



Government of **Western Australia**
Department of **Water and Environmental Regulation**

Technical (Review) Report

Advice on Noise Assessment Reports for the proposed
Provence – East Busselton Estate Local Structure Plan,
Bussell Highway, Yalyalup, prepared for the City of
Busselton

Department of Water and Environmental Regulation
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Acknowledgements

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1. Introduction

This advice was prepared for the City of Busselton in response to a request for comment dated 29 June 2020 on the noise assessment reports relating to the proposed rezoning of Portion of Lot 22 Bussell Highway, Yalyalup from 'Tourism' to 'Special Provision No.23' and 'Special Use No. 27'.

2. Documentation

In support of this request, the City made the following documents available which form the basis of this technical expert advice. The City did not request any specific advice.

Material / document name	Author	Date
Noise Assessment – Provence - East Busselton Estate Local Structure Plan - Bussell Highway, Yalyalup – Rev. 5 (Ref: 20303-6-15300) - Prepared for Satterley Property Group	Herring Storer Acoustics (HSA)	09/03/2017 (Revision 5)
Noise Modelling Technical Report – Busselton Margaret River Regional Airport (Ref: 19.044.02) - Prepared for City of Busselton	To70 Aviation (Australia) Pty Ltd	September 2019
City of Busselton Local Planning Scheme No. 21 – Amendment No. 43 – Part of Lot 22 Bussell Highway, Yalyalup (Ref: AQMD21/0043)	City of Busselton	22 April 2020

3. Advice

The proposed rezoned area includes potential residential development and is located in the eastern part of the Provence Structure Plan, which is adjacent to the existing Bussell Highway to the north and the proposed Outer Bypass Road to the south. As noise from road traffic will have an impact on the proposed development, the developer needs to demonstrate that all requirements under State Planning Policy 5.4 '*Road and Rail Transport Noise and Freight Considerations in Land Use Planning*' (SPP 5.4) will be met.

In addition to road traffic noise, the impact of noise from operations of aircraft at the nearby Busselton Margaret River Regional Airport (BMRRA) on residences located on the proposed development site is also considered. The Environmental Noise Branch (ENB) of the Department of Water and Environmental Regulation has reviewed HSA's report (the report) and provides the following advice.

3.1. Advice on Road Traffic Noise Assessment

HSA used the CoRTN algorithm with the SoundPlan computer modelling software to predict L_{A10} (18 hour) levels for both Bussell Highway and the proposed Outer Bypass Road. These levels were converted to L_{Aeq} (16 hour) (Day) and L_{Aeq} (8 hour) (Night), the parameters referred to by SPP 5.4, based on monitoring previously made from Bussell Highway. This is accepted if the proposed Outer Bypass Road will follow the same usage pattern as the Bussell Highway. Given the difference between the predicted Day and Night levels, assessment against the Day levels only is acceptable.

Identified as being required in previous noise studies the modelling includes an assumed 3 m high bund between the proposed Outer Bypass Road and the closest residences. The report places receiver reference locations at points directly adjacent to the two major roads, these are worst case locations and are accepted.

Table 6.1 of the report indicates that the modelled results show that all receiver reference locations adjacent to the proposed Outer Bypass Road would receive L_{Aeq} (16 hour) (Day) levels at or below 55 dB(A) and that all receiver reference locations adjacent to Bussell Highway receive L_{Aeq} (16 hour) (Day) levels between 57 to 59 dB(A).

Note that SPP 5.4 and its implementation Guidelines were updated in September 2019. The current version of SPP 5.4 does not use Targets and Limits but only sets Targets. The current L_{Aeq} (16 hour) (Day) Target that is to be achieved for proposals for new roads or new noise-sensitive land use is 55 dB(A) and management or mitigation is required if the level is exceeded.

While the Target is predicted to be achieved at residences adjacent to the proposed Outer Bypass Road, hence not requiring further noise mitigation (other than the assumed 3 m bund), it will be exceeded by between 2 to 4 dB at residences adjacent to Bussell Highway. The current SPP 5.4 Guidelines indicate that this exceedance spans the A (1 to 3 dB exceedance) and B (4 to 7 dB exceedance) Exposure Categories hence requiring Quiet House A and B designs for these residences.

Comparing existing block sizes in the Provence structure plan with the modelled contours suggest that the requirement for Quiet House design is only required for the first row of houses facing the Bussell Highway, as noted by HSA. Additionally, Notification on Title for that first row of houses is also required, also as noted by HSA.

HSA however have not recommended the requirement for Quiet House A and B designs based on their previous experience that indicates that the internal levels of L_{Aeq} (Day) (living and work areas) of 40 dB(A) and L_{Aeq} (Night) (bedrooms) of 35 dB(A) would be met with “standard construction”. This approach however includes considerable risk. While “standard construction” may possibly provide the required attenuation to achieve the internal noise levels specified in SPP 5.4, there is no standard noise attenuation associated with a building of “standard construction”. While there also appears not to be a standard which specifically defines a ‘standard construction’; the Building Code of Australia, while dealing with noise from within a building, does not address issues such as noise entering the building from outside. The Quiet House options provided in the Guidelines to SPP 5.4 are designed to ensure that an appropriate level of attenuation of external traffic noise is met. Note also the

2.5 dB(A) inclusion for façade reflection is not to be excluded when Quiet House options are considered under SPP 5.4.

3.2. Advice on Aircraft Noise Assessment

The ANEC 2038-39 aircraft noise contours were provided to HSA by the City of Busselton. The report states these to be the then latest (July 2016) contours and in considering the impact on the subdivision have referenced only the ANEF 20 and the N65/20 contours in the report. [Note that with reference to the *To70 Aviation Noise Modelling Report – Busselton-Margaret River Airport*, dated December 2015, the 2038-39 ANEC 20 and N65/20 contours provided in the HSA report (Fig.2) seem to be incorrectly labelled. The smaller contour appears to be ANEC 20. The larger contour labelled as ANEC 20 also appears to be N65/10 and not N65/20.]

AS 2021:2015 Acoustics - Aircraft noise intrusion - Building siting and construction

Note that while the ANEF/ANEC aircraft exposure level contours are based on the averaged aircraft noise exposure, the value is an index with no relation to decibels. Due to the accuracy in definition of the actual flight paths and other factors AS 2021 recognises that the confidence in the location of the 20 ANEF contour is limited. Additionally, AS 2021 also recognises that, depending on the community being affected, significant community reaction may occur below the 20 ANEF contour.

AS 2021 defines three types of contour calculations, presented as charts. The ANEF (Australian Noise Exposure Forecast) is the only one of the three chart types that is intended to have status in land use planning decisions. There is only one ANEF chart endorsed by Air Services Australia and current for a given aerodrome at any one time. The ANEC (Australian Noise Exposure Concept) is a chart that may be produced during consideration of options for aerodrome development. AS 2021 states that “an ANEC chart is not intended for use for land use planning purposes”. This is as the considered option may never occur.

It should be noted that as the ANEF system was developed based on the noise impact on residents in the vicinity of major airports with high volumes of air traffic (including high volumes of jet traffic), the application of the ANEF system to smaller aerodromes such as BMRRA is inappropriate.

AS 2021 also provides guidance on determining building siting acceptability for light general aviation aerodromes without ANEF charts. It is to be noted that the guidance for these aerodromes, presented in Appendix E of AS 2021 is based on small aerodromes with a small number of civil, non-jet aircraft movements and “should not be used in any other circumstances”. BMRRA includes jet movements hence the use of the metrics in Appendix E is also inappropriate.

Busselton Margaret River Regional Airport Noise Management Plan

The area under consideration has been identified in the *Busselton Margaret River Regional Airport Noise Management Plan Version 2* (January 2019) (the NMP) as being within the Noise Abatement Zone where the area is to be recognised in any

future development of flight paths and over flight at less than 1500 feet (AGL) is to be minimised.

While the NMP acknowledges the limitations of applying AS 2021 to aerodromes such as BMRRA, it utilises AS 2021:2015 for the basis of its noise assessment and amelioration process where ANEC and N70 contours are to be used by the City for future land use planning and town planning scheme amendments. The N65 and N75 are also to be further considered for land use planning purposes. Note that the NMP restricts some operations that result in maximum levels over 85 dB(A).

To70 Aviation Report

In addition to the HSA 2016 report, the *To70 Aviation Noise Modelling Technical Report - Busselton Margaret River Regional Airport*, dated 2019, was provided. This report provides updated ANEC 2038-39 and 2038-39 N65 and N75 contours.

The updated 2038-39 ANEC 20 contour is significantly reduced from that provided in the 2016 HSA report. Similarly, the 2038-39 N65/20 contour is also significantly reduced with the N65/5 contour appearing to be just outside of the proposed rezoned area. The usage of the N65/20 contour is considered by ENB to be more acceptable as a metric and provides a more stringent criteria than that provided in Appendix E of AS 2021. The maximum noise contour has not been presented and hence not assessed. While the given operational concept is unlikely to result in maximum levels that adversely impact the proposed rezoned area, the development may limit future alternative operations of the Airport in this regard.

If the operation of the BMRRA follows the operational assumptions on which the latest ANEC is based, no conditions are required for aircraft noise on the proposed rezoned area.

4. Conclusion

While no conditions are required for aircraft noise on the proposed rezoned area, the requirements for Notification on Title and Quiet House design on affected residences adjacent to Bussell Highway in the proposed rezoned area, as specified under SPP 5.4, is required.

5. Limitations

Technical expert advice in any field is subject to various limitations. Important limitations to the advice include:

- No computer modelling was undertaken to verify HSA's predicted results.
- No computer modelling was undertaken to verify To70 Aviation's predicted results.