
***SOUND COMPLIANCE MONITORING
PROTOCOL FOR THE RELOCATED
AGGREGATE INDUSTRIES NONMETALLIC
MINERAL PROCESSING PLANT
LITTLETON, MASSACHUSETTS***

March 2010



**SOUND COMPLIANCE MONITORING PROTOCOL
FOR THE RELOCATED
AGGREGATE INDUSTRIES
NONMETALLIC MINERAL PROCESSING PLANT
LITTLETON, MASSACHUSETTS**

Prepared for:

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Purpose and Frequency of Testing

This protocol presents the method for sound compliance monitoring at the Aggregate Industries relocated non-metallic mineral processing plant on Ayer Road. The objective is to confirm that the relocated plant, once in operation, complies with both the Town of Littleton Noise Bylaw and the MassDEP Noise Policy; those regulations are described in the next section. Commencing within 30 days of start-up of the relocated facility and continuing for a three-month period, daytime compliance sound monitoring will be performed once per month during those months the facility is in operation.

Monitoring Locations

Sound compliance measurements will be made as close as possible to the nine Receptor Locations shown on Figure 6-2 of the Supplemental Sound Study for Aggregate Industries dated February 22, 2010 (a copy of the figure is included below) without trespassing onto private land. These include the four closest residential locations labeled as NSA-1 (11 White Tail Way), NSA-2 (183 New Estates Road), NSA-3 (78 Spectacle Pond Road) and NSA-6 (38 Spectacle Pond Road).

Monitoring Equipment

Sound compliance monitoring will record the A-weighted L_{90} sound level and L_{90} whole octave band levels for a minimum period of 15 minutes at each location. Measurements will not be made during periods of precipitation or when winds exceed 5 m/s (11 mph) at a height of 2 m, in accordance with ANSI Standard S12.18-1994. Measurements will not be made when loud background noises are present, such as aircraft flying overhead. All sound level measurements will be made with an ANSI Type 1 real-time sound analyzer (ANSI Standard S1.4) that has been calibrated to NIST standards within the previous 12 months and is field-calibrated with an ANSI Type 1 calibrator. Microphones will be tripod-mounted and equipped with wind screens. On site wind speed and direction measurements will be taken at the time of the sound monitoring and recorded. Concurrent observations of audible activity at Aggregate Industries, other industrial sites and other noise-producing sources will be recorded on the Field Log Form by the sound engineer; a copy of the proposed Field Log Form is attached.

Data Analysis and Reporting

All sound monitoring data will be downloaded from the sound analyzer to a field laptop. The previously Background Without Crushing Operations L₉₀ Sound Levels listed Table 6-7 of the Supplemental Sound Study for Aggregate Industries dated February 22, 2010 (a copy of the table is included below) will be subtracted from the measured L₉₀ broadband sound levels at each monitoring location on an energy basis to obtain an estimate of the sound level from Aggregate Industries. These corrected facility sound levels will be compared to the Town of Littleton limits of 50 dBA (residential receptor) and 65 dBA (industrial receptor) for each monitoring location. The increase in the L₉₀ broadband sound level above the Background will be calculated for each monitoring location and compared to the 10-dBA allowable limit in the DEP Noise Policy for inhabited locations and residential property lines. To check the performance of the acoustic model, the measured facility sound levels and increases will be compared to the predicted facility L₉₀ sound levels listed in Tables 6-7 and 6-8 of the Supplemental Sound Study for Aggregate Industries dated February 22, 2010.

The octave band measurements for each monitoring location will be analyzed with respect to the pure tone criteria in the DEP Noise Policy and a determination for each monitoring location will be made as to whether a pure tone was measured. Any pure tone related OSHA-mandated backup alarms, which are exempt from State and Town regulation, will be identified.

A report will be prepared that summarizes all monitoring data, results and conclusions with an executive summary written for the layman. A copy of each sound compliance monitoring report will be filed with the Littleton Planning Board and with the DEP Central Regional Office.

TABLE 6-7

**SUMMARY OF PREDICTED DAYTIME SOUND LEVELS WITH MITIGATION
MEASURES FROM AGGREGATE INDUSTRIES' FACILITY
AT THE FACILITY PROPERTY LINE AND CLOSEST NOISE SENSITIVE AREAS**

Sound Modeling Locations	Measured Background without Crushing Operations L₉₀ Level (dBA)	Predicted Facility Sound Level (dBA)	Total Expected Future L₉₀ Level (dBA)	Predicted Increase (dBA)
PB-1 - Northern Property Boundary*	44	54.6	55.0	11.0
PB-2 - Northeast Property Boundary**	40	49.8	50.2	10.2
PB-3 - Southeast Property Boundary	45	49.0	50.5	5.5
NSA-1 – 11 White Tail Way	40	49.2	49.7	9.7
NSA-2 – 183 New Estate Road	45	48.6	50.2	5.2
NSA-3 – 78 Spectacle Pond Road	44	48.3	49.7	5.7
NSA-4 – Ayer Road (Industrial Use)**	40	50.7	51.1	11.1
NSA-5 – 53 Ayer Road (Industrial Use)	45	47.8	49.6	4.6
NSA-6 – 38 Spectacle Pond Road	42.0	48.4	49.3	7.3

*The predicted sound level changes are adjacent to or located in industrial zoned property owned by Middlesex Materials Corporation on the western and northwestern areas abutting Aggregate Industries that is not buildable land.

**PB-2 is adjacent to industrial zoned property that is not buildable and NSA-4 represents industrial property along Ayer Road.

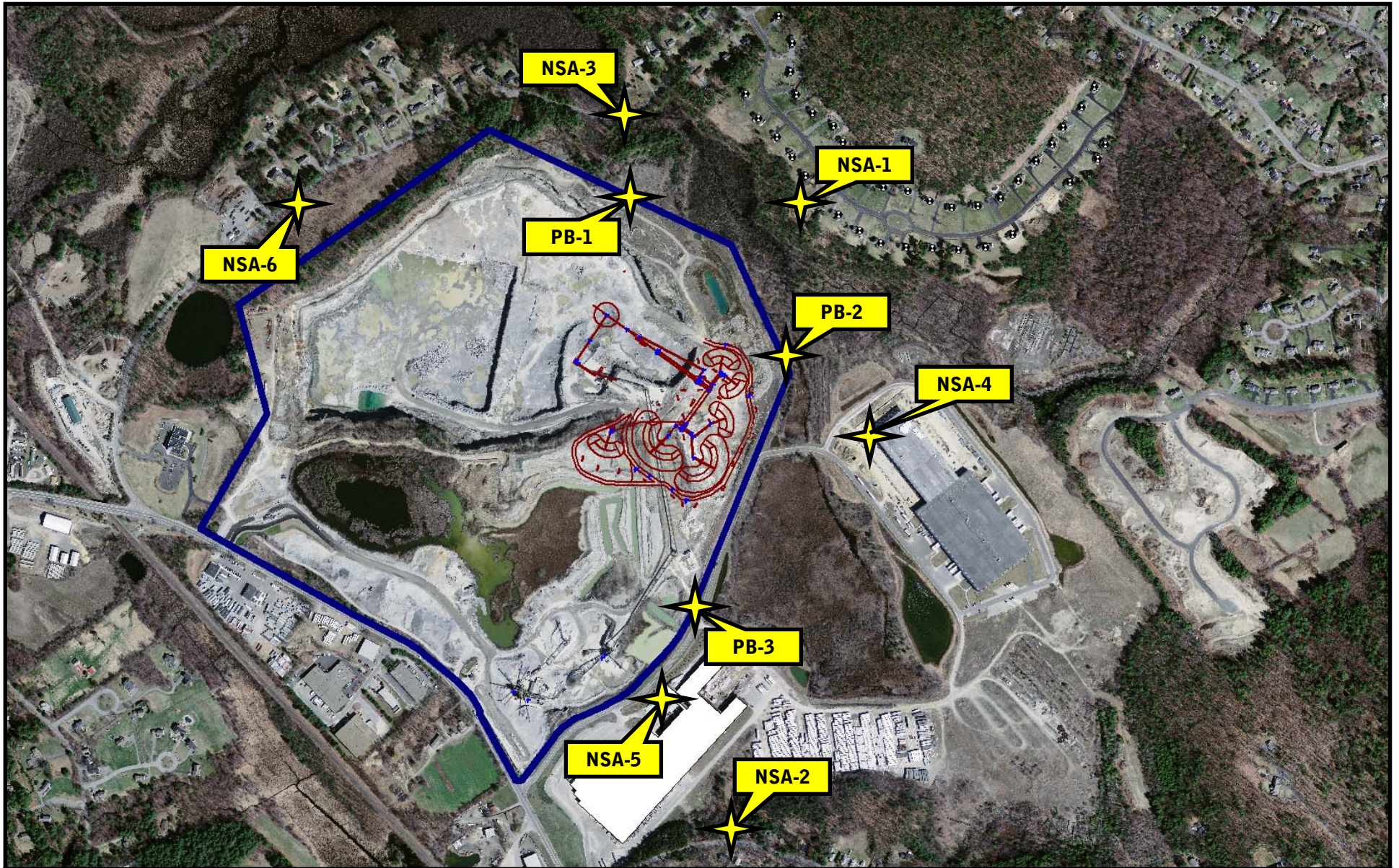


FIGURE 6-2.

**Sound Monitoring and Modeling Locations
Aggregate Industries
Littleton, Massachusetts**

Tech Environmental, Inc.
Aggregate Industries - Littleton Sound Level Survey Field Form

Receptor Location	Date	Field Technician

	Sound Level Meter
Model	
Serial Number	

Calibration Results	114 dB at 1000 Hz
Initial	
Final	

Ground Cover	Wind Speed	Wind Direction	Temperature	Precipitation

Start Time	Peak Wind Time	Time Period

Intrusive Events	Site Location Sketch			
Source				
			Background Sources >	

Comments