
	<u> 1 </u>	1 2	3	<u> </u>		1 1	2	3	4
Facade] 	 	 	correction dB(A)	2.5 	2.5 	2.5 [2.5
Opposite facade angle deg.	0	j 0	0	į o	reflection correction dB(A)	j 0	0	0	0
	l ! 35	 69	35	 35	Chart 10 correction dB(A)	-7.1	-4.2	-7.1	-7.1
Angle of view segment deg.	,	;	:		i	i i	ı		
Angle of view segment deg.		İ	Ì	l	Site Layout Correction dB(A)	-4.6	-1.7	-4.6	-4.6
Angle of view segment deg.		İ	İ	1	Site Layout Correction dB(A)	-4.6	-1.7	-4.6	-4.6
Angle of view segment deg.		İ	İ	I	Site Layout Correction dB(A)	-4.6		SEGMENT	-4.6
· •		İ	İ	l			. 2	SEGMENT	4
į		İ	İ	I	Site Layout Correction dB(A) Basic Noise Level dB(A)			SEGMENT	4
į		İ	İ	I		 1	2 71.2	SEGMENT	69.4
į		İ	İ	I	Basic Noise Level dB(A)	1 71.2 -11.9	2 71.2	SEGMENT 3 71.2 -13.8	4 69.4 -15.0

Chart 11 Combined Noise Level dB(A)

60.0

Rounding to the nearest whole number:

	1		SEGMENT		1	1		SEGMENT
•		2	3	4	- I	1 1	l 2	l 3
raffic flow q	i -	Ĭ	İ	<u> </u>	Chart 2	i		
veh/hour	775	775	775	i	L10 dB(A)	j 71	71	71
		Ì	1	i	1	i	i	
Traffic speed V km/h	30	30	30	i	Chart 4	i	i	i
Heavy vehicles p %	25	25	25	ĺ	correction dB(A)	j 2.2	2.2	2.2
	1]	1]	1	ļ	1	1
Gradient G %	ļ				Chart 6 correction dB(A)	0	0	0
Road surface		IMPREV	IOUS		correction dB(A)	-1	-1	-1
	I				Basic Noise Level dB(A)	72.2	72.2	72.2
PROPAGATION					- ,			
			SEGMENT		-!	<u> </u>		SEGMENT
06	_1	2	3	4	_	1	2	3
Shortest horizontal	,		! ,	1	Chant 7	1 4 4	1 2	1 4 4
distance d m	4	4	4	!	Chart 7	1.6	1.6	1.6
Height relative to source h m	5.5	5.5	5.5	 	correction dB(A)	l i] 1	<u> </u>
Ave. height of propagation H m	l ı∣n/a	l n/a	l n/a	! 	l Chart 8	0	! ! 0	† 0
Absorbent ground cover I]	'" -]	i	correction dB(A)		i	i
	i	İ	İ	i		i	i	i
Barrier path difference m	i	İ	i	İ	Chart 9 correction dB(A)	i	i	i
	İ					İ	<u> </u>	İ
	I				Propagation Correction dB(A)	1.6	1.6	1.6
SITE LAYOUT								
SITE EXTOOL	1	:	SEGMENT		- 	1	,	SEGMENT
	<u> 1</u>	2	3	4	_[1	2	<u> </u>
Facade	j	Ī	ĺ	Ī	correction dB(A)	2.5	2.5	2.5
		1]		1			[
Opposite facade angle deg.	27	0	1 0	!	reflection correction dB(A)	1.2	0	0
Angle of view segment deg.	 34	l 1 120	 21	i i	Chart 10 correction dB(A)	 -7.2	 -1.8	 -०.४
migro or treat beginning day.	"	i	i	İ		i	<u> </u>	
		•			Site Layout Correction dB(A)	-3.5	.7	-6.8
COMBINING NOISE LEVELS						ļ		SEGMENT.
					Basis Maiss Laurel (BAS)	1 72 2	2	3
					Basic Noise Level dB(A)	72.2	72.2	72.2
•					Propagation Correction dB(A)	l 1	1 4	 1
					Propagation correction ob(A)	1.6	1.6	1.6

Site Layout Correction dB(A)

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

70.3 | 74.5 | 67.0

76.4

LOCATION A (AM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	61.7 dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	63.9 dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	64.4 dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	60.0 dB(A)
RASE NOISE LEVEL - KENNEDY TOUN PRAYA	76.4 dR(A)

Rounding to the nearest whole number:

CASE NOISE LEVEL - KENNEDY TOWN PRAYA 1991

	1		SEGMENT		- _	1		SEGMENT	
	1_1_	1 2	3	4	 -	1	2	3	4
Traffic flow q	i	İ	<u> </u>	Ĭ	Chart 2	ĺ		Ī	Ī
veh/hour	j 911	İ	İ	İ	L10 dB(A)	71.7		İ	İ
	į.	İ	Ì	Ī		ĺ.	ĺ	Ì	Ì
Traffic speed V km/h	30	İ	İ	Ì	Chart 4	ĺ		ĺ	ĺ
Reavy vehicles p %	25	İ	i	İ	correction dB(A)	2.2	ĺ	Ì	Ì
	İ	İ	i	İ		Ì	ĺ	Ì	Ì
Gradient G %	Ì		•		Chart 6 correction dB(A)	0		Ì	İ
	İ				1	1			1
Road surface	1	IMPREV	/10US		correction dB(A)	-1		!	
					1	I		1	1
					Basic Noise Level dB(A)	72.9		1	
DDODACATION									
PROPAGATION	1		SEGMENT		_ -	1		SEGMENT	
	1	I 2	I 3	1 4	-1	1	2	1 3	1 4
Shortest horizontal	i	i -	i	ì	-1 			<u> </u>	
distance d m	i 2	i	i	i	Chart 7	2.7		i	i
Height relative to source h m	4.5	i	i	i	correction dB(A)			i	i
giie i etaetite to oodito II III		i	i	i		1 1		i	i
Ave. height of propagation H m	i i n/a	i	i	i	Chart 8	0		i	i
Absorbent ground cover I	i	i	i	i	correction dB(A)	j		i	i
	ì	i	i	i	1	;		İ	İ
Barrier path difference m	i	i	i	i	Chart 9 correction dB(A)	i i		•	i
The particular section with	i	,	•	•		i i		i	i
	ì				Propagation Correction dB(A)	2.7		i	i
	•						•	-	-
CITE I AVOIT									
SITE LAYOUT	<u> </u>		SEGMENT		I	1		SEGMENT	
	1 1	l 2	1 3	1 4	-i 	1	2	1 3	4
Facade		i -	i	İ	- correction dB(A)	2.5		i	i
	i	i	i	i				İ	i
Opposite facade angle deg.	i o	i	i	i	reflection correction dB(A)	ioi		i	i
1,	i	i ·	i	í	1	i i		i	i
Angle of view segment deg.	173	i	i	i	Chart 10 correction dB(A)	2		i	i
	i	i	i	į	i	i i		i	i
	•	•	-	•	Site Layout Correction dB(A)	2.3		İ	İ
						•		-	-
COMPLETE MALES LEVELS								CEOUCHT	
COMBINING NOISE LEVELS						1 1	2	SEGMENT I 3	4
					Basic Noise Level dB(A)	· · · · · · · · · · · · · · · · · · ·		 	- 4
					Dasic Noise Level OB(A)	72.9		I I	
					December Consisting 40/43			ļ	<u> </u>
					Propagation Correction dB(A)	2.7		! !]
					Site Layout Correction dB(A)	2.3		! ;	! !
					arte Layout correction ob(A)	1 2.3		! 1	[[
					Noise Contribution dB(A)	77.9		! 	l I
					notes done four for up(A)	- <u></u>		•	i
						1			

Chart 11 Combined Noise Level dB(A)

77.9

Rounding to the nearest whole number:

CASE NOISE LEVEL - KENNEDY TOWN PRAYA 1996

	<u> </u>		SEGMENT		.1	<u> </u>		SEGMENT	
	_1	1 2	3	1 4	.	1	2	3	4
Traffic flow q	l	t		1	Chart 2		Ι.	j	
veh/hour	1000				L10 dB(A)	72.2	<u> </u>		ļ
Traffic speed V km/h	I 30	! 	1	l I	Chart 4	! 	! 	} }	
Heavy vehicles p %	25	İ	i	i	correction dB(A)	2.2	, İ	i	i
		j .	1	1		!	!	!	!
Gradient G %	<u>{</u> [Chart 6 correction dB(A)	0	! 1		
Road surface	į .	IMPREV	10US		correction dB(A)	-1	İ	į	į
	l				Basic Noise Level dB(A)	73.4	 		
PROPAGATION					-		-		
	!		SEGMENT			ļ <u></u>		SEGMENT	
Shortest horizontal	<u> 1 </u>	2	3	1 4	.]	1	2	3	4
distance d m	l I 4	!	1	l i	l Chart 7	 1.8	 	i I	I I
Height relative to source h m	" 4.5	ί }	!	!	correction dB(A)	1 1.0	! 1	}	j I
neight retailed to soulce it in	, ~. ,	i	i	i	Solvestion astro	i .	, 	i	ĺ
Ave. height of propagation H m	, n/a	i	i	i	Chart 8	j o	İ	i	i
Absorbent ground cover I	j	İ	j	j	correction dB(A)	i		İ	İ
Barrier path difference m	 	 			Chart 9 correction dB(A)] 1		i i
Jan Co. pagn across side			1	•	İ	<u> </u>	į	į	į
	[Propagation Correction dB(A)	1.8	l	l	l
SITE LAYOUT									
STIE LAIGH	ı ———		SEGMENT		·	1		SEGMENT	
	1	2	3	4		1_1_] 2	3	4
Facade	ĺ	į	į	į	correction dB(A)	2.5	į	į	İ
Opposite facade angle deg.	 0]	 	reflection correction dB(A)] 0	<u> </u>	 	! [
Angle of view segment deg.	173	 	†] }	Chart 10 correction dB(A)	2] 	
1	İ	İ	İ	İ	Oite Levent Commention dD(A)	<u> </u>		į	İ
					Site Layout Correction dB(A)	2.3		ł	l
								SEGMENT	
COMBINING NOISE LEVELS						1	2	3	4
COMBINING NOISE LEVELS									
COMBINING NOISE LEVELS					Basic Noise Level dB(A)	73.4			
COMBINING NOISE LEVELS					Basic Noise Level dB(A) Propagation Correction dB(A)	73.4 1.8		 	
COMBINING NOISE LEVELS						į į		 	

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

	1	!	SEGMENT	- 1		1		SEGMENT	
	1 1	1 2] 3	4		1] 2	[3	4
Traffic flow q	i	Ī		i	Chart 2		i	i	
veh/hour	777	777	777	İ	L10 dB(A)	71.1	71.1	71.1	
Traffic speed V km/h	50	60	60		Chart 4]	! 	
Heavy vehicles p %	25 	25 	25 		correction dB(A)	2.6	[3.2 	3.2 	
Gradient G %		8 DOWN	8 NWOD	i	Chart 6 correction dB(A)	0	; o	 0 	
Road surface	IMPRE.	PRE.	PRE.		correction dB(A)	-1	-3.5	-3.5	
•	٠.	1	ı	'	Basic Noise Level dB(A)	72.7	70.8	70.8	
PROPAGATION				 .					
		_	SEGMENT	 -				SEGMENT	,
Shortest horizontal	_1	1 2	3	<u> </u>			1 2	3	4
	 51.5	i 151.5	 57	 	Chart 7	-6.1	!] -6.1	ı -6.5	
Height relative to source h m	3.5	3.2	1.3	į	correction dB(A)				
Ave. height of propagation H m	 2 .2 5	 2.10	 n/a		Chart 8	 -2.58	i -2.71	 0	
Absorbent ground cover I	.75 	.75 	 	1	correction d8(A)] [<u> </u> !
Barrier path difference m	į	00.	.00	į	Chart 9 correction dB(A)		-5	-5	
				ľ	Propagation Correction dB(A)	-8.7	-11.1	-11.5	
SITE LAYOUT									
STE ERION	l		SEGMENT	<u> </u>			,	SEGMENT	
	1 4	1 2	3	4		i 1	2	3	4
	1_1_					I—-	-		
Facade	<u>!</u> 	<u> </u>		1	correction dB(A)	2.5	•	2.5 	
	! 0	 0	0]	correction dB(A) reflection correction dB(A)	I — -	•	2.5 0	
Opposite facade angle deg.		[2.5	2.5 0	İ	
Facade Opposite facade angle deg. Angle of view segment deg.	 0	[0	0		reflection correction dB(A)	2.5 0 -6.5	2.5 0 -8.6	0 -8.2	
Opposite facade angle deg.	 0	[0	0		reflection correction dB(A) Chart 10 correction dB(A)	2.5 0 -6.5	2.5 0 -8.6	0 -8.2	
Opposite facade angle deg.	 0	[0	0		reflection correction dB(A) Chart 10 correction dB(A)	2.5 0 -6.5	2.5 0 -8.6 -6.1	0 -8.2	
Opposite facade angle deg. Angle of view segment deg.	 0	[0	0	1 1	reflection correction dB(A) Chart 10 correction dB(A)	2.5 0 -6.5	2.5 0 -8.6 -6.1	0 -8.2 5.7	4
Opposite facade angle deg. Angle of view segment deg.	 0	[0	0	 	reflection correction dB(A) Chart 10 correction dB(A)	2.5	2.5 0 -8.6 -6.1	0 -8.2 -5.7 SEGMENT	

Site Layout Correction dB(A)

60.0 | 53.6 | 53.6

61.6

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK WESTBOUND

BASE NOISE LEVEL - GROUND LINK	WESTBOL	ND	-						
			SEGMENT		- .}	1		SEGMENT	
	<u> </u>	2	3	4	.i	1	2	3	4
Traffic flow q				I	Chart 2	1		1	1
veh/hour	1224	447	447	447	L10 dB(A)	73	68.7	68.7	68.7
Traffic speed V km/h	50	50	50	50	Chart 4		i .		!
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	2.6
Gradient G %		1	1	ı	Chart 6 correction dB(A)	0	0	0	0
Road surface	!	IMPRE	VIOUS		correction dB(A)	-1	-1	-1	-1
	1				Basic Noise Level dB(A)	74.6	70.3	70.3	70.3
PROPAGATION					.				
	<u> </u>		SEGMENT			ļ		<u>SEGMENT</u>	-
Shortest horizontal	1	2	3	4	. 	1	2	3	4
distance d m	l 60	 60	l 62] 71	Chart 7	1 -6 7	i -6.7	 -68	 -7.4
Height relative to source h m	1 3.5	3.5	3.5	3.5	correction dB(A)	1	i	i	'
no.gne / ctatto to coares / in		1			1	i	! 	ì	
Ave. height of propagation H m	2.25	2.25	n/a	n/a	Chart 8	-2.82	-2.82	i	İ
Absorbent ground cover I	.75	.75	į	į	correction dB(A)	İ	Ì	į	ļ
Barrier path difference m			.04	 .50	Chart 9 correction dB(A)		 	 -7.8	 -13.1
]				Propagation Correction dB(A)	-9.5	-9.5	-14.6	-20.5
SITE LAYOUT									
JIIL LAIGOT	1		SEGMENT		1	ī	:	SEGMENT	
	1	2	3	4	j	1	2	3	1 4
Facade	[ļ		correction dB(A)	2.5	2.5	2.5	2.5
Opposite facade angle deg.	0	0	10	24	reflection correction dB(A)	0	 0	 .6	 1.3
Angle of view segment deg.	49	37	25	 27	Chart 10 correction dB(A)	-5.7	 -6.9	 -8.6	 -8.2
	I	١.	ı	I	Site Layout Correction dB(A)	-3.2	-4.4	-5.5	-4.4
COMPINING NOTCE LEDGE C						,——		OF CUT NA	
COMBINING NOISE LEVELS						ļ	1 2	SEGMENT I 3	1 /
					Basic Noise Level dB(A)	74.6		70.3	70.3
					Propagation Correction dB(A)	 -9.5	 -9.5	 -14.6	 -20.5
					Site Layout Correction dB(A)	 -3.2	 -4.4	-5.5	 -4.4
					Noise Contribution dB(A)	 61.9	56.4	 50.2	 45.4
					· • •	i			

Chart 11 Combined Noise Level dB(A)

63.3

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND

	l		SEGMENT		_[1		SEGMENT	
	1] 2	3	4	_	1_1_	2	3	4
Traffic flow q		1			Chart 2	j	1		l
veh/hour	1322 	758	758 	758 	L10 dB(A)	73.4	70.9	70.9 	70.9
Traffic speed V km/h	50	50	50	50	Chart 4				!
Heavy vehicles p %	25 	25] 25 I	25 	correction dB(A)	2.6	2.6 	2.6 	2.6
Gradient G %		ı	1	1	Chart 6 correction dB(A)	0	0	0	 0
Road surface	!	IMPRE	VIOUS		correction dB(A)	-1	-1	-1	! -1
	r				Basic Noise Level dB(A)	75	72.5	72.5	72.5
PROPAGATION					- .				
			SEGMENT		-	<u> </u>		SEGMENT	
Shortest horizontal	<u> 1 </u>	2	3	4	-	_1_	2	3	4
distance d m	l I 69	l l 69	l l 69	l 84	 Chart 7		! -7.3	 -7.3	 -8.1
Height relative to source h m	3.5	3.5	3.5	3.5	correction dB(A)	-7.5	-1.5	-7.5 	-0.1
neight retactive to source it in	J.J	1 3.7	3.,	J.J	Correction db(x)	i	l I] [
Ave. height of propagation H m	1 12,25	2.25	n/a	l In/a	Chart 8	-3.05	I -3.05	i 0	! 0
Absorbent ground cover I	.75	.75			correction dB(A)			i	Ì
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	i	i	i		i	i	i	i
Barrier path difference m	.00	00.	-00	.19	Chart 9 correction dB(A)	-5	, -5	-5.4	-10.6
					Propagation Correction dB(A)	-12.3	J-12.3	-12.7	-18.7
SITE LAYOUT	. 		SEGMENT	·····		1	 	SEGMENT	
	 1	l 2	1 3	1 4	-I 	i——	1 2	1 3	4
Facade	! 		 	 	- correction dB(A)	2.5	•	2.5	2.5
1 00000	<u> </u>	i	i	i	1		i		
Opposite facade angle deg.	0	į o	10	24	reflection correction dB(A)	į 0	j o	.6	1.3
Angle of view segment deg.	53	33	24	28	Chart 10 correction dB(A)	-5.3	-7.4	-8.8	-8.1
	l	i		l	Site Layout Correction dB(A)	-2.8	-4.9	-5.6	-4.3
COMBINING NOTCE LEVELS								PECHENT	
COMBINING NOISE LEVELS								SEGMENT	4
					Basic Noise Level dB(A)			72.5	72.5
					DESIGNOISE LEVEL UD(A)	"	; 12.J	'2.J 	, 2.3
					Propagation Correction dB(A)	-12.3	-12.3	-12.7	-18.7
					Site Layout Correction dB(A)	 -2.8	l -4.9	 -5.6	-4.3
•						i			

Chart 11 Combined Noise Level dB(A)

62.2

Rounding to the nearest whole number:

BASE NOISE LEVEL - ROUTE 7 UP RAMP

	I		SEGMENT		_i	l	:	SEGMENT	
	<u> 1 </u>	2	j 3	4	 _ i	1	2] 3	4
raffic flow q	i	1	1	1	Chart 2	1	Ì	1	
/eh/hour	564	564	564	İ	L10 dB(A)	69.7	69.7	69.7	
raffic speed V km/h	 50	 50.1	[50.1	 	 Chart 4			 	
leavy vehicles p %	25	25	25		correction dB(A)] 2.6	2.6	2.6	
Gradient G %]	8	8		Chart 6 correction dB(A)	0	2.4	2.4	
Road surface	i IMPRE.	UP PRE.	UP PRE.	 	correction dB(A)	 -1	 -3.5	 -3.5	
	İ	i	•	j	Basic Noise Level dB(A)		71.2	<u> </u>	
hart 5 (up ramp) V = 9.9 km/h					Basic Roise Level OB(A)	/1.3	1 /1.2	/1.2	
PROPAGATION	, 		SEGMENT		_	1	<u>-</u>	SEGMENT	
	 1	1 2	I 3	1 4	-¦	1 1	l 2	I 3	4
Shortest horizontal	<u>' </u>	-	i	1	-! 1	1		<u> </u>	
distance d m	77	79	97	<u> </u>	Chart 7	i -7.7	-7.8	-8.7	
leight relative to source h m	3.5	3.2	.2		correction dB(A)				
ve. height of propagation H m	 2.25	n/a	 n/a	 	Chart 8	 -2.15	 0	 0	
Absorbent ground cover I	.50 	<u> </u>]	<u> </u>	correction dB(A)		[
Barrier path difference m	.00	.00	.01	Ì	Chart 9 correction dB(A)	-4.5	-5	-6.4	
	! 				Propagation Correction dB(A)	-12.2	-12.8	-15.1	
SITE LAYOUT	,		SEGMENT		 	1	•	SEGMENT	
	i 1	1 2	l 3	4	_	i 1	1 2	3	4
acade	İ				correction dB(A)	2.5	2.5	2.5	
opposite facade angle deg.	 0	0	0	! !	reflection correction dB(A)	0	0	0	
angle of view segment deg.	 33	 25	 27	 	 Chart 10 correction dB(A)	 -7.4	 -8.6	 -8.2	
	l	ļ	I		Site Layout Correction dB(A)		 -6.1	-5.7	
					·	•	•		
COMBINING NOISE LEVELS								SEGMENT	
						1_1_	2	3	4
					Basic Noise Level dB(A)	71.3 	71.2 	71.2 	
					Propagation Correction dB(A)	-12.2	-12.8	-15.1	

Site Layout Correction dB(A)

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

-4.9 | -6.1 | -5.7 |

54.2 | 52.3 | 50.4 |

57.4

Rounding to the nearest whole number:

CASE NOISE LEVEL - KENNEDY TOWN PRAYA

	Ī		SEGMENT					SEGMENT	
	1_1	2	3	<u> 4 </u>	Ī	1_1_	_ 2	1 3	4
Traffic flow q	1				Chart 2]	
veh/hour	775		 1		L10 dB(A)	71		[]
Traffic speed V km/h	30		! 		Chart 4			İ	!
Heavy vehicles p %	[25]]	correction dB(A)	2.2		 	1
Gradient G %			ı	ı	Chart 6 correction dB(A)				
Road surface	i I	MPREV	ous		correction dB(A)	-1			
	I				 Basic Noise Level dB(A)	72.2]
PROPAGATION									
	1 1	2	SEGMENT 1 3	1 4			2	<u>SEGMENT</u> l 3	
Shortest horizontal	 	۲	 	 "	 			1	 4
distance d m	4		! 	! 	l Chart 7	1.8		ì]
Height relative to source h m	4.5			į	correction dB(A)			į	İ
Ave. height of propagation H m	 n/a		 	 	 Chart 8	i 0		 	
Absorbent ground cover I				1	correction dB(A)	į į		İ	İ
Barrier path difference m	† 				Chart 9 correction dB(A)			!	
	1				 Propagation Correction dB(A)	1.8		 	!
CITE LAVOIT									
SITE LAYOUT			SEGMENT		1	1		SEGMENT	
	1 1	2	3	4		1 1	2	3	1 4
Facade				 	correction dB(A)	2.5		1	
Opposite facade angle deg.	0	1		! -	reflection correction dB(A)	0			!
Angle of view segment deg.	173	 		 	Chart 10 correction dB(A)	2) 	
	1 1		ł		Site Layout Correction dB(A)	2.3		 	!
COMBINING NOISE LEVELS								SEGMENT	
CONTRACT HOLDE LEVELS						1 1	2	3	l 4
					Basic Noise Level dB(A)	72.2	 _	<u> </u>	<u> </u>
						1		i	!
					Propagation Correction dB(A)	1.8			!
					Propagation Correction dB(A) Site Layout Correction dB(A)	1.8		[
		,				i i		 	

LOCATION B (AM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	61.6	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	63.3	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	62.2	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	57.4	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	76.3	dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1991

	SEGMENT				.[SEGMENT			
	1_1_	1 2	1 3	4	.ĺ	1	2	3	4
Traffic flow q	l	1	ļ		Chart 2	1		1	l
veh/hour	911	911 		İ	L10 dB(A)	71.7	71.7	[i	
Traffic speed V km/h	30	30	i	i	Chart 4		! 	<u> </u> 	
Reavy vehicles p %	25	25			correction dB(A)	2.2	2.2		!
Gradient G %		1		I	Chart 6 correction dB(A)	0			[
Road surface	IMPREVIOUS				correction dB(A)	-1	-1	 	
	•				Basic Noise Level dB(A)	72.9	72.9	 	
PROPAGATION									
	SEGMENT				Į.	ļ		SEGMENT	
	[_1_	<u> 5</u>	1 3	<u> </u>	!	1_1_	<u> 2</u>	3	4
Shortest horizontal	ļ ,	! ,	!	ļ	l above 7	!			
distance d m	4	4	!	ļ	Chart 7	1.2	1.2	ļ	!
Height relative to source h m	6.8 	8.6] 	correction dB(A)]
Ave. height of propagation H m	l n/a	n/a	i		 Chart 8	i 0	0	l I	1
Absorbent ground cover I	,, - 	i	i	i	correction dB(A)	İ	i		i
	i	İ	j	İ	İ	j			i
Barrier path difference m	[l	1	l	Chart 9 correction dB(A)	1	[ļ
	<u> </u>				Propagation Correction dB(A)	1.2	1.2		l
SITE LAYOUT						.——			
	!	SEGMENT			!			SEGMENT	
Facada		1 2	1 3	4	l connection dP(A)	1 2 5	2	3	4
Facade	! 	l		 	correction dB(A)	2.5 	2.5]
Opposite facade angle deg.	!	İ	j	į	reflection correction dB(A)	0			<u>.</u>
Angle of view segment deg.	135	36	İ	<u> </u> 	Chart 10 correction dB(A)	-1.2	7.0		
	r	•	•	•	Site Layout Correction dB(A)	1.3	-4.5		İ
COMPINITION NOTES LEGIS								EGMENT	
COMBINING NOISE LEVELS							<u></u>	3	1 4
					Basic Noise Level dB(A)	72.9			
					Propagation Correction dB(A)	1.2	1.2		Í I
						İ	j j		į
					Site Layout Correction dB(A)	1.5	-4.5		1

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

75.4 | 69.6

76.4

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1996

	[SEGMENT		<u> </u>	1	;	SEGMENT	•
	<u>i </u>	2	3	1 4	<u>_i</u>	1	[2	3	1 4
Traffic flow q	İ	i	i	İ	Chart 2	i	İ	İ	Ì
	1000	1000	Ì	1	L10 dB(A)	72.2	72.2	Ì	Ì
raffic speed V km/h	 30	30	 		Chart 4		 	 	
Heavy vehicles p %	25	25	I		correction dB(A)	2.2	2.2	 	
Gradient G %	! 	I	Ī	I	Chart 6 correction dB(A)	0	0	! 	
Road surface	 	IMPRE	VIOUS		correction dB(A)	-1	-1	! 	
	I				Basic Noise Level dB(A)	73.4	73.4	! 	l
PROPAGATION					-				
	<u> </u>		SEGMENT		<u>-</u> !	<u> </u>		SEGMENT	
	<u> 1 </u>	2	3	4	-!	<u> 1</u>	2	3	4
Shortest horizontal	!	! ,	!					!	ļ
distance d m	4	4	!	!	Chart 7	1.2	1.2	!	!
eight relative to source h m	6.8 	6.8	l I	 	correction dB(A)	 	 	[l
eve. height of propagation H m	n/a	n/a	i	i	Chart 8	1 0	0	Ì	i
bsorbent ground cover I		į	į	į	correction dB(A)	į	į	į	į
arrier path difference m	 -	 	 	1	Chart 9 correction dB(A)	!	 !	 	! !
	! 				Propagation Correction dB(A)	1.2	1.2	! 	
SITE LAYOUT	<u> </u>		SEGMENT		- -			SEGMENT	
<u> </u>	1_1_	2	3	4	_[1_1_	2	3	4
acade	† 	 	 	i I	correction dB(A)	2.5 	2.5	!	
opposite facade angle deg.	; 	į	į	į	reflection correction dB(A)		0		į
1	1	•		1	Chart 10 correction dB(A)	1 -1.2	-7.0		
Angle of view segment deg.	135	36	 	! 	i	i			
ingle of view segment deg.	135	36 	 	1	Site Layout Correction dB(A)	İ	-4.5		İ
i	† 135 	36 	 	.	i	İ	-4.5	COMENT	<u> </u>
i	135	36 		I	i	İ	-4.5 S	EGMENT	
Angle of view segment deg.	135	36 	 	1	i	1.3	-4.5 S	EGMENT	! !
i	135 	36 	ľ	İ	Site Layout Correction dB(A)	1.3	-4.5 S		

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

<u>| 75.9 | 70.1 |</u>

76.9

Rounding to the nearest whole number:

	I		SEGMENT		_[I		SEGMENT	
	i 1	2	3	4		1 1	2]3	4
Traffic flow q	i	İ	Ì		Chart 2	Ì	Ī	Ĭ	Ì
veh/hour	777) 777	777		L10 dB(A)	71.1	71.1	71.1	İ
Traffic speed V km/h	 50	 60	60		Chart 4	1	! 	! !	
Heavy vehicles p %	25 	25 	25		correction dB(A)	2.6	3.2] 3.2]
Gradient G %	<u> </u> 	8 Down	8 DOWN		Chart 6 correction dB(A)	0	 	; [0	
Road surface	IMPRE.	PRE.	PRE.		correction dB(A)	-1	-3.5	-3.5	
i	i	1			Basic Noise Level dB(A)	72.7	70.8	70.8	İ
PROPAGATION					.				
l	!		SEGMENT		-ļ	[SEGMENT	
	<u> 1 </u>	2	3	4	.ļ	_1_	2	3	4
Shortest horizontal			1		 	, ^	, ^	ļ <u>-</u>	ļ
· · · · · · · · · · · · · · · · · · ·		38.5	40		Chart 7	-4.9	-4.9	-5	ļ
Height relative to source h m	5.8 1	5 	3.5		correction d8(A)	ļ) 1
Ave. height of propagation H m	13.40	 5.50	n/a		Chart 8	-1.35	49	; o	
Absorbent ground cover I	.75	.75			correction dB(A)	i .	i	ì.	Ì
_	i	ĺ	i i		i	i	i	i	İ
Barrier path difference m	İ	.01	.00		Chart 9 correction dB(A)	į	-3.8	-4.7	ĺ
	 				Propagation Correction dB(A)	 -6.3	-8.7	9.7	
	•					•	•	•	•
SITE LAYOUT			SEGMENT		!	,		SEGMENT	
Ţ	 1	1 2	3 I	4	i	1 1	l 2	3	1 4
Facade					correction dB(A)	2.5		2.5	
Opposite facade angle deg.	0	 0	0		reflection correction dB(A)		0	0	! !
Angle of view segment deg.	31	46	36		Chart 10 correction dB(A)	-7.6	-5.9	-7.0	! !
· •			 		Site Layout Correction dB(A)	-5.1	-3.4	-4.5]
						!	5	EGMENT	
COMBINING NOISE LEVELS									
COMBINING NOISE LEVELS						1	2	3	4
COMBINING NOISE LEVELS					Basic Noise Level dB(A)	72.7	2 70.8		4
COMBINING NOISE LEVELS					Basic Noise Level dB(A) Propagation Correction dB(A)	1 72.7 -6.3			4

Site Layout Correction dB(A)

61.3 | 58.7 | 56.6

64.1

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK WESTBOUND

Traffic flow q veh/hour 1224 Traffic speed V km/h Heavy vehicles p % 25 Gradient G % Road surface	2 447 50 25	3 447 50 25	4 447 50 25	- Chart 2 110 dB(A) Chart 4 correction dB(A)	1 73 2.6	68.7	<u>SEGMENT</u> 3 68.7 	4 68.7
veh/hour 1224 Traffic speed V km/h 50 Heavy vehicles p % 25 Gradient G %	50 25	 50	 50	110 dB(A) Chart 4		i I	 68.7 	 68.7
Traffic speed V km/h 50 Heavy vehicles p % 25 Gradient G %	50 25	 50	 50	 Chart 4		i I	68.7 	68.7
Heavy vehicles p % 25 Cradient G %	25	,	•	•	2.6	<u> </u>	1	1
Gradient G %	İ	25 	25 	correction dB(A)	1 2.6			ļ
i	IMPRE	ı	I	i	i	2.6] 2.6] 2.6
Road surface	IMPRE			Chart 6 correction dB(A)	0	0	0	0
		VIOUS		correction dB(A)	-1	-1	-1	-1
				Basic Noise Level dB(A)	74.6	70.3	70.3	70.3
PROPAGATION	••••							
		SEGMENT			ļ		SEGMENT.	
Shortest horizontal	2	1_3	<u> </u>	-		2	3	4_
distance d m 47.5	 47.5	 47	l 52	l Chart 7	 -50	 -5.8] 1 -5 7	l -6.1
Height relative to source h m 5.8	5.8	5.8	5.8	correction dB(A)	3.6	-5.0]	0.1
Ave. height of propagation H m 3.40	 3.40	l ∣n/a	l ∣n/a	 Chart 8	 -1.68	 -1.68] 	
Absorbent ground cover I .75	.75	į	İ	correction dB(A)	į	į	-	į
Barrier path difference m	1	.04	.39	Chart 9 correction dB(A)		 	l -8.0	i j-12.4
ļ				Propagation Correction dB(A)	-7.5	-7.5	-13.7	-18.5
SITE LAYOUT		SEGMENT		1			SEGMENT	
<u> </u>	l 2	I 3	4	.1 	1	2	l 3	
Facade				correction dB(A)	2.5	2.5	2.5	2.5
Opposite facade angle deg. (46	31	reflection correction dB(A)	0	0	 1.5	 1.3
Angle of view segment deg. 30	31	46	36	Chart 10 correction dB(A)	7.8	-7.6	-5.9	7.0
ı	ı		ļ	Site Layout Correction dB(A)	-5.3	-5.1	-1.9	-3.2
					.—			
COMBINING NOISE LEVELS							SEGMENT	
				Basic Noise Level dB(A)	74.6	70.3	70.3	70.3
				Propagation Correction dB(A)	 -7.5	-7 . 5	-13.7	-18.5
				Site Layout Correction dB(A)	 <u>-5.3</u>	-5.1	-1.9	-3.2
				Noise Contribution dB(A)	 <u>61.8</u>	57.7	54.7	48.6

Chart 11 Combined Noise Level dB(A)

63.9

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND

Traffic flow q				SEGMENT		- _1			SEGMENT	
1322 758 758 758 758 158		1_1_	2	3	1 4		1	2	3	1 4
Reavy vehicles p X 25 25 25 25 25 correction d8(A) 2.6	· · · · · · · · · · · · · · · · · · ·	1322	 758	 758	758	,	73.4	70.9	70.9	70.9
Chart 6 correction dB(A)		•	•	•		•				
Road surface IMPREVIOUS Correction dB(A) -1 -1 -1 -1 -1 -1 -1 -	Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	2.0
Basic Noise Level dB(A) To T2.5	Gradient G %	 	I	I	l	Chart 6 correction dB(A)	0	0	[0	
SEGMENT SEGMENT SEGMENT SEGMENT SEGMENT 1 2 3 4 4 Segment 1 2 3 4 4 Segment	Road surface		IMPRE	VIOUS		correction dB(A)	-1	-1	-1	-
SEGMENT 1 2 3 4 1 3 4		'				Basic Noise Level dB(A)	75	72.5	72.5	72.
1	PROPAGATION	.—				- ,	,			
Shortest horizontal distance d m			•			- i				
SEGMENT	Shortest horizontal	<u> </u>	j		İ	-l [<u> </u>	İ	İ	
Ave. height of propagation H m 3.40 3.40 n/a n/a Chart 8 -1.33 -1.33 0 Absorbent ground cover 1 .50 .50		!	•	•	•	1	1 -0.0	1 -0.0	-0.5	•o.'
Absorbent ground cover 1	neight retailive to source it in	1 7.0	1 3.8	J.6 	1 7.0	Correction db(x)	1	i	¦] [
Barrier path difference m	- , , -	•	<u>.</u>	n/a	n/a	•	-1.33	-1.33		į
Propagation Correction dB(A) -11.3 -11.3 -11.5 -16. SITE LAYOUT	Absorbent ground cover I	.50	1 .50			correction dB(A)		!	!	1
SEGMENT SEGMENT 1 2 3 4	Barrier path difference m	00.	.00	00.	1.10	Chart 9 correction dB(A)	-4.7	-4.7	 -5	 -9.:
SEGMENT 1 2 3 4 1 2 3 4 1 2 3 4		<u> </u>				Propagation Correction dB(A)	-11.3	-11.3	-11.5	-16.7
SEGMENT 1 2 3 4 1 2 3 4 1 2 3 4	SITE LAYOUT									
Facade		1		SEGMENT			1		SEGMENT	
Opposite facade angle deg. 0 0 46 31 reflection correction dB(A) 0 0 1.5 1. Angle of view segment deg. 35 26 46 36 Chart 10 correction dB(A) -7.1 -8.4 -5.9 -7. Site Layout Correction dB(A) -4.6 -5.9 -1.9 -3. COMBINING MOISE LEVELS Basic Noise Level dB(A) 75 72.5 72.5 72.5 72.5 72.5 72.5 72.5 7		<u> 1 </u>	2	3	4	.	- 	•] 3	4
Angle of view segment deg. 35 26 46 36 Chart 10 correction dB(A) -7.1 -8.4 -5.9 -7. Site Layout Correction dB(A) -4.6 -5.9 -1.9 -3. COMBINING NOISE LEVELS SEGMENT 1 2 3 4 4 4 4 4 4 4 4 4	Facade]				correction dB(A)	2.5	2.5	2.5	2.5
Site Layout Correction dB(A) -4.6 -5.9 -1.9 -3.	Opposite facade angle deg.	 0	, , ,	 46 	1 31 	reflection correction dB(A)		; [0	 1.5	 1.3
SEGMENT 1 2 3 4	Angle of view segment deg.	35	26 	46	36	Chart 10 correction dB(A)	7.1	-8.4	j -5.9	-7.0
1 2 3 4		•	•	•	•	Site Layout Correction dB(A)	-4.6	-5.9	-1.9	-3.2
1 2 3 4	COMBINING NOISE LEVELS								SEGMENT	
							<u> </u>			4
i i i						Basic Noise Level dB(A)	75	72.5	72.5	72.5
Site Layout Correction dB(A) -4.6 -5.9 -1.9 -3.						Propagation Correction dB(A)	 -11.3	i -11.3	 -11.5	16.2
						Site Layout Correction dB(A)	-4.6	-5.9	-1.9	-3.2

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

63.4

Rounding to the nearest whole number:

SEGMENT 1 2 3 4 1 2 3 4	4
veh/hour 564 564 564 564 L10 dB(A) 69.7 71.2 71.2 71.2 71.2 71.2 71.2 71.2 71.2 71.2 71.2 71.2 71.2 71.2 71.2 71.2	
veh/hour 564 564 564 L10 dB(A) 69.7	
Reavy vehicles p % 25 25 25	
Reavy vehicles p % 25 25 25	
Note Note	-
IMPRE PRE PRE Correction dB(A) -1 -3.5 -3.5	
SEGMENT 1 2 3 4	
SEGMENT SEGM	
SEGMENT 1 2 3 4	
1	
Shortest horizontal distance d m	
Chart 7	4
SITE LAYOUT SEGMENT 1 2 3 4 4.3 3 Correction dB(A)	
Ave. height of propagation H m 3.40 n/a n/a Chart 8 77 0 0 Absorbent ground cover I .25 Barrier path difference m .03 .00 .00 Chart 9 correction dB(A) -2.4 -5 -5.0 Propagation Correction dB(A) -9.7 -12.2 -12.6 SITE LAYOUT Facade	
Absorbent ground cover I	
Chart 9 correction dB(A) -2.4 -5 -5.0	
Propagation Correction dB(A) -9.7 -12.2 -12.6	
SEGMENT SEGMENT SEGMENT SEGMENT 1 2 3 4	
SEGMENT SEGMENT 1 2 3 4 1 2 3 5 2.5	
SEGMENT SEGMENT 1 2 3 4 1 2 3 5 2.5	
1 2 3 4 1 2 3 4	
Facade	4
	<u>-</u>
Angle of view segment deg. 30 46 36 Chart 10 correction dB(A) -7.8 -5.9 -7.0	
Site Layout Correction dB(A) -5.3 -3.4 -4.5	
COMBINING NOISE LEVELS SEGMENT	
1 2 3	4
Basic Noise Level dB(A) 71.3 71.2 71.2	
Propagation Correction dB(A) -9.7 -12.2 -12.6	

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

56.3 | 55.6 |

60.2

Rounding to the nearest whole number:

	1		SEGMENT	<u> </u>				SEGMENT	
	1	1 2] 3	1 4		1	<u> 2</u>	3	4
Traffic flow q	i	1	Ī	j	Chart 2	İ	İ	ĺ	İ
/eh/hour	775	775	İ		L10 dB(A)	71	71		-
Traffic speed V km/h	 30	30	İ		Chart 4	1			
Heavy vehicles p %	25 	[25 [correction dB(A)	2.2	<u>2.2 </u> 	 	
radient G %	! 	ı	I		Chart 6 correction dB(A)	0	0	 	
Road surface	! 	IMPRE	VIOUS	ļ	correction dB(A)	-1	-1	 	
•	i			ı	Basic Noise Level dB(A)	72.2	72.2]
PROPAGATION									
	<u> </u>		SEGMENT			ļ		SEGMENT	
	<u> 1 </u>	2	3	14		11	2	3	4
Shortest horizontal			!	į	0l4 7	1 4 2		!	ļ.
distance d m	4	4	!	!!!	Chart 7	1.2	1.2	!	ļ
Height relative to source h m	6.8 	6.8 	l I	[correction d8(A)	!	l 	l I	ŀ
Ave. height of propagation H m	n/a	l n/a	i	ii	Chart 8	i o		! 	i
Absorbent ground cover I	Ì	i	İ	i i	correction dB(A)	i i	j j	j	İ
Barrier path difference m	 	!	 	!	Chart 9 correction dB(A)		 	 	
	 			ļ	Propagation Correction dB(A)	1 1 2	1.2	İ	
	•			'	Tropagación dorrección abex	, ,,,	, ,,,	ı	•
SITE LAYOUT			SEGMENT				•	EGMENT	
	1	2	3] 4		1 1	2 [3	4
Facade			<u> </u>		correction dB(A)	2.5	2.5		
Opposite facade angle deg.	0	 36	! !		reflection correction dB(A)	0	1.5	; 	
ngle of View segment deg.	135	 36	! 		Chart 10 correction dB(A)	-1.2	-7.0		
ı			1	1 1	Site Layout Correction dB(A)		-3.0		ļ

COMBINING NOISE LEVELS		SEGMENT					
		1_1	2	3	4		
	Basic Noise Level dB(A)	72.2	72.2		1		
	Propagation Correction dB(A)	1.2	1.2		! 		
	Site Layout Correction dB(A)	1.3	-3.0				
	Noise Contribution dB(A)	74.7	70.4		l		
	Chart 11 Combined Noise Level dB(A)	İ	76.0				

LOCATION C (AM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	64.1	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	63.9	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	63.4	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	60.2	dB(A)
RASE NOISE LEVEL - KENNEDY TOWN PRAYA	76.0	dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1991

	1		SEGMENT			1		SEGMENT	
	i 1	1 2	I 3	1 4	_; 	i 1	1 2	1 3	1 4
Traffic flow q	i	Ī	i	i	Chart 2	i	1	Ì	1
/eh/hour	700	700	700	į	L10 dB(A)	70.6	70.6	70.6	į
raffic speed V km/h	 30	 30	30	 	 Chart 4	1	 	 	
Heavy vehicles p %	25	25	25	į	correction d8(A)	2.2	2.2	2.2	į
Gradient G %		ı	1	ı	Chart 6 correction dB(A)	0	0	0	
Road surface		IMPRE	vious		correction dB(A)	-1	-1	-1	
	ı				Basic Noise Level dB(A)	71.8	71.8	71.8	1
PROPAGATION			····		-				
	l		SEGMENT		_l			SEGMENT	
	1	2	3	4	_l	1_1	2	3	4
Shortest horizontal	j	I	i		1	1	1	1	
distance d m	4	4	4		Chart 7	1.6] 1.6	1.6	
leight relative to source h m	1 5.5	5.5	5.5		correction dB(A)]	į 1	
we. height of propagation H m	 n/a	 n/a	n/a]	Chart 8	0	0	0	
absorbent ground cover I	Ì	ļ	Ì		correction dB(A)	İ	Ì	į	İ
Barrier path difference m]			i İ	Chart 9 correction dB(A)		 	<u> </u>	!
	1				Propagation Correction dB(A)	1.6	1.6	1.6	! !
PITE LAVOIT									
SITE LAYOUT	i		SEGMENT		- -			SEGMENT	
	<u> 1 </u>	1 2	3	4	- !	1_1_	2	3	4
acade	 	 		 	correction dB(A)	2.5 	2.5 	2.5	
Opposite facade angle deg.	Ì	!	j 1	 	reflection correction dB(A)	j 0	0	0	
angle of view segment deg.	34	120	21	 	Chart 10 correction dB(A)	-7.2	-1.8	-9.3	
	1	ı		!	Site Layout Correction dB(A)	-4.7	.7	-6.8	
OMBINING NOISE LEVELS								EGMENT	,
					Basic Noise Level dB(A)	71.8	71.8	71.8	4
					Propagation Correction dB(A)	1.6	1.6	1.6	
					Site Layout Correction dB(A)	į į	į	į	
					Site Layout Correction dB(A)	-4.7	.7	-6.8	

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

75.8

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1996

BASE MOISE LEVEL - KENNEDY TOWN	PRAYA	<u>1996</u>	-						
1	i		SEGMENT		-	,		SEGMENT	
:	<u> 1</u>	2] 3	4	-, _	1	2] 3	4
Traffic flow q veh/hour	847	847	847		Chart 2 L10 dB(A)	71.4	 71.4	71.4	
Traffic speed V km/h Heavy vehicles p %	30 25	30 25	30 25		Chart 4 correction dB(A)	2.2	2.2	2.2	
Gradient G %] 	I	l	l	 Chart 6 correction dB(A) 	[0 	 0 	 0 	
Road surface	į	IMPRE	VIOUS		correction dB(A)	-1	-1	j -1	
ı.	'				Basic Noise Level dB(A)	72.6	72.6	72.6	İ
PROPAGATION			CECHENT		- ,	.—		CECHENT	
:	 1	l 2	SEGMENT I 3	1 4	-i 1	1		<u>SEGMENT</u> I 3	1 4
Shortest horizontal	¦ ''	<u> </u>	 	1 7	-! 	¦	<u> </u>	1	
distance d m	4	i 4	i 4	ì	Chart 7	1.6	1.6	1.6	i
Reight relative to source h m	5.5	5.5	5.5	<u> </u> 	correction dB(A)	į	 	į	
Ave. height of propagation H $\mathfrak m$ Absorbent ground cover I	n/a 	n/a	n/a 	 	Chart 8 correction dB(A)	0	0	0	; [[
Barrier path difference m	 	 	1	! !	Chart 9 correction dB(A)		! !		 -
					Propagation Correction dB(A)	1.6	1.6	1.6	!
SITE LAYOUT									
			SEGMENT		- _1	1		SEGMENT	
	1	2	3	4		1] 2	3	4
Facade	[[Ì !] 	 	correction dB(A)	2.5	2.5	2.5 	İ
Opposite facade angle deg.	j 1	j I		 	reflection correction dB(A)	0	0	j 0	
Angle of view segment deg.	34 I	120	j 21	 	Chart 10 correction dB(A)	-7.2	-1.8	-9.3	
	•	•	•	•	Site Layout Correction dB(A)	-4.7	.7	-6.8	
COMBINING NOISE LEVELS						ı———		SEGMENT	
,						1	2	[3	4
					Basic Noise Level dB(A)	72.6		72.6	· ·
					Propagation Correction dB(A)	1.6	1.6	1.6	
					Site Layout Correction dB(A)	-4.7	.7	-6.8	

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

69.5 | 74.9 | 67.4 |

76.6

Rounding to the nearest whole number:

RASE NOISE LEVEL - ROUTE 7 DOWN RAMP

			SEGMENT		_ _1	1		SEGMENT	
	1	2	3] 4	-, _	1 1	2	3	4
Traffic flow q	i	Ī	i	i	Chart 2	i	j	Ī	Ī
veh/hour	978	978	978	978	L10 dB(A)	72.1	72.1	72.1	72.
Traffic speed V km/h	 60	60	 60	 60	Chart 4	ļ			
Heavy vehicles p %	25 	25	25 	25 	correction dB(A)	3.2	3.2	3.2	3.
Gradient G %	8 BOWN	8 DO₩N	8 BOWN	 	Chart 6 correction dB(A)	0	0	 	
Road surface	PRE.	PRE.	PRE.	PRE.	correction dB(A)	-3.5	-3.5	-3.5	j -3.
	ı	I		ı	Basic Noise Level dB(A)	71.8	71.8	71.8	71.
PROPAGATION			······································	,	-				
	ļ		SEGMENT		-!	<u> </u>		SEGMENT	
		2	<u> </u>	1 4	-	_1_	2	3	4
Shortest horizontal			127 5	70	Chart 7	1 -7 5	1 -2 4		1 -7
distance d m	27	21	24.5	30	Chart 7	-3.5	-2.6	-3.1	-3.
Height relative to source h m	-1.3 	-2.1 	-2.5 	-4.8 	correction dB(A)	1] [1	
Ave. height of propagation H m Absorbent ground cover I	n/a	n/a	n/a	n/a	Chart 8 correction dB(A)	j o	j 0 	0	į Į
Barrier path difference m	! [.03	 .06	1 .06	1 .11	Chart 9 correction dB(A)	-7.6	 -8.6	 -8.6	 -9.
					Propagation Correction dB(A)	-11.1	-11.2	-11.7	-13.
SITE LAYOUT									
	l		SEGMENT		Ī			SEGMENT	
	1	2	3	4	j	<u> 1 </u>	2	<u> 3</u>	1 4
Facade] 	 	İ	correction dB(A)	2.5	2.5	2.5	2.
Opposite facade angle deg.	0	0	0	0	reflection correction dB(A)	0	0	0	
Angle of view segment deg.	40	72	 42	21	Chart 10 correction dB(A)	-6.5	-4.0	-6.3	! -9.
l	l	l	l	l	Site Layout Correction dB(A)	-4.0	-1.5	-3.8	-6.
							-		
COMBINING NOISE LEVELS								SEGMENT	
					Basic Noise Level dB(A)	71.8	<u>2</u> 71.8	71.8	71.
					Propagation Correction dB(A)	į		 -11.7	İ
					•	İ	į	j	į
					Site Layout Correction dB(A)	-4.0	-1.5	-3.8	<u>-6.</u>

Noise Contribution dB(A)

62.7

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK WESTBOUND

BASE NOISE LEVEL - GROUND LINK	WESTBOL	MD_							
	1		SEGMENT		_ _l	i		SEGMENT	
:	1	2] 3	4	-, _	1_1_	2	3	4
Traffic flow q veh/hour]] 585	 585	585]] 585	Chart 2 L10 dB(A)	69.8	69.8	 69.8	 69.8
Traffic speed V km/h	50	 50	50	50	Chart 4			 	
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	2.6
Gradient G %	 	1	l	ı	Chart 6 correction dB(A)	0	 0 	 0 	 0
Road surface		IMPRE	VIOUS	٠	correction dB(A)	-1	-1	-1	-1
	•				Basic Noise Level dB(A)	71.4	71.4	71.4	71.4
PROPAGATION			SEGUENT		<u>.</u>			050UEUT	
		l 2	SEGMENT I 3	1 4	-I 	I——	I 2	SEGMENT I 3	
Shortest horîzontal		1			-! 	¦——			
distance d m	40	30.5	30	37	Chart 7	-5.1	j -4	-3.9	-4.7
Height relative to source h m	4.5	4.5	4	4	correction dB(A)	į	į	į	
Ave. height of propagation H m Absorbent ground cover I	 n/a 	 n/a 	 n/a 	n/a	Chart 8 correction dB(A)	0	 0 	 0 	0
Barrier path difference m	 .44 	 .01	.00	 .00	Chart 9 correction dB(A)	 -12.8	 -3.9	 -4.3	 -4.7
					Propagation Correction dB(A)	-17.9	-7.9	-8.2	-9.4
SITE LAYOUT									
OTTE ENTON	ſ		SEGMENT		<u>-</u>	1		SEGMENT	
	1	2	3	4	i'	11	2	3	4
Facade] ;	[[[<u> </u> 	correction dB(A)	2.5	2.5	2.5	2.5
Opposite facade angle deg.	35 I	33	j 0	0	reflection correction dB(A)	1.5	1.5	0	0
Angle of view segment deg.	35	 33 	77	27	Chart 10 correction dB(A)	-7.1	-7.4	-3.7	-8.2
		1	•		Site Layout Correction dB(A)	-3.1	-3.4	-1.2	-5.7
COMBINING NOISE LEVELS						,		SCALENZ.	
STIPLING HOLDE ELTELD								EGMENT 3	
					Basic Noise Level dB(A)	71.4			
					Propagation Correction dB(A)	 -17.9	-7.9	-8.2	-9.4
					Site Layout Correction dB(A)	-3.1	-3.4	-1.2	-5.7

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

50.4 | 60.1

65.0

Rounding to the mearest whole number:

BASE NOISE LEVEL - GROUND LINK	EASTBOU	ND							
			SEGMENT		<u>.</u> 1	1		SEGMENT	
	1 1	l 2	1 3	1 4	-! 	1 1	1 2	I 3	1 4
Traffic flow q veh/hour	532	 532	 532	532	Chart 2 L10 dB(A)	69.4		69.4	69.4
Traffic speed V km/h Heavy vehicles p %	 50 25	 50 25	 50 25	 50 25	Chart 4 correction dB(A)	 2.6	 _. 2.6	 2.6	 2.6
Gradient G %	} 	I	1	1	Chart 6 correction dB(A)	0	 0	 0	 0
Road surface	 	IMPRE	VIOUS		correction dB(A)	-1	-1	 -1 	 -1
	•				Basic Noise Level dB(A)	71	71	71	71
PROPAGATION .	ı <u> </u>		SEGMENT		<u>.</u> _	f		SEGMENT	
	1_1_	2	3	4	_1	1	2	3	4
Shortest horizontal distance d m Height relative to source h m	 50 4.5	 41 4.5	 41 4	 45.5 4	Chart 7 correction dB(A)	 -5.9 	 -5.2 	 -5.1 	 -5.6
Ave. height of propagation H m Absorbent ground cover I	 n/a 	 n/a 	 n/a 	 n/a 	Chart 8 correction dB(A)	0	 0 	 0	 0
Barrier path difference m	.14	.00	.00	.00	 Chart 9 correction dB(A)	-10.0	 -4.6	 -4.7	 -5
	! 				Propagation Correction dB(A)	-15.9	-9.8	-9.8	-10.6
SITE LAYOUT		•••			-				
	<u> </u>		SEGMENT		-			SEGMENT	
Facade	<u> 1 </u>	<u>2</u> 	<u>3</u> 	<u>4</u> 	. correction dB(A) 	2.5	2.5	2.5	2.5
Opposite facade angle deg.	35	33	0	0	reflection correction dB(A)	1.5	 1.5 	0	0
Angle of view segment deg.	35	33	70 	25 	Chart 10 correction dB(A)	-7.1			-8.6
					Site Layout Correction dB(A)	-3.1	-3.4	-1.6	-6.1
COMBINING NOISE LEVELS								EGMENT	
					Paris Naise Level (PAA)	1_1_	2]	3	4
					Basic Noise Level dB(A)	71	71	71	71
					Propagation Correction dB(A)	-15.9 -15.9	-9.8 	-9.8	-10.6
					Site Layout Correction dB(A)	-3.1		-1.6	-6.1
					Noise Contribution dB(A)	52.0	57.8	59.6	54.3

62.9

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - ROUTE 7 UP R	<u>AMP</u>								
?	i		SEGMENT		I	1		SEGMENT	
	<u> </u>	1 2] 3	4	-	1	1_2	3	4
Traffic flow q	Ì	t		1	Chart 2	İ	ĺ	ĺ	į į
veh/hour -] 275 	275 	275 	275 	L10 dB(A)	66.5 	66.5 	66.5 	66.5
Traffic speed V km/h	50.1	j50.1	50.1	60	Chart 4	i	ĺ	i	i i
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	3.2
Gradient G %	8	8	8	[Chart 6 correction dB(A)	2.4	2.4	2.4	0
Road surface	UP PRE.	UP PRE.	UP PRE.	PRE.	correction dB(A)	-3.5	 -3.5	 -3.5	 - 3.5
Chart 5 (up ramp) V = 9.9 km/h	l	l			Basic Noise Level dB(A)	68	 68	68	 66.2
PROPAGATION						-	•	•	
	l		SEGMENT		i	1		SEGMENT	ı
	1	2] 3	4	İ	1	2	3	4
Shortest horizontal	ĺ	ĺ	1	Ī	İ	ĺ	ĺ	Ī	i
distance d m	65	55	57	J 61	Chart 7	-7	-6.3	-6.5	-6.8
Height relative to source h m	3 	9 	-2.1 	-4.8 	correction dB(A)	1	? I	[]	!
Ave. height of propagation H m Absorbent ground cover I	n/a	n/a	jn⁄a i	n/a 	Chart 8 correction dB(A)	j 0	0	j 0	i 0 i
Barrier path difference m	 .00	 .02	 .02	.05	 Chart 9 correction dB(A)	-4.9	-6.9	 -7.3	-8.2
	 				Propagation Correction dB(A)	-11.9	-13.2	 -13.8	-15.0
SITE LAYOUT	.——				-,	.——			
	 1		SEGMENT		.			SEGMENT	
Facade	<u></u> 	<u>2</u>	<u> 3_</u> 	<u> 4</u> 	. correction dB(A)	2.5	2.5	2.5	2.5
Opposite facade angle deg.	0	 0	 0	 0	reflection correction dB(A)	0	0	0	 0
Angle of view segment deg.	35	69	 3 5	35	Chart 10 correction dB(A)	-7.1	-4.2	 -7.1	 -7.1
	l		Ι.	l	 Site Layout Correction dB(A)	-4.6	-1.7	-4.6	-4.6
COMBINING NOISE LEVELS						I		EGMENT	
						11	2	3	4
					Basic Noise Level dB(A)	68	68 	68	66.2
					Propagation Correction dB(A)	-11.9	-13.2	-13.8	-15.0
					Site Layout Correction dB(A)	-4.6	-1.7	-4.6	-4.6
					Noise Contribution dB(A)	51.5	53.1	49.5	46.6

56.8

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN	PRAYA								
•	.—		SEGMENT		-	1		SEGMENT	
-	1 1	l 2	I 3	1 4	-! 	1	1 2	1 3	
Traffic flow q	! !	 	 	i i	-! Chart 2		<u></u>	 	<u> </u>
veh/hour	942	942	942	j	L10 dB(A)	71.9	71.9	71.9	j i
		1	İ	1	1	1	l	ļ]
Traffic speed V km/h	J 30	30	30	1	Chart 4	ļ	!		
Heavy vehicles p %	25	25	25		correction dB(A)	2.2	2.2	2.2]
Gradient G %	! 	ı	1	ı	Chart 6 correction dB(A)	0	 0	0	
Road surface	! 	IMPRE	VIOUS		correction dB(A)	-1	-1	-1	
:	1				Basic Noise Level dB(A)	73.1	73.1	73.1	.]
PROPAGATION					_				
	<u> </u>		SEGMENT		_l	<u> </u>		SEGMENT	
	<u> -1-</u>	2	3	4	- [1_1_	<u>S</u>	3	4
Shortest horizontal		! ,	! .	1					!!
distance d m] 4	4	4	ļ.	Chart 7	1.6	1.6	1.6	!!
Height relative to source h m	5.5 	5.5 	5.5 	 	correction dB(A)	l i]
Ave. height of propagation H m	ı n/a	n/a	ı In/a	! 	Chart 8	¦ 0	. 0	¦ 0	! !
Absorbent ground cover I	i	i	į	j	correction dB(A)	i	İ	i	i i
	ĺ	1	l	1	1	Ì	ĺ	Ì	i i
Barrier path difference m		I	l	l	Chart 9 correction dB(A)	ļ		ļ .	i i
	 				Propagation Correction dB(A)	1.6	1.6	1.6	
						•			
SITE LAYOUT					_				
	<u> </u>		SEGMENT		.]	<u> </u>		SEGMENT	[
Parada		2	3	4		1_1_	2	3	4
Facade	! 	 }	 	l I	correction dB(A)	2.5	2.5	2.5 	
Opposite facade angle deg.	27	 0 	; 0 	' 	reflection correction dB(A)	1.2	0	0	
Angle of view segment deg.	34	120	21		Chart 10 correction dB(A)	-7.2	-1.8	-9.3	
'	,		' '	l	Site Layout Correction dB(A)	-3.5	.7	-6.8	j
COMBINING NOISE LEVELS						<u></u>		EGMENT	!
					Basic Noise Level dB(A)	 	77.1	3 73 1	
					pasic noise Level ub(A)	73.1 	73.1	73.1	 1
					Propagation Correction dB(A)	1.6	1.6	1.6	

Site Layout Correction dB(A) Noise Contribution dB(A) Chart 11 Combined Noise Level dB(A)

	,	SEGMENT	
<u> </u>	2	<u> </u>	4
73.1	73.1	73.1	
	ĺ	į į	
1.6	1.6	1.6	
		l Í	
3.5	.7	-6.8	
		Ì Ì	
71.2	75.4	67.9	
	77.3		

LOCATION A (PM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	62.7 dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	65.0 dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	62.9 dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	56.8 dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	77.3 dB(A)

Rounding to the nearest whole number:

CASE NOISE LEVEL - KENNEDY TOWN PRAYA 1991

			SEGMENT					SEGMENT	
	<u> </u>] 2	3	1 4	İ	1	2	3	4
Traffic flow q				İ	Chart 2	1			1
veh/hour	700			1	L10 dB(A)	70.6		İ	1
Traffic speed V km/h	30			i	Chart 4				
Heavy vehicles p %	25 		1		correction dB(A)	2.2			
Gradient G %	į	1	1	1	Chart 6 correction dB(A)				!
Road surface		IMPREV	'IOUS		 correction dB(A)	-1]
	ı				 Basic Noise Level dB(A)	71.8		 	I I
PROPAGATION									
			SEGMENT			ļ		SEGMENT	
Chantagt basisants!	<u> </u>	2	3	1 4	1	_1	_ 2	3	4
Shortest horizontal distance d m	 4	1	1	!	i Chart 7	1 4 9 1		1	
	4.5	1	Į] !	cnart / correction dB(A)	1.8		!	i
Height relative to source h m	4.7	İ	<u> </u>] 	correction ds(A)			 	!
Ave. height of propagation H m	n/a	i	i	i	Chart 8	0		i	İ
Absorbent ground cover I	İ	Ì	ĺ	į	correction dB(A)	į į		į	į
Barrier path difference m	! !	 		l I	Chart 9 correction dB(A)			 	
				l	Propagation Correction dB(A)	1.8		! 	[
SITE_LAYOUT			SEGMENT					SEGMENT	
	 -	1 2	I 3	1 4		1 1	2	l 3	4
Facade	<u> </u>	<u> </u>	<u> </u>		correction dB(A)	2.5		!	
Opposite facade angle deg.	0	f] 		reflection correction dB(A)	0		 -	
Angle of view segment deg.	 173	! !	 	 	Chart 10 correction dB(A)	2		<u> </u>	
	İ	I	Ι ,	Į I	Site Layout Correction dB(A)	2.3	į	 	
COMBINING NOISE LEVELS						l		EGMENT	
COMBINING MOISE LEVELS							2	SEGMENT 3	4
COMBINING NOISE LEVELS					Basic Noise Level dB(A)	 <u>_1</u> 71.8			4
COMBINING MOISE LEVELS					Basic Noise Level dB(A) Propagation Correction dB(A)	1			4

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

CASE NOISE LEVEL - KENNEDY TOWN PRAYA 1996

Traffic flow q				SEGMENT	•	_ _	 		SEGMENT	
SEGMENT SEGM		<u> </u>				_i	1	2	3	4
Traffic speed V km/h Reavy vehicles p X 25	Traffic flow q				1	Chart 2	1	1		Ì
Heavy vehicles p % 25	veh/hour	847				L10 d8(A)	71.4	1	Ì	Ì
Reavy vehicles p % 25	- 44	! !		ļ	ļ		!	ļ	[ĺ
Chart 6 correction dB(A)		, ,		!	ļ	•	!]	ļ	ļ
Notest horizontal	Heavy vehicles p %] 25		!	[correction dB(A)	2.2]	ļ	ļ
Nortest horizontal 1 2 3 4	Cradient 6 Y	[]	l	l		Chart 6 connection dP(A)	!		ļ	ļ
SEGMENT SEGMENT SEGMENT SEGMENT SEGMENT SEGMENT 1 2 3 4 SEGMENT SEGM	diacient d x	¦				Chart & correction ob(A)	1	<u> </u>	l i	1
SEGMENT SEGMENT	Road surface	1	MPREVI	IOUS		correction dB(A)	i -1	i	1	ì
SEGMENT 1 2 3 4		i				1	i	İ	ì	İ
SEGMENT 1 2 3 4		•				Basic Noîse Level dB(A)	72.6	İ	j	İ
SEGMENT 1 2 3 4	DDODACATION									
1 2 3 4	I NOT FIGURE 1			SEGMENT		- -			SEGMENT	
Chart 7		1 1				_; _i	1			
Height relative to source h m 4.5	Shortest horizontal	1 1			1	1			i	Ī
Ave. height of propagation H m n/a	distance d m	1 4	- 1		1	Chart 7	1.8	I	1	ĺ
Absorbent ground cover I correction dB(A) Barrier path difference m Chart 9 correction dB(A) 1.8 SITE LAYOUT SEGMENT 1 2 3 4 Facade	Height relative to source h m	4.5	ļ			correction dB(A)	Ì	ĺ	1	j
Absorbent ground cover I correction dB(A)	A	1 - 4-	ļ			dhara 6	! _	!	!	ļ
Chart 9 correction dB(A)		n/a	į		ļ	•	0	į	!	ļ.
SEGMENT SEGMENT 1 2 3 4	Absorbent ground cover 1		ŀ		1	correction ds(A)	1	 	!	ļ
SEGMENT SEGMENT 1 2 3 4	Barrier path difference m	† 	¦		i i	Chart 9 correction dB(A)	ľ) 	! 	I I
SEGMENT SEGMENT 1 2 3 4	•	i '	'	,	•		i		İ	İ
SEGMENT 1 2 3 4		j				Propagation Correction dB(A)	1.8	İ	j	İ
SEGMENT 1 2 3 4										
1	SITE LAYOUT					_				
Correction dB(A) 2.5						_[<u>[</u>			
Opposite facade angle deg. 0 reflection correction dB(A) 0 Angle of view segment deg. 173 Chart 10 correction dB(A)2 Site Layout Correction dB(A) 2.3 COMBINING NOISE LEVELS SEGMENT 1 2 3 4 Basic Noise Level dB(A) 72.6 Propagation Correction dB(A) 1.8	Enondo	-1 	2	3	4	_	·	2	3_	4
Angle of view segment deg. 173 Chart 10 correction dB(A)2 Site Layout Correction dB(A) 2.3 COMBINING NOISE LEVELS SEGMENT Basic Noise Level dB(A) 72.6 Propagation Correction dB(A) 1.8	racace]	-		} 	Correction dB(A)	2.5		ļ	ļ
Angle of view segment deg. 173 Chart 10 correction dB(A)2 Site Layout Correction dB(A) 2.3 COMBINING NOISE LEVELS SEGMENT Basic Noise Level dB(A) 72.6 Propagation Correction dB(A) 1.8	Opposite facade angle deg.		¦		 	reflection correction dR(A)			í	j I
Site Layout Correction dB(A) 2.3	special variation and	i i	i		1]		! !	
SEGMENT 1 2 3 4 Basic Noise Level dB(A) 72.6 Propagation Correction dB(A) 1.8	Angle of view segment deg.	173	i		<u>.</u>	Chart 10 correction dB(A)	i2		i I	!
SEGMENT 1 2 3 4 Basic Noise Level dB(A) 72.6 Propagation Correction dB(A) 1.8		j i	j		j	İ	jj		i	i
1 2 3 4						Site Layout Correction dB(A)	2.3			ĺ
1 2 3 4										
1 2 3 4	COMBINING NOISE LEVELS						<u> </u>		SEGMENT	
Propagation Correction dB(A) 1.8							1			4
i i i i						Basic Noise Level dB(A)	72.6			
i i i i						Propagation Conscrtice dP/A]
Site Lavout Correction dB(A) 2.3						riopagation correction GB(A)	1.8 		 	l I
						Site Layout Correction dB(A)	2.3		 	l I

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

CASE NOISE LEVEL - ROUTE 7 DOWN RAMP

CASE NOISE LEVEL - ROUTE 7 DOWN	KAPE.								
	[<u></u>	:	SEGMENT		<u>-</u> _1			SEGMENT	
	1_1_	2	3	4	_l	11	2	3	4_
Traffic flow q					Chart 2	!			
veh/hour	978	978	978	 	L10 dB(A)	72.1	72.1	72.1 	[
Traffic speed V km/h	50	60	60		Chart 4		i	i	Ϊ
Heavy vehicles p %	25	25	25		correction dB(A)	2.6	3.2	3.2	
Gradient G %	(8	 8		Chart 6 correction dB(A)	0	0	 0	<u> </u>
		DOWN	DOWN		ļ.	1	!	!	ļ
Road surface	IMPRE.	PRE.	PRE.		correction dB(A)	-1	-3.5 	-3.5 	j i
	'		ı		Basic Noise Level dB(A)	73.7	71.8	71.8	İ
PROPAGATION	, 		0.7.4117117		-,				
	<u> </u>	2	<u>SEGMENT</u> I 3	4	-! 		; I 2	<u>SEGMENT</u> I 3	4
Shortest horizontal		-			-1	[_
distance d m	51.5	51.5	57		Chart 7	-6.1	-6.1	-6.5	i
Height relative to source h m	3.5	3.2	1.3		correction dB(A)	ĺ	1	1	1
								_	
Ave. height of propagation H m Absorbent ground cover I	2.25 .75	2.10 .75	n/a		Chart 8	-2.58	-2./1 	0	
Absorbent ground cover 1	•/>	.13	; ;		correction da(x)	i	! 	!]
Barrier path difference m	į i	.00	j .00 j		Chart 9 correction dB(A)	į	j -5	-5	
					Propagation Correction dB(A)	-8.7	-11.1	-11.5	
SITE LAYOUT									
STE EXICUT	1		SEGMENT		- 	1		SEGMENT	
	1	2	[3]	4		1	2	3	4
Facade	<u> </u>		ļ ļ		correction dB(A)	2.5	2.5	2.5	
Opposite facade angle deg.		0			reflection correction dB(A)	0] [0	0	
Angle of view segment deg.	40	25	 27		Chart 10 correction dB(A)	-6.5	 -8.6	-8.2	
	1 1		1 1		Site Layout Correction dB(A)	-4.0	-6.1	-5.7	
COMPINING NOISE LEVELS						, -			, i - 4-
COMBINING NOISE LEVELS						¦	2 !	SEGMENT 3	4
					Basic Noise Level dB(A)	73.7		71.8	
					Propagation Correction dB(A)	 -8.7	 -11.1	 -11.5	
					Site Layout Correction dB(A)	 <u>-4.0</u>	-6.1	-5.7	
					Noise Contribution dB(A)	 61.0	54.6	54.6	

Chart 11 Combined Noise Level dB(A)

62.6

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK WESTBOUND

			SEGMENT	•	1	1		SEGMENT	
] 1	2	1 3	4	.	1	2	3	4
Traffic flow q	1		1]	Chart 2	1		i	
veh/hour	1563	585 	585] 585 I	L10 dB(A)	74.1	69.8	69.8	69.8
Traffic speed V km/h	50	50	50	50	Chart 4	i	1	i İ	
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	2.6
Gradient G %		l	ļ	ı	Chart 6 correction dB(A)	0	0	 0	 0
Road surface	 	IMPRE	VIOUS		correction dB(A)	-1	 -1] -1	 -1
	I				Basic Noise Level dB(A)	75.7	71.4	71.4	71.4
PROPAGATION					•				
	[SEGMENT			ļ		SEGMENT.	
Chartest basingstot	<u> 1 </u>	2	3	1 4		1	2	3	4
Shortest horizontal distance d m		 60	 62	i 71	l Chart 7	1 -4 7	 -6.7] _	 -7 /
Height relative to source h m	60 3.5	3.5	02 3.5	3.5	correction dB(A)	-0.7	} -0.7	•0.0 	-7.4
neight retactive to source it in] 3.5	3.7]	3. <i>)</i> 			! 	! 	
Ave. height of propagation H m	2.25	2.25	n/a	n/a	Chart 8	-2.82	-2.82	ĺ	
Absorbent ground cover I	.75 	.75			correction dB(A)			!	
Barrier path difference m	 	ĺ	.04	50	Chart 9 correction dB(A)		! [-7.8	-13.1
					Propagation Correction dB(A)	-9.5	-9.5	-14.6	-20.5
SITE LAYOUT									
SHE EXIOU			SEGMENT		1	·		SEGMENT	
	 1	1 2	1 3	1 4	.1 1	i 1	` I 2	3	4
Facade	 	İ	 		correction dB(A)	2.5	-	2.5	2,5
Opposite facade angle deg.	i 0 	0) 10] 24	reflection correction dB(A)	0	0	.6	1.3
Angle of view segment deg.	49	 37 	 25 	 27 	Chart 10 correction dB(A)	-5.7	-6.9	-8.6	-8.2
'		•	'	•	Site Layout Correction dB(A)	-3.2	-4.4	-5.5	-4.4
COMBINING NOISE LEVELS								COUPLIT	
POUNTAIN HOLOL FEAETS						1	2 1	EGMENT 3 I	4
					Basic Noise Level dB(A)	75.7		71.4	71.4
					Propagation Correction dB(A)	 -9.5	-9.5	-14.6	-20.5
					Site Layout Correction dB(A)	-3.2	-4.4	5.5 <u> </u>	-4.4
					Noise Contribution dB(A)	63.0	57.5	51.3	46.5
				Chart	11 Combined Noise Level dB(A)	 	64.4		

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK FASTROUND

Traffic speed V km/h Reary vehicles p % 25 25 25 25 25 25 25 25		1		SEGMENT		.1			SEGMENT	
veh/hour 887 532 532 532 L10 dB(A) 71.2 69.4		1	2	3	4	Ï	<u> 1</u>	1 2	3	4
Traffic speed V km/h Reary vehicles p % 25 25 25 25 25 25 25 25	Traffic flow q	Ì	Ì	İ	1	Chart 2	Ì	ĺ	Ì	ĺ
Heavy vehicles p % 25 25 25 25 25 correction dB(A) 2.6	veh/hour	807	532 	532 	532 	L10 dB(A)	71.2 	69.4	69.4	69.4
Chart 6 correction dB(A)			,		1	•		İ	i	
New York New York	Heavy vehicles p %	25 	25] 25 1	25 	correction dB(A)	2.6	2.6	2.6	2.6
SEGMENT 1 2 3 4	Gradient G %		'	•	•	Chart 6 correction dB(A)	0	0	0	
SEGMENT	Road surface	j	IMPRE	VIOUS		correction dB(A)	j -1	j -1	-1	j -1
SEGMENT		ı				Basic Noise Level dB(A)	72.8	71	71	71
1 2 3 4	PROPAGATION					·				
Shortest horizontal distance d m		ļ				·l	<u> </u>			
Site Layout Segment		<u> 1 </u>	1 2	3	! 4			1 2	3	4
Height relative to source h m 3.5 3.5 3.5 3.5 correction dB(A) Ave. height of propagation H m 2.25 2.25 n/a n/a Chart 8 -3.05 -3.05 -3.05 0 (A Absorbent ground cover I .75 .75 correction dB(A) -5 -5 -5.4 -10.6 Barrier path difference m .00 .00 .00 .19 Chart 9 correction dB(A) -12.3 -12.3 -12.7 -18.7 SITE LAYOUT SEGMENT 1 2 3 4 Correction dB(A) 2.5 2.5 2.5 2.5 2.5 Copposite facade angle deg. 0 0 10 24 reflection correction dB(A) -5.3 -7.4 -8.8 -8.1 Site Layout Correction dB(A) -2.8 -4.9 -5.6 -4.3 COMBINING NOISE LEVELS Basic Noise Level dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7 Propagation Correction dB			1 40	1	1 0/	l Ohann 7				!
Ave. height of propagation H m 2.25 2.25 n/a n/a Chart 8 -3.05 -3.05 0 0 Absorbent ground cover I .75 .75					•		-7.3	1 -7.3	-/.5	; -8.1
Absorbent ground cover I	Height relative to source h m	3.5 	3.5 	3.5] 3.5 	correction dB(A)	 	<u> </u>	 	i 1
Absorbent ground cover I	Ave. height of propagation H m	2.25	2.25	n/a	n/a	Chart 8	-3.05	-3.05	i o	i o
Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7		•	•	į		correction dB(A)	į	į	į	į
SEGMENT SEGMENT SEGMENT 1 2 3 4	Barrier path difference m	.00	.00	.00	.19	Chart 9 correction dB(A)	-5	 -5	-5.4	! -10.6
SEGMENT 1 2 3 4 1 2 3 4 1 2 3 4		i				Propagation Correction dB(A)	-12.3	-12.3	-12.7	-18.7
SEGMENT 1 2 3 4 1 2 3 4 1 2 3 4	SITE LAYOUT									
Facade 1 2 3 4		1		SEGMENT		1	ī		SEGMENT	
Opposite facade angle deg. 0 0 10 24 reflection correction dB(A) 0 0 .6 1.3 Angle of view segment deg. 53 33 24 28 Chart 10 correction dB(A) -5.3 -7.4 -8.8 -8.1 Site Layout Correction dB(A) -2.8 -4.9 -5.6 -4.3 COMBINING NOISE LEVELS Basic Noise Level dB(A) 72.8 71 71 71 Propagation Correction dB(A) -12.3 -12.7 -18.7		1] 2	3	4	i	1			4
Angle of view segment deg. 53 33 24 28 Chart 10 correction dB(A) -5.3 -7.4 -8.8 -8.1 Site Layout Correction dB(A) -2.8 -4.9 -5.6 -4.3 COMBINING NOISE LEVELS SEGMENT 1 2 3 4 Basic Noise Level dB(A) 72.8 71 71 71 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7	Facade	į	j 1	Ī	i I	correction dB(A)	2.5	2.5	2.5	2.5
Site Layout Correction dB(A) -2.8 -4.9 -5.6 -4.3	Opposite facade angle deg.	j 0	j 0 J	10 	24 	reflection correction dB(A)	j 0	0	.6 	1.3
SEGMENT 1 2 3 4	Angle of view segment deg.	j 53 l	j 33 I	24	[28 [Chart 10 correction dB(A)	-5.3	-7.4	8.8	-8.1
Basic Noise Level dB(A) 72.8 71 71 71 71 71 71 71 7		•	•		•	Site Layout Correction dB(A)	-2.8	-4.9	-5.6	-4.3
Basic Noise Level dB(A) 72.8 71 71 71 71 71 71 71 7	COMBINING NOISE LEVELS					•			PECMENT	
Basic Noise Level dB(A) 72.8 71 71 71 Propagation Correction dB(A) -12.3 -12.3 -12.7 -18.7							1 1			4
i i i i						Basic Noise Level dB(A)				71
Site Layout Correction dB(A) -2.8 -4.9 -5.6 -4.3						Propagation Correction dB(A)	 -12.3	-12 .3	 -12.7	-18.7
						Site Layout Correction dB(A)	-2.8	-4.9	-5.6	-4.3

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

			SEGMENT		 1			SEGMENT	
	1	1 2	1 3	4	 	<u> </u>	1 2	1 3	4
Traffic flow q	i	i	i		Chart 2		Ĭ	i	Ī
veh/hour	275	275	275		L10 dB(A)	66.5	66.5	66.5	į
Traffic speed V km/h	 50	 50.1	 50.1		Chart 4] 	 	1	1
Heavy vehicles p %	25	2 5	25		correction dB(A)	2.6	2.6	2.6	
Gradient G %		8	8		Chart 6 correction dB(A)	0	2.4	2.4	
Road surface	 IMPRE.	UP PRE.	UP PRE.		correction dB(A)	 -1	 -3.5	 -3.5	
	j		1		İ		<u>i </u>	<u>i</u>	į
Chart 5 (up ramp) V = 9.9 km/h					Basic Noise Level dB(A)	68.1	68	68	l
PROPAGATION			SEGMENT	<u></u>	<u>.</u>	,——		SEGMENT	
	1 1	1 2	SEGMENT 1 3	4	-I 	1 1	1 2	SEGMENT 13	4
Shortest horizontal	1—————————————————————————————————————	_ - _	<u>, </u>		-! 	<u>'</u> -		1	*
distance d m	77	1 79	97		Chart 7	-7.7	-7.8	1 -8.7	1
Height relative to source h m	3.5	3.2	.2		correction dB(A)	'''			[
Ave. height of propagation H m	 2.25	n/a	 n/a] Chart 8	 -2.15	0	0	
Absorbent ground cover I	.50	!			correction dB(A)	İ			İ
Barrier path difference m	.00	.00	.01		Chart 9 correction dB(A)	-4.5	-5	-6.4	
	! 				Propagation Correction dB(A)	-12.2	-12.8	-15.1	
SITE LAYOUT	<u></u>		SEGMENT		- 1	ı		SEGMENT	
	1 1	2	3	4	1	1 1	1 2	1 3	1 4
Facade				·	correction dB(A)	2.5	+	2.5	
Opposite facade angle deg.	0	0	0		reflection correction dB(A)	0] 0	0	
Angle of view segment deg.] 33	25	 27		Chart 10 correction dB(A)	-7.4	 -8.6	 -8.2	
					 Site Layout Correction dB(A)	1-4.9	1 -6.1	1 -5.7	
					2,000 20,000 20,000 00,000 02,000	1 417	, 0	,	•
OMBINING NOISE LEVELS						1		SEGMENT	
					·	<u> 1</u>	2] 3	4
					Basic Noise Level dB(A)	68.1	68	68	
					Propagation Correction dB(A)	-12.2	-12.8	 -15.1	
						!	İ		

Site Layout Correction dB(A)

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

51.0 | 49.1 | 47.2 |

54.2

Rounding to the nearest whole number:

CASE NOISE LEVEL - KENNEDY TOWN PRAYA

			SEGMENT			I		SEGMENT	
	<u> 1 </u>	2	3	<u>I4</u> İ		1_1_	2	3	4
Traffic flow q	1]	1		Chart 2			1	
veh/hour	942	<u> </u>	1]	L10 dB(A)	71.9	! !		
Traffic speed V km/h	30		į		Chart 4				
Heavy vehicles p %	25] !	 		correction dB(A)	2.2	 	! i	<u> </u>
Gradient G %	į	•	•	<u> </u>	Chart 6 correction dB(A)	0	 	į	į I
Road surface	<u> </u>	IMPREV	lous	j	correction dB(A)	-1		į	
	i			1	Basic Noise Level d8(A)	73.1		İ	
PROPAGATION				 .					
	<u> </u>		SEGMENT			<u> </u>		SEGMENT	, .
Channa hamina-tal		2	3	4		1	2	3	4
Shortest horizontal distance d m]	ļ	!	[1	Chart 7	i 1.8	l	!	ļ
Height relative to source h m	† 4 4.5] 	1		correction dB(A)	j 1.0	l I] [I I
norgan retailive to source if ill	, 7. <i>,</i>	! }			COLLECTION OB(A)	1	l I	1	I Į
Ave. height of propagation H m	ı İn/a	! 		, l	Chart 8	I I 0			:
Absorbent ground cover I	, .,, <u>-</u> }	! 	i	; ;	correction dB(A)			i	<u> </u>
	, 	i	i	ii				i	i
Barrier path difference m	İ	j	i	i į	Chart 9 correction dB(A)	į		į	
					Propagation Correction dB(A)	1.8			Ì
CITE LAVOIT			٠						
SITE LAYOUT			SEGMENT	_I		,		SEGMENT	
	 1	2	1 3	 1 4		1 1	2	i 3	1 4
Facade				 	correction dB(A)	2.5	-	1	
Opposite facade angle deg.	 0				reflection correction dB(A)			[[l I
Angle of view segment deg.	173		į	į	Chart 10 correction dB(A)	İ]	
Angre of view segment deg.	1/3 			¦ ¦		2		! 	!
					Site Layout Correction dB(A)	2.3		 	
COMBINING NOISE LEVELS								SEGMENT	
····						1 1	2	3	. 4
				1	Basic Noise Level dB(A)	73.1		İ	
				l	Propagation Correction dB(A)] 1.8		 	
				:	Site Layout Correction dB(A)	 <u>2.3</u>			
					Noise Contribution dB(A)	77.2		 	
						i .	!	•	

LOCATION B (PM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	62.6	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	64.4	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	60.3	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	54.2	dB(A)
BASE NOISE LEVEL - KENNEDY TOLN PRAYA	77.2	dR(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1991

!	l		SEGMENT	<u> </u>	_i	l	;	EGMENT	
·	1	2	3	1 4	_i	1] 2	3	4
Traffic flow q	j	ĺ]	Ī	Chart 2	ĺ	Ì		Ì
veh/hour	700	700	į		L10 d8(A)	70.6	70.6		!
Traffic speed V km/h	 30	 30	! 	! 	 Chart 4		! Ī		! }
Heavy vehicles p %	25	25	į	Ì	correction dB(A)	2.2	2.2		Ì
Gradient G %	 	I	I	1	Chart 6 correction dB(A)	0	 0		[
Road surface	<u> </u>	IMPRE	VIOUS		correction dB(A)	-1	 -1		<u> </u>
	l				 Basic Noise Level dB(A)	71.8	71.8		!
PROPAGATION					_				
<u>!</u>		_	SEGMENT		_[l		EGMENT	
<u> </u>	_1	2	1 3	4_	<u>-</u> [<u> 1 </u>	2	3	4
Shortest horizontal	! .	! .	ļ .	!	!	!			!
distance d m	4	4	ļ .	Į.	Chart 7	1.2	1.2		ļ .
Height relative to source h m	6.8] 6.8 	l I	1	correction dB(A)		 		
Ave. height of propagation H m	ı n/a	l l n/a	i	ì	Chart 8	i o	0		i
Absorbent ground cover I	1	i	i	i	correction dB(A)				ļ
.	İ	i	i	i	1	i i	i		İ
Barrier path difference m	İ	i	İ	İ	Chart 9 correction dB(A)	į į			
	 				Propagation Correction dB(A)	1.2	1.2		
SITE LAYOUT					_				
<u> </u>			SEGMENT		_	l		EGMENT	
1	1	2	3	4	<u>-</u> ļ	1_1_	2	3	4_
Facade]	 		correction dB(A)	2.5	2.5		
Opposite facade angle deg.		 	, 	 	reflection correction dB(A)	0	0		
Angle of view segment deg.	135] 36	1 !		Chart 10 correction dB(A)	-1.2	-7.0		
,	I	ı	ı	ı	Site Layout Correction dB(A)	1.3	-4.5	l	
COMBINING NOISE LEVELS						 I	s	EGMENT	
						1	2	3 1	4
					Basic Noise Level dB(A)	71.8	71.8		

Site Layout Correction dB(A).

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

74.3 | 68.5 |

75.3

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1996

			SEGMENT			1		SEGMENT	
	1] 2	3	1 4		1	2	3	4
Traffic flow q	Ì	İ	ĺ	1	Chart 2	1	ĺ		
veh/hour	847	847			L10 dB(A)	71.4	71.4		1
Traffic speed V km/h	30	30		¦ ¦	Chart 4	i]	i	
Heavy vehicles p %	25 	25 			correction dB(A)	2.2	į 2.2	 	
Gradient G %		•	1	' į	Chart 6 correction dB(A)	0	0	! 	
Road surface		IMPRE	VIOUS	ļ	correction dB(A)	-1	-1	1	
	ļ			!	Basic Noise Level dB(A)	72.6	72.6	 	
PROPAGATION				<u></u>					
	l		<u>SEGMENT</u>			<u> </u>		SEGMENT	
	1_1_	1 2	3	4		1		3	4_
Shortest horizontal		1		1		1	i	l	1
distance d m	4	4	-		Chart 7	1.2	1.2	l	
Height relative to source h m	6.8 	6.8	l I		correction dB(A)		 	 !	1
Ave. height of propagation H m	n/a	n/a			Chart 8	0	0	[
Absorbent ground cover I	{ 	 	i I	! 	correction dB(A)] Î
Barrier path difference m	į	İ	i	i į	Chart 9 correction dB(A)	į	 	į	į
					Propagation Correction dB(A)	1.2	1.2		
ave a Nort									
SITE LAYOUT	.——		SEGMENT	 ,		,		SEGMENT	
	 1	1 2	<u>зецием:</u> 3	! 4		 1	1 2	i 3	1 4
Facade	; <u></u> ' 	<u></u> 	 	 	correction dB(A)	2.5			 -
Opposite facade angle deg.	 	ļ	 -	! 	reflection correction dB(A)	0	0	 	!
Angle of view segment deg.	 135 :] 36	 !	!	Chart 10 correction dB(A)	-1.2	-7.0	 	1
	Í	I	l	!	Site Layout Correction dB(A)	1.3	-4.5	 	
									<u> </u>
COMBINING NOISE LEVELS						<u> </u>		EGMENT	
						1 1	2	1 3	4

			, <u>, , , , , , , , , , , , , , , , , , </u>		
	1_1	2	3	4	_i
Basic Noise Level dB(A)	72.6	72.6]	į
Propagation Correction dB(A)	1.2	1.2] 		
Site Layout Correction dB(A)	1.3	 -4.5	 		
Noise Contribution dB(A)	75.1	69.3	<u> </u>		
Chart 11 Combined Noise Level dB(A)		76.1			I

Rounding to the nearest whole number:

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP

BASE NOISE LEVEL - ROUTE 7 DOM	RAMP								
	<u> </u>		SEGMENT		Т	1		SEGMENT	
	1	2] 3	4	~! 	1	1 2	3	4
Traffic flow q	079	079		ļ	Chart 2	72.4	1 72 4		[
veh/hour	978 	978 	978 	! !	L10 dB(A)	72.1	72.1	72.1 	
Traffic speed V km/h	50	60	60	į	Chart 4		<u> </u>	į	į
Heavy vehicles p %	25 	25 	25 	! 	correction dB(A)	2.6	3.2 	3.2 	
Gradient G %	į	8	8	į	Chart 6 correction dB(A)	0	0	j 0	
Road surface	 IMPRE.	DOWN	DOWN PRE]]	correction dB(A)	-1	 -3.5	 -3.5]
			,	Ì		i	<u>i </u>	<u>i </u>	
					Basic Noise Level dB(A)	J 73.7	71.8	71.8	
PROPAGATION									
	<u> </u>		SEGMENT		.	<u> </u>		SEGMENT	
	<u> 1 </u>	2_	3	4	.	<u> 1 </u>	<u> 2 </u>	3	4
Shortest horizontal				į		!		! _	
distance d m	•	38.5	40		Chart 7	4.9	-4.9	-5	
Height relative to source h m	5.8 	5 	3. 5	[correction dB(A)		 	 	
Ave. height of propagation H m	3.40	5.50	n/a	İ	Chart 8	-1.35	49	, 0	
Absorbent ground cover I	.75	.75		!	correction dB(A)			!	
Barrier path difference m		.01	00.		Chart 9 correction dB(A)		 -3.8	 -4.7	
	i 				Propagation Correction dB(A)	-6.3	-8.7	-9.7	
	٠								
SITE LAYOUT	,——				-		-		
	1	l 2	<u>Segment</u> I 3	1 4	.{ 		S	<u>SEGMENT</u> I 3	 4
Facade		<u> </u>			. correction dB(A)	2.5		2.5	
Opposite facade angle deg.	j 1 0	 0	j 0		reflection correction dB(A)	j 0	j 1 o	0	
opposite lacade angle deg.	"	"	"	! 	refrection correction db(A)	"	1	 	
Angle of view segment deg.	j 31 j	46] 36 	 	Chart 10 correction dB(A)	-7.6	j -5.9	-7.0 	
	1	l		•	Site Layout Correction dB(A)	-5.1	-3.4	-4.5	i
COMBINING NOISE LEVELS						1		SEGMENT	
						1	2	3	4
					Basic Noise Level dB(A)	73.7	71.8	71.8	
					Propagation Correction dB(A)	 -6.3	 -8.7	 -9.7	
						1] ,	l i	ļ

Site Layout Correction dB(A)

62.3 | 59.7 | 57.6 |

65.1

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK WESTBOUND

	l		SEGMENT		1	l		SEGMENT	
	1	2	3	4	İ	1] 2	3	4
Traffic flow q veh/hour	1563	 585	 585	 585	Chart 2 L10 dB(A)	 74.1	69.8	69.8	69.8
Traffic speed V km/h	50	 50	[50	 50	 Chart 4] 	[[
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	į 2.6
Gradient G %		i	1	1	Chart 6 correction dB(A)	0	0	0	(
Road surface		IMPRE	VIOUS		correction dB(A)	-1	-1	-1	-1
	ı				Basic Noise Level dB(A)	75.7	71.4	71.4	71.4
PROPAGATION									
			SEGMENT					SEGMENT	
Shortest horizontal	1_1_	2	3	4	<u> </u>	1	2	3	4
	1 147.5	 47.5	1 47	I 52	l - Chart 7	-5.8	 -5.8	 -5.7	! │ -6.1
Height relative to source h m	5.8	5.8	1 5.8	1 5.8	correction dB(A)	1 -2.0	1 -2.0	-3.7 	"O.
neight retative to source it in	J.0 	J.0 	5.0	3.0			 	! 	
Ave. height of propagation H m	3.40	3.40	n/a	n/a	Chart 8	-1.68	-1.68		1
Absorbent ground cover I	.75 	i .75	 	[correction dB(A)	1	1	<u> </u> 	
Barrier path difference m]	i	.04	.39	Chart 9 correction dB(A)]	 -8.0	-12.4
•	Ì				Propagation Correction dB(A)	-7.5	-7.5	-13.7	-18.5
SITE LAYOUT						•			
<u> </u>	ı —		SEGMENT		I	1	:	SEGMENT	
· ·	1	2	[3	4		1	_ 2	3	4
Passala	ĺ	1	1		correction dB(A)	2.5	2.5	2.5	2.5
Facade	i	i	i	I 1	!	i	 	1	
İ	i 0	; 0 	 46 	 31 	reflection correction dB(A)	0	0] 1.5 	 1.3
Opposite facade angle deg. Angle of view segment deg.	i 0 i 30	 0 31	 46 46	 31 36	reflection correction dB(A) Chart 10 correction dB(A)	0	 0] 1.5 -5.9	1.3 -7.0
Opposite facade angle deg.	i	j	İ			i	 0 -7.6 	İ	-7.0
Opposite facade angle deg. Angle of view segment deg.	i	j	İ		Chart 10 correction dB(A)	-7.8	 0 -7.6 -5.1	 -5.9 -1.9	-7.0
Opposite facade angle deg. 	i	j	İ		Chart 10 correction dB(A)	-7.8	 0 -7.6 -5.1	 -5.9 -1.9	-7.0
Opposite facade angle deg.	i	j	İ	36 36	Chart 10 correction dB(A)	-7.8 -5.3	 0 -7.6 -5.1	 -5.9 -1.9 -1.9	-7.0 -3.2
Opposite facade angle deg. Angle of view segment deg.	i	j	İ	36	Chart 10 correction dB(A) Site Layout Correction dB(A)	-7.8 -5.3	0 -7.6 -5.1 2 71.4	 -5.9 -1.9 -1.9	-7.0 -3.2 4 71.4

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

62.9 | 58.8 | 55.8 | 49.7

65.0

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND

	1		SEGMENT		_1	l		SEGMENT	
	<u> 1</u>	2] 3	4	j	1	2	3	4
Traffic flow q		1	1		Chart 2	ĺ	İ	İ	
veh/hour	807	532	532	532	L10 dB(A)	71.2	69.4	69.4	69.
Traffic speed V km/h	50	50	50	50	Chart 4	 	! 	! 	
Heavy vehicles p %	25	25	25	25 	correction dB(A)	2.6	2.6	2.6	2.
Gradient G %		1	'	'	Chart 6 correction dB(A)	0	0	0	
Road surface		IMPRE	VIOUS		correction dB(A)	-1	-1	-1	¦ -
	•				Basic Noise Level dB(A)	72.8	71	71	7
PROPAGATION					•				
	!		SEGMENT		<u>-</u>	<u> </u>		SEGMENT	
	1	<u> _s _</u>	3	 4	.	<u> 1 </u>	! 2	3	1 4
Shortest horizontal					l Chant 7	, ,	1		,
distance d m	58	58	57	63.5	Chart 7	-6.6	-6.6	-6.5	-6.
Height relative to source h m	5.8 	5.8 	5.8 	5.8 	correction dB(A)	i i]]	
Ave. height of propagation H m	3.40	3.40	n/a	n/a	Chart 8	j-1.33	-1.33	0	i
Absorbent ground cover I	.50	.50	1	1	correction dB(A)	1		ļ	ļ
Barrier path difference m	.00	.00	.00	1 .10	Chart 9 correction dB(A)	-4.7	-4.7	 -5	 -9.
	¦				Propagation Correction dB(A)	-11.3	-11.3	-11.5	-16.
SITE LAYOUT									
STIL EXION		-	SEGMENT		- 	1		SEGMENT	
	<u>i 1</u>	2	3	4	İ	11	1_2] 3	4
Facade	ĺ				correction dB(A)	2.5	2.5	2.5	2.!
Opposite facade angle deg.	0	0	 46	 31	reflection correction dB(A)	0	0	 1.5	 1.3
Angle of view segment deg.	35	26	 46 	 36 	Chart 10 correction dB(A)	-7.1	 -8.4 	 -5.9 	 -7.1
	'	'	,	•	Site Layout Correction dB(A)	-4.6	-5.9	1-1.9	-3.
COMBINING NOISE LEVELS						1		SEGMENT	
MANAGEMENT ROLL LEVELS						<u> </u>		3	4
					Basic Noise Level dB(A)	72,8		71	7
					Propagation Correction dB(A)	-11.3	 -11.3	 -11 . 5	 -16.;
					Site Layout Correction dB(A)	-4.6	 -5.9	 -1.9	-3.
					The Edyoda doilection doing	1-1-0			

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

56.9 | 53.8 | 57.6 |

61.6

Rounding to the nearest whole number:

	,				•				
	ļ 		SEGMENT		-	ļ		SEGMENT	
Innéfia élau a	1	2	3	4	_ Chook 3	1	2	3	4
Traffic flow q veh/hour	 275	 275	 275	 -	Chart 2 L10 dB(A)	1 (6 5			!
ven/nour	213	} 2/5	215	<u>[</u>	I LIU GB(A)	66.5	66.5	66.5	
Traffic speed V km/h	50	50.1	50.1] 	 Chart 4	1	¦	l I	¦
Heavy vehicles p %	1 25	25	25	j †	correction dB(A)	2.6	1 2.6	2.6	¦ .
neary venteres p w		1	-	1	I	1 2.0	-	1 2.0	¦
Gradient G %	i	8	8	ì	Chart 6 correction dB(A)	1 0	2.4	2.4	¦
	İ	UP	I UP	i		i	i		i
Road surface	IMPRE.	PRE.	PRE.	İ	correction dB(A)	-1	-3.5	-3.5	
	i	i	•	İ	j '	i	<u>i </u>	<u>i </u>	i
Chart 5 (up ramp) $V = 9.9 \text{ km/}$	h				Basic Noise Level dB(A)	68.1	68	68	İ
PROPAGATION	.——				- ,	.——			
			SEGMENT		-1	ļ 		SEGMENT	
·	1_1_	2	1 3	4	- 	_1_	2	3	4_
Shortest horizontal	70	40	175 5	i i	l Short 7		1.72		Į 1
distance d m	70	68	75.5	ļ	Chart 7	-/.3	-7.2	-7.6	ļ .
Height relative to source h m	5.8	4.3	3	!	correction dB(A)	!]	•	
Ave. height of propagation H m	 % // 0	l ∤n/a	l In/a	i :	 Chart 8	77	! ! 0	. 0	ļ 1
Absorbent ground cover I	1 .25	1 174	1 176	} 1	correction dB(A)	1	1	¦	
Absorbent ground cover 1	1 .25	ì	1	! 	Correction aboxy	1	1 1	! !	l t
Barrier path difference m	.03	.00	.00	i	Chart 9 correction dB(A)	-2.4	 -5	-5.0	!
·	i	•	•	•		i	<u>i</u> _	<u>i</u>	i
	Ì				Propagation Correction dB(A)	-9.7	-12.2	-12.6	i
SITE LAYOUT	.—		OF OME UT		-	,		OF OMBUT	
		1 2	SEGMENT I 3	4	-l -	¦	; I 2	SEGMENT I 3	1 4
Facade	¦ '	<u>, </u>	<u> </u>	1	. correction dB(A)	2.5		2.5	
	1	i İ	i] [Solicotion above	1	, <i>,</i>	,	l I
Opposite facade angle deg.	1 0	i 0	0	<u>'</u>	reflection correction dB(A)	i 0	, 0	0	<u> </u>
.,,	i	j	i	ĺ		i	i		i
Angle of view segment deg.	j 30	46	36	i	Chart 10 correction dB(A)	-7.8	-5.9	-7.0	i
	i	İ	İ	Ì	İ	İ	<u>i </u>	İ	i
	·			•	Site Layout Correction dB(A)	-5.3	-3.4	-4.5	ĺ
COMBINING NOISE LEVELS						<u> </u>	-	SEGMENT	
						1 1	2	3	4
					Basic Noise Level dB(A)	68.1	68	68	
					D				
					Propagation Correction dB(A)	-9.7	-12.2	1-12.6	
					Cita Lavour Connection dD/A)	 F 3	 _7 /	_/ F	l i
					Site Layout Correction dB(A)	5.3	-3.4	-4,5	l

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

53.1 | 52.4

57.0

Rounding to the nearest whole number:

	1		SEGMENT		_			SEGMENT	
	1	<u> 1_2</u>	3	4	<u>-</u> -	i1	1 2	1 3	1
raffic flow q	i	Ī	Ī	1			i	Ī	ī
veh/hour	942	942	į	į	£10 dB(A)	71.9	71.9	į	į
raffic speed V km/h	 30	 30	1		 Chart 4	l I]]	ļ i	
Heavy vehicles p %	25	25	į	į	correction dB(A)	2.2	2.2	į	Ì
Gradient G %	-	I	J	j	Chart 6 correction dB(A)	0	i 0	 !	ļ
Road surface		IMPRE	VIOUS		correction dB(A)	-1	 -1	 	
	1				Basic Noise Level dB(A)	73.1	73.1	l I]
ROPAGATION					_				
	l		SEGMENT		_1			SEGMENT	
	1_1_	<u> 2 </u>	3	4	_!	<u> 1 </u>	2	3	Ļ
Shortest horizontal	1	ļ ,	Į.	!	1				İ
listance d m	4	4	Į.	!	Chart 7	1.2	1.2		
eight relative to source h m	6.8 	6.8 			correction dB(A)	<u> </u>	 		
ve. height of propagation H m	n/a	i n/a	<u> </u>		Chart 8	0	, 0		ľ
bsorbent ground cover I	1	1]		correction dB(A)		ļ		
arrier path difference m	ļ	i			Chart 9 correction dB(A)	ļ	[
					Propagation Correction dB(A)	1.2	1.2		i
SITE LAYOUT									
			SEGMENT		_ _1		5	EGMENT	
	1_1	<u> </u>] 3	4	_İ	1	2	3	
acade			į		correction dB(A)	2.5	2.5		
opposite facade angle deg.	0	36	 	[reflection correction dB(A)	0	1.5		
angle of view segment deg.	135	 36	! 	! !	Chart 10 correction dB(A)	-1.2	-7.0		
	ı	f	I	l	Site Layout Correction dB(A)	1.3	-3.0		
						.——			
OMBINING NOISE LEVELS								EGMENT	
					Basic Noise Level dB(A)	73.1	73.1	3	
					December Constitute docts	į į	j		į
					Propagation Correction dB(A)	1.2	1.2		l

Site Layout Correction dB(A)

76.9

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

LOCATION C (PM): Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	65.1	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	65.0	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	61.6	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	57.0	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	76.9	dB(A)

Rounding to the nearest whole number:

1	BASE NOISE LEVEL - KENNEDY TOWN	PRAYA	<u>1991</u>							
7		1		SEGMENT		- 	1		SEGMENT	—— _I
		1_1_] 2	3	4	 _ _	1	1 2] 3	<u> </u>
4	Traffic flow q	į	1	j	Ī	Chart 2	i	1	Ī	i
-	veh/hour	911	911	J 911		L10 dB(A)	71.7	71.7	71.7	[]
1		ļ ·	[!	<u>!</u>		ļ]	ļ	<u> </u>
	Traffic speed V km/h	30	30	30	ļ	Chart 4				
	Heavy vehicles p %	25] 25 1	25] 	correction dB(A)	2.2	2.2 	2.2]
	Gradient G %	 	ł	1	J	Chart 6 correction dB(A)	0	! ! 0	i I 0]
į	ardarent a n	 				1		1	"	i i
	Road surface	i	IMPRE	VIOUS		correction dB(A)	-1	i -1	-1	i i
7		İ				İ	i	<u>i</u>	<u> </u>	į į
						Basic Noise Level dB(A)	72.9	72.9	72.9	
-										
1	PROPAGATION					-,	.—			 -
				SEGMENT	. ,	-	ļ		SEGMENT	!
.i	Shortest horizontal		2	3	4	-1	1	2	3	4_[
	distance d m	! ! 4	4	4	! !	 Chart 7	 -2 2	 -2.2	 -2 2	
!	Height relative to source h m	7 21.5	21.5	21.5	! [correction dB(A)				
		 	1	i	i		i	i	i	i
	Ave. height of propagation H m	n/a	n/a	n/a	ĺ	Chart 8	0	0	j oj	i i
1	Absorbent ground cover I	j	ĺ	İ	ĺ	correction dB(A)	ĺ	ĺ	j j	i i
ì		j		1	l	1	1			
	Barrier path difference m	1	1	1	l	Chart 9 correction dB(A)	Ţ	l i		
-		[į
ļ		I				Propagation Correction dB(A)	-2.2	-2.2	-2.2	ı ı
,										
	SITE LAYOUT									
:	STE ENTOS!	1		SEGMENT		- I			SEGMENT	
		1	2	3	4		1	2	3	4
	Facade	i	Ī	1		correction dB(A)	2.5	2.5	2.5	i
•		1	1	l i		I	1	l i	l i	j
	Opposite facade angle deg.	1	1]		reflection correction dB(A)	0	0	0	1
		!					! _ !		_	į
•	Angle of view segment deg.	34	120	21		Chart 10 correction dB(A)	-7.2	-1.8	-9.3	ļ
		ŀ	ı			City Lawrent Connection dD(A)	-/ 7	7	<u> </u>	- !
,						Site Layout Correction dB(A)	-4./	•/	-6.8	ı
	COMBINING NOISE LEVELS					•	1	5	EGMENT	1
							1	2	3	4
						Basic Noise Level dB(A)	72.9	72.9	72.9	i
1							1 1	į	ļ	Ì
						Propagation Correction dB(A)	-2.2	-2.2	-2.2	1
							! <u>, </u>	_ !		ļ
						Site Layout Correction dB(A)	-4.7	7_	-6.8	- !

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

66.0 | 71.4 | 63.9

73.1

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOW	N PRAYA	<u>1996</u>	-						
	ı——		SEGMENT			1		SEGMENT	
	1 1	1 2	1 3	1 4	-! -	1	l 2	3	4
Traffic flow q]	<u> </u>	1	i	-! Chart 2		i		i i
veh/hour	1000	1000	1000	i	L10 dB(A)	72.2	72.2	72.2	<u> </u>
	i	i	i	i		i		i	i
Traffic speed V km/h	30	30	30	ĺ	Chart 4	j	Ì	Ì	İ
Heavy vehicles p %	25	25	25	Í	correction dB(A)	2.2	2.2	2.2	i
	İ	1		1	1	1	ĺ	ĺ	ĺ
Gradient G %	ĺ				Chart 6 correction dB(A)	0	0	0]
]						1	1	ĺ
Road surface	l	IMPRE	SUOIN		correction dB(A)	-1	-1	-1	[
	1					ļ	<u> </u>	L	1
					Basic Noise Level dB(A)	73.4	73.4	73.4	1
PROPAGATION	,				- ,				
			SEGMENT		.[ļ		SEGMENT	
Phonese handware-		1 2	3	4	. -	_1_	2	3	4
Shortest horizontal distance d m	1 4	 4	1 4	1	 Chart 7	1 -2 2	 -2.2	 -22	
Height relative to source h m		21.5	21.5	1	correction d8(A)	1 -2.2	~2.2	-2.2 	! !
neight retative to source it in	[21.5	1	1		1	1		[]	
Ave. height of propagation H m	l ln/a	l] n/a	l n/a	<u> </u>	Chart 8	ĺο	l 0	0	l I
Absorbent ground cover I	""	1 174	"""	¦	correction dB(A)	"		i	
About Beile ground botter 1	i	i	i	¦		!	! 	<u> </u>	}
Barrier path difference m	i	i		i	Chart 9 correction d8(A)	i			l I
Tarrier passi arriversiste in	i	'	i	•	1	i			i
	i				Propagation Correction dB(A)	-2.2	-2.2	-2.2	
	•				•	•		•	•
SITE LAYOUT									
	i		SEGMENT		.[l		SEGMENT	
	1	2	3	4	.[_1	2	3	4
Facade	ļ	1	ļ	Į	correction dB(A)	2.5	2.5	2.5	1
	ļ	Į.	ļ	ļ	!]			
Opposite facade angle deg.	ļ	ļ .		ļ	reflection correction dB(A)	1 0	0	O O	
	!			ļ		! !			
Angle of view segment deg.	34	120	21	ļ	Chart 10 correction dB(A)	-7.2	-1.8	-9.3	
	J	l	J	ļ	Dita Laurah Bannahian (DA)				
					Site Layout Correction dB(A)	-4./	• • • •	-6.8	
COMBINING NOISE LEVELS						1		EGMENT	
COMBINING ROISE LEVELS						1 1	2	3	4
					Basic Noise Level dB(A)	73.4			
					PAGIO NOISE LEVEL UPIA/	**** 	13.4 1	13.4	
					Propagation Correction dB(A)	-2.2	-2.2	-2.2	
								!	
•					Site Layout Correction d8(A)	-4.7	.7	-6.8	
						<u> </u>			
					Noise Contribution dB(A)	66.5	71.9	64.4	
						!			

Chart 11 Combined Noise Level dB(A)

73.6

Rounding to the nearest whole number:

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP

•	SEGMENT			-[SEGMENT				
	1	2	1_3	1.4	.İ	1	2	[3	4
Traffic flow q	1	Į	1		Chart 2	I	1	1	
veh/hour	777 	777 	777 	777 	L10 dB(A)	71.1	71.1	71.1 	71.1
Traffic speed V km/h	60	60	60	60	Chart 4	i	i	i	i
Heavy vehicles p %	25	25	25	25	correction dB(A)	3.2	3.2	j 3.2	3.2
Gradient G %	8 BOWN	8 DOWN	 8 DOWN	 	Chart 6 correction dB(A)	0	 0 	 0 	0
Road surface	PRE.	PRE.	PRE.	PRE.	correction dB(A)	-3.5	-3.5	-3.5	-3.5
		ı		1	Basic Noise Level dB(A)	70.8	70.8	70.8	70.8
PROPAGATION	_				.				
	ļ		SEGMENT			ļ		SEGMENT	
Changes bankmannal	_1	2	3	4		1_1_	2	3	4
Shortest horizontal distance d m	 27	 21	 24.5	 30	 Chart 7	 -3.9	 -3.1	 -3.6	 -4.1
Height relative to source h m	14.7	21 13.9	13.5	11.2	correction dB(A)	-3.9	- 3.1 	i i -3.6	-4.1
Ave. height of propagation H m Absorbent ground cover I	n/a 	n/a	 n/a 	 n/a 	Chart 8 correction dB(A)		0	 0 	 0
Barrier path difference m	37	 .53	.38	1.17	Chart 9 correction dB(A)	2	 •.1	 2	7
1 :	1				Propagation Correction dB(A)	-4.1	-3.2	-3.8	-4.8
SITE LAYOUT									
	I		SEGMENT		.[SEGMENT	
,	1_1_	2	3	4	j	1	2] 3	4
Facade	 	[[] 	correction dB(A)	2.5	2.5] 2.5 	2.5
Opposite facade angle deg.	0	0 	[0 [0 	reflection correction dB(A)	0 	0	[0 [0
Angle of view segment deg.	j 40	72 	j 42	j 21	Chart 10 correction dB(A)	-6.5	-4.0 	j -6.3	-9.3
	•	•	•	•	Site Layout Correction dB(A)	-4.0	-1.5	-3.8	-6.8
COMBINING NOISE LEVELS						i		SEGMENT	
						i 1	2	3	4
					Basic Noise Level dB(A)	70.8	70.8	70.8	70.8
!					Propagation Correction dB(A)	-4.1	-3.2	 -3.8 	-4.8
					Site Layout Correction dB(A)	-4.0	-1.5	 -3.8	-6.8
						1		,	

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK WESTBOUND

!	l		SEGMENT		_[I		SEGMENT	
,	1	2	1 3	4	j	i <u> </u>	2	3	4
Traffic flow q	İ	Ì	F	Ï	Chart 2	Ī	I		ĺ
veh/hour	447 	447 	447 	447 	L10 dB(A)	68.7	68.7 	68.7 	68.7
Traffic speed V km/h	50	50	50	50	Chart 4	ì	i	i	i
Heavy vehicles p %	25	25 	25	25	correction dB(A)	2.6	2.6	2.6	j 2.6
Gradient G %	[ı	ı	ı	Chart 6 correction dB(A)		0	0	 0
Road surface	 	IMPREV	Ious		correction dB(A)	-1	-1	-1	-1
•	•				Basic Noise Level dB(A)	70.3	70.3	70.3	70.3
PROPAGATION					•				
<u> </u>			SEGMENT			[<u></u>		SEGMENT	
Shortest horizontal	<u> 1 </u>	2	3	4	.l	_1_	<u> </u>	3	4_
distance d m	t 40	 30.5	1 1 30	I 37	Chart 7	1 -5.5	-4.6	 -4.6	I [-5.2
		20.5	20	20	correction dB(A)			, 	
Ave. height of propagation H m	l In/a	i in/a	l In/a	l Ín/a	: Chart 8	0	! 0) 0	! 0
Absorbent ground cover I					correction dB(A)	į			,
Barrier path difference m	.01	 .44	-44	.30	Chart 9 correction dB(A)	-6.7	 2	2	 3
ļ					Propagation Correction dB(A)	-12.2	-4.8	-4.8	-5.5
ATTE LEVELT									
SITE LAYOUT			SEGMENT		1			SEGMENT	
j	1	1 2	1 3	4		1	2	3	4
Facade			[<u> </u>	correction dB(A)	2.5	2.5	2.5	2.5
Opposite facade angle deg.	35	33	0	0	reflection correction dB(A)	1.5	1.5	0	 0
Angle of view segment deg.	35	33	77	l 27	Chart 10 correction dB(A)	-7.1	-7.4	-3.7	! -8.2
					Site Layout Correction dB(A)	-3.1	-3.4	-1.2	-5.7
							-		
COMBINING NOISE LEVELS							2 1	EGMENT	
					Basic Noise Level dB(A)	70.3		70.3	70.3
					Propagation Correction dB(A)	 -12.2	-4.8	-4.8	 -5.5
					Site Layout Correction dB(A)	 <u>-3.1</u>	-3.4	-1.2	-5.7

Chart 11 Combined Noise Level dB(A)

67.4

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND

	I		SEGMENT		_	I		SEGMENT	
	1_1_	2	3] 4		1_1_	2	3	4
Traffic flow q	i]	1	i	Chart 2		<u> </u>	[
veh/hour	758 	758 	758 	758 	L10 dB(A)	70.9	70.9	70.9	70.9
Traffic speed V km/h	50	50	50	50	Chart 4	i	i	i	
Heavy vehicles p %	25	25 	25	25	correction dB(A)	2.6	2.6	2.6	2.6
Gradient G %	 	1	1	I	Chart 6 correction dB(A)	0	0	0	0
Road surface		IMPREV	IOUS		correction dB(A)	-1	i -1	-1	-1
	Ī				Basic Noise Level dB(A)	72.5	72.5	72.5	72.5
PROPAGATION					•				
	1 <u> </u>	l 2	<u>SEGMENT</u> I 3	1 4	. 	<u> </u>	; 1 2	SEGMENT 3	4
Shortest horizontal	<u></u>		 	-	-1 		<u> </u>	-	
distance d m	50	41	41	45.5	Chart 7	-6.2	-5.5	-5.5	-5.9
Height relative to source h m	20.5	20.5	j 20	20	correction dB(A)	į	j i	 	
Ave. height of propagation H m	n/a	l n/a	l n/a	n/a	Chart 8	0	0	0	. 0
Absorbent ground cover I			į	į	correction dB(A)				-
Barrier path difference m	.17	.25	.24	.19	Chart 9 correction dB(A)	7	4	 4	6
					Propagation Correction dB(A)	-6.9	-5.9	-5.9	-6.5
SITE LAYOUT									
STIL ERIOUT			SEGMENT		-	1		SEGMENT	
	1	2	3	4	Ï	1	2	3	4
Facade	- -	 	[[] 	correction dB(A)	2.5	2.5	2.5	2.5
Opposite facade angle deg.	35 	; 3 3	, 0 	0	reflection correction dB(A)	1.5	1.5	0	0
Angle of view segment deg.	35	i j 33 i	 70 	25	Chart 10 correction dB(A)	-7.4	-7.4	-4.1	-8.6
	1	l	•	1	Site Layout Correction dB(A)	-3.4	-3.4	-1.6	-6.1
COMBINING NOISE LEVELS								ECMENT	
CONDINING HOLDE FEATERS						1 1	2 1	EGMENT 3	4
					Basic Noise Level dB(A)	72.5			72.5
					Propagation Correction dB(A)	 -6.9 	-5.9	-5.9	-6.5
					Site Layout Correction dB(A)	 <u>-3.4 </u>	-3.4	-1.6	-6.1
					Noise Contribution dB(A)	 <u>62.2</u>	63.2	65.0	59.9
						Į.			

Chart 11 Combined Noise Level dB(A)

69.0

Rounding to the nearest whole number:

BASE NOISE LEVEL - ROUTE 7 UP RAMP

BASE NOISE LEVEL - ROUTE 7 UP R	ARP.								
-	SEGMENT								
	1_1_	2	1_3_	14_	-[1_1_	<u> 2 </u>	1 3	4_
Traffic flow q	!				Chart 2			1	
veh/hour	564	564 	564 	564 	L10 dB(A)	69.7	69.7 	69.7 	69.7
Traffic speed V km/h	50.1	50.1	50.1	60	Chart 4	į	j	i	i
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	3.2
Gradient G %	 8	8	8	 	Chart 6 correction dB(A)	2.4	2.4	2.4	0
i J	J UP	UP	UP	l	1	1	[]
Road surface	PRE.	PRE.	PRE.	PRE.	correction dB(A)	-3.5	-3.5 	-3.5	-3.5
Chart 5 (up ramp) V = 9.9 km/h	ľ	ı		l	Basic Noise Level dB(A)	71.2	71.2	71.2	69.4
PROPAGATION					_				
:	 		SEGMENT		.1	[SEGMENT	
<u>;</u>	_1	2	3	<u> </u>	-[<u> 1 </u>	2	<u> 3</u>	4_
Shortest horizontal distance d m	 4E	 55		 61	 Chart 7	 -7.1	 -6.5	 - 6.6	 -6.8
_ distance d m : Height relative to source h m	65 16.2	[33 [14.7	57 13.5	01 11.2	correction d8(A)	1 -7.1	-0.5 	-0.0 	1 -0.0 1
neight retactive to source in in	10.2	14.7 	13.3 	11.56 	Correction data	1) 	! 	!
Ave. height of propagation H m	n/a	n/a	n/a	n/a	Chart 8	0	0	j o	j o
Absorbent ground cover I	i	j	İ	i	correction dB(A)	i	İ	į	İ
; 	İ	Ì	ĺ	ĺ	Ì	1	 ·	t	l
Barrier path difference m	.07	80.	.06	.03	Chart 9 correction dB(A)	-1.5	-1.3	-1.7 	-2.5
ר					Propagation Correction dB(A)	-8.6	-7.8	-8.3	-9.3
j									
SITE LAYOUT									
: !			SEGMENT		.]			<u>segment</u> I 3	
: Facade	<u> !</u>		3	4	. correction dB(A)	2.5	2.5	2.5	2.5
racade	! 	! 	! }]		2.5		1 	6.7
Opposite facade angle deg.	0	0	j 0	j 0	reflection correction dB(A)	j 0	0	į o	0
Angle of view segment deg.	 35	 69	 33	 3 5	Chart 10 correction d8(A)	-7-1	-4.2	 -7.4	 -7.1
•	l	I	I	1	Site Layout Correction dB(A)	-4.6	-1.7	1 -4.9	-4.6
;					Site Layout Correction OB(A)	1 -4.0	-1.7	-4.9	-4.0
COMBINING NOISE LEVELS								SEGMENT	
:						1	2	\ 3	4
					Basic Noise Level dB(A)	71.2	71.2	71.2	69.4
•					Propagation Correction dB(A)	 -8.6	-7.8	 -8.3	-9.3
i					Site Layout Correction dB(A)	 <u>-4.6</u>	-1.7	 -4.9	 -4.6
					Noise Contribution dB(A)	 58 ₋ 0	 61 ₋ 7 !	 58.1	55.5
					THE THE WALLES CAME IN THE TANKEN		<u> </u>		

Chart 11 Combined Noise Level dB(A)

64.9

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA

BASE NOISE LEVEL - KENNEDY TOWN	PRATA								
			SEGMENT	-	- -1	1		SEGMENT	
	1	1 5	3	4	_{	1	2	3	4
Traffic flow q]			ļ	Chart 2	1	[_	<u> </u>	
veh/hour	775	775 	775	 	L10 dB(A)	71 	71 !	71	
Traffic speed V km/h	30	30	30		Chart 4		, 	<u> </u>	
Heavy vehicles p %	25	25	25	!	correction dB(A)	2.2	2.2	2.2	
Gradient G %	! !	1	I	l	Chart 6 correction dB(A)	0	 0	 0	
Road surface	! !	IMPREV	TOUS		correction dB(A)	-1	 -1	 -1	
	i				 Basic Noise Level dB(A)	72.2	72.2	72.2	
PROPAGATION									
	1		SEGMENT		- _1	ı		SEGMENT	
	1	2	3	4		1	2	3	4
Shortest horîzontal	l	1	E	ļ	1	1	ĺ		
distance d m	4	4	[4	!	Chart 7	-2.2	-2.2	-2.2	
Height relative to source h m	21.5 	21.5 	21 . 5	<u> </u> 	correction dB(A)				
Ave. height of propagation H m	n/a	n/a	n/a	i	Chart 8	0	0	0	
Absorbent ground cover I	ļ.	į	į	į	correction dB(A)				
Barrier path difference m	 			J I	Chart 9 correction dB(A)				
!	! 				Propagation Correction dB(A)	-2.2	-2.2	-2.2	
SITE LAYOUT	<u> </u>		SEGMENT					SEGMENT	
Facade	_1	2	3	4	_ correction dB(A)	2.5	2.5	2.5	4
lacade	 	! []. [COLLECTION (BKX)	C.3 	2.5	2.5	
Opposite facade angle deg.	27 	0	0 		reflection correction dB(A)	1.2	0	0	
Angle of view segment deg.	34	120 	21		Chart 10 correction dB(A)	-7.2	-1.8	-9.3 	
·		•			Site Layout Correction dB(A)	-3.5	.7	-6.8	
COMBINING NOISE LEVELS						1	s	EGMENT	
						1	2	3	4
					Basic Noise Level dB(A)	72.2	72.2	72.2	
					Propagation Correction dB(A)	-2.2	-2.2	-2.2	
					Site Layout Correction dB(A)	-3.5	.7	-6.8 -6.8	
					Noise Contribution dB(A)	66.5	70.7	63.2	
				Chart	11 Combined Noise Level dB(A)	i	72.6		
LOCATION A (AM) : Predicted value	e of L1	0 (1-h	our) dB(A) is					
BASE NOISE LEVEL - ROUTE 7 DOWN	RAMP			69.5	dB(A)				

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	69.5	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	67.4	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	69.0	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	64.9	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	72.6	dB(A)

Rounding to the nearest whole number:

CASE NOISE LEVEL - KENNEDY TOWN PRAYA 1991

7			SEGMENT		- !	ı 		SEGMENT	
	1 1	2	3	4	-1	1_1_	1 2	<u> 3</u>	4
Traffic flow q	i	i	1	i	Chart 2	i		Ì	Ī
_ veh/hour	911	İ	i	ĺ	L10 d8(A)	71.7	ĺ	Ì	i
İ	İ	Ì	i	İ	j	İ	Ì	İ	j
Traffic speed V km/h	30]	1	İ	Chart 4	Ì	ĺ	1	ĺ
Heavy vehicles p %	25	l	ĺ	1	correction dB(A)	2.2	1	1	
7]	1	1 .		1	1	İ	1	1 .
Gradient G %	1				Chart 6 correction dB(A)	0	l	1	
4	[1	! .	!	1	
Road surface	ļ	IMPRE\	/IOUS		correction dB(A)	-1	!	!	ļ
i	1					<u> </u>	!	ļ.	
a de la companya de la companya de la companya de la companya de la companya de la companya de la companya de					Basic Noise Level dB(A)	72.9	l	I	ļ
mnon 4.04.71.011									
PROPAGATION			CECMENT		• 	.——		SEGMENT	
:	1	l 2	SEGMENT 1 3	1 4	•I 	1 1	1 2	<u>зеонені</u> 3	1 4
Shortest horizontal	<u> </u>	<u></u>	 	 	- I 	[1 -	
distance d m	1 5	! 	i		Chart 7	-2.8	i	i	¦
Height relative to source h m	24.5	i	i	i	correction dB(A)	i		i	i
;	1	i	1	i	1	i '	i	İ	!
Ave. height of propagation H m	n/a	i	i	i	Chart 8	j 0	i	i	i
Absorbent ground cover I	i	i	i	i	correction dB(A)	İ	ĺ	ì ´	i
! !	İ	Í	i	Ì	İ	İ	İ	Ì	Ì
Barrier path difference m	j	ĺ	ĺ	ļ	Chart 9 correction dB(A)	1		1	
,	1				1	I	1	Ī	l
	l				Propagation Correction dB(A)	-2.8	ĺ	1	
}									
SITE LAYOUT	,		SEGMENT			,		SEGMENT	
*	1	1 2	3EGMENT	1 4	.l	 1	2	<u>зецием:</u> 1 3	1 4
Facade	<u> </u>	<u> </u>	! 	 " -	. correction dB(A)	2.5		1 3	
racade	[]	 !	¦	l I	I COLLECTION ORCHY	1 2.5]] 	!
Opposite facade angle deg.	0	: 	1		reflection correction dB(A)	. 0	! 	1	!
Selection (appending and and a	i	! 	i	i				i	<u> </u>
Angle of view segment deg.	173	i	i	i	Chart 10 correction dB(A)	2		i	ĺ
	i '	i	į	i	i	ii		i	i
i	•	•	•	•	Site Layout Correction dB(A)	2.3		ĺ	İ
					·			•	•
?									
COMBINING NOISE LEVELS						I		SEGMENT	
						1	2	3	4
_					Basic Noise Level dB(A)	72.9		l	
· I								ļ	
:					Propagation Correction dB(A)	-2.8		[
						_		!	
•					Site Layout Correction dB(A)	2.3	ı]	
: 					Naine Combailmaice - 40445			1	
:					Noise Contribution dB(A)	<u>72.4</u>		I	l
				Cha-4	11 Combined Noise Lovel 40(4)	1	72 /		
				cnart	11 Combined Noise Level dB(A)	1	72.4		

Rounding to the nearest whole number:

CASE NOISE LEVEL - KENNEDY TOWN PRAYA 1996

	I		SEGMENT		<u> </u>	I		SEGMENT	
	1_1_	1 2	3	4	_1	1_1_	2	3	1 4
Traffic flow q	ĺ	ĺ	1	l	Chart 2	1		İ	İ
veh/hour	1000		l		L10 dB(A)	72.2	1	!	!
Traffic speed V km/h	30		i		Chart 4			!	
Heavy vehicles p %	25				correction dB(A)] 2.2	l .		
Gradient G %	! 	ı	į.	ı	Chart 6 correction dB(A)	0	 		[
Road surface]	IMPREV	/10US		correction dB(A)	-1		!	
	l .				Basic Noise Level dB(A)	73.4		İ	1
PROPAGATION					- .				
	[SEGMENT		-!	<u> </u>		SEGMENT	
Phones Louisson	<u> _1_</u>	2	3	14	-	_1_	2	3	<u> 4</u>
Shortest horizontal	 5	1	!	į	 Chart 7	1 -2 0		I	!
distance d m	² 24.5	į r	!	ŀ	correction dB(A)	-2.8			1
Height relative to source h m	24-3]	1	correction os(A)				[
Ave. height of propagation H m	n/a	i	i	i	Chart 8	i o		ĺ	i
Absorbent ground cover I	ì	j	ĺ	İ	correction dB(A)	j i		i	i
Barrier path difference m] 	† 		ĺ	Chart 9 correction dB(A)			İ	
	<u>.</u>	•	ı	1	İ	<u> </u>		•	
	l				Propagation Correction dB(A)	-2.8		I	f
SITE LAYOUT									
	I		SEGMENT		_1	I		SEGMENT	
	1_1	2] 3	4		1_1_	2] 3	4
Facade				ļ	correction dB(A)	2.5		İ	<u> </u>
Opposite facade angle deg.	 0	f]	 	reflection correction dB(A)			 	
Angle of view segment deg.	173	! { !		! 	Chart 10 correction dB(A)	2			
1		ı	1	I	Site Layout Correction dB(A)	2.3			
COMBINING NOISE LEVELS								CECNEUT	· · · ·
POUNTHING MOTOR FEATER							2	SEGMENT 1 3	1 4
					Basic Noise Level dB(A)	73.4			"
					Propagation Correction dB(A)	-2.8]	[
					Site Layout Correction dB(A)]] 2.3 [
					U. CO EUJOUE BOIL COLIOIT UDEN/			1	1

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

72.9

72.9

Rounding to the nearest whole number:

-			SEGMENT		_{			SEGMENT	
	1	1 2	3	<u> </u>		1_1_	2	3	4
Traffic flow q	i		Ī	Ī	Chart 2	i	İ	i	Ì
veh/hour	777	777	777	į	[L10 dB(A)	71.1	71.1	71.1	į
Traffic speed V km/h	50	 60	60	 	Chart 4]	[i
Heavy vehicles p %	25	25	25	!	correction dB(A)] 2.6	3.2	3.2	
Gradient G %	ļ	8	8	[Chart 6 correction dB(A)	0	0	0	! !
Road surface	IMPRE.	DOWN	DOWN PRE.	 	correction dB(A)	-1	 -3.5	 -3.5	
	l	I		l	Basic Noise Level dB(A)	72.7	70.8	70.8]]
PROPAGATION									
			SEGMENT		- .]			SEGMENT	
	1	2] 3	4	I	1_1_	2	3	4
Shortest horizontal		1	1		1	ļ	1	1	
distance d m	•	54.5	60	[Chart 7	-6.6	-6.6	-6.9	ļ
Height relative to source h m	23.5 	23.2 	21 . 3 	<u> </u> -	correction dB(A)	1	[[[
Ave. height of propagation H m	n/a	n/a	n/a	<u> </u>	Chart 8	i	Ì	i	<u> </u>
Absorbent ground cover I		<u> </u>			correction dB(A)	1	İ	į	Ì
Barrier path difference m	1	!] 	Chart 9 correction dB(A)			l 	
					Propagation Correction dB(A)	-6.6	-6.6	-6.9	
SITE LAYOUT			SEGMENT		.l			SEGMENT	
	1	2	3	4	.}	1_1_	2	3	4
Facade] 		correction dB(A)	2.5 	2.5	2.5) i
Opposite facade angle deg.	į o	0	0		reflection correction dB(A)	0	0	0	
Angle of view segment deg.	40	 25 	27		Chart 10 correction dB(A)	-6.5	-8.6	-8.2	
	•	ı	1 1		Site Layout Correction dB(A)	-4.0	-6.1	-5.7	
COMBINING NOISE LEVELS								SEGMENT	
					Basic Noise Level dB(A)	72.7	70.8	70.8	4
					Propagation Correction dB(A)	 -6.6	-6.6	-6.9	
						3.5	0.0	0.7	
					Site Layout Correction d8(A)	-4.0	-6.1	-5.7	

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

62.1 | 58.1 | 58.2 |

64.6

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK WESTBOUND

BASE HOTSE EEVEL - GROOMP ETHE			•		_				
			SEGMENT		<u>-</u> ļ	ļ		SEGMENT	
	<u> _1</u>	2	1 3	1 4		ļ <u>_1</u>	2	1 3	 4
Traffic flow q		1 447	1		Chart 2	77]	
veh/hour	1224	447 	447 	447 	L10 dB(A)	73	68.7 	68.7 	68.7
Traffic speed V km/h	50	50	50	50	Chart 4	j	j	i	i
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	2.6
Gradient G %	1	ı	ı	ı	Chart 6 correction dB(A)	0	0	0	0
Road surface		IMPRE	VIOUS		correction dB(A)	-1	-1	-1	-1
	i				Basic Noise Level dB(A)	74.6	70.3	70.3	70.3
PROPAGATION					- _				
	ļ		SEGMENT		<u>-</u> !	ļ		SEGMENT.	
	<u> </u>	2	3	 4	.	<u> -1</u>	2	3	4
Shortest horizontal	1			! -/		!	- 4	!	!
distance d m	63	63	65	74 77 E	Chart 7	-7.1	-7.1	7.2	-7.7
Height relative to source h m	23.5 	23.5 	23.5 	23.5 	correction dB(A)	-	! }	 	! [
Ave. height of propagation H m	n/a	n/a	n/a	n/a	Chart 8	į	i	i	Í
Absorbent ground cover I		İ	į		correction dB(A)		!	j	
Barrier path difference m		i	1	İ	Chart 9 correction dB(A)				
					Propagation Correction dB(A)	-7.1	-7.1	-7.2	-7.7
<u>SITE LAYOUT</u>									
STIL EXION			SEGMENT			I		SEGMENT	
	<u> 1</u>	2	3	4	. <mark> </mark>	1_1	2	3	4
Facade		!	[[correction dB(A)	2.5	2.5	2.5	2.5
Opposite facade angle deg.	 	! 	! [! } !	reflection correction dB(A)				
Angle of view segment deg.	 49	37	25	27	Chart 10 correction dB(A)	-5.7	-6.9	-8.6	-8.2
		1	'	1	Site Layout Correction dB(A)	-3.2	-4.4	-6.1	-5.7
COMBINING NOISE LEVELS								YECHENT.	
SOMFOUND HATAF PRAFFA						<u> </u>	2 1	EGMENT 3	4
					Basic Noise Level dB(A)	74.6		70.3	
					Propagation Correction dB(A)	 -7.1	 -7.1	-7.2	-7.7
					Site Layout Correction dB(A)	 -3.2	-4.4	-6.1	-5.7
					Noise Contribution dB(A)	64.3	 _58.8_	57.0	56.9
						1			

Chart 11 Combined Noise Level dB(A)

66.5

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND

	ı ——		SEGMENT		- 1	<u></u>		SEGMENT	
	1_1_] 2	3	4	-	<u> 1</u>	2	<u> </u>	4
Traffic flow q	į	Ī	İ	Ī	Chart 2	j		Ī	
veh/hour	1322	758 	758	758	L10 dB(A)	73.4	70.9	70.9	70.9
Traffic speed V km/h	 50	50	 50	50	Chart 4		! 	İ]] ,
Heavy vehicles p %	25 	25] 25 I	25	correction dB(A)	2.6	2.6 	2.6	2.6
Gradient G %	! !	•		1	Chart 6 correction dB(A)	0	0	0	0
Road surface	ļ ļm	PREVIO	us		correction dB(A)	-1	-1	-1	-1
	I				Basic Noise Level dB(A)	75	72.5	72.5	72.5
PROPAGATION				_					
	 1		SEGMENT		.		S	SEGMENT	
Shortest horizontal		<u> </u>	1 3	4	. 		<u> ←</u> l	3	<u>4</u>
distance d m	69	1 69	l 69	84	Chart 7	 -7.5	-7.5	l -7 ₋ 5	-8.2
	•	•	•	23.5	correction dB(A)				
Ave. height of propagation H m	l In/a	r n/a	l n/a	l In/a	Chart 8	1]]	
Absorbent ground cover I		 	.,,		correction dB(A)				
Barrier path difference m					Chart 9 correction dB(A)				
					Propagation Correction dB(A)	-7.5	-7.5	-7.5	-8.2
0175 1 1V017									
SITE LAYOUT			SEGMENT		1			SEGMENT	
	1	! 2	1 3	4	.: 	i 1 I	2	3 I	4
Facade			 	 	correction dB(A)	2.5		2.5	
Opposite facade angle deg.		 	! 	 	reflection correction dB(A)				
Angle of view segment deg.	53	 33	! 24	1 28	Chart 10 correction dB(A)	-5.3	-7.4	-8.8	-8.1
		!	ı		Site Layout Correction dB(A)	-2.8	-4.9	-6.3	-5.6
·									
COMBINING NOISE LEVELS						<u> </u>	s	EGMENT	l
					Popis Naise Lauri 2044	1-1-	2 72 5	3	
					Basic Noise Level dB(A)	75 	72.5	72.5 	72.5
					Propagation Correction dB(A)	-7.5 	-7.5 	-7.5 	-8.2
					Site Layout Correction dB(A)	-2.8	-4.9	-6.3	<u>-5.6</u>
					Noise Contribution dB(A)	64.7	60.1	58.7	<u>58.7</u>

Chart 11 Combined Noise Level dB(A)

67.4

Rounding to the nearest whole number:

CASE NOISE LEVEL - ROUTE 7 UP RAMP

•	11		SEGMENT					SEGMENT	
	1	2	3	4	_İ	<u>j_1</u>	2	3	4
Traffic flow q			1	1	Chart 2	1	1	l	
veh/hour	564	564	564	!	L10 d8(A)	69.7	69.7 	69.7	l
Traffic speed V km/h	 50	 50.1	 50.1		 Chart 4	ĺ			
Heavy vehicles p %	25	25	25		correction dB(A)	2.6	2.6 	2.6 	
Gradient G %		 8 UP	 8 UP		Chart 6 correction dB(A)	0	2.4	2.4	
Road surface	IMPRE.		PRE.		correction dB(A)	-1	-3.5	-3.5	
Chart 5 (up ramp) V = 9.9 km/h	i	I		1	Basic Noise Level dB(A)	71.3	71.2	71.2	
PROPAGATION					- .				
1	<u> </u>		SEGMENT		-[<u> </u>		SEGMENT	
,	1	2_	3	4	-	_1	2	3	4
Shortest horizontal			Loc]	Chant 7	_0	 -8.1	 _0 0	
distance d m	80 27 E	82	99		Chart 7] -	; -0.1 1	-0.0 	1
Height relative to source h m	23.5 	23.2 	20.2 		correction dB(A)	 	 	l [
Ave. height of propagation H m	n/a	n/a	n/a	İ	Chart 8		l	1	
Absorbent ground cover I			1	ļ	correction dB(A)	!	 	•	
Barrier path difference m					Chart 9 correction dB(A)		 	1	
1	 				Propagation Correction dB(A)	-8	-8.1	-8.8	
SITE LAYOUT	,		SEGMENT		- 1			SEGMENT	
•	1	2	3	4	-: _}	1 1	2	3	4
Facade	į	[<u> </u>		correction dB(A)	2.5		2.5	
Opposite facade angle deg.	 0	 0	0		reflection correction dB(A)	0	0	 0	
Angle of view segment deg.	 33	 25	27]	Chart 10 correction dB(A)	-7.4	 -8.6	-8.2	
1	į	I	I	Ī	Site Layout Correction dB(A)	-4.9	-6.1	-5.7	!
COMBINING NOISE LEVELS								SEGMENT	
						_1	2	3	4
					Basic Noise Level dB(A)	71.3	71.2	71.2	
						! .!		!	
					Propagation Correction dB(A)	-8	-8.1	-8.8	
					Site Layout Correction dB(A)	-8 -8 -4.9	i	-8.8 -5.7	
·					·	 -4.9	i	 -5.7 	

Rounding to the nearest whole number:

CASE NOISE LEVEL - KENNEDY TOWN PRAYA

1	i		SEGMENT		I			SEGMENT	,
j	1	2	3	1 4	j	<u> </u>	2	3	4
Traffic flow q	1	Ì	Ì	İ	Chart 2	1		l	i
veh/hour	775		1]	L10 dB(A)	71		1	1
- 66°	70]	Chart 4	ļ		1	1
Traffic speed V km/h	30	ļ	!	j	•	, , ,		İ	1
Heavy vehicles p %	25	 	1	j I	correction dB(A)	2.2		!	
Gradient G %		1	1	ı	Chart 6 correction dB(A)	0		į	<u> </u>
Road surface	 	IMPREV	'IOUS		correction dB(A)	-1		ļ	
•					Basic Noise Level dB(A)	72.2		 	
PROPLETION.									
<u>PROPAGATION</u>			SEGMENT		1	1		SEGMENT	
i	1	2	3	[4	•	1	2	[3	4
Shortest horizontal		<u> </u>	l	1		1		1	[
distance d m	5	I	1	[Chart 7	-2.8		1	1
Height relative to source h m	24.5	ļ	!	1	correction dB(A)	!		ļ	
Ave. height of propagation H m	n/a			1	Chart 8	 0	1	 	į 1
Absorbent ground cover I	iya L	! 		l 	correction dB(A)	1			1
ADSOLDENT GLORING COVER 1		! 	ì	Ì	}	1		Ì	
Barrier path difference m		i	Ì	i	Chart 9 correction dB(A)			į	į
i					Propagation Correction dB(A)	-2.8		İ	İ
SITE LAYOUT						.——			
 	1	l 2	SEGMENT 1 3	1 4	. 		2	SEGMENT 1 3	I 4
Facade !		<u>-</u> -	<u> </u>	 	correction dB(A)	2.5		<u></u>	
İ		ί	j	i		j i		i	İ
Opposite facade angle deg.	0	i			reflection correction dB(A)	0 0			
Angle of view segment deg.	173	 		! !	Chart 10 correction dB(A)	2		! 	<u> </u>
ŀ		l	I	ı	Site Layout Correction dB(A)	2.3		! 	
COMBINING NOISE LEVELS		-				1		SEGMENT	
						1_1_	2	3	4
					Basic Noise Level dB(A)	72.2		[
					Propagation Correction dB(A)	-2.8		 	
					Site Layout Correction dB(A)	2.3		 	
					Noise Contribution dB(A)	71.7			

LOCATION B (AM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	64.6	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	66.5	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	67.4	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	62.2	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	71.7	dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1991

			SEGMENT		_[SEGMENT	
	<u> 1</u>	1 2	3	4		1_1	2	3	4
raffic flow q	i	1]	1	Chart 2	j	j		ĺ
eh/hour	911	911	Ì	į	L10 dB(A)	71.7	71.7		İ
raffic speed V km/h	30	30		! 	Chart 4				
leavy vehicles p %	25 	25			correction dB(A)	2.2	2.2	 	
radient G %		1	1	'	Chart 6 correction dB(A)	0	0		
oad surface		IMPRE	VIOUS		correction d8(A)	-1	-1		
	•				Basic Noise Level dB(A)	72.9	72.9		
ROPAGATION					.				
			SEGMENT		.[ļ		EGMENT	
hontest honizontal	1	2	3	4	-} !	1_1_	2	3	<u> </u>
hortest horizontal listance d m	1 6	 6.5	J 1	!	i Chart 7	! 	 -3.3		i
eight relative to source h m	,	27.5	1		correction dB(A)	c.c-	C.C C.C] 	! !
eight retained to source II III	151.0		i	1	Correction co(n)				ŀ
ve. height of propagation H m	l n/a	l n/a	i	i	Chart 8	0	. 0) 	l
bsorbent ground cover I	""	, .,, <u>~</u> 	Ì	i	correction dB(A)			! 	i
	i	i	i	i		i 1	i		i
arrier path difference m	į	i	i	i	Chart 9 correction dB(A)		į		į
	l				Propagation Correction dB(A)	-3.3	-3.3		
ITE LAYOUT	1		SEGMENT		I	ı ——		EGMENT	
	1 1	l 2	1 3	1 4	·1 	i 1 1	2 1	3	1 4
acade	İ]	l		correction dB(A)	2.5	2.5		
	Ì	İ	į	į	j	i i	į		İ
pposite facade angle deg.		 	! !	 	reflection correction dB(A)	0	0		
ngle of view segment deg.	135] 36 i	[<u> </u> 	Chart 10 correction dB(A)	-1.2	-7.0	į	
	'	•	1	•	Site Layout Correction dB(A)	1.3	-4.5		
OMBINING NOISE LEVELS								COMENT	
GRAND HOLDE LEVELD						1	2 i	EGMENT 3 1	4
					Basic Noise Level dB(A)	72.9			
					THE RESIDE LETSE GUILAY	''	, E., 7 	l I	
					Propagation Correction dB(A)	-3.3	-3.3	ļ	
						1 1	ŀ		
					Site Layout Correction dB(A)	1.3	<u>-4.5</u>	i	

Chart 11 Combined Noise Level dB(A)

71.9

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION C (AM) 28m above ground BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1996 SEGMENT SEGMENT 2 Chart 2 Traffic flow q 72.2 | 72.2 |1000 1000 L10 dB(A) veh/hour Chart 4 30 30 Traffic speed V km/h correction dB(A) 2.2 | 2.2 | 25 25 Heavy vehicles p % Chart 6 correction dB(A) O 0 Gradient G % IMPREVIOUS correction dB(A) -1 Road surface Basic Noise Level dB(A) 73.4 | 73.4 **PROPAGATION** SEGMENT SEGMENT Shortest horizontal -3.3 | -3.3 distance d m 6 1 6.5 Chart 7 27.5 correction dB(A) Height relative to source h m |27.5 Chart 8 Ave. height of propagation H m | n/a n/a correction dB(A) Absorbent ground cover I Chart 9 correction dB(A) Barrier path difference Propagation Correction dB(A) | -3.3 | -3.3 | SITE LAYOUT SEGMENT SEGMENT 4 correction dB(A) Facade 0 0 Opposite facade angle deg. reflection correction dB(A) Chart 10 correction dB(A) -1.2 | -7.0 Angle of view segment deg. 135 36 Site Layout Correction dB(A) 1.3

COMBINING NOISE LEVELS		1	9	EGMENT	
		1	2	3	4
	Basic Noise Level dB(A)	73.4	73.4		İ
	Propagation Correction dB(A)	-3.3	-3.3		
	Site Layout Correction dB(A)	1.3	-4.5		
	Noise Contribution dB(A)	71.4	65.6]
	Chart 11 Combined Noise Level dB(A)	! }	72.4		

Rounding to the nearest whole number:

	1		SEGMENT		_[I		SEGMENT	
	i 1	1 2	3	14		1	2	[3	1 4
raffic flow q	i	Ī	i	i	Chart 2	i	j	Ī	Ì
reh/hour	564	564	564	į	£10 dB(A)	69.7	69.7	69.7	ĺ
raffic speed V km/h	 50	l 50.1	 50.1	¦	Chart 4	1	1		
leavy vehicles p %	25	25	25		correction dB(A)	2.6	2.6	2.6	ŀ
Gradient G %	!]]	 8 UP	 8 UP		Chart 6 correction dB(A)	0	2.4	2.4	! [
toad surface	IMPRE.		PRE.	į	correction dB(A)	į -1	-3.5	-3.5	į
hart 5 (up ramp) V = 9.9 km/h	1	l		I	 Basic Noise Level dB(A)	71.3	71.2	71.2	
ROPAGATION					- .				
	!		SEGMENT		_[ļ		SEGMENT	
Shortest horizontal	1	2	3	4	-[_1	5] 3	4
nortest norizontal Histance d m	l 1 73	 71	 78.5	I I	l Chart 7	1 -7.7	-7.6	! -8	l l
	26.5	'' 25	123.7	!	correction dB(A)	1 -7.7	1 7.0	1	
ergift retative to source in in	120.5	رع _ا	23.1	 	Correction data;	i	1	1	!
we. height of propagation K m	п/а	n/a	n/a	ί	Chart 8	i	i	İ	İ
bsorbent ground cover I	Ì	ĺ	İ	İ	correction dB(A)	į	İ	į	İ
arrier path difference m	[1]	Chart 9 correction dB(A)	1]
	i	•	•	•	1	i	<u>i</u>	<u>i </u>	•
	I				Propagation Correction dB(A)	-7.7	-7.6	-8	1
SITE_LAYOUT									
	ſ <u></u>		SEGMENT		_ _1	1	,	SEGMENT	
	1_1_	2	3	4	_ļ	1_1_	2	3	4
acade	 		 	 	correction dB(A)	2.5 	2.5 	2.5 	
opposite facade angle deg.	0	0	0	 	reflection correction dB(A)	0	0	0	
ngle of view segment deg.	 30	46	 36	ļ [Chart 10 correction d8(A)	-7.8	-5.9	 -7.0	
	! !		1	l	Site Layout Correction dB(A)	-5.3	-3.4	-4.5	
OMBINING NOISE LEVELS						[SEGMENT	
					Paris Naiss towal dress	1 74 7	2	3	4
•					Basic Noise Level dB(A)	71.3	71.2	71.2	
					Propagation Correction dB(A)	 -7.7	 -7.6	 -8	
					riopagation correction us(A)	1 -1.1	-1.0	-0	

Site Layout Correction dB(A)

58.3 | 60.2 | 58.7 |

63.9

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND

٦	I		SEGMENT		•	SEGMENT					
1	1] 2	3	4	-1 1	1 1	2	3	4 .		
Traffic flow q		i	i	i	Chart 2	i	j	İ	i		
veh/hour	1322	758	j 758	758	L10 dB(A)	73.4	70.9	70.9	70.9		
Traffic speed V km/h	50	50	50	50	Chart 4	i	i	i			
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	2.6		
Gradient G %	j	i	I	1	Chart 6 correction dB(A)	0	 0	0	0		
Road surface	ļ	IMPRE	evious		correction dB(A)	-1	-1	-1	-1		
	I				Basic Noise Level dB(A)	75	72.5	72.5	72.5		
PROPAGATION					•						
i :	ļ		SEGMENT		.	<u> </u>		SEGMENT			
,	<u> 1 </u>	2	3	4	.ļ	_1	2	3	4		
Shortest horizontal			(6		I Shoot 7	1	74	-			
distance d m	61	61	60	66.5	Chart 7	-7.1	-7.1	-7	-7.4		
Height relative to source	enm 26.5 	26.5 	26.5 	26.5 	correction dB(A)] 	 			
Ave. height of propagation	on Him n/a	n/a	n/a	n/a	Chart 8	1	!				
Absorbent ground cover I		† 			correction dB(A)]	i I	 			
Barrier path difference	m	i	Ì	İ	Chart 9 correction dB(A)	į	 	 			
	i				Propagation Correction dB(A)	-7.1	-7.1	-7	-7.4		
SITE LAYOUT											
	1		SEGMENT	•	.1]		SEGMENT			
	1	2] 3	4	.l	1 1	2	3	4		
Facade			 		correction dB(A)	2.5	2.5	2.5	2.5		
Opposite facade angle de	g.	į	į	<u> </u>	reflection correction dB(A)						
Angle of view segment de	eg. 26	26	46	36	Chart 10 correction dB(A)	-8.4	-8.4	-5.9	-7.0		
	•	•	•		Site Layout Correction dB(A)	-5.9	-5.9	-3.4	-4.5		
COMBINING NOISE LEVELS						1	s	EGMENT			
						1	2	3]	4		
					Basic Noise Level dB(A)	75	72.5	72.5	72.5		
					Propagation Correction dB(A)	 -7.1	-7.1	-7 -7	-7.4		
					Site Layout Correction dB(A)	 -5.9	-5.9	-3.4	-4.5		
					Noise Contribution dB(A)	62.0	59.5	62.1	60,6		
				Chart	11 Combined Noise Level dB(A)	İ	66.1				

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND

	I		SEGMENT			1		SEGMENT	
	1_1_] 2	3	4		1_1_	2	1_3	1 4
Traffic flow q	1			1	Chart 2]	1	•
veh/hour	1322	758 	758 	758	L10 dB(A)	73.4	70.9	70.9	70.9
Traffic speed V km/h	50	50	50	50	Chart 4	i	j	İ	; [
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	2.6
Gradient G %	į	1	1		Chart 6 correction dB(A)	0	0	0	! (!
Road surface		IMPRE	SUOIS		correction dB(A)	-1	-1	l -1	! -1
	I				Basic Noise Level dB(A)	75	72.5	72.5	72.5
PROPAGATION	,								
	 1	1 2	SEGMENT I 3	 4		1 1	i 2	<u>SEGMENT</u> I 3	l 4
Shortest horizontal	<u> </u>	1 -	1 3	<u> " </u>		 '	<u></u>	<u> </u>	- 7
distance d m	 61	61	l l 60	166.5	Chart 7	-7.1	 -7.1	 -7	 -7.4
Height relative to source h m	26.5	26.5	26.5	26.5	correction dB(A)				
Ave. height of propagation H m	l ∣n/a	l n/a	l In/a	l l n/a	Chart 8	1	! !	! !	
Absorbent ground cover I	""	""	""	.,,,	correction dB(A)	•	<u> </u> 	<u> </u>	
Barrier path difference m		i			Chart 9 correction dB(A)		! 	! 	
	1]	Propagation Correction dB(A)	-7.1	-7.1	-7	-7.4
SITE LAYOUT									
	J		SEGMENT				ţ	SEGMENT	
	1_1_	<u> 2</u>	3	4_		_1	2	3	4
Facade]	 	! !] [correction dB(A)	2.5 	2.5	2.5	2.5
Opposite facade angle deg.	į	į	į	i i	reflection correction dB(A)				
Angle of view segment deg.	26	26	46	36	Chart 10 correction d8(A)	-8.4	-8.4	-5.9	-7.0
	•	•	•	'	Site Layout Correction dB(A)	-5.9	-5.9	-3.4	-4.5
COMBINING NOISE LEVELS						1		EGMENT	
						1 1	2	3 1	4
					Basic Noise Level dB(A)	75	72.5		72.5
				;	Propagation Correction dB(A)		-7.1	-7	-7.4
				:	Site Layout Correction dB(A)	-5.9	-5.9 -5.9	-3.4	-4 <u>.</u> 5
				1	Noise Contribution dB(A)	 62.0	59.5	62.1	60.6
				Chart 1	1 Combined Noise Level dB(A)	1	67.2		

Rounding to the nearest whole number:

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP

			SEGMENT		.1]		SEGMENT	
	<u> 1 </u>	2	3	4		1_1_	2	3	4
Traffic flow q	1			1	Chart 2	1	1	[.	
veh/hour	777	777	777		L10 dB(A)	71.1	71.1	71.1	
Traffic speed V km/h	50	 60	60	<u> </u>	Chart 4	¦	 	! 	
Heavy vehicles p %	25	25	25		correction dB(A)	2.6	3.2	3.2	
Gradient G %		! 8	 8	! 	Chart 6 correction dB(A)	0	 0]] 0	
Road surface	 IMPRE.	DOWN PRE.	DOWN PRE.	[[correction dB(A)	-1	 -3.5	 -3.5] !
	i	i	•	i	İ	i	<u> </u>	<u> </u>	
					Basic Noise Level dB(A)	/2./	70.8	70.8	
PROPAGATION			CECHENT	-	<u>.</u>	,		PECMENT	
	1	l 2	SEGMENT I 3	1 4	.i !		l 2	SEGMENT 1 3	4
Shortest horizontal	 		<u> </u>	 *	.l 	! 	<u></u>	<u>د ا</u>	- 4
	41.5	 41.5	43	! 	Chart 7	 -5.8	-5.8	 -5.8	
	•	•	24.2	! 	correction dB(A)	7.0	, , I	J.U 	
		, I		<u>.</u>		i		i i	
Ave. height of propagation H m	l l n/a	l n/a	n/a	İ	Chart 8	i			
Absorbent ground cover I		, , -	, . , -	! 	correction dB(A)	i			
	i	i	i i	ĺ		i			
Barrier path difference m	į	İ	i i	İ	Chart 9 correction dB(A)				
	1				Propagation Correction dB(A)	-5.8	-5.8	-5.8	
SITE LAYOUT			SEG N EUT					SECMENT	
SITE LAYOUT	 		SEGMENT	1 4	!			SEGMENT	
· · · · · · · · · · · · · · · · · · ·	 1	1 2	SEGMENT	4	 - correction dB(A)	 _1 2.5	2	3	4
Facade		2	3 	4	 correction dB(A) 	2.5	2.5	2.5	4
Facade	1 0			4	 - correction dB(A) - reflection correction dB(A)	ı—	2	3	4
· · · · · · · · · · · · · · · · · · ·		2	3 	4	i	2.5	2.5	2.5	4
Facade Opposite facade angle deg.	0) 2 0	3 0 0	4	reflection correction dB(A)	2.5	2.5 0	2.5 0 -7.0	4
Facade Opposite facade angle deg.	0) 2 0	3 0 0	4	reflection correction dB(A) Chart 10 correction dB(A)	2.5	2.5	2.5 0 -7.0	4
Facade Opposite facade angle deg.	0) 2 0	3 0 0	4	reflection correction dB(A) Chart 10 correction dB(A)	2.5	2 2.5 0 -5.9 -3.4	3 2.5 0 -7.0 -4.5	
Facade Opposite facade angle deg. Angle of view segment deg.	0) 2 0	3 0 0	4	reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A)	2.5	2 2.5 0 -5.9 -3.4	3 2.5 0 -7.0 -4.5	4
Facade Opposite facade angle deg. Angle of view segment deg.	0) 2 0	3 0 0	4	reflection correction dB(A) Chart 10 correction dB(A)	2.5	2 2.5 0 -5.9 -3.4	3 2.5 0 -7.0 -4.5	-
Facade Opposite facade angle deg. Angle of view segment deg.	0) 2 0	3 0 0	4	reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A)	2.5	2 2.5 0 -5.9 -3.4 S 2 70.8	3 2.5 0 -7.0 -4.5	-
Facade Opposite facade angle deg. Angle of View segment deg.	0) 2 0	3 0 0	4	reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A)	2.5	2 2.5 0 -5.9 -3.4 s 5.8	3 2.5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-

Chart 11 Combined Noise Level dB(A)

66.1

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA

DASE HOUSE LEVEL KENNEDT TOWN	H FRAIA								
			SEGMENT		_ _{	1		SEGMENT	
	1_1_	1_2_] 3	4	_[1_1_	2	3	1 4
Traffic flow q	ļ	1	1	1	Chart 2		ļ	!	ļ
veh/hour	775	775 			L10 dB(A)] 71	71 	<u> </u>	
Traffic speed V km/h	30	30	i	i	Chart 4	i		i	i
Heavy vehicles p %	25	25			correction dB(A)	2.2	2.2		
Gradient G %	ļ.	1	ı	J	Chart 6 correction dB(A)	0	0	! 	
Road surface	1	IMPRE	VIOUS		correction dB(A)	-1	-1		
	I				Basic Noise Level dB(A)	72.2	72.2	! 	[
PROPAGATION					_		<u>.</u>		
			SEGMENT		_l	1		SEGMENT	
	1	2	3	4	_	1	2	3	4
Shortest horizontal	1]	ļ	ļ	!]	! _ ;		
distance d m	6	6.5	!	ļ	Chart 7	-3.3	-3.3	Į.	!
Height relative to source h m	27.5 	27.5] 1	correction dB(A)		 	1	j i
Ave. height of propagation H m	n/a	i n/a] 	 Chart 8	1 0	0		1
Absorbent ground cover I		i	i	i	correction dB(A)	i	j		i
	i	i	Ì	j	İ	j i			i
Barrier path difference m	1	I	l	l	Chart 9 correction dB(A)	1] 	ļ	
	i				Propagation Correction dB(A)	-3.3	-3.3		İ
SITE LAYOUT	,		SEGMENT		- I	,——	<u> </u>	SEGMENT	
	1	2] 3	4	 -	1 1	2	3	[4
Facade			1	[correction dB(A)	2.5	2.5		
Opposite facade angle deg.		 	! !	! !	reflection correction dB(A)				! !
Angle of view segment deg.	135] 36	 	! !	Chart 10 correction dB(A)	-1.2	 -7.0		!
	1	r		J	Site Layout Correction dB(A)	1.3	-4.5		! !
									···
COMBINING NOISE LEVELS						<u> </u>		EGMENT	
					Basic Noise Level dB(A)	72.2	72.2	3	4
					DESTO NOTSE LEVEL UD(A)	12.2	12.2		!
					Propagation Correction dB(A)	-3.3	-3.3]
					Site Layout Correction dB(A)	1.3	-4.5	İ	:
					Noise Contribution dB(A)	70.2	_6 <u>4.4</u>	 	
						1			

Chart 11 Combined Noise Level dB(A)

71.2

LOCATION C (AM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	66.1	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	66.1	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	67.2	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	63.9	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	71.2	dB(A)

Rounding to the nearest whole number:

INCATION C (AN) . Deadicted value of 110 (1-hour) dR(A) ie 75

BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1991

i	l		SEGMENT		·	1		SEGMENT	
!	1_1	2	3_	<u> </u>		1 1	2	3	4
Traffic flow q	l	I		1	Chart 2				
veh/hour	700	700	700		L10 dB(A)	70.6	70.6	70.6	
 	i i 30	l I 30	l I 30	; ;	Chart 4	· .] 	ĺ
Heavy vehicles p %	25	25	25	i i	correction dB(A)	2.2	2.2	2.2	i
Gradient G %		I	I		Chart 6 correction dB(A)	0	0	0	
Road surface		THODE	vious	į	correction dB(A)		-1	-1	! f
koad surrace		IMPRE	¥1003	i		i			ĺ
					Basic Noise Level dB(A)	71.8	71.8	71.8	j
PROPAGATION									
			SEGMENT	,				SEGMENT	
	_1	2	3	1 4		_1_	2	3	4
Shortest horizontal		! ,	! ,] ;	Chant 7	-2 2	_ 3 3	_	
distance d m	4 21.5	4 21.5	4 21.5	1 [Chart 7	-2.2	-2.2	-2.2	
Height relative to source h m 	21.3	 		ı (correction d8(A)		 	i 	
Ave. height of propagation H m	n/a	n/a	n/a	į į	Chart 8	j oj	0	0	
Absorbent ground cover I		į	İ	įį	correction dB(A)				, I
Barrier path difference m		! 			Chart 9 correction dB(A)]			
! !				;	Propagation Correction dB(A)	-2.2	-2.2	-2.2	
SITE LAYOUT	, <u> </u>		SEGMENT	ı		1	S	SEGMENT	
j	1	2	3	4		<u> 1 </u>	2	3	4
,		ı	i	į į	correction dB(A)	1 2 5 1	~ F i	2.5	
Facade [! !	ļ	1 J	TOTAL TOTAL	2.5	2.5	;	
i		! ! 	 	1	reflection correction dB(A)	2.5	2.5 0	0]	
Facade Opposite facade angle deg. Angle of view segment deg.	34	 120	 21				į	j 1 0 1	
Opposite facade angle deg. 	34	 	 21		reflection correction dB(A)		0 -1.8	j 1 0 1	
Opposite facade angle deg. 	34	 120	 21]	reflection correction dB(A) Chart 10 correction dB(A)	0 0 -7.2	0 -1.8	0] 1 -9.3 1 -9.3	
Opposite facade angle deg.	34	 120	 21 		reflection correction dB(A) Chart 10 correction dB(A)	0 0 -7.2	0 -1.8 -7	0] 1 -9.3 1 -9.3	
Opposite facade angle deg.	34	 120	 21 		reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A)	0 0 -7.2	0 -1.8 -7 s	0 -9.3 -6.8	4
Opposite facade angle deg. Angle of view segment deg.	34	 120	 21 	I I I I I I I I I I I I I I I I I I I	reflection correction dB(A) Chart 10 correction dB(A)	0 -7.2 -4.7	0 -1.8 -7	0 -9.3 -6.8	4
Opposite facade angle deg. 	34	 120	 21 		reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A)	0 -7.2 -4.7	0 -1.8 .7 	0 -9.3 -6.8 EGMENT 3 71.8	
Opposite facade angle deg. 	34	 120	 21 	F	reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A)	0 -7.2 -4.7 1 71.8	0 -1.8 -7 	0 -9.3 -6.8 EGMENT 3 71.8	
Opposite facade angle deg. Angle of view segment deg.	34	 120	 21 	F	reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A) Propagation Correction dB(A)	0 -7.2 -4.7 1 71.8 -2.2	0 -1.8 -7 -2.2	0 -9.3 -6.8 -6.8 71.8 -2.2 	

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1996

•			CECHEN		-	1		SEGMENT	
	!—— ! 1	l 2	<u>SEGMENT</u> I 3	1 4	I I		l 2	1 3	1 4
m . 665 - 61	<u> </u>	1 -	13_	1 4	-! 1 Chart 2	'	1	-	<u> </u>
Traffic flow q) 0/7		1 9/7	1	l L10 dB(A)	 71 /	 71 /	71.4	! !
veh/hour	847 	847 	847	} 	I LIU GB(A)	/1.4	/1- 4] / 1.44]	i [
Traffic speed V km/h	30	30	30	i	Chart 4	i	i	i	i
Heavy vehicles p %	25	25	25	í	correction dB(A)	į 2.2	2.2	2.2	ĺ
	İ	i	ĺ	İ	İ	ĺ	ĺ		
Gradient G %	1				Chart 6 correction dB(A)	0	0	0]
	ļ		•				!	!	!
Road surface		IMPRE	VIOUS		correction dB(A)	-1	-1	-1	
	<u>[</u>					72.6	1 72.6	72.6	!
					שמייט אסוטב בבירני מטנאי	1 12.0	, , , , ,	, ,	'
PROPAGATION					_				-
	l		SEGMENT		<u>-</u>	<u> </u>		SEGMENT	
	<u> 1 </u>	1 2	3	4	-	<u> -1</u>	<u> </u>	3	4
Shortest horizontal	!]	! .	1					ļ
distance d m	4	4	4	!	Chart 7	-2.2	-2.2	-2.2	ļ
Height relative to source h m	21.5	21.5	21.5	1	correction dB(A)	1	[] 1	
Ave. height of propagation H m	l n/a	 n/a	l In/a	1	l Chart 8	1 0	l I 0	l I 0	l
Absorbent ground cover I	1 11/a 1	11/ a 	11 <u>7</u> a	ŀ	correction dB(A)	1	"	"	l I
Absorbent ground cover 1	! [¦	 	1	CONTECTION CB(X)	1 	! 	! !	!
Barrier path difference m	İ	1	i	i	Chart 9 correction dB(A)	i	į	ĺ	
	[l Banasatian O Aire (BAN)	<u> </u>	<u> </u>		
	l				Propagation Correction dB(A)	-2.2	-2.2	-2.2	l
SITE LAYOUT									
•			SEGMENT	Γ		i		SEGMENT	
	1	2	3	4	. <mark>.</mark>	1_1	2	3	4
Facade			Į	[correction dB(A)	2.5	2.5	2.5	
		ļ	ļ	!]	<u> </u>		
Opposite facade angle deg.			1		reflection correction dB(A)	0	0	0	
Angle of view segment deg.	34	 120	 21	1	Chart 10 correction dB(A)	-7.2	l I -1₋8 I	 -9.3	
g.t or tron organome wag.	, ,,,		"'		Share to correction up(x)				
•	•	•	-	•	Site Layout Correction dB(A)	-4.7	.7	-6.8	
COMBINING NOISE LEVELS			-			1	ç	SEGMENT	
						1 1	2 [3 i	4
					Basic Noise Level dB(A)	72.6		72.6	
						i i	j	į	
					Propagation Correction dB(A)	-2.2	-2.2	-2.2	
					Pito I mout Conscition dP(1)		, ,		
					Site Layout Correction dB(A)	-4.7	.7	<u>-6.8</u>	
					Noise Contribution dB(A)	65.7	71.1	63.6	
				Chart	11 Combined Noise Level dB(A)	1	72.8		

Rounding to the nearest whole number:

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP

BASE NOISE LEVEL - ROUTE 7 DOWN	KAM				•				
			SEGMENT		- I	1		SEGMENT	
	1	2	3	4	-, _	1	2	3	4
Traffic flow q	j	ĺ	İ	ĺ	Chart 2	1		1	
veh/hour	978	978	978	978	L10 dB(A)	72.1	72.1	72.1	72.1
Traffic speed V km/h	 60	 60	60	 60	 Chart 4	1] 	! 	
Heavy vehicles p %	25	25	25	25	correction dB(A)	3.2	3.2	3.2	3.2
Gradient G %	 8	 8	 8	! 	Chart 6 correction dB(A)	0	 0	 0	 0
	DOWN	DOWN	DOWN	į		į	į	į	
Road surface	PRE.	PRE.	PRE.	PRE.	correction dB(A)	-3.5 	-3.5 	-3.5 	-3.5
	•	•			Basic Noise Level dB(A)	71.8	71.8	71.8	71.8
PROPAGATION					_				<u></u>
	<u> </u>		SEGMENT		-!	ļ		SEGMENT	
et		<u> 2</u>	3	4	- !	_1	2	3	4
Shortest horizontal	}			1 70	h object 7				
distance d m	27	21	24.5	30	Chart 7	-3.9	-3.1	-3.0	-4.1
Height relative to source h m	14.7 	13.9 	13.5 	11.2 	correction dB(A)]	[
Ave. height of propagation H m	n/a	n/a	n/a	n/a	Chart 8	į o	j o	j o	j o
Absorbent ground cover I	į	į	İ	į	correction dB(A)	į	į	į	į
Barrier path difference m	.37	I] .53	.38	1 .17	Chart 9 correction dB(A)	2	1	2	 7
	İ				Propagation Correction dB(A)	-4-1	-3.2	-3.8	-4.8
SITE LAYOUT			SEGMENT		<u>.</u>	.—		SEGMENT	
	 1	l 2	3 <u>556MENT</u>	4	-1 }		i I 2	i 3	4
Facade	<u> </u>			<u> </u>	correction dB(A)	2.5	2.5		2.5
Opposite facade angle deg.	0	0	0	 0	reflection correction dB(A)	0	0	0	! 0
Angle of view segment deg.	40	72	 42	 21	Chart 10 correction dB(A)	-6.5	-4.0	-6.3	 -9.3
			ł		Site Layout Correction dB(A)	-4.0	-1.5	-3.8	-6.8
COMBINING NOISE LEVELS								EGMENT	
					Paris Nation Laure 1944	1 1	2	3	4
					Basic Noise Level dB(A)	71.8 	71.8	71.8	71.8
					Propagation Correction dB(A)	-4.1	-3.2	-3.8	-4.8
					Site Layout Correction dB(A)	-4.0	-1.5	-3.8	-6.8
					Noise Contribution dB(A)	 63.6	67.1	64.2	60.2
						l			

Chart 11 Combined Noise Level dB(A)

70.46

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK WESTBOUND

3 4 69.8 69.1 2.6 2.1 0 6 -1 - 71.4 71.1 GMENT 3 4 -4.6 -5.1
2.6 2.6 0 0 0 0 0 0 0 0 0
2.6 2.6 0 0 0 0 0 0 0 0 0
0 -1 -71.4 71.4
0 -1 -71.4 71.4
-1 - 71.4 71.4 GMENT 3 4 -4.6 -5.1
71.4 71.4 GMENT 3 4 -4.6 -5.1
GMENT 3 4 -4.6 -5.
3 4 -4.6 -5.:
3 4 -4.6 -5.:
-4.6 -5.:
0
0
i I
i I
2 3
2 3
-4.8 -5.
GMENT
3 4
2.5 2.5
0 (
-3.7 -8.2
1.2 -5.7
GMENT
3 4
71.4 71.4
4.8 -5.5
1.2 -5.7

Chart 11 Combined Noise Level dB(A)

68.5

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND

	1		SEGMENT		_[-	SEGMENT	
	1 1	2	3	4	_i	1	2	3	4
Traffic flow q		1		1	Chart 2		1		ĺ
veh/hour	532 	532	532 	532 	1 L10 dB(A)	69.4 	69.4	69.4 	69.
Traffic speed V km/h	50	50	50	50	Chart 4	į		<u> </u>	į _
Heavy vehicles p %	25	25 	25	25 	correction dB(A)	2.6	2.6 	2.6] 2.
Gradient G %	<u> </u>	ı	1	1	Chart 6 correction dB(A)	0	0	0	
Road surface	<u> </u>	IMPREV	rous		correction dB(A)	-1	 -1	-1	-
	l				Basic Noise Level dB(A)	71	71	71	7
PROPAGATION					• ·				
			SEGMENT		-!	<u> </u>		SEGMENT.	
Shortest horizontal	1	2	3	4	-{	_1	2	3	4
distance d m	} 50	 41]] 41	I 45.5	 Chart 7	1 -6 2	 -5.5	 -5.5	l -5.9
	20.5	20.5	1 20	20	correction dB(A)	1 -0.2	} -J	כ.כי ן ו	ן ייכי ן
nerght retailive to source ii iii	1	20.5 	1 20	1 20	I	1	l I	! !	!
Ave. height of propagation H m	l In/a	n/a	l In/a	n/a	l Chart 8	. 0	! 0	. 0] } (
Absorbent ground cover I	""		""	""	correction dB(A)				
Barrier path difference m] .17	 .25	.24	 .19	Chart 9 correction dB(A)	7	 4	4	 «
,					Propagation Correction dB(A)	-6.9	-5.9	-5.9	-6.5
SITE LAYOUT	.——								
	 1		SEGMENT		-			SEGMENT	
Facade	<u> </u>	2	3	4	. correction dB(A)	2.5	2.5	3	3.5
i acauc		! 	 		Correction db(x)	2.5	2.5	2.5 	2.5
Opposite facade angle deg.	35	33 	0	0	reflection correction dB(A)	1.5	1.5	0	0
Angle of view segment deg.	35	33	70	25	Chart 10 correction dB(A)	-7.4	-7.4	-4.1	-8.6
	1	,	1	1	Site Layout Correction dB(A)	-3.4	-3.4	-1.6	-6.1
COMPINING MOTER LEVELS						, 		COMPLIE	
COMBINING NOISE LEVELS							2 1	EGMENT 3 I	4
					Basic Noise Level dB(A)	71	71	71	71
			*		Propagation Correction dB(A)	 -6.9	-5.9	-5.9	-6.5
						1 1	1	1	
					Site Layout Correction dB(A)	-3.4	-3.4	-1.6	-6.1

Chart 11 Combined Noise Level dB(A)

67.5

Rounding to the nearest whole number:

SEGMENT 1 2 3 4	i	2.6 2.4 -3.5 68 -6.5 0 0	 2.6 2.4 -3.5	66
Traffic flow q veh/hour	2.6 2.4 -3.5 68 -7.1 0 -1.5	2.6	2.6 2.4 -3.5 68	
275 275 275 275 275 10 dB(A)	2.6 2.4 -3.5 68 -7.1 0 -1.5	2.6	2.6 2.4 -3.5 68	
Reavy vehicles p % 25 25 25 25 correction dB(A)	2.4 -3.5 68 1 -7.1 0 -1.5	2.4 -3.5 68 68	2.4 -3.5 68 SEGMENT 3 -6.6	
8	2.4 -3.5 68 1 -7.1 0 -1.5	2.4 -3.5 68 68	2.4 -3.5 68 SEGMENT 3 -6.6	
Road surface UP UP UP PRE. PRE. PRE. Correction dB(A)	-3.5 68 1 1 -7.1 0 -1.5	-3.5	-3.5 68 58 68 -6.6 0	6
PRE. PRE. PRE. PRE. PRE. Correction dB(A)	68	68	68 68 3 -6.6 0	6
PROPAGATION SEGMENT	 1 -7.1 0 -1.5	2 -6.5 0	3 -6.6 0	
SEGMENT	-7.1	2 -6.5 0	3 -6.6 0 	-0
1	-7.1	2 -6.5 0	3 -6.6 0 	-0
Shortest horizontal distance d m 65 55 57 61 Chart 7 Chart 7 Chart 7 Correction dB(A) Chart 8 Correction dB(A) Chart 9 Chart 10 Chart 9 Chart 10 Chart 9 Chart 10 Chart 9 Chart 10 Cha	-7.1	 -6.5 0	 -6.6 0 	
distance d m 65 55 57 61 Chart 7 Height relative to source h m 16.2 14.7 13.5 11.2 correction d8(A) Ave. height of propagation H m n/a n/a n/a n/a Chart 8 Absorbent ground cover I Barrier path difference m .07 .08 .06 .03 Chart 9 correction dB(A) Propagation Correction dB(A) SITE LAYOUT Facade	0 -1.5	 0 	 0 	
Height relative to source h m 16.2 14.7 13.5 11.2 correction dB(A) Ave. height of propagation H m n/a n/a n/a n/a Chart 8 Absorbent ground cover 1	0 -1.5	 0 	 0 	
Ave. height of propagation H m n/a n/a n/a n/a correction dB(A) Barrier path difference m .07 .08 .06 .03 Chart 9 correction dB(A) Propagation Correction dB(A) SITE LAYOUT Facade	-1.5			 -2
Absorbent ground cover I	-1.5			 -2
Absorbent ground cover I	-1.5			 -2 -2
Facade Opposite facade angle deg. On a correction dB(A) Opposite facade angle deg. On a correction dB(A) Opposite facade angle deg. On a correction dB(A) Opposite facade angle deg. On a correction dB(A) Opposite facade angle deg. On a correction dB(A) Opposite facade angle deg. On a correction dB(A)	i	-1.3	-1.7	 -?
SEGMENT 1 2 3 4	-8.6	1		
		-7.8	-8.3	-9
SEGMENT				
1 2 3 4	,		SEGMENT	
Facade	1 1	I 2	1 3	4
Angle of view segment deg. 35 69 33 35 Chart 10 correction dB(A)	2.5	•	****	•
	0	[0	0	
i Site Layout Correction dB(A)	-7.1	! -4.2	 -7.4	 -7
	-4.6	-1.7	-4.9	-4
COMPANY NO NOTOS A STATE O				
COMBINING NOISE LEVELS			SEGMENT	
Basic Noise Level dB(A)	68	<u> </u>	<u>3</u> 68	66
Propagation Correction dB(A)	i -8.6	 -7.8	İ	 -9
		İ	j	i
Site Layout Correction dB(A)	4.6			-4
Noise Contribution dB(A)]	-1.7 	<u> -4.9</u>	1

Chart 11 Combined Noise Level dB(A)

61.7

Rounding to the nearest whole number:

	1		SEGMENT			1	9	SEGMENT	
	1 1	1 2	1 3 I	4		1	1 2	i 3	4
Traffic flow q	i		,		Chart 2	i	<u> </u>	<u></u>	 -
veh/hour	942	942	942		L10 dB(A)	71.9	71.9	71.9	İ
	i	i	i i		• •	i	i	i	i
Traffic speed V km/h	j 30	30	j 30 j		Chart 4	i	į į	İ	İ
Heavy vehicles p %	25	25	į 25 į		correction dB(A)	2.2	2.2	2.2	İ
	ĺ	İ	i i	ĺ		j	j	Ì	İ
Gradient G %	Ì				Chart 6 correction dB(A)	0	0	0	
	ļ			į		[! .		ļ
Road surface	ļ	IMPREV	IOUS		correction dB(A)	-1	-1	-1	
	ı				Basic Noise Level dB(A)	73.1	73.1	73.1	
PROPAGATION									
NOT PUBLICATION	1		SEGMENT			1		SEGMENT	
	1_1	2	3	<u> 4</u>		1	2	<u> </u> 3	4
Shortest horizontal		i i		i		i		<u> </u>	<u> </u>
distance d m	j 4	4	4		Chart 7	-2.2	-2.2	-2.2	i
Height relative to source h m	21.5	21.5	į21.5 į		correction dB(A)	i	İ	i	i
_	i	i	i i	ì		i	i	į	i
Ave. height of propagation H m	n/a	n/a	n/a	Ī	Chart 8	j o	j oj	j 0 j	i
Absorbent ground cover I	İ	İ	1	j	correction dB(A)	Ì	l i	İ	
Barrier path difference m				1	Chart 9 correction dB(A)] 	[]	 	
	i	•	' '	i		i	<u> </u>		i
	İ			ĺ	Propagation Correction dB(A)	-2.2	-2.2	-2.2	ĺ
CITE I AVOIT									
SITE LAYOUT	,								
STIE LAIOUI			SEGMENT	- , -				SEGMENT	
] 1	2	SEGMENT		connection dP(A)	 1	2	3	4
Facade	 1 			 4 	correction dB(A)	2.5	2	3	4
Facade	 1 27			 4 i 	correction dB(A) reflection correction dB(A)	·	2	3	4
	1	2 	3 	 4 		2.5	2.5	2.5	4
Facade Opposite facade angle deg.	1	2 	3 0 0			2.5	2.5	2.5 2.5 0	4
Facade	 27	2 0	3 0 0	4	reflection correction dB(A) Chart 10 correction dB(A)	1.2	2.5 2.5 0 -1.8	2.5 0 -9.3	
Facade Opposite facade angle deg.	 27	2 0	3 0 0	4	reflection correction dB(A)	1.2	2.5 2.5 0 -1.8	2.5 2.5 0	
Facade Opposite facade angle deg. Angle of view segment deg.	 27	2 0	3 0 0	4	reflection correction dB(A) Chart 10 correction dB(A)	1.2	2 2.5 0 -1.8 .7	2.5 0 -9.3 -6.8	
Facade Opposite facade angle deg. Angle of view segment deg.	 27	2 0	3 0 0	4	reflection correction dB(A) Chart 10 correction dB(A)	1.2	2 2.5 2.5 0 -1.8 .7	3 2.5 2.5 0 -9.3 -6.8	
Facade Opposite facade angle deg.	 27	2 0	3 0 		reflection correction dB(A) Chart 10 correction dB(A)	2.5	2 2.5	2.5 0 -9.3 -6.8	
Facade Opposite facade angle deg. Angle of view segment deg.	 27	2 0	3 0 		reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A)	2.5 1.2 -7.2 -3.5 1 73.1	2 2.5 0 -1.8	3 2.5 0 -9.3 -6.8	
Facade Opposite facade angle deg. Angle of view segment deg.	 27	2 0	3 0 		reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A) Propagation Correction dB(A)	2.5 1.2 -7.2 -3.5 1 73.1 -2.2	2 2.5 0	3 2.5 0 -9.3 -6.8 73.1 -2.2	
Facade Opposite facade angle deg. Angle of view segment deg.	 27	2 0	3 0 		reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A)	2.5 1.2 -7.2 -3.5 1 73.1	2 2.5 0	3 2.5 0 -9.3 -6.8	

Chart 11 Combined Noise Level dB(A)

73.5

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	70.5	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	68.5	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	67.5	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	61.7	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	73.5	dB(A)

CASE NOISE LEVEL - KENNEDY TOWN PRAYA 1991

	1		SEGMENT		1	1		SEGMENT	
	11	2	3	4		1	2	3	1 4
Traffic flow q	i	1	Ĭ	Ī	Chart 2	i		Ì	ī
veh/hour	700	ĺ	İ	İ	L10 dB(A)	70.6	ĺ	į	ĺ
Turkkin annual V km/h	 30				 Chart 4	ļ	<u> </u>	ļ	
Traffic speed V km/h	30 25	!	l	l	correction dB(A)	2.2		1	l 1
Heavy vehicles p %	<i>2</i> 2	 	 	1	Correction dB(A)	2.2		l	1
Gradient G %	į		•	•	Chart 6 correction dB(A)	į o		į	
Road surface		IMPREV	/IOUS		correction dB(A)	-1		ļ	
	ı			i	Basic Noise Level dB(A)	71.8		i	
PROPAGATION									
			SEGMENT					SEGMENT	
	1	2	1 3	4	ĺ	1 1	2	3	4
Shortest horizontal	1	1	1	1		1			
distance d m	5	1	İ	1	Chart 7	-2.8		1	
Height relative to source h m	24.5				correction dB(A)	1			
Ave. height of propagation H m	l l n/a	<u> </u>	!	1	 Chart 8	0	i I	l I]
Absorbent ground cover I	11/0	¦	1		correction dB(A)	1		l I	1
ADSOLDERIC GLOUING COVER 1	! 	i	i		torrection abox	i		1	i
Barrier path difference m	į	İ	İ	İ	Chart 9 correction dB(A)			1	Ì
	i			İ	Propagation Correction dB(A)	-2.8		İ	ì
SITE LAYOUT									
<u></u>	1		SEGMENT			ı		SEGMENT	
	1	2	3	4		<u> 1 </u>	2] 3	1 4
Facade	į	į	[correction dB(A)	2.5		į	[
Opposite facade angle deg.	0	1 [1	 	reflection correction dB(A)			 	
Angle of view segment deg.	 173	 	 	! ! [Chart 10 correction dB(A)	2] 	[
	l	l	I		Site Layout Correction dB(A)			 	
								•	•
COMBINING NOISE LEVELS								SEGMENT	
						1_1_	2	3	4
					Basic Noise Level dB(A)	71.8	į	j i	!
					Propagation Correction dB(A)	-2.8			<u> </u>
					Site Layout Correction dB(A)	2.3			! !
					Noise Contribution dB(A)	 <u>71.3</u>			ļ
				Chart 1	1 Combined Noise Level dB(A)	1	71.3		

Rounding to the nearest whole number:

CASE NOISE LEVEL - KENNEDY TOWN PRAYA 1996

	1		SEGMENT			J		SEGMENT	•
	1_1_	2	3	<u> 4 </u>	·	1_1	2	3	4
Traffic flow q		1	1		Chart 2		l	ļ	1
veh/hour	847	i		1 1	L10 dB(A)	71.4	1	i	1
_	Ī	1	İ	į į		i	l	I	j
Traffic speed V km/h	j 30	1	1	į į	Chart 4	1	l	1	i
Heavy vehicles p %	25	Ì	İ	į	correction dB(A)	2.2	l	1	1
,	i	i	İ	i i		ĺ	ĺ	ĺ	1
Gradient G %	i .	•	•	· i	Chart 6 correction dB(A)	j o	j	j	i
	i					i i	ĺ	j	i
Road surface	i	IMPREV	/IOUS		correction dB(A)	j -1	i	i	ì
	i					i	i	i	i
	ı				Basic Noise Level dB(A)	72.6	i	ì	ì
						1	•	•	•
PROPAGATION									
I NOT ASSET TON	I		SEGMENT	·		1		SEGMENT	
			3	1 4			l 2	I 3	1 4
Shortest horizontal	1		 	 		¦ -'-			╁╌
	! 5	I I	1	1 1	Chart 7	 -2.8	i 1	I I	1
distance d m		1	1			-2.0 	i i	1	1
Height relative to source h m	24.5		1		correction dB(A)		! !	!	1
		ļ	l	!!!	Ohama O	^	E •	!	1
Ave. height of propagation H m	n/a	!	ļ	!	Chart 8	0	ł	I	1
Absorbent ground cover I	İ	<u>I</u>	ļ.	į į	correction dB(A)	1	!	ļ.	!
	ļ.	İ	l	!!		!	Į.	ļ.	ļ
Barrier path difference m	ļ.	l	I	I į	Chart 9 correction dB(A)	!	ļ	ļ.	!
	Į.			l		<u> </u>	<u>l</u>	ļ.	ļ
					Propagation Correction dB(A)] -2.8	I	I	l
SITE LAYOUT						.——			
	l		SEGMENT			ļ		SEGMENT	
	_1	2	3	4		1_1	2	3	4
Facade	1	I	İ]	correction dB(A)	2.5	<u> </u>	ļ	1
	1	1	1	1 1		ļ l	<u> </u>	į.	1
Opposite facade angle deg.	0		1	1	reflection correction dB(A)	0		1	1
	1]	1	1		1]	I	1
Angle of view segment deg.	j 173	1	1	1	Chart 10 correction dB(A)	2		1	
-	İ	ı	İ	į i		I	!	I	1
		-	-		Site Layout Correction dB(A)	2.3	i	1	
COMBINING NOISE LEVELS								SEGMENT	
						1_1_	2	3	4
					Basic Noise Level dB(A)	72.6	1	1	1
						İ	İ	İ	ĺ
					Propagation Correction dB(A)	-2.8	i	i	i
						i	i	i	i
					Site Layout Correction dB(A)	2.3	i	i	i
					Site Edyout Confection Co(A)		}	<u> </u>	1
					Noise Contribution dB(A)	72.1	i	<u> </u>	1
					HOUSE CONCENDENT CONCE		ı	1	1
						1			
				Chant 1	11 Combined Noise Level dB(A)	1	72.1		

Rounding to the nearest whole number:

CASE NOISE LEVEL - ROUTE 7 DOWN RAMP

	l		SEGMENT			<u> </u>		SEGMENT	
	1	2	3	4	i	1	_ 2	3	4
Traffic flow q	ĺ	Ì	i	1	Chart 2	i	Ī	İ	
veh/hour	978	978	978		L10 dB(A)	72.1	72.1	72.1	į
Traffic speed V km/h	50	 60	60		Chart 4		! 	! 	
Heavy vehicles p %	25	25 	[25]		correction dB(A)	2.6	3. 2 	3.2 	
Gradient G %	į	8	8	į	Chart 6 correction dB(A)	0	0	0	į
Road surface	IMPRE.	DOWN PRE.	DOWN	İ	correction dB(A)	-1	-3.5	 -3.5	
	1]		1	Basic Noise Level dB(A)	73.7	71.8	71.8	
PROPAGATION									
	1		SEGMENT		I	1		SEGMENT	
	1	l 2	1 3	4	i	1	<u>`</u>	1 3	4
hortest horizontal	i	 	1	 	i I			<u></u>	
listance d m	54.5	54.5	60	i	Chart 7	-6.6	-6.6	-6.9	i
	- 7	23.2	21.3	į	correction dB(A)		, <u></u>		
ive. height of propagation H m	l n/a	l n/a	 n/a] [i ! Chart 8	I I	 	 	l i
bsorbent ground cover I	11/a 	11/4	11/4 	ļ	correction dB(A)	!			
arrier path difference m	ļ]]	 	l I	Chart 9 correction dB(A)	<u> </u>			
	l I				Propagation Correction dB(A)	-6.6	-6.6	-6.9	
,									
SITE LAYOUT	ı				, 1				
			SEGMENT				9	SEGMENT	
	¦	J 2	<u>Segment</u> J 3	4	! 	1		SEGMENT 3	4
acade	1				 	2.5	2	3	4
facade Opposite facade angle deg.	1 0				correction dB(A) reflection correction dB(A)	·—	2	3	4
opposite facade angle deg.	 	2	<u> 3</u> 		İ	2.5	2.5 0	3 2.5 0	4
opposite facade angle deg.	0	<u>2</u> 0	3 0		reflection correction dB(A)	2.5	2.5 0	3 2.5 0	4
pposite facade angle deg.	0	<u>2</u> 0	3 0		reflection correction d8(A) Chart 10 correction dB(A)	2.5	2.5	3 2.5 0	4
pposite facade angle deg.	0	<u>2</u> 0	3 0		reflection correction d8(A) Chart 10 correction dB(A)	2.5	2 2.5 0 -8.6	3 2.5 0	4
pposite facade angle deg.	0	<u>2</u> 0	3 0		reflection correction d8(A) Chart 10 correction dB(A)	2.5	2 2.5 0 -8.6	-8.2	
pposite facade angle deg.	0	<u>2</u> 0	3 0		reflection correction d8(A) Chart 10 correction dB(A)	2.5 0 -6.5 -4.0 1	2 2.5 0 -8.6 -6.1	3 2.5 0 -8.2 -5.7	
Opposite facade angle deg. ungle of view segment deg.	0	<u>2</u> 0	3 0		reflection correction d8(A) Chart 10 correction dB(A) Site Layout Correction dB(A)	2.5 0 -6.5 -4.0 1	2 2.5 0 -8.6 -6.1	3 2.5 0 0 -8.2 -5.7 SEGMENT 3 71.8	
	0	<u>2</u> 0	3 0		reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A)	2.5 0 -6.5 -4.0 1 73.7 -6.6	2 2.5 0 -8.6 -6.1	3 2.5 0 -8.2 -5.7 3 71.8	4
Opposite facade angle deg.	0	<u>2</u> 0	3 0		reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A) Propagation Correction dB(A)	2.5 0 -6.5 -4.0 73.7 -6.6 -6.6	2 2.5 0 -8.6 -6.1 2 71.8 -6.6	3 2.5 0 -8.2 -5.7 71.8 -6.9	

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK WESTBOUND

	1		SEGMENT	·	I]		SEGMENT	
	1_1_	2	3	4	ĺ	1_1	2	3	1_4
Traffic flow q	1	1			Chart 2	1	1	1	l
/eh/hour	1563	585 	585	585	L10 dB(A)	74.1	69.8	69.8	69
raffic speed V km/h	50	50	50	50	l Chart 4		i 		
leavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	1
Gradient G %	 	ı	1	l	Chart 6 correction dB(A)	0	 0	 0	
Road surface		IMPRE	VIOUS		correction dB(A)	-1	! -1	 -1	!
	1				Basic Noise Level dB(A)	75.7	71.4	71.4	7
PROPAGATION	, 								
	ļ		SEGMENT		<u> </u>	ļ		SEGMENT.	
Shortest horizontal	1_1_	2	3	4] 	1_1_	2	3	Ľ
distance d m	63	l 63	l l 65	74	l ! Chart 7	-7.1	l -7.1	-7.2	! -'
eight relative to source h m	•	23.5		23.5	correction dB(A)				
				1 - 4-	l Chart 9				
ve. height of propagation H m bsorbent ground cover I	in∕a i	n/a 	n/a 	n/a	Chart 8 correction dB(A)				
arrier path difference m				i	 Chart 9 correction dB(A)				
	i				Propagation Correction dB(A)	-7.1	-7.1	-7.2	-7
SITE L <u>AYOUT</u>									
	I		SEGMENT		[SEGMENT	
	1_1_	2	3	4		1	2	3	_
acade	[ĺ		correction dB(A)	2.5	2.5	2.5	2
opposite facade angle deg.	! !	! 	 	! 	reflection correction dB(A)			 	
	I 49	I 37	 25	I 27	Chart 10 correction dB(A)	1 -5 7 1	-6.9 l	 -8.6	-8
ingle of view segment deg.	47 	J' 	23	*- /	Chart to correction dB(A)	'2.7			
ngle of view segment deg.	49]	23			-3.2		-6.1	-5
	47]	25	l		ii	-4.4		-5
	47	, <i>3</i> ,	2			ii	-4.4	-6.1 SEGMENT	
	47		2			-3.2	-4.4 s	EGMENT	4
	47				Site Layout Correction dB(A)	-3.2	-4.4 S 2 71.4	SEGMENT	71
angle of view segment deg.	47				Site Layout Correction dB(A) Basic Noise Level dB(A)	-3.2 -3.2 75.7	-4.4 2 71.4 -7.1	3 71.4	-71
	47			, (a)	Site Layout Correction dB(A) Basic Noise Level dB(A) Propagation Correction dB(A)	-3.2 -3.2 -1 75.7 -7.1	-4.4 2 71.4 -7.1	3 71.4 -7.2 -6.1	71

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND

			SEGMENT		.	1		SEGMENT	
	1	2	3	4	.	1_1_	2	3	4
Traffic flow q	!	1	1	1	Chart 2	1	ŀ	l	
veh/hour	807	532	532	532	L10 dB(A)	71.2	69.4	69.4	69.
Traffic speed V km/h	50	50	50	50	Chart 4	1	! 		
Heavy vehicles p %	25 	25 	25	25	correction dB(A)] 2.6	2.6 	2.6 	2.
Gradient G %	Ì	'	1	1	Chart 6 correction dB(A)	0	0	0	
Road surface	4,1	∖PREV IO	US		correction dB(A)	-1	-1	-1	-
	1				Basic Noise Level dB(A)	72.8	71	71	7
PROPAGATION									
	ļ		SEGMENT		Ţ			SEGMENT	
Chaptert hanizartal	_1	1_2	3	4	1	1	2	3	4
Shortest horizontal distance d m	l l 69	l 69	l I 69	 84	l Chart 7	 -7.5	 -7 . 5	 -75	-8.
	23.5	•	23.5	23.5	correction dB(A)	1	-/ 	-1.00 	-0.
neight retailive to source it in	23.5	123.3	1	1	SOLVESTION OB(A)	1	!) 	
Ave. height of propagation H m	n/a	i n/a	l n/a	n/a	Chart 8	•	i	í	
Absorbent ground cover I		1	"		correction dB(A)	į			
Barrier path difference m		1	İ	 	Chart 9 correction dB(A)		 		
	i				Propagation Correction dB(A)	-7.5	-7.5	-7.5	-8.
SITE LAYOUT	.—				•				
			CCCMENT		li de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	1		COMENT	
	<u> </u>		SEGMENT	-		1		SEGMENT	4
Facade	1.	2	SEGMENT 3 	4	correction dB(A)	1 2.5	2	3 2.5	4
	<u> </u>			-	correction dB(A) reflection correction dB(A)	·—	2	3	
Opposite facade angle deg.	1 ·	2 		4 	reflection correction dB(A)	2.5	2	3 2.5 	2.
Opposite facade angle deg.	 	2 	3 	4 	reflection correction dB(A)	2.5 -5.3	2.5	3 2.5 	
Opposite facade angle deg. Angle of view segment deg.	 	2 	3 	4 	reflection correction dB(A) Chart 10 correction dB(A)	2.5 -5.3	2 2.5 -7.4	2.5 2.5 -8.8 -6.3	2. -8.
Opposite facade angle deg.	 	2 	3 	4 	reflection correction dB(A) Chart 10 correction dB(A)	2.5	2 2.5 -7.4 -4.9	2.5 -8.8 -6.3	-8. -5.
Facade Opposite facade angle deg. Angle of view segment deg. COMBINING NOISE LEVELS	 	2 	3 	4 	reflection correction dB(A) Chart 10 correction dB(A)	2.5 -5.3	2 2.5 -7.4	2.5 2.5 -8.8 -6.3	2. -8.
Opposite facade angle deg. Angle of view segment deg.	 	2 	3 	4 	reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A)	2.5	2 2.5 -7.4 -4.9 2 71	-8.8 -6.3 -71	-8. -5.
Opposite facade angle deg. Angle of view segment deg.	 	2 	3 	4 	reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A)	2.5 -5.3 -2.8 72.8	2 2.5 -7.4 -4.9 S 2 71	-8.8 -6.3 71 -7.5	-8. -5.

Chart 11 Combined Noise Level dB(A)

65.5

Rounding to the mearest whole number:

	1		SEGMENT		1	1	9	SEGMENT	
	1	l 2	l 3	4	 	i 1	1 2	1 3	1 4
Traffic flow q	i	İ	i	ĺ	Chart 2	i		i	Ī
/eh/hour	275	275	275	į	L10 dB(A)	66.5	66.5	66.5	į
raffic speed V km/h	 50	 50.1	 50.1		Chart 4	[† 	
Heavy vehicles p %	25	25	25]	correction dB(A)	2.6	2.6	2.6]
radient G %	! 	 8 UP	 8 UP	1	Chart 6 correction dB(A)	0	2.4	2.4	
toad surface	IMPRE.	PRE.	PRE.	į	correction dB(A)	-1	-3.5	-3.5	į
Chart 5 (up ramp) V = 9.9 km/h		l		1	Basic Noise Level dB(A)	68.1	68	68	
PROPAGATION					- ,	.—			
			SEGMENT		- 	1 1		SEGMENT	1 1
Shortest horizontal	_1_	2	3	4	-I I	<u> </u>	2	3	4
snortest norizontal distance d m	l I 80	82	l 199	l I	Chart 7	 _8	 -8.1	 -8.8	
	•	23.2	,] 	**	1 -0	-0.1 	1 -0.0	
leight relative to source h m	23.5	[23.2	20.2	l I	correction dB(A)	1	 	l I	l I
Ave. height of propagation H m	l In/a	i in/a	l n/a]	Chart 8	1] 	
Absorbent ground cover I	117 a 	l (1741) I	11/4 	l I	correction dB(A)	!] 	l I
Absorbent ground cover 1] }	l I	 	l I	Correction db(x)	!		!	
Barrier path difference m] 	! 			Chart 9 correction dB(A)			! !	! !
	! 				Propagation Correction dB(A)	-8	-8.1	-8.8] [
SITE LAYOUT			SEGMENT		- !	<u> </u>		SEGMENT	
	1 1	2	l 3	1 4	- ; 	1 1	2	1 3	4
acade				İ	correction dB(A)	2.5	2.5	2.5	
Opposite facade angle deg.] 0	0	0	 	reflection correction dB(A)	0	0	0	
Angle of view segment deg.	33	25	l 27	! !	Chart 10 correction dB(A)	-7.4	-8.6	 -8.2	
	ı		ı	ſ	Site Layout Correction dB(A)	-4.9	-6.1	-5.7	
COMBINING NOISE LEVELS						ļ		SEGMENT	,
					manife state at a confidences		2 /0	3 (2)	4
					Basic Noise Level dB(A)	68.1	68	68	ļ
					Propagation Correction dB(A)	-8	-8.1	-8.8	
					Site Layout Correction dB(A)	-4.9	-6.1	-5.7	
					Site Layout confection do(n)	1——	<u> </u>		

Chart 11 Combined Noise Level dB(A)

59.0

Rounding to the nearest whole number:

CASE NOISE LEVEL - KENNEDY TOWN PRAYA

			SEGMENT					SEGMENT	
	1_1_	2	3	4		<u> 1 </u>	2	3	4
raffic flow q	!		!		Chart 2	ļ	!	ļ	İ
reh/hour	942	1	!		L10 dB(A)	71.9		1	
raffic speed V km/h	l 30	1	1		Chart 4	1	! 	}	
leavy vehicles p %	25	i	i	i	correction dB(A)	2.2	! 	1	i
	i	j	i	i i		i	ĺ	i	i
radient G %	1			1	Chart 6 correction dB(A)	0	 		
load surface	į	IMPRE	/IOUS		correction dB(A)	-1	ĺ	į	
	I				Basic Noise Level dB(A)	73.1] 		
PROPAGATION									
	<u> </u>		SEGMENT			ļ		SEGMENT	
hortest horizontal	1_1_	2	3	4		_1	1 2	3	1.4
inortest norizontal Histance d m	1 5	1	1		Chart 7	-2.8	 		
eight relative to source h m	24.5	i	1		correction dB(A)	~	! [!
		i	İ	į i		i	i	i	i
ve. height of propagation H m	in/a	Ĭ	İ	į į	Chart 8	j o	ĺ	İ	j
bsorbent ground cover I	ļ	İ	ļ	!!!	correction dB(A)	ļ	!	ļ	!
arrier path difference m] 			Chart 9 correction dB(A)		 		
				 	Propagation Correction dB(A)	-2.8	 	<u> </u>	
NTT LAVAIT									
SITE LAYOUT	1		SEGMENT	·		1		SEGMENT	
	1 1	J 2	3	1 4 1		1	2	1 3	4
acade		i		i i	correction dB(A)	2.5		i	Ī
		!	!	!!!				ļ	ļ
pposite facade angle deg.	0 [-	1		reflection correction dB(A)	0		1	1
ngle of view segment deg.	173	ļ	!		Chart 10 correction dB(A)	2		!	-
	I		I	1 1	Site Layout Correction dB(A)	2.3		 	
								ecourut	
OMNITHING BOTOL LENGTO								SEGMENT	1 4
OMBINING NOISE LEVELS						1	2	ı٦	
OMBINING NOISE LEVELS					Basic Noise Level dR(A)	73.1	2	<u>3</u> 	7
OMBINING NOISE LEVELS					Basic Noise Level dB(A)	73.1		<u>3</u> 	7
OMBINING NOISE LEVELS					Basic Noise Level dB(A) Propagation Correction dB(A)			3 	
OMBINING NOISE LEVELS						73.1		3 	7
<u>OMBINING NOISE LEVELS</u>					Propagation Correction dB(A)	73.1 		3 	

LOCATION B (PM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	<u>65.6</u>	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	67.6	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	65.5	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	59.0	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	72.6	dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1991

			SEGMENT	<u>[</u>	_[SEGMENT	
	1_1	2] 3	4	.1	1_1_	2	3	4
Traffic flow q	İ	1]		Chart 2	1		l	Į
/eh/hour	700	700	İ	ļ	L10 dB(A)	70.6	70.6		İ
raffic speed V km/h	 30	 30	 	ļ	 Chart 4	!] 1		ļ
leavy vehicles p %	25	25	!	1	correction dB(A)	2.2	2.2	l I	:
leavy venicles p x	~ _]	i I	1		1 2.2	2.2		i
Gradient G %	į	•	•	•	Chart 6 correction dB(A)	0	0		į
Road surface	ļ	IMPRE	VIOUS		correction dB(A)	-1	 -1		1
	1				Basic Noise Level dB(A)	71.8	71.8		1
PROPAGATION					_				
	ļ		SEGMENT		.[<u> </u>		SEGMENT	
Chantagt hanizant-	1	2	3	1 4	.	_1	2	3	1 4
Shortest horizontal distance d m		 4	!	•	 Chart 7	1 -7 7	[_7 7		
	6 27.5	6.5 27.5	1	1	correction dB(A)	1 -3.3	-3.3	 	l I
eight retailive to source him	27.5)21.5 	 		correction ds(A)	} 	 		
Ave. height of propagation H m	i i n/a	l In/a	i	ì	Chart 8	i o	0		i
bsorbent ground cover I	i		i	j	correction dB(A)	i	i		i
Barrier path difference m	<u> </u> 	[] 		Chart 9 correction dB(A)	 	 		[
] 				Propagation Correction dB(A)	-3.3	 -3.3		İ I
SITE LAYOUT	I		SEGMENT			1	ş	EGMENT	
	11	2	3	4	j	<u> 1 </u>	2	3	4
facade]	[1	 		correction dB(A)	2.5	2.5		
Opposite facade angle deg.		 		į	reflection correction dB(A)		0		! !
angle of view segment deg.	135	36	 	İ	Chart 10 correction dB(A)	-1.2	-7.0		!
	1	1	ı	ı	Site Layout Correction dB(A)	1.3	-4.5		
COMPINITION NOTES COMPINE						.——		CONCUT	
COMBINING NOISE LEVELS							2 1	EGMENT 3	4
					Basic Noise Level dB(A)	71.8	71.8		-*
					DUSTO ROTSE LEVEL GO(A)	''''	0.0		
					Propagation Correction dB(A)	-3.3	-3.3 		
					Site Layout Correction dB(A)	1.3	-4.5		
					Noise Contribution dB(A)	69.8	64.0		
						Į.			

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA 1996

	<u> </u>		SEGMENT	·	.1			SEGMENT	·-··
	11	2	3	4	.1	11	2	3	4
Traffic flow q	1	1	1		Chart 2	1		I	1
veh/hour	847	847			L10 dB(A)	71.4	71.4	i	!
raffic speed V km/h] 30	30		i	Chart 4		İ	! [!
Heavy Vehicles p %	25 	25 	1		correction dB(A)	2.2	2.2	[
Gradient G %	! 	1	'	ı	Chart 6 correction dB(A)	0	0	! 	
Road surface	! 	IMPRE	VIOUS		correction dB(A)	-1	-1	 	i
	Ι.				Basic Noise Level dB(A)	72.6	72.6	i	
PROPAGATION									
	<u></u>		SEGMENT		Ţ	ļ		SEGMENT.	
	[_1_	2	3	4	Į	1	2	3	4
Shortest horizontal	! ,		-	!	Charle 7	!		!	į
listance d m	6	6.5	ļ	!	Chart 7	-3.3	-3.3	ļ	!
eight relative to source h m	27 . 5 	27.5 	 	I I	correction dB(A)	 	 	 	
ive. height of propagation H m	n/a	n/a	i	i	Chart 8	j o	i o	i	i
bsorbent ground cover I	į	į	İ	į	correction dB(A)	į	į	į	į
arrier path difference m	! !]	 	!	Chart 9 correction dB(A)	!	<u> </u>	 	
	 				 Propagation Correction dB(A)	-3.3	-3.3	 	
SITE LAYOUT									
	ı	***	SEGMENT			1		SEGMENT	
	¦	1 2	1 3	1 4	1	i 1	1 2	3	4
acade	<u> </u>		!	<u> </u>	correction dB(A)	2.5	•		
opposite facade angle deg.	l Į		1]	reflection correction dB(A)] 0	 0		
angle of view segment deg.	 135	36	ļ Į	Ī Į	Chart 10 correction dB(A)	-1.2	 -7.0		
	l	F	J		 Site Layout Correction dB(A)	1.3	-4.5	 	
OMBINING MOISE LEVELS								EGMENT	
						1	2	3	4
					Basic Noise Level dB(A)	72.6	72.6		
					Propagation Correction dB(A)	-3.3	 -3.3	 	
					Site Layout Correction dB(A)	1.3	 -4.5 		
					Noise Contribution dB(A)	70.6	64.8		
				Chart	11 Combined Noise Level dB(A)	ľ	71.6		

Rounding to the nearest whole number:

	1		SEGMENT	1		9	SEGMENT	
	1	1 2	3		1 1	1 2	l 3	4
Traffic flow q	i	ĺ	i	Chart 2	ĺ	ĺ	İ	
veh/hour	978	978	978	L10 dB(A)	72.1	72.1	72.1	
raffic speed V km/h	 50	 60	 60	 Chart 4	l I		 	
Heavy vehicles p %	25	25	25	correction dB(A)	2.6	3.2	3.2	
Gradient G %	1	 8	8	Chart 6 correction d8(A)	0	0	0	
Road surface	 IMPRE.	DOWN PRE.	DOWN PRE.	correction dB(A)	 -1	 -3.5	 -3.5	
	Ì	İ	i	Basic Noise Level dB(A)	73.7	71.8	71.8	
PROPAGATION					·	•		
			SEGMENT	<u></u>		;	SEGMENT	
	1	2	3	<u> </u>	1	2	3	_
Shortest horizontal			i i	Ì				
distance d m	41.5	41.5	43	Chart 7	-5.8	-5.8	-5.8	
leight relative to source h m	26.5	25.7]24.2 !	correction dB(A)	l I	 	!	
we. height of propagation H m	l In/a	ı ∣n/a	 n/a	 Chart 8	i	i I	1	
bsorbent ground cover I	"			correction dB(A)	į			
darrier path difference m	ļ ļ			Chart 9 correction dB(A)				
	l I			 Propagation Correction dB(A) -5.8	-5.8	-5.8	
	:							
SITE LAYOUT	,		SEGMENT	 _	,——		SEGMENT	
	1 1	l 2	1 3 1	! 	 1	1 2 1	3 1	4
Facade		<u>-</u>		correction dB(A)	2.5			
opposite facade angle deg.	0	0	0	reflection correction dB(A	.) 0	0	0	
Angle of view segment deg.	 31	46	 36	Chart 10 correction dB(A)	-7.6	-5 . 9	 -7.0	
angle of them beginning degr	3				<u> </u>			
ingto or view beginning day.	i	•	•	Site Layout Correction dB(A) [-5.1	-3.4	-4.5	
ingte of view deginent degi	i			Site Layout Correction dB(A) -5.1 	-3.4	-4.5	
	i	•	'	Site Layout Correction dB(A) -5.1 	S	EGMENT	
	i		'		 1	2	EGMENT	
	l	•	•	Site Layout Correction dB(Basic Noise Level dB(A)	I	2	EGMENT	
	1		' '		 1	2 71.8	3 71.8	
COMBINING NOISE LEVELS	ı		'	Basic Noise Level dB(A)	 1 73.7	71.8 -5.8	3 71.8 71.8 -5.8	4

Chart 11 Combined Noise Level dB(A)

67.1

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK WESTBOUND

			SEGMENT	<u> </u>				SEGMENT	
	<u> 1</u>	2	<u> 3</u>	4		1	2	3	4
Traffic flow q	1	1	1	1 1	Chart 2	1	Į	1	
veh/hour	1563 	585	585 	585	L10 dB(A)	74.1	69.8	69.8	69.
raffic speed V km/h	50	50	 50	50	Chart 4		!] 1	! [
Heavy vehicles p %] 25 !	25] 25 !	25	correction dB(A)	2.6	2.6	2.6	2.
Gradient G %			•	' ¦	Chart 6 correction dB(A)	0	0	0	!
Road surface		IMPRE	VIOUS		correction dB(A)	-1	! -1	-1	
	I			l	Basic Noise Level dB(A)	75.7	71.4	71.4	71.
PROPAGATION									
	<u> </u>		SEGMENT			<u> </u>		SEGMENT	
	<u> 1</u>	2	<u> 3</u>	 		<u> 1 </u>	2	3	4
Shortest horizontal	150.5	150.5			Share 7		!	, ,	
distance d m	50.5	50.5	50	55	Chart 7	-6.4 	-6.4	-6.4	-6
Height relative to source h m	ļ26.5 [26.5 	26.5 	26.5 	correction dB(A)	1]] [
Ave. height of propagation H m	n/a	n/a	n/a	n/a	Chart 8	i	i	i	i
Absorbent ground cover I	į	į		į į	correction dB(A)	į		į	
Barrier path difference m	 n/a	n/a	 n/a		Chart 9 correction dB(A)	-1			
	1				Propagation Correction dB(A)	-6.4	-6.4	-6.4	-6.
SITE LAYOUT									
<u> </u>	1		SEGMENT	1		1		SEGMENT	
	1 1	I 2	1 3	<u> </u>		1	2	l 3	4
Facad <u>e</u>		İ			correction d8(A)	2.5	2.5		
Opposite facade angle deg.			ļ		reflection correction dB(A)	į		! 	
Angle of view segment deg.	21	31	46	36	Chart 10 correction dB(A)	-9.3	-7.6	-5.9	-7.
	ļ	1	i		Site Layout Correction dB(A)	-6.8	-5.1	-3.4	-4.
						.—			
MANUEL MANUEL AND AND AND AND AND AND AND AND AND AND						ļ		EGMENT	,
OMBINING NOISE LEVELS						_1	2	3	71.
COMBINING MOISE LEVELS					Basic Noise Level dB(A)	75.7	71.4	71.4	,,,
COMBINING MOISE LEVELS					• • • • • • • • • • • • • • • • • • • •	75.7 -6.4	71.4	71.4 -6.4	-6.
COMBINING MOISE LEVELS					Propagation Correction dB(A)	 -6.4 	-6.4	-6.4	-6.
COMBINING MOISE LEVELS				:	• • • • • • • • • • • • • • • • • • • •	-6.4 -6.8	-6.4 -5.1	-6.4	-6. -4.

Rounding to the nearest whole number:

	1		SEGMEN	r				SEGMENT	
	1] 2	3	4		1	2	3	4
Traffic flow q veh/hour	807	532	 532	532	Chart 2 L10 dB(A)	71.2	69.4	69.4	69.
Traffic speed V km/h	 50	50	 50	50	Chart 4			 	
Heavy vehicles p %	25 	25 	25 	25	correction dB(A)	2.6	2.6	2.6 	[2. ₁
Gradient G %	į	•	'		Chart 6 correction dB(A)	0	0		
Road surface		IMPRE	/IOUS		correction dB(A)	-1	-1	-1	-
	1				Basic Noise Level dB(A)	72.8	71	71	7
PROPAGATION			SECHEN:					PECUENT	
	<u> </u>	1 2	SEGMEN [®]	<u> </u>		1	l 2	SEGMENT	4
Shortest horizontal	 	 	 	 			 	<u> </u>	-
distance d m	61	61	60	66.5	Chart 7	-7.1	-7.1	-7	-7.
Keight relative to source h m	26.5	26.5	26.5	26.5	correction dB(A)	į			
Ave. height of propagation H m Absorbent ground cover I	 n/a 	 n/a 	 n/a 	n/a n/a	Chart 8 correction dB(A)	 	 	 	
Barrier path difference m	i i	i I	İ İ	j j	Chart 9 correction d8(A)		j I		
•				 	Propagation Correction dB(A)	-7.1	-7.1	-7	-7.
SITE LAYOUT	.——		OF CHEW	. .					
	/	1 2	SEGMENT I 3	 4		1 1	; 2	SEGMENT I 3 I	4
Facad <u>e</u>	<u></u>				correction dB(A)	2.5			2.!
Opposite facade angle deg.	! 	 	 		reflection correction dB(A)				
Angle of view segment deg.] 26	26	 46	36	Chart 10 correction dB(A)	-8.4	-8.4	 -5.9	-7.0
	ı	ı	1	1 1	Site Layout Correction dB(A)	-5.9	-5.9	-3.4	-4.9
COMBINING MOISE LEVELS						·	S	EGMENT	
						1 1	2	3 J	4
					Basic Noise Level d8(A)	72.8	71	71	7
					Propagation Correction dB(A)	-7.1	-7.1	-7	-7.4
					Site Layout Correction dB(A)	 -5.9	-5.9	-3.4	-4.5
					Noise Contribution dB(A)	59.8	58.0	60.6	59.1
						Į			

Chart 11 Combined Noise Level dB(A)

65.49

Rounding to the nearest whole number:

						.——			
			SEGMENT			ļ		SEGMENT	
T-offic flower	_1	2	3	4	l Chart 2	_1	2	3	4
Traffic flow q veh/hour	l l 275	l 275	l l 275	 	thart 2 L10 dB(A)	66.5	l 66.5	l I 66.5	
ven/nout	1 213	213	1 2/3	<u> </u>	i Lio db(x)	1 00.5	00.5 	1 00.3	! !
Traffic speed V km/h	50	50.1	 50.1	1	l Chart 4	ì	! !	1	! !
Heavy vehicles p %	1 25	25	25	i	correction dB(A)	2.6	2.6	2.6	
neary remotes p w			1	i	1	-10	.	, <u> </u>	i
Gradient G %	i	8	8	i	Chart 6 correction dB(A)	i o	2.4	2.4	i
	i i	UP	j UP	i	İ	i :	İ	ì	i
Road surface	IMPRE.	PRE.	PRE.	i	correction dB(A)	j -1	-3.5	-3.5	i
	İ	j	•		Ī	Ī		L	ĺ
Chart 5 (up ramp) $V = 9.9 \text{ km/h}$					Basic Noise Level dB(A)	68.1	68	68	
PROPAGATION									
	1		SEGMENT		1	1		SEGMENT	
	1	.2] 3	1 4		1	2	3	4
Shortest horizontal	i		<u> </u>			i		i	
distance d m	73	71	78.5	Ì Ì	Chart 7	-7.7	-7.6	8-	
Height relative to source h m	26.5	25	23.7	1	correction dB(A)	1		[ł
			l			1	l	i 1	
Ave. height of propagation H m	n/a	n/a	n/a]	Chart 8	ļ J			
Absorbent ground cover I			ļ .		correction dB(A)	<u> </u>			
9	!!!		ļ	!	Chart C assesstion dD(1)			<u> </u>	
Barrier path difference m] [I	1	Chart 9 correction dB(A)	1]]	
	ļ								l
	l				Propagation Correction dB(A)	-7.7	-7.6	-8	ļ
	l			İ	Propagation Correction dB(A)	-7.7	-7.6	-8	
SITE LAYNIT				İ	Propagation Correction dB(A)	-7.7	-7.6	 -8	
SITE LAYOUT	1		SEGMENT		Propagation Correction dB(A)	-7.7			
SITE LAYOUT	 1	2	SEGMENT	 4	Propagation Correction dB(A)	-7.7 		-8 SEGMENT	4
SITE LAYOUT Facade] 				Propagation Correction dB(A) correction dB(A)		2	SEGMENT	
	 <u></u> 					 1	2	SEGMENT	
	 					 1	2	SEGMENT	
Facade Opposite facade angle deg.	 0 0	0	3 0 		correction dB(A) reflection correction dB(A)	1 1 2.5	2.5	SEGMENT 3 2.5	
Facade		2	3 0 		correction dB(A)	1 1 2.5	2 2.5	SEGMENT 3 2.5	
Facade Opposite facade angle deg.	 0 0	0	3 0 		correction dB(A) reflection correction dB(A) Chart 10 correction dB(A)	1 2.5 0	2 2.5 0	3 2.5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4
Facade Opposite facade angle deg.	 0 0	0	3 0 		correction dB(A) reflection correction dB(A)	1 2.5 0	2 2.5 0	3 2.5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4
Facade Opposite facade angle deg. Angle of view segment deg.	 0 0	0	3 0 		correction dB(A) reflection correction dB(A) Chart 10 correction dB(A)	1 2.5 0	2 2.5 0 0 -5.9 -3.4 (SEGMENT 3 2.5 0	4
Facade Opposite facade angle deg.	 0 0	0	3 0 		correction dB(A) reflection correction dB(A) Chart 10 correction dB(A)	1 2.5 0	2 2.5 0 -5.9 -3.4	3 2.5 0 -7.0 -4.5	4
Facade Opposite facade angle deg. Angle of view segment deg.	 0 0	0	3 0 	4	correction dB(A) reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A)	1	-5.9 -3.4	3 2.5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4
Facade Opposite facade angle deg. Angle of view segment deg.	 0 0	0	3 0 	4	correction dB(A) reflection correction dB(A) Chart 10 correction dB(A)	1 2.5 0	2 2.5 0 -5.9 -3.4	3 2.5 0 -7.0 -4.5	4
Facade Opposite facade angle deg. Angle of view segment deg.	 0 0	0	3 0 	4	correction dB(A) reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A)	1	2 2.5 0 -5.9 -3.4 S 2 68	3 2.5 0 -7.0 -4.5 -4.5 68	4
Facade Opposite facade angle deg. Angle of view segment deg.	 0 0	0	3 0 	4	correction dB(A) reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A)	1	2 2.5 0 -5.9 -3.4 S 2 68	3 2.5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4
Facade Opposite facade angle deg. Angle of view segment deg.	 0 0	0	3 0 	4	correction dB(A) reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A) Propagation Correction dB(A)	1	2 2.5 0 -5.9 -3.4 8 68 -7.6	SEGMENT 3 2.5 0	4
Facade Opposite facade angle deg. Angle of view segment deg.	 0 0	0	3 0 	4	correction dB(A) reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A)	1	2 2.5 0 -5.9 -3.4 S 2 68	SEGMENT 3 2.5 0	4

Chart 11 Combined Noise Level dB(A)

60.7

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA

	SEGMENT			<u> </u>	1	SEGMENT			
	1_1	2	3	4		1_1	2	3	<u> </u>
Traffic flow q	1	1	1	1	Chart 2	1	ĺ		1
veh/hour	942	942			L10 dB(A)	71.9	71.9		
Traffic speed V km/h	30	30		i	Chart 4	Ì	! 		1
Heavy vehicles p %	25	25 			correction dB(A)	2.2	2.2		1
Gradient G %	İ	•	I	'	Chart 6 correction dB(A)	0	0		ļ
Road surface	į	IMPRE	VIOUS		correction dB(A)	-1	 -1		
	'				Basic Noise Level dB(A)	73.1	73.1		
PROPAGATION									
			SEGMEN1			<u> </u>		EGMENT	
Shortest horizontal	1	2	3	 4 _		<u> 1 </u>	2	3	 4
snortest norizontal distance d m	 6	6.5]	 	 Chart 7	 ₌	i -3.3		1
deight relative to source h m		27.5	1		correction dB(A)	-3.3 	-3.3 -3.3	!	1
	1	1	i	i	l	i			ŀ
Ave. height of propagation H m	n/a	n/a	ĺ	i	Chart 8	i o	0	 -	i
bsorbent ground cover I	į	İ	į	į į	correction dB(A)	į			į
arrier path difference m	-	1	1		Chart 9 correction dB(A)		 		
					Propagation Correction dB(A)	-3.3	-3.3		
SITE LAYOUT		SEGMENT				<u> </u>	s	EGMENT	
	1	2	3	4		1_1_	2	3	<u> </u>
acade					correction dB(A)	2.5	2.5		
Opposite facade angle deg.		 	 		reflection correction dB(A)				! !
angle of view segment deg.	135	i 36	! 		Chart 10 correction dB(A)	-1.2	-7.0		
	1	l	I	1 1	Site Layout Correction dB(A)	1.3	-4.5		
OMBINING NOISE LEVELS						,		CONTUT	
CHOTHING MOTOC PEACES						1 1	S	EGMENT 3	4
					Basic Noise Level dB(A)	73.1		ا	 *
						.5	, , , ,		
					Propagation Correction dB(A)	-3.3 	-3.3	ļ	
					Site Layout Correction dB(A)	1.3	-4.5	į	
					Noise Contribution dB(A)	71.1	65.3		

LOCATION C (PM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	<u>67.1 dB(A)</u>
BASE NOISE LEVEL - GROUND LINK WESTBOUND	67.2 dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	65.5 dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	60.7 dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	72.1 dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND - NOISE BARRIER AT CENTRAL RESERVE 3m HEIGHT

	SEGMENT				I	SEGMENT				
	1_1_	2	3	4		11	2	3	4	
Traffic flow q	ŀ]	1	Chart 2		l	1	1	
veh/hour	532	532	532	532	L10 dB(A)	69.4	69.4	69.4	69. 	
Traffic speed V km/h	! 50	 50	 50	50	 Chart 4	i	! 			
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	į 2	
Gradient G %	 	I	l	1	Chart 6 correction dB(A)	0	0	 0	 	
Road surface	 	IMPREV	Ious		correction dB(A)	 -1	[-1	 -1	 	
l	l				Basic Noise Level dB(A)	71	71	71		
PROPAGATION_										
- 	SEGMENT			****		1	:	SEGMENT		
	1	2	3	4	i	1	2	3	4	
Shortest horizontal			ļ]			!			
distance d m	50	41	•	45.5	Chart 7	-6.2	-5.5	-5.5	-5	
Height relative to source h m	20 . 5	20.5 	20 	20 	correction dB(A)	l I]]	i I	l I	
Ave. height of propagation H m]	n/a	n/a	n/a	n/a	Chart 8	j 0	0	0	<u> </u>	
Absorbent ground cover I		į	į	į	correction dB(A)	ĺ	 	Ì	İ	
Barrier path difference m	.17	 .09	t .10	1.14	Chart 9 correction dB(A)	-10.4	 -9.2	 -9.4	 -10	
i					Propagation Correction dB(A)	-16.6	-14.7	-14.9	-15	
<u>SITE LAYOUT</u>			SEGMENT		1	1		SEGMENT		
i	1	2	3	4		1	2	3	4	
Facade		İ			correction dB(A)	2.5	2.5	2.5	2.	
Opposite facade angle deg.	35	 33	 0	 0	reflection correction dB(A)	1.5	 1.5	 0		
Angle of view segment deg.	35	 33	 70	25	 Chart 10 correction dB(A)	-7.4	 -7.4	 -4.1	 •8.	
ı		I	I	ł	Site Layout Correction dB(A)	-3.4	-3.4	-1.6	-6.	
COMPANIAC NOTCE LESS						1		SEGMENT		
COMBINING NOISE LEVELS						1 1	<u>.</u>	I 3	4	
					Basic Noise Level dB(A)	71	71	71	7	
					Propagation Correction dB(A)	 -16.6	 -14.7	 -14.9	-15	
					Site Layout Correction dB(A)	 <u>-3.4</u>	-3.4	 -1.6	<u>-6</u>	
					Noise Contribution dB(A)	51.0	52.9	54.5	49	
						ļ				
					11 Combined Noise Level dB(A)		58.4			

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION A (PM) 22m above ground - 3m HEIGHT NOISE BARRIER AT CENTRAL RESERVE OF BBL

SEGMENT 2 3 71.9 71.9 2.2 2.2 0 0 -1 -1 73.1 73.1 SEGMENT 2 3 -2.2 -2.2 0 0	
2.2 2.2 0 0 -1 -1 73.1 73.1 SEGMENT 2 3 -2.2 -2.2	
2.2 2.2 0 0 -1 -1 73.1 73.1 SEGMENT 2 3 -2.2 -2.2	
0 0 -1 -1 73.1 73.1 SEGMENT 2 3 -2.2 -2.2	
0 0 -1 -1 73.1 73.1 SEGMENT 2 3 -2.2 -2.2	
-1 -1 73.1 73.1 SEGMENT 2 3 -2.2 -2.2	
73.1 73.1 SEGMENT 2 3	.i
SEGMENT 2 3 -2.2 -2.2	·
2 3 -2.2 -2.2 	
2 3 -2.2 -2.2 	
-2.2 -2.2 	i
ļ	
ļ	
0 0	1
0 0	1
į	i
	į
<u> </u>	! [
-2.2 -2.2	.
SEGMENT	
2 3	T 4
2.5 2.5	
0 0	
-1.8 -9.3	
2	SEGMENT 3 2.5 0 0 0

Chart 11 Combined Noise Level dB(A)

73.5

LOCATION A (PM): Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	70.5	dB(A)
BASE NOISE LEVEL - GROUND LINK MESTBOUND	68.5	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	58.4	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	61.7	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	73.5	dB(A)

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION B (PM) 25m above ground - 3 m HEIGHT NOISE BARRIER AT CENTRAL RESERVE OF BBL

	SEGMENT				- 				
	1 1	2] 3	4	_1	1	2	<u>SEGMENT</u> 1 3	4
Traffic flow q veh/hour	807	532	532	532	Chart 2 L10 dB(A)	71.2	69.4	69.4	69.
Traffic speed V km/h Heavy vehicles p %	 50 25	 50 25	 50 25	50 25	Chart 4 correction dB(A)	2.6	2.6	 2.6	! 2.
Gradient G %	<u> </u>		I	l	Chart 6 correction dB(A)	0	 0	0	
Road surface		IMPREV	Ious		correction dB(A)	-1	 -1	 -1	! -
	į				Basic Noise Level dB(A)	72.8	71	71	7
PROPAGATION	,		CECNENT		- 1			CCHCUT	
•	ļ	1 2	SEGMENT ! 3	4	-I 	1-1		SEGMENT 1 3	1 4
Shortest horizontal distance d m	 69	<u> 2</u> 69	<u> 3</u> 69	 84	- 	i	 -7.5	i	- -8.
Height relative to source h m	,	23.5	23.5	23.5	correction dB(A)		1.5	 	-0.
Ave. height of propagation H m Absorbent ground cover I	n/a 	n/a	 n/a 	n/a	Chart 8 correction dB(A)			<u> </u> 	
Barrier path difference m] .24	.24	 .24	 . 33	Chart 9 correction dB(A)	 -11.2	 -11.2	 -11.2	 -12.
	1				Propagation Correction dB(A)	-18.7	-18.7	-18.7	-20.
SITE LAYOUT		<u>v.</u>							
	<u> </u>	SEGMENT			-	ļ		SEGMENT	
Facade	<u> 1 </u>	2	<u> 3</u> 	<u> 4 </u>	. correction dB(A)	2.5	2.5	2.5	2.
Opposite facade angle deg.		! !	l 	! 	reflection correction dB(A)		 	! ! ! !	
Angle of view segment deg.	53	 33 	24 	28	Chart 10 correction dB(A)	-5.3	 -7.4 	 -8.8 	-8.
	•	•	•	•	Site Layout Correction dB(A)	-2.8	-4.9	-6.3	-5.
COMBINING NOISE LEVELS						ı	(SEGMENT	
						1_1_	2	3	4
					Basic Noise Level dB(A)	72.8 	į 71 I	71 	7
					Propagation Correction dB(A)	-18.7	-18.7 	 -18.7 	-20.
					Site Layout Correction dB(A)	<u> -2.8</u>	-4.9	-6.3	-5.
					Noise Contribution dB(A)	51.3	47.4	46.0	45.

Chart 11 Combined Noise Level dB(A)

54.2

Rounding to the nearest whole number:

CASE NOISE LEVEL - ROUTE 7 UP RAMP

			SEGMENT			l		SEGMENT	
	1_1_	1 2] 3	1 4		1_1_	2] 3	1 4
Traffic flow q	i		i	i i	Chart 2	i	İ		
veh/hour	275	275	275		L10 dB(A)	66.5	66.5	66.5	İ
Traffic speed V km/h	 50	 50.1	50.1	! ! 	Chart 4		! 	! !	
Heavy vehicles p %	25	25	25	1 1	correction dB(A)	2.6	2.6	2.6	
Gradient G %] 	8	8		Chart 6 correction dB(A)	0	2.4	 2.4	
		UP	UP	1 1		1	1		l
Road surface	IMPRE.	PRE.	PRE.		correction dB(A)	-1	-3.5	-3.5	
Chart 5 (up ramp) V = 9.9 km/h	į	ı		1 1	Basic Noise Level dB(A)	68.1	68	68	İ
cital C 3 (up (anp) V - 3.3 kilyii									
,									
,			SEGMENT	I				SEGMENT	
,	 1	2	SEGMENT	 4		 1	<u> </u>	SEGMENT	
PROPAGATION	 1_					 1			
PROPAGATION Shortest horizontal	 1 				Chart 7	'		3	
PROPAGATION Shortest horizontal distance d m	 1 	2	3 		Chart 7 correction dB(A)	'	2	3	
PROPAGATION Shortest horizontal distance d m	 <u>1</u> 80	82	3 99			'	2	3	
PROPAGATION Shortest horizontal distance d m Height relative to source h m	 1 80 23.5	2 82 23.2	3 99 20.2 		correction dB(A)	'	2	3	
PROPAGATION Shortest horizontal distance d m Height relative to source h m Ave. height of propagation H m	 1 80 23.5	2 82 23.2	3 99 20.2 		correction dB(A) Chart 8	'	2	3	

CI	TE	LA	va	17
- 31	16	LA	10	"

	l		SEGMENT			I		SEGMENT	
	<u> 1 </u>	2	3	4		1_1	2	3]	4
Facade]			j	correction dB(A)	2.5	2.5	2.5	
	[]		li]		1		Ì	
Opposite facade angle deg.	0	0	0	1	reflection correction dB(A)	0	0	0	
	i I					1			1
Angle of view segment deg.	33	25	27	1	Chart 10 correction dB(A)	-7.4	-8.6	-8.2	1
	! 1]					<u> </u>	
					Site Layout Correction dB(A)	-4.9	-6.1	-5.7	1

COMBI	DAING	NOTEE	LEVEL	c

	I		SEGMENT	
	1_1_	2	3	4
Basic Noise Level dB(A)	68.1	68 	68	
Propagation Correction dB(A)	-11.1	-8.1	-8.8 	!
Site Layout Correction dB(A)	-4.9	-6.1	-5.7	
Noise Contribution dB(A)	52.2	53.8	53.5	
Chart 11 Combined Noise Level dB(A)	İ	58.0		i

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION B (PM) 25m above ground - 3 m HEIGHT NOISE BARRIER AT CENTRAL RESERVE OF BBL CASE NOISE LEVEL - KENNEDY TOWN PRAYA

	1		SEGMENT	rI				SEGMENT	
	1_1	1 2] 3	4		1	1 2	3	4
Traffic flow q	i	i	Ī	i i	Chart 2		İ	i	Ī
veh/hour	942	į	į	į į	L10 dB(A)	71.9	ĺ	į	į
Traffic speed V km/h	l I 30		! 		Chart 4		 	1	
Heavy vehicles p %	25	į	į	į į	correction dB(A)	2.2	į	İ	į
Gradient G %		1	Ţ		Chart 6 correction dB(A)	0	 	ļ	
Road surface		IMPREV	/IOUS		correction dB(A)	-1	 		
	1				Basic Noise Level dB(A)	 73.1	[] [

PROP	AGATION	

	1		SEGM	ENT	, ,
	<u> 1</u>	1 2	3	L	4
Shortest horizontal	1	Ī	ĺ	Ī	
distance d m	5	Ì	ĺ	Ì	
Height relative to source h m	24.5	İ	į	į	
Ave. height of propagation H m	l n/a	i	i	i	
Absorbent ground cover I	I	1		- 1	
	1	1			
Barrier path difference m	1	!	- 1		
	1				
	i				

	<u> </u>		SEGMENT	
	1_1_	_22	3	4
Chart 7	-2.8		1	
correction dB(A)	į į		į	į
Chart 8	0			
correction dB(A)	į į		İ	İ
Chart 9 correction dB(A)				
	II		1	1
Propagation Correction dB(A)	-2.8		1	1

SITE LAYOUT

		1	SEGMENT			
		<u> 1 </u>	2	3	4	
Facade		İ	ĺ	1	ĺ	
		1	i]	1	
Opposite facade angle	deg.	0		i		
		1		1	1	
Angle of view segment	deg.	173	ł	1		
			1	1	1	

			SEGMEN	<u>T</u>	I
	1	2	. 3	1 4	_1
correction dB(A)	2.5				
reflection correction dB(A)	0				İ
Chart 10 correction dB(A)	2				
Site Layout Correction dB(A)	2.3				1

COMBINING NOISE LEVELS

Basic Noise Level dB(A)
Propagation Correction dB(A)
Site Layout Correction dB(A)
Noise Contribution dB(A)
Chart 11 Combined Noise Level dB(A)

<u> </u>		SEGMENT	
1 1	2	3	4
73.1		Ī	Ī
1 1		l	1
-2.8		i	1
Į Į		1	1
2.3		!	!
_ !		ļ	ļ
72.6		İ	İ
Į.			
1	72.6		

LOCATION B (PM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	65.6 dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	67.6 dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	54.2 dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	58.0 dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	72.6 dB(A)

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION C (PM) 28m above ground - 3 m HEIGHT NOISE BARRIER AT CENTRAL RESERVE OF BBL

BASE NOISE LEVEL - GROUND LINK EASTBOUND

	l	_	SEGMENT	·	.			SEGMENT	
	1_1_	2] 3	1 4		1	2] 3	4
Traffic flow q	ĺ	1		1	Chart 2	j	1		ĺ
veh/hour	807	532	532	532	L10 dB(A)	71.2	69.4	69.4	69.
Traffic speed V km/h	50	50	50	50	Chart 4				! [
Heavy vehicles p %	25] 25 	25 	25 	correction dB(A)	2.6	2.6 	2.6 	2.
Gradient G %	ļ	'	•	•	Chart 6 correction dB(A)	0	0	į o	, (
Road surface		IMPREV	Ious		correction dB(A)	-1	-1	-1	-
	1				Basic Noise Level dB(A)	72.8	71	71	7
PROPAGATION					_				
	<u> </u>		SEGMENT			<u> </u>		SEGMENT	
	<u> -1</u>	2	3	<u> 4</u>	.[1	! 2	<u> 3</u>	4_
Shortest horizontal					 	~ 4	74	!	-
distance d m	61	61 24 E	60	66.5	Chart 7	7.1	-7.1	-7	-7.
Height relative to source h m	26.5	26.5	26.5	26.5	correction dB(A)	!	! !	i 1	
Ave. height of propagation H m	l In/a	l In/a	l l n/a	l n/a	Chart 8	!	! i	! !	1
Absorbent ground cover I	11/4 	11/0 	; 11/a 	174	correction dB(A)	1	! }	! 	
Abborbane ground cover 1	! !	i	i	¦		<u> </u>	i	! 	1
Barrier path difference m	.14	.14	.13	.17	Chart 9 correction dB(A)	-9.9	-9.9	-9.8	-10.
					Propagation Correction dB(A)	-17.0	-17.0	-16.8	-17.8
SITE LAYOUT	,——		SEGMENT					SEGMENT	
	1 1	1 2	1 3	1 4	: 	 	2	1 3 I	4
Facade	 	 	 		correction dB(A)	2.5		2.5	2.5
· ·	!	!	!	!	I .				ı
Opposite facade angle deg.	[i	i i	ļ 1		reflection correction dB(A)	į i			
	 26	 26	! 46	 36	reflection correction dB(A) Chart 10 correction dB(A)	-8.4	-8.4	-5.9	-7.0
Opposite facade angle deg. Angle of view segment deg.	 26 	 26	! 46	 36 		ji	-8.4		-7.0 -4.5
Angle of view segment deg.	 26 	 26	! 46 	 36 	 Chart 10 correction dB(A)	ji	-5.9	-3.4	
Angle of view segment deg.	 26 	 26	! 46 	 36 	 Chart 10 correction dB(A)	-5.9	-5.9 S	-3.4	-4.5
	 26 	 26	! 46 	 36 	Chart 10 correction dB(A) Site Layout Correction dB(A)	-5.9	-5.9 -5.9 8	-3.4 SEGMENT	-4.5
Angle of view segment deg.	 26 	 	! 46 	 36 	Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A)	-5.9 -5.9 1 72.8	-5.9 -5.9 S 2 71	-3.4 SEGMENT 3 71	-4.! -4
Angle of view segment deg.	 26 	[26 	! 46 	 36 	Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A) Propagation Correction dB(A)	-5.9 -5.9 1 72.8 -17.0	-5.9 -5.9 71 -17.0	-3.4 GEGMENT 3 71 -16.8	-4.3 -4 -17.8
Angle of view segment deg.	 26 	[26 	! 46 	 36 	Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A)	-5.9 -5.9 1 72.8 -17.0	-5.9 -5.9 S 2 71	-3.4 GEGMENT 3 71 -16.8	-4.5

Chart 11 Combined Noise Level dB(A)

55.48

Rounding to the nearest whole number:

BASE NOISE LEVEL - ROUTE 7 UP RAMP

	i		SEGMENT		_1	1		SEGMENT	
	1	2	3	4		1	1 2	1 3	4
raffic flow q	i	i	ī	i	_, Chart 2	i	i	i	i
veh/hour	275	275	275	i	L10 dB(A)	66.5	66.5	66.5	i
,	i	i	i	i		i		i	i
Traffic speed V km/h	50	50.1	50.1	i	Chart 4	i	i	i	i
Heavy vehicles p %	25	25	i 25	i	correction dB(A)	i 2.6	2.6	2.6	i
	i	i	i	i	i	i	i	i	i
Gradient G %	ì	8	j 8	i	Chart 6 correction dB(A)	i o	2.4	2.4	i
	ì	UP	I UP	i		i	i		ì
Road surface	IMPRE.	PRE.	PRE.	i	correction dB(A)	-1	-3.5	-3.5	i
	i	i	•	i		i	i	i	i
Chart 5 (up ramp) V = 9.9 km//	ı .	•		•	Basic Noise Level dB(A)	68.1	68	68	İ
PROPAGATION					_				
			SEGMENT		_l	1	:	SEGMENT	
	<u> 1 </u>	2	3	4	_	1_1_] 2	3	4
Shortest horizontal	Ī	l	1	1	Ì	Ì		Ì	1
distance d m	73	71	78.5	l	Chart 7	-7.7	-7.6	-8	ĺ
leight relative to source h m	26.5	25	23.7	ĺ	correction dB(A)	İ	ĺ	İ	ĺ
	Ĩ	ĺ	İ	ĺ	Ì	ĺ	Ì	ĺ	İ
Ave. height of propagation H m	n/a	n/a	n/a	ĺ	Chart 8	İ	İ	İ	İ
Absorbent ground cover I]			ļ	correction dB(A)	ĺ	j		ĺ
	1		I	1		1	j		1
Barrier path difference m	80.		1	1	Chart 9 correction dB(A)	-1.3	1		1
					1		<u> </u>		1
					Propagation Correction dB(A)	-9.0	-7.6	-8	
SITE LAYOUT					_				
			SEGMENT		_l	<u> </u>	!	EGMENT	
	1	2	3	4	_	11	2	3	4
Facade	Ţ ļ		ļ	İ	correction dB(A)	2.5	2.5	2.5	ĺ
]	!		Ī	ļ.,		ļ
Opposite facade angle deg.] 0	0	1 0	!	reflection correction dB(A)	0	0	0	
	[]			<u> </u>		!			
angle of view segment deg.	30	46	36	!	Chart 10 correction dB(A)	-7.8	-5.9	-7.0	ļ
]		Į	l	1	<u> </u>	<u></u>		
					Site Layout Correction dB(A)	-5.3	-3.4	-4.5	
COMBINING NOISE LEVELS						1	9	EGMENT	
						1	2	3	4

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION C (PM) 28m above ground - 3 m HEIGHT NOISE BARRIER AT CENTRAL RESERVE OF BBL

BASE NOISE LEVEL - KENNEDY TOWN PRAYA

			SEGMENT		_	1		SEGMENT	
	1_1_	2	3	4	_[1	1_2	3	4
Traffic flow q	ļ	ļ	!		Chart 2	!	!		
veh/hour	942	942			L10 dB(A)	71.9	71.9		1
Fraffic speed V km/h	I I 30	! ! 30			 Chart 4	i	 	İ	i i
Heavy vehicles p %	25	25	i i		correction dB(A)	2.2	2.2		i
		i	i i			j			į
Gradient G %					Chart 6 correction dB(A)	0	[0		
Road surface	! !	IMPRE	VIOUS		correction dB(A)	-1	-1		
	I				 Basic Noise Level dB(A)	73.1	73.1		1
PROPAGATION					_				
	1		SEGMENT		_1		5	SEGMENT	
	1	2		4	_[1	2	3	4
Shortest horizontal			!!!		l Ohant 7	!			!
distance d m Height relative to source h m	6 27.5	6.5 27.5		 !	Chart 7 correction dB(A)	-3.5	-3.3	<u> </u>	1
seight relative to source n m	21.3 	<i>21.</i> 5 			correction ds(A)	i I	! ! !		}
Ave. height of propagation H m	l In/a	ı In/a	; ;		Chart 8	0			1
Absorbent ground cover I	'''		i i		correction dB(A)	i	i		ì
darrier path difference m	į	į	į į		Chart 9 correction dB(A)	İ			į
assici patri arricicisci iii		I			i	-3.3	<u> </u>		į
SITE LAYOUT	_				- .				-
	 1	2	SEGMENT	,	- İ			EGMENT	
acade	<u> </u>	<u> </u>	3	4	- correction dB(A)	2.5	2.5	3	4
	! !		i i		Sorrection abox				i
opposite facade angle deg.					reflection correction dB(A)		İ		İ
angle of view segment deg.	135	36			Chart 10 correction dB(A)	-1.2	-7.0		!
1			1 1		Site Layout Correction dB(A)	1.3	-4.5		
OMBINING NOISE LEVELS								FOMENT	
CONDITION HOLDE ELVELS						!——— 1	2 I	EGMENT 3	1 4
					Basic Noise Level dB(A)	73.1	73.1		
					Propagation Correction dB(A)	 -3.3	-3.3		
					Site Layout Correction dB(A)	 <u>1.3</u>	 -4.5		
					Noise Contribution dB(A)	71.1	65.3		
			i	Chart	11 Combined Noise Level dB(A)	 	72.1	1	•
OCATION C (PM) : Predicted valu	a of 11	Ո /1-Þ:				1			
CONTINUE (FIT) - FIGURECEU VALU	C UI LI	<u> </u>	MIJ UD (
ASE NOISE LEVEL - ROUTE 7 DOWN					dB(A)				
<u> ASE NOISE LEVEL - GROUND LINK W</u>	<u>estboun</u>	U		67.2	dB(A)				

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	67.1 dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	67.2 dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	55.5 dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	60.4 dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	72.1_d8(A)

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION A (PM) 22m above ground

BASE NOISE LEVEL - GROUND LINK EASTBOUND - NOISE BARRIER AT CENTRAL RESERVE 3m HEIGHT

	1		SEGMENT		1	1		SEGMENT			
	1	2] 3	<u> 4</u>	i	1	2	3	4		
Traffic flow q	j	ĺ	Ì	Ī	Chart 2	ĺ	İ	1			
veh/hour	532	532	532	532	L10 dB(A)	69.4	69.4	69.4	69.4		
Traffic speed V km/h	i i 50	 50	! ! 50	 50	 Chart 4	1	 	 			
Heavy vehicles p %] 36] 25	1 25	25	1 25	correction dB(A)	2.6	l 2.6	2.6	2.6		
neary veniletes p is	1		1		1		, <u></u> i	2.0	-:- 0		
Gradient G %	į	•	•	•	Chart 6 correction dB(A)	0	0	į o	0		
Road surface	! !	PREVIO	us		correction dB(A)	-3.5	 -3.5	 -3.5	 -3.5		
	I				Basic Noise Level dB(A)	68.5	68.5	68.5	68.5		
PROPAGATION .											
	1		SEGMENT			1	SEGMENT				
	1	2	3	4	İ	1	2	3	4		
Shortest horizontal	1	ļ	l	ļ.	ĺ	1	Ī	1	l		
distance d m	50	41	41	45.5	Chart 7	-6.2	-5.5	-5.5	-5.9		
Height relative to source h m	20.5	20.5	20	20	correction dB(A)	ļ	ļ	ļ	<u> </u>		
Ave height of propagation U m	 n/a	l In/a	 n/a	l In/a	Chart 8	1 0	l I 0	 0	l I 0		
Ave. height of propagation H m Absorbent ground cover I	n/a !	117 a 	11/4 	II/a 	correction dB(A)	"	'	, U	1		
Absorberic ground cover 1	1 1	ì]	i	Correction abox	i	! 	! !	! 		
Barrier path difference m	.17	.09	.10	.14	Chart 9 correction dB(A)	-10.4	-9.2	-9.4	-10.0		
	! 				Propagation Correction dB(A)	-16.6	-14.7	-14.9	-15.9		
SITE LAYOUT			SEGMENT	<u></u>	1	SEGMENT					
	1	l 2	1 3	1 4	i	i 1	2	i 3 i	4		
Facade		 	İ		correction dB(A)	2.5		2.5	2.5		
Opposite facade angle deg.	35	 33) 0	0	reflection correction dB(A)	1.5	1.5	0	0		
Angle of view segment deg.	35	33	I 70 I	25	Chart 10 correction dB(A)	-7.4	-7.4	-4.1	-8.6		
	ļ		ı	1	Site Layout Correction dB(A)	-3.4	-3.4	-1.6	-6.1		
COMBINING NOISE LEVELS								COMENT			
CONDITION NOISE LEVELS						1 1	2	EGMENT			
					Basic Noise Level dB(A)	68.5	68.5	68.5	68.5		
					Propagation Correction dB(A)	 -16.6	i	l	-15.9		
						į į	Ì	į	ĺ		
					Site Layout Correction dB(A)	<u>-3.4</u> 	-3.4	-1.6 	<u>-6.1</u>		
					Noise Contribution dB(A)	48.5	50.4	52.0	46.5		
				Chart '	11 Combined Noise Level dB(A)		55.9				

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION A (PM) 22m above ground - 3m HEIGHT NOISE BARRIER AT CENTRAL RESERVE OF BBL

BASE NOISE LEVEL - KENNEDY TOWN PRAYA

			SEGMENT		1	1		SEGMENT	
	1	2	1 3	1 4	 	<u>i 1 </u>	2	[3	1 4
Traffic flow q	i	ĺ	ī	Ī	Chart 2	i	Ĭ ']	Ī
veh/hour	942	942	942	į	L10 dB(A)	71.9	71.9	71.9	į
Traffic speed V km/h	j 30	30	 30	1	Chart 4		1	 	
Keavy vehicles p %	25	25	25	1	correction dB(A)	2.2	2.2	2.2	1
Gradient G %		'	1	1	Chart 6 correction dB(A)	0	0	0	
Road surface	IMPREVIOUS				correction dB(A)	-1	-1	 -1	!
	I				 Basic Noise Level dB(A)	73.1	73.1	73.1	
PROPAGATION					_				
	<u> </u>		SEGMENT		-!	<u> </u>		SEGMENT	
	<u> 1</u>	2	3	4	_[_1_	2	3	<u> </u>
Shortest horizontal		ļ ,			Chant 7				
distance d m	4	4	4	ļ	Chart 7	-2.2	-2.2	-2.2	[
Height relative to source h m	21.5 	21.5	21.5	 	correction dB(A)	1	1] i
Ave. height of propagation H m	l In/a	i in/a	ı In/a	! 	 Chart 8	0	i 0	i i 0	!
Absorbent ground cover I	i	i		i	correction dB(A)	i	i	i	i
J J 20,000	i	i	i	i]	i	i	i
Barrier path difference m	į	İ	i	İ	Chart 9 correction dB(A)	į	į	į	į
					Propagation Correction dB(A)	-2.2	-2.2	-2.2	
SITE LAYOUT					- ,	.—			
		l 2	SEGMENT 1 3	1 4	-	<u> </u>	! 2	<u>SEGMENT</u> I 3	! 4
Facade	<i>!</i>	 			_ correction dB(A)	2.5	2.5	2.5	
Opposite facade angle deg.	27	j 0	j 1 0	l I	reflection correction dB(A)	1 1.2	j I 0	0	j I
Angle of view segment deg.	j 34	120	j j 21	į	Chart 10 correction dB(A)	-73	 -1.8	-0.7	
rigte of view segment deg.] 34	120	21	! 	İ	ii			
					Site Layout Correction dB(A)	-3.5	.7	-6.8	
COMBINING NOISE LEVELS						ı 		SEGMENT	
						1	2	3	4
					Basic Noise Level dB(A)	73.1	73.1	73.1	
					Propagation Correction dB(A)	-2.2	-2.2	-2.2	
						1		l	

Site Layout Correction dB(A)

73.5

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

LOCATION A (PM): Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	70.5 d	B(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	65.0 d	B(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	56.0 d	B(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	61.7 d	B(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	73.5 di	B(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND

			SEGMENT		_l			SEGMENT	
	11	2	3	4	_[1_1_	1 2	3	4
Traffic flow q	ĺ	1	1	1	Chart 2	ı	1	1	
veh/hour	807	532	532	532	L10 dB(A)	71.2	69.4	69.4	69.
Traffic speed V km/h	50	50	50	50	Chart 4	}			
Heavy vehicles p %	25 	25 	25 	25 	correction dB(A)	2.6	2.6	2.6	2.
Gradient G %	į	•	•	•	Chart 6 correction dB(A)	0	0	0	!
Road surface	PREVIOUS			correction dB(A)	-3.5	-3.5	-3.5	 -3.	
	1				Basic Noise Level dB(A)	70.3	68.5	68.5	68.
PROPAGATION	<u> </u>				- .				
	ļ <u> </u>	1 2	SEGMENT		-			SEGMENT	
Shortest horizontal	_1_	1 2	3	4	- 	_1	2	3	4
distance d m	1 1 69	l 69	69	l l 84	Chart 7	1 -7 5	 -7.5	-7.5	I -8.
Height relative to source h m	23.5	123.5	123.5	23.5	correction dB(A)	1	' 	i (, J.
mergine rectative to source it in	123.3	1	1	1	Correction abox	i I	i	l Î	!
Ave. height of propagation H m	l n/a	n/a	l n/a	l n/a	Chart 8	i	i	i	!
Absorbent ground cover I					correction dB(A)	į	į	į	
Barrier path difference m	.24	.24	.24	.33	Chart 9 correction dB(A)	-11.2	 -11.2	 -11.2	∤ -12.
					Propagation Correction dB(A)	-18.7	-18.7	-18.7	-20.
SITE LAYOUT									
	1		SEGMENT		I	1	:	SEGMENT	
	1	2	3	4	j	1	1 2] 3	4
Facade		İ	 		correction dB(A)	2.5	2.5	2.5	2.:
Opposite facade angle deg.		į	İ	ļ	reflection correction dB(A)				1
Angle of view segment deg.	53	33	24	28	Chart 10 correction dB(A)	-5.3	 -7.4	-8.8	-8.
	J	I	1	ļ	Site Layout Correction dB(A)	-2.8	-4.9	-6.3	-5.
CONDINING NOISE LEVELS								NE OMENIE	
COMBINING NOISE LEVELS							<u>.</u>	SEGMENT	4
					Basic Noise Level dB(A)	70.3		68.5	68.
					Propagation Correction dB(A)	 -18.7	 -18.7	 -18.7	-20.
					1	1	1	i i	
					Site Layout Correction dB(A)	-2.8	-4.9	-6.3	-5.

Chart 11 Combined Noise Level dB(A)

51.7

Rounding to the nearest whole number:

CASE NOISE LEVEL - ROUTE 7 UP RAMP

	l	-	SEGMENT	I		SEGME			
	11	2	3	1 4		1	2	3	4
Traffic flow q	ĺ	Ī	Ĭ	İ	Chart 2	j]	ĺ	ĺ
veh/hour	275	275	275	!!!	L10 dB(A)	66.5	66.5	66.5	ļ
Traffic speed V km/h	50	 50.1	 50.1	! ! 	Chart 4	1] [!]
Heavy vehicles p %	25	25	25		correction dB(A)	2.6	2.6	2.6	!
Gradient G %		8	8	 	Chart 6 correction dB(A)	0	2.4	2.4	
	1	UP	UP			1	1	1	
Road surface	PRE.	PRE.	PRE.		correction dB(A)	-3.5	-3.5	-3.5	
Chart 5 (up ramp) V = 9.9 km	- { ∕h	ı		ı i	Basic Noise Level dB(A)	65.6	68	68	[[
PROPAGATION	/n				Rasic Moise Fever GR(A)	1 03.0	J 68	68	

· · · · · · · · · · · · · · · · · · ·			SEGMENT			I
	1	1 2	3	4		1
Shortest horizontal	i	i	i	i		i
distance d m	80	j 82	99	i i	Chart 7	j -8
Height relative to source h m	23.5	23.2	20.2		correction dB(A)	į
Ave. height of propagation H m	l n/a	l n/a	l l n/a]	Chart 8	1
Absorbent ground cover I	į	į	į	į į	correction dB(A)	į
Barrier path difference m	 .02				Chart 9 correction dB(A)	 -3.1
	 			 	Propagation Correction dB(A)	<u></u>

	I		SEGMENT	
	1	2	3	4
	1	1		
	8-	-8.1	-8.8	
n dB(A)	[l	1 1	
	1			
	1	!		
ndB(A)	Į.	<u> </u>	!!	
	!	!	!!!	
orrection dB(A)	-3.1	!	!!!	
			<u> </u>	
on Correction dB(A)	-11 . 1	-8.1	-8.8	

SITE LAYOUT

		<u></u>		SEGMENT	
		1	2	3	4
Facade] 	İ
Opposite facade angle	deg.	0	0	0	
Angle of view segment	deg.	33	25	27	

correction dB(A)
reflection correction dB(A)
Chart 10 correction dB(A)
Site Layout Correction dB(A)

			SEGMENT	
	1	2	3	4
	2.5	2.5	2.5	[
		ĺ	İ	İ
	0	j o	0	
Ì		Ì	İ	
i	-7.4	-8.6	-8.2	
ĺ			<u> </u>	
i	-4.9	-6.1	-5.7	

COMBINING NOISE LEVELS

Basic Noise Level dB(A)
Propagation Correction dB(A)
Site Layout Correction dB(A)
Noise Contribution dB(A)
Chart 11 Combined Noise Level dB(A)

	,	SEGMENT	
1	_2	3	4
65.6	68	68	
-11.1	-8.1	 -8.8	
-4.9	-6.1	 -5.7	
49.7	53.8	53.5	
	57.5		

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION B (PM) 25m above ground - 3 m HEIGHT NOISE BARRIER AT CENTRAL RESERVE OF BBL

CASE NOISE LEVEL - KENNEDY TOWN PRAYA

•	1		SEGMENT		I	1	-	SEGMENT	•
	1 1	1 2	1 3	1 4	I I	1 1	l 2	1 3	1 4
Traffic flow q	i	<u> </u>	i	İ	Chart 2	1	<u> </u>	<u>; </u>	i
veh/hour	942	į	İ	İ	L10 dB(A)	71.9	İ	i	İ
	!	!	ļ	ļ	Į.			I	1
Traffic speed V km/h	30	ļ	!	!	Chart 4	!	!	!	!
Heavy vehicles p %	25	 			correction dB(A)	2.2	 -		
Gradient G %	ļ .	J	1	I	Chart 6 correction dB(A)	0	! !	!	
Road surface] 	IMPREV	/Ious		correction dB(A)	-1	 	l 	
	I				Basic Noise Level dB(A)	 73.1	 	 	
PROPAGATION									
]		SEGMENT		I	<u> </u>	···	SEGMENT	
Chamban basina t	1	2	3	4	!	1	2	3	4
Shortest horizontal distance d m	 5	i 1		 	¦ Chart 7	 -2.8	 		
	24.5	1 	1] 	chart / correction dB(A)	-2.0 	! 	 	t 1
ge reserve to sedice if iii	;- 	! 	i			1	! 	 	i
Ave. height of propagation H m	n/a		i	i	Chart 8	0		i	i
Absorbent ground cover I	ļ į		!	ļ	correction dB(A)	İ			ĺ
Baratan makadise]		1	ļ		ļ		!	ļ
Barrier path difference m	! ! !	J	i	l	Chart 9 correction dB(A)] 	
	;				!			;	•
	l				Propagation Correction dB(A)	-2.8		1	1
	I				Propagation Correction dB(A)	-2.8		ı	ł
SITE LAYOUT	·		SEGMENT		Propagation Correction dB(A)	-2.8		SECMENT	<u> </u>
SITE LAYOUT	 1	2	SEGMENT		Propagation Correction dB(A)	-2.8	2	SEGMENT	
SITE LAYOUT Facade	 <u>-</u> 1 				Propagation Correction dB(A) correction dB(A)	· 	2		 4
Facade	 1				 correction dB(A)	 1	2		
Facade Opposite facade angle deg.					correction dB(A) reflection correction dB(A)	2.5	2		
.	 				 correction dB(A)	1 2.5	2		
Facade Opposite facade angle deg.					correction dB(A) reflection correction dB(A)	2.5	2		
Facade Opposite facade angle deg. Angle of view segment deg.					correction dB(A) reflection correction dB(A) Chart 10 correction dB(A)	2.5] 3 	
Facade Opposite facade angle deg.					correction dB(A) reflection correction dB(A) Chart 10 correction dB(A)	1 2.5 0 2 2.3	2] 3] 	4
Facade Opposite facade angle deg. Angle of view segment deg.					correction dB(A) reflection correction dB(A) Chart 10 correction dB(A)	2.3] 3 	
Facade Opposite facade angle deg. Angle of view segment deg.				4	correction dB(A) reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A)	2.3	2] 3] 	4
Facade Opposite facade angle deg. Angle of view segment deg.				4	correction dB(A) reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A) Propagation Correction dB(A)	2.5	2] 3] 	4
Facade Opposite facade angle deg. Angle of view segment deg.				4	correction dB(A) reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A) Propagation Correction dB(A) Site Layout Correction dB(A)	2.5 0 2 2.3 73.1 73.1 -2.8 2.3	2] 3] 	4
Facade Opposite facade angle deg. Angle of view segment deg.				4	correction dB(A) reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A) Propagation Correction dB(A)	2.5	2] 3] 	4
Facade Opposite facade angle deg. Angle of view segment deg.				4	correction dB(A) reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A) Propagation Correction dB(A) Site Layout Correction dB(A)	2.5 0 2 2.3 73.1 73.1 -2.8 2.3	2] 3] 	4

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	64.4	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	65.1	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	51.7	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	57.5	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	72.6	dB(A)

Rounding to the nearest whole number:

BASE NOISE LEVEL - GROUND LINK EASTBOUND

	1		SEGMENT	· 	_	l		SEGMENT	
	1_1_	1 2	3	4	_1	1_1	2	3	4
Traffic flow q	J	1	1	1	Chart 2	1		1	ĺ
veh/hour	807	532 	532 	532	L10 dB(A)	71.2	69.4	69.4 	69.
Traffic speed V km/h	50	50	50	50	Chart 4			İ	
Heavy vehicles p %	25 	25 	25 	25	correction dB(A)	2.6	2.6 	2.6	2. ₁
Gradient G %		'	•	ī	Chart 6 correction dB(A)	0	0	0	; (
Road surface		PREVIO	ous		correction dB(A)	-3.5	 -3.5	-3.5	-3.
	1	•			Basic Noise Level dB(A)	70.3	68.5	68.5	68.
PROPAGATION					_				
	<u> </u>		SEGMENT		-[SEGMENT	
Ohannan kasimostal		2	1 3	4_	- [_1_	2	3	4_
Shortest horizontal distance d m	 61	 61	l l 60	l 166.5	l Chart 7	 _7 1	 -7.1	 -7	-7.4
	26.5	26.5	126.5	26.5	correction dB(A)	-/	; -re: 1] -,]	- 7 • ·
neight retative to source it in	1	20.5 	1	1	I	1	<u> </u>] 	
Ave. height of propagation H m	n/a	l In/a	l n/a	n/a	 Chart 8	i	i	i	
Absorbent ground cover I	"-			1.0	correction dB(A)	į	į	į	
Barrier path difference m	.14	1 .14	1 .13	_17	Chart 9 correction dB(A)	-9.9	 -9.9 	 -9.8 	-10.4
					Propagation Correction dB(A)	-17.0	-17.0	-16.8	-17.8
A.T							•		
SITE LAYOUT	_ 		SEGMENT		- '	,——		COMENT	
		1 2	JEGMEN!	1 4	-{ 		1 2	<u>segment</u> I 3 I	4
Facade	<u> </u>	<u></u> .		 	- correction dB(A)	2.5		2.5	2.5
Opposite facade angle deg.	! !	{ 	! !		reflection correction dB(A)	!		 	
Angle of view segment deg.	26	 26	46	36	Chart 10 correction dB(A)	-8.4	-8.4	-5.9	-7.0
	I		ı	l	Site Layout Correction dB(A)	-5.9	-5.9	-3.4	-4.5
COMBINING NOISE LEVELS						<u> </u>		EGMENT	 -
					Proje Neige Level - 1944	1 70 7	2	3	4
					Basic Noise Level dB(A)	70.3	00.0	68.5	68.5
					Propagation Correction dB(A)	-17.0	-17.0	-16.8	-17.8
					Site Layout Correction dB(A)	 -5.9	-5.9	-3.4	-4 <u>.5</u>

Chart 11 Combined Noise Level dB(A)

52.98

Rounding to the nearest whole number:

BASE NOISE LEVEL - ROUTE 7 UP RAMP

	1		<u>SEGMENT</u>			I		SEGMENT	
	1_1_) 2	1 3	4		1	2	3	4
Traffic flow q	į –	1	1		Chart 2	1		1	
veh/hour	275	275	275		L10 dB(A)	66.5	66.5	66.5	į
Traffic speed V km/h	 50	 50.1	i 50.1	1 I	Chart 4	1	l İ	 	(
Heavy vehicles p %	25	25	į 25	į į	correction dB(A)	2.6	2.6	2.6	į
Gradient G %		8	8		Chart 6 correction dB(A)	0	2.4	1 2.4	
Road surface	 PRE.	UP PRE.	UP PRE.		correction dB(A)	-3.5	 -3.5	 -3.5	1
Chart 5 (up ramp) V = 9.9 km/h	l	I		į l	Basic Noise Level dB(A)	65.6	68	68	!
PROPAGATION									
	<u> </u>		SEGMENT			l		SEGMENT	
	1	2	3	<u> 4 </u>		1_1_	2		4
Shortest horizontal	<u> 1</u> 	i		<u> 4 </u> 		1 		l	4
	<u>1</u> 73	2 71	3 78.5	4 	Chart 7	<u>1</u> -7.7		3 -8	4
distance d m	1 73 26.5	i		<u>4</u> 	Chart 7 correction dB(A)	<u>1</u> -7.7		l	4
distance d m Height relative to source h m	26.5	71	 78.5	4 		<u>1</u> -7.7		l	4
distance d m Height relative to source h m Ave. height of propagation H m	26.5	 71 25	 78.5 23.7	4	correction dB(A)	1		l	4
Shortest horizontal distance d m Height relative to source h m Ave. height of propagation H m Absorbent ground cover I Barrier path difference m	26.5	 71 25	 78.5 23.7	4	correction dB(A) Chart 8	1		l	4

SI	TE	LA	YO	UŦ
----	----	----	----	----

	`		SEGMENT	l		SEGMENT				
	_1	_2	3	<u>4</u>		1_1_	2] 3		
Facade	1			İ	correction dB(A)	2.5	2.5	2.5		
				1				i		
Opposite facade angle deg.	0	0	0		reflection correction dB(A)	0	0	0		
							1			
Angle of view segment deg.	30 J	46	36		Chart 10 correction dB(A)	7.8	-5.9	-7.0		
	ſ]]			<u> </u>		1		
			•		Site Layout Correction dB(A)	-5.3	-3.4	-4.5		

BINING NOISE LEVELS		SEGMENT					
		1_1	2	3]	4		
	Basic Noise Level dB(A)	65.6	68	68			
	Propagation Correction dB(A)	-9.0	-7.6	-8 -8			
	Site Layout Correction dB(A)	-5.3	-3.4	-4.5			
	Noise Contribution dB(A)	 <u>51.3</u>	57.0	 <u>55.5</u>			

Chart 11 Combined Noise Level dB(A)

60.0

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION C (PM) 28m above ground - 3 m HEIGHT NOISE BARRIER AT CENTRAL RESERVE OF BBL

	1		SEGMENT			1		SEGMENT	
	1	I 2	l 3	1 4	-: 	i 1	2	1 3	1 4
Traffic flow q]	i	1	1	Chart 2	i		<u> </u>	i
veh/hour	942	942	i	i	L10 dB(A)	71.9	71.9	İ	i
	i	i	i	i		i	i	i	i
Traffic speed V km/h	j 30	į 30	İ	ì	Chart 4	İ	Ì		ĺ
Heavy vehicles p %	25	25		1	correction dB(A)	2.2	2.2		1
Gradient G %	 	1	!	l	Chart 6 correction dB(A)	0	 0		
	İ					ĺ	l		ĺ
Road surface		IMPRE	VIOUS		correction dB(A)	-1	-1		
	1				Basic Noise Level dB(A)	73.1	73.1		
PROPAGATION	_				- .	.—		· · · · · ·	
	ļ		SEGMENT		-!	ļ		SEGMENT	
Shortest horizontal	1_1_	2	3	4	-	1	2	3	4
distance d m	1 6	 6.5	l I	1	 Chart 7	-3.3	l -3.3		1
	27.5	127.5	1	1	correction dB(A)	1 3.3	-3.3 		i
neight retained to source it in]	i	i	1	ł	! 		ŀ
Ave. height of propagation H m	n/a	n/a	i	i	Chart 8	j o	i o		i
Absorbent ground cover I	i	i	i	i	correction dB(A)	i	i i		i
	i	İ	ĺ	j	İ	Ī	ĺ		ĺ
Barrier path difference m	ļ		l		Chart 9 correction dB(A)	!	! !		!
	 				Propagation Correction dB(A)	-3.3	-3.3		
SITE LAYOUT			OF CHENT		· -	,——		SOURIE	
	 1	l 2	SEGMENT I 3	1 4	- -	1		EGMENT 3	1 4
Facade	<u>'-</u>	<u> </u>	 	1	-! ! correction dB(A)	2.5			<u> </u>
	i	i	i	ì					i
Opposite facade angle deg.	į	Ì	İ	į	reflection correction dB(A)	į			į
		I 36	 	[Chart 10 correction dB(A)	-1.2	-7.0		
Angle of view segment deg.	135	!	•						1
Angle of view segment deg.	135 	i	1	l	Site Layout Correction dB(A)	1.3	-4.5		İ
Angle of view segment deg.	135	İ	1	l	Site Layout Correction dB(A)	1.3	-4.5		i
	135	i	1	l	Site Layout Correction dB(A)		S	EGMENT	
	135	i	!	l		 	s 2	EGMENT	4
Angle of view segment deg.	135	i ~~	1	l	Site Layout Correction dB(A) Basic Noise Level dB(A)		s 2		

	ļ		EGMENT	
	11	2	3	1 4
Basic Noise Level dB(A)	73.1	73.1		į į
Propagation Correction dB(A)	-3.3	-3.3		į į
Site Layout Correction dB(A)	1.3	-4.5		
Noise Contribution dB(A)	71.1	65.3		
Chart 11 Combined Noise Level dB(A)	 	72.1		

LOCATION C (PM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	66.3 dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	64.7 dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	53.0 dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	60.0 dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	72.1 dB(A)

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION A (PM) 22m above ground

BASE NOISE LEVEL - GROUND LINK WESTBOUND - 3M HEIGHT NOISE BARRIER AT INNER SIDE

			SEGMENT		I	1		SEGMENT	
	1	1 2	3	4	-	1	1 2	3	4
Traffic flow q		ĺ	ì	İ	Chart 2	i	1	Ì	1
veh/hour	585	585	585	585 	L10 dB(A)	69.8	69.8	69.8	69.8
Traffic speed V km/h	50	50	50	50	Chart 4				<u> </u>
Heavy vehicles p %	25	25] 25 t	25 	correction dB(A)	2.6	2.6	2.6	2.6
Gradient G %		'	•	1	Chart 6 correction dB(A)	0	0	0	0
Road surface		IMPREV	IOUS		correction dB(A)	-1	i i -1	-1	
	1				Basic Noise Level dB(A)	71.4	71.4	71.4	71.4
PROPAGATION					.				
			SEGMENT		-	ļ		SEGMENT	
Shortest horizontal	1	1 2	3	4	-	1	2	3	<u> 4 </u>
distance d m	1 40	 30.5	1 30	 37	Chart 7	 -5.5	 -4.6	 -4.6	 -5.2
	•	20.5	20	[20	correction dB(A)	7.7] 7. 0	7.5 	"•"
neight retailed to source it in	1	20.5 	1	1	l	i	1] 	! ! ! !
Ave. height of propagation H m	n/a	in/a	l n/a	n/a	Chart 8	i 0	0	i o	
Absorbent ground cover I		.,, -		i	correction dB(A)		i		
J	ĺ	i	İ	i		i	i	i	i
Barrier path difference m	.01	j . 01	.02	.07	Chart 9 correction dB(A)	-6.7	-6.7 	-6.8	-8.7
	i				Propagation Correction dB(A)	-12.2	-11.3	-11.4	-13.9
SITE LAYOUT	.——		2504547		-	, 			 .
	! 1	<u>.</u>	SEGMENT I 3	4	d 1		1 2	SEGMENT I 3	! 4
Facade	¦ '	<u> </u>		_ 	. correction dB(A)	2.5	····	2.5	2.5
. 35446	i	<u> </u>			I]	5.5		
Opposite facade angle deg.	3 5	33		0	reflection correction dB(A)	1.5	1.5	0	0
Angle of view segment deg.	35	33	77	27	Chart 10 correction dB(A)	-7.1	-7.4	-3.7	-8.2
					Site Layout Correction dB(A)	-3.1	-3.4	-1.2	-5.7
COMBINING MOTOR LENGTH						.——			
COMBINING NOISE LEVELS							2	SEGMENT I 3 I	
					Basic Noise Level dB(A)	I		71.4	71 /
					THE RELIEF EDITOR METAL	''-7	, , . 	••• •	* * * * *
					Propagation Correction dB(A)	-12.2	-11.3	-11.4	-13.9
					Site Layout Correction dB(A)	-3.1	-3.4	-1.2	<u>-5.7</u>
					Noise Contribution dB(A)	56.1	56.7	58.8	51.8

Chart 11 Combined Noise Level dB(A)

62.5

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA

			SEGMENT			<u> </u>	SEGMENT				
	<u> </u> 1	2	[3] 4		1_1	2	3	4		
Traffic flow q	i	ĺ	Ì	i i	Chart 2	İ	Ì	İİ	ĺ		
veh/hour	942	942	942		L10 dB(A)	71.9	71.9	71.9			
Traffic speed V km/h	i 30	 30]] 30	 	Chart 4	i]]	 	 		
Heavy vehicles p %	25	25	25		correction dB(A)	2.2	2.2	2.2			
Gradient G %		ı	ı	i	Chart 6 correction dB(A)	0	 0	0	 		
Road surface		IMPREV	/Ious	ļ	correction dB(A)	-1	 -1	-1	 		
	I			ļ	Basic Noise Level dB(A)	73.1	73.1	 73.1	 		

PROPAGATION

	1		SEGMENT		1		:	SEGMENT	
	<u> 1</u>	2	3	1 4		1_1	2	3	4
Shortest horizontal	i	i	İ	1		Ì	ĺ	İ	
distance d m	4	4	4	1	Chart 7	-2.2	-2.2	-2.2	
Height relative to source h m	21.5	21.5	21.5		correction dB(A)				
Ave. height of propagation H m	l n/a	l n/a	∤] n/a	 	 Chart 8	0	1 0	 0]]
Absorbent ground cover I	Ì	j	Ì	İ	correction dB(A)	İ	ĺ	j	j
	1	1	1	1		1			
Barrier path difference m		1	1	1	Chart 9 correction dB(A)	1			
						1			
	1				Propagation Correction dB(A)	-2.2	-2.2	-2.2	1 . [

SITE LAYOUT

	1	SEGMENT				SEGMENT		_[
	1 2	13 4		1_1_	2	3	4	Ĺ
Facade	1	i į	correction dB(A)	2.5	2.5	2.5	ĺ	Ì
	1	1 1			1	1		1
Opposite facade angle deg.	[27 0	1 0 1	reflection correction dB(A)	1.2	0) 0	1	-
	1 1	[]		1		1	1	1
Angle of view segment deg.	34 120	21	Chart 10 correction dB(A)	-7.2	-1.8	-9.3	l	1
]		<u> </u>	<u> </u>	<u> </u>	!	ļ
•			Site Layout Correction dB(A)	-3.5	.7	-6.8	1	-

COMBINING NOISE LEVELS

	l		SEGMENT	
	1		3	4
Basic Noise Level dB(A)	73.1	73.1 	73.1	į
Propagation Correction dB(A)	-2.2 	 -2.2 	-2.2	İ
Site Layout Correction dB(A)	<u>-3.5</u> 	.7	<u>-6.8</u>	į
Noise Contribution dB(A)	67.4	71.6	64.1	į
Chart 11 Combined Noise Level dB(A)		73.5		i

LOCATION A (PM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	70.5	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	62.5	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	67.8	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	61.7	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	73.5	dB(A)

Rounding to the nearest whole number:

Traffic flow q	<u> 1</u>		SEGMENT			I		SEGMENT	
	<u> </u>	2	3	4		1_1	2	3	1 4
	 1563	585	585	 585	Chart 2 L10 dB(A)	74.1	 69.8	69.8	69.
Traffic speed V km/h Heavy vehicles p %	 50 25	 50 25	 50 25	 50 25	Chart 4 correction dB(A)	2.6	 2.6	 2.6	 2,
Gradient G %		2	1	",	Chart 6 correction dB(A)	2.0	2.0 0	2.0	4.
					i	i	İ		
Road surface	 	IMPREV	IOUS		correction dB(A)	-1 	-1 	-1	·
					Basic Noise Level dB(A)	75.7	71.4	71.4	71.
PROPAGATION	,		SEGMENT	,		,——		SEGMENT	
		1 2	I 3	1 4	-I 		1 2	I 3	1 4
Shortest horizontal		T	i 			i		i	i
distance d m	63	[63	65	74	Chart 7	7.1	j -7.1	-7.2	į -7.
Height relative to source h m	23.5 	[23.5	23.5 	23.5 	correction dB(A)	1			[
Ave. height of propagation H m Absorbent ground cover I	n/a	n/a	n/a	n/a	Chart 8 correction dB(A)		 	 	
Barrier path difference m	1.10	1 .10	.22	27	Chart 9 correction dB(A)	-1.1	 -1.1 	 -11.0	[-11.
					Propagation Correction dB(A)	-8.2	-8.2	-18.2	-19.
SITE LAYOUT									
STIL EXION			SEGMENT		- 			SEGMENT	
	1_1_] 2	3	1 4	İ	1	2	3	4
Facade		Ì	1		correction dB(A)	2.5	2.5	2.5	2.
Opposite facade angle deg.	į	i	į	į	reflection correction dB(A)	į į		 	
Angle of view segment deg.	49	37	25	27	Chart 10 correction dB(A)	-5.7	-6.9	 -8.6 	 -8.
	•	•	•	•	Site Layout Correction dB(A)	-3.2	-4.4	-6.1	-5.
						,——		SEGMENT	
COMPINING NOISE LEVELS						·——			
COMBINING NOISE LEVELS						1 1	2	3	1 4
COMBINING NOISE LEVELS					Basic Noise Level dB(A)	75.7	71.4	3	71.
COMBINING NOISE LEVELS					Basic Noise Level dB(A) Propagation Correction dB(A)	1 75.7 -8.2	71.4	3	71.

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

	1		SEGMENT		.]	SEGMENT			
	<u> 1</u>	2	1 3	4	1	1_1	2	3	1
raffic flow q	i -	i	Ī	i	Chart 2	i	Ì	İ	i
/eh/hour	978	978	978	į	L10 dB(A)	72.1	72.1	72.1	į
raffic speed V km/h	i 50	 60	60		l Chart 4		! 	! 	
leavy vehicles p %	25	25	25		correction dB(A)	2.6	3.2	3.2	İ
aradient G %	1	 8	 8	! 	Chart 6 correction dB(A)	0	 0] 0	!
Road surface	IMPRE.	DOWN PRE.	DOWN PRE.	<u> </u>	correction dB(A)	 -1	 -3.5	 -3.5	
	İ	i	•	İ	Ī	<u> </u>	74.0	74.0	į
					Basic Noise Level dB(A)	/3./	71.8	71.8	l
ROPAGATION			SEGMENT			, 		SEGMENT	
	- 	l 2	3 3	1 4	.1 	 1	i	<u>зеомені</u> I 3	-
Shortest horizontal	— <u></u>	<u> </u>	i		i	i –	<u> </u>	i -	T
•	54.5	54.5	60	į	Chart 7	-6.6	-6.6	-6.9	i
eight relative to source h m	23.5	23.2	21.3		correction dB(A)	į	İ	 	į
ve. height of propagation H m	i n/a	l n/a	 n/a] [Chart 8			 	
bsorbent ground cover I	1			1	correction dB(A)				
arrier path difference m	-14	! 		1	Chart 9 correction dB(A)	-10.0		 	
	l				Propagation Correction dB(A)	-16.6	-6.6	-6.9	
SITE LAYOUT	,		SEGMENT		I			SEGMENT	
	!—— ! 1	1 2	1 3	4	! !	1 1	2	3	1
acade	! 				correction dB(A)	2.5		2.5	
pposite facade angle deg.	 0	0	0	<u> </u>	reflection correction dB(A)	0	0	0	
angle of view segment deg.	 40	 25	27		Chart 10 correction dB(A)	 -6.5	-8.6	-8.2	
				Ī	Site Layout Correction dB(A)		-6-1	-5.7	
					,	,,	•		
OMBINING NOISE LEVELS							S	EGMENT	
						1_1_	2	3	L
					Basic Noise Level dB(A)	73.7	71.8	71.8	
					Propagation Correction dB(A)	-16.6	-6.6	-6.9	

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

53.0 | 59.1 | 59.2

62.7

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION B (PM) 25m above ground - 3 m HEIGHT NOISE BARRIER AT INNER SIDE OF W/B OF BBL

CASE NOISE LEVEL - KENNEDY TOWN PRAYA

		SEGMENT			1		SEGMENT	
	1_1_	2 3	4		1	2	3	4
Traffic flow q	1			Chart 2	1		1	1
veh/hour	942	[L10 dB(A)	71.9			ļ
Traffic speed V km/h	30		! ! 	Chart 4			! 	!
Heavy vehicles p %	25	[]		correction dB(A)	2.2			ļ
Gradient G %		1 1] 	Chart 6 correction dB(A)	0		 	!
Road surface	i Ii	MPREVIOUS	ļ	correction dB(A)	-1		 	
	ı		ı	Basic Noise Level dB(A)	73.1		! [
PROPAGATION								
	<u> </u>	SEGMENT	[SEGMENT.	
Abantant bankara-1	1	2 3	4		1_1_	2	3	4
Shortest horizontal distance d m	 5	l l		Chart 7	1 -2 9 1		I	
	24.5]	! 	correction d8(A)	-2.8		i t	
meight retailive to source him	[24.5]	I I		correction da(A)	1		 	
Ave. height of propagation H m	I I		! ! ! !	Chart 8	1 0		1	i Í
Absorbent ground cover 1	""	i	i	correction dB(A)			1	!
	i i	i	i i		i i		i	i
Barrier path difference m	į i	j	i į	Chart 9 correction dB(A)	į į		į	į
	ļ			Propagation Correction dB(A)	-2.8		 	
SITE LAYOUT								
		SEGMENT					SEGMENT	
	1	2 3	4		1 1	2	3	4
Facade	1			correction dB(A)	2.5		1	
		!!	!!				!	
Opposite facade angle deg.	0	[[reflection correction dB(A)	0		 	i i
	173			Chart 10 correction dB(A)	2			
Angle of view segment deg.	1							l
Angle of view segment deg.	i i		l	Site Layout Correction dB(A)	2.3		j	l
Angle of view segment deg.	"	i i	l	Site Layout Correction dB(A)	2.3			
	i	l i	1	Site Layout Correction dB(A)			SEGMENT	
	i "-i	i i				2	SEGMENT	
Angle of view segment deg. COMBINING NOISE LEVELS	i ^m i	i i	[Site Layout Correction dB(A)				 4
	i ^{ma} i	i i						 4
	i ^{ma} i	į į	ı	asic Noise Level dB(A)	 1			 4

Chart 11 Combined Noise Level dB(A)

72.6

LOCATION B (PM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	62.7	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	65.5	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	63.0	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	58.1	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	72.6	dB(A)

Rounding to the nearest whole number:

	1		SEGMENT	l				SEGMENT	
	<u> </u>	2	3	<u> </u>		<u> 1</u>	2	3	4
Traffic flow q	į	İ	İ	i	Chart 2	İ	į		
veh/hour	1563	585	585	585	L10 dB(A)	74.1	69.8	69.8	69.
Traffic speed V km/h	 50	50	50	50	Chart 4	 	 	!]	
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6 	2.6	2.
Gradient G %		1	'	1	Chart 6 correction dB(A)	0	0	0	
Road surface	1	IMPRE\	/IOUS	ļ	correction dB(A)	-1	 -1	-1	 .
	1			l	Basic Noise Level dB(A)	75.7	71.4	71.4	71.
PROPAGATION .									
			SEGMENT					SEGMENT	. ,
Shortest horizontal	1_1_	2	1 3	<u> 4 </u>		1	2	3	4
Shortest norizontal distance d m	 50.5	50.5	l l 50	 55	Chart 7	1 -6 4	 -6.4	 -6.4	 -4
Height relative to source h m	26.5	26.5	26.5	26.5	correction dB(A)	-0.4	-0.4 	-0.4 	, -o.
	İ	İ	İ	j j		İ	ĺ	İ	
Ave. height of propagation H m	n/a	n/a	i n/a	n/a	Chart 8	!	!	!	
Absorbent ground cover I		1	[correction dB(A)		 	 	
Barrier path difference m	.43	.43	.06	.10	Chart 9 correction dB(A)	2	2	-8.6	-9.
	i				Propagation Correction dB(A)	-6.6	-6.6	-15.0	-16.
TITE LAYOUT									
SITE LAYOUT			SEGMENT	<u> </u>		1		SEGMENT	
SITE LAYOUT	 1	2	SEGMENT	 4		 	2	3	4
SITE LAYOUT	 1 	2			correction dB(A)	1 2.5	2	3	
	 1 	2			correction dB(A) reflection correction dB(A)	1 2.5	2	3	
Facade	 1 21	2	3			i 	2 2.5	3	2.
Facade Opposite facade angle deg.	 		3	4	reflection correction dB(A)	 -9.3	2.5	3 2.5 -5.9	-7.
Facade Opposite facade angle deg. Angle of view segment deg.	 		3	4	reflection correction dB(A) Chart 10 correction dB(A)	 -9.3	2.5	3 2.5 -5.9 -3.4	-7.
Facade Opposite facade angle deg. Angle of view segment deg.	 		3	4	reflection correction dB(A) Chart 10 correction dB(A)	 -9.3 -6.8	2 2.5 -7.6 -5.1	3 2.5 -5.9 -3.4	-7. -4.
acade Opposite facade angle deg. Ungle of view segment deg.	 		3	4 	reflection correction dB(A) Chart 10 correction dB(A)	 -9.3	2 2.5 -7.6 -5.1	3 2.5 -5.9 -3.4	-7. -4.
Facade Opposite facade angle deg.	 		3	4	reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A)	 -9.3 -6.8	2 2.5 -7.6 -5.1	3 2.5 -5.9 -3.4	-7. -4.
Facade Opposite facade angle deg. Angle of view segment deg.	 		3	4 	reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A)	 -9.3 -6.8 -6.8	2 2.5 -7.6 -5.1	3 2.5 -5.9 -3.4 3 71.4	-7. -4. 4
Facade Opposite facade angle deg. Angle of view segment deg.	 		3	4 	reflection correction dB(A) Chart 10 correction dB(A) Site Layout Correction dB(A) Basic Noise Level dB(A) Propagation Correction dB(A)	-9.3 -6.8 -6.8 1 75.7 -6.6	2 2.5 -7.6 -5.1 71.4 -6.6 -5.1	3 2.5 -5.9 -3.4 3 71.4 -15.0	-7. -4. -71. -16.

Rounding to the nearest whole number:

Traffic flow q		1		SEGMENT	1		1	:	SEGMENT	
		1_1_			,		1			4
Traffic speed V km/h 50 60 60 Chart 4 Correction dB(A) 2.6 3.2 3.2 3.2 Chart 6 Chart 6 Chart 6 Chart 6 Chart 6 Chart 6 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 7 Chart 8 Chart 8 Chart 8 Chart 8 Chart 9 Cha	Traffic flow q	ĺ	Ī	ĺ	İ	Chart 2	i -	Ì	ĺ	Ī
Sequent Sequ	veh/hour	978	978	978		L10 dB(A)	72.1	72.1	72.1	
Basic Noise Level dB(A)			60	 60		Chart 4			! [!
Note Content Note	Heavy vehicles p %	25	25	25 		correction dB(A)	2.6	3.2 	3.2	
MPRE. PRE. PRE. Correction dB(A)	Gradient G %	i	8	8		Chart 6 correction dB(A)	0	, 0	0	¦
Basic Noise Level dB(A) 73.7 71.8 71.8 71.8 PROPAGATION SEGMENT 1 2 3 4	Road surface	 IMPRE	•]	correction dB(A)	-1	 -3.5	 -3.5	
SEGMENT 1 2 3 4 1 2 3 4		1	İ		ii		i	<u>i</u>	<u>i</u>	İ
SEGMENT 1 2 3 4 1 2 3 4 1 2 3 4	NACO LOLITANI						,	,		
Stree Layout Segment	'RUPAGATIUN			SEGMENT	1				SEGMENT	
		1_1_	2	3	14	•	1	2	3	4
SEGMENT	Shortest horizontal	1]	1	1		1	l	1	l
SEGMENT	distance d m	41.5	41.5	43	1 1	Chart 7	-5.8	-5.8	-5.8	1
Correction dB(A) Chart 9 correction dB(A) -7.0	leight relative to source h m	26.5]25.7 !	24.2 		correction dB(A)		 	 	
Chart 9 correction dB(A) -7.0	Ave. height of propagation H m	n/a	n/a	n/a	i i	Chart 8	i	i	i	i
Propagation Correction dB(A) -12.8 -5.8 -5.8	Absorbent ground cover I	İ	į	į	įį	correction dB(A)	į	į	Ì	į
SEGMENT SEGMENT 1 2 3 4	Barrier path difference m	02	i	i 	! ! ! !	Chart 9 correction dB(A)	-7.0		 	
SEGMENT 1 2 3 4 1 2 3 4					i	Propagation Correction dB(A)	-12.8	-5.8	-5.8	
SEGMENT 1 2 3 4 1 2 3 4	ATTE LEVALE									
acade	ITE LATOUT	I		SEGMENT					SEGMENT	
Opposite facade angle deg. 0 0 0 reflection correction dB(A) 0 0 0 0 0 0 0 0 0		1	2	3	<u> </u>		i			4
ngle of view segment deg. 31 46 36 Chart 10 correction dB(A) -7.6 -5.9 -7.0	acade	İ] 1	correction dB(A)	2.5 	2.5	2.5 	
	opposite facade angle deg.	0	0	0		reflection correction dB(A)	0	0	0	
	ngle of view segment deg.	31	46	 36		Chart 10 correction dB(A)	-7.6	 -5.9	-7.0	
OMBINING NOISE LEVELS SEGMENT		ı	l	l	l I	Site Layout Correction dB(A)	-5.1	-3.4	-4.5	
OMBINING NOISE LEVELS SEGMENT										
	OMBINING NOISE LEVELS						<u> </u>		SEGMENT	

		3	SEGMENT	·····
·	1	2	3	4
Basic Noise Level dB(A)	73.7	71.8	71.8	
Propagation Correction dB(A)	-12.8	 -5.8	-5.8 	
Site Layout Correction dB(A)	-5.1	-3.4	-4.5	
Noise Contribution dB(A)	55.8	62.6	61.5	
Chart 11 Combined Noise Level dB(A)		65.6		i

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION C (PM) 28m above ground - 3 m HEIGHT NOISE BARRIER AT INNER SIDE OF W/B OF BBL BASE NOISE LEVEL - KENNEDY TOWN PRAYA SEGMENT SEGMENT Traffic flow q Chart 2 veh/hour 942 942 L10 dB(A) 71.9 | 71.9 Traffic speed V km/h 30 30 Chart 4 25 25 correction dB(A) Heavy vehicles p % 2.2 | 2.2 Chart 6 correction dB(A) 0 0 Gradient G % IMPREVIOUS Road surface correction dB(A) Basic Noise Level dB(A) | 73.1 | 73.1 **PROPAGATION** SEGMENT SEGMENT 4 Shortest horizontal 6.5 Chart 7 -3.3 l -3.3 distance d m 6 Height relative to source h m |27.5 127.5 correction dB(A) Ave. height of propagation H m | n/a n/a Chart 8 0 Absorbent ground cover I correction dB(A) Chart 9 correction dB(A) Barrier path difference Propagation Correction dB(A) | -3.3 | -3.3 | SITE LAYOUT SEGMENT SEGMENT correction dB(A) 2.5 2.5 Facade Opposite facade angle deg. reflection correction dB(A) Angle of view segment deg. 135 36 Chart 10 correction dB(A) -1.2 | -7.0 1.3 | -4.5 | Site Layout Correction dB(A) COMBINING NOISE LEVELS SEGMENT Basic Noise Level dB(A) 73.1 | 73.1 -3.3 | -3.3 Propagation Correction dB(A) 1.3 | -4.5 Site Layout Correction dB(A) Noise Contribution dB(A) 71.1 | 65.3 Chart 11 Combined Noise Level d8(A) 72.1 LOCATION C (PM) : Predicted value of £10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	65.6 dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	64.7 dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	65.5 dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	60.7 dB(A)
RASE NOISE LEVEL - KENNEDY TOWN PRAYA	72-1 dB(A)

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION A (PM) 22m above ground

BASE NOISE LEVEL - GROUND LINK WESTBOUND - 3M HEIGHT NOISE BARRIER AT INNER SIDE

	1		SEGMENT		- 1			SEGMENT	
	1 1	I 2	I 3	1 4	-! 	<u> </u>	1 2	1 3	1 4
Traffic flow q	i	1	i	l	Chart 2	i			<u> </u>
veh/hour	585	585	585	585	L10 dB(A)	69.8	69.8	69.8	69.
Traffic speed V km/h	50	 50	 50	 50	Chart 4		1	i i]]
Heavy vehicles p %	25	25	25	25	correction dB(A)	2.6	2.6	2.6	2.
Gradient G %		1	ı	1	Chart 6 correction dB(A)	0] 0	0	
Road surface		PREVIO	us		correction dB(A)	-3.5	-3.5	-3.5	 -3.
	ı				Basic Noise Level dB(A)	68.9	68.9	68.9	68.
PROPAGATION					_				<u>.</u>
	<u> </u>		SEGMENT		<u>.</u> ļ	ļ		SEGMENT	
	-1-	1 2	3	4	<u>-</u> İ	<u> -1</u>	2	3	4
Shortest horizontal		170 5			1 25 7		, ,		-
distance d m	40 20 K	130.5	30	37	Chart 7	-5.5	-4.6	-4.6	-5.
Height relative to source h m	20.5 	[20.5 [20 	20 	correction dB(A)	 	 	 	
Ave. height of propagation H m	n/a	n/a	n/a	n/a	Chart 8	j o	j o	j o	i
Absorbent ground cover I		Ì		1	correction dB(A)		ļ	İ	į
Barrier path difference m	.01	.01	.02	.07	Chart 9 correction dB(A)	-6.7	-6.7	-6.8	 -8.
	İ				Propagation Correction dB(A)	-12.2	-11.3	-11.4	-13.
SITE LAYOUT									
	l		SEGMENT		Ī	i		SEGMENT	
	1_1_	2	3	4	.Î	1_1	2	3	4_
Facade	(] 	[] 	correction dB(A)	2.5	2.5 	2.5 	2.!
Opposite facade angle deg.	35 I	j 33 I	j 0 I) 0 I	reflection correction dB(A)	1.5	1.5 I	[0 I]
Angle of view segment deg.	35	33	77	27	Chart 10 correction dB(A)	-7.1	-7.4	-3.7	-8.
					Site Layout Correction dB(A)	-3.1	-3.4	-1.2	-5.
COMPANYING NOTOE LEIGHO						.——			
COMBINING NOISE LEVELS								SEGMENT 3	4
					Basic Noise Level dB(A)	68.9			68.
					Propagation Correction dB(A)	-12.2	 -11.3	-11.4	-13.9
					Site Layout Correction dB(A)	 <u>-3.1</u>	-3.4	-1.2	-5. ⁻
					Noise Contribution dB(A)	53.6	54.2	56.3	49.
				- 1 .		ļ			

Chart 11 Combined Noise Level dB(A)

60.0

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION A (PM) 22m above ground - 3m HEIGHT NOISE BARRIER AT INNER SIDE OF W/B AT BBL

	1		SEGMENT			l		SEGMENT	
	1	2	3	1 4		<u> 1</u>	2	3	4
raffic flow q	i	Ì	İ	İ	Chart 2	i	ĺ	ĺ	
veh/hour	942	942	942		L10 dB(A)	71.9	71.9	71.9	
raffic speed V km/h	30	 30	I 30	i I	Chart 4		!]	! }	
leavy vehicles p %	25	25	25		correction dB(A)	2.2	2.2	2.2	
Gradient G %		ļ	ı	\	Chart 6 correction dB(A)		0	0	
Road surface	 	IMPRE	/IOUS	!	correction dB(A)	-1	 -1	 -1	
	l				Basic Noise Level dB(A)	73.1	73.1	73.1	
PROPAGATION									
	<u> </u>		SEGMENT			l		SEGMENT	
	1_1_	2] 3	4[<u> 1 </u>	2	3	4
Shortest horizontal	1	1	1				[l
distance d m	4	4	4		Chart 7	-2.2	-2.2	-2.2	
deight relative to source h m	21.5	21.5	21.5		correction dB(A)	1			
Ave. height of propagation H m	 n/a	 n/a	l n/a	, !]	Chart 8	i o	0	, 0	
Absorbent ground cover I	!	ļ			correction dB(A)	[! !	
Barrier path difference m	1	į.	!] 	Chart 9 correction dB(A)	-		(l I

SITE LAYOUT

	<u> </u>	SEGMENT		<u> </u>		SEGMENT	
	1 2	3 4		1	2	3	<u> </u>
Facade	i	1 1	correction dB(A)	2.5	2.5	2.5	l i
Opposite facade angle deg.			reflection correction dB(A)	1 1.2	 0	0]
opposite racade angle deg.	" "		refreseron correction abox,	''-			
Angle of view segment deg.	34 120	21	Chart 10 correction dB(A)	-7.2	-1.8	-9.3	!!
	1 1	1 1		!			!!
			Site Layout Correction dB(A)	-3.5	.7	6.8	

COMBINING NOISE LEVELS

			SEGMENT	
1	1	2	3	4
Basic Noise Level dB(A)	73.1	73.1	73.1	
Propagation Correction dB(A)	-2.2	-2.2	-2.2 -2.2	
Site Layout Correction dB(A)	-3.5	.7	-6.8	
Noise Contribution dB(A)	67.4	71.6	64.1	
Chart 11 Combined Noise Level dB(A)		73.5		

Propagation Correction dB(A) | -2.2 | -2.2 |

LOCATION A (PM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	70.5	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	60.0	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	65.0	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	61.7	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	73.5	dB(A)

Rounding to the nearest whole number:

Traffic speed V km/h Heavy vehicles p % 25 25 25 25 25 25 25	SEGMENT		SEGMENT		1	
veh/hour 1563 585 585 585 L10 dB(A) 74.1 69.8 69.8 Traffic speed V km/h 50 50 50 50 Chart 4 2.6 <t< th=""><th>1 2 3</th><th>4</th><th> 3</th><th>2</th><th>1_1_</th><th>·</th></t<>	1 2 3	4	3	2	1_1_	·
Traffic speed V km/h Heavy vehicles p % 25 25 25 25 25 25 25 25		į	ĺ	Ĩ	İ	Traffic flow q
Reavy vehicles p % 25 25 25 25 25 25 25	74.1 69.8 69.8	585	585	585	1563	veh/hour
Chart 6 correction dB(A)			1			•
Road surface PREVIOUS Correction dB(A) -3.5	on dB(A) 2.6 2.6 2.6	25 I	25 	25	25 	Heavy vehicles p %
Basic Noise Level dB(A) 73.2 68.9 68.9 Record	correction dB(A) 0 0 0	į	'	•		Gradient G %
SEGMENT 1 2 3 4	on dB(A) -3.5 -3.5 -3.5	ļ	us	PREVIO		Road surface
SEGMENT 1 2 3 4	rise Level dB(A) 73.2 68.9 68.9	ì			1	!
Shortest horizontal						PROPAGATION
Shortest horizontal distance d m	SEGMENT				<u> </u>	1
SEGMENT SEGMENT SEGMENT Table Segment 1 Site Layout Correction dB(A) -3.2 -4.4 -6.1 Site Layout Correction dB(A) -3.2	1 2 3	_4!	<u> 3</u>	2	<u> 1</u>	
Height relative to source h m 23.5 23.5 23.5 23.5 correction dB(A) Ave. height of propagation H m n/a n/a n/a n/a correction dB(A) Absorbent ground cover I		7/		1 47		
Ave. height of propagation H m n/a n/a n/a n/a chart 8 correction dB(A) absorbent ground cover I correction dB(A) correction dB(, , , ,		•		•	
Absorbent ground cover I		23.5	123.5	123.5	23.3 	Height relative to source n m
Absorbent ground cover I		n/a	l In/a	l In/a	! În/a	Ave height of propagation H m ¹
SEGMENT	on dB(A)	.,,,	11/4 	104	ι 17α 	
Propagation Correction dB(A) -8.2 -8.2 -18.2		i	i	i	i	Section 1
SEGMENT SEGMENT SEGMENT 1 2 3 4 1 2 3 2 5 2.5 2.5	correction dB(A) -1.1 -1.1 -11.0	.27	.22	j .10	.10	Barrier path difference m
SEGMENT SEGMENT 1 2 3 4	ion Correction dB(A) -8.2 -8.2 -18.2 -	i				
SEGMENT 1 2 3 4						CITE LAYOUT
Pacade	SEGMENT		SEGMENT		1	STIL EXION
Opposite facade angle deg. reflection correction dB(A)	1 2 3	4	3	2	11	j
Angle of view segment deg. 49 37 25 27 Chart 10 correction dB(A) -5.7 -6.9 -8.6	on dB(A) 2.5 2.5 2.5	ļ	<u>}</u> 1 :	[facade
	on correction dB(A)			ļ	 	Opposite facade angle deg.
	correction dB(A) -5.7 -6.9 -8.6	27	25	37	 49	Angle of view segment deg.
COMBINING NOISE LEVELS SEGMENT	out Correction dB(A) -3.2 -4.4 -6.1	ı	i	ı	I	'
OMBINING NOISE FEAETS SEGMENT						CARTATAN NOTOE LESELO
1 1 2 1 3	•					OMBINING MOISE LEVELS

Basic Noise Level dB(A)

Propagation Correction dB(A)

Site Layout Correction dB(A)

Noise Contribution dB(A)

Chart 11 Combined Noise Level dB(A)

	:	SEGMENT	
_1	2	3	1 4
73.2	68.9	68.9	68.9
-8.2	-8.2	1 -18.2	 -19.2
-3.2	-4.4	-6.1	-5.7
61.8	56.3	44.7	 43.9
	63.0		[

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION 8 (PM) 25m above ground - 3 m HEIGHT NOISE BARRIER AT INNER SIDE OF W/B OF BBL

			SEGMENT			l		SEGMENT	
	1	2	3	4		1_1_	2	3	L
raffic flow q	İ	İ	1		Chart 2	Ì	ĺ	İ	ĺ
eh/hour	978	978	978		L10 dB(A)	72.1	72.1	72.1	į
raffic speed V km/h	50	60	 60	! ! 	Chart 4		} [! 	
eavy vehicles p %	25	25	25		correction dB(A)	2.6	3.2	3.2	
radient G %		8	 8		Chart 6 correction dB(A)	0	0	. 0	
oad surface	PRE.	DOWN	DOWN PRE.		correction dB(A)	 -3.5	-3.5	 -3.5	
	1	I		[]	Basic Noise Level dB(A)	71.2	71.8	71.8	
ROPAGATION			SEGMENT			.——		DECKENT	_
		I 2	3 3	 4			2	<u>Segment</u> I 3	 I
nortest horizontal	1	 	1	 - 7			ξ.	l	┢
istance d m	54.5	154.5	60	, , 	Chart 7	-6.6	-6.6	l -6.9	i I
eight relative to source h m	23.5	23.2	21.3		correction dB(A)				
ve. height of propagation H :	l n n/a	 n/a	l n/a] ; [Chart 8]]	l
osorbent ground cover I	1]		correction dB(A)	1	:		
arrier path difference m	1 .14]	! 	! ! ! !	Chart 9 correction dB(A)	 -10.0			
	ļ			!	Propagation Correction dB(A)	- -16.6	-6.6	-6.9	!

SITE LAYOUT

		SE	EGMENT			1		SEGMENT	
	1 1	2	3	4		1_1_	2	3	4
Facade	1 1	1	ı		correction dB(A)	2.5	2.5	2.5	i
		1	,			1	1	1 1	1
Opposite facade angle deg.	0	0	0		reflection correction dB(A)	0	0] 0 [l
	1 i	-	l					1 !	l
Angle of view segment deg.	40	25	27]	l	Chart 10 correction dB(A)	-6.5	-8.6	-8.2	
		- 1	- 1			<u> </u>		∟]]
					Site Layout Correction dB(A)	1 -4.0	-6.1	-5.7	1 1

COMBINING NOISE LEVELS

	1		SEGMENT	
	1_1_	2	3 1	4
Basic Noise Level dB(A)	71.2	71.8	71.8	
Propagation Correction dB(A)	-16.6	 -6.6	-6.9	
Site Layout Correction dB(A)	-4.0	-6.1	-5.7	
Noise Contribution dB(A)	50.5	59.1	59.2	
Chart 11 Combined Noise Level dB(A)	!	62.4		

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - LOCATION B (PM) 25m above ground - 3 m HEIGHT NOISE BARRIER AT INNER SIDE OF W/B OF 88L CASE NOISE LEVEL - KENNEDY TOWN PRAYA SEGMENT SEGMENT 3 Chart 2 Traffic flow q veh/hour 942 L10 dB(A) 71.9 Traffic speed V km/h 30 Chart 4 Heavy vehicles p % 25 correction dB(A) 2.2 Gradient G % Chart 6 correction dB(A) Road surface **IMPREVIOUS** correction dB(A) Basic Noise Level dB(A) | 73.1 | PROPAGATION SEGMENT SEGMENT 4 Shortest horizontal 5 Chart 7 -2.8 distance d m correction dB(A) 124.5 Height relative to source h m Ave. height of propagation H m | Chart 8 0 n/a

		I			SEGME	TF	I				SEGMEN	T
		1_1_		2	3	4			1_1_	2	3	4
Facade		i	Ì		1	ĺ	j	correction dB(A)	2.5		İ	i
		1			1	1	-		1		1	Ì
Opposite facade angle deg.	()			-1	1	reflection correction dB(A)	0		1		
		- 1	ı		1				1 1		1	
Angle of view segment deg.	173	5		1	- 1		Chart 10 correction dB(A)	2		1	1	
		1							!		1	1
								Site Layout Correction dB(A)	2.3			1

correction dB(A)

Chart 9 correction dB(A)

Propagation Correction dB(A)

-2.8

COMBINING NOISE LEVELS			SEGMEN	NT	
	1	2	3	i	4
Basic Noise Level dB(A)	73.1			ļ	İ
Propagation Correction dB(A)	-2.8		 		
Site Layout Correction dB(A)	2.3		 		
Noise Contribution dB(A)	72.6			İ	
Chart 11 Combined Noise Level dB(A)		72.6]

LOCATION B (PM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	62.4	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	63.0	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	63.0	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	58.1	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	72.6	dB(A)

Rounding to the nearest whole number:

Absorbent ground cover I

Barrier path difference

			SEGMENT		- 	1	-	SEGMENT	
	1 1	1 2	I 3	4	- 	1	1 2	3	4
Traffic flow q	i	i	<u> </u>	i	l Chart 2	i	i	i	i
veh/hour	1563	585	585	585	L10 dB(A)	74.1	69.8	69.8	69.8
Traffic speed V km/h	 50	50	50	50	Chart 4		! 	! 	
Heavy vehicles p %	25 	25 	25	25	correction dB(A)	2.6	2.6 !	2.6 	2.6
Gradient G %		'	•	1	Chart 6 correction dB(A)	0	0	0	
Road surface	İ	PREVIO	ous		correction dB(A)	-3.5	 -3.5	-3.5	-3.
	•				Basic Noise Level dB(A)	73.2	68.9	68.9	68.9
PROPAGATION					- .				· · · · · · · · · · · · · · · · · · ·
			SEGMENT		-			SEGMENT	
Shortest horizontal	_1_	1_2_	3	4	-i 	1	2	3	4
distance d m	50.5	 50.5	 50	I 55	 Chart 7	-6.4	 -6.4	 -6.4] -6.7
	126.5	26.5	126.5	126.5	correction dB(A)	1)	0.7 	, .
noight forutife to source if in	1	1	1	1		i	! !	i	1
Ave. height of propagation H m	n/a	n/a	n/a	n/a	Chart 8	i	• 	i	i
Absorbent ground cover I		į	į	į	correction dB(A)	į	İ	į	į
Barrier path difference m	.43	.43	.06	1.10	Chart 9 correction dB(A)	2	 2	 -8.6	 -9.:
	i				Propagation Correction dB(A)	-6.6	-6.6	-15.0	-16.0
SITE LAYOUT									
			SEGMENT			1		SEGMENT	
	1	2	3	4	ij	1	2	3	4
Facade		1		1	correction dB(A)	2.5	2.5	2.5	2.5
Opposite facade angle deg.	Ì		į	<u> </u>	reflection correction dB(A)	į			1
Angle of view segment deg.	21	31	46	36	Chart 10 correction dB(A)	-9.3	-7.6	-5.9	 -7.0
	i	1	ı	l	Site Layout Correction dB(A)	-6.8	-5.1	-3.4	-4.5
COMBINING NOISE LEVELS						.—		SEGMENT	
CONTRING HOLDE LEVELD						1 1	2	3	4
					Basic Noise Level dB(A)	73.2		68.9	
					Propagation Correction dB(A)	-6.6	- - 6.6	-15.0	 -16.(
					Site Layout Correction dB(A)	 -6.8	-5.1	 -3.4	-4.5
					Site Layout Correction do(A)	-0.0	-3.1	3.4	

62.2

Chart 11 Combined Noise Level dB(A)

Rounding to the nearest whole number:

			SEGMENT	[1	?	SEGMENT	
	11	2	3	4		1	<u> </u>	3	<u> </u>
Traffic flow q	ĺ	ĺ	Ì	i	Chart 2	j	i -	ĺ	İ
veh/hour	978	978	978	į	L10 dB(A)	72.1	72.1	72.1	į
Traffic speed V km/h	50	60	 60	 	Chart 4	1		!]]
Heavy vehicles p %	25 	25	25		correction dB(A)	2.6	3.2	3.2	
Gradient G %		8 DOWN	8 DOWN		Chart 6 correction dB(A)	0	0	 0 	!
Road surface	PRE.	PRE.	PRE.		correction dB(A)	-3.5	-3.5	-3.5	
	1	1		! !	Basic Noise Level dB(A)	71.2	71.8	71.8	
PROPAGATION .						· 			
	<u> </u>		SEGMENT.			ļ		SEGMENT	
	1	1 2	3	4		<u> 1 </u>	2	3	14
Shortest horizontal				!!	AL 7				ļ
distance d m	41.5	41.5	43	!!	Chart 7	-5.8	-5.8	-5.8	ļ .
Height relative to source h m	26.5	25.7	24.2	!!	correction dB(A)		!		ļ
Ave. height of propagation H m	l l n/a	l In/a	l In/a	! !	Chart 8		 	! !	!
Absorbent ground cover I	1 1/4	11/4	11/4 	: :	correction dB(A)		1	! !	¦
absorbert ground cover 1	1	}	l I	; I I I	COLLECTION GB(X)] i		! !	
Barrier path difference m	.02	i		i	Chart 9 correction dB(A)	-7.0			
					Propagation Correction dB(A)	-12.8	-5.8	-5.8	
SITE LAYOUT			SEGMENT		•	1		SEGMENT	
	1	2	3	4		1	2	3	4
^E acade	İ]		correction dB(A)	2.5	2.5	2.5	
Opposite facade angle deg.	0	0	; 0		reflection correction dB(A)	0	0	0	!
Angle of view segment deg.	31	46	 36		Chart 10 correction dB(A)	-7.6	 -5.9	-7.0	!
	1	1	I					L	ı

COMBINI	NG NO	ISE L	EVELS

	·		SEGMENT	
	1	2	3 [4
Basic Noise Level dB(A)	71.2	71.8	71.8	
Propagation Correction dB(A)	 -12.8 	 -5.8 	 -5.8 	
Site Layout Correction dB(A)	-5.1	-3.4	-4.5	
Noise Contribution dB(A)	53.3	62.6	61.5	
Chart 11 Combined Noise Level dB(A)	! 	65.4		

Rounding to the nearest whole number:

BASE NOISE LEVEL - KENNEDY TOWN PRAYA

	<u> </u>		SEGMENT	·		<u> </u>		SEGMENT	
	<u> 1</u>] 2	3	4		1	2	<u> </u> 3	4
Traffic flow q	İ	i	Ī		Chart 2	i "	Ì		Ī
veh/hour	942	942			L10 dB(A)	71.9	71.9	Ì	į
Traffic speed V km/h]] 30	 30	1		Chart 4	‡ 	 	0	! !
Heavy vehicles p %	25	25	Ì	į į	correction dB(A)	2.2	2.2	İ	į
Gradient G %		1	1	!!!	Chart 6 correction dB(A)	0	 0	<u> </u>	
Road surface		IMPRE	VIOUS	 	correction dB(A)	-1	 -1	<u> </u> 	
	I			ı	Basic Noise Level dB(A)	 73.1	73.1	.i. 1	

PROPAGATION

	SEGMENT					1	:	SEGMENT	
	1	2	<u>3</u>	<u> </u>		i1	2	3] 4
Shortest horizontal	i	i	i	i i		ì			Ī
distance d m	6	6.5	İ	i i	Chart 7	-3.3	-3.3		i
Height relative to source h m	27.5	27.5	į	į į	correction dB(A)	į			į
Ave. height of propagation H m	 n/a	∣ ∣n/a			Chart 8	0	 0]]
Absorbent ground cover I	į	į	i	i i	correction dB(A)	i	İ		i
	ļ]]					
Barrier path difference m	I		1	1	Chart 9 correction dB(A)				1
	İ			1		<u> </u>			1
				- 1	Propagation Correction dB(A)	-3.3	-3.3		l

SITE LAYOUT

	I	SEGMENT		T	.[SEGMENT			
	1	2	3	4	.]	1	2	3	4
Facade	ĺ	l	ĺ	ĺ	correction dB(A)	2.5	2.5]	Ī
		ĺ	!	1	1	1	1		1
Opposite facade angle deg.	1	l	1	1	reflection correction dB(A)	1	1	ĺ	ĺ
	1		1	1	1	1	l i		
Angle of view segment deg.	135	36	1	1	Chart 10 correction dB(A)	-1.2	-7.0		1
		1	1]	1	1	<u> </u>		1
					Site Layout Correction dB(A)	1.3	-4.5		Ì

Chart

COMBINING NOISE LEVELS			
	COMBINING	NOTSE	LEVELS

			SEGMENT		
	1	2	3	4	_1
Basic Noise Level dB(A)	73.1	73.1			
Propagation Correction dB(A)	-3.3	-3.3	 		j
Site Layout Correction dB(A)	1.3	-4.5			į
Noise Contribution dB(A)	71.1	65.3		İ	ij
11 Combined Noise Level dB(A)	i	72.1			į

LOCATION C (PM) : Predicted value of L10 (1-hour) dB(A) is

BASE NOISE LEVEL - ROUTE 7 DOWN RAMP	65.4	dB(A)
BASE NOISE LEVEL - GROUND LINK WESTBOUND	62.2	dB(A)
BASE NOISE LEVEL - GROUND LINK EASTBOUND	63.0	dB(A)
BASE NOISE LEVEL - ROUTE 7 UP RAMP	60.2	dB(A)
BASE NOISE LEVEL - KENNEDY TOWN PRAYA	72.1	dB(A)

Rounding to the nearest whole number:

CALCULATION OF ROAD TRAFFIC NOISE - NEW FORTUNE HOUSE

	I		SEGMENT			1	9	SEGMENT	
	1	2	3	4	İ	i1	2	1 3	4
Traffic flow q veh/hour	219	807	807	 1563	Chart 2 L10 dB(A)	65.6	71.2	71.2	74
Traffic speed V km/h Heavy vehicles p %	50 25	 50 25	 50 25	 50 25	 Chart 4 correction dB(A)	 2.6	 2,6	 2.6	 2.
Gradient G %	25	2	25	23	Chart 6 correction dB(A)	2.0	2.8 0	į	²
,	ļ					į		0 	 !
Road surface	 	IMPREV	Ious		correction dB(A)	-1 	-1 	İ	i
					Basic Noise Level dB(A)	67.2	72.8	72.8	75
PROPAGATION	<u> </u>		SEGMENT		· I	1	<u> </u>	SEGMENT	
	1	2	3	4	İ	1	2	3	4
Shortest horizontal distance d m	15	 36	16	 57	 Chart 7	-1.4	-4.6	-1.7	 -6
Height relative to source h m	4.5	4.5	4.5	4.5	correction dB(A)				
Ave. height of propagation H m Absorbent ground cover I	n/a	 2.75 .25	2.75	2.75	Chart 8 correction dB(A)	0	55	15	
Barrier path difference m	 	. <u>. </u>	. 		Chart 9 correction dB(A)	 			!
,	i I	•	•	•	Propagation Correction dB(A)	<u> </u> -1.4	-5.1	-1.8	 -7
NATE LAYOUT									
SITE LAYOUT		- !	SEGMENT		I	ı		SEGMENT	
	1	2	1 3	4	İ	<u> 1 </u>	2	3	4
Facade	j I	İ I	1]]	correction dB(A) 	2.5	2.5	2.5	2
	0	į o	j 0 I	0	reflection correction dB(A)	j 0 j	0	0	
Opposite facade angle deg.		1							٥۔ ا
	 159 	1 100	 18 	19	Chart 10 correction dB(A)	5 	-2.6	-10 	- y
	 159 	1 100	· 18 	19 	Chart 10 correction dB(A) Site Layout Correction dB(A)	<u>ii</u>	i		İ
Opposite facade angle deg. Angle of view segment deg. COMBINING NOISE LEVELS	 159] 100]	18 	19 		<u>ii</u>	1		İ
Angle of view segment deg.	 159 	 100 	· 18 	19	Site Layout Correction dB(A)	2.0	1 s	-7.5	-7
Angle of view segment deg.	 159 	 100 	· 18 	19		 2.0	1 s	-7.5	-7
Angle of view segment deg.	 159] 100]	· 18 	i	Site Layout Correction dB(A)	2.0	1 s	-7.5	-7 4 75
Angle of view segment deg.	 159 	1 100	· 18 	i	Site Layout Correction dB(A) Basic Noise Level dB(A)	2.0	1 s 2 72.8	-7.5 SEGMENT 3 72.8	-7 4 75

Chart 11 Combined Noise Level dB(A)

71.8

Rounding to the nearest whole number:

NEW FORTUNE HSE (PM) : Predicted value of L10 (1-hour) dB(A) is 72

SEGMENT 1 : KENNEDY TOWN NEW PRAYA

SEGMENT 2 & 3 : BELCHER'S BAY EASTBOUND \sim

SEGMENT 4 : BELCHER'S BAY WESTBOUND

CALCULATION OF ROAD TRAFFIC NOISE - PEARL COURT CASE NOISE LEVEL - YEAR 2006 SEGMENT SEGMENT 1 3 Traffic flow q Chart 2 veh/hour 942 2370 607 L10 dB(A) 71.9 | 75.9 | 70 Traffic speed V km/h 30 50 50 Chart 4 25 25 2.2 | 2.6 | Heavy vehicles p % 25 correction dB(A) 2.6 Chart 6 correction d8(A) 0 Gradient G % 0 | 0] Road surface **IMPREVIOUS** correction dB(A) -1 -1 73.1 77.5 71.6 Basic Noise Level dB(A) **PROPAGATION** SEGMENT SEGMENT Shortest horizontal distance d m 113 78 Chart 7 1.8 | -9.3 | -7.8 Height relative to source h m 4.5 4.5 4.5 correction dB(A) Ave. height of propagation H m | n/a 2.75 2.75 Chart 8 0 |-3.47 |-1.91 .50 Absorbent ground cover I .75 correction dB(A) Chart 9 correction dB(A) Barrier path difference Propagation Correction dB(A) | 1.8 |-12.8 | -9.7 | SITE LAYOUT SEGMENT SEGMENT Facade correction d8(A) 2.5 2.5 | 2.5 reflection correction dB(A) Opposite facade angle deg. 0 0 0 0 1 0 180 141 37 Chart 10 correction dB(A) Angle of view segment deg. -1.1 | -6.9 | Site Layout Correction dB(A) | 2.5 | 1.4 | -4.4 |

COMBINING MOISE LEVELS		SEGMENT
		1 2 3 4
	Basic Noise Level dB(A)	73.1 77.5 71.6
	Propagation Correction dB(A)	1.8 -12.8 -9.7
	Site Layout Correction dB(A)	2.5 1.4 -4.4
	Noise Contribution dB(A)	77.4 66.2 57.5
	Chart 11 Combined Noise Level dB(A)	

Rounding to the nearest whole number:

PEARL COURT (PN): Predicted value of L10 (1-hour) dB(A) is 78

SEGMENT 1 : KENNEDY TOWN PRAYA SEGMENT 2 : BELCHER'S BAY LINK

SEGMENT 3 : SAI CHEUNG STREET EXTENSION

APPENDIX VI

2.7 <u>Noise Measurement Locations</u>

2.7.1 The noise measurement locations are identified on Figure 2 and are described below in Table 2. The locations marked with an asterisk are those where a 24-hour continuous survey was conducted.

TABLE 2

NOISE MEASUREMENT LOCATIONS

LOCATION	DESCRIPTION
1	347-349 Des Voeux Rd West, 2/F podium
2	10m from Des Voeux Rd West opposite Kwan Yick
	Building
3	Junction Queen's Rd West/Hill Rd, pavement
	level
4	Pearl Court, Holland St, 2/F podium level
5	Junction Holland Rd/Belcher's St, street level
6	Junction Kennedy Town Praya/North St, street
	level
7	Junction Catchick St/North St, street level
8	Junction Belcher's St/North St, street level
* 9	7 Smithfield Rd Flat 5L, near Green Island
	Cement
10	Junction Kennedy Town Praya/Davis St, street
	level
11	Junction Catchick St/Davis St, street level
12	Junction Belcher's St/Davis St, street level
* 13	25 Cadogan St 2/F
14	Junction Cadogan St/Forse St, street level
15	Junction Sai Ning St/ Victoria Rd, street
	level
* 16	Flat 24A Regents Height, 80 Victoria Rd
17	Cottage Area 1, Kung Man Tsuen (Community
40	Centre)
18	Cottage Area 2, Kung Man Tsuen (Unit 213)
19	Cottage Area 3, Kung Man Tsuen (Unit 283)
20	Cottage Area 4, Kung Man Tsuen (near Kit
	Sum Kindergarten)

PLANT ITEMS CONTRIBUTION TO NOISE LEVELS AT BELCHER'S BAY LINK

Case 1 : Dredging

Item	Basic Noise Level dB(A)	Number on Site	Distance from Receiver (m)	Noise Contribution dB(A)
Dredger	118	1	37	79
Barge & Tug Boat	110	1	37	71

Total Noise Level to the NSR is 83 dB(A)

Case 2 : Sand Filling

Item	Basic Noise Level dB(A)	Number on Site	Distance from Receiver (m)	Noise Contribution dB(A)
Barge & Tug Boat	110	1	12	80

Total Noise Level to the NSR is 83 dB(A)

Case 3 : Land Fill

Item	Basic Noise Level dB(A)	Number on Site	Distance from Receiver (m)	Noise Contribution dB(A)
Truck	117	1	12	87
Excavator	112	1	12	82
Roller	108	1	12	78

Total Noise Level to the NSR is 92 dB(A)

Case 4 : Piling - Daido Pill

Item	Basic Noise Level dB(A)	Number on Site	Distance from Receiver (m)	Noise Contribution dB(A)
Drop hammer driving concrete pile	116	1	12	86

Total Noise Level to the NSR is 86 dB(A)

Case 5 : Piling - H Pile

Item	Basic Noise Level dB(A)	Number on Site	Distance from Receiver (m)	Noise Contribution dB(A)
Drop hammer driving steel pile	126	1	24	89

Total Noise Level to the NSR is 92 dB(A)

APPENDIX VII

Agreement No. CE 32/88 Belcher's Bay Link Draft Water Quality and Air Quality Report

ence	Comments	Consultant's Responses
olicy Group		
5, Table 2	The daily AQO for the Total Suspended Particulates should be 260 ug/m³ instead of 360 ug/m³. The consultant should confirm that the predicted dust impacts have been compared with the corrected AQO.	This is a typographical error, the consultants can confirm predicted dust impacts were compared against the correct figure of 260 ug/m ³ .
9, 1st para. S.3.3	Please give reference of the studies that showed AQO are exceeded in the Belcher Bay Street area.	The study referred to is Green Island Reclamation Feasibility Study and refers to the general situation rather than any particular location.
11, 1st para. S.4.0	It's agreed that the development of the 90m buffer south of the roadway should be considered in other project (probably the Belcher Bay Reclamation). However, the consultant should set up a guideline of buffer requirement with reference to the HKPSG so that future development along the BBL would not be subjected to bad traffic or air quality.	The guidelines given in HKPSG would be suggested as the basis for planning land use in this area. Sensitive uses such as nurseries, or schools should not be considered for the entire zone, but it may be possible to develop the area further than say 30m from the road edge for residential use or recreational activities.
?4 to 26, \$.5.3	The consultant should have included in the report the prediction method of the dust impacts of the reclamation including details such as model, the meteorological conditions, the location of the receptors, emission factors, modelling parameters and etc. Explanations should also be provided for the choice of the meteorological conditions and the model.	The prediction of potential dust impact is not a precise science and the methodology use should only be used to indicate the potential scale of the problem. At this stage of the project it is necessary to make several assumptions to predict the potential for dust production. The section indicates that quite broad generalisations have been used to identify the potential for problems but "worst case" situations are looked at. In this instance this means high dust loads, short source length and a sensitive receiver closest to the potential source. Worst case meteorological conditions include low wind speeds and winds blowing directly form the source to the receiver. The section does not set out to predict the precise nature of the potential dust impact but to indicate whether or not the potential exists. In this instance the potential for adverse effects on air quality objectives and on the nuisance capacity of dust fall

exists and so it is justifiable to require dust controls to be implemented as part of the

environmental management of the site.

ence	Comments	Consultant's Responses
		A very simple box model was used to predict the scale of impacts, based on source strength (from Emission Factor Calculation) source length cloud mixing patterns downwind from a ground level source, deposition velocity speeds were used and calculations referred to 'dry day' (i.e. no rainfall) uncontrolled situations.
26, 2nd para. 1	What's the composition of proposed additives that would be used for dust suppression? Would these kinds of chemicals cause other environmental problems? Also, how long can it stay and what is the cost?	Surface coatings that can be used to control fugitive dust include coatings based on either bitumen, salts or adhesives. Table I lists these chemicals depends on the degree of disturbance the treated area is subject to. Application rates may vary and the initial dilution rate of the stabilizer in water for application purposes may also vary. Guidance from the manufacturers for rate of application, cost and duration are being sought. In general terms the likely excess environmental impact from utilizing such stabilisation techniques is unlikely to be significant.
16, 3rd para. 1	At what vehicle speed should construction vehicles be controlled in order to prevent significant dust emissions?	The quantity of dust produced by vehicles travelling over unpaved surfaces is directly proportional to vehicle speed. Therefore, the lower the speed, the smaller the quantity of dust produced. If possible vehicle speeds should be controlled to those as low as can be reasonably enforced. Speeds of 25-30 mph or below are to be preferred.
licy Group		
6, 2nd para.	The consultant should give the source for the proposed dust emission factor of 500 kg/ha/month. Also, according to the USEPA AP-42, a figure for of 1.2 ton/acre/month (which is equivalent to about 2965 kg/ha/month) is used for construction activities with medium activity level only. Thus, the consultant should justify the above dust emission factor for the assessment.	Agreed, the emission factor should read approximately 3000 kg/ha/month. However, the statements concerning the potential for adverse impact to be caused by construction activity remain valid.

'ence	Comments	Consultant's Responses
26, 3rd para. .2	The consultant should further elaborate the best practice dry material storage and best practice dry material handling.	Dry material storage methods to minimise the dust potential would include the use of covered areas for small particle sized material, orienting the piles to minimise the action of wind, providing dust filters and local extraction systems where fine particles are handled, providing wind shields for medium sized particles etc.
		Best practice dry material handling methods, include, but are not limited to, for example:
		o minimisation of drop height o use of dedicated handling areas with paved surfaces to aid clean up o handling areas to be kerbed also to aid clean up o handling areas to have boards or enclosure arrangements to maximise efficient transfer o maintenance of equipment to ensure efficient closure of grab jaws and bucket transfer efficiency.
30, 1st para.	The consultant has suggested that the averaging time of the prediction is 10 minutes. However, for the CALINEA, the averaging time of the prediction depends on the input of the fluctuation of horizontal wind direction to the model. The consultant should submit the value of this parameters for our agreement.	In modelling the predicted emissions from the development, the worst case situation has been utilised to give an indication of the worst air quality conditions that might occur. In practice this may occur only for very short periods when all worst case assumptions combine. We have used a combination of worst case meteorological factors and peak hourly traffic figures and hence the real time horizontal fluctuation of wind direction has not been included in our use of the model. We are unsure as to whether the meteorological data available for the area would provide a good indication of the fluctuation that might be experienced at the location of the development. The predictions referred to in the report are worst case average hourly concentrations with no reduction in value that might occur if wind fluctuations were taken into account. They are thus likely to be conservative.
30, 2nd and 3rd S.6.2	The consultant should provide us with the details of the modelling results for the vehicle speed of 50 kph for BEL and 70 kph for Route 7 as stated in the text (2nd para), and with wind speed of 1m/s (3rd para).	(see response to comments on Page 30, 4th para. S.6.2)

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rence	Comments	
30, 4th para.	What is the suggested buffer between the pedestrian footways and the roadside.	Tŀ
		<u>Ta</u>
		<u>Ye</u>
		19
		20

Consultant's Responses

The values calculated are presented below:

Table 2: Air Quality Predictions

	D	Vahiala	- Wind	Distance from	CO	HC	NO _x
Year	Receptor Position	Vehicle <u>Speed</u>	Wind Speed	Roadside	ugm ^{.3}	ugm ^{.3}	ugm³
1996	20m west	70kph Rt.7	1ms-1				
	intersection	50kph BBL		1 m	1980	219	763
		•		6m	1398	154	538
				11m	1281	142	493
	At Inter- section			1m	1630	176	846
	30m east of Intersection			1m	1514	163	786
2006	20m west of			lm	2795	309	1076
	Intersection			6m	1980	219	763
				11m	1747	193	673
	At Inter- section			1m	2096	226	1133
	30m east of Intersection			1 m	2213	239	1150

Rt7 = Route 7 BBL = Belcher Bay Link

At distances from the carriageway greater than 6m the modelling indicates levels of pollutants are diluted to acceptable levels. It would appear that the buffer could be set at 6m. However, it must be recognised that the modelling predicts worst case situations from a combination of conditions that only infrequently occur and also only for short periods when all the worst case assumptions combine. The absence of a footway adjacent to the road in an urban situation means a loss of benefits. The benefits in an urban situation outweigh the risks predicted by this conservative modelling. It is recommended that footways of 2.75m to 3.0m as required by the Traffic Planning and Design Manual (TPDM) are to be constructed. This represents a 1m buffer and the remaining width provides opportunity for pedestrians to increase the distance between himself and the source.

		,		
Draft Water	Quality and	Air	Quality	Report

rence	Comments	Consultant's Responses
r Policy Group		
7, Table 3	Surface Do % in Harbour West is (38.6 - 130.9).	Noted this is a typographical error.
8, S.3.2	The consultant has measured the velocity of current in that area. More details of the measurements are needed. e.g. depth, equipments used.	The results discussed in this section refer to current measurements extracted from the WAHMO physical model and provided to the present study team by Civil Engineering Office.
r Policy group		
10, S.4.0	Phase 3 reclamation is an embayment which would trap all coastal discharges and filled materials during the phase 1 reclamation stage. How long does it last? Any mitigating measures would be taken in that period?	Noted. This condition would last for about 12 months. However, while the cargo handling activities along the existing Kennedy Praya are maintained, it is expected that the resulting frequent vessel movements will help in providing water exchange. This issue has been addressed in S.5.1.5 with relevant mitigating measures elaborated.
15. S.5.1.4	Temporary site drainage at the perimeter of the reclamation site should be connected to special settling tanks/grease traps/interceptors so as to control silty/oil spilt contaminated water being wash into the stormdrain/foul sewers.	Noted. It is stressed that the phases I and II reclamation will be paved up as soon as practicable. The Phase I reclamation will be paved up to form the Public Cargo Working Area and the access road while the Phase II also have similar arrangements. It is believed that the possibility of getting silty water after the reclamation has reach the proposed formation level of 4.0 mPD is limited to the very edge of the reclamation. In this case the water will seep through the riprap protection along the perimeter of the reclamation but filtered by the marine sand which is being used as filling material. Phase III will complete the reclamation and by then the proper reclamation drainage system will be provided.
		It would be more effective to minimise the possibility of oil spilt by restricting the oil storage and filling point to designated area with impervious surface and bunded to prevent spills. The Contractor shall be required to provide a perimeter drainage for the designated area with grease trap for discharging.
16 Last para. 5.1.6	The report indicates that predictions of flow patterns were made by the consultants. Could they supply more details?	WAHMO predictions have not been made for the Belcher Bay Link. The studies referred to in the final paragraph of this section refer to work carried out in connection with GIRFS and Port Peninsula Development which indicate that these much more extensive development projects do not generally affect the main flow regime in the harbour waters.

ence	Comments	Consultant's Responses
17, 1st para. tem 5, 5.2.1.	Besides Dissolved Oxygen, the contractor should also prevent an unacceptable level of turbidity generation.	Turbidity should be taken as read from sub items 1, 2, 3, 4, 6.
18, sub-item (a), .2.	This item should be replaced by the attached sheet App. I for turbidity measurements.	Noted.
18. sub-item (c), .2	This item should be replaced by the attached sheet App. II for suspended solids measurements.	Noted.
20, para. 4	All monitoring instruments shall be recalibrated at bi- monthly interval.	Noted.
3 Management Group		
13, S.5.1.2	Special requirements may be imposed on the mud disposal works if the marine mud is found to be contaminated.	Noted.

TABLE 1 : DUST SUPPRESSION CHEMICALS

A. Type: Bitumens

Product	
---------	--

AMS 2200, 2300 Coherex Docal 1002 Pencprime

Pecro Tac p

Resinex Retain

Manufacturer

Arco Mine Sciences Witco Chemical

Douglas Oil Comapny

Utan Emulsions

Syntech Proudcts Corporation

Neyrs Industrie, Inc.

Dubois Chemical Company

B. Type: Salts

Product

Calcium chloride Dowflake, Liquid Dow

OP-10

Dust Ban 8806

Dustgard

Sodium silicate

Manufacturer

Allied Chemical Corporation

Dow Chemical

Wen-Don Corporation Naico Chemical Company

G.S.L. Minerals and Chemicals Corporation

The PQ Corporation

C. Type: Adhesives

<u>Product</u>

Acrylic DLR-MS Bio Cat 300-1 CPB-12 Curasal AK OCL-40A, 1801, 1803

OC-859, 857 Dust Ban Flamoinder Lignosite Norlig A, 12

Orzan Series Soil Gard Manufacturer

Ronm and Haas Company Applied Natural Systems, Inc.

Wen-Don Corporation

American Hoechst Corporation

Caigon Corporation
Betz Laboratories, Inc.
Nalco Chemical Company
Flambeau Paper Company
Georgia Pacific Corporation

Reed Lignin. Inc.

Crown Zellerbach Corporation

Walsh Chemical

Page 1

leference	Comments	Consultant's Responses
<u>/olume I - Noise</u>	No comment.	
<u>'olume II</u>	•	
vir Quality	Some typographical errors have not been amended:	
'able 2, page 5	The daily AQO for the Total Suspended Particulates should be 260 $\mu g/m^{-3}$ instead of 360 $\mu g/m^{-3}$.	Noted.
'age 26, S.5.3.2	The dust emission factor proposed by USEPA AP-42 should be about 3000 kg/ha/month instead of 500 kg/ha/month.	Noted.
Vater Quality		
em 2.1, 2nd para.	Should be: The Victoria Harbour zone is scheduled to be gazetted in 1993	Noted.
	Leachate from public dumping ground in Phase III which would affect the water quality was not addressed in the report.	The Phase III reclamation will be constructed with marine sand and CDG topping.
able 5 A	2 lots of 5 consecutive days sampling is not sufficient to provide 'baseline' for the subsequent monitoring works.	Noted, the sampling frequency is revised to 4 sampling per week, at mid-flood and mid-ebb, for 4 consecutive weeks within 6 weeks of commencement of works.

1.0 INTRODUCTION

This report consists of an assessment of the environmental impacts caused by the proposed Belcher's Bay reclamation. The impacts covered by this report are limited to water and air quality.

The report considers the existing situation, provides a brief description of the proposals and then considers the effects of the proposals. Mitigation measures that need to be included in the contract conditions are described.

A water quality monitoring programme and methodology that should be implemented by the Contractor is also included.

2.0 LEGISLATIVE CONTROLS

2.1 Water Quality

The Environmental Protection Department have designated ten Water Quality Control Zones. The reclamation works are located within the Victoria Harbour Zone.

The Victoria Harbour Zone is due to be gazetted in 1993 and so at the present time there are no formal Water Quality Objectives that can be applied. However, it can be assumed that water quality within the harbour should be sufficient to maintain the beneficial uses identified for the harbour. These are:

- o a habitat for marine life generally
- o domestic and industrial supply
- o navigation and shipping
- o aesthetic

It may further be assumed that the water quality objectives eventually set for the Victoria Harbour Zones will be similar to those objectives that have been set for the nearby southern waters which have been formalised by gazetting. These objectives are shown in Table 1.

2.2 Air Quality

The Hong Kong Planning Standards and Guidelines provide ambient air quality objectives. These objectives form part of the Air Pollution Control Ordnance which is designed to safeguard the health and well being of the community. The Air Quality Objectives, shown in Table 2 are to be reached throughout Hong Kong.

TABLE 2 : HONG KONG AIR QUALITY OBJECTIVES

Concentrations in micrograms per cubic metre (i)

Pollutant	Averaging Time					Waaleh . 65 6
	1hr (11)	8hrs (iii)	24hrs (111)	3mths (iv)	lyr (iv)	Health effects of pollutant at elevated ambient levels
Sulphur Dioxide	800		350		80	Respiratory illness; reduced lung function; morbidity and mortality rates increase at higher levels.
Total suspended particulates			260		80	Respirable fraction has effects on health.
Respirable (v) suspended particulates			180		55	Respiratory illness; reduced lung function; cancer risk for certain particles; morbidity and mortality rates increase at higher levels.
Nitrogen Dioxide	300		150		80	Respiratory irritation; increased susceptibility to respiratory intention; lung development impairment.
Carbon Monoxide	30,000	10,000				Impairment of coordination deleterious to pregnant women and those with heart and circulatory conditions
Photochemical oxidants (as ozone (vi)	240					Eye irritation; cough; reduced athletic performance; possible chromosome change.
Lead				1.5		Affects cell and body processes; likely neuro-psychological effects, particularly in children likely effects on rates of incidents of heart attacks, strokes and hypertension.

Measured at 298°K (25°C) and 101.325 kPa (one atmosphere) Not to be exceeded more than three times per year (i) (ii)

(iii) Not to be exceeded more than once per year

⁽iv) Arithmetic means

Respirable suspended particulates means suspended particulates in in air with a nominal aerodynamic diameter of 10 micrometres and (v) smaller

⁽vi) Photochemical oxidants are determined by measured of ozone only.

The analysis shows that there is benefit to be derived by controlling dust emissions from the new land surface.

This would be particularly important once the surface had dried out and during the months October to March when there is a natural rainfall v evaporation deficit. Ensuring that the surface does not completely dry out will prevent the majority of fugitive emissions from this source. This can be achieved by water sprays alone but a more stable surface can be achieved by proprietary additives. Once such a surface coating is applied site management should ensure that the area remains undisturbed. Any disturbance that does occur will require the reapplication of the sealing coat.

Assuming that surface treatment is effective in suppressing dust from open areas - the road source becomes potentially significant. Road emissions can be successfully reduced by about 50% by frequent application of water (by spray bowser or pipeline) but vehicle speed and routes must be well controlled. Contract conditions will be needed to enforce this.

5.3.2 Construction

Construction activity (i.e. associated with construction of the pcwa and road infrastructure) will be a source of fugitive dust emissions.

Construction activities can have substantial temporary impact. Estimates (from the US) suggest that a figure of 3000 kg/ha/month may be generated by various activities related to a period of heavy construction activity. This is a general figure based on the types of activities that are associated with heavy construction. This figure suggests that for the Belcher's Bay Link, uncontrolled construction activities could produce dust levels that would exceed the Air Quality Objectives at the nearest sensitive receiver.

Control measures will need to be included in construction contracts. These control measures will need to include:

- o good housekeeping rapid spill cleanup
- o best practice dry material storage
- o best practice dry material handling
- o water available for damping down dusty areas
- o specific controls for specific dusty activities (e.g. cement batching).

It may also be necessary to be able to implement controls as the situation demands on a day-to-day basis. The most important feature in the control of fugitive emissions is awareness amongst contractors and management of the potential for problems.

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Page 1

Reference	Comments	Consultant's Responses
Chief Engineer/Planning Water Supplies Department		
WWO(HK) 440/1743/88 T.J.(1) 28 February 1992	No comment in respect of the Volume I of the captioned report.	Noted.
	Volume II on water quality and air quality, the monitoring point should be established adjacent to Kennedy Town Salt Water Pumping Station to ensure that the sea water quality at our intake is not adversely affected. Therefore suggest the sampling locations during the course of the work be revised as shown in the returned Figure 8A. For the moonitoring purpose we also enclose a copy of our provisional water quality objectives for your reference.	The drawing showing the water quality monitoring stations will be amended accordingly. In order to follow the provisional water quality objectives, it will be important to establish baseline conditions at the intake well in advance of work commencing. Our current proposal of sampling for 4 consecutive weeks within the first 6 weeks of project commencement is sufficient.
TE Div./HK Transport Department		
HR146/180/197 TH 2 March 1992	The BBL Consultant should be asked to address the noise problem resulting from the provision of tram loop leading to the tram depot in Sai Ying Pun. There is concern about the effect of changes in the operation of tram traffic on the design of junctions in the vicinity of the tram depot, should changes be necessary on environmental ground.	Noted.

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Reference	Comments		Consultant's Responses
Environmental Protection <u>Department</u>			
(60) EP 1/H1/11 (II) 6 March 1992	(i)	The 3 monitoring stations should move parallel to the proposed reclamation limit (i.e. about 100 - 150m).	Noted. The relevant drawing showing the location of monitoring stations will be amended accordingly taking into account the comments by WSD.
·	(ii)	The control station should be relocated southwards to nearly 1000m from the reclamation limit.	Noted. The relevant drawing showing the location of monitoring stations will be amended accordingly.
	(iii)	Longer period of baseline monitoring is required and mitigation measures should be indicated on the drawing for the contractor to follow.	The revised period for baseline monitoring is now 4 consecutive weeks within the first 6 weeks of project commencement and will be shown on the drawing.
District Planning Officer/ Hong Kong			
(20) in HK-1/16 II 26 February 1992	Volu	me I - Noise	
	(a)	Section 2.1.1 d, I understand that in the Green Island Link Preliminary Feasibility Study, the highway network in the area in year 2006 includes Western Harbour Crossing, Central & Wanchai Bypass, Green Island Link and Route 7 (Sai Ying Pun to Aberdeen), surely AC for T/U will be in a better position to advise on the anticipated traffic flow in the design year.	The proposed Belcher Bay Link layout is only a temporary road configuration until it is relocated to form the eastern section of the primary distributor PD1 of the long term strategic highway network indicated in Section 2.1.1 d. of the Green Island Link Preliminary Feasibility Study. Traffic flow for design year 2006 for the long term highway network will not be appropriate to the present temporary configuration.

Environment Assessment Report

Page 3

Reference

Comments

Consultant's Responses

(b) Section 2.2.2, it is noted that only the existing NSRs located at the eastern end nearest to the horizontal alignment of the BBL have been selected for assessment. The noise impact near the western end of the proposed road link should also be addressed. Moreover, PM/UA should be asked to liaise with the Consultants for the Green Island Reclamation Feasibility Study on the proposed permanent land use arrangement in the area bounded by the present Belcher's Bay Reclamation limit. I recall that in the draft recommended ODP previously prepared by the Consultants, residential developments are proposed in the area between the permanent Route 7 and the existing Kennedy Town Praya. assessment of the noise impact during the operation stage without making reference to the permanent land use arrangement may not be meaningful.

NSRs located near the west end of the BBL including the Pearl Court and New Fortune House have been included. As above, BBL will be relocated to follow the permanent Route 7 alignment. It is therefore not appropriate for BBL to assess the noise impact making reference to the permanent land use in which case the noise source location will be changed.

Reference	Comr	ments	Consultant's Responses		
	(c)	Moreover, it appears that the noise assessment has been confined to the impact to be generated by the proposed BBL. One example would be the use of the retaining structure of another noise source, The Route 7, as the noise barrier of BBL. Whilst it can be argued that the noise level to be generated from Route 7 may be higher than the latter, information on the overall noise impact should be given. EDP will be in a better position to advise whether the assessment approach is acceptable.	The Route 7 down ramp has been identified as a major noise contributor and mitigating measures to be carried out in Route 7 is outside the scope of work of this project. However, EPD was aware of this and had commented on the conclusions drawn. It is now recommended in section 2.6.3, "that suitable mitigating measures should, whenever possible, be incorporated into works associated with these major contributors."		
	Volun	lume II – Water Quality & Air Quality			
	(d)	Section 5.1.3, in view of the proximity of the reclamation area to the existing residential development, any necessary public dumping work will need to be carefully monitored.	There will be no public dumping in the proposed reclamation.		
	(e)	Para 28, line 4 of first paragraph, presumably Queens Road East should read Queens Road West.	Yes.		
	(1)	Page 30, 4th paragraph, the proposed pedestrian walkway system and arrangement should be indicated for easy reference.	Noted.		

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Page 5

District Officer Central & Western

Reference

(65) C&WDO 820/18 III 26 February 1992

2.4 Traffic Noise Level

Comments

Belcher's Bay Link and Route 7 down ramps in place, traffic noise levels along Des Voeux Road West and Kennedy Town Praya will reach a high level of 75/76 dBA to 77/78 dBA which would exceed the maximum acceptable noise level of 70 dB(A) contained in the HKPSG, adversely affecting the residents in the vicinity. As illustrated in Appendix III, mitigating measures such as friction course and installation of noise barriers cannot reduce the noise level effectively; consultant should explore other forms of direct technical remedies, or otherwise, indirect technical remedies - such as noise insulation should be provided. It is essential that mitigation measures should; as suggested in para 2.6.3; whenever possible, be incorporated into works associated with BBL, especially during construction of Route 7 of which its traffic noise impact had not been addressed fully (ie of route 7 down ramps) in it's preliminary report issued at May 91.

Investigation of indirect technical remedies is outside the Project Brief.

Consultant's Responses

Comments Reference Consultant's Responses 5.2 Water Quality Monitoring This is a part of the Contractor's contractual responsibilities. 3. I am in support of a water quality. monitoring programme which will ensure water The Contractor's works will be supervised by the Resident quality within the area to be maintained. Engineer. Contractors should be required to carry out works in the manner as stipulated in para 5.2.1 and to undertake pollution avoidance measures if required. 5.3 Air Quality I agree that control measures such as Noted. good housekeeping, best practice dry material storage etc (as elaborated by the consultant in response to Air Policy Group) should be included in construction contracts for effective dust control. Apart from water quality monitoring, 5. No comments. consultant should also consider setting up other monitoring groups on air quality and noise impact (especially during construction period) with a view to avoid significant deterioration of living environment in the Sai Ying Pun Area and the Kennedy Town Area. Such monitoring groups are advised to forward progress reports to the Central & Western District Board which had shown it's concern about environmental impacts of Belcher's Bay Link, Route 7 and Western Harbour Crossing

on local residents.

Environment Assessment Report

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Reference	Comments	Consultant's Responses
Environmental Protection Department		
(44) in EP 1/H1/11 (II) 26 February 1992	In addition to the pollution avoidance measures at section 5.2.1, I would like to add the following mitigation clauses into the contract documents.	
	1. Wheel washing facilities shall be installed and used by all vehicles leaving the site. No earth, mud, debris, dust and the like shall be deposited on public roads. Water in the wheel cleaning facility shall be reused and changed at frequent intervals and sediments shall also be removed regularly.	This is a standard requirement.
	 If any office, site canteen or toilet facilities is erected, foul water effluent shall be directed to a foul sewer or to a sewage treatment facility approved by the Engineer. 	This is covered by the engineering conditions of land allocation for works area. Relevant Government Departments are invited to impose their requirements when the draft engineering conditions is circulated for comments.

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