

18 October 2018

Bega Valley Shire Council
PO Box 492
Bega NSW 2550

Attention: Ms Anna Bowman

Dear Anna

PROPOSED RECREATIONAL FLIGHT SCHOOL - FROGS HOLLOW

A recreational flight school is proposed (DA2017.445) to be developed on land at 1070 Princes Highway, Frogs Hollow.

The development seeks approval for a flight school to cater for up to 1,200 students per year, with approximately 200 staff and a maximum of 40 aircraft on-site. The school, including flight training is, proposed to operate during daytime hours, Monday to Saturday, 7 am to 6 pm, Sunday and public holidays, 8 am to 6 pm. The assessment has been based on a recommended total 200 aircraft flights a day.

A Statement of Environmental Effects for the proposal has been prepared by NGH, supported by a technical noise assessment undertaken by Renzo Tonin & Associates (RTA).

Marshall Day Acoustics Pty Ltd (MDA) has been engaged by the Bega Valley Shire Council (the Council) to undertake a peer review of the following technical noise assessment report, prepared by RTA:

- *FROGS HOLLOW SPORTS AVIATION Noise Assessment for Proposed Flight School*, dated 11 May 2018, document reference, *TJ958-03F01 Noise Assessment (r3)* (herein referred as the 'updated RTA report')

In addition, the following briefing documents have formed the basis of this peer review:

- Request for expert acoustical advice, provided by Bega Valley Shire Council to MDA, 20 August 2018
- *FROGS HOLLOW SPORTS AVIATION Noise Assessment for Proposed Flight School*, dated 16 October 2017, document reference, *TJ958-01F01 Noise Assessment (r2)* (herein referred as the 'original RTA report')
- Addendum: Statement of Environmental Effects: *PROPOSED RECREATIONAL FLIGHT SCHOOL 1070 PRINCES HIGHWAY, FROGS HOLLOW*, prepared by NGH Environmental, dated May 2018, document reference, *17-434*
- Traffic Assessment Report Amendment 1 Lot 1 DP 109606 Princes Highway, Frogs Hollow, prepared by Tasman Engineering Consultants, dated 26 April 2018, document reference *S-518* (herein referred as the 'traffic report')

Our review considers noise associated with proposed aircraft operations only. In terms of mechanical plant noise emissions, it is noted that details of plant selections are yet to be finalised at this stage of the development. It is therefore recommended a detailed assessment of mechanical plant noise be addressed through any condition of consent.

Summary Comments

Our review of the updated RTA report has identified a number of important limitations and deficiencies in the assessment.

Specific comments are provided below in response to the queries which were outlined in the Council's request for this review.

Further details, including supplementary and background information on these points are attached to this letter.

Whether the applicant's noise assessment methodology and criteria in assessing impacts are appropriate to the development type and location

The assessment methodology and criteria in both RTA reports are not considered appropriate.

The RTA reports provides some useful information which appears to have been based on reasonable measurement methodologies.

However, the RTA reports do not provide information which is specifically suited to assessing flight training and general aviation operations which are characterised by noise impacts over relatively areas as a result of repeat overflights.

The following specific issues are noted:

- The updated RTA report nominates AS 2021:2015 *Acoustics – Aircraft noise intrusion – Building siting and construction* (AS 2021) as the basis for setting criteria for assessing the proposal. AS 2021 is not appropriate for this purpose and includes specific statements to clarify that it is not intended for assessing new airport developments. Further, contrary to the assertions of the updated RTA report, the use of AS 2021 as the basis for assessing the development is not in accordance with Airservices or Commonwealth guidelines.
- The daily average noise metric ($L_{Aeq,24\text{ hour}}$) nominated in the RTA metric is not considered suitable as an assessment criterion, particularly given that the average includes significant periods when aircraft will not be operating (e.g. night periods).
Furthermore, the selection of the 48 dB $L_{Aeq,24\text{ hr}}$ threshold has not been substantiated, with appropriate evidence as an acceptable limit for the assessment of new aircraft noise impacts.
- The maximum noise level criterion of 70 dB L_{Amax} is significantly higher than the values nominated in alternative Commonwealth guidance for the assessment of general aviation operations.

If the methodology and criteria are not appropriate, what would be the appropriate methodology and criteria in the particular circumstances of this application

There are no established compliance criteria defined for assessing new aircraft operation proposals, nor can this type of criteria be practically defined to aircraft operations. It is for this reason that information must be produced in a range of formats that are needed to assist regulators to make an informed decision about the relative merits and impacts of a proposed development.

An assessment of aircraft operations should supplement the noise level measurements, with predicted noise level contours to demonstrate the extent of area-wide noise impacts associated with the proposed development.

The assessment should therefore include information prepared on the basis of the guidance contained in:

- Guidance Material for Selecting and Providing Aircraft Noise Information, 2003 and Expanding Ways to Describe and Assess Aircraft Noise, 2000
- National Airports Safeguarding Framework Guideline A: Measures for managing Impacts of Aircraft Noise, 2016 (NASAG)

- SA HB 149:2016 *Acoustics - Guidance on producing information on aircraft noise* (SA HB 149)

Further discussion on the types of information to provide a useful means of communicating with the general public about potential aircraft noise impacts is discussed below.

Whether the assessment report adequately describes the likely noise impacts at each of the sensitive receivers

The information format in the updated RTA report is not considered sufficient to describe the likely noise impacts at each of the noise sensitive receivers.

Aircraft noise can be, and is, described in many ways. It is considered best practise, that when using and selecting aircraft noise descriptors, they be selected to match the needs of the proposal. In this case, areas proposed to be subjected to relatively low noise levels but a high number of movements.

Aircraft noise is highly variable and complex to communicate to affected communities. It is for this reason that a range of publications, including SA HB 149, provide recommendations for information to provided in a range a range of formats that are related to the way in which the aircraft noise impacts are perceived.

Whether adequate information and consideration has been given to the noise from ground operations such as aircraft maintenance and increased traffic movements within the site including the private road between the site and the Princes Highway

Noise from ground operations including aircraft maintenance activities, is not covered in the updated RTA report.

It is recommended noise limits in accordance with the NSW *Noise Policy for Industry (2017)* be adopted to provide an objective basis for the assessment of noise from such operations. In instances where meeting the noise limit is not practical, alternative procedures should be considered, e.g. best practises to shield residences from the noise source and managerial controls to avoid sensitive times.

Noise from traffic movements associated with the proposal is not covered in the updated RTA report. With reference to the traffic report prepared for the proposal, at full capacity (i.e. stage 9), approximately 500 vehicle movements a day are forecast.

Two (2) objective measures are nominated for the assessment of noise levels associated with traffic movements.

Firstly, where traffic movements occur within the site boundary of the proposal (i.e. private road between the site and the Princes Highway), they should be assessed in accordance with the NSW *Noise Policy for Industry (2017)*.

Secondly, the where proposal results in an increased of traffic movements on local/public roads (i.e. Princes Highway), the associated change in noise levels should be assessed in accordance with the NSW *Road Noise Policy (RNP)*. The RNP notes:

... an increase of up to 2 dB [in road traffic noise levels] represents a minor impact that is considered barely perceptible to the average person...

Based on the current traffic flow on the Princes Highway,¹ the additional 500 vehicle movements on the Princes Highway are likely increase traffic levels by less than 1 dB, thus considered a very minor impact.

¹ <https://www.rms.nsw.gov.au/about/corporate-publications/statistics/traffic-volumes/aadt-map>, Station Id: 08001, accessed 12 October 2018

Whether there should be additional information sought from the application to assess the noise impact of the development on the surrounding area

A complete aircraft noise assessment must provide information in a range of formats which enable stakeholders and regulators to reach an informed decision about the project, addressing both amenity and land use considerations related to changes in aircraft noise.

Additional information should be sought from the applicant. This should be prepared to address the recommendations for communicating aircraft noise information as detailed in the guidelines above; particularly SA HB 149.

At minimum, the assessment should include information presented in the form of N- contours and should account for maximum noise levels significantly lower than 70 dB L_{Amax} (as per the guidance of the above publications). The contours should be prepared for operating scenarios that are representative of the impact of the range of operations e.g. noise contours for specific days of operation rather than an average of all operations.

Additionally, detailed flight path information and information on the number of movements using the proposed standard flight training areas should be provided.

All flight path information should also consider variation; the updated RTA report puts forward circuit tracks as single narrow lines, thus giving the impression to some people that the aircraft will fly on defined 'lines' in the sky.

Conclusions as to whether the proposed development would have an adverse impact on the amenity of the area due to noise generation.

The proposed development would have an adverse impact on the amenity of the area due to noise generation. Circuit operations and regular overflights at relatively low noise levels (when compared to noise levels in the vicinity of major airports) represent the key noise impacts associated with this type of development. Whether this impact is acceptable is dependent on whether an appropriate balance has been reached between any potential benefits of the development to the local or broader community, and the noise impacts on neighbouring communities.

In the absence of well defined or regulated criteria to set noise limits for this type of development, determining whether this balance has been reached, requires a complete description of the extent and nature of the impacts on surrounding areas. In our opinion, the level of information that has been provided is not sufficient for this purpose.

We trust this information is satisfactory. If you have any further questions please do not hesitate to contact us.

Yours faithfully

MARSHALL DAY ACOUSTICS PTY LTD



Alex Morabito

Associate

APPENDIX A SUPPLEMENTARY AND BACKGROUND INFORMATION

Assessment methodology

The original RTA report, dated 16 October 2017, adopted the NSW Industrial Noise Policy (INP) for the purpose of setting objective noise criteria to assess proposed aircraft flying operations. The policy is not intended for the assessment of aircraft flying operations or other transport type noise sources. It is specifically aimed at assessing noise from industrial noise sources scheduled under the *Protection of the Environment Operations Act 1997*. The policy's focus is on the noise emitted from industrial sites and how this may affect the amenity of nearby sensitive premises, for example facilities whereby all the activities take place within the property boundary of the facility, hence noise can be contained. The INP also notes 'air corridors' as an example of a noise source not covered under the policy.

The NSW *Noise Policy for Industry (2017)* which since superseded the INP, also excludes application to the assessment of transportation noise, and notes different types of noise each have a distinct noise policy because of the different reactions people have to different noise sources.

Based on the above consideration, it the INP (NSW *Noise Policy for Industry*) is therefore not considered an appropriate method for the assessment aircraft flying operations.

Unlike other forms of development (e.g. commercial, industrial operations), there are no set environmental noise compliance criteria for assessing aircraft operations, nor are there well defined thresholds of acceptability. The challenge is to the therefore undertake a complete aircraft noise assessment that provides information in a range of formats and enable relevant regulatory authorities to reach an informed decision about the proposal. An aircraft noise assessment would typically address both amenity and land use considerations related to changes in aircraft noise.

In the absence of set environmental noise compliance criteria, Section 4 of the updated RTA report states the following (in lieu of the assessment in accordance with the INP in the original RTA report):

the noise impact from the flight operation of aircraft associated with the proposed flight school is assessed against Australian Standard AS 2021:2015 'Acoustics – Aircraft noise intrusion – Building siting and construction' [AS 2021]

The referenced standard in the updated RTA report, AS 2021, is primarily concerned with land use planning and building treatments for new development sites in the vicinity of an airport. Specifically, it is aimed at controlling encroachment on existing airports by new noise sensitive buildings. Under the objectives of AS 2021, it states:

This standard is not intended to be applied for the purpose of assessing the effects of noise from aircraft

The noise metric adopted in AS 2021, to inform land use planning decisions for new development, is based on the Australian Noise Exposure (ANE) metric. The ANE is a complex, noise level exposure metric, based on the average annual aircraft movements, with noise adjustments applied to movements that occur outside the period 7 am to 7 pm.

Importantly, AS 2021 notes that it is not intended to be applied for the purposes of assessing the effects of noise from aircraft. However, given the ANEF metric does describe aircraft noise exposure patterns, it is still regularly used as an informative assessment tool in environmental assessments for a project (e.g. for Environmental Impact Statements [EIS]). Typically, an EIS addresses both a technical assessment of noise levels associated with the proposal as well as dissemination of noise information and how it is experienced. As the relevant planning authority or decision makers for a project are not necessarily noise experts, it is also considered appropriate that ANEF information be supplemented by additional noise metric/information. This is further discussed in subsequent sections below.

Noise assessment levels

Section 4.1.1 of the updated RTA report summarises the noise levels to assess impacts associated with aircraft flying operations as follows:

Both the $L_{Aeq,24hr}$ and L_{ASmax} noise descriptors and the corresponding limits have been utilised in this assessment as follows:

- $L_{Aeq,24hr}$ 48 dB(A), which is equivalent to ANEF-13
- $L_{ASmax} < 70$ dB(A), for more than 30 flights per day

The 48 dB $L_{Aeq,24hr}$ threshold in the report is based on the assertion that:

it is generally accepted and suggested by acoustic experts to adopt a more conservative ANEF level of ANEF 13 [equivalent to $L_{Aeq,24hr}$ 48dB(A)] limit as the noise criterion for people newly exposed to aircraft operations.

We agree that a lower threshold level be adopted for new areas not previously exposed to aircraft noise. The ANEF and $L_{Aeq,24hr}$ are however 24 hour average noise level metrics. For this development, the proposal seeks approval for operations during the day time hours only, a noise metric based on a 24 hour exposure is therefore not considered appropriate.

Furthermore, the selection of the 48 dB $L_{Aeq,24hr}$ (ANEF 13) threshold in the updated RTA report should be substantiated, with appropriate evidence, as we are not aware of the origin or its acceptability for the assessment of new aircraft noise impacts. It is recommended an exposure noise level metric over the proposed operating period of the airport be considered.

The 70 dB L_{ASmax} threshold in the report is based on Table E1 of AS 2021 can be directly used to assess in-air activities of small aerodromes, which recommends a $L_{ASmax} < 70$ dB(A) limit for more than 30 flights per day. As discussed above, AS 2021 is primarily concerned with land use planning, and this table is included in AS 2021 to inform land use planning requirements around aerodromes which do not have an ANEF prepared.

Maximum noise levels from a single aircraft event, while useful, do not provide a complete picture of aircraft noise. Rural areas are typically subject to low background noise, and an aircraft flying overhead at a noise level of 70 dB L_{ASmax} would likely be perceived or as intrusive as an aircraft flying overhead at a noise level of 60 dB L_{ASmax} . It is recommended a lower threshold maximum noise level be included in the assessment, supplemented with number of aircraft movements exceeding the threshold on a given day, further discussed below.

The use of and provision of maximum noise level information is an important parameter, especially for areas proposed to be subjected to relatively low noise levels but a high number of movements, as is proposed for this development. It is recommended however consideration be given to lower maximum noise level thresholds than the 70 dB L_{ASmax} in the updated RTA report. Guidance from the Department of Infrastructure and Regional Development and National Airports Safeguarding Framework, notes the following:

There is also a strong case to consider the impact of 60 decibel aircraft events as worth of consideration as an additional measure.. around training airports where there is a high number of moderately noise events, the experience of many residents, evidenced through complaint data and community consultation, shows that there can be significant noise impacts from a high frequency of overflights in the 60 decibel range.

Recommended information to be provided

The RTA reports provides some useful information which appears to have been based on reasonable measurement methodologies.

However, the reports do not provide information which is specifically suited to assessing flight training and general aviation operations which are characterised by noise impacts over relatively areas.

As discussed above, AS 2021 and the ANEF is not intended as a guide to the presentation of information about aircraft noise to be used by the general public. A supplementary handbook, SA HB 149:2016 *Acoustics—Guidance on producing information on aircraft noise* (SA HB 149), was released in June 2016 and provides guidance on how information about aircraft noise and its impacts can be presented in a clearer, less technical and more informative manner for the general public.

The SA HB 149 is not a standard nor does it propose any absolute value for when aircraft noise is acceptable or unacceptable. It does recommend additional information intended to supplement the ANEF, for the broader purpose of communicating noise impacts. The additional information is generally consistent with a range of publications by the Department of Infrastructure and Regional Development and the National Airport Safeguarding Framework.

The guidance in SA HB 149 is primarily intended for use by airport owners, operators, government agencies and other organisations, when producing and providing information on changes or new aircraft noise. The objective is that aircraft noise information is provided in a manner that is comprehensible to the general public.

The information recommended in SA HB 149 is broadly based on the following:

- a) Where aircraft fly;
- b) How often aircraft fly;
- c) How much noise aircraft make;
- d) When aircraft fly;
- e) How widely noise will be heard;
- f) Current and projected future noise impacts; and
- g) Other factors which may influence or can affect community and individual responses to aircraft noise, such as sudden changes in operations, short term and long term variations or distinctive aircraft operations.

In terms of the quantitative noise data produced as part of an aircraft noise study, SA HB 149 recommends a number of ways for describing the level and regularity of noise from aircraft operations. These include N-contour maps, which have been demonstrated to be a useful means of communicating with the general public about potential aircraft noise impacts because it reports aircraft noise in the way that a person perceives it, as a series of noise events some of which are perceptibly intrusive. The N-contour maps are prepared with reference to a specified maximum noise level threshold, time period (e.g. 7 am to 7 pm) and period of the year (e.g. 3 month period or average over the year). They demonstrate areas within which the average number of aircraft noise events per day exceed the specified maximum noise level.

The above type of information is not covered in the updated RTA report, rather the only information provided are general noise levels at discrete measurement locations. From this information, it is difficult to understand the extent of areas surrounding the airport that would experience aircraft noise.

It is therefore recommended the assessment include area wide noise contours of predicted aircraft noise, provided for a range of varying noise metrics as discussed above. While aircraft noise contours are a practical way of representing noise conditions over a wide area, they do inevitably provide a simplified representation of the complex variations that may occur in practice. As such, the noise contour information must therefore be considered in the context of other information to understand how the noise varies.

Importantly, this information should be made available in a disaggregated form and where possible unadjusted. For example, predicted noise level information should not be based solely on an average day or information on what happens at sensitive times should not be misinterpreted through the use of weightings.

By way of example, an aircraft noise contour is typically based on a given set of input information under specific operating conditions (e.g. average times of use, or average use of a runway over a year). Seasonal changes are a significant variation factor in aircraft noise, for example, the prevailing wind direction can affect the runway used. On a given day, it is likely a single runway or direction would be used for aircraft operations at the site occur; and therefore, it is considered that the best way to represent the variation during separate periods is to produce separate contours for each.