APPENDIX E Noise Modeling Results and Vibration Calculations

Roadway Construction Noise Model (RCNM), Version 1.1

Repoi	ct date:
Case	Description:

02/21/2020 PG&E R-687 HDD

**** Receptor #1 ****

		Bas	elines (dBA)
Description	Land Use	Daytime	Evening	Night
Nearest residence	Commercial	55.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Horizontal Boring Hydr. Jack	No	25		82.0	1200.0	0.0
Front End Loader	No	40		79.1	1200.0	0.0
Dozer	No	40		81.7	1100.0	0.0
Excavator	No	40		80.7	1200.0	0.0
Pumps	No	50		80.9	1200.0	0.0
Boring Jack Power Unit	No	50		83.0	1100.0	0.0
Vacuum Excavator (Vac-truck)	No	40		85.3	1200.0	0.0

Results

			Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	Calculat	ed (dBA)	Daj	У	Even	ing	Nig	ht	Day	7	Even	ing	Nig	 ht
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Horizontal Boring Hydr. Jack	54.4	48.4	 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	 N/A	N/A	N/A
Front End Loader	51.5	47.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	54.8	50.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	53.1	49.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	53.3	50.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Boring Jack Power Unit	56.2	53.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vacuum Excavator (Vac-truck)	57.7	53.7	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	57.7	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM), Version 1.1

Report date:	02/21/2020						
Case Description:	PG&E R-786 Pipe removal						

**** Receptor #1 ****

		Bas	elines (dBA	.)
Description	Land Use	Daytime	Evening	Night
Nearest residence	Commercial	55.0	45.0	45.0

			Equipment					
			Spec	Actual	Receptor	Estimated		
	Impact	Usage	Lmax	Lmax	Distance	Shielding		
Description	Device	(웅)	(dBA)	(dBA)	(feet)	(dBA)		
Excavator	No	40		80.7	200.0	0.0		
Excavator	No	40		80.7	400.0	0.0		
Front End Loader	No	40		79.1	250.0	0.0		
Front End Loader	No	40		79.1	350.0	0.0		
Pickup Truck	No	40		75.0	150.0	0.0		

Results

				Noise Limits (dBA)						Nois	e Limit Ex	kceedan	ce (dBA)	
	Calculat	ed (dBA)	Day		Eveni	.ng	Nigł	it	Day	/	Even:	ing	Nigł	it
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	68.7	64.7	N/A	N/A	N/A	N/A	N/A	N/A	 N/A	N/A	N/A	N/A	N/A	N/A
Excavator	62.6	58.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	65.1	61.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	65.5	61.5	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	68.7	68.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Caltrans Transportation and Construction Vibration Guidance Manual

Project Name:	PG&E R-687 L-215 San Joaquin River Crossing Replacement
Scenario:	HDD operations
Receptor:	Nearest residence (Prune Ave/Paradise Ave intersection)

Select Input Values

Source Levels (PPV)						
Vibratory roller	0.210					
Large bulldozer	0.089					
Caisson drilling	0.089					
Loaded trucks	0.076					
Jackhammer	0.035					
Small bulldozer	0.003					
Crack & seat operations	2.4					

Soil Material Values

Weak, soft, loose soil	1.4
Competent soils	1.3
Hard compacted soils	1.1
Hard competent bedrock	1.0

Project Data

Source Level	0.089
Soil material (n):	1.3
Distance to receptor(feet)	1100

Results	
PPV at receptor	0.00065

Damage Criteria (Lv)

Human: continous, frequent intermittent sources	
Barely perceptible	0.01
Distinctly perceptible	0.04
Strongly perceptible	0.1
Severe	0.4

Structures: continous, frequent intermittent sources	
Fragile buildings	0.1
Historic & some old buildings	0.25
Older residential	0.3
New residential	0.5
Modern commecial & industrial	0.5

Caltrans Transportation and Construction Vibration Guidance Manual

Project Name:	PG&E R-687 L-215 San Joaquin River Crossing Replacement
Scenario:	Pipe removal at West Landing Segment
Receptor:	Nearest residence (near west ACOE levee)

Select Input Values

-		
Source Levels (PPV)		
Vibratory roller	0.210	
Large bulldozer	0.089	
Caisson drilling	0.089	
Loaded trucks	0.076	
Jackhammer	0.035	
Small bulldozer	0.003	
Crack & seat operations	2.4	

Soil Material Values

Weak, soft, loose soil	1.4
Competent soils	1.3
Hard compacted soils	1.1
Hard competent bedrock	1.0

Project Data

Source Level	0.089
Soil material (n):	1.3
Distance to receptor(feet)	200

Results

PPV at receptor	0.00596
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Damage Criteria (Lv)

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Human: continous, frequent intermittent sources	
Barely perceptible	0.01
Distinctly perceptible	0.04
Strongly perceptible	0.1
Severe	0.4

Structures: continous, frequent intermittent sourcesFragile buildings0.1Historic & some old buildings0.25Older residential0.3New residential0.5Modern commecial & industrial0.5