

Appendix D. Noise Wall Analysis

-NW02- (Not recommended for construction or further study due to not meeting minimum NRDG requirement)

Location: Adjacent to I-40 westbound west of SR 1134 (Dimmocks Mill Road)

Termini: -YRPD- STA 68+50.92 154.61' RT / -YFLYA- STA 56+87.45 25.76' RT

Dimensions: Length = 765 ft. Average Height = 30 ft. Area = 22,950 sq. ft.

Impacts: 2 Benefited Impacts: 2

Benefits: 2 Benefits ≥ 7 dB(A): 1

Area/Benefit: 11,475 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW02_v0" / NW02_Max

Preliminary Recommendation: Feasible, Not Reasonable

**Table D-1 Noise Wall Analysis –NW02– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
02-001: 1218 Dimmocks Mill Rd	RES	B	1	70	64	6
02-002: 1218 Dimmocks Mill Rd	RES	B	1	70	63	7
Noise Wall 02 Predicted Build Condition With-Wall Benefits¹						2
Noise Level Impact		5 to 6 dB(A) NLR		≥ 7 dB(A) NLR		
1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).						

-NW03- (Not recommended for construction or further study due to not meeting minimum benefit requirement)

Location: Adjacent to I-40 eastbound east of SR 1134 (Dimmocks Mill Road)

Termini: -YRPD- STA 59+62.71 79.91' LT / -YRPD- STA 45+79.60 79.96' LT

Dimensions: Length = 1,380 ft. Average Height = 30 ft. Area = 41,400 sq. ft.

Impacts: 2 Benefited Impacts: 1

Benefits: 1 Benefits ≥ 7 dB(A): 0

Area/Benefit: N/A Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW03_v0" / NW03_Max

Preliminary Recommendation: Not Feasible

**Table D-2 Noise Wall Analysis –NW03– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
03-001: 1229 Dimmocks Mill Rd	RES	B	1	68	65	4
03-002: 1414 Dimmocks Mill Rd	RES	B	1	72	68	5
Noise Wall 03 Predicted Build Condition With-Wall Benefits¹						1
Noise Level Impact		5 to 6 dB(A) NLR		≥ 7 dB(A) NLR		
1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).						

-NW06-

Location: Adjacent to I-40 westbound between SR 1006 (Orange Grove Road) and I-85

Termini: -YFLYA- STA 12+80.28 99.00' RT / -YRPA- STA 16+03.85 86.87' RT

Dimensions: Length = 1,440 ft. Average Height = 13.5 ft. Area = 19,427 sq. ft.

Impacts: 23 Benefited Impacts: 16

Benefits: 17 Benefits ≥ 7 dB(A): 15

Area/Benefit: 1,143 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW06_v2_rev" / Opt4b.1rev

Preliminary Recommendation: Feasible and Reasonable

**Table D-3 Noise Wall Analysis –NW06– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(t)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
06-005: 1067 Timbers Dr	RES	B	1	62	62	0
06-006: 1065 Timbers Dr	RES	B	1	61	60	1
06-007: 1063 Timbers Dr	RES	B	1	60	60	0
06-008: 1061 Timbers Dr	RES	B	1	57	57	0
06-009: 1059 Timbers Dr	RES	B	1	59	59	0
06-010: 1057 Timbers Dr	RES	B	1	59	59	0
06-011: 1055 Timbers Dr	RES	B	1	60	60	0
06-012: 1053 Timbers Dr	RES	B	1	59	59	0
06-018: 1068 Timbers Dr	RES	B	1	63	62	1
06-019: 1070 Timbers Dr	RES	B	1	62	62	0
06-020: 1072 Timbers Dr	RES	B	1	65	65	0
06-021: 1074 Timbers Dr	RES	B	1	65	65	0
06-022: 1076 Timbers Dr	RES	B	1	66	66	0
06-023: 1078 Timbers Dr	RES	B	1	68	67	1
06-024: 1080 Timbers Dr	RES	B	1	68	68	0
06-025: 201 Binford St	RES	B	1	68	68	0
06-026: 203 Binford St	RES	B	1	67	66	1
06-029: 211 Binford St	RES	B	1	65	65	0
06-030: 213 Binford St	RES	B	1	64	63	1
06-032: 217 Binford St	RES	B	1	62	61	1
06-047: 208 Binford St	RES	B	1	64	64	0
06-048: 206 Binford St	RES	B	1	64	64	0
06-049: 202 Binford St	RES	B	1	64	64	0
06-050: 150 Binford St	RES	B	1	67	66	1
06-051: 148 Binford St	RES	B	1	65	63	2

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
06-052: 144 Binford St	RES	B	1	64	63	1
06-053: 142 Binford St	RES	B	1	64	63	1
06-054: 140 Binford St	RES	B	1	64	63	1
06-055: 138 Binford St	RES	B	1	64	63	1
06-056: 136 Binford St	RES	B	1	64	63	1
06-057: 134 Binford St	RES	B	1	64	63	1
06-058: 132 Binford St	RES	B	1	63	62	1
06-059: 126 Binford St	RES	B	1	63	62	1
06-060: 118 Binford St	RES	B	1	63	62	1
06-061: 149 Binford St	RES	B	1	72	67	5
06-062: 147 Binford St	RES	B	1	73	66	7
06-063: 145 Binford St	RES	B	1	72	64	8
06-064: 143 Binford St	RES	B	1	72	63	9
06-065: 141 Binford St	RES	B	1	72	64	8
06-066: 139 Binford St	RES	B	1	72	64	8
06-067: 137 Binford St	RES	B	1	73	63	10
06-068: 135 Binford St	RES	B	1	74	63	11
06-069: 133 Binford St	RES	B	1	75	62	13
06-070: 131 Binford St	RES	B	1	75	62	13
06-071: 129 Binford St	RES	B	1	75	63	12
06-072: 127 Binford St	RES	B	1	74	62	12
06-073: 123 Binford St	RES	B	1	75	63	12
06-074: 121 Binford St	RES	B	1	70	61	9
06-075: 119 Binford St	RES	B	1	69	62	7
06-076: 117 Binford St	RES	B	1	65	59	6
06-077: 115 Binford St	RES	B	1	62	58	4
06-078: 113 Binford St	RES	B	1	59	57	2
06-079: 111 Binford St	RES	B	1	59	58	1
06-080: 109 Binford St	RES	B	1	60	58	2
06-081: 107 Binford St	RES	B	1	60	57	3
06-085: 2311 Hedgepath Dr	RES	B	1	68	61	7
06-086: 998 Timbers Dr	RES	B	1	64	60	4
06-091: 2323 Orange Grove Rd	RES	B	1	72	71	1
Noise Wall 06 Predicted Build Condition With-Wall Benefits¹						17
Noise Level Impact		5 to 6 dB(A) NLR			≥ 7 dB(A) NLR	

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

-NW09- (Not recommended for construction or further study due to exceeding area per benefit threshold)

Location: Adjacent to I-40 westbound east of SR 1006 (Orange Grove Road)

Termini: -L- STA 12+30.07 129.46' LT / -L- STA 15+29.09 133.31' LT

Dimensions: Length = 300 ft. Average Height = 10.3 ft. Area = 3,080 sq. ft.

Impacts: 3 Benefited Impacts: 2

Benefits: 2 Benefits ≥ 7 dB(A): 1

Area/Benefit: 1,540 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW09_v2_rev" / Opt2.1

Preliminary Recommendation: Feasible, Not Reasonable

**Table D-4 Noise Wall Analysis –NW09– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
08-043: 817 Oakdale Dr	Res	B	1	50	48	2
09-001: 814 Oakdale Dr	Res	B	1	60	59	1
09-002: 826 Oakdale Dr	Res	B	1	67	62	5
09-003: 836 Oakdale Dr	Res	B	1	73	66	7
09-004: 832 Oakdale Dr	Res	B	1	62	60	2
09-005: 820 Oakdale Dr	Res	B	1	56	55	1
09-006: 810 Oakdale Dr	Res	B	1	55	53	2
09-007: 804 Oakdale Dr	Res	B	1	52	50	2
09-008: 800 Oakdale Dr	Res	B	1	52	51	1
09-009: 2311 Blair Dr	Res	B	1	53	52	1
09-010: 2315 Blair Dr	Res	B	1	54	53	1
09-011: 2321 Blair Dr	Res	B	1	55	54	1
09-012: 2327 Blair Dr	Res	B	1	58	58	0
09-013: 2331 Blair Dr	Res	B	1	64	62	2
09-014: 2335 Blair Dr	Res	B	1	71	68	3
09-015: 2338 Blair Dr	Res	B	1	61	61	0
09-016: 2334 Blair Dr	Res	B	1	56	56	0
Noise Wall 09 Predicted Build Condition With-Wall Benefits¹						2
Noise Level Impact		5 to 6 dB(A) NLR		≥ 7 dB(A) NLR		

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

-NW12- (Not recommended for construction or further study due to exceeding area per benefit threshold)

Location: Adjacent to the onramp from SR 1009 (Old NC 86) to I-40 eastbound

Termini: -Y2- STA 19+11.22 63.63' RT / -Y2RPD- STA 17+71.52 123.81' LT

Dimensions: Length = 540 ft. Average Height = 9.5 ft. Area = 5,132 sq. ft.

Impacts: 4 Benefited Impacts: 2

Benefits: 2 Benefits ≥ 7 dB(A): 1

Area/Benefit: 2,566 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW12_v1" / Opt2

Preliminary Recommendation: Feasible, Not Reasonable

**Table D-5 Noise Wall Analysis –NW12– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
12-001: 3210 Old NC 86	RES	B	1	71	64	7
12-002: 3220 Old NC 86	RES	B	1	66	65	1
12-003: 3224 Old NC 86	RES	B	1	67	62	5
12-004: 3300 Old NC 86	RES	B	1	62	62	0
12-005: 3312 Old NC 86	RES	B	1	66	66	0
12-006: 3400 Old NC 86	RES	B	1	65	65	0
Noise Wall 12 Predicted Build Condition With-Wall Benefits¹						2
Noise Level Impact		5 to 6 dB(A) NLR		≥ 7 dB(A) NLR		
1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).						

-NW13-

Location: Adjacent to I-40 westbound east of SR 1009 (Old NC 86)

Termini: -L- STA 117+14.02 62.65' LT / -L- STA 128+50.43 62.5' LT

Dimensions: Length = 1,155 ft. Average Height = 21.5 ft. Area = 24,880 sq. ft.

Impacts: 10 Benefited Impacts: 10

Benefits: 25 Benefits ≥ 7 dB(A): 11

Area/Benefit: 995 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW13_v2" / Opt1.1

Preliminary Recommendation: Feasible and Reasonable

**Table D-6 Noise Wall Analysis –NW13– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(t)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
13-001: 430 Waterstone Dr	Hospital	D	1	40	38	2
13-002: 622 Alice Loop	RES	B	1	59	56	3
13-003: 624 Alice Loop	RES	B	1	60	57	3
13-004: 626 Alice Loop	RES	B	1	61	58	3
13-005: 628 Alice Loop	RES	B	1	61	55	6
13-006: 630 Alice Loop	RES	B	1	61	57	4
13-007: 632 Alice Loop	RES	B	1	61	56	5
13-008: 634 Alice Loop	RES	B	1	60	58	2
13-009: 636 Alice Loop	RES	B	1	61	57	4
13-010: 638 Alice Loop	RES	B	1	64	60	4
13-011: 640 Alice Loop	RES	B	1	66	58	8
13-012: 642 Alice Loop	RES	B	1	66	58	8
13-013: 644 Alice Loop	RES	B	1	67	60	7
13-014: 646 Alice Loop	RES	B	1	67	60	7
13-015: 648 Alice Loop	RES	B	1	67	60	7
13-016: 650 Alice Loop	RES	B	1	67	59	8
13-017: 652 Alice Loop	RES	B	1	66	59	7
13-018: 654 Alice Loop	RES	B	1	66	59	7
13-019: 656 Alice Loop	RES	B	1	66	59	7
13-020: 658 Alice Loop	RES	B	1	66	59	7
13-022: 662 Alice Loop	RES	B	1	65	59	6
13-023: 664 Alice Loop	RES	B	1	64	59	5
13-024: 668 Alice Loop	RES	B	1	64	59	5
13-025: 670 Alice Loop	RES	B	1	63	59	4
13-027: 672 Alice Loop	RES	B	1	62	58	4
13-028: 674 Alice Loop	RES	B	1	61	58	3

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
13-029: 676 Alice Loop	RES	B	1	61	58	3
13-030: 678 Alice Loop	RES	B	1	60	57	3
13-031: 680 Alice Loop	RES	B	1	59	57	2
13-032: 677 Alice Loop	RES	B	1	60	56	4
13-033: 675 Alice Loop	RES	B	1	60	57	3
13-034: 673 Alice Loop	RES	B	1	59	56	3
13-035: 671 Alice Loop	RES	B	1	59	57	2
13-036: 669 Alice Loop	RES	B	1	60	57	3
13-037: 665 Alice Loop	RES	B	1	61	56	5
13-038: 659 Alice Loop	RES	B	1	61	57	4
13-039: 657 Alice Loop	RES	B	1	62	57	5
13-040: 655 Alice Loop	RES	B	1	63	57	6
13-041: 651 Alice Loop	RES	B	1	63	58	5
13-042: 649 Alice Loop	RES	B	1	63	57	6
13-043: 647 Alice Loop	RES	B	1	63	57	6
13-044: 625 Alice Loop	RES	B	1	59	54	5
13-045: 623 Alice Loop	RES	B	1	61	54	7
13-046: 621 Alice Loop	RES	B	1	59	54	5
13-047: 619 Alice Loop	RES	B	1	59	56	3
13-048: 617 Alice Loop	RES	B	1	58	55	3
13-049: 615 Alice Loop	RES	B	1	58	56	2
13-050: 613 Alice Loop	RES	B	1	56	54 ²	2
13-121: 660 Alice Loop	RES	B	1	65	60	5
Noise Wall 13 Predicted Build Condition With-Wall Benefits¹						25
Noise Level Impact		5 to 6 dB(A) NLR			≥ 7 dB(A) NLR	
1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A). 2. The lowest attainable NSA 13 equivalent sound level = 54 dB(A) per ambient sound level data acquired at monitoring location M13.6 (Refer to Table 5).						

-NW14- (Not recommended for construction or further study due to exceeding area per benefit threshold)

Location: Adjacent to I-40 westbound north of SR 1723 (New Hope Church Road)

Termini: -L- STA 136+88.59 57.01' LT / -L- STA 185+72.68 57.42' LT

Dimensions: Length = 3,960 ft. Average Height = 18.4 ft. Area = 72,960 sq. ft.

Impacts: 3 Benefited Impacts: 3

Benefits: 4 Benefits ≥ 7 dB(A): 4

Area/Benefit: 18,240 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW14_v1_ext" / Opt1

Preliminary Recommendation: Feasible, Not Reasonable

**Table D-7 Noise Wall Analysis –NW14– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
14-001: 1608 Scarlett Mountain Rd	RES	B	1	66	59	7
14-002: 1600 Scarlett Mountain Rd	RES	B	1	65	58	7
14-003: 1600 Cheyenne Dr	RES	B	1	68	59	9
14-004: Blackwood Farm Park Trail	REC	C	0.01	67	59	8
14-005: Blackwood Farm Park Trail	REC	C	0.01	68	59	9
14-006: Blackwood Farm Park Trail	REC	C	0.01	69	59	10
14-007: Blackwood Farm Park Trail	REC	C	0.01	69	59	10
14-008: Blackwood Farm Park Trail	REC	C	0.01	69	59	10
14-009: Blackwood Farm Park Trail	REC	C	0.01	69	59	10
14-010: Blackwood Farm Park Trail	REC	C	0.01	71	61	10
14-011: Blackwood Farm Park Trail	REC	C	0.01	72	61	11
14-012: Blackwood Farm Park Trail	REC	C	0.01	71	61	10
14-013: Blackwood Farm Park Trail	REC	C	0.01	70	61	9
14-014: Blackwood Farm Park Trail	REC	C	0.01	68	59	9
14-015: Blackwood Farm Park Trail	REC	C	0.01	66	59	7
14-016: Blackwood Farm Park Trail	REC	C	0.01	66	59	7
14-017: Blackwood Farm Park Trail	REC	C	0.01	65	60	5
14-018: Blackwood Farm Park Trail	REC	C	0.01	64	60	4
14-019: Blackwood Farm Park Trail	REC	C	0.01	64	60	4
Noise Wall 14 Predicted Build Condition With-Wall Benefits¹						4
Noise Level Impact		5 to 6 dB(A) NLR			≥ 7 dB(A) NLR	

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

-NW17- (Not recommended for construction or further study due to exceeding area per benefit threshold)

Location: Adjacent to I-40 westbound south of SR 1723 (New Hope Church Road)

Termini: -L- STA 226+49.55 74.41' LT / -L- STA 237+19.61 134.28' LT

Dimensions: Length = 1,080 ft. Average Height = 15.0 ft. Area = 16,216 sq. ft.

Impacts: 11 Benefited Impacts: 6

Benefits: 7 Benefits ≥ 7 dB(A): 2

Area/Benefit: 2,317 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW17_v1" / 17A_Opt2

Preliminary Recommendation: Feasible, Not Reasonable

**Table D-8 Noise Wall Analysis –NW17– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
17-004: 6109 Meadowsweet Ln	RES	B	1	60	56	4
17-005: 6114 Meadowsweet Ln	RES	B	1	65	60	5
17-006: 5317 Hideaway Dr	RES	B	1	66	60	6
17-007: 5321 Hideaway Dr	RES	B	1	67	61	6
17-008: 5325 Hideaway Dr	RES	B	1	67	60	7
17-009: 5401 Hideaway Dr	RES	B	1	66	59	7
17-010: 6025 Meadow Greer Rd	RES	B	1	68	62	6
17-011: 6027 Meadow Greer Rd	RES	B	1	71	66	5
17-012: 6019 Meadow Greer Rd	RES	B	1	61	59	2
17-014: 6022 Meadow Greer Rd	RES	B	1	67	67	0
17-015: 6018 Meadow Greer Rd	RES	B	1	63	63	0
17-016: 6014 Meadow Greer Rd	RES	B	1	62	62	0
17-020: 5635 Hideaway Dr	RES	B	1	60	60	0
17-021: 5705 Hideaway Dr	RES	B	1	60	60	0
17-022: 5715 Hideaway Dr	RES	B	1	62	62	0
17-023: 5721 Hideaway Dr	RES	B	1	63	63	0
17-024: 5803 Hideaway Dr	RES	B	1	66	66	0
17-025: 5809 Hideaway Dr	RES	B	1	67	67	0
17-026: 5901 Hideaway Dr	RES	B	1	67	67	0
17-027: 5904 Hideaway Dr	RES	B	1	61	61	0
17-028: 5912 Hideaway Dr	RES	B	1	61	60	1
17-029: 5911 Hideaway Dr	RES	B	1	66	66	0
Noise Wall 17 Predicted Build Condition With-Wall Benefits¹						7
Noise Level Impact		5 to 6 dB(A) NLR			≥ 7 dB(A) NLR	

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

-NW20- (Not recommended for construction or further study due to exceeding area per benefit threshold)

Location: Adjacent to I-40 westbound over SR 1725 (Millhouse Road)

Termini: -L- STA 294+45.89 61.03' LT / -L- STA 303+57.79 62.47' LT

Dimensions: Length = 900 ft. Average Height = 12.2 ft. Area = 10,969 sq. ft.

Impacts: 5 Benefited Impacts: 5

Benefits: 6 Benefits ≥ 7 dB(A): 1

Area/Benefit: 1,828 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW20_v1" / Opt2

Preliminary Recommendation: Feasible, Not Reasonable

**Table D-9 Noise Wall Analysis –NW20– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
20-002: 6008 Millhouse Rd	RES	B	1	69	64	5
20-003: 1732 Avery Way	RES	B	1	67	62	5
20-004: 1732 Avery Way	RES	B	1	65	59	6
20-005: 1732 Avery Way	RES	B	1	66	60	6
20-006: 1732 Avery Way	RES	B	1	68	63	5
20-007: 1732 Avery Way	RES	B	1	70	63	7
Noise Wall 20 Predicted Build Condition With-Wall Benefits¹						6
Noise Level Impact		5 to 6 dB(A) NLR		≥ 7 dB(A) NLR		
1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).						

-NW22a- (Not recommended for construction or further study due to exceeding area per benefit threshold)

Location: Adjacent to I-40 westbound north of NC 86

Termini: -L- STA 335+79.08 74.53' LT / -Y9RPB- STA 20+51.30 34.82' LT

Dimensions: Length = 1,080 ft. Average Height = 13.2 ft. Area = 14,301 sq. ft.

Impacts: 2 Benefited Impacts: 2

Benefits: 2 Benefits \geq 7 dB(A): 2

Area/Benefit: 7,150 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW22AB_v1" / 22A-Opt1

Preliminary Recommendation: Feasible, Not Reasonable

**Table D-10 Noise Wall Analysis –NW22a– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
22a-001: 2014 Clyde Rd	RES	B	1	72	65	7
22a-002: 2015 Clyde Rd	RES	B	1	70	63	7
22a-003: 2107 Clyde Rd	RES	B	1	65	62	3
Noise Wall 22a Predicted Build Condition With-Wall Benefits¹						2
Noise Level Impact		5 to 6 dB(A) NLR		\geq 7 dB(A) NLR		

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

-NW22b-

Location: Adjacent to the onramp from NC 86 to I-40 westbound

Termini: -Y9- STA 49+00.89 67.50' LT / -Y9- STA 51+40.04 46.94' LT

Dimensions: Length = 420 ft. Average Height = 13.7 ft. Area = 5,753 sq. ft.

Impacts: 4 Benefited Impacts: 4

Benefits: 4 Benefits ≥ 7 dB(A): 4

Area/Benefit: 1,438 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW22B_v2" / Opt1.1

Preliminary Recommendation: Feasible and Reasonable

**Table D-11 Noise Wall Analysis –NW22b– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(t)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
22b-001: 298 Old Moze Trail	RES	B	1	66	59	7
22b-002: 300 Old Moze Trail	RES	B	1	66	59	7
22b-003: 302 Old Moze Trail	RES	B	1	66	59	7
22b-004: 304 Old Moze Trail	RES	B	1	66	59	7
22b-005: 306 Old Moze Trail	RES	B	1	62	61	1
22b-006: 307 Old Moze Trail	RES	B	1	60	60	0
22b-007: 506 Hurricane Alley	RES	B	1	61	61	0
22b-008: 508 Hurricane Alley	RES	B	1	62	62	0
22b-009: 510 Hurricane Alley	RES	B	1	62	62	0
22b-010: 512 Hurricane Alley	RES	B	1	63	63	0
22b-011: 514 Hurricane Alley	RES	B	1	63	63	0
22b-012: 516 Hurricane Alley	RES	B	1	63	63	0
22b-013: 518 Hurricane Alley	RES	B	1	64	64	0
22b-014: 520 Hurricane Alley	RES	B	1	64	64	0
22b-015: 522 Hurricane Alley	RES	B	1	65	65	0
Noise Wall 22b Predicted Build Condition With-Wall Benefits¹						4
Noise Level Impact		5 to 6 dB(A) NLR			≥ 7 dB(A) NLR	

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

-NW22b2- (Not recommended for construction or further study due to exceeding area per benefit threshold)

Location: Adjacent to the onramp from NC 86 to I-40 westbound

Termini: -L- STA 334+58.64 74.52' LT / -Y9RPB- STA 22+36.80 35.52' LT

Dimensions: Length = 1,530 ft. Average Height = 26.4 ft. Area = 40,348 sq. ft.

Impacts: 3 Benefited Impacts: 3

Benefits: 15 Benefits ≥ 7 dB(A): 1

Area/Benefit: 2,690 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW22B2_v1" / 22B2-Opt2

Preliminary Recommendation: Feasible, Not Reasonable

**Table D-12 Noise Wall Analysis –NW22b2– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(t)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
22b-006: 307 Old Moze Trail	RES	B	1	60	58	2
22b-007: 506 Hurricane Alley	RES	B	1	61	58	3
22b-008: 508 Hurricane Alley	RES	B	1	62	58	4
22b-009: 510 Hurricane Alley	RES	B	1	62	58	4
22b-010: 512 Hurricane Alley	RES	B	1	63	58	5
22b-011: 514 Hurricane Alley	RES	B	1	63	58	5
22b-012: 516 Hurricane Alley	RES	B	1	63	59	4
22b-013: 518 Hurricane Alley	RES	B	1	64	59	5
22b-014: 520 Hurricane Alley	RES	B	1	64	59	5
22b-015: 522 Hurricane Alley	RES	B	1	65	59	6
22b-016: 524 Hurricane Alley	RES	B	1	66	59	7
22b-017: 526 Hurricane Alley	RES	B	1	67	61	6
22b-018: 527 Hurricane Alley	RES	B	1	67	61	6
22b-019: 133 Mary Kathryn Ln	RES	B	1	65	59	6
22b-020: 131 Mary Kathryn Ln	RES	B	1	65	60	5
22b-021: 129 Mary Kathryn Ln	RES	B	1	65	59	6
22b-022: 127 Mary Kathryn Ln	RES	B	1	65	60	5
22b-023: 125 Mary Kathryn Ln	RES	B	1	65	60	5
22b-024: 123 Mary Kathryn Ln	RES	B	1	65	60	5
22b-025: 121 Mary Kathryn Ln	RES	B	1	65	60	5
22b-026: 119 Mary Kathryn Ln	RES	B	1	65	61	4
22b-027: 117 Mary Kathryn Ln	RES	B	1	63	60	3
22b-028: 115 Mary Kathryn Ln	RES	B	1	62	60	2
22b-029: 113 Mary Kathryn Ln	RES	B	1	63	61	2
Noise Wall 22b2 Predicted Build Condition With-Wall Benefits¹						15
Noise Level Impact		5 to 6 dB(A) NLR			≥ 7 dB(A) NLR	

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

-NW26- (Not recommended for construction or further study due to exceeding area per benefit threshold)

Location: Adjacent to I-40 westbound east of NC 86 (Martin Luther King Jr. Boulevard)

Termini: -L- STA 390+78.09 109.54' LT / -L- STA 407+71.99 62.48' LT

Dimensions: Length = 1,680 ft. Average Height = 13.4 ft. Area = 22,566 sq. ft.

Impacts: 5 Benefited Impacts: 5

Benefits: 6 Benefits \geq 7 dB(A): 1

Area/Benefit: 3,761 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW26_v1" / Opt2

Preliminary Recommendation: Feasible, Not Reasonable

**Table D-13 Noise Wall Analysis –NW26– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
26-001: 2623 Whitfield Rd	Res	B	1	63	62	1
26-002: 2715 Whitfield Rd	Res	B	1	70	65	5
26-003: 2719 Whitfield Rd	Res	B	1	66	61	5
26-004: 2719 Whitfield Rd	Res	B	1	63	58	5
26-005: 113 Foxridge Rd	Res	B	1	66	60	6
26-006: 112 Foxridge Rd	Res	B	1	66	60	6
26-007: 111 Foxridge Rd	Res	B	1	73	66	7
26-008: 101 Foxridge Rd	Res	B	1	62	62	0
Noise Wall 26 Predicted Build Condition With-Wall Benefits¹						6
Noise Level Impact		5 to 6 dB(A) NLR		\geq 7 dB(A) NLR		
1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).						

-NW32-

Location: Adjacent to I-40 eastbound between SR 1732 (Sunrise Road) and SR 1734 (Erwin Road)

32A Termini: -L- STA 475+26.56 104.52' RT / -L- STA 487+16.30 155.22' RT

32B Termini: -L- STA 499+11.31 139.79' RT / -L- STA 514+74.31 62.50' RT

Dimensions: Length = 2,745 ft. Average Height = 17.0 ft. Area = 46,798 sq. ft.

Impacts: 19 Benefited Impacts: 19

Benefits: 40 Benefits ≥ 7 dB(A): 24

Area/Benefit: 1,170 sq. ft. Allowable Area/Benefit: 1,500 sq. ft.

TNM/SBA: "NW32_v2" / Opt2.1

Preliminary Recommendation: Feasible and Reasonable

**Table D-14 Noise Wall Analysis –NW32– Performance
Noise Levels without Wall and with Wall**

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
32-003: 3830 Sweeten Creek Rd	RES	B	1	55	53	2
32-004: 103 Yukon Ln	RES	B	1	55	53	2
32-005: 105 Yukon Ln	RES	B	1	57	54	3
32-006: 107 Yukon Ln	RES	B	1	63	59	4
32-007: 106 Yukon Ln	RES	B	1	68	61	7
32-008: 104 Yukon Ln	RES	B	1	69	62	7
32-009: 102 Yukon Ln	RES	B	1	60	57	3
32-010: 100 Yukon Ln	RES	B	1	60	57	3
32-011: 3902 Sweeten Creek Rd	RES	B	1	64	59	5
32-012: 3904 Sweeten Creek Rd	RES	B	1	66	59	7
32-013: 3906 Sweeten Creek Rd	RES	B	1	67	60	7
32-014: 3908 Sweeten Creek Rd	RES	B	1	65	61	4
32-015: 3910 Sweeten Creek Rd	RES	B	1	62	59	3
32-016: 3912 Sweeten Creek Rd	RES	B	1	63	60	3
32-017: 3914 Sweeten Creek Rd	RES	B	1	61	59	2
32-018: 4000 Sweeten Creek Rd	RES	B	1	61	58	3
32-019: 4002 Sweeten Creek Rd	RES	B	1	61	58	3
32-020: 4004 Sweeten Creek Rd	RES	B	1	58	55	3
32-021: 4006 Sweeten Creek Rd	RES	B	1	64	60	4
32-022: 4008 Sweeten Creek Rd	RES	B	1	66	61	5
32-023: 4010 Sweeten Creek Rd	RES	B	1	67	60	7
32-024: 4100 Sweeten Creek Rd	RES	B	1	69	62	7
32-025: 4102 Sweeten Creek Rd	RES	B	1	71	61	10
32-026: 4104 Sweeten Creek Rd	RES	B	1	72	61	11

Receptors				Predicted Noise Levels, $L_{eq(t)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
32-027: 4106 Sweeten Creek Rd	RES	B	1	72	60	12
32-028: 4108 Sweeten Creek Rd	RES	B	1	70	60	10
32-029: 604 Perry Creek Dr	RES	B	1	69	60	9
32-030: 602 Perry Creek Dr	RES	B	1	67	57	10
32-031: 600 Perry Creek Dr	RES	B	1	67	56	11
32-032: 103 Hawksbill Pl	RES	B	1	68	59	9
32-033: 105 Hawksbill Pl	RES	B	1	67	59	8
32-034: 104 Hawksbill Pl	RES	B	1	67	59	8
32-035: 102 Hawksbill Pl	RES	B	1	66	59	7
32-036: 508 Perry Creek Dr	RES	B	1	63	54	9
32-037: 506 Perry Creek Dr	RES	B	1	63	59	4
32-038: 504 Perry Creek Dr	RES	B	1	64	59	5
32-039: 502 Perry Creek Dr	RES	B	1	63	59	4
32-040: 503 Perry Creek Dr	RES	B	1	58	55	3
32-041: 505 Perry Creek Dr	RES	B	1	58	53	5
32-042: 507 Perry Creek Dr	RES	B	1	60	54	6
32-043: 509 Perry Creek Dr	RES	B	1	62	54	8
32-044: 601 Perry Creek Dr	RES	B	1	62	58	4
32-045: 406 Silver Creek Trl	RES	B	1	63	55	8
32-046: 5007 Sweeten Creek Rd	RES	B	1	66	59	7
32-047: 4103 Sweeten Creek Rd	RES	B	1	64	59	5
32-048: 101 Alta Ct	RES	B	1	63	58	5
32-049: 4007 Sweeten Creek Rd	RES	B	1	61	56	5
32-071: 203 Alta Ct	RES	B	1	63	58	5
32-072: 405 Silver Creek Trl	RES	B	1	63	58	5
32-073: 403 Silver Creek Trl	RES	B	1	62	55	7
32-074: 404 Silver Creek Trl	RES	B	1	60	53	7
32-075: 400 Silver Creek Trl	RES	B	1	61	56	5
32-076: 101 Sundance Pl	RES	B	1	61	58	3
32-077: 501 Perry Creek Dr	RES	B	1	62	57	5
32-078: 500 Perry Creek Dr	RES	B	1	64	60	4
32-079: 103 Swift Run	RES	B	1	64	60	4
32-080: 100 Swift Run	RES	B	1	64	60	4
32-081: 102 Swift Run	RES	B	1	64	61	3
32-082: 104 Swift Run	RES	B	1	64	62	2
32-083: 408 Perry Creek Dr	RES	B	1	62	55	7
32-084: 406 Perry Creek Dr	RES	B	1	60	56	4
32-085: 415 Perry Creek Dr	RES	B	1	64	59	5
32-086: 413 Perry Creek Dr	RES	B	1	62	58	4

Receptors				Predicted Noise Levels, $L_{eq(h)}$ [dB(A)]		
ID	Use	NAC	ERs	Build	With Wall	NLR
32-087: 103 Sundance Pl	RES	B	1	63	58	5
32-088: 100 Sundance Pl	RES	B	1	61	58	3
32-089: 401 Silver Creek Trl	RES	B	1	60	55	5
32-090: 321 Silver Creek Trl	RES	B	1	61	57	4
32-091: 205 Alta Ct	RES	B	1	60	57	3
32-092: 206 Alta Ct	RES	B	1	61	57	4
32-093: 202 Alta Ct	RES	B	1	57	51	6
32-094: 108 San Juan Dr	RES	B	1	50	50	0
32-095: 109 San Juan Dr	RES	B	1	50 ²	50 ²	0
Noise Wall 32 Predicted Build Condition With-Wall Benefits¹						40
Noise Level Impact		5 to 6 dB(A) NLR			≥ 7 dB(A) NLR	
<ol style="list-style-type: none"> 1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A). 2. The lowest attainable NSA 32 equivalent sound level = 50 dB(A) per ambient sound level data acquired at monitoring location M32.6 (Refer to Table 5). 						