

## **APPENDIX V**

### **Mitigation**

## Construction Noise Monitoring Protocol

### **Introduction**

This Noise Monitoring Plan (Plan) has been prepared by Louis Berger on behalf of the project sponsor, the West Side Federation for Senior and Supportive Housing (WSFSSH). The Plan presents the proposed construction noise monitoring and mitigation measures to be implemented as part of development of two new buildings consisting of affordable housing and community facility uses in the Manhattan Valley neighborhood of Manhattan Community District (CD) 7. The Site is adjacent to the Anibal Aviles Playground, bounded on the north, east and west by residential buildings, and by the Booker T. Washington Middle School (a NYC Public School) and associated playground to the south.

Construction activities for the project include demolition of existing structures, excavation for foundations, concrete pours for foundations, erection of superstructure, and building construction and fit-out. Equipment expected to complete these tasks include excavators, dump trucks, concrete mixer trucks and concrete pumper trucks, and cranes, among other heavy construction equipment. Construction activity will increase noise levels above background conditions as documented in the detailed construction noise analysis presented in the Draft Environmental Impact Statement (DEIS).

Construction activity for the project will occur along the north side of West 108<sup>th</sup> Street encompassing parcels on New York City Block 1863. For Phase 1 of the project, construction will occur west of Anibal Aviles Playground on Lots 5, 10 and 13. For Phase 2, construction will occur east of Anibal Aviles Playground on Lot 26 (Figure 1). A construction fence, including a 15-foot-high noise wall, will surround the perimeter of the site for each phase. Noise monitoring will be performed in order to minimize adverse impacts due to noise and will be conducted for the duration of the construction period.

### **Monitor Placement and Monitoring Procedures**

#### Monitoring Locations

Noise monitored will be conducted for each phase of construction at two locations in the vicinity of the construction site. In order to capture construction noise levels received at the Booker T. Washington School, one monitor will be placed on the roof of the school at the northwest corner of the building during Phase I of construction (see “Monitor Location 1 – Phase 1” on Figure 1), and at the north-central portion of the building for Phase 2 (see “Monitor Location 1 – Phase 2” on Figure 1). This placement will provide a line-of-sight arrangement between the noise source and the noise receptor and will capture a worst-case condition. The purpose of monitoring the school is to confirm that it would not experience noise levels above action thresholds outlined below.

In order to characterize construction noise levels received at the residences in the vicinity of construction, noise monitoring would also be conducted in the Anibal Aviles Playground. For Phase 1, two monitors will be placed near the northwest corner of the park, approximately 15 feet from the construction fence/noise barrier (see “Monitor Location 2 – Phase 1” on Figure 1). This is the same distance as the distance between the construction fence/noise barrier and the residential buildings north of the site, and would capture the approximate noise levels received at the residences. One of the two monitors will be placed at five feet above ground level to monitor noise as shielded by the noise barrier. The second monitor will be placed approximately 18 feet above ground level, above the height of the noise barrier, to capture the worst-case (unobstructed) noise levels at residential windows. For Phase 2, the two monitors will be located near the northeast corner of the park (see “Monitor Location 2 – Phase 2” on Figure 1). During Phase 2 the two monitors would also be placed at heights of 5 and 18 feet above ground level.

The number and locations of monitoring points may need be adjusted during final design and during construction as the work progresses, however the monitor’s microphone should always be least 10 feet from the nearest acoustically-reflective surface (e.g., building wall). Relocation of monitoring equipment will also depend upon field logistics and access to adjacent properties.

### Monitoring Equipment

Noise monitoring will be performed using a Type 1 instrument in accordance with the American National Standards Institute (ANSI), S1.4-1983 Specifications for Sound Level Meters. It is recommended that sound level monitoring package provide on-line access to recorded data. Additionally, some advanced monitoring systems also record meteorological data such as wind speed, which is helpful to excluding data during weather events that would impact sound levels. Monitoring will be conducted continuously during construction activities, and the results of the monitoring will be collected and reviewed throughout the monitoring period.

### Monitoring Procedures

At least 24-hours of pre-construction measurements should be taken at each monitoring location in order to precisely quantify existing noise conditions (noise monitoring was completed for the DEIS, but not at the same locations/elevations proposed for construction noise monitoring)

During construction for each phase of the project, noise would be continuously monitored at locations described above. The noise monitoring period for each of the two phases would begin with the start of demolition and continue until the superstructure and walls/windows are in place and no major outdoor construction activity is required. The following continuous measurement procedure will be used:

- Noise measurements will be performed using the A-weighting network and the "slow" response of the sound level meter.
- Ensure correct noise meter will be calibrated consistent with the monitoring equipment manufacturer’s recommendations for long-term unattended monitoring applications.

- Measure Leq, L10 and Lmax, with automatic data logging at 60-minute (1-hour) intervals (the meter operated unattended for the measurement period).
- Perform calibration check at the end of the noise monitoring period.

Monitored noise data would not be considered applicable if it was collected under any of the following conditions as shown by a visual inspection, or meteorological data collection:

- During precipitation events;
- Winds are greater than 15 miles per hour;
- There is extraneous noise unrelated to construction, such as that caused by extensive sirens, horn honking, or loud music near the monitor.

It is recommended that the monitoring system be capable of recording meteorological data and automatically discontinue measurements during precipitation and high winds. Additionally, it is recommended that the monitoring system be capable of recording the actual sound (in addition to the sound level) when thresholds outlined below are exceeded in order to identify if the noise is due to construction activity or due to extraneous sources (e.g., sirens or horn honking).

### **Action thresholds**

The following three “action” noise threshold values will be used to assess the effectiveness of mitigation during construction at the site:

- “warning” noise threshold value of 80 dBA 1-hour Leq,
- “temporary halt” noise threshold value of 85 dBA 1-hour Leq
- “stop work” noise threshold value of 90 dBA 1-hour Leq,

The “warning” noise level is 80 dBA 1-hour Leq. If this action level is exceeded during construction, then the cause will be investigated. Work itself would not be stopped. If the noise is due to construction activity, the Engineer will initiate mitigative measures (e.g., movable sound curtain, move equipment farther from receptors, etc.) or verify the placement and integrity of these mitigative measures to ensure they are optimized for noise mitigation.

The “temporary halt” noise threshold value is 85 dBA 1-hour Leq. If this action level is exceeded then work will be temporarily halted, if necessary, while the apparent cause is investigated and corrections made. If the cause is related to placement of equipment or the location of other mitigation components (e.g., the curtain wall), then this would be corrected and work would resume. If the cause is due to other reasons, such as equipment or operation factors, then these would be corrected, and work resumed. If this level is exceeded due to a temporary situation, such as short-term positioning of equipment very close to the site perimeter or particularly obstinate excavation task, work will continue and noise levels closely monitored to ensure that the situation is truly temporary.

The “stop work” noise level is 90 dBA 1-hour Leq. If this action level is exceeded, then a review into the cause will immediately be investigated. Construction activity responsible for the exceedance would stop and the effectiveness of the implemented mitigation measures would be reviewed and additional mitigation measures implemented.

### **Reporting**

The results of the monitored data would be reviewed by the resident engineer on a daily basis when exceedances of monitoring thresholds are recorded. Remote download and review of noise monitoring data is acceptable. Monthly reports will be submitted to WSFSSH summarizing the results of the monitoring effort. Exceedances of the three threshold levels will be enumerated and documentation of “action” measures will be included.



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Location of Phase I and Phase II construction, and location of noise monitoring machines.

