

**PROPOSED
SUBDIVISION PLAN
LOT 301 BARFIELD ROAD, HAMMOND PARK**

**ROAD TRAFFIC (SPP 5.4)
NOISE MANAGEMENT PLAN**

MARCH 2021

OUR REFERENCE: 27496-6-21040

DOCUMENT CONTROL PAGE

ACOUSTIC ASSESSMENT

PROPOSED SUBDIVISION PLAN

HAMMOND PARK

Job No: 21040

Document Reference: 27496-6-21040

FOR
BLOKK PROPERTY AUSTRALIA

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EXECUTIVE SUMMARY

Herring Storer Acoustics were commissioned by Blokk Property Australia to carry out an acoustical assessment of noise received for the proposed Subdivision Plan of the development located at Lot 301 Barfield Road, Hammond Park.

Under the Western Australian Planning Commission (WAPC) Planning Policy 5.4 "Road and Rail Noise" (SPP 5.4), the appropriate criteria for assessment for this development are:

EXTERNAL

$L_{Aeq}(\text{Day})$ of 55 dB(A);

$L_{Aeq}(\text{Night})$ of 50 dB(A).

INTERNAL

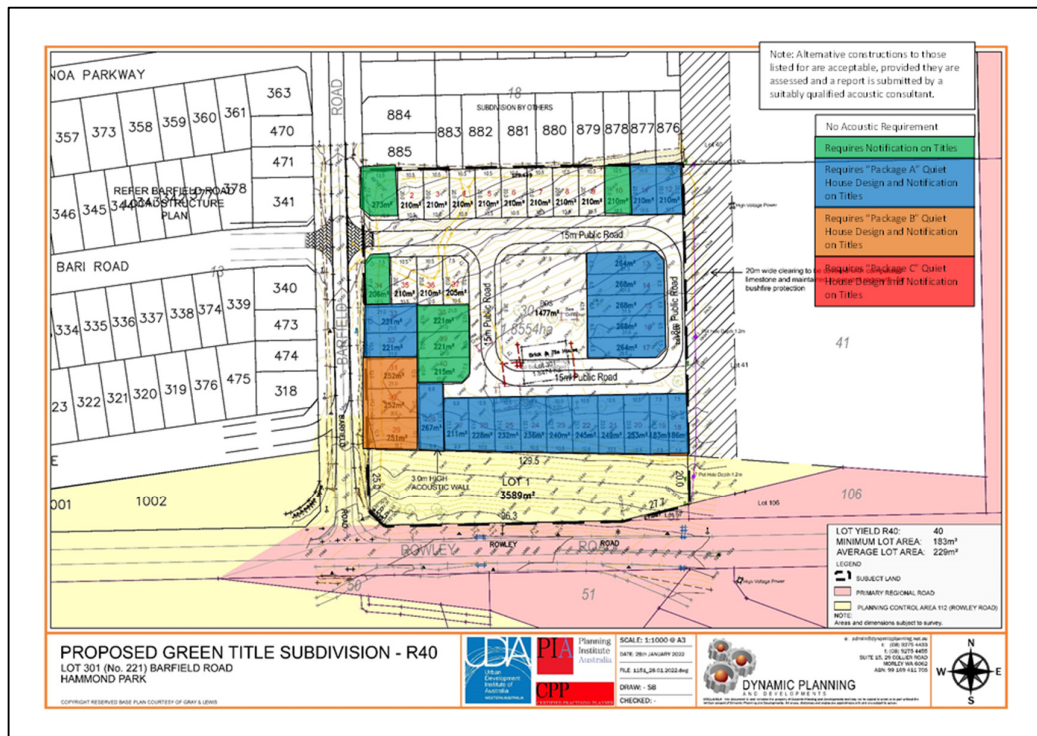
$L_{Aeq}(\text{Day})$ of 40 dB(A) in living and work areas; and

$L_{Aeq}(\text{Night})$ of 35 dB(A) in bedrooms.

Additional to the above, noise received at an outdoor living area should also be reduced as far as practicable, with an aim of achieving an L_{Aeq} of 50 dB(A) during the night period.

Therefore, to comply with the Policy, the following have been provided:

- Noise Wall, 3m High.
- Quiet House Design Package A and B.



1. INTRODUCTION

Herring Storer Acoustics were commissioned by Blokk Property Australia to carry out an acoustical assessment of noise received for the proposed Subdivision Plan of the development located at Lot 301 Barfield Road, Hammond Park.

As part of the study, the following was carried out:

- Determine by noise modelling the noise that would be received at proposed residences within this subdivision from vehicles travelling on the roadways (Rowley Road and Kwinana Freeway) for the future, for both the current and possible future road alignment.
- Assess the predicted noise levels for compliance with the appropriate criteria.
- Provide detailed information as to noise control requirements such as quiet house design, noise walls and notification on titles in the form of this Noise Management Plan.

The proposed subdivision is shown in Figure 1.1 below.

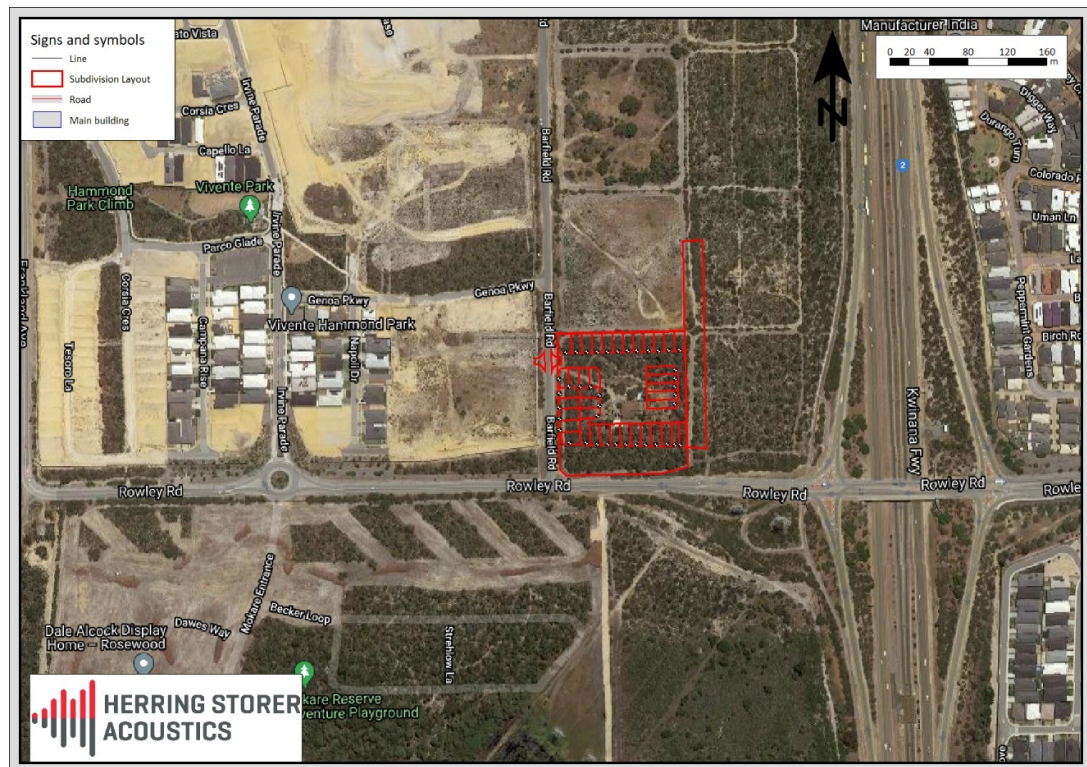


FIGURE 1.1 - SUBDIVISION LOCATION PLAN

2. CRITERIA

2.1 ROAD TRAFFIC NOISE

The Western Australian Planning Commission (WAPC) released on 6th September 2019 State Planning Policy 5.4 “Road and Rail Noise”. The requirements of State Planning Policy 5.4 are outlined below.

POLICY APPLICATION (Section 4)

When and where it applies (Section 4.1)

SPP 5.4 applies to the preparation and assessment of planning instruments, including region and local planning schemes; planning strategies, structure plans; subdivision and development proposals in Western Australia, where there is proposed:

- a) noise-sensitive land-use within the policy’s trigger distance of a transport corridor as specified in **Table 1**;
- b) New or major upgrades of roads as specified in **Table 1** and maps (**Schedule 1, 2 and 3**); or
- c) New railways or major upgrades of railways as specified in maps (**Schedule 1, 2 and 3**); or any other works that increase capacity for rail vehicle storage or movement and will result in an increased level of noise.

Policy trigger distances (Section 4.1.2)

Table 1 identifies the State’s transport corridors and the trigger distances to which the policy applies.

The designation of land within the trigger distances outlined in **Table 1** should not be interpreted to imply that land is affected by noise and/or that areas outside the trigger distances are un-affected by noise.

Where any part of the lot is within the specified trigger distance, an assessment against the policy is required to determine the likely level of transport noise and management/mitigation required. An initial screening assessment (**guidelines: Table 2: noise exposure forecast**) will determine if the lot is affected and to what extent.”

TABLE 1: TRANSPORT CORRIDOR CLASSIFICATION AND TRIGGER DISTANCES

Transport corridor classification	Trigger distance	Distance measured from
Roads		
Strategic freight and major traffic routes Roads as defined by Perth and Peel Planning Frameworks and/or roads with either 500 or more Class 7 to 12 Austroads vehicles per day, and/or 50,000 per day traffic volume	300 metres	Road carriageway edge
Other significant freight/traffic routes These are generally any State administered road and/or local government road identified as being a future State administered road (red road) and other roads that meet the criteria of either >=23,000 daily traffic count (averaged equivalent to 25,000 vehicles passenger car units under region schemes)	200 metres	Road carriageway edge
Passenger railways		
	100 metres	Centreline of the closest track
Freight railways		
	200 metres	Centreline of the closest track

Proponents are advised to consult with the decision making authority as site specific conditions (significant differences in ground levels, extreme noise levels) may influence the noise mitigation measures required, that may extend beyond the trigger distance.

POLICY MEASURES (Section 6)

The policy applies a performance-based approach to the management and mitigation of transport noise. The policy measures and resultant noise mitigation will be influenced by the function of the transport corridor and the type and intensity of the land-use proposed. Where there is risk of future land-use conflict in close proximity to strategic freight routes, a precautionary approach should be applied. Planning should also consider other broader planning policies. This is to ensure a balanced approach takes into consideration reasonable and practical considerations.

Noise Targets (Section 6.1)

Table 2 sets out noise targets that are to be achieved by proposals under which the policy applies. Where exceeded, an assessment is required to determine the likely level of transport noise and management/mitigation required.

In the application of the noise targets the objective is to achieve:

- indoor noise levels as specified in **Table 2** in noise sensitive areas (for example, bedrooms and living rooms of houses, and school classrooms); and*
- a reasonable degree of acoustic amenity for outdoor living areas on each residential lot. For non-residential noise-sensitive developments, for example schools and child care centres the design of outdoor areas should take into consideration the noise target.*

It is recognised that in some instances, it may not be reasonable and/or practicable to meet the outdoor noise targets. Where transport noise is above the noise targets, measures are expected to be implemented that balance reasonable and practicable considerations with the need to achieve acceptable noise protection outcomes.

TABLE 2: NOISE TARGETS

Proposals	New/Upgrade	Noise Targets		
		Outdoor		Indoor
		Day ($L_{Aeq}(\text{Day})$ dB) (6 am-10 pm)	Night ($L_{Aeq}(\text{Night})$ dB) (10 pm-6 am)	(L_{Aeq} dB)
Noise-sensitive land-use and/or development	New noise sensitive land use and/or development within the trigger distance of an existing/proposed transport corridor	55	50	$L_{Aeq}(\text{Day})$ 40(Living and work areas) $L_{Aeq}(\text{Night})$ 35 (bedrooms)
Roads	New	55	50	N/A
	Upgrade	60	55	N/A
Railways	New	55	50	N/A
	Upgrade	60	55	N/A

Notes:

- *The noise target is to be measured at one metre from the most exposed, habitable façade of the proposed building, which has the greatest exposure to the noise-source. A habitable room has the same meaning as defined in State Planning Policy 3.1 Residential Design Codes.*
- *For all noise-sensitive land-use and/or development, indoor noise targets for other room usages may be reasonably drawn from Table 1 of Australian Standard/New Zealand Standard AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors (as amended) for each relevant time period.*
- *The 5dB difference in the criteria between new and upgrade infrastructure proposals acknowledges the challenges in achieving noise level reduction where existing infrastructure is surrounded by existing noise-sensitive development.*
- *Outdoor targets are to be met at all outdoor areas as far as is reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines. For example, it is likely unreasonable for a transport infrastructure provider to achieve the outdoor targets at more than 1 or 2 floors of an adjacent development with direct line of sight to the traffic.*

Noise Exposure Forecast (Section 6.2)

*When it is determined that SPP 5.4 applies to a planning proposal as outlined in Section 4, proponents and/or decision makers are required to undertake a preliminary assessment using **Table 2**: noise exposure forecast in the guidelines. This will provide an estimate of the potential noise impacts on noise-sensitive land-use and/or development within the trigger distance of a specified transport corridor. The outcomes of the initial assessment will determine whether:*

- *no further measures is required;*
- *noise-sensitive land-use and/or development is acceptable subject to deemed-to-comply mitigation measures; or*
- *noise-sensitive land-use and/or development is not recommended. Any noise-sensitive land-use and/or development is subject to mitigation measures outlined in a noise management plan.”*

3. MONITORING

Noise monitoring of the current road system would not be representative of the future traffic flow and alignment. Therefore, other means of calibration for the predictive noise model were used, with these discussed further in the report.

4. MODELLING

To determine the requirements of any noise amelioration, acoustic modelling was carried out using the computer program 'SoundPlan'. Acoustic modelling was carried out for road traffic flows 20 years in the future.

TABLE 5.1 - NOISE MODELLING INPUT DATA

Parameter	Rowley Road		Kwinana Freeway	
	Current Count 2020/2021	Future 2041	Current Count 2020/2021	Future 2041
Traffic flows VPD	9,450	25,858	91,042	130,000
Heavy Vehicles (%)	17.4%	10.0%	13.6%	13.6
Traffic Speed km/hr	70	70	100	100
Road Surface	Asphalt	Asphalt	Asphalt	Asphalt
Façade Correction	+2.5	+2.5	+2.5	+2.5

Other input data for the model included:

- Traffic data from MRWA (<https://mrapps.mainroads.wa.gov.au/TrafficMap/>) Attached in Appendix E.
- Noise source heights for the three road source strings (Passenger Vehicles, Heavy Vehicles Engine and Heavy Vehicle Exhausts) are +0.5, +1.5 and +3.6m, with a noise correction of -0.8 and -8.0 applied to the heavy vehicles engine and exhaust noise sources.
- Topographical data, with the ground level within the development based on natural ground levels as per surveys conducted.
- A +2.5 dB adjustment to allow for façade reflection.
- Development receiver heights at 1.4m above ground level.
- Future buildings and noise walls located on the proposed development (assumed to be present for future road traffic volumes).

To determine the noise that would be received within the development from the surrounding road network, acoustic modelling was carried out using the computer program 'SoundPlan'.

The following scenarios were modelled:

1. Future traffic volumes, without any noise amelioration.
2. Future traffic volumes, with a wall on the development boundary and future built-form housing, as outlined below.

To establish the height of the noise wall and the effect it had on the required quiet house design packages, for Scenario 2, a 3m wall was adopted. This is also consistent with adjoining Estates.

5. TRAFFIC NOISE ASSESSMENT

Under the WAPC State Planning Policy 5.4, for this development, the Noise Targets as listed in Table 2 are the appropriate noise levels to be achieved. Based on the noise monitoring, the difference between the $L_{Aeq}(16hr)$ and the $L_{Aeq}(8hr)$ would be greater than 5 dB(A). Therefore, the day period would be the critical period for compliance and if compliance with the day period noise limit is achieved, then compliance with the night period noise limits would also be achieved. The policy states that the outdoor criteria applies to the ground floor level only, however, it also states that noise mitigation measures should be implemented with a view to achieving the target levels in least one outdoor living area.

For residential premises, the Policy states that residence should be designed to meet the following acceptable internal noise levels:

Living and Work Areas	$L_{Aeq}(\text{Day})$ of 40 dB(A)
Bedrooms	$L_{Aeq}(\text{Night})$ of 35 dB(A)

The results of the acoustic assessment indicate that noise received at the ground floor level of residences located adjacent to Rowley Road, could exceed the above acoustic criteria. In the worst-case location, the level of exceedance would be approximately 17 dB(A). Table 5.1 details the noise level at the building envelop for each proposed development Lot and the “Quiet House” design package required to achieve compliance. Figure 5.1 showing the location map of the receivers.



FIGURE 5.1 - RECEIVER LOCATION PLAN

TABLE 5.1 – DEVELOPMENT NOISE LEVELS

Location	Scenario 2 Future Traffic Volumes (Future Road Alignment) 3.0 High Noise Wall	Scenario 2 Package Requirements (Based on Concept Lot Design)
	L _{AeqDay}	
Lot 1	52	Nil
Lot 2	52	Nil
Lot 3	52	Nil
Lot 4	52	Nil
Lot 5	52	Nil
Lot 6	53	Nil
Lot 7	53	Nil
Lot 8	53	Nil
Lot 9	53	Nil
Lot 10	55	N
Lot 11	56	A,N
Lot 12	56	A,N
Lot 13	57	A,N
Lot 14	58	A,N
Lot 15	58	A,N
Lot 16	59	A,N
Lot 17	59	A,N
Lot 18	59	A,N
Lot 19	58	A,N
Lot 20	59	A,N
Lot 21	58	A,N
Lot 22	58	A,N
Lot 23	58	A,N
Lot 24	57	A,N
Lot 25	57	A,N
Lot 26	57	A,N
Lot 27	57	A,N
Lot 28	58	A,N
Lot 29	58	A,N
Lot 30	62	B,N
Lot 31	61	B,N
Lot 32	59	A,N
Lot 33	56	A,N
Lot 34	55	N
Lot 35	50	Nil
Lot 36	50	Nil
Lot 37	50	Nil
Lot 38	55	N
Lot 39	55	N
Lot 40	56	A,N

Nil No Requirements
 N Notification on Title
 A Package A Quiet House Design
 B Package B Quiet House Design
 C Package C Quiet House Design

Therefore, to comply with the Policy, the following have been provided:

- Noise Wall, 3m High.
- Quiet House Design Package A and B.

Any lots exceeding the 55 dB(A) day target criteria would require notification on Titles.

Information on the deemed to satisfy constructions for the various “Quiet House Design” packages are contained in Appendix D.

Notes:

- 1 Given the location of the development and the projected market, we understand that 2 storey residences are unlikely, hence the “Quiet House” Design packages stated are for single storey residence only. If double storey residences are proposed, then it is recommended that specialist acoustic advice be sought by the proponent.
- 2 We understand that the development is a Proposed Local Structure Plan stage, hence the information contained in Appendix C regarding areas requiring “Quiet House” design will need to be refined once the lots have been defined and final heights are established. Additionally, any modifications to the Structure Plan, would vary the noise mitigation requirements relating “Quiet House” design outlined in Appendix C.
- 3 The summary of the Quiet House Design Packages attached in Appendix C and D, are “Deemed to Satisfy” constructions. Alternative constructions would be acceptable, provided they are supported by an acoustic report prepared by a suitably qualified acoustic consultant.
- 4 Quiet House Design requirements are likely to lessen for residential premises set back from the highway, as the façade residences will barrier those behind.
- 5 Additionally, these residences also require Notifications on Titles.

APPENDIX A

PROPOSED SUBDIVISION PLAN

APPENDIX B

NOISE CONTOUR PLOTS

0 5 10 20 30 40 m

**Traffic Noise Level
LAeq (16hour) dB
Day Time Criteria**

55 <	<=	55 Complies with Noise Target Criteria
58 <	<=	58 Requires Package A
62 <	<=	62 Requires Package B
66 <	<=	66 Requires Package C
66 <	<=	Residential Not Recommended



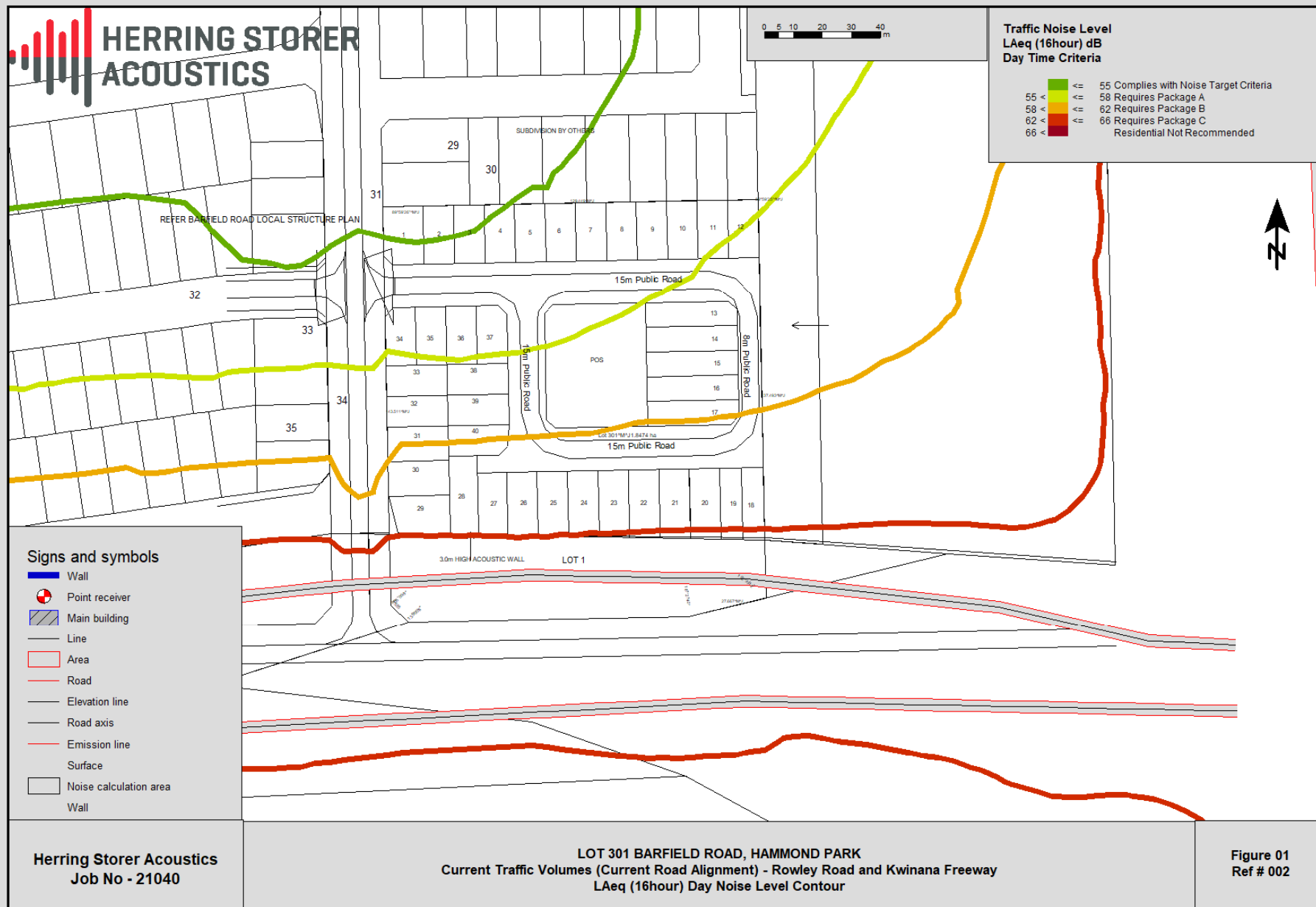
Signs and symbols

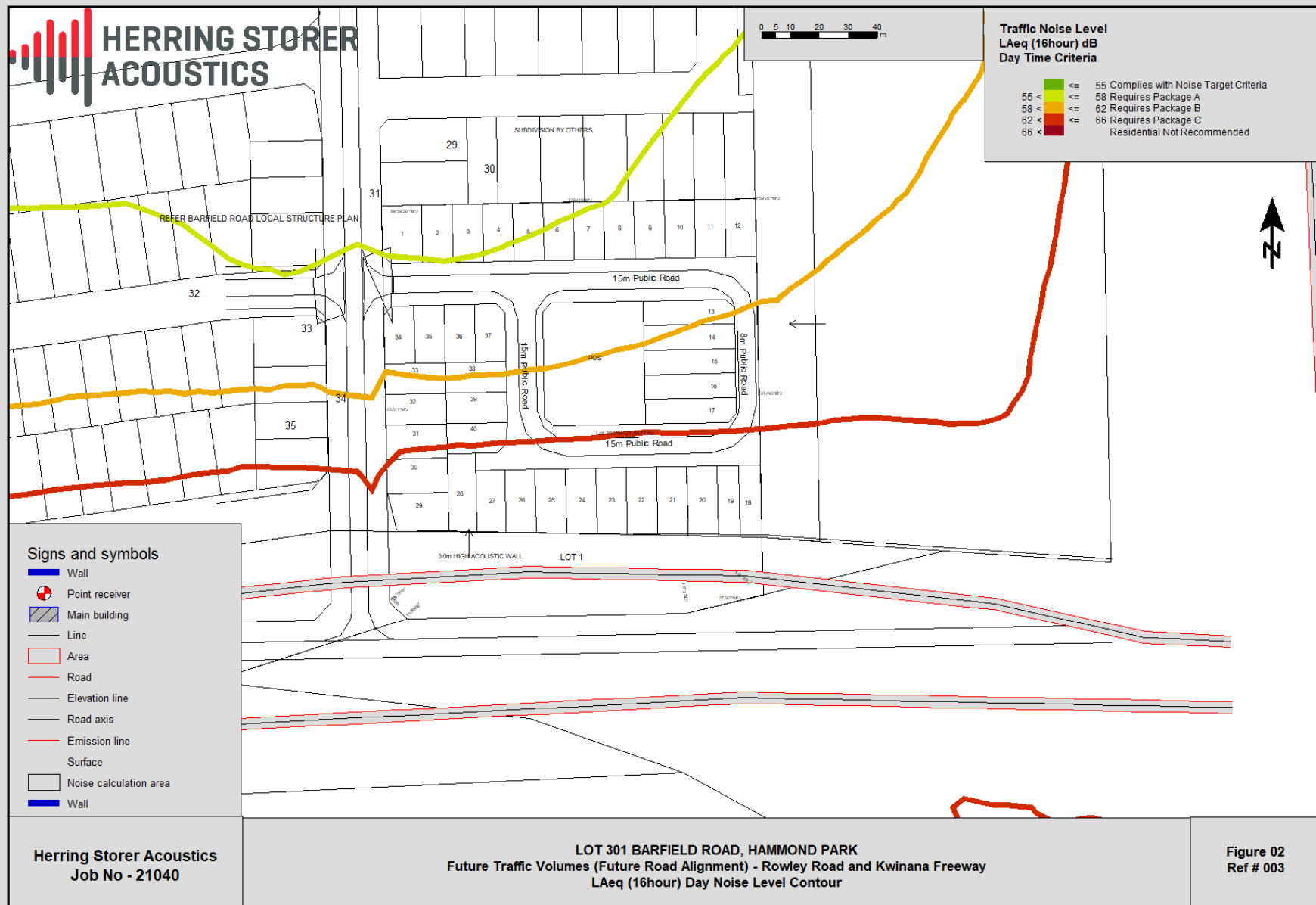
- Wall
- Point receiver
- Main building
- Line
- Area
- Road
- Elevation line
- Road axis
- Emission line
- Surface
- Noise calculation area
- Wall

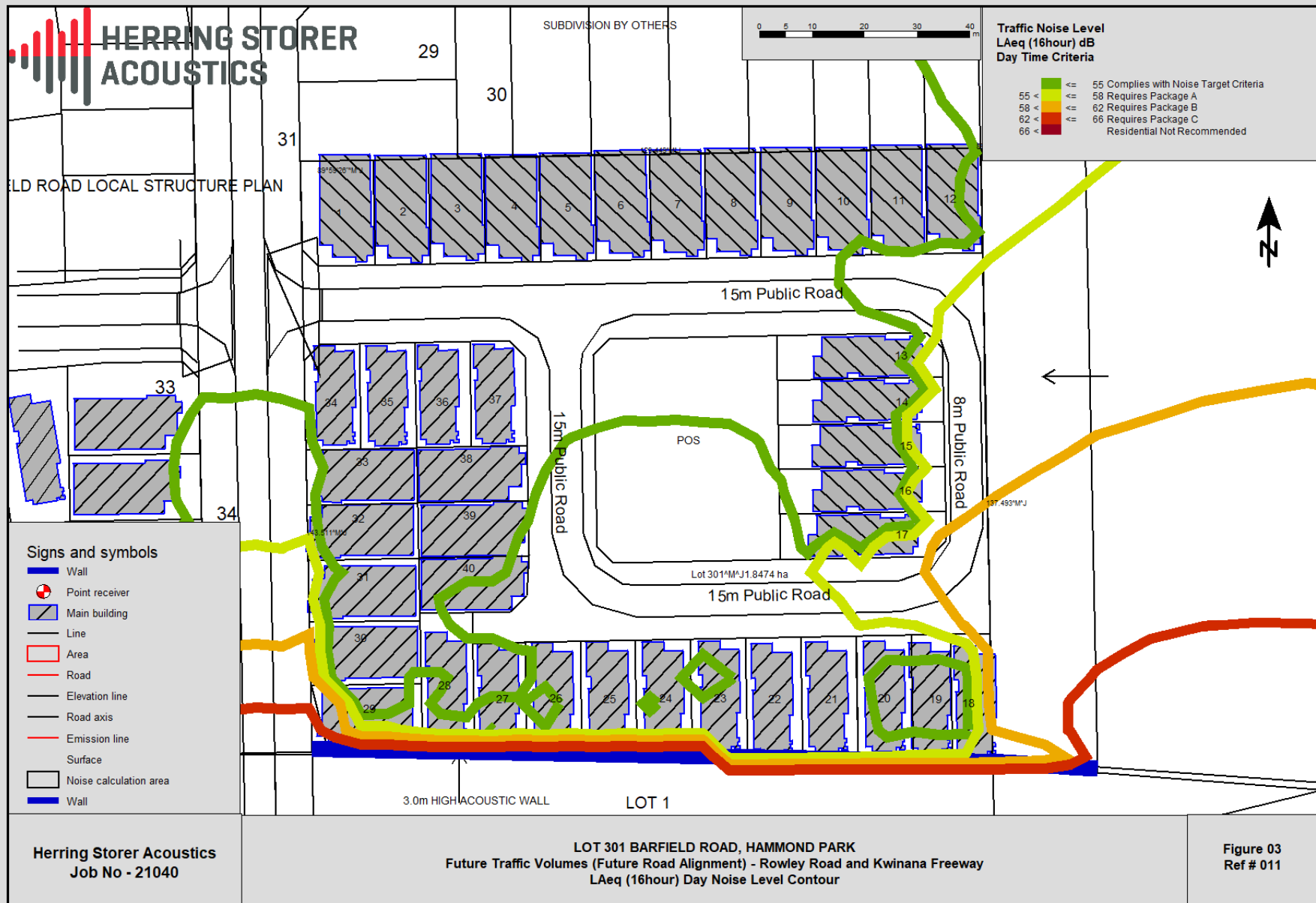
**Herring Storer Acoustics
Job No - 21040**

LOT 301 BARFIELD ROAD, HAMMOND PARK
Current Traffic Volumes (Current Road Alignment) - Rowley Road and Kwinana Freeway
LAeq (16hour) Day Noise Level Contour

**Figure 01
Ref # 002**







APPENDIX C

“QUIET HOUSE” DESIGN REQUIREMENTS

APPENDIX D

"QUIET HOUSE" DESIGN PACKAGES

Road Traffic and Passenger Rail Quiet House Requirements <i>(Based on Table 3 of State Planning Policy 5.4 2019)</i>							
Exposure Category	Orientation to corridor	Acoustic rating and example constructions					Mechanical ventilation/air conditioning considerations
		Walls	External doors	Windows	Roofs and ceilings of highest floors	Outdoor Living areas	
A Quiet House A	Facing	Bedroom and Indoor Living and work areas to $R_w + C_{tr}$ 45dB Stud Frame Walls ➤ One row of 92mm studs at 60mm centres with: ➤ Resilient steel channels fixed to the outside of the studs; and ➤ 9.5mm hardboard or 9mm fibre cement weatherboards or one layer of 19mm board cladding fixed to the outside of the channels; and ➤ 75mm glass wool (11kg/m3) or 75mm polyester (14kg/m3) insulation, positioned between the studs; and ➤ -Two layers of 16mm fire-protective grade plasterboard fixed to the inside face of the studs.	Bedrooms: ➤ Fully glazed hinged door with certified R_w+C_{tr} 28dB rated door and frame including seals and 6mm glass Indoor Living and work areas: ➤ 35mm solid core timber hinged door and frame system certified to R_w 28dB including seals: OR ➤ Glazed sliding door with 10 mm glass and weather seals	Bedrooms: ➤ Total external door and window system area up to 40% of room floor area: Sliding or double hung with minimum 10 mm single or 6mm-12mm-10mm double insulated glazing (R_w+C_{tr} 28 dB). Sealed awning or casement windows may use 6 mm glazing instead: OR ➤ Up to 60% floor area: as per above but must be sealed awning or casement type windows (R_w+C_{tr} 31dB). Indoor Living and work areas ➤ Up to 40% floor area: Sliding, awning, casement or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 25dB): OR ➤ Up to 60% floor area: As per Bedrooms at up to 40% area (R_w+C_{tr}28 dB : OR ➤ Up to 80% floor area: As per Bedrooms at up to 60% area (R_w+C_{tr} 31 dB).	To R_w+C_{tr} 35dB ➤ Concrete or terracotta tile or metal sheet roof with sarking and at least 10mm plasterboard ceiling	➤ At least one outdoor living area located on the opposite side of the building from the transport corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2 metres height above ground level	➤ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of Rw 40dB into sensitive spaces ➤ Evaporative systems require attenuated ceiling air vents to allow closed windows ➤ Refrigerant-based systems need to be designed to achieve National Construction Code fresh air ventilation requirements ➤ Openings such as eaves, vents and air inlets must be acoustically treated, closed or relocated to building sides facing away from the corridor where practicable
	Side On	➤ Single leaf of 150mm brick masonry with 13mm cement render on each face: OR ➤ Double brick: two leaves of 90 mm clay brick masonry with a 20mm cavity between leaves.	As per “Facing” above, except R_w+C_{tr} values may be 3dB less, e.g. glazed sliding door with 10 mm glass and weather seals for bedrooms	As above, except R_w+C_{tr} values may be 3dB less, or max % area increased by 20%			
	Opposite		No specific requirements	No specific requirements			

Road Traffic and Passenger Rail Quiet House Requirements <i>(Based on Table 3 of State Planning Policy 5.4 2019)</i>							
Exposure Category	Orientation to corridor	Acoustic rating and example constructions					Mechanical ventilation/air conditioning considerations
		Walls	External doors	Windows	Roofs and ceilings of highest floors	Outdoor Living areas	
B Quiet House B	Facing	Bedroom and indoor living and work areas to R_w+C_{tr} 50dB Single leaf of 90 mm clay brick masonry with: ➤ A row of 70 mm x 35 mm timber studs or 64 mm steel studs at 600 mm centres; ➤ A cavity of 25 mm between leaves; ➤ 50 mm glass wool or polyester cavity insulation (R2.0+) insulation between studs; and ➤ One layer of 10mm plasterboard fixed to the inside face ➤ Single leaf of 220mm brick masonry with 13mm cement render on each face ➤ 150mm thick unlined concrete panel or 200mm thick concrete panel with one layer of 13mm plasterboard or 13mm cement render on each face	Bedrooms ➤ Fully glazed hinged door with certified R_w+C_{tr} 31dB rated door and frame including seals and 10mm glass Indoor Living and work areas ➤ 35mm solid core timber hinged door and frame system certified to R_w 28dB including seals: OR ➤ Glazed sliding door with 10 mm glass and weather seals	Bedrooms: ➤ Total external door and window system area up to 40% of room floor areas: Fixed sash, awning or casement with minimum 6mm single or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 31dB). ➤ Up to 60% floor area: as per above but must be minimum 10mm single or 6mm-12mm-10mm double insulated glazing (R_w+C_{tr} 34dB) Indoor Living and work areas ➤ Up to 40% floor area; Sliding or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 28dB). Sealed awning or casement windows may use 6mm glazing instead. : OR ➤ Up to 60% floor area: As per Bedrooms at up to 40% area (R_w+C_{tr} 31dB). : OR ➤ Up to 80% floor area: As per Bedrooms at up to 60% area (R_w+C_{tr} 34dB).	To R_w+C_{tr} 35dB ➤ Concrete or terracotta tile sarking and at least 10mm plasterboard ceiling, R3.0+ insulation OR ➤ Metal sheet roof, sarking and at least 10mm plasterboard ceiling, R3.0+ insulation	➤ At least one outdoor living area located on the opposite side of the building from the corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2.4 metres height above ground level	➤ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of R_w 40dB into sensitive spaces ➤ Evaporative systems require attenuated ceiling air vents to allow closed windows ➤ Refrigerant-based systems need to be designed to achieve National Construction Code fresh air ventilation requirements ➤ Openings such as eaves, vents and air inlets must be acoustically treated, closed or relocated to building sides facing away from the corridor where practicable
	Side-On	Double brick: two leaves of 90mm clay brick masonry with: ➤ A 50mm cavity between leaves ➤ 50mm glass wool or polyester cavity insulation (R2.0+) ➤ Resilient ties where required to connect leaves Double brick: two leaves of 110mm clay brick masonry with ➤ 50mm cavity between leaves and R2.0+ cavity insulation	Bedrooms: ➤ Fully glazed hinged door with certified R_w+C_{tr} 28dB rated door and frame including seals and 6mm glass Indoor Living and work areas: ➤ 35mm solid core timber hinged door and frame system certified to R_w 28dB including seals: OR ➤ Glazed sliding door with 10 mm glass and weather seals	Bedrooms: ➤ Total external door and window system area up to 40% of room floor area: Sliding or double hung with minimum 10 mm single or 6mm-12mm-10mm double insulated glazing (R_w+C_{tr} 28 dB). Sealed awning or casement windows may use 6 mm glazing instead. : OR ➤ Up to 60% floor area: as per above but must be sealed awning or casement type windows (R_w+C_{tr} 31dB). Indoor Living and work areas ➤ Up to 40% floor area: Sliding, awning, casement or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (R_w+C_{tr} 25dB). : OR ➤ Up to 60% floor area: As per Bedrooms at up to 40% area (R_w+C_{tr} 28 dB) : OR ➤ Up to 80% floor area: As per Bedrooms at up to 60% area (R_w+C_{tr} 31 dB).			
	Opposite		As above, except R_w+C_{tr} values may be 3dB less, or max % area increased by 20%	As above, except R_w+C_{tr} values may be 3dB less, or max % area increased by 20%			

APPENDIX E

MRWA TRAFFIC VOLUMES



Hourly Volume

Kwinana Fwy (H015)

2020/21
Monday to Friday

NB At Bridge Under Rowley Rd (SLK 24.96)

	 All Vehicles			 Heavy Vehicles			
	 NB			 NB			 %
00:00	128			32			25.0
01:00	91			16			17.6
02:00	137			22			16.1
03:00	417			62			14.9
04:00	1133			177			15.6
05:00	2883			440			15.3
06:00	3503			509			14.5
07:00	3314			394			11.9
08:00	3140			381			12.1
09:00	2827			402			14.2
10:00	2720			441			16.2
11:00	2767			468			16.9
12:00	2741			458			16.7
13:00	2666			461			17.3
14:00	2816			467			16.6
15:00	3043			427			14.0
16:00	3140			339			10.8
17:00	2697			230			8.5
18:00	1947			174			8.9
19:00	1155			98			8.5
20:00	807			61			7.6
21:00	645			45			7.0
22:00	441			46			10.4
23:00	270			30			11.1
TOTAL	45428			6180			

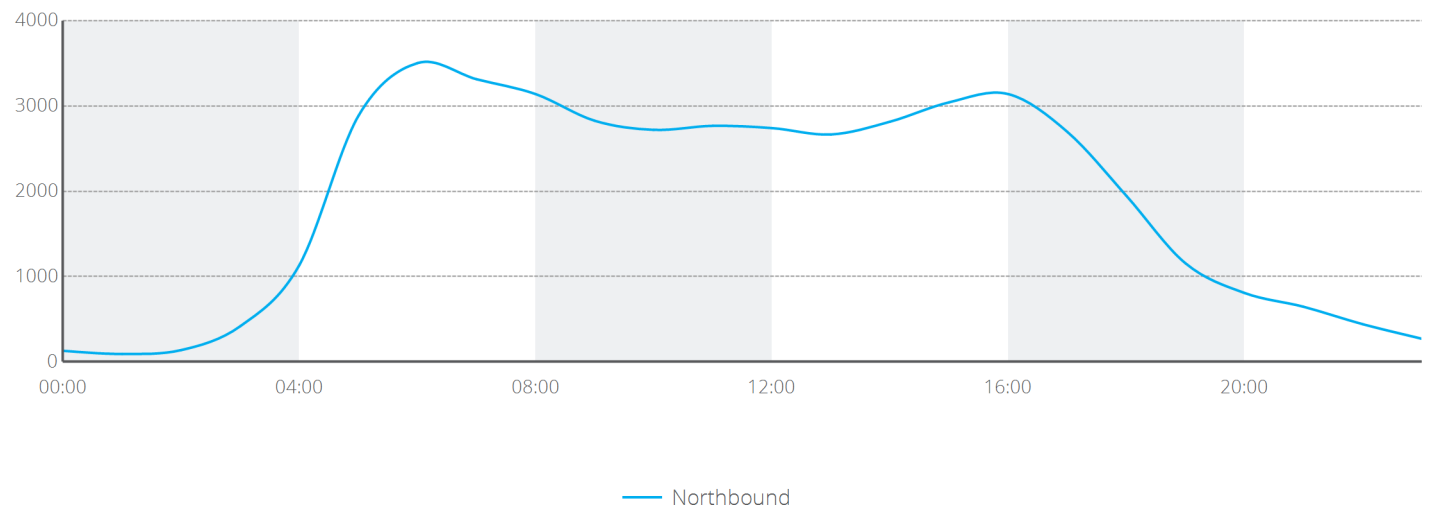


Peak Statistics

AM	TIME	06:00		05:45	
	VOL	3503		514	
PM	TIME	15:30		13:45	
	VOL	3155		478	

 Information Not Available

Volume





Hourly Volume

Kwinana Fwy (H015)

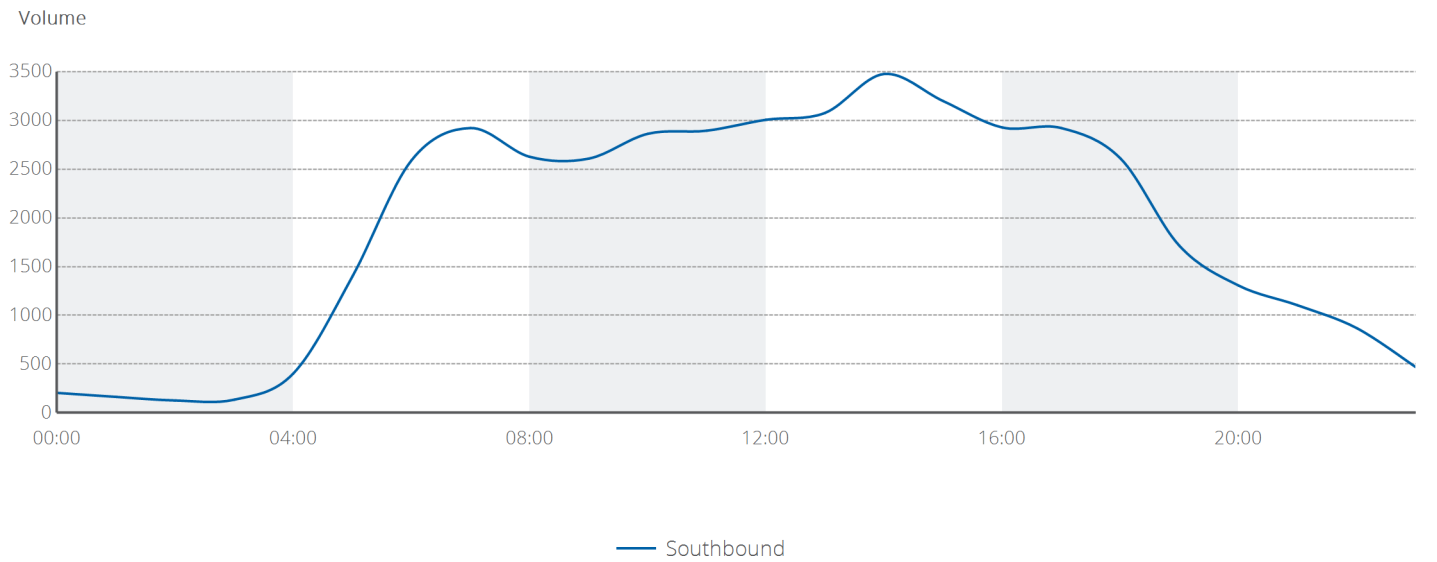
2020/21
Monday to Friday

SB At Bridge Under Rowley Rd (SLK 24.95)

	 All Vehicles			 Heavy Vehicles			
	 SB			 SB			 %
00:00	204			24			11.8
01:00	163			32			19.6
02:00	126			29			23.0
03:00	134			42			31.3
04:00	403			94			23.3
05:00	1398			232			16.6
06:00	2590			513			19.8
07:00	2922			465			15.9
08:00	2627			455			17.3
09:00	2608			468			17.9
10:00	2863			479			16.7
11:00	2895			455			15.7
12:00	3007			442			14.7
13:00	3077			442			14.4
14:00	3477			399			11.5
15:00	3199			347			10.8
16:00	2928			272			9.3
17:00	2922			223			7.6
18:00	2611			189			7.2
19:00	1713			127			7.4
20:00	1306			93			7.1
21:00	1103			61			5.5
22:00	869			51			5.9
23:00	469			36			7.7
TOTAL	45614			5970			

 Peak Statistics			
AM	TIME	07:15	06:15
	VOL	2986	533
PM	TIME	14:15	12:45
	VOL	3513	455

 Information Not Available





Hourly Volume

Rowley Rd (1030019)

2020/21
Monday to Friday

West of Kwinana Fwy (SLK 0.79)

	 All Vehicles		
	 EB	 WB	 Both
00:00	6	8	14
01:00	5	4	9
02:00	10	4	14
03:00	14	12	26
04:00	30	43	73
05:00	96	315	411
06:00	201	431	632
07:00	323	471	794
08:00	367	488	855
09:00	251	241	492
10:00	247	221	468
11:00	262	234	496
12:00	256	215	471
13:00	255	202	457
14:00	403	284	687
15:00	606	290	896
16:00	609	270	879
17:00	498	226	724
18:00	252	168	420
19:00	114	109	223
20:00	85	78	163
21:00	62	65	127
22:00	39	37	76
23:00	20	23	43
TOTAL	5011	4439	9450

	 Heavy Vehicles			 %
	 EB	 WB	 Both	
00:00	0	1	1	7.1
01:00	2	0	2	22.2
02:00	0	1	1	7.1
03:00	3	2	5	19.2
04:00	7	2	9	12.3
05:00	13	23	36	8.8
06:00	58	56	114	18.0
07:00	67	80	147	18.5
08:00	77	82	159	18.6
09:00	83	77	160	32.5
10:00	86	84	170	36.3
11:00	85	81	166	33.5
12:00	78	83	161	34.2
13:00	78	75	153	33.5
14:00	86	65	151	22.0
15:00	54	34	88	9.8
16:00	37	16	53	6.0
17:00	21	13	34	4.7
18:00	8	7	15	3.6
19:00	2	3	5	2.2
20:00	2	0	2	1.2
21:00	1	1	2	1.6
22:00	2	2	4	5.3
23:00	0	2	2	4.7
TOTAL	850	790	1640	17.4



Peak Statistics

AM	TIME	08:00	07:45	07:45
	VOL	367	504	855
PM	TIME	16:15	14:30	14:45
	VOL	617	320	910

	10:45	07:15	11:15
	87	88	171
	14:00	12:00	12:00
	86	83	161

Volume

