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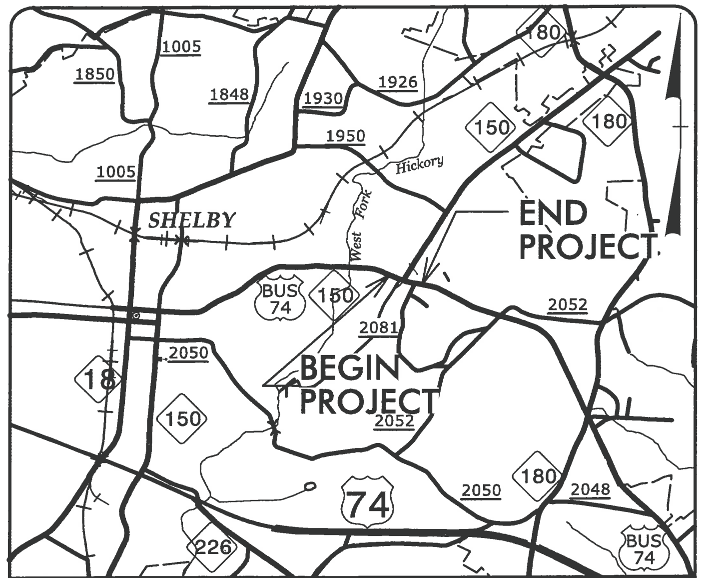
09/08/99

TIP PROJECT: U-5775

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

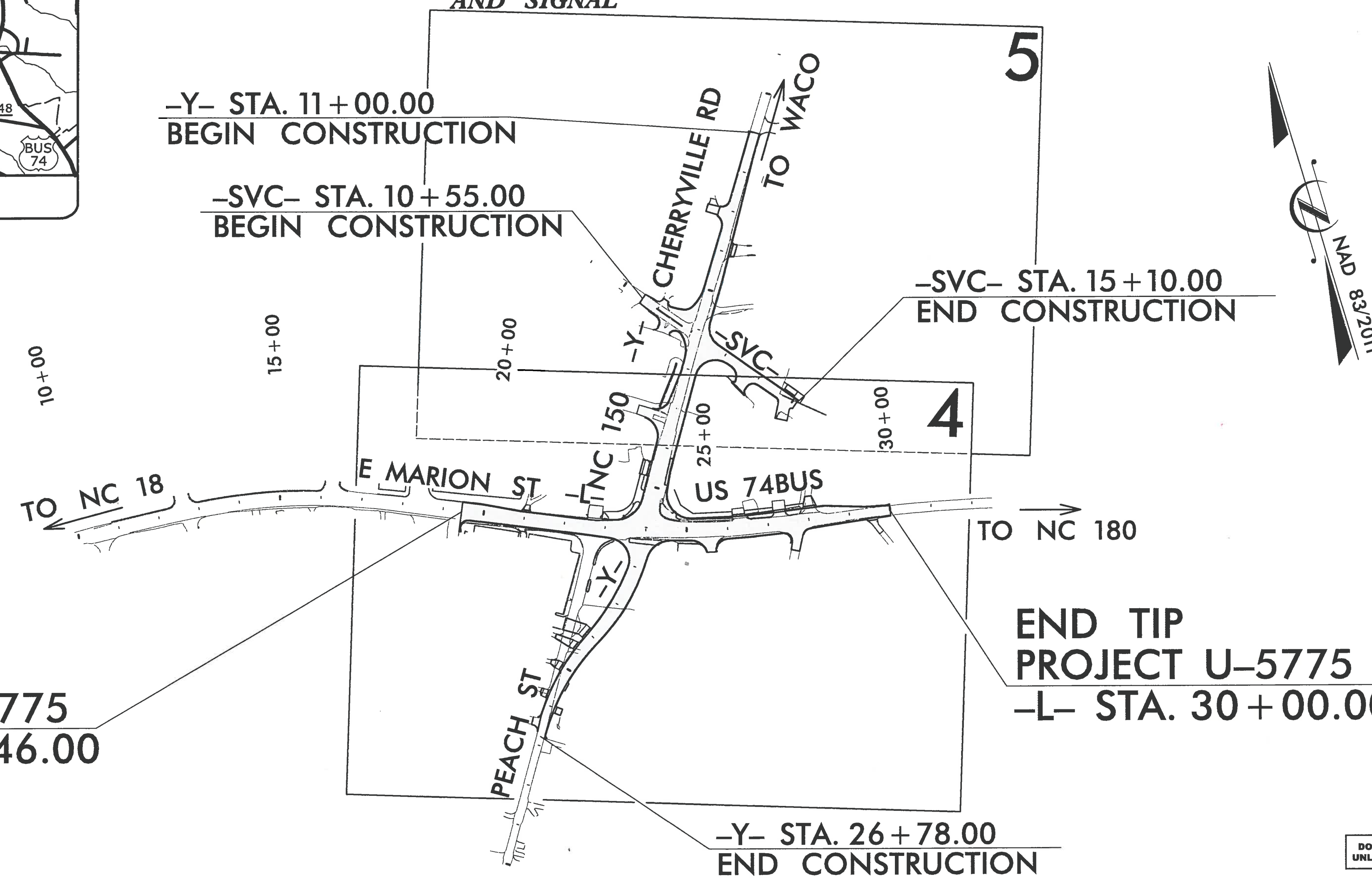
CLEVELAND COUNTY

LOCATION: REALIGN INTERSECTION OF US 74 BUS (MARION ST) AT NC 150 (CHERRYVILLE RD) AND PEACH ST

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB AND GUTTER AND SIGNAL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5775	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
50186.1.1	N/A	PE
50186.2.1	N/A	R/W, UTIL.
50186.3.1	N/A	CONST.



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CONTRACT: DL00285

3/20/2019
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User:smelvin

GRAPHIC SCALES

50 25 0 50 100 — PLANS
50 25 0 50 100 — PROFILE (HORIZONTAL)
10 5 0 10 20 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2015 = 17,000
ADT 2040 = 21,600
K = 7 %
D = 60 %
T = 3 % *
V = 40 MPH
* TTST =1% DUAL 2%
FUNC CLASS = URBAN COLLECTOR REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5775 = 0.200 MILES
TOTAL LENGTH TIP PROJECT U-5775 = 0.200 MILES

NCDOT CONTACT: BRYAN SOWELL, PE

PLANS PREPARED BY:
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PLANS PREPARED FOR:
NORTH CAROLINA DEPARTMENT OF TRANSPORATION
DIVISION 12
1710 E. MARION ST
Shelby, NC 28151

RIGHT OF WAY DATE:
NOVEMBER 1, 2017

LETTING DATE:
January 10, 2023

2018 STANDARD SPECIFICATIONS

JIMMY L. TERRY, PE
PROJECT ENGINEER

SANDRA G. MELVIN
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
3/25/2019
David B. Petty
P.E.
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 038697 ENGINEER DAVID B. PETTY

ROADWAY DESIGN ENGINEER
3/25/2019
Jimmy Terry
P.E.
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5775	1-A

ROADWAY DESIGN ENGINEER

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INDEX OF SHEETS

GENERAL NOTES

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

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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 II.

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.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, BROADPLEX, SPECTRUM, AT&T, MCNC, CITY OF SHELBY GAS/POWER/WATER/SEWER, AND RST COMMUNICATION

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS.
CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

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 II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
815.02	Subsurface Drain
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
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
852.01	Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets

3/20/2019
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04/06/15

PROJECT REFERENCE NO.	SHEET NO.
U-5775	1-B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- 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
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- 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 — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

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
- 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 — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- 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 — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- 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 — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- 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:

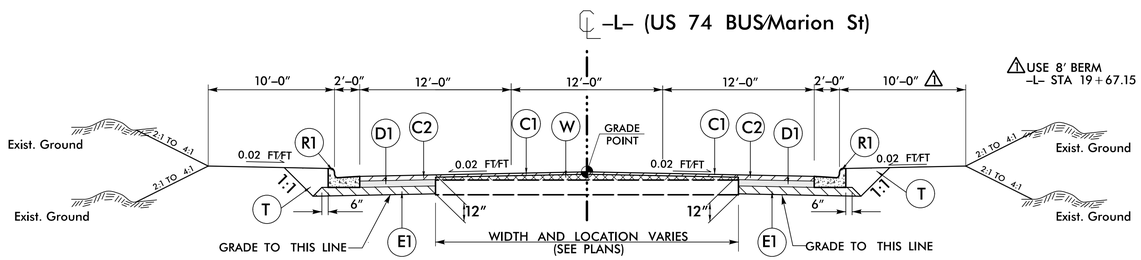
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)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

6/2/99

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 ½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
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" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	8" X 12" CONCRETE CURB
R3	5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED)
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING EXISTING PAVEMENT, SEE SHEET 2A-2 FOR DETAIL
W	WEDGING EXISTING PAVEMENT, SEE THIS SHEET FOR DETAILS
Y1	4" CONCRETE WITH WELDED WIRE MESH

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



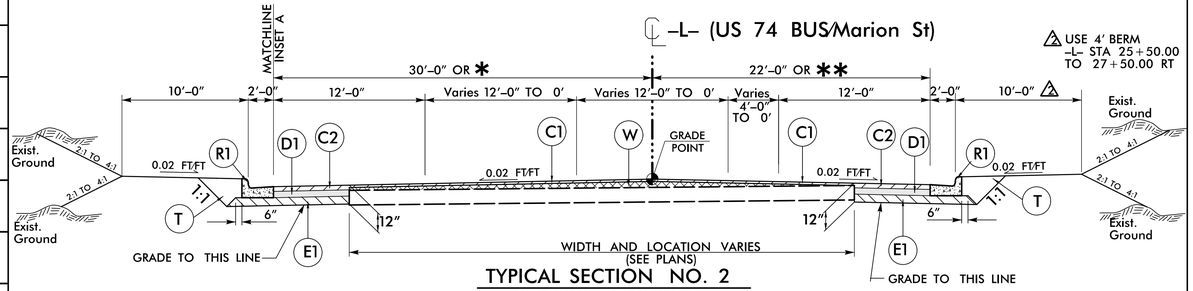
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

–L– STA. 19+67.15 TO –L– STA. 22+30.00 RT
–L– STA. 20+90.00 TO –L– STA. 23+96.13 LT

NOTE: TRANSITION BETWEEN EXISTING AND TYP. SECT. NO. 1

–L– STA. 19+46.00 TO –L– STA. 19+67.15 RT
–L– STA. 19+46.00 TO –L– STA. 20+90.00 LT

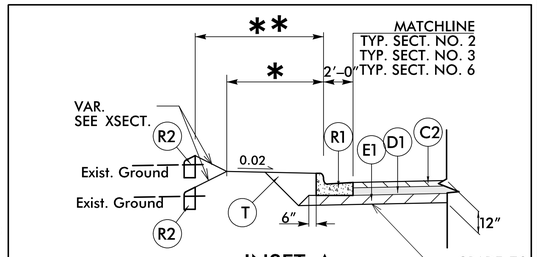


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

–L– STA. 22+30.00 TO –L– STA. 30+00.00 RT
–L– STA. 23+96.13 TO –L– STA. 30+00.00 LT

✱	STA. TO STA.
30′–0″	–L– STA. 23+96.13 TO –L– STA. 27+67.00 LT
30′–0″ TO 12′–0″	–L– STA. 27+67.00 TO –L– STA. 29+40.00 LT
12′–0″ TO EXISTING	–L– STA. 29+40.00 TO –L– STA. 30+00.00 LT
✱✱	
18′–0″ TO 22′–0″	–L– STA. 22+30.00 TO –L– STA. 23+30.00 RT
22′–0″	–L– STA. 23+30.00 TO –L– STA. 26+74.00 RT
22′–0″ TO 12′–0″	–L– STA. 26+74.00 TO –L– STA. 29+27.00 RT
12′–0″ TO EXISTING	–L– STA. 29+27.00 TO –L– STA. 30+00.00 RT



INSET A

USE INSET A AS FOLLOWS:

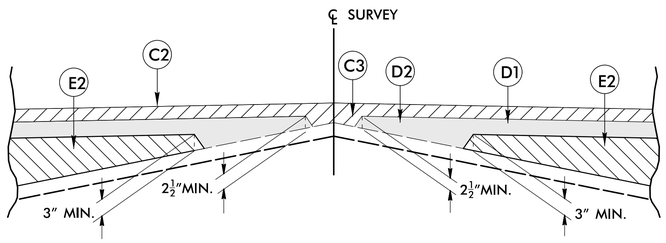
–L– STA. 22+90.98 TO –L– STA. 23+96.13 LT : ✱ = 18.5′ BERM
✱✱ = 18.5′

–L– STA. 23+96.13 TO –L– STA. 27+91.41 LT : ✱ = 8′ BERM
✱✱ = 10.5′

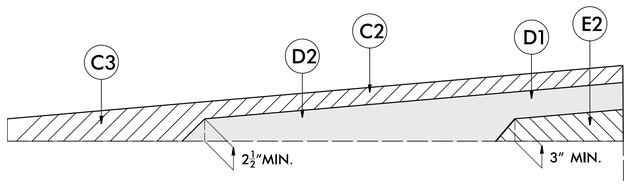
–Y– STA. 19+77.11 TO –Y– STA. 20+90.80 RT : ✱ = 18.5 BERM
✱✱ = 18.5′

–Y– STA. 19+93.84 TO –Y– STA. 20+90.80 LT : ✱ = 6′ BERM
✱✱ = VARIES

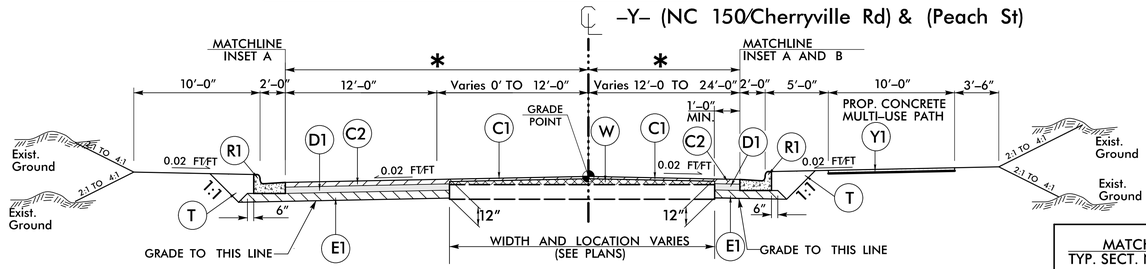
–SVC– STA. 14+58.09 TO –SVC– STA. 15+10.00 LT : ✱ = 6′ BERM
✱✱ = 8.5′



Detail Showing Method of Wedging



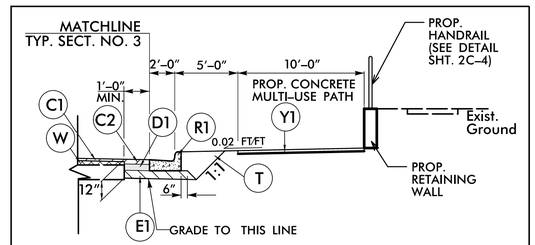
Wedging Detail For Resurfacing



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

✱	STA. TO STA.
12′–0″ TO EXISTING	–Y– STA. 11+00.00 TO –Y– STA. 11+51.00
12′–0″	–Y– STA. 11+51.00 TO –Y– STA. 17+10.00 RT –Y– STA. 25+06.06 TO –Y– STA. 26+28.00 RT
12′–0″ TO 24′–0″	–Y– STA. 11+51.00 TO –Y– STA. 14+71.00 LT –Y– STA. 17+10.00 TO –Y– STA 18+10.00 RT
24′–0″	–Y– STA. 14+71.00 TO –Y– STA. 20+90.80 LT –Y– STA. 18+10.00 TO –Y– STA. 20+90.80 RT
14′–7″ TO 12′–0″	–Y– 25+58.84 TO –Y– STA. 26+28.00 LT



INSET B

USE INSET B AS FOLLOWS:

–Y– STA. 16+95 +/– TO –Y– STA. 18+05 +/– RT

PROJECT REFERENCE NO.	SHEET NO.
U-5775	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 ENGINEER JIMMY L. TERRY
3/30/2019

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043888 ENGINEER BRYAN K.D. SOWELL
3/30/2019

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TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

3/30/2018
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User:sjne

PROJECT REFERENCE NO.	SHEET NO.
U-5775	2A-2

ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DocuSigned by: Jimmy Terry FD39F38882E94D0... NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY 3/25/2019	DocuSigned by: Bryan Sowell 79EABDC0D6EA4D1... NORTH CAROLINA PROFESSIONAL SEAL 043888 ENGINEER BRYAN K.D. SOWELL 3/27/2019

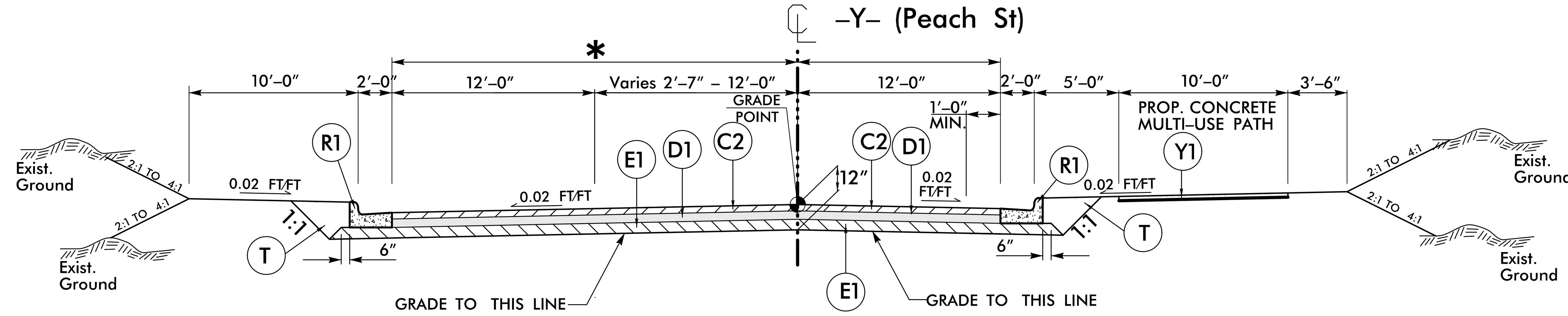
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 ½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C
R1	2'-6" CONCRETE CURB AND GUTTER.
R3	5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED)
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING EXISTING PAVEMENT, SEE THIS SHEET FOR DETAIL
W	WEDGING EXISTING PAVEMENT, SEE SHEET 2A-1 FOR DETAILS
Y1	4" CONCRETE WITH WELDED WIRE MESH

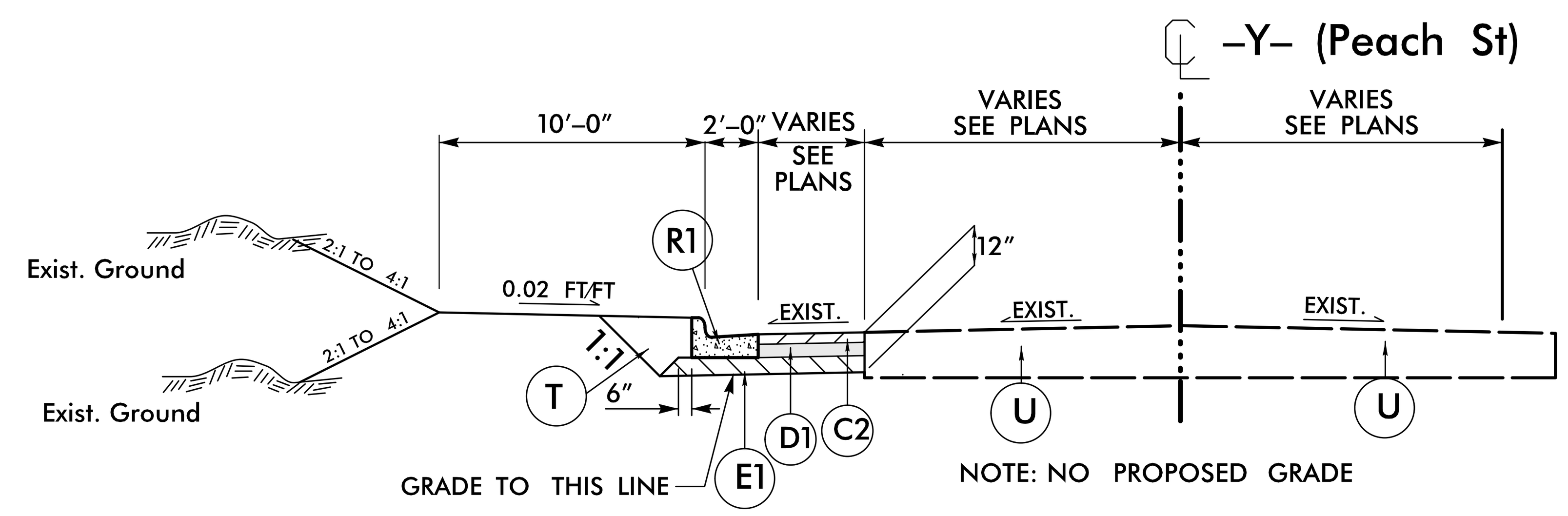
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

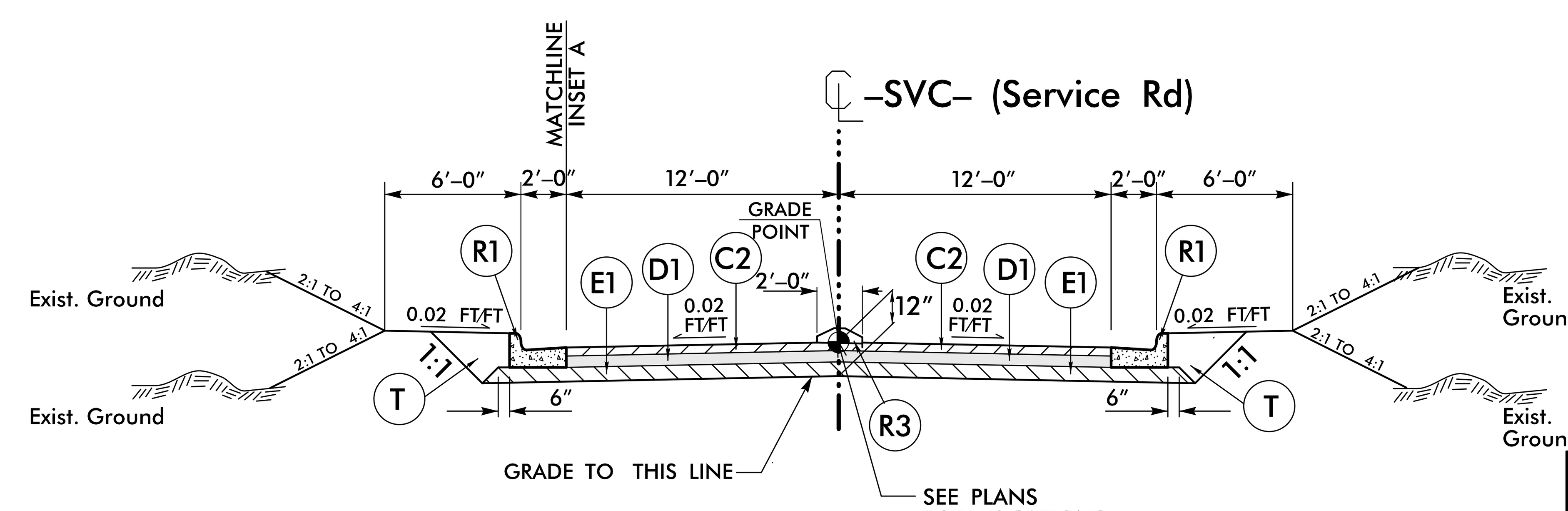
*	STA. TO STA.
24'-0"	-Y- 21+27.71 TO -Y- STA. 23+08.00 LT
24'-0" TO 14'-7"	-Y- 23+08.00 TO -Y- STA. 25+58.84 LT
12'-0"	-Y- 21+27.71 TO -Y- STA. 25+06.06 RT



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

-Y- STA. 26+28.00 TO -Y- STA. 26+78.00 LT

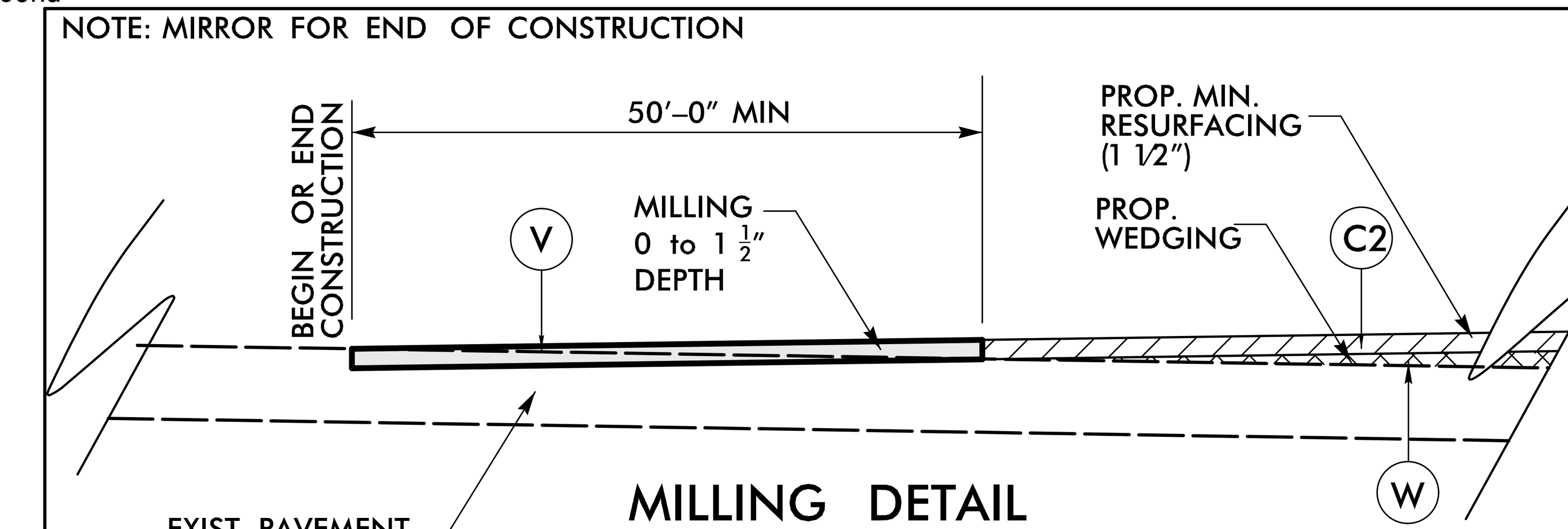


TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6

-SVC- STA. 10+55.00 TO -SVC- STA. 12+02.51
-SVC- STA. 12+40.66 TO -SVC- STA. 15+10.00

NOTE: MIRROR FOR END OF CONSTRUCTION



MILLING DETAIL

USE MILLING DETAIL

-L- STA. 19+46.00 TO -L- STA. 19+96.00
-L- STA. 29+50.00 TO -L- STA. 30+00.00
-Y- STA. 11+00.00 TO -Y- STA. 11+50.00
-Y- STA. 25+78.00 TO -Y- STA. 26+28.00

6/2/99

3/20/2019
X:\NC001\U-5775\Roadway\Proj\U-5775_Rdy_typ.dgn
\$username$

DETAIL OF RETAINING WALL ENVELOPE

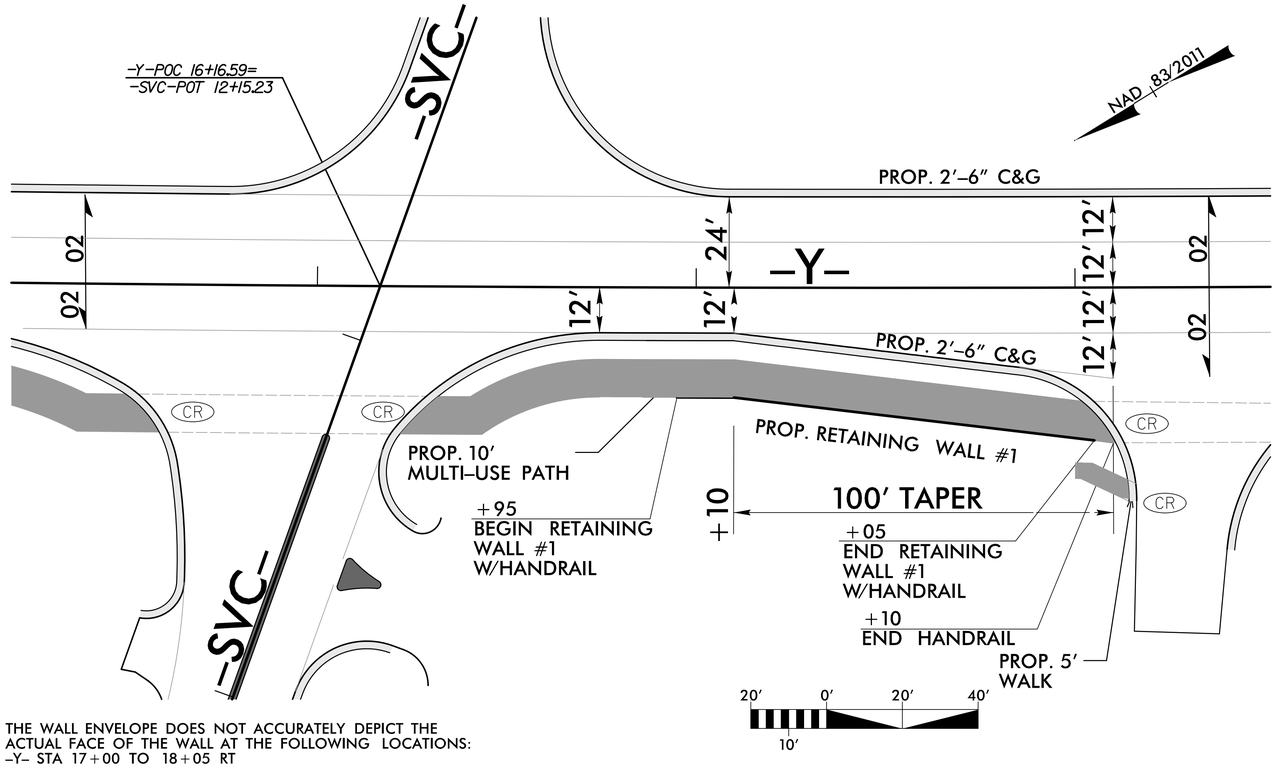
PROJECT REFERENCE NO.	SHEET NO.
U-5775	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

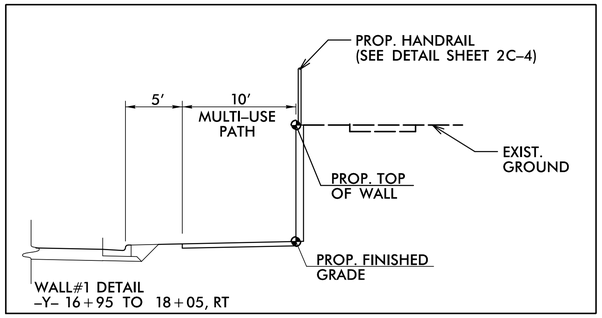
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY
8/23/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL AT THE FOLLOWING LOCATIONS:
-Y- STA 17+00 TO 18+05 RT

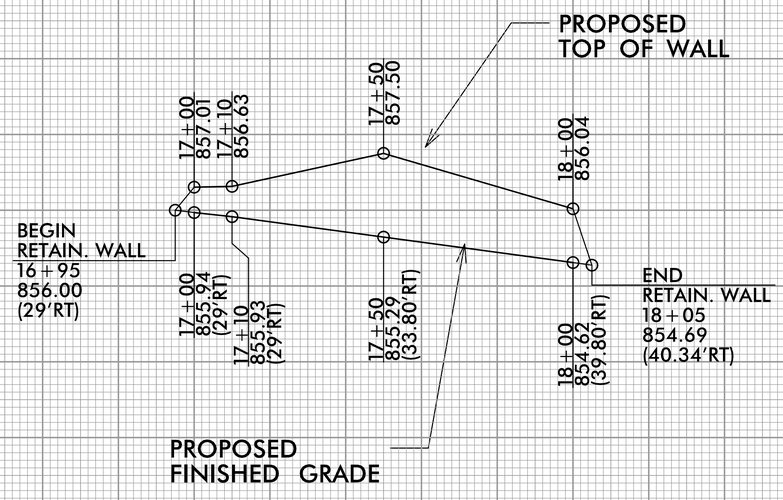


WALL#1 DETAIL
-Y- 16+95 TO 18+05, RT

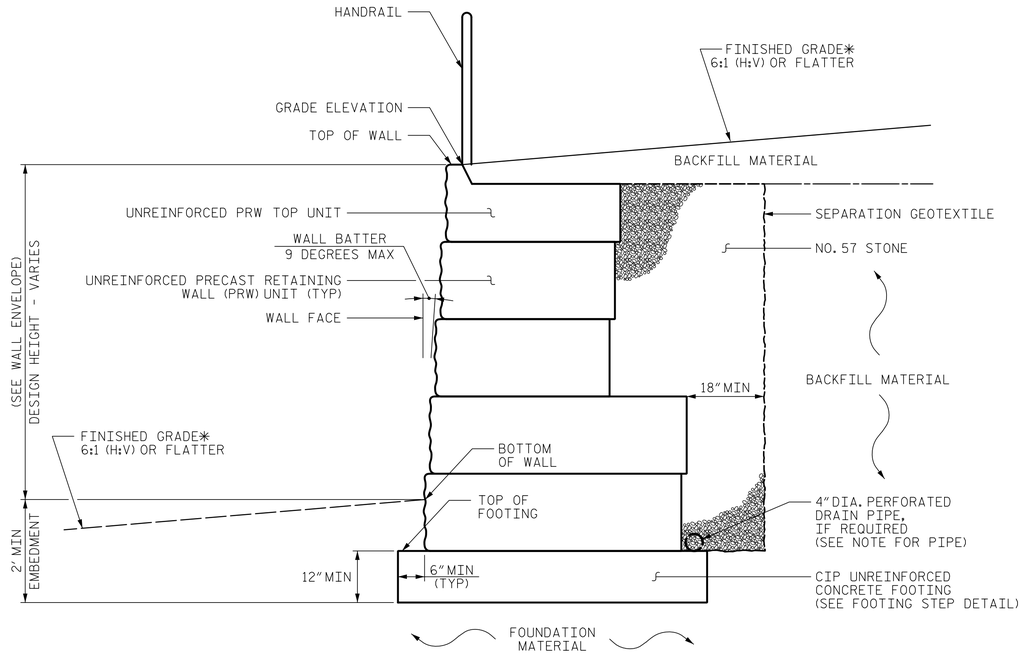
ESTIMATED PRECAST GRAVITY RETAINING WALL QUANTITY	
RETAINING WALL NO. 1	280 SQ. FT.

NOTE: ESTIMATED WALL QUANTITY MEASURED FROM TOP OF WALL TO TOP OF FOOTING.

WALL#1

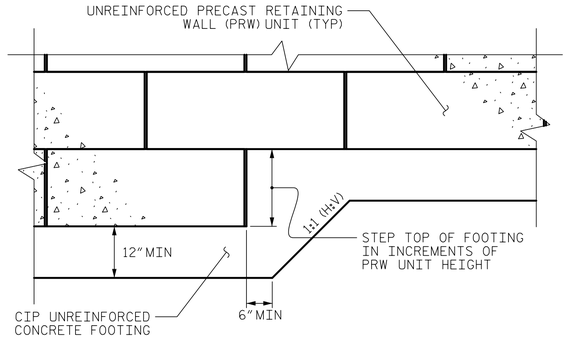


REVISIONS 8/17/99

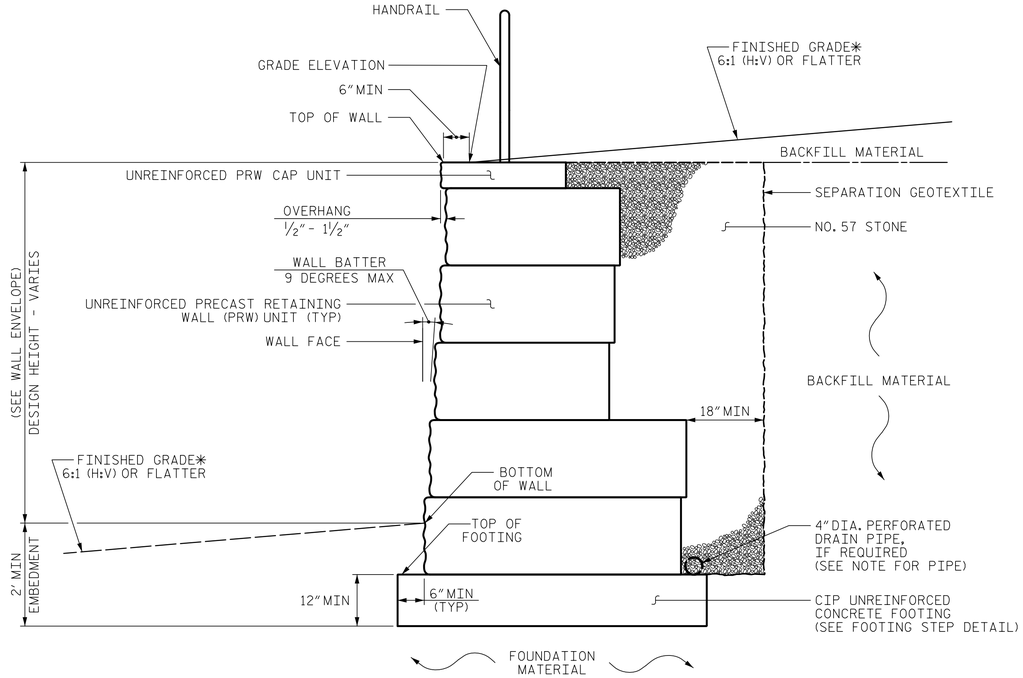


PRECAST GRAVITY WALL WITH TOP PRW UNIT - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



FOOTING STEP DETAIL



PRECAST GRAVITY WALL WITH CAP PRW UNIT - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

NOTES:

FOR PRECAST GRAVITY RETAINING WALLS, SEE SECTION 455 OF THE STANDARD SPECIFICATIONS.

A DRAIN PIPE IS REQUIRED FOR RETAINING WALL NO. 1.

BEFORE BEGINNING PRECAST GRAVITY WALL DESIGN FOR RETAINING WALL NO. 1, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

DESIGN RETAINING WALL NO. 1 FOR WALL HEIGHTS EQUAL TO THE DESIGN HEIGHT PLUS DEPTH TO TOP OF FOOTING (DIFFERENCE BETWEEN GRADE ELEVATION AND TOP OF FOOTING ELEVATION).

DESIGN RETAINING WALL NO. FOR THE FOLLOWING:
1) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,000 PSF
2) MINIMUM EMBEDMENT DEPTH = 2 FT
3) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
BACKFILL	120	30	0
FOUNDATION	120	30	0

DO NOT PLACE CONCRETE FOR FOOTINGS FOR RETAINING WALL NO. 1 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

AT THE CONTRACTOR'S OPTION, "TEMPORARY SHORING FOR WALL CONSTRUCTION" MAY BE USED TO CONSTRUCT RETAINING WALL NO. 1. SEE PRECAST GRAVITY RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.

SEE ROADWAY PLANS FOR HANDRAIL DETAIL.

PREPARED BY: M. BREWER, P.E.	DATE: 2/6/19
REVIEWED BY: J. FARGHER, P.E.	DATE: 2/7/19

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 041986 ENGINEER MATTHEW BREWER P.E.

2/25/2019

DocuSigned by: D. Matthew Brewer
38612BC0A4C1462...
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO.: U-5775

CLEVELAND COUNTY

STATION: 16+95, 29 ft RT to 18+05, 40 ft RT

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP
2400 CROWNPOINT EXECUTIVE DRIVE
SUITE 800
CHARLOTTE, NC 28227
(980) 339-8684

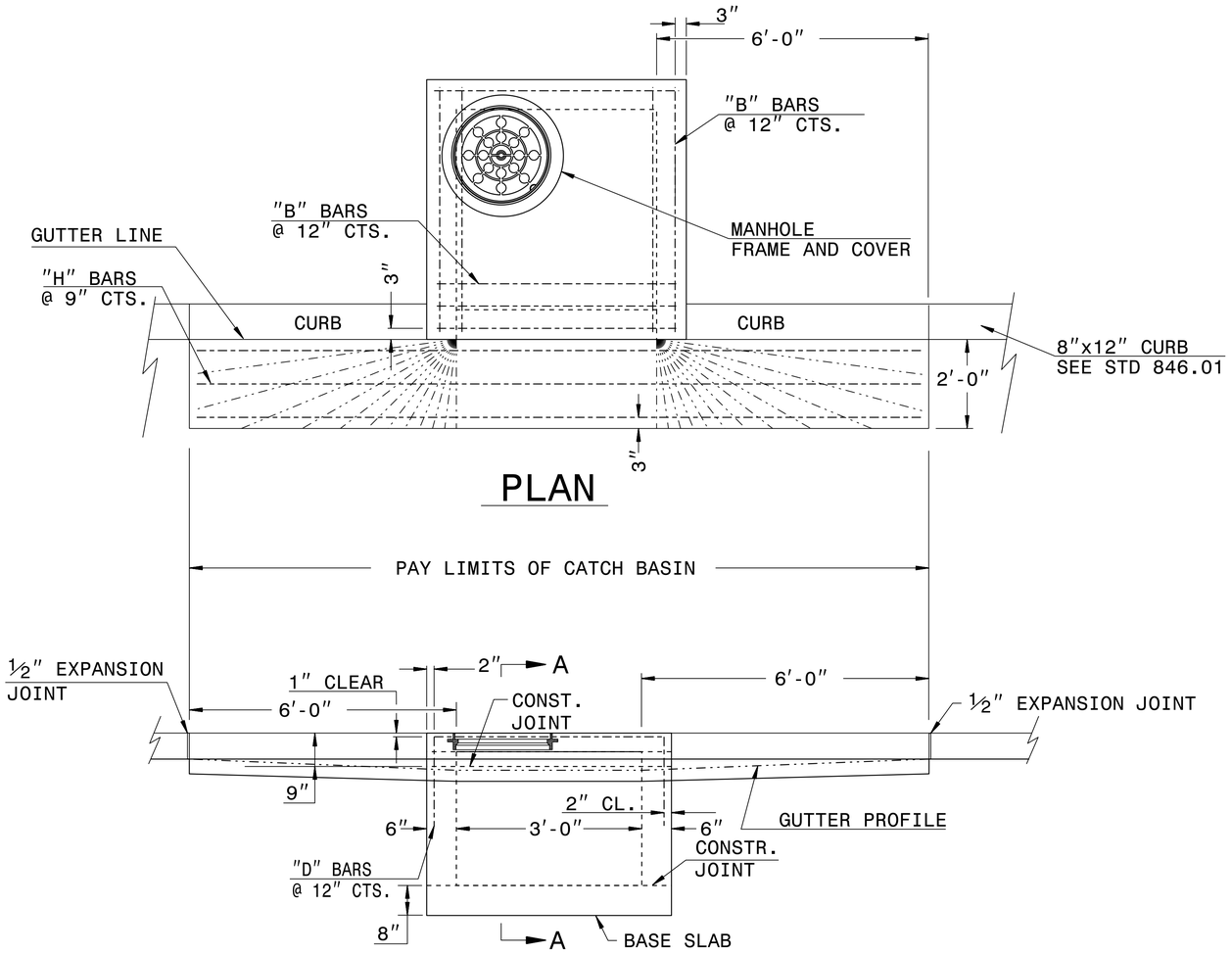
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

PRECAST GRAVITY WALL WITHOUT BACKSLOPE - TYPICALS NOTES AND FOOTING STEP DETAIL

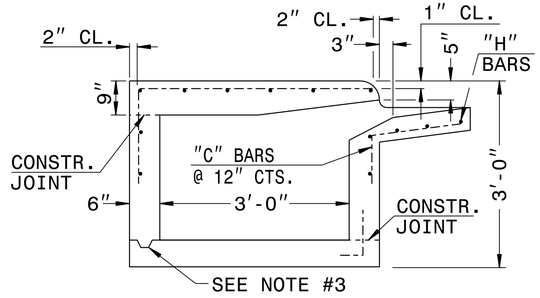
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			2B-2
2			4			

PROJECT REFERENCE NO.	SHEET NO.
U-5775	2C-1



PLAN

ELEVATION



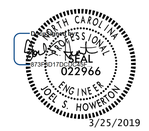
SECTION A-A

BILL OF MATERIALS

BAR	QTY	SIZE	LENGTH	WEIGHT
B	8	#4	3'-8"	20
C	4	#4	2'-8"	7
D	12	#4	1'-3"	10
H	3	#4	14'-8"	29
TOTAL REINF. STEEL (lbs.)				66
TOTAL CONC. CU. YDS.				1.3

NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES OR CATCH BASIN OPENING.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

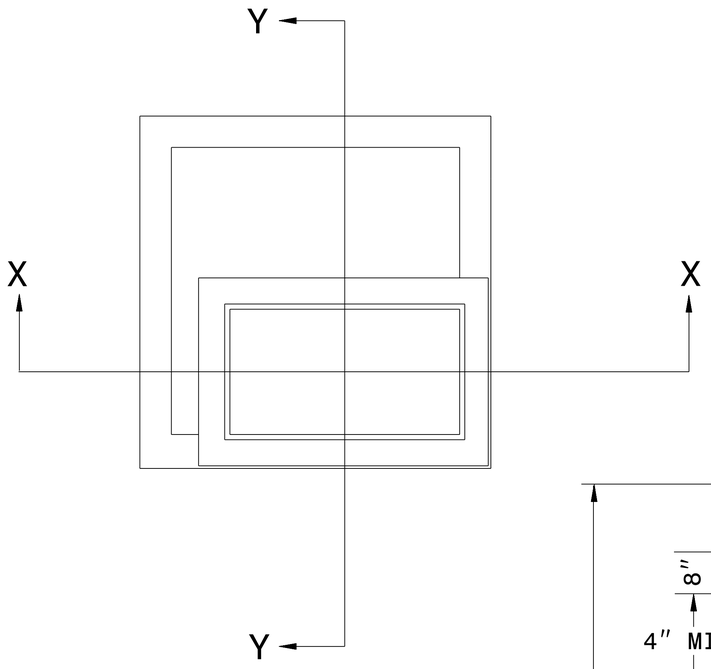


CONTRACT SERVICES
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

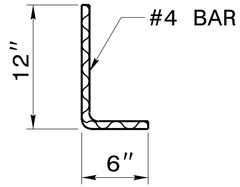
CONCRETE ELONGATED THROAT CATCH BASIN

ORIGINAL BY: KAK DATE: 4-2017
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: u5775_840D06 elongated throat catch basin.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-5775	2C-2



PLAN



DOWEL

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL DROP INLETS OVER 3′-6″ IN DEPTH WITH STEPS 12″ ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2″ KEYWAY OR #4 BAR DOWELS AT 12″ CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

CONSTRUCT WITH PIPE CROWNS MATCHING.

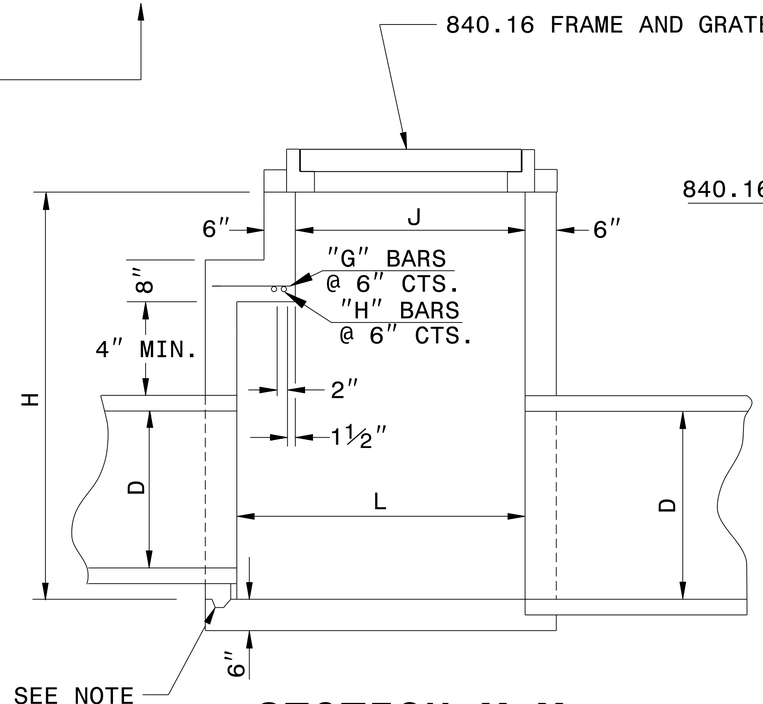
INSTALL 2″ WEEPHOLES AS DIRECTED BY THE ENGINEER.

INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.

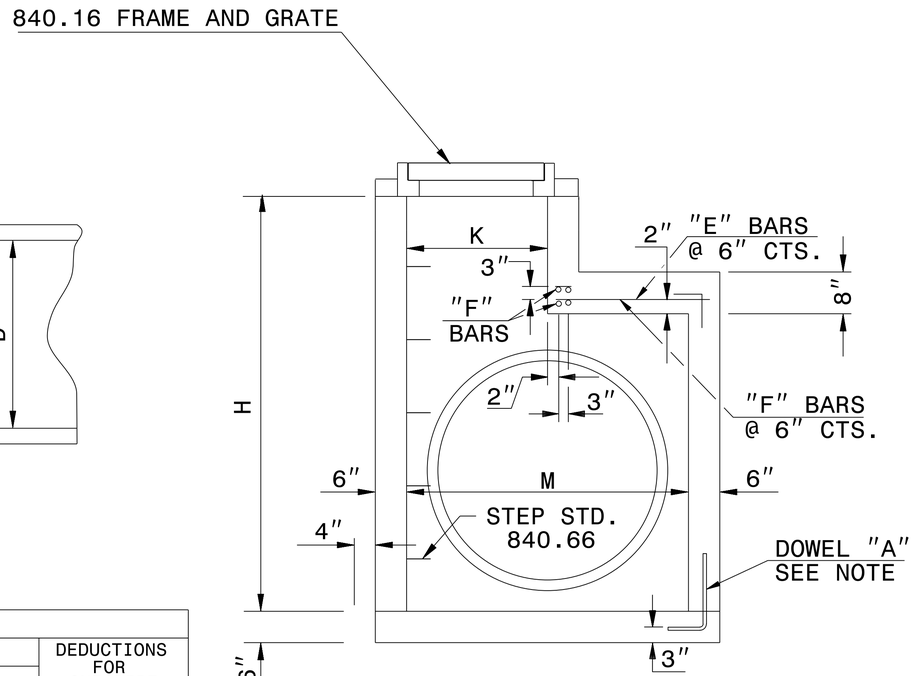
CHAMFER ALL EXPOSED CORNERS 1″.

DRAWING NOT TO SCALE.

DIMENSIONS MAY BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER.



SECTION X-X



SECTION Y-Y

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE DROP INLET(BASED ON MIN. HEIGHT, H)

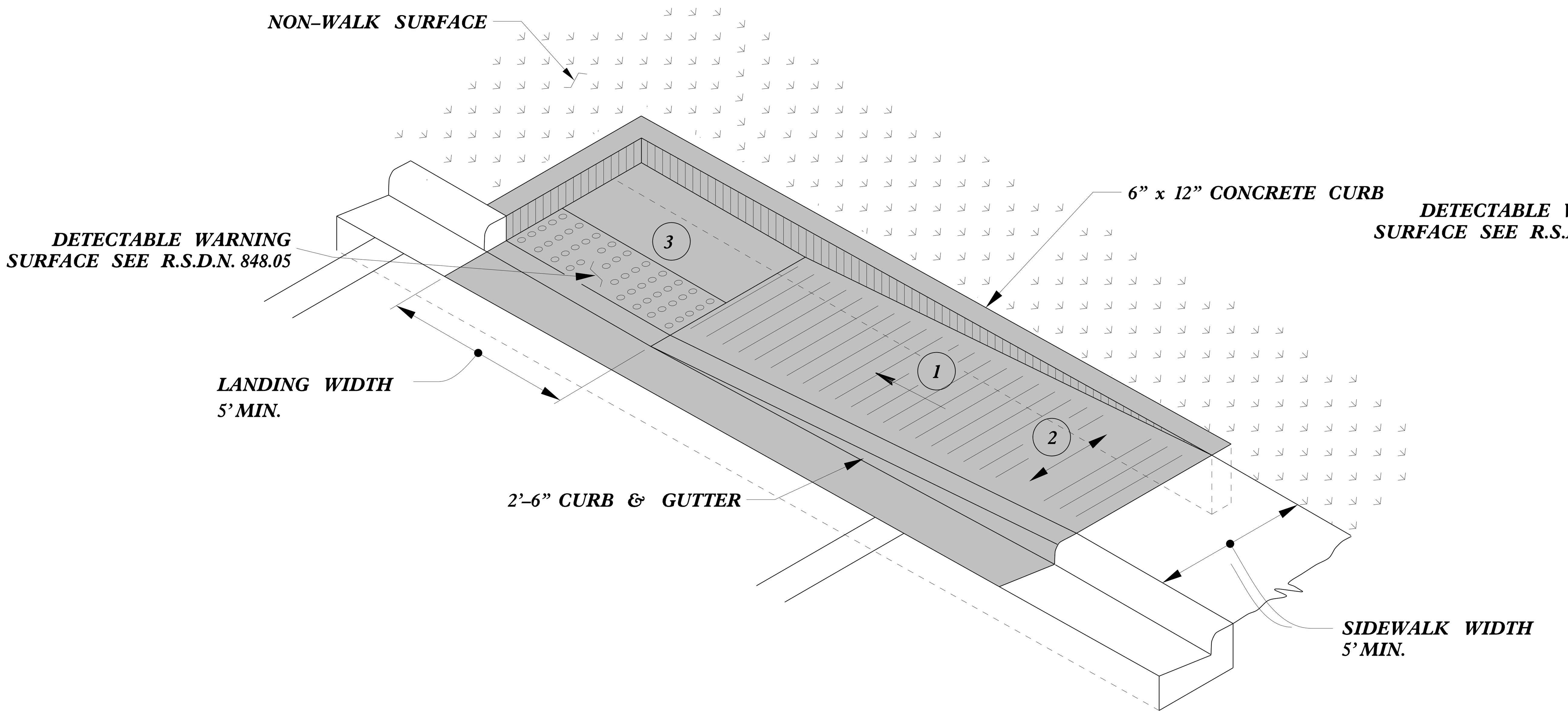
DIMENSIONS OF BOX AND PIPE						REINFORCING STEEL - NO. 4 BARS									CU YDS CONC. IN BOX				DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	SPAN	WIDTH	HEIGHT	BARS E		BARS F		BARS G		BARS H		TOTAL LBS.	BOTTOM SLAB	H TOTAL	H PER FT HT	TOTAL	C.S.	R.C.
D	J	K	L	M	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH							
12″	3′-0″	2′-0″	3′-8″	2′-0″	3′-9″	—	—	—	—	—	—	—	—	—	0.362	0.926	0.247	1.288	0.015	0.024
15″	3′-0″	2′-0″	3′-8″	2′-0″	4′-0″	—	—	—	—	—	—	—	—	—	0.362	0.988	0.247	1.350	0.023	0.036
18″				2′-0″	4′-3″	—	—	—	—	—	—	—	—	—	0.362	1.050	0.247	1.412	0.033	0.049
24″				2′-10″	4′-9″	8	1′-5″	6	4′-9″	—	—	—	—	27	0.444	1.362	0.278	1.806	0.059	0.085
30″			3′-8″	3′-5″	5′-3″	8	2′-0″	7	4′-9″	—	—	—	—	33	0.502	1.644	0.288	2.146	0.092	0.127
36″			4′-0″	4′-0″	5′-9″	8	2′-5″	8	4′-11″	4	0′-9″	2	4′-11″	47	0.560	1.931	0.321	2.525	0.132	0.178
42″			4′-10″	4′-10″	6′-3″	10	3′-1″	9	5′-7″		1′-5″	3	5′-7″	67	0.704	2.500	0.370	3.282	0.180	0.243
48″			5′-4″	5′-4″	6′-9″	11	3′-7″	10	6′-1″		1′-11″	4	6′-1″	87	0.823	3.013	0.407	3.920	0.235	0.317
54″			6′-0″	6′-0″	7′-3″	12	4′-1″	11	6′-7″		2′-5″	5	6′-7″	107	0.951	3.589	0.444	4.677	0.297	0.401
60″			6′-6″	6′-6″	7′-9″	13	4′-9″	12	7′-3″		3′-1″	6	7′-3″	135	1.311	4.539	0.494	5.775	0.367	0.495
66″			7′-2″	7′-2″	8′-3″	14	5′-4″	14	7′-10″		3′-7″	7	7′-10″	168	1.136	5.061	0.537	6.506	0.444	0.599
72″	3′-0″	2′-0″	7′-8″	7′-8″	8′-9″	15	5′-11″	15	8′-5″	4	4′-3″	8	8′-5″	199	1.500	5.860	0.580	7.473	0.528	0.713

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

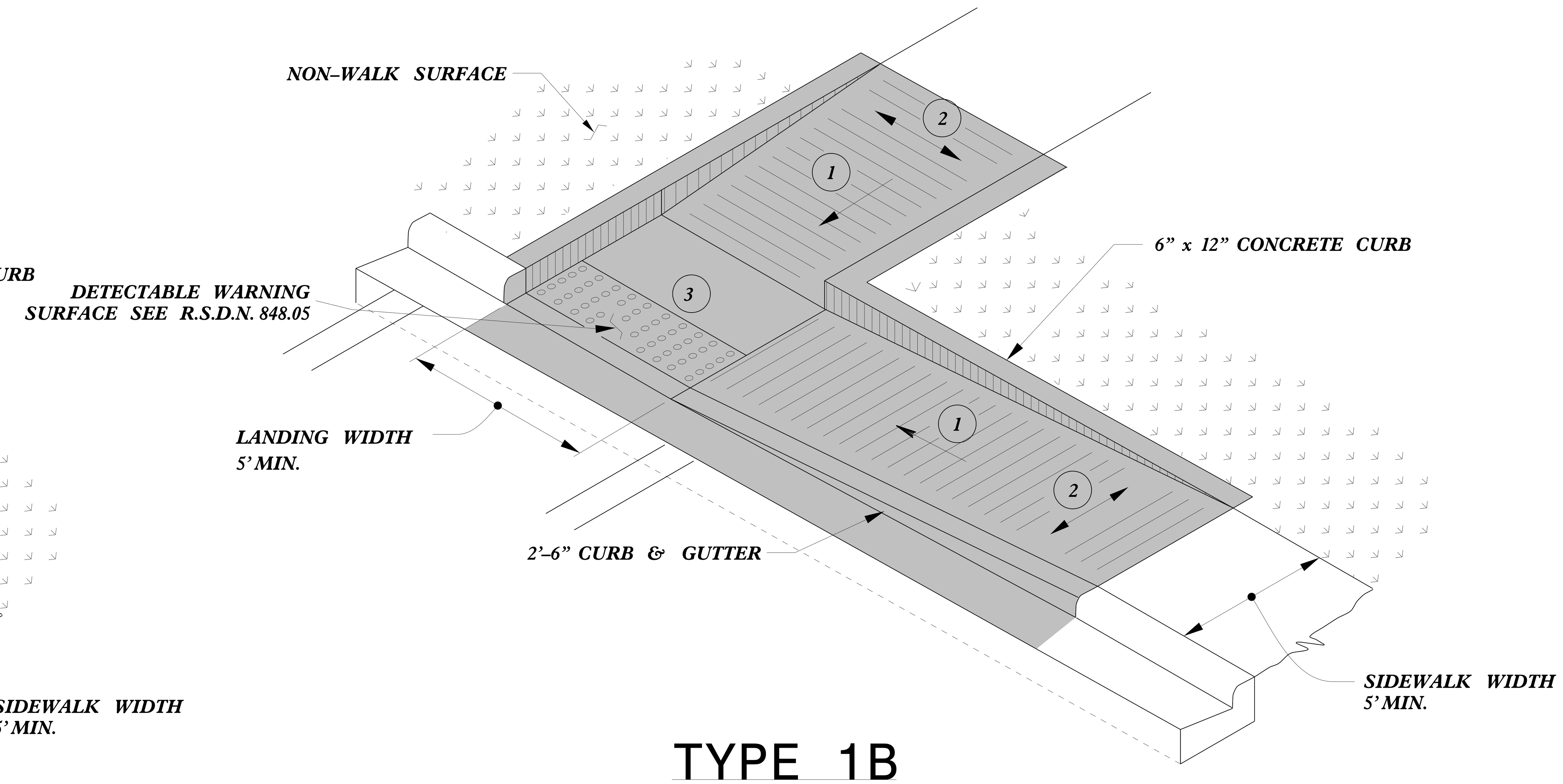
SPECIAL DI 840D14

ORIGINAL BY: J HOWERTON DATE: 04/11/17
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: detail/jhowerton/840d14 di 30 rcp.dgn

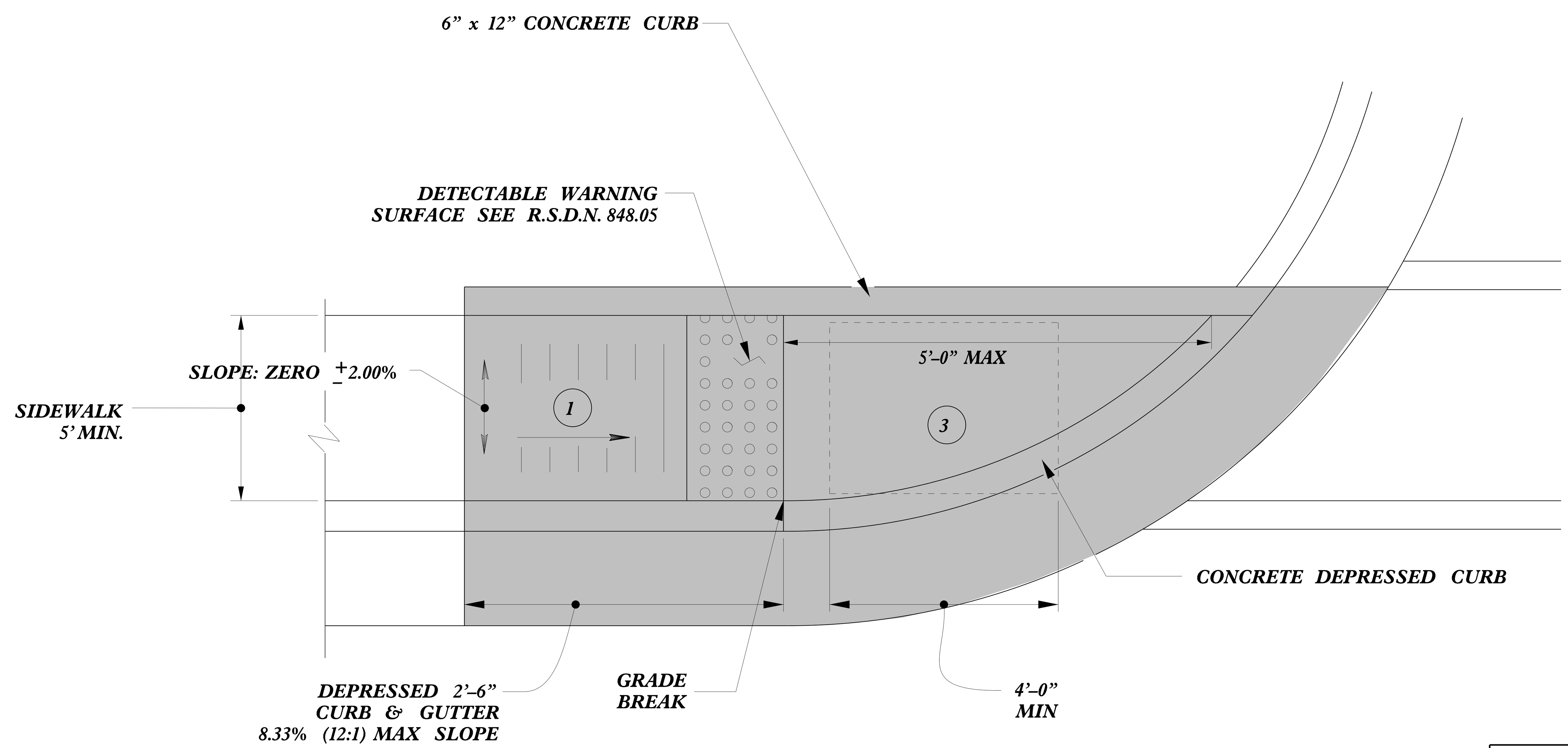
PROJECT REFERENCE NO.	SHEET NO.
U-5775	2C-3



TYPE 1A



TYPE 1B

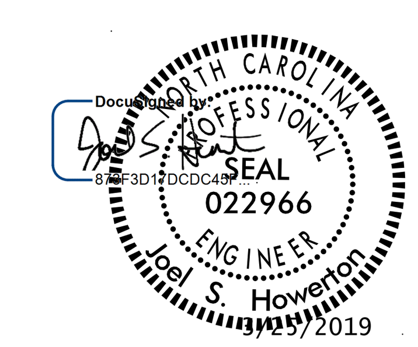


TYPE 1

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.

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



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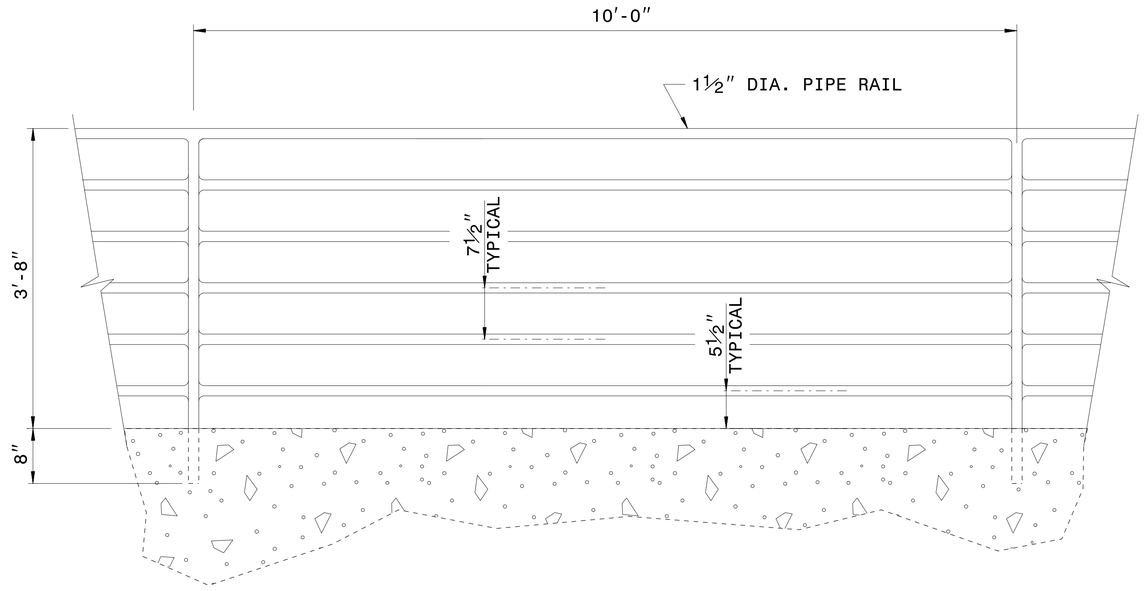
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

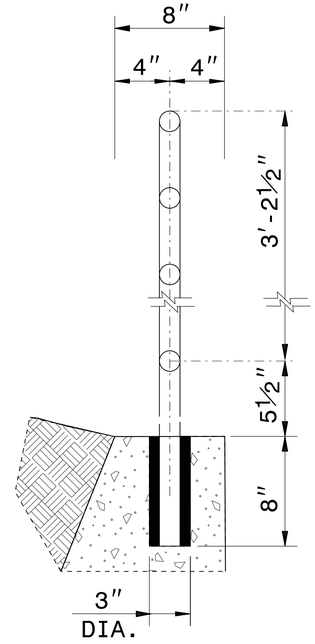
Directional Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

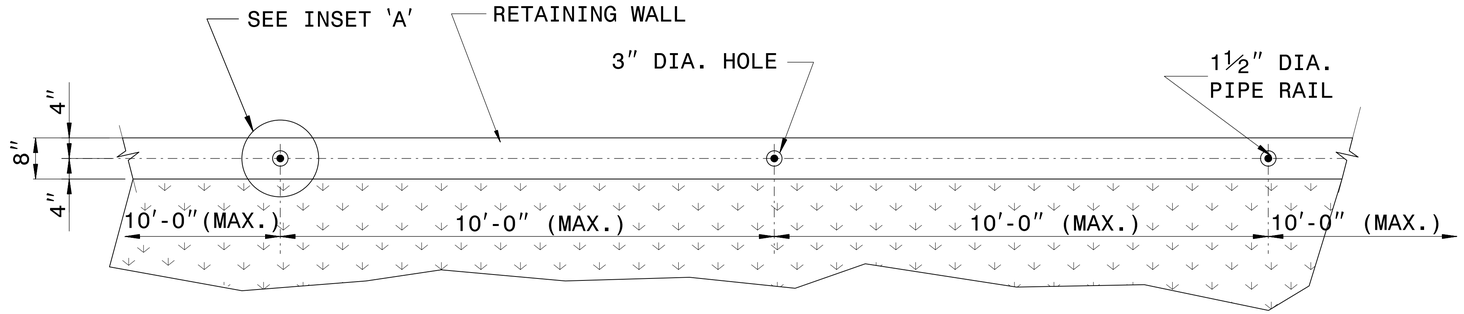
PROJECT REFERENCE NO.	SHEET NO.
U-5775	2C-4



ELEVATION OF HANDRAIL



INSET 'A'



PLAN VIEW

NOTES:

CONSTRUCT THE PROPOSED STEEL PIPE RAIL OF 1½″ DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

EMBED THE PIPE RAIL 8″ INTO PROPOSED WALL WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM AS DIRECTED BY THE ENGINEER.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

PAINT, IF REQUIRED BY THE ENGINEER, THE RAIL IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

CENTER THE PROPOSED RAILING ON TOP OF THE WALL WITH POST SPACING SYMMETRICAL ABOUT THE CENTER-LINE OF THE WALL.

HOLES FOR EMBEDMENT OF RAIL IN WALL SHALL BE MADE WITH A ROTARY DRILL ONLY (NO ROTARY-IMPACT DRILLS).

WELD AS NEEDED IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL OF PIPE HANDRAIL MOUNTED ON RETAINING WALL

ORIGINAL BY: E.E. WARD DATE: 12-99
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: ds172:/usr/details/stand/metric/0842d03.dgn

$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$$$

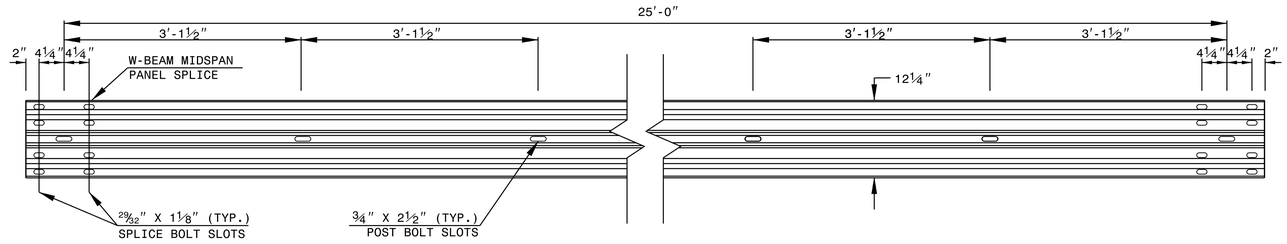
PROJECT REFERENCE NO.	SHEET NO.
U-5775	2C-5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

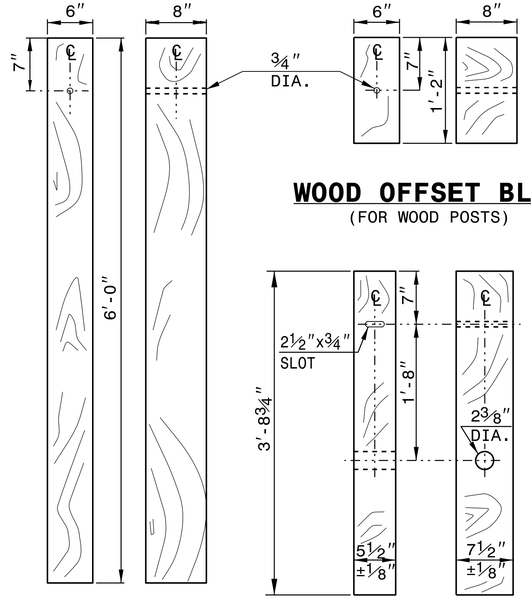
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



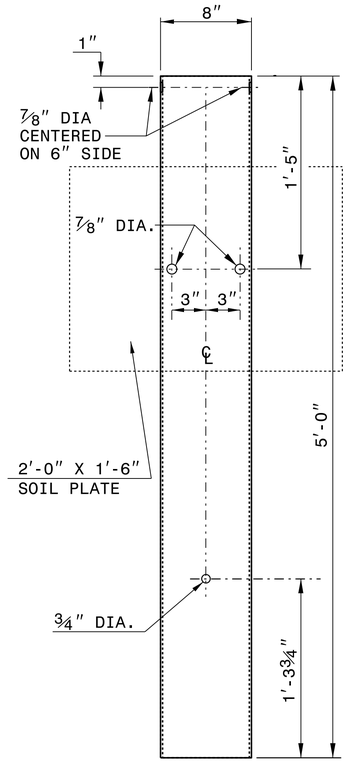
STANDARD W-BEAM GUARDRAIL



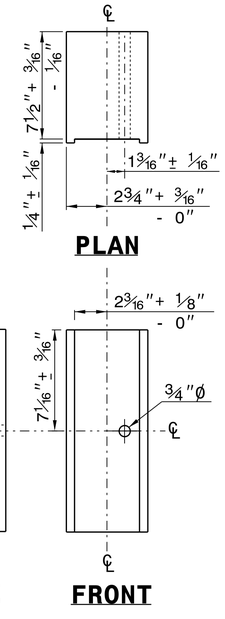
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

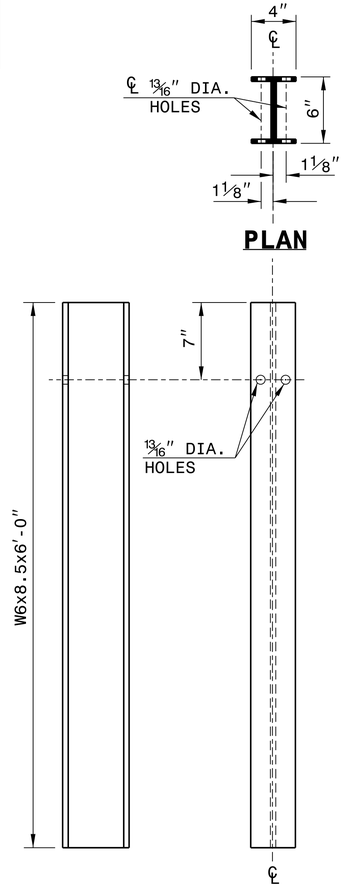
SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"



ROUTED OFFSET BLOCK



"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 JOHN S. HOWERTON
3/25/2019

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

COMPUTED BY: SGM DATE: 1/30/2019
CHECKED BY: JLT DATE: 2/5/2019

PROJECT NO.	SHEET NO.
U-5775	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- 19+46.00	-L- 30+00.00	618	840	222	
-Y- 11+00.00	-Y- 20+90.80	536	1,528	992	
-Y- 21+27.71	-Y- 26+78.00	275	2,711	2,436	
-SVC- 10+55.00	-SVC- 12+02.51	183	15		168
-SVC- 12+40.66	-SVC- 15+10.00	705	59		646
TOTALS:		2,317	5,153	3,650	814
LOSS DUE TO CLEARING & GRBBING		-200		200	
WASTE IN LIEU OF BORROW				-814	-814
PROJEECT TOTALS:		2,117	5,153	3,036	0
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				152	
GRAND TOTALS:		2,117	5,153	3,188	
SAY:		**2,200**		**3,300**	

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

EST. SHALLOW UNDERCUT = 500 CUBIC YARDS
SELECT GRANULAR MATERIAL = 500 CUBIC YARDS
GEOTEXTILE FOR SOIL STABILIZATION = 1,000 SY
CLASS IV SUBGRADE STABILIZATION = 1,000 TONS
ESTIMATED 500 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION O THE RESIDENT ENGINEER.

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	19+46	22+25	RT	153.78			
-L-	19+46	23+36	LT	100.69			
-L-	24+61	25+44	RT	46.93			
Exist Peach St Rt of -L- Sta 22+73				796.11			
Exist Service Rd Rt of -Y- Sta 16+07				416.71			
			TOTAL	1514.22			
			SAY	**1520**			

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS							TERMINAL SECTION (EA)		IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD			G	NG				
-SVC-	1514+50		CL	28.00																		2							
			TOTAL	28.00																		2							
			SAY	**31.25**																		**2**							

Additional Guardrail Posts : say 2 each

DESKTOP-3VNQ87H

COMPUTED BY:	Austin Turner, EI; Zachary Richard, PE	**DATE:**	12/19/2017
CHECKED BY:	David Petty, PE	**DATE:**	2/5/2019

PROJECT NO.	SHEET NO.
U-5775	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)

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE								R. C. PIPE CLASS III								R. C. PIPE CLASS IV								ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	REINFORCED ENDWALLS	DRAINAGE STRUCTURE	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03				CONCRETE TRANSITIONAL SECTION		OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	ETCB SPECIAL DSN (SEE DETAIL SHEET 2C-1)	DI SPECIAL DSN (SEE DETAIL SHEET 2C-2)	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
SIZE								12	15	18	24	30	36	42	48					12	15	18	24	30	36	42	48	12	15	18	24	30	36	42	48	12	15	18	24	30	36	42	48					A	B		GRATE TYPE																																			
THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%									DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	.064	.064	.064	.064	.079	.079	.109	.109																	CY	CY	MASONRY CY	0' THRU 5' EACH	5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.		E	F	G		D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																											CY	CY	CY	LIN. FT.	
Y 26+62	14 RT	0401		858.2																																																																																										
		0401	0402		856.9	854.1																																			40																																																					
Y 26+25	14 RT	0402		857.1																																																1			1			1																																					
		0402	0403		854.1	851.1	0.3																																		84																																																					
Y 25+40	14 RT	0403		854.1																																																1			1			1																																					
		0403	0405		851.1	848.3	0.5																																		116																																																					
Y 24+34	66 RT	0404		853.3																																																1																											1																
		0404	0405		850.3	848.3	0.3		52																																																																																					
Y 24+25	14 RT	0405		851.3																																																1			1			1																																					
		0405	0406		848.1	847.3	0.8																																			72																																																				
Y 23+50	14 RT	0406		850.5																																																1			1			1																																					
		0406	0409		846.8	846.6																																					32																																																			
Y 22+66	37 RT	0407		850.4																																																1												1	1																														
		0407	0408		848.2	847.9			24																																																																																					
Y 22+65	14 RT	0408		850.9																																																1			1		1																																						
		0408	0409		847.9	847.4																																			48																																																					
Y 23+16	14 RT	0409		850.4																																																1			1	1																																							
		0409	0412		846.6	846.4																																					36																																																			
Y 24+00	23 LT	0410		850.8																																																1			1		1																																						
		0410	0412		847.8	847.2																																			88																																																					
Y 22+50	26 LT	0411		850.5																																																1			1			1																																					
		0411	0412		847.5	847.2																																			68																																																					
Y 23+16	26 LT	0412		850.2																																																1			1	1																																							
		0412	0413		846.4	838.0	1.3																		40																																																															2					
L 22+35	20 LT	0414		856.0																																																1			1			1																																					
		0414	0415		853.0	848.2																																			120																																																					
L 23+55	35 LT	0415		851.2																																																1			1			1																																					
		0415	0420		848.2	847.9																																			52																																																					
Y 18+62	52 RT	0416		856.0																																																1												1	1																														
		0416	0436		851.5	849.7			24																																																																																					
Y 19+04	26 RT	0417		852.4																																																1			1		1																																						
		0417	0418		849.2	849.0	0.3																																			32																																																				
Y 19+35	26 RT	0418		852.3																																																1			1		1																																						
		0418	0420		849.0	848.3	0.3																																			100																																																				
Y 20+39	43 RT	0419		851.7																																																1																																1	1										SEE DETAIL SHEET 2C-1
		0419	0420		848.7	848.5			20																																																																																					
Y 20+35	26 RT	0420		851.6																																																1			1		1																																						
		0420	0421		847.6	845.4	0.9																																			72																																																				
Y 20+35	47 LT	0421		848.7																																																1			1			1																																					
		0421	0422		845.4	842.8	1.2																																			28																																																				
L 24+80	41 LT	0422		846.0																																																1			1			1																																					
		0422	0423		842.2	841.8	0.3																																				84																																																			
L 24+75	42 RT	0423		846.3																																																1	0.5											1	1																														
L 26+05	44 LT	0424		844.2																																																1												1	1																														
		0424	0425		840.2	839.7			12																																																																																					
L 26+05	32 LT	0425		842.7																																																1			1			1																																					
		0425	0426		839.7	837.3																																			92																																																					
L 27+01	32 LT	0426		840.3																																																1			1			1																																					
		0426	0428		837.1	836.8																																				56																																																				
L 27+01	24 RT	0428		841.8																																																1			1		1																																						
							SHEET TOTALS		132																40																708	360	152										25	0.5		19	2	6	11						4	4												1					1	1				2					

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

DESKTOP-3VNO87H

COMPUTED BY: Austin Turner, EI; Zachary Richard, PE DATE: 12/19/2017

CHECKED BY: David Petty, PE DATE: 2/5/2019

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5775	3D-2

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)

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE											
		0428	0429		836.8	834.2													
L 28+17	20 RT	0429		837.4															
L 29+45	17 LT	0430		831.1															
		0430	0432		828.1	826.3													
L 29+75	30 LT	0431		830.8															
		0431	0432		829.0	826.3	0.5												
L 29+75	15 LT	0432		829.3															
		0432	0433		826.3	826.0	0.6		32										
L 29+75	15 RT	0434		829.1															
		0434	0435		826.1	826.0			28										
Y 18+72	29 RT	0436		852.7															
		0436	0417		849.7	849.4	0.7												
Y 24+04	81 RT	0451		853.7															
Y 10+92	22 RT	0501		859.5															
		0501	0502		857.2	857.0			24										
Y 11+15	14 RT	0502		861.2															
		0502	0504		857.0	856.1													
Y 11+87	37 RT	0503		858.5															
		0503	0504		856.3	856.1			28										
Y 12+04	14 RT	0504		860.4															
		0504	0505		856.1	853.2	0.3												
Y 12+04	39 LT	0505		856.9															
Y 12+92	61 RT	0506		858.8															
		0506	0508		857.5	856.0	1.8		28										
Y 13+24	34 RT	0507		858.3															
		0507	0508		857.0	856.0													
Y 12+89	34 RT	0508		858.2															
		0508	0509		855.7	855.3	1.3			24									
Y 12+76	14 RT	0509		859.7															
		0509	0512		854.8	853.4													
Y 15+06	40 RT	0510		856.0															
		0510	0512		853.8	853.6			24										
No Chains 15+05	26 LT	0511		856.9															
		0511	0512		853.9	853.7													
Y 15+05	14 RT	0512		857.1															
		0512	0515		853.4	851.5	0.5												
Y 16+30	50 RT	0514		857.7															
		0514	0515		854.0	852.2			60										
Y 16+80	14 RT	0515		855.2															
		0515	0517		845.8	844.3	0.9												
SVC 13+20	24 LT	0516		852.8															
		0516	0517		851.5	848.1													
SVC 13+20	14 RT	0517		851.1															
		0517	0519		844.3	842.6	1.2												
SVC 14+60	14 LT	0518		847.7															
		0518	0519		844.7	844.6													
SVC 14+60	14 RT	0519		847.7															
		0519	0520		841.1	839.1	1.4				24								
SVC 14+72	36 RT	0520		843.8															
		0520	0521		839.1	837.6	1.4				104								
				SHEET TOTALS					224	24	128								

LINE & STATION	OFFSET	C. S. PIPE SIZE 12	15	18	24	30	36	42	48	R. C. PIPE CLASS III SIZE 12	15	18	24	30	36	42	48	R. C. PIPE CLASS IV SIZE 12	15	18	24	30	36	42	48
		THICKNESS OR GAUGE .064	.064	.064	.064	.079	.079	.109	.109																
																			116						
L 28+17	20 RT																								
L 29+45	17 LT																								
																			28						
L 29+75	30 LT																								
			16																						
L 29+75	15 LT																								
L 29+75	15 RT																								
Y 18+72	29 RT																								
																			32						
Y 24+04	81 RT																								
Y 10+92	22 RT																								
Y 11+15	14 RT																								
																			88						
Y 11+87	37 RT																								
Y 12+04	14 RT																								
																			52						
Y 12+04	39 LT																								
Y 12+92	61 RT																								
Y 13+24	34 RT																								
																			36						
Y 12+89	34 RT																								
Y 12+76	14 RT																								
																				228					
Y 15+06	40 RT																								
No Chains 15+05	26 LT																								
																			40						
Y 15+05	14 RT																								
																				176					
Y 16+30	50 RT																								
Y 16+80	14 RT																								
																				108					
SVC 13+20	24 LT																								
																			36						
SVC 13+20	14 RT																								
																				140					
SVC 14+60	14 LT																								
																			28						
SVC 14+60	14 RT																								
SVC 14+72	36 RT																								
			16																340	116	652				

LINE & STATION	OFFSET	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) A: 0' THRU 5' EACH	A: 5' THRU 10' LIN. FT.	A: 10' AND ABOVE LIN. FT.	B LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	T.B.D.I. TYPE "B" STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	ETCB SPECIAL DSN (SEE DETAIL SHEET 2C-1)	DI SPECIAL DSN (SEE DETAIL SHEET 2C-2)	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 28+17	20 RT				1	5.0	0.4	1		1																															
L 29+45	17 LT				1			1			1																															
L 29+75	30 LT																																									
L 29+75	15 LT				1			1			1																															
L 29+75	15 RT				1			1		1																															
Y 18+72	29 RT				1			1		1																															
Y 24+04	81 RT																																									
Y 10+92	22 RT				1			1			1																															
Y 11+15	14 RT				1			1		1																															
Y 11+87	37 RT				1			1			1																															
Y 12+04	14 RT				1			1		1																															
Y 12+04	39 LT				1			1			1																															
Y 12+92	61 RT																																									
Y 13+24	34 RT																																									
Y 12+89	34 RT				1			1			1																															
Y 12+76	14 RT				1			1		1																															
Y 15+06	40 RT				1			1			1																															
No Chains 15+05	26 LT				1			1			1																															
Y 15+05	14 RT				1			1		1																															
Y 16+30	50 RT				1			1			1																															
Y 16+80	14 RT			3.252				1		1																															Widen base if necessary.
SVC 13+20	24 LT																																								
SVC 13+20	14 RT				1	1.8		1		1																															
SVC 14+60	14 LT				1			1			1																															
SVC 14+60	14 RT				1	1.6		1		1																															
SVC 14+72	36 RT				1			1			1																															SEE DETAIL SHEET 2C-2
				3.252	20	8.4	0.4	14		10	4								4	5											2		1	2						

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

DESKTOP-3VNQ87H

COMPUTED BY:	Austin Turner, EI; Zachary Richard, PE	**DATE:**	12/19/2017
CHECKED BY:	David Petty, PE	**DATE:**	2/5/2019

PROJECT NO.	SHEET NO.
U-5775	3D-3

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)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
L 28+44	239	LT	0521		846.5															
			0521	0522		837.6	835.1	1.4				48								
L 28+28	193	LT	0522		839.0															
Y 17+84	23	RT	0523		853.9															
			0523	0436		850.9	849.7													
L 27+90	34	LT																		
Y 16+56	27	LT																		
Y 16+53	20	RT																		
Y 12+22	25	LT																		
Y 12+24	20	RT																		
Y 13+08	25	RT																		
Y 18+17	23	RT																		
Y 25+58	9	RT																		
L 29+54	19	RT																		
Y 18+64	39	RT																		
Y 19+71	30	RT																		
SVC 11+90	1	LT																		
Y 16+45	21	RT																		
SVC 13+12	31	RT																		
SVC 13+42	31	RT																		
Y 12+13	33	LT																		
Y 26+45	14	RT																		
Y 25+94	18	RT																		
Y 25+38	29	RT																		
Y 25+04	39	RT																		
Y 24+77	49	RT																		
Y 24+49	60	RT																		
Y 20+88	50	RT																		
Y 20+42	38	RT																		
SVC 11+01	22	RT																		
L 24+76	36	RT																		
L 24+55	28	RT																		
L 24+76	4	RT																		
Y 19+18	26	RT																		
Y 15+46	54	LT																		
SVC 11+86	29	RT																		
Y 12+92	49	RT																		
L 27+88	33	LT																		
Y 20+84	7	LT																		
Y 20+97	57	RT																		
Y 20+71	71	LT																		
SHEET TOTALS												48								
PROJECT TOTALS										356	24	176								

LINE & STATION	C. S. PIPE 12 .064	15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	48 .109	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY
L 28+44																											
L 28+28																											
Y 17+84																											
																		88									
L 27+90																											
Y 16+56																											
Y 16+53																											
Y 12+22																											
Y 12+24																											
Y 13+08																											
Y 18+17																											
Y 25+58																											
L 29+54																											
Y 18+64																											
Y 19+71																											
SVC 11+90																											
Y 16+45																											
SVC 13+12																											
SVC 13+42																											
Y 12+13																											
Y 26+45																											
Y 25+94																											
Y 25+38																											
Y 25+04																											
Y 24+77																											
Y 24+49																											
Y 20+88																											
Y 20+42																											
SVC 11+01																											
L 24+76																											
L 24+55																											
L 24+76																											
Y 19+18																											
Y 15+46																											
SVC 11+86																											
Y 12+92																											
L 27+88																											
Y 20+84																											
Y 20+97																											
Y 20+71																											
SHEET TOTALS																		88									
PROJECT TOTALS		16		40														1136	476	804							3.252

LINE & STATION	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) A: 0' THRU 5' EACH	B: 5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	ETCB SPECIAL DSN (SEE DETAIL SHEET 2C-1)	DI SPECIAL DSN (SEE DETAIL SHEET 2C-2)	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 28+44	1	2.7																							1					1										
L 28+28	1											1	1																											
Y 17+84	1			1		1																																		
L 27+90																																						0.065		
Y 16+56																																						0.116		
Y 16+53																																						0.116		
Y 12+22																																						0.065		
Y 12+24																																						0.065		
Y 13+08																																							37	
Y 18+17																																							58	
Y 25+58																																							29	
L 29+54																																							26	
Y 18+64																																							28	
Y 19+71																																							71	
SVC 11+90																																							57	
Y 16+45																																							12	
SVC 13+12																																							35	
SVC 13+42																																							20	
Y 12+13																																							18	
Y 26+45																																							33	
Y 25+94																																							67	
Y 25+38																																							47	
Y 25+04																																							20	
Y 24+77																																							37	
Y 24+49																																							20	
Y 20+88																																							22	
Y 20+42																																							71	
SVC 11+01																																							7	
L 24+76																																							10	
L 24+55																																							41	
L 24+76																																							47	
Y 19+18																																							30	
Y 15+46																																							45	
SVC 11+86																																							29	
Y 12+92																																							24	
L 27+88																																							4	
Y 20+84																																				9				
Y 20+97																																						0.065		
Y 20+71																																						0.065		
SHEET TOTALS	3	2.7		1		1						1	1												1					1						9		0.557	945	
PROJECT TOTALS	48	12.1		34	2	17	15					9	10												4					4	1	1	2		2	9		0.557	945	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

PROJ. REFERENCE NO.	SHEET NO.
U-5775	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	SOUTH POST, LLC
2	4	BROAD RIVER HOLDINGS, LLC
3	4	CLEVELAND MARKETER, INC.
4	4 & 5	BROAD RIVER HOLDINGS, LLC
5	4 & 5	R & R OF NC, LLC
6	4 & 5	KATHERINE K.A. BRIDGES REVOCABLE LIVING TRUST
7	4 & 5	ARKAS, INC.
8	4	NC NNN FINANCIAL ASSOCIATES, LLC & PROSPECT NC NNN, LLC
9	4	GPM SOUTHEAST, LLC
10	4	1210 E. MARION, LLC
11	4	MARGARET WILSON
12	5	CECIL M. BURTON & KIMBERLY SMITH
13	5	WALL INVESTMENTS
14	5	WILLIAM O. MITCHELL ESTATE
15	5	FIRST CHOICE PROPERTIES
16	5	BROAD RIVER HOLDINGS, LLC
17	4	DONALD N. BRIDGES REVOCABLE TRUST
18	4	ELIZABETH BAPTIST CHURCH
19	4	MARTHA A. HERNDON
20	4	LOUISE W. MOORE
21	4	DOROTHY A. SPANGLER
22	4	JACK W. BARRETT
23	5	MICHAEL J. FINNIGAN
24	5	WALL INVESTMENTS

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
U-5775	4

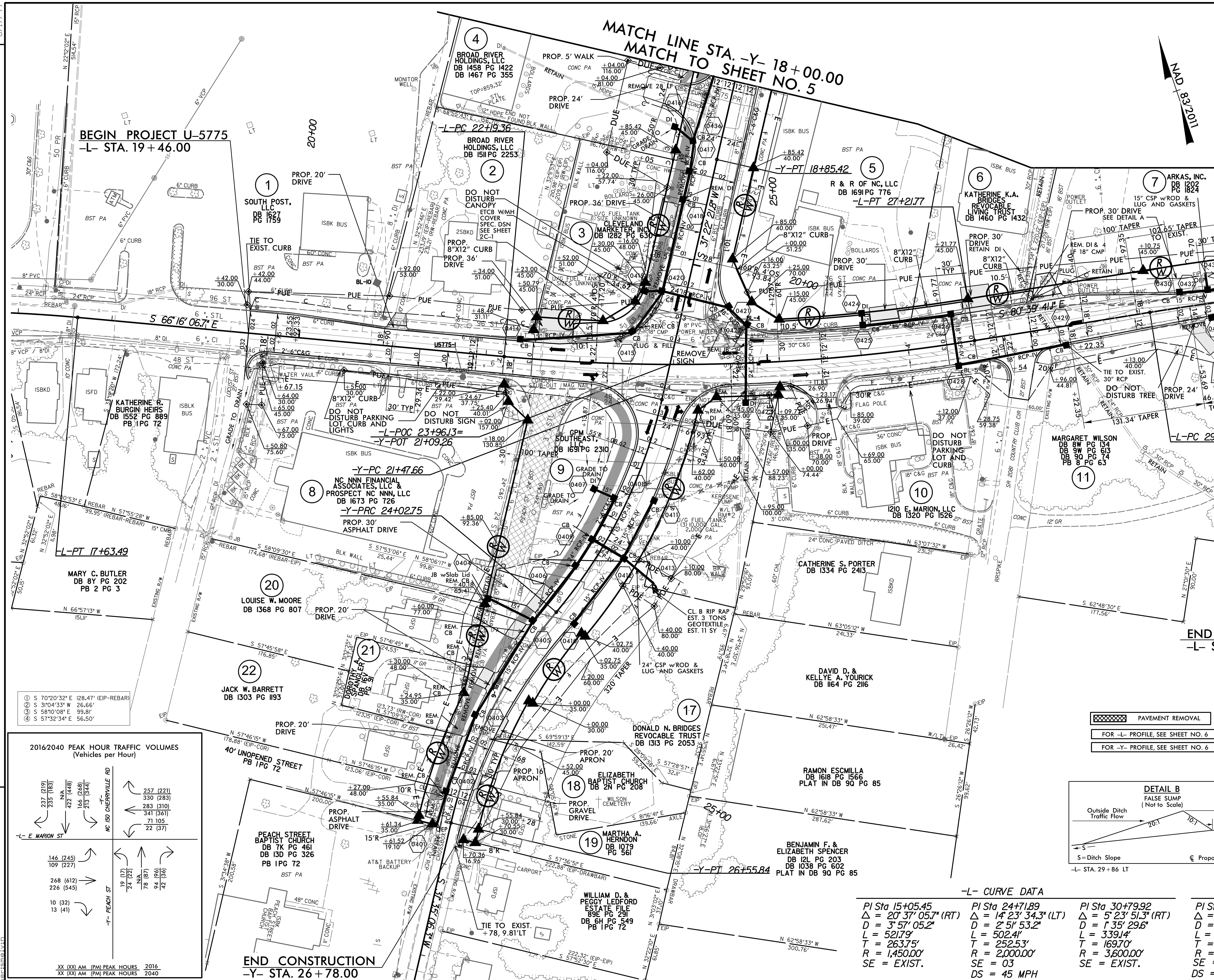
R/W SHEET NO.

ROADWAY DESIGN ENGINEER — SEAL 35018, JIMMY L. TERRY, 3/25/2019

HYDRAULICS ENGINEER — SEAL 038697, DAVID B. PETTY, 3/25/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



FROM -L- STA. 28+24 TO 29+75 LT
(SEE DITCH GRADE SHEET NO. 6)

-L- STA. 29+86 LT

FROM -L- STA. 30+05 TO 30+49 LT
EST. DDE = 12 CY
FROM -L- STA. 30+01 TO 30+28 RT
EST. DDE = 6 CY
S=0.3% TO DAYLIGHT

-L- CURVE DATA

PI Sta 15+05.45	PI Sta 24+71.89	PI Sta 30+79.92
Δ = 20° 37' 05.7" (RT)	Δ = 14° 23' 34.3" (LT)	Δ = 5° 23' 51.3" (RT)
D = 3° 57' 05.2"	D = 2° 51' 53.2"	D = 1° 35' 29.6"
L = 521.79'	L = 502.41'	L = 339.14'
T = 263.75'	T = 252.53'	T = 169.70'
R = 1,450.00'	R = 2,000.00'	R = 3,600.00'
SE = EXIST.	SE = 03	SE = EXIST.
	DS = 45 MPH	

-Y- CURVE DATA

PI Sta 22+77.63	PI Sta 25+31.67
Δ = 27° 03' 58.4" (RT)	Δ = 26° 51' 13.9" (LT)
D = 10° 36' 37.2"	D = 10° 36' 37.2"
L = 255.09'	L = 253.09'
T = 129.97'	T = 128.91'
R = 540.00'	R = 540.00'
SE = NC	SE = NC
DS = 35 MPH	DS = 35 MPH

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-5775	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY
3/25/2019

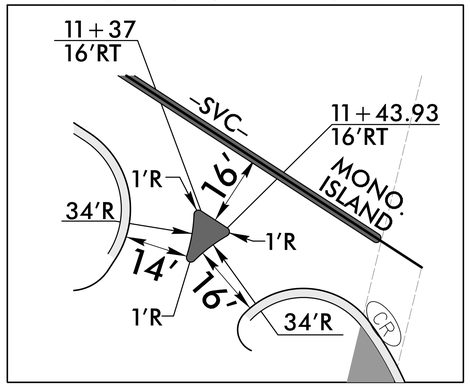
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038697 DAVID B. PETTY
3/25/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NAD 83/2011

DETAIL OF MONOLITHIC ISLAND RT OF –SVC– 11+40±RT



BEGIN CONSTRUCTION
–SVC– STA. 10+55.00

BEGIN CONSTRUCTION
–Y– STA. 11+00.00

END CONSTRUCTION
–SVC– STA. 15+10.00

MATCH LINE STA. –Y– 18+00.00
MATCH TO SHEET NO. 4

–SVC–POT 9+00.00

–Y–POT 8+25.00

–Y–PC 13+37.40

–Y–POC 16+16.59=
–SVC–POT 12+15.23

–SVC–POT 15+25.00

RETAINING WALL #1 W/HANDRAIL
–Y– STA 16+95 TO
–Y– STA 18+05

23 MICHAEL J FINNIGAN DB 1513 PG 682

WALL INVESTMENTS DB 18Y PG 405

MICHAEL J. & ANN R. FINNIGAN DB 1508 PG 1230 PB 6 PG 50

KIMBERLY N. SPURLING & KAREN N. MARTIN DB 1417 PG 85 PB 6 PG 50

BRENDA & DAVID MCDONALD DB 1429 PG 1765 PB 6 PG 50

ROBIN P. KETNER DB 875 PG 894 PB 6 PG 50

WILLIAM O. MITCHELL ESTATE FILE 88E PG 177 DB 7E PG 435 DB 8Y PG 370

DONALD E. BARKLEY DB 1681 PG 326 PB 6 PG 50

FIRST CHOICE PROPERTIES DB 1625 PG 1691 PB 6 PG 50

WALL INVESTMENTS DB 18Y PG 408

SARAH ELIZABETH WALL DB 16R PG 767

CECIL M. BURTON & KIMBERLY SMITH DB 1221 PG 924

16 BROAD RIVER HOLDINGS, LLC DB 1475 PG 1548 DB 1467 PG 313 PB 6 PG 50

SOUTH POST, LLC DB 1627 PG 1759

4 BROAD RIVER HOLDINGS, LLC DB 1458 PG 1422 DB 1467 PG 355

7 ARKAS, INC. DB 1202 PG 1824

5 R & R OF NC, LLC DB 1691 PG 176

6 KATHERINE K. A. BRIDGES REVOCABLE LIVING TRUST DB 1460 PG 1432

Ⓢ S 38°41'50" E 72.40'
Ⓣ S 59°13'58" E 58.12'
Ⓣ N 30°57'34" E 220.12' (EIP–EIP) 217.09' (RW–EIP)
Ⓔ N 29°00'28" E 285.38'

PAVEMENT REMOVAL
FOR –Y– PROFILE, SEE SHEET NO. 7
FOR –SVC– PROFILE, SEE SHEET NO. 7

–Y– CURVE DATA
PI Sta 16+11.43
Δ = 1°34'11.9" (LT)
D = 0°17'11.3"
L = 548.02'
T = 274.03'
R = 20,000.00'
SE = NC
DS > 60 MPH

3/20/2019
X:\NCDOT\U-5775\Roadway\Proj\U-5775_Rdy_psh_05.dgn
User:smelvin

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-5775	6

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY
3/25/2019

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038697 DAVID B. PETTY
3/25/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

–L–

BM#2
RR SPIKE SET IN NORTH SIDE OF POWER POLE
RT 152.80' OF –L– STA 24+64.14
ELEV. = 848.03'

BEGIN GRADE
–L– STA 19+46.00
ELEV. 853.01

PI = 21+40.00
EL = 861.45'
VC = 354'
K = 42
DS = 35 MPH

(+)4.3490%

(–)4.1141%

–L– STA 23+96.13 =
–Y– STA 21+09.26

PI = 25+00.00
EL = 846.64'
VC = 130'
K = 80
DS = 45 MPH

(–)4.1141%

(–)2.4859%

PI = 28+45.00
EL = 838.06'
VC = 250'
K = 67
DS = 45 MPH

(–)2.4859%

(–)6.1897%

(–)5.0000%

BEGIN DITCH GRADE LT
–L– STA 28+24
ELEV. 837.05

END DITCH GRADE LT
–L– STA 29+75
ELEV. 829.50

END GRADE
–L– STA 30+00.00
ELEV. 828.47

LEFT DITCH ——--——

RIGHT DITCH ————————

FOR –L– PLAN, SEE SHEET NO. 4

–Y–

BM#3
RR SPIKE SET IN EAST SIDE OF POWER POLE
RT 54.25' OF –Y– STA 13+28.29
ELEV. = 860.08'

BEGIN GRADE
–Y– STA 11+00.00
ELEV. 861.80

PI = 12+50.00
EL = 860.50'
VC = 150'
K = 612
DS = 80 MPH

(–)0.8656%

(–)1.1105%

(–)1.1105%

FOR –Y– PLAN, SEE SHEET NO. 4

5/28/99

REVISIONS

REVOI III/IO/2021: VPI SHIFTED FROM 31+75.00 TO STA.31+80.00.GRADE ADJUSTED BETWEEN STA.28+50.00 AND STA.35+00.00. K VALUES ADJUSTED FOR VPI STA.31+80.00 AND VPI STA. STA.35+00. DESIGN SPEED ADDED TO VERTICAL CURVE DATA.SPECIAL CUT DITCHES ADJUSTED BETWEEN

PLANS PREPARED BY:
DRMP
DRMP, INC.
4235 SOUTH STREAM BLVD., SUITE 150
CHARLOTTE, NC 28217
NC LICENSE NO. C-2213 (704) 332-2289

PROJECT REFERENCE NO.	SHEET NO.
R-5870	6

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041376 ENGINEER MICHAEL D. HAGE
DocuSigned by: Michael D. Hage 11/12/2021

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044113 ENGINEER RYAN P. MITCHELL
DocuSigned by: Ryan P. Mitchell 11/12/2021

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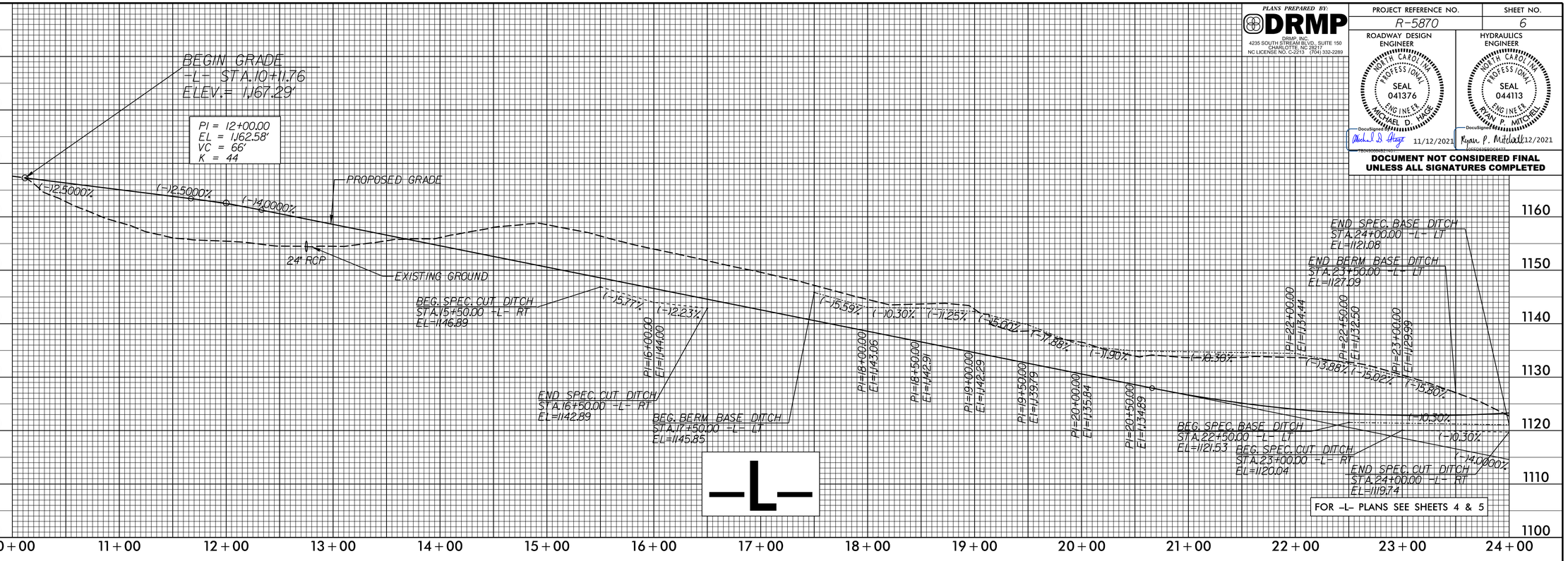

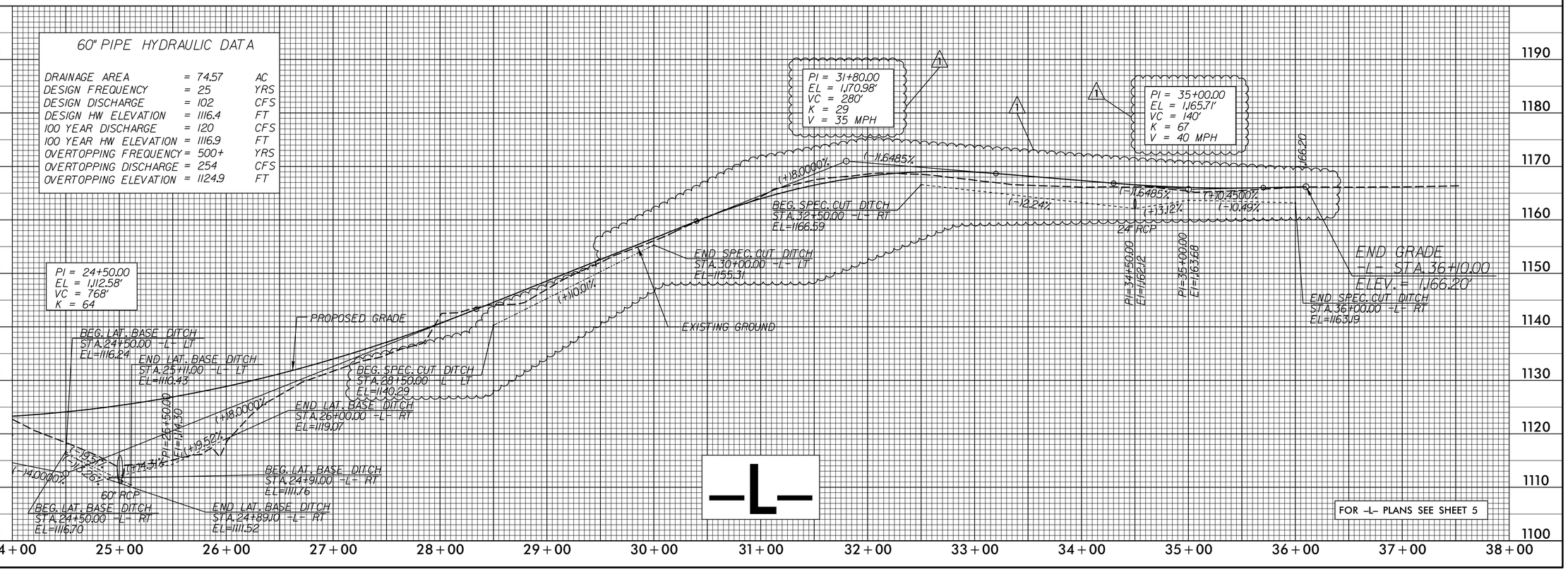

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Mlloga

5/28/99

BM#3
RR SPIKE SET IN EAST SIDE
OF POWER POLE
RT 54.25' OF –Y– STA 13+28.29
ELEV. = 860.08'

–Y–

PI = 19+40.00
EL = 852.84'
VC = 150'
K = 235
DS = 65 MPH

(–)1.1105%

(–)1.7500%

–Y– STA 20+90.80 =
–L– STA 24+00.23,
18' LT (EOP)
EL = 850.20'

03

–Y– STA 21+27.71 =
–L– STA 23+92.11
18' RT (EOP)
EL = 851.62'

PI = 21+80.00
EL = 851.88'
VC = 100'
K = 74
DS = 45 MPH

(+)0.5000%

(–)0.8552%

LOW POINT
–Y– STA 23+16.34
EL = 850.96

(–)0.8552%

PI = 24+00.00
EL = 850.00'
VC = 280'
K = 66
DS = 40 MPH

(+)3.3947%

END GRADE
–Y– STA 26+28.00
ELEV. 857.74

FOR –Y– PLAN, SEE SHEET NO. 5

–SVC–

BEGIN GRADE
–SVC– STA 10+55.00
ELEV. 860.15

(–)2.6507%

–SVC– STA 12+02.51 =
–Y– STA 16+12.38,
12' RT (EOP)
EL = 856.24'

02

02

–SVC– STA 12+40.66 =
–Y– STA 16+25.02,
24' LT (EOP)
EL = 855.86'

PI = 13+60.00
EL = 848.70'
K = 42
VC = 230'
DS = 30 MPH

(–)5.9997%

(–)0.4933%

END GRADE
–SVC– STA 15+10.00
ELEV. 847.96

FOR –SVC– PLAN, SEE SHEET NO. 5

PROJECT REFERENCE NO.	SHEET NO.
U-5775	7

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035018 ENGINEER JIMMY L. TERRY
3/20/2019

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038697 ENGINEER DAVID B. PETTY
3/19/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

3/20/2019
X:\NCDOT\U-5775\Roadway\Proj\U-5775_Rdy_pf1.dgn
User:smalvin

4/19/18

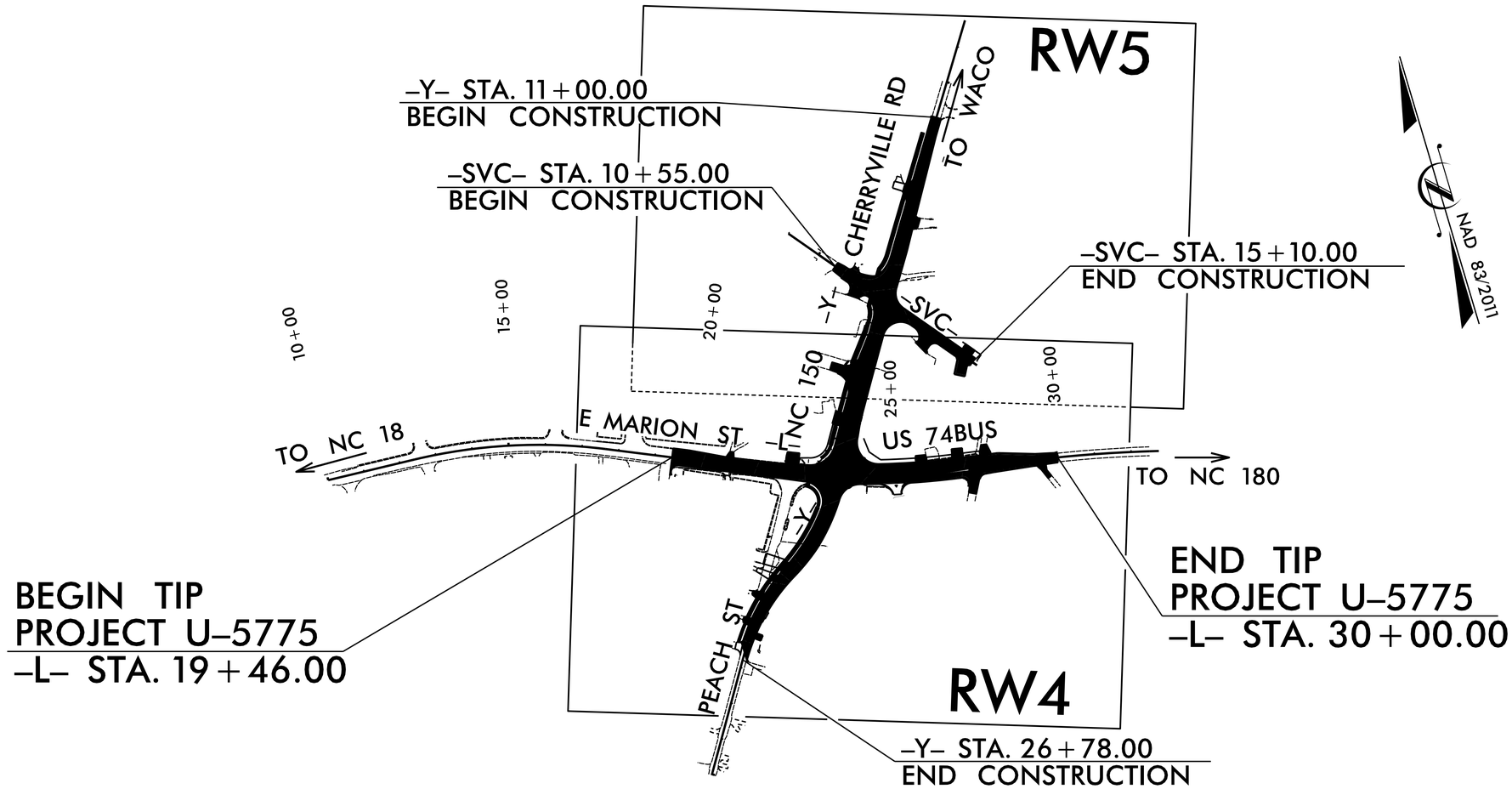
TIP PROJECT: U-5775

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5775	RW01	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES,
RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

CLEVELAND COUNTY



GRAPHIC SCALE

50 25 0 50 100
PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "U5775-1"
WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 571,815.817(ft) EASTING: 1,250,453.485(ft)
ELEVATION: 857.32(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.9998380
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"U5775-1" TO -L- STATION 19+46.00 IS
N 59°56'49.7" W 233.04(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2017 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 1, 2017

LETTING DATE:

PROFESSIONAL LAND SURVEYOR

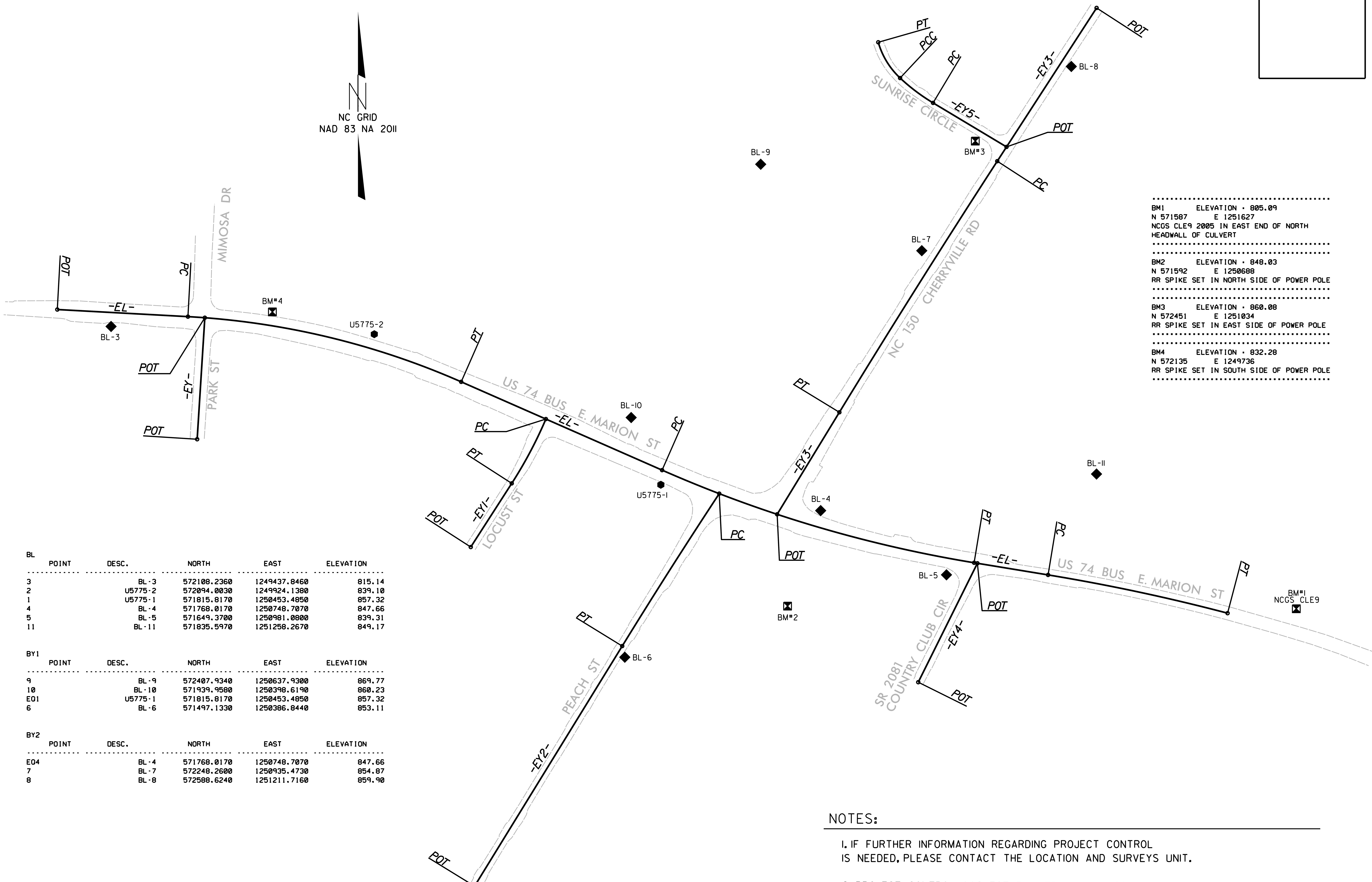
NORTH CAROLINA PROFESSIONAL SEAL L-4775 LAND SURVEYOR MATTHEW T. CORNWELL

SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



**************************************				
BM1	ELEVATION = 805.09			

BM1 ELEVATION = 805.09
N 571587 E 1251627
NCGS CLE9 2005 IN EAST END OF NORTH HEADWALL OF CULVERT

BM2 ELEVATION = 848.03
N 571592 E 1250688
RR SPIKE SET IN NORTH SIDE OF POWER POLE

BM3 ELEVATION = 860.08
N 572451 E 1251034
RR SPIKE SET IN EAST SIDE OF POWER POLE

BM4 ELEVATION = 832.28
N 572135 E 1249736
RR SPIKE SET IN SOUTH SIDE OF POWER POLE

BL

POINT	DESC.	NORTH	EAST	ELEVATION
3	BL-3	572108.2360	1249437.8460	815.14
2	U5775-2	572094.0030	1249924.1380	839.10
1	U5775-1	571815.8170	1250453.4850	857.32
4	BL-4	571768.0170	1250748.7070	847.66
5	BL-5	571649.3700	1250981.0800	839.31
11	BL-11	571835.5970	1251258.2670	849.17

BY1

POINT	DESC.	NORTH	EAST	ELEVATION
9	BL-9	572407.9340	1250637.9300	869.77
10	BL-10	571939.9580	1250398.6190	860.23
EQ1	U5775-1	571815.8170	1250453.4850	857.32
6	BL-6	571497.1330	1250386.8440	853.11

BY2

POINT	DESC.	NORTH	EAST	ELEVATION
EQ4	BL-4	571768.0170	1250748.7070	847.66
7	BL-7	572248.2600	1250935.4730	854.87
8	BL-8	572588.6240	1251211.7160	859.90

NOTE: DRAWING NOT TO SCALE

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.

3/27/19

27-MAR-2019 10:34
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PROJECT REFERENCE NO.	SHEET NO.
U-5775	RW02C-2

Location and Surveys

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	572139.571	1249338.548							
LINE			S 86°53'12.4" E	241.70					
PC	572126.445	1249579.890							
CURVE			S 76°34'39.6" E	518.98	20°37'05.7"(RT)	03°57'05.2"	521.79	263.75	1450.00
PT	572005.975	1250084.695							
LINE			S 66°16'06.7" E	405.36					
PC	571842.837	1250455.781							
CURVE			S 73°27'53.9" E	601.30	14°23'34.3"(LT)	02°23'14.4"	602.89	303.04	2400.00
PT	571671.705	1251032.217							
LINE			S 80°39'41.1" E	138.48					
PC	571649.235	1251168.862							
CURVE			S 77°57'45.4" E	339.02	05°23'51.4"(RT)	01°35'29.6"	339.14	169.70	3600.00
PT	571649.235	1251168.862							

EY

POINT	N	E	BEARING	DIST
POT	572124.411	1249611.077		
LINE			S 03°36'31.4" W	224.95
POT	571899.912	1249596.919		

EY1

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	571937.207	1250241.119							
CURVE			S 27°56'50.9" W	134.51	09°38'43.0"(RT)	07°09'43.1"	134.67	67.50	800.00
PT	571818.380	1250178.078							
LINE			S 32°46'12.4" W	139.91					
POT	571700.736	1250102.348							

EY2

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	571799.391	1250561.354							
CURVE			S 32°28'14.1" W	333.81	01°46'15.6"(LT)	00°31'49.9"	333.83	166.93	10800.00
PT	571517.763	1250382.140							
LINE			S 31°35'06.3" W	520.77					
POT	571074.140	1250109.381							

EY3

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	572696.805	1251258.454							
LINE			S 32°56'33.7" W	337.40					
PC	572413.655	1251074.977							
CURVE			S 32°09'27.7" W	548.01	01°34'11.9"(LT)	00°17'11.3"	548.02	274.03	20000.00
PT	571949.720	1250783.300							
LINE			S 31°22'21.8" W	220.81					
POT	571761.189	1250668.343							

EY4

POINT	N	E	BEARING	DIST
POT	571670.719	1251038.265		
LINE			S 26°26'12.2" W	245.40
POT	571450.985	1250929.013		

EY5

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	572440.042	1251092.076							
LINE			N 59°03'25.6" W	158.19					
PC	572521.379	1250956.402							
CURVE			N 52°58'31.1" W	76.28	12°09'48.9"(RT)	15°54'55.8"	76.43	38.36	360.00
PCC	572567.313	1250895.500							
CURVE			N 31°24'48.3" W	77.40	30°57'36.8"(RT)	39°30'51.6"	78.35	40.16	145.00
PT	572567.313	1250895.500							

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.

8/22/17
27-MAR-2019 10:34
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jjeffreys AT LS-314619

4/20/18

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-5775	RW02D-1
Location and Surveys	

PROPOSED ALIGNMENT CONTROL SHEET

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	572139.5715	1249338.5476
PC	12+41.70	572126.4450	1249579.8897
PT	17+63.49	572005.9755	1250084.6949
PC	22+19.36	571822.5108	1250502.0165
PT	27+21.77	571679.9010	1250982.3804
PC	29+10.75	571649.2345	1251168.8618
PT	32+49.89	571578.5328	1251500.4229
POT	32+75.46	571572.0305	1251525.1447

Y

TYPE	STATION	NORTH	EAST
POT	8+25.00	572843.6673	1251353.6193
PC	13+37.40	572413.6550	1251074.9772
PT	18+85.42	571949.7203	1250783.3001
PC	21+47.66	571725.8219	1250646.7783
PRC	24+02.75	571546.8229	1250468.3667
PT	26+55.84	571369.5308	1250291.0003
POT	30+02.60	571074.1404	1250109.3809

SVC

TYPE	STATION	NORTH	EAST
POT	9+00.00	572424.9260	1250728.4621
POT	15+25.00	571935.9528	1251117.7309

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATINO REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

11/2/18

REVISIONS

RIGHT OF WAY REVISION #4 - NOVEMBER 2,2018 ; PARCEL 10 - REMOVED ALL PERMANENT RIGHT OF WAY AND REVISED EASEMENTS.

RIGHT OF WAY & PERMANENT EASEMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
U-5775	RW03E-1
Location and Surveys	

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4775 LAND SURVEYOR MATTHEW T. CORNWELL

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST	
L	22+22.00	29.42	571794.5022	1250492.6298	
L	22+48.46	-31.11	571839.6556	1250540.8462	
L	22+50.79	-45.00	571851.5640	1250548.3447	
L	23+23.00	-45.00	571825.3547	1250613.8833	MAG NAIL SET
L	24+45.00	35.00	571710.1114	1250702.8671	MAG NAIL SET
L	25+09.77	35.00	571691.5703	1250766.1110	
L	25+11.83	26.90	571698.8302	1250770.2751	MAG NAIL SET
L	25+15.00	-45.00	571767.3427	1250792.2967	MAG NAIL SET
L	27+21.77	-45.00	571724.3046	1250989.6825	MAG NAIL SET
L	29+10.75	-45.00	571693.6381	1251176.1639	
L	30+00.00	-45.00	571677.8711	1251265.1394	
L	30+00.00	-30.00	571663.1348	1251262.3392	

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST	
Y	11+00.00	30.00	572629.1971	1251178.8979	
Y	11+00.00	35.00	572631.9161	1251174.7018	
Y	12+70.00	-30.00	572453.9026	1251136.8048	
Y	12+70.00	-40.00	572448.4646	1251145.1970	
Y	12+82.16	35.00	572479.0425	1251075.6418	
Y	13+32.19	35.00	572437.0561	1251048.4352	
Y	13+37.40	35.00	572432.6880	1251045.6047	
Y	13+37.40	-40.00	572391.9030	1251108.5458	
Y	14+90.00	35.00	572304.0823	1250962.9649	
Y	14+90.00	45.00	572309.4561	1250954.5315	
Y	15+42.00	45.00	572265.4674	1250926.5820	
Y	15+75.00	-40.00	572192.1416	1250980.7816	
Y	16+52.00	45.00	572172.1758	1250867.8355	MAG NAIL SET
Y	17+03.00	-40.00	572083.9017	1250912.9390	
Y	18+85.42	-40.00	571928.8962	1250817.4521	MAG NAIL SET
Y	18+85.42	45.00	571973.1474	1250744.8792	
Y	19+85.00	-40.00	571843.8764	1250765.6113	MAG NAIL SET
Y	20+25.00	-70.00	571794.1063	1250770.4011	MAG NAIL SET
Y	20+30.00	45.00	571849.7065	1250669.6112	MAG NAIL SET
Y	20+52.00	51.00	571834.0467	1250653.0352	MAG NAIL SET
Y	21+50.00	-40.00	571702.8544	1250679.6169	MAG NAIL SET
Y	22+02.00	157.00	571775.7142	1250491.0466	
Y	22+18.00	130.85	571750.3748	1250504.4282	
Y	24+02.75	-40.00	571512.7396	1250489.3030	
Y	24+02.75	-35.00	571517.0000	1250486.6859	
Y	24+40.18	65.41	571579.3762	1250399.1615	EXISTING IRON FOUND
Y	25+00.00	-35.00	571462.6972	1250413.8867	
Y	25+00.00	-30.00	571466.4199	1250410.5489	
Y	25+24.95	35.00	571496.6333	1250347.7966	
Y	26+55.84	35.00	571387.8625	1250261.1850	
Y	26+55.84	-30.00	571353.8179	1250316.5562	BRIDGE SPIKE SET IN TREE ROOT
Y	26+61.34	35.00	571383.1781	1250258.3049	
Y	26+61.52	19.10	571374.6973	1250271.7570	
Y	26+70.36	-16.96	571348.2772	1250297.8458	EXISTING IRON FOUND
Y	26+70.55	-30.00	571341.2939	1250308.8558	

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST	
SVC	9+68.50	35.53	572349.2040	1250743.3271	
SVC	9+68.50	-24.73	572386.7378	1250790.4745	
SVC	11+25.00	-28.42	572266.5970	1250890.8341	
SVC	11+60.00	29.94	572202.8685	1250866.9778	
SVC	12+70.00	-30.00	572154.1387	1250982.3799	
SVC	13+00.00	30.00	572093.2982	1250954.1234	MAG NAIL SET
SVC	15+25.00	-30.00	571954.6377	1251141.2016	MAG NAIL SET
SVC	15+25.00	30.00	571917.2679	1251094.2602	

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST	
L	19+42.00	-44.00	571974.4137	1250265.8176	MAG NAIL SET
L	19+42.00	-30.00	571961.5976	1250260.1833	
L	19+50.80	75.60	571861.3862	1250225.7374	
L	19+64.00	30.00	571897.8171	1250256.1760	
L	19+67.00	75.00	571855.4149	1250240.8121	MAG NAIL SET
L	20+51.00	30.00	571862.8040	1250335.8194	
L	20+92.00	-53.00	571922.2851	1250406.7559	
L	22+24.67	37.75	571785.7831	1250491.7843	
L	22+34.00	-51.00	571863.5044	1250535.6229	
L	25+00.00	35.00	571694.2369	1250756.5291	
L	25+00.00	74.44	571656.2687	1250745.8626	
L	25+23.17	26.94	571695.7751	1250781.3563	MAG NAIL SET
L	25+38.00	70.00	571650.2644	1250785.0259	
L	28+16.00	-188.00	571850.1181	1251105.8724	MAG NAIL SET
L	28+31.00	-234.00	571893.0744	1251128.1380	
L	28+35.00	-182.00	571841.1145	1251123.6470	
L	28+56.00	-245.00	571899.8719	1251154.5916	
L	28+90.00	-223.00	571872.6463	1251184.5711	MAG NAIL SET
L	29+02.00	-240.00	571887.4738	1251199.1706	MAG NAIL SET
L	30+71.00	-51.00	571669.6270	1251336.8623	
L	30+71.00	-30.00	571649.0775	1251332.5360	

ROW MARKER PERMANENT EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST	
Y	8+38.00	30.00	572849.0715	1251321.3735	
Y	8+64.02	-30.00	572794.6108	1251357.5791	
Y	8+64.03	-55.30	572780.8420	1251378.8034	
Y	8+96.00	-30.00	572767.7690	1251340.1860	
Y	8+96.00	-55.00	572754.1740	1251361.1664	
Y	9+23.00	55.00	572791.3332	1251254.1701	MAG NAIL SET
Y	11+75.00	60.00	572582.5700	1251112.9365	
Y	11+75.00	35.00	572568.9750	1251133.9169	
Y	11+95.00	-30.00	572516.8437	1251177.5898	
Y	11+95.00	-50.00	572505.9677	1251194.3741	
Y	12+00.00	60.00	572561.5896	1251099.3415	
Y	12+00.00	35.00	572547.9946	1251120.3219	
Y	12+15.00	-30.00	572500.0594	1251166.7138	
Y	12+15.00	-50.00	572489.1834	1251183.4981	
Y	12+83.07	60.99	572492.4143	1251053.3371	
Y	13+33.12	61.59	572450.7349	1251025.6185	
Y	15+24.00	-40.00	572235.1470	1251008.0053	
Y	15+54.00	65.40	572266.2156	1250902.9057	
Y	16+88.00	-55.09	572088.6283	1250933.6554	
Y	17+87.00	-40.00	572012.6343	1250868.7944	
Y	17+87.00	-54.00	572005.2871	1250880.7116	
Y	17+91.00	45.00	572053.8294	1250794.3365	
Y	18+04.00	116.00	572079.9443	1250727.0359	MAG NAIL SET
Y	18+04.00	81.00	572061.6017	1250756.8444	MAG NAIL SET
Y	19+04.00	116.00	571994.2482	1250674.5875	
Y	19+26.00	45.00	571938.5018	1250723.7540	
Y	20+16.00	-63.25	571805.3046	1250769.3234	MAG NAIL SET
Y	21+62.00	-40.00	571691.9550	1250672.7379	MAG NAIL SET
Y	23+10.00	-80.00	571541.8961	1250595.7600	
Y	23+10.00	-40.00	571571.8995	1250569.3063	
Y	23+40.00	-40.00	571551.2717	1250544.5576	
Y	23+40.00	-80.00	571519.8457	1250569.3045	

ROW MARKER PERMANENT EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
SVC	12+92.00	-30.00	572136.9269	1250996.0822
SVC	14+60.00	52.00	571954.4188	1251036.5643
SVC	14+60.00	30.00	571968.1211	1251053.7762
SVC	15+25.00	9.90	571929.7866	1251109.9854

I, Matthew T. Cornwell, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 2nd day of November, 2018.

---------- L-4775

Professional Land Surveyor PLS # Seal

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.

11/2/18

REVISIONS

RIGHT OF WAY REVISION #4 - NOVEMBER 2, 2018 ; PARCEL 10 - REMOVED ALL PERMANENT RIGHT OF WAY AND REVISED EASEMENTS.

PROJECT REFERENCE NO.	SHEET NO.
U-5775	RW04

Location and Surveys

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-4775 MATHEW T. CORNWELL

I, Matthew T. Cornwell, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 2nd day of November, 2018.

----------------------------- L-4775

Professional Land Surveyor PLS # Seal

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.

PROJECT REFERENCE NO.	SHEET NO.
U-5775	RW05

Location and Surveys

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4775 LAND SURVEYOR MATTHEW T. CORNWELL

NAD 83/2011

4/19/18

REVISIONS

I, Matthew T. Cornwell, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

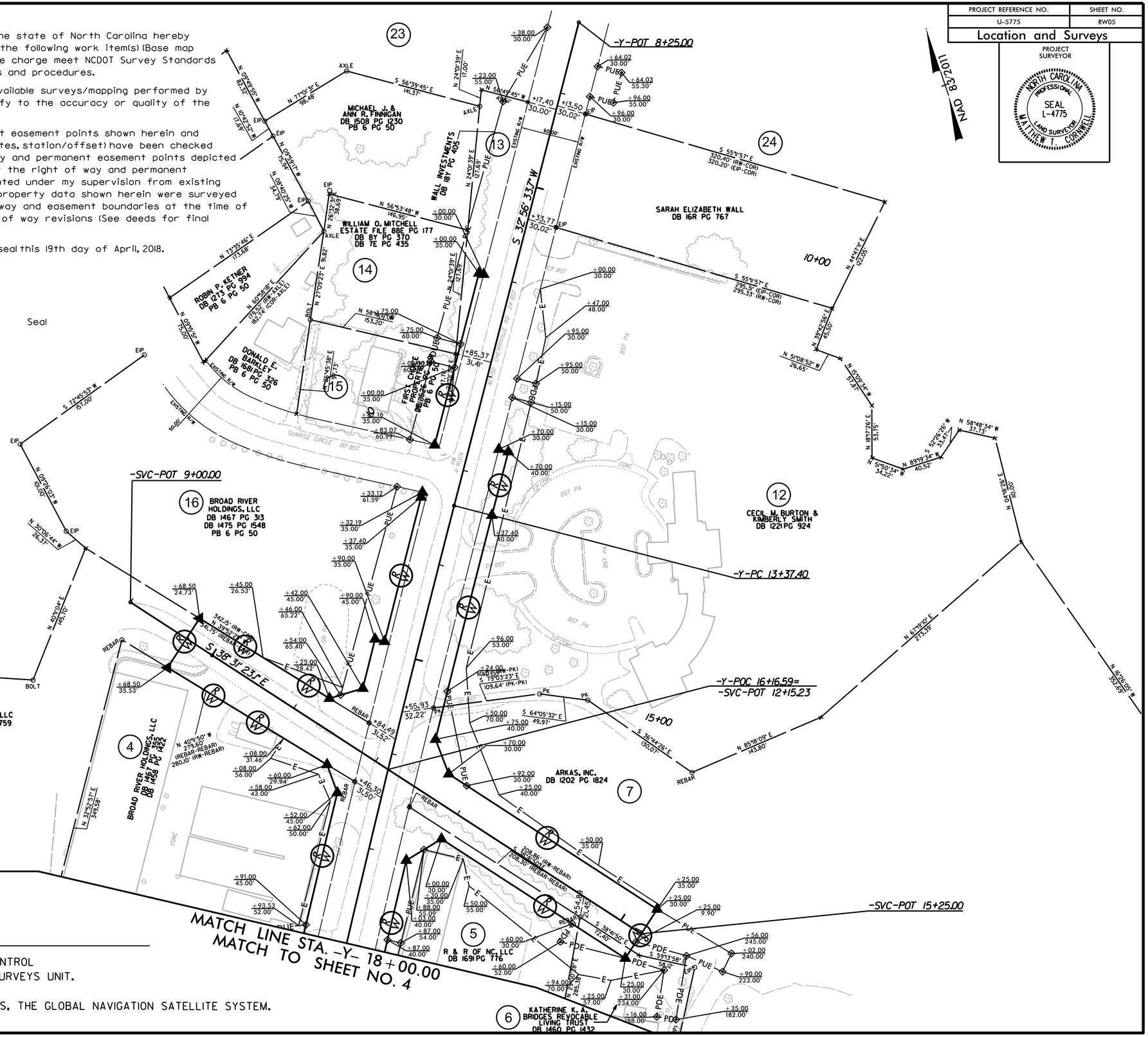
I further certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 19th day of April, 2018.

---------- L-4775

Professional Land Surveyor PLS # Seal



NOTES:

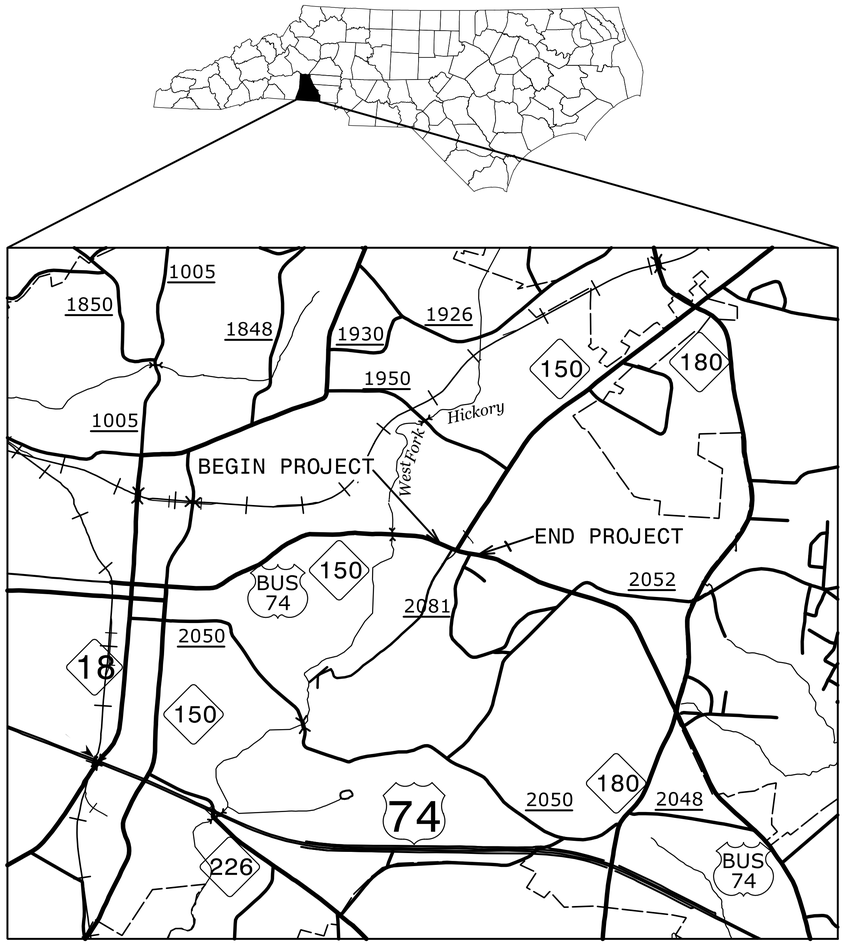
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CLEVELAND COUNTY



VICINITY MAP

INDEX OF SHEETS

SHEET NO.
TMP-1

TIP PROJECT: U-5775

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: _____

DATE: 3/25/2019

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

JIMMY L. TERRY, PE — *PROJECT ENGINEER*
SANDRA G. MELVIN — *DESIGN TECHNICIAN*

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

3/20/2019
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ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - 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
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS

PROJ. REFERENCE NO.	SHEET NO.
U-5775	TMP-1A

TGS ENGINEERS
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CORP. LICENSE NO.: C-0275

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL
- TEMPORARY PAVEMENT
- WEDGING

SIGNALS

EXISTING PROPOSED TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

APPROVED: _____

DATE: 3/25/2019

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY

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

ROADWAY STANDARD DRAWINGS & LEGEND

3/20/2019
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User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
U-5775	TMP-1B

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

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 UNDESIRED 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
E. MARION/ US 74BUS	MONDAY TO FRIDAY 7:00 AM TO 9:00 AM
	MONDAY TO FRIDAY 4:00 PM TO 6:00 PM
CHERRYVILLE RD/ NC 150	MONDAY TO FRIDAY 7:00 AM TO 9:00 AM
	MONDAY TO FRIDAY 4:00 PM TO 6:00 PM
PEACH ST	MONDAY TO FRIDAY 7:00 AM TO 9:00 AM
	MONDAY TO FRIDAY 4:00 PM TO 6:00 PM

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

ROAD NAME

E MARION/ US 74BUS
CHERRYVILLE RD/ NC 150
PEACH ST

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 4:00 P.M. DECEMBER 31st TO 9:00 A.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 9:00 A.M. THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 4:00 P.M. THURSDAY AND 9:00 A.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 4:00 P.M. FRIDAY TO 9:00 A.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF THE DAY BEFORE INDEPENDENCE DAY AND THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 4:00 P.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 A.M. THE TUESDAY AFTER INDEPENDENCE DAY.
6. FOR LABOR DAY, BETWEEN THE HOURS OF 4:00 P.M. FRIDAY AND 9:00 A.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 4:00 P.M. TUESDAY TO 9:00 A.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 4:00 P.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 A.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) 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.

D) 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.

E) 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.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL 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.

G) 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.

PAVEMENT EDGE DROP OFF REQUIREMENTS

H) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

I) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 100 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

J) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

K) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

L) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

M) INSTALL BLACK ON ORANGE ''DIP'' SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

N) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

O) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
E. MARION/ US 74 BUS	PAINT	NONE
CHERRYVILLE RD/ NC 150	PAINT	NONE
PEACH ST	PAINT	NONE

Q) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE.

R) 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.

S) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

T) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

U) TRACE THE PROPOSED MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO INSTALLATION. PLACE DRUMS TO DELINEATE ANY PROPOSED MONOLITHIC ISLANDS BEFORE INSTALLATION

MISCELLANEOUS

V) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

W) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE ''PAVEMENT ENDS'' SIGNS (W8-3) AND RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

X) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.

LOCAL NOTES

UNLESS OTHERWISE NOTED PROVIDE ACCESS TO ALL DRIVES ANND SIDE STREETS AT ALL TIMES.

UNLESS OTHERWISE NOTED TWO WAY THROUGH TRAFFIC SHALL BE MAINTAINED ON TWO 11 FT (MIN) LANES AT ALL TIMES WHILE FLAGGERS ARE NOT AT WORK.

MANAGEMENT STRATEGIES

THE PROPOSED CONSTRUCTION OF E MARION/ US 74 BUS (-L-), CHERRYVILLE RD/ NC 150 (-Y-) AND THE REALIGNMMENT OF PEACH ST (-Y-) WILL BE UTILIZING TEMPORARY LANE CLOSURES AND FLAGGERS.

APPROVED: _____

DATE: 3/25/2019

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER JIMMY L. PERRY SEAL 35018 ENGINEER JIMMY L. PERRY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TRANSPORTATION OPERATIONS PLAN

3/20/2019
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PROJ. REFERENCE NO.	SHEET NO.
U-5775	TMP-2

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NOTE:
UNLESS OTHERWISE NOTED PROVIDE ACCESS TO ALL DRIVES AT ALL TIMES.
TWO WAY THROUGH TRAFFIC SHALL BE MAINTAINED ON TWO 11 FT (MIN.) LANES AT ALL TIMES WHILE FLAGGERS ARE NOT AT WORK.

PHASE I

STEP 1:

INSTALL ALL ADVANCED WORK ZONE WARNING SIGNS ON -L- AND ALL -Y- LINES IN ACCORDANCE WITH NCDOT RDY STD DRAWING 1101.01, SHEET 3 OF 3.

NOTE:
THE CONTRACTOR MAY PERFORM THE WORK DESCRIBED IN PHASE 1 STEP 2 AND PHASE 1 STEP 3 CONCURRENTLY.

STEP 2:

WITHOUT DISTURBING ANY EXISTING TRAFFIC
CONSTRUCT THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE: (SEE TMP-2 & 3)
-Y- STA. 21+27.71 TO 25+57+/-
CONSTRUCT THE ADJACENT CURB & GUTTER, SIDEWALK AND DRIVES AS SHOWN ON PLANS.
(SEE TMP-2 & 3)

STEP 3:

WITHOUT DISTURBING ANY EXISTING TRAFFIC
CONSTRUCT THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE: (SEE TMP-2 &3)
-SVC- STA. 12+40.66 TO 15+10.00
CONSTRUCT THE ADJACENT CURB & GUTTER AND GUARDRAIL AS SHOWN ON PLANS.
(SEE TMP-2 & 3)

STEP 4:

OPEN THE NEWLY CONSTRUCTED SECTION OF -SVC- TO TRAFFIC AND CLOSE THE EXISTING DRIVEWAYS CONNECTING THE R & R OF NC PROPERTY TO CHERRYVILLE RD (-Y-). (SEE TMP-2)

CLOSE THE EXISTING DRIVEWAY CONNECTING THE NC NNN FINANCIAL ASSOC, LLC & PROSPECT NC NNN, LLC PROPERTY TO E. MARION ST (-L-). TRAFFIC TO THE PROPERTY TO UTILIZE THE EXISTING ENTRANCES ON LOCUST ST OR PEACH ST. (SEE TMP-2)

WHILE MAINTAINING THE EXISTING TRAFFIC PATTERN WIDEN AND WEDGE THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE,USING TEMPORARY LANE CLOSURES AND FLAGGERS AS NEEDED:
E. MARION/ US 74 BUS FROM L- STA 19+46.00 TO -L- STA. 30+00.00
CHERRYVILLE RD FROM -Y- STA. 11+00.00 TO Y- STA. 20+90.80
-SVC- FROM STA. 10+55.00 TO 12+02.51
(SEE TMP-3, SEE NCDOT RDY STD DRAWING 1101.02, SHEET 1 OF 14)

TIE EXISTING PEACH ST TO THE NEW E MARION PAVEMENT BY PLACING TEMPORARY PAVEMENT, AS NECESSARY. (SEE TMP-2)

CONSTRUCT THE ADJACENT CURB & GUTTER, SIDEWALKS AND DRIVES AS SHOWN ON PLAN.
(SEE TMP-2)
PLACE BARRICADES WITH SIGN R9-9 TO KEEP THE SIDEWALKS CLOSED DURING CONSTRUCTION. (SEE TMP-2)

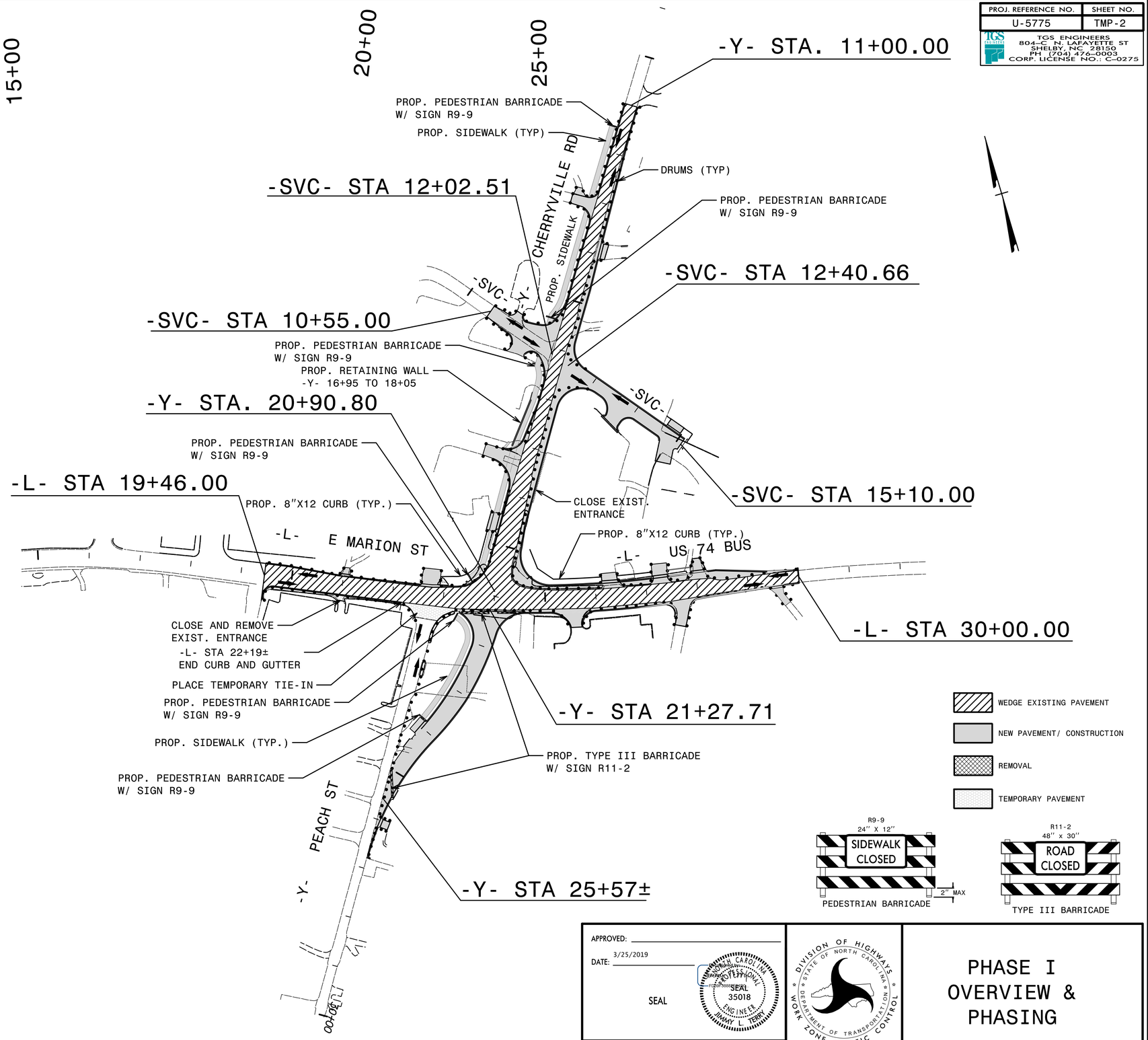
TO KEEP EXISTING PEACH ST OPEN TO TRAFFIC END PROP CURB AND GUTTER AT -L- STA 22+19+/- RT. (SEE TMP-2)

CONSTRUCT THE RETAINING WALL FROM -Y- STA 16+95 TO 18+05. (SEE ROADWAY PLANS FOR LAYOUT)
PLACE CHANNELIZATION CURBS AS SHOWN ON PLANS (SEE ROADWAY PLANS FOR LAYOUT)

REMOVE EXIST PAVEMENT AND DRIVE ENTRANCES AS SHOWN ON PLANS. (SEE TMP-2)

INSTALL NEW SIGNAL SYSTEM (SEE SIGNAL PLANS)

IF NECESSARY USE TEMPOARY PAVEMENT MARKINGS TO MAINTAIN/REPLACE EXISTING PAVEMENT MARKINGS.



APPROVED: _____

DATE: 3/25/2019

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L TERRY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PHASE I OVERVIEW & PHASING

3/20/2019
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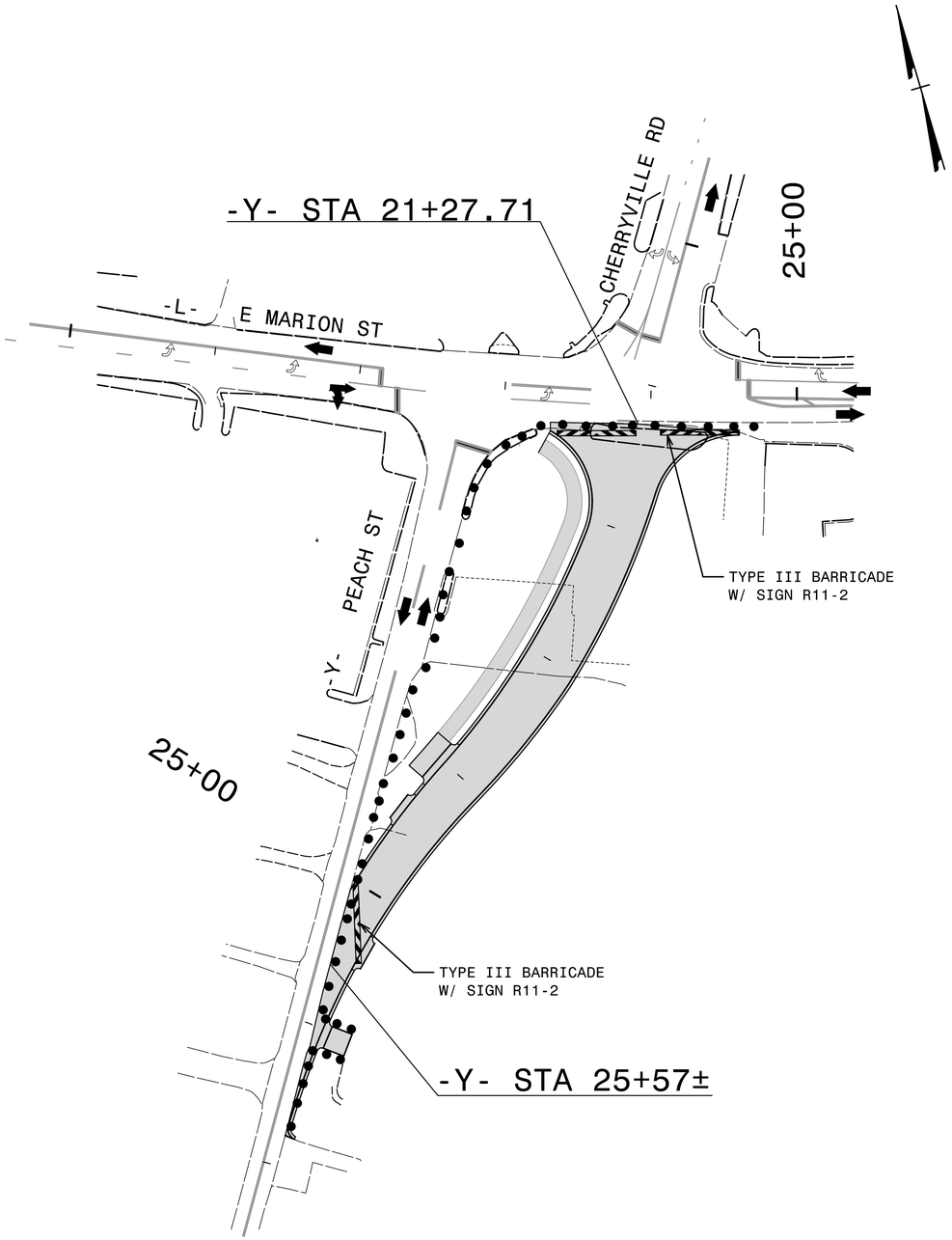
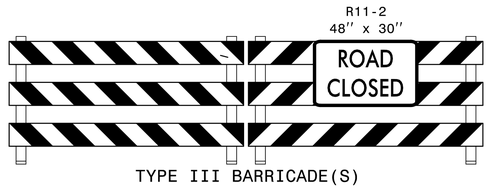
PHASE 1, STEP 2:



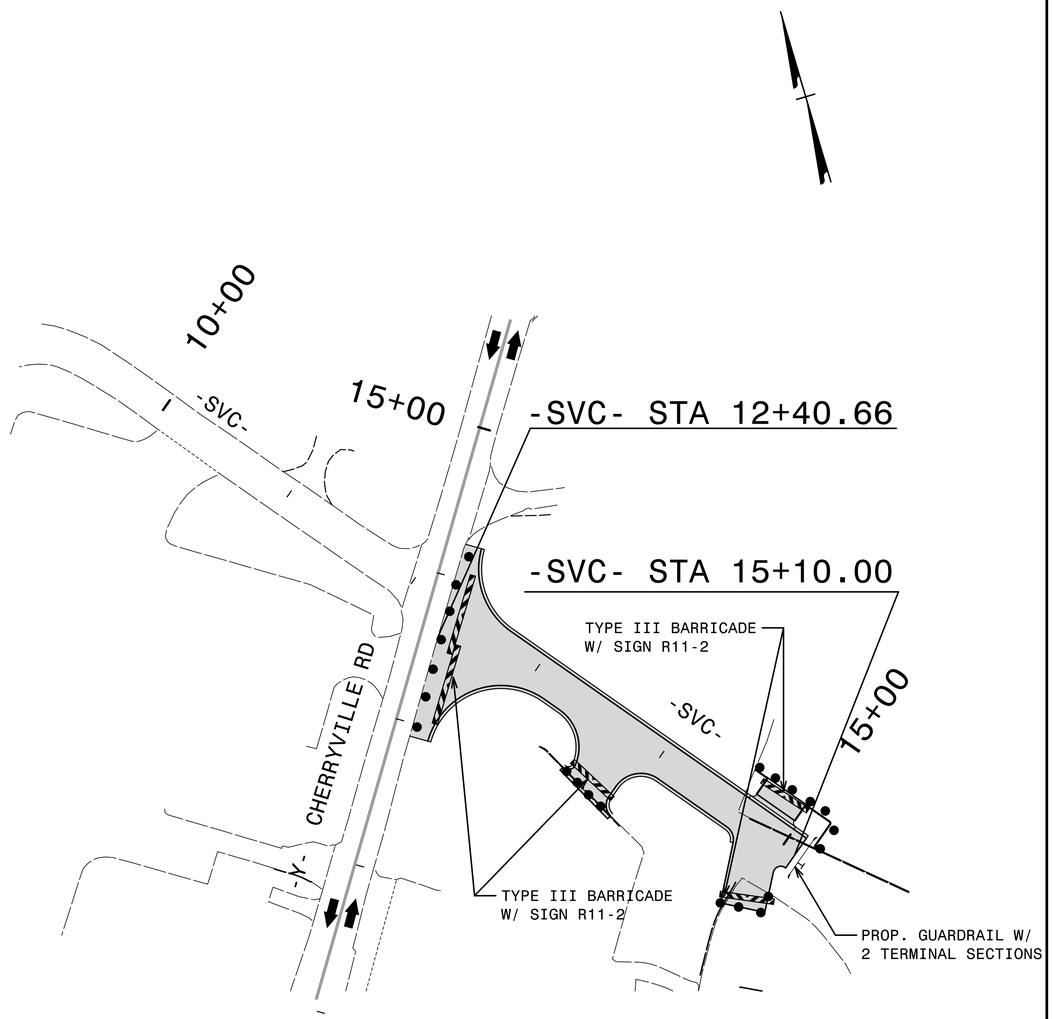


TYPE III BARRICADE(S)

PHASE 1, STEP 3:

PROJ. REFERENCE NO.	SHEET NO.
U-5775	TMP-3

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



APPROVED: _____

DATE: 3/25/2019

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY

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

PHASE I DETAILS

3/20/2019
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User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
U-5775	TMP-4

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PHASE II

STEP 1:

USING TEMPORARY LANE CLOSURES AND FLAGGERS AS NEEDED PLACE TEMPORARY PAVEMENT MARKINGS AS FOLLOWS:
-L- STA. 19+46.00 TO 30+00.00
-Y- STA 11+00.00 TO 26+28.00
(SEE TMP-4, 5 & 6, SEE NCDOT RDY STD DRAWING 1101.02, SHEET 1 OF 14)

SHIFT THE PEACH ST TRAFFIC ONTO THE NEW ALIGNMENT AND OPEN ALL NEW LANES ON E MARION/US 74 BUS (-L-) AND CHERRYVILLE RD (-Y-) TO TRAFFIC.

ACTIVATE THE NEW SIGNAL.

STEP 2:

USING TEMPORARY LANE CLOSURES AND FLAGGERS AS NEEDED CONSTRUCT THE REMAINING SECTION OF -Y- FROM -Y- STA. 25+57+/- TO 26+78.00.
(SEE TMP-4 & 5, SEE NCDOT RDY STD DRAWING 1101.02, SHEET 1OF 14)

CONSTRUCT THE ADJACENT CURB & GUTTER, SIDEWALK AND DRIVES AS SHOWN ON PLAN. (SEE TMP-4 & 5).

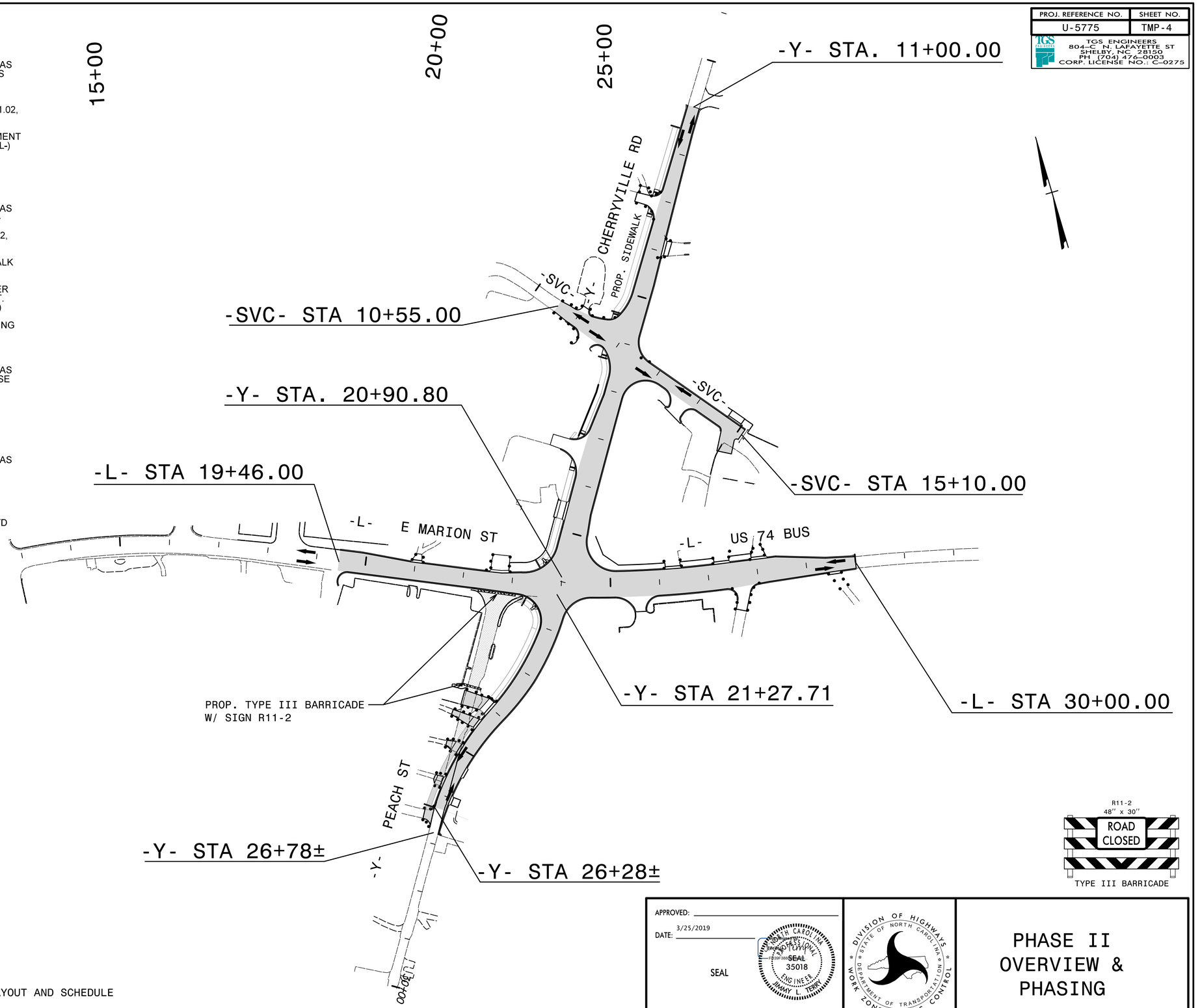
PLACE THE REMAINING SECTION OF CURB AND GUTTER FROM -L- STA. 22+19+/- LT TO THE PEACH ST TURNOUT. COMPLETE THE ADJACENT SIDEWALK. (SEE TMP-4 & 5)

REMOVE THE OLD PEACH STREET PAVEMENT INCLUDING THE TEMPORARY PAVEMENT PLACE IN PHASE 1. (SEE TMP-4)

STEP 3:
USING TEMPORARY LANE CLOSURES AND FLAGGERS AS NEEDED PLACE THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS:
-L- STA. 19+46.00 TO 30+00.00
-Y- STA 11+00.00 TO 26+28.00
-SVC- STA. 10+55.00 TO 12+02.51
-SVC- STA. 12+40.66 TO 15+10.00
(SEE TMP-4, SEE NCDOT RDY STD DRAWING 1101.02, SHEET 1OF 14)

USING TEMPORARY LANE CLOSURES AND FLAGGERS AS NEEDED PLACE FINAL PAVEMENT MARKINGS AND MARKERS AS FOLLOWS:
-L- STA. 19+46.00 TO 30+00.00
-Y- STA 11+00.00 TO 26+28.00
-SVC- STA. 10+55.00 TO 12+02.51
-SVC- STA. 12+40.66 TO 15+10.00
(SEE PAVEMENT MARKING PLANS, SEE NCDOT RDY STD DRAWING 1101.02, SHEET 1 OF 14)

OPEN MULTI-USE PATH.
REMOVE ALL TRAFFIC CONTROL DEVICES.



FOR TEMPORARY PAVEMENT MARKING LAYOUT AND SCHEDULE
SEE TMP-5 & TMP-6

R11-2
48" x 30"
ROAD CLOSED
TYPE III BARRICADE

APPROVED: _____

DATE: 3/25/2019

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY

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

PHASE II OVERVIEW & PHASING

3/20/2019
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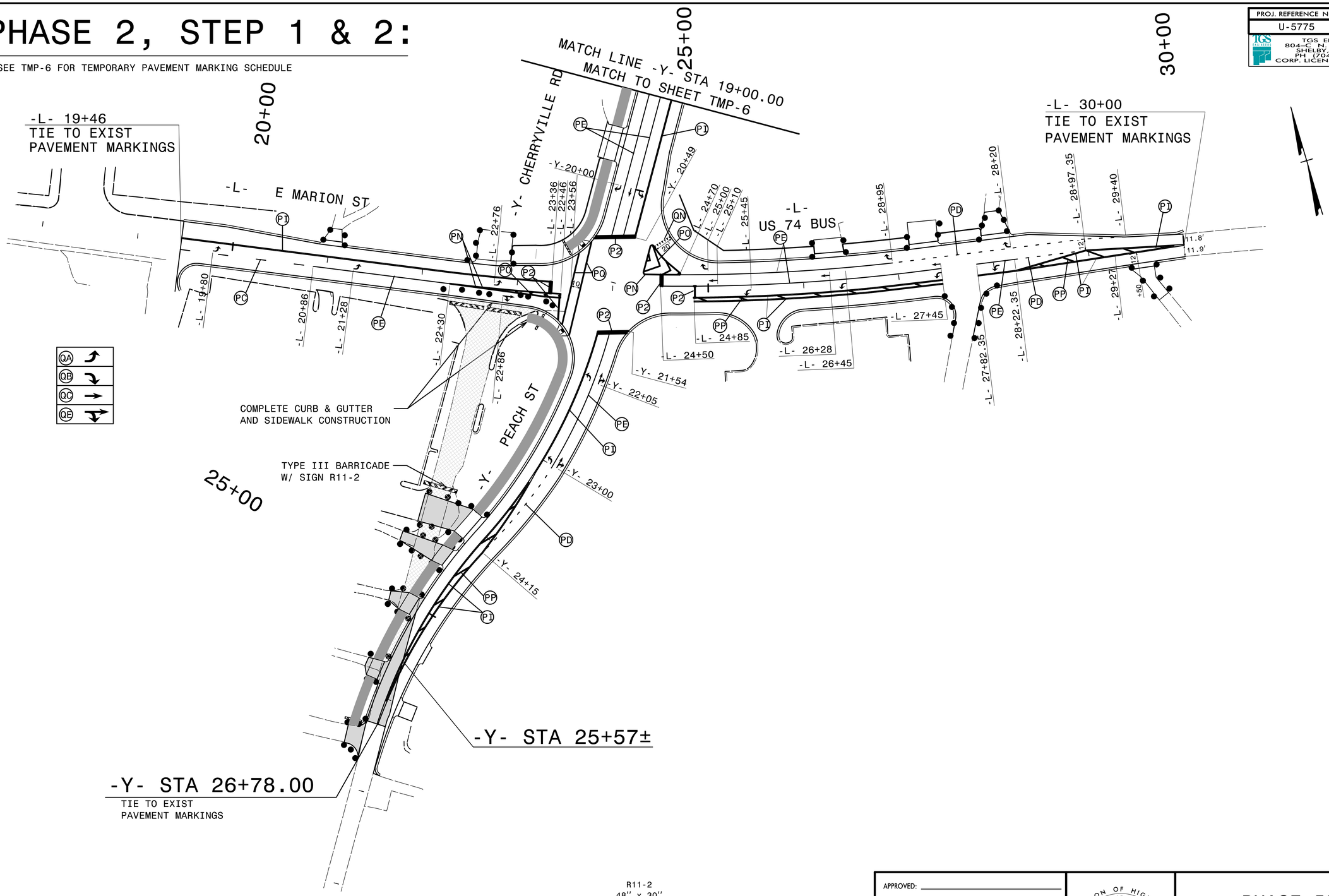
User:smevin

PHASE 2, STEP 1 & 2:

SEE TMP-6 FOR TEMPORARY PAVEMENT MARKING SCHEDULE

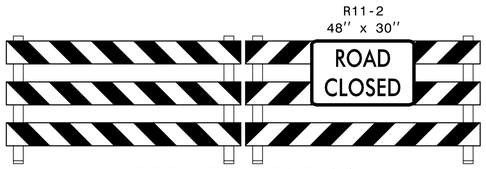
PROJ. REFERENCE NO.	SHEET NO.
U-5775	TMP-5

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



NEW PAVEMENT/ CONSTRUCTION

REMOVAL



TYPE III BARRICADE(S)

APPROVED: _____

DATE: 3/25/2019

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PHASE II DETAILS AND TEMPORARY PAVEMENT MARKINGS

3/20/2019
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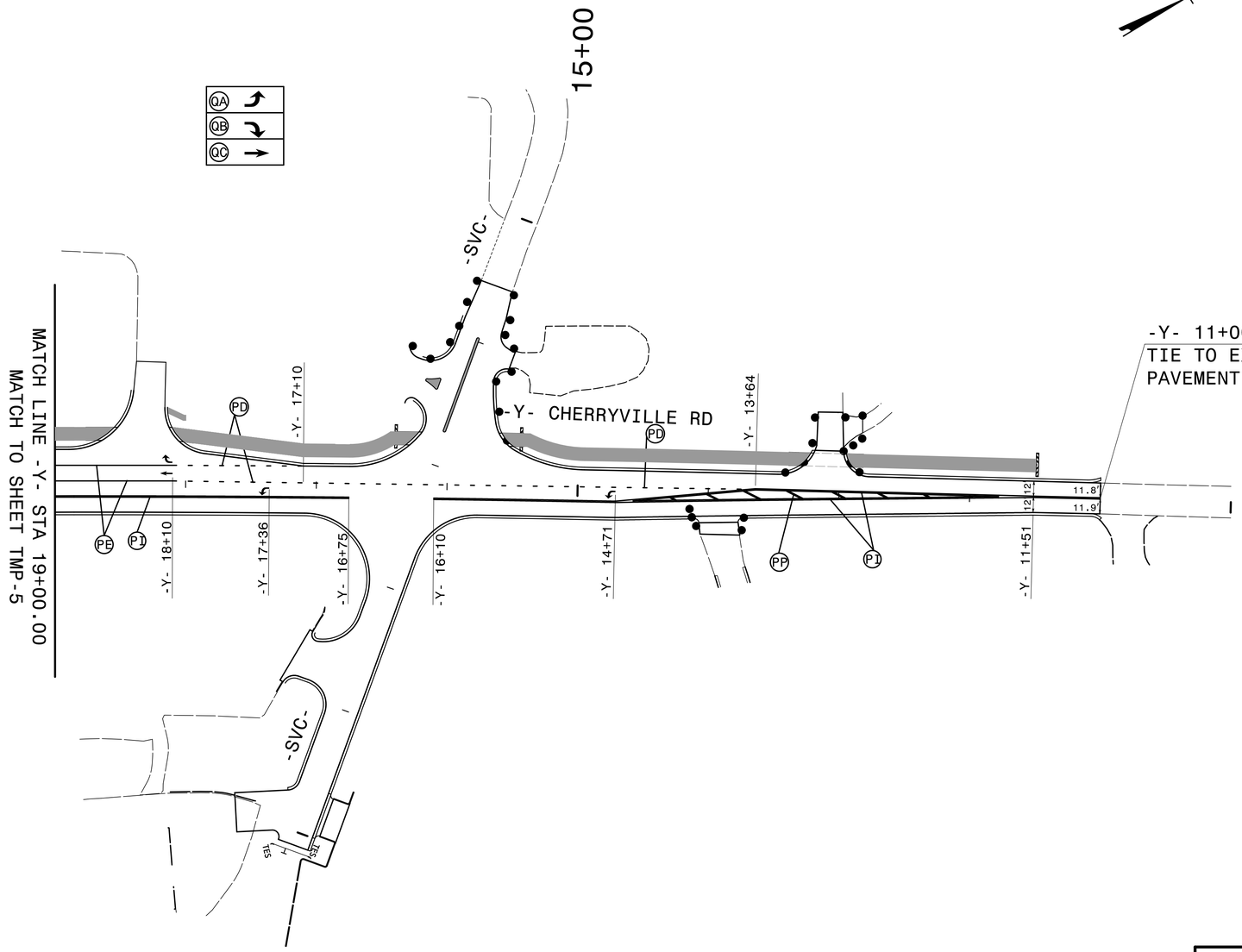
User:rsmelvin

PHASE 2, STEP 1:

PROJ. REFERENCE NO.	SHEET NO.
U-5775	TMP-6

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



-Y- 11+00
TIE TO EXIST
PAVEMENT MARKINGS

TEMPORARY PAVEMENT SCHEDULE

PAVEMENT MARKINGS

PAINT(24″)

P2	WHITE STOPBAR

PAINT(4″)

PC	10 FT. WHITE SKIP
PD	3 FT. - 9 FT./SP WHITE MINISKIP
PE	WHITE SOLID LANE LINE
PI	YELLOW DOUBLE CENTER

PAINT(8″)

PN	WHITE GORELINE
PO	WHITE DIAGONAL
PP	YELLOW DIAGONAL
PQ	WHITE CROSSWALK LINE

PAINTMARKING SYMBOLS

QA	LEFT TURN ARROW
QB	RIGHT TURN ARROW
QC	STRAIGHT ARROW
QE	COMBO.STRAIGHT/RIGHT
QN	24″ YIELD LINE TRIANGLE

APPROVED: _____

DATE: 3/25/2019

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L TERRY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PHASE II TEMPORARY PAVEMENT MARKINGS AND SCHEDULE

3/20/2019
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User:smelvin

T.I.P.: U-5775

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

CLEVELAND COUNTY

LOCATION: INTERSECTION OF US 74 BUS (MARION ST) AT NC 150 (CHERRYVILLE RD) AND PEACH ST

TIP NO.	SHEET NO.
U-5775	PMP-1

APPROVED: _____

DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY

3/25/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY STANDARD DRAWING

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 AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE

INDEX

PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

JIMMY L. TERRY, PE — PROJECT ENGINEER

SANDRA MELVIN — DESIGN TECHNICIAN

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
E. MARION ST/US 74 BUS	THERMOPLASTIC	SNOWPLOWABLE RAISED
CHERRYVILLE RD/ NC 150	THERMOPLASTIC	SNOWPLOWABLE RAISED
PEACH ST	THERMOPLASTIC	SNOWPLOWABLE RAISED

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) STOP BAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED 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. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

F) SEE ROADWAY PLANS FOR ALTERNATE CURB RAMP DESIGNS WHEN INDICATED ON PAVEMENT MARKING DETAIL SHEETS.

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
	PAVEMENT MARKINGS
THERMOPLASTIC(24", 90 MILS)	
T2	WHITE STOPBAR
T3	WHITE CROSSWALK LINE
THERMOPLASTIC(4", 90 MILS)	
T8	2 FT. - 6 FT./SP WHITE MINISKIP
TC	10 FT. WHITE SKIP
TD	3 FT. - 9 FT./SP WHITE MINISKIP
TE	WHITE SOLID LANE LINE
TI	YELLOW DOUBLE CENTER
THERMOPLASTIC(8", 90 MILS)	
TQ	WHITE CROSSWALK LINE
TN	WHITE GORELINE
TO	WHITE DIAGONAL
TP	YELLOW DIAGONAL

SYMBOL	DESCRIPTION
THERMOPLASTICPAVEMENT MARKING SYMBOLS (90 MILS)	
UA	LEFT TURN ARROW
UB	RIGHT TURN ARROW
UC	STRAIGHT ARROW
UE	COMBO.STRAIGHT/RIGHT
UN	24" YIELD LINE TRIANGLE
	MARKERS
SNOWPLOWABLE RAISED PAVEMENT MARKERS	
ME	YELLOW & YELLOW
MF	CRYSTAL & RED

3/20/2019
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User:smelvin

SEE PMP-1 FOR FINAL PAVEMENT MARKING SCHEDULE

SEE SIGNAL PLANS TO VERIIFY STOPBAR AND CURB RAMP LOCATIONS.

(ME) & (MF) SEE NCDOT RDY STD 1250.01 FOR MARKER LOCATIONS AND SPACING

TIP NO.	SHEET NO.
U-5775	PMP-2

APPROVED: _____

DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L TERRY

3/25/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
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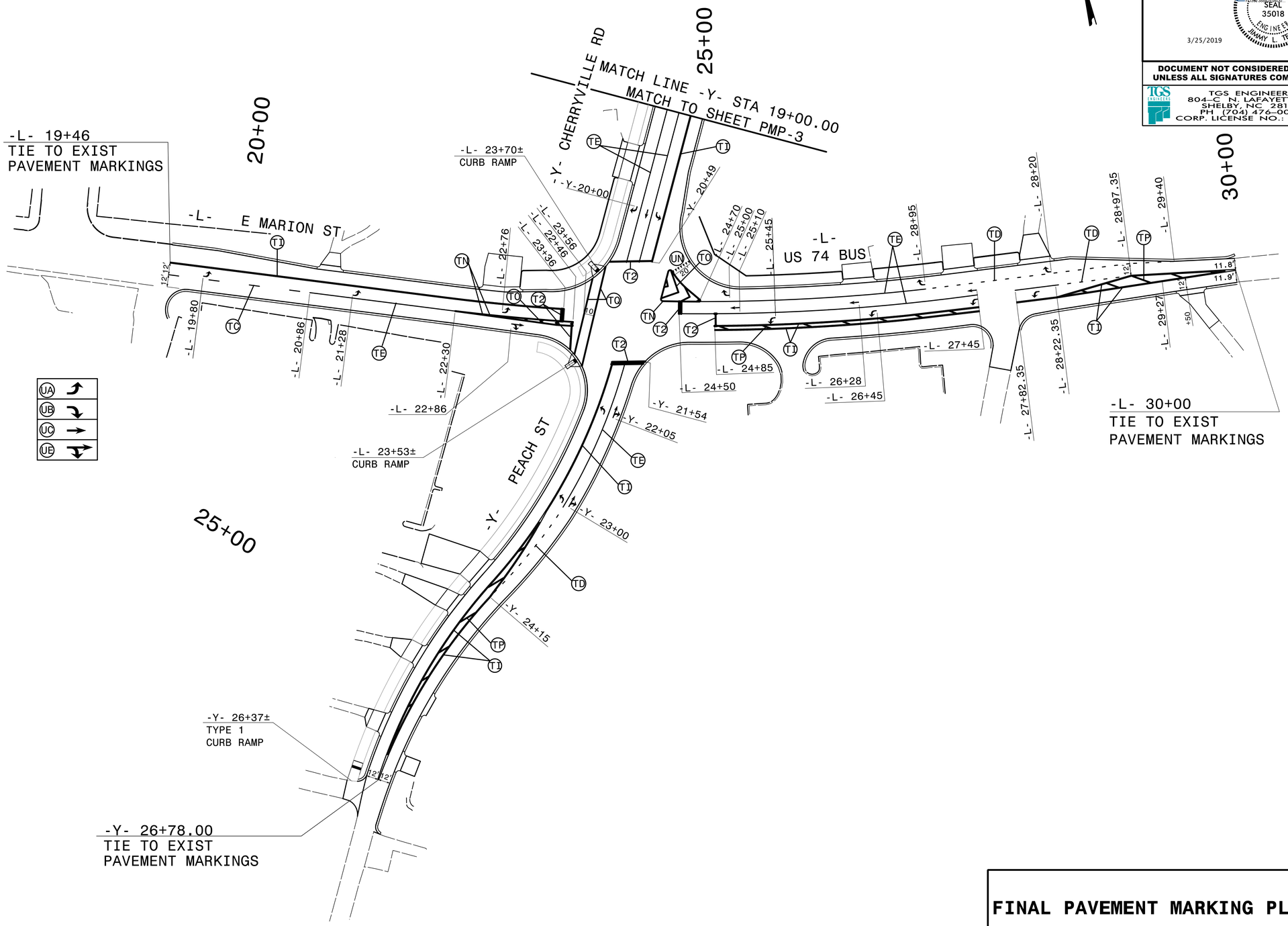
CORP. LICENSE NO.: C-0275



FINAL PAVEMENT MARKING PLAN

3/20/2019
X:\NCDOT\U-5775\Traffic\Pavement Markings\U-5775_Sgn_PMP_02.dgn
User:smelvin

SEE PMP-1 FOR FINAL PAVEMENT MARKING SCHEDULE

SEE ROADWAY PLAN DETAIL SHEET 2C-3 FOR ALTERNATE CURB RAMPS.

(ME) & (MF) SEE NCDOT RDY STD 1250.01 FOR MARKER LOCATIONS AND SPACING

TIP NO.	SHEET NO.
U-5775	PMP-3

APPROVED: _____

DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY

3/25/2019

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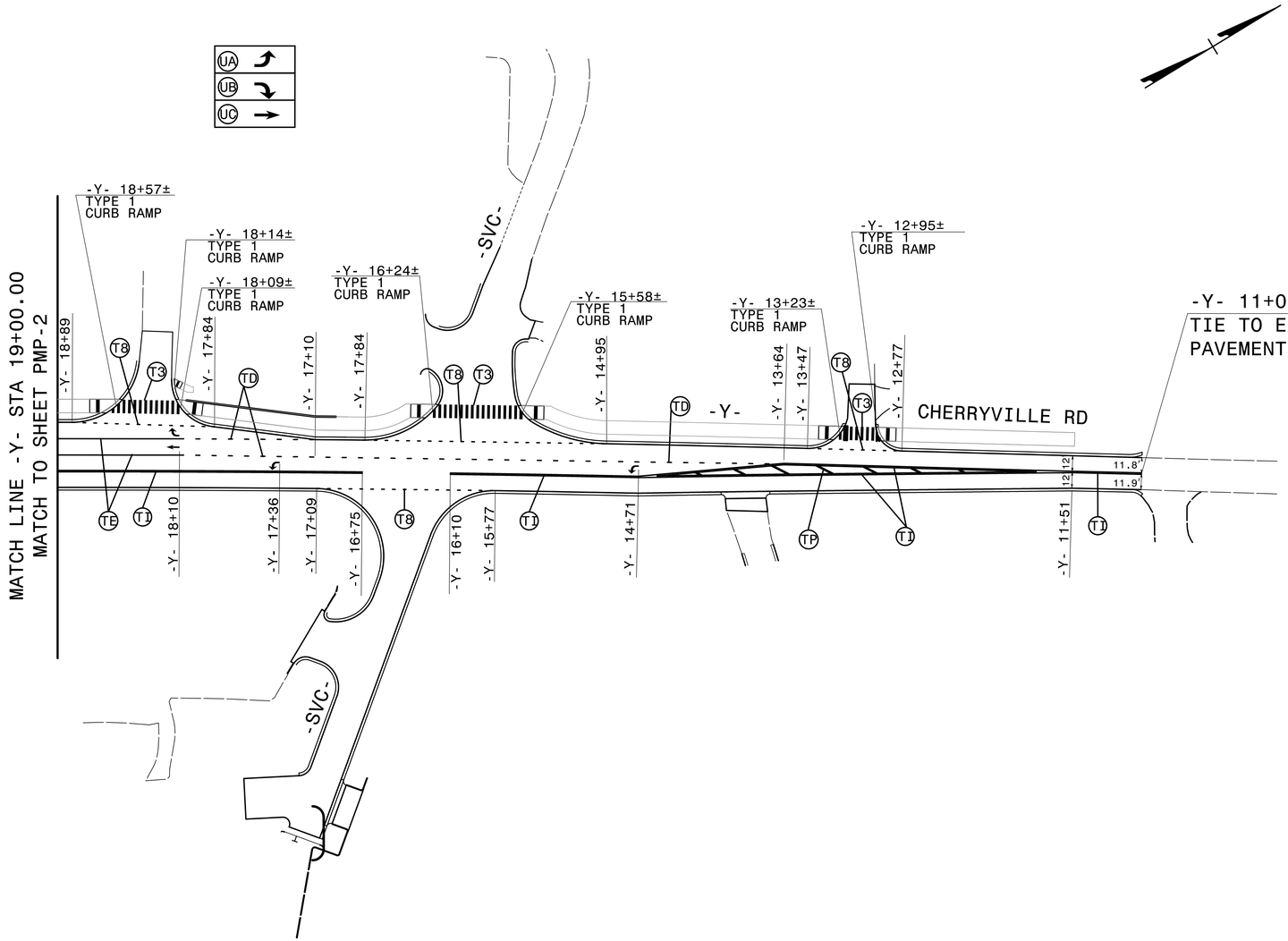
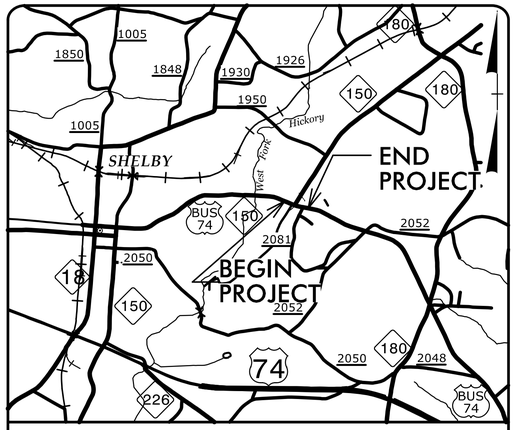


FINAL PAVEMENT MARKING PLAN

TIP PROJECT: U-5775



VICINITY MAP

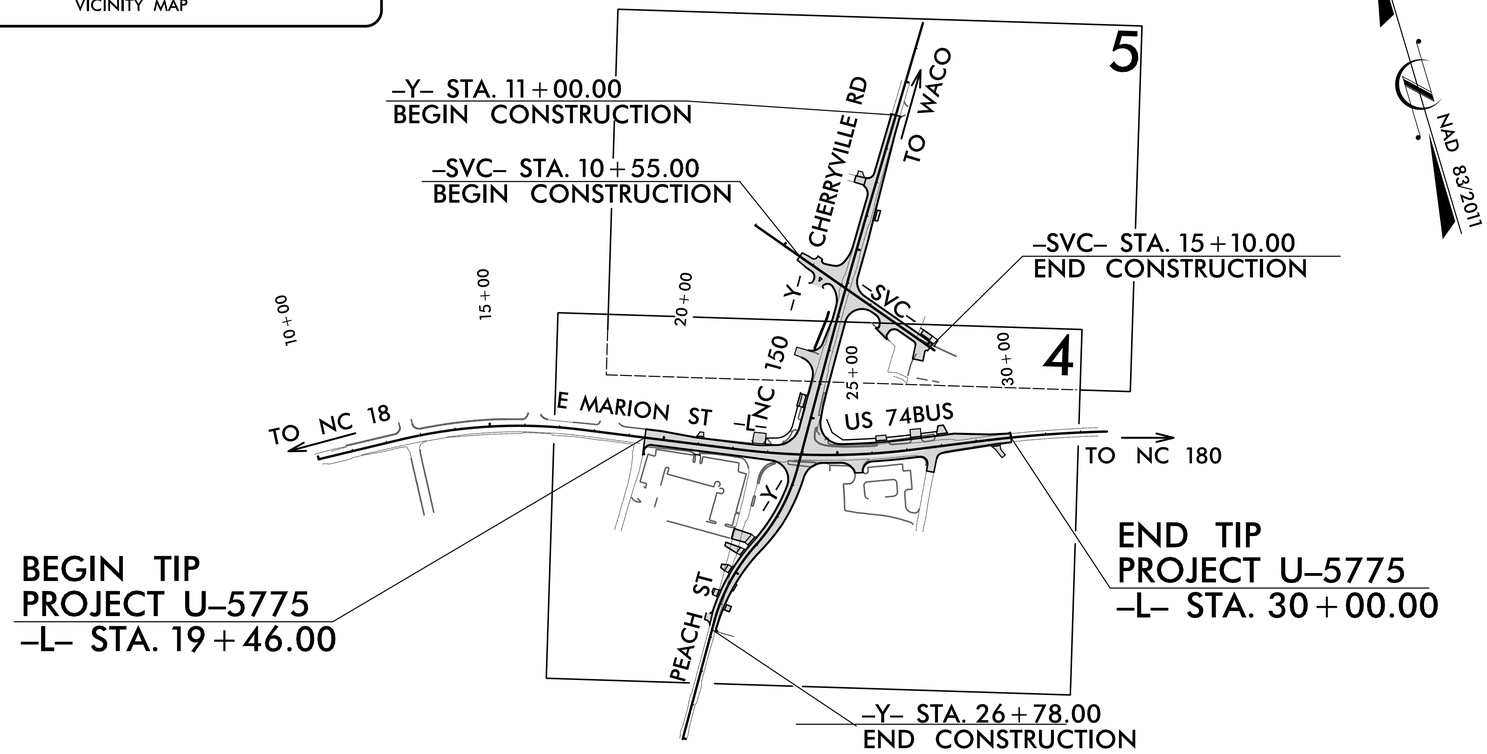
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

CLEVELAND COUNTY

LOCATION: REALIGN INTERSECTION OF US 74 BUS (MARION ST) AT NC 150 (CHERRYVILLE RD) AND PEACH ST

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB AND GUTTER, AND SIGNAL



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5775	EC-1	

STATE PROJ.NO.	F.A. PROJ.NO.	DESCRIPTION
50186.1.1	N/A	PE
50186.2.1	N/A	R/W, UTIL.

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

CONTRACT:

GRAPHIC SCALE

25 0 50

PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared In the Office of:

TGS ENGINEERS

804-C N. LAFAYETTE ST.
SHELBY, NC 28150

2018 STANDARD SPECIFICATIONS

Designed by:

ANDREW H. COCHRANE, PE — *3015*
NAME — *LEVEL III CERTIFICATION NO.*

Reviewed In the Office of:

DIVISION 12

1710 E. MARION ST
SHELBY, NC 28151

2018 STANDARD SPECIFICATIONS

Reviewed by:

BRYAN SOWELL, PE

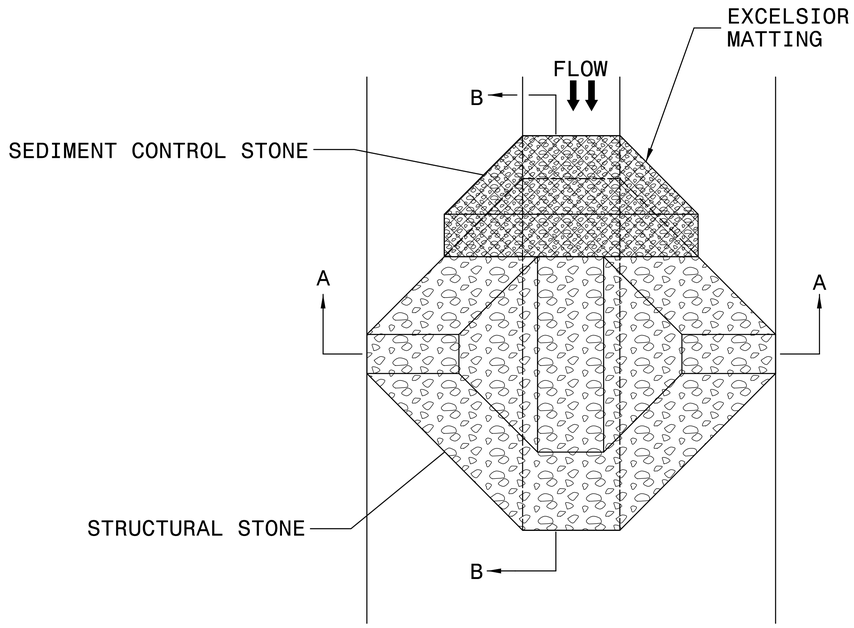
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

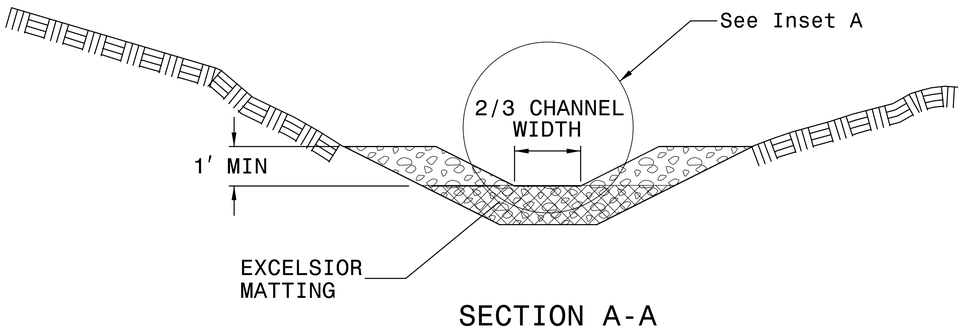
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type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

PROJECT REFERENCE NO.	SHEET NO.
U-5775	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN



SECTION A-A

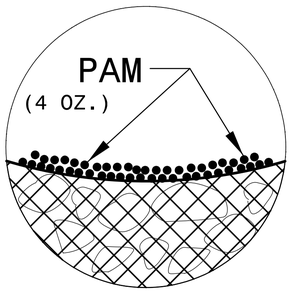
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

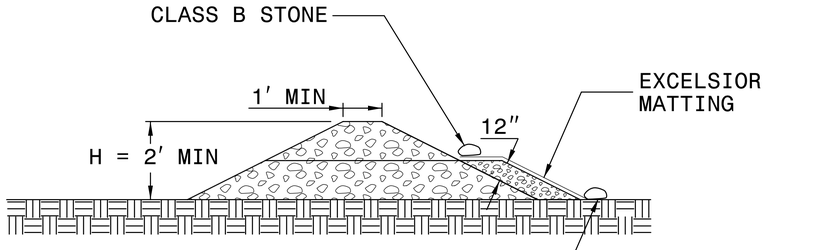
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
U-5775	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
U-5775	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C, UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN AREAS WHERE WATER MAY POND ON ROAD OPEN TO LIVE TRAFFIC.

NAD 83/2011

MATCH LINE STA. -Y- 18+00.00
MATCH TO SHEET NO. 5

BEGIN PROJECT U-5775
-L- STA. 19+46.00

END PROJECT U-5775
-L- STA. 30+00.00

END CONSTRUCTION
-Y- STA. 26+78.00

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

-L- CURVE DATA

PI Sta 15+05.45	PI Sta 24+71.89	PI Sta 30+79.92
Δ = 20° 37' 05.7" (RT)	Δ = 14° 23' 34.3" (LT)	Δ = 5° 23' 51.3" (RT)
D = 3° 57' 05.2"	D = 2° 51' 53.2"	D = 1° 35' 29.6"
L = 521.79'	L = 502.41'	L = 339.14'
T = 263.75'	T = 252.53'	T = 169.70'
R = 1,450.00'	R = 2,000.00'	R = 3,600.00'
SE = EXIST.	SE = 03	SE = EXIST.
	DS = 45 MPH	

-Y- CURVE DATA

PI Sta 22+77.63	PI Sta 25+31.67
Δ = 27° 03' 58.4" (RT)	Δ = 26° 51' 13.9" (LT)
D = 10° 36' 37.2"	D = 10° 36' 37.2"
L = 255.09'	L = 253.09'
T = 129.97'	T = 128.91'
R = 540.00'	R = 540.00'
SE = NC	SE = NC
DS = 35 MPH	DS = 35 MPH

PROJECT REFERENCE NO.	SHEET NO.
U-5775	EC-5/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5


NAD 83/2011
BEGIN CONSTRUCTION
-Y- STA. 11+00.00
BEGIN CONSTRUCTION
-SVC- STA. 10+55.00
END CONSTRUCTION
-SVC- STA. 15+10.00
MATCH LINE STA. -Y- 18+00.00
MATCH TO SHEET NO. 4
-Y-POT 8+25.00
-SVC-POT 9+00.00
-Y-PC 13+37.40
-Y-POC 16+16.59=
-SVC-POT 12+15.23
-SVC-POT 15+25.00
MICHAEL J FINNIGAN
WALL INVESTMENTS
MICHAEL J. & ANN R. FINNIGAN
KIMBERLY N. SPURLING & KAREN N. MARTIN
BRENDA & DAVID MCDONALD
ROBIN P. KETNER
WILLIAM O. MITCHELL
DONALD E. BARKLEY
FIRST CHOICE PROPERTIES
SARAH ELIZABETH WALL
CECIL M. BURTON & KIMBERLY SMITH
BROAD RIVER HOLDINGS, LLC
SOUTH POST, LLC
ARKAS, INC.
R & R OF NC, LLC
DO NOT DISTURB METAL SHED
RETAINING WALL #1 W/HANDRAIL
-Y- STA 16+95 TO
-Y- STA 18+05
PROP. CONC. DRIVE
PROP. ASPHALT DRIVE
2' MONO. CONC. ISLAND
PROP. 30' DRIVE
REMOVE DRIVE
PROP. DRIVE
DI SPEC. DSN SEE SHEET 2C-2
8"X12" CURB
REMOVE 29 LF
GRADE TO DRAIN
+50 END MULTI-USE PATH
-Y- CURVE DATA
PI Sta 16+11.43
Δ = 1° 34' 11.9" (LT)
D = 0° 17' 11.3"
L = 548.02'
T = 274.03'
R = 20,000.00'
SE = NC
DS > 60 MPH

PROJECT REFERENCE NO.	SHEET NO.
U-5775	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

MATCH LINE STA. -Y- 18+00.00
MATCH TO SHEET NO. 5

IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C, UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN AREAS WHERE WATER MAY POND ON ROAD OPEN TO LIVE TRAFFIC.

INSTALL PSRM IN THE PROPOSED DITCH LINE -L- STA 28+24 TO 29+75 LT EST. 110 SY

NAD 83/2011

BEGIN PROJECT U-5775
-L- STA. 19+46.00

END PROJECT U-5775
-L- STA. 30+00.00

END CONSTRUCTION
-Y- STA. 26+78.00

Place Matting for Erosion Control on Slope as Work Allows.
-Y- Sta. 23+50 to 25+50 LT

① S 70°20'32" E 128.47' (EIP-REBAR)
② S 31°04'33" W 26.66'
③ S 58°10'08" E 99.81'
④ S 57°32'34" E 56.50'

-L- CURVE DATA

PI Sta 15+05.45	PI Sta 24+71.89	PI Sta 30+79.92
Δ = 20° 37' 05.7" (RT)	Δ = 14° 23' 34.3" (LT)	Δ = 5° 23' 51.3" (RT)
D = 3° 57' 05.2"	D = 2° 51' 53.2"	D = 1° 35' 29.6"
L = 521.79'	L = 502.41'	L = 339.14'
T = 263.75'	T = 252.53'	T = 169.70'
R = 1,450.00'	R = 2,000.00'	R = 3,600.00'
SE = EXIST.	SE = 03	SE = EXIST.
	DS = 45 MPH	

-Y- CURVE DATA

PI Sta 22+77.63	PI Sta 25+31.67
Δ = 27° 03' 58.4" (RT)	Δ = 26° 51' 13.9" (LT)
D = 10° 36' 37.2"	D = 10° 36' 37.2"
L = 255.09'	L = 253.09'
T = 129.97'	T = 128.91'
R = 540.00'	R = 540.00'
SE = NC	SE = NC
DS = 35 MPH	DS = 35 MPH

PROJECT REFERENCE NO.	SHEET NO.
U-5775	EC-7/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NAD 83/2011

BEGIN CONSTRUCTION
-SVC- STA. 10+55.00

BEGIN CONSTRUCTION
-Y- STA. 11+00.00

-Y-POT 8+25.00

-SVC-POT 9+00.00

-Y-PC 13+37.40

-Y-POC 16+16.59=
-SVC-POT 12+15.23

-SVC-POT 15+25.00

END CONSTRUCTION
-SVC- STA. 15+10.00

Place Matting for Erosion Control on Slope as Work Allows.
-Y- Sta. 11+50 to 12+50 LT

RETAINING WALL #1 W/HANDRAIL
-Y- STA 16+95 TO
-Y- STA 18+05

MATCH LINE STA. -Y- 18+00.00
MATCH TO SHEET NO. 4

-Y- CURVE DATA
PI Sta 16+11.43
Δ = 1° 34' 11.9" (LT)
D = 0° 17' 11.3"
L = 548.02'
T = 274.03'
R = 20,000.00'
SE = NC
DS > 60 MPH

Ⓒ S 38°41'50" E 72.40'
Ⓒ S 59°13'58" E 58.12'
Ⓣ N 30°57'34" E 220.05' (EIP-EIP)
217.09' (RW-EIP)
Ⓑ N 29°00'28" E 285.38'

T.I.P.: U-5775

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
CLEVELAND COUNTY

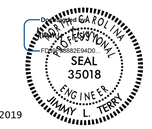
LOCATION: INTERSECTION OF US 74 BUS (MARION ST) AT NC 150 (CHERRYVILLE RD) AND PEACH ST

PROJECT REFERENCE NO.	SHEET NO.
U-5775	SIGN-1

APPROVED: _____

DATE: _____

SEAL



3/25/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY STANDARD DRAWING

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
901.50	ARROWS AND SHIELDS
903.10	GROUND MOUNTED SIGN SUPPORTS
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

GENERAL NOTES

. SIGNS FURNISHED BY CONTRACTOR

. 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.

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4025000000	901	CONTRACTOR FURNISHED, TYPE E SIGN	100	S.F.
4025000000	901	CONTRACTOR FURNISHED, TYPE F SIGN	130	S.F.
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	560	L.F.
4102000000	904	SIGN ERECTION, TYPE E	17	EA.
4108000000	904	SIGN ERECTION, TYPE F	7	EA.
4116100000	904	SIGN ERECTION, RELOCATE SIGN TYPE E (GROUND MOUNTED)	7	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	11	EA.
4237000000	907	STOCKPILE SIGN, D, E OR F	7	EA.
4238000000	907	DISPOSAL OF SIGN, D, E OR F	7	EA.

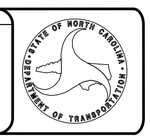
INDEX

PLANS PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

JIMMY L. TERRY, PE *PROJECT ENGINEER*

SANDRA G. MELVIN *DESIGN TECHNICIAN*



3/20/2019
X:\Projects\U-5775\Traffic\Signing\CADD\Signing Layout Plans\U-5775_Sgn_SGN_1.dgn
(User:melvin)

TYPE "E" SIGNS

PROJECT REFERENCE NO.	SHEET NO.
U-5775	SIGN-2

APPROVED: _____

DATE: _____

SEAL

3/25/2019

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TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

(401) **QUANTITY REQ'D** _1_

36 X 36 X 36
R1-2

ONE "U" POST PER SIGN

(402) QUANTITY REQ'D _1_

30 X 30
W14-2

ONE "U" POST PER SIGN

(403) QUANTITY REQ'D _6_

30 X 30
R1-1

ONE "U" POST PER SIGN

(404) QUANTITY REQ'D _3_

24 X 30
R2-1

TWO "U" POSTS PER SIGN

(405) QUANTITY REQ'D _1_

24 X 30
R4-7

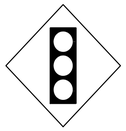
ONE "U" POST PER SIGN

(406) QUANTITY REQ'D _3_

18 X 18
OM4-1

ONE "U" POST PER SIGN

(407) QUANTITY REQ'D _2_

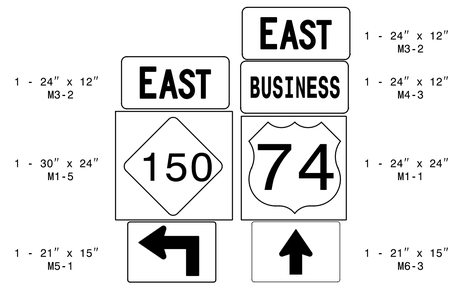


36 X 36
W3-3

ONE "U" POST PER SIGN

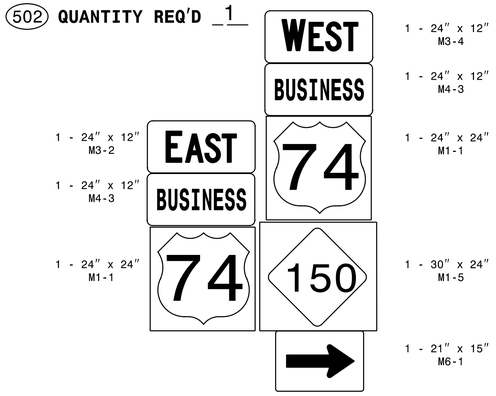
TYPE "F" SIGNS

(501) **QUANTITY REQ'D** _1_



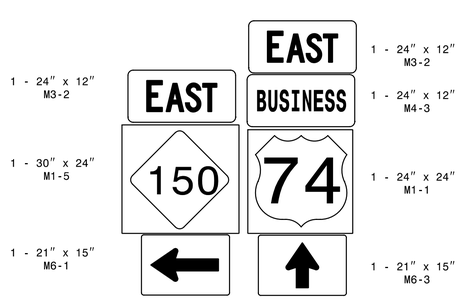
TWO "U" POSTS

(502) **QUANTITY REQ'D** _1_



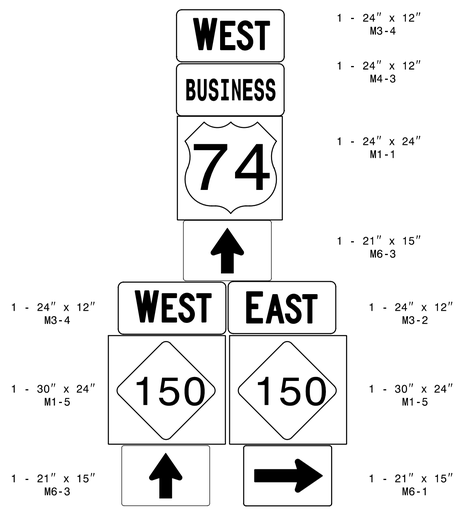
TWO "U" POSTS

(503) **QUANTITY REQ'D** _1_



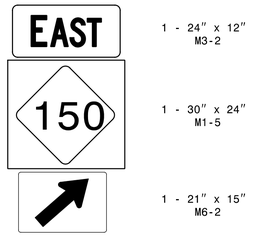
TWO "U" POSTS

(504) **QUANTITY REQ'D** _1_



TWO "U" POSTS

(505) **QUANTITY REQ'D** _1_

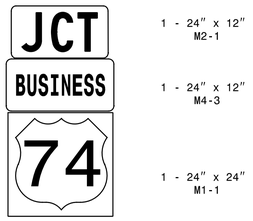


ONNE "U" POST

(506) **QUANTITY REQ'D** _1_

TWO "U" POSTS

(507) **QUANTITY REQ'D** _1_



ONNE "U" POST

TYPE "E" & "F" SIGNS

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

TIP NO.	SHEET NO.
U-5775	SIGN-3

APPROVED: _____

DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 ENGINEER JIMMY L. TERRY

3/25/2019

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MATCH LINE -Y- STA 18+00.00
MATCH TO SHEET SIGN-4

CITY OF SHELBY WAYFINDING SIGN ON ORNAMENTAL POLE TO BE REMOVED, STOCKPILED AND REINSTALLED BY THE CITY.

CITY OF SHELBY WAYFINDING SIGN ON ORNAMENTAL POLE TO BE REMOVED STOCKPILED AND REINSTALLED BY THE CITY.

PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2 STORE AND RELOCATE ON NEW SUPPORT
3 RETAIN SIGN ON EXISTING SUPPORT
4 DISPOSAL OF SIGN D, E OR F

EXISTING SIGNS AT INTERSECTION

EXISTING AND PROPOSED SIGNS
E MARION ST / US 74 BUS (-L-)
CHERRYVILLE ST / NC 150 (-Y-)
PEACH ST (-Y-)

3/20/2019
X:\NCDOT\U-5775\Traffic\Signing\CADD\Signing Layout Plans\U-5775_Sgn_SGN_3.dgn
User:smelvin

TIP NO.	SHEET NO.
U-5775	SIGN-4

APPROVED: _____

DATE: _____

SEAL

3/25/2019

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TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
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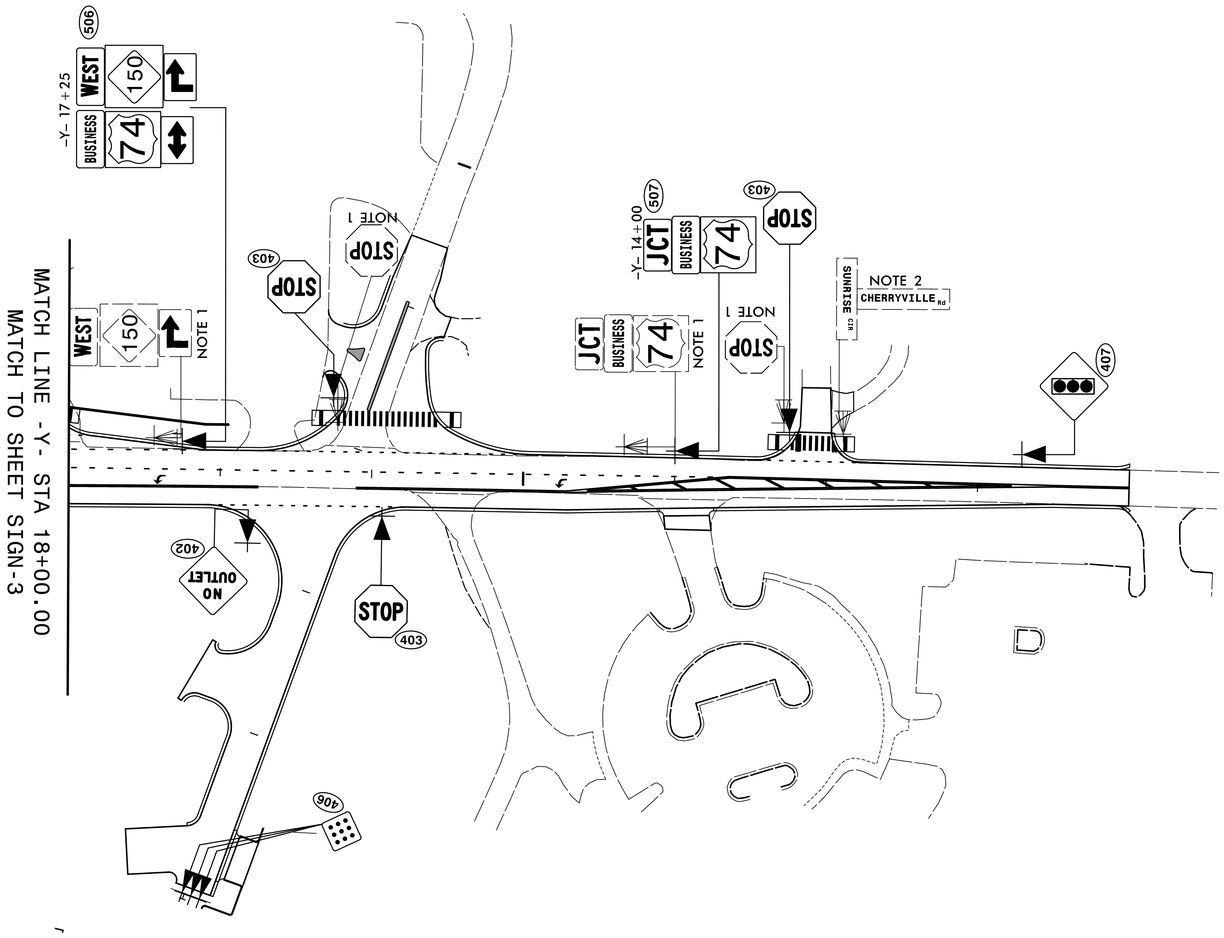
CORP. LICENSE NO.: C-0275



PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	STORE AND RELOCATE ON NEW SUPPORT
3	RETAIN SIGN ON EXISTING SUPPORT3

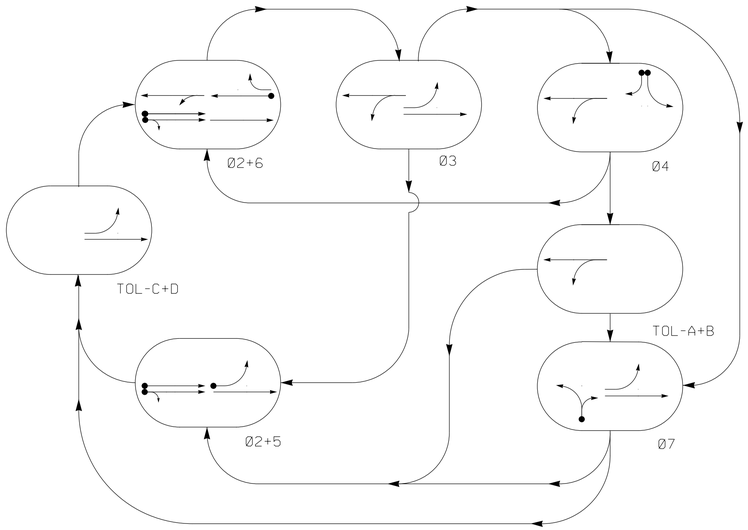
EXISTING AND PROPOSED SIGNS
CHERRYVILLE ST / NC 150 (-Y-)
-SVC-

3/20/2019
X:\NCDOT\U-5775\Traffic\Signing\CADD\Signing Layout Plans\U-5775_Sgn_SGN_4.dgn
User:smelvin

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.1.0

8 Phase Fully Actuated w/ EV Preemption (Isolated)

PHASING DIAGRAM

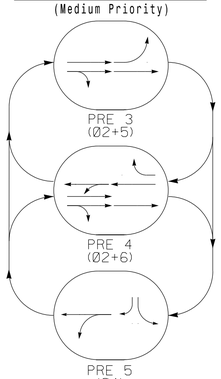


PHASING DIAGRAM DETECTION LEGEND

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

EV PREEMPT PHASES

(Medium Priority)



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6x6	70	✳	✳	2	Y	Y	-	-	-	-	✳
2B	6x6	70	✳	✳	2	Y	Y	-	-	-	-	✳
4A	6x40	0	✳	✳	4	Y	Y	-	-	3	-	✳
4B	6x40	0	✳	✳	4	Y	Y	-	-	-	-	✳
5A	6x40	0	2-4-2	Y	5	Y	Y	-	-	3	-	Y
6A	6x6	70	✳	✳	6	Y	Y	-	-	-	-	✳
7A	6x40	0	2-4-2	Y	7	Y	Y	-	-	3	-	Y

✳ Video Detection Zone

SIGNAL FACE I.D.

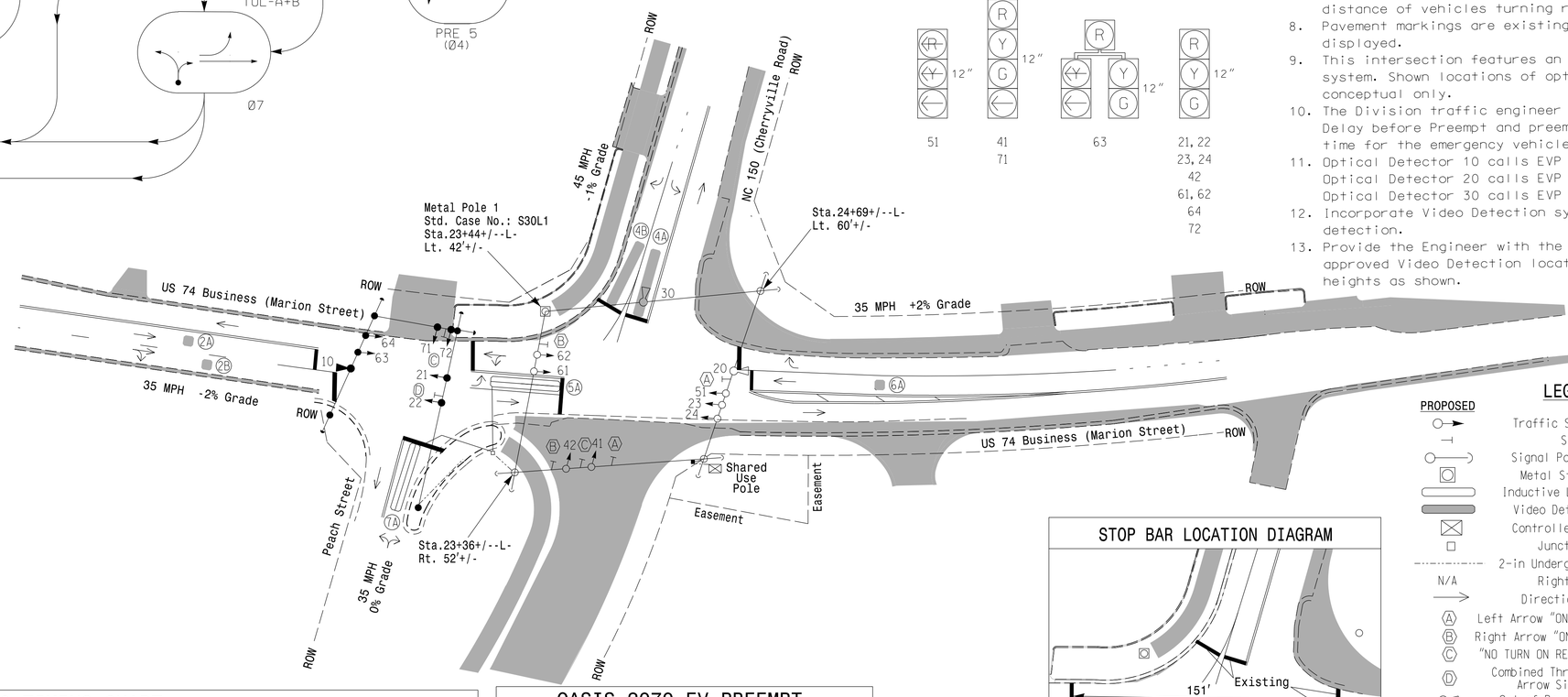
All Heads L.E.D.

NOTES

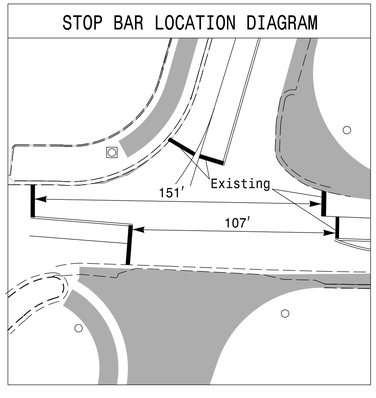
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018. The PSP can be accessed at the following website: http://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Program controller to clear from phase 2+6 to phase 2+5 by progressing through phase 3 (see Electrical Details).
4. Reposition existing signal heads numbered 21, 22, 71 and 72.
5. Remove existing signal head 52.
6. Set all detector units to presence mode.
7. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
8. Pavement markings are existing unless otherwise displayed.
9. This intersection features an optical preemption system. Shown locations of optical detector are conceptual only.
10. The Division traffic engineer will determine the Delay before Preempt and preempt Dwell Min Green time for the emergency vehicle preemption timing.
11. Optical Detector 10 calls EVP 3,
    Optical Detector 20 calls EVP 4,
    Optical Detector 30 calls EVP 5.
12. Incorporate Video Detection system for vehicle detection.
13. Provide the Engineer with the Manufacturer's approved Video Detection locations and mounting heights as shown.

TABLE OF OPERATION

SIGNAL FACE	PHASE										
	Ø2+5	Ø2+6	Ø3	Ø4	Ø7	TOL+B	TOL+D	PRE3	PRE4	PRE5	FLASH
21, 22	G	G	R	R	R	R	R	G	G	R	Y
23, 24	G	G	G	R	G	R	G	G	G	R	Y
41	R	R	R	G ←	R	R	R	R	R	G ←	R
42	R	R	R	G	R	R	R	R	R	G	R
51	←	R	←	R	←	R	←	←	R	R	R
61, 62	R	G	R	R	R	R	R	R	G	R	Y
63	R	G	↘ G	↘ G	R	↘ G	R	R	G	↘ G	Y
64	R	G	G	G	R	G	R	R	G	G	Y
71	R	R	R	R	G ←	R	R	R	R	R	R
72	R	R	R	R	G	R	R	R	R	R	R



STOP BAR LOCATION DIAGRAM



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
⊣	Sign	⊣
○	Signal Pole with Guy	●
▣	Metal Strain Pole	■
▭	Inductive Loop Detector	▭
▬	Video Detection Zone	N/A
⊠	Controller & Cabinet	⛶
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	- - - -
→	Directional Arrow	→
Ⓐ	Left Arrow "ONLY" Sign (R3-5L)	Ⓐ
Ⓑ	Right Arrow "ONLY" Sign (R3-5R)	Ⓑ
Ⓒ	"NO TURN ON RED" Sign (R10-11)	Ⓒ
Ⓓ	Combined Through and Right Arrow Sign (R3-6R)	Ⓓ
⊂▬	Out of Pavement Detector	●▬
▬	Construction Area	N/A

OASIS 2070 TIMING CHART

FEATURE	PHASE									
	2	3	4	5	6	7	TOL-A	TOL-B	TOL-C	TOL-D
Min Green 1 *	10	4	7	4	10	7	4	4	4	4
Extension 1 *	3.0		2.0	2.0	3.0	2.0				
Max Green 1 *	45		20	20	45	20				
Yellow Clearance	4.0	4.0	3.0	3.0	4.0	3.0	3.7	3.0	4.0	3.0
Red Clearance	2.1	1.9	2.1	1.9	2.1	2.3	1.2	1.9	1.3	1.9
Red Revert	2.0		2.0	2.0	2.0	2.0				
Walk 1 *	-		-	-	-	-				
Don't Walk 1	-		-	-	-	-				
Seconds Per Actuation *	-		-	-	-	-				
Max Variable Initial *	-		-	-	-	-				
Time Before Reduction *	-		-	-	-	-				
Time To Reduce *	-		-	-	-	-				
Minimum Gap	-		-	-	-	-				
Recall Mode	MIN RECALL		-	-	MIN RECALL	-				
Vehicle Call Memory	YELLOW		-	-	YELLOW	-				
Dual Entry	-		-	-	-	-				
Simultaneous Gap	ON		ON	ON	ON	ON				

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

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Interval 1 – Dwell Green	255	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*	0.0*
Interval 5 – Exit Green	1	1	1
Interval 5 – Yellow	0.0	0.0	0.0
Interval 5 – Red	0.0	0.0	0.0
Exit Phase(s)	2, 5	2, 6	2, 6
Priority	Medium	Medium	Medium
Delay Time	0	0	0
Min Green Before Pre	1	1	1
Ped Clear Before Pre	0 *	0 *	0 *
Yellow Clear Before Pre	0.0*	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*	0.0*
Dwell Min Time	10	10	7
Enable Backup Protection	Y	N	N
Ped Clear Through Yellow	N	N	N
Omit Overlaps	-	-	-
Preempt Extend**	2	2	2

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

This plan supersedes the plan signed and sealed on 11/13/2018.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade-Temporary Phase I

vhb
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27607
P: 919-829-0328

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 74 Bus. (Marion Street)
at
NC 150 (Cherryville Road) / SR 2053 (Peach Street)
Division 12 Cleveland County Shelby

PLAN DATE: March 2022 REVIEWED BY: J.L. Lewis
PREPARED BY: M.L. Stygles REVIEWED BY: J. Ma

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA
DocuSigned by: Jianxin Ma 3/1/2022
SIGNATURE DATE
SIG. INVENTORY NO. 12-0600TI

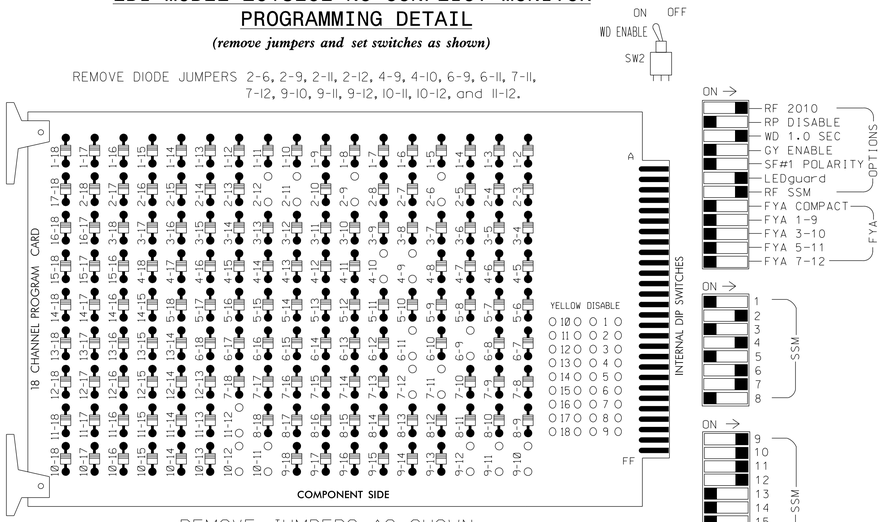
38536.08

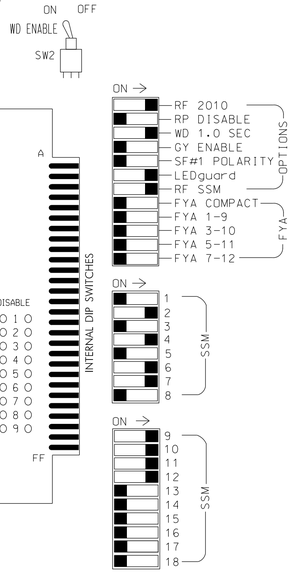
PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.1.1

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-6, 2-9, 2-11, 2-12, 4-9, 4-10, 6-9, 6-11, 7-11, 7-12, 9-10, 9-11, 9-12, 10-11, 10-12, and 11-12.





REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Start Up In Green.
4. Program phases 2 and 6 for Yellow Flash, and overlaps 1 and 2 as Wag overlaps.

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.....S2,S5,S8,S10,AUX S1, AUX S2,AUX S4,AUX S5
PHASES USED.....2,3*,4,5*,6,7
OVERLAP A.....3+4+6
OVERLAP B.....3+4
OVERLAP C.....2+3+7
OVERLAP D.....3+5+7

*PHASE USED FOR TIMING PURPOSES ONLY

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5		S6	S7	S8	S9	S10		S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4		14	5	6	15	7		8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4		4 PED	5	6	6 PED	7		8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NC	41	42	NU	NC	61,62	NU	71	72	NU	NU	63,64	63	NU	23,24	51	NU
RED		128			101	101			134		122	122			A121	*		A114		
YELLOW		129			102	102			135		123	123			A122			A115		
GREEN		130			103	103			136		124	124			A123			A116		
RED ARROW																			A101	
YELLOW ARROW																A125			A102	
GREEN ARROW					103						124					A126			A103	
✋																				
🚶																				

NU = Not Used

NC = Not Connected

* Denotes install load resistor. See load resistor installation detail this sheet.

DYNAMIC BACK-UP CONTROL PROGRAMMING

(program controller as shown below)

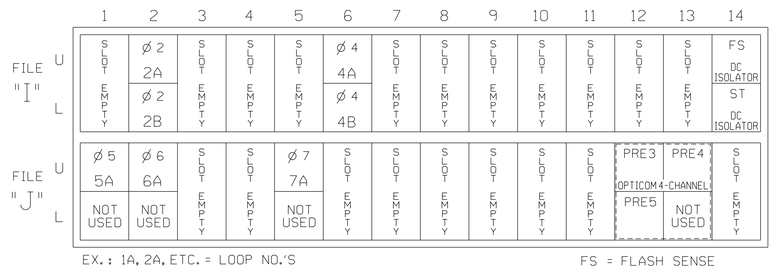
1. From Main Menu press '2' (Phase Control), then '1' (Phase Control Functions). Scroll to the bottom of the menu and enable Dynamic/Backup Control Function 1.
2. From Phase Control Functions Menu press '2' (Dynamic/Backup Control Functions).

```
DYNAMIC/BACKUP CONTROL FUNCTION #01
                 OVERLAPS:¦ABCDEFGH¦JKLMNOP
IF OVERLAPS ARE ACTIVE ¦
OR       PHASES:¦12345678910111213141516
IF PHASES ARE ON¦      X
OMIT PHASES     ¦    XX X
CALL PHASES     ¦  X
```

BACKUP PROTECTION PROGRAMMING COMPLETE

INPUT FILE POSITION LAYOUT

(front view)



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
2A	*	I2U	39	1	2	2	Y	Y			
2B	*	I2L	43	5	12	2	Y	Y			
4A	*	I6U	41	3	4	4	Y	Y			3
4B	*	I6L	45	7	14	4	Y	Y			
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			3
6A	*	J2U	40	2	6	6	Y	Y			
7A	TB5-5,6	J5U	57	19	7	7	Y	Y			3

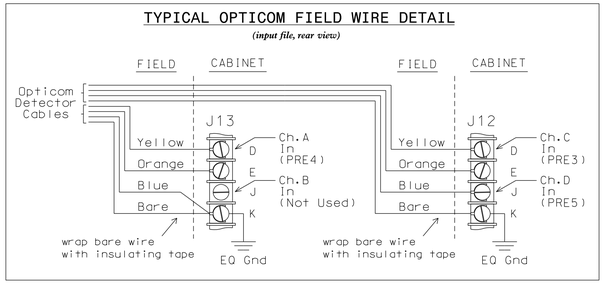
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

* SPECIAL DETECTOR NOTE

For zones 2A, 2B, 4A, 4B, and 6A, install a video detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



LOAD RESISTOR INSTALLATION DETAIL

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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 12-0600T1
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

This plan supersedes the plan signed and sealed on 11/13/2018.

Electrical Detail -Temporary Phase I-Sheet 1 of 2

VHB Engineering NC, P.C. (C-3705)
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
NC Department of Transportation Transportation Mobility and Safety Division Traffic Engineering Branch Traffic Signal Design Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 74 Business (Marion Street) at NC 150 (Cherryville Road)/ SR 2053 (Peach Street)

Division 12 | Cleveland County | Shelby

PLAN DATE:	March 2022	REVIEWED BY:	J. Ma
PREPARED BY:	M. L. Styles	REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA

DocuSigned by: Jianxin Ma 827E19530B1444F... 3/1/2022 DATE

SIG. INVENTORY NO. 12-0600T1

38536.08

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.1.2

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

```
 PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
 PHASE:          |1234567891011121314151 6
VEH OVL PARENTS: |  XX 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?...Y
GREEN EXTENSION (0-255 SEC).........4
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..3.7
RED CLEAR (0=PARENT,0.1-25.5 SEC)...1.2
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
 PHASE:          |1234567891011121314151 6
VEH OVL PARENTS: |  XX
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........4
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..3.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...1.9
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
 PHASE:          |1234567891011121314151 6
VEH OVL PARENTS: | XX   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?...Y
GREEN EXTENSION (0-255 SEC).........4
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..4.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...1.3
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
 PHASE:          |1234567891011121314151 6
VEH OVL PARENTS: |  X X 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).........4
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..3.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...1.9
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' as needed to advance to Preempts 3, 4 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |1234567891011121314151 6
1 255  0.0  0.0  |  X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   1  0.0  0.0  |  X  X
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........10
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT'

```
   PREEMPTION  #4  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |1234567891011121314151 6
1 255  0.0  0.0  |  X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   1  0.0  0.0  |  X  X
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........10
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT'

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |1234567891011121314151 6
1 255  0.0  0.0  |    X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   1  0.0  0.0  |    X
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMMING COMPLETE

Program extend time on optical detector unit for 2.0 seconds.

PHASE SEQUENCE PROGRAMMING DETAIL

(program controller as shown below)

FROM OASIS LOCAL CONTROLLER MAIN MENU
SELECT: 4 PHASE SEQUENCE

```
PHASE SEQUENCE: PAGE 1  NEXT: PAGES)
RNG|LEAD  BARRIER 1  X-LAG|LEAD  BARRIER 2  X-LAG|LEAD  BARRIER 3  X-LAG|LEAD  BARRIER 4  X-LAG
1  |0  2  0  0  |3  0  0  0  |4  0  0  0  |7  0  0  0
2  |5  6  0  0  |0  0  0  0  |0  0  0  0  |0  0  0  0
3  |0  0  0  0  |0  0  0  0  |0  0  0  0  |0  0  0  0
4  |0  0  0  0  |0  0  0  0  |0  0  0  0  |0  0  0  0
```

This plan supersedes the plan signed and sealed on 11/13/2018.

Electrical Detail -Temporary Phase I-Sheet 2 of 2

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 12-0600T1
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

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Raleigh, NC 27607
P: 919-829-0328

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 74 Business (Marion Street) at NC 150 (Cherryville Road)/ SR 2053 (Peach Street)

Division 12 Cleveland County Shelby

Prepared for the Offices of:
Traffic Engineering Branch, Transportation Mobility and Safety Division, NC Department of Transportation

750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE: March 2022	REVIEWED BY: J. Ma
PREPARED BY: M. L. Stygles	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA

DocuSigned by: Jianxin Ma 827E1955081444F 3/1/2022 DATE

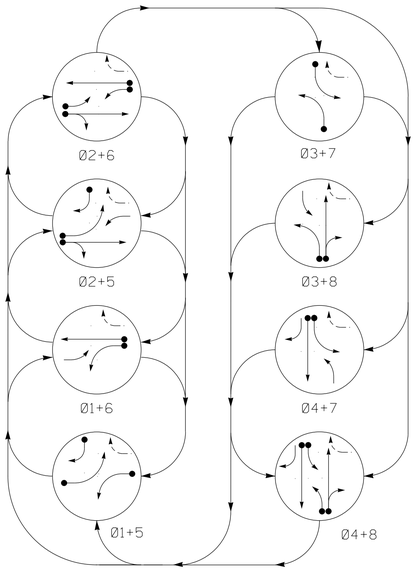
SIG. INVENTORY NO. 12-0600T1

38536.08

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.2.0

8 Phase Fully Actuated w/ EV Preemption (Isolated)

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

EV PREEMPT PHASES

(Medium Priority)

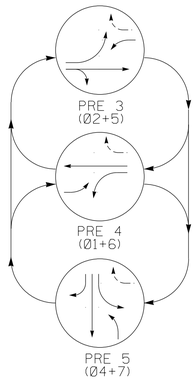


TABLE OF OPERATION

SIGNAL FACE	PHASE											
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	PRE 3	PRE 4	PRE 5	FLASH
11	←R	←R	←FY	←FY	←R	←R	←R	←R	←FY	←R	←R	←Y
21, 22	R	R	G	G	R	R	R	R	G	R	R	Y
31	←R	←R	←R	←R	←R	←R	←FY	←FY	←R	←R	←FY	←R
41	R	R	R	R	R	R	G	G	R	R	G	R
42	R	R	R	R	R	R	G	G	R	R	G	R
51	←R	←FY	←R	←FY	←R	←R	←R	←R	←R	←FY	←R	←Y
61, 62	R	G	R	G	R	R	R	R	R	G	R	Y
71	←R	←R	←R	←R	←R	←FY	←R	←FY	←R	←R	←R	←R
81, 82	R	R	R	R	R	G	R	G	R	R	R	R

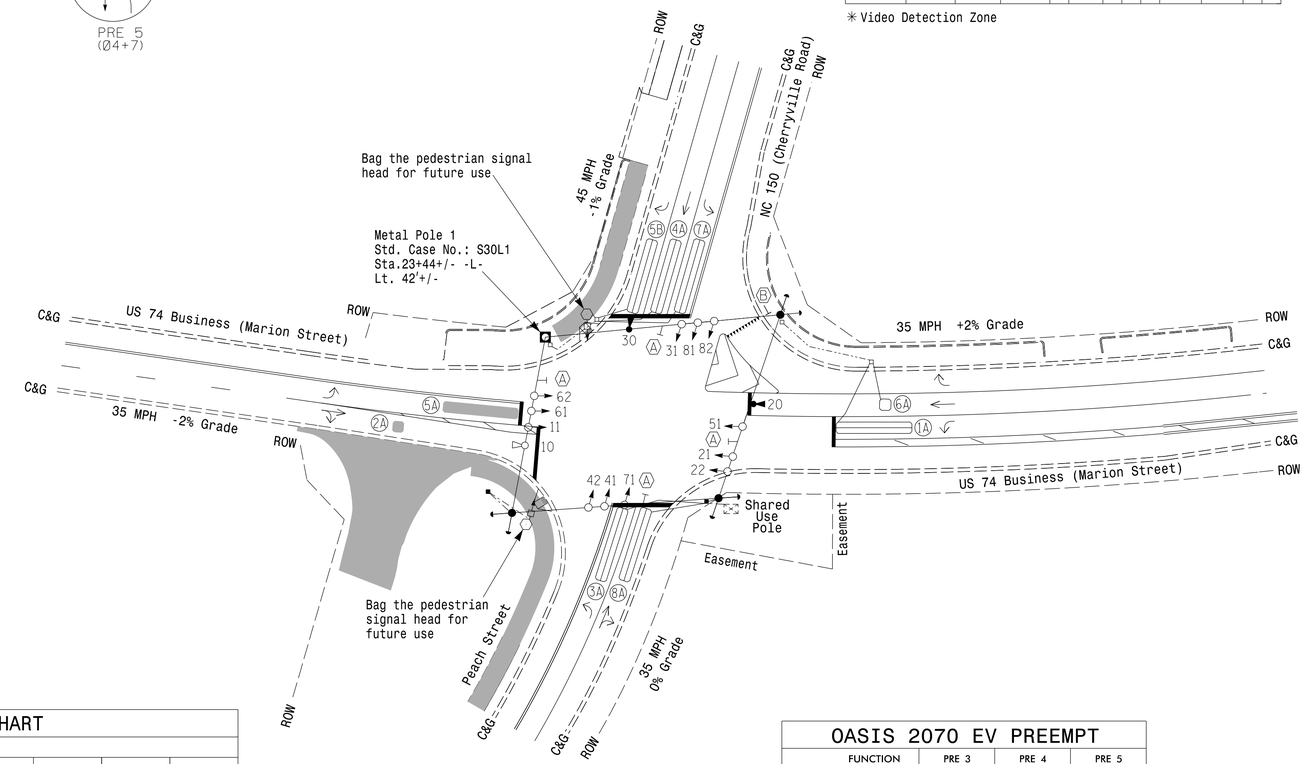
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
					6	Y	Y	-	-	-	-	Y
2A	6X6	70	✳	✳	2	Y	Y	-	-	-	-	✳
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	15	-	Y
					8	Y	Y	-	-	3	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	-
5A	6X40	0	✳	✳	5	Y	Y	-	-	15	-	✳
					2	Y	Y	-	-	-	-	✳
5B	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	Y
6A	6X6	70	4	Y	6	Y	Y	-	-	-	-	-
7A	6X40	0	2-4-2	Y	7	Y	Y	-	-	15	-	-
					4	Y	Y	-	-	3	-	-
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	10	-	Y

✳ Video Detection Zone

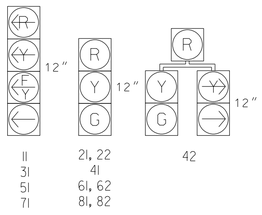
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
   The PSP can be accessed at the following website:
   http://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or Phase 5 may be lagged.
4. Phase 3 and/or Phase 7 may be lagged.
5. Set all detector units to presence mode.
6. This intersection features an optical preemption system. Shown locations of optical detector are conceptual only.
7. The Division traffic engineer will determine the Delay before Preempt and preempt Dwell Min Green time for the emergency vehicle preemption timing.
8. Optical Detector 10 calls EVP 3.
   Optical Detector 20 calls EVP 4.
   Optical Detector 30 calls EVP 5.
9. Incorporate Video Detection system for vehicle detection.
10. Provide the Engineer with the Manufacturer's approved Video Detection locations and mounting heights as shown.



SIGNAL FACE I.D.

All Heads L.E.D.



LEGEND

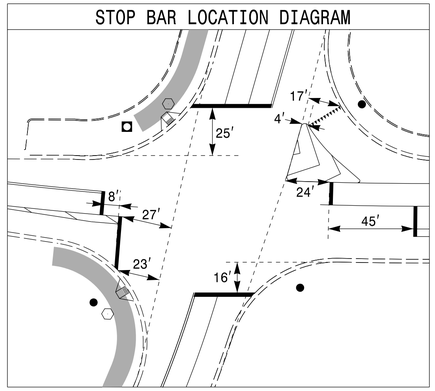
PROPOSED		EXISTING
○→	Traffic Signal Head	●→
○———	Signal Pole with Guy	●———
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■↓
◎	Metal Strain Pole	◘
▭	Inductive Loop Detector	▭
▬	Video Detection Zone	N/A
⊠	Controller & Cabinet	⊠
□	Junction Box	■
-·-·-·-	2-in Underground Conduit	-·-·-·-
- - - - -	Right of Way	- - - - -
——→	Directional Arrow	——→
⬡	Type II Signal Pedestal	⬢
◢	Curb Ramp	◢
⊂○	Out of Pavement Detector	●⊃
Ⓐ	Street Name Sign (D3-1)	Ⓐ
Ⓑ	Yield Sign (R1-2)	Ⓑ
▬	Construction Area	▬

OASIS 2070 TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1 *	7	10	7	7	7	10	7	7
Extension 1 *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max Green 1 *	15	45	15	25	15	45	15	25
Yellow Clearance	3.0	4.0	3.0	4.6	3.0	4.0	3.0	4.6
Red Clearance	3.5	2.8	2.1	1.3	2.9	2.8	2.4	1.3
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Walk Advance Time	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

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

STOP BAR LOCATION DIAGRAM



OASIS 2070 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Interval 1 – Dwell Green	255	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*	0.0*
Interval 5 – Exit Green	1	1	1
Interval 5 – Yellow	0.0	0.0	0.0
Interval 5 – Red	0.0	0.0	0.0
Exit Phase(s)	2+6	2+6	4+8
Priority	Medium	Medium	Medium
Delay Time	0	0	0
Min Green Before Pre	1	1	1
Ped Clear Before Pre	0 *	0 *	0 *
Yellow Clear Before Pre	0.0*	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*	0.0*
Dwell Min Time	10	10	7
Enable Backup Protection	N	N	N
Ped Clear Through Yellow	N	N	N
Omit Overlaps	-	-	-
Preempt Extend**	2	2	2

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

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This plan supersedes the plan signed and sealed on 11/13/2018.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade-Temporary Phase II

Prepared for the Offices of: Transportation Mobility and Safety Division, Traffic Engineering Branch, Signal Design Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 74 Bus. (Marion Street) at NC 150 (Cherryville Road) / SR 2053 (Peach Street)

Division 12 Cleveland County Shelby

PLAN DATE: March 2022 REVIEWED BY: J.L. Lewis

PREPARED BY: J. Ma REVIEWED BY: M. L. Stygles

SCALE 1"=40' (0 40)

REVISIONS	INIT.	DATE

SEAL 033108 ENGINEER JIANXIN MA

DocuSigned by: Jianxin Ma 3/1/2022

SIG. INVENTORY NO. 12-0600T2

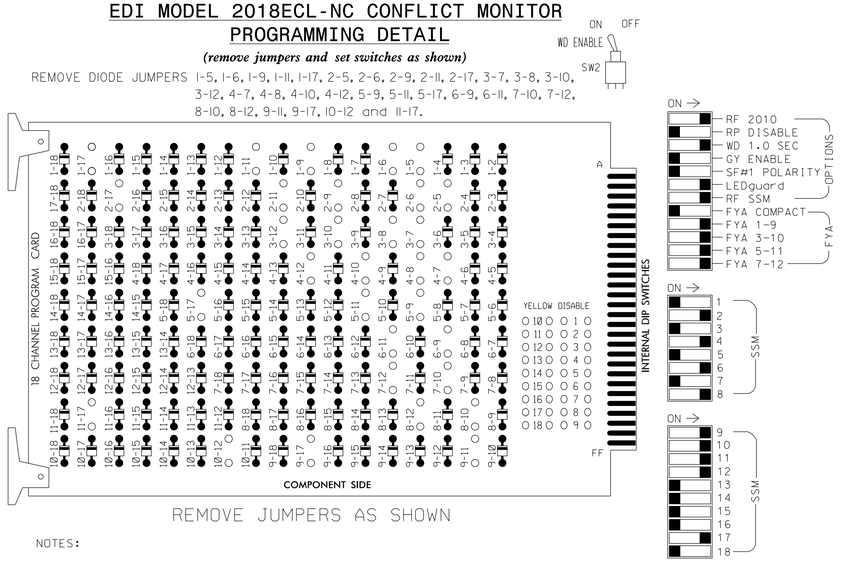
38536.08

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.2.1

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS I-5, I-6, I-9, I-11, I-17, 2-5, 2-6, 2-9, 2-11, 2-17, 3-7, 3-8, 3-10, 3-12, 4-7, 4-8, 4-10, 4-12, 5-9, 5-11, 5-17, 6-9, 6-11, 7-10, 7-12, 8-10, 8-12, 9-11, 9-17, 10-12 and 11-17.



REMOVE JUMPERS AS SHOWN

NOTES:

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

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all Phases.
4. Program phases 2 and 6 for Startup In Green.
5. Program phases 2 and 6 for Yellow Flash, and overlaps 1 and 2 as Wag Overlaps.

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,S4,S5,S7,S8,S10,S11,AUX S1, AUX S2,AUX S3,AUX S4,AUX S5
PHASES USED.....1,2,3,4,5,6,7,8
OVERLAP "A".....1+2
OVERLAP "B".....3+4
OVERLAP "C".....5+6
OVERLAP "D".....7+8
OVERLAP "E".....5

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	OLE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11 ★	21,22	NU	31 ★	41,42	NU	51 ★	61,62	NU	71 ★	81,82	NU	11 ★	31 ★	42	51 ★	71 ★	NU
RED		128			101			134			107				✳			
YELLOW	✳	129		✳	102		✳	135		✳	108							
GREEN		130			103			136			109							
RED ARROW													A121	A124		A114	A101	
YELLOW ARROW													A122	A125	A112	A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127			118			133			124					A113			

NU = Not Used

✳ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A[1]	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y			
2A	✳	I2U	39	1	2	2	Y	Y			
3A[2]	TB4-5,6	I5U	58	20	3	3	Y	Y			15
	-	J8U	50	12	28	8	Y	Y			3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
5A[3]	✳	J1U	55	17	5	5	Y	Y			15
	-	I4U	47	9	22	2	Y	Y			
5B	TB3-7,8	J2L	44	6	16	5	Y	Y			15
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
7A[4]	TB5-5,6	J5U	57	19	7	7	Y	Y			15
	-	I8U	49	11	24	4	Y	Y			3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			10

[1] Add jumper from I1-W to J4-W, on rear of input file.
[2] Add jumper from I5-W to J8-W, on rear of input file.
[3] Add jumper from J1-W to I4-W, on rear of input file.
[4] Add jumper from J5-W to I8-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

✳ SPECIAL DETECTOR NOTE

For zones 2A and 5A, install a video detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I" U	Ø1 1A NOT USED	Ø2 2A NOT USED	SLOT EMPTY	WIRED INPUT ⊗	Ø3 3A NOT USED	Ø4 4A NOT USED	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR / ST DC ISOLATOR
FILE "J" U	Ø5 5A NOT USED	Ø6 6A Ø5 5B	SLOT EMPTY	WIRED INPUT ⊗	Ø7 7A NOT USED	Ø8 8A NOT USED	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	PRE3 PRE4 OPTICOM 4-CHANNEL PRE5 NOT USED		SLOT EMPTY

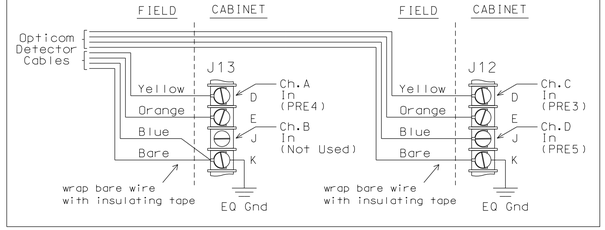
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

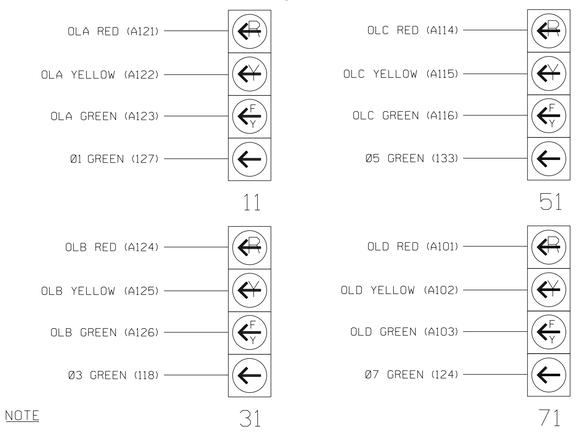
TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)

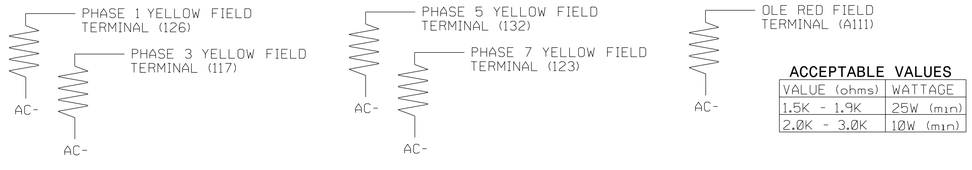


NOTE

The sequence display for signal heads 11, 31, 51, and 71 requires special logic programming. See sheet 2 for programming instructions.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)



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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 12-0600T2
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27607
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This plan supersedes the plan signed and sealed on 11/13/2018.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical Detail-Temporary Phase II-Sheet 1 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 74 Bus. (Marion Street) at NC 150 (Cherryville Road) / SR 2053 (Peach Street)

Division 12 Cleveland County Shelby

PLAN DATE:	March 2022	REVIEWED BY:	J.L. Lewis
PREPARED BY:	J. Ma	REVIEWED BY:	M.L. Stygles

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Traffic Engineering Branch, Traffic Engineering & Safety Systems Unit, Mobility and Safety Division, NC Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JANXIN MA
DocuSigned by: Janxin Ma 3/1/2022
SIGNATURE DATE
SIG. INVENTORY NO. 12-0600T2

38536.08

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.2.2

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

(program controller as shown below)

1. 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, 3, 4, 5, 6, 7, 8, 9, 10, 11, AND 12.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

LOGICAL I/O COMMAND #1 (+/-COMMAND#)
IF ACTIVE PHASE #1 IS ON
AND RED CLEAR ON PHASE #1 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #50 ON
SET OUTPUT ASSIGNMENT #51 OFF
PRESS '+'

NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

LOGICAL I/O COMMAND #2 (+/-COMMAND#)
IF ACTIVE PHASE #1 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #52 OFF
PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

LOGICAL I/O COMMAND #3 (+/-COMMAND#)
IF YELLOW ON PHASE #1 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #51 ON
PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

LOGICAL I/O COMMAND #4 (+/-COMMAND#)
IF ACTIVE PHASE #5 IS ON
AND RED CLEAR ON PHASE #5 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #42 ON
SET OUTPUT ASSIGNMENT #43 OFF
PRESS '+'

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

LOGICAL I/O COMMAND #5 (+/-COMMAND#)
IF ACTIVE PHASE #5 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #44 OFF
PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

LOGICAL I/O COMMAND #6 (+/-COMMAND#)
IF YELLOW ON PHASE #5 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #43 ON
PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGICAL I/O COMMAND #7 (+/-COMMAND#)
IF ACTIVE PHASE #3 IS ON
AND RED CLEAR ON PHASE #3 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #47 ON
SET OUTPUT ASSIGNMENT #48 OFF
PRESS '+'

NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 4 (HEAD 31).

LOGICAL I/O COMMAND #8 (+/-COMMAND#)
IF ACTIVE PHASE #3 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #49 OFF
PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 3 (HEAD 31).

LOGICAL I/O COMMAND #9 (+/-COMMAND#)
IF YELLOW ON PHASE #3 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #48 ON
PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 31).

LOGICAL I/O COMMAND #10 (+/-COMMAND#)
IF ACTIVE PHASE #7 IS ON
AND RED CLEAR ON PHASE #7 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #39 ON
SET OUTPUT ASSIGNMENT #40 OFF
PRESS '+'

NOTE: LOGIC FOR PHASE 7 RED CLEAR WHEN TRANSITIONING FROM PHASE 7 TO PHASE 8 (HEAD 71).

LOGICAL I/O COMMAND #11 (+/-COMMAND#)
IF ACTIVE PHASE #7 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #41 OFF
PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 7 (HEAD 71).

LOGICAL I/O COMMAND #12 (+/-COMMAND#)
IF YELLOW ON PHASE #7 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #40 ON
PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 7 (HEAD 71).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

38536.08

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE: 1234567891011121314151 6
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).....0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
PRESS '+'

PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
PHASE: 1234567891011121314151 6
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).....0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
PRESS '+'

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE: 1234567891011121314151 6
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).....0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
PRESS '+'

PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE: 1234567891011121314151 6
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).....0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0

NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

USE TO INTERPRET LOGIC PROCESSOR

OUTPUT 39 = Overlap D Red
OUTPUT 40 = Overlap D Yellow
OUTPUT 41 = Overlap D Green
OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green
OUTPUT 47 = Overlap B Red
OUTPUT 48 = Overlap B Yellow
OUTPUT 49 = Overlap B Green
OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0600T2
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

This plan supersedes the plan signed and sealed on 11/13/2018.

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P: 919-829-0328

Electrical Detail-Temporary Phase II-Sheet 2 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
NC Department of Transportation Mobility and Safety Division Traffic Engineering Branch & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 74 Bus. (Marion Street)
at
NC 150 (Cherryville Road) /
SR 2053 (Peach Street)

Division 12 Cleveland County Shelby

PLAN DATE:	March 2022	REVIEWED BY:	J.L. Lewis
PREPARED BY:	J. Ma	REVIEWED BY:	M.L. Stygles

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA

Documents by: Jianxin Ma 3/1/2022
SIGNATURE DATE

SIG. INVENTORY NO. 12-0600T2

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' as needed to advance to Preempts 3, 4 and 5.

```
  PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING |  CLEAR/DWELL PHASES
  GRN YEL  RED  |12345678910111213141516
1 255  0.0  0.0 | X  X
2   0  0.0  0.0 |
3   0  0.0  0.0 |
4   0  0.0  0.0 |
5   1  0.0  0.0 | X   X
EXIT CALLS      |
                OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........10
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |     X
```

PRESS 'NEXT'

```
  PREEMPTION  #4  SETTINGS (NEXT:1-10)
INTERVAL/TIMING |  CLEAR/DWELL PHASES
  GRN YEL  RED  |12345678910111213141516
1 255  0.0  0.0 |X    X
2   0  0.0  0.0 |
3   0  0.0  0.0 |
4   0  0.0  0.0 |
5   1  0.0  0.0 | X   X
EXIT CALLS      |
                OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........10
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT'

```
  PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING |  CLEAR/DWELL PHASES
  GRN YEL  RED  |12345678910111213141516
1 255  0.0  0.0 |   X  X
2   0  0.0  0.0 |
3   0  0.0  0.0 |
4   0  0.0  0.0 |
5   1  0.0  0.0 |   X   X
EXIT CALLS      |
                OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMMING COMPLETE

Program extend time on optical detector unit for 2.0 seconds.

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 12-0600T2
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

This plan supersedes the plan signed and sealed on 11/13/2018.

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Electrical Detail-Temporary Phase II-Sheet 3 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 74 Bus. (Marion Street)
at
NC 150 (Cherryville Road) /
SR 2053 (Peach Street)

Division 12 Cleveland County Shelby

Prepared for the Offices of: Transportation Mobility and Safety Division, ITS & Signals Management Section, State of North Carolina Department of Transportation

750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE:	March 2022	REVIEWED BY:	J.L. Lewis
PREPARED BY:	J. Ma	REVIEWED BY:	M.L. Stygles

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA

DocuSigned by: Jianxin Ma
827E1053081444F...
SIGNATURE 3/1/2022 DATE

SIG. INVENTORY NO. 12-0600T2

38536.08

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.2.4

OVERLAP "E"

OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT (ASSIGNMENTS).
2. WITH CURSOR IN "OUTPUT ASSIGNMENT #" FIELD, USE + KEY TO FIND THE OUTPUT ASSIGNMENT NUMBER 45, AS SHOWN BELOW.
3. PROGRAM CONTROLLER AS SHOWN:

```
PAGE:1  C1 PIN:91   NOT ENABLED
OUTPUT ASSIGNMENT #.................45
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.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
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..........................
```

EXISTING DEFAULT ENTRY

```
PAGE:1  C1 PIN:91   NOT ENABLED
SELECT VEHICLE OVERLAP (A=1, P=16)...5
SELECT COLOR (0=RED,1=YEL,2=GRN).....0
```

WHEN A "Y" IS ENTERED FOR "VEHICLE OVERLAP" THE SCREEN SHOWN ABOVE WILL APPEAR.
ENTER DATA AS SHOWN.

PRESS ENTER AFTER ENTERING DATA, THEN ESC.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS "VEHICLE OVERLAP" AS SHOWN BELOW:

```
PAGE:1  C1 PIN:91   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................45
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.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
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..........................
```

VEHICLE OVERLAP E (RED) LOAD SWITCH AUX S3

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT (ASSIGNMENTS).
2. WITH CURSOR IN "OUTPUT ASSIGNMENT #" FIELD, USE + KEY TO FIND THE OUTPUT ASSIGNMENT NUMBER 46, AS SHOWN BELOW.
3. PROGRAM CONTROLLER AS SHOWN:

```
PAGE:1  C1 PIN:93   NOT ENABLED
OUTPUT ASSIGNMENT #.................46
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.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
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..........................
```

EXISTING DEFAULT ENTRY

```
PAGE:1  C1 PIN:93   NOT ENABLED
SELECT VEHICLE OVERLAP (A=1, P=16)...5
SELECT COLOR (0=RED,1=YEL,2=GRN).....2
```

WHEN A "Y" IS ENTERED FOR "VEHICLE OVERLAP" THE SCREEN SHOWN ABOVE WILL APPEAR.
ENTER DATA AS SHOWN.

PRESS ENTER AFTER ENTERING DATA, THEN ESC.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS "VEHICLE OVERLAP" AS SHOWN BELOW:

```
PAGE:1  C1 PIN:93   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................46
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.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
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..........................
```

VEHICLE OVERLAP E (GREEN) LOAD SWITCH AUX S3

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT (ASSIGNMENTS).
2. WITH CURSOR IN "OUTPUT ASSIGNMENT #" FIELD, USE + KEY TO FIND THE OUTPUT ASSIGNMENT NUMBER 54, AS SHOWN BELOW.
3. PROGRAM CONTROLLER AS SHOWN:

```
PAGE:1  C1 PIN:101  CONTROLLER FLASH
OUTPUT ASSIGNMENT #.................54
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.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................Y
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

EXISTING DEFAULT ENTRY

```
PAGE:1  C1 PIN:101  CONTROLLER FLASH
SELECT VEHICLE OVERLAP (A=1, P=16)...5
SELECT COLOR (0=RED,1=YEL,2=GRN).....1
```

WHEN A "Y" IS ENTERED FOR "VEHICLE OVERLAP" THE SCREEN SHOWN ABOVE WILL APPEAR.
ENTER DATA AS SHOWN.

PRESS ENTER AFTER ENTERING DATA, THEN ESC.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS "VEHICLE OVERLAP" AS SHOWN BELOW:

```
PAGE:1  C1 PIN:101  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................54
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.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
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..........................
```

VEHICLE OVERLAP E (YELLOW) LOAD SWITCH AUX S3

38536.08

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0600T2
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

This plan supersedes the plan signed and sealed on 11/13/2018.

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27607
P: 919-829-0328

Electrical Detail-Temporary Phase II-Sheet 4 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 74 Bus. (Marion Street)
at
NC 150 (Cherryville Road) /
SR 2053 (Peach Street)

Division 12 Cleveland County Shelby

PLAN DATE:	March 2022	REVIEWED BY:	J.L. Lewis
PREPARED BY:	J. Ma	REVIEWED BY:	M.L. Stygles

REVISIONS	INIT.	DATE

Prepared for the Offices of:

NC Department of Transportation Mobility and Safety Division Traffic Engineering Branch Traffic Signals Management Section

750 N.Greenfield Pkwy.Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA

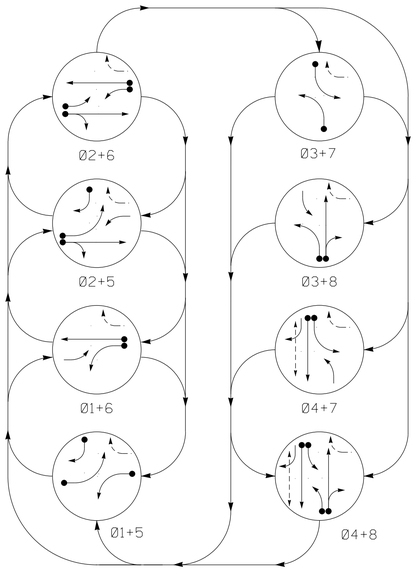
DocuSigned by: Jianxin Ma 3/1/2022
SIGNATURE DATE

SIG. INVENTORY NO. 12-0600T2

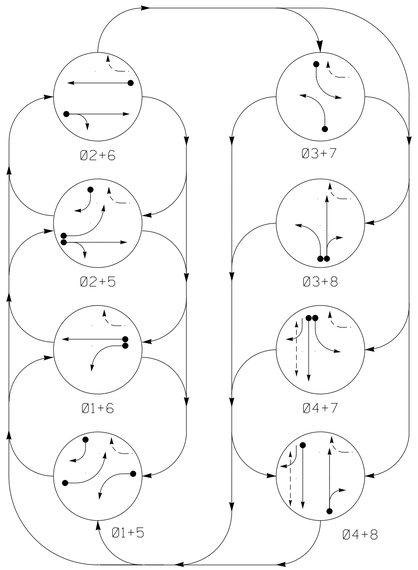
PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.3.0

8 Phase Fully Actuated w/ EV Preemption & Alternate Phasing Operation (Isolated)

DEFAULT PHASING DIAGRAM

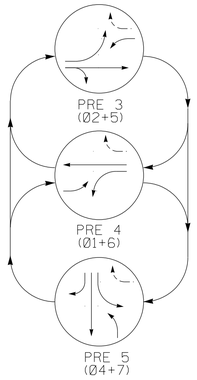


ALTERNATE PHASING DIAGRAM



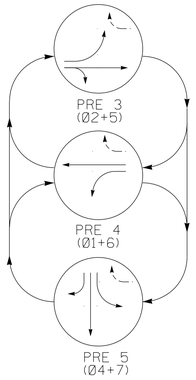
DEFAULT PHASING EV PREEMPT PHASES

(Medium Priority)

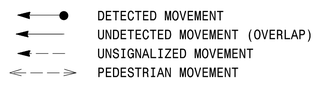


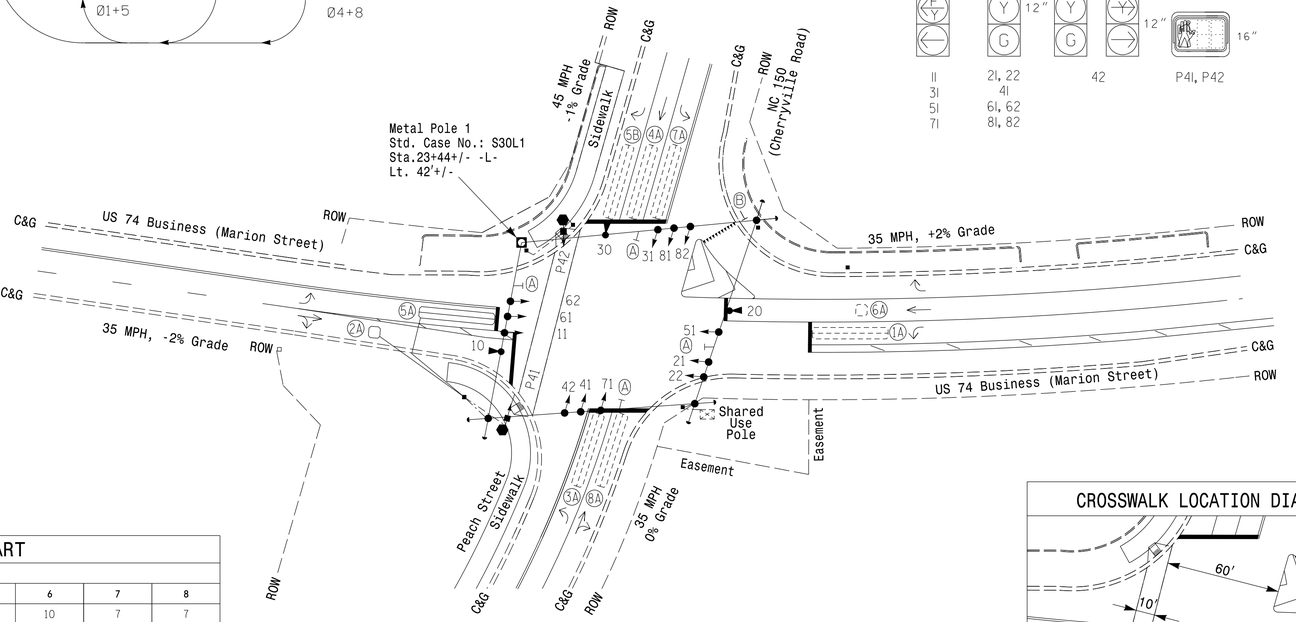
ALTERNATE PHASING EV PREEMPT PHASES

(Medium Priority)



PHASING DIAGRAM DETECTION LEGEND





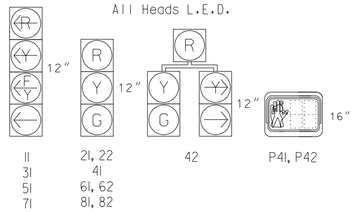
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Y	Y	-	-	15*	-	-
					6**	Y	Y	-	-	-	-	-
2A	6X6	70	4	Y	2	Y	Y	-	-	-	-	Y
3A	6X40	0	2-4-2	-	3	Y	Y	-	-	15*	-	-
					8**	Y	Y	-	-	3	-	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	-	-	-
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	15*	-	Y
					2**	Y	Y	-	-	-	-	Y
5B	6X40	0	2-4-2	-	5	Y	Y	-	-	15	-	-
6A	6X6	70	4	-	6	Y	Y	-	-	-	-	-
7A	6X40	0	2-4-2	-	7	Y	Y	-	-	15*	-	-
					4**	Y	Y	-	-	3	-	-
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	10	-	-

* Reduce Delay to 3 Seconds During Alternate Phasing
** Disable Phase Calls for Loops During Alternate Phasing

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Interval 1 – Dwell Green	255	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*	0.0*
Interval 5 – Exit Green	1	1	1
Interval 5 – Yellow	0.0	0.0	0.0
Interval 5 – Red	0.0	0.0	0.0
Exit Phase(s)	2+6	2+6	4+8
Priority	Medium	Medium	Medium
Delay Time	0	0	0
Min Green Before Pre	1	1	1
Ped Clear Before Pre	11	11	11
Yellow Clear Before Pre	0.0*	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*	0.0*
Dwell Min Time	10	10	7
Enable Backup Protection	N	N	N
Ped Clear Through Yellow	Y	Y	Y
Omit Overlaps	-	-	-
Preempt Extend**	2	2	2

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	10	7	7	7	10	7	7
Extension 1 *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max Green 1 *	15	45	15	25	15	45	15	25
Yellow Clearance	3.0	4.0	3.0	4.6	3.0	4.0	3.0	4.6
Red Clearance	3.5	2.8	2.1	1.3	2.9	2.8	2.4	1.3
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	7	-	-	-	-
Don't Walk 1	-	-	-	22	-	-	-	-
Walk Advance Time	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

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

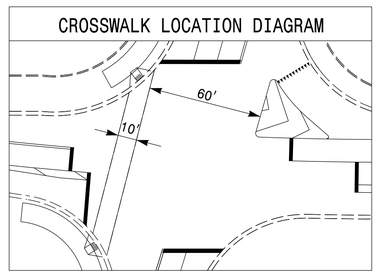
DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	PRE3	PRE4	PRE5	FLASH
11	←-	←-	F Y	F Y	R	R	R	R	F Y	←-	R	Y
21, 22	R	R	G	G	R	R	R	R	G	R	R	Y
31	R	R	R	R	←-	←-	F Y	F Y	R	R	F Y	R
41	R	R	R	R	R	R	G	G	R	R	G	R
42	R	R	R	R	R	R	G	G	R	R	G	R
51	←-	F Y	←-	F Y	R	R	R	R	←-	F Y	R	Y
61, 62	R	G	R	G	R	R	R	R	R	G	R	Y
71	R	R	R	R	←-	F Y	←-	F Y	R	R	←-	R
81, 82	R	R	R	R	R	G	R	G	R	R	R	R
P41, P42	DW	DW	DW	DW	DW	DW	W	W	DW	DW	DW	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	PRE3	PRE4	PRE5	FLASH
11	←-	←-	R	R	R	R	R	R	←-	R	Y	
21, 22	R	R	G	G	R	R	R	G	R	R	Y	
31	R	R	R	R	←-	R	R	R	R	R	R	
41	R	R	R	R	R	G	G	R	R	G	R	
42	R	R	R	R	R	G	G	R	R	G	R	
51	←-	R	←-	R	R	R	R	←-	R	Y		
61, 62	R	G	R	G	R	R	R	G	R	Y		
71	R	R	R	R	←-	R	R	R	R	←-	R	
81, 82	R	R	R	R	R	G	R	G	R	R	R	
P41, P42	DW	DW	DW	DW	DW	DW	W	W	DW	DW	DW	DRK

CROSSWALK LOCATION DIAGRAM



NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
   The PSP can be accessed at the following website:
   http://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or Phase 5 may be lagged.
4. Phase 3 and/or Phase 7 may be lagged.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "DON'T WALK" time only.
8. Pavement markings are existing unless otherwise displayed.
9. Remove the bag coverage of pedestrian signal heads.
10. This intersection features an optical preemption system. Shown locations of optical detector are conceptual only.
11. The Division traffic engineer will determine the Delay before Preempt and preempt Dwell Min Green time for the emergency vehicle preemption timing.
12. Optical Detector 10 calls EVP 3,
    Optical Detector 20 calls EVP 4,
    Optical Detector 30 calls EVP 5.
13. The Division traffic engineer will determine the hours of use for each phasing plan.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Signal Pole with Guy	
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Metal Strain Pole	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
	Right of Way	
	Directional Arrow	
	Type II Signal Pedestal	
	Curb Ramp	
	Out of Pavement Detector	
Ⓐ	Street Name Sign (D3-1)	Ⓐ
Ⓑ	Yield Sign (R1-2)	Ⓑ

This plan supersedes the plan signed and sealed on 11/13/2018.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade-Final Design

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 74 Bus. (Marion Street) at NC 150 (Cherryville Road) / SR 2053 (Peach Street)

Division 12 Cleveland County Shelby

PLAN DATE: March 2022 REVIEWED BY: J.L. Lewis
PREPARED BY: J. Ma REVIEWED BY: M.L. Stygles

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA
DocuSigned by: Jianxin Ma
SIGNATURE 3/1/2022 DATE
SIG. INVENTORY NO. 12-0600

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27607
P: 919-829-0328

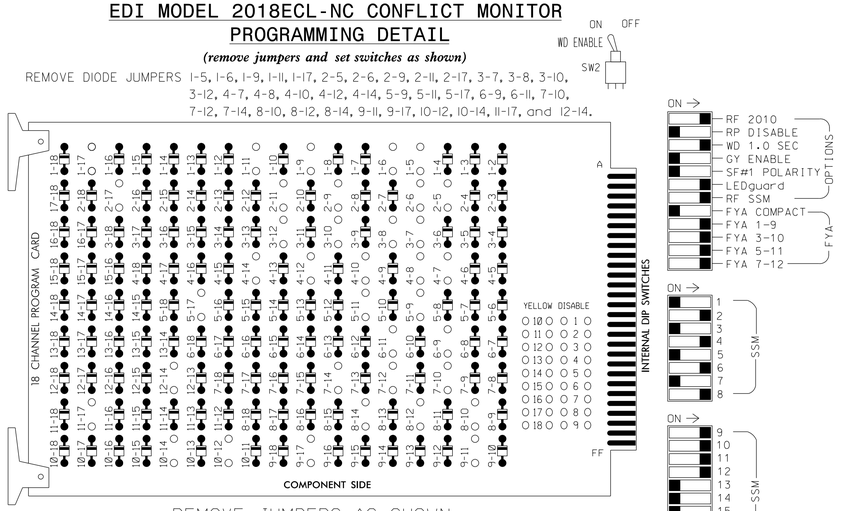
38536.08

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.3.1

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-17, 2-5, 2-6, 2-9, 2-11, 2-17, 3-7, 3-8, 3-10, 3-12, 4-7, 4-8, 4-10, 4-12, 4-14, 5-9, 5-11, 5-17, 6-9, 6-11, 7-10, 7-12, 7-14, 8-10, 8-12, 8-14, 9-11, 9-17, 10-12, 10-14, 11-17, and 12-14.



REMOVE JUMPERS AS SHOWN

NOTES:

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

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all Phases.
4. Program phases 2 and 6 for Startup In Green.
5. Program phase 4 for Startup Ped Call.
6. Program phases 2 and 6 for Yellow Flash, and overlaps 1 and 2 as Wag Overlaps.

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,S4,S5,S6,S7,S8,S10,S11, AUX S1,AUX S2,AUX S3, AUX S4,AUX S5
PHASES USED.....1,2,3,4,4 PED,5,6,7,8
OVERLAP "A".....1+2
OVERLAP "B".....3+4
OVERLAP "C".....5+6
OVERLAP "D".....7+8
OVERLAP "E".....5

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	OLE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11 ★	21,22	NU	31 ★	41,42	P41, P42	51 ★	61,62	NU	71 ★	81,82	NU	11 ★	31 ★	42	51 ★	71 ★	NU
RED		128			101			134			107				✳			
YELLOW	✳	129		✳	102		✳	135		✳	108							
GREEN		130			103			136			109							
RED ARROW													A121	A124		A114	A101	
YELLOW ARROW													A122	A125	A112	A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127			118			133			124					A113			
✋						104												
🚶						106												

NU = Not Used

✳ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A[1]	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10 ★	26	6	Y	Y			
	-	I1U	56	18 ★	51	1	Y	Y			
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
3A[2]	TB4-5,6	I5U	58	20	3	3	Y	Y			15
	-	J8U	50	12 ★	28	8	Y	Y			3
	-	I5U	58	20 ★	53	3	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
5A[3]	TB3-1,2	J1U	55	17	5	5	Y	Y			15
	-	I4U	47	9 ★	22	2	Y	Y			
	-	J1U	55	17 ★	55	5	Y	Y			
5B	TB3-7,8	J2L	44	6	16	5	Y	Y			15
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
7A[4]	TB5-5,6	J5U	57	19	7	7	Y	Y			15
	-	I8U	49	11 ★	24	4	Y	Y			3
	-	J5U	57	19 ★	57	7	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			10
PED PUSH BUTTONS											
P41,P42	TB8-5,6	I12L	69	31	PED 4	4 PED					

NOTE: INSTALL DC ISOLATOR IN INPUT FILE SLOT 112.

[1] Add jumper from I1-W to J4-W, on rear of input file.
[2] Add jumper from I5-W to J8-W, on rear of input file.
[3] Add jumper from J1-W to I4-W, on rear of input file.
[4] Add jumper from J5-W to I8-W, on rear of input file.
★ See Input Page Assignment programming details on sheets 3, 4, 5, and 6.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

INPUT FILE POSITION LAYOUT

(front view)

FILE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	Ø1 1A NOT USED	Ø2 2A NOT USED	SLOT EMPTY	WIRED INPUT ⊗	Ø3 3A NOT USED	Ø4 4A NOT USED	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	NOT USED Ø4 PED DC ISOLATOR	SLOT EMPTY	FS DC ISOLATOR ST DC ISOLATOR
L	Ø5 5A NOT USED	Ø6 6A Ø5 5B	SLOT EMPTY	WIRED INPUT ⊗	Ø7 7A NOT USED	Ø8 8A NOT USED	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	PRE3 PRE5 OPTICOM 4-CHANNEL	PRE4 NOT USED	SLOT EMPTY

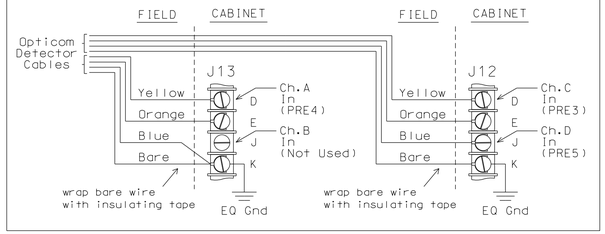
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

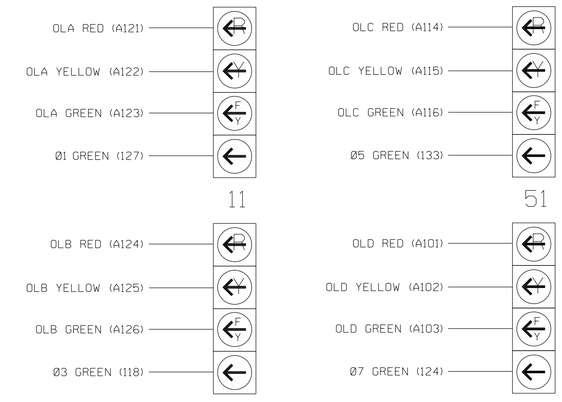
TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

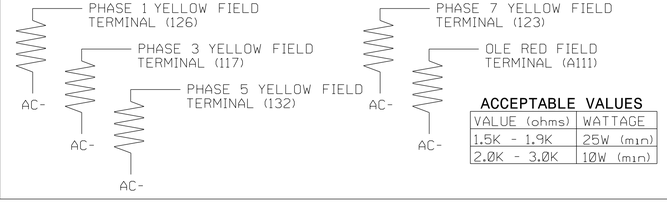
The sequence display for signal heads 11, 31, 51, and 71 requires special logic programming. See sheet 2 for programming instructions.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)



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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 12-0600
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

This plan supersedes the plan signed and sealed on 11/13/2018.

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
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P: 919-829-0328

Electrical Detail-Final Design-Sheet 1 of 9

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 74 Bus. (Marion Street) at NC 150 (Cherryville Road) / SR 2053 (Peach Street)

Division 12 Cleveland County Shelby

PLAN DATE:	March 2022	REVIEWED BY:	J.L. Lewis
PREPARED BY:	J. Ma	REVIEWED BY:	M.L. Stygles

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Traffic Engineering & Signals Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA

Docusigned by: Jianxin Ma 3/1/2022
SIGNATURE DATE

SIG. INVENTORY NO. 12-0600

38536.08

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

(program controller as shown below)

1. 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, 3, 4, 5, 6, 7, 8, 9, 10, 11, AND 12.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

OUTPUT REFERENCE SCHEDULE

USE TO INTERPRET LOGIC PROCESSOR

OUTPUT 39 = Overlap D Red
OUTPUT 40 = Overlap D Yellow
OUTPUT 41 = Overlap D Green
OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green
OUTPUT 47 = Overlap B Red
OUTPUT 48 = Overlap B Yellow
OUTPUT 49 = Overlap B Green
OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

LOGICAL I/O COMMAND #1 (+/-COMMAND#)
IF ACTIVE PHASE #1 IS ON
AND RED CLEAR ON PHASE #1 IS ON
↓ SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #50 ON
SET OUTPUT ASSIGNMENT #51 OFF
PRESS '+'

NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

LOGICAL I/O COMMAND #2 (+/-COMMAND#)
IF ACTIVE PHASE #1 IS ON
↓ SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #52 OFF
PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

LOGICAL I/O COMMAND #3 (+/-COMMAND#)
IF YELLOW ON PHASE #1 IS ON
↓ SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #51 ON
PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

LOGICAL I/O COMMAND #4 (+/-COMMAND#)
IF ACTIVE PHASE #5 IS ON
AND RED CLEAR ON PHASE #5 IS ON
↓ SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #42 ON
SET OUTPUT ASSIGNMENT #43 OFF
PRESS '+'

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

LOGICAL I/O COMMAND #5 (+/-COMMAND#)
IF ACTIVE PHASE #5 IS ON
↓ SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #44 OFF
PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

LOGICAL I/O COMMAND #6 (+/-COMMAND#)
IF YELLOW ON PHASE #5 IS ON
↓ SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #43 ON
PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGICAL I/O COMMAND #7 (+/-COMMAND#)
IF ACTIVE PHASE #3 IS ON
AND RED CLEAR ON PHASE #3 IS ON
↓ SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #47 ON
SET OUTPUT ASSIGNMENT #48 OFF
PRESS '+'

NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 4 (HEAD 31).

LOGICAL I/O COMMAND #8 (+/-COMMAND#)
IF ACTIVE PHASE #3 IS ON
↓ SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #49 OFF
PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 3 (HEAD 31).

LOGICAL I/O COMMAND #9 (+/-COMMAND#)
IF YELLOW ON PHASE #3 IS ON
↓ SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #48 ON
PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 31).

LOGICAL I/O COMMAND #10 (+/-COMMAND#)
IF ACTIVE PHASE #7 IS ON
AND RED CLEAR ON PHASE #7 IS ON
↓ SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #39 ON
SET OUTPUT ASSIGNMENT #40 OFF
PRESS '+'

NOTE: LOGIC FOR PHASE 7 RED CLEAR WHEN TRANSITIONING FROM PHASE 7 TO PHASE 8 (HEAD 71).

LOGICAL I/O COMMAND #11 (+/-COMMAND#)
IF ACTIVE PHASE #7 IS ON
↓ SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #41 OFF
PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 7 (HEAD 71).

LOGICAL I/O COMMAND #12 (+/-COMMAND#)
IF YELLOW ON PHASE #7 IS ON
↓ SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #40 ON
PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 7 (HEAD 71).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

38536.08

OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

(program controller as shown below)

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

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE: 1234567891011121314151 6
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).....0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
← NOTICE GREEN FLASH
PRESS '+'

PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
PHASE: 1234567891011121314151 6
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).....0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
← NOTICE GREEN FLASH
PRESS '+'

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE: 1234567891011121314151 6
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).....0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
← NOTICE GREEN FLASH
PRESS '+'

PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE: 1234567891011121314151 6
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS: _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).....0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS). PRESS 'NEXT' TO ADVANCE TO PAGE 2.

NOTICE PAGE 2 →

PAGE 2: VEHICLE OVERLAP 'A' SETTINGS
PHASE: 1234567891011121314151 6
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?...Y
GREEN EXTENSION (0-255 SEC).....0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
PRESS '+'

NOTICE PAGE 2 →

PAGE 2: VEHICLE OVERLAP 'B' SETTINGS
PHASE: 1234567891011121314151 6
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
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
PRESS '+'

NOTICE PAGE 2 →

PAGE 2: VEHICLE OVERLAP 'C' SETTINGS
PHASE: 1234567891011121314151 6
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?...Y
GREEN EXTENSION (0-255 SEC).....0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
PRESS '+'

NOTICE PAGE 2 →

PAGE 2: VEHICLE OVERLAP 'D' SETTINGS
PHASE: 1234567891011121314151 6
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
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

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.3.2

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27607
P: 919-829-0328

This plan supersedes the plan signed and sealed on 11/13/2018.

Electrical Detail-Final Design-Sheet 2 of 9

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0600
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 74 Bus. (Marion Street)
at
NC 150 (Cherryville Road) /
SR 2053 (Peach Street)

Division 12 Cleveland County Shelby

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Traffic Engineering Branch - Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE:	March 2022	REVIEWED BY:	J.L. Lewis
PREPARED BY:	J. Ma	REVIEWED BY:	M.L. Stygles

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA
Docusigned by: Jianxin Ma
3/1/2022
SIGNATURE DATE

SIG. INVENTORY NO. 12-0600

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.3.3

INPUT PAGE 2 ASSIGNMENT PROGRAMMING DETAIL FOR ALTERNATE PHASING - LOOP 1A

(program controller as shown below)

NOTES: 1. THIS PROGRAMMING APPLIES FOR INPUT PAGE 2 ONLY. INPUT PAGE 1 WILL USE STANDARD DEFAULT SETTINGS. THIS PROGRAMMING IS NECESSARY FOR PROPER DETECTOR OPERATION DURING ALTERNATE PHASING OPERATION.

2. THE FIRST TASK THIS PROGRAMMING ACCOMPLISHES IS THE DISABLING OF INPUT #10 (DETECTOR 26) SO THAT A VEHICLE CALL WILL NOT BE PLACED TO PHASE 6 DURING ALTERNATE PHASING OPERATION. THE SECOND TASK THIS PROGRAMMING ACCOMPLISHES IS THAT IT REASSIGNS DETECTOR 51 TO INPUT #18 SO THAT THE DELAY ON LOOP 1A CAN BE REDUCED FROM 15 SECONDS TO 3 SECONDS.

FROM MAIN MENU PRESS '5' (INPUTS). THEN PRESS 'NEXT' TO GET TO INPUT PAGE '2'. PRESS THE '+' KEY UNTIL INPUT 10 IS REACHED.

```
PAGE: 2 C1 PIN:48  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................10
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64).............26
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

ENTER A 'Y' FOR NOT ENABLED

DEFAULT DETECTOR NUMBER WILL REMAIN UNTIL 'NOT ENABLED' IS ENTERED.

(LOOP 1A - PHASE 6)

```
PAGE: 2 C1 PIN:48  NOT ENABLED
INPUT ASSIGNMENT #.................10
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64).............._
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PRESS '+' TO ADVANCE TO INPUT 18

```
PAGE: 2 C1 PIN:56  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................18
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................._
VEHICLE DETECTOR (1-64).............1
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

ENTER '51' TO REASSIGN THE VEHICLE DETECTOR FOR THIS INPUT

(LOOP 1A - PHASE 1)

```
PAGE: 2 C1 PIN:56  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................18
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................._
VEHICLE DETECTOR (1-64).............51
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PROGRAMMING COMPLETE

SPECIAL DETECTOR PROGRAMMING DETAIL - LOOP 1A (ALT.)

(program controller as shown below)

FROM MAIN MENU PRESS '7' (DETECTORS), THEN PRESS '1' FOR VEHICLE DETECTORS. PRESS THE '-' KEY TO GET TO VEHICLE DETECTOR #51.

```
VEHICLE DETECTOR #51  SETTINGS (+=,1-64)
SETTING:                          (Y/N)
ENABLE DETECTOR.....................N
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT)................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................0
MAX CALLS/MIN (0-255)..............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%).............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

ENTER 'Y' FOR ENABLE DETECTOR

ENTER '1' FOR PHASES ASSIGNED

ENSURE DELAY IS '3'

```
VEHICLE DETECTOR #51  SETTINGS (+=,1-64)
SETTING:                          (Y/N)
ENABLE DETECTOR.....................Y
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦X
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT)................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................3
MAX CALLS/MIN (0-255)..............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%).............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

DETECTOR PROGRAMMING COMPLETE

NOTE: DETECTOR IS PROGRAMMED PER THE INPUT FILE CONNECTION AND PROGRAMMING CHART SHOWN ON SHEET 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0600
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

This plan supersedes the plan signed and sealed on 11/13/2018.

VHB Engineering NC, P.C. (C-3705)
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P: 919-829-0328

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical Detail-Final Design-Sheet 3 of 9

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 74 Bus. (Marion Street) at NC 150 (Cherryville Road) / SR 2053 (Peach Street)		
Prepared for the Offices of: NC DEPARTMENT OF TRANSPORTATION Transportation Mobility and Safety Division Traffic Engineering Branch Signals Management Section	Division 12 Cleveland County Shelby		
750 N.Greenfield Pkwy,Garner,NC 27529	PLAN DATE: March 2022	REVIEWED BY: J.L. Lewis	
	PREPARED BY: J. Ma	REVIEWED BY: M.L. Stygles	
	REVISIONS	INIT.	DATE
	SIG. INVENTORY NO. 12-0600		

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA

DocuSigned by: Jianxin Ma 3/1/2022
SIGNATURE DATE

38536.08

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.3.4

INPUT PAGE 2 ASSIGNMENT PROGRAMMING DETAIL FOR ALTERNATE PHASING - LOOP 3A

(program controller as shown below)

NOTES: 1. THIS PROGRAMMING APPLIES FOR INPUT PAGE 2 ONLY. INPUT PAGE 1 WILL USE STANDARD DEFAULT SETTINGS. THIS PROGRAMMING IS NECESSARY FOR PROPER DETECTOR OPERATION DURING ALTERNATE PHASING OPERATION.

2. THE FIRST TASK THIS PROGRAMMING ACCOMPLISHES IS THE DISABLING OF INPUT #12 (DETECTOR 28) SO THAT A VEHICLE CALL WILL NOT BE PLACED TO PHASE 8 DURING ALTERNATE PHASING OPERATION. THE SECOND TASK THIS PROGRAMMING ACCOMPLISHES IS THAT IT REASSIGNS DETECTOR 53 TO INPUT #20 SO THAT THE DELAY ON LOOP 3A CAN BE REDUCED FROM 15 SECONDS TO 3 SECONDS.

FROM MAIN MENU PRESS '5' (INPUTS), THEN PRESS 'NEXT' TO GET TO INPUT PAGE '2'. PRESS THE '+' KEY UNTIL INPUT 12 IS REACHED.

```
PAGE: 2 C1 PIN:50  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................12
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64).............28
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

ENTER A 'Y' FOR NOT ENABLED

DEFAULT DETECTOR NUMBER WILL REMAIN UNTIL 'NOT ENABLED' IS ENTERED.

(LOOP 3A - PHASE 8)

```
PAGE: 2 C1 PIN:50  NOT ENABLED
INPUT ASSIGNMENT #.................12
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64).............._
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PRESS '+' TO ADVANCE TO INPUT 20

```
PAGE: 2 C1 PIN:58  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................20
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................._
VEHICLE DETECTOR (1-64).............3
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

ENTER '53' TO REASSIGN THE VEHICLE DETECTOR FOR THIS INPUT

(LOOP 3A - PHASE 3)

```
PAGE: 2 C1 PIN:58  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................20
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................._
VEHICLE DETECTOR (1-64).............53
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PROGRAMMING COMPLETE

SPECIAL DETECTOR PROGRAMMING DETAIL - LOOP 3A (ALT.)

(program controller as shown below)

FROM MAIN MENU PRESS '7' (DETECTORS), THEN PRESS '1' FOR VEHICLE DETECTORS. PRESS THE '-' KEY TO GET TO VEHICLE DETECTOR #53.

```
VEHICLE DETECTOR #53  SETTINGS (+-,1-64)
SETTING:                          (Y/N)
ENABLE DETECTOR.....................N
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT).................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)............0
STRETCH (0-25.5 SEC).................0.0
DELAY (0-255 SEC)....................0
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

ENTER 'Y' FOR ENABLE DETECTOR

ENTER '3' FOR PHASES ASSIGNED

ENSURE DELAY IS '3'

```
VEHICLE DETECTOR #53  SETTINGS (+-,1-64)
SETTING:                          (Y/N)
ENABLE DETECTOR.....................Y
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦  X
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT).................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)............0
STRETCH (0-25.5 SEC).................0.0
DELAY (0-255 SEC)....................3
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

DETECTOR PROGRAMMING COMPLETE

NOTE: DETECTOR IS PROGRAMMED PER THE INPUT FILE CONNECTION AND PROGRAMMING CHART SHOWN ON SHEET 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0600
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

This plan supersedes the plan signed and sealed on 11/13/2018.

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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical Detail-Final Design-Sheet 4 of 9

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 74 Bus. (Marion Street) at NC 150 (Cherryville Road) / SR 2053 (Peach Street)		
Prepared for the Offices of: NC DEPT. OF TRANSPORTATION Transportation Mobility and Safety Division Traffic Engineering Branch Signals Management Section	Division 12 Cleveland County Shelby		
750 N.Greenfield Pkwy.Garner,NC 27529	PLAN DATE: March 2022	REVIEWED BY: J.L. Lewis	
	PREPARED BY: J. Ma	REVIEWED BY: M.L. Stygles	
	REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA

DocuSigned by: Jianxin Ma 3/1/2022
REGISTERED SIGNATURE DATE

SIG. INVENTORY NO. 12-0600

38536.08

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.3.5

INPUT PAGE 2 ASSIGNMENT PROGRAMMING DETAIL FOR ALTERNATE PHASING - LOOP 5A

(program controller as shown below)

NOTES: 1. THIS PROGRAMMING APPLIES FOR INPUT PAGE 2 ONLY. INPUT PAGE 1 WILL USE STANDARD DEFAULT SETTINGS. THIS PROGRAMMING IS NECESSARY FOR PROPER DETECTOR OPERATION DURING ALTERNATE PHASING OPERATION.

2. THE FIRST TASK THIS PROGRAMMING ACCOMPLISHES IS THE DISABLING OF INPUT #9 (DETECTOR 22) SO THAT A VEHICLE CALL WILL NOT BE PLACED TO PHASE 2 DURING ALTERNATE PHASING OPERATION. THE SECOND TASK THIS PROGRAMMING ACCOMPLISHES IS THAT IT REASSIGNS DETECTOR 55 TO INPUT #17 SO THAT THE DELAY ON LOOP 5A CAN BE REDUCED FROM 15 SECONDS TO 3 SECONDS.

FROM MAIN MENU PRESS '5' (INPUTS), THEN PRESS 'NEXT' TO GET TO INPUT PAGE '2'. PRESS THE '+' KEY UNTIL INPUT 9 IS REACHED.

```
PAGE: 2 C1 PIN:47  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................9
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64).............22
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

→ ENTER A 'Y' FOR NOT ENABLED →

DEFAULT DETECTOR NUMBER WILL REMAIN UNTIL 'NOT ENABLED' IS ENTERED.

(LOOP 5A - PHASE 2)

```
PAGE: 2 C1 PIN:47  NOT ENABLED
INPUT ASSIGNMENT #.................9
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64).............._
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PRESS '+' TO ADVANCE TO INPUT 17

```
PAGE: 2 C1 PIN:55  VEHICLE DETECTOR
INPUT ASSIGNMENT #................17
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................._
VEHICLE DETECTOR (1-64).............5
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

→ ENTER '55' TO REASSIGN THE VEHICLE DETECTOR FOR THIS INPUT →

(LOOP 5A - PHASE 5)

```
PAGE: 2 C1 PIN:55  VEHICLE DETECTOR
INPUT ASSIGNMENT #................17
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................._
VEHICLE DETECTOR (1-64).............55
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PROGRAMMING COMPLETE

SPECIAL DETECTOR PROGRAMMING DETAIL - LOOP 5A (ALT.)

(program controller as shown below)

FROM MAIN MENU PRESS '7' (DETECTORS), THEN PRESS '1' FOR VEHICLE DETECTORS. PRESS THE '-' KEY TO GET TO VEHICLE DETECTOR #55.

```
VEHICLE DETECTOR #55  SETTINGS (+-,1-64)
SETTING:                          (Y/N)
ENABLE DETECTOR.....................N
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT).................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)............0
STRETCH (0-25.5 SEC).................0.0
DELAY (0-255 SEC)....................0
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

→ ENTER 'Y' FOR ENABLE DETECTOR →

→ ENTER '5' FOR PHASES ASSIGNED →

→ ENSURE DELAY IS '3' →

```
VEHICLE DETECTOR #55  SETTINGS (+-,1-64)
SETTING:                          (Y/N)
ENABLE DETECTOR.....................Y
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦    X
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT).................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)............0
STRETCH (0-25.5 SEC).................0.0
DELAY (0-255 SEC)....................3
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

DETECTOR PROGRAMMING COMPLETE

NOTE: DETECTOR IS PROGRAMMED PER THE INPUT FILE CONNECTION AND PROGRAMMING CHART SHOWN ON SHEET 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0600
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

This plan supersedes the plan signed and sealed on 11/13/2018.

VHB Engineering NC, P.C. (C-3705)
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical Detail-Final Design-Sheet 5 of 9

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 74 Bus. (Marion Street) at NC 150 (Cherryville Road) / SR 2053 (Peach Street)
Prepared for the Offices of: NC DEPT. OF TRANSPORTATION Transportation Mobility and Safety Division Traffic Engineering Branch Signals Management Section	Division 12 Cleveland County Shelby
750 N.Greenfield Pkwy,Garner,NC 27529	PLAN DATE: March 2022 REVIEWED BY: J.L. Lewis
	PREPARED BY: J. Ma REVIEWED BY: M.L. Stygles
	REVISIONS INIT. DATE
	SIG. INVENTORY NO. 12-0600

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA

DocuSigned by: Jianxin Ma 3/1/2022
SIGNATURE DATE

38536.08

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.3.6

INPUT PAGE 2 ASSIGNMENT PROGRAMMING DETAIL FOR ALTERNATE PHASING - LOOP 7A

(program controller as shown below)

NOTES: 1. THIS PROGRAMMING APPLIES FOR INPUT PAGE 2 ONLY. INPUT PAGE 1 WILL USE STANDARD DEFAULT SETTINGS. THIS PROGRAMMING IS NECESSARY FOR PROPER DETECTOR OPERATION DURING ALTERNATE PHASING OPERATION.

2. THE FIRST TASK THIS PROGRAMMING ACCOMPLISHES IS THE DISABLING OF INPUT #11 (DETECTOR 24) SO THAT A VEHICLE CALL WILL NOT BE PLACED TO PHASE 4 DURING ALTERNATE PHASING OPERATION. THE SECOND TASK THIS PROGRAMMING ACCOMPLISHES IS THAT IT REASSIGNS DETECTOR 57 TO INPUT #19 SO THAT THE DELAY ON LOOP 7A CAN BE REDUCED FROM 15 SECONDS TO 3 SECONDS.

FROM MAIN MENU PRESS '5' (INPUTS), THEN PRESS 'NEXT' TO GET TO INPUT PAGE '2'. PRESS THE '+' KEY UNTIL INPUT 11 IS REACHED.

```
PAGE: 2 C1 PIN:49  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................11
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64).............24
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

→ ENTER A 'Y' FOR NOT ENABLED →

DEFAULT DETECTOR NUMBER WILL REMAIN UNTIL 'NOT ENABLED' IS ENTERED.

(LOOP 7A - PHASE 4)

```
PAGE: 2 C1 PIN:49  NOT ENABLED
INPUT ASSIGNMENT #.................11
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64).............._
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PRESS '+' TO ADVANCE TO INPUT 19

```
PAGE: 2 C1 PIN:57  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................19
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................._
VEHICLE DETECTOR (1-64).............7
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

→ ENTER '57' TO REASSIGN THE VEHICLE DETECTOR FOR THIS INPUT →

(LOOP 7A - PHASE 7)

```
PAGE: 2 C1 PIN:57  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................19
DEBOUNCE TIME (0-25.5 SEC).........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................._
VEHICLE DETECTOR (1-64).............57
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10).............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........._
SPECIAL FUNCTION ALARM (1-8)........._
TOD HOUR SYCHRONIZATION (0-23)......._
FORCE OFF RING (1-4)................._
HOLD PHASES (1-16)..................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4).............._
CHANGE OUTPUT PAGE (1-4)............._
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PROGRAMMING COMPLETE

SPECIAL DETECTOR PROGRAMMING DETAIL - LOOP 7A (ALT.)

(program controller as shown below)

FROM MAIN MENU PRESS '7' (DETECTORS), THEN PRESS '1' FOR VEHICLE DETECTORS. PRESS THE '-' KEY TO GET TO VEHICLE DETECTOR #57.

```
VEHICLE DETECTOR #57  SETTINGS (+-,1-64)
SETTING:                          (Y/N)
ENABLE DETECTOR.....................N
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT).................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................0
MAX CALLS/MIN (0-255)..............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%).............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

→ ENTER 'Y' FOR ENABLE DETECTOR →

→ ENTER '7' FOR PHASES ASSIGNED →

→ ENSURE DELAY IS '3' →

```
VEHICLE DETECTOR #57  SETTINGS (+-,1-64)
SETTING:                          (Y/N)
ENABLE DETECTOR.....................Y
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦       X
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT).................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................3
MAX CALLS/MIN (0-255)..............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%).............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

DETECTOR PROGRAMMING COMPLETE

NOTE: DETECTOR IS PROGRAMMED PER THE INPUT FILE CONNECTION AND PROGRAMMING CHART SHOWN ON SHEET 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0600
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

This plan supersedes the plan signed and sealed on 11/13/2018.

VHB Engineering NC, P.C. (C-3705)
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical Detail-Final Design-Sheet 6 of 9

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 74 Bus. (Marion Street) at NC 150 (Cherryville Road) / SR 2053 (Peach Street)		
Prepared for the Offices of: NC DEPARTMENT OF TRANSPORTATION Transportation Mobility and Safety Division Traffic Engineering Branch Signals Management Section	Division 12 Cleveland County Shelby		
750 N.Greenfield Pkwy.Garner,NC 27529	PLAN DATE: March 2022	REVIEWED BY: J.L. Lewis	
	PREPARED BY: J. Ma	REVIEWED BY: M.L. Stygles	
	REVISIONS	INIT.	DATE
	SEAL 033108 NORTH CAROLINA PROFESSIONAL ENGINEER JIANXIN MA	SIG. INVENTORY NO. 12-0600	
	DocuSigned by: Jianxin Ma 3/1/2022 SIGNATURE DATE		

38536.08

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.3.7

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING COORDINATION - SELECT ALL PAGE CHANGES (AS SHOWN BELOW) WITHIN COORDINATION PLAN PROGRAMMING.

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM PAGE CHANGES (SHOWN BELOW) IN SEPARATE TIME OF DAY EVENTS. IF PAGE 1 IS USED, NO EVENT PROGRAMMING IS NECESSARY FOR THAT PARTICULAR PAGE.

PHASING	INPUTS PAGE	OVERLAPS PAGE
ACTIVE PAGES REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PAGES REQUIRED TO RUN ALTERNATE PHASING	2	2

NOTE: PAGES NOT SHOWN (i.e. sequence, phase control, etc.) SHOULD REMAIN AS '1', OR AS DEFINED BY TIMING ENGINEER.

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY PAGE CHANGE EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE RUN PAGE CHANGE EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN THESE OVERLAP/INPUT PAGE CHANGES ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAPS PAGE 2: Modifies overlap parent phases for heads 11, 31, 51, and 71 to run protected turns only.

INPUTS PAGE 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 3 seconds.

Disables phase 8 call on loop 3A and reduces delay time for phase 3 call on loop 3A to 3 seconds.

Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 3 seconds.

Disables phase 4 call on loop 7A and reduces delay time for phase 7 call on loop 7A to 3 seconds.

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0600
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

This plan supersedes the plan signed and sealed on 11/13/2018.

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P: 919-829-0328

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
State of North Carolina Department of Transportation
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 74 Bus. (Marion Street)
at
NC 150 (Cherryville Road) / SR 2053 (Peach Street)
Division 12 Cleveland County Shelby

PLAN DATE:	March 2022	REVIEWED BY:	J.L. Lewis
PREPARED BY:	J. Ma	REVIEWED BY:	M.L. Stygles

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA
DocuSigned by: Jianxin Ma 3/1/2022
SIGNATURE DATE
SIG. INVENTORY NO. 12-0600

38536.08

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig. 3.8

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' as needed to advance to Preempts 3, 4 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   1  0.0  0.0  | X   X
EXIT CALLS       |
            OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....11
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........10
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......Y
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |    X
```

PRESS 'NEXT'

```
   PREEMPTION  #4  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   1  0.0  0.0  | X   X
EXIT CALLS       |
            OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....11
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........10
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......Y
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT'

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |   X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   1  0.0  0.0  |    X   X
EXIT CALLS       |
            OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....11
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......Y
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMMING COMPLETE

Program extend time on optical detector unit for 2.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0600
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

This plan supersedes the plan signed and sealed on 11/13/2018.

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Electrical Detail-Final Design-Sheet 8 of 9

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 74 Bus. (Marion Street)
at
NC 150 (Cherryville Road) /
SR 2053 (Peach Street)

Division 12 Cleveland County Shelby

PLAN DATE:	March 2022	REVIEWED BY:	J.L. Lewis
PREPARED BY:	J. Ma	REVIEWED BY:	M.L. Stygles

REVISIONS	INIT.	DATE

Prepared for the Offices of:

NC Department of Transportation — Transportation Mobility and Safety Division — Traffic Engineering Branch — Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA

DocuSigned by: Jianxin Ma 3/1/2022
SIGNATURE DATE

SIG. INVENTORY NO. 12-0600

38536.08

PROJECT REFERENCE NO.	SHEET NO.
U-5775	Sig.3.9

OVERLAP "E"

OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
2. WITH CURSOR IN "OUTPUT ASSIGNMENT #" FIELD, USE + KEY TO FIND THE OUTPUT ASSIGNMENT NUMBER 45, AS SHOWN BELOW.
3. PROGRAM CONTROLLER AS SHOWN:

```
PAGE:1  C1 PIN:91   NOT ENABLED
OUTPUT ASSIGNMENT #.................45
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  ........ EXISTING DEFAULT ENTRY
VEHICLE PHASE......................
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
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.........................
```

→

```
PAGE:1  C1 PIN:91  NOT ENABLED
SELECT VEHICLE OVERLAP (A=1, P=16)...5
SELECT COLOR (0=RED,1=YEL,2=GRN).....0
```

WHEN A "Y" IS ENTERED FOR "VEHICLE OVERLAP" THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS ENTER AFTER ENTERING DATA, THEN ESC.

→

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS "VEHICLE OVERLAP" AS SHOWN BELOW:

```
PAGE:1  C1 PIN:91   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................45
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......................
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
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.........................
```

VEHICLE OVERLAP E (RED) LOAD SWITCH AUX S3

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
2. WITH CURSOR IN "OUTPUT ASSIGNMENT #" FIELD, USE + KEY TO FIND THE OUTPUT ASSIGNMENT NUMBER 46, AS SHOWN BELOW.
3. PROGRAM CONTROLLER AS SHOWN:

```
PAGE:1  C1 PIN:93   NOT ENABLED
OUTPUT ASSIGNMENT #.................46
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  ........ EXISTING DEFAULT ENTRY
VEHICLE PHASE......................
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
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.........................
```

→

```
PAGE:1  C1 PIN:93  NOT ENABLED
SELECT VEHICLE OVERLAP (A=1, P=16)...5
SELECT COLOR (0=RED,1=YEL,2=GRN).....2
```

WHEN A "Y" IS ENTERED FOR "VEHICLE OVERLAP" THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS ENTER AFTER ENTERING DATA, THEN ESC.

→

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS "VEHICLE OVERLAP" AS SHOWN BELOW:

```
PAGE:1  C1 PIN:93  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................46
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......................
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
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.........................
```

VEHICLE OVERLAP E (GREEN) LOAD SWITCH AUX S3

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
2. WITH CURSOR IN "OUTPUT ASSIGNMENT #" FIELD, USE + KEY TO FIND THE OUTPUT ASSIGNMENT NUMBER 54, AS SHOWN BELOW.
3. PROGRAM CONTROLLER AS SHOWN:

```
PAGE:1  C1 PIN:101  CONTROLLER FLASH
OUTPUT ASSIGNMENT #.................54
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......................
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................Y  ........ EXISTING DEFAULT ENTRY
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

→

```
PAGE:1  C1 PIN:101  CONTROLLER FLASH
SELECT VEHICLE OVERLAP (A=1, P=16)...5
SELECT COLOR (0=RED,1=YEL,2=GRN).....1
```

WHEN A "Y" IS ENTERED FOR "VEHICLE OVERLAP" THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS ENTER AFTER ENTERING DATA, THEN ESC.

→

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS "VEHICLE OVERLAP" AS SHOWN BELOW:

```
PAGE:1  C1 PIN:101   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................54
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......................
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
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.........................
```

VEHICLE OVERLAP E (YELLOW) LOAD SWITCH AUX S3

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0600
DESIGNED: March 2022
SEALED: 03/01/2022
REVISED: N/A

This plan supersedes the plan signed and sealed on 11/13/2018.

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27607
P: 919-829-0328

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical Detail-Final Design-Sheet 9 of 9

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 74 Bus. (Marion Street)
at
NC 150 (Cherryville Road) /
SR 2053 (Peach Street)

Division 12 Cleveland County Shelby

PLAN DATE:	March 2022	REVIEWED BY:	J.L. Lewis
PREPARED BY:	J. Ma	REVIEWED BY:	M.L. Stygles

REVISIONS	INIT.	DATE

Prepared for the Offices of: Transportation Mobility and Safety Division, ITS & Signals Management Section, State of North Carolina Department of Transportation

750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA

Jianxin Ma 3/1/2022

SIGNATURE DATE

SIG. INVENTORY NO. I2-0600

38536.08

09/08/99

TIP PROJECT: U-5775

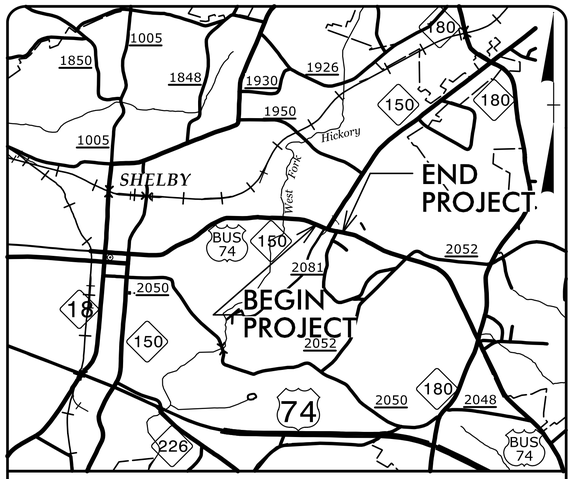
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
U–5775	UC–1

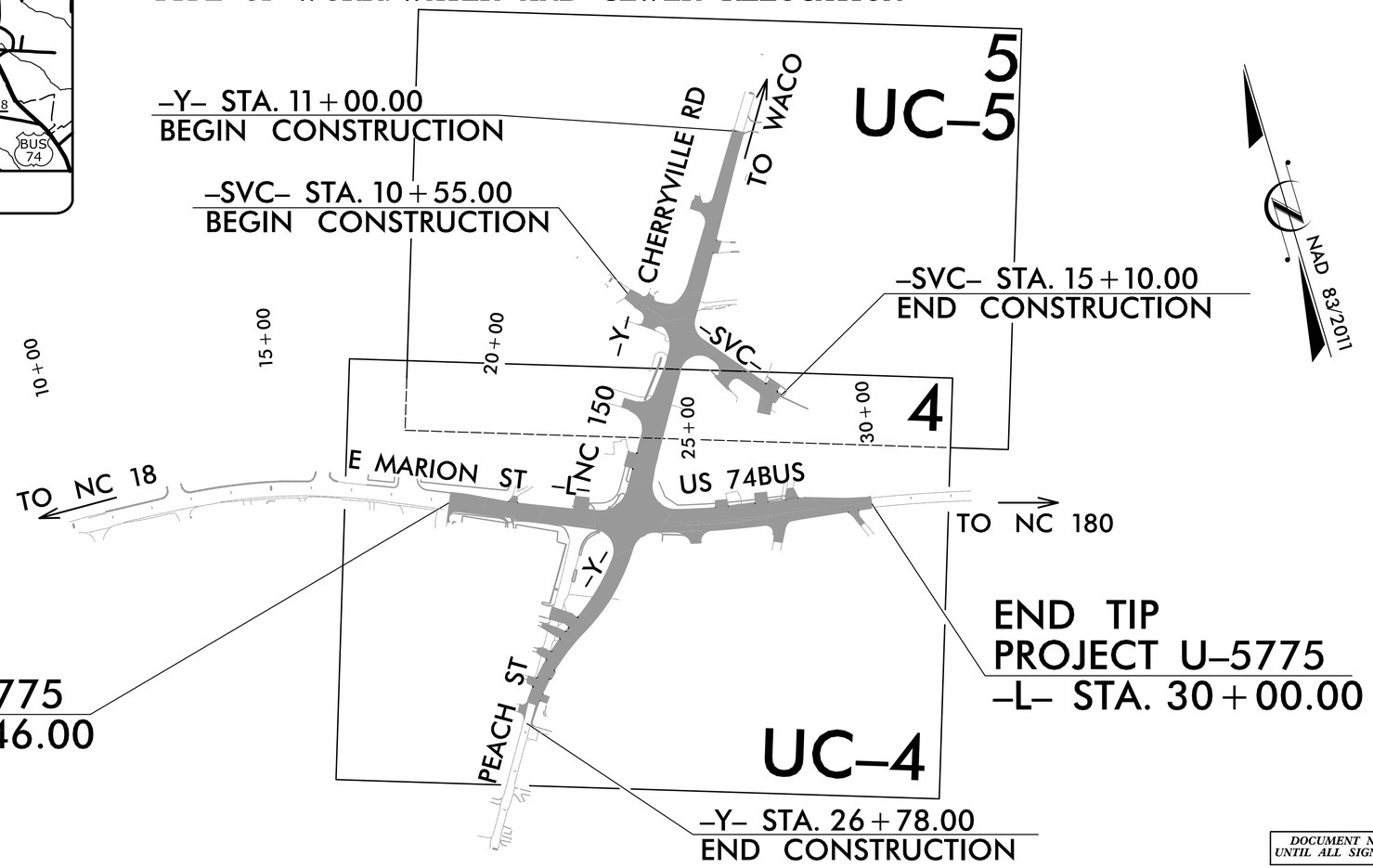
UTILITY CONSTRUCTION PLANS
CLEVELAND COUNTY

LOCATION: INTERSECTION OF US 74 BUS. (MARION ST) AT NC 150 (CHERRYVILLE RD) AND PEACH ST.

TYPE OF WORK: WATER AND SEWER RELOCATION

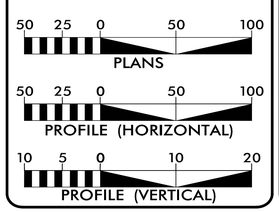


VICINITY MAP



DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED

GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UC–1	TITLE SHEET
UC–2	UTILITY SYMBOLOGY
UC–3	NOTES
UC–3A	DETAILS
UC–4 THRU UC–5	UTILITY CONSTRUCTION SHEETS
UC–6 THRU UC–7	PROFILE SHEETS

WATER AND SEWER OWNERS ON PROJECT

(A) WATER – CITY OF SHELBY
(B) SANITARY SEWER – CITY OF SHELBY

PREPARED IN THE OFFICE OF

TGS ENGINEERS

TGS ENGINEERS
804–C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476–9003
CORP. LICENSE NO.: C–0275

B. CHAD HOUSER, PE *UTILITY DESIGN ENGINEER*
JIMMY TERRY, PE *PROJECT MANAGER*

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 30499 ENGINEER BOBBY C HOUSER

9/26/2022

NCDOT DIVISION 12
1710 E. MARION ST
Shelby, NC 28151
PHONE (980)552–4200

BRYAN SOWELL, PE *DIVISION PROJECT ENGINEER*
CHAD DREWERY *DIVISION UTILITY ENGINEER*

8/23/2022
X:\NCDOT\U-5775\Utilities\Rdy_U\Proj\U5775_Ut_tsh_UC1_psh.dgn
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5775	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line
- *Underground Telephone Cable
- *Underground Telephone Conduit
- *Underground Fiber Optics Telephone Cable
- *Underground TV Cable
- *Underground Fiber Optics TV Cable
- *Underground Gas Pipeline
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line
- Underground Unknown Utility Line
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities
- Utility Line Drawn from Record (Type as Shown)
- Designated Utility Line (Type as Shown)

REV: 2/1/2012

8/23/2022
T:\U-5775\Utilities\Rdy_Ut\Proj\U5775_Ut_sym_UC2_psh.dgn
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UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.

2. THE EXISTING UTILITIES BELONG TO THE CITY OF SHELBY.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

LIST OF STANDARD DRAWINGS

1515.01 WATER METER

1515.02 FIRE HYDRANT

1520.01 SEWER CLEAN OUT

1525.06 PRECAST CONCRETE SANITARY SEWER MANHOLE WITH CAST-IN-PLACE BOTTOM

PROJECT SPECIFIC NOTES:

1. ALL PROPOSED WATER MAINS SHALL BE THICKNESS CLASS 52 DUCTILE IRON PIPE AND UTILIZE FLEXIBLE PUSH-ON RESTRAINED JOINTS.

2. WATER LINE UTILIZING RESTRAINED JOINTS SHALL BE TYTON JOINT, HP LOK, TR FLEX, USIFLEX OR EQUIVALENT.

3. ALL WATERLINE SHALL HAVE COATED TRACER WIRE NO SMALLER THAN 14 AWG SOLID COPPER.

4. HYDRANTS SHALL BE WATEROUS WB-67 WITH LOCKING CAP. ALL PROPOSED HYDRANT LEGS SHALL BE 6" DUCTILE IRON PIPE AND UTILIZE MECHANICAL RESTRAINED JOINTS.

5. ALL WATER LINE FITTINGS 6" OR LARGER SHALL BE PRESSURE CLASS 350 DUCTILE IRON MECHANICAL RESTRAINED JOINT IN ACCORDANCE WITH AWWA C110

6. EXISTING WATER SERVICE LINES WHICH ARE GALVANIZED OR IN WHICH THE EXISTING SERVICE COUPLING IS BENEATH THE PROPOSED EDGE OF PAVEMENT SHALL BE INSTALLED FROM THE WATER MAIN TO THE METER.

7. ALL VALVES 12" AND UNDER SHALL BE RESILIENT WEDGE GATE VALVES.

8. WATER MAINS CROSSING OTHER UTILITIES AND NON -POTABLE WATER LINES (SANITARY SEWER, STORM DRAINS, ETC.) SHALL BE LAID TO PROVIDE A MINIMUM TWENTY -FOUR (24") INCHES BETWEEN THE WATER LINE AND OTHER UTILITIES. IF THESE SEPARATIONS CANNOT BE MAINTAINED, THEN DUCTILE IRON PIPE SHALL BE USED FOR 10' ON EACH SIDE OF THE CROSSING WITH A MINIMUM SEPARATION OF 6" MAINTAINED AS WELL AS ENCASED IN CLASS B CONCRETE FOR 5' ON EACH SIDE.

9. WHERE WATER, SEWER, AND GAS LINES ARE PARALLEL, A FOUR FEET HORIZONTAL CLEARANCE MUST BE MAINTAINED.

10. PROPOSED WATER LINES SHALL BE WRAPPED IN POLYETHYLENE ENCASEMENT FOR 10' EACH SIDE OF GAS LINE CROSSINGS AND WHERE THE WATER LINE AND GAS LINE ARE WITHIN 10 FEET OF EACH OTHER.

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

11. PROVIDE THRUST RESTRAINT ON THE EXISTING WATER LINE WHERE TIE-INS ARE MADE AS NECESSARY.

12. CONTRACTOR SHALL NOT OPERATE ANY VALVES ON THE EXISTING UTILITY SYSTEMS. CONTRACTOR SHALL CONTACT THE UTILITY OWNER TO CONDUCT STRATEGIC OPERATION OF VALVES FOR SERVICE INTERRUPTION IN ORDER TO PERFORM SPECIFIC WORK.

13. ALL PROPOSED GRAVITY SEWER LINE SHALL BE THICKNESS CLASS 52 DUCTILE IRON PIPE .

14. ALL MATERIALS, EQUIPMENT, LABOR, AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CITY OF SHELBY STANDARDS AND NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR PROPOSED WATER AND SEWER LINES. IN THE EVENT OF CONFLICT BETWEEN STANDARDS, THE MORE RESTRICTIVE REQUIREMENTS SHALL APPLY.

15. ANY BENDS OF PVC WATER PIPE NOT SPECIFICALLY CALLED OUT WITH A 90, 45, 22.5, OR 11.25 DEGREE BEND FITTING, SHALL BE CONSTRUCTED BY A RADIAL BEND OF THE PIPE AS NOTED ON THE PLANS OR IN ACCORDANCE WITH PIPE MANUFACTURER'S SPECIFICATIONS (WHICHEVER IS MORE STRINGENT) - OR A COMBINATION OF BEND FITTINGS AND A RADIAL BEND OF THE PIPE. DEFLECTION OF THE PIPE JOINTS ON PVC PIPE MATERIAL IS NOT AN ACCEPTABLE METHOD OF PIPE BENDING.

PROJECT REFERENCE NO.	SHEET NO.
U-5775	UC-3A

DESIGNED BY: BCH
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

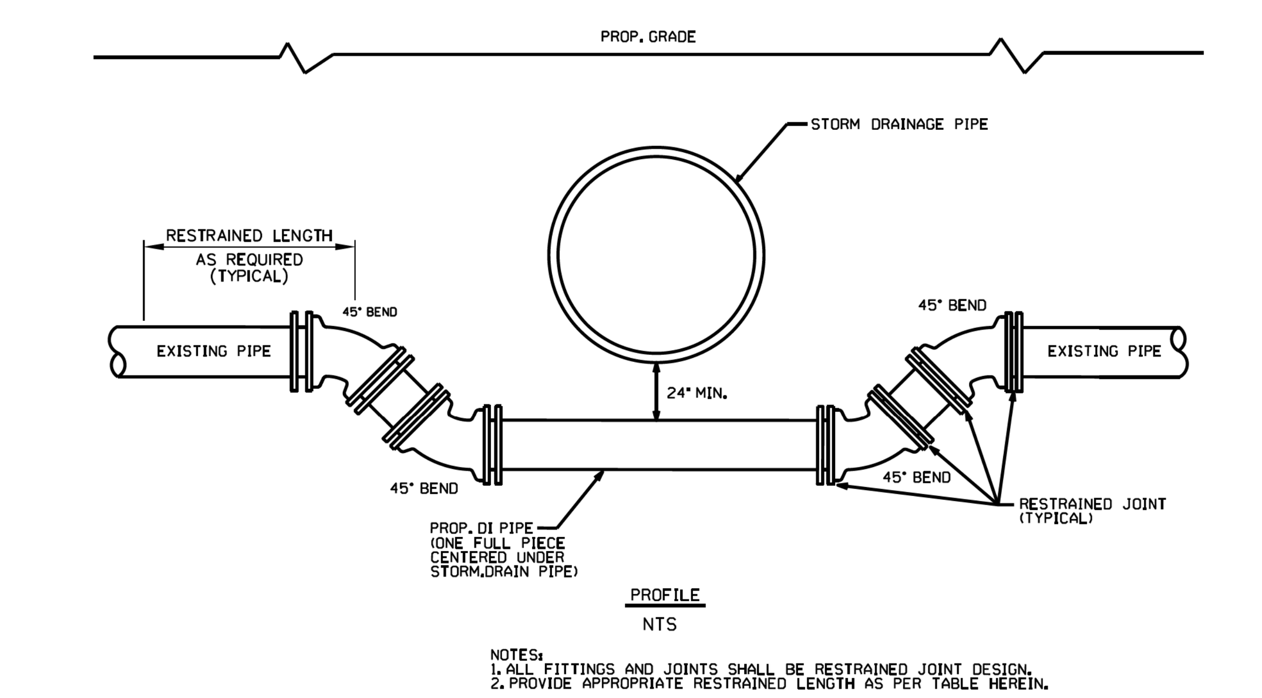
NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER BOBBY C HOUSER
9/26/2022
UTILITY CONSTRUCTION PLANS ONLY

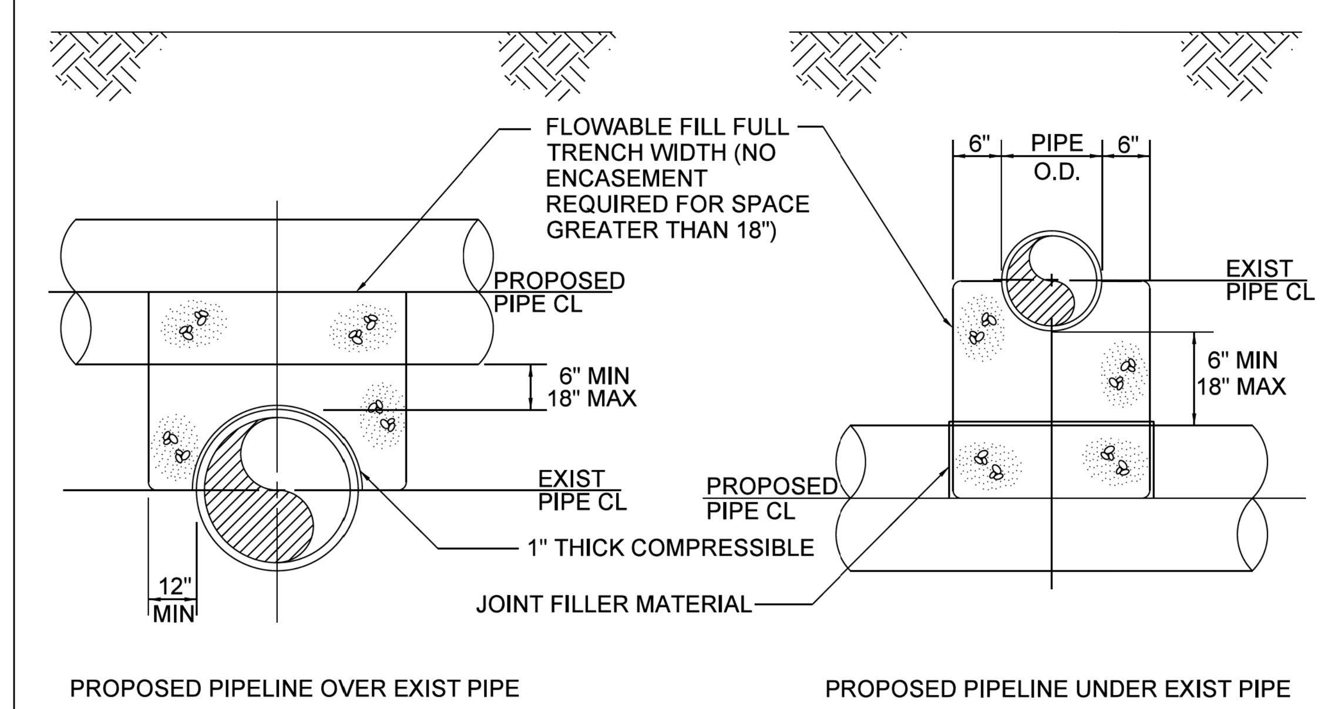
PROJECT TYPICAL DETAILS

UTILITY CONSTRUCTION

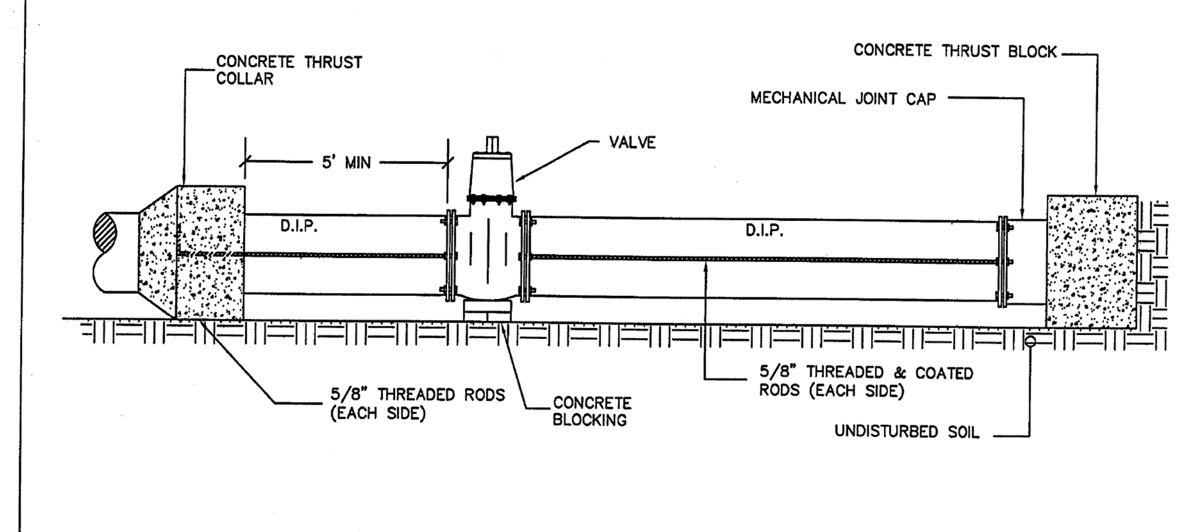
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



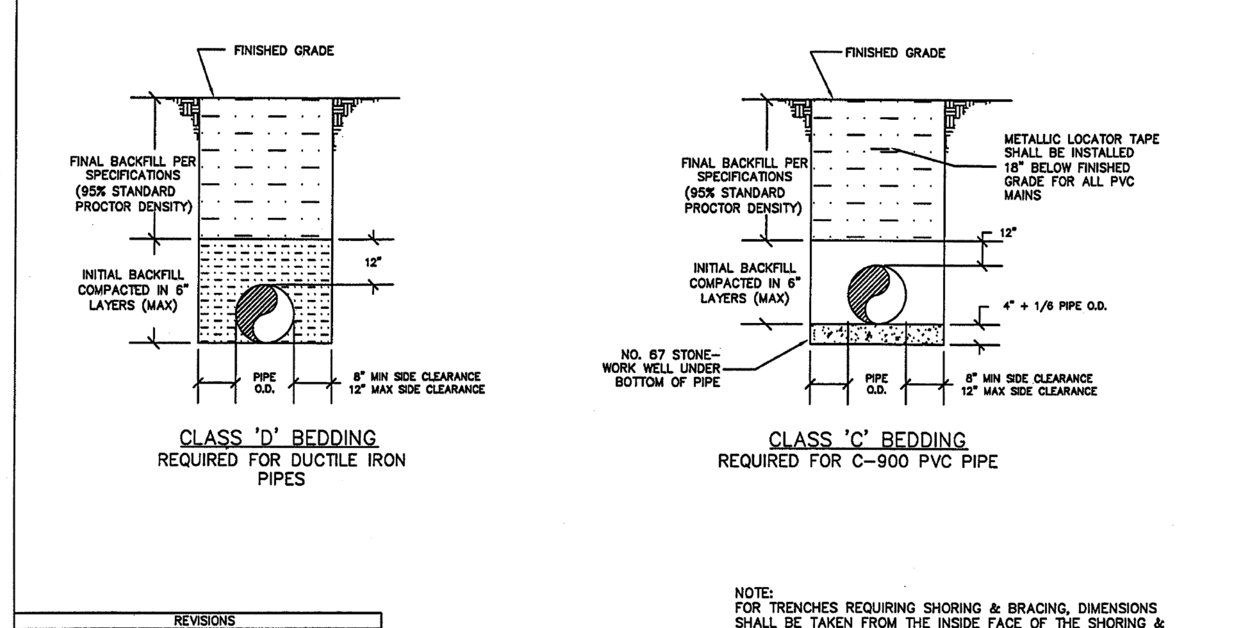
FORCE MAIN / WATER MAIN CROSSING UNDER STORM DRAINAGE PIPE



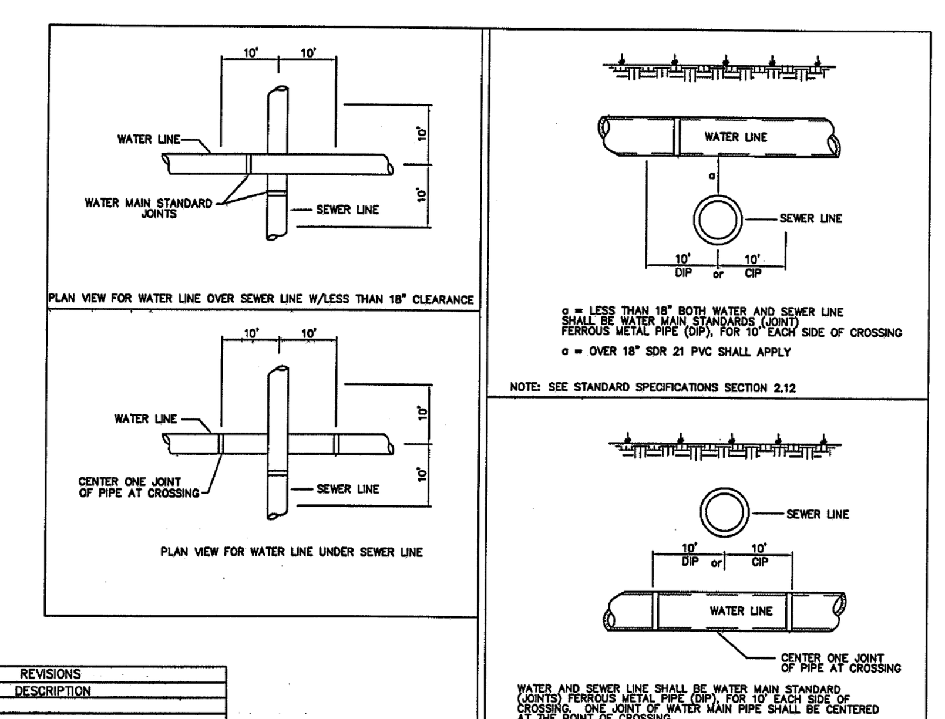
PIPE ENCASEMENT DETAIL



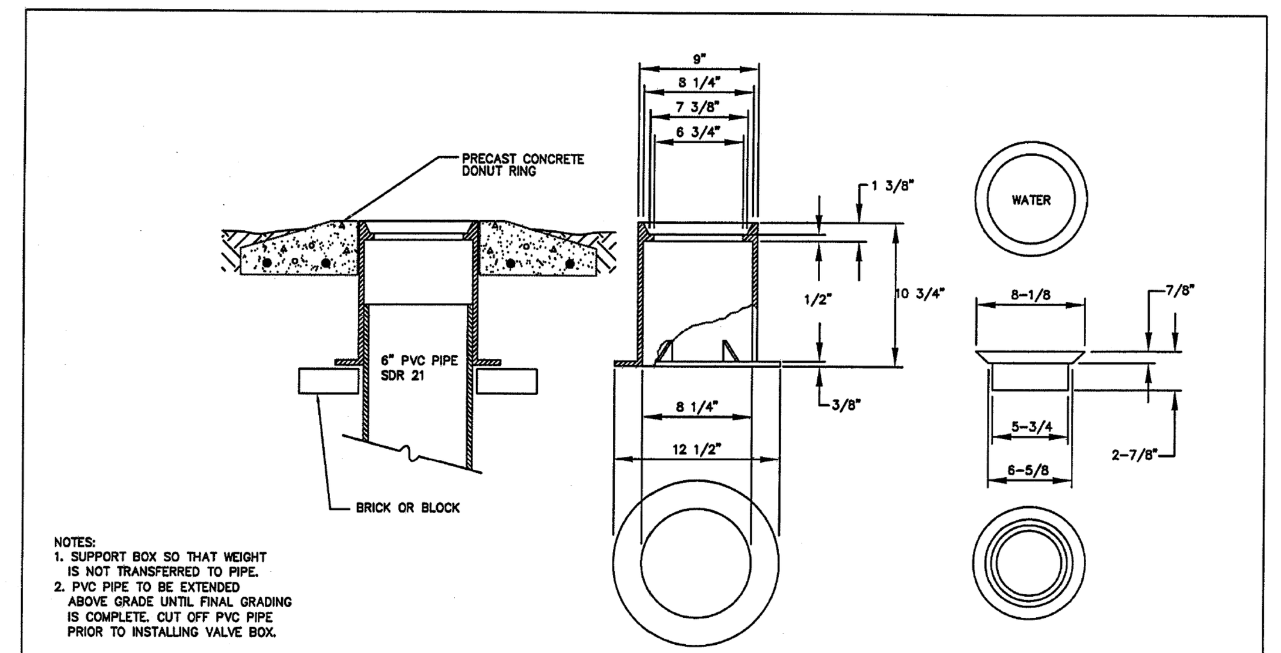
CITY OF SHELBY STANDARDS — STANDARD CAPPING DETAIL — STD. NO. 6.10



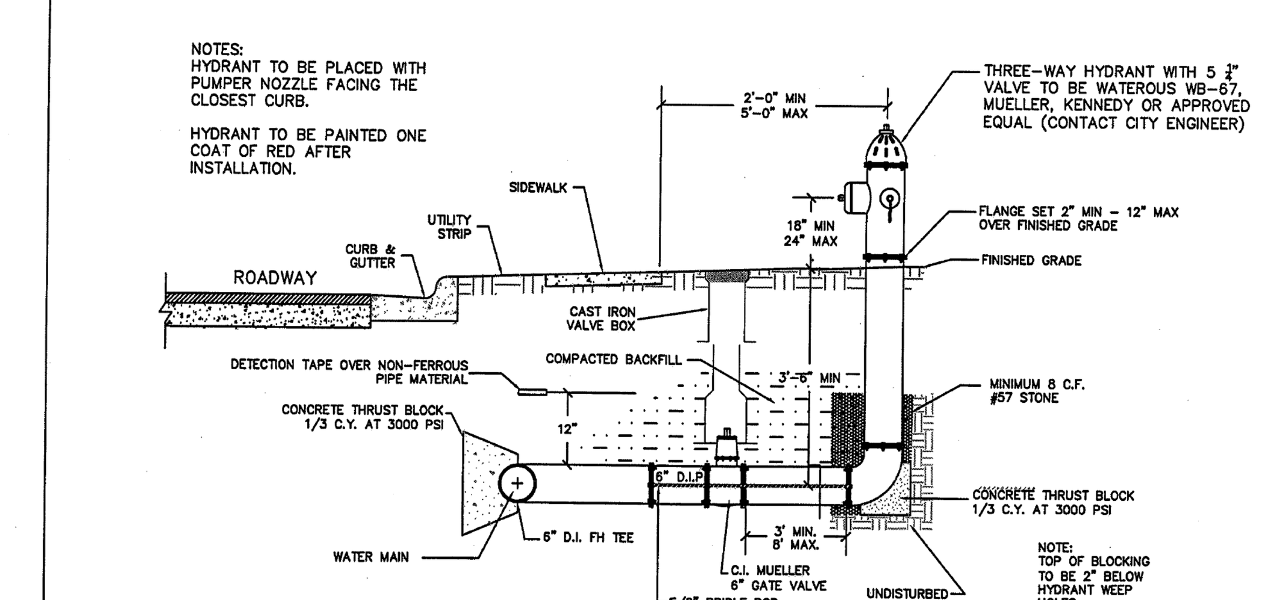
CITY OF SHELBY STANDARDS — PIPE BEDDING AND BACKFILLING/ CLASS D&C — STD. NO. 6.01A



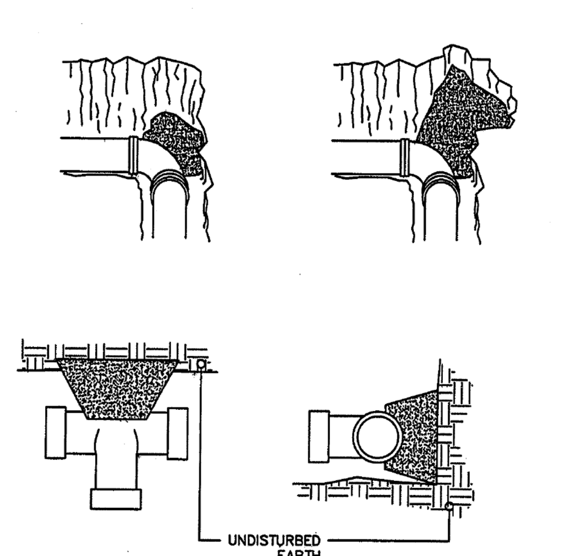
CITY OF SHELBY STANDARDS — FERROUS MATERIALS AND JOINT REQUIREMENTS FOR WATER LINE AND SEWER LINE CROSSINGS — STD. NO. 6.19



CITY OF SHELBY STANDARDS — STANDARD VALVE BOX — STD. NO. 6.02



CITY OF SHELBY STANDARDS — STANDARD HYDRANT INSTALLATION — STD. NO. 6.06

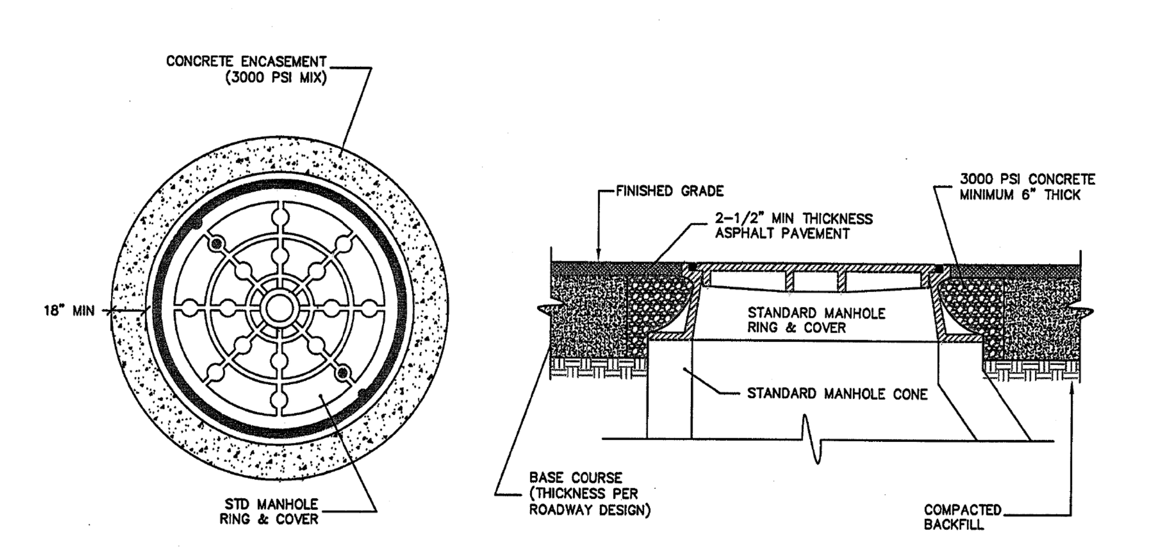


MINIMUM CONCRETE BLOCKING (C.Y.)*					
NOM. PIPE DIA. INCHES	TEES & DEAD ENDS	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND
4	0.1	0.1	0.1	0.1	0.1
6	0.2	0.2	0.1	0.1	0.1
8	0.2	0.3	0.2	0.1	0.1
10	0.3	0.5	0.3	0.2	0.2
12	0.4	0.6	0.5	0.3	0.3
14	0.7	0.9	0.6	0.5	0.5
16	0.7	0.9	0.6	0.5	0.5
18	0.9	1.2	0.7	0.6	0.6
20	1.1	1.6	1.1	0.7	0.7
24	1.7	2.3	1.6	0.9	0.9

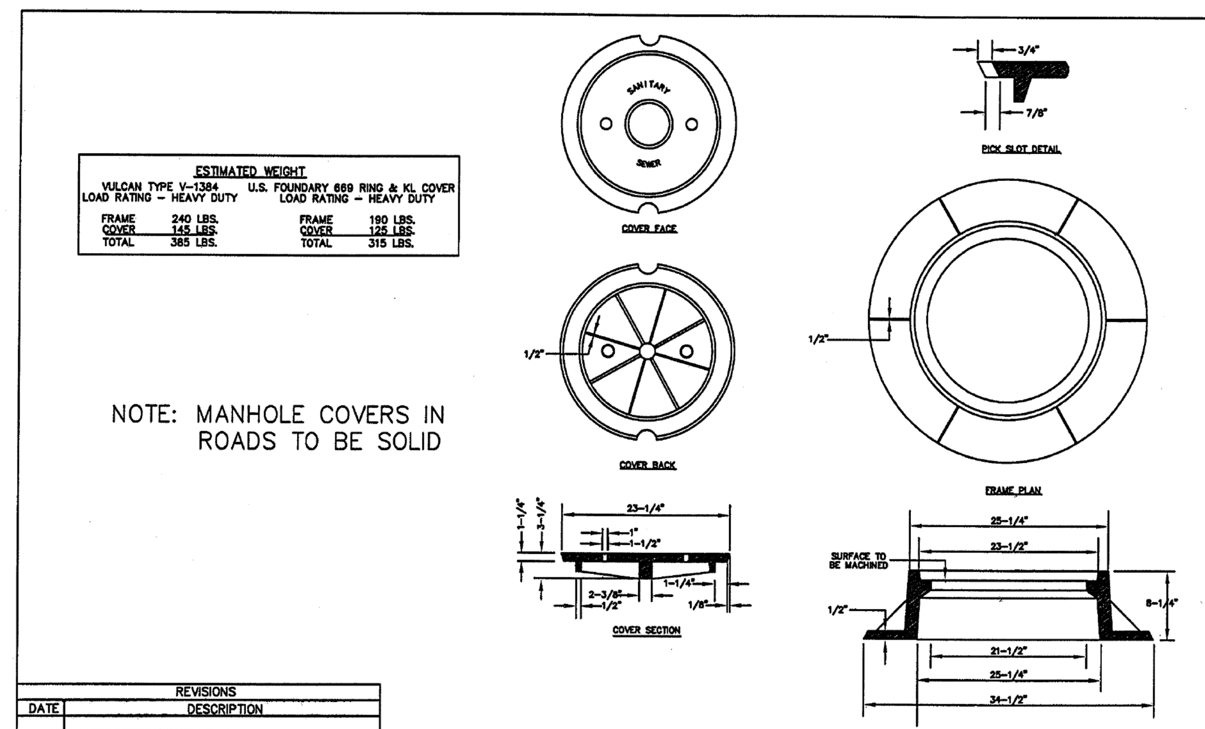
* CONCRETE SHALL BE 3000 PSI

NOTE: WRAP FITTINGS IN 6 MIL PLASTIC BEFORE POURING CONCRETE

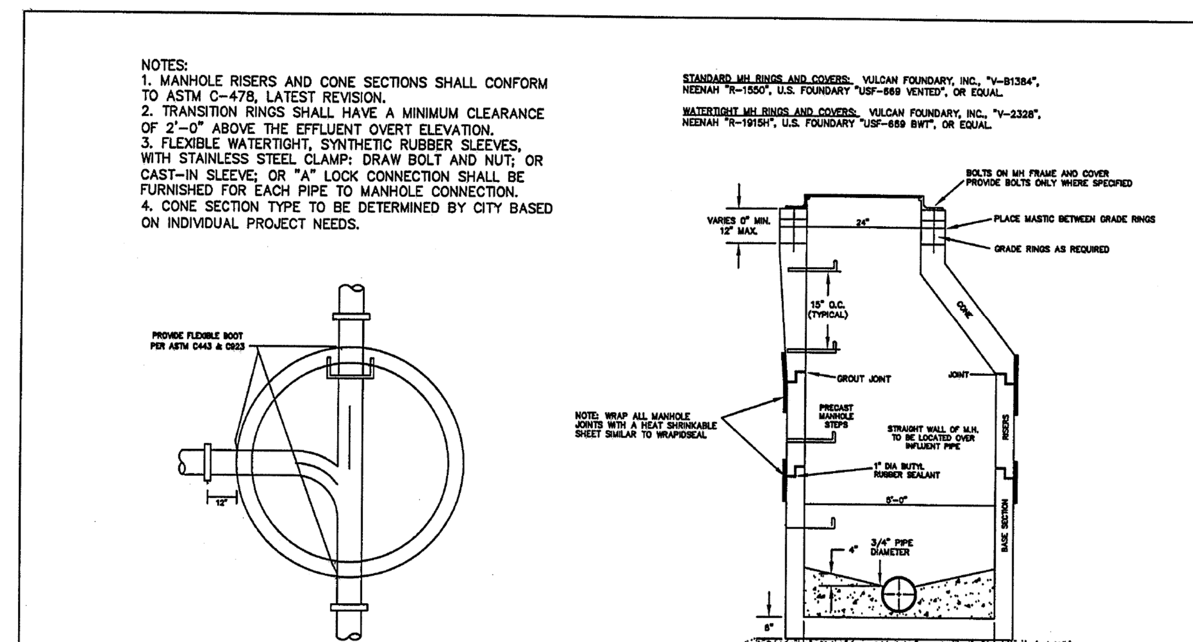
CITY OF SHELBY STANDARDS — STANDARD REACTION BLOCKING — STD. NO. 6.13



CITY OF SHELBY STANDARDS — STANDARD MANHOLE RING AND COVER ENCASEMENT — STD. NO. 7.06



CITY OF SHELBY STANDARDS — STANDARD MANHOLE RINGS AND COVER FOR MANHOLES IN PAVED AREAS — STD. NO. 7.05A



CITY OF SHELBY STANDARDS — 4' DIAMETER PRECAST MANHOLE — STD. NO. 7.03

5/14/99

The estimated quantity of Ductile Iron Water Pipe Fitting on this plan sheet is 9,000 pounds. The actual quantity and type of fittings will vary based on field conditions.

The estimated quantity of "Water Service Line" on this plan sheet is 250 linear feet. The actual quantity will vary based on field conditions and will be dertermined during construction.

MATCH LINE STA. -Y- 18+00.00
MATCH TO SHEET NO. UC-5

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
U-5775	UC-4
DESIGNED BY: BCH	
DRAWN BY: BCH	
CHECKED BY: JLT	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	

NORTH CAROLINA PROFESSIONAL SEAL 30499 ENGINEER Bobby Chad Houser BOBBY C HOUSER 9/26/2022

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROP. 1 - FIRE HYDRANT
PROP. 10 LF HYDRANT LEG
6" HYDRANT VALVE
12"X6" TEE
PROPOSED 320 LF 12" WATER LINE
PROP. 1 - 4' DIA UTL MANHOLE (A-1)
PROP. 1.2 LF UTL MH WALL 4' DIA
PROPOSED 92 LF 8" GRAVITY SEWER
PROP. 2 - RELOCATE WATER METERS
PROP. 1 - RECONNECT WATER METER
PROP. 1 - 4' DIA UTL MANHOLE (A-2)
TIE TO EXISTING 6" WATER LINE WITH SOLID SLEEVE
PROPOSED 50 LF 6" WATER LINE
PROP. 1 6" VALVE
PROP. 1 12" VALVE
PROPOSED 20 LF 12" WATER LINE
12" PLUG
PROP. 5 LF 6" WATER LINE
PROP. 1 6" VALVE
TIE TO EXISTING 6" WATER LINE
PROP. 2 12" VALVES
12"X6" TEE
12" X 8" TEE
PROP. 1 8" VALVE
8" X 6" REDUCER
TIE TO EXISTING 6" WATER LINE WITH SOLID SLEEVE
PROPOSED 56 LF 8" WATER LINE
TIE TO EXISTING 8" WATER LINE WITH SOLID SLEEVE
PROP. 2 - RELOCATE WATER METER
PROP. 1 - RELOCATE WATER METER
PROPOSED 20 LF 8" WATER LINE
PROP. 1 8" VALVE
8"X6" TEE
PROPOSED 20 LF 8" WATER LINE
8" PLUG
ADJUST VALVE
PROP. 5 LF 6" WATER LINE
PROP. 1 6" VALVE
TIE TO EXISTING 6" WATER LINE
8" TEE
EXISTING 6" WATER LINE TO BE ABANDONED
PROPOSED 388 LF 8" WATER LINE
PROP. 1 8" VALVE
PROP. 1 - REMOVE WATER METER
PROP. 1 12" VALVE
12" X 8" REDUCER
11.25° H. BEND
PROP. 1 12" VALVE
12" CROSS
PROP. 1 12" VALVE
22.5° H. BEND
12"X6" HYDRANT TEE
PROP. 1 - FIRE HYDRANT
PROP. 20 LF HYDRANT LEG
6" HYDRANT VALVE
PROP. 1 - REMOVE WATER METER
EXISTING 6" WATER LINE TO BE ABANDONED
PROPOSED 526 LF 12" WATER LINE
PROP. 1 - REMOVE WATER METER
PROP. 1 - RELOCATE WATER METER
PROP. 1 - RELOCATE WATER METER
PROPOSED 624 LF 12" WATER LINE
6" HYDRANT VALVE
12"X6" TEE
PROP. 1 - RELOCATE FIRE HYDRANT
PROP. 20 LF HYDRANT LEG
EXISTING 6" WATER LINE TO BE ABANDONED
PROPOSED 14 LF 6" WATER LINE
12"X6" TEE
PROP. 1 6" VALVE
PROP. 1 12" VALVE
PROPOSED 20 LF 12" WATER LINE
TIE TO EXISTING 6" WATER LINE

-L-PT 17+63.49
-L-POC 23+96.13=
-Y-POT 21+
-Y-PC 21+47.66
-Y-PT 18+85.42
-L-PT 27+21.77
-L-PC 22+
-L-PC 29+10.75
-Y-PT 26+55.84

SOUTH POST, LLC DB 1627 PG 1759
BROAD RIVER HOLDINGS, LLC DB 1458 PG 1422 DB 1467 PG 355
BROAD HOLDINGS, LLC DB 1511 PG 2253
EVERETTE MARKETER DB 1282 PG 63
R & R OF NC, LLC DB 1691 PG 776
KATHERINE K.A. BRIDGES REVOCABLE LIVING TRUST DB 1460 PG 1432
KATHERINE R. BURGIN HEIRS DB 1552 PG 889 PB 1 PG 72
NC NNN FINANCIAL ASSOCIATES, LLC & PROSPECT NC NNN, LLC DB 1673 PG 726
MARY C. BUTLER DB 8Y PG 202 PB 2 PG 3
LOUISE W. MOORE DB 1368 PG 807
JACK W. BARRETT DB 1303 PG 1193
PEACH STREET BAPTIST CHURCH DB 7K PG 461 DB 130 PG 326 PB 1 PG 72
MARTHA A. HERNDON
WILLIAM D. & PEGGY LEDFORD ESTATE FILE 89E PG 291 DB 6H PG 549 PB 1 PG 72
ELIZABETH BAPTIST CHURCH DB 2N PG 208
DONALD N. BRIDGES REVOCABLE TRUST DB 1313 PG 2053
DAVID D. & KELLYE A. YOURICK DB 1164 PG 2116
RAMON ESCMILLA DB 1618 PG 1566 PLAT IN DB 9Q PG 85
BENJAMIN F. & ELIZABETH SPENCER DB 12L PG 203 DB 1038 PG 602 PLAT IN DB 9Q PG 85
CATHERINE S. PORTER DB 1334 PG 2413
1210 E. MARION, LLC DB 1320 PG 1526

① S 70°20'32" E 128.47' (EIP-REBAR)
② S 31°04'33" W 26.66'
③ S 58°10'08" E 99.81'
④ S 57°32'34" E 56.50'

END CONSTRUCTION
-Y- STA. 26+78.00

END PROJECT U-5775
-L- STA. 30+00.00

8/23/2022
11:33:37 AM
U:\Projects\U5775\Utilities\dgn\U5775_Utility sh41.UAUappr Sh41.psh.dgn

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5775	UC-5

DESIGNED BY:	BCH
DRAWN BY:	BCH
CHECKED BY:	JLT
APPROVED BY:	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919)707-6690
FAX: (919)250-4151

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL — BOBBY C. HOUSER — 7/26/2022

UTILITY CONSTRUCTION PLANS ONLY

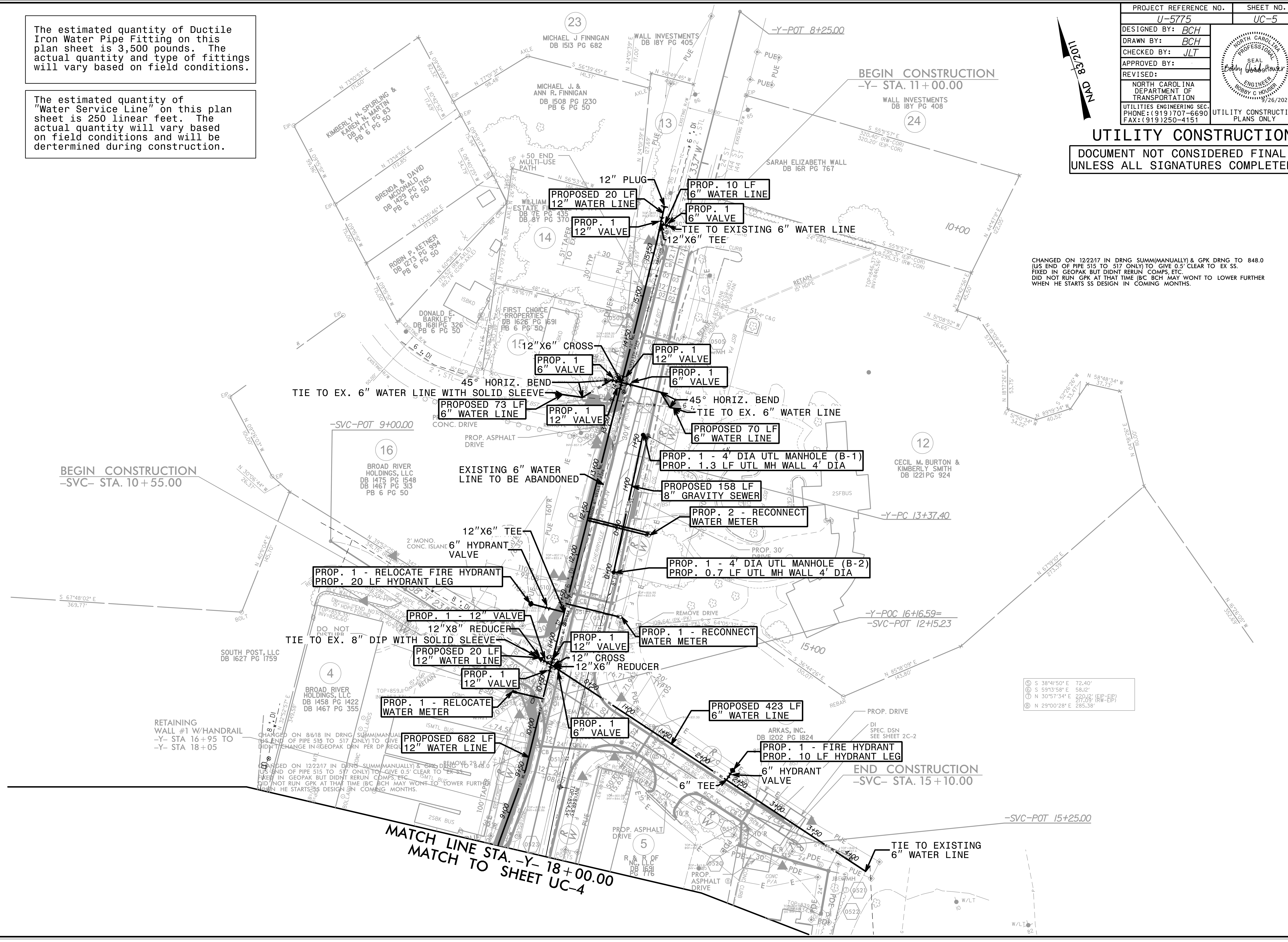
UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

The estimated quantity of Ductile Iron Water Pipe Fitting on this plan sheet is 3,500 pounds. The actual quantity and type of fittings will vary based on field conditions.

The estimated quantity of "Water Service Line" on this plan sheet is 250 linear feet. The actual quantity will vary based on field conditions and will be dertermined during construction.

CHANGED ON 12/22/17 IN DRNG SUMM(MANUALLY) & GPK DRNG TO 848.0 (US END OF PIPE 515 TO 517 ONLY) TO GIVE 0.5' CLEAR TO EX SS. FIXED IN GEOPAK BUT DIDNT RERUN COMPS, ETC. DID NOT RUN GPK AT THAT TIME (BC BCH MAY WONT TO LOWER FURTHER WHEN HE STARTS SS DESIGN IN COMING MONTHS.


NAD 83/2011
-Y-POT 8+25.00
BEGIN CONSTRUCTION
-Y- STA. 11+00.00
WALL INVESTMENTS
DB 18Y PG 408
MICHAEL J FINNIGAN
DB 1513 PG 682
WALL INVESTMENTS
DB 18Y PG 405
MICHAEL J. &
ANN R. FINNIGAN
DB 1508 PG 1230
PB 6 PG 50
KIMBERLY N. SPURLING &
KAREN N. MARTIN
DB 1477 PG 83
PB 6 PG 50
BRENDA & DAVID
MCDONALD
DB 1429 PG 1765
PB 6 PG 50
ROBIN P. KETNER
DB 1273 PG 994
PB 6 PG 50
SARAH ELIZABETH WALL
DB 16R PG 767
12" PLUG
PROPOSED 20 LF
12" WATER LINE
PROP. 10 LF
6" WATER LINE
PROP. 1
6" VALVE
PROP. 1
12" VALVE
TIE TO EXISTING 6" WATER LINE
12"X6" TEE
DONALD E. BARKLEY
DB 1681 PG 326
PB 6 PG 50
FIRST CHOICE PROPERTIES
DB 1626 PG 1691
PB 6 PG 50
12"X6" CROSS
PROP. 1
6" VALVE
PROP. 1
12" VALVE
PROP. 1
6" VALVE
45° HORIZ. BEND
TIE TO EX. 6" WATER LINE WITH SOLID SLEEVE
PROPOSED 73 LF
6" WATER LINE
PROP. 1
12" VALVE
45° HORIZ. BEND
TIE TO EX. 6" WATER LINE
PROPOSED 70 LF
6" WATER LINE
-SVC-POT 9+00.00
PROP. ASPHALT DRIVE
BROAD RIVER HOLDINGS, LLC
DB 1475 PG 1548
DB 1467 PG 313
PB 6 PG 50
BEGIN CONSTRUCTION
-SVC- STA. 10+55.00
EXISTING 6" WATER
LINE TO BE ABANDONED
PROP. 1 - 4' DIA UTL MANHOLE (B-1)
PROP. 1.3 LF UTL MH WALL 4' DIA
PROPOSED 158 LF
8" GRAVITY SEWER
PROP. 2 - RECONNECT
WATER METER
CECIL M. BURTON &
KIMBERLY SMITH
DB 1221 PG 924
-Y-PC 13+37.40
12"X6" TEE
6" HYDRANT
VALVE
PROP. 1 - RELOCATE FIRE HYDRANT
PROP. 20 LF HYDRANT LEG
PROP. 1 - 4' DIA UTL MANHOLE (B-2)
PROP. 0.7 LF UTL MH WALL 4' DIA
PROP. 1 - 12" VALVE
12"X8" REDUCER
TIE TO EX. 8" DIP WITH SOLID SLEEVE
PROPOSED 20 LF
12" WATER LINE
PROP. 1
12" VALVE
12" CROSS
12"X6" REDUCER
PROP. 1 - RECONNECT
WATER METER
-Y-POC 16+16.59=
-SVC-POT 12+15.23
SOUTH POST, LLC
DB 1627 PG 1759
BROAD RIVER HOLDINGS, LLC
DB 1458 PG 1422
DB 1467 PG 355
PROP. 1
12" VALVE
PROP. 1 - RELOCATE
WATER METER
PROPOSED 423 LF
6" WATER LINE
ARKAS, INC.
DB 1202 PG 1824
PROP. DRIVE
RETAINING
WALL #1 W/HANDRAIL
-Y- STA 16+95 TO
-Y- STA 18+05
PROPOSED 682 LF
12" WATER LINE
PROP. 1
6" VALVE
PROP. 1 - FIRE HYDRANT
PROP. 10 LF HYDRANT LEG
6" HYDRANT
VALVE
6" TEE
END CONSTRUCTION
-SVC- STA. 15+10.00
-SVC-POT 15+25.00
TIE TO EXISTING
6" WATER LINE
PROP. ASPHALT DRIVE
R & R OF NC, LLC
DB 1691 PG 1776
MATCH LINE STA. -Y- 18+00.00
MATCH TO SHEET UC-4

8/23/2022
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-5775	UC-6
DESIGNED BY: BCH	
DRAWN BY: BCH	
CHECKED BY: JLT	
APPROVED BY:	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 30499 ENGINEER BOBBY C HOUSER
9/26/2022

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8″ AND 12″ WATER LINE WL-1

ALONG MARION STREET

SEE SHEET UC-4 FOR 8″ WATER LINE PLAN

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 10 5 0 10 20

TIE TO EXISTING 6″ DIP
WL1 STA. 0+00 +/-
-L- STA. 19+75.20 RT 14.7′

5LF 6″ CL 52 DIP

PROP. 6″ VALVE
WL-1 STA. 0+02
-L- STA. 19+75.19 RT 12.0′

8″X6″ TEE
WL-1 STA. 0+05
-L- STA. 19+75.19 RT 9.4′

BEGIN 8″ CL 52 DIP
WL-1 STA 0+05

PROP. 8″ VALVE
WL-1 STA. 1+12.12
-L- STA. 20+82.04 RT 7.8′

PROP. 8″ TEE
WL-1 STA. 1+07.12
-L- STA. 20+77.06 RT 7.8′

PROP. 8″ VALVE
WL-1 STA. 1+02.12
-L- STA. 20+72.06 RT 7.8′

8″ CL 52 DIP
(RESTRAINED JOINT)

PROPOSED 24″ STORM DRAIN
STORM INV.=841.9′ +/-
WL1 STA. 5+07.73
-L- STA. 24+76.63 RT 9.2′
(SEE PIPE CROSSING DETAIL)

PROP. 8″ VALVE
WL-1 STA. 3+82.40
-L- STA. 23+51.84 RT 7.7′

12″ X 8″ REDUCER
WL-1 STA. 3+87.40
-L- STA. 23+56.82 RT 7.7′

12″ CROSS
WL-1 STA. 3+92.40 =
WL-2 STA. 5+36.25
-L- STA. 23+61.80 RT 7.7′

PROP. 12″ VALVE
WL-1 STA. 3+87.92
-L- STA. 23+57.33 RT 7.7′

PROPOSED 18″ STORM DRAIN
STORM INV.=836.8′ +/-
WL1 STA. 7+33.23
-L- STA. 27+01.01 RT 10.9′
(SEE PIPE CROSSING DETAIL)

12″ CL 52 DIP
(RESTRAINED JOINT)

PROP. 12″ VALVE
WL-1 STA. 7+84.27
-L- STA. 27+56.93 RT 10.7′

PROP. 12″ VALVE
WL-1 STA. 7+94.27
-L- STA. 27+61.93 RT 10.7′

3.0′ MIN

12″X8″ TEE

END 12″ CL 52 DIP
WL-1 STA 10+15.60

12″X6″ TEE
WL-1 STA. 10+15.60
-L- STA. 19+83.34 RT 6.5′

PROP. 6″ VALVE
WL-1 STA. 10+18.10
-L- STA. 29+83.34 RT 8.9′

PROP. 12″ VALVE
WL-1 STA. 8+98.08
-L- STA. 28+65.70 RT 8.6′

PROP. 12″ X 6″ TEE
WL-1 STA. 9+03.06
-L- STA. 28+70.68 RT 8.5′

PROP. 12″ VALVE
WL-1 STA. 9+08.06
-L- STA. 28+75.70 RT 8.4′

5LF 6″ CL 52 DIP

TIE TO EXISTING 6″ DIP
WL1 STA. 10+20.60 +/-
-L- STA. 29+83.33 RT 11.4′

860 850 840 830 820 810 800

-+00 0+50 1+00 1+50 2+00 2+50 3+00 3+50 4+00 4+50 5+00 5+50 6+00 6+50 7+00 7+50 8+00 8+50 9+00 9+50 10+00

12″ WATER LINE WL-2

ALONG PEACH STREET AND CHERRYVILLE RD

SEE SHEET UC-4 TO UC-5 FOR 12″ WATER LINE PLAN

TIE TO EXISTING 6″ DIP
WL2 STA. 0+00 +/-
-Y- STA. 26+45.71 RT 10.4′

13LF 6″ CL 52 DIP

PROP. 6″ VALVE
WL-2 STA. 0+05
-Y- STA. 26+45.91 RT 17.1′

12″X6″ TEE
WL-2 STA. 0+13.45
-Y- STA. 26+46.10 RT 23.8′

BEGIN 12″ CL 52 DIP
WL-2 STA 0+13.45

PROPOSED 15″ STORM DRAIN
STORM INV.=848.7′ +/-
WL2 STA. 2+42.49
-Y- STA. 24+26.77 RT 23.9′
(SEE PIPE CROSSING DETAIL)

PROPOSED 15″ STORM DRAIN
STORM INV.=848.1′ +/-
WL2 STA. 3+98.86
-Y- STA. 22+65.30 RT 25.1′
(SEE PIPE CROSSING DETAIL)

12″X6″ HYDRANT TEE
WL-2 STA. 4+58.09
-Y- STA. 22+03.26 RT 23.6′

22.5° HORIZ. BEND
WL-2 STA. 4+83.43
-Y- STA. 21+76.97 RT 20.9′

12″ CROSS
WL-2 STA.5+36.25 =
WL-1 STA. 3+92.40 =
-L- STA. 23+61.80 RT 7.7′

PROP. 12″ VALVE
WL-2 STA. 5+31.27
-Y- STA. 21+28.90 RT 31.0′

PROP. 12″ VALVE
WL-2 STA. 5+41.27
-Y- STA. 21+19.12 RT 33.0′

11.25° HORIZ. BEND
WL-2 STA. 5+56.25
-Y- STA. 21+04.41 RT 35.9′

PROPOSED 15″ STORM DRAIN
STORM INV.=848.6′ +/-
WL2 STA. 6+23.11
-Y- STA. 20+37.55 RT 36.0′
(SEE PIPE CROSSING DETAIL)

PROPOSED 15″ STORM DRAIN
STORM INV.=848.0′ +/-
WL2 STA. 5+98.86
-Y- STA. 20+61.80 RT 36.0′
(SEE PIPE CROSSING DETAIL)

PROPOSED 15″ STORM DRAIN
STORM INV.=852.7′ +/-
WL2 STA. 9+95.42
-Y- STA. 16+66.20 RT 23.8′
(SEE PIPE CROSSING DETAIL)

12″X6″ HYDRANT TEE
WL-2 STA. 7+75.00
-Y- STA. 18+85.66 RT 35.3′

PROPOSED 15″ STORM DRAIN
STORM INV.=850.2′ +/-
WL2 STA. 7+91.50
-Y- STA. 18+69.19 RT 35.2′
(SEE PIPE CROSSING DETAIL)

MATCHLINE SHEET UC-7
WL-2 STA. 10+50

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 10 5 0 10 20

870 860 850 840 830 820

-+00 0+50 1+00 1+50 2+00 2+50 3+00 3+50 4+00 4+50 5+00 5+50 6+00 6+50 7+00 7+50 8+00 8+50 9+00 9+50 10+00 10+50

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-5775	UC-7
DESIGNED BY: BCH	
DRAWN BY: BCH	
CHECKED BY: JLT	
APPROVED BY:	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NORTH CAROLINA PROFESSIONAL SEAL 30499 ENGINEER BOBBY C HOUSER
9/26/2022

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

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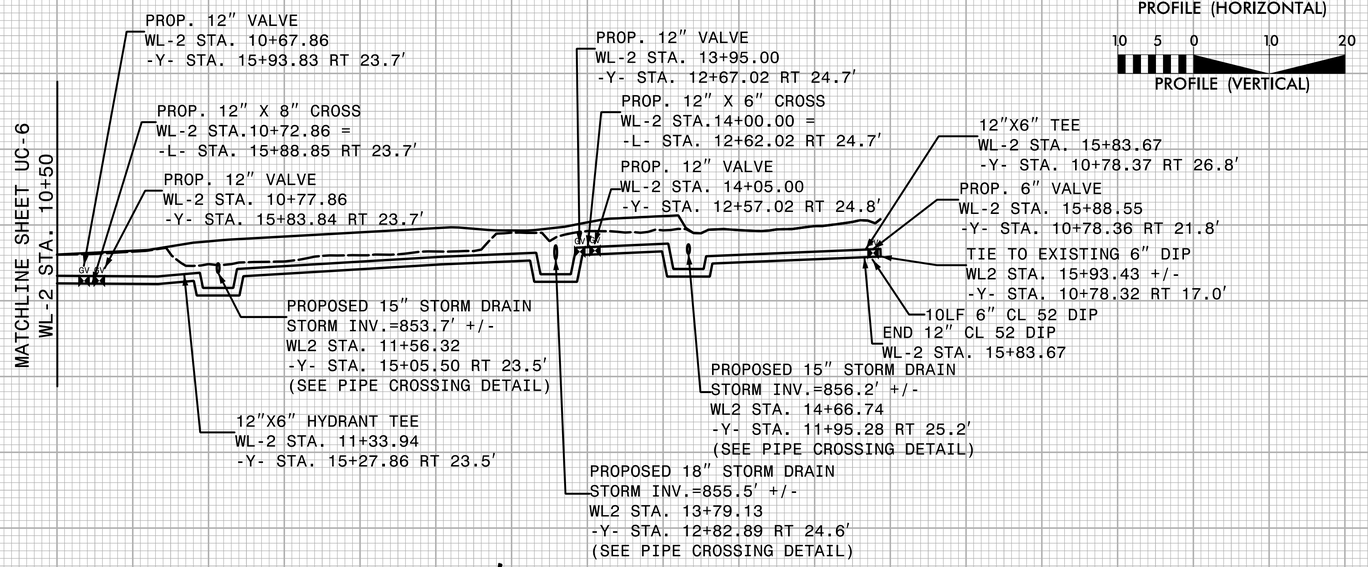
50 25 0 50 100
PROFILE (HORIZONTAL)

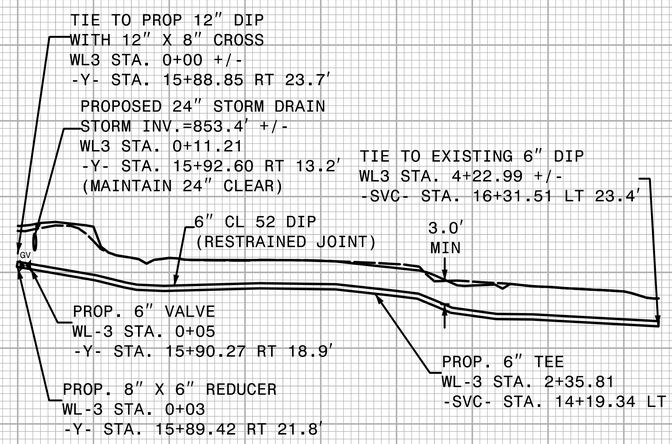
10 5 0 10 20
PROFILE (VERTICAL)



12" WATER LINE WL-2 (CONT'D)

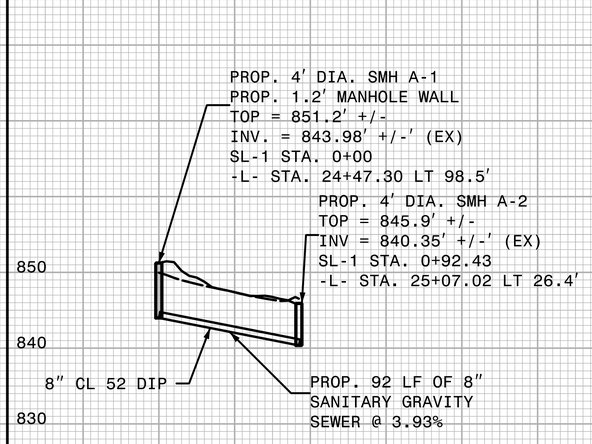
ALONG PEACH STREET AND CHERRYVILLE RD

SEE SHEET UC-4 TO UC-5 FOR 12" WATER LINE PLAN



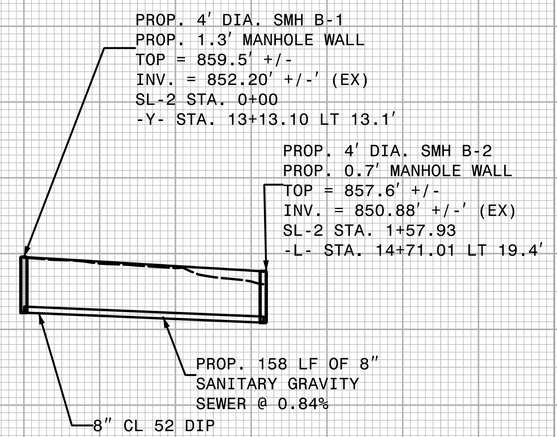
6" WATER LINE WL-3

SEE SHEET UC-5 FOR 6" WATER LINE PLAN



8" SEWER LINE SL-1

SEE SHEET UC-4 FOR 8" SEWER PLAN



8" SEWER LINE SL-2

SEE SHEET UC-5 FOR 8" SEWER PLAN

8/23/2022
X:\NCDOT\U-5775\Utilities\Rdy_Ut\Proj\U5775_Ut_UCutl Const Sht*)_pf1_psh.dgn
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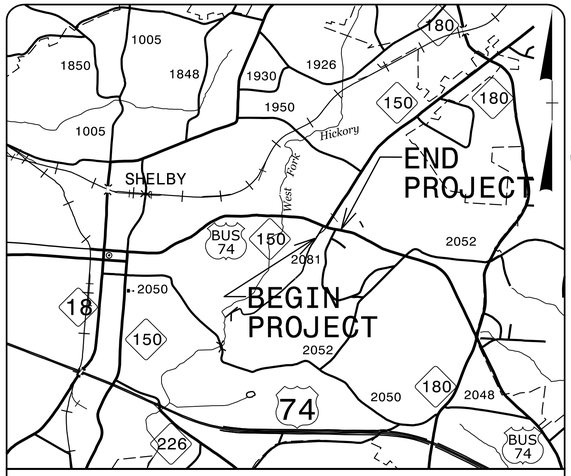
09/08/99

TIP PROJECT: U-5775



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

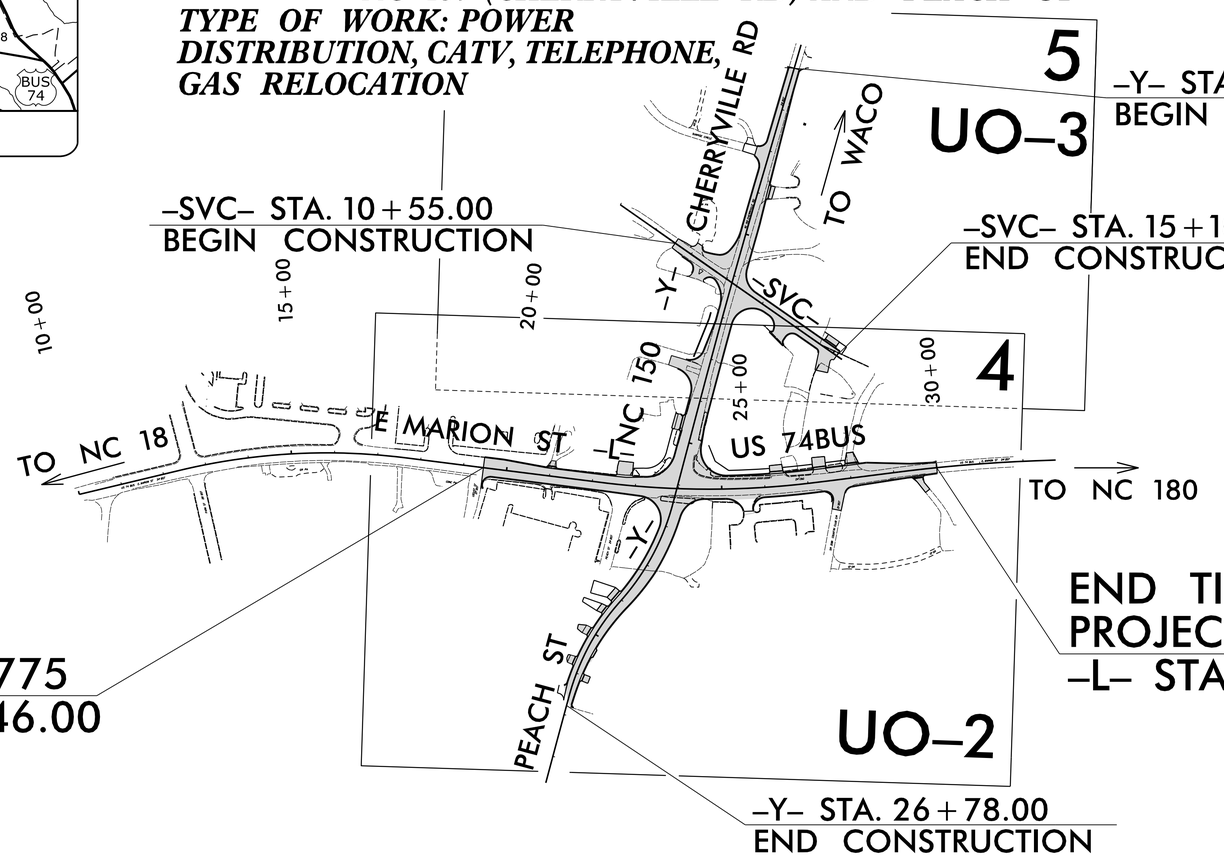
UTILITIES BY OTHERS PLANS
CLEVELAND COUNTY

T.I.P. NO.	SHEET NO.
U–5775	UO–1

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

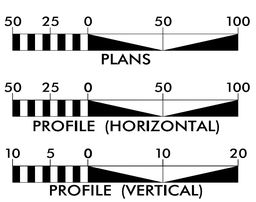
LOCATION: REALIGN INTERSECTION OF US 74 BUS (MARION ST) AT NC 150 (CHERRYVILLE RD) AND PEACH ST

TYPE OF WORK: POWER DISTRIBUTION, CATV, TELEPHONE, GAS RELOCATION



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO–1	TITLE SHEET
UO–2 THRU UO–3	UBO PLAN SHEETS

UTILITY OWNERS WITH CONFLICTS

(A) POWER DISTRIBUTION – DUKE ENERGY
(B) POWER DISTRIBUTION – CITY OF SHELBY
(C) CATV – SPECTRUM
(D) COMMUNICATION – AT&T
(E) COMMUNICATION – BROADPLEX
(F) COMMUNICATION – RST
(G) COMMUNICATION – MCNC
(H) GAS – CITY OF SHELBY

PREPARED IN THE OFFICE OF:

TELICS
849 SOUTH LAUREL ST
LINCOLNTON, NC 28092
PHONE (704) 732-3241

STEVE MODE — UTILITY PROJECT MANAGER
DANNY LITTLE — PROJECT UTILITY COORDINATOR

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4151

ERIC CONNER — UTILITIES REGIONAL ENGINEER
CHAD DREWERY — UTILITIES ENGINEER
ANNE SCHLEY — UTILITIES AREA COORDINATOR
WARREN ANDERSON — UTILITIES COORDINATOR

PROJECT REFERENCE NO.	SHEET NO.
U-5775	UO-2

THIS SHEET CORRESPONDS TO RDY- 4

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

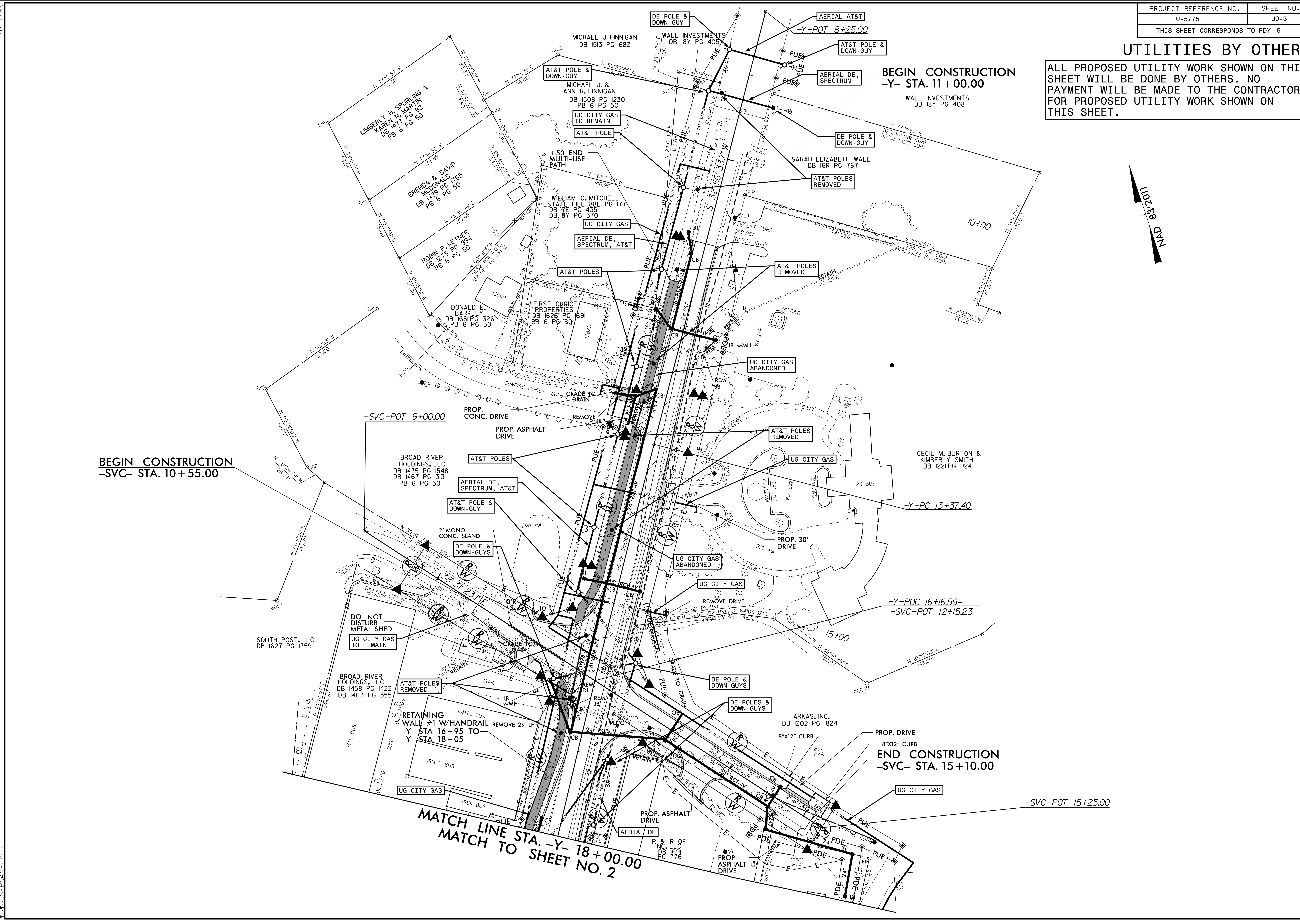
5/14/99

17-APR-2019 14:18
p\U-5775\Utilities\Engineering\UBO\Proj\290.003.U5775_ut_rdy4_U002_psh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-5775	UO-3
THIS SHEET CORRESPONDS TO RDY- 5	

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.



BEGIN CONSTRUCTION
-Y- STA. 11+00.00
BEGIN CONSTRUCTION
-SVC- STA. 10+55.00
END CONSTRUCTION
-SVC- STA. 15+10.00
MATCH LINE STA. -Y- 18+00.00
MATCH TO SHEET NO. 2
NAD 83/2011
-Y-POT 8+25.00
-SVC-POT 9+00.00
-Y-PC 13+37.40
-Y-POC 16+16.59=
-SVC-POT 12+15.23
-SVC-POT 15+25.00
MICHAEL J FINNIGAN
DB 1513 PG 682
WALL INVESTMENTS
DB 18Y PG 405
MICHAEL J. & ANN R. FINNIGAN
DB 1508 PG 1230
PB 6 PG 50
WALL INVESTMENTS
DB 18Y PG 408
SARAH ELIZABETH WALL
DB 16R PG 767
KIMBERLY N. SPURLING & KAREN N. MARTIN
DB 1477 PG 83
PB 6 PG 50
BRENDA & DAVID MCDONALD
DB 1429 PG 1765
PB 6 PG 50
ROBIN P. KETNER
DB 1273 PG 994
PB 6 PG 50
WILLIAM O. MITCHELL
ESTATE FILE 88E PG 177
DB 7E PG 435
DB 8Y PG 370
DONALD E. BARKLEY
DB 1681 PG 326
PB 6 PG 50
FIRST CHOICE PROPERTIES
DB 1626 PG 1691
PB 6 PG 50
BROAD RIVER HOLDINGS, LLC
DB 1475 PG 1548
DB 1467 PG 313
PB 6 PG 50
CECIL M. BURTON & KIMBERLY SMITH
DB 1221 PG 924
SOUTH POST, LLC
DB 1627 PG 1759
BROAD RIVER HOLDINGS, LLC
DB 1458 PG 1422
DB 1467 PG 355
ARKAS, INC.
DB 1202 PG 1824
R & R OF NC, LLC
DB 1691
PG 776
DE POLE & DOWN-GUY
AERIAL AT&T
AT&T POLE & DOWN-GUY
AERIAL DE, SPECTRUM
DE POLE & DOWN-GUY
AT&T POLES REMOVED
UG CITY GAS TO REMAIN
AT&T POLE
UG CITY GAS
AERIAL DE, SPECTRUM, AT&T
AT&T POLES
AT&T POLES REMOVED
UG CITY GAS ABANDONED
AT&T POLES REMOVED
UG CITY GAS
AT&T POLES
AERIAL DE, SPECTRUM, AT&T
AT&T POLE & DOWN-GUY
DE POLE & DOWN-GUYS
UG CITY GAS ABANDONED
UG CITY GAS
DO NOT DISTURB METAL SHED
UG CITY GAS TO REMAIN
AT&T POLES REMOVED
DE POLE & DOWN-GUYS
DE POLES & DOWN-GUYS
UG CITY GAS
UG CITY GAS
AERIAL DE
+50 END MULTI-USE PATH
PROP. CONC. DRIVE
PROP. ASPHALT DRIVE
PROP. 30' DRIVE
PROP. DRIVE
PROP. ASPHALT DRIVE
RETAINING WALL #1 W/HANDRAIL
-Y- STA 16+95 TO
-Y- STA 18+05
2' MONO. CONC. ISLAND
REMOVE DRIVE
8"X12" CURB
SUNRISE CIRCLE
10+00
15+00

PROJECT REFERENCE NO.	SHEET NO.
U-5775	X-1A
R/W SHEET NO.	

U-5775
CROSS-SECTION INDEX

REVISIONS

8/17/99

3/20/2018
X:\NCDOT\U-5775\Roadway\XSC\U-5775_Rdy_xpl_Index.dgn
User:melvin

PROJ. REFERENCE NO.	SHEET NO.
U-5775	X-1B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

NOTE: EMBANKMENT COLUMN DOED NOT INCLUDES BACKFILL FOR UNDERCUT

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
19+46.00	0	0
19+50.00	1	1
20+00.00	28	9
20+50.00	21	12
21+00.00	23	13
21+50.00	31	16
22+00.00	26	26
22+19.36	6	13
22+50.00	7	34
22+72.00	2	37
23+00.00	2	50
24+00.00	2	86
24+50.00	0	30
25+00.00	14	57
25+50.00	39	40
26+00.00	49	30
26+29.00	26	18
26+50.00	15	13
27+00.00	32	45
27+21.77	10	24
27+50.00	10	21
28+00.00	29	31
28+50.00	43	45
29+00.00	61	39
29+10.75	16	7
29+50.00	71	22
30+00.00	53	11

Station Y	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
11+00.00	0	0
11+50.00	6	80
12+00.00	13	148
12+50.00	13	124
13+00.00	50	68
13+50.00	53	53
14+00.00	23	84
14+50.00	17	122
15+00.00	4	172
15+50.00	9	106
16+00.00	8	15
16+50.00	5	4
16+70.00	4	3
17+00.00	12	23
17+50.00	31	47
18+00.00	55	26
18+10.00	18	4
18+30.00	73	9
18+50.00	66	10
18+85.42	41	21
19+00.00	7	11
19+50.00	14	47

Station Y	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
20+00.00	11	65
20+30.00	1	34
20+50.00	1	17
20+90.80	1	38

Station Y	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
21+27.71	0	0
21+50.00	0	47
22+00.00	0	0
22+50.00	0	177
23+00.00	2	125
23+50.00	2	371
24+00.00	30	568
24+50.00	51	468
25+00.00	61	379
25+50.00	50	181
25+70.00	13	18
26+00.00	30	8
26+50.00	33	10
26+78.00	3	5

Station SVC	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+55.00	0	0
11+00.00	34	0
11+50.00	74	4
12+02.51	75	9

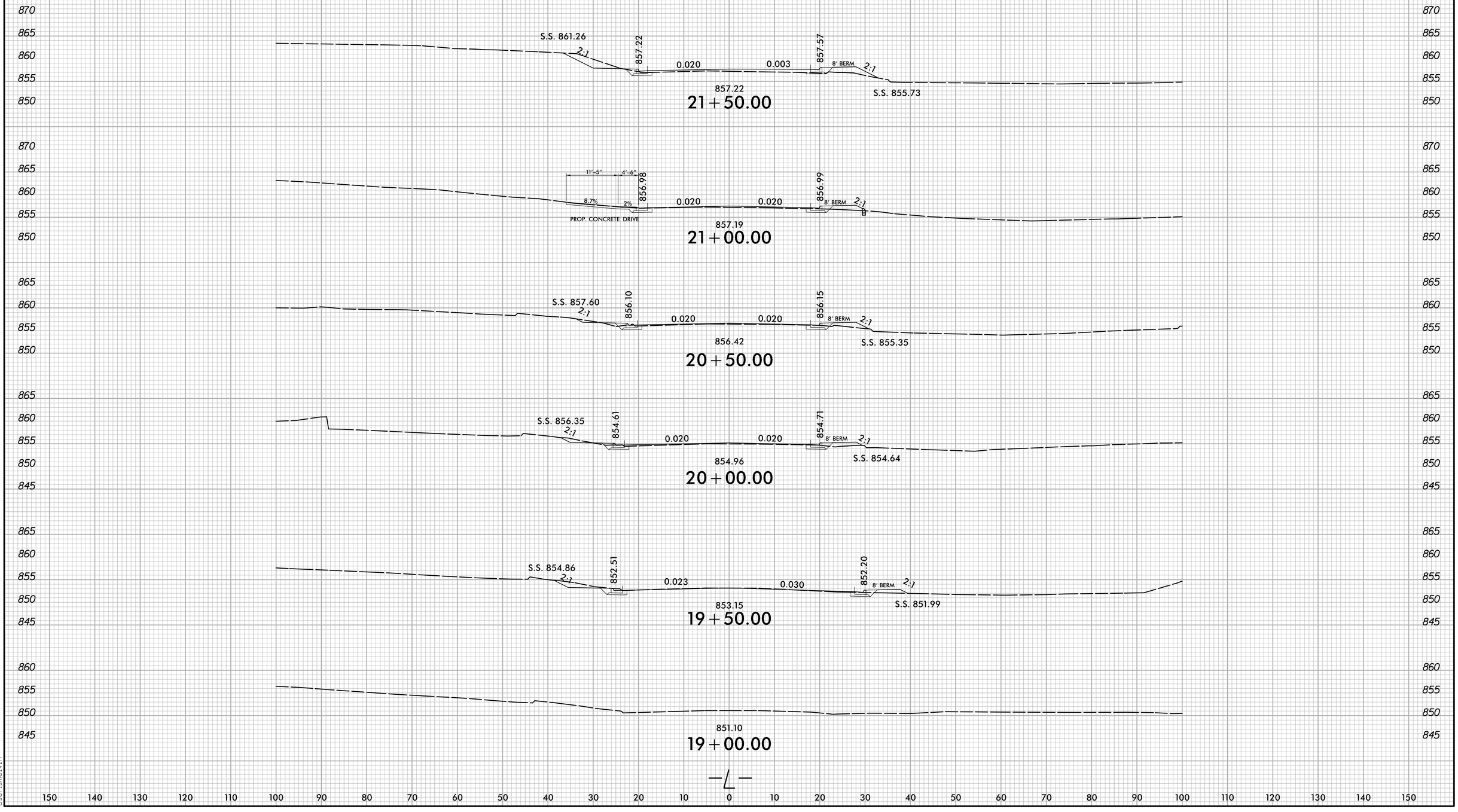
Station SVC	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
12+40.66	0	0
12+50.00	0	31
13+00.00	3	97
13+50.00	69	14
13+70.00	72	1
14+00.00	140	0
14+50.00	231	0
14+75.00	97	0
15+00.00	71	3
15+00.00	24	2

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

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-1

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



3/20/2019
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User:smal.vin

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-2

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

870 865 860 855 850 845

-Y- INTERSECTION

-Y- INTERSECTION

0.030

0.030

851.77

23+50.00

865 860 855 850 845

8"X12" CURB

10.6:1

854.07

0.030

0.030

855.42

2:1

853.56

S.S. 853.27

23+00.00

865 860 855 850 845

24'-1"

10'-0"

4.0%

2%

PROP. CONCRETE DRIVE

0.030

0.030

856.33

2:1

854.22

S.S. 854.20

22+72.00

865 860 855 850 845

S.S. 858.04

2:1

855.69

0.030

0.030

856.92

2:1

854.80

S.S. 854.48

22+50.00

870 865 860 855 850

S.S. 859.38

2:1

856.56

0.020

0.020

857.36

8' BERM

2:1

856.20

S.S. 856.16

22+19.36

870 865 860 855 850

S.S. 859.92

2:1

856.86

0.020

0.014

857.53

8' BERM

2:1

856.53

S.S. 855.96

22+00.00

—℄—

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

3/20/2019
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User:smelvin

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-3

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

855 850 845 840 835

9'-9" 5'-6" 2'-0"
8.0% 2.0% 6.0%
PROP. CONCRETE DRIVE
0.030 0.030
844.07
4' BERM 2:1 S.S. 842.05
843.09
26+29.00

855 850 845 840 835

8"X12" CURB
2:1 7.8' BERM
843.11
0.030 0.030
844.79
4' BERM 2:1 S.S. 843.24
843.72
26+00.00

855 850 845 840 835

8"X12" CURB
2:1 7.8' BERM
844.37
0.030 0.030
5'-0" 3'-3" 22'-9"
3% 10% 15%
PROP. ASPHALT DRIVE
844.83
25+50.00

860 855 850 845 840 835

8"X12" CURB
13:1 9.8' BERM
845.88
0.030 0.030
847.54
2:1 S.S. 845.91
846.29
25+00.00

865 860 855 850 845 840

-Y- INTERSECTION
0.030 0.030
849.38
2:1 S.S. 847.65
848.04
24+50.00

865 860 855 850 845 840

-Y- INTERSECTION
-Y- INTERSECTION
0.030 0.030
849.89
24+00.00

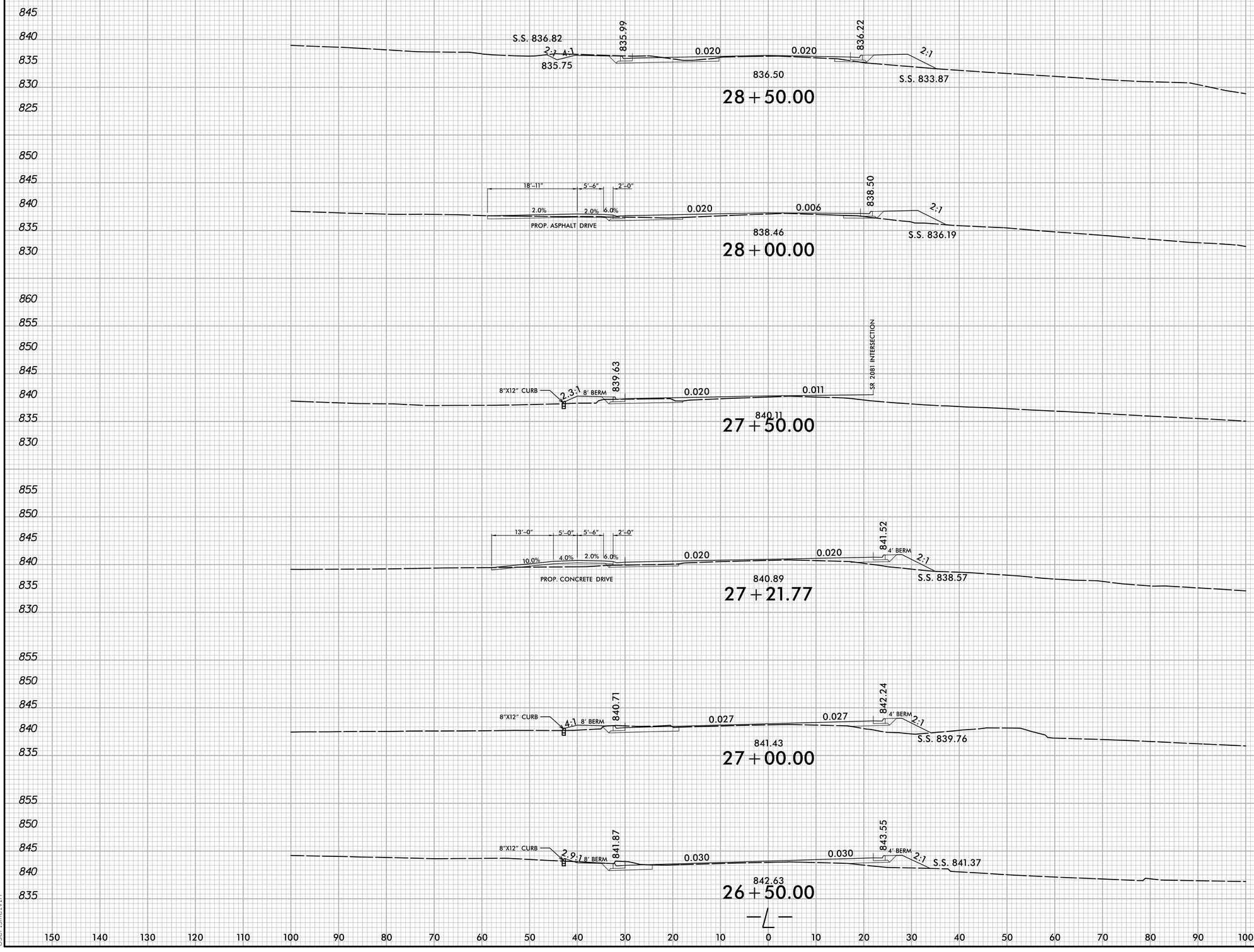
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

3/20/2019
X:\NCDOT\U-5775\Roadway\XSC\U-5775_Rdy_xpl_L.dgn
User:smelvin

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-4

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



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User:smelvin

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-5

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

840 835 830 825 820

825.40

30+50.00

845 840 835 830 825 820

828.46

30+00.00

845 840 835 830 825

S.S. 838.00

2:1 A:1

830.75

831.12

0.020 0.023

4'-6" 5'-6" 5'-0" 5'-0" 7'-8"

2% 2% -2% -8% -12.1%

PROP. CONCRETE DRIVE

831.37

29+50.00

845 840 835 830 825

S.S. 836.56

2:1 A:1

832.71

833.22

0.020 0.020

833.30

2:1

S.S. 832.00

833.48

29+10.75

845 840 835 830 825

S.S. 836.51

2:1 A:1

833.25

833.75

0.020 0.020

833.86

2:1

S.S. 832.51

834.05

29+00.00

—L—

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

3/20/2018
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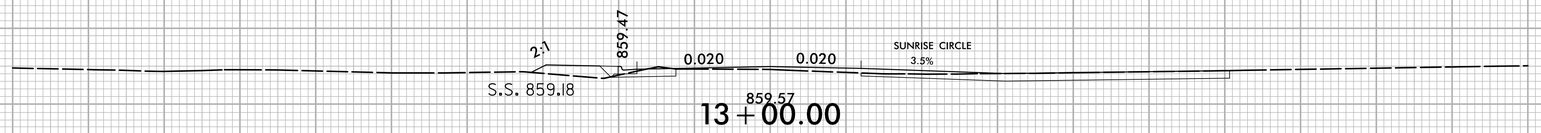
User:smelvin

8/23/99

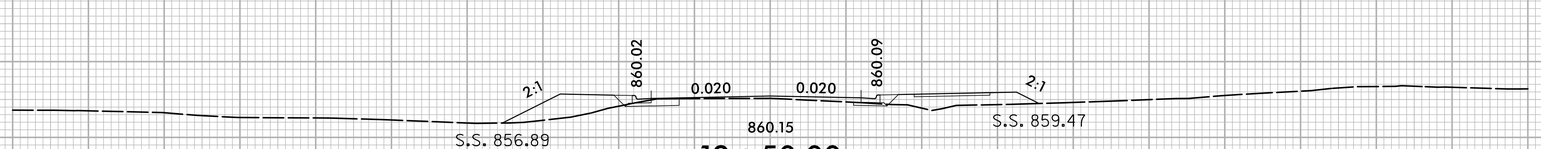
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-6

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

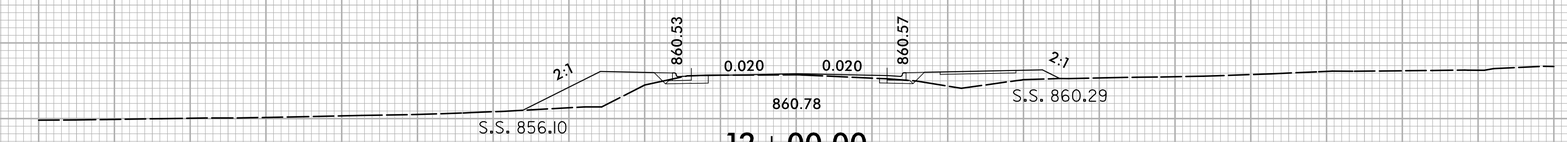
870 865 860 855 850



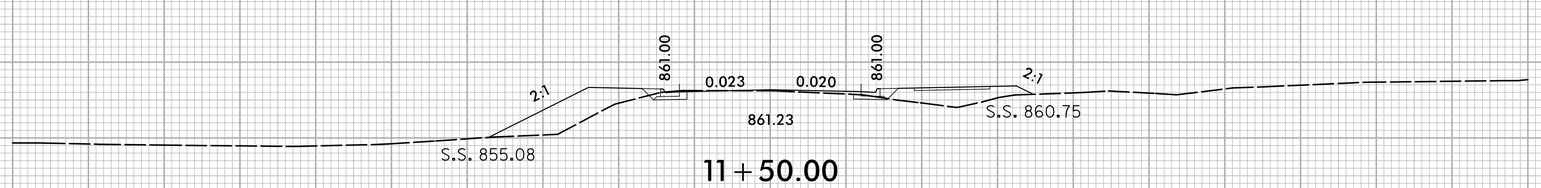
13 + 00.00



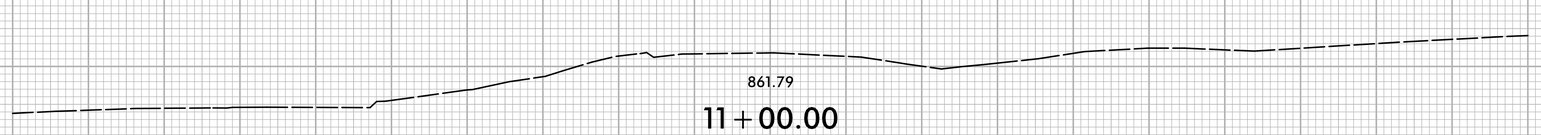
12 + 50.00



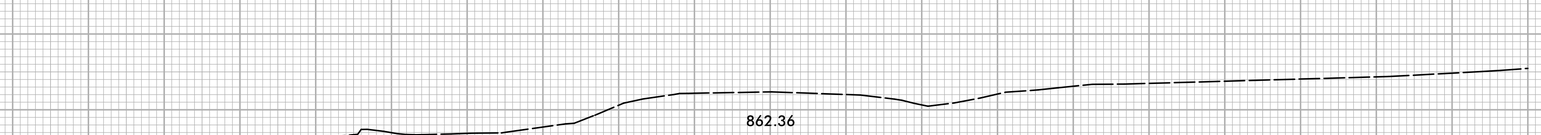
12 + 00.00



11 + 50.00



11 + 00.00



10 + 50.00

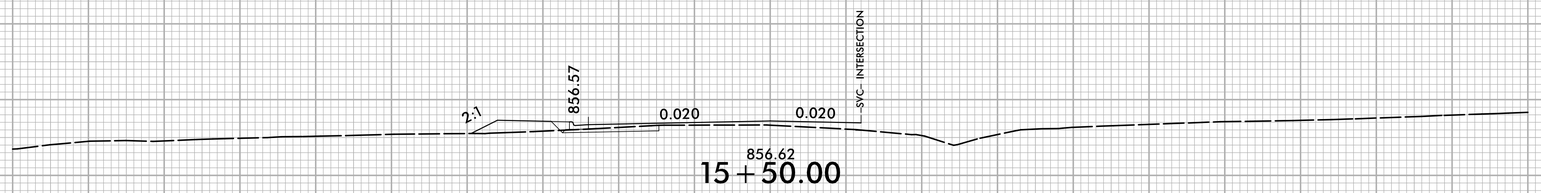
—Y—

8/23/99

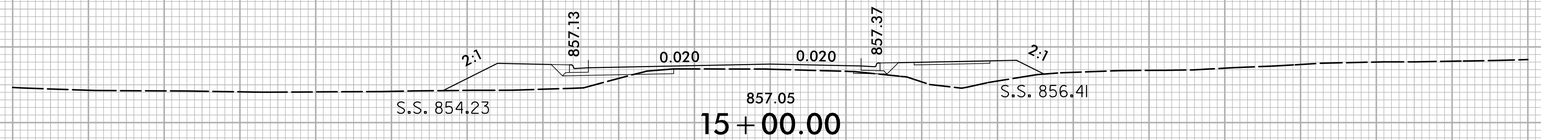
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-7

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

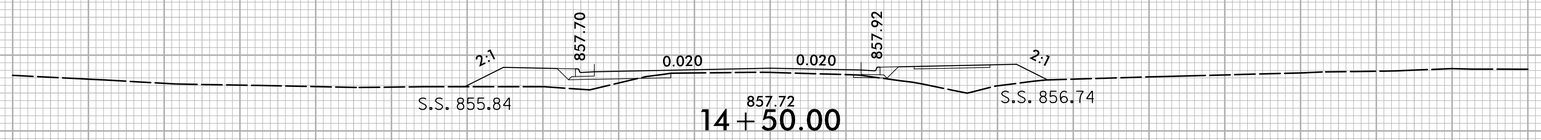
875 870 865 860 855 850



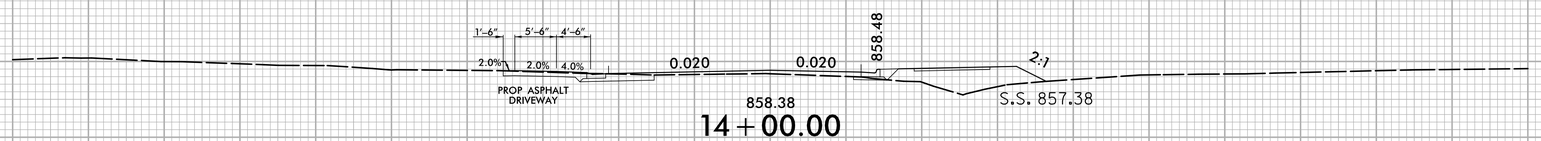
870 865 860 855 850



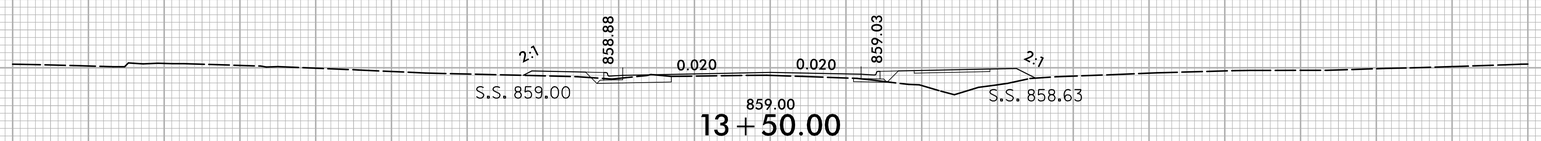
870 865 860 855 850



870 865 860 855 850



870 865 860 855 850



-Y-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

3/20/2018
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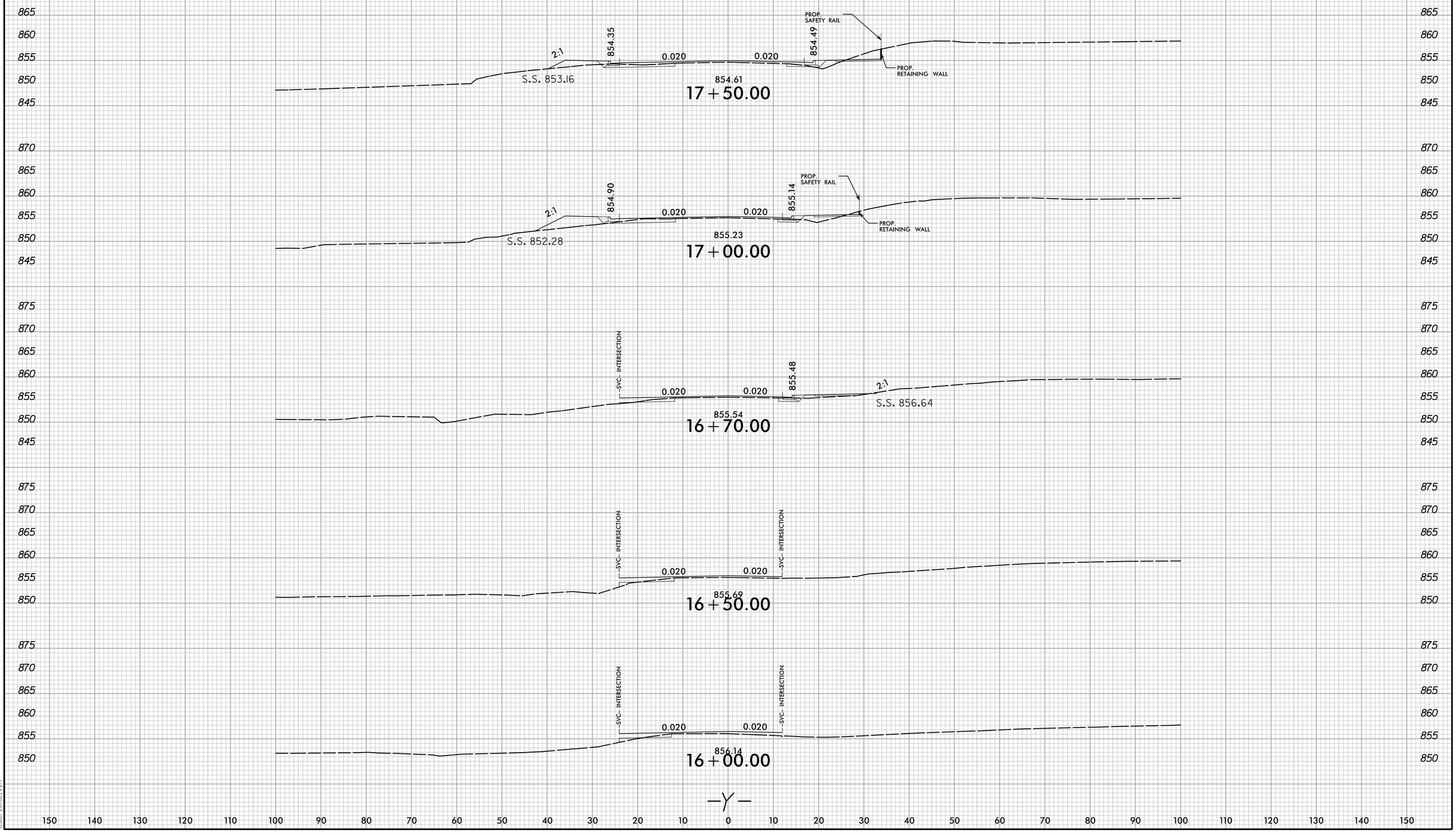
User:smelvin

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-5775	X-8

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



-Y-

3/20/2019
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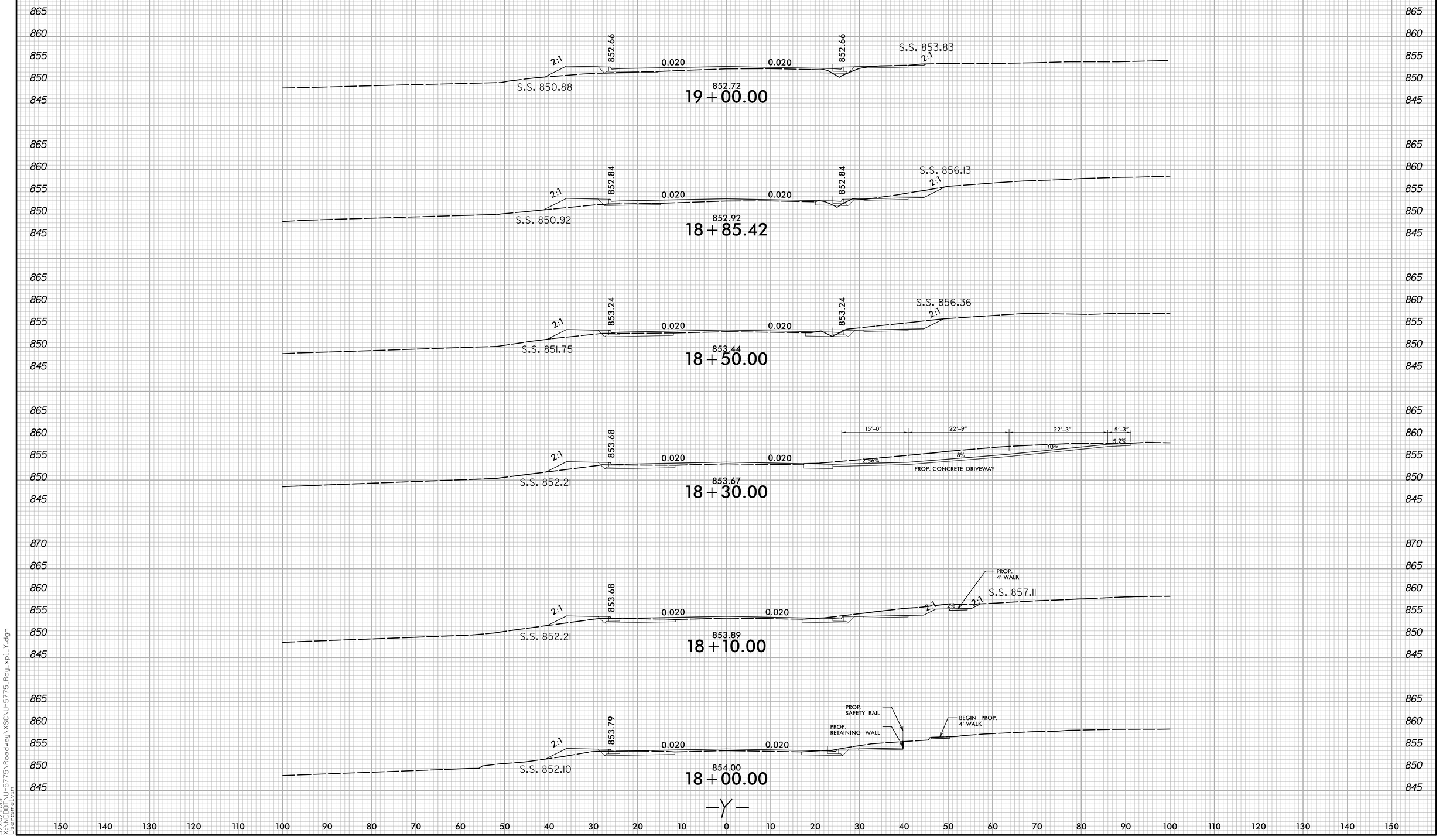
User:smelvin

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-9

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



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User:smelvin

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

870 865 860 855 850 845 840

2:1
0.035
0.035
-L- INTERSECTION
S.S. 848.80
850.05
21+50.00

855 850 845 840

-L- INTERSECTION
850.02
21+00.00

865 860 855 850 845

-L- INTERSECTION
0.028
0.028
851.62
8"X12" CURB
850.55
20+50.00

860 855 850 845

-L- INTERSE
0.022
0.022
851.75
8"X12" CURB
850.91
20+30.00

860 855 850 845

8"X12" CURB
6' BERM
851.10
0.020
0.012
852.01
8"X12" CURB
851.37
20+00.00

860 855 850 845

851.97
0.020
0.005
4'-6" 10'-6" 5'-10"
2% 2% 1.67%
PROP CONCRETE DRIVEWAY
PROP ASPHALT DRIVEWAY
S.S. 849.32
852.03
19+50.00

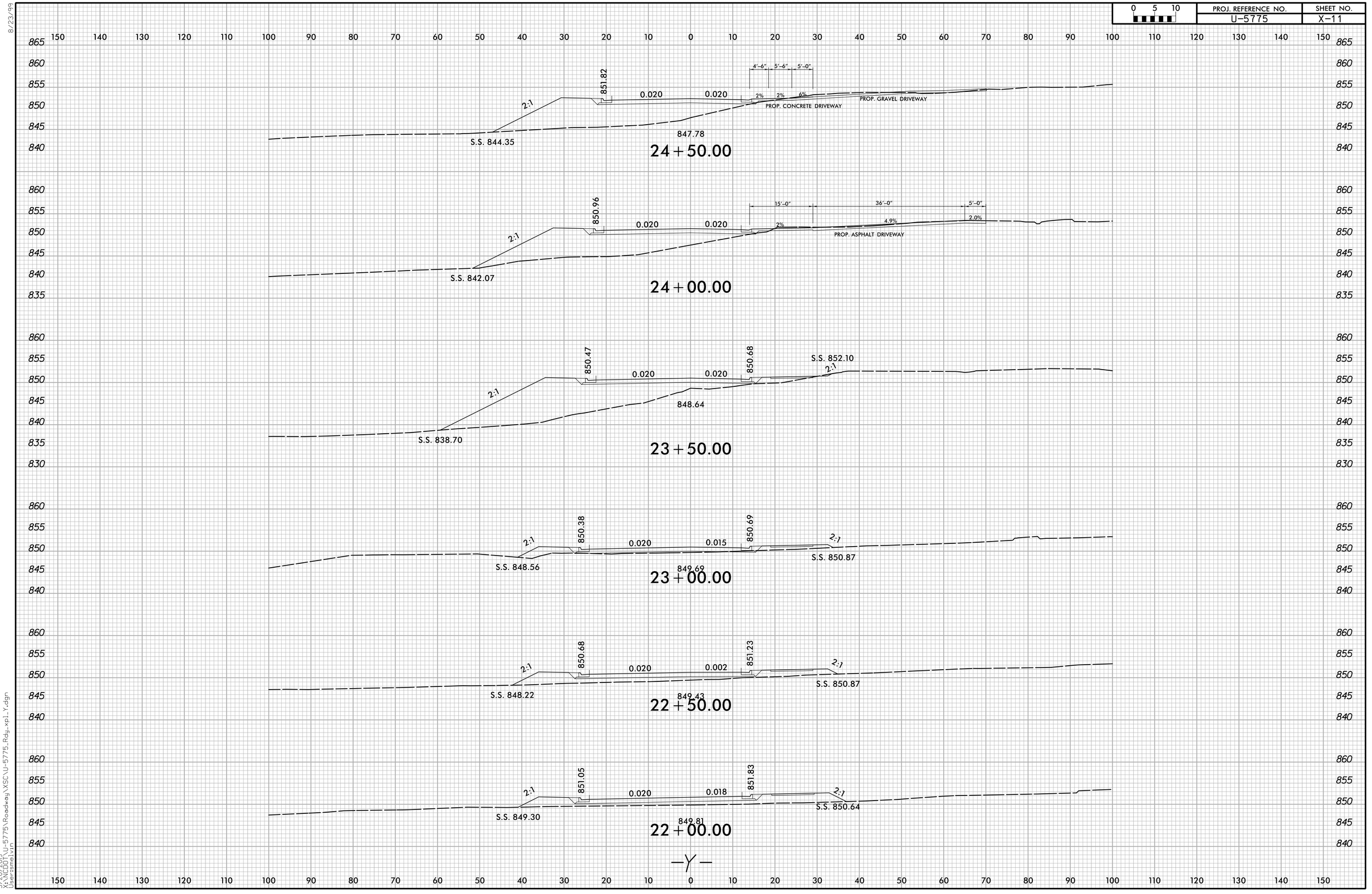
-Y-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

3/20/2019
X:\NCDOT\U-5775\Roadway\XSCU-5775_Rdy_xpl_Y.dgn
User:smelvin

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-11



3/20/2019
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User:smelvin

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-12

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

870 865 860 855 850

860.56

27 + 00.00

865 860 855 850

2:1

S.S. 857.46

858.62

26 + 50.00

865 860 855 850

14'-10" 5'-0"

10.5% 2%

0.031 0.010

856.58

S.S. 859.23

2:1

PROP. GRAVEL DRIVE

PROP. CONCRETE DRIVEWAY TURNOUT

856.68

26 + 00.00

865 860 855 850 845

4'-6" 5'-6" 5'-0" 5'-0"

855.37

2:1

0.021 0.019

2% 2% 8% 9.4%

PROP. CONCRETE DRIVEWAY

S.S. 854.05

855.66

25 + 70.00

865 860 855 850 845

854.67

854.73

0.020 0.020

2:1

2:1

S.S. 851.64

855.02

S.S. 855.37

25 + 50.00

865 860 855 850 845 840

4'-6" 5'-6" 5'-0"

853.06

853.16

0.020 0.020

2:1

2% 2% 8%

PROP. GRAVEL DRIVEWAY

PROP. CONCRETE DRIVEWAY

S.S. 846.16

851.79

25 + 00.00

-Y-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

3/20/2019
X:\NCDOT\U-5775\Roadway\XSC\U-5775_Rdy_xpl_Y.dgn
User:smelvin

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-13

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

860 855 850 845

S.S. 851.58 | 850.29 | 2:1 | 0.020 | 0.020 | 6.0% 8.0% | S.S. 850.10

PROP. ASPHALT DRIVEWAY

851.22

13 + 50.00

865 860 855 850 845

2:1 | 852.30 | 0.017 | 0.020 | 852.23 | 2:1

S.S. 851.62 | S.S. 851.24

851.63

13 + 00.00

865 860 855 850 845

2:1 | 855.38 | 0.008 | 0.008 | -Y- EOP

S.S. 852.06

852.99

12 + 50.00

860 855 850

-Y- INTERSECTION

855.43

12 + 00.00

865 860 855 850

2:1 | 857.03 | 0.015 | 0.020 | 9'-2" | 7'-7" | 6'-3" | 4.0% | 8.0% | 3.3%

S.S. 856.66

PROP. ASPHALT DRIVE

857.25

11 + 50.00

865 860 855 850

2.9% | 0.017 | 0.017 | 85 | 2:1

PROP. ASPHALT DRIVE | S.S. 859.10

858.80

11 + 00.00

865 860 855

860.37

10 + 50.00

-SVC-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

3/20/2019
X:\NCDOT\U-5775\Roadway\XSC\U-5775_Rdy_xpl_SVC.dgn
User:smelvin

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5775	X-14

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

860 855 850 845 840

8"X12" CURB
5:1
847.11
0.020
0.020
5'-0" 10'-2" 23'-3"
6.0%
10.0%
14.0%
PROP. ASPHALT DRIVEWAY
847.43
15+00.00

8'-0" 5'-6" 2'-0"
15.2% 5.0% 4.0%
0.020
0.020
PROP. ASPHALT DRIVEWAY
848.27
14+75.00
PROP. ASPHALT DRIVEWAY
(SEE XSC –SVC– 15+00 FOR GRADE)

S.S. 850.47
2:1
847.62
0.020
0.020
847.62
2:1
S.S. 848.99
849.94
14+50.00

S.S. 851.41
2:1
848.61
0.020
0.020
848.61
2:1
S.S. 849.82
851.24
14+00.00

S.S. 851.58
2:1
849.48
0.020
0.020
5'-0" 17'-3" 13'-7"
6.0%
8.0%
3.4%
PROP. ASPHALT DRIVEWAY
851.19
13+70.00

–SVC–

3/20/2019
X:\NCDOT\U-5775\Roadway\XSC\U-5775_Rdy_xp1_SVC.dgn
User:smelvin