Appendix G

Noise Technical Reports

Roadway Construction Noise Model (RCNM),Version 1.1

Report date 2/23/2022
Case Descri Folsom Corporate Center

---- Receptor #1 ----

	Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single-Fam	Residential	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		160	0

	Calculated (dBA)		Results Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	74.9	70.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	74.9	70.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Folosm Coproarate Center Apartments
TNM Traffic Count Input (PM Peak Hour)

Iron Point	Existing (2021)				Existing (2021) + Project				Cumulative (2035)				Cumulative (2035) + Project			
	Total	Auto	MedTrucks	Hvy Trucks	Total	Auto	MedTrucks	Hvy Trucks	Total	Auto	MedTrucks	Hvy Trucks	Total	Auto	MedTrucks	Hvy Trucks
Grover Road to Oak Avenue Parkway	2239	2149	67	22	2285	2194	69	23	2353	2259	71	24	2369	2274	71	24
Oak Avenue Parkway to West Kaiser Access Road	1909	1833	57	19	1978	1899	59	20	3248	3118	97	32	3309	3177	99	33
West Kaiser Access Road to Rowberry Way	1879	1804	56	19	1911	1835	57	19	3199	3071	96	32	3288	3156	99	33
Rowberry Way to SAFE Credit Union Access	1871	1796	56	19	1910	1834	57	19	3513	3372	105	35	3539	3397	106	35
SAFE Credit Untion Access to Broadstone Parkway	1922	1845	58	19	1958	1880	59	20	3524	3383	106	35	3539	3397	106	35

Source: T.Kear, *Iron Point Road Apartments Transportation Impact Study,* December 2021.

CadnaA Road Source Table

Name	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
			Day (dBA)	Evening (dBA)	Night (dBA)	DTV	Str.class.	M Day	Evening	Night	p (%) Day	Evening	Night	Auto (km/h)	Truck (km/h)	Dist.	Dstro (dB)	Type	(%)	Drefl (dB)	Hbuild (m)	Dist. (m)
US Highwa		US50	78.6	0	0			8800	0	0	6.4	0	25	105	89	w36	0	1	0	0		
Iron Point I		IRPT	69.6	0	0			3539	0	0	4	0	25	72		w26.8	0	1	0	0		

CadnaA Receptor Table

Name	M.	ID	Level Lr		Limit. Value		Land Use		Height			Coordinates		
			Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(m)		X (m)	Y (m)	Z (m)
Measurement Location		M	68.8	-75	0	0	x		Total	1.52	r	662221.19	4278795.81	112.77
Receptor Lot 1, Pool 1		R1-P1	65.2	-76.2	0	0	x		Total	1.52	r	662260.44	4278800.82	112.77
Receptor Lot 1, Bldg 1, 1 - 1st floor		R1-1-1-1	68.5	-75.1	0	0	x		Total	1.52	r	662214.37	4278794.82	112.77
Receptor Lot 1, Bldg 1, 1 - 2nd floor		R1-1-1-2	74.3	-72.2	0	0	x		Total	4.27	r	662213.52	4278794.74	115.52
Receptor Lot 1, Bldg 1, 1 - 3rd floor		R1-1-1-3	75.6	-71.7	0	0	x		Total	7.01	r	662212.59	4278794.65	118.26
Receptor Lot 1, Bldg 1, 2 - 1st floor		R1-1-2-1	73	-72.8	0	0	x		Total	1.52	r	662176.43	4278790.76	112.77
Receptor Lot 1, Bldg 1, 2 - 2nd floor		R1-1-2-2	73.9	-72.4	0	0	x		Total	4.27	r	662175.55	4278790.69	115.52
Receptor Lot 1, Bldg 1, 2 - 3rd floor		R1-1-2-3	76	-71.6	0	0	x		Total	7.01	r	662174.83	4278790.65	118.26
Receptor Lot 1, Bldg 1, 3 3rd floor		R1-1-3-3	72	-74.3	0	0	x		Total	7.01	r	662173.38	4278794.36	118.26
Receptor Lot 1, Bldg 2, 1 - 1st floor		R1-2-1-1	72.5	-73.5	0	0	x		Total	1.52	r	662157.6	4278796.27	112.77
Receptor Lot 1, Bldg 2, 1 - 2nd floor		R1-2-1-2	71.8	-73.5	0	0	x		Total	4.27	r	662156.71	4278796.4	115.52
Receptor Lot 1, Bldg 2, 1 - 3rd floor		R1-2-1-3	73.4	-73.1	0	0	x		Total	7.01	r	662155.88	4278796.48	118.26
Receptor Lot 1, Bldg 2, 2 - 1st floor		R1-2-2-1	72.2	-73.7	0	0	x		Total	1.52	r	662119.54	4278800.07	112.77
Receptor Lot 1, Bldg 2, 2 - 2nd floor		R1-2-2-2	71.5	-74.2	0	0	x		Total	4.27	r	662118.91	4278800.14	115.52
Receptor Lot 1, Bldg 2, 2 - 3rd floor		R1-2-2-3	72.5	-73.6	0	0	x		Total	7.01	r	662118.36	4278800.19	118.26
Receptor Lot 1, Bldg 3, 1 - 1st floor		R1-3-1-1	54.1	-79.1	0	0	x		Total	1.52	r	662141.31	4278834.38	112.77
Receptor Lot 1, Bldg 3, 1 - 2nd floor		R1-3-1-2	59.8	-77.7	0	0	x		Total	4.27	r	662141.17	4278835.06	115.52
Receptor Lot 1, Bldg 3, 1 - 3rd floor		R1-3-1-3	62.9	-77.3	0	0	x		Total	7.01	r	662141.03	4278835.66	118.26
Receptor Lot 1, Bldg 3, 2 - 1st floor		R1-3-2-1	53.5	-79.2	0	0	x		Total	1.52	r	662170.77	4278837.76	112.77
Receptor Lot 1, Bldg 3, 2 - 2nd floor		R1-3-2-2	57.6	-78.6	0	0	x		Total	4.27	r	662170.21	4278837.71	115.52
Receptor Lot 1, Bldg 3, 2 - 3rd floor		R1-3-2-3	61.1	-78.2	0	0	x		Total	7.01	r	662169.69	4278837.64	118.26
Receptor Lot 1, Bldg 4, 1 - 1st floor		R1-4-1-1	56.8	-78	0	0	x		Total	1.52	r	662142.78	4278872.64	112.77
Receptor Lot 1, Bldg 4, 1 - 2nd floor		R1-4-1-2	58.1	-77.6	0	0	x		Total	4.27	r	662142.62	4278873.46	115.52
Receptor Lot 1, Bldg 4, 1 - 3rd floor		R1-4-1-3	60.8	-77.3	0	0	x		Total	7.01	r	662142.46	4278874.17	118.26
Receptor Lot 1, Bldg 4, 2 - 1st floor		R1-4-2-1	53.7	-79.2	0	0	x		Total	1.52	r	662191.43	4278879.01	112.77
Receptor Lot 1, Bldg 4, 2 - 2nd floor		R1-4-2-2	54	-79.4	0	0	x		Total	4.27	r	662190.83	4278878.94	115.52
Receptor Lot 1, Bldg 4, 2 - 3rd floor		R1-4-2-3	58.3	-79	0	0	x		Total	7.01	r	662190.25	4278878.86	118.26
Receptor Lot 1, Bldg 5, 1 - 1st floor		R1-5-1-1	49.9	-79.4	0	0	x		Total	1.52	r	662217.57	4278824.06	112.77
Receptor Lot 1, Bldg 5, 1 - 2nd floor		R1-5-1-2	50.6	-79.1	0	0	x		Total	4.27	r	662216.9	4278824.03	115.52
Receptor Lot 1, Bldg 5, 1 - 3rd floor		R1-5-1-3	59.4	-78.5	0	0	x		Total	7.01	r	662216.04	4278823.96	118.26
Receptor Lot 1, Bldg 5, 2 - 1st floor		R1-5-2-1	47.3	-79.7	0	0	x		Total	1.52	r	662207.44	4278839.12	112.77
Receptor Lot 1, Bldg 5, 2 - 2nd floor		R1-5-2-2	50.2	-79.4	0	0	x		Total	4.27	r	662207.38	4278839.72	115.52
Receptor Lot 1, Bldg 5, 2 - 3rd floor		R1-5-2-3	54	-79.2	0	0	x		Total	7.01	r	662207.28	4278840.32	118.26
Receptor Lot 1, Bldg 6, 1 - 1st floor		R1-6-1-1	49.9	-79.9	0	0	x		Total	1.52	r	662255.83	4278840.12	112.77
Receptor Lot 1, Bldg 6, 1 - 2nd floor		R1-6-1-2	52.5	-79.5	0	0	x		Total	4.27	r	662255.7	4278840.79	115.52
Receptor Lot 1, Bldg 6, 1 - 3rd floor		R1-6-1-3	54.3	-79.4	0	0	x		Total	7.01	r	662255.62	4278841.44	118.26
Receptor Lot 1, Bldg 6, 2 - 1st floor		R1-6-2-1	52.7	-79.4	0	0	x		Total	1.52	r	662252.35	4278866.38	112.77
Receptor Lot 1, Bldg 6, 2 - 2nd floor		R1-6-2-2	54.7	-79.3	0	0	x		Total	4.27	r	662252.28	4278866.99	115.52
Receptor Lot 1, Bldg 6, 2 - 3rd floor		R1-6-2-3	57.1	-79.2	0	0	x		Total	7.01	r	662252.19	4278867.8	118.26
Receptor Lot 1, Bldg 7, 1 - 1st floor		R1-7-1-1	60.1	-77.7	0	0	x		Total	1.52	r	662294.97	4278813.69	112.77
Receptor Lot 1, Bldg 7, 1 - 2nd floor		R1-7-1-2	65.6	-76.8	0	0	x		Total	4.27	r	662294.88	4278814.62	115.52
Receptor Lot 1, Bldg 7, 1 - 3rd floor		R1-7-1-3	68.2	-76	0	0	x		Total	7.01	r	662294.82	4278815.34	118.26
Receptor Lot 1, Bldg 7, 2 - 1st floor		R1-7-2-1	56.1	-78.5	0	0	x		Total	1.52	r	662290.94	4278851.4	112.77
Receptor Lot 1, Bldg 7, 2 - 2nd floor		R1-7-2-2	59.1	-78.3	0	0	x		Total	4.27	r	662290.79	4278852.45	115.52
Receptor Lot 1, Bldg 7, 2 - 3rd floor		R1-7-2-3	61.8	-77.8	0	0	x		Total	7.01	r	662290.68	4278853.14	118.26
Receptor Lot 6, Pool 1		R6-P1	63.1	-77.5	0	0	x		Total	1.52	r	662715.45	4278910.5	112.12
Receptor Lot 6, Pool 2		R6-P2	59.3	-77.9	0	0	x		Total	1.52	r	662702.77	4278926.76	112.42
Receptor Lot 6, Bldg 1, 1 1st floor		R6-1-1-1	60.1	-77.8	0	0	x		Total	1.52	r	662776.28	4278930	112.12
Receptor Lot 6, Bldg 1, 1 2nd floor		R6-1-1-2	60.1	-78	0	0	x		Total	4.27	r	662776.73	4278930.52	114.87
Receptor Lot 6, Bldg 1, 1 3rd floor		R6-1-1-3	61.9	-77.8	0	0	x		Total	7.01	r	662777.16	4278930.99	117.61
Receptor Lot 6, Bldg 1, 2 1st floor		R6-1-2-1	62.6	-76.6	0	0	x		Total	1.52	r	662809.5	4278966.77	112.07
Receptor Lot 6, Bldg 1, 2 2nd floor		R6-1-2-2	62.9	-76.1	0	0	x		Total	4.27	r	662808.85	4278967.52	114.82
Receptor Lot 6, Bldg 1, 2 3rd floor		R6-1-2-3	63.3	-75.8	0	0	x		Total	7.01	r	662808.11	4278968.17	117.55
Receptor Lot 6, Bldg 2, 1 1st floor		R6-2-1-1	52.6	-79.2	0	0	x		Total	1.52	r	662719.89	4278953.44	112.11
Receptor Lot 6, Bldg 2, 1 2nd floor		R6-2-1-2	56.3	-78.5	0	0	x		Total	4.27	r	662719.42	4278954.05	114.86
Receptor Lot 6, Bldg 2, 1 3rd floor		R6-2-1-3	58.6	-77.8	0	0	x		Total	7.01	r	662718.89	4278954.69	117.59
Receptor Lot 6, Bldg 2, 2 1st floor		R6-2-2-1	55.5	-78.4	0	0	x		Total	1.52	r	662697.52	4278983.96	113.15
Receptor Lot 6, Bldg 2, 2 2nd floor		R6-2-2-2	57.8	-77.4	0	0	x		Total	4.27	r	662696.95	4278984.7	115.93
Receptor Lot 6, Bldg 2, 2 3rd floor		R6-2-2-3	60.5	-76.1	0	0	x		Total	7.01	r	662696.48	4278985.33	118.7
Receptor Lot 6, Bldg 3, 1 1st floor		R6-3-1-1	71	-67.8	0	0	x		Total	1.52	r	662705.78	4279025.23	112.03
Receptor Lot 6, Bldg 3, 1 2nd floor		R6-3-1-2	71	-68.1	0	0	x		Total	4.27	r	662706.61	4279025.43	114.72
Receptor Lot 6, Bldg 3, 1 3rd floor		R6-3-1-3	70.7	-68.3	0	0	x		Total	7.01	r	662707.67	4279025.59	117.44
Receptor Lot 6, Bldg 4, 1 1st floor		R6-4-1-1	59.6	-79.3	0	0	x		Total	1.27	r	662784.35	4278997.21	111.55
Receptor Lot 6, Bldg 4, 1 2nd floor		R6-4-1-2	58.9	-78.9	0	0	x		Total	4.27	r	662783.47	4278998.14	114.55
Receptor Lot 6, Bldg 4, 1 3rd floor		R6-4-1-3	58.9	-78.4	0	0	x		Total	7.01	r	662782.03	4278999.64	117.28
Receptor Lot 6, Bldg 4, 2 2nd floor		R6-4-2-2	58.5	-76.5	0	0	x		Total	4.27	r	662772.12	4279006.87	114.49
Receptor Lot 6, Bldg 4, 2 3rd floor		R6-4-2-3	61.6	-75.6	0	0	x		Total	7.01	r	662771.55	4279006.4	117.24
Receptor Lot 6, Bldg 5, 1 1st floor		R6-5-1-1	65	-71.9	0	0	x		Total	1.52	r	662773.01	4279023.26	111.63
Receptor Lot 6, Bldg 5, 1 2nd floor		R6-5-1-2	68	-70.6	0	0	x		Total	4.27	r	662773.65	4279023.9	114.39
Receptor Lot 6, Bldg 5, 1 3rd floor		R6-5-1-3	68.2	-70.5	0	0	x		Total	7.01	r	662774.3	4279024.57	117.14
Receptor Lot 6, Bldg 5, 2 1st floor		R6-5-2-1	66.4	-72	0	0	x		Total	1.52	r	662783.29	4279024.2	111.73
Receptor Lot 6, Bldg 5, 2 2nd floor		R6-5-2-2	68.2	-71	0	0	x		Total	4.27	r	662782.39	4279025.35	114.47
Receptor Lot 6, Bldg 5, 2 3rd floor		R6-5-2-3	68.5	-70.8	0	0	x		Total	7.01	r	662781.37	4279026.54	117.2

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Folsom Corporate Center Apartments

Wall 1 of 2

Room Name: Lot 1, Building 1, 3rd Floor Facing South

Room Type : **Soft**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Highly Absorptive Room
Room Absorption (Sabins) :	108	108	108	108	135	135	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**76.0**	**CNEL**	59.3	64.8	67.3	71.3	71.3	65.3	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**76.0**	**CNEL**	59.3	64.8	67.3	71.3	71.3	65.3	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 46 Typical Exterior Wall	N	20	9	1	130.0	29	40	46	46	44	53
STC 35 1 3/8-inch Dual Insulating Window	Y	3	5	1	15.0	20	21	35	41	41	44
STC 35 1-inch Sliding Glass Door	Y	5	7	1	35.0	25	21	32	38	36	50
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **10** ft

Overall Area: **180** ft²

Volume: **1800** ft³

Number of Impacted Walls: **2**

Windows Open Interior Noise Level:	**56.7**	**CNEL**
Windows Closed Interior Noise Level:	**43.1**	**CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
59.3	64.8	67.3	71.3	71.3	65.3	: Exterior Wall Noise Exposure
8.5	8.5	8.6	8.6	8.6	8.6	: Transmission Loss
0.0	0.0	0.0	0.0	0.0	0.0	: Noise Reduction
20.3	20.3	20.3	20.3	21.3	21.3	: Absorption
39.0	44.5	47.0	51.0	50.0	44.0	: Noise Level

55.3 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
59.3	64.8	67.3	71.3	71.3	65.3	: Exterior Wall Noise Exposure
26.3	26.6	37.9	42.5	41.0	50.4	: Transmission Loss
3.7	4.1	15.4	20.0	18.4	27.8	: Noise Reduction
20.3	20.3	20.3	20.3	21.3	21.3	: Absorption
35.3	40.4	31.6	31.0	31.6	16.2	: Noise Level

42.7 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Folsom Corporate Center Apartments **Wall 2 of 2**

Room Name: Lot 1, Building 1, 3rd Floor Facing South

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**72.1**	**CNEL**	55.4	60.9	63.4	67.4	67.4	61.4	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**72.1**	**CNEL**	55.4	60.9	63.4	67.4	67.4	61.4	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 46 Typical Exterior Wall	N	10	9	1	80.0	29	40	46	46	44	53
STC 35 1 3/8-inch Dual Insulating Window	Y	2	5	1	10.0	20	21	35	41	41	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **90** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.4	60.9	63.4	67.4	67.4	61.4	: Exterior Wall Noise Exposure
12.4	12.5	12.5	12.6	12.5	12.6	: Transmission Loss
0.0	0.0	0.0	0.0	0.0	0.0	: Noise Reduction
20.3	20.3	20.3	20.3	21.3	21.3	: Absorption
35.1	40.6	43.1	47.1	46.1	40.1	: Noise Level
51.4	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.4	60.9	63.4	67.4	67.4	61.4	: Exterior Wall Noise Exposure
26.6	30.1	42.5	45.0	43.6	50.4	: Transmission Loss
7.0	10.5	23.0	25.5	24.0	30.9	: Noise Reduction
20.3	20.3	20.3	20.3	21.3	21.3	: Absorption
28.0	30.0	20.1	21.6	22.1	9.2	: Noise Level
33.1	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Folsom Corporate Center Apartments

Wall 1 of 2

Room Name: Lot 6, Building 5, 3rd Floor Facing North/East

Room Type : Soft	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Highly Absorptive Room
Room Absorption (Sabins) :	108	108	108	108	135	135	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	Traffic	**68.5**	**CNEL**	51.8	57.3	59.8	63.8	63.8	57.8	: Traffic Spectrum
Source 2:	<N/A>	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	<N/A>	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	<N/A>	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**68.5**	**CNEL**	51.8	57.3	59.8	63.8	63.8	57.8	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Wall, Standard: 5/8 Gyp, 2x4, Insul	N	20	9	1	130.0	16	31	36	42	39	43
STC 28 1/2-inch Dual Insulating Window	Y	3	5	1	15.0	23	23	22	32	43	37
STC 28 1/2-inch Sliding Glass Door	Y	5	7	1	35.0	23	23	22	32	43	37
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: 10 ft

Overall Area: 180 ft²

Volume: 1800 ft³

Number of Impacted Walls: 2

Windows Open Interior Noise Level:	**50.6**	**CNEL**
Windows Closed Interior Noise Level:	**40.3**	**CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
51.8	57.3	59.8	63.8	63.8	57.8	: Exterior Wall Noise Exposure
8.0	8.5	8.5	8.6	8.6	8.6	: Transmission Loss
0.0	0.0	0.0	0.0	0.0	0.0	: Noise Reduction
20.3	20.3	20.3	20.3	21.3	21.3	: Absorption
31.5	37.0	39.5	43.5	42.5	36.5	: Noise Level

47.8 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
51.8	57.3	59.8	63.8	63.8	57.8	: Exterior Wall Noise Exposure
17.1	27.0	27.2	36.8	39.7	40.6	: Transmission Loss
0.0	4.4	4.7	14.3	17.2	18.0	: Noise Reduction
20.3	20.3	20.3	20.3	21.3	21.3	: Absorption
31.5	32.5	34.8	29.2	25.3	18.5	: Noise Level

38.7 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Folsom Corporate Center Apartments **Wall 2 of 2**

Room Name: Lot 6, Building 5, 3rd Floor Facing North/East

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	Traffic	68.2	CNEL	51.5	57.0	59.5	63.5	63.5	57.5	: Traffic Spectrum
Source 2:	<N/A>	0.0	CNEL	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	<N/A>	0.0	CNEL	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	<N/A>	0.0	CNEL	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		68.2	CNEL	51.5	57.0	59.5	63.5	63.5	57.5	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Wall, Standard: 5/8 Gyp, 2x4, Insul	N	10	9	1	75.0	16	31	36	42	39	43
STC 28 1/2-inch Dual Insulating Window	Y	3	5	1	15.0	23	23	22	32	43	37
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: 90 ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
51.5	57.0	59.5	63.5	63.5	57.5	: Exterior Wall Noise Exposure
9.8	10.7	10.8	10.8	10.8	10.8	: Transmission Loss
0.0	0.0	0.0	0.0	0.0	0.0	: Noise Reduction
20.3	20.3	20.3	20.3	21.3	21.3	: Absorption
31.2	36.7	39.2	43.2	42.2	36.2	: Noise Level

47.5 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
51.5	57.0	59.5	63.5	63.5	57.5	: Exterior Wall Noise Exposure
16.6	28.2	29.1	38.2	39.4	41.4	: Transmission Loss
0.0	8.6	9.5	18.7	19.9	21.8	: Noise Reduction
20.3	20.3	20.3	20.3	21.3	21.3	: Absorption
31.2	28.0	29.7	24.5	22.3	14.4	: Noise Level

35.2 **CNEL** WINDOWS CLOSED

May 3, 2021

Mr. Rob Cole
Cole Partners
Transmitted via email: rcole@colepartners.com

Subject: Noise Monitoring and Analysis Conducted for the Folsom Corporate Center Lot 1 Apartments.

Dear Mr. Cole:

Per your request we have prepared this letter to document the noise measurements and analysis we conducted for the Folsom Corporate Center Lot 1 Apartments project.

Highway 50 Noise Survey

The noise meter was placed at the location shown below in Figure 1, right between the proposed pool area and nearest building façade to Highway 50, approximately 210 feet from the centerline of Highway 50. Photos of the noise monitoring site are also shown below as Figures 2 and 3.

Figure 1 – Noise Measurement Location

Figure 2 – Photo Looking South from Noise Measurement Location

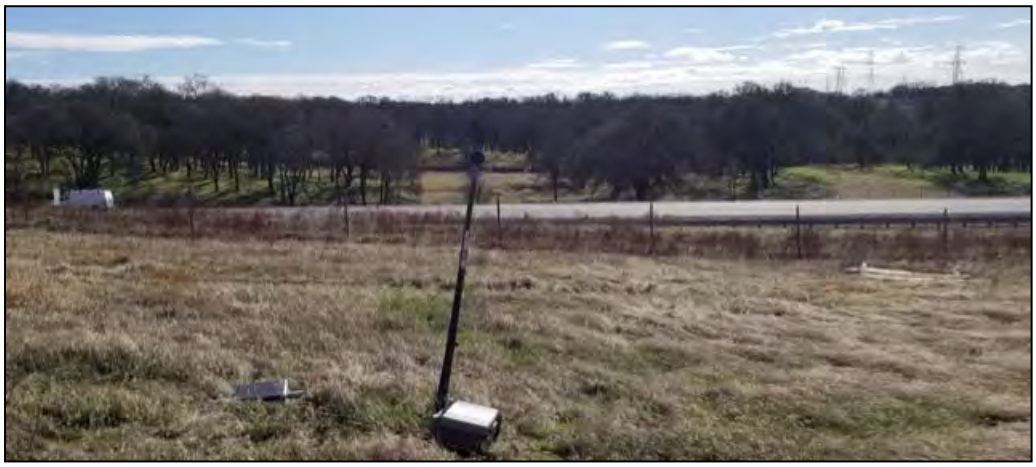


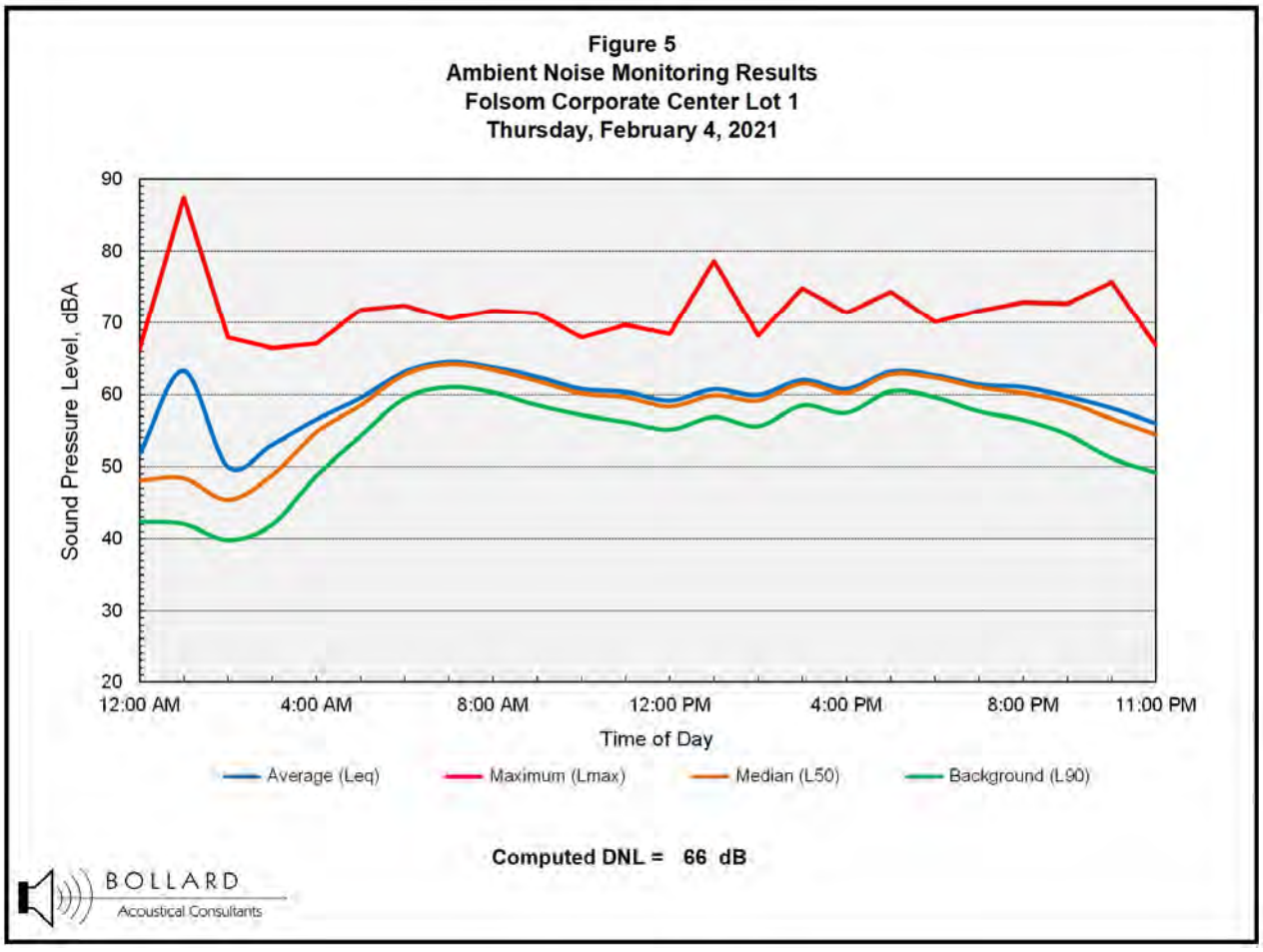
Figure 3 – Photo Looking East from Noise Measurement Location

Figure 4 – Photo Looking West from Noise Measurement Location

As indicated in the photos provided above, only the eastbound traffic lanes were visible directly south of the noise monitoring site due to shielding by the highway embankment (Figure 2). To the southeast (Figure 3), the highway was completely shielded from view by the intervening topo. And to the southwest (Figure 4), both lanes of traffic were partially screened from view by intervening topo. This shielding resulted in significantly lower highway traffic noise exposure than we were expecting.

The extent by which the pool area and nearest apartments will be similarly screened from view of Highway 50 following construction of your project will depend entirely on your ultimate site grading and how many stories the apartment buildings are.

Our noise survey results, which are provided below in Figure 5, indicate a measured day/night average level of 66 dB L_{dn}. However, that level reflects the considerable amount of existing topographic shielding of highway 50 that may not remain following site grading and construction, or which will be reduced at upper floor apartment facades.



The measured sound level of 66 dB L_{dn} is not as high as expected given the proximity of the measurement site to Highway 50. Based on forecasts of future traffic volumes contained in the Folsom South of 50 EIR, future traffic noise levels are predicted to be 2 dB L_{dn} higher than existing levels. So, if the existing topographic shielding were to remain, future noise levels at the measurement site would be approximately 68 dB L_{dn}.

Future Highway 50 Exterior Noise Levels at Outdoor Activity Area (Pool)

The City of Folsom exterior noise standard for outdoor activity areas of multi-family developments (the pool area), is 65 dB L_{dn}. But where it is not possible to reduce noise at outdoor activity areas to 65 dB, L_{dn} or less using a practical application of the best-available noise reduction measures, an exterior level of up to 70 dB, L_{dn}/CNEL may be allowed.

An exterior noise level of 65 dB L_{dn} could likely be achieved with a clear/glass barrier along the south side of the pool area while still preserving the view. The effectiveness of the barrier will depend on how much site grading is involved and the ultimate view of the highway from the pool area, but it's likely very feasible to mitigate to a state of compliance with the 65 dB L_{dn} standard at the pool area through practical mitigation.

Future Highway 50 Interior Noise Levels within Proposed Apartments

A level of 68 dB L_{dn} would likely be reduced to a state of compliance with the 45 dB L_{dn} interior noise standard inside the first-floor apartments with standard construction (i.e., no window upgrades). This assumes that the noise exposure of those first floor façades would be comparable to that of the noise monitoring site location. If the exposure of those first-floor facades is appreciably different than that of the noise monitoring site, noise levels would vary relative to the predicted future exposure of 68 dB L_{dn}.

The upper floors of the apartments would undoubtedly have greater exposure to Highway 50 traffic noise due to their elevated position relative to the highway. BAC utilized the FHWA traffic noise prediction model with future traffic volumes to predict a level of 76 dB L_{dn} at unshielded locations 210 feet from the Highway 50 centerline. It is likely that some shielding of the highway would still remain following site grading, even at elevated upper floor positions. But for a worst-case assessment, a future exterior level of 76 dB L_{dn} was assumed at the nearest building facades. Such a level would virtually ensure that windows on the side of the apartment buildings with direct Highway 50 noise exposure would likely always remain closed.

An exterior level of 76 L_{dn} (again, worst case assuming full visibility of the highway), could still be mitigated to 45 dB L_{dn} inside with window upgrades (approximately STC 35, but a more detailed analysis of proposed site grading would be required to provide specific window upgrade recommendations).

Summary

To summarize, the existing traffic noise level BAC measured (66 dB L_{dn}), was influenced by existing topographic shielding. Future noise exposure at the site will be higher, particularly at elevated facades and if grading results in elimination of some of the existing topographic shielding. Regardless, future noise levels at the site can be mitigated to a state of compliance with the City of Folsom GP noise standards with barriers at the pool area and window upgrades.

Exterior exposure at the facades of the nearest apartments to Highway 50 will likely be in the undesirable range, particularly at upper floors, which will require occupants to keep windows closed (likely around the clock).

This concludes our analysis of the noise data collected for the Folsom Lot 1 Corporate Center Apartments. Please let us know if you have any questions about the letter. I can be reached at 916-663-0500 or paulb@bacnoise.com.

Sincerely,

Bollard Acoustical Consultants, Inc.

Paul Bollard
President

Appendix A
Acoustical Terminology

Acoustics The science of sound.

Ambient Noise The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.

Attenuation The reduction of an acoustic signal.

A-Weighting A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.

Decibel or dB Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.

CNEL Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.

Frequency The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.

IIC Impact Insulation Class (IIC): A single-number representation of a floor/ceiling partition's impact generated noise insulation performance. The field-measured version of this number is the FIIC.

L_{dn} Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.

L_{eq} Equivalent or energy-averaged sound level.

L_{max} The highest root-mean-square (RMS) sound level measured over a given period of time.

Loudness A subjective term for the sensation of the magnitude of sound.

Masking The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.

Noise Unwanted sound.

Peak Noise The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.

RT_{60} The time it takes reverberant sound to decay by 60 dB once the source has been removed.

STC Sound Transmission Class (STC): A single-number representation of a partition's noise insulation performance. This number is based on laboratory-measured, 16-band (1/3-octave) transmission loss (TL) data of the subject partition. The field-measured version of this number is the FSTC.