Before the Independent Hearing Panel
Appointed by the Dunedin City Council

Under	the Resource Management Act 1991 (**RMA**)
In the matter of	an application by **Dunedin City Council** and the **Department of Conservation** for consent to construct and operate a carpark at Tunnel Beach, Dunedin
	Dunedin City Council and **Department of Conservation**
	Applicants

Statement of evidence of Brendon Shanks

20 April 2022

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Qualifications and experience

1 My name is **Brendon Shanks**.

2 I am a Senior Acoustic Consultant with Marshall Day Acoustics ("MDA"). I hold the degrees of Bachelor of Science and Bachelor of Music from the University of Otago. I am a member of the Acoustical Society of New Zealand and the Institute of Acoustics (UK).

3 I have 14 years' experience, specialising in acoustics. Throughout this time, I have worked on environmental noise and building projects in New Zealand and the UK. These have included assessment of noise, including noise from vehicles in carparks, prediction of environmental noise propagation, and assessment of noise effects in rural/residential environments.

4 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014. This evidence has been prepared in accordance with it and I agree to comply with it. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

Scope of evidence

5 I have been asked to prepare evidence in relation to the potential noise effects of the proposed Tunnel Beach walking track car park. This includes:

(a) Clarification of noise limits from Dunedin City Council Second Generation District Plan (2GP)

(b) Prediction of noise levels from the proposed carpark layout

(c) Assessing predicted noise levels against the applicable noise limits for the area

(d) Assessing the noise effects from the proposal at nearby receivers

(e) Addressing potential concerns relating to noise raised by submitters

Executive summary

6 I predict that the proposed operation of the carpark would comply with the applicable daytime and evening noise limits in Dunedin City Council Second Generation District Plan (2GP).

7 Some noise from the carpark may be audible at nearby dwellings. However, based on the location of the existing carpark area, the character of noise from the carpark would not change significantly and the magnitude of noise level would be reasonable at the neighbouring properties.

8 I have assessed the potential noise effects from the proposed realignment of the walking track. Based on the distance from the proposed new alignment and viewing platforms, I consider that there would be no noticeable noise effects at the nearby properties.

9 As result, I consider that the noise effects from the application would be acceptable, and an appropriate rural residential amenity would be maintained.

Noise limits are contained in the 2GP

10 The 2GP contains noise limits that apply to activity in the proposed carpark. The car park site and surrounding properties are zoned 'Rural Residential' in the 2GP. Therefore, the noise limits apply at the notional boundary of "noise sensitive activities". A noise sensitive activity includes dwellings but does not include garages or sheds.

11 It is proposed that the carpark would be closed during night-time hours. Proposed hours of operation are 9am-5pm in Autumn/Winter and 8am-9pm in Spring/Summer. Therefore, the daytime and evening noise limits are the relevant controls. These are summarised below:

Table 1: Second Generation District Plan (2GP)

Assessment Location	District Plan Noise Limits	
	Daytime 07:00 to 19:00 hrs	Evening 19:00 to 22:00 hrs
At the notional boundary of noise sensitive activities in a Rural Residential Zone	55 dB $L_{Aeq\ (15min)}$	50 dB $L_{Aeq\ (15min)}$

12 I note that the night-time noise limits in the 2GP are still under appeal, but this does not affect this assessment.

13 The noise limits apply at the notional boundary of noise sensitive activity, which is "20m from any side of a residential building, or the site boundary where this is closer to the residential building".

14 In my opinion, noise from people on the walking track is not required to comply with these limits, because the 2GP exempts noise from "sport and recreation" including walking facilities (rule 9.3.6 - 7g). Regardless, I anticipate that noise from people on the track would comfortably comply with the daytime and evening noise limits at all assessment positions.

Predicted noise levels

15 I have predicted noise from vehicles in the carpark based on an estimated "peak hour" during the daytime and evening periods. The peak hour movements have been provided by the traffic engineer and are based on analysis of DOC data on the number of people using the track collected from 2013 to 2020.

16 The daytime peak hour assumes 80 light vehicles (160 movements) and 3 buses (6 movements). The proposed carpark has 64 light vehicle parks, so this represents more than a full change of vehicles in the carpark within one hour. The evening peak hour assumes 40 vehicles (80 movements).

17 The predicted noise levels at the nearby assessment positions are summarised in the following table:

Table 2: Predicted Activity Noise levels

Assessment Location	Daytime (0700 – 1900 hours)		Evening (1900 – 2200 hours)	
	Noise level dB $L_{Aeq\ (15\ min)}$	2GP Noise limit dB $L_{Aeq\ (15\ min)}$	Noise level dB $L_{Aeq\ (15\ min)}$	2GP Noise limit dB $L_{Aeq\ (15\ min)}$
1. 25 Tunnel Beach Road (notional boundary)	41	55	34	50
2. 31 Tunnel Beach Road (notional boundary)	45	55	35	50
3. 40 Tunnel Beach Road (notional boundary)	31	55	< 25	50
4. 40 Tunnel Beach Road, (site boundary – horse paddock)	33	-	< 25	-

18 The predicted noise levels are at least 10 decibels below the relevant daytime and evening noise limits at the notional boundary of all nearby dwellings.

19 I note that the predicted noise levels for 31 Tunnel Beach Road are lower than shown in our assessment report. This is because the building closest to the boundary has been identified as a garage. Therefore, the assessment position has moved back from the site boundary to 20m from the main dwelling. Also, a noise barrier has been included on the site boundary to block line of sight between the receiver positions and the carpark.

Response to any issues in section 42A report

20 The section 42A report agrees with the conclusions of our assessment but recommends including a noise barrier between the carpark and 31 Tunnel Beach Road to reduce noise at this property. I agree with this recommendation and a 1.5m high noise barrier has been included along a section of the boundary with 31 Tunnel Beach Road. The extent of the barrier is shown in the figure below.

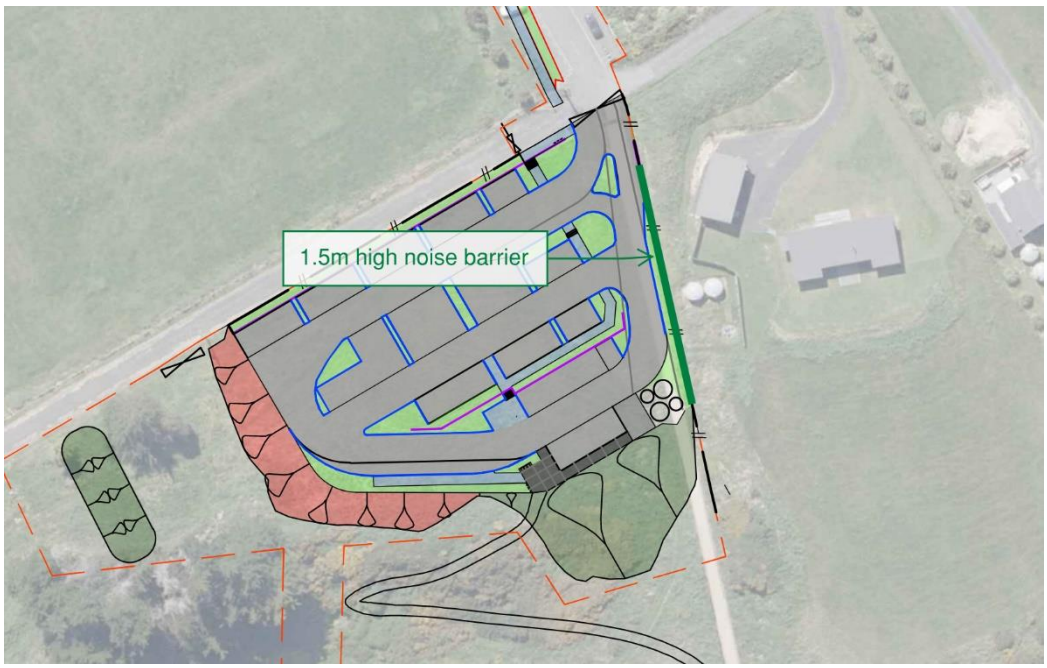

Figure 1: 1.5m high noise barrier

21 The barrier will be constructed with no gaps (a timber fence with overlapping palings) and will block line of sight between the carpark and the assessment positions at 31 Tunnel Beach Road. This has been included in the proposed design and my predicted noise levels have been updated to include the shielding effects of the barrier.

Response to matters raised in submissions

22 One submission (from Michael Varsanyi and Anya Durling, 40 Tunnel Beach Road) addresses noise from the proposed carpark. The submission raises concerns about the following elements:

(a) Natural character and rural amenity

(b) Potential increase in visitor numbers

(c) Threat to livestock (effect of noise on horses)

23 As the noise from the carpark is predicted to comply with the noise limits by more than 20 decibels at this receiver, the submission is not concerned with compliance, but is focused on the potential noise effects.

Natural character and rural amenity

24 The submitter believes that noise from people on the walking track and vehicles in the carpark will significantly diminish the rural amenity and that the noise would not be within the natural character of the area.

25 Because the walking track is already in use and there is noise from the existing carpark, the application would not introduce any new noise sources into the area.

26 The new alignment of the walking track would not take people closer to the paddock or the notional boundary of 40 Tunnel Beach Road than the existing alignment.

27 Most visitors are likely to talk at normal conversation levels as they walk down the track. However, I have predicted the noise from a large group of people talking and laughing as they walk. This is based on measurements of diners in a lively outdoor dining area.

28 Based on the distance and topography from the track to the assessment positions, I predict that noise would be less than 30 decibels. Given the existing use of the track and the relatively low predicted noise levels, I do not consider that noise from people on the realigned track represents a change in character or diminished amenity.

29 The new carpark site is closer to 40 Tunnel Beach Road than the existing carpark location and, as a result, the noise level from vehicles will increase.

30 However, the predicted noise levels for the peak hour (31 decibels at the notional boundary or 33 decibels in the paddock) are low enough that I do not consider they represent a significant change to the character of the noise environment. Furthermore, I do not consider that noise levels of this magnitude would result in a significant reduction in amenity.

Potential increase in visitor numbers

31 The application does not consider that the new carpark will generate additional visitors. I have assessed the noise based on conservative “peak hour” vehicle numbers which, based on the DOC analysis of visitor numbers, occurs very infrequently.

32 However, even if these vehicle numbers were to increase by 50%, the increase in noise level would be less than 2 decibels. Subjectively, a change of 2 decibels is an imperceptible change.

Threat to livestock

33 The submitters have raised concern about the effect of noise on their horses. While I am not an expert in animal behaviour, studies I have reviewed relating to noise effects on horses only deal with significantly louder noise levels than what is predicted at 40 Tunnel Beach Road.

34 The predicted vehicle noise levels at the horse paddock to the south-west of the carpark are up to 33 dB $L_{Aeq\ (15\ min)}$. I am not aware of any studies that consider effects from noise at this low level. Furthermore, this level of noise is unlikely to be obvious within the existing residual sound in the area of around 35-40 dB L_{Aeq}.

35 Noise events, such as car doors closing, horns, bus airbrakes etc., are likely to be audible above the residual sound. Such noises are already present in the noise environment due to the existing carpark. I predict that noise from such events in the new carpark would be 4 decibels louder than from the existing carpark. A difference of 4 decibels is a just perceptible increase in noise.

36 As an example, I predict that a car door closing in the proposed new carpark would be up to 47 dB L_{Amax} at the horse paddock. A car door closing from the existing carpark would be 43 dB L_{Amax}.

37 The predicted noise level is relatively low, and horses will already be familiar with these noise sources at a similar noise level. I therefore consider it is unlikely that noise from the carpark would represent a threat to livestock at 40 Tunnel Beach Road.

Conclusion

38 I predict that noise from the proposed new carpark would comply with the relevant noise limits in the 2GP.

39 Furthermore, the magnitude and character of the noise would not change significantly from the existing carpark location.

40 In my opinion, noise effects from the application would be acceptable and would not noticeably reduce the amenity of the rural residential noise environment.

Brendon Shanks

20/04/2022