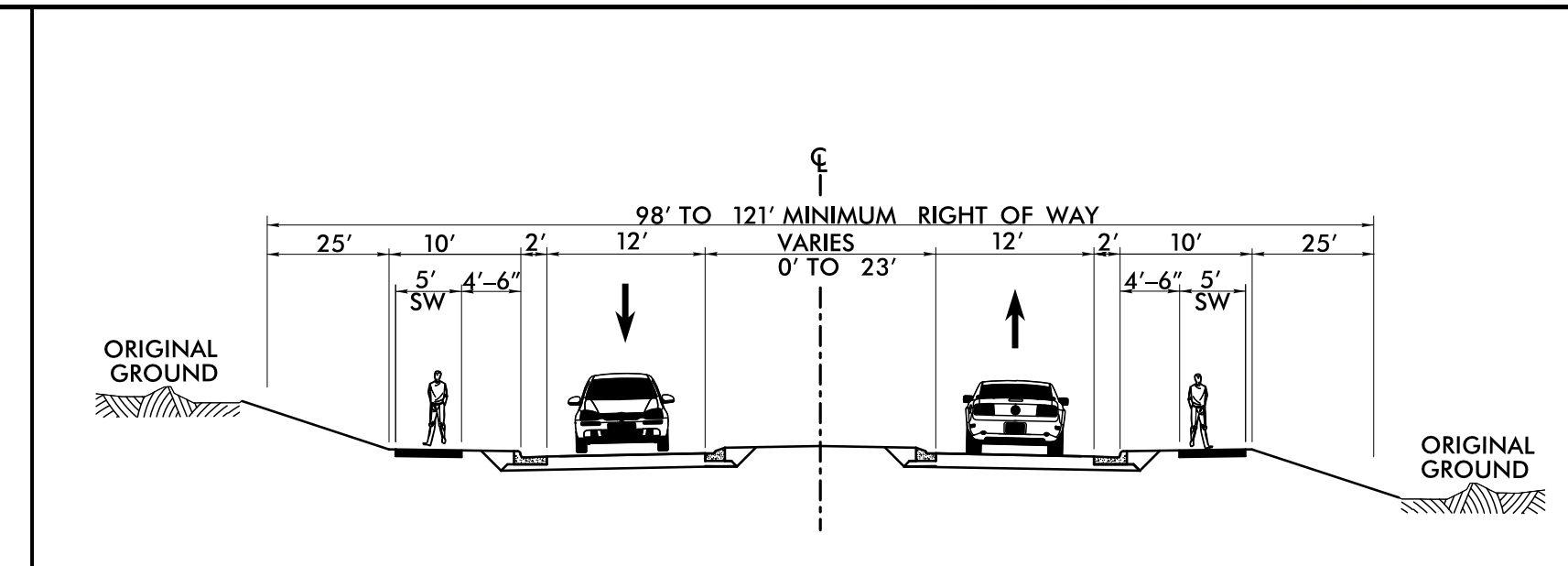
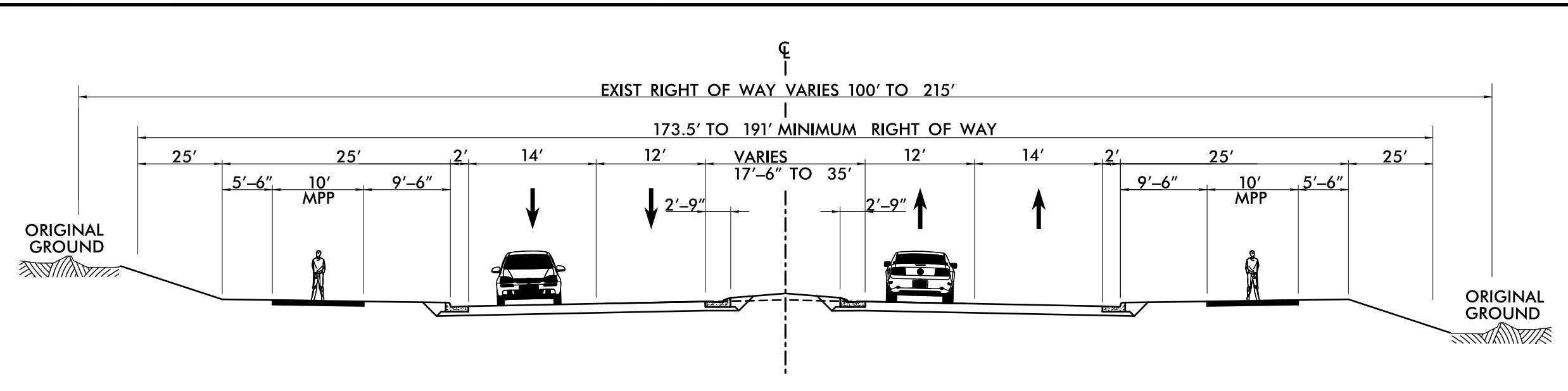


APPENDICES



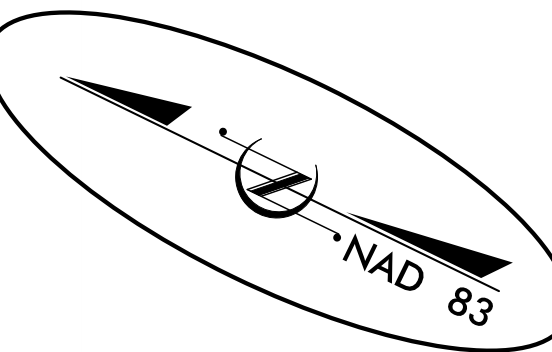
APPENDIX A

4 LANE BOULEVARD CONCEPT



US 70 IMPROVEMENTS

ROLL 1 OF 4



DESIGN CRITERIA
US 70
PRINCIPAL ARTERIAL
DS = 50 MPH
MIN RADIUS = 926 FT
e = 4 %

PROPOSED
SIDEWALK & MUP

MATCHLINE -L- 61+00
SEE ROLL 2 OF 4

MARCH 2024
NCONEMAP
PHOTOGRAMETRY
SCALE (ENGLISH)

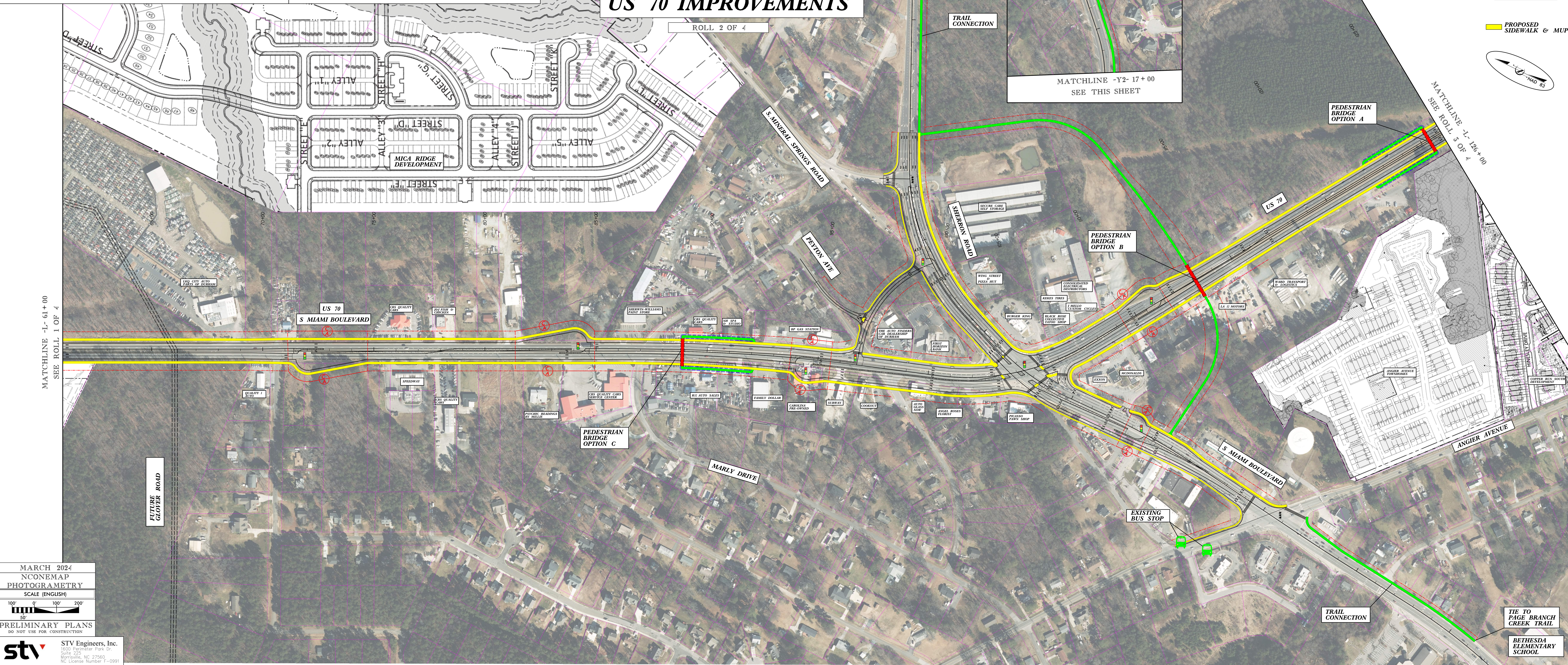
100' 0' 100' 200'

50'

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV

STV Engineers, Inc.
1650 Perimeter Park Dr.
Suite 225
Morrisville, NC 27560
NC License Number F-0991



PRINCIPAL ARTERIAL
 DS = 50 MPH
 MIN RADIUS = 926 FT
 e = 4 %

 **PROPOSED
SIDEWALK & MUP**

US 70 IMPROVEMENTS

ROLL 2 OF 4

MATCHLINE -Y2- 17+00
SEE THIS SHEET

TIE TO FUTURE LICK CREEK TRAIL

MATCHLINE -Y2- 17 + 00
SEE THIS SHEET

**PEDESTRIAN
BRIDGE
OPTION A**

MATCHLINE -L- 126+00
SEE ROLL 3 OF 4

MATCHLINE -L- 61+00
SEE ROLL 1 OF 4

US 70
S MIAMI BOULEVARD

**FUTURE
GLOVER ROAD**

**PEDESTRIAN
BRIDGE
OPTION C**

MARLY DRIVE

**EXISTING
BUS STOP**

TRAIL CONNECTION

**TIE TO
PAGE BRANCH
CREEK TRAIL**

**BETHESDA
ELEMENTARY
SCHOOL**

MARCH 2024
NCONEMAP
PHOTOGRAMMETRY
SCALE (ENGLISH)
100' 0' 100' 200'
50'
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV  **STV Engineers, Inc.**
1600 Perimeter Park Dr.
Suite 225
Morrisville, NC 27560
NC License Number F-0991

US 70 IMPROVEMENTS

ROLL 3 OF 4

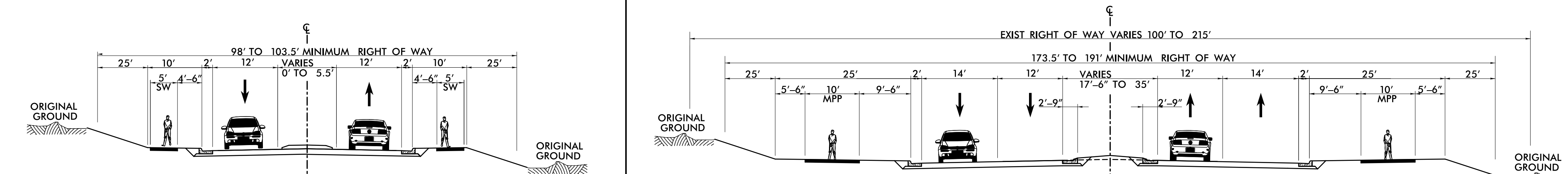
MATCHLINE -L- 126+00
SEE ROLL 2 OF 4

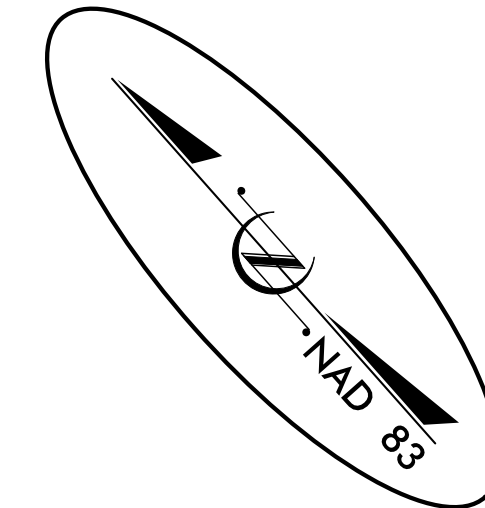
MATCHLINE -L- 188+00
SEE ROLL 4 OF 4

DESIGN CRITERIA
US 70
PRINCIPAL ARTERIAL
DS = 50 MPH
MIN RADIUS = 926 FT
e = 4 %

PROPOSED
SIDEWALK & MUP

MARCH 2024
NCONEMAP
PHOTOGRAMETRY
SCALE (ENGLISH)
100' 0' 100' 200'
50'
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
STV Engineers, Inc.
1600 Perimeter Park Dr.
Suite 225
Morrisville, NC 27560
NC License Number F-0991





US 70 IMPROVEMENTS

ROLL 4 OF 4

MATCHLINE -L- 188+00
SEE ROLL 3 OF 4

FUTURE
DURHAM PKWY
EXTENSION

DURHAM COUNTY
WAKE COUNTY

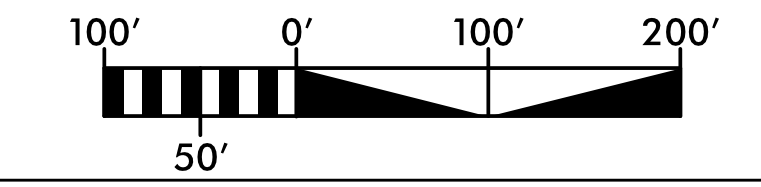
END PROJECT
TIE TO TIP PROJECT U-5518
-L- STA. 216+75.00

DESIGN CRITERIA
US 70

PRINCIPAL ARTERIAL
DS = 50 MPH
MIN RADIUS = 926 FT
e = 4 %

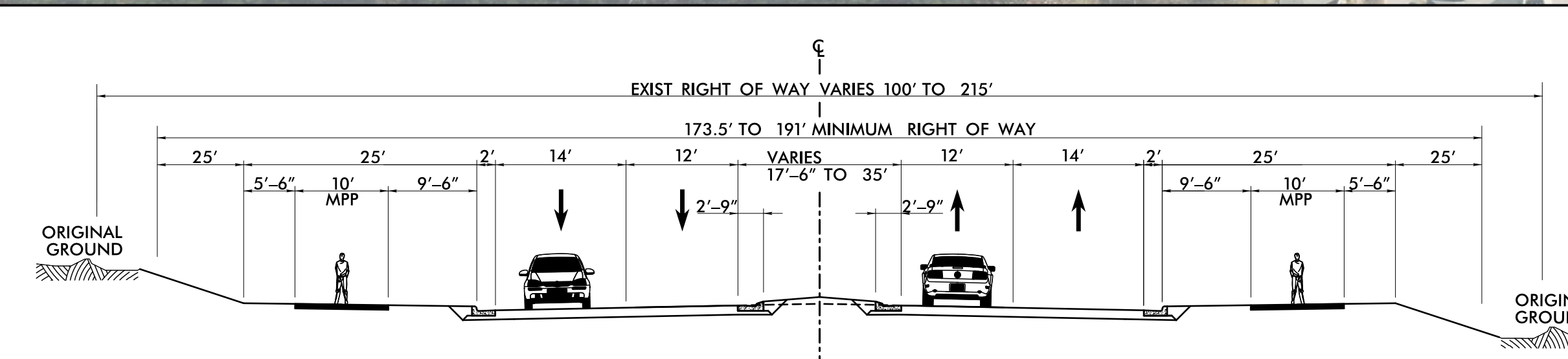
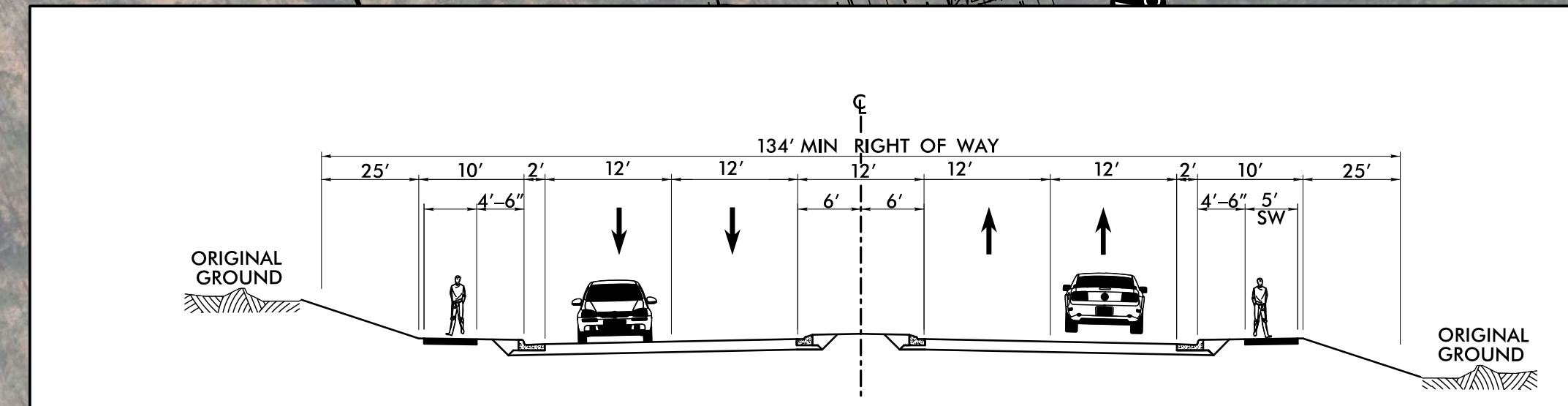
PROPOSED
SIDEWALK & MUP

MARCH 2024
NCONEMAP
PHOTOGRAMETRY
SCALE (ENGLISH)



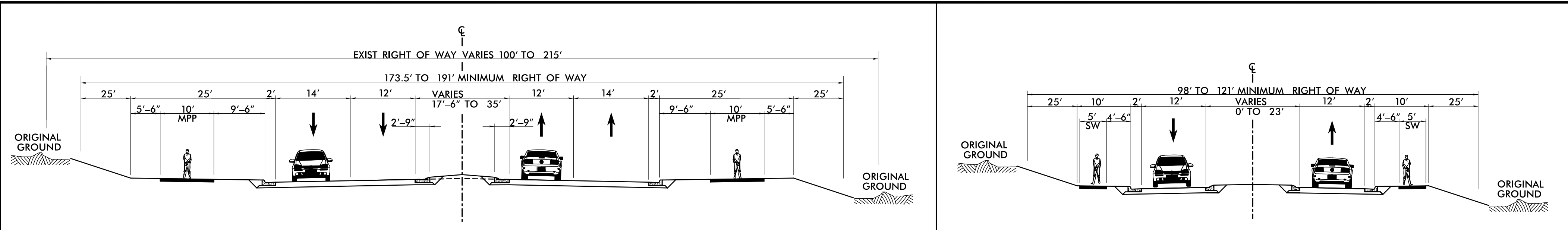
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

stv STV Engineers, Inc.
1600 Perimeter Park Dr.
Suite 225
Morrisville, NC 27560
NC License Number F-0991



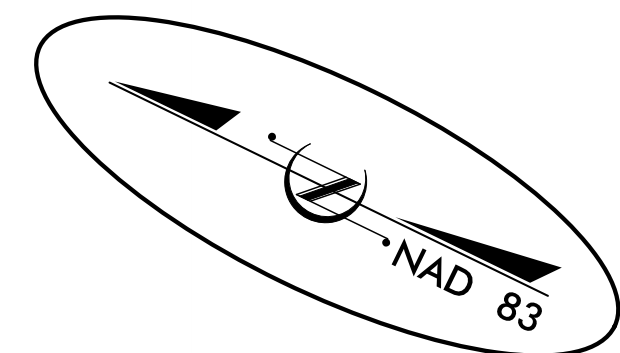
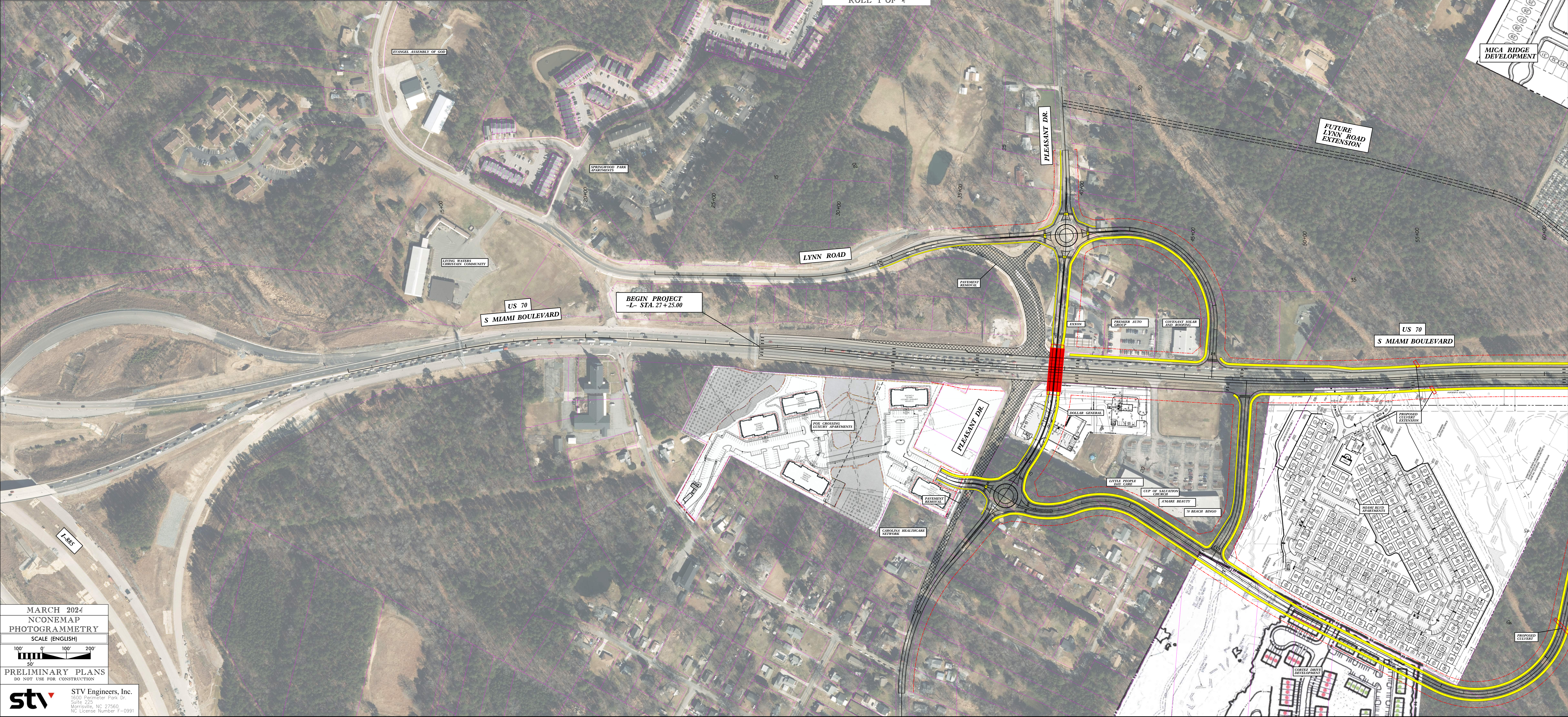
APPENDIX B

4 LANE BOULEVARD WITH PARALLEL ROADS CONCEPT



US 70 IMPROVEMENTS

ROLL 1 OF 4



DESIGN CRITERIA
US 70

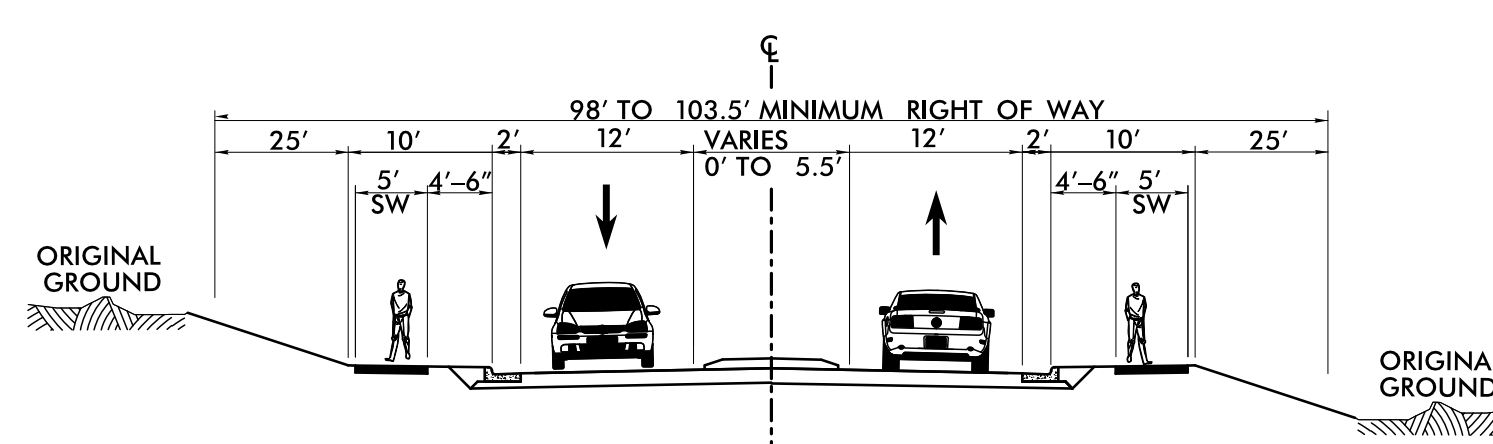
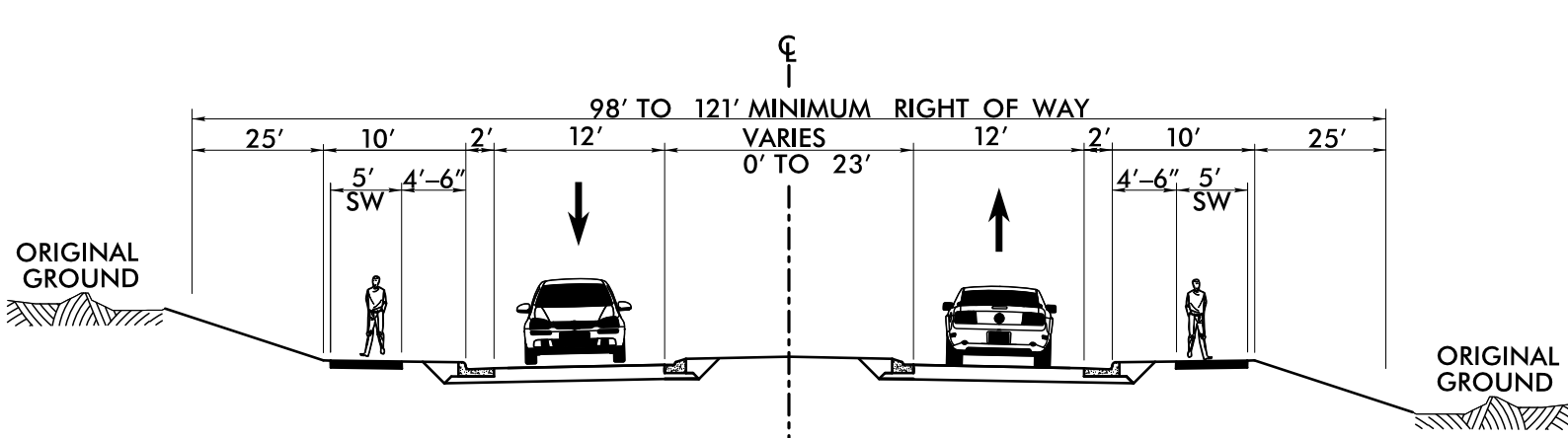
PRINCIPAL ARTERIAL
DS = 50 MPH
MIN RADIUS = 926 FT
e = 4 %

PROPOSED
SIDEWALK & MUP

MATCHLINE -L- 61+00
SEE ROLL 2 OF 4

MARCH 2024
NCONEMAP
PHOTOGRAMMETRY
SCALE (ENGLISH)
100' 0' 100' 200'
50'
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV Engineers, Inc.
1650 Fairview Park Dr.
Suite 225
Morrisville, NC 27560
NC License Number T-0991



US 70 IMPROVEMENTS

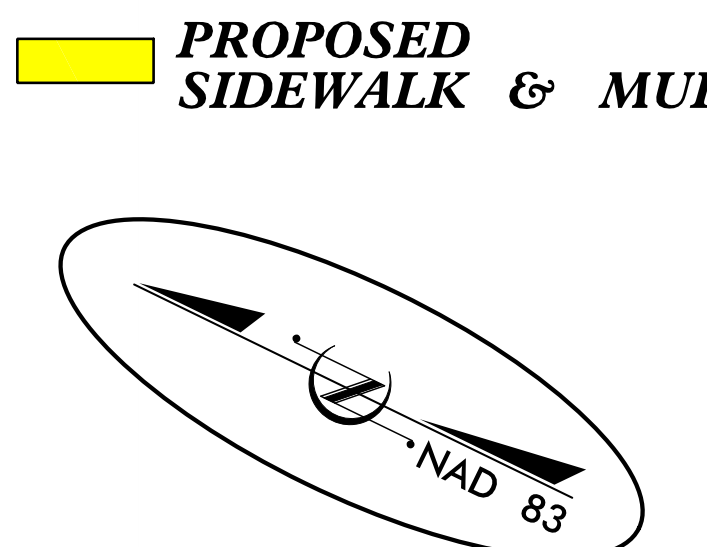
ROLL 2 OF 4

MATCHLINE -Y2- 17+00
SEE THIS SHEET

TIE TO FUTURE
LICK CREEK TRAIL

MATCHLINE -Y2- 17+00
SEE THIS SHEET

DESIGN CRITERIA
US 70
PRINCIPAL ARTERIAL
DS = 50 MPH
MIN RADIUS = 926 FT
e = 4 %



MATCHLINE -L- 61+00
SEE ROLL 1 OF 4

MATCHLINE -L- 126+00
SEE ROLL 3 OF 4

MARCH 2024
NCONEMAP
PHOTOGRAMMETRY
SCALE (ENGLISH)
100' 0' 100' 200'
50'
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

stv STV Engineers, Inc.
1600 Plummer Park Dr.
Suite 225
Morrisville, NC 27560
NC License Number T-0991

US 70 IMPROVEMENTS

ROLL 3 OF 4

MATCHLINE -L- 126+00
SEE ROLL 2 OF 4

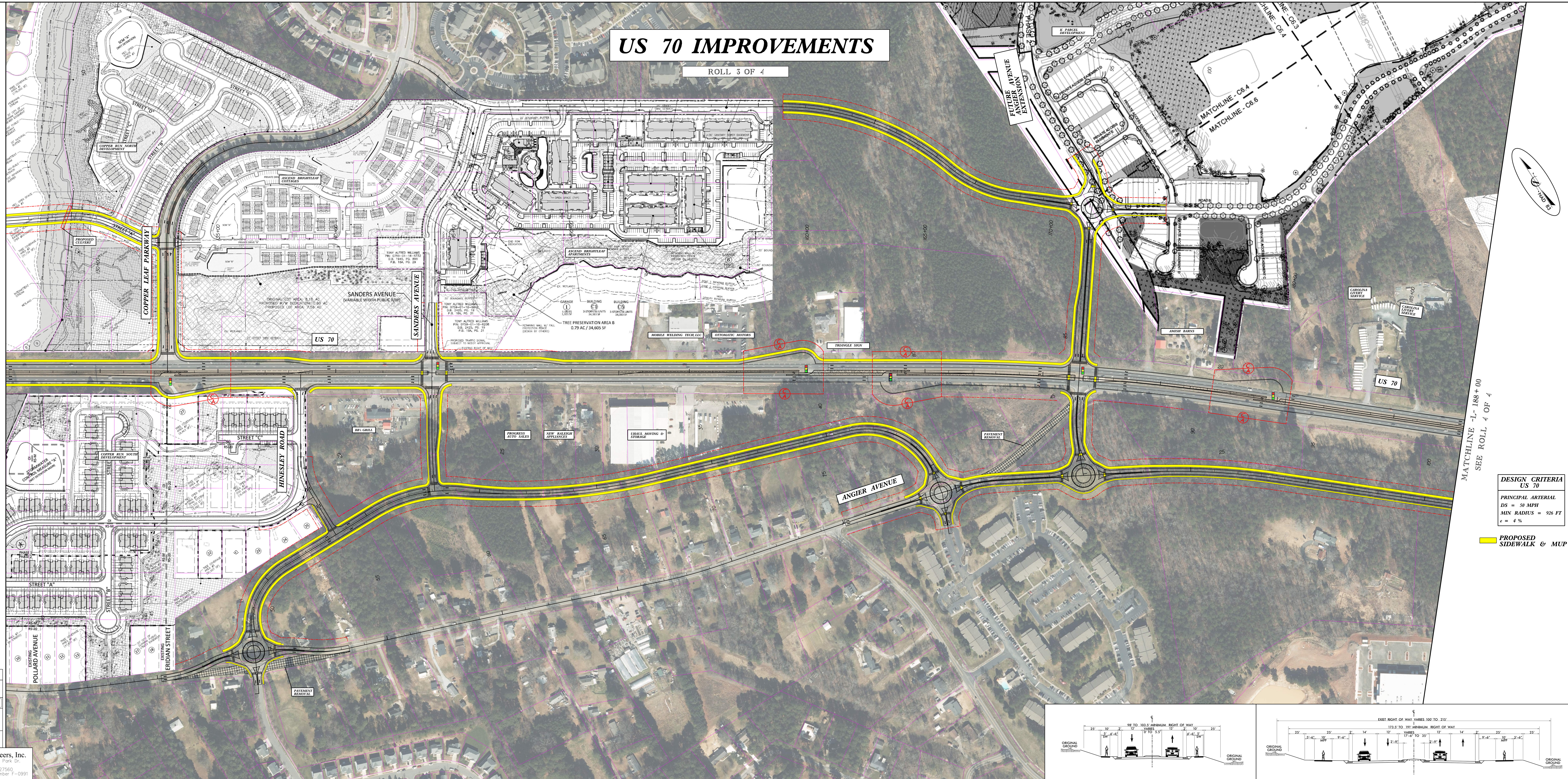
MATCHLINE -L- 188+00
SEE ROLL 4 OF 4

DESIGN CRITERIA
US 70
PRINCIPAL ARTERIAL
DS = 50 MPH
MIN RADIUS = 926 FT
ε = 4 %

PROPOSED
SIDEWALK & MUP

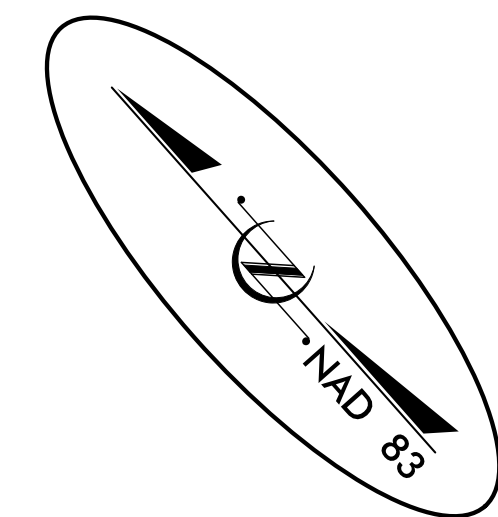
MARCH 2024
NCONEMAP
PHOTOGRAMMETRY
SCALE (ENGLISH)
100' 0' 100' 200'
50'
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV Engineers, Inc.
1500 Perimeter Park Dr.
Suite 225
Morriseville, NC 27560
NC License Number F-0991

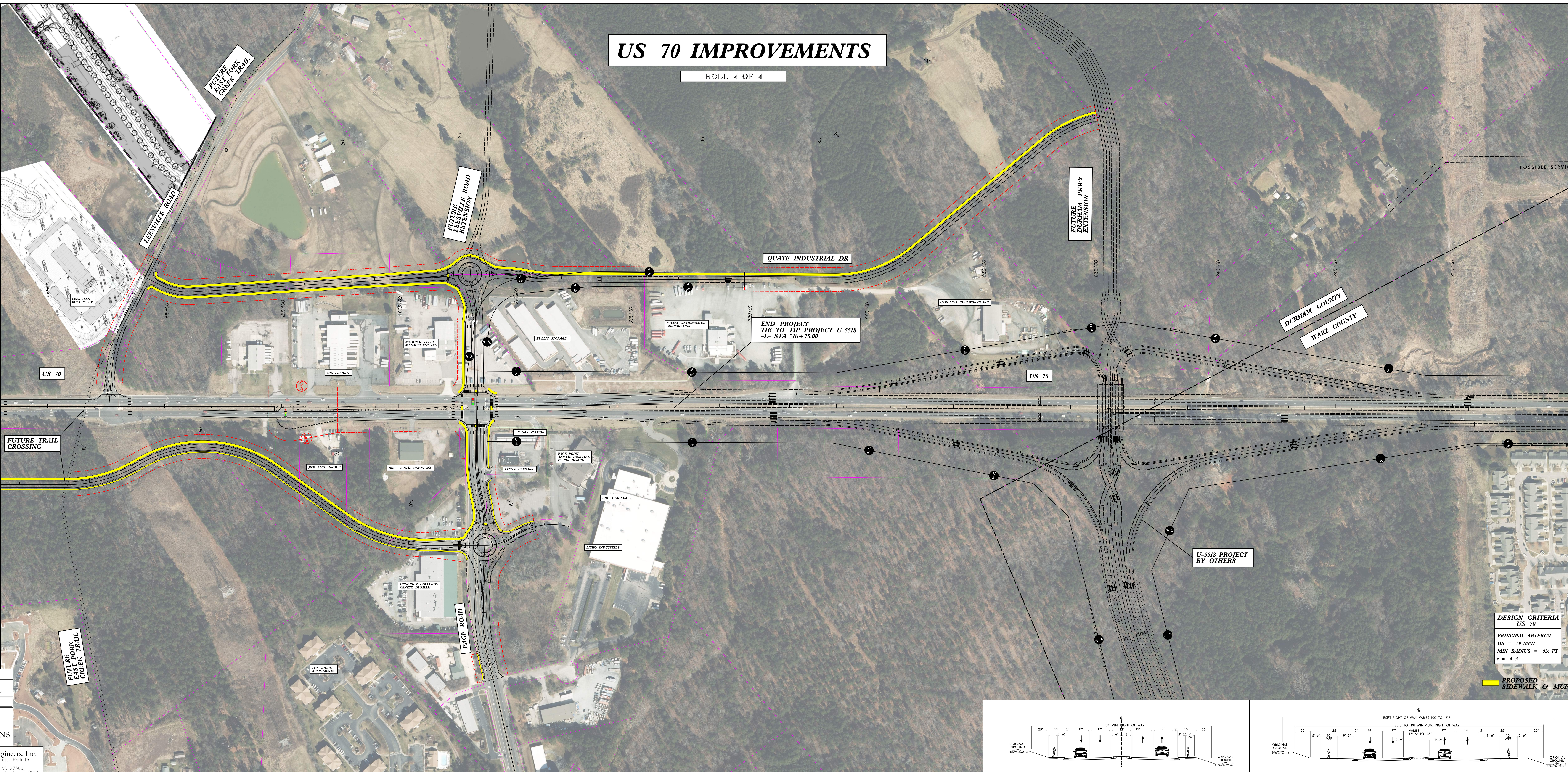


US 70 IMPROVEMENTS

ROLL 4 OF 4

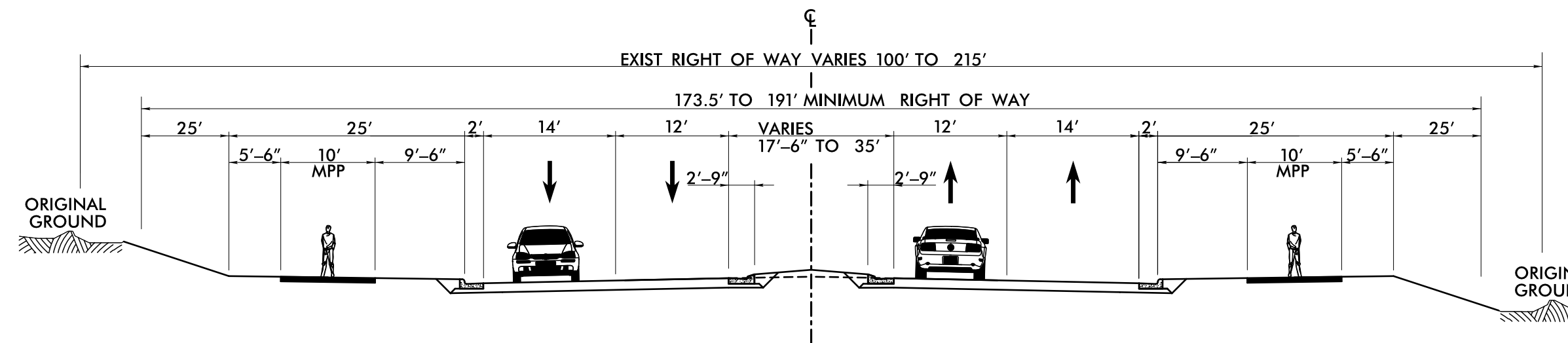
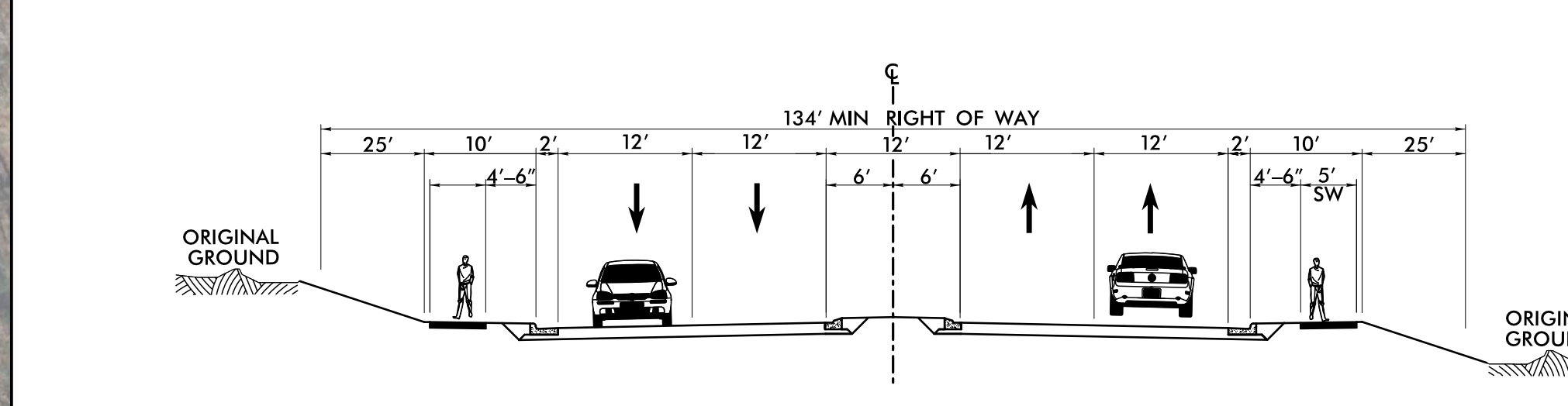


MATCHLINE -L- 188+00
SEE ROLL 3 OF 4



**DESIGN CRITERIA
US 70**
PRINCIPAL ARTERIAL
DS = 50 MPH
MIN RADIUS = 926 FT
 $e = 4\%$

**PROPOSED
SIDEWALK & MUP**



MARCH 2024
NCONEMAP
PHOTOGRAMMETRY
SCALE (ENGLISH)
100' 0' 100' 200'
50'

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV Engineers, Inc.
1600 Perimeter Park Dr.
Suite 225
Morrisville, NC 27560
NC License Number F-0991

APPENDIX C

4 LANE BOULEVARD CONCEPT COST ESTIMATE

Route: US 70		Date:	3/6/2024
From East End Connector (I-885) to Future Durham Parkway Extension			
Typical Section: Median Divided 4 Lane Curb and Gutter			
County: Durham	 		
Prepared By: STV Inc.			
Requested By: DCHCMPO			

CONSTRUCTION COST ESTIMATE (4 LANE BLVD)

TOTAL	\$104,502,886
25% Contingency	\$26,125,721
PROJECT TOTAL	\$130,628,607

US 70

Typical Section	Length(miles)		Price	Cost
6-Ln Shoulder W / Raised Median	0.291	Miles	\$14,100,000.00	\$4,106,625.00
4-Ln Curb & Gutter W / Blvd Grass Median	3.298	Miles	\$12,800,000.00	\$42,216,969.70
Adding Multi Use Path (10'W x 1 Mile)	6.596	Miles	\$650,000.00	\$4,287,660.98
Drainage(4 LN C&G raised Median)	3.298	Miles	\$1,125,000.00	\$3,710,475.85
Adding 2 @ 2' Paved Shoulders on C&G	3.298	Miles	\$400,000.00	\$1,319,280.30
Median U Turn Intersection	5.000	EA	\$2,000,000.00	\$10,000,000.00
			TOTAL	\$65,641,011.84

Pleasant Drive & Lynn Rd

Typical Section	Length(miles)		Price	Cost
2-Lane Curb & Gutter	0.462	Miles	\$9,800,000	\$4,528,787.88
130' Single Lane Roundabout	2	EA	\$2,200,000.00	\$4,400,000.00
Adding 5' Sidewalk - One Side	0.462	Miles	\$300,000.00	\$138,636.36
Drainage(2 LN C&G)	0.462	Miles	\$650,000.00	\$300,378.79
			TOTAL	\$9,367,803.03

Sherron Rd / S Miami Blvd

Typical Section	Length(miles)		Price	Cost
6-Lane Curb & Gutter	0.483	Miles	\$12,800,000.00	\$6,177,939.39
Adding Multi Use Path (10'W x 1 Mile)	0.811	Miles	\$650,000.00	\$527,250.95
Adding 5' Sidewalk - One Side	0.386	Miles	\$300,000.00	\$115,931.82
Drainage(6 LN C&G) (Widening)	0.483	Miles	\$1,325,000.00	\$639,513.26
			TOTAL	\$7,460,635.42

Pedestrian Bridge (at Sherron/ Miami blvd)

Typical Section	Length(miles)		Price	Cost
10' Multi Use Path (New Location)	0.410	Miles	\$4,000,000.00	\$1,641,666.67
Bridge(Concrete)	2626	SF	\$225.00	\$590,850.00
			TOTAL	\$2,232,516.67

Copper Leaf Parkway				
Typical Section	Length(miles)		Price	Cost
2 lane Raised Median Widening	0.065	Miles	\$6,200,000.00	\$400,416.67
Drainage(2 LN C&G) (Widening)	0.065	Miles	\$525,000.00	\$33,906.25
			TOTAL	\$434,322.92

Angier Ave				
Typical Section	Length(miles)		Price	Cost
2-Lane Curb & Gutter	0.398	Miles	\$9,800,000	\$3,903,295.45
130' Single Lane Roundabout	2	EA	\$2,200,000.00	\$4,400,000.00
Drainage(2 LN C&G)(New Location)	0.398	Miles	\$650,000.00	\$258,892.05
			TOTAL	\$8,562,187.50

Leesville Road				
Typical Section	Length(miles)		Price	Cost
2-Lane Curb & Gutter	0.059	Miles	\$9,800,000	\$580,946.97
Drainage(2 LN C&G) (New Location)	0.059	Miles	\$650,000.00	\$38,532.20
			TOTAL	\$619,479.17

Page Road				
Typical Section	Length(miles)		Price	Cost
4-Lane Curb & Gutter	0.339	Miles	\$10,550,000	\$3,578,607.95
130' Single Lane Roundabout	2	EA	\$2,200,000.00	\$4,400,000.00
Adding Multi Use Path (10'W x 1 Mile)	0.195	Miles	\$650,000.00	\$126,799.24
Drainage(4 LN C&G) (Widening)	0.339	Miles	\$1,125,000.00	\$381,605.11
			TOTAL	\$8,487,012.31

Brier Creek Trail / East Fork Creek Trail Connection with at grade crossing at US 70				
Typical Section	Length(miles)		Price	Cost
10' Multi Use Path (New Location)	0.335	Miles	\$4,000,000.00	\$1,340,909.09
Adding Multi Use Path (10'W x 1 Mile)	0.549	Miles	\$650,000.00	\$357,007.58
			TOTAL	\$1,697,916.67

APPENDIX D

4 LANE BOULEVARD WITH PARALLEL ROADS CONCEPT COST ESTIMATE

Route: US 70		Date:	3/6/2024
From East End Connector (I-885) to Future Durham Parkway Extension			
Typical Section: Median Divided 4 Lane Curb and Gutter			
County: Durham	 		
Prepared By: STV Inc.			
Requested By: DCHCMPO			

CONSTRUCTION COST ESTIMATE (PARALLEL ROADS)

PROJECT TOTAL	\$198,067,644
25% Contingency	\$49,516,911
PROJECT TOTAL	\$247,584,555

US 70

Typical Section	Length(miles)		Price	Cost
6-Ln Shoulder W / Raised Median	0.291	Miles	\$14,100,000.00	\$4,106,625.00
4-Ln Curb & Gutter W / Blvd Grass Median	3.298	Miles	\$12,800,000.00	\$42,216,969.70
Adding Multi Use Path (10'W x 1 Mile)	3.865	Miles	\$650,000.00	\$2,512,471.59
Drainage(4 LN C&G raised Median)	3.298	Miles	\$1,125,000.00	\$3,710,475.85
Adding 2 @ 2' Paved Shoulders on C&G	3.298	Miles	\$400,000.00	\$1,319,280.30
Median U Turn Intersection	4.000	EA	\$2,000,000.00	\$8,000,000.00
			TOTAL	\$61,865,822.44

Pleasant Drive

Typical Section	Length(miles)		Price	Cost
Bridge (Concrete)	10533	SF	\$225.00	\$2,369,925.00
2-Lane Curb & Gutter	0.463	Miles	\$9,800,000	\$4,539,738.64
130' Single Lane Roundabout	2	EA	\$2,200,000.00	\$4,400,000.00
Adding Multi Use Path (10'W x 1 Mile)	0.199	Miles	\$650,000.00	\$129,261.36
Adding 5' Sidewalk - One Side	0.251	Miles	\$300,000.00	\$75,284.09
Drainage(2 LN C&G)	0.463	Miles	\$650,000.00	\$301,105.11
			TOTAL	\$11,815,314.20

Lynn Road

Typical Section	Length(miles)		Price	Cost
2-Lane Curb & Gutter	0.353	Miles	\$9,800,000	\$3,461,553.03
Adding Multi Use Path (10'W x 1 Mile)	0.181	Miles	\$650,000.00	\$117,566.29
Adding 5' Sidewalk - One Side	0.140	Miles	\$300,000.00	\$42,102.27
Drainage(2 LN C&G)	0.353	Miles	\$650,000.00	\$229,592.80
			TOTAL	\$3,850,814.39

Glover Road				
Typical Section	Length(miles)		Price	Cost
Bridge (Concrete)	11650	SF	\$225.00	\$2,621,250.00
2-Lane Curb & Gutter	0.142	Miles	\$9,800,000	\$1,392,045.45
130' Single Lane Roundabout	2	EA	\$2,200,000.00	\$4,400,000.00
Adding Multi Use Path (10'W x 1 Mile)	0.243	Miles	\$650,000.00	\$157,772.73
Drainage(2 LN C&G)	0.142	Miles	\$650,000.00	\$92,329.55
			TOTAL	\$8,571,068.18

Sherron Rd / S Miami Blvd				
Typical Section	Length(miles)		Price	Cost
6-Lane Curb & Gutter	0.483	Miles	\$12,800,000.00	\$6,177,939.39
Adding Multi Use Path (10'W x 1 Mile)	0.811	Miles	\$650,000.00	\$527,250.95
Adding 5' Sidewalk - One Side	0.386	Miles	\$300,000.00	\$115,931.82
Drainage(6 LN C&G)	0.483	Miles	\$1,325,000.00	\$639,513.26
			TOTAL	\$7,460,635.42

Pedestrian Bridge (at Sherron/ Miami blvd)				
Typical Section	Length(miles)		Price	Cost
10' Multi Use Path (New Location)	0.287	Miles	\$4,000,000.00	\$1,147,727.27
Bridge (Concrete)	2626	SF	\$225.00	\$590,850.00
			TOTAL	\$1,738,577.27

Copper Leaf Parkway				
Typical Section	Length(miles)		Price	Cost
2 lane Raised Median Widening	0.177	Miles	\$6,200,000.00	\$1,095,568.18
Adding Multi Use Path (10'W x 1 Mile)	0.080	Miles	\$650,000.00	\$51,704.55
Adding 5' Sidewalk - One Side	0.081	Miles	\$300,000.00	\$24,431.82
Drainage(2 LN C&G)	0.177	Miles	\$525,000.00	\$92,769.89
			TOTAL	\$1,264,474.43

Angier Ave				
Typical Section	Length(miles)		Price	Cost
2-Lane Curb & Gutter	0.572	Miles	\$9,800,000	\$5,607,159.09
130' Single Lane Roundabout	2	EA	\$2,200,000.00	\$4,400,000.00
Adding Multi Use Path (10'W x 1 Mile)	0.931	Miles	\$650,000.00	\$605,189.39
Adding 5' Sidewalk - One Side	0.069	Miles	\$300,000.00	\$20,568.18
Drainage(2 LN C&G)	0.572	Miles	\$650,000.00	\$371,903.41
			TOTAL	\$11,004,820.08

Leesville Road				
Typical Section	Length(miles)		Price	Cost
2-Lane Curb & Gutter	0.128	Miles	\$9,800,000	\$1,256,553.03
Drainage(2 LN C&G)	0.128	Miles	\$650,000.00	\$83,342.80
			TOTAL	\$1,339,895.83

Page Road				
Typical Section	Length(miles)		Price	Cost
4-Lane Curb & Gutter	0.339	Miles	\$10,550,000	\$3,578,607.95
130' Single Lane Roundabout	2	EA	\$2,200,000.00	\$4,400,000.00
Adding Multi Use Path (10'W x 1 Mile)	0.195	Miles	\$650,000.00	\$126,799.24
Drainage(4 LN C&G)	0.339	Miles	\$1,125,000.00	\$381,605.11
			TOTAL	\$8,487,012.31

Parallel Road 1 (West of US 70 from Pleasant Dr to Angier Ave)				
Typical Section	Length(miles)		Price	Cost
2-Lane Curb & Gutter	2.126	Miles	\$9,800,000	\$20,835,950.76
Adding Multi Use Path (10'W x 1 Mile)	4.252	Miles	\$650,000.00	\$2,763,952.65
Drainage(2 LN C&G)	2.126	Miles	\$650,000.00	\$1,381,976.33
			TOTAL	\$24,981,879.73

Parallel Road 2 (East of US 70 from Future Glover Rd to Copper Leaf Parkway)				
Typical Section	Length(miles)		Price	Cost
2-Lane Curb & Gutter	1.393	Miles	\$9,800,000	\$13,655,037.88
Adding Multi Use Path (10'W x 1 Mile)	2.787	Miles	\$650,000.00	\$1,811,382.58
Drainage(2 LN C&G)	1.393	Miles	\$650,000.00	\$905,691.29
			TOTAL	\$16,372,111.74

Parallel Road 3 (West of US 70 from Angier Ave to Page Rd)				
Typical Section	Length(miles)		Price	Cost
2-Lane Curb & Gutter	2.069	Miles	\$9,800,000	\$20,273,750.00
130' Single Lane Roundabout	2	EA	\$2,200,000.00	\$4,400,000.00
Adding Multi Use Path (10'W x 1 Mile)	4.138	Miles	\$650,000.00	\$2,689,375.00
Drainage(2 LN C&G)	2.069	Miles	\$650,000.00	\$1,344,687.50
			TOTAL	\$28,707,812.50

Parallel Road 4 (East of US 70 from Leesville Rd to future Durham Pkwy)				
Typical Section	Length(miles)		Price	Cost
2-Lane Curb & Gutter	0.794	Miles	\$9,800,000	\$7,782,462.12
Adding Multi Use Path (10'W x 1 Mile)	1.056	Miles	\$650,000.00	\$686,193.18
Drainage(2 LN C&G)	0.794	Miles	\$650,000.00	\$516,183.71
			TOTAL	\$8,984,839.02

Brier Creek Trail / East Fork Creek Trail Connection with at grade crossing at US 70				
Typical Section	Length(miles)		Price	Cost
10' Multi Use Path (New Location)	0.282	Miles	\$4,000,000.00	\$1,128,787.88
Adding Multi Use Path (10'W x 1 Mile)	0.760	Miles	\$650,000.00	\$493,778.41
			TOTAL	\$1,622,566.29