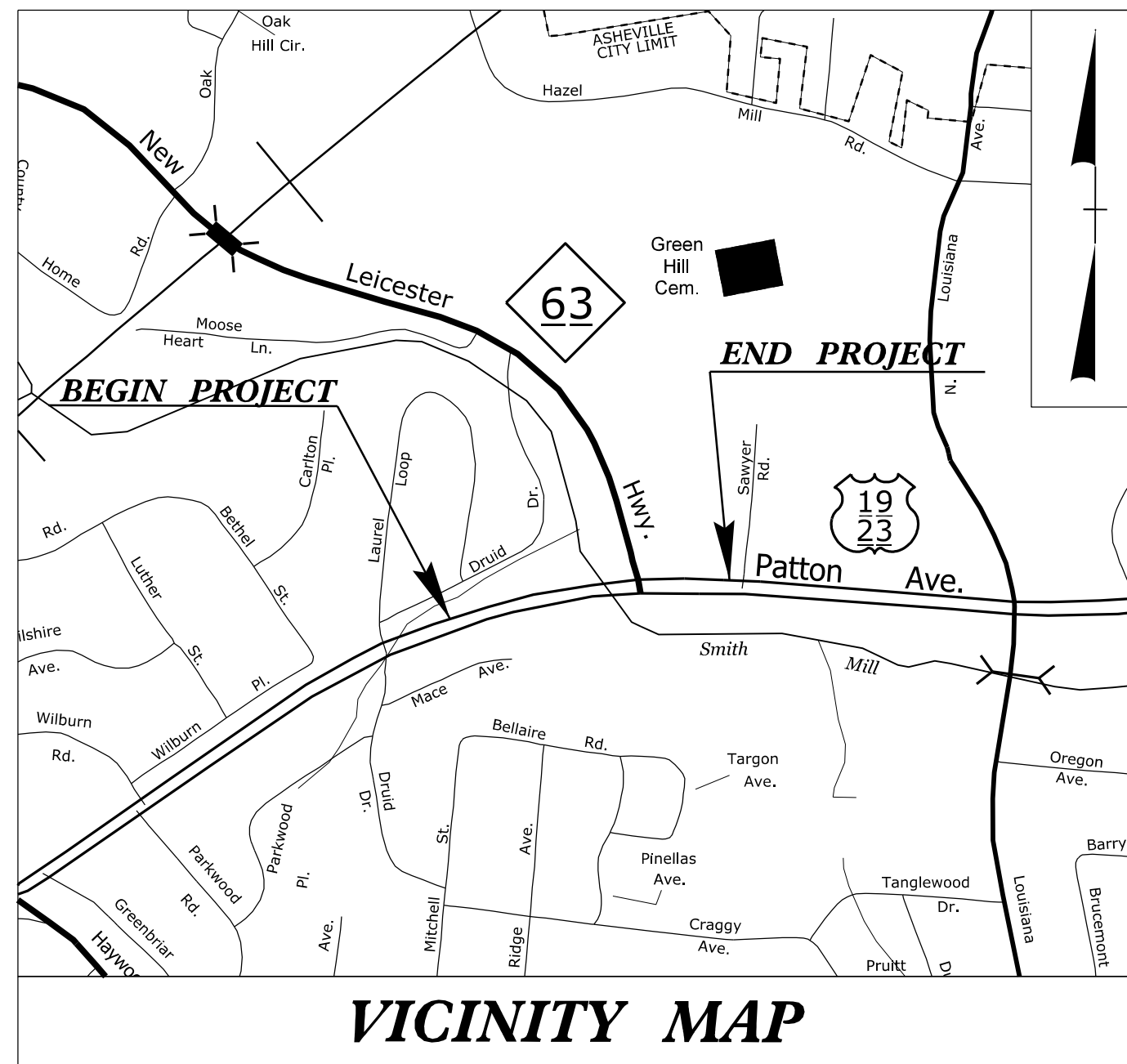


**TIP PROJECT: U-5971A**

**CONTRACT: DM00246**

See Sheet 1A For Index of Sheets  
See Sheet 1-B For Conventional Plan Sheet Symbols



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**BUNCOMBE COUNTY**

**LOCATION: US 1923/74A (PATTON AVE) / NC 63 (NEW LEICESTER HWY)  
INTERSECTION IMPROVEMENTS**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE,  
SIGNAL**

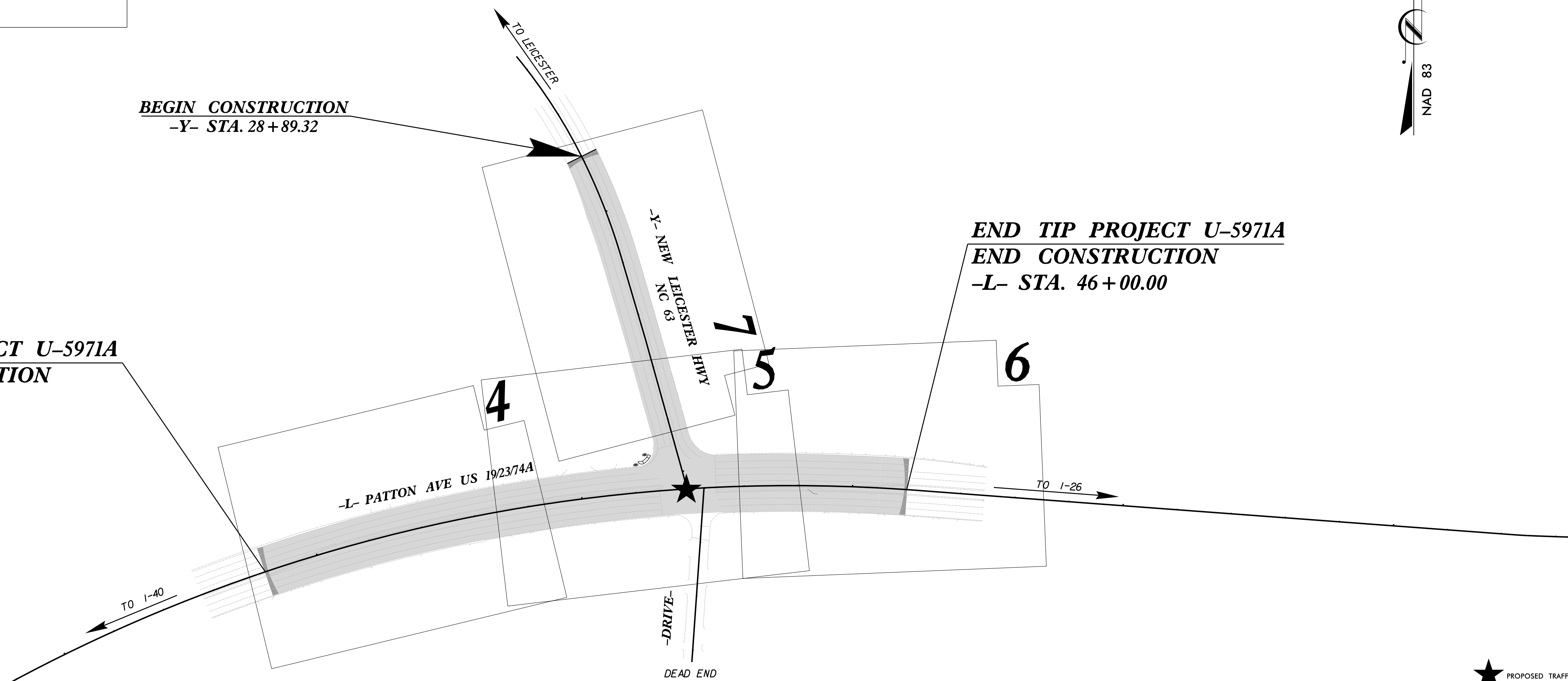
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5971A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
U-5971A	N/A	PE	
45959.3.2	N/A	CONST.	



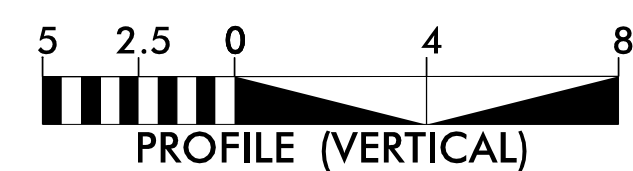
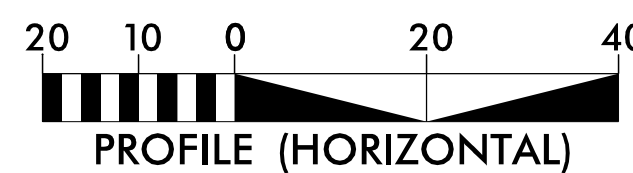
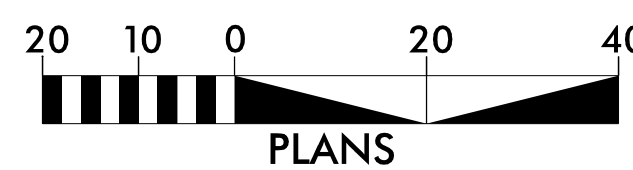
**BEGIN TIP PROJECT U-5971A  
BEGIN CONSTRUCTION  
-L- STA. 34+00.00**

**BEGIN CONSTRUCTION  
-Y- STA. 28+89.32**

**END TIP PROJECT U-5971A  
END CONSTRUCTION  
-L- STA. 46+00.00**



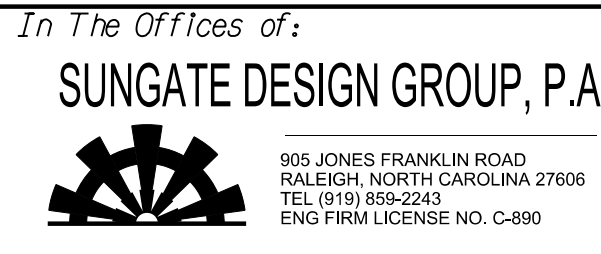
**GRAPHIC SCALES**



**PROJECT LENGTH**

LENGTH OF ROADWAY PROJECT U-5971A = 0.227 MI.  
LENGTH OF STRUCTURE PROJECT U-5971A = 0.000 MI  
TOTAL LENGTH OF PROJECT U-5971A = 0.227 MI

NCDOT CONTACT: **Lonnie Watkins, PE**  
NCDOT DIVISION 13 TRANSPORTATION MANAGER



Prepared In The Offices of:  
for the North Carolina Department of Transportation

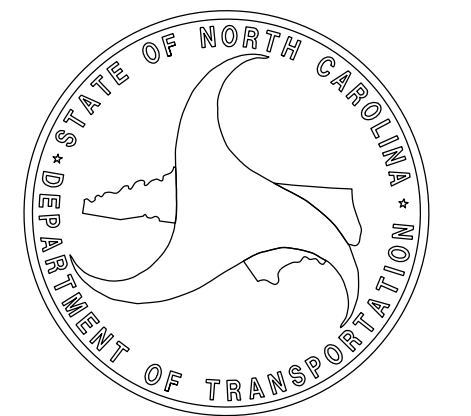
2018 STANDARD SPECIFICATIONS	STANTEC CONTACTS
RIGHT OF WAY DATE:	MICHAEL D. LINDGREN, PE PROJECT ENGINEER
LETTING DATE: JUNE 6, 2018	JEANIE TYSON PROJECT DESIGN ENGINEER

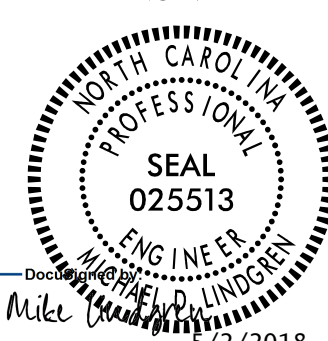
**HYDRAULICS ENGINEER**

5/10/2018  
SIGNATURE:

**ROADWAY DESIGN ENGINEER**

5/10/2018  
SIGNATURE:



PROJECT REFERENCE NO. <i>U-5971A</i>	SHEET NO. <i>1A</i>
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

## INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1 TO 1C-5	SURVEY CONTROL SHEET
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2C-1	CURB RAMPS, DIRECTIONAL RAMPS DETAIL
3B-1	SUMMARY OF ROADWAY QUANTITIES EARTHWORK SUMMARY, ASPHALT PAVEMENT REMOVAL SUMMARY.
3D-1	DRAINAGE SUMMARY
4 THRU 9	PLAN & PROFILE SHEET
TMP-1 THRU TMP-4	TRAFFIC MAINTENANCE PLANS
PMP-1 THRU PMP-8	PAVEMENT MARKING PLANS
SIGN-1 THRU SIGN-6	SIGNING PLANS
SIG. 1.0 THRU SCP-4	SIGNAL/CABLE/ITS PLANS
X-1 THRU X-11	CROSS-SECTIONS

## GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS  
EFFECTIVE: 01-16-2018  
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:  
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD 11.

SUPERELEVATION:  
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SIDE ROADS:  
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

DRIVEWAYS:  
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

TEMPORARY SHORING:  
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:  
NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

CURB RAMPS  
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05

## ROADWAY STANDARD DRAWINGS

EFF. 01-16-2018  
REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method 11
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
848.01	Concrete Sidewalk
848.03	Driveway Turnout - Drop Curb Type
848.05	Curb Ramp - Proposed Curb & Gutter
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands



12/2/2016

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

## BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	①23
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- WLB
Proposed Wetland Boundary	----- WLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB
Existing Historic Property Boundary	----- HPB
Known Contamination Area: Soil	☠-s-☠
Potential Contamination Area: Soil	☠-s-☠
Known Contamination Area: Water	☠-w-☠
Potential Contamination Area: Water	☠-w-☠
Contaminated Site: Known or Potential	☠?

## BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	⊗
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	▬

## HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	□
Jurisdictional Stream	----- JS
Buffer Zone 1	----- BZ 1
Buffer Zone 2	----- BZ 2
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	▽

## RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

## RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	----- R/W
New Right of Way Line with Pin and Cap	----- R/W
New Right of Way Line with Concrete or Granite R/W Marker	----- R/W
New Control of Access Line with Concrete C/A Marker	----- C/A
Existing Control of Access	----- C/A
New Control of Access	----- C/A
Existing Easement Line	----- E
New Temporary Construction Easement	----- E
New Temporary Drainage Easement	----- TDE
New Permanent Drainage Easement	----- PDE
New Permanent Drainage / Utility Easement	----- DUE
New Permanent Utility Easement	----- PUE
New Temporary Utility Easement	----- TUE
New Aerial Utility Easement	----- AUE

## ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- C
Proposed Slope Stakes Fill	----- F
Proposed Curb Ramp	----- CR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	⊠

## VEGETATION:

Single Tree	☼
Single Shrub	☼

Note: Not to Scale

\*S.U.E. = Subsurface Utility Engineering

Hedge	-----
Woods Line	-----
Orchard	☼
Vineyard	□ Vineyard

## EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊙
Storm Sewer	----- S

## UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊙
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	-----
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	----- P
U/G Power Line LOS C (S.U.E.*)	----- P
U/G Power Line LOS D (S.U.E.*)	----- P

## TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊙
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	-----
U/G Telephone Cable LOS B (S.U.E.*)	----- T
U/G Telephone Cable LOS C (S.U.E.*)	----- T
U/G Telephone Cable LOS D (S.U.E.*)	----- T
U/G Telephone Conduit LOS B (S.U.E.*)	----- TC
U/G Telephone Conduit LOS C (S.U.E.*)	----- TC
U/G Telephone Conduit LOS D (S.U.E.*)	----- TC
U/G Fiber Optics Cable LOS B (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS C (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS D (S.U.E.*)	----- T FO

## WATER:

Water Manhole	⊙
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	-----
U/G Water Line LOS C (S.U.E.*)	-----
U/G Water Line LOS D (S.U.E.*)	-----
Above Ground Water Line	----- A/G Water

## TV:

TV Pedestal	⊠
TV Tower	⊗
U/G TV Cable Hand Hole	-----
U/G TV Cable LOS B (S.U.E.*)	----- TV
U/G TV Cable LOS C (S.U.E.*)	----- TV
U/G TV Cable LOS D (S.U.E.*)	----- TV
U/G Fiber Optic Cable LOS B (S.U.E.*)	----- TV FO
U/G Fiber Optic Cable LOS C (S.U.E.*)	----- TV FO
U/G Fiber Optic Cable LOS D (S.U.E.*)	----- TV FO

## GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	----- G
U/G Gas Line LOS C (S.U.E.*)	----- G
U/G Gas Line LOS D (S.U.E.*)	----- G
Above Ground Gas Line	----- A/G Gas

## SANITARY SEWER:

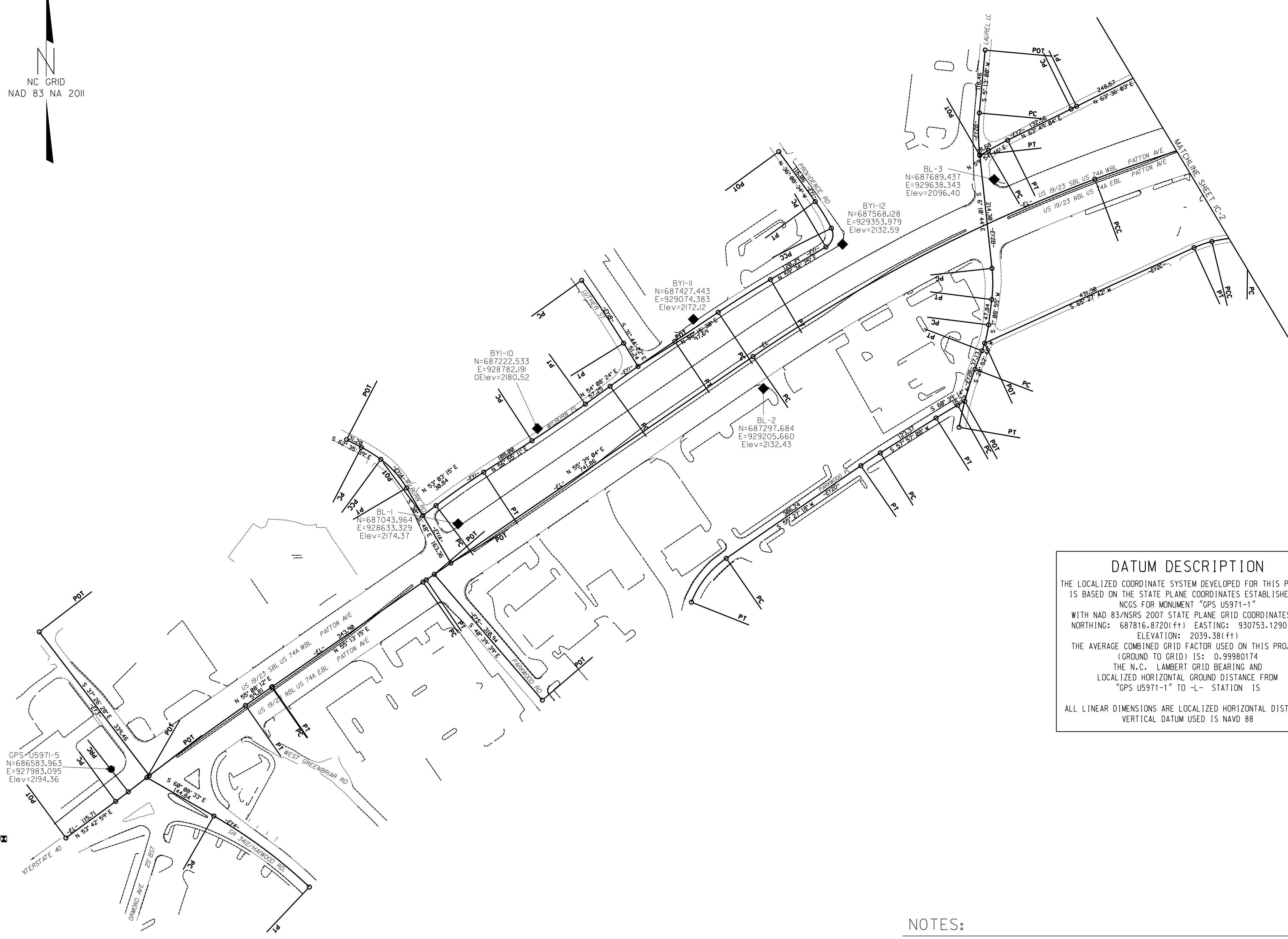
Sanitary Sewer Manhole	⊙
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	----- SS
Above Ground Sanitary Sewer	----- A/G Sanitary Sewer
SS Forced Main Line LOS B (S.U.E.*)	----- FSS
SS Forced Main Line LOS C (S.U.E.*)	----- FSS
SS Forced Main Line LOS D (S.U.E.*)	----- FSS

## MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	----- 7UTL
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊠ UST
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

# SURVEY CONTROL SHEET U5971

## W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS U5971-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 687816.8720(ft) EASTING: 930753.1290(ft) ELEVATION: 2039.38(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99980174

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS U5971-1" TO -L- STATION IS

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88

**NOTES:**

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

6/2/99  
 4/12/2018  
 U:\Location\Surveys\U5971\_1s\_1c-1.dgn  
 Comment: 1:1

● GPS U5971-6  
 N=686160.751  
 E=928492.735  
 Elev=2190.68



PROJECT REFERENCE NO.	SHEET NO.
U5971A	1C-2
Location and Surveys	

# SURVEY CONTROL SHEET U5971

## W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

● GPS U5971-4  
 N=689940.778  
 E=928358.250  
 Elev=2119.36

● GPS U5971-3  
 N=689532.524  
 E=928802.791  
 Elev=2129.31

BM#4  
 N=689281  
 E=928978  
 Elev=2124.65

BY-7  
 N=689192.545  
 E=929152.850  
 Elev=2114.80

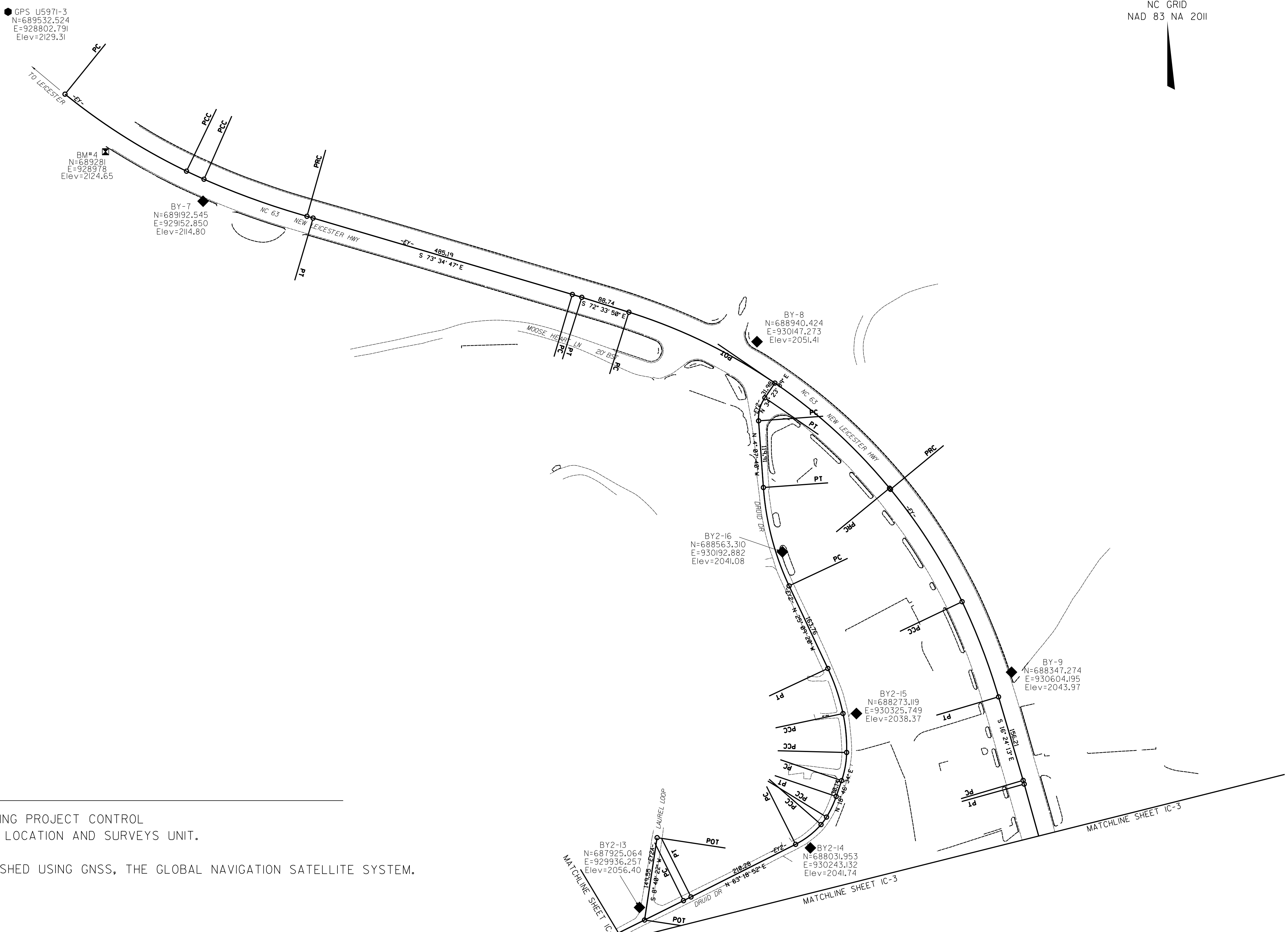
BY-8  
 N=688940.424  
 E=930147.273  
 Elev=2051.41

BY2-16  
 N=688563.310  
 E=930192.882  
 Elev=2041.08

BY-9  
 N=688347.274  
 E=930604.195  
 Elev=2043.97

BY2-13  
 N=687925.064  
 E=929936.251  
 Elev=2056.40

BY2-14  
 N=688031.953  
 E=930243.132  
 Elev=2041.74



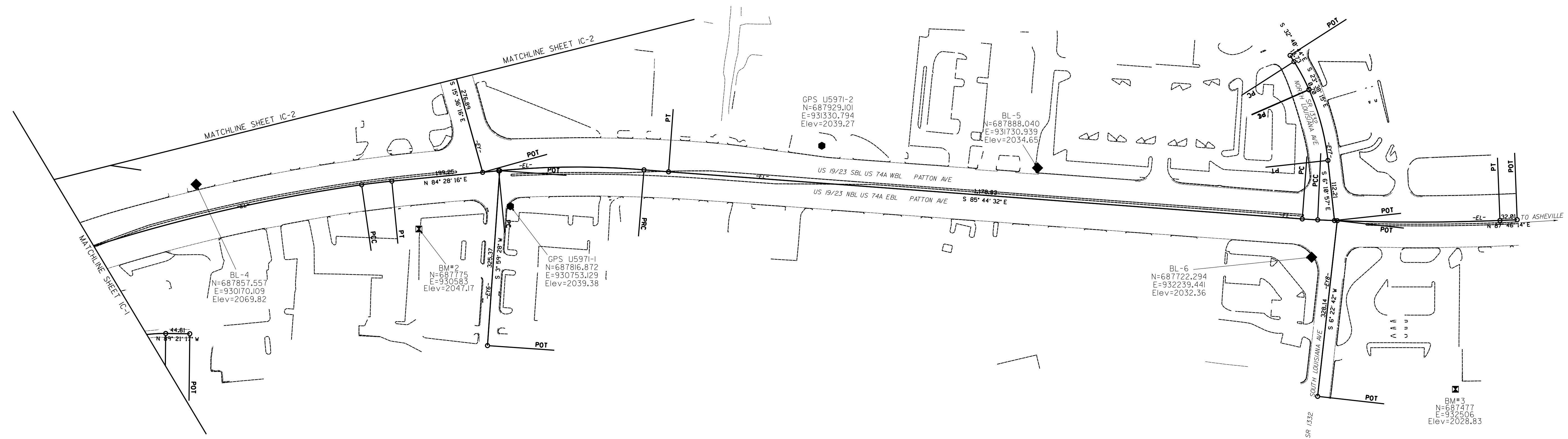
**NOTES:**

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

6/2/99  
 4/12/2018  
 U:\Location\Surveys\U5971\_1s\_1c-2.dgn  
 6/2/99

# SURVEY CONTROL SHEET U5971

## W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



**NOTES:**

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

6/2/99  
 4/12/2018  
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 Column 1 of 4

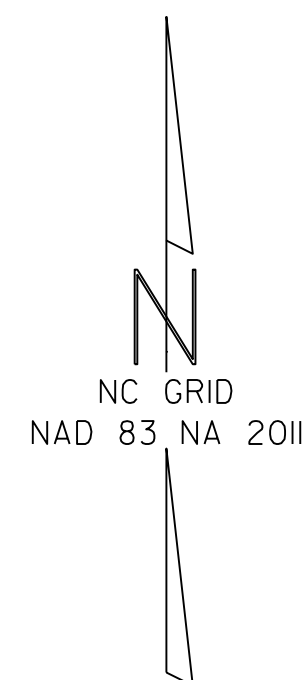


6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U5971A	1C-4
Location and Surveys	

# SURVEY CONTROL SHEET U5971

## W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



### BASELINE

BL				
POINT	DESC.	NORTH	EAST	ELEVATION
1		687043.964	928633.329	2174.37
2		687297.684	929205.660	2132.43
3		687689.437	929638.343	2096.40
4		687857.557	930170.109	2069.82
GPS1		687816.872	930753.129	2039.38
GPS2		687929.101	931330.794	2039.27
5		687888.040	931730.939	2034.65
6		687722.294	932239.441	2032.36
BY				
POINT	DESC.	NORTH	EAST	ELEVATION
7		689192.545	929152.850	2114.80
8		688940.424	930147.273	2051.41
9		688347.274	930604.195	2043.97
BY1				
POINT	DESC.	NORTH	EAST	ELEVATION
10		687222.533	928782.191	2180.52
11		687427.443	929074.383	2172.12
12		687568.128	929353.979	2132.59
BY2				
POINT	DESC.	NORTH	EAST	ELEVATION
13		687925.064	929936.257	2056.40
14		688031.953	930243.132	2041.74
15		688273.119	930325.749	2038.37
16		688563.310	930192.882	2041.08

```

.....
BM1      ELEVATION = 2205.35
N 686453      E 927782
RAILROAD SPIKE SET IN 32 INCH OAK
.....
BM2      ELEVATION = 2047.17
N 687775      E 930583
PK NAIL IN CONC
.....
BM3      ELEVATION = 2028.83
N 687477      E 932506
RAILROAD SPIKE SET IN 14 INCH CATALPA
.....
BM4      ELEVATION = 2124.65
N 689281      E 928978
EXISTING BOLT IN SOUTHEAST WW OF RAILROAD BRIDGE
.....
    
```

**NOTES:**

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

SURVEY CONTROL SHEET U5971

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

Table with columns: EL POINT, N, E, BEARING, DIST, DELTA, D, L, T, R. Contains survey data for alignment EL.

Table with columns: EY POINT, N, E, BEARING, DIST, DELTA, D, L, T, R. Contains survey data for alignment EY.

Table with columns: EY1 POINT, N, E, BEARING, DIST, DELTA, D, L, T, R. Contains survey data for alignment EY1.

Table with columns: EY1A POINT, N, E, BEARING, DIST, DELTA, D, L, T, R. Contains survey data for alignment EY1A.

Table with columns: EY1B POINT, N, E, BEARING, DIST, DELTA, D, L, T, R. Contains survey data for alignment EY1B.

Table with columns: EY2 POINT, N, E, BEARING, DIST, DELTA, D, L, T, R. Contains survey data for alignment EY2.

Table with columns: EY2A POINT, N, E, BEARING, DIST. Contains survey data for alignment EY2A.

Table with columns: EY2B POINT, N, E, BEARING, DIST, DELTA, D, L, T, R. Contains survey data for alignment EY2B.

Table with columns: EY2C POINT, N, E, BEARING, DIST, DELTA, D, L, T, R. Contains survey data for alignment EY2C.

Table with columns: EY2D POINT, N, E, BEARING, DIST, DELTA, D, L, T, R. Contains survey data for alignment EY2D.

Table with columns: EY3 POINT, N, E, BEARING, DIST. Contains survey data for alignment EY3.

Table with columns: EY4 POINT, N, E, BEARING, DIST, DELTA, D, L, T, R. Contains survey data for alignment EY4.

Table with columns: EY5 POINT, N, E, BEARING, DIST. Contains survey data for alignment EY5.

Table with columns: EY6 POINT, N, E, BEARING, DIST. Contains survey data for alignment EY6.

Table with columns: EY7 POINT, N, E, BEARING, DIST, DELTA, D, L, T, R. Contains survey data for alignment EY7.

Table with columns: EY8 POINT, N, E, BEARING, DIST. Contains survey data for alignment EY8.

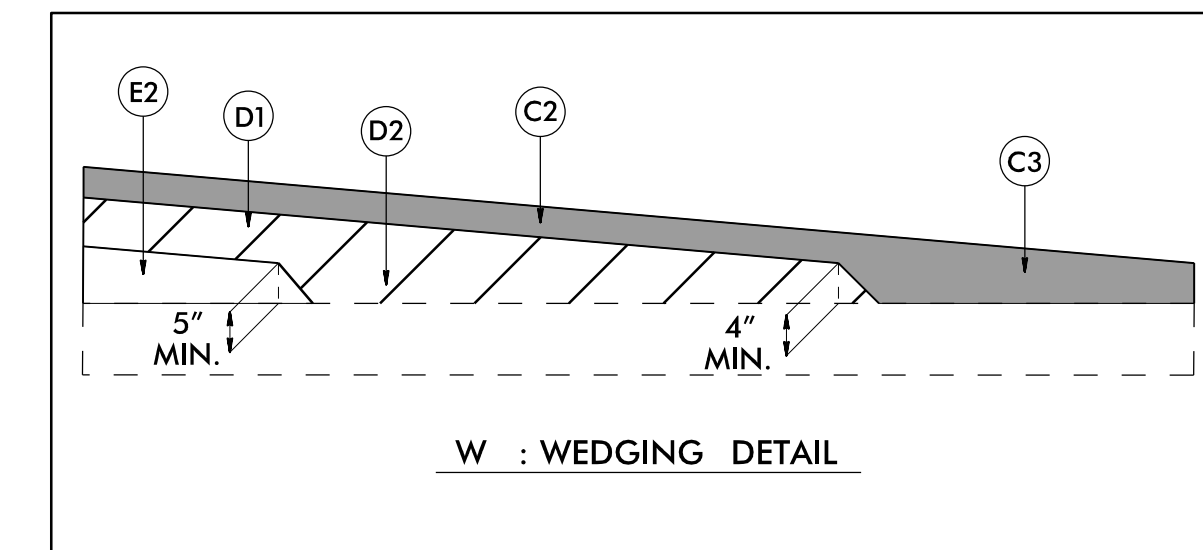
NOTES:
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.



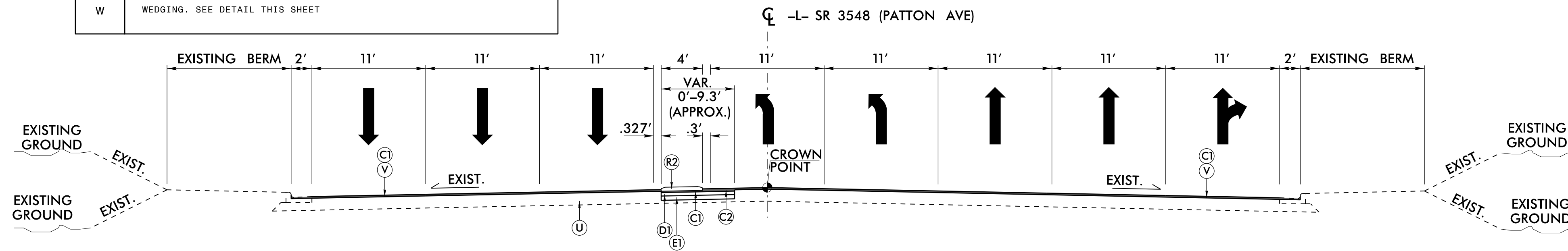
6/2/2018

PAVEMENT SCHEDULE

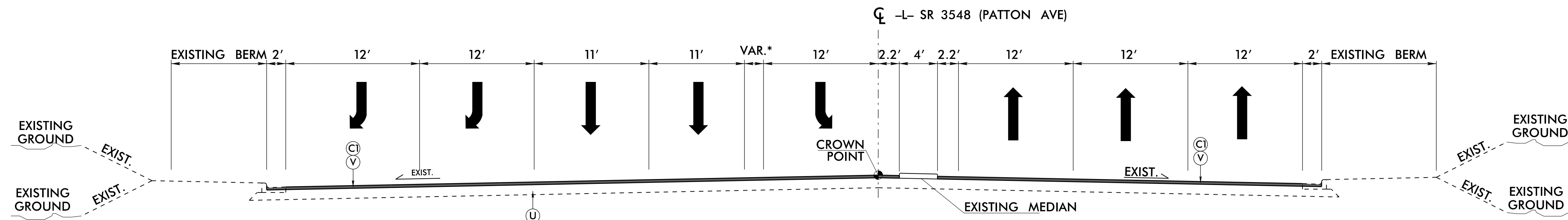
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5".
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R1	2'-6" CONCRETE CURB & GUTTER
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2.0".	R2	5" CONCRETE MONOLITHIC ISLAND (KEYED-IN)
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R3	8" CONCRETE CURB
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4".	T	EARTH MATERIAL
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	V	MILLING BITUMINOUS PAVEMENT. 1.5" DEPTH.
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.		W	WEDGING. SEE DETAIL THIS SHEET



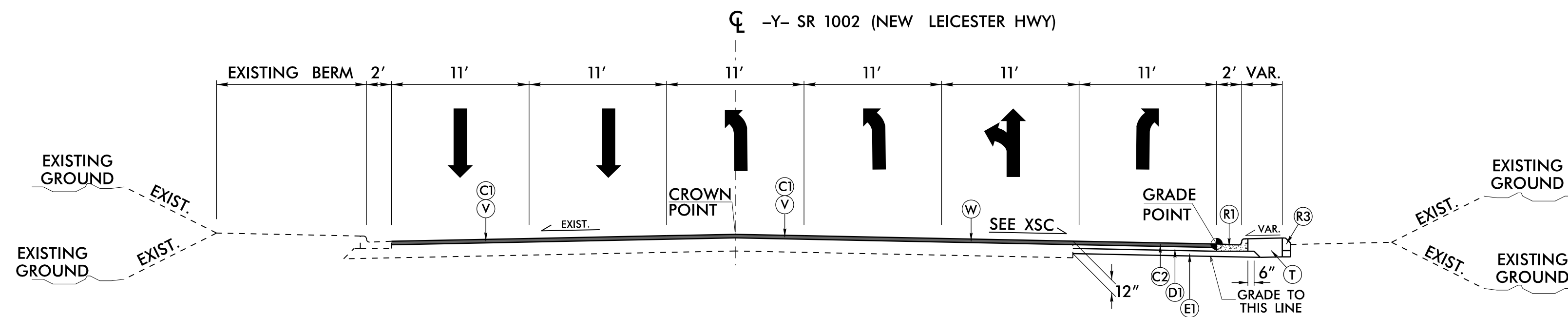
PROJECT REFERENCE NO. U-5971A	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER SEAL 025513 MICHAEL D. WINDGREN ENGINEER MICHAEL D. WINDGREN 4/17/2018	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



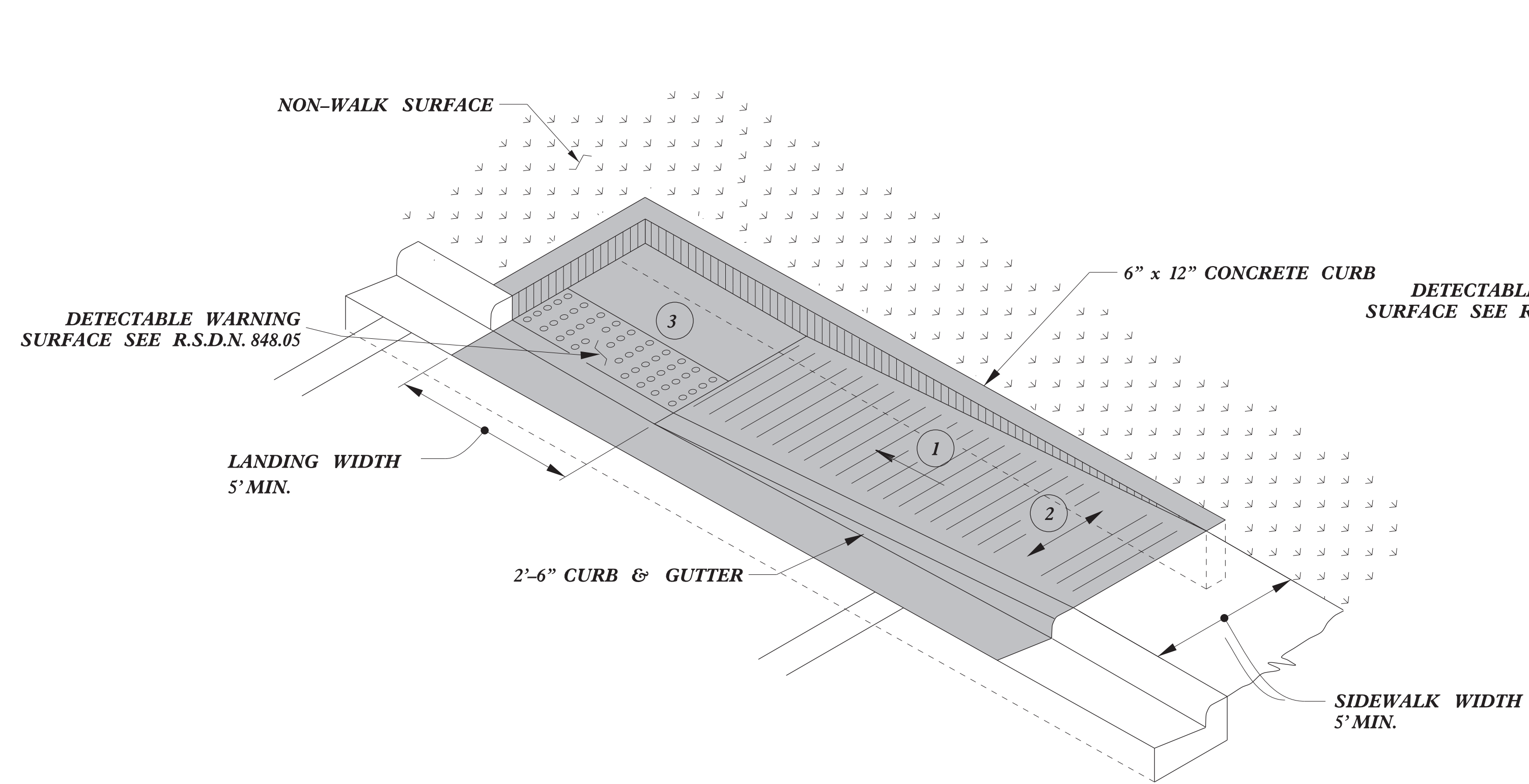
\* NOTE: THRU LANE TAPER TO 11' TO HELP WITH ALIGNMENT ACROSS INTERSECTION



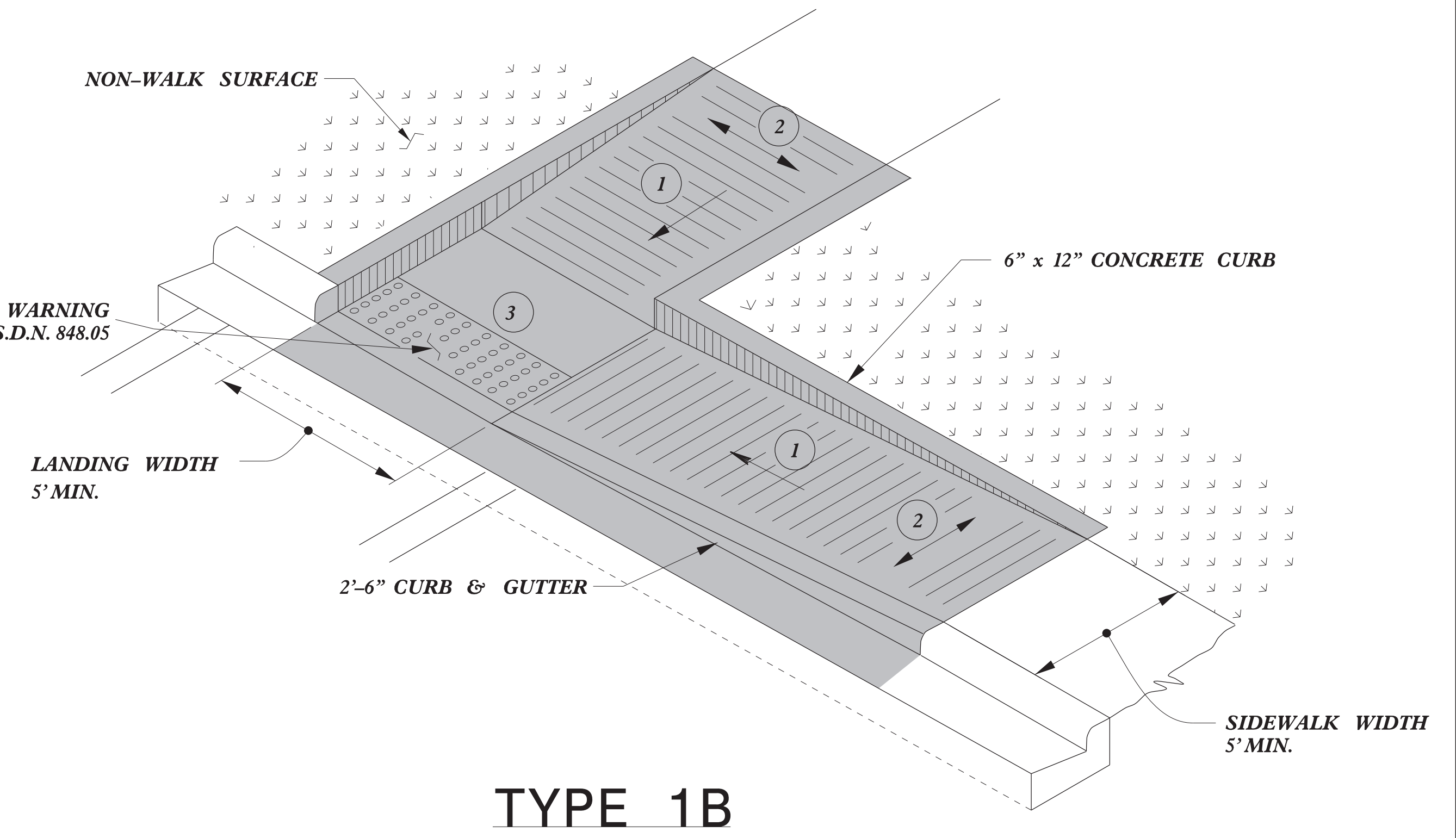
\* SEE PLANS FOR TAPER AND PAINT STRIPING  
\*\* SEE PLANS FOR MEDIAN REMOVAL SECTION



4/17/2018  
U:\Projects\5971A\ProJ\U-5971A-Rdy.txd  
cno



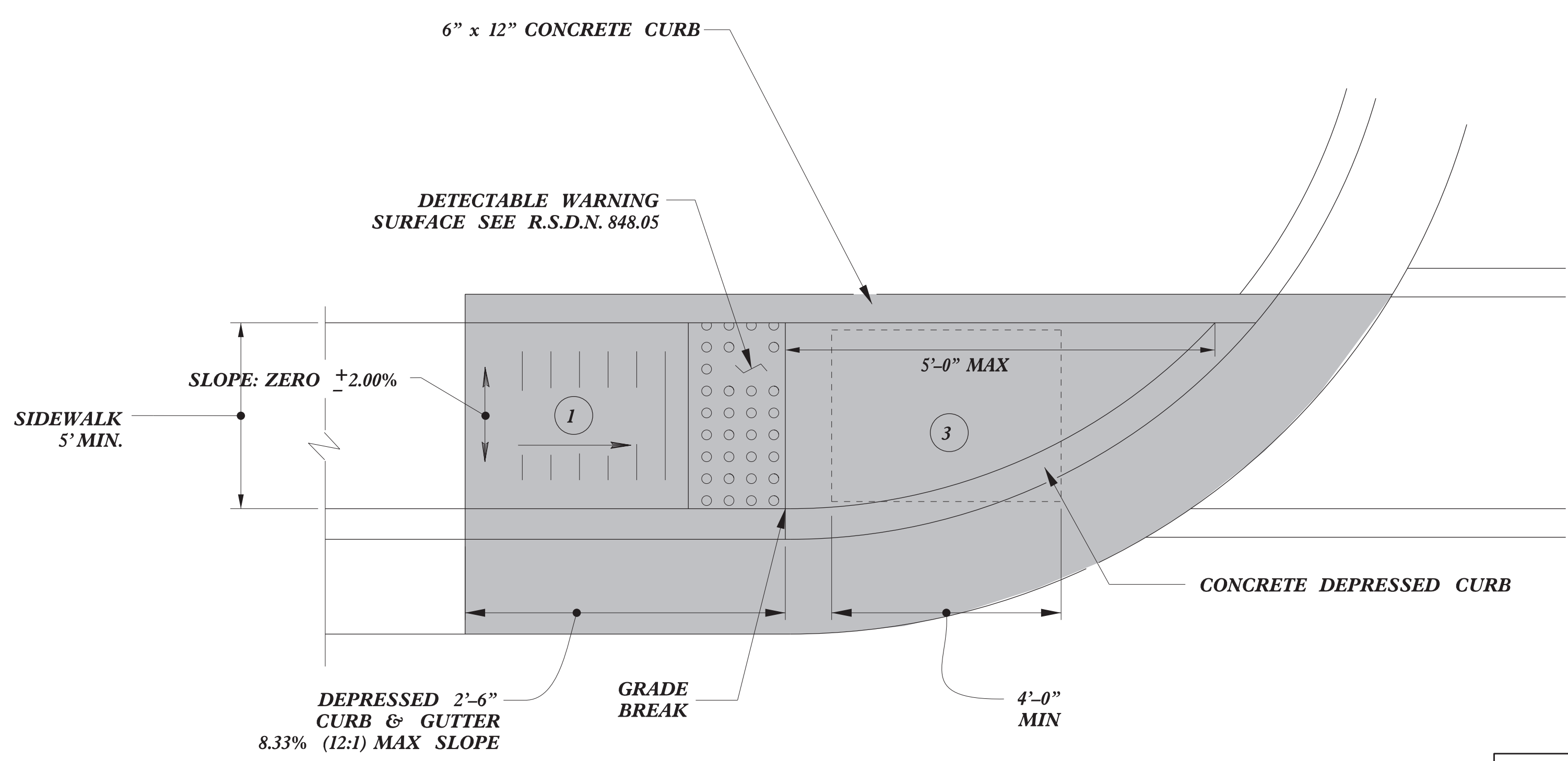
TYPE 1A



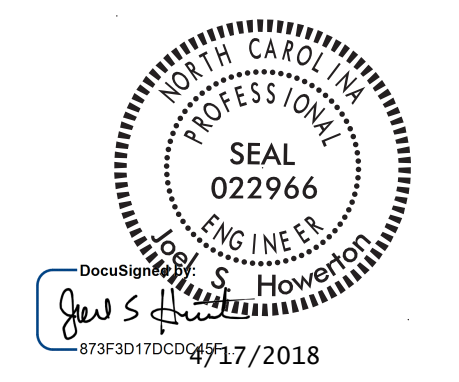
TYPE 1B

 PAY LIMITS FOR 1 CURB RAMP

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



TYPE 1



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b> Office 919-707-6950 FAX 919-250-4119	
<b>CURB RAMPS</b> Directional Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn	

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

5/14/99  
SYTIME/CN/CDN/US/RRNAME/



12/06/07

COMPUTED BY: ZAM DATE: 03-19-18  
 CHECKED BY: TSJ DATE: 04-11-18

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. U-5971A SHEET NO. 3B-1

**EARTHWORK  
SUMMARY (CY)**

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
SUMMARY NO. 1					
STATION	STATION				
-L- 34+00.00	-L- 41+00.00	235*	0	0	
SUB TOTAL SUMMARY NO. 1		235*	0	0	
SUMMARY NO. 2					
STATION	STATION				
-Y- 29+00.00	-Y- 34+50.00	228	0	0	
SUB TOTAL SUMMARY NO. 2		228	0	0	
PROJECT TOTAL		463*	0	0	
ESTIMATE 5% FOR BORROW PIT TOP SOIL					
GRAND TOTALS:		463*	0	0	
SAY:		500*	0	0	

\*This quantity includes both earth material and island removal along -L-

Earthwork quantities are calculated by the Roadway Design Unit.

Note: Approximate quantities only. Clearing and Grubbing, Unclassified Excavation, Borrow Excavation, Fine Grading, Removal of Concrete Island, and Removal of Existing Asphalt Pavement will be paid for at the contract lump sum price for "Grading".

**REMOVAL OF EXISTING  
ASPHALT PAVEMENT**

SURVEY LINE	STATION	STATION	LOCATION	AREA (SF)	AREA (SY)
-L-	34+00.00	41+45.00	CENTER	5783	643
-Y-	28+89.00	34+34.00	RIGHT	3769	419
TOTAL:				1062	
SAY:				1070	

JOSHHP:NEW

COMPUTED BY: Joshua G. Dalton, PE DATE: 5/1/2018  
CHECKED BY: Randal Howard, PE DATE: 5/1/2018

PROJECT NO. U-5971 SHEET NO. 3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.  
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

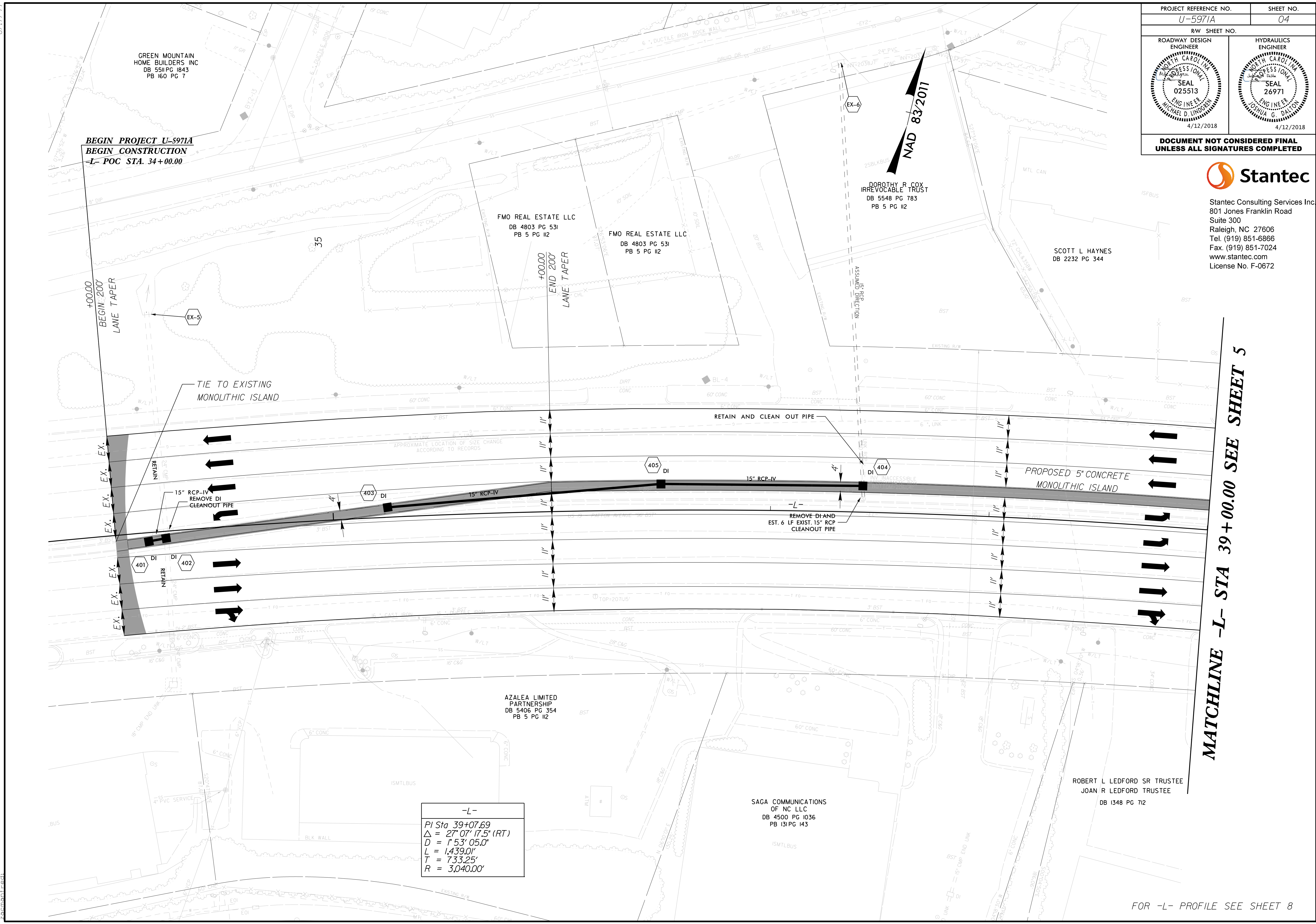
Table with columns: LINE & STATION, OFFSET, STRUCTURE NUMBER, Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC), R. C. PIPE CLASS IV, ENDWALLS, REINFORCED ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, and REMARKS. Includes sub-columns for pipe sizes (12-84 inches), material types, and grate types.

SHEET TOTALS: 488 12 72 13 0.9 4 2 1 1 8 8 1 1 2 1 1 3 0.8455 48  
PROJECT TOTALS: 488 12 72 13 0.9 4 2 1 1 8 8 1 1 2 1 1 3 0.8455 48

PROJECT REFERENCE NO. <b>U-5971A</b>		SHEET NO. <b>04</b>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-6866  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672



**BEGIN PROJECT U-5971A  
BEGIN CONSTRUCTION  
-L- POC STA. 34+00.00**

**+00.00  
BEGIN 200'  
LANE TAPER**

**FMO REAL ESTATE LLC  
DB 4803 PG 531  
PB 5 PG 112**

**FMO REAL ESTATE LLC  
DB 4803 PG 531  
PB 5 PG 112**

**DOROTHY R. COX  
IRREVOCABLE TRUST  
DB 5548 PG 783  
PB 5 PG 112**

**SCOTT L HAYNES  
DB 2232 PG 344**

**AZALEA LIMITED  
PARTNERSHIP  
DB 5406 PG 354  
PB 5 PG 112**

**SAGA COMMUNICATIONS  
OF NC LLC  
DB 4500 PG 1036  
PB 131 PG 143**

**ROBERT L LEDFORD SR TRUSTEE  
JOAN R LEDFORD TRUSTEE  
DB 1348 PG 712**

**-L-**  
PI Sta 39+07.69  
 $\Delta = 27' 07" 17.5" (RT)$   
 $D = 1' 53' 05.0"$   
 $L = 1,439.0'$   
 $T = 733.25'$   
 $R = 3,040.00'$

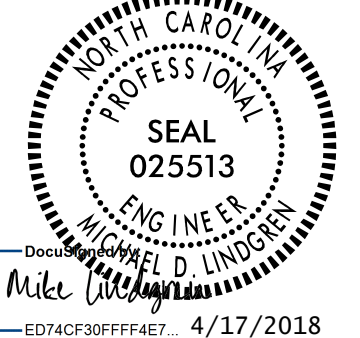
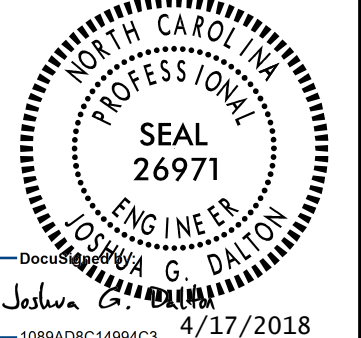
**MATCHLINE -L- STA 39+00.00 SEE SHEET 5**

FOR -L- PROFILE SEE SHEET 8

8/17/19  
4/12/2018  
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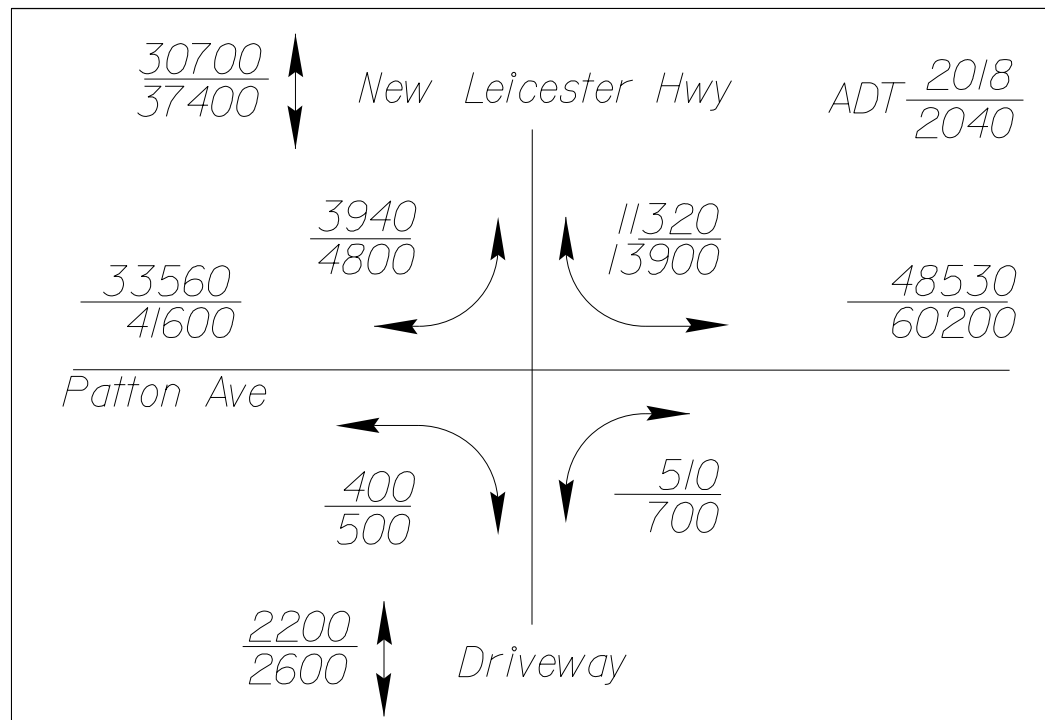


8/17/19

PROJECT REFERENCE NO. U-5971A		SHEET NO. 05	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL 025513	
			
Date: 4/17/2018 Michael D. Lindgren		Date: 4/17/2018 Joshua G. Dalton	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



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Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

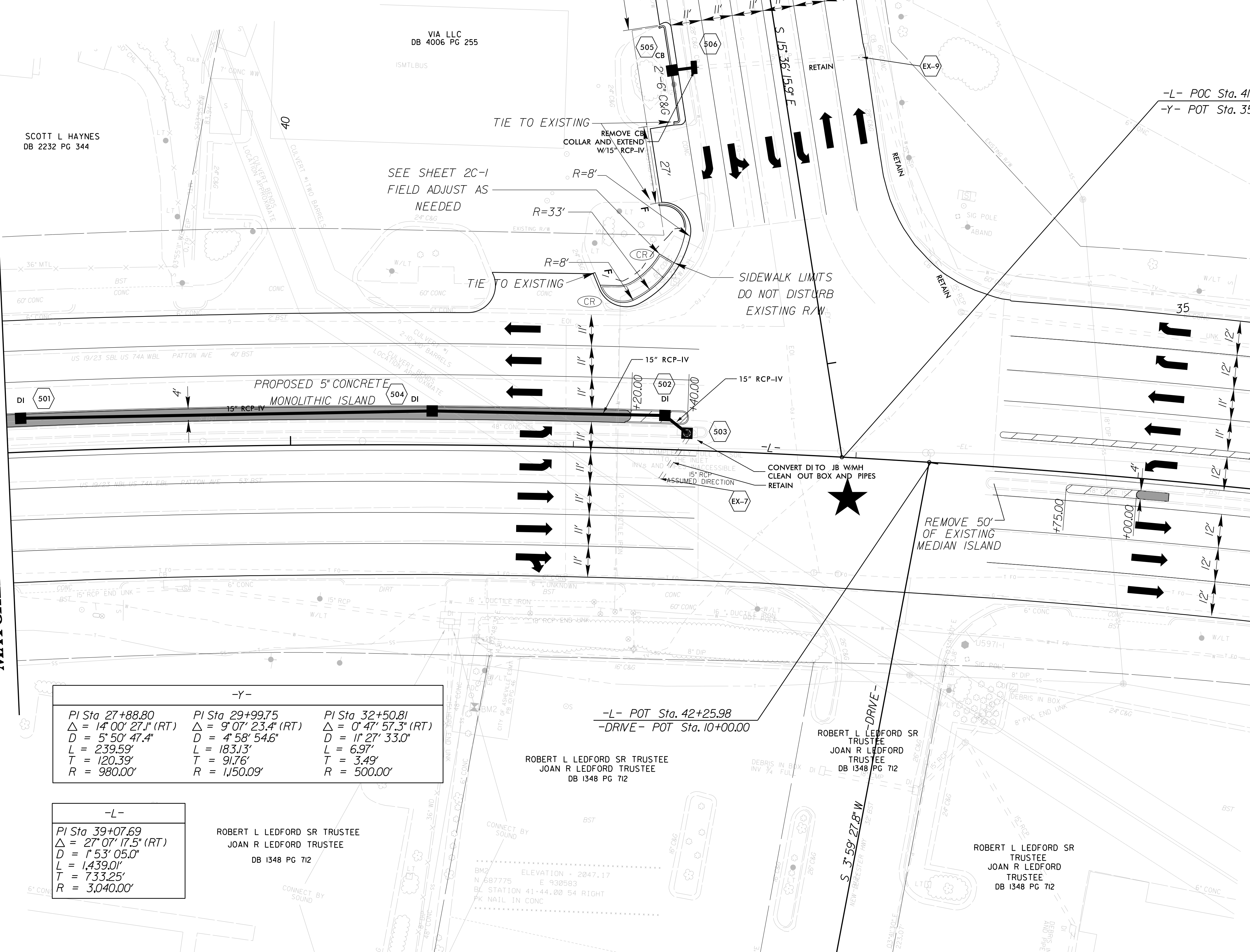


NAD 83/2011

MATCHLINE -Y- STA 33+50.00 SEE SHEET 7

MATCHLINE -L- STA 39+00.00 SEE SHEET 4

MATCHLINE -L- STA 43+50.00 SEE SHEET 6



-Y-		
PI Sta 27+88.80 Δ = 14° 00' 27.1" (RT) D = 5° 50' 47.4" L = 239.59' T = 120.39' R = 980.00'	PI Sta 29+99.75 Δ = 9° 07' 23.4" (RT) D = 4° 58' 54.6" L = 183.13' T = 91.76' R = 1,150.09'	PI Sta 32+50.81 Δ = 0° 47' 57.3" (RT) D = 1° 27' 33.0" L = 6.97' T = 3.49' R = 500.00'

-L-
PI Sta 39+07.69 Δ = 27° 07' 17.5" (RT) D = 1° 53' 05.0" L = 1,439.01' T = 733.25' R = 3,040.00'

ROBERT L LEDFORD SR TRUSTEE  
JOAN R LEDFORD TRUSTEE  
DB 1348 PG 712

ROBERT L LEDFORD SR TRUSTEE  
JOAN R LEDFORD TRUSTEE  
DB 1348 PG 712

FOR -L- PROFILE SEE SHEET 8  
FOR -Y- PROFILE SEE SHEET 9



4/17/2018  
L:\Projects\Proj\U-5971A\_Rdy\_pah05.dgn



8.17/99

PROJECT REFERENCE NO. <b>U-5971A</b>		SHEET NO. <b>06</b>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			



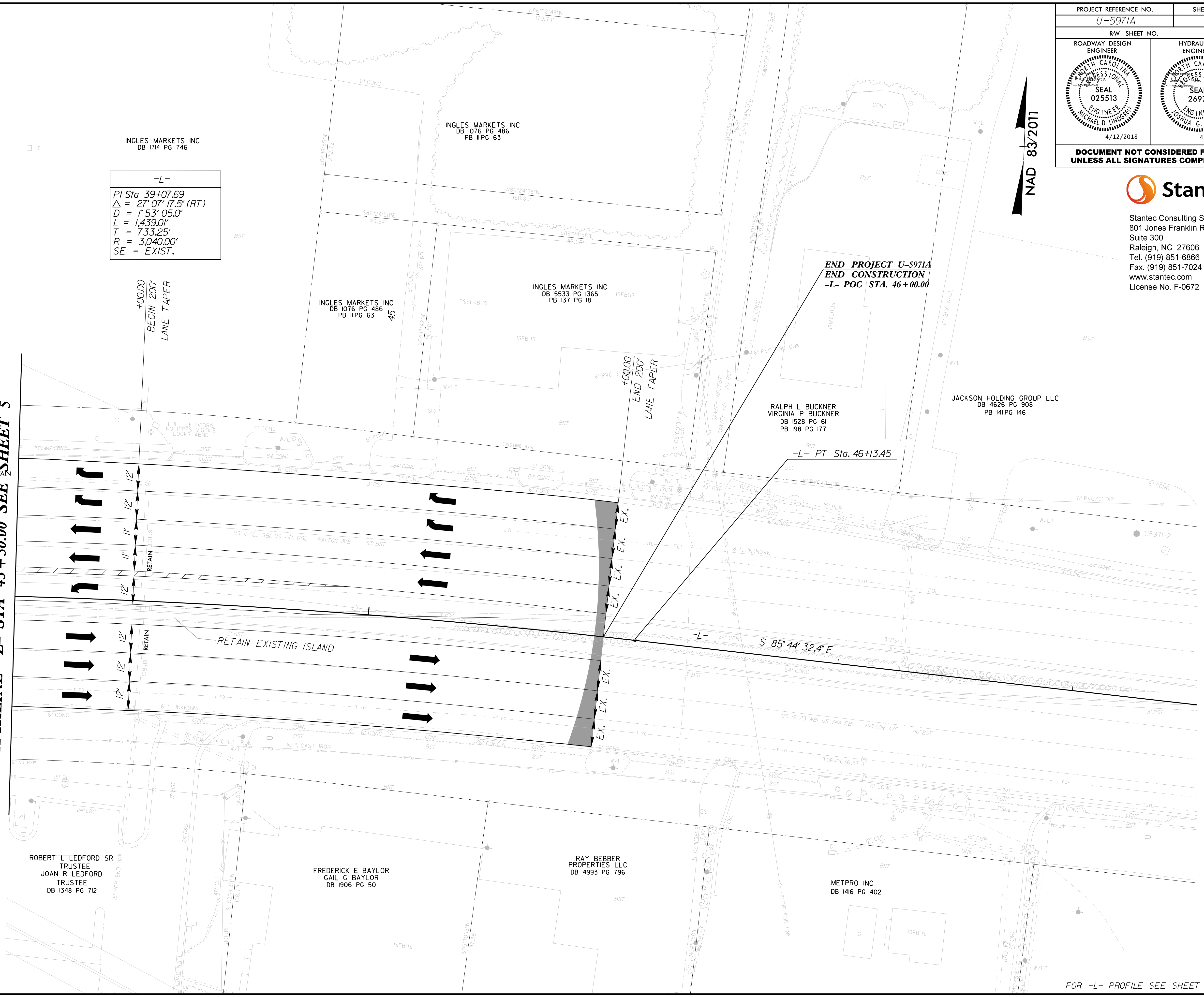
Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-6866  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

INGLES MARKETS INC  
DB 1714 PG 746

-L-

PI Sta 39+07.69  
Δ = 27° 07' 17.5" (RT)  
D = 1' 53' 05.0"  
L = 1,439.01'  
T = 733.25'  
R = 3,040.00'  
SE = EXIST.

**MATCHLINE -L- STA 43+50.00 SEE SHEET 5**



FOR -L- PROFILE SEE SHEET 8 & 9

4/12/2018  
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Document



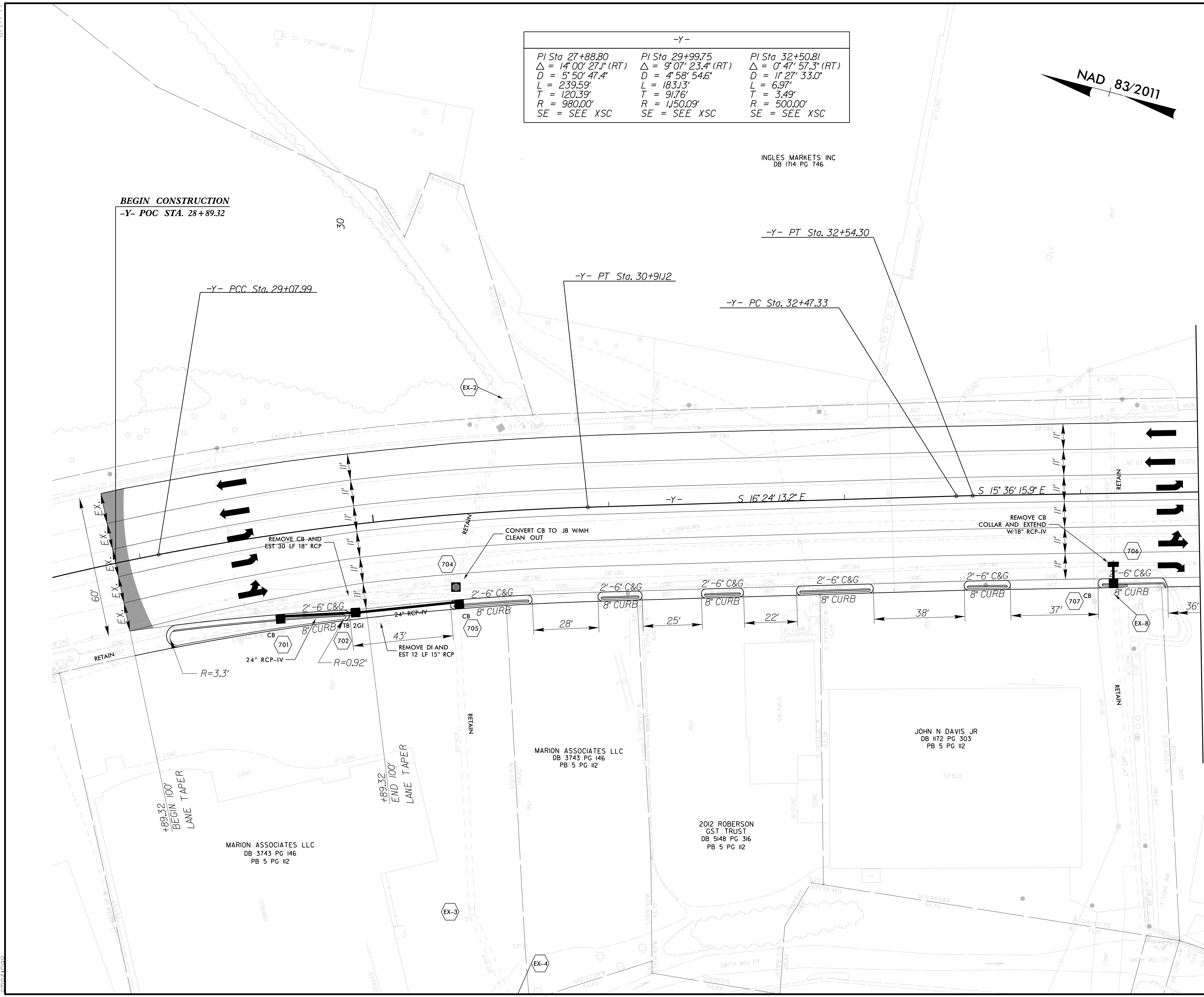
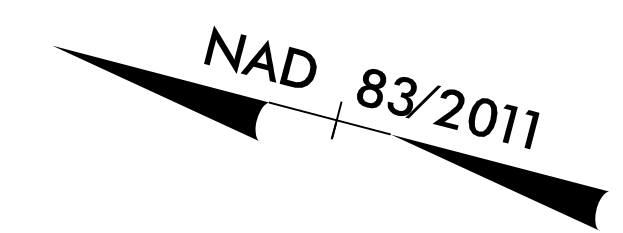
8.17.17.99

PROJECT REFERENCE NO. <b>U-5971A</b>		SHEET NO. <b>07</b>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Date: 5/7/2018 Mike Lindgren		Date: 5/7/2018 Joshua G. Dalton	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			



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Raleigh, NC 27606  
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-Y-		
PI Sta 27+88.80	PI Sta 29+99.75	PI Sta 32+50.81
$\Delta = 14^{\circ} 00' 27.1''$ (RT)	$\Delta = 9^{\circ} 07' 23.4''$ (RT)	$\Delta = 0^{\circ} 47' 57.3''$ (RT)
$D = 5^{\circ} 50' 47.4''$	$D = 4^{\circ} 58' 54.6''$	$D = 1^{\circ} 27' 33.0''$
$L = 239.59'$	$L = 183.13'$	$L = 6.97'$
$T = 120.39'$	$T = 91.76'$	$T = 3.49'$
$R = 980.00'$	$R = 1,150.09'$	$R = 500.00'$
SE = SEE XSC	SE = SEE XSC	SE = SEE XSC



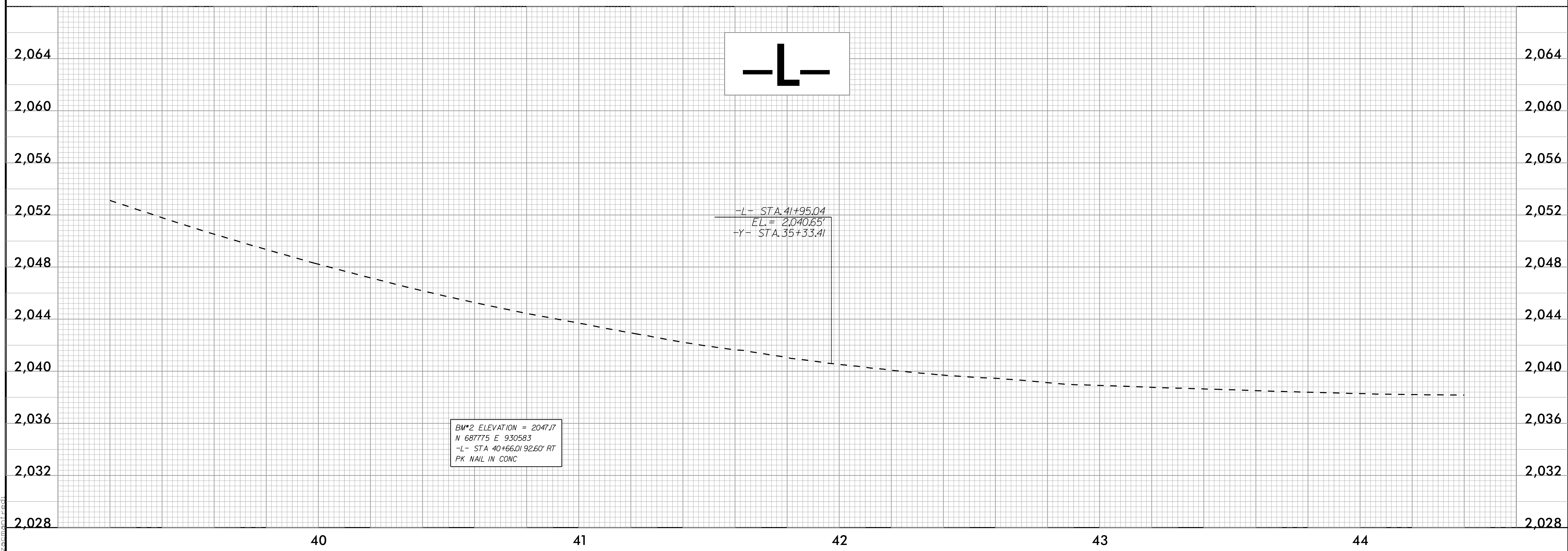
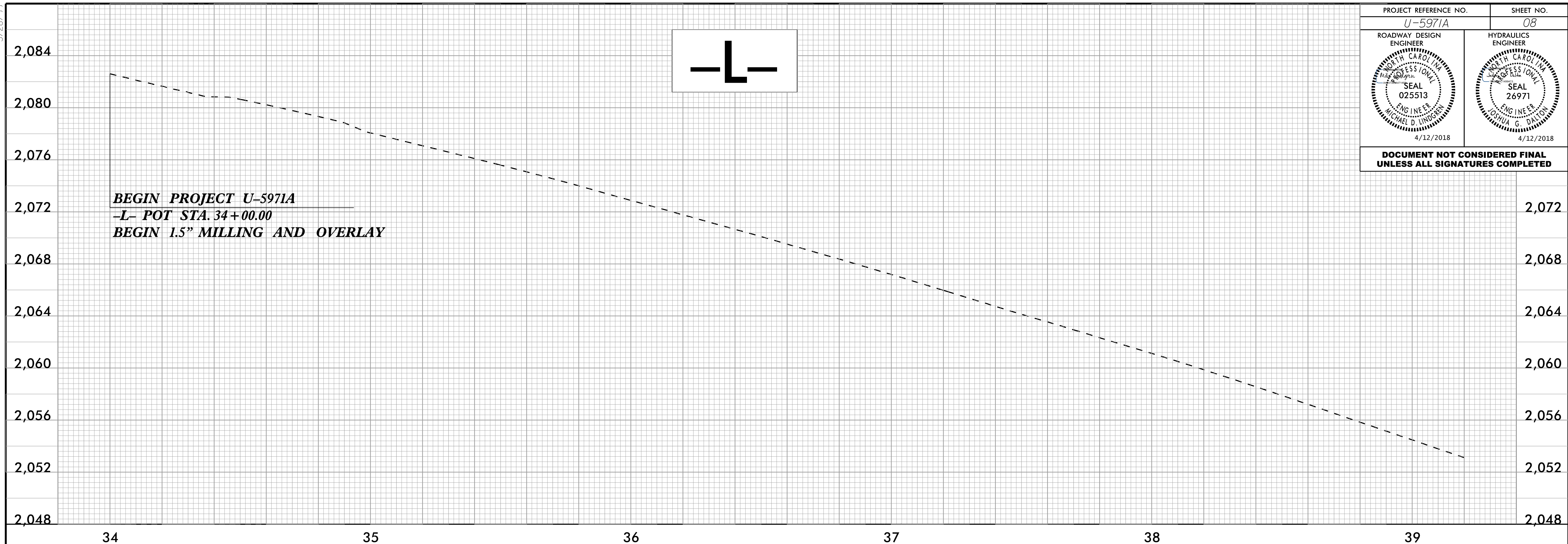
MATCHLINE -Y- STA 33 + 50.00 SEE SHEET 5

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5/28/19

PROJECT REFERENCE NO. <i>U-5971A</i>	SHEET NO. <i>08</i>
ROADWAY DESIGN ENGINEER MICHAEL D. LINDSEY SEAL 025513 ENGINEER MICHAEL D. LINDSEY 4/12/2018	HYDRAULICS ENGINEER JOSHUA S. DALTON SEAL 26971 ENGINEER JOSHUA S. DALTON 4/12/2018

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

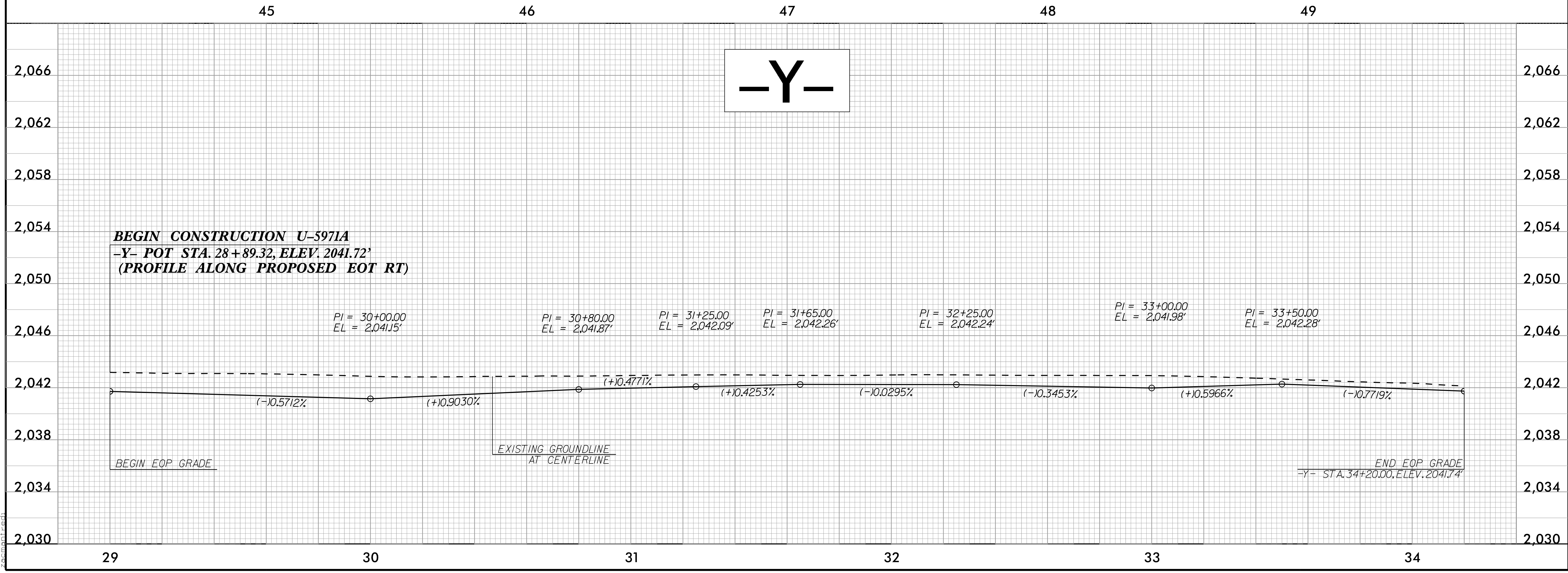
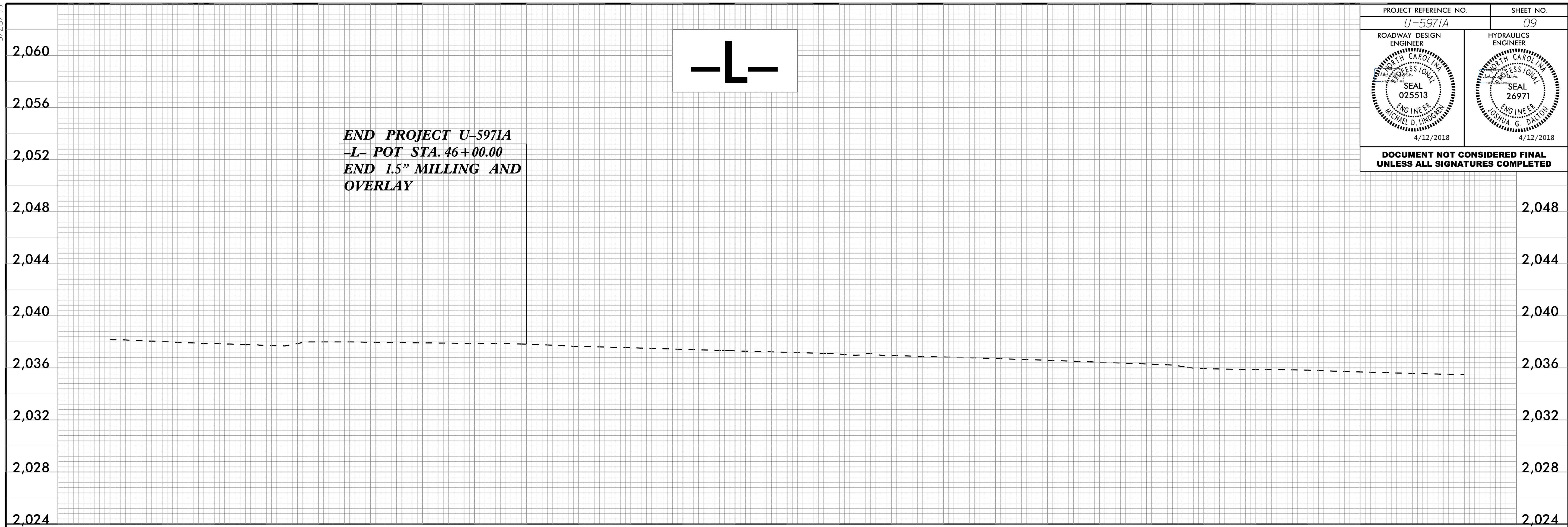


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5/28/19

PROJECT REFERENCE NO. <i>U-5971A</i>	SHEET NO. <i>09</i>
ROADWAY DESIGN ENGINEER SEAL 025513 MICHAEL D. WINDGREN 4/12/2018	HYDRAULICS ENGINEER SEAL 26971 JOSHUA S. DALTON 4/12/2018
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



4/12/2018  
U:\Projects\U-5971A\_Rdy.pfl\_psh09.dgn  
zackm.fcd

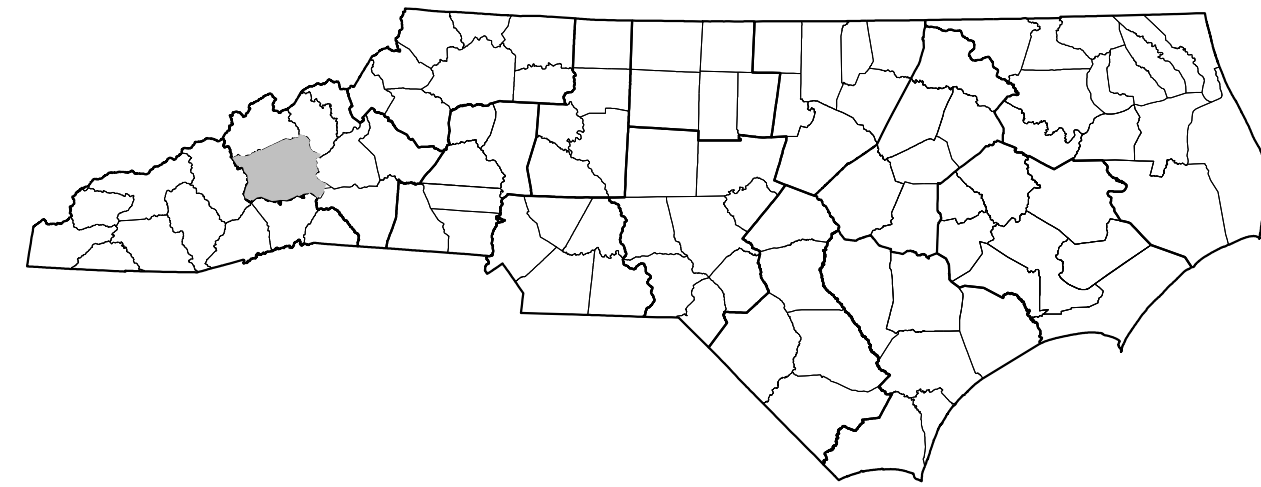


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

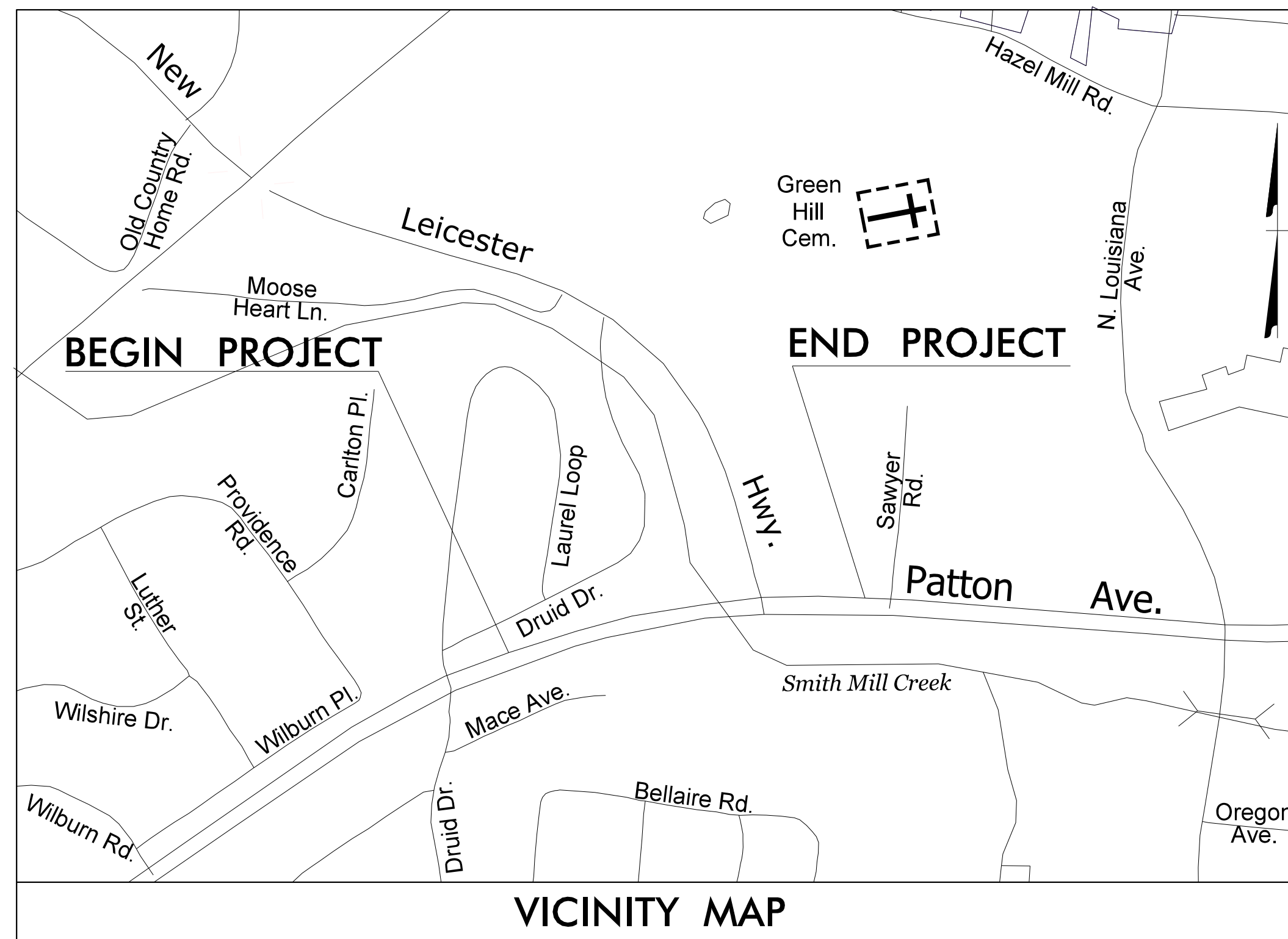
**TRANSPORTATION MANAGEMENT PLAN**

**BUNCOMBE COUNTY**

**DIVISION 13**



**LOCATION: SR 3548 (PATTON AVE.) /  
SR 1002 (NEW LEICESTER HWY) INTERSECTION IMPROVEMENTS**  
**TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNAL**



VICINITY MAP

**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND MANAGEMENT STRATEGIES
TMP-2	GENERAL NOTES AND LEGEND
TMP-3	TEMPORARY TRAFFIC CONTROL PHASING
TMP-4	PATTON AVE AT NEW LEICESTER HWY DETAIL

**ROADWAY STANDARD DRAWINGS**

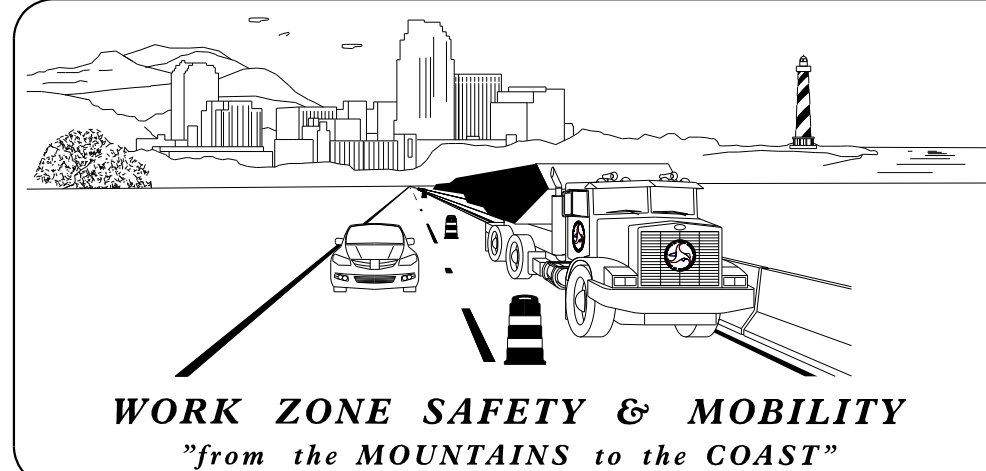
THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGERS

**MANAGEMENT STRATEGIES**

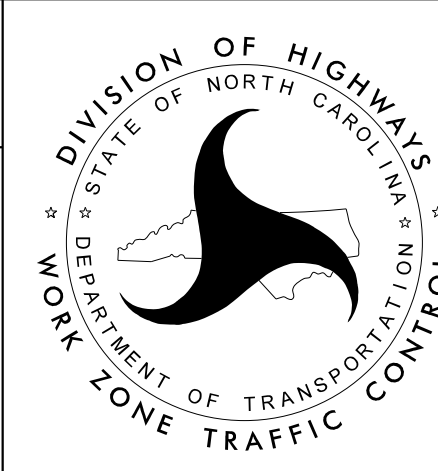
- WORK HOUR RESTRICTIONS NIGHT WORK ONLY FOR LANE RESTRICTIONS OR NARROWINGS
- USE OF LANE CLOSURES TO PERFORM CONSTRUCTION ON -L- (PATTON AVE.) AND -Y- (NEW LEICESTER HWY.)

**TIP PROJECT: U-5971A**

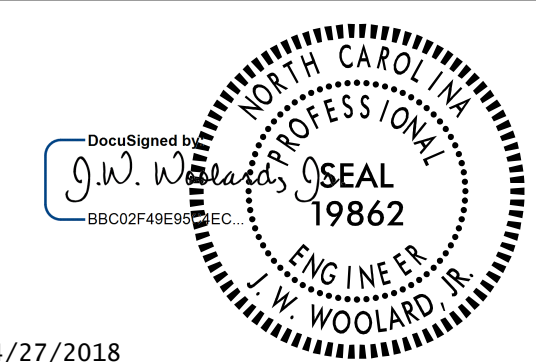


N.C.D.O.T. DIVISION 13

LONNIE WATKINS, P.E. NC DIVISION 13 TRANSPORTATION MANAGER



Stantec Consulting Services Inc.  
801 Jones Franklin Road, Suite 300  
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Fax. 919.851.7024  
www.stantec.com  
License No. F-0672



4/27/2018

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## GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

### TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
-L- PATTON AVE.	6:00 A.M.- 7:00 P.M. MONDAY THRU SUNDAY (EVERYDAY)
-Y- NEW LEICESTER HWY	6:00 A.M.- 7:00 P.M. MONDAY THRU SUNDAY (EVERYDAY)

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME
-L- PATTON AVE.
-Y- NEW LEICESTER HWY

### HOLIDAY

- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31ST TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.
- FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
- FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
- FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY; THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
- FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.
- FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.
- FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

### MISCELLANEOUS

- USE LAW ENFORCEMENT TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND OR INTERSECTIONS AS SHOWN IN PLANS OR DIRECTED BY THE ENGINEER.
- CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).
- MAINTAIN VEHICULAR ACCESS TO ALL DRIVEWAYS DURING THE LIFE OF THE CONTRACT, UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER. USE INCIDENTAL STONE WHEN NECESSARY.
- ALL DIMENSIONS AND STATIONS IN THE TRANSPORTATION MANAGEMENT PLAN AND PHASING ARE APPROXIMATE (+/-); FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
- ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919) 814-3700 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.

### PAVEMENT MARKINGS




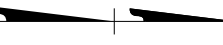

M) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
ALL ROADS	PAINT	NONE

- PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.
- TRACE THE EXISTING AND/OR PROPOSED MONOLITHIC ISLAND LOCATIONS WITH THE PROPER COLOR PAVEMENT MARKING PRIOR TO REMOVAL AND/OR INSTALLATION.

## LEGEND

### GENERAL

-  DIRECTION OF TRAFFIC FLOW
-  EXIST. PVMT.
-  PROPOSED PVMT.
-  NORTH ARROW
-  WORK AREA

-  PAVEMENT REMOVAL

### SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY




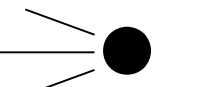



### PAVEMENT MARKINGS

-  EXISTING LINES




### PAVEMENT MARKING SYMBOLS

-  EXISTING PAVEMENT MARKING SYMBOLS (HOLLOW)

### TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM
-  FLASHING ARROW BOARD
-  FLAGGER
-  LAW ENFORCEMENT
-  CHANGEABLE MESSAGE SIGN

### TEMPORARY SIGNING

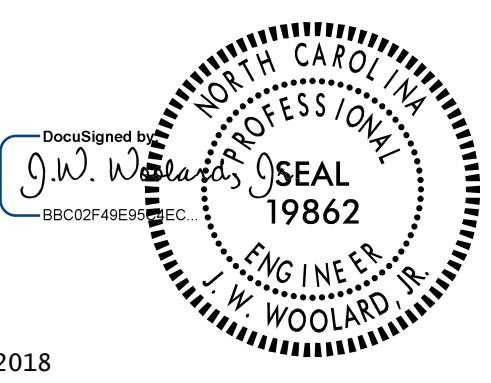
-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN

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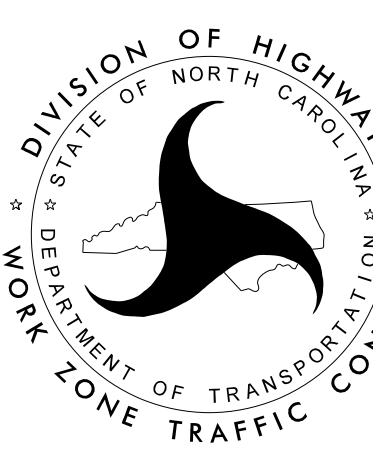


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J.W. Woolard  
5/1/2018



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DIVISION OF HIGHWAYS  
DEPARTMENT OF TRANSPORTATION  
STATE OF NORTH CAROLINA  
WORK ZONE TRAFFIC CONTROL

## GENERAL NOTES AND LEGEND

# **TRAFFIC CONTROL PHASING**


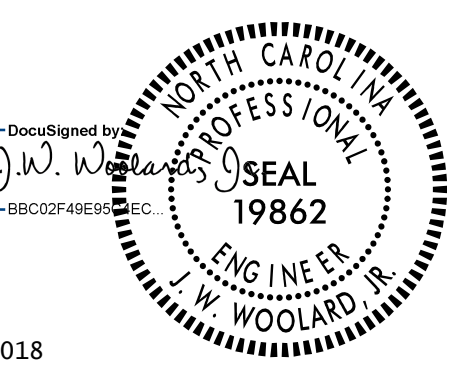
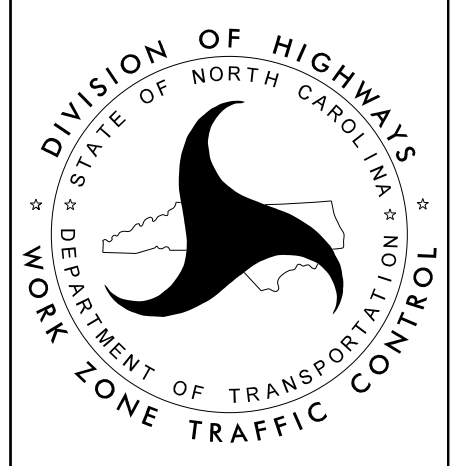
PRIOR TO ANY WORK OPERATIONS, INSTALL WORK ZONE ADVANCE WARNING SIGNS ON -L- (PATTON AVE.) AND -Y- (NEW LEICESTER HWY), PER ROADWAY STANDARD DRAWING 1101.01, SHEET 3 OF 3.

STEP 1 USING TEMPORARY LANE CLOSURES, PER ROADWAY STANDARD RSD 1101.02 (SHEET 3 OF 14), COMPLETE THE FOLLOWING IN NO PARTICULAR ORDER, BUT NOT CONCURRENTLY (SEE TMP-3):

- 1A. CONSTRUCT RIGHT SIDE WIDENING ON -Y- (NEW LEICESTER HWY) FROM -Y- STA. 28+89± TO -Y- STA. 35+33± UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. MILL EXISTING PAVEMENT AND RESURFACE -Y- FROM STA. 28+89± TO 35+33± UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. PLACE TEMPORARY PAVEMENT MARKINGS IN THE FINAL PATTERN AS SHOWN IN THE PAVEMENT MARKING PLAN.
- 1B. REMOVE EXISTING MEDIAN ISLANDS ON -L- (PATTON AVE) AT -L- STA. 34+00± TO -L- STA. 41+48±, AND -L- STA. 42+48± TO -L- STA. 43+00±, AND CONSTRUCT MONOLITHIC ISLANDS ON -L- (PATTON AVE) AS SHOWN IN THE ROADWAY CONSTRUCTION PLANS. MILL EXISTING PAVEMENT AND RESURFACE UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA. 34+00± TO -L- STA. 46+00± AS SHOWN IN THE CONSTRUCTION PLANS. PLACE TEMPORARY PAVEMENT MARKINGS IN THE FINAL PATTERN AS SHOWN ON THE PAVEMENT MARKING PLAN.

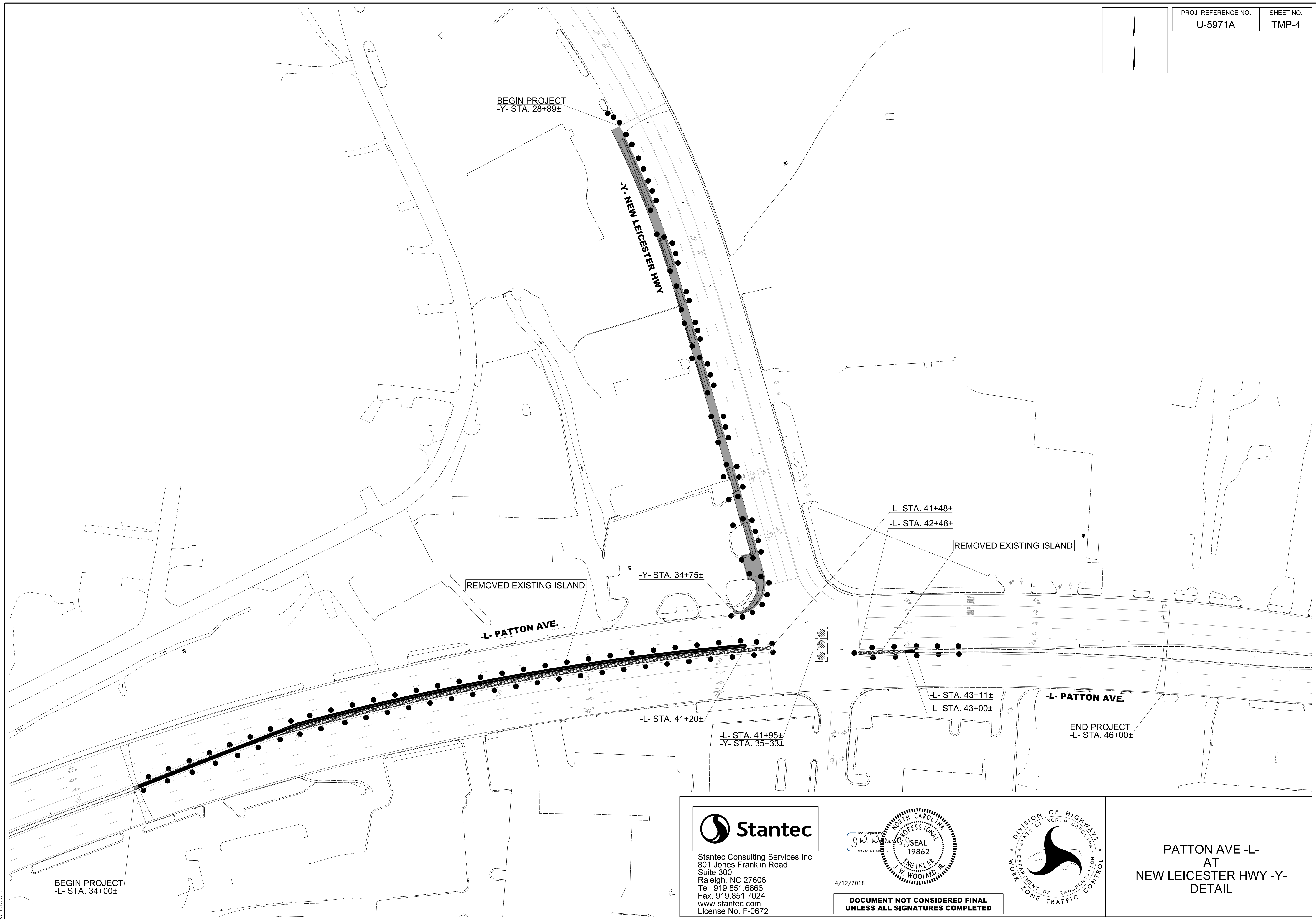
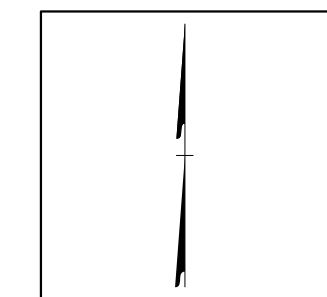
STEP 2 USING TEMPORARY LANE CLOSURES PER ROADWAY STANDARD RSD 1101.02 (SHEET 3 OF 14), PLACE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS IN ACCORDANCE TO THE FINAL PAVEMENT MARKING PLAN, ACTIVATE FINAL SIGNAL, REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN -L- (PATTON AVE.) AND -Y- (NEW LEICESTER HWY) TO TRAFFIC.

4/12/2018  
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 Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. 919.851.6866 Fax. 919.851.7024 www.stantec.com License No. F-0672	DocuSigned by:  4/12/2018 <b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>		<p style="text-align: center;">TRAFFIC CONTROL PHASING</p>
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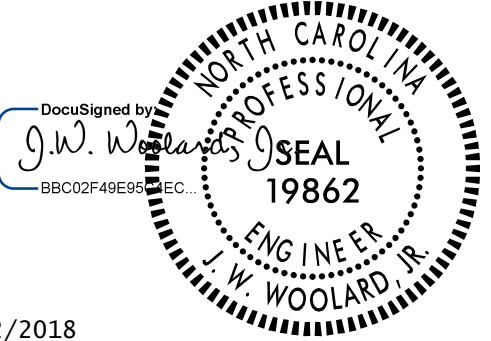


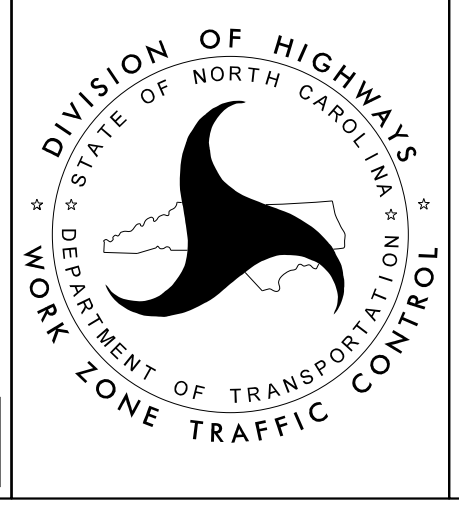
PROJ. REFERENCE NO.	SHEET NO.
U-5971A	TMP-4



4/12/2018  
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**PATTON AVE -L-  
 AT  
 NEW LEICESTER HWY -Y-  
 DETAIL**


**T.I.P.: U-5971A**

**CONTRACT NO.: DM00246**

**STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING PLAN  
BUNCOMBE COUNTY**

**LOCATION: US 19/23/74A (PATTON AVE) /NC 63 (NEW LEICESTER HWY)  
INTERSECTION IMPROVEMENTS**

TIP NO. <b>U-5971A</b>	SHEET NO. <b>PMP - 1</b>
Documented by: <i>Betsy L. Watson</i> APPROVED: _____ DATE: 4/12/2018	
SEAL 	
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**ROADWAY STANDARD DRAWINGS**

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROP
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE


**GENERAL NOTES**

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

- A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:
- | ROAD NAME | MARKING       | MARKER       |
|-----------|---------------|--------------|
| ALL ROADS | THERMOPLASTIC | SNOWPLOWABLE |
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.  
 C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.  
 D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.  
 E) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS.

**FINAL PAVEMENT MARKING SCHEDULE**

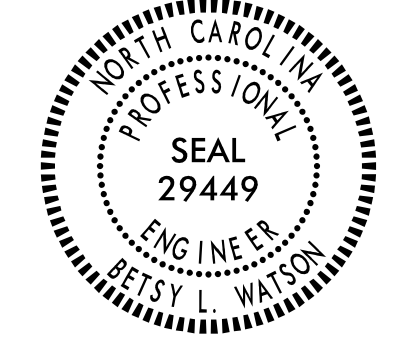

SYMBOL	DESCRIPTION	PAY ITEM
T2	WHITE STOPBAR	(24", 120 MIL) THERMOPLASTIC
T8	2 FT-6FT/SP WHITE MINISKIP	(4", 120 MIL) THERMOPLASTIC
T9	2 FT-6FT/SP YELLOW MINISKIP	(4", 120 MIL) THERMOPLASTIC
T13	3 FT-9 FT/SP WHITE MINISKIP	(8", 120 MIL) THERMOPLASTIC
TA	WHITE EDGELINE	(4", 90 MIL) THERMOPLASTIC
TB	YELLOW EDGELINE	(4", 90 MIL) THERMOPLASTIC
TC	10 FT WHITE SKIP	(4", 120 MIL) THERMOPLASTIC
TD	3 FT-9 FT/SP WHITE MINISKIP	(4", 120 MIL) THERMOPLASTIC
TE	WHITE SOLID LANE LINE	(4", 120 MIL) THERMOPLASTIC
TI	YELLOW DOUBLE CENTER	(4", 120 MIL) THERMOPLASTIC
TN	WHITE GORELINE	(8", 90 MIL) THERMOPLASTIC
TR	WHITE SOLID LANE LINE	(8", 120 MIL) THERMOPLASTIC
TV	YELLOW DIAGONAL	(12", 90 MIL) THERMOPLASTIC
UA	LEFT TURN ARROW	(90 MIL) THERMOPLASTIC
UB	RIGHT TURN ARROW	(90 MIL) THERMOPLASTIC
UC	STRAIGHT ARROW	(90 MIL) THERMOPLASTIC
UD	COMBO LEFT/STRAIGHT	(90 MIL) THERMOPLASTIC
UE	COMBO STRAIGHT/RIGHT	(90 MIL) THERMOPLASTIC
UI	ALPHANUMERIC CHAR	(120 MIL) THERMOPLASTIC

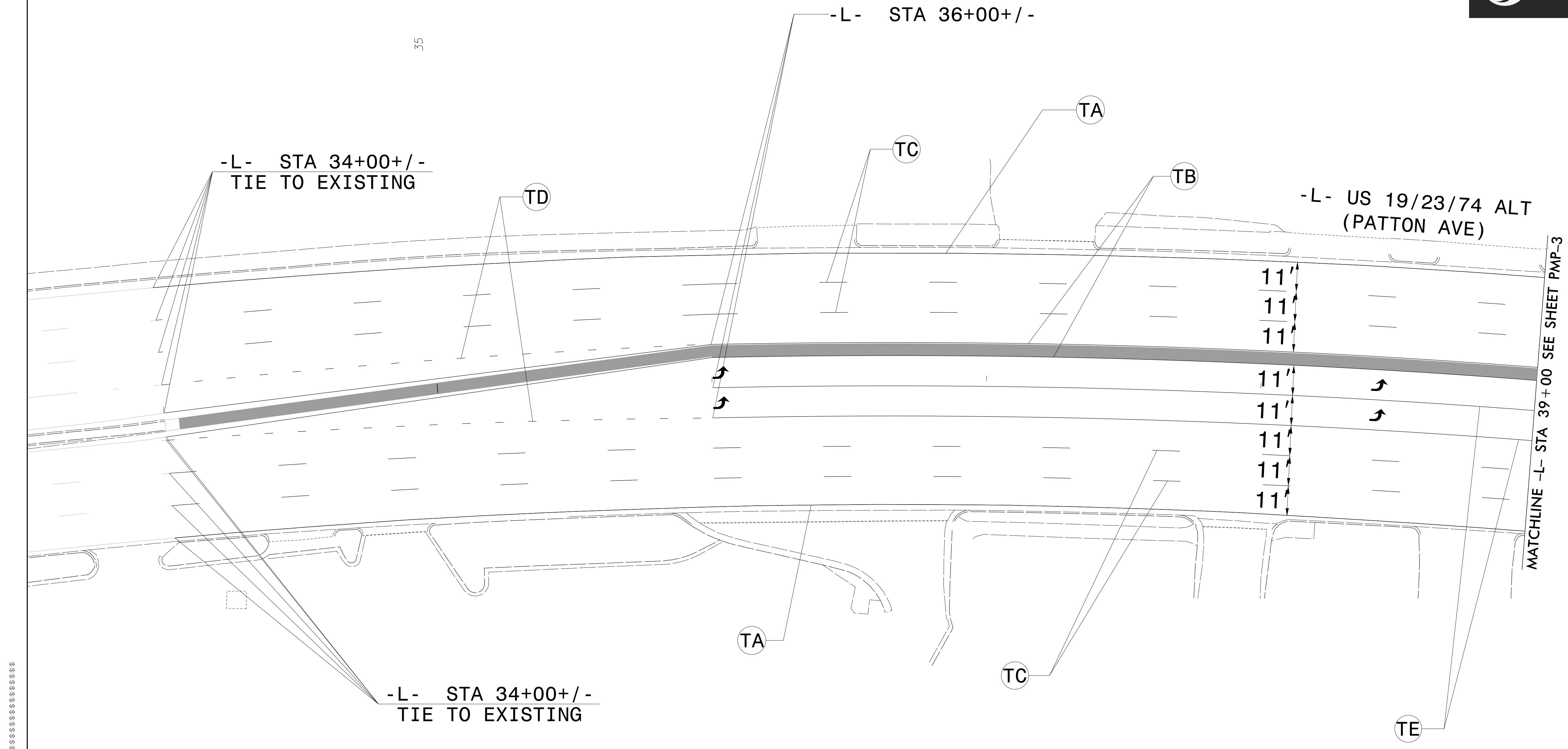
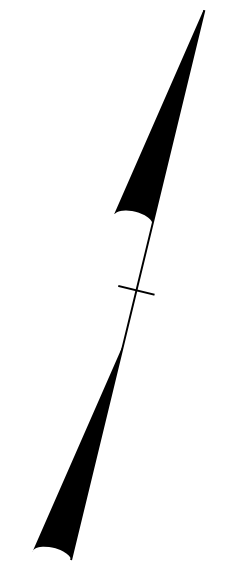
<b>PLAN PREPARED BY:</b>	 Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672
<b>BETSY L. WATSON, P.E.</b> SENIOR TRANSPORTATION ENGINEER	
<b>ROSI R. HENNEIN</b> TRANSPORTATION DESIGNER	

<b>INDEX</b>	
SHEET NO.	DESCRIPTION
PMP - 1	PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET
PMP - 2-8	PAVEMENT MARKING DETAIL



THERMOPLASTIC PAVEMENT MARKING LEGEND	
(UA) LEFT TURN ARROW	(TA) WHITE EDGELINE (4")
	(TB) YELLOW EDGELINE (4")
	(TC) 10 FT WHITE SKIP (4")
	(TD) 3 FT-9 FT/SP WHITE MINISKIP (4")
	(TE) WHITE SOLID LANE LINE (4")

TIP NO. U-5971A	SHEET NO. PMP-2
APPROVED: <i>Betsy L. Watson</i>	
DATE: 4/12/2018	
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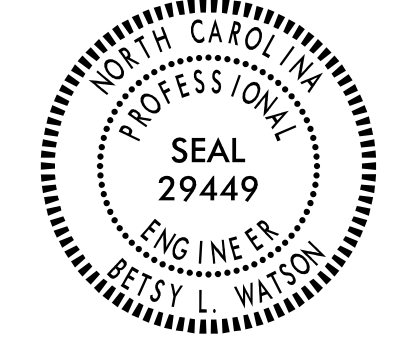


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PAVEMENT MARKING DETAIL

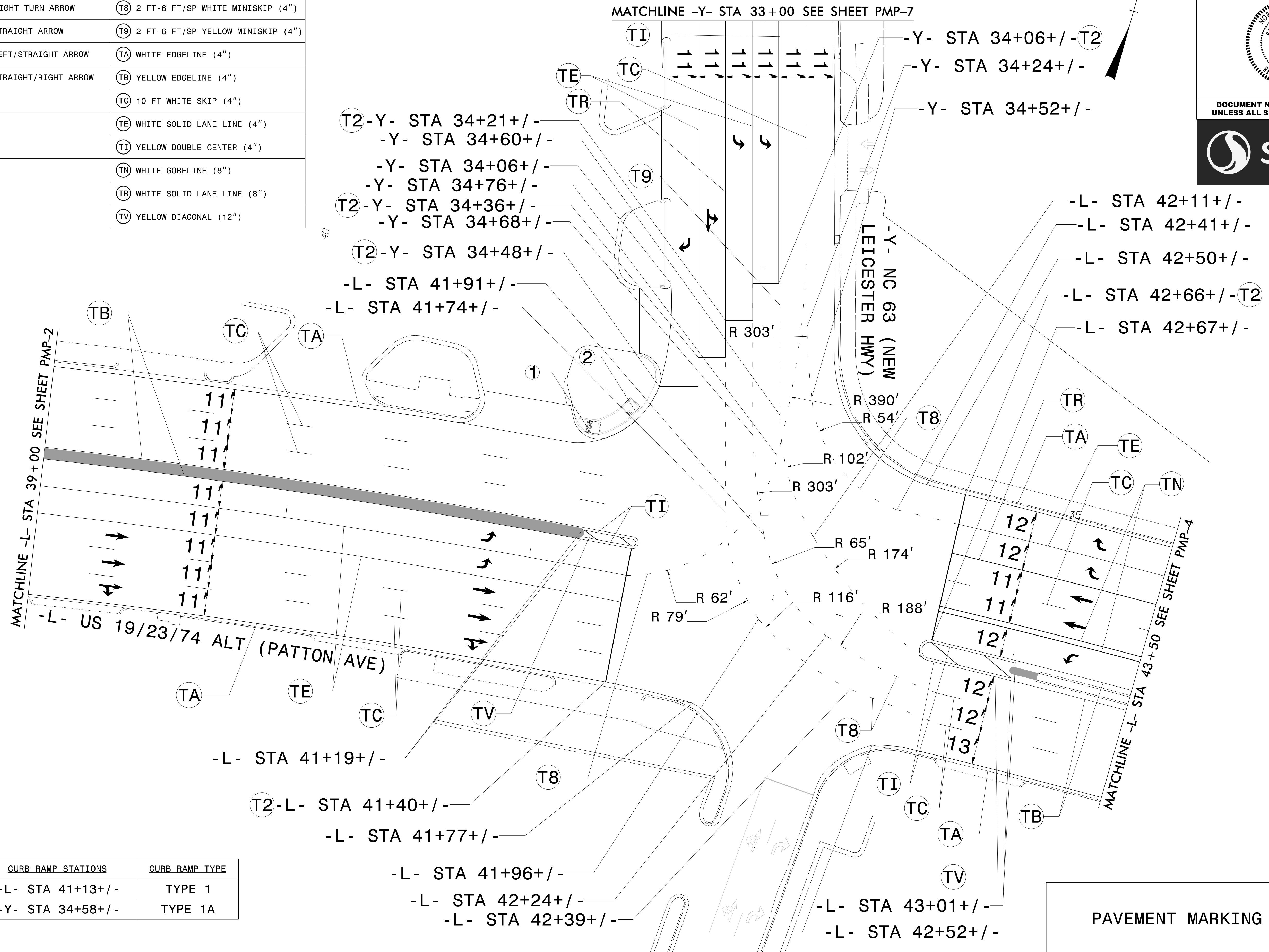


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APPROVED: <i>Betsy L. Watson</i>	
DATE: 4/17/2018	
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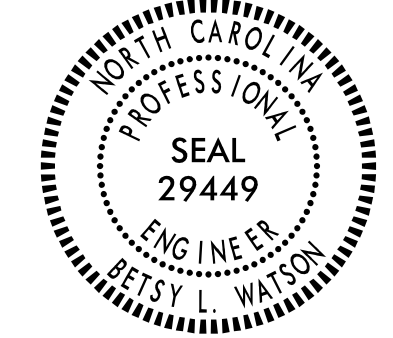

THERMOPLASTIC PAVEMENT MARKING LEGEND	
(UA) LEFT TURN ARROW	(T2) WHITE STOPBAR (24")
(UB) RIGHT TURN ARROW	(T8) 2 FT-6 FT/SP WHITE MINISKIP (4")
(UC) STRAIGHT ARROW	(T9) 2 FT-6 FT/SP YELLOW MINISKIP (4")
(UD) LEFT/STRAIGHT ARROW	(TA) WHITE EDGELINE (4")
(UE) STRAIGHT/RIGHT ARROW	(TB) YELLOW EDGELINE (4")
	(TC) 10 FT WHITE SKIP (4")
	(TE) WHITE SOLID LANE LINE (4")
	(TI) YELLOW DOUBLE CENTER (4")
	(TN) WHITE GORELINE (8")
	(TR) WHITE SOLID LANE LINE (8")
	(TV) YELLOW DIAGONAL (12")



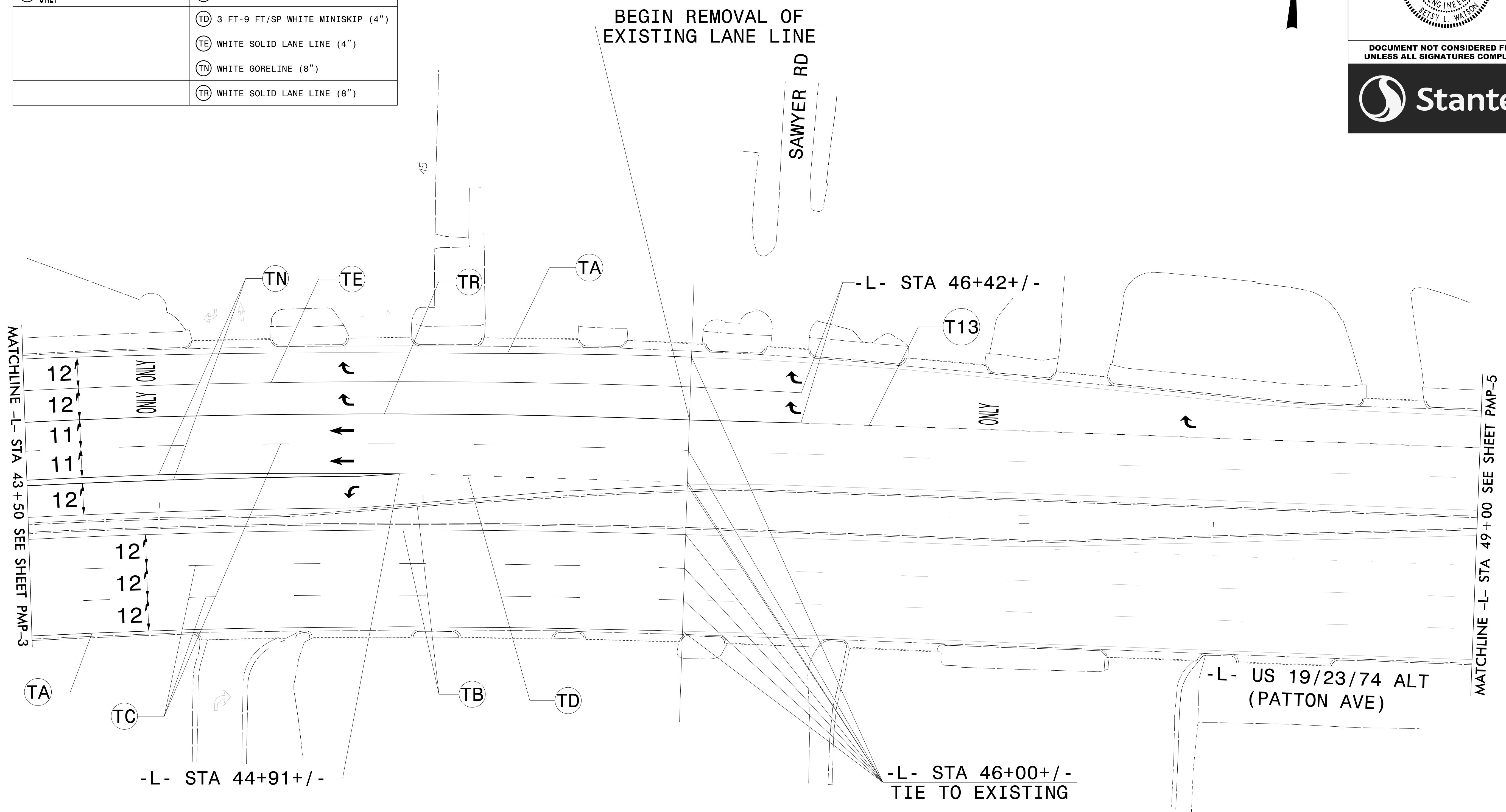
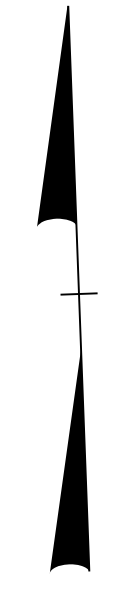
	CURB_RAMP_STATIONS	CURB_RAMP_TYPE
①	-L- STA 41+13+/-	TYPE 1
②	-Y- STA 34+58+/-	TYPE 1A

\$\$\$\$\$SYTIME\$\$\$\$\$  
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 \$\$\$USERNAME\$\$\$\$\$

PAVEMENT MARKING DETAIL

TIP NO. U-5971A	SHEET NO. PMP-4
APPROVED: <i>Betsy L. Watson</i>	
DATE: 4/12/2018	
SEAL	
	
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THERMOPLASTIC PAVEMENT MARKING LEGEND	
UA LEFT TURN ARROW	T13 3 FT-9 FT/SP WHITE MINISKIP (8")
UB RIGHT TURN ARROW	TA WHITE EDGELINE (4")
UC STRAIGHT ARROW	TB YELLOW EDGELINE (4")
UI ONLY ALPHANUMERIC CHARACTERS	TC 10 FT WHITE SKIP (4")
	TD 3 FT-9 FT/SP WHITE MINISKIP (4")
	TE WHITE SOLID LANE LINE (4")
	TN WHITE GORELINE (8")
	TR WHITE SOLID LANE LINE (8")

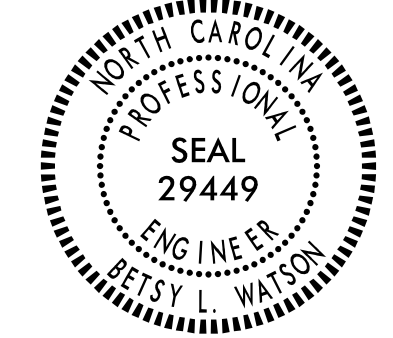



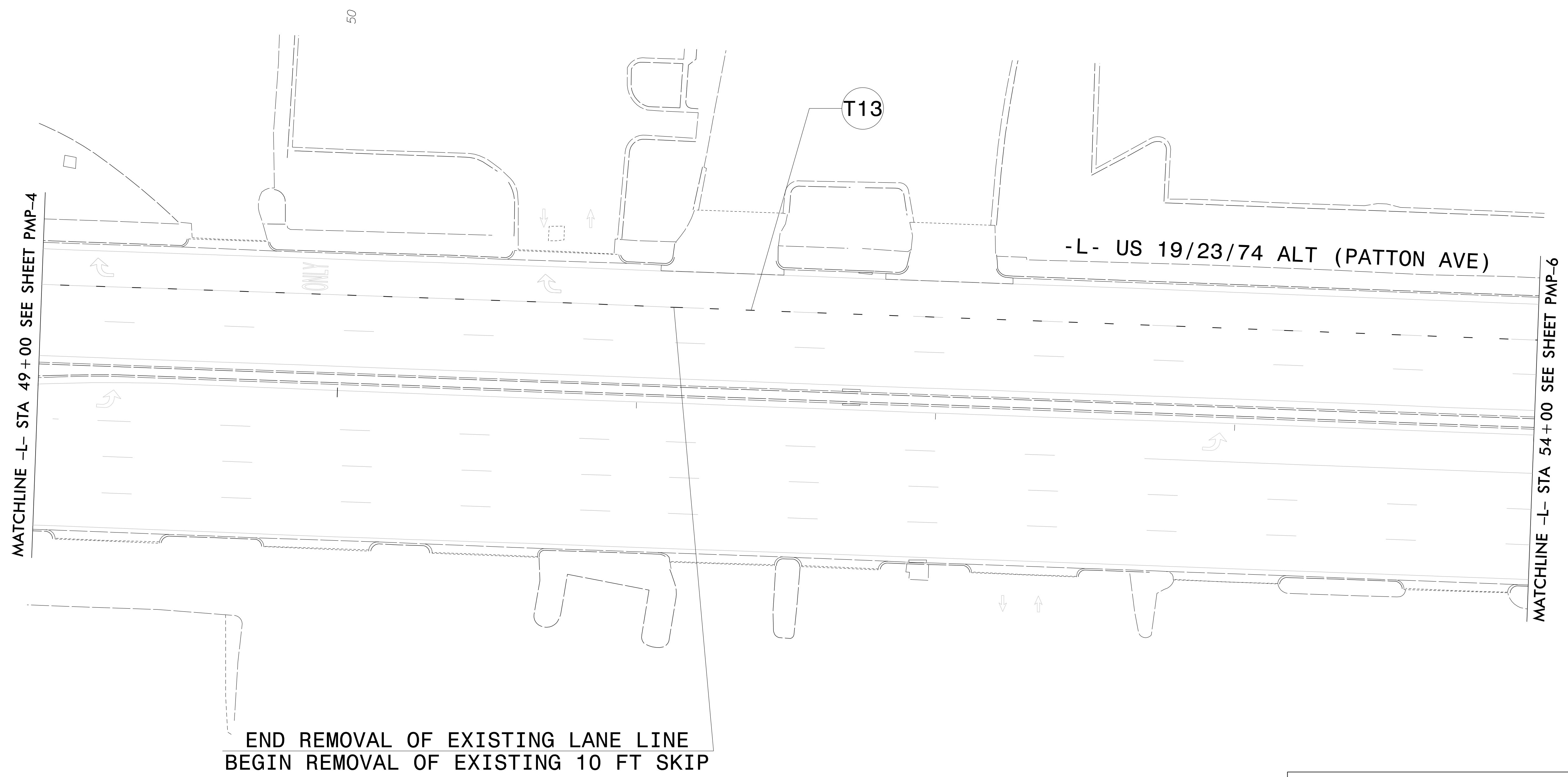
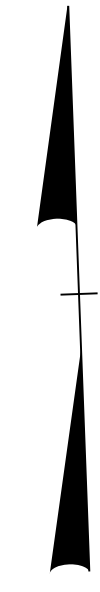
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PAVEMENT MARKING DETAIL



THERMOPLASTIC PAVEMENT MARKING LEGEND  
T13 3 FT-9 FT/SP WHITE MINISKIP (8")

TIP NO. U-5971A	SHEET NO. PMP-5
APPROVED: <i>Betsy L. Watson</i>	
DATE: 4/12/2018	
SEAL	
	
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PAVEMENT MARKING DETAIL

THERMOPLASTIC PAVEMENT MARKING LEGEND

T13 3 FT-9 FT/SP WHITE MINISKIP (8")

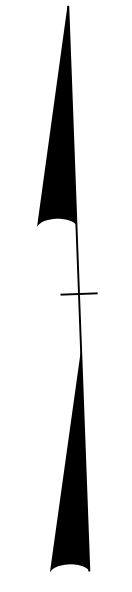
TIP NO. SHEET NO.  
U-5971A PMP-6

APPROVED: *Betsy L. Watson*

DATE: 4/12/2018



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MATCHLINE -L- STA 54+00 SEE SHEET PMP-5

T13

-L- US 19/23/74 ALT (PATTON AVE)

SR 1332  
(LOUISIANA AVE)

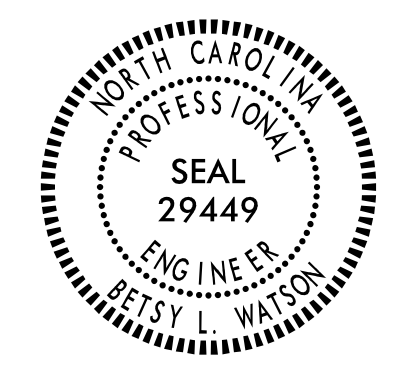

END REMOVAL OF  
EXISTING 10 FT SKIP

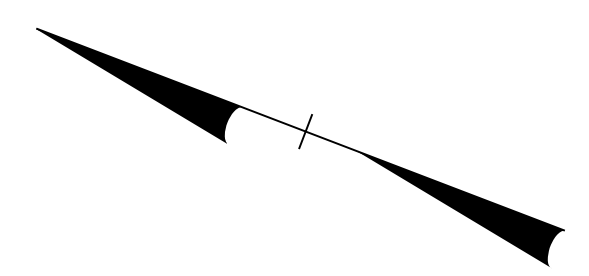
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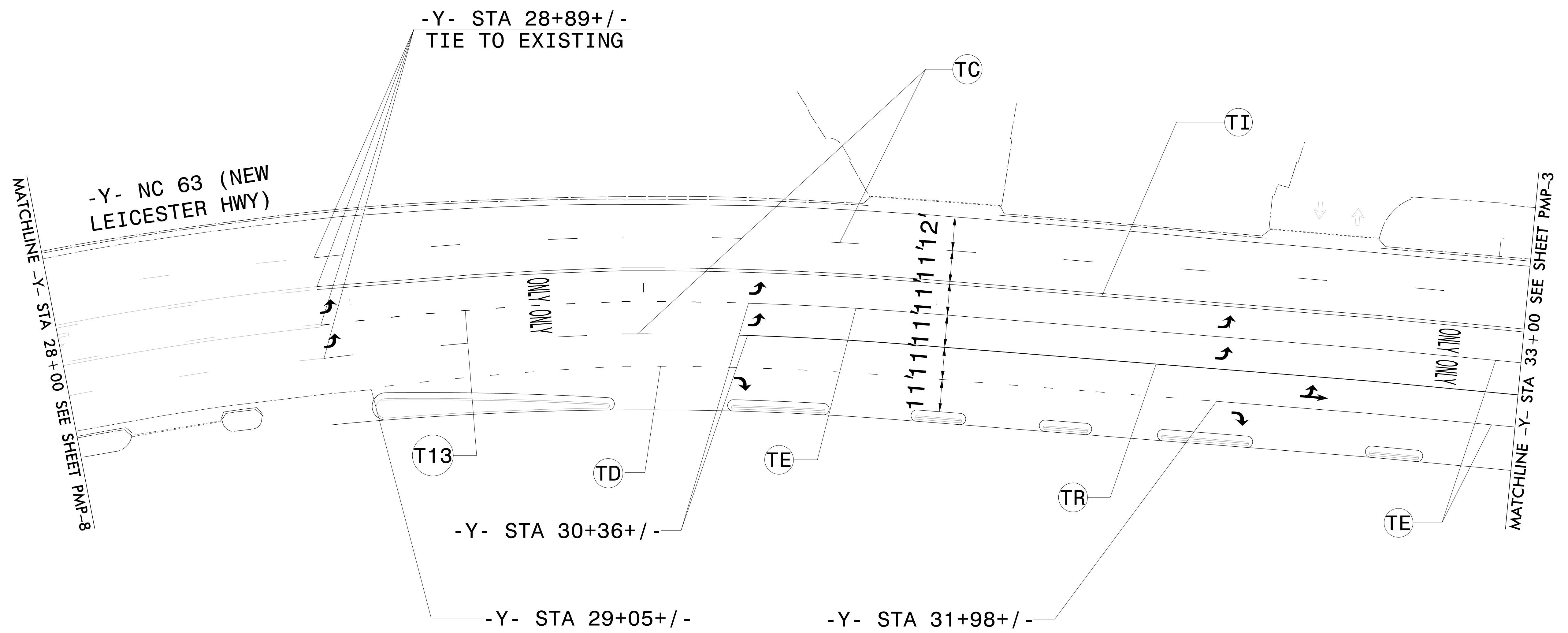


THERMOPLASTIC PAVEMENT MARKING LEGEND	
UA LEFT TURN ARROW	T13 3 FT-9 FT/SP WHITE MINISKIP (8")
UB RIGHT TURN ARROW	TC 10 FT WHITE SKIP (4")
UD LEFT/STRAIGHT ARROW	TD 3 FT-9 FT/SP WHITE MINISKIP (4")
UI ONLY ALPHANUMERIC CHARACTERS	TE WHITE SOLID LANE LINE (4")
	TI YELLOW DOUBLE CENTER (4")
	TR WHITE SOLID LANE LINE (8")

TIP NO. U-5971A	SHEET NO. PMP-7
APPROVED: <i>Betsy L. Watson</i>	
DATE: 4/12/2018	
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\$\$\$\$\$SYTIME\$\$\$\$\$  
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 \$\$\$USERNAME\$\$\$\$\$

PAVEMENT MARKING DETAIL

THERMOPLASTIC PAVEMENT MARKING LEGEND

UA LEFT TURN ARROW

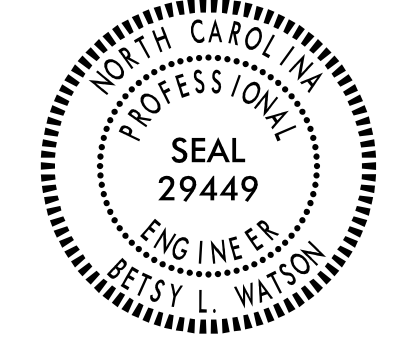
UI ONLY ALPHANUMERIC CHARACTERS

TIP NO. SHEET NO.  
U-5971A PMP-8

APPROVED: *Betsy L. Watson*

DATE: 4/12/2018

SEAL

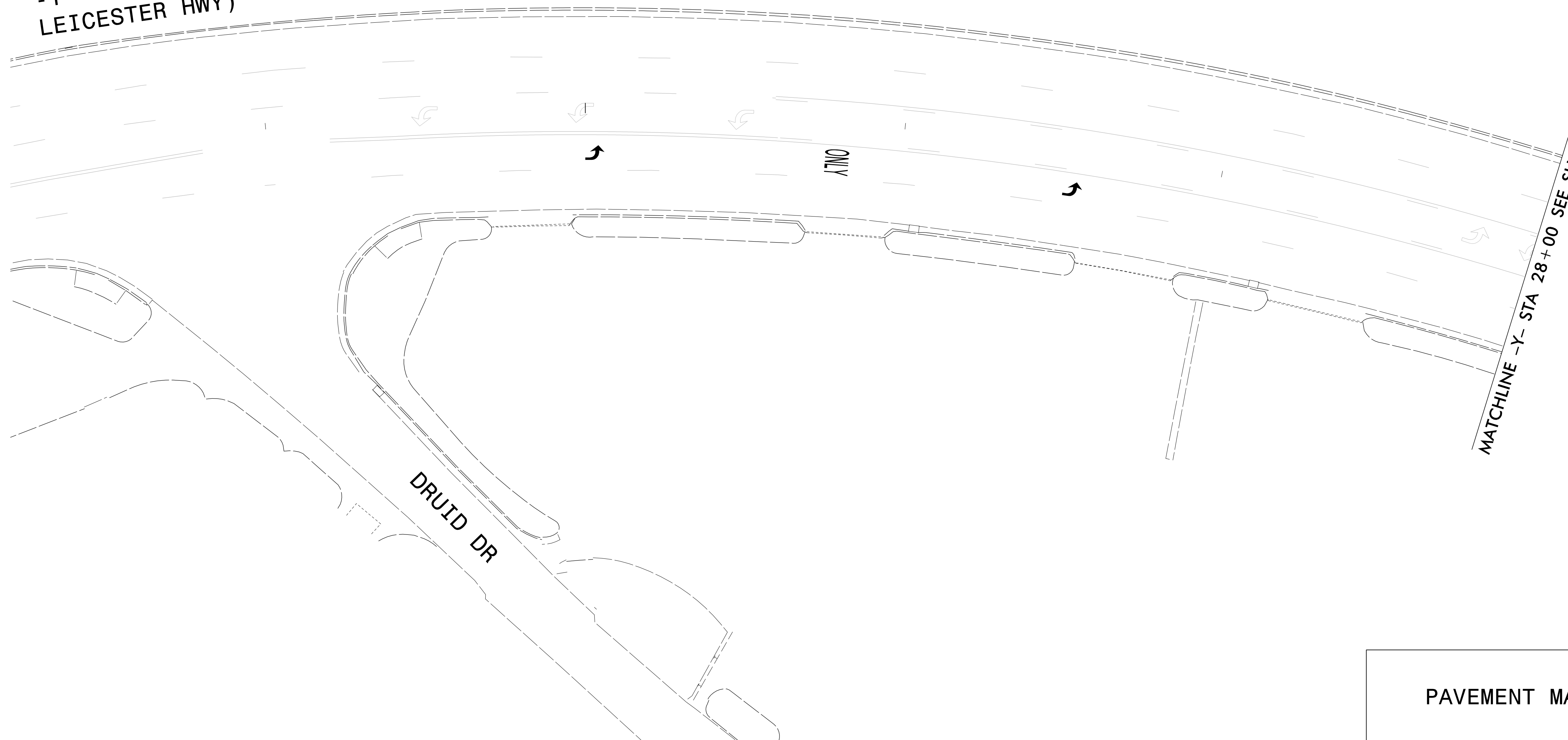


DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



25

-Y- NC 63 (NEW  
LEICESTER HWY)



MATCHLINE -Y- STA 28+00 SEE SHEET PMP-7

DRUID DR

PAVEMENT MARKING DETAIL

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$USERNAME\$\$\$\$\$



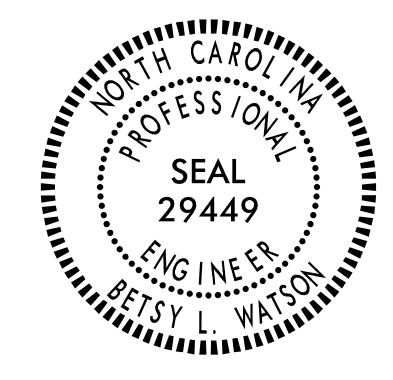
T.I.P.: U-5971A

CONTRACT NO.: DM00246

**STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION**

**SIGNING PLAN  
BUNCOMBE COUNTY**

**LOCATION: US 1923/74A (PATTON AVE) / NC 63 (NEW LEICESTER HWY)  
INTERSECTION IMPROVEMENTS**

TIP NO. U-5971A	SHEET NO. SIGN-1
DESIGNED BY <i>Betsy L. Watson</i> 35E67B83AF8743F	
APPROVED: _____	
DATE: 5/10/2018	
SEAL	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

**GENERAL NOTES**

- . SIGNS FURNISHED BY STATE.
- . CONFIRM IN WRITING AT LEAST 4 MONTHS IN ADVANCE, THE ACTUAL DATE THE DEPARTMENT FURNISHED SIGNS WILL BE REQUIRED.
- . ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- . IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- . WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER.
- . ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- . WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- . THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.

**ROADWAY STANDARD DRAWINGS**

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
901.70	SIGN STRINGERS AND SUPPORT SPACING
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

**SUMMARY OF QUANTITIES**

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000	903	SUPPORTS, 3-LB STEEL U-CHANNEL.....	150	LF
4360000000	SP	SIGN ERECTION, TYPE D.....	1	EA
4360000000	SP	SIGN ERECTION, TYPE E.....	3	EA
4360000000	SP	SIGN ERECTION, TYPE F.....	1	EA
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL.....	1	EA

**INDEX**

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET
SIGN-2	TYPE 'D', 'E', & 'F' SIGNS
SIGN-3-6	SIGNING PLAN SHEETS

**PLAN PREPARED BY:**

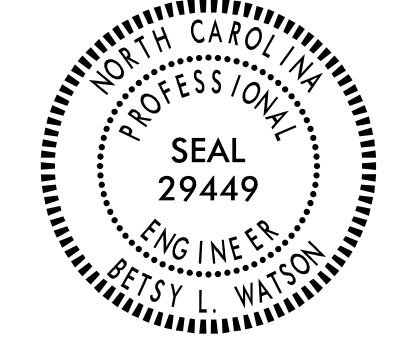

**BETSY L. WATSON, P.E.** SENIOR TRANSPORTATION ENGINEER  
**ROSI R. HENNEIN** TRANSPORTATION DESIGNER

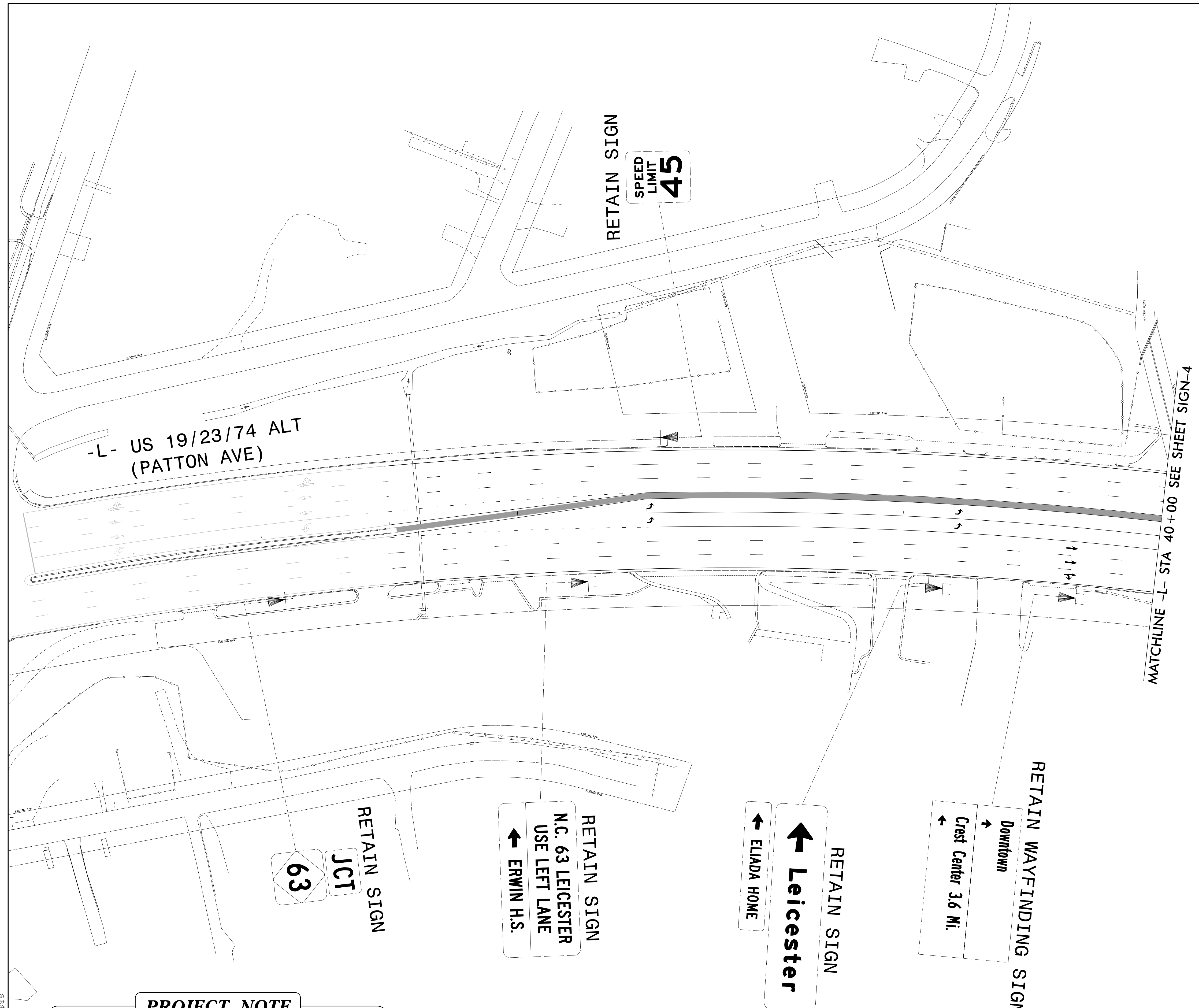
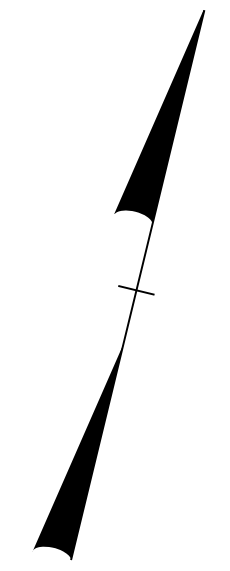


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License No. F-0672





TIP NO. U-5971A	SHEET NO. SIGN-3
DESIGNED BY: Betsy L. Watson 35E97B834F8743F	
APPROVED: <i>Betsy L. Watson</i>	
DATE: 4/12/2018	
SEAL	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	



-L- US 19/23/74 ALT  
(PATTON AVE)

MATCHLINE -L- STA 40+00 SEE SHEET SIGN-4

RETAIN SIGN

JCT  
63

RETAIN SIGN

N.C. 63 LEICESTER  
USE LEFT LANE  
← ERWIN H.S.

RETAIN SIGN

← Leicester

← ELIADA HOME

RETAIN WAYFINDING SIGN

← Downtown  
Crest Center 3.6 Mi.

**PROJECT NOTE**

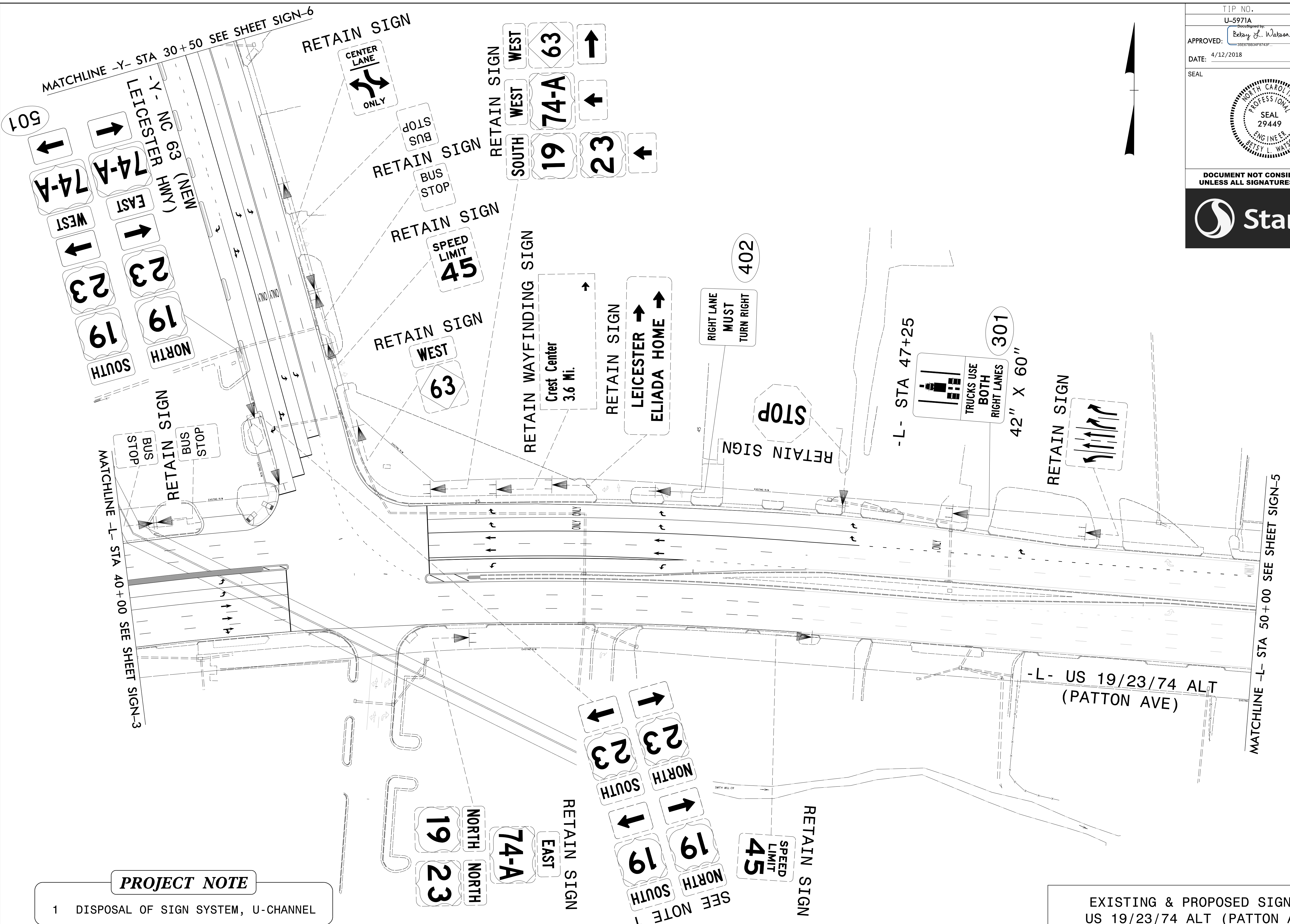
1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

EXISTING & PROPOSED SIGNING  
US 19/23/74 ALT (PATTON AVE)  
-L- STA 31+00 TO 40+00

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$USERNAM\$\$\$\$\$



TIP NO. U-5971A	SHEET NO. SIGN-4
APPROVED: <i>Betsy L. Watson</i>	
DATE: 4/12/2018	
SEAL	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

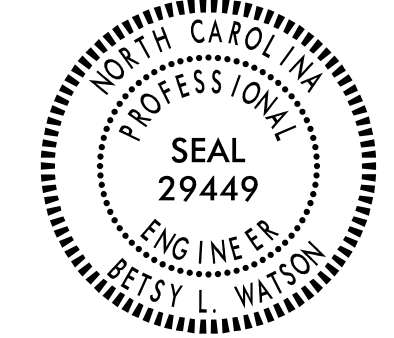



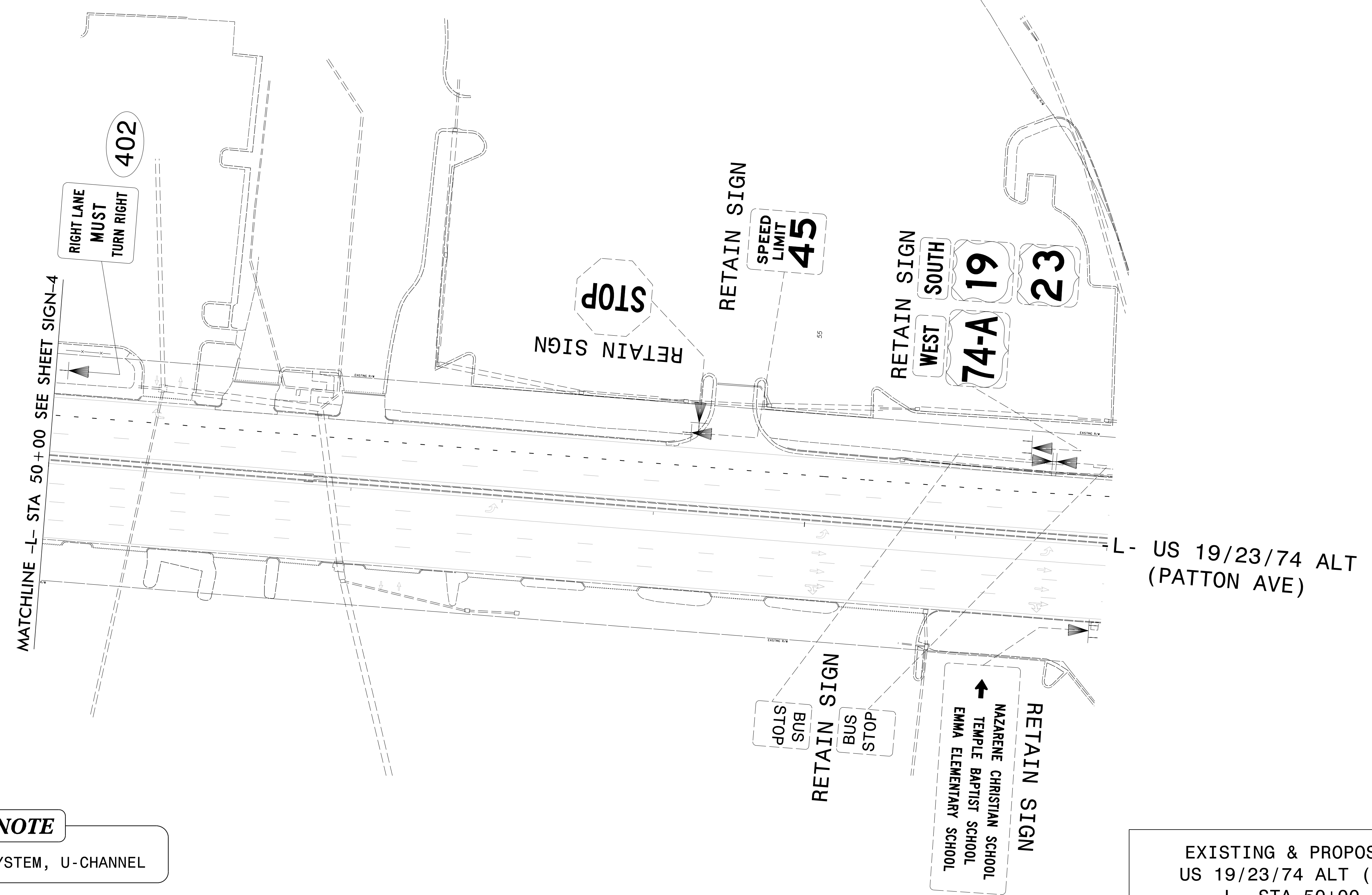
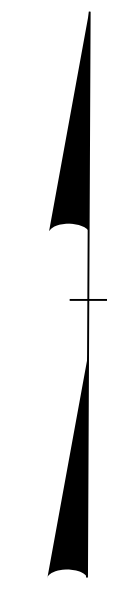
**PROJECT NOTE**  
1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

EXISTING & PROPOSED SIGNING  
US 19/23/74 ALT (PATTON AVE)  
-L- STA 40+00 TO 50+00

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$USERNAME\$\$\$\$\$



TIP NO. U-5971A	SHEET NO. SIGN-5
APPROVED: <i>Betsy L. Watson</i>	
DATE: 4/12/2018	
SEAL	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	

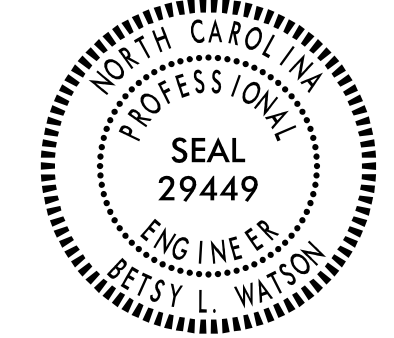



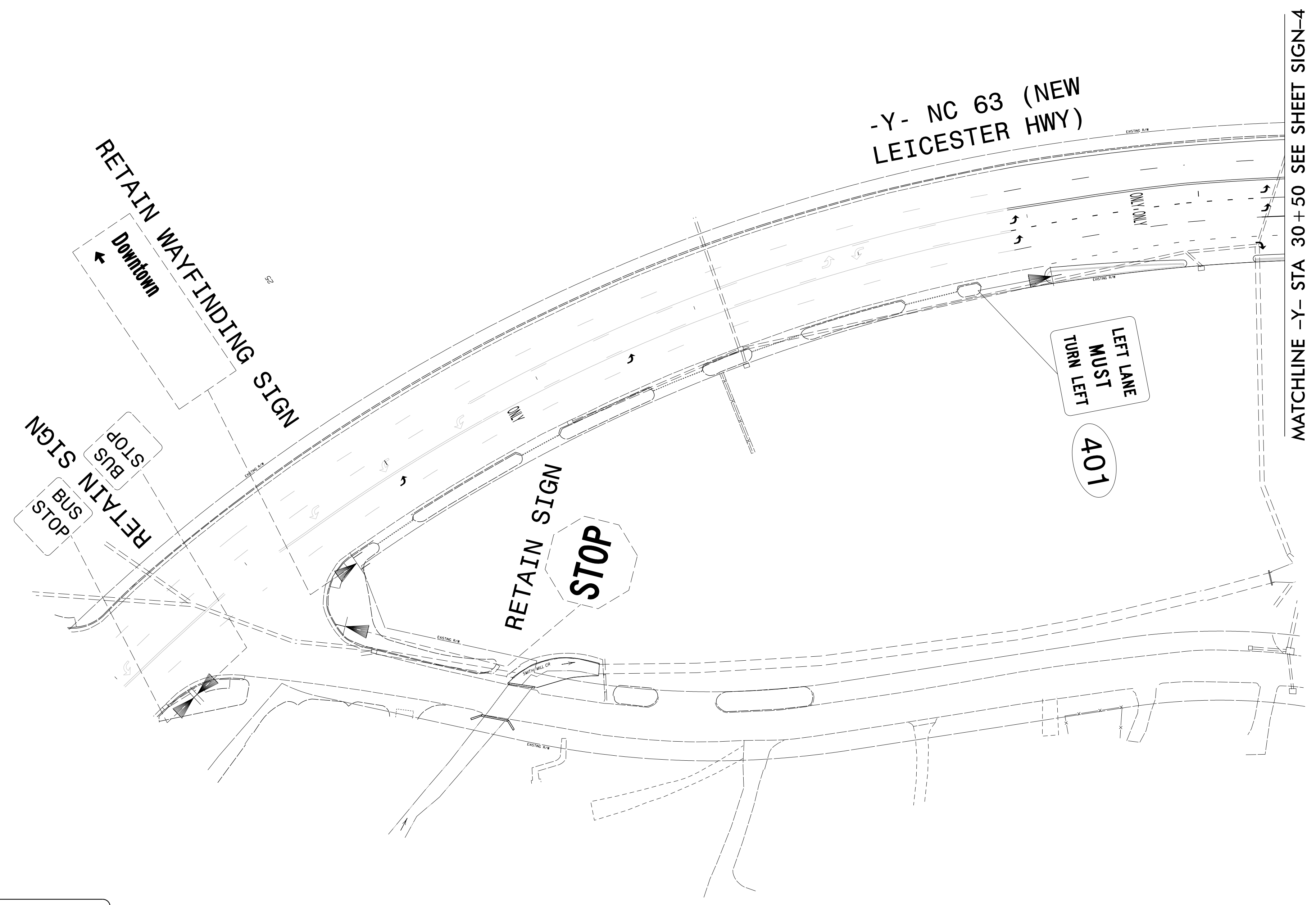
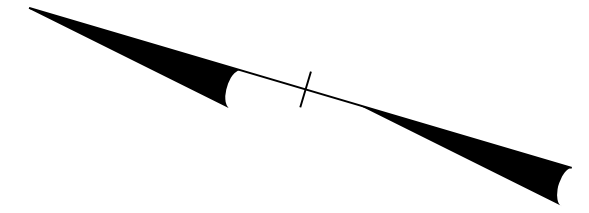
**PROJECT NOTE**

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

EXISTING & PROPOSED SIGNING  
US 19/23/74 ALT (PATTON AVE)  
-L- STA 50+00 TO 57+00

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$USERNAME\$\$\$\$\$

TIP NO. U-5971A	SHEET NO. SIGN-6
APPROVED: <i>Betsy L. Watson</i>	
DATE: 4/12/2018	
SEAL	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	



**PROJECT NOTE**

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

EXISTING & PROPOSED SIGNING  
NC 63 (NEW LEICESTER HWY)  
-Y- STA 23+00 TO 30+50

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$USERNAME\$\$\$\$\$



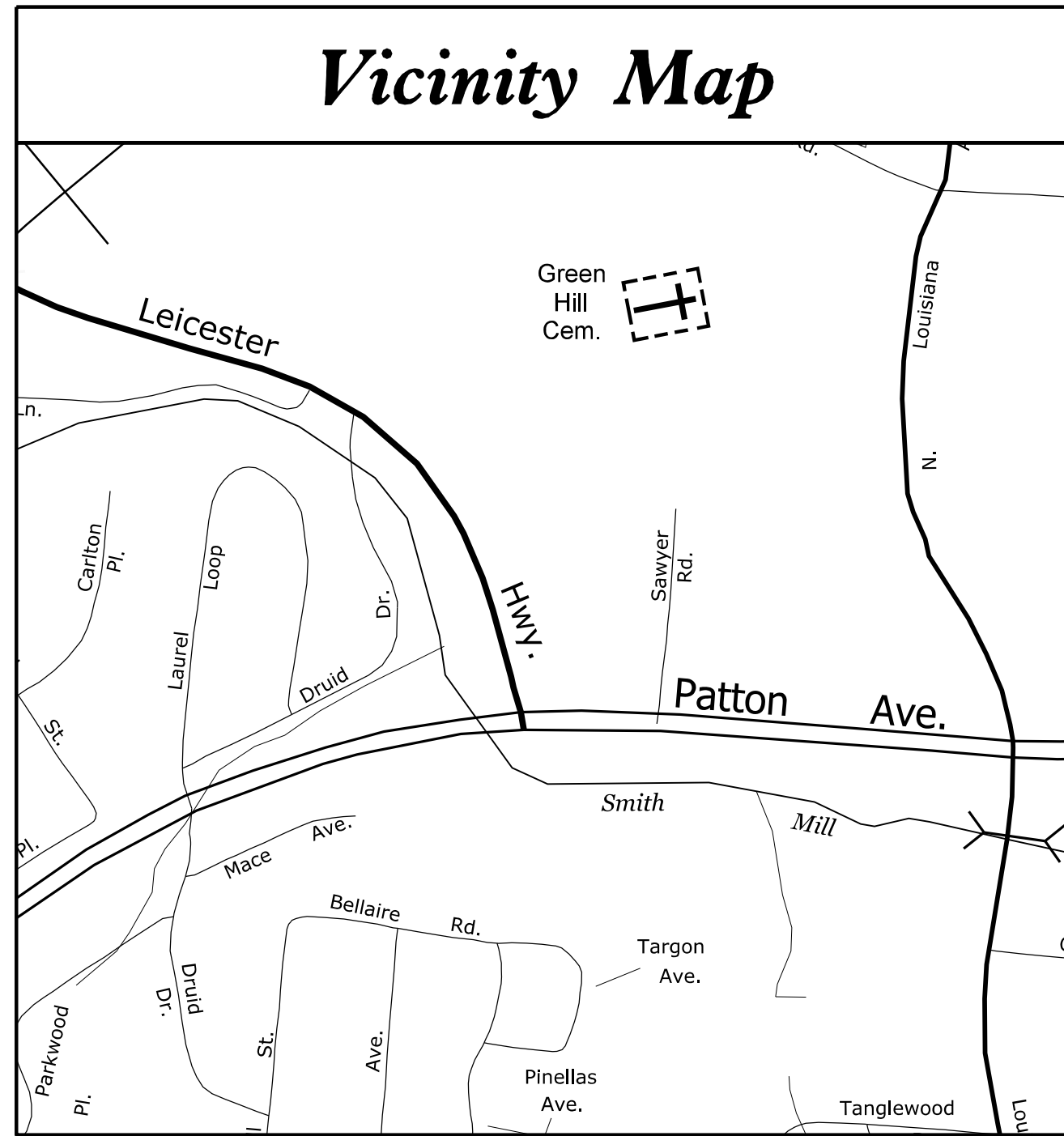
**TIP PROJECT: U-5971A**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**BUNCOMBE COUNTY**

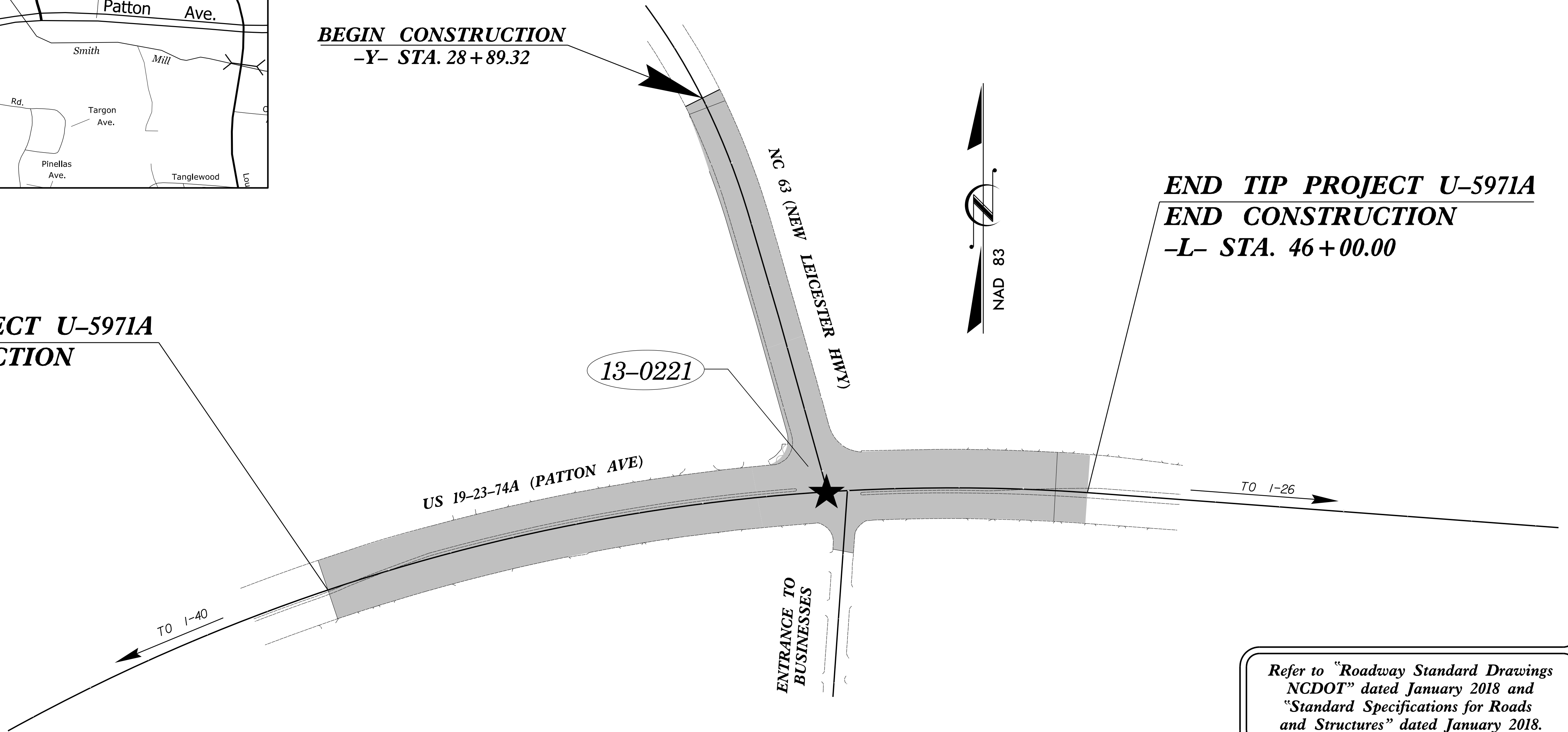
**LOCATION: US 19-23-74A (PATTON AVE) / NC 63 (NEW LEICESTER HWY) / ENTRANCE TO BUSINESSES INTERSECTION IMPROVEMENTS**

**TYPE OF WORK: TRAFFIC SIGNALS AND SIGNAL COMMUNICATIONS**



**BEGIN CONSTRUCTION**  
-Y- STA. 28 + 89.32

**BEGIN TIP PROJECT U-5971A**  
**BEGIN CONSTRUCTION**  
-L- STA. 34 + 00.00



Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.

**INDEX OF PLANS**

SHEET NO.	INVENTORY NO.	DESCRIPTION
SIG 1.0		TITLE SHEET
SIG 2.0 - 3.3	13-0221	US 19-23-74A (PATTON AVENUE) AT NC 63 (LEICESTER HIGHWAY) AND ENTRANCE TO BUSINESSES
SIG 4.0		REVISED STANDARD PLATE SHEET
SCP-1 - SCP-4		SIGNAL COMMUNICATION PLANS

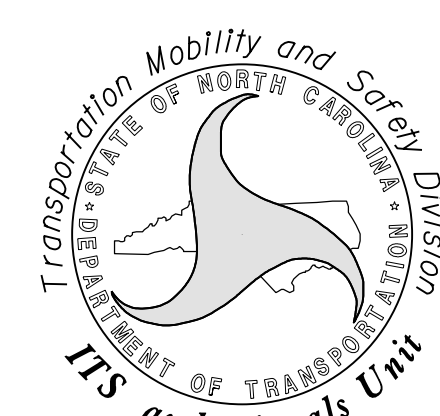
**LEGEND**

XX-XXXX - SIGNAL INVENTORY NUMBER

**INTELLIGENT TRANSPORTATION AND SIGNALS UNIT**

Contacts:  
**Tim Williams, PE**  
Signals Engineer, Western Region  
**Todd Joyce, PE**  
Signal Equipment Design Review Engineer  
**I. Neil Avery, PE**  
Signal Communication Project Engineer

Plans Prepared For:  
DIVISION OF HIGHWAYS  
TRANSPORTATION MOBILITY AND SAFETY  
DIVISION



750 N. Greenfield Parkway, Garner, NC 27529



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**Regina M. Muncey, PE**  
Transportation Engineer  
**Dean Harris**  
Senior Transportation Designer  
**Grayson B. Spell, EI**  
Transportation Designer

APPROVED: DATE: 4/6/2018



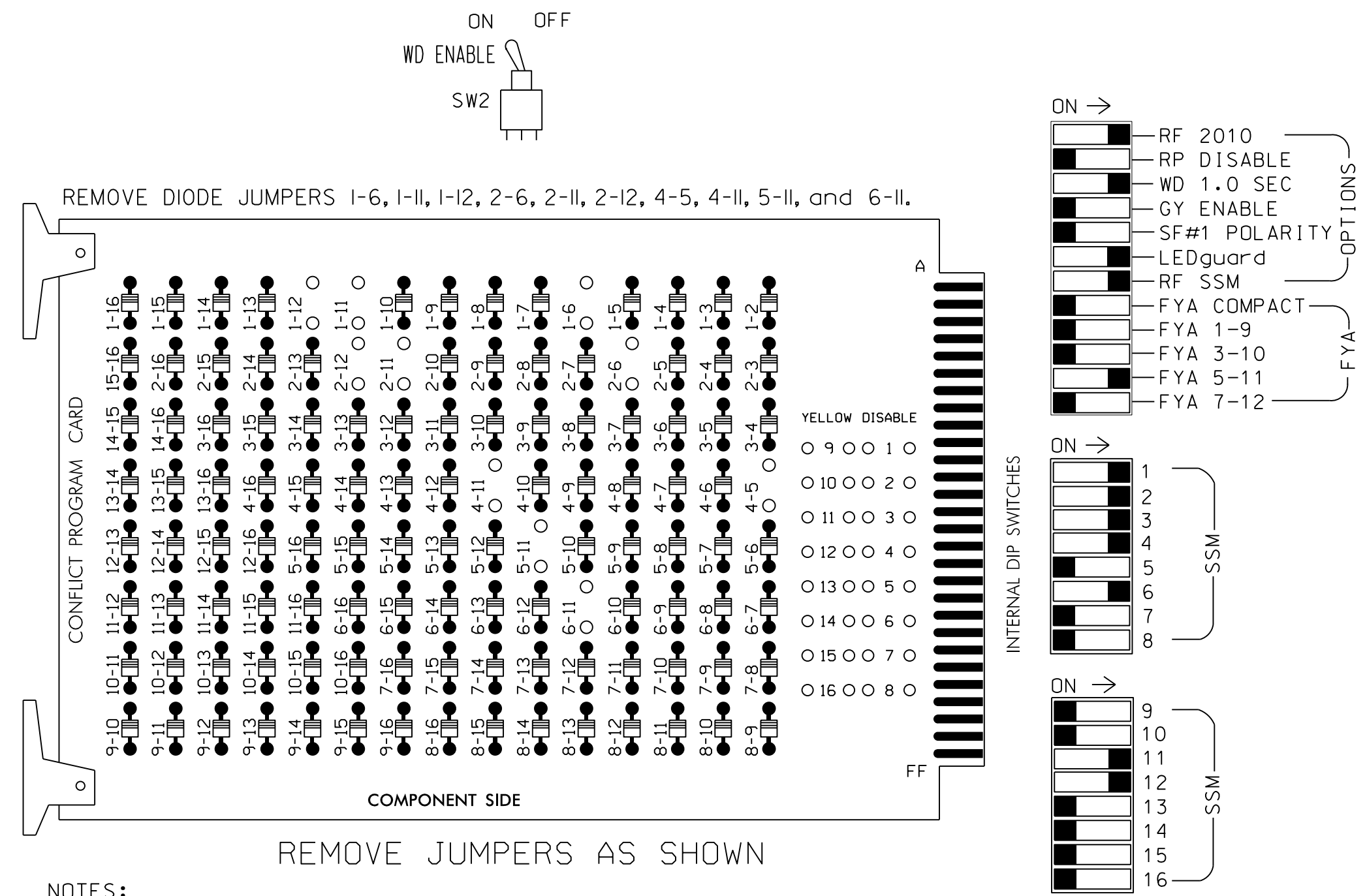






### EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



**NOTES:**

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Make sure jumpers SEL2-SEL5 are present on the monitor board.
- IMPORTANT!** 2010ECL-NC conflict monitor required for FYA operation.

### NOTES

- 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.
- Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 5,7,8,9,10,13,14, 15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash, and overlap 3 as Wag Overlaps.
- The cabinet and controller are part of the Patton Avenue 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,S3,S4,S5,S6, S12,S13  
 PHASES USED.....1,2,3,4,5,6  
 OVERLAP "A".....NOT USED  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....4+6  
 OVERLAP "D".....5

### SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14	
PHASE	1	2	2 PED	3	4	4 PED	4	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE	
SIGNAL HEAD NO.	11	32	21,22, 23	31	32	41	42	63,64	61,62	NU	NU	NU	NU	NU	NU	63,64	42	51	NU
RED		128		116	116	101	101		134							A114			
YELLOW		129		117	117	102	102	*	135										
GREEN		130		118	118	103	103		136										
RED ARROW	125																		A101
YELLOW ARROW	126	126																	A115 A102 A102
FLASHING YELLOW ARROW																			A116
GREEN ARROW	127	127		118	103		133												A103 A103

NU = Not Used  
 \* Denotes install load resistor.  
 ★ See pictorial of head wiring in detail below.  
 Note: Load switch S5 outputs have been remapped. See sheet 3 for programming details.

### INPUT FILE POSITION LAYOUT

(front view)

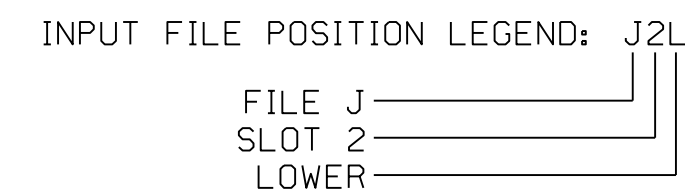
FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 1	∅ 2	∅ 2	∅ 3	S	S	S	S	SYS. DET. S6	S	S	S	S	FS
L	1A	2A	2C	3A	Y	Y	Y	Y	SYS. DET. S7	Y	Y	Y	Y	DC ISOLATOR
U	∅ 1	∅ 2	NOT USED	NOT USED	S	S	S	S	SYS. DET. S8	S	S	S	S	ST
L	1B	2B			Y	Y	Y	Y	NOT USED	Y	Y	Y	Y	DC ISOLATOR
U	∅ 5	NOT USED	∅ 6	S	S	S	S	S	SYS. DET. S8	S	S	S	S	S
L	5A		6A	Y	Y	Y	Y	Y	NOT USED	Y	Y	Y	Y	P
	NOT USED	∅ 6	NOT USED	Y	Y	Y	Y	Y		Y	Y	Y	Y	P

EX.: 1A, 2A, ETC. = LOOP NO.'S  
 FS = FLASH SENSE  
 ST = STOP TIME

### INPUT FILE CONNECTION & PROGRAMMING CHART

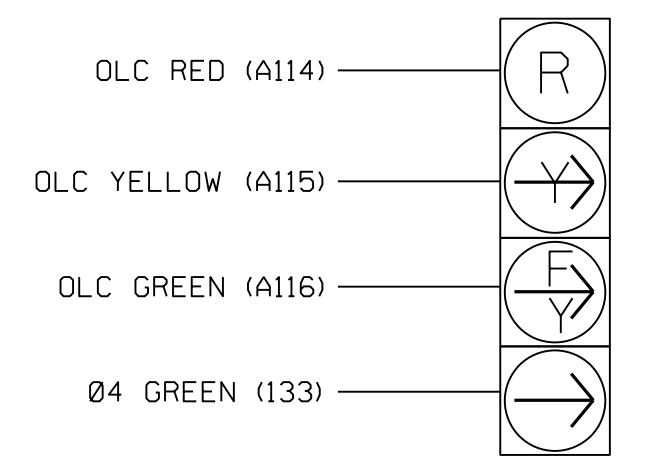
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-5,6	I2U	39	1	2	1	Y	Y			
1B	TB2-7,8	I2L	43	5	12	1	Y	Y			15
2A	TB2-9,10	I3U	63	25	32	2	Y	Y			
2B	TB2-11,12	I3L	76	38	42	2	Y	Y			
2C	TB4-1,2	I4U	47	9	22	2	Y	Y			
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			3
* S6	TB6-9,10	I9U	60	22	11	SYS					
* S7	TB6-11,12	I9L	62	24	13	SYS					
5A	TB3-5,6	J2U	40	2	6	5	Y	Y			
6A	TB3-11,12	J3L	77	39	46	6	Y	Y			
6B	TB5-1,2	J4U	48	10	26	6	Y	Y			
* S8	TB7-9,10	J9U	59	21	15	SYS					

\* System detector only. Remove the vehicle phase assigned to this detector in the default programming.



### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



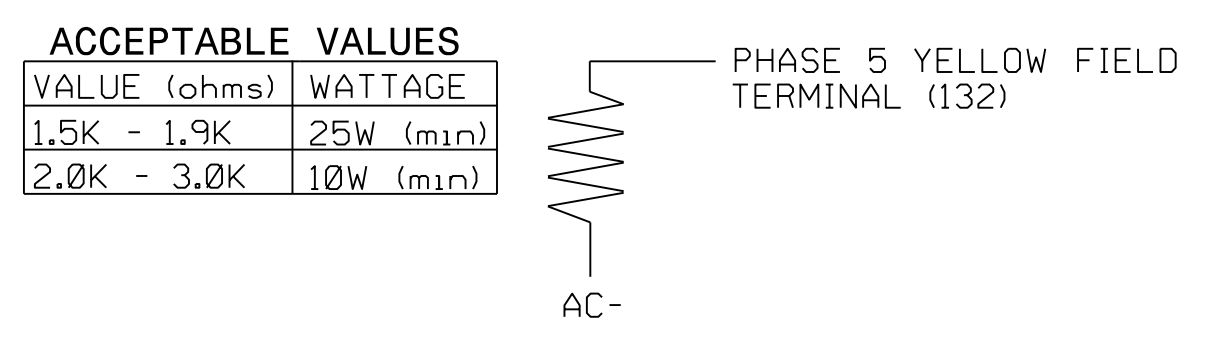
NOTE: The sequence display for signal heads 63 and 64 requires special logic programming. See sheet 2 for programming instructions.

### SPECIAL DETECTOR NOTE

Install a video detection system for vehicle detection for loops 4A, 4B, and 5B. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

### LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)



Electrical Detail - Sheet 1 of 3  
 Temporary Design - TMP Phase I

US 19-23-74A (Patton Avenue) at NC 63 (New Leicester Highway) / Entrance to Businesses

Division 13 Buncombe County Asheville

PLAN DATE: April 2018	REVIEWED BY: E. D. Harris
PREPARED BY: G. B. Spell	REVIEWED BY: R. M. Muncy

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL: REGINA M. MUNCY, PROFESSIONAL ENGINEER, LICENSE NO. 43239, STATE OF NORTH CAROLINA

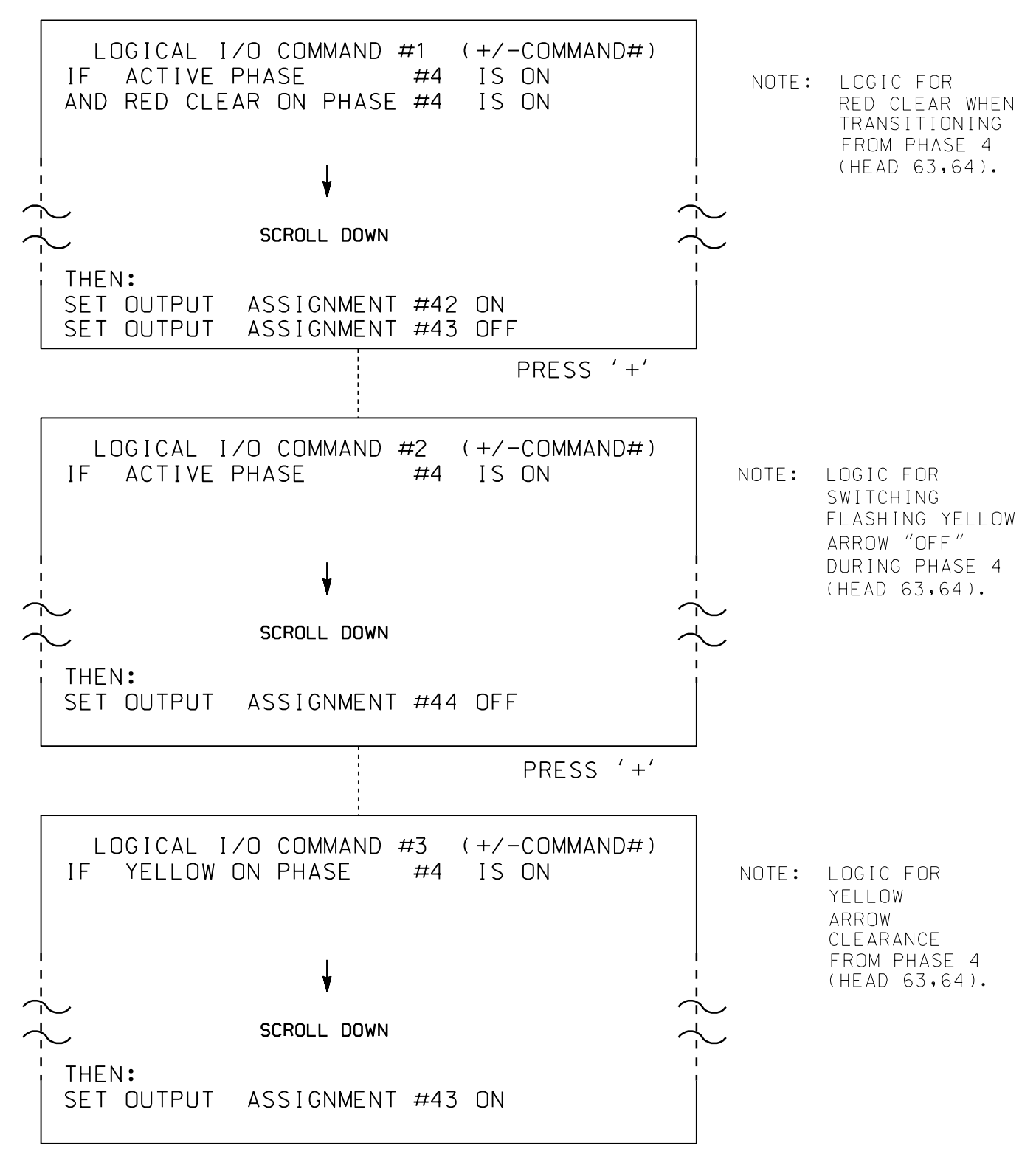
DocuSigned by: Regina M. Muncy 4/6/2018

SIG. INVENTORY NO. 13-02211

### LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT 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 42	= Overlap C Red
OUTPUT 43	= Overlap C Yellow
OUTPUT 44	= Overlap C Green

### OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PRESS '+' TWICE

```

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: X X
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)...0.0
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

PRESS '+' ONCE

```

PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: X
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: RED YELLOW GREEN
FLASH COLORS: RED YELLOW GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0.0
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
  
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR  
 THE SIGNAL DESIGN: 13-0221T  
 DESIGNED: April 2018  
 SEALED: 04-06-18  
 REVISED: N/A

Electrical Detail - Sheet 2 of 3  
Temporary Design - TMP Phase I

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 www.stantec.com  
 License No. F-0672

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

US 19-23-74A (Patton Avenue)  
 at  
 NC 63 (New Leicester Highway) /  
 Entrance to Businesses  
 Division 13 Buncombe County Asheville

PLAN DATE: April 2018 REVIEWED BY: E. D. Harris  
 PREPARED BY: G. B. Spell REVIEWED BY: R. M. Muncey

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

Regina M. Muncey 4/6/2018  
 C7F5E1B83494X LURE DATE  
 SIG. INVENTORY NO. 13-0221T

DATE: U:\Projects\13-0221T\13-0221T1.dgn User: gssel1



### FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR LOAD SWITCH 5

IT IS NECESSARY TO REMAP LOAD SWITCH 5 TO VEHICLE PHASE 4 SO THE PROTECTED RIGHT TURNS (HEADS 63, 64) RUN DURING PHASE 4, AND THE REQUIRED CONFLICT MONITOR RELATIONSHIP FOR FYA OPERATION BETWEEN MONITOR CHANNELS 5 AND 11 IS MAINTAINED.

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS), WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

STEP 1

```

PAGE:1 C1 PIN:32 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....

```

LOAD SWITCH 5 RED

THE OUTPUT IS ALREADY SET AS A VEHICLE PHASE BY DEFAULT, BUT GO AHEAD AND ENTER A 'Y' IN THIS FIELD ANYWAY.

```

PAGE:1 C1 PIN:32 VEHICLE PHASE
SELECT VEHICLE PHASE (1-16).....4
SELECT COLOR(0=RED,1=YEL,2=GRN)....0

```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

```

PAGE:1 C1 PIN:32 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....

```

PRESS "+" KEY FOR OUTPUT 31

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

STEP 2

```

PAGE:1 C1 PIN:33 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....

```

LOAD SWITCH 5 YELLOW

THE OUTPUT IS ALREADY SET AS A VEHICLE PHASE BY DEFAULT, BUT GO AHEAD AND ENTER A 'Y' IN THIS FIELD ANYWAY.

```

PAGE:1 C1 PIN:33 VEHICLE PHASE
SELECT VEHICLE PHASE (1-16).....4
SELECT COLOR(0=RED,1=YEL,2=GRN)....1

```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

```

PAGE:1 C1 PIN:33 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....

```

PRESS "+" KEY FOR OUTPUT 32

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

STEP 3

```

PAGE:1 C1 PIN:34 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....

```

LOAD SWITCH 5 GREEN

THE OUTPUT IS ALREADY SET AS A VEHICLE PHASE BY DEFAULT, BUT GO AHEAD AND ENTER A 'Y' IN THIS FIELD ANYWAY.

```

PAGE:1 C1 PIN:34 VEHICLE PHASE
SELECT VEHICLE PHASE (1-16).....4
SELECT COLOR(0=RED,1=YEL,2=GRN)....2

```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

```

PAGE:1 C1 PIN:34 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....

```

OUTPUT PROGRAMMING FOR LOADSWITCH COMPLETE

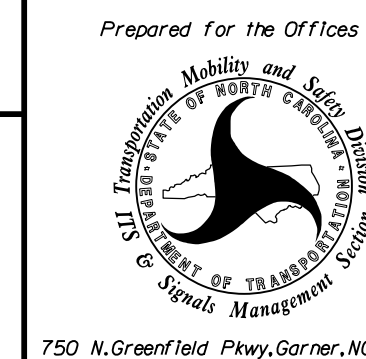
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 13-0221T  
DESIGNED: April 2018  
SEALED: 04-06-18  
REVISED: N/A

Electrical Detail - Sheet 3 of 3  
Temporary Design - TMP Phase I



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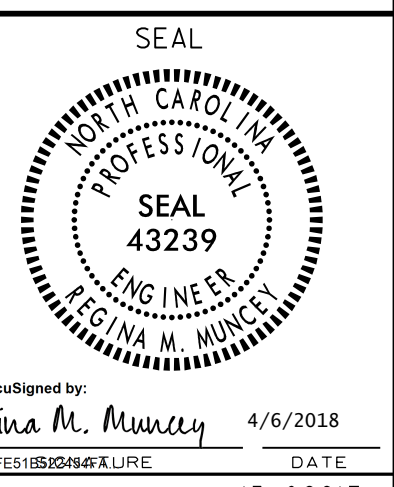
ELECTRICAL AND PROGRAMMING DETAILS FOR:



US 19-23-74A (Patton Avenue)  
at  
NC 63 (New Leicester Highway) /  
Entrance to Businesses  
Division 13 Buncombe County Asheville

PLAN DATE: April 2018	REVIEWED BY: E. D. Harris
PREPARED BY: G. B. Spell	REVIEWED BY: R. M. Muncey
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SIG. INVENTORY NO. 13-0221T

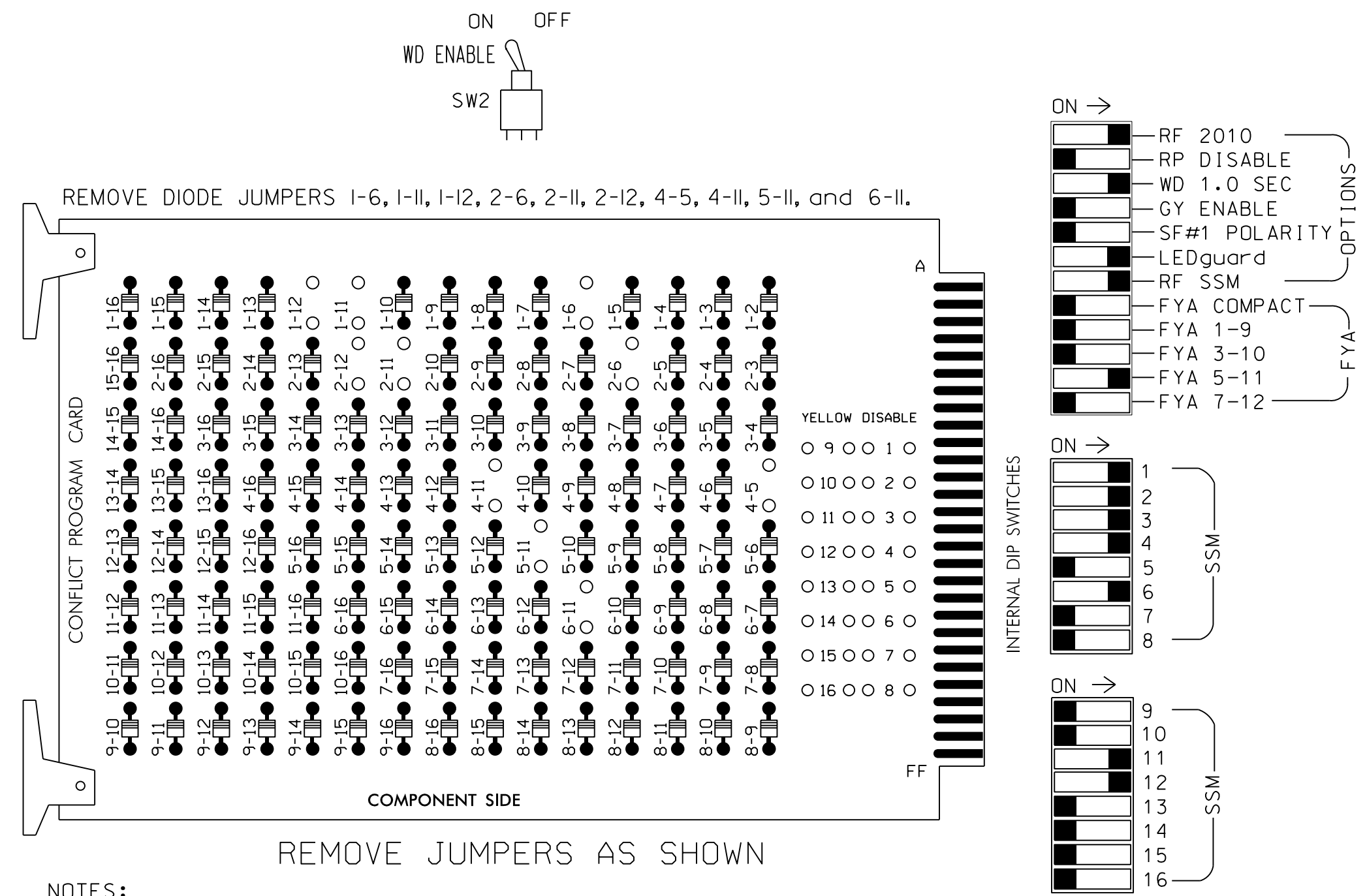






### EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



- NOTES:
- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
  - Make sure jumpers SEL2-SEL5 are present on the monitor board.
  - IMPORTANT!** 2010ECL-NC conflict monitor required for FYA operation.

### NOTES

- 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.
- Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 5,7,8,9,10,13,14, 15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash, and overlap 3 as Wag Overlaps.
- The cabinet and controller are part of the Patton Avenue 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,S3,S4,S5,S6,  
 S12,S13

PHASES USED.....1,2,3,4,5,6  
 OVERLAP "A".....NOT USED  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....4+6  
 OVERLAP "D".....5

### SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14	
PHASE	1	2	2 PED	3	4	4 PED	4	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE	
SIGNAL HEAD NO.	11	32	21,22, 23	31	32	41,42	43	44	NU	63,64	61,62	NU	NU	NU	NU	63,64	44	51,52	NU
RED		128		116	116	101	101			134						A114			
YELLOW		129		117	117	102	102	*		135									
GREEN		130		118	118	103	103			136									
RED ARROW	125					101													A101
YELLOW ARROW	126	126				102										A115	A102	A102	
FLASHING YELLOW ARROW																A116			
GREEN ARROW	127	127			118	103	103			133									A103

NU = Not Used  
 \* Denotes install load resistor.  
 See pictorial of head wiring in detail below.  
 Note: Load switch S5 outputs have been remapped. See sheet 3 for programming details.

### INPUT FILE POSITION LAYOUT

(front view)

FILE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 1	∅ 2	∅ 2	∅ 3	∅ 4	∅ 4	S	S	SYS. DET. S6	S	S	S	S	FS
I	1A	2A	2C	3A	4A	4C	T	T	SYS. DET. S7	T	T	T	T	DC ISOLATOR
L	1B	2B	NOT USED	NOT USED	4B	NOT USED	V	V	V	V	V	V	V	DC ISOLATOR
U	∅ 5	∅ 5	∅ 6	S	S	S	S	SYS. DET. S8	S	S	S	S	S	S
I	5A	5C	6B	T	T	T	T	SYS. DET. S8	T	T	T	T	T	DC ISOLATOR
L	∅ 5	∅ 6	NOT USED	V	V	V	V	NOT USED	V	V	V	V	V	DC ISOLATOR
	5B	6A		T	T	T	T		T	T	T	T	T	

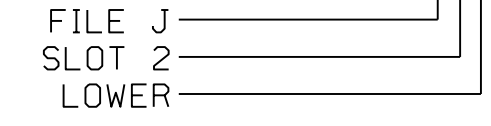
EX.: 1A, 2A, ETC. = LOOP NO.'S  
 FS = FLASH SENSE  
 ST = STOP TIME

### 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	TB2-5,6	I2U	39	1	2	1	Y	Y			
1B	TB2-7,8	I2L	43	5	12	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			
2C	TB4-1,2	I4U	47	9	22	2	Y	Y			
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
4C	TB6-1,2	I7U	65	27	34	4	Y	Y			
* S6	TB6-9,10	I9U	60	22	11	SYS					
* S7	TB6-11,12	I9L	62	24	13	SYS					
5A	TB3-5,6	J2U	40	2	6	5	Y	Y			
5B	TB3-7,8	J2L	44	6	16	5	Y	Y			
5C	TB3-9,10	J3U	64	26	36	5	Y	Y			15
6A	TB3-11,12	J3L	77	39	46	6	Y	Y			
6B	TB5-1,2	J4U	48	10	26	6	Y	Y			
* S8	TB7-9,10	J9U	59	21	15	SYS					

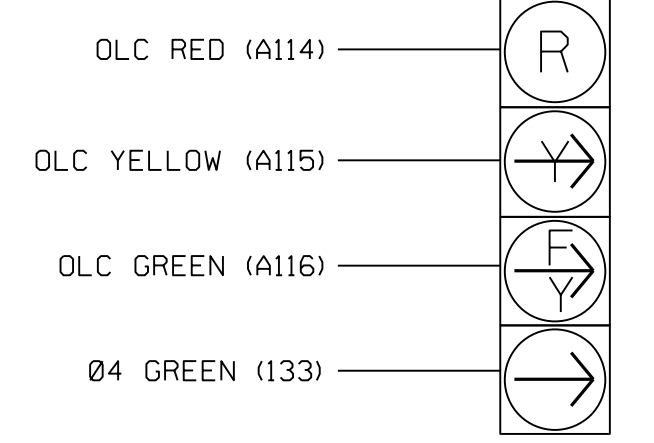
\* System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L



### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



63,64

NOTE

The sequence display for signal heads 63 and 64 requires special logic programming. See sheet 2 for programming instructions.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 13-0221  
 DESIGNED: April 2018  
 SEALED: 04-06-18  
 REVISED: N/A

DATE: 11/17/18  
 User: g55e11

### Electrical Detail - Sheet 1 of 3

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 License No. F-0672

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

US 19-23-74A (Patton Avenue) at  
 NC 63 (New Leicester Highway) / Entrance to Businesses

Division 13 Buncombe County Asheville

PLAN DATE: April 2018 REVIEWED BY: E. D. Harris  
 PREPARED BY: G. B. Spell REVIEWED BY: R. M. Muncy

REVISIONS	INIT.	DATE

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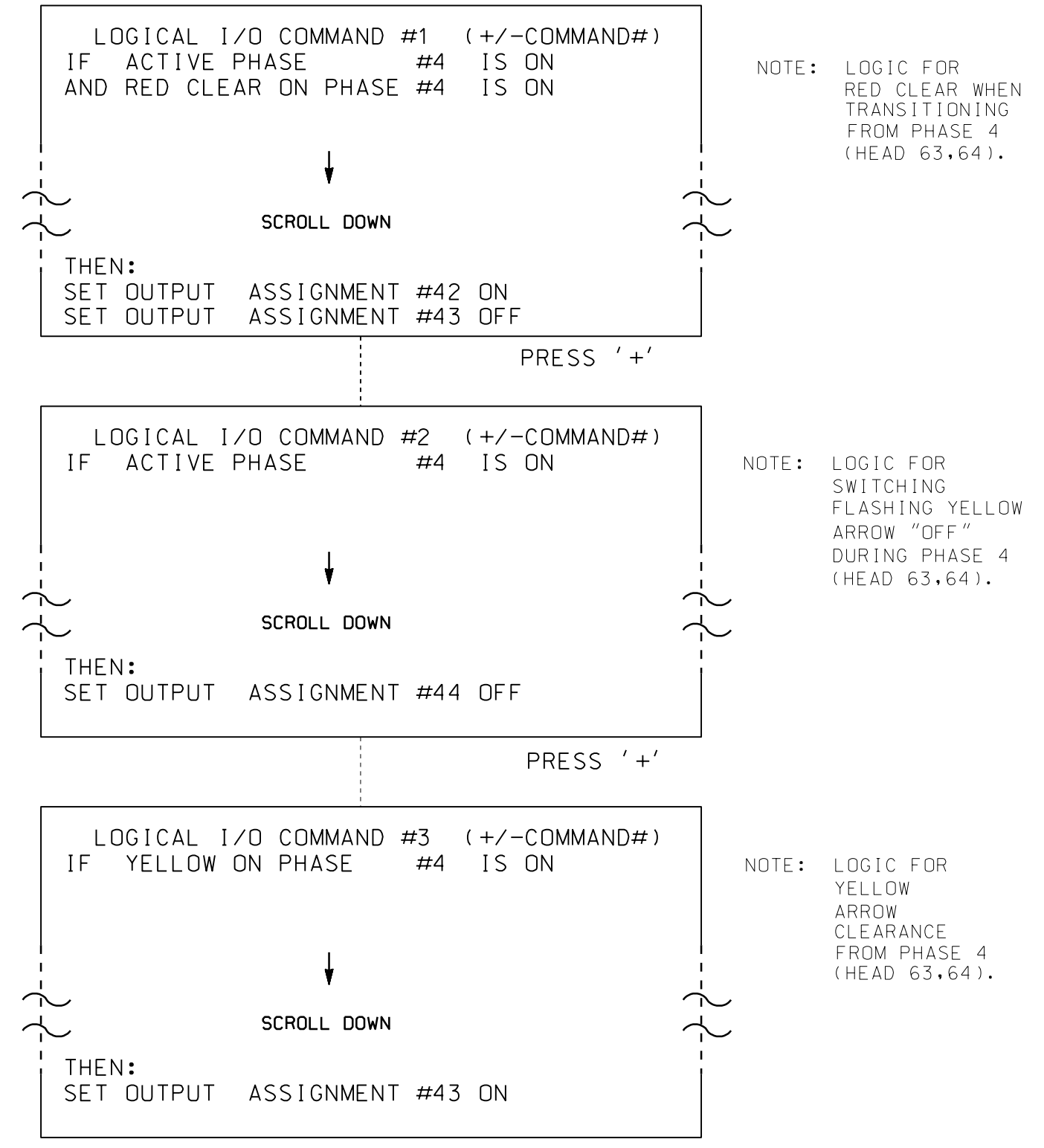
Regina M. Muncy 4/6/2018

SIG. INVENTORY NO. 13-0221

### LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT 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 42	= Overlap C Red
OUTPUT 43	= Overlap C Yellow
OUTPUT 44	= Overlap C Green

### OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PRESS '+' TWICE

```

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:      12345678910111213141516
VEH OVL PARENTS:  X X
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)...0.0
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

PRESS '+' ONCE

```

PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE:      12345678910111213141516
VEH OVL PARENTS:  X
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR:  _ RED _ YELLOW _ GREEN
FLASH COLORS:  _ RED _ YELLOW _ GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0.0
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
  
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 13-0221  
DESIGNED: April 2018  
SEALED: 04-06-18  
REVISED: N/A

Electrical Detail - Sheet 2 of 3

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PLAN DATE: April 2018 REVIEWED BY: E. D. Harris  
PREPARED BY: G. B. Spell REVIEWED BY: R. M. Muncy

REVISIONS	INIT.	DATE

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SEAL

DocuSigned by:  
Regina M. Muncy 4/6/2018  
CF7E51B83246X LURE DATE  
SIG. INVENTORY NO. 13-0221



### FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR LOAD SWITCH 5

IT IS NECESSARY TO REMAP LOAD SWITCH 5 TO VEHICLE PHASE 4 SO THE PROTECTED RIGHT TURNS (HEADS 63, 64) RUN DURING PHASE 4, AND THE REQUIRED CONFLICT MONITOR RELATIONSHIP FOR FYA OPERATION BETWEEN MONITOR CHANNELS 5 AND 11 IS MAINTAINED.

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS), WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

STEP 1

```
PAGE:1 C1 PIN:32 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

LOAD SWITCH 5 RED

THE OUTPUT IS ALREADY SET AS A VEHICLE PHASE BY DEFAULT, BUT GO AHEAD AND ENTER A 'Y' IN THIS FIELD ANYWAY.

```
PAGE:1 C1 PIN:32 VEHICLE PHASE
SELECT VEHICLE PHASE (1-16).....4
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

```
PAGE:1 C1 PIN:32 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

PRESS "+" KEY FOR OUTPUT 31

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

STEP 2

```
PAGE:1 C1 PIN:33 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

LOAD SWITCH 5 YELLOW

THE OUTPUT IS ALREADY SET AS A VEHICLE PHASE BY DEFAULT, BUT GO AHEAD AND ENTER A 'Y' IN THIS FIELD ANYWAY.

```
PAGE:1 C1 PIN:33 VEHICLE PHASE
SELECT VEHICLE PHASE (1-16).....4
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

```
PAGE:1 C1 PIN:33 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

PRESS "+" KEY FOR OUTPUT 32

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

STEP 3

```
PAGE:1 C1 PIN:34 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

LOAD SWITCH 5 GREEN

THE OUTPUT IS ALREADY SET AS A VEHICLE PHASE BY DEFAULT, BUT GO AHEAD AND ENTER A 'Y' IN THIS FIELD ANYWAY.

```
PAGE:1 C1 PIN:34 VEHICLE PHASE
SELECT VEHICLE PHASE (1-16).....4
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

```
PAGE:1 C1 PIN:34 VEHICLE PHASE
OUTPUT ASSIGNMENT #.....32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
```

OUTPUT PROGRAMMING FOR LOADSWITCH COMPLETE

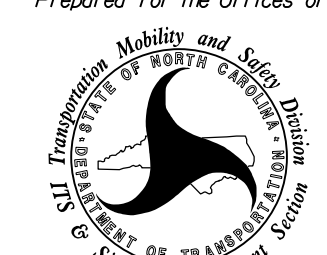
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DESIGNED: April 2018  
SEALED: 04-06-18  
REVISED: N/A

DATE: 04/06/18  
USER: gspell

Electrical Detail - Sheet 3 of 3

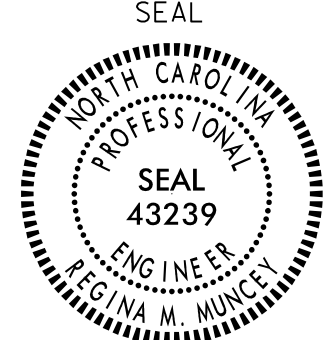


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License No. F-0672

Prepared for the Offices of:  
  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 Signal Management Section  
 750 N. Greenfield Pkwy, Garner, NC 27529

ELECTRICAL AND PROGRAMMING DETAILS FOR:		US 19-23-74A (Patton Avenue) at NC 63 (New Leicester Highway) / Entrance to Businesses	
PLAN DATE:	April 2018	REVIEWED BY:	E. D. Harris
PREPARED BY:	G. B. Spell	REVIEWED BY:	R. M. Muncey
REVISIONS	INIT.	DATE	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

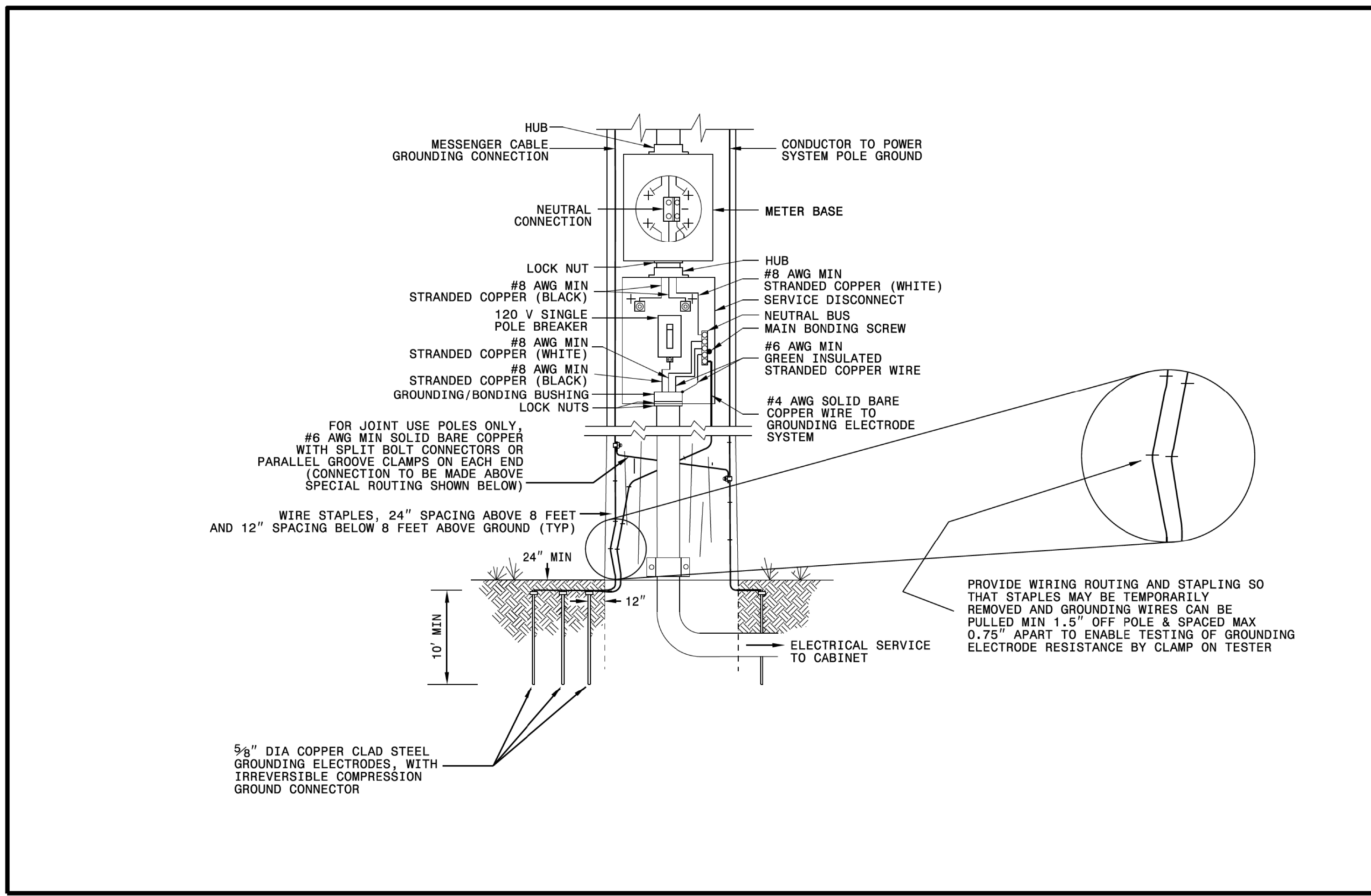
SEAL  
  
 REGINA M. MUNCEY  
 ENGINEER  
 43239

DocuSigned by:  
 Regina M. Muncey 4/6/2018  
 C7F5E1B83246X LURE DATE  
 SIG. INVENTORY NO. 13-0221

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR  
**ELECTRICAL SERVICE GROUNDING**  
GROUNDING AND BONDING

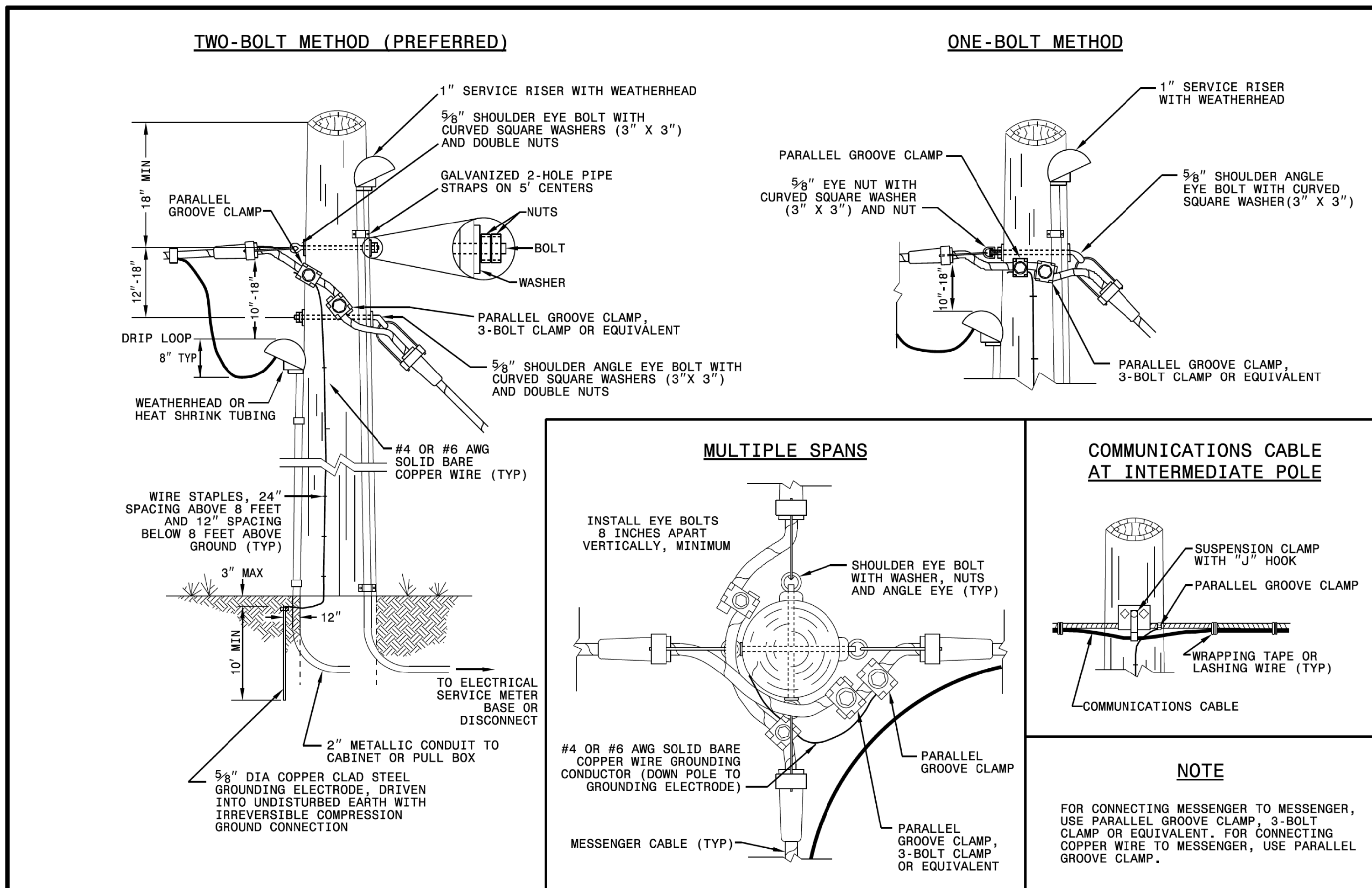
SHEET 1 OF 1  
**1700D01**



1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR  
**WOOD POLES**  
METHODS OF ATTACHMENT AND GROUNDING

SHEET 1 OF 1  
**1720D01**



DOCUMENT NOT CONSIDERED  
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See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway  
Garner, NC 27529

SEAL

DocuSigned by:  
Mohd Aslami  
10/11/2017  
DATE

11-001-2017\_08-156  
U-5971A\_S4.dwg Drawings\Plate Sheets\2018\_Plate Sheet -dgn  
r.mough



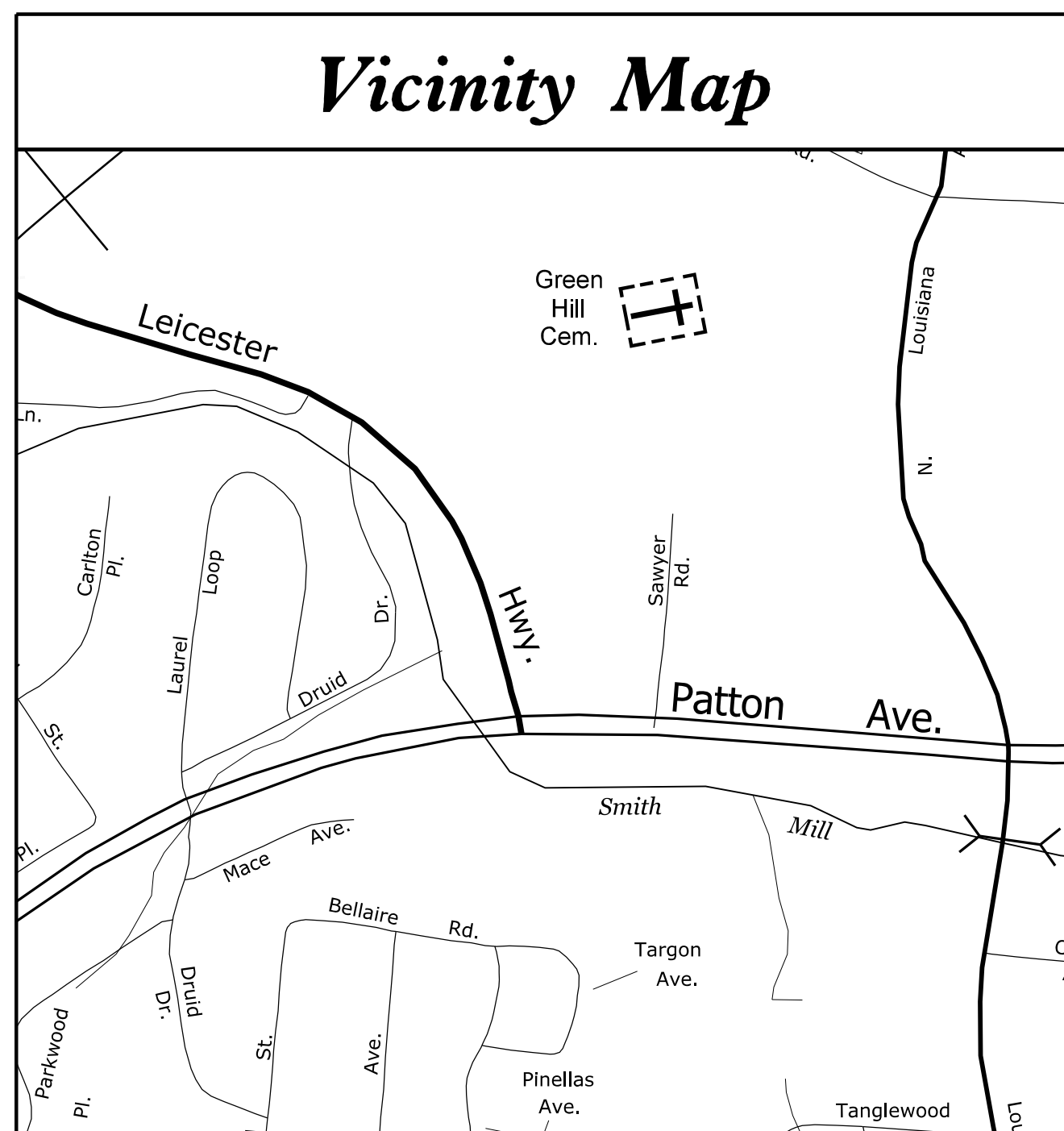
**TIP PROJECT: U-5971A**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**BUNCOMBE COUNTY**

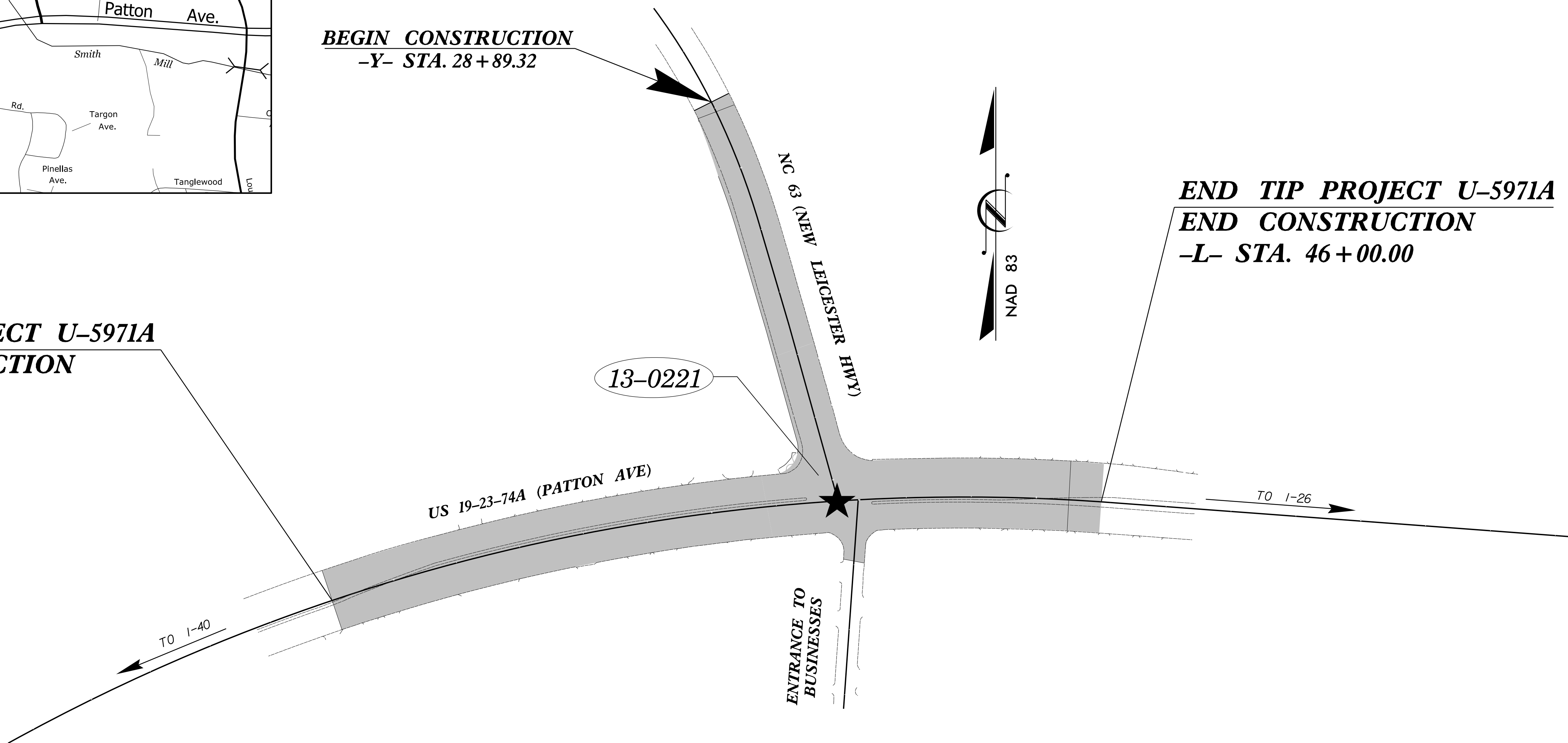
**LOCATION: US 19-23-74A (PATTON AVE)/NC 63 (NEW LEICESTER HWY)/  
ENTRANCE TO BUSINESSES INTERSECTION IMPROVEMENTS**

**TYPE OF WORK: SIGNAL COMMUNICATIONS**



**BEGIN CONSTRUCTION  
-Y- STA. 28 + 89.32**

**BEGIN TIP PROJECT U-5971A  
BEGIN CONSTRUCTION  
-L- STA. 34 + 00.00**



**INDEX OF PLANS**

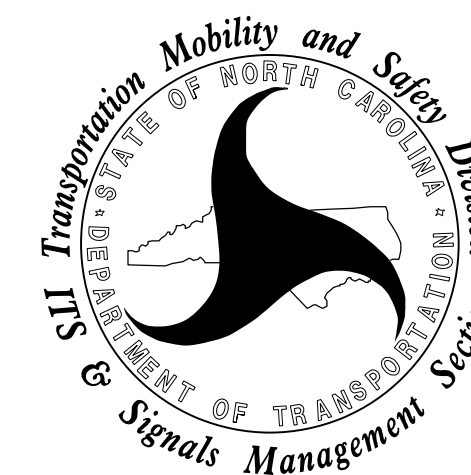
SHEET NO.	DESCRIPTION
SCP-1	Title Sheet
SCP-2	Construction Notes and Legend
SCP-3	Signal Communication Plans - Cable Routing Plans
SCP-4	Signal Communication Plans - Fiber Optic Splice Detail

**ROADWAY STANDARD DRAWINGS**

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" ROADWAY DESIGN UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C. DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS.

STANDARD NO.	DESCRIPTION
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURE
1101.03	TEMPORARY SHOULDER CLOSURE
1715.01	UNDERGROUND CONDUIT
1716.01	JUNCTION BOXES
1722.01	RISER ASSEMBLY
1730.01	FIBER OPTIC CABLE
1731.01	SPLICE ENCLOSURE

Prepared for the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

NCDOT CONTACT:  
TRANSPORTATION SAFETY AND MOBILITY  
INTELLIGENT TRANSPORTATION SYSTEMS SECTION

**I. Neil Avery, PE**  
Signal Communication Project Engineer

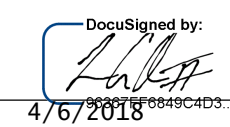
**Heidi Bergeren, EI**  
Signal Communication Project Design Engineer

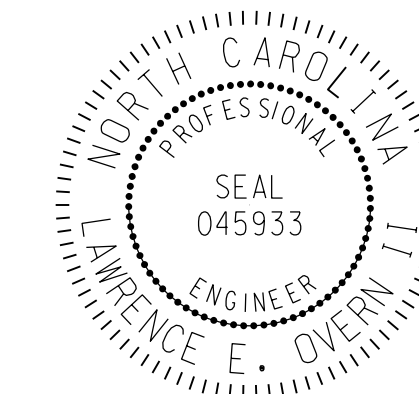
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**Larry Overn, PE** Senior Transportation Engineer

**Dean Harris** Senior Transportation Designer

**Grayson Spell, EI** Transportation Designer

APPROVED:   
DATE: 4/6/2018





- 1 INSTALL REA, PE - 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 2 INSTALL REA, PE - 38, (FIGURE - 8) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 3 INSTALL CATEGORY 5E CABLE
- 4 INSTALL SMFO CABLE
- 5 INSTALL COAXIAL ANTENNA CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE ASSEMBLY
- 7 INSTALL TRACER WIRE
- 8 INSTALL CONDUIT UNDERGROUND
- 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 HEAT SHRINK TUBING
- 13 REMOVE EXISTING RISER SEAL /WEATHERHEAD AND APPLY HEAT SHRINK TUBING
- 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(S)
- 20 INSTALL CABLE(S) IN NEW RISER(S)
- 21 INSTALL CABLE(S) IN EXISTING CONDUIT STUBOUTS
- 22 INSTALL NEW CONDUIT INTO CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 23 INSTALL NEW RISER INTO CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 24 INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET
- 25 INSTALL NEW RISER INTO POLE MOUNTED CABINET
- 26 INSTALL DIGITAL VIDEO ENCODER DEVICE SERVER
- 27 INSTALL NEW ETHERNET EDGE SWITCH IN CABINET

- 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 MODIFY EXISTING SPlice ENCLOSURE OR INTERCONNECT CENTER
- 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 SPECIAL-SIZED 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 (OLD) MESSENGER CABLE
- 49 BACK-PULL EXISTING COMMUNICATIONS CABLE
- 50 REMOVE EXISTING COMMUNICATIONS CABLE MOUNTING HARDWARE FROM WOOD POLE
- 51 INSTALL CABLE STORAGE RACK(S) [SNOW SHOE(S)] AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKER
- 53 STORE 30 FEET OF COMMUNICATIONS CABLE (EACH CABLE)

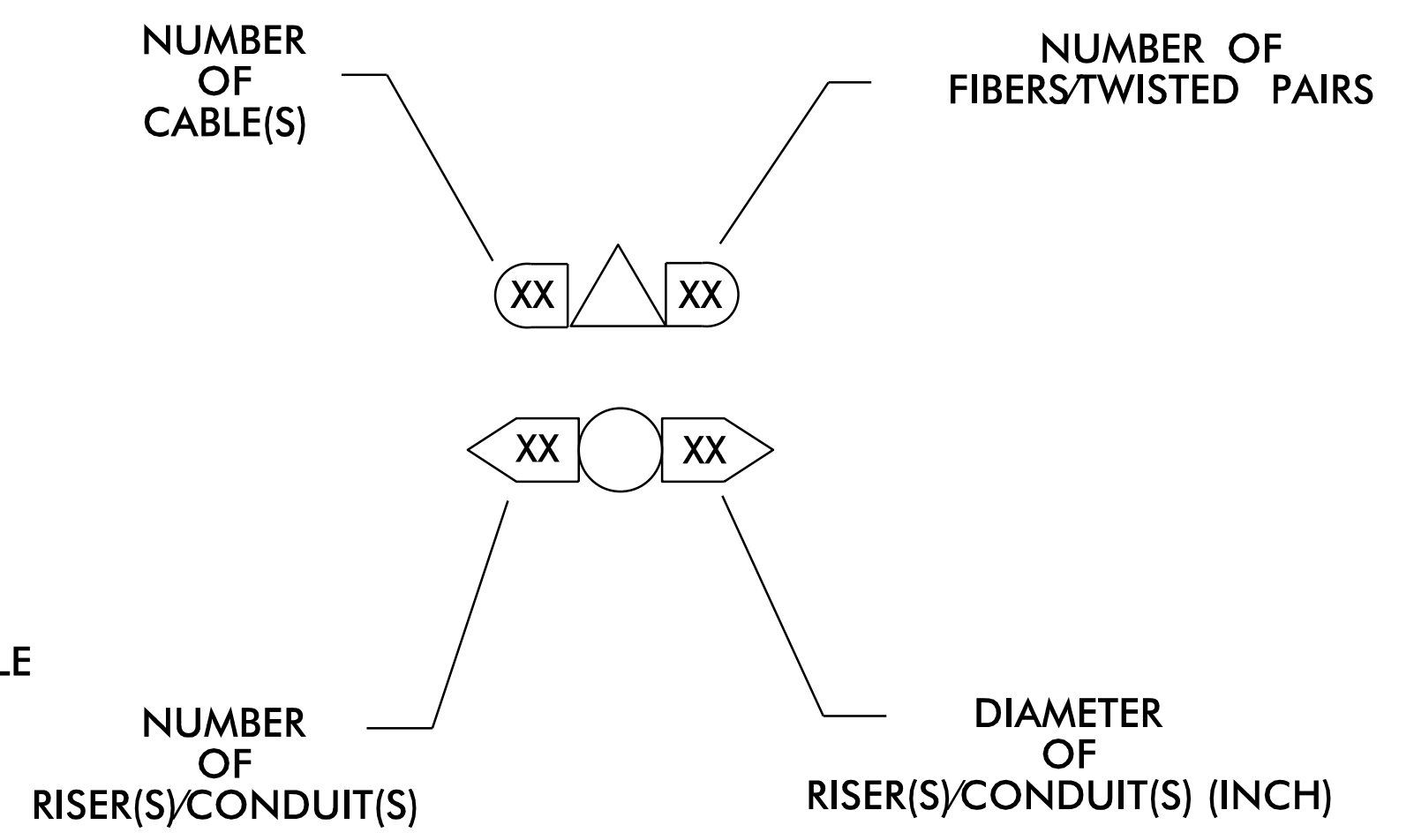
- 54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE
- 55 LASH CABLE(S) TO EXISTING MESSENGER CABLE
- 56 DELASH EXISTING FIBER OPTIC CABLE AND RELOCATE/LASH TO NEW MESSENGER CABLE
- 57 MODIFY EXISTING ELECTRICAL SERVICE FOR CCTV / HUB
- 58 INSTALL NEW ELECTRICAL SERVICE FOR CCTV
- 59 INSTALL NEW POLE MOUNTED CCTV CABINET
- 60 INSTALL BASE-MOUNTED HUB CABINET
- 61 INSTALL UNI-DIRECTIONAL ANTENNA
- 62 INSTALL OMNI-DIRECTIONAL ANTENNA
- 63 INSTALL ETHERNET RADIO
- 64 INTERCEPT AND REROUTE EXISTING CONDUITS

**LEGEND**

- FD 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
- NEW CONDUIT
- EXISTING CONDUIT
- DD NEW DIRECTIONAL DRILLED CONDUIT
- B&J NEW BORED AND JACKED CONDUIT
- NEW JUNCTION BOX
- EXISTING JUNCTION BOX
- NEW WOOD POLE
- EXISTING WOOD POLE
- NEW AERIAL SPlice ENCLOSURE
- NEW METAL POLE
- EXISTING METAL POLE
- NEW CCTV CAMERA ASSEMBLY
- NEW STANDARD GUY ASSEMBLY
- NEW STANDARD GUY USING EXISTING ANCHOR
- NEW SIDEWALK GUY ASSEMBLY
- NEW CABLE STORAGE RACKS (SNOW SHOES)
- EXISTING CABLE STORAGE RACKS (SNOW SHOES)
- EXISTING CONTROLLER AND CABINET
- EXISTING SPlice CABINET
- NEW SPlice CABINET
- SP SIGNAL POLE
- XX-XXXX SIGNAL INVENTORY NUMBER

**CONSTRUCTION NOTE SYMBOLOGY KEY**

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



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Prepared for the Offices of:  
 Mobility and Safety Division  
 State of North Carolina  
 Department of Transportation  
 750 N. Greenfield Pkwy, Garner, NC 27529  
 SCALE  
 N.T.S.

US 19-23-74A (Patton Avenue) at NC 63 (New Leicester Highway)  
 Construction Notes and Legend  
 Division 13 Buncombe County Asheville  
 PLAN DATE: April 2018 REVIEWED BY: E D Harris  
 PREPARED BY: G B Spell REVIEWED BY: L Overn

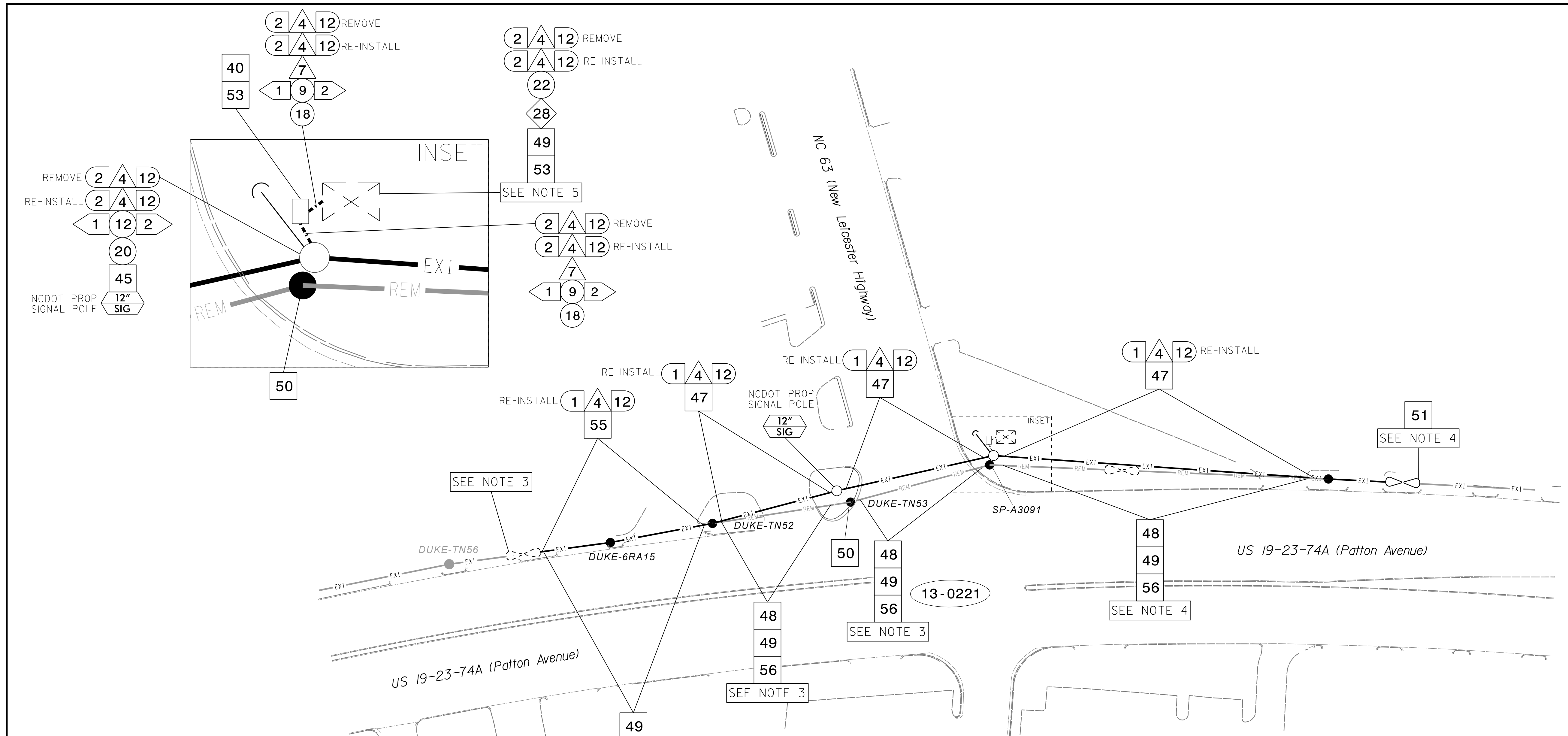
REVISIONS	INIT.	DATE

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SEAL  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 E. D. HARRIS  
 045933  
 4/6/2018  
 DATE

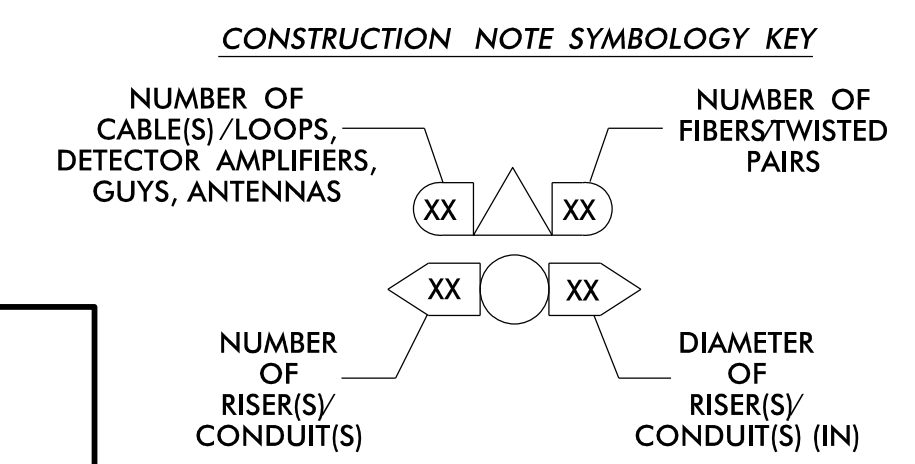
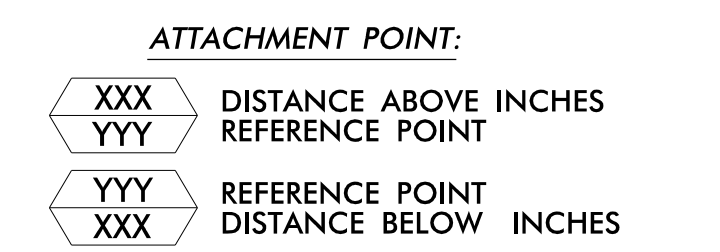
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- NOTES:**
- UNLESS OTHERWISE NOTED:
    - ATTACH NEW MESSENGER CABLE 40" BELOW POWER.
    - ATTACH ON FRONT SIDE (FS) OF POLE.
  - SEAL ALL CONDUIT ENDS WITH DUCT AND CONDUIT SEALER, AT ALL JUNCTION BOX / CABINET ENTRANCES.
  - CONTRACTOR MUST DISCONNECT THE EXISTING 12 SMFO FIBER-OPTIC CABLE AND PULL BACK TO CABLE STORAGE RACKS SHOWN. USING THE EXTRA CABLE STORED IN THE STORAGE RACKS, INSTALL NEW MESSENGER CABLE, AND REINSTALL EXISTING 12 SMFO CABLE AS SHOWN.
  - CONTRACTOR MUST DISCONNECT THE EXISTING 12 SMFO FIBER-OPTIC CABLE AND PULL BACK TO NEW CABLE STORAGE RACKS AS SHOWN. USING THE EXTRA CABLE STORED IN THE STORAGE RACKS, INSTALL NEW MESSENGER CABLE, AND REINSTALL EXISTING 12 SMFO CABLE AS SHOWN.
  - CONTRACTOR MUST DISCONNECT EXISTING 12 SMFO FIBER-OPTIC CABLE FROM SPlice TRAY IN SIGNAL CABINET AND PULL BACK TO CABLE STORAGE RACKS AS SHOWN BEFORE REINSTALLING AND RESPLICING THE CABLE.

1. INSTALL REA, PE - 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE	13. REMOVE EXISTING RISER SEAL/WEATHERHEAD AND APPLY HEAT SHRINK TUBING	25. INSTALL NEW RISER INTO POLE MOUNTED CABINET	37. INSTALL CCTV WOOD POLE	49. BACK-PULL EXISTING COMMUNICATIONS CABLE	61. INSTALL UNI-DIRECTIONAL ANTENNA
2. INSTALL REA, PE - 38, (FIGURE - 8) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE	14. INSTALL POLYETHYLENE CONDUIT	26. INSTALL DIGITAL VIDEO ENCODER DEVICE SERVER	38. INSTALL CCTV CAMERA METAL POLE AND FOUNDATION	50. REMOVE EXISTING COMMUNICATIONS CABLE MOUNTING HARDWARE FROM WOOD POLE	62. INSTALL OMNI-DIRECTIONAL ANTENNA
3. INSTALL CATEGORY 5E CABLE	15. DIRECTIONAL DRILL CONDUIT	27. INSTALL NEW ETHERNET EDGE SWITCH IN CABINET	39. INSTALL SPECIAL-SIZED JUNCTION BOX	51. INSTALL CABLE STORAGE GUIDE(S) [SNOW SHOE(S)] AND STORE 100 FEET OF EACH CABLE	63. INSTALL ETHERNET RADIO
4. INSTALL SMFO CABLE	16. BORE AND JACK CONDUIT	28. INSTALL INTERCONNECT CENTER, PATCH PANEL JUMPERS, AND FUSION SPlice CABLE IN CABINET	40. INSTALL OVER-SIZED JUNCTION BOX	52. INSTALL DELINEATOR MARKER	64. INTERCEPT AND REROUTE EXISTING CONDUITS
5. INSTALL COAXIAL ANTENNA CABLE	17. INSTALL CABLE(S) IN EXISTING CONDUIT	29. INSTALL UNDERGROUND SPlice ENCLOSURE	41. REMOVE EXISTING JUNCTION BOX	53. STORE 30 FEET OF COMMUNICATIONS CABLE (EACH CABLE)	
6. INSTALL FIBER-OPTIC DROP CABLE ASSEMBLY	18. INSTALL CABLE(S) IN NEW CONDUIT	30. INSTALL AERIAL SPlice ENCLOSURE	42. INSTALL WOOD POLE	54. LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE	
7. INSTALL TRACER WIRE	19. INSTALL CABLE(S) IN EXISTING RISER(S)	31. INSTALL POLE MOUNTED SPlice CABINET	43. REMOVE EXISTING WOOD POLE	55. LASH CABLE(S) TO EXISTING MESSENGER CABLE	
8. INSTALL CONDUIT UNDERGROUND	20. INSTALL CABLE(S) IN NEW RISER(S)	32. MODIFY EXISTING SPlice ENCLOSURE OR INTERCONNECT CENTER	44. INSTALL AERIAL GUY ASSEMBLY	56. DELASH EXISTING FIBER OPTIC CABLE AND RELOCATE/LASH TO NEW MESSENGER CABLE	
9. INSTALL PVC CONDUIT	21. INSTALL CABLE(S) IN EXISTING CABINET ENTRANCE	33. REMOVE EXISTING SPlice CABINET	45. INSTALL STANDARD GUY ASSEMBLY	57. MODIFY EXISTING ELECTRICAL SERVICE FOR CCTV/HUB	
10. INSTALL RIGID, GALVANIZED STEEL CONDUIT	22. INSTALL NEW CONDUIT INTO CABINET BASE (USE EXISTING CABINET ENTRANCE WHEN AVAILABLE)	34. INSTALL CABINET FOUNDATION	46. INSTALL SIDEWALK GUY ASSEMBLY	58. INSTALL NEW ELECTRICAL SERVICE FOR CCTV	
11. INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD	23. INSTALL NEW RISER INTO CABINET BASE (USE EXISTING CABINET ENTRANCE WHEN AVAILABLE)	35. REMOVE EXISTING CABINET FOUNDATION	47. INSTALL MESSENGER CABLE	59. INSTALL NEW POLE MOUNTED CCTV CABINET	
12. INSTALL RIGID, GALVANIZED STEEL RISER WITH HEAT SHRINK TUBING	24. INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET	36. INSTALL CCTV CAMERA ASSEMBLY	48. REMOVE EXISTING (OLD) MESSENGER CABLE	60. INSTALL BASE-MOUNTED HUB CABINET	



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 801 Jones Franklin Road Fax. (919) 851-7024  
 Suite 300 www.stantec.com  
 Raleigh, NC 27606 License No. F-0672

Prepared for the Offices of:  
 Division 13 US 19-23-74A (Patton Avenue) at NC 63 (New Leicester Highway)  
 Buncombe County Asheville

**Cable Routing Plans**

PLAN DATE: April 2018 REVIEWED BY: E D Harris  
 PREPARED BY: G B Spell REVIEWED BY: L Overn

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE: 1" = 40'

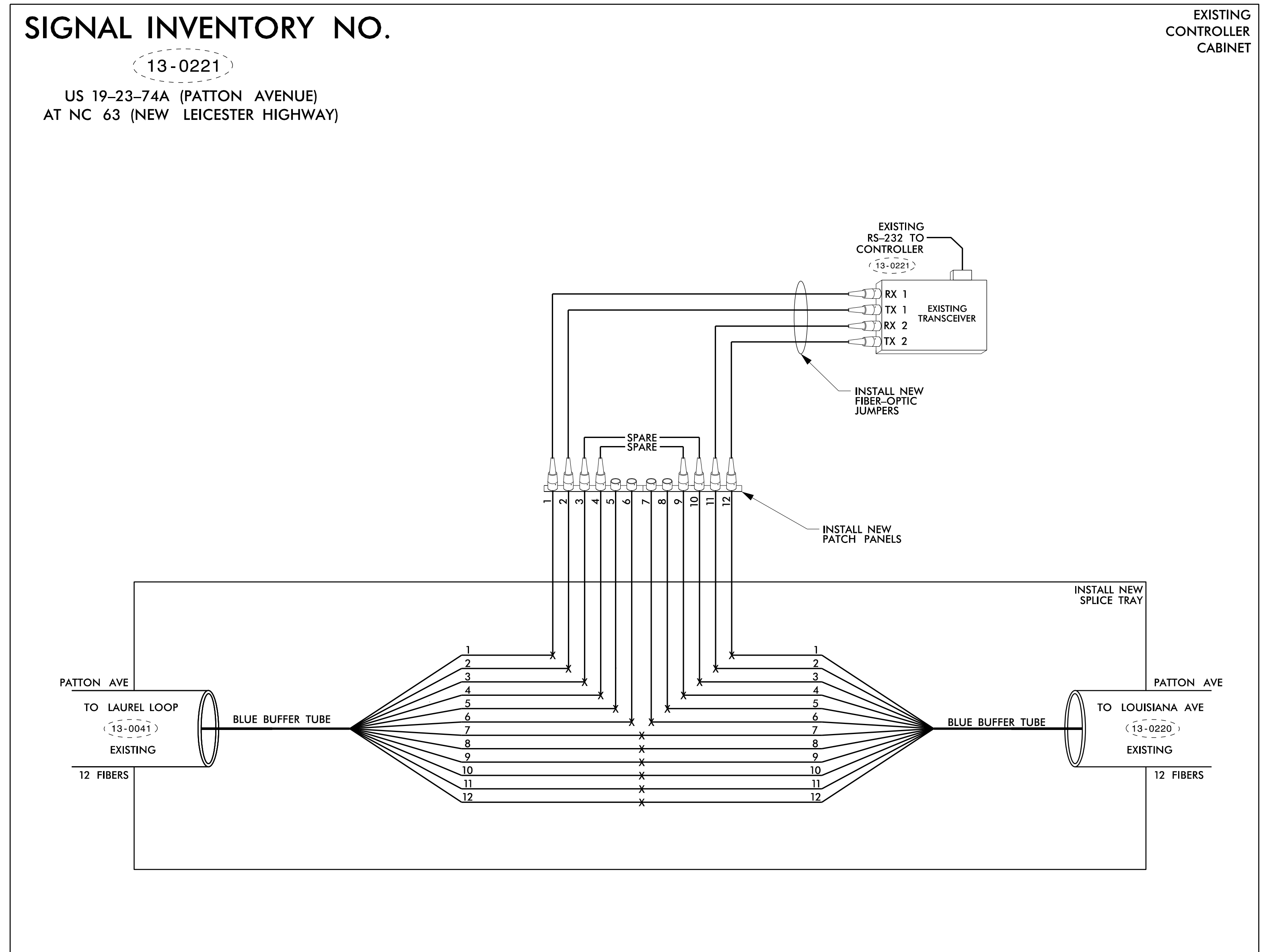
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SEAL  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 SEAL 045933  
 LAWRENCE E. OVERN, P.E.  
 4/6/2018  
 DATE

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- ### NOTES
- UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
  - UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.
  - EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
  - NOTIFY THE NCDOT DEPUTY DIVISION TRAFFIC ENGINEER AT 828-298-0094 FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL ARRANGE FOR NCDOT TO REPROGRAM THE EXISTING FIELD ETHERNET SWITCH WITH THE NECESSARY NETWORK CONFIGURATION DATA IN THE EVENT THAT THE PROGRAMMING IS LOST DURING CONSTRUCTION. NOTIFY THE DEPUTY DIVISION TRAFFIC ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE CLOSED LOOP SYSTEM IS BACK UP AND OPERATIONAL.
  - CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISONS TO THE SUPPLIED SPLICE DETAILS IF DISCREPANCIES EXIST CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
  - INCLUDE ON THE COVER OF SPLICE TRAY THE FOLLOWING INFORMATION (REFERENCE STANDARD SPECIFICATIONS SECTION 1731):
    - A. SPLICE LOCATION
    - B. DATE
    - C. COMPANY NAME
    - D. NAME OF INDIVIDUAL PERFORMING THE SPLICE
 PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A-D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS

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 License No. F-0672

Prepared for the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE  
**N.T.S.**

US 19-23-74A (Patton Avenue) at  
 NC 63 (New Leicester Highway)

Fiber Optic Splice Details

Division 13	Buncombe County	Asheville
PLAN DATE: April 2018	REVIEWED BY: E D Harris	
PREPARED BY: G B Spell	REVIEWED BY: L Overn	
REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

Lawrence E. Overn  
 PROFESSIONAL ENGINEER  
 License No. 045933

DocuSigned by: *[Signature]* 4/27/2018  
 DATE

CADD File name: U-5971A-scp4.dgn

### LEGEND

COLOR CODE TIA/EIA 598-B	
(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

E =	EXISTING FUSION SPLICE INDIVIDUAL FIBER TO REMAIN
X =	FUSION SPLICE INDIVIDUAL FIBER
C =	CAP AND SEAL
	EXPRESS ENTIRE BUFFER TUBE/FIBERS THROUGH WITHOUT CUTTING
	SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR
	SM FIBER PATCH CORD WITH CONNECTORS

(13-XXXX) = EXISTING CABINET/CONTROLLER

1:15:58 PM  
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# CROSS SECTION INDEX

<u>ROADWAY</u>	<u>STATION</u>	<u>TO</u>	<u>STATION</u>	<u>SHEET NO.</u>
CROSS SECTION INDEX				X-1
CROSS SECTION SUMMARY				X-1A
-L- PATTON AVE	34 + 00.00		46 + 00.00	X-2 - X-6
-Y- NEW LIECESTER HWY	28 + 89.32		35 + 00.00	X-7 - X-11

## STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

### CROSS-SECTION SUMMARY

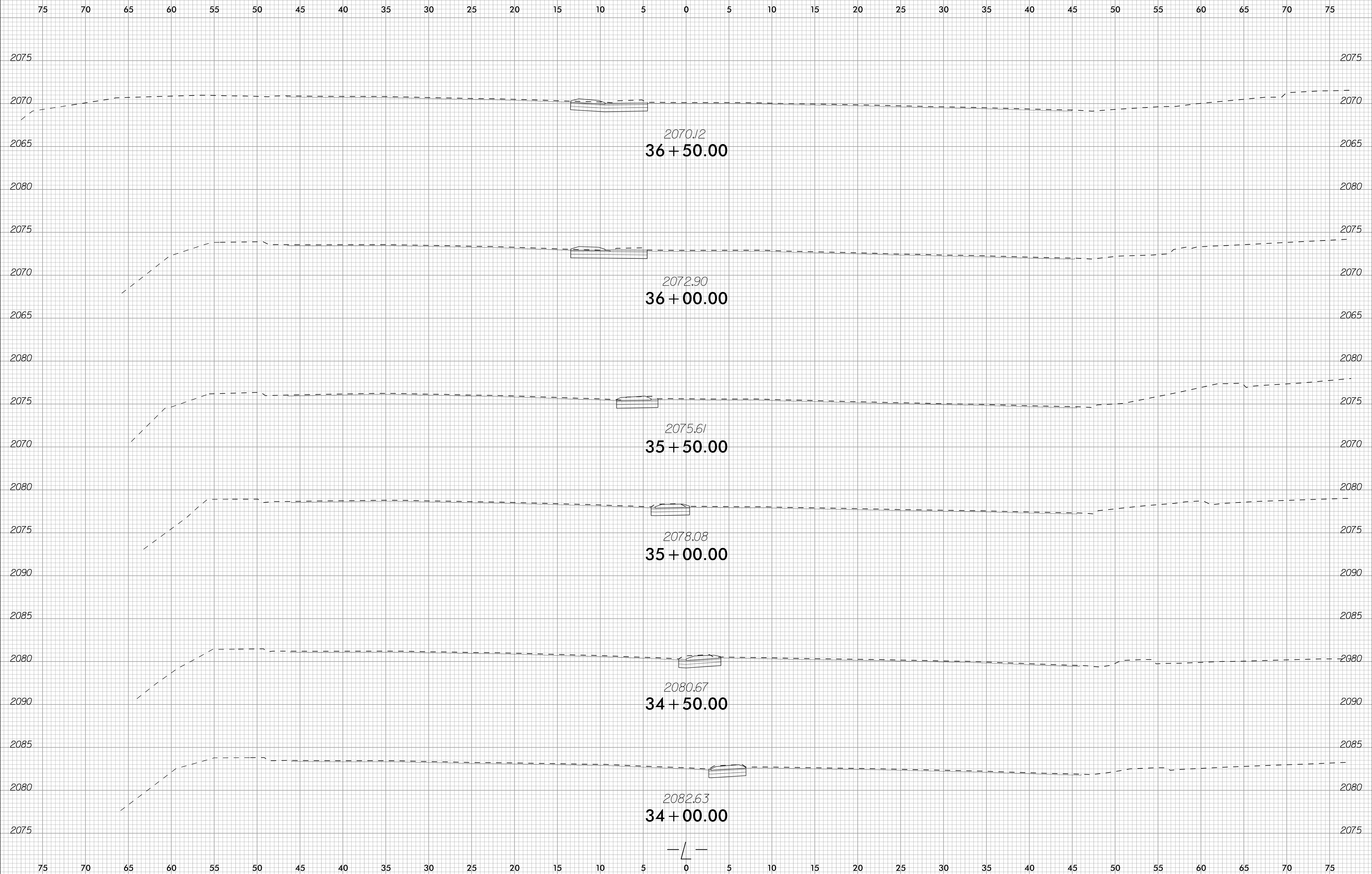
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34+50.00	11	0	29+50.00	17	0
35+00.00	11	0	30+00.00	22	0
35+50.00	11	0	30+50.00	21	0
36+00.00	14	0	30+80.00	12	0
36+50.00	18	0	31+00.00	8	0
37+00.00	19	0	31+25.00	10	0
37+50.00	19	0	31+50.00	10	0
38+00.00	19	0	31+65.00	6	0
38+50.00	19	0	32+00.00	13	0
39+00.00	19	0	32+25.00	9	0
39+50.00	19	0	32+50.00	9	0
40+00.00	19	0	33+00.00	19	0
40+50.00	19	0	33+50.00	16	0
41+00.00	18	0	34+00.00	25	0
			34+20.00	13	0
			34+50.00	18	0

Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, removal of concrete island, and removal of existing pavement will be paid for at the lump sum price for "Grading".

Earthwork quantities are calculated by the Roadway Design Unit.

\*This quantity includes both the earth material and island removal along -L-.

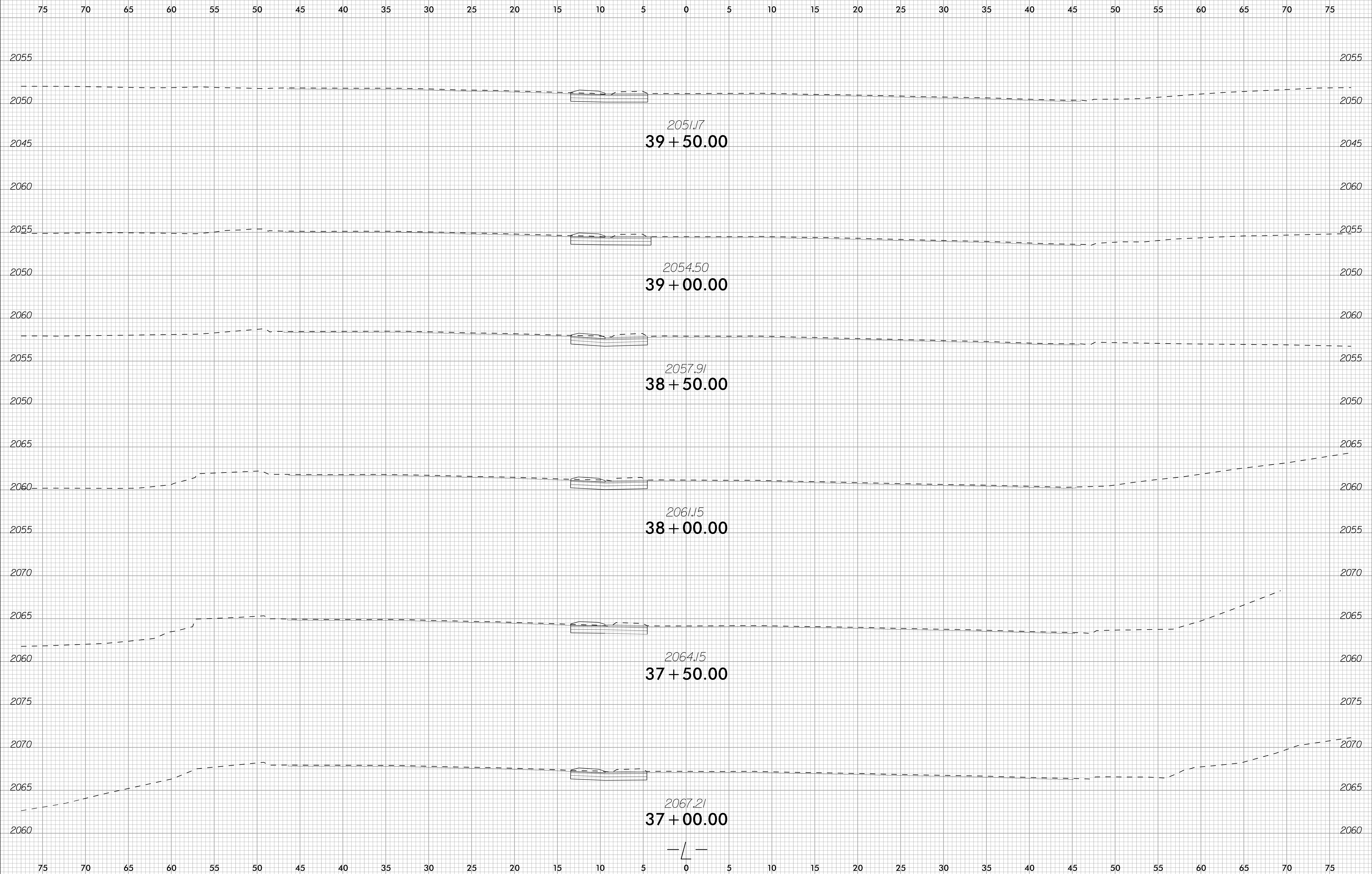




6/23/16



PROJ. REFERENCE NO.	SHEET NO.
U-5971A	X-3



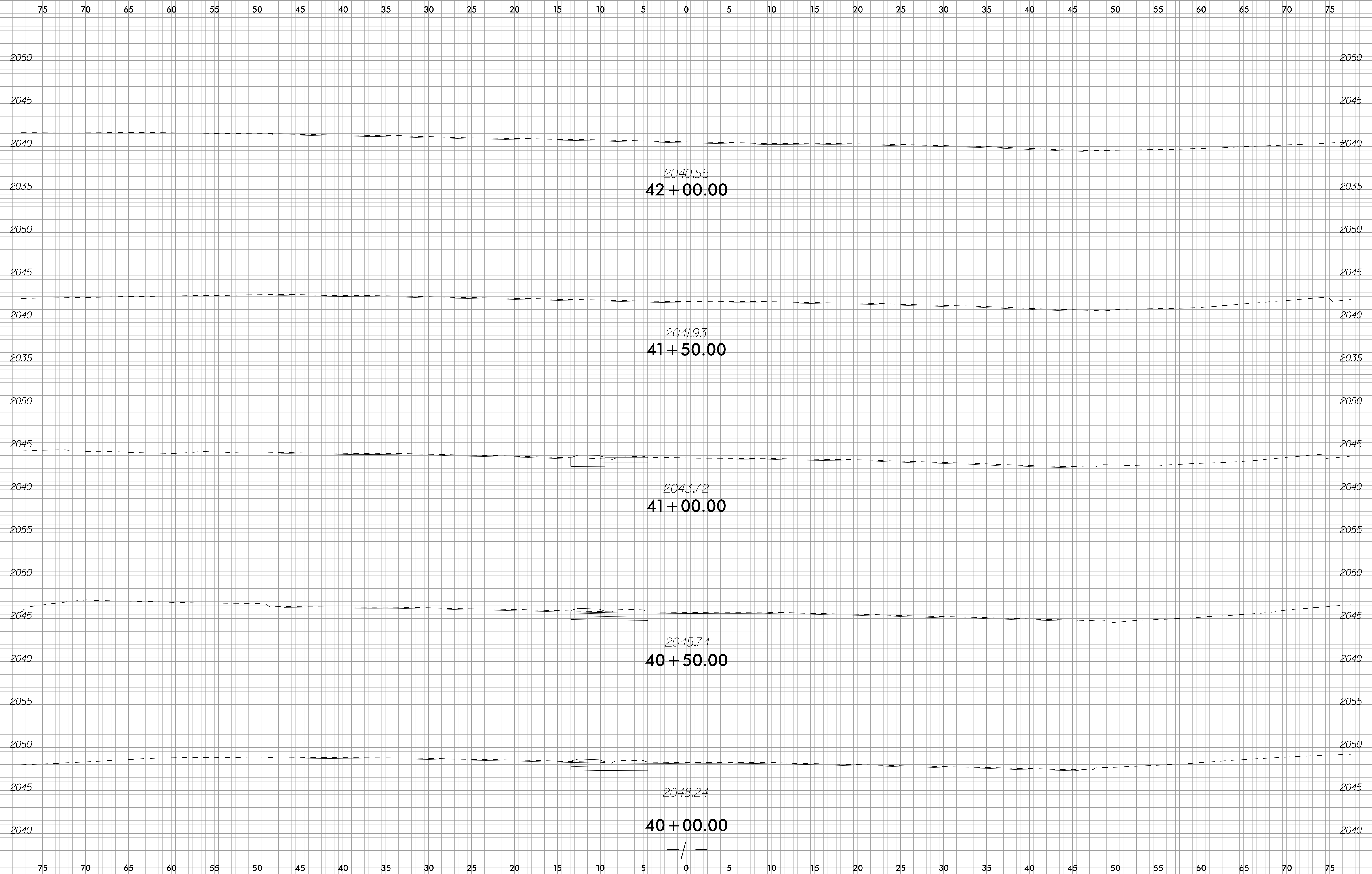
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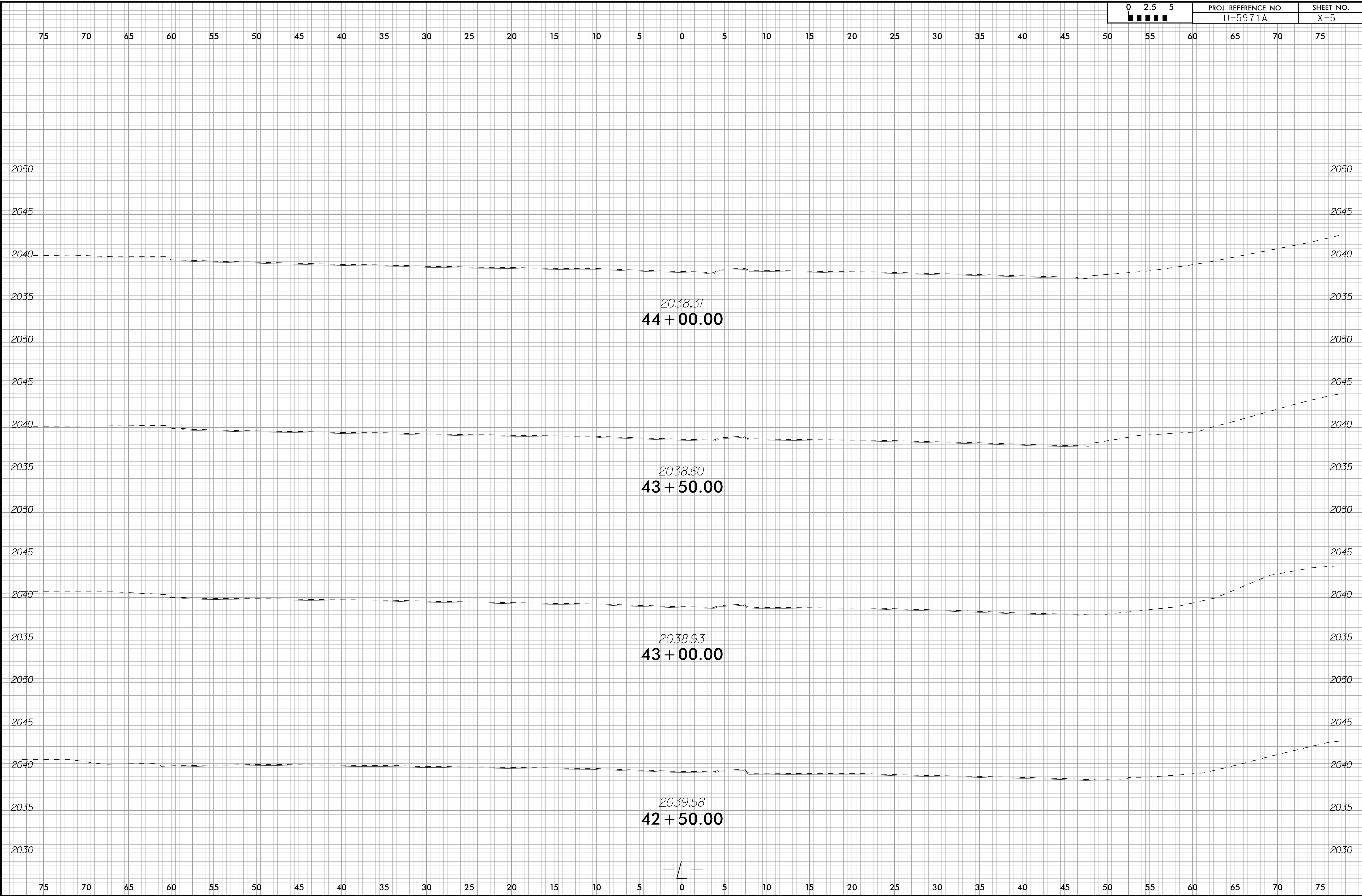
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PROJ. REFERENCE NO.	SHEET NO.
U-5971A	X-4



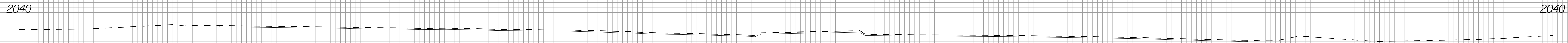
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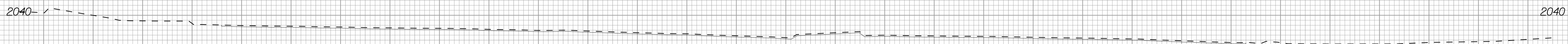


2040 2035 2030 2050 2045

2040 2035 2030 2050 2045

2040 2035 2030 2050 2045

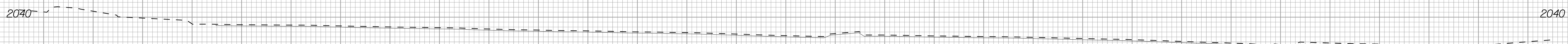
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2037.97

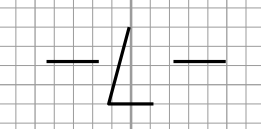
45 + 50.00

2037.75

45 + 00.00

2038.13

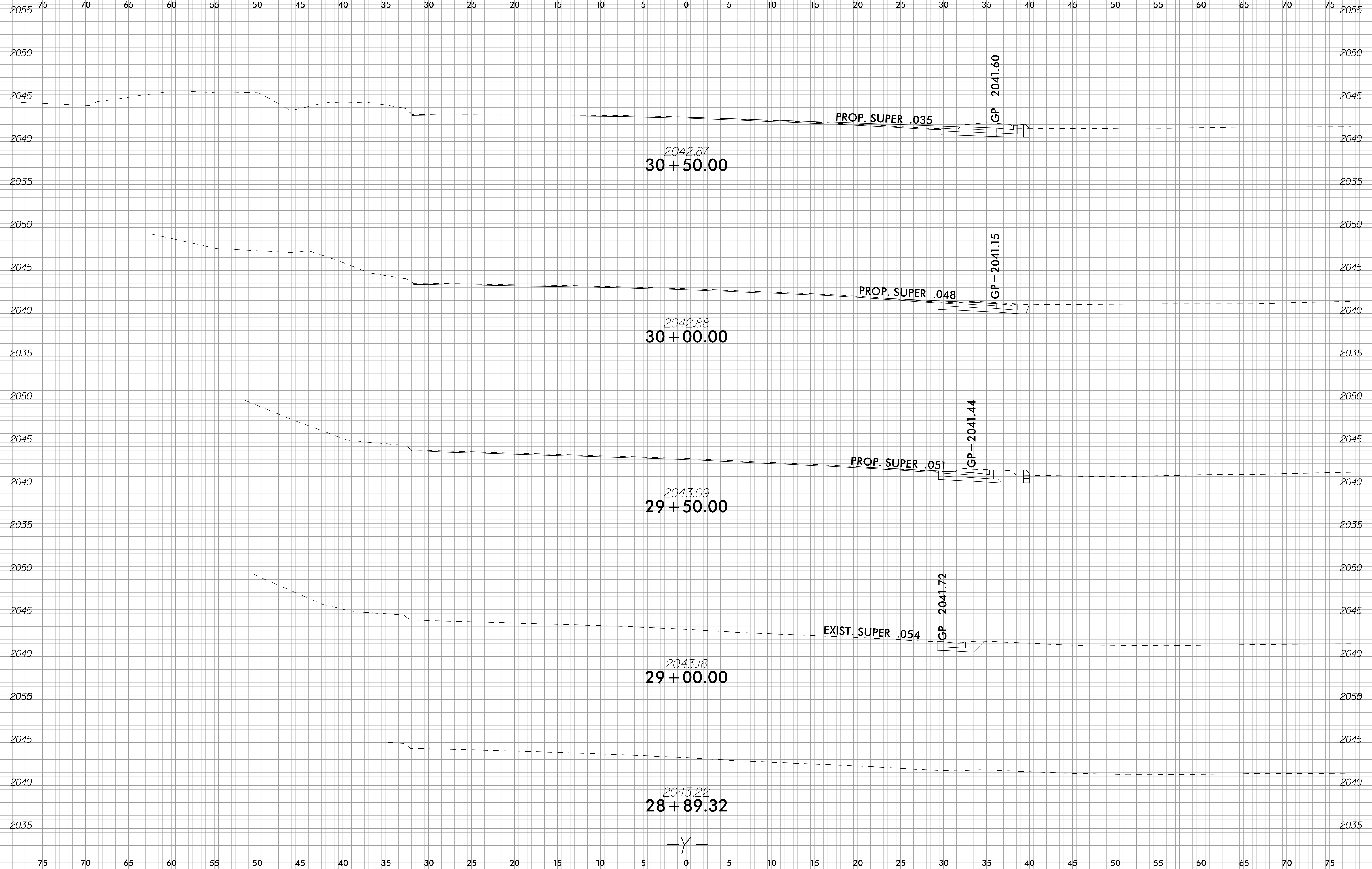
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6/23/16

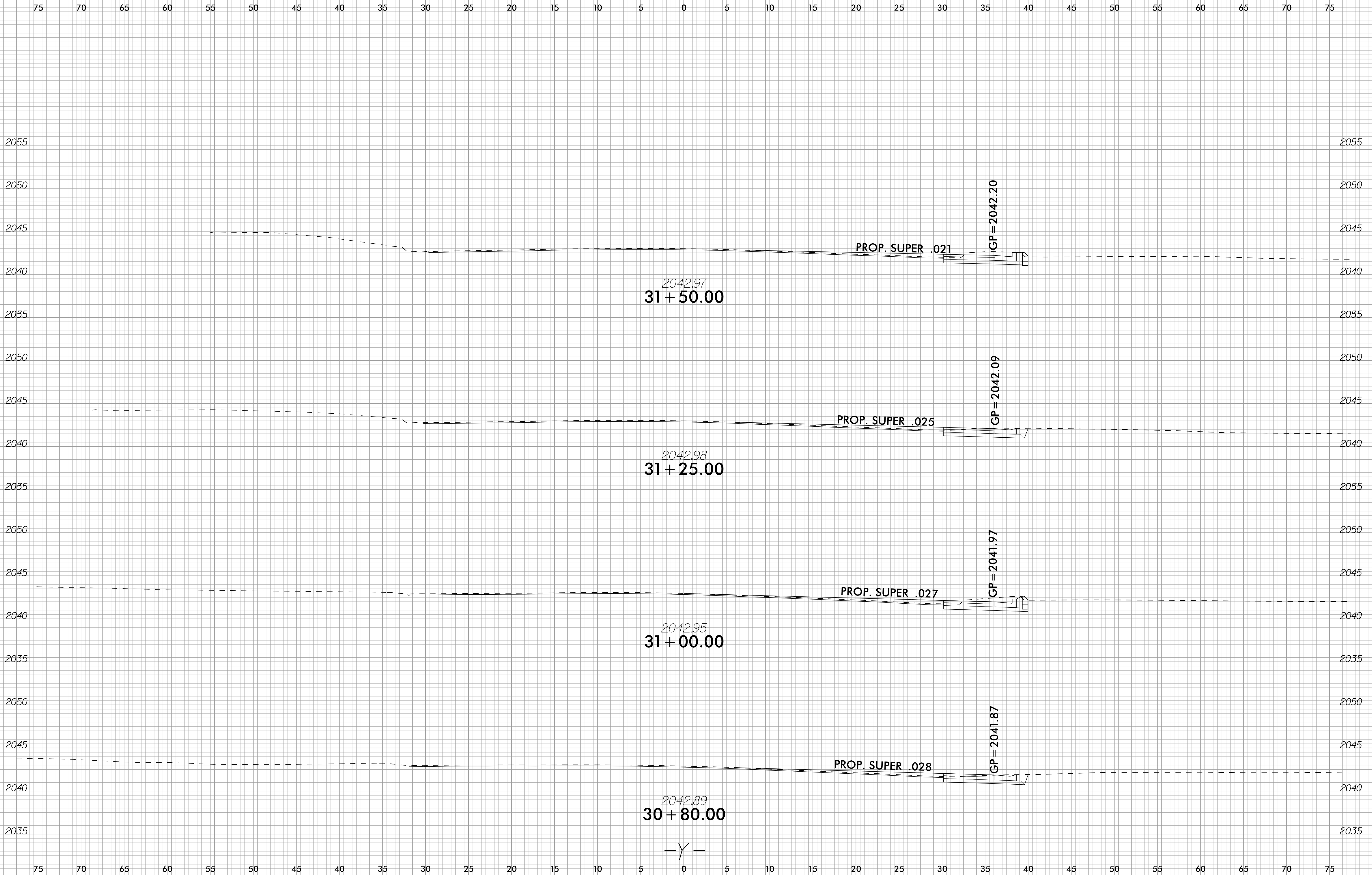


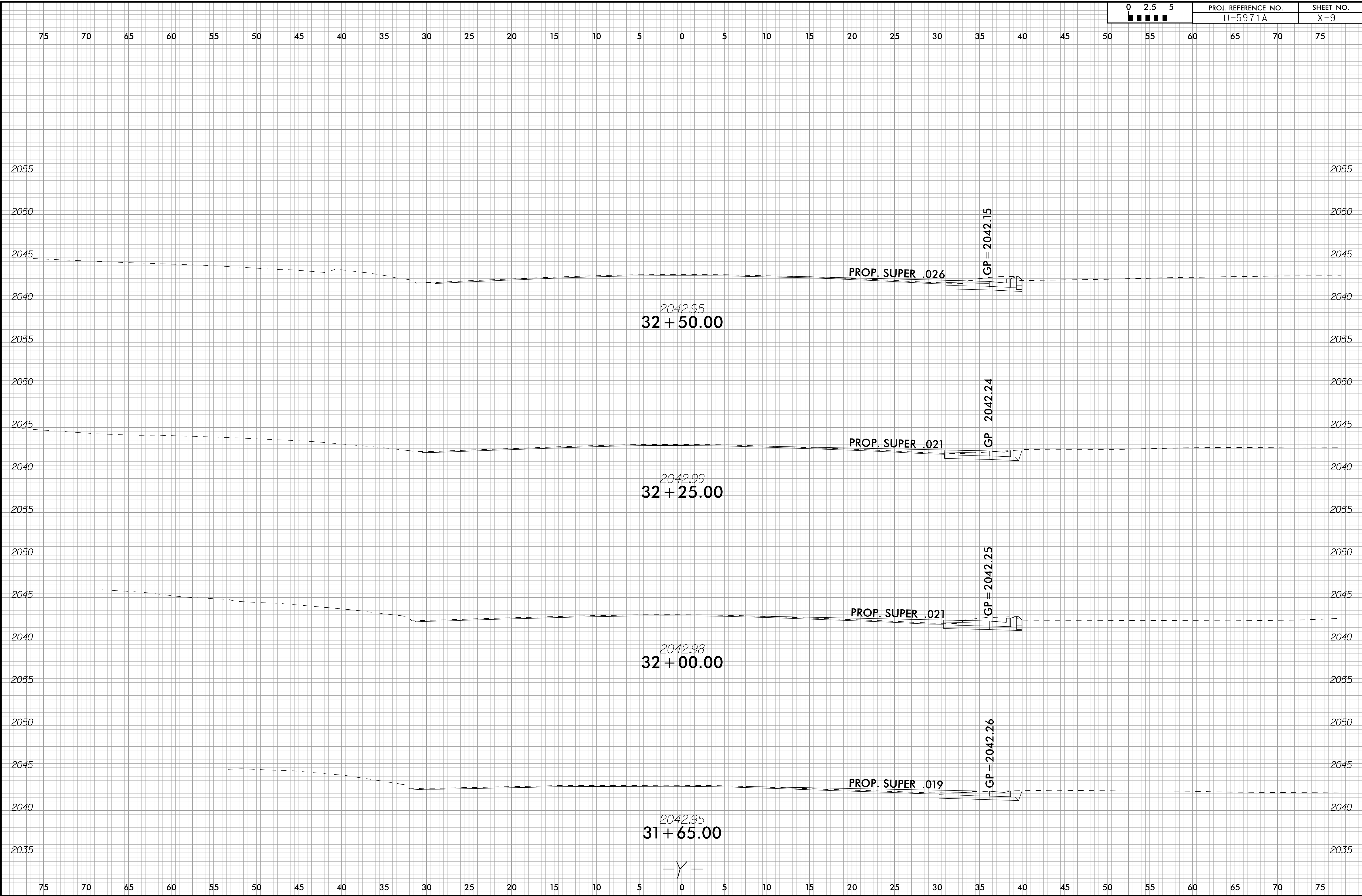
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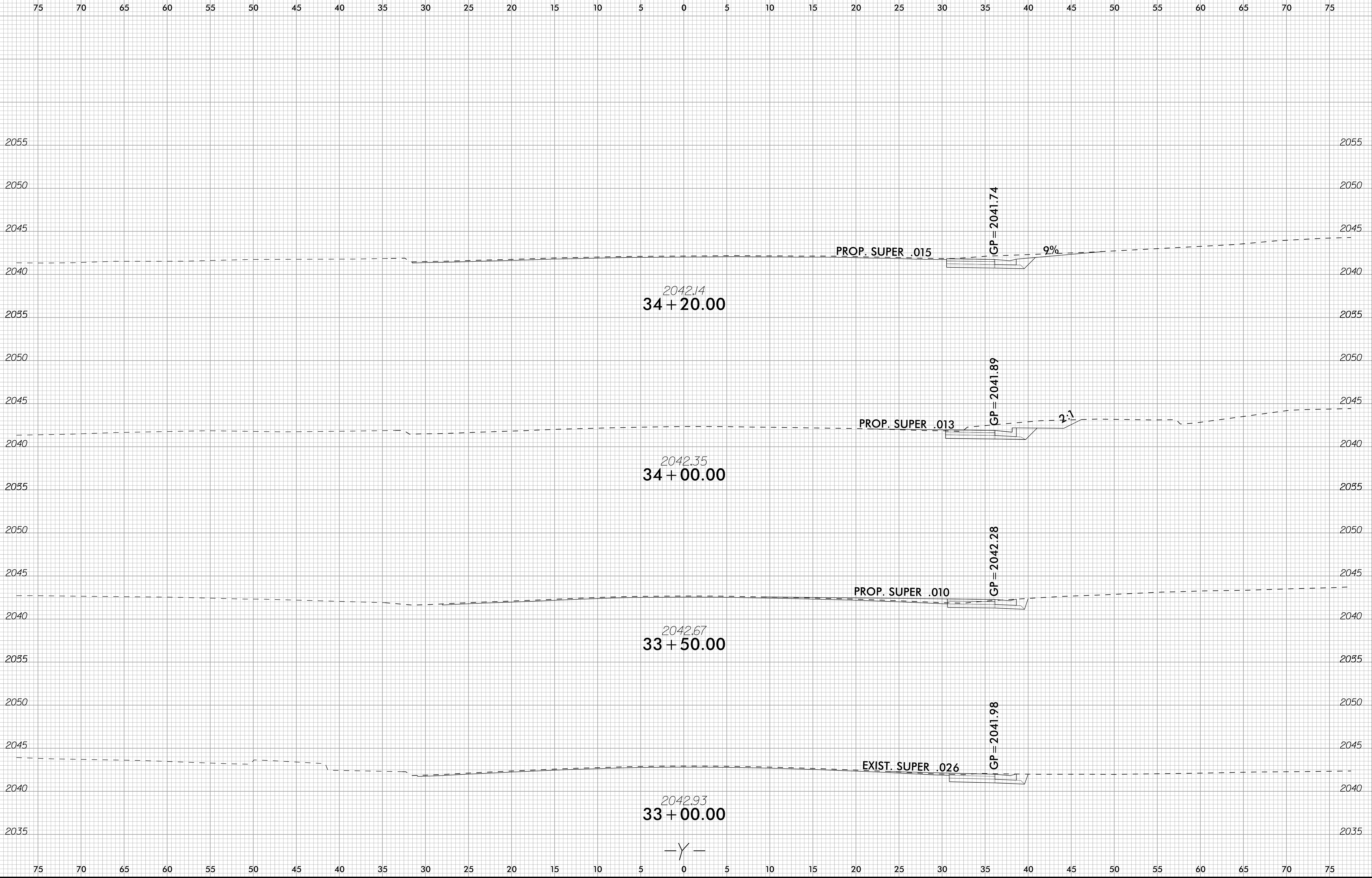
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 zachan1@cd













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

