

8 February 2022

Trey Holloway
Assistant Head of School for Finance and Operations
Maret School
3000 Cathedral Avenue NW
Washington, D.C. 20008



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Reference: Maret School – Proposed Athletic Fields
Acoustical Review
Project No. MSL2201.01

Dear Mr. Holloway:

Phoenix Noise & Vibration has conducted a review of the proposed Maret School athletic fields in NW Washington, D.C. The athletic fields are being proposed on the property located at the northeast intersection of Nebraska Avenue NW and Utah Avenue NW and will be used by the Maret School, youth sports clubs, and members of the community. Phoenix Noise & Vibration has reviewed the location of the fields with respect to the surrounding residential properties and has provided comparison of potential noise impacts with the requirements of the District of Columbia Municipal Regulations (DCMR).

Given the proposed use of the athletic fields, which will include of a combination of football, soccer, lacrosse, and baseball practices and games, it is understood that noise generated by activity will be limited to that by athletes, spectators, and referees. Furthermore, it is understood that the fields will not have amplified noise sources, such as loudspeakers for announcements and music. Therefore, noise at the field will be limited to only unamplified noise sources.

According to the DCMR, unamplified noise sources are generally not required to comply with the maximum noise level limits established within the regulations. Additionally, based upon the experience of Phoenix Noise & Vibration with similar properties, unamplified noise generated by athletic field use is not required to meet the DCMR maximum noise level limits.

1 PROPOSED ATHLETIC FIELD

The proposed Maret School athletic fields will consist of a large open space for football, soccer, lacrosse, and baseball use. According to the site plan, the fields will all occupy the same area and

will not be separate fields. A multi-use athletic field would likely be more appropriate to describe the proposed condition. See the enclosed site plan for reference.¹

It is our understanding that there are grading changes that will occur at the site to accommodate the athletic fields. At the northwest and western end of the field, a retaining wall will be constructed above the height of the athletic fields’ final grade to hold back earth on that end of the site, whereas a retaining wall on the eastern end of the athletic field will be used to elevate the field above the adjacent grade.

The nearest distance from the athletic fields to the neighboring residential properties occurs to the west and east, where the outer limit of the field is approximately 25 feet from the neighboring property line at the closest and 60-85 feet at its furthest. To the north of the fields the distance varies approximately 30-60 feet.

The proposed site plan does not indicate that the field will have amplified noise sources (i.e. loudspeakers) nor does it show that lighting will be provided for athletic activities occurring after dusk. This is consistent with statements made by Maret. Therefore, the field will be limited to daytime activities, which by the DCMR is defined from 7:00 AM to 9:00 PM.

2 NOISE REGULATIONS

Title 20, Chapter 20-27 of the DCMR outlines maximum noise levels permitted from various types of land zones as shown in Table 1. The noise levels shown are as “measured at the property line of the property on which the noise source is located.” Furthermore, DCMR states “if a sound can be measured in a contiguous noise zone that has a more restrictive noise limitation than that from which the noise emanates, the sound level measurement at the zone line shall not exceed that established for the more restrictive zone.”

Table 1: Maximum allowable noise levels by land zone according to DCMR.

Zone	Maximum Noise Level (dBA)	
	Daytime (7 AM to 9 PM)	Nighttime (9 PM to 7 AM)
Commercial or Light-Manufacturing	65	60
Industrial	70	65
Residential, Special Purpose, or Waterfront	60	55

Table 1 indicates that noise levels emitted from the Maret School proposed athletic fields must not exceed 60 and 55 dBA during daytime and nighttime hours, respectively, as measured at the neighboring residential properties. While noise generated by the athletic fields is regulated by DCMR, Chapter 20-2704 lists exemptions to the maximum allowable noise levels shown in Table 1, including “the unamplified voice shall be exempt at all times” (Chapter 20-2704.08).

¹ Maret School Proposed Athletic Fields Site Utility Plan by Vika Capitol dated August 23, 2021.

Based upon Phoenix Noise & Vibrations experience with similar properties, it is generally understood that unamplified noise generated by athletic field use is not held to the maximum noise level limits of the DCMR.

3 ATHLETIC FIELD NOISE

As previously stated, noise from the proposed Maret School athletic fields will consist of noise from sources such as athletes, spectators, and referees (which include the use of whistles) and the intermittent sound of shot clock horns during lacrosse play. Noise generated by these sources will vary depending on how loud they are individually and collectively at any given time. The typical noise level from a talking person varies from 60-65 dBA at 5 feet, whereas if they are yelling, noise levels can reach 90-95 dBA at 5 feet.

Depending upon the location of the receiver,² distance from the noise source to the receiver, and site characteristics between the noise source and receiver, a change in noise level will occur at the receiver location. Simple calculations of noise reduction from a point source (i.e., a person) yields a decrease in noise level of 6 dBA per doubling of distance from the noise source. An example of this calculation is provided in Table 2. Note that these calculations assume an open plane without any obstructions between the noise source and receiver. Changes in grading, landscaping, and other obstacles can all effect the propagation of noise. It is expected that these types of site characteristics which are included in the Maret site plan would help reduce noise levels lower than that shown in Table 2.

Table 2: Example of simple noise propagation from a point source generating 90 dBA at 5 feet.

Distance (feet)	Noise Level
5	90 dBA
10	84 dBA
20	78 dBA
40	72 dBA
80	66 dBA
160	60 dBA

Based upon the levels presented within the table, a significant decrease in noise level occurs over distance. At 20 feet, a decrease of 12 dBA can occur, which would be perceived as a little more than half as loud as observed on the athletic field.³ For reference, an example of noise at a level of 78 dBA is a hair dryer at three feet.

Given that the athletic field is slightly over 350 feet in length and width, noise levels from athletes and spectators will likely be audible at the surrounding residential properties yet will vary greatly depending upon their location and place of observation. Topographic changes at the

² A “receiver” is the place at which a noise is heard and observed, such as another person, property line, or residence.

³ Since the decibel scale is logarithmic, the human perception of noise is not based upon a linear response. The general rule is that a change in 3 dBA is the point at which an increase/decrease in level is perceived as noticeable, a change in 5 dBA is clearly noticeable, and 10 dBA is perceived as half as loud.

site may also improve the noise reduction for some properties, such as those at the northwest where a retaining wall will be constructed. Additionally, audible noise from the athletic fields will be highly dependent upon the background noise level at the residential properties. The higher the background noise level from existing noise sources (e.g. traffic on surrounding roadways, aircraft, mechanical equipment, etc.) the less audible noise from the athletic fields will be.

4 CONCLUSION

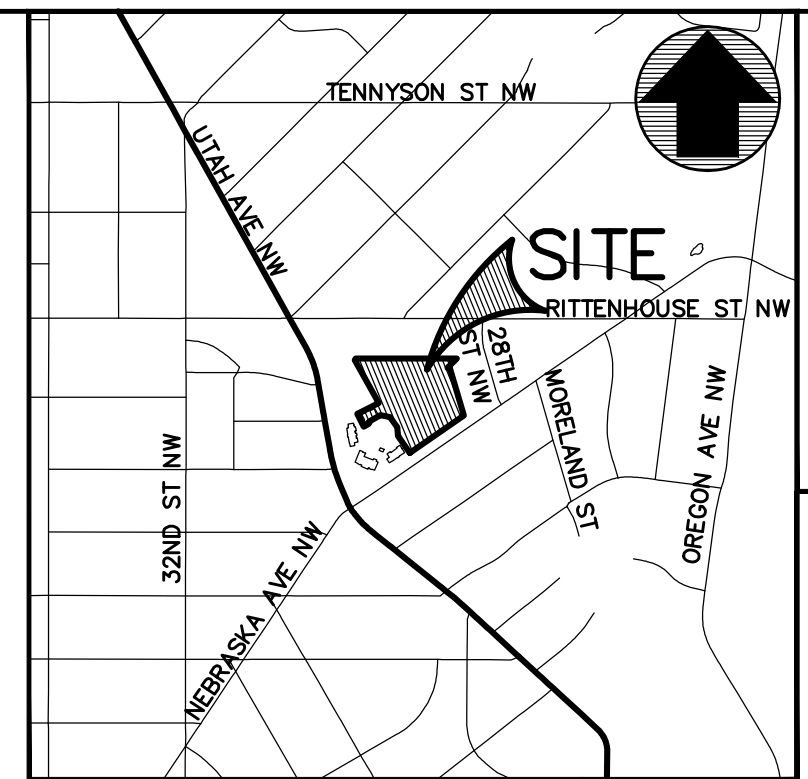
The proposed Maret School athletic fields in northwest Washington, D.C. are not expected to conflict with the noise level requirements of the DCMR. The proposed use of the athletic fields will consist of baseball, football, lacrosse, and soccer events without amplified noise sources. According to the DCMR, unamplified noise sources are not required to comply with the decibel limits established within Table 1. Therefore, under the proposed conditions it is expected that the athletic fields will comply with the DCMR noise level requirements.

Sincerely,



Kody Snow
Senior Engineer

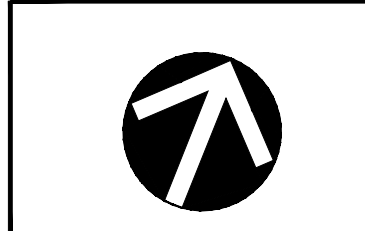
Enclosed: Maret School Proposed Athletic Fields Site Utility Plan by Vika Capitol dated August 23, 2021.



VICINITY MAP
SCALE 1" = 1000'

**MARET SCHOOL
PROPOSED ATHLETIC FIELDS
CORNER OF UTAH AVE NW &
NEBRASKA AVE NW**
WASHINGTON, D.C. 20015

SITE UTILITY PLAN



****NOTE****
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#	DATE DESCRIPTION

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SCALE:	AS SHOWN
PROJECT/FILE NO.:	VC0626C
SHEET NO.:	CIV0300

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