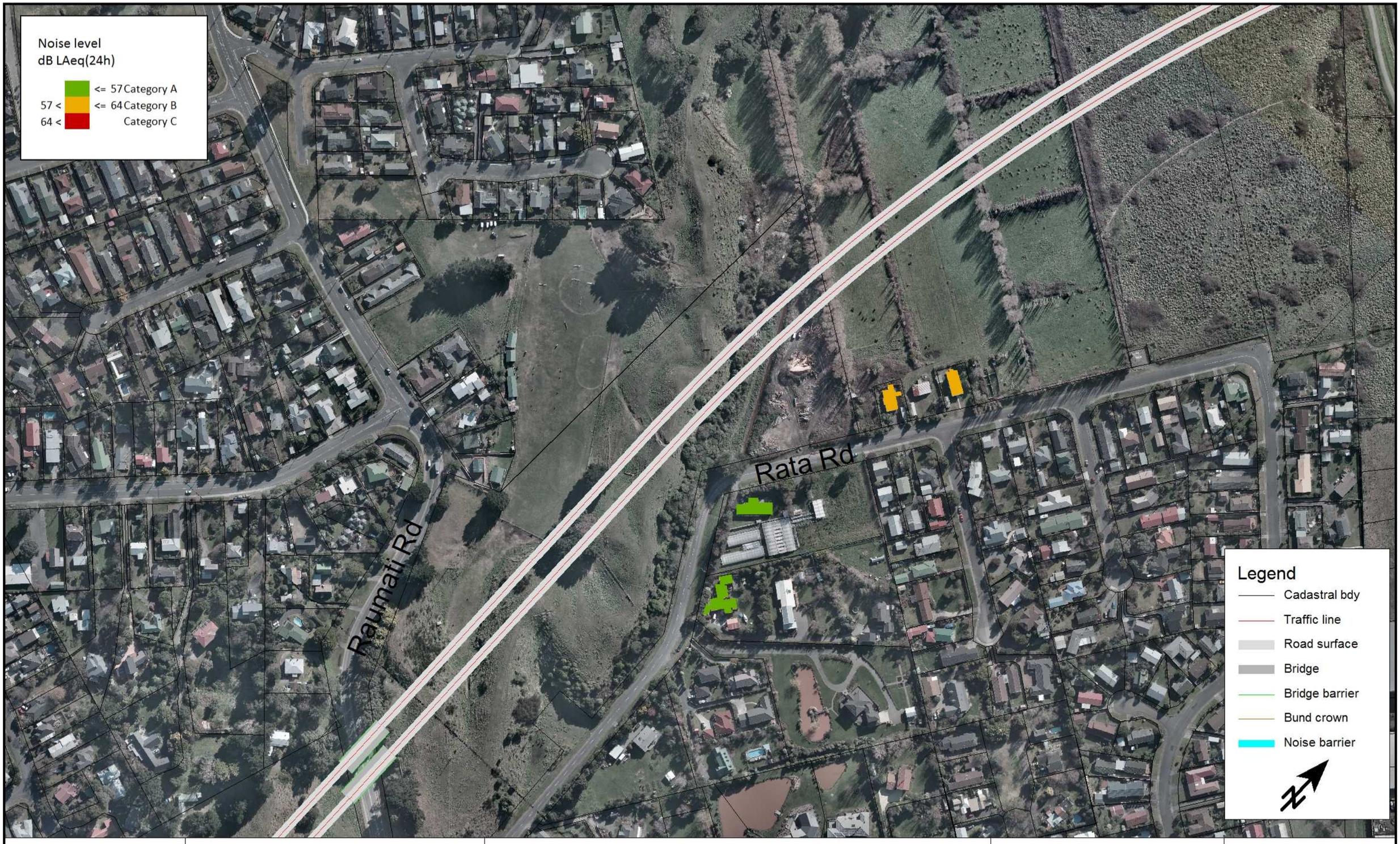


Initials: SW
Date: 18/8/2011

Calculation No: 261

A3 Scale 1:2500

0 12.5 25 50 75 100 m

MARSHALL DAY Acoustics

NZ Transport Agency | Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 2
Rata Road, East of Expressway
Do-minimum Scenario

NOISE PREDICTION SCENARIOS
SHEET 14 OF 75

Document Set:

M2PP-AEE-DWG

Drawing No.:

EN-NV-033

Noise level
dB LAeq(24h)

	<= 57	Category A
57 <	<= 64	Category B
64 <		Category C

Legend
- Cadastral bdy
- Traffic line
- Road surface
- Bridge
- Bridge barrier
- Bund crown
- Noise barrier

N

Initials: SW
Date: 18/8/2011

Calculation No: 262

A3 Scale 1:2500
0 12.5 25 50 75 100 m

MARSHALL DAY Acoustics

NZ TRANSPORT AGENCY WAKA KOTAHI
Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 2
Rata Road, East of Expressway
Mitigation Option 1

NOISE PREDICTION SCENARIOS
SHEET 15 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-034

SECTOR 2 SOUTH OF KAPITI ROAD

NZS 6806 – Assessment matrix

Impact key	Potential effects of noise mitigation option
3	significant positive effects
2	moderate positive effects
1	minor positive effects
0	insignificant (no effects)
-1	minor adverse effects
-2	moderate adverse effects
-3	significant adverse effects

A brief description of the basis for each rating should be added in the spaces below the ratings.

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4/4a	Issues/Risks
Compliance with NZS 6806 noise criteria, and requirement for building-modification measures	Acoustics	-1	+2	+3	+2	
		29 in Cat A, 5 in Cat B, 1 in Cat C	All but one in Cat A, one in Cat B	All in Cat. A	All but one in Cat A, one in Cat B	
Effect of changes to the existing noise environment	Acoustics	-3	-3	-2	-3	
		11 dB average increase, highest 22 dB	9 dB average increase, highest 20 dB	9 dB average increase, highest 13 dB	10 dB average increase, highest 20 dB	
Achievement of the NZS 6806 structural mitigation performance standards	Acoustics	0	+3	+3	+2	
		3 dB average structural mitigation	5 dB average structural mitigation	6 dB average structural mitigation	4 dB average structural mitigation	
Value for money, including maintenance costs and consideration of benefit cost	Acoustics	+3	+2	+2	+2	
		BCR 1.6	BCR 1.4	BCR 1.3	BCR 1.3	

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4/4a	Issues/Risks
analysis						
Difference in cost compared to Transit's Guidelines (criteria for NZTA internal monitoring purposes)	Acoustics	+3 -67% compared with Transit Guidelines	+3 -27% compared with Transit Guidelines	N/A	+3 -27% compared with Transit Guidelines	
Compliance with relevant safety standards and guidelines	Roading	0	0	0	0	
	Structures	0	0	0	0	
Constructability/technical feasibility	Roading	0	0	0	0	
	Structures	0	0	-2	0	
	Construction	0	+1	-2	0	
Availability of sufficient land for construction and maintenance and the extent to which NZTA would need to acquire land, or interests in land	NZTA	N/A	N/A	N/A	N/A	
Potential effects on known heritage or cultural values	Cultural	?	?	?	?	No cultural representative present
The extent to which the mitigation option promotes	Visual / landscape	-1	-2	-3	0	

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4/4a	Issues/Risks
integration and establishes visual coherence and continuity in form, scale and appearance of structures and landscape proposals along the route						
Road users' views to the surrounding landscape and key features/ locations in particular	Visual / landscape	-1	-2	-2	0	
Maintenance or enhancement of visual amenity for surrounding residents	Visual / landscape	-1	-2	-3	0	
Utilisation of materials that reflect the character of the location	Visual / landscape	-1	-1	-1	0	
Maintenance or enhancement of the convenience and attractiveness of pedestrian and cycle networks	Urban design	-1	-3	-3	0	Hard to sort out cycleway through here. Cycleway would be hard to get back to the other side through the Kapiti interchange if we swap sides here.
Impacts (land take, amenity and usability) on community facilities (reserve, school, playground, playing field, etc)	Urban design	0	0	0	0	
Public safety and security	Urban design	-2	-3	-3	0	
Potential effects on areas of	Ecology	0	0	0	0	

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4/4a	Issues/Risks
significant indigenous vegetation and significant habitats of indigenous fauna						
Potential flooding effects	Hydrology	0	-1	-1	0	
Resource efficiency (including avoidance of waste)	Sustainability	0	0	-1	0	

Final Comments: Preferred Mitigation Option: 4/4a: lower barrier at property boundary, good noise level reduction.

Additional Notes from Workshop:

Team would prefer 2m wall at the boundary to houses on eastern side and walls by the expressway can go higher (3m max including road barriers) with the nature of the walls designed for visual effect in the urban context.

In centre – fill with peat between this dune.

Project

M2PP

Sector 2 Sth of Kapiti

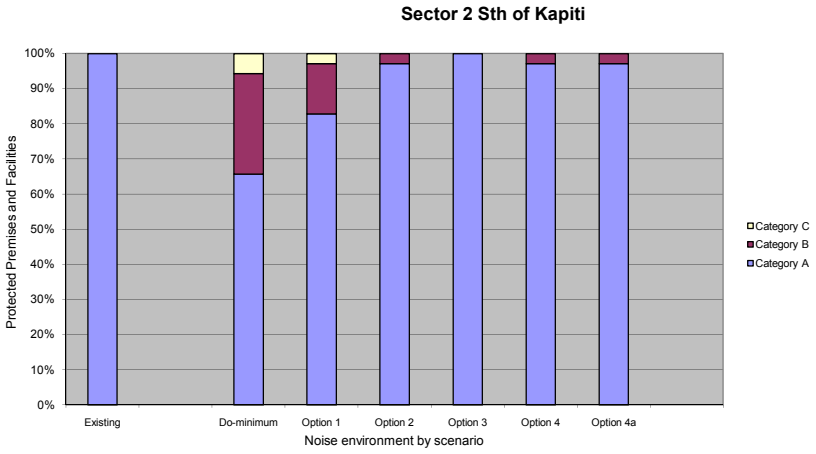
Protected Premises and Facilities

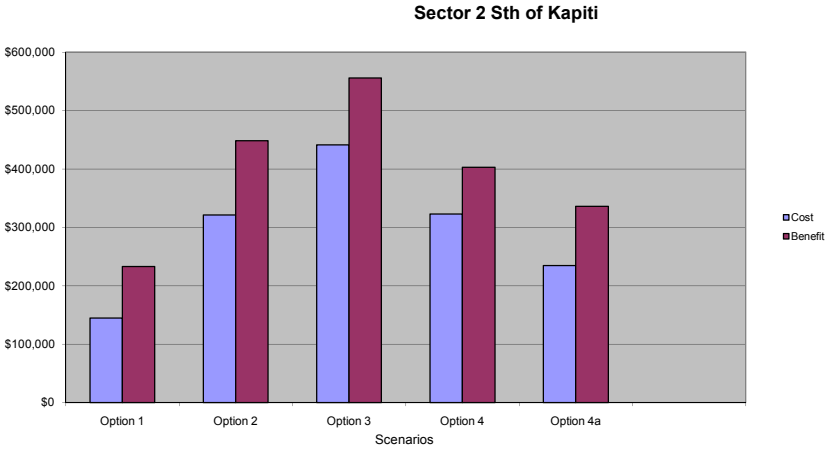
	Existing	Do-minimum	Option 1	Option 2	Option 3	Option 4	Option 4a
Category A	35	23	29	34	35	34	34
Category B	0	10	5	1	0	1	1
Category C	0	2	1	0	0	0	0
Total	35	35	35	35	35	35	35

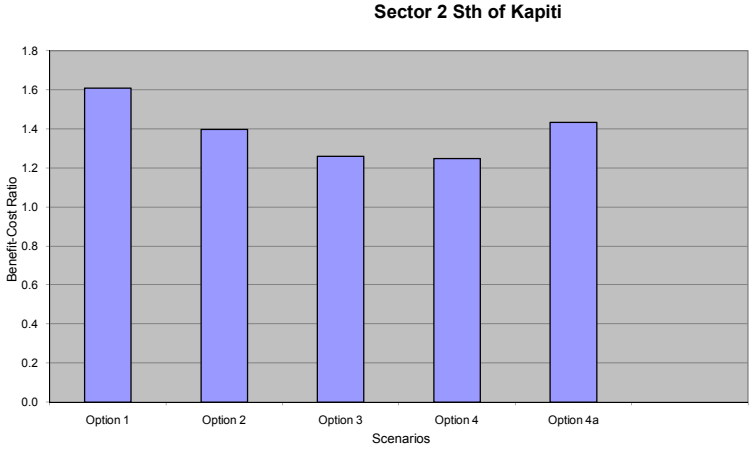
Benefit-Cost Ratio

	Option 1	Option 2	Option 3	Option 4	Option 4a
Cost	$144,960	$321,060	$441,350	$322,980	$234,420
Benefit	$233,229	$448,369	$556,047	$403,145	$335,954
BCR	**1.61**	**1.40**	**1.26**	**1.25**	**1.43**
Transit	-67%	-27%	0%	-27%	-47%
Structural	2.3 dB	3.2 dB	3.9 dB	3.0 dB	2.5 dB

Graphs







Project: M2PP
Area: Sector 2 Sth of Kapiti
AADT: (•) 2,000 to 75,000 vehicles per day
( ) More than 75,000 vehicles per day
Transit: Option 3 (option to comply with Transit's Guidelines)

Reformat | New | Altered

Protected Premises and Facilities		New or Altered	Existing $L_{Aeq(24h)}$ dB	Do-minimum $L_{Aeq(24h)}$ dB	Option 1 $L_{Aeq(24h)}$ dB	Option 2 $L_{Aeq(24h)}$ dB	Option 3 $L_{Aeq(24h)}$ dB	Preferred Mitigation Option: Option 4 $L_{Aeq(24h)}$ dB	Preferred Mitigation Option: Option 4a $L_{Aeq(24h)}$ dB
Street address	Floor								
Compass Ct 6	1. Floor	New	43	47	47	47	47	47	47
Datum Way 11	1. Floor	New	43	46	46	46	46	46	46
Datum Way 15	1. Floor	New	43	54	53	53	53	53	54
Datum Way 17	1. Floor	New	43	55	54	55	55	54	55
Milne Dr 44	1. Floor	New	44	59	57	56	56	55	56
Milne Dr 48	2. Floor	New	44	59	57	55	55	55	56
Milne Dr 50	1. Floor	New	44	55	53	53	53	52	53
Milne Dr 51	1. Floor	New	44	65	58	54	54	56	57
Milne Dr 52	2. Floor	New	44	56	54	53	53	53	53
Milne Dr 55	1. Floor	New	44	64	61	55	55	57	57
Milne Dr 56	1. Floor	New	44	51	51	50	50	50	50
Milne Dr 59	1. Floor	New	44	61	58	55	54	56	57
Observation Pl 07	1. Floor	New	43	50	48	47	47	48	49
Observation Pl 11	1. Floor	New	43	54	52	50	49	51	52
Observation Pl 12	1. Floor	New	43	48	48	47	47	48	47
Observation Pl 15	1. Floor	New	43	58	55	53	51	54	55
Observation Pl 16	1. Floor	New	43	50	50	50	50	50	50
Observation Pl 20	2. Floor	New	43	55	55	55	55	55	55
Observation Pl 21	2. Floor	New	43	65	65	63	56	63	63
Observation Pl 23	1. Floor	New	43	63	54	53	53	56	57
Observation Pl 24	1. Floor	New	43	63	56	54	54	56	56
Observation Pl 26	1. Floor	New	43	62	57	54	54	56	57
Observation Pl 27	1. Floor	New	43	53	51	50	49	50	51
Quadrant Heights 25	2. Floor	New	43	53	53	51	51	51	51
Quadrant Heights 27	1. Floor	New	43	54	54	54	54	54	54
Quadrant Heights 29	1. Floor	New	43	57	57	57	57	55	57
Quadrant Heights 33	1. Floor	New	43	53	53	49	49	49	49
Quadrant Heights 37	1. Floor	New	43	46	46	46	46	46	46
Quadrant Heights 39	1. Floor	New	43	56	56	50	49	50	49
Quadrant Heights 41	2. Floor	New	43	60	60	56	54	56	54
Quadrant Heights 43	1. Floor	New	43	48	48	47	46	47	48
Quadrant Heights 45	2. Floor	New	43	57	57	54	51	54	55
Quadrant Heights 47	2. Floor	New	43	58	58	57	53	57	57
Quadrant Heights 49	2. Floor	New	43	57	57	57	55	57	57
Quadrant Heights 57	1. Floor	New	43	56	56	56	53	56	57

Initials: SW
Date: 18/8/2011

Calculation No: 221

A3 Scale 1:2500

0 12.5 25 50 75 100 m

MARSHALL DAY Acoustics

NZ TRANSPORT AGENCY Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 2
South of Kapiti Road, West of Expressway
Do-minimum Scenario

NOISE PREDICTION SCENARIOS
SHEET 16 OF 75

Document Set:

M2PP-AEE-DWG

Drawing No.:

EN-NV-035

Noise level
dB LAeq(24h)

	<= 57	Category A
57 <	<= 64	Category B
64 <		Category C

2.0 3.0 1.1 2.0

Legend

- Cadastral bdy
- Traffic line
- Road surface
- Bridge
- Bridge barrier
- Bund crown
- Noise barrier

N

Initials: SW
Date: 18/8/2011

Calculation No: 222

A3 Scale 1:2500

0 12.5 25 50 75 100 m

MARSHALL DAY Acoustics

NZ TRANSPORT AGENCY WAKA KOTAHI

Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 2
South of Kapiti Road, West of Expressway
Mitigation Option 1

NOISE PREDICTION SCENARIOS
SHEET 17 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-036

Initials: SW
Date: 18/8/2011

Calculation No: 223

A3 Scale 1:2500

0 12.5 25 50 75 100 m

MARSHALL DAY Acoustics

NZ Transport Agency Waka Kotahi — Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 2
South of Kapiti Road, West of Expressway
Mitigation Option 2

NOISE PREDICTION SCENARIOS
SHEET 18 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-037

Initials: SW
Date: 18/8/2011

Calculation No: 224

A3 Scale 1:2500

0 12.5 25 50 75 100 m

MARSHALL DAY Acoustics

NZ Transport Agency Waka Kotahi — Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 2
South of Kapiti Road, West of Expressway
Mitigation Option 3 (Noise Guidelines)

NOISE PREDICTION SCENARIOS
SHEET 19 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-038

Initials: SW
Date: 18/8/2011

Calculation No: 225

A3 Scale 1:2500

0 12.5 25 50 75 100 m

MARSHALL DAY Acoustics

NZ TRANSPORT AGENCY WAKA KOTAHI

Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 2
South of Kapiti Road, West of Expressway
Mitigation Option 4

NOISE PREDICTION SCENARIOS
SHEET 20 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-039

Initials: SW
Date: 18/8/2011

Calculation No: 227

A3 Scale 1:2500

0 12.5 25 50 75 100 m

MARSHALL DAY Acoustics

NZ TRANSPORT AGENCY WAKA KOTAHI

Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 2
South of Kapiti Road, West of Expressway
Mitigation Option 4a

NOISE PREDICTION SCENARIOS
SHEET 21 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-040