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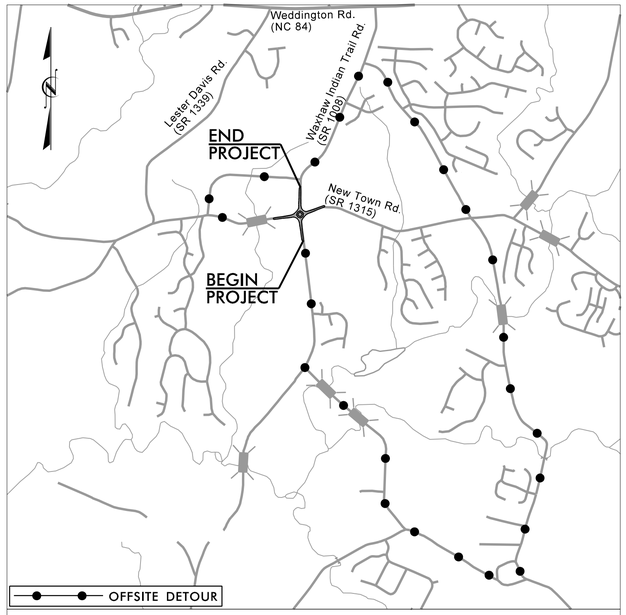
09/08/99

TIP PROJECT: W-5710Y

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



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

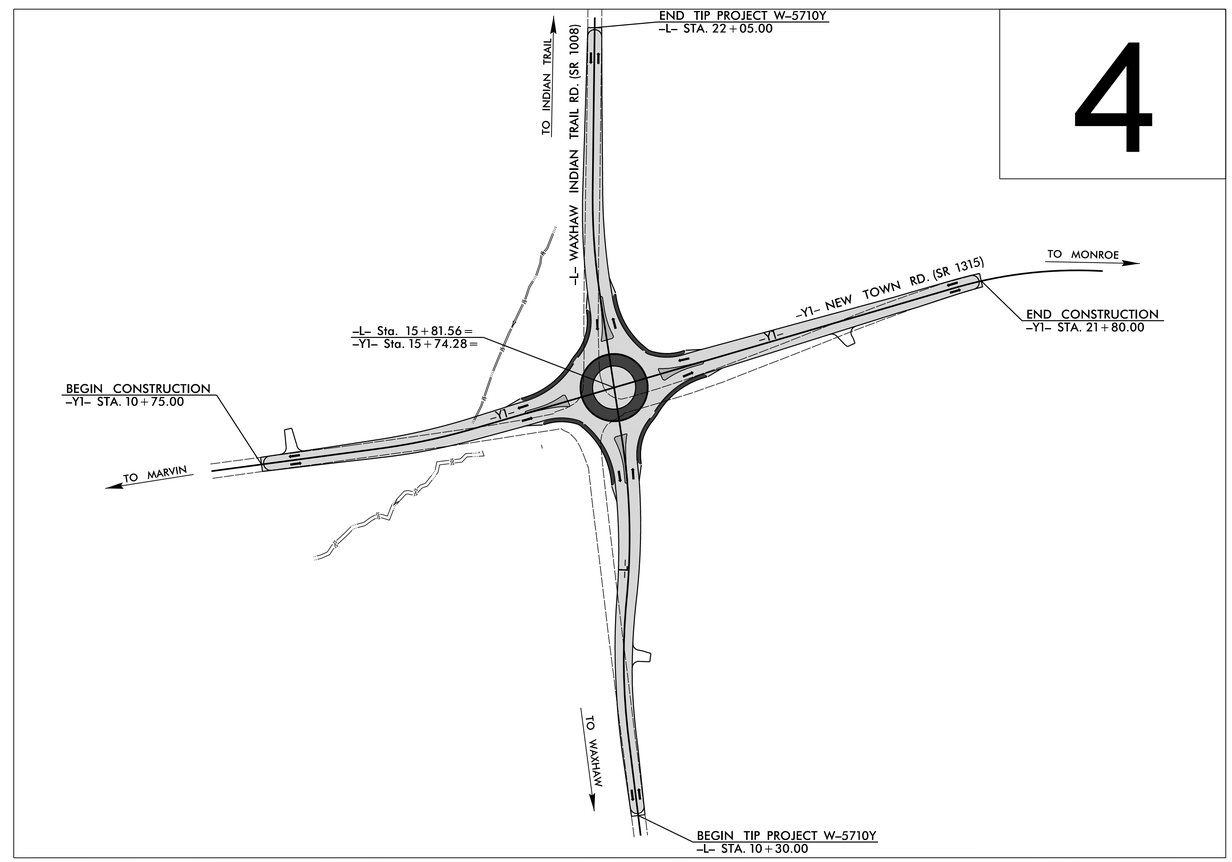
UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5710Y	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
44856.1.25	HSIP-1315(021)	PE
44856.2.25	HSIP-1315(021)	ROW/UTIL
44856.3.25	HSIP-1315(021)	CONST

LOCATION: INTERSECTION OF WAXHAW INDIAN TRAIL ROAD (SR 1008) AT NEW TOWN ROAD (SR 1315)

TYPE OF WORK: GRADING, PAVEMENT REMOVAL, DRAINAGE, PAVING, CONCRETE ISLANDS & THERMOPLASTIC PAVEMENT MARKINGS



FINAL PLANS SUBMITTAL
DATE: 03-08-2021

NOTE:
1. DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL AND SUPER ELEVATION.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 2019 = 15,000
ADT 2040 = N/A
DHV = N/A
D = N/A
T = N/A
V = 50 MPH

FUNC CLASS = MAJOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT W-5710Y..... 0.223 mile
TOTAL LENGTH OF PROJECT W-5710Y..... 0.223 mile

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
8601 SIX FORKS ROAD, FORUM 1 SUITE 700
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: March 8, 2019

LETTING DATE:

Michael Merritt, P.E.
PROJECT ENGINEER

Scott Blevins, P.E.
PROJECT DESIGN ENGINEER

NCDOT CONTACT: Randy Bowers
PROJECT ENGINEER - DIVISION 10

HYDRAULICS ENGINEER
DocuSigned by: Robert B. Huskey
P.E. 4/1/2021
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 40807 ENGINEER ROBERT B. HUSKEY

ROADWAY DESIGN ENGINEER
DocuSigned by: Scott D. Blevins
P.E. 3/29/2021
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

CONTRACT: DJ00382

3/29/2021
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dhefler

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19425 ENGINEER SCOTT D. BLEVINS

Docu Signed by: Scott D. Blevins

3/2/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-6	SURVEY CONTROL SHEETS
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAIL
2B-1	ROUNDABOUT LAYOUT
2B-2	PAVEMENT REMOVAL DETAIL
2C-1	DETAIL OF MOUNTING TYPE D, E, AND F SIGNS ON U CHANNEL POSTS
2D-1	DRAINAGE DETAIL
3B-1	ROADWAY SUMMARIES
4 THRU 6	PLAN AND PROFILE SHEET
X-0	CROSS-SECTION SUMMARY
X-1 THRU X-14	CROSS-SECTIONS

EFF. 01-16-2018

REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.03	Cross Pipe End Section - Precast Concrete Section for 18" to 30" Pipe
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
852.01	Concrete Islands
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES:

2018 SPECIFICATIONS

EFFECTIVE: 01-16-2018

REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.05 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. 560.02

SHOULDER DRAINS:

SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 816.03 AND DETAILS IN PLANS AT LOCATIONS DIRECTED BY THE ENGINEER.

8/17/99

3/2/2021
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04/06/15

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

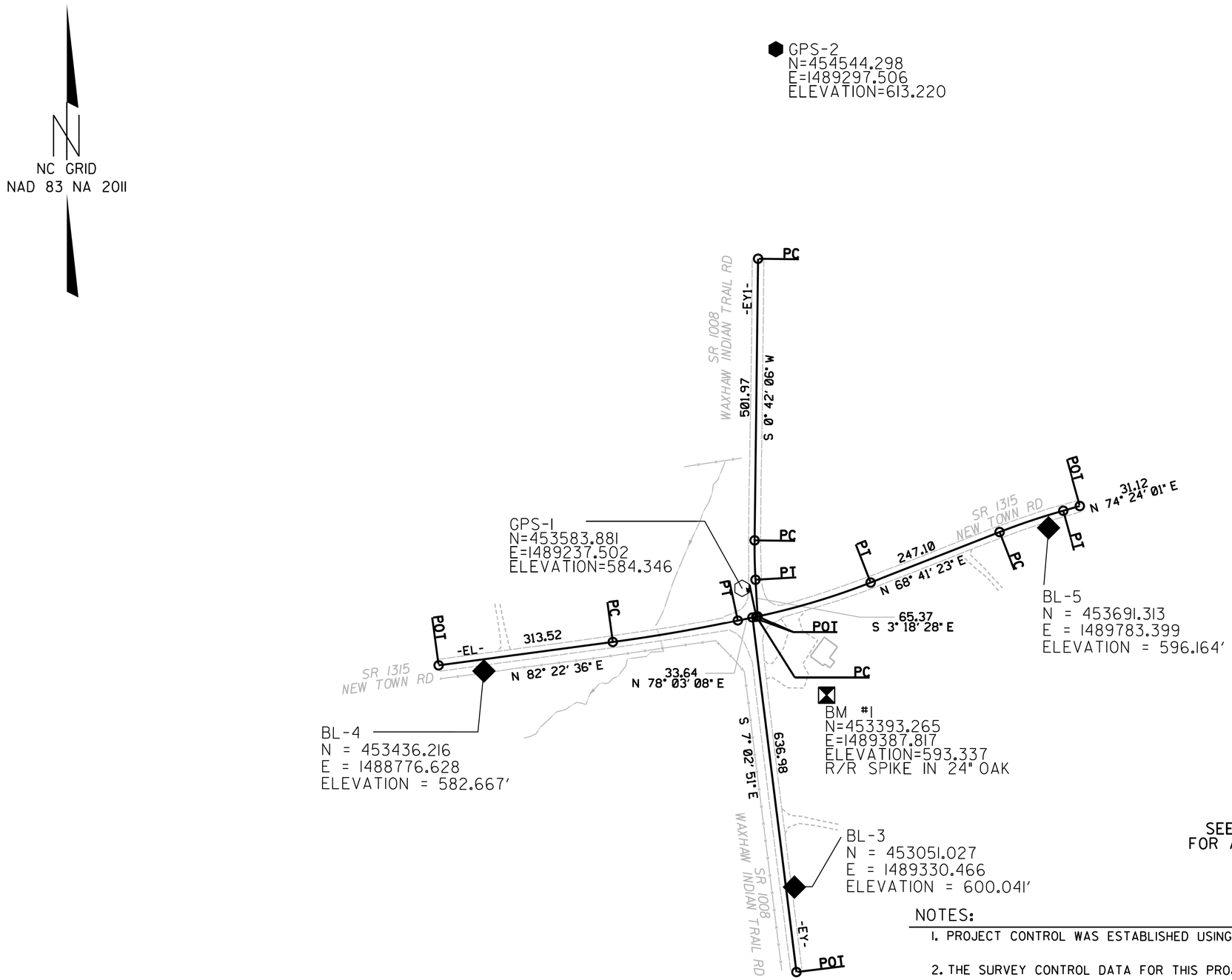
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)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

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	IC-1

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



SEE SHEET RW02C-2
FOR ADDITIONAL DETAILS

NOTES:

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

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

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	IC-2

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BL

POINT	DESC.	NORTH	EAST	ELEVATION
4	BL-4	453436.2164	1488776.6276	582.67
1	GPS-1	453583.8810	1489237.5020	584.35
5	BL-5	453691.3131	1489783.3993	596.16

BY

POINT	DESC.	NORTH	EAST	ELEVATION
3	BL-3	453051.0268	1489330.4659	600.04
11		453583.8810	1489237.5020	584.35
2	GPS-2	454544.2980	1489297.5060	613.22

****

BM#1 ELEVATION = 593.34

N 453393 E 1489388

R/R SPIKE IN 24" OAK

****

NOTES:

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

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

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	IC-3

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	453446.382	1488696.062							
LINE			N 82°22'36.2" E	313.52					
PC	453487.973	1489006.809							
CURVE			N 80°12'52.1" E	226.38	04°19'28.2"(LT)	01°54'35.5"	226.43	113.27	3000.00
PT	453526.448	1489229.892							
LINE			N 78°03'08.0" E	33.64					
PC	453533.413	1489262.808							
CURVE			N 73°22'15.3" E	212.19	09°21'45.3"(LT)	04°24'26.5"	212.43	106.45	1300.00
PT	453594.138	1489466.127							
LINE			N 68°41'22.6" E	247.10					
PC	453683.938	1489696.329							
CURVE			N 71°32'41.9" E	119.55	05°42'38.4"(RT)	04°46'28.7"	119.60	59.85	1200.00
PT	453721.784	1489809.735							
LINE			N 74°24'01.1" E	31.12					
POT	453730.154	1489839.714							

EY

POINT	N	E	BEARING	DIST
POT	453531.997	1489256.027		
LINE			S 07°02'51.1" E	636.98
POT	452899.826	1489334.180		

EY1

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	454171.046	1489265.925							
LINE			S 00°42'06.2" W	501.97					
PC	453669.115	1489259.778							
CURVE			S 01°18'11.1" E	69.97	04°00'34.5"(LT)	05°43'46.5"	69.98	35.00	1000.00
PT	453599.167	1489261.369							
LINE			S 03°18'28.3" E	65.37					
POT	453533.909	1489265.141							

NOTES:

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

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

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	IC-4

PROPOSED ALIGNMENT CONTROL SHEET

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	452905.2564	1489333.5550
PC	11+44.93	453049.0739	1489315.6418
PRC	13+53.53	453257.2375	1489312.7011
PT	15+88.66	453491.6747	1489306.1147
PC	18+06.64	453707.1480	1489273.1436
PT	19+62.40	453862.3484	1489262.2831
POT	22+20.19	454120.1185	1489265.4055

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	453446.3820	1488696.0620
PC	12+52.20	453479.9136	1488946.0254
PT	13+96.01	453509.7268	1489086.5641
PC	21+38.94	453718.4115	1489799.5919
PT	23+61.56	453743.4966	1490019.6953

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	IC-5

RIGHT OF WAY & PERMANENT EASEMENT CONTROL SHEET

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	19+62.40	29.99	453861.9882	1489292.2695
L	11+44.34	29.54	453052.1405	1489345.0310
L	13+53.53	30.00	453254.3719	1489342.5639
L	18+06.64	30.00	453711.6857	1489302.7984
L	17+65.00	-50.22	453658.3881	1489229.7983
L	15+70.00	30.00	453477.1558	1489338.4943

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	21+10.00	-30.01	453739.0812	1489763.3837
Y1	16+85.00	58.61	453534.6492	1489380.3872
Y1	12+52.20	-29.63	453509.2816	1488942.0833
Y1	13+96.01	-30.00	453538.5190	1489078.1374
Y1	14+90.00	-35.00	453569.7198	1489166.9429
Y1	17+15.00	-30.00	453628.1194	1489384.2852
Y1	15+39.75	-61.79	453609.4017	1489207.1693

ROW MARKER PERMANENT EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	15+40.00	60.00	453449.4323	1489371.9370
L	20+00.00	51.00	453899.3307	1489313.7350
L	15+35.00	-90.00	453429.8606	1489223.1384
L	14+85.00	-90.00	453384.7105	1489226.2604
L	14+40.00	-67.93	453343.8823	1489249.1005
L	15+40.00	30.03	453446.4219	1489342.1188
L	20+35.00	30.23	453934.5797	1489293.3886
L	18+15.00	65.00	453724.6804	1489336.2522
L	19+35.00	70.00	453836.1230	1489332.3367
L	20+35.00	45.00	453934.4008	1489308.1594
L	19+50.00	53.00	453850.0011	1489315.2140
L	19+00.00	41.00	453802.1710	1489304.5176
L	18+50.00	45.00	453754.9110	1489312.3124
L	15+95.00	75.00	453509.2844	1489379.2933
L	17+50.00	-85.00	453638.3002	1489197.6891
L	19+20.00	-50.00	453818.3314	1489212.7422
L	19+20.00	-31.06	453818.9470	1489231.6702
L	19+60.00	-30.01	453860.2393	1489232.2451
L	19+60.00	-50.00	453860.4310	1489212.2594
L	19+80.00	-50.00	453880.5557	1489212.5000
L	19+80.00	-29.94	453880.3128	1489232.5536

I, Randy W. Nance, 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 21st day of October, 2019.

DocuSigned by:
Randy W Nance
E96E1A612334420...

Professional Land Surveyor

10/22/2019
L-4185
PLS #

NORTH CAROLINA PROFESSIONAL SEAL L-4185 LAND SURVEYOR RANDY W. NANCE

Seal

DocuSigned by:
Randy W Nance
E96E1A612334420...

ROW MARKER PERMANENT EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	13+50.00	71.00	453428.8509	1489058.7364
Y1	13+15.00	60.00	453431.5024	1489019.8325
Y1	13+15.00	31.41	453459.5249	1489014.1680
Y1	20+00.00	34.73	453646.0469	1489675.9982
Y1	14+40.00	105.00	453421.3114	1489158.2808
Y1	13+75.00	65.00	453441.2781	1489083.2148
Y1	19+60.00	60.00	453610.5629	1489644.7054
Y1	17+35.00	80.00	453528.1677	1489434.3818
Y1	18+00.00	-30.00	453651.9970	1489465.8669
Y1	14+91.00	50.04	453488.3852	1489191.7895
Y1	13+45.00	-60.00	453555.1260	1489023.5121
Y1	13+65.00	-60.00	453559.6081	1489041.7046
Y1	17+00.00	-58.25	453651.0209	1489361.9576
Y1	17+80.00	-52.00	453667.4935	1489440.4925
Y1	18+10.00	51.36	453576.7196	1489498.3181
Y1	18+60.00	55.00	453587.2726	1489547.3270
Y1	19+20.00	50.00	453608.9247	1489603.5069
Y1	17+22.24	57.44	453546.2317	1489415.8023
Y1	13+37.00	-32.40	453526.5205	1489022.3031
Y1	13+57.00	-31.98	453530.5809	1489041.1981
Y1	15+36.78	-77.32	453623.4728	1489199.9580
Y1	15+26.87	-78.64	453621.9600	1489190.0733
Y1	15+28.86	-93.51	453636.7874	1489187.8044
Y1	15+27.13	-55.40	453599.7293	1489196.8508

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.

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	IC-6

I, Randy W. Nance, 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 21st day of October, 2019.

DocuSigned by: Randy W Nance

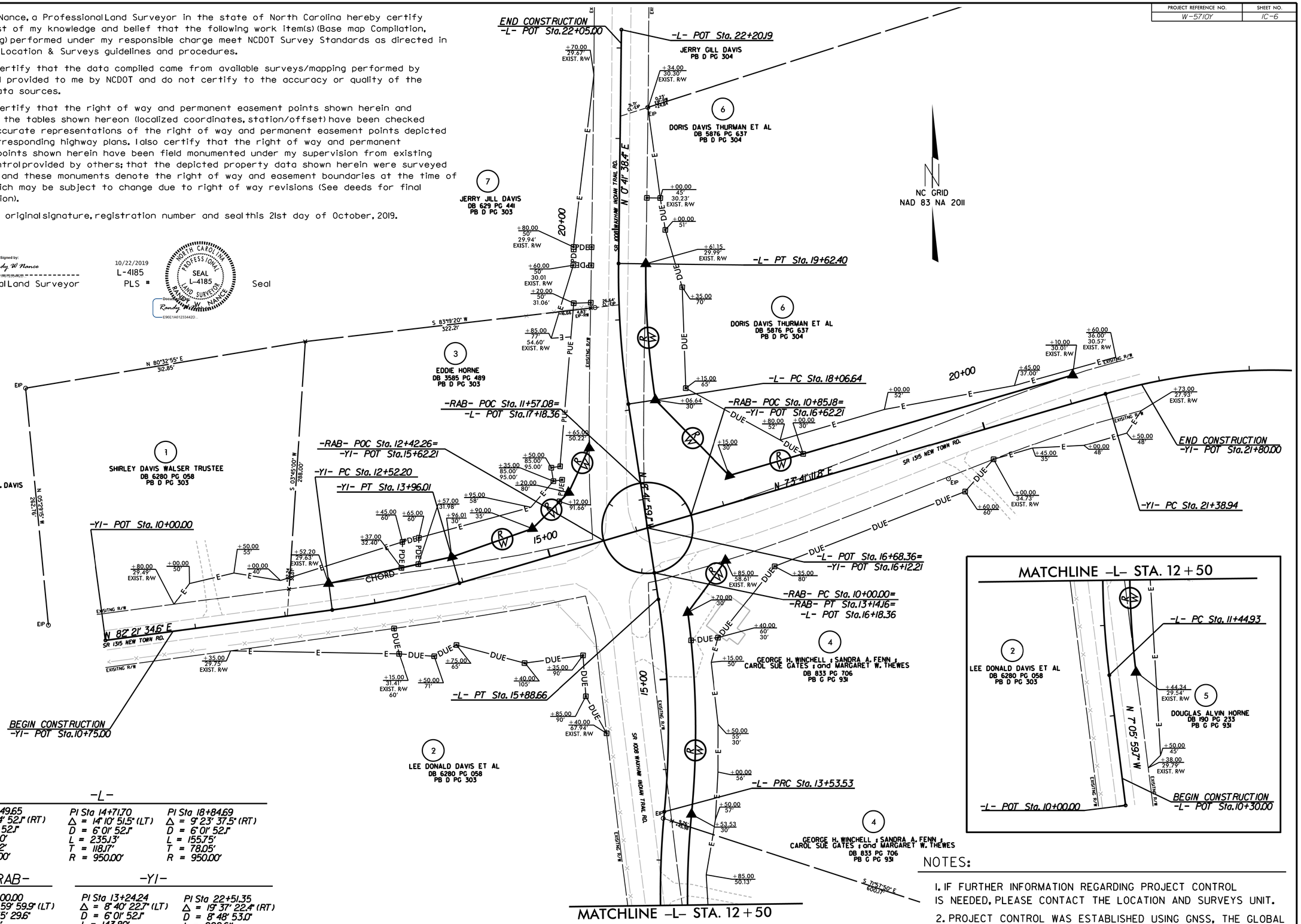
Professional Land Surveyor

10/22/2019
L-4185
PLS #

NORTH CAROLINA PROFESSIONAL SEAL L-4185 LAND SURVEYOR RANDY W. NANCE

DocuSigned by: Randy W Nance
E96E1A61233442D...

Seal



-L-

PI Sta 12+49.65	PI Sta 14+71.70	PI Sta 18+84.69
Δ = 12° 34' 52.1" (RT)	Δ = 14° 10' 51.5" (LT)	Δ = 9° 23' 37.5" (RT)
D = 6° 01' 52.1"	D = 6° 01' 52.1"	D = 6° 01' 52.1"
L = 208.60'	L = 235.13'	L = 155.75'
T = 104.72'	T = 118.17'	T = 78.05'
R = 950.00'	R = 950.00'	R = 950.00'

-RAB-

PI Sta 10+00.00
Δ = 359° 59' 59.9" (LT)
D = 114° 35' 29.6"
L = 314.16'
T = 0.00'
R = 50.00'

-Y1-

PI Sta 13+24.24	PI Sta 22+51.35
Δ = 8° 40' 22.7" (LT)	Δ = 19° 37' 22.4" (RT)
D = 6° 01' 52.1"	D = 8° 48' 53.0"
L = 143.80'	L = 222.61'
T = 72.04'	T = 112.41'
R = 950.00'	R = 650.00'

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.

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R4	PROP. 7″ TRUCK MOUNTABLE CONC APRON, CLASS AA CONCRETE
C2	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5½″ IN DEPTH.	R5	PROP. 1′-6″ CURB & GUTTER W/ BLACK TINT, CLASS AA CONCRETE
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.	J1	PROP. 6″ AGGREGATE BASE COURSE	R6	PROP. 7″ TRUCK MOUNTABLE CONC APRON W/ BLACK TINT, CLASS AA CONCRETE
D1	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	PROP. 1′-6″ CURB & GUTTER, CLASS AA CONCRETE	T	EARTH MATERIAL.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.	R2	2′-6″ CONCRETE CURB AND GUTTER.	U	EXISTING PAVEMENT.
		R3	5″ MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED).	V	VARIABLE DEPTH ASPHALT PAVEMENT MILLING
				W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS
3/17/2021
DocuSigned by: Scott D. Blevins
2F0B8B0A0B2F4A1...

PAVEMENT ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAN MICHAEL EPPERSON
3/17/2021
DocuSigned by:
B0B1F0C0F7F4418...

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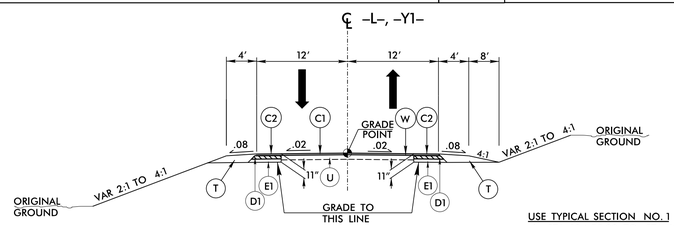
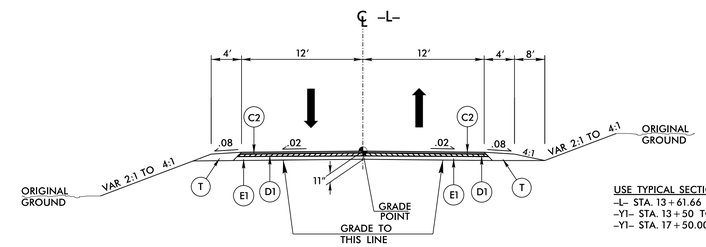


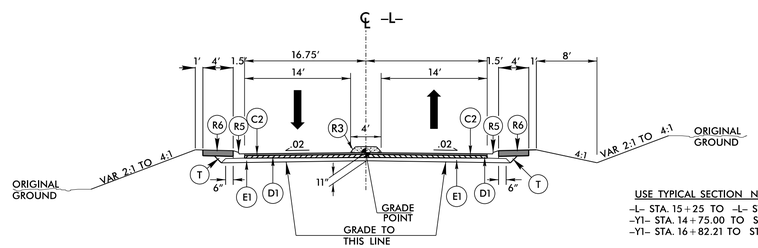
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
–L– STA. 10+55.00 TO STA. 13+61.66
–L– STA. 18+05.00 TO STA. 21+80.00
–Y1– STA. 11+00.00 TO STA. 13+50.00
–Y1– STA. 19+00.00 TO STA. 21+55.00



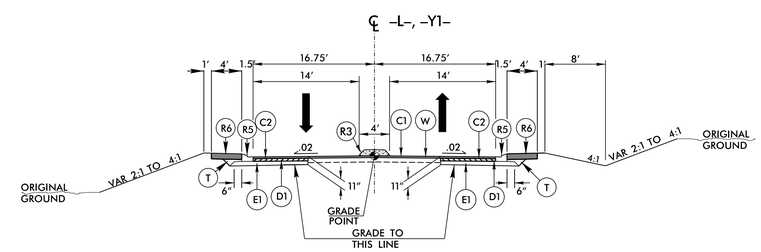
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
–L– STA. 13+61.66 TO STA. 15+25.00
–Y1– STA. 13+50 TO STA. 14+75.00
–Y1– STA. 17+50.00 TO STA. 19+00.00



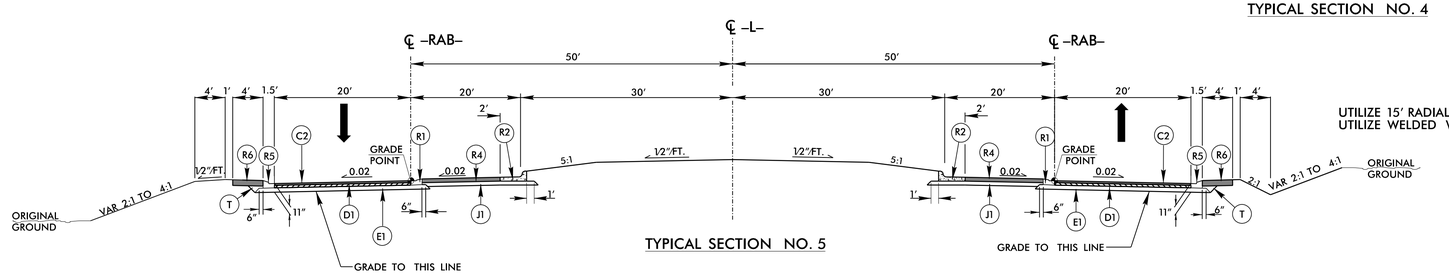
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
–L– STA. 15+25 TO –L– STA. 15+98.36
–Y1– STA. 14+75.00 TO STA. 15+42.21
–Y1– STA. 16+82.21 TO STA. 17+50.00



TYPICAL SECTION NO. 4

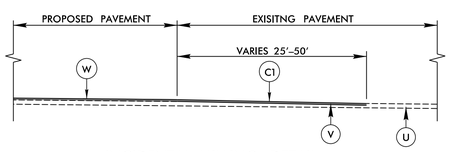
USE TYPICAL SECTION NO. 4
–L– STA. 17+38.36 TO STA. 18+05.00



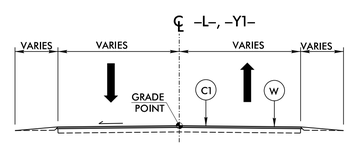
TYPICAL SECTION NO. 5

UTILIZE 15′ RADIAL JOINT SPACING FOR THE ROUNDABOUT TRUCK APRON
UTILIZE WELDED WIRE MESH (EITHER 4X4 W3.5XW3.5 OR 6X6 W5XW5)

USE TYPICAL SECTION NO. 5
–RAB– STA. 10+00.00 TO STA. 13+14.16

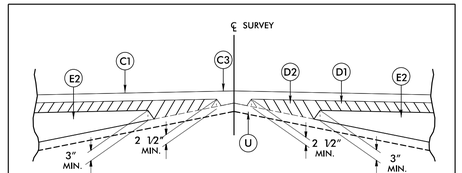


INCIDENTAL MILLING DETAIL
EXISTING ROAD TIE–IN
PROJECT TIE–INS



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
–L– STA. 10+30.00 TO STA. 10+55.00
–L– STA. 21+80.00 TO STA. 22+05.00
–Y1– STA. 10+75.00 TO STA. 11+00.00
–Y1– STA. 21+55.00 TO STA. 21+80.00



Detail Showing Method of Wedging No. 1

NOTES:
1) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
2) SEE PLANS FOR LOCATION OF CONCRETE ISLANDS AND TAPERS.

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8/17/99
3/16/2021
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ROUNDABOUT LAYOUT

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS

3/2/2021

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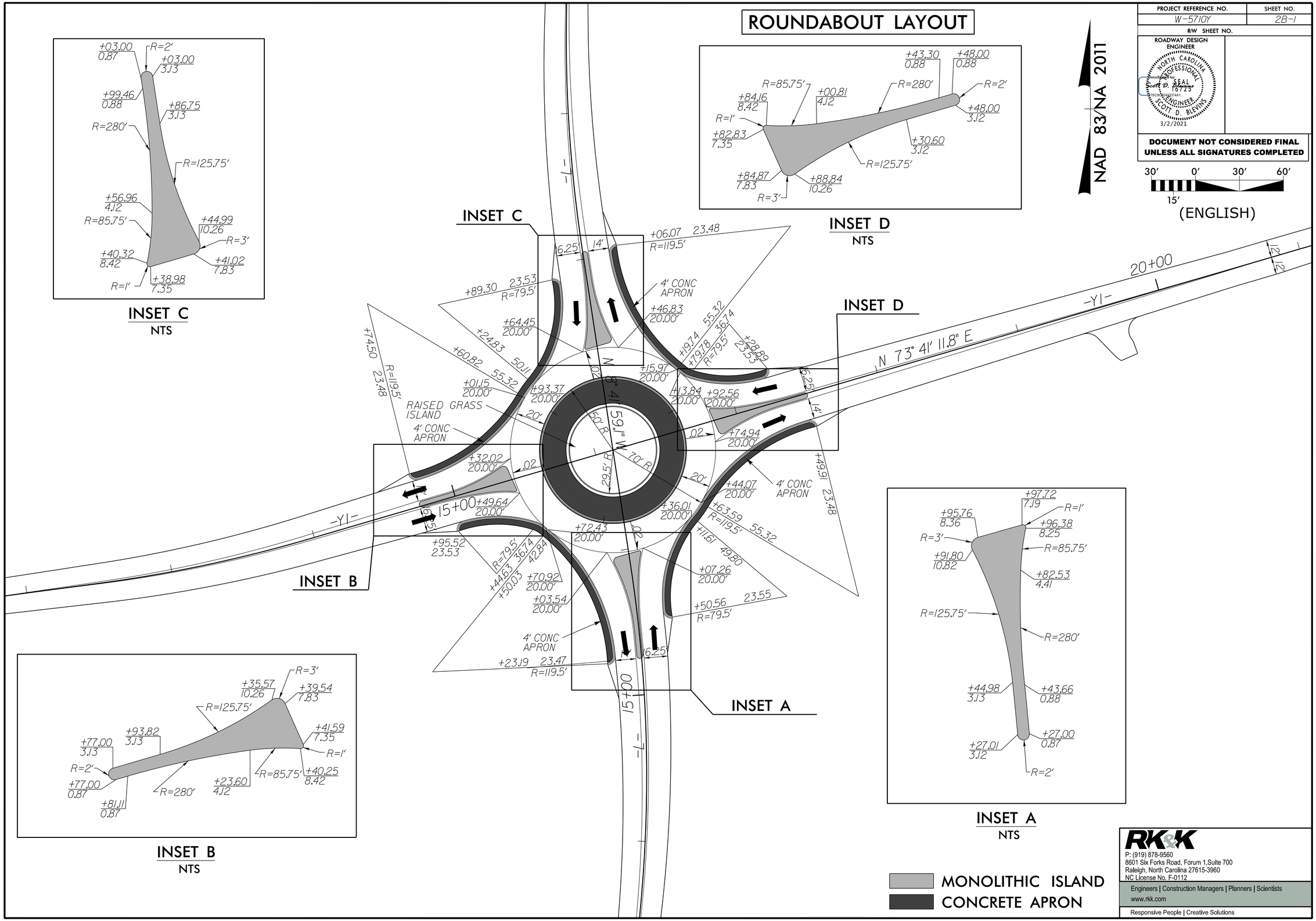
30' 0' 30' 60'

15'

(ENGLISH)

NAD 83/NA 2011



INSET C
NTS

INSET D
NTS

INSET A
NTS

INSET B
NTS

MONOLITHIC ISLAND

CONCRETE APRON

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PAVEMENT REMOVAL DETAIL

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	2B-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS

DocuSigned by: Scott D. Blevins

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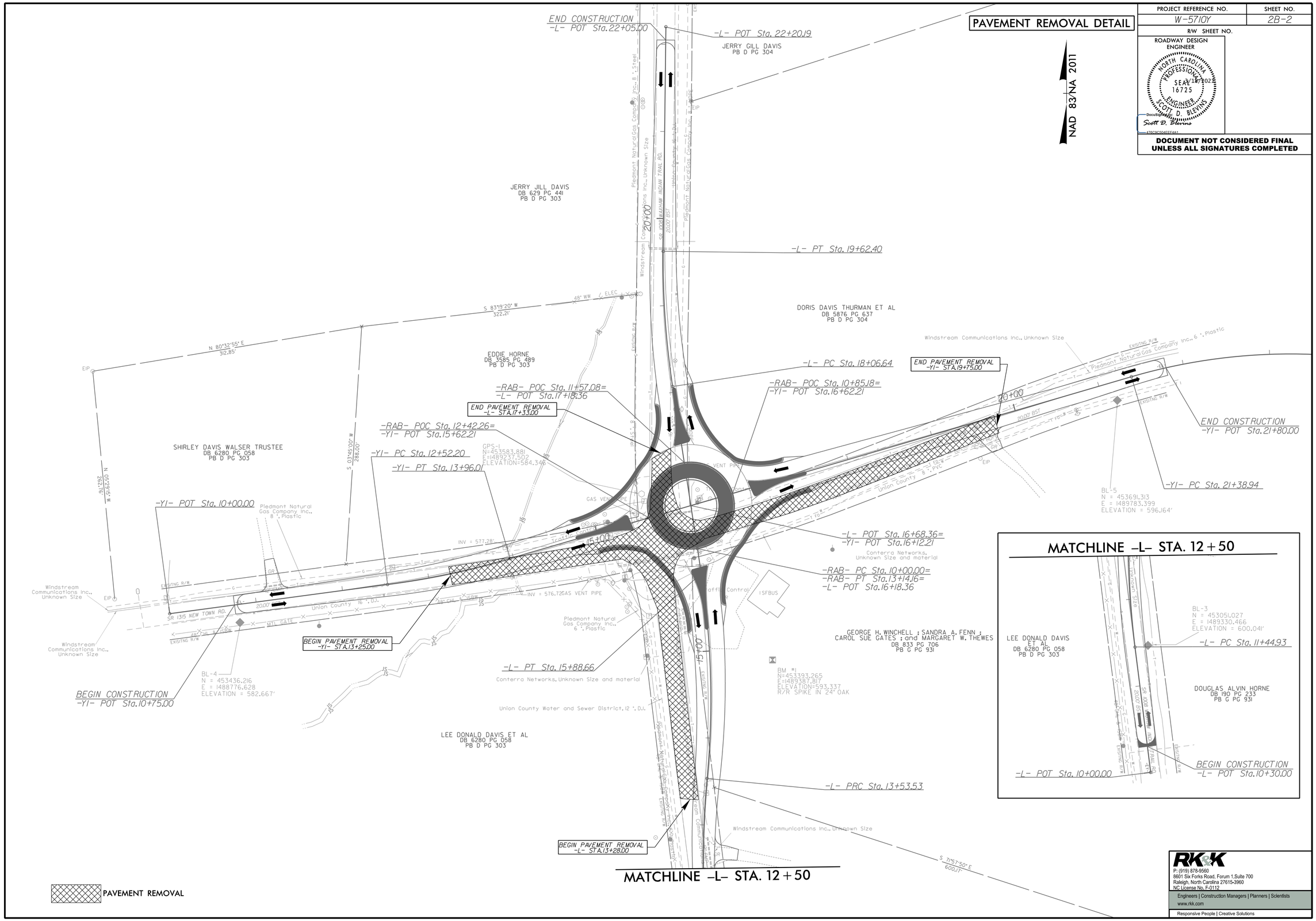

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PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	2C-1

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

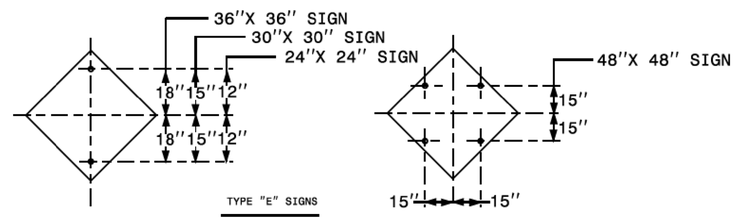
1-12

ENGLISH STANDARD DRAWING FOR

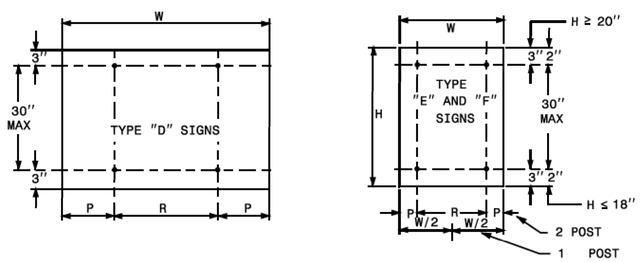
MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SHEET 2 OF 2

904.50



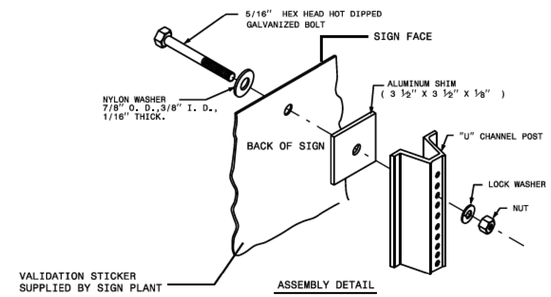
TYPE "E" SIGNS



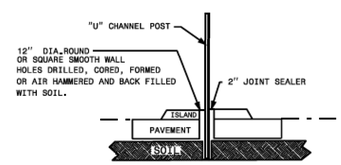
	NO. SUPPORTS		
	2	3 *	4
P	.207W	.145W	.107W
R	.586W	.355W	.262W

UNITS ON ATTACHED SHEET
*MINIMUM 4 FT. BETWEEN CHANNEL POSTS

HOLE PUNCHING DETAIL



ASSEMBLY DETAIL



DETAIL FOR INSTALLATION OF CHANNEL POST IN CONCRETE

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

1-12

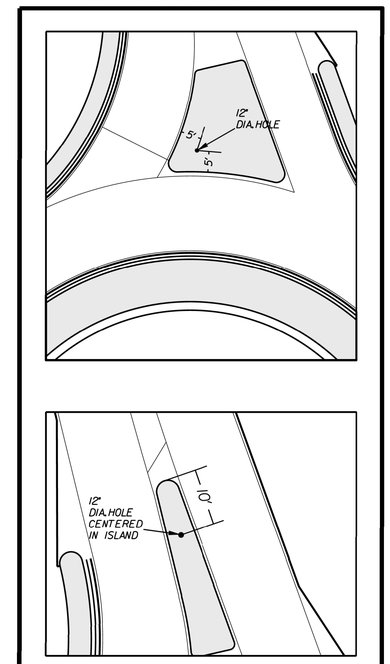
ENGLISH STANDARD DRAWING FOR

MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SHEET 2 OF 2

904.50

12" DIA.HOLE LOCATION FOR SIGN U-CHANNEL POST IN SPLITTER ISLANDS



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2/28/2021
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ncdot

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	2D-1
R/W SHEET NO.	

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 40807 ENGINEER ROBERT B. HUSKEY

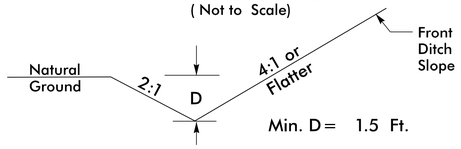
3/2/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL A

SPECIAL CUT DITCH

(Not to Scale)

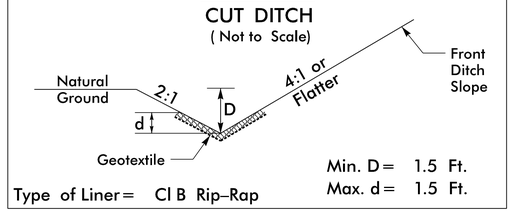


–L– STA. 10+00 TO STA. 10+50 RT
–L– STA. 10+00 TO STA. 10+50 LT
–L– STA. 12+00 TO STA. 15+00 RT
–L– STA. 18+00 TO STA. 19+69 RT
–L– STA. 21+50 TO STA. 22+00 RT
–L– STA. 21+50 TO STA. 22+00 LT
–Y1– STA. 10+50 TO STA. 11+00 LT
–Y1– STA. 12+00 TO STA. 13+50 LT
–Y1– STA. 17+00 TO STA. 21+00 LT
–Y1– STA. 19+50 TO STA. 20+50 RT
–Y1– STA. 21+00 TO STA. 22+00 RT
–Y1– STA. 21+50 TO STA. 22+00 LT

DETAIL B

CUT DITCH

(Not to Scale)

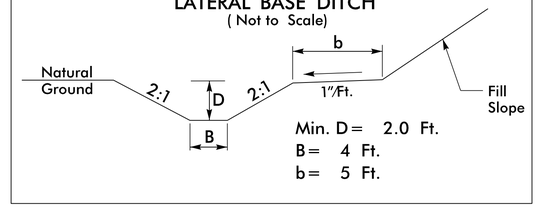


–L– STA. 19+69 TO STA. 21+50 RT
–L– STA. 19+69 TO STA. 21+50 LT

DETAIL C

LATERAL BASE DITCH

(Not to Scale)

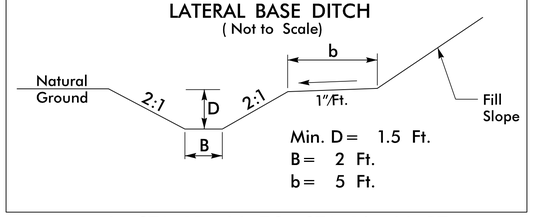


–L– STA. 18+88 TO STA. 19+69 LT

DETAIL D

LATERAL BASE DITCH

(Not to Scale)

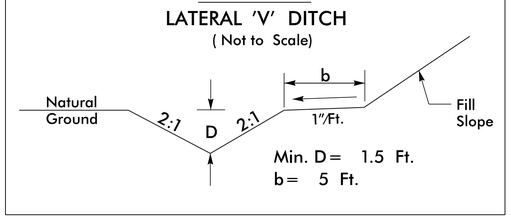


–L– STA. 15+00 TO STA. 16+00 RT
–Y1– STA. 16+66 TO STA. 19+50 RT

DETAIL E

LATERAL 'V' DITCH

(Not to Scale)

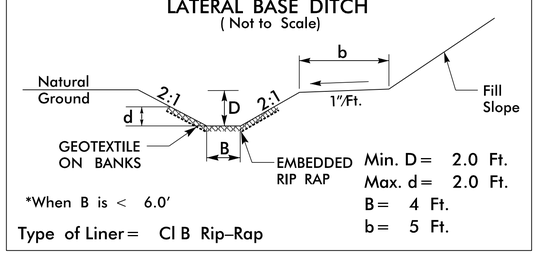


–L– STA. 17+38 TO STA. 18+00 RT
–Y1– STA. 16+71 TO STA. 17+00 LT

DETAIL F

LATERAL BASE DITCH

(Not to Scale)

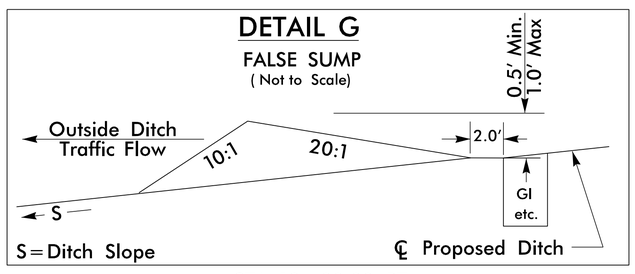


–L– STA. 17+14 TO STA. 17+38 LT
–Y1– STA. 13+30 TO STA. 15+00 RT; B=2'
–Y1– STA. 13+50 TO STA. 15+35 LT

DETAIL G

FALSE SUMP

(Not to Scale)



STA. 19+00.00 RT

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3/1/2021
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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	3B-1

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

STATION	OFFSET		STRUCTURE NO. FROM	TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	% MINIMUM REQUIRED SLOPE	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	PIPE AS NOTED 15" Side Drain Pipe	ENDWALLS CU. YARDS R.C.P.	C.S.P.	MODIFIED CONCRETE FLUME	FLOWABLE FILL (CY)	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
SHEET 4																									
- Y1- 13+50.00	-42	LT	401	401A		577.5	574.1	0.4%								92		6			5.4	0.232			
- L- 16+12.00	70	RT	403	403A		582.4	581.5	0.4%					168							2				120	
- L- 17+38.00	59	RT	408	408A		583.7	583.6	0.6%			124									2				65	
- L- 19+69.00	30	RT	414	414A		586.3	585.8	0.5%					72											33	
- Y1- 11+21.86	-23	LT	415														16							22	
- L- 12+66.63	29	RT	416														24							40	
- Y1- 19+63.72	31	RT	417														16							22	
SHEET TOTALS									0	0	124	0	240	0	0	92	56	6	0	4	5.4	0.232	0	302	

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.)	(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

SUMMARY OF EARTHWORK
IN CUBIC YARDS

CHAIN	BEGINNING STATION	ENDING STATION	UNCL. EXCA. C.Y.	UNDERCUT C.Y.	EMBANK. +% C.Y.	BORROW C.Y.	WASTE C.Y.
SUMMARY 1							
-L-	10+00.00	15+98.36	1,318		426		892
-L-	17+38.36	22+05.00 A2	853		252		601
SUBTOTAL			**2,171**		**678**		**1,493**
SUMMARY 2							
-RAB-	10+00.00	11+50.00	10		3,227	3,217	
SUBTOTAL			**10**		**3,227**	**3,217**	
SUMMARY 3							
-Y1-	10+75.00	15+42.21	803		1,010	207	
-Y1-	16+82.21	21+80.00	1,059		388		671
SUBTOTAL			**1,862**		**1,398**	**207**	**671**
SHEET TOTALS			**4,043**		**5,303**	**3,424**	**2,164**
CONTINGENCY FOR UNDERCUT				**200**			
MATERIAL FOR SHOULDER CONSTRUCTION					**786**	**786**	
BORROW DUE TO PAVEMENT REMOVAL					**1,074**	**1,074**	
EARTH WASTE IN LIEU OF BORROW						**-2,164**	**-2,164**
PROJECT TOTAL			**4,043**		**7,163**	**3,120**	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT						**156**	
GRAND TOTAL			**4,043**			**3,276**	
SAY			**4,050**	**200**		**3,280**	

DRAINAGE DITCH EXCAVATION = 785 C.Y.

RIGHT OF WAY AREA DATA SHEET

PARCEL NO.	PROPERTY OWNERS NAME	TOTAL AREA	AREA TAKEN	AREA REMAINING RIGHT	DUAL USE EASEMENT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	RIGHT OF WAY	PERMANENT UTILITY EASEMENT
1	Shirley Davis Walser Trustee	2.00 AC	0.054 AC	1.95 AC		0.054 AC			
2	Lee Donald Davis et al	61.74 AC	0.060 AC	61.68 AC		0.060 AC			
3	Eddie Horne	1.97 AC	0.693 AC	1.28 AC	0.26 AC	0.178 AC	0.013 AC	0.132 AC	0.109 AC
4	George H. Winchell; Sandra A. Fenn; Carol Sue Gates; and Margaret W. Thewes	10.44 AC	0.659 AC	9.78 AC	0.24 AC	0.114 AC	0.049 AC	0.259 AC	
5	Douglas Alvin Horne	4.37 AC	0.168 AC	4.20 AC		0.14 AC		0.03 AC	
6	Doris Davis Thurman et al	10.00 AC	0.798 AC	9.20 AC	0.31 AC	0.14 AC		0.35 AC	
7	Jerry Jill Davis	14.89 AC	0.084 AC	14.80 AC		0.07 AC	0.01 AC		130.00 SF

ASPHALT PAVEMENT REMOVAL SUMMARY
IN SQUARE YARDS

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-L- & -Y1-				24173.04		2685.89
					TOTAL	2,685.89
					SAY	**2,690**

SUMMARY OF GEOTECHNICAL ITEMS

GEOTEXTILE SOIL STABILIZATION	150	SY
INCIDENTAL STONE BASE	100	TON

SUMMARY OF MARKERS

TYPE	COUNT
ROW	13.00
EASEMENT	37.00

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PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS
8/18/2021
DocuSigned by: Scott D. Blevins
476C8C50AEEE4A1...

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 40807 ENGINEER ROBERT B. HUSKEY
8/18/2021
DocuSigned by: Robert B. Huskey
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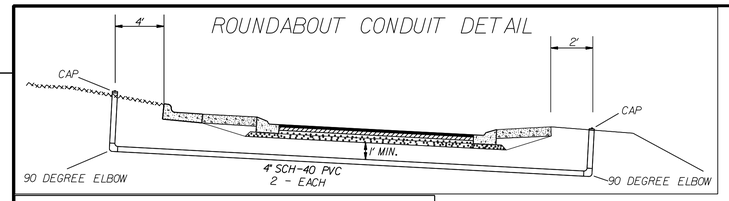
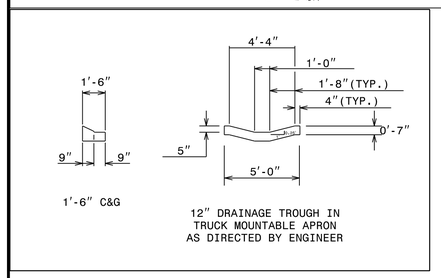
REVISIONS





NAD 83/NA 2011

END CONSTRUCTION
-L- POT Sta. 22+05.00

-L- POT Sta. 22+20.19

JERRY GILL DAVIS
PB D PG 304

SPECIAL CUT DITCH SEE DETAIL A

100' TAPER TO EXIST.

SPECIAL CUT DITCH SEE DETAIL B

300' TRANSITION

JERRY JILL DAVIS
DB 629 PG 441
PB D PG 303

8 TONS CL B RIPRAP W/21 SY GEO FAB

LATERAL BASE DITCH SEE DETAIL C

-L- PT Sta. 19+62.40

DORIS DAVIS THURMAN ET AL
DB 5876 PG 637
PB D PG 304

EDDIE HORNE
DB 3585 PG 489
PB D PG 303

FS ELEV=588.74

LATERAL V DITCH SEE DETAIL E

-L- PC Sta. 18+06.64

-RAB- POC Sta. 11+57.08=
-L- POT Sta. 17+18.56

-RAB- POC Sta. 10+85.18=
-Y1- POT Sta. 16+62.21

2-4" SCHEDULE 40 PVC CONDUIT FOR FUTURE USE

-RAB- POC Sta. 12+42.26=
-Y1- POT Sta. 15+62.21

3 TONS CL B RIPRAP W/10 SY GEO FAB

SHIRLEY DAVIS WALSER TRUSTEE
DB 6280 PG 058
PB D PG 303

GPS-1
N=463583.881
E=1489237.502
ELEVATION=584.3

-Y1- PC Sta. 12+52.20

-Y1- PT Sta. 13+96.01

LATERAL BASE DITCH SEE DETAIL F

-Y1- POT Sta. 10+00.00

SPECIAL CUT DITCH SEE DETAIL A

BEGIN CONSTRUCTION
-Y1- POT Sta. 10+75.00

BL-4
N = 453436.216
E = 1488776.628
ELEVATION = 582.667'

26 TONS CL I RIPRAP W/50 SY GEO FAB ON BANKS ONLY

100' TAPER TO EXIST.

300' TRANSITION

LATERAL BASE DITCH SEE DETAIL F

-L- PT Sta. 15+88.66

GRADE TO DRAIN

LEE DONALD DAVIS ET AL
DB 6280 PG 058
PB D PG 303

2 TONS CL B RIPRAP W/7 SY GEO FAB CUT-FILL TRANSITION

PLUG & FILL W/FLOWABLE FILL

8 TONS CL B RIPRAP W/21 SY GEO FAB

LATERAL BASE DITCH SEE DETAIL D

-L- POT Sta. 16+68.36=
-Y1- POT Sta. 16+12.21

-RAB- PC Sta. 10+00.00=
-RAB- PT Sta. 13+14.16=
-L- POT Sta. 16+18.36

GEORGE H. WINCHELL ; SANDRA A. FENN ; CAROL SUE GATES ; and MARGARET W. THEWES
DB 833 PG 706
PB G PG 931

BM #1
N=453393.265
E=1489387.817
ELEVATION=593.337
R/R SPIKE IN 24" OAK

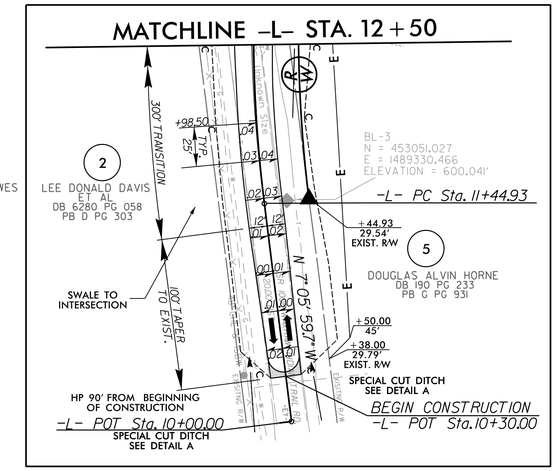
-L- PRC Sta. 13+53.53

END CONSTRUCTION
-Y1- POT Sta. 21+80.00

-Y1- PC Sta. 21+38.94

BL-5
N = 453691.313
E = 1489783.399
ELEVATION = 596.164'

MATCHLINE -L- STA. 12+50



-L-		
PI Sta 12+49.65	PI Sta 14+71.70	PI Sta 18+84.69
Δ = 12° 34' 52.1" (RT)	Δ = 14° 10' 51.5" (LT)	Δ = 9° 23' 37.5" (RT)
D = 6° 01' 52.1"	D = 6° 01' 52.1"	D = 6° 01' 52.1"
L = 208.60'	L = 235.13'	L = 155.75'
T = 104.72'	T = 118.17'	T = 78.05'
R = 950.00'	R = 950.00'	R = 950.00'
Se = .04	Se = .04	Se = .04
Runoff = 100'	Runoff = 100'	Runoff = 100'

-RAB-		
PI Sta 10+00.00		
Δ = 359° 59' 59.9" (LT)		
D = 114° 35' 29.6"		
L = 314.16'		
T = 0.00'		
R = 50.00'		

-Y1-	
PI Sta 13+24.24	PI Sta 22+51.35
Δ = 8° 40' 22.7" (LT)	Δ = 19° 37' 22.4" (RT)
D = 6° 01' 52.1"	D = 8° 48' 53.0"
L = 143.80'	L = 222.61'
T = 72.04'	T = 112.41'
R = 950.00'	R = 650.00'
Se = .04	Se = Exist.
Runoff = 100'	

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

FOR -L- PROFILE SEE SHT. 5
FOR -RAB- PROFILE SEE SHT. 5
FOR -Y1- PROFILE SEE SHT. 6

MONOLITHIC ISLAND
CONCRETE APRON

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PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	5

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS
Scott D. Blevins
3/2/2021

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 40807 ENGINEER ROBERT B. HUSEY
Robert B. Husey
3/2/2021

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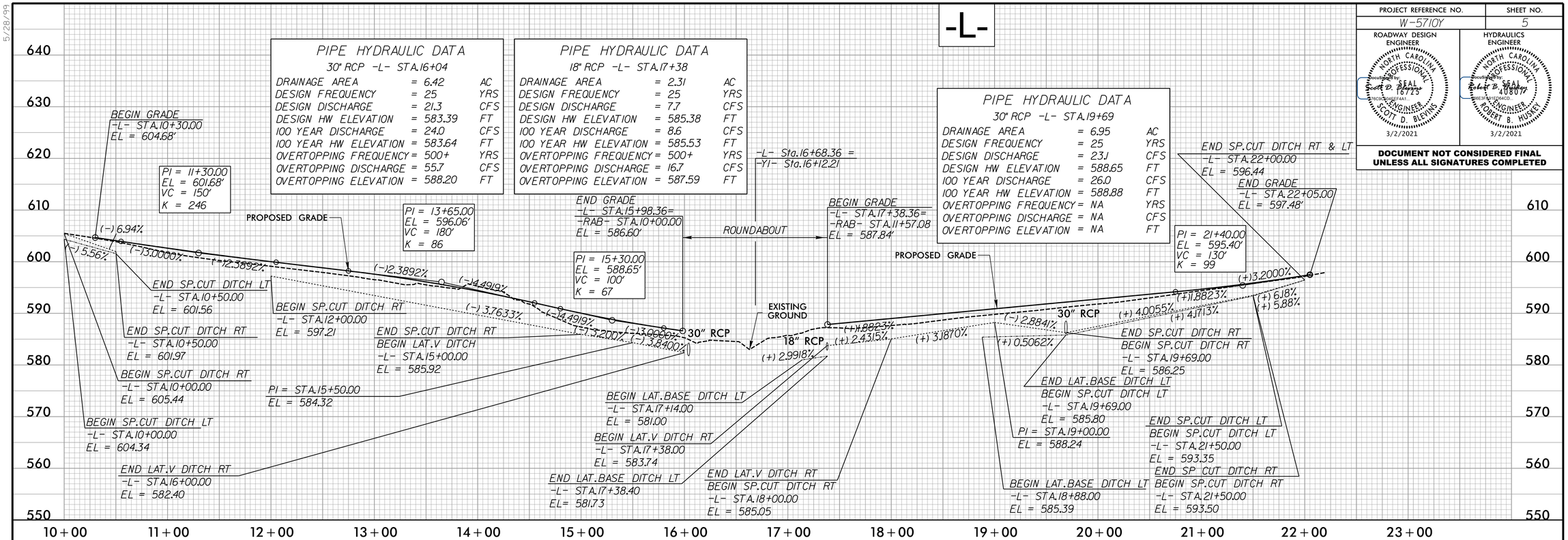
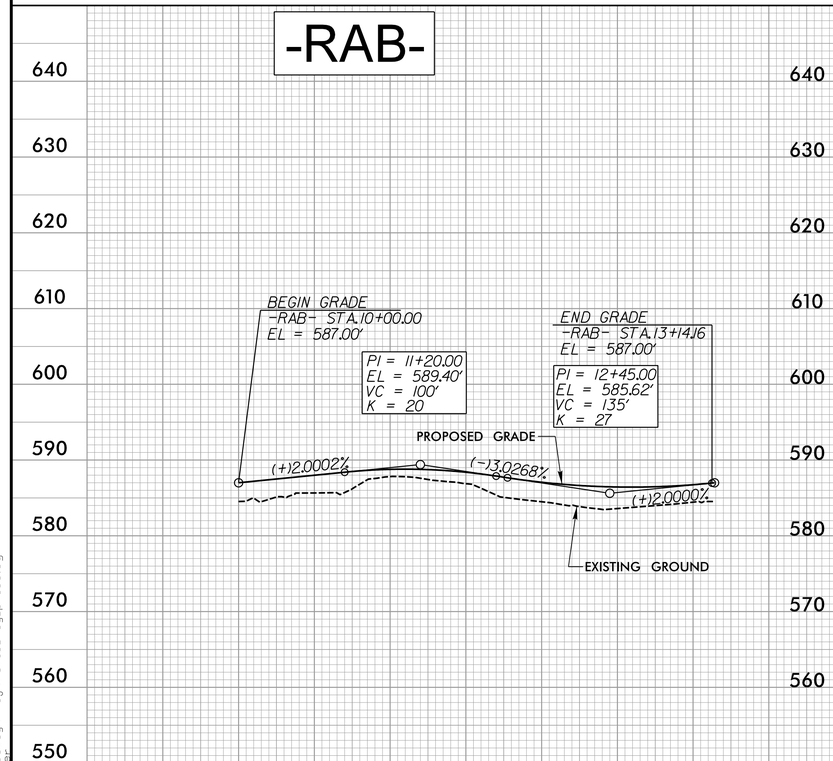
-L-



-RAB-



FOR -L- PLAN SEE SHT. 4
FOR -RAB- PLAN SEE SHT.4
FOR -Y1- PLAN SEE SHT. 4

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PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	6

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HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 40807 ENGINEER ROBERT B. HUSKEY
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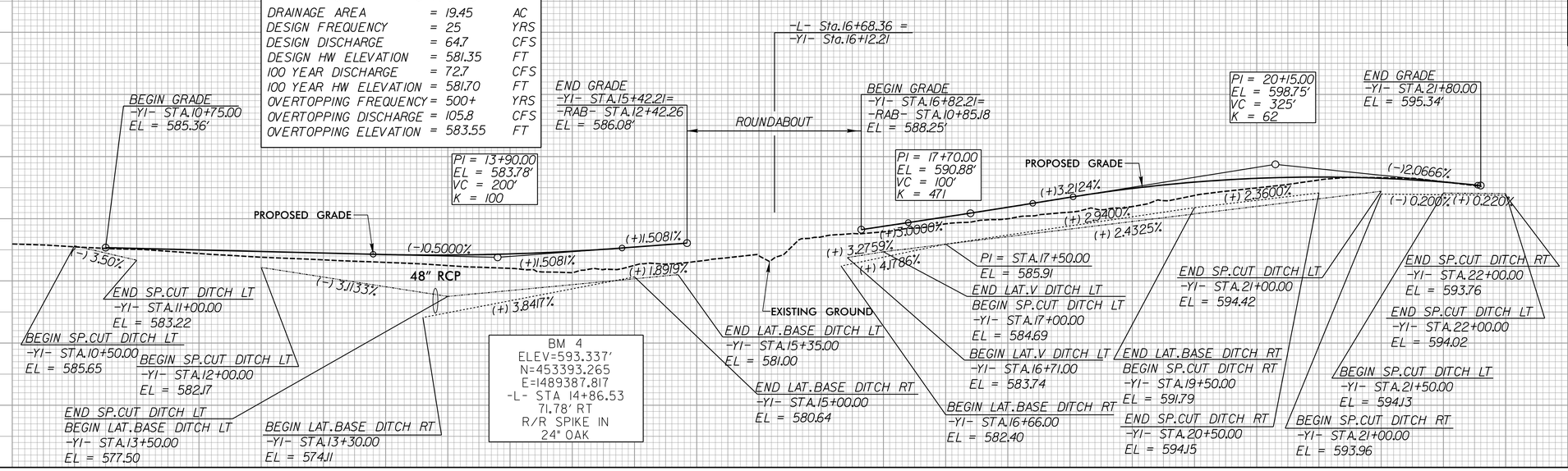
-Y1-



FOR -L- PLAN SEE SHT. 4
FOR -RAB- PLAN SEE SHT.4
FOR -Y1- PLAN SEE SHT. 4

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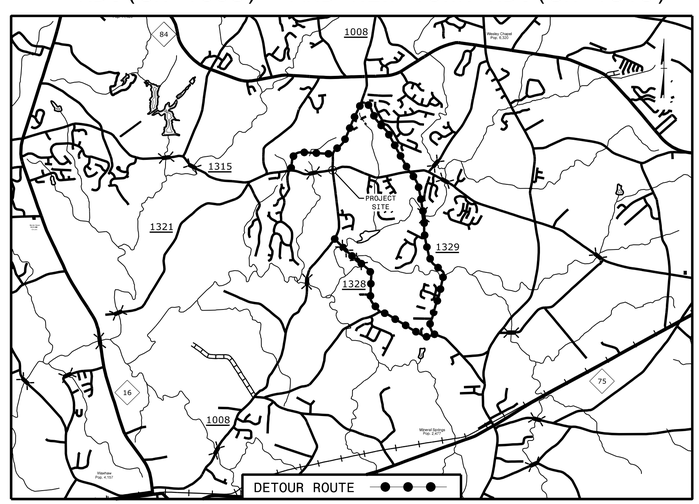
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

UNION COUNTY

LOCATION: THE INTERSECTION OF WAXHAW INDIAN TRAIL RD.(SR 1008) AND NEW TOWN RD.(SR 1315)



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-2	TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES, TRAFFIC CONTROL PHASING)
TMP-3	OFFSITE DETOUR
TMP-4-TMP-5	SIGN DESIGNS

SHEET NO.
TMP-1

PROJECT: W-5710Y

UNION COUNTY

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

N.C.D.O.T. HIGHWAY DIVISION 10
716 W. MAIN STREET ALBEMARLE, NC 28001
PHONE: (704) 982-3146

RANDY BOWERS PROJECT ENGINEER DIVISION 10

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PROJ. REFERENCE NO.	SHEET NO.
W-5710Y	TMP-1A

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES

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

SIGNALS

EXISTING PROPOSED TEMPORARY (TEMP)

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

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21047 ENGINEER KEVIN W. BISBY

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

ROADWAY STANDARD DRAWINGS & LEGEND

3/1/2021
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PROJ. REFERENCE NO.	SHEET NO.
W-5710Y	TMP-2

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.

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER FOURTEEN (14) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

TRAFFIC CONTROL DEVICES

F) PLACE TYPE III BARRICADES WITH “ROAD CLOSED” SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE THE ENTIRE ROADWAY.

TRAFFIC CONTROL PHASING

STEP 1:
USING RDWY STD 1101.04, ERECT DETOUR SIGNING AND CLOSE WAXHAW INDIAN TRAIL RD AND NEW TOWN RD.
REFER TO RDWY STD. 1101.03 SHEET I AND TMP-3 THROUGH TMP-5 FOR SIGN LOCATIONS AND DESIGN.

STEP 2:
AWAY FROM TRAFFIC, CONSTRUCT ROADWAY AND APPLY FINAL PAVEMENT MARKINGS.

STEP 3:
REMOVE DETOUR SIGNS AND DEVICES, AND OPEN TO TRAFFIC.

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

TEMPORARY
TRAFFIC CONTROL PHASING

3/15/2021
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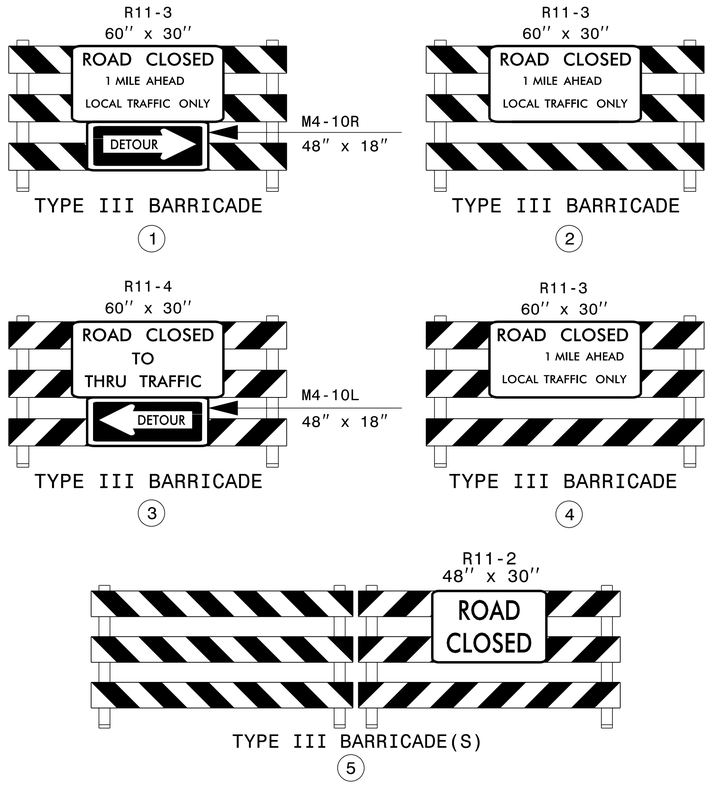
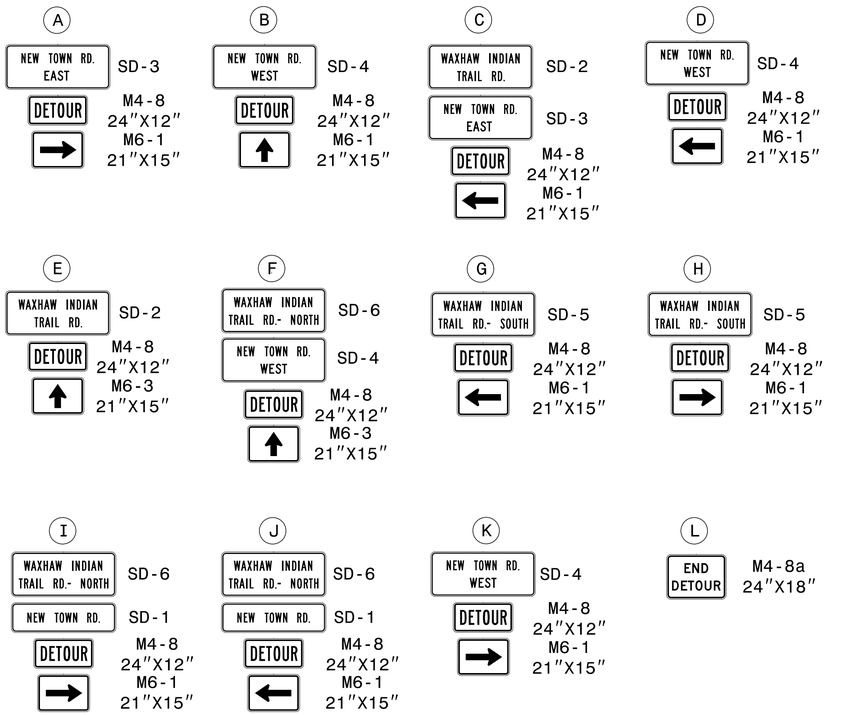
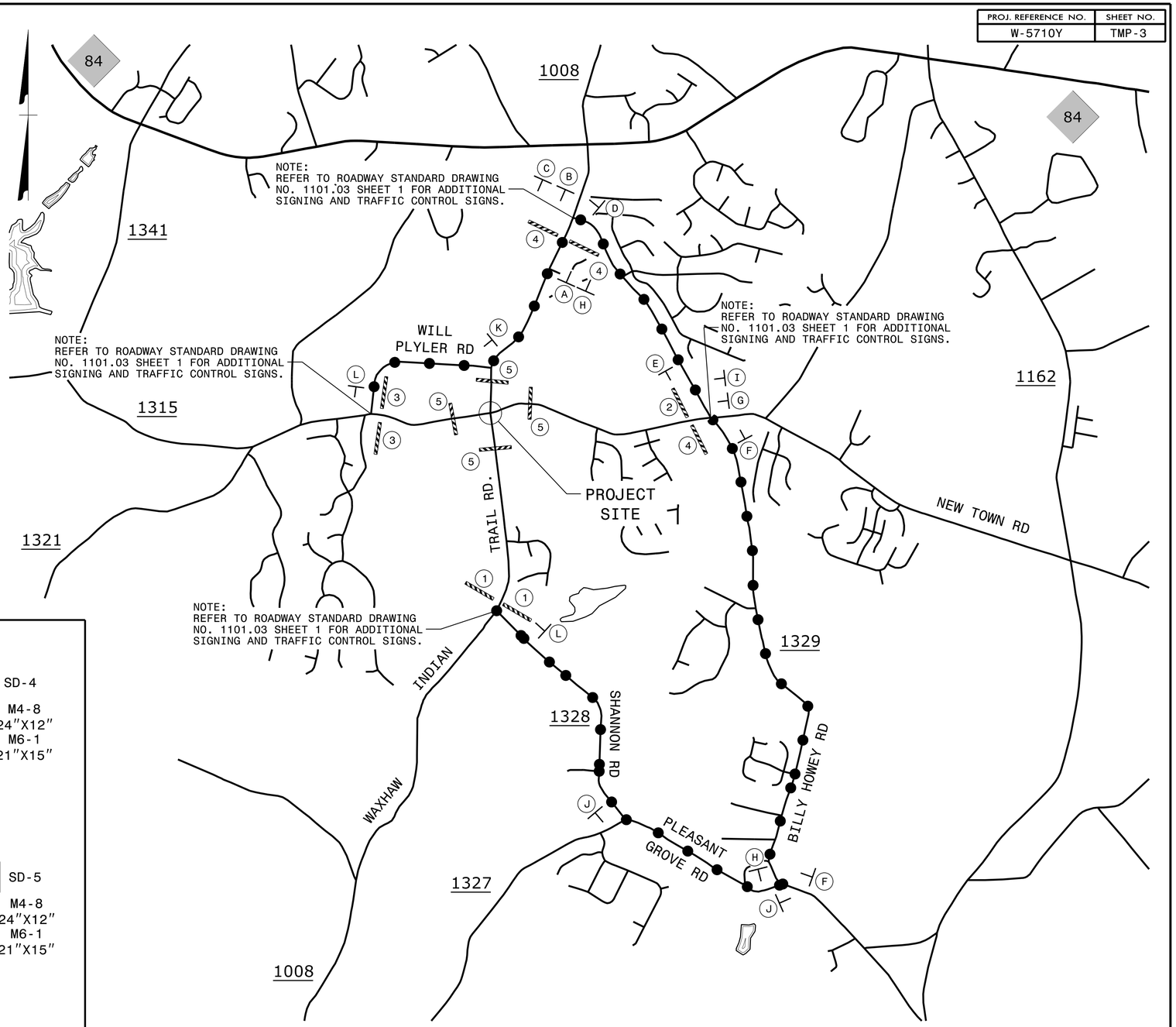
PROJ. REFERENCE NO.	SHEET NO.
W-5710Y	TMP-3





NOTE: SEE TMP-4 & TMP-5 FOR SIGN DESIGNS.



DETOUR ROUTE

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NORTH CAROLINA PROFESSIONAL SEAL 21047 ENGINEER KEVIN W. BISBY

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

OFFSITE DETOUR WAXHAW INDIAN TRAIL RD/ NEW TOWN RD

PROJ. REFERENCE NO.	SHEET NO.
W-5710Y	TMP-4

SIGN NUMBER: SD-1
TYPE: D
QUANTITY: SEE PLAN
SIGN WIDTH: 3'-0"
HEIGHT: 1'-0"
TOTAL AREA: 3.0 Sq.Ft.
BORDER TYPE: RECESSED
RECESS: 0.38"
WIDTH: 0.44"
RADII: 1.5"
NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

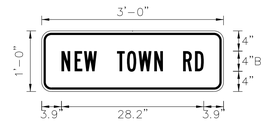
SYMBOL	X	Y	WID	HT

MAT'L: 0.063" ALUMINUM

DESIGN BY: K. Bisby | CHECKED BY: B. Holden | Feb 24, 2021
PROJECT ID: W-5710Y | LOCATION: SEE PLAN | DIV: 10

USE NOTES: 1, 2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC Grade B fluorescent orange retroreflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

															Series/Size Text Length
	N	E	W		T	O	W	N		R	D				B 2000
3.9	2.6	1.8	2.6	4	2	2.3	3.1	1.7	4	2.4	1.7	3.9			28.2

FILENAME: sign_designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: SD-2
TYPE: D
QUANTITY: SEE PLAN
SIGN WIDTH: 3'-0"
HEIGHT: 1'-6"
TOTAL AREA: 4.5 Sq.Ft.
BORDER TYPE: RECESSED
RECESS: 0.38"
WIDTH: 0.63"
RADII: 1.5"
NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.063" ALUMINUM

DESIGN BY: K. Bisby | CHECKED BY: B. Holden | Feb 24, 2021
PROJECT ID: W-5710Y | LOCATION: SEE PLAN | DIV: 10

USE NOTES: 1, 2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC Grade B fluorescent orange retroreflective sheeting.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

															Series/Size Text Length
	W	A	X	H	A	W		I	N	D	I	A	N		B 2000
2.5	2.8	2.5	2.5	2.3	2.4	2.6	4	1.4	2.6	2.5	1.1	2.7	1.7	2.5	31
	T	R	A	I	L		R	D							B 2000
9.1	2.1	2	2.7	1.4	1.5	4	2.4	1.7	9.1						17.8

FILENAME: sign_designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: SD-3
TYPE: D
QUANTITY: SEE PLAN
SIGN WIDTH: 3'-0"
HEIGHT: 1'-6"
TOTAL AREA: 4.5 Sq.Ft.
BORDER TYPE: RECESSED
RECESS: 0.38"
WIDTH: 0.63"
RADII: 1.5"
NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

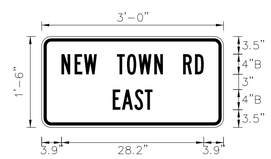
SYMBOL	X	Y	WID	HT

MAT'L: 0.063" ALUMINUM

DESIGN BY: K. Bisby | CHECKED BY: B. Holden | Feb 24, 2021
PROJECT ID: W-5710Y | LOCATION: SEE PLAN | DIV: 10

USE NOTES: 1, 2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC Grade B fluorescent orange retroreflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

															Series/Size Text Length
	N	E	W		T	O	W	N		R	D				B 2000
3.9	2.6	1.8	2.6	4	2	2.3	3.1	1.7	4	2.4	1.7	3.9			28.2
	E	A	S	T											B 2000
14.1	1.8	2.5	2	1.5	14.1										7.9

FILENAME: sign_designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: SD-4
TYPE: D
QUANTITY: SEE PLAN
SIGN WIDTH: 3'-0"
HEIGHT: 1'-6"
TOTAL AREA: 4.5 Sq.Ft.
BORDER TYPE: RECESSED
RECESS: 0.38"
WIDTH: 0.63"
RADII: 1.5"
NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

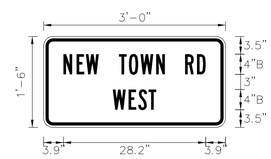
SYMBOL	X	Y	WID	HT

MAT'L: 0.063" ALUMINUM

DESIGN BY: K. Bisby | CHECKED BY: B. Holden | Feb 24, 2021
PROJECT ID: W-5710Y | LOCATION: SEE PLAN | DIV: 10

USE NOTES: 1, 2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC Grade B fluorescent orange retroreflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

															Series/Size Text Length
	N	E	W		T	O	W	N		R	D				B 2000
3.9	2.6	1.8	2.6	4	2	2.3	3.1	1.7	4	2.4	1.7	3.9			28.2
	W	E	S	T											B 2000
13.7	3.1	1.9	2	1.5	13.7										8.6

FILENAME: sign_designs

NORTH CAROLINA D.O.T. SIGN DETAIL

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Raleigh, North Carolina 27615-3960
NC License No. F-0112
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APPROVED: DocuSigned by: Kevin Bisby BCD8D2528912474...
DATE: 3/1/2021
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21047 ENGINEER KEVIN W. BISBY

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

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SIGN DESIGNS

3/1/2021
W5710Y_TMP_psh04.DGN
GETQUI

PROJ. REFERENCE NO.	SHEET NO.
W-5710Y	TMP-5

SIGN NUMBER: SD-5
TYPE: D
QUANTITY: SEE PLAN

SIGN WIDTH: 3'-6"
HEIGHT: 1'-6"
TOTAL AREA: 5.3 Sq.Ft.

BORDER TYPE: RECESSED
RECESS: 0.38"
WIDTH: 0.63"
RADII: 1.5"

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.063" ALUMINUM

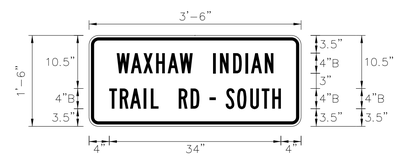
DESIGN BY: K. Bisby
PROJECT ID: W-5710Y

CHECKED BY: B. Holden
LOCATION: SEE PLAN

Feb 24, 2021
DIV: 10

USE NOTES: 1, 2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC Grade B fluorescent orange retroreflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																																Series/Size Text Length
		W	A	X	H	A	W		I	N	D	I	A	N																		B 2000
	5.5	2.8	2.5	2.5	2.3	2.4	2.6	4	1.4	2.6	2.5	1.1	2.7	1.7	5.5																	31
		T	R	A	I	L		R	D		–		S	O	U	T	H															B 2000
	4	2.1	2	2.7	1.4	1.5	4	2.4	1.7	2	1.2	2	2.2	2.6	2.3	2.1	1.7	4														34

FILENAME: sign_designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: SD-6
TYPE: D
QUANTITY: SEE PLAN

SIGN WIDTH: 3'-6"
HEIGHT: 1'-6"
TOTAL AREA: 5.3 Sq.Ft.

BORDER TYPE: RECESSED
RECESS: 0.38"
WIDTH: 0.63"
RADII: 1.5"

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.063" ALUMINUM

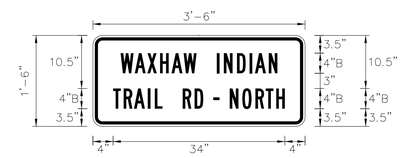
DESIGN BY: K. Bisby
PROJECT ID: W-5710Y

CHECKED BY: B. Holden
LOCATION: SEE PLAN

Feb 24, 2021
DIV: 10

USE NOTES: 1, 2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC Grade B fluorescent orange retroreflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																																Series/Size Text Length
		W	A	X	H	A	W		I	N	D	I	A	N																		B 2000
	5.5	2.8	2.5	2.5	2.3	2.4	2.6	4	1.4	2.6	2.5	1.1	2.7	1.7	5.5																	31
		T	R	A	I	L		R	D		–		N	O	R	T	H															B 2000
	4	2.1	2	2.7	1.4	1.5	4	2.4	1.7	2	1.2	2	2.5	2.6	2	2.1	1.7	4														34

FILENAME: sign_designs

NORTH CAROLINA D.O.T. SIGN DETAIL

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Raleigh, North Carolina 27615-3960
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APPROVED: DocuSigned by: Kevin Bisby BDD8D262891247...

DATE: 3/1/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21047 ENGINEER KEVIN W. BISBY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SIGN DESIGNS

3/1/2021
W5710Y_TMP_psh05.DGN
ceteuit

TIP PROJECT: W-5710Y

CONTRACT:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
W-5710Y	PMP-1

APPROVED: DocuSigned by: Kevin Bisby BDD8D262891247A...

DATE: 3/1/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21047 ENGINEER KEVIN W. BISBY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT MARKING PLAN
UNION COUNTY
LOCATION: INTERSECTION OF WAXHAW INDIAN TRAIL ROAD (SR 1008) AT NEWTOWN ROAD (SR 1315)

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.14	PAVEMENT MARKINGS - ROUNDABOUTS
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

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
-L- SR 1008	THERMOPLASTIC	NONE
-Y1-SR 1315	THERMOPLASTIC	NONE

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

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

D) 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.

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE SHEET, GENERAL NOTES AND PAVEMENT MARKING SCHEDULE
PMP-2	PAVEMENT MARKING DETAIL

PAVEMENT MARKING SCHEDULE

THERMOPLASTIC LINES
TA WHITE EDGELINE (4", 90 MIL)
TB YELLOW EDGELINE (4",90 MIL)
TI YELLOW DOUBLE CENTER (4", 90 MIL)
TN WHITE GORELINE (8", 90 MIL)
T17 3 FT. - 3FT./SP WHITE MINISKIP (8",90 MIL)

THERMOPLASTIC SYMBOLS
UN 24" YIELD LINE TRIANGLE (90 MIL)

PLAN PREPARED FOR: N.C.D.O.T. SIGNING AND DELINEATION UNIT

KELVIN L. JORDAN SIGNING & DELINEATION REGIONAL ENGINEER

ASHELEY K. MATTHEWS SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RK&K
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8601 Six Forks Road Forum 1 Suite 700 | Raleigh, North Carolina 27615
NC License No. F-0112
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TIP NO.	SHEET NO.
W-5710Y	PMP-2

APPROVED: DocuSigned by: Kevin Bisby BDD8D2628912474...

DATE: 3/1/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21047 ENGINEER KEVIN W. BISBY

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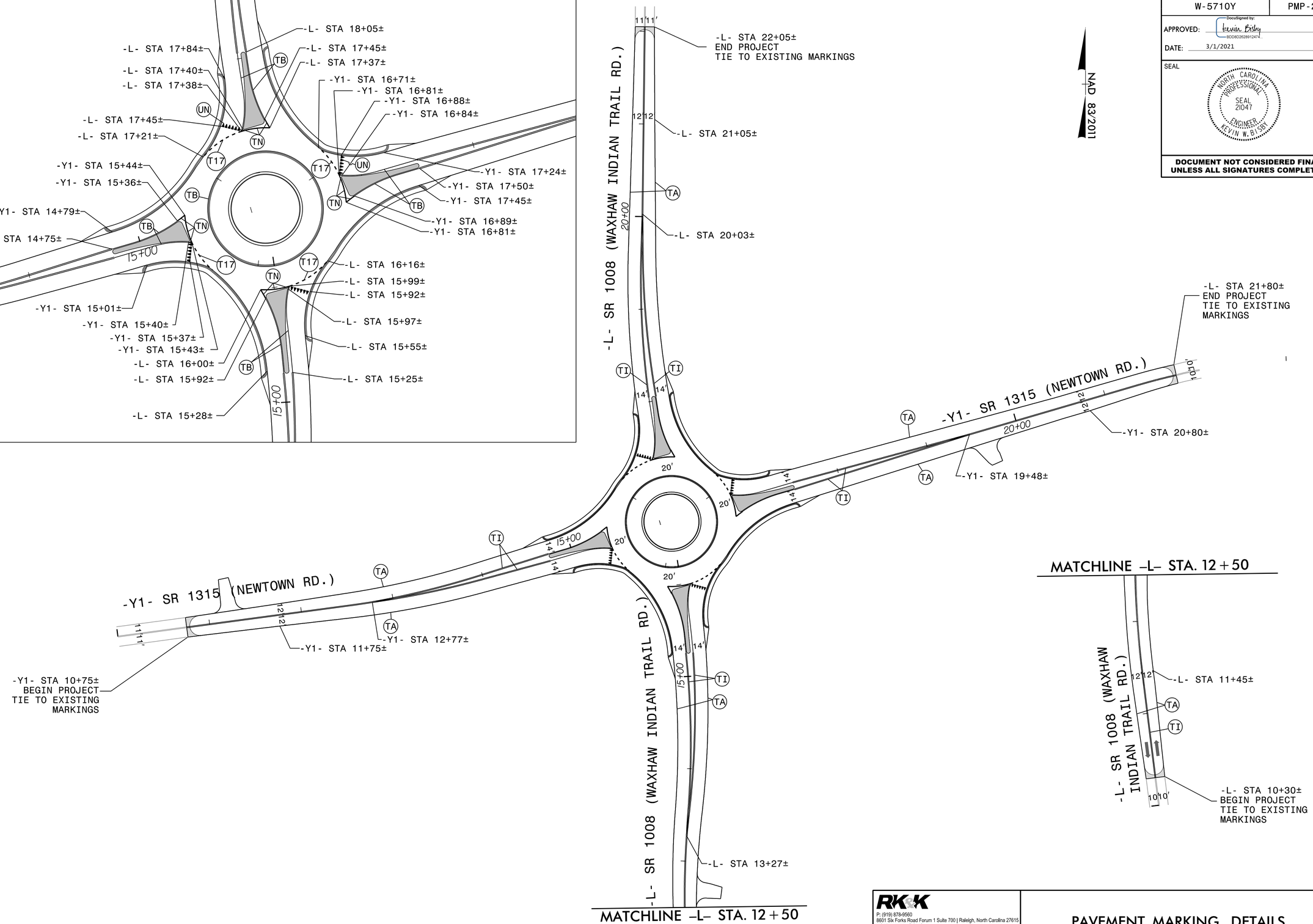

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PAVEMENT MARKING DETAILS

3/1/2021
W5710Y_PMP_PSH02.dgn
default

TIP PROJECT: W-5710Y

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5710Y	EC-1	

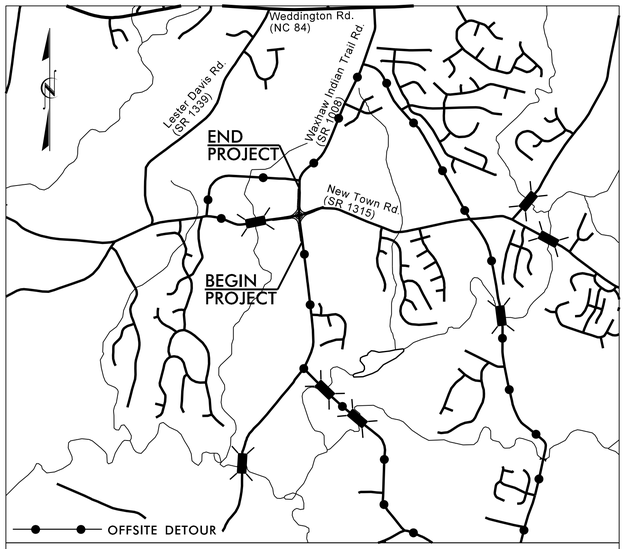
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

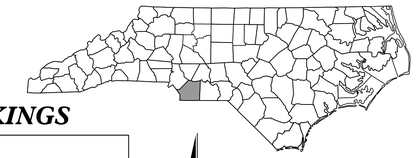
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
UNION COUNTY

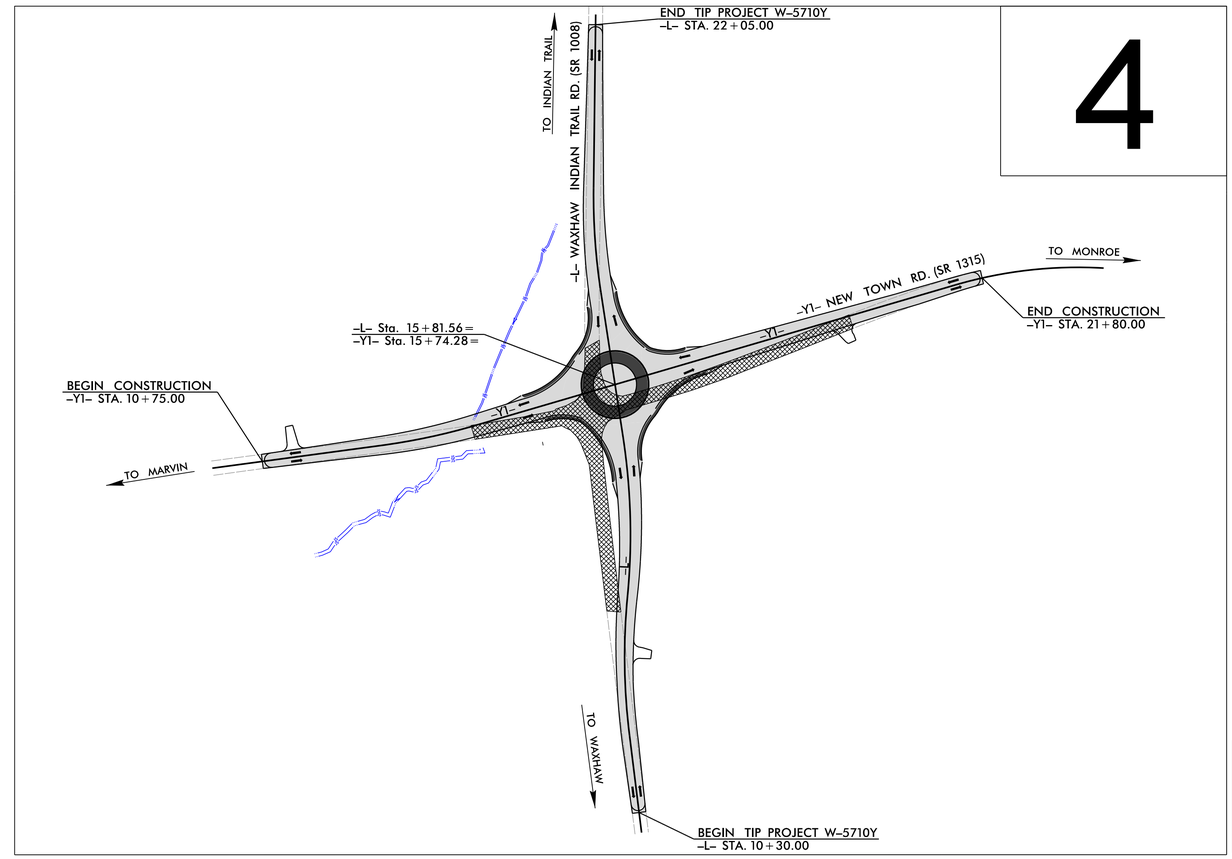
LOCATION: INTERSECTION OF WAXHAW INDIAN TRAIL ROAD (SR 1008) AT NEW TOWN ROAD (SR 1315)

TYPE OF WORK: GRADING, PAVEMENT REMOVAL, DRAINAGE, PAVING, CONCRETE ISLANDS & THERMOPLASTIC PAVEMENT MARKINGS



VICINITY MAP (NTS)





4

NAD 83/2011

Clearing and Grubbing Phase

Final Phase

Both Phases

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

EROSION AND SEDIMENT CONTROL MEASURES

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

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

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

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT W-5710Y..... 0.223 mile
TOTAL LENGTH OF PROJECT W-5710Y..... 0.223 mile

Reviewed in the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
March 8, 2019

LETTING DATE:
May 19, 2021

NCDOT CONTACT:

Michael Merritt, P.E.
PROJECT ENGINEER

Scott Blevins, P.E.
PROJECT DESIGN ENGINEER

Robert B. Huskey, P.E.
EROSION CONTROL DESIGN ENGINEER
LEVEL III CERTIFICATION NO. 3493

Donald C. Griffith
PROJECT ENGINEER - DIVISION 10

Roadway Standard Drawings

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

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

2/26/2021
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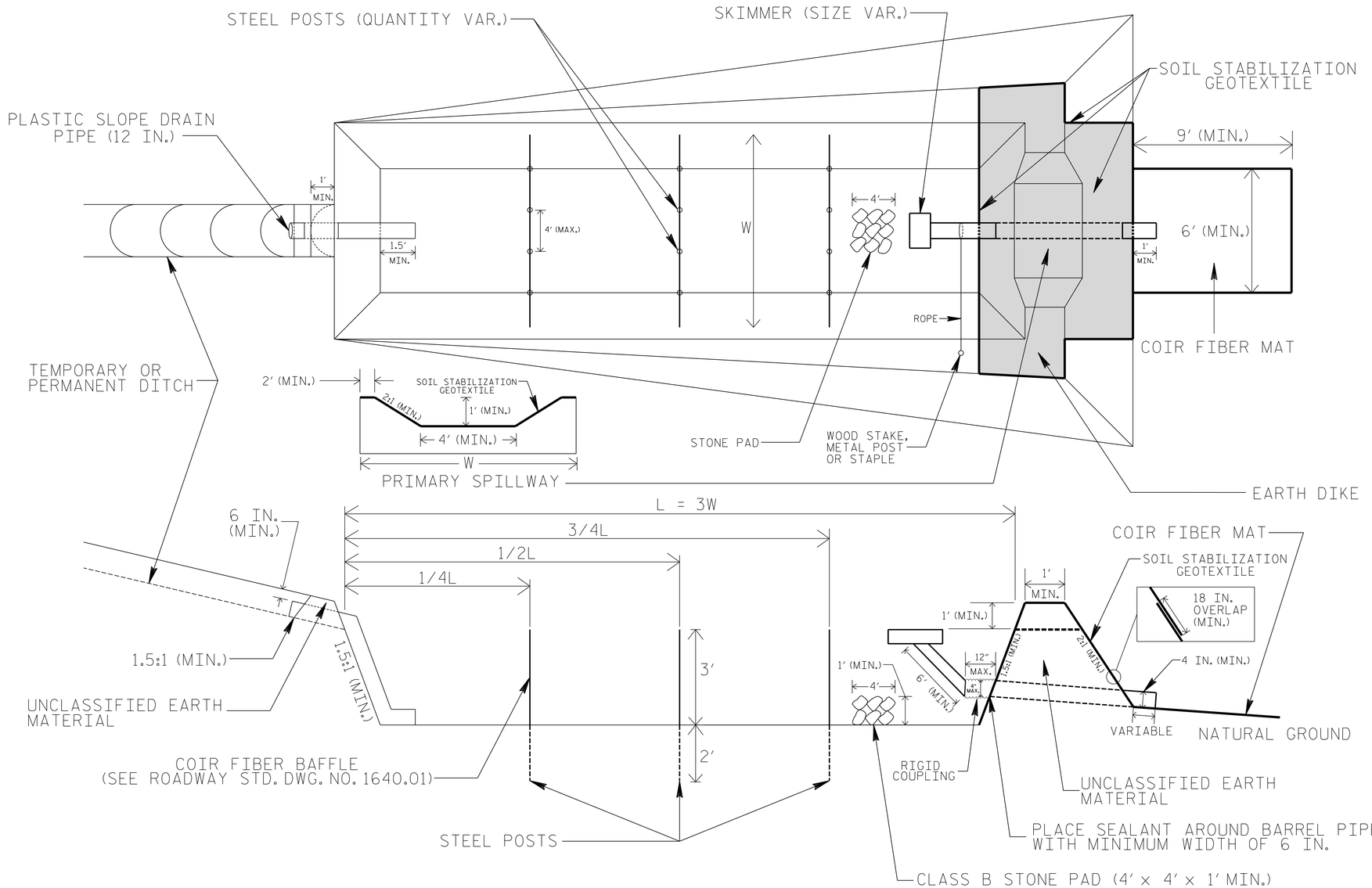
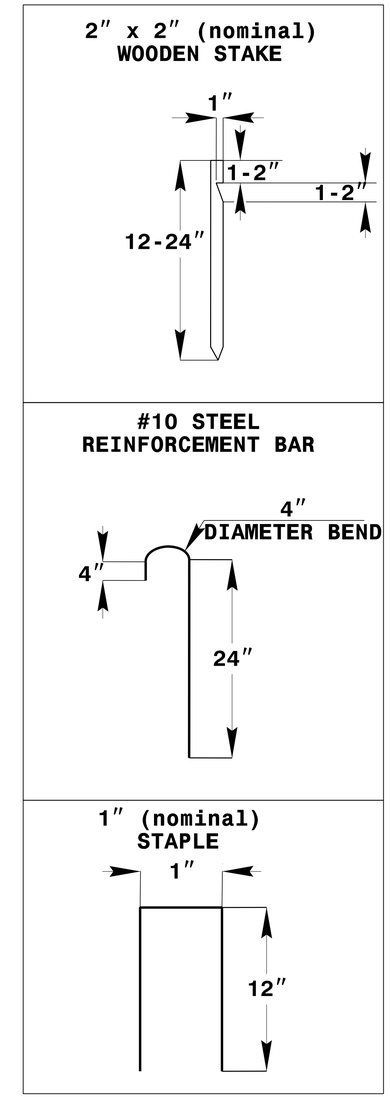
default

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL





COIR FIBER MAT ANCHOR OPTIONS

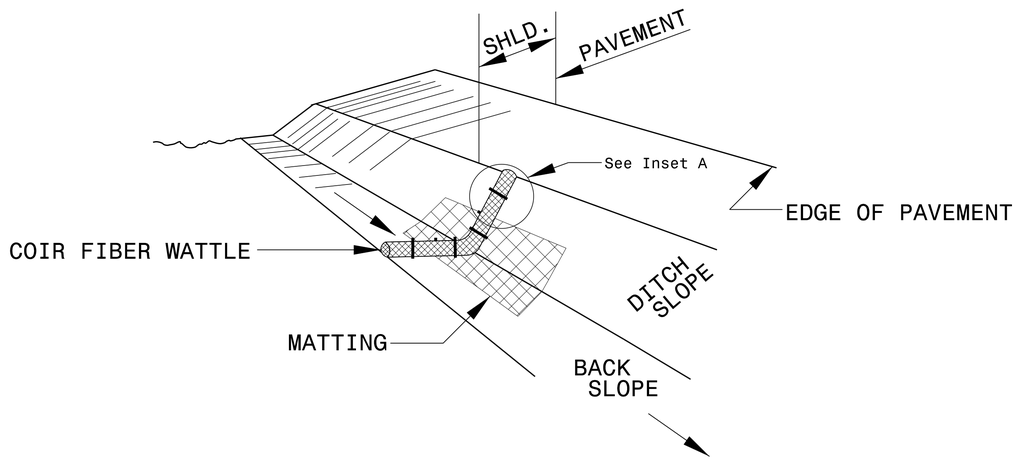
NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE PRIMARY SPILLWAY WEIR LENGTH (FT.) USING Q/0.8, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

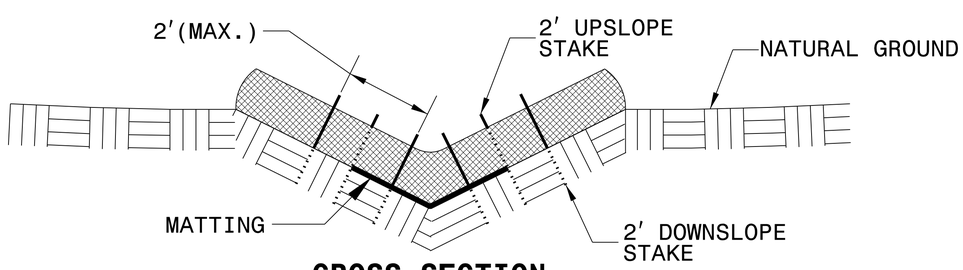
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

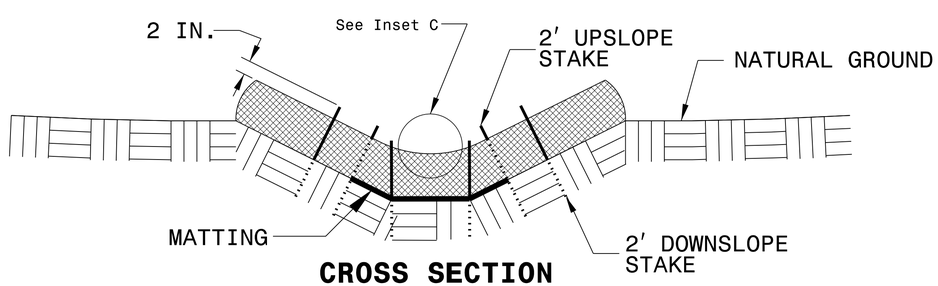
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

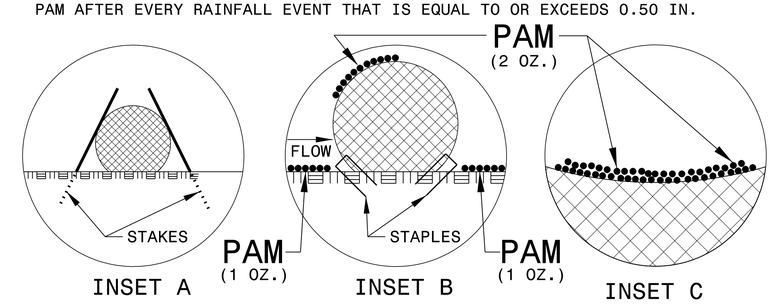
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

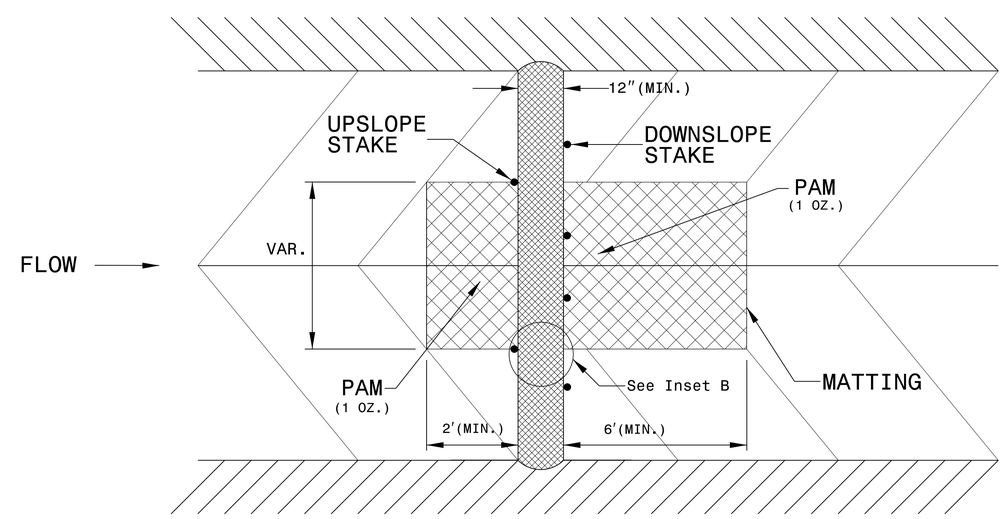
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

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

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.

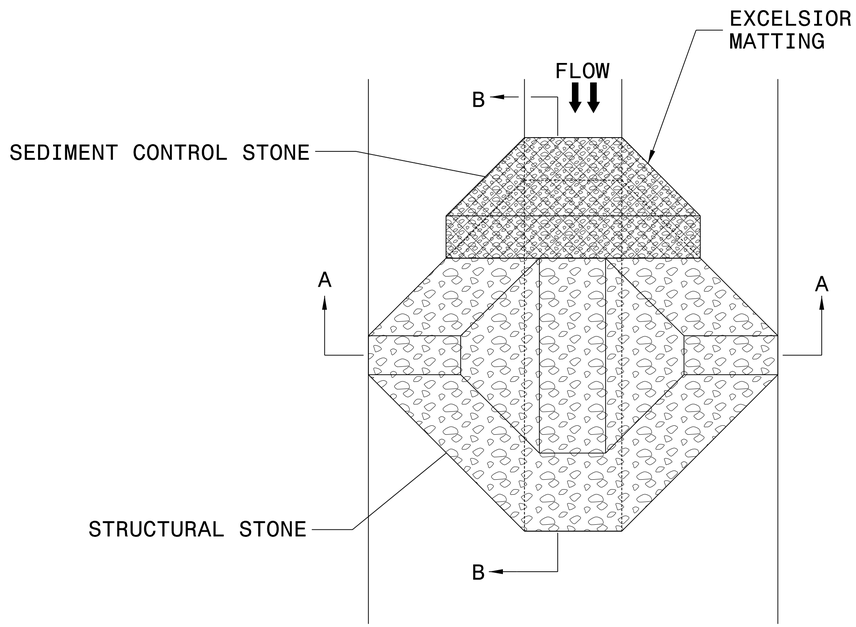




TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN

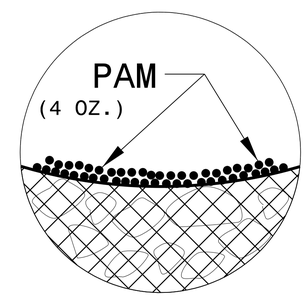
NOTES:

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

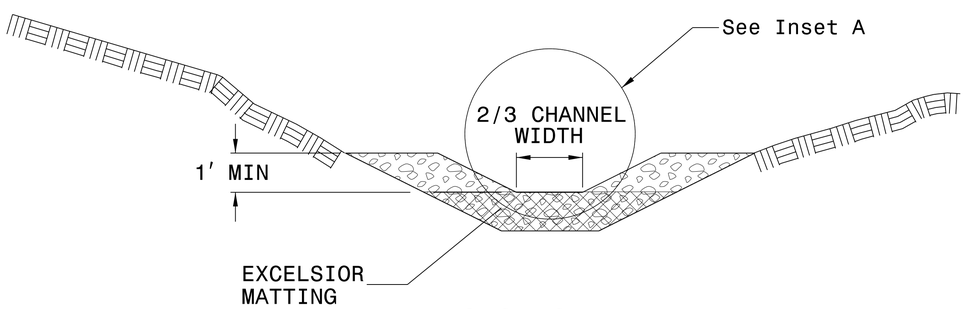
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

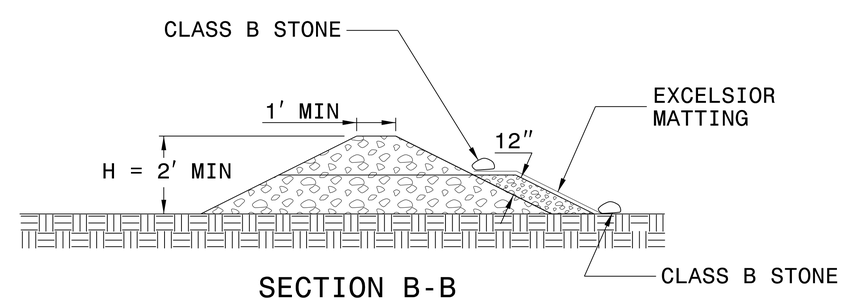
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



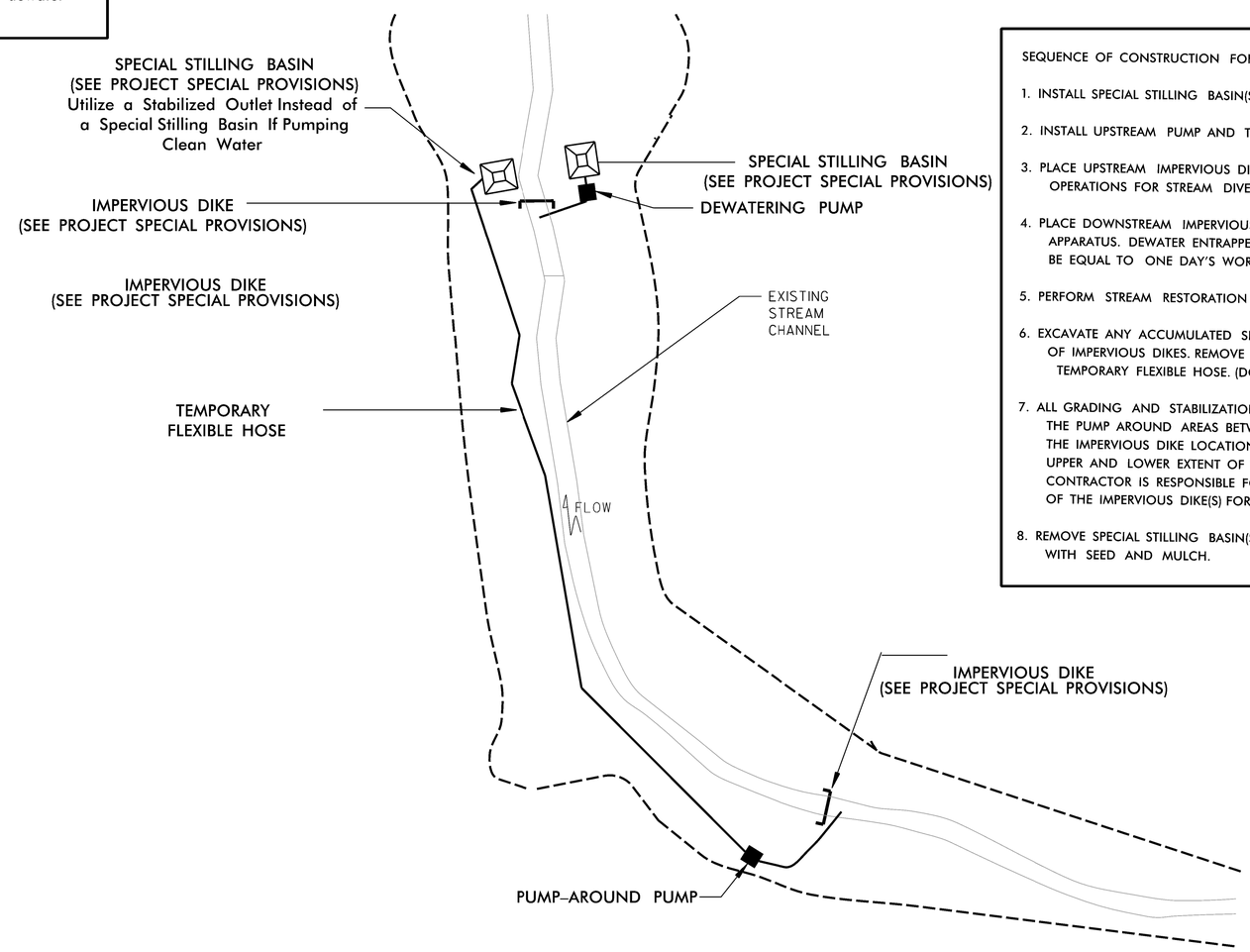
SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	EC-2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EXAMPLE OF PUMP–AROUND OPERATION

NOTES:
1) All excavation shall be performed in only dry or isolated sections of channel.
2) Impervious dikes are to be used to isolate work from stream flow when necessary.
3) All graded areas shall be stabilized within 24 hours.
4) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
5) Pumps and hoses shall be of sufficicient size to dewater the work area.



SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. PERFORM STREAM RESTORATION WORK IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. ALL GRADING AND STABILIZATION MUST BE COMPLETED IN ONE DAY WITHIN THE PUMP AROUND AREAS BETWEEN THE IMPERVIOUS DIKES. THE IMPERVIOUS DIKE LOCATIONS AS SHOWN ON THIS SHEET ONLY SHOW THE UPPER AND LOWER EXTENT OF WORK FOR EACH STREAM SEGMENT. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF THE IMPERVIOUS DIKE(S) FOR EACH DAY'S WORK.
8. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	15+00	15+50	RT	65
4	-L-	17+38	18+00	RT	50
4	-L-	18+00	19+00	RT	105
4	-L-	18+88	19+69	LT	120
4	-L-	19+00	19+69	RT	75
4	-Y1-	17+00	21+00	LT	420
4	-Y1-	17+50	19+50	RT	195
4	-Y1-	19+50	20+50	RT	105
			SUBTOTAL		1135
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					227
			TOTAL		1362
				SAY	1400

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	10+00	10+50	LT	55
4	-L-	10+00	10+50	RT	55
4	-L-	12+00	15+00	RT	315
4	-L-	15+50	16+00	RT	65
4	-L-	21+50	22+00	LT	55
4	-L-	21+50	22+00	RT	55
4	-Y1-	10+50	11+00	LT	55
4	-Y1-	12+00	13+50	LT	160
4	-Y1-	16+66	17+50	RT	85
4	-Y1-	16+71	17+00	LT	25
			SUBTOTAL		925
		ADDITIONAL PSRM TO BE INSTALLED			185
				TOTAL	1110
				SAY	1200

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

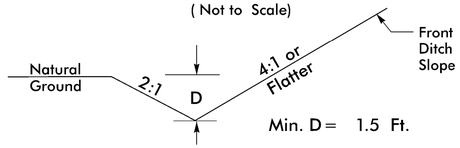
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS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

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	DITCH DETAIL
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

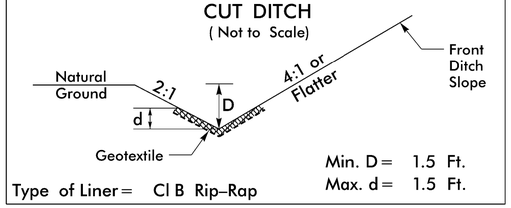
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



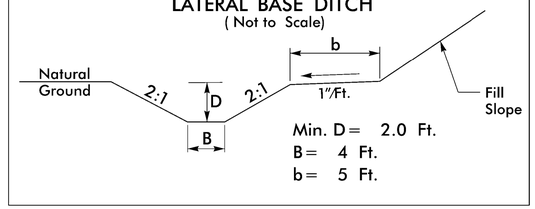
–L– STA. 10+00 TO STA. 10+50 RT
–L– STA. 10+00 TO STA. 10+50 LT
–L– STA. 12+00 TO STA. 15+00 RT
–L– STA. 18+00 TO STA. 19+69 RT
–L– STA. 21+50 TO STA. 22+00 RT
–L– STA. 21+50 TO STA. 22+00 LT
–Y1– STA. 10+50 TO STA. 11+00 LT
–Y1– STA. 12+00 TO STA. 13+50 LT
–Y1– STA. 17+00 TO STA. 21+00 LT
–Y1– STA. 19+50 TO STA. 20+50 RT
–Y1– STA. 21+00 TO STA. 22+00 RT
–Y1– STA. 21+50 TO STA. 22+00 LT

DETAIL B
CUT DITCH
(Not to Scale)



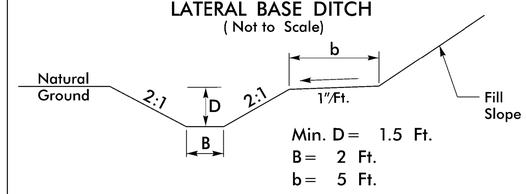
–L– STA. 19+69 TO STA. 21+50 RT
–L– STA. 19+69 TO STA. 21+50 LT

DETAIL C
LATERAL BASE DITCH
(Not to Scale)



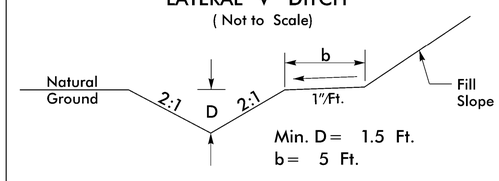
–L– STA. 18+88 TO STA. 19+69 LT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



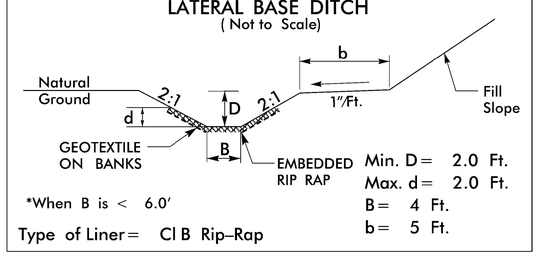
–L– STA. 15+00 TO STA. 16+00 RT
–Y1– STA. 16+66 TO STA. 19+50 RT

DETAIL E
LATERAL 'V' DITCH
(Not to Scale)



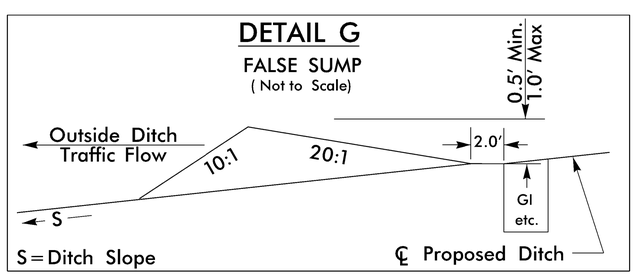
–L– STA. 17+38 TO STA. 18+00 RT
–Y1– STA. 16+71 TO STA. 17+00 LT

DETAIL F
LATERAL BASE DITCH
(Not to Scale)



–L– STA. 17+14 TO STA. 17+38 LT
–Y1– STA. 13+30 TO STA. 15+00 RT; B=2'
–Y1– STA. 13+50 TO STA. 15+35 LT

DETAIL G
FALSE SUMP
(Not to Scale)



STA. 19+00.00 RT

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PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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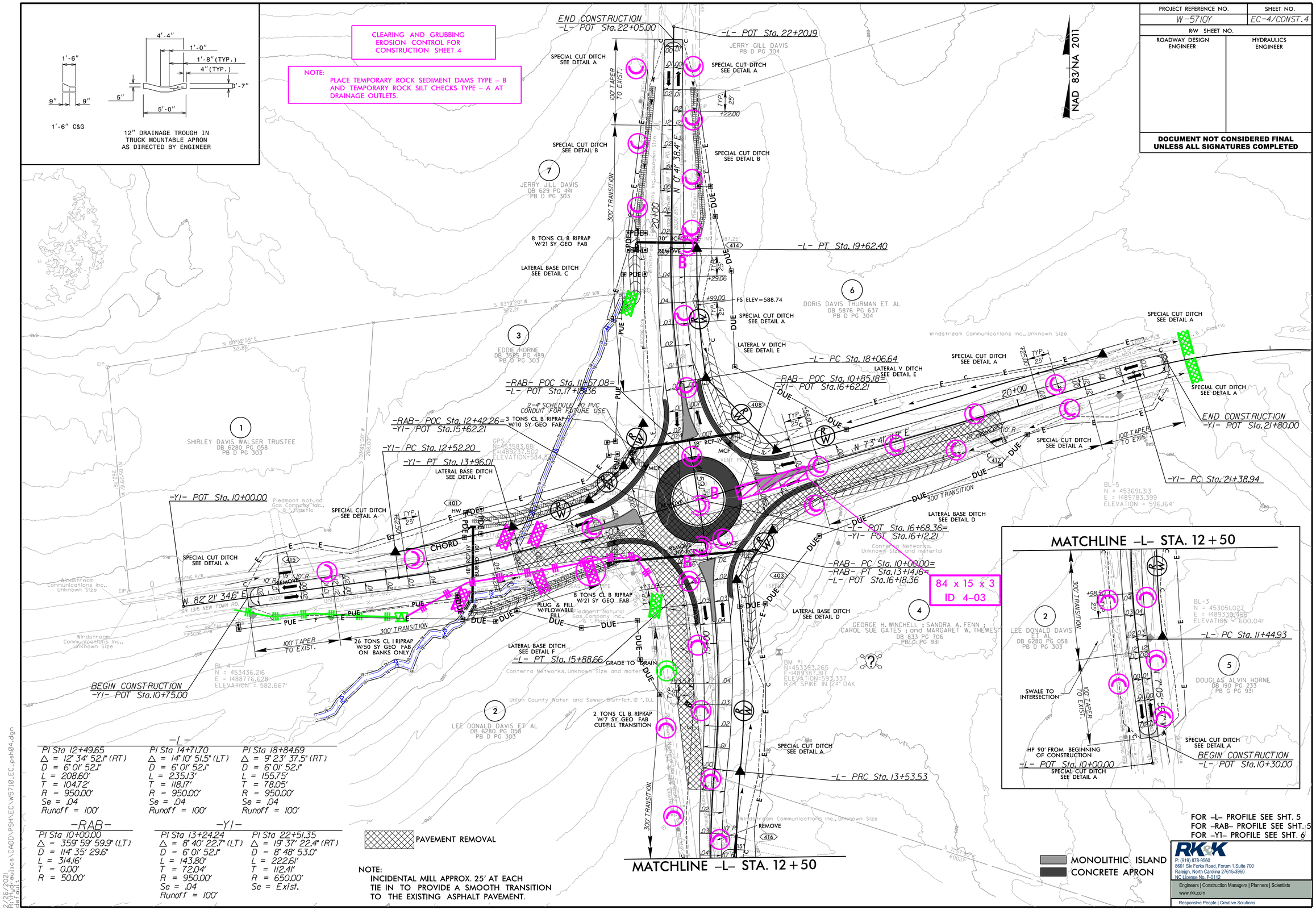

-L-		
PI Sta 12+49.65	PI Sta 14+71.70	PI Sta 18+84.69
Δ = 12° 34' 52.1" (RT)	Δ = 14° 10' 51.5" (LT)	Δ = 9° 23' 37.5" (RT)
D = 6° 01' 52.1"	D = 6° 01' 52.1"	D = 6° 01' 52.1"
L = 208.60'	L = 235.13'	L = 155.75'
T = 104.72'	T = 118.17'	T = 78.05'
R = 950.00'	R = 950.00'	R = 950.00'
Se = .04	Se = .04	Se = .04
Runoff = 100'	Runoff = 100'	Runoff = 100'

-RAB-	-Y1-	
PI Sta 10+00.00	PI Sta 13+24.24	PI Sta 22+51.35
Δ = 359° 59' 59.9" (LT)	Δ = 8° 40' 22.7" (LT)	Δ = 19° 37' 22.4" (RT)
D = 114° 35' 29.6"	D = 6° 01' 52.1"	D = 8° 48' 53.0"
L = 314.16'	L = 143.80'	L = 222.61'
T = 0.00'	T = 72.04'	T = 112.41'
R = 50.00'	R = 950.00'	R = 650.00'
	Se = .04	Se = Exist.
	Runoff = 100'	

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

FOR -L- PROFILE SEE SHT. 5
FOR -RAB- PROFILE SEE SHT. 5
FOR -Y1- PROFILE SEE SHT. 6

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PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	EC-4A/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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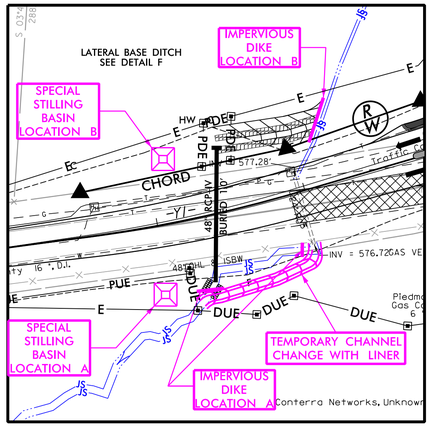
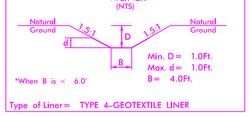
NAD 83/NSRS 2007

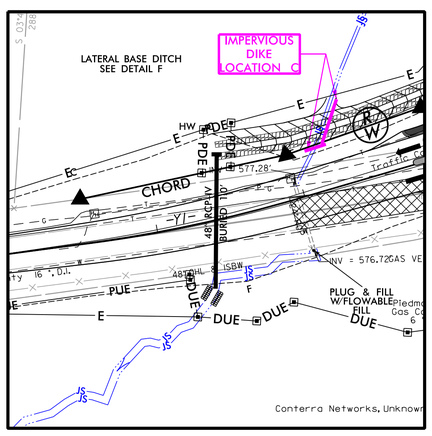


PIPE INSTALLATION SEQUENCE 1 STA. 13+40 –Y1–

1. INSTALL IMPERVIOUS DIKES AND SPECIAL STILLING BASIN AT LOCATIONS A. UTILIZE PUMP AROUND OPERATIONS, AS OUTLINED IN SHEET EC–2C WHILE CONSTRUCTING THE TEMPORARY CHANNEL CHANGE, DETAIL SHOWN BELOW.
2. ROUTE STREAM THROUGH TEMPORARY CHANNEL CHANGE.
3. CONSTRUCT THE PROPOSED 48" RCP–IV FROM THE OUTLET END TO THE CENTERLINE OF THE EXISTING ROAD UTILIZING FLAGGING OPERATIONS.
4. INSTALL IMPERVIOUS DIKE AND SPECIAL STILL BASIN AT LOCATION B.
5. REMOVE SPECIAL STILLING BASIN AT LOCATION A.
6. CONSTRUCT THE REMAINING PORTION OF THE PROPOSED 48" RCP–IV FROM THE CENTERLINE OF THE ROADWAY TO THE INLET END OF THE PIPE UTILIZING FLAGGING OPERATIONS.
7. CONSTRUCT 65' OF LATERAL BASE DITCH, AS PER DETAIL F ON SHEET 2D–1 OF THE ROADWAY PLANS FROM THE INLET OF THE PROPOSED 48" RCP–IV TO THE IMPERVIOUS DIKE AT LOCATION B.

TEMPORARY CHANNEL CHANGE
W/LINER
(NTS)





PIPE INSTALLATION SEQUENCE 2 STA. 13+40 –Y1–

1. INSTALL THE IMPERVIOUS DIKES AT LOCATION C. UTILIZE PUMP OPERATIONS IF NEEDED.
2. REMOVE IMPERVIOUS DIKES AT LOCATION A AND REMOVE IMPERVIOUS DIKES AND SPECIAL STILLING BASIN AT LOCATION B FROM SEQUENCE 1. RE–ROUTE JURISDICTIONAL STREAM THROUGH NEW LATERAL BASE DITCH AND NEWLY CONSTRUCTED 48" RCP–IV.
3. CONSTRUCT THE REMAINING PORTION OF THE LATERAL BASE DITCH PER DETAIL F ON SHEET 2D–1 OF THE ROADWAY PLANS. UTILIZE PUMP OPERATIONS IF NEEDED.
4. REMOVE THE TEMPORARY CHANNEL CHANGE WITH LINER FROM SEQUENCE 1. FILL IN EXISTING JURISDICTIONAL STREAM.
5. REMOVE THE IMPERVIOUS DIKES AT LOCATION C.

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W-5710Y	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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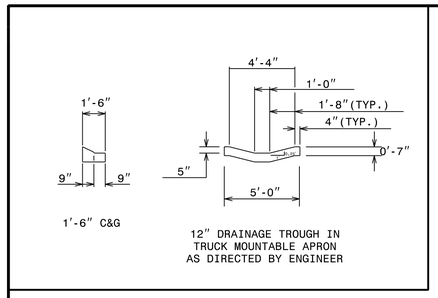

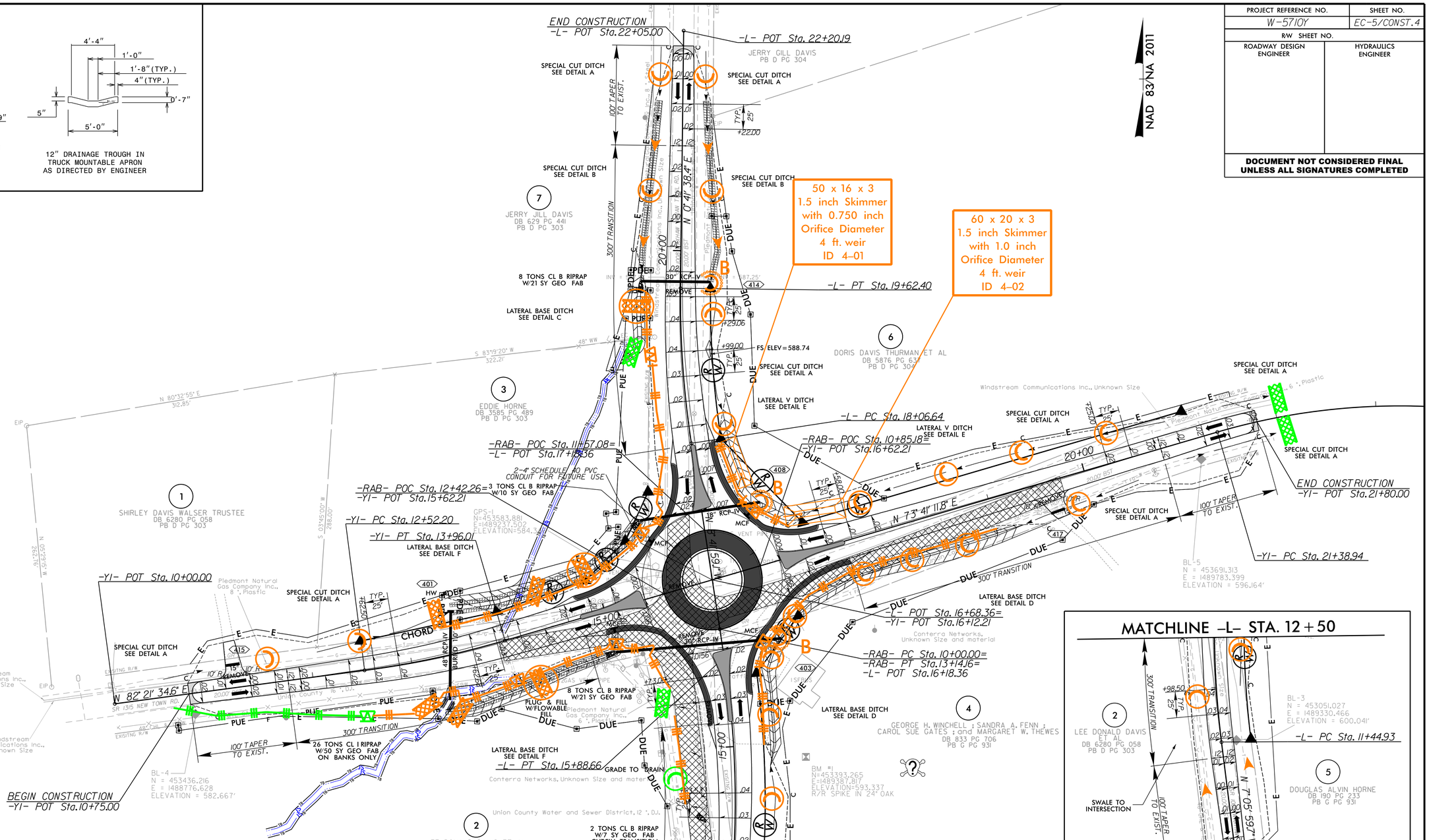

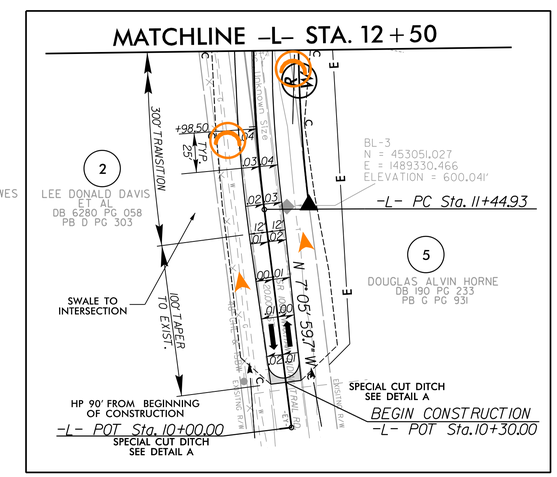

-L-

PI Sta 12+49.65	PI Sta 14+71.70	PI Sta 18+84.69
△ = 12° 34' 52.1" (RT)	△ = 14° 10' 51.5" (LT)	△ = 9° 23' 37.5" (RT)
D = 6° 01' 52.1"	D = 6° 01' 52.1"	D = 6° 01' 52.1"
L = 208.60'	L = 235.13'	L = 155.75'
T = 104.72'	T = 118.17'	T = 78.05'
R = 950.00'	R = 950.00'	R = 950.00'
Se = .04	Se = .04	Se = .04
Runoff = 100'	Runoff = 100'	Runoff = 100'

-RAB-

PI Sta 10+00.00
△ = 359° 59' 59.9" (LT)
D = 114° 35' 29.6"
L = 314.16'
T = 0.00'
R = 50.00'

-Y1-

PI Sta 13+24.24	PI Sta 22+51.35
△ = 8° 40' 22.7" (LT)	△ = 19° 37' 22.4" (RT)
D = 6° 01' 52.1"	D = 8° 48' 53.0"
L = 143.80'	L = 222.61'
T = 72.04'	T = 112.41'
R = 950.00'	R = 650.00'
Se = .04	Se = Exist.
Runoff = 100'	Runoff = 100'

PAVEMENT REMOVAL

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

MONOLITHIC ISLAND
CONCRETE APRON

FOR -L- PROFILE SEE SHT. 5
FOR -RAB- PROFILE SEE SHT. 5
FOR -Y1- PROFILE SEE SHT. 6

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2/26/2021
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default

T.I.P.: W-5710Y

CONTRACT:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
W-5710Y	SIGN-1

APPROVED: DocuSigned by: David T Sears 069183F28E5741E...

DATE: 2/26/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 044558 ENGINEER DAVID T. SEARS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGNING PLAN
UNION COUNTY

LOCATION: INTERSECTION OF WAXHAW INDIAN TRAIL ROAD (SR 1008) AT NEW TOWN ROAD (SR 1315)

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS
910.40	SIGNING FOR ROUNDABOUTS
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

GENERAL NOTES

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

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	450	L.F.
4096000000	904	SIGN ERECTION, TYPE D	4	EA.
4102000000	904	SIGN ERECTION, TYPE E	37	EA.
4116100000	904	SIGN ERECTION, RELOCATE SIGN TYPE E	2	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	12	EA.
4192000000	907	DISPOSAL OF SUPPORT, U-CHANNEL	2	EA.

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET
SIGN-3	TYPE E SIGNS
SIGN-3A	SIGN DESIGNS
SIGN-4	SIGNING PLAN SHEETS

PLAN SUBMITTED TO:

Tony Tagliaferri, P.E. Division 10 Traffic Engineer

Kelvin L. Jordan Signing and Delineation Regional Engineer

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PLAN PREPARED BY:

Allen Tutt Sr. Designer

David Sears, P.E. Project Engineer

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FLKeys

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	SIGN-3

APPROVED: DocuSigned by: David T Sears 069183F28E5741E...

DATE: 2/26/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 044558 ENGINEER DAVID T. SEARS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

401 QUANTITY REQ'D 4 W2-6 30"X 30" ONE "U" POST PER SIGN	402 QUANTITY REQ'D 4 W3-2 30"X 30" ONE "U" POST PER SIGN	403 QUANTITY REQ'D 3 SPEED LIMIT 45 R2-1 24"X 30" ONE "U" POST PER SIGN	404 QUANTITY REQ'D 4 YIELD R1-2 36"X 36"X 36" ONE "U" POST PER SIGN	405 QUANTITY REQ'D 4 R6-4 30"X 24" ONE "U" POST PER SIGN	406 QUANTITY REQ'D 1 SCHOOL R4-3P 24"X 8" MOUNT ABOVE SIGN 407 IN ONE INSTALLATION	
407 QUANTITY REQ'D 1 SPEED LIMIT 35 R2-1 24"X 30" ONE "U" POST	408 QUANTITY REQ'D 1 7:00-8:00 AM 1:30-2:30 PM S4-1P 24"X 10" MOUNT BELOW SIGN 407 IN ONE INSTALLATION	409 QUANTITY REQ'D 1 S1-1 36"X 36" ONE "U" POST	410 QUANTITY REQ'D 1 SCHOOL SPEED LIMIT 35 S4-5 36"X 36" ONE "U" POST	411 QUANTITY REQ'D 1 W2-2 30"X 30" ONE "U" POST	412 QUANTITY REQ'D 2 35 MPH W13-1P 18"X 18" MOUNT BELOW SIGN 413 IN ONE INSTALLATION AND BELOW SIGN 416 IN ONE INSTALLATION	413 QUANTITY REQ'D 1 W1-4R 30"X 30" ONE "U" POST
414 QUANTITY REQ'D 4 R4-7 24"X 30" ONE "U" POST PER SIGN	415 QUANTITY REQ'D 4 OM1-3 18"X 18" MOUNT BELOW SIGN 414 IN FOUR INSTALLATIONS	416 QUANTITY REQ'D 1 W1-2R 30"X 30" ONE "U" POST				

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Fkeys

TYPE "E" SIGNS

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	SIGN-3A

APPROVED: DocuSigned by: David T. Sears 069183F28E5741E...

DATE: 2/26/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 044558 ENGINEER DAVID T. SEARS

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SIGN NUMBER: 301,302
TYPE: D
QUANTITY: 2

BACKG COLOR: Yellow
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 2'-4"
HEIGHT: 0'-8"
TOTAL AREA: 1.6 Sq.Ft.

BORDER TYPE: RECESS
RECESS: 0.38"
WIDTH: 0.38"
RADII: 1.5"

NO. Z BARS:
LENGTH:

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. TUTT
PROJECT ID: W-5710Y

CHECKED BY: D. SEARS
LOCATION: -L- STA. 10+40, OFFSITE

Mar 02, 2020
DIV: 10

USE NOTES: 1,2

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum and demountable.

MOUNT BELOW SIGN 401 IN 2 INSTALLATIONS

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																												Series/Size Text Length
	R	D																										B 2000
23	1.2	0.9	2.9																									2
	N	E	W		T	O	W	N																				B 2000
2.9	2.6	1.8	2.6	2	2	2.3	3.1	1.7	7																			18.1

FILENAME: W5710Y_SGN_DESIGNS

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 303,304
TYPE: D
QUANTITY: 2

BACKG COLOR: Yellow
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 3'-0"
HEIGHT: 1'-2"
TOTAL AREA: 3.5 Sq.Ft.

BORDER TYPE: RECESS
RECESS: 0.44"
WIDTH: 0.38"
RADII: 1.5"

NO. Z BARS:
LENGTH:

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. TUTT
PROJECT ID: W-5710Y

CHECKED BY: D. SEARS
LOCATION: OFFSITE, -Y1- STA. 22+50

Feb 26, 2021
DIV: 10

USE NOTES: 1,2

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum and demountable.

MOUNT BELOW SIGN 401 IN 2 INSTALLATIONS

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																												Series/Size Text Length
	W	A	X	H	A	W		I	N	D	I	A	N															B 2000
3.5	2.8	2.5	2.5	2.3	2.4	2.6	2	1.4	2.6	2.5	1.1	2.7	1.7	3.5														29
	R	D																										B 2000
22.9	1.2	0.9	11.1																									2
	T	R	A	I	L																							B 2000
11.1	2.1	2	2.7	1.4	1.5	15.1																						9.8

FILENAME: W5710Y_SGN_DESIGNS

NORTH CAROLINA D.O.T. SIGN DETAIL

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FKeys

SIGN DESIGNS

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	SIGN-4

APPROVED: DocuSigned by: David T. Sears 069183F28E5741E...

DATE: 2/26/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 044558 ENGINEER DAVID T. SEARS

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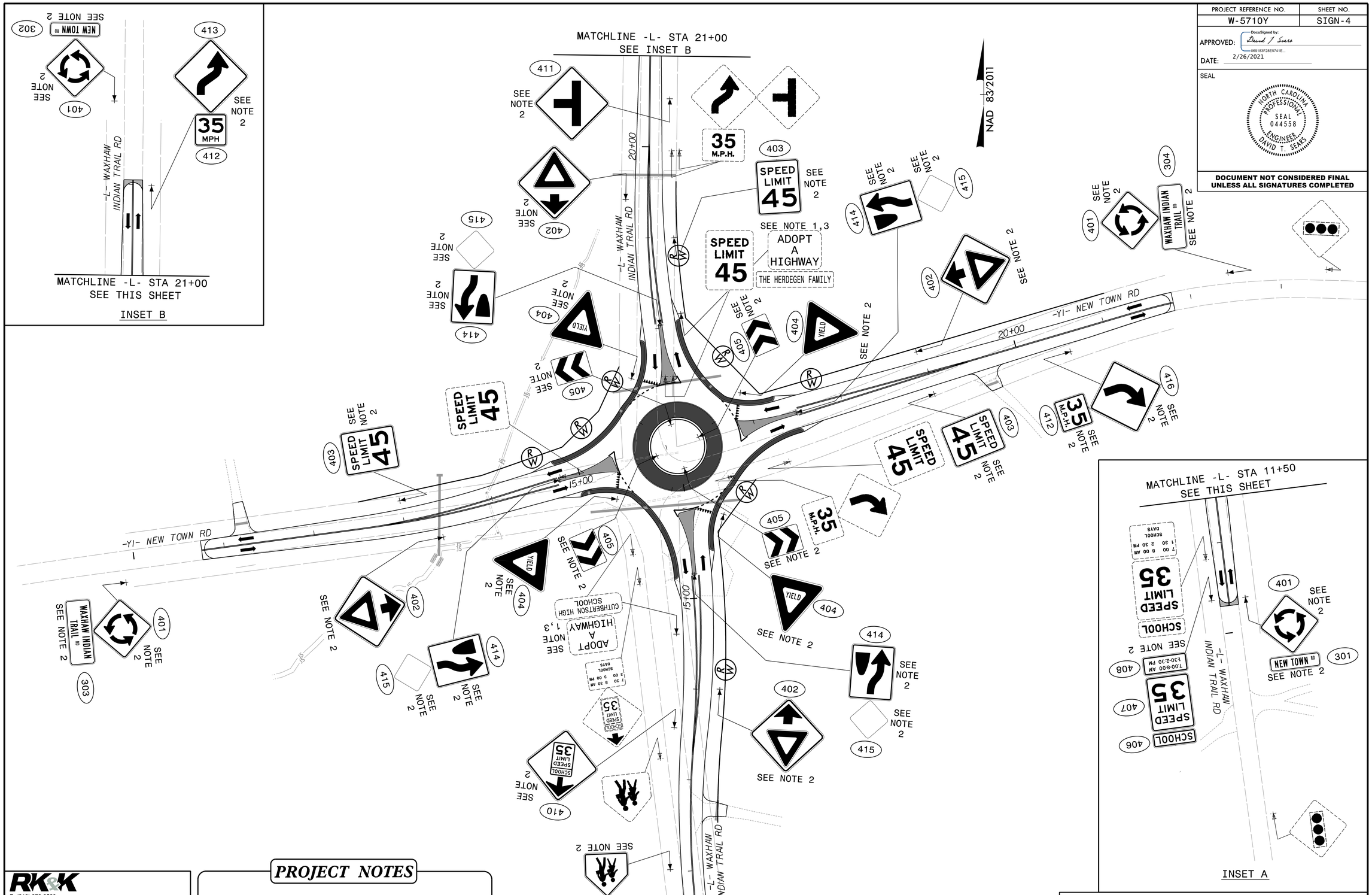

PROJECT NOTES

1 DISPOSAL OF SUPPORT, U-CHANNEL
2 SIGN ERECTION, TYPE D, E, AND F
3 SIGN ERECTION, RELOCATE SIGN TYPE E

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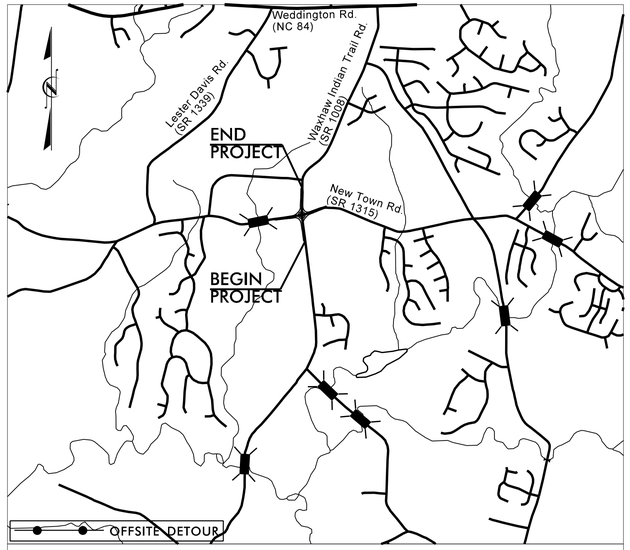
EXISTING AND PROPOSED SIGNS

T.I.P. NO.	SHEET NO.
W-5710Y	UC-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
UNION COUNTY

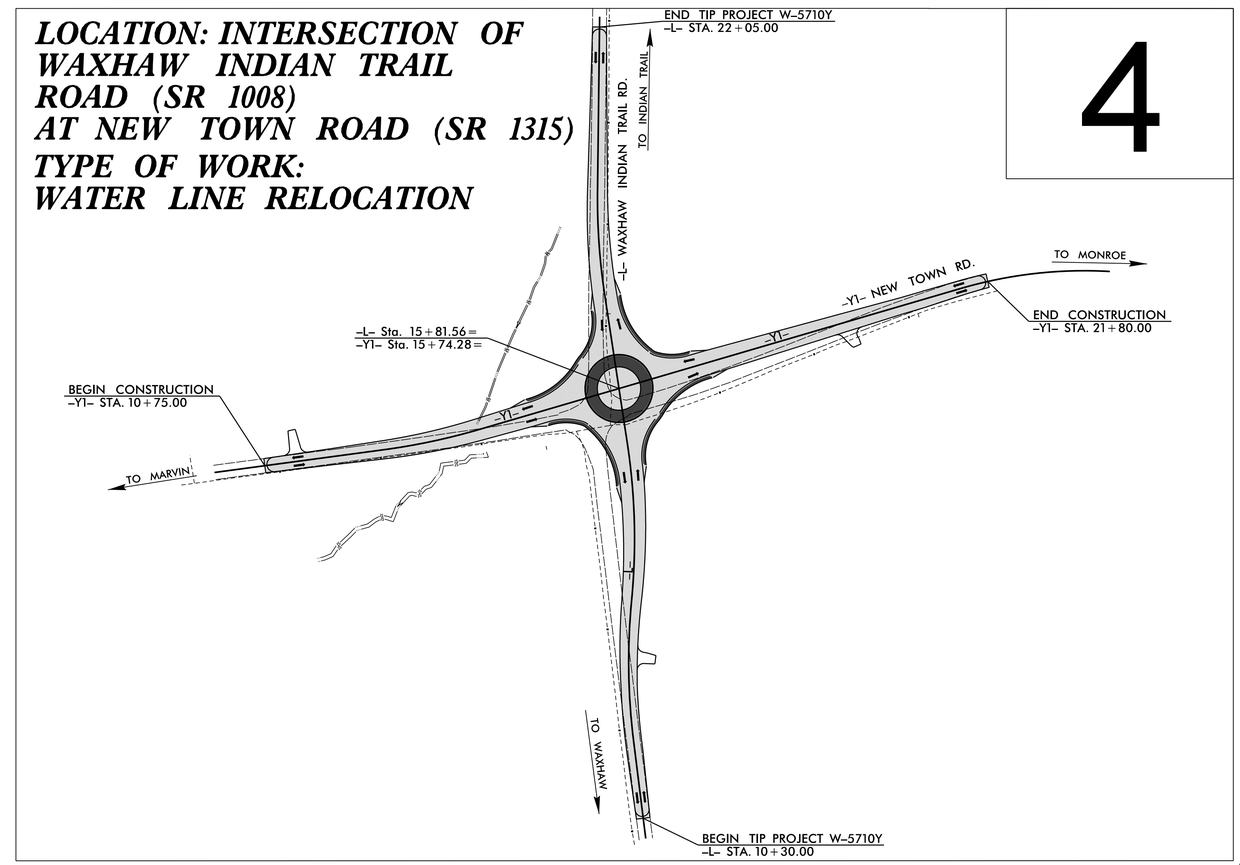


VICINITY MAP (NTS)

LOCATION: INTERSECTION OF WAXHAW INDIAN TRAIL ROAD (SR 1008) AT NEW TOWN ROAD (SR 1315)

TYPE OF WORK: WATER LINE RELOCATION

4



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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)

INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A THRU UC-3B	DETAILS
UC-4	UTILITY CONSTRUCTION SHEETS

WATER AND SEWER OWNERS ON PROJECT

(A) UNION COUNTY - WATER

PREPARED IN THE OFFICE OF

RK&K
RUMMEL, KLEPPER & KAHL, LLP
8601 SIX FORKS ROAD, FORUM 1 SUITE 700
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560

FOR

DIVISION OF HIGHWAYS

HOWARD WOODALL, P.E. CONSULTANT CONTACT #1
BRYAN BADEY, P.E. CONSULTANT CONTACT #2

LETTING DATE: MAY 19, 2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 32634 ENGINEER BRYAN M. BADEY

DocuSigned by: Bryan Badey
9BA4BFC74F37415...
2/26/2021

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

DONALD C. GRIFFTH	PROJECT ENGINEER DIVISION 10
XXXX	UTILITIES ENGINEER
XXXX	UTILITIES AREA COORDINATOR
XXXX	UTILITIES COORDINATOR

TIP PROJECT: W-5710Y

09/08/99

2/26/2021
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PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NORTH CAROLINA PROFESSIONAL SEAL 32634 ENGINEER BRYAN M. BADEY
Docu Sign Envelope
Bryan Badey
2/26/2021

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line
- *Underground Telephone Cable
- *Underground Telephone Conduit
- *Underground Fiber Optics Telephone Cable
- *Underground TV Cable
- *Underground Fiber Optics TV Cable
- *Underground Gas Pipeline
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line
- Underground Unknown Utility Line
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities
- Utility Line Drawn from Record (Type as Shown)
- Designated Utility Line (Type as Shown)

5/14/99

2/26/2021
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REV: 2/1/2012

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	UC-3
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 32634 ENGINEER BRYAN M. BADEL
DocuSigned by: Bryan Badel
2/26/2021

UTILITY CONSTRUCTION

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UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.

2. THE EXISTING UTILITIES BELONG TO UNION COUNTY.

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.

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.

PROJECT SPECIFIC NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF UNION COUNTY PUBLIC WORKS WATER SPECIFICATIONS.

2. WELL IN ADVANCE OF BEGINNING UTILITY WORK, SOFT DIGS SHALL BE PERFORMED BY CONTRACTOR TO VERIFY ACTUAL WATER LINE DEPTH AND MATERIAL AT PROPOSED TIE-IN LOCATIONS.

3. LAY PIPE STRAIGHT IN ALIGNMENT AND GRADIENT OR FOLLOW TRUE CURVES AS NEARLY AS POSSIBLE. DO NOT DEFLECT ANY JOIN MORE THAN HALF THE MAXIMUM DEFLECTION RECOMMENDED BY THE MANUFACTURER.

4. CONTRACTOR SHALL ADHERE TO SECTOIN 1530 "ABANDON OR REMOVE UTILITIES" FOR ABANDONMENT OF EXISTING WATER LINES.

5. PRIOR TO THE START OF PROJECT, CONTRACTOR MUST CONTACT MICHAEL CALDWELL OF UNION COUNTY PUBLIC WORKS DEPARTMENT AT 704-296-4293. UNION COUNTY PUBLIC WORKS DEPARTMENT MAY INSPECT WORK AT ANY TIME.

6. NO INTERRUPTION OF EXISTING WATER SERVICE SHALL BE MADE DURING CONSTRUCTION UNTIL AUTHORIZED BY UNION COUNTY PUBLIC WORKS DEPARTMENT. UNION COUNTY PUBLIC WORKS DEPARTMENT WILL BE COPIED ON BOTH THE WATER MAIN PRESSURE TEST REPORT AND THE WATER MAIN CHLORINATION TEST REPORT. UNION COUNTY WILL COLLECT SAMPLES AND PERFORM BATERIOLOGICAL TESTING. EACH SAMPLE COSTS $100, PAYABLE BY CHECK MADE TO CATAWBA RIVER WATER PLANT. UNION COUNTY WILL NOT ACCEPT TEST RESULTS FROM OUTSIDE TESTING LABS.

7. CONTRACTOR SHALL COORDINATE SHUT DOWN OF ALL WATER LINES MINIMUM OF 72 HOURS IN ADVANCE WITH UNION COUNTY PUBLIC WORKS DEPARTMENT (MICHAEL CALDWELL, 704-296-4293). CONTRACTOR SHALL COMPLETE TIE-INS WITHIN 6 HOUR WINDOW. MAY REQUIRE NIGHT WORK.

8. WATER VALVES ARE TO BE OPERATED BY UNION COUNTY OPERATIONS STAFF.

9. UNLESS ALL FOUR WATER LINES ARE TIED IN AT THE SAME TIME, A PARTICULAR ORDER SHOULD BE FOLLOWED. COORDINATE WITH UNION COUNTY FIELD REPRESENTATIVE.

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2/26/2021
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default

PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	UC-3A
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 32634 ENGINEER BRYAN M. BADEY 2/26/2021

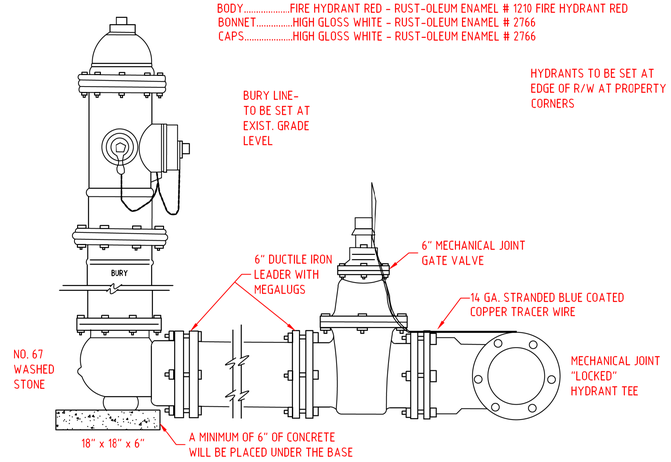
PROJECT TYPICAL DETAILS

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAINT COLORS

BODY.....FIRE HYDRANT RED - RUST-OLEUM ENAMEL # 1210 FIRE HYDRANT RED
BONNET.....HIGH GLOSS WHITE - RUST-OLEUM ENAMEL # 2766
CAPS.....HIGH GLOSS WHITE - RUST-OLEUM ENAMEL # 2766

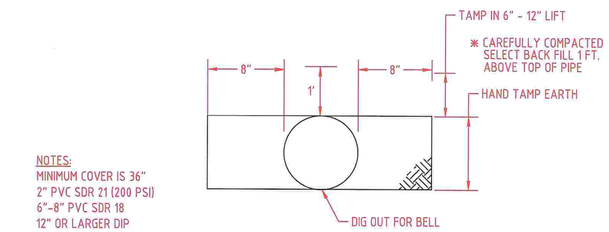


UNION COUNTY PUBLIC WORKS DEPARTMENT
UNION COUNTY, N.C.

STANDARD DETAIL

FIRE HYDRANT INSTALLATION

SCALE: N.T.S. DATE: 1-2-14 — 3



NOTES:
MINIMUM COVER IS 36"
2" PVC SDR 21 (200 PSI)
6"-8" PVC SDR 18
12" OR LARGER DIP

* NO STONES LARGER THAN # 67 STONE SHALL BE USED IN SELECT BACKFILL

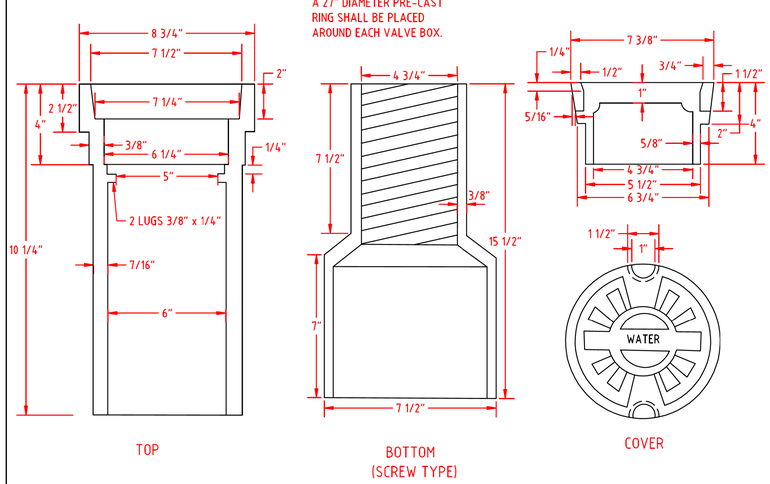
UNION COUNTY PUBLIC WORKS DEPARTMENT
UNION COUNTY, N.C.

STANDARD DETAIL

WATER TRENCH

SCALE: N.T.S. DATE: 1-14-10 — 8B

NOTE:
A 27" DIAMETER PRE-CAST RING SHALL BE PLACED AROUND EACH VALVE BOX.

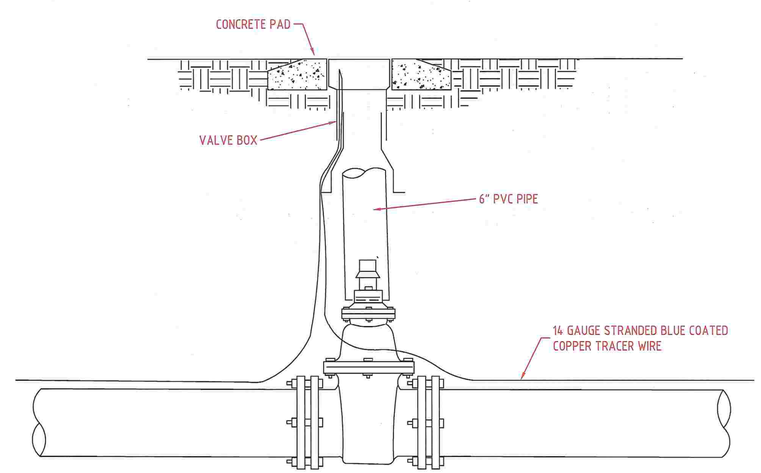


UNION COUNTY PUBLIC WORKS DEPARTMENT
UNION COUNTY, N.C.

STANDARD DETAIL

VALVE BOX

SCALE: N.T.S. DATE: 11-17-06 — 1



UNION COUNTY PUBLIC WORKS DEPARTMENT
UNION COUNTY, N.C.

STANDARD DETAIL

VALVE BOX INSTALLATION

SCALE: N.T.S. DATE: 10-4-11 — 1A

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PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	UC-3B
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

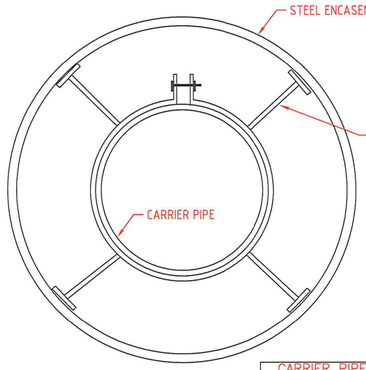
NORTH CAROLINA PROFESSIONAL SEAL 32834 ENGINEER BRYAN M. BAILEY 2/26/2021

DocuSigned by: Bryan Bailey

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT TYPICAL DETAILS

UTILITY CONSTRUCTION



SPIDER SUPPORT AND SPACER AVAILABLE FROM SPIDER MANUFACTURING, INC. INSTALL PER UNION COUNTY INSPECTOR AND PER MANUFACTURERS SPECIFICATIONS.

CONTRACTOR RESPONSIBLE FOR INSPECTING MATERIALS AND WELDS TO INSURE ALL SPIDERS WILL FUNCTION PROPERLY.

CARRIER PIPE	CASING PIPE I.D.	WALL THICKNESS
4"	8"	0.188"
6"	12"	0.188"
8"	16"	0.250"
10"	16"	0.250"
12"	20"	0.281"
16"	24"	0.344"
24"	30"	0.406"
30"	42"	0.500"
36"	48"	0.500"

NOTES:

1. NO PIPE SHALL BE SUPPORTED BY BELL.
2. END SECTIONS LESS THAN 4' MAY BE UNSUPPORTED.
3. WALL THICKNESS AS PER TABLE UNLESS OTHERWISE SHOWN ON PLAN.
4. MASONRY SEAL AT ENDS -- 2" x 4" WEEP HOLE AT LOW END
5. ALL PRESSURE PIPES TO HAVE TRACING WIRE IN ALL CASING BORES.

UNION COUNTY PUBLIC WORKS DEPARTMENT
UNION COUNTY, N.C.

STANDARD DETAIL

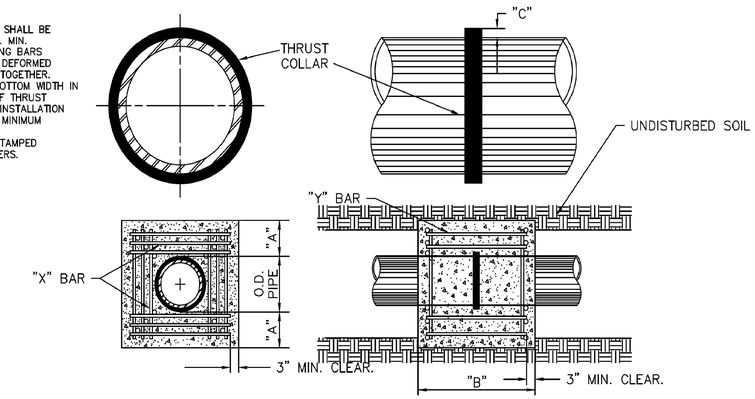
PIPE ENCASEMENT

SCALE: N.T.S.
DATE: 11-17-06

14

NOTES:

1. CONCRETE SHALL BE 2500 P.S.I. MIN.
2. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
3. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK(S) INSTALLATION SHALL BE MINIMUM WIDTH.
4. BACKFILL TAMPED IN 6" LAYERS.



REINFORCING REQUIREMENTS

REINFORCING BAR SCHEDULE

I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WGHT.	"Y" BAR LENGTH	Y" BAR WGHT.	NO. REQD.
6"-36"	#5	2'-2"+O.D. PIPE	1.043 LBS./FT	1'-1"	1.1 LBS. EA.	X-24,Y-12
48"	#6	3'-0"+O.D. PIPE	1.502 LBS./FT	1'-3"	1.9 LBS. EA.	X-24,Y-12

REINFORCING BAR SCHEDULE

I.D. PIPE	"A"	"B"	"C" - 6"-16", 20"-24", 30"-36", 48"
6"-36"	1'-4"	1'-7"	2" 3" 4"
48"	1'-8"	1'-9"	6"

THRUST COLLAR FOR WATER MAINS

ANCHORAGE SCHEDULE											
	11 1/4º BEND		22 1/2º BEND		45º BEND		90º BEND		TEE		TEST PRESSURE
PIPE SIZE	L	H	L	H	L	H	L	H	L	H	(P.S.I.)
6"	1'3"	1'0"	2'3"	1'0"	2'6"	1'6"	2'9"	1'6"	2'0"	1'6"	200
	1'6"	1'3"	2'3"	1'6"	3'0"	1'6"	4'0"	1'6"	3'0"	1'6"	300
8"	1'6"	1'6"	2'6"	1'9"	3'0"	2'0"	3'9"	2'0"	2'6"	2'0"	200
	2'0"	1'6"	3'0"	2'0"	3'9"	2'3"	4'6"	2'6"	3'6"	2'3"	300
12"	2'6"	1'9"	4'0"	2'3"	4'3"	3'0"	5'0"	3'3"	4'0"	3'0"	200
	3'6"	2'0"	5'3"	2'6"	6'0"	3'3"	7'0"	3'6"	5'0"	3'6"	300
14"	3'0"	1'0"	4'0"	3'0"	4'6"	3'9"	6'0"	3'9"	4'6"	3'6"	200
	4'0"	2'6"	5'3"	3'6"	6'0"	4'3"	6'6"	5'0"	5'0"	5'0"	300
16"	3'0"	2'9"	4'6"	3'6"	5'0"	4'6"	7'0"	4'3"	5'0"	4'0"	200
	4'0"	3'0"	6'3"	3'9"	6'5"	5'3"	8'0"	5'3"	7'6"	4'0"	300

THRUST BLOCK DIMENSIONS BASED ON SOIL BEARING CAPACITY OF 2000 P.S.F. AND A WATER TEST PRESSURE OF 150 P.S.I. SIZES OF THRUST BLOCKS MAY BE REVISED BY THE ENGINEER WHERE BEARING CAPACITY OF SOIL VARIES.

PROVIDE TAR PAPER JOINT BETWEEN CONCRETE THRUST BLOCK AND PORTION OF PIPE BEING ANCHORED.

ALL CONCRETE THRUST BLOCKS SHALL BE 2500 P.S.I. CONCRETE.

MAXIMUM VERTICAL DEFLECTION SHALL BE 22 1/2°.

JOINTS SHALL REMAIN FREE OF CONCRETE FOR INSPECTION, REPAIR OR REPLACEMENT OF JOINTS.

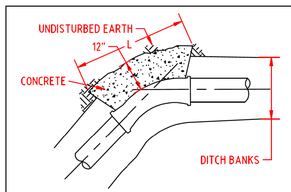
UNION COUNTY PUBLIC WORKS DEPARTMENT
UNION COUNTY, N.C.

STANDARD DETAIL

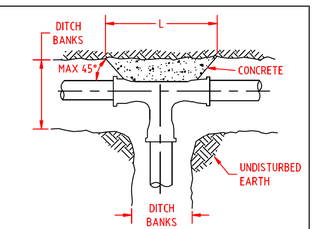
THRUST BLOCK SPECIFICATIONS

SCALE: N/A
DATE: 11-17-06

17



PLAN 45° BENDS
ALSO 90°, 22 1/2°, 11 1/2°



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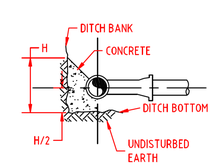
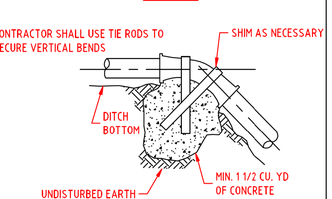


ELEVATION AT FITTINGS

CONTRACTOR SHALL USE TIE RODS TO SECURE VERTICAL BENDS



VERTICAL BEND

UNION COUNTY PUBLIC WORKS DEPARTMENT
UNION COUNTY, N.C.

STANDARD DETAIL

THRUST BLOCK

SCALE: N.T.S.
DATE: 11-17-06

16

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PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	UC-4
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 32634 ENGINEER BRYAN M. BAILEY
DocuSigned by: Bryan Bailey
2/26/2021

NAD 83/NSRS 2007

UTILITY CONSTRUCTION

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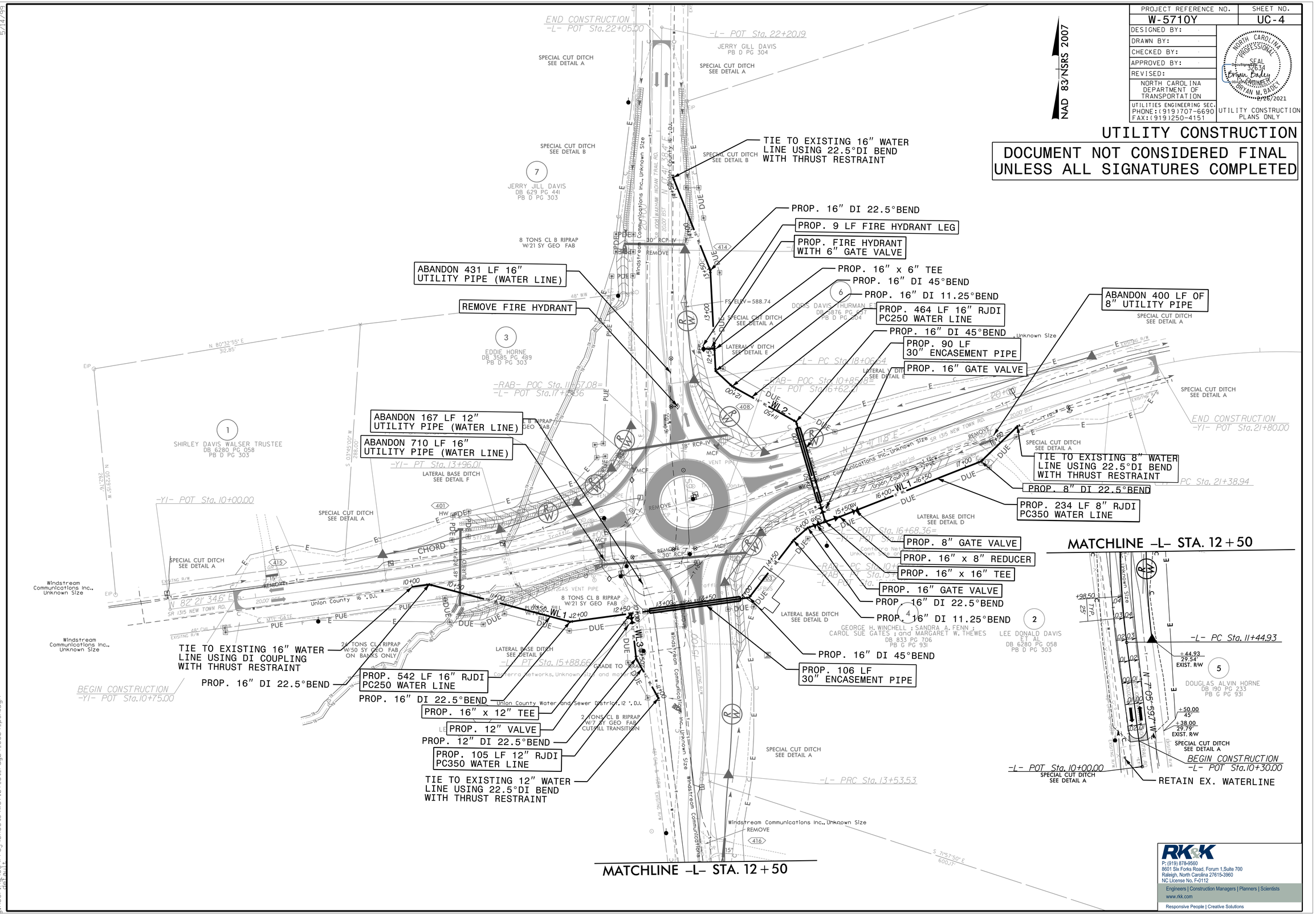

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PROJECT REFERENCE NO.	SHEET NO.
W-5710Y	UC-5

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 32854 ENGINEER BRYAN M. BADEY
DocuSigned by: Bryan Badey
2/26/2021

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UTILITY CONSTRUCTION

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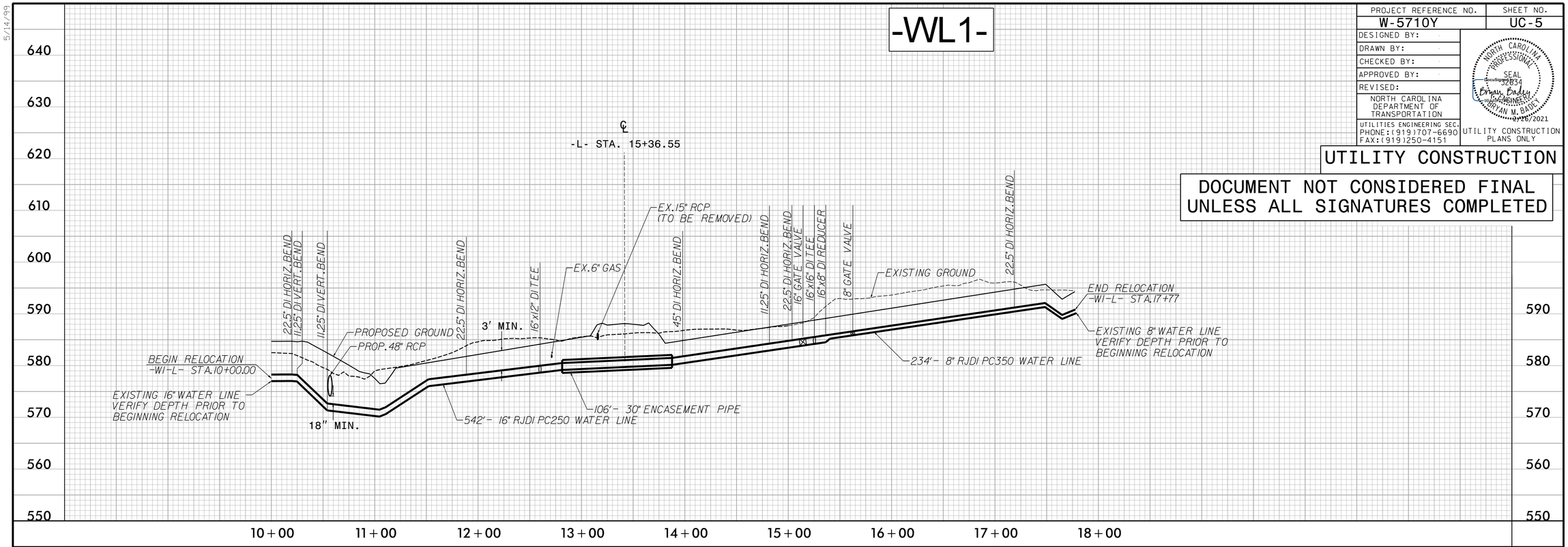

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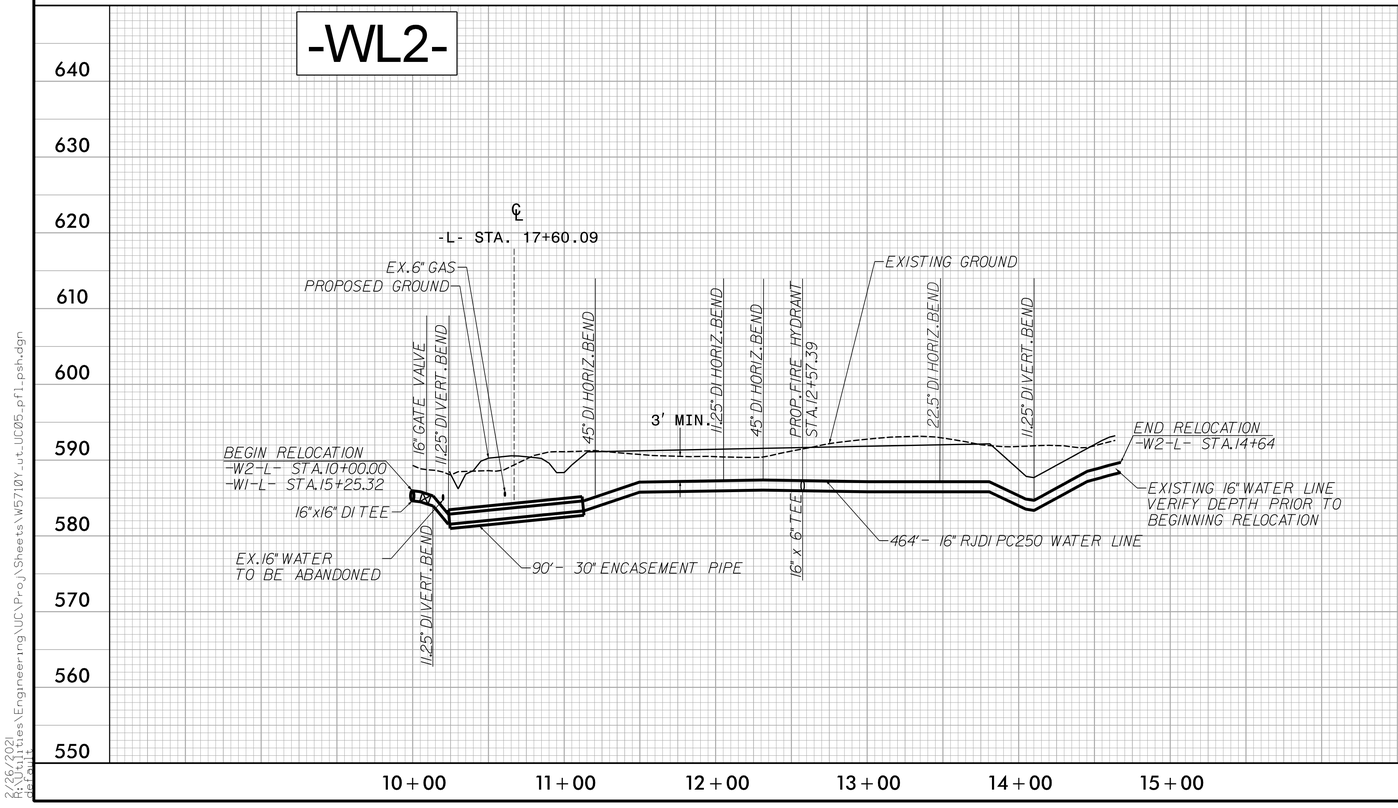

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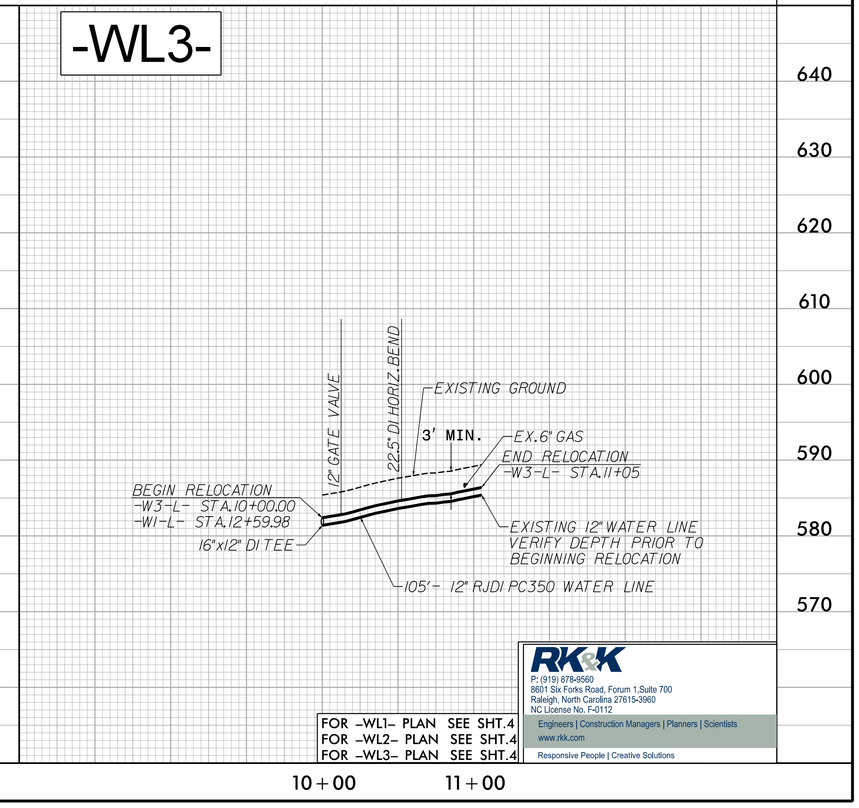

FOR -WL1- PLAN SEE SHT.4
FOR -WL2- PLAN SEE SHT.4
FOR -WL3- PLAN SEE SHT.4

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W–5710Y
UNION COUNTY

T.I.P. PROJECT 44856.1.25

LINE	SHEET NO.
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–RAB–	X–7 THRU X–8
–Y1–	X–9 THRU X–14

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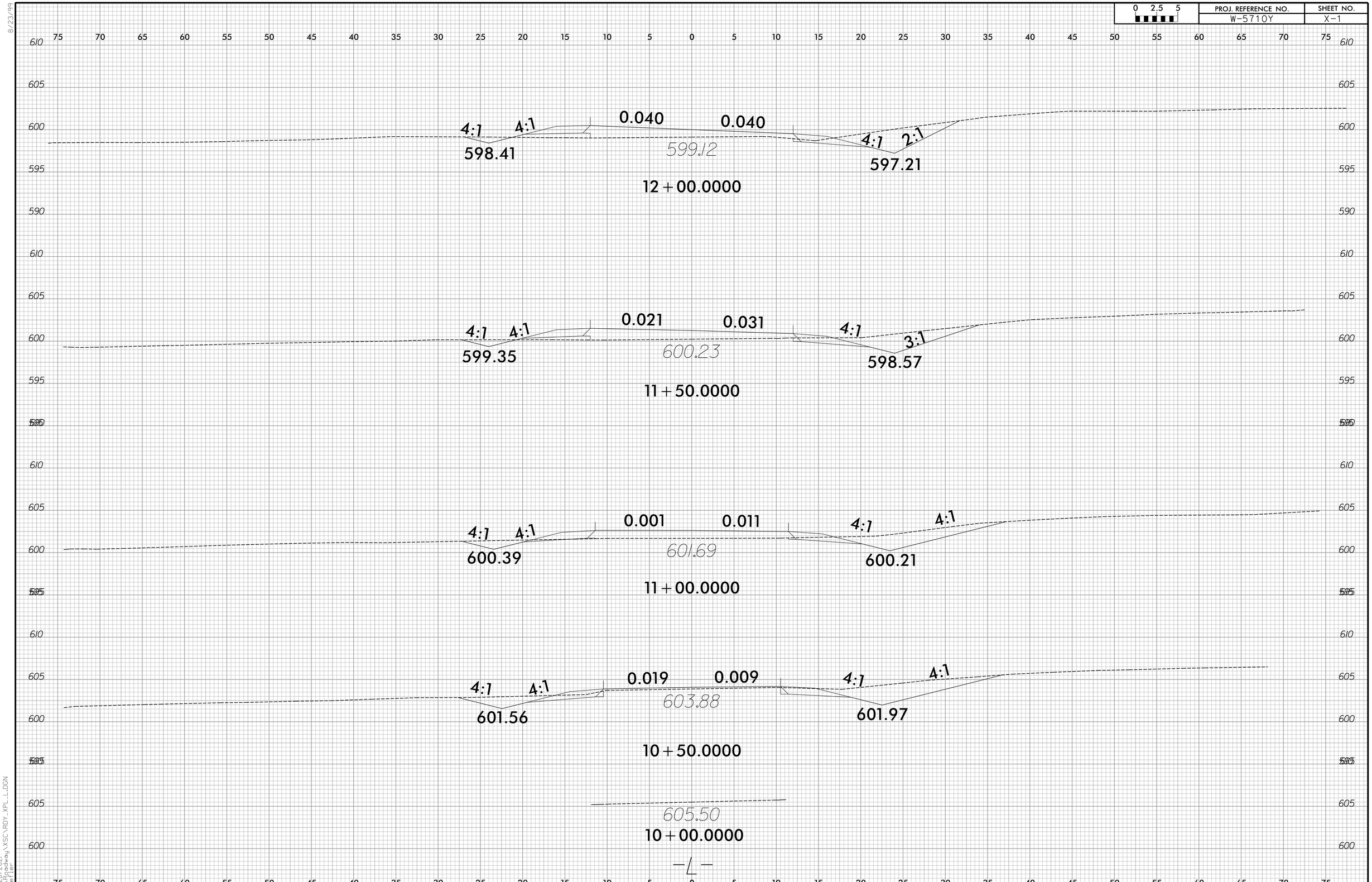

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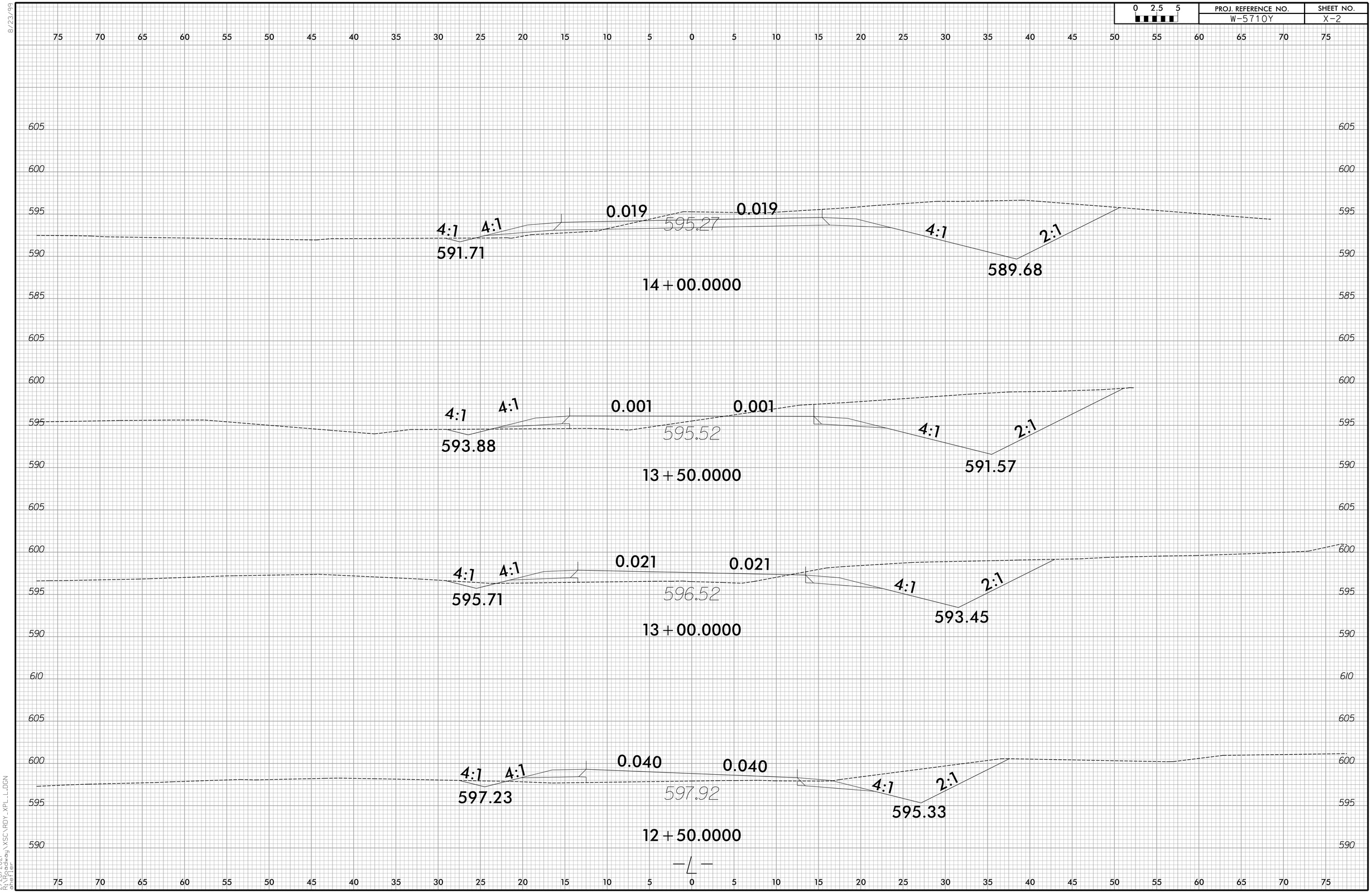

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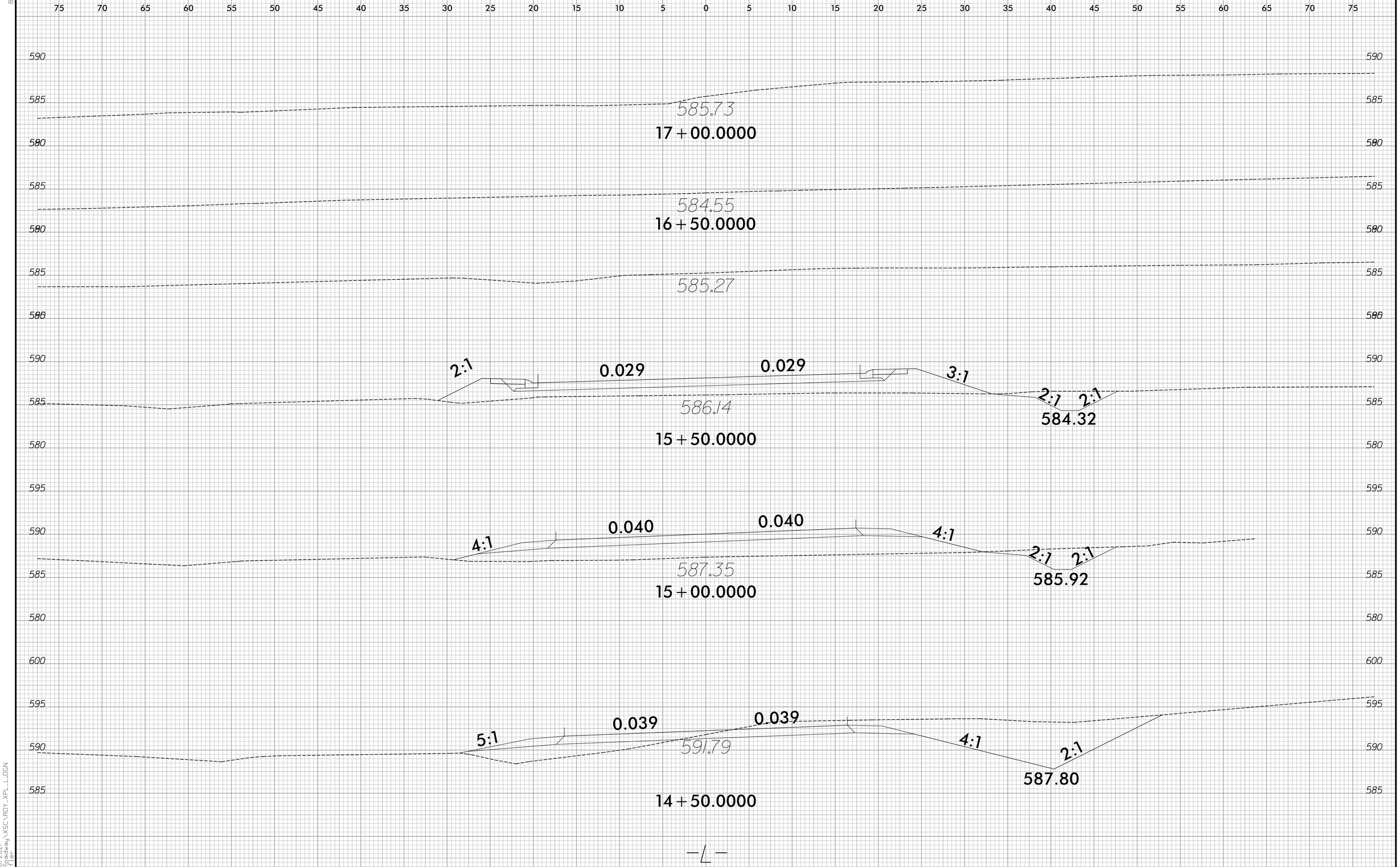

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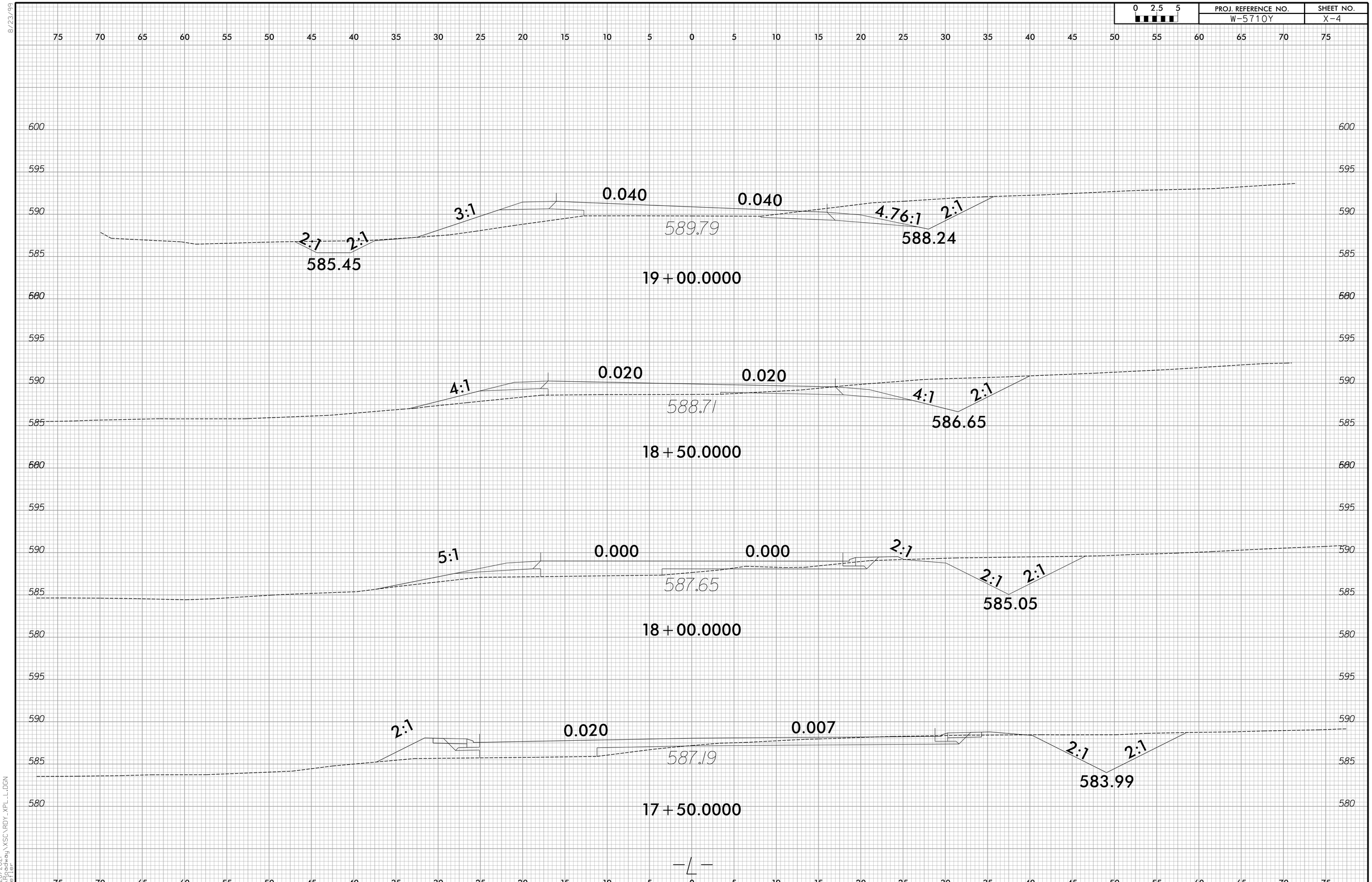

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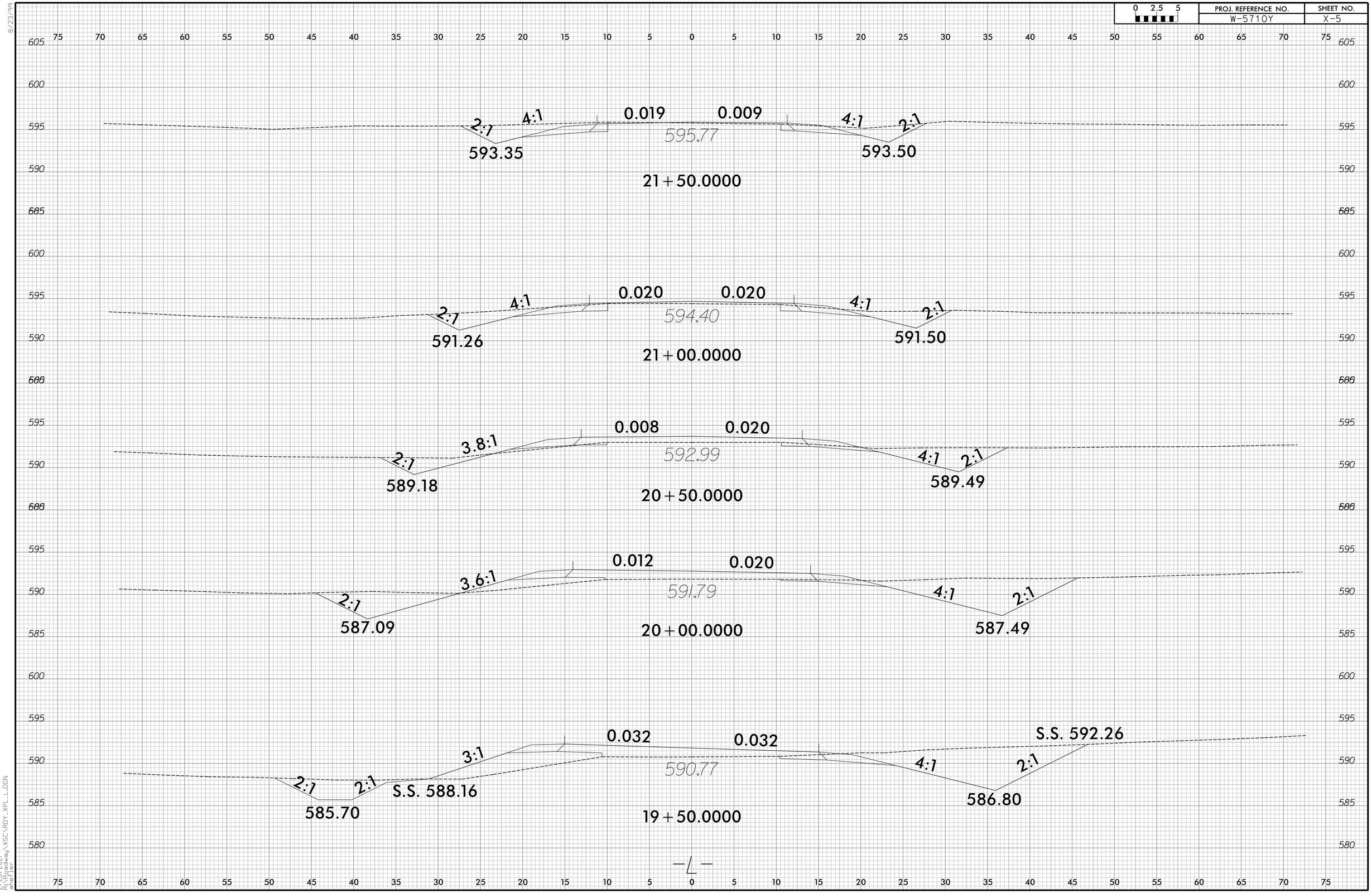

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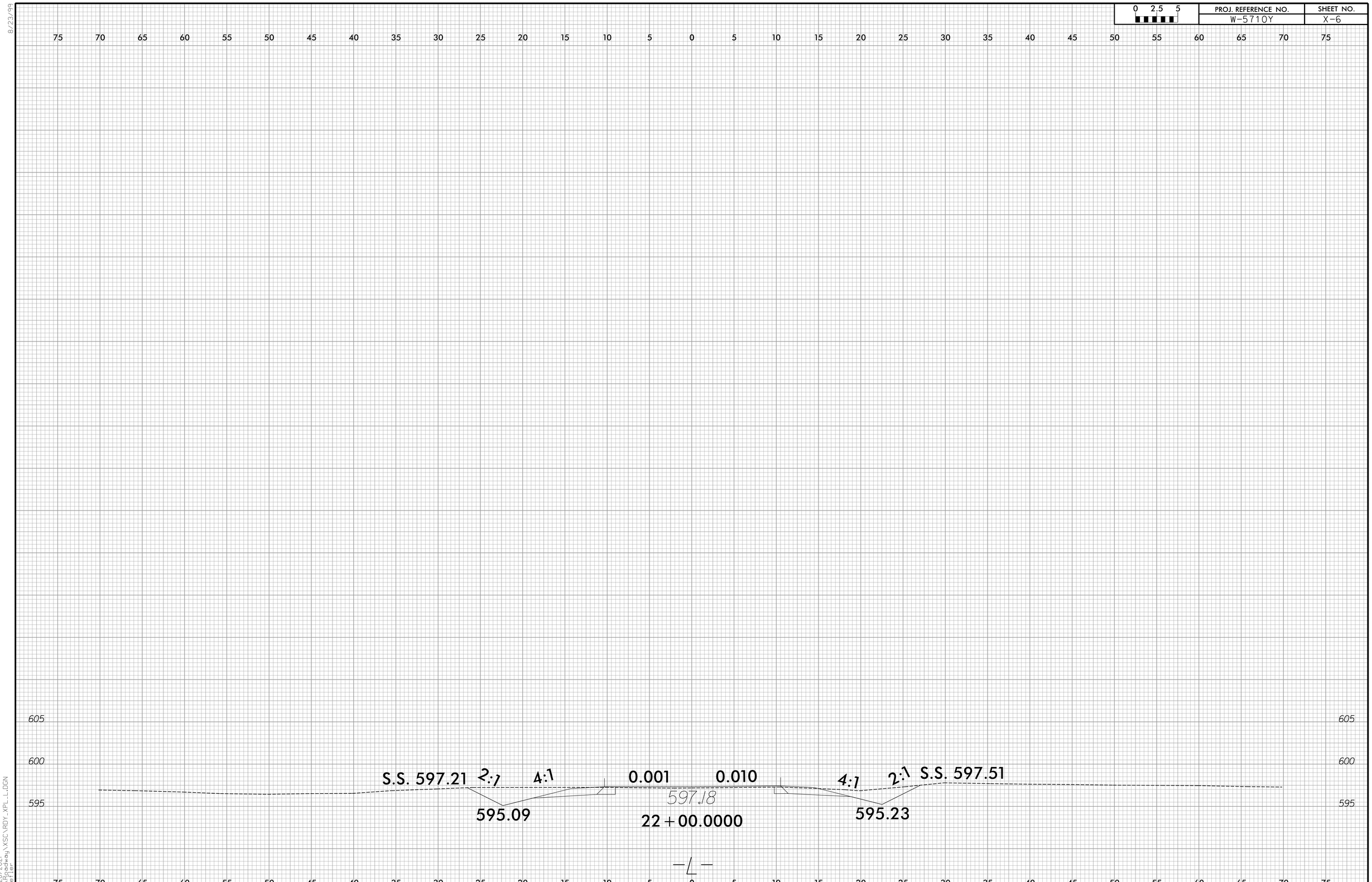

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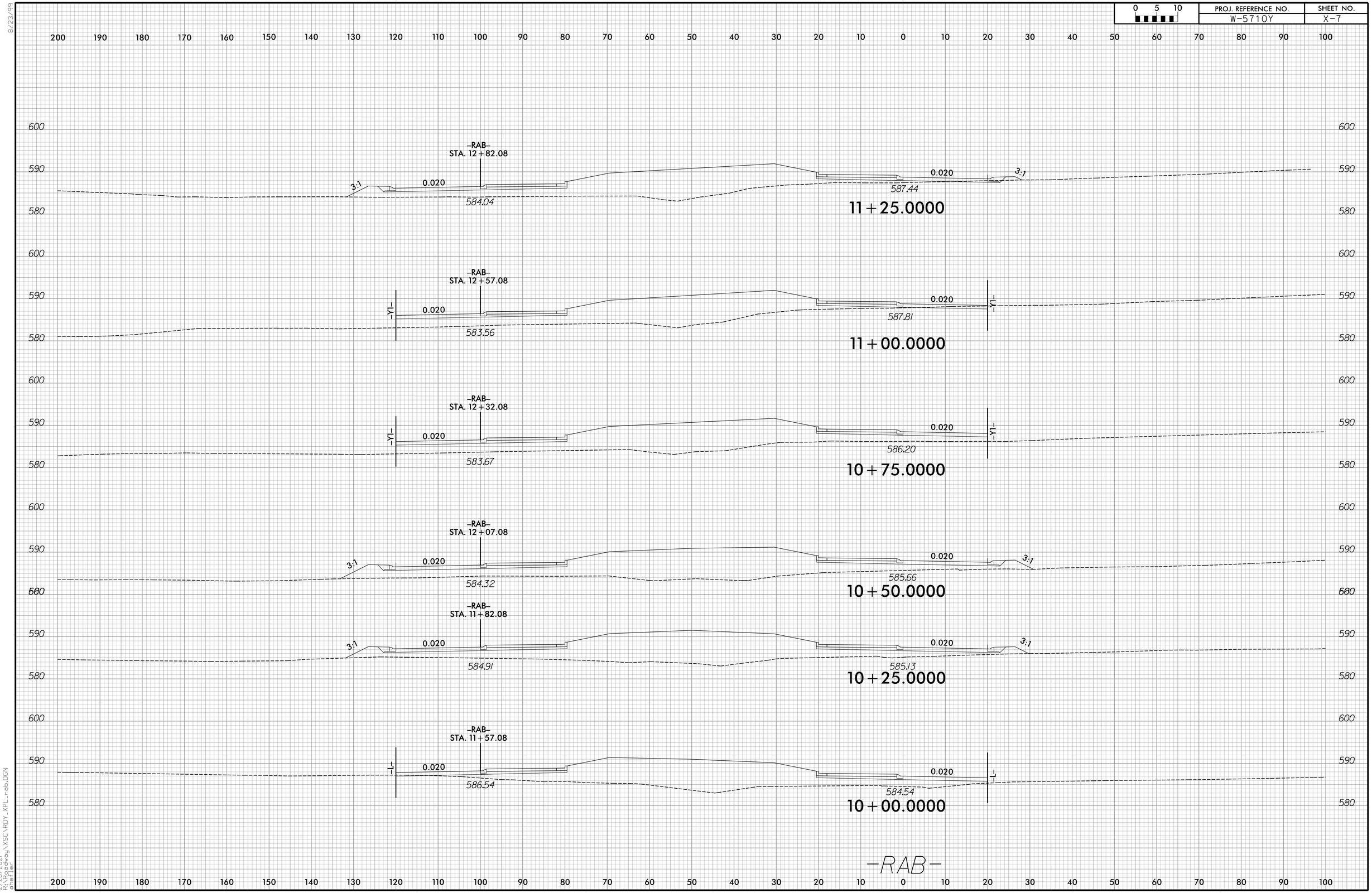

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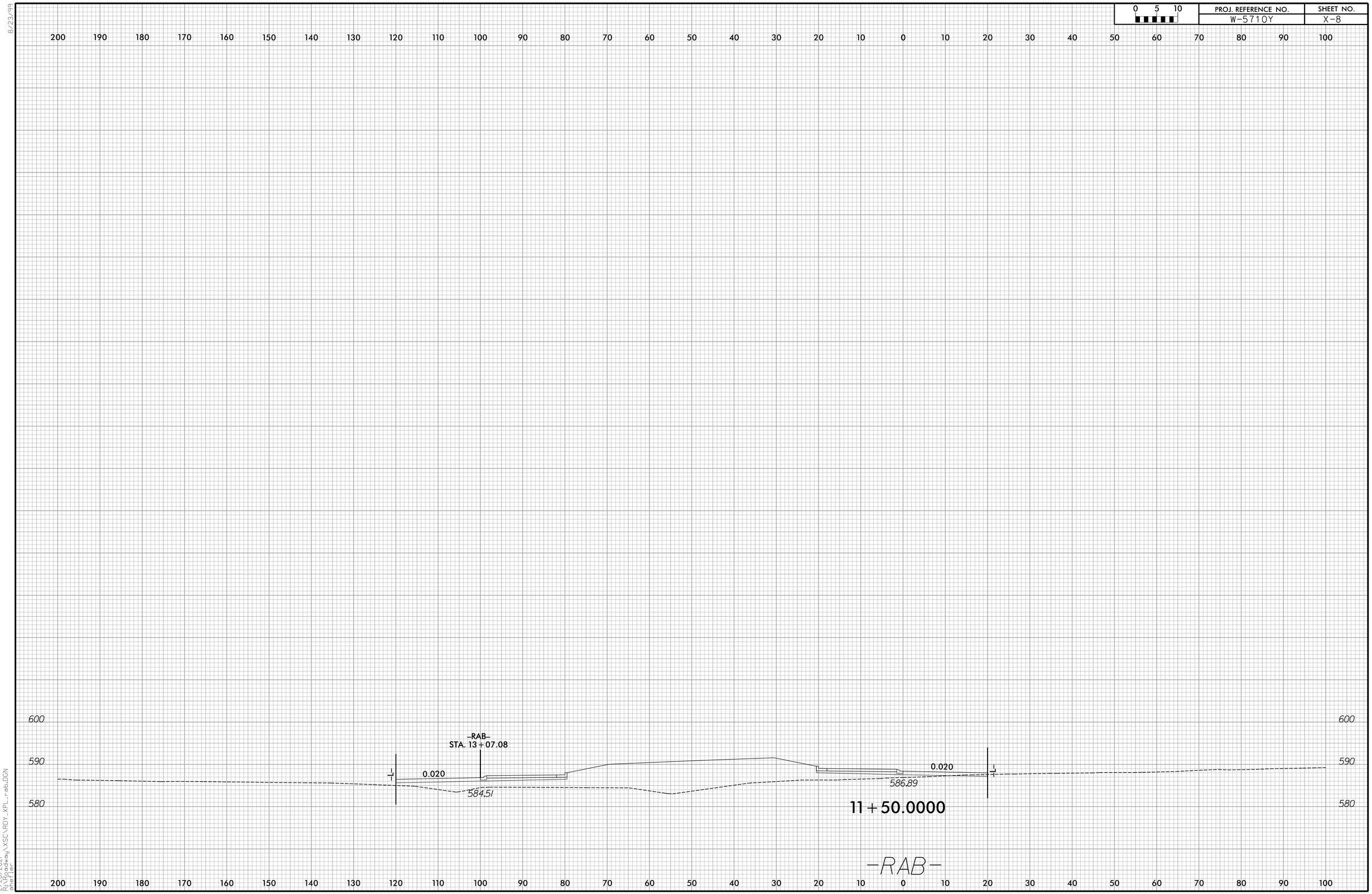

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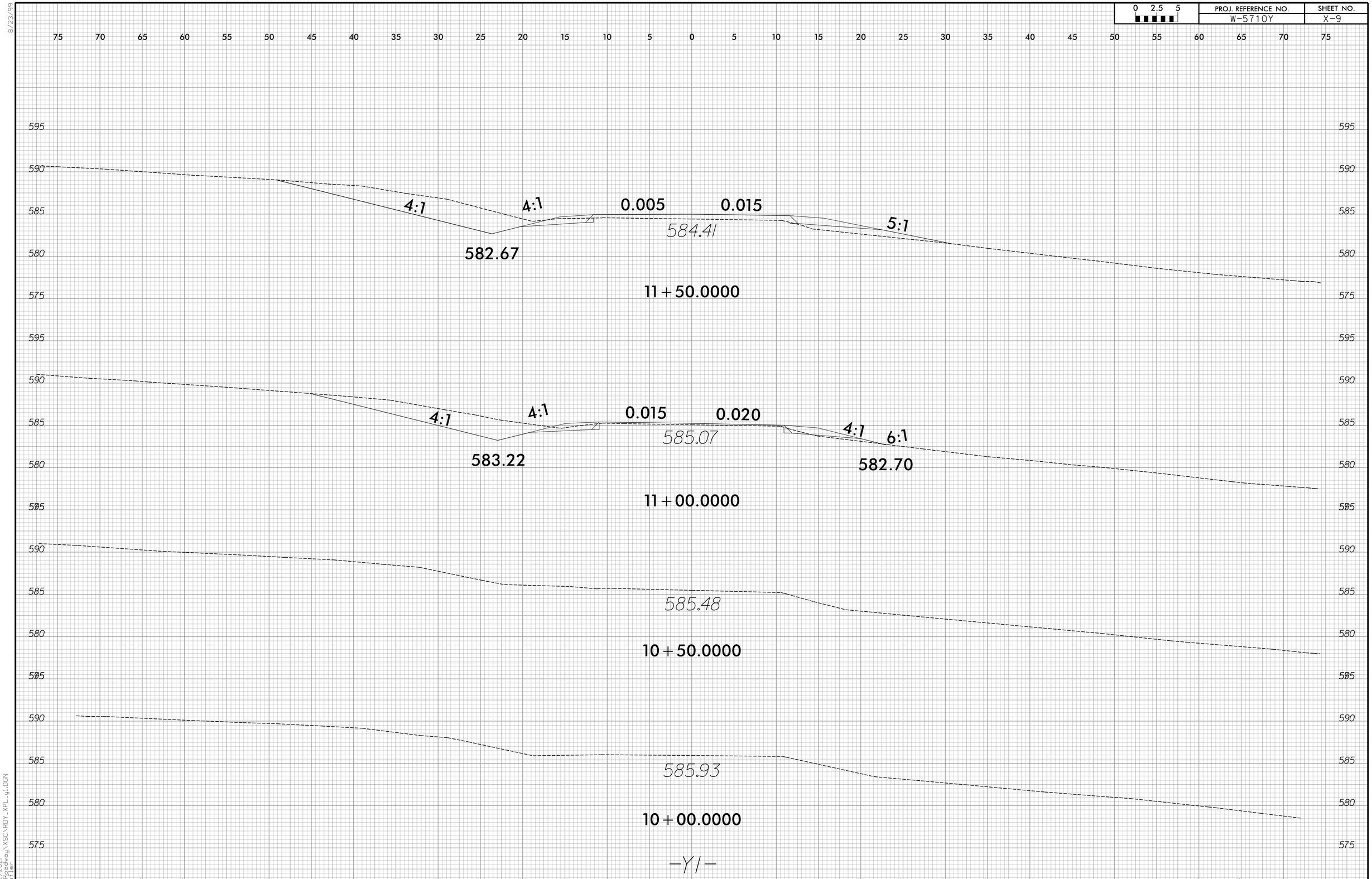

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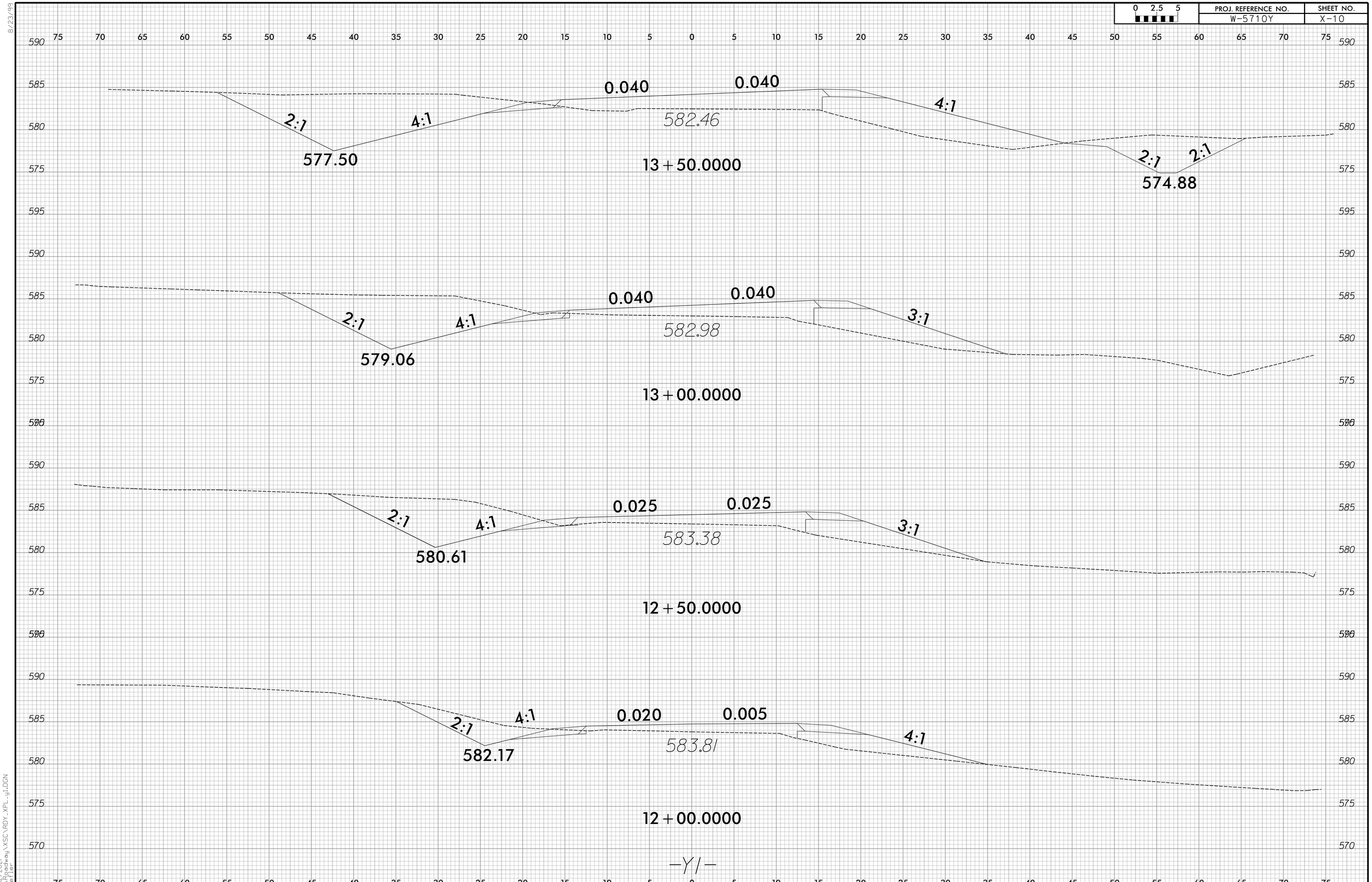

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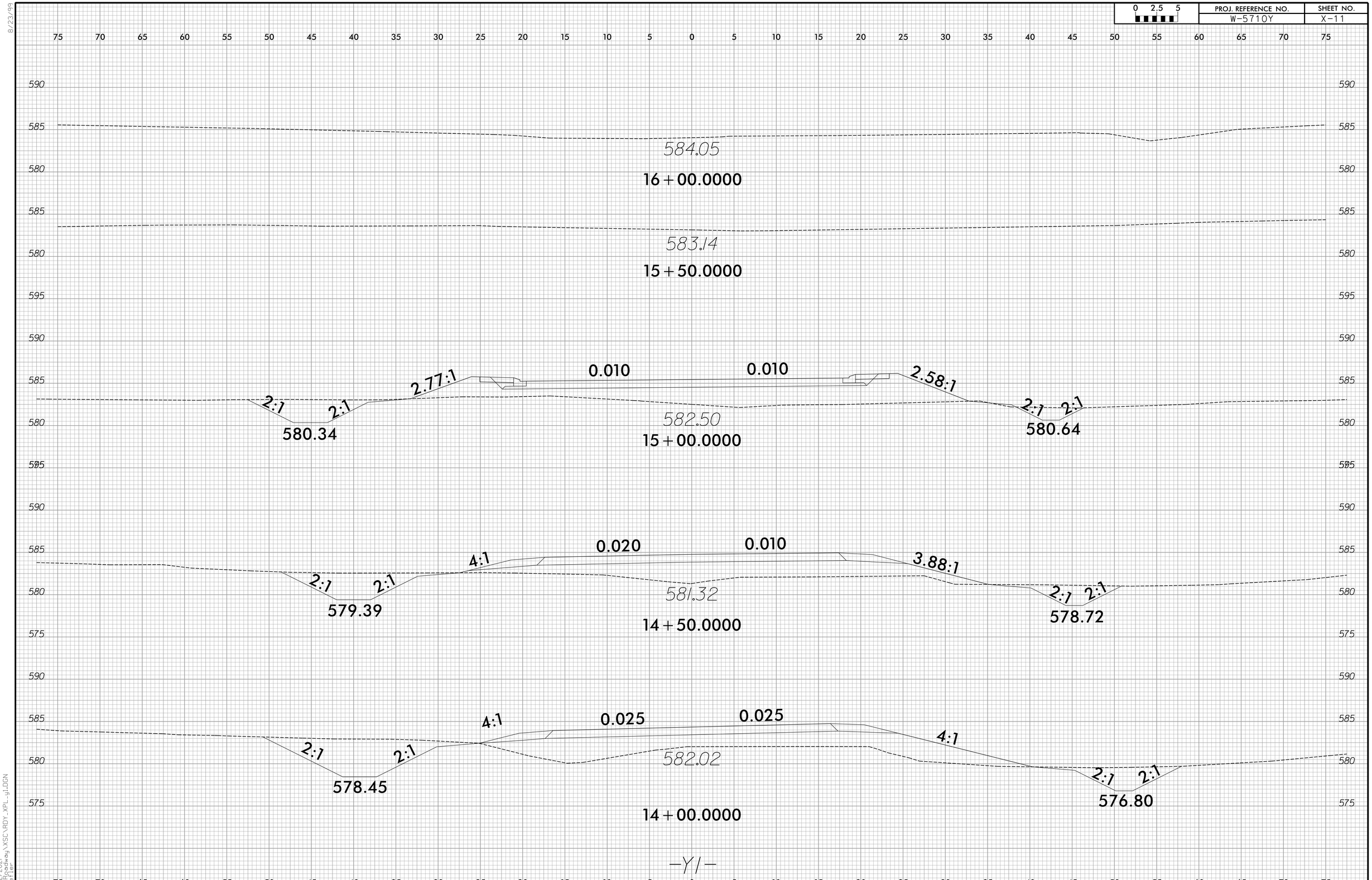

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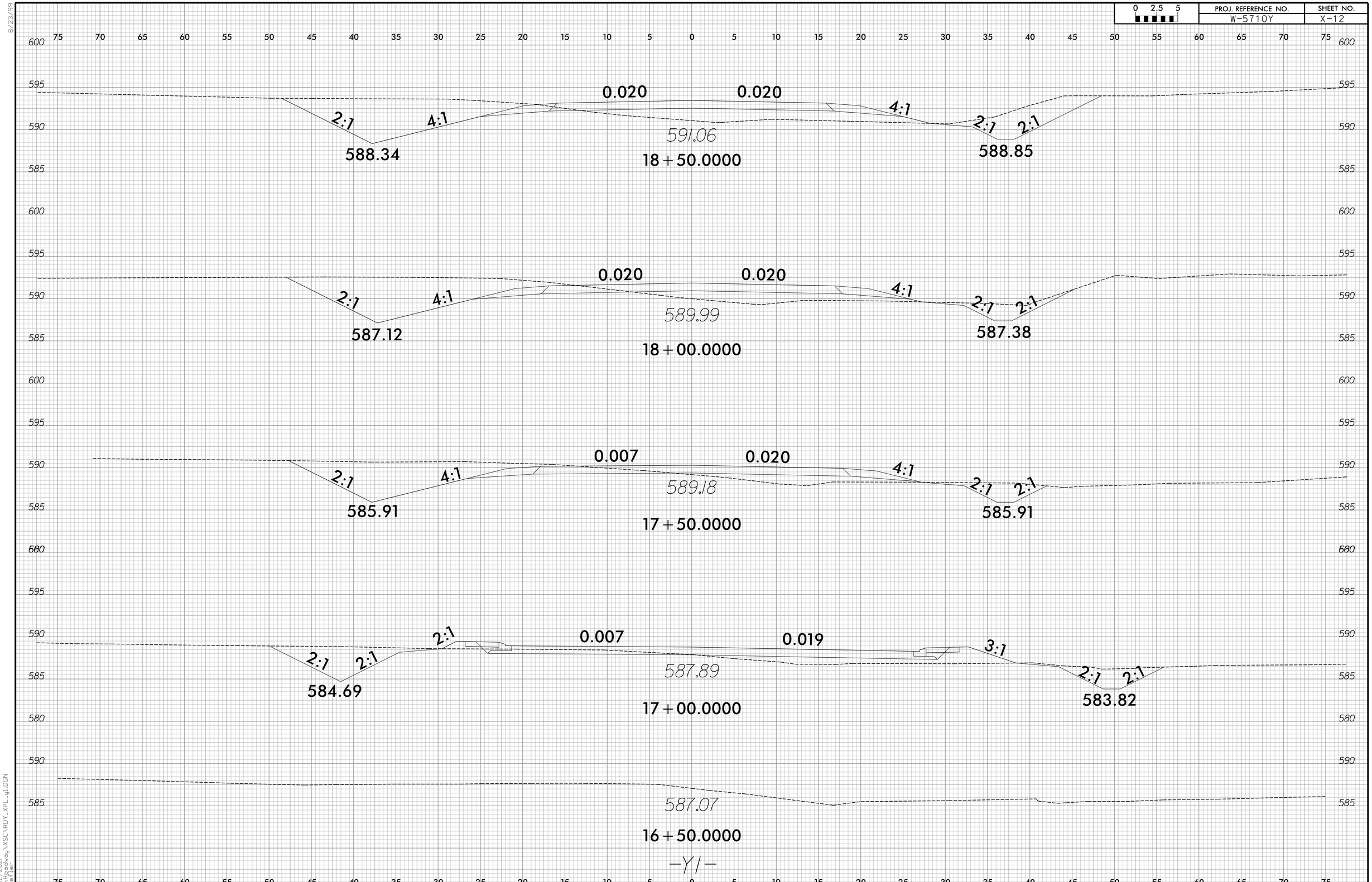

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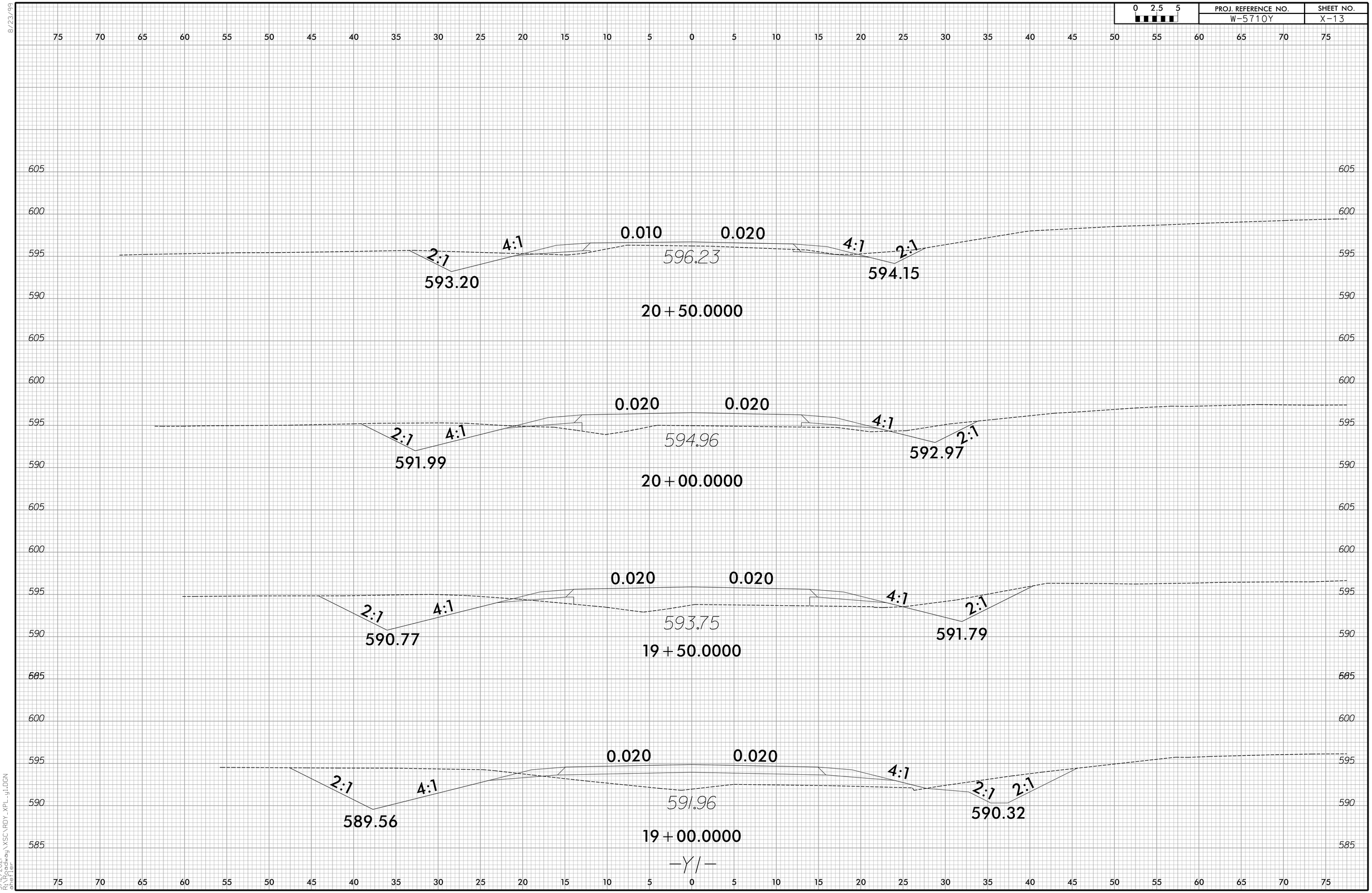

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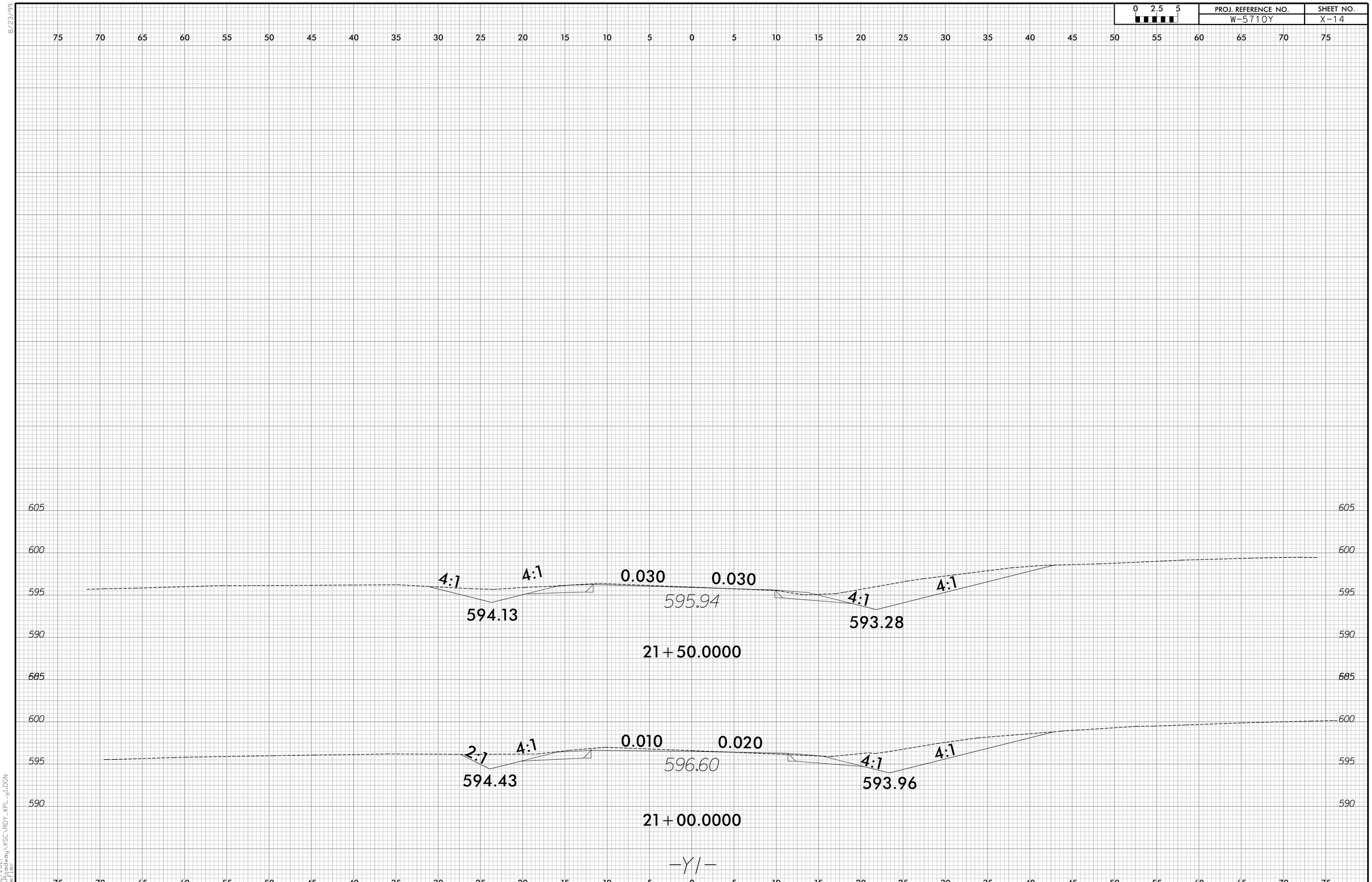

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W-5710Y
SHEET NO.
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