

Appendix H: Noise Supporting Information

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Mobile Construction Activity Noise Calculation

Receptor:	Receiving residential property line	Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements								
		Reference (dBA) 50 ft	Quantity	Usage factor[1]	Distance to Receptor	Ground Effect[2]	Shielding (dBA)[3]	Calculated (dBA)		Energy
No.	Equipment Description	Lmax						Lmax	Leq	
1	Grader	85	1	40	90	1	0	79.9	73.4	21689147.19
2	Excavator	85	1	40	140	1	0	76.1	67.6	5762167.748
3	Dozer	85	1	40	140	1	0	76.1	67.6	5762167.748
4	Front End Loader	80	1	40	140	1	0	71.1	62.6	1822157.434
5	Backhoe	80	1	40	140	1	0	71.1	62.6	1822157.434
6										
7										
8										
9										
10										
Notes:							Lmax[4]	80	Leq	76

[1] Percentage of time activity occurs each hour

[2] Soft ground terrain between project site and receptor.

[3] Shielding due to terrain or structures

[4] Calculated Lmax is the Loudest value.

Residential-Grade Mechanical Equipment

Nearest Residential Receptor	Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements								
	Reference (dBA) 3 ft	Quantity	Usage factor[1]	Distance to Receptor	Ground Effect[2]	Shielding (dBA)[3]	Calculated (dBA)		Energy
	Lmax						Lmax	Leq	
Residential grade mechanical ventilation equipment	70	1	80	110	1	0	38.7	22.1	162.283997
Residential grade mechanical ventilation equipment	70	2	80	120	1	0	38.0	24.0	250
Residential grade mechanical ventilation equipment	70	2	80	130	1	0	37.3	22.9	196.6317706
Residential grade mechanical ventilation equipment	70	2	80	140	1	0	36.6	22.0	157.4344023
Residential grade mechanical ventilation equipment	70	2	80	150	1	0	36.0	21.1	128
Residential grade mechanical ventilation equipment	70	2	80	160	1	0	35.5	20.2	105.46875
Residential grade mechanical ventilation equipment	70	2	80	170	1	0	34.9	19.4	87.92998168
Residential grade mechanical ventilation equipment	70	2	80	180	1	0	34.4	18.7	74.07407407
								Leq	31

ge of time activity occurs each hour
nd terrain between project site and receptor.
due to rooftop parapet/structural shielding

Ldn Calculations					
	Time	Hourly Leq	Leq'	0.1*Leq	antiLog
Night	12:00 AM	30.7	40.7	4.065139961	11618.22976
	1:00 AM	30.7	40.7	4.065139961	11618.22976
	2:00 AM	30.7	40.7	4.065139961	11618.22976
	3:00 AM	30.7	40.7	4.065139961	11618.22976
	4:00 AM	30.7	40.7	4.065139961	11618.22976
	5:00 AM	30.7	40.7	4.065139961	11618.22976
	6:00 AM	30.7	40.7	4.065139961	11618.22976
Day	7:00 AM	30.7	30.7	3.065139961	1161.822976
	8:00 AM	30.7	30.7	3.065139961	1161.822976
	9:00 AM	30.7	30.7	3.065139961	1161.822976
	10:00 AM	30.7	30.7	3.065139961	1161.822976
	11:00 AM	30.7	30.7	3.065139961	1161.822976
	12:00 PM	30.7	30.7	3.065139961	1161.822976
	1:00 PM	30.7	30.7	3.065139961	1161.822976
	2:00 PM	30.7	30.7	3.065139961	1161.822976
	3:00 PM	30.7	30.7	3.065139961	1161.822976
	4:00 PM	30.7	30.7	3.065139961	1161.822976
	5:00 PM	30.7	30.7	3.065139961	1161.822976
	6:00 PM	30.7	30.7	3.065139961	1161.822976
	7:00 PM	30.7	30.7	3.065139961	1161.822976
	8:00 PM	30.7	30.7	3.065139961	1161.822976
	9:00 PM	30.7	30.7	3.065139961	1161.822976
Night	10:00 PM	30.7	40.7	4.065139961	11618.22976
	11:00 PM	30.7	40.7	4.065139961	11618.22976
Sum					121991.4124
Sum/24					5082.975519
Log10(Sum/24)					3.706118018
10*Log10(Sum/24)					37.06118018
24 Hour Ldn					37

Project Number: 2444.0018 Sheet ___ of ___
Project Name: Mitchell Townhomes Residential Project
Test Personnel: Henrique Carneiro Zhu

NOISE MEASUREMENT SURVEY

Site Number: ST1 Date: 10/4/2024 Time: From 14:37 To 14:47

Site Location: At SW corner of project site, adjacent to project site parking lot driveway connecting to Shadelands Drive.
10 feet from road.

Primary Noise Sources: Shadelands Drive traffic, onsite parking lot traffic, adjacent parking lots traffic.

Measurement Results

	dBA
L _{eq}	62.2
L _{max}	78.2
L _{min}	46.0
L _{peak}	92.7
L ₅	67.8
L ₁₀	66.2
L ₅₀	57.4
L ₉₀	47.3
SEL	

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments: LwS A-weighted measurements recorded.

Equipment: SoundExpert 821 Measured Difference: -0.04 dBA
Settings: A-Weighted ☒ Other ☐ Slow ☐ Fast ☐ Windscreen ☒

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
Comments:	No wind, 93 F			



Photos Taken:

Photo Number	Location/Description
1	Facing North
2	Facing East
3	Facing South
4	Facing West

Traffic Description:

Roadway	# Lanes	Posted Speed	Average Speed	NB/EB Counts	SB/WB Counts
Shadelands Drive	2	30		30	28

Diagram/Further Comments:



Project Number: 2444.0018
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NOISE MEASUREMENT SURVEY

Site Number: ST2 Date: 10/4/2024 Time: From 14:51 To 15:02

Site Location: At SE corner of project site, adjacent to driveway entrance to 2151 Oak Grove Road building parking lot.
10 feet off of Shadelands Drive Road.

Primary Noise Sources: Shadelands Drive traffic, Oak Grove Road traffic, parking lot traffic.

Measurement Results

	dBA
L _{eq}	60.6
L _{max}	73.4
L _{min}	48.9
L _{peak}	90.2
L ₅	65.8
L ₁₀	64.0
L ₅₀	56.9
L ₉₀	50.5
SEL	

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments: LwS A-weighted measurements recorded.

Equipment: SoundExpert 821
Settings: A-Weighted ☒ Other ☐

Measured Difference: -0.04 dBA
Slow ☐ Fast ☐ Windscreen ☒

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
Comments:	No wind, 93 F			



Photos Taken:

Photo Number	Location/Description
1	Facing North
2	Facing East
3	Facing South
4	Facing West

Traffic Description:

Roadway	# Lanes	Posted Speed	Average Speed	NB/EB Counts	SB/WB Counts
Shadelands Drive	2	30		See ST1	See ST1
Oak Grove Road	4-5	40		Obstructed	Obstructed

Diagram/Further Comments:



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Project Name: Mitchell Townhomes Residential Project
Test Personnel: Henrique Carneiro Zhu

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NOISE MEASUREMENT SURVEY

Site Number: ST3 Date: 10/4/2024 Time: From 15:09 To 15:19

Site Location: Near NE corner of project site, on grass lawn adjacent to 2813 Mitchell Drive. Adjacent to 2813 Mitchell Drive parking lot driveway entrance.

Primary Noise Sources: Mitchell Drive traffic, parking lot traffic.

Measurement Results

	dBA
L _{eq}	63.8
L _{max}	71.9
L _{min}	50.7
L _{peak}	97.4
L ₅	68.3
L ₁₀	67.2
L ₅₀	62.6
L ₉₀	54.4
SEL	

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments: LwS A-weighted measurements recorded.

Equipment: SoundExpert 821
Settings: A-Weighted ☒ Other ☐

Measured Difference: -0.04 dBA
Slow ☐ Fast ☐ Windscreen ☒

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
Comments:	No wind, 93 F			



Photos Taken:

Photo Number	Location/Description
1	Facing North
2	Facing East
3	Facing South
4	Facing West

Traffic Description:

Roadway	# Lanes	Posted Speed	Average Speed	NB/EB Counts	SB/WB Counts
Mitchell Drive	2	30		55	54

Diagram/Further Comments:



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Project Name: Mitchell Townhomes Residential Project
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NOISE MEASUREMENT SURVEY

Site Number: ST4 Date: 10/4/2024 Time: From 15:26 To 15:36

Site Location: At NW corner of project site, adjacent to NW project site corner parking lot driveway entrance.

Primary Noise Sources: Mitchell Drive traffic, pedestrian traffic at Mitchell Drive crossing.

Measurement Results

	dBA
L _{eq}	64.5
L _{max}	76.9
L _{min}	48.4
L _{peak}	92.5
L ₅	69.2
L ₁₀	68.0
L ₅₀	62.8
L ₉₀	53.5
SEL	

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments: LwS A-weighted measurements recorded.

Equipment: SoundExpert 821 Measured Difference: -0.04 dBA
Settings: A-Weighted ☒ Other ☐ Slow ☐ Fast ☐ Windscreen ☒

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
Comments:	No wind, 93 F			



Photos Taken:

Photo Number	Location/Description
1	Facing North
2	Facing East
3	Facing South
4	Facing West

Traffic Description:

Roadway	# Lanes	Posted Speed	Average Speed	NB/EB Counts	SB/WB Counts
Mitchell Drive	2	30		See ST3	See ST3

Diagram/Further Comments:

