



Prepared for: HAPPY CAPITAL PTY LTD

ADELE PACKER

3876 FOREST HILL FERNVALE ROAD, FERNVALE. PROPOSED LAYOUT

SCALE 5 0 5 10 15 20 25 (metres)

1:500 (FULL SIZE) (metres)

Gold Coast I Brisbane I Toowoomba Ipswich I Moreton Bay Phone: +61 7 5509 6400 Fax: +61 7 5509 6411 Email: admin@burchills.com.au Coote Burchills Engineering Pty Ltd ABN 76 166 942 365

Checked: DALE KLEIMEYER
Date: 07-02-2023

Designer:

# Appendix C – Traffic Survey

Client: Happy Capital Pty Ltd Doc No.: BE220259-RP-TIA-02



## **Hourly Volume by Day**

Wed 24 Aug 22 to Tue 30 Aug 22 Site No. 19328 Suburb Fernvale Job# 19328 Surveyed Forest Hill-Fernvale Road Outside No. 3876 (60kmh) Direction Eastbound Location

	Hourly Traffic Volume Summary										
Time (hour starting)	Wednesday 24/08/22	Thursday 25/8/22	Friday 26/8/22	Saturday 27/8/22	Sunday 28/8/22	Monday 29/8/22	Tuesday 30/8/22	Total 7 day Volumes	Average Weekday Volumes	Average Daily Volumes	
0:00	3	6	4	7	6	1	2	29	3	4	
1:00	2	4	7	5	5	7	5	35	5	5	
2:00	7	8	10	8	2	6	9	50	8	7	
3:00	25	26	27	11	6	19	20	134	23	19	
4:00	56	53	37	18	11	60	50	285	51	41	
5:00	95	94	78	40	25	106	102	540	95	77	
6:00	129	114	118	47	40	116	109	673	117	96	
7:00	157	161	148	89	77	143	157	932	153	133	
8:00	228	195	226	157	169	218	209	1402	215	200	
9:00	161	158	191	173	211	177	170	1241	171	177	
10:00	168	161	195	207	200	154	161	1246	168	178	
11:00	146	146	180	212	163	130	132	1109	147	158	
12:00	148	141	148	165	155	126	145	1028	142	147	
13:00	123	176	151	154	169	125	123	1021	140	146	
14:00	160	183	167	131	142	143	129	1055	156	151	
15:00	173	198	235	128	156	187	244	1321	207	189	
16:00	193	184	173	114	111	168	178	1121	179	160	
17:00	165	157	135	114	83	145	145	944	149	135	
18:00	65	81	92	77	59	90	81	545	82	78	
19:00	33	46	53	43	30	29	49	283	42	40	
20:00	38	37	37	35	27	42	45	261	40	37	
21:00	22	16	31	36	13	19	22	159	22	23	
22:00	4	10	17	16	6	17	4	74	10	11	
23:00	4	5	8	11	1	5	5	39	5	6	
Daily Total Traffic Volumes	2305	2360	2468	1998	1867	2233	2296	15527	2332	2218	
Peak Hourly Traffic Volumes	228	198	235	212	211	218	244	1402	215	200	

AM Peak	228 8:00:00 AM	195 8:00:00 AM	226 8:00:00 AM	212 11:00:00 AM	211 9:00:00 AM	218 8:00:00 AM	209 8:00:00 AM	1402 8:00:00 AM	215 8:00:00 AM	200 8:00:00 AM
PM Peak	193	198	235	165	169	187	244	1321	207	189
	4:00:00 PM	3:00:00 PM	3:00:00 PM	12:00:00 PM	1:00:00 PM	3:00:00 PM	3:00:00 PM	3:00:00 PM	3:00:00 PM	3:00:00 PM



## **Hourly Volume by Day**

Wed 24 Aug 22 to Tue 30 Aug 22 Site No. 19328 Suburb Fernvale Job# 19328 Surveyed Forest Hill-Fernvale Road Outside No. 3876 (60kmh) Direction Westbound Location

	Hourly Traffic Volume Summary										
Time (hour starting)	Wednesday 24/08/22	Thursday 25/8/22	Friday 26/8/22	Saturday 27/8/22	Sunday 28/8/22	Monday 29/8/22	Tuesday 30/8/22	Total 7 day Volumes	Average Weekday Volumes	Average Daily Volumes	
0:00	7	7	9	18	14	9	8	72	8	10	
1:00	5	5	5	6	4	3	5	33	5	5	
2:00	1	4	6	8	6	2	2	29	3	4	
3:00	10	4	4	3	6	7	5	39	6	6	
4:00	13	18	17	12	2	8	13	83	14	12	
5:00	48	45	42	23	8	59	57	282	50	40	
6:00	72	67	71	45	36	80	84	455	75	65	
7:00	110	137	116	57	64	125	131	740	124	106	
8:00	199	187	179	115	109	190	203	1182	192	169	
9:00	138	129	162	153	188	167	142	1079	148	154	
10:00	148	148	156	173	199	141	144	1109	147	158	
11:00	145	146	201	180	180	167	142	1161	160	166	
12:00	156	147	153	193	169	165	147	1130	154	161	
13:00	134	173	169	166	132	129	173	1076	156	154	
14:00	179	154	178	165	136	143	175	1130	166	161	
15:00	241	228	290	155	155	271	262	1602	258	229	
16:00	239	235	225	112	129	194	228	1362	224	195	
17:00	196	213	189	125	116	200	214	1253	202	179	
18:00	132	124	132	93	68	118	122	789	126	113	
19:00	66	83	58	52	35	56	66	416	66	59	
20:00	51	51	64	40	34	47	47	334	52	48	
21:00	24	36	33	46	16	37	27	219	31	31	
22:00	24	30	41	29	14	27	24	189	29	27	
23:00	8	8	20	18	7	7	5	73	10	10	
Daily Total Traffic Volumes	2346	2379	2520	1987	1827	2352	2426	15837	2405	2262	
Peak Hourly Traffic Volumes	241	235	290	193	199	271	262	1602	258	229	

AM Peak	199	187	201	180	199	190	203	1182	192	169
	8:00:00 AM	8:00:00 AM	11:00:00 AM	11:00:00 AM	10:00:00 AM	8:00:00 AM				
PM Peak	241	235	290	193	169	271	262	1602	258	229
	3:00:00 PM	4:00:00 PM	3:00:00 PM	12:00:00 PM	12:00:00 PM	3:00:00 PM				

Page 1 of 1 Copyright Austraffic, 1983-2016 (DatXL 3.1.35; 2.40)



#### Data, Speed & Class Overview

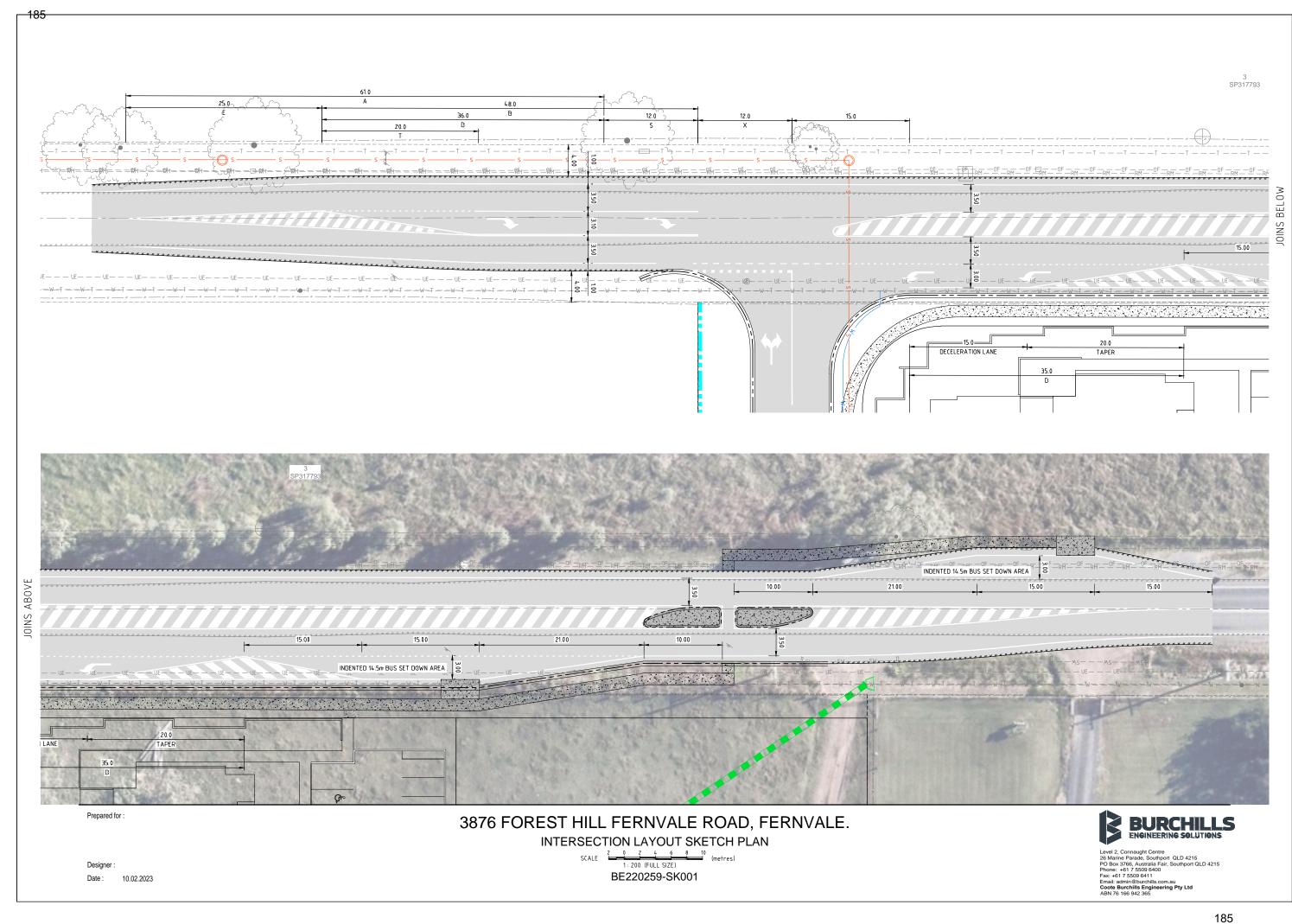
Outside No. 3876 (60kmh) Forest Hill-Fernvale Road Fernvale 19328 Location Street Suburb Siteld

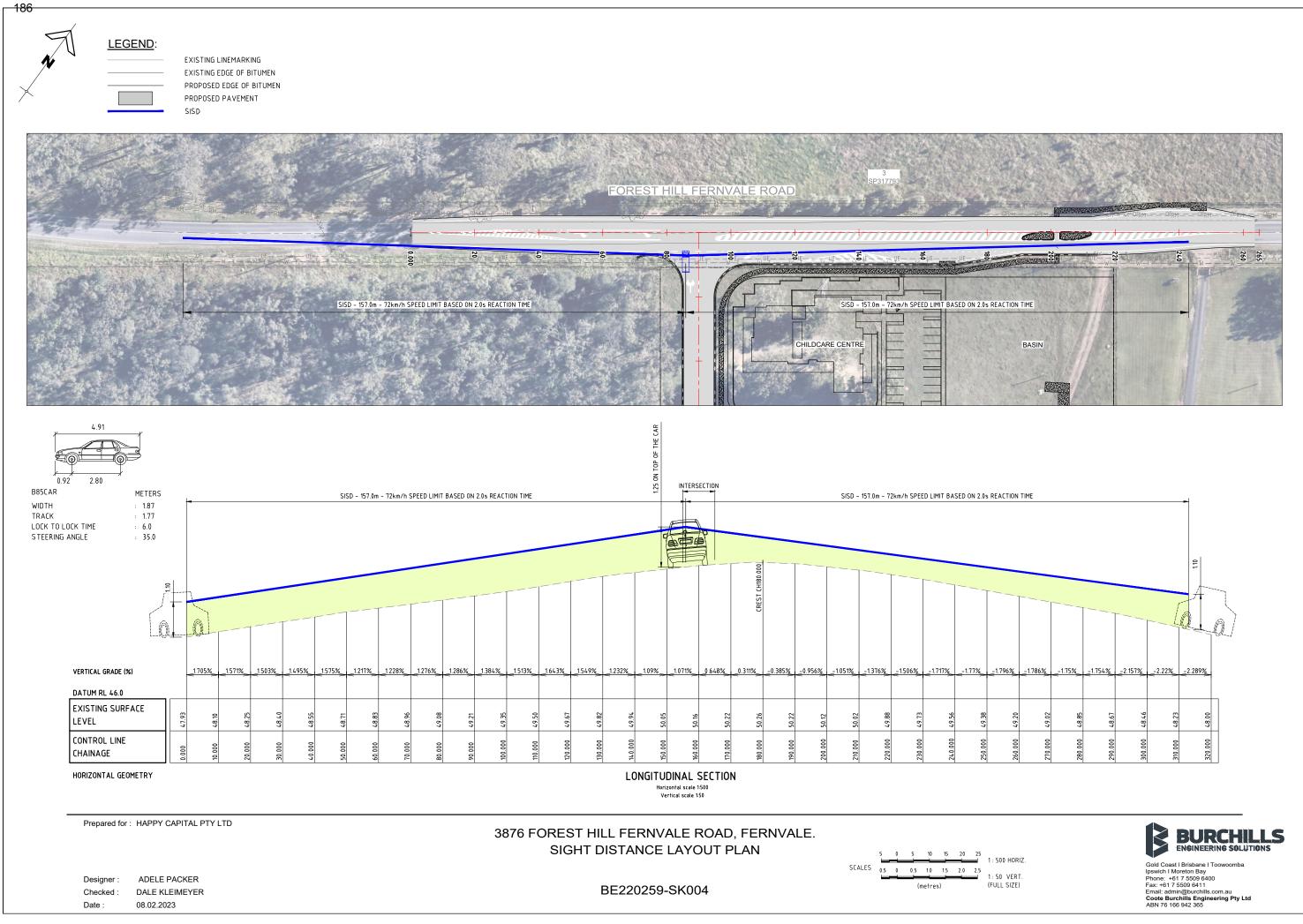
Service 1	Date Record	Wedn		_			022		ay 26/08/202			day 27/08/20			lay 28/08/20			day 29/08/20			day 30/08/20	
THE STATE OF THE PROPERTY AND A STATE OF THE PROPERTY AND	Interval (min) 15 Short %				84%	90%	87%	86%	90%	88%	88%	93%	90%	89%	93%		84%					
236   236   246   465   260   277   178   268   270   178   278	Long %	1%	2%	1%	2%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	1%	1%
Mark Special   Sign	24Hr Vol		2346	4651	2360	2379	4739	2468	2520	4988	1998	1987	3985	1867	1827	3694	2233	2352	4585	2296	2426	4722
MAY Fuerty   0.03   0.02   0.03   0.0		56.1	63.9	60.1	55.8	62.3	59.1	55.3	62.9	59.1	65.6	68.1	66.8	65.0	67.1	66.1	57.3	63.8	60.6	55.0	61.8	58.5
Market 1 0 30 645 646 830 830 815 820 845 830 815 820 845 830 815 820 845 830 815 820 845 830 815 820 845 830	AM PK Interval Vol AM Pk Factor	0.03	0.02	0.03	0.03	0.02	0.02	0.03	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02
TREAT FAILED CO. 0.0.0 0	AM PK starts	8:30	8:45	8:45	8:30	8:15	8:30	8:45	9:15	8:15	10:30	9:45	11:00	8:45	10:00	9:00	8:30	8:15	8:30	8:30	8:15	8:30
Text and the company of the company	PM Pk Factor	0.03	0.03	0.02	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.03	0.02	0.03	0.03	0.02	0.03	0.03	0.03	0.04	0.04	0.03
The proof black is a contract of	PM Pk 85% PM Pk starts										13:00	12:00	12:00									
Speed Blast	Volume Distribution	90 - 80 - 70 - 60 - 50 - 40 - 30 - 20 -	.00 12:00	18:00	0:00 06:0	0 12:00	18:00 00	0:00 06:00	12:00	18:00 00	Mayor W	M May	M. Lyn	Aug	12:00 1	3:00 00:0	0 06:00	12:00 18	8:00 00:0	10 06:00	12:00 18:	MANA DO
Care Moort/yels   43   40   83   43   45   88   60   59   119   62   60   122   61   76   137   40   53   93   33   50   83   2.66   4.024   2.057   2.205   4.000   2.20   1.000   2.20   2.	Speed Stats																					
900 A 85h Percentiles  11: Car-MotorCycle	Eastbound	140 -																				
1. Cer+MotorCycle 1. 316 2. 034 3. 950 1. 938 2. 086 4. 024 2. 057 2. 205 4. 260 2. 1900 0. 12	Speed Dist. Soth & S5th Percentiles	120 - 100 - 80 - 40 - 20 -	00 12:00	18:00	20:00 06:00	12:00	18:00 0	0:00 06:00	12:00	18:00 00	:00 06:00			00 06:00	12:00 1	8:00 00:0	0 06:00	12:00 1	18:00 00:0	00 06:00	12:00 18	<b>≈</b> ₩₩
2: Car+ Trailer	Speed Dist. Soth & S5th Percentiles  Westbound Speed Dist. Soth & S5th	120 - 100 - 80 - 40 - 20 - 00:00 06	00 12:00	18:00	06:00	12:00	18:00 00	0:00 06:00	12:00	18:00 00	:00 06:00			00 06:00	12:00 1	8:00 00:0	0 06:00	12:00 1	8:00 00:0	06:00	12:00 18	00
44. Sake truck  60	Speed Dist. Speta Dist. Speta Sith Percentiles  Westbound Speed Dist.	120 - 100 - 80 - 100 - 00 - 00 - 00 - 00 -	My m	w.W	MINA	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	<b>√</b> ~~^	MM po	M.	My M	boy po	85th% 50th%	SPD SPD	Majyk od	<u>~~~</u>	mul	MARA	wax.	/~**\\\\\\\	MMX	<b>₩₩</b>	<del></del>
8: Sake semi	Speed Dist.  Westbound Speed Dist. Speed D	120 100 80 40 20 100 100 100 100 100 100 100	00 12:00 2,034 40	18:00 3,950 83	1,938	12:00 2,086 45	18:00 0 4,024 88	2,057 60	12:00 2,205 59	18:00 00 4,262 119	1,687	12:00 1,788 60	18:00 00: 3,475 122	1,595 61	12:00 1,625 76	18:00 00:00 3,220 137	1,843 40	12:00 2,033 53	18:00 00:0 3,876 93	1,911	12:00 18 2,128 50	4,039 83
10-78 ask truck   5 8 13   4 3 7   12 8 20 2 3 5 0 0 0 0 12 12 24 9 10 19	Speed Dist.  Westbound Speed Dist. Soft A. 85th Speed Dist. Soft A. 85th Percentiles  1: Car+MotorCycle 2: Car + Trailer 3: 2 axis truck 5: 4 axis truck 5: 4 axis truck 5: 4 axis erruck	120 100 100 100 100 100 100 100 100 100	00 12:00 2,034 40 182 43 111 5	3,950 83 429 103 24 10	1,938 43 277 50 12 3	2,086 45 188 37 8	18:00 0 4,024 88 465 87 20 4	2,057 60 261 35 11	12:00 2,205 59 174 33 11 6	18:00 00 4,262 119 435 68 22 9	1,687 62 208 18 3 8	12:00 1,788 60 109 5 2 6	18:00 00: 3,475 122 317 23 5 14	1,595 61 163 25 4	12:00 1,625 76 105 3 1 5	3,220 137 268 28 5 12	1,843 40 235 51 188 5	12:00 2,033 53 173 26 188 6	3,876 93 408 77 36 11	00 06:00 1,911 33 234 76 6 8	12:00 16 2,128 50 188 26 4 5	4,039 83 422 102 100 13
12-Road Tain	Speed Dist.  Westbound Speed Dist. Speed Dist. Car+MotorCycle C Car+ Trailer C Car+ Trailer C C C C C C C C C C C C C C C C C C C	120 100 100 100 100 100 100 100	2,034 40 182 43 11 5 9 9	3,950 83 429 103 3,950 103 6	1,938 43 277 50 12 3 18 2	12:00 2,086 45 188 37 8 1 5 1	18:00 0 4,024 88 465 87 20 4 23 3	2,057 60 261 35 11 3 18 4	12:00 2,205 59 174 33 111 6 7 7	4,262 119 435 68 22 9 25 9	1,687 62 208 18 3 8 6 2	12:00 1,788 60 109 5 6 6 110	18:00 00: 3,475 122 317 23 5 14 17 2	1,595 61 163 25 4	12:00 1,625 76 105 3 1 5 10 0	3,220 137 268 28 5 12 20 1	1,843 40 235 51 18 5 14 3	12:00 2,033 53 173 26 18 6 7 3	3,876 93 408 77 36 11 21 6	1,911 33 234 76 8 100 2	12:00 18 2,128 50 188 26 4 5 3 1	4,039 83 422 102 10 13 13 3
Unpaired Actes 79 52 131 77 67 144 67 46 113 26 21 47 26 17 43 85 51 136 150 76 226  Pace Min 48.0 57.0 54.0 48.0 55.0 52.0 47.0 55.0 52.0 55.0 60.0 56.0 55.0 59.0 56.0 49.0 56.0 53.0 47.0 53.0 51.0	Speed Dist.  Westbound Speed Dist.  Westbound Speed Dist. Solin & 85th Percentiles  1: Car+MotorCycle 2: Car + Trailer 3: 2 Ade truck 4: 3asie truck 6: 3 ake semi 7: 4 Ade semi	120 100 100 100 100 100 100 100	00 12:00 2,034 40 182 43 11 5 9 2 2 11 1 8	3,950 83 429 103 24 10 13 6 19 13	1,938 43 277 50 12 3 18 2 2 12 4	12:00 2,086 45 188 37 8 1 1 5 1 5 3	18:00 0 4,024 88 465 87 20 4 23 3 17 7	2,057 60 261 35 111 3 18 4 7 12	2,205 59 174 33 11 6 7 7 5 10 8	4,262 119 435 68 22 9 25 9 17 20	1.687 62 208 18 8 6 6 2 2	12:00 1,788 600 109 5 2 6 11 0 3 3	18:00 00: 3,475 122 317 23 5 14 17 2 5 5	1,595 61 163 25 4 7 10	12:00 1,625 76 105 3 1 5 10 0 2	3,220 137 268 28 5 12 20 1 1 3 0	1,843 40 235 51 18 5 14 3 12 12	12:00 2,033 53 173 26 18 6 7 3 199 12	3,876 93 408 77 36 11 21 6 31	1,911 33 234 76 8 8 10 2 7	12:00 18 2,128 50 188 26 4 5 3 1 11 10	4,039 83 422 102 10 13 3 18 19
	Speed Dist.  Westbound Speed Dist.  Westbound Speed Dist. Solin & SSth Percentiles  1: Car+MotorCycle 2: Car + Trailer 3: 2 Ade truck 4: 3asle truck 6: 3 ake semi 7: 4 Ade semi 10: 76 ake semi 10: 76 ake truck 11: Road Train 11: Road Train 12: Road Train 13: Unknown	120 100 80 40 40 20 100 80 100 80 100 80 100 80 100 80 100 80 100 80 100 80 100 80 80 80 80 80 80 80 80 80 80 80 80 8	2,034 40 182 43 11 5 9 2 11 18 8 1 0 0	18:00 3,950 83 429 103 24 10 13 6 19 13 1 0 0	1,938 43 277 50 12 3 18 2 2 12 4 1 0	12:00 2,086 45 188 37 8 1 5 1 5 3 0 0	18:00 0 4,024 888 465 87 20 4 23 3 17 7 1 0 0	2,057 60 261 35 111 3 18 4 7 7 12 0 0	12:00 2,205 59 174 33 111 6 7 5 10 8 8 2 0	18:00 00 4,262 119 435 68 22 9 17 20 0	1,687 62 208 18 3 8 6 2 2 2 0 0	12:00  1.788 60 109 5 6 6 11 0 3 0 0 0	18:00 00: 3,475 122 317 23 5 14 17 2 5 5 0 0	1,595 61 163 25 4 7 10 1 1 1 0 0 0	12:00 1,625 76 105 3 1 1 5 10 0 0 0	3,220 137 268 28 5 12 20 1 3 0 0 0	1,843 40 235 51 18 5 14 3 12 12 12 0 0	12:00 2,033 53 173 26 6 7 3 19 12 2 0	3,876 93 408 77 36 11 21 6 6 31 24 2 0 0	1,911 33 234 76 6 8 10 2 7 9 0 0	12:00 18 2,128 500 188 26 4 5 3 1 11 0 0 0	4,039 83 422 102 10 13 13 13 18 19 0
	Westbound Westbound Speed Dist.  Westbound Speed Dist. Spon a SSh Tarabet Control of the State Control Speed Dist. Spon a SSh Tarabet Control Speed Tarabet Speed Tar	120 100 100 100 100 100 100 100	2,034 40 182 43 11 5 9 2 11 8 1 1 0 0 0 34	3,950 83 429 103 24 100 13 6 19 13 1 1 0 0 6 3	1,938 433 277 50 12 3 18 2 2 12 4 1 0 0 0 20	12:00 2,086 45 188 37 8 1 5 1 5 3 0 0 0 27	18:00 0 4,024 88 465 87 20 4 23 3 17 7 1 0 0 0 47	2,057 600 261 35 11 3 18 4 7 7 12 0 0 0 024	12:00 2,205 59 174 33 11 6 7 7 5 10 8 2 2 0 0 0 22	4,262 119 435 68 22 9 17 20 2 0 0 0 6	1,687 62 208 18 3 8 6 2 2 2 0 0 0 0 21	12:00 1,788 60 109 5 6 11 0 3 3 0 0 0 22	18:00 00: 3,475 122 317 23 14 17 2 5 14 17 2 5 0 0 0 0 0 0 0 0 0 0 0 0 0	1,595 61 163 25 4 7 7 10 1 1 0 0 0 0 0 32	12:00 1,625 76 105 3 1 5 10 0 0 0 0 0 0 40	3,220 137 268 28 28 12 20 1 1 3 3 0 0 0 0 0 72	1,843 40 235 51 18 5 14 3 12 12 0 0 0 0 23	12:00 2,033 53 173 26 6 7 3 19 12 2 0 0 0 20	3,876 93 408 77 7 76 36 11 21 6 31 24 2 2 0 0 43	1,911 33 234 76 8 10 0 2 7 7 9 0 0 0 0 0 28	12:00 18 2.128 50 188 26 4 5 3 1 11 110 0 0 0 0 22	4,039 83 422 102 100 133 3 8 19 0 0 0 0

Definitions
85th Percentille Speed = The speed at or below which 85% of volume is observed to travel
15kph Pace Speed = The 15kph speed range within which the largest percentage of volume is observed to travel

## **Appendix D – Proposed Intersection Layout**

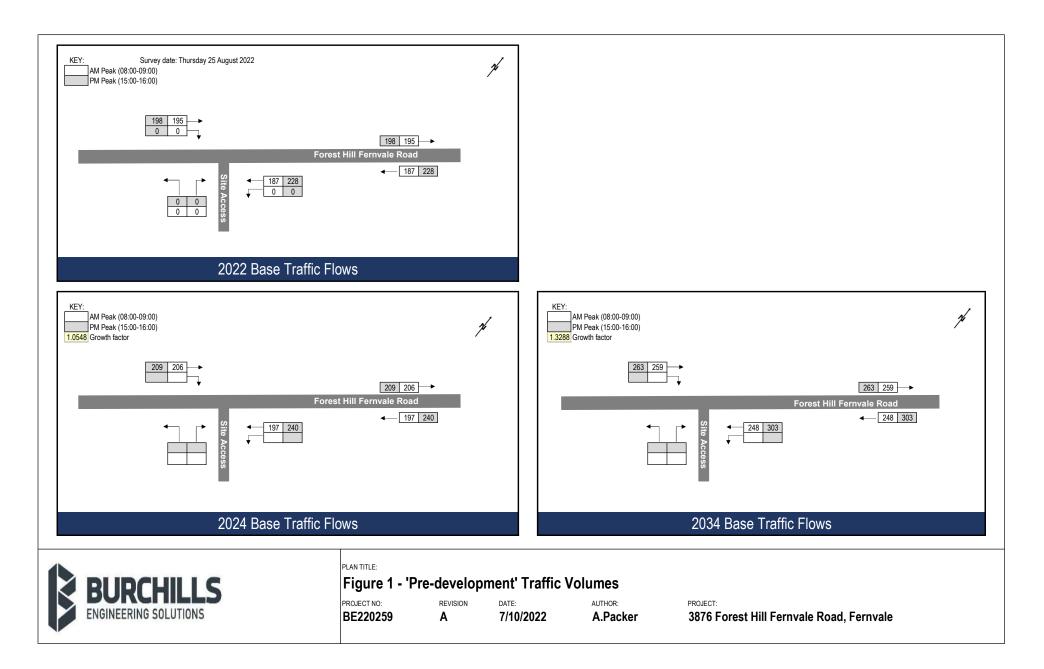
Client: Happy Capital Pty Ltd Doc No.: BE220259-RP-TIA-02

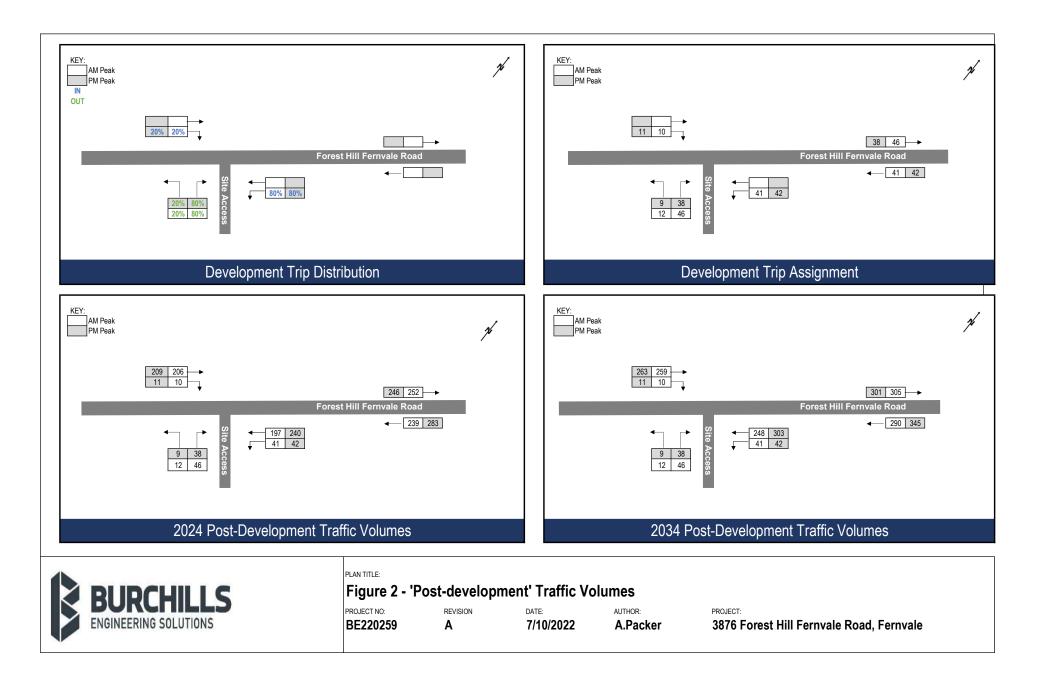




## Appendix E - Traffic Flow Diagrams

Client: Happy Capital Pty Ltd Doc No.: BE220259-RP-TIA-02





## Appendix F - SIDRA Results

Client: Happy Capital Pty Ltd

Doc No.: BE220259-RP-TIA-02

V Site: 101 [2024\_Post Dev\_Site Access / Forest Hill Fernvale

Road - AM Peak (Site Folder: 2024 Post Dev)]

Forest Hill Fernvale Road 2024 Post Development AM Peak Site Category: (None)

Give-Way (Two-Way)

Vehi	cle Mo	ovement	Perfor	mance										
Mov ID	Turn	INP VOLU [ Total	MES HV]	DEM/ FLO [ Total	WS HV]	Deg. Satn	Delay	Level of Service	QUI [ Veh.	ACK OF EUE Dist ]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
South	East:	veh/h Site Acce:	%	veh/h	%	v/c	sec	_	veh	m	_		_	km/h
				•	0.0	0.075	0.4	1.00.4	0.0	4.0	0.47	0.00	0.47	54.0
4	L2	9	0.0	9	0.0	0.075	6.4	LOS A	0.3	1.9	0.47	0.69	0.47	51.3
6	R2	38	0.0	40	0.0	0.075	9.2	LOS A	0.3	1.9	0.47	0.69	0.47	48.3
Appro	oach	47	0.0	49	0.0	0.075	8.7	LOS A	0.3	1.9	0.47	0.69	0.47	49.0
North	East: I	orest Hill	Fernval	e Road										
7	L2	41	0.0	43	0.0	0.023	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	51.5
8	T1	197	0.0	207	0.0	0.106	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Appro	oach	238	0.0	251	0.0	0.106	1.0	NA	0.0	0.0	0.00	0.10	0.00	58.3
South	nWest:	Forest Hi	ill Fernva	ale Road										
2	T1	206	0.0	217	0.0	0.111	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	10	0.0	11	0.0	0.009	6.4	LOS A	0.0	0.2	0.33	0.57	0.33	52.2
Appro	oach	216	0.0	227	0.0	0.111	0.3	NA	0.0	0.2	0.02	0.03	0.02	59.4
All Ve	ehicles	501	0.0	527	0.0	0.111	1.4	NA	0.3	1.9	0.05	0.12	0.05	57.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: BURCHILLS ENGINEERING SOLUTIONS | Licence: NETWORK / 1PC | Processed: Tuesday, 11 October 2022 8:29:43 AM Project: I:\Projects\2022\BE220259\_3876 Forest Hill Fernvale Rd, Fernvale\!Traffic\SIDRA\Intersection Models.sip9

Figet. 1.1Figets/2022/bE220239\_0070 Forest Hill Ferrivale Nd, Ferrivales: Hallicolib NAthrel section Models.spa

V Site: 101 [2024\_Post Dev\_Site Access / Forest Hill Fernvale

Road - PM Peak (Site Folder: 2024 Post Dev)]

Forest Hill Fernvale Road 2024 Post Development AM Peak

Site Category: (None) Give-Way (Two-Way)

Vehi	cle Mo	ovement	Perfor	mance										
Mov ID	Turn	INP VOLU [ Total veh/h		DEM/ FLO [ Total veh/h		Deg. Satn v/c	Aver. Delay sec	Level of Service		ACK OF EUE Dist ] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South	nEast:	Site Acce		VOIMI	,,,	•,,,			7011	- ''				1011/11
4 6	L2 R2	12 46	0.0 0.0	13 48	0.0	0.098 0.098	6.6 9.9	LOS A LOS A	0.4 0.4	2.6 2.6	0.50 0.50	0.72 0.72	0.50 0.50	50.9 47.8
Appro		58 Forest Hill	0.0 Fernyal	61 e Road	0.0	0.098	9.2	LOSA	0.4	2.6	0.50	0.72	0.50	48.6
7	L2	42	0.0	44	0.0	0.024	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	51.5
8	T1	240	0.0	253	0.0	0.130	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Appro	oach	282	0.0	297	0.0	0.130	0.8	NA	0.0	0.0	0.00	0.09	0.00	58.5
South	nWest:	Forest Hi	II Fernva	le Road										
2	T1	209	0.0	220	0.0	0.113	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	11	0.0	12	0.0	0.011	6.6	LOS A	0.0	0.3	0.37	0.58	0.37	52.1
Appro	oach	220	0.0	232	0.0	0.113	0.4	NA	0.0	0.3	0.02	0.03	0.02	59.3
All Ve	hicles	560	0.0	589	0.0	0.130	1.5	NA	0.4	2.6	0.06	0.13	0.06	57.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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V Site: 101 [2034\_Post Dev\_Site Access / Forest Hill Fernvale

Road - AM Peak (Site Folder: 2034 Post Dev)]

Forest Hill Fernvale Road 2024 Post Development AM Peak Site Category: (None)

Give-Way (Two-Way)

Vehi	cle Mo	ovement	Perfor	mance										
Mov ID	Turn	INP VOLU [ Total veh/h		DEM/ FLO [ Total veh/h		Deg. Satn v/c	Aver. Delay sec	Level of Service		ACK OF EUE Dist ] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South	nEast:	Site Acce	SS											
4 6	L2 R2	9 38	0.0 0.0	9 40	0.0	0.087 0.087	6.6 10.6	LOS A LOS B	0.3 0.3	2.2 2.2	0.52 0.52	0.74 0.74	0.52 0.52	50.5 47.3
Appro	oach	47	0.0	49	0.0	0.087	9.8	LOS A	0.3	2.2	0.52	0.74	0.52	48.0
North	East: I	Forest Hill	Fernval	e Road										
7 8	L2 T1	41 248	0.0	43 261	0.0	0.023 0.134	5.5 0.0	LOS A LOS A	0.0 0.0	0.0 0.0	0.00	0.58 0.00	0.00	51.5 59.9
Appro	oach	289	0.0	304	0.0	0.134	0.8	NA	0.0	0.0	0.00	0.08	0.00	58.6
South	nWest:	Forest Hi	II Fernva	ale Road										
2	T1	259	0.0	273	0.0	0.140	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	10	0.0	11	0.0	0.010	6.6	LOS A	0.0	0.3	0.37	0.58	0.37	52.1
Appro	oach	269	0.0	283	0.0	0.140	0.3	NA	0.0	0.3	0.01	0.02	0.01	59.5
All Ve	hicles	605	0.0	637	0.0	0.140	1.3	NA	0.3	2.2	0.05	0.11	0.05	57.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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V Site: 101 [2034\_Post Dev\_Site Access / Forest Hill Fernvale

Road - PM Peak (Site Folder: 2034 Post Dev)]

Forest Hill Fernvale Road 2024 Post Development AM Peak Site Category: (None)

Give-Way (Two-Way)

Vehi	cle Mo	vement	Perfori	mance										
Mov ID	Turn	INP VOLU [ Total veh/h	UT	DEM/ FLO¹ [ Total veh/h		Deg. Satn v/c	Aver. Delay sec	Level of Service		ACK OF EUE Dist ] m	Prop. E Que	ffective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South	nEast: S	Site Acce	ss											
4	L2	12	0.0	13	0.0	0.117	7.0	LOS A	0.4	3.0	0.56	0.79	0.56	49.9
6	R2	46	0.0	48	0.0	0.117	11.6	LOS B	0.4	3.0	0.56	0.79	0.56	46.6
Appro	oach	58	0.0	61	0.0	0.117	10.7	LOS B	0.4	3.0	0.56	0.79	0.56	47.4
North	East: F	orest Hill	l Fernval	e Road										
7	L2	42	0.0	44	0.0	0.024	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	51.5
8	T1	303	0.0	319	0.0	0.164	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appro	oach	345	0.0	363	0.0	0.164	0.7	NA	0.0	0.0	0.00	0.07	0.00	58.7
South	nWest:	Forest Hi	ill Fernva	le Road										
2	T1	263	0.0	277	0.0	0.142	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	11	0.0	12	0.0	0.012	6.9	LOS A	0.0	0.3	0.41	0.60	0.41	52.0
Appro	oach	274	0.0	288	0.0	0.142	0.3	NA	0.0	0.3	0.02	0.02	0.02	59.4
All Ve	ehicles	677	0.0	713	0.0	0.164	1.4	NA	0.4	3.0	0.05	0.11	0.05	57.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

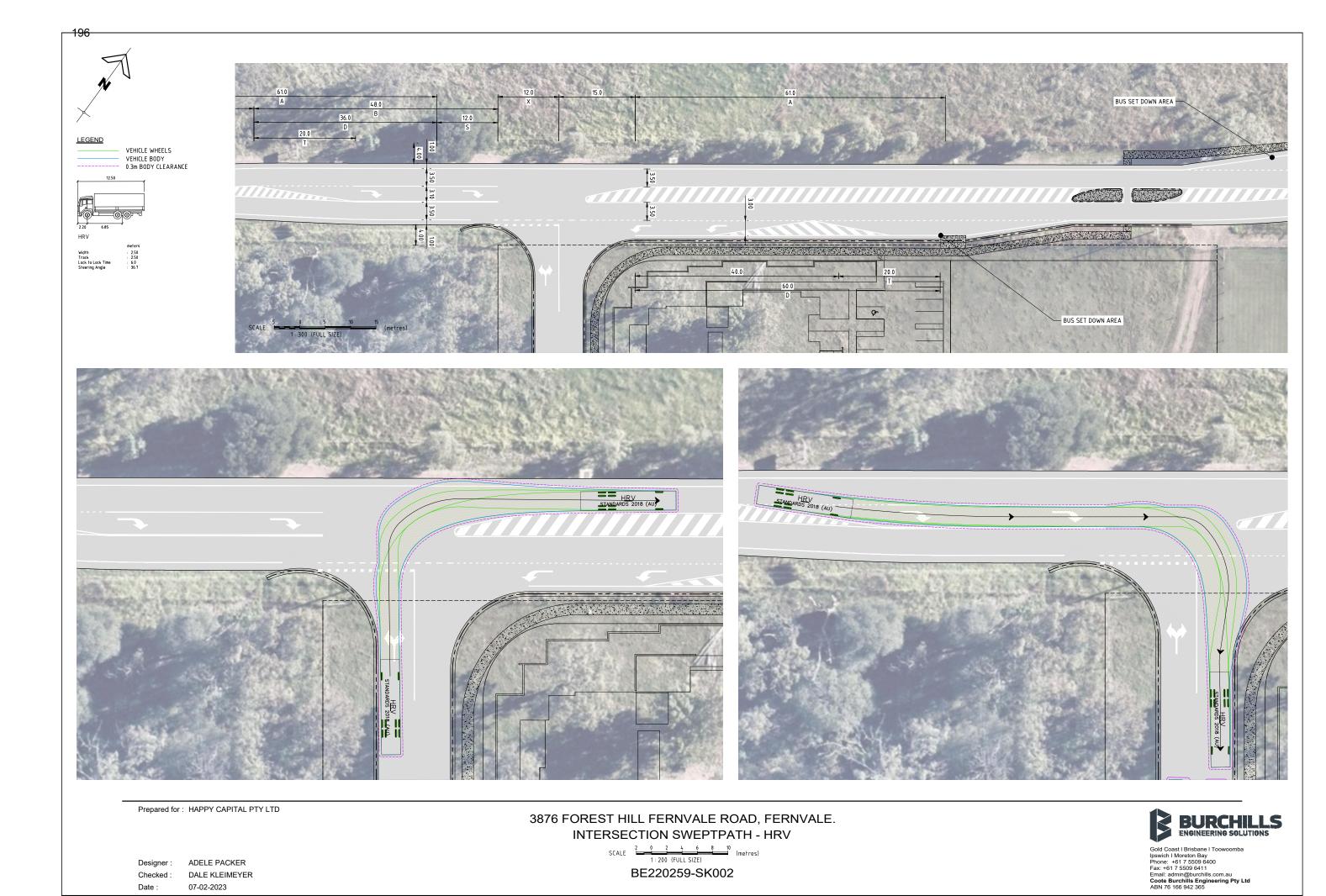
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## Appendix G - Vehicle Swept Paths

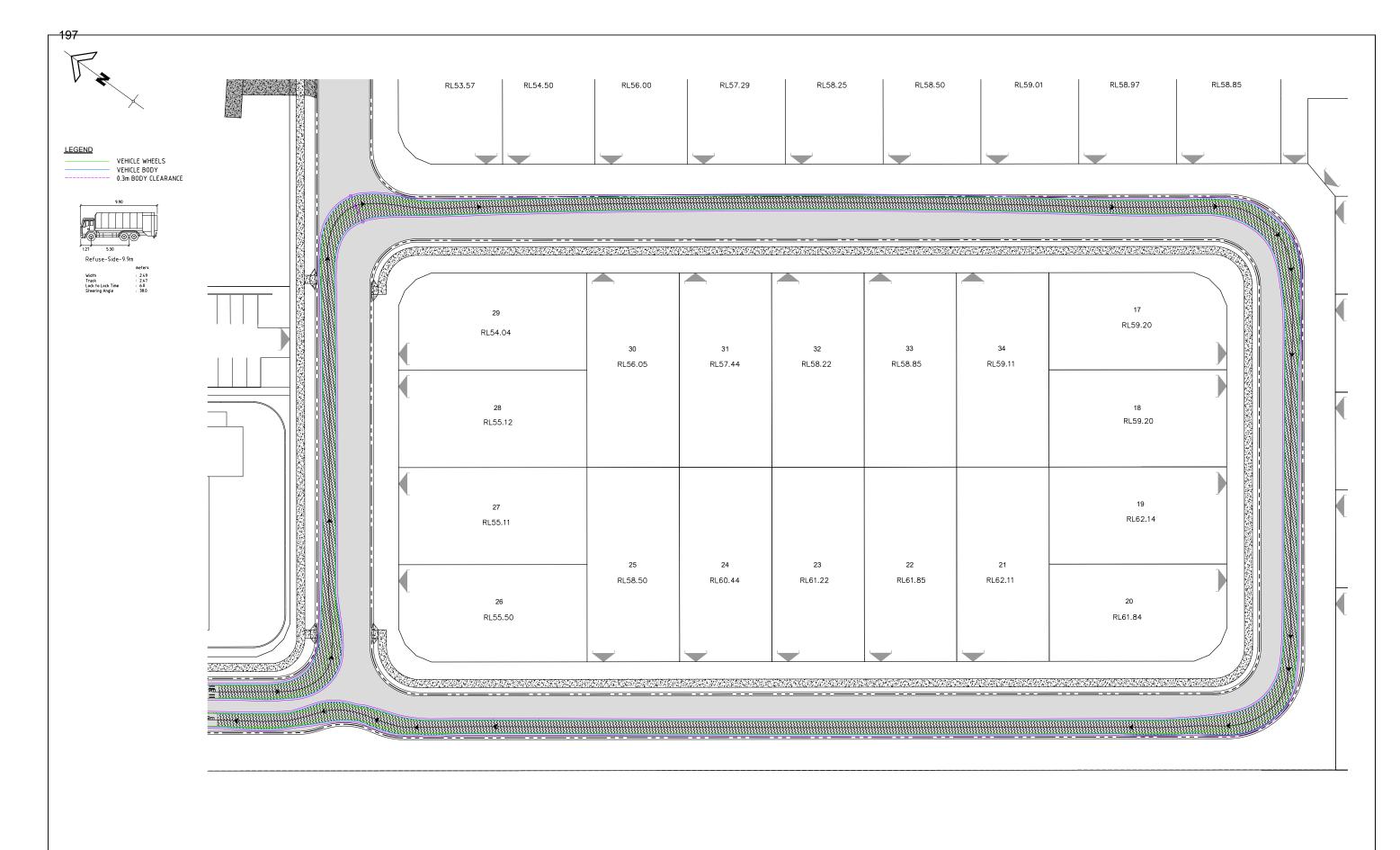
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07-02-2023

Date:

196



Prepared for: HAPPY CAPITAL PTY LTD

3876 FOREST HILL FERNVALE ROAD, FERNVALE. INTERNAL ROAD - REFUSE VEHICLE

SCALE 5 0 5 10 15 (metres 1: 300 (FULL SIZE) BE220259-SK006

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# **Bushfire management plan**

Proposed development | 3876 Forest Hill Fernvale Road | Fernvale | Queensland Prepared for Happy Capital Pty Ltd | 20 February 2023

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## **Bushfire management plan**

Final V1

Report 22097 | Happy Capital Pty Ltd | 20 February 2023

Approved by Robert Janssen

Position Managing principal

Signature

Date 20 February 2023

This report has been prepared in accordance with the brief provided by the client and has relied upon the information collected at or under the times and conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of the client and no responsibility will be taken for its use by other parties. The client may, at its discretion, use the report to inform regulators and the public.

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#### Document control

Version	Date	Prepared by	Reviewed by
Draft	4 October 2022	C. Turner	R. Janssen
Final	10 October 2022	C. Turner	R. Janssen
Final V1	20 February 2023	C. Turner	R. Janssen



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#### Disclaimer

Notwithstanding the precautions adopted in this report, it should always be remembered that bushfires burn under a range of conditions. An element of risk, no matter how small always remains, and although AS 3959-2018 is designed to improve the performance of such buildings, there can be no guarantee, because of the variable nature of bushfires, that any building will withstand bushfire attack on every occasion.

It should be noted that upon lodgement of a development proposal, State Government, council and/or the fire service may recommend additional construction requirements.

Although every care has been taken in the preparation of this report, Land and Environment Consultants Pty Ltd accept no responsibility resulting from the use of the information in this report.

#### 1 Introduction

Land and Environment Consultants Pty Ltd (LEC) was engaged to undertake a site-specific bushfire hazard assessment and to prepare a bushfire management plan (BMP) for the proposed reconfiguration of a lot (residential subdivision) and material change of use (childcare centre) (proposed development) at 3876 Forest Hill Fernvale Road, Fernvale (the site), properly described as lot 222/CC572.

A development application will be made for the proposed development under the Somerset Region Planning Scheme 2016.

The site is identified as a bushfire hazard area by the Somerset Region Planning Scheme 2016 *Bushfire hazard overlay map* (**Bushfire hazard overlay map**). Therefore, the development application for the proposed development is subject to compliance with the Somerset Region Planning Scheme 2016 *Bushfire hazard overlay code* (**Bushfire hazard overlay code**).

This BMP has been prepared in accordance with the Somerset Region Planning Scheme 2016 Planning Scheme Policy 5 Bushfire hazard risk assessment and bushfire management plan guidelines (Bushfire planning scheme policy) and Bushfire Resilient Communities Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Risk and Resilience – Bushfire' (QFES 2019a) (Bushfire resilient communities) which was prepared by the Queensland Fire and Emergency Services (QFES) to provide technical guidance for the implementation of the Natural Hazards, Risk and Resilience – State Planning Policy State Interest guidance material (DSDMIP 2019) (SPP guidance material – bushfire). It documents the site-specific bushfire hazard assessment and demonstrates how the proposed development will comply with the Bushfire hazard overlay code. It includes:

- an introduction (this section) and description of methods and information resources used for the preparation of this BMP;
- description of the site and the proposed development;
- site-specific bushfire hazard assessment;
- identification of bushfire hazards associated with the site and the proposed development;
- radiant heat exposure assessment;
- a plan for mitigating bushfire hazards; and
- assessment of the proposed development against the Bushfire hazard overlay code.

#### 1.1 Method

To meet requirements of the Bushfire planning scheme policy and Bushfire resilient communities, the following steps were undertaken:

- review of the Bushfire hazard overlay map in Somerset Regional Council's online mapping system (SRC 2022) and the Queensland regional ecosystem map, vegetation hazard class (VHC) map, severe fire weather map and fire history map in the QFES online mapping system (QFES 2022) (Catalyst);
- inspection of land within 100 metres (**m**) of the site for vegetation characteristics, current land management practices, slope and evidence of previous fires;
- site-specific bushfire hazard assessment in accordance with the method in Bushfire resilient communities:
- radiant heat exposure assessment using the Fire Protection Association of Australia *BAL calculator V4.9* (**BAL calculator**) which models the 'method 2' bushfire attack level assessment procedure in the *Australian Standard* (AS 3959-2018) *Construction of buildings in bushfire prone areas*; and

• assessment of the proposed development against the Bushfire hazard overlay code.

Aerial imagery of the site was accessed online from Google Earth to assist in validating observations and measurements made during the site assessment.

#### 1.2 Suitably qualified person

This BMP was technically reviewed and approved by Robert Janssen who is a suitably qualified and experienced bushfire management consultant.

Robert is the managing principal at LEC and has over 20 years of experience in bushfire planning and operations. He has prepared BMPs for residential, commercial and industrial property developments, utilities, government facilities and conservation estates.

Robert's formal qualifications as an environmental scientist and consulting experience are coupled with 10 years of experience as a nationally accredited fire-fighter with the national parks and wildlife service in New South Wales and Queensland.

### 2 Description of the site and the proposed development

This chapter provides a description of the site and the proposed development.

#### 2.1 Site description

The location of the site is shown in Figure 2.1. The site is 3.97 hectares (ha), has road frontage to Forest Hill Fernvale Road and access to mains water.

The site consists of a residential dwelling and grassland paddocks which are used for cattle grazing. It's northern, southern and western boundaries adjoin bushland vegetation and it's eastern boundary adjoins mown grass within a residential property and Fernvale State School.

Forest Hill Fernvale Road runs along the northern boundary of the site.

#### 2.2 Proposed development

The layout plan for the proposed development and the site plan for the proposed childcare centre are provided at Appendix 1 and Appendix 2, respectively. They show the proposed layout of lots, roads and bio-basin and the proposed layout of the childcare centre within proposed lot 38.

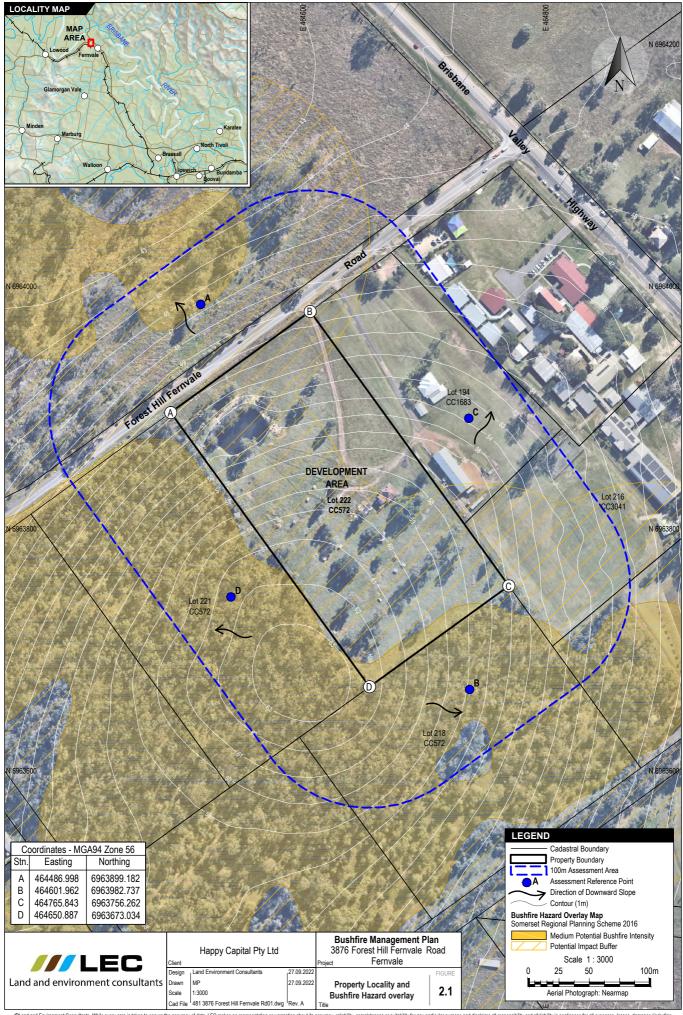
The bio-basin within proposed lot 37 will be a constructed landform which will be landscaped with groundcover species.

Access and egress for the proposed development will be via a new road which will be connected to Forest Hill Fernvale Road. A provision has been made for the new road to be connected through the property adjoining the eastern boundary of the site, should it be developed in the future for a residential subdivision.

The proposed development will be connected to mains water and will have a reticulated hydrant system which will be installed in the new road reserve.

#### 2.3 Bushfire hazard overlay map

The Bushfire hazard overlay map for the site is shown in Figure 2.1. Verification of the bushfire hazard areas shown in the Bushfire hazard overlay map is provided via the bushfire hazard assessment in Chapter 3.



### 3 Bushfire hazard assessment

This chapter provides details of the desktop review, site inspection and the site-specific bushfire hazard assessment.

#### 3.1 Severe fire weather

The severe fire weather map in Catalyst indicates the 5 % annual exceedance probability forest fire danger index (**FFDI**) for the site is 60. This FFDI value has been used for the potential bushfire intensity calculations in Section 3.4 and the radiant heat exposure assessment in Section 5.6.

### 3.2 Fire history

Fire history data in Catalyst indicates that no fires have occurred in the within 1 kilometre (km) of the site during the past 10 years.

#### 3.3 Site assessment

LEC inspected land within 100 m of the site on 16 August 2022. Observations were recorded about current land use and management, vegetation characteristics, slope of land and evidence of previous fires.

The locations of assessment reference points used in the bushfire hazard assessment are shown in Figure 2.1. Table 3.1 provides a summary of observations from the site assessment and notes about the bushfire hazard assessment of assessment reference points. Features of assessment reference points are shown in Photographs 3.1-3.4.

**Table 3.1 Site observations** 

Assessment reference point	Catalyst VHC	Ground truthed VHC	Notes
Α	VHC 13.2 Dry to moist eucalypt woodlands on undulating metamorphics and granite (VHC 13.2), VHC 40.4 Continuous low grass or tree cover (VHC 40.4) and VHC 41.4 Discontinuous low grass or tree cover (VHC 41.4)	VHC 13.2	Bushland vegetation regrowth.
В	VHC 13.2 and VHC 41.4	VHC 13.2	Bushland vegetation.
С	VHC 41.4	VHC 41.4	Mown grass within a residential property and Fernvale State School.
D	VHC 13.2 and VHC 40.4	VHC 13.2	Bushland vegetation.







Photograph 3.2 VHC 13.2 at B







Photograph 3.4 VHC 13.2 at D

#### 3.4 Potential bushfire intensity calculations

The potential bushfire intensity of assessment reference points was determined using the Queensland Public Safety Business Agency *Potential Bushfire Intensity Calculator* (version November 2014) which is an Excel spreadsheet calculator that models the site-specific bushfire hazard assessment method in Bushfire resilient communities.

Bushfire resilient communities defines bushfire hazard classes as follows:

- very high potential bushfire intensity > 40,000 kilowatts/metre (kW/m);
- high potential bushfire intensity 20,000-40,000 kW/m;
- medium potential bushfire intensity 4,000-20,000 kW/m; and
- non bushfire hazard potential bushfire intensity < 4,000 kW/m.

Results of potential bushfire intensity calculations which determine the bushfire hazard class of assessment reference points shown in Figure 2.1 are presented in Table 3.2.

**Table 3.2 Potential bushfire intensity** 

Assessment reference point	VHC	Potential fuel load (tonnes/ha)¹	Slope (°)²	Potential bushfire intensity (kW/m)	Bushfire hazard class
A	13.2	14.4	4	10,166	Medium
В	13.2	14.4	4	10,166	Medium
С	41.4	3	0	335	Non-bushfire hazard class

**Table 3.2 Potential bushfire intensity** 

Assessment reference point	VHC	Potential fuel load (tonnes/ha)¹	Slope (°)²	Potential bushfire intensity (kW/m)	Bushfire hazard class
D	13.2	14.4	5	10,892	Medium

Notes

- 1 Potential fuel load taken from Bushfire resilient communities.
- 2 Slope defaults to 0° for VHC 41.4 which has discontinuous bushfire fuels.

#### 3.5 Bushfire hazard areas

Results of the potential bushfire intensity calculations determined that the site is affected by medium potential bushfire intensity areas at assessment reference points A, B and D and the 100 m wide potential impact buffer from these areas. Therefore, the proposed development is within a bushfire hazard area and must demonstrate compliance with the Bushfire hazard overlay code.

#### 4 Bushfire hazards associated with the site

This chapter identifies bushfire hazards associated with the site.

#### 4.1 Fire danger season

The fire danger season in South-east Queensland starts in August, peaks in September and begins to fall in November, but will remain elevated until consistent summer rainfall occurs. Typically, the worst fire weather conditions will be experienced during the fire danger season when the wind direction is from the north or west.

An FFDI of 60 will be associated with hot, dry and windy conditions. If a bushfire starts and takes hold under these conditions, it will be difficult to control and fast moving in large areas of bushland vegetation.

#### 4.2 Fire history

As discussed in Section 3.2, fire history data indicates no fires have occurred within 1 km of the site during the past 10 years. Based on the fire history, it is reasonable to assume that it is unlikely that the site will be exposed to bushfire attack in the future.

#### 4.3 Potential directions of bushfire attack

Bushfire attack on the proposed development is possible from the north, south and west, ie assessment reference points A, B and D shown in Figure 2.1, where hazardous vegetation occurs. These bushfire attack scenarios are further assessed in Section 5.6.

#### 4.4 Potential bushfire hazard from adjacent land use

Residential development and Fernvale State School adjoining the site are not bushfire hazards to the proposed development given that these areas have low grass and tree cover and discontinuous bushfire fuels.

Bushland vegetation to the north, south and west of the site is a potential bushfire hazard to the proposed development. However, the fire history data discussed in Section 4.2, indicates that an ignition occurring in these areas is unlikely.

#### 4.5 Water and access for emergency services

The site has access to mains water and a public road network which will provide access and egress for emergency services and future occupants.

### 5 Bushfire hazards associated with the proposed development

This chapter identifies potential bushfire hazards associated with the proposed development.

#### 5.1 Siting and design

The proposed development will be designed to mitigate the risk of bushfire hazards determined by the site-specific bushfire hazard assessment and radiant heat exposure assessment in this BMP.

Buildings envelopes within the proposed residential lots and the proposed childcare centre building will be appropriately setback from the hazardous vegetation at assessment reference points A, B and D shown in Figure 2.1.

Proposed residential lots and the proposed childcare centre will have frontage to a new road, will be connected to mains water and will have access to an appropriately designed reticulated hydrant system.

#### 5.2 Land uses

The proposed development does not involve community infrastructure for essential services or the storage of hazardous materials in the context of bushfire hazard as defined in Table 7 of the SPP guidance material — bushfire. However, it does involve a childcare centre which is defined as a vulnerable use in Table 7 of the SPP guidance material — bushfire and a 'community activity group' in Schedule 1.1.1.2 of the Somerset Region Planning Scheme 2016.

The vulnerable use and community activity group classification of the proposed childcare centre building has been considered in this BMP for determining the appropriate separation distance required between the building and the adjoining areas of hazardous vegetation at assessment reference points A and D shown in Figure 2.1.

#### 5.3 Bio-basin

The bio-basin within proposed lot 37 will be a constructed landform which is landscaped with groundcover species. Once mature, it will result in an area of vegetation which correlates with VHC 40.4 which is not identified as a bushfire hazard class in Bushfire resilient communities. Notwithstanding, the childcare centre building is separated from the bio-basin by the childcare centre carpark.

#### 5.4 Emergency access and egress

Access and egress for emergency services and future occupants of the proposed development will be via a new road which connects to the Forest Hill Fernvale Road.

A provision has been made for the new road to be connected thorough the property adjoining the eastern boundary of the site, should it be developed in the future for a residential subdivision.

#### 5.5 Fire-fighter water supply

The proposed development will be connected to mains water and will have a reticulated hydrant system which will be installed in the new road reserve.

#### 5.6 Radiant heat exposure

The Bushfire hazard overlay code does not prescribe a radiant heat exposure outcome for the reconfiguring of a lot. In lieu of a radiant heat exposure outcome, acceptable outcome AO3.1 of the

Bushfire hazard overlay code applies a rule of thumb approach and requires buildings and structures to be separated from hazardous vegetation by a distance of  $\geq$  20 m.

Notwithstanding acceptable outcome AO3.1 of the Bushfire hazard overlay code, this BMP defers to the SPP Bushfire prone area overlay code (SPP bushfire prone area overlay code) in the SPP guidance material — bushfire, which requires a subdivision layout to result in lot boundaries or building envelopes within lots which are separated from hazardous vegetation by a distance which achieves a radiant heat flux level  $\leq$  29 kW/m² at the lot boundaries or building envelopes.

As discussed in Section 4.3, bushfire attack on the proposed development is possible from assessment reference points A, B and D shown in Figure 2.1, where hazardous vegetation occurs. The radiant heat profile of these bushfire attack scenarios were assessed using the BAL calculator. Inputs used in the BAL calculator and results are provided at Appendix 3.

Results from the BAL calculator determined that the building envelopes within the proposed residential lots adjoining assessment reference points B and D shown in Figure 2.1 must be separated from the hazardous vegetation by a distance of 13.9 m to achieve a radiant heat flux level  $\leq$  29 kW/m<sup>2</sup>.

The SPP bushfire prone area overlay code recommends avoiding vulnerable uses, ie a childcare centre, in a bushfire hazard area unless bushfire risks can be mitigated to an acceptable or tolerable level. Bushfire resilient communities provides a solution for mitigating bushfire risks to a tolerable level. It states that in addition to maintaining capability and capacity for disaster management, the bushfire hazard affecting a vulnerable use can be mitigated to a tolerable level by separating buildings associated with a vulnerable use from hazardous vegetation by a distance which achieves a radiant heat flux level  $\leq 10 \text{ kW/m}^2$  at the buildings.

Results from the BAL calculator determined that the proposed childcare centre building must be separated from hazardous vegetation at assessment reference points A and D shown in Figure 2.1 by a distance of 27 m to achieve a radiant heat flux level  $\leq$  10 kW/m<sup>2</sup>.

Please note – the separation distance of 27 m from hazardous vegetation at assessment reference point A and D is based on the inclusion of a 3 m high barrier wall along parts of the northern and western boundaries of the proposed childcare centre as shown in the site plan at Appendix 2.

### 6 Bushfire mitigation plan

This chapter identifies mitigation measures that must be implemented as part of the proposed development to comply with the Bushfire hazard overlay code.

It is the total of the mitigation measures in this chapter that will reduce the risk of bushfire hazards to a tolerable level. Failure to implement all actions in their entirety could result in an increased level of exposure to the bushfire hazards.

#### 6.1 Asset protection zone

Asset protection zones (APZs) must be established within proposed lots 10-16 (residential lots) and 38 (childcare centre lot) as shown in Figure 6.1.

The APZs must be surveyed and pegged and shown in the survey plans and disclosure plans for proposed lots 10-16 and 38.

Buildings and structures other than a playground, driveway, carpark, fencing or retaining walls must not be located within the APZs. A swimming pool is also permissible within an APZ in a residential lot. If located within an APZ, a playground, fence or retaining wall must be constructed with fire-resisting materials.

The APZs must be established as hardstand areas, eg concrete or asphalt carpark or driveway, or landscaped area in accordance with the design specification in Section 6.2.

Garden waste and vegetation debris must be removed from proposed lots 10-16 and 38 at regular time intervals during a calendar year and lawn must be maintained at a nominal height of 100 millimetres.

Prospective purchasers of proposed lots 10-16 and 38 must be notified of the effects of the APZ on these lots at the point of sale.

#### 6.2 Landscaping

Landscaping within the proposed lots must be in accordance with Part 5 of *Bushfire Resilient Building Guidance for Queensland Homes* (QRA 2020) (**Bushfire resilient building**) which is publicly available online. Plant selection must favour species in Appendix E of Bushfire resilient building.

#### 6.3 Bio-basin

The bio-basin within proposed lot 37 must be landscaped with groundcover species only, ie no shrubs or trees species.

#### 6.4 Fire-fighter water supply

The proposed development must be connected to mains water and a reticulated hydrant system must be installed in the new road reserve.

The mains water connection must be in accordance with the local water retailer's specifications for supply and pressure, ie minimum flow and pressure of 10 litres/second at 200 kilopascals.

The reticulated hydrant system must be designed and constructed in accordance with *Queensland*Fire and Emergency Services – Fire Hydrant and Vehicle Access Guidelines for Residential, Commercial
and Industrial Lots (QFES 2019b) (Fire hydrant and vehicle access guidelines) which defers to the

local water retailer's specifications and the *Australian Standard* (**2419.1-2021**) *Fire hydrant installation, system design, installation and commissioning.* 

Where there are differences between the local water retailer's specifications and AS 2419.1-2021, the higher level standard should prevail.

# 6.5 Access and egress

The new road must be designed and constructed to meet requirements for urban fire trucks in the Fire hydrant and vehicle access guidelines which defers to the *Road Planning and Design Manual – 2nd Edition* (DTMR 2013) for load bearing capacity, geometry and turning radii.

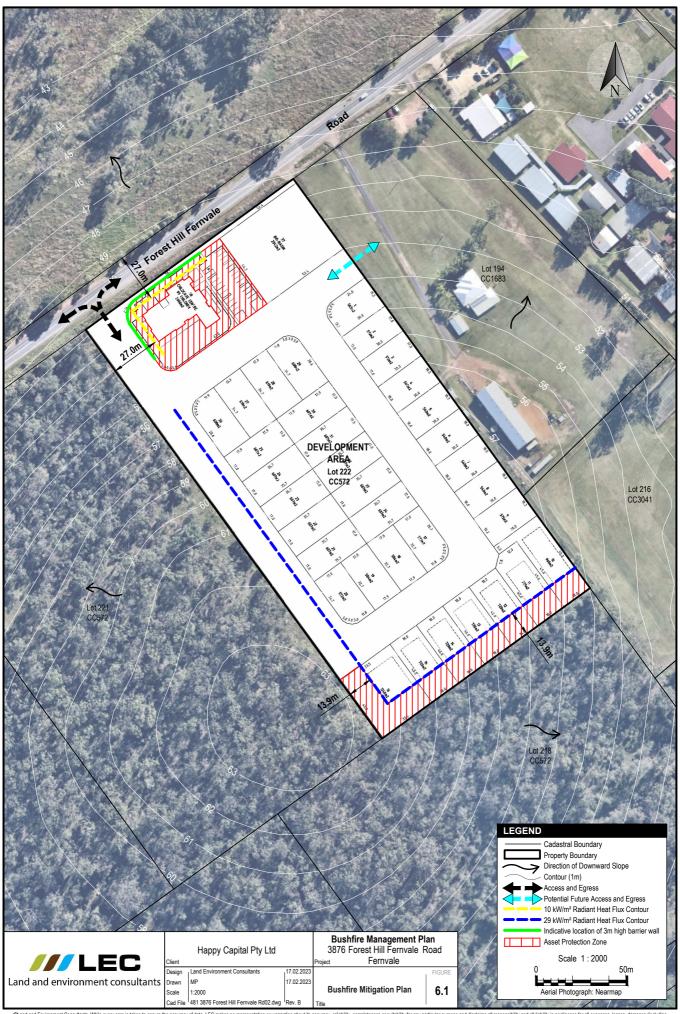
Vehicle access and egress for the proposed development is shown in Figure 6.1.

#### 6.6 Service installation

Reticulated services, ie water, electricity and gas, must be installed underground.

# 6.7 Childcare centre operation

The proposed childcare centre must be operated in accordance with requirements of the Queensland *Work Health and Safety Act 2011* and associated regulation and guidelines.



# 7 Conclusion

This BMP was technically reviewed and approved by a suitably qualified person and is in general accordance with the Bushfire planning scheme policy and Bushfire resilient communities.

A site-specific bushfire hazard assessment confirmed that the site is affected by bushfire hazard and that the proposed development is subject to compliance with the Bushfire hazard overlay code.

Mitigation measures that must be implemented as part of the proposed development are specified in Chapter 6. With the implementation of these mitigation measures, the proposed development complies with the Bushfire hazard overlay code as demonstrated at Appendix 4.

# References

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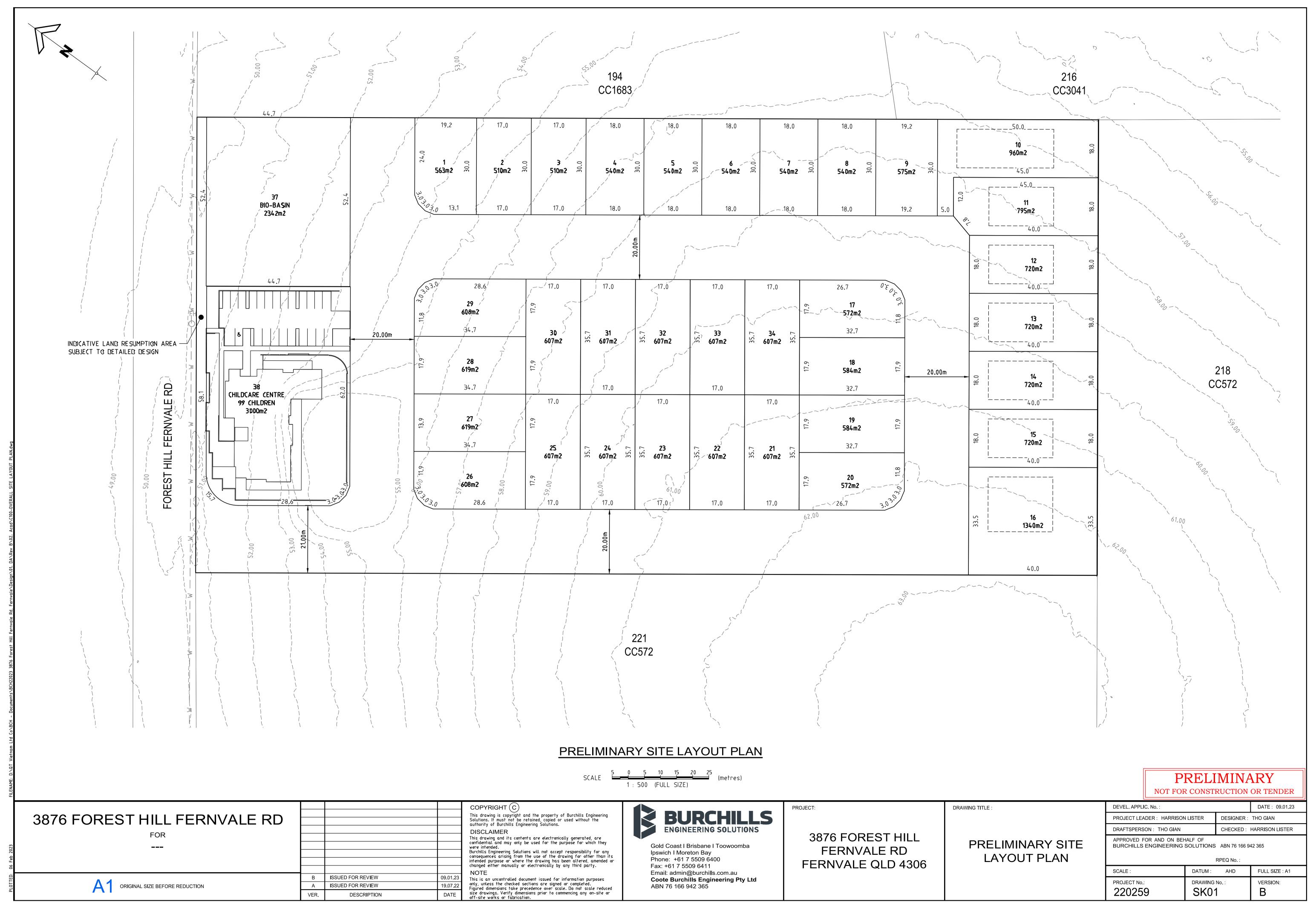
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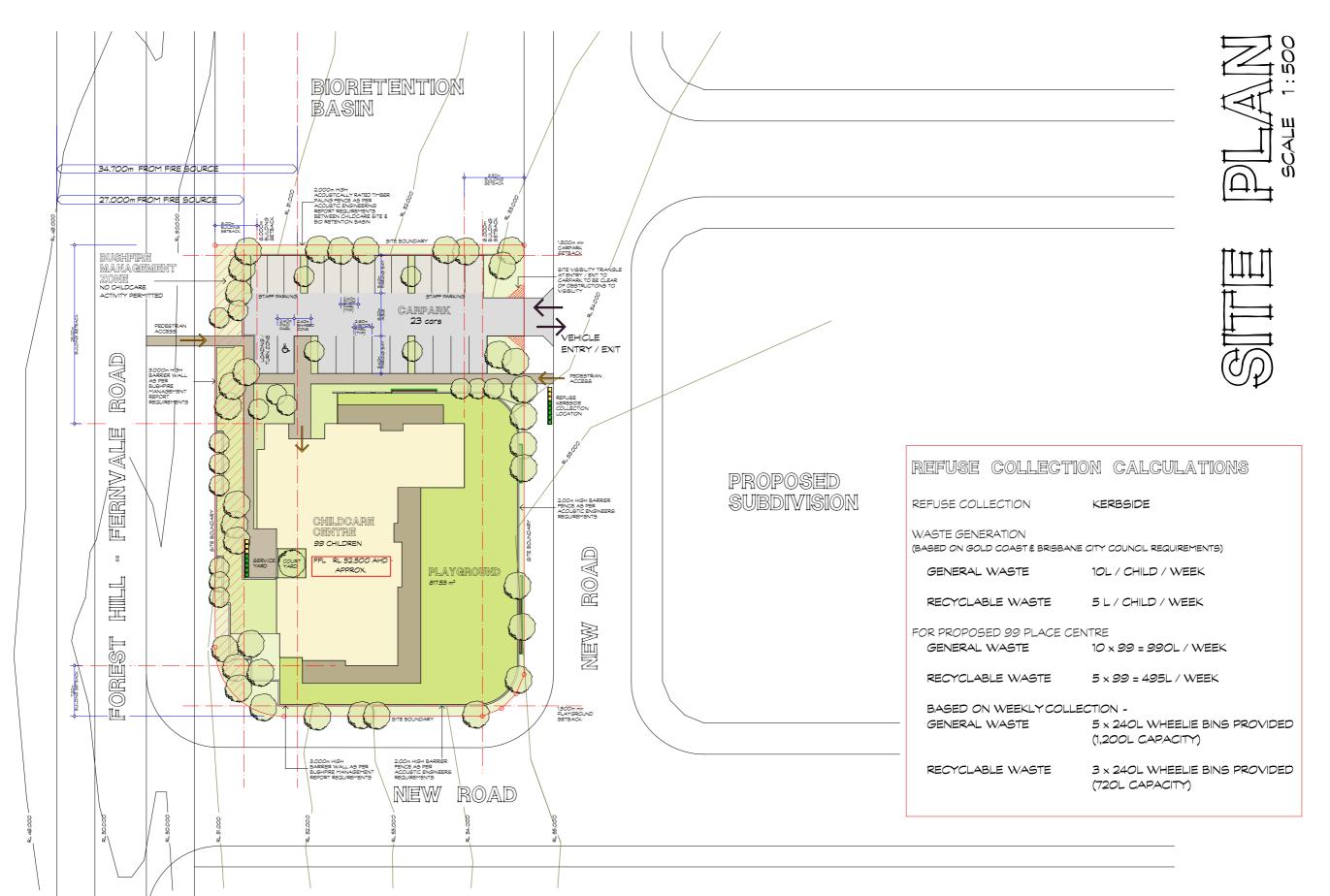
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# **Appendix 1 Site layout plan – residential subdivision**



# **Appendix 2 Site plan – childcare centre**



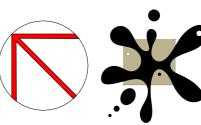


FERNVALE CHILDCARE CENTRE

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# **Appendix 3 Radiant heat exposure assessment**

# Bushfire attack -A - 3 m barrier wall along boundary of proposed childcare centre

- Forest fire danger index 60
- Vegetation VHC 13.2 Dry to moist eucalypt woodlands on undulating metamorphics and granite
- Understorey fuel load 14.4 t/ha<sup>1</sup>
- Total fuel load 24.4 t/ha<sup>2</sup>
- Effective slope 4° down slope
- Site slope 0° slope
- Height of barrier 3 m
- Effective height of barrier 3 m
- Distance of building to vegetation 27 m
- Flame width 100 m

Note

1 Fuel load taken from *Bushfire Resilient Communities Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Risk and Resilience – Bushfire'* (QFES 2019) (**Bushfire resilient communities**).
2 10 t/ha added to understorey fuel to determine total fuel load.



Calculated September 19, 2022, 11:26 am (RHBc v.1.4)

#### J22086

Radiant Heat Barrier calculator - AS3959-2018						
Inputs		Outp				
Fire Danger Index	60	Rate of spread	1.36 km/h			
Vegetation classification	Woodland	Flame length	11.8 m			
Understorey fuel load	14.4 t/ha	Flame angle	76 °			
Total fuel load	24.4 t/ha	Panel height	11.45 m			
Vegetation height	n/a	Elevation of receiver	5.72 m			
Effective slope	4 °	Effective barrier height	3 m			
Site slope	0 °	Fire intensity	17,225 kW/m			
Distance to vegetation	27 m	Transmissivity	0.814999999999999			
Flame width	100 m	Viewfactor	0.209			
Windspeed	n/a	Radiant heat flux	12.96 kW/m²			
Heat of combustion	18,600 kJ/kg	Viewfactor of barrier	0.0507			
Flame temperature	1,090 K	Adjusted viewfactor	0.1582			
Actual barrier height	3 m	Adjusted radiant heat flux	9.81 kW/m²			
		Bushfire Attack Level	BAL-12.5			

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

# Bushfire attack -D and B

- Forest fire danger index 60
- Vegetation VHC 13.2 Dry to moist eucalypt woodlands on undulating metamorphics and granite
- Understorey fuel load 14.4 t/ha<sup>1</sup>
- Total fuel load 24.4 t/ha<sup>2</sup>
- Effective slope 5° down slope
- Site slope 0° slope
- Flame width 100 m

Note 1 Fuel load taken from Bushfire Resilient Communities.

2 10 t/ha added to understorey fuel to determine total fuel load.



Calculated August 23, 2022, 1:13 pm (MDc v.4.9)

#### J22086

Minimum Distance Calculator - AS3959-2018 (Method 2)						
Inputs		Outputs				
Fire Danger Index	60	Rate of spread	1.46 km/h			
Vegetation classification	Woodland	Flame length	12.44 m			
Understorey fuel load	14.4 t/ha	Flame angle	53 °, 63 °, 71 °, 76 °, 78 ° & 83 °			
Total fuel load	24.4 t/ha	Elevation of receiver	4.96 m, 5.54 m, 5.88 m, 6.03 m, 6.08 m & 6.17 m			
Vegetation height	n/a	Fire intensity	18,455 kW/m			
Effective slope	5 °	Transmissivity	0.876, 0.859, 0.835, 0.81000000000001, 0.797 & 0.732			
Site slope	0 °	Viewfactor	0.5975, 0.4421, 0.2976, 0.2024, 0.1645 & 0.0448			
Flame width	100 m	Minimum distance to < 40 kW/m²	10.3 m			
Windspeed	n/a	Minimum distance to < 29 kW/m²	13.9 m			
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	20.5 m			
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	29.1 m			
		Minimum distance to < 10 kW/m²	34.7 m			

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

# Appendix 4 Bushfire hazard overlay code assessment

Performance outcomes Accepted outcomes Compliance assessment

For accepted development subject to requirements and assessable development

#### **Bushfire hazard**

#### PO1

Development avoids being sited and does not increase the number of persons living or working on land subject to Very High (potential intensity) Bushfire Hazard or High (potential intensity) Bushfire Hazard identified on Bushfire hazard overlay map OM-004a-b; unless it is demonstrated that:

(a) the subject land or the proposed siting of the development is in an area of the subject land that is a Medium (potential intensity) Bushfire Hazard (or lesser); or bushfire mitigation measures are adequate for the potential bushfire intensity level of the site, being supported by a bushfire hazard risk assessment and bushfire management plan which has been prepared by a suitably qualified person(s).

Note – A bushfire management plan is prepared in accordance with SC6.6 Planning Scheme Policy 6 –

#### AO1.1

Uses within the following Activity groups are located outside of a Very High (potential intensity) Bushfire Hazard or High (potential intensity) Bushfire Hazard identified on Bushfire hazard overlay map OM-004a-b:

- (a) Accommodation activities group;
- (b) Business activities group;
- (c) Community activities group;
- (d) Entertainment activities group;

#### OR

#### AO1.2

A site specific bushfire hazard and risk assessment is prepared to confirm that the subject land or proposed development site is not in a Bushfire Hazard Area or is in a Medium (potential intensity) Bushfire Hazard Area or lesser.

Note – A bushfire hazard and risk assessment is prepared in accordance with SC6.6 Planning Scheme Policy 6 –

# OR

### AO1.3

The development is sited, designed and operated in accordance with a bushfire management plan prepared by a suitably qualified person(s) which demonstrates that appropriate measures will be put in place to mitigate risks to life and property and/or lessen the bushfire (potential intensity) hazard level to the site.

Note – A bushfire management plan is prepared in accordance with SC6.6 Planning Scheme Policy 6 –

#### OR

#### AO1.4

New lots are designed with a size and shape:

(a) capable of accommodating efficient emergency access to building for fire fighting vehicles through avoiding

#### Complies with AO1.1

The proposed childcare centre (which is classified as a community activity group) is not located within a very high or high potential bushfire intensity area on the Somerset Region Planning Scheme 2016 Bushfire hazard overlay map.

#### Complies with AO1.2

The site specific bushfire hazard assessment in the bushfire management plan (BMP) confirmed that the site is within the potential impact buffer of medium potential bushfire intensity areas.

#### Complies with AO1.3

The proposed development will be designed, and in addition the childcare centre will be operated, in accordance with this BMP which was technically reviewed by a suitably qualified person as being in accordance with the Somerset Region Planning Scheme 2016 Planning Scheme Policy 5 Bushfire hazard risk assessment and bushfire management plan guidelines and **Bushfire Resilient Communities** Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Risk and Resilience - Bushfire' 2019 (Bushfire resilient communities) by the Queensland Fire and Emergency Services.

### Complies with AO1.4

The proposed development will achieve the radiant heat exposure outcomes specified in the Queensland State Planning Policy Bushfire prone area overlay code in Natural Hazards, Risk and Resilience – State Planning Policy State Interest guidance material (DSDMIP 2019) and Bushfire resilient communities.

Building envelopes within residential lots will be separated from hazardous vegetation by a distance which achieves a radiant heat flux level ≤ 29 kilowatts/square metre (kW/m²) at the building envelopes.

The childcare centre building will be separated from hazardous vegetation

where the measures taken

hazard risk do not adversely

to reduce the bushfire

impact on biodiversity

AO3.2

A bushfire management plan details

the required extent of vegetation

Performance outcomes	Accepted outcomes	Compliance assessment			
	rear lot configurations and long narrow lots with long accessways to buildings on site; and (b) to ensure the buildings and structures are sited in the area of lowest potential intensity bushfire hazard on the lot and in accordance with a bushfire management plan to be conditioned on the Reconfiguring a Lot approval.  Note – A bushfire management plan is prepared in accordance with SC6.6 Planning Scheme Policy 6 –	by a distance which achieves a radiant heat flux level ≤ 10 kW/m² at the childcare centre building.  Proposed lots will have frontage to a new road and will not require long access driveways to buildings.			
PO2	AO2.1	Not applicable			
Essential community infrastructure and facilities are able to function effectively during and immediately after a bushfire event and are located and designed to minimize.	Development involving essential community infrastructure or facilities are not located within a confirmed Bushfire Hazard Area.	The proposed development does not involve essential community infrastructure or facilities.			
and designed to minimise susceptibility to bushfire events.	OR				
	AO2.2				
	Where it is not possible to avoid locating in a Bushfire Hazard Area, development involving essential community infrastructure or facilities is to be designed to function in accordance with a bushfire and risk assessment and a bushfire management plan.  Note – A bushfire management plan is prepared in accordance with SC6.6 Planning Scheme Policy 6 –				
Bushfire mitigation measures on ecolo	-				
PO3 In Medium (potential intensity) Bushfire Hazard Areas as identified on Bushfire hazard overlay map OM- 004a-b, the development layout (including buildings and structures) is sited:	AO3.1  Buildings and structures in areas of Medium Bushfire (potential intensity) Hazard as identified on Bushfire hazard overlay map OM-004a-b:  (a) are located 100 meters	Complies with AO3.2  The site is cleared of bushland vegetation. Implementation of the BMP will not impact significant vegetation, but that is a matter for ecologists to decide.			
<ul> <li>(a) in cleared areas where the environmental impacts of vegetation clearing are minimised;</li> <li>(b) on the area of the site which is least prone to bushfire hazard and/or</li> </ul>	from ridgelines; (b) are not located on north to west facing slopes; (c) have a firebreak with a minimum dimension of 20 metres.  OR	Building envelopes within residential lots will be separated from hazardous vegetation by a distance which achieves a radiant heat flux level ≤ 29 kW/m² at the building envelopes.  The childcare centre building will be			

separated from hazardous vegetation

radiant heat flux level  $\leq 10 \text{ kW/m}^2 \text{ at}$ 

by a distance which achieves a

the childcare centre building.

Performance outcomes	Accepted outcomes	Compliance assessment				
values and functionality due to the need to address aspect, slope and vegetation cover;  (c) to provide that adequate cleared setbacks between buildings, structures and areas of identified potential intensity bushfire hazards take into consideration the existence and retention of significant vegetation, where practical.	clearing and landscaping and where required, a modified development design and/or lot layout will minimise clearing of significant vegetation.  Note – A bushfire management plan is prepared in accordance with SC6.6  Planning Scheme Policy 6 –	Figure 6.1 of the BMP identifies the asset protection zones which must be established in residential lots adjoining hazardous vegetation and the childcare centre lot.  Specifications for landscaping within proposed lots are provided in Section 6.2 of the BMP.  Specifications for the rehabilitation of the bio-basin are provided in Section 6.3.				
Water supply for fire fighting purposes						
PO4	AO4	Complies with AO4				

In Medium (potential intensity)
Bushfire Hazard Areas as identified on
Bushfire hazard overlay map OM004a-b, development maintains the
safety of people and property by
providing an adequate (with sufficient
flow), accessible and reliable water
supply for fire-fighting purposes.

For uses involving new or existing development (including buildings and structures) in areas of Medium (potential intensity) Bushfire Hazard as identified on Bushfire hazard overlay map OM-004a-b, each lot has:

- (a) a reliable reticulated water supply that has sufficient flow and pressure characteristics fore fire fighting purposes and flow in 10 litres a second at 200kPA); or
- (b) an accessible on-site dam or tank with fire fighting fittings, or a swimming pool if not less than 40,000 litres; or
- (c) pumps that produce water pressure output from a dam, tank or swimming pool, which are able to be operated without reticulated power.

The proposed development will be connected to mains water in accordance with the local water retailer's specifications for supply and pressure, ie minimum flow and pressure of 10 litres/second at 200 kilopascals.

Specifications for the design and construction of the reticulated hydrant system which is to be installed in the new road reserve are provided in Section 6.4 of the BMP.

#### Vehicular access (including fire-fighting and emergency evacuation)

# PO5

In Medium (potential intensity)
Bushfire Hazard Areas as identified on
Bushfire hazard overlay map OM004a-b, vehicular access is designed
to mitigate against bushfire hazard
by:

- (a) ensuring adequate access for fire fighting and other emergency vehicles;
- (b) ensuring adequate access for the evacuation of residents and emergency personnel in an emergency situation, including

#### ΔΩ5.1

Development for Reconfiguring a Lot in a Medium (potential intensity)
Bushfire Hazard Area as identified on
Bushfire hazard overlay map OM004a-b incorporates a perimeter road firebreak that:

- (a) is located between the boundary of the lots and stands of *native vegetation*;
- (b) has a minimum cleared width of 20 metres;
- (c) has a constructed road width of 6 metres;

# **Complies with PO5**

Access and egress for emergency services and future occupants of the proposed development will be via a new road which connects to Forest Hill Fernvale Road.

Specifications for the design and construction of the new road to accommodate an urban fire truck are provided in Section 6.5 of the BMP.

A provision has been made for the new road to be connected through the property adjoining the eastern boundary of the site, should it be

Performance outcomes	Accepted outcomes	Compliance assessment
alternative safe access routes should access in one direction be blocked in the	(d) is constructed to an all weather standard.	developed in the future for a residential subdivision.
event of a fire; (c) providing for the separation of development areas and adjacent bushland.	AO5.2  The road design is capable of providing access for fire fighting and other emergency vehicles.  AO5.3  In areas of Medium (potential intensity) Bushfire Hazard as identified on Bushfire hazard overlay map OM-004a-b, roads are provided in accordance with the following:	Roads separate most of the proposed residential lots and the childcare centre lot from hazardous vegetation. The exception is proposed lots 10-16 which adjoin hazardous vegetation. These lots have been designed to provide building envelopes which achieve a radiant heat flux level ≤ 29 kW/m².
	<ul> <li>(a) Roads are designed and constructed with a maximum gradient of 12.5 precent;</li> <li>(b) Cul-de-sacs are not used except where: <ol> <li>a perimeter road designed in accordance with AO5.1 isolates the development from hazardous vegetation; and</li> <li>provided with alternative access linking cul-de-sac to other through roads; and</li> <li>the maximum length of the cul-de-sac is 200 metres.</li> </ol> </li> </ul>	
	OR	
	Where it is not practicable to provide perimeter road firebreaks in accordance with AO5.1, fire maintenance trails are provided in accordance with the following:	
	<ul> <li>(a) located as close as possible to the boundaries of the lot and the adjoining vegetation;</li> <li>(b) the minimum cleared width is not less than 6 metres;</li> <li>(c) the formed width is not less than 2.5 metres;</li> <li>(d) the formed gradient is not greater than 15 percent;</li> <li>(e) vehicular access is provided at both ends;</li> <li>(f) passing bays and turning areas are provided for firefighting appliances either located on public land or in an access easement that is granted in favour of the</li> </ul>	

Version 4.2 – dated 17 December 2021

Somerset Region Council Planning Scheme 2016 7.2.4 Bushfire hazard overlay code

Performance outcomes	Accepted outcomes	Compliance assessment
	Local Government and QFES.	

# **Noise Assessment Report**

Proposed Residential Subdivision & Child Care Centre

3876 Forest Hill Fernvale Road

NOISE MEASUREMENT SERVICES

Fernvale, QLD 4036

(Lot 222 on CC572)

Report No 6512R2 14th April 2023



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0	14/10/2022	Report	GR	MT
1	22/02/2023	New development plans	GR	MT
2	14/04/2023	Responses to Council/SARA RFI	GR	MT

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REPORT FOR Place Design Group on behalf of Happy Capital Pty Ltd

CONTACT Avishek Paul, Place Design Group

Signed

Max Thorne Director - NMS

lulem

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# **Executive Summary**

This Report is in response to a request from Place Design Group for a noise impact assessment of a proposed residential subdivision and childcare centre at 3876 Forest Hill Fernvale Road, Fernvale (Lot 222 on CC572). The site is within an Emerging Community Zone, and is within the gazetted *Transport Noise Corridor* for Forest Hill Fernvale Road. The proposal is to subdivide the site into 34 residential lots, and one lot for child care activities. The purpose of this Report is to assess road traffic noise impacts from the adjacent state controlled transport infrastructure onto future noise sensitive uses, and to assess potential noise impacts from child care activities onto future residential development. The following Standards and policy documents are referenced:

- Somerset Region Planning Scheme v4.2
- State Development Assessment Provisions v3.0
- Queensland Development Code Mandatory Part 4.4
- Environmental Protection Act 1994
- Environmental Protection (Noise) Policy 2019
- Education and Care Services National Regulations
- Australian Standard AS1055:2018 Acoustics: Description and measurement of environmental noise
- Australian Standard AS3671:1989 Acoustics: Road traffic noise intrusion Building siting and construction

#### Conclusions

#### It is concluded that-

- Subject to the considerations and recommendations as presented in this Report, it is the opinion of
  this consultancy that the proposed residential subdivision and childcare centre can meet the
  requirements of Somerset Regional Council.
- Subject to provision of the recommended 2m acoustic fencing and acoustic treatment to the building envelope, road traffic noise is forecast to meet the indoor and outdoor SDAP criteria at all noise sensitive locations.
- The SDAP façade criterion is forecast to be exceeded assuming 2m, 3m or 3.5m fencing along the north-western boundary. As the development can meet both indoor and outdoor criteria, it is concluded that 2m high fencing appropriately mitigates road traffic noise intrusion.
- Future residential development on proposed Lot 1, Lot 26, Lot 27, Lot 28 & Lot 29 will fall within the
  gazetted Transport Noise Corridor for Forest Hill Fernvale Road, and will be subject to design
  requirements under the Queensland Development Code Mandatory Part 4.4. Future dwellings on the
  remaining lots will fall outside of the Transport Noise Corridor.
- Noise emissions from childcare activity are forecast to meet criteria at all future neighbouring residential developments.
- The precise type and siting of air conditioning plant has not been determined at this stage. Detailed
  plant noise assessment can be conducted if required at the Building Approval stage, although the
  relevant criterion is considered to be readily achievable through appropriate plant selection and
  siting.

# Recommendations

#### It is recommended that:

- 2m high (54.5m RL) road traffic noise fencing be provided as presented in Plate ES1 below. To effectively function as an acoustic barrier, fencing should be continuous and gap-free, with a density of not less than 12.5 kg/m². This can be achieved with fencing in accordance with the MTRS-15 Technical Guideline, and it is understood that the Department of Transport and Main Roads requires road traffic noise fences to comply with the Guideline.
- 2m high acoustic fencing be provided around the outdoor play area, as shown in Plates ES2 below. To
  effectively function as an acoustic barrier, fencing should be continuous and gap-free, with a density
  of not less than 12.5 kg/m².
- The childcare building be constructed to not less than the acoustic treatments presented in Table ES1
  below. It is further recommended that calculations be confirmed at the Building Approval stage once
  architectural plans have been finalized.
- Residential development upon future Lot 1, Lot 26, Lot 27, Lot 28 & Lot 29 be constructed in accordance with QDC MP4.4 Noise Category 1.
- Deliveries and use of the outdoor play area do not occur prior to 7am.
- No more than 50% of children be engaged in outdoor play at any one time.
- Mechanical plant be selected, sited and installed to not exceed 35 dB(A) at neighbouring residential
  uses.





Table ES1: Showing AS3671 calculations and recommended Rw ratings

STC Child Ca	are Centre			TNR is L	.eq faça	de corrected m	aximum 1-hr L	eq vs indoo	r maxim	um SE	ΆP		
JOB:	6512R2			TNAc is	TNAc is the traffic noise attenuation required of the component								
Project:	Forest Hill Fernvale Road,	Fernvale		"6" is the	"6" is the approximate allowance for the traffic noise spectrum								
Date:	14/04/2023			TNAc = T	TNAc = TNR + 10Log10[(Sc/Sf) x (3/H) x 2T60 xC]								
				Rw = TN	Ac + 6								
Room	Element	Facing	Ext Leq	SDAP	TNR	Category	Element (Sc)	Floor (Sf)	Height	RT60	С	TNAc	Calc
			dB(A)	criteria			area	area	(m)	(s)			Rw
Room 1	Sliding Door	NE	62	35	27.4	Category 3	8.4	35	2.7	0.5	3	26.43	32
Room 1	Wall	NE	62	35	27.4	Category 3	10.5	35	2.7	0.5	3	27.40	33
Room 1	Roof	-	62	35	27.4	Category 3	35.0	35	2.7	0.5	3	32.63	39
Room 2	Sliding Door	NE	60	60.3	0.1	Category 1	8.4	42	2.7	0.5	3	-1.66	4
Room 2	Wall	NE	60	60.3	0.1	Category 1	9.0	42	2.7	0.5	3	-1.36	5
Room 2	Window	sw	57	35	22.0	Category 2	1.6	42	2.7	0.5	3	13.09	19
Room 2	Wall	SW	57	35	22.0	Category 2	8.3	42	2.7	0.5	3	20.19	26
Room 2	Roof	-	60	35	25.4	Category 2	42.0	42	2.7	0.5	3	30.63	37
Sleep	Window	SE	57	35	21.7	Category 2	1.8	22	2.7	0.5	3	16.06	22
Sleep	Wall	SE	57	35	21.7	Category 2	10.8	22	2.7	0.5	3	23.84	30
Sleep	Window	SW	57	35	21.8	Category 2	1.8	22	2.7	0.5	3	16.16	22
Sleep	Wall	sw	57	35	21.8	Category 2	14.4	22	2.7	0.5	3	25.19	31
Sleep	Roof	-	57	35	21.8	Category 2	22.0	22	2.7	0.5	3	27.03	33
Room 3	Sliding Door	SE	56	35	21.4	Category 2	8.4	52	2.7	0.5	3	18.71	25
Room 3	Wall	SE	56	35	21.4	Category 2	13.2	52	2.7	0.5	3	20.67	27
Room 3	Roof	-	56	35	21.4	Category 2	52.0	52	2.7	0.5	3	26.63	33
Room 4	Glazing	SE	57	35	22.2	Category 2	10.0	68	2.7	0.5	3	19.10	25
Room 4	Wall	SE	57	35	22.2	Category 2	8.9	68	2.7	0.5	3	18.60	25
Room 4	Roof	-	57	35	22.2	Category 2	68.0	68	2.7	0.5	3	27.43	33
Room 5	Glazing	sw	60	35	25.2	Category 2	15.1	78	2.7	0.5	3	23.30	29
Room 5	Wall	sw	60	35	25.2	Category 2	7.1	78	2.7	0.5	3	20.02	26
Room 5	Windows	NW	61	35	26.3	Category 3	14.4	78	2.7	0.5	3	24.19	30
Room 5	Wall	NW	61	35	26.3	Category 3	20.1	78	2.7	0.5	3	25.64	32
Room 5	Roof	-	61	35	26.3	Category 3	78.0	78	2.7	0.5	3	31.53	38
Room 6	Windows	SE	58	35	22.5	Category 2	9.7	72	2.7	0.5	3	19.02	25
Room 6	Wall	SE	58	35	22.5	Category 2	24.8	72	2.7	0.5	3	23.10	29
Room 6	Sliding Door	sw	62	35	26.5	Category 3	8.4	72	2.7	0.5	3	22.40	28
Room 6	Wall	sw	62	35	26.5	Category 3	11.1	72	2.7	0.5	3	23.61	30
Room 6	Roof	-	62	35	26.5	Category 3	72.0	72	2.7	0.5	3	31.73	38

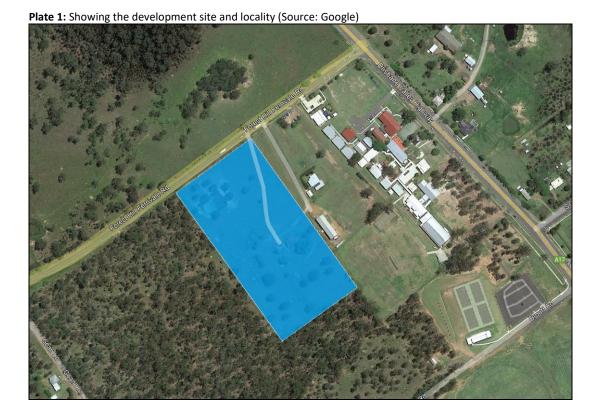
# 1. Introduction

This Report is in response to a request from Place Design Group for a noise impact assessment of a proposed residential subdivision and childcare centre at 3876 Forest Hill Fernvale Road, Fernvale (Lot 222 on CC572). The site is within an Emerging Community Zone, and is within the gazetted *Transport Noise Corridor* for Forest Hill Fernvale Road. The proposal is to subdivide the site into 34 residential lots, and one lot for childcare activities. The purpose of this Report is to assess road traffic noise impacts from the adjacent state controlled transport infrastructure onto future noise sensitive uses, and to assess potential noise impacts from child care activities onto future residential development. The following Standards and policy documents are referenced:

- Somerset Region Planning Scheme v4.2
- State Development Assessment Provisions v3.0
- Queensland Development Code Mandatory Part 4.4
- Environmental Protection Act 1994
- Environmental Protection (Noise) Policy 2019
- Education and Care Services National Regulations
- Australian Standard AS1055:2018 Acoustics: Description and measurement of environmental noise
- Australian Standard AS3671:1989 Acoustics: Road traffic noise intrusion Building siting and construction

# 1.1 Development Site and Locale

The locality and development design are presented below. Further plans are set out in **Appendix A**, while terms and definitions used in this report are presented in **Appendix E**.



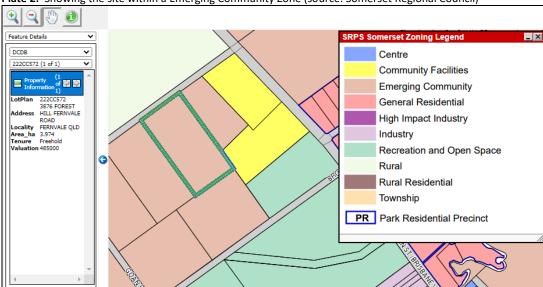
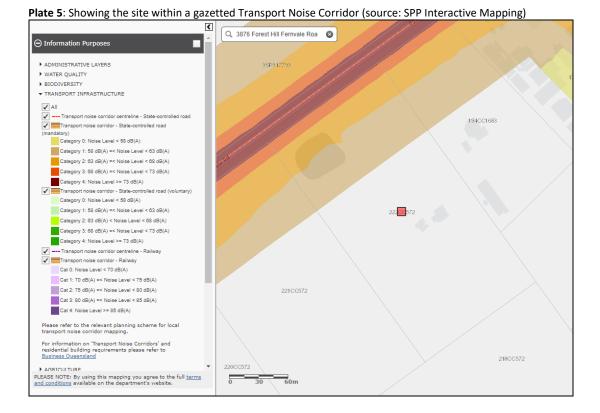


Plate 2: Showing the site within a Emerging Community Zone (source: Somerset Regional Council)



Plate 4: Showing the site within 25m of State transport infrastructure (source: DAMS Interactive Mapping) Q 3876 Forest Hill Fernvale Roa 🔕 SARA DA Mapping ▶ SEQ REGIONAL PLAN TRIGGERS ▶ QUEENSLAND HERITAGE ▶ UNEXPLODED ORDNANCE (UXO) ► COASTAL PROTECTION FISH HABITAT AREAS 3SP317793 **▶** WATER RESOURCES ▶ WETLAND PROTECTION AREAS ▶ NATIVE VEGETATION CLEARING ► KOALA HABITAT IN SEQ REGION ► MARITIME SAFETY AND DEVELOPMENT ▶ PORT OF BRISBANE ▶ PRIORITY PORTS ▼ STATE TRANSPORT ▶ STATE TRANSPORT CORRIDOR ▼ AREAS WITHIN 25M OF A STATE TRANSPORT CORRIDOR 22200572 Area within 25m of a State-controlled road Area within 25m of a railway corridor Area within 25m of a busway corridor 221CC572 Area within 25m of a light rail corridor ▶ FUTURE STATE TRANSPORT CORRIDOR ▶ STATE-CONTROLLED ROAD INTERSECTION ▶ STATE-CONTROLLED TRANSPORT TUNNEL ▶ PLANNED UPGRADES ▶ PUBLIC PASSENGER TRANSPORT FACILITIES ► EXCLUDED AREA 2RP200299 ▶ LIMITED ACCESS ROADS 219CC572

PLEASE NOTE: By using this mapping you agree to the full <u>terms</u> and conditions available on the department's website.



### 1.2 Sensitive Receivers

The development site is located within a largely undeveloped area, with vacant land to the north, west and south. An existing dwelling is located to the east at a more than 100m setback, and is well buffered from child care activities. It is however noted that the proposed residential subdivision will introduce new noise sensitive uses, and that the Emerging Community zoning implies future development on adjacent lots. Assessment has therefore been conducted under a worst-case scenario which assumes future two-storey residential development at minimal boundary setback. Eleven receivers locations – referred to as R1 to R11 in this Report – have been modelled, representing worst-case future development. The locations of R1 to R11 are presented in **Plate 6** and **Table 1** below.



**Table 1**: Showing sensitive receivers R1 – R11

Danai	6 d duo oo	Co-ordina	tes (UTM)	Dansiyan Haisht
Receiver	Address	Easting	Northing	Receiver Height
R1	Lot 221 on CC572	464510	6963867	4.6m
R2	Future Lot 26	464555	6963861	4.6m
R3	Future Lot 27	464568	6963870	4.6m
R4	Future Lot 28	464583	6963881	4.6m
R5	Future Lot 29	464595	6963889	4.6m
R6	Future Lot 1	464626	6963909	4.6m
R7	3878 Forest Hill Fernvale Road	464623	6963960	4.6m
R8	Lot 221 on CC572	464545	6963815	4.6m
R9	Future Lot 25	464581	6963838	4.6m
R1	Future Lot 30	464608	6963857	4.6m
R11	Future Lot 2	464637	6963895	4.6m

# 2. Measurement of Ambient Noise Levels

# 2.1 Measurement Procedures

In order to assess the potential impact of noise from all sources of noise, an ambient noise survey was conducted on site. The environmental noise logger was installed on the north-eastern boundary, 8m from the north-western boundary. The microphone was at a height of 1.4m in a free-field environment. The measurement location is referred to as ML1 in this Report, and is presented in **Plate 7** and **Photo 1** below.





Photo 1: Showing measurement locaiton ML1 (source: NMS)



The operation of the sound level measuring equipment was field calibrated before and after each measurement session and no significant drift was observed from the reference signal. All instrumentation used in this assessment holds a current calibration certificate from a certified NATA calibration laboratory. The following instruments were used to measure the ambient noise levels-

- Larson Davis SoundTrack LxT Class 2 environmental noise logger
- Larson Davis CAL200 Class 1 acoustic calibrator



Ambient sound pressure levels were measured generally in accordance with Australian Standard *AS1055:2018* – *Acoustics - Description and measurement of environmental noise*. Ambient noise levels were recorded at 1hr intervals between the 24<sup>th</sup> and the 31<sup>st</sup> of August 2022. Levels represent noise measured from all sources in the locale, including road traffic, meteorology and wildlife. Road traffic noise was observed to be the dominant source in the locale, and measured levels are considered to be consistent with an acoustic environment generally controlled by road traffic noise. As a conservative methodology, the measured weekday L<sub>10,18hr</sub> from all sources at ML1 is considered representative of road traffic noise intrusion, and has been used to validate the road traffic noise model presented in **Appendix B**.

#### 2.2 Measurement Results

Table 2: Ambient noise levels at ML1, 24<sup>th</sup> – 31<sup>st</sup> August 2022. Levels are in dB(A) free-field

Day	Date	Period Period	L <sub>01</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>
Wednesday	24 <sup>th</sup> / 31 <sup>st</sup> August	7:00am – 6:00pm	76	66	44	63
		6:00pm – 10:00pm	71	61	38	58
		10:00pm – 7:00am	73	51	32	56
		6am – midnight	-	63	41	-
	25 <sup>th</sup> August	7:00am – 6:00pm	79	65	47	65
The constant		6:00pm – 10:00pm	70	61	41	58
Thursday	25" August	10:00pm – 7:00am	72	55	32	57
		6am – midnight	-	63	44	-
		7:00am – 6:00pm	72	65	45	61
Friday	a Cth	6:00pm – 10:00pm	71	62	42	60
Filluay	26 <sup>th</sup> August	10:00pm – 7:00am	72	55	35	57
		6am – midnight	-	63	44	=
		7:00am – 6:00pm	71	65	45	60
Saturday	27 <sup>th</sup> August	6:00pm – 10:00pm	70	61	41	58
		10:00pm – 7:00am	70	52	34	55
	28 <sup>th</sup> August	7:00am – 6:00pm	71	65	45	60
Sunday		6:00pm – 10:00pm	69	57	41	56
		10:00pm – 7:00am	69	49	29	56
	29 <sup>th</sup> August	7:00am – 6:00pm	74	65	45	62
Monday		6:00pm – 10:00pm	70	60	42	58
Monday		10:00pm – 7:00am	72	52	32	56
		6am – midnight	-	62	43	=
	30 <sup>th</sup> August	7:00am – 6:00pm	73	65	45	63
Tuesday		6:00pm – 10:00pm	72	61	36	59
		10:00pm – 7:00am	71	52	33	58
		6am – midnight	-	62	41	-
Arithmetic Average		Day	74	65	45	62
		Evening	70	60	40	58
		Night	71	52	32	56
		CoRTN	-	63	42	-

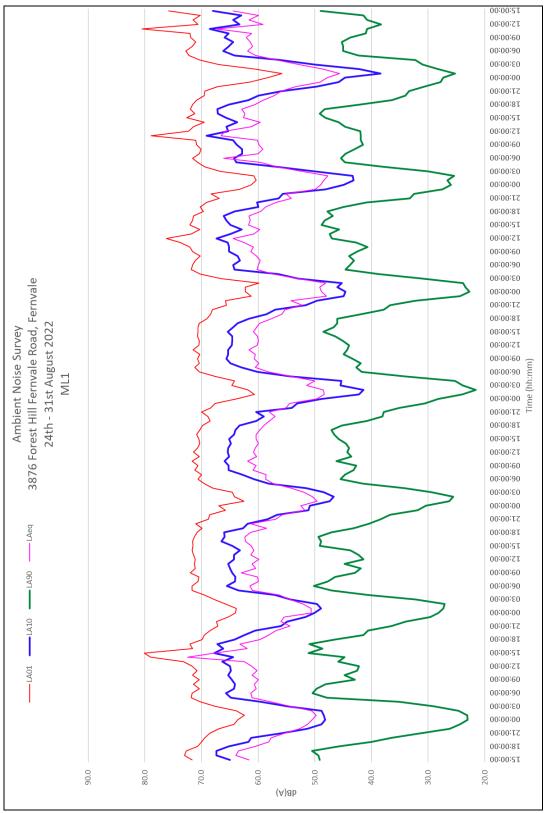


Figure 1: Ambient noise levels at ML1, 24<sup>th</sup> – 31<sup>st</sup> August 2022. Levels are in dB(A), free-field

# 3. Noise Criteria and Limits

# 3.1 Somerset Region Planning Scheme v4.2

The development site is located within an Emerging Community Zone. Part 6.2.3 of the Somerset Planning Scheme (Emerging Community Zone Code) contains guidance to the assessment of noise impacts from the proposed development, as reproduced (in part) below.

Table 3: Somerset Planning Scheme – Emerging Community Zone Code (in part)

Performance Outcomes	Acceptable Outcomes
Amenity	
PO8	AO8
The design, location and operation of development does not	No acceptable outcome provided.
result in any undue adverse impact on the amenity of the	
locality, having regard to:	
(a) hours of operation;	
(b) lighting;	
(c) noise;	
(d) dust, odour and other airborne emissions;	
(e) public health and safety;	
(f) traffic generation;	
(g) the use of advertising devices;	
(h) visual amenity; and	
(i) overlooking and privacy.	
PO9	AO9
Development must take into account and seek to	No acceptable outcome provided.
ameliorate any existing negative environmental impacts,	
having regard to:	
(a) noise;	
(b) hours of operation;	
(c) traffic;	
(d) lighting;	
(e) advertising devices;	
(f) visual amenity;	
(g) privacy;	
(h) odour; or	
(i) emissions.	

As no specific acoustic criteria are specified, assessment of noise emissions upon the amenity of the locality has been conducted with reference to the *Environmental Protection (Noise) Policy 2008*, in accordance with Planning Scheme Policy SC6.5.3.2. The *Environmental Protection (Noise) Policy 2008* is discussed in **Section 3.4** below, and it is concluded that application of State policy demonstrates appropriate protection of acoustic amenity in accordance with **PO8**.

Road traffic noise is identified as the dominant source of noise intrusion onto the site, and it is noted that State road traffic noise policy is applicable through the State Development Assessment Provisions (discussed in Section 3.2 below), and the *Queensland Development Code Mandatory Part 4.4* (discussed in Section 3.3 below). It is concluded that application of State policy demonstrates appropriate protection of acoustic amenity in accordance with PO9.

#### 3.2 State Development Assessment Provisions

The development site is within 25m of State transport infrastructure, and is therefore subject to acoustic considerations under the State Development Assessment Provisions (SDAP, v3.0). The relevant sections are reproduced in **Table 4 – Table 6** below.

Table 4: State Development Assessment Provisions v3.0 (in part)

Performance Outcomes Acceptable Outcomes		
Reconfiguring a lot		
Involving the creation of 6 or more new residential lots multi-modal corridor	adjacent to a state-controlled road or type 1	
PO38 Reconfiguring a lot minimises free field noise intrusion from a state-controlled road.	<ul> <li>AO38.1 Development provides noise barrier or earth mound which is designed, sited and constructed:</li> <li>1. to achieve the maximum free field acoustic level in reference table 2 (item 2.1);</li> <li>2. in accordance with <ul> <li>a. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013;</li> <li>b. Technical Specification – MRTS15 Noise Fences, Transport and Main Roads, 2019;</li> <li>c. Technical Specification – MRTS 04 General Earthworks, Transport and Main Roads, 2020; or</li> </ul> </li> <li>OR <ul> <li>AO38.2 Development achieves the maximum free field acoustic level in reference table 2 (item 2.1) by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.</li> </ul> </li> </ul>	
Material change of use (other uses)		

Ground floor level requirements (childcare centre, educational establishment, hospital) adjacent to a state-controlled road or type 1 multi-modal corridor

# PO44 Development:

- 1. provides a noise barrier or earth mound that is designed, sited and constructed:
  - a. to achieve the maximum free field acoustic level in reference table 2 (item 2.3) for all outdoor education areas and outdoor play areas;



 Table 5: State Development Assessment Provisions v3.0 (in part, continued)

Performance Outcomes	Acceptable Outcomes
b. in accordance with:	No accontable outcome is provided
<ul> <li>i. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013;</li> <li>ii. Technical Specification – MRTS15 Noise Fences, Transport and Main Roads, 2019;</li> <li>iii. Technical Specification – MRTS 04 General Earthworks, Transport and Main Roads, 2020; or</li> </ul>	No acceptable outcome is provided.
<ol> <li>Achieves the maximum free field acoustic level in reference table 2 (item 2.3) for all outdoor education areas and outdoor play areas by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.</li> </ol>	
PO45 Development involving a childcare centre or educational establishment:	No acceptable outcome is provided.
<ol> <li>provides a noise barrier or earth mound that is designed, sited and constructed:</li> </ol>	
<ol> <li>to achieve the maximum building façade acoustic level in reference table 1 (item 1.2);</li> </ol>	
3. in accordance with:	
<ul> <li>a. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013;</li> </ul>	
<ul> <li>Technical Specification – MRTS15 Noise Fences, Transport and Main Roads, 2019;</li> </ul>	
<ul> <li>Technical Specification – MRTS 04</li> <li>General Earthworks, Transport and</li> <li>Main Roads, 2020; or</li> </ul>	
<ol> <li>Achieves the maximum building façade acoustic level in reference table 1 (item 1.2) by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.</li> </ol>	
PO46 Development involving:	No acceptable outcome is provided.
<ol> <li>indoor education areas and indoor play areas;     or</li> </ol>	
2. sleeping rooms in a <b>childcare centre</b> ; or	
<ol> <li>patient care areas in a hospital achieves the maximum internal acoustic level in reference table 3 (items 3.2-3.4)</li> </ol>	



Table 6: State Code 1 reference tables (in part)

Applicable use	Acoustic levels			
1.2 Childcare centre or educational establishment	≤58 dB(A) L <sub>10</sub> (18 hour) façade corrected (maximum hour during normal opening hours)			
2.1: Private open space for residential lots	<ul> <li>a. ≤57 dB(A) L<sub>10</sub> (18 hour) free field (measured L<sub>90</sub> (18 hour) free field between 6am and 12 midnight ≤45 dB(A)</li> <li>OR</li> <li>b. ≤60 dB(A) L<sub>10</sub> (18 hour) free field (measured L<sub>90</sub> (18 hour) free field between 6am and 12 midnight &gt;45 dB(A)</li> </ul>			
2.3 Outdoor education areas and outdoor play areas in a childcare centre or educational establishment	I ≤63 dB(A) L <sub>10</sub> (12 hour) free field (between 6am and			
3.2 Indoor education areas and indoor play areas in a childcare centre or education establishment	35 dB(A) L <sub>eq</sub> (1 hour) (maximum hour over 24 hours)			
3.3 Sleeping rooms in a childcare centre				

As presented in **Section 2**, the measured  $L_{90,18hr}$  at ML1 was below 45 dB(A). Accordingly, the 57 dB(A)  $L_{10,18hr}$  private open space criterion has been applied.

# 3.3 Queensland Development Code Mandatory Part 4.4

The *Queensland Development Code Mandatory Part 4.4* (QDC MP4.4) is intended to ensure that habitable rooms of residential buildings located in a transport noise corridor are designed and constructed to reduce transport noise. Noise reduction requirements fall into categories, based on  $L_{10,18hr}$  noise levels along the façades of the proposed development (see **Table 7**). Construction of the dwelling is then to "deemed to satisfy" solutions, see **Table 8**.

The QDC MP4.4 relates to residential development, and is therefore not applicable to the proposed child care centre (although acoustic amenity is otherwise addressed through the State Development Assessment Provisions. The QDC MP4.4 has nonetheless been considered with regards to the residential component of the development.

Table 7: Noise levels associated with QDC MP4.4 Noise Categories

Noise Category	Level of Transport Noise (L <sub>A10,18hr</sub> ) for State-Controlled Roads and Designated Local Government Roads	Single Event Maximum Noise (LAmax) for Railway Land
Category 4	≥ 73 dB(A)	≥ 85 dB(A)
Category 3	68-72 dB(A)	80-84 dB(A)
Category 2	63-67 dB(A)	75-79 dB(A)
Category 1	58-62 dB(A)	70-74 dB(A)
Category 0	≤ 57 dB(A)	≤ 69 dB(A)

Note\* the sound levels are measured at 1 metre from the façade.



Table 8: Performance requirements of QDC MP4.4

Performance Requirements	Acceptable Solutions			
Residential Buildings				
P1 Habitable rooms in a relevant residential building are adequately protected from transport noise to safeguard occupants' health and amenity.	A1 The external envelope of each habitable room in a relevant residential building must comply with the minimum R <sub>w</sub> for each building component specified in Schedule 1 to achieve a minimum transport noise reduction level for the relevant noise category by:  a) Using materials specified in Schedule 2;  OR  b) Using materials with manufacturer's specifications that, in combination, achieve the minimum R <sub>w</sub> value for the relevant building component and acceptable noise category.			

<sup>&#</sup>x27;Deemed to Satisfy' forms of building construction are presented in Appendix D.

# 3.4 Environmental Protection (Noise) Policy 2008

The Environmental Protection (Noise) Policy 2008 (EPP 2008) establishes Acoustic Quality Objectives (AQO) to protect or enhance stated environmental values, as shown in **Table 9** below. The environmental values to be enhanced or protected under the policy are the qualities of the acoustic environment that are conducive to protecting the health and biodiversity of ecosystems; and the qualities of the acoustic environment that are conducive to human health and well-being, including ensuring a suitable acoustic environment for individual's to sleep, study and learn, to be involved in recreation including relaxation and conversation; and the qualities of the acoustic environment that are conducive to protecting the amenity of the community.

Table 9: Acoustic Quality Objectives as per the Environmental Protection (Noise) Policy 2008 (in part)

Time of Common vi / Activity	Recommended Acoustic Quality Objective			
Type of Occupancy / Activity	L <sub>Aeq,adj,1hr</sub>	L <sub>A10,adj,1hr</sub>	L <sub>A01,adj,1hr</sub>	
Dwelling, outdoors, daytime & evening	50	55	65	
Dwelling, indoors, daytime & evening	35	40	45	
Dwelling, indoors, night-time	30	35	40	

The EPP (Noise) 2008 also sets recommended criteria for the control of background creep. To the extent that it is reasonable to do so, noise from an activity must not be—

- for noise that is continuous noise measured by LA90,T—more than nil dB(A) greater than the existing
  acoustic environment measured by LA90,T; or
- for noise that varies over time measured by LAeq,adj,T—more than 5dB(A) greater than the existing
  acoustic environment measured by LA90,T

It is noted that the AQO are to be progressively achieved over the long term, to meet the stated purpose of the Noise Policy:

- (a) identifying environmental values to be enhanced or protected; and
- (b) stating acoustic quality objectives for enhancing or protecting the environmental values; and
- (c) providing a framework for making consistent, equitable and informed decisions about the acoustic environment.

Noise management strategies are required to the extent it is reasonable to do so. It is therefore concluded that the objectives are not intended to be necessarily limiting criteria, as reasonableness and equity are fundamental precepts of the policy. Application of the Noise Policy therefore requires consideration of the existing environment, although noise mitigation may be required to protect and enhance – as far as reasonable – acoustic values even where the AQO are exceeded by existing noise sources. In particular, noise from the existing environment may already exceed the AQO, especially within proximity of existing transport structure.

In this instance, road traffic noise from state transport infrastructure – which is specifically excluded from assessment under EPP 2008 – is identified as the dominant source of noise intrusion at the development site. The levels measured at ML1 were in considerable excess of the outdoor AQO, and it is therefore not considered appropriate to apply the outdoor AQO as limiting criteria, due to the existence of significant road traffic noise. Similarly, the site and immediate locale are largely undeveloped, and existing background levels are not considered representative of future residential areas as envisioned by the Emerging Community zoning. Background Creep criteria are therefore not considered appropriate limiting criteria (further noting that the *Environmental Protection (Noise) Policy 2008* has been superseded by the *Environmental Protection (Noise) Policy 2008* has been superseded by the *Environmental Protection (Noise) Policy 2019*, and that Background Creep criteria are not applicable under current State policy).

The indoor Acoustic Quality Objectives have therefore been applied for assessment to future residential uses, and it is concluded that meeting the indoor AQO represents a desirable level of residential acoustic amenity in accordance with State policy.

It is further noted that future residential development (represented by receivers R1 to R7, as discussed in **Section 1.1** above) will lie within a gazetted Transport Noise Corridor. The requirements of the QDC MP4.4 (discussed in **Section 3.3** above) will therefore be applicable to future residential development. Building design and construction to mitigate road traffic noise impacts will also mitigate noise emissions from the proposed child care centre. As shown in **Plate 8** below, receivers R1 to R7 will fall within Noise Categories 1 & 2 of the gazetted Transport Noise Corridor for Forest Hill Fernvale Road.

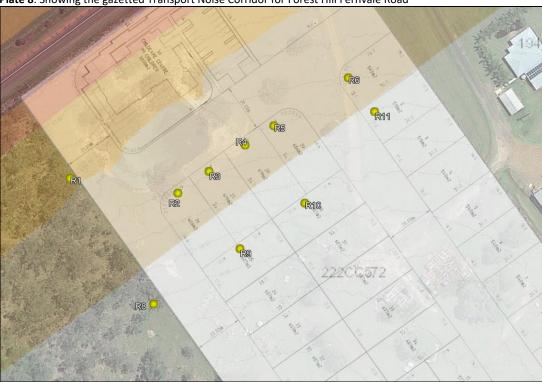


Plate 8: Showing the gazetted Transport Noise Corridor for Forest Hill Fernvale Road

A minimum Transport Noise Reduction of 25 dB(A) – corresponding with Category 1 under the QDC MP4.4 – can therefore be assumed for future residential development within the gazetted contours. Accordingly, a noise reduction of 25 dB(A) from the building envelope has been applied to assessment of the indoor AQO to receivers R1 to R7.

Receivers R8 – R11 will fall outside of the gazetted contours, and open windows have been assumed at these receivers as a conservative design methodology. A noise reduction of 10 dB(A) has been applied to account for transmission loss through open windows, corresponding with standard (Category 1) construction under Australian Standard AS3671.

While the precise attenuation will depend on unknown factors at the receivers (such as orientation, angle of transmission and furnishing), this assumption is consistent with research conducted in Queensland<sup>1</sup>, and internationally<sup>2</sup>. Due to the currently undeveloped nature of the site and adjacent properties, open windows may (at present) be a reasonable expectation for existing receivers, although road traffic noise will nonetheless impact to some degree upon receivers outside the of the gazetted contours.

It is furthermore noted that the construction of dwellings on intervening lots will also provide significant screening to dwellings at further road setback, although this has not been accounted for in calculations as the precise design and layout of future dwellings have not been determined at this stage.

NME

<sup>&</sup>lt;sup>1</sup> See Ryan et al., "Noise Reduction through Façades with Open Windows", **ACOUSTICS 2011,** Gold Coast

<sup>&</sup>lt;sup>2</sup> See Locher et al, "Differences between Outdoor and Indoor Sound Levels for Open, Tilted, and Closed Windows", International Journal of Environmental Research and Public Health 2018, 15, 149

#### 3.5 Sleep Disturbance – World Health Organization

Research has shown that the ability to get to sleep and, when asleep, the probability of experiencing a change of sleep state or ultimately of awakening are related to both the ambient and maximum instantaneous noise levels at the ear of the sleeper and the number of events during the night time period (WHO 1999). As a rule in planning for short-term or transient noise events, for good sleep over eight hours, the indoor sound pressure level measured as a maximum instantaneous value should not exceed approximately 45dBA maxLpA more than 10-15 times per night.

Although the World Health Organization Guidelines for Community Noise 1999 is not directly applicable to the proposed child care centre, the Guideline is considered an appropriate metric for the assessment of sleep disturbance that is referenced in various State and local government noise policies. Since the Environmental Protection (Noise) Policy 2008 does not specify criteria in the L<sub>max</sub> descriptor, the 45 dB(A) L<sub>max</sub> indoor value as per the WHO Guideline has been applied as an assessment criterion in this instance.

#### 3.6 Education and Care Services National Regulations

Regulation 81 of the *Education and Care Services National Regulations* requires that: "The approved provider of an education and care service must take reasonable steps to ensure that the needs for sleep and rest of children being educated and cared for by the service are met, having regard to the ages, development stages and individual needs of the children." It is noted that the State Development Assessment Provisions mandate an internal road traffic noise criterion of 35 dB(A) L<sub>eq</sub>. This is considered an appropriate criterion for internal amenity, and it is therefore concluded that the acoustic requirements of the *Education and Care Services National Regulations* can be met through design and construction that achieves SDAP requirements.

#### 3.7 Air Conditioning Noise Emissions

It is understood that air conditioning will be installed, although the precise model is yet to be determined. State requirements are set out under Section 440U of the *Environmental Protection Act 1994*; in that Act noise from air conditioning must not exceed the following noise levels when measured as the LA90 dB(A) level over a period of 15 minutes at an affected building:

- Between 10pm and 7am: 3 dB(A) above the background level
- From 7am to 10pm: 5 dB(A) above the background level

Detailed plant noise assessment can be conducted – if required – at the Building Approval stage once these specifications can be determined. Due to setback from sensitive uses, it is nonetheless predicted that the relevant criteria will be readily achieved without further acoustic treatment.

## 4. Noise Impact Assessment

#### 4.1 Road Traffic Noise Fencing

To mitigate road traffic noise impacts, it is recommended that 2m high road (54.5m RL) road traffic noise fencing be provided, as shown in **Plate 9** below.



To effectively function as acoustic barriers, fencing should be continuous and gap free, with a density of not less than 12.5 kg/m<sup>2</sup>. This can be achieved with overlapping timer palings (minimum 50% overlap), blockwork, glass (minimum width 5mm), Perspex (minimum width 11mm), or in combination with other gap-free materials of the required density. Additional requirements may also apply under the Department of Transport and Main Roads MRTS15 Technical Specification, and it is recommended that the specific form of construction be determined with consideration of other potential constraints such as wind loading or visual amenity.

Screening from this road traffic noise fencing has been included (where applicable) in the road traffic noise model presented in **Appendix B**, and the environmental noise model presented in **Appendix C**.

#### 4.2 Road Traffic Noise Intrusion

Road traffic noise from Forest Hill Fernvale Road has been calculated into the 2033 (10 year) design horizon using the road traffic noise model presented in **Appendix B**, which has been validated to the measured  $L_{10,18hr}$  at ML1. Traffic assumptions have been sourced from Burchills Engineering Solutions, who have conducted a Traffic Impact Assessment for the development. Topographic data has been sourced from Geosciences Australia.

The forecast  $L_{10,18hr}$  has been converted to other descriptors (where applicable) with reference to the measured relationship between descriptors as measured at ML1.

- $L_{10,12hr} = L_{10,18hr} + 2.5 dB(A)$
- $L_{10,1hr max} = L_{10,18hr} + 5.1 dB(A)$
- $L_{eq,1hr max} = L_{10,18hr} + 4.0 dB(A)$

Road traffic noise forecasts and assessment are presented in the **sections** following. Further details of road traffic noise calculations are presented in **Appendix B**.

#### 4.2.1 Outdoor Criteria

Outdoor receivers point locations are presented in **Plate 10** below, representing the most affected outdoor play areas, and private open spaces. Results from the road traffic noise calculations are presented with SDAP criteria in **Table 10** below.

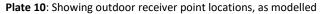




Table 10: Road traffic noise forecasts and outdoor criteria. Levels are in dB(A)

Receiver	Descriptor	Forecast	Criteria	Assessment
1	L <sub>10,12hr</sub> free-field	59	63	Pass
2	L <sub>10,12hr</sub> free-field	59	63	Pass
3	L <sub>10,12hr</sub> free-field	59	63	Pass
Lot 26	L <sub>10,18hr</sub> free-field	55	57	Pass
Lot 29	L <sub>10,18hr</sub> free-field	55	57	Pass
Lot 1	L <sub>10,18hr</sub> free-field	56	57	Pass

As shown above, the outdoor criteria is forecast to be met at all receivers. On this basis, it is concluded that the proposed development can meet SDAP Performance Outcomes **PO38** and **PO44**, subject to provision of the recommended 2m high road traffic noise fencing.

#### 4.2.2 Internal Criteria

Road traffic noise has been forecast to noise sensitive facades of the proposed child care centre. Façade receiver locations are presented in **Plate 11** below.

Plate 11: Showing façade receiver locations, as modelled

Detailed calculations to meet internal criteria have been conducted in accordance with Australian Standard *AS3671: Road traffic noise intrusion – Building siting and construction*. Calculations are presented in **Table 11** below, which show the required Weighted Sound Reduction Index (Rw) values from building elements to achieve the 35 dB(A) internal SDAP criterion.

Table 11: Showing AS3671 calculations to achieve the internal SDAP criterion

STC Child Ca	are Centre			TNR is L	.eq faça	de corrected m	aximum 1-hr L	eq vs indoo	r maxim	um SE	ΆP		
JOB:	6512R2			TNAc is	the traff	fic noise attenu	ation required	of the comp	onent				
Project:	Forest Hill Fernvale Road,	Fernvale		"6" is the	э арргох	imate allowand	e for the traffic	noise spec	etrum				
Date:	14/04/2023			TNAc = T	NR + 10	Log10[(Sc/Sf) x	(3/H) x 2T60 xC]						
				Rw = TN	Ac + 6								
Room	Element	Facing	Ext Leq	SDAP	TNR	Category	Element (Sc)	Floor (Sf)	Height	RT60	С	TNAc	Calc
			dB(A)	criteria			area	area	(m)	(s)			Rw
Room 1	Sliding Door	NE	62	35	27.4	Category 3	8.4	35	2.7	0.5	3	26.43	32
Room 1	Wall	NE	62	35	27.4	Category 3	10.5	35	2.7	0.5	3	27.40	33
Room 1	Roof	-	62	35	27.4	Category 3	35.0	35	2.7	0.5	3	32.63	39
Room 2	Sliding Door	NE	60	60.3	0.1	Category 1	8.4	42	2.7	0.5	3	-1.66	4
Room 2	Wall	NE	60	60.3	0.1	Category 1	9.0	42	2.7	0.5	3	-1.36	5
Room 2	Window	SW	57	35	22.0	Category 2	1.6	42	2.7	0.5	3	13.09	19
Room 2	Wall	SW	57	35	22.0	Category 2	8.3	42	2.7	0.5	3	20.19	26
Room 2	Roof	-	60	35	25.4	Category 2	42.0	42	2.7	0.5	3	30.63	37
Sleep	Window	SE	57	35	21.7	Category 2	1.8	22	2.7	0.5	3	16.06	22
Sleep	Wall	SE	57	35	21.7	Category 2	10.8	22	2.7	0.5	3	23.84	30
Sleep	Window	SW	57	35	21.8	Category 2	1.8	22	2.7	0.5	3	16.16	22
Sleep	Wall	SW	57	35	21.8	Category 2	14.4	22	2.7	0.5	3	25.19	31
Sleep	Roof	-	57	35	21.8	Category 2	22.0	22	2.7	0.5	3	27.03	33
Room 3	Sliding Door	SE	56	35	21.4	Category 2	8.4	52	2.7	0.5	3	18.71	25
Room 3	Wall	SE	56	35	21.4	Category 2	13.2	52	2.7	0.5	3	20.67	27
Room 3	Roof	-	56	35	21.4	Category 2	52.0	52	2.7	0.5	3	26.63	33
Room 4	Glazing	SE	57	35	22.2	Category 2	10.0	68	2.7	0.5	3	19.10	25
Room 4	Wall	SE	57	35	22.2	Category 2	8.9	68	2.7	0.5	3	18.60	25
Room 4	Roof	-	57	35	22.2	Category 2	68.0	68	2.7	0.5	3	27.43	33
Room 5	Glazing	SW	60	35	25.2	Category 2	15.1	78	2.7	0.5	3	23.30	29
Room 5	Wall	SW	60	35	25.2	Category 2	7.1	78	2.7	0.5	3	20.02	26
Room 5	Windows	NW	61	35	26.3	Category 3	14.4	78	2.7	0.5	3	24.19	30
Room 5	Wall	NW	61	35	26.3	Category 3	20.1	78	2.7	0.5	3	25.64	32
Room 5	Roof	-	61	35	26.3	Category 3	78.0	78	2.7	0.5	3	31.53	38
Room 6	Windows	SE	58	35	22.5	Category 2	9.7	72	2.7	0.5	3	19.02	25
Room 6	Wall	SE	58	35	22.5	Category 2	24.8	72	2.7	0.5	3	23.10	29
Room 6	Sliding Door	SW	62	35	26.5	Category 3	8.4	72	2.7	0.5	3	22.40	28
Room 6	Wall	SW	62	35	26.5	Category 3	11.1	72	2.7	0.5	3	23.61	30
Room 6	Roof	-	62	35	26.5	Category 3	72.0	72	2.7	0.5	3	31.73	38

Subject to construction that achieves the acoustic outcomes presented in **Table 11** above, it is concluded that the SDAP internal criteria can be achieved within all noise sensitive rooms. It is nonetheless recommended that AS3671 calculations be confirmed at the Building Approval stage, once architectural plans have been finalized.

#### 4.2.3 Façade Criterion

Road traffic noise has been forecast to noise sensitive facades of the proposed child care centre. Façade receiver locations are presented in **Plate 11** above. Results from the road traffic noise calculations are presented with the SDAP façade criterion in **Table 12** below.

Table 12: Road traffic noise forecasts and façade criteria. Levels are in dB(A)

Receiver	Descriptor	Forecast	Criteria	Assessment
Room 1 NE	L <sub>10,1hr max</sub> façade-affected	64	58	+6 dB(A)
Room 2 NE	L <sub>10,1hr max</sub> façade-affected	62	58	+4 dB(A)
Sleep SE	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Sleep SW	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Room 2 SW	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Room 3 SE	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Room 4 SE	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Room 6 SE	L <sub>10,1hr max</sub> façade-affected	59	58	+1 dB(A)
Room 6 SW	L <sub>10,1hr max</sub> façade-affected	63	58	+5 dB(A)
Room 5 SW	L <sub>10,1hr max</sub> façade-affected	61	58	+3 dB(A)
Room 5 NW	L <sub>10,1hr max</sub> façade-affected	62	58	+4 dB(A)

As shown above, the façade criterion as per SDAP Acceptable Outcome **AO25.1** is forecast to be exceeded by up to 6 dB(A). To investigate the feasibility of compliance with the 58 dB(A)  $L_{10,1hr\ max}$  criterion, two further calculation scenarios have been modelled which assume additional fencing to a height of 3m and 3.5m respectively. The nominal fence locations under these scenarios are presented in **Plate 12** below.

Plate 12: Showing nominal road traffic noise fence locations, 3m & 3.5m high fence scenarios

Road traffic noise forecasts under these additional scenarios are presented with the SDAP façade criterion in **Table 13** below.



Table 13: Road traffic noise forecasts and facade criteria, 3m & 3.5m fence scenarios. Levels are in dB(A)

Receiver	ic noise forecasts and façade c  Descriptor	Forecast	Criteria	Assessment
	•	fence scenario	<u> </u>	
Room 1 NE	L <sub>10,1hr max</sub> façade-affected	63	58	+5 dB(A)
Room 2 NE	L <sub>10,1hr max</sub> façade-affected	61	58	+3 dB(A)
Sleep SE	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Sleep SW	L <sub>10,1hr max</sub> façade-affected	57	58	Pass
Room 2 SW	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Room 3 SE	L <sub>10,1hr max</sub> façade-affected	57	58	Pass
Room 4 SE	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Room 6 SE	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Room 6 SW	L <sub>10,1hr max</sub> façade-affected	62	58	+4 dB(A)
Room 5 SW	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Room 5 NW	L <sub>10,1hr max</sub> façade-affected	59	58	+1 dB(A)
	3.5m	fence scenario		
Room 1 NE	L <sub>10,1hr max</sub> façade-affected	63	58	+5 dB(A)
Room 2 NE	L <sub>10,1hr max</sub> façade-affected	61	58	+3 dB(A)
Sleep SE	L <sub>10,1hr max</sub> façade-affected	57	58	Pass
Sleep SW	L <sub>10,1hr max</sub> façade-affected	57	58	Pass
Room 2 SW	L <sub>10,1hr max</sub> façade-affected	57	58	Pass
Room 3 SE	L <sub>10,1hr max</sub> façade-affected	57	58	Pass
Room 4 SE	L <sub>10,1hr max</sub> façade-affected	57	58	Pass
Room 6 SE	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Room 6 SW	L <sub>10,1hr max</sub> façade-affected	62	58	+4 dB(A)
Room 5 SW	L <sub>10,1hr max</sub> façade-affected	57	58	Pass
Room 5 NW	L <sub>10,1hr max</sub> façade-affected	58	58	Pass

As shown above, road traffic noise is forecast to exceed criteria under both the 3m and 3.5m fence scenarios. Considering the compliance with indoor and outdoor criteria as demonstrated in **Section 4.2.1** and **Section 4.2.2** above, it is therefore concluded that the recommended acoustic treatments and 2m high acoustic fencing represent a reasonable design solution to appropriately mitigate road traffic noise impacts.

#### 4.3 Environmental Noise Emissions

The following sources of noise emission have been identified with the proposed child care activities

- Vehicle activity in the carpark, represented by the Leq descriptor
- Vehicles idling in the carpark, represented by the Leg descriptor
- Car door 'slams' at the carpark, represented by the L<sub>max</sub> descriptor
- $\bullet$   $\;$  Engine 'starts' at the carpark, represented by the  $L_{\text{max}}$  descriptor
- Children at outdoor play, represented by the L<sub>eq</sub> descriptor
- Deliveries, represented by the L<sub>eq</sub> descriptor
- Mechanical plant, represented by the Leq descriptor



Noise from internal play activities will be substantively contained within the building envelope, and noise breakout is predicted to generate substantively lower emissions than outdoor play. Accordingly, assessment has been conducted to outdoor play as a worst-case 1hr scenario.

The precise model(s) and installation of air conditioning has not been determined at this stage. To ensure compliance with the Environmental Protection Act 1994, it is recommended that plant be selected, installed and (if necessary) screened to not exceed 35 dB(A) at neighbouring sensitive uses. Detailed assessment of air conditioning noise can be conducted (if required) at the Building Approval stage once specifications can be determined. Due to the setback from sensitive uses, it is nonetheless concluded that the criterion will be readily achievable through appropriate plant selection and siting.

Potential noise emissions from the remaining identified sources have been forecast to receivers R1 - R11 using the environmental noise model presented in Appendix C. Design sound power levels have been sourced from the NMS database, and are presented in Table 14 below. Discussion and assessment of noise from these sources are presented in the sections following. As discussed in Section 3.4, 25 dB(A) of attenuation has been assumed from future building envelopes at R1 - R7, while 10 dB(A) has been assumed at R8 - R11.

Table 14: Design sound power levels, as modelled

News	Descriptor			Sour	nd Power	Levels in o	dB(Z)			Total in
Name	Descriptor	63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2 kHz	4 kHz	8 kHz	dB(A)
Vehicle movements	L <sub>eq</sub>	74	81	75	72	75	76	72	69	81
Vehicle idling	L <sub>eq</sub>	65	72	66	63	66	67	63	60	72
Car door 'slam'*	L <sub>max</sub>	88	92	87	89	92	87	85	83	95
Car engine start*	L <sub>max</sub>	84	97	87	84	86	88	90	89	95
Deliveries	L <sub>eq</sub>	65	70	71	75	76	70	66	60	79
Outdoor play (11 children ages 0-2)^	L <sub>eq</sub>	51	57	63	69	71	68	64	61	75
Outdoor play (11 children ages 2-3)^	L <sub>eq</sub>	58	64	70	76	78	75	71	67	82
Outdoor play (11 children ages 3-5)^	L <sub>eq</sub>	61	67	72	78	80	77	73	69	84
		9	Sound Pre	ssure Leve	els at 1m					
Vehicle movements	$L_{eq}$	66	73	67	64	67	69	65	62	73
Vehicle idling	L <sub>eq</sub>	57	64	58	55	58	60	56	53	64
Car door 'slam'*	L <sub>max</sub>	80	84	80	81	85	79	77	76	88
Car engine start*	L <sub>max</sub>	76	89	80	76	78	80	82	81	87
Deliveries	L <sub>eq</sub>	58	62	63	68	68	62	58	53	71
Outdoor play (11 children ages 0-2)^	L <sub>eq</sub>	44	50	56	62	64	61	57	54	67
Outdoor play (11 children ages 2-3)^	L <sub>eq</sub>	51	57	63	69	71	68	64	60	74
Outdoor play (11 children ages 3-5)^	L <sub>eq</sub>	54	60	65	71	73	70	66	62	76

<sup>\*</sup> Includes a +2 dB(A) adjustment for impulsiveness



260

<sup>^</sup> Includes a -3 dB(A) adjustment for 50% of children playing at any one time

#### 4.3.1 Vehicle Movements

Noise emissions from vehicle movements through the site have been conceptualized as a moving line source, based upon sound power levels as proposed in the Association of Australasian Acoustical Consultants Guideline for Child Care Centre Acoustic Assessment v3. Average speeds of 25 km/hr have been assumed, with a source height of 1.5m (representing dominant engine noise at low speeds). Peak traffic flows of 38/hr have been calculated as per the NSW RTA Guide to Traffic Generating Developments v2.2. Noise source locations – as modelled - are presented in Plate 13 below, while results from the environmental noise calculations are presented along with criteria in Table 15 following.





Table 15: Noise forecasts and internal criteria, vehicle movements. Levels are in dB(A)

		<b>-</b>		eria	
Receiver	Descriptor	Forecast	Day/Evening	Night	Assessment
R1	L <sub>eq,1hr</sub>	0	35	30	Pass
R2	L <sub>eq,1hr</sub>	0	35	30	Pass
R3	L <sub>eq,1hr</sub>	0	35	30	Pass
R4	L <sub>eq,1hr</sub>	1	35	30	Pass
R5	L <sub>eq,1hr</sub>	2	35	30	Pass
R6	L <sub>eq,1hr</sub>	0	35	30	Pass
R7	L <sub>eq,1hr</sub>	0	35	30	Pass
R8	$L_{eq,1hr}$	6	35	30	Pass
R9	L <sub>eq,1hr</sub>	10	35	30	Pass
R10	L <sub>eq,1hr</sub>	11	35	30	Pass
R11	L <sub>eq,1hr</sub>	11	35	30	Pass

#### 4.3.2 Vehicles Idling

It is not expected that vehicles will sit idling in the parking bays for extended periods of time, and the assumption of peak hour traffic flows during a 'realistic worst-case' scenario of cumulative activity is considered a conservatively reasonable representation of car park activity. This notwithstanding, noise from simultaneous and continuous idling activity has been calculated from the source locations presented in **Plate** 14 below. Sound power levels have been derived as 9 dB(A) lower than normal speed<sup>3</sup>. Calculation results are presented with criteria in **Table 16** following.

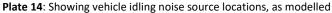




Table 16: Noise forecasts and internal criteria, vehicle idling. Levels are in dB(A)

		ai circeria, veriicie id		eria	
Receiver	Descriptor	Forecast	Day/Evening	Night	Assessment
R1	L <sub>eq,1hr</sub>	0	35	30	Pass
R2	L <sub>eq,1hr</sub>	8	35	30	Pass
R3	L <sub>eq,1hr</sub>	10	35	30	Pass
R4	L <sub>eq,1hr</sub>	13	35	30	Pass
R5	L <sub>eq,1hr</sub>	13	35	30	Pass
R6	L <sub>eq,1hr</sub>	10	35	30	Pass
R7	L <sub>eq,1hr</sub>	10	35	30	Pass
R8	L <sub>eq,1hr</sub>	17	35	30	Pass
R9	L <sub>eq,1hr</sub>	21	35	30	Pass
R10	L <sub>eq,1hr</sub>	22	35	30	Pass
R11	L <sub>eq,1hr</sub>	23	35	30	Pass

<sup>&</sup>lt;sup>3</sup> See AlQdah, K, "Experimental Investigation of Noise Pollution Level Emerged From the Most Common Use Car in Saudi Arabia", Energy Procedia 36 (2013) 939 - 947



#### 4.3.3 'Slamming' Car Doors

Assessment of car door noise emissions is problematic due to the high degree of uncertainty surrounding the frequency and intensity of 'slamming' events. It is practically unknowable how often — and how hard — individuals may shut their car doors. In theory, 'slamming' is not a necessary outcome of car park activity, and should be preventable through active management. In practice, enforcement can be difficult, and 'slam' events are likely to occur at times, although infrequently.

As a conservative design scenario, frequent (i.e. more than 15) door 'slam' events have been assumed from worst-case locations. Design sound power levels have been calculated from measurements previously undertaken by NMS of a worst-case 4WD slam event, and includes impulsive adjustment as per Australian Standard *AS1055*. As a comparison, typical door closures were measured around 15 dB(A) lower than peak levels.

Worst-case car door slam locations – as modelled – are presented in **Plate 15** below. Results from environmental noise calculations are presented along with the WHO sleep disturbance criteria in **Table 17** following.



Table 17: Noise forecasts and internal criteria, car door 'slams'. Levels are in dB(A)

Paration.	B data	F	Crit	eria	Assessment	
Receiver	Descriptor	Forecast	Day/Evening	Night		
R1	L <sub>max</sub>	21	-	45	Pass	
R2	L <sub>max</sub>	25	-	45	Pass	
R3	L <sub>max</sub>	27	-	45	Pass	
R4	L <sub>max</sub>	30	-	45	Pass	
R5	L <sub>max</sub>	30	-	45	Pass	
R6	L <sub>max</sub>	27	-	45	Pass	
R7	L <sub>max</sub>	25	-	45	Pass	
R8	L <sub>max</sub>	35	-	45	Pass	
R9	L <sub>max</sub>	37	-	45	Pass	
R10	L <sub>max</sub>	38	-	45	Pass	
R11	L <sub>max</sub>	39	-	45	Pass	

#### 4.3.4 Car Engine 'Starts'

The 'slamming' of car doors is considered the most potentially intrusive source of L<sub>max</sub> emissions during the night period. This notwithstanding, noise emissions from car engine 'starts' have been calculated from the worst-case locations shown in **Plate 16** below. Design sound power levels have been calculated from measurements previously conducted by NMS of a 'Commodore' style vehicle, representing the worst-case of 'typical' vehicles measured. Calculation results are presented in **Table 18** following, along with criteria.

Plate 16: Showing worst-case parking noise source locations, as modelled

Table 18: Noise forecasts and internal criteria, car engine 'starts'. Levels are in dB(A)

Danainan	Descriptor	Farrana	Crit	eria	Assessment	
Receiver	Descriptor	Forecast	Day/Evening	Night	Assessment	
R1	L <sub>max</sub>	20	-	45	Pass	
R2	L <sub>max</sub>	24	-	45	Pass	
R3	L <sub>max</sub>	26	-	45	Pass	
R4	L <sub>max</sub>	29	-	45	Pass	
R5	L <sub>max</sub>	29	-	45	Pass	
R6	L <sub>max</sub>	26	-	45	Pass	
R7	L <sub>max</sub>	24	-	45	Pass	
R8	L <sub>max</sub>	33	-	45	Pass	
R9	L <sub>max</sub>	36	-	45	Pass	
R10	L <sub>max</sub>	37	-	45	Pass	
R11	L <sub>max</sub>	38	-	45	Pass	

#### 4.3.5 Deliveries

As a conservative methodology, assessment of noise emissions from deliveries assumes continuous activity over a worst-case one hour assessment period. In practice, deliveries will be sporadic throughout the day, and generally occur over a much shorter duration. Design sound power levels have been based on a 13m delivery truck, as per Harwood, M, "Carrying out noise assessments for proposed supermarket developments", ACOUSTICS 2008, Geelong. These measurements included reversing alarms, and refrigeration compressors (although refrigerated trucks are not generally expected). It is nonetheless expected that deliveries will typically involve vans or other smaller vehicles, with correspondingly lower noise impacts. While deliveries are not expected to be a frequent occurrence, the calculation scenario is considered to also encompass atypical parking events. The delivery noise source location – as modelled – is presented in Plate 17 below.

Plate 17: Showing delivery noise source locations, as modelled

NMS

Table 19: Noise forecasts and internal criteria, deliveries. Levels are in dB(A)

	Descriptor	Forecast	Crit	eria	Assessment	
Receiver	Descriptor	Forecast	Day/Evening	Night	Assessment	
R1	L <sub>eq,1hr</sub>	0	35	30	Pass	
R2	L <sub>eq,1hr</sub>	1	35	30	Pass	
R3	L <sub>eq,1hr</sub>	6	35	30	Pass	
R4	L <sub>eq,1hr</sub>	11	35	30	Pass	
R5	L <sub>eq,1hr</sub>	11	35	30	Pass	
R6	L <sub>eq,1hr</sub>	9	35	30	Pass	
R7	L <sub>eq,1hr</sub>	10	35	30	Pass	
R8	L <sub>eq,1hr</sub>	10	35	30	Pass	
R9	L <sub>eq,1hr</sub>	17	35	30	Pass	
R10	L <sub>eq,1hr</sub>	22	35	30	Pass	
R11	L <sub>eq,1hr</sub>	23	35	30	Pass	

As shown above, noise from delivery activities are forecast to meet criteria at all future receivers. To minimize the risk of sleep disturbance, it is nonetheless recommended that deliveries be limited to the hours of 7am to 10pm.

#### 4.3.6 Outdoor Play

The number of children engaged in outdoor play within any given 1 hour period will vary by factors such as proportion of full capacity, time of day and meteorological conditions. As a worst-case scenario, calculation assume full capacity, and worst-case activity occurring each hour. It is understood and recommended that no more than 50% of children will engage in outdoor play activity at any one time.

Sound power levels have been adopted as per the *Association of Australasian Acoustical Consultants Guideline* for *Child Care Centre Acoustic Assessment v3*. Outdoor play has been conceptualized as point sources, representing the central focus of an area of play. Levels have been calculated according to the formula as presented in the guideline:

• Effective Sound Power Level for 'n' children = Effective Sound Power Level for 10 children + 10 log (n/10)

It is understood from the client that the distribution of children during operation would be:

- 33 children ages 0-2
- 33 children ages 2-3
- 33 children ages 3-5

The location of noise point sources – as modelled – are presented in **Plate 18** below. Results from the environmental noise calculations are presented with criteria in **Table 20** following.



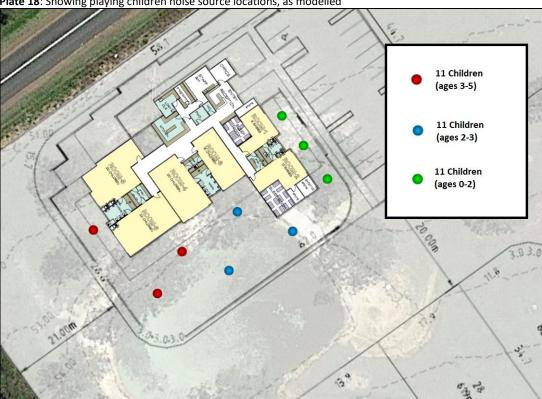


Plate 18: Showing playing children noise source locations, as modelled

Table 20: Noise forecasts and internal criteria, outdoor play. Levels are in dB(A)

B	Donatista.		Crit	eria	
Receiver	Descriptor	Forecast	Day/Evening	Night	Assessment
R1	L <sub>eq,1hr</sub>	25	35	30	Pass
R2	L <sub>eq,1hr</sub>	25	35	30	Pass
R3	L <sub>eq,1hr</sub>	25	35	30	Pass
R4	L <sub>eq,1hr</sub>	24	35	30	Pass
R5	L <sub>eq,1hr</sub>	23	35	30	Pass
R6	L <sub>eq,1hr</sub>	19	35	30	Pass
R7	L <sub>eq,1hr</sub>	17	35	30	Pass
R8	L <sub>eq,1hr</sub>	33	35	30	Pass
R9	L <sub>eq,1hr</sub>	34	35	30	Pass
R10	L <sub>eq,1hr</sub>	34	35	30	Pass
R11	L <sub>eq,1hr</sub>	32	35	30	Pass

As shown above, worst-case noise emissions from outdoor play activity are forecast to meet criteria within all future neighbouring residential dwellings. To minimise the risk of sleep disturbance, it is nonetheless expected and recommended that outdoor play activities be limited to the hours of 7am to 10pm.

#### 4.4 Cumulative Noise Assessment

The modelling scenarios presented in **Section 4.3** above represent 'reasonable worst-case activity' over an one hour assessment period. It is noted that peak hour activity from one source may preclude peak activity from other sources — such as continuous play activity simultaneous with peak carpark activity, since the same children would be nominally arriving and playing at the same time. Nonetheless, a cumulative assessment of worst-case forecasts from all sources has been specifically requested, and is presented in **Tables 21 – 24** below.

Table 21: Showing combined emissions from all Leg sources, daytime/evening periods. Levels are in dB(A) Leg

	J	<u>u cimissions ir om</u>	Forecast	, , , , , ,			
Receiver	Vehicle movements	Vehicle Idling	Deliveries	Outdoor Play	Mechanical Plant	Total	
R1	0	0	0	25	10	25	
R2	0	8	1	25	10	25	
R3	0	10	6	25	10	25	
R4	1	13	11	24	10	25	
R5	2	13	11	23	10	24	
R6	0	10	9	19	10	20	
R7	0	10	10	17	10	19	
R8	6	17	10	33	25	34	
R9	10	21	17	34	25	35	
R10	11	22	22	34	25	35	
R11	11	23	23	32	25	34	

Table 22: Showing combined emissions from all Leq sources, night period. Levels are in dB(A) Leq

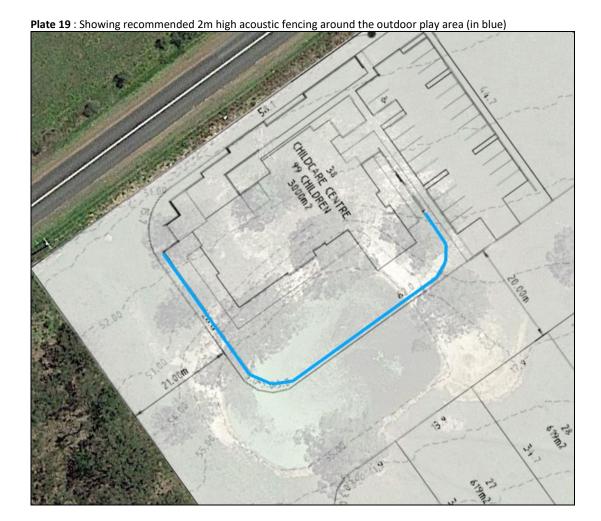
	Forecast							
Receiver	Vehicle movements	Vehicle Idling	Deliveries	Outdoor Play	Mechanical Plant	Total		
R1	0	0	0	0	10	11		
R2	0	8	0	0	10	12		
R3	0	10	0	0	10	13		
R4	1	13	0	0	10	15		
R5	2	13	0	0	10	15		
R6	0	10	0	0	10	13		
R7	0	10	0	0	10	13		
R8	6	17	0	0	25	26		
R9	10	21	0	0	25	27		
R10	11	22	0	0	25	27		
R11	11	23	0	0	25	27		

Table 23: Noise forecasts and internal criteria, cumulative scenario. Levels are in dB(A)

Receiver	Descriptor	Forecast	Criteria	Assessment						
Daytime / Evening										
R1	L <sub>eq,1hr</sub>	25	35	Pass						
R2	L <sub>eq,1hr</sub>	25	35	Pass						
R3	L <sub>eq,1hr</sub>	25	35	Pass						
R4	L <sub>eq,1hr</sub>	25	35	Pass						
R5	L <sub>eq,1hr</sub>	24	35	Pass						
R6	L <sub>eq,1hr</sub>	20	35	Pass						
R7	L <sub>eq,1hr</sub>	19	35	Pass						
R8	L <sub>eq,1hr</sub>	34	35	Pass						
R9	L <sub>eq,1hr</sub>	35	35	Pass						
R10	L <sub>eq,1hr</sub>	35	35	Pass						
R11	L <sub>eq,1hr</sub>	34	35	Pass						
	Night									
R1	L <sub>eq,1hr</sub>	11	30	Pass						
R2	L <sub>eq,1hr</sub>	12	30	Pass						
R3	L <sub>eq,1hr</sub>	13	30	Pass						
R4	L <sub>eq,1hr</sub>	15	30	Pass						
R5	L <sub>eq,1hr</sub>	15	30	Pass						
R6	L <sub>eq,1hr</sub>	13	30	Pass						
R7	L <sub>eq,1hr</sub>	13	30	Pass						
R8	L <sub>eq,1hr</sub>	26	30	Pass						
R9	L <sub>eq,1hr</sub>	27	30	Pass						
R10	L <sub>eq,1hr</sub>	27	30	Pass						
R11	L <sub>eq,1hr</sub>	27	30	Pass						

### 4.5 Acoustic Fencing to Outdoor Play Area

The assessment presented in the **sections** above assumes two-storey dwellings, and acoustic fencing around the outdoor play area is not predicted to effectively screen upper floor receivers. Such fencing will however provide screening to ground floor receivers, and to single storey dwellings. While it does not materially affect design calculations, it is nonetheless recommended that 2m high acoustic fencing be provided around the outdoor play area, as shown in **Plate 19** below. To effectively function as an acoustic barrier, fencing should be continuous and gap-free, with a density of not less than 12.5 kg/m².



#### 4.6 Conclusions

Based on the assessment presented above, it is concluded that:

- Subject to the considerations and recommendations as presented in this Report, it is the opinion of
  this consultancy that the proposed residential subdivision and childcare centre can meet the
  requirements of Somerset Regional Council.
- Subject to provision of the recommended 2m acoustic fencing and acoustic treatment to the building
  envelope, road traffic noise is forecast to meet the indoor and outdoor SDAP criteria at all noise
  sensitive locations.
- The SDAP façade criterion is forecast to be exceeded assuming 2m, 3m or 3.5m fencing along the north-western boundary. As the development can meet both indoor and outdoor criteria, it is concluded that 2m high fencing appropriately mitigates road traffic noise intrusion.
- Future residential development on proposed Lot 1, Lot 26, Lot 27, Lot 28 & Lot 29 will fall within the
  gazetted Transport Noise Corridor for Forest Hill Fernvale Road, and will be subject to design
  requirements under the Queensland Development Code Mandatory Part 4.4. Future dwellings on the
  remaining lots will fall outside of the Transport Noise Corridor.
- Noise emissions from childcare activity are forecast to meet criteria at all future neighbouring residential developments.
- The precise type and siting of air conditioning plant has not been determined at this stage. Detailed
  plant noise assessment can be conducted if required at the Building Approval stage, although the
  relevant criterion is considered to be readily achievable through appropriate plant selection and
  siting.

#### 4.7 Recommendations

Based on the assessment presented above, it is recommended that:

- 2m high (54.5m RL) road traffic noise fencing be provided as presented in **Plate 20** below. To effectively function as an acoustic barrier, fencing should be continuous and gap-free, with a density of not less than 12.5 kg/m<sup>2</sup>. This can be achieved with fencing in accordance with the MTRS-15 Technical Guideline, and it is understood that the Department of Transport and Main Roads requires road traffic noise fences to comply with the Guideline.
- 2m high acoustic fencing be provided around the outdoor play area, as shown in Plates 21 below. To
  effectively function as an acoustic barrier, fencing should be continuous and gap-free, with a density
  of not less than 12.5 kg/m².
- The childcare building be constructed to not less than the acoustic treatments presented in Table 24
  below. It is further recommended that calculations be confirmed at the Building Approval stage once
  architectural plans have been finalized.
- Residential development upon future Lot 1, Lot 26, Lot 27, Lot 28 & Lot 29 be constructed in accordance with QDC MP4.4 Noise Category 1.
- Deliveries and use of the outdoor play area do not occur prior to 7am.
- No more than 50% of children be engaged in outdoor play at any one time.
- Mechanical plant be selected, sited and installed to not exceed 35 dB(A) at neighbouring residential
  uses.



Plate 20: Showing the location of recommended 2m high road traffic noise fencing (in red)

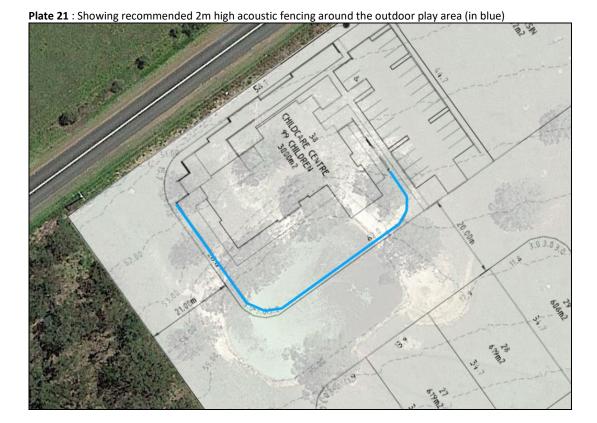
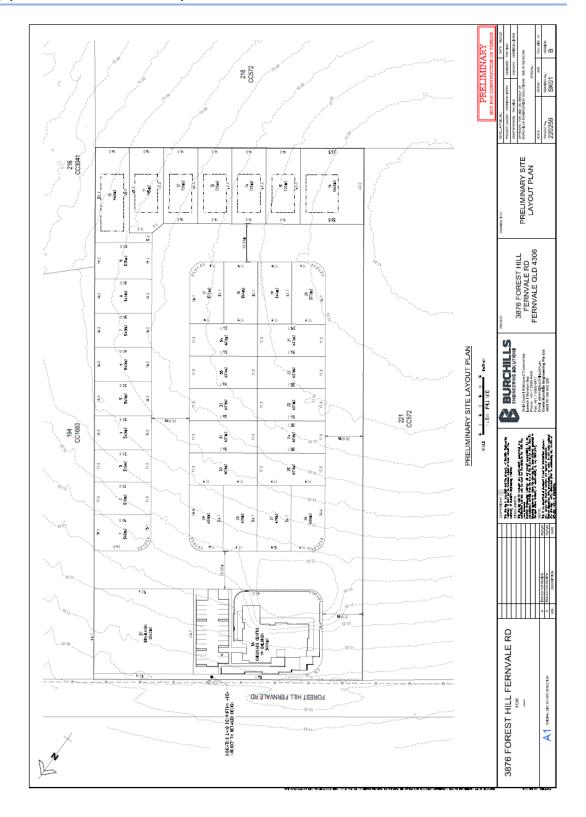
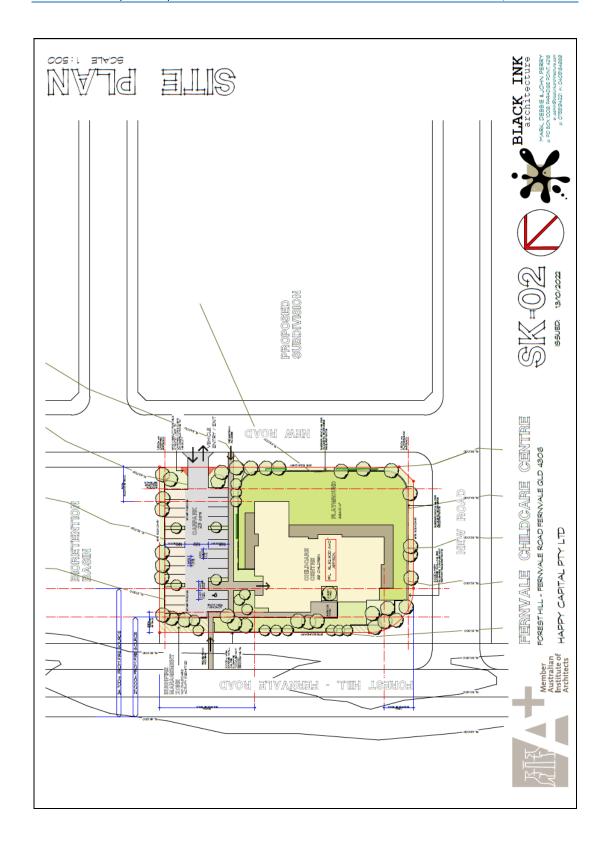


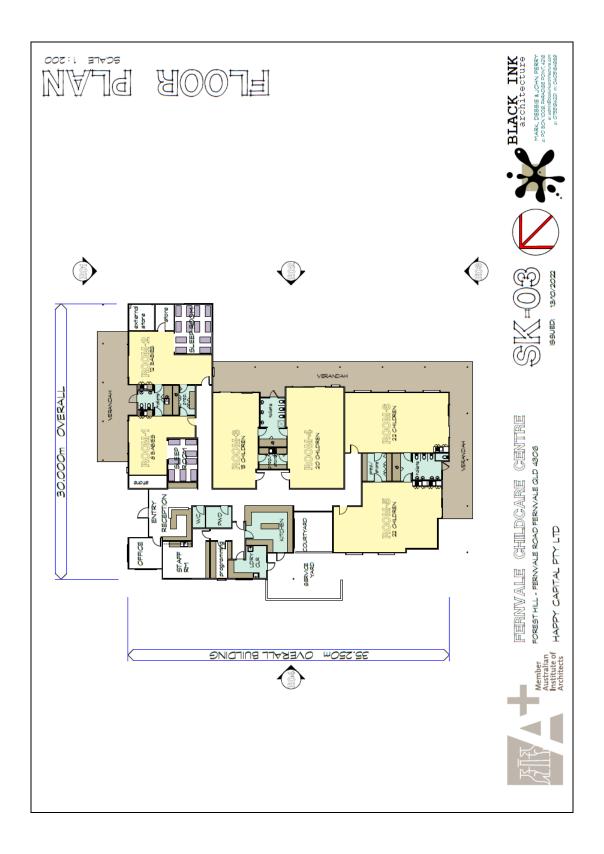
Table 24: Showing AS3671 calculations and recommended Rw ratings

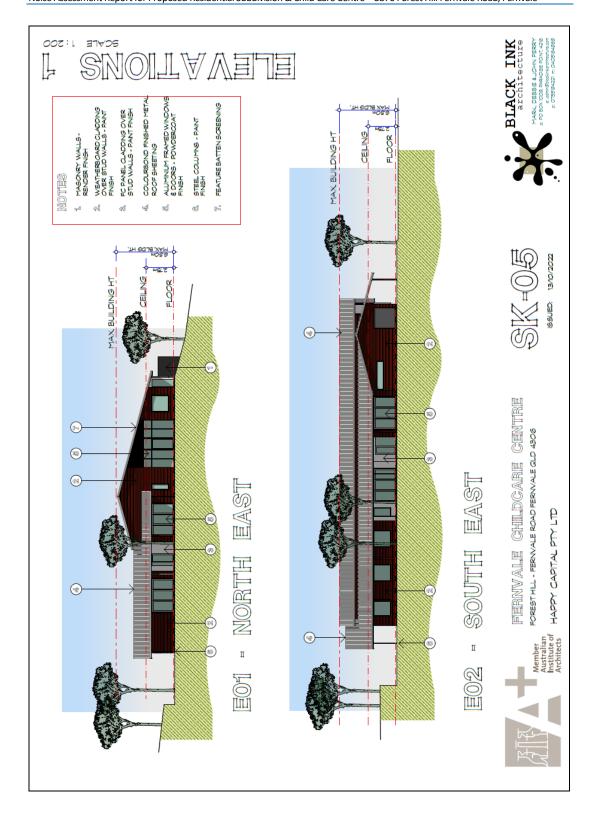
STC Child Care Centre			TNR is L	TNR is Leq façade corrected maximum 1-hr Leq vs indoor maxim				r maxim	um SE	ΆP			
JOB:	6512R2			TNAc is the traffic noise attenuation required of the component									
Project:	Forest Hill Fernvale Road,	Fernvale		"6" is the approximate allowance for the traffic noise spectrum									
Date:	14/04/2023			TNAc = T	NR + 10	Log10[(Sc/Sf) x	(3/H) x 2T60 xC]						
				Rw = TN	Ac + 6								
Room	Element	Facing	Ext Leq	SDAP	TNR	Category	Element (Sc)	Floor (Sf)	Height	RT60	С	TNAc	Calc
			dB(A)	criteria			area	area	(m)	(s)			Rw
Room 1	Sliding Door	NE	62	35	27.4	Category 3	8.4	35	2.7	0.5	3	26.43	32
Room 1	Wall	NE	62	35	27.4	Category 3	10.5	35	2.7	0.5	3	27.40	33
Room 1	Roof	-	62	35	27.4	Category 3	35.0	35	2.7	0.5	3	32.63	39
Room 2	Sliding Door	NE	60	60.3	0.1	Category 1	8.4	42	2.7	0.5	3	-1.66	4
Room 2	Wall	NE	60	60.3	0.1	Category 1	9.0	42	2.7	0.5	3	-1.36	5
Room 2	Window	sw	57	35	22.0	Category 2	1.6	42	2.7	0.5	3	13.09	19
Room 2	Wall	sw	57	35	22.0	Category 2	8.3	42	2.7	0.5	3	20.19	26
Room 2	Roof	-	60	35	25.4	Category 2	42.0	42	2.7	0.5	3	30.63	37
Sleep	Window	SE	57	35	21.7	Category 2	1.8	22	2.7	0.5	3	16.06	22
Sleep	Wall	SE	57	35	21.7	Category 2	10.8	22	2.7	0.5	3	23.84	30
Sleep	Window	SW	57	35	21.8	Category 2	1.8	22	2.7	0.5	3	16.16	22
Sleep	Wall	SW	57	35	21.8	Category 2	14.4	22	2.7	0.5	3	25.19	31
Sleep	Roof	-	57	35	21.8	Category 2	22.0	22	2.7	0.5	3	27.03	33
Room 3	Sliding Door	SE	56	35	21.4	Category 2	8.4	52	2.7	0.5	3	18.71	25
Room 3	Wall	SE	56	35	21.4	Category 2	13.2	52	2.7	0.5	3	20.67	27
Room 3	Roof	-	56	35	21.4	Category 2	52.0	52	2.7	0.5	3	26.63	33
Room 4	Glazing	SE	57	35	22.2	Category 2	10.0	68	2.7	0.5	3	19.10	25
Room 4	Wall	SE	57	35	22.2	Category 2	8.9	68	2.7	0.5	3	18.60	25
Room 4	Roof	-	57	35	22.2	Category 2	68.0	68	2.7	0.5	3	27.43	33
Room 5	Glazing	SW	60	35	25.2	Category 2	15.1	78	2.7	0.5	3	23.30	29
Room 5	Wall	SW	60	35	25.2	Category 2	7.1	78	2.7	0.5	3	20.02	26
Room 5	Windows	NW	61	35	26.3	Category 3	14.4	78	2.7	0.5	3	24.19	30
Room 5	Wall	NW	61	35	26.3	Category 3	20.1	78	2.7	0.5	3	25.64	32
Room 5	Roof	-	61	35	26.3	Category 3	78.0	78	2.7	0.5	3	31.53	38
Room 6	Windows	SE	58	35	22.5	Category 2	9.7	72	2.7	0.5	3	19.02	25
Room 6	Wall	SE	58	35	22.5	Category 2	24.8	72	2.7	0.5	3	23.10	29
Room 6	Sliding Door	sw	62	35	26.5	Category 3	8.4	72	2.7	0.5	3	22.40	28
Room 6	Wall	sw	62	35	26.5	Category 3	11.1	72	2.7	0.5	3	23.61	30
Room 6	Roof		62	35	26.5	Category 3	72.0	72	2.7	0.5	3	31.73	38

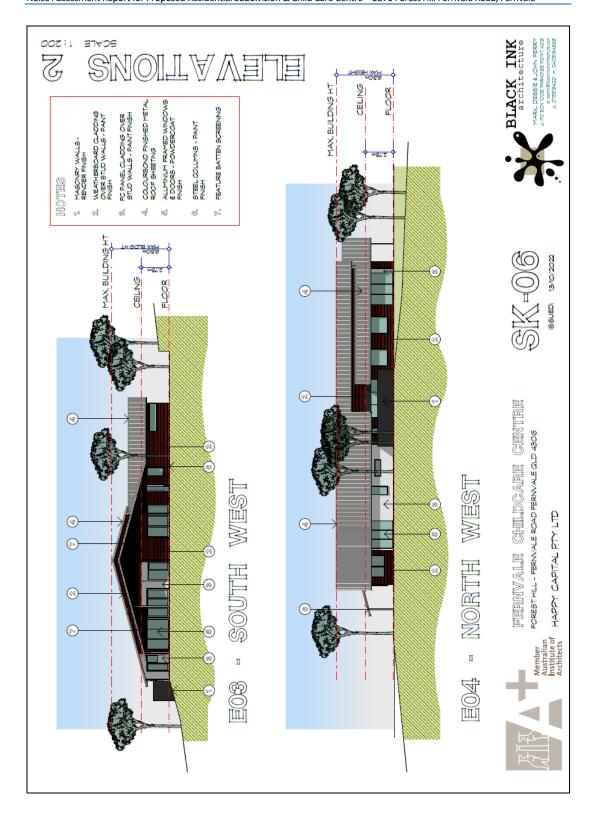
# Appendix A: Development Plans











# Appendix B: Road Traffic Noise Calculations

The 10-year design levels for traffic noise are calculated for the proposed development. Calculations are performed in accordance with Australian Standard AS2702-1984 *Acoustics-Methods for the measurement of road traffic noise* and 'Calculation of Road Traffic Noise', 1975-1988. Predicted levels for this report have been calculated using CRTN prediction models PEN3D2000 and are façade-adjusted. The model has been validated to the L<sub>10,18hr</sub> measured at ML1, which is considered representative of road traffic noise intrusion. Traffic assumptions have been sourced from Burchills Engineering Solutions (Dale Kleimeyer, RPEQ #06876), which include a traffic volume and vehicle classification count performed in Forrest Hill Fernvale Rd adjacent to the site between 24<sup>th</sup> to 30<sup>th</sup> August 2023. Topographic data was sourced from Geosciences Australia (extracted into 0.5m contours), and from development plans. The assumptions that were made for the calculations include-

- Forest Hill Fernvale Road 2022 4,737 vehicles / 24hr
- Forest Hill Fernvale Road 2033 6,557 vehicles / 24hr
- Annual traffic growth 3%
- Heavy vehicles 13%
- Average traffic speed 60 km/hr
- CoRTN calibration adjustment for Queensland Conditions as per DTMR Code of Practice:
  - o -0.7 dB(A) for free-field receivers
  - o -1.7 dB(A) for façade-affected receivers
- Road surface adjustment of +1 dB(A) for Bituminous Seal
- Source height 0.5m
- 18hr traffic flow is 97% of 24hr
- Predicted design level for ML1, 2022 62.6 dB(A) L<sub>10, 18hr</sub> free-field
- Measured level for ML1, 2022 62.7 dB(A) L<sub>10, 18hr</sub> free-field including noise from all sources

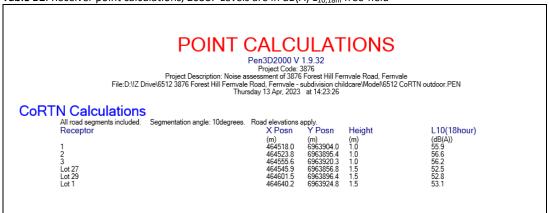
Table B1: Model Validation. Levels are in dB(A)  $L_{10, \, 18hr}$ , free-field

Location	Survey	PEN3D	Difference
ML1	62.7	62.6	-0.1

Note: The levels above are within 2 dB(A) and are therefore considered an acceptable standard of fit. To further calibrate the road traffic noise model with measured levels, a +0.1 dB(A) adjustment has been applied to all forecasts as presented in Section 4.

Results from the road traffic noise model are presented in the following plates and tables.

Table B2: Receiver point calculations, 2033. Levels are in dB(A)  $L_{10,18hr}$  free-field



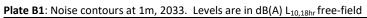
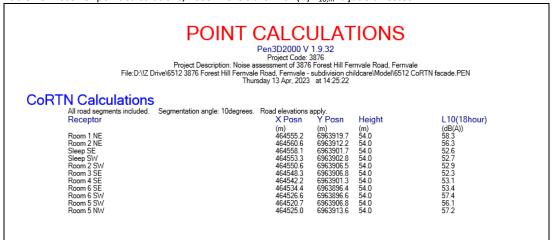




Table B3: Receiver point calculations, 2033. Levels are in dB(A) L<sub>10,hr</sub> façade-affected





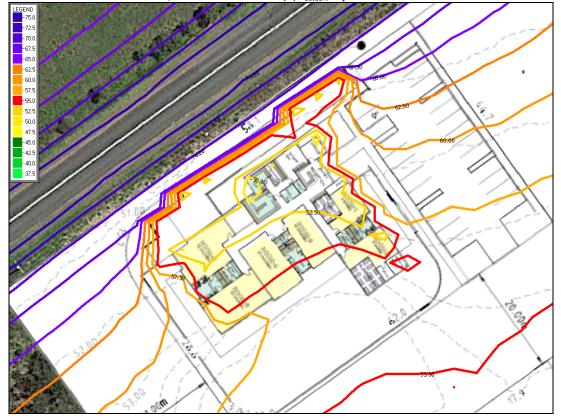
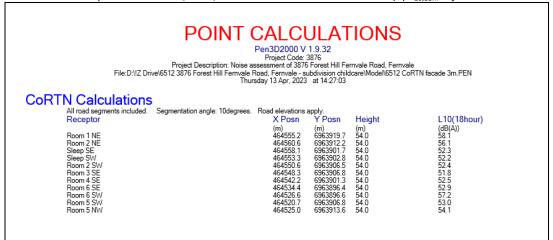


Table B4: Receiver point calculations, 2033, 3m fence scenario. Levels are in dB(A) L<sub>10,18hr</sub> façade-affected



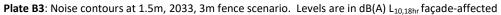
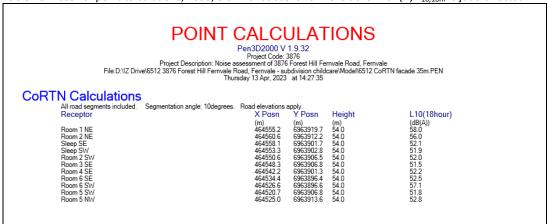
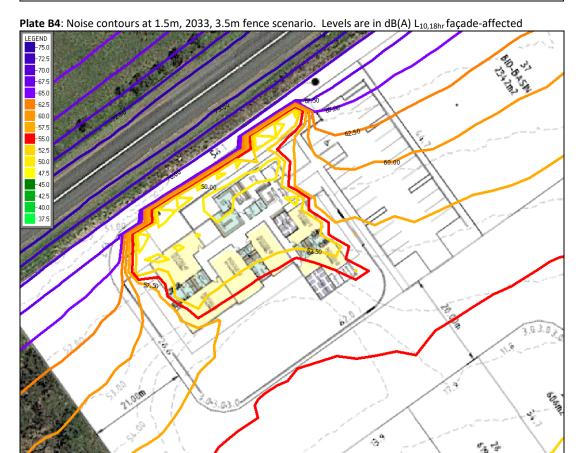




Table B5: Receiver point calculations, 2033, 3.5m fence scenario. Levels are in dB(A) L<sub>10,18hr</sub> façade-affected













# Appendix C: Environmental Noise Calculations

Forecasts noise emissions from expected activities at the proposed development have been calculated with PEN3D2000, a software program implementing a prediction model based on the method described in Bies & Hansen, ISO 9613-2 (1996) Acoustics – Attenuation of sound propagation outdoors Part 2: General Method of Calculation and CONCAWE. The basic equation adopted is-

 $Lp = Lw - 20 \log 10(r) - 10 \log 10(4\pi) + AE$ 

#### Where

- Lp is the sound pressure level at an observer
- Lw is the sound power level of the source
- 20 log10r 10log10(4PI) is the Distance attenuation (spherical)
- AE is the excess attenuation factors and is determined as the sum of the contributions

All prediction models have limits to their accuracy of prediction. This is due to the inherent nature of the calculation algorithms that go into the design of the models, the assumptions made in the implementation of the model, and the availability of good source sound power data. ISO 9613-2 has an estimated accuracy for broadband noise of ±3 dB at 1000 metres. Neutral atmospheric and meteorological conditions have been assumed. Topographic data was sourced from Geosciences Australia, and from development plans. The sound power levels used in the environmental noise model are presented in **Table C1** below.

Table C1: Design sound power levels

Name	Danawintan			Sour	nd Power	Levels in c	lB(Z)			Total in
Name	Descriptor	63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2 kHz	4 kHz	8 kHz	dB(A)
Vehicle movements	L <sub>eq</sub>	74	81	75	72	75	76	72	69	81
Vehicle idling	L <sub>eq</sub>	65	72	66	63	66	67	63	60	72
Car door 'slam'*	L <sub>max</sub>	88	92	87	89	92	87	85	83	95
Car engine start*	L <sub>max</sub>	84	97	87	84	86	88	90	89	95
Deliveries	L <sub>eq</sub>	65	70	71	75	76	70	66	60	79
Outdoor play (11 children ages 0-2)^	L <sub>eq</sub>	51	57	63	69	71	68	64	61	75
Outdoor play (11 children ages 2-3)^	L <sub>eq</sub>	58	64	70	76	78	75	71	67	82
Outdoor play (11 children ages 3-5)^	L <sub>eq</sub>	61	67	72	78	80	77	73	69	84
		9	Sound Pre	ssure Leve	els at 1m					
Vehicle movements	L <sub>eq</sub>	66	73	67	64	67	69	65	62	73
Vehicle idling	L <sub>eq</sub>	57	64	58	55	58	60	56	53	64
Car door 'slam'*	L <sub>max</sub>	80	84	80	81	85	79	77	76	88
Car engine start*	L <sub>max</sub>	76	89	80	76	78	80	82	81	87
Deliveries	L <sub>eq</sub>	58	62	63	68	68	62	58	53	71
Outdoor play (11 children ages 0-2)^	L <sub>eq</sub>	44	50	56	62	64	61	57	54	67
Outdoor play (11 children ages 2-3)^	L <sub>eq</sub>	51	57	63	69	71	68	64	60	74
Outdoor play (11 children ages 3-5)^	L <sub>eq</sub>	54	60	65	71	73	70	66	62	76

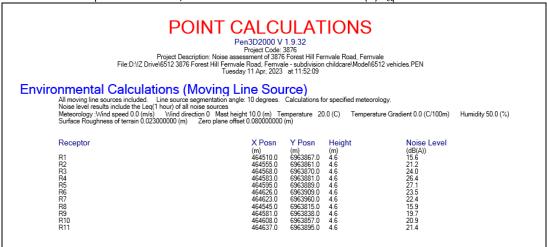
<sup>\*</sup> Includes a +2 dB(A) adjustment for impulsiveness



<sup>^</sup> Includes a -3 dB(A) adjustment for 50% of children playing at any one time

Results from the environmental noise model are presented in the following Plates and Tables.

Table C2: Receiver point calculations, vehicle movements. Levels are in dB(A)  $L_{eq}$ 



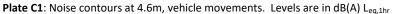




Table C3: Receiver point calculations, vehicle idling. Levels are in dB(A)  $L_{eq,1hr}$ 

# POINT CALCULATIONS Pen3D2000 V 1 9 32 Project Description: Noise assessment of 37/6 Forest Hill Fernvale Road, Fernvale File: D: VIZ Drivel 6512 387/6 Forest Hill Fernvale Road, Fernvale Psubdivision childcare! Model 6512 idling. PEN Thursday 13 Apr. 2023 at 21:31:01 Environmental Calculations All point and line sources included. Line sources Skoise level results incorporate the incoherent ground reflection algorithm Meteorology: Wind speed 0.0 (m/s) Wind direction 0 Mast height 10.0 (m) Temperature 20.0 (C) Temperature Gradient 0.0 (C/100m) Humidity 50.0 (%) Surface Roughness of terrain 0.023000000 (m) Zero plane offset 0.080000000 (m) Receptor X Posn Y Posn Height Ground Noise Level (m) (m) (m) (m) (m) (dB(A)) R1 444555.0 (983381.0 4.6 55.2 32.6 R3 444555.0 (983381.0 4.6 55.2 32.6 R3 444683.0 (983381.0 4.6 55.2 32.6 R5 446483.0 (983381.0 4.6 55.2 37.5 R5 446483.0 (983381.0 4.6 55.2 37.5 R6 446455.0 (983381.0 4.6 55.2 37.5 R6 446458.0 (983381.0 4.6 55.2 37.5 R7 446458.0 (983381.0 4.6 55.2 37.5 R8 446458.0 (983381.0 4.6 57.0 37.9 R8 446452.0 (983380.0 4.6 57.0 32.3 R10 446453.0 (983385.0 4.6 57.0 30.9 R10 446453.0 (983385.0 4.6 57.0 30.9 R10 446453.0 (983385.0 4.6 57.0 30.9 R10 46463.0 (983385.0 4.6 57.0 32.3 R11 46637.0 (985385.0 4.6 57.0 32.3



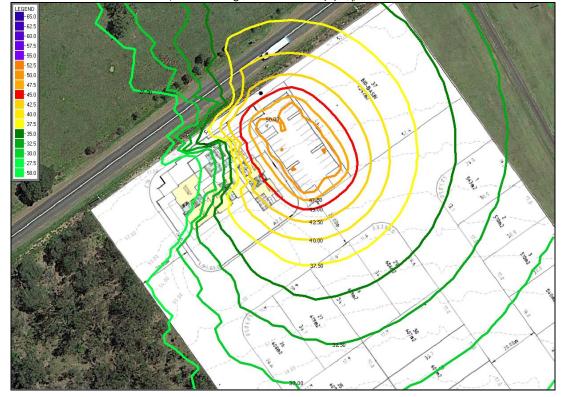


Table C4: Receiver point calculations, car door 'slam'. Levels are in dB(A) L<sub>max</sub>

# POINT CALCULATIONS Pen3D2000 V 1.9.32 Project Code: 3876 Project Description: Noise assessment of 3876 Forest Hill Fernvale Road, Fernvale File:D:\text{\text{\$V\$}} Drive\text{\text{\$P\$}} Dive\text{\text{\$P\$}} Div\text{\text{\$P\$}} Div\text{\t



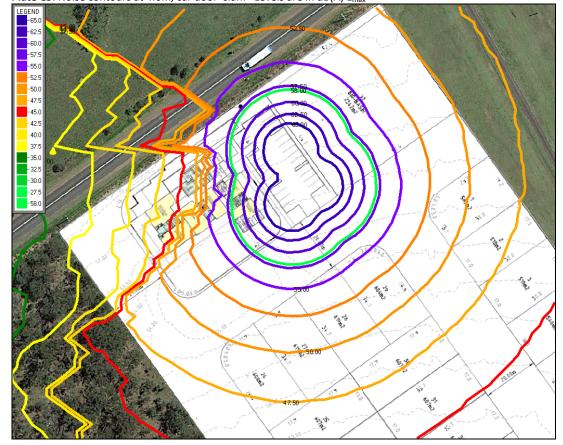
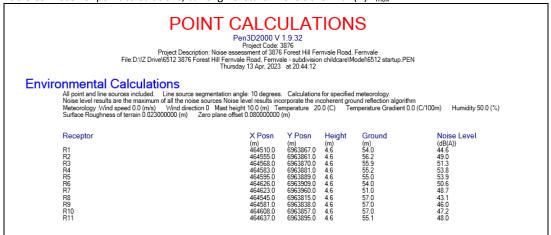
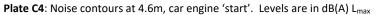


Table C5: Receiver point calculations, car engine 'start'. Levels are in dB(A) L<sub>max</sub>





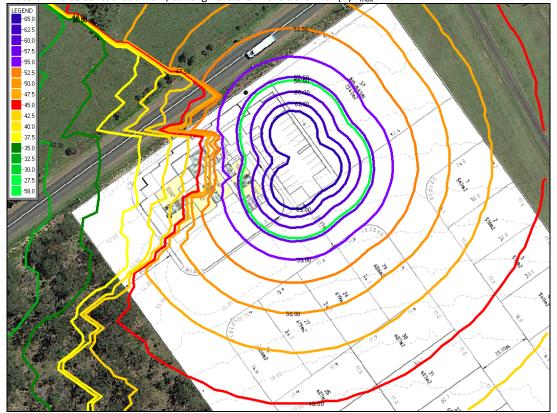
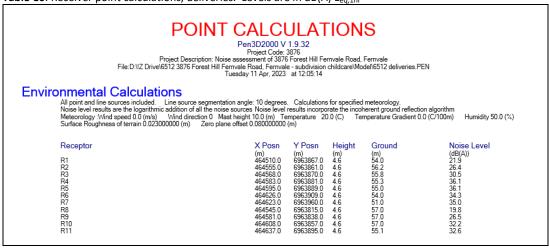


Table C6: Receiver point calculations, deliveries. Levels are in dB(A) Leq,1hr



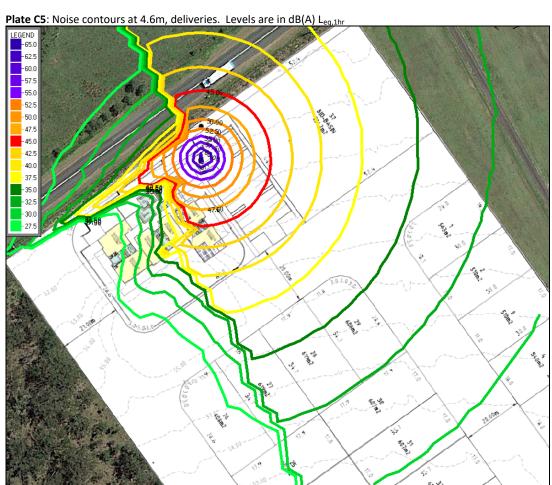
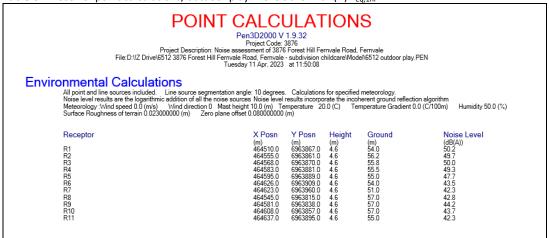
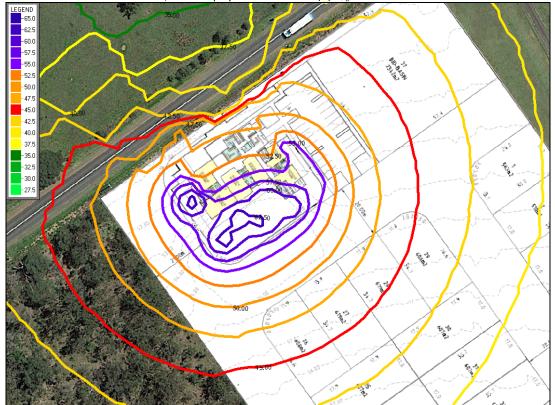


Table C7: Receiver point calculations, outdoor play. Levels are in dB(A) Leq,1hr







# Appendix D: Building Construction - QDC MP4.4

This Annex is based on the building construction guidelines of *Queensland Development Code Mandatory Part* 4.4 – *Buildings in Transport Noise Corridors*. The Code provides information for new houses, townhouses, units, hotel and motels (Class 1-4 buildings) as well as renovations to relevant Class 1-4 buildings to achieve certain levels of noise mitigation through the use of appropriate materials for floors, walls, roofs, windows and doors for the relevant noise category.

#### **SCHEDULE 1**

Noise category	Minimum transport noise reduction (dB(A)) required for habitable rooms	Component of building's external envelope	Minimum R <sub>w</sub> required for each component
		Glazing	43
		External walls	52
Category 4	40	Roof	45
		Floors	51
		Entry doors	35
			38 (where total area of glazing for a habitable room is greater than 1.8m²)
		Glazing	35 (where total area of glazing for a habitable room is less than or equal to 1.8m²)
Category 3	35	External walls	47
		Roof	41
		Floors	45
		Entry doors	33
		Glazing	35 (where total area of glazing for a habitable room is greater than 1.8m²)
			32 (where total area of glazing for a habitable room is less than or equal to 1.8m²)
Category 2	30	External walls	41
		Roof	38
		Floors	45
		Entry doors	33
			27 (where total area of glazing for a habitable room is greater than 1.8m²)
Category 1	25	Glazing	24 (where total area of glazing for a habitable room is less than or equal to 1.8m²)
		External walls	35
		Roof	35
		Entry doors	28
Category 0	No additional acoustic treatment required – standard building assessment provisions apply		

## **SCHEDULE 2**

Component of building's external envelope	Minimum R <sub>w</sub>	Acceptable forms of constructions
	43	Double glazing consisting of two panes of minimum 5mm thick glass with at least 100mm air gap and full perimeter acoustically rated seals.
	38	Minimum 14.38mm thick laminated glass, with full perimeter acoustically rated seals;  OR  Double glazing consisting of one pane of minimum 5mm thick glass and one pane of minimum 6mm thick glass with at least 44mm air gap, and full perimeter acoustically rated seals.
	35	Minimum 10.38mm thick laminated glass, with full perimeter acoustically rated seals.
Glazing	32	Minimum 6.38mm thick laminated glass with full perimeter acoustically rated seals.
	27	Minimum 4mm thick glass with full perimeter acoustically rated seals.
	24	Minimum 4mm thick glass with standard weather seals

Component of building's external envelope	Minimum R <sub>w</sub>	Acceptable forms of constructions
	52	Two leaves of clay brick masonry, at least 270mm in total, with subfloor vents fitted with noise attenuators
External walls	47	Two leaves of clay brick masonry at least 110mm thick with:  (i) Cavity not less than 50mm between leaves; and  (ii) 50mm thick mineral insulation or 50mm thick glass wool insulation with a density of 11kg/m³ or 50mm thick polyester insulation with a density of 20kg/m³ in the cavity.  OR  Two leaves of clay brick masonry at least 110mm thick with:  (i) Cavity not less than 50mm between leaves; and  (ii) At least 13mm thick cement render on each face.  OR  Single leaf of clay brick masonry at least 110mm thick with:  (i) A row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and  (ii) Mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11kg/m³ positioned between studs; and  (iii) One layer of plasterboard at least 13mm thick fixed to outside face of studs.  OR  Single leaf of minimum 150mm thick masonry of hollow, dense concrete blocks, with mortar joints laid to prevent moisture bridging.

Component of building's external envelope	Minimum R <sub>w</sub>	Acceptable forms of constructions
External walls	41	Two leaves of clay brick masonry at least 110mm thick with cavity not less than 50mm between leaves  OR  Single leaf of clay brick masonry at least 110mm thick with:  (i) A row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and  (ii) Mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11kg/m³ positioned between studs; and  (ii) One layer of plasterboard at least 10mm thick fixed to outside face of studs.  OR  Single leaf of brick masonry at least 110mm thick with at least 13mm thick render on each face  OR  Concrete brickwork at least 110mm thick  OR  In-situ concrete at least 100mm thick and without joints.
	35	Single leaf of clay brick masonry at least 110mm thick with:  (i) A row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and  (ii) One layer of plasterboard at least 10mm thick fixed to the outside face of studs  OR  Minimum 6mm thick fibre cement sheeting or weatherboards or plank cladding externally, minimum 90mm deep timber stud or 92mm metal stud, standard plasterboard at least 13mm thick internally.

Component of building's external envelope	Minimum R <sub>w</sub>	Acceptable forms of constructions	
	45	Concrete or terracotta tile or sheet metal roof with sarking, acoustically rated plasterboard ceiling at least 13mm thick fixed to ceiling joists, cellulose fibre insulation at least 100mm thick with a density of at least 45kg/m³ in the cavity  OR  Concrete or terracotta tile or sheet metal roof with sarking, 2 layers of acoustically rated plasterboard at least 16mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m³ or polyester insulation at least 50mm thick with a density of at least 20kg/m³ in the cavity.	
Roof	41	Concrete or terracotta tile or sheet metal roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m³ or polyester insulation at least 50mm thick with a density of at least 20kg/m³ in the cavity  OR  Concrete suspended slab at least 100mm thick.	
	38	Concrete or terracotta tile or sheet metal roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity, mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11kg/m <sup>3</sup>	
	35	Concrete or terracotta tile or metal sheet roof with sarking plasterboard ceiling at least 10mm thick fixed to ceiling cavity	
	51	Concrete slab at least 150mm thick	
Floors	45	Concrete slab at least 100mm thick  OR  Tongued and grooved boards at least 19mm thick with:  (i) Timber joists not less than 175mm x 50mm; and  (ii) Mineral insulation or glass wool insulation at least 75mm thick with a density of at least 11kg/m³ positioned between joists and laid on plasterboard at least 10mm thick fixed to underside of joists; and  (iii) Mineral insulation or glass wool insulation at least 25mm thick with a density of at least 11kg/m³ laid over entire floor, including tops of joists before flooring is laid; and  (iv) Secured to battens at least 75mm x 50mm; and  (v) The assembled flooring laid over the joists, but not fixed to them, with battens lying between the joists.	

Component of building's external envelope	Minimum R <sub>w</sub>	Acceptable forms of constructions
	35	Solid core timber not less than 45mm thick, fixed so as to overlap the frame or rebate of the frame by not less than 10mm, with full perimeter acoustically rated seals.
Entry Doors	33	Fixed so as to overlap the frame or rebate of the frame by not less than 10mm, fitted with full perimeter acoustically rated seals and constructed of:  (i) Solid core wood, particleboard or blockboard not less than 45mm thick; and/or  (ii) Acoustically laminated glass not less than 10.38mm thick
	28	Fixed so as to overlap the frame or rebate of the frame, constructed of:  (i) Wood, particleboard or blockboard not less than 33mm thick; or  (ii) Compressed fibre reinforced sheeting not less than 9mm thick; or  (iii) Other suitable material with a mass per unit area not less than 24.4kg/m², or  (iv) Solid core timber door not less than 35mm thick fitted with full perimeter acoustically rated seals.

Appendix E: Glossary

Event maximum sound pressure level (LA%,adj,T), L01

The L01 level is calculated as the noise level equalled and exceeded for 1% of the measurement time, for example 9 seconds in any 15 minute interval. L01 is an appropriate level to characterise single events, such as

from impulsive or distinctive pass-by noise. In this Report, the measured LO1 levels for day/evening/night are

not averaged but are arranged from low to high in the relevant day/evening/night interval and the value that is

found at the 90th percentile (L10 of L01 sample) in the interval is recorded as its "L01" level. The level can be

adjusted for tonality or impulsiveness.

Average maximum sound pressure level (LA%,adj, T), L10

The "L10" level is an indicator of "steady-state" noise or intrusive noise conditions from traffic, music and other relatively non-impulsive noise sources. The L10 level is calculated as the noise level equalled and exceeded for

10% the measurement time, for example 90 seconds in any 15 minute interval. The measured L10 time-

intervals for day/evening/night are arithmetically averaged to present the "average maximum" levels of the

environment for day/evening/night. The level can be adjusted for tonality or impulsiveness.

Background sound pressure level (LA90,T), L90

Commonly called the "L90" or "background" level and is an indicator of the quietest times of day, evening or night. The L90 level is calculated as the noise level equalled and exceeded for 90% the measurement time. The

measured L90 time-intervals are arithmetically averaged to present the "average background" levels of the

environment for day/evening/night. The level is recorded in the absence of any noise under investigation. The

level is not adjusted for tonality or impulsiveness.

Equivalent Continuous or time average sound pressure level (LAeq,T), Leq

Commonly called the "Leq" level it is the logarithmic average noise level from all sources far and near. The maximum 1-hour levels within the day/evening/night time intervals are referenced for building design. The

level can be adjusted for tonality.

Façade-adjusted level

A sound level that is measured at a distance of 1.0 metre from a wall or facade. The level is nominally 2.5 dB

higher than the free-field level.

Free-field level

A sound level that is measured at a distance of more than 3.5 metres from a wall or facade.

Weighted Sound Reduction Index, Rw

 $A \ single \ number \ value \ used \ to \ compare \ the \ sound \ reduction \ index \ of \ building \ elements. \ Similar \ to \ the \ Sound$ 

Transmission Class (STC) rating that is still in common use. Rw and STC are not identical though may be

considered, for most applications, as being interchangeable. A high Rw indicates high sound reduction.

NME

# FERNVALECHILDCARECENTRE

Statement of Landscape Intent

Prepared For:

HAPPY CAPITAL PTY LTD.



# place design group.

Australia China South East Asia

Follow us on





## placedesigngroup.com

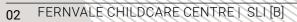
Report title	FERNVALE CHILDCARE CENTRE	
Document number 1621053		
Prepared for	HAPPY CAPITAL PTY LTD	
Authors	MM, DF, FM	
Revision number	В	
Revision issue date	20 February 2023	
Approved	MICHAEL MITCHELL	11.
Reason for revision STATEMENT OF LANDSCAPE IN		

Disclaimer: This report has been prepared in accordance with the scope of services described in the contract or agreement between Place Design Group Pty Ltd ACN 082 370063 and the Client. The report relies upon data, surveys, measurements and results taken at or under the particular times and conditions specified herein. Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the Client. Furthermore, the report has been prepared solely for use by the Client and Place Design Group accepts no responsibility for its use by other parties.

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PLANTING PALETTE - TREES	05
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## **Landscape Statement of Intent**

The landscape intent for the proposed development of the Childcare centre embraces the retention where possible and enhancement of existing amenity planting to support the proposed architectural development while thoughtfully adding additional structured planting to meet the operational requirements of the facility and mitigating negative impacts between the site and adjacent land uses.

## Overall, the Landscape Design shall:

- Contribute positively to the image, identity and overall quality of the Childcare Centre by providing a sensitive and appropriate landscape environment.
- Provide sufficient planting buffers to site boundaries to mitigate noise transmission to neighbouring properties.
- Provide sufficient planting buffers to mitigate the proximity of adjacent road use and to screen western sun.
- Utilise low maintenance, drought tolerant plant species appropriate to the site while encouraging ecological diversity.
- Provide amenity landscape to create a sense of arrival.
- Plant species to be site appropriate, diverse and meet Somerset Regional Council requirements.
- Provide sufficient planting buffers to mitigate the proximity of adjacent road use and bush fire mitigation requirements.
- Ensure a resilient landscape by using evergreen trees with spaces between canopies, limiting shrubs, use of non-organic mulch and reducing combustible materials.

#### **Indicative Character Images**

- 1. Childcare character image only
- 2. Childcare character image only
- 3. Planting and shade trees in car park
- Feature flowering tree Tabebuia pallida + understory planting at arrivals
- 5. Childcare character image only
- 6. Encourage green educational spaces
- 7. Vibrant murals to acoustic wall
- 8. Childcare character image only



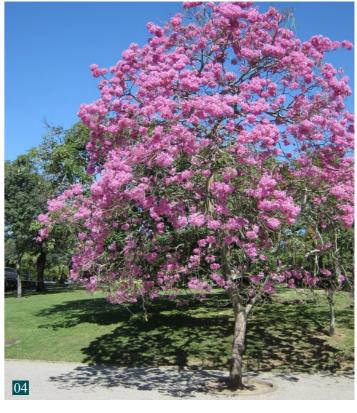
















# LANDSCAPE MASTERPLAN



## LEGEND

- 01 STREET TREES @ NOM. 8m CENTRES.
- 02 LARGE COLUMNAR ENTRY STREET TREES.
- LARGE EVERGREEN CANOPY TREE.
- 3m EVERGREEN PRIVACY SHRUBS.
- 05 1.5m WIDE GARDEN ALONG BOUNDARY.
- MEDIUM FLOWERING AMENITY TREE.
- MEDIUM EVERGREEN AMENITY TREES WITH 2M GAP IN CANOPY FOR BUSHFIRE MITIGATION. LOW GROUNDCOVERS UNDER CANOPY WITH NON-ORGANIC MULCH AND IRRIGATION.
- TURF ACCESS PATH ADJACENT TO CAR PARK.
- 09 SIGNAGE WALL.
- 0 3-5m TREES & SHRUB BUFFER.
- 3m ACOUSTIC WALL.

#### NOTE:

NO TREES & SHRUBS WITH EDIBLE BERRIES OR SPIKES ADJACENT CHILDREN'S PLAYSPACE

### **Bushfire Mitigation Plan - Landscape Requirements:**

 Garden waste and vegetation debris must be removed from proposed lots 10-16 and 200 at regular time intervals during a calendar year and lawn must be maintained at a nominal height of 100 millimetres.

- Thin trees to break the continuity of canopy vegetation.
- Remove dead limbs and branches from individual trees and shrubs.
- Remove low hanging branches from trees.
- Keep the area clear of ground litter and other combustible materials.







# PLANTING PALETTE - TREES

Botanical name	Common name
HARPULLIA pendula	Tulipwood
LOPHOSTEMON confertus	Brush Box
MELICOPE elleryana	Pink Flowered Doughwood
WATERHOUSEA floribunda	Weeping Lilli Pilli
ELAEOCARPUS eumundi	Quandong
TABEBUIA pallida	Pink Trumpet Tree

Bushfire Resilient Tree Species



HARPULLIA pendula Tulipwood



LOPHOSTEMON confertus Tristania Conferta



*MELICOPE elleryana*Pink Flowered Doughwood



WATERHOUSEA floribunda Weeping Lily Pilly



ELAEOCARPUS eumundi Quandong



TABEBUIA pallida 'Pink Trumpet Tree' Pink Trumpet Tree

# PLANTING PALETTE - SHRUB

Botanical name	Common name
LOMANDRA longifolia	Mat-rush
CALLISTEMON viminalis 'Captain Cook'	Captain Cook
FICUS microcarpa 'Green Island'	Green Island
VIBURNUM odoratissimum	Sweet Viburnum
GREVILLEA 'Honey Gem'	Honey Gem
SYZYGIUM cascade	Lilly Pilly
BANKSIA robur	Swamp Banksia

Bushfire Resilient Tree Species



LOMANDRA longifolia Mat-rush



CALLISTEMON viminalis 'Captain Cook' Captain Cook



FICUS microcarpa 'Green Island' Green Island



VIBURNUM odoratissimum Sweet Viburnum



GREVILLEA 'Honey Gem' Honey Gem



SYZYGIUM cascade Lilly Pilly



*BANKSIA robur* Swamp Banksia

GROUNDCOVER TYPE 1 (H=0.25m~0.5m)

TRACHELOSPERMUM jasminoides 'Tricolour' Star Jasmine



WESTRINGIA fruticosa 'Mundi' Coastal Rosemary



DIANELLA caerulea 'Little Jess' Little Jess



JUNCUS nodosus Knotted Rush



HARDENBERGIA violacea False Sarsaparilla



LIRIOPE muscari 'Evergreen Giant' Big Blue Lilyturf



THEMEDA triandra Kangaroo Grass



HYMENOCALLIS littoralis Spider Lily



PHILODENDRON xanadu Xanandu

# PLANTING PALETTE - GROUNDCOVER

Botanical name	Common name
TRACHELOSPERMUM jasminoides 'Tricolour'	Star Jasmine
WESTRINGIA fruticosa 'Mundi'	Coastal Rosemary
DIANELLA caerulea 'Little Jess'	Little Jess
JUNCUS nodosus	Knotted Rush
HARDENBERGIA violacea	False Sarsaparilla
LIRIOPE muscari 'Evergreen Giant'	Big Blue Lilyturf
THEMEDA triandra	Kangaroo Grass
HYMENOCALLIS littoralis	Spider Lily
PHILODENDRON xanadu	Xanandu

Bushfire Resilient Tree Species



GROUNDCOVER TYPE 2 (H=1m~1.5m)



RA6-N



SARA reference: 2211-31841 SRA

Council reference: DA23095 Applicant reference: 1621053

22 March 2023

Chief Executive Officer Somerset Regional Council PO Box 117 ESK QLD 4312 mail@somerset.qld.gov.au

Attention: Mark Westaway

Dear Mr Westaway

# SARA referral agency response—3876 Forest Hill Fernvale Road, Fernvale

(Referral agency response given under section 56 of the Planning Act 2016)

The development application described below was confirmed as properly referred by the State Assessment and Referral Agency (SARA) on 8 November 2022.

## Response

Outcome: Referral agency response – with conditions

Date of response: 22 March 2023

Conditions: The conditions in **Attachment 1** must be attached to any

development approval

Advice: Advice to the applicant is in **Attachment 2** 

Reasons: The reasons for the referral agency response are in **Attachment 3** 

# **Development details**

Description: Development permit Reconfiguring a lot – 1 lot into 37 lots and

roads and drainage lot

Development permit Material change of use – Child care centre

SARA role: Referral agency

SARA trigger: Schedule 10, part 9, division 4, subdivision 2, table 1, item 1 (Planning

Regulation 2017) - Reconfiguring a lot near a state transport corridor

Schedule 10, part 9, division 4, subdivision 2, table 4, item 1 (Planning Regulation 2017) – Development near a state transport corridor or that

is a future state transport corridor

SARA reference: 2211-31841 SRA

Assessment manager: Somerset Regional Council

Street address: 3876 Forest Hill Fernvale Road, Fernvale

Real property description: Lot 222 on CC572

Applicant name: Happy Capital Pty Ltd C/- Place Design Group

Applicant contact details: Level 9, Seabank, 12-14 Marine Parade

Southport QLD 4215

avishek.p@placedesigngroup.com

State-controlled road access

permit:

This referral included an application for a road access location, under section 62A(2) of *Transport Infrastructure Act 1994*. Below are the

details of the decision:

Approved

Reference: TMR22-037906

• Date: 16 March 2023

A copy is in **Attachment 5**. If you are seeking further information on the road access permit, please contact the Department of Transport

and Main Roads at North.Coast.IDAS@tmr.qld.gov.au

Human Rights Act 2019

considerations:

Consideration of the *Human Rights Act 2019* sections 15 to 35 has been undertaken as part of this decision. It has been determined that

this decision does not limit human rights.

# Representations

An applicant may make representations to a concurrence agency, at any time before the application is decided, about changing a matter in the referral agency response (section 30 of the Development Assessment Rules). Copies of the relevant provisions are in **Attachment 4**.

A copy of this response has been sent to the applicant for their information.

For further information please contact Stephanie Brannock, Planning Officer, on (07) 3432 2414 or via email IpswichSARA@dsdilgp.qld.gov.au who will be pleased to assist.

Yours sincerely

Kieran Hanna A/Manager

enc Attachment 1 - Referral agency conditions

Attachment 2 - Advice to the applicant

Attachment 3 - Reasons for referral agency response

Mar

- Attachment 4 Representations about a referral agency response provisions Attachment 5 Documents referenced in conditions
- cc Happy Capital Pty Ltd C/- Place Design Group, avishek.p@placedesigngroup.com

# Attachment 1—Referral agency conditions

(Under section 56(1)(b)(i) of the *Planning Act 2016* the following conditions must be attached to any development approval relating to this application) (Copies of the documents referenced below are found at **Attachment 5**)

No. **Conditions Condition timing** Development permit for Reconfiguring a lot - one lot into 37 lots, and roads and drainage lots Schedule 10, part 9, division 4, subdivision 2, table 1, item 1 (Planning Regulation 2017) - The chief executive administering the Planning Act 2016 nominates the Director-General of Department of Transport and Main Roads to be the enforcement authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following condition(s): 1. (a) The road access intersection location, is to be located generally (a) in accordance with Proposed Layout, prepared by Burchills At all times Engineering Solutions, dated 7 February 2023 reference BE220259-SK007 as amended in red by SARA on 22 March (b) and (c): Prior to submitting the Plan of Survey to the (b) Road access works must be provided at the road access local government for intersection location, generally in accordance with Proposed approval Layout, prepared by Burchills Engineering Solutions, dated 7 February 2023 reference BE220259-SK007 as amended in red by SARA on 22 March 2023, comprising: Provide a short channelised right turn treatment and short auxiliary left turn treatment. (c) The road access works must be designed and constructed in accordance with the Department of Transport Road Planning and Design Manual (2nd edition). 2. (a) The existing vehicular property access located between Lot 222 (a) and (b) on CC572 and Forest Hill - Fernvale Road must be permanently Prior to submitting the closed and removed. Plan of Survey to the local government for (b) The table drain and verge between the pavement edge and the approval property boundary must be reinstated in accordance with the Department of Transport and Main Roads' Road Planning and Design Manual, 2nd Edition and local government standards and specifications at no cost to the Department of Transport and Main Roads. 3. Any roadworks in Forest Hill Fernvale Road must be designed and Prior to submitting the constructed to be in accordance with the following to accommodate a Plan of Survey to the single unit rigid bus of 14.5m in length: local government for Department of Transport and Main Roads Road Planning approval and Design Manual, 2nd Edition, Volume 3 – Guide to Road Department of Transport and Main Roads Supplement to Austroads Guide to Road Design (Parts 3, 4-4C and 6); Austroads Guide to Road Design (Parts 3, 4-4C and 6); Austroads Design Vehicles and Turning Path Templates; Queensland Manual of Uniform Traffic Control Devices, Part

No.	Conditions	Condition timing	
	<ul> <li>13: Local Area Traffic Management and AS 1742.13-2009         Manual of Uniform Traffic Control Devices – Local Area         Traffic Management; and</li> <li>Chapter 2 - Planning and Design, Section 2.3.2 Bus Route         Infrastructure (page 6) of the Department of Transport and         Main Roads Public Transport Infrastructure Manual 2015.</li> </ul>		
4.	(a) Any bus stop pair must be located, including tapers and associated hardstand, generally in accordance with the Site Layout Plan prepared by Burchills Engineering Solutions, dated 10 February 2023, drawing number C100, version B as amended in red by SARA on 22 March 2022.	(a) and (b) Prior to submitting the Plan of Survey to the local government for approval	
	<ul> <li>(b) Each bus stop identified in part (a) of this condition must be designed and constructed in accordance with the <i>Disability Standards for Accessible Public Transport 2002</i> made under subsection 31(1) of the <i>Disability Discrimination Act 1992</i> and include the following components in accordance with the Department of Transport and Main Roads' TransLink <i>Public Transport Infrastructure Manual 2015</i>: <ul> <li>all mandatory bus stop components for a 'regular stop' detailed in Section 5.7 - 'Bus stop components' (pages 30-41) of Chapter 5 - 'Bus stop infrastructure';</li> <li>a J pole sign with timetable case in accordance with Figure 5.11 - 'Bus stop identification markers' (page 50) and Table 5.9 - 'Stop signage/stop marker' (page 35) of Chapter 5 - 'Bus stop infrastructure', and Sign Type IS-10b 'Bus Stop - J Pole Sign (TransLink)' and 'IS-10e - A3 Timetable Case' (sections 4.27.1 - 4.28) of the <i>Signage Manual - Bus Network Infrastructure</i>, TransLink Division, Department of Transport and Main Roads, June 2021;</li> <li>an indented bus zone to accommodate a single unit rigid bus of 14.5m in length in accordance with Section 5.6.3.1 - 'Bus stop length requirements', Table 5.7: 'Minimum bus stop length requirements' (pages 28-29) and Table 5-4: 'Bus stop arrangements' (bus bay width a minimum of 3m excluding cycle lanes and tapers for the speed environment) of Chapter 5 - 'Bus stop infrastructure';</li> <li>hardstand and access in accordance with 'Regular Stop - Site Layout - With Indented Bus Bay', DRG 5-0014 of Appendix 5-B - 'Layout and technical drawings'; and</li> <li>bus zone signs R5-20 at either end of the bus zone and pavement marking in accordance with AS1742.11 - <i>Manual of uniform traffic control devices, Part 11: Parking controls</i>.</li> </ul> </li> <li>RPEQ certification with supporting documentation must be provided to North Coast Region (North.Coast.IDAS@tmr.qld.gov.au), within the Department of Transport and Main Roads, confirming that the development has been constructed in accordance w</li></ul>		

No.	Conditions	Condition timing	
5.	(a) Any pedestrian crossing must be located, including kerb ramps, traffic island and pathway connections generally in accordance with the Site Layout Plan prepared by Burchills Engineering Solutions, dated 10 February 2023, drawing number C100, version B as amended in red by SARA on 22 March 2023.	(a) and (b) Prior to submitting the Plan of Survey to the local government for approval	
	<ul> <li>(b) The pedestrian crossing in part (a) of this condition must be designed and constructed in accordance with:</li> <li>Queensland Manual of Uniform Traffic Control Devices - Part 10: Pedestrian control and protection; and AS 1742.10-2009 - Manual of Uniform Traffic Control Devices - Part 10: Pedestrian control and protection.</li> </ul>		
7.	<ul> <li>(a) Stormwater management of the development must not cause worsening to the operating performance of the state-controlled road, such that any stormwater works must not: <ol> <li>create any new discharge points for stormwater runoff onto the state-controlled road;</li> <li>concentrate or increase the velocity of flows to the state-controlled road;</li> <li>interfere with and/or cause damage to the existing stormwater drainage on the state-controlled road</li> <li>surcharge any existing culvert or drain on the state-controlled road;</li> <li>reduce the quality of stormwater discharge onto the state-controlled road;</li> <li>impede or interfere with any overland flow or hydraulic conveyance from the state-controlled road; and</li> <li>reduce the floodplain immunity of the insert state transport corridor mode.</li> </ol> </li> <li>(b) Submit RPEQ certification with supporting documentation to North Coast Region via North.Coast.IDAS@tmr.qld.gov.au within the within the Department of Transport and Main Roads, confirming that the development has been designed in accordance with part (a) of this condition.</li> <li>(c) Submit RPEQ certification with supporting documentation to North Coast Region via North.Coast.IDAS@tmr.qld.gov.au within the Department of Transport and Main Roads, confirming that the development has been constructed in accordance with parts (a) and (b) of this condition.</li> <li>The stormwater discharge to the state-controlled road must be provided generally in accordance with the following plan: <ul> <li>Basin Layout Plan prepared by Burchills Engineering Solutions dated 10 February 2023, reference C300, revision B, as amended in red by SARA on 22 March 2023 to limit the</li> </ul> </li> </ul>	(a) At all times  (b) Prior to obtaining development approval for operational work  (c) Within 20 business days of the completion of works	
8.	discharge to 460 litres per second (0.46cumecs) with an outlet pipe size no greater than 450 diameter.  (a) Any excavation, filling/backfilling/compaction, retaining	(a)	
	, , , , , , , , , , , , , , , , , , , ,	<u>  ` '</u>	

No.	Conditions	Condition timing
	structures, Stormwater Management measures, batters, road works and other works involving ground disturbance must not encroach or de-stabilise the state-controlled road & busway or cause similar adverse impacts.  (b) RPEQ certification with supporting documentation must be provided to North Coast Region via North.Coast.IDAS@tmr.qld.gov.au within the Department of Transport and Main Roads, confirming that the development has been designed and constructed in accordance with part (a) of this condition.	At all times.  (b) Prior to submitting the Plan of Survey to the local government for approval
Deve	lopment permit for Material change of use – Child Care Centre	
execu Trans devel	dule 10, part 9, division 4, subdivision 2, table 4, item 1 (Planning Regula ative administering the <i>Planning Act 2016</i> nominates the Director-General aport and Main Roads to be the enforcement authority for the development approval relates for the administration and enforcement of any ming condition(s):	I of Department of nt to which this
9.	Direct access is not permitted between Forest Hill Fernvale Road and the subject site.	At all times
10.	<ul> <li>(a) Carry out the development generally in accordance with the report Noise Assessment Report, prepared by Noise Measurement Services dated 22nd February 2023, reference 6512R1 revision 1 as amended in red by SARA on 22 March 2023. In particular – <ol> <li>(i) Construct a 2 metre high noise barrier in the location shown on Plate 9: Showing the location of recommended 2m high acoustic fencing (in red); and</li> <li>(ii) Construct the indoor education &amp; sleeping areas in accordance with section 4.2.2 Internal Criteria.</li> <li>(b) The noise barrier must be designed in accordance with: <ol> <li>(i) the Department of Transport and Main Roads' Road Traffic Noise Management Code of Practice, Chapter 5 Specifications MRS15 and MRTS15.</li> </ol> </li> <li>(c) Submit RPEQ certification with supporting documentation to North Coast Region via North.Coast.IDAS@tmr.qld.gov.au within the Department of Transport and Main Roads, confirming that the development has been constructed in accordance with parts (a) and (b) of this condition.</li> </ol></li></ul>	(a) - (c) Prior to the commencement of use and to be maintained at all times
11.	<ul> <li>(a) Stormwater management of the development must not cause worsening to the operating performance of the state-controlled road, such that any stormwater works must not: <ul> <li>(i). create any new discharge points for stormwater runoff onto the state-controlled road;</li> <li>(ii). concentrate or increase the velocity of flows to the state-controlled road</li> <li>(iii). interfere with and/or cause damage to the existing</li> </ul> </li> </ul>	(a) At all times  (b) Prior to obtaining development approval for operational work

No.	Conditio	ns	Condition timing
	(iv). (v). (vi). (vii).	stormwater drainage on the state-controlled road surcharge any existing culvert or drain on the state-controlled road reduce the quality of stormwater discharge onto the state-controlled road impede or interfere with any overland flow or hydraulic conveyance from the state-controlled road reduce the floodplain immunity of the insert state transport corridor mode.	(c) Within 20 business days of the completion of works
	(b) Subn North the w confii		
	North withi that	mit RPEQ certification with supporting documentation to h Coast Region via North.Coast.IDAS@tmr.qld.gov.au n the Department of Transport and Main Roads, confirming the development has been constructed in accordance with s (a) and (b) of this condition.	
12.	The stormwater discharge to the state-controlled road must be provided generally in accordance with the following plan:  • Basin Layout Plan prepared by Burchills Engineering Solutions dated 10 February 2023, reference C300, revision B, as amended in red by SARA on 23 March 2023 to limit the discharge to 460 litres per second (0.46cumecs) with an outlet pipe size no greater than 450 diameter.		
13.	struc work encre	excavation, filling/backfilling/compaction, retaining tures, Stormwater Management measures, batters, road is and other works involving ground disturbance must not each or de-stabilise the state-controlled road & busway or e similar adverse impacts.	(a) At all times (b) Prior to submitting the Plan of Survey to the
	provi North Trans been	Q certification with supporting documentation must be ded to North Coast Region via n.Coast.IDAS@tmr.qld.gov.au within the Department of sport and Main Roads, confirming that the development has designed and constructed in accordance with part (a) of condition.	local government for approval.

# Attachment 2—Advice to the applicant

#### General advice

- 1. Terms and phrases used in this document are defined in the *Planning Act 2016*, its regulation or the State Development Assessment Provisions (SDAP) (version 3.0). If a word remains undefined it has its ordinary meaning.
- 2. **Advertising Devices**: Advertising devices have the potential to cause unsafe distraction, glare or other nuisance to drivers, which affects safety on the sate-controlled road. Any proposed advertising devices are to be in accordance with the Department of Transport and Main Roads' *Roadside Advertising Manual 2017*. Any advertising device at this location:
  - Must not exceed a maximum luminance of 300cd/m²
  - Must be placed within the subject site, clear of the state-controlled road reserve (without overhang).
  - Must not contain a variable message component.

Further information on the Department of Transport and Main Roads' *Roadside Advertising Manual 2017* can be found at the following link: <a href="https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Roadside-advertising-manual">https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Roadside-advertising-manual</a>.

## 3. New Bus Stop Pair

It is recommended that you consult with the Department of Transport and Main Roads' TransLink Division about the detailed design of the new bus stop pair before commencing any works, to ensure compliance with the above conditions.

The TransLink Division can be contacted on telephone number (07) 3851 8700 or at <a href="mailto:bus\_stops@translink.com.au.">bus\_stops@translink.com.au.</a>

The bus stops should be in accordance with the Department of Transport and Main Roads, TransLink *Public Transport Infrastructure Manual May (PTIM) 2015* and *Signage Manual Bus Network Transport Infrastructure* are available at: Reports & publications | translink.com.au.

#### 4. Construction management – bus route

Roadworks in Forest Hill Fernvale Road may impact on urban bus routes. Accordingly, if any temporary bus route arrangements are required, the applicant must reach agreement on suitable arrangements with the Department of Transport and Main Roads' TransLink Division (bus\_stops@translink.com.au\_or on 3851 8700) prior to any construction or works commencing.

- 5. Road works approval: Under section 33 of the *Transport Infrastructure Act 1994*, written approval is required from the Department of Transport and Main Roads to carry out road works on a state-controlled road. Please contact the Department of Transport and Main Roads' on North.Coast.IDAS@tmr.qld.gov.au with the completed application form and supporting information to make an application for road works approval. This approval must be obtained prior to commencing any works on the state-controlled road reserve. The approval process may require the approval of engineering designs of the proposed works, certified by a Registered Professional Engineer of Queensland (RPEQ). Please contact the Department of Transport and Main Roads' as soon as possible to ensure that gaining approval does not delay construction. Further information on applying for road works approval is available here: <a href="https://www.tmr.qld.gov.au/Community-and-environment/Planning-and-development/Other-matters-requiring-approval#roadworks">https://www.tmr.qld.gov.au/Community-and-environment/Planning-and-development/Other-matters-requiring-approval#roadworks</a>
- 6. **Public utility works and connection approval:** The applicant is advised that if any works and/or connections are required to public utility services within a State-controlled road corridor, approval must be given by the Department of Transport and Main Roads under the relevant

public utility legislation (electricity, water/sewer, telecommunication), and in accordance with TMR technical standards (TN163). Approvals must be obtained prior to commencing any utility works within the state-controlled road corridor. Please contact the public utility team via <a href="mailto:northcoast@tmr.qld.gov.au">northcoast@tmr.qld.gov.au</a> for further information on the application and approval process.

# Attachment 3—Reasons for referral agency response

(Given under section 56(7) of the *Planning Act 2016*)

#### The reasons for the SARA's decision are:

The development complies with State code 1: Development in a state-controlled road environment of the SDAP, subject to conditions. Specifically, development:

- does not increase the likelihood or frequency of accidents, fatalities or serious injury for users of a state-controlled road
- does not adversely impact the structural integrity or physical condition of state-controlled roads, road transport infrastructure, public passenger transport infrastructure or active transport infrastructure
- does not adversely impact the function and efficiency of state-controlled roads or future statecontrolled roads
- does not adversely impact the state's ability to plan, construct, maintain, upgrade or operate statecontrolled roads, future state-controlled roads or road transport infrastructure
- does not significantly increase the cost to the state to plan, construct, upgrade or maintain statecontrolled roads, future state-controlled roads or road transport infrastructure
- maintains or improves access to public passenger transport infrastructure or active transport infrastructure
- does not adversely impact the state's ability to operate public passenger services on state-controlled roads
- protects community amenity from significant adverse impacts of environmental emissions generated by road transport infrastructure or vehicles using state-controlled roads.

#### Material used in the assessment of the application:

- the development application material and submitted plans
- Planning Act 2016
- Planning Regulation 2017
- the SDAP (version 3.0), as published by SARA
- the Development Assessment Rules
- SARA DA Mapping system
- section 58 of the Human Rights Act 2019

# Attachment 4—Representations about a referral agency response provisions

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# Attachment 5—Documents referenced in conditions

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# Development Assessment Rules—Representations about a referral agency response

The following provisions are those set out in sections 28 and 30 of the Development Assessment Rules¹ regarding representations about a referral agency response

# Part 6: Changes to the application and referral agency responses

### 28 Concurrence agency changes its response or gives a late response

- 28.1. Despite part 2, a concurrence agency may, after its referral agency assessment period and any further period agreed ends, change its referral agency response or give a late referral agency response before the application is decided, subject to section 28.2 and 28.3.
- 28.2. A concurrence agency may change its referral agency response at any time before the application is decided if—
  - (a) the change is in response to a change which the assessment manager is satisfied is a change under section 26.1; or
  - (b) the Minister has given the concurrence agency a direction under section 99 of the Act; or
  - (c) the applicant has given written agreement to the change to the referral agency response.2
- 28.3. A concurrence agency may give a late referral agency response before the application is decided, if the applicant has given written agreement to the late referral agency response.
- 28.4. If a concurrence agency proposes to change its referral agency response under section 28.2(a), the concurrence agency must—
  - (a) give notice of its intention to change its referral agency response to the assessment manager and a copy to the applicant within 5 days of receiving notice of the change under section 25.1;
     and
  - (b) the concurrence agency has 10 days from the day of giving notice under paragraph (a), or a further period agreed between the applicant and the concurrence agency, to give an amended referral agency response to the assessment manager and a copy to the applicant.

Pursuant to Section 68 of the *Planning Act 2016* 

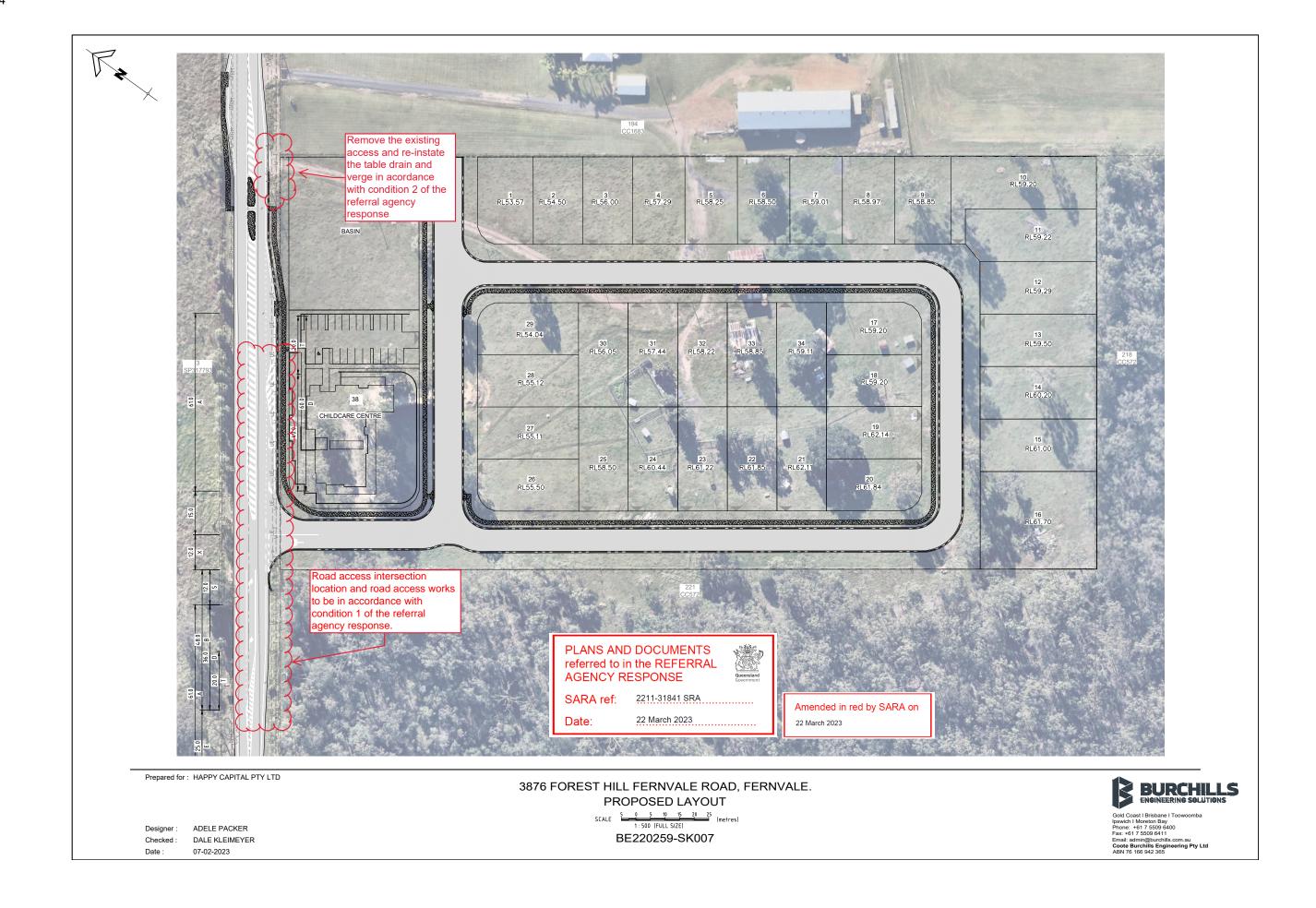
In the instance an applicant has made representations to the concurrence agency under section 30, and the concurrence agency agrees to make the change included in the representations, section 28.2(c) is taken to have been satisfied.

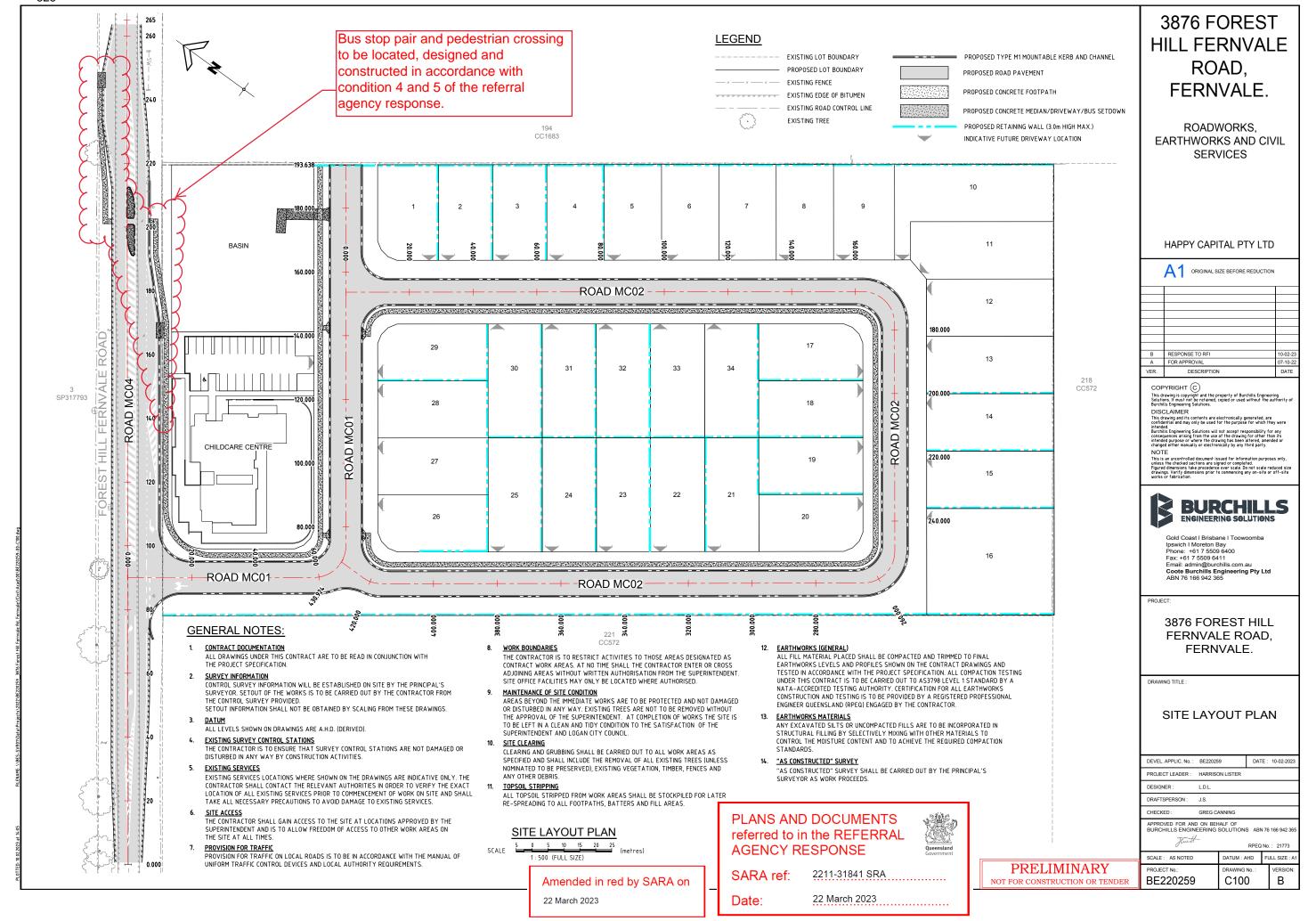
# Part 7: Miscellaneous

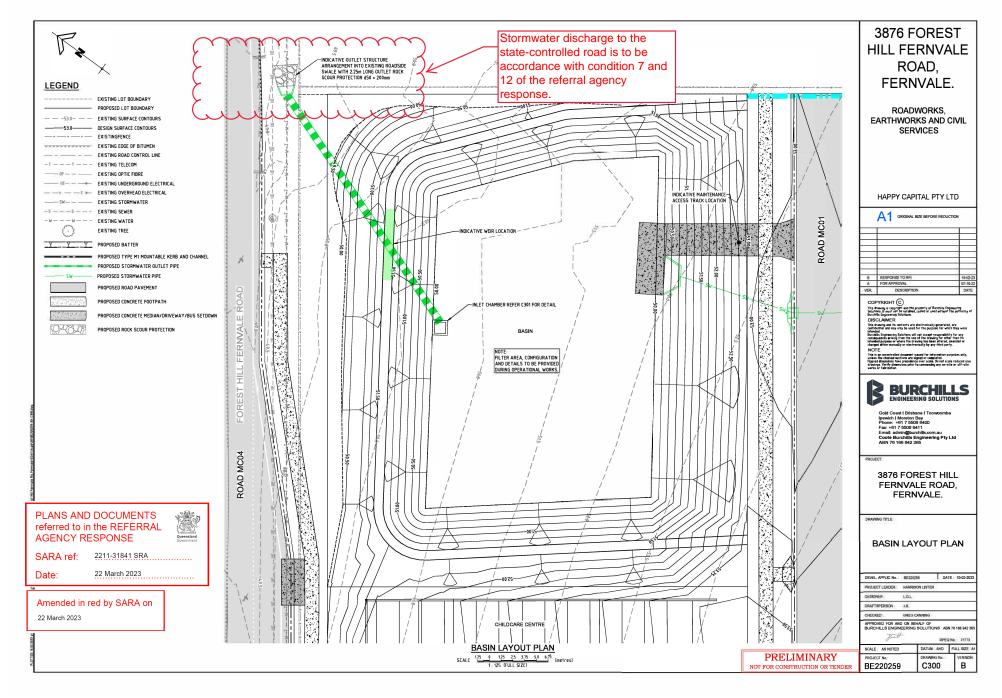
# 30 Representations about a referral agency response

30.1. An applicant may make representations to a concurrence agency at any time before the application is decided, about changing a matter in the referral agency response.<sup>3</sup>

An applicant may elect, under section 32, to stop the assessment manager's decision period in which to take this action. If a concurrence agency wishes to amend their response in relation to representations made under this section, they must do so in accordance with section 28.







NOISE MEASUREMENT SERVICES

#### **Noise Assessment Report**

Proposed Residential Subdivision & Child Care Centre 3876 Forest Hill Fernvale Road

Fernvale, QLD 4036 (Lot 222 on CC572)

Report No 6512R1

22<sup>nd</sup> February 2023



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Revision No	Issue Date	Revision Description	Author	Review
0	14/10/2022	Report	GR	MT
1	22/02/2023	New development plans	GR	

Copy No(s)	Rev No	Destination
1 pdf	1	Place Design Group
2	1	Noise Measurement Services

REPORT FOR Place Design Group on behalf of Happy Capital Pty Ltd

CONTACT Avishek Paul, Place Design Group

Signed

Max Thorne Director - NMS

lulem

#### DISCLAIMER

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# **Executive Summary**

This Report is in response to a request from Place Design Group for a noise impact assessment of a proposed residential subdivision and childcare centre at 3876 Forest Hill Fernvale Road, Fernvale (Lot 222 on CC572). The site is within an Emerging Community Zone, and is within the gazetted *Transport Noise Corridor* for Forest Hill Fernvale Road. The proposal is to subdivide the site into 36 residential lots, and one lot for child care activities. The purpose of this Report is to assess road traffic noise impacts from the adjacent state controlled transport infrastructure onto future noise sensitive uses, and to assess potential noise impacts from child care activities onto future residential development. The following Standards and policy documents are referenced:

- Somerset Region Planning Scheme v4.2
- State Development Assessment Provisions v3.0
- Queensland Development Code Mandatory Part 4.4
- Environmental Protection Act 1994
- Environmental Protection (Noise) Policy 2019
- Education and Care Services National Regulations
- Australian Standard AS1055:2018 Acoustics: Description and measurement of environmental noise
- Australian Standard AS3671:1989 Acoustics: Road traffic noise intrusion Building siting and construction

#### Conclusions

#### It is concluded that-

- Subject to the considerations and recommendations as presented in this Report, it is the opinion of
  this consultancy that the proposed residential subdivision and childcare centre can meet the
  requirements of Somerset Regional Council.
- Subject to provision of the recommended 2m acoustic fencing and acoustic treatment to the building
  envelope, road traffic noise is forecast to meet the indoor and outdoor SDAP criteria at all noise
  sensitive locations.
- The SDAP façade criterion is forecast to be exceeded assuming 2m, 3m or 3.5m fencing along the north-western boundary. As the development can meet both indoor and outdoor criteria, it is concluded that 2m high fencing appropriately mitigates road traffic noise intrusion.
- Future residential development on proposed Lot 1, Lot 27, Lot 28 & Lot 29 will fall within the gazetted
   *Transport Noise Corridor* for Forest Hill Fernvale Road, and will be subject to design requirements
   under the *Queensland Development Code Mandatory Part 4.4*. Future dwellings on the remaining
   lots will fall outside of the *Transport Noise Corridor*.
- Noise emissions from childcare activity are forecast to meet criteria at all future neighbouring residential developments.
- The precise type and siting of air conditioning plant has not been determined at this stage. Detailed
  plant noise assessment can be conducted if required at the Building Approval stage, although the
  relevant criterion is considered to be readily achievable through appropriate plant selection and
  siting.

### Recommendations

#### It is recommended that:

- 2m high (54.5m RL) acoustic fencing be provided as presented in **Plate ES1** below. To effectively function as an acoustic barrier, fencing should be continuous and gap-free, with a density of not less than 12.5 kg/m<sup>2</sup>.
- The childcare building be constructed to not less than the acoustic treatments presented in Table ES1
  below. It is further recommended that calculations be confirmed at the Building Approval stage once
  architectural plans have been finalized.
- Residential development upon future Lot 1, Lot 26, Lot 27, Lot 28 & Lot 29 be constructed in accordance with QDC MP4.4 Noise Category 1.
- Use of the outdoor play areas of the childcare centre be limited to the hours of 7am to 6pm.



Table ES: Showing AS3671 calculations and recommended Rw ratings

STC Child C	are Centre			TNR is L	.eq faça	de corrected m	aximum 1-hr L	eq vs indoo	r maxim	um SC	AP		
JOB:	6512R1			TNAc is the traffic noise attenuation required of the component									
Project:	rest Hill Fernvale Road	, Fernvale		"6" is the approximate allowance for the traffic noise spectrum									
Date:	22/02/2023			TNAc = T	NR + 10	Log10[(Sc/Sf) x	(3/H) x 2T60 xC]						
				Rw = TN	Ac + 6								
Room	Element	Facing	Ext Leq	SDAP	TNR	Category	⊟ement (Sc)	Hoor (Sf)	Height	RT60	С	TNAc	Calc
			dB(A)	criteria			area	area	(m)	(s)			Rw
Room 1	Sliding Door	NE	62	35	27.3	Category 3	8.4	35	2.7	0.5	3	26.33	32
Room 1	Wall	NE	62	35	27.3	Category 3	10.5	35	2.7	0.5	3	27.30	33
Room 1	Roof	-	62	35	27.3	Category 3	35.0	35	2.7	0.5	3	32.53	39
Room 2	Sliding Door	NE	60	60.3	0.0	Category 1	8.4	42	2.7	0.5	3	-1.76	4
Room 2	Wall	NE	60	60.3	0.0	Category 1	9.0	42	2.7	0.5	3	-1.46	5
Room 2	Window	sw	57	35	22.0	Category 2	1.6	42	2.7	0.5	3	13.09	19
Room 2	Wall	sw	57	35	22.0	Category 2	8.3	42	2.7	0.5	3	20.19	26
Room 2	Roof	-	60	35	25.3	Category 2	42.0	42	2.7	0.5	3	30.53	37
Sleep	Window	SE	57	35	21.6	Category 2	1.8	22	2.7	0.5	3	15.96	22
Sleep	Wall	SE	57	35	21,6	Category 2	10.8	22	2.7	0.5	3	23.74	30
Sleep	Window	sw	57	35	21.7	Category 2	1.8	22	2.7	0.5	3	16.06	22
Sleep	Wall	sw	57	35	21.7	Category 2	14.4	22	2.7	0.5	3	25.09	31
Sleep	Roof	-	57	35	21.7	Category 2	22.0	22	2.7	0.5	3	26.93	33
Room 3	Sliding Door	56,30	56	35	21.3	Category 2	8.4	52	2.7	0.5	3	18,61	25
Room 3	Wall	56.3	56	35	21.3	Category 2	13.2	52	2.7	0.5	3	20.57	27
Room 3	Roof	56.3	56	35	21.3	Category 2	52.0	52	2.7	0.5	3	26.53	33
Room 4	Glazing	SE	57	35	22.1	Category 2	10.0	68	2.7	0.5	3	19.00	25
Room 4	Wall	SE	57	35	22.1	Category 2	8.9	68	2.7	0.5	3	18.50	24
Room 4	Roof	-	57	35	22.1	Category 2	68.0	68	2.7	0.5	3	27.33	33
Room 5	Glazing	sw	60	35	25.2	Category 2	15.1	78	2.7	0.5	3	23,30	29
Room 5	Wall	sw	60	35	25.2	Category 2	7.1	78	2.7	0.5	3	20.02	26
Room 5	Windows	NW	61	35	26.2	Category 3	14.4	78	2.7	0.5	3	24.09	30
Room 5	Wall	NW	61	35	26.2	Category 3	20.1	78	2.7	0.5	3	25.54	32
Room 5	Roof	-	61	35	26.2	Category 3	78.0	78	2.7	0.5	3	31.43	37
Room 6	Windows	SE	57	35	22.4	Category 2	9.7	72	2.7	0.5	3	18.92	25
Room 6	Wall	SE	57	35	22.4	Category 2	24.8	72	2.7	0.5	3	23.00	29
Room 6	Sliding Door	sw	62	35	26.5	Category 3	8.4	72	2.7	0.5	3	22.40	28
Room 6	Wall	sw	62	35	26.5	Category 3	11.1	72	2.7	0.5	3	23.61	30
Room 6	Roof	_	62	35	26.5	Category 3	72.0	72	2.7	0.5	3	31.73	38

## 1. Introduction

This Report is in response to a request from Place Design Group for a noise impact assessment of a proposed residential subdivision and childcare centre at 3876 Forest Hill Fernvale Road, Fernvale (Lot 222 on CC572). The site is within an Emerging Community Zone, and is within the gazetted *Transport Noise Corridor* for Forest Hill Fernvale Road. The proposal is to subdivide the site into 36 residential lots, and one lot for childcare activities. The purpose of this Report is to assess road traffic noise impacts from the adjacent state controlled transport infrastructure onto future noise sensitive uses, and to assess potential noise impacts from child care activities onto future residential development. The following Standards and policy documents are referenced:

- Somerset Region Planning Scheme v4.2
- State Development Assessment Provisions v3.0
- Queensland Development Code Mandatory Part 4.4
- Environmental Protection Act 1994
- Environmental Protection (Noise) Policy 2019
- Education and Care Services National Regulations
- Australian Standard AS1055:2018 Acoustics: Description and measurement of environmental noise
- Australian Standard AS3671:1989 Acoustics: Road traffic noise intrusion Building siting and construction

### 1.1 Development Site and Locale

The locality and development design are presented below. Further plans are set out in **Appendix A**, while terms and definitions used in this report are presented in **Appendix E**.



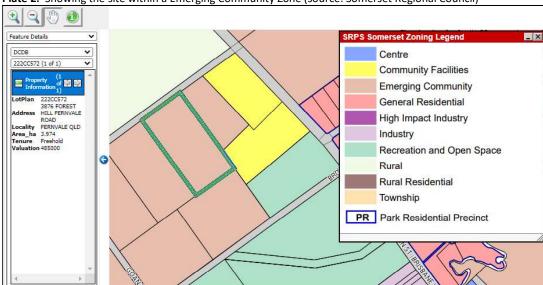
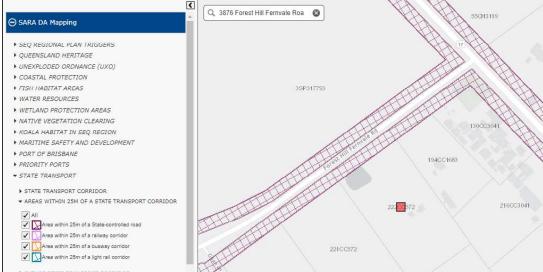


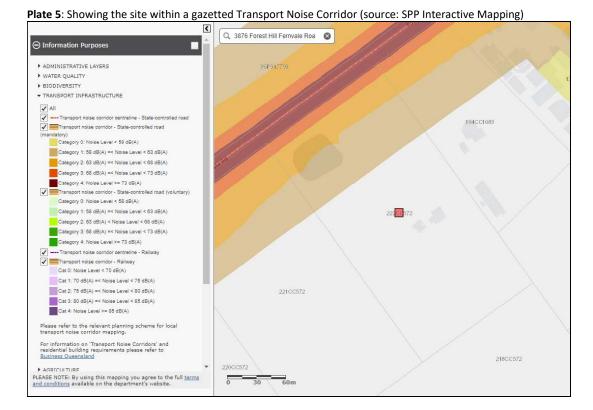
Plate 2: Showing the site within a Emerging Community Zone (source: Somerset Regional Council)



Plate 4: Showing the site within 25m of State transport infrastructure (source: DAMS Interactive Mapping) < Q 3876 Forest Hill Fernvale Roa 🔕 SARA DA Mapping ▶ SEQ REGIONAL PLAN TRIGGERS ▶ QUEENSLAND HERITAGE ▶ UNEXPLODED ORDNANCE (UXO) ▶ COASTAL PROTECTION FISH HABITAT AREAS 3SP317793 ► WATER RESOURCES ▶ WETLAND PROTECTION AREAS ► NATIVE VEGETATION CLEARING ► KOALA HABITAT IN SEQ REGION MARITIME SAFETY AND DEVELOPMENT ▶ PORT OF BRISBANE ▶ PRIORITY PORTS ▼ STATE TRANSPORT STATE TRANSPORT CORRIDOR ▼ AREAS WITHIN 25M OF A STATE TRANSPORT CORRIDOR 216003041 222 572 Area within 25m of a State-controlled road Area within 25m of a railway corridor

Area within 25m of a busway corridor 221CC572 Area within 25m of a light rail corridor ▶ STATE-CONTROLLED ROAD INTERSECTION ▶ STATE-CONTROLLED TRANSPORT TUNNEL PLANNED UPGRADES ▶ PUBLIC PASSENGER TRANSPORT FACILITIES 21800572 FXCLUDED AREA 2RP200299 ▶ LIMITED ACCESS ROADS 219CC572 PLEASE NOTE: By using this mapping you agree to the full terms and conditions available on the department's website.





### 1.2 Sensitive Receivers

The development site is located within a largely undeveloped area, with vacant land to the north, west and south. An existing dwelling is located to the east at a more than 100m setback, and is well buffered from child care activities. It is however noted that the proposed residential subdivision will introduce new noise sensitive uses, and that the Emerging Community zoning implies future development on adjacent lots. Assessment has therefore been conduced under a worst-case scenario which assumes future two-storey residential development at minimal boundary setback. Seven receivers locations – referred to as R1 to R7 in this Report – have been modelled, representing worst-case future development. The locations of R1 to R7 are presented in Plate 6 and Table 1 below.

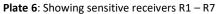




Table 1: Showing sensitive receivers R1 - R7

Receiver	Address	Co-ordina	Doggiver Height	
Receiver	Address	Easting	Northing	Receiver Height
R1	Lot 221 on CC572	464510	6963867	4.6m
R2	Future Lot 26	464555	6963861	4.6m
R3	Future Lot 27	464568	6963870	4.6m
R4	Future Lot 28	464583	6963881	4.6m
R5	Future Lot 29	464595	6963889	4.6m
R6	Future Lot 1	464626	6963909	4.6m
R7	3878 Forest Hill Fernvale Road	464623	6963960	4.6m

## 2. Measurement of Ambient Noise Levels

#### 2.1 Measurement Procedures

In order to assess the potential impact of noise from all sources of noise, an ambient noise survey was conducted on site. The environmental noise logger was installed on the north-eastern boundary, 8m from the north-western boundary. The microphone was at a height of 1.4m in a free-field environment. The measurement location is referred to as ML1 in this Report, and is presented in **Plate 7** and **Photo 1** below.

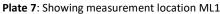




Photo 1: Showing measurement locaiton ML1 (source: NMS)



The operation of the sound level measuring equipment was field calibrated before and after each measurement session and no significant drift was observed from the reference signal. All instrumentation used in this assessment holds a current calibration certificate from a certified NATA calibration laboratory. The following instruments were used to measure the ambient noise levels-

- Larson Davis SoundTrack LxT Class 2 environmental noise logger
- Larson Davis CAL200 Class 1 acoustic calibrator



Ambient sound pressure levels were measured generally in accordance with Australian Standard *AS1055:2018* – *Acoustics - Description and measurement of environmental noise*. Ambient noise levels were recorded at 1hr intervals between the 24<sup>th</sup> and the 31<sup>st</sup> of August 2022. Levels represent noise measured from all sources in the locale, including road traffic, meteorology and wildlife. Road traffic noise was observed to be the dominant source in the locale, and measured levels are considered to be consistent with an acoustic environment generally controlled by road traffic noise. As a conservative methodology, the measured weekday L<sub>10,18hr</sub> from all sources at ML1 is considered representative of road traffic noise intrusion, and has been used to validate the road traffic noise model presented in **Appendix B**.

#### 2.2 Measurement Results

Table 2: Ambient noise levels at ML1, 24<sup>th</sup> – 31<sup>st</sup> August 2022. Levels are in dB(A) free-field

Day	Date	Period	L <sub>01</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>
		7:00am – 6:00pm	76	66	44	63
Modnosday	24 <sup>th</sup> / 31 <sup>st</sup>	6:00pm – 10:00pm	71	61	38	58
Wednesday	August	10:00pm – 7:00am	73	51	32	56
		6am – midnight	-	63	41	-
		7:00am – 6:00pm	79	65	47	65
Thursday	25 <sup>th</sup> August	6:00pm – 10:00pm	70	61	41	58
Thursday	Z5" August	10:00pm – 7:00am	72	55	32	57
		6am – midnight	-	63	44	-
		7:00am – 6:00pm	72	65	45	61
Fridov	26th August	6:00pm – 10:00pm	71	62	42	60
Friday	26 <sup>th</sup> August	10:00pm – 7:00am	72	55	35	57
		6am – midnight	-	63	44	-
	27 <sup>th</sup> August	7:00am – 6:00pm	71	65	45	60
Saturday		6:00pm – 10:00pm	70	61	41	58
		10:00pm – 7:00am	70	52	34	55
	28 <sup>th</sup> August	7:00am – 6:00pm	71	65	45	60
Sunday		6:00pm – 10:00pm	69	57	41	56
		10:00pm – 7:00am	69	49	29	56
		7:00am – 6:00pm	74	65	45	62
N.A. a. a.d.a	20th Assesset	6:00pm – 10:00pm	70	60	42	58
Monday	29 <sup>th</sup> August	10:00pm – 7:00am	72	52	32	56
		6am – midnight	-	62	43	-
		7:00am – 6:00pm	73	65	45	63
T	20th Assessed	6:00pm – 10:00pm	72	61	36	59
Tuesday	30 <sup>th</sup> August	10:00pm – 7:00am	71	52	33	58
		6am – midnight	-	62	41	-
		Day	74	65	45	62
مماخات ۸	c Average	Evening	70	60	40	58
Anumeti	c Average	Night	71	52	32	56
		CoRTN	-	63	42	-

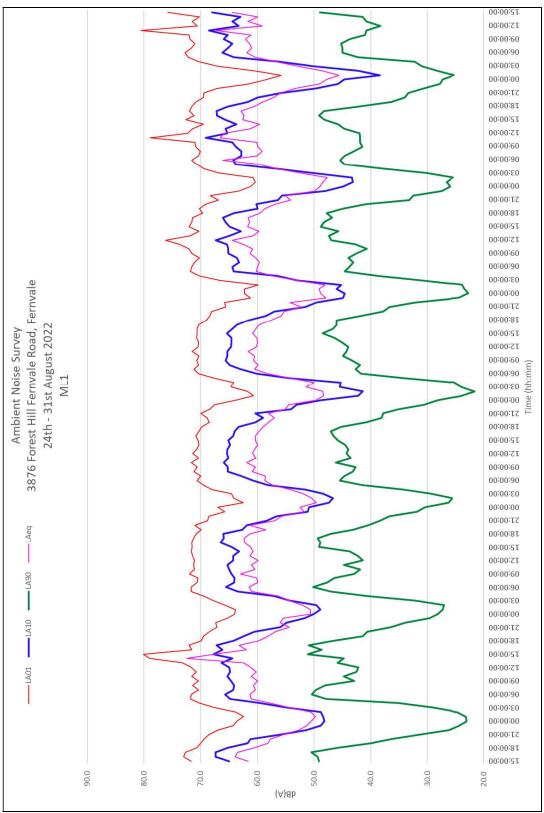


Figure 1: Ambient noise levels at ML1, 24th – 31st August 2022. Levels are in dB(A), free-field

### 3. Noise Criteria and Limits

### 3.1 Somerset Region Planning Scheme v4.2

The development site is located within an Emerging Community Zone. Part 6.2.3 of the Somerset Planning Scheme (Emerging Community Zone Code) contains guidance to the assessment of noise impacts from the proposed development, as reproduced (in part) below.

Table 3: Somerset Planning Scheme – Emerging Community Zone Code (in part)

Performance Outcomes	Acceptable Outcomes
Amenity	
PO8	AO8
The design, location and operation of development does not	No acceptable outcome provided.
result in any undue adverse impact on the amenity of the	
locality, having regard to:	
(a) hours of operation;	
(b) lighting;	
(c) noise;	
(d) dust, odour and other airborne emissions;	
(e) public health and safety;	
(f) traffic generation;	
(g) the use of advertising devices;	
(h) visual amenity; and	
(i) overlooking and privacy.	
PO9	AO9
Development must take into account and seek to	No acceptable outcome provided.
ameliorate any existing negative environmental impacts,	
having regard to:	
(a) noise;	
(b) hours of operation;	
(c) traffic;	
(d) lighting;	
(e) advertising devices;	
(f) visual amenity;	
(g) privacy;	
(h) odour; or	
(i) emissions.	

As no specific acoustic criteria are specified, assessment of noise emissions upon the amenity of the locality has been conducted with reference to the *Environmental Protection (Noise) Policy 2008*, in accordance with Planning Scheme Policy SC6.5.3.2. The *Environmental Protection (Noise) Policy 2008* is discussed in **Section 3.4** below, and it is concluded that application of State policy demonstrates appropriate protection of acoustic amenity in accordance with **PO8**.

Road traffic noise is identified as the dominant source of noise intrusion onto the site, and it is noted that State road traffic noise policy is applicable through the State Development Assessment Provisions (discussed in Section 3.2 below), and the *Queensland Development Code Mandatory Part 4.4* (discussed in Section 3.3 below). It is concluded that application of State policy demonstrates appropriate protection of acoustic amenity in accordance with PO9.

### 3.2 State Development Assessment Provisions

The development site is within 25m of State transport infrastructure, and is therefore subject to acoustic considerations under the State Development Assessment Provisions (SDAP, v3.0). The relevant sections are reproduced in **Table 4** – **Table 6** below.

Table 4: State Development Assessment Provisions v3.0 (in part)

Performance Outcomes	Acceptable Outcomes					
Reconfiguring a lot						
nvolving the creation of 6 or more new residential lots adjacent to a state-controlled road or type 1 nulti-modal corridor						
PO38 Reconfiguring a lot minimises free field noise intrusion from a state-controlled road.	<ul> <li>AO38.1 Development provides noise barrier or earth mound which is designed, sited and constructed:</li> <li>1. to achieve the maximum free field acoustic level in reference table 2 (item 2.1);</li> <li>2. in accordance with <ul> <li>a. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013;</li> <li>b. Technical Specification – MRTS15 Noise Fences, Transport and Main Roads, 2019;</li> <li>c. Technical Specification – MRTS 04 General Earthworks, Transport and Main Roads, 2020; or</li> </ul> </li> <li>OR <ul> <li>AO38.2 Development achieves the maximum free field acoustic level in reference table 2 (item 2.1) by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.</li> </ul> </li> </ul>					
Material change of use (other uses)						

Ground floor level requirements (childcare centre, educational establishment, hospital) adjacent to a state-controlled road or type 1 multi-modal corridor

## PO44 Development:

- 1. provides a noise barrier or earth mound that is designed, sited and constructed:
  - a. to achieve the maximum free field acoustic level in reference table 2 (item 2.3) for all outdoor education areas and outdoor play areas;



 Table 5: State Development Assessment Provisions v3.0 (in part, continued)

Performance Outcomes	Acceptable Outcomes
b. in accordance with:	
<ul> <li>i. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013;</li> <li>ii. Technical Specification – MRTS15 Noise Fences, Transport and Main Roads, 2019;</li> <li>iii. Technical Specification – MRTS 04 General Earthworks, Transport and Main Roads, 2020; or</li> </ul>	No acceptable outcome is provided.
<ol> <li>Achieves the maximum free field acoustic level in reference table 2 (item 2.3) for all outdoor education areas and outdoor play areas by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.</li> </ol>	
PO45 Development involving a childcare centre or educational establishment:	No acceptable outcome is provided.
<ol> <li>provides a noise barrier or earth mound that is designed, sited and constructed:</li> </ol>	
<ol> <li>to achieve the maximum building façade acoustic level in reference table 1 (item 1.2);</li> </ol>	
3. in accordance with:	
<ul> <li>a. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013;</li> </ul>	
<ul> <li>Technical Specification – MRTS15 Noise</li> <li>Fences, Transport and Main Roads,</li> <li>2019;</li> </ul>	
<ul> <li>Technical Specification – MRTS 04</li> <li>General Earthworks, Transport and</li> <li>Main Roads, 2020; or</li> </ul>	
<ol> <li>Achieves the maximum building façade acoustic level in reference table 1 (item 1.2) by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.</li> </ol>	
PO46 Development involving:	No acceptable outcome is provided.
indoor education areas and indoor play areas;     or	,
sleeping rooms in a <b>childcare centre</b> ; or	
<ol> <li>patient care areas in a hospital achieves the maximum internal acoustic level in reference table 3 (items 3.2-3.4)</li> </ol>	

**Table 6**: State Code 1 reference tables (in part)

Table 6. State Code 1 reference tables (in part)			
Applicable use	Acoustic levels		
1.2 Childcare centre or educational establishment	≤58 dB(A) L <sub>10</sub> (18 hour) façade corrected (maximum		
	hour during normal opening hours)		
	a. $\leq$ 57 dB(A) L <sub>10</sub> (18 hour) free field (measured L <sub>90</sub> (18		
	hour) free field between 6am and 12 midnight ≤45		
	dB(A)		
2.1: Private open space for residential lots	OR		
	b. $\leq$ 60 dB(A) L <sub>10</sub> (18 hour) free field (measured L <sub>90</sub> (18		
	hour) free field between 6am and 12 midnight >45		
	dB(A)		
2.3 Outdoor education areas and outdoor play	, ,		
areas in a childcare centre or educational	$\leq$ 63 dB(A) L <sub>10</sub> (12 hour) free field (between 6am and		
establishment	6pm)		
3.2 Indoor education areas and indoor play areas			
in a childcare centre or education establishment			
in a childcare centre or education establishment	35 dB(A) L <sub>eq</sub> (1 hour) (maximum hour over 24 hours)		
3.3 Sleeping rooms in a childcare centre			

As presented in **Section 2**, the measured  $L_{90,18hr}$  at ML1 was below 45 dB(A). Accordingly, the 57 dB(A)  $L_{10,18hr}$  private open space criterion has been applied.

### 3.3 Queensland Development Code Mandatory Part 4.4

The *Queensland Development Code Mandatory Part 4.4* (QDC MP4.4) is intended to ensure that habitable rooms of residential buildings located in a transport noise corridor are designed and constructed to reduce transport noise. Noise reduction requirements fall into categories, based on L<sub>10,18hr</sub> noise levels along the façades of the proposed development (see **Table 7**). Construction of the dwelling is then to "deemed to satisfy" solutions, see **Table 8**.

The QDC MP4.4 relates to residential development, and is therefore not applicable to the proposed child care centre (although acoustic amenity is otherwise addressed through the State Development Assessment Provisions. The QDC MP4.4 has nonetheless been considered with regards to the residential component of the development.

Table 7: Noise levels associated with QDC MP4.4 Noise Categories

Noise Category	Level of Transport Noise (LA10,18hr) for State-Controlled Roads and Designated Local Government Roads	Single Event Maximum Noise (LAmax) for Railway Land
Category 4	≥ 73 dB(A)	≥ 85 dB(A)
Category 3	68-72 dB(A)	80-84 dB(A)
Category 2	63-67 dB(A)	75-79 dB(A)
Category 1	58-62 dB(A)	70-74 dB(A)
Category 0	≤ 57 dB(A)	<u>&lt;</u> 69 dB(A)

Note\* the sound levels are measured at 1 metre from the façade.



Table 8: Performance requirements of QDC MP4.4

Performance Requirements	Acceptable Solutions						
Residential Buildings							
P1 Habitable rooms in a relevant residential building are adequately protected from transport noise to safeguard occupants' health and amenity.	A1 The external envelope of each habitable room in a relevant residential building must comply with the minimum R <sub>w</sub> for each building component specified in Schedule 1 to achieve a minimum transport noise reduction level for the relevant noise category by:  a) Using materials specified in Schedule 2;  OR  b) Using materials with manufacturer's specifications that, in combination, achieve the minimum R <sub>w</sub> value for the relevant building component and acceptable noise category.						

<sup>&#</sup>x27;Deemed to Satisfy' forms of building construction are presented in Appendix D.

# 3.4 Environmental Protection (Noise) Policy 2008

The *Environmental Protection (Noise) Policy 2008* (EPP 2008) establishes Acoustic Quality Objectives (AQO) to protect or enhance stated environmental values, as shown in **Table 9** below. The environmental values to be enhanced or protected under the policy are the qualities of the acoustic environment that are conducive to protecting the health and biodiversity of ecosystems; and the qualities of the acoustic environment that are conducive to human health and well-being, including ensuring a suitable acoustic environment for individual's to sleep, study and learn, to be involved in recreation including relaxation and conversation; and the qualities of the acoustic environment that are conducive to protecting the amenity of the community.

Table 9: Acoustic Quality Objectives as per the Environmental Protection (Noise) Policy 2008 (in part)

Time of Occurrence / Activity	Recommended Acoustic Quality Objective					
Type of Occupancy / Activity	L <sub>Aeq,adj,1hr</sub>	L <sub>A10,adj,1hr</sub>	L <sub>A01,adj,1hr</sub>			
Dwelling, outdoors, daytime & evening	50	55	65			
Dwelling, indoors, daytime & evening	35	40	45			
Dwelling, indoors, night-time	30	35	40			

The EPP (Noise) 2008 also sets recommended criteria for the control of background creep. To the extent that it is reasonable to do so, noise from an activity must not be—

- for noise that is continuous noise measured by LA90,T—more than nil dB(A) greater than the existing
  acoustic environment measured by LA90,T; or
- for noise that varies over time measured by LAeq,adj,T—more than 5dB(A) greater than the existing acoustic environment measured by LA90,T

It is noted that the AQO are to be progressively achieved over the long term, to meet the stated purpose of the Noise Policy:

- (a) identifying environmental values to be enhanced or protected; and
- (b) stating acoustic quality objectives for enhancing or protecting the environmental values; and
- (c) providing a framework for making consistent, equitable and informed decisions about the acoustic environment.

Noise management strategies are required to the extent it is reasonable to do so. It is therefore concluded that the objectives are not intended to be necessarily limiting criteria, as reasonableness and equity are fundamental precepts of the policy. Application of the Noise Policy therefore requires consideration of the existing environment, although noise mitigation may be required to protect and enhance — as far as reasonable — acoustic values even where the AQO are exceeded by existing noise sources. In particular, noise from the existing environment may already exceed the AQO, especially within proximity of existing transport structure.

In this instance, road traffic noise from state transport infrastructure — which is specifically excluded from assessment under EPP 2008 — is identified as the dominant source of noise intrusion at the development site. The levels measured at ML1 were in considerable excess of the outdoor AQO, and it is therefore not considered appropriate to apply the outdoor AQO as limiting criteria, due to the existence of significant road traffic noise. Similarly, the site and immediate locale are largely undeveloped, and existing background levels are not considered representative of future residential areas as envisioned by the Emerging Community zoning. Background Creep criteria are therefore not considered appropriate limiting criteria (further noting that the Environmental Protection (Noise) Policy 2008 has been superseded by the Environmental Protection (Noise) Policy 2019, and that Background Creep criteria are not applicable under current State policy).

The indoor Acoustic Quality Objectives have therefore been applied for assessment to future residential uses, and it is concluded that meeting the indoor AQO represents a desirable level of residential acoustic amenity in accordance with State policy.

It is further noted that future residential development (represented by receivers R1 to R6, as discussed in **Section 1.1** above) will lie within a gazetted Transport Noise Corridor. The requirements of the QDC MP4.4 (discussed in **Section 3.3** above) will therefore be applicable to future residential development. Building design and construction to mitigate road traffic noise impacts will also mitigate noise emissions from the proposed child care centre. As shown in **Plate 8** below, receivers R1 to R6 will fall within Noise Categories 1 & 2 of the gazetted Transport Noise Corridor for Forest Hill Fernvale Road.

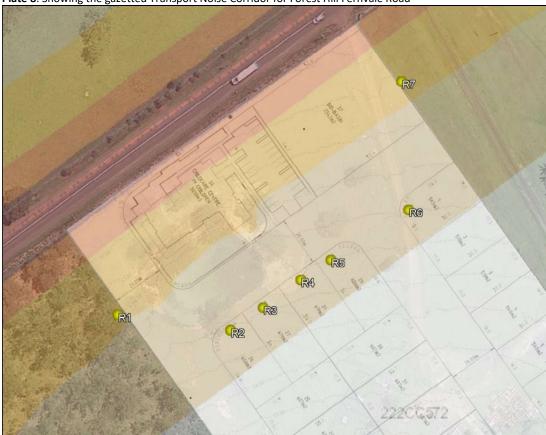


Plate 8: Showing the gazetted Transport Noise Corridor for Forest Hill Fernvale Road

A minimum Transport Noise Reduction of 25 dB(A) – corresponding with Category 1 under the QDC MP4.4 – can therefore be assumed for future residential development. Accordingly, a noise reduction of 25 dB(A) from the building envelope has been applied to assessment of the indoor AQO.

### 3.5 Sleep Disturbance – World Health Organization

Research has shown that the ability to get to sleep and, when asleep, the probability of experiencing a change of sleep state or ultimately of awakening are related to both the ambient and maximum instantaneous noise levels at the ear of the sleeper and the number of events during the night time period (WHO 1999). As a rule in planning for short-term or transient noise events, for good sleep over eight hours, the indoor sound pressure level measured as a maximum instantaneous value should not exceed approximately 45dBA maxLpA more than 10-15 times per night.

Although the World Health Organization Guidelines for Community Noise 1999 is not directly applicable to the proposed child care centre, the Guideline is considered an appropriate metric for the assessment of sleep disturbance that is referenced in various State and local government noise policies. Since the Environmental Protection (Noise) Policy 2008 does not specify criteria in the L<sub>max</sub> descriptor, the 45 dB(A) L<sub>max</sub> indoor value as per the WHO Guideline has been applied as an assessment criterion in this instance.

## 3.6 Education and Care Services National Regulations

Regulation 81 of the *Education and Care Services National Regulations* requires that: "The approved provider of an education and care service must take reasonable steps to ensure that the needs for sleep and rest of children being educated and cared for by the service are met, having regard to the ages, development stages and individual needs of the children." It is noted that the State Development Assessment Provisions mandate an internal road traffic noise criterion of 35 dB(A) L<sub>eq</sub>. This is considered an appropriate criterion for internal amenity, and it is therefore concluded that the acoustic requirements of the *Education and Care Services National Regulations* can be met through design and construction that achieves SDAP requirements.

#### 3.7 Air Conditioning Noise Emissions

It is understood that air conditioning will be installed, although the precise model is yet to be determined. State requirements are set out under Section 440U of the *Environmental Protection Act 1994*; in that Act noise from air conditioning must not exceed the following noise levels when measured as the LA90 dB(A) level over a period of 15 minutes at an affected building:

- Between 10pm and 7am: 3 dB(A) above the background level
- From 7am to 10pm: 5 dB(A) above the background level

Detailed plant noise assessment can be conducted – if required – at the Building Approval stage once these specifications can be determined. Due to setback from sensitive uses, it is nonetheless predicted that the relevant criteria will be readily achieved without further acoustic treatment.

# 4. Noise Impact Assessment

### 4.1 Acoustic Fencing

To mitigate road traffic noise impacts, it is recommended that 2m high acoustic fencing (54.5m RL) be provided, as shown in **Plate 9** below.



Construct a 2m noise barrier in accordance with condition 10 (a)-(b) of the referral agency response.

To effectively function as acoustic barriers, fencing should be continuous and gap free, with a density of not less than 12.5 kg/m². This can be achieved with overlapping timer palings (minimum 50% overlap), blockwork, glass (minimum width 5mm), Perspex (minimum width 11mm), or in combination with other gap-free materials of the required density. Additional requirements may also apply under the Department of Transport and Main Roads MRTS15 Technical Specification, and it is recommended that the specific form of construction be determined with consideration of other potential constraints such as wind loading or visual amenity.

Screening from this recommended fencing has been included (where applicable) in the road traffic noise model presented in **Appendix B**, and the environmental noise model presented in **Appendix C**.

#### 4.2 Road Traffic Noise Intrusion

Road traffic noise from Forest Hill Fernvale Road has been calculated into the 2032 (10 year) design horizon using the road traffic noise model presented in **Appendix B**, which has been validated to the measured L<sub>10,18hr</sub> at ML1. Traffic data has been sourced from the Queensland Traffic and Reporting System, while topographic data has been sourced from Geosciences Australia, and from development plans.

The forecast  $L_{10,18hr}$  has been converted to other descriptors (where applicable) with reference to the measured relationship between descriptors as measured at ML1.

- $L_{10,12hr} = L_{10,18hr} + 2.5 dB(A)$
- $L_{10,1hr max} = L_{10,18hr} + 5.1 dB(A)$
- $L_{eq,1hr max} = L_{10,18hr} + 4.0 dB(A)$

Road traffic noise forecasts and assessment are presented in the **sections** following. Further details of road traffic noise calculations are presented in **Appendix B**.

#### 4.2.1 Outdoor Criteria

Outdoor receivers point locations are presented in **Plate 10** below, representing the most affected outdoor play areas, and private open spaces. Results from the road traffic noise calculations are presented with SDAP criteria in **Table 10** below.





Table 10: Road traffic noise forecasts and outdoor criteria. Levels are in dB(A)

Receiver	Descriptor	Forecast	Criteria	Assessment
1	L <sub>10,12hr</sub> free-field	59	63	Pass
2	L <sub>10,12hr</sub> free-field	59	63	Pass
3	L <sub>10,12hr</sub> free-field	59	63	Pass
Lot 26	L <sub>10,18hr</sub> free-field	53	57	Pass
Lot 29	L <sub>10,18hr</sub> free-field	53	57	Pass
Lot 1	L <sub>10,18hr</sub> free-field	53	57	Pass

As shown above, the outdoor criteria is forecast to be met at all receivers. On this basis, it is concluded that the proposed development can meet SDAP Performance Outcomes **PO38** and **PO44**, subject to provision of the recommended 2m high acoustic fencing.

#### 4.2.2 Internal Criteria

Road traffic noise has been forecast to noise sensitive facades of the proposed child care centre. Façade receiver locations are presented in **Plate 11** below.

Plate 11: Showing façade receiver locations, as modelled



Detailed calculations to meet internal criteria have been conducted in accordance with Australian Standard *AS3671: Road traffic noise intrusion – Building siting and construction*. Calculations are presented in **Table 11** below, which show the required Weighted Sound Reduction Index (Rw) values from building elements to achieve the 35 dB(A) internal SDAP criterion.

Table 11: Showing AS3671 calculations to achieve the internal SDAP criterion

STC Child Ca	are Centre			TNR is L	.eq faça	de corrected m	aximum 1-hr L	eq vs indoo	r maxim	um SD	AP		
JOB:	6512R1			TNAc is	the traff	ïc noise attenu	ation required	of the comp	onent				
Project:	rest Hill Fernvale Road	, Fernvale		"6" is the	e approx	imate allowanc	e for the traffic	noise spec	trum				
Date:	22/02/2023			TNAc = T	TNAc = TNR + 10Log10[(Sc/Sf) x (3/H) x 2T60 xC]								
				Rw = TN	Ac + 6								
Room	Element	Facing	Ext Leq	SDAP	TNR	Category	Element (Sc)	Hoor (Sf)	Height	RT60	С	TNAc	Calc
			dB(A)	criteria			area	area	(m)	(s)			Rw
Room 1	Sliding Door	NE	62	35	27.3	Category 3	8.4	35	2.7	0.5	3	26.33	32
Room 1	Wall	NE	62	35	27.3	Category 3	10.5	35	2.7	0,5	3	27.30	33
Room 1	Roof	-	62	35	27.3	Category 3	35.0	35	2.7	0.5	3	32,53	39
Room 2	Sliding Door	NE	60	60.3	0.0	Category 1	8.4	42	2.7	0.5	3	-1.76	4
Room 2	Wall	NE	60	60.3	0.0	Category 1	9.0	42	2.7	0.5	3	-1.46	5
Room 2	Window	sw	57	35	22.0	Category 2	1.6	42	2.7	0.5	3	13.09	19
Room 2	Wall	sw	57	35	22.0	Category 2	8.3	42	2.7	0.5	3	20.19	26
Room 2	Roof	-	60	35	25.3	Category 2	42.0	42	2.7	0.5	3	30.53	37
Sleep	Window	SE	57	35	21.6	Category 2	1.8	22	2.7	0.5	3	15.96	22
Sleep	Wall	SE	57	35	21.6	Category 2	10.8	22	2.7	0.5	3	23.74	30
Sleep	Window	sw	57	35	21.7	Category 2	1.8	22	2.7	0.5	3	16.06	22
Sleep	Wall	SW	57	35	21.7	Category 2	14.4	22	2.7	0.5	3	25.09	31
Sleep	Roof	-	57	35	21.7	Category 2	22.0	22	2.7	0.5	3	26.93	33
Room 3	Sliding Door	56.30	56	35	21.3	Category 2	8.4	52	2.7	0.5	3	18.61	25
Room 3	Wall	56.3	56	35	21.3	Category 2	13.2	52	2.7	0.5	3	20.57	27
Room 3	Roof	56.3	56	35	21.3	Category 2	52.0	52	2.7	0.5	3	26.53	33
Room 4	Glazing	SE	57	35	22.1	Category 2	10.0	68	2.7	0.5	3	19.00	25
Room 4	Wall	SE	57	35	22.1	Category 2	8.9	68	2.7	0.5	3	18.50	24
Room 4	Roof	-	57	35	22.1	Category 2	68.0	68	2.7	0.5	3	27.33	33
Room 5	Glazing	sw	60	35	25.2	Category 2	15.1	78	2.7	0.5	3	23.30	29
Room 5	Wall	sw	60	35	25.2	Category 2	7.1	78	2.7	0.5	3	20.02	26
Room 5	Windows	NW	61	35	26.2	Category 3	14.4	78	2.7	0.5	3	24.09	30
Room 5	Wall	NW	61	35	26.2	Category 3	20.1	78	2.7	0.5	3	25.54	32
Room 5	Roof	-	61	35	26.2	Category 3	78.0	78	2.7	0.5	3	31.43	37
Room 6	Windows	SE	57	35	22.4	Category 2	9.7	72	2.7	0.5	3	18.92	25
Room 6	Wall	SE	57	35	22.4	Category 2	24.8	72	2.7	0.5	3	23.00	29
Room 6	Sliding Door	sw	62	35	26.5	Category 3	8.4	72	2.7	0.5	3	22.40	28
Room 6	Wall	sw	62	35	26.5	Category 3	11.1	72	2.7	0.5	3	23.61	30
Room 6	Roof	_	62	35	26.5	Category 3	72.0	72	2.7	0.5	3	31,73	38

Subject to construction that achieves the acoustic outcomes presented in **Table 11** above, it is concluded that the SDAP internal criteria can be achieved within all noise sensitive rooms. It is nonetheless recommended that AS3671 calculations be confirmed at the Building Approval stage, once architectural plans have been finalized.

### 4.2.3 Façade Criterion

Road traffic noise has been forecast to noise sensitive facades of the proposed child care centre. Façade receiver locations are presented in **Plate 12** above. Results from the road traffic noise calculations are presented with the SDAP façade criterion in **Table 12** below.

Table 12: Road traffic noise forecasts and façade criteria. Levels are in dB(A)

Receiver	Descriptor	Forecast	Criteria	Assessment
Room 1 NE	L <sub>10,1hr max</sub> façade-affected	63	58	+5 dB(A)
Room 2 NE	L <sub>10,1hr max</sub> façade-affected	61	58	+3 dB(A)
Sleep SE	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Sleep SW	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Room 2 SW	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Room 3 SE	L <sub>10,1hr max</sub> façade-affected	57	58	Pass
Room 4 SE	L <sub>10,1hr max</sub> façade-affected	58	58	Pass
Room 6 SE	L <sub>10,1hr max</sub> façade-affected	59	58	+1 dB(A)
Room 6 SW	L <sub>10,1hr max</sub> façade-affected	63	58	+5 dB(A)
Room 5 SW	L <sub>10,1hr max</sub> façade-affected	61	58	+3 dB(A)
Room 5 NW	L <sub>10,1hr max</sub> façade-affected	62	58	+4 dB(A)

As shown above, the façade criterion as per SDAP Acceptable Outcome **AO25.1** is forecast to be exceeded by up to 5 dB(A). To investigate the feasibility of compliance with the 58 dB(A)  $L_{10,1hr\ max}$  criterion, two further calculation scenarios have been modelled which assume additional fencing to a height of 3m and 3.5m respectively. The nominal fence locations under these scenarios are presented in **Plate 10** below.



Road traffic noise forecasts under these additional scenarios are presented with the SDAP façade criterion in **Table 13** below.



Table 13: Road traffic noise forecasts and facade criteria, 3m & 3.5m fence scenarios. Levels are in dB(A)

Receiver	ic noise forecasts and façade control Descriptor	Forecast	Criteria	Assessment				
3m fence scenario								
Room 1 NE	L <sub>10,1hr max</sub> façade-affected	63	58	+5 dB(A)				
Room 2 NE	L <sub>10,1hr max</sub> façade-affected	61	58	+3 dB(A)				
Sleep SE	L <sub>10,1hr max</sub> façade-affected	57	58	Pass				
Sleep SW	L <sub>10,1hr max</sub> façade-affected	57	58	Pass				
Room 2 SW	L <sub>10,1hr max</sub> façade-affected	58	58	Pass				
Room 3 SE	L <sub>10,1hr max</sub> façade-affected	57	58	Pass				
Room 4 SE	L <sub>10,1hr max</sub> façade-affected	58	58	Pass				
Room 6 SE	L <sub>10,1hr max</sub> façade-affected	58	58	Pass				
Room 6 SW	L <sub>10,1hr max</sub> façade-affected	62	58	+4 dB(A)				
Room 5 SW	L <sub>10,1hr max</sub> façade-affected	58	58	Pass				
Room 5 NW	L <sub>10,1hr max</sub> façade-affected	59	58	+1 dB(A)				
	3.5m	fence scenario						
Room 1 NE	L <sub>10,1hr max</sub> façade-affected	63	58	+5 dB(A)				
Room 2 NE	L <sub>10,1hr max</sub> façade-affected	61	58	+3 dB(A)				
Sleep SE	L <sub>10,1hr max</sub> façade-affected	57	58	Pass				
Sleep SW	L <sub>10,1hr max</sub> façade-affected	57	58	Pass				
Room 2 SW	L <sub>10,1hr max</sub> façade-affected	57	58	Pass				
Room 3 SE	L <sub>10,1hr max</sub> façade-affected	57	58	Pass				
Room 4 SE	L <sub>10,1hr max</sub> façade-affected	57	58	Pass				
Room 6 SE	L <sub>10,1hr max</sub> façade-affected	58	58	Pass				
Room 6 SW	L <sub>10,1hr max</sub> façade-affected	62	58	+4 dB(A)				
Room 5 SW	L <sub>10,1hr max</sub> façade-affected	57	58	Pass				
Room 5 NW	L <sub>10,1hr max</sub> façade-affected	58	58	Pass				

As shown above, road traffic noise is forecast to exceed criteria under both the 3m and 3.5m fence scenarios. Considering the compliance with indoor and outdoor criteria as demonstrated in **Section 4.2.1** and **Section 4.2.2** above, it is therefore concluded that the recommended acoustic treatments and 2m high acoustic fencing represent a reasonable design solution to appropriately mitigate road traffic noise impacts.

### 4.3 Environmental Noise Emissions

The following sources of noise emission have been identified with the proposed child care activities

- Vehicle movements through the carpark
- 'Slamming' car doors at the carpark
- Children at outdoor play
- Deliveries
- Mechanical plant

Noise from internal play activities will be substantively contained within the building envelope, and noise breakout is predicted to generate substantively lower emissions than outdoor play. Accordingly, assessment has been conducted to outdoor play as a worst-case 1hr scenario.

The precise model(s) and installation of air conditioning has not been determined at this stage. To ensure compliance with the *Environmental Protection Act 1994*, it is recommended that plant be selected, installed and (if necessary) screened to not exceed 35 dB(A) at neighbouring sensitive uses. Detailed assessment of air conditioning noise can be conducted (if required) at the Building Approval stage once specifications can be determined. Due to the setback from sensitive uses, it is nonetheless concluded that the criterion will be readily achievable through appropriate plant selection and siting.

Potential noise emissions from the remaining identified sources have been forecast to receivers R1 - R7 using the environmental noise model presented in **Appendix C**. Design sound power levels have been sourced from the NMS database, and are presented in **Table 14** below. Discussion and assessment of noise from these sources are presented in the **sections** following.

Table 14: Design sound power levels, as modelled

Name	Descriptor	Sound Power Levels in dB(Z)								Total in
Name	Descriptor	63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2 kHz	4 kHz	8 kHz	dB(A)
Vehicle movements	L <sub>eq</sub>	74	81	75	72	75	76	72	69	81
Car door 'slam'	L <sub>max</sub>	88	92	87	89	92	87	85	83	95
Deliveries	L <sub>eq</sub>	65	70	71	75	76	70	66	60	79
Outdoor play (8 children ages 0-2)	L <sub>eq</sub>	53	59	65	71	73	70	66	63	77
Outdoor play (12 children ages 0-2)	L <sub>eq</sub>	55	61	67	73	75	72	68	65	78
Outdoor play (10 children ages 3-5)	L <sub>eq</sub>	64	70	75	81	83	80	76	72	87
Outdoor play (20 children ages 3-5)	L <sub>eq</sub>	67	73	78	84	86	83	79	75	90
Outdoor play (22 children ages 3-5)	L <sub>eq</sub>	67	73	78	84	86	83	79	75	90
		S	Sound Pre	ssure Leve	els at 1m					
Vehicle movements	L <sub>eq</sub>	66	73	67	64	67	69	65	62	73
Car door 'slam'	L <sub>01</sub>	80	84	80	81	85	79	77	76	88
Deliveries	L <sub>eq</sub>	58	62	63	68	68	62	58	53	71
Outdoor play (8 children ages 0-2)	L <sub>eq</sub>	45	51	57	63	65	62	58	55	69
Outdoor play (12 children ages 0-2)	L <sub>eq</sub>	47	53	59	65	67	64	60	57	71
Outdoor play (10 children ages 3-5)	L <sub>eq</sub>	56	62	67	73	75	72	68	64	79
Outdoor play (20 children ages 3-5)	L <sub>eq</sub>	59	65	70	76	78	75	71	67	82
Outdoor play (22 children ages 3-5)	L <sub>eq</sub>	60	66	71	77	79	76	72	68	82

#### 4.3.1 Vehicle Movements

Noise emissions from vehicle movements through the site have been conceptualized as a moving line source, based upon sound power levels as proposed in the *Association of Australasian Acoustical Consultants Guideline for Child Care Centre Acoustic Assessment v3*. Average speeds of 25 km/hr have been assumed, with a source height of 1.5m (representing dominant engine noise at low speeds). Peak traffic flows of 38/hr have been calculated as per the *NSW RTA Guide to Traffic Generating Developments* v2.2. Noise source locations – as modelled – are presented in **Plate 13** below, while results from the environmental noise calculations are presented along with criteria in **Table 15** following.



Table 15: Noise forecasts and internal criteria, vehicle movements. Levels are in dB(A)

Receiver	Descriptor	Forecast*	Criteria			
Receiver	Receiver Descriptor		Day/Evening	Night	Assessment	
R1	L <sub>eq,1hr</sub>	0	35	30	Pass	
R2	L <sub>eq,1hr</sub>	0	35	30	Pass	
R3	L <sub>eq,1hr</sub>	0	35	30	Pass	
R4	L <sub>eq,1hr</sub>	1	35	30	Pass	
R5	L <sub>eq,1hr</sub>	2	35	30	Pass	
R6	L <sub>eq,1hr</sub>	0	35	30	Pass	

 $<sup>{\</sup>color{red}^*} \textbf{ Includes adjustment for future residential construction in accordance with QDC MP4.4 Noise Category 1}\\$ 

As shown above, negligible noise impacts from vehicle movements are forecast within future neighbouring residential dwellings.



#### 4.3.2 'Slamming' Car Doors

Assessment of car door noise emissions is problematic due to the high degree of uncertainty surrounding the frequency and intensity of 'slamming' events. It is practically unknowable how often – and how hard – individuals may shut their car doors. In theory, 'slamming' is not a necessary outcome of car park activity, and should be preventable through active management. In practice, enforcement can be difficult, and 'slam' events are likely to occur at times, although infrequently.

As a conservative design scenario, frequent (i.e. more than 15) door 'slam' events have been assumed from worst-case locations. Design sound power levels have been calculated from measurements previously undertaken by NMS of a worst-case 4WD slam event, and includes impulsive adjustment as per Australian Standard *AS1055*. As a comparison, typical door closures were measured around 15 dB(A) lower than peak levels.

Worst-case car door slam locations – as modelled – are presented in **Plate 14** below. Results from environmental noise calculations are presented along with the WHO sleep disturbance criteria in **Table 16** following.



Table 16: Noise forecasts and internal criteria, car door 'slams'. Levels are in dB(A)

Receiver	Descriptor	Forecast*	Crit	eria	Assessment
Receiver	Descriptor	Forecast	Day/Evening	Night	Assessment
R1	L <sub>max</sub>	21	-	45	Pass
R2	L <sub>max</sub>	25	-	45	Pass
R3	L <sub>max</sub>	27	-	45	Pass
R4	L <sub>max</sub>	30	-	45	Pass
R5	L <sub>max</sub>	30	-	45	Pass
R6	L <sub>max</sub>	27	-	45	Pass

<sup>\*</sup> Includes adjustment for future residential construction in accordance with QDC MP4.4 Noise Category 1

As shown above, noise from 'slamming' car doors at the car park are forecast well below criteria at all future neighbouring noise sensitive uses.

#### 4.3.3 Deliveries

As a conservative methodology, assessment of noise emissions from deliveries assumes continuous activity over a worst-case one hour assessment period. In practice, deliveries will be sporadic throughout the day, and generally occur over a much shorter duration. Design sound power levels have been based on a 13m delivery truck, as per Harwood, M, "Carrying out noise assessments for proposed supermarket developments", ACOUSTICS 2008, Geelong. These measurements included reversing alarms, and refrigeration compressors (although refrigerated trucks are not generally expected). It is nonetheless expected that deliveries will typically involve vans or other smaller vehicles, with correspondingly lower noise impacts. While deliveries are not expected to be a frequent occurrence, the calculation scenario is considered to also encompass atypical parking events. The delivery noise source location – as modelled – is presented in Plate 15 below.

Plate 15: Showing delivery noise source locations, as modelled

Table 17: Noise forecasts and internal criteria, deliveries. Levels are in dB(A)

Receiver	Descriptor	Forecast*	Crit	eria	Assessment
Receiver	Descriptor		Day/Evening	Night	Assessment
R1	L <sub>eq,1hr</sub>	0	35	30	Pass
R2	L <sub>eq,1hr</sub>	1	35	30	Pass
R3	L <sub>eq,1hr</sub>	6	35	30	Pass
R4	L <sub>eq,1hr</sub>	11	35	30	Pass
R5	L <sub>eq,1hr</sub>	11	35	30	Pass
R6	L <sub>eq,1hr</sub>	9	35	30	Pass

<sup>\*</sup> Includes adjustment for future residential construction in accordance with QDC MP4.4 Noise Category 1

As shown above, very minor if not negligible noise impacts from delivery activities are forecast within future neighbouring residential dwellings.

#### 4.3.4 Outdoor Play

As a conservative design assumption, noise emission forecasts for outdoor play assume all children to be engaged in simultaneous and continuous play over a one hour period. It practice, groups of children will engage in outdoor play at various times throughout the day, and calculations are considered a worst-case scenario of possible activity.

Sound power levels have been adopted as per the *Association of Australasian Acoustical Consultants Guideline* for *Child Care Centre Acoustic Assessment v3*. Outdoor play has been conceptualized as point sources, representing the central focus of an area of play. Levels for children at play have been grouped by playroom, and calculated according to the formula as presented in the guideline:

• Effective Sound Power Level for 'n' children = Effective Sound Power Level for 10 children + 10 log (n/10)

The location of noise point sources – as modelled – are presented in **Plate 16** below. Results from the environmental noise calculations are presented with criteria in **Table 18** following.



Table 18: Noise forecasts and internal criteria, outdoor play. Levels are in dB(A)

Danahan	D	F*	Crit	Accocomont	
Receiver	Descriptor	Forecast*	Day/Evening	Night	Assessment
R1	L <sub>eq,1hr</sub>	29	35	30	Pass
R2	L <sub>eq,1hr</sub>	29	35	30	Pass
R3	L <sub>eq,1hr</sub>	29	35	30	Pass
R4	L <sub>eq,1hr</sub>	28	35	30	Pass
R5	L <sub>eq,1hr</sub>	26	35	30	Pass
R6	L <sub>eq,1hr</sub>	22	35	30	Pass

<sup>\*</sup> Includes adjustment for future residential construction in accordance with QDC MP4.4 Noise Category 1

As shown above, worst-case noise emissions from outdoor play activity are forecast to meet criteria within all future neighbouring residential dwellings. To minimise the potential for sleep disturbance, it is nonetheless expected and recommended that outdoor play activities not occur before 7am.

#### 4.4 Conclusions

Based on the assessment presented above, it is concluded that:

- Subject to the considerations and recommendations as presented in this Report, it is the opinion of
  this consultancy that the proposed residential subdivision and childcare centre can meet the
  requirements of Somerset Regional Council.
- Subject to provision of the recommended 2m acoustic fencing and acoustic treatment to the building envelope, road traffic noise is forecast to meet the indoor and outdoor SDAP criteria at all noise sensitive locations.
- The SDAP façade criterion is forecast to be exceeded assuming 2m, 3m or 3.5m fencing along the north-western boundary. As the development can meet both indoor and outdoor criteria, it is concluded that 2m high fencing appropriately mitigates road traffic noise intrusion.
- Future residential development on proposed Lot 1, Lot 27, Lot 28 & Lot 29 will fall within the gazetted
   *Transport Noise Corridor* for Forest Hill Fernvale Road, and will be subject to design requirements
   under the *Queensland Development Code Mandatory Part 4.4*. Future dwellings on the remaining
   lots will fall outside of the *Transport Noise Corridor*.
- Noise emissions from childcare activity are forecast to meet criteria at all future neighbouring residential developments.
- The precise type and siting of air conditioning plant has not been determined at this stage. Detailed
  plant noise assessment can be conducted if required at the Building Approval stage, although the
  relevant criterion is considered to be readily achievable through appropriate plant selection and
  siting.

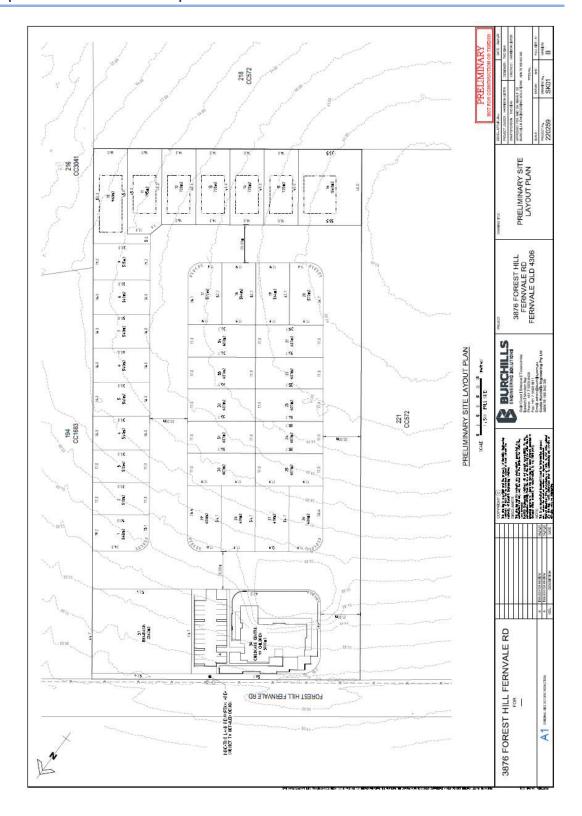
#### 4.5 Recommendations

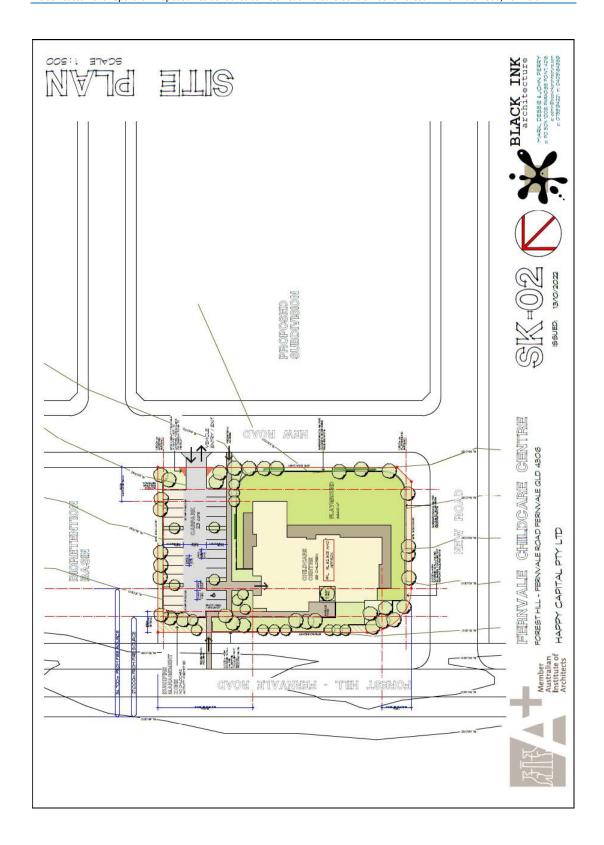
Based on the assessment presented above, it is recommended that:

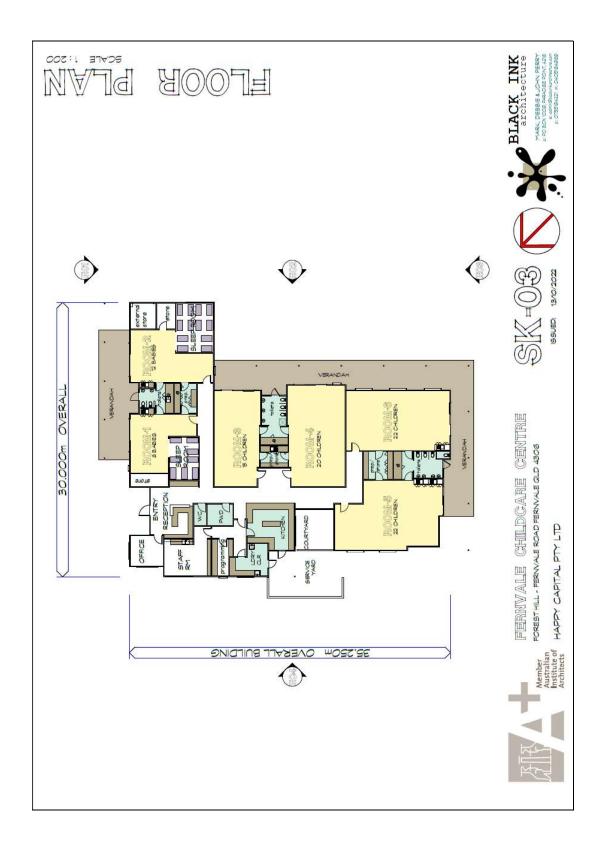
- 2m high (54.5m RL) acoustic fencing be provided as discussed in Section 4.1 above. To effectively
  function as an acoustic barrier, fencing should be continuous and gap-free, with a density of not less
  than 12.5 kg/m².
- The childcare building be constructed to not less than the acoustic treatments presented in Section
   4.2.2 above. The required Rw values from building elements are considered to be generally achievable with standard construction techniques and 6mm glazing. It is further recommended that calculations be confirmed at the Building Approval stage once architectural plans have been finalized.
- Residential development upon future Lot 1, Lot 26, Lot 27, Lot 28 & Lot 29 be constructed in accordance with QDC MP4.4 Noise Category 1.
- Use of the outdoor play areas of the childcare centre be limited to the hours of 7am to 6pm.

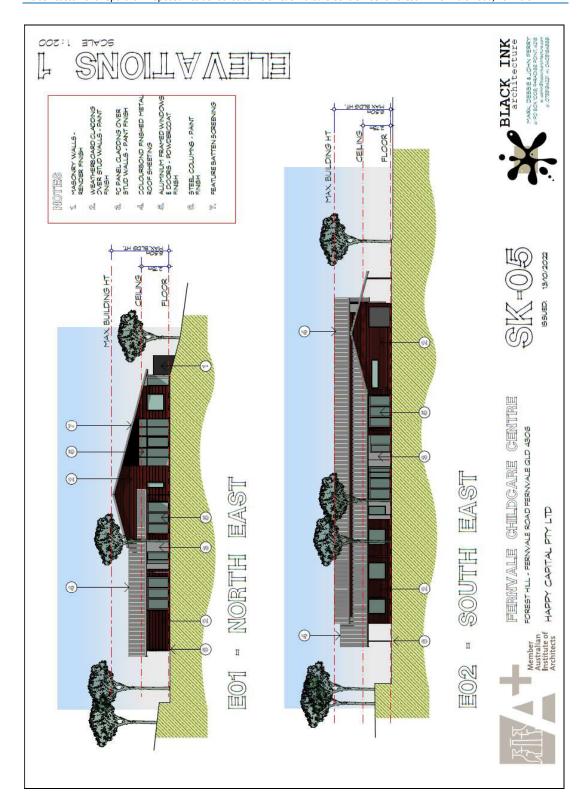


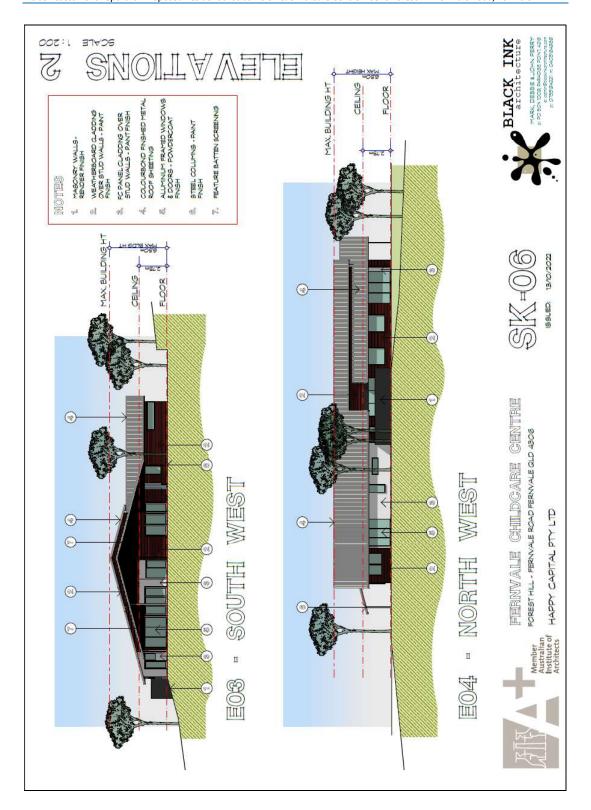
# Appendix A: Development Plans

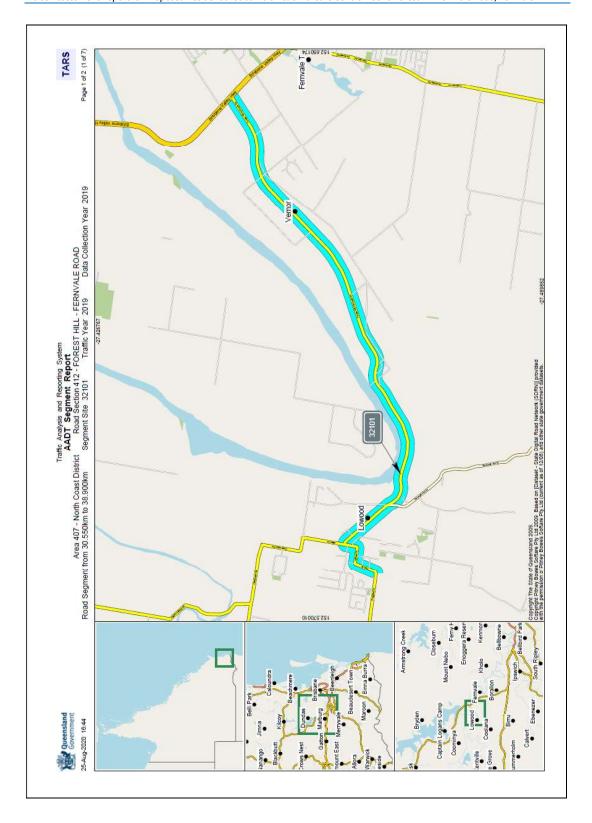


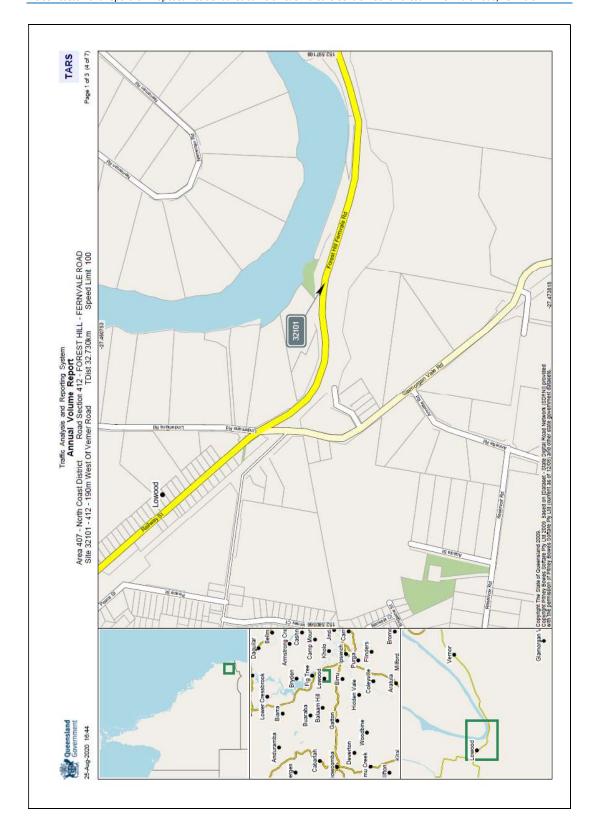


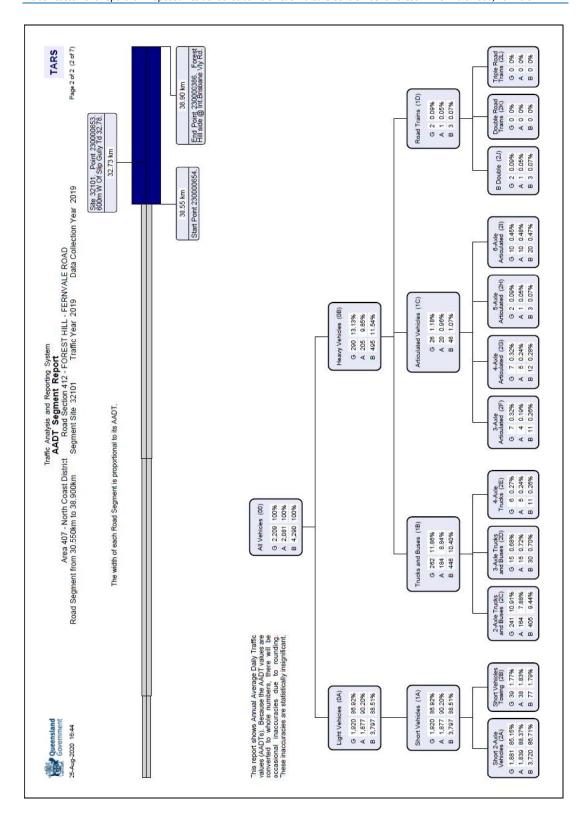


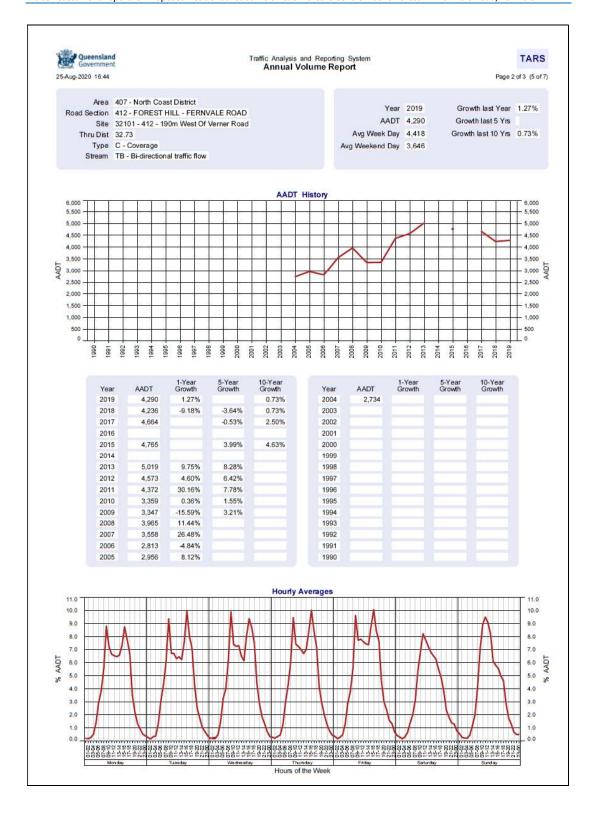












### Appendix B: Road Traffic Noise Calculations

The 10-year design levels for traffic noise are calculated for the proposed development. Calculations are performed in accordance with Australian Standard AS2702-1984 *Acoustics-Methods for the measurement of road traffic noise* and 'Calculation of Road Traffic Noise', 1975-1988. Predicted levels for this report have been calculated using CRTN prediction models PEN3D2000 and are façade-adjusted. The model has been calibrated to the  $L_{10,18hr}$  measured at ML1, which is considered representative of road traffic noise intrusion. Current and future traffic flows have been calculated from data sourced from the Queensland Traffic and Reporting System. Topographic data was sourced from Geosciences Australia (extracted into 0.5m contours), and from development plans. The assumptions that were made for the calculations include-

- Forest Hill Fernvale Road 2022 4,688 vehicles / 24hr
- Forest Hill Fernvale Road 2033 6,489 vehicles / 24hr
- Annual traffic growth 3% (10 year average of 0.73%, adjusted to account for future growth)
- Heavy vehicles 11.5%
- Average traffic speed 60 km/hr
- CoRTN calibration adjustment for Queensland Conditions as per DTMR Code of Practice:
  - o -0.7 dB(A) for free-field receivers
  - o -1.7 dB(A) for façade-affected receivers
- Source height 0.5m
- 18hr traffic flow is 94% of 24hr
- Predicted design level for ML1, 2022 61.2 dB(A) L<sub>10, 18hr</sub> free-field
- Measured level for ML1, 2022 62.7 dB(A) L<sub>10, 18hr</sub> free-field including noise from all sources

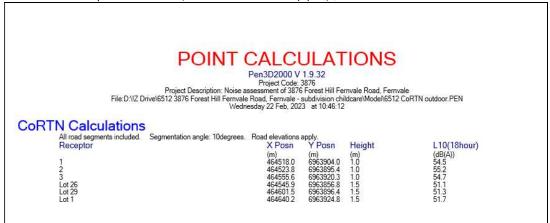
Table B1: Model Validation. Levels are in dB(A) L<sub>10, 18hr</sub>, free-field

Location	Survey	PEN3D	Difference
ML1	62.7	61.2	-1.5

**Note:** The levels above are within 2 dB(A) and are therefore considered an acceptable standard of fit. To further calibrate the road traffic noise model with measured levels, a +1.5 dB(A) adjustment has been applied to all forecasts as presented in **Section 4**.

Results from the road traffic noise model are presented in the following plates and tables.

Table B2: Receiver point calculations, 2032. Levels are in dB(A) L<sub>10,18hr</sub> free-field



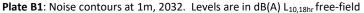




Table B3: Receiver point calculations, 2032. Levels are in dB(A) L<sub>10,18hr</sub> façade-affected

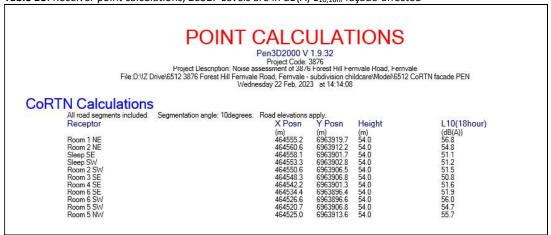
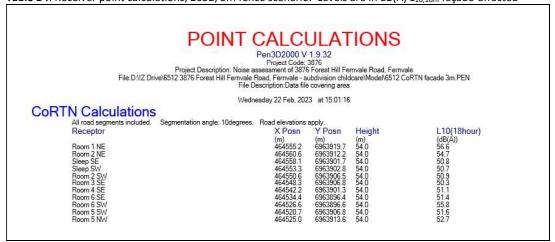






Table B4: Receiver point calculations, 2032, 3m fence scenario. Levels are in dB(A) L<sub>10,18hr</sub> façade-affected



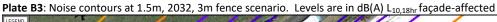




Table B5: Receiver point calculations, 2032, 3.5m fence scenario. Levels are in dB(A)  $L_{10,18hr}$  façade-affected

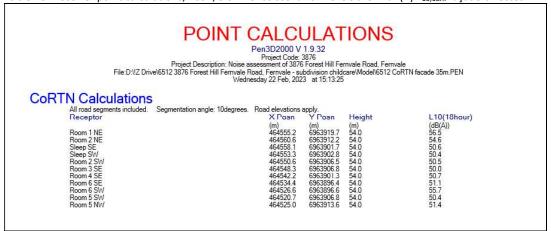


Plate B4: Noise contours at 1.5m, 2032, 3.5m fence scenario. Levels are in dB(A) L<sub>10,18hr</sub> façade-affected



## Appendix C: Environmental Noise Calculations

Forecasts noise emissions from expected activities at the proposed development have been calculated with PEN3D2000, a software program implementing a prediction model based on the method described in Bies & Hansen, ISO 9613-2 (1996) Acoustics – Attenuation of sound propagation outdoors Part 2: General Method of Calculation and CONCAWE. The basic equation adopted is-

 $Lp = Lw - 20 \log 10(r) - 10 \log 10(4\pi) + AE$ 

#### Where

- Lp is the sound pressure level at an observer
- Lw is the sound power level of the source
- 20 log10r 10log10(4PI) is the Distance attenuation (spherical)
- AE is the excess attenuation factors and is determined as the sum of the contributions

All prediction models have limits to their accuracy of prediction. This is due to the inherent nature of the calculation algorithms that go into the design of the models, the assumptions made in the implementation of the model, and the availability of good source sound power data. ISO 9613-2 has an estimated accuracy for broadband noise of ±3 dB at 1000 metres. Neutral atmospheric and meteorological conditions have been assumed. Topographic data was sourced from Geosciences Australia, and from development plans. The sound power levels used in the environmental noise model are presented in **Table C1** below.

Table C1: Design sound power levels

Name	Dossvintov	Sound Power Levels in dB(Z)						Total in		
Name	Descriptor	63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2 kHz	4 kHz	8 kHz	dB(A)
Vehicle movements	L <sub>eq</sub>	74	81	75	72	75	76	72	69	81
Car door 'slam'	L <sub>max</sub>	88	92	87	89	92	87	85	83	95
Deliveries	L <sub>eq</sub>	65	70	71	75	76	70	66	60	79
Outdoor play (8 children ages 0-2)	L <sub>eq</sub>	53	59	65	71	73	70	66	63	77
Outdoor play (12 children ages 0-2)	L <sub>eq</sub>	55	61	67	73	75	72	68	65	78
Outdoor play (10 children ages 3-5)	L <sub>eq</sub>	64	70	75	81	83	80	76	72	87
Outdoor play (20 children ages 3-5)	L <sub>eq</sub>	67	73	78	84	86	83	79	75	90
Outdoor play (22 children ages 3-5)	L <sub>eq</sub>	67	73	78	84	86	83	79	75	90
		9	Sound Pre	ssure Leve	els at 1m					
Vehicle movements	L <sub>eq</sub>	66	73	67	64	67	69	65	62	73
Car door 'slam'	L <sub>01</sub>	80	84	80	81	85	79	77	76	88
Deliveries	L <sub>eq</sub>	58	62	63	68	68	62	58	53	71
Outdoor play (8 children ages 0-2)	L <sub>eq</sub>	45	51	57	63	65	62	58	55	69
Outdoor play (12 children ages 0-2)	L <sub>eq</sub>	47	53	59	65	67	64	60	57	71
Outdoor play (10 children ages 3-5)	L <sub>eq</sub>	56	62	67	73	75	72	68	64	79
Outdoor play (20 children ages 3-5)	L <sub>eq</sub>	59	65	70	76	78	75	71	67	82
Outdoor play (22 children ages 3-5)	L <sub>eq</sub>	60	66	71	77	79	76	72	68	82

Results from the environmental noise model are presented in the following **Plates** and **Tables**.

Table C2: Receiver point calculations, vehicle movements. Levels are in dB(A)  $L_{eq}$ 

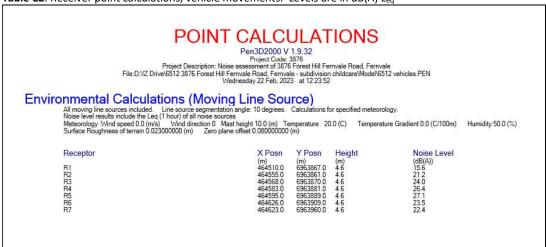






Table C3: Receiver point calculations, car door 'slam'. Levels are in dB(A) L<sub>max</sub>

# POINT CALCULATIONS Pen3D2000 V 1.9.32 Project Code: 3976 Project Description: Noise assessement of 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel (5512 3876 Forest Hill Fernvale Road, Fernvale File: D-VZ Drivel Forest Hill Fernvale File: D-VZ Drivel Forest Hill Fernvale Road, F

Plate C2: Noise contours at 4.6m, car door 'slam' Levels are in dB(A) L<sub>max</sub>

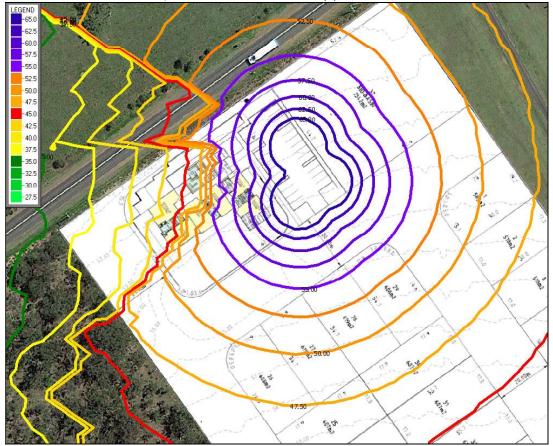
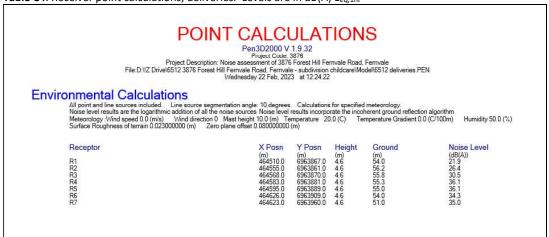
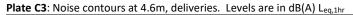


Table C4: Receiver point calculations, deliveries. Levels are in dB(A) Leq,1hr





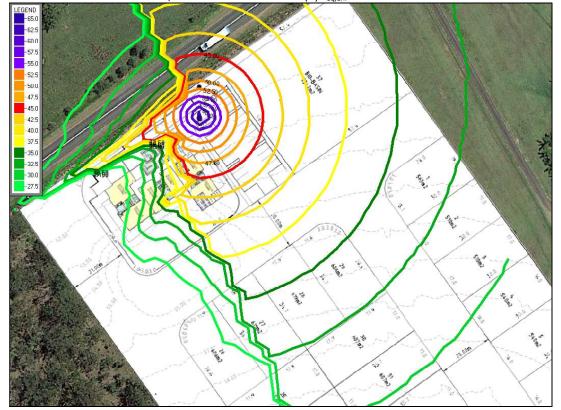
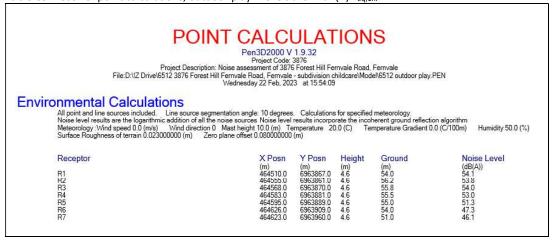
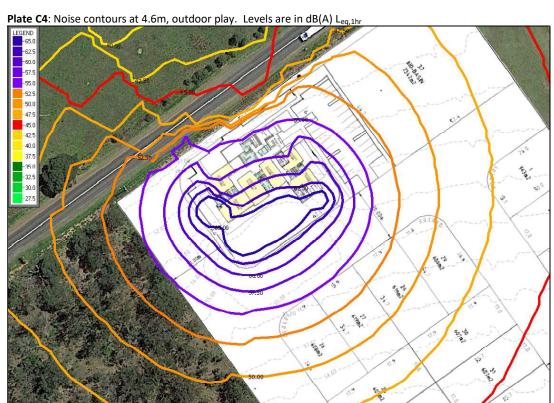


Table C5: Receiver point calculations, outdoor play. Levels are in dB(A) Leq,1hr





# Appendix D: Building Construction - QDC MP4.4

This Annex is based on the building construction guidelines of *Queensland Development Code Mandatory Part* 4.4 – *Buildings in Transport Noise Corridors*. The Code provides information for new houses, townhouses, units, hotel and motels (Class 1-4 buildings) as well as renovations to relevant Class 1-4 buildings to achieve certain levels of noise mitigation through the use of appropriate materials for floors, walls, roofs, windows and doors for the relevant noise category.

#### **SCHEDULE 1**

Noise category	Minimum transport noise reduction (dB(A)) required for habitable rooms	Component of building's external envelope	Minimum R <sub>w</sub> required for each component		
		Glazing	43		
		External walls	52		
Category 4	40	Roof	45		
		Floors	51		
		Entry doors	35		
			38 (where total area of glazing for a habitable room is greater than 1.8m²)		
		Glazing	35 (where total area of glazing for a habitable room is less than or equal to 1.8m²)		
Category 3	35	External walls	47		
		Roof	41		
		Floors	45		
		Entry doors	33		
	30		35 (where total area of glazing for a habitable room is greater than 1.8m²)		
		Glazing	32 (where total area of glazing for a habitable room is less than or equal to 1.8m²)		
Category 2		External walls	41		
		Roof	38		
		Floors	45		
		Entry doors	33		
			27 (where total area of glazing for a habitable room is greater than 1.8m²)		
Category 1	25	Glazing	24 (where total area of glazing for a habitable room is less than or equal to 1.8m²)		
		External walls	35		
		Roof	35		
		Entry doors	28		
Category 0	No additional acoustic treatment required – standard building assessment provisions apply				

#### **SCHEDULE 2**

Component of building's external envelope	Minimum R <sub>w</sub>	Acceptable forms of constructions
	43	Double glazing consisting of two panes of minimum 5mm thick glass with at least 100mm air gap and full perimeter acoustically rated seals.
	38	Minimum 14.38mm thick laminated glass, with full perimeter acoustically rated seals;  OR  Double glazing consisting of one pane of minimum 5mm thick glass and one pane of minimum 6mm thick glass with at least 44mm air gap, and full perimeter acoustically rated seals.
	35	Minimum 10.38mm thick laminated glass, with full perimeter acoustically rated seals.
Glazing	32	Minimum 6.38mm thick laminated glass with full perimeter acoustically rated seals.
	27	Minimum 4mm thick glass with full perimeter acoustically rated seals.
	24	Minimum 4mm thick glass with standard weather seals

Component of building's external envelope	Minimum R <sub>w</sub>	Acceptable forms of constructions	
	52	Two leaves of clay brick masonry, at least 270mm in total, with subfloor vents fitted with noise attenuators	
External walls	47	Two leaves of clay brick masonry at least 110mm thick with:  (i) Cavity not less than 50mm between leaves; and  (ii) 50mm thick mineral insulation or 50mm thick glass wool insulation with a density of 11kg/m³ or 50mm thick polyester insulation with a density of 20kg/m³ in the cavity.  OR  Two leaves of clay brick masonry at least 110mm thick with:  (i) Cavity not less than 50mm between leaves; and  (ii) At least 13mm thick cement render on each face.  OR  Single leaf of clay brick masonry at least 110mm thick with:  (i) A row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and  (ii) Mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11kg/m³ positioned between studs; and  (iii) One layer of plasterboard at least 13mm thick fixed to outside face of studs.  OR  Single leaf of minimum 150mm thick masonry of hollow, dense concrete blocks, with mortar joints laid to prevent moisture bridging.	

Component of building's external envelope	Minimum R <sub>w</sub>	Acceptable forms of constructions
External walls	41	Two leaves of clay brick masonry at least 110mm thick with cavity not less than 50mm between leaves  OR  Single leaf of clay brick masonry at least 110mm thick with:  (i) A row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and  (ii) Mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11kg/m³ positioned between studs; and  (ii) One layer of plasterboard at least 10mm thick fixed to outside face of studs.  OR  Single leaf of brick masonry at least 110mm thick with at least 13mm thick render on each face  OR  Concrete brickwork at least 110mm thick  OR  In-situ concrete at least 100mm thick  OR
	35	Precast concrete at least 100mm thick and without joints.  Single leaf of clay brick masonry at least 110mm thick with:  (i) A row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and  (ii) One layer of plasterboard at least 10mm thick fixed to the outside face of studs  OR  Minimum 6mm thick fibre cement sheeting or weatherboards or plank cladding externally, minimum 90mm deep timber stud or 92mm metal stud, standard plasterboard at least 13mm thick internally.

Component of building's external envelope	Minimum R <sub>w</sub>	Acceptable forms of constructions		
	45	Concrete or terracotta tile or sheet metal roof with sarking, acoustically rated plasterboard ceiling at least 13mm thick fixed to ceiling joists, cellulose fibre insulation at least 100mm thick with a density of at least 45kg/m³ in the cavity  OR  Concrete or terracotta tile or sheet metal roof with sarking, 2 layers of acoustically rated plasterboard at least 16mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m³ or polyester insulation at least 50mm thick with a density of at least 20kg/m³ in the cavity.		
Roof	41	Concrete or terracotta tile or sheet metal roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m³ or polyester insulation at least 50mm thick with a density of at least 20kg/m³ in the cavity  OR  Concrete suspended slab at least 100mm thick.		
	38	Concrete or terracotta tile or sheet metal roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity, mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11kg/m <sup>3</sup>		
	35	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity		
	51	Concrete slab at least 150mm thick		
Floors	45	Concrete slab at least 100mm thick  OR  Tongued and grooved boards at least 19mm thick with:  (i) Timber joists not less than 175mm x 50mm; and  (ii) Mineral insulation or glass wool insulation at least 75mm thick with a density of at least 11kg/m³ positioned between joists and laid on plasterboard at least 10mm thick fixed to underside of joists; and  (iii) Mineral insulation or glass wool insulation at least 25mm thick with a density of at least 11kg/m³ laid over entire floor, including tops of joists before flooring is laid; and  (iv) Secured to battens at least 75mm x 50mm; and  (v) The assembled flooring laid over the joists, but not fixed to them, with battens lying between the joists.		

Component of building's external envelope	Minimum R <sub>w</sub>	Acceptable forms of constructions	
	35	Solid core timber not less than 45mm thick, fixed so as to overlap the frame or rebate of the frame by not less than 10mm, with full perimeter acoustically rated seals.	
Entry Doors	33	Fixed so as to overlap the frame or rebate of the frame by not less than 10mm, fitted with full perimeter acoustically rated seals and constructed of:  (i) Solid core wood, particleboard or blockboard not less than 45mm thick; and/or  (ii) Acoustically laminated glass not less than 10.38mm thick	
	28	Fixed so as to overlap the frame or rebate of the frame, constructed of:  (i) Wood, particleboard or blockboard not less than 33mm thick; or  (ii) Compressed fibre reinforced sheeting not less than 9mm thick; or  (iii) Other suitable material with a mass per unit area not less than 24.4kg/m², or  (iv) Solid core timber door not less than 35mm thick fitted with full perimeter acoustically rated seals.	

Appendix E: Glossary

Event maximum sound pressure level (LA%,adj,T), L01

The L01 level is calculated as the noise level equalled and exceeded for 1% of the measurement time, for example 9 seconds in any 15 minute interval. L01 is an appropriate level to characterise single events, such as from impulsive or distinctive pass-by noise. In this Report, the measured L01 levels for day/evening/night are not averaged but are arranged from low to high in the relevant day/evening/night interval and the value that is

found at the 90th percentile (L10 of L01 sample) in the interval is recorded as its "L01" level. The level can be

adjusted for tonality or impulsiveness.

Average maximum sound pressure level (LA%,adj, T), L10

The "L10" level is an indicator of "steady-state" noise or intrusive noise conditions from traffic, music and other relatively non-impulsive noise sources. The L10 level is calculated as the noise level equalled and exceeded for 10% the measurement time, for example 90 seconds in any 15 minute interval. The measured L10 time-intervals for day/evening/night are arithmetically averaged to present the "average maximum" levels of the

environment for day/evening/night. The level can be adjusted for tonality or impulsiveness.

Background sound pressure level (LA90,T), L90

Commonly called the "L90" or "background" level and is an indicator of the quietest times of day, evening or night. The L90 level is calculated as the noise level equalled and exceeded for 90% the measurement time. The measured L90 time-intervals are arithmetically averaged to present the "average background" levels of the environment for day/evening/night. The level is recorded in the absence of any noise under investigation. The

level is not adjusted for tonality or impulsiveness.

Equivalent Continuous or time average sound pressure level (LAeq,T), Leq

Commonly called the "Leq" level it is the logarithmic average noise level from all sources far and near. The maximum 1-hour levels within the day/evening/night time intervals are referenced for building design. The level can be adjusted for tonality.

Façade-adjusted level

A sound level that is measured at a distance of 1.0 metre from a wall or facade. The level is nominally 2.5 dB higher than the free-field level.

Free-field level

A sound level that is measured at a distance of more than 3.5 metres from a wall or facade.

Weighted Sound Reduction Index, Rw

A single number value used to compare the sound reduction index of building elements. Similar to the Sound Transmission Class (STC) rating that is still in common use. Rw and STC are not identical though may be considered, for most applications, as being interchangeable. A high Rw indicates high sound reduction.

MME

Our ref TMR22-037906 Your ref 1621053 Enquiries Kirsty Simmonds

16 March 2023



Department of

**Transport and Main Roads** 

# Decision Notice – Permitted Road Access Location (s62(1) Transport Infrastructure Act 1994)

This is not an authorisation to commence work on a state-controlled road<sup>1</sup>

Development application reference number DA23095, lodged with Somerset Regional Council involves constructing or changing a vehicular access between Lot 222CC572, the land the subject of the application, and Forest Hill Fernvale Road (a state-controlled road).

In accordance with section 62A(2) of the *Transport Infrastructure Act 1994* (TIA), this development application is also taken to be an application for a decision under section 62(1) of TIA.

**Applicant Details** 

Name and address Happy Capital Pty Ltd C/- Place Design Group

Level 9 Seabank, 12-14 Marine Parade

Southport QLD 4215

**Application Details** 

Address of Property 3876 Forest Hill Fernvale Road, Fernvale QLD 4306

Real Property Description 222CC572

Aspect/s of Development Development Permit for for Material Change of Use and

Reconfiguration of Lots for Child Care Centre, Subdivision (1 lot

into 37 lots, and roads and drainage lot)

#### Decision (given under section 67 of TIA)

It has been decided to approve the application, subject to the following conditions:

No.	Conditions of Approval	Condition Timing
1	The permitted road access location is to be located between Lot 222CC572 and Forest Hill – Fernvale Road at approximately Longitude 152.640860 Latitude -27.447857 in accordance with:  a) Site Layout Plan by Burchills Engineering Solutions dated 10 February 2023, Drawing Number C100, Revision B.	At all times.
2	a) Road access intersection works must be provided at the permitted road access location comprising a short channelised	Prior to submitting the Plan of Survey to the local government for approval or

<sup>&</sup>lt;sup>1</sup> Please refer to the further approvals required under the heading 'Further approvals'

No.	Conditions of Approval	<b>Condition Timing</b>
	<ul> <li>right turn treatment and short auxiliary left turn treatment in accordance with:</li> <li>Site Layout Plan by Burchills Engineering Solutions dated 10 February 2023, Drawing Number C100, Revision B.</li> <li>b) The road access works must be designed and constructed in accordance with the Department of Transport and Main Roads' Road Planning and Design Manual (2<sup>nd</sup> Edition).</li> </ul>	prior to the commencement of use, whichever occurs first, and to be maintained at all times
3	<ul> <li>a) The existing vehicular property accesses located between Lot 222CC572 and Forest Hill Fernvale Road must be permanently closed and removed.</li> <li>b) The table drain and verge between the pavement edge and the property boundary must be reinstated in accordance Department of Transport and Main Roads' Road Planning and Design Manual, 2nd Edition and local government standards and specifications at no cost to the Department of Transport and Main Roads'.</li> </ul>	Prior to submitting the Plan of Survey to the local government for approval or prior to the commencement of use, whichever occurs first, and to be maintained at all times
4	Direct access is prohibited between Forest Hill - Fernvale Road and 222CC572 at any other location other than the permitted road access location described in Condition 1.	At all times.

#### Reasons for the decision

The reasons for this decision are as follows:

- a) Vehicular access must not compromise safety of the users of the a) state-controlled road network.
- b) The safety of users of the state-controlled road network is the primary consideration for all works in a state-controlled road corridor.

Please refer to **Attachment A** for the findings on material questions of fact and the evidence or other material on which those findings were based.

#### Information about the Decision required to be given under section 67(2) of TIA

- 1. There is no guarantee of the continuation of road access arrangements, as this depends on future traffic safety and efficiency circumstances.
- 2. In accordance with section 70 of the TIA, the applicant for the planning application is bound by this decision. A copy of section 70 is attached as **Attachment B**, as required, for information.

#### Further information about the decision

- 1. In accordance with section 67(7) of TIA, this decision notice:
  - a) starts to have effect when the development approval has effect; and
  - b) stops having effect if the development approval lapses or is cancelled; and
  - c) replaces any earlier decision made under section 62(1) in relation to the land.

- 2. In accordance with section 485 of the TIA and section 31 of the *Transport Planning and Coordination Act 1994* (TPCA), a person whose interests are affected by this decision may apply for a review of this decision only within 28 days after notice of the decision was given under the TIA. A copy of the review provisions under TIA and TPCA are attached in **Attachment C** for information.
- 3. In accordance with section 485B of the TIA and section 35 of TPCA a person may appeal against a reviewed decision. The person must have applied to have the decision reviewed before an appeal about the decision can be lodged in the Planning and Environment Court. A copy of the Appeal Provisions under TIA and TPCA is attached in **Attachment C** for information.

#### **Further approvals**

The Department of Transport and Main Roads also provides the following information in relation to this approval:

1. Road Access Works Approval Required – Written approval is required from the department to carry out road works that are road access works (including driveways) on a state-controlled road in accordance with section 33 of the TIA. This approval must be obtained prior to commencing any works on the state-controlled road. The approval process may require the approval of engineering designs of the proposed works, certified by a Registered Professional Engineer of Queensland (RPEQ). Please contact the department to make an application.

If further information about this approval or any other related query is required, Ms Kirsty Simmonds, Town Planner should be contacted by email at <a href="mailto:North.Coast.IDAS@tmr.qld.gov.au">North.Coast.IDAS@tmr.qld.gov.au</a> or on 07 5451 7055.

Yours sincerely

Lobron

Lena Hobson

Senior Planner (Development Assessment)

Attachments: Attachment A – Decision evidence and findings

Attachment B - Section 70 of TIA Attachment C - Appeal Provisions

Attachment D - Permitted Road Access Location Plan

#### Attachment A

#### **Decision Evidence and Findings**

Findings on material questions of fact:

- The objective of the *Transport Infrastructure Act 1994* (TIA) requires the establishment of a road regime that is safe and efficient.
- Section 62 of the TIA provides for the Chief Executive of the Department of Transport and Main Roads (the department) to make decisions about permitted road access locations between particular land and a state-controlled road.
- The development application (Council reference: DA23095) seeks a Development Permit for a Material Change of Use of Premises to Establish a Childcare Centre and a Reconfiguration of Lots (1 into 37 lots).
- The subject site has road frontage to Forest Hill Fernvale Road a state-controlled road under jurisdiction of the department.
- Site currently has an existing access to the state-controlled road.
- Access to a local road is not available.
- Development proposes to remove the existing access and proposes a new access, as a future local road intersection, supported with turn treatments.
- The Traffic Impact Assessment demonstrates that the proposed access location and standard is suitable for the proposed development.
- The proposed development can be effectively implemented without significant impacts to the safety and efficiency of the state- controlled road networks with the conditioned access requirements.

Evidence or other material on which findings were based:

Title of Evidence / Material	Prepared by	Date	Reference no.	Version/Issue
Transport Infrastructure Act 1994	Queensland Government	Reprint current from 1 March 2023	-	-
Planning Act 2016	Queensland Government	Reprint current from 10 June 2022	-	-
Guide to Traffic Impact Assessment	Department of Transport and Main Roads	2018	-	-
Vehicular access to state-controlled roads policy Management of access between adjacent land and	Department of Transport and Main Roads	2019	-	-

	I		T	T
state-controlled				
roads				
Road Planning and	Department of	August 2014	N/A	2 <sup>nd</sup> Edition
Design Manual	Transport and Main			
	Roads			
Town Planning	Place Design	October 2022	1621053	Final
Assessment	Group Pty Ltd			
Report				
Traffic Impact	Burchills	10 February	BE220259-	02
Assessment	Engineering Pty	2023	RP-TIA-02	
	Ltd			
Overall Site Layout	Burchills	9 January	220259 SK03	Α
Plan	Engineering Pty	2023		
	Ltd			
Preliminary Site	Burchills	9 January	220259 SK01	В
Layout Plan	Engineering Pty	2023		
	Ltd			
Site Plan	Black Ink	3 March 2023	SK-02A	-
	Architecture			

#### Attachment B

#### Section 70 of TIA

Transport Infrastructure Act 1994
Chapter 6 Road transport infrastructure
Part 5 Management of State-controlled roads

# 70 Offences about road access locations and road access works, relating to decisions under s 62(1)

- (1) This section applies to a person who has been given notice under section 67 or 68 of a decision under section 62(1) about access between a State-controlled road and adjacent land.
- (2) A person to whom this section applies must not—
  - (a) obtain access between the land and the State-controlled road other than at a location at which access is permitted under the decision; or
  - (b) obtain access using road access works to which the decision applies, if the works do not comply with the decision and the noncompliance was within the person's control; or
  - (c) obtain any other access between the land and the road contrary to the decision; or
  - (d) use a road access location or road access works contrary to the decision; or
  - (e) contravene a condition stated in the decision; or
  - (f) permit another person to do a thing mentioned in paragraphs (a) to (e); or
  - (g) fail to remove road access works in accordance with the decision.

Maximum penalty—200 penalty units.

(3) However, subsection (2)(g) does not apply to a person who is bound by the decision because of section 68.

#### **Attachment C**

#### **Appeal Provisions**

Transport Infrastructure Act 1994 Chapter 16 General provisions

#### 485 Internal review of decisions

- (1) A person whose interests are affected by a decision described in schedule 3 (the *original decision*) may ask the chief executive to review the decision.
- (2) The person is entitled to receive a statement of reasons for the original decision whether or not the provision under which the decision is made requires that the person be given a statement of reasons for the decision.
- (3) The Transport Planning and Coordination Act 1994, part 5, division 2—
  - (a) applies to the review; and
  - (b) provides—
    - (i) for the procedure for applying for the review and the way it is to be carried out; and
    - (ii) that the person may apply to QCAT to have the original decision stayed.

#### 485B Appeals against decisions

- (1) This section applies in relation to an original decision if a court (the appeal court) is stated in schedule 3 for the decision.
- (2) If the reviewed decision is not the decision sought by the applicant for the review, the applicant may appeal against the reviewed decision to the appeal court.
- (3) The Transport Planning and Coordination Act 1994, part 5, division 3—
  - (a) applies to the appeal; and
  - (b) provides
    - for the procedure for the appeal and the way it is to be disposed of; and
    - (ii) that the person may apply to the appeal court to have the original decision stayed.
- (4) Subsection (5) applies if—
  - (a) a person appeals to the Planning and Environment Court against a decision under section 62(1) on a planning application that is taken, under section 62A(2), to also be an application for a decision under section 62(1); and
  - (b) a person appeals to the Planning and Environment Court against a decision under the Planning Act on the planning application.

- (5) The court may order—
  - (a) the appeals to be heard together or 1 immediately after the other; or
  - (b) 1 appeal to be stayed until the other is decided.
- (6) Subsection (5) applies even if all or any of the parties to the appeals are not the same.
- (7) In this section—

original decision means a decision described in schedule 3.

reviewed decision means the chief executive's decision on a review under section 485.

# 31 Applying for review

- (1) A person may apply for a review of an original decision only within 28 days after notice of the original decision was given to the person under the transport Act.
- (2) However, if-
  - (a) the notice did not state the reasons for the original decision; and
  - (b) the person asked for a statement of the reasons within the 28 days mentioned in subsection (1)

the person may apply within 28 days after the person is given the statement of the reasons.

- (3) In addition, the chief executive may extend the period for applying.
- (4) An application must be written and state in detail the grounds on which the person wants the original decision to be reviewed.

# 32 Stay of operation of original decision

- (1) If a person applies for review of an original decision, the person may immediately apply for a stay of the decision to the relevant entity.
- (2) The relevant entity may stay the original decision to secure the effectiveness of the review and any later appeal to or review by the relevant entity.
- (3) In setting the time for hearing the application, the relevant entity must allow at least 3 business days between the day the application is filed with it and the hearing day.
- (4) The chief executive is a party to the application.
- (5) The person must serve a copy of the application showing the time and place of the hearing and any document filed in the relevant entity with it on the chief executive at least 2 business days before the hearing.
- (6) The stay—
  - (a) may be given on conditions the relevant entity considers appropriate; and
  - (b) operates for the period specified by the relevant entity; and
  - (c) may be revoked or amended by the relevant entity.
- (7) The period of a stay under this section must not extend past the time when the chief executive reviews the original decision and any later period the relevant entity allows the applicant to enable the applicant to appeal against the decision or apply for a review of the decision as provided under the QCAT Act.
- (8) The making of an application does not affect the original decision, or the carrying out of the original decision, unless it is stayed.

(9) In this section—

#### relevant entity means—

- (a) if the reviewed decision may be reviewed by QCAT—QCAT; or
- (b) if the reviewed decision may be appealed to the appeal court—the appeal court.

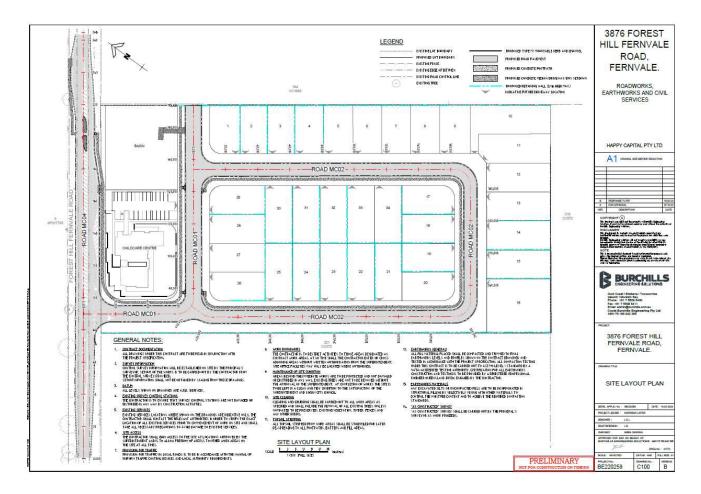
# 35 Time for making appeals

- (1) A person may appeal against a reviewed decision only within—
  - (a) if a decision notice is given to the person—28 days after the notice was given to the person; or
  - (b) if the chief executive is taken to have confirmed the decision under section 34(5)—56 days after the application was made.
- (2) However, if-
  - (a) the decision notice did not state the reasons for the decision; and
  - (b) the person asked for a statement of the reasons within the 28 days mentioned in subsection (1)(a);

the person may apply within 28 days after the person is given a statement of the reasons.

(3) Also, the appeal court may extend the period for appealing.

# Attachment D Permitted Road Access Location Plan



# Infrastructure Charges Notice

(Section 119 of the Planning Act 2016)

Applicant: Happy Capital Pty Ltd

C/- Place Design Group

Level 9 Seabank 12 – 14 Marine Parade

SOUTHPORT QLD 4215

**Application:** Reconfiguration of a Lot by Subdivision (one

into 35 lots)

Material Change of Use for a Child Care

Centre (99 places)

Notice Number:

Date:

File Reference: DA23095

Amount of the Levied Charge: Reconfiguration of a Lot by Subdivision (one

into 35 lots)

\$509,932.00

Material Change of Use for a Child Care Centre (99 places) \$44,447.45

(Details of how these charges were calculated are shown overleaf)

Automatic Increase of Levied Charge: The amount of the levied charge is subject

to an automatic increase. Refer to the General Information attached to this notice for more information on how the increase is

worked out.

Land to which Charge Applies: Lot 222 CC572

Site Address: 3876 Forest Hill Fernvale Road, Fernvale

Payable to: Somerset Regional Council

When Payable:

(In accordance with the timing stated in Section 122 of the

Planning Act 2016)

For reconfiguring a lot—when the local government that levied the charge approves a plan for the reconfiguration that, under the Land Title Act, is required to be given to the

local government for approval;

For a material change of use-when the

change happens;

Offsets or Refunds: Not Applicable.

This charge is made in accordance with Council's Charges Resolution (No. 1) 2022.

# **Details of Calculation**

# Reconfiguration of a Lot by Subdivision (one into 35 lots)

# Stormwater network Adopted Charges

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
Existing dwelling	35	Per 3 or more	\$4,205.00	CR Table 2	\$147,175.00
(Residential use – 3		bedroom			
or more bedrooms)		dwelling unit			

# Discounts

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
Existing dwelling	1	Per 3 or more	\$4,205.00	CR Table 2	\$4,205.00
(Residential use – 3		bedroom			
or more bedrooms)		dwelling unit			

# Public parks and Community land Adopted Charges

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
Existing dwelling	35	Per 3 or more	\$6,348.00	CR Table 2	\$222,180.00
(Residential use – 3		bedroom			
or more bedrooms)		dwelling unit			

## Discounts

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
Existing dwelling	1	Per 3 or more	\$6,348.00	CR Table 2	\$6,348.00
(Residential use – 3		bedroom			
or more bedrooms)		dwelling unit			

# Transport network Adopted Charges

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
Existing dwelling	35	Per 3 or more	\$4,445.00	CR Table 2	\$155,575.00
(Residential use – 3		bedroom			
or more bedrooms)		dwelling unit			

# Discounts

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
Existing dwelling	1	Per 3 or more	\$4,445.00	CR Table 2	\$4,445.00
(Residential use – 3		bedroom			
or more bedrooms)		dwelling unit			

**Net Charges** 

Development Description	Stormwater	Public Parks and Community Land	Transport	Total
Existing dwelling (Residential use – 3 or more bedrooms)	\$147,175.00	\$222,180.00	\$155,575.00	\$524,930.00
Discount	-\$4,205.00	-\$6,348.00	-\$4,445.00	-\$14,998.00
Total	\$142,970.00	\$215,832.00	\$151,130.00	\$509,932.00

# Material Change of Use for a Child Care Centre (99 places)

# Stormwater network Adopted Charges

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
Childcare centre	1671	per impervious	\$10.95	CR Table 2	\$18,297.45
(Educational facility)		m <sup>2</sup>			

## **Discounts**

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
Existing dwelling	1	Per 3 or more	\$4,205.00	CR Table 2	\$4,205.00
(Residential use – 3		bedroom			
or more bedrooms)		dwelling unit			

# Public parks and Community land Adopted Charges

There is no adopted charge for the Public parks and community land network for Educational facilities.

# Transport network Adopted Charges

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
Childcare centre	696	m <sup>2</sup> of GFA	\$50.00	CR Table 2	\$34,800.00
(Educational facility)					

# **Discounts**

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
Existing dwelling	1	Per 3 or more	\$4,445.00	CR Table 2	\$4,445.00
(Residential use – 3		bedroom			
or more bedrooms)		dwelling unit			

**Net Charges** 

Development Description	Stormwater	Public Parks and Community Land	Transport	Total
Childcare centre (Educational facility)	\$18,297.45	N/A	\$34,800.00	\$53,097.45
Existing dwelling (Residential use – 3 or more bedrooms)	-\$4,205.00	N/A	-\$4,445.00	-\$8,650.00
Total	\$14,092.45	N/A	\$30,355.00	\$44,447.45

<sup>\*</sup> In accordance with Section 3.3 of the Charges Resolution, the discount may not exceed the adopted charge. Where there are any surplus discounts, these will not be refunded, except at Council's discretion through entering an infrastructure agreement, where the surplus discounts may be attached to the land.

Yours faithfully

Andrew Johnson Chief Executive Officer

### **Information Notice**

# Authority and Reasons for Charge

This Infrastructure Charges Notice has been given in accordance with section 119 of the *Planning Act 2016* to support the Local government's long-term infrastructure planning and financial sustainability.

# **Appeals**

Pursuant to schedule 1 of the *Planning Act 2016* a person may appeal an Infrastructure Charges Notice. Attached is an extract from the *Planning Act 2016* that details your appeal rights.

# Automatic Increase Provision of charge rate (\$)

An infrastructure charge levied by Council is to be increased by the difference between the Producer Price Index (PPI) applicable at the time the infrastructure charge was levied, and PPI Index applicable at the time of payment of the levied charge, adjusted by reference to the 3-yearly PPI Index average<sup>1</sup>. If the levied charge is increased using the method described above, the charge payable is the amount equal to the sum of the charge as levied and the amount of the increase.

However, the sum of the charge as levied and the amount of the increase is not to exceed the maximum adopted charge the Council could have levied for the development at the time the charge is paid.

#### **GST**

The Federal Government has determined that contributions made by developers to Government for infrastructure and services under the *Planning Act 2016* are GST exempt.

# To whom the charge must be paid

Payment of the Charge must be made payable to Somerset Regional Council via Customer Service or Planning and Development Department, PO Box 117 Esk Qld 4312.

The Infrastructure Charge has been calculated in accordance with the charges stated in Council's Charges Resolution. This notice will be escalated to time of payment to the extent permitted under legislation in force at that time.

It is requested that you contact Council's Planning Department to confirm that amount payable prior to making payment.

<sup>1 4</sup> 

<sup>&</sup>lt;sup>1</sup> 3-yearly PPI index average is defined in section 115 of the *Planning Act 2016* and means the PPI index smoothed in accordance with the 3-year moving average quarterly percentage change between quarters. PPI Index is the producer price index for construction 6427.0 (ABS PPI) index number 3101 – Road and Bridge construction index for Queensland published by the Australian Bureau of Statistics.

#### **Payment**

This notice is due and payable by the due time shown. Cheques, money orders or postal notes should be made payable to Somerset Regional Council and crossed "Not Negotiable". Change cannot be given on cheque payments. Property owners will be liable for any dishonour fees.

#### **Overseas Payees**

Please forward your infrastructure charges payment by way of a bank draft for the required amount in Australian dollars.

## **Method of Payment**

### Payment by Mail

Confirm the current Infrastructure Charge applicable and obtain an updated payment notice from Council's Operations Department or Planning and Development Department.

Mail this updated payment notice immediately with your payment to: Somerset Regional Council, PO Box 117, Esk Qld 4312

NOTE: Cheques must be made payable to Somerset Regional Council

#### **Payment at Council Offices**

Confirm the current Infrastructure Charge applicable.

Present written confirmation of charges with your payment to Somerset Regional Council at the Customer Service Counters.

NOTE: Cheques must be made payable to Somerset Regional Council

# **Payment made by Credit Card**

Credit Cards accepted: Mastercard or Visa

### **Enquiries**

Enquiries regarding this Infrastructure Charges Notice should be directed to the Somerset Regional Council, Operations Department OR Planning and Development Department, Esk Office, during office hours, Monday to Friday by phoning (07) 5424 4000 or email at mail@somerset.qld.gov.au

#### **SOMERSET REGIONAL COUNCIL - OFFICER'S REPORT**

To: Andrew Johnson, Chief Executive Officer

From: Mark Westaway, Senior Planner

Director: Luke Hannan, Director of Planning and Development

Date: 2 May 2023

Subject: Development Application No. 23273

Development Application for a Reconfiguring a Lot (1 into 4 lots)

File No: DA23273 Action Officer: SP-MW

Assessment No: 00824-32000-000

#### 1.0 APPLICATION SUMMARY

# **Subject Land**

Location: 5 Erskine Street, Fernvale

Real property description: Lot 1 F33611
Site area: 0.231 hectares

Current land use: Dwelling house and outbuildings

Easements/encumbrances: Nil identified

# South East Queensland Regional Plan 2017

Land use category: Urban footprint

## **Somerset Region Planning Scheme (Version Four)**

Zone: General residential zone

Precinct: Not applicable

Overlays: High impact activities management area overlay

**Application** 

Proposal: Reconfiguring a Lot (1 into 4 lots)

Category of assessment: Code assessment Applicant details: Urban Rise Group

C/- Statewide Town Planning

3/123 Link Road

**VICTORIA POINT QLD 4165** 

Owner details:

Date application received:

Date application properly made:

Laurie Beard

2 December 2022

2 December 2022

Date application decision due: 4 May 2023

Referral agencies None required Public notification Not required

#### RECOMMENDED DECISION

Approve the development application subject to the conditions and requirements contained in the schedules and attachments of this report.



Locality Plan of Lot 1 F33611 Situated at 5 Erskine Street, Fernvale

#### 2.0 PROPOSAL

This development application seeks approval for a Reconfiguring a Lot (1 into 4 lots), on land at 5 Erskine Street, Fernvale formally described as Lot 1 F33611.

The application is made under Version Four of the Somerset Region Planning Scheme (the planning scheme). The site is located within the General residential zone. The application is required because reconfiguring a lot is subject to code assessment.

#### 3.0 SITE DETAILS

The site is a generally rectangular allotment with frontage to Erskine Drive at the southern boundary. The site contains a house and outbuildings. The lot to the west is currently vacant, while the lot to the north contains the Brisbane Valley Rail Trail, with the lot to the east containing a dwelling house. The lot slopes to the rear, toward the Rail Trail.

#### 4.0 PLANNING LEGISLATION

The application will be assessed against the matters set out in section 45 and decided in accordance with section 60 of the *Planning Act 2016*.

# 5.0 ASSESSMENT BENCHMARKS

## 5.1 State Planning Policy

A new State Planning Policy (SPP) came into effect on 3 July 2017 and is not currently reflected in the Somerset Region Planning Scheme. An assessment of the proposed development against the assessment benchmarks contained within Part E of the SPP is required.

The application has been assessed against the assessment benchmarks and the proposal is considered to comply.

## 5.2 South East Queensland Regional Plan 2017

The site is located within the Urban footprint. The application has been assessed against the provisions of the regional plan and the associated regulatory requirements and was considered to comply.

#### 5.3 Schedule 10 of the *Planning Regulation 2017*

The development application did not require assessment against any of the assessment benchmarks within the Regulation.

The proposal does not impact on any regulated vegetation or koala habitat areas, is not located in proximity to a Queensland heritage place or local heritage place, is not known to be on a contaminated land register, nor involves any environmentally relevant activities.

# 5.4 Temporary local planning instruments

There are currently no temporary local planning instruments in effect within the Somerset Region.

## 5.5 Variation approvals

The property is not benefitted by any variation approvals.

### 5.6 Somerset Region Planning Scheme (Version Four)

# 5.6.1 Strategic framework assessment

An assessment against the strategic framework was not required as this development application was subject to code assessment.

## 5.6.2 Code compliance summary

The assessment below identifies how the development proposal achieves the assessment benchmarks and where the development proposal:

- (a) proposes an alternative outcome to the identified acceptable outcomes satisfying or not satisfying the corresponding performance outcomes; or
- (b) proposes an outcome where no acceptable outcome is stated in the code and the proposed outcome does not satisfy the performance outcome.

Applicable code	Compliance with overall outcomes	Performance outcomes
Reconfiguring a lot code	Yes	PO1, PO2
Services works and infrastructure code	Yes	No alternative outcomes proposed
Transport access and parking code	Yes	No alternative outcomes proposed
Applicable overlay code	Compliance with overall outcomes	Performance outcomes
Not applicable	-	-

The assessment of the development proposal against the performance outcomes of the applicable code(s) is discussed below.

#### 5.6.3 Performance outcome assessment

**Dwelling house code** 

Performance outcome	Acceptable outcome
Lot size and subdivision design	
PO1	AO1.1
Lot size and dimensions:  (e) provide sufficient area for the siting and construction of buildings and structures;  (f) provide for safe vehicular and pedestrian access;  (g) respond appropriately to site characteristics including slope of the land and topography; and  (h) are consistent with the intended character of the zone.	The minimum <i>lot</i> size and dimensions complies with <b>Table 8.3.4.3.B</b> — Minimum Lot Size and Dimensions.

#### Proposal

The proposed subdivision results in lots which largely support the minimum lot size of the General Residential Zone code however, one lot is proposed below this threshold. The proposed lots supports future residential development which align with the requirements of PO1 and support future buildings which can be appropriately positioned and located on the lots with no adverse impacts on the surrounding area.

#### **Performance Outcome Assessment**

The development is an infill proposal within an existing residential area. Three of the four proposed lots are 600m2 or larger however, based on the depth of the lots only one of the lots has a frontage exceeding 18 metres.

Proposed Lots 1-3 have widths of between 14.70 metres and 14.75 metres

The applicant has provided a Building layout plan that demonstrates each of the lots could effectively accommodate a Dwelling house.

Given the size of the allotments and the existing access arrangement it is considered that safe vehicular access can be provided.

It is recommended that the alternative outcome be accepted in this instance.

#### PO<sub>2</sub>

Lot frontage width and access driveways for irregularly shaped allotments provide a safe vehicle entry and exit.

#### AO<sub>2</sub>

Irregularly shaped allotments have:

- (a) an average width not less than the minimum frontage for a rectangular allotment; and
- (b) the minimum frontage of the allotment is not less than one half the minimum frontage for a rectangular allotment.

## **Proposal**

The proposed lots shapes are generally rectangular and respond to the existing layout of the base lot. No irregular shaped lots are proposed.

#### **Performance Outcome Assessment**

Proposed Lot 4 has an area of 510m2 and a depth of 39.82m, resulting in an average width of approximately 12.8 metres. The front half of the lot ranges in width from 19.297 metres to approximately 15 metres.

The applicant has provided a Building layout plan that demonstrates proposed Lot 4 could effectively accommodate a Dwelling house.

It is recommended that the alternative outcome be accepted in this instance.

#### 5.6.4 Overall outcome assessment

The proposal is considered to comply with all the relevant performance outcomes. As such, a detailed assessment of the overall outcomes was not required.

# 5.7 Local government infrastructure plan

#### 5.7.1 Priority infrastructure area

The development land is located within the priority infrastructure area as shown in the Local government infrastructure plan mapping.

#### 5.7.2 Infrastructure charges

The proposed development is for a subdivision, which adopts a charge consistent with a three or more-bedroom dwelling under the Somerset Regional Council Charges Resolution (No. 1) 2022.

The draft infrastructure charges notice is attached and includes charges for the networks identified in the below sections of this report.

## 5.7.3 Trunk infrastructure requirements

## 5.7.3.1 Water and sewerage networks

The site is located within the connections area or future connections area for both the water and sewerage networks as shown in Urban Utilities' Netserv Plan. The recommended conditions package requires the development to connect to both networks to the satisfaction of Urban Utilities.

Infrastructure charges for the water and sewerage networks (where applicable) are managed by Urban Utilities separately from this development application.

# 5.7.3.2 Public parks and community land network

The proposal is not considered to result in an unreasonable impact on Council's parks and community land network.

An adopted charge for the public parks and community land network applies.

#### 5.7.3.3 Stormwater network

The site drains away from Erskine Street. The applicant initially proposed a charged stormwater concept for the development, comprising an inter-allotment drainage system to discharge to kerb in Erskine Street, however this was not considered a satisfactory outcome.

A revised concept, comprising an inter-allotment drainage system that discharged to the existing swale drain within the Brisbane Valley Rail Trail was submitted and is considered satisfactory subject to suitable conditions.

The applicant sought advice from State Assessment and Referral Agency (SARA) who confirmed that a statutory referral was not required for the RAL and owner's consent from the State was not required. The mechanics of the disposal of the stormwater to the Rail Trail land will be dealt with as part of a future operational works application. The subsequent operational works application will require referral to SARA.

An adopted charge for the stormwater network applies.

#### 5.7.3.4 Transport network

All four proposed lots have direct frontage to an existing fully constructed residential street.

An adopted charge for the transport network applies.

#### 6.0 REFERRAL AGENCIES

#### 6.1 Statutory referrals

In accordance with the *Planning Regulation 2017*, there are no referral agencies applicable for this application.

# 6.2 Third party advice

Council did not seek any third-party advice for this application.

#### 7.0 PUBLIC NOTIFICATION

As the application is subject to code assessment, public notification was not required.

#### 8.0 OTHER RELEVANT MATTERS

There are no other relevant matters applicable for code assessment.

#### 9.0 CONCLUSION

The proposed development is for a reconfiguring a lot (one into four lots). The proposal has demonstrated compliance with acceptable outcomes of each of the applicable assessment benchmarks, or otherwise complied with the relevant performance outcomes.

It is recommended that the application be approved, subject to the imposition of reasonable and relevant conditions, as outlined in the schedules and attachments.

#### 10.0 ATTACHMENT

- 1. Proposed Boundary Reconfiguration Being Proposed Lots 1-4 Cancelling Lot 1 on F33611 5 Erskine Street, Plan No 10026-400-01, Revision B, by Statewide Survey Group, dated 28 October 2022
- 2. Proposed Development Footprint Plan Plan No. 10026 700 Revision A Prepared by Statewide Survey Group dated 26 October 2022
- 3. Draft infrastructure charges notice.

#### **RECOMMENDED DECISION**

- THAT Council approve Development Application No. 23273 for a Reconfiguring a Lot (1 into 4 lots) on land situated at 5 Erskine Street, Fernvale, formally described as Lot 1 F33611, subject to the recommended conditions and requirements contained in the schedules and attachments to this report.
- 2. THAT the Officer report for this application be published to the website as Council's Statement of Reasons in accordance with s63(5) of the *Planning Act 2016*.

	EDULE 1 – GENERAL CONDITIONS ssment Manager	
No	Condition	Timing
1.1	Carry out the development generally in accordance with the material contained in the development application, supporting documentation and the plan(s) listed below, except where amended by these conditions of approval.  Proposed Boundary Reconfiguration Being Proposed Lots 1-4 Cancelling Lot 1 on F33611 5 Erskine Street, Plan No 10026-400-01, Revision B, by Statewide Survey Group, dated 28 October 2022	At all times.
1.2	Comply with the relevant provisions of the Somerset Region Planning Scheme (Version Four), Planning Scheme Policies and Local Laws.	At all times.
1.3	A Licensed Surveyor must install new Survey Marks in their correct positions in accordance with the Survey Plan and the endorsement of the work must be certified in writing.	Prior to request for endorsement of the Plan of Subdivision.
1.4	Pay to Council any outstanding rates or charges or expenses that are a charge over the subject land levied by Council; and/or levied but not fully paid over the subject land.	Prior to request for endorsement of the Plan of Subdivision.
1.5	Pay to Council the applicable amount at the time of request for plan of subdivision endorsement for the issue of new valuations by the Department of Resources.  Currently, the amount is set at \$41 per allotment.	Prior to request for endorsement of the Plan of Subdivision.
1.6	A legible copy of this development approval package is to be available on the premises.	At all times during the construction phase.
1.7	Provide certification from a Licenced Surveyor that all services (e.g. water, drainage, electricity, telecommunications) are wholly contained within the lot that they serve.	Prior to request for endorsement of the Plan of Subdivision.

2.7	The applicant must provide written evidence (eg connection	Prior to Council's	
	Where proposed allotments front existing overhead electricity or telecommunication service, these lots may connect direct to such service to the approval and requirements of the service provider.		
2.6	Connect the development to a reticulated drinking water supply, sewer infrastructure, underground electricity supply, and telecommunications utilities in accordance with acceptable standards of the relevant regulatory authority so that it is available to each allotment.	Prior to Council's endorsement of the Plan of subdivision.	
2.5	GENERAL SERVICES  Submit development applications to the relevant Energy and Telecommunications regulatory authority to either obtain design layout plans or certification letters to Council that any existing infrastructure or wayleaves are to their satisfaction and that they can provide services when required at the cost of a normal house connection.	Prior to Council's endorsement of the Plan of subdivision.	
	<ul> <li>with the Operational Work application.</li> <li>Certification that the works have been undertaken in accordance with the approved plans, specifications and to Council's requirements.</li> </ul>		
2.4	It is required that the design and construction of civil components of the Operational Work are to be certified by a Registered Professional Engineer Queensland (RPEQ), including:  • Plans and specifications must be prepared and certified	Prior to Operational Works Compliance Assessment.	
2.3	Bear the costs of works carried out to Council and utility services infrastructure and assets, including any alterations and repairs resulting from compliance with these conditions.	Prior to Council's endorsement of the Plan of subdivision.	
2.2	All works are to be designed and constructed in accordance with the requirements of the Somerset Regional Council Planning Scheme.	At all times.	
2.1	Make an Operational Work application to Council and pay the required fees where an application involves earthworks, erosion and sediment control, roadworks, car parks, landscaping, clearing and stormwater drainage required as stated in the following conditions.	Prior to the commencement of Operational Work.	
No	Condition WORKS	Timing	
	DULE 2 – ENGINEERING sment Manager		
1.9	Remove any services made redundant as a result of the development and reinstate the land.	Prior to request for endorsement of the Plan of Subdivision.	
	Note: A separate building approval will be required for the demolition or removal of buildings or structures.	endorsement of the Plan of Subdivision.	
1.8	Obtain building approval for the demolition or removal of any existing buildings on site necessary for the approved development to proceed.	Removal of buildings to occur prior to request for	

	certificate) from each particular service provider stating either that each lot has been connected to applicable service, is available at a standard connection, or has a current supply agreement.	endorsement of the Plan of subdivision.
2.8	Any existing roofwater conduits, electrical conduits, irrigation pipes, Telstra conduits, reticulated water conduits and any other utility conduits common to proposed lots shall be terminated within each lot.	Prior to Council's endorsement of the Plan of subdivision.
	VEHICLE ACCESS	
2.9	All vehicular access for new allotments shall provide convenient and safe access and egress from the site in accordance with Somerset Regional Council Planning Scheme.	At all times.
2.10	The landowner is responsible for construction and maintenance of vehicular access for the property, from the road carriageway to property boundary in accordance with Somerset Regional Council Planning Scheme. Approval is to be sought from Council and the landowner must advise all potential purchasers accordingly.	At all times.
2.11	Make an Access Application to Council and pay the required fees where an application involves works required as stated in the conditions.	Prior to Commencement of Access works.
	EASEMENTS	
2.12	Provide an easement over stormwater and interallotment drainage located within private property.  All easement documentation shall be prepared by the proponent in a form satisfactory to Council's Solicitor.  Note: Easements required for the discharge of stormwater over	Prior to Council's endorsement of the Plan of subdivision.
	adjacent properties must be agreed to in writing by the owner of the property.	
	STORMWATER	
2.13	Ensure Stormwater drainage is delivered to a lawful point of discharge	At all times.
2.14	Stormwater drainage and flows are to have no increase in peak discharge immediately downstream of this development for a selected range of storm durations, and a selected range of AEPs up to the defined flood event.	At all times.
2.15	Stormwater drainage and flows are to have no actionable nuisance effect on adjoining, upstream, or downstream landholders.	At all times.
2.16	Stormwater drainage and flows are to have no increase in flood levels on adjoining land that may damage or adversely effect the value or potential use of the land.	At all times.
2.17	Design and construction of all stormwater drainage works must comply with the relevant section/s of the Queensland Urban Drainage Manual (QUDM) and the Somerset Regional Council Planning Scheme.	As part of Operational Works.

Where stormwater cannot be discharged to the kerb and channel, provide inter-allotment drainage in accordance with Queensland Urban Drainage Manual (QUDM) and Somerset Regional Council Planning Scheme.	As part of Operational Works.
Submit permission for the discharge of stormwater drainage to a lawful point of discharge from the owners of properties affected by any stormwater discharge from the site.	As part of Operational Works.
Note: Such consent may require supporting engineering plans and calculations.	
Submit a Cita Based Starmwater Management Disa (SDSMD)	As part of the
prepared by a Registered Professional Engineer Queensland (RPEQ), which generally conforms to the approved development plan/s and Somerset Regional Council Planning Scheme.	As part of the lodgement of the Operational Works application.
Where vegetation is removed, the vegetation waste shall be disposed of by:  iv) Milling;  v) Chipping and/or mulching  vi) Disposal at an approved waste disposal facility.	At all times.
No incineration of vegetation or waste will be permitted at the site. Waste other than vegetation waste, generated as a result of the operations shall be disposed of to an approved disposal facility.	
All declared weeds and nests are to be removed from the	At all times.
subject land and kept clear of such nuisance varieties during the course of operations.	At all tilles.
	Queensland Urban Drainage Manual (QUDM) and Somerset Regional Council Planning Scheme.  Submit permission for the discharge of stormwater drainage to a lawful point of discharge from the owners of properties affected by any stormwater discharge from the site.  Note: Such consent may require supporting engineering plans and calculations.  Submit a Site Based Stormwater Management Plan (SBSMP) prepared by a Registered Professional Engineer Queensland (RPEQ), which generally conforms to the approved development plan/s and Somerset Regional Council Planning Scheme.  Where vegetation is removed, the vegetation waste shall be disposed of by:  iv) Milling;  v) Chipping and/or mulching  vi) Disposal at an approved waste disposal facility.  No incineration of vegetation or waste will be permitted at the site. Waste other than vegetation waste, generated as a result of the operations shall be disposed of to an approved disposal facility.  All declared weeds and pests are to be removed from the subject land and kept clear of such nuisance varieties during

## **SCHEDULE 3 – ADVICE**

Assessment Manager

This approval has effect in accordance with the provisions of section 71 of the *Planning Act* 2016, and development may commence in accordance with section 72.

Currency Period - Pursuant to section 85 of the *Planning Act 2016* the approval will lapse if the first change of the use under the approval does not start within the currency period for the reconfiguring a lot - being four (4) years starting the day the approval takes effect;

The applicant may make representations (change representations) about a matter in this development application within the applicant's appeal period under the process established in chapter 3, part 5, subdivision 1 of the *Planning Act 2016*.

The *Planning Act 2016* provides for a person to make a change to this development application outside the applicant's appeal period, following the process outlined in chapter 3, part 5, subdivision 2 of the Act.

The rights of applicants to appeal to a tribunal or the Planning and Environment Court against decisions about a development application are set out in chapter 6, part 1 of the *Planning Act 2016*. For particular applications, there may also be a right to make an application for a declaration by a tribunal (see chapter 6, part 2 of the *Planning Act 2016*).

Separate development approval is required for any building work and plumbing/drainage work necessitated by the conditions contained in this approval.

All works shall be carried out in accordance with the Workplace, Health & Safety Act (as amended) and the workplace Health and Safety Regulation (as amended).

Construction hours are 6:30 am to 6:30 pm Monday to Saturday, with no work to be undertaken on Sundays or public holidays. Noise levels from construction work shall at all times comply with the requirements of the Environmental Protection Act 1994.

Upon receiving the certification by a RPEQ, and submission and approval of as constructed drawings and documentation, Council will accept the works as "On Maintenance".

Council will bond the developer for an amount equal to 5% of the operational works and the Developer is required to maintain all works for a period of 12 months for civil works (maintenance period) from the date of "On Maintenance". Any defective works must be rectified within the maintenance period.

At the end of the maintenance period the works shall be inspected and if satisfactory, shall be placed "Off Maintenance". Bonds or other securities will be released after the works have been placed "Off Maintenance".

The Plan of Subdivision will not be released until all works are completed to Council's satisfaction or uncompleted works are suitably bonded.

Separate development approval is required for any building work and plumbing/drainage works necessitated by the conditions contained in this approval.

All building work is to comply with the provisions contained in the *Building Act*; the *Building Regulation*, the *Building Code of Australia*, the Queensland Development Code and relevant Australian Standards.

No licensable food preparation activities are permitted under this approval unless the operator holds a current food business licence for the activity under the *Food Act 2006* or any superseding legislation as published from time to time.

This development approval is for the proposed development only. Any additional structures proposed may require their own planning approval and will be assessed on its own merits.

All Operational Work is to comply with relevant codes for design and construction.

Biosecurity Queensland should be notified on 13 25 23 of proposed development(s) occurring in the Fire Ant Restricted Area before earthworks commence. It should be noted that works involving movements of soil associated with earthworks may be subject to movement controls and failure to obtain necessary approvals from Biosecurity Queensland is an offence.

It is a legal obligation to report any sighting or suspicion of fire ants within 24 hours to Biosecurity Queensland on 13 25 23.

The Fire Ant Restricted Area as well as general information can be viewed on the DAF website www.daf.qld.gov.au/fireants".

The current Aboriginal Cultural Heritage Act 2003 should be adhered to.

The Act is administered by the Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships. (DSDSATSIP).

The Aboriginal Cultural Heritage Act establishes a Duty of Care for Indigenous Cultural Heritage. This applies on all land and water, including freehold land. The Cultural Heritage Duty of Care lies with the person or entity conducting an activity.

Penalty for proposing an activity that involves additional surface disturbance beyond that which has already occurred at the proposed site need to be mindful of the Cultural Heritage Duty of Care requirement.

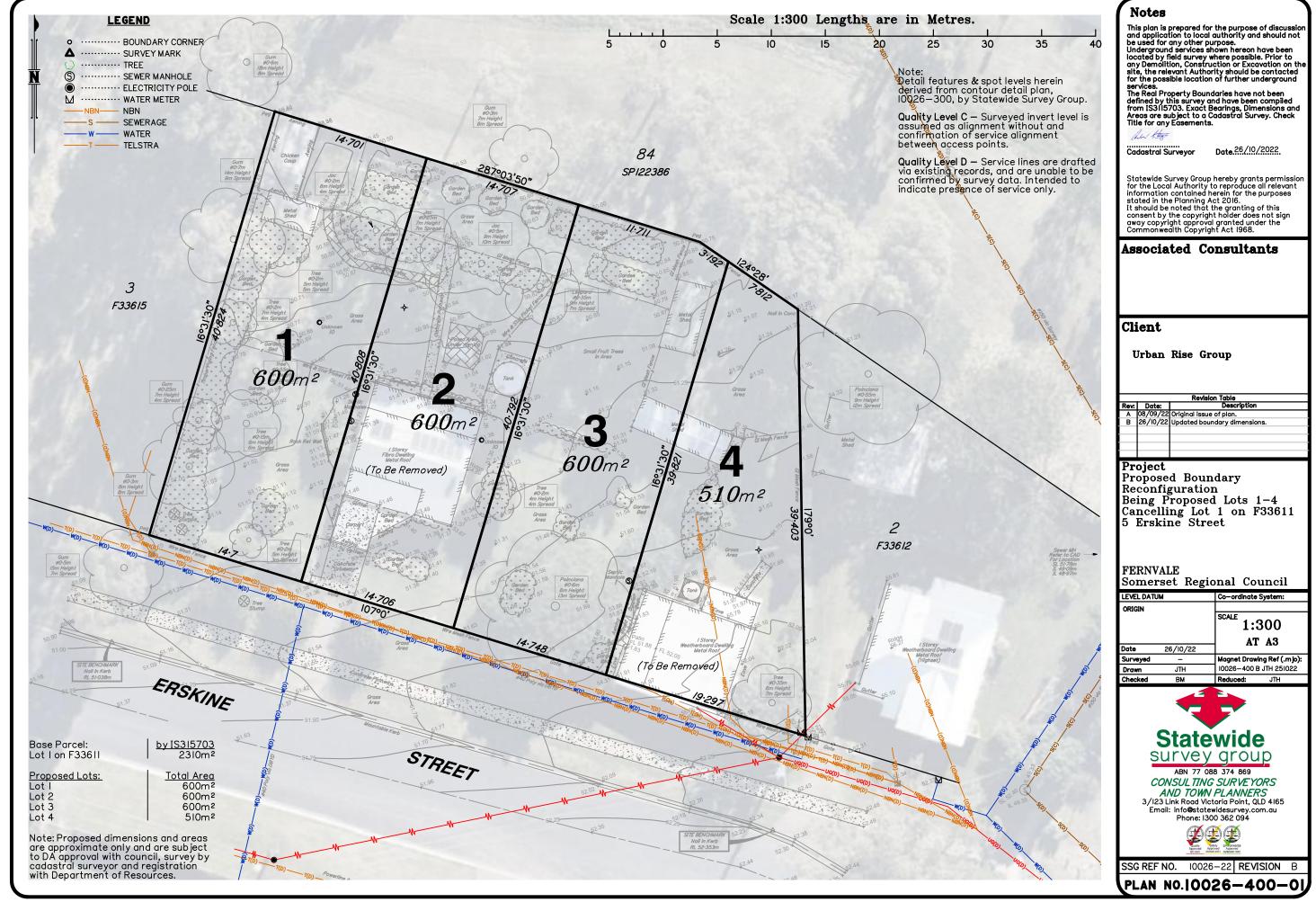
Details on how to fulfil the Cultural Heritage Duty of Care are outlined in the Duty of Care Guidelines gazetted with the Act.

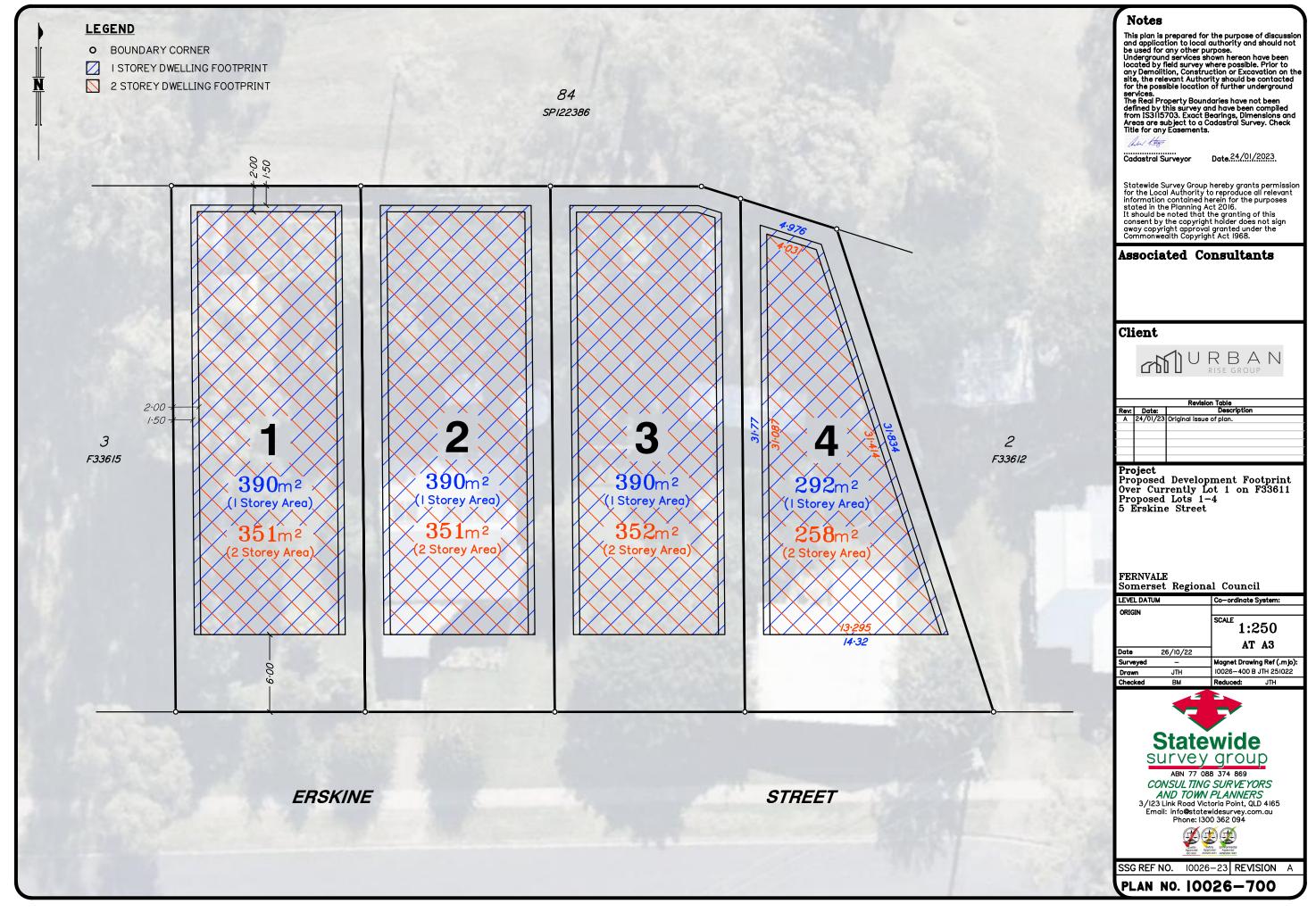
Council strongly advises that you contact DSDSATSIP's Cultural Heritage Coordination Unit to obtain a copy of the Duty of care Guidelines and further information on the responsibilities of proponents under the terms of the current Aboriginal Cultural Heritage Act

#### Attachments for the Decision Notice include:

- Proposed Boundary Reconfiguration Being Proposed Lots 1-4 Cancelling Lot 1 on F33611 5 Erskine Street, Plan No 10026-400-01, Revision B, by Statewide Survey Group, dated 28 October 2022
- Infrastructure charges notice

This completes the report for Development Application DA23273.





# **Infrastructure Charges Notice**

(Section 119 of the Planning Act 2016)

Applicant: Urban Rise Group

C/- Statewide Town Planning

3/123 Link Road

VICTORIA POINT QLD 4165

Application: Reconfiguring a Lot by Subdivision (one lot

into four lots)

Notice Number: XX

Date: XX

File Reference: DA23273

Amount of the Levied Charge: \$44,994.00

(Details of how these charges were calculated are shown overleaf)

Automatic Increase of Levied Charge:

The amount of the levied charge is subject to an automatic increase. Refer to the General Information attached to this notice for more information on how the increase is worked

out.

Land to which Charge Applies: Lot 1 F33611

Site Address: 5 Erskine Street, Fernvale

Payable to: Somerset Regional Council

When Payable:

(In accordance with the timing stated in Section 122 of the Planning Act

2016)

If the charge applies for reconfiguring a lot—when the local government that levied the charge approves a plan for the reconfiguration that, under the Land Title Act, is required to be given to the local government for approval.

Offsets or Refunds: Not Applicable.

This charge is made in accordance with Council's Charges Resolution (No. 1) 2022.

# **Details of Calculation**

# Stormwater network Adopted Charges

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
RAL	4	Per 3 or more bedroom dwelling unit	\$4,205.00	CR Table 2	\$16,820.00

# Discounts

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
RAL	1	Per 3 or more bedroom dwelling unit	\$4,205.00	CR Table 2	\$4,205.00

# Public parks and Community land

# **Adopted Charges**

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
RAL	4	Per 3 or more bedroom dwelling unit	\$6,348.00	CR Table 2	\$25,392.00

## Discounts

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
RAL	1	Per 3 or more bedroom dwelling unit	\$6,348.00	CR Table 2	\$6,348.00

# Transport network

# **Adopted Charges**

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
RAL	4	Per 3 or more bedroom dwelling unit	\$4,445.00	CR Table 2	\$17,780.00

# **Discounts**

Development Description	Number of Units	Units of Measure	Charge Rate	Reference	Amount
RAL	1	Per 3 or more bedroom dwelling unit	\$4,445.00	CR Table 2	\$4,445.00

**Net Charges** 

Development Description	Stormwater	Public Parks and Community Land	Transport	Total
Reconfiguring a Lot	\$16,820.00	\$25,392.00	\$17,780.00	\$59,992.00
Discount	\$4,205.00	\$6,348.00	\$4,445.00	\$14,998.00
Total	\$12,615.00	\$19,044.00	\$13,335.00	\$44,994.00

<sup>\*</sup> In accordance with Section 3.3 of the Charges Resolution, the discount may not exceed the adopted charge. Where there are any surplus discounts, these will not be refunded, except at Council's discretion through entering an infrastructure agreement, where the surplus discounts may be attached to the land.

Yours faithfully

Andrew Johnson Chief Executive Officer

#### Information Notice

# for Charge

Authority and Reasons This Infrastructure Charges Notice has been given in accordance with section 119 of the Planning Act 2016 to support the Local government's long-term infrastructure planning and financial sustainability.

### **Appeals**

Pursuant to schedule 1 of the *Planning Act 2016* a person may appeal an Infrastructure Charges Notice. Attached is an extract from the Planning Act 2016 that details your appeal rights.

# **Automatic Increase Provision of charge** rate (\$)

An infrastructure charge levied by Council is to be increased by the difference between the Producer Price Index (PPI) applicable at the time the infrastructure charge was levied, and PPI Index applicable at the time of payment of the levied charge, adjusted by reference to the 3-yearly PPI Index average<sup>1</sup>. If the levied charge is increased using the method described above, the charge payable is the amount equal to the sum of the charge as levied and the amount of the increase.

However, the sum of the charge as levied and the amount of the increase is not to exceed the maximum adopted charge the Council could have levied for the development at the time the charge is paid.

#### **GST**

The Federal Government has determined that contributions made by developers to Government for infrastructure and services under the Planning Act 2016 are GST exempt.

# To whom the charge must be paid

Payment of the Charge must be made payable to Somerset Regional Council via Customer Service or Planning and Development Department, PO Box 117 Esk Qld 4312.

The Infrastructure Charge has been calculated in accordance with the charges stated in Council's Charges Resolution. This notice will be escalated to time of payment to the extent permitted under legislation in force at that time.

It is requested that you contact Council's Planning

<sup>&</sup>lt;sup>1</sup> 3-yearly PPI index average is defined in section 115 of the *Planning Act 2016* and means the PPI index smoothed in accordance with the 3-year moving average quarterly percentage change between quarters. PPI Index is the producer price index for construction 6427.0 (ABS PPI) index number 3101 - Road and Bridge construction index for Queensland published by the Australian Bureau of Statistics.

Department to confirm that amount payable prior to making payment.

#### **Payment**

This notice is due and payable by the due time shown. Cheques, money orders or postal notes should be made payable to Somerset Regional Council and crossed "Not Negotiable". Change cannot be given on cheque payments. Property owners will be liable for any dishonour fees.

## **Overseas Payees**

Please forward your infrastructure charges payment by way of a bank draft for the required amount in Australian dollars.

# **Method of Payment**

#### Payment by Mail

Confirm the current Infrastructure Charge applicable and obtain an updated payment notice from Council's Operations Department or Planning and Development Department.

Mail this updated payment notice immediately with your payment to: Somerset Regional Council, PO Box 117, Esk Qld 4312

**NOTE:** Cheques must be made payable to Somerset Regional Council

#### **Payment at Council Offices**

Confirm the current Infrastructure Charge applicable.

Present written confirmation of charges with your payment to Somerset Regional Council at the Customer Service Counters.

**NOTE:** Cheques must be made payable to Somerset Regional Council

## **Payment Made by Credit Card**

Credit Cards accepted: Mastercard or Visa

#### **Enquiries**

Enquiries regarding this Infrastructure Charges Notice should be directed to the Somerset Regional Council, Operations Department OR Planning and Development Department, Esk Office, during office hours, Monday to Friday by phoning (07) 5424 4000 or email at mail@somerset.qld.gov.au



# Somerset Regional Council - Officer's Report

To: Andrew Johnson, Chief Executive Officer

From: Damien Burge, Environmental Health Officer

Director: Luke Hannan, Director of Planning and Development

Date: 2 May 2023

Subject: Application for Temporary Entertainment Event – Kilcoy Butchery Reopening

2023

File: Environmental Management/Reports/Environmental Health Reports

Action Officer: EHO-DB

# **Background/Summary**

Council has received a temporary entertainment event application from Kilcoy Global Foods (Ref: 1495467) to conduct a temporary entertainment event at the Kilcoy Butchery located at 54 Mary Street, Kilcoy on Saturday 27 May 2023 from 10am until 1pm. The proposed event is called the Kilcoy Butchery Reopening.

The purpose of the event is to celebrate the reopening of the butcher shop by hosting a free BBQ for the local community. The BBQ will be prepared with a large smoker on a trailer and a marquee set up for taking and fulfilling orders. The event setup will occupy space in the shared driveway next to Kilcoy Butchery. No part of the event setup will encroach upon the footpath or roadway.

Total attendance is difficult to predict, however the applicant is anticipating between 500-1000 persons. The applicant has advised that the total attendance is more likely to be around 500 persons, however enough food will be on hand to cater for 1000 persons if required. Attendance is expected to be staggered throughout the duration of the event and attendees are not expected to stay long.

Council regulates this activity through Local Law No.1 (Administration) 2011, and Subordinate Local Law 1.12 (Operation of Temporary Entertainment Events) 2011. The applicant has prepared an Event Management Plan (EMP) which outlines how the event will comply with Council's local law requirements for temporary entertainment events.

#### **Assessment of Application**

Under section 9 of *Local Law No. 1 (Administration) 2011*, Council may grant an approval for a temporary entertainment event only if it is satisfied that:

Criteria – LL, section 9(1)(a)	If the prescribed activity requires a separate approval under an Act, a law of the Commonwealth or the local government's planning scheme - the separate approval has been granted; and
Officer	No additional application is required.
Comment	
Criteria - LL,	The proposed operation and management of the prescribed activity
section 9(1)(b)	is adequate to protect public health, safety and amenity and prevent
	environmental harm; and
Officer Comment	The applicant has provided an Event Management Plan for the event detailing provisions for public safety and environmental harm.
	The applicant has provided public liability insurance which covers the event activities and meets Council's requirements.
Criteria – LL, section 9(1)(c)	If the prescribed activity is the commercial use of a local government controlled area or road - the grant of the approval is consistent with the objective of the local government of restriction

Officer	of the commercial use of local government controlled areas and roads, where such activities are permitted, in recognition of the fact that the activities may otherwise enjoy an unfair commercial advantage over competitive activities conducted from fixed premises in the local government area for which rates and other charges are paid, and to which planning and other regulatory legislation applies;  Not applicable.
Comment	
Criteria - LL,	The proposed operation and management of the prescribed activity
section 9(1)(d)	would be consistent with any additional criteria prescribed for the activity under a subordinate local law for this paragraph; and
Officer Comment	Subordinate Local Law No.1.12 (Operation of Temporary Entertainment Events) 2011 prescribes criteria for the proposed activity. An assessment against that criterion is provided below.
Criteria – LL, section 9(1)(e)	The grant of the approval would be consistent with the purpose of any relevant local law; and
Officer Comment	The approval would be generally consistent with Council's Local Laws.
Criteria – LL,	If the application relates to trust land - the grant of the approval
section 9(1)(f)	would be consistent with the terms and conditions of the trust; and
Officer	Not applicable.
Comment	
Criteria – LL,	If the application relates to a prescribed activity mentioned in
section 9(1)(g)	section 5(b) - the grant of the approval would be consistent with any requirements or criteria specified in the relevant <i>Local Government Act</i> in relation to the approval.
Officer	Not applicable.
Comment	
Criteria – SLL, section 4(1)	The design and construction of the place of the temporary entertainment event must be safe and appropriate to the nature of the entertainment proposed and the number of people expected to attend the place.
Officer	The area proposed for use is considered suitable for the nature of the
Comment	event. The event will involve a BBQ smoker trailer and marquee which will be setup in the shared driveway at the Kilcoy Butchery.
Criteria – SLL, section 4(2)	Entertainment provided at the place must not unreasonably detract from the amenity of the area in which the entertainment is, or is proposed to be, situated.
Officer Comment	It is unlikely that the proposed event will unreasonably detract from the amenity of the surrounding area. The event involves a free BBQ to promote the reopening of the Kilcoy Butchery. Attendees to the event are only expected to stay for a short time.
	Kilcoy Global Foods have advised that all affected businesses and residences have been approached, with no objections to the activity being received.
Criteria – SLL, section 4(3)	Entertainment provided at the place must not generate significant noise, dust or light pollution or other significantly adverse effects on the surrounding neighbourhood.
Officer Comment	Entertainment at the event is limited to the provision of a free BBQ. It is expected that this will not generate noise, dust or light issues for the surrounding neighbourhood.
Criteria – SLL, section 4(4)	There must be enough toilets and sanitary conveniences provided for the event.

Officer Comment	It is expected that patrons at the event will only stay for a short period of time. As such, the provision of dedicated toilet facilities is not considered necessary. Public toilet facilities are also available nearby.
Criteria – SLL, section 4(5)	Adequate provision must exist for the disposal of waste generated by the use of the place for the temporary entertainment event.
Officer Comment	A condition of approval will require the applicant to provide sufficient waste disposal facilities to adequately service the event. The event is not expected to generate large quantities of waste.
Criteria – SLL, section 4(6)	Adequate provision must exist for people and (if relevant) vehicles to enter and leave the place of the temporary entertainment event.
Officer Comment	Vehicular and pedestrian traffic are not expected to be inconvenienced by the event. No significant disruption is expected to the normal use of Mary Street.
	The applicant has advised that the neighboring business which shares the driveway with the Kilcoy Butchery has given support for the event.
	The applicant has referred the proposed event to the Department of Transport and Main Roads to check whether any approvals are required. DTMR have advised that if the event is located entirely on private land, no permit is required. This correspondence has also been provided to Council for confirmation.
	Council's Operations Department has also advised that no traffic management plan or traffic guidance scheme would be required if the proposed event is held on private land.

# Attachments

- Site Plan
   Event Management Plan

# Recommendation

THAT Council approve the application subject to the conditions listed below:

No.	CONDITION
1.0	ENVIRONMENTAL/ LOCAL LAW
1.1	The approval holder must:
	Display the approval in the manner, and at the locations, specified by the local government; and
	<ul> <li>Produce the approval for inspection by an authorised person on demand.</li> </ul>
1.2	The operation of the temporary entertainment event must not unreasonably detract from the amenity of the area in which the place is located.
1.3	The temporary entertainment event is limited to the operation of the Kilcoy Butchery Reopening on the shared driveway of the Kilcoy Butchery, 54 Mary Street Kilcoy, from 10am to 1pm on Saturday 27 May 2023.
1.4	The approval holder must provide an appropriate number of waste bins that are to be serviced by an appropriately licensed waste contactor. The number of waste bins provided must be sufficient to accept all waste generated by the event, including waste from attendees, event staff, and food vendors.

1.5	All waste generated from the event must be disposed of at an appropriately licenced waste disposal facility.
1.6	The approval holder must maintain insurance that is applicable to the activity including without limitation, a public liability insurance policy which provides indemnity for each individual occurrence in an amount not less than \$20 million dollars. The insurance certificate must cover the permit holder and the Somerset Regional Council against any claims whatsoever arising from the operation of the event.
1.7	The approval holder must indemnify and keep indemnified, the Somerset Regional Council, their officers, employees and agents (the indemnified) against any or all losses suffered or incurred (except to the extent that any losses are caused through the negligent act or omission of the indemnified) in connection with the erection, existence or operation of the works or activities, the subject of this approval.
	"Losses" include liabilities, losses, damages, expenses and costs (including legal costs on a full indemnity basis and whether incurred or awarded) of any kind or nature, whether arising in contract or tort (including, but not limited to, negligence) or under a statute; and also include loss or profits, loss of revenue, loss of anticipated saving, loss of opportunity, pure economic loss and loss of data any other consequential special or indirect loss or damage.
1.8	The operation of the temporary entertainment event must not create a traffic nuisance or increase an existing traffic nuisance or detrimentally affect the efficiency of the road network in which the activity is undertaken.
1.9	All buildings, structures, vehicles, facilities or equipment used in the operation of the temporary entertainment event must be maintained at all times:  In good working order.  In good state of repair.  In a clean and sanitary condition.
1.10	The approval holder must ensure that a food licence issued under the <i>Food Act 2006</i> is obtained (to the extent that it is required) by any entities selling food at the event.
1.11	The approval holder must ensure that the temporary entertainment event is run in accordance with the approved Event Management Plan.
1.12	The approval holder is to provide a contact number for any complaints received during the event.
1.13	The approval holder must ensure that all electrical installations or distribution to be utilised for the event is installed and signed off by a licenced electrician.