



Acoustics RB Pty Ltd

Report No. 18-964.R01.Rev1

Addendum Report

**Amity Narangba
Residential Estate
Callaghan Rd, Narangba
Rail and Road Traffic Noise Assessment**

COPY 2

March 2018

DOCUMENT CONTROL PAGE

Addendum Report

Amity Narangba Residential Estate Callaghan Rd, Narangba Rail and Road Traffic Noise Assessment

Report No. 18-964.R01.Rev1

Report Prepared by

Acoustics RB Pty Ltd
PO Box 150
Wilston Q 4051
Ph: 07 3356 5555

Report Prepared for

e-mail: russell@acousticsrb.com.au

Attention:

Status: Final

Copy No: 2

Author:

Date of Issue:

Russell Brown

22 March, 2018

History of Revisions

Date	Version	Changes / Relevant Issues
9 March 2018	Original	
22 March 2018	Rev1	Includes (i) change to title to include reference to road traffic noise assessment as well as (ii) consideration of impact of road traffic noise intrusion from Callaghan Road and Burpengary Road on QDC MP4.4 noise category designations.

Record of Distribution

Copy No.	Revision No.	Destination
1		File - Controlled copy
2		

Copyright in the whole and every part of this document belongs to Acoustics RB Pty Ltd (ACN 129 541 671) and may not be used, transferred, sold, copied or reproduced in whole or part the prior written consent of Acoustics RB Pty Ltd.



SUMMARY

██████████ has been granted approval by Moreton Bay Regional Council (MBRC) to re-develop land at Callaghan Rd, Narangba for residential purposes. Ref. Approval No. DA/31898/2016/VCHG/1.

It is noted that the site adjoins Callaghan Road to the north and Burpengary Road to the west. Callaghan Road is a minor road (Types 4 and 5) under Queensland Globe, while Burpengary Road is an arterial road (Types 1, 2 and 3). Both Callaghan Road and Burpengary Road are Council-controlled roads.

In addition, the nearest point of the site is located within 26m of North Coast Rail Line. A Transport Noise Corridor (TNC) has been designated along both sides of North Coast Rail Line.

As part of the DA application, two reports were prepared by TTM Consulting Pty Ltd and submitted to Council: (i) a Rail Noise Assessment Report, ie TTM Report Ref. 16BRA030 R01 *Residential Estate Callaghan Rd, Narangba - Rail Noise Assessment Report* dated 8 June 2016 and (ii) a Road Traffic Noise Assessment Report, ie TTM Report Ref. 16BRA0130 R02_0 *Residential Estate Callaghan Rd, Narangba – Road Traffic Noise Assessment Report* dated 14 August 2016.

Both TTM reports made the same recommendations for the construction of a noise barrier along the western extent of the site to control rail noise intrusion from North Coast Rail Line. In addition, both reports drew the same conclusion that, with this barrier in place, “the development is predicted to comply with the noise criteria outlined in Section 4 [of the relevant TTM Report]”, ie noise criteria for land affected by emissions from (rail/road) transport activities as stated in are contained in Module 1.1 of SDAP and DTMR’s *Policy for Development on Land Affected by Environmental Emissions from Transport and Transport Infrastructure, V2*.

At the time of preparation of the rail noise assessment report, however, the State Government had already designated the Transport Noise Corridors (TNC’s) applying to all rail lines within SE Queensland carrying at least 15 rail movements per day. This included the North Coast Rail Line. The TNC’s were shown on the DILGP SPP Interactive Mapping Website. The designated TNC across the ██████████ land did not extend as far as the area of assessment adopted by TTM in their Report Ref. 16BRA030 R01.

Similarly, at the time of preparation of the road traffic noise assessment report, and by reference to Section 8.1 of Council’s Planning Scheme Policy – Noise (PSP6.16), an assessment of the extent of road traffic noise intrusion would need to be undertaken for lots which are proposed to be located within (a) 50m of a current or future designated sub-arterial road or (b) 100m of a current or future designated arterial road.

The In view of this mismatch between the number of lots actually affected by rail or road traffic noise intrusion and those assessed in the TTM reports, Acoustics RB Pty Ltd has been engaged by ██████████ to update the results of the assessments undertaken by TTM with the objective of harmonising the number of noise-affected allotments identified by TTM with (i) in the case of rail noise intrusion, the lots lying within the designated TNC across the ██████████ land and (ii) in the case of road traffic noise intrusion, the lots lying within the 50m (if applicable) and 100m zones of road traffic noise affectedness designated by Council.

By doing so, it is recommended that the advice presented in the TTM reports be amended in accordance with the results presented in Section 6.0 of this report. Specifically, the breakdown of QDC MP4.4 noise categories applying to the 53 lots lying within either or both of the area of affectedness under the PSP6.16 and the TNC associated with North Coast Rail Line should be as follows:-

Lower Level Facades

- Noise Category 4: None
- Noise Category 3: Lots 309-318
- Noise Category 2: Lots 288-299, 302-308 & 319
- Noise Category 1: Lots 300 and 301

Upper Level Facades

- Noise Category 4: Lots 309-318
- Noise Category 3: Lots 288-294, 302-308 & 319
- Noise Category 2: Lots 295-301
- Noise Category 1: Lot 347



TABLE OF CONTENTS

	Page
1.0 Introduction	5
2.0 Subject Site and Proposed Development.....	6
3.0 Reports by TTM	6
3.1 Rail Noise Assessment Report Ref. 16BRA030 R01	6
3.2 Road Traffic Assessment Report Ref. 16BRA0130 R02_0	7
4.0 Extent of Areas of Affectedness.....	8
4.1 Transport Noise Corridor.....	8
4.2 As Required by Council's PSP6.16	9
5.0 Comparison of Results of TTM Assessment and Extent of Areas of Affectedness	9
5.1 Comparison of Results of TTM Rail Assessment and Extent of TNC	9
5.2 Comparison of Results of TTM Road Traffic Assessment and Area of Affectedness	10
6.0 Harmonisation of Results of TTM Reports.....	10
7.0 Recommendations	11
Figure 1 – Approved Plan of Development.....	12
Figure 2 – Extent of Rail Noise Intrusion onto Site in 5dBA Bands	13
Figure 3 – Extent of Road Traffic Noise Intrusion onto Site in 5dBA Bands.....	14
Figure 4 – Extent of Intrusion of TNC Associated with North Coast Rail Line across Site.....	15
Figure 5 – Extent of intrusion of TNC and QDC MP 4.4 Noise Categories onto Site.....	16



1.0 Introduction

██████████ has been granted approval by Moreton Bay Regional Council (MBRC) to re-develop land at Callaghan Rd, Narangba for residential purposes.

Ref. Approval No. DA/31898/2016/VCHG/1.

It is noted that the site adjoins Callaghan Road to the north and Burpengary Road to the west. Callaghan Road is a minor road (Types 4 and 5) under Queensland Globe, while Burpengary Road is an arterial road (Types 1, 2 and 3). Both Callaghan Road and Burpengary Road are Council-controlled roads.

In addition, the nearest point of the subject site is located within 26m of North Coast Rail Line. A Transport Noise Corridor (TNC) has been designated along both sides of North Coast Rail Line.

As part of the DA application, two reports were prepared by TTM Consulting Pty Ltd and submitted to Council: (i) a Rail Noise Assessment Report, ie TTM Report Ref. 16BRA030 R01 *Residential Estate Callaghan Rd, Narangba - Rail Noise Assessment Report* dated 8 June 2016 and (ii) a Road Traffic Noise Assessment Report, ie TTM Report Ref. 16BRA0130 R02_0 *Residential Estate Callaghan Rd, Narangba – Road Traffic Noise Assessment Report* dated 14 August 2016.

Both TTM reports made the same recommendations for the construction of a noise barrier along the western extent of the site to control rail noise intrusion from North Coast Rail Line. In addition, both reports drew the same conclusion that, with this barrier in place, “the development is predicted to comply with the noise criteria outlined in Section 4 [of the relevant TTM Report]”, ie noise criteria for land affected by emissions from (rail/road) transport activities as stated in Module 1.1 of SDAP and DTMR’s *Policy for Development on Land Affected by Environmental Emissions from Transport and Transport Infrastructure, Version 2*.

For purposes of guidance, each report also presented a pair of noise contour plots showing the extent of either rail or road traffic noise intrusion, as applicable, across the entirety of the site in 5dBA noise contour bands, with the noise contour bands corresponding to the noise categories QDC MP 4.4. At Section 6.2 of each report, further information was provided with regard to lots which were considered to be “noise-affected”.

At the time of preparation of the rail noise assessment report, however, the State Government had already designated the Transport Noise Corridors (TNC’s) applying to all rail lines within SE Queensland carrying at least 15 rail movements per day. This included the North Coast Rail Line. The TNC’s were shown on the DILGP SPP Interactive Mapping Website. The designated TNC across the ██████████ land did not extend as far as the area of assessment adopted by TTM in their Report Ref. 16BRA030 R01.

Similarly, at the time of preparation of the road traffic noise assessment report, and by reference to Section 8.1 of Council’s Planning Scheme Policy – Noise (PSP6.16), an assessment of the extent of road traffic noise intrusion would need to be undertaken for only those lots which are proposed to be located “within (a) 50m of a current or future designated sub-arterial road or (b) 100m of a current or future designated arterial road”.

Clearly, because Burpengary Road is an arterial road, it would be necessary to assess the extent of road traffic noise intrusion from Burpengary Road onto the lots lying within 100m of the boundary of Burpengary Road. In this case, the affected lots would be far fewer than those assessed by TTM in their Report Ref. 16BRA0130 R02_0.



Notwithstanding the minor road designation of Callaghan Road under Queensland Globe, if the designation of this road were to be elevated by Council to sub-arterial status, it would be necessary to assess the extent of noise intrusion from road traffic on Callaghan Road onto those lots proposed to be located within 50m of the Callaghan Road boundary¹. In this case, the affected lots would again be far fewer than those assessed by TTM in their Report Ref. 16BRA0130 R02_0.

In view of this mismatch between the number of lots actually affected by rail or road traffic noise intrusion and those assessed in the TTM reports, Acoustics RB Pty Ltd has been engaged by [REDACTED] to update the results of the assessments undertaken by TTM with the objective of harmonising the number of noise-affected allotments identified by TTM with (i) in the case of rail noise intrusion, the lots lying within the designated TNC across the [REDACTED] land and (ii) in the case of road traffic noise intrusion, the lots lying within the 50m (if applicable) and 100m zones of road traffic noise affectedness designated by Council under PSP6.16.

This report presents the results of that harmonisation.

Important note:

This report does not seek to vary or modify either of the approved acoustical assessments prepared by TTM. Rather, it accepts on their merits the analyses conducted by TTM. This report seeks only to harmonise the results of the assessments conducted by TTM against the constraints of the areas of affectedness applying under the TNC associated with North Coast Rail Line and under Council's PSP6.16.

2.0 Subject Site and Proposed Development

Real property description of the subject site is Lot 2 on RP185250, Lot 1 on RP170868, Lots 1 and 2 on RP171287 and Lots 1, 2 and 19 RP79384.

The approved development over the site comprises 467 allotments for residential purposes plus a number of open spaces recreation and drainage. Refer Plan of Development No. 131016-4B prepared by RPS and reproduced in Figure 1.

3.0 Reports by TTM

3.1 Rail Noise Assessment Report Ref. 16BRA030 R01

Report Ref. 16BRA030 R01 *Residential Estate Callaghan Rd, Narangba - Rail Noise Assessment Report* was prepared by TTM Consulting Pty Ltd on 8 June 2016. The purpose of this TTM report was to determine the extent of the noise control measures that would be required to be implemented to ensure that the degree of rail noise intrusion onto the subject site achieves compliance with the noise level limits set under Module 1.1 of SDAP and DTMR's *Policy for Development on Land Affected by Environmental Emissions from Transport and Transport Infrastructure, Version 2*.

Accordingly, and as noted above, to adequately control noise intrusion onto the site due to rail traffic on North Coast Rail Line, the TTM report presented recommendations for the construction of a noise barrier along the western extent of the site. The alignment barrier was shown in Figure 5 in Section 6.1 of the report.

¹ As stated in Table 5 of TTM Report Ref. 16BRA0130 R02_0, the traffic volume on Callaghan Road at 2016 had been determined to be 670 vehicles per day (AADT). The forecast traffic volume at the 10 year planning horizon, ie 2026, was 900 vehicles per day (AADT). Simply on this basis alone, it would be inappropriate to conclude that Callaghan Road would be designated as a sub-arterial road. Furthermore, it can also be readily concluded that under such a low 10 year planning horizon traffic volume (ie <1000vpd), there would be no warrant at all to consider the extent of road traffic noise intrusion onto the site.



In addition for purposes of guidance, the report also presented a pair of noise contour plots showing the extent of rail noise intrusion across the entirety of the site. These noise contours were presented in 5dBA bands, with the noise contour bands corresponding to the noise categories of QDC MP 4.4.

The rail noise contour plots have been extracted from the TTM report and are re-presented in Figure 2.

In Table 8 of Section 6.2 of the TTM rail noise assessment report, further information was provided with respect to lots which were considered to be “noise-affected”.

Table 8 of that report is reproduced below.

Table 8: Noise Affected Lots

Floor	Noise Affected Lots (QDC Noise Category 1 or higher)
Ground and First Floor	1-29, 37-54, 69-84, 102-110, 157-159, 186-190, 232, 233, 249-268, 273-467
First Floor only	30-36, 55-61, 65-68, 85-88, 100-101, 142, 143, 160-163, 183-185, 191, 214-220, 230, 231, 234-236, 246-248, 269-271,

By reference to the noise contour plots presented in Figure 2 and the details presented above in Table 8 extracted from the rail noise assessment report, it can be seen that approximately $\frac{3}{4}$ of the 467 allotments have been considered to be “noise-affected” in the TTM report.

3.2 Road Traffic Assessment Report Ref. 16BRA0130 R02_0

Report Ref. 16BRA0130 R02_0 *Residential Estate Callaghan Rd, Narangba – Road Traffic Noise Assessment Report* was prepared by TTM Consulting Pty Ltd on 14 August 2016. The purpose of this TTM report was to determine the extent of the noise control measures that would be required to be implemented to ensure that the degree of road traffic noise intrusion onto the subject site achieves compliance with the noise level limits set under Module 1.1 of SDAP and DTMR’s *Policy for Development on Land Affected by Environmental Emissions from Transport and Transport Infrastructure, Version 2*.

Accordingly, and as noted above, to adequately control noise intrusion onto the site due to road traffic, the TTM report presented recommendations for the construction of a noise barrier along the western extent of the site. The alignment barrier was shown in Figure 5 in Section 6.1 of the report. It is noted that this barrier was required to control noise intrusion from Burpengary Road only. For perfectly understandable reasons, there was no recommendation made in the TTM report for the construction of a barrier along the boundary with Callaghan Road.

In addition and for purposes of guidance, the report also presented a pair of noise contour plots showing the extent of road traffic noise intrusion across the entirety of the site. These noise contours were presented in 5dBA bands, with the noise contour bands again corresponding to the noise categories of QDC MP 4.4.

The road traffic noise contour plots have been extracted from the TTM report and are re-presented in Figure 3.



In Table 8 of Section 6.2 of the TTM road traffic noise assessment report, further information was provided with respect to lots which were considered to be “noise-affected”.

Table 8 of that report is reproduced below.

Table 8: Noise Affected Lots

QDC Noise Category	Lots requiring further acoustic design	
	Ground Floor	First Floor
4	N/A	N/A
3	N/A	N/A
2	N/A	302 - 318
1	302 - 318	8, 288, 319, 347

By reference to the noise contour plots presented in Figure 3 and the details presented above in Table 8 extracted from the rail noise assessment report, it can be seen that 11 of the 467 allotments have been considered to be “noise-affected” with respect to road traffic noise intrusion, ie very much fewer than the ¼ of the 467 allotments considered to be “noise-affected” by rail noise intrusion.

In addition, it can be seen that only one lot located in proximity to Callaghan Road, ie Lot 8, was identified as being noise-affected by road traffic noise intrusion. Furthermore, the applicable QDC MP 4.4 noise category for this lot is Noise Category 1 with this designation applying only to the upper level of a highset residence constructed on Lot 8. It is noted that Noise Category 1 is the lowest category applying to noise affected lots. Notwithstanding the requirement to implement relatively minor building upgrades under the deemed-to-comply upgrade schedules of QDC MP 4.4, it has been determined that, almost invariably, when a site-specific acoustical design review of the residence is conducted, there is no requirement to implement any acoustical upgrades at all.

4.0 Extent of Areas of Affectedness

4.1 Transport Noise Corridor

The extent of intrusion of the Transport Noise Corridor (TNC) onto the subject site has been determined by reference to the DILGP (now DSDMIP) SPP Interactive Mapping Website. The TNC and the QDC MP4.4 noise categories across the site are presented in Figure 4.

In this figure, it can be seen that the TNC extends for a distance of 100m either side of the centreline of the rail reserve. In addition, it can be seen that the Noise Category 4 band of QDC MP 4.4 extends for a distance of 14m onto the site while (i) the Noise Category 3 band is 35m wide and the Noise Category 2 band extends for a further 22m onto the site.

All lots lying within the TNC will be subject to the provisions of QDC MP 4.4. As result, any residence constructed on any of the lots located within the TNC will need to be acoustically designed to adequately control rail noise intrusion. Importantly, however, it is only those lots that are subject to the provisions of QDC MP 4.4 that would be considered to be “noise-affected” for the purposes of acoustical design of the residences.

4.2 As Required by Council's PSP6.16

PSP6.16 requires that an assessment of the extent of road traffic noise intrusion is to be undertaken for lots which are proposed to be located within (a) 50m of a current or future designated sub-arterial road or (b) 100m of a current or future designated arterial road.

As discussed above, because Burpengary Road is an arterial road, it would be necessary to assess the extent of road traffic noise intrusion from Burpengary Road onto the lots lying within 100m of the road boundary.

The line of the 100m setback from Burpengary Road is shown in Figure 5.

In this figure, it can be determined that the lots that may be affected by road traffic noise – either wholly or in part – would be Lots 273-322 and 345-347. This is a total of 53 lots affected lots which is far fewer than those assessed by TTM in their Report Ref. 16BRA0130 R02_0.

As discussed above in Footnote 1 above, the traffic volume on Callaghan Road at 2016 was determined to be 670 vehicles per day (AADT). Ref. Table 5 of TTM Report Ref. 16BRA0130 R02_0. The forecast traffic volume at the 10 year planning horizon, ie 2026, was only 900 vehicles per day (AADT). Simply on this basis alone, it would be inappropriate to conclude that Callaghan Road would be designated as a sub-arterial road. Furthermore, it can also be readily concluded that for such a low 10 year planning horizon traffic volume (ie <1000vpd), there would be no requirement at all to consider the extent of road traffic noise intrusion onto the site.

Accordingly, it is considered there is no warrant to either evaluate or consider the effect of noise intrusion onto the site due to road traffic on Callaghan Road.

5.0 Comparison of Results of TTM Assessment and Extent of Areas of Affectedness

5.1 Comparison of Results of TTM Rail Assessment and Extent of TNC

The TNC and QDC MP 4.4 noise category bands for assessing rail noise have been superimposed on the approved plan of development to show the extent of intrusion onto the residential allotments.

Refer also Figure 5.

In this figure, it can be seen that the breakdown of the noise categories applying to the lots of the residential development² by reference to the SPP Interactive Website would be as follows:-

- Noise Category 4: None
- Noise Category 3: Lots 302-318
- Noise Category 2: Lots 288-311 and 319

This is total of 32 lots.

² It is noted that the TTM report made recommendations for the construction of a set of barriers along the western extent of Lots 302-319 and 347. In addition, the noise categories presented in DSDMIP SPP Interactive Mapping Website and reproduced in Figure A apply to lowset residences and the lower level of highset residences only. The upper level of highset residences are frequently exposed to slightly higher levels of noise intrusion resulting in a potential for an increase to the noise category applying to the upper level.



5.2 Comparison of Results of TTM Road Traffic Assessment and Area of Affectedness

As noted above in Section 4.2, the line of the 100m setback from Burpengary Road has also been superimposed on the approved plan of development to show the extent of the area of affectedness over the residential allotments. Refer Figure 5.

In this figure, it can be seen that the affected lots are Lots 273-322 and 345-347. This is a total of 53 lots. (It is noted that the 53 lots also include the 32 lots lying within the TNC. Refer also Figure 5)

By reference to Figure 8 of the TTM road traffic noise report, it can be seen that the breakdown of the noise categories applying to the 53 lots of the residential development lying within the area of affectedness would be as follows:-

Lower Level Facades

- Noise Category 4: None
- Noise Category 3: None
- Noise Category 2: None
- Noise Category 1: Lots 302-318

Upper Level Facades

- Noise Category 4: None
- Noise Category 3: None
- Noise Category 2: Lots 302-318
- Noise Category 1: Lots 288, 319 & 347

This is total of 11 lots.

6.0 Harmonisation of Results of TTM Reports with SPP Interactive Mapping Website and Council's Road Traffic Noise Intrusion Requirements

Having regard to (i) the two assessments conducted by TTM, (ii) the total extent of intrusion of TNC onto the subject site and (iii) standard building setbacks, the breakdown of noise categories applying to the 32 lots lying within the TNC associated with North Coast Rail Line can be determined with some accuracy.

In addition, having regard to the noise categories applying to the 11 lots identified above in Section 5.2, the schedule of noise categories applying to the 53 lots lying within either or both of the area of affectedness under the PSP6.16 and the TNC can be prepared. The results are presented below. In each case, the higher of the two noise categories applying under each regime has been ascribed to the particular lot. It is noted that by this process, other than for one lot, ie Lot 347 which lies outside the TNC, the requirement to control rail noise intrusion determines the applicable noise category.

Lower Level Facades

- Noise Category 4: None
- Noise Category 3: Lots 309-318
- Noise Category 2: Lots 288-299, 302-308 and 319
- Noise Category 1: Lots 300 and 301

Upper Level Facades

- Noise Category 4: Lots 309-318
- Noise Category 3: Lots 288-294, 302-308 and 319
- Noise Category 2: Lots 295-301
- Noise Category 1: Lot 347



As is evident from this analysis, the number of lots subject to the provisions of QDC MP 4.4 and, hence, “noise-affected” is very substantially less than the number identified in the TTM reports.

7.0 Recommendations

To ensure that (i) the analysis presented in the approved rail noise report prepared by TTM is harmonised with the requirements of the State with respect to the specific lots subject to the provisions of QDC MP 4.4 and (ii) the analysis presented in the approved road traffic noise report prepared by TTM is harmonised with the requirements of Council with respect to the specific lots subject to the provisions of PSP6.16, it is recommended that the advice presented in (a) Table 8 of TTM rail noise Report Ref. 16BRA030 R01 and (b) Table 8 of TTM road traffic noise Report Ref. 16BRA0130 R02_0 be amended in accordance with the results presented in Section 6.0 above.

Specifically, the breakdown of QDC MP4.4 noise categories applying to the 53 lots lying within either or both of the area of affectedness under the PSP6.16 and the TNC associated with North Coast Rail Line should be as follows:-

Lower Level Facades

- Noise Category 4: None
- Noise Category 3: Lots 309-318
- Noise Category 2: Lots 288-299, 302-308 and 319
- Noise Category 1: Lots 300 and 301

Upper Level Facades

- Noise Category 4: Lots 309-318
- Noise Category 3: Lots 288-294, 302-308 and 319
- Noise Category 2: Lots 295-301
- Noise Category 1: Lot 347

Report prepared by,
Acoustics RB Pty Ltd



Russell Brown
RPEQ2799

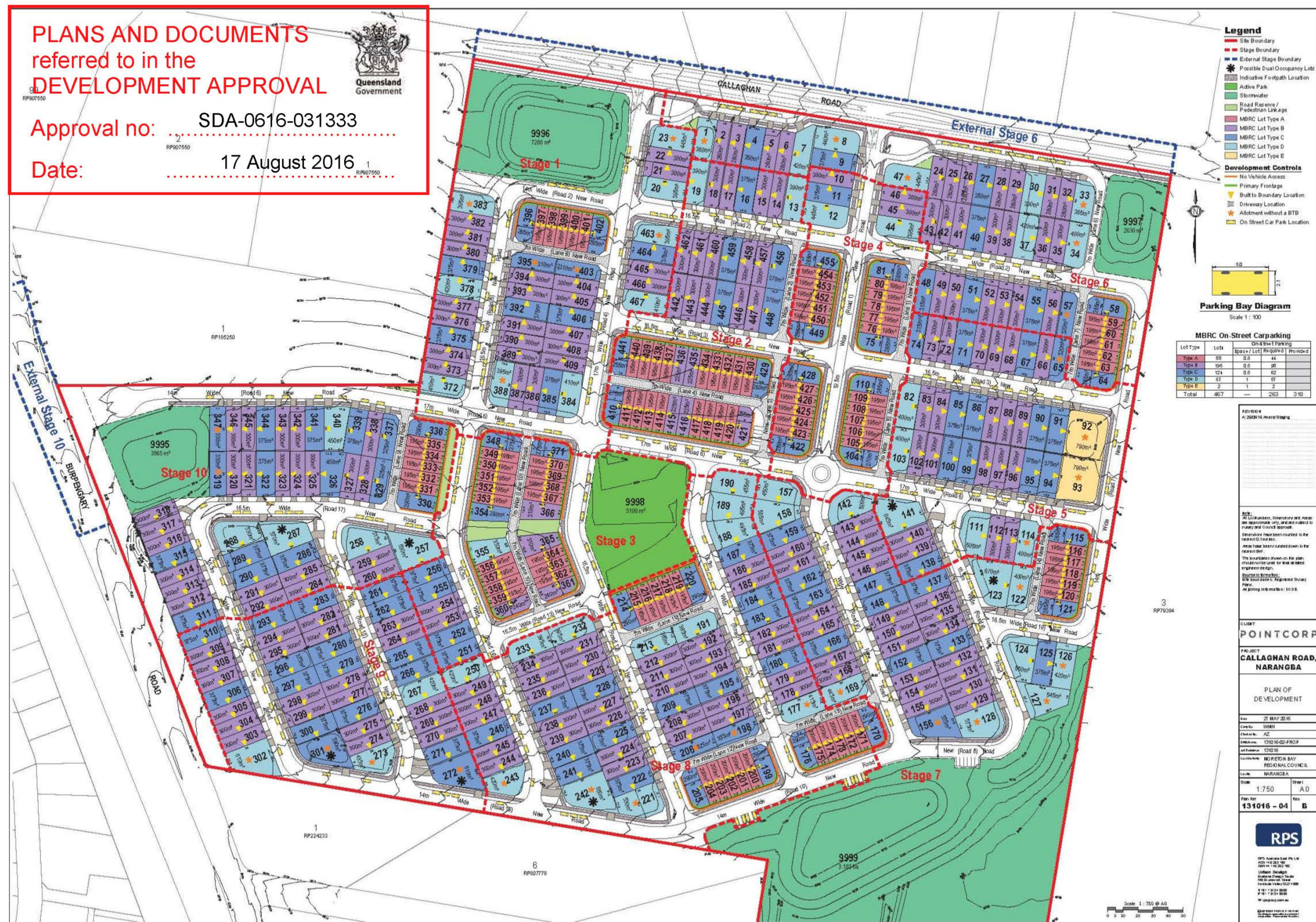


Figure 1 – Approved Plan of Development



5.4. Predicted Rail Noise Levels - L_{Amax}

Predicted rail noise levels are presented in Figure 3 and Figure 4 at ground floor and first floor levels respectively, inclusive of acoustic barriers as recommended in Section 6.

Figure 3: Predicted Rail Noise Levels L_{Amax} – Ground Floor

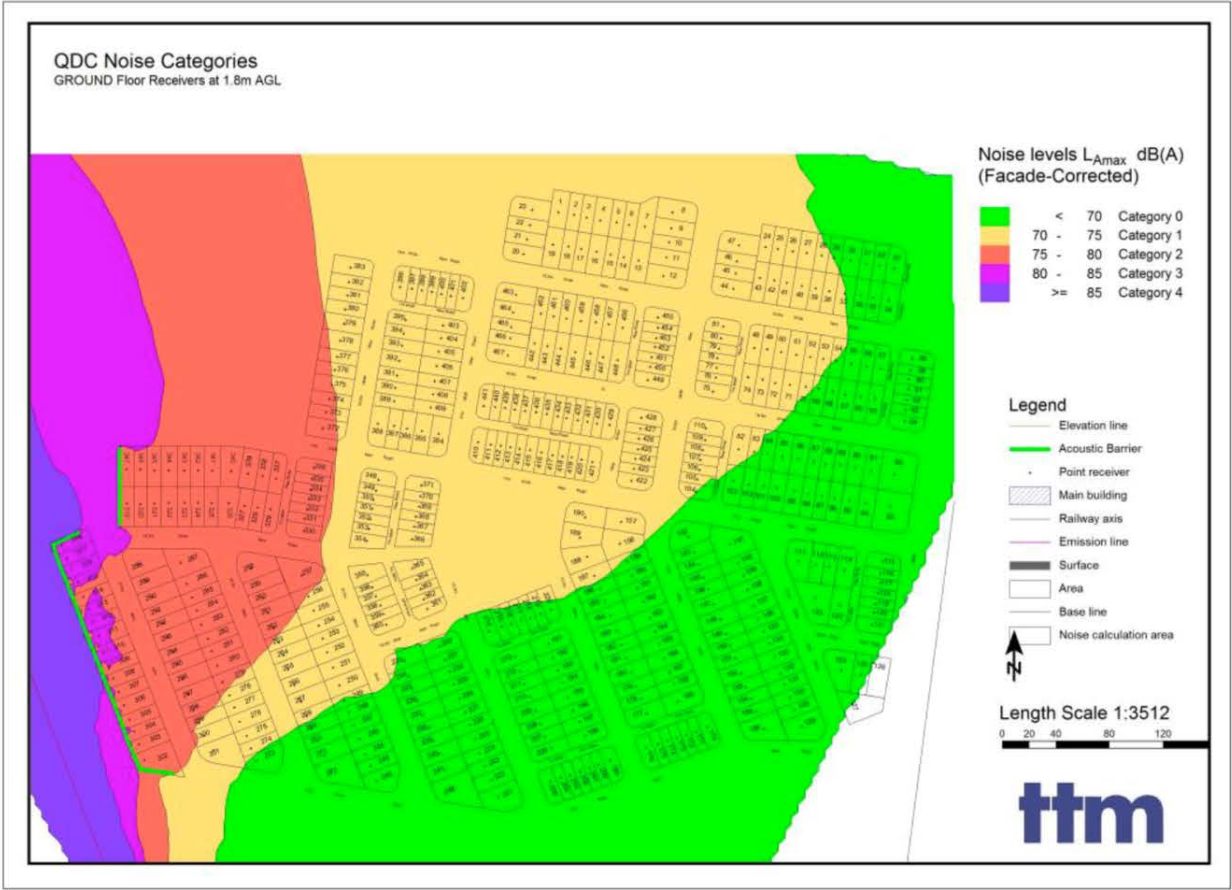


Figure 4: Predicted Rail Noise Levels L_{Amax} – First Floor

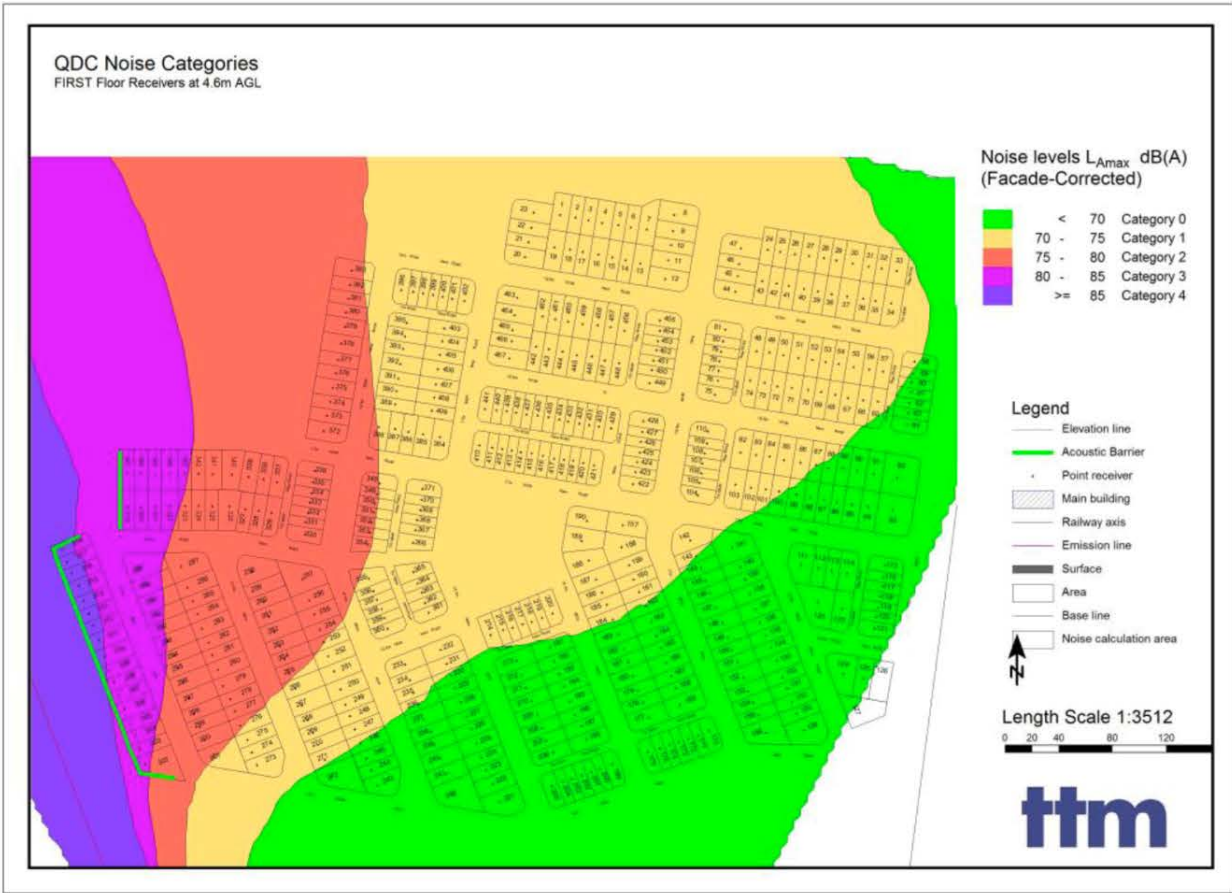


Figure 2 – Extent of Rail Noise Intrusion onto Site in 5dBA Bands (Extracted from Report Ref. 16BRA030 R01 pp9)

5.4. Predicted Road Traffic Noise Levels

Modelling was conducted to determine road traffic noise levels at the development in the 10 year planning horizon. Predicted road traffic noise contour maps illustrated as QDC noise categories at the ground floor and first floor are presented in the following figures, inclusive of acoustic barriers as recommended in Section 6.

Figure 3: Road Traffic Noise Levels at Ground Floor

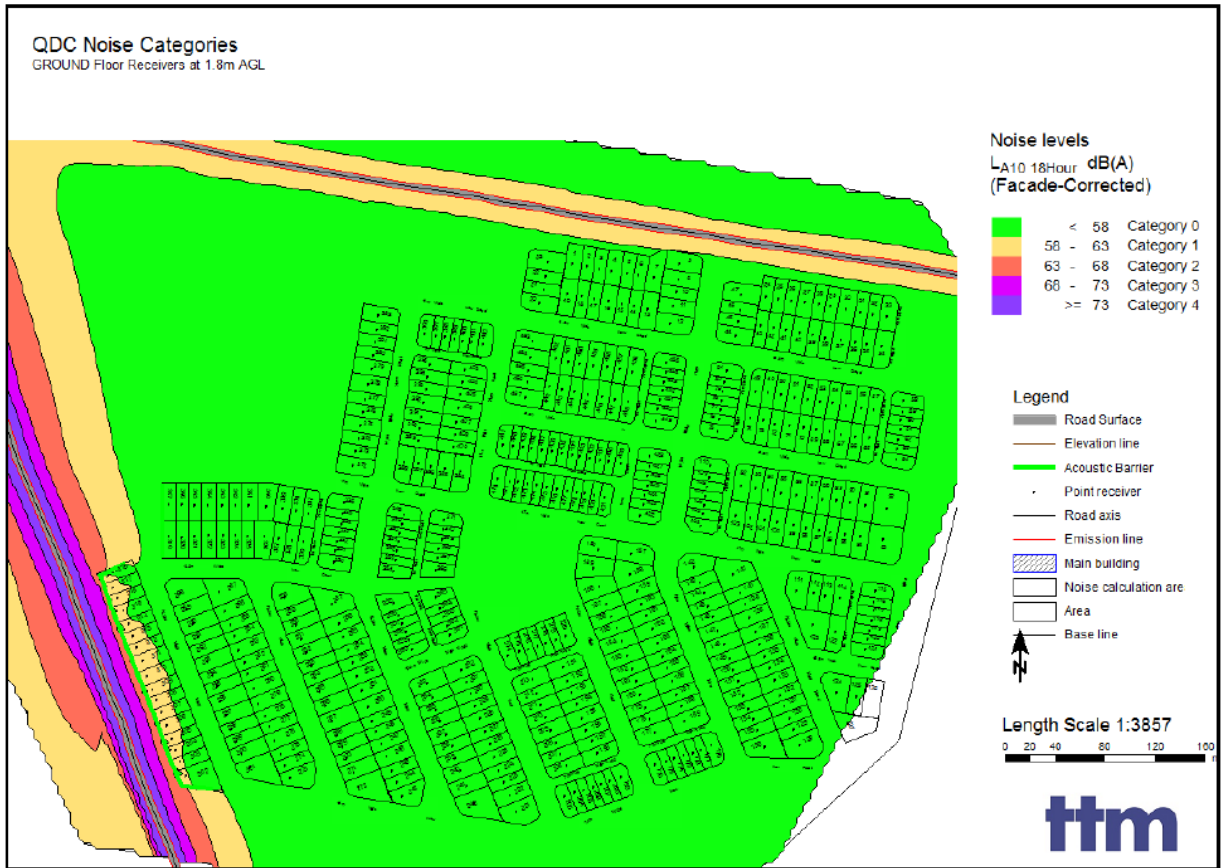


Figure 4: Road Traffic Noise Levels at First Floor

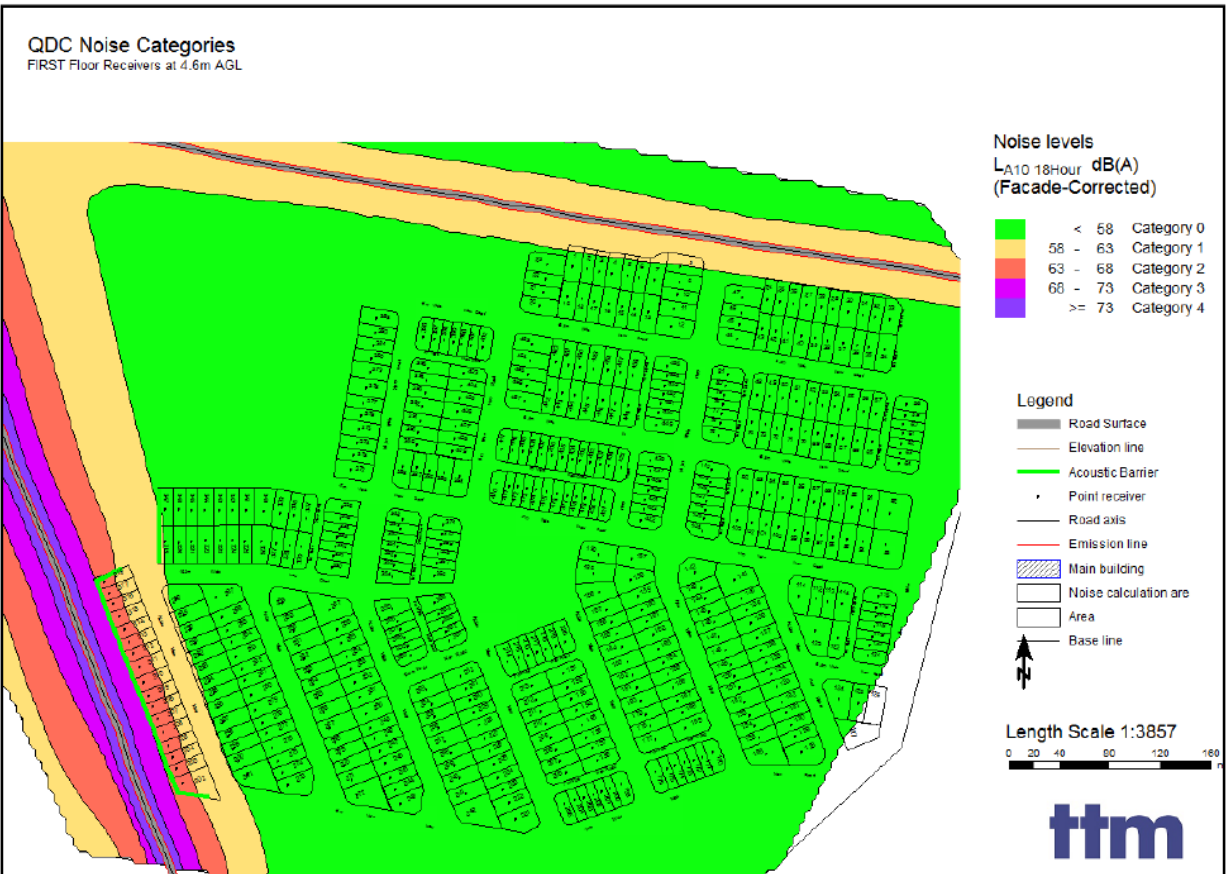


Figure 3 – Extent of Road Traffic Noise Intrusion onto Site in 5dBA Bands (Extracted from Report Ref. 16BRA0130 R02_0 pp10&11)

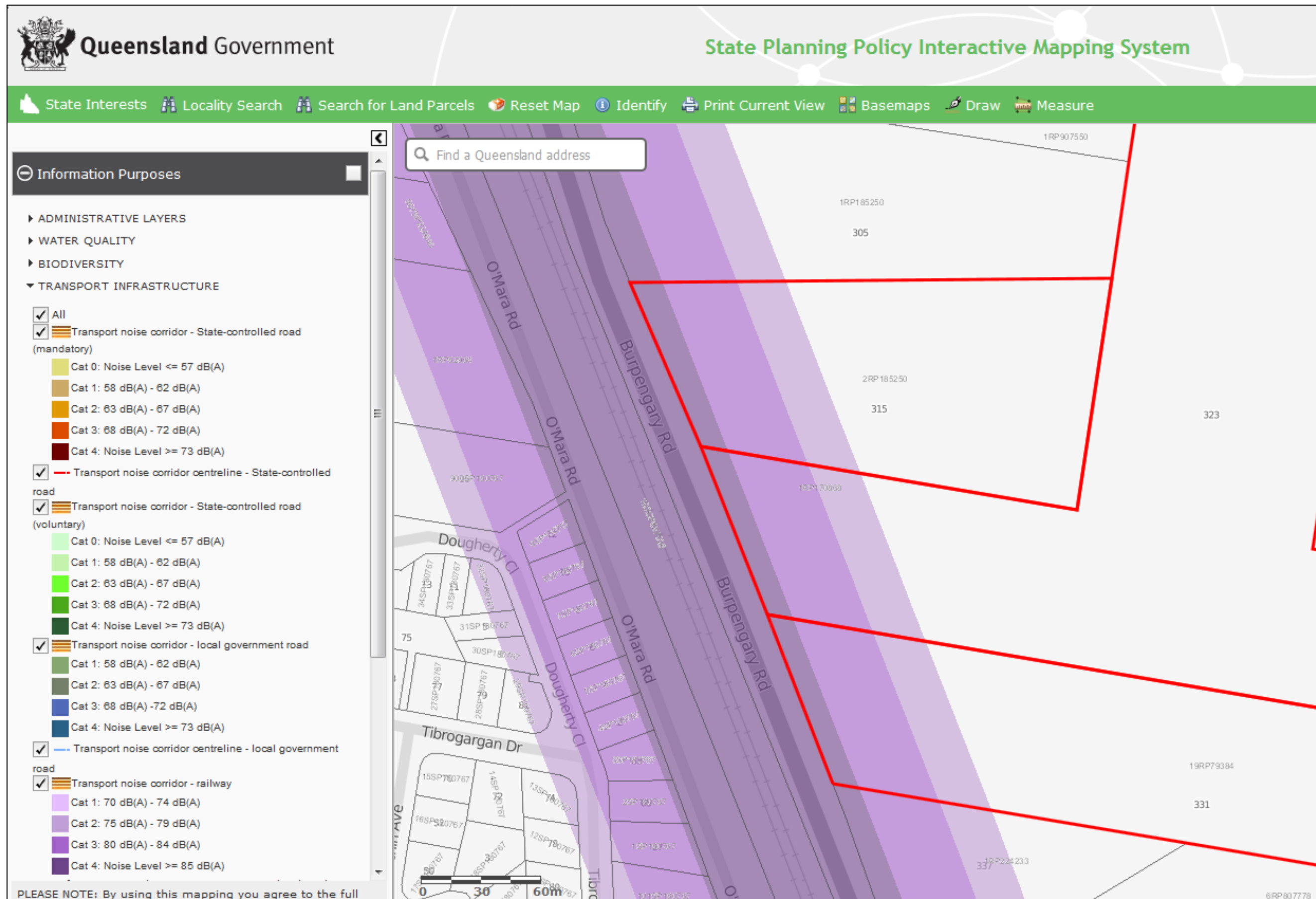


Figure 4 – Extent of Intrusion of TNC Associated with North Coast Rail Line across Site (Extract from DILGP – now DSDMIP – SPP Interactive Mapping Website)

