

Memorandum

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To: Scott Whitcutt – Snohomish County, PDS
From: Sarah Rollins
Date: July 2, 2008
Subject: Granite Falls Motocross Park - Noise Study Review

This memo documents our review of the noise study done for Granite Falls Motocross Park in Snohomish County, Washington, by Geomatrix Consultants, Inc. The Granite Falls Motocross Park site is on the Mountain Loop Highway approximately 3.5 miles east of Granite Falls in unincorporated Snohomish County, Washington. Our comments pertain to the report dated December 4, 2007.

Overall, all major issues were addressed in the report by GeoMatrix, and it is a thorough report. Our comments are generally in reference to some of the details of the assumptions and calculations used in their study.

Pertinent Noise Codes

The Snohomish County Noise Ordinance provides the appropriate noise criteria for this project. The maximum allowable levels cited in the report for noise from a rurally-zoned source property to the rurally-zoned receiving property match those outlined in the Snohomish County Noise Ordinance.

PROBLEM: Geomatrix states, “the night limits are irrelevant for this project because only daytime operations are proposed.” This project includes RV camping spaces. If people are camping at the park between race days, it is impossible to guarantee that no one will ride during the nighttime hours between 10 p.m. and 7 a.m. on weekdays and 10 p.m. and 9 a.m. on weekends.

Predicted Noise Levels

Source Levels

According to the report, motorcycle sound levels were measured at Hannegan Speedway in Bellingham, Washington. Geomatrix states that “at least one racing event included nearly twice as many motocross bikes racing at one time than would be expected at the proposed MXGP park.”

PROBLEM: The number of racers measured at Hannegan and the number of racers expected at Granite Falls should be explicitly stated. The number of racers measured at Hannegan and expected at Granite Falls should be stated, so it is documented in the report for future reference. More information is needed to show that the sound level measurements at

Hannegan Speedway are comparable to the levels that will be generated at Granite Falls. The Hannegan Speedway is significantly smaller at 50 acres than the Granite Falls Park at 80 acres.

The source levels in the report were measured behind motorcycles at the starting line for a 1-hour period, which included several typical motocross events. The location of the sound level meter is described as being 150 feet from the track and 250 feet from the starting line.

PROBLEM: In Figure 2, the starting line should be highlighted in the aerial map and the sound level meter should be highlighted in the picture. The race track that was being used during the measurement should also be highlighted on the aerial map in Figure 2. It should also be noted whether or not there was a clear line of sight between the meter and the track and the meter and the starting line.

PROBLEM: The L_{max} stated for the race at Hannegan was 82.5 dBA at 250 feet. Based on previous motorcycle measurements, we would expect a sound level around to 90 dBA. This could be due to different conditions at Hannegan that we are not aware of. Again, this measurement setup needs to be described in more detail, including any other sources of attenuation between the track and the meter, such as trees, people or hills.

PROBLEM: The vegetation attenuation and barrier attenuation calculations reference a motorcycle noise spectrum that is not included in the report. This spectrum should be shown in the report and described in more detail (type of motorcycle, measurement distance and angle, etc.).

PROBLEM: Results in Table 2 are not accompanied by any calculations. Without better documentation of methods used and intermediate calculations for the various types of attenuation, we cannot thoroughly review the calculations. These could be included in an appendix, along with the measured data.

Distance Attenuation

The distances to each nearest property line shown in Table 2 have been reviewed and are accurate.

PROBLEM: L_{max} was for the sound level meter 250 feet from the starting line and 150 feet from the race track. All of the predictions were based on using the L_{max} measured at 150 feet. This is not a worst-case scenario as this reduces the effect of the noise at the starting line by 4 dB.

PROBLEM: The distance attenuation values were calculated assuming one point source located on a track nearest to each property line. However, the motorcycles will be distributed around each track during a race. We modeled Main Track 1 with 30 motorcycles around the track¹ and predicted a distance attenuation of 10.3 dB to the east property line, instead of the 13.4 dB stated in the report.

Vegetation Absorption

¹ Per telephone conversation with Kevin Walker on June 24, 2008, the maximum number of motorcycles expected for one race at Granite Falls is 30 and the maximum number of motorcycles measured at Hannegan at once was about 80.

ISO 9613-2 states that “the foliage of trees and shrubs provides a small amount of attenuation, but only if it is...impossible to see a short distance through the foliage.”

PROBLEM: This report should state whether or not this condition is met for the wooded area around the Granite Falls site.

The report states an average reduction of 0.049 dBA per 1 meter of forest, up to 200 meters.

PROBLEM: The report needs to show the calculation for determining this 0.049 dBA per 1 meter, since it is not stated in ISO 9613-2.

PROBLEM: The report assumes the total distance between the park and the nearest property line can be used in the vegetation attenuation calculation. However, according to ISO 9613-2, this distance should be the sum of the distance between the source and the top of the trees at 15 degree angle and the distance between the receiver and the top of the nearest trees at a 15 degree angle. Using this method, assuming 45 foot tall trees near the source and the receiver, the vegetation attenuation for the east property line would be 5.1 dBA instead of the 8.1 shown in Table 2.

Barrier Attenuation (Sound Berm)

Barrier attenuation values are shown in Table 2 for the proposed berm and terrain for each property line. These values have been correctly calculated according ISO 9613-2.

With the corrections mentioned above for the source level (L_{max}), distance attenuation, and vegetation attenuation, the predicted levels are 47 dBA for L₂₅ and 62 dBA for L_{max}, which are still below code.

Proposed Mitigation

We agree with the proposed mitigation of building the berm on the east side of the motocross track before Phase 3 is operational. In addition, there should be a way to enforce that there is no riding at night, as the noise from even a few riders near property lines could exceed the nighttime code limits. Mitigation should also include regulating the motorcycle sound levels according to RCW 46.09.120e² or better.

cc Michael Yantis - Sparling

² Revised Code of Washington, Chapter 46 Off-road and nonhighway vehicles – Operating violations--Exceptions