Attachment N.3C Vibration Propagation Measurement Results

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Attachment N.3C Vibration Propagation Measurement Results

Site V-A: Alley on 41st Avenue, North of Alaska Way, West Seattle

Table N.3C-1. Line Source Transfer Mobility (L.S.T.M.) Coefficients for Site V-A

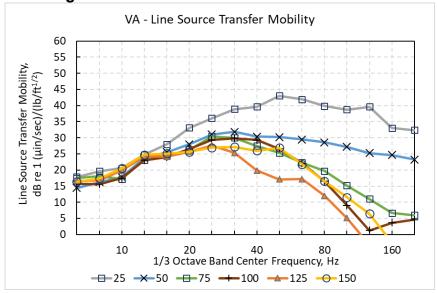
Coeff.	6.3 Hertz (Hz)	8 Hz	10 Hz	12.5 Hz	16 Hz			31.5 Hz		50 Hz		80 Hz	100 Hz	125 Hz	160 Hz	200 Hz
Α	18.2	22.7	19.3	24.6	33.4	44.9	51.1	59.8	66.0	75.6	79.9	86.6	96.7	112.6	114.5	125.5
В	-0.9	-2.9	-0.2	-0.4	-4.4	-9.3	-11.1	-15.6	-19.9	-25.3	-28.8	-34.4	-42.1	-53.0	-56.5	-63.7
С	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

 $L.S.T.M. = A + B * \log(dist) + C * \log(dist)^{2}$

Coeff. = coefficient

Hz = hertz

Figure N.3C-1. Measured L.S.T.M. at Site V-A

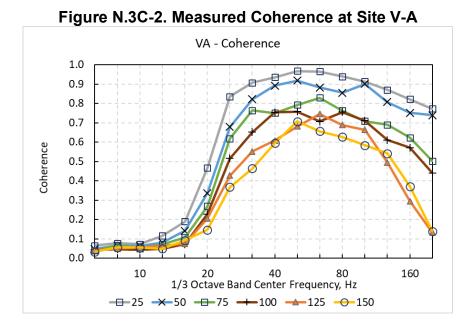


dB = decibels μin = micro inch

sec = seconds

lb = pounds

ft = feet



Site V-2: 39th Avenue Southwest at Southwest Genesee Street, **West Seattle**

Table N.3C-2, L.S.T.M. Coefficients for Site V-2

Coeff.	6.3 Hz	8 Hz		12.5 Hz				31.5 Hz							160 Hz	200 Hz
Α	45.2	68.1	66.7	57.7	5.5	55.5	16.4	57.7	85.4	109.7	45.9	22.9	57.5	71.3	99.0	99.2
В	-21.8	-33.3	-30.7	-27.6	-4.6	-26.8	-6.4	-23.1	-35.5	-45.9	-18.7	-6.7	-21.8	-30.2	-44.2	-44.6
С	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure N.3C-3. Measured L.S.T.M. at Site V-2

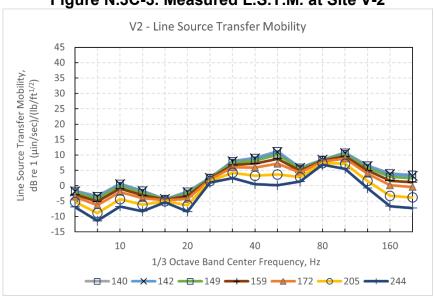
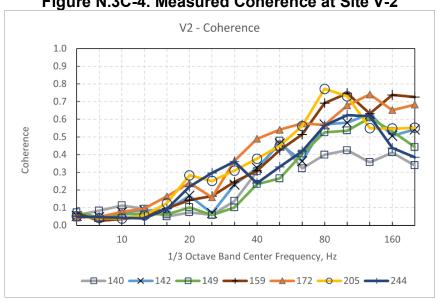


Figure N.3C-4. Measured Coherence at Site V-2



Site V-3: Alley at Southwest Genesee Street and 35th Avenue Southwest

Table N.3C-3, L.S.T.M. Coefficients for Site V-3

Coeff.	6.3 Hz	8 Hz		12.5 Hz												
Α	16.6	13.4	30.9	43.6	31.1	40.3	35.9	39.6	36.6	79.2	65.0	79.8	90.3	90.6	117.2	105.4
В	-9.8	-7.4	-15.3	-20.4	-15.2	-18.8	-16.7	-16.7	-13.4	-32.4	-26.4	-33.3	-38.1	-38.7	-52.6	-47.5
С	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure N.3C-5. Measured L.S.T.M. at Site V-3

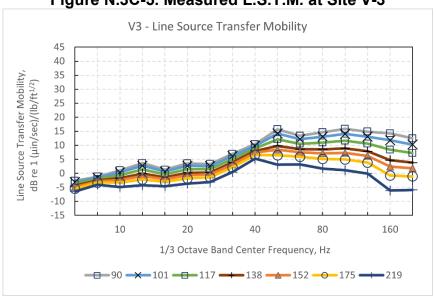
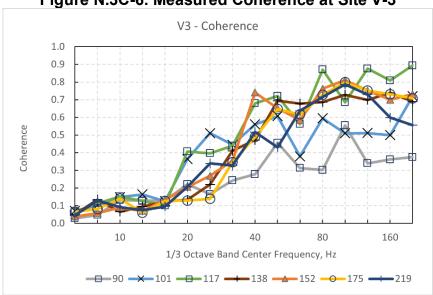


Figure N.3C-6. Measured Coherence at Site V-3



Site V-B: Southwest Genesee Street at 32nd Avenue, West Seattle

Table N.3C-4. L.S.T.M. Coefficients for Site V-B

Coeff.	6.3 Hz							31.5 Hz								200 Hz
Α	20.6	22.1	22.8	27.9	30.6	36.9	48.9	61.5	63.2	67.9	63.6	81.5	85.7	71.4	67.1	74.4
В	-1.0	-3.0	-3.5	-4.3	-4.7	-6.9	-11.3	-16.0	-16.1	-19.7	-19.0	-30.2	-35.3	-30.8	-30.8	-37.8
С	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure N.3C-7. Measured L.S.T.M at Site V-B

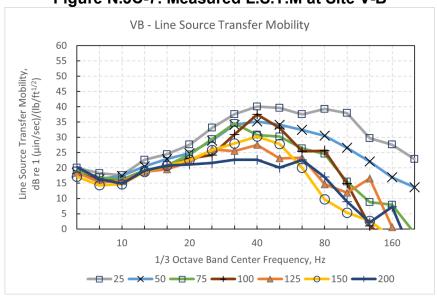
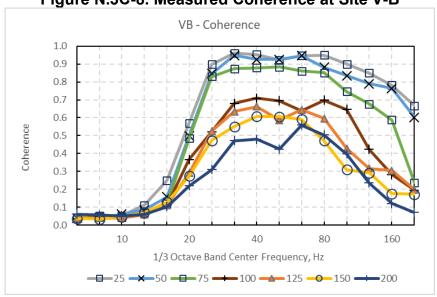


Figure N.3C-8. Measured Coherence at Site V-B



Site V-C: Southwest Dakota Street at 25th Avenue Southwest, West Seattle

Table N.3C-5, L.S.T.M. Coefficients for Site V-C

Coeff.								31.5 Hz		50 Hz		80 Hz				
Α	26.1	29.2	31.2	35.4	37.8	52.2	58.0	60.9	58.7	68.5	75.1	91.4	77.2	60.2	40.0	23.8
В	-3.4	-4.0	-2.9	-3.5	-5.0	-11.4	-13.2	-15.0	-14.2	-19.1	-24.3	-36.0	-32.4	-27.6	-19.4	-13.8
С	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure N.3C-9. Measured L.S.T.M at Site V-C

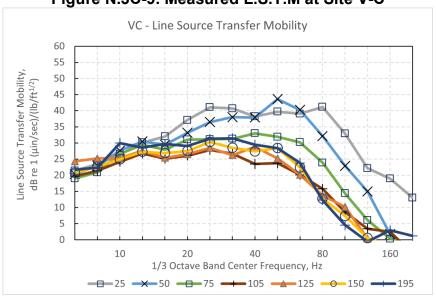
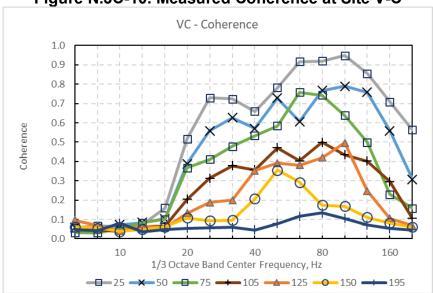


Figure N.3C-10. Measured Coherence at Site V-C



Site V-D: Bike Path at 22nd Avenue Southwest at West Seattle Bridge, West Seattle

Table N.3C-6. L.S.T.M. Coefficients for Site V-D

Coeff.	6.3 Hz							31.5 Hz						125 Hz		200 Hz
Α	26.3	32.0	36.3	37.8	40.5	47.5	53.5	54.8	45.2	52.0	58.6	50.8	56.2	42.3	30.8	22.7
В	-0.4	-1.4	-3.0	-3.4	-5.9	-10.7	-14.2	-14.9	-10.5	-14.8	-19.8	-18.4	-23.7	-18.6	-14.4	-11.2
С	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure N.3C-11. Measured L.S.T.M. at Site V-D

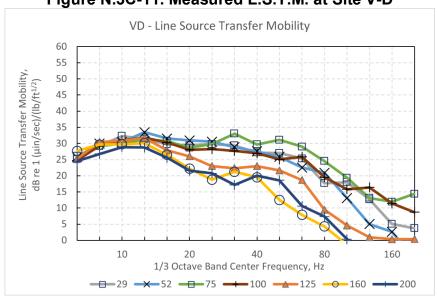
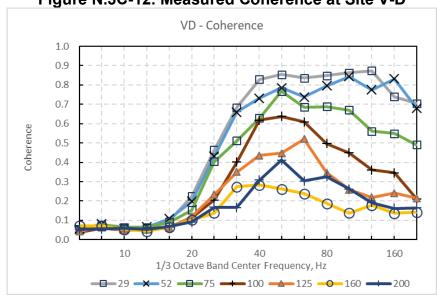


Figure N.3C-12. Measured Coherence at Site V-D



Site V-E: Harbor Island Machine Works, 3431 11th Avenue Southwest

Table N.3C-7. L.S.T.M. Coefficients for Site V-E

Coeff.		8 Hz	-	12.5 Hz	16 Hz		_	31.5 Hz			63 Hz	80 Hz		125 Hz	160 Hz	200 Hz
Α	41.3	46.3	50.2	48.2	53.9	59.6	66.9	71.6	77.9	115.0	114.9	117.5	80.8	79.2	80.2	49.1
В	0.0	-3.3	-6.4	-6.0	-10.4	-13.5	-18.3	-21.7	-25.5	-44.7	-47.6	-53.2	-36.0	-38.8	-42.3	-25.1
С	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure N.3C-13. Measured L.S.T.M. at Site V-E

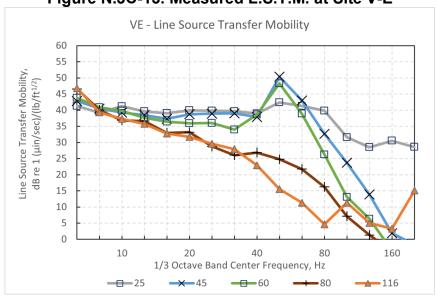


Figure N.3C-14. Measured Coherence at Site V-E

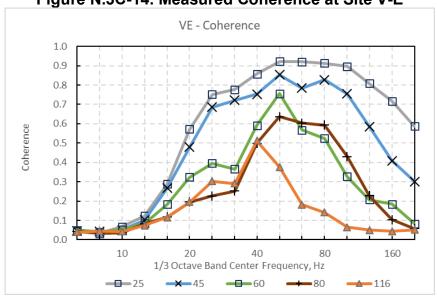


Table N.3C-23. L.S.T.M. Coefficients for Surface West Seattle

Coeff.	6.3 Hz			12.5 Hz												
Α	23.5	28.0	31.5	33.9	37.0	47.5	53.8	59.8	60.2	67.8	70.9	83.4	84.7	85.8	81.1	86.8
В	-1.0	-1.9	-2.8	-3.1	-5.3	-10.4	-12.6	-15.4	-15.7	-20.1	-23.3	-32.2	-35.9	-38.7	-38.1	-42.4
С	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

$$LSTM = A + B * \log(dist) + C * \log(dist)^{2}$$

Note: Applied to sensitive receivers near elevated, at-grade, or retained-cut track in the Duwamish, Delridge, and West Seattle Junction segments.

Table N.3C-24, L.S.T.M. Coefficients for Borehole West Seattle

Coeff.	6.3 Hz			12.5 Hz												
Α	34.8	37.8	53.0	49.4	21.7	46.1	23.3	52.2	63.1	96.8	57.9	49.9	69.7	81.8	108.2	102.2
В	-17.5	-18.6	-24.7	-23.4	-11.3	-21.8	-10.1	-21.3	-25.1	-40.1	-23.5	-18.9	-27.7	-34.8	-48.4	-46.0
С	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

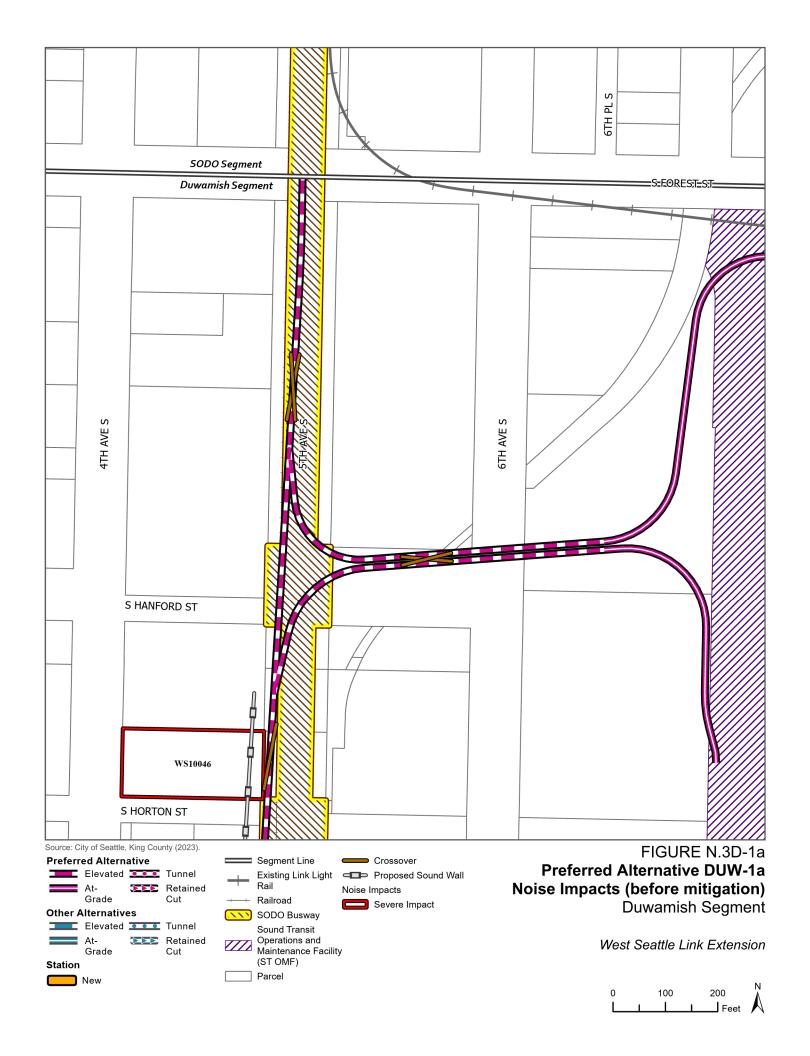
$$L.S.T.M. = A + B * \log(dist) + C * \log(dist)^{2}$$

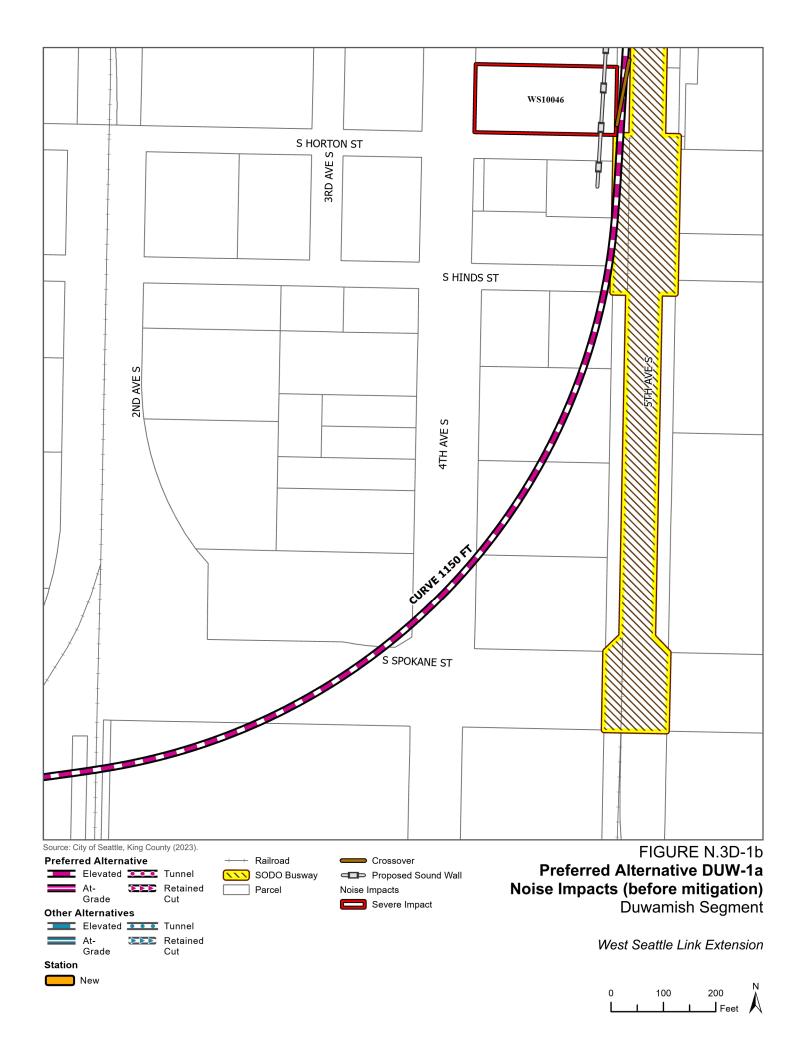
Note: Applied to sensitive receivers near tunnel track in the Duwamish, Delridge, and West Seattle Junction segments.

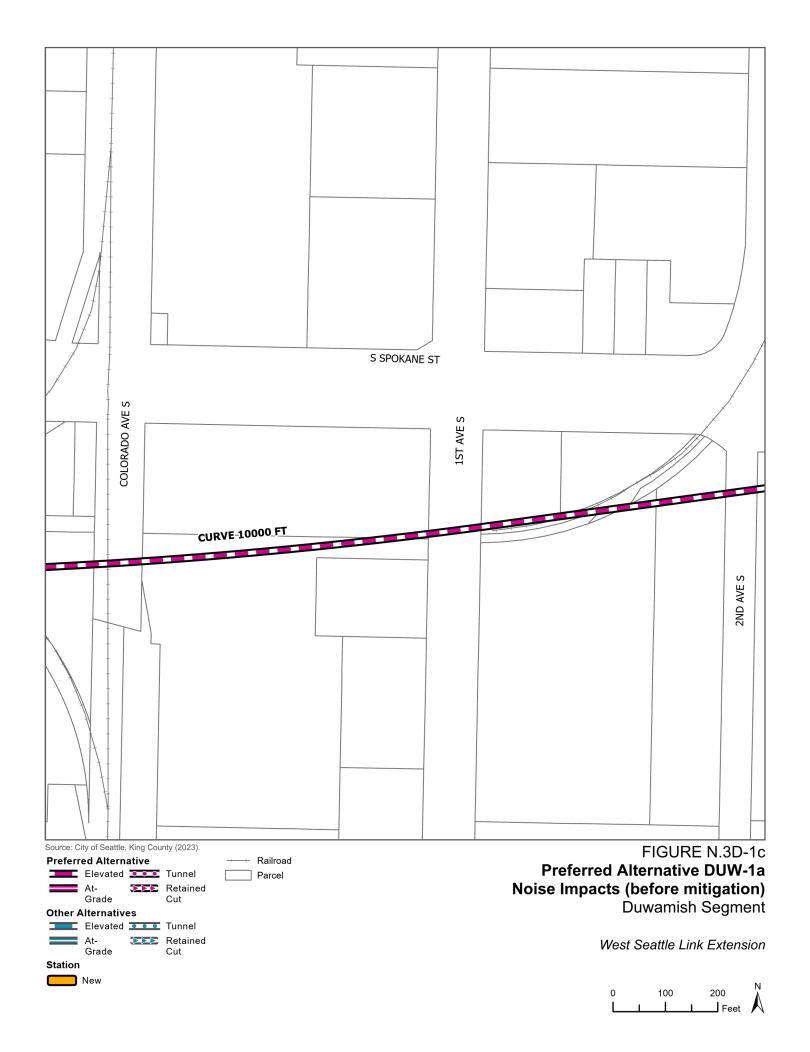
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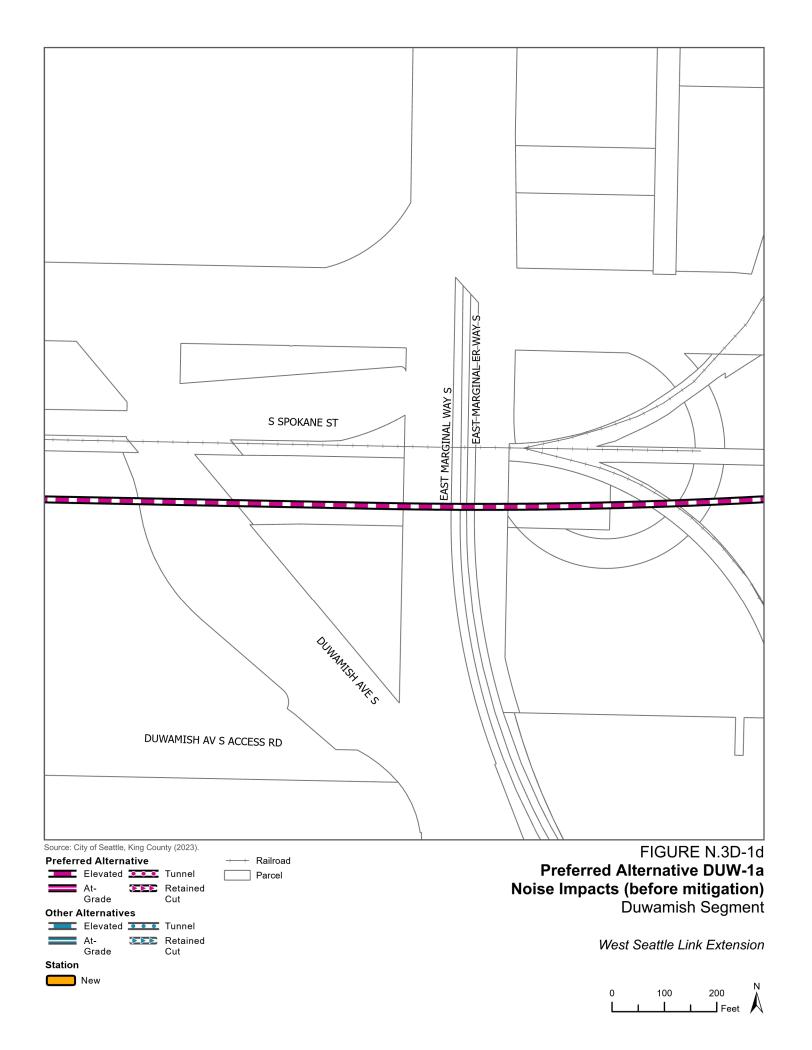


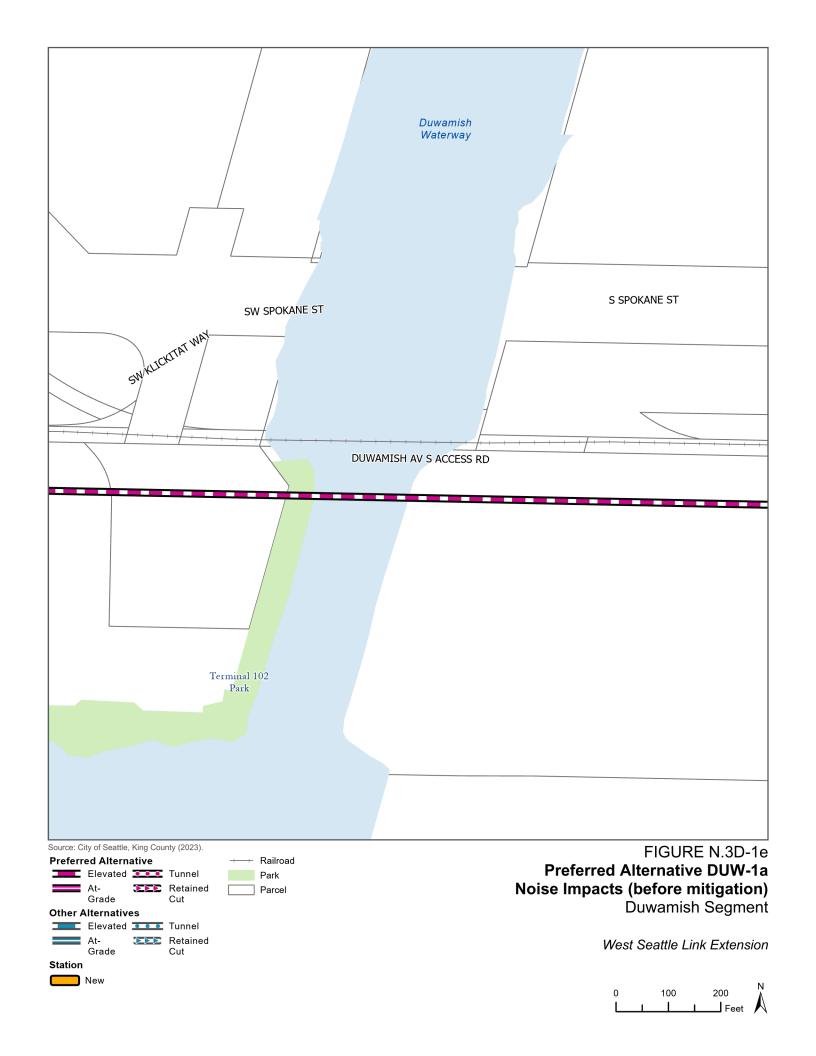
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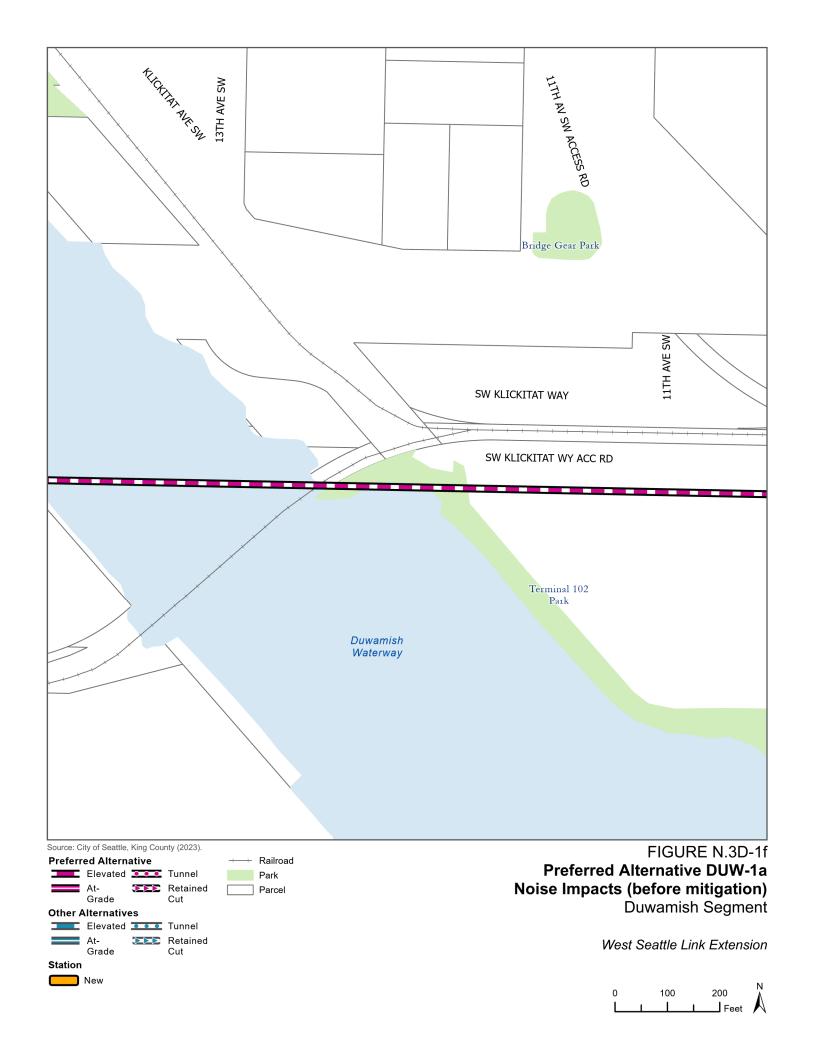


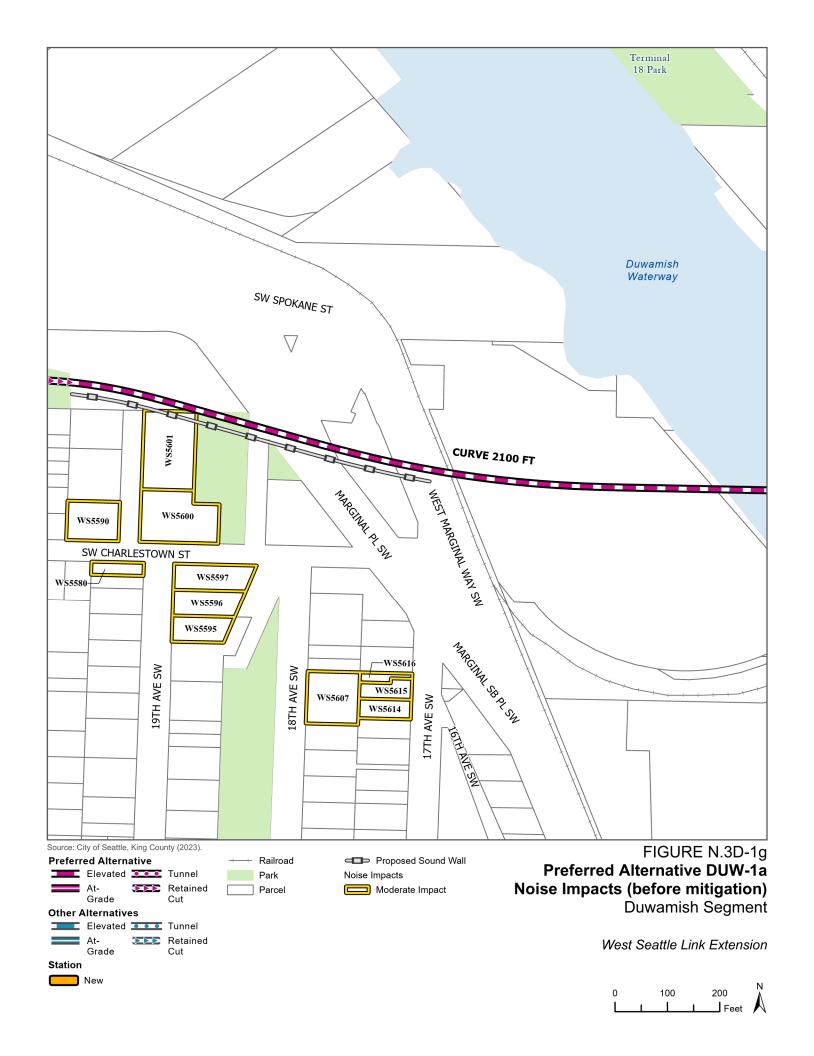


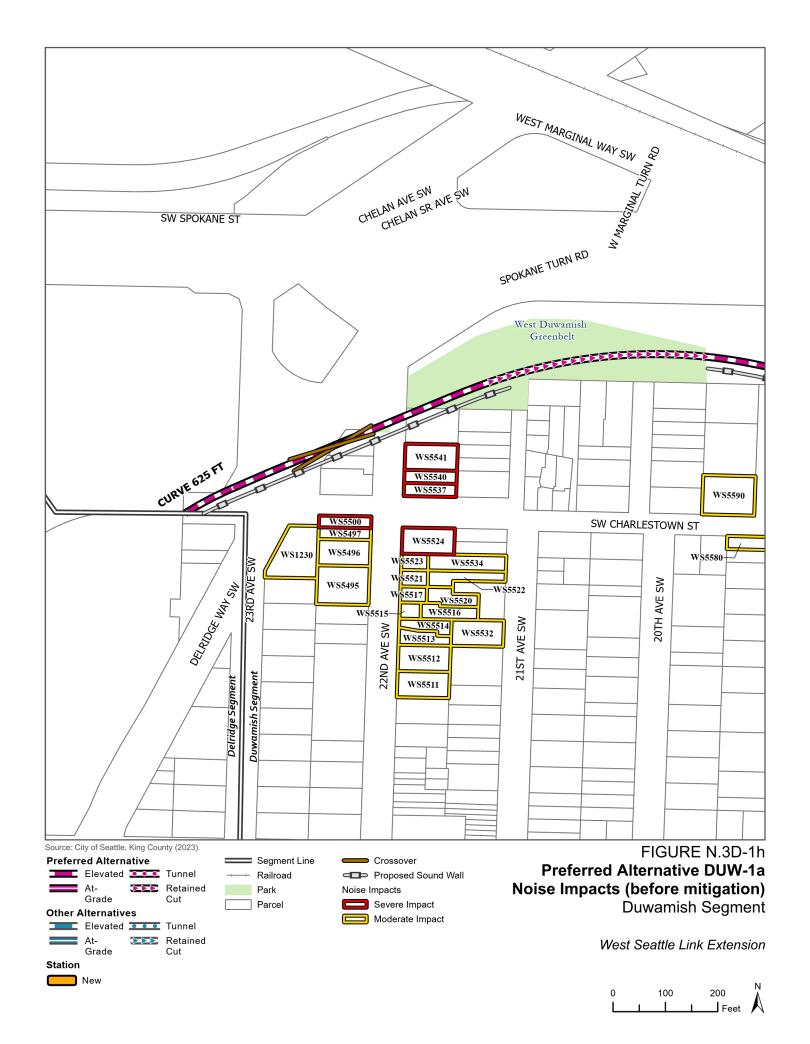


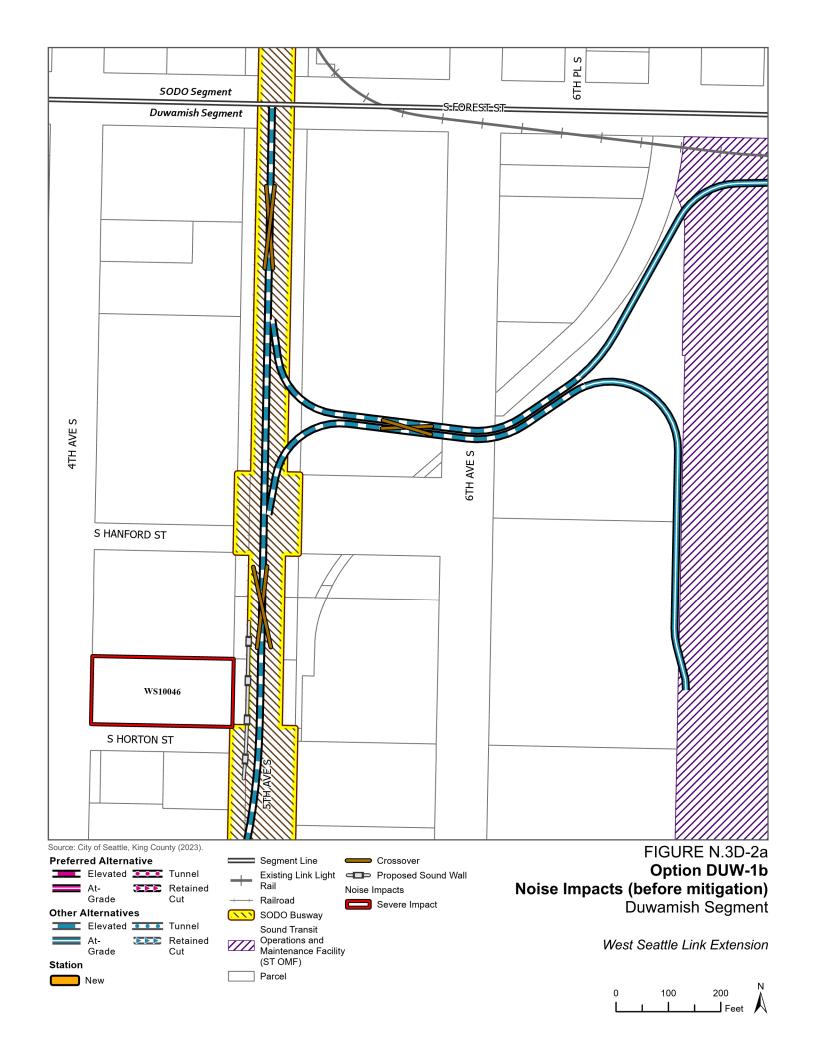


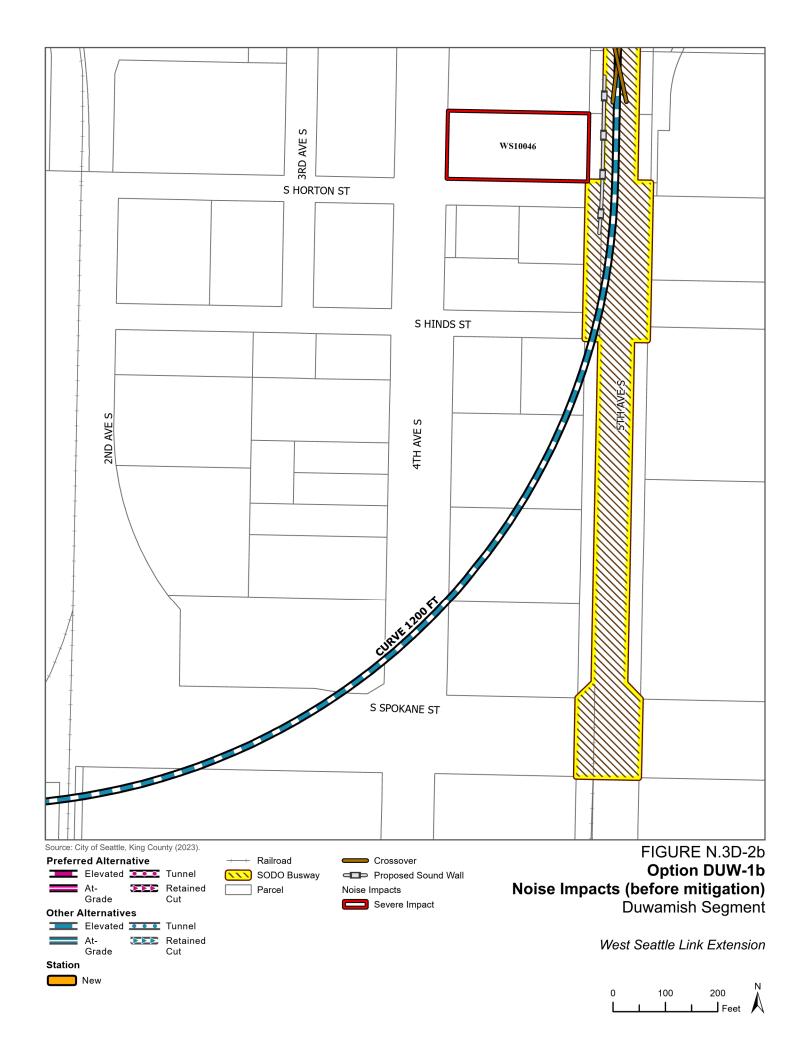


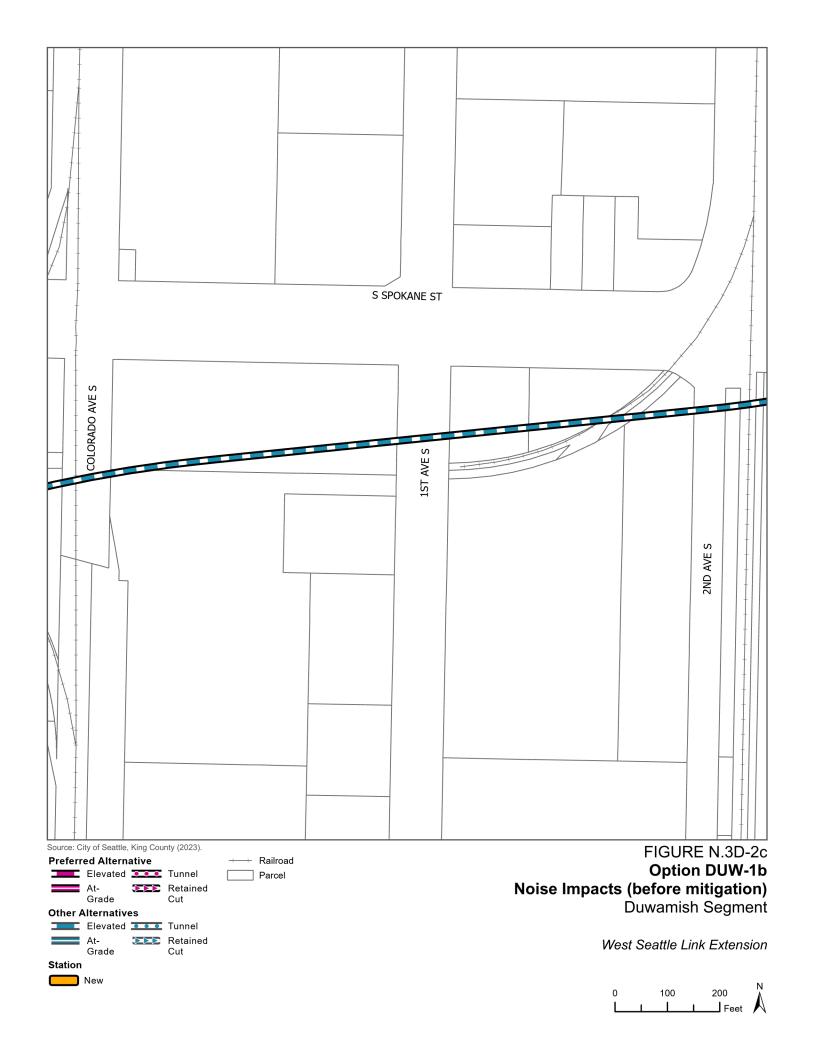


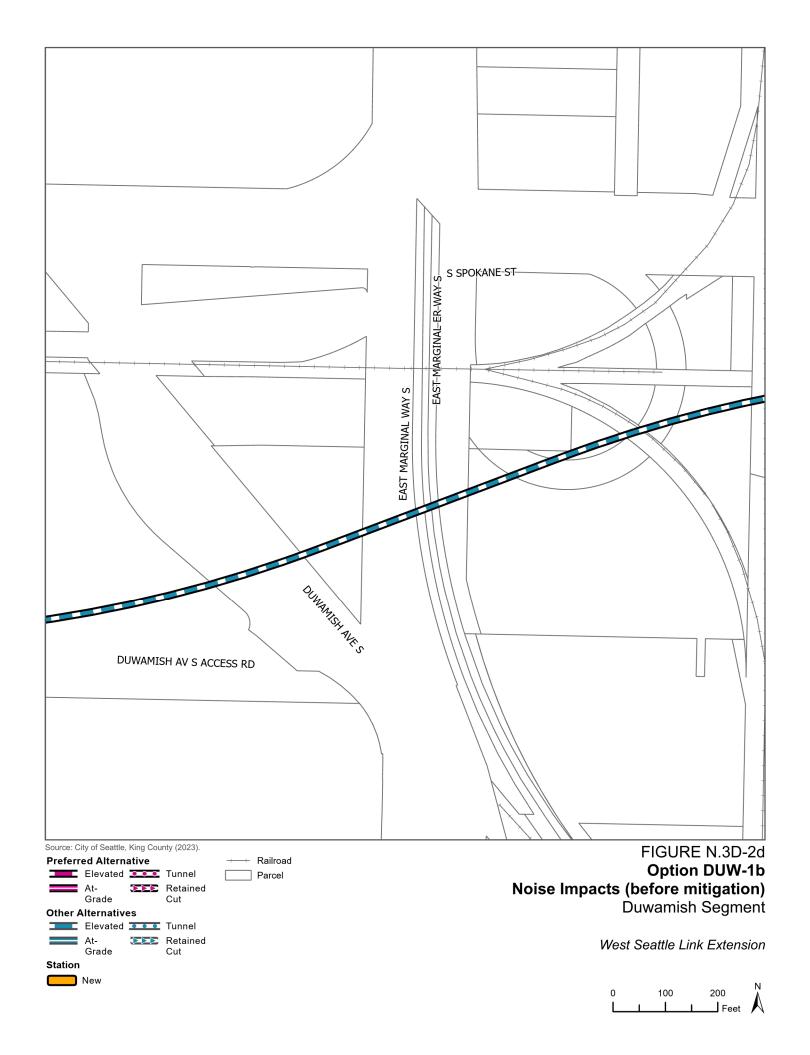


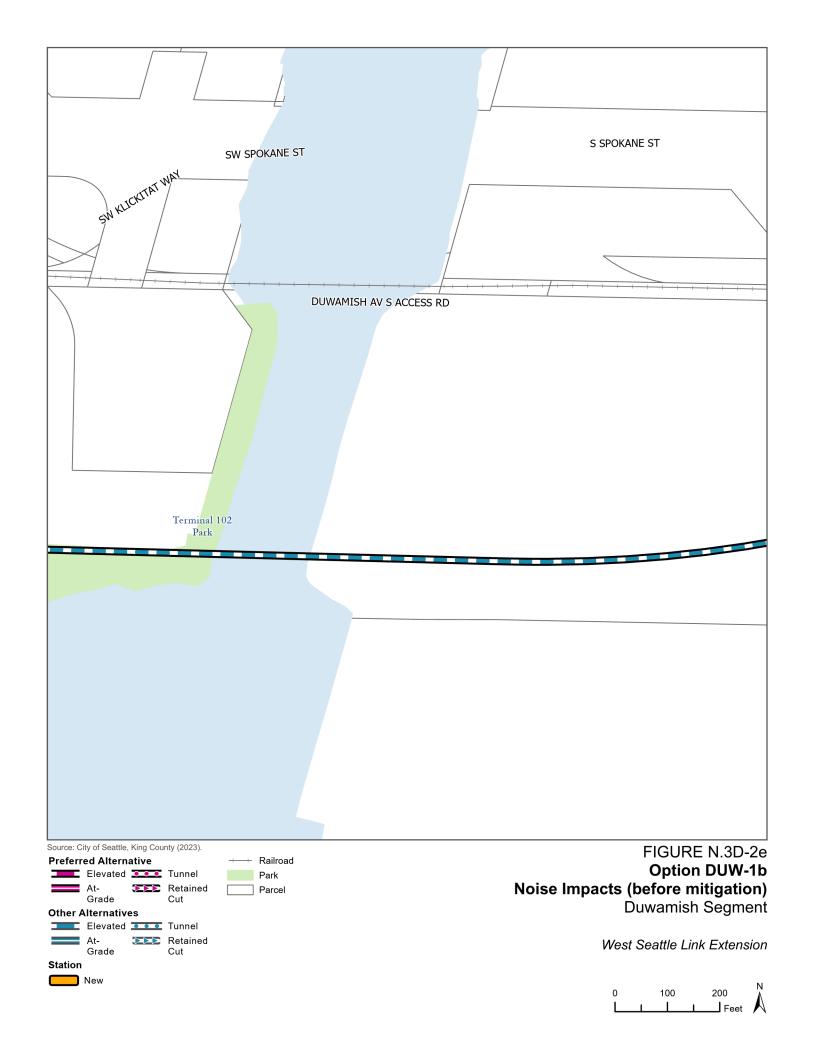


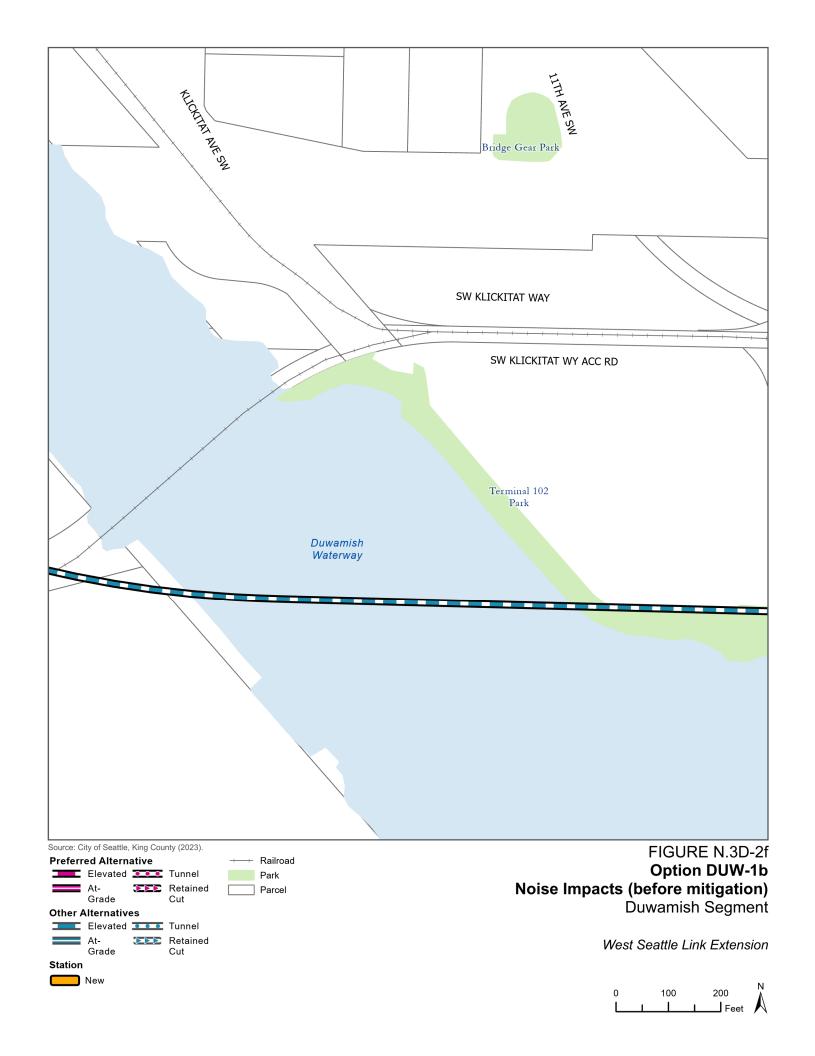


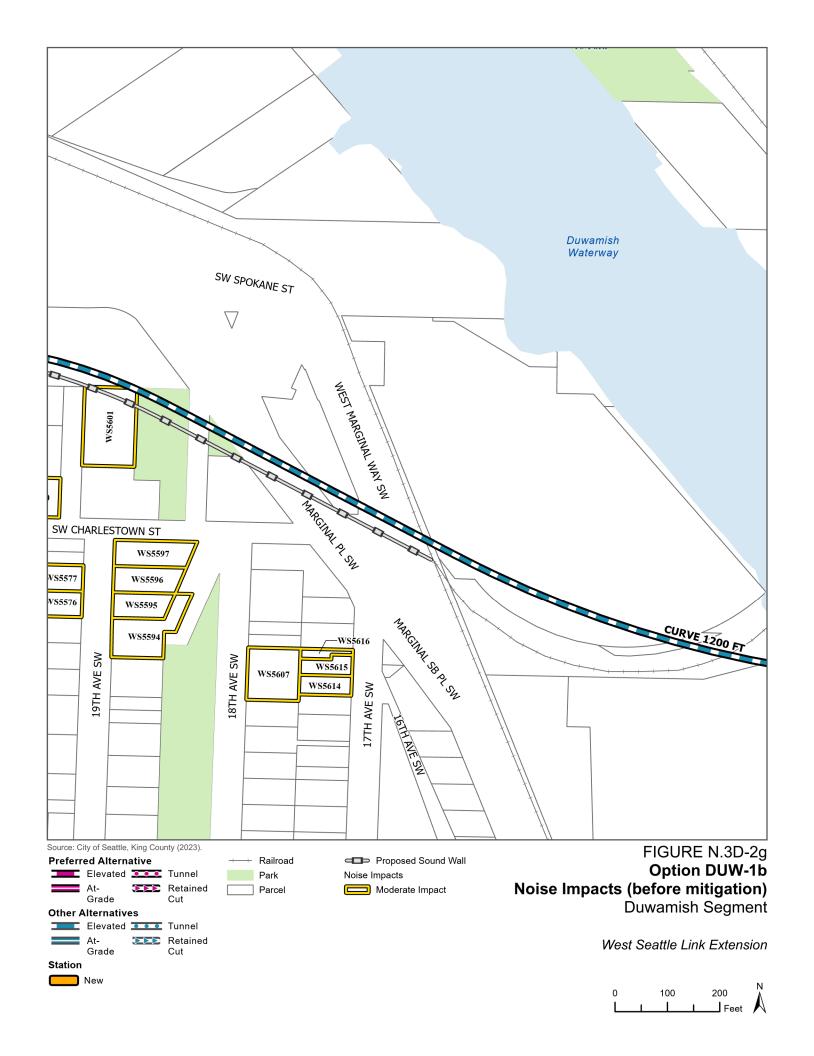


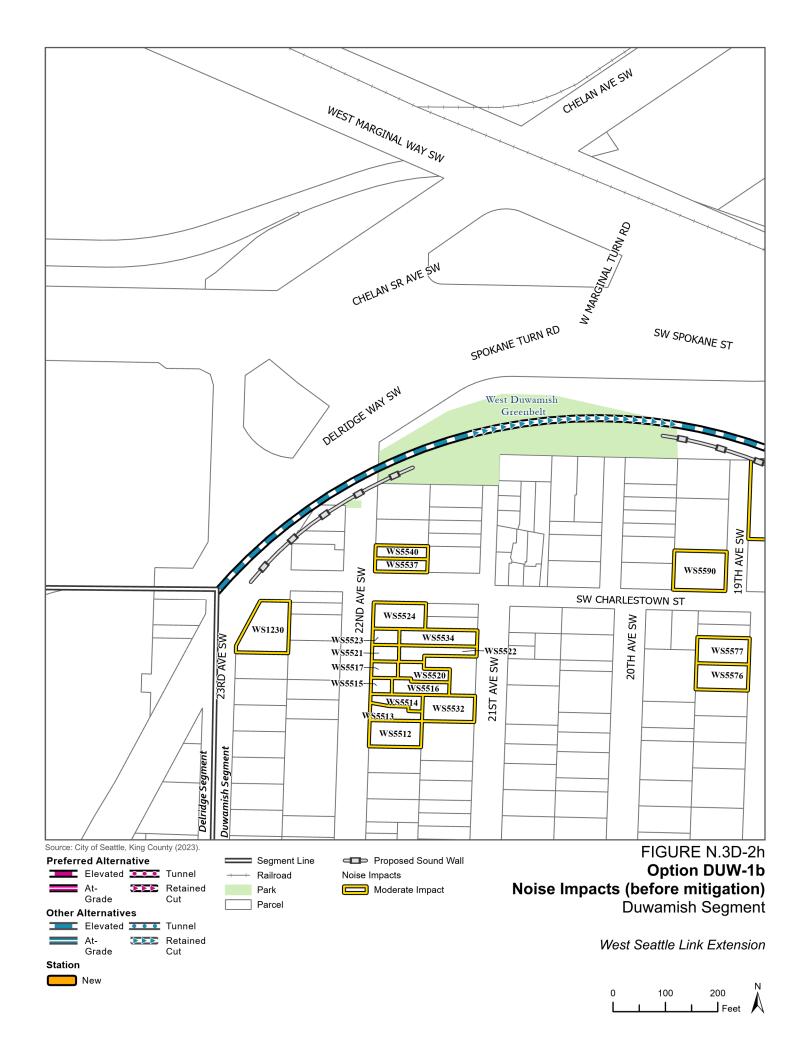


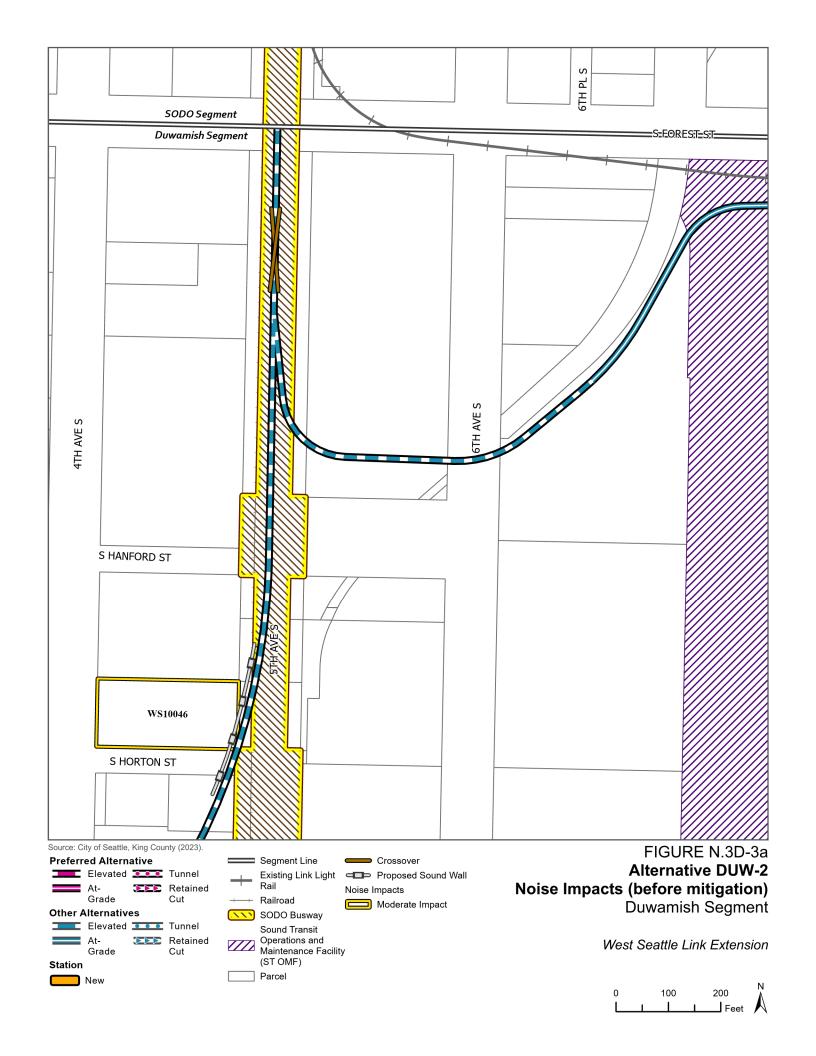


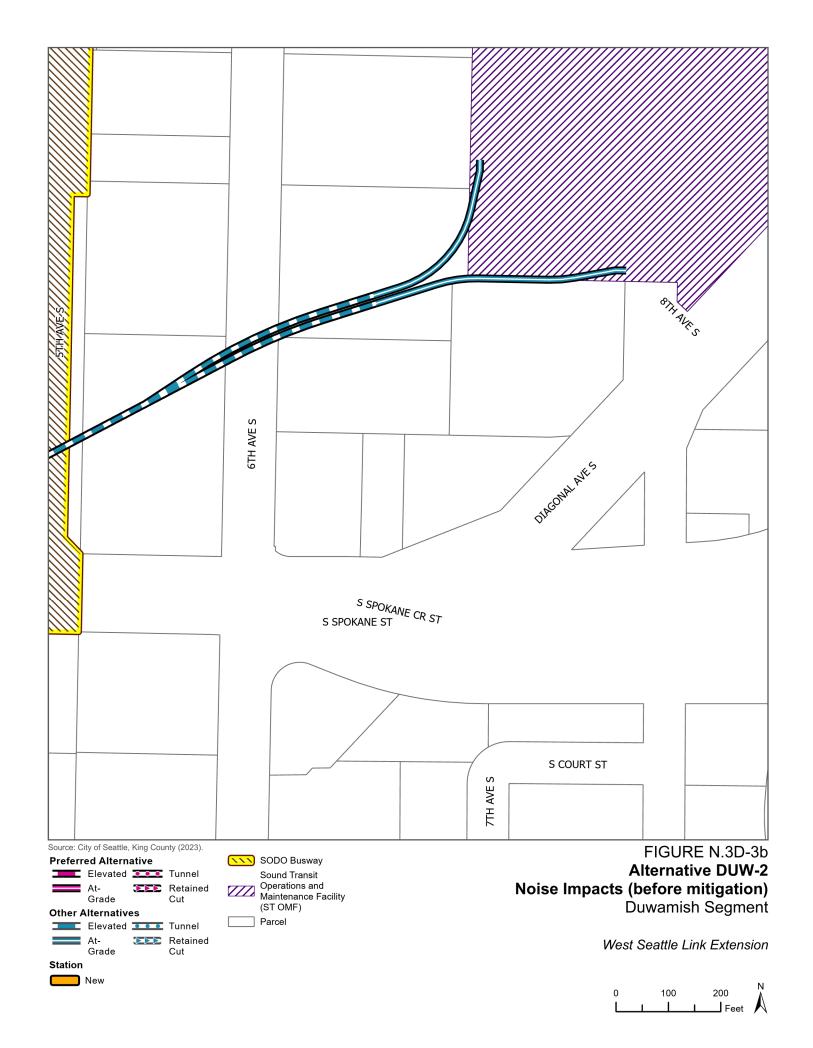


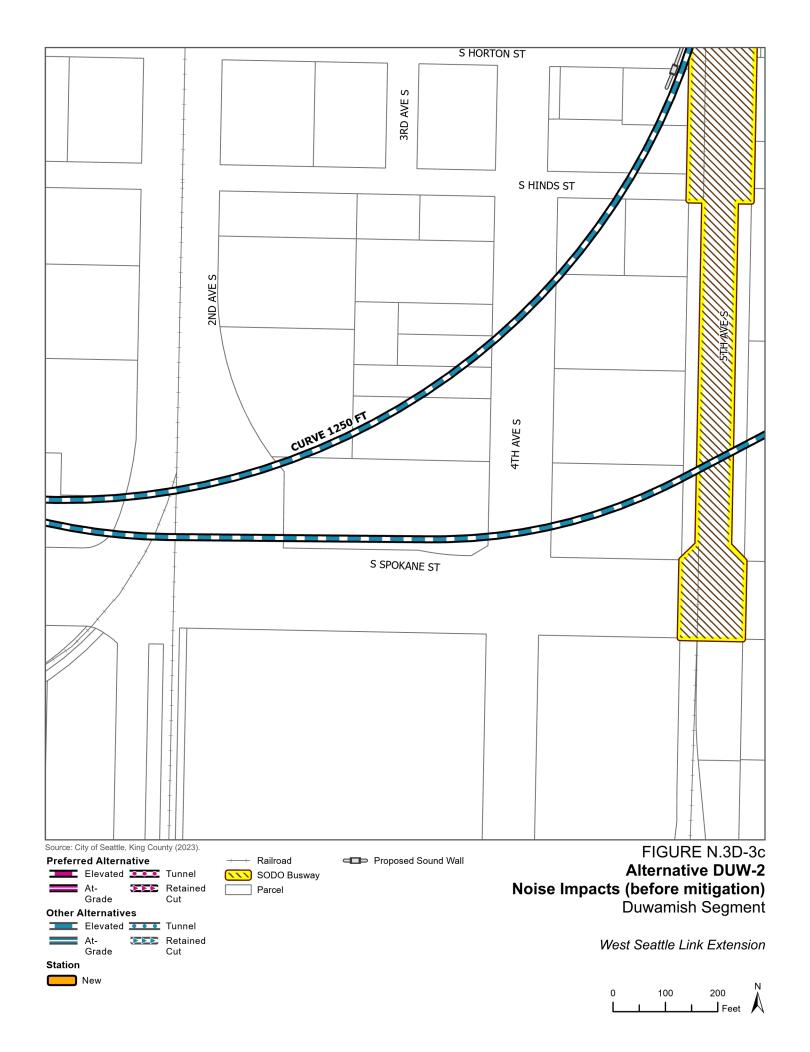


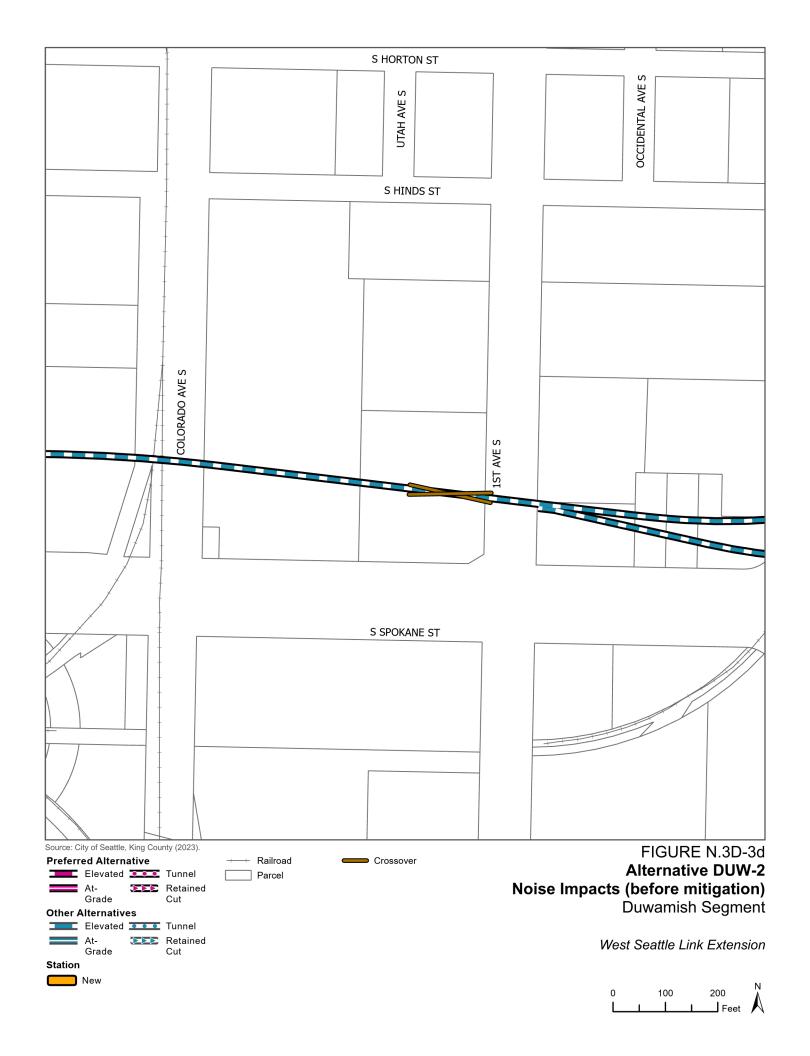


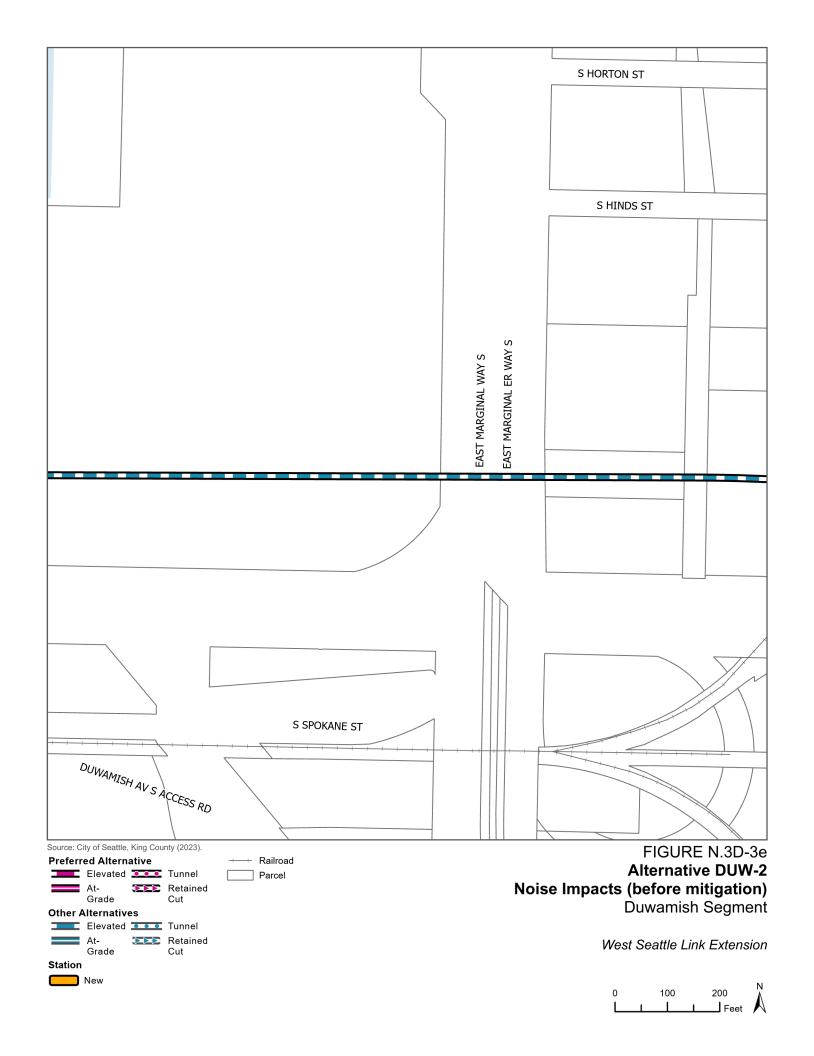


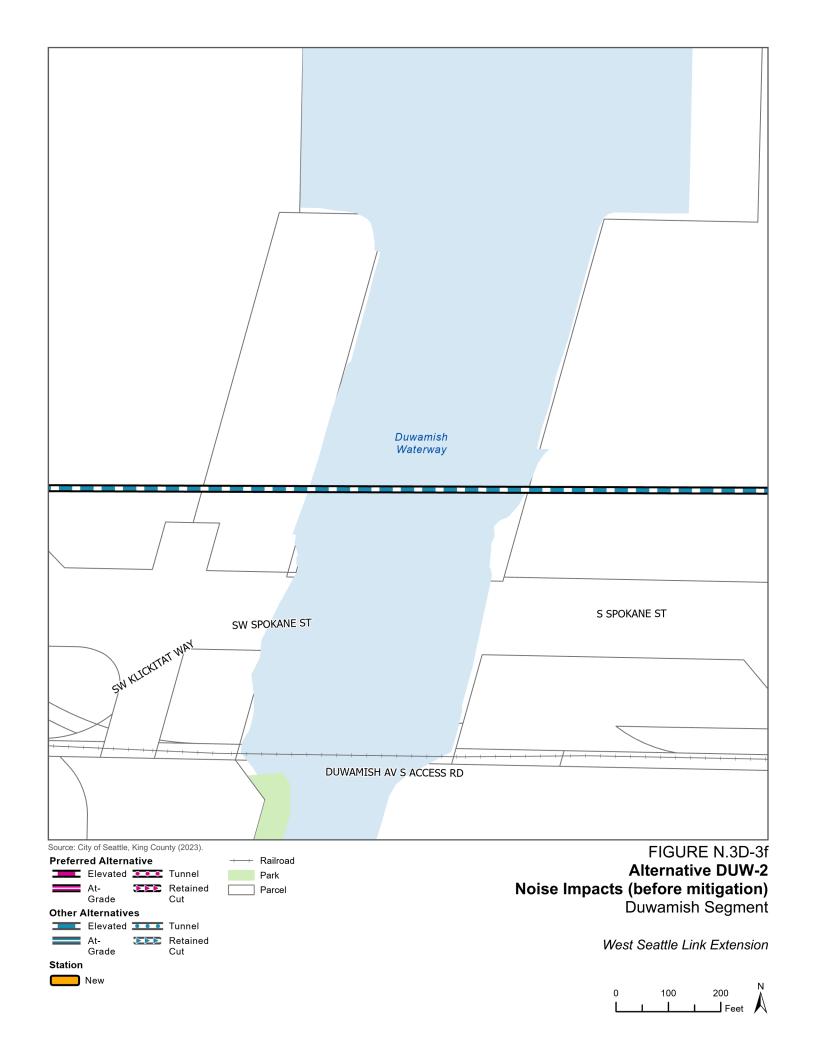




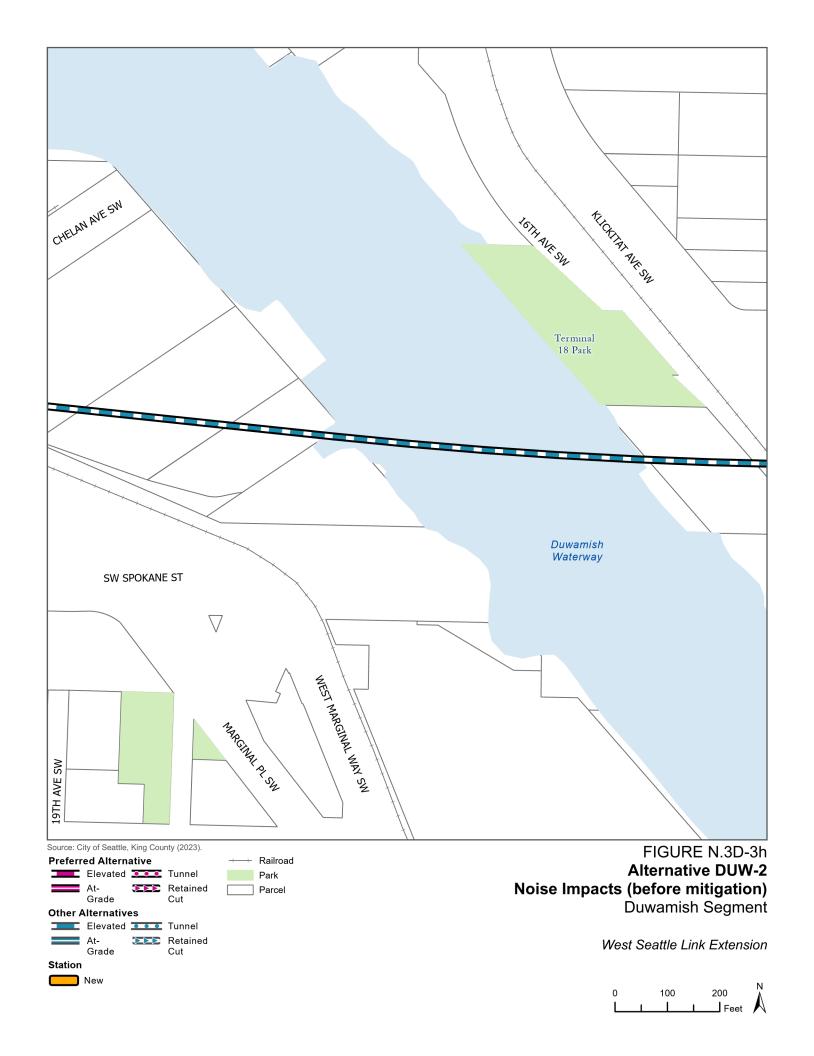


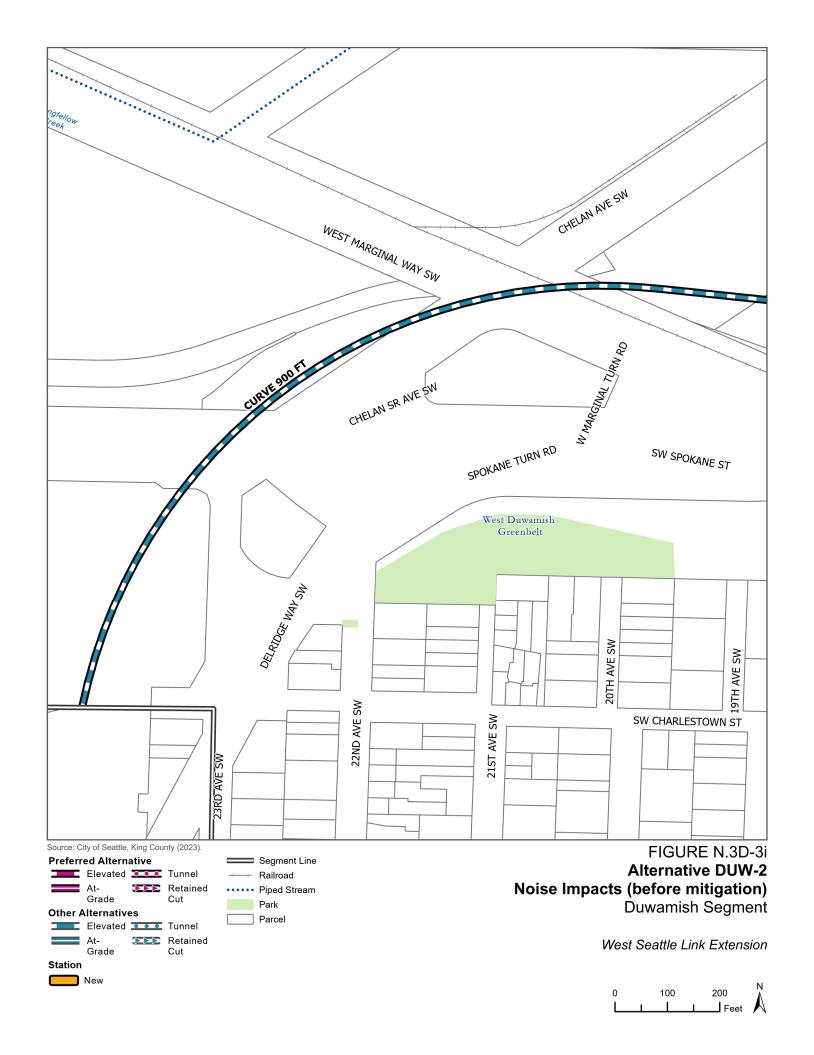


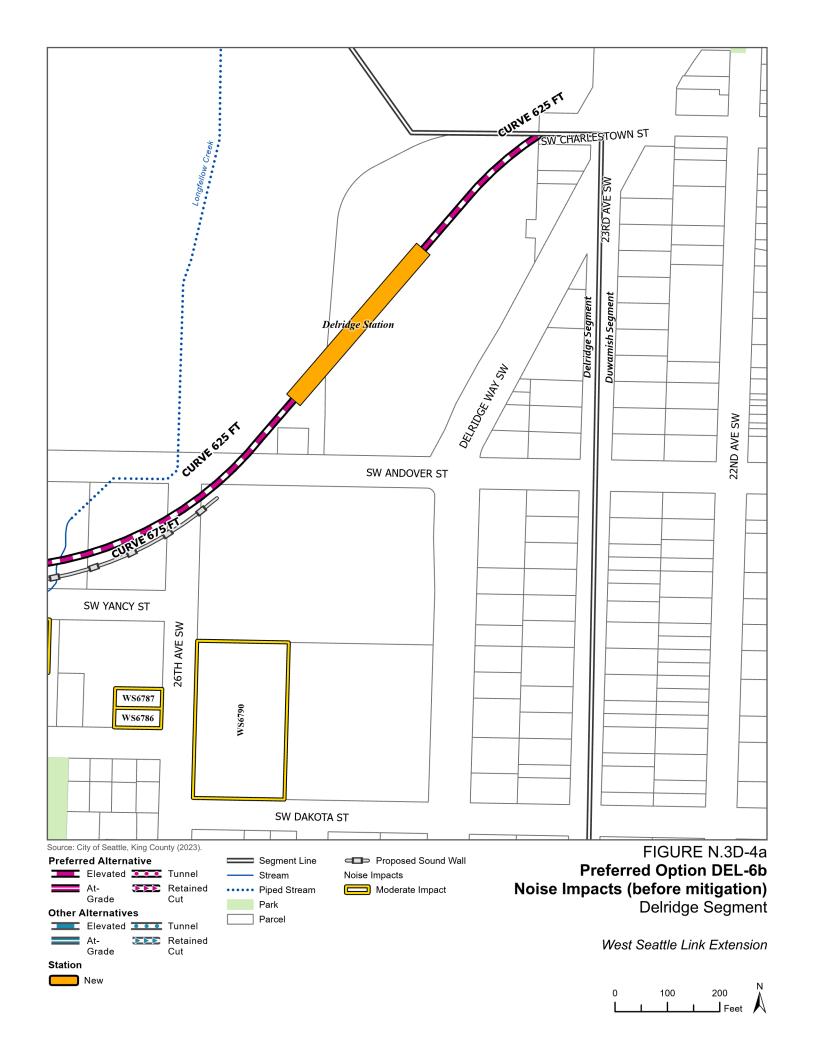


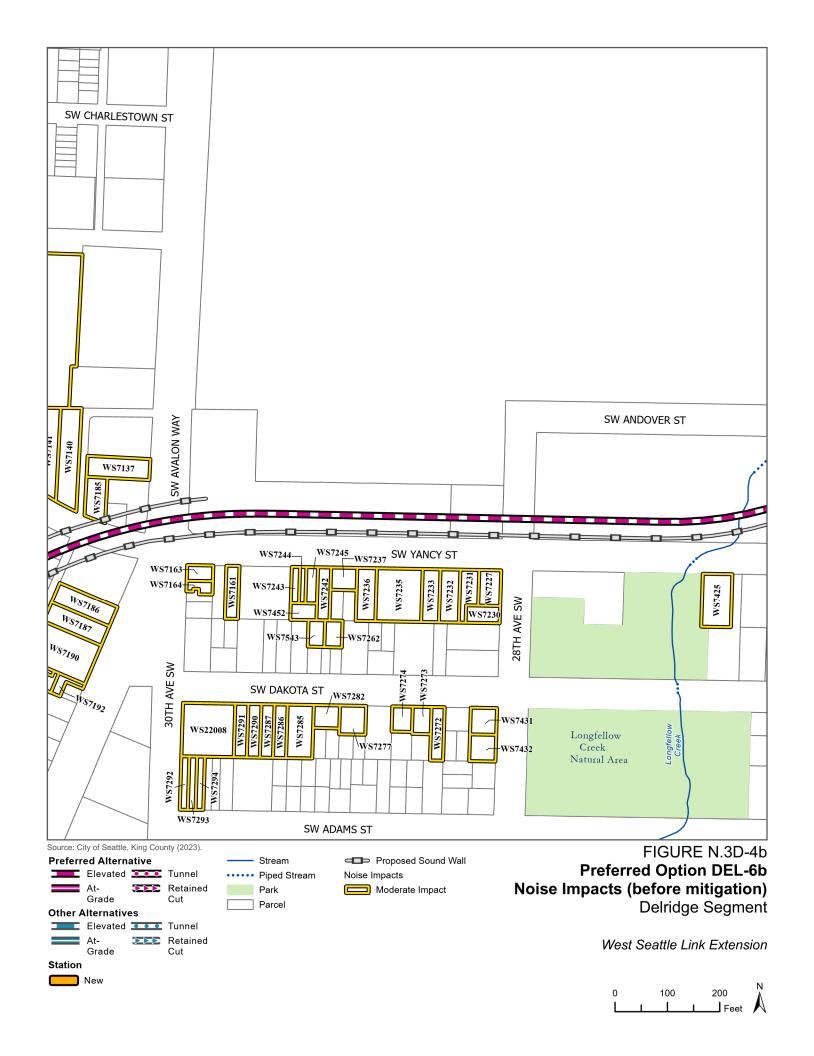


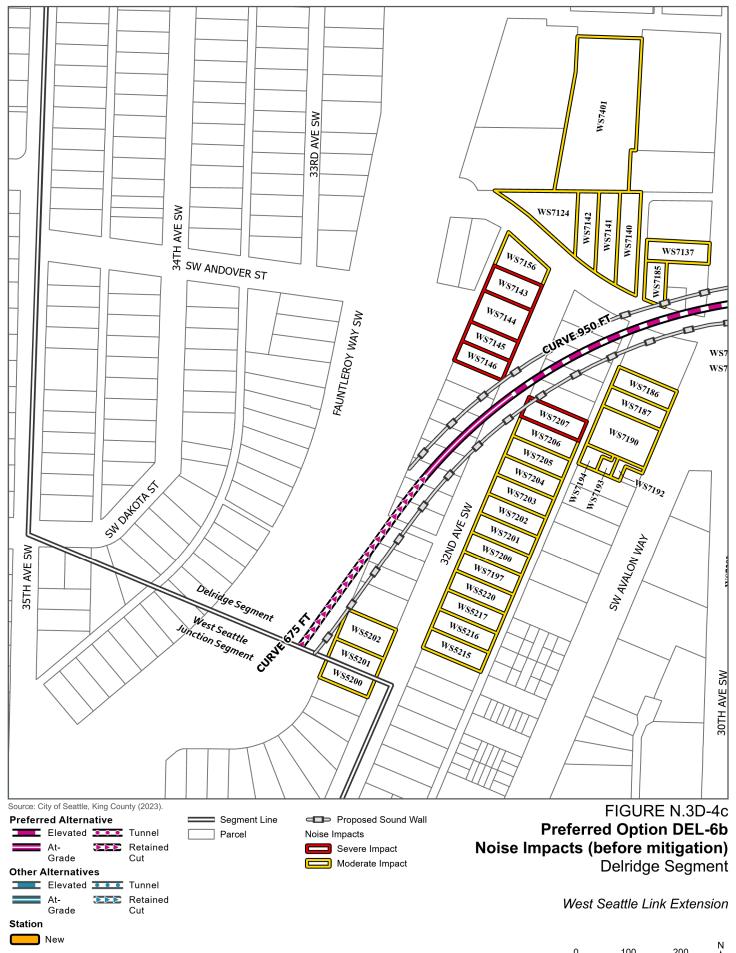


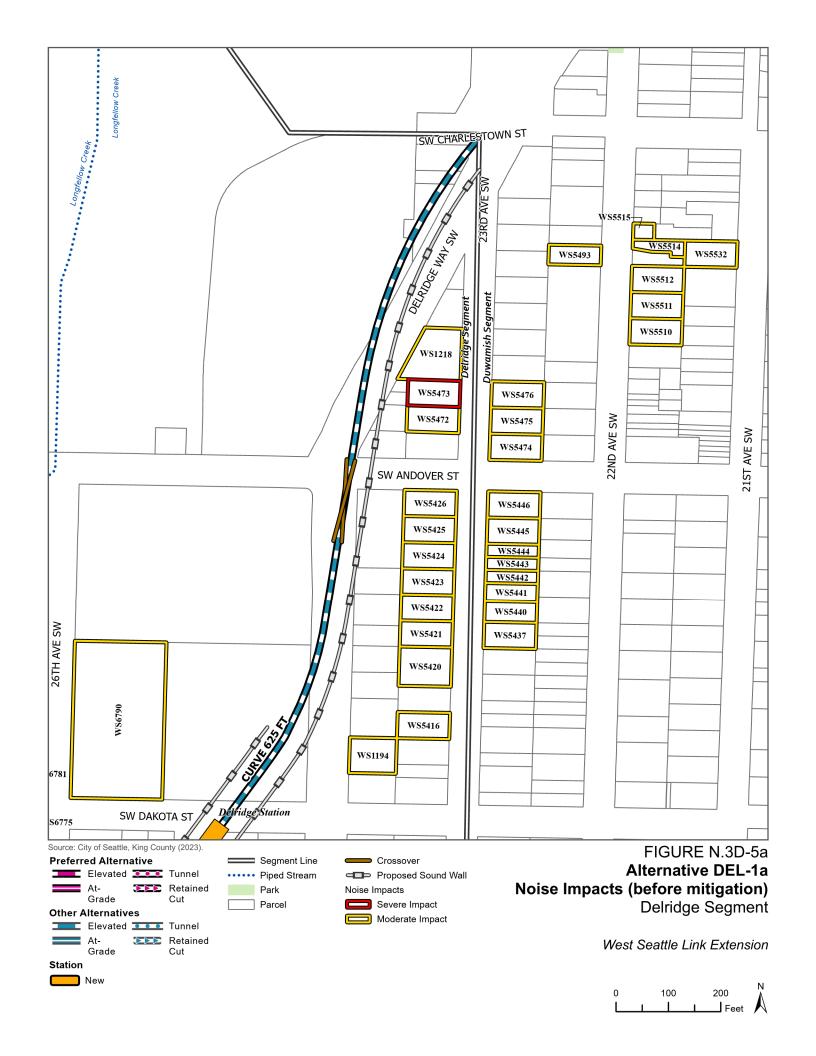


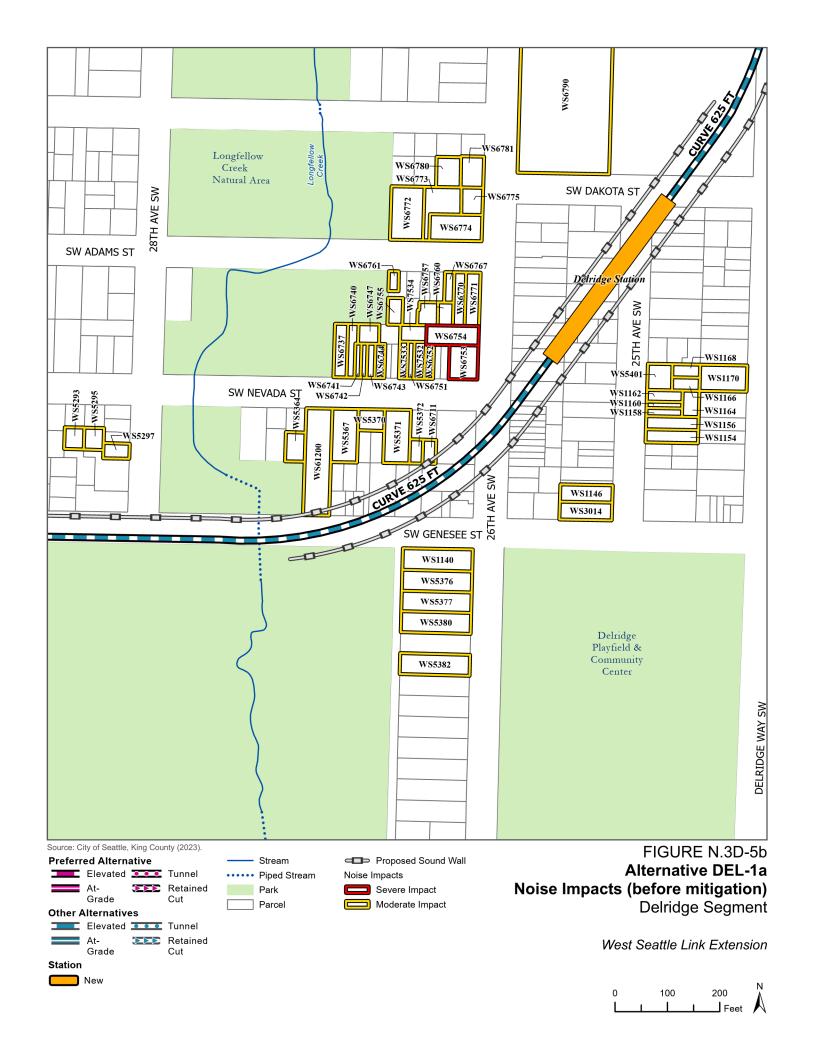


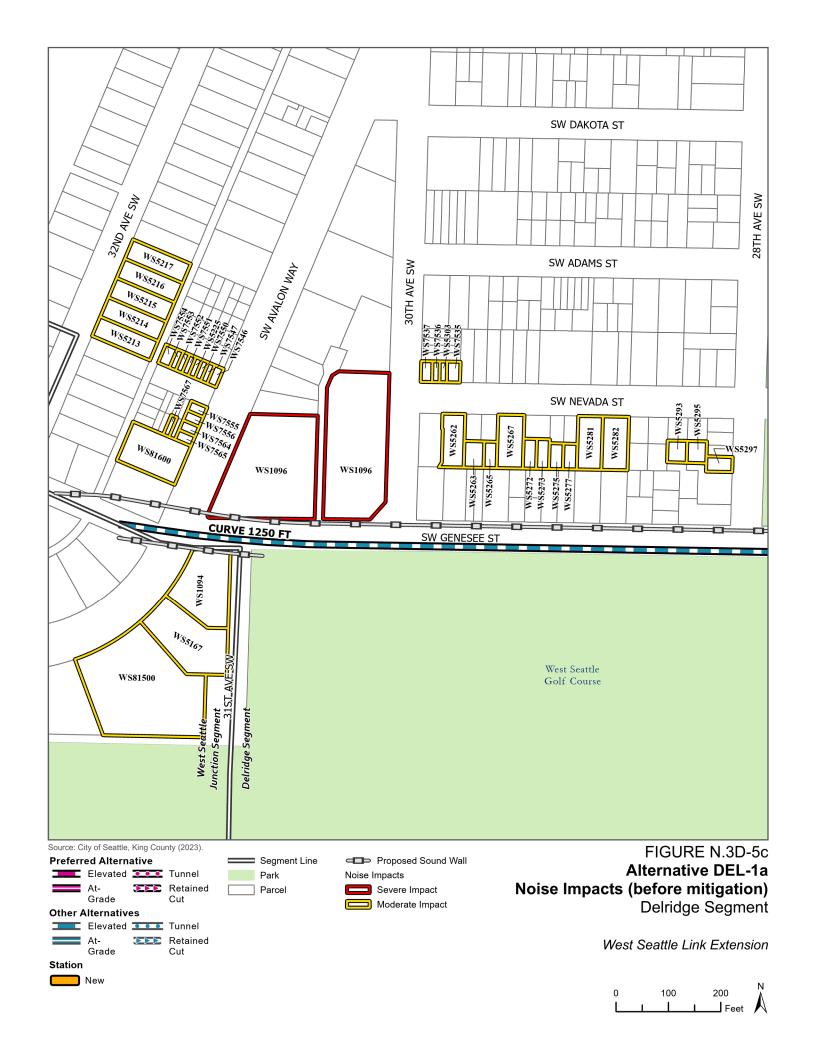


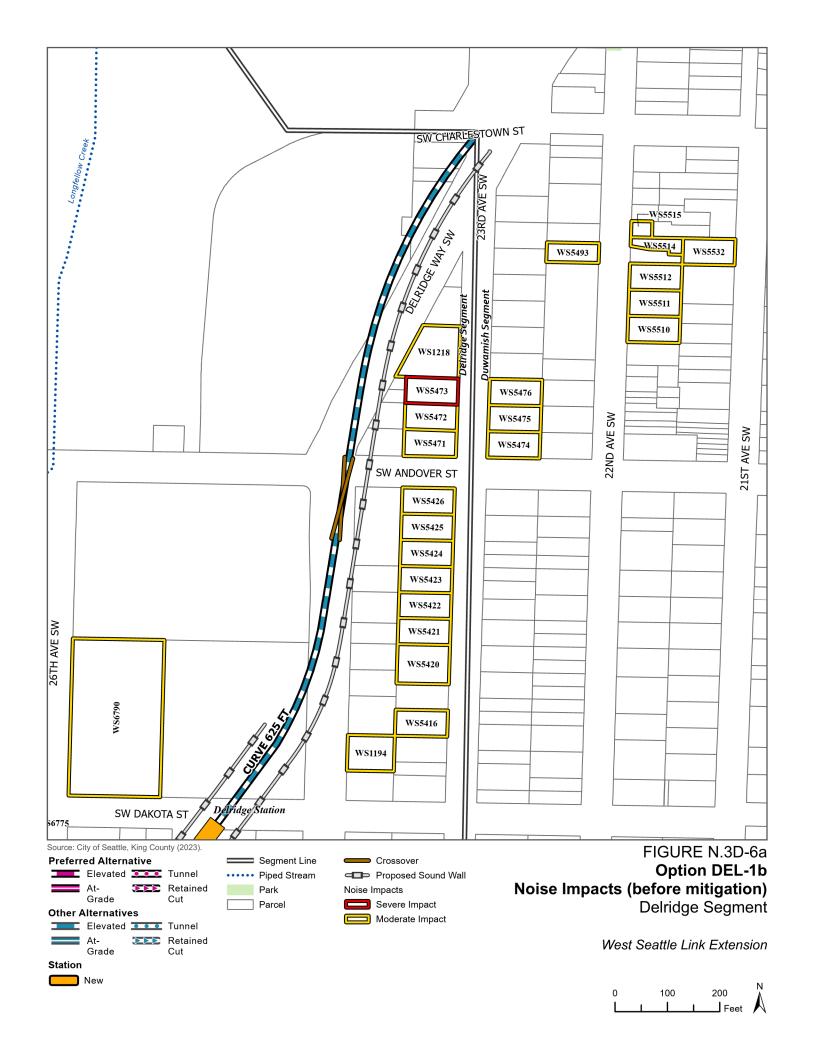


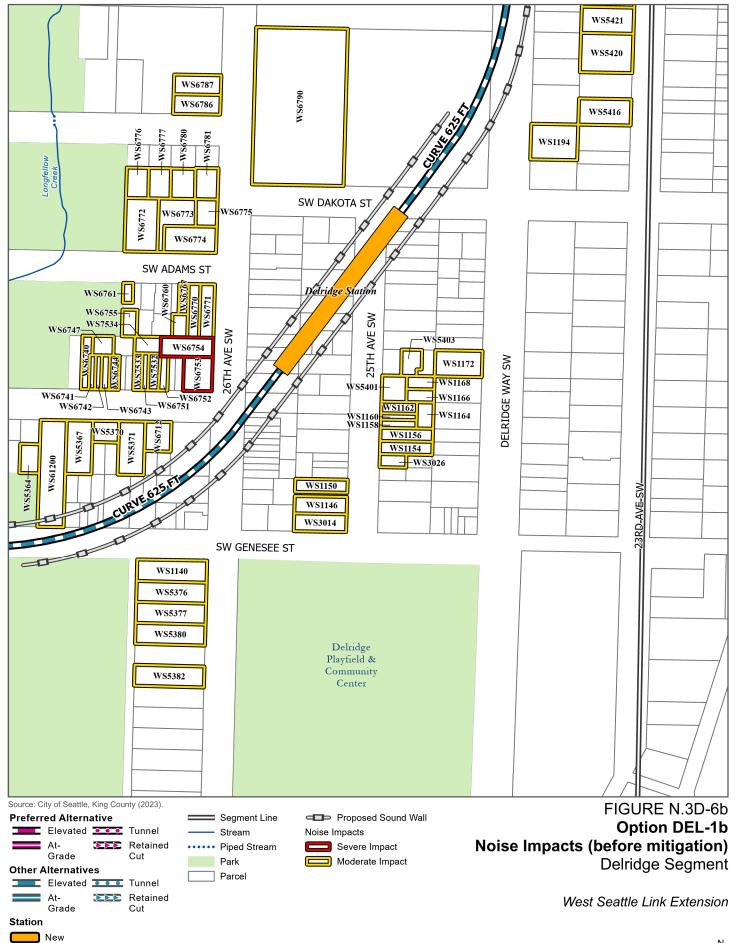




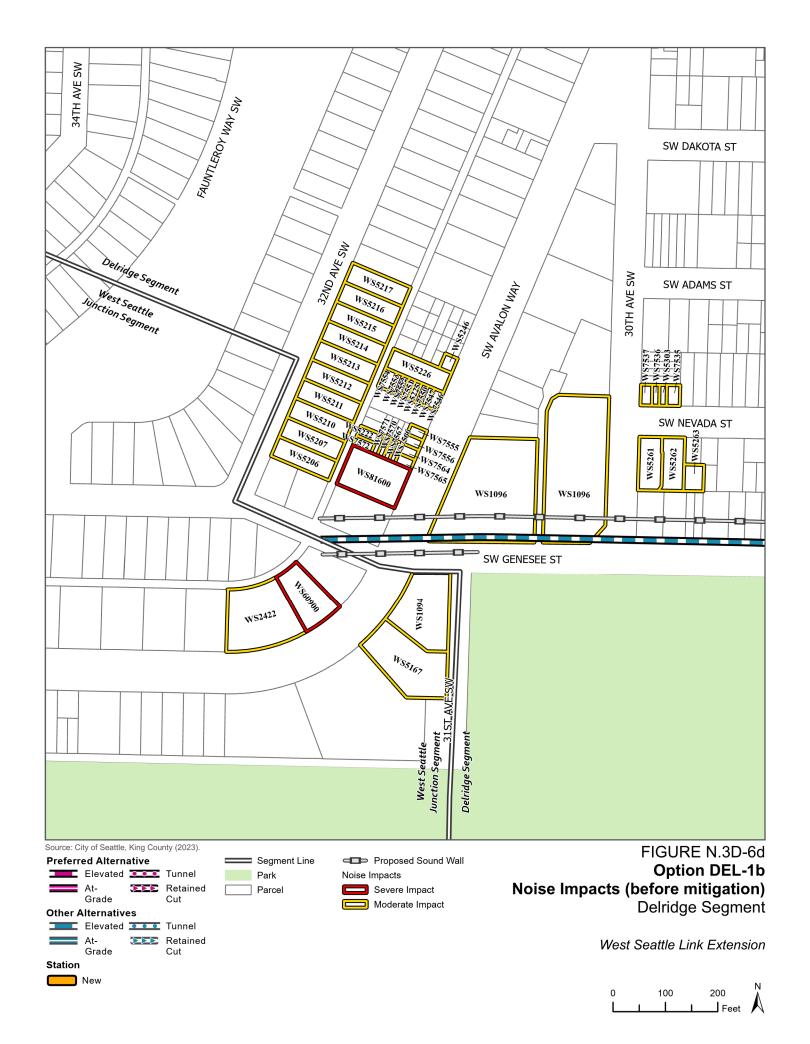


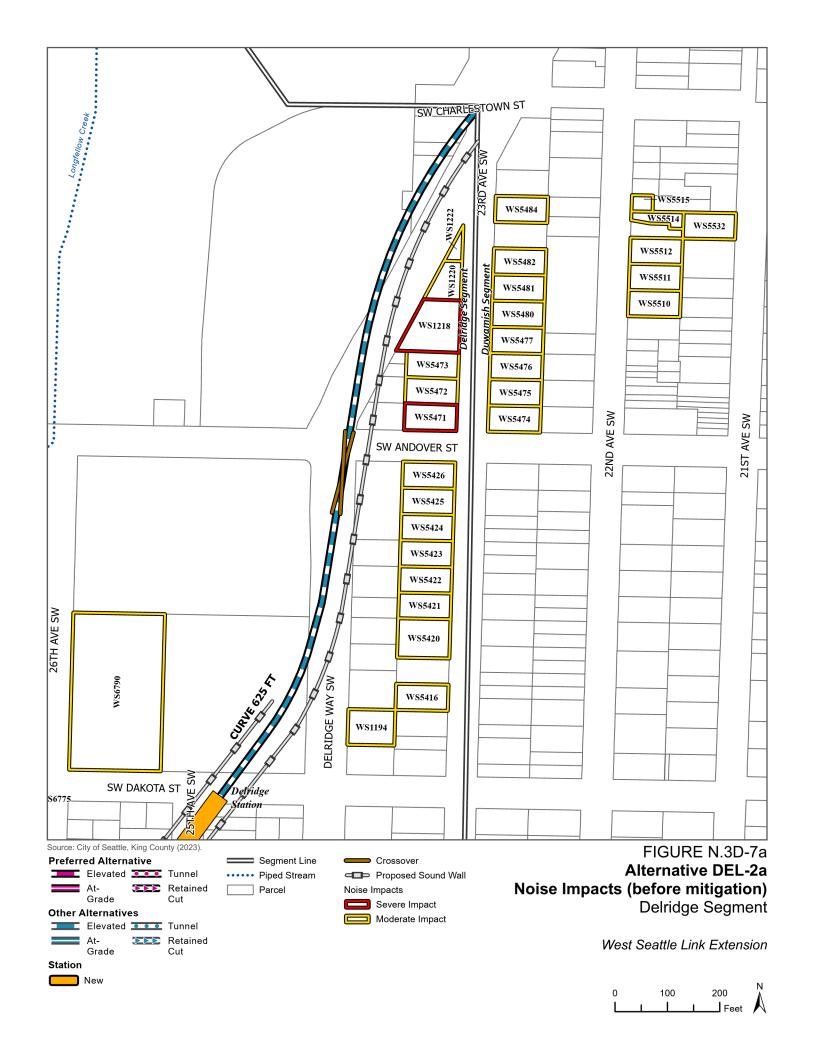


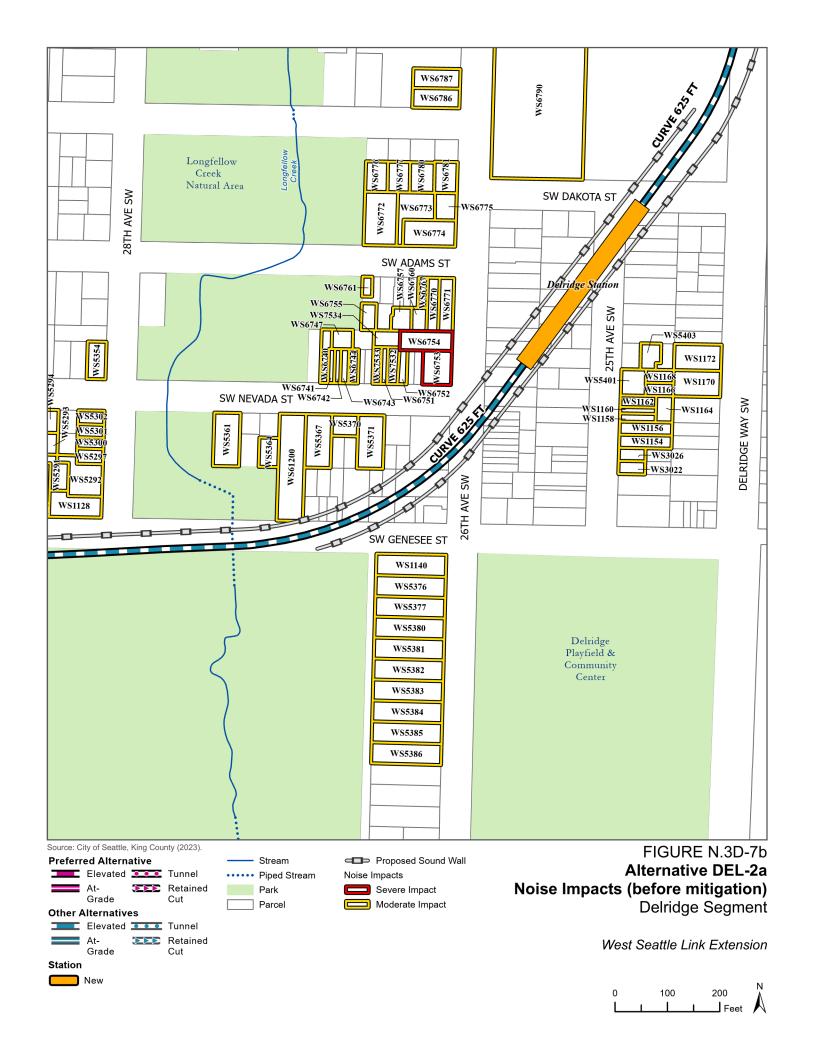


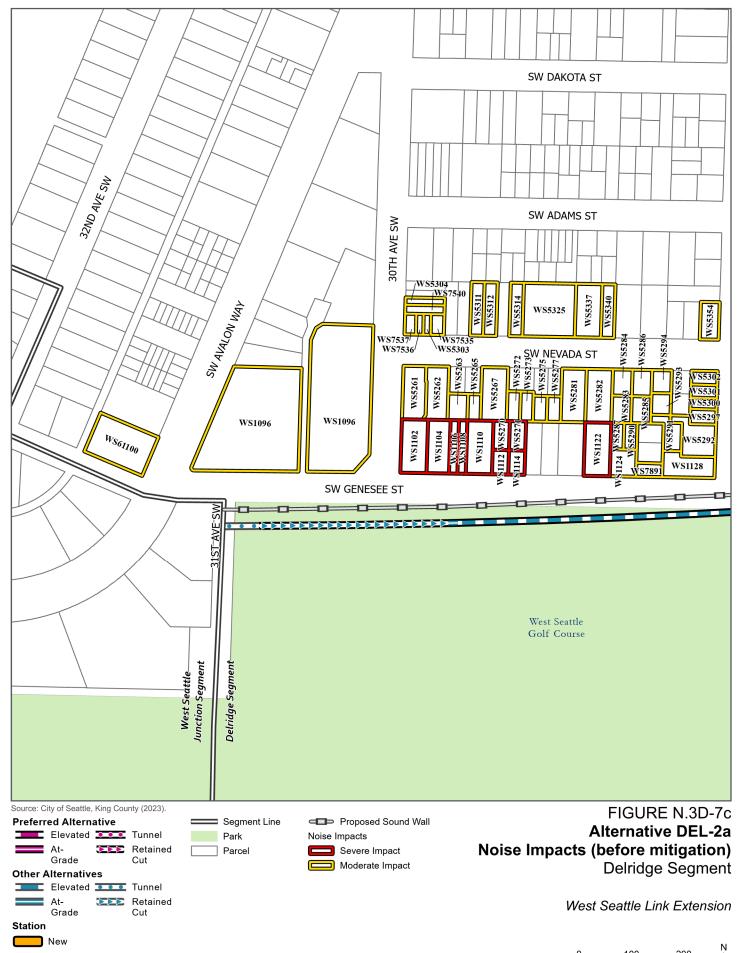




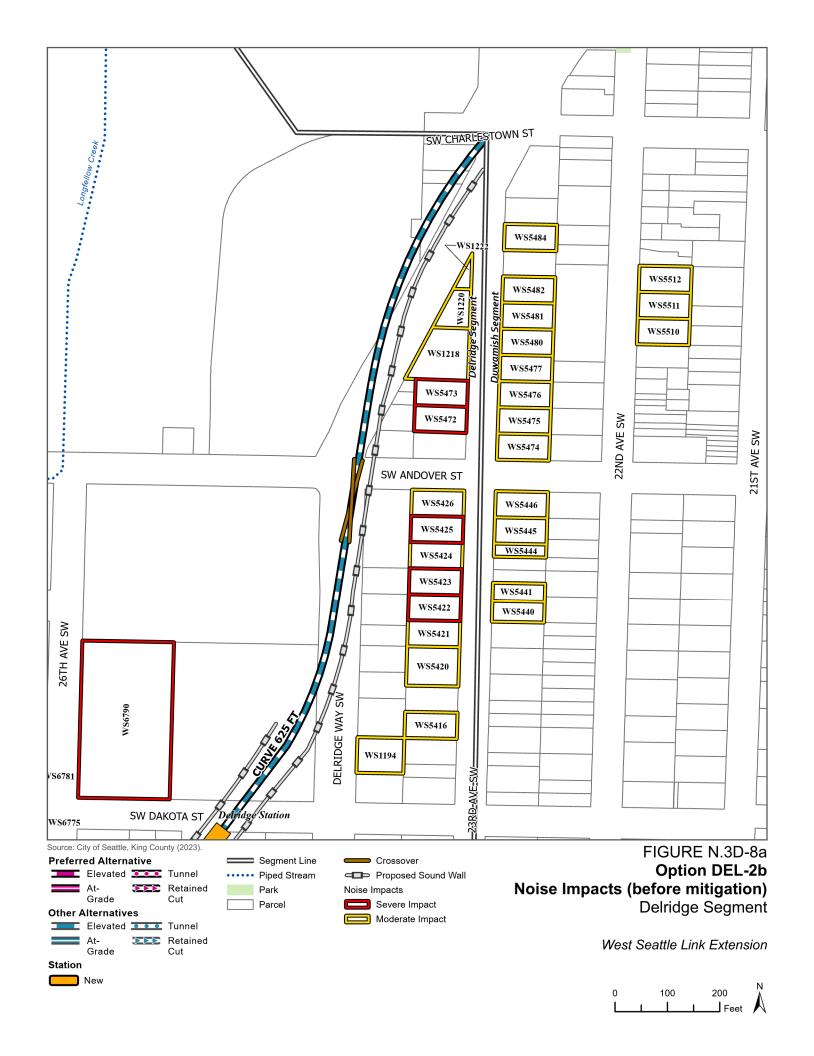


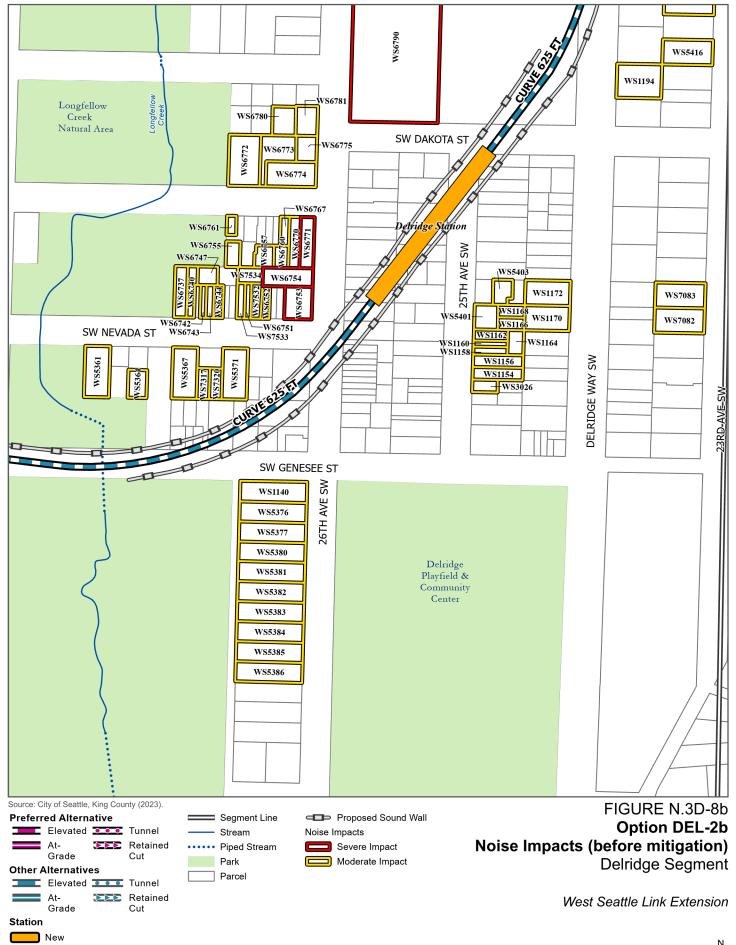


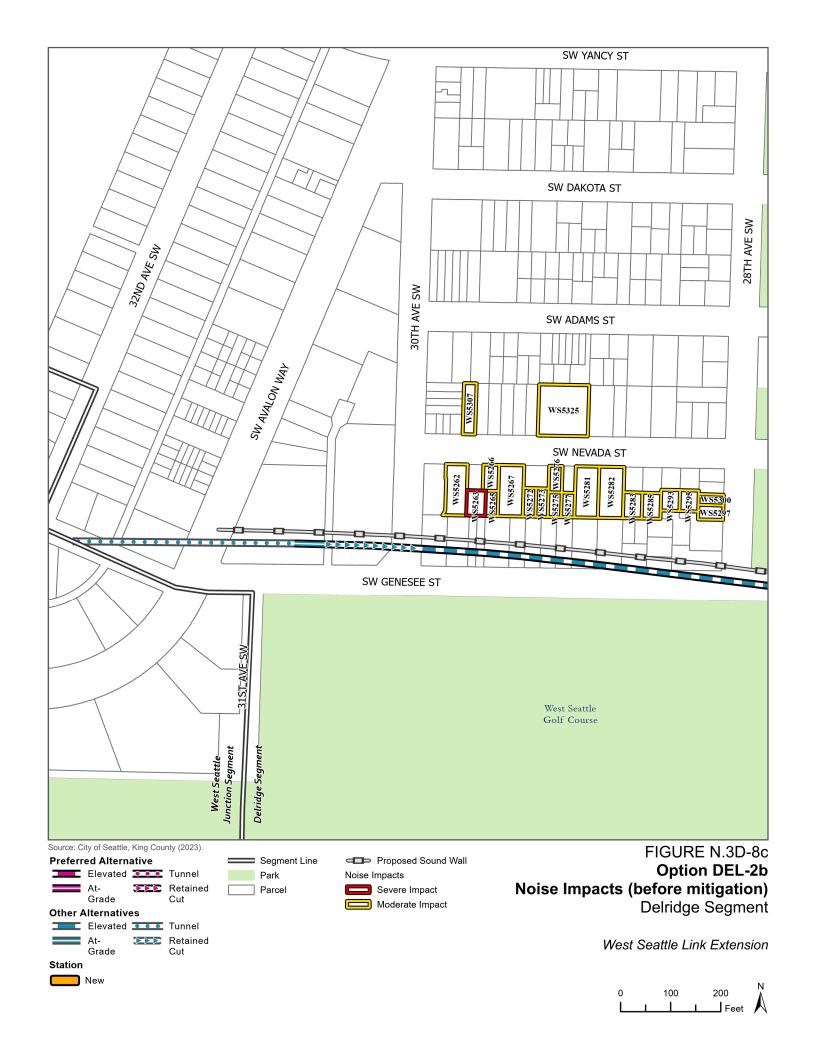


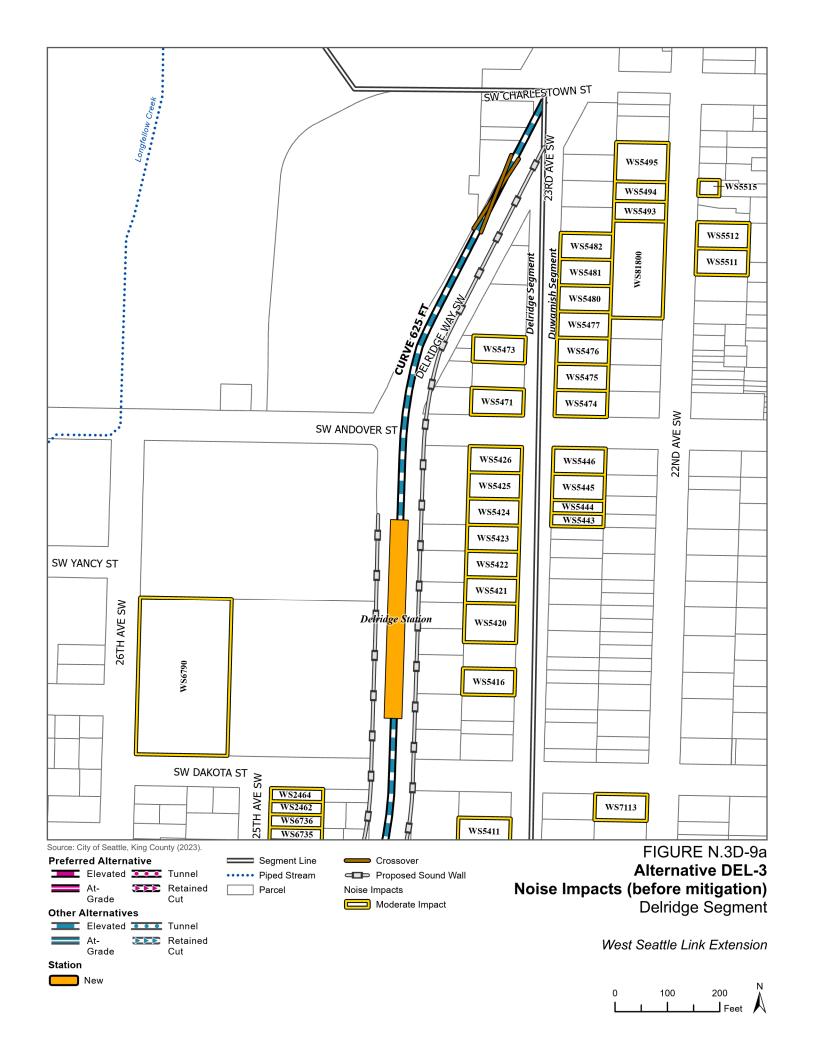


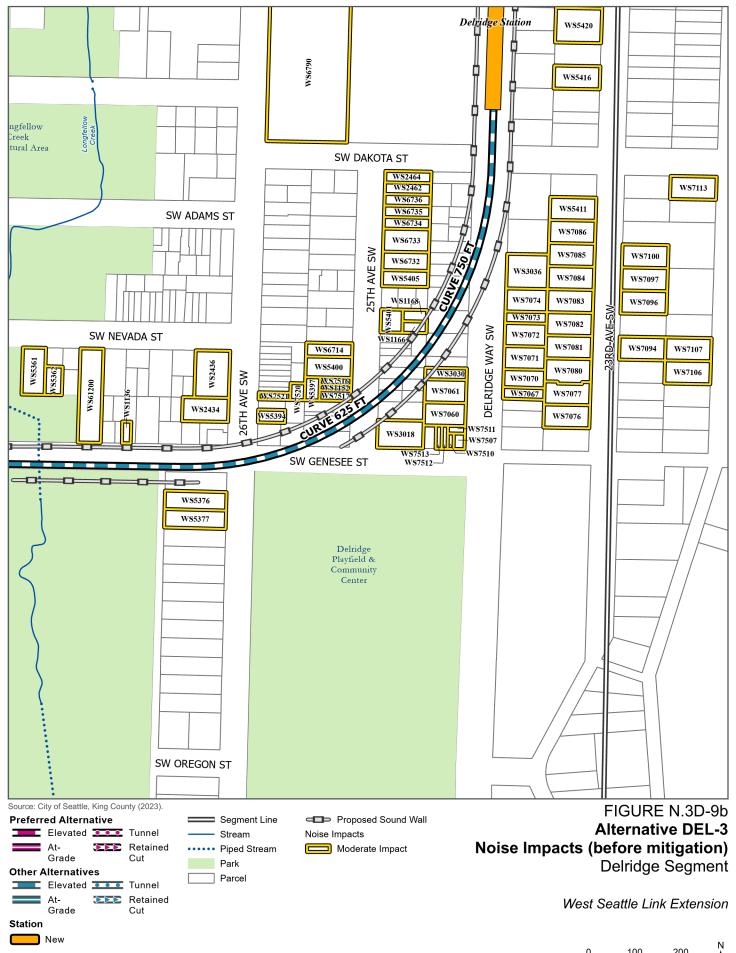
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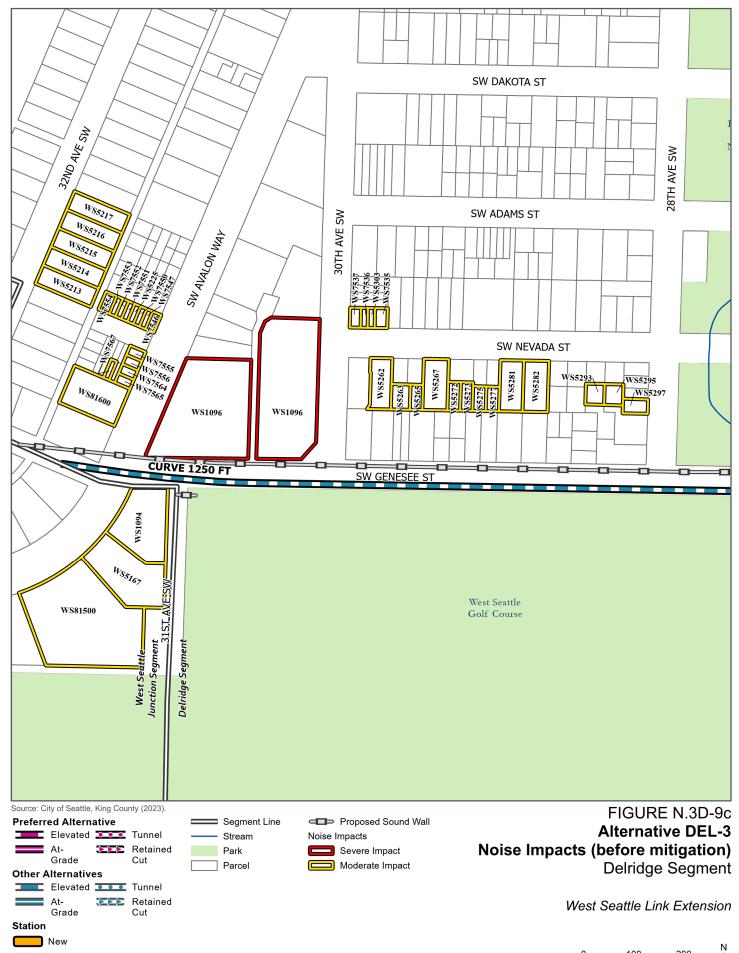


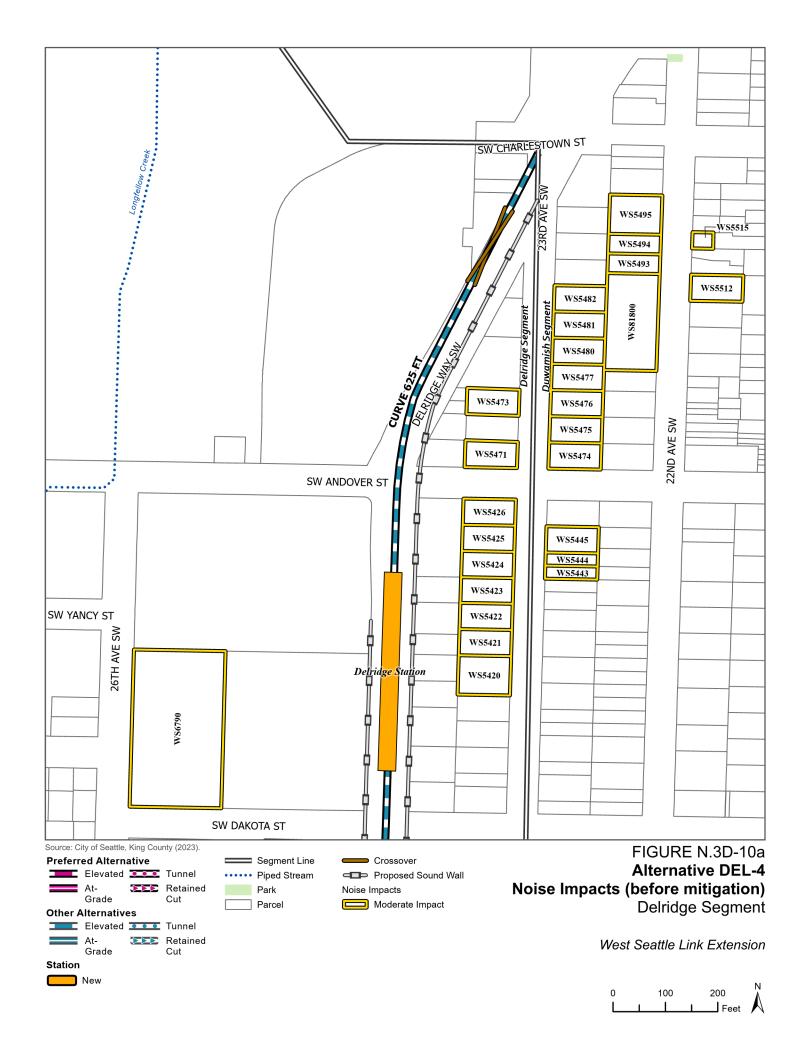


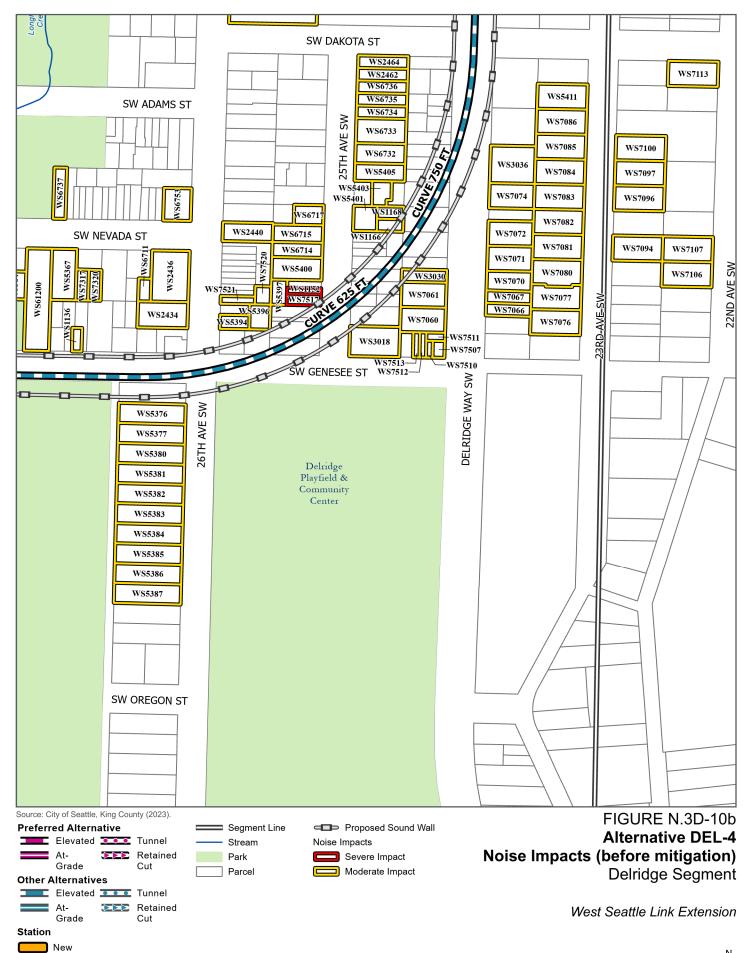


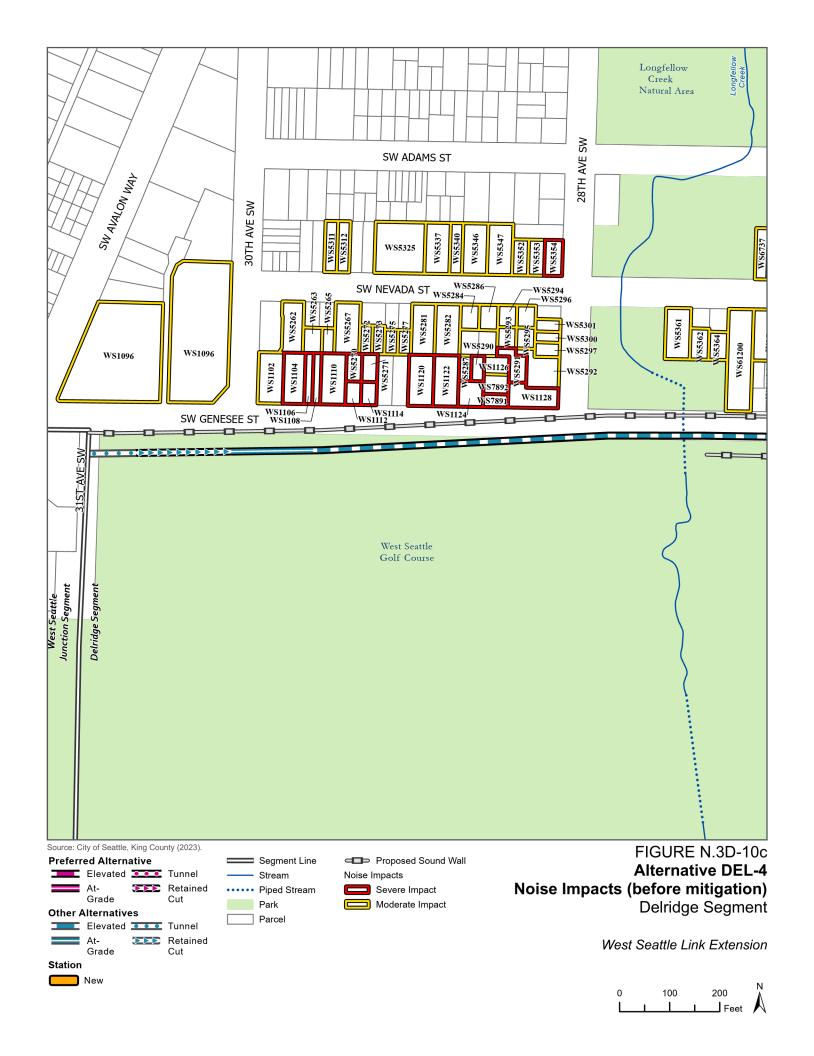


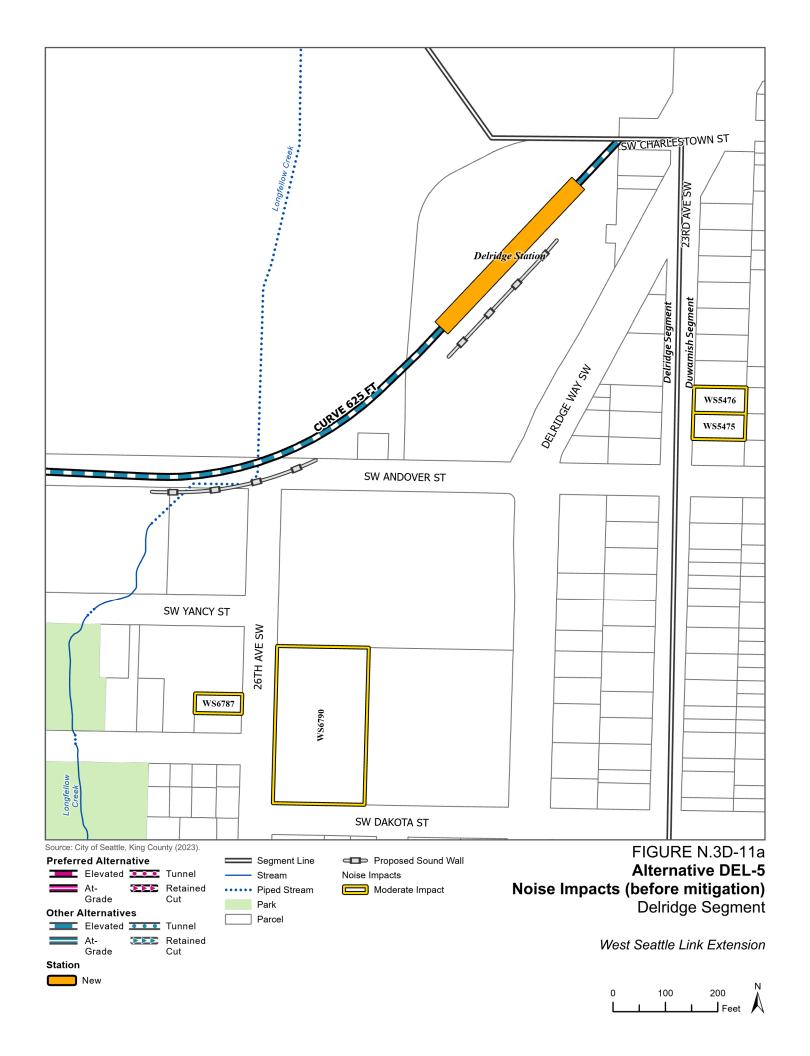
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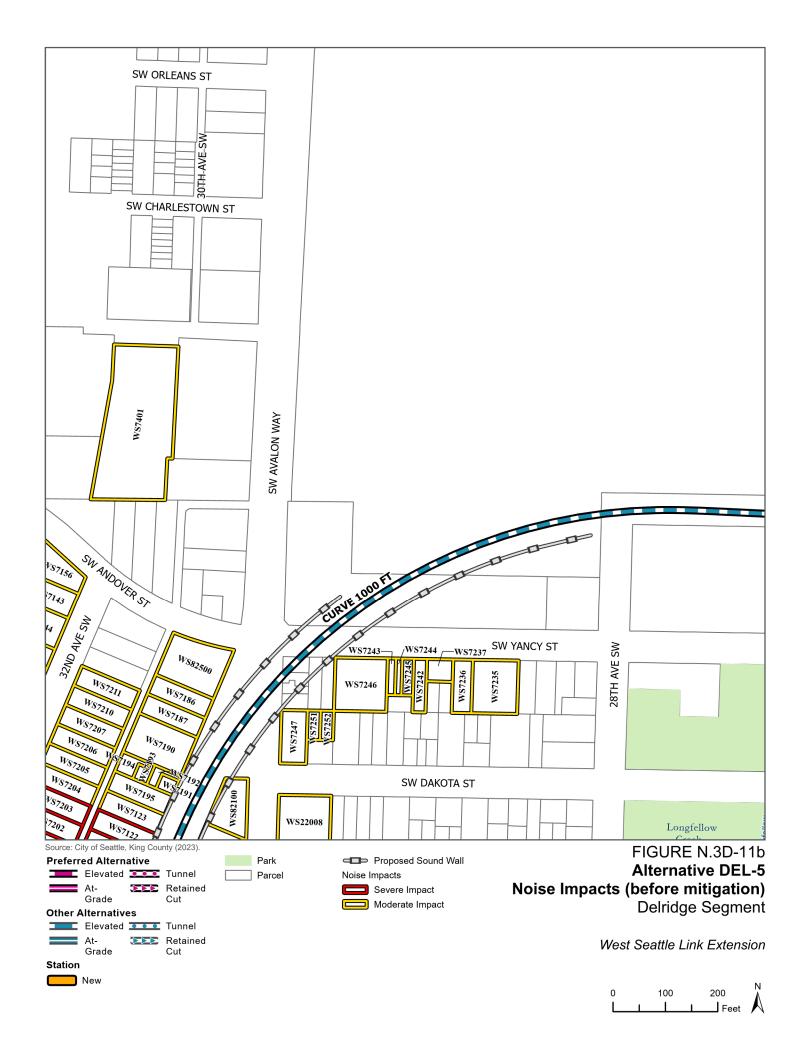


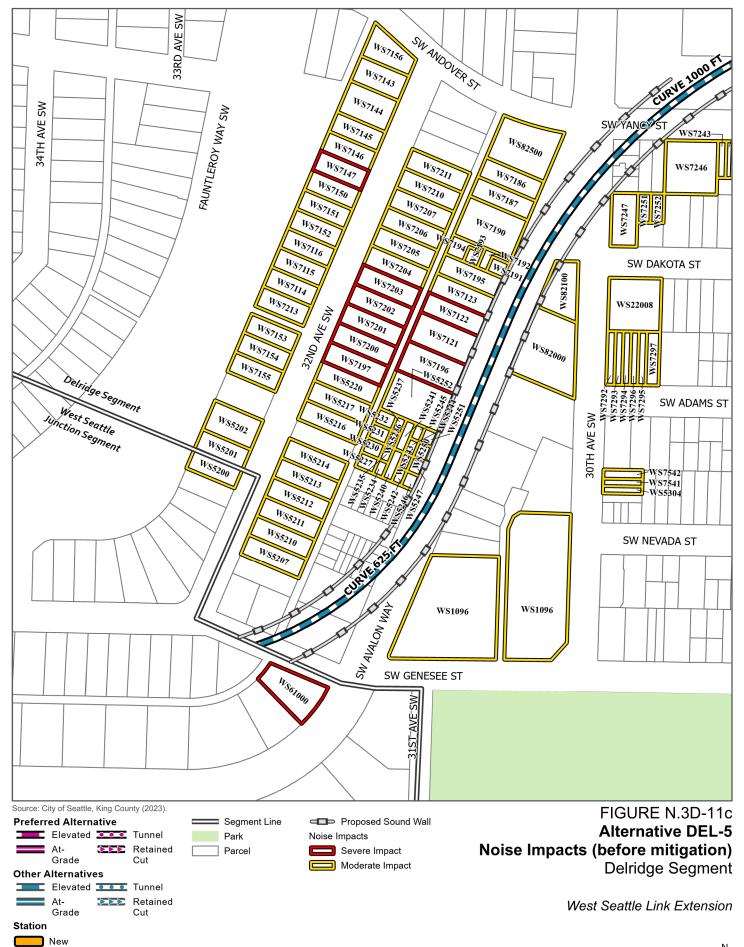


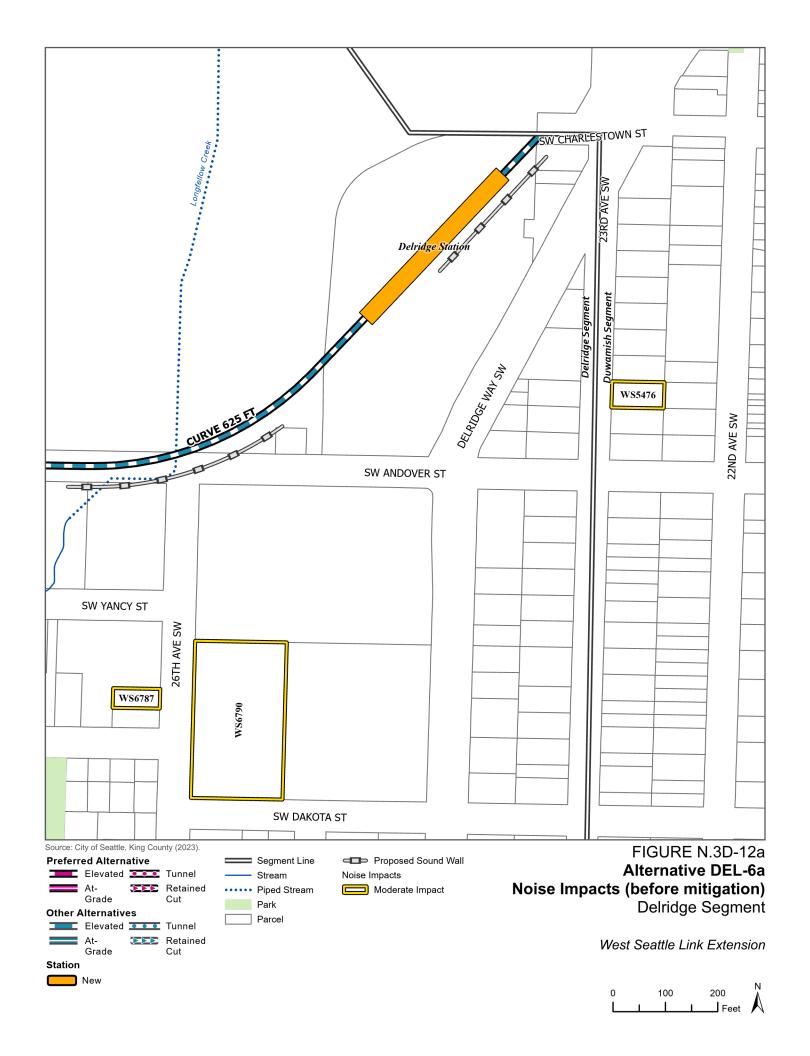


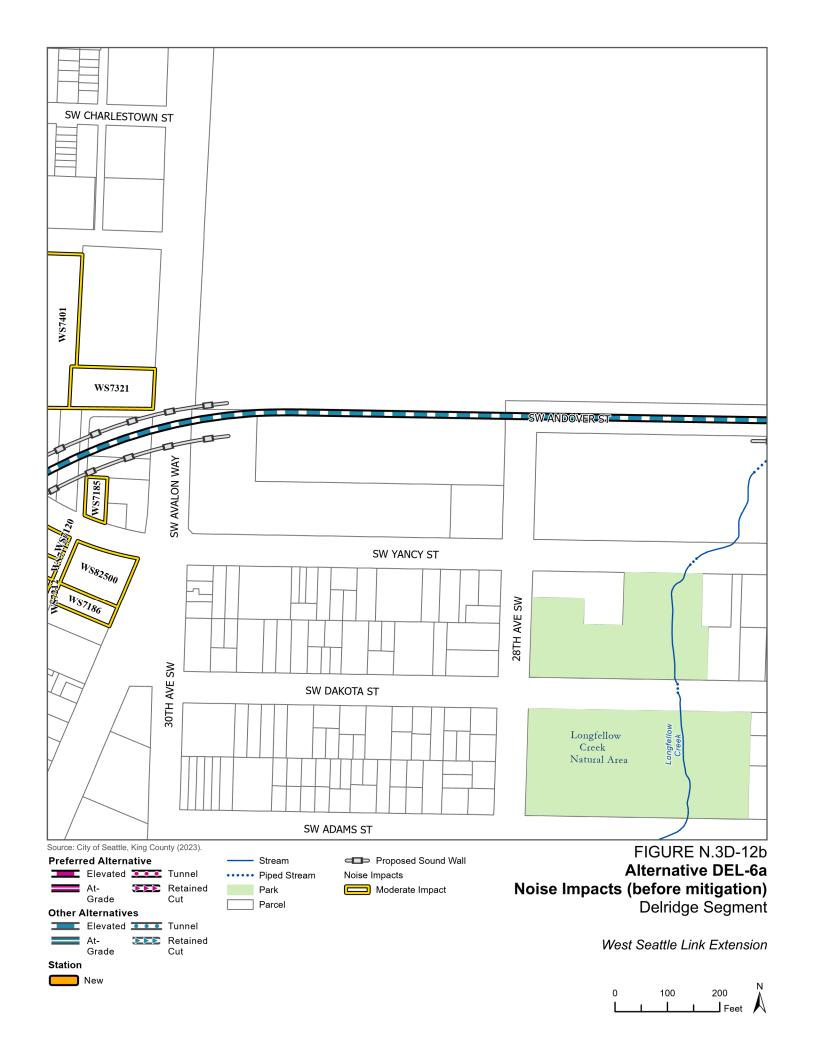


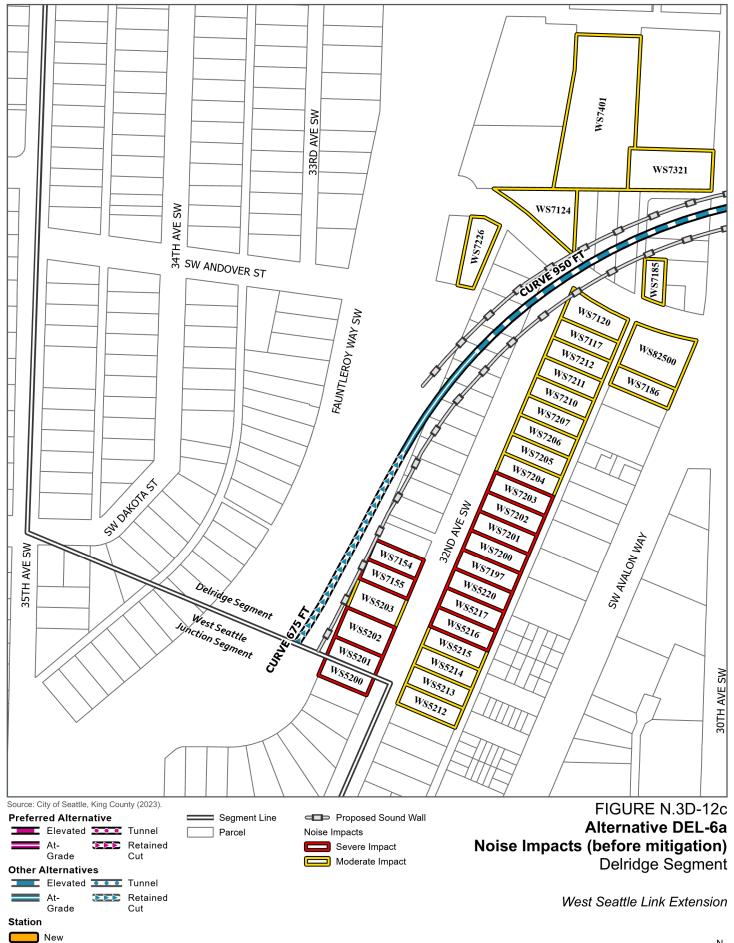












0 100 200 Feet

