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PEET Pty Ltd

Edens Crossing - Stage 30-35 & 37 DA

Road Traffic Noise Impact Assessment

70B-22-0036-TRP-27585-3

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## **Executive Summary**

Vipac conducted a traffic noise impact assessment of the proposed residential subdivision for Eden's Crossing Stages 30 to 35 and 37 in Redbank Plains. The assessment was based upon the State Development Assessment Provisions (SDAP) v3.0.

Noise measurements were undertaken to establish the existing road traffic noise levels of the Centenary Highway in the vicinity of the development. Road traffic noise levels were assessed at the development considering a 10-year planning horizon and are predicted to comply with the applicable SDAP private open space criteria with the implementation of an acoustic barrier in the south eastern corner of the subdivision.

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## 1 Introduction

Vipac Engineers & Scientists Ltd (Vipac) was commissioned by Peet to provide a traffic noise impact assessment for Eden's Crossing Stages 30 to 35 and 37 in Redbank Plains. This traffic noise assessment includes the following:

- Description of the development;
- Discussion of the applicable noise criteria;
- Measurement of existing road traffic noise levels along the Centenary Highway;
- Prediction of future traffic noise levels for the lots in the proposed development;
- Assessment of predicted traffic noise levels against applicable noise criteria;
- Discussion of noise barrier requirements, if any; and
- Recommendations and conclusion.

This report revision addresses items raised in the State Assessment Referral Agency (SARA) request for information (ref:2211-31915 SRA) received on 7<sup>th</sup> February 2023, alongside the further advice notice received on 2<sup>nd</sup> of November 2023.

## 2 Description of the Development

The proposed Stages 30-35 will consist of 301 residential lots and 0.504 hectares designated for an 'Active Park' open space area. Stage 37 (A and B) is primarily Linear Open Space (including under the powerline easement that runs south of the residential lots) and a Railway Dedication. Mount Juillerat Drive is a sub arterial road that runs north west of these lots. The expected year of completion for these stages is between 2024-2026. The noise assessment has been carried out for an ultimate year of 2036.

Stages 30-35 and 37 and the surrounding area are shown in Figure 2-1.

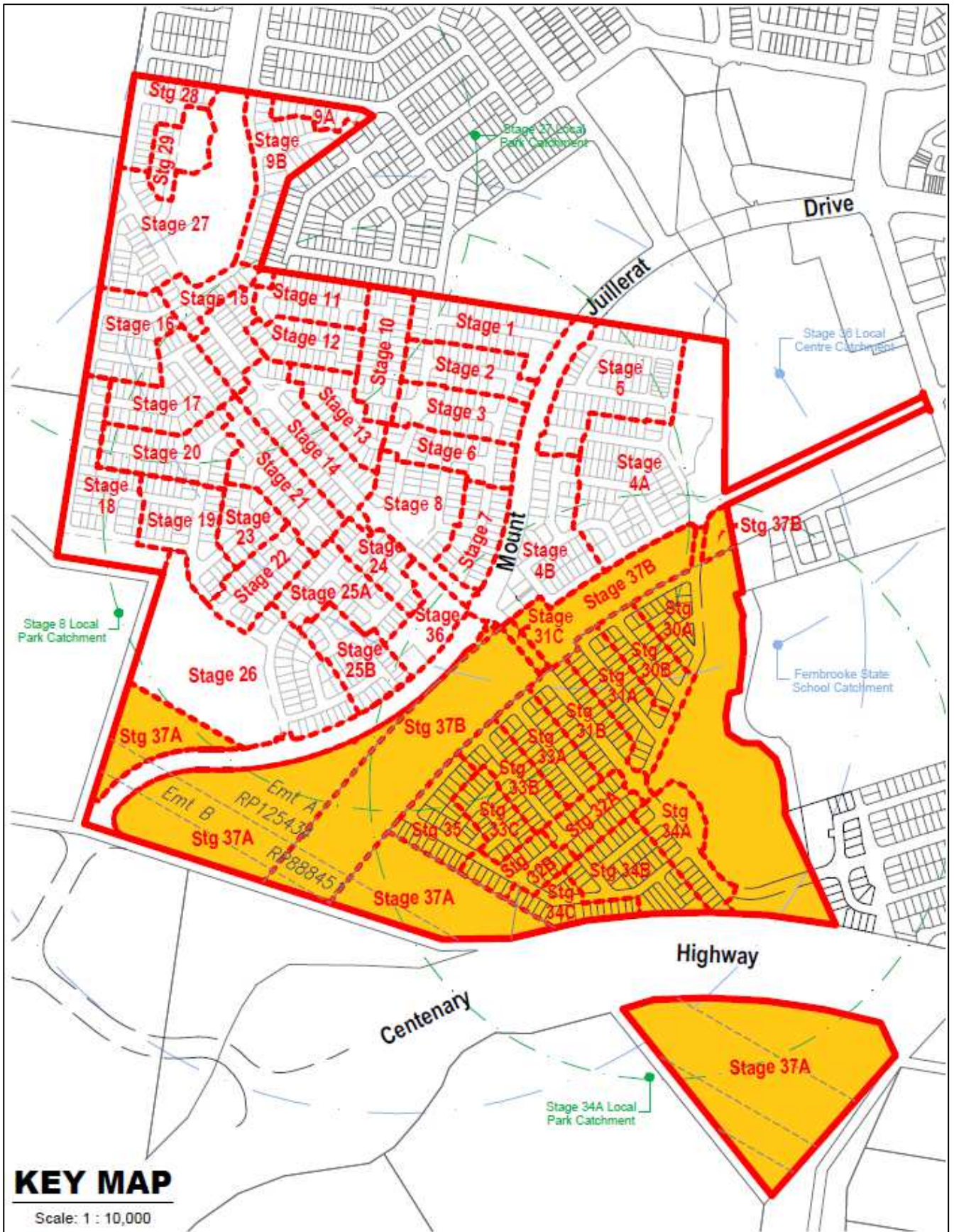


Figure 2-1 - Edens Crossing Stages 30-35 and 37 (Highlighted in Orange)

### 3 Measurements

#### 3.1 Equipment

The following equipment was used to measure existing noise levels of the Centenary Highway:

- Ono Sokki SC-2120 Acoustic Calibrator (SN# 35100926).
- Norsonic Nor139 Sound Level Meter (SN# 1392998) – Location 1.
- Rion NL-42 Type 2 Environmental Noise Logger (SN# 01186064) – Location 2.
- Bruel & Kjaer Type 1 Sound Level Meter (SN# 3029997).

All equipment was calibrated by a National Association of Testing Authorities (NATA) accredited laboratory. The equipment was field calibrated before and after the measurement period. No significant drift from the reference signal was recorded.

#### 3.2 Unattended Noise Monitoring

Noise monitoring was conducted alongside simultaneous traffic counts of the Centenary Highway (provided by TTM Consulting) between Wednesday the 3<sup>rd</sup> of May and Monday the 8<sup>th</sup> of May 2023. The traffic count survey was conducted on Thursday the 4<sup>th</sup> of May. The noise monitor at Location 1 in Figure 3-1 was approximately 7.2m from the nearest road edge, while the noise monitor at Location 2 was located on the southern site boundary at the approximate location of proposed residential Lot 1460.

Both loggers were set to measure noise levels in 'Fast' response over 60 minute intervals. The loggers were both in free-field positions, 1.5m above ground, with the monitor at Location 1 having direct line of sight to the road. Road traffic noise levels were measured in accordance with Australian Standard AS2702. The data captured by the noise monitors is considered representative of both the road traffic noise and ambient noise levels experienced at the site.

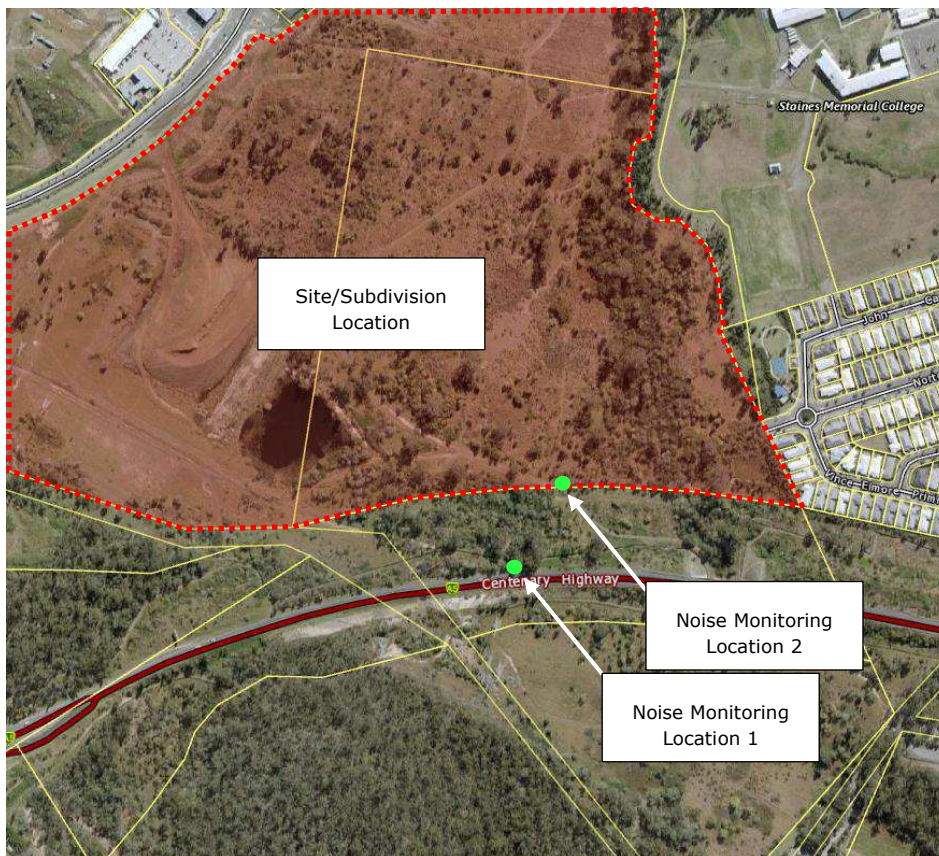


Figure 3-1 - Noise Monitoring Locations

Weather during the monitoring period was fine, with no adverse weather conditions observed during the 48 hour period. The temperature range during the monitoring period was between 5-28°C (source: Bureau of Meteorology, Greenbank (Defence) Weather Station (station ID:140009)).

Note – unattended noise monitoring for Mount Juillerat drive was not conducted due to the surrounds of the corridor currently still largely undeveloped. As a result, measured road traffic noise levels would reflect an atypical traffic volume compared to a fully established corridor. For the purposes of a conservative assessment, road traffic noise levels and the subsequent criteria have been taken from previous assessments of other stages of the Eden’s Crossing development undertaken by Vipac.

### 3.3 Measured Road Traffic Noise Level Results

Table 3-1 presents the measured road traffic noise levels at the unattended monitoring location. The data utilised for this assessment is the full 48-hour period of Thursday the 4<sup>th</sup> and Friday the 5<sup>th</sup> of May 2023. Data obtained from Wednesday the 3<sup>rd</sup> and Monday the 8<sup>th</sup> has been excluded as the data captured on these days was only partial.

*Table 3-1 - Measured Road Traffic Noise Levels*

Logger Location	Road Traffic Noise Descriptor	Time Period	Measured Level, dB(A)
Roadside	LA10, 18 hour	6am to midnight	<u>79.1</u>
	Noisiest day-time LAeq, 1 hour	6am-7am	81.5
	Noisiest night-time LAeq, 1 hour	5am-6am	80.6
	L90, 8 hour	10pm to 6am	50.6
	L90, 18 hour	6am to midnight	64.6
Stage 34A Southern Boundary	LA10, 18 hour	6am to midnight	56.3
	Noisiest day-time LAeq, 1 hour	6am-7am	60.7
	Noisiest night-time LAeq, 1 hour	5am-6am	59.6
	L90, 8 hour	10pm to 6am	44.4
	L90, 18 hour	6am to midnight	<u>49.4</u>

## 4 Noise Criteria

### 4.1 State Development Assessment Provisions

The Department of State Development Infrastructure and Planning’s “State Development Assessment Provisions” (SDAP V3.0) *State Code 1: Development in a state-controlled road environment* has been used to assess traffic noise impacts on the development. The noise criteria as per State Code 1 have been reproduced in Table 4-1. The development has been assessed according to the criteria relevant for a ‘reconfiguring a lot’ application, where criteria is provided for private open space on lots adjacent a state-controlled or type 1 multi modal corridor.

Table 4-1 - SDAP v3.0 State Code 1 Applicable Criteria

Involving the creation of 6 or more new residential lots adjacent to a state-controlled road or type 1 multi-modal corridor	
Performance Outcome	Acceptable Outcomes
<p><b>PO38</b> Reconfiguring a lot minimises free field noise intrusion from a <b>state-controlled road</b>.</p>	<p><b>AO38.1</b> Development provides noise barrier or earth mound which is designed, sited and constructed:</p> <ol style="list-style-type: none"> <li>1. to achieve the maximum free field acoustic levels in reference table 2 (item 2.1);</li> <li>2. in accordance with:               <ol style="list-style-type: none"> <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-MRTS04 General Earthworks, Transport and Main Roads, 2020.</li> </ol> </li> </ol> <p>OR</p> <p><b>AO38.2</b> Development achieves the maximum free field acoustic levels in reference table 2 (item 2.1) by <b>alternative noise attenuation measures</b> where it is not practical to provide a noise barrier or earth mound.</p>

AO38.2 reference table 2 is reproduced in Table 4-2 below.

Table 4-2 - AO38.1 Table 2 Reproduction - Maximum free field acoustic levels

Applicable Use	Acoustic Levels
<p><b>2.1: Private open space for residential lots</b></p>	<ol style="list-style-type: none"> <li>a. <math>\leq 57</math> dB(A) <math>L_{10}</math> (18 hour) free field (measured <math>L_{90}</math> (18 hour) free field between 6am and 12 midnight <math>\leq 45</math> dB(A))</li> </ol> <p>OR</p> <ol style="list-style-type: none"> <li>b. <math>\leq 60</math> dB(A) <math>L_{10}</math> (18 hour) free field (measured <math>L_{90}</math> (18 hour) free field between 6am and 12 midnight <math>&gt; 45</math> dB(A))</li> </ol>

## 5 Road Traffic Noise Assessment

An assessment of road traffic noise from Mount Juillerat Drive and the Centenary Highway was conducted to determine the extent any acoustic treatments necessary for compliance with the assessment criteria.

### 5.1 Assessment Criteria

#### 5.1.1 Centenary Highway

Based on the measured background noise levels detailed in Section 3.3 (i.e. Location 2), and the criteria outlined in Section 4, the following external road traffic noise limits apply to the sensitive receptors nearest the Centenary Highway:

- Private Open Space – An external noise level of 60dB(A) L<sub>10(18 hour)</sub> free-field.

#### 5.1.2 Mount Juillerat Drive

Based on the previous assessments conducted by Vipac for Eden’s Crossing (e.g. Stages 24 to 26 report ref: 70Q-16-0182-TRP-8551163-5 dated 3<sup>rd</sup> April 2020), the following noise limits have been adopted where future background noise levels are expected to be above 40 dB(A) L<sub>90, 8hr</sub> and 45 dB(A) L<sub>90, 18hr</sub>.

As a result, the relevant criteria for this development are:

- Private Open Space – An external noise level of 60dB(A) L<sub>10(18 hour)</sub> free-field.

### 5.2 Traffic Volumes

The traffic volumes adopted for this assessment are presented in Table 5-1. Traffic data for Mount Juillerat Drive have been extrapolated from the assessment of previous stages using a conservative growth rate of 3% per annum. Traffic data for Centenary Motorway was obtained from the TTM traffic survey of Mount Juillerat Drive/Centenary Highway on Thursday the 4<sup>th</sup> of May, 2023 (i.e. noise monitoring was conducted simultaneously with the traffic counts). The results of the traffic survey are detailed in Table 5-1 (refer to Appendix E for TTM traffic counts summary). AADT volumes have been supplied by TTM and have been extrapolated from the surveyed results. The growth rate of 5% has also been provided by TTM traffic engineers. The 18-hour traffic volumes used in the noise model are taken to be 95% of the AADT (Annual Average Daily Traffic).

Table 5-1: Traffic Data Used in Traffic Noise Modelling

Road	Scenario	Year	AADT	18hr Traffic Volumes	%HV	Speed	Growth Rate
Centenary Motorway	Model Verification	2023	22,680	21,546	4%	100	5%
	Ultimate	2036	42,766	40,628			
Mount Juillerat Drive	Ultimate	2036	19,897	19,571	5%	70	3%

### 5.3 Traffic Noise Modelling Methodology

Traffic noise calculations were carried out using SoundPLAN v8.2 noise modelling software. The data and assumptions used in traffic noise modelling are presented in Table 5-2.

Table 5-2: Data and Assumptions Used in Traffic Noise Modelling

Parameter	Data
Private Open Space Prediction Heights	1.5m above earthworks design levels
Terrain Data	<ul style="list-style-type: none"> <li>Surrounding existing natural terrain contours provided by RPS (file ref: QSpatial 1m Contours MGA.DWG) received on 30th May 2023.</li> <li>Stage 30-35 earthworks design levels by KN Group (ref: Functionals – Earthworks Layout Plan, Drawing No. 19-222-FL03, Revision D) dated 30<sup>th</sup> January 2024, Appendix B.</li> <li>Tabulated Pad Levels – Appendix D.</li> </ul>
Angle Increment	10
Grid Spacing (noise contour maps)	2m squares
Lot Layout	<ul style="list-style-type: none"> <li>Stages 30-35 &amp; 37 'Application Plan Set' Plan of Subdivision from RPS Group, 'Plan of Subdivision Stages 30-35 &amp; 37 Overall Allotment Layout' drawing reference '132030-135, rev F', dated 6th June 2023.</li> </ul>
Calculation Method	UK's Calculation of Road Traffic Noise (CoRTN)
Road Surface	<ul style="list-style-type: none"> <li>Stone Mastic Asphalt 14 was modelled as the road surface for the Centenary Highway as per confirmation by DTMR Road Inspectors*.</li> <li>A negative correction of -1dB(A) has been applied as per Table 4.3.4.1 of the CoP as a result.</li> <li>Dense Graded Asphalt was modelled for the road surface for Mount Juillerat Drive.</li> <li>A correction of -0.7 dB(A) has been applied for free field locations for Queensland conditions (Department of Transport and Main Roads, Transport Noise Management Code of Practice 2013).</li> </ul>
Existing Noise Barriers	N/A

\*Confirmed by DTMR via email correspondence on 29<sup>th</sup> of November 2023 that the road surface is SMA14 as of May 2023 at the time of noise monitoring (Appendix F).

The above data has been incorporated into an existing SoundPlan 8.2 noise model and future traffic noise levels have been predicted. The expected year of completion for Stages 30-35 and 37 is between 2024 to 2026. As such, traffic noise has been assessed for an ultimate year of 2036 (10 years post completion).

#### 5.3.1 Noise Model Verification (Centenary Highway)

To verify the road traffic noise model, the  $L_{A10}$  18 hour noise level was modelled and compared to the measured levels presented in Table 5-3 for the Centenary Highway. As the noise monitor was in a free-field location, the predicted noise level is also shown as free-field.

Table 5-3 - Comparison between measured and modelled road traffic noise level

Logger Location	Measured $L_{A10}$ , 18 hour	Predicted $L_{A10}$ , 18 hour	Required Correction
Approximately 8.5m from Centenary Hwy road edge	79.1	75.6	+3.5

The noise model is underpredicting the measured noise level at the logger location. This underprediction is consistent with previous monitoring of the road corridor conducted in 2022, detailed in Revision 1 of this report (report ref: 27585-1) As a result, and for the purposes of providing a conservative assessment, **predicted 'Ultimate' noise levels from the Centenary Highway have been increased by 3.5dB(A).**

## 5.4 Predicted Road Traffic Noise Levels

Modelling was conducted to determine the road traffic noise levels at each residential lot in the 10 year planning horizon (i.e. 10 years from expected completion date). Predicted free field traffic noise levels for the most exposed development stages are presented below.

### 5.4.1 Predicted Private Open Space Levels without Mitigation – Centenary Highway

Figure 5-1 presents the predicted road traffic noise levels compared to the SDAP private open space criteria for lots and stages most exposed to the Centenary Highway.

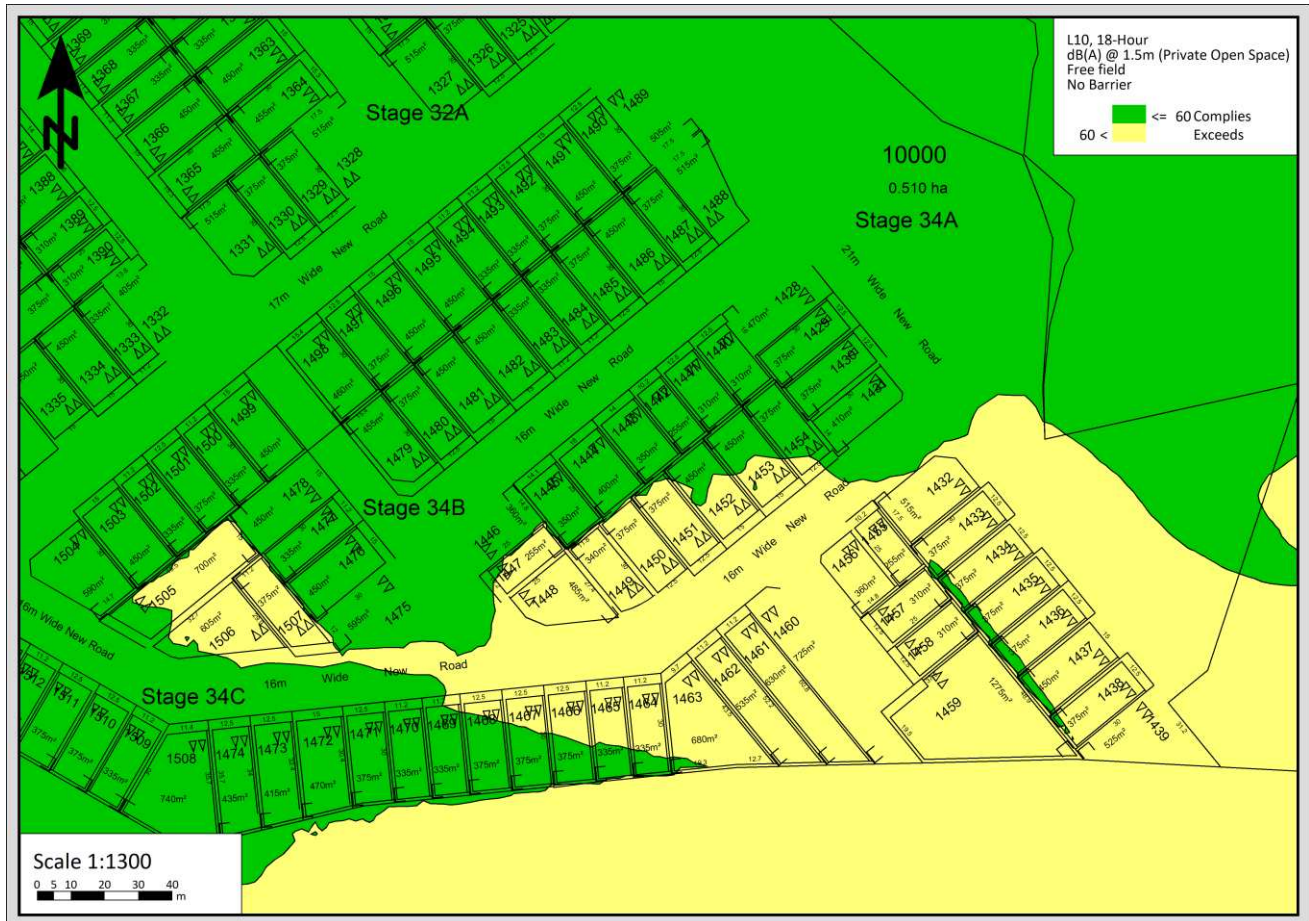


Figure 5-1 - Predicted Ultimate (2036) Road Traffic Noise Levels (Centenary Hwy) - Private Open Space

Predicted traffic noise levels for a number of lots that are nearest to the highway are predicted to exceed the private open space criteria. Lots predicted to exceed the noise limit are shown in Table 5-4.

Table 5-4 Lots Predicted to Exceed the Private Open Space Limit

Noise Limit	Lots Exceeding Noise Limits	Location
LA <sub>10,18hr</sub> 60 dB(A) – Free-field	1432-1439, 1447-1469, 1515-1507	Private Open Space

An acoustic barrier will be required to achieve predicted compliance across 100% of each lot of the subdivision.

**5.4.2 Predicted Private Open Space Levels with Mitigation – Centenary Highway**

Figure 5-2 presents the predicted road traffic noise levels compared to the SDAP private open space criteria for lots and stages most exposed to the Centenary Highway with an acoustic barrier along the southern property boundary

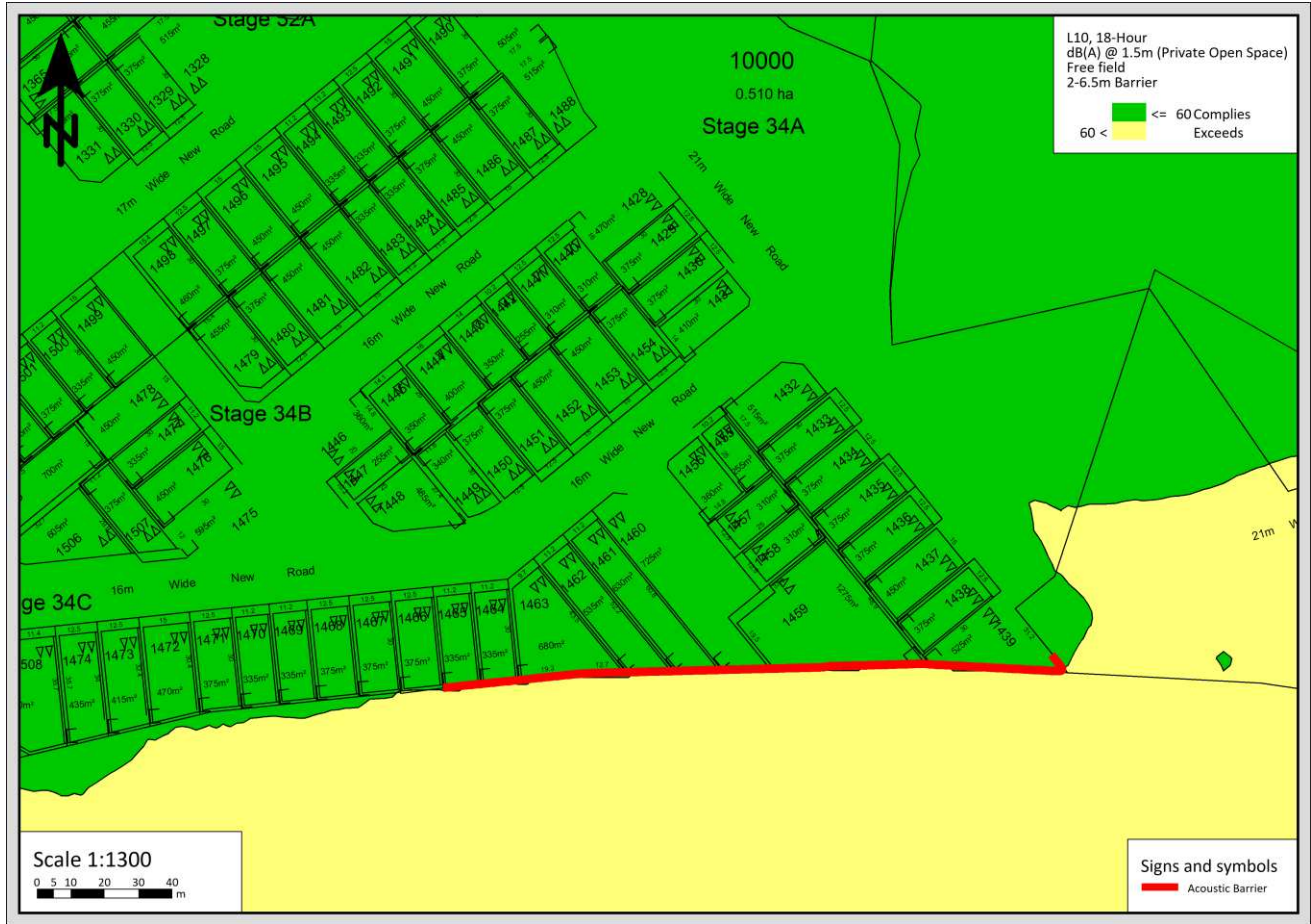


Figure 5-2 - Predicted Ultimate (2036) Road Traffic Noise Levels (Centenary Hwy) - Private Open Space with Mitigation

Predicted traffic noise levels at the lots nearest to the highway are predicted to comply with the private open space criteria with the inclusion of an acoustic barrier along a portion of the southern boundary. Portions of the subdivision not shown are also predicted to comply. Refer to Section 6 for the specific acoustic barrier requirements in detail.

**5.4.3 Predicted Private Open Space Levels without Mitigation – Mount Juillerat Drive**

Figure 5-3 presents the predicted road traffic noise levels compared to the SDAP private open space criteria for lots and stages most exposed to Mount Juillerat Drive.

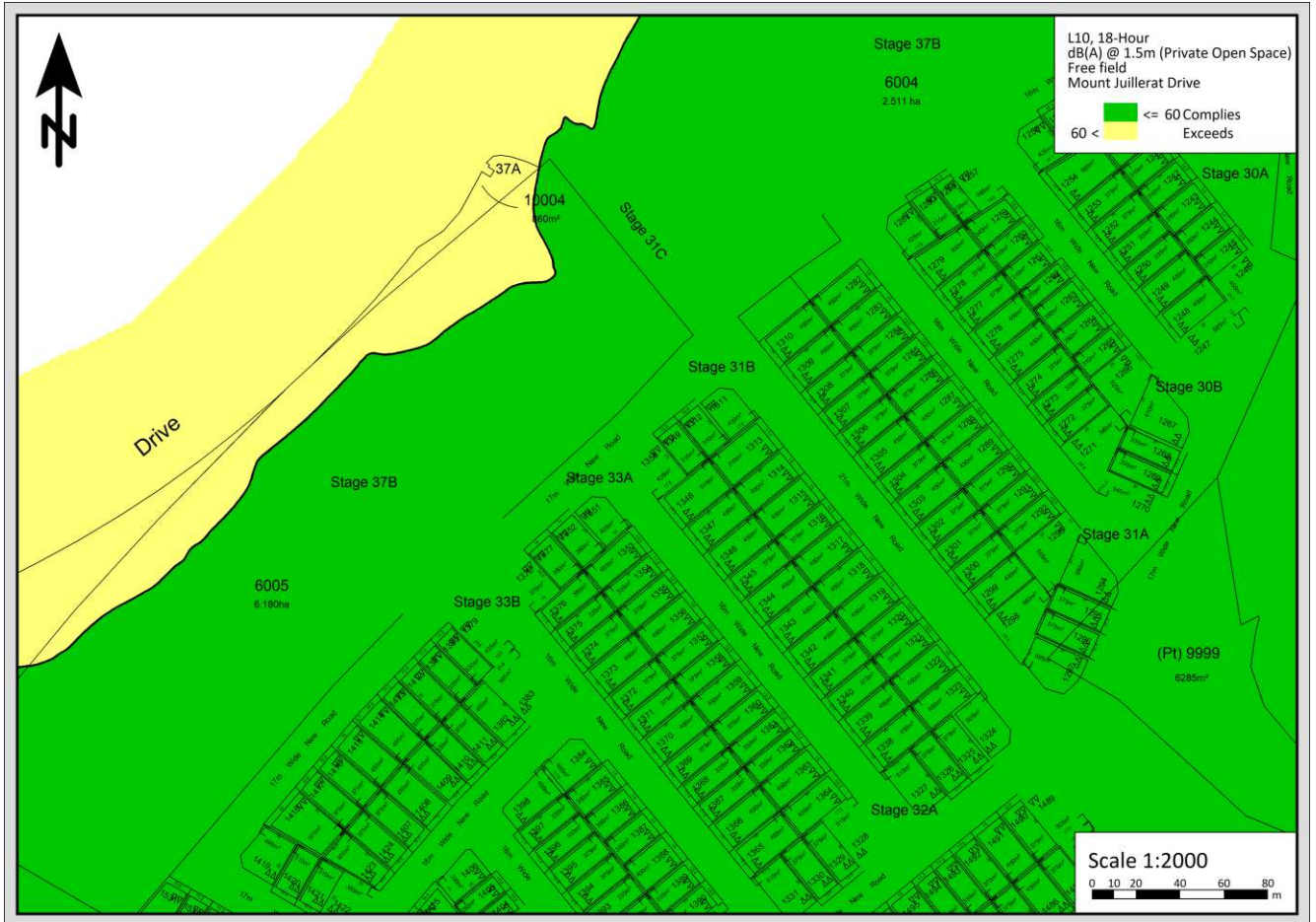


Figure 5-3 - Predicted Ultimate (2036) Road Traffic Noise Levels (Mount Juillerat Drive) - Private Open Space

Predicted traffic noise levels for lots and stages that are most exposed to Mount Juillerat Drive are predicted to comply with the private open space criteria without the need for acoustic mitigation. All other lots/stages not shown above are predicted to comply without the need for acoustic mitigation.

## 6 Recommendations

Compliance is predicted to be achieved provided the recommendations detailed below are incorporated into the development.

### 6.1 Acoustic Barrier – Stage 34A and 34B

To achieve predicted compliance with the private open space criteria, it is recommended to construct an acoustic barrier at the location, height and extent detailed in Figure 6-1. Note - If the finished levels differ from those detailed in Figure 6-1, once bulk earthworks are complete, the barrier location and height should be reviewed prior to barrier construction.

The acoustic barrier should be:

- Located wholly within the property boundary;
- The minimum heights as shown, along the southern boundary, relative to the modelled design levels provided by KN Group (ref: Functionals – Earthworks Layout Plan, Drawing No. 19-222-FL03, Revision D) dated 30<sup>th</sup> January 2024;
- Of solid construction and have no gaps or holes for the extent shown (inclusive of between the ground and bottom of barrier);
- Any gaps surrounding access gates for landscaping/maintenance are to be overlapped sufficiently so that there are no visible holes above, below or on the sides of the gate;
- Constructed in accordance with:
  - 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;
  - Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019;
  - Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020;
- The construction may consist of a barrier in combination with an earth mound to achieve the desired height if required.

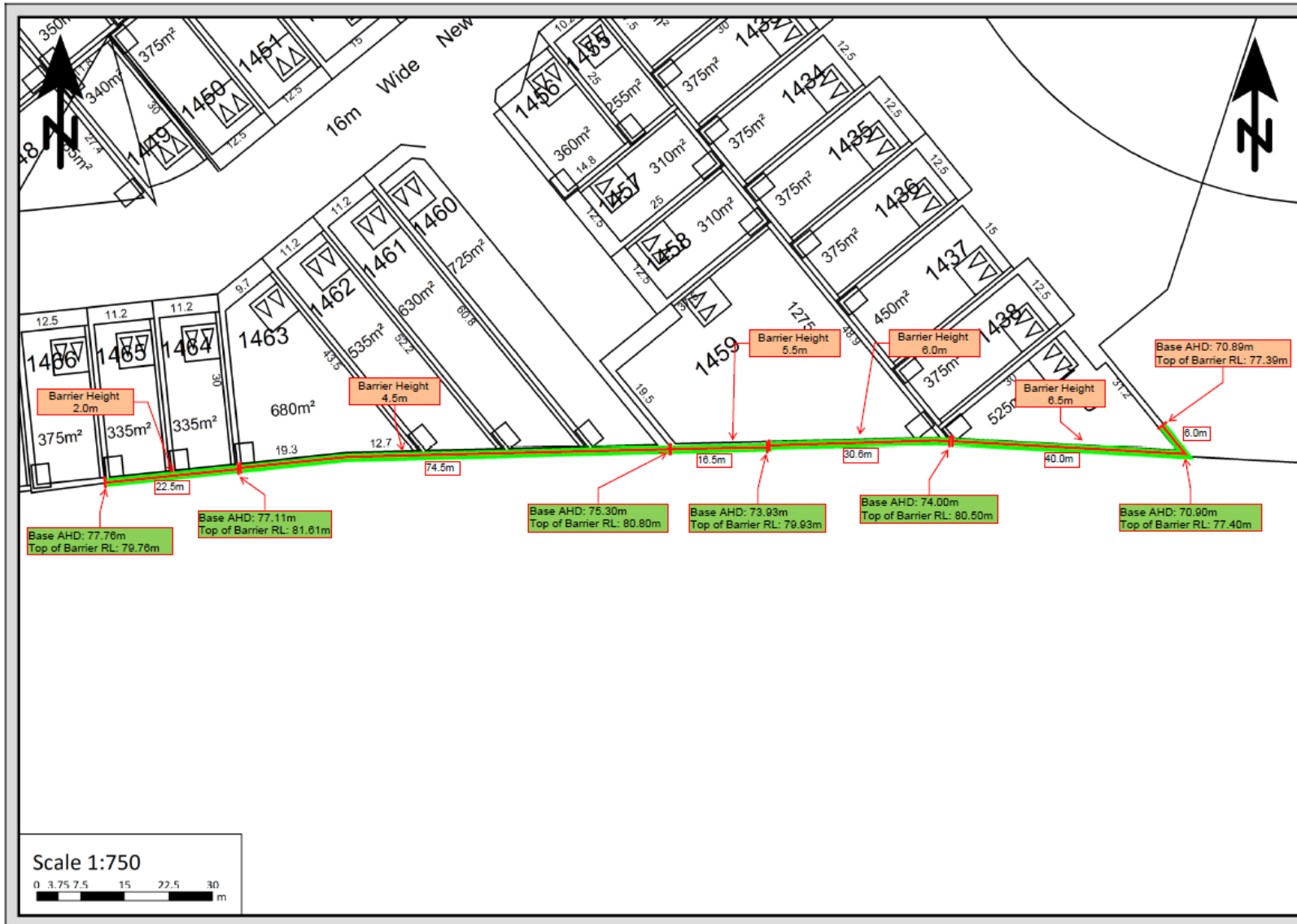


Figure 6-1 - Stage 34A and 34B Acoustic Barrier Recommendation

## 7 Conclusion

A traffic noise impact assessment was undertaken of the proposed residential subdivision for Eden's Crossing Stages 30 to 35 and 37 in Redbank Plains. Compliance with the State Development Assessment Provisions criteria outlined in Section 5.1 is predicted to be achieved based on the implementation of the recommendations in Section 6 of this report.



## Appendix A Development Plans

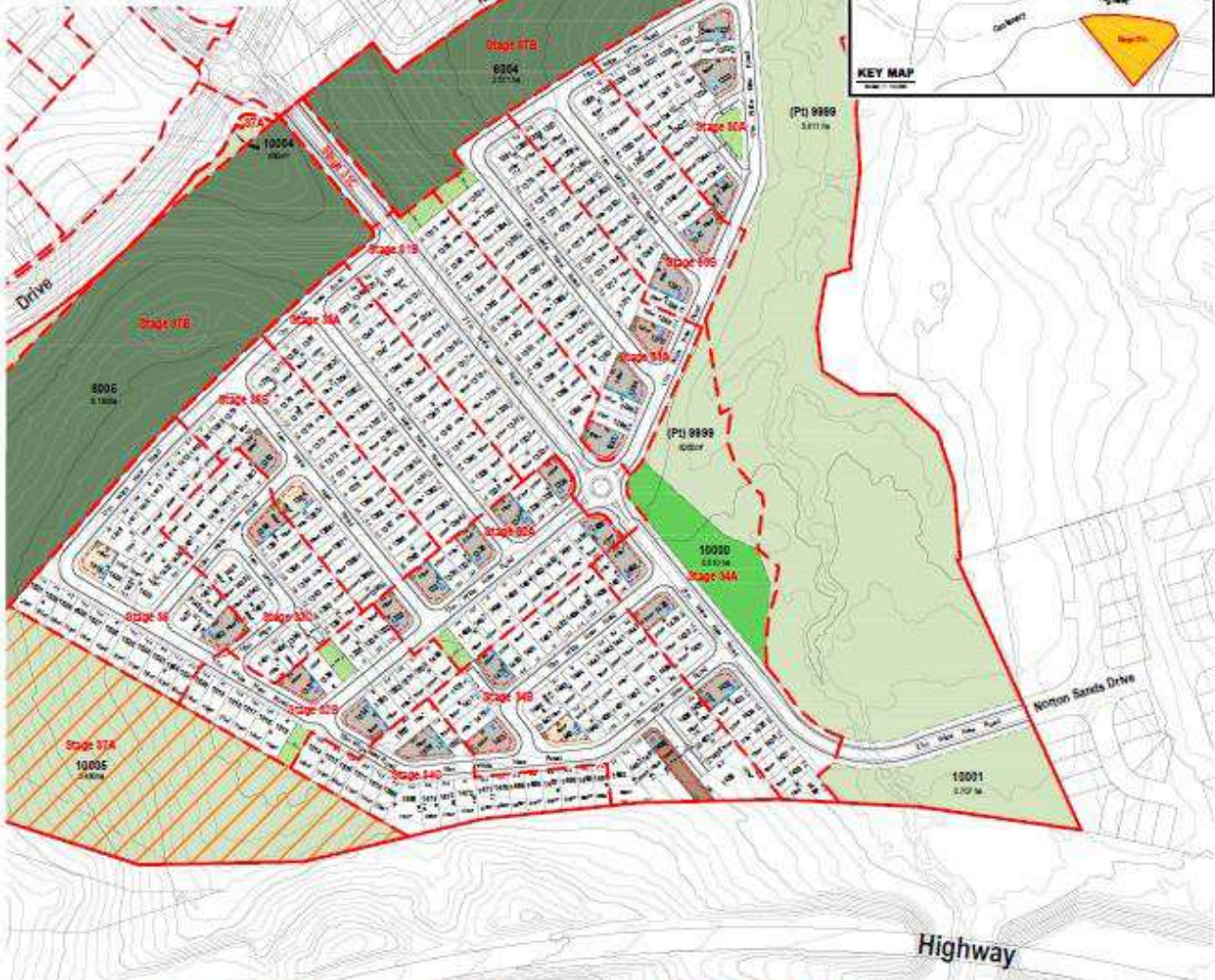




### Development Control Notes

- General**
- All development to be undertaken in accordance with the Development System.
  - Building setbacks and built boundaries will include above and below ground setbacks and/or underground services.
  - The maximum height of buildings shall not exceed 12m and the (2) storeys, except where existing buildings exceed 12m where the building may be up to 15m with 2 storeys in height.
  - The maximum site coverage for each lot shall be in accordance with the Plan of Development Table.
- Setbacks**
- Setbacks are as per the Plan of Development Table unless otherwise specified.
  - Setbacks are measured to the wall.
  - Fire flow setbacks must not exceed the minimum ground floor setbacks.
  - In the case of other setbacks an additional setback from the street corner is applicable. The setback applies to any building or structure greater than 2m high or above.
  - In the case of Vite and Premium Vite Corner Lots the setback is measured as the line that joins the points on the front and side wall boundaries of the lot that are furthest from the point of intersection of these two boundaries.
  - In the case of Changed, Premium Corner and Duplex Corner Lots the setbacks are measured as the line that joins the points on the front and side wall boundaries of the lot that are furthest from the point of intersection of these two boundaries.
  - Where built boundaries are not adjacent side setbacks shall be in accordance with the Plan of Development Table.
  - Built boundaries shall be to have a maximum length of 2 metres and a maximum height of 0.5 metres.
  - Notes cannot encroach public street frontages as built boundaries shall be 200mm to the lot boundaries.

- Outdoor Living Space**
- Private outdoor living space must be provided for each dwelling unit less than 200m<sup>2</sup> in area with a minimum dimension of 3.0m.
  - Buildings facing a park or public open space
  - Changes to site with more than one lot must be a public right of way (including a road, driveway, public footpath or the like) must address all public footpaths.
- Parking and Driveways**
- Designs**
- Garages must not project forward of the main facade (front wall) of the dwelling.
  - Unless otherwise stated, the garage floor or parking structure shall extend no more than 20% of the street frontage for all lots up to 300m<sup>2</sup> in area, provided that the garage or parking structure is not located forward of the main building line of the dwelling.
- Dimensions**
- A maximum of one driveway per dwelling is permitted.
  - The maximum width of a driveway where crossing the verge shall be 3.0m for single garages, and 4.5m for double garages.
- Definitions**
- Site Cover** - The total area of the roof of the dwelling equipment less percentage of the lot area, but which excludes area overhangs.



Plan of Development Table	Vite Allotments		Premium Vite Allotments		Court yard Allotments		Premium Court yard Allotments	
	Ground Floor	1st Floor	Ground Floor	1st Floor	Ground Floor	1st Floor	Ground Floor	1st Floor
Front Setback	3.0m	3.0m	3.0m	3.0m	3.0m	3.0m	3.0m	3.0m
Side Setback	4.5m*	2.0m	4.5m*	2.0m	4.5m*	2.0m	4.5m*	2.0m
Side - General Lot	1.0m	1.0m	1.0m	1.0m	1.0m	1.0m	1.0m	1.0m
Side - Corner Lot	3.0m	3.0m	3.0m	3.0m	3.0m	3.0m	3.0m	3.0m
Front Setback to Boundary	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Side Setback to Boundary	0.5m	0.5m	0.5m	0.5m	0.5m	0.5m	0.5m	0.5m
Storage Location	Preferred carriages are to be located along the built to boundary wall or if no built wall on the front or southern boundary or low side of the allotment.							
On site parking requirements (minimum)	2 car parking spaces with 1 space to be covered and enclosed storage, bicycle or cycle garage structure.							
Site Coverage (Maximum)	60% for lots 600m <sup>2</sup> or less, 50% for lots greater than 600m <sup>2</sup>							

**Legend**

- Site Boundary
- Proposed Stage Boundary
- Area Subject to Acquisition
- Unsub Open Space
- Active Park
- Residential Linkage
- Footway/Driveway
- Proposed Footway

**Notes**

1. All boundaries, dimensions and areas are approximate only, and are subject to survey and Council approval. Dimensions have been rounded to the nearest 0.1 metres. Areas have been rounded down to the nearest 0.1m.

The boundaries shown on this plan should not be used for the detailed engineering design.

**Site Information**

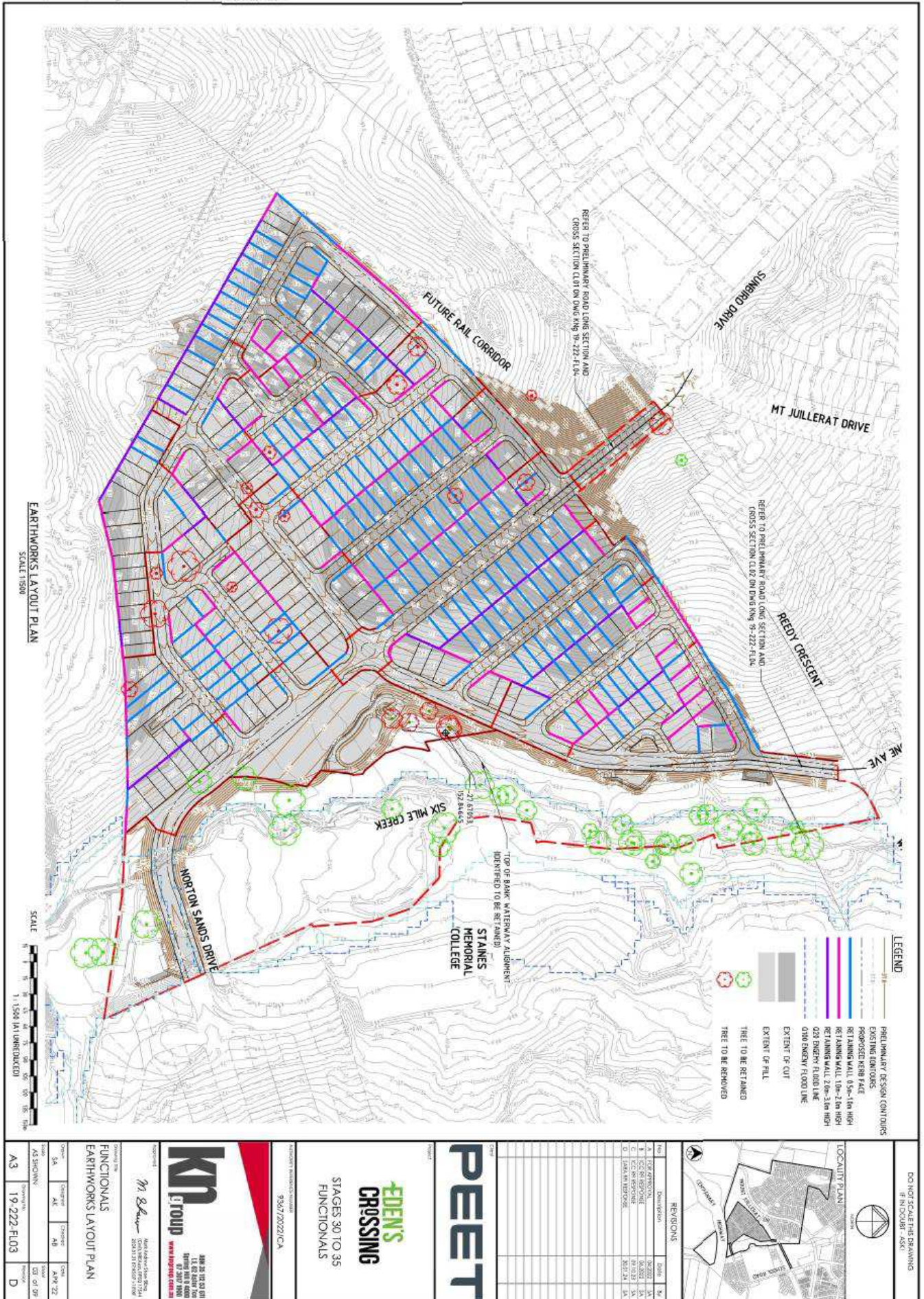
All boundaries, dimensions and areas are approximate only, and are subject to survey and Council approval.

Plan No: 152030-150  
Date: 20/01/2024  
Scale: 1:500  
Author: [Name]  
Checked: [Name]  
Drawn: [Name]

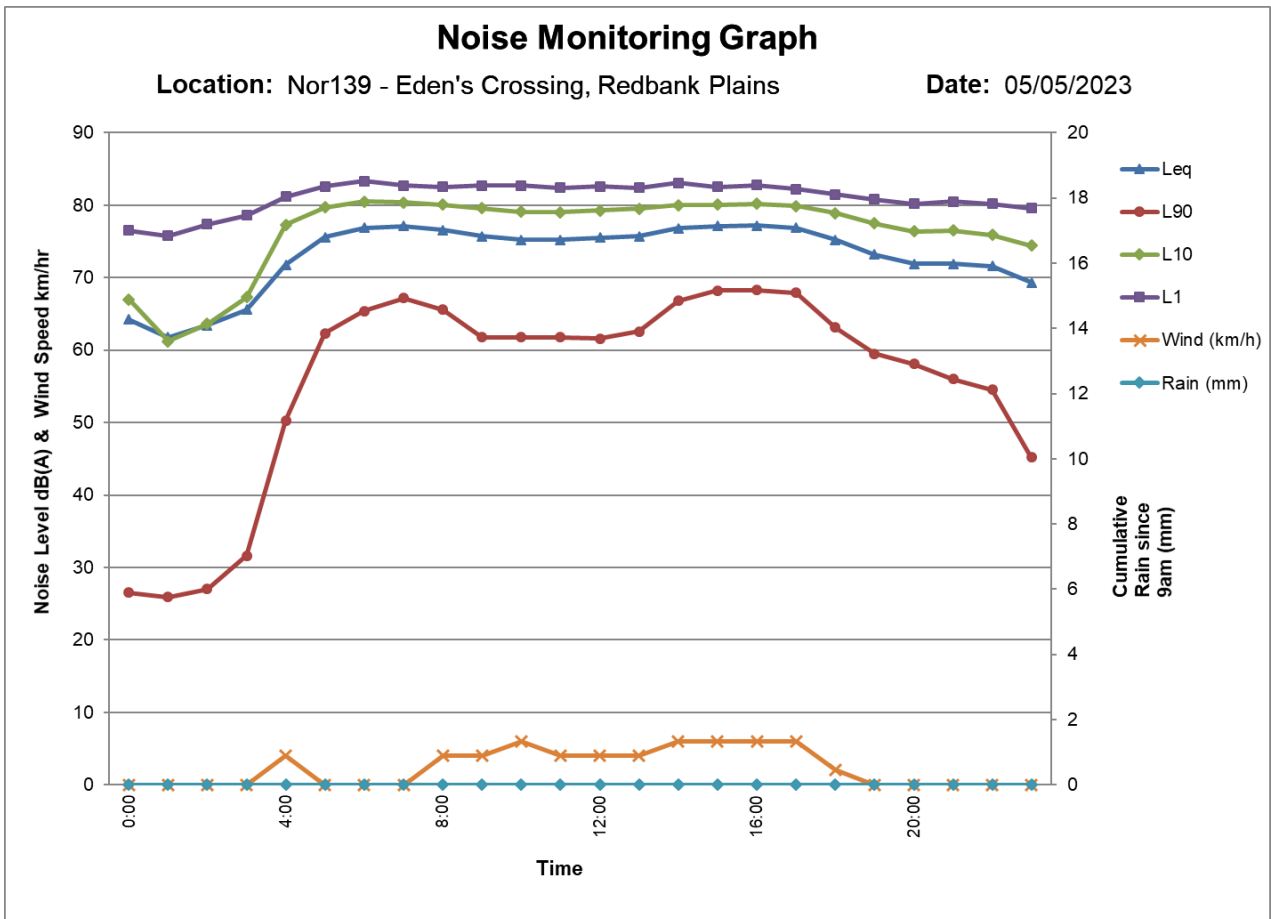
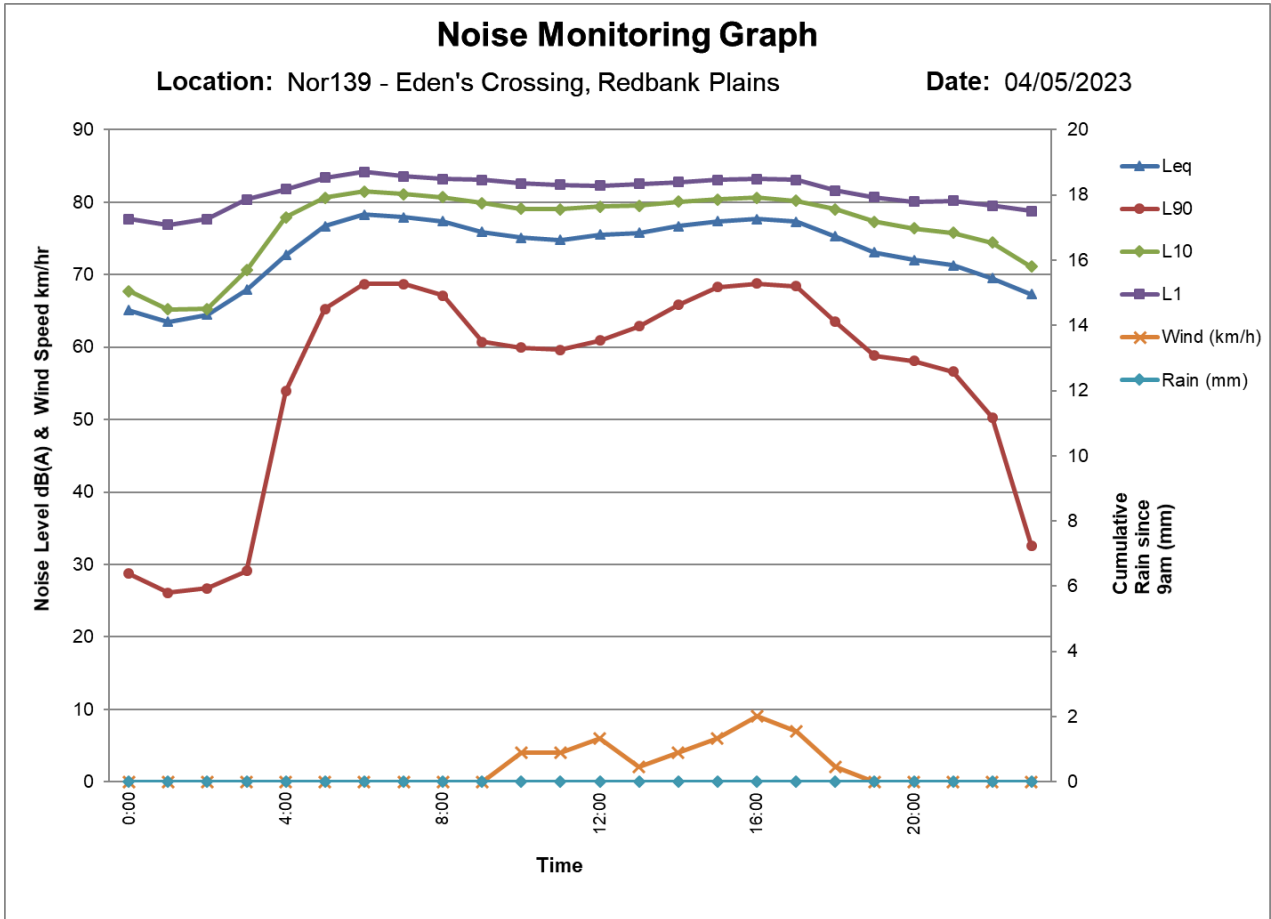
EDEN'S CROSSING  
PLAN OF DEVELOPMENT  
STAGE 30 - 35 & 37  
LOTS SUBJECT TO MCU

URBAN DESIGN  
CONSULTANTS  
10/100  
100/100  
100/100  
100/100  
100/100

## Appendix B Referenced Earthworks Drawings



Appendix C Graphed Noise Monitoring Results



## Appendix D Tabulated Building Pad Levels

Stage	Lot No	Prelim Pad RL (m AHD)	Stage	Lot No	Prelim Pad RL (m AHD)
<b>Stage 30A</b>	1231	66.1	<b>Stage 33B</b>	1365	74.3
	1232	66.2		1366	75.2
	1233	66.8		1367	76.1
	1234	68.6		1368	76.7
	1235	67.2		1369	77.4
	1236	69		1370	78.1
	1237	70.1		1371	79
	1238	71.1		1372	79.7
	1239	72.2		1373	80.4
	1240	71.4		1374	81.3
	1241	70.8		1375	82
	1242	70.3		1376	82.6
	1243	70		1377	84.1
	1244	69.4		1378	84.1
	1245	68.1		1379	84.1
	1246	67.6		1380	84.6
<b>Stage 30B</b>	1247	68.6		1381	84.6
	1248	69.5		1383	80.6
	1249	70.6		1384	79.1
	1250	71.6		1385	78.3
	1251	72.4		1386	77.5
	1252	73.2		1387	76.7
	1253	73.8		1388	75.8
	1254	74.4		1389	75
	1255	73.1		1390	74.3
	1256	74.2	<b>Stage 33C</b>	1382	80.8
	1257	76.1		1391	76.3
	1258	78.1		1392	77
	1259	74.6		1393	77.6
	1260	74.2		1394	78.2
	1261	73.5		1395	78.9
	1262	73.1		1396	80.1
	1263	72.2		1397	81.1
	1264	71.2		1398	82.1
	1265	70.3		1399	77.9
	1266	70		1400	77.8
	1267	68.4		1401	78
	1268	68.5		1403	78.7
<b>Stage 31A</b>	1269	68.6		1404	79.5
	1270	68.7		1405	80.4
	1271	70.9		1406	81.3
	1272	72.2		1407	82.8
	1273	73		1408	83
	1274	73.4		1409	82.8
	1275	74.2		1410	82.4
	1276	75.2		1411	81.8
	1277	76.3	<b>Stage 34A</b>	1487	70.3
	1278	77.1		1488	70.5
	1279	77.6		1428	70.5
	1280	78.4		1429	70.5
	1281	78.8		1430	70.6
	1282	78.8		1431	70.7
	1283	78		1432	70.9
	1284	77.2		1433	70.9
	1285	76.4		1434	70.9
	1286	75.6		1435	70.9
	1287	74.7		1436	70.9
	1288	73.9		1437	70.9
	1289	73		1438	71
	1290	72.2		1439	71
	1291	71.4	<b>Stage 34B</b>	1440	71
	1292	70.6		1441	71.5
	1293	70.4		1442	72
	1294	69.1		1443	72.4
	1295	69.2		1444	73
	1296	69.4		1445	73.6
	1297	69.5		1446	74.9
<b>Stage 31B</b>	1298	71.8		1447	75.6
	1299	72.8		1448	75.8
	1300	73.6		1449	74.9
	1301	74.4		1450	74.4
	1302	75.2		1451	73.9
	1303	76		1452	73.1
	1304	76.9		1453	72.3
	1305	77.7		1454	71.6
	1306	78.6		1455	71.7
	1307	79.4		1456	72.3
	1308	80.2		1457	73.3
	1309	81		1458	73.6
	1310	81.9		1459	73.9
	1311	82.1		1460	73.8
	1312	83.1		1461	72.3
	1313	80.1		1462	74.8
	1314	79.2		1463	75

	1315	78.3		1475	75.2
	1316	77.5		1476	74.9
	1317	76.6		1477	74.7
	1318	75.6		1478	74.3
	1319	74.7		1479	74.5
	1320	73.9		1480	74.2
	1321	73.2		1481	73.7
	1322	72.4		1482	73.1
	1323	71.7		1483	72.7
<b>Stage 32A</b>	1324	70.3		1484	72.2
	1325	70.4		1485	71.7
	1326	70.7		1486	71.1
	1327	71.0	<b>Stage 34C</b>	1464	75.2
	1328	71.9		1465	75.4
	1329	72.2		1466	75.7
	1330	72.4		1467	75.9
	1331	72.7		1468	76.2
	1332	73.5		1469	76.4
	1489	70.3		1470	76.6
	1490	70.5		1471	76.9
	1491	70.8		1472	77.1
	1492	71.1		1473	77.4
	1493	71.4		1474	77.7
	1494	71.6		1505	77.1
	1495	71.9		1506	77.4
	1496	72.2		1507	77
	1497	72.6		1508	77.7
	1498	72.9		1509	77.7
<b>Stage 32B</b>	1333	73.8		1510	77.4
	1334	74.1		1511	77
	1335	74.4		1512	76.4
	1336	75.1		1513	75.8
	1337	75.5		1514	76
	1499	73.6	<b>Stage 35</b>	1402	78.9
	1500	73.9		1412	84.7
	1501	74.2		1413	84.7
	1502	74.4		1414	84.8
	1503	74.7		1415	84.9
	1504	75		1416	84.95
	1515	76.4		1417	85.05
	1516	77.2		1418	84.95
	1517	77.4		1419	83.9
	1518	77.8		1420	83.3
	1519	78.3		1421	82.6
	1520	78.8		1422	81.9
<b>Stage 33A</b>	1338	72.6		1423	81.95
	1339	73.6		1424	82.4
	1340	74.5		1425	82.1
	1341	75.3		1426	81.6
	1342	76.1		1427	80.5
	1343	76.9		1521	79.3
	1344	77.9		1522	79.8
	1345	78.9		1523	80.3
	1346	79.6		1524	81
	1347	80.6		1525	81.7
	1348	81.6		1526	82.4
	1349	83.5		1527	83.2
	1350	83.7		1528	83.9
	1351	83.3		1529	84.4
	1352	84.1		1530	84.7
	1353	81.6		1531	84.7
	1354	80.9			
	1355	80.1			
	1356	79.1			
	1357	83.4			
	1358	77.6			
	1359	76.6			
	1360	75.8			
	1361	75.1			
	1362	74.4			
	1363	73.5			
	1364	72.5			

## Appendix E TTM Traffic Survey Summary



### Survey Details

TTM Reference: **21BRT0219**  
 Location: **Mount Juillerat Dr / Centenary Hwy**  
 Suburb: **Redbank Plains**  
 Date: **Thursday, 4 May 2023**  
 Duration: **0700-0900 & 1600-1800**  
 Weather: **Fine**  
 AM Peak: **07:30-08:30**  
 PM Peak: **16:30-17:30**  
 Notes:



**Quick display - Summaries** Survey Period:  to

Brisbane | Gold Coast | Melbourne | Sydney
www.ttmgroup.com.au
TTM Consulting Pty Ltd 2023

### AADT Volumes by Approach

Note: AADT Volumes are an indicative approximation. Calculations are based of AM & PM peaks at 20% of the daily volume

Northern Approach: <b>Mount Juillerat Dr</b>	
Northbound	4,410
Southbound	3,995
<b>Total</b>	<b>8,405</b>
Southern Approach: <b>Sandstone Blvd</b>	
Northbound	525
Southbound	335
<b>Total</b>	<b>860</b>
Eastern Approach: <b>Centenary Hwy</b>	
Eastbound	<b>11,250</b>
Westbound	<b>11,430</b>
<b>Total</b>	<b>22,680</b>
Western Approach: <b>Centenary Hwy</b>	
Eastbound	9,810
Westbound	9,765
<b>Total</b>	<b>19,575</b>

## Appendix F DTMR Email Correspondence

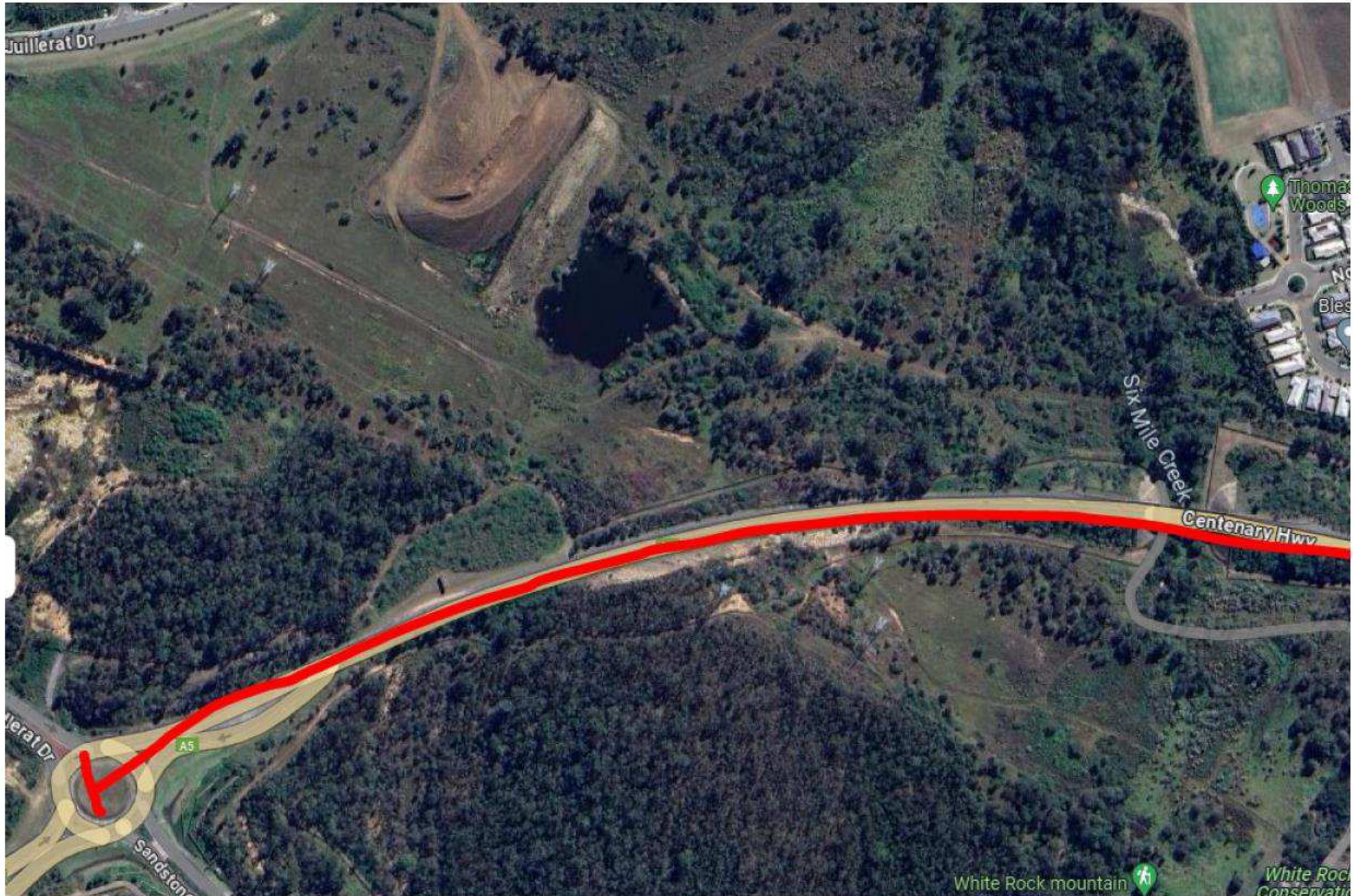
### Patrick Drake

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**From:** Diana M North <Diana.M.North@tmr.qld.gov.au>  
**Sent:** Thursday, 23 November 2023 11:40 AM  
**To:** Patrick Drake  
**Cc:** Glen Z Copelin; Geoffrey Broadbent  
**Subject:** Road surface layer confirmation (Application Ref: TMR23-038450 / SARA Ref: 2211-31915 SRA - Lot 9002 SP307757 and Lot 114 SP256133)

Hi Patrick,

Further to the meeting yesterday regarding the above application, it has been confirmed by TMR's Road Inspectors that the road surface is Stone Mastic Asphalt 14 (SMA14) at the location shown below during May 2023 on the Centenary Highway:





Regards, Diana

**Diana North**  
Senior Town Planner (Development Control) | Metropolitan Region  
Program Delivery and Operations | Department of Transport and Main Roads

PO Box 70 | Spring Hill Qld 4004  
P: (07) 30661650  
E: [Metropolitan.IDAS@tmr.qld.gov.au](mailto:Metropolitan.IDAS@tmr.qld.gov.au) | [Diana.M.North@tmr.qld.gov.au](mailto:Diana.M.North@tmr.qld.gov.au)  
W: [www.tmr.qld.gov.au](http://www.tmr.qld.gov.au)

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