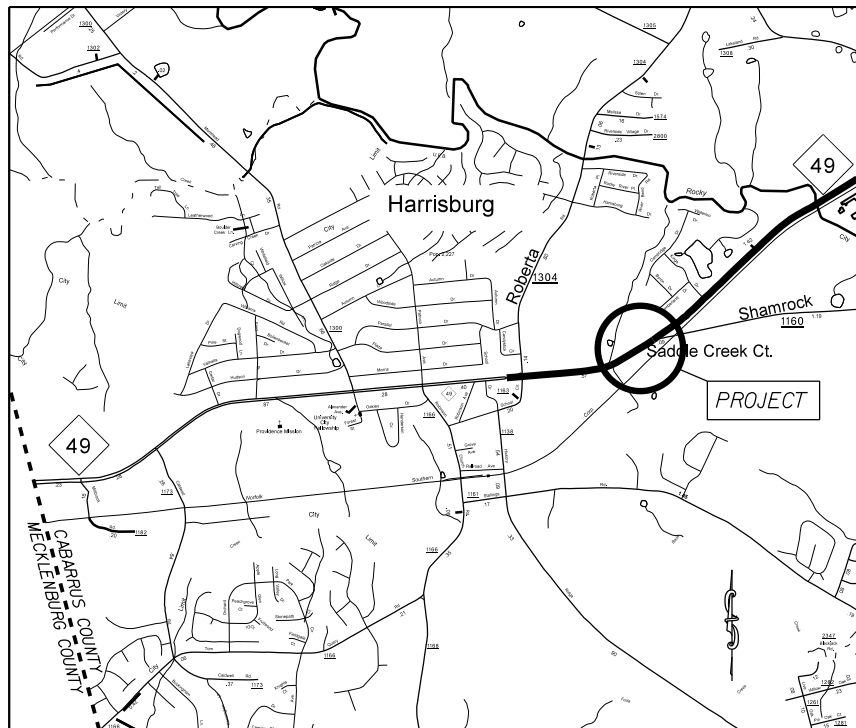


PROJECT: 44833 TIP: 1

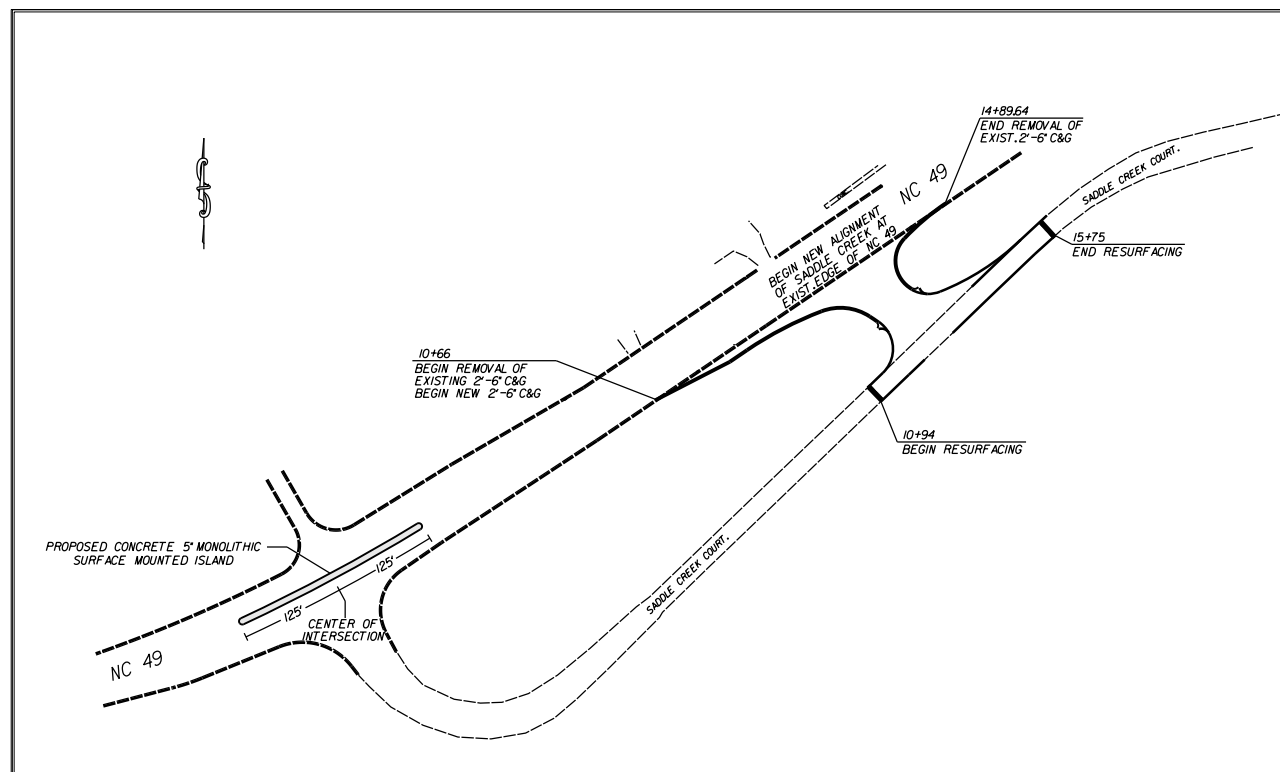


VICINITY MAP
NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CABARRUS COUNTY

LOCATION: INTERSECTION OF NC 49 AND SADDLE CREEK COURT.

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CONC. MONO. ISLAND, SIGNALS, CURB AND GUTTER, & THERMOPLASTIC PAVEMENT MARKINGS.



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	44833	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
		P.E.	
44833		RW	
		CONST.	

GRAPHIC SCALES



DESIGN DATA

ADT =
ADT =
DHV = %
D = %
T = %
V = MPH

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 44833 = 0.20 MILES
TOTAL LENGTH OF STATE PROJECT 44833 = 0.20 MILES

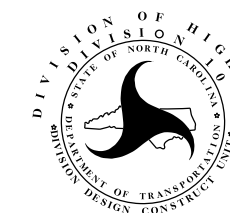
Prepared in the Office of:
DIVISION OF HIGHWAYS
DIVISION TEN
DIVISION DESIGN / CONSTRUCT UNIT

RIGHT OF WAY DATE:

LETTING DATE:
APRIL 4, 2018

DONALD GRIFFITH
PROJECT ENGINEER

DONALD HARWARD
PROJECT DESIGN ENGINEER

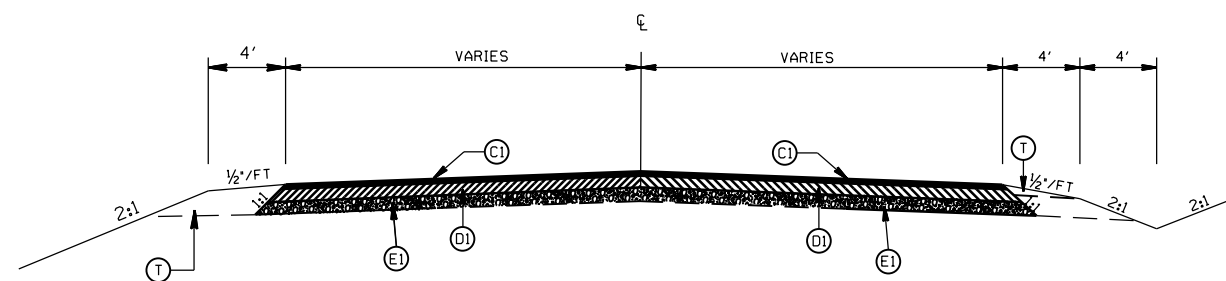


DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

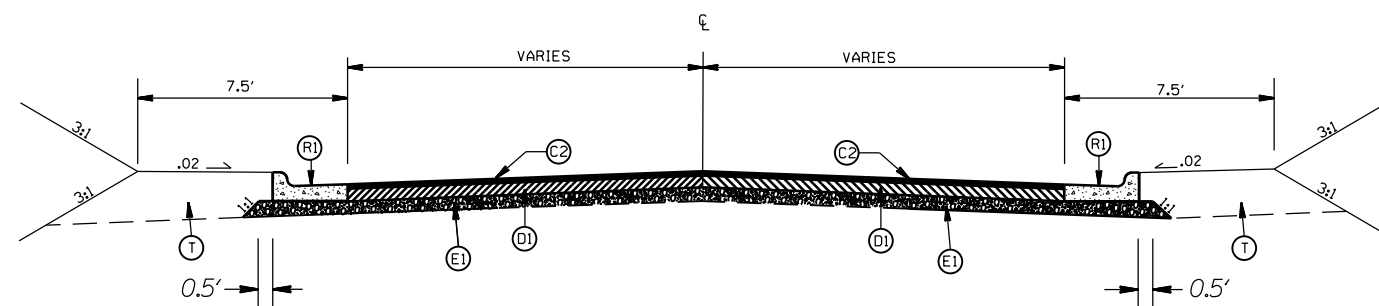
DocuSigned by:
Donald Griffith 3/13/2018

74536E23F21843F...
DDC ENGINEER DATE

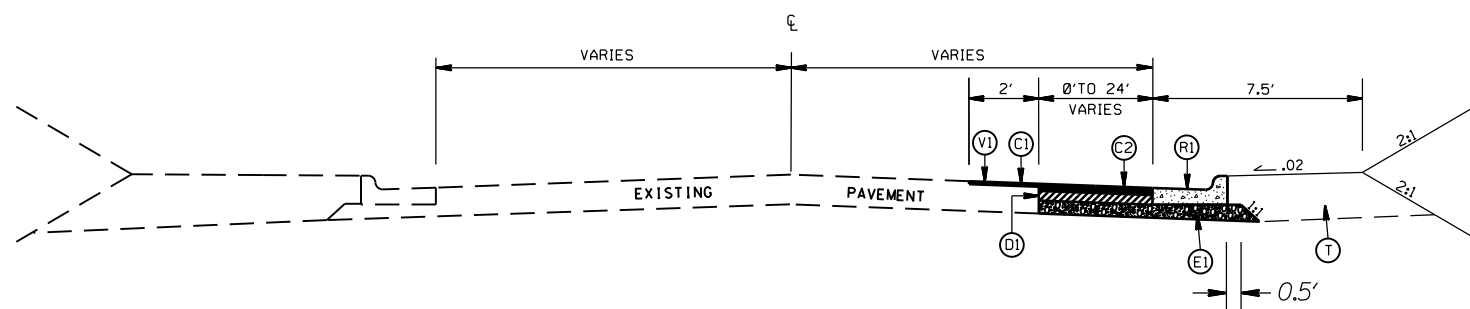
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	44833	2	
F.A. PROJECT NO.			



TYPICAL SECTION NO. 3
STA. 13+43 TO 14+18 -Y-



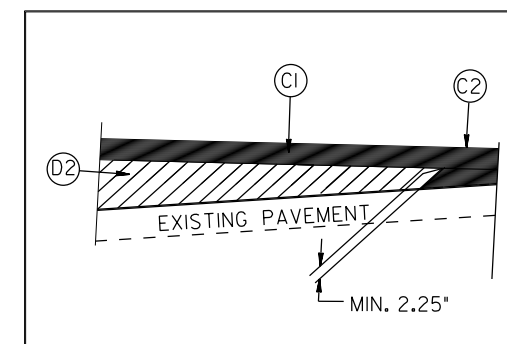
TYPICAL SECTION NO. 2
STA. 12+73 TO 13+43 -Y-



TYPICAL SECTION NO. 1
STA. 10+66 TO 14+89.64 -L-

PAVEMENT SCHEDULE

(C1)	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(C2)	PROP. APPROX. 3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
(D1)	PROP. APPROX. 4" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(D2)	PROP. VARIABLE DEPTH ASPHALT CONC. INTERMEDIATE COURSE.
(E1)	PROP. APPROX. 5.5" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
(R1)	PROP. 2'-6" CURB & GUTTER
(R2)	PROP. 5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED)
(T)	EARTH MATERIAL
(V1)	MILLING ASPHALT PAVEMENT, 1.5" IN DEPTH



WEDGING DETAIL

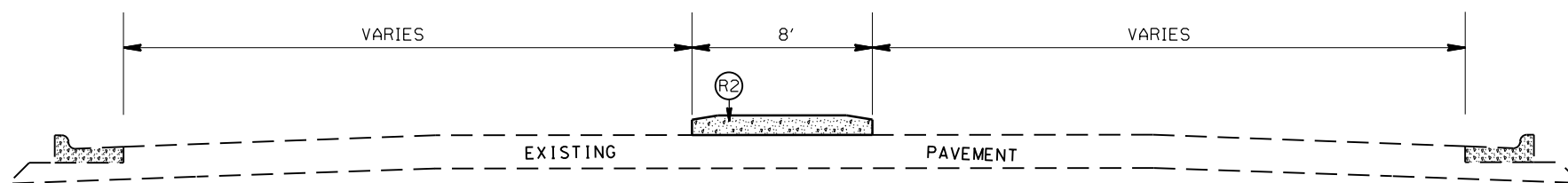
REALIGNING SADDLE CREEK COURT
ONTO NC 49 IN HARRISBURG
CABARRUS COUNTY

SCALE	N/A
DATE	2-2018
DWG. BY	JDH
DESIGN BY	JDH
APPROVED	DCG

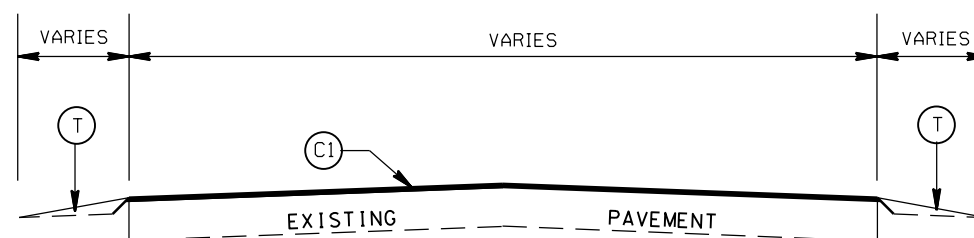


REVISIONS

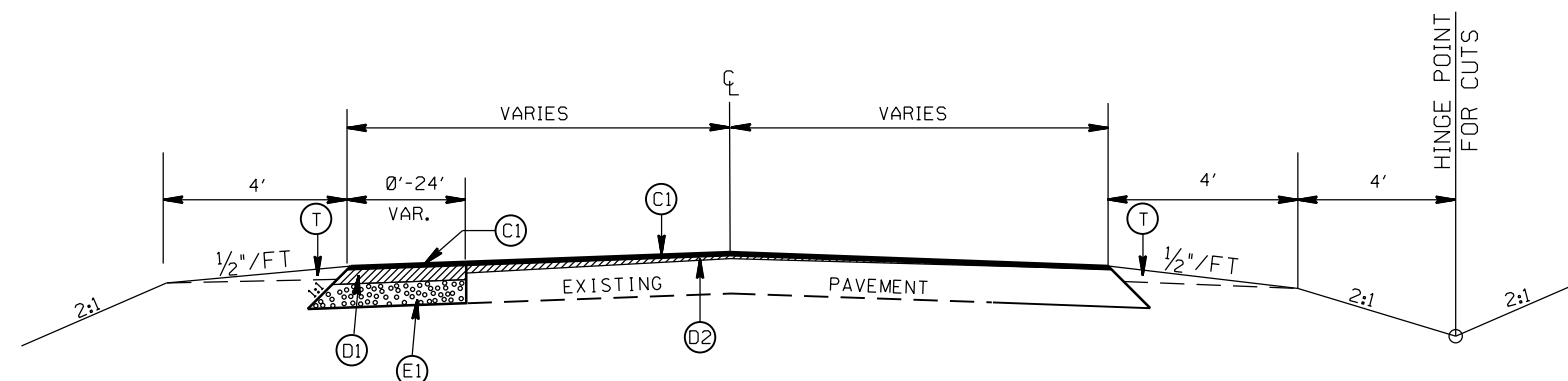
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N.C.	44833	2A	
F.A. PROJECT NO.			



TYPICAL SECTION NO. 6
CONC. MONO. ISLAND ON NC 49



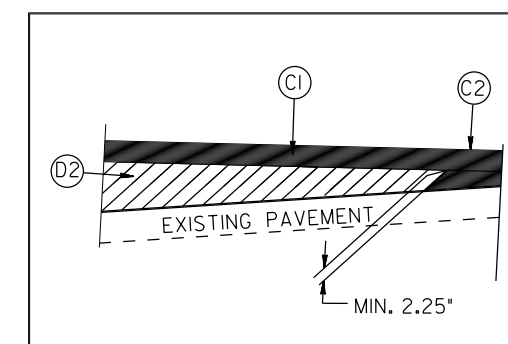
TYPICAL SECTION NO. 5
STA. 15+50 TO 15+75 -Y-
STA. 10+94 TO 11+19 -YI-



TYPICAL SECTION NO. 4
STA. 14+18 TO 15+50 -Y-
STA. 11+19 TO 11+75 -YI-

PAVEMENT SCHEDULE

(C1)	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(C2)	PROP. APPROX. 3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
(D1)	PROP. APPROX. 4" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(D2)	PROP. VARIABLE DEPTH ASPHALT CONC. INTERMEDIATE COURSE.
(E1)	PROP. APPROX. 5.5" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
(R1)	PROP. 2'-6" CURB & GUTTER
(R2)	PROP. 5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED)
(T)	EARTH MATERIAL
(V1)	MILLING ASPHALT PAVEMENT, 1.5" IN DEPTH

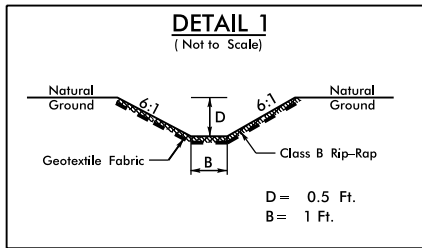


WEDGING DETAIL

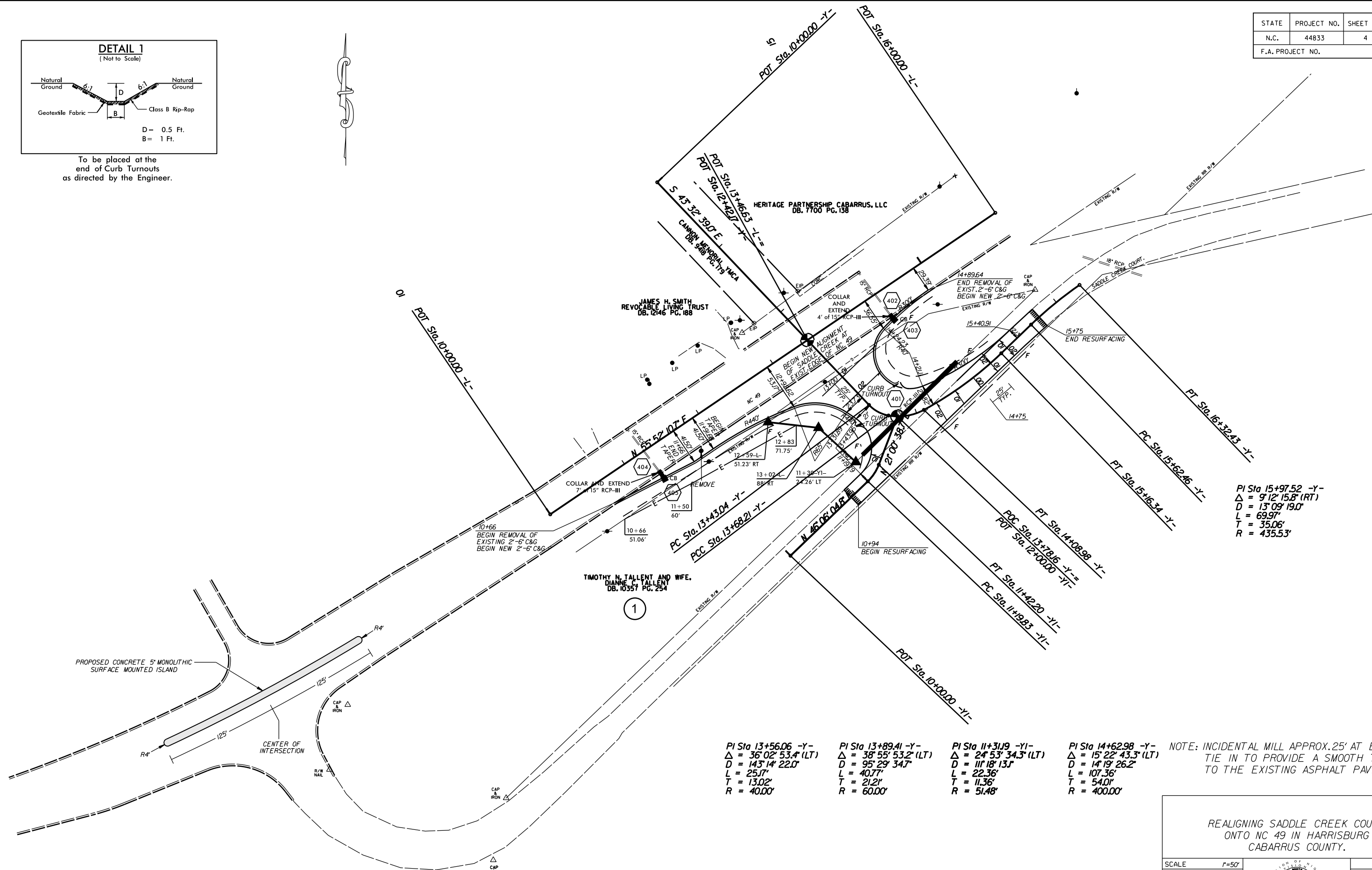
REALIGNING SADDLE CREEK COURT
ONTO NC 49 IN HARRISBURG
CABARRUS COUNTY

SCALE	N/A		REVISIONS
DATE	2-2018		
DWG. BY	JDH		
DESIGN BY	JDH		
APPROVED	DCG		

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	44833	4	
F.A. PROJECT NO.			



To be placed at the end of Curb Turnouts as directed by the Engineer.



PI Sta 15+97.52 -Y-
 $\Delta = 9'12''15.8''$ (RT)
 $D = 13'09''19.0''$
 $L = 69.97'$
 $T = 35.06'$
 $R = 435.53'$

PI Sta 13+56.06 -Y-
 $\Delta = 36'02''53.4''$ (LT)
 $D = 143'14''22.0''$
 $L = 25.17'$
 $T = 13.02'$
 $R = 40.00'$

PI Sta 13+89.41 -Y-
 $\Delta = 38'55''53.2''$ (LT)
 $D = 95'29''34.7''$
 $L = 40.77'$
 $T = 21.21'$
 $R = 60.00'$

PI Sta 11+31.19 -Y1-
 $\Delta = 24'53''34.3''$ (LT)
 $D = 111'18''13.1''$
 $L = 22.36'$
 $T = 11.36'$
 $R = 51.48'$

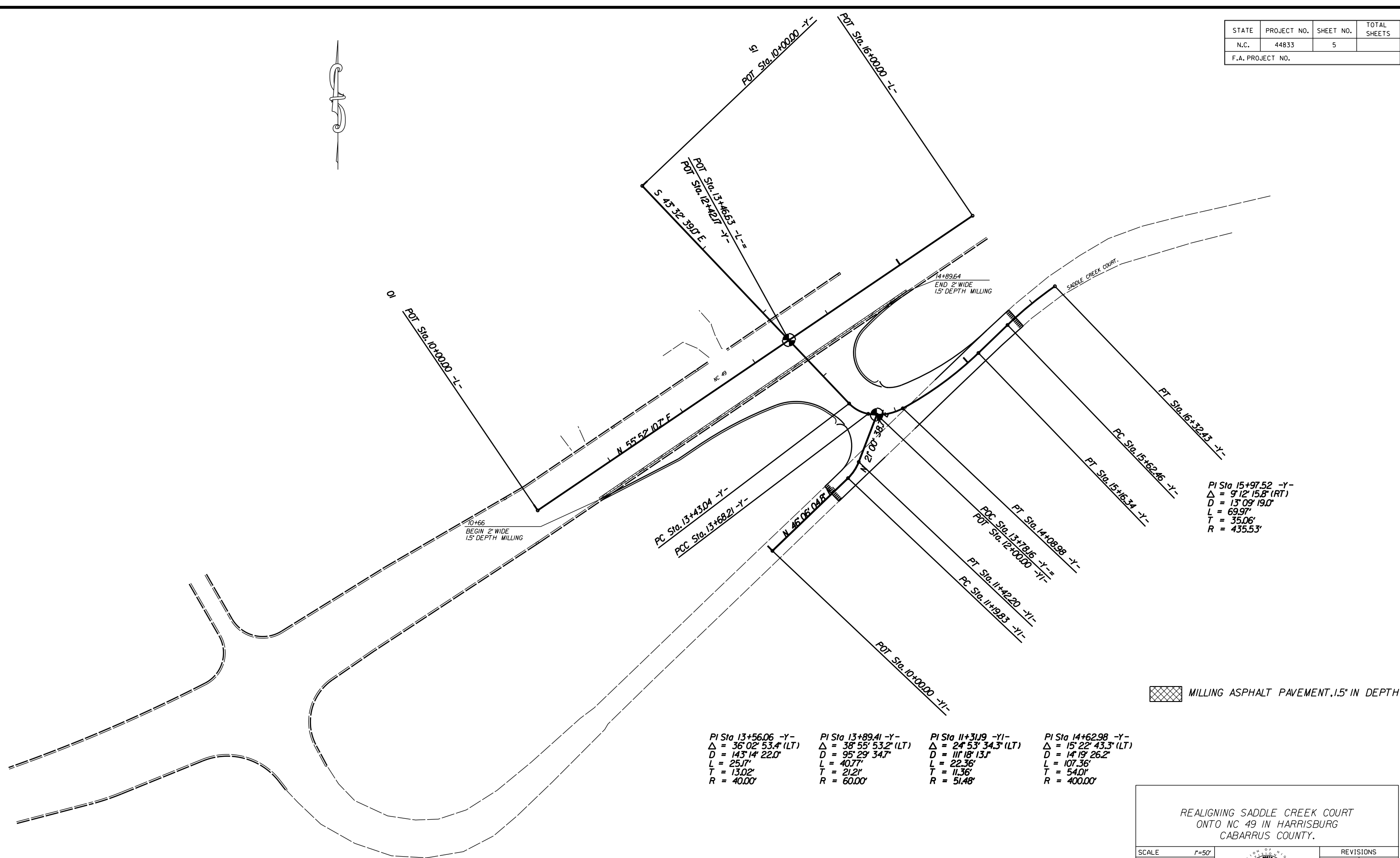
PI Sta 14+62.98 -Y-
 $\Delta = 15'22''43.3''$ (LT)
 $D = 14'19''26.2''$
 $L = 107.36'$
 $T = 54.01'$
 $R = 400.00'$

NOTE: INCIDENTAL MILL APPROX. 25' AT EACH TIE IN TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING ASPHALT PAVEMENT.

REALIGNING SADDLE CREEK COURT
 ONTO NC 49 IN HARRISBURG
 CABARRUS COUNTY.

SCALE	r=50'		REVISIONS
DATE	2-2018		
DWG. BY	JDH		
DESIGN BY	JDH		
APPROVED	DCG		

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	44833	5	
F.A. PROJECT NO.			



PI Sta 15+97.52 -Y-
 $\Delta = 9^{\circ}12'15.8''$ (RT)
 $D = 13^{\circ}09'19.0''$
 $L = 69.97'$
 $T = 35.06'$
 $R = 435.53'$

PI Sta 13+56.06 -Y- $\Delta = 36^{\circ}02'53.4''$ (LT) $D = 143^{\circ}14'22.0''$ $L = 25.17'$ $T = 13.02'$ $R = 40.00'$	PI Sta 13+89.41 -Y- $\Delta = 38^{\circ}55'53.2''$ (LT) $D = 95^{\circ}29'34.7''$ $L = 40.77'$ $T = 21.21'$ $R = 60.00'$	PI Sta 11+31.19 -YI- $\Delta = 24^{\circ}53'34.3''$ (LT) $D = 111^{\circ}18'13.1''$ $L = 22.36'$ $T = 11.36'$ $R = 51.48'$	PI Sta 14+62.98 -Y- $\Delta = 15^{\circ}22'43.3''$ (LT) $D = 14^{\circ}19'26.2''$ $L = 107.36'$ $T = 54.01'$ $R = 400.00'$
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MILLING ASPHALT PAVEMENT, 1.5' IN DEPTH

REALIGNING SADDLE CREEK COURT
 ONTO NC 49 IN HARRISBURG
 CABARRUS COUNTY.

SCALE	$r=50'$		REVISIONS
DATE	2-2018		
DWG. BY	JDH		
DESIGN BY	JDH		
APPROVED	DCG		

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	44833	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

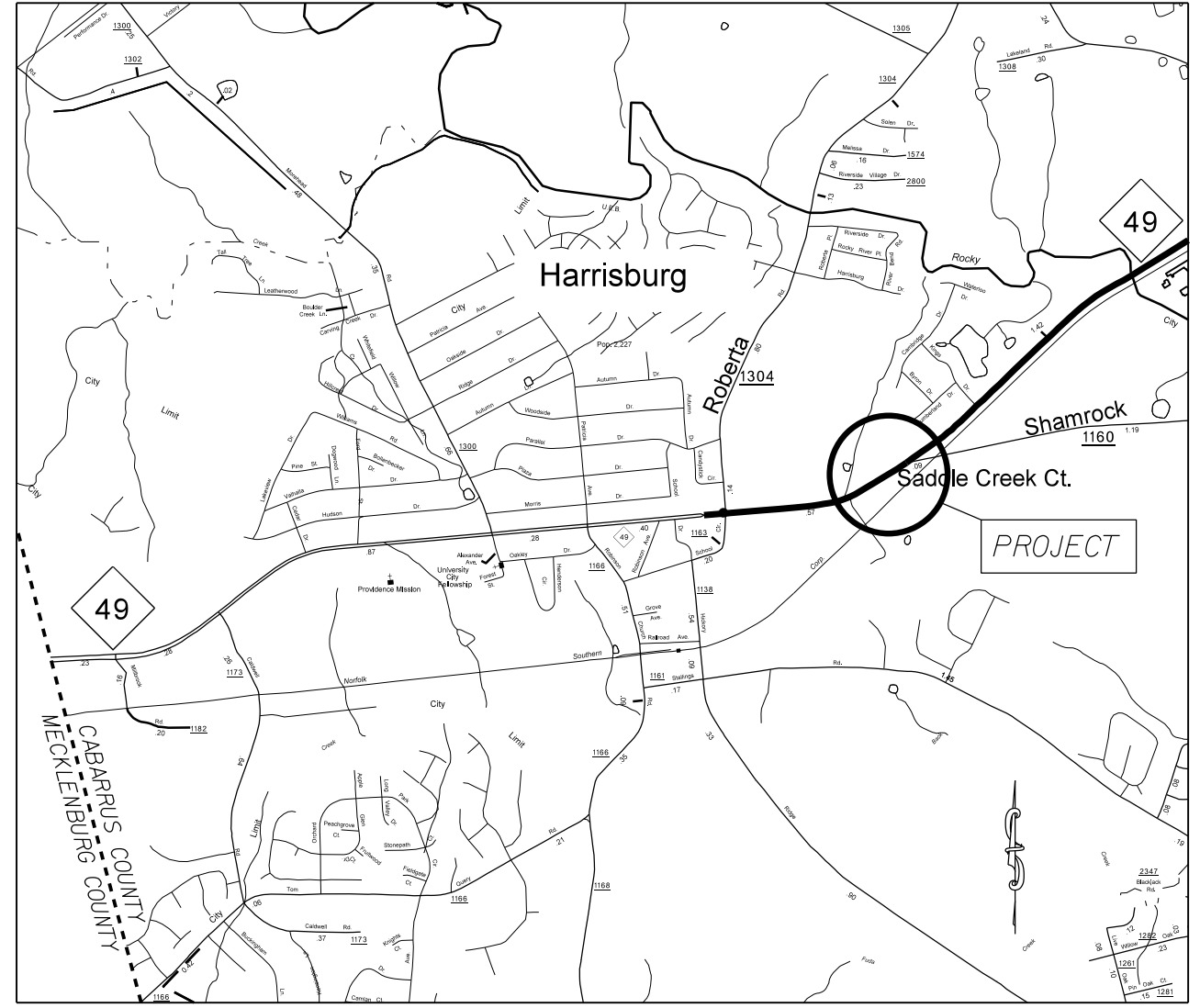
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL**

EROSION AND SEDIMENT CONTROL MEASURES

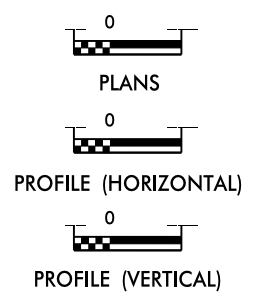
Sid. #	Description	Symbol
1630.05	Temporary Silt Ditch	
1630.05	Temporary Diversion	
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	
1632.02	Type B	
1632.03	Type C	
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

**THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.**



PROJECT: 44833 TIP:

GRAPHIC SCALE



ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY
WITH THE REGULATIONS SET FORTH BY THE
NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011
ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:
DDC UNIT DIVISION 10
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
2018 STANDARD SPECIFICATIONS

DONALD HARWARD **3028**
EROSION CONTROL DESIGNER LEVEL III-A CERTIFICATION #

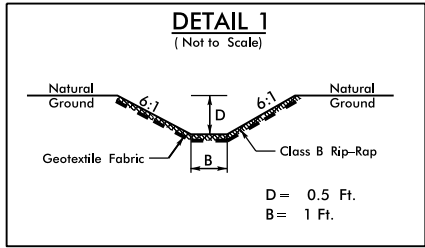
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

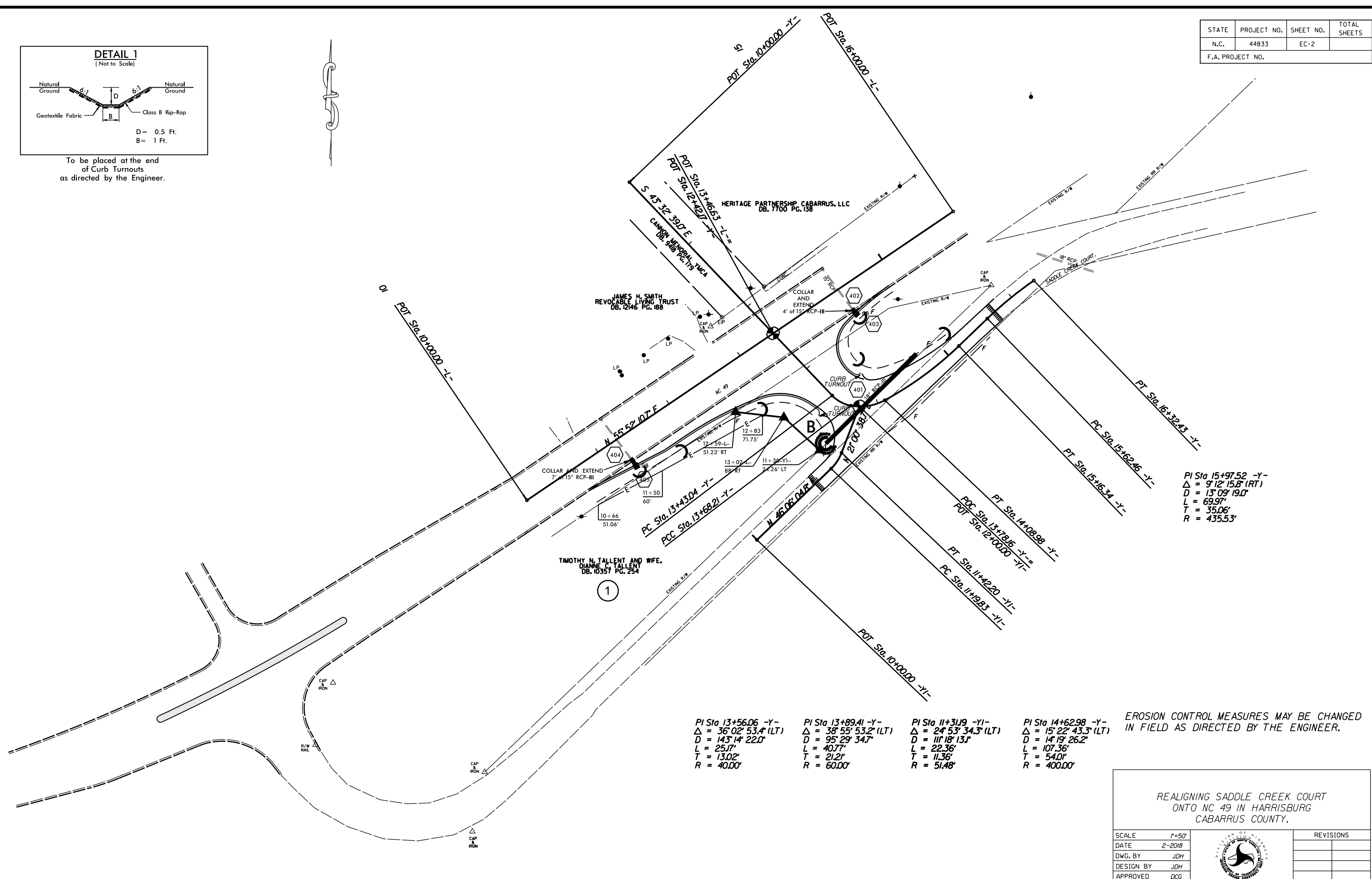
1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

I:\FEB-2018_Cas4\4833\4833-1\EROSION\N.C.49_Saddle Creek_erosion_title.dgn
IC:4833.dwg
At: 10:01:25 AM 2/1/2018

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	44833	EC-2	
F.A. PROJECT NO.			



To be placed at the end of Curb Turnouts as directed by the Engineer.



PI Sta 15+97.52 -Y-
 $\Delta = 9'12''15.8''$ (RT)
 $D = 13'09''19.0''$
 $L = 69.97'$
 $T = 35.06'$
 $R = 435.53'$

PI Sta 13+56.06 -Y- $\Delta = 36'02''53.4''$ (LT) $D = 143'14''22.0''$ $L = 25.17'$ $T = 13.02'$ $R = 40.00'$	PI Sta 13+89.41 -Y- $\Delta = 38'55''53.2''$ (LT) $D = 95'29''34.7''$ $L = 40.77'$ $T = 21.21'$ $R = 60.00'$	PI Sta 11+31.19 -Y1- $\Delta = 24'53''34.3''$ (LT) $D = 111'18''13.1''$ $L = 22.36'$ $T = 11.36'$ $R = 51.48'$	PI Sta 14+62.98 -Y- $\Delta = 15'22''43.3''$ (LT) $D = 14'19''26.2''$ $L = 107.36'$ $T = 54.01'$ $R = 400.00'$
------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------

EROSION CONTROL MEASURES MAY BE CHANGED IN FIELD AS DIRECTED BY THE ENGINEER.

REALIGNING SADDLE CREEK COURT
 ONTO NC 49 IN HARRISBURG
 CABARRUS COUNTY.

SCALE	1"=50'		REVISIONS
DATE	2-2018		
DWG. BY	JDH		
DESIGN BY	JDH		
APPROVED	DCG		

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	44833	PMP-1	
F.A. PROJECT NO.			

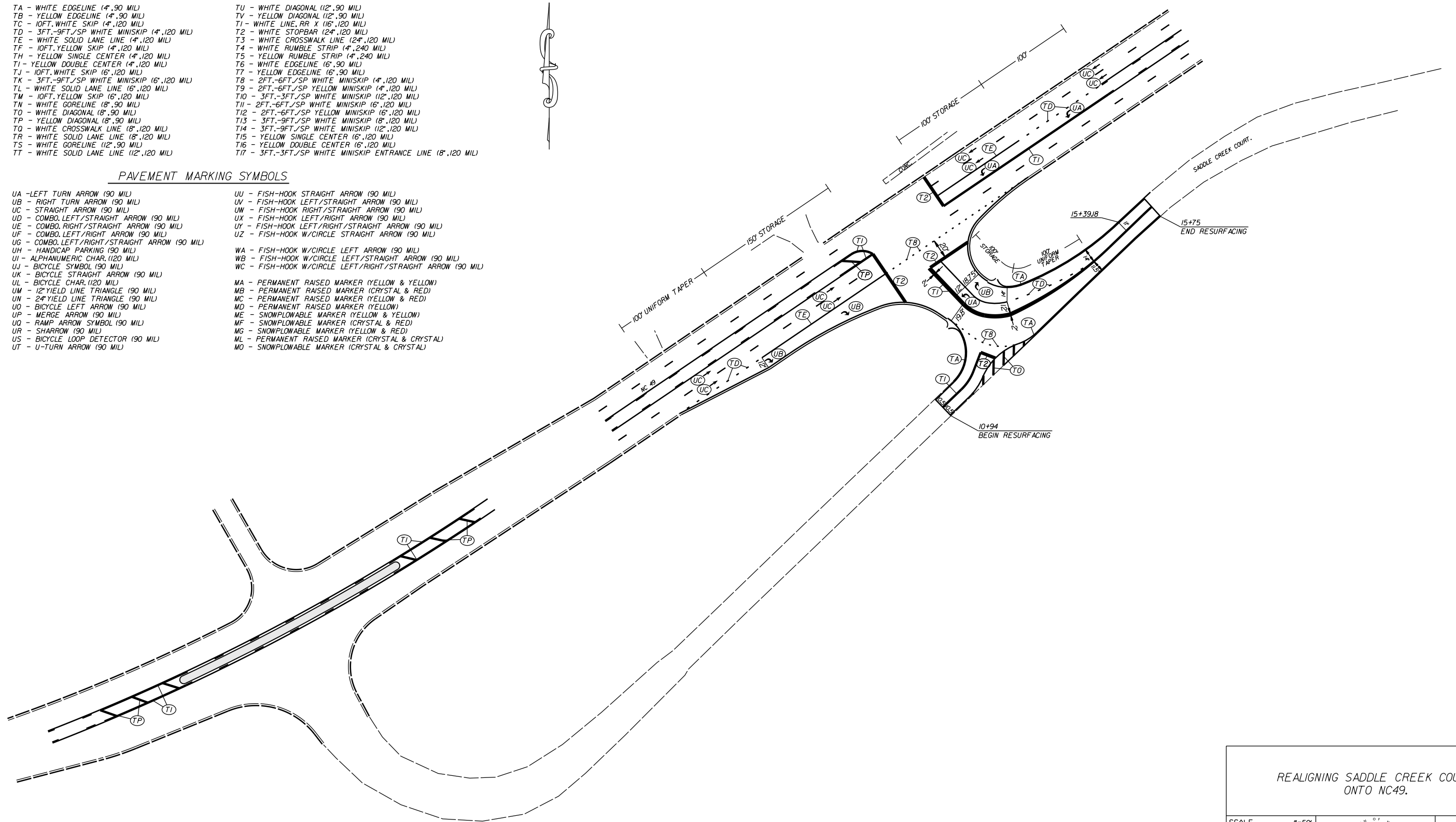
PAVEMENT MARKING SCHEDULE

PAVEMENT MARKING LINES

- | | |
|------------------------------------------------|---------------------------------------------------------------|
| TA - WHITE EDGELINE (4',.90 MIL) | TU - WHITE DIAGONAL (12',.90 MIL) |
| TB - YELLOW EDGELINE (4',.90 MIL) | TV - YELLOW DIAGONAL (12',.90 MIL) |
| TC - 10FT. WHITE SKIP (4',.120 MIL) | TI - WHITE LINE, RR X (16',.120 MIL) |
| TD - 3FT.-9FT./SP WHITE MINISKIP (4',.120 MIL) | T2 - WHITE STOPBAR (24',.120 MIL) |
| TE - WHITE SOLID LANE LINE (4',.120 MIL) | T3 - WHITE CROSSWALK LINE (24',.120 MIL) |
| TF - 10FT. YELLOW SKIP (4',.120 MIL) | T4 - WHITE RUMBLE STRIP (4',.240 MIL) |
| TH - YELLOW SINGLE CENTER (4',.120 MIL) | T5 - YELLOW RUMBLE STRIP (4',.240 MIL) |
| TI - YELLOW DOUBLE CENTER (4',.120 MIL) | T6 - WHITE EDGELINE (6',.90 MIL) |
| TJ - 10FT. WHITE SKIP (6',.120 MIL) | T7 - YELLOW EDGELINE (6',.90 MIL) |
| TK - 3FT.-9FT./SP WHITE MINISKIP (6',.120 MIL) | T8 - 2FT.-6FT./SP WHITE MINISKIP (4',.120 MIL) |
| TL - WHITE SOLID LANE LINE (6',.120 MIL) | T9 - 2FT.-6FT./SP YELLOW MINISKIP (4',.120 MIL) |
| TM - 10FT. YELLOW SKIP (6',.120 MIL) | T10 - 3FT.-3FT./SP WHITE MINISKIP (12',.120 MIL) |
| TN - WHITE GORELINE (8',.90 MIL) | T11 - 2FT.-6FT./SP WHITE MINISKIP (6',.120 MIL) |
| TO - WHITE DIAGONAL (8',.90 MIL) | T12 - 2FT.-6FT./SP YELLOW MINISKIP (6',.120 MIL) |
| TP - YELLOW DIAGONAL (8',.90 MIL) | T13 - 3FT.-9FT./SP WHITE MINISKIP (8',.120 MIL) |
| TQ - WHITE CROSSWALK LINE (8',.120 MIL) | T14 - 3FT.-9FT./SP WHITE MINISKIP (12',.120 MIL) |
| TR - WHITE SOLID LANE LINE (8',.120 MIL) | T15 - YELLOW SINGLE CENTER (6',.120 MIL) |
| TS - WHITE GORELINE (12',.90 MIL) | T16 - YELLOW DOUBLE CENTER (6',.120 MIL) |
| TT - WHITE SOLID LANE LINE (12',.120 MIL) | T17 - 3FT.-3FT./SP WHITE MINISKIP ENTRANCE LINE (8',.120 MIL) |

PAVEMENT MARKING SYMBOLS

- | | |
|------------------------------------------------|------------------------------------------------------------|
| UA - LEFT TURN ARROW (90 MIL) | UU - FISH-HOOK STRAIGHT ARROW (90 MIL) |
| UB - RIGHT TURN ARROW (90 MIL) | UV - FISH-HOOK LEFT/STRAIGHT ARROW (90 MIL) |
| UC - STRAIGHT ARROW (90 MIL) | UW - FISH-HOOK RIGHT/STRAIGHT ARROW (90 MIL) |
| UD - COMBO. LEFT/STRAIGHT ARROW (90 MIL) | UX - FISH-HOOK LEFT/RIGHT ARROW (90 MIL) |
| UE - COMBO. RIGHT/STRAIGHT ARROW (90 MIL) | UY - FISH-HOOK LEFT/RIGHT/STRAIGHT ARROW (90 MIL) |
| UF - COMBO. LEFT/RIGHT ARROW (90 MIL) | UZ - FISH-HOOK W/CIRCLE STRAIGHT ARROW (90 MIL) |
| UG - COMBO. LEFT/RIGHT/STRAIGHT ARROW (90 MIL) | |
| UH - HANDICAP PARKING (90 MIL) | WA - FISH-HOOK W/CIRCLE LEFT ARROW (90 MIL) |
| UI - ALPHANUMERIC CHAR. (120 MIL) | WB - FISH-HOOK W/CIRCLE LEFT/STRAIGHT ARROW (90 MIL) |
| UJ - BICYCLE SYMBOL (90 MIL) | WC - FISH-HOOK W/CIRCLE LEFT/RIGHT/STRAIGHT ARROW (90 MIL) |
| UK - BICYCLE STRAIGHT ARROW (90 MIL) | |
| UL - BICYCLE CHAR. (120 MIL) | MA - PERMANENT RAISED MARKER (YELLOW & YELLOW) |
| UM - 12" YIELD LINE TRIANGLE (90 MIL) | MB - PERMANENT RAISED MARKER (CRYSTAL & RED) |
| UN - 24" YIELD LINE TRIANGLE (90 MIL) | MC - PERMANENT RAISED MARKER (YELLOW & RED) |
| UO - BICYCLE LEFT ARROW (90 MIL) | MD - PERMANENT RAISED MARKER (YELLOW) |
| UP - MERGE ARROW (90 MIL) | ME - SNOWPLOWABLE MARKER (YELLOW & YELLOW) |
| UQ - RAMP ARROW SYMBOL (90 MIL) | MF - SNOWPLOWABLE MARKER (CRYSTAL & RED) |
| UR - SHARROW (90 MIL) | MG - SNOWPLOWABLE MARKER (YELLOW & RED) |
| US - BICYCLE LOOP DETECTOR (90 MIL) | ML - PERMANENT RAISED MARKER (CRYSTAL & CRYSTAL) |
| UT - U-TURN ARROW (90 MIL) | MO - SNOWPLOWABLE MARKER (CRYSTAL & CRYSTAL) |

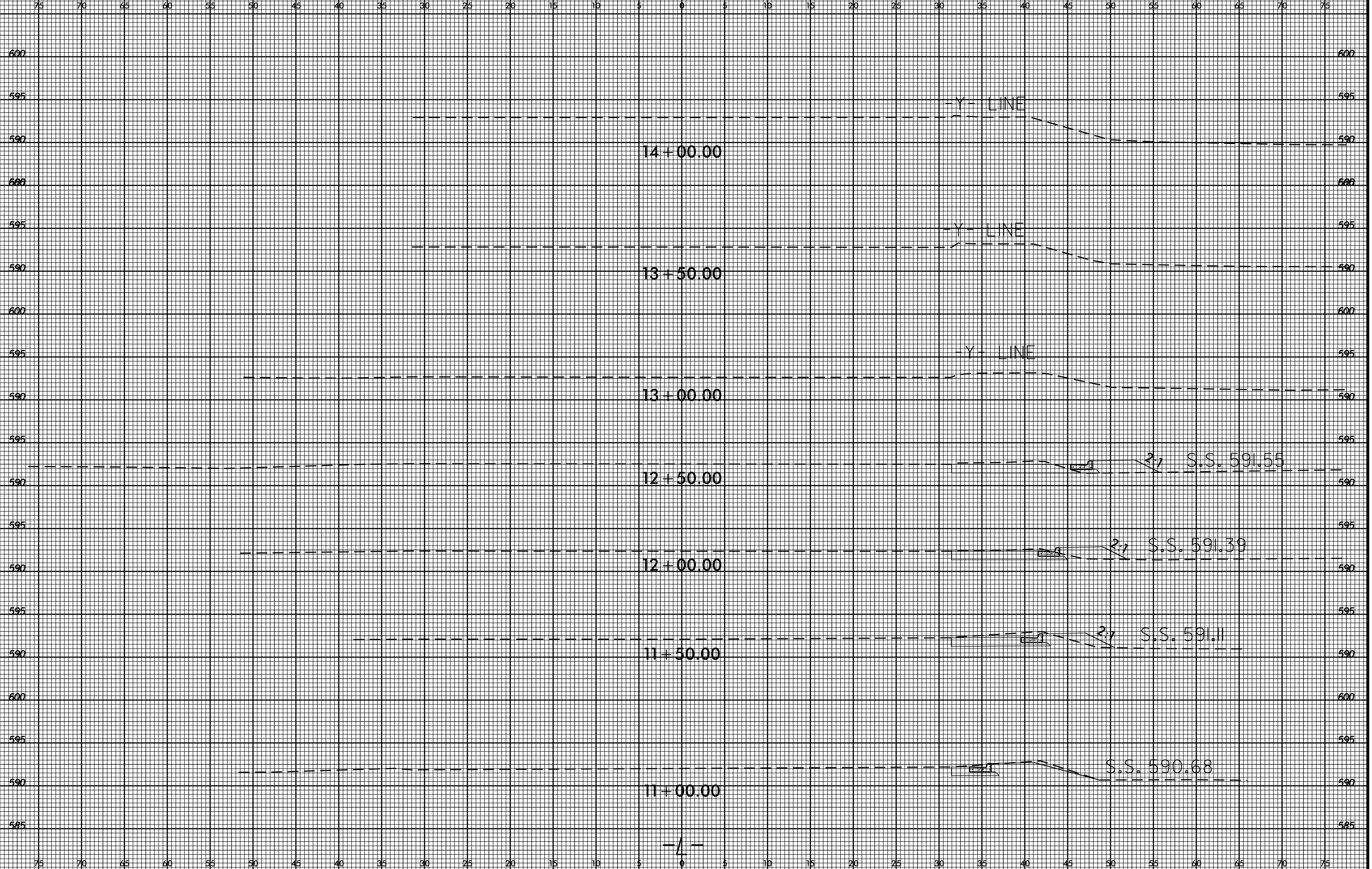


REALIGNING SADDLE CREEK COURT ONTO NC49.

SCALE	1"=50'
DATE	2-2018
DWG. BY	JDH
DESIGN BY	JDH
APPROVED	DCG



REVISIONS	





75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

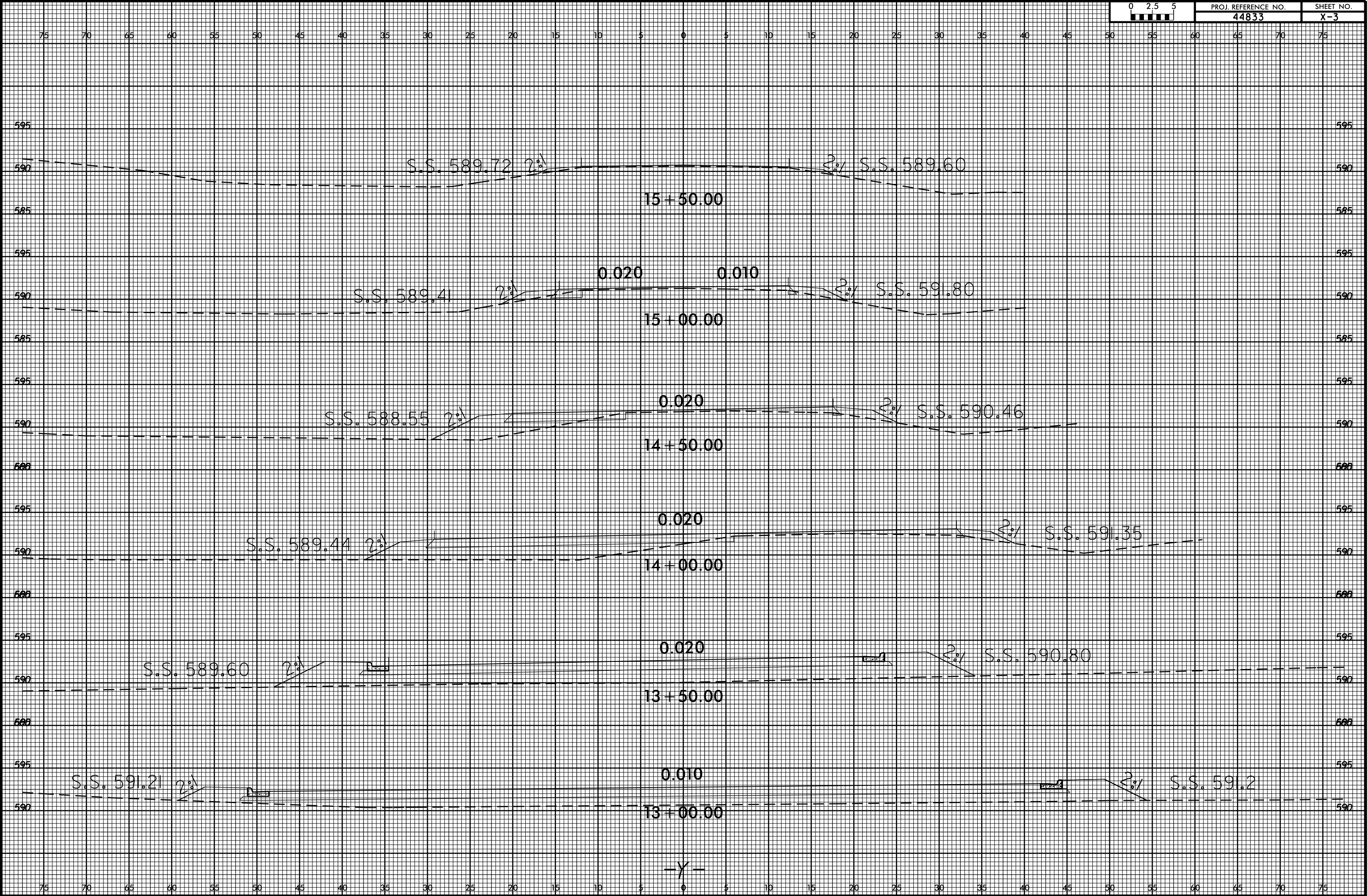
600
595
590
585

600
595
590
585

14+50.00

2.7 S.S. 593.26







75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

600

600

595

595

590

590

595

595

590

590

S.S. 591.9

2:1

0.010

2:1

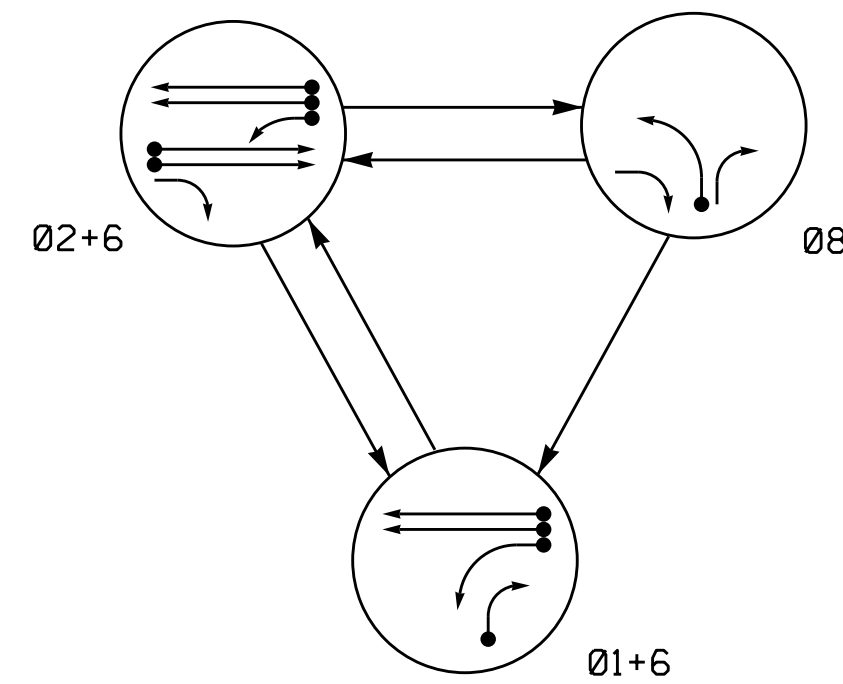
S.S. 592.45

11+50.00

11+00.00

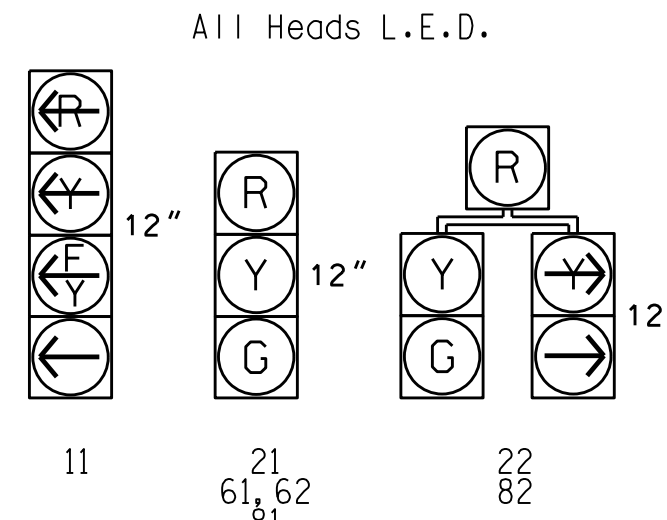
-Y/-

PHASING DIAGRAM



SIGNAL FACE	PHASE			
	01+6	02+6	08	F H S A L
11	Y	R	Y	Y
21	R	G	R	Y
22	R	G	R	Y
61, 62	G	G	R	Y
81	R	R	G	R
82	R	R	G	R

SIGNAL FACE I.D.



INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
1B	6X40	+5	2-4-2	Y	6	Y	Y	-	-	-	-	Y
2A	6X6	70	3	Y	2	Y	Y	-	-	-	-	Y
2B	6X6	70	3	Y	2	Y	Y	-	-	-	-	Y
6A	6X6	70	3	Y	6	Y	Y	-	-	-	-	Y
6B	6X6	70	3	Y	6	Y	Y	-	-	-	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	3	-	Y

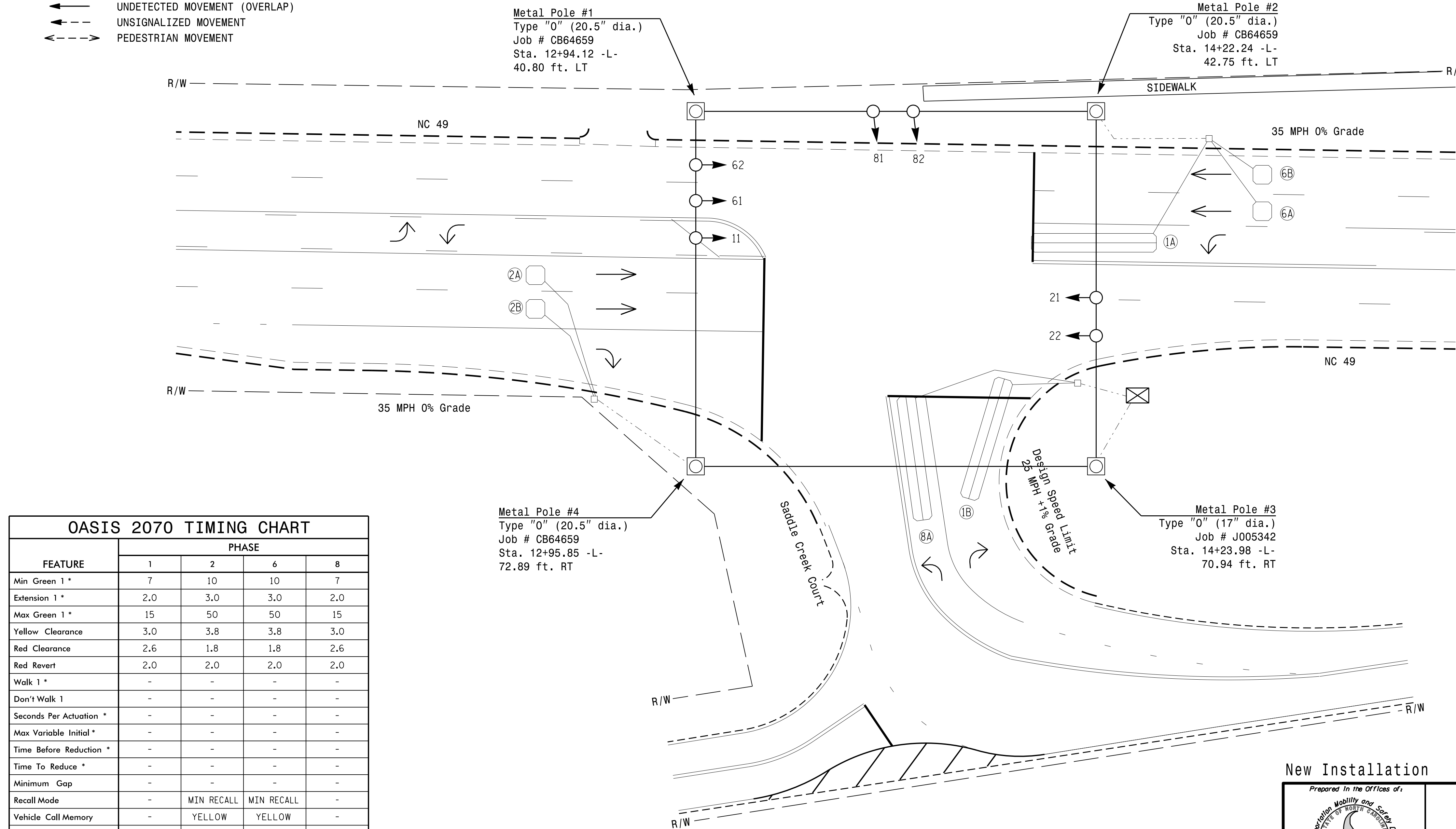
3 Phase Fully Actuated NC 49 (University City Blvd) CLS

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 may be lagged.
- Set all detector units to presence mode.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Controller Asset # 2247.

PHASING DIAGRAM DETECTION LEGEND

- → DETECTED MOVEMENT
- → UNDETECTED MOVEMENT (OVERLAP)
- → UNSIGNALIZED MOVEMENT
- → PEDESTRIAN MOVEMENT



FEATURE	PHASE			
	1	2	6	8
Min Green 1 *	7	10	10	7
Extension 1 *	2.0	3.0	3.0	2.0
Max Green 1 *	15	50	50	15
Yellow Clearance	3.0	3.8	3.8	3.0
Red Clearance	2.6	1.8	1.8	2.6
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	-	MIN RECALL	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	YELLOW	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

- | | | | |
|--|----------------------------------------|--|----------------------------------------|
| | PROPOSED Traffic Signal Head | | EXISTING Traffic Signal Head |
| | PROPOSED Modified Signal Head | | EXISTING Modified Signal Head |
| | PROPOSED Sign | | EXISTING Sign |
| | PROPOSED Pedestrian Signal Head | | EXISTING Pedestrian Signal Head |
| | PROPOSED Signal Pole with Guy | | EXISTING Signal Pole with Guy |
| | PROPOSED Signal Pole with Sidewalk Guy | | EXISTING Signal Pole with Sidewalk Guy |
| | PROPOSED Inductive Loop Detector | | EXISTING Inductive Loop Detector |
| | PROPOSED Controller & Cabinet | | EXISTING Controller & Cabinet |
| | PROPOSED Junction Box | | EXISTING Junction Box |
| | PROPOSED 2-in Underground Conduit | | EXISTING 2-in Underground Conduit |
| | PROPOSED Right of Way | | EXISTING Right of Way |
| | PROPOSED Directional Arrow | | EXISTING Directional Arrow |
| | PROPOSED Metal Strain Pole | | EXISTING Metal Strain Pole |

New Installation

Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

NC 49 at Saddle Creek Court (Realigned)

Division 10 Cabarrus County Harrisburg

PLAN DATE: March 2018 REVIEWED BY: T.J. Williams

PREPARED BY: R.N. Zinser REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

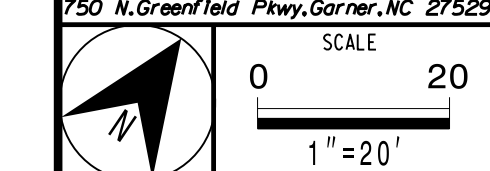
024393

J. G. Williams

3/7/2018

SIG. INVENTORY NO. 10-2247

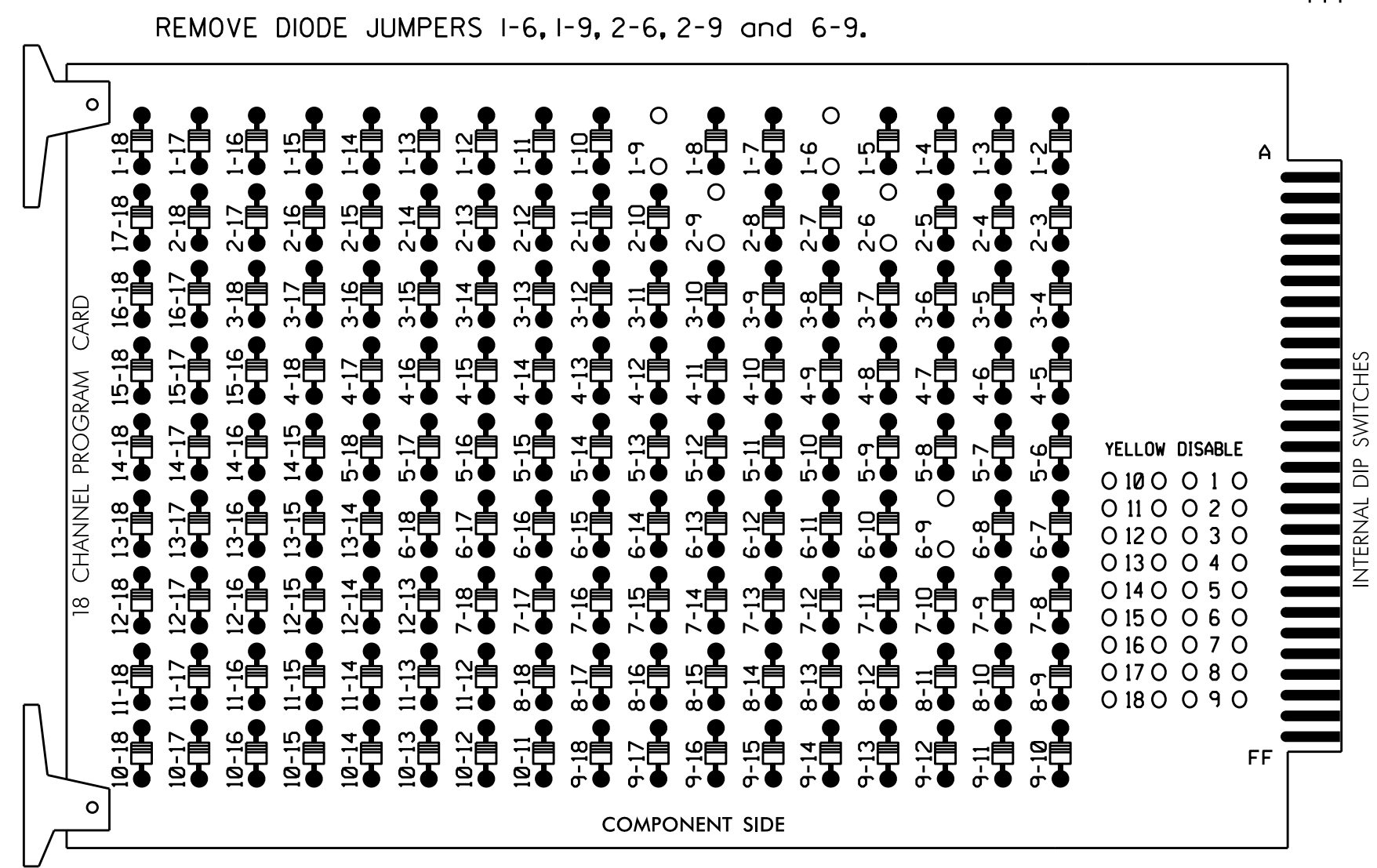
This plan supersedes the one signed and sealed on 8/23/2017.



07-MAR-2018 13:28 S:\IT\55\UM\T\S\S\01\0247\10\10-2247\102247.dwg JG:clm:2018madd.dgn rnz:zns

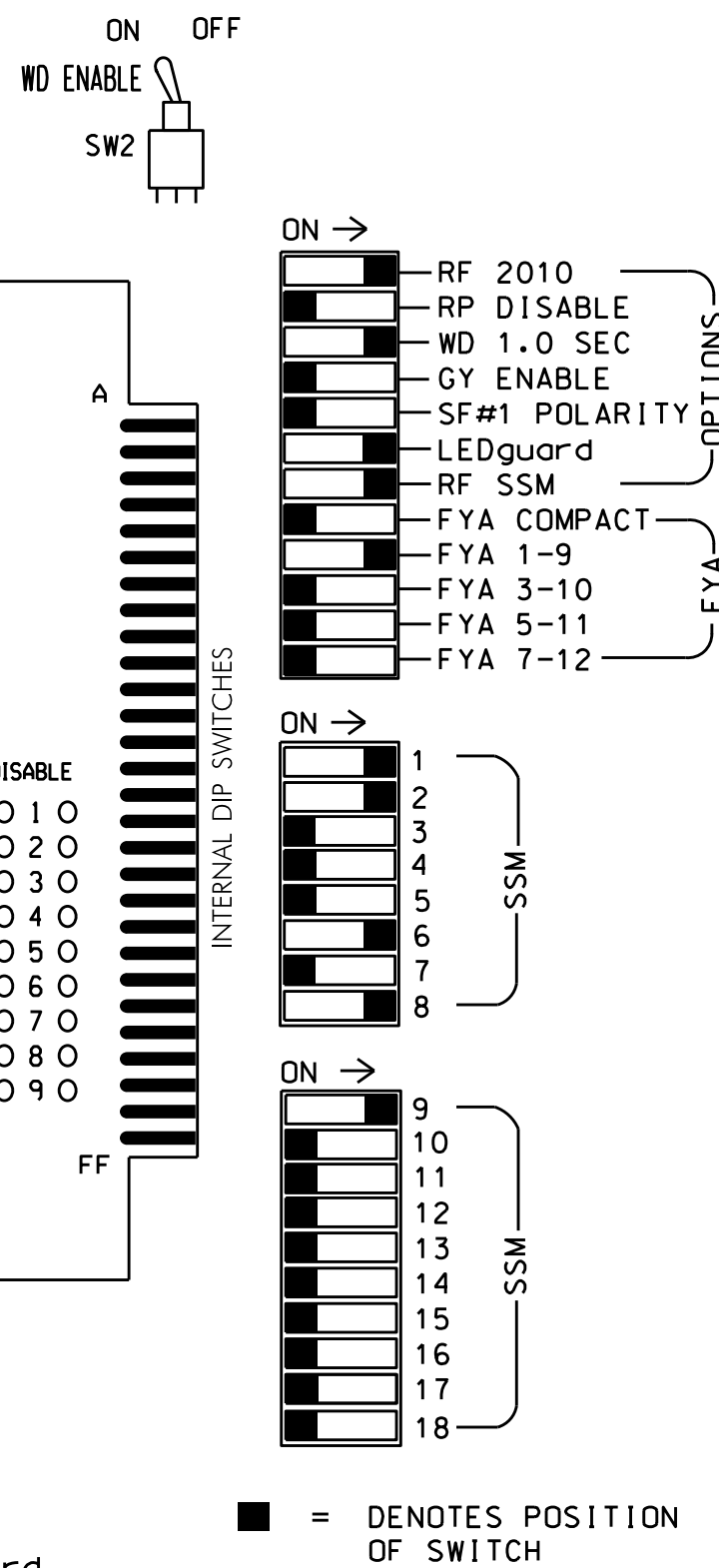
**EDI MODEL 2018ECL-NC CONFLICT MONITOR
PROGRAMMING DETAIL**

(remove jumpers and set switches as shown)



NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.



NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Start Up In Green.
4. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
5. The cabinet and controller are part of the NC 49 (University City Blvd) CLS.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S8,S11,AUX S1
 PHASES USED.....1,2,6,8
 OVERLAP "A".....1+2
 OVERLAP "B".....NOT USED
 OVERLAP "C".....NOT USED
 OVERLAP "D".....NOT USED

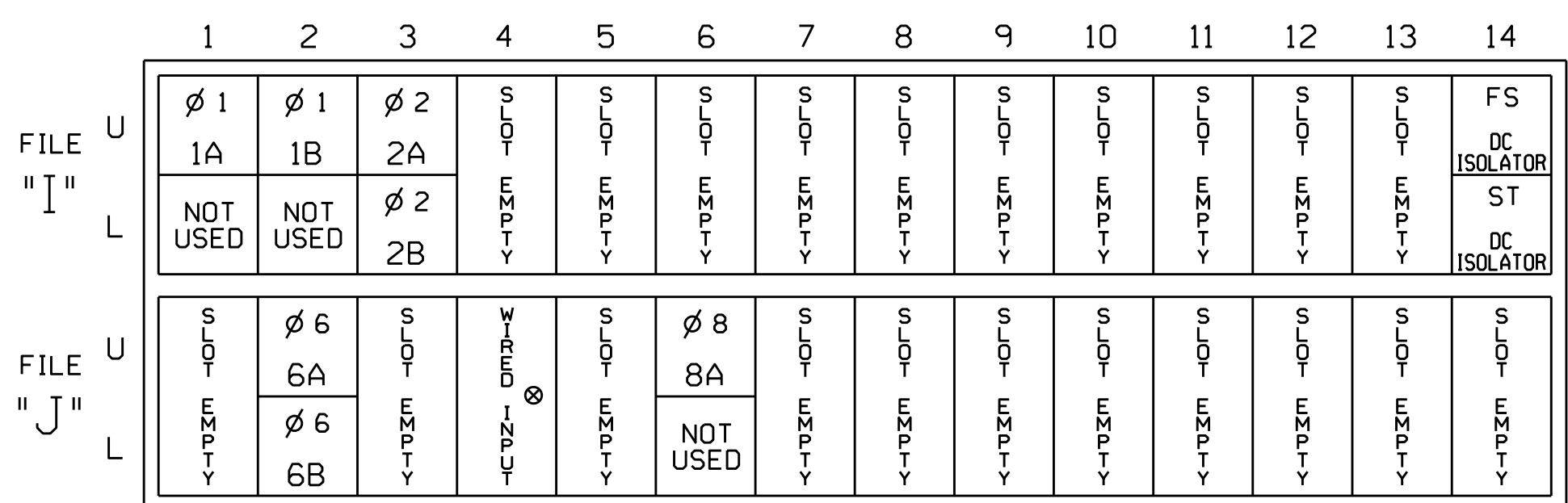
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	82	21,22	NU	NU	NU	NU	61,62	NU	NU	22	81,82	NU	11	NU	NU	NU	NU
RED		*	128					134				107						
YELLOW			129					135				108						
GREEN			130					136				109						
RED ARROW													A121					
YELLOW ARROW		126									108		A122					
FLASHING YELLOW ARROW													A123					
GREEN ARROW	127	127									109							

NU = Not Used
 * Denotes install load resistor. See load resistor installation detail this sheet.
 * See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)



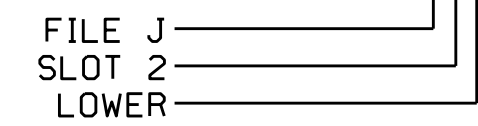
EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME
 * Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A ¹	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y			
1B	TB2-5,6	I2U	39	1	2	1	Y	Y			15
2A	TB2-9,10	I3U	63	25	32	2	Y	Y			
2B	TB2-11,12	I3L	76	38	42	2	Y	Y			
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			3

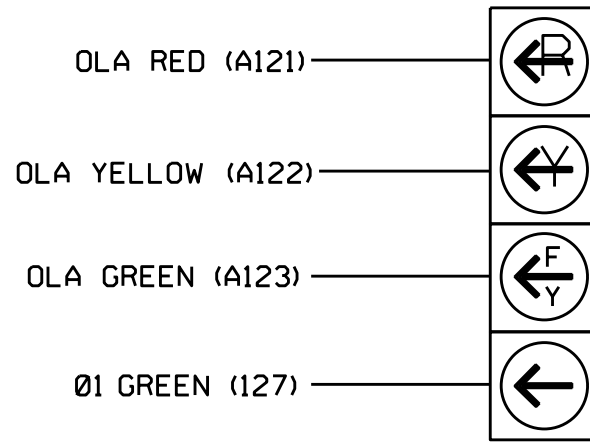
¹Add jumper from 11-W to J4-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L



FYA SIGNAL WIRING DETAIL

(wire signal head as shown)



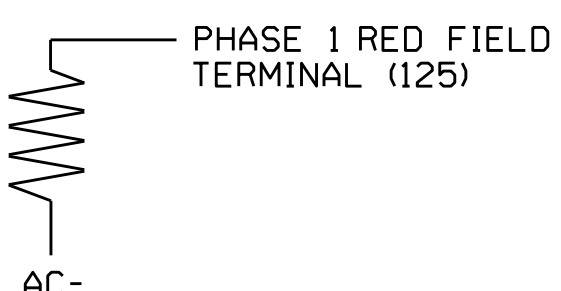
NOTE

The sequence display for this signal requires special logic programming. See sheet 2 for programming instructions.

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



THIS ELECTRICAL DETAIL
 SUPERSEDES THE DETAIL
 SEALED ON 08/24/17

THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 10-2247
 DESIGNED: March 2018
 SEALED: 3/7/2018
 REVISED:

Electrical Detail - Sheet 1 of 2

Electrical and Programming Details for: **NC 49 at Saddle Creek Court (Realigned)**

Prepared in the Offices of: **Transitional Mobility and Safety Division**

Division 10 Cabarrus County Harrisburg

PLAN DATE: March 2018 REVIEWED BY: T. Joyce

PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS: _____ INIT. DATE

DocuSigned by: **D. Todd Joyce** 3/9/2018

750 N. Greenfield Pkwy, Garner, NC 27529

SEAL: **PROFESSIONAL ENGINEER T. TODD JOYCE**

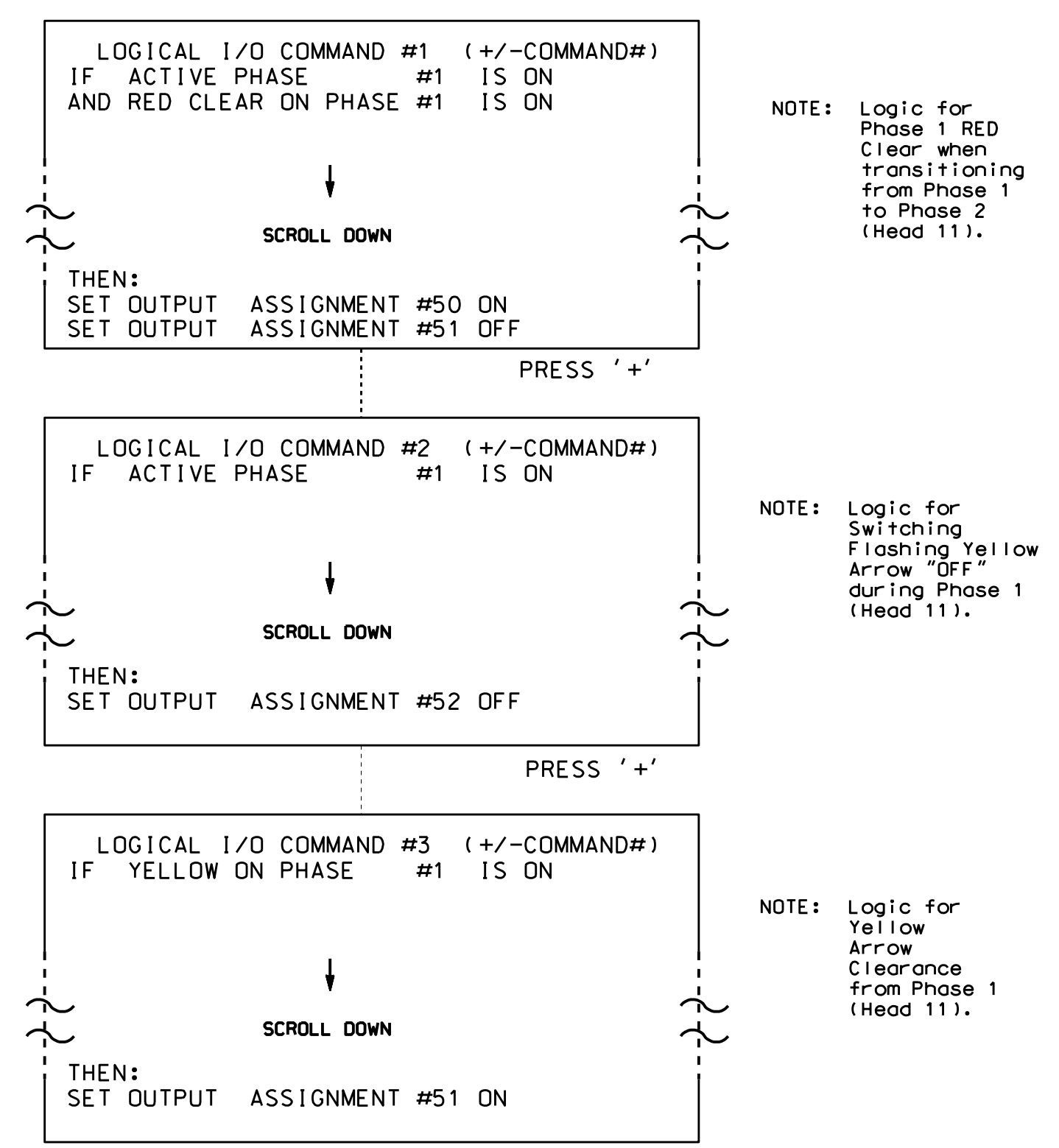
SIG. INVENTORY NO. 10-2247

09-0485-2018_08-03
 S:\MITS\18115_Signal\work\housings\g_mans\trick\lender\02247_sme.le.xxx.dgn
 C:\Users\TJ\Documents\Signal Management

**LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA SIGNAL SEQUENCE**

(program controller as shown below)

- From Main Menu press '2' (PHASE CONTROL), then '1' (PHASE CONTROL FUNCTIONS). Scroll to the bottom of the menu and Enable ACT Logic Commands 1, 2, and 3.
- From Main Menu press '6' (OUTPUTS), then '3' (LOGICAL I/O PROCESSOR).



LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE	
OUTPUT 50 =	Overlap A Red
OUTPUT 51 =	Overlap A Yellow
OUTPUT 52 =	Overlap A Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press '8' (OVERLAPS), then '1' (VEHICLE OVERLAP SETTINGS).

```

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:          :12345678910111213141516
VEH OVL PARENTS: :XX
VEH OVL NOT VEH: :
VEH OVL NOT PED: :
VEH OVL GRN EXT: :
STARTUP COLOR:  - RED  - YELLOW  - GREEN
FLASH COLORS:   - RED  - YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    
```

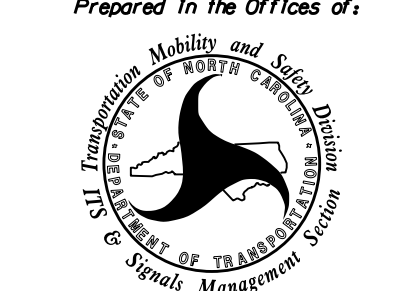

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

**THIS ELECTRICAL DETAIL
SUPERSEDES THE DETAIL
SEALED ON 08/24/17**

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 10-2247
DESIGNED: March 2018
SEALED: 3/7/2018
REVISED:

09-1456-2018_09/04
C:\MIT\SAS\TSS\Sig\mol\work\hgr\opus45\g_Maps\Strickland\102247_sme.le.xxv.dgn
cestrickland

Electrical Detail - Sheet 2 of 2		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529		NC 49 at Saddle Creek Court (Realigned) Division 10 Cabarrus County Harrisburg PLAN DATE: March 2018 REVIEWED BY: T. Joyce PREPARED BY: C. Strickland REVIEWED BY:	
SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031001 TODD JOYCE		DocuSigned by:  3/9/2018 DATE	
REVISIONS INIT. DATE		SIG. INVENTORY NO. 10-2247	

- 1 INSTALL REA, PE – 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 2 INSTALL COAX CABLE
- 3 INSTALL ETHERNET CABLE
- 4 INSTALL SMFO CABLE
- 5 INSTALL MMFO CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE
- 7 INSTALL TRACER WIRE
- 8 TRENCH
- 9 INSTALL PVC CONDUIT
- 10 INSTALL RIGID, GALVANIZED STEEL CONDUIT
- 11 INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
- 12 INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
- 13 INSTALL OUTER-DUCT POLYETHYLENE CONDUIT
- 14 INSTALL POLYETHYLENE CONDUIT
- 15 DIRECTIONAL DRILL CONDUIT
- 16 BORE AND JACK CONDUIT
- 17 INSTALL CABLE(S) IN EXISTING CONDUIT
- 18 INSTALL CABLE(S) IN NEW CONDUIT
- 19 INSTALL CABLE(S) IN EXISTING RISER
- 20 INSTALL CABLE(S) IN NEW RISER
- 21 INSTALL CABLE(S) IN EXISTING CONDUIT STUB-OUTS
- 22 INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 23 INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 24 INSTALL NEW CONDUIT INTO EXISTING POLE MOUNTED CABINET
- 25 INSTALL NEW RISER INTO EXISTING POLE MOUNTED CABINET
- 26 MODIFY EXISTING INTERCONNECT CENTER/SPlice ENCLOSURE
- 27 INSTALL NEW FIBER OPTIC TRANSCEIVER
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPlice CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPlice ENCLOSURE
- 30 INSTALL AERIAL SPlice ENCLOSURE
- 31 INSTALL POLE MOUNTED SPlice CABINET
- 32 INSTALL BASE MOUNTED SPlice CABINET
- 33 REMOVE EXISTING SPlice CABINET

- 34 INSTALL CABINET FOUNDATION
- 35 REMOVE EXISTING CABINET FOUNDATION
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL CCTV CAMERA WOOD POLE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL JUNCTION BOX
- 40 INSTALL OVERSIZED JUNCTION BOX
- 41 REMOVE EXISTING JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 REMOVE EXISTING WOOD POLE
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48 REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
- 49 REMOVE EXISTING MESSENGER CABLE
- 50 INSTALL TELEPHONE SERVICE
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKER
- 53 STORE 20 FEET OF COMMUNICATIONS CABLE
- 54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE
- 55 LASH CABLE(S) TO EXISTING MESSENGER CABLE
- 56 LASH CABLE(S) TO NEW MESSENGER CABLE
- 57 MODIFY EXISTING ELECTRICAL SERVICE
- 58 INSTALL NEW ELECTRICAL SERVICE
- 59 INSTALL NEW FIELD ETHERNET SWITCH
- 60 BOND TRACER WIRE TO EQUIPMENT GROUND BUSS
- 61 DO NOT BOND TRACER WIRE TO EQUIPMENT GROUND BUSS
- 62 BOND RISER AND MESSENGER CABLE TO POLE GROUND

LEGEND

	FO	NEW FIBER OPTIC COMMUNICATIONS CABLE
	TWIST PR	NEW TWISTED PAIR COMMUNICATIONS CABLE
	EXI	EXISTING COMMUNICATIONS CABLE
	REM	EXISTING COMMUNICATIONS CABLE TO BE REMOVED
		NEW AERIAL GUY ASSEMBLY
		EXISTING CONDUIT
		NEW DIRECTIONAL DRILLED CONDUIT
	B&J	NEW BORED AND JACKED CONDUIT
		NEW JUNCTION BOX
		EXISTING JUNCTION BOX
		NEW WOOD POLE
		EXISTING WOOD POLE
		AERIAL SPlice ENCLOSURE
		NEW METAL POLE
		EXISTING METAL POLE
		NEW CCTV ASSEMBLY
		NEW STANDARD GUY ASSEMBLY
		NEW SIDEWALK GUY ASSEMBLY
		NEW CABLE STORAGE RACKS (SNOW SHOES)
		EXISTING CONTROLLER AND CABINET
		EXISTING SPlice CABINET
		NEW SPlice CABINET
		SIGNAL POLE
		SIGNAL INVENTORY NUMBER

CONSTRUCTION NOTE SYMBOLOGY KEY

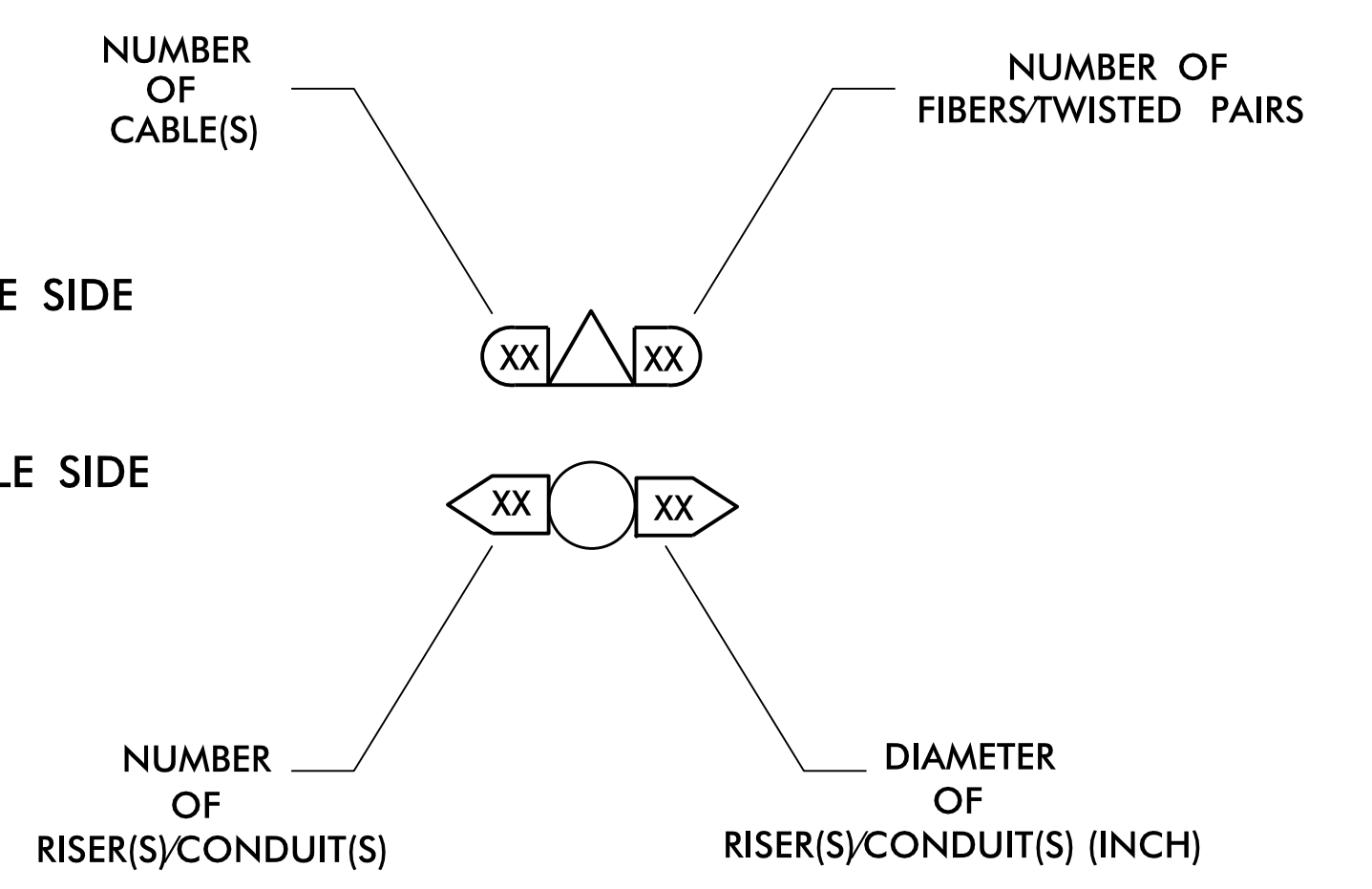
- INDICATES NUMBER OF CABLES, LOOPS, ETC.
- INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.
- INDICATES NUMBER OF RISER(S)/CONDUIT(S)
- INDICATES DIAMETER OF RISER(S)/CONDUIT(S) (INCH)

ATTACHMENT POINT:

- 'PS' and 'YYY'"/> DISTANCE ABOVE (IN)/POLE SIDE REFERENCE POINT
- 'PS'"/> REFERENCE POINT DISTANCE BELOW (IN)/POLE SIDE

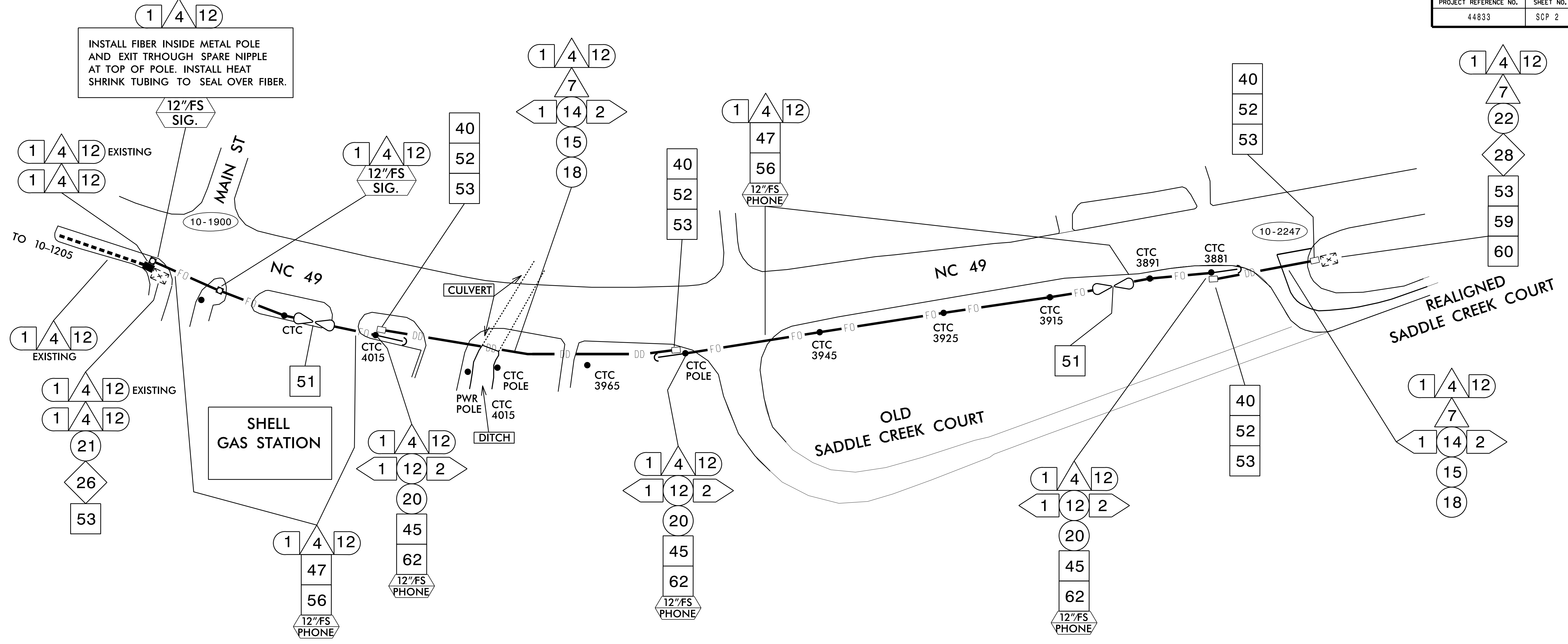
POLE SIDE

- SS – SAME SIDE AS REFERENCE
- FS – FRONT SIDE OF POLE
- BS – BACK SIDE OF POLE



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

	CONSTRUCTION NOTES		
	DIVISION 10 CABARRUS CO. HARRISBURG		
PLAN DATE: JULY 2017	REVIEWED BY:		DocuSigned by: Mohd. Aslami 029580A0C088495...
PREPARED BY: I. N. AVERY	REVISIONS	INIT. DATE	



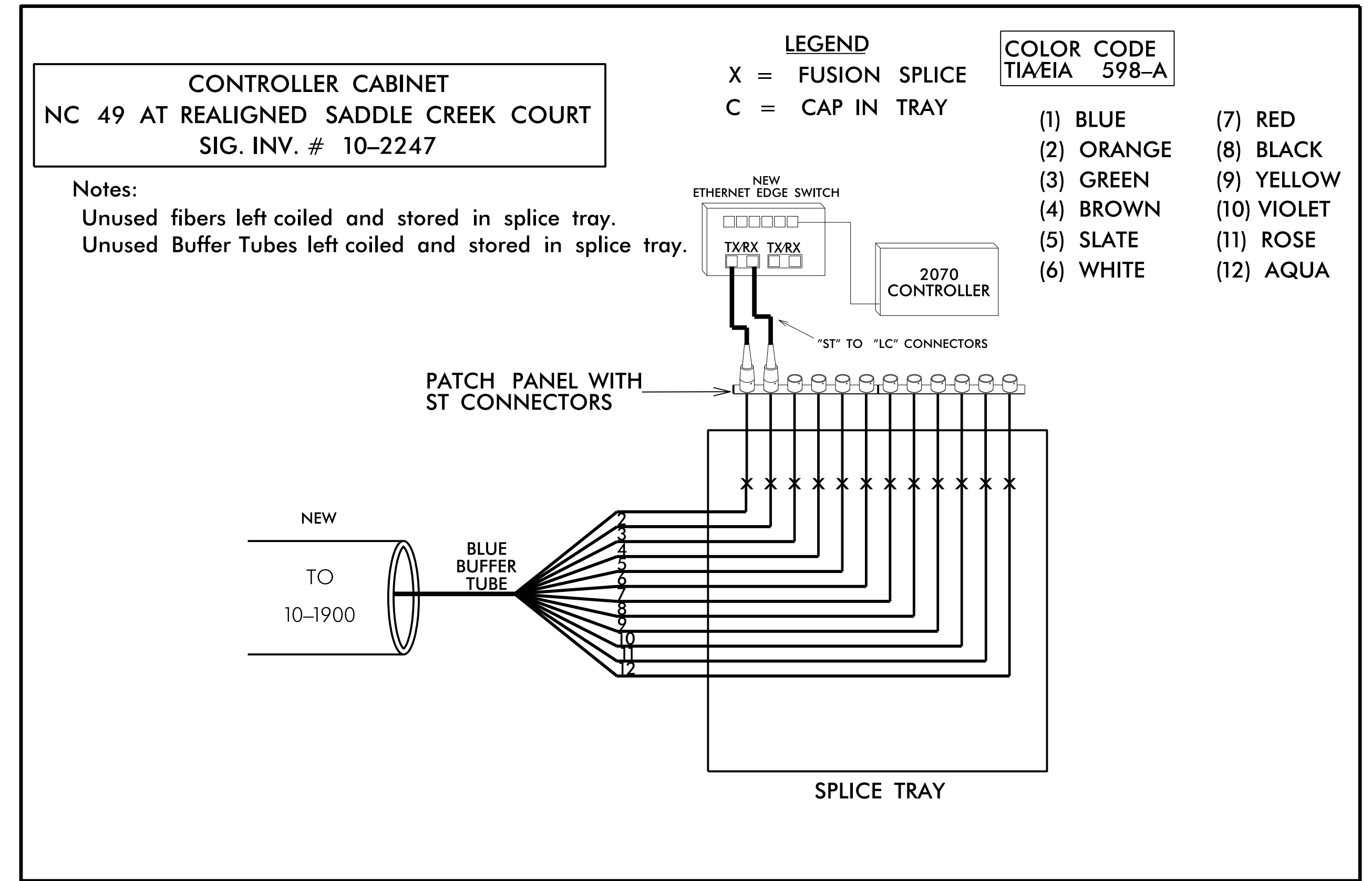
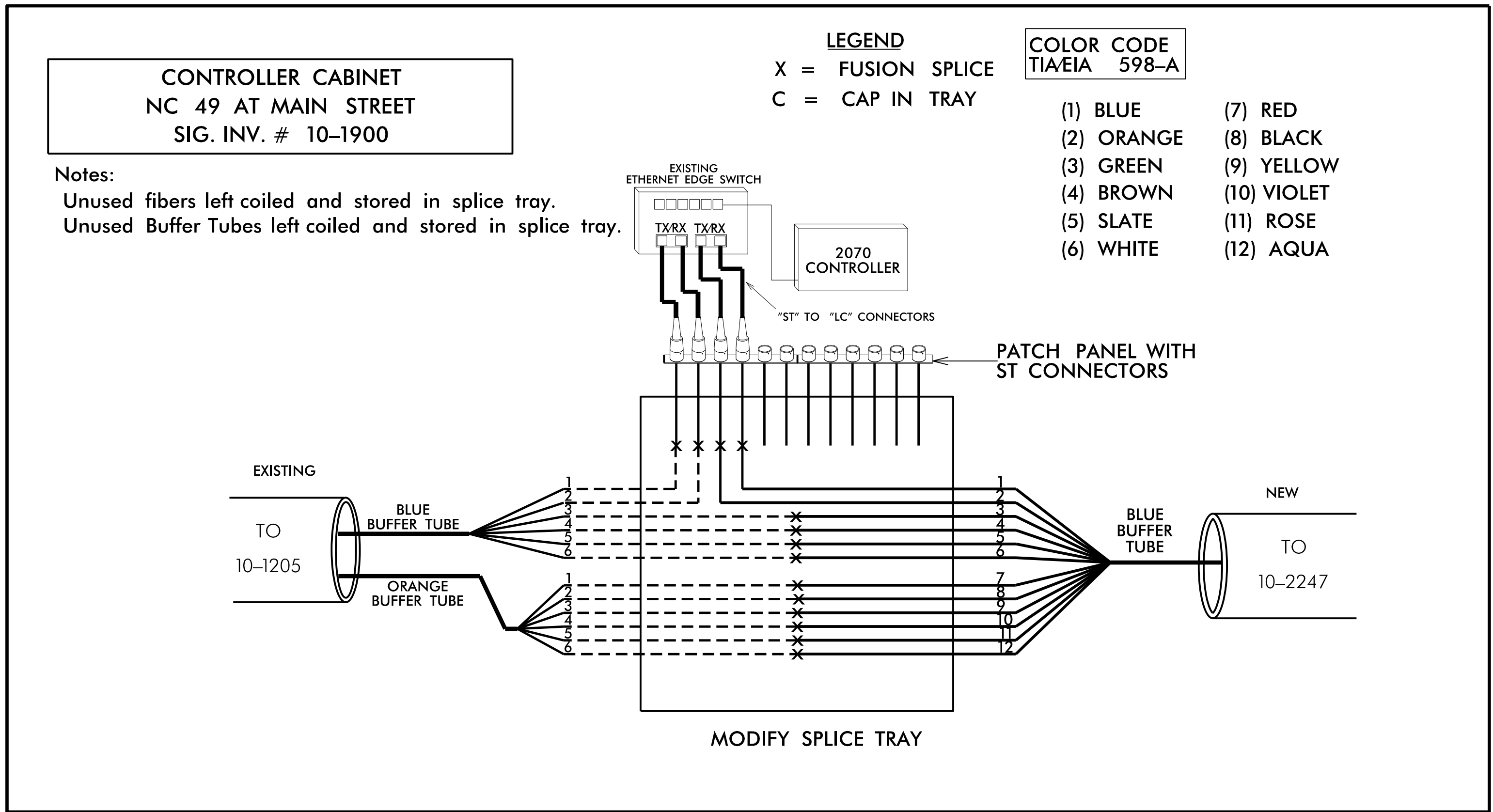
INSTALL FIBER INSIDE METAL POLE AND EXIT THROUGH SPARE NIPPLE AT TOP OF POLE. INSTALL HEAT SHRINK TUBING TO SEAL OVER FIBER.

- 1) FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION 10 TRAFFIC ENGINEER, SEAN EPPERSON, AT (704) 983-4400 TO ARRANGE FOR THE DIVISION ENGINEER TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE DIVISION ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL

- 2) CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS	
	DIVISION 10 CABARRUS CO. HARRISBURG	
PLAN DATE: JULY 2017	REVIEWED BY:	
PREPARED BY: I. N. AVERY	REVIEWED BY:	
SCALE: 1" = 70'	REVISIONS	INIT. DATE
7/28/2017	DATE	



- 1) FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION 10 TRAFFIC ENGINEER, SEAN EPPERSON AT (704) 983-4400 TO ARRANGE FOR THE TRAFFIC ENGINEER TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE TRAFFIC ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL
- 2) CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
- 3) ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.
- 4) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
 REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"
 - 1) SPLICE LOCATION
 - 2) DATE
 - 3) COMPANY NAME
 - 4) NAME OF INDIVIDUAL PERFORMING THE SPLICING

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

 <small>750 N. Greenfield Pkwy., Garner, NC 27529</small>	SPLICE PLANS		SEAL MOHD A. ASLAM ENGINEER 032108 <small>DocuSigned by: Mohd Aslam 7/28/2017</small>
	DIVISION 10 CABARRUS CO. HARRISBURG		
	PLAN DATE: JULY 2017 PREPARED BY: I. N. AVERY REVISIONS:	REVIEWED BY: REVIEWED BY:	
SCALE 0 NA	REVISIONS INIT. DATE		