

Construction Calculations

Phase: Site Preparation

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Grader	1	85	40	50	0.5	85	81
Tractor	1	84	40	50	0.5	84	80
Dozer	3	82	40	50	0.5	82	83
Combined at 50 feet						89	86
Combined at Receptor 170 feet						78	76
Combined at Receptor 350 feet						72	69

Phase: Grading

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Grader	1	85	40	50	0.5	85	81
Dozer	1	82	40	50	0.5	82	78
Tractor	2	84	40	50	0.5	84	83
Combined at 50 feet						89	86
Combined at Receptor 170 feet						78	75

Phase: Building Construction

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Crane	1	81	16	50	0.5	81	73
Man Lift	1	75	20	50	0.5	75	68
Generator	1	81	50	50	0.5	81	78
Tractor	1	84	40	50	0.5	84	80
Welder / Torch	3	74	40	50	0.5	74	75
Combined at 50 feet						87	83
Combined at Receptor 170 feet						77	73

Phase: Paving

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Drum Mixer	1	80	50	50	0.5	80	77
Paver	1	77	50	50	0.5	77	74
All Other Equipment > 5 HP	1	85	50	50	0.5	85	82
Roller	1	80	20	50	0.5	80	73
Tractor	1	84	40	50	0.5	84	80
Combined at 50 feet						89	85
Combined at Receptor 170 feet						78	75

Phase: Architectural Coating

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Compressor (air)	1	78	40	50	0.5	78	74
Combined at 50 feet						78	74
Combined at Receptor 170 feet						67	63

Sources: RCNM

¹ - Percentage of time that a piece of equipment is operating at full power.

dBA – A-weighted Decibels

Lmax- Maximum Level

Leq- Equivalent Level

Stationary Source Calculations

Source	Land Use	Direction	Reference Noise Level (dBA Leq)	Reference Distance (ft)	Distance (ft)	Distance Attenuation (dBA)	Shielding (dBA)	Noise Level (dBA Leq)	Duration (Hour)	Combined Noise Level - Daytime (dBA Leq)	Combined Noise Level - Nighttime(dBA Leq)
Commercial	North	Truck Delivery	75.0	20	250	21.9	0	53.1	0.08	50.9	43.1
		Car Wash Entrance	75.8	25	220	18.9	5	51.9	1.00		
		Car Wash Exit	78.7	25	220	18.9	5	54.8	1.00		
		Trash	84.0	50	475	19.6	5	59.4	0.02		
		HVAC1	72	5	265	34.5	0	37.5	1.00		
		HVAC2	72	5	265	34.5	0	37.5	1.00		
Residential	East	Truck Delivery	75.0	20	110	14.8	0	60.2	0.08	53.8	52.2
		Car Wash Entrance	75.8	25	160	16.1	5	54.7	1.00		
		Car Wash Exit	78.7	25	208	18.4	5	55.3	1.00		
		Trash	84.0	50	120	7.6	5	71.4	0.02		
		HVAC1	72	5	155	29.8	0	42.2	1.00		
		HVAC2	72	5	208	32.4	0	39.6	1.00		

Daytime Noise Standard	Daytime Ambient	Exceed?	Nighttime Ambient	Nighttime Noise Standard	Exceed?	Daytime Noise Standard
60	62.4	No	64.4	60	No	
55	58.9	No	63.2	45	No	

Exceed? Nighttime Noise
 Standard Exceed?