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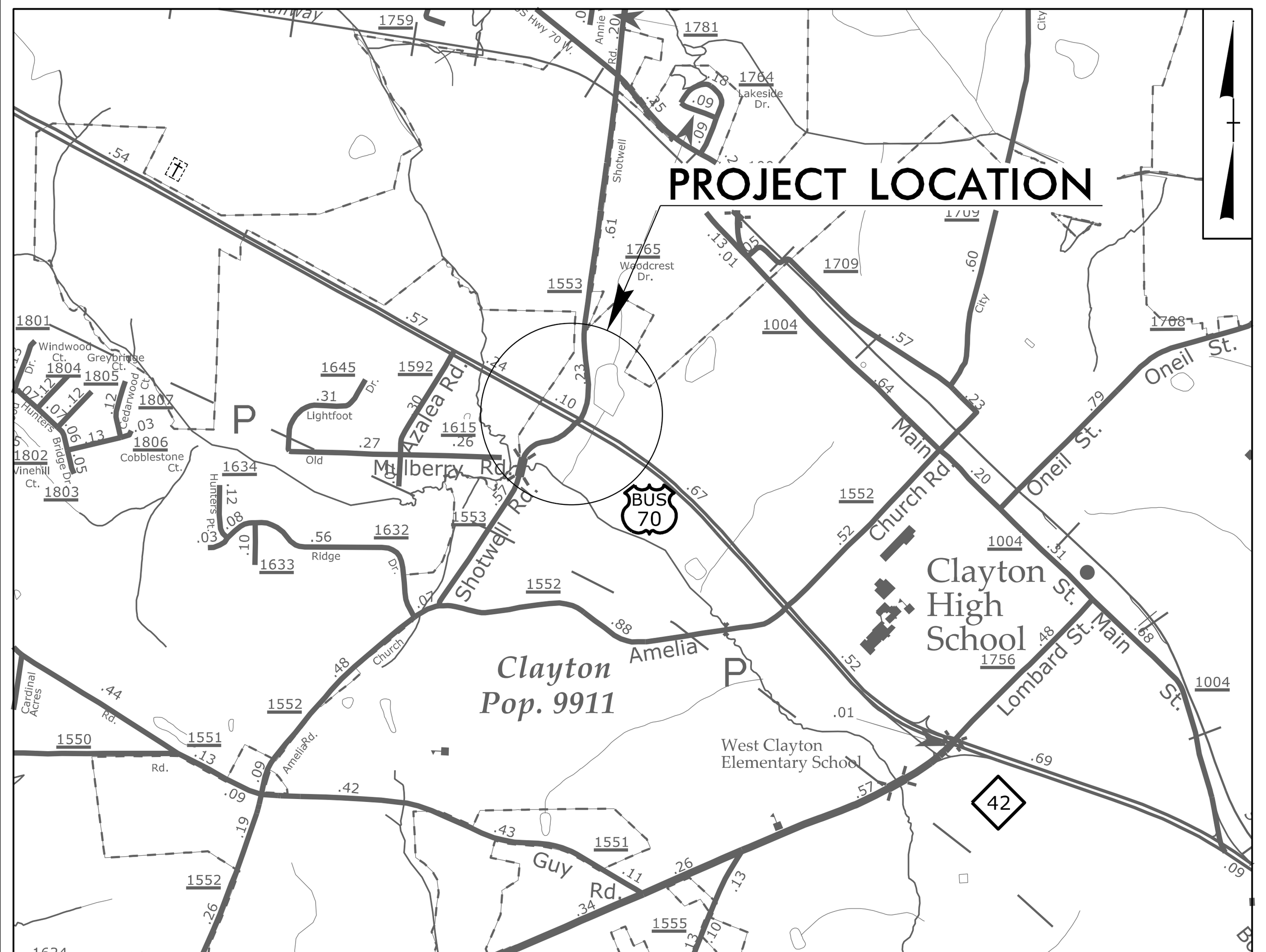
CONTRACT: DD000457

TIP PROJECT: HL-0127

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 Thru 1C-3 For Survey Control Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

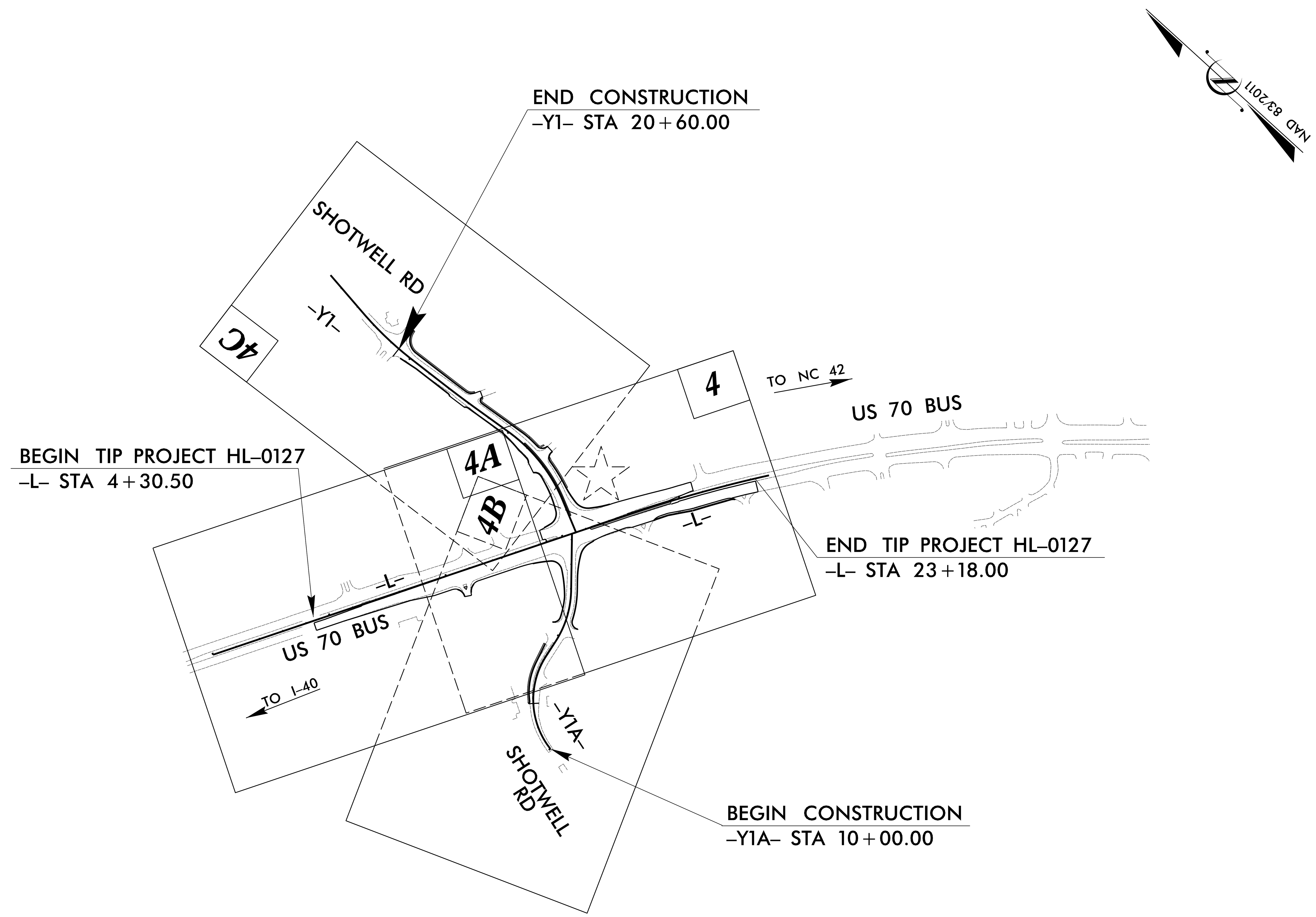
JOHNSTON COUNTY

LOCATION: US-70 BUSINESS AT SR 1553 (SHOTWELL ROAD)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HL-0127	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
51265.3.1	5126501	CONSTRUCTION	

☆ UPDATED SIGNAL



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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 2022 = 40,500

K = %
D = %
T = % *
V = 50 MPH
* TTST = DUAL =
FUNC CLASS = OTHER PRINCIPAL ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT 80074 = 0.357 MILES

TOTAL LENGTH TIP PROJECT 80074 = 0.357 MILES

Prepared In the Office of:

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:
JULY 16, 2024

RAJIT RAMKUMAR, PE
PROJECT ENGINEER

WILLIAM POPE, PE
PROJECT DESIGN ENGINEER

ADDISON GAINEY, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035621 ENGINEER ANDREW M. HOWELL

DocuSigned by: Andrew M Howell 4/23/2024
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 036810 ENGINEER RAJIT RAMKUMAR

DocuSigned by: Rajit Ramkumar 4/23/2024
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

4/8/2024
...W-5704A&B_Rdy_tsh.dgn
USER:default

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
HL-0127	1A

ROADWAY DESIGN ENGINEER

SEAL 036810

5/20/2024

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

GENERAL NOTES:

2024 SPECIFICATIONS
EFFECTIVE: 01-16-2024
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

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.

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.

TEMPORARY SHORING:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:
TOWN OF CLAYTON
DUKE ENERGY
PIEDMONT NATURAL GAS
CENTURY LINK
CHARTER
VERIZON

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.

RIGHT-OF-WAY MARKERS:
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

EFF. 01-16-2024
REV.

2024 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 DIVISION 5 - SUBGRADE, BASES AND SHOULDERS
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.22	Frames and Wide Slot Sag Grates
840.24	Frames and Narrow Slot Sag Grates
840.29	Frames and Narrow Slot Flat Grates
840.34	Traffic Bearing Junction Box
840.35	Traffic Bearing Grated Drop Inlet
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame And Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
848.01	Concrete Sidewalk
848.04	Street Turnout
848.06	Curb Ramp
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

5/20/2024
...\HL-0127_Rdy_1A.dgn

9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP) — EIP
- Computed Property Corner
- Existing Concrete Monument (ECM) — 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 — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Secondary Horiz and Vert Control Point
- Vertical Benchmark
- Existing Right of Way Monument
- Proposed Right of Way Monument (Rebar and Cap)
- Proposed Right of Way Monument (Concrete)
- Existing Permanent Easement Monument
- Proposed Permanent Easement Monument (Rebar and Cap)
- Existing C/A Monument
- Proposed C/A Monument (Rebar and Cap)
- Proposed C/A Monument (Concrete)
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Existing Control of Access Line — CA
- Proposed Control of Access Line — CA
- Proposed ROW and CA Line — RW 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

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:

** SUE – Subsurface Utility Engineering*
LOS – Level of Service – A,B,C or D (Accuracy)

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 — HH
- H–Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)* — P
- U/G Power Line (SUE – LOS C)* — P
- U/G Power Line (SUE – LOS D)* — 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 Test Hole (SUE – LOS A)*
- U/G Telephone Cable (SUE – LOS B)* — T
- U/G Telephone Cable (SUE – LOS C)* — T
- U/G Telephone Cable (SUE – LOS D)* — T
- U/G Telephone Conduit (SUE – LOS B)* — TC
- U/G Telephone Conduit (SUE – LOS C)* — TC
- U/G Telephone Conduit (SUE – LOS D)* — TC
- U/G Fiber Optics Cable (SUE – LOS B)* — T FO
- U/G Fiber Optics Cable (SUE – LOS C)* — T FO
- U/G Fiber Optics Cable (SUE – LOS D)* — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line Test Hole (SUE – LOS A)*
- U/G Water Line (SUE – LOS B)* — W
- U/G Water Line (SUE – LOS C)* — W
- U/G Water Line (SUE – LOS D)* — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Test Hole (SUE – LOS A)*
- U/G TV Cable (SUE – LOS B)* — TV
- U/G TV Cable (SUE – LOS C)* — TV
- U/G TV Cable (SUE – LOS D)* — TV
- U/G Fiber Optic Cable (SUE – LOS B)* — TV FO
- U/G Fiber Optic Cable (SUE – LOS C)* — TV FO
- U/G Fiber Optic Cable (SUE – LOS D)* — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line Test Hole (SUE – LOS A)*
- U/G Gas Line (SUE – LOS B)* — G
- U/G Gas Line (SUE – LOS C)* — G
- U/G Gas Line (SUE – LOS D)* — 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 Force Main Line Test Hole (SUE – LOS A)*
- SS Force Main Line (SUE – LOS B)* — FSS
- SS Force Main Line (SUE – LOS C)* — FSS
- SS Force Main Line (SUE – LOS D)* — FSS

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	2A-1

ROADWAY DESIGN ENGINEER — SEAL 036810 — Rajit Ramkumar — 4/24/2024

PAVEMENT DESIGN ENGINEER — SEAL 040774 — Norwood A. Gainey III — 4/23/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
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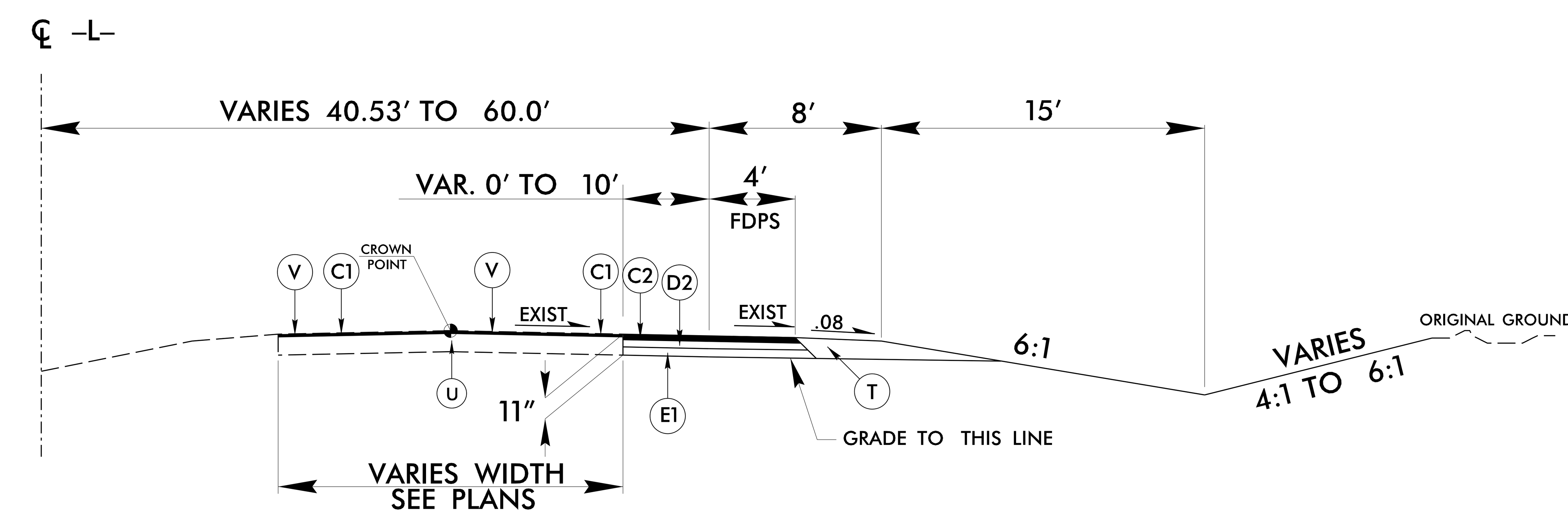
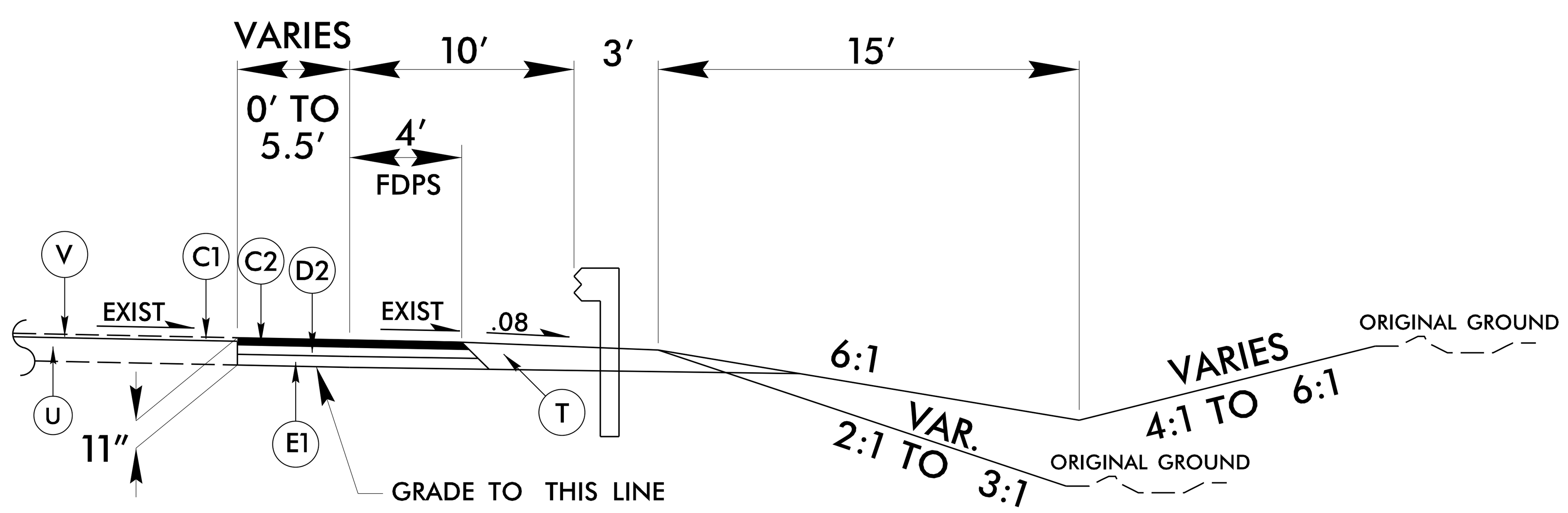


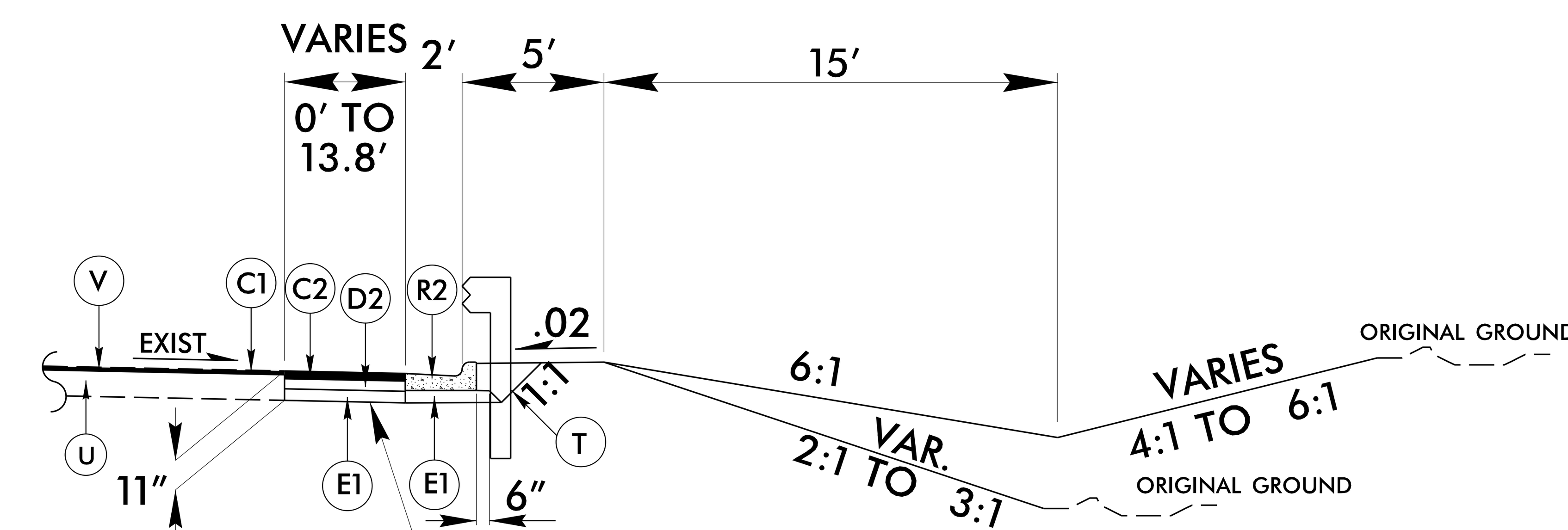
TYPICAL SECTION NO. 1

-L- STA. 4+30.50 TO STA. 23+18.00 RT



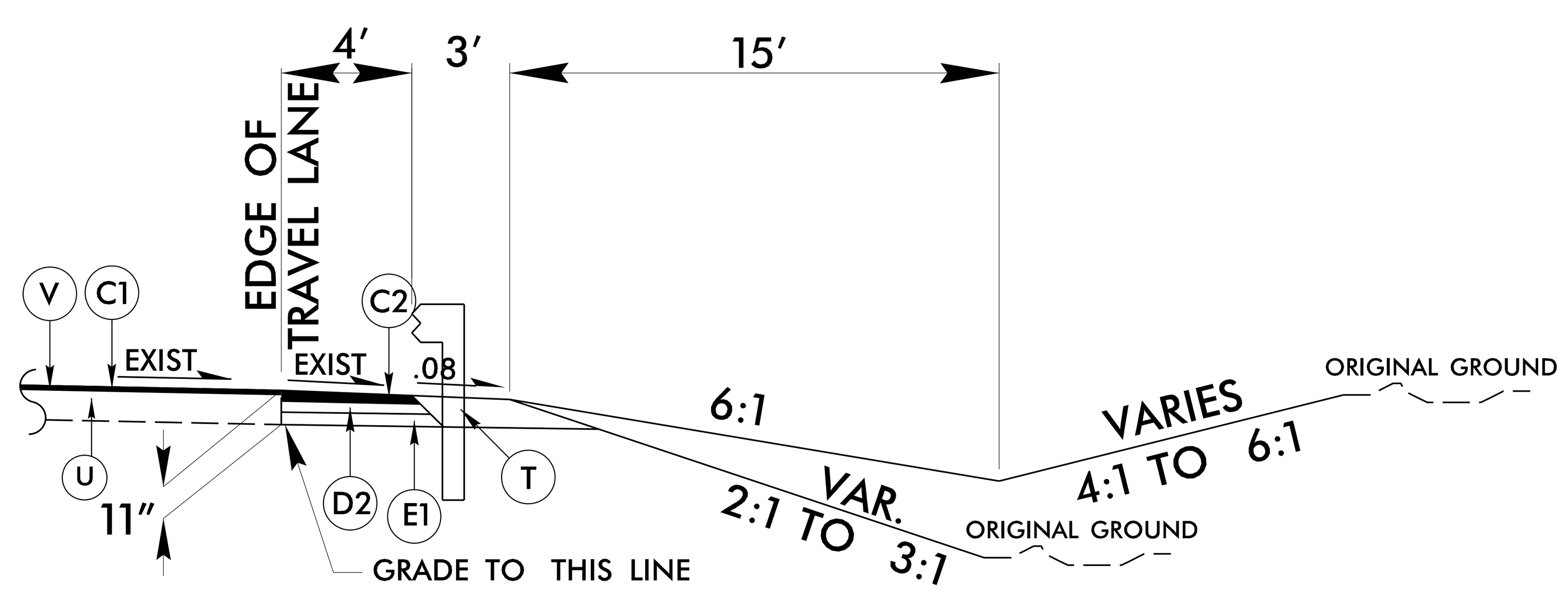
DETAIL 1 TO BE USED WITH TYPICAL SECTION NO. 1

-L- STA. 4+30.50 TO STA. 7+86.78 RT



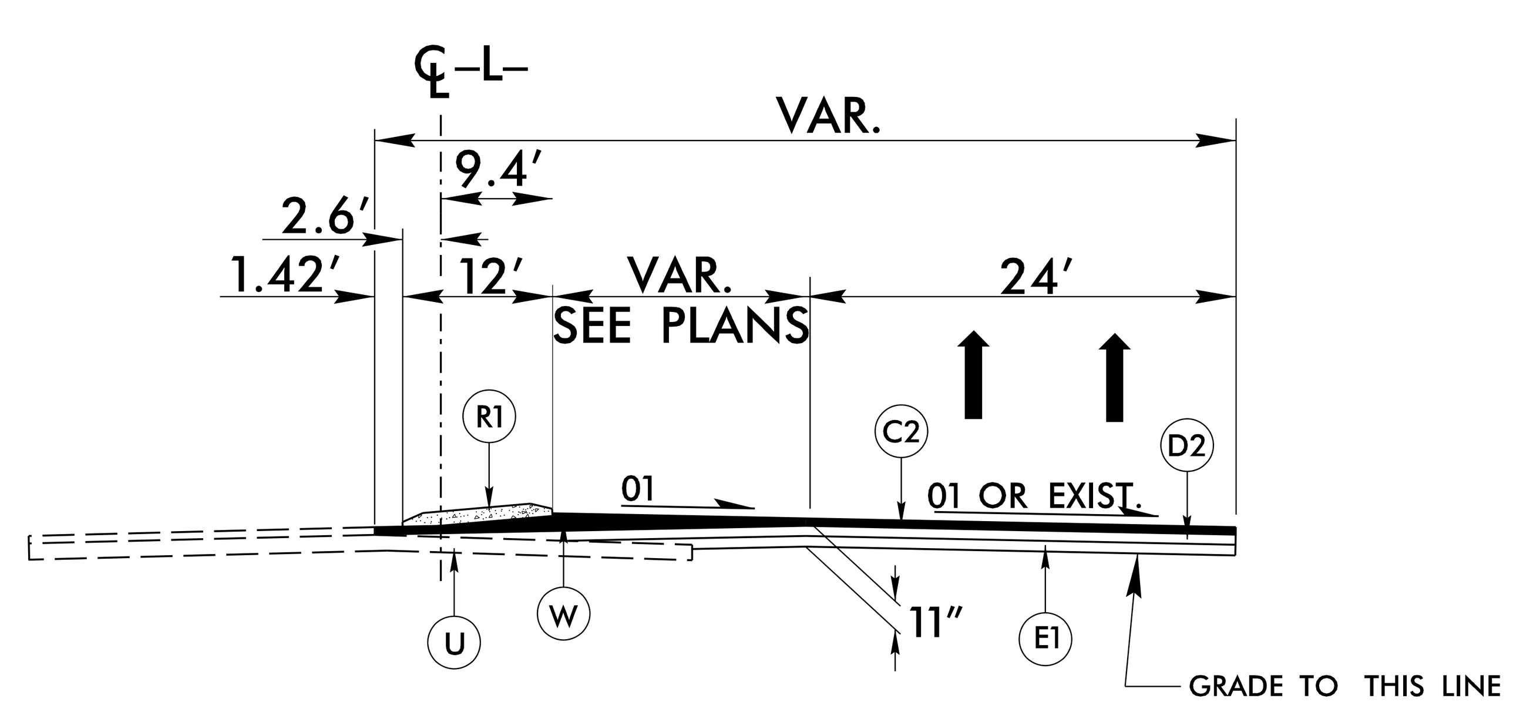
DETAIL 2 TO BE USED WITH TYPICAL SECTION NO. 1

-L- STA. 13+50.74 TO STA. 16+14.80 RT



DETAIL 3 TO BE USED WITH TYPICAL SECTION NO. 1

-L- STA. 16+14.80 TO STA. 17+66.77 RT



DETAIL 4 TO BE USED WITH TYPICAL SECTION NO. 1

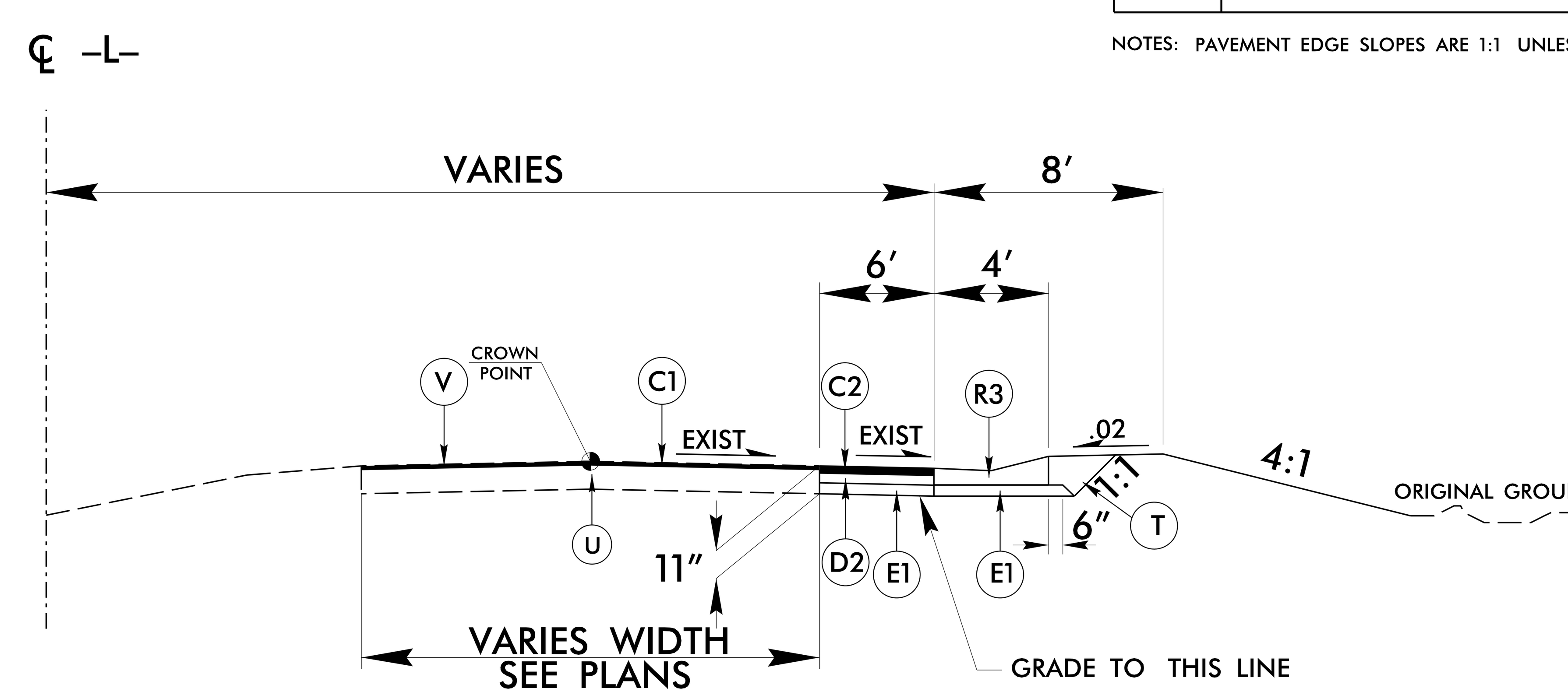
MEDIAN DETAIL - REVERSE FOR WESTBOUND TURN LANE

-L- STA. 16+17.96 TO 19+62.71

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 2 ½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D3	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" OR GREATER THEN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 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" OR GREATER THAN 5 ½" IN DEPTH.
R1	PROP. 5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
R2	PROP. 2'-6" CONCRETE CURB & GUTTER
R3	PROP. 4' CONCRETE EXPRESSWAY GUTTER
S	PROP. 4" SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	1 1/2" DEPTH MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTES: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



DETAIL 5 TO BE USED WITH TYPICAL SECTION NO. 1

-L- STA. 18+73.04 TO STA. 22+19.92 RT

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	2A-2

ROADWAY DESIGN ENGINEER — SEAL 036810 — Rajit Ramkumar 4/24/2024

PAVEMENT DESIGN ENGINEER — SEAL 040774 — Norwood L Gainey III 4/23/2024

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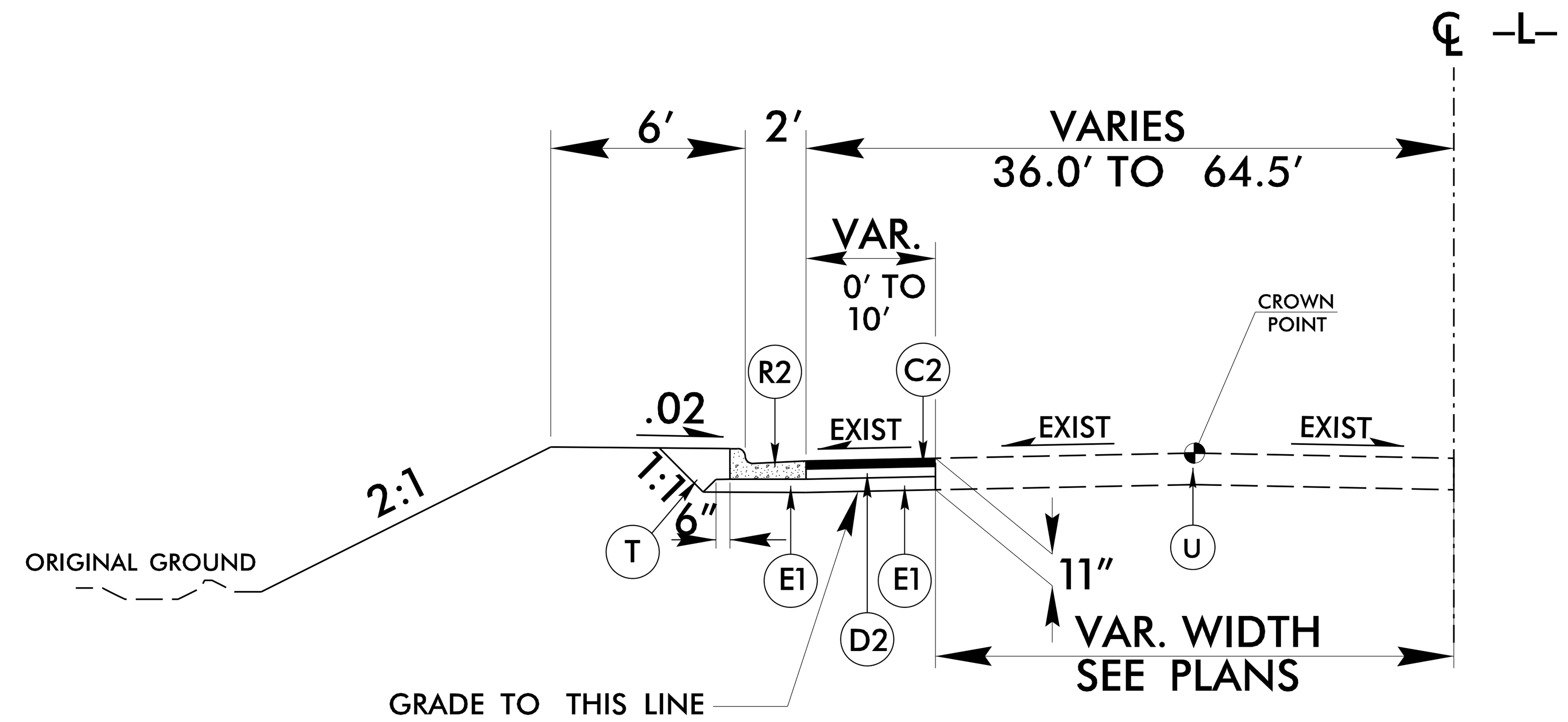
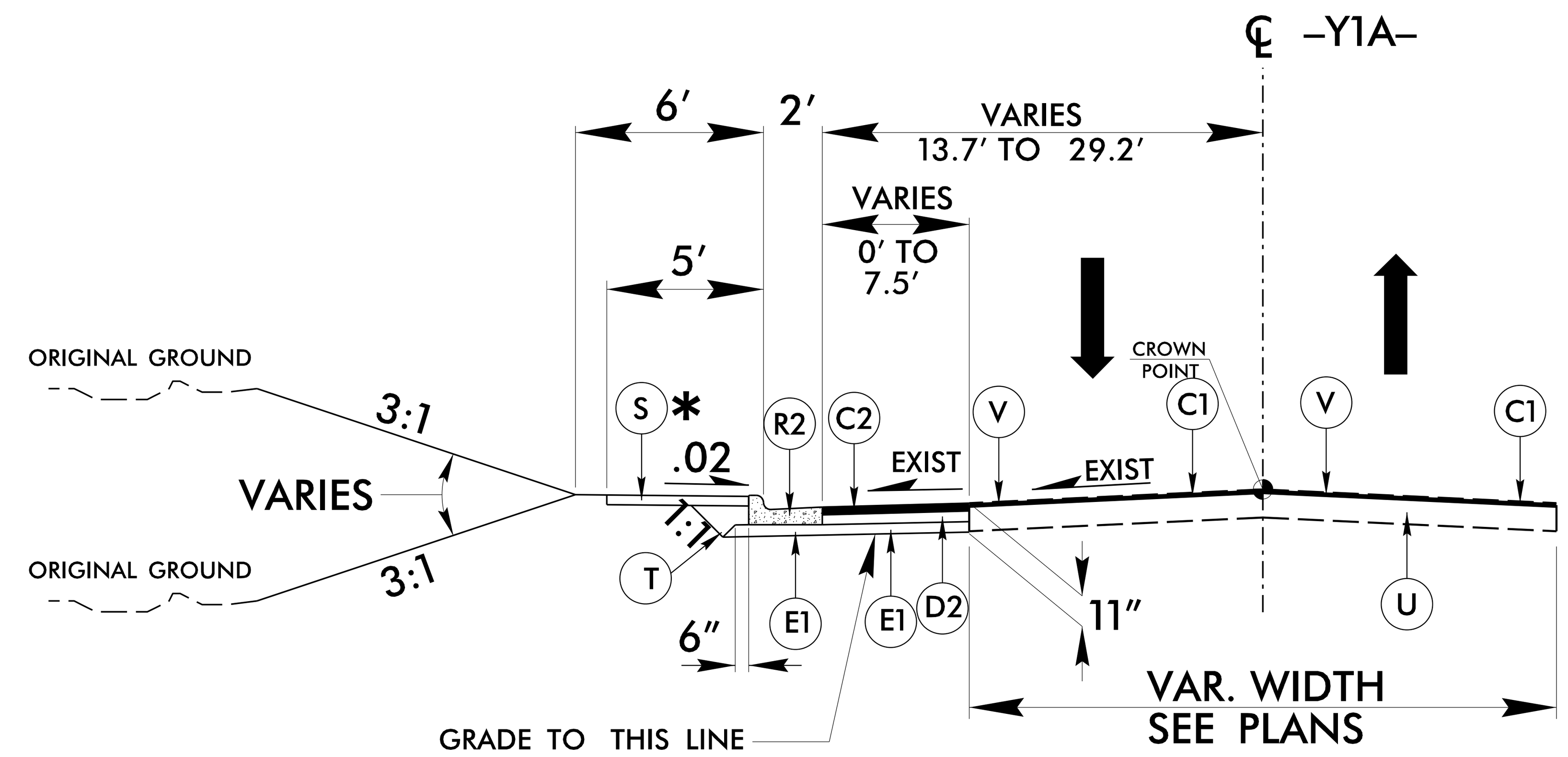


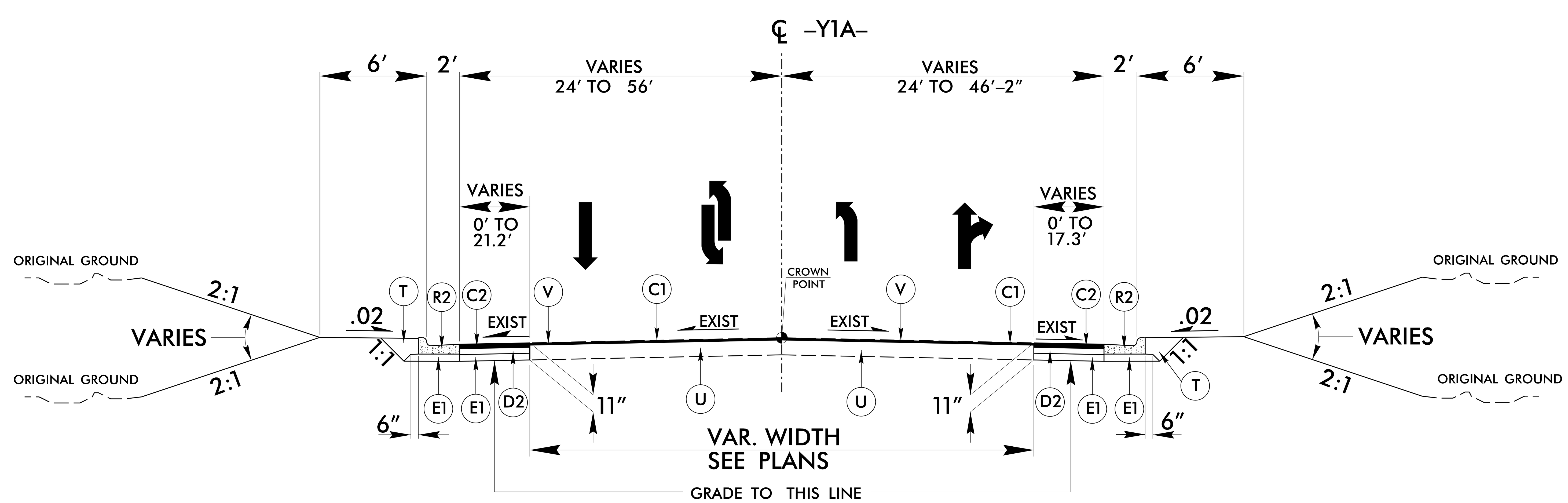
TYPICAL SECTION NO. 2

-L- STA. 14+19.50 TO STA. 20+62.85 LT



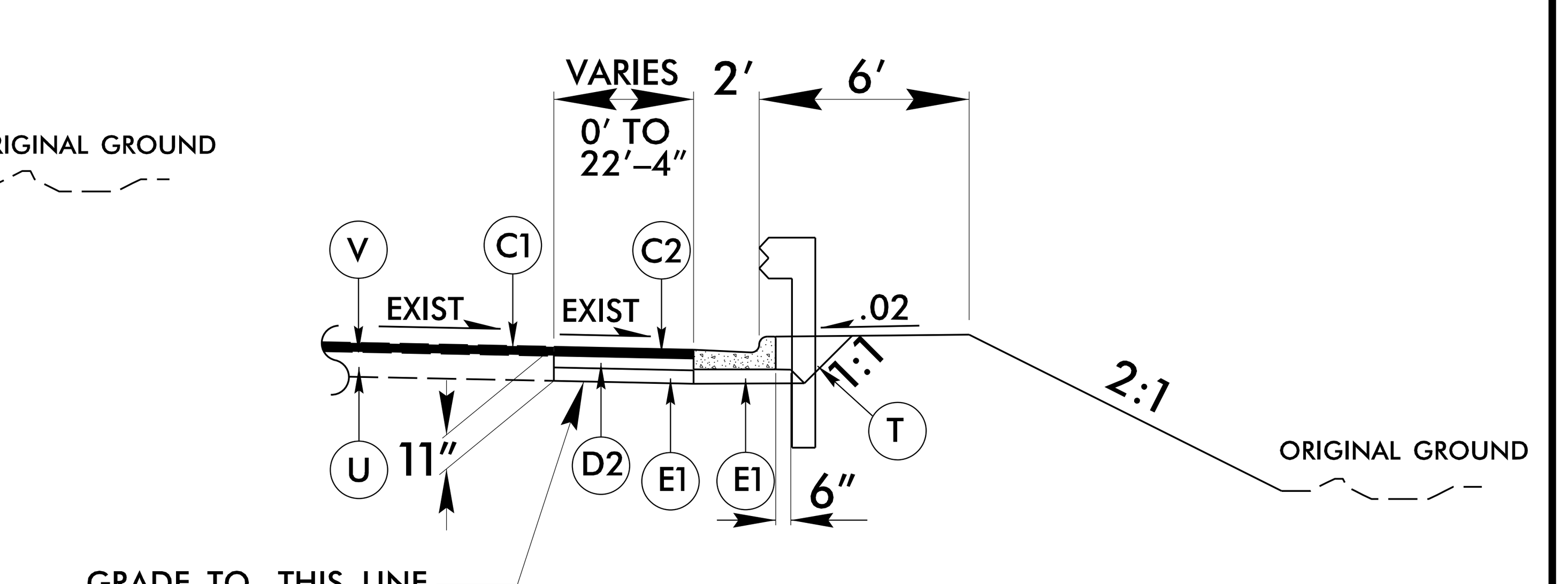
TYPICAL SECTION NO. 3

*-Y1A- STA. 12+00.00 TO STA. 14+42.41
-Y1A- STA. 14+42.41 TO STA. 15+41.34



TYPICAL SECTION NO. 4

-Y1A- STA. 15+41.34 TO STA. 18+60.86



USE WITH TYPICAL SECTION NO. 4

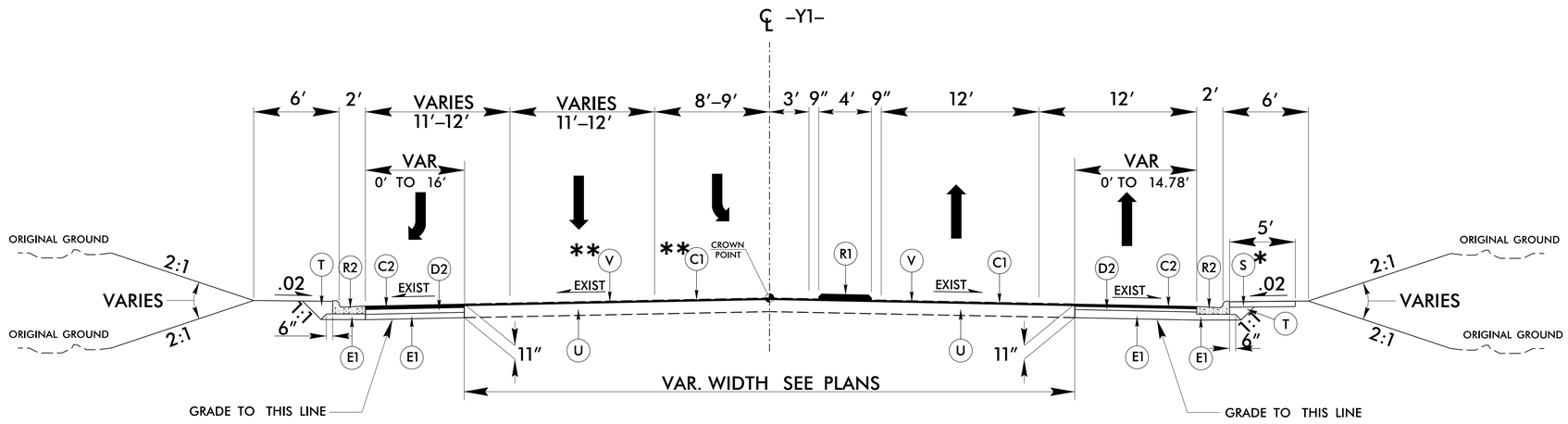
-Y1A- STA. 16+61.64 TO STA. 18+34.44 RT

PAVEMENT SCHEDULE	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. DEPTH S9.5C
D1	2.5" I19.0C
D2	4" I19.0C
D3	VAR. DEPTH I19.0C
E1	4" B25.0C
E2	VAR. DEPTH B25.0C
R1	5" MONO. ISLAND (KEYED IN)
R2	PROP. 2'-6" CURB & GUTTER
R3	PROP. 4' EXPRESSWAY GUTTER
S	PROP. 4" SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	1.5" MILLING
W	VAR. DEPTH WEDGING

NOTES: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

6/2/99

4/8/2024 ...W-5704A&B_Rdy_typ.dgn



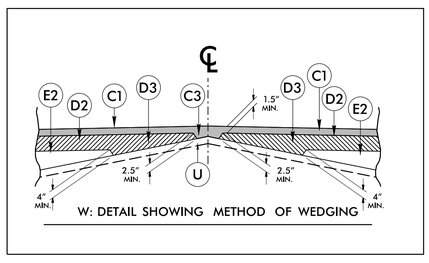
TYPICAL SECTION NO. 5

–Y1– STA. 10+71.30 TO STA. 11+79.59

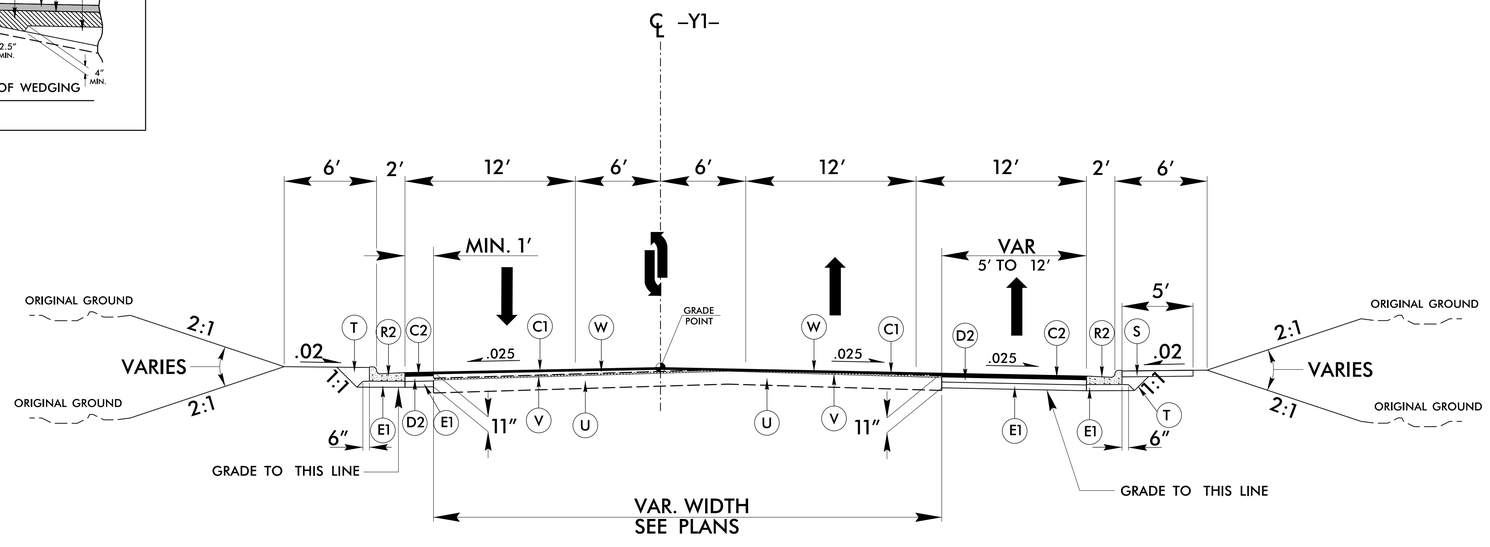
✱ –Y1– STA. 11+79.59 TO STA. 14+21.30

✱✱ NOTE: DO NOT MILL/RESURFACE EXISTING CONCRETE PAVEMENT FROM –Y1– STA. 10+50.00 TO STA. 11+06.00 LT. SIDE

NOTE: TRANSITION FROM T.S. NO. 5 TO T. S. NO. 6
–Y1– STA. 14+21.30 TO STA. 14+54.84



W: DETAIL SHOWING METHOD OF WEDGING



TYPICAL SECTION NO. 6

–Y1– STA. 14+54.84 TO STA. 20+60.00

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	2A-3

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 036810 ENGINEER

DocuSigned by: Rajat Ramkumar 869877177E5D04A9...

4/24/2024

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 040774 ENGINEER

DocuSigned by: Norwood H. Gainey III E0DB9850A45048...

4/23/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PAVEMENT SCHEDULE

C1	1.5″ S9.5C
C2	3″ S9.5C
C3	VAR. DEPTH S9.5C
D1	2.5″ I19.0C
D2	4″ I19.0C
D3	VAR. DEPTH I19.0C
E1	4″ B25.0C
E2	VAR. DEPTH B25.0C
R1	5″ MONO. ISLAND (KEYED IN)
R2	PROP. 2′-6″ CURB & GUTTER
R3	PROP. 4′ EXPRESSWAY GUTTER
S	PROP. 4″ SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	1.5″ MILLING
W	VAR. DEPTH WEDGING

NOTES: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

6/2/99

4/9/2024
4:47:20 PM
USER:Rajat.Ramkumar
PW:\\Projects\HL-0127\Design\Roadway\Typicals\HL-0127_Typ_Sec_5_6_Rdy_typ.dgn

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	2C-1

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL CATCH BASINS 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.

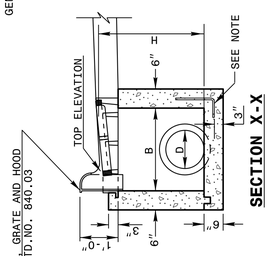
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.

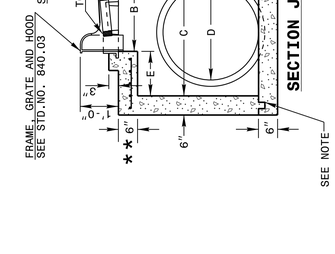
CONSTRUCT WITH PIPE CROWNS MATCHING.

CHAMFER ALL EXPOSED CORNERS 1".

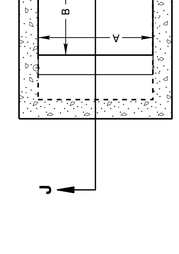
** FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.



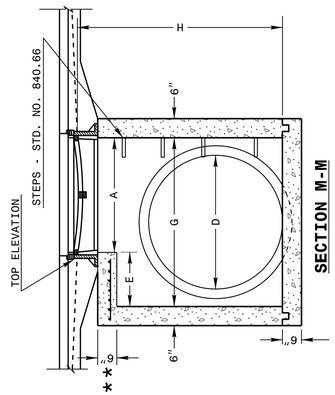
SECTION X-X



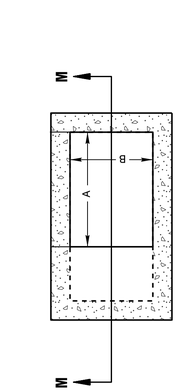
SECTION J-J



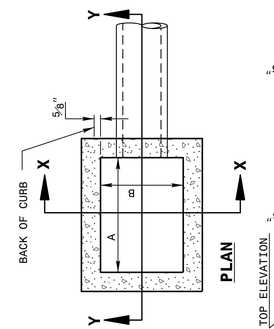
PLAN

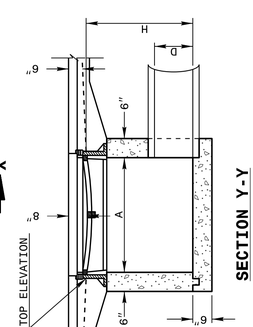


SECTION M-M

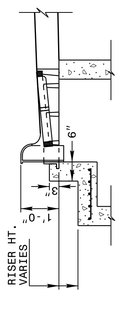


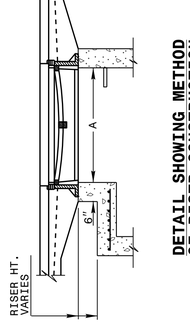
PLAN





SECTION Y-Y





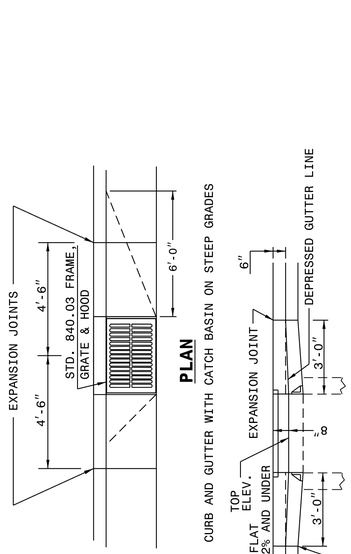
DETAIL SHOWING METHOD OF RISER CONSTRUCTION

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR **MINIMUM DEPTH CONCRETE CATCH BASIN** 12" THRU 84" PIPE	SHEET 1 OF 2 **840D02**

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

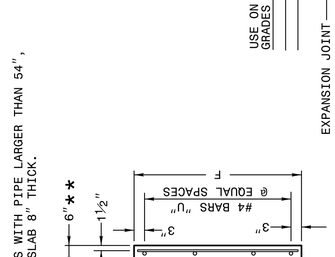
ENGLISH DETAIL DRAWING FOR **MINIMUM DEPTH CONCRETE CATCH BASIN** 12" THRU 84" PIPE

SHEET 1 OF 2 **840D02**



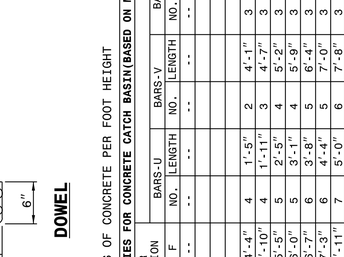
PLAN

CURB AND GUTTER WITH CATCH BASIN ON STEEP GRADES



ELEVATION

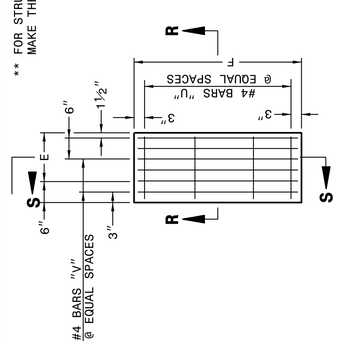
NORMAL CURB AND GUTTER ON LIGHT GRADES



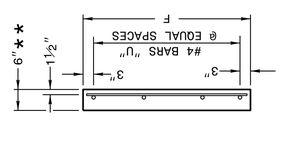
ELEVATION

NORMAL CURB AND GUTTER ON STEEP GRADES

** FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.

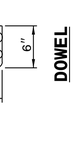


PLAN OF TOP SLAB



SECTION S-S

SECTION R-R



DOWEL

* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN(BASED ON MIN. HEIGHT, H, WITH NO RISER) *

PIPE D	DIMENSIONS OF BOX AND PIPE COVER DIMENSION SPAN A	WIDTH B	WIDTH C	SPAN G	MIN. HEIGHT H	BARS-U NO.	BARS-U LENGTH	BARS-U E	BARS-U F	BARS-V NO.	BARS-V LENGTH	TOTAL LBS.	CU.YDS. CONC. IN BOX TOP SLAB	CU.YDS. CONC. IN BOX BOTTOM SLAB	CU.YDS. CONC. IN BOX TOT. CONC. FOR MINIMUM HEIGHT H	DEDUCTIONS ONE PIPE C.M.	DEDUCTIONS ONE PIPE R.C.
12"	3'-0"	2'-2"	--	--	2'-0"	--	--	--	--	--	--	--	--	0.235	0.772	0.015	0.026
15"	3'-0"	2'-2"	--	--	2'-3"	--	--	--	--	--	--	--	--	0.235	0.829	0.023	0.036
18"	3'-0"	2'-2"	--	--	2'-6"	--	--	--	--	--	--	--	--	0.235	0.887	0.033	0.049
24"	3'-0"	2'-2"	--	--	3'-1"	--	--	--	--	--	--	--	--	0.235	1.001	0.059	0.085
30"	3'-0"	2'-2"	3'-4"	3'-4"	3'-10"	4	1'-2"	4'-4"	4	2	1'-6"	39	0.123	0.347	1.433	0.092	0.127
36"	3'-0"	2'-2"	3'-10"	3'-10"	4'-6"	4	1'-8"	4'-10"	4	3	1'-11"	43	0.161	0.432	1.714	0.132	0.178
42"	3'-0"	2'-2"	4'-5"	4'-5"	4'-11"	5	2'-2"	5'-5"	5	4	2'-5"	47	0.200	0.543	1.738	0.160	0.243
48"	3'-0"	2'-2"	5'-0"	5'-0"	5'-6"	5	2'-10"	6'-0"	5	4	3'-1"	51	0.235	0.667	2.052	0.235	0.317
54"	3'-0"	2'-2"	5'-7"	5'-7"	6'-0"	6	3'-5"	6'-7"	6	5	3'-8"	56	0.289	0.802	2.387	0.297	0.401
60"	3'-0"	2'-2"	6'-3"	6'-3"	6'-6"	6	4'-1"	7'-3"	6	6	4'-4"	61	0.340	0.973	2.722	0.363	0.546
66"	3'-0"	2'-2"	6'-11"	6'-11"	7'-0"	7	4'-9"	7'-11"	7	6	3'-6"	66	0.391	1.160	3.057	0.440	0.655
72"	3'-0"	2'-2"	7'-6"	7'-6"	7'-6"	7	5'-3"	8'-6"	7	6	5'-6"	72	0.442	1.340	3.392	0.524	0.774
78"	3'-0"	2'-2"	8'-1"	8'-1"	8'-0"	8	5'-11"	9'-1"	8	6	6'-2"	78	0.493	1.530	3.727	0.615	0.893
84"	3'-0"	2'-2"	8'-9"	8'-9"	8'-6"	8	6'-7"	9'-9"	8	6	6'-10"	84	0.544	1.760	4.062	0.713	1.010

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

ENGLISH DETAIL DRAWING FOR **MINIMUM DEPTH CONCRETE CATCH BASIN** 12" THRU 84" PIPE

SHEET 2 OF 2 **840D02**

SEAL 33144 NORTH CAROLINA PROFESSIONAL ENGINEER

DocuSigned by: Nicole M. Hucklen 5884323D34164C5...

2/14/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

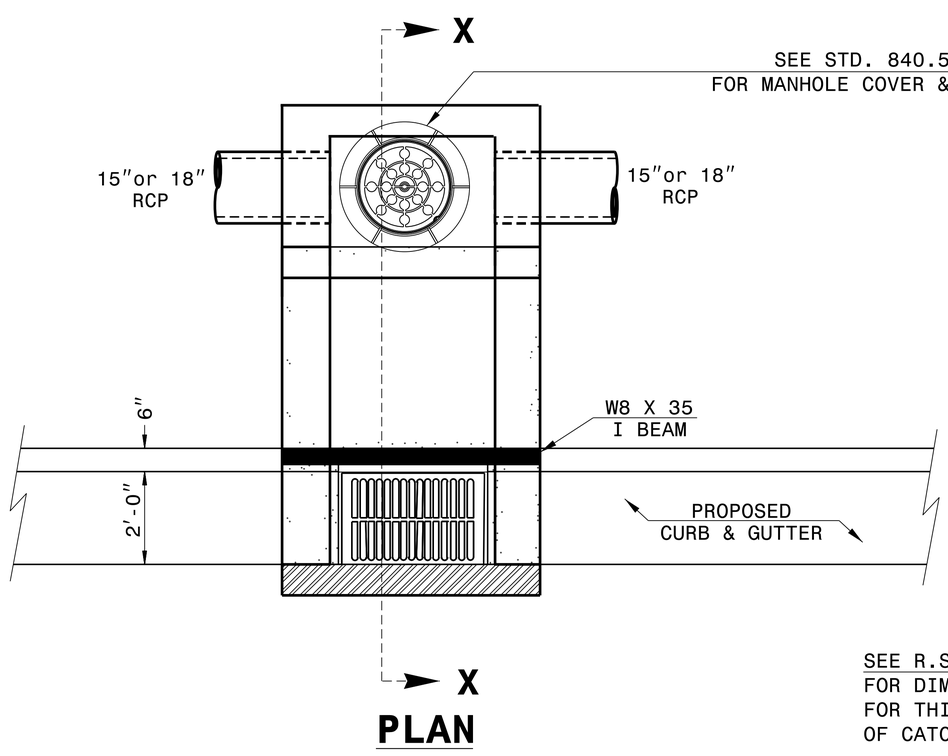
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

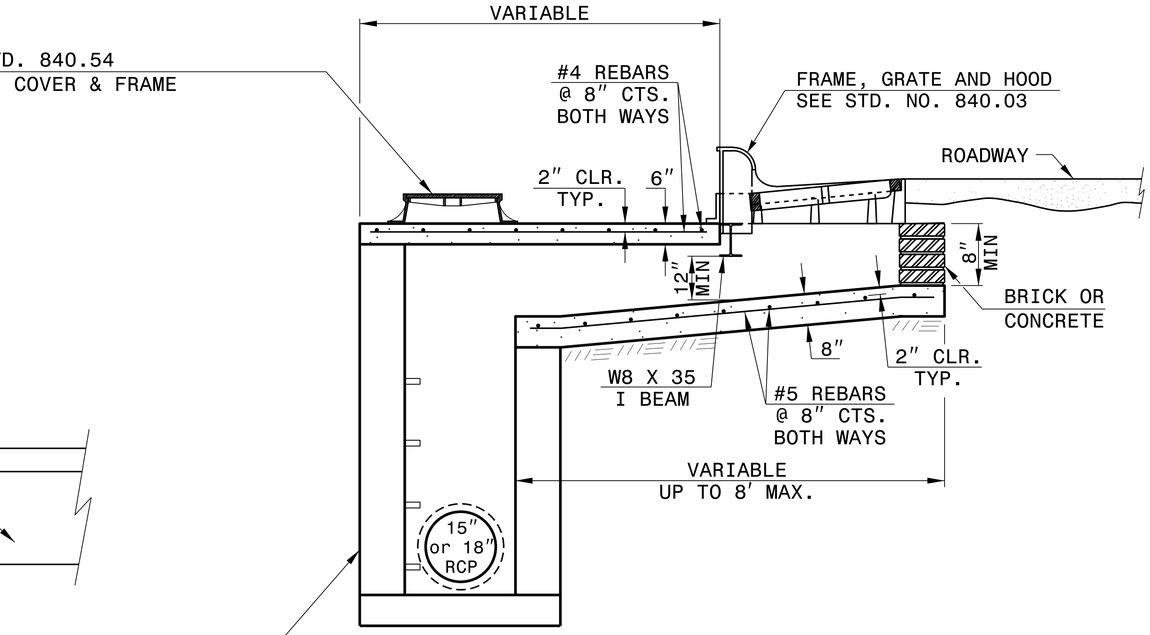
ORIGINAL BY: 2002 Std.840.01 DATE:
MODIFIED BY: E.E. WARD DATE: 3-1-02
CHECKED BY: DATE:
FILE SPEC.: s:Special Details/jhowerton/840d02.dgn

10-AUG-2017 10:11
S:\Contracts\Special Details\jhowerton\840d02 Min Depth CB.dgn
jhowerton
AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	2C-2



PLAN



SEE R.S.D. 840.02
FOR DIMENSIONS
FOR THIS PORTION
OF CATCH BASIN

SECTION X-X

NOTES:

MORTAR JOINTS ½" TO ¼" THICK.

USE CLASS "B" CONCRETE THROUGHOUT.

USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. HUCKLER

DocuSigned by: Nicole M. Huckler 5884323D34164C5... 3/12/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PROPOSED OFFSET CATCH BASIN

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: K. KEMPF DATE: 11/13/15
CHECKED BY: _____ DATE: _____
FILE SPEC.: nbritt/english/hydro/840d06 offset boxes.dgn

17-JUN-2019 13:42
S:\Contracts\Contracts\Special Details\nbritt\english\hydro\840d06 offset boxes.dgn
jhowerton AT CSD-292595

COMPUTED BY: DWG 4/8/2024	PROJECT NO.	SHEET NO.
CHECKED BY: IY 4/8/2024	HL-0127	3B-1

RD266404

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

CUBIC YARDS

Station to Station	Uncl. Exc. C.Y.	Embank. +% C.Y.	Borrow C.Y.	Waste C.Y.
W-5704B				
-L- 4+30.50 TO 23+18.00	1,445	319		1,126
-Y1A- 12+00.00 TO 18+50.00	379	509	130	
-Y1- 10+73.30 TO 20+60.00	395	571	176	
SUB TOTAL	2,219	1,399	306	1,126
WASTE IN LIEU OF BORROW			-306	-306
PROJECT W-5704A TOTAL	2,219			820
SAY	2,500			

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

GUARDRAIL SUMMARY

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

LINE	BEG. STA.	END STA.	LOC.	LENGTH (FT.)			WARRANT POINT		"N" DIST.	TOTAL	FLARE LENGTH		W		ANCHORS						IMP. ATTEN. TYPE 350			REMOVE EXISTING	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END	FROM E.O.L.	SHLDR WIDTH	APPR. END	TRAIL. END	APPR. END	TRAIL. END	CAT-1 GREU	GREU TL-2					EA	G	NG	GUARDRAIL	
W-5704B																									
-L-	4+30.50	7+73.98	RT																					350'	REMOVE TO WIDEN ROAD
-L-	4+30.50	7+93.00	RT	362.5'					10'	13.00'					1										REPLACE GUARDRAIL
-Y1A-, -L-	16+61.64	17+66.77	RT	362.5'	62.5'		17+36.64		2'-4'		50'		1'		1	1									FILL SLOPE WARRANT
			TOTALS	725'	62.5'										2	1									
		ESS DEDUCTIONS FOR ANCHOR																							
		CAT-1 2 @ 6.25 =		-12.5'																					
		GREU-TL-2 @ 25 =		-25.0'																					
		PROJECT TOTALS		687.5'	75'										2	1								350'	
5 ADDITIONAL GUARDRAIL POSTS			SAY	700.00'	75.00'																			350'	

COMPUTED BY: TDO	DATE: 12-21-18
CHECKED BY: AMH	DATE: 03-12-24

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	3D-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUB-REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	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
21+54 -L-	RT	0411		276.8	274.3														
		0411	0412		274.3	274.1													
21+54 -L-	RT	0412		277.1	274.1														
		0412	0408		274.1	273.6	X												
14+00 -L-	RT	0414		286.1	283.3														
		0414	0415		283.3	283.0			32								X	X	
14+23 -L-	RT	0415		288.2	283.0														
		0415	0418		283.0	281.6													
18+60 -Y1A-	RT	0418		286.8	281.6														
					281.6														
14+50 -Y1-	LT	1311		293.7	290.7														
		1311	1310		290.7	290.6			12								X	X	
14+50 -Y1-	LT	1310		295.1	290.6														
		1310	0427		290.6	289.0													
12+70 -Y1-	LT	0427		292.7	289.0														
		0427	0426		289.0	288.0													
12+00 -Y1-	LT	0426		291.8	288.0														
		0426	0421		288.0	286.8	X												
11+18 -Y1-	LT	0421		289.8	286.0														
		0421	0423		286.0	285.6													
11+11 -Y1-	RT	0423		291.0	285.6														
11+55 -Y1-	LT	0420		291.3	287.0														
		0420	0422		287.0	286.1			32								X	X	
11+19 -Y1-	LT	0422		290.6	286.1														
		0422	0421		286.1	286.0					12						X	X	
12+40 -Y1-	RT	0429		294.3	291.1														
		0429	0425		291.1	290.0													
12+00 -Y1-	RT	0425		293.2	290.0														
		0425	0428		290.0	288.5													
11+50 -Y1-	RT	0428		291.8	288.5														
		0428	0423		288.5	286.4													
17+00 -L-	LT	0430		287.6	284.6														
		0430	0432		284.6	283.3			20										
16+80 -L-	LT	0432		287.8	283.3														
		0432	0431		283.3	281.0			28										
SHEET TOTALS									124		12								

STRUCTURE NO. FROM	STRUCTURE NO. TO	C.S. PIPE 12"	15"	18"	24"	36"	42"	48"	R.C. PIPE (CLASS IV) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS V) 12"	15"	18"	24"	30"	36"	42"	48"
THICKNESS OR GAUGE		.064	.064	.064	.064	.079	.109	.109															
0411																							
0411	0412								12														
0412																							
0412	0408								24														
0414																							
0414	0415																						
0415																							
0415	0418								136														
0418																							
1311																							
1311	1310																						
1310																							
1310	0427								168														
0427																							
0427	0426								64														
0426																							
0426	0421								76														
0421																							
0421	0423																		48				
0423																							
0420																							
0420	0422																						
0422																							
0422	0421																						
0429																							
0429	0425								40														
0425																							
0425	0428								48														
0428																							
0428	0423								36														
0430																							
0430	0432																						
0432																							
0432	0431																						
SHEET TOTALS									604										48				

STRUCTURE NO. FROM	STRUCTURE NO. TO	*** R. C. PIPE (CLASS V)	*** R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	*** R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	LIN. *FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	MINIMUM DEPTH C.B. - SEE DETAIL SHEET 2C-1	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/2 GRATES STD. 840.29	T.B.D.I. STD. 840.35	OFFSET C.B. - SEE DETAIL SHEET 2C-2	T.B.J.B. w/SLAB LID 840.34	M.H. FRAME & COVER STD. 840.54	CONC. COLLARS CL. "B" C.Y. STD 840.72	CORR STEEL ELBOWS, NO. & SIZE	PIPE REMOVAL LIN.FT.	REMARKS
0411									1																		1					TIE TO EXISTING STORM DRAINAGE SYSTEM.
0411	0412																														8	REMOVE 8 LF EXISTING 15" RCP
0412									1															1	1							
0412	0408																															MINIMUM PIPE GRADE=0.6%
0414									1												1		1									
0414	0415																															
0415									1	0.2		1		1																		
0415	0418																														137	REMOVE 137 LF EXISTING 15" RCP
0418									1	0.2		1	1																			TIE TO EXISTING 15" RCP
1311									1												1		1									
1311	1310																															
1310									1			1		1																		
1310	0427																														56	REMOVE 56 LF EXISTING 18" RCP
0427									1			1		1																		
0427	0426																															
0426									1			1		1																		
0426	0421																															MINIMUM PIPE GRADE=0.4%
0421									1			1		1																		
0421	0423																														48	REMOVE 48 LF EXISTING 24" RCP
0423									1	0.4							1		1	1												TIE TO EXISTING 24" RCP
0420									1										1	1												TIE TO EXISTING 15" RCP
0420	0422																															
0422									1										1	1												
0422	0421																															
0429									1								1		1	1												
0429	0425																															
0425									1								1		1	1												
0425	0428																															
0428									1								1		1	1												
0428	0423																															
0430									1			1			1																	
0430	0432																															
0432									1			1			1																	
0432	0431																													2@15"		
SHEET TOTALS									18	0.8		8	1	5	2		4		6	6	2		2	1	1		1			2@15"	249	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

4/04/06

COMPUTED BY: TDO DATE: 12-21-18
CHECKED BY: AMH DATE: 03-12-24

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	3D-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUB–REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC)												C.S. PIPE							R.C. PIPE (CLASS IV)							R.C. PIPE (CLASS V)							
SIZE		FROM	TO					12″	15″	18″	24″	30″	36″	42″	48″	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	12″	15″	18″	24″	36″	42″	48″	15″	18″	24″	30″	36″	42″	48″	12″	15″	18″	24″	30″	36″	42″	48″
THICKNESS OR GAUGE																				.064	.064	.064	.064	.079	.109	.109															
6+42 –L–	RT	1102			278.9																																				
		1102	1103		278.9	275.0																					44														
15+85 –Y1A–	LT	1203		277.9	273.9																																				
		1203	1201		273.9	273.7			16								X	X																							
15+77 –Y1A–	LT	1201		277.2	273.4																																				
		1201	1202		273.4	269.6																						124													
14+65 –Y1A–	LT																																								
14+46 –Y1A–	LT	1202		273.3	269.6																																				
		1202	1206		269.6	269.3																															44				
14+39 –Y1A–	LT																																								
14+00 –Y1A–	LT	1206		273.2	269.3																																				
		1206	1207		269.3	267.2																															92				
13+15 –Y1A–	LT	1207		270.9	267.2																																				
		1207	1208		267.2	265.4																															68				
12+50 –Y1A–	LT	1208		268.49	265.4																																				
		1208	1209		265.4	265.3																															20				
20+10 –Y1–	RT	1302		307.0	304.3																																				
		1302	1303		304.3	300.0																														116					
18+83 –Y1–	RT	1303		304.5	300.0																																				
10+61 –L–	RT	1110			285.6	286.5																														64					
16+90 –L–	LT	0402			282.1																																				
		0402	0403		282.1	281.7																													28						
17+15 –L–	LT	0403		285.4	281.3																																				
		0403	0405		281.3	280.9																													12						
17+15 –L–	RT	0405		286.1	280.9																																				
19+25 –L–	CL	0409		282.9	279.4																																				
		0409	0406		279.4	279.0																													24						
19+47 –L–	CL	0406		282.5	279.0																																				
		0406	0407		279.0	274.5																													208						
21+53 –L–	CL	0407		277.3	274.5																																				
SHEET TOTALS									16																		44	124							272	180	224				
PROJECT TOTALS									140		12																648	124							272	180	272				

STATION	STRUCTURE NO.		**″ R. C. PIPE (CLASS V)	**″ R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**″ R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15″ SIDE DRAIN PIPE	18″ SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS.		QUANTITIES FOR DRAINAGE STRUCTURES	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT.		C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE			CONCRETE TRANSITIONAL SECTION		MINIMUM DEPTH C.B. – SEE DETAIL SHEET 2C–1	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/2 GRATES STD. 840.29	T.B.D.I. STD. 840.35	OFFSET C.B. – SEE DETAIL SHEET 2C–2	T.B.J.B. w/SLAB LID 840.34	M.H. FRAME & COVER STD. 840.54	CONC. COLLARS CL. "B" C.Y. STD 840.72	CORR. STEEL ELBOWS, NO. & SIZE	PIPE REMOVAL LIN.FT.	REMARKS
	FROM	TO						R.C.P.	C.S.P.	PER EACH (0' THRU 5.0')	A 5.0' THRU 10.0'	B 10.0' AND ABOVE		E	F	G	CATCH BASIN	DROP INLET															
6+42 –L–	1102																													0.399			
	1102	1103																														20	REMOVE 20 LF EXISTING 15″ RCP
15+85 –Y1A–	1203									1												1		1									
	1203	1201																															
15+77 –Y1A–	1201									1			1		1																		
	1201	1202																														96	REMOVE 96 LF EXISTING 15″ RCP
14+65 –Y1A–																																35	REMOVE 35 LF EXISTING 18″ RCP
14+46 –Y1A–	1202									1			1		1																		
	1202	1206																															
14+39 –Y1A–																																13	REMOVE 13 LF EXISTING 24″ RCP
14+00 –Y1A–	1206									1			1		1																		
	1206	1207																															
13+15 –Y1A–	1207									1			1		1																		
	1207	1208																															
12+50 –Y1A–	1208									1					1				1														
	1208	1209																															
20+10 –Y1–	1302									1						1			1													6	REMOVE 6 LF EXISTING 15″ RCP. TIE TO EXISTING STORM DRAINAGE SYSTEM.
	1302	1303																															
18+83 –Y1–	1303									1						1											1		1				ASSUMED INVERT ELEVATION (SEE PLAN NOTES). TIE TO EXISTING STORM DRAINAGE SYSTEM.
10+61 –L–	1110																															63	REMOVE 63 LF EXISTING 18″ RCP
16+90 –L–	0402																													0.399			COLLAR AND EXTEND EXISTING 15″ RCP
	0402	0403																														24	REMOVE EXISTING 15″ RCP
17+15 –L–	0403									1								1		1	1												REMOVE AND REPLACE EXISTING DI
	0403	0405																														10	REMOVE EXISTING 15″ RCP
17+15 –L–	0405									1								1		1	1												TIE TO EXISTING STORM DRAINAGE SYSTEM.
19+25 –L–	0409									1								1		1	1												
	0409	0406																															
19+47 –L–	0406									1								1		1	1												
	0406	0407																															
21+53 –L–	0407									1												1	1										REMOVE AND REPLACE EXISTING DI. TIE TO EXISTING STORM DRAINAGE SYSTEM.
SHEET TOTALS										13			4		5	2		4	2	4	4	2	1	1						0.798		267	
PROJECT TOTALS										31	0.8		12	1	10	4		8	2	10	10	4	1	3	1	1	1	1	1	0.798	2@15″	516	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

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

PROJ. REFERENCE NO.	SHEET NO.
HL-0127	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4A	SHOTWELL 70 PARTNERS, LLC & CONWAY CENTRE, LLC
2	4, 4A, 4B	M. CLAYTON REALTY ASSOCIATES, LLC
3	4, 4A, 4B	BALDIES RESTAURANT GROUP, LLC
4	4, 4B	PNC BANK NA
5	4	BARKER FAMILY PROPERTIES, LLLP
6	4C	TRI ARC FOOD SYSTEMS INC. 23
7	4, 4C	PECO TIRE STORE-CLAYTON, LLC
8	4	WELLS FARGO
9	4C	LA COCINA #3, INC.

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	4
R/W SHEET NO.	W-5704A&B 4

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036810 — Rajit Ramkumar 4/23/2024

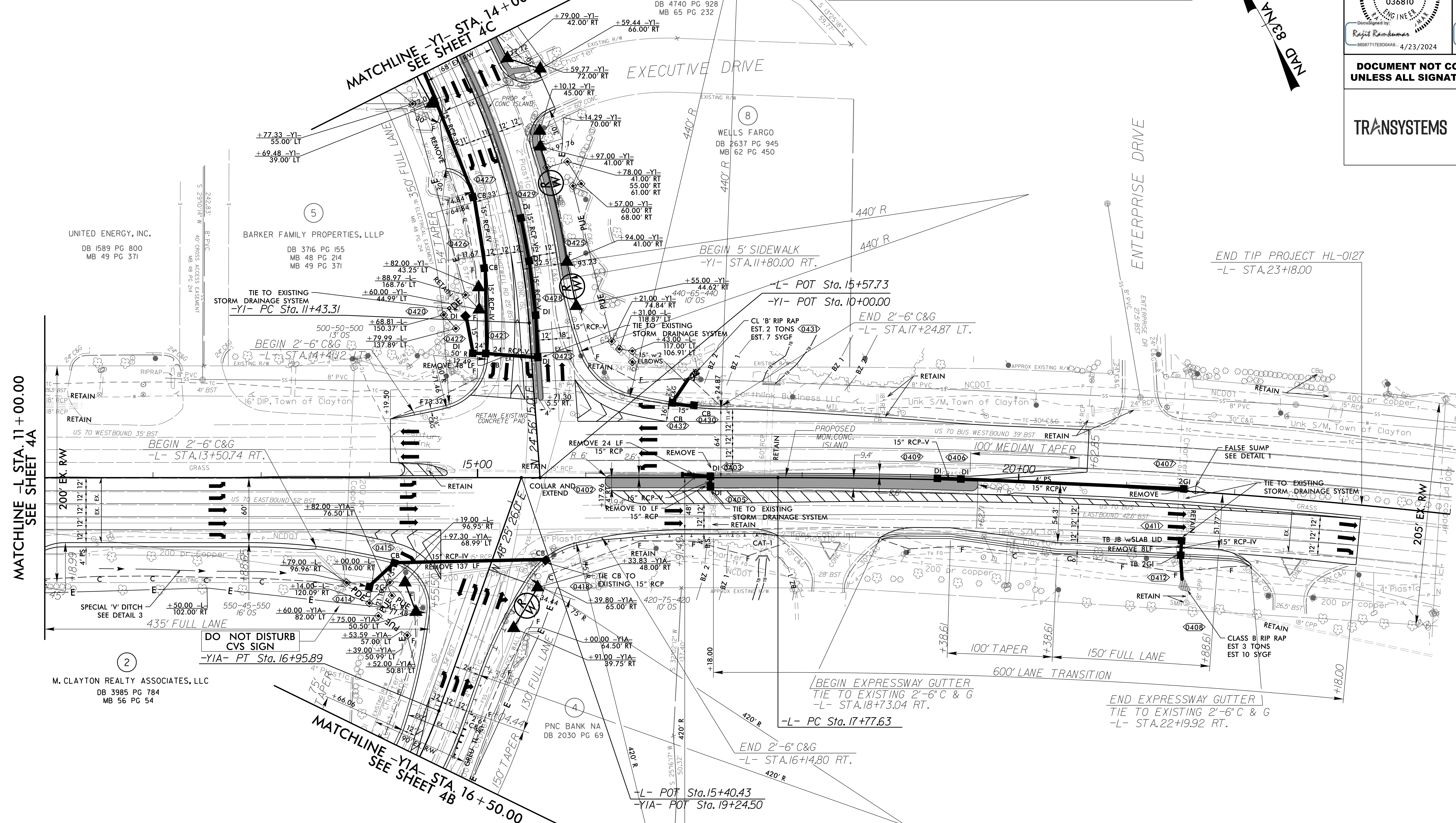
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35621 — Andrew M Howel 4/23/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

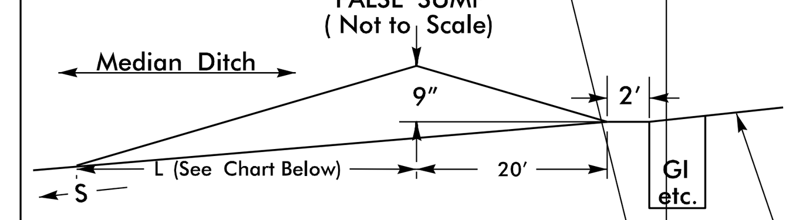
TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

-L-	-Y1-	-Y1A-
PI Sta 27+34.76	PI Sta 13+27.21	PI Sta 15+86.74
Δ = 18° 58' 02.4" (RT)	Δ = 31° 35' 40.3" (LT)	Δ = 32° 08' 16.6" (LT)
D = 1° 00' 00.0"	D = 8° 48' 53.0"	D = 14° 19' 26.2"
L = 1,896.73'	L = 358.43'	L = 224.37'
T = 957.12'	T = 183.90'	T = 115.22'
R = 5,729.58'	R = 650.00'	R = 400.00'
SE = EXIST.	SE = SEE PLANS	SE = EXIST.

NAD 83/NA 2011

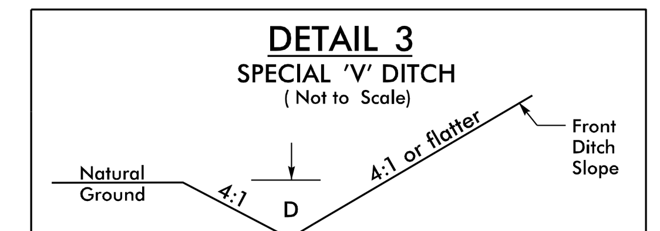


MATCHLINE -Y1- STA. 14+00.00 SEE SHEET 4C
MATCHLINE -L STA. 11+00.00 SEE SHEET 4A
MATCHLINE -Y1A- STA. 16+50.00 SEE SHEET 4B
PECO TIRE STORE-CLAYTON, LLC DB 4740 PG 928 MB 65 PG 232
EXECUTIVE DRIVE
WELLS FARGO DB 2637 PG 945 MB 62 PG 450
UNITED ENERGY, INC. DB 1589 PG 800 MB 49 PG 371
BARKER FAMILY PROPERTIES, LLLP DB 3716 PG 155 MB 48 PG 214 MB 49 PG 371
ENTERPRISE DRIVE
END TIP PROJECT HL-0127 -L- STA.23+18.00
BEGIN 5' SIDEWALK -Y1- STA.11+80.00 RT.
-L- POT Sta. 15+57.73
-Y1- POT Sta. 10+00.00
END 2'-6" C&G -L- STA.17+24.87 LT.
BEGIN 2'-6" C&G -L- STA.14+41.2 LT.
BEGIN 2'-6" C&G -L- STA.13+50.74 RT.
TIE TO EXISTING STORM DRAINAGE SYSTEM
-Y1- PC Sta. 11+43.31
CL 'B' RIP RAP EST. 2 TONS EST. 7 SYGF
PROPOSED MON.CONC. ISLAND
100' MEDIAN TAPER
FALSE SUMP SEE DETAIL 1
COLLAR AND EXTEND
TIE TO EXISTING STORM DRAINAGE SYSTEM
DO NOT DISTURB CVS SIGN
-Y1A- PT Sta. 16+95.89
SPECIAL 'V' DITCH SEE DETAIL 3
435' FULL LANE
M. CLAYTON REALTY ASSOCIATES, LLC DB 3985 PG 784 MB 56 PG 54
PNC BANK NA DB 2030 PG 69
CLASS B RIP RAP EST 3 TONS EST 10 SYGF
100' TAPER
150' FULL LANE
600' LANE TRANSITION
BEGIN EXPRESSWAY GUTTER TIE TO EXISTING 2'-6" C & G -L- STA.18+73.04 RT.
END EXPRESSWAY GUTTER TIE TO EXISTING 2'-6" C & G -L- STA.22+19.92 RT.
-L- PC Sta. 17+77.63
END 2'-6" C&G -L- STA.16+14.80 RT.
-L- POT Sta.15+40.43
-Y1A- POT Sta. 19+24.50
200' EX. RW
205' EX. RW



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

FROM STA. 21+57 TO STA. 21+97 -L- MED



FROM STA. 11+50 TO STA. 14+00 -L- RT

SEE SHEET 5 & 6 FOR -L- PROFILE
SEE SHEET 7 FOR -Y1A- & -Y1- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	4A
R/W SHEET NO.	W-5704B 4A

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036810	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35621
DocuSigned by: Rajit Ramkumar 4/23/2024	DocuSigned by: Andrew M Howel 4/23/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
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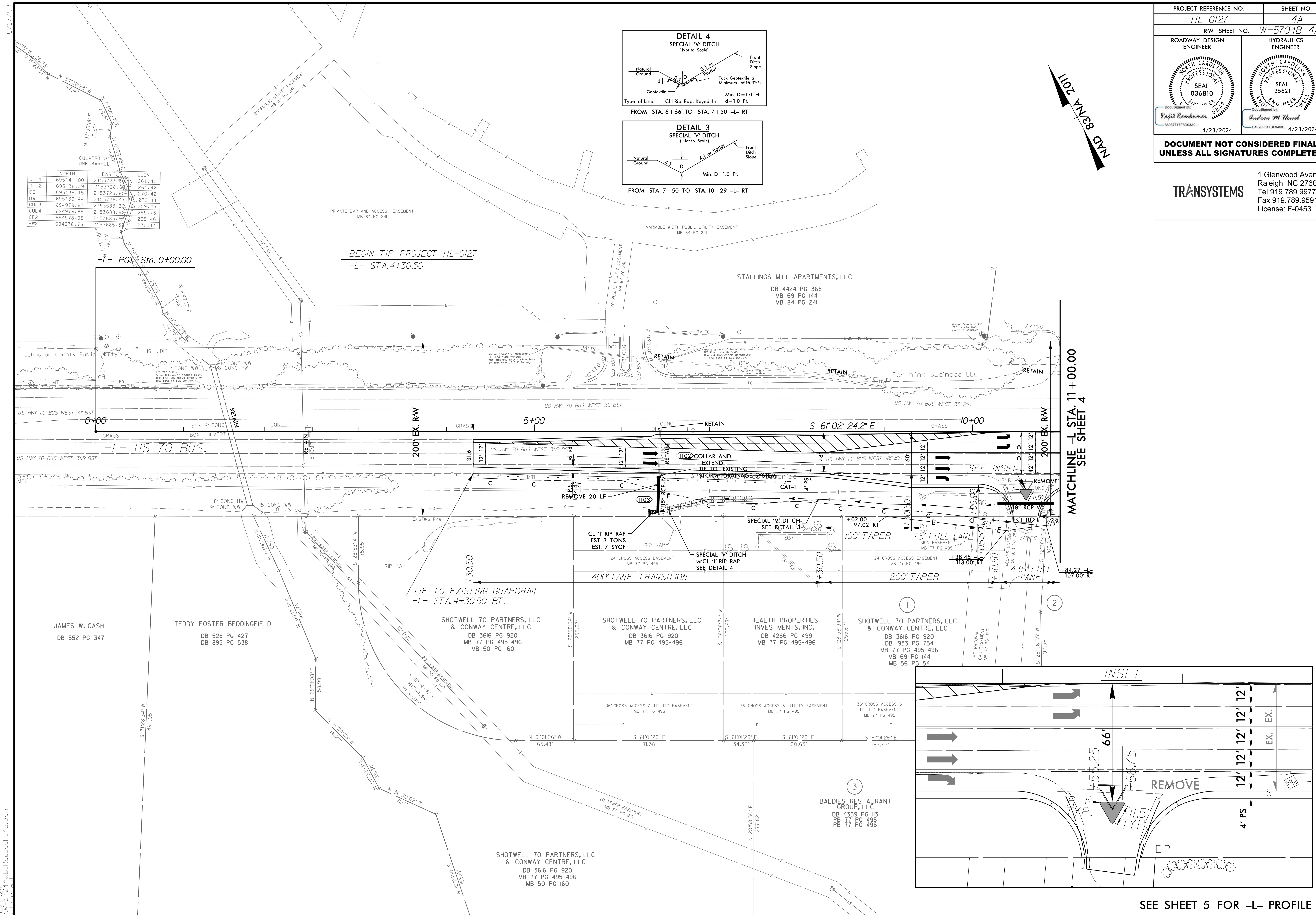
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

CULVERT #1
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	695141.00	2153723.80	261.40
CUL2	695138.39	2153728.68	261.42
CE1	695139.15	2153726.60	270.42
HW1	695139.44	2153726.47	272.11
CUL3	694979.87	2153683.32	259.45
CUL4	694976.85	2153688.80	259.45
CE2	694978.95	2153685.69	268.46
HW2	694978.76	2153685.52	270.14



SEE SHEET 5 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	4B
R/W SHEET NO.	W-5704B 4B

ROADWAY DESIGN ENGINEER — SEAL 036810 — Rajit Ramkumar — 4/23/2024

HYDRAULICS ENGINEER — SEAL 35621 — Andrew M Howel — 4/23/2024

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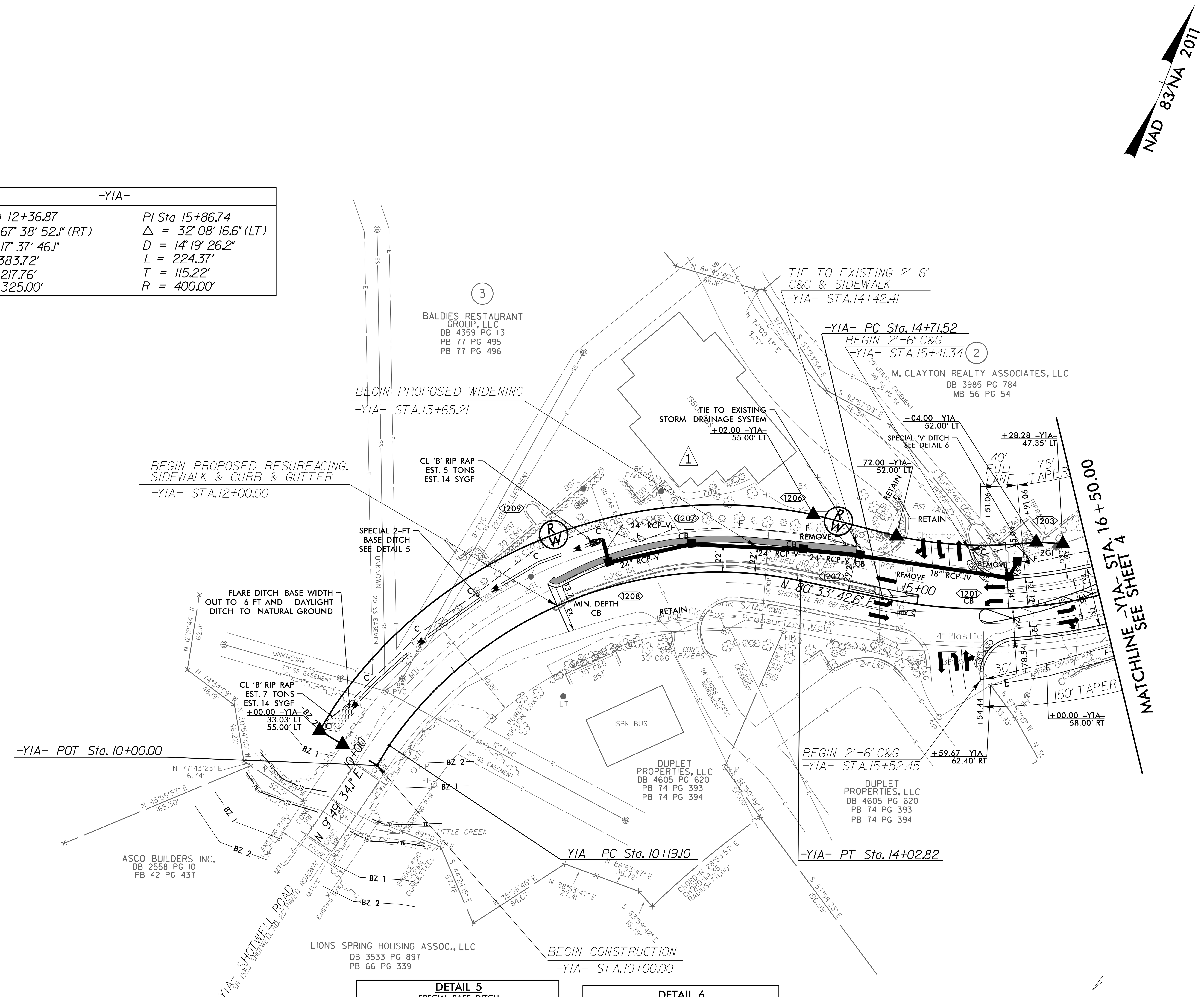
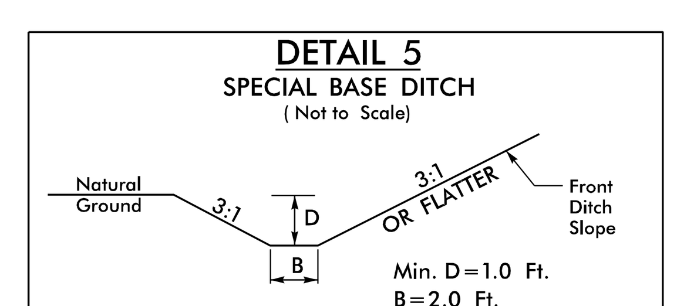
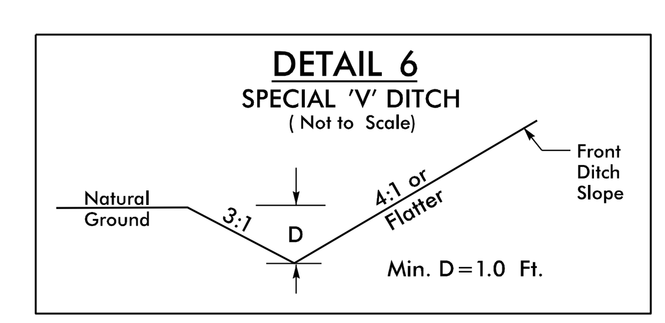
License: F-0453

-Y1A-	
PI Sta 12+36.87	PI Sta 15+86.74
Δ = 67° 38' 52.1" (RT)	Δ = 32° 08' 16.6" (LT)
D = 17° 37' 46.1"	D = 14° 19' 26.2"
L = 383.72'	L = 224.37'
T = 217.76'	T = 115.22'
R = 325.00'	R = 400.00'





FROM STA. 10+10 TO STA. 12+50 -Y1A- LT



FROM STA. 15+85 TO STA. 16+00 -Y1A- LT

SEE SHEET 7 FOR -Y1A- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	4C
R/W SHEET NO.	W-5704B 4C

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036810 — Rajit Ramkumar — 4/23/2024

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35621 — Andrew M Howel — 4/23/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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1 Glenwood Avenue
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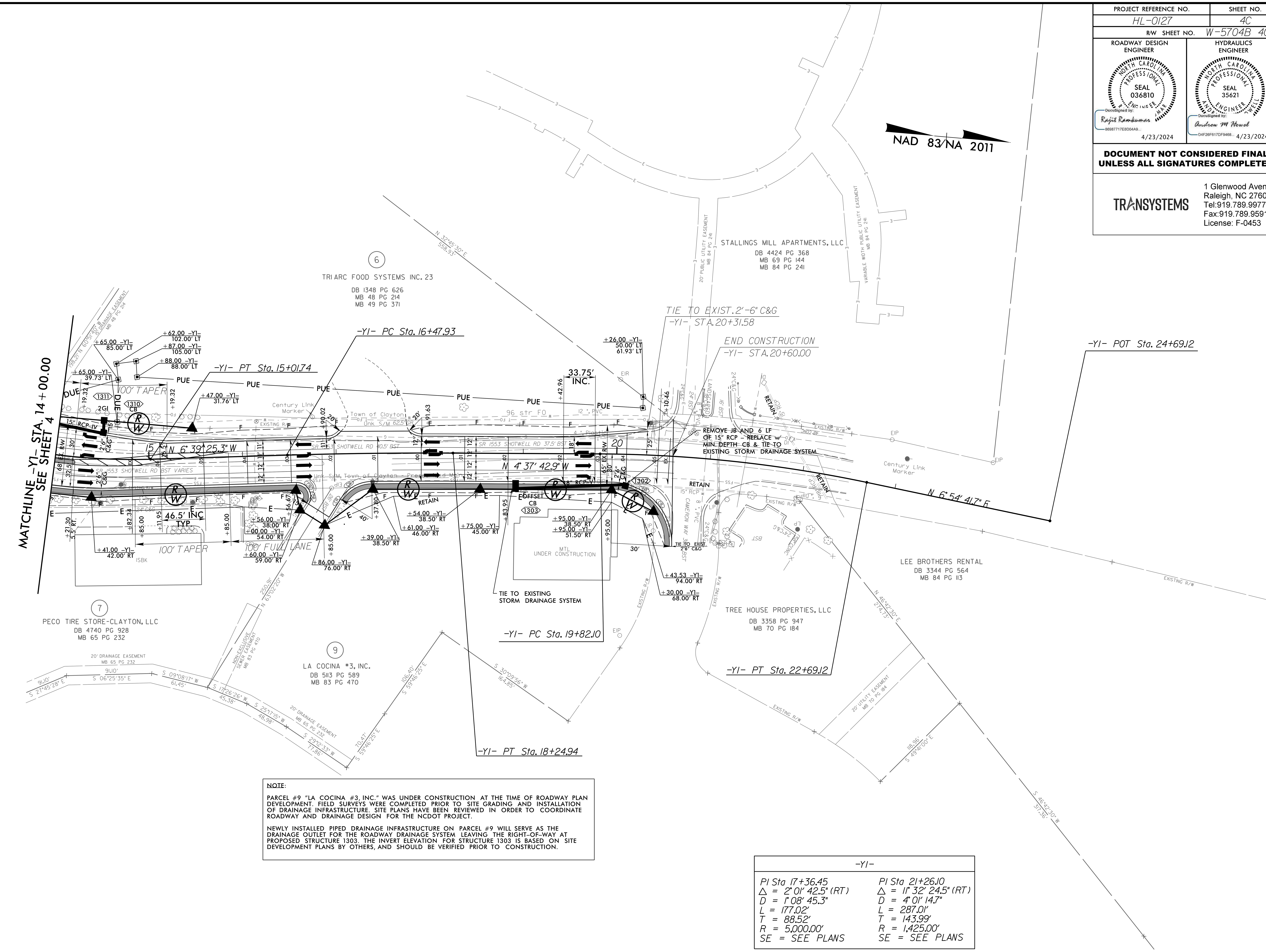
Fax:919.789.9591
License: F-0453



NOTE:

PARCEL #9 "LA COCINA #3, INC." WAS UNDER CONSTRUCTION AT THE TIME OF ROADWAY PLAN DEVELOPMENT. FIELD SURVEYS WERE COMPLETED PRIOR TO SITE GRADING AND INSTALLATION OF DRAINAGE INFRASTRUCTURE. SITE PLANS HAVE BEEN REVIEWED IN ORDER TO COORDINATE ROADWAY AND DRAINAGE DESIGN FOR THE NCDOT PROJECT.

NEWLY INSTALLED PIPED DRAINAGE INFRASTRUCTURE ON PARCEL #9 WILL SERVE AS THE DRAINAGE OUTLET FOR THE ROADWAY DRAINAGE SYSTEM LEAVING THE RIGHT-OF-WAY AT PROPOSED STRUCTURE 1303. THE INVERT ELEVATION FOR STRUCTURE 1303 IS BASED ON SITE DEVELOPMENT PLANS BY OTHERS, AND SHOULD BE VERIFIED PRIOR TO CONSTRUCTION.

-Y1-	
PI Sta 17+36.45	PI Sta 21+26.10
Δ = 2° 01' 42.5" (RT)	Δ = 11° 32' 24.5" (RT)
D = 1° 08' 45.3"	D = 4° 01' 14.7"
L = 177.02'	L = 287.01'
T = 88.52'	T = 143.99'
R = 5,000.00'	R = 1,425.00'
SE = SEE PLANS	SE = SEE PLANS

SEE SHEET 7 FOR -Y1- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	5

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 036810 ENGINEER DocuSigned by: Rajit Ramkumar 86987717E8D04A9... 6/7/2024	NORTH CAROLINA PROFESSIONAL SEAL 35621 ENGINEER DocuSigned by: Andrew M Howell D4F26F617DF9468... 6/7/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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1 Glenwood Avenue
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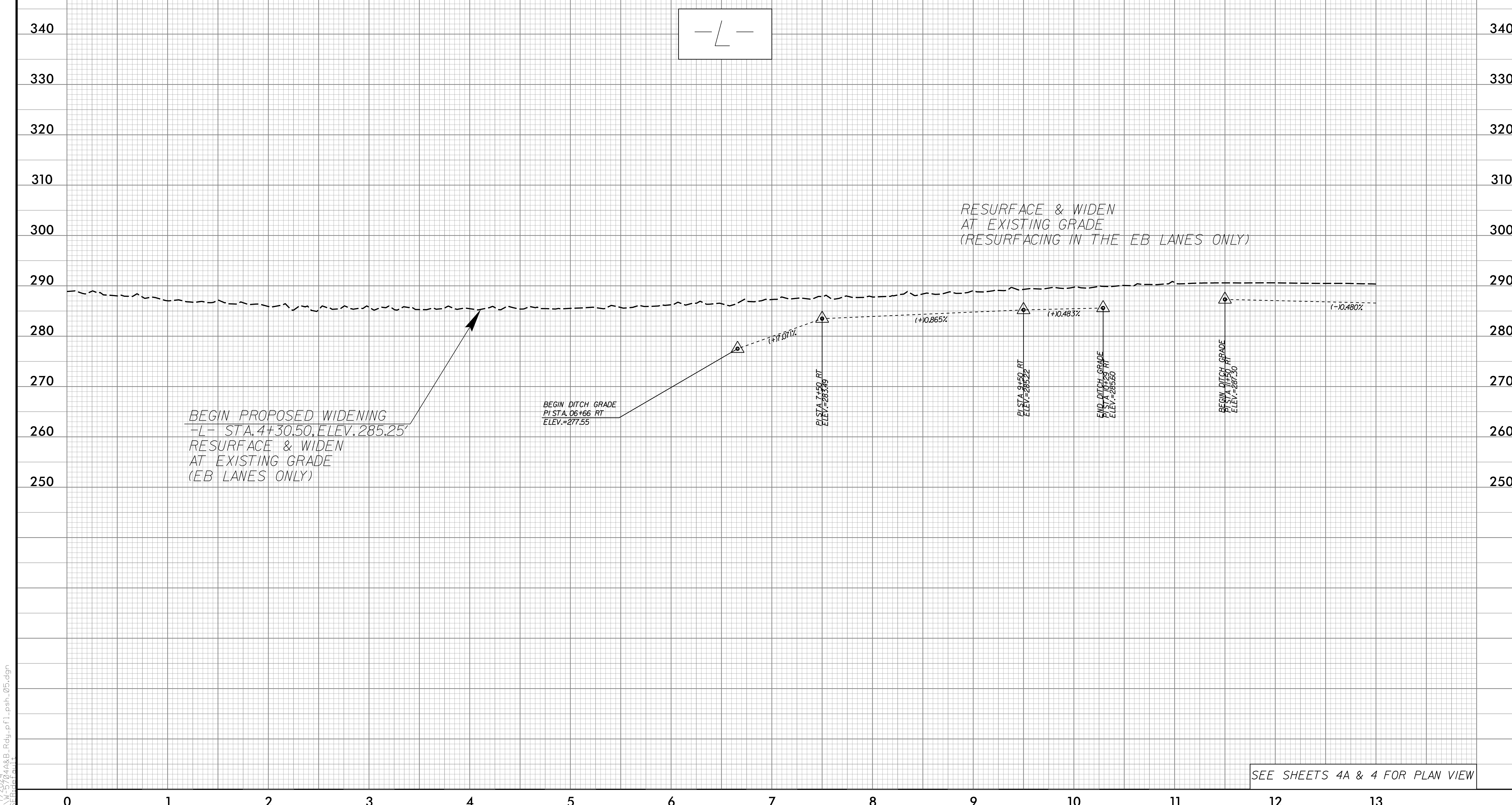
Fax:919.789.9591
License: F-0453



SEE SHEETS 4A & 4 FOR PLAN VIEW

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	6

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036810

DocuSigned by: Rajit Ramkumar 86987717E8D04A9... 6/7/2024

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35621

DocuSigned by: Andrew M Howell D4F26F617DF9468... 6/7/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

-L-

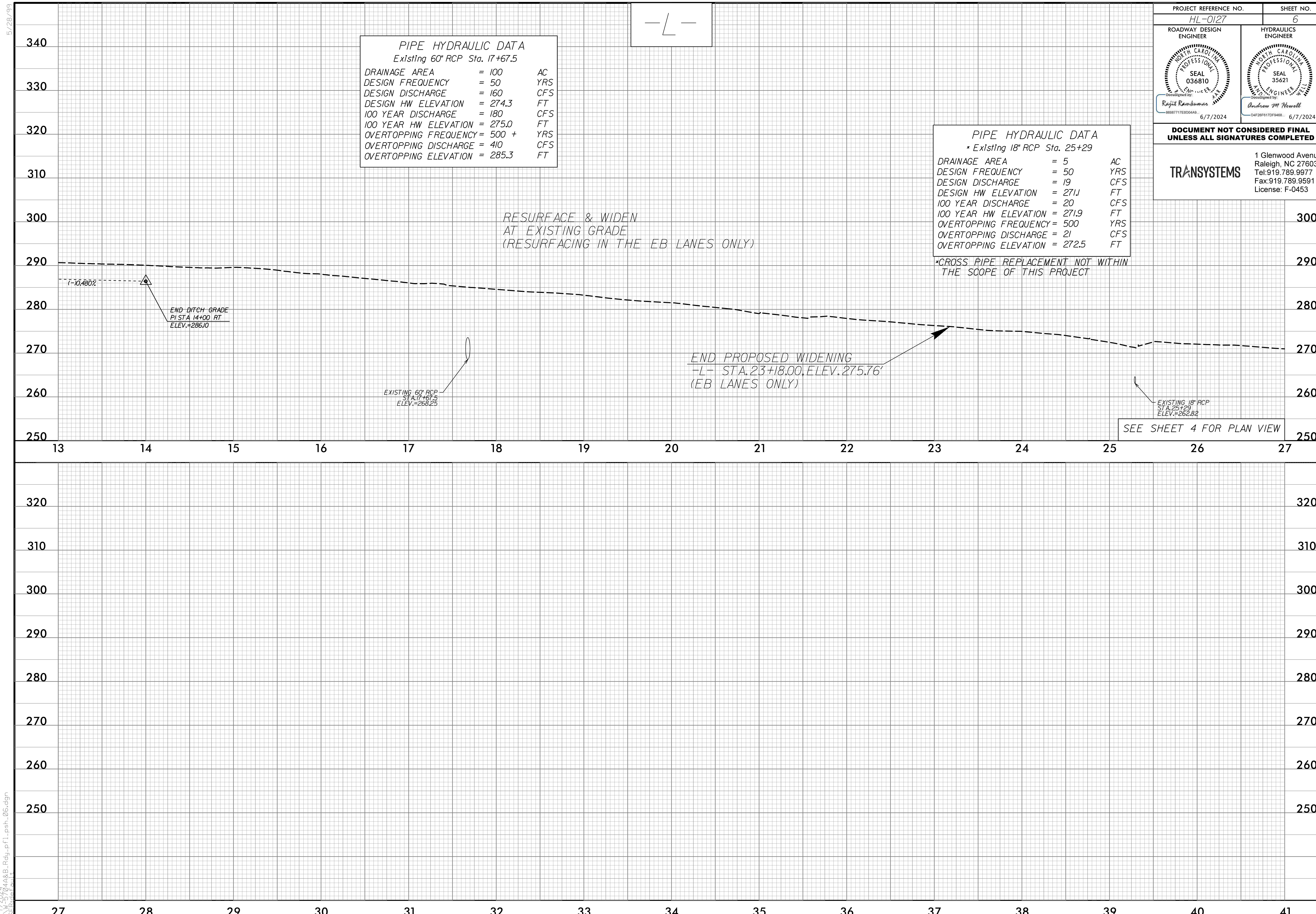
PIPE HYDRAULIC DATA
Existing 60" RCP Sta. 17+67.5

DRAINAGE AREA	= 100	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 160	CFS
DESIGN HW ELEVATION	= 274.3	FT
100 YEAR DISCHARGE	= 180	CFS
100 YEAR HW ELEVATION	= 275.0	FT
OVERTOPPING FREQUENCY	= 500 +	YRS
OVERTOPPING DISCHARGE	= 410	CFS
OVERTOPPING ELEVATION	= 285.3	FT

PIPE HYDRAULIC DATA
* Existing 18" RCP Sta. 25+29

DRAINAGE AREA	= 5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 19	CFS
DESIGN HW ELEVATION	= 271.1	FT
100 YEAR DISCHARGE	= 20	CFS
100 YEAR HW ELEVATION	= 271.9	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 21	CFS
OVERTOPPING ELEVATION	= 272.5	FT

*CROSS PIPE REPLACEMENT NOT WITHIN THE SCOPE OF THIS PROJECT



SEE SHEET 4 FOR PLAN VIEW

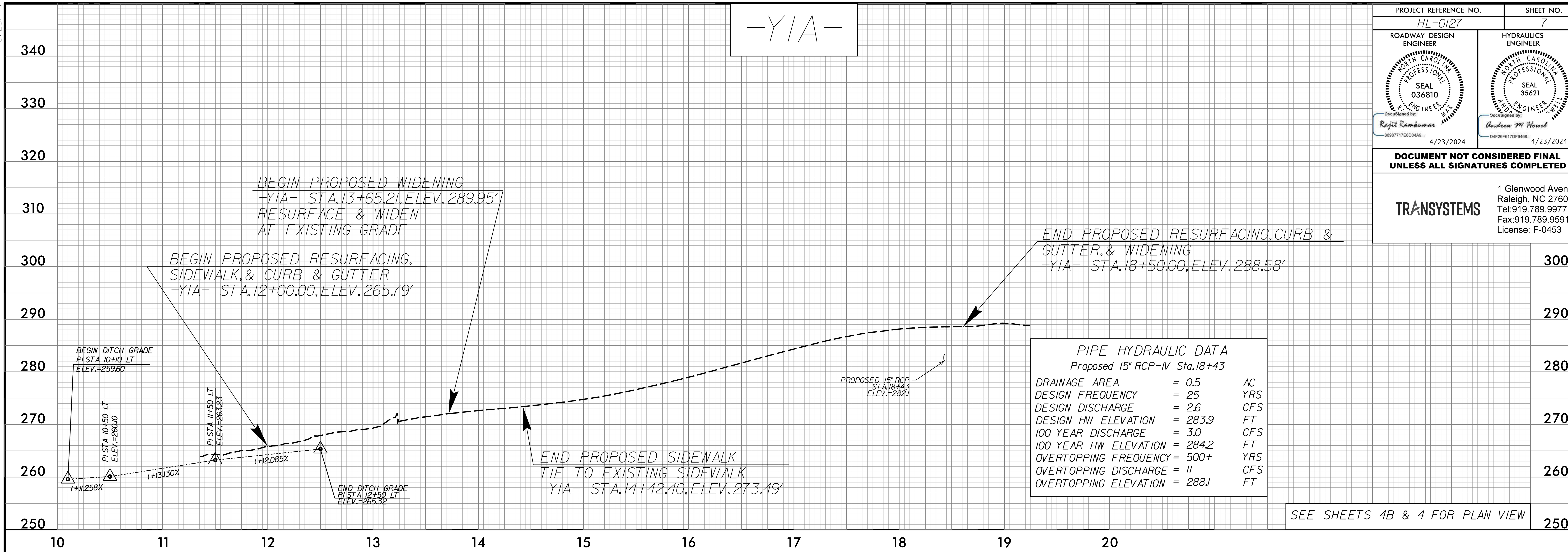
PROJECT REFERENCE NO.	SHEET NO.
HL-0127	7

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036810 — DocuSigned by: Rajit Ramkumar — 86987717E8D04A9... — 4/23/2024

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35621 — DocuSigned by: Andrew M Howel — D4F26F617DF9468... — 4/23/2024

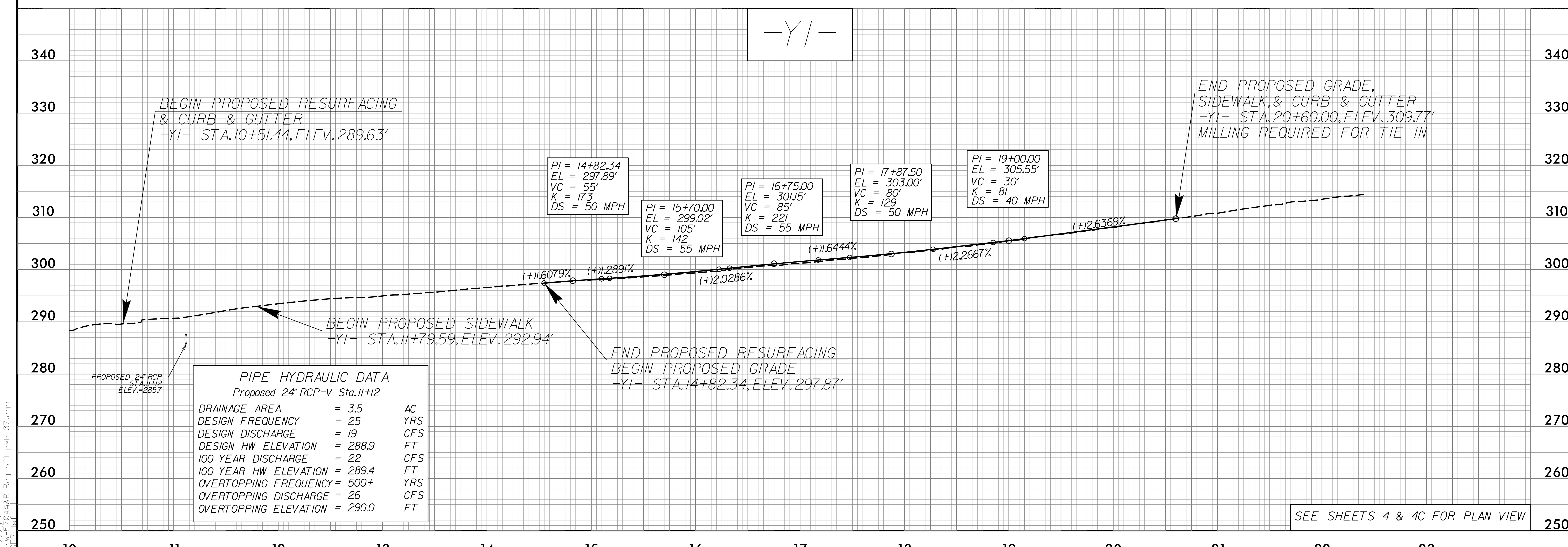
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453



PIPE HYDRAULIC DATA
Proposed 15" RCP-IV Sta.18+43

DRAINAGE AREA	= 0.5	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 2.6	CFS
DESIGN HW ELEVATION	= 283.9	FT
100 YEAR DISCHARGE	= 3.0	CFS
100 YEAR HW ELEVATION	= 284.2	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 11	CFS
OVERTOPPING ELEVATION	= 288.1	FT



PIPE HYDRAULIC DATA
Proposed 24" RCP-V Sta.11+12

DRAINAGE AREA	= 3.5	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 19	CFS
DESIGN HW ELEVATION	= 288.9	FT
100 YEAR DISCHARGE	= 22	CFS
100 YEAR HW ELEVATION	= 289.4	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 26	CFS
OVERTOPPING ELEVATION	= 290.0	FT

5/28/99
3/12/2024
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USER:default

09/08/99

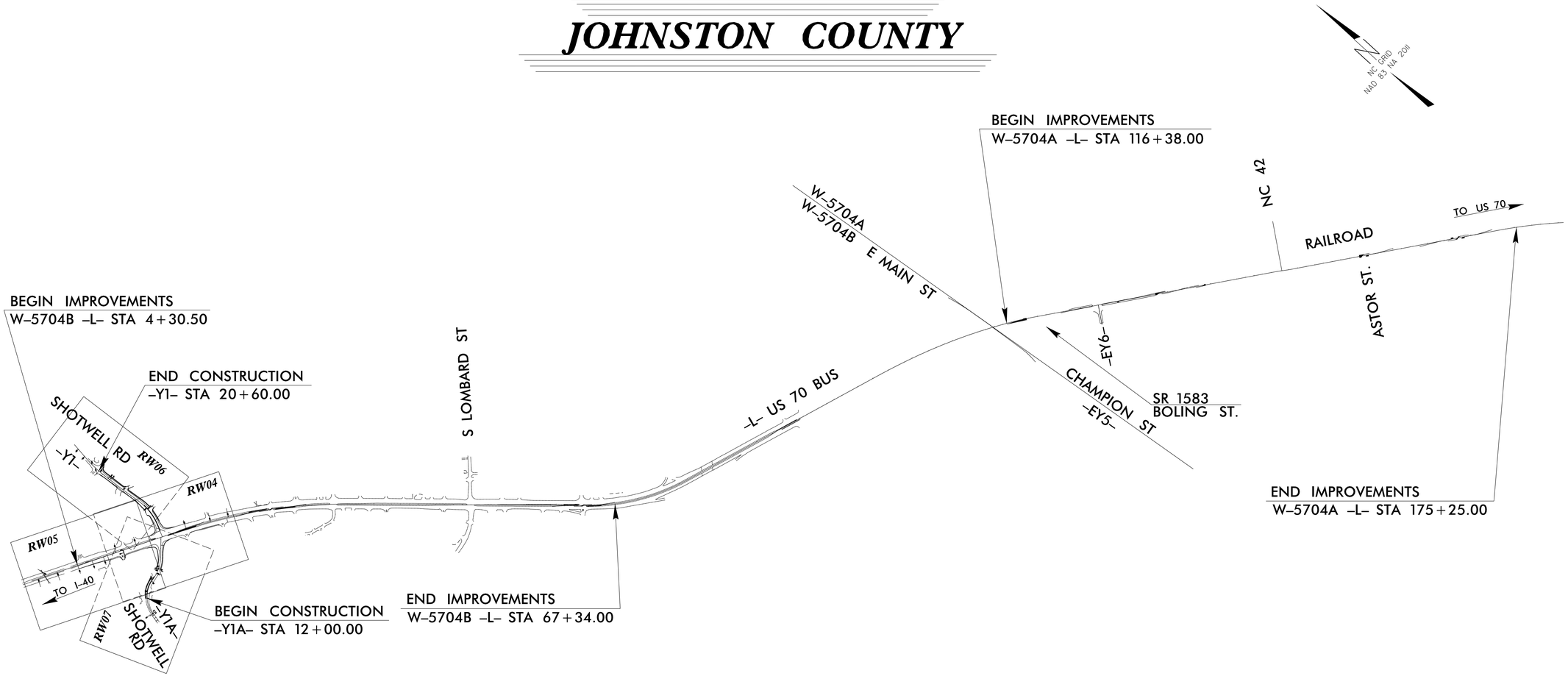
TIP PROJECT: HL–0127

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HL-0127	RW01	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

JOHNSTON 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 NCGS FOR MONUMENT "W5704A-4" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 689,572.893(ft) EASTING: 2,161,708.733(ft) ELEVATION: 324.246(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988687
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "W5704A-4" TO -L- STATION 0+00.00 IS N 55-37'44.97" W 9,856.847(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

JoynerKeeny, PLLC
1051 N. Winstead Avenue
Rocky Mount, NC 27804
252–977–3124
North Carolina Firm Number P–0551

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: ***LETTING DATE:***

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-3259 STEPHEN R. WOLF

DocuSigned by: Stephen Wolf 30B6875F3940446...

29 January 2024

SIGNATURE: ***Date:***

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

29-JAN-2024 12:13
\\jka-srv01\shared\CAD\2018\80082C_NCDOT_W5704B_ROW staking_Johnston\DGN\HL-0127(w5704b) REVISION REQUEST\HL-0127_ls_rw01.dgn
jmdiffnews AT JKA-042

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	RW02C-1

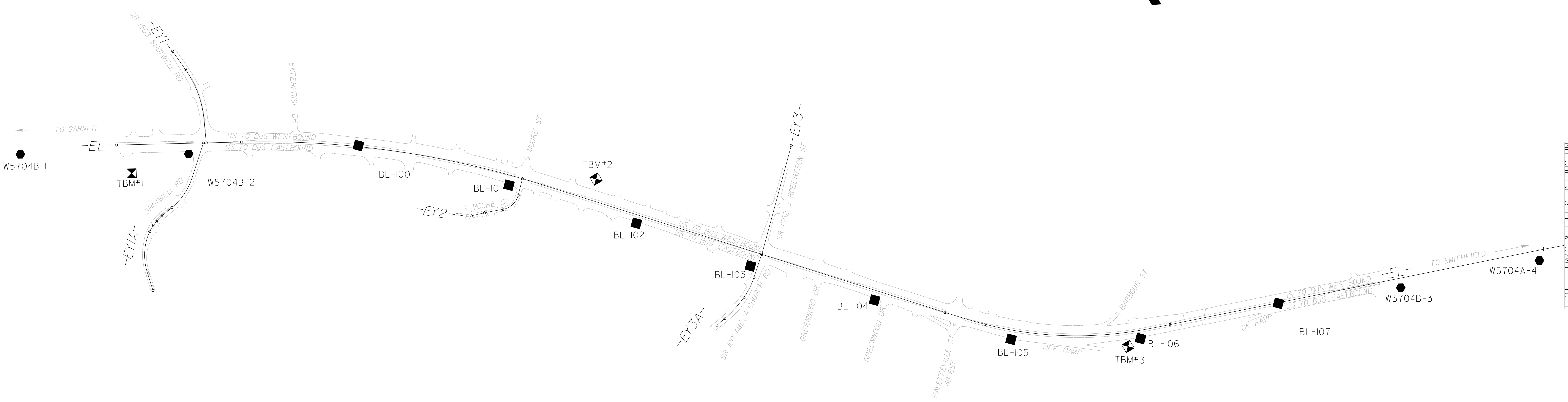
Location and Surveys

PROJECT SURVEYOR

SURVEY CONTROL SHEET HL–0127

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

SEE SHEET RW02C–3 FOR FUTHER ALIGNMENT DETAILS



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. NOTE: DRAWING NOT TO SCALE

6/2/99

29-JAN-2024 12:25
\\jka-srv01\shared\CAD\2018\180082C_NCDOT_W5704B_ROW staking_Johnston\DGN\HL-0127(w5704b)REVISION REQUEST\HL-0127_ls_rw02c-1.dgn
matthews AT JKA-042

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	RW02C-2

Location and Surveys

PROJECT SURVEYOR

SURVEY CONTROL SHEET HL–0127

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION
1	W5704B-1	694904.6232	2153904.3110	285.57
2	W5704B-2	694379.5330	2154807.5990	288.75
100	BL-100	693891.6345	2155742.4922	273.37
101	BL-101	693207.3621	2156424.6293	263.24
102	BL-102	692603.5960	2156987.6256	263.79
103	BL-103	692017.1447	2157465.0346	262.50
104	BL-104	691445.2714	2158022.7891	263.48
105	BL-105	690807.3685	2158631.1374	270.11
106	BL-106	690405.6063	2159327.1348	282.18
107	BL-107	690161.9456	2160176.0502	282.13
3	W5704B-3	689862.3680	2160880.9750	293.45

BENCHMARK DATA

BM1 ELEVATION = 287.12
N 694468 E 2154424
YELLOW BENCH TIE IN 12IN MAPLE

BM2 ELEVATION = 267.63
N 692967 E 2156910
YELLOW BENCH TIE IN 8IN OAK

BM3 ELEVATION = 275.41
N 690403 E 2159235
YELLOW BENCH TIE IN 7IN CHERRY

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.
HL-0127	RW02C-3
Location and Surveys	

PROJECT SURVEYOR

SURVEY CONTROL SHEET HL-0127

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

ALIGNMENT DATA

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R	DELTA S	Ls	LT	ST
POT	694653.349	2154447.841											
LINE			S 61°02'24.2" E	777.63									
PC	694276.820	2155128.237											
CURVE			S 51°33'23.0" E	1888.08	18°58'02.4"(RT)	01°00'00.0"	1896.73	957.12	5729.58				
PT	693102.915	2156607.023											
LINE			S 42°04'21.8" E	2618.93									
TS	691158.893	2158361.901											
SPIRAL			S 43°09'21.7" E	259.96						03°15'00.0"(LT)	260.00	173.36	86.69
SC	690969.252	2158539.712											
CURVE			S 56°33'55.9" E	893.66	22°29'08.2"(LT)	02°30'00.0"	899.42	455.57	2291.83				
CS	690476.858	2159285.490											
SPIRAL			S 69°58'30.1" E	259.96						03°15'00.0"(LT)	260.00	173.36	86.69
ST	690387.839	2159529.736											
LINE			S 71°03'30.0" E	2341.46									
PC	689627.788	2161744.408											
CURVE			S 69°27'13.0" E	448.07	03°12'34.1"(RT)	00°42'58.3"	448.13	224.12	8000.00				
PT	689470.532	2162163.972											
LINE			S 67°50'55.9" E	0.82									
PC	689470.222	2162164.734											
CURVE			S 62°24'23.8" E	1195.02	10°53'04.3"(RT)	00°54'34.0"	1196.82	600.21	6300.00				
PT	688916.697	2163223.826											
LINE			S 56°57'51.6" E	3.10									
PC	688915.008	2163226.423											
CURVE			S 54°59'56.3" E	233.21	03°55'50.6"(RT)	01°41'06.6"	233.25	116.67	3400.00				
PT	688781.242	2163417.454											
LINE			S 53°02'01.0" E	2795.10									
PC	687100.418	2165650.708											
CURVE			S 51°30'29.5" E	103.82	03°03'03.0"(RT)	02°56'17.7"	103.83	51.93	1950.00				
PT	687035.800	2165731.967											
LINE			S 49°58'58.0" E	4.42									
PC	687032.960	2165735.350											
CURVE			S 51°31'34.1" E	105.04	03°05'12.1"(LT)	02°56'17.7"	105.05	52.54	1950.00				
PT	686967.609	2165817.584											
LINE			S 53°04'10.1" E	2356.54									
PC	685551.691	2167701.319											
CURVE			S 50°48'55.7" E	450.68	04°30'28.8"(RT)	01°00'00.0"	450.80	225.52	5729.58				
PT	685266.939	2168050.652											
LINE			S 48°33'41.3" E	3.25									
POT	685264.789	2168053.088											

EY1

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	694979.290	2155042.666							
LINE			S 04°56'48.2" E	136.44					
PC	694843.355	2155054.432							
CURVE			S 09°59'43.4" W	335.20	29°53'03.2"(RT)	08°48'53.0"	339.03	173.46	650.00
PT	694513.247	2154996.252							
LINE			S 24°56'15.0" W	143.31					
POT	694383.298	2154935.829							

EY1A

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	694391.674	2154920.694							
LINE			S 48°25'26.0" W	228.61					
PC	694239.963	2154749.674							
CURVE			S 64°29'34.3" W	221.44	32°08'16.6"(RT)	14°19'26.2"	224.37	115.22	400.00
PT	694144.608	2154549.821							
LINE			S 80°33'42.6" W	74.55					
PC	694132.383	2154476.280							
CURVE			S 74°40'33.8" W	57.43	11°46'17.5"(LT)	20°27'46.0"	57.53	28.86	280.00
PT	694117.206	2154420.896							
LINE			S 68°47'25.1" W	26.02					
PC	694107.793	2154396.639							
CURVE			S 61°57'37.8" W	46.39	13°39'34.7"(LT)	29°22'36.7"	46.50	23.36	195.04
PCC	694085.987	2154355.696							
CURVE			S 34°00'03.5" W	252.34	42°15'33.9"(LT)	16°22'12.8"	258.15	135.26	350.00
PT	693876.793	2154214.587							
LINE			S 12°52'16.5" W	120.00					
POT	693759.808	2154187.856							

EY2

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	693200.016	2156517.315							
LINE			S 44°43'43.0" W	105.16					
PC	693125.303	2156443.306							
CURVE			S 77°20'11.9" W	129.33	65°12'57.8"(RT)	47°44'47.3"	136.59	76.77	120.00
PT	693096.950	2156317.119							
LINE			N 70°03'19.2" W	95.60					
PC	693129.561	2156227.252							
CURVE			N 71°21'11.2" W	20.38	02°35'43.9"(LT)	12°43'56.6"	20.39	10.19	450.00
PT	693136.078	2156207.938							
LINE			N 72°39'03.1" W	84.76					
PC	693161.355	2156127.030							
CURVE			N 61°40'28.7" W	38.08	21°57'08.7"(RT)	57°17'44.8"	38.31	19.39	100.00
PT	693179.423	2156093.509							
LINE			N 50°41'54.4" W	51.21					
POT	693211.862	2156053.878							

EY3A

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	692045.232	2157561.798							
LINE			S 48°36'40.0" W	150.34					
PC	691945.836	2157449.011							
CURVE			S 56°57'55.1" W	138.03	16°42'30.2"(RT)	12°03'44.2"	138.52	69.75	475.00
PT	691870.590	2157333.297							
LINE			S 65°19'10.2" W	0.39					
PC	691870.426	2157332.940							
CURVE			S 72°25'30.2" W	176.89	14°12'40.0"(RT)	08°00'48.2"	177.34	89.13	715.00
PT	691817.014	2157164.309							
LINE			S 79°31'50.2" W	65.07					
POT	691805.191	2157100.323							

EY3

POINT	N	E	BEARING	DIST
POT	692426.389	2157951.334		
LINE			S 45°27'35.0" W	545.06
POT	692044.079	2157562.839		

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.
HL-0127	RW02D-1

Location and Surveys

JoynerKeeny, PLLC
1051 N. Winstead Avenue
Rocky Mount, NC 27804
252-977-3124
North Carolina Firm Number P-0551

PROPOSED ALIGNMENT CONTROL SHEET

L

TYPE	STATION	NORTH	EAST
POT	0+00.00	695137.5467	2153572.8827
PC	17+77.63	694276.8204	2155128.2370
PT	36+74.37	693102.9152	2156607.0229
TS	62+93.30	691158.8926	2158361.9013
SC	65+53.30	690969.2514	2158539.7126
CS	74+52.74	690476.8541	2159285.4990
ST	77+12.72	690387.8423	2159529.7267
PC	100+54.19	689627.7876	2161744.4080
PT	105+02.31	689470.5315	2162163.9723
PC	105+03.14	689470.2215	2162164.7338
PT	116+99.95	688916.6968	2163223.8264
PC	117+03.05	688915.0080	2163226.4233
PT	119+36.30	688781.2419	2163417.4539
PC	147+31.41	687100.4176	2165650.7081
PT	148+35.24	687035.8000	2165731.9675
PC	148+39.65	687032.9604	2165735.3495
PT	149+44.71	686967.6092	2165817.5842
PC	173+01.25	685551.6911	2167701.3191
PT	180+11.95	685090.5727	2168241.5240
POT	180+61.95	685055.8162	2168277.4683

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	694383.2984	2154935.8286
PC	11+43.31	694513.2469	2154996.2521
PT	15+01.74	694862.6579	2155052.4704
PC	16+47.93	695007.8620	2155035.5232
PT	18+24.94	695184.0117	2155018.1187
PC	19+82.10	695340.6590	2155005.4365
PT	22+69.12	695627.1315	2155011.1447
POT	24+69.12	695825.6781	2155035.2121

Y1A

TYPE	STATION	NORTH	EAST
POT	10+00.00	693866.5516	2154215.3081
PC	10+19.10	693885.3756	2154218.5684
PT	14+02.82	694133.3423	2154482.0535
PC	14+71.52	694144.6076	2154549.8213
PT	16+95.89	694239.9629	2154749.6737
POT	19+24.50	694391.6740	2154920.6936

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.

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	RW03E-1

JoynerKeeny, PLLC
1051 N. Winstead Avenue
Rocky Mount, NC 27804
252-977-3124
North Carolina Firm Number P-0551

RIGHT OF WAY CONTROL SHEET

I, Stephen R. Wolfe, 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 29th day of January, 2024.

DocuSigned by:
Stephen Wolfe
30B6875F3940446...

----------------------------- L-3259
Professional Land Surveyor PLS # Seal

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3259 LAND SURVEYOR STEPHEN R. WOLFE

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	11+55.00	44.62	694505.8085	2155041.8780
Y1	11+60.00	-44.99	694546.3844	2154961.8274
Y1	11+82.00	-43.25	694564.6656	2154971.2771
Y1	11+94.00	41.00	694545.6599	2155054.2230
Y1	12+97.00	41.00	694650.8419	2155084.2438
Y1	13+10.12	45.00	694663.8276	2155090.7953
Y1	13+59.44	66.00	694713.8836	2155119.0762
Y1	13+69.48	-39.00	694734.0411	2155015.5260
Y1	13+79.00	42.00	694737.0828	2155097.0278
Y1	14+41.00	42.00	694803.0434	2155098.6738
Y1	15+47.00	-31.76	694903.9328	2155015.6780
Y1	16+56.00	38.00	695020.2246	2155072.3448
Y1	16+60.00	59.00	695026.5525	2155092.7568
Y1	16+86.00	76.00	695053.9291	2155106.8062
Y1	17+39.00	38.50	695102.1771	2155064.1053
Y1	18+54.00	38.50	695216.0791	2155054.1485
Y1	19+95.00	38.50	695356.2764	2155042.8551
Y1	20+41.88	60.00	695402.6549	2155061.8186

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1A	10+00.00	-33.03	693872.1885	2154182.7621
Y1A	10+00.00	-55.00	693875.9378	2154161.1149
Y1A	14+02.00	-55.00	694187.4386	2154472.0838
Y1A	14+72.00	-52.00	694195.9721	2154541.7042
Y1A	16+04.00	-52.00	694233.1163	2154649.8213
Y1A	16+28.28	-47.35	694239.7754	2154670.5368
Y1A	17+75.00	-50.50	694330.2407	2154775.3438
Y1A	17+91.00	39.75	694273.3438	2154847.2051
Y1A	17+97.30	-68.99	694358.8665	2154779.7567
Y1A	18+33.83	48.00	694295.5982	2154884.7136

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+79.00	96.96	694385.0024	2154732.5030
L	14+00.00	116.00	694358.1741	2154741.6575
L	14+19.00	96.95	694365.6425	2154767.5057
L	14+68.81	-150.37	694557.9169	2154930.8420
L	14+79.99	-137.89	694541.5850	2154934.5732
L	14+88.97	-168.76	694564.2522	2154957.3825
L	16+31.00	-118.87	694451.8303	2155057.4978
L	16+43.00	-106.91	694435.5552	2155062.2073
L	16+43.00	-117.00	694444.3793	2155067.0905

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	11+21.00	74.84	694461.4614	2155054.7108
Y1	12+57.00	68.00	694602.4911	2155100.6593
Y1	12+57.00	60.00	694604.5503	2155092.9288
Y1	12+78.00	41.00	694631.1024	2155079.9660
Y1	12+78.00	61.00	694626.5813	2155099.4483
Y1	13+77.33	-55.00	694742.6013	2155000.1710
Y1	14+62.00	-102.00	694817.4590	2154954.0226
Y1	14+65.00	-85.00	694820.9978	2154970.8473
Y1	14+65.00	-39.73	694823.6973	2155016.0356
Y1	14+87.00	-105.00	694838.1964	2154949.4716
Y1	14+88.00	-88.00	694840.6446	2154966.3159
Y1	20+26.00	-50.00	695381.9611	2154952.6312
Y1	20+26.00	-61.93	695381.3650	2154940.7154

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1A	17+52.00	-50.81	694315.2108	2154757.9312
Y1A	17+60.00	-82.00	694343.8512	2154743.2185
Y1A	17+82.00	-76.50	694354.3363	2154763.3260

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.

REVISIONS

6/2/99

29-JAN-2024 12:37
\\jka-srv01\shared\CAD\2018\180082C_NCDOT_W5704B_ROW staking_Johnston\DGN\HL-0127(w5704b) REVISION REQUEST\HL-0127_ls_rw03e-1.dgn
jmatthews AT JKA-042

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	RW03E-2

JoynerKeeny, PLLC
1051 N. Winstead Avenue
Rocky Mount, NC 27804
252-977-3124
North Carolina Firm Number P-0551

PERMANENT EASEMENT CONTROL SHEET

I, Stephen R. Wolfe, 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.

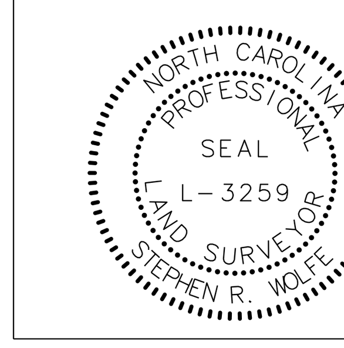
I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway 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 29th day of January, 2024.

DocuSigned by:
Stephen Wolfe
30B6875F3940446...

Professional Land Surveyor — L-3259 PLS # — Seal

PROJECT SURVEYOR



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ALIGN	STATION	OFFSET	NORTH	EAST
L	13+79.00	96.96	694385.0024	2154732.5030
L	14+00.00	116.00	694358.1741	2154741.6575
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Y1A	17+82.00	-76.50	694354.3363	2154763.3260

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.

REVISIONS

6/2/99

29-JAN-2024 12:40
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jmatthews AT JKA-042

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	RW04

Location and Surveys

JoynerKeeny, PLLC
1051 N. Winstead Avenue
Rocky Mount, NC 27804
252-977-3124
North Carolina Firm Number P-0551

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3259 LAND SURVEYOR STEPHEN R. WOLFE

I, Stephen R. Wolfe, 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.

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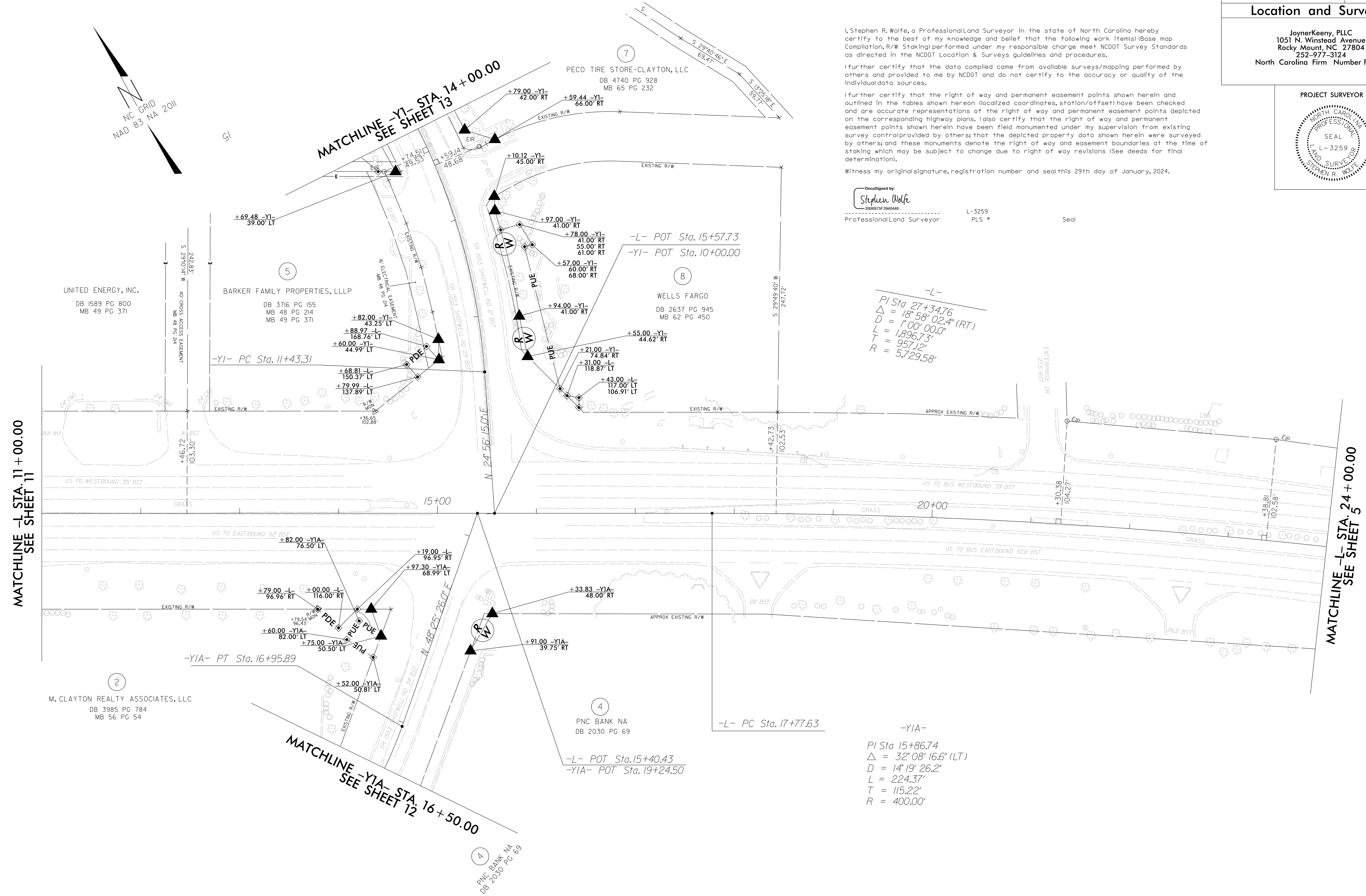
Witness my original signature, registration number and seal this 29th day of January, 2024.

DocuSigned by: Stephen Wolfe 30B6875F3940446...

Professional Land Surveyor — L-3259 PLS # — Seal



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REVISIONS

6/2/99

29-JAN-2024 12:46 \\jka-srv01\shared\CAD\2018\180082C_NCDOT_W5704B_ROW staking_Johnston\DGN\HL-0127(w5704b) REVISION REQUEST\HL-0127_ls_rw04.dgn matthews AT JKA-042

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	RW05

Location and Surveys

JoynerKeeny, PLLC
1051 N. Winstead Avenue
Rocky Mount, NC 27804
252-977-3124
North Carolina Firm Number P-0551

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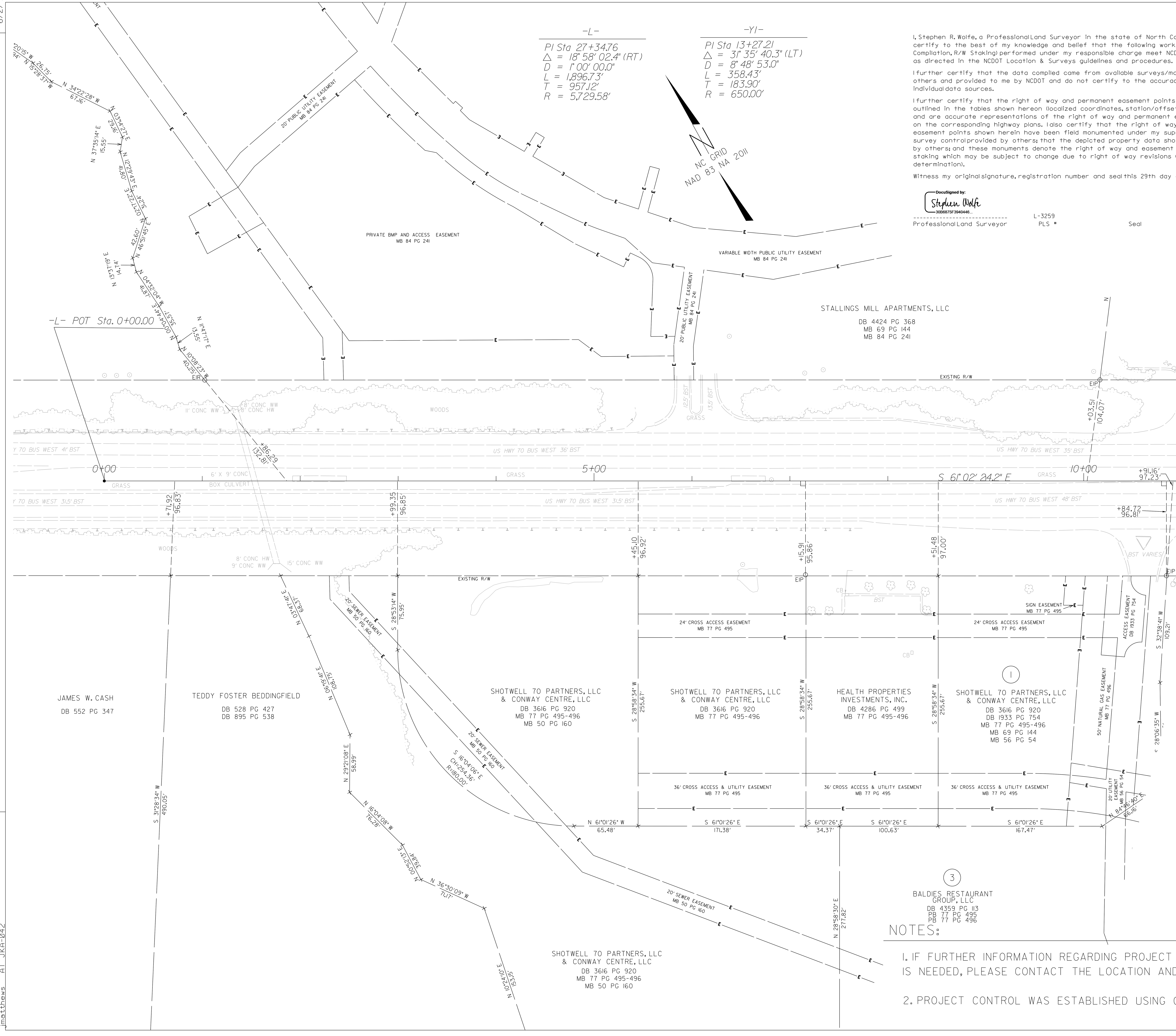
30B6875F3940446...

Professional Land Surveyor　　L-3259 PLS #　　Seal



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

REVISIONS

6/2/99

29-JAN-2024 12:49
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matthews AT JKA-042

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	RW06

Location and Surveys

JoynerKeeny, PLLC
1051 N. Winstead Avenue
Rocky Mount, NC 27804
252-977-3124
North Carolina Firm Number P-0551

PROJECT SURVEYOR

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Professional Land Surveyor — L-3259 — PLS — Seal

NC GRID NAD 83/2001

MATCHLINE -Y1- STA. 14+00.00 SEE SHEET 4

6 TRI ARC FOOD SYSTEMS INC. 23
DB 1348 PG 626
MB 48 PG 214
MB 49 PG 371

STALLINGS MILL APARTMENTS, LLC
DB 4424 PG 368
MB 69 PG 144
MB 84 PG 241

7 PECO TIRE STORE-CLAYTON, LLC
DB 4740 PG 928
MB 65 PG 232

8 LA COCINA #3, INC.
DB 5113 PG 589
MB 83 PG 470

LEE BROTHERS RENTAL
DB 3344 PG 564
MB 84 PG 113

TREE HOUSE PROPERTIES, LLC
DB 3358 PG 947
MB 70 PG 184

-Y1- PT Sta. 15+01.74
-Y1- PC Sta. 16+47.93
-Y1- PC Sta. 19+82.10
-Y1- PT Sta. 18+24.94
-Y1- PT Sta. 22+69.12
-Y1- POT Sta. 24+69.12

PI Sta 17+36.45
Δ = 2° 01' 42.5" (RT)
D = 1° 08' 45.3"
L = 177.02'
T = 88.52'
R = 5,000.00'

PI Sta 21+26.10
Δ = 11° 32' 24.5" (RT)
D = 4° 01' 14.7"
L = 287.01'
T = 143.99'
R = 1,425.00'

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.

REVISIONS 6/2/99

29-JAN-2024 12:52
X:\Projects\Localized CAD\2018\180082C_NCDOT_W5704B_ROW staking_Johnston\DGN\HL-0127W5704B_ROW staking_Johnston_REVISION REQUEST\HL-0127W5704b REVISION REQUEST.dgn
mattmews AT JKA-042

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	RW07

Location and Surveys

JoynerKeeny, PLLC
1051 N. Winstead Avenue
Rocky Mount, NC 27804
252-977-3124
North Carolina Firm Number P-0551

PROJECT SURVEYOR

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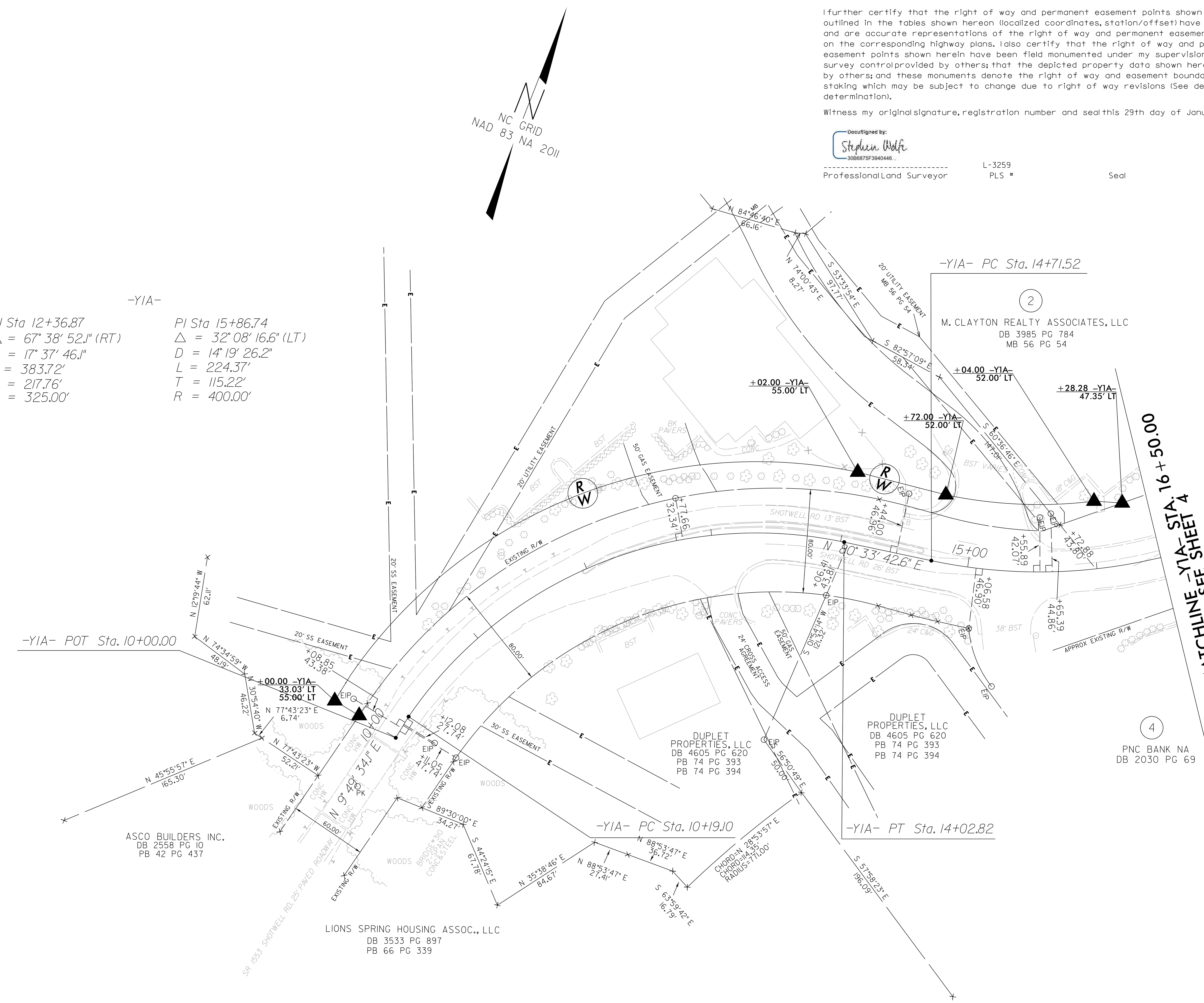
DocuSigned by: Stephen Wolfe
30B6875F3940446...

Professional Land Surveyor — L-3259 PLS # — Seal

REVISIONS

-Y1A-

PI Sta 12+36.87	PI Sta 15+86.74
△ = 67° 38′ 52.1″ (RT)	△ = 32° 08′ 16.6″ (LT)
D = 17° 37′ 46.1″	D = 14° 19′ 26.2″
L = 383.72′	L = 224.37′
T = 217.76′	T = 115.22′
R = 325.00′	R = 400.00′



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6/2/99

29-JAN-2024 12:56
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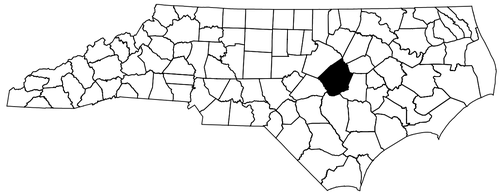
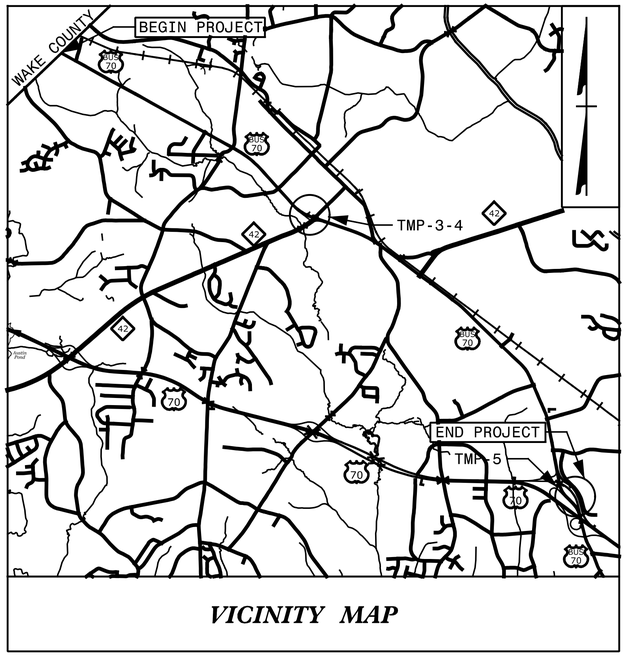
matthews AT JKA-042

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

JOHNSTON COUNTY





VICINITY MAP

LOCATION: US 70 BUSINESS AT SR 1553 (SHOTWELL ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNAL, AND PAVEMENT MARKING

INDEX OF SHEETS

SHEET NO.
TMP-1

PROJECT: HL-0127

CONTRACT: DD00366

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

PLANS PREPARED BY:

JOHN BAUMAN, P.E.

STEVE MILLER, P.E.

NCDOT CONTACTS:

KENNETH C. THORNEWELL, P.E.
PROJECT ENGINEER

SPENCER B. JENNINGS
PROJECT DESIGN ENGINEER

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

APPROVED: DocuSigned by: Steve Miller 9FBC8C15CEEB486...

DATE: 1/31/2024

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

1/31/2024
X:\2019\E19149.01 WBS 80074 Shotwell Road and US 70\TP\Traffic\TMP\W-5704 TMP-1.dgn
JBauman

PROJ. REFERENCE NO.	SHEET NO.
HL-0127	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 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
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES - TYPE III
1150.01	FLAGGERS
1165.01	TRUCK MOUNTED ATTENUATOR
1180.01	SKINNY - DRUM

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
- MILL AND FILL OPERATION
- USER DEFINED (IF NEEDED)

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

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

APPROVED: DocuSigned by: Steve Miller 9FBC6C15CEEB486...

DATE: 1/31/2024

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037026 STEVEN D. MILLER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROADWAY STANDARD DRAWINGS & LEGEND

1/31/2024
X:\2019\SEI9.149.01 WBS 80074 Shotwell Road and US 70\TP\Traffic\TMP\W-5704 TMP-1A.dgn
jbauman

PROJ. REFERENCE NO.	SHEET NO.
HL-0127	TMP-1B

MANAGEMENT STRATEGIES

- LOCAL ACCESS TO ALL RESIDENCES AND BUSINESSES WILL BE MAINTAINED BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION

- TRAFFIC WILL BE MAINTAINED THROUGH CONSTRUCTION WITH THE USE OF LANE CLOSURES

PHASING

STEP 1: USING ROADWAY STANDARD DRAWING (RSD) 1101.01 SHEETS 2 AND 3 OF 3, INSTALL ADVANCE WORK ZONE WARNING SIGNS ON BUS US 70 AND SHOTWELL RD.

STEP 2: USING RSD 1101.02 SHEETS 1 AND 3 OF 19, PLACE DEVICES AS SHOWN ON TMP-2 AND TMP-3 AND BEGIN OPERATION TO CONSTRUCT MEDIAN IMPROVEMENTS ALONG -L- (US 70BUS) AND WIDENING ALONG -L- & SHOTWELL RD, PLACE DEVICES AS SHOWN ON TMP-2 AND TMP-3.

STEP 3: USING RSD 1101.02 SHEET 1 OF 19, ONCE SHOTWELL RD. WIDENING IS COMPLETE, CONSTRUCT MEDIAN IMPROVEMENTS ON -Y1- (SHOTWELL RD) AS SHOWN ON TMP-2 (INSET-A).

STEP 4: COMPLETE CONSTRUCTION AS SHOWN ON TMP-2 AND TMP-3 UP TO, BUT NOT INCLUDING, THE FINAL LAYER OF SURFACE COURSE.

STEP 5: USING RSD 1101.02 SHEETS 14 AND 15 OF 19, COMPELTE MILL AND FILL OPERATION, PLACE FINAL LAYER OF SURFACE COURSE, FINAL PAVEMENT MARKINGS, MARKERS, AND SIGNING AS SHOWN ON THE PAVEMENT MARKING AND SIGNING PLANS AND REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

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
US BUS 70 & SHOTWELL RD.	MONDAY TO SUNDAY 6:00 A.M. TO 8:30 P.M.

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

ROAD NAME
BUS US 70, AND SHOTWELL RD.

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 6:00 A.M. DECEMBER 31ST TO 8:30 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 8:30 P.M. THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 8:30 P.M. MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 8:30 P.M. TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 8:30 P.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 8:30 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 8:30 P.M. TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 8:30 P.M. MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:30 P.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.

   WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 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) 500 FEET IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

J) NOTIFY THE ENGINEER ONE MONTH PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

K) INSTALL ADVANCE WORK ZONE WARNING SIGNS 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.

TRAFFIC CONTROL DEVICES

M) 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.

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

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License: F-0453

APPROVED: DocuSigned by: Steve Miller 9FBC6C15CEEB486...

DATE: 1/31/2024

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

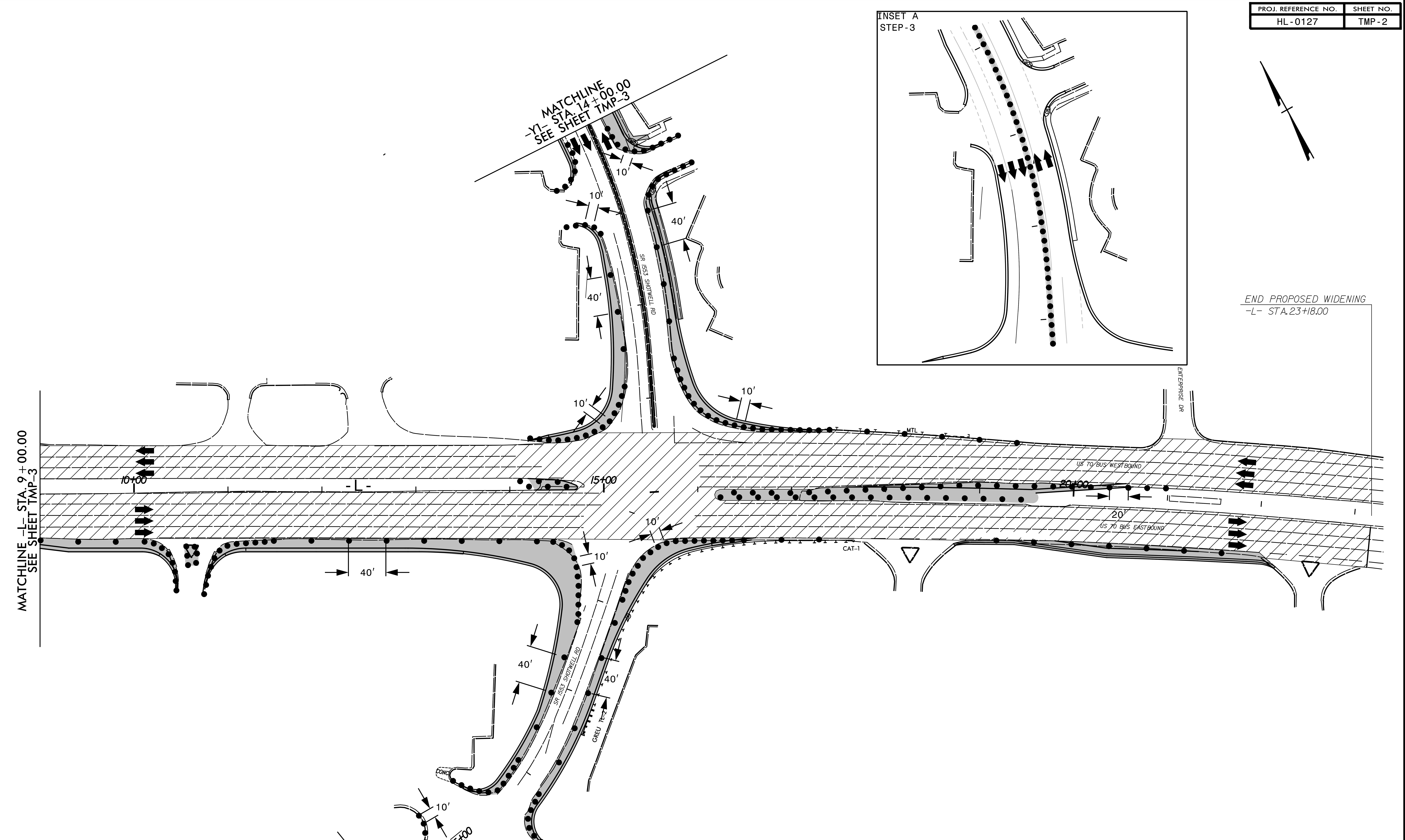
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TRANSPORTATION OPERATIONS PLAN

1/31/2024
X:\2019\SEI9.149.01 WBS 80074 Shotwell Road and US 70\TP\Traffic\TMP\W-5704 TMP-1B.dgn
tbauman

PROJ. REFERENCE NO.	SHEET NO.
HL-0127	TMP-2



APPROVED: Steve Miller

DATE: 1/31/2024

SEAL

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

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1/31/2024
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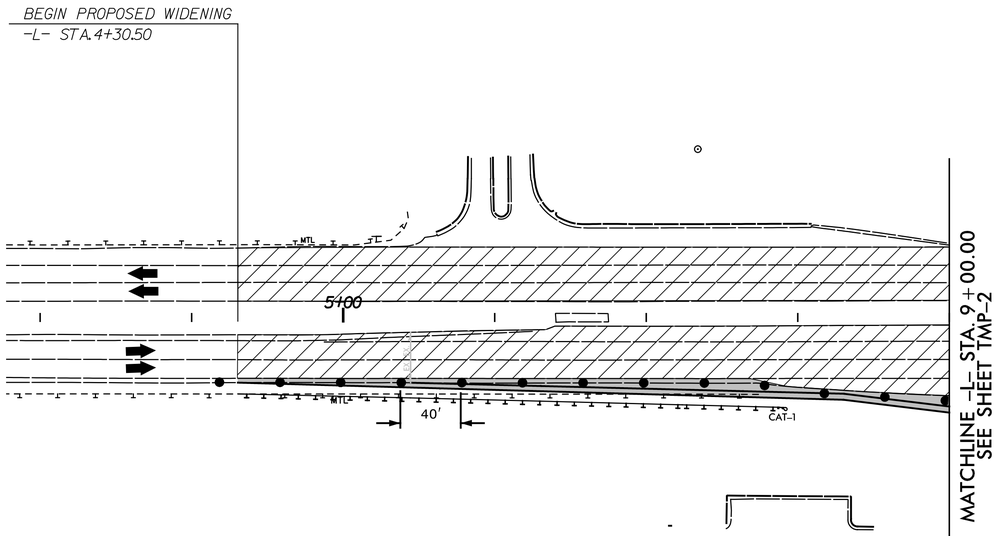
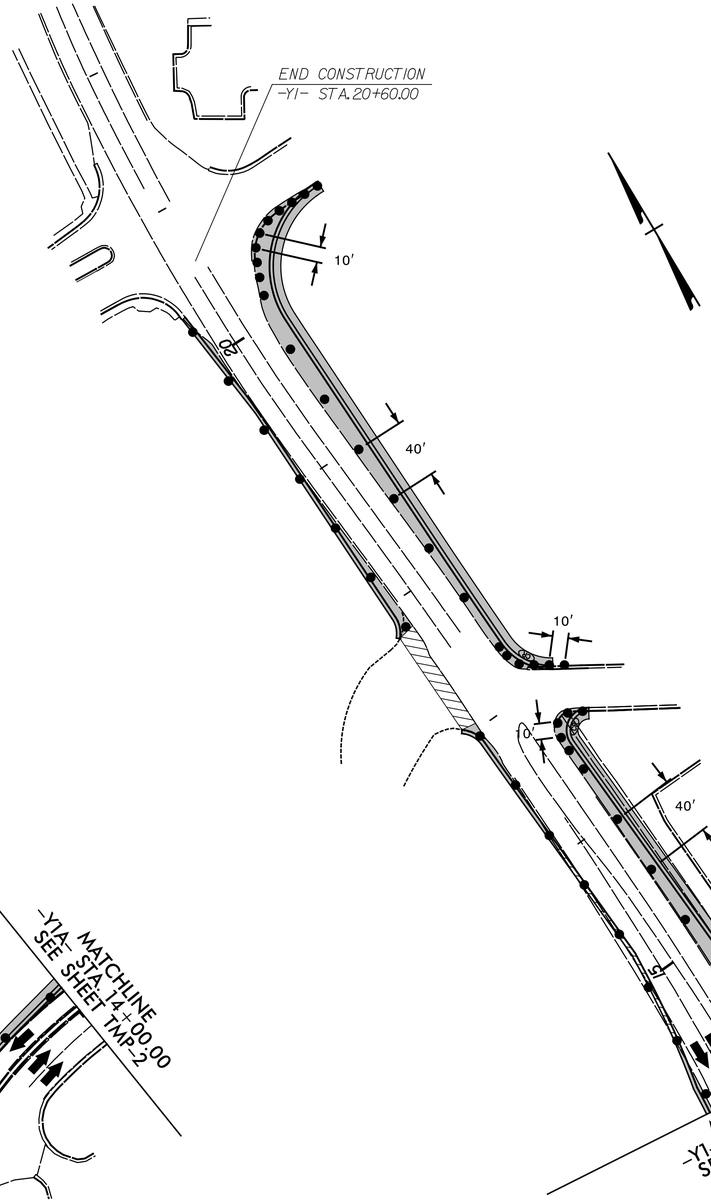
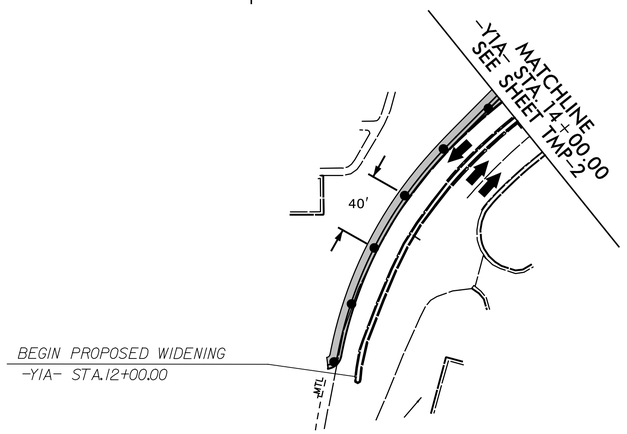
jbauman

PROJ. REFERENCE NO.	SHEET NO.
HL-0127	TMP-3







APPROVED: DocuSigned by: Steve Miller 9FBC6C15CEEB486...

DATE: 1/31/2024

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037026 STEVEN D. MILLER

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

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1/31/2024
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jbauman

PROJECT: HL-0127

CONTRACT: DD00366

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
HL-0127	PMP-1

APPROVED: Steve Miller (DocuSigned by: 9FBC6C15CEEB486...)

DATE: 1/31/2024

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

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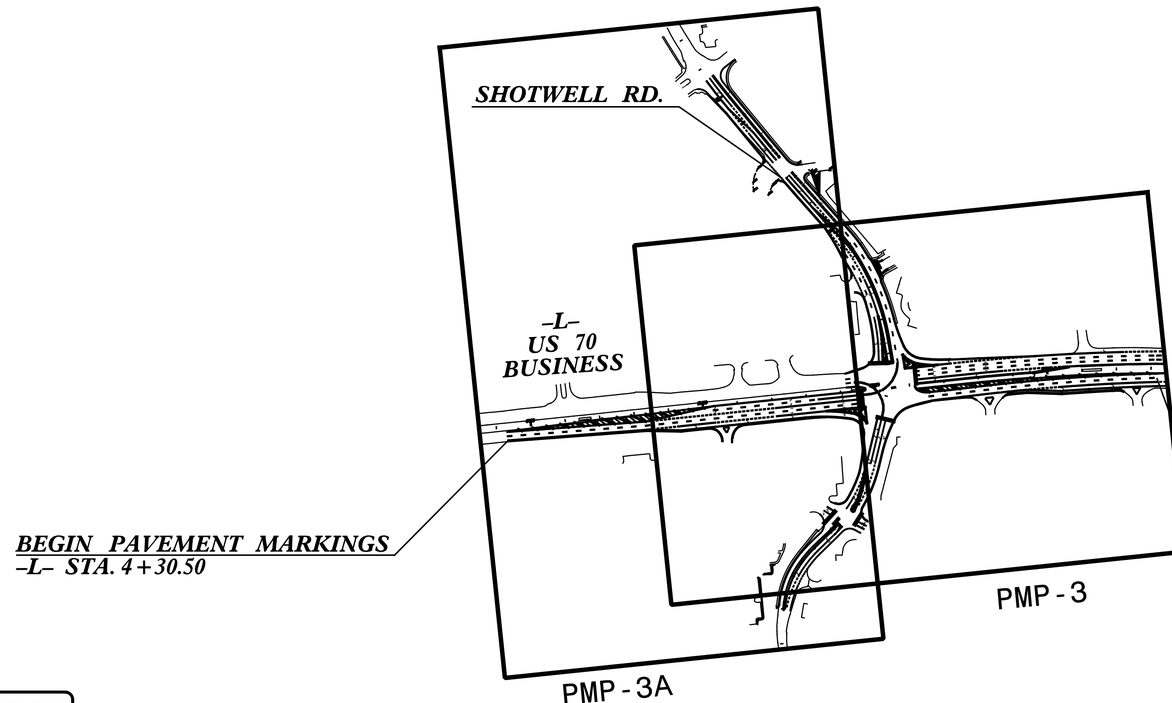
PAVEMENT MARKING PLAN
JOHNSTON COUNTY

LOCATION: US-70 BUSINESS AT SR 1553 (SHOTWELL ROAD)



BEGIN PAVEMENT MARKINGS
-L- STA. 4+30.50

END PAVEMENT MARKINGS
-L- STA. 23+18

INDEX

PLAN PREPARED BY:
SEPI ENGINEERING & CONSTRUCTION

Steve Miller, PE PROJECT MANAGER

John Bauman, PE DESIGN ENGINEER

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bauman

TIP NO.	SHEET NO.
HL-0127	PMP-2

APPROVED: Steve Miller
DATE: 1/31/2024

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037026 STEVEN D. MILLER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
	THERMOPLASTIC (24", 90 MILS)
T61	WHITE STOPBAR
	THERMOPLASTIC (4", 90 MILS)
T1	WHITE EDGE LINE
T2	WHITE SOLID LANE LINE
T3	10 FT. WHITE SKIP
T4	3 FT. - 9 FT./SP WHITE MINISKIP
T5	2 FT. - 6 FT./SP WHITE MINISKIP
T10	YELLOW EDGE LINE
T13	YELLOW DOUBLE CENTER
	THERMOPLASTIC (6", 90 MILS)
T20	WHITE EDGE LINE
T21	WHITE SOLID LANE LINE
T22	10 FT. WHITE SKIP
T23	3 FT. - 9 FT./SP WHITE MINISKIP
T24	2 FT. - 6 FT./SP WHITE MINISKIP
T30	YELLOW EDGE LINE
	THERMOPLASTIC (8", 90 MILS)
T40	WHITE GORE LINE
T41	WHITE DIAGONAL
T42	YELLOW DIAGONAL
T43	WHITE SOLID LANE LINE
T44	3 FT. - 9 FT./SP WHITE MINISKIP
T46	WHITE CROSSWALK LINE
	THERMOPLASTIC (12", 90 MILS)
T52	YELLOW DIAGONAL
	THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90 MILS)
T70	LEFT TURN ARROW
T71	RIGHT TURN ARROW
T72	STRAIGHT ARROW
T73	COMBO LEFT/STRAIGHT ARROW
T74	COMBO RIGHT/STRAIGHT ARROW
T103	24" YIELD LINE TRIANGLE
	THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90 MILS)
T100	ALPHANUMEIC CHARACTERS
	NON CAST IRON SNOWPLOWABLE PAVEMENT MARKERS
ME	YELLOW & YELLOW
MF	CRYSTAL & RED

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
US 70 BUSINESS	THERMOPLASTIC	SNOWPLOWABLE
SHOTWELL RD(SR1553)	THERMOPLASTIC	SNOWPLOWABLE

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.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
848.05	CURB RAMP - PROPOSED CURB AND GUTTER
848.06	CURB RAMP - EXISTING CURB AND GUTTER
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
1205.06	PAVEMENT MARKINGS - LANE DROPS
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
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING (4", 90 MILS)	8,715	LF
4688000000-E	1205	THERMOPLASTIC PAVEMENT MARKING (6", 90 MILS)	7,740	LF
4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING (8", 90 MILS)	1,615	LF
4700000000-E	1205	THERMOPLASTIC PAVEMENT MARKING (12", 90 MILS)	635	LF
4709000000-E	1205	THERMOPLASTIC PAVEMENT MARKING (24", 90 MILS)	310	LF
4720000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (90 MILS)	8	EA
4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	69	EA
4905100000-N	1253	NON CAST IRON SNOWPLOWABLE PAVEMENT MARKERS	315	EA

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PAVEMENT MARKING SCHEDULE GENERAL NOTES, ROADWAY STANDARD DRAWINGS & SUMMARY OF QUANTITIES

TIP NO.	SHEET NO.
HL-0127	PMP-3

APPROVED:

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

DocuSigned by: Steve Miller 118D92CEB2BD4A1... 3/13/2024

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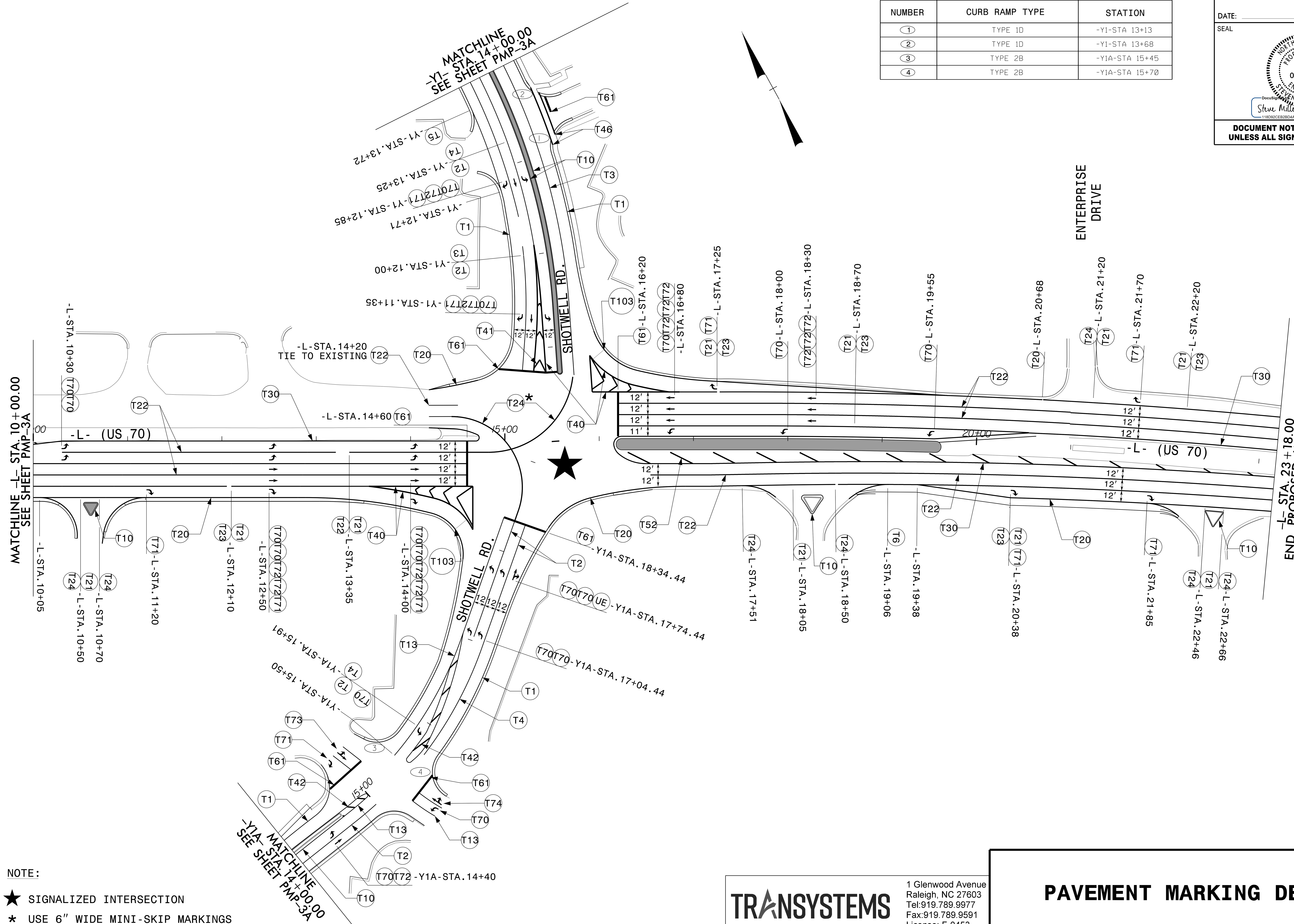
NUMBER	CURB RAMP TYPE	STATION
1	TYPE 1D	-Y1-STA 13+13
2	TYPE 1D	-Y1-STA 13+68
3	TYPE 2B	-Y1A-STA 15+45
4	TYPE 2B	-Y1A-STA 15+70



NOTE:

★ SIGNALIZED INTERSECTION

* USE 6" WIDE MINI-SKIP MARKINGS

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PAVEMENT MARKING DETAIL

3/13/2024 ...PMP_W-5704A&B_PMP_3.dgn

TIP NO.	SHEET NO.
HL-0127	PMP-3A

APPROVED:

DATE:

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037026 STEVEN D. MILLER

Steve Miller 3/13/2024

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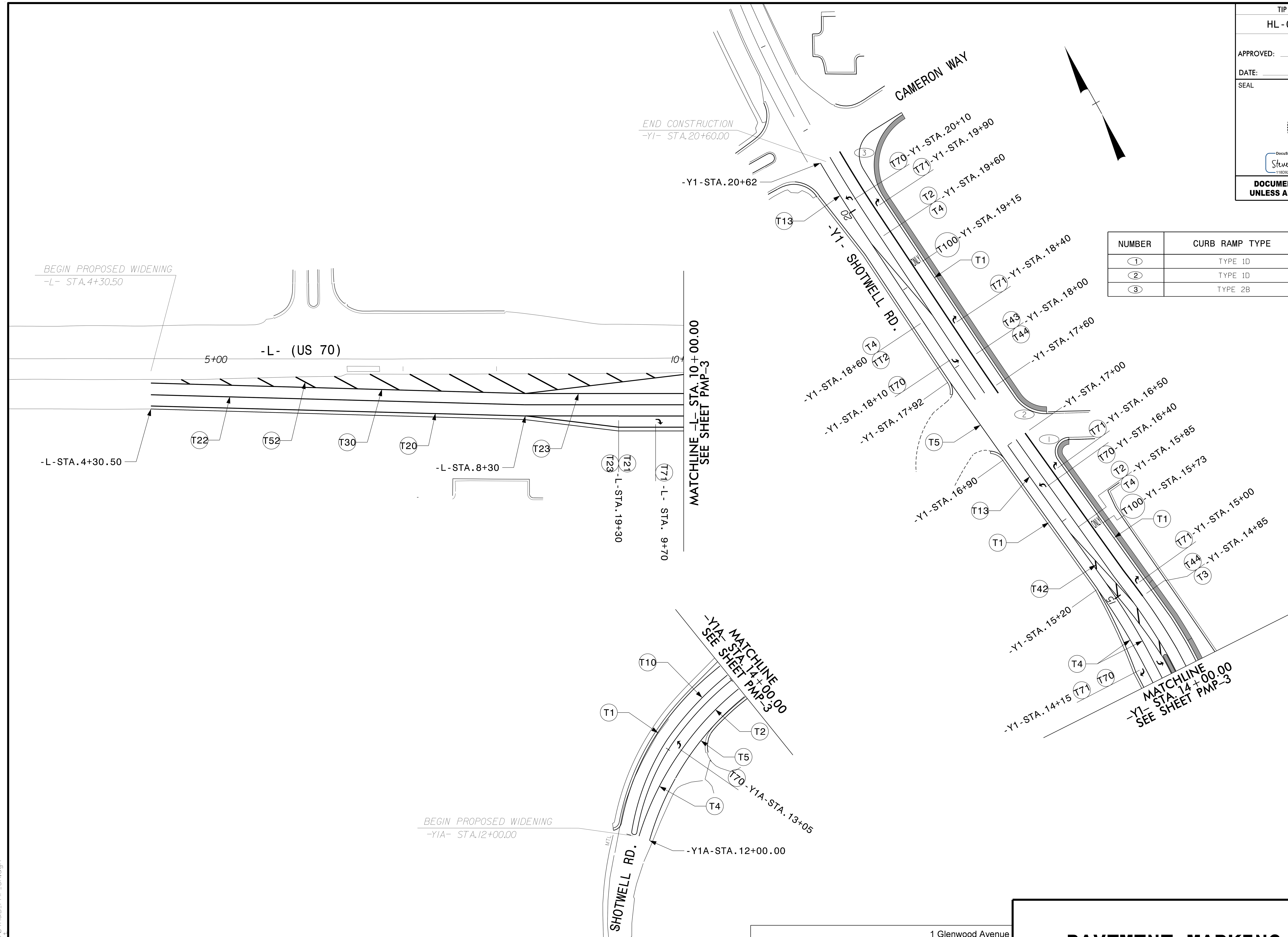

NUMBER	CURB RAMP TYPE	STATION
1	TYPE 1D	-Y1-STA 16+66
2	TYPE 1D	-Y1-STA 17+20
3	TYPE 2B	-Y1-STA 20+47

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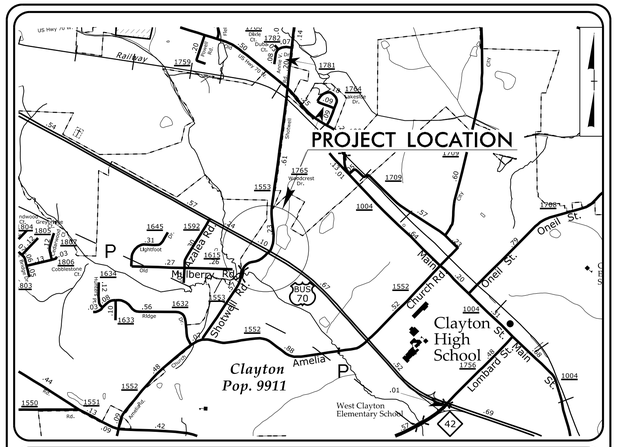
PAVEMENT MARKING DETAIL

09/08/99

TIP PROJECT: HL-0127

CONTRACT: DD00366



VICINITY MAP
NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

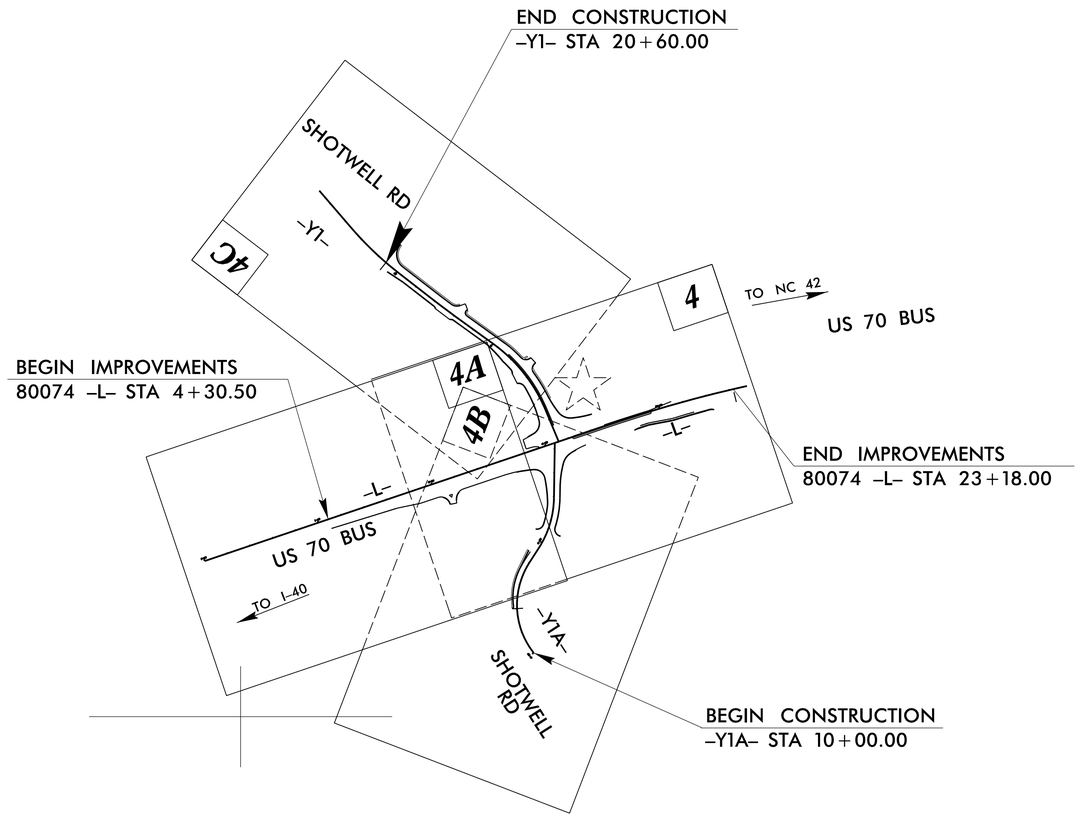
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

JOHNSTON COUNTY

LOCATION: US-70 BUSINESS AT SR 1553 (SHOTWELL ROAD)
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND SIGNAL,

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HL-0127	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
80074		Y1, Y1A (CONST.)



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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALES

50 25 0 50 100
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

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Prepared In the Office of:
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1 Glenwood Avenue
Raleigh, NC 27603

Reviewed In the Office of:
Roadside Environmental Unit
1 South Wilmington Street
Raleigh, NC 27611

Designed by:
Tyler D. Overby — *4140*
NAME — *LEVEL III CERTIFICATION NO.*

Reviewed by:
Aaron Harper, PE
NAME

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

4/16/2024
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USER:toverby

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	EC-02

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1630.07	Skimmer Basin	
1630.08	Tiered Skimmer Basin	
1630.09	Earthen Dam with Skimmer	
	Infiltration Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C

Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
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	A
1635.02	Rock Pipe Inlet Sediment Trap Type B	B
1636.01	Excelsior Wattle Check	
1636.01	Excelsior Wattle Check with Flocculant	
1636.01	Coir Fiber Wattle Check	
1636.01	Coir Fiber Wattle Check with Flocculant	
1636.02	Silt Fence Excelsior Wattle Break	EW
	Silt Fence Coir Fiber Wattle Break	CFW
1636.03	Excelsior Wattle Barrier	—EW—EW—EW—
1636.03	Coir Fiber Wattle Barrier	—CFW—CFW—CFW—

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	EC-2A

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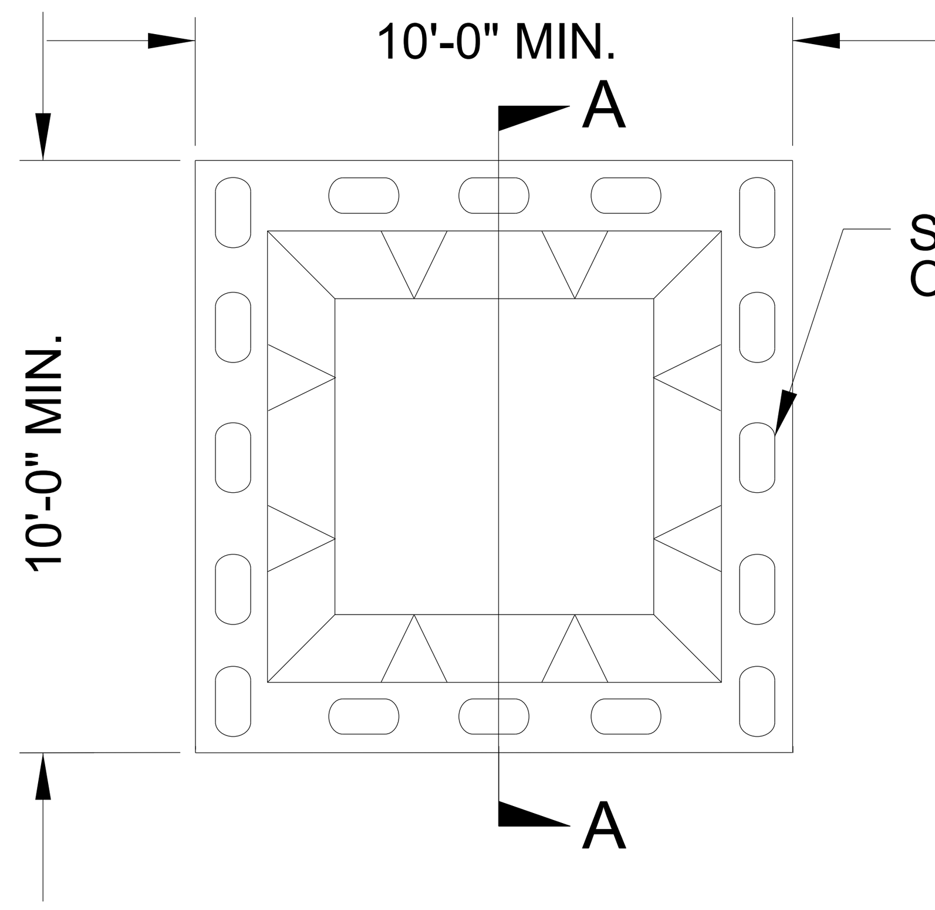
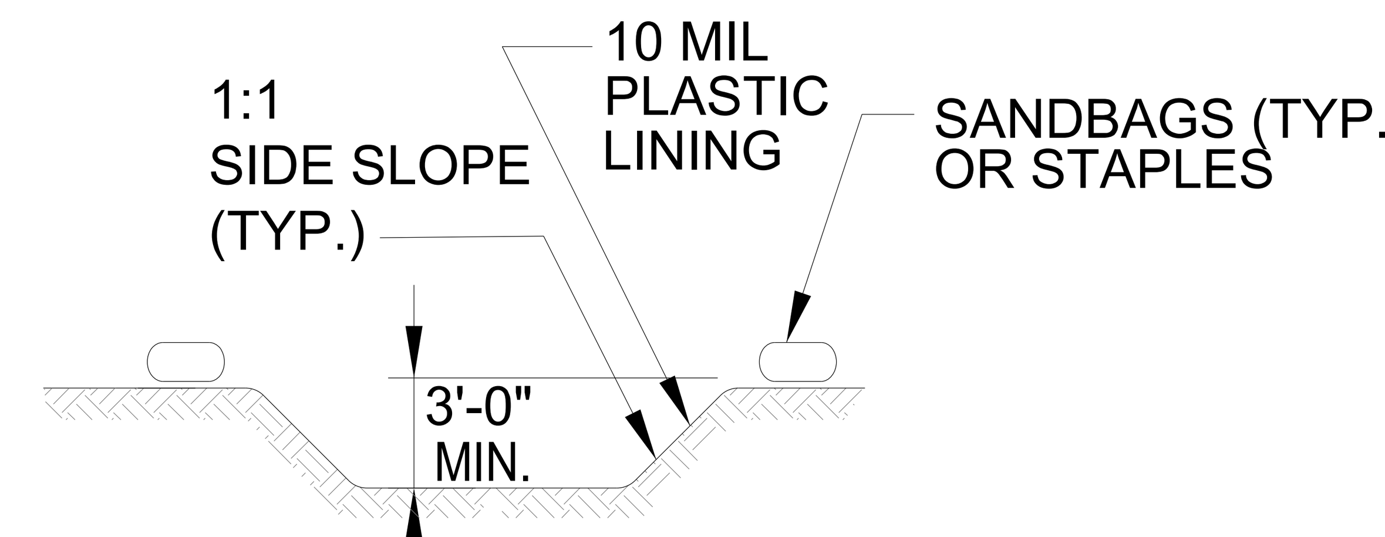
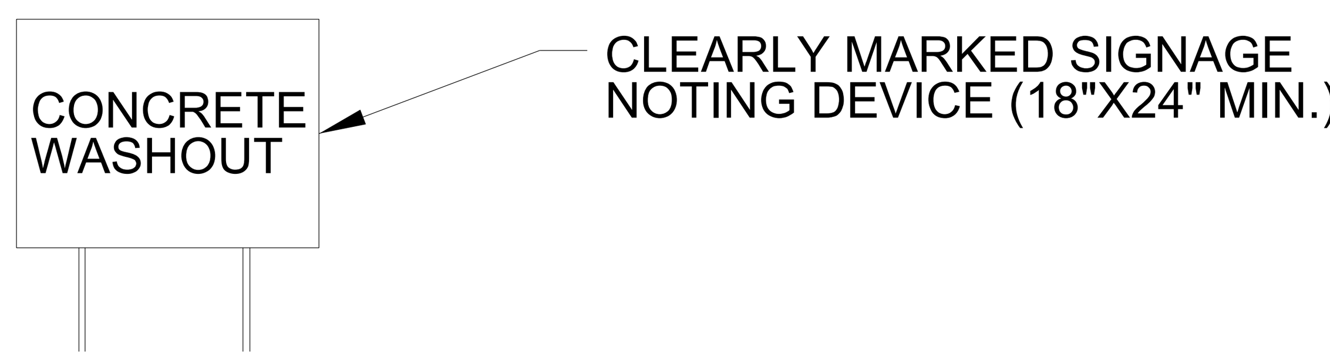
ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A



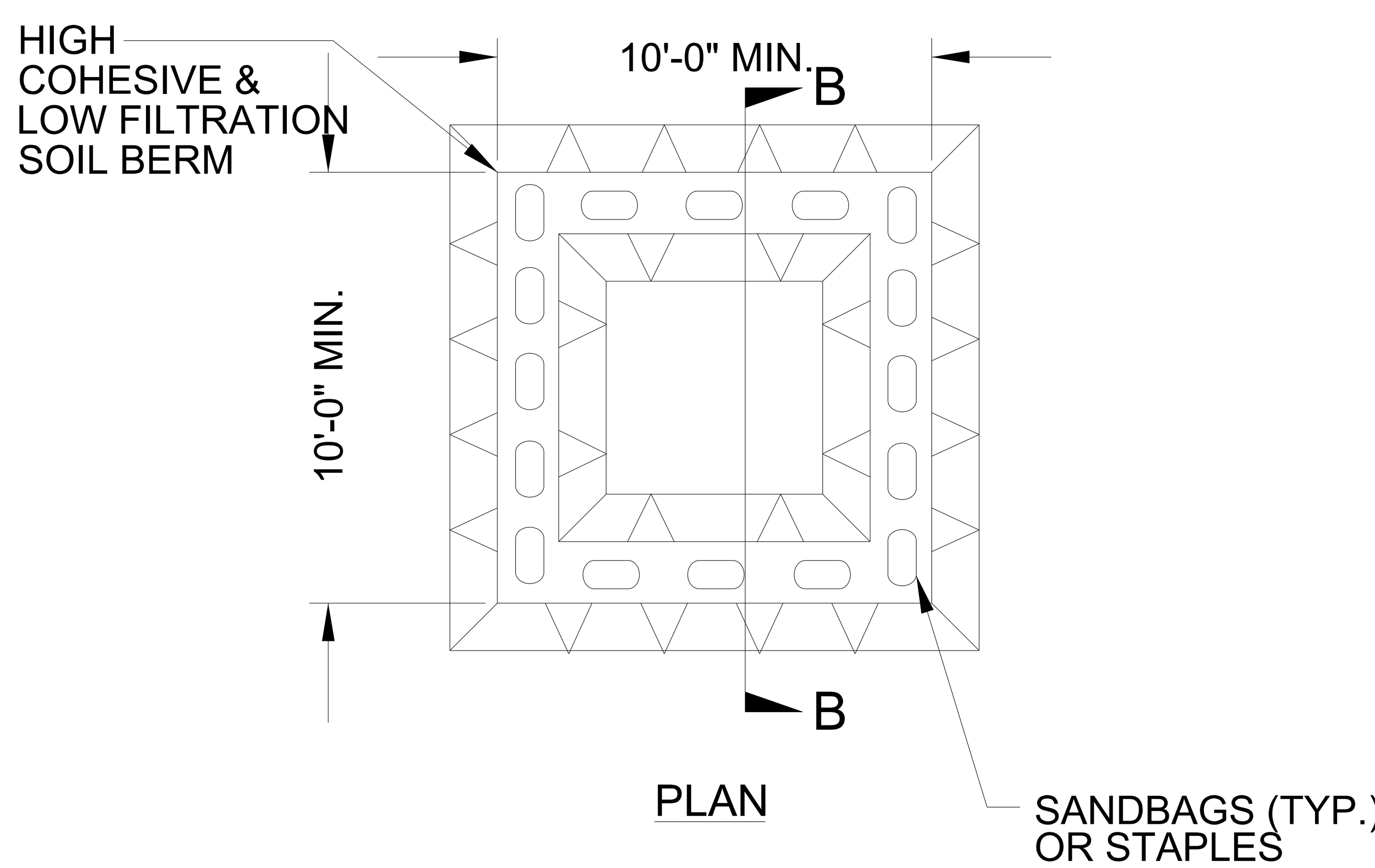
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

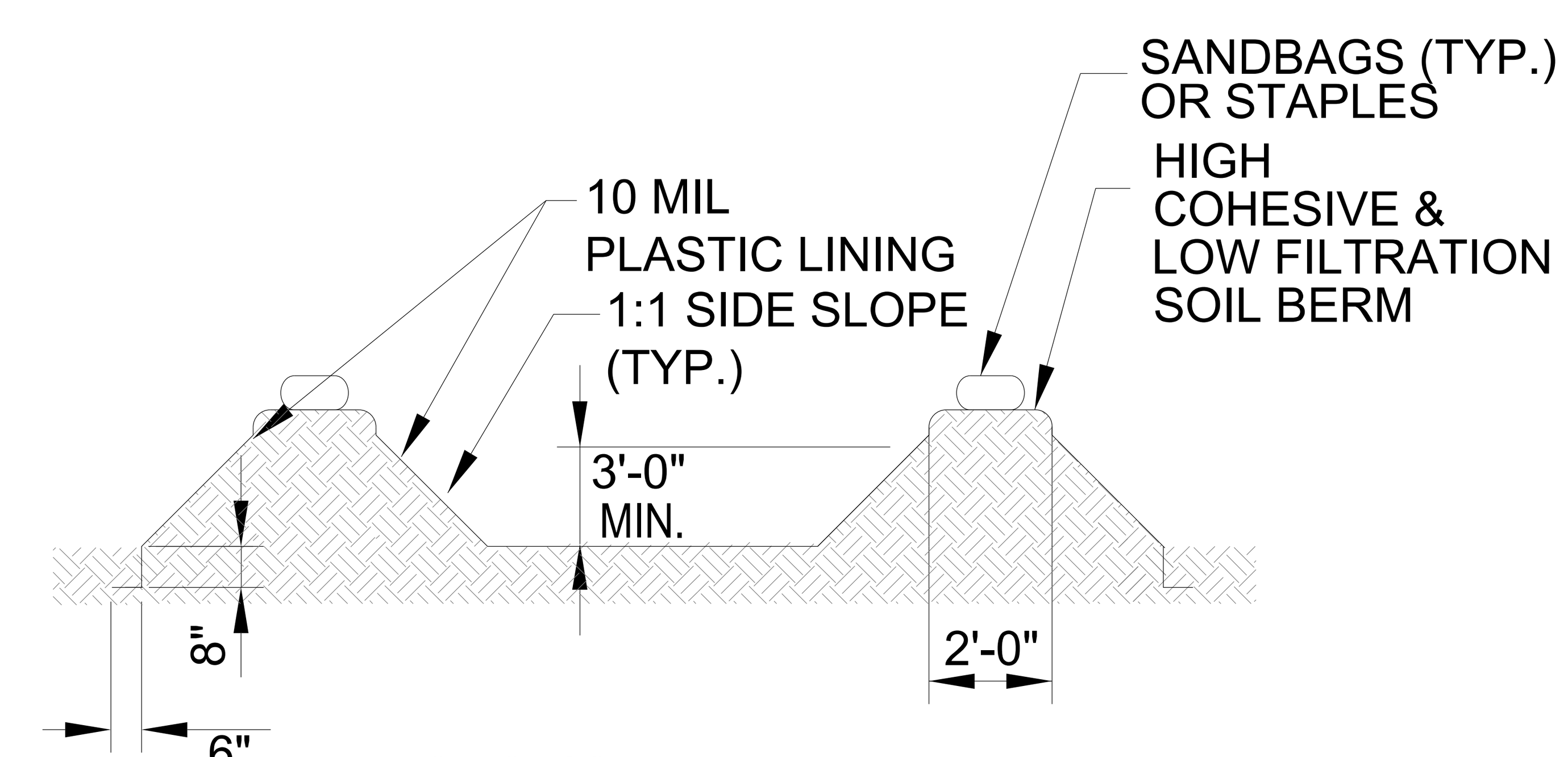
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

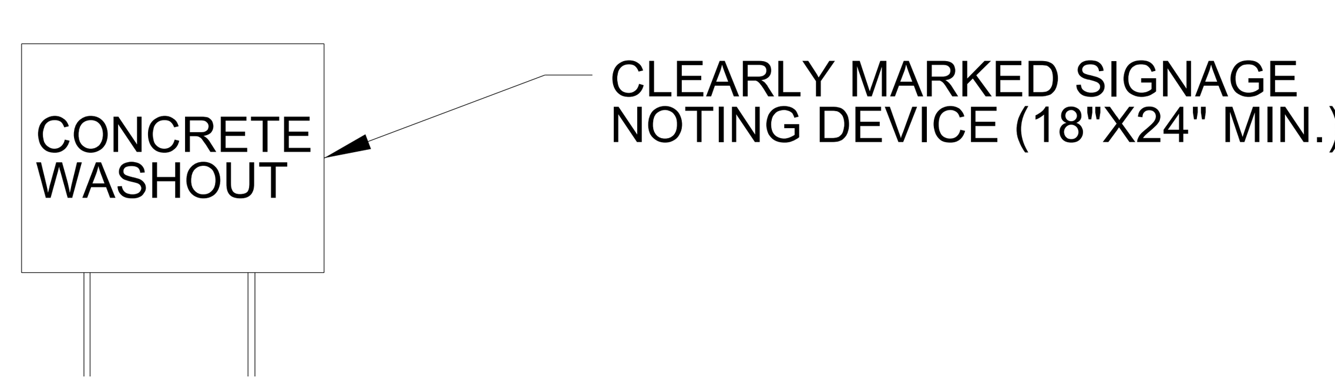
NOT TO SCALE



PLAN



SECTION B-B



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

STRAW MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	10+92	11+50	RT	90
4 / 4B	-Y1A-	16+00	17+50	LT	190
4A	-L-	7+50	9+50	RT	250
4B	-Y1A-	10+10	12+50	LT	245
4B	-Y1A-	13+00	14+35	LT	105
4C	-Y1-	14+50	16+50	LT	135
				SUBTOTAL	1,090
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					1,395
				TOTAL	2,485
				SAY	2,700

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

REVISIONS

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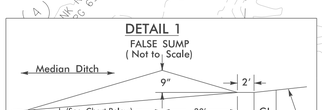
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES

8/17/99
4/16/2024 ...W5704A_B_rev_EC-03_SUM.dgn



PROJECT REFERENCE NO.	SHEET NO.
HL-0127	EC-4/CONST-4

TRANSYSTEMS

1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

-L-	-Y1-	-Y1A-
PI Sta 27+34.76	PI Sta 13+27.21	PI Sta 15+86.74
△ = 18° 58′ 02.4″ (RT)	△ = 31° 35′ 40.3″ (LT)	△ = 32° 08′ 16.6″ (LT)
D = 1° 00′ 00.0″	D = 8° 48′ 53.0″	D = 14° 19′ 26.2″
L = 1,896.73′	L = 358.43′	L = 224.37′
T = 957.12′	T = 183.90′	T = 115.22′
R = 5,729.58′	R = 650.00′	R = 400.00′
	SE = SEE PLANS	

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.

DETAIL 1

FALSE SUMP
(Not to Scale)

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20′	Over 4.0% To 6.0%	40′
Over 2.0% To 4.0%	30′	Over 6.0%	50′

FROM STA. 21+57 TO STA. 21+97 –L– MED

DETAIL 3

SPECIAL 'V' DITCH
(Not to Scale)

FROM STA. 11+50 TO STA. 14+00 –L– RT

▨ ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES AS DIRECTED IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C TO AVOID IMPOUNDING RUNOFF ON ROADWAYS OPEN TO THE PUBLIC

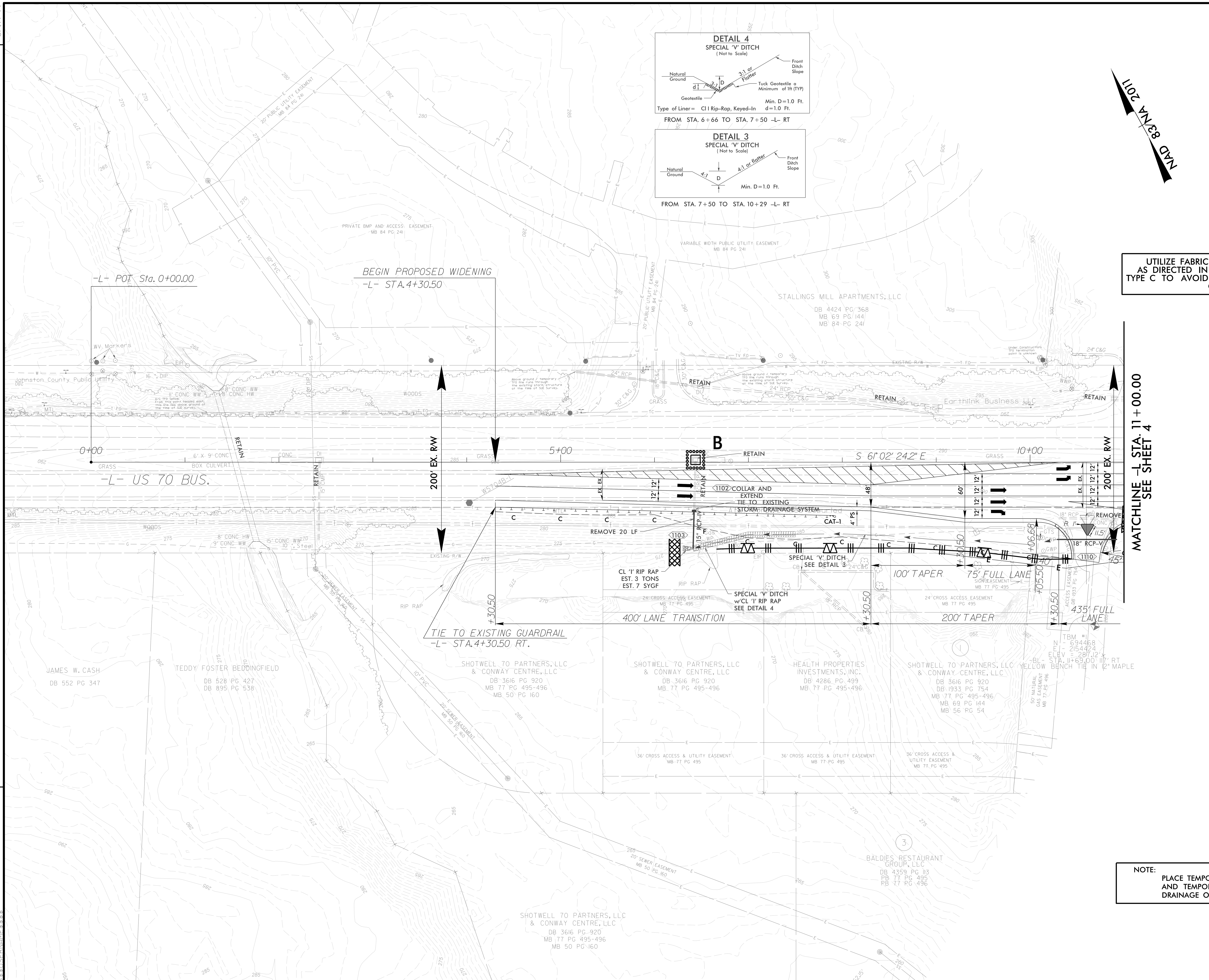
REVISIONS

8/17/99

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

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	EC-5/CONST-4A

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453


DETAIL 4
SPECIAL 'V' DITCH
(Not to Scale)
Natural Ground
Front Ditch Slope
3:1 or Flatter
Tuck Geotextile a Minimum of 1ft (TYP)
Geotextile
Type of Liner= Cl I Rip-Rap, Keyed-In
Min. D=1.0 Ft.
d=1.0 Ft.
FROM STA. 6+66 TO STA. 7+50 -L- RT
DETAIL 3
SPECIAL 'V' DITCH
(Not to Scale)
Natural Ground
4:1 or flatter
Front Ditch Slope
Min. D=1.0 Ft.
FROM STA. 7+50 TO STA. 10+29 -L- RT
NAD 83/NA 2011
-L- POT Sta. 0+00.00
BEGIN PROPOSED WIDENING
-L- STA.4+30.50
PRIVATE BMP AND ACCESS EASEMENT MB 84 PG 241
VARIABLE WIDTH PUBLIC UTILITY EASEMENT MB 84 PG 241
STALLINGS MILL APARTMENTS, LLC
DB 4424 PG 368
MB 69 PG 144
MB 84 PG 241
Johnston County Public Utility
WOODS
RETAIN
Earthlink Business LLC
GRASS
0+00
5+00
10+00
B
S 61° 02' 24.2" E
-L- US 70 BUS.
200' EX. R/W
1102 COLLAR AND EXTEND
TIE TO EXISTING STORM DRAINAGE SYSTEM
CAT-1
REMOVE 20 LF
1103
CL 'I' RIP RAP
EST. 3 TONS
EST. 7 SYGF
SPECIAL 'V' DITCH SEE DETAIL 3
SPECIAL 'V' DITCH w/CL 'I' RIP RAP SEE DETAIL 4
100' TAPER
75' FULL LANE
400' LANE TRANSITION
200' TAPER
435' FULL LANE
18" RCP-V
1110
REMOVE
TIE TO EXISTING GUARDRAIL
-L- STA.4+30.50 RT.
24' CROSS ACCESS EASEMENT MB 77 PG 495
JAMES W. CASH
DB 552 PG 347
TEDDY FOSTER BEDDINGFIELD
DB 528 PG 427
DB 895 PG 538
SHOTWELL 70 PARTNERS, LLC & CONWAY CENTRE, LLC
DB 3616 PG 920
MB 77 PG 495-496
MB 50 PG 160
HEALTH PROPERTIES INVESTMENTS, INC.
DB 4286 PG 499
MB 77 PG 495-496
DB 1933 PG 754
MB 69 PG 144
MB 56 PG 54
TBM #1
N - 694468
E - 2154424
ELEV = 281.12'
-BL- STA. 11+69.00 117' RT
YELLOW BENCH TIE IN 12" MAPLE
36' CROSS ACCESS & UTILITY EASEMENT MB 77 PG 495
BALDIES RESTAURANT GROUP, LLC
DB 4359 PG 113
PB 77 PG 495
PB 77 PG 496
MATCHLINE -L STA. 11+00.00
SEE SHEET 4

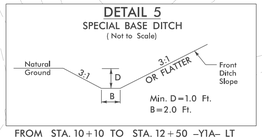
UTILIZE FABRIC INSERT INLET PROTECTION DEVICES AS DIRECTED IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C TO AVOID IMPOUNDING RUNOFF ON ROADWAYS OPEN TO THE PUBLIC

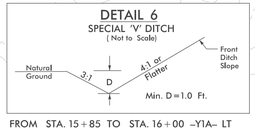
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4A

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

REVISIONS

8/17/99





PROJECT REFERENCE NO.	SHEET NO.
HL-0127	EC-6/CONST-4B

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

8/17/99

REVISIONS

-Y1A-	
PI Sta 12+36.87	PI Sta 15+86.74
△ = 67° 38′ 52.1″ (RT)	△ = 32° 08′ 16.6″ (LT)
D = 17° 37′ 46.1″	D = 14° 19′ 26.2″
L = 383.72′	L = 224.37′
T = 217.76′	T = 115.22′
R = 325.00′	R = 400.00′

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES AS DIRECTED IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C TO AVOID IMPOUNDING RUNOFF ON ROADWAYS OPEN TO THE PUBLIC

DETAIL 5
SPECIAL BASE DITCH
(Not to Scale)

FROM STA. 10+10 TO STA. 12+50 -Y1A- LT

DETAIL 6
SPECIAL 'V' DITCH
(Not to Scale)

FROM STA. 15+85 TO STA. 16+00 -Y1A- LT

▨ ENVIRONMENTALLY SENSITIVE AREA SEE PROJECT SPECIAL PROVISIONS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4B

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

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

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	EC-7/CONST-4C

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

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REVISIONS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4C

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

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES AS DIRECTED IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C TO AVOID IMPOUNDING RUNOFF ON ROADWAYS OPEN TO THE PUBLIC

NOTE:

PARCEL #9 "LA COCINA #3, INC." WAS UNDER CONSTRUCTION AT THE TIME OF ROADWAY PLAN DEVELOPMENT. FIELD SURVEYS WERE COMPLETED PRIOR TO SITE GRADING AND INSTALLATION OF DRAINAGE INFRASTRUCTURE. SITE PLANS HAVE BEEN REVIEWED IN ORDER TO COORDINATE ROADWAY AND DRAINAGE DESIGN FOR THE NCDOT PROJECT.

NEWLY INSTALLED PIPED DRAINAGE INFRASTRUCTURE ON PARCEL #9 WILL SERVE AS THE DRAINAGE OUTLET FOR THE ROADWAY DRAINAGE SYSTEM LEAVING THE RIGHT-OF-WAY AT PROPOSED STRUCTURE 1303. THE INVERT ELEVATION FOR STRUCTURE 1303 IS BASED ON SITE DEVELOPMENT PLANS BY OTHERS, AND SHOULD BE VERIFIED PRIOR TO CONSTRUCTION.

-Y1-	
PI Sta 17+36.45	PI Sta 21+26.10
△ = 2° 01' 42.5" (RT)	△ = 11° 32' 24.5" (RT)
D = 1° 08' 45.3"	D = 4° 01' 14.7"
L = 177.02'	L = 287.01'
T = 88.52'	T = 143.99'
R = 5,000.00'	R = 1,425.00'
SE = SEE PLANS	SE = SEE PLANS

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	EC-8/CONST-4

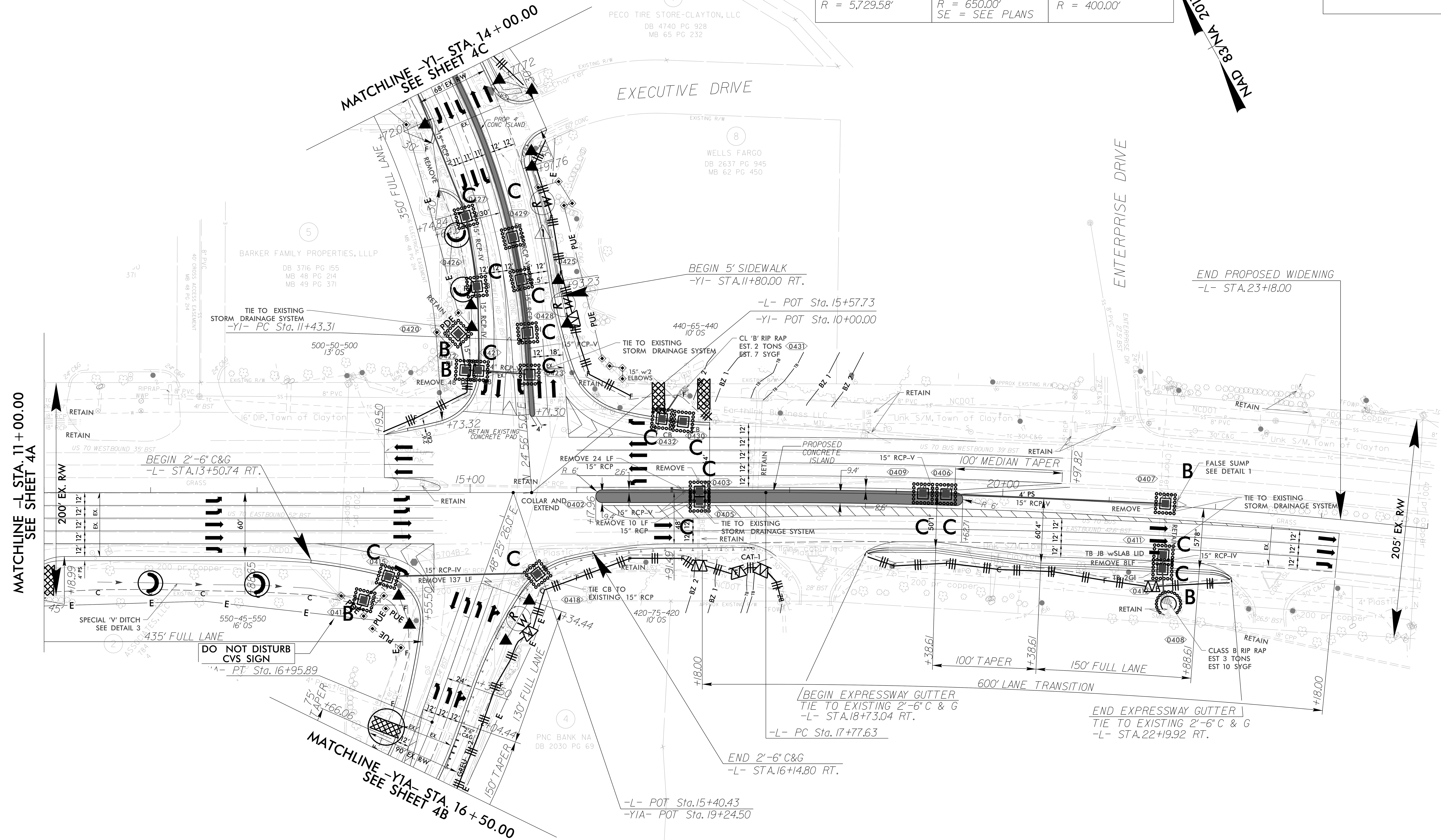
TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

8/17/99

REVISIONS

-L-	-Y1-	-Y1A-
PI Sta 27+34.76	PI Sta 13+27.21	PI Sta 15+86.74
△ = 18° 58' 02.4" (RT)	△ = 31° 35' 40.3" (LT)	△ = 32° 08' 16.6" (LT)
D = 1° 00' 00.0"	D = 8° 48' 53.0"	D = 14° 19' 26.2"
L = 1,896.73'	L = 358.43'	L = 224.37'
T = 957.12'	T = 183.90'	T = 115.22'
R = 5,729.58'	R = 650.00'	R = 400.00'
	SE = SEE PLANS	

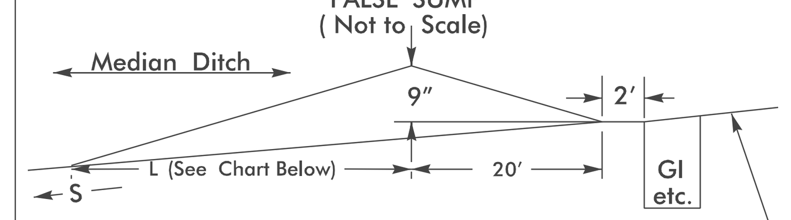
NAD 83/NA 2011



UTILIZE FABRIC INSERT INLET PROTECTION DEVICES AS DIRECTED IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C TO AVOID IMPOUNDING RUNOFF ON ROADWAYS OPEN TO THE PUBLIC

DETAIL 1

FALSE SUMP
(Not to Scale)

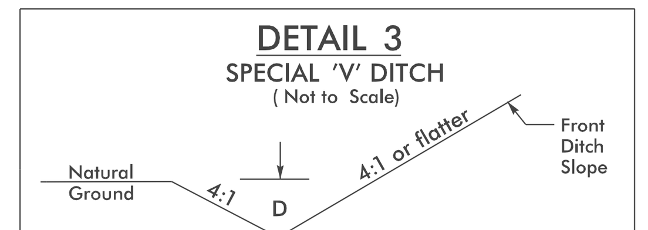


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

FROM STA. 21+57 TO STA. 21+97 -L- MED

DETAIL 3

SPECIAL 'V' DITCH
(Not to Scale)



FROM STA. 11+50 TO STA. 14+00 -L- RT

FINAL PHASE
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

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

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	EC-9/CONST-4A

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1 Glenwood Avenue
Raleigh, NC 27603
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Fax:919.789.9591
License: F-0453

8/17/99

REVISIONS

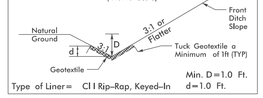
$$$$SYSTIME$$$$
$$$$SIGNM$$$$
$$$$USERNAME$$$$

NAD 83/NA 2011

FINAL PHASE
EROSION CONTROL FOR
CONSTRUCTION SHEET 4A

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES AS DIRECTED IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C TO AVOID IMPOUNDING RUNOFF ON ROADWAYS OPEN TO THE PUBLIC

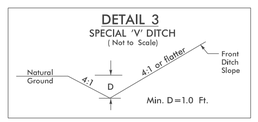
DETAIL 4
SPECIAL 'V' DITCH
(Not to Scale)



Type of Liner= CI I Rip-Rap, Keyed-In

FROM STA. 6+66 TO STA. 7+50 -L- RT

DETAIL 3
SPECIAL 'V' DITCH
(Not to Scale)



FROM STA. 7+50 TO STA. 10+29 -L- RT

-L- POT Sta. 0+00.00

BEGIN PROPOSED WIDENING
-L- STA.4+30.50

MATCHLINE -L- STA. 11+00.00
SEE SHEET 4

0+00 5+00 10+00

-L- US 70 BUS.

200' EX. R/W

S 61° 02' 24.2" E

100' TAPER 75' FULL LANE 400' LANE TRANSITION 200' TAPER 435' FULL LANE

TIE TO EXISTING GUARDRAIL
-L- STA.4+30.50 RT.

REMOVE 20 LF

CL 'I' RIP RAP
EST. 3 TONS
EST. 7 SYGF

SPECIAL 'V' DITCH
w/CL 'I' RIP RAP
SEE DETAIL 4

SPECIAL 'V' DITCH
SEE DETAIL 3

1102 COLLAR AND EXTEND TIE TO EXISTING STORM DRAINAGE SYSTEM

1103

1110

CAT-1

RETAIN

TBM #1
N = 694468
E = 2154424
ELEV = 287.12'
-BL- STA.11+69.00
YELLOW BENCH TIE IN

PRIVATE BMP AND ACCESS EASEMENT
MB 84 PG 241

VARIABLE WIDTH PUBLIC UTILITY EASEMENT
MB 84 PG 241

20' PUBLIC UTILITY EASEMENT
MB 84 PG 241

STALLINGS MILL APARTMENTS, LLC
DB 4424 PG 368
MB 69 PG 144
MB 84 PG 241

Earthlink Business LLC

Johnston County Public Utility

JAMES W. CASH
DB 552 PG 347

TEDDY FOSTER BEDDINGFIELD
DB 528 PG 427
DB 895 PG 538

SHOTWELL 70 PARTNERS, LLC
& CONWAY CENTRE, LLC
DB 3616 PG 920
MB 77 PG 495-496
MB 50 PG 160

HEALTH PROPERTIES
INVESTMENTS, INC.
DB 4286 PG 499
MB 77 PG 495-496

SHOTWELL 70 PARTNERS, LLC
& CONWAY CENTRE, LLC
DB 3616 PG 920
DB 1933 PG 754
MB 77 PG 495-496
MB 69 PG 144
MB 56 PG 54

BALDIES RESTAURANT
GROUP, LLC
DB 4359 PG 113
PB 77 PG 495
PB 77 PG 496

24' CROSS ACCESS EASEMENT
MB 77 PG 495

36' CROSS ACCESS & UTILITY EASEMENT
MB 77 PG 495

20' SEWER EASEMENT
MB 50 PG 160

50' NATURAL GAS EASEMENT
MB 17 PG 496

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1 Glenwood Avenue
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Fax:919.789.9591
License: F-0453

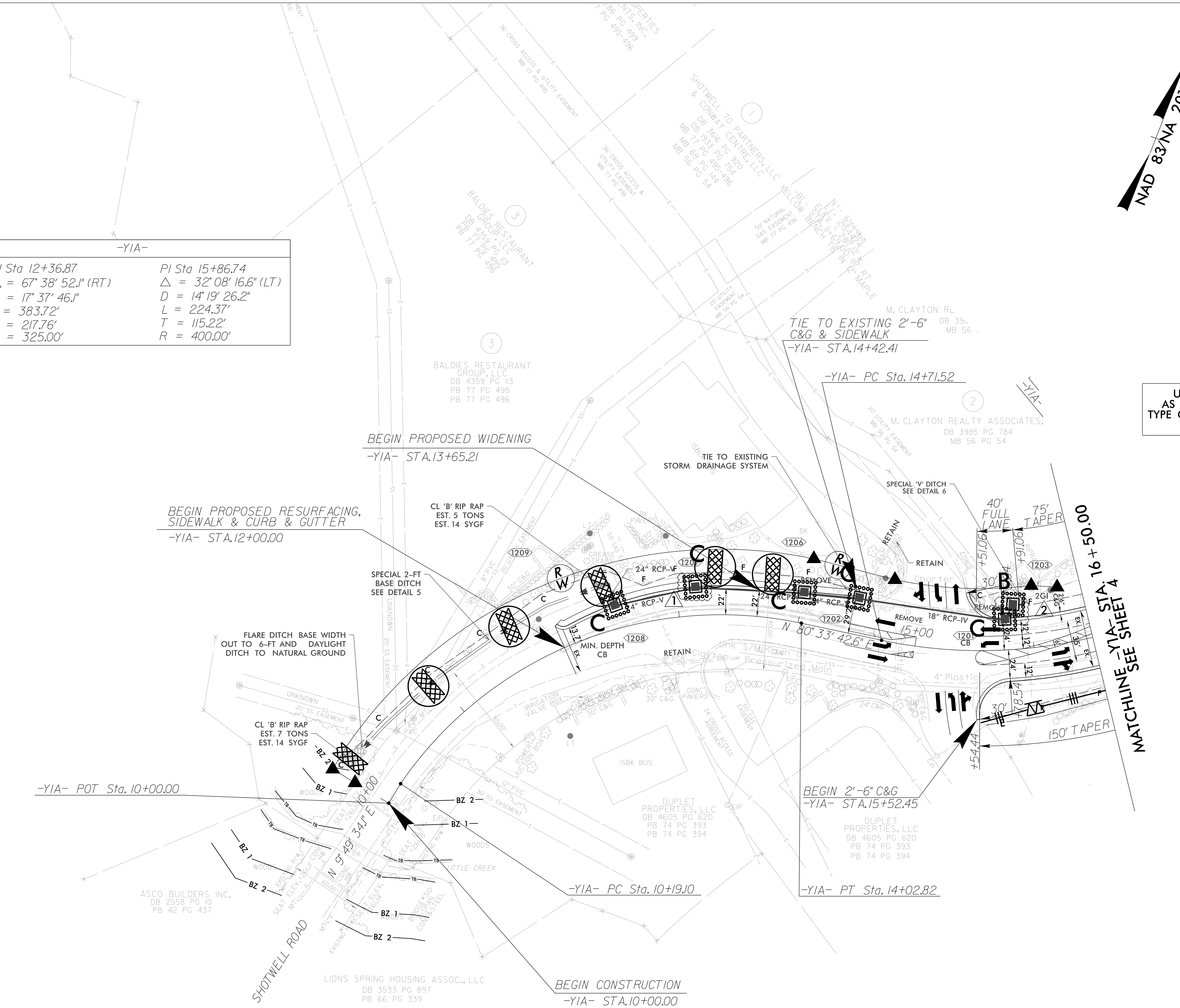
8/17/99

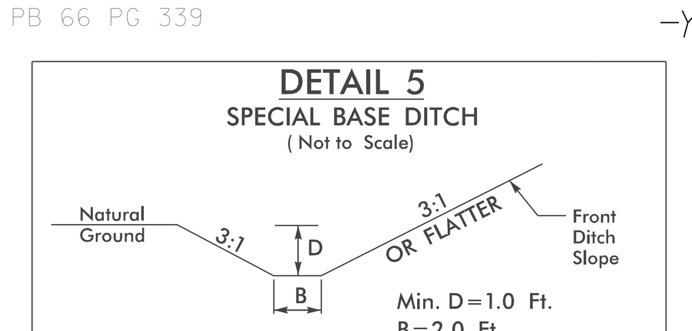
REVISIONS

FINAL PHASE
EROSION CONTROL FOR
CONSTRUCTION SHEET 4B

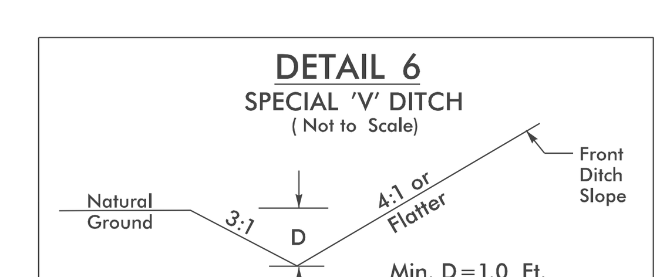
UTILIZE FABRIC INSERT INLET PROTECTION DEVICES AS DIRECTED IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C TO AVOID IMPOUNDING RUNOFF ON ROADWAYS OPEN TO THE PUBLIC

-Y1A-	
PI Sta 12+36.87	PI Sta 15+86.74
△ = 67° 38′ 52.1″ (RT)	△ = 32° 08′ 16.6″ (LT)
D = 17° 37′ 46.1″	D = 14° 19′ 26.2″
L = 383.72′	L = 224.37′
T = 217.76′	T = 115.22′
R = 325.00′	R = 400.00′


NAD 83/NA 2011
BEGIN PROPOSED WIDENING
-Y1A- STA.13+65.21
BEGIN PROPOSED RESURFACING, SIDEWALK & CURB & GUTTER
-Y1A- STA.12+00.00
TIE TO EXISTING 2′-6″ C&G & SIDEWALK
-Y1A- STA.14+42.41
-Y1A- PC Sta. 14+71.52
TIE TO EXISTING STORM DRAINAGE SYSTEM
SPECIAL 'V' DITCH SEE DETAIL 6
CL 'B' RIP RAP EST. 5 TONS EST. 14 SYGF
SPECIAL 2-FT BASE DITCH SEE DETAIL 5
FLARE DITCH BASE WIDTH OUT TO 6-FT AND DAYLIGHT DITCH TO NATURAL GROUND
CL 'B' RIP RAP EST. 7 TONS EST. 14 SYGF
-Y1A- POT Sta. 10+00.00
-Y1A- PC Sta. 10+19.10
-Y1A- PT Sta. 14+02.82
BEGIN 2′-6″ C&G
-Y1A- STA.15+52.45
BEGIN CONSTRUCTION
-Y1A- STA.10+00.00
MATCHLINE -Y1A- STA. 16+50.00 SEE SHEET 4
-Y1A- SHOTWELL ROAD
40′ FULL LANE
75′ TAPER
150′ TAPER
N 80° 33′ 42.6″ E
N 9° 49′ 34.1″ E
MIN. DEPTH CB
RETAIN
REMOVE
24″ RCP-IV
18″ RCP-IV
BALDIES RESTAURANT GROUP, LLC DB 4359 PG 113 PB 77 PG 495 PB 77 PG 496
M. CLAYTON REALTY ASSOCIATES DB 3985 PG 784 MB 56 PG 54
DUPLET PROPERTIES, LLC DB 4605 PG 620 PB 74 PG 393 PB 74 PG 394
ASCO BUILDERS INC. DB 2558 PG 10 PB 42 PG 437
LIONS SPRING HOUSING ASSOC., LLC DB 3533 PG 897 PB 66 PG 339



FROM STA. 10+10 TO STA. 12+50 -Y1A- LT



FROM STA. 15+85 TO STA. 16+00 -Y1A- LT

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

8/17/99

REVISIONS

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES AS DIRECTED IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C TO AVOID IMPOUNDING RUNOFF ON ROADWAYS OPEN TO THE PUBLIC

NAD 83/NA 2011

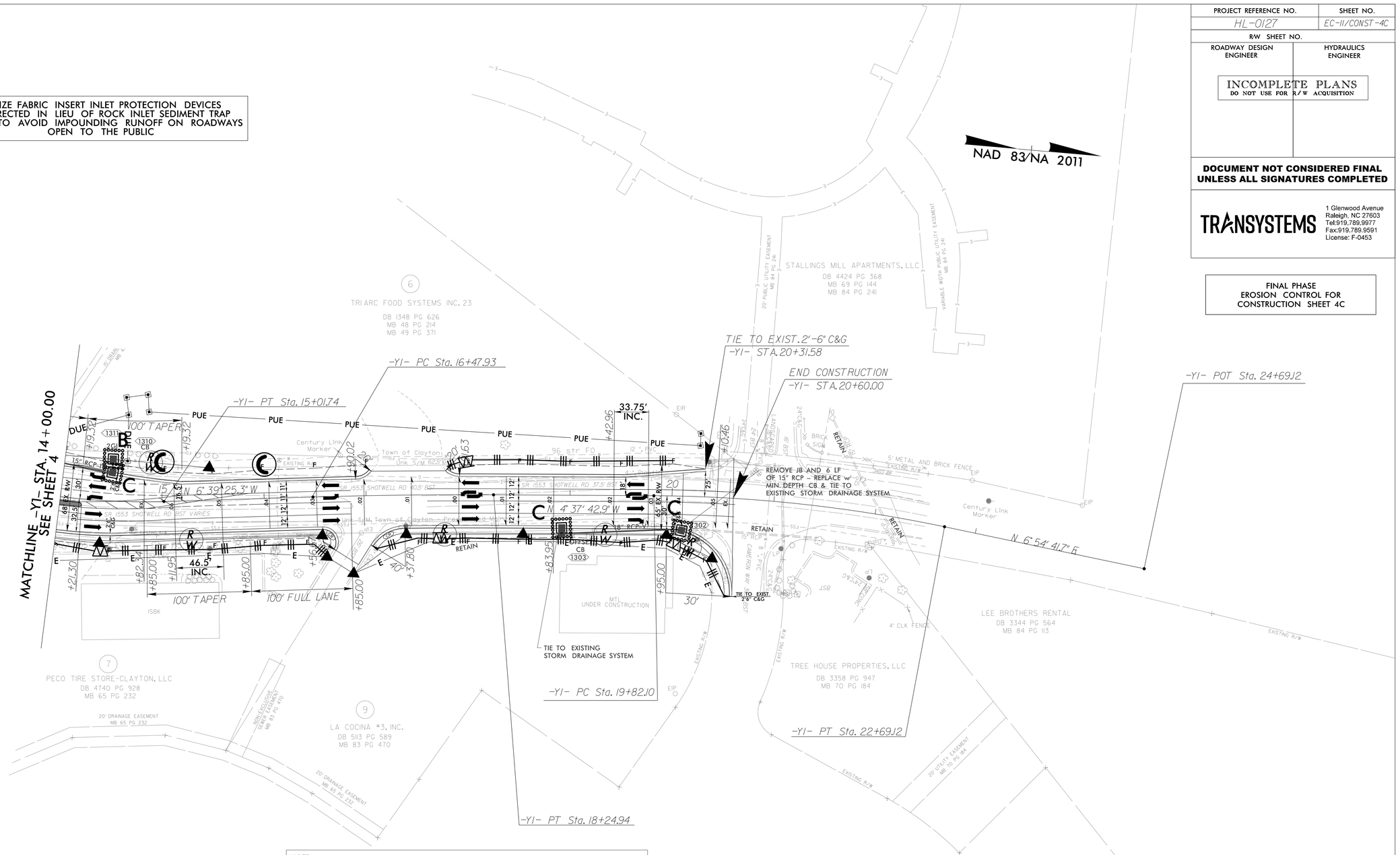
PROJECT REFERENCE NO.	SHEET NO.
HL-0127	EC-11/CONST-4C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

FINAL PHASE
EROSION CONTROL FOR CONSTRUCTION SHEET 4C



NOTE:

PARCEL #9 "LA COCINA #3, INC." WAS UNDER CONSTRUCTION AT THE TIME OF ROADWAY PLAN DEVELOPMENT. FIELD SURVEYS WERE COMPLETED PRIOR TO SITE GRADING AND INSTALLATION OF DRAINAGE INFRASTRUCTURE. SITE PLANS HAVE BEEN REVIEWED IN ORDER TO COORDINATE ROADWAY AND DRAINAGE DESIGN FOR THE NCDOT PROJECT.

NEWLY INSTALLED PIPED DRAINAGE INFRASTRUCTURE ON PARCEL #9 WILL SERVE AS THE DRAINAGE OUTLET FOR THE ROADWAY DRAINAGE SYSTEM LEAVING THE RIGHT-OF-WAY AT PROPOSED STRUCTURE 1303. THE INVERT ELEVATION FOR STRUCTURE 1303 IS BASED ON SITE DEVELOPMENT PLANS BY OTHERS, AND SHOULD BE VERIFIED PRIOR TO CONSTRUCTION.

-Y1-	
PI Sta 17+36.45	PI Sta 21+26.10
△ = 2° 01' 42.5" (RT)	△ = 11° 32' 24.5" (RT)
D = 1° 08' 45.3"	D = 4° 01' 14.7"
L = 177.02'	L = 287.01'
T = 88.52'	T = 143.99'
R = 5,000.00'	R = 1,425.00'
SE = SEE PLANS	SE = SEE PLANS

$$$$SYSTEM$$$$
$$$$USERNAME$$$$

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

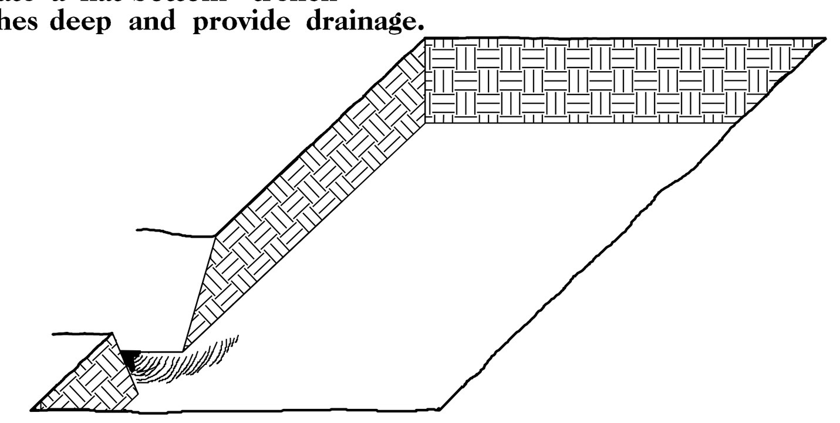
PLANTING DETAILS

SEEDLING / LINER BAREROOT PLANTING DETAIL

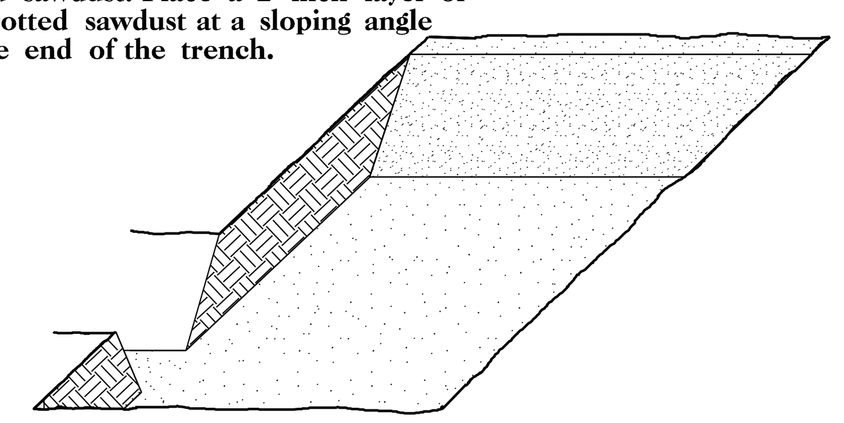
HEALING IN

1. Locate a healing–in site in a shady, well protected area.

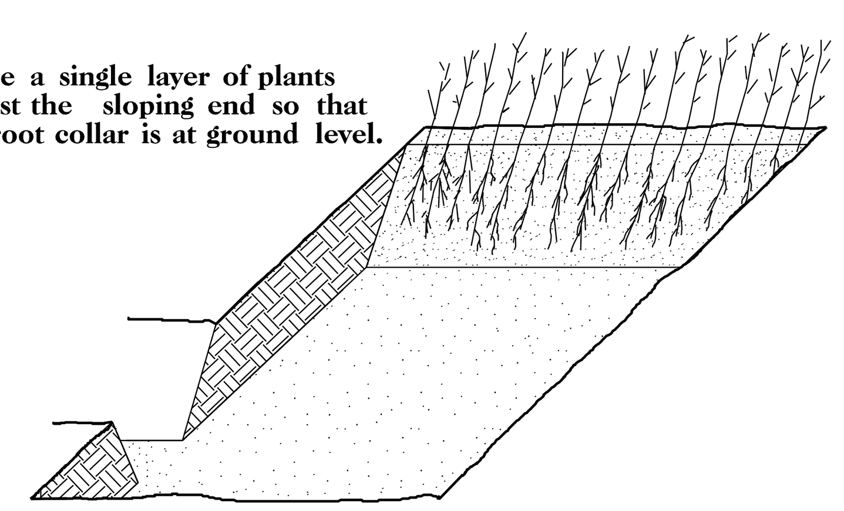
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



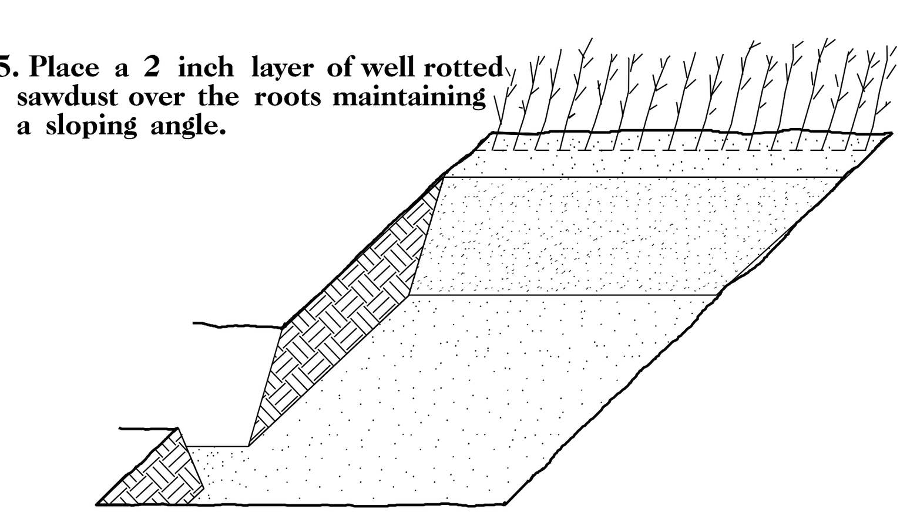
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

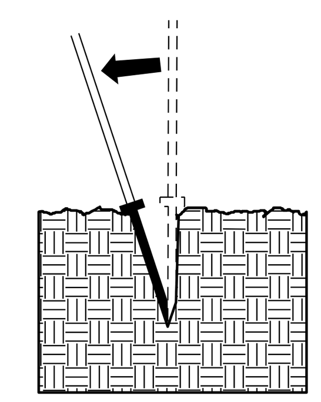


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

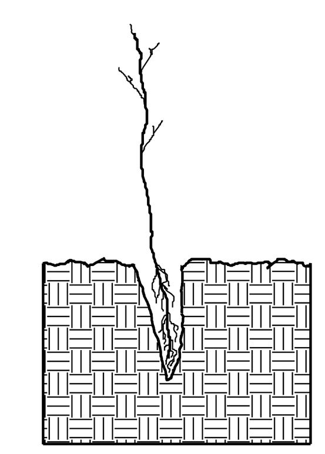


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

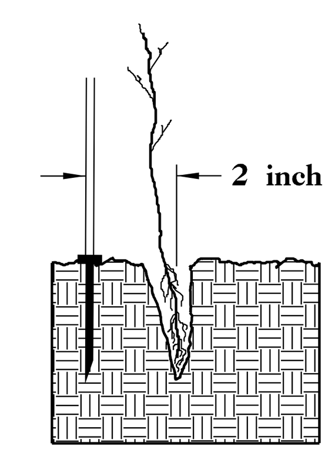
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



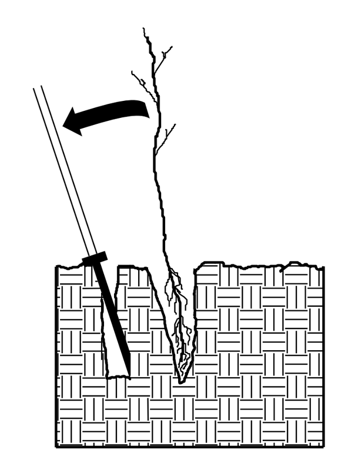
1. Insert planting bar as shown and pull handle toward planter.



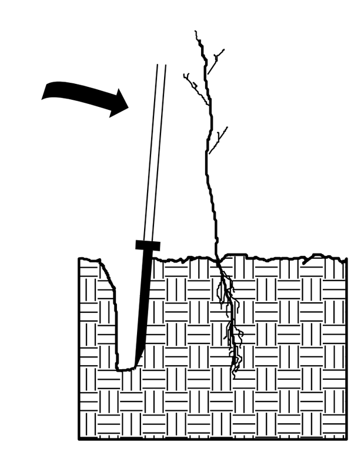
2. Remove planting bar and place seedling at correct depth.



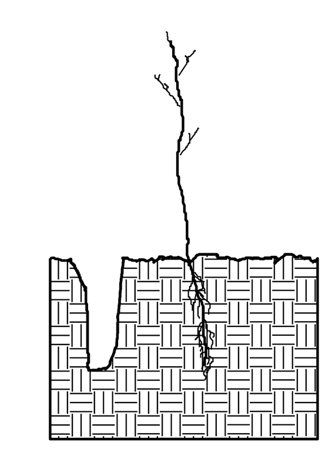
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



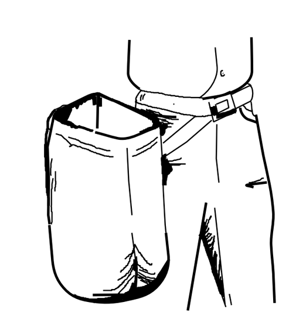
5. Push handle forward firming soil at top.



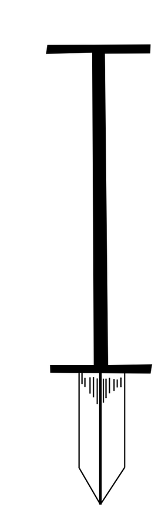
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

33%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
33%	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in BR
34%	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

8/17/99

3/13/2024 ...W5704A_B_rev_EC-02_DTL.dgn

PROJECT: HL-0127

CONTRACT: DD00366

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
JOHNSTON COUNTY

LOCATION: US-70 BUSINESS AT SR 1553 (SHOTWELL ROAD)

TIP NO.	SHEET NO.
HL-0127	SIGN-1

APPROVED: DocuSigned by: Steve Miller 9FBC6C15CEEB486...

DATE: 1/31/2024

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

PROJECT NOTES

1. DISPOSAL OF SIGN SYSTEM, U-CHANNEL

GENERAL NOTES

. SIGNS FURNISHED BY STATE

. 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.

. SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	491	LF
4102000000	904	SIGN ERECTION, TYPE E	24	EA
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	14	EA

INDEX

PLAN PREPARED BY:
SEPI ENGINEERING & CONSTRUCTION

Steve Miller, PE PROJECT MANAGER

John Bauman, PE DESIGN ENGINEER

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

V3\2024
X:\2019\SE19.149.01 WBS 80074 Shotwell Road and US 70\TP\Traffic\Signing\W-5704A&B_SIGN_1.dgn
bauman

TIP NO.	SHEET NO.
HL-0127	SIGN-2

APPROVED: Steve Miller

DATE: 1/31/2024

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037026 STEVEN D. MILLER

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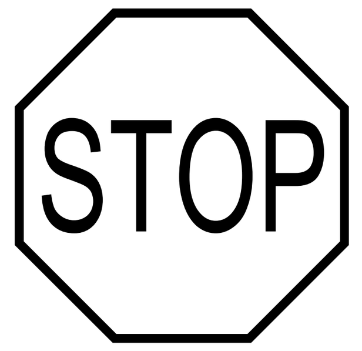
(401) QUANTITY REQ'D 4



36" X 36"
R1-1

TWO "U" POSTS PER SIGN

(406) QUANTITY REQ'D 3

30" X 36"
R4-7

ONE "U" POST PER SIGN

(402) QUANTITY REQ'D 1

30" X 36"
R2-1 (45)

ONE "U" POST PER SIGN

(407) QUANTITY REQ'D 1

24" X 30"
R2-1 (35)

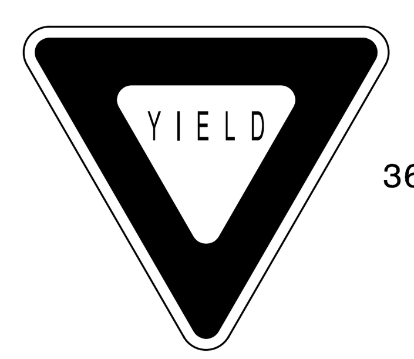
ONE "U" POST PER SIGN

(403) QUANTITY REQ'D 1

36" X 36"
R3-4

ONE "U" POST PER SIGN

(411) QUANTITY REQ'D 2



36" X 36"
R1-2

ONE "U" POST PER SIGN

(404) QUANTITY REQ'D 5

54" X 18"
R6-1R

TWO "U" POST PER SIGN

(412) QUANTITY REQ'D 2

36" X 36"
R5-1

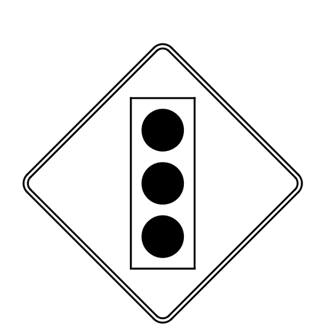
ONE "U" POST PER SIGN

(405) QUANTITY REQ'D 2

36" X 36"
R3-7R

ONE "U" POST PER SIGN

(413) QUANTITY REQ'D 3



30" X 30"
W3-3

ONE "U" POST PER SIGN

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

TYPE "E" SIGNS

X:\2019\SE19.149.01 WBS 80074 Shotwell Road and US 70\TP\Traffic\Signing\W-5704A&B_SIGN_2.dgn
1/31/2024

TIP NO.	SHEET NO.
HL-0127	SIGN-3

APPROVED: Steve Miller

DATE: 1/31/2024

SEAL

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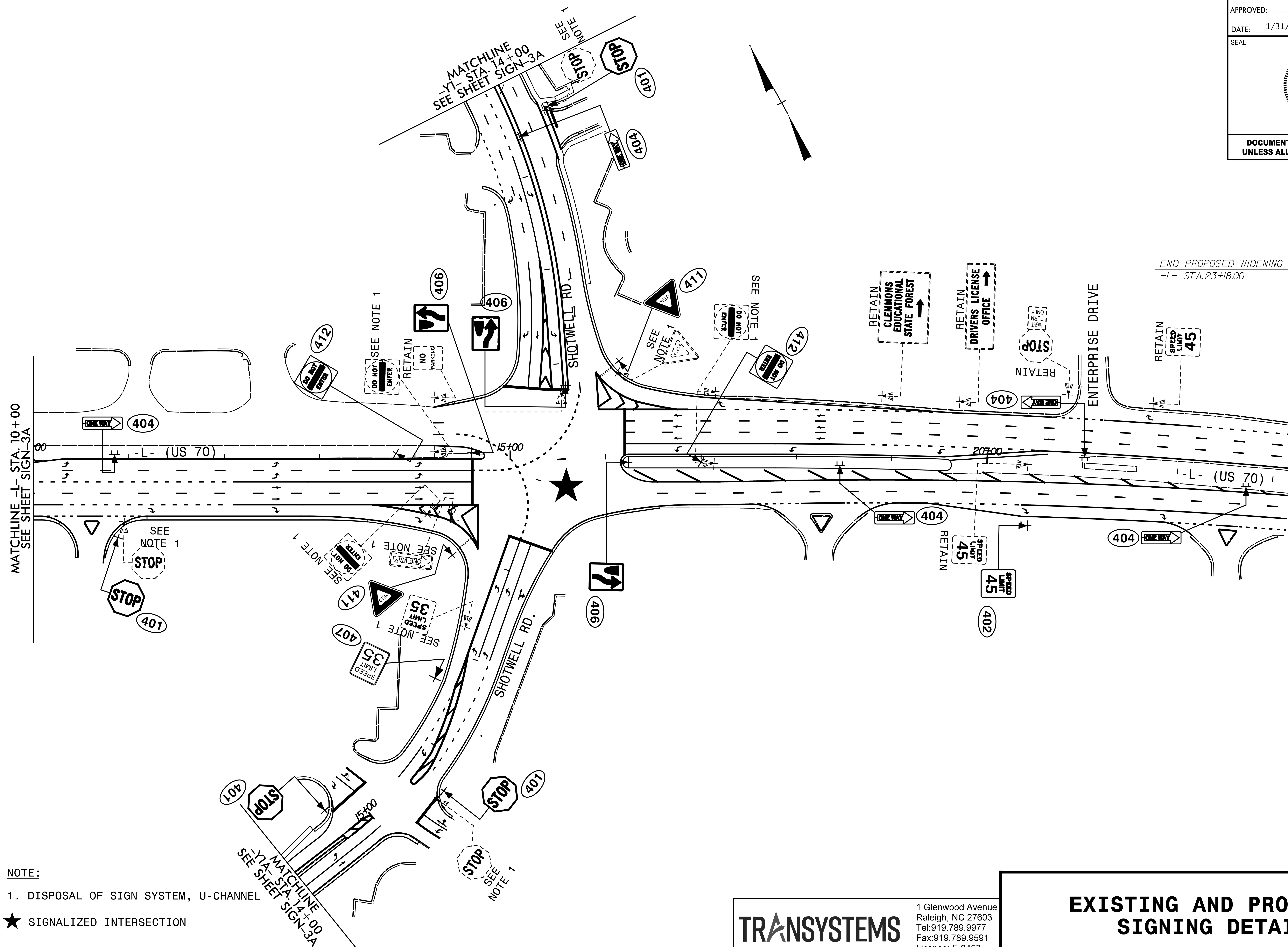


NOTE:

1. DISPOSAL OF SIGN SYSTEM, U-CHANNEL

★ SIGNALIZED INTERSECTION

TRANSYSTEMS

1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

EXISTING AND PROPOSED SIGNING DETAIL

TIP NO.	SHEET NO.
HL-0127	SIGN-3A

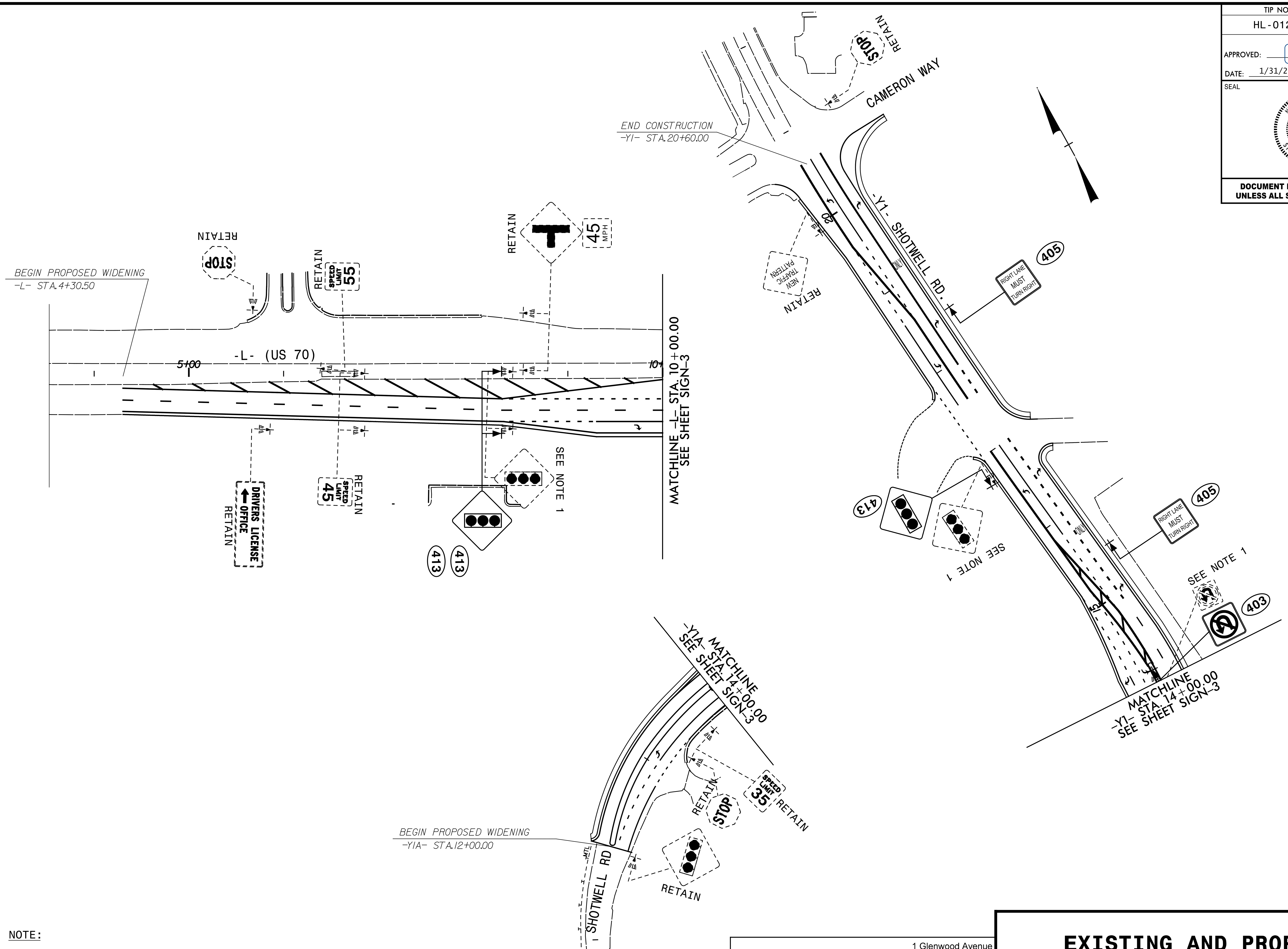
APPROVED: Steve Miller

DATE: 1/31/2024

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NOTE:

1. DISPOSAL OF SIGN SYSTEM, U-CHANNEL

TRANSYSTEMS

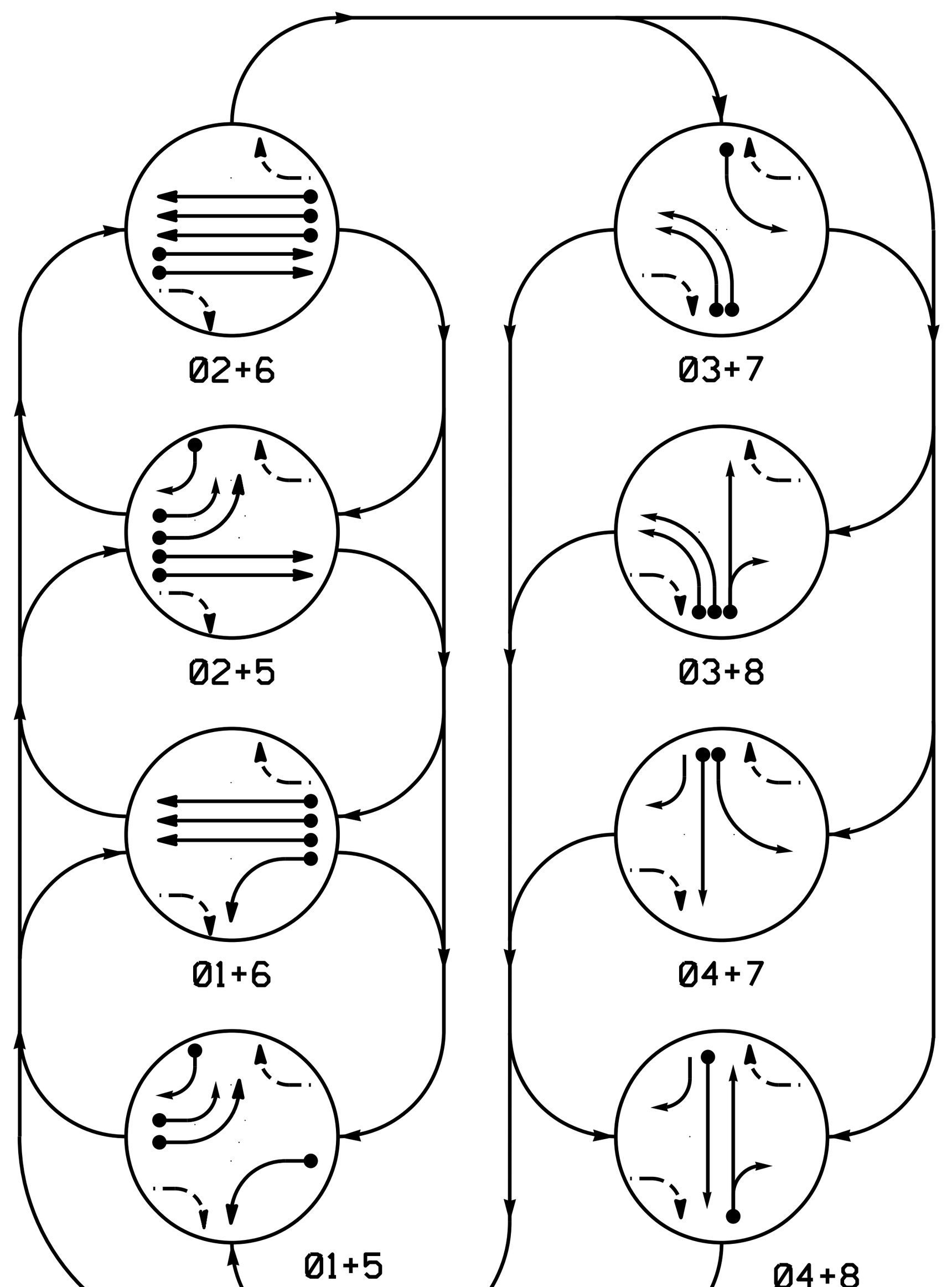
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

EXISTING AND PROPOSED SIGNING DETAIL

1/31/2024
X:\2019\SE19.149.01 WBS 80074 Shotwell Road and US 70\TP\Traffic\Signing\W-5704A&B_SIGN_3A.dgn

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	Sig. 1.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

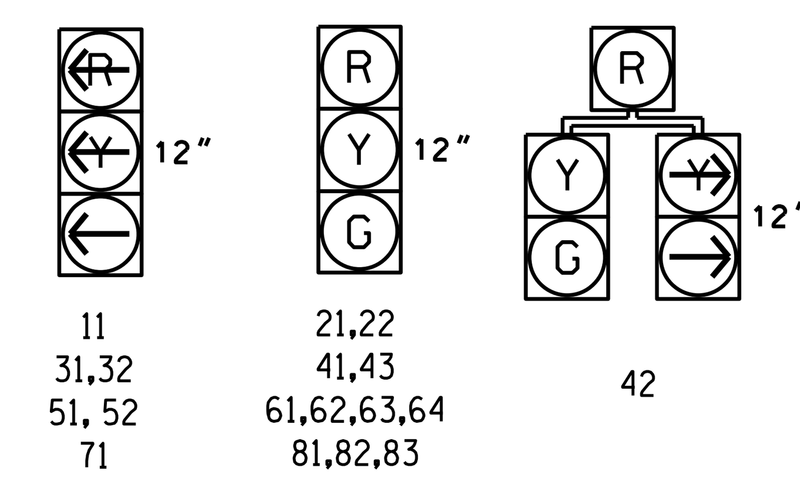
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	FLASH
11	←	←	←R	←R	←R	←R	←R	←R	←R
21,22	R	R	G	G	R	R	R	R	Y
31,32	←R	←R	←R	←R	←	←	←R	←R	←R
41,43	R	R	R	R	R	R	G	G	R
42	R / →	R	R / →	R	R	R	G	G	R
51,52	←	←R	←	←R	←R	←R	←R	←R	←R
61,62,63,64	R	G	R	G	R	R	R	R	Y
71	←R	←R	←R	←R	←	←R	←	←R	←R
81,82,83	R	R	R	R	R	G	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



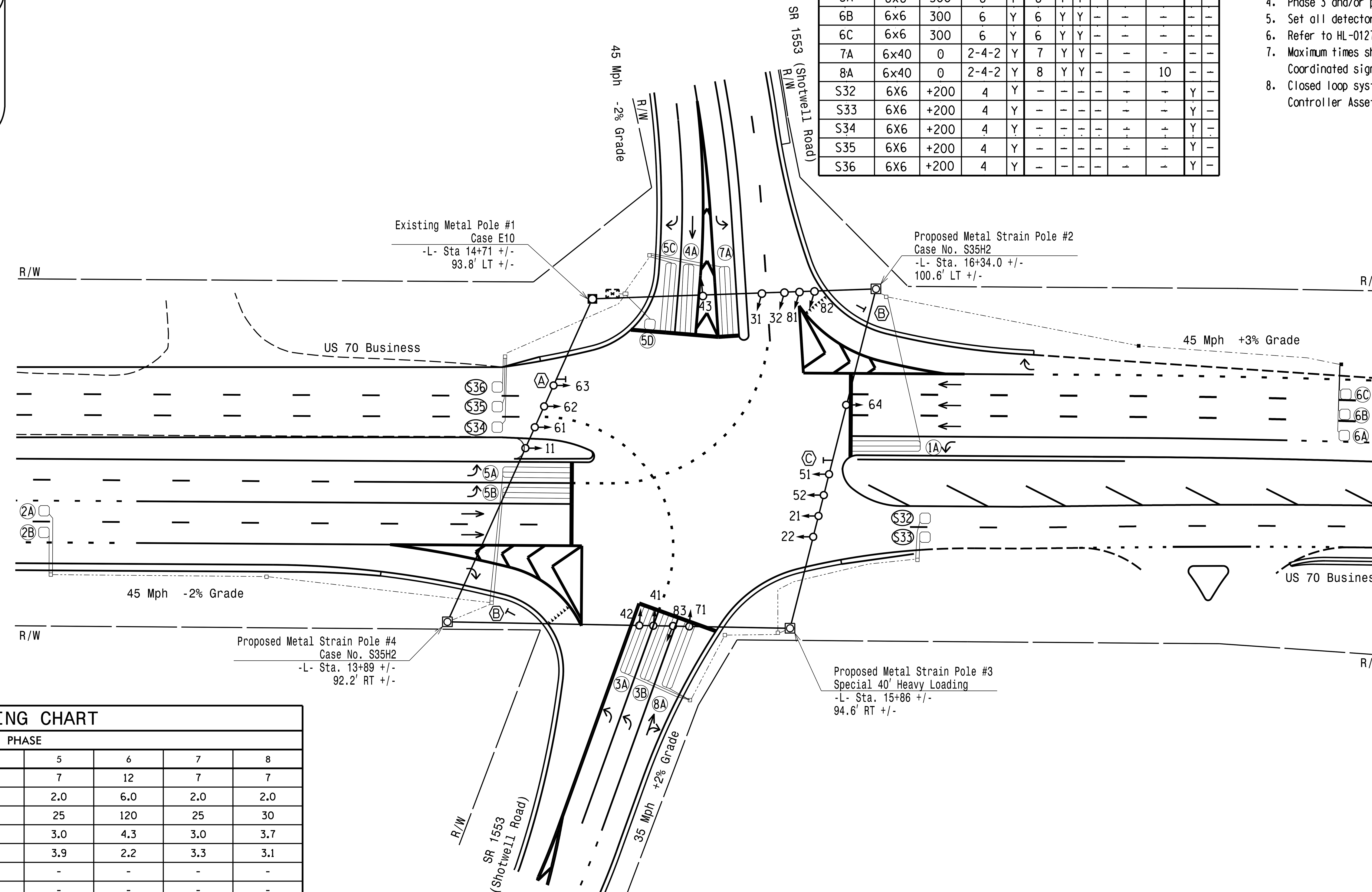
OASIS 2070 LOOP & DETECTOR INSTALLATION

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	–	–	–	–	–
2A	6x6	300	6	Y	2	Y	Y	–	–	–	–	–
2B	6x6	300	6	Y	2	Y	Y	–	–	–	–	–
3A	6x40	0	2-4-2	Y	3	Y	Y	–	–	3	–	–
3B	6x40	0	2-4-2	Y	3	Y	Y	–	–	-	–	–
4A	6x40	0	2-4-2	Y	4	Y	Y	–	–	-	–	–
5A	6x40	0	2-4-2	Y	5	Y	Y	–	–	–	–	–
5B	6x40	0	2-4-2	Y	5	Y	Y	–	–	–	–	Y
5C	6x40	0	2-4-2	Y	5	Y	Y	–	–	15	–	–
5D	6x6	0	3	Y	5	Y	Y	–	–	15	–	–
6A	6x6	300	6	Y	6	Y	Y	–	–	–	–	–
6B	6x6	300	6	Y	6	Y	Y	–	–	–	–	–
6C	6x6	300	6	Y	6	Y	Y	–	–	–	–	–
7A	6x40	0	2-4-2	Y	7	Y	Y	–	–	-	–	–
8A	6x40	0	2-4-2	Y	8	Y	Y	–	–	10	–	–
S32	6X6	+200	4	Y	–	–	–	–	–	–	Y	–
S33	6X6	+200	4	Y	–	–	–	–	–	–	Y	–
S34	6X6	+200	4	Y	–	–	–	–	–	–	Y	–
S35	6X6	+200	4	Y	–	–	–	–	–	–	Y	–
S36	6X6	+200	4	Y	–	–	–	–	–	–	Y	–

8 Phase
Fully Actuated
US 70 Bus. - NC 42 (Clayton) CLS
Signal System D04-01

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024, "Standard Specifications for Roads and Structures" dated January 2024.
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. Refer to HL-0127 Pavement Marking Plans for pavement markings.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
8. Closed loop system data:
   Controller Asset #: 1086.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
	Right of Way	
	Directional Arrow	
	Strain Pole	
	Pedestrian Signal Head With Push Button & Sign	
Ⓐ	"LANE ENDS 2000 FT" Sign	Ⓐ
Ⓑ	"YIELD" Sign (R1-2)	Ⓑ
Ⓒ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓒ

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	12	7	7	7	12	7	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max Green 1 *	25	120	25	30	25	120	25	30
Yellow Clearance	3.0	4.7	3.0	4.7	3.0	4.3	3.0	3.7
Red Clearance	4.3	1.7	3.9	2.0	3.9	2.2	3.3	3.1
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-	-
Max Variable Initial *	-	34	-	-	-	34	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	30	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	-	-	-	-	-
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.

THIS PLAN SUPERSEDES THE PLAN SIGNED AND SEALED ON 10/26/2021

RS&H
NC FIRM LICENSE No: F-0493
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
(919) 926-4100

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

US 70 Business
at
SR 1533 (Shotwell Road)

Division 4 Johnston County Clayton

PLAN DATE: May 2024	REVIEWED BY: P. Koloski
PREPARED BY: S.G. Haynie	REVIEWED BY:

SCALE 0 40'
1"=40'

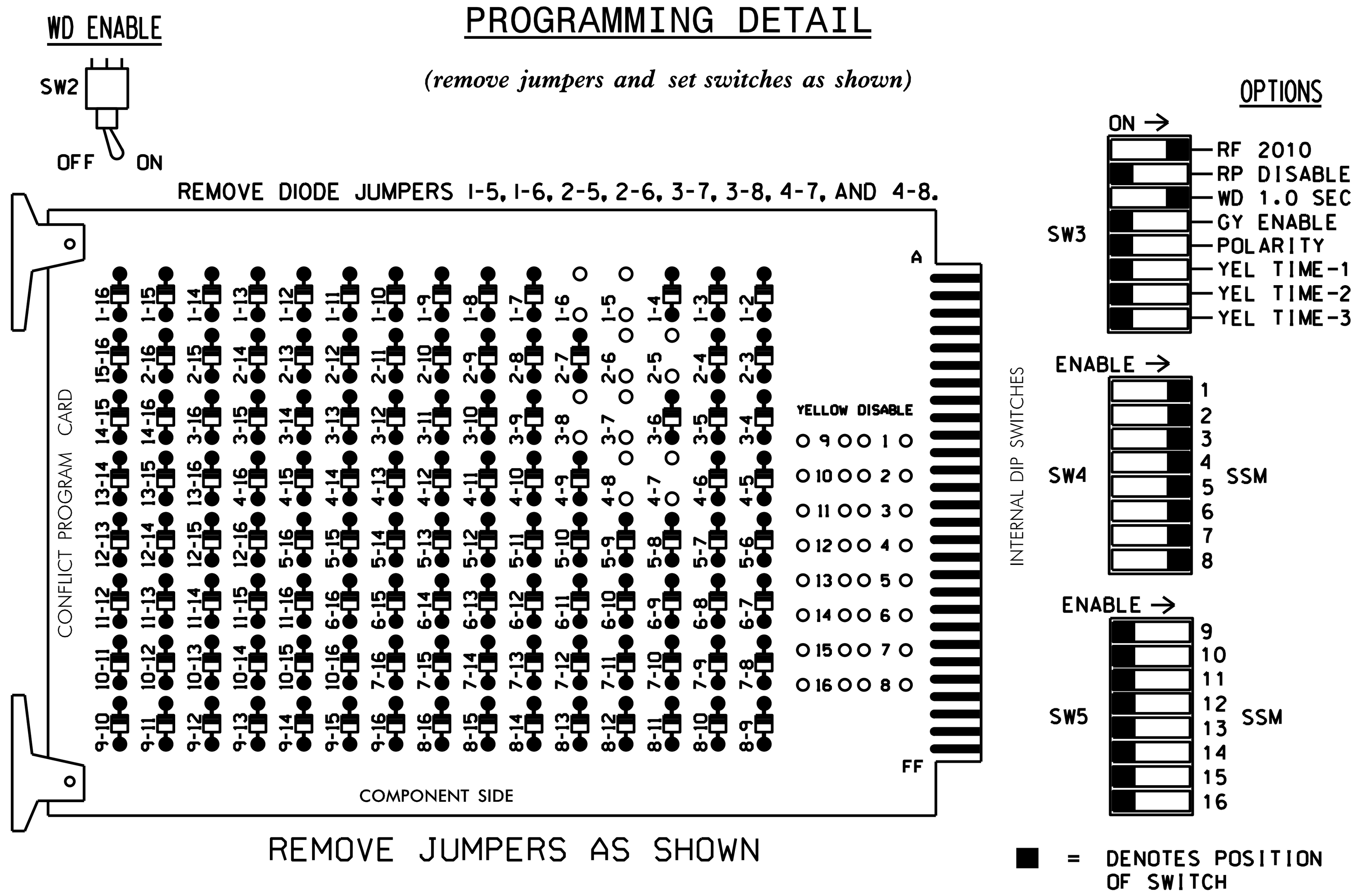
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 029531 ENGINEER STEVEN G. HAYNIE

Steven G. Haynie 5/16/2024
SIGNATURE DATE
SIG. INVENTORY NO. 04-1086

16 CHANNEL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

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. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 9, 10, 11, 12, 13, 14, 15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Enable simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash.
7. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
8. The cabinet and controller are part of the US 70 Bus. - NC 42 (Clayton) CLS - Signal System D04-01.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5		S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5		6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11	21,22	NU	31,32	41,42 43	NU	51,52	42	61,62 63,64	NU	71	81,82 83	NU
RED		128			101				134			107	
YELLOW		129			102				135			108	
GREEN		130			103				136			109	
RED ARROW	125			116			131				122		
YELLOW ARROW	126			117			132	132			123		
GREEN ARROW	127			118			133	133			124		

NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER..............2070
CABINET.................332
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S1,S2,S3,S4,S5,S6,S7,S8
PHASES USED.............1,2,3,4,5,6,7,8
OVERLAPS................NONE

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø 2 2A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 3 3A	Ø 7 7A	SLOT EMPTY	SYS DET. S32	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø 2 2B				Ø 3 3B	Ø 4 4A		SYS DET. S33					ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø 6 6A	Ø 6 6C	SLOT EMPTY	SLOT EMPTY	SYS DET. S34	SYS DET. S35	Ø 8 8A	Ø 5 5C	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	Ø 6 6B	Ø 5 5B			NOT USED	SYS DET. S36	NOT USED	Ø 5 5D					

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

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			3
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			
4A	TB6-3,4	I7L	78	40	44	4	Y	Y			
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
5B	TB3-11,12	J3L	77	39	46	5	Y	Y			
5C	TB7-9,10	J9U	59	21	15	5	Y	Y			15
5D	TB7-11,12	J9L	61	23	17	5	Y	Y			15
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
6C	TB3-9,10	J3U	64	26	36	6	Y	Y			
7A	TB6-1,2	I7U	65	27	34	7	Y	Y			
8A	TB7-5,6	J8U	50	12	28	8	Y	Y			10
*S32	TB6-9,10	I9U	60	22	11	SYS					
*S33	TB6-11,12	I9L	62	24	13	SYS					
*S34	TB5-9,10	J6U	42	4	8	SYS					
*S35	TB7-1,2	J7U	66	28	38	SYS					
*S36	TB7-3,4	J7L	79	41	48	SYS					

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

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

RS&H
NC FIRM LICENSE No: F-0493
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
(919) 926-4100

THIS PLAN SUPERSEDES THE PLAN SIGNED AND SEALED ON 10/26/2021

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-1086
DESIGNED: May 2024
SEALED: 5/17/2024
REVISED: N/A

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

US 70 Business
at
SR 1533 (Shotwell Road)

Division 4 Johnston County Clayton

PLAN DATE:	May 2024	REVIEWED BY:	P. Koloski
PREPARED BY:	S.G. Haynie	REVIEWED BY:	-

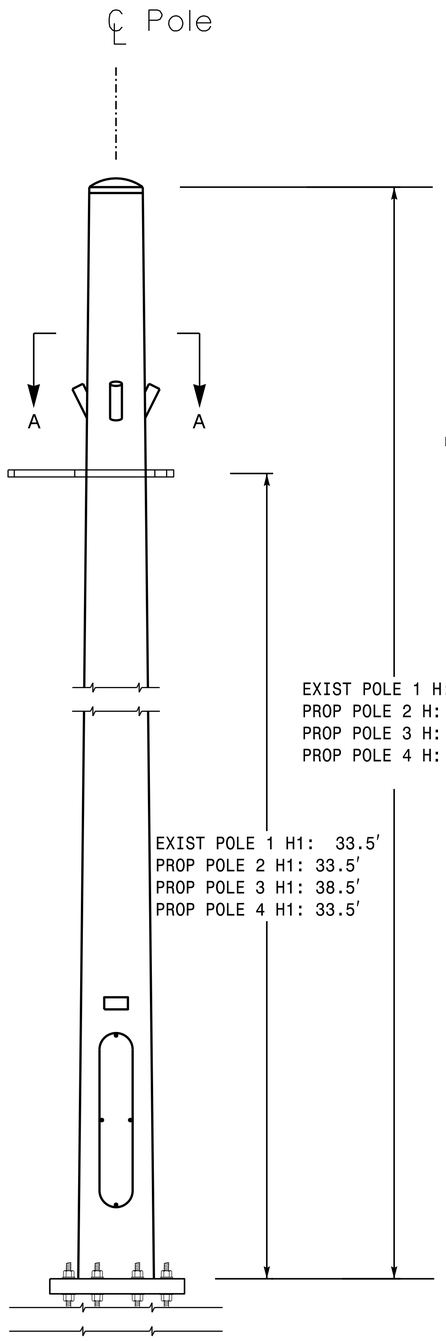
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029531 STEVEN G. HAYNIE

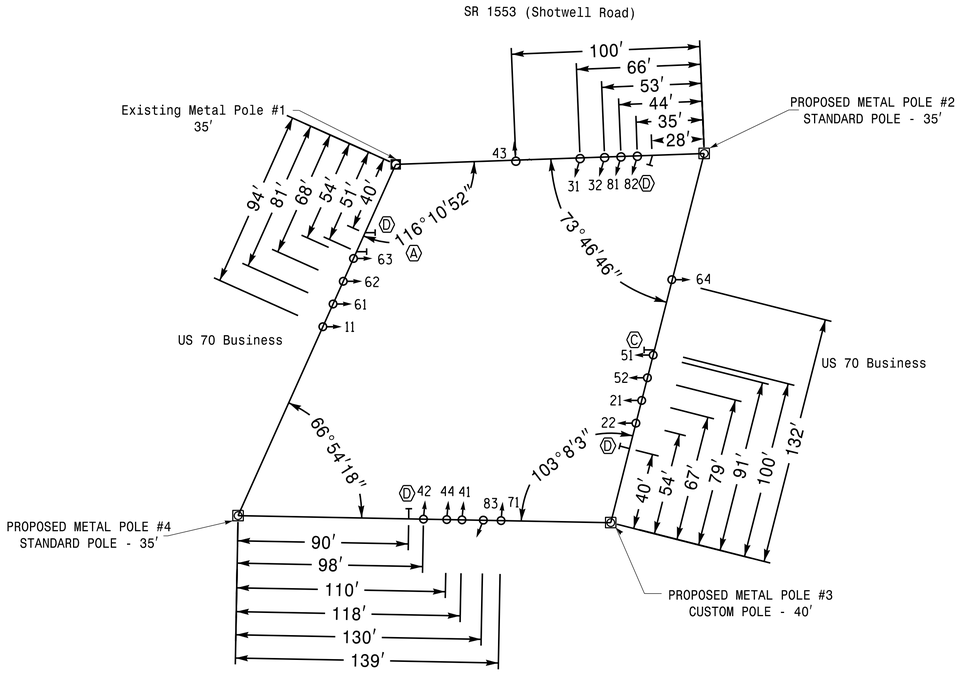
Steven G. Haynie 5/17/2024
SIGNATURE DATE

Sig. Inventory No. 04-1086

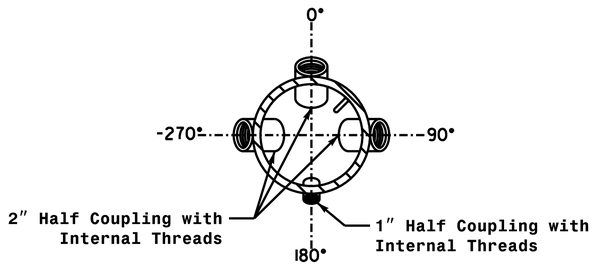
PROJECT REFERENCE NO.	SHEET NO.
HL-0127	Sig. 1.2



Pole Elevation



Loading Diagram



Section A - A

NOTES

1. Design the traffic signal structure and foundation in accordance with:
   - *The 1st Edition 2015 AASHTO "Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - *The 2024 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - *The 2024 NCDOT Roadway Standard Drawings.
   - *The traffic signal project plans and special provisions.
   - *The NCDOT "Metal Pole Standards" located at the following NCDOT website: https:/connect.ncdot.gov/resources/safety/pages/ITS-Design-Resources.aspx
2. Fabricate Metal Poles #2, #3, and #4 using design loadings shown. The contractor may revise attachment heights and radial orientations of wire entrances with approval from the Division Traffic Engineer. Any modifications to the original location of accessories must be reflected on the shop drawings when they are submitted for review and approval.
3. Design a drilled pier foundation that conforms to the requirements of ITSS Project Special Provisions (Version 24.0) included with and as part of these plans.

LOADING SCHEDULE FOR STRAIN POLES

HEAD	DESCRIPTION	AREA	SIZE	WEIGHT
11 21, 22 31, 32 41, 43, 44* 51, 52 61, 62, 63, 64 71 81, 82, 83	SIGNAL HEAD 12″ – 3 SECTION–WITH BACKPLATE, HANGER, AND BALANCE ADJUSTER	9.2 S.F.	25.5″ W X 52.0″ L	56 LBS
42*	SIGNAL HEAD 12″ – 4 SECTION (VERTICAL) –WITH BACKPLATE, HANGER, AND BALANCE ADJUSTER	11.6 S.F.	25.5″ W X 65.5″ L	69 LBS
Ⓐ	"LANE ENDS 2000 FT" SIGN WITH HANGER	7.5 S.F.	30.0″ W X 36.0″ L	14 LBS
Ⓒ	R10–16 SIGN WITH HANGER	7.5 S.F.	30.0″ W X 36.0″ L	14 LBS
Ⓓ*	STREET NAME SIGN WITH HANGER	16.0 S.F.	24.0″ W X 96.0″ L	36 LBS

*4–SECTION FYA (42), ADDITIONAL 3–SECTION HEAD (44), AND STREET NAME SIGNS ARE WORST CASE LOADING CONDITION

LOADING DIAGRAM:
EXISTING METAL POLE 1
PROPOSED METAL POLES 2, 3, AND 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

THIS PLAN SUPERSEDES THE PLAN SIGNED AND SEALED ON 10/26/2021

RS&H
NC FIRM LICENSE No: F-0493
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
(919) 926-4100

Prepared for the Office of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section
750 N. Greenfield Pkwy., Garner, NC 27529

US 70 Business
at
SR 1533 (Shotwell Road)

Division 4 Johnston County Clayton

PLAN DATE:	May 2024	REVIEWED BY:	P. Koloski
PREPARED BY:	S.G. Haynie	REVIEWED BY:	-

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 029531 ENGINEER STEVEN G. HAYNIE
Steven G. Haynie 5/17/2024
SIGNATURE DATE
Sig. Inventory No. 04-1086

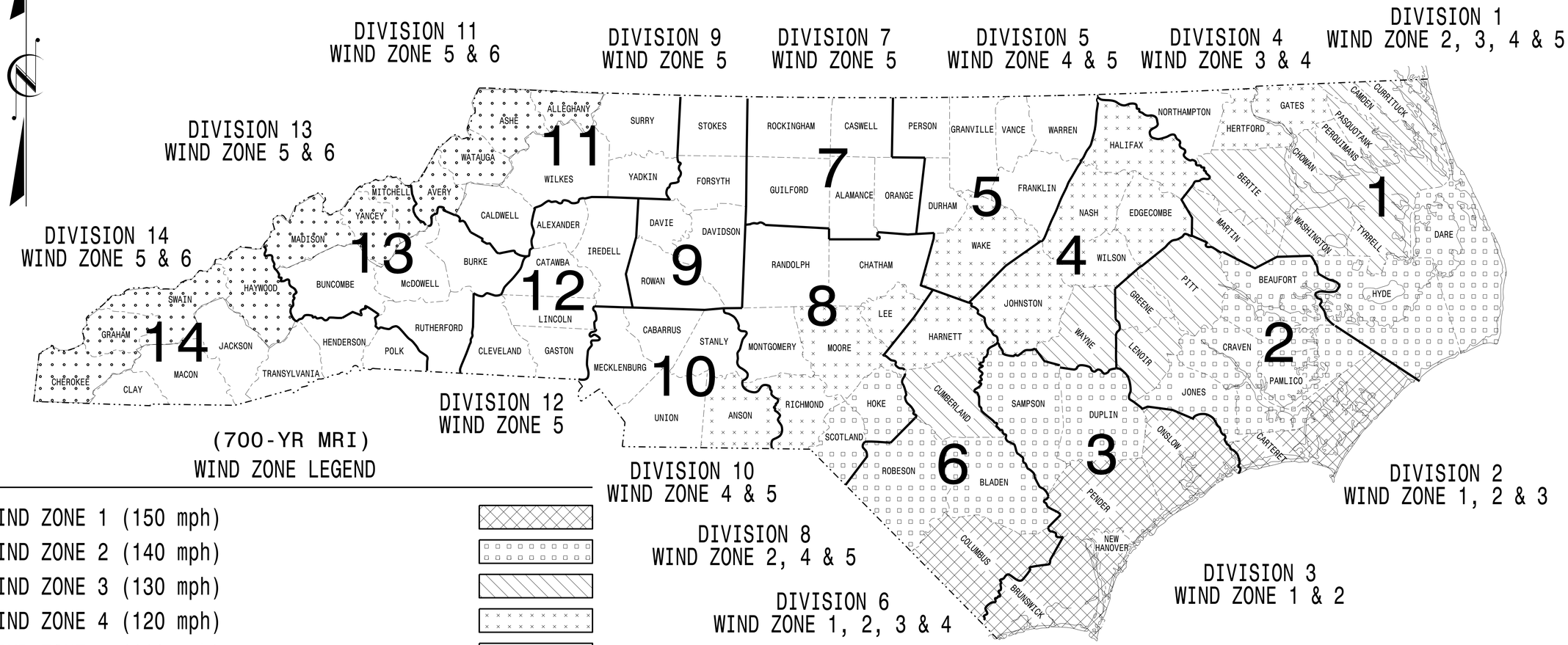
5/17/2024
X:\5706306063002_US 70 @ Shotwell Rd Signal Design (SEPI)\Design\Traffic\Signals\Design\System\New Planshеets\W-5704B_sig_psh_1-2.dgn

PROJECT I.D.NO.	SHEET NO.
HL-0127	Sig.M1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STANDARD DRAWINGS FOR ALL METAL POLES (LRFD)

NCDOT METAL POLE STANDARDS



(700-YR MRI)
WIND ZONE LEGEND

WIND ZONE 1 (150 mph)	
WIND ZONE 2 (140 mph)	
WIND ZONE 3 (130 mph)	
WIND ZONE 4 (120 mph)	
WIND ZONE 5 (110 mph)	
WIND ZONE 6 (135 mph) Special Wind Zone	

https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

Prepared in the Offices of:

Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.
Garner, NC 27529

Designed in conformance with the latest 2020 Interim to the 1st Edition 2015

AASHTO LRFD

Standard Specifications for Highway Signs, Luminaires, and Traffic Signals

INDEX OF PLANS

DRAWING NUMBER	DESCRIPTION
Sig. M 1A	Statewide Wind Zone Map (700–yr MRI)
Sig. M 1B	Statewide Wind Zone Map (10–yr MRI)
Sig. M 2	Typical Fabrication Details–All Metal Poles
Sig. M 3	Typical Fabrication Details–Strain Poles
Sig. M 4	Typical Fabrication Details–Mast Arm Poles
Sig. M 5	Typical Fabrication Details–Mast Arm Connection
Sig. M 6	Typical Fabrication Details–Strain Pole Attachments
Sig. M 7	Construction Details–Foundations
Sig. M 8	Standard Strain Pole Foundation–All Soil Conditions
Sig. M 9	Typical Fabrication Details–CCTV Camera Poles

MOBILITY AND SAFETY DIVISION – TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS UNIT

D.Y. ISHAK – STATE SIGNALS ENGINEER

K. DURIGON, P.E. – ITS AND SIGNALS STRUCTURAL ENGINEER

B. WALKER, P.E. – ITS AND SIGNALS STRUCTURAL ENGINEER

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

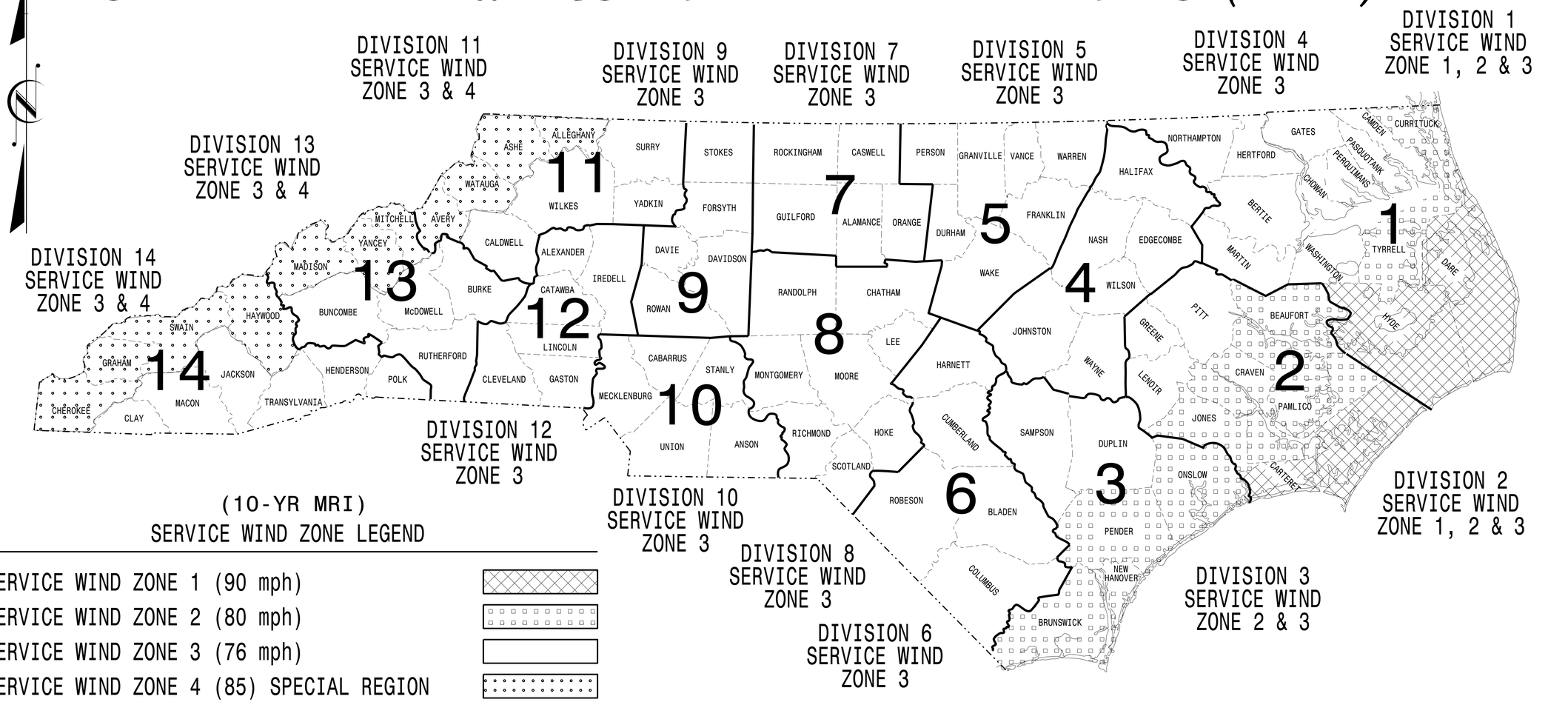
DocuSigned by:
Kevin Durigon
SIGNATURE
4B23DC79B3784DA...
09/21/2023
DATE

PROJECT I.D.NO.	SHEET NO.
HL-0127	Sig.M1B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STANDARD DRAWINGS FOR ALL METAL POLES (LRFD)

NCDOT METAL POLE STANDARDS



(10-YR MRI)
SERVICE WIND ZONE LEGEND

SERVICE WIND ZONE 1 (90 mph)	
SERVICE WIND ZONE 2 (80 mph)	
SERVICE WIND ZONE 3 (76 mph)	
SERVICE WIND ZONE 4 (85) SPECIAL REGION	

https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

Prepared in the Offices of:

Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.
Garner, NC 27529

Designed in conformance with the latest 2020 Interim to the 1st Edition 2015

AASHTO LRFD

Standard Specifications for Highway Signs, Luminaires, and Traffic Signals

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Sig. M 5	Typical Fabrication Details–Mast Arm Connection
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Sig. M 7	Construction Details–Foundations
Sig. M 8	Standard Strain Pole Foundation–All Soil Conditions
Sig. M 9	Typical Fabrication Details–CCTV Camera Poles

NCDOT CONTACTS:

MOBILITY AND SAFETY DIVISION – TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS UNIT

D.Y. ISHAK – STATE SIGNALS ENGINEER

K. DURIGON, P.E. – ITS AND SIGNALS STRUCTURAL ENGINEER

B. WALKER, P.E. – ITS AND SIGNALS STRUCTURAL ENGINEER

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

DocuSigned by:
Kevin Durigon
SIGNATURE
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09/21/2023
DATE

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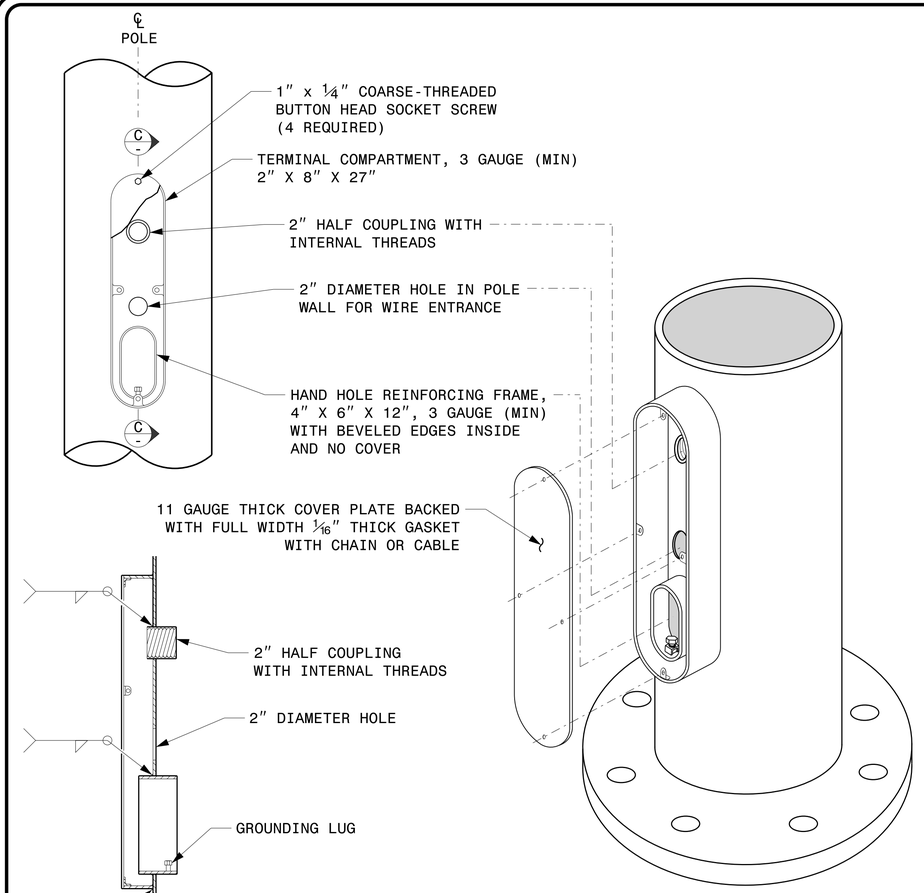
kcdurigon



SECTION C-C

NOTE: UNLESS OTHERWISE SPECIFIED, LOCATE TERMINAL COMPARTMENT 1 FOOT ABOVE THE POLE BASE AT 180 DEGREES ON THE POLE'S RADIAL INDEX.

TERMINAL COMPARTMENT DETAIL

MFG _____ MFG. DATE: MM/YY
SHAFT D/T/L/Y ----/----/----/----
ARM-A D/T/L/Y ----/----/----/----
----/----/----/----
ARM-B D/T/L/Y ----/----/----/----
----/----/----/----
A.B. DIA./B.C./L/Y ----/----/----/----
NCDOT SIG. INV. NO. _ _ _ _ _ _ _ _
NCDOT POLE NO. _ _ _ _ _ _ _ _

SHAFT I.D. TAG
(PROVIDE ON SHAFT OF STRAIN POLES
AND MAST ARM POLE SHAFT)

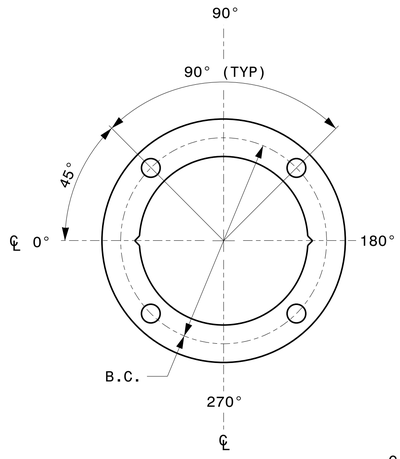
MFG _____ MFG. DATE: MM/YY
SECTION D/T/L/Y ----/----/----/----
NCDOT SIG. INV. NO. _ _ _ _ _ _ _ _
NCDOT POLE NO. _ _ _ _ _ _ _ _

ARM I.D. TAG
(PROVIDE ON EACH SECTION OF
A MULTI-SECTION MAST ARM)

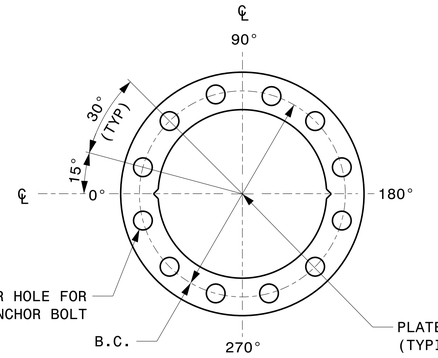
NOTES:

1. D = DIAMETER, T = THICKNESS, L = LENGTH, Y = YIELD STRENGTH
2. A.B. = ANCHOR BOLT
3. B.C. = BOLT CIRCLE OF ANCHOR BOLTS
4. IF STANDARD DESIGN, INCLUDE CASE NUMBER IN ADDITION TO POLE NUMBER ON "NCDOT POLE NO." LINE.
5. SIGNAL INV. NUMBER AND POLE I.D. NUMBER. SEE DRAWING M3 AND M4 FOR MOUNTING POSITIONS OF I.D. TAGS.

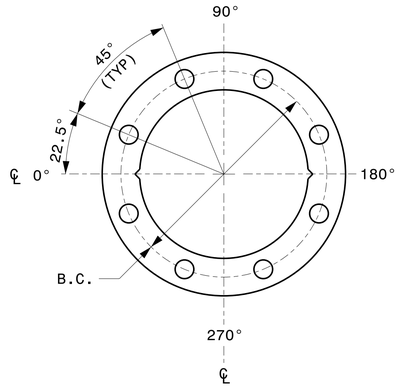
IDENTIFICATION TAG DETAILS



4 BOLT PATTERN



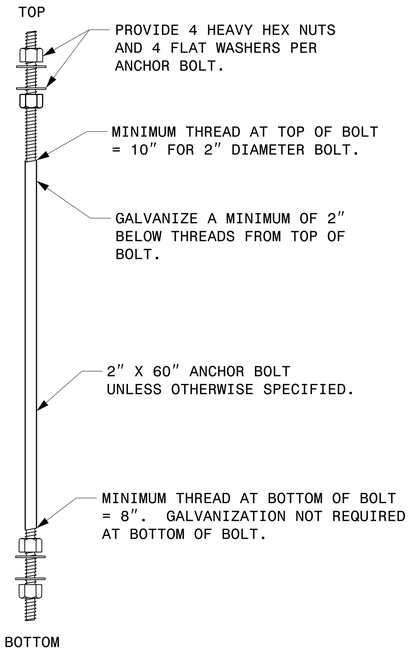
12 BOLT PATTERN



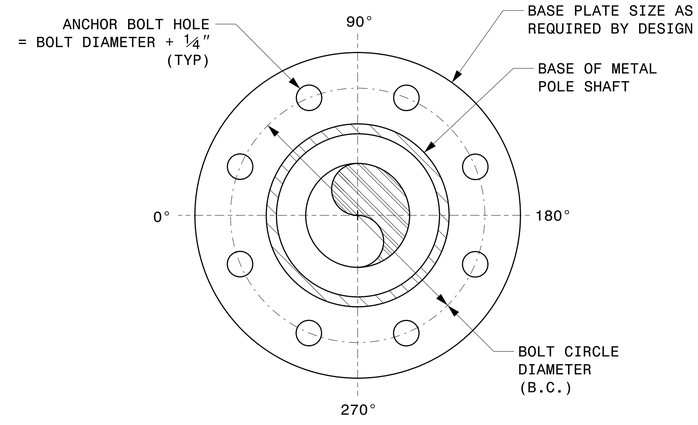
8 BOLT PATTERN

CONSTRUCT TEMPLATES AND PLATES FROM ¼″ (MIN) THICK STEEL. GALVANIZING IS NOT REQUIRED.

BASE PLATE TEMPLATE AND ANCHOR BOLT LOCK PLATE DETAILS



ANCHOR BOLT DETAIL



NOTE: BASE PLATE MAY BE CIRCULAR, OCTAGONAL, SQUARE OR RECTANGULAR IN SHAPE.

TYPICAL BASE PLATE DETAIL

PROJECT I.D. NO.	SHEET NO.
HL-0127	Sig.M2

Fabrication Details – All Metal Poles

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

SCALE 0 NA NONE

Typical Fabrication Details
For
All Metal Poles

PLAN DATE: SEPTEMBER 2023 DESIGNED BY: C.F.ANDREWS
PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

DocuSigned by:
Kevin Durigon
SIGNATURE
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09/21/2023
DATE

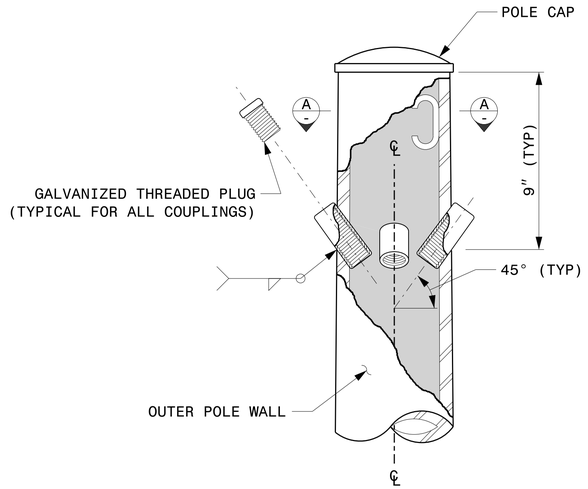
03-OCT-2023 12:24
S:*TIS&SUM\TIS\Signal Design Section\Structures\Drawings\2024 Metal Pole Std Drawings for LRFD\2024 Sig-M2 Std. Fabrication Details-All Poles.dgn
kcdurigon

PROJECT I.D. NO.	SHEET NO.
HL-0127	Sig.M3

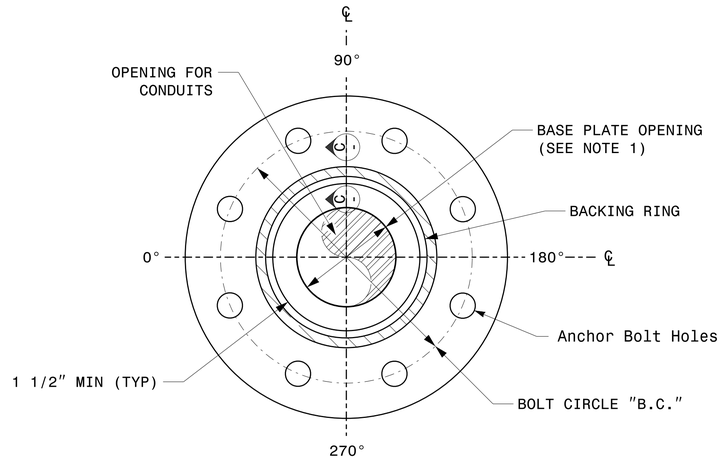
Fabrication Details – Strain Poles

NOTE:

1. OPENING IN POLE BASE PLATE SHALL BE EQUAL TO POLE BASE INSIDE DIAMETER MINUS 3½" BUT SHALL NOT BE LESS THAN 8½".

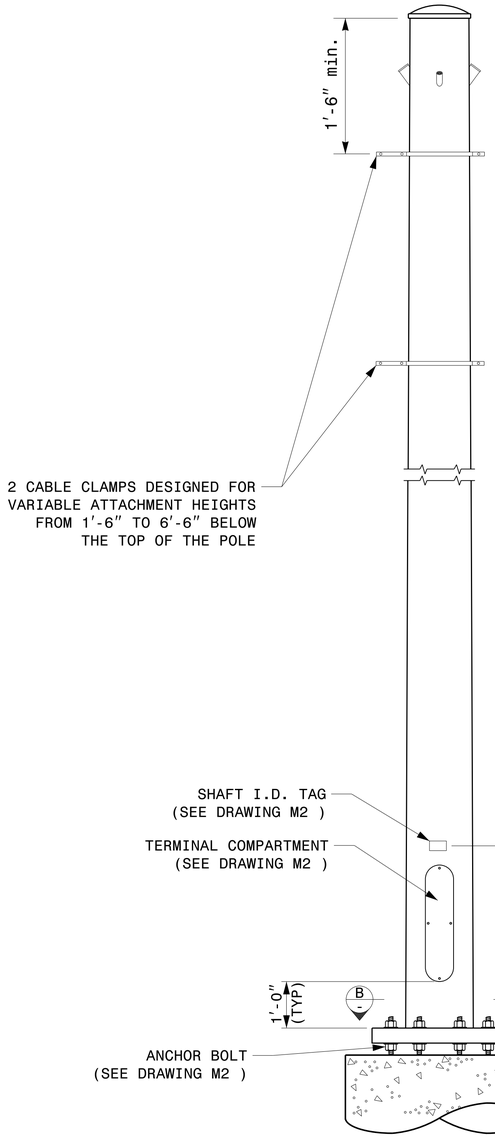


CABLE ENTRANCES AT TOP OF POLE

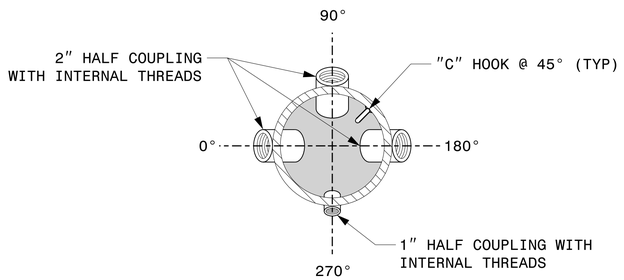


SECTION B-B

POLE BASE PLATE DETAILS
(8 AND 12 BOLT PATTERN)

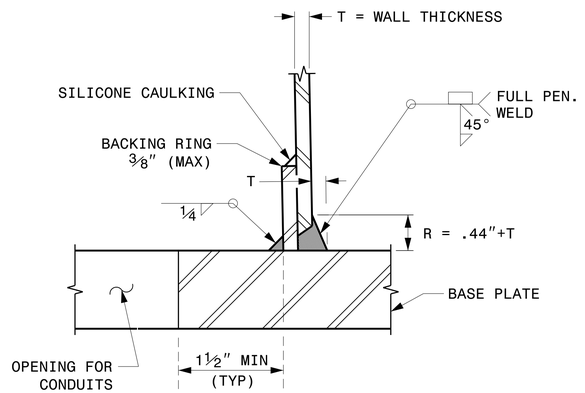


MONOTUBE STRAIN POLE



SECTION A-A

RADIAL ORIENTATION OF FACTORY INSTALLED ACCESSORIES AT TOP OF POLE



SECTION C-C

(POLE ATTACHMENT TO BASE PLATE)

FULL-PENETRATION GROOVE WELD DETAIL

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

SCALE
0 NA
NONE

Typical Fabrication Details
For
Strain Poles

PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON
PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
036626
ENGINEER
KEVIN C. DURIGON

DocuSigned by:
Kevin Durigon
SIGNATURE
4B23DC79B3784DA...
09/21/2023
DATE

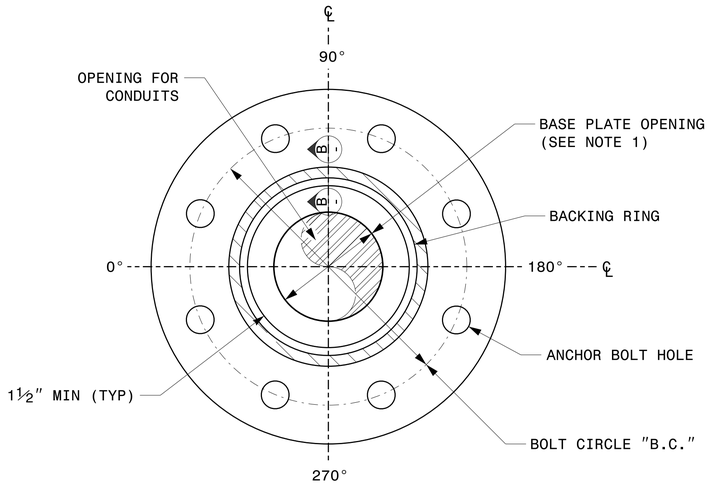
03-OCT-2023 12:31
S:*ITSASUM\ITS\Signals\Signal Design Sections\Structures\Drawings*2024 Metal Pole Std Drawings for LRFD*2024 Sig.M3 Std. Fabrication Details-Strain Poles.dgn
kcdurigon

PROJECT I.D. NO.	SHEET NO.
HL-0127	Sig.M4

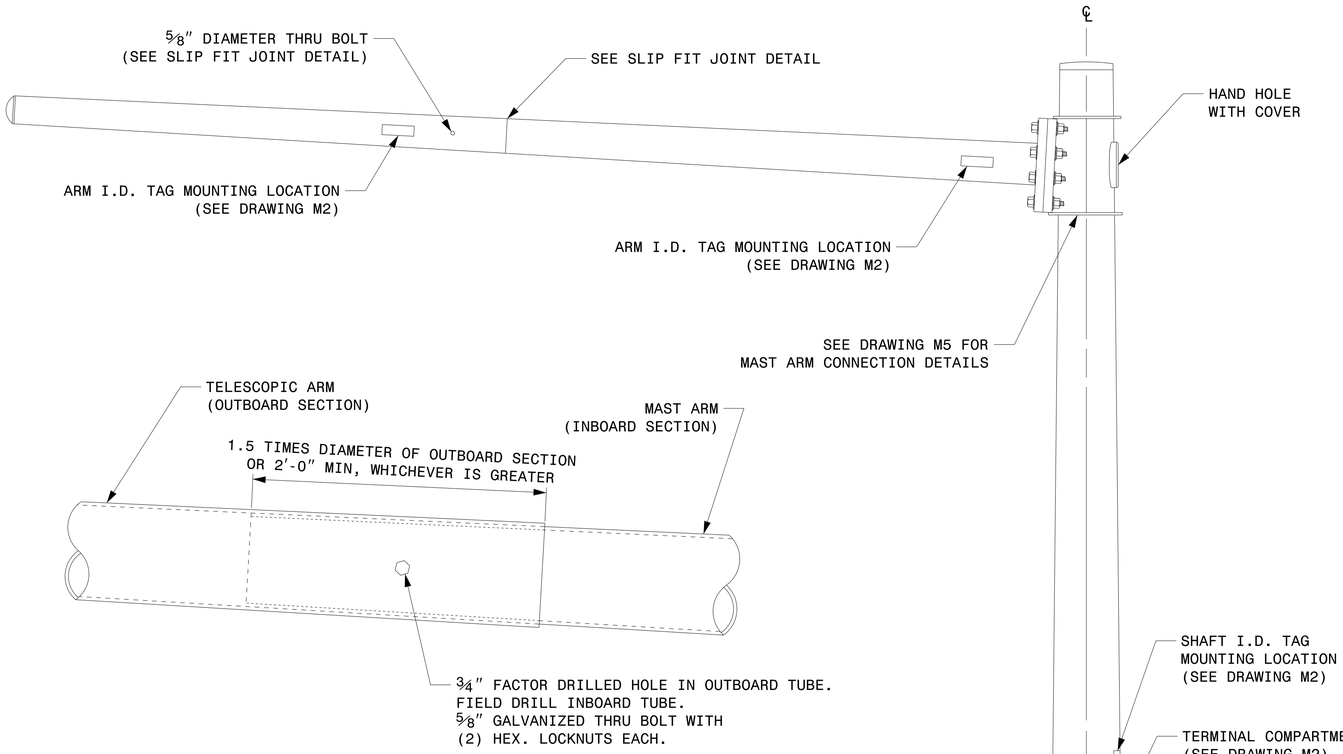
Fabrication Details – Mast Arm Poles

NOTE:

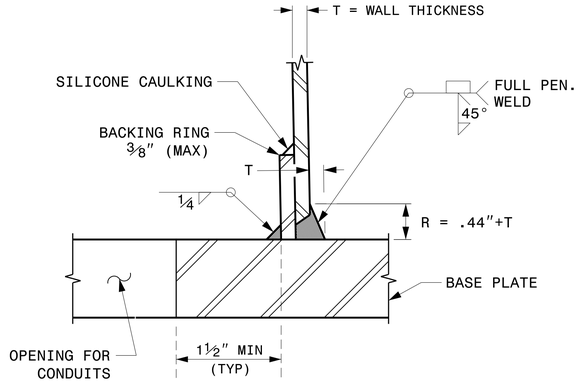
1. OPENING IN POLE BASE PLATE SHALL BE EQUAL TO POLE BASE INSIDE DIAMETER MINUS 3½" BUT SHALL NOT BE LESS THAN 8½".



SECTION A-A
POLE BASE PLATE DETAILS

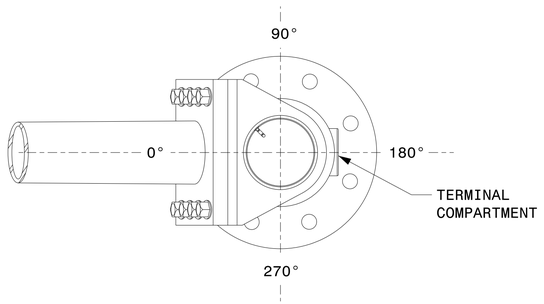


SLIP FIT JOINT DETAIL FOR MAST ARM

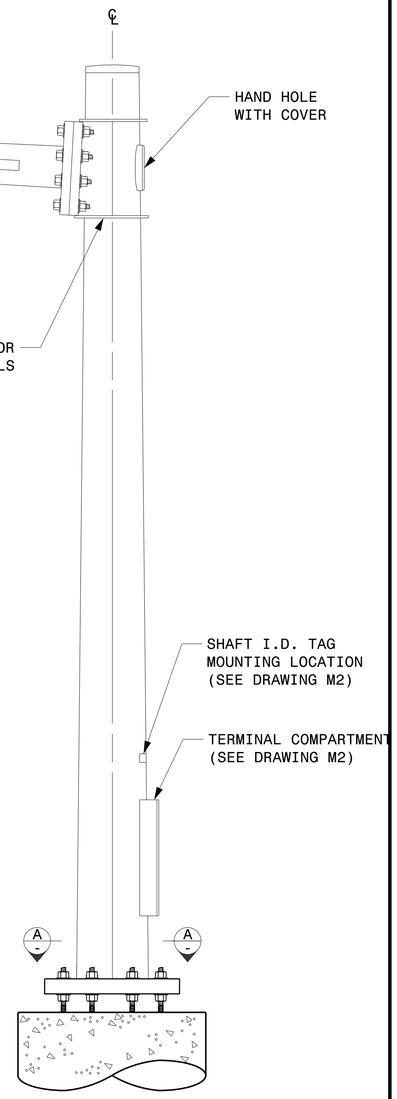


SECTION B-B
(POLE ATTACHMENT TO BASE PLATE)

FULL-PENETRATION GROOVE WELD DETAIL



MAST ARM RADIAL ORIENTATION



MAST ARM POLE

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

SCALE
0 NA
NONE

Typical Fabrication Details For Mast Arm Poles

PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON
PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR

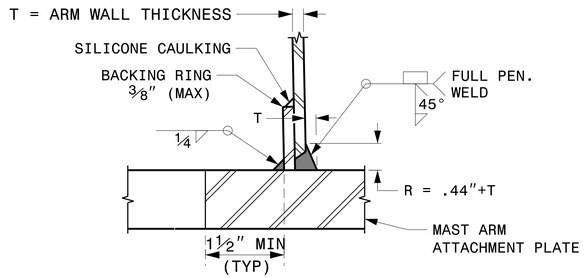
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

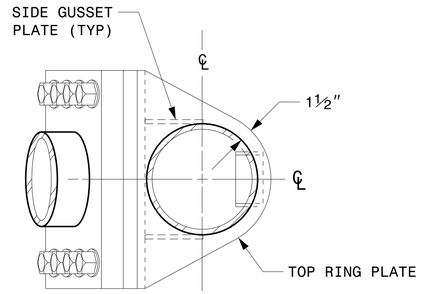
DocuSigned by:
Kevin Durigon
SIGNATURE
4B23DC79B3784DA...
09/21/2023
DATE

WELDED RING STIFFENED MAST ARM CONNECTION

PROJECT I.D. NO.	SHEET NO.
HL-0127	Sig.M5



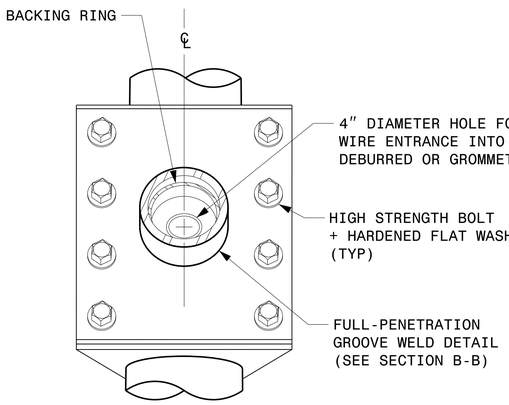
SECTION B-B
FULL-PENETRATION GROOVE WELD DETAIL



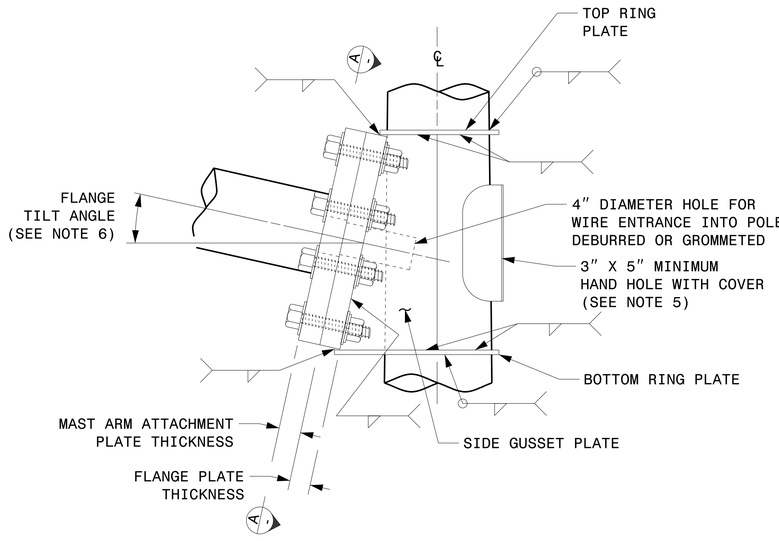
PLAN VIEW

NOTES:

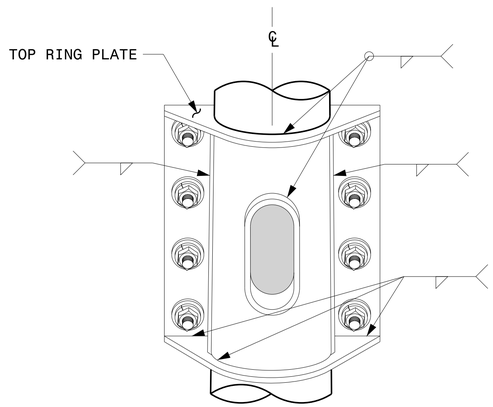
1. PROVIDE A PERMANENT MEANS OF IDENTIFICATION ABOVE THE MAST ARM TO INDICATE PROPER ATTACHMENT ORIENTATION OF THE MAST ARM.
2. DESIGNER WILL DETERMINE THE SIZE OF ALL STRUCTURAL COMPONENTS, PLATES, FASTENERS, AND WELDS SHOWN UNLESS THEY ARE ALREADY SPECIFIED.
3. FABRICATOR IS RESPONSIBLE FOR PROVIDING APPROPRIATE HOLES AT DRAINAGE POINTS TO DRAIN GALVANIZING MATERIALS.
4. FOR MINIMUM EDGE DISTANCE AND NOMINAL BOLT HOLE SIZE, FOLLOW THE LATEST AISC STEEL CONSTRUCTION MANUAL.
5. PROVIDE UPPER HANDHOLE AS NECESSARY WHEN SHAFT EXTENSIONS ARE REQUIRED FOR LUMINAIRE ARMS OR CAMERA. FOR POLES WITHOUT LUMINAIRES/CAMERA, WIRING CAN BE DONE THROUGH THE TOP OF POLE.
6. ALLOWABLE RANGE OF FLANGE TILT ANGLE WILL VARY FROM 0° TO AS REQUIRED.



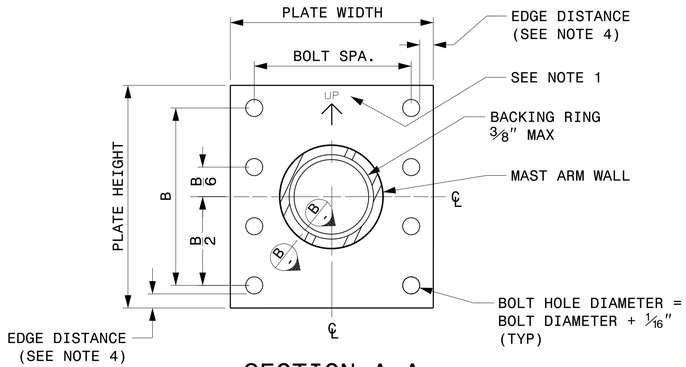
FRONT ELEVATION VIEW



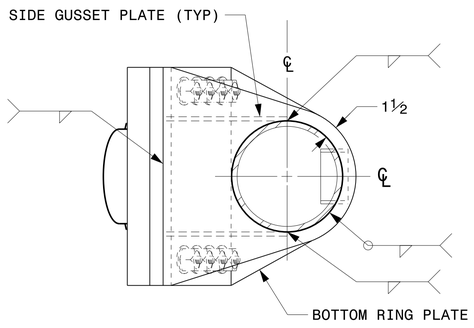
SIDE ELEVATION VIEW



BACK ELEVATION VIEW



SECTION A-A
MAST ARM ATTACHMENT PLATE



BOTTOM VIEW

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

SCALE
0 NA
NONE

Typical Fabrication Details
For
Mast Arm Connection To Pole

PLAN DATE:	SEPTEMBER 2023	DESIGNED BY:	C.F. ANDREWS
PREPARED BY:	K.C. DURIGON	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

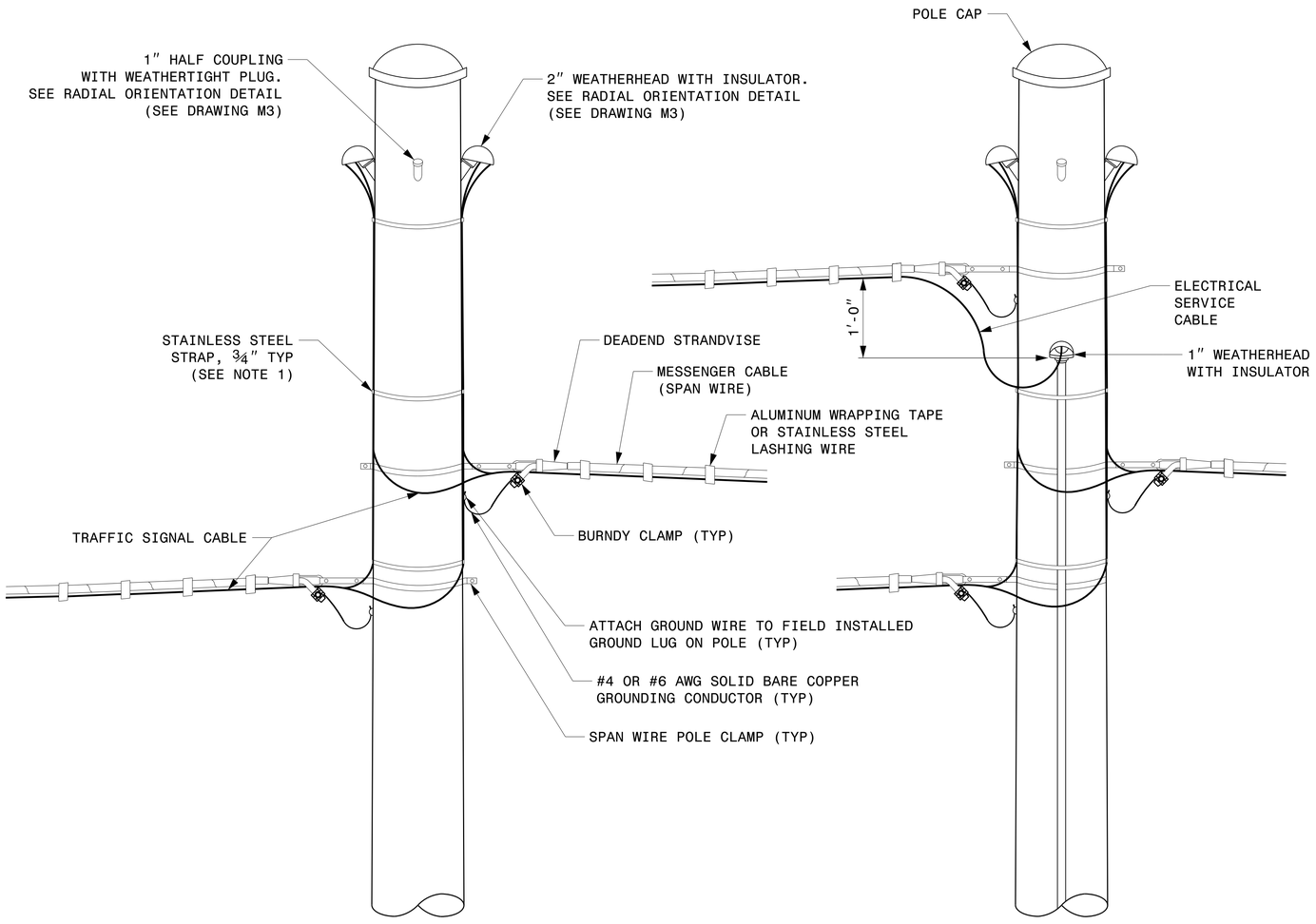
SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
036626
ENGINEER
KEVIN C. DURIGON

DocuSigned by:
Kevin Durigon
SIGNATURE
4B23DC79B3784DA...
09/21/2023
DATE

Fabrication Details – Mast Arm Connection

PROJECT I.D. NO.	SHEET NO.
HL-0127	Sig.M6

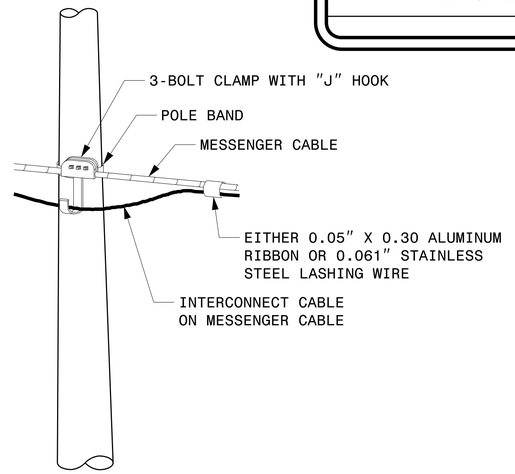
Fabrication Details – Strain Pole Attachments



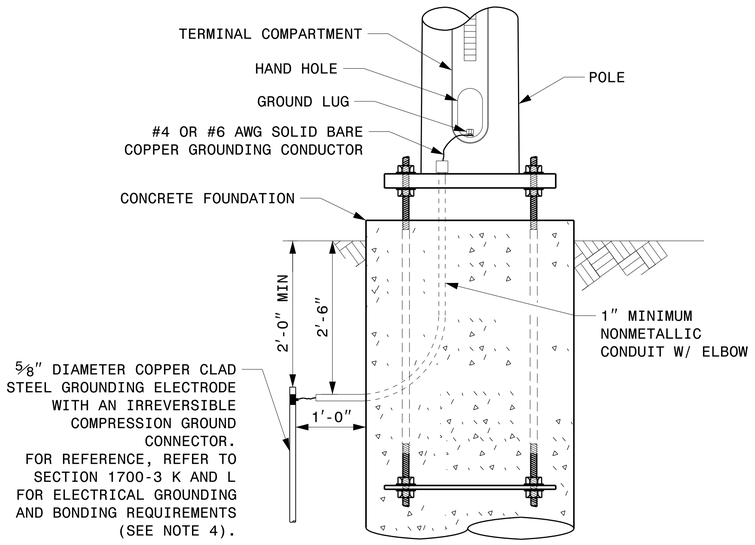
STRAIN POLE ATTACHMENTS

NOTES:

1. STRAP ALL SIGNAL CABLES TO THE SIDE OF THE POLE WITH ¾″ STAINLESS STEEL STRAPS WHEN THE DISTANCE BETWEEN SPAN WIRE ATTACHMENT CLAMP AND WEATHERHEADS EXCEEDS 3′-0″.
2. PROVIDE MINIMUM TWO SPAN WIRE POLE CLAMPS PER POLE.
3. IT IS PROHIBITED TO ATTACH TWO SPAN WIRES AT ONE POLE CLAMP.
4. FOR GENERAL REQUIREMENTS, REFER TO NCDOT STANDARD SPECIFICATIONS FOR ROADWAY AND STRUCTURES, JANUARY 2024.



ATTACHMENT OF CABLE TO INTERMEDIATE METAL POLE



METAL POLE GROUNDING DETAIL FOR STRAIN POLE AND MAST ARM

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

SCALE
0 NA
NONE

Typical Fabrication Details
For
Strain Pole Attachments

PLAN DATE:	SEPTEMBER 2023	DESIGNED BY:	C.F. ANDREWS
PREPARED BY:	K.C. DURIGON	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

DocuSigned by:
Kevin Durigon
SIGNATURE
4B23DC79B3784DA...
09/21/2023
DATE

03-OCT-2023 12:41
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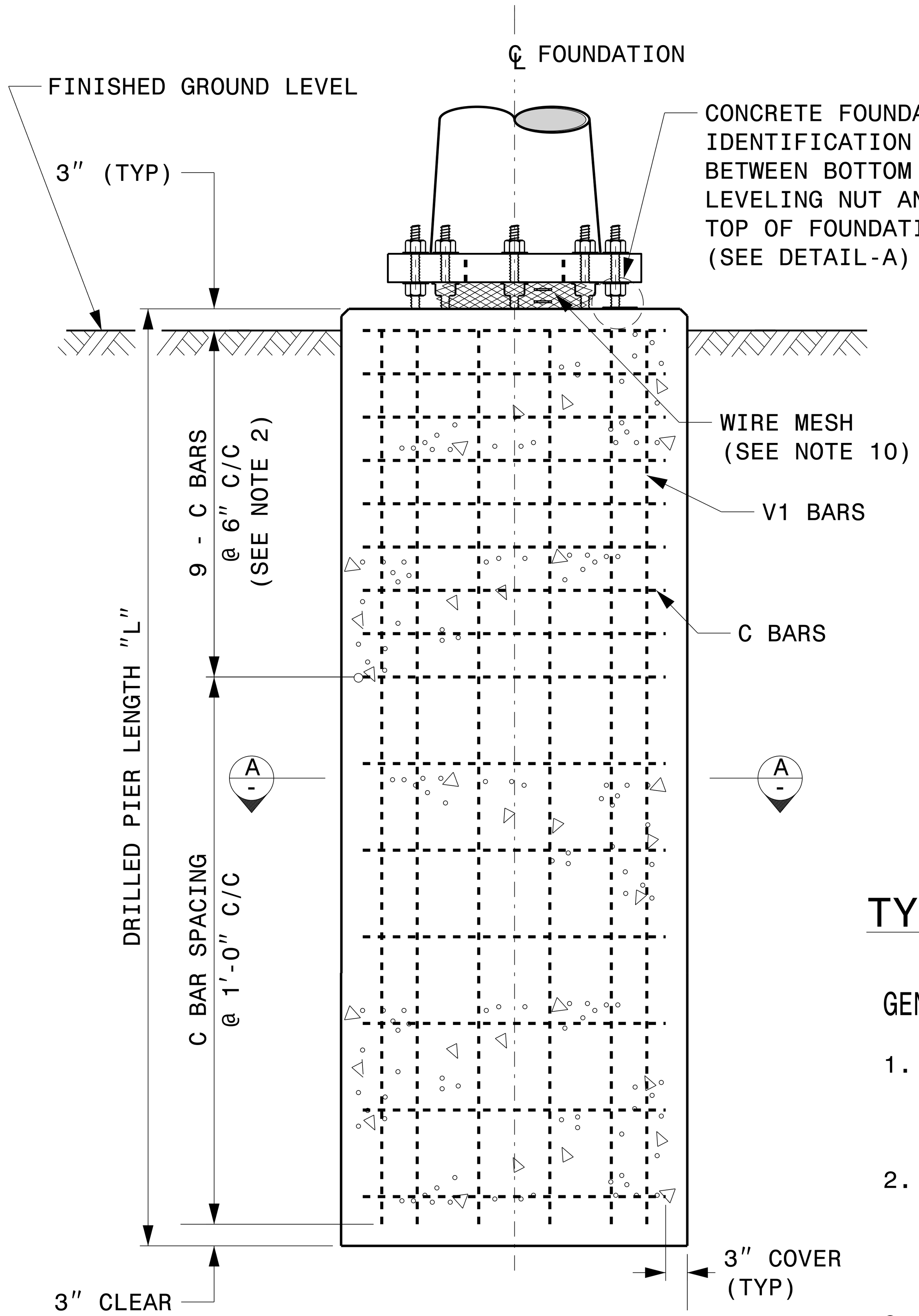
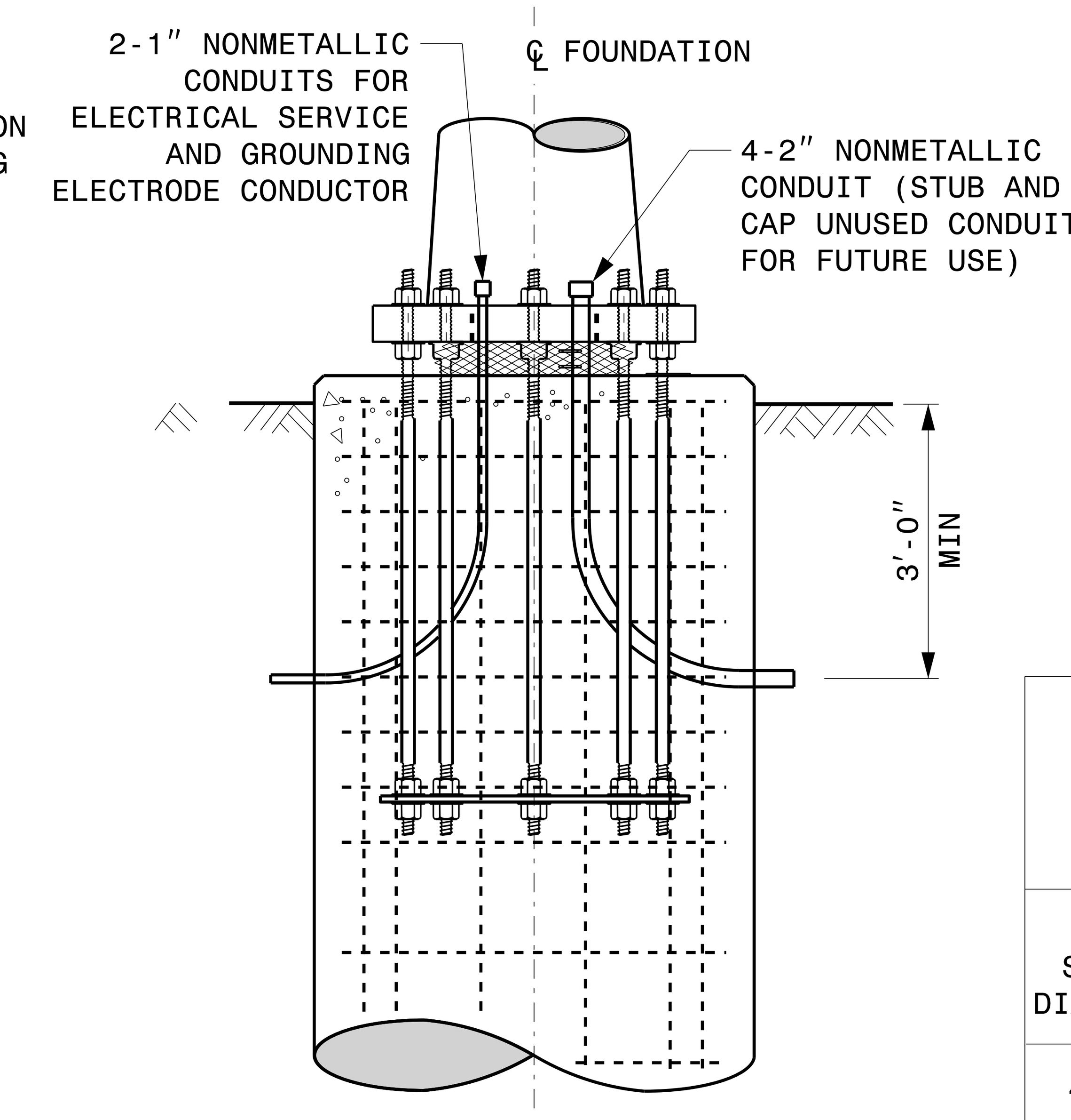
kcdurigon

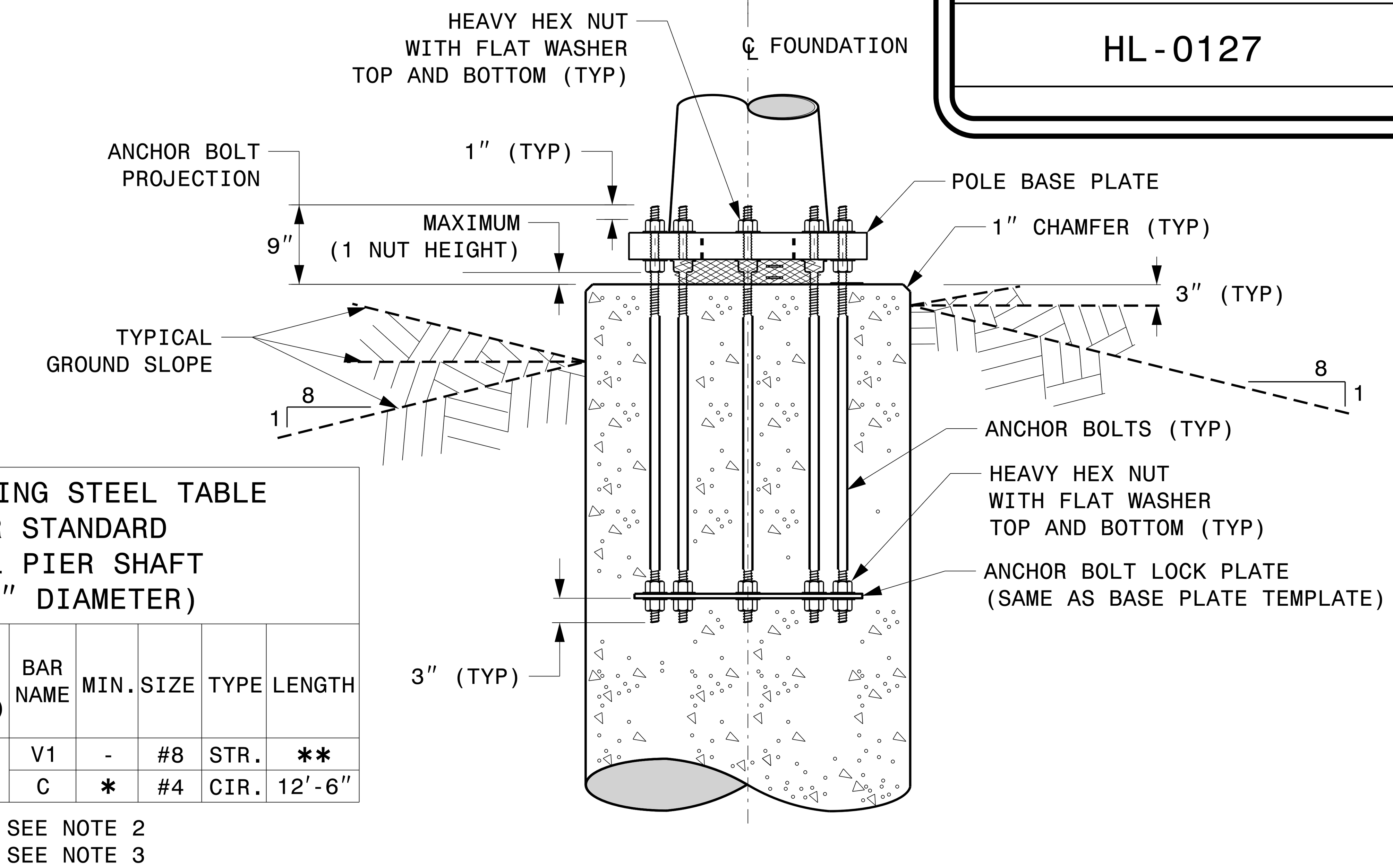
Construction Details – Foundations



CONCRETE SHAFT ELEVATION



TYPICAL FOUNDATION CONDUIT DETAILS



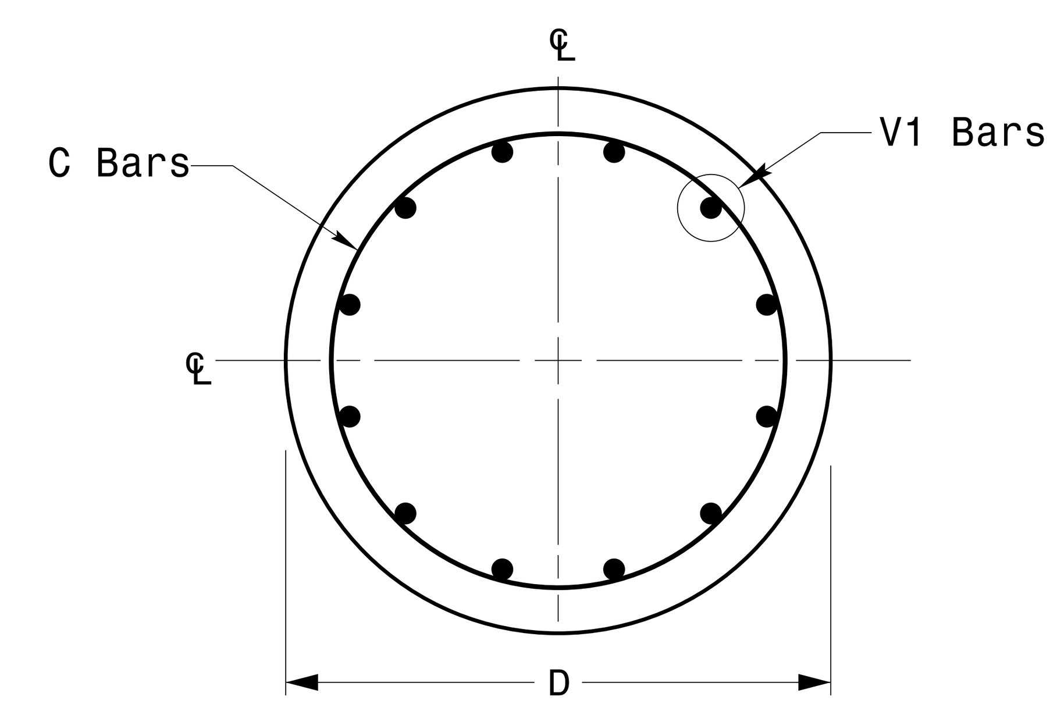
TYPICAL FOUNDATION ANCHOR BOLT DETAILS

(REINFORCING CAGE NOT SHOWN FOR CLARITY)

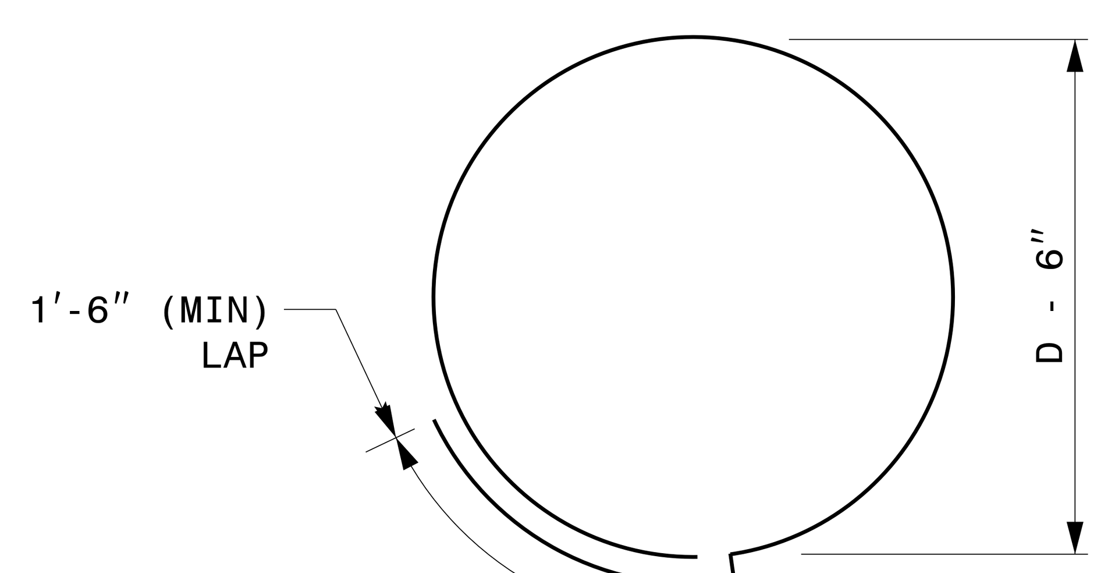
REINFORCING STEEL TABLE FOR STANDARD DRILL PIER SHAFT (4′-0″ DIAMETER)

"D" SHAFT DIAMETER	CONCRETE VOLUME (CU. YDS)	BAR NAME	MIN.	SIZE	TYPE	LENGTH
4′-0″	.465 X L	V1	-	#8	STR.	**
		C	*	#4	CIR.	12′-6″

* SEE NOTE 2
** SEE NOTE 3



SECTION A-A

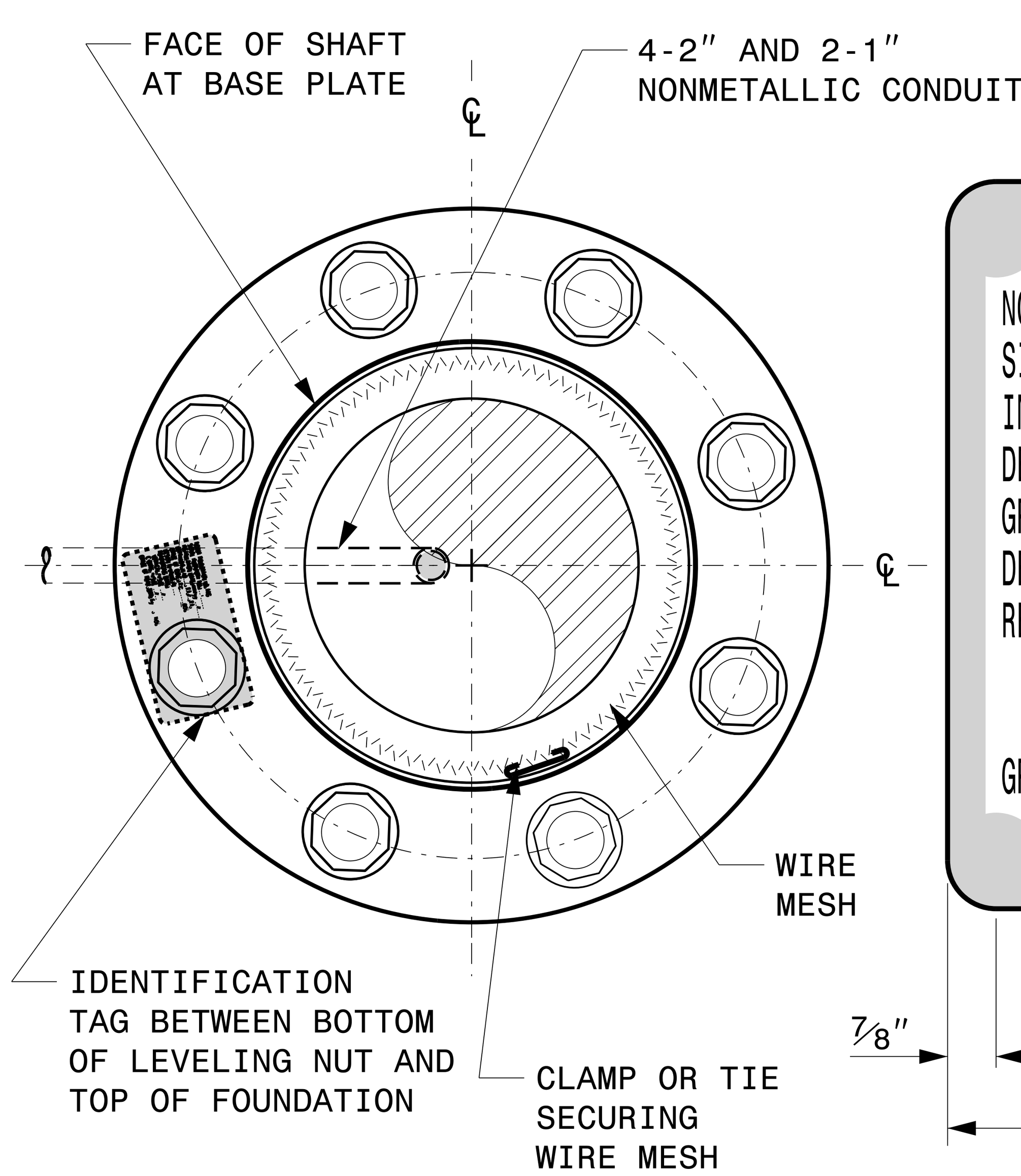


TYPICAL "C" BAR DETAIL

GENERAL NOTES:

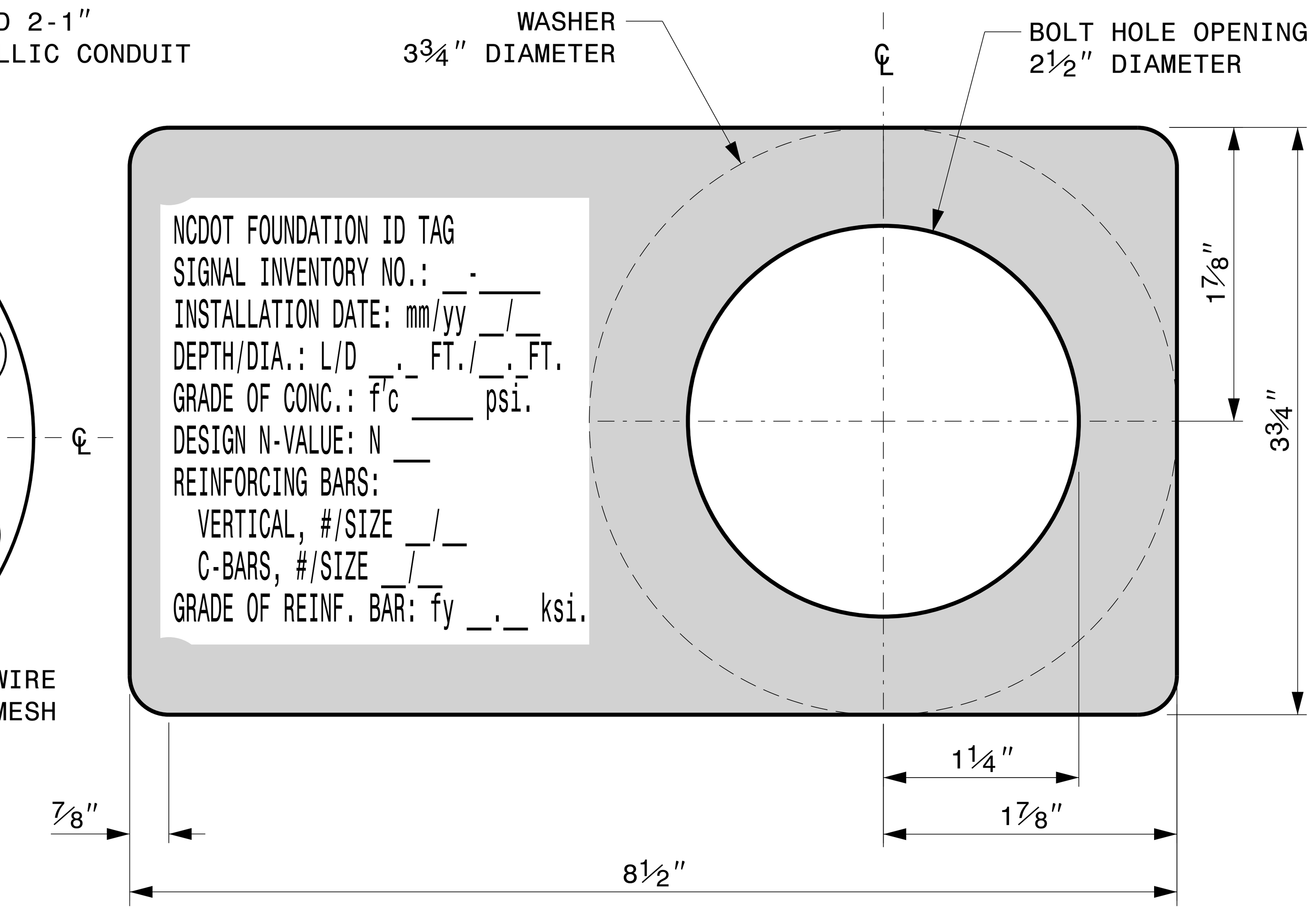
1. IF ACTUAL SUBSURFACE CONDITIONS DIFFER SIGNIFICANTLY FROM BORING DATA, CONTACT THE ENGINEER BEFORE EXCAVATING OR PLACING CONCRETE.
2. CIRCULAR TIE REINFORCING RINGS MAY BE VERTICALLY ADJUSTED BY +/-3″ AT A DEPTH BETWEEN 2′-0″ AND 3′-0″ TO FACILITATE THE INSTALLATION OF ELECTRICAL CONDUIT ENTERING IN THE CAGE.
3. FOR STANDARD FOUNDATIONS, SEE SHEET SIG. M8 FOR DETAILS. VERTICAL REINFORCING BARS (V1) MAY BE HORIZONTALLY ADJUSTED BY +/-3″ TO FACILITATE THE INSTALLATION OF ELECTRICAL CONDUIT ENTERING INTO THE CAGE.
4. PROVIDE 2″ TO 5″ FOUNDATION PROJECTION ABOVE GROUND LEVEL, DEPENDING ON THE GROUND SLOPE.
5. UNLESS OTHERWISE SHOWN, FOUNDATION DESIGNS ARE BASED ON NON-SLOPING LEVEL GROUND SURFACES WITH SLOPE RATIOS OF 8:1 (H:V) OR FLATTER. IF ACTUAL GROUND LINE SLOPES ARE STEEPER, CONTACT THE ENGINEER BEFORE EXCAVATING OR PLACING CONCRETE.
6. CONSTRUCT FOUNDATIONS IN ACCORDANCE WITH NCDOT STANDARD PROVISIONS SP09 R005- FOUNDATIONS AND ANCHOR ROD ASSEMBLIES FOR METAL POLES. ALL APPLICABLE 2024 NCDOT STANDARD SPECIFICATIONS ARE REFERENCED IN THIS PROVISION. REFER TO THE NCDOT RESOURCES/SPECIFICATIONS PAGE LOCATED ON THE CONNECT NCDOT WEBSITE.

   https://connect.ncdot.gov/resources/Specifications and Special Provisions.aspx
7. USE AIR ENTRAINED AA CONCRETE MIX WITH A COMPRESSION STRENGTH OF f′c=4500 psi (MIN) AFTER 28 DAYS.
8. USE ASTM A615 GRADE 60 DEFORMED BARS FOR ALL REINFORCING STEEL. MAINTAIN AT LEAST 3″ COVER ON ALL REINFORCEMENT.
9. LOCATE IDENTIFICATION TAG ON TOP OF THE FOUNDATION, DIRECTLY ABOVE THE CONDUIT'S ENTRY POINT.
10. PROVIDE TWO LAYERS OF 4 MESH GALVANIZED WELDED 23 GAUGE (0.025) 6″ WIDE AROUND PIPES UNDER THE BASE PLATE AND SECURE IT WITH TIES IF NECESSARY.
11. PREFERRED LOCATION FOR THE I.D. TAG IS AS SHOWN IN DETAIL-A: DIRECTLY ABOVE THE CONDUIT ENTERING THE FOUNDATION.



D = DIAMETER
L = LENGTH / DEPTH
mm = MONTH
yy = YEAR

DETAIL-A



CONCRETE FOUNDATION IDENTIFICATION TAG DETAILS

Prepared in the Offices of: Transportation Mobility and Safety Division, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529
SCALE 0 NA NONE

Construction Details For Foundations

PLAN DATE: SEPTEMBER 2023 | DESIGNED BY: K.C. DURIGON
PREPARED BY: K.C. DURIGON | REVIEWED BY: D.C. SARKAR
REVISIONS | INIT. | DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON
DocuSigned by: Kevin Durigon
4B23DC79B3784DA
SIGNATURE 09/21/2023 DATE

SOIL CONDITION

STANDARD STRAIN POLES						STANDARD FOUNDATIONS 48" Diameter Drilled Pier Length (L) – Feet							Reinforcement			
			Reactions at the Pole Base			Clay				Sand			Longitudinal		Stirrups	
Case No.	Pole Height (Ft.)	Base Plate BC (In.)	Axial (kip)	Shear (kip)	Moment (ft–kip)	Medium N–Value 4–8	Stiff N–Value 9–15	Very Stiff N–Value 16–30	Hard N–Value >30	Loose N–Value 4–10	Medium N–Value 11–30	Dense N–Value >30	Bar Size (#)	Quantity (ea.)	Bar Size (#)	Spacing (in.)
S26L1	26	22	2	9	210	19.5	12.5	9	6.5	15.5	14.5	13	8	12	4	12
S26L2	26	23	2	10	240	19.5	12	9	6.5	15.5	14.5	13	8	12	4	12
S26L3	26	25	2	11	260	20.5	12	10	8	16	15	13	8	12	4	12
S30L1	30	22	2	9	230	19	11	9	7	15.5	14	12.5	8	12	4	12
S30L2	30	23	2	10	270	20	12	10	8	16	14.5	13	8	12	4	12
S30L3	30	25	2	11	290	21	12	10	8	17	15	13.5	8	12	4	12
S30H1	30	25	3	13	355	23	13	11	9	18	16.5	14.5	8	12	4	12
S30H2	30	29	3	15	405	25	14	11	9	19	17.5	15.5	8	14	4	12
S30H3	30	29	3	16	430	26	15	12	9	20	18	16	8	14	4	6
S35L1	35	22	3	8	260	19.5	12	10	8	15.5	14.5	13	8	12	4	12
S35L2	35	23	3	10	300	21	12	10	8	16.5	15	13.5	8	12	4	12
S35L3	35	25	3	10	320	21.5	13	10	8	17	15.5	14	8	12	4	12
S35H1	35	25	3	12	390	23.5	14	11	9	18	17	15	8	14	4	12
S35H2	35	29	4	14	460	26	15	12	9	20	18	16	8	14	4	6
S35H3	35	29	4	16	495	28.5	15	13.5	10	21.5	19	17	8	14	4	6

48" DIAMETER FOUNDATION CONCRETE VOLUME (CUBIC YARDS) = (0.465) x DRILLED PIER LENGTH

GENERAL NOTES:

1. VALUES SHOWN IN THE "REACTIONS AT THE POLE BASE" COLUMN REPRESENT THE MINIMUM ACCEPTABLE CAPACITY ALLOWED FOR DESIGN USING A COMBINED FORCE RATIO (CFR) OF 1.00.
2. USE CHAIRS AND SPACERS TO MAINTAIN PROPER CLEARANCE.
3. FOR FOUNDATION, ALWAYS USE AIR-ENTRAINED CONCRETE MIX.

FOUNDATION SELECTION:

1. PERFORM A STANDARD PENETRATION TEST AT EACH PROPOSED FOUNDATION SITE TO DETERMINE "N" VALUE.
2. SELECT THE APPROPRIATE WIND ZONE FROM M1 DRAWING.
3. SELECT THE SOIL TYPE (CLAY OR SAND) THAT BEST DESCRIBES THE SOIL CHARACTERISTICS.
4. GET THE APPROPRIATE STANDARD POLE CASE NUMBER FROM THE PLANS OR FROM THE ENGINEER.
5. SELECT THE APPROPRIATE COLUMN UNDER "STANDARD FOUNDATIONS" BASED ON SOIL TYPE AND "N" VALUE. SELECT THE APPROPRIATE ROW BASED ON THE POLE LOAD CASE.
6. THE FOUNDATION DEPTH IS THE VALUE SHOWN IN THE "STANDARD FOUNDATIONS" CATEGORY WHERE THE COLUMN AND THE ROW INTERSECT.
7. USE CONSTRUCTION PROCEDURES AND DESIGN METHODS PRESCRIBED BY FHWA-NHI-10-016 MANUAL FOR DRILLED SHAFTS.

Standard Strain Pole Foundation – All Soil Conditions

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

SCALE 0 NA NONE

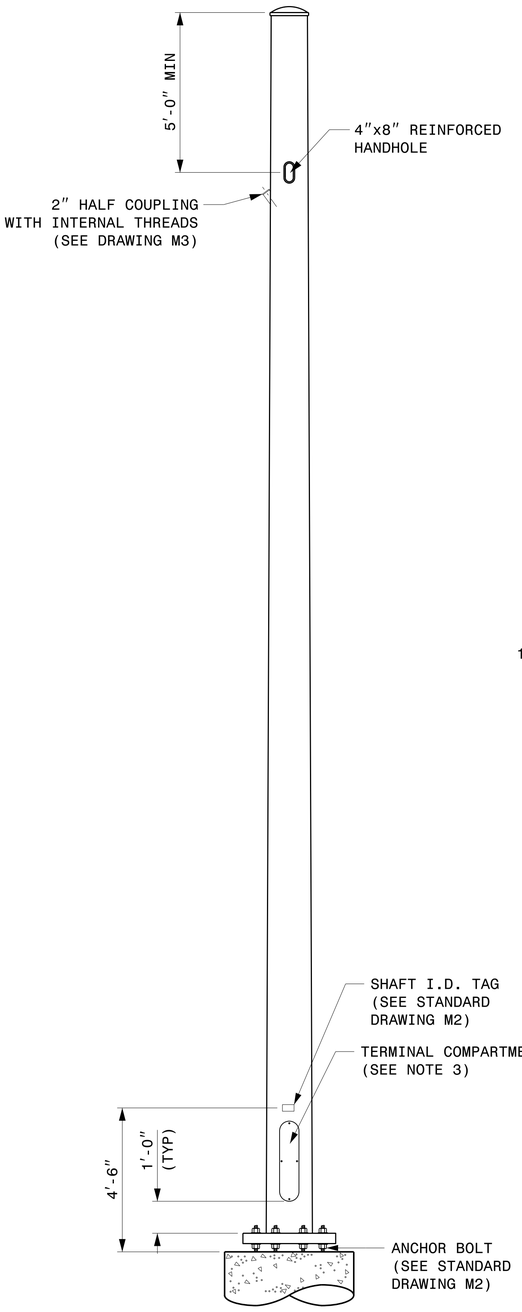
Standard Strain Pole Foundation for All Soil Conditions

PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON
PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR
REVISIONS INIT. DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON
DocuSigned by: Kevin Durigon
4B23DC79B3784DA
SIGNATURE 09/21/2023 DATE

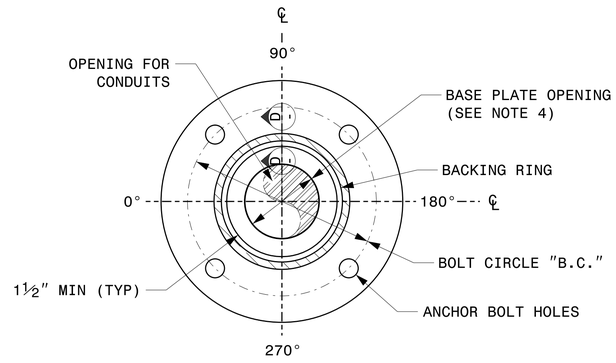
PROJECT I.D. NO.	SHEET NO.
HL-0127	Sig.M9

Fabrication Details – CCTV Camera Poles

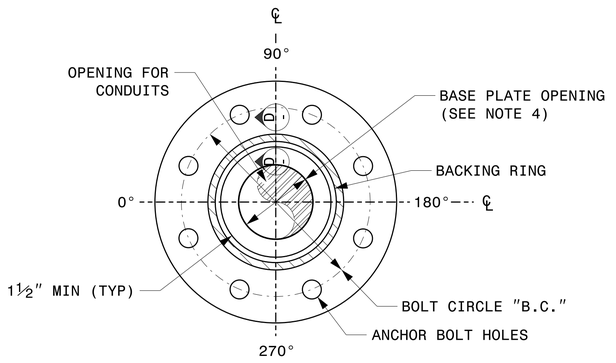


CCTV CAMERA POLE

(NOT TO SCALE)

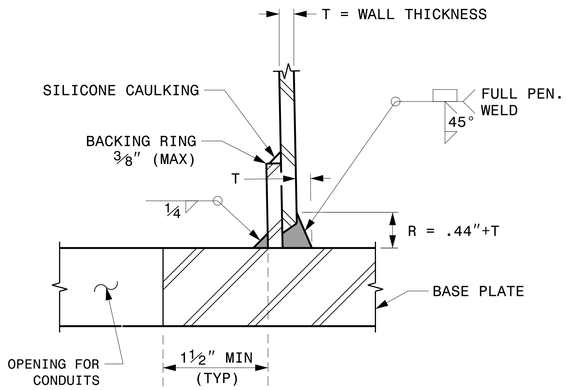


4 BOLT PATTERN
FOR POLES UP TO 40'



8 BOLT PATTERN
FOR POLES TALLER THAN 40'

BASE PLATE DETAILS



SECTION D-D

(POLE ATTACHMENT TO BASE PLATE)

FULL-PENETRATION GROOVE WELD DETAIL

NOTES:

1. THIS DRAWING PROVIDES BASIC DETAILS FOR CCTV POLES. PROJECT REQUIREMENTS MAY REQUIRE SPECIAL FACTORY PREPS THAT ARE NOT SHOWN ON THESE DETAILS.
2. DETAILS FOR INTERNAL CAMERA LOWERING SYSTEMS ARE NOT SHOWN.
3. POLE MOUNTED CABINETS MAY REQUIRE MODIFICATIONS TO THE LOWER HANDHOLE OPENING TO MOUNT CABINETS. 4" X 8" REINFORCED HANDHOLES ARE ACCEPTABLE OPTIONS, AND MAY BE PREFERRED.
4. OPENING IN POLE BASE SHALL BE EQUAL TO POLE BASE INSIDE DIAMETER MINUS 3½" BUT SHALL NOT BE LESS THAN 8½".
5. USE COMPACT SECTION CRITERIA D/T RATIO PER AASHTO LTS-LRFD 1ST EDITION SECTION 5.7.2.

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

SCALE
0 NA
NONE

Typical Fabrication Details For CCTV Poles

PLAN DATE:	SEPTEMBER 2023	DESIGNED BY:	K.C. DURIGON
PREPARED BY:	K.C. DURIGON	REVIEWED BY:	C.F. ANDREWS

REVISIONS	INIT.	DATE

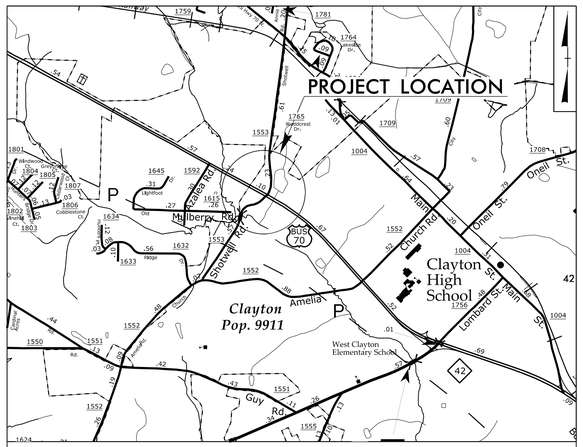
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

DocuSigned by:
Kevin Durigon
SIGNATURE
4B23DC79B3784DA...
09/21/2023
DATE

TIP PROJECT: HL–0127

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 Thru 1C-6 For Survey Control Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
HL–0127	UC–1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

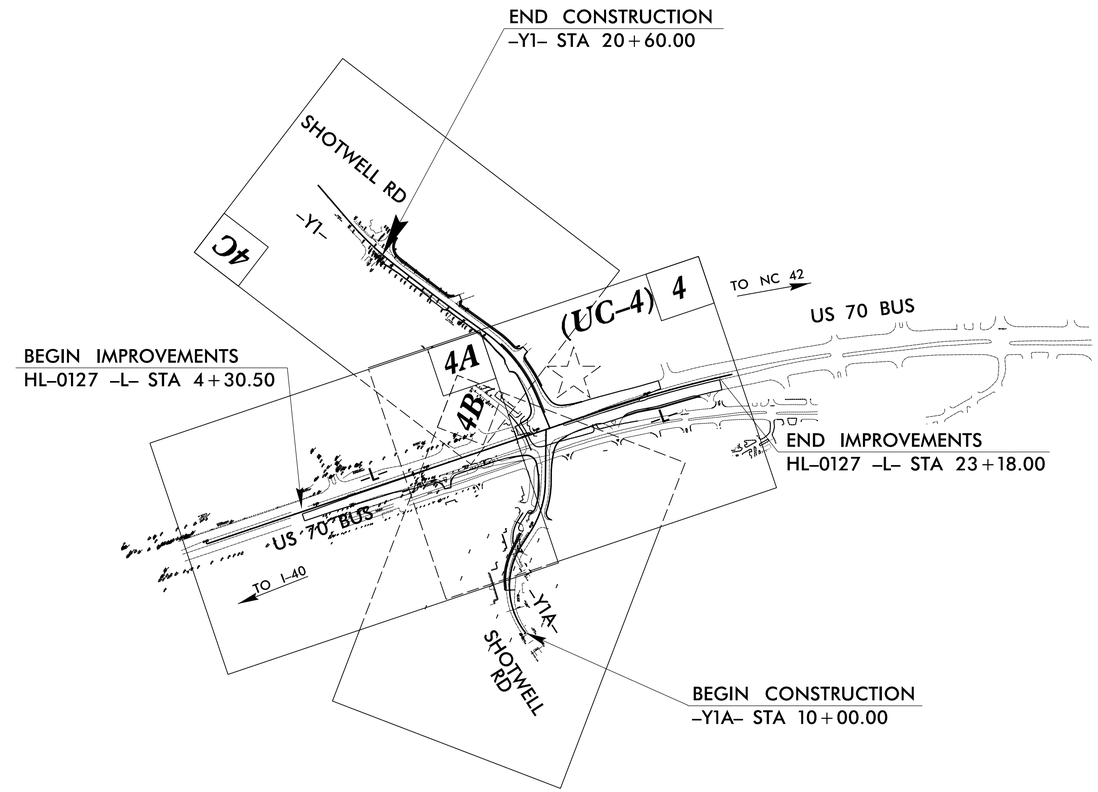
UTILITY CONSTRUCTION PLANS
JOHNSTON COUNTY

UPDATED SIGNAL
PROPOSED SIGNAL

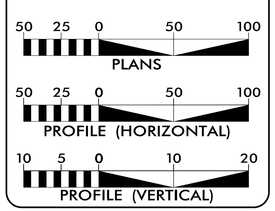
LOCATION: US–70 BUSINESS FROM SR 1553 (SHOTWELL ROAD) TO WILDWOOD DRIVE

TYPE OF WORK: WATER AND SANITARY SEWER RELOCATIONS

NAD 83/2011



GRAPHIC SCALES



INDEX OF SHEETS

WATER AND SEWER OWNERS ON PROJECT

(A) TOWN OF CLAYTON

PREPARED IN THE OFFICE OF:

HINDE ENGINEERING
License No. C-2639
401 Harrison Oaks Blvd., Suite 220 Cary, NC 27513
Ph. (919) 653-0001

Clint L. Stevens, P.E.	*UTILITIES PROJECT MANAGER*
Corey D. Bousquet, P.E.	*UTILITIES PROJECT ENGINEER*
Jordan Chapman	*UTILITIES PROJECT DESIGNER*

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER COREY D. BOUSQUET
Digitally signed by: Corey D. Bousquet, P.E.
SEAL 023077
2/7/2024

DIVISION OF HIGHWAYS
DIVISION 4
509 WARD BLVD.
WILSON NC 27895
PHONE (252) 640-6400
FAX (252) 234-6174

Kyle Pleasant	*DIVISION UTILITIES ENGINEER*
Frank Zdelar	*DIVISION UTILITY COORDINATOR*

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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 — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- 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 — FSS
- Underground Unknown Utility Line — ?UTL
- 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

HINDE ENGINEERING
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401 Harrison Oaks Blvd., Suite 220 Cary, NC 27513

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PROJECT REFERENCE NO.	SHEET NO.
HL-0127	UC-3

DESIGNED BY:	JKC
DRAWN BY:	JKC
CHECKED BY:	CLS
APPROVED BY:	CDB
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023041 COREY D. BOUSQUET
DocuSigned by: Corey D. Bousquet, P.E.
BE23F928878C49A...
2/6/2024
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

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 2024.

2. THE EXISTING UTILITIES BELONG TO TOWN OF CLAYTON. THE CONTACT PERSON FOR THE TOWN OF CLAYTON IS MR. JOSHUA BAIRD, MR. BAIRD CAN BE REACHED BY PHONE AT (919) 359-9379.

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.

10. CONTRACTOR SHALL FIELD VERIFY THE VERTICAL AND HORIZONTAL ALIGNMENTS OF THE PROPOSED UTILITY TIE-IN POINTS SHOWN ON THE PLANS. ONCE THE TIE-IN POINTS AND GRADE OF PROPOSED UTILITY LINES ARE VERIFIED AS CORRECT, THE CONTRACTOR CAN BEGIN CONSTRUCTION ON THE PROPOSED UTILITY LINES.

PROJECT SPECIFIC NOTES:

1. PROPOSED 12" WATER LINE FROM STATION 10+70.76 TO STATION 14+86.37 LINE -Y1- SHALL BE D.I.R.J. (DUCTILE IRON RESTRAINED JOINT) PIPE.

2. PROPOSED 16" WATER LINE FROM STATION 14+77.84 TO STATION 15+09.77 LINE -L- SHALL BE D.I.R.J. (DUCTILE IRON RESTRAINED JOINT) PIPE.

3. PROPOSED 16" WATER LINE FROM STATION 16+59.44 TO STATION 16+84.44 LINE -L- SHALL BE D.I.R.J. (DUCTILE IRON RESTRAINED JOINT) PIPE.

4. PROPOSED 8" RECLAIMED WATER DISTRIBUTION LINE FROM STATION 16+40.68 TO STATION 18+17.40 LINE -Y1A- SHALL BE D.I.R.J. (DUCTILE IRON RESTRAINED JOINT) PIPE.

5.INDENIFICATION TAPE SHALL BE INSTALLED ALONG THE PROPOSED RECLAIMED WATER DISTRIBUTION LINE AND SHALL BE AT LEAST THREE INCHES WIDE AND HAVE WHITE OR BLACK LETTERS ON PURPLE (PANTONE 522 OR EQUIVALENT) INSCRIBED WITH "CAUTION: RECLAIMED WATER - DO NOT DRINK". THE INDENIFICATION TAPE SHALL BE INSTALLED ON TOP OF RECLAIMED WATER LINE, FASTEN AT LEAST EVERY 10 FEET AND RUN CONTINUOUSLY THE ENTIRE LENGTH OF THE PIPE.

PROJECT TYPICAL DETAILS

NOT TO SCALE

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PROJECT REFERENCE NO.	SHEET NO.
HL-0127	UC-3A

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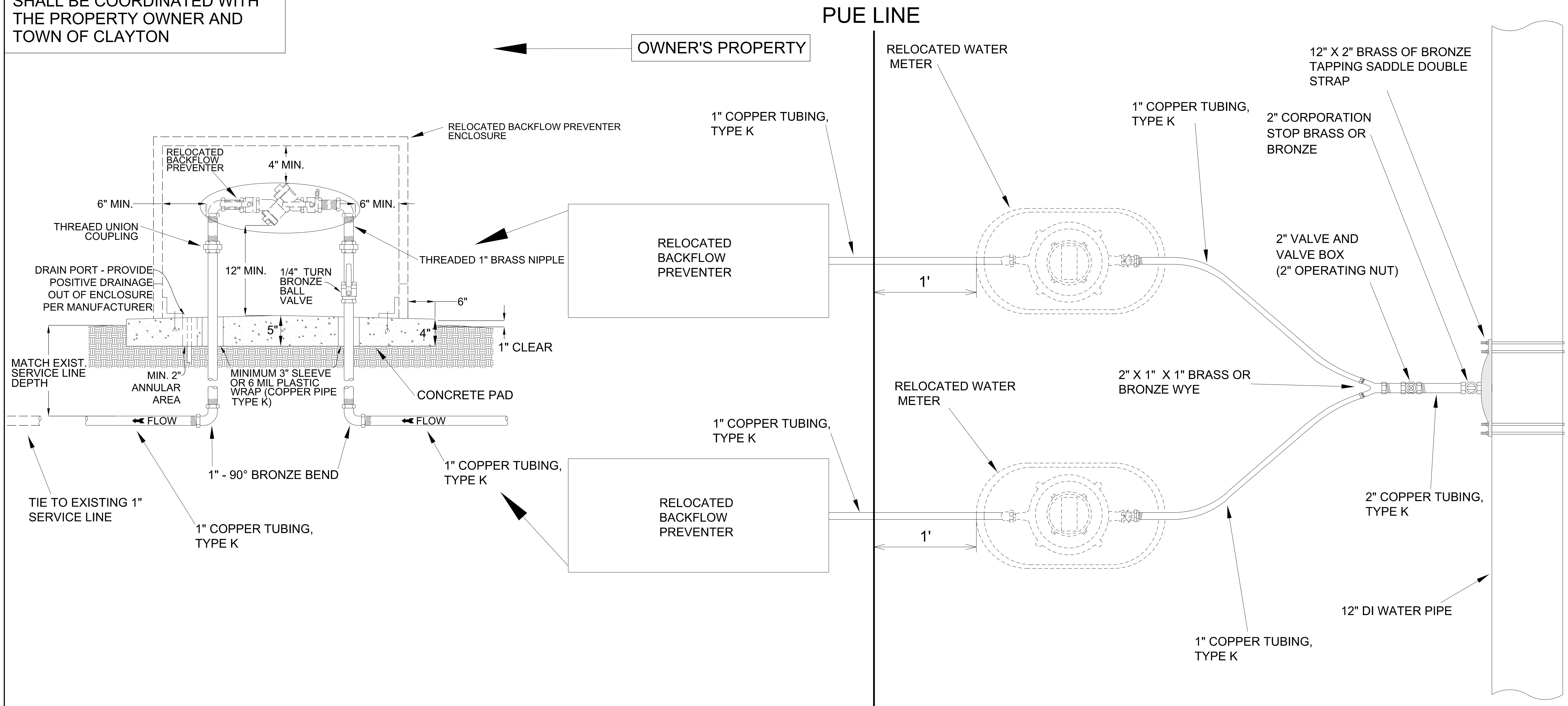
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL
COREY D. BOUSQUET
2/6/2024
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

RELOCATION OF WATER METERS AND BACKFLOW PREVENTERS SHALL BE COORDINATED WITH THE PROPERTY OWNER AND TOWN OF CLAYTON



ALL FITTINGS, TAPPING SADDLES, CORPORATION STOPS AND BALL VALVES ARE INCIDENTAL TO RELOCATE WATER METER, RELOCATE RPZ BACKFLOW PREVENTION ASSEMBLY AND WATER SERVICE LINE PAY ITEMS

WATER METER AND BACKFLOW PREVENTER RELOCATION

PLACE 3" OF #57 OR #78 WASHED STONE BENEATH RELOCATED WATER METERS

NOT TO SCALE

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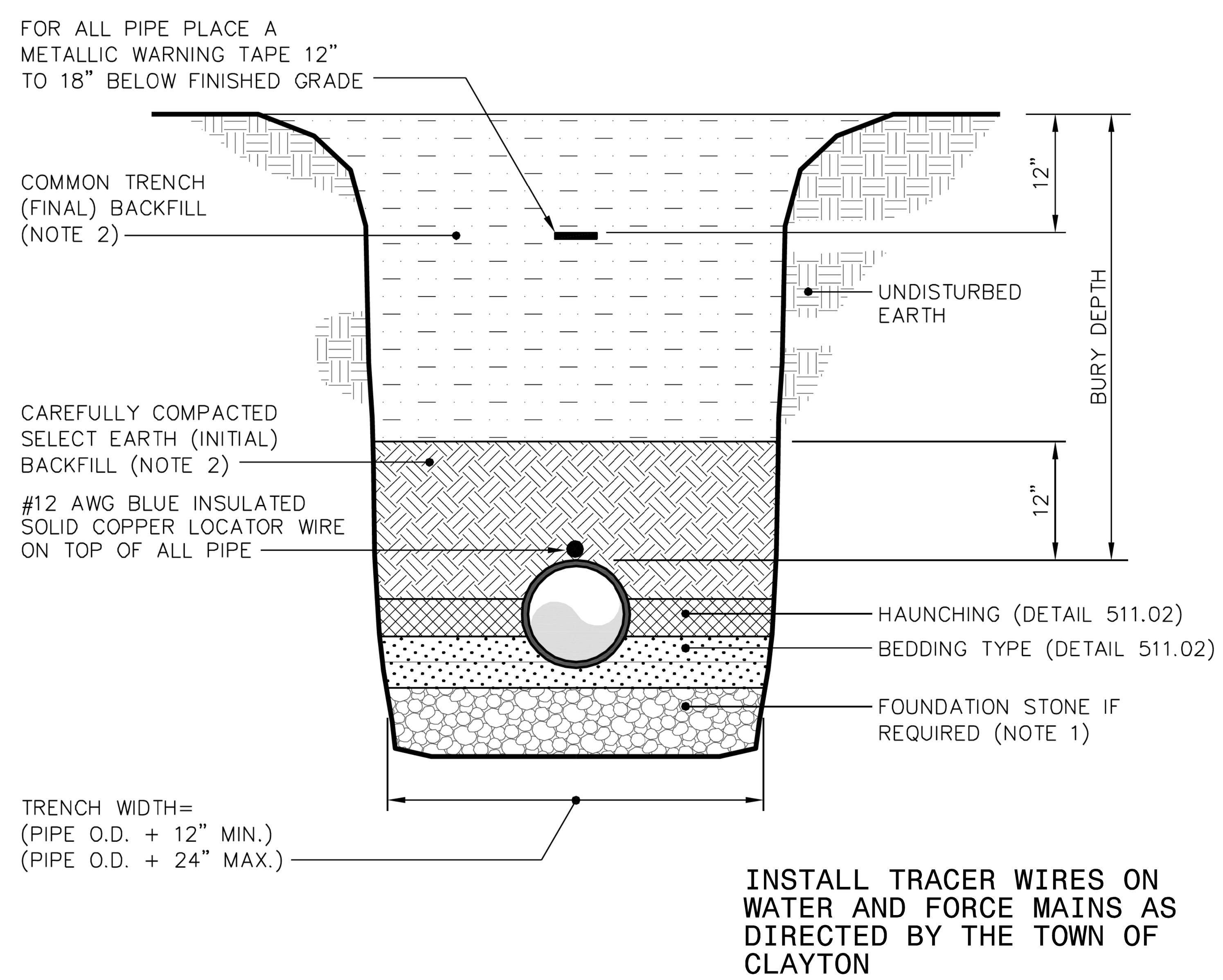
SEAL 023017 NORTH CAROLINA PROFESSIONAL ENGINEER COREY D. BOUSQUET
2/6/2024
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

PROJECT TYPICAL DETAILS

Details Provided by APPIAN Consulting Engineers - www.appianengineers.com 08/06/2010 - 10:40:22 AM



INSTALL TRACER WIRES ON WATER AND FORCE MAINS AS DIRECTED BY THE TOWN OF CLAYTON

NOTES:

1. 8" deep No. 57 stone or equal wrapped in non-woven geotextile filter fabric lightly compacted. Overlap fabric by minimum one pipe O.D.
2. See specifications Section 02275, Part 2 - PRODUCTS for composition of Select Earth Backfill and Common Trench Backfill.

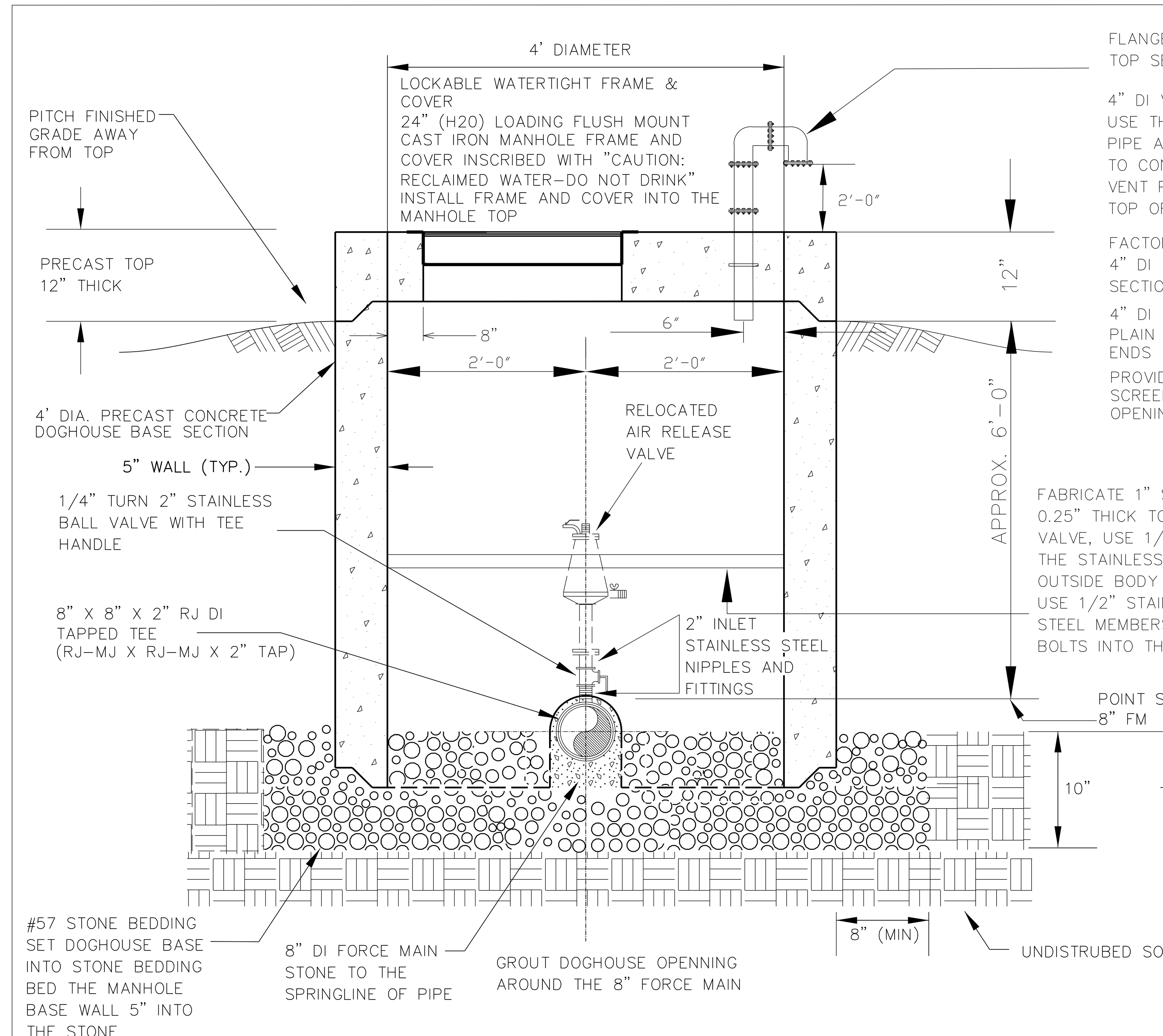
TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY

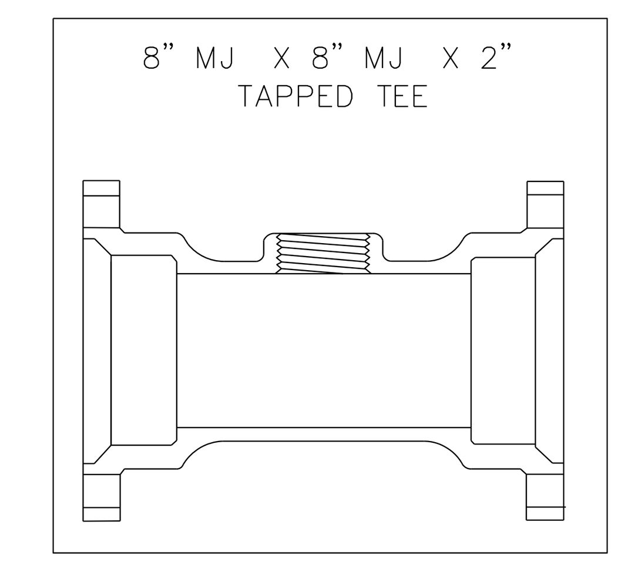
SEWER & WATER MAIN PIPE LAYING CONDITIONS

SCALE: Not To Scale | DETAIL # 511.01
REVISION DATE: July, 2010 | SHEET #: 1 of 1

MAXIMUM TRENCH WIDTH AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)	NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		





NOTES:

1. USE NECESSARY FITTINGS SPECIFIED BY THE TOWN OF CLAYTON TO CONNECT THE EXISTING AIR RELEASE VALVE TO THE PROP. 8" FORCE MAIN.
2. MANHOLE STRUCTURE/ FRAME AND COVER TO BE RATED FOR AASHTO H20 LOADING.
3. CONNECT RELOCATED AIR RELEASE VALVE USING NECESSARY FITTINGS
4. ALL MANHOLE JOINTS TO BE T & G W/ PREFORMED BUTYL RUBBER (MASTIC) OR O-RING GASKET.

USE REINFORCEMENT STEEL FOR PRECAST MANHOLE AS SHOWN IN NCDOT ROADWAY STANDARD DRAWING 2018 "STANDARD DETAIL 840.52"

RELOCATE AIR RELEASE VALVE
(8" FORCE MAIN)
NTS

NOT TO SCALE

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PROJECT REFERENCE NO.	SHEET NO.
HL-0127	UC-3C
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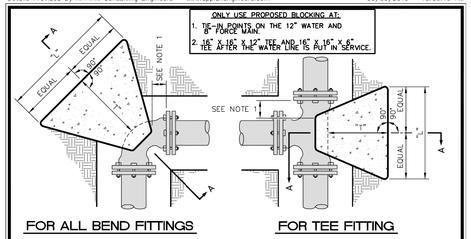
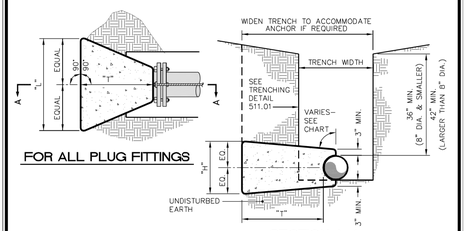
UTILITY CONSTRUCTION PLANS ONLY

PROJECT TYPICAL DETAILS

UTILITY CONSTRUCTION

ONLY USE PROPOSED BLOCKING AT:
1. TIE-IN POINTS ON THE 12" WATER AND 8" FORCE MAIN.
2. 16" X 16" X 12" TEE AND 16" X 16" X 6" TEE AFTER THE WATER LINE IS PUT IN SERVICE.





NOTES:
1. Concrete blocking is to be formed to ensure accessibility to fittings and poured against undisturbed earth.
2. Fittings are to be completely wrapped with plastic, prior to pouring concrete.
3. Concrete to be minimum 3,000 psi. @ 28 days.

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY

HORIZONTAL BLOCKING DETAIL for BENDS, TEE, & PLUG

SCALE: Not To Scale	DETAIL # 512-01
REVISION DATE: July, 2010	SHEET # 1 of 2

TEST PRESSURE = 150 P.S.I.

PIPE SIZE	TYPE FITTING	DIMENSIONS (Ft.) "L"	"H"	"T"	VOLUME CONCRETE CU. YD.
4" INCHES	11 1/4°	---	---	---	---
	22 1/2°	1.00	1.00	1.50	0.06
	45°	1.00	1.00	1.50	0.06
	90°	1.00	1.00	2.50	0.09
	TEE / PLUG	1.00	1.00	2.00	0.07
4" INCHES	11 1/4°	1.00	1.00	2.50	0.09
	22 1/2°	1.00	1.00	2.50	0.09
	45°	1.00	1.00	2.50	0.09
	90°	1.50	1.50	2.50	0.15
	TEE / PLUG	1.50	1.50	2.00	0.12
6" INCHES	11 1/4°	1.50	1.50	2.50	0.15
	22 1/2°	1.50	1.50	2.50	0.15
	45°	1.50	1.50	2.50	0.15
	90°	2.00	2.00	3.00	0.28
	TEE / PLUG	2.00	2.00	2.50	0.23
8" INCHES	11 1/4°	2.00	2.00	2.50	0.23
	22 1/2°	2.00	2.00	2.50	0.23
	45°	2.00	2.00	2.75	0.25
	90°	3.00	2.00	3.00	0.39
	TEE / PLUG	3.00	2.00	2.50	0.32
12" INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	2.00	2.00	3.00	0.28
	45°	3.00	2.50	3.00	0.47
	90°	4.50	3.00	3.50	0.94
	TEE / PLUG	4.50	3.00	3.00	0.81
16" INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	3.00	2.00	3.00	0.39
	45°	4.00	3.00	3.50	0.84
	90°	6.50	3.50	3.50	1.54
	TEE / PLUG	6.50	3.50	3.00	1.32

TEST PRESSURE = 200 P.S.I.

PIPE SIZE	TYPE FITTING	DIMENSIONS (Ft.) "L"	"H"	"T"	VOLUME CONCRETE CU. YD.
4" INCHES	11 1/4°	1.00	1.00	1.50	0.04
	22 1/2°	1.00	1.00	1.50	0.06
	45°	1.00	1.00	1.50	0.06
	90°	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
4" INCHES	11 1/4°	1.00	1.00	2.50	0.09
	22 1/2°	1.00	1.00	2.50	0.09
	45°	1.50	1.50	2.50	0.15
	90°	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
6" INCHES	11 1/4°	1.50	1.50	2.50	0.15
	22 1/2°	1.50	1.50	2.50	0.15
	45°	1.50	1.50	2.50	0.15
	90°	2.50	2.00	3.00	0.33
	TEE	2.50	2.00	2.50	0.28
8" INCHES	11 1/4°	2.00	2.00	2.50	0.23
	22 1/2°	2.00	2.00	2.50	0.23
	45°	2.00	2.00	2.50	0.23
	90°	4.00	2.00	3.00	0.50
	TEE	4.00	2.00	2.50	0.42
12" INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	3.00	2.00	3.00	0.39
	45°	4.00	2.50	3.00	0.61
	90°	5.50	3.00	3.50	1.13
	TEE	5.50	3.00	3.00	0.97
16" INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	4.00	2.00	3.00	0.50
	45°	5.50	3.00	3.50	1.13
	90°	7.50	4.00	3.50	2.01
	TEE	7.50	4.00	3.00	1.72

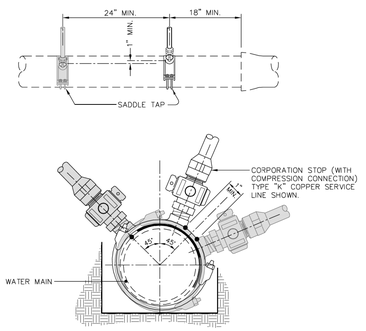
CHART NOTES:
1. If blocking excavation is in lightly compacted fill areas, or in areas where boulders or stumps have been removed, blocking size must be re-sized for the specific location/circumstance by a NC licensed Professional Engineer.
2. Blocking sizes shown in these tables assume the following:
   A. Blocking is constructed in residual soils as shown in detail.
   B. Soil bearing pressure = 2000 psf
   C. Velocity of flow = 15 fps.
3. This detail not applicable to reducing bends.
4. Neither the weight of the concrete blocking nor friction between concrete blocking and soil was added into blocking sizes computation. Therefore, blocking size is conservative.

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY

HORIZONTAL BLOCKING DETAIL for BENDS, TEE, & PLUG

SCALE: Not To Scale	DETAIL # 512-01
REVISION DATE: July, 2010	SHEET # 2 of 2

PART	MANUFACTURER MODEL / Cat. No.
SADDLE (BRASS OR BRONZE FOR "CC" THREADS)	FORD / 202B MUELLER / BR2B SMITH BLAIR / 325-000 SERIES (OR APPROVED EQUAL)
CORP. STOP (BRASS OR BRONZE FOR "CC" THREADS)	MUELLER / H-15008 SERIES FORD / F-1000G A.Y. McDONALD / 4701T (OR APPROVED EQUAL)

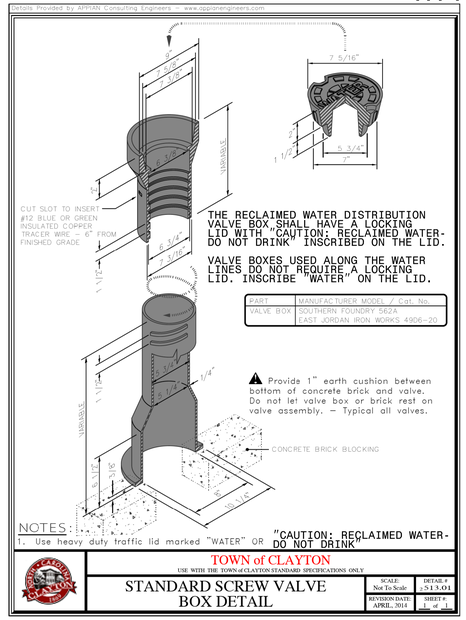


NOTES:
1. If 2 taps are made on each side of the main there shall be a minimum of 24" horizontal separation. Multiple taps on the same side shall have a minimum 24" horizontal separation and staggered a minimum of 1" vertically to prevent damage to the main.

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY

STANDARD WATER TAP DETAIL (3/4" AND 1" TAPS)

SCALE: Not To Scale	DETAIL # 513.04
REVISION DATE: July, 2010	SHEET # 1 of 1

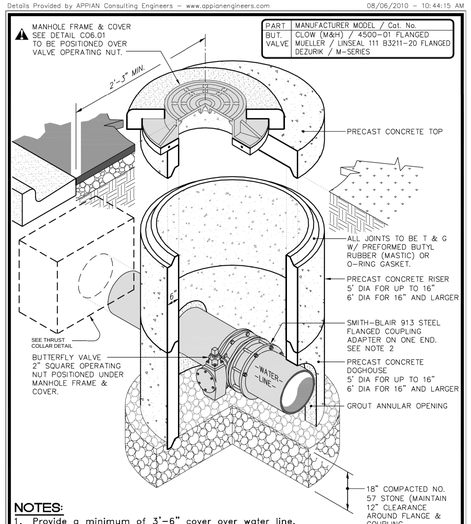


TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY

STANDARD SCREW VALVE BOX DETAIL

SCALE: Not To Scale	DETAIL # 513.01
REVISION DATE: APRIL, 2014	SHEET # 1 of 1

PART	MANUFACTURER MODEL / Cat. No.
BUT. VALVE	CLOW (M&H) / 4500-01 FLANGED MUELLER / LINSEAL 111 B3211-20 FLANGED DEZURIK / M-SERIES

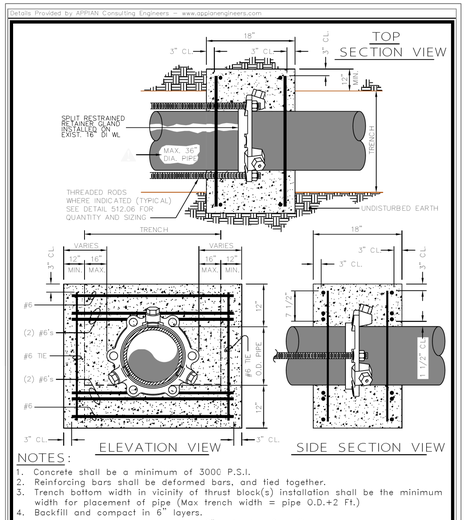


NOTES:
1. Provide a minimum of 3'-6" cover over water line.
2. All bolts on the flanged coupling adaptor to be stainless steel.
3. Thrust collar without rodding to be provided on both sides of manhole. See detail 512.02.

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY

BUTTERFLY VALVE (16" and LARGER) in PRECAST MANHOLE

SCALE: Not To Scale	DETAIL # 513.09
REVISION DATE: July, 2010	SHEET # 1 of 2



NOTES:
1. Concrete shall be a minimum of 3000 P.S.I.
2. Reinforcing bars shall be deformed bars, and tied together.
3. Trench bottom width in vicinity of thrust block(s) installation shall be the minimum width for placement of pipe (Max trench width = pipe O.D.+2 Ft.)
4. Backfill and compact in 6" layers.
5. Install thrust collars as shown on 16" water line 2 profile.
6. Install thrust collars on existing 16" water prior to installing the proposed 16" water line

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY

THRUST COLLAR & BLOCKING with WEDGE ACTION RESTRAINER GLAND

SCALE: Not To Scale	DETAIL # 513.10
REVISION DATE: April, 2014	SHEET # 1 of 1

TIE ROD ANCHORS DATUM

PIPE SIZE (INCHES)	ROD DIAMETER	NUMBER OF SS RODS REQUIRED
TEST PRESSURE = 150 PSI		
6	3/4"	2
8	3/4"	2
10	3/4"	2
12	3/4"	4
16	3/4"	6
20	3/4"	8
24	3/4"	8
30	1"	10
36"	1"	12
TEST PRESSURE = 200 PSI		
6	3/4"	2
8	3/4"	2
10	3/4"	4
12	3/4"	6
16	3/4"	8
20	3/4"	12
24	3/4"	10
30	1"	14
36"	1"	16

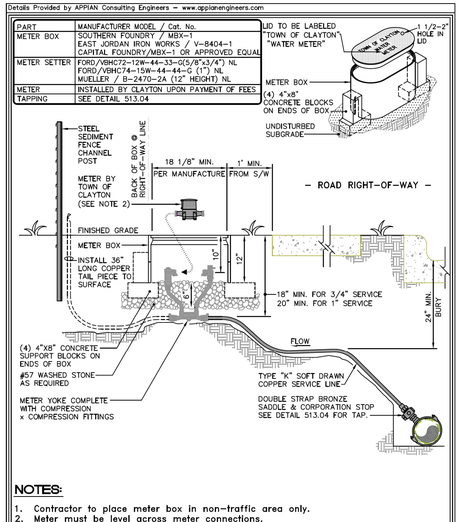
316 GRADE STAINLESS STEEL (ALL THREAD) RODS

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY

TIE ROD ANCHORS DATUM CHART

SCALE: Not To Scale	DETAIL # 512.06
REVISION DATE: July, 2010	SHEET # 1 of 1

PART	MANUFACTURER MODEL / Cat. No.
METER BOX	SOUTHERN FOUNDRY / MBX-1 EAST JORDAN IRON WORKS / V-8404-1 CAPITAL FOUNDRY/MBX-1 OR APPROVED EQUAL
METER SETTER	FORD/VBHC72-12W-44-33-Q(5/8"x3/4") NL FORD/VBHC74-15W-44-44-Q (1") NL MUELLER / B-2470-2A (12" HEIGHT) NL
METER	INSTALLED BY CLAYTON UPON PAYMENT OF FEES
TAPPING	SEE DETAIL 513.04



NOTES:
1. Contractor to place meter box in non-traffic area only.
2. Meter must be level across meter connections.
3. Lock setter with highfield security prod. part#93210142 & 93280148 after waterline testing is completed.

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY

3/4" & 1" WATER METER SERVICE DETAIL

SCALE: Not To Scale	DETAIL # 519.01
REVISION DATE: OCT., 2014	SHEET # 1 of 2

PROJECT TYPICAL DETAILS

NOT TO SCALE

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PROJECT REFERENCE NO.	SHEET NO.
HL-0127	UC-3D

DESIGNED BY: JKC
DRAWN BY: JKC
CHECKED BY: CLS
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REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
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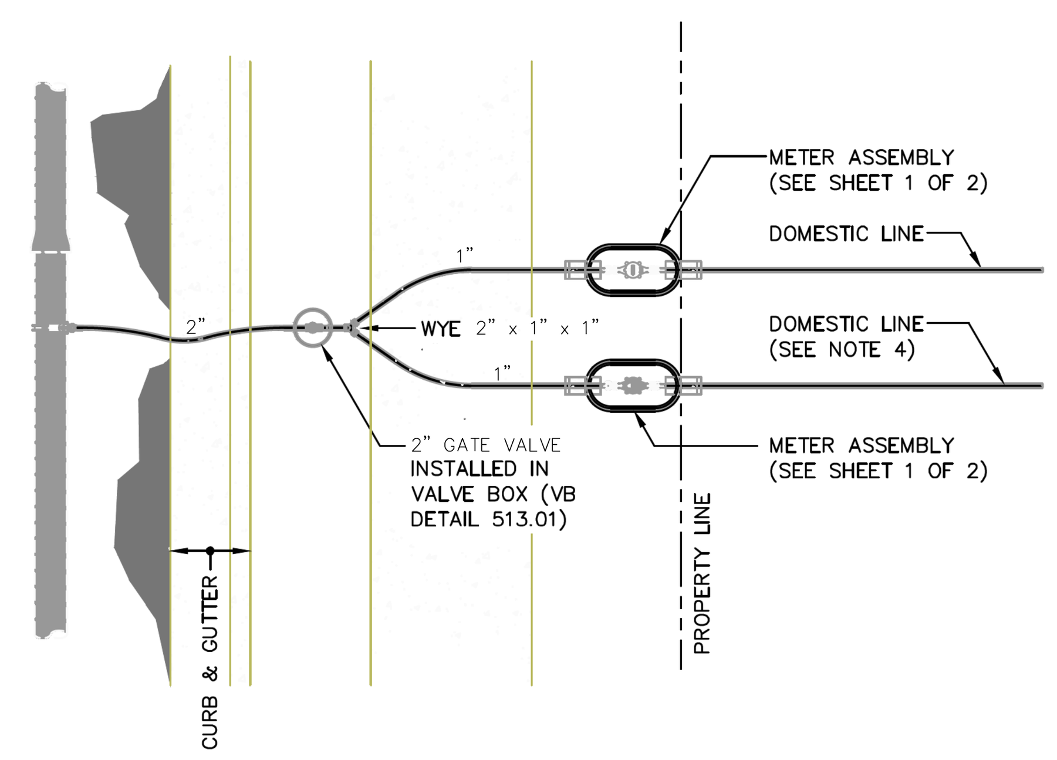
FAX:(919)250-4151

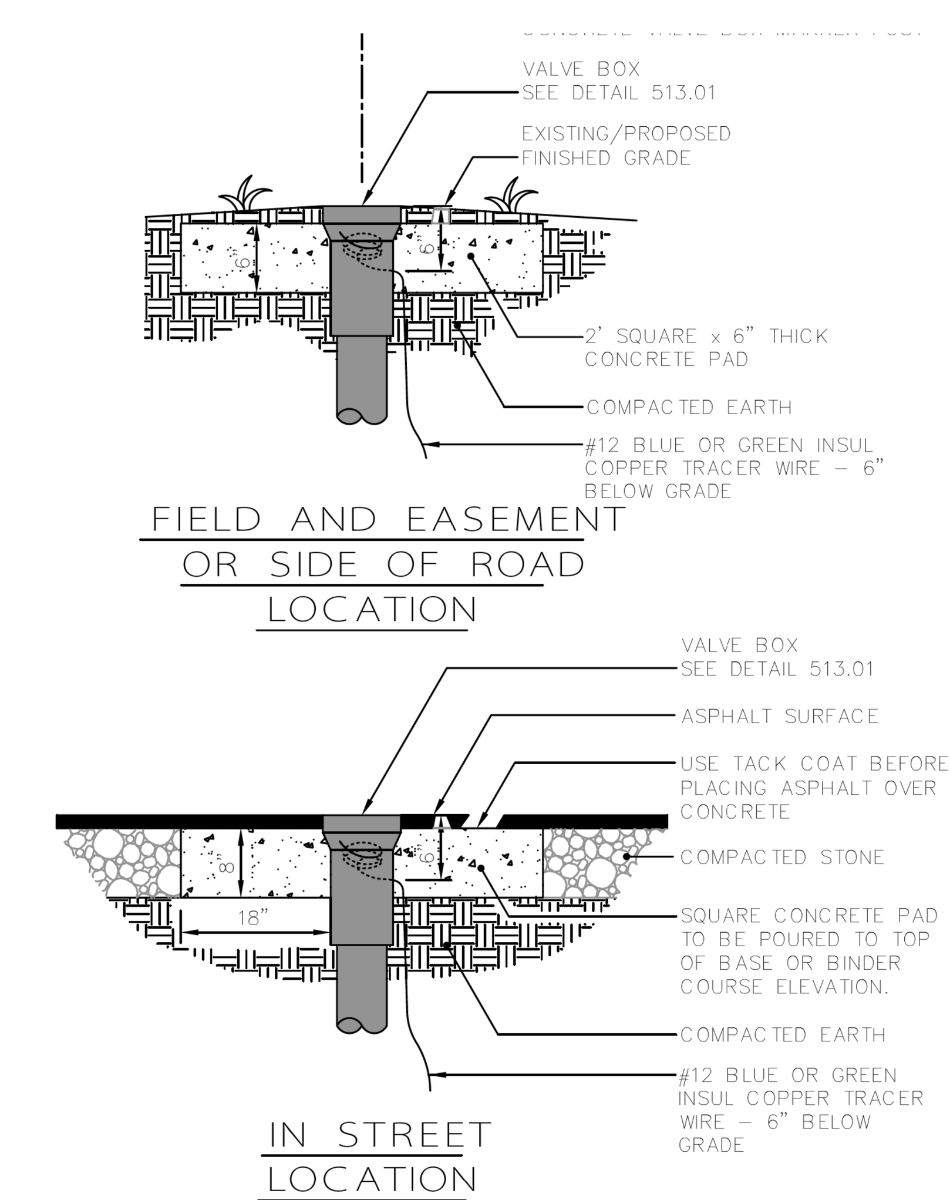
DocuSigned by: Corey D. Bousquet, P.E.
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023041 COREY D. BOUSQUET
BE23F928878C49A...
2/6/2024
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



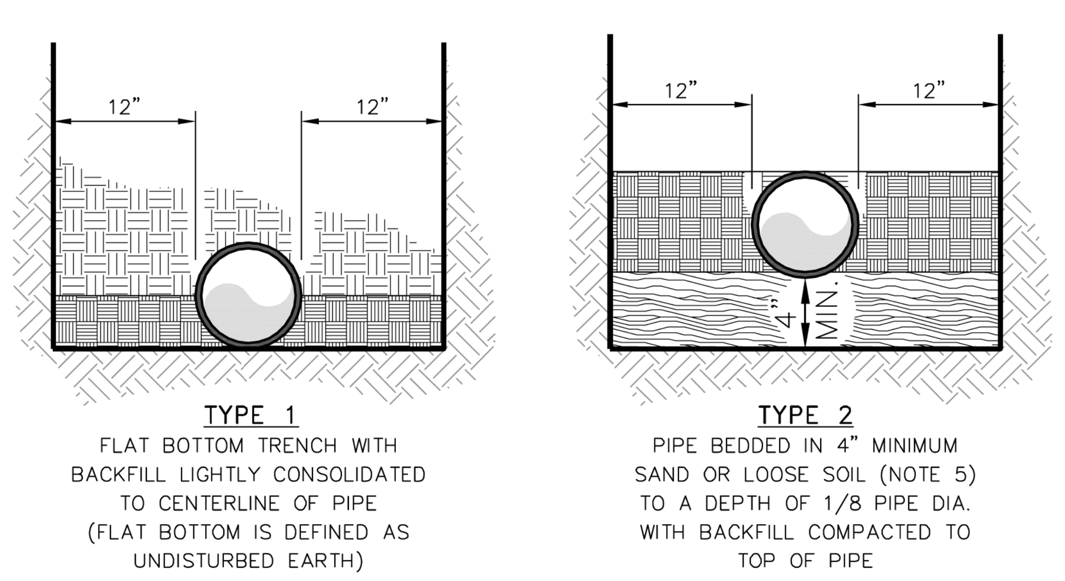
NOTES:
1. See detail 513.03 for top of valve box treatment.
2. See detail sheet 1 of 2 for water meter assembly.
3. This detail to be used when directed by Town Engineer.

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY
TAP for DUPLEX SERVICE or IRRIGATION USE
SCALE: Not To Scale | DETAIL #: 519.01 | REVISION DATE: July, 2010 | SHEET #: 2 of 2



NOTES:
1. Concrete to be minimum 3,000 PSI @ 28 days.

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY
VALVE, VALVE BOX, AND MARKER INSTALLATION DETAIL
SCALE: Not To Scale | DETAIL #: 513.03 | REVISION DATE: APRIL, 2014 | SHEET #: 1 of 1

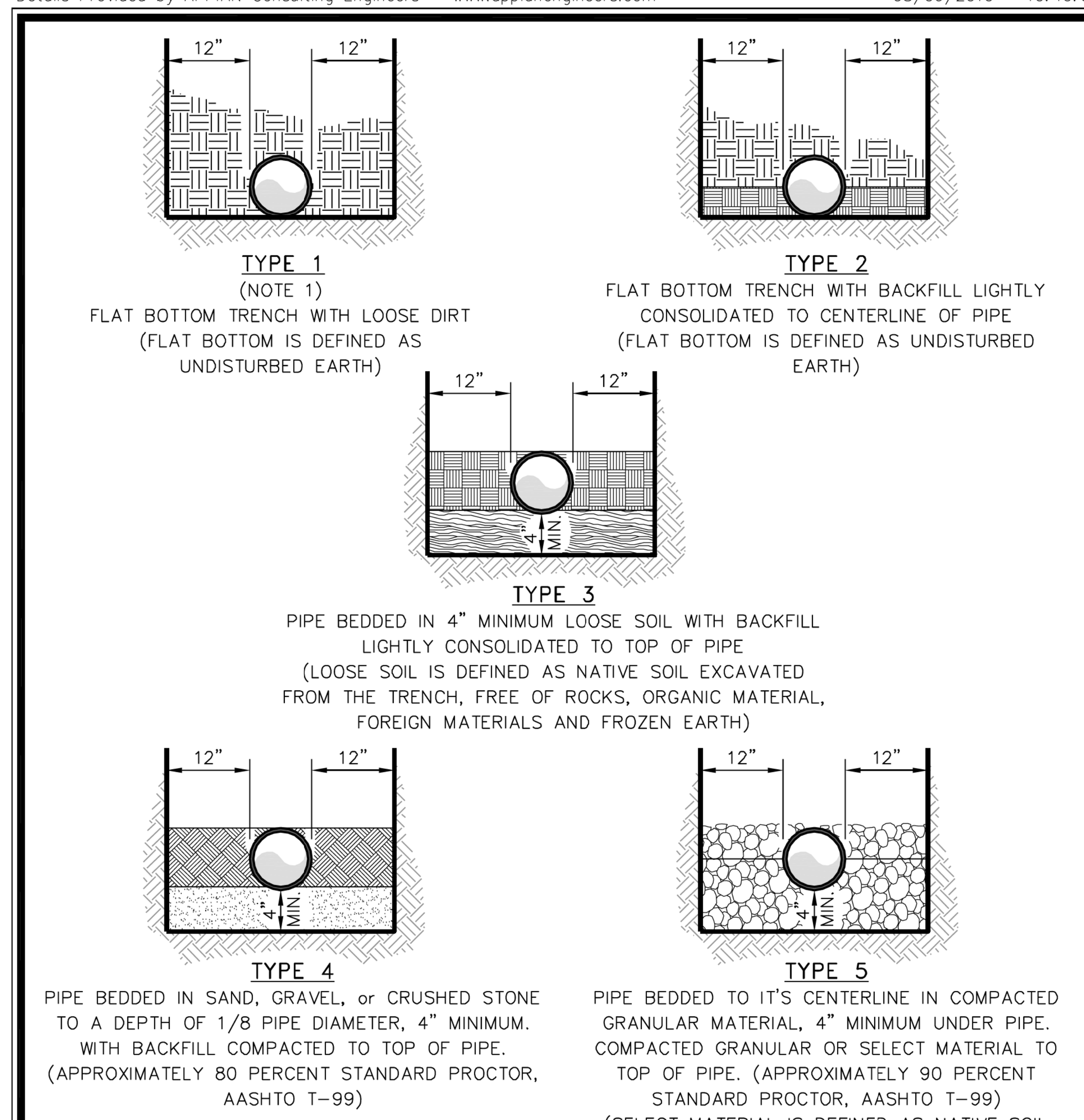


TYPE 1
FLAT BOTTOM TRENCH WITH BACKFILL LIGHTLY CONSOLIDATED TO CENTERLINE OF PIPE (FLAT BOTTOM IS DEFINED AS UNDISTURBED EARTH)

TYPE 2
PIPE BEDDED IN 4" MINIMUM SAND OR LOOSE SOIL (NOTE 5) TO A DEPTH OF 1/8 PIPE DIA. WITH BACKFILL COMPACTED TO TOP OF PIPE

NOTES:
1. For normal pipe sizes 14 inch and larger, consideration should be given to the use of laying conditions other than Type 1.
2. Consideration of the pipe–zone embedment conditions included in this figure may be influenced by factors other than pipe strength. For additional information on pipe bedding and backfill, see ANSI/AWWA C600.
3. See detail 511.01 for unsuitable trench subgrade requirements.
4. See Specifications Section 02275, Section 2.1.2 for pipe bedding definitions.
5. Loose soil shall be either native soil excavated from trench or borrow, both conforming in composition to "Select Earth Backfill" as defined in Specifications Section 02275, Part 2 – PRODUCTS.

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY
WATER MAIN EMBEDMENT DETAILS
SCALE: Not To Scale | DETAIL #: 511.02 | REVISION DATE: July, 2010 | SHEET #: 1 of 4



TYPE 1
(NOTE 1)
FLAT BOTTOM TRENCH WITH LOOSE DIRT (FLAT BOTTOM IS DEFINED AS UNDISTURBED EARTH)

TYPE 2
FLAT BOTTOM TRENCH WITH BACKFILL LIGHTLY CONSOLIDATED TO CENTERLINE OF PIPE (FLAT BOTTOM IS DEFINED AS UNDISTURBED EARTH)

TYPE 3
PIPE BEDDED IN 4" MINIMUM LOOSE SOIL WITH BACKFILL LIGHTLY CONSOLIDATED TO TOP OF PIPE (LOOSE SOIL IS DEFINED AS NATIVE SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, ORGANIC MATERIAL, FOREIGN MATERIALS AND FROZEN EARTH)

TYPE 4
PIPE BEDDED IN SAND, GRAVEL, or CRUSHED STONE TO A DEPTH OF 1/8 PIPE DIAMETER, 4" MINIMUM. WITH BACKFILL COMPACTED TO TOP OF PIPE. (APPROXIMATELY 80 PERCENT STANDARD PROCTOR, AASHTO T–99)

TYPE 5
PIPE BEDDED TO IT'S CENTERLINE IN COMPACTED GRANULAR MATERIAL, 4" MINIMUM UNDER PIPE. COMPACTED GRANULAR OR SELECT MATERIAL TO TOP OF PIPE. (APPROXIMATELY 90 PERCENT STANDARD PROCTOR, AASHTO T–99) (SELECT MATERIAL IS DEFINED AS NATIVE SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, ORGANIC MATERIAL, FOREIGN MATERIALS AND FROZEN EARTH)

NOTES:
1. For normal water pipe sizes 14 inch and larger, consideration should be given to the use of laying conditions other than Type 1.
2. Consideration of the pipe–zone embedment conditions included in this figure may be influenced by factors other than pipe strength. For additional information on pipe bedding and backfill, see ANSI/AWWA C600.

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY
PIPE EMBEDMENT DETAILS
SCALE: Not To Scale | DETAIL #: 511.02 | REVISION DATE: July, 2010 | SHEET #: 2 of 4

TABLE 10.7 – DESCRIPTION OF MATERIAL CLASSIFICATION (As Defined in ASTM 2321)

Class	Type	Soil Symbol Group	Description ASTM D 2487	Percentage Passing Sieve Sizes: 1.5 in (40 mm)	No. 4 (4.75 mm)	No. 200 (0.075 mm)	Atterbreg Limits: LL	PL	Coefficients: Uniformity Cu	Curvature Cc
IA	Manufactured Aggregates: open graded, clean	None	Angular, crushed stone or rock, crushed gravel, broken coral, crushed slag, cinders or shells: large void content, contain little or no fines	100	≤10%	<5	Non Plastic			
IB	Manufactured, Processed Aggregates: dense graded, clean	None	Angular, crushed stone (or other Class IA materials) and stone/sand mixtures with gradations selected to minimize migration of adjacent soils: contain little or no fines	100	≤50%	<5	Non Plastic			
II	Coarse–Grained Soils, clean	GW	Well–graded gravels and gravel–sand mixtures; little or no fines	100	<50% of Coarse Fraction	<5	Non Plastic		>4	1 to 3
		GP	Poorly–graded gravels and gravel–sand mixtures; little or no fines						<4	<1 or >3
		SW	Well–graded sands and gravelly sands; little or no fines		>50% of Coarse Fraction				>6	1 to 3
		SP	Poorly–graded sands and gravelly sands; little or no fines						<6	<1 or >3
	Coarse–Grained Soils, borderline clean to w/fines	e.g. GW–GC, SP–SM	Sands and gravels which are borderline between clean and with fines	100	Varies	5% to 12%	Non Plastic		Same as for GW, GP, SW and SP	
III	Coarse–Grained Soils with Fines	GM	Silty gravels, gravel–sand–silt mixtures	100	>50% of Coarse Fraction	>12% to <50%		<4 or <"A" Line		
		GC	Clayey gravels, gravel–sand–clay mixtures					<7 or >"A" Line		
		SM	Silty sands, sand–silt mixtures		>50% of Coarse Fraction			>4 or <"A" Line		
		SC	Clayey sands, sand–silt mixtures					>7 or >"A" Line		
IV	Fine–Grained Soils (inorganic)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, silts with slight plasticity	100	100	>50	<50	<4 or <"A" Line		
		CL	Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays					>7 or >"A" Line		
IVB	Fine–Grained Soils (inorganic)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	100	100	>50	>50	<"A" Line		
		CH	Inorganic clays of high plasticity, fat clays					>"A" Line		
V	Organic Soils	OL	Organic silts and organic silty clays of low plasticity	100	100	>50	<50	<4 or <"A" Line		
		OH	Organic clays of medium to high plasticity, organic silts				>50	<"A" Line		
	Highly Organic	PT	Peat and other high organic soils							

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY
PIPE EMBEDMENT DETAILS
SCALE: Not To Scale | DETAIL #: 511.02 | REVISION DATE: July, 2010 | SHEET #: 3 of 4

TABLE 10.8
RECOMMENDATIONS FOR INSTALLATION AND USE OF SOILS AND AGGREGATES FOR FOUNDATION, EMBEDMENT AND BACKFILL

	Soil Class (see Table 10.7)A: CLASS IA	CLASS IB	CLASS II	CLASS III	CLASS IV–A
General Recommendations and Restrictions	Do not use where conditions may cause migration of fines from adjacent soil and loss of pipe support. Suitable for use as a drainage blanket and underdrain in rock cuts where adjacent material is suitably graded.	Process materials as required to obtain gradation which will minimize migration of adjacent materials. Suitable for use as drainage blanket and underdrain.	Where hydraulic gradient exists check gradation to minimize migration. "Clean" groups suitable for use as drainage blanket and underdrain.	Do not use where water conditions in trench may cause instability.	Obtain geotechnical evaluation of proposed material. May not be suitable under high earth fills, surface applied wheel loads and under heavy vibratory compactors and tampers. Do not use where water conditions in trench may cause instability.
Foundation	Suitable as foundation and for replacing over–excavated and unstable trench bottom as restricted above. Install and compact in 6–in. maximum layers.	Suitable as foundation and for replacing over–excavated and unstable trench bottom. Install and compact in 6–in. maximum layers.	Suitable as foundation and for replacing over–excavated and unstable trench bottom as restricted above. Install and compact in 6–in. maximum layers.	Suitable as foundation and for replacing over–excavated and unstable trench bottom as restricted above. Do not use in thickness greater than 12 in. total. Install and compact in 6–in. maximum layers.	Suitable only in undisturbed condition and where trench is dry. Remove all loose material and provide firm, uniform trench bottom before bedding is placed.
Bedding	Suitable as restricted above. Install in 6–in. maximum layers. Level final grade by hand. Minimum depth 4 in. (6 in. in rock cuts).	Install and compact in 6–in. maximum layers. Level final grade by hand. Minimum depth 4 in. (6 in. in rock cuts).	Suitable as restricted above. Install and compact in 6–in. maximum layers. Level final grade by hand. Minimum depth 4 in. (6 in. in rock cuts).	Suitable only in dry trench conditions. Install and compact in 6–in. maximum layers. Level final grade by hand. Minimum depth 4 in. (6 in. in rock cuts).	Suitable only in dry trench conditions and when optimum placement and compaction control is maintained. Install and compact in 6–in. maximum layers. Level final grade by hand. Minimum depth 4 in. (6 in. in rock cuts).
Hauching	Suitable as restricted above. Install in 6–in. maximum layers. Work in around pipe by hand to provide uniform support.	Install and compact in 6–in. maximum layers. Work in around pipe by hand to provide uniform support.	Suitable as restricted above. Install and compact in 6–in. maximum layers. Work in around pipe by hand to provide uniform support.	Suitable as restricted above. Install and compact 6–in. maximum layers. Work in around pipe by hand to provide uniform support.	Suitable only in dry trench conditions and when optimum placement and compaction control is maintained. Install and compact in 6–in. maximum layers. Work in around pipe by hand to provide uniform support.
Initial Backfill	Suitable as restricted above. Install to a minimum of 6 in. above pipe crown.	Install and compact to a minimum of 6 in. above pipe crown.	Suitable as restricted above. Install and compact to a minimum of 6 in. above pipe crown.	Suitable as restricted above. Install and compact to a minimum of 6 in. above pipe crown.	Suitable as restricted above. Install and compact to a minimum of 6 in. above pipe crown.
Final Backfill	Compact as required by the engineer.	Compact as required by the engineer.	Compact as required by the engineer.	Compact as required by the engineer.	Suitable as restricted above. Compact as required by the engineer.

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY
PIPE EMBEDMENT DETAILS
SCALE: Not To Scale | DETAIL #: 511.02 | REVISION DATE: July, 2010 | SHEET #: 4 of 4

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	UC-4

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DRAWN BY:	JKC
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APPROVED BY:	CDB
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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FAX: (919)250-4151

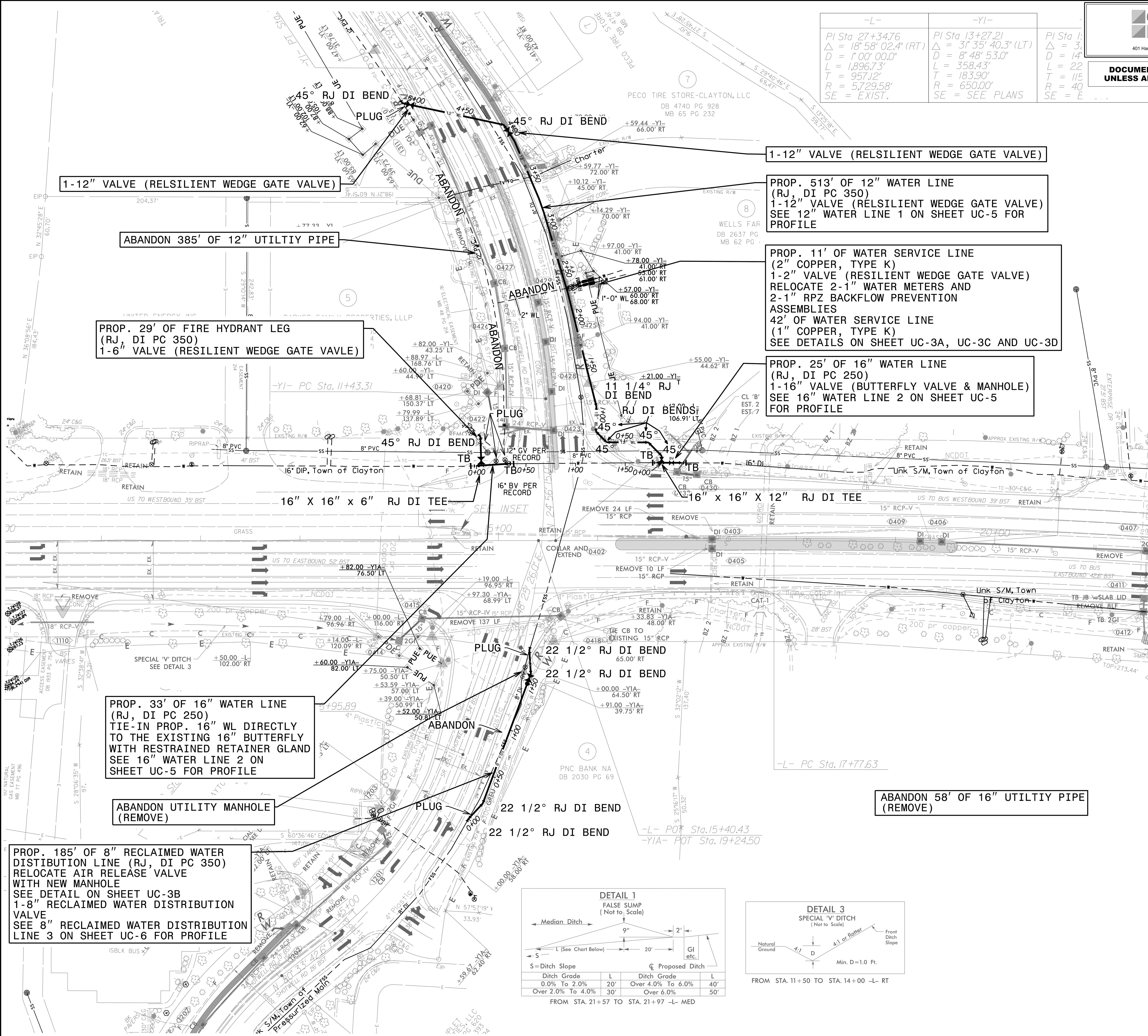
NORTH CAROLINA PROFESSIONAL SEAL 023041 ENGINEER COREY D. BOUSQUET 2/6/2024

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

NAD 83/NA 2011

-L-	-Y1-	-Y1-
PI Sta 27+34.76	PI Sta 13+27.21	PI Sta ...
Δ = 18° 58' 02.4" (RT)	Δ = 31° 35' 40.3" (LT)	Δ = ...
D = 1° 00' 00.0"	D = 8° 48' 53.0"	D = ...
L = 1,896.73'	L = 358.43'	L = ...
T = 957.12'	T = 183.90'	T = ...
R = 5,729.58'	R = 650.00'	R = ...
SE = EXIST.	SE = SEE PLANS	SE = ...



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

FROM STA. 21+57 TO STA. 21+97 -L- MED

FROM STA. 11+50 TO STA. 14+00 -L- RT

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON RECLAIMED WATER DISTRIBUTION PIPE FITTINGS ON THIS PLAN SHEET IS 610 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 3400 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

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PROJECT REFERENCE NO.	SHEET NO.
HL-0127	UC-5

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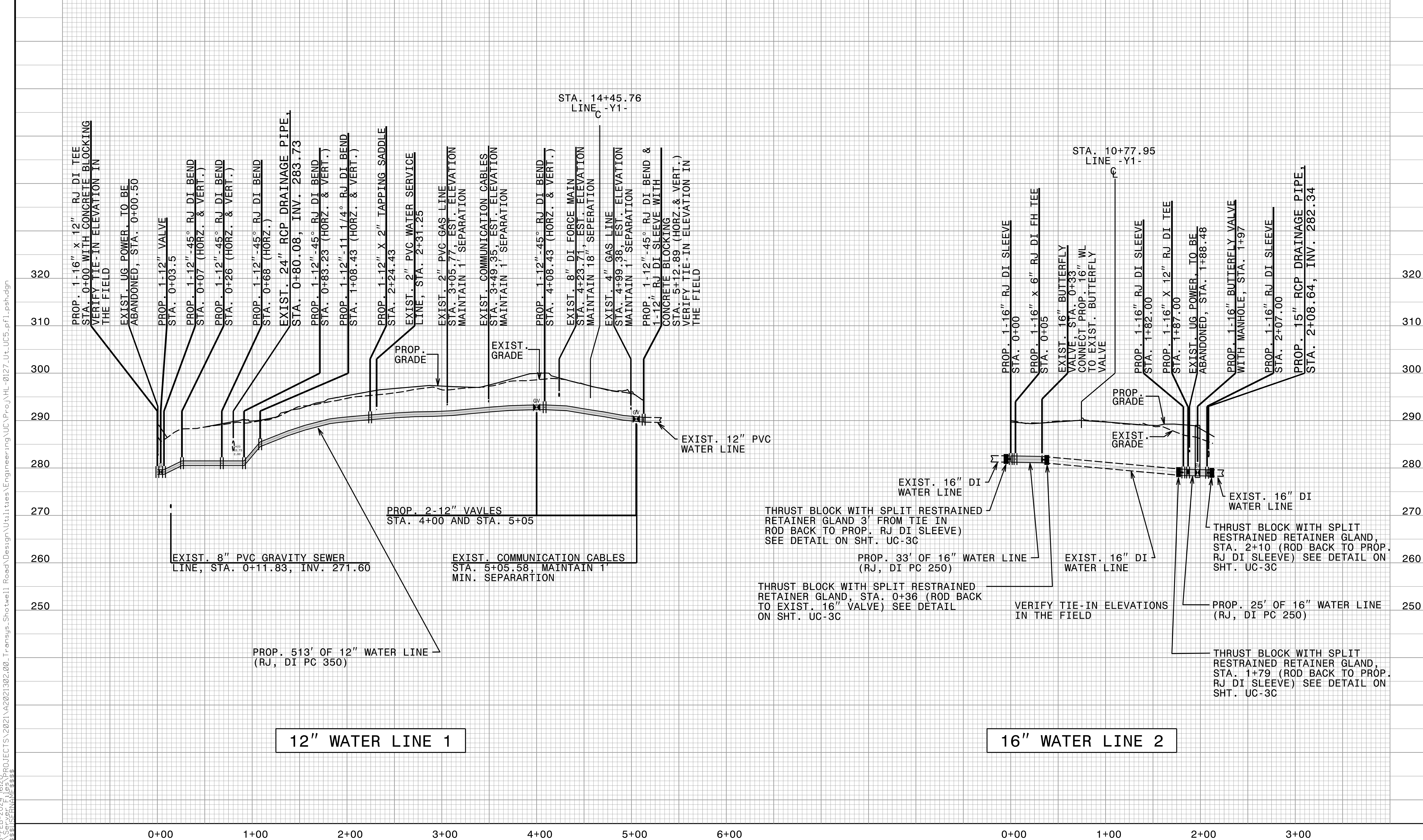
NORTH CAROLINA PROFESSIONAL SEAL 032071 ENGINEER COREY D. BOUSQUET
2/6/2024
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



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HL-0127	UC-6

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036011 COREY D BOUSQUET 2/6/2024

UTILITY CONSTRUCTION PLANS ONLY

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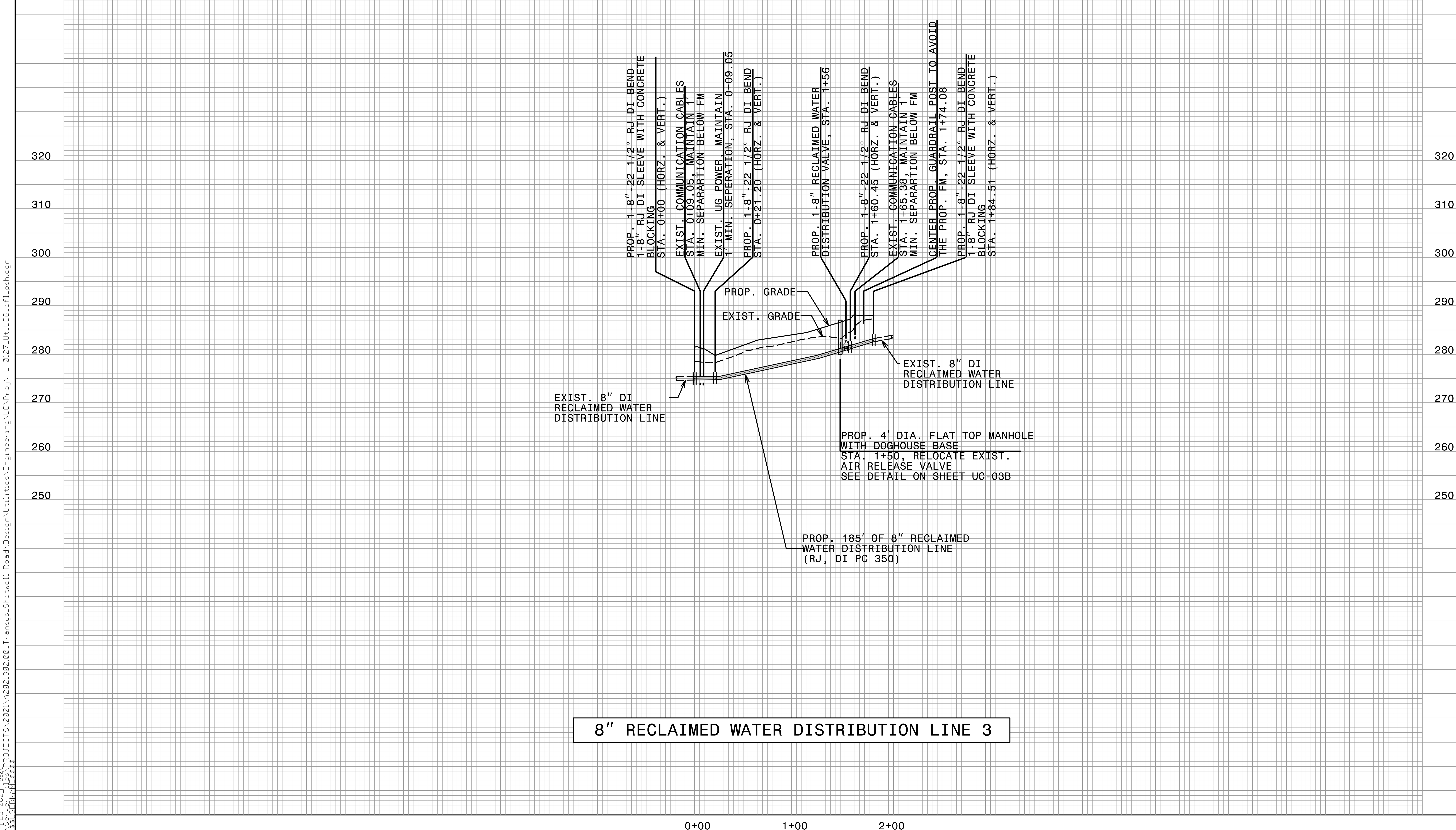
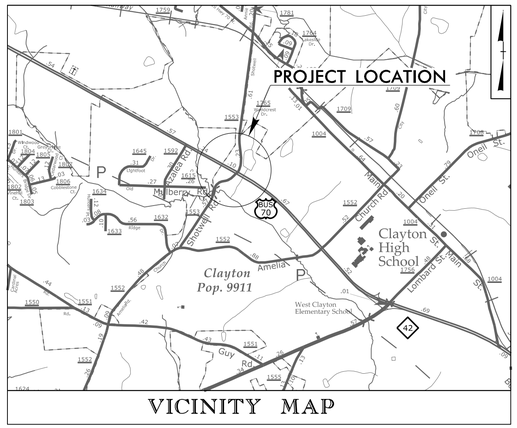


8" RECLAIMED WATER DISTRIBUTION LINE 3



TIP PROJECT: HL–0127

09/08/99

3/7/2024
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USER:Wpope

T.I.P. NO.	SHEET NO.
HL–0127	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.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

VICINITY MAP

UTILITIES BY OTHERS PLANS
JOHNSTON COUNTY

LOCATION: INTERSECTION OF SR 1553 (SHOTWELL ROAD) AND US 70 BUSINESS

TYPE OF WORK: ELECTRIC POWER DISTRIBUTION, GAS, TELEPHONE, AND CABLE TV

GRAPHIC SCALES

INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UO–1	*TITLE SHEET*
UO–2 THRU UO–5	*UBO PLAN SHEETS*

UTILITY OWNERS WITH CONFLICTS

(A) DISTRIBUTION – DUKE ENERGY
(B) DISTRIBUTION – PIEDMONT NATURAL GAS
(C) COMMUNICATIONS – CENTURY LINK
(D) COMMUNICATIONS – CHARTER

PREPARED IN THE OFFICE OF:

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Tel:919.789.9977
Fax:919.789.9591
License: F-0453

WILLIAM POPE, PE *CONSULTANT CONTACT #1*

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
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FAX (919) 250–4151

NABIL HAMDAN	*UTILITIES REGIONAL ENGINEER*
KYLE PLEASANT	*UTILITIES ENGINEER*
BO HEMPHILL	*UTILITIES AREA COORDINATOR*

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	UO-2

UTILITIES BY OTHERS

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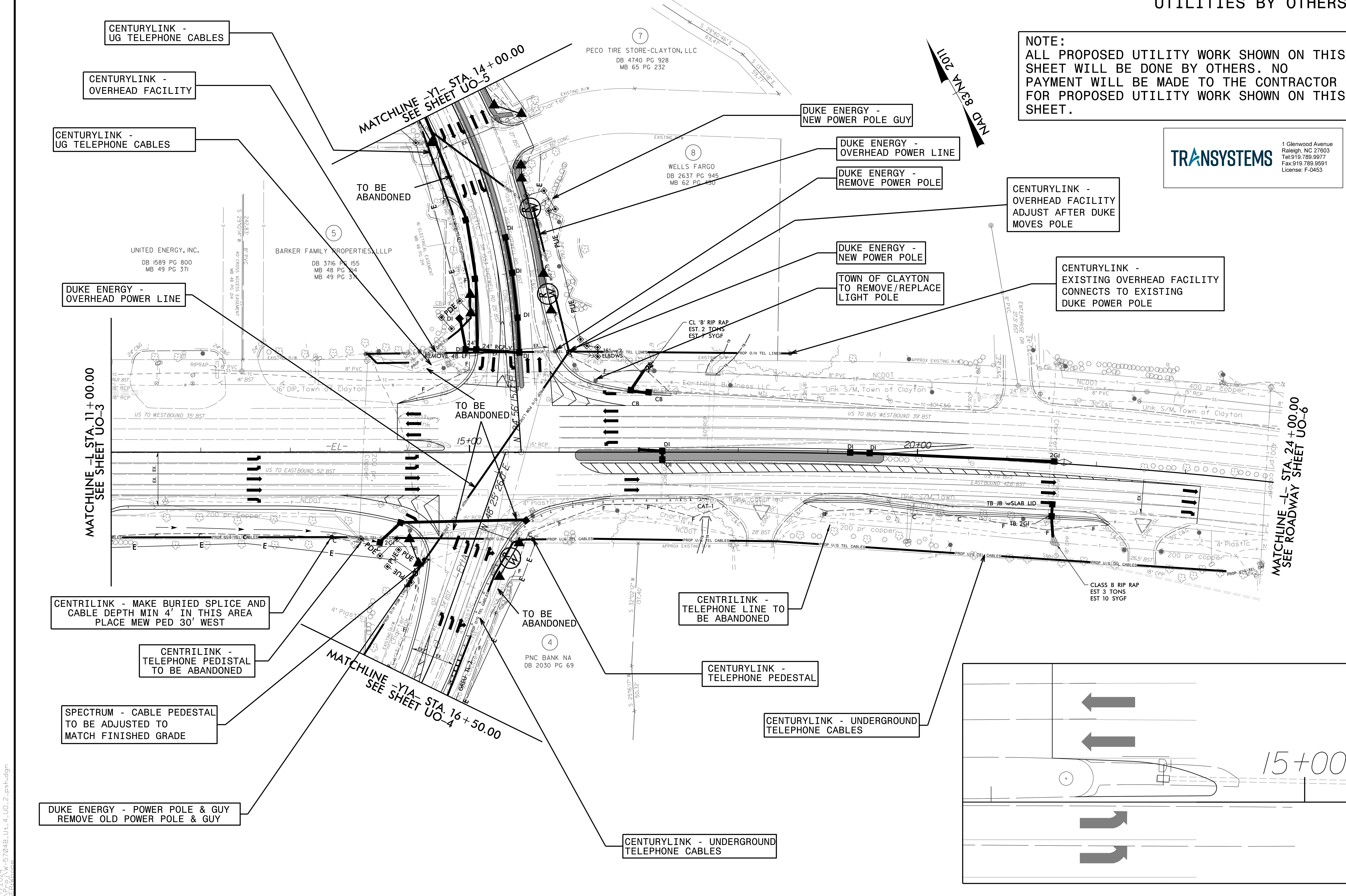

NAD 83/NA 2011
CENTURYLINK - UG TELEPHONE CABLES
CENTURYLINK - OVERHEAD FACILITY
CENTURYLINK - UG TELEPHONE CABLES
DUKE ENERGY - OVERHEAD POWER LINE
MATCHLINE -Y1- STA. 14+00.00 SEE SHEET UO-5
PECO TIRE STORE-CLAYTON, LLC
DB 4740 PG 928
MB 65 PG 232
WELLS FARGO
DB 2637 PG 945
MB 62 PG 450
UNITED ENERGY, INC.
DB 1589 PG 800
MB 49 PG 371
BARKER FAMILY PROPERTIES, LLLP
DB 3716 PG 155
MB 48 PG 314
MB 49 PG 371
TO BE ABANDONED
DUKE ENERGY - NEW POWER POLE GUY
DUKE ENERGY - OVERHEAD POWER LINE
DUKE ENERGY - REMOVE POWER POLE
CENTURYLINK - OVERHEAD FACILITY ADJUST AFTER DUKE MOVES POLE
DUKE ENERGY - NEW POWER POLE
TOWN OF CLAYTON TO REMOVE/REPLACE LIGHT POLE
CENTURYLINK - EXISTING OVERHEAD FACILITY CONNECTS TO EXISTING DUKE POWER POLE
CL 'B' RIP RAP
EST. 2 TONS
EST. 7 SYGF
US 70 WESTBOUND
US 70 EASTBOUND
US 70 BUS WESTBOUND
-EL-
15+00
20+00
MATCHLINE -L- STA. 11+00.00 SEE SHEET UO-3
MATCHLINE -L- STA. 24+00.00 SEE ROADWAY SHEET UO-6
TB JB w/SLAB LID
CLASS B RIP RAP
EST 3 TONS
EST 10 SYGF
CENTRILINK - MAKE BURIED SPLICE AND CABLE DEPTH MIN 4' IN THIS AREA PLACE MEW PED 30' WEST
CENTRILINK - TELEPHONE PEDISTAL TO BE ABANDONED
SPECTRUM - CABLE PEDESTAL TO BE ADJUSTED TO MATCH FINISHED GRADE
DUKE ENERGY - POWER POLE & GUY REMOVE OLD POWER POLE & GUY
MATCHLINE -Y1A- STA. 16+50.00 SEE SHEET UO-4
TO BE ABANDONED
PNC BANK NA
DB 2030 PG 69
CENTRILINK - TELEPHONE LINE TO BE ABANDONED
CENTURYLINK - TELEPHONE PEDESTAL
CENTURYLINK - UNDERGROUND TELEPHONE CABLES
CENTURYLINK - UNDERGROUND TELEPHONE CABLES
15+00

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	UO-3

UTILITIES BY OTHERS

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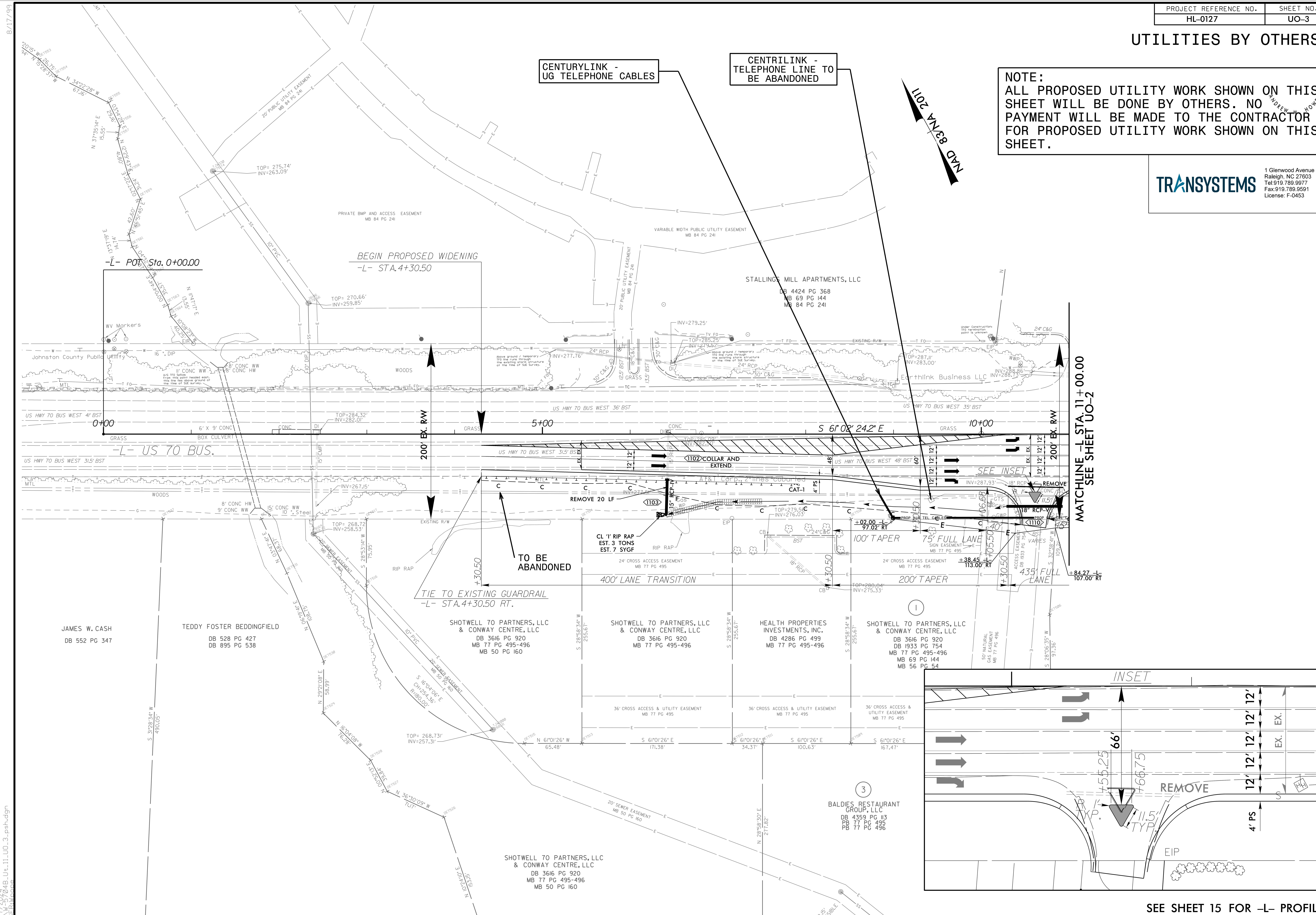

SEE SHEET 15 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	UO-4

UTILITIES BY OTHERS

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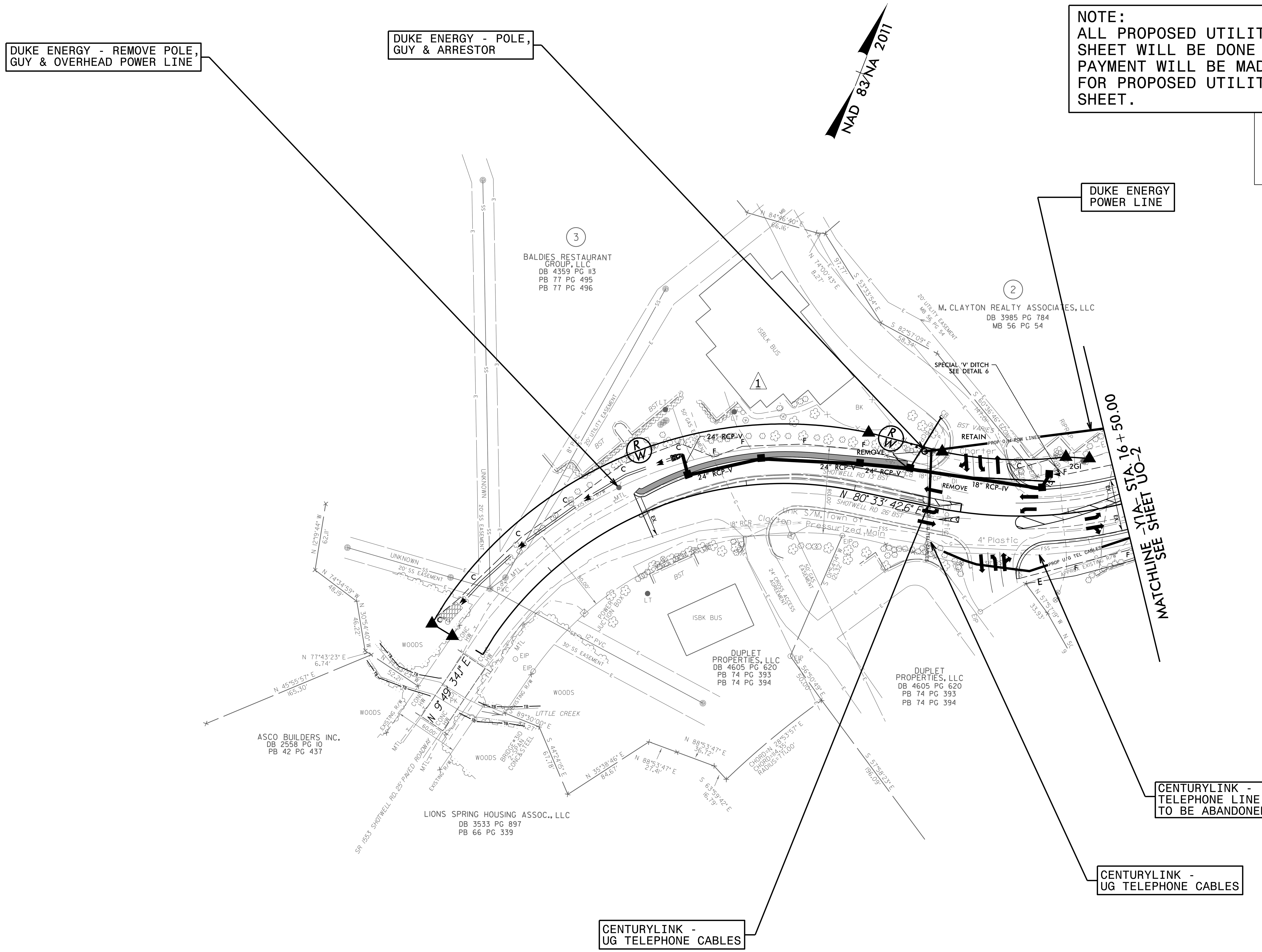

8/17/99
3/7/2024
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PROJECT REFERENCE NO.	SHEET NO.
HL-0127	UO-5

UTILITIES BY OTHERS

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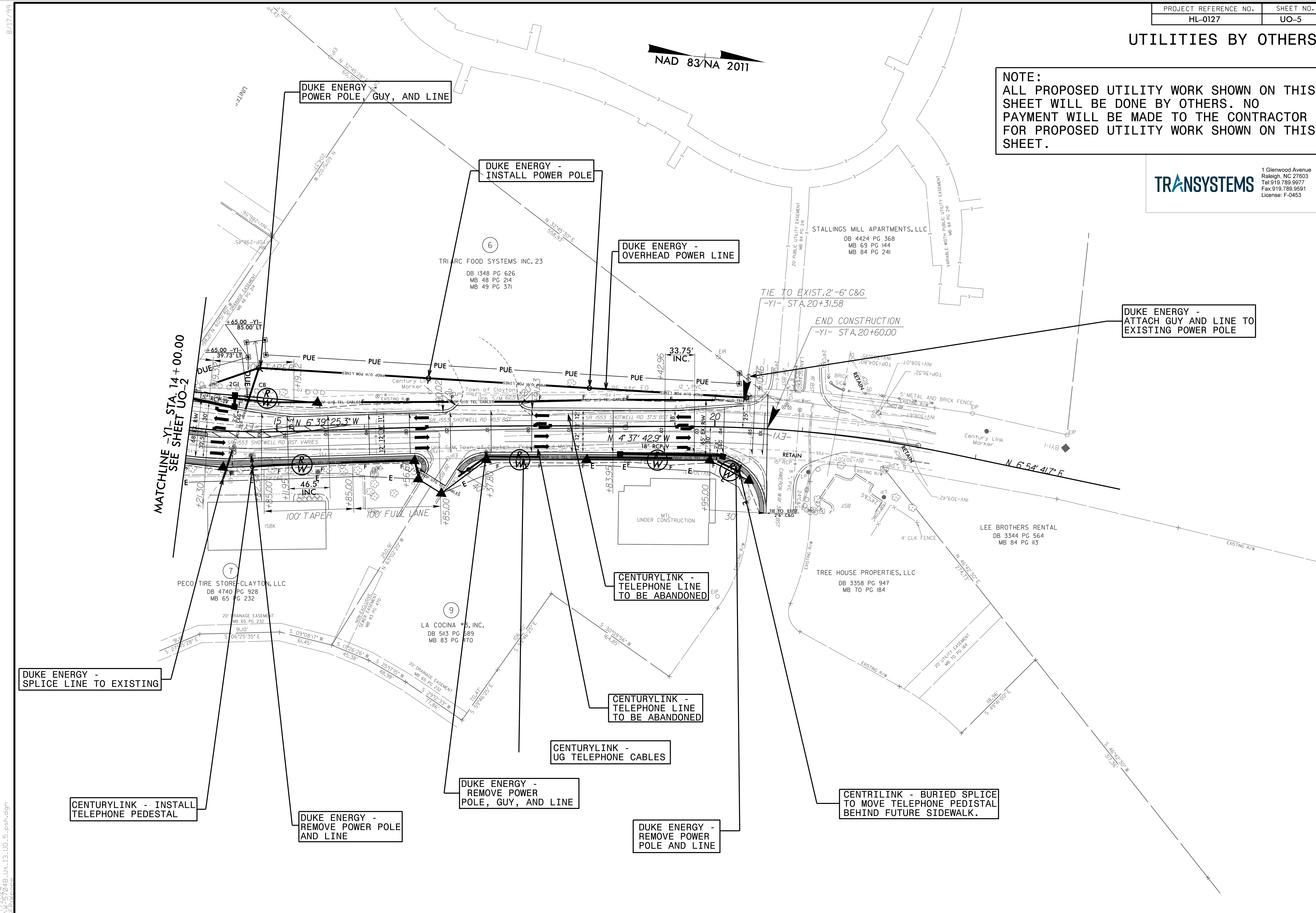
NAD 83/NA 2011
DUKE ENERGY - POWER POLE, GUY, AND LINE
DUKE ENERGY - INSTALL POWER POLE
DUKE ENERGY - OVERHEAD POWER LINE
DUKE ENERGY - ATTACH GUY AND LINE TO EXISTING POWER POLE
MATCHLINE -Y1- STA 14+00.00 SEE SHEET UO-2
TRIARC FOOD SYSTEMS INC. 23
DB 1348 PG 626
MB 48 PG 214
MB 49 PG 371
STALLINGS MILL APARTMENTS, LLC
DB 4424 PG 368
MB 69 PG 144
MB 84 PG 241
TIE TO EXIST. 2'-6" C&G -Y1- STA. 20+31.58
END CONSTRUCTION -Y1- STA. 20+60.00
N 6° 39' 25.3" W
N 4° 37' 42.9" W
N 6° 54' 41.7" E
SR 1553 SHOTWELL RD
100' TAPER
100' FULL LANE
PECO TIRE STORE-CLAYTON, LLC
DB 4740 PG 928
MB 65 PG 232
LA COCINA #3, INC.
DB 5113 PG 589
MB 83 PG 470
MTL UNDER CONSTRUCTION
LEE BROTHERS RENTAL
DB 3344 PG 564
MB 84 PG 113
TREE HOUSE PROPERTIES, LLC
DB 3358 PG 947
MB 70 PG 184
CENTURYLINK - TELEPHONE LINE TO BE ABANDONED
CENTURYLINK - TELEPHONE LINE TO BE ABANDONED
DUKE ENERGY - SPLICE LINE TO EXISTING
CENTURYLINK - UG TELEPHONE CABLES
DUKE ENERGY - REMOVE POWER POLE, GUY, AND LINE
CENTURYLINK - INSTALL TELEPHONE PEDESTAL
DUKE ENERGY - REMOVE POWER POLE AND LINE
DUKE ENERGY - REMOVE POWER POLE AND LINE
CENTRILINK - BURIED SPLICE TO MOVE TELEPHONE PEDESTAL BEHIND FUTURE SIDEWALK.

PROJECT REFERENCE NO.	SHEET NO.
HL-0127	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HL-0127
CROSS SECTION INDEX OF SHEETS

ALIGNMENT AND STATIONING

CROSS SECTION SUMMARY

-L- STA. 4+00.00 TO STA. 23+50.00
-Y1A- STA. 10+10.00 TO STA. 18+50.00
-Y1- STA. 10+50.00 TO STA. 21+00.00

SHEET NUMBERS

X-1B
X-2 TO X-13
X-14 TO X-18
X-19 TO X-23

8/17/99

2/6/2024
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USER:mcurtis

PROJ. REFERENCE NO.	SHEET NO.
HL-0127	X-1B

STATE OF NORTH CAROLINA

CROSS-SECTION SUMMARY

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

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
4+00.000	0	0
4+50.000	9	0
5+00.000	18	0
5+50.000	19	0
6+00.000	24	0
6+50.000	24	12
7+00.000	31	19
7+50.000	49	7
8+00.000	48	0
8+50.000	53	0
9+00.000	67	0
9+50.000	111	0
10+00.000	129	0
10+50.000	50	0
11+00.000	36	0
11+50.000	53	3
12+00.000	35	6
12+50.000	40	6
13+00.000	47	6
13+50.000	53	6
14+00.000	49	21
14+50.000	81	19
15+00.000	81	2
15+50.000	68	1
16+00.000	77	10
16+50.000	44	25
17+00.000	20	33
17+50.000	6	29
18+00.000	0	10
18+50.000	0	0
19+00.000	5	5
19+50.000	10	6
20+00.000	18	1
20+50.000	28	0
21+00.000	25	3
21+50.000	14	13
22+00.000	14	11
22+50.000	9	1
23+00.000	0	0
23+50.000	0	0

Station Y1A	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+10.000	0	0
10+50.000	4	0
11+00.000	14	0
11+50.000	14	0
12+00.000	36	2
12+50.000	58	5
12+75.000	16	2
13+00.000	3	4
13+50.000	6	15

Station Y1A	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
14+00.000	6	22
14+50.000	4	14
15+00.000	0	0
15+50.000	0	0
16+00.000	7	40
16+50.000	17	78
17+00.000	20	68
17+50.000	36	49
18+00.000	52	61
18+50.000	56	44
19+00.000	30	3

Station Y1	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+50.000	0	0
11+00.000	31	4
11+50.000	56	14
12+00.000	42	18
12+50.000	31	21
13+00.000	27	15
13+50.000	19	3
14+00.000	16	18
14+50.000	21	30
15+00.000	20	23
15+50.000	18	16
16+00.000	10	19
16+50.000	6	29
17+00.000	3	25
17+50.000	0	19
18+00.000	2	31
18+50.000	7	40
19+00.000	11	34
19+50.000	10	41
20+00.000	7	41
20+50.000	31	15
21+00.000	27	1

PROJ. REFERENCE NO.	SHEET NO.
HL-0127	X-2

6/23/16
2/8/2024

0 5 10
PROJ. REFERENCE NO.
HL-0127
SHEET NO.
X-3
6/23/16
EXIST.
6:1
4:1
283.49
287.39
7+50.00
3:1
3:1
279.95
286.81
7+00.00
2:1
285.95
6+50.00
12.5:1
285.74
6+00.00
-L-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	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

310
300
290
280

288.50
9+00.00

EXIST.
6:1
4:1
284.79

310
300
290
280

288.19
8+50.00

EXIST.
6:1
4:1
284.35

300
290
280
270

287.72
8+00.00

EXIST.
6:1
4:1
283.92

–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

2/8/2024
VDOT 5704A&B_Rdy_xpll.dgn
USER:tjounis

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	X-5

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	X-6

6/23/16

2/8/2024

PROJ. REFERENCE NO.	SHEET NO.
HL-0127	X-7

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	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

300
290
280
270

SEE –Y1–
CROSS SECTIONS

288.64

15+50.00

EXIST.

300
290
280

2:1

EXIST.

289.26
15+00.00
–L–

SEE –Y1A–
CROSS SECTIONS

300
290
280

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

2/8/2024
VISCOM-5704A&B_Rdy_xpl1.dgn
USER:tjounis

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	X-9

6/23/16

2/8/2024
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USER:lyounis

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	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

290
280
270

EXIST.
4:1

282.92
19+00.00

290
280
270

DRIVEWAY

283.57
18+50.00

290
280
270

DRIVEWAY

284.25
18+00.00

290
280
270
260

2:1

285.05
17+50.00

–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

2/8/2024
VDOT
USER:hjounis

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	X-11

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
HL-0127	X-12

PROJ. REFERENCE NO.	SHEET NO.
HL-0127	X-13

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	X-14

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

265
260

3:1 3:1 EXIST.

264.28

266.71

12+00.00

265
260

3:1 3:1

263.23

11+50.00

265
260

3:1 3:1

261.67

11+00.00

260

3:1 3:1

260.10

10+50.00

260

259.60

10+10.00

–Y1A–

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

2/8/2024
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USER:jcounts

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	X-15

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

275
270

3:1

EXIST.

270.48

271.45
13+50.00

275
270
265

3:1

EXIST.

270.07
13+00.00

275
270
265

3:1

EXIST.

269.31
12+75.00

275
270
265

3:1

3:1

EXIST.

265.32

268.40
12+50.00
–Y1A–

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

2/8/2024
VDOT
USER:tjounis


0 2.5 5
PROJ. REFERENCE NO.
HL-0127
SHEET NO.
X-16
DRIVEWAY
DRIVEWAY
276.63
15+50.00
DRIVEWAY
274.77
15+00.00
273.56
14+50.00
3:1
EXIST.
271.82
272.64
14+00.00
–Y1A–
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75
280
275
270

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	X-17

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

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

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	X-18

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
HL-0127	X-19

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

295
290

4:1
292.32
EXIST.

294.43
12+50.00

EXIST.
2:1

295
290

295
290

4:1
291.74
EXIST.

293.47
12+00.00

EXIST.
2:1

295
290

290
285

4:1
EXIST.

292.17
11+50.00

EXIST.
2:1

290
285

290
285

EXIST.

290.69
11+00.00

EXIST.
2:1

290
285

290
285

289.59
10+50.00

–Y1–

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

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	X-20

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	HL-0127	X-21

6/23/16

2/8/2024
...\XSC\W-5704A&B_Rdy_xpl_Y1.dgn
USER:lyounis

0 2.5 5
PROJ. REFERENCE NO.
HL-0127
SHEET NO.
X-22
305.53
19+00.00
304.37
18+50.00
303.32
18+00.00
302.18
17+50.00
301.24
17+00.00
-Y1-
DRIVEWAY
DRIVEWAY
2:1
0.02
0.013
0.002
0.009
305
300

PROJ. REFERENCE NO.	SHEET NO.
HL-0127	X-23