



August 3, 2019

## **ATTACHMENT NO. 7**

John Berry  
John Berry Architects, Inc.  
712 Echo Park Avenue  
Los Angeles, CA 90026

Subject: Park Century School, 3939 Landmark St. Culver City  
Playfield/Parking Structure/Classroom Building  
Acoustical Impact Study Report

Dear John,

### **1.0) INTRODUCTION**

The proposed project is shown on 'Preliminary Project Review' architectural drawings dated August 1, 2017. It involves excavating an existing surface parking lot, building a two-level subterranean parking structure in its place then building an athletic field and a 2,441 sq.ft. classroom building above the subterranean parking. The playing field will not be provided with flood lights, nor a permanent public address system.

The site is bordered by commercial properties to the west and south, with residential property to the south-east. Figures 3.1 and 4.1 below indicate the playing field and classroom building location in relation to the neighboring buildings.

As requested, we have conducted an acoustical impact study for the project. This report presents our findings.

### **2.0) NOISE IMPACT ASSESSMENT THRESHOLDS OF SIGNIFICANCE**

#### **2.1 CEQA Thresholds of Significance**

CEQA Guidelines provide a set of screening questions that address acoustical impacts. These questions are as follows:

Would the project result in:

1. Construction activities that expose noise sensitive uses to noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
2. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
3. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?
4. A substantial permanent increase in ambient noise levels in the vicinity of the project above levels existing without the project?
5. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

The following significance thresholds evaluate potential noise and vibration impacts of the project based on the regulatory framework described above. The project would result in potentially significant impacts under the following circumstances:

- i) Project construction activities occur between the hours of 8:00 P.M. and 8:00 A.M. Monday

- through Friday; before 9:00 A.M. or after 7:00 P.M. on a Saturday; before 10:00 A.M. or after 7:00 P.M. on Sundays
- ii) The Project-related operations would cause ambient noise levels to increase by 5 dBA, Leq or more.
  - iii) Potential Building Damage - Project construction activities cause ground-borne vibration
  - iv) levels to exceed 0.2 inch-per-second PPV at the nearest buildings.
  - v) Potential Human Perception - Project construction activities cause ground-borne vibration levels to exceed 0.035 inch-per-second PPV at the nearest residential buildings.

## **2.2 Culver City Municipal Code**

### *2.2.1 Construction Noise*

Under section § 9.07.035 of the Culver City Municipal Code, construction noise is controlled as follows:

- All construction activity shall be prohibited, except between the hours of:
  - 8:00 a.m. and 8:00 p.m. Mondays through Fridays
  - 9:00 a.m. and 7:00 p.m. Saturdays
  - 10:00 a.m. and 7:00 p.m. Sundays
- It is prohibited for any person to operate a device, which amplifies music or sound, at a construction site in a manner that results in noise levels that are audible beyond the construction site
- The City Council shall retain the right to impose more restrictive hours of construction upon any project by adding appropriate conditions to the approval of any Use Permits that are required for the project.

### *2.2.2 Exemptions from Noise Ordinance for School Activities*

Under section § 9.07.060 of the Noise Ordinance “permitted activities conducted on public playgrounds and public or private school grounds including but not limited to school athletic and entertainment events are exempted from the provisions of the Noise Ordinance”.

## **2.3 Culver City General Plan: Noise Element**

### *2.3.1 Noise Limits for Stationary Noise Sources.*

Per the General Plan, Noise Element:

“In order to control noise generated from stationary sources, and single event noise, standards should place a limit on the noise level and the time that noise may occur during any hour of the day. A penalty of an appropriate amount, e.g., 5 dBA, should be incorporated for pure tone noise. Typical noise ordinance levels and durations are listed as follows:

<b>Daytime Levels (7:00 a.m. – 10:00 p.m.)</b>	<b>Nighttime Levels (10:00 p.m. – 7:00 a.m.)</b>	<b>Duration</b>
55 dBA Leq	50 dBA Leq	30 minutes
60 dBA Leq	55 dBA Leq	15 minutes
65 dBA Leq	60 dBA Leq	5 minutes
70 dBA Leq	65 dBA Leq	1 minute
75 dBA Leq	70 dBA Leq	NEVER

*Table 2.1*

This means that 55 dBA Leq may not be exceeded for more than 30 minutes out of any hour between 7:00 a.m. and 10:00 p.m. These standards refer to the average noise levels (Leq) – of short term measurements (10-15 min.) made at the property line of the noise sensitive receptor. They should not be confused with long term CNEL measurement.”

### *2.3.2 Land Use Noise Exposure Standards*

The City of Culver City Noise Standards are developed from those of several Federal and State agencies including the Federal Highway Administration, the Environmental Protection Agency, the Department of Housing and Urban Development, the American National Standards Institute, and the State of California Department of Health Services. These standards set limits on the noise exposure level for various land uses. **Table 2, City of Culver City Interior and Exterior Noise Standards**, lists interior and exterior noise level standards and the type of occupancy to which they should be applied.

<b>Zone</b>	<b>Interior Standard dBA (CNEL)</b>	<b>Exterior Standard dBA (CNEL)</b>
Residential	45	65
Commercial Retail	55	--
Office Building	50	--
Open Space – Parks	--	65

*Table 2.2: City of Culver City Interior and Exterior Noise Standards*

## **2.4 Vibration Criteria**

The City of Culver City does not address vibration limits either in their municipal code or in the Noise Element of the General Plan. However, Caltrans’ Transportation and Construction Vibration Manual (2013) and FTA’s Transit Noise and Vibration Impact Assessment (2006) document provide thresholds of vibration impact for structure and human annoyance. The threshold of vibration impact for human annoyance would apply for residential uses since, per Caltrans’ Transportation and Construction Vibration Manual, 2013, commercial uses are not considered vibration sensitive uses. This FTA document is used to identify the impacts for this project.

Table 2.3 and 2.4 include the vibration impact criteria for human annoyance and for structure damage.

<b>Human Response</b>	<b>Transient Vibration PPV (in/sec)</b>
Severe	2.0
Strongly Perceptible	0.9
Distinctly Perceptible	0.24
Barely Perceptible	0.035

*Table 2.3: Human Response to Transient Vibration*

Building Class	Continuous Source PPV (in/sec)
Class I: buildings in steel or reinforced concrete, such as factories, retaining wall, bridges, steel towers, open channels, underground chambers, and tunnels with and without concrete alignment	0.5
Class II: buildings with foundation walls and floors in concrete, walls in concrete or masonry, stone masonry retaining walls, underground chambers and tunnels with masonry alignments, conduits in loose material	0.3
Class III: buildings as mentioned above but with wooden ceilings and walls in masonry	0.2
Class IV: construction very sensitive to vibration; objects of historic interest	0.12

*Table 2.4: Ground-Borne Vibration Impact Criteria for Structure Damage*

### 3.0) SETTING & EXISTING NOISE ENVIRONMENT

Continuous unmanned sound measurements were conducted between 13 February 2018 and 14 February 2018, to measure sound levels due to existing noise at the site of the proposed expansion. Figure 3.1, below, is an aerial photograph of the project vicinity, showing the approximate location of the continuous unmanned measurement position used during the sound survey.

Measurements were taken utilizing a Bruel & Kjaer (B&K) type 2250L Precision Sound Analyzer, taking continuous 1 hour measurement samples over a 24 hour period. The microphone stand was extended such the microphone was above the wall that separates the existing surface parking lot and the neighboring residence. A photograph of the measurement equipment are shown in Photo 3.1 below. The measurement microphone was fitted with a windscreen. Immediately prior to the measurements the analyzer was fully calibrated utilizing an acoustic calibrator.

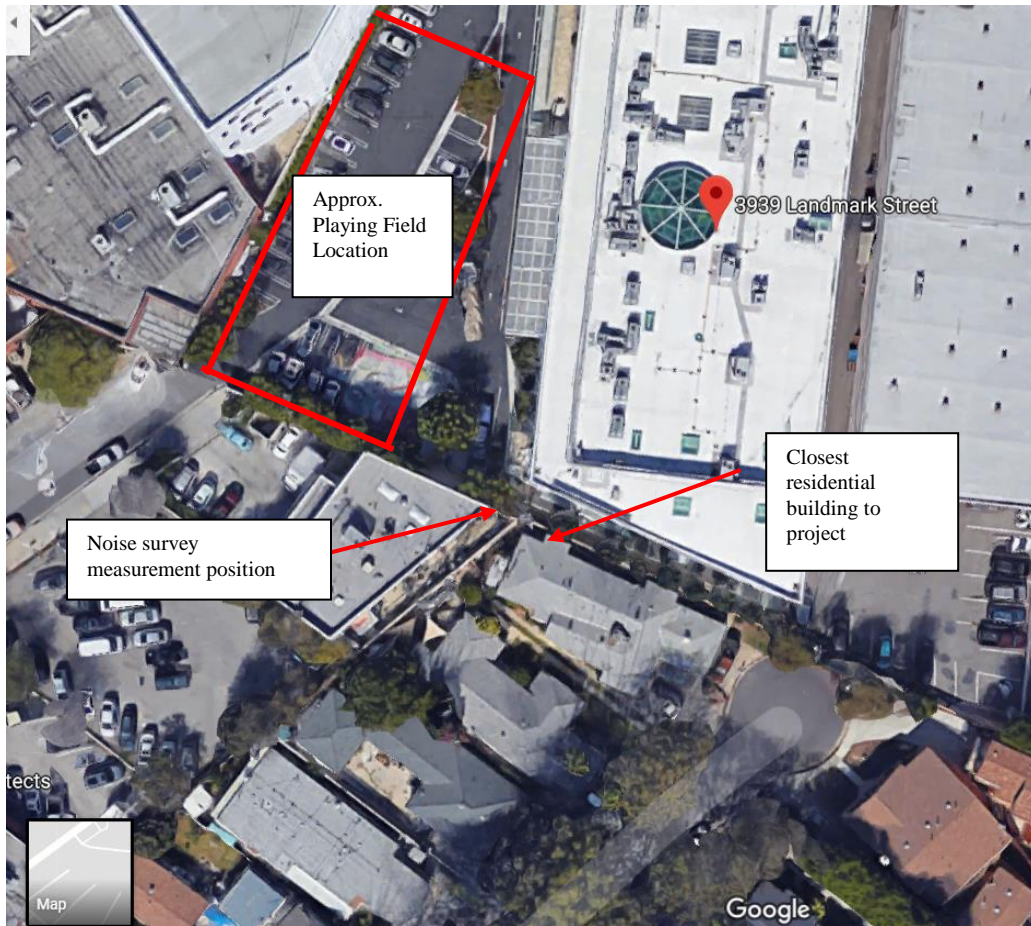


Figure 3.1- Aerial Photograph of Project Vicinity



Photo 3.1 – Photograph of the measurement equipment

The results of the measurement are presented in Figure 3.2, below and are reported in terms of the dB(A) Leq (1 hour) and CNEL. The CNEL descriptor is a time of day weighted twenty four hour average noise

metric that imposes a 5 dB penalty on noise occurring during evening hours between 7:00 pm and 10:00 pm and a 10dB penalty on noise during night hours between 10:00 pm and 7:00 am the following morning. These penalties are to adjust for the increased human sensitivity to noise during periods of relaxation and sleep.

The CNEL measured at this location was 56.7.

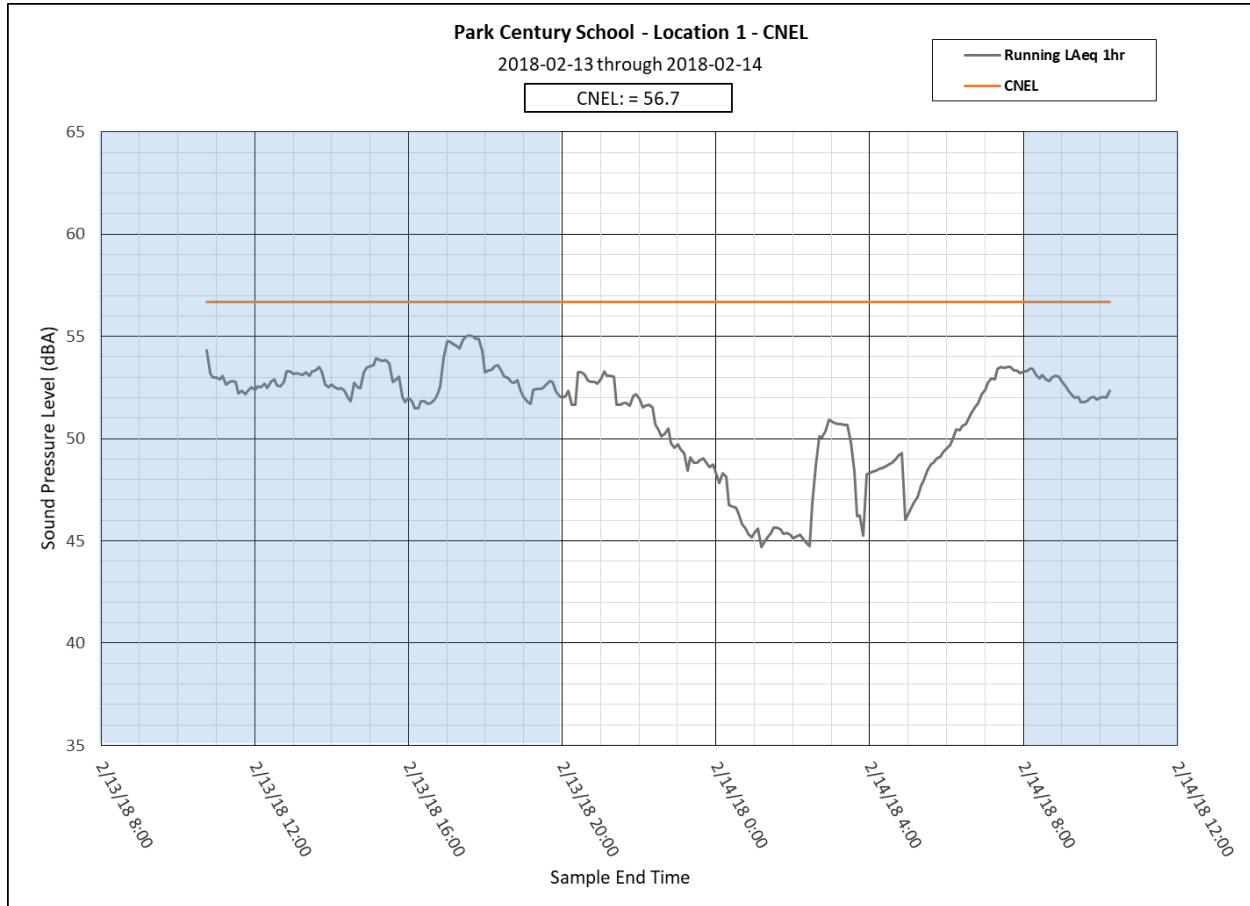


Figure 3.2: Measured Ambient Noise Levels on the Property Line



#### 4.0) POTENTIAL NOISE & VIBRATION IMPACTS

Potential associated noise and vibration impacts are discussed below.

##### 4.1 Activity and spectator noise from the playing field

Figure 4.1 below indicates the approximate location of the closest neighboring residential building in relation to the project. At its closest point the playing field will be approximately 70 feet from the closest residential neighbor. The bleachers will be approximately 180 feet from the closest residential neighbor. The bleachers and the playing field and will be acoustically screened from the neighboring residential building by the Classroom Building to be built (see Figure 4.1 below).



Figure 4.1

In order to estimate noise levels generated by sporting activities on playing fields, noise surveys were conducted adjacent to two existing playing fields. Results are presented in Table 4.1 below.

<i>Location/Activity/Time</i>	<i>Measured Noise Level <math>L_{eq}</math></i>	<i>Comment</i>
Santa Monica Airport Park (artificial turf field) 2/24/18 3.30pm to 3.45pm Girls LaCrosse match	56 dBA measured at 70 feet from touchline	See Photo 4.1. Lots of spectators. Noise level was dominated by other noise sources; wind in trees, airfield activity, road traffic noise.
Santa Monica Airport Park 2/24/18 3.50pm to 3.55pm Background noise level. No activity on playing field.	56 dBA	$L_{eq}$ noise level essentially unchanged when game stopped.
Mark Twain Middle School (grass playing field) 70' from touchline (see Figure 4.3). Energetic and vocal men's soccer game. 2/25/18 11.30 to 11.45 am	55 dBA	Photo 4.2 Measured noise level dominated by playing fields activities. See.
Santa Monica Airport Park 2/25/18 1.00pm to 1.15 pm Men's soccer. Measured at 30 feet from touchline. See Figure 4.2.	52 dBA	See Photo 4.3.
Santa Monica Airport Park 2/25/18 1.30pm to 1.35pm Background noise level. No activity on playing field.	47 dBA	

*Table 4.1*



*Photo 4.1 LaCrosse Match at Santa Monica Airport Park*





*Photo 4.2 Men's Soccer Match at Mark Twain Middle School, Los Angeles*



*Photo 4.3 Men's Soccer Match at Santa Monica Airport Park*





Figure 4.2 – Noise Measurement Position, Santa Monica Airport Park



Figure 4.3 – Noise Measurement Position, Mark Twain Middle School, Los Angeles

Based upon the measured noise levels at other existing playing fields, it appears that activity noise is unlikely to exceed 55 dBA  $L_{eq}$  at 70 feet from the playing field, when in use, neglecting acoustical screening. Taking into account the acoustical screening that will be provided by the new Classroom Building activity noise would likely not exceed 50 dBA  $L_{eq}$  at the closest residential property line, which is below the existing measured daytime (8 a.m. to 8 p.m) background noise at this location (see Figure 3.2).

On this basis, background noise levels would not be expected to be elevated by more than 5dBA due to playing field activities. Also, given that the Culver City Noise Ordinance exempts noise generated by activities on school grounds, we predict that any noise impact associated with activities on the playing fields will be less than significant.

#### 4.2 Mechanical equipment

Noise emissions from the project's mechanical equipment, (garage ventilation fans and Classroom HVAC) would be designed to achieve compliance with the City's noise standards, which establish maximum permitted noise levels from mechanical equipment. Project compliance with the City's noise standards would ensure that operational noise impacts are minimal. Therefore, impacts would be less than significant and no mitigation measures are necessary.

### 4.3 Construction Noise

Construction activities would be required to comply with Culver City's allowable construction hours of 8:00 A.M. and 8:00 P.M. Mondays through Friday; 9:00 A.M. and 7:00 P.M. Saturdays; 10:00 A.M. and 7:00 P.M. Sundays, and would be temporary in nature.

It is understood that the City will place standard conditions of approval on the project that relate to construction noise, as follows:

- Noise-generating construction equipment operated at the project site shall be equipped with the most effective noise control devices that are commercially available, i.e., mufflers, lagging, and/or motor enclosures. All equipment shall be properly maintained to assure that no additional noise, due to worn or improperly maintained parts, would be generated.
- The Applicant shall designate a construction relations officer to serve as a liaison with surrounding residents and property owners who is responsible for responding to any concerns regarding construction noise and vibration. The liaison's telephone number(s) shall be prominently displayed at the project site. Signs shall also be posted at the project site that includes permitted construction days and hours.
- Temporary noise barriers that provide a minimum of 10 dB noise reduction shall be used to block the line-of-site between construction equipment and noise-sensitive receptors (residences) during project construction.

Nevertheless, it is considered likely that the construction conducted in full compliance with the City's Municipal Code and planning conditions would result in a temporary increase greater than 5 dBA over ambient condition at the residential property line.

### 4.4 Construction Vibration

Construction activities taking place near fragile structures or vibration sensitive uses within a building can potentially generate a significant impact. The FTA document includes vibration source levels for typical construction equipment. It should be noted that there would be no pile driving or blasting during the construction. Table 4.2 presents typical construction equipment with vibration source levels.

Equipment	Approximate PPV (in/sec) at 25 feet	Approximate RMS (VdB) at 25 feet
Large Bulldozer	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

*Table 4.2: Vibration Source Levels for Typical Construction Equipment*

#### 4.4.1 Structure Damage

Structures in the vicinity of the project site are conservatively assumed to be classified as Class III buildings as described in Table 2.4 above. In order to exceed the 0.2 in/sec PPV threshold for Class III buildings, a large bulldozer would need to be at a distance of 15 feet or closer to a receiver structure. Because some adjacent buildings are close to their property lines, construction equipment could potentially be located within 15 feet of a structure. When a large bulldozer is within 15 feet of a structure, a structural damage impact could occur and is considered a potentially significant impact. Therefore, mitigation measures would be required.

It is understood that the City will place standard conditions of approval on the project that relate to construction vibration, as follows:

- Contractors should use low-impact construction technologies, and avoid the use of heavy vibrating equipment where possible to avoid construction vibration impacts. Especially, contractors shall use smaller and lower impact construction technologies to avoid structure damage to the adjacent buildings. Contractors shall avoid the use of driving piles and drill piles instead where necessary to avoid structural damage. The construction contractor shall be responsible for implementing this measure during the construction phase.

On this basis, potentially significant vibration impacts are expected to be at a less than significant level.

#### *4.4.2 Human Annoyance*

Construction vibration could annoy people within a residential building. The vibration impact threshold for human annoyance at a residential structure would be 0.035 in/sec PPV. As discussed above, this would likely be exceeded for a larger bulldozer working close to the residence. However, subject to following the City's standard project conditions of approval relating to vibration, vibration levels are expected to be at a less than significant level.

## 5.0) CONCLUSION

It is important that the following proposed project features are retained as the design progresses in order to avoid any significant noise or vibration impact. Any deviation from these project features should be reviewed by an acoustical consultant to ensure that there is no resulting increase in noise impact.

Our key recommendations are as follows:

- As the detailed mechanical design of the building and parking structure develops, noise control measures will need to be specified as required, for air exhausts and inlets, in order to ensure that the requirements of the Culver City Noise Ordinance are satisfied.
- As is currently proposed, the Classroom building shall be located between the Playing Field and the neighboring residential building.

Sincerely,

**Newsom Brown Acoustics, LLC**

A handwritten signature in black ink that reads "Michael Brown".

Michael Brown INCE Bd Cert.  
Principal