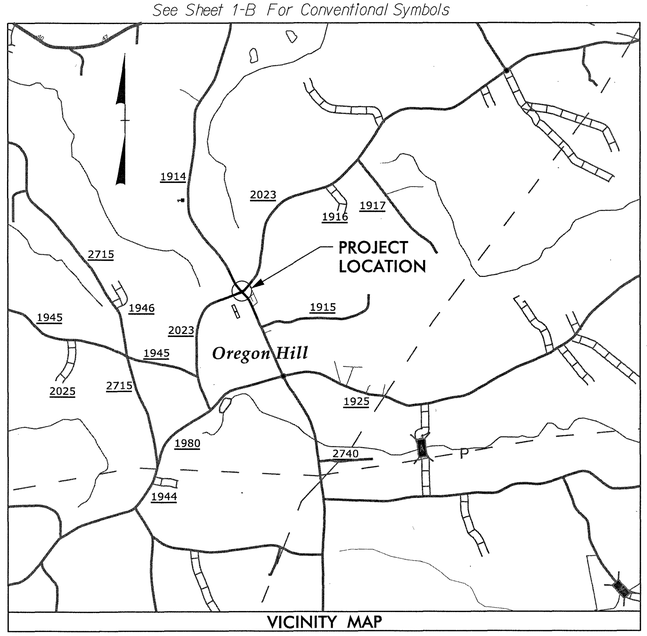
09/08/99

TIP PROJECT: W-5207G

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



VICINITY MAP

FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5207G	1	

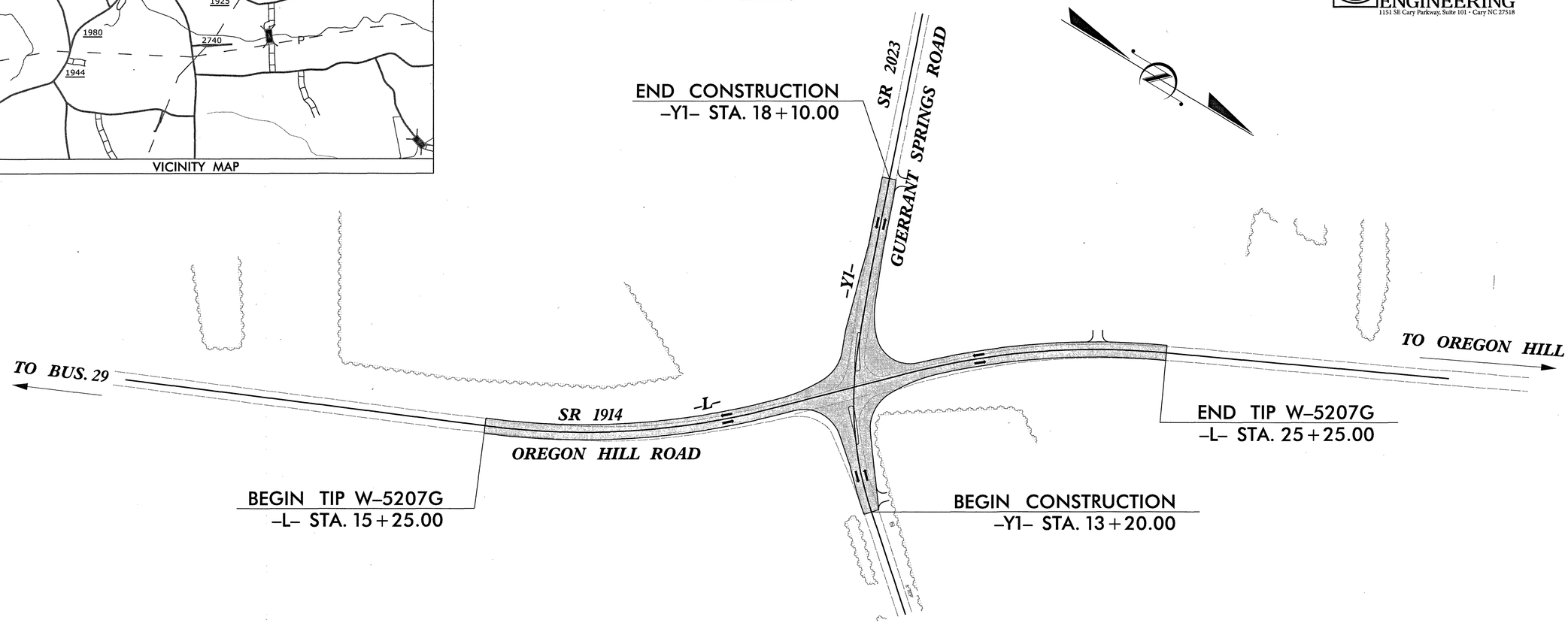
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
45337.1.7	HSIP-1914(3)	PE
45337.2.7	HSIP-1914(3)	R/W AND UTILITY
45337.3.FD7	HSIP-1914(3)	CONSTRUCTION

STEWART
421 FAYETTEVILLE ST, STE 400
RALEIGH, NC 27601
T 919.380.8750
Firm License #: C-1051
www.stewartinc.com
PROJECT #:HI3005

ECOLOGICAL ENGINEERING
1151 SE Cary Parkway, Suite 101 • Cary NC 27518

LOCATION: ***SR 1914 (OREGON HILL ROAD) AT SR 2023 (GUERRANT SPRINGS ROAD)***

TYPE OF WORK: ***GRADING, PAVING, DRAINAGE, TRAFFIC CONTROL, PAVEMENT MARKING, EROSION CONTROL, SIGNING, UTILITIES***



CONTRACT:

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 2010 = 1,500
ADT 2030 = 2,450
DHV = ???
D = 50
T = 5% TTST = 2% DUAL= 3%
V = 55 MPH
CLASS = MINOR COLLECTOR REGIONAL

PROJECT LENGTH

W-5207G LENGTH OF ROADWAY = 0.189 MILES

Prepared in the Office of:
STEWART
For
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

MICHAEL TAYLOR, PE
PROJECT ENGINEER

NEAL DEAN, PE
PROJECT DESIGN ENGINEER

CHRIS SMITHERMAN, PE
NCDOT CONTACT

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER FRANK F. FLEMING
SIGNATURE: 10/31/14 P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 36698 ENGINEER MICHAEL E. TAYLOR
SIGNATURE: 10/31/2014 P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

10/31/2014
T:\2013\HI3005_W5207G\Roadway\Proj\W5207G_RDY_PSH01.dgn
jcole

PROJECT REFERENCE NO.	SHEET NO.
W-5207G	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 36698 ENGINEER MICHAEL E. TAYLOR 11/21/2014

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2 THRU 2-A	TYPICAL SECTIONS
2-B	DETOUR PLAN AND PROFILE SHEET
2-C	INTERSECTION DETAIL SHEET
3	SUMMARY OF DRAINAGE QUANTITIES, SUMMARY OF EARTHWORK, PAVEMENT REMOVAL, AND PARCEL INDEX SHEET
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-9	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-2	SIGNING PLANS
UC-1 THRU UC-5	UTILITY CONSTRUCTION PLANS
X-A	CROSS SECTION INDEX
X-B	CROSS SECTION SUMMARIES
X-1 THRU X-19	CROSS-SECTIONS
UBO-1	UTILITIES BY OTHERS

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS

EFFECTIVE: 01-17-12
REVISED: 07/30/12

GRADING AND SURFACING FOR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, AT&T, TIME WARNER

CABLE, AND DAN RIVER WATER

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

RIGHT-OF-WAY MARKERS:

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

ROADWAY STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS

EFFECTIVE: 01-17-2012
REVISED: 10-30-2012

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch – N. C. Department of Transportation – Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.02	Method of Clearing – Method II
225.02	Guide for Grading Subgrade – Secondary and Local
225.04	Method of Obtaining Superelevation – Two Lane Pavement
240.01	Guide for Berm Ditch Construction
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
DIVISION 8 – INCIDENTALS	
852.01	Concrete Islands
876.02	Guide for Rip Rap at Pipe Outlets

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Firm License No. C-1051
421 Fayetteville St.
Suite 1100
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

ECOLOGICAL ENGINEERING
1115 SE Cary Parkway, Suite 101 • Cary NC 27518

8/17/99
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04/16/11

PROJECT REFERENCE NO.	SHEET NO.
W-5207G	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- 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
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

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
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (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
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?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 (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
45337.1.7	1-C
Location and Surveys	

STEWART — Firm License No. C-1051, 421 Fayetteville St., Suite 1100, Raleigh, NC 27601, T 919.380.8750, www.stewartinc.com

ECOLOGICAL ENGINEERING — 1135 St. Mary Parkway, Suite 100 | Cary NC 27518

W5207G SURVEY CONTROL SHEET

-L- CURVE DATA

PI Sta 14+43.04	PI Sta 23+34.79
Δ = 21° 48' 04.4" (LT)	Δ = 19° 39' 47.7" (RT)
D = 5° 15' 00.0"	D = 5° 15' 00.0"
L = 415.26'	L = 374.54'
T = 210.17'	T = 189.13'
R = 1,091.35'	R = 1,091.35'

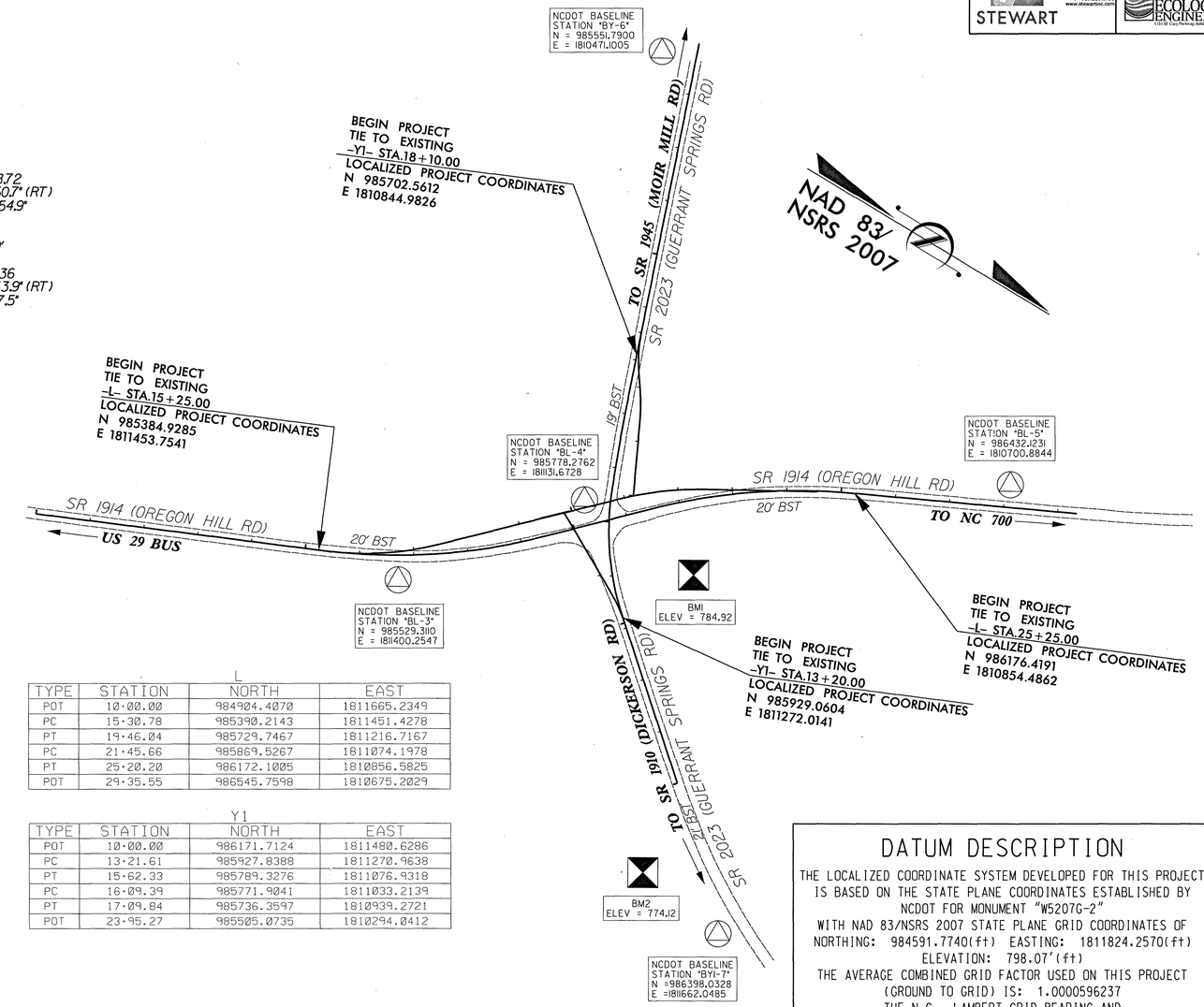
-Y1- CURVE DATA

PI Sta 14+44.35	PI Sta 16+59.62
Δ = 27° 35' 02.6" (RT)	Δ = 2° 00' 32.1" (RT)
D = 11° 27' 33.0"	D = 2° 00' 00.0"
L = 240.72'	L = 100.45'
T = 122.74'	T = 50.23'
R = 500.00'	R = 2,864.79'

-DET- CURVE DATA

PI Sta 11+03.64	PI Sta 0+78.95	PI Sta 10+31.81	PI Sta 11+74.18	PI Sta 12+58.72
Δ = 21° 20' 33.9" (LT)	Δ = 14° 59' 31.2" (RT)	Δ = 12° 06' 17.6" (LT)	Δ = 11° 07' 46.6" (LT)	Δ = 17° 21' 50.7" (RT)
D = 10° 25' 02.7"	D = 9° 32' 57.5"	D = 19° 05' 54.9"	D = 14° 19' 26.2"	D = 19° 05' 54.9"
L = 204.88'	L = 157.00'	L = 63.38'	L = 77.70'	L = 90.92'
T = 103.64'	T = 78.95'	T = 31.81'	T = 38.97'	T = 45.81'
R = 550.00'	R = 600.00'	R = 300.00'	R = 400.00'	R = 300.00'

PI Sta 11+03.64	PI Sta 16+27.36
Δ = 21° 20' 33.9" (LT)	Δ = 14° 35' 53.9" (RT)
D = 10° 25' 02.7"	D = 9° 32' 57.5"
L = 204.88'	L = 152.87'
T = 103.64'	T = 76.85'
R = 550.00'	R = 600.00'



-L- PRELIMINARY R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	23+14.67	-27.14	985980.5130	1810941.3994
L	23+17.00	-35.00	985977.7462	1810933.6579
L	21+45.66	-35.00	985844.5391	1811049.6904
L	20+00.00	-35.00	985742.5450	1811153.6829
L	19+46.04	-35.00	985704.7590	1811192.2092
L	15+30.78	-35.00	985376.1156	1811419.3930
L	15+25.00	-30.00	985372.8438	1811426.2957

-Y1- PRELIMINARY R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	16+00.00	30.00	985803.2486	1811030.8294
Y1	15+62.33	-30.00	985761.4593	1811088.0385

-L- PRELIMINARY PERMANENT DRAINAGE EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	23+53.00	32.87	986046.5522	1810967.8418
L	23+53.00	42.00	986051.7473	1810975.3527
L	23+79.00	42.00	986072.4752	1810961.3779
L	23+79.00	32.45	986067.2301	1810953.3947

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	984904.4070	1811665.2349
PC	15+30.78	985390.2143	1811451.4278
PT	19+46.04	985729.7467	1811216.7167
PC	21+45.66	985869.5267	1811074.1978
PT	25+20.20	986172.1005	1810856.5825
POT	29+35.55	986545.7598	1810675.2029

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	986171.7124	1811480.6286
PC	13+21.61	985927.8388	1811270.9638
PT	15+62.33	985789.3276	1811076.9318
PC	16+09.39	985771.9041	1811033.2139
PT	17+09.84	985736.3597	1810939.2721
POT	23+95.27	985505.0735	1810294.0412

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "W5207G-2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 984591.7740(ft) EASTING: 1811824.2570(ft)
ELEVATION: 798.07'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0000596237
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "W5207G-2" TO -L- STATION 15+25.00 IS
N 25° 02' 18.75" W 875.42'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/PAGES/DEFAULT.ASPX

THE FILES TO BE FOUND ARE AS FOLLOWS:
W5207G_LS_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	W5207G-1	983645.3000	1812248.8830	791.39	OUTSIDE PROJECT LIMITS	
2	W5207G-2	984591.7740	1811824.2570	798.07	OUTSIDE PROJECT LIMITS	
3	BL-3	985529.3110	1811400.2547	791.85	16+76.59	19.09 RT
4	BL-4	985778.2762	1811131.6728	796.04	20+40.73	24.90 LT
5	BL-5	986432.1231	1810700.8844	778.56	28+22.11	26.52 LT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
B4	BL-4	985778.2762	1811131.6728	796.04	15+18.37	32.59 LT
7	BY1-7	986398.0328	1811662.0485	771.09	OUTSIDE PROJECT LIMITS	

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
6	BY-6	985551.7900	1810471.1005	787.50	22+12.83	15.77 LT
A4	BL-4	985778.2762	1811131.6728	796.04	15+18.37	32.59 LT

BENCHMARK DATA

BM1 ELEVATION - 784.92
N 986000 E 1811137
Y1 STATION 6+72.00 140 LEFT
RR SPIKE IN ROOT OF 15" OAK

BM2 ELEVATION - 774.12
N 986202 E 1811654
Y1 STATION 11+62.00 121 RIGHT
RR SPIKE IN ROOT OF 12" MAPLE

NOTE: DRAWING NOT TO SCALE

12/01/2005

10/31/2014
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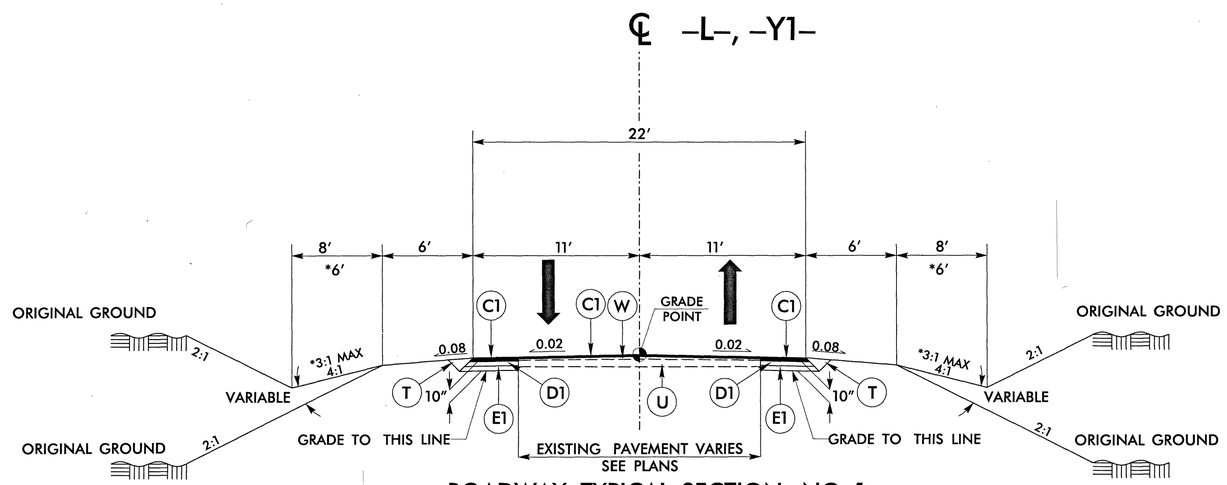
PROJECT REFERENCE NO.	SHEET NO.
W-5207G	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 36698 ENGINEER CHRIS E. TAYLOR 11/18/09

STEWART — Firm License No. C-1051, 421 Fayetteville St., Suite 400, Raleigh, NC 27601, T 919.380.8499, www.stewartinc.com

ECOLOGICAL ENGINEERING — 1171 SE Cary Parkway, Suite 110 • Cary NC 27513



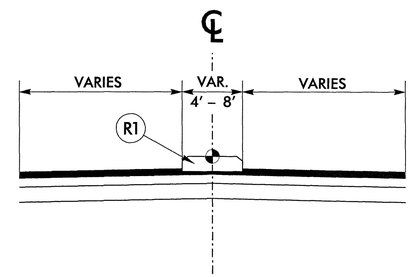
ROADWAY TYPICAL SECTION NO. 1

USE ROADWAY TYPICAL SECTION NO. 1

-L- STA. 15+25.00 TO -L- STA. 16+75.00
-L- STA. 23+00.00 TO -L- STA. 25+25.00
-Y1- STA. 13+20.00 TO -Y1- STA. 14+25.00
-Y1- STA. 18+00.00 TO -Y1- STA. 18+10.00

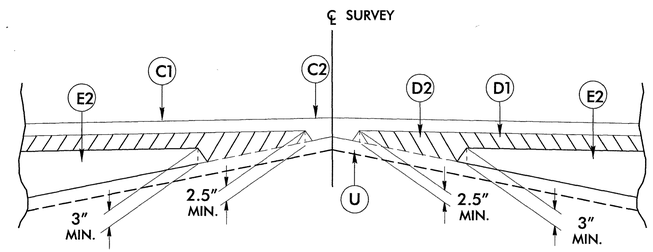
* USE 6' DITCH FRONT SLOPE

-L- STA. 17+00.00 RT TO 17+50.00 RT
-Y1- STA. 13+75.00 TO -Y1- STA. 14+50.00 RT

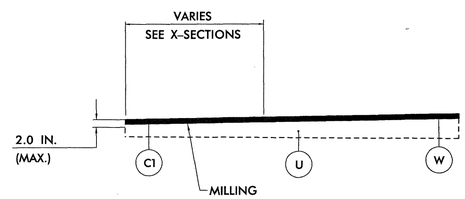


INSET A

USE ON: -Y1- STA. 14+20.30 TO -Y1- STA. 14+76.30
-Y1- STA. 15+26.70 TO -Y1- STA. 15+82.70

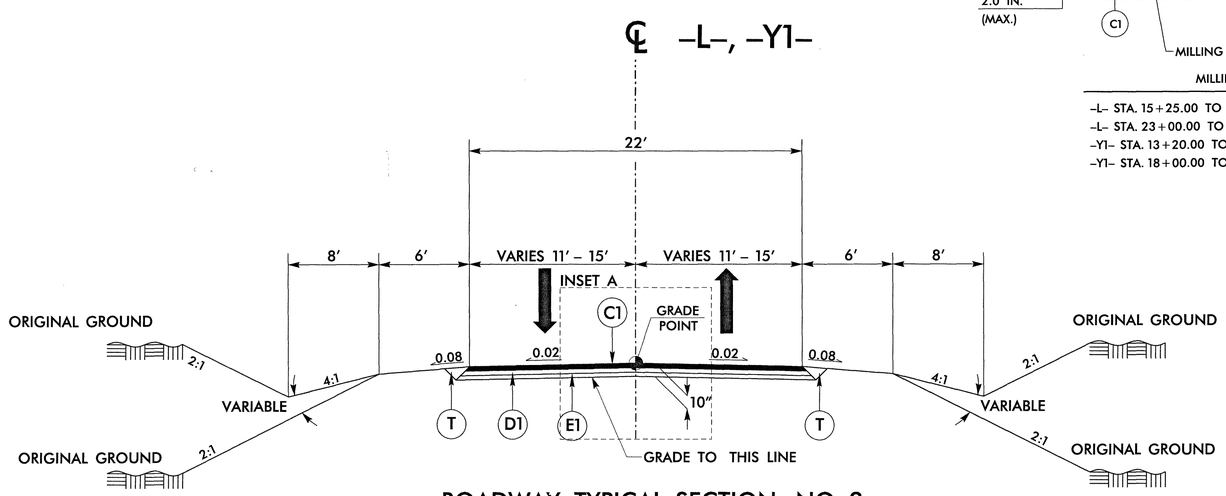


Detail Showing Method of Wedging



MILLING DETAIL

-L- STA. 15+25.00 TO -L- STA. 15+75.00
-L- STA. 23+00.00 TO -L- STA. 25+25.00
-Y1- STA. 13+20.00 TO -Y1- STA. 13+90.00
-Y1- STA. 18+00.00 TO -Y1- STA. 18+10.00



ROADWAY TYPICAL SECTION NO. 2

USE ROADWAY TYPICAL SECTION NO. 2

-L- STA. 16+75.00 TO -L- STA. 23+00.00
-Y1- STA. 14+25.00 TO -Y1- STA. 18+00.00

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R1	5" MONOLITHIC ISLAND (MOUNTABLE AND KEYED IN)
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE STANDARD WEDGING DETAIL)

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

8/17/99

10/31/2014
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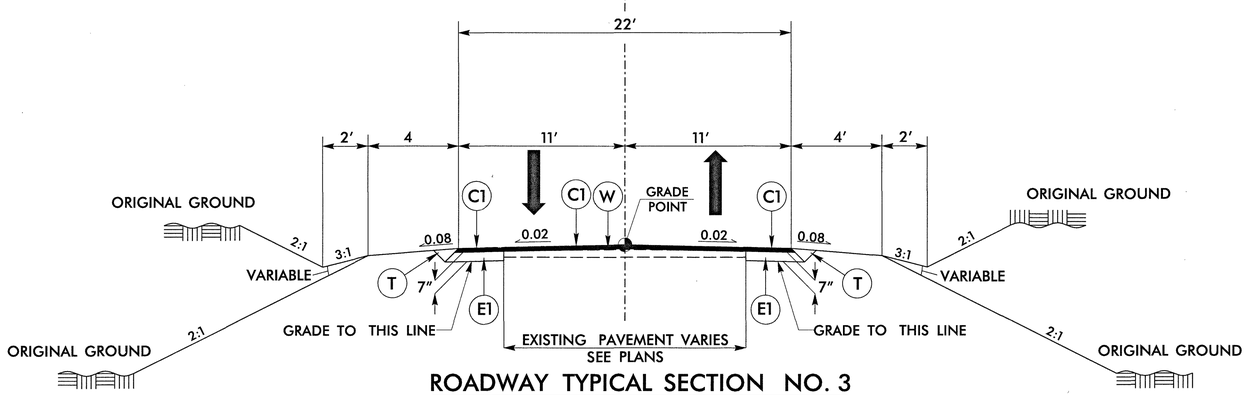
PROJECT REFERENCE NO.	SHEET NO.
W-5207G	2-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 36698 ENGINEER MICHAEL E. TAYLOR 10/31/14

STEWART — Firm License No. C-1051, 421 Fayetteville St., Suite 1400, Raleigh, NC 27601, T: 919.380.8750, www.stewartinc.com

ECOLOGICAL ENGINEERING — 1515 SE Cary Parkway, Suite 101 · Cary NC 27518

℄ -DET-, -Y1TEMPA-, -Y1TEMPB-

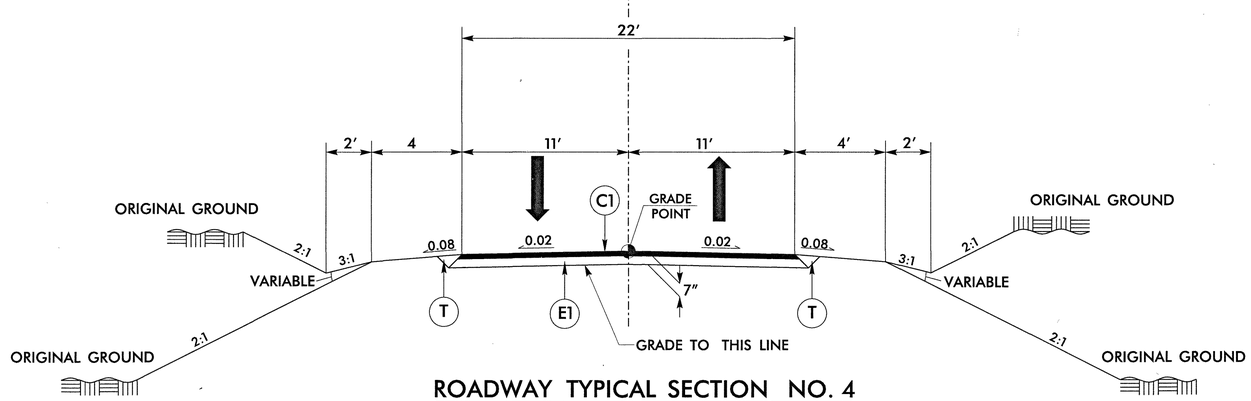


ROADWAY TYPICAL SECTION NO. 3

USE ROADWAY TYPICAL SECTION NO. 1

-DET- STA. 15+40+/- TO -DET- STA. 17+50.00
-DET- STA. 22+50.00 TO -DET- STA. 24+60+/-
-Y1TEMPA- STA. 10+00.00 TO -Y1TEMPA- STA. 12+01.20
-Y1TEMPB- STA. 11+88.32 TO -Y1TEMPB- STA. 13+03.83

℄ -DET-, -Y1TEMPA-, -Y1TEMPB-



ROADWAY TYPICAL SECTION NO. 4

USE ROADWAY TYPICAL SECTION NO. 2

-DET- STA. 17+50.00 TO -DET- STA. 22+50.00
-Y1TEMPA- STA. 12+01.20 TO -Y1TEMPA- STA. 12+20.35
-Y1TEMPB- STA. 10+11.47 TO -Y1TEMPB- STA. 11+88.32

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, 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.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE STANDARD WEDGING DETAIL)

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

8/17/99

10/31/2014
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PROJECT REFERENCE NO.	SHEET NO.
W-5207G	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 36698 ENGINEER MICHAEL E. TAYLOR 10/31/14

NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER MARK A. FLEMING 10/31/14

STEWART — Firm License No. C-1051, 421 Fayetteville St., Suite 1100, Raleigh, NC 27601, T: 919.380.8750, www.stewartinc.com

ECOLOGICAL ENGINEERING — 1318 Dr Gary Parkway, Suite 107 - Cary NC 27513

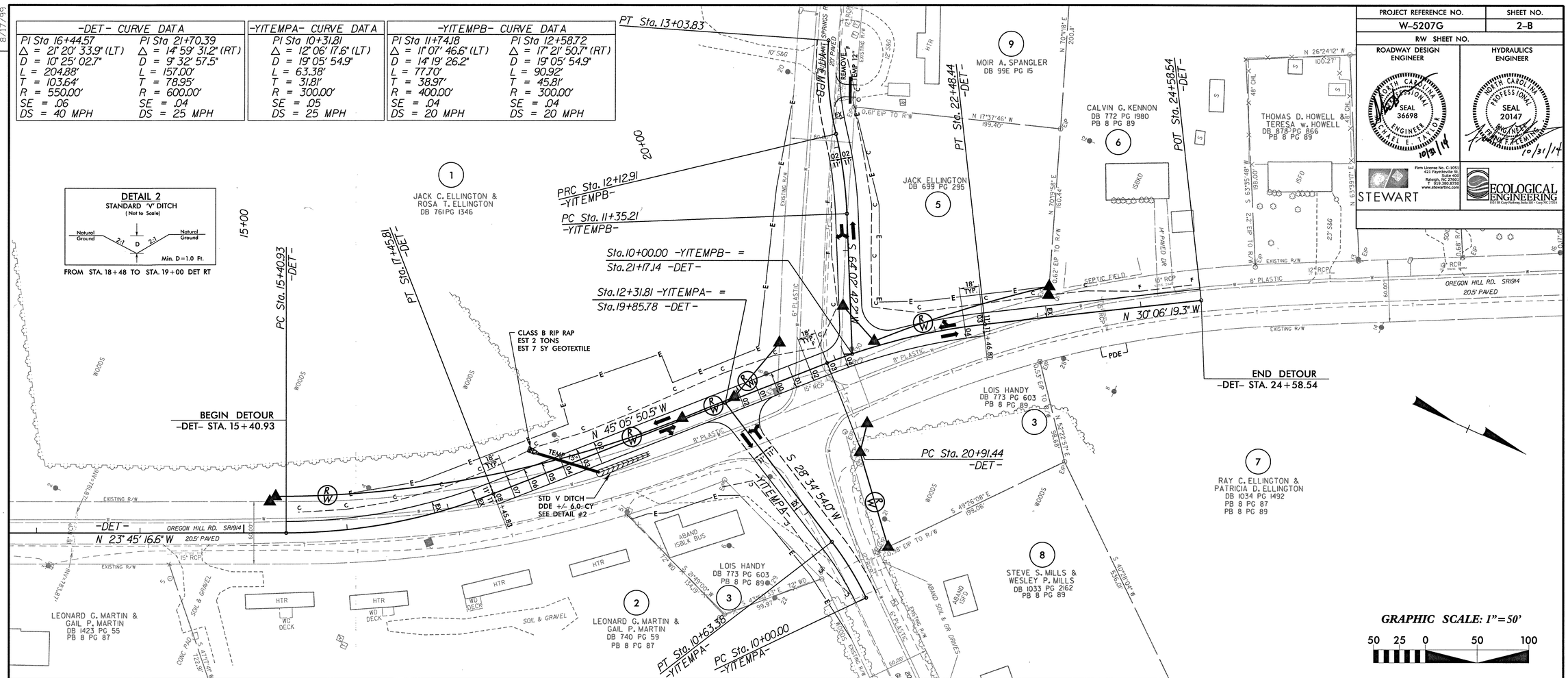
REVISIONS

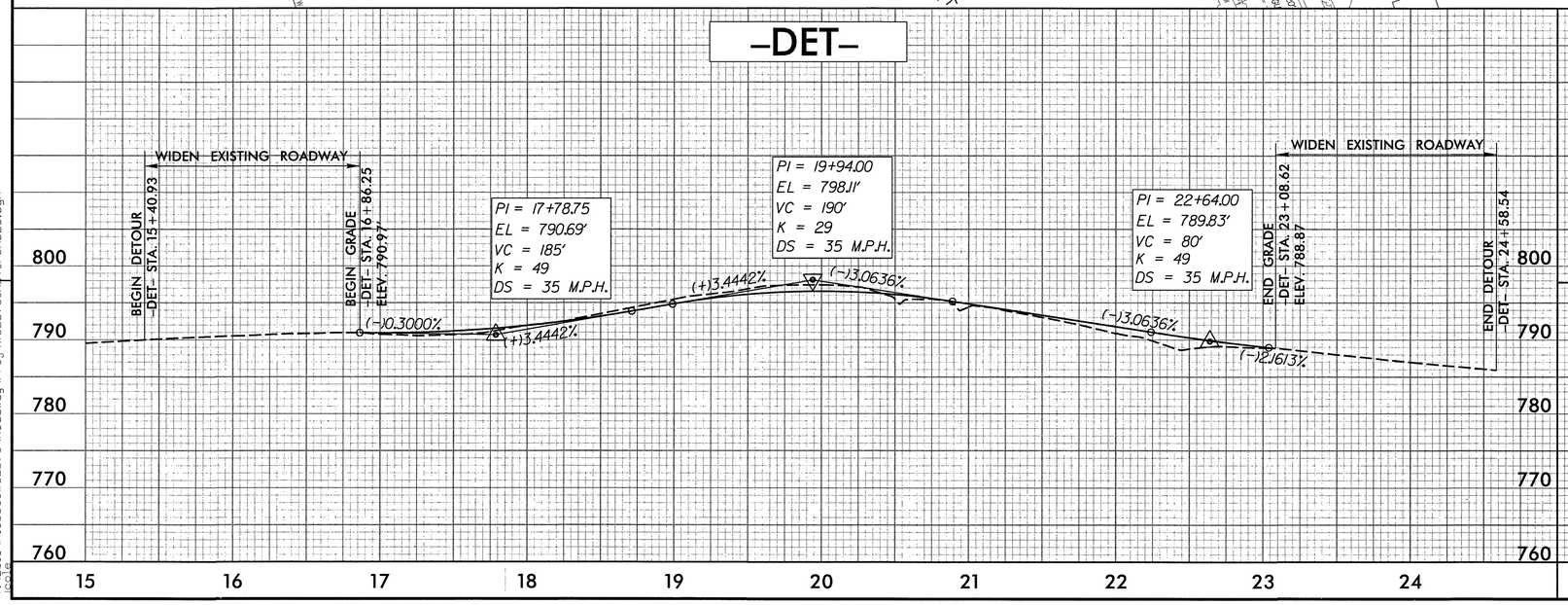
8/17/99

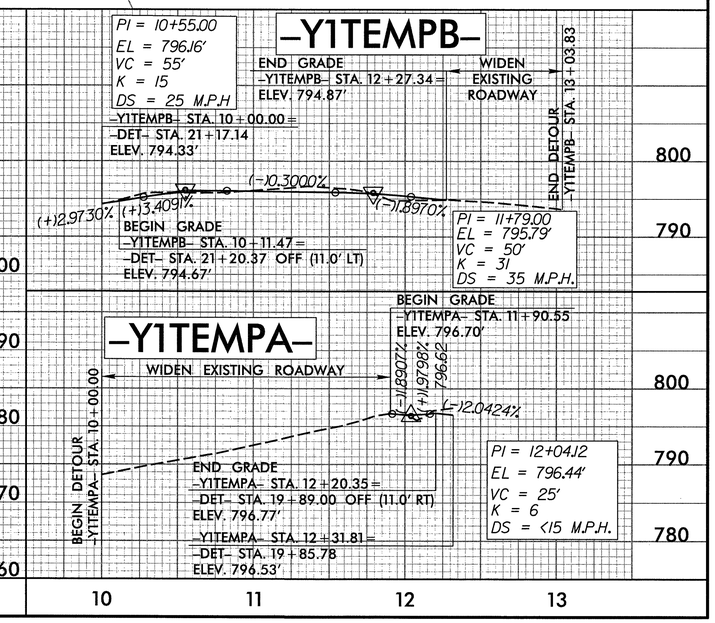
-DET- CURVE DATA	
PI Sta 16+44.57	PI Sta 21+70.39
Δ = 21° 20' 33.9" (LT)	Δ = 14° 59' 31.2" (RT)
D = 10° 25' 02.7"	D = 9° 32' 57.5"
L = 204.88'	L = 157.00'
T = 103.64'	T = 78.95'
R = 550.00'	R = 600.00'
SE = .06	SE = .04
DS = 40 MPH	DS = 25 MPH

-YITEMPA- CURVE DATA
PI Sta 10+31.81
Δ = 12° 06' 17.6" (LT)
D = 19° 05' 54.9"
L = 63.38'
T = 31.81'
R = 300.00'
SE = .05
DS = 25 MPH

-YITEMPB- CURVE DATA	
PI Sta 11+74.18	PI Sta 12+58.72
Δ = 11° 07' 46.6" (LT)	Δ = 17° 21' 50.7" (RT)
D = 14° 19' 26.2"	D = 19° 05' 54.9"
L = 77.70'	L = 90.92'
T = 38.97'	T = 45.81'
R = 400.00'	R = 300.00'
SE = .04	SE = .04
DS = 20 MPH	DS = 20 MPH







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PROJECT REFERENCE NO.	SHEET NO.
W-5207G	2-C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 36698 ENGINEER MICHAEL E. TAYLOR
11/21/2014

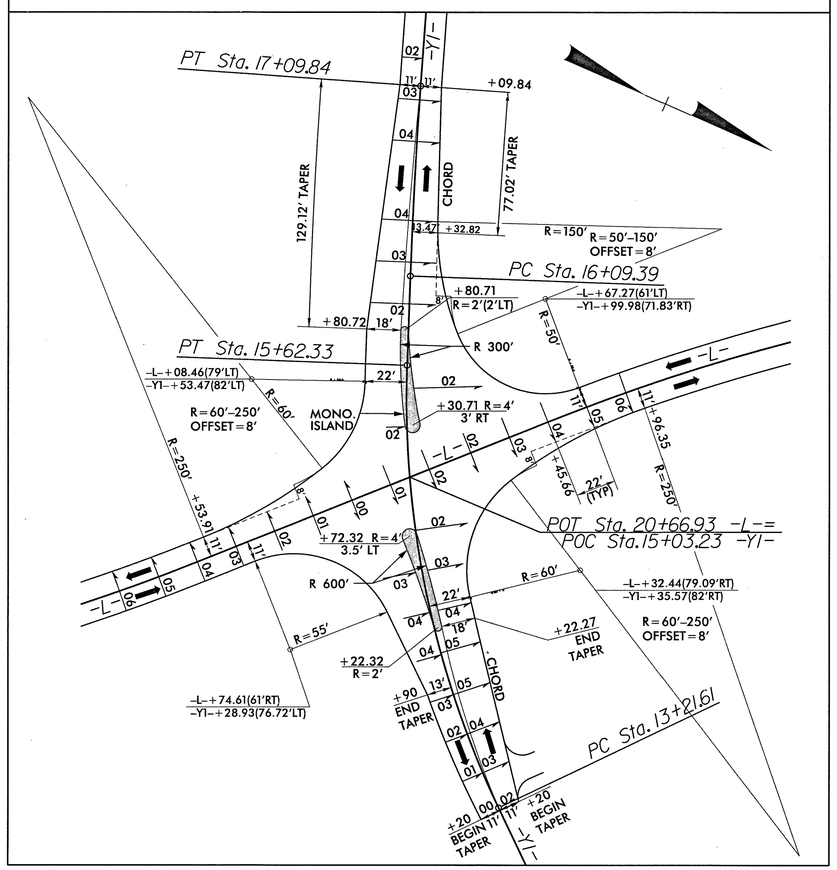
STEWART
Firm License No. C-1051
421 Fayetteville St.
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

ECOLOGICAL ENGINEERING
1151 SE Cary Parkway, Suite 101 • Cary NC 27518

GRAPHIC SCALE: 1"=40'

40 20 0 40 80

INTERSECTION DETAIL OF -L- (OREGON HILL ROAD) AND -Y1- (GUERRANT SPRINGS ROAD)



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11/20/2014
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COMPUTED BY: MSB	DATE: 8/20/2013
CHECKED BY: BRC	DATE: 8/20/2013

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
W–5207G	3
R/W SHEET NO.	

STEWART
Firm License No. C-1051
421 Fayetteville St,
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

ECOLOGICAL ENGINEERING
1151 SE Cary Parkway, Suite 101 • Cary NC 27518

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
DETOUR CONSTRUCTION					
–DET– STA. 16+00.00	–DET– STA. 24+00.00	553*	163		390
–Y1T– STA. 13+20	–Y1T– STA. 18+50	357	2		355
SUBTOTAL:		910	165		744
MAINLINE CONSTRUCTION					
–L– STA. 15+50.00	–L2– STA. 25+50.00	3147	295		2852
–Y1– STA. 13+20.00	–Y1– STA. 18+20.00	1806	47		1759
SUBTOTAL:		4953	342		4611
SUBTOTAL:		5863	507		5355
WASTE IN LIEU OF BORROW					
SUBTOTAL:		5863	507		5355
EST 5% TO REPLACE TOP SOIL ON BORROW PIT					
GRAND TOTAL:		6000			5500

* TOPSOIL FROM PARCEL 1 TO BE STOCKPILED IN DESIGNATED AREA ON PARCEL 1 AND RESPREAD ONCE DETOUR ALIGNMENT IS REMOVED.

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	CONST. EASE.	PERM. DRAIN. EASE.
1	JACK C. ELLINGTON & ROSA T. ELLINGTON	118.05	0.12	–	117.93	0.36	–
2	LEONARD G. MARTIN & GAIL P. MARTIN	12.17	–	12.17	–	–	–
3	LOIS HANDY	0.78	0.03	0.75	–	0.03	–
5	JACK ELLINGTON	0.93	0.07	–	0.86	0.17	–
6	CALVIN G. KENNON	0.88	–	–	0.88	–	–
7	RAY C. ELLINGTON & PATRICIA D. ELLINGTON	82.0	–	82.0	–	–	0.01
8	STEVE S. MILLS & WESLEY P. MILLS	2.44	–	2.44	–	–	–
9	MOIR A. SPANGLER	0.91	–	0.91	–	–	–

SUB–REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	DO NOT USE RCP	C.S. PIPE (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	12" SIDE DRAIN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		PIPE REMOVAL	REMARKS
–L– 23+33.49	CL	0401			785.7′	784.5′				75′																																				34′	CLASS IV
–L– 24+12.40	LT	0402																															28′													21′	
–Y1– 13+20.20	RT	0403																															26′													21′	
–Y1– 17+95.00	RT	0404																														26′														21′	
–DET– 18+26.38	CL	0201							60′																																						
–Y1TEMPB– 12+53.24	RT	0202																														26′														21′	
						TOTALS			60′	75′																						52′	54′													118′	

ABBREVIATIONS

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

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^3
–L–	17+25.00	22+58.00	CL	1405
–Y1–	13+41.00	14+83.00	CL	167
–Y1–	15+08.00	18+00.00	CL	800
–DET–	15+60.00	24+59.00	CL	1508
–Y1TA–	10+00.00	12+20.00	CL	210
–Y1TB–	10+11.00	13+04.00	CL	581
			TOTAL:	5506.67
			SAY:	5510

PROJECT REFERENCE NO.	SHEET NO.
W-5207G	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 36698 ENGINEER MICHAEL E. TAYLOR 11/14/2014

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER FRANK P. FLEMING 11/14/2014

STEWART — Firm License No. C-1051, 421 Fayetteville Street, Suite 460, Raleigh, NC 27601, T 919.380.8750, www.stewartinc.com

ECOLOGICAL ENGINEERING — 3151 St Mary's Parkway, Wake NC • Corp No. 2128

8/17/99

-L-	
PI Sta 17+40.95	PI Sta 23+34.79
Δ = 21° 48' 04.4" (LT)	Δ = 19° 39' 47.7" (RT)
D = 5° 15' 00.0"	D = 5° 15' 00.0"
L = 415.26'	L = 374.54'
T = 210.17'	T = 189.13'
R = 1,091.35'	R = 1,091.35'
SE = .06	SE = .06
DS = 55 MPH	DS = 55 MPH

-Y1-	
PI Sta 14+44.35	PI Sta 16+59.62
Δ = 27° 35' 02.6" (RT)	Δ = 2° 00' 32.1" (RT)
D = 11° 27' 33.0"	D = 2° 00' 00.0"
L = 240.72'	L = 100.45'
T = 122.74'	T = 50.23'
R = 500.00'	R = 2,864.79'
SE = .05	SE = .04
DS = 30 MPH	DS = 55 MPH

DETAIL #1
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2:1, D, 3:1 or Flatter, Front Ditch Slope
Min. D=1.0 Ft.

FROM STA. 18+50 TO STA. 20+00 L LT
FROM STA. 22+00 TO STA. 23+25 L LT
FROM STA. 17+00 TO STA. 18+00 Y1 LT
FROM STA. 17+00 TO STA. 18+00 Y1 RT

DETAIL #2
STANDARD 'V' DITCH
(Not to Scale)
Natural Ground, 2:1, D, 2:1, Natural Ground
Min. D=1.0 Ft.

FROM STA. 12+95 TO STA. 13+20 Y1 LT
FROM STA. 18+20 TO STA. 18+45 Y1 RT

END CONSTRUCTION
-Y1- STA. 18+10.00

STD V DITCH
DDE +/- 2.0 CY
SEE DETAIL #2

TIE TO EX. DITCH

SPECIAL CUT DITCH
SEE DETAIL #1

SPECIAL CUT DITCH
SEE DETAIL #1
JACK ELLINGTON
DB 699 PG 295

PT Sta. 17+09.84 -Y1-

PC Sta. 16+09.39 -Y1-

S 68° 16' 14.1" W

PT Sta. 15+62.33 -Y1-

CONTRACTOR TO STOCKPILE TOPSOIL FROM PARCEL 1 ON FIELD AND RESPREAD WHEN DETOUR IS REMOVED

N 45° 33' 21.1" W

PT Sta. 19+46.04 -L-

CLASS B RIP RAP
EST 3 TONS
EST 10 SY GEOTEXTILE

SPECIAL CUT DITCH
SEE DETAIL #1

PC Sta. 15+30.78 -L-

PC Sta. 21+45.66 -L-

POT Sta. 20+66.93 -L-=
POC Sta. 15+03.23 -Y1-

N 23° 45' 16.6" W

BEGIN TIP W-5207G
-L- STA. 15+25.00

STD V DITCH
DDE +/- 2.0 CY
SEE DETAIL #2

STD V DITCH
DDE +/- 5.0 CY
SEE DETAIL #2

PC Sta. 13+21.61 -Y1-

POT Sta. 10+00.00 -Y1-

S 40° 41' 11.6" W

BEGIN CONSTRUCTION
-Y1- STA. 13+20.00
BEG. TAPERS (LT. & RT.)

PT Sta. 25+20.20 -L-

N 25° 53' 33.4" W

CLASS B RIP RAP
EST 3 TONS
EST 10 SY GEOTEXTILE

END TIP W-5207G
-L- STA. 25+25.00

1 JACK C. ELLINGTON & ROSA T. ELLINGTON DB 761 PG 1346

2 LEONARD G. MARTIN & GAIL P. MARTIN DB 740 PG 59 PB 8 PG 87

3 LOIS HANDY DB 773 PG 603 PB 8 PG 89

5 JACK ELLINGTON DB 699 PG 295

6 CALVIN G. KENNON DB 772 PG 1980 PB 8 PG 89 — NO CLAIM

7 RAY C. ELLINGTON & PATRICIA D. ELLINGTON DB 1034 PG 1492 PB 8 PG 87 PB 8 PG 89

8 STEVE S. MILLS & WESLEY P. MILLS DB 1033 PG 2162 PB 8 PG 89 — NO CLAIM

9 MOIR A. SPANGLER DB 99E PG 15 — NO CLAIM

THOMAS D. HOWELL & TERESA W. HOWELL DB 878 PG 866 PB 8 PG 89

THOMAS D. HOWELL & TERESA W. HOWELL DB 1091 PG 1493 PB 8 PG 89

MARY H. LOVELACE DB 846 PG 151 PB 8 PG 89

LEONARD G. MARTIN & GAIL P. MARTIN DB 1423 PG 55 PB 8 PG 87

OREGON HILL RD. SR1914 — 20.5' PAVED

GUERNANT SPRINGS RD. SR2023 — 20' PAVED

NOTE: TIE DRIVEWAYS TO RIGHT OF WAY
DRIVEWAY RADIUS = 10'

SEE SHEET 2-C FOR -Y1- INTERSECTION DETAIL AND GEOMETRY
SEE SHEET 5 FOR -L- PROFILE
SEE SHEET 5 FOR -Y1- PROFILE

GRAPHIC SCALE: 1"=50'
50 25 0 50 100

11/14/2014
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PROJECT REFERENCE NO.	SHEET NO.
W-5207G	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

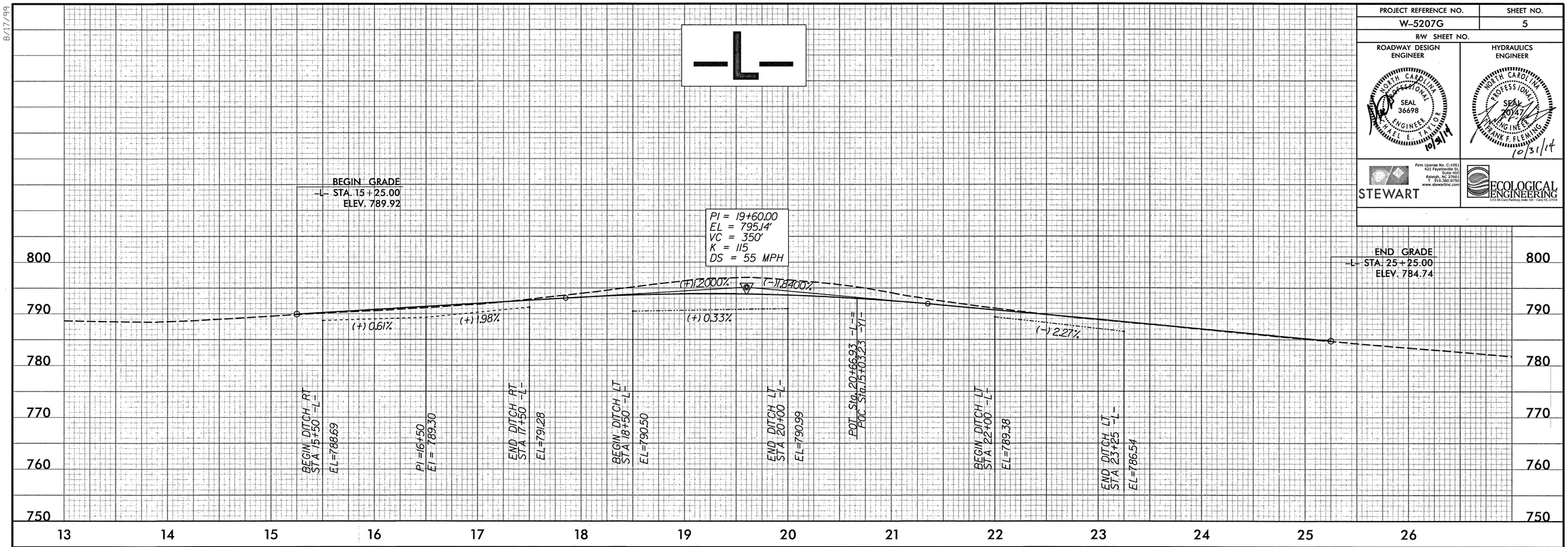
NORTH CAROLINA PROFESSIONAL SEAL 36698 ENGINEER HALEE TAYLOR 10/31/14

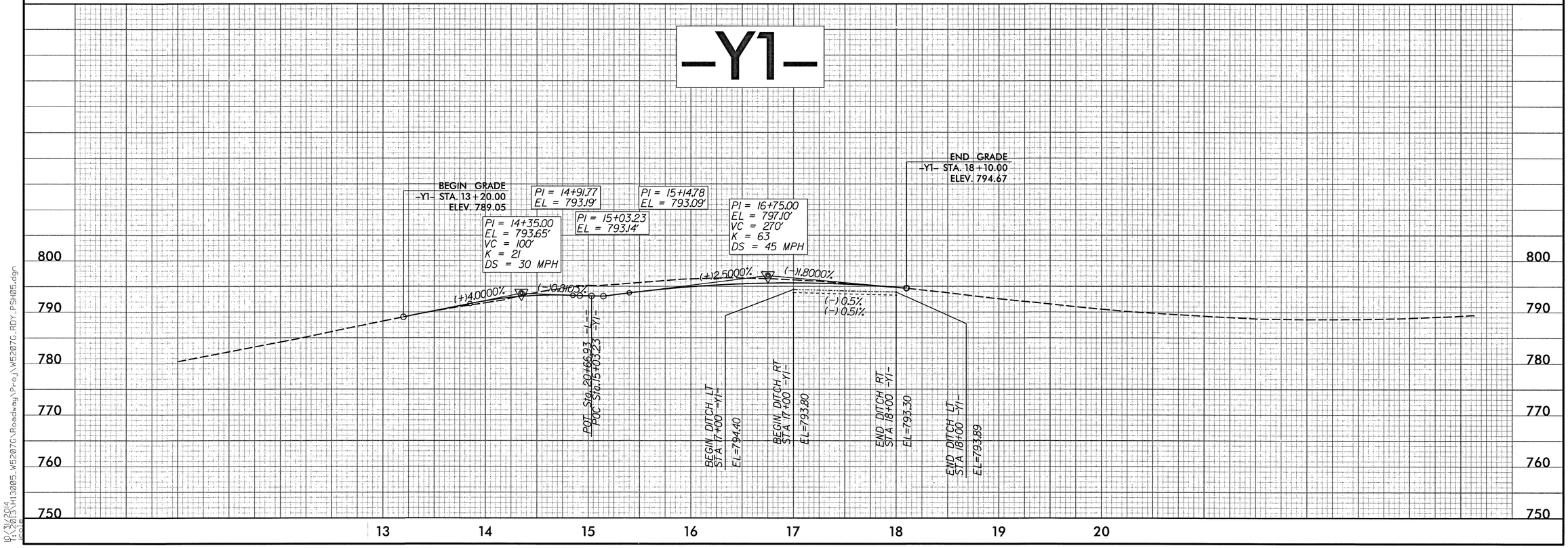
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20247 ENGINEER FRANK F. FLEMING 10/31/14

STEWART
Firm License No. C-1051
621 Fayetteville St.
Suite 1400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

ECOLOGICAL ENGINEERING
1031 W Cary Parkway, Suite 101 - Cary NC 27513





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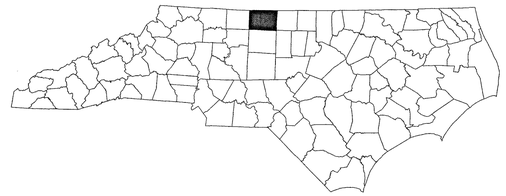
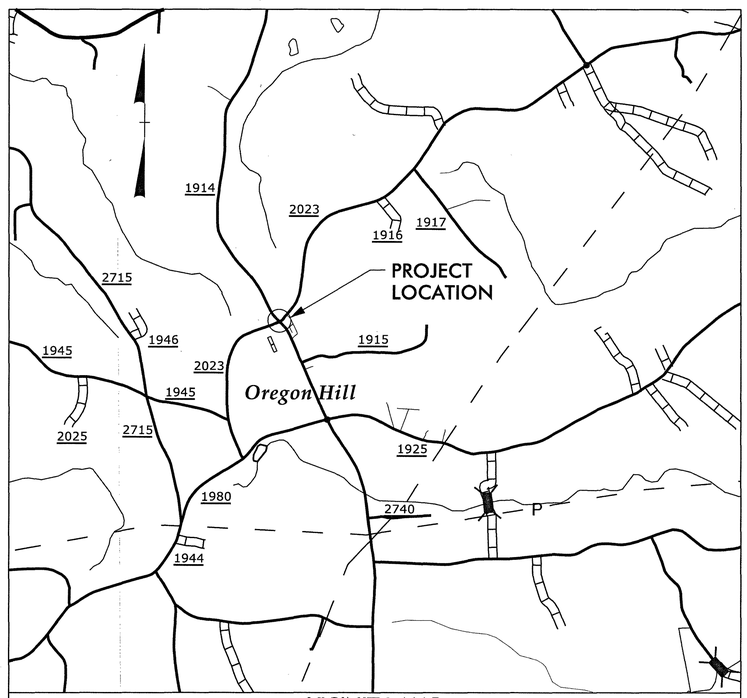
Scale

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ROCKINGHAM COUNTY





VICINITY MAP

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND, TEMP. PAV'T MARKING
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES)
TMP-2	PHASING
TMP-3 - TMP-7	TRAFFIC CONTROL PLAN
TMP-8	OFFSITE DETOUR
TMP-9	SPECIAL SIGN DESIGN
PMP-1	FINAL PAVMENT MARKING PLAN

SHEET NO.
TMP-1

W-5207G

TIP PROJECT:

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

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER
MICHAEL TAYLOR, P.E. TRAFFIC CONTROL PROJECT ENGINEER
MICHAEL BURNS, E.I. TRAFFIC CONTROL PROJECT DESIGN ENGINEER
_____ TRAFFIC CONTROL DESIGN ENGINEER

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

PLANS PREPARED BY:
STEWART
421 FAYETTEVILLE ST, STE 400
RALEIGH, NC 27601
T 919.380.8750
Firm License #: C-1051
www.stewartinc.com
PROJECT #:B11001

APPROVED: _____
DATE: 10/31/14

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 36698 ENGINEER MICHAEL E. TAYLOR

10/31/2014
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USER:jcole

PROJ. REFERENCE NO.	SHEET NO.
W-5207G	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANAUARY 2012 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
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1130.01	DRUMS
1145.01	BARRICADES
1160.01	TEMPORARY CRASH CUSHION
1170.01	PORTABLE CONCRETE BARRIER
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION	PVT MKG	QUANTITY	TOTAL QUANTITY
PA-E	WHITE EDGE LINE (1XS)	PAINT (4 IN)	4705	
PB-E	YELLOW EDGE LINE (1XS)		0	
PI-E	YELLOW DOUBLE CENTERLINE (1XS)		2410	9525
P1	WHITE LINE, RRX (1XS)	PAINT (16 IN)	0	0
P4	WHITE STOP BAR (1XS)	PAINT (24 IN)	0	0
QC	STRAIGHT ARROW (1XS)	STRAIGHT ARROW	0	0
QI	ALPHANUMERIC CHAR. (1XS)	CHARACTER	0	0
MH	YELLOW/YELLOW TEMPORARY RAISED PAVEMENT MARKER	80' SPACING	60	60

TEMPORARY PAVEMENT MARKERS

SYMBOL	DESCRIPTION	SPACING	QUAINTY	TOTAL QUANTITY
MH	YELLOW/YELLOW TEMPORARY RAISED PAVEMENT MARKER	80' SPACING	60	60

PAVEMENT MARKING REMOVAL

REMOVAL OF PAVEMENT MARKING (4")	5880

NOTE: FOR EACH PAINT PAVEMENT MARKING ITEM, 1XS IMPLIES A SINGLE APPLICATION AND 2X IMPLIES TWO APPLICATIONS.

NOTE:
REFER TO RDWY STD 1101.03 SHEET 3 FOR ADDITIONAL SIGNING AND TRAFFIC CONTROL DEVICES

APPROVED: DATE: 6/31/14

SEAL

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

TRANSPORTATION OPERATIONS PLAN

10/31/2014
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GENERAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
W-5207G	TMP-1B

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.

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

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

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

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

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

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

TRAFFIC PATTERN ALTERATIONS

H) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

I) 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.

TRAFFIC CONTROL DEVICES

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

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

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

ROAD NAME	MARKING	MARKER
DETOUR	PAINT	RAISED
Y1TEMPA	PAINT	RAISED
YITEMPB	PAINT	RAISED
OREGON HILL RD	THERMOPLASTIC	RAISED
GUERRANT SPRINGS RD	THERMOPLASTIC	RAISED

M) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

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

O) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

NOTE:
REFER TO RDWY STD 1101.03 SHEET 3 FOR ADDITIONAL SIGNING AND TRAFFIC CONTROL DEVICES

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NORTH CAROLINA PROFESSIONAL SEAL 36698 ENGINEER MICHAEL E. TAYLOR

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GENERAL NOTES

10/31/2014
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PROJ. REFERENCE NO.	SHEET NO.
W-5207G	TMP-2

PHASING

PHASE I

STEP 1 USING RSD 1101.01 SHEET 3 OF 3, INSTALL WORK ZONE ADVANCED WARNING SIGNS ON OREGON HILL RD. AND GUERRANT SPRINGS RD.

STEP 2 INSTALL DRUMS AT FOLLOWING LOCATIONS AS SHOWN ON SHEET TMP-3:

START	END
-L- 15+25	-L- 20+87
-Y1- 13+04	-Y1- 14+62
-Y1- 18+60	-L- 24+63

STEP 3 CONSTRUCT -DET-, -Y1TEMPA-, AND -Y1TEMPB-. USE FLAGGERS AS NECESSARY WHEN CONSTRUCTING PAVEMENT ADJACENT TO -L- & -Y1-.

STEP 4 INSTALL PORTABLE CONCRETE BARRIER AT FOLLOWING LOCATIONS:

START		END	
-DET-	17+80	-DET-	19+40
-DET-	21+15	-DET-	22+10
-Y1TEMPB-	10+40	-Y1TEMPB-	11+55

PHASE II

STEP 1 COMPLETE CONSTRUCTION OF -DET-, -Y1TEMPA-, Y1TEMPB-, AND PLACE PAVEMENT MARKINGS.

STEP 2 SHIFT TRAFFIC ON TO -DET-, -Y1TEMPA-, & Y1TEMPB-.

STEP 3 INSTALL DRUMS AT FOLLOWING LOCATIONS AS SHOWN ON SHEET TMP-4:

START		END	
-DET-	15+40	-DET-	17+45
-Y1TEMPA-	11+62	-Y1TEMPA-	12+09
-DET-	20+47	-DET-	21+06
-DET-	22+47	-DET-	23+97
-Y1TEMPA-	10+00	-Y1TEMPA-	11+03
-Y1TEMPB-	11+88	-Y1TEMPB-	13+04
-DET-	16+78	-DET-	18+28

STEP 4 INSTALL PORTABLE CONCRETE BARRIER BETWEEN 11+30.00 AND 11+65.00 ALONG -Y1TEMPA-.

STEP 5 CONSTRUCT -L- AND -Y1- AS SHOWN ON SHEET TMP-4. USE FLAGGERS AS REQUIRED WHEN CONSTRUCTING PAVEMENT ADJACENT TO -DET-, -Y1TEMPA-, & Y1TEMPB-.

PHASE III

STEP 1 INSTALL DETOUR FOR -Y1- AS SHOWN ON SHEET TMP-8 IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9. SIGNS SHALL BE COVERED IF DETOUR IS NOT OPENED WITHIN 3 DAYS OF SIGN INSTALLATION.

STEPS 2 THRU 6 SHALL BE CONSTRUCTED IN A CONTINUOUS MANNER BETWEEN THE HOURS OF 11 PM FRIDAY EVENING AND 5AM MONDAY MORNING. SEE SPECIAL PROVISIONS.

STEP 2 INSTALL DRUMS FROM -DET- STA. 19+68.00 TO -DET- STA. 20+88.00 AS SHOWN ON TMP-5.

STEP 3 INSTALL TYPE-III BARRICADES ALONG -Y1TEMPA- AND -Y1TEMPB- AS SHOWN ON TMP-5.

STEP 4 REMOVE -Y1TEMPA- PAVEMENT FROM STA. 11+70 TO STA. 12+20. SEE DETAIL 1.

STEP 5 CONSTRUCT -L- PAVEMENT FROM STA. 19+77 TO STA. 20+23.

STEP 6 SHIFT TRAFFIC FROM -DET- TO -L-. SEE DETAIL 2.

STEP 7 INSTALL DRUMS AT FOLLOWING LOCATIONS AS SHOWN ON TMP-6:

START		END	
-L-	15+82	-L-	17+82
-L-	19+60	-Y1TEMPA-	10+00
-L-	19+60	-L-	24+00
-Y1TEMPB-	11+88	-Y1TEMPB-	13+03

STEP 8 CONSTRUCT -Y1- PAVEMENT FROM STA. 15+15 TO STA. 15+82.

STEP 9 SHIFT -Y1- TRAFFIC FROM TEMPORARY PATTERN TO NEW -Y1- PAVEMENT.

STEP 10 REMOVE OFFSITE DETOUR.

PHASE IV

STEP 1 REMOVE -DET-, -Y1TEMPA-, AND Y1TEMPB-

STEP 2 REMOVE TRAFFIC CONTROL DEVICES.

STEP 3 PLACE FINAL LAYER OF PAVEMENT AND MARKINGS. MOVE TRAFFIC INTO FINAL ALIGNMENT.

NOTE:
REFER TO RDWY STD 1101.03 SHEET 3 FOR ADDITIONAL SIGNING AND TRAFFIC CONTROL DEVICES

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PHASING

10/31/2014
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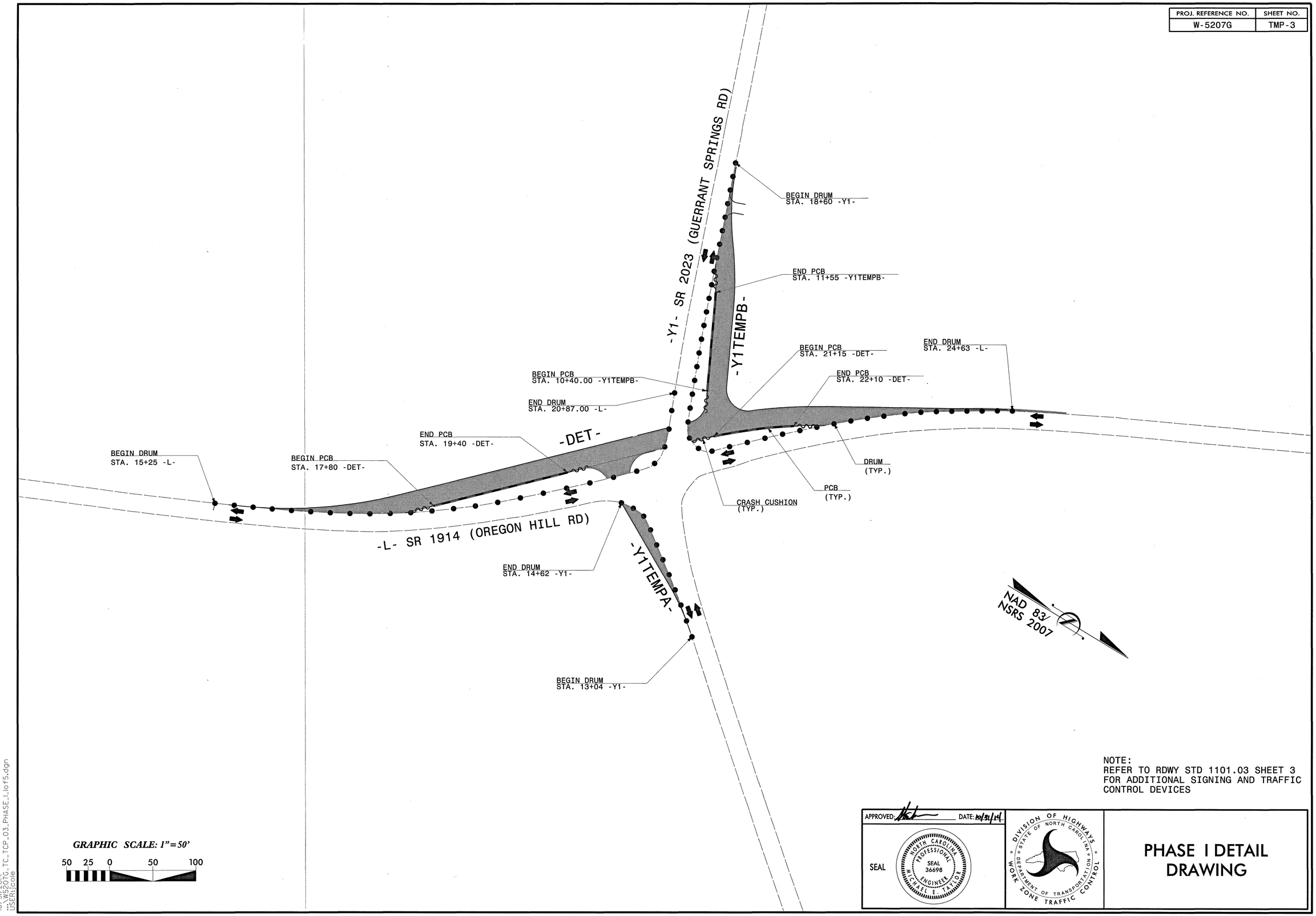
USER:tcole

PROJ. REFERENCE NO.	SHEET NO.
W-5207G	TMP-3



NOTE:
REFER TO RDWY STD 1101.03 SHEET 3
FOR ADDITIONAL SIGNING AND TRAFFIC
CONTROL DEVICES

GRAPHIC SCALE: 1"=50'

50 25 0 50 100

APPROVED: DATE: 10/31/14

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WORK ZONE TRAFFIC CONTROL

PHASE I DETAIL DRAWING

10/31/2014
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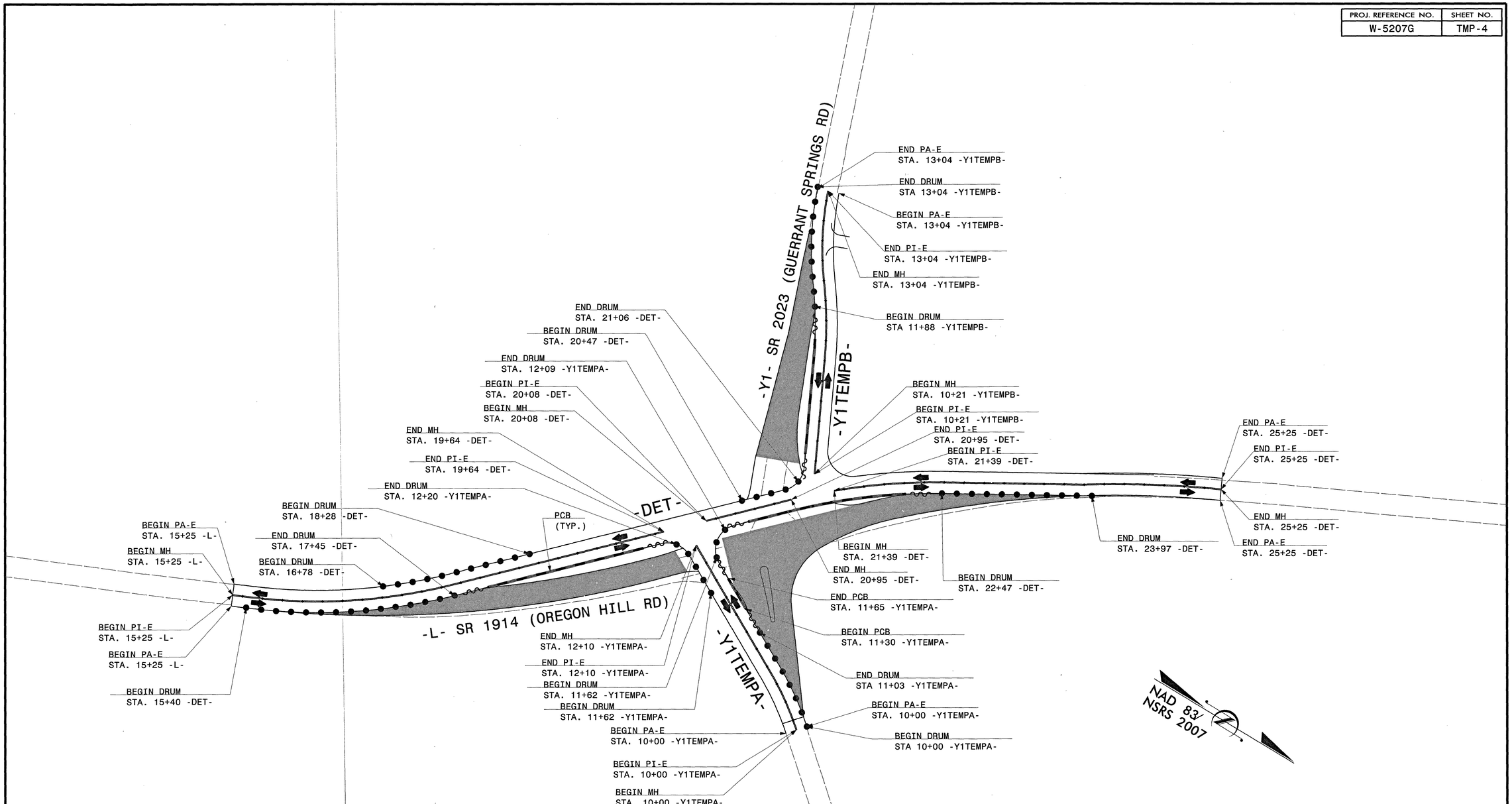
USER:jcole

PROJ. REFERENCE NO.	SHEET NO.
W-5207G	TMP-4



NOTE:
REFER TO RDWY STD 1101.03 SHEET 3 FOR ADDITIONAL SIGNING AND TRAFFIC CONTROL DEVICES

GRAPHIC SCALE: 1"=50'

50 25 0 50 100

APPROVED: DATE: 6/31/14

SEAL

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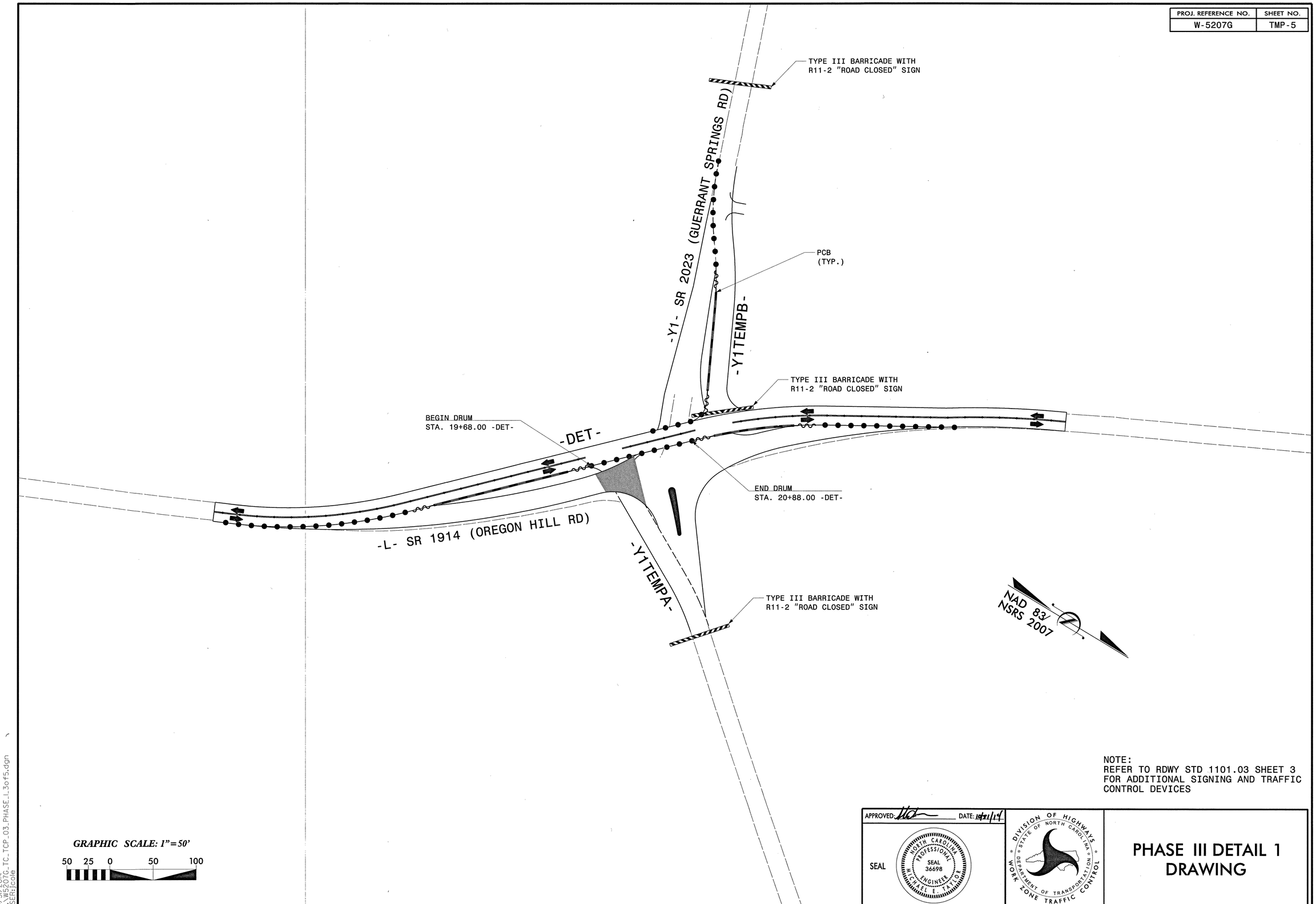
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

PHASE II DETAIL DRAWING

10/31/2014
W5207G_TC_TCP_03_PHASE_I_2of5.dgn
USER:jcole

PROJ. REFERENCE NO.	SHEET NO.
W-5207G	TMP-5



NOTE:
REFER TO RDWY STD 1101.03 SHEET 3
FOR ADDITIONAL SIGNING AND TRAFFIC
CONTROL DEVICES

APPROVED: DATE: 10/21/19

SEAL

PHASE III DETAIL 1 DRAWING

10/31/2014
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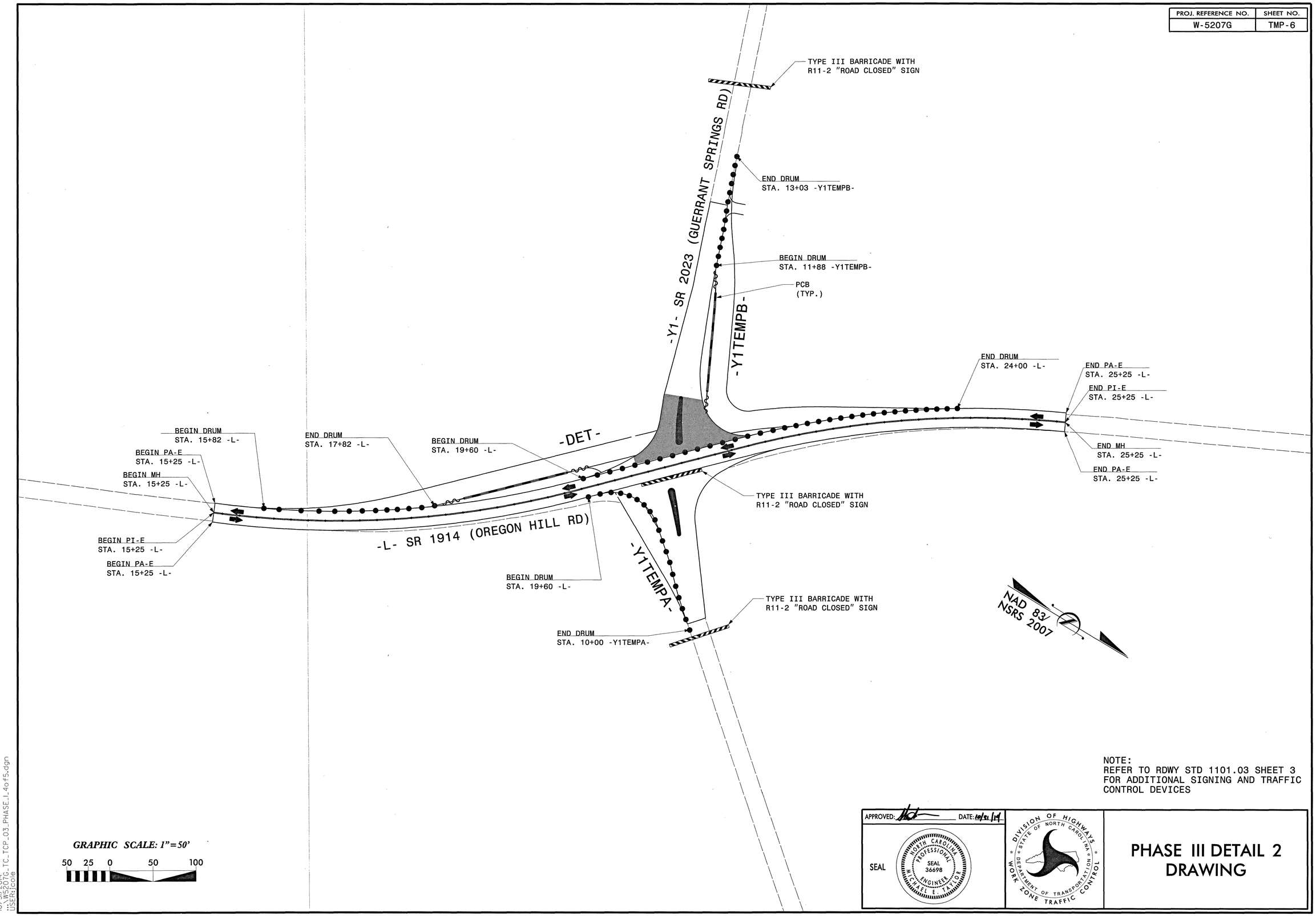
USER:jcole

PROJ. REFERENCE NO.	SHEET NO.
W-5207G	TMP-6



NOTE:
REFER TO RDWY STD 1101.03 SHEET 3
FOR ADDITIONAL SIGNING AND TRAFFIC
CONTROL DEVICES

GRAPHIC SCALE: 1"=50'

50 25 0 50 100

APPROVED: DATE: 10/21/14

SEAL

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STATE OF NORTH CAROLINA
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WORK ZONE TRAFFIC CONTROL

PHASE III DETAIL 2 DRAWING

10/31/2014
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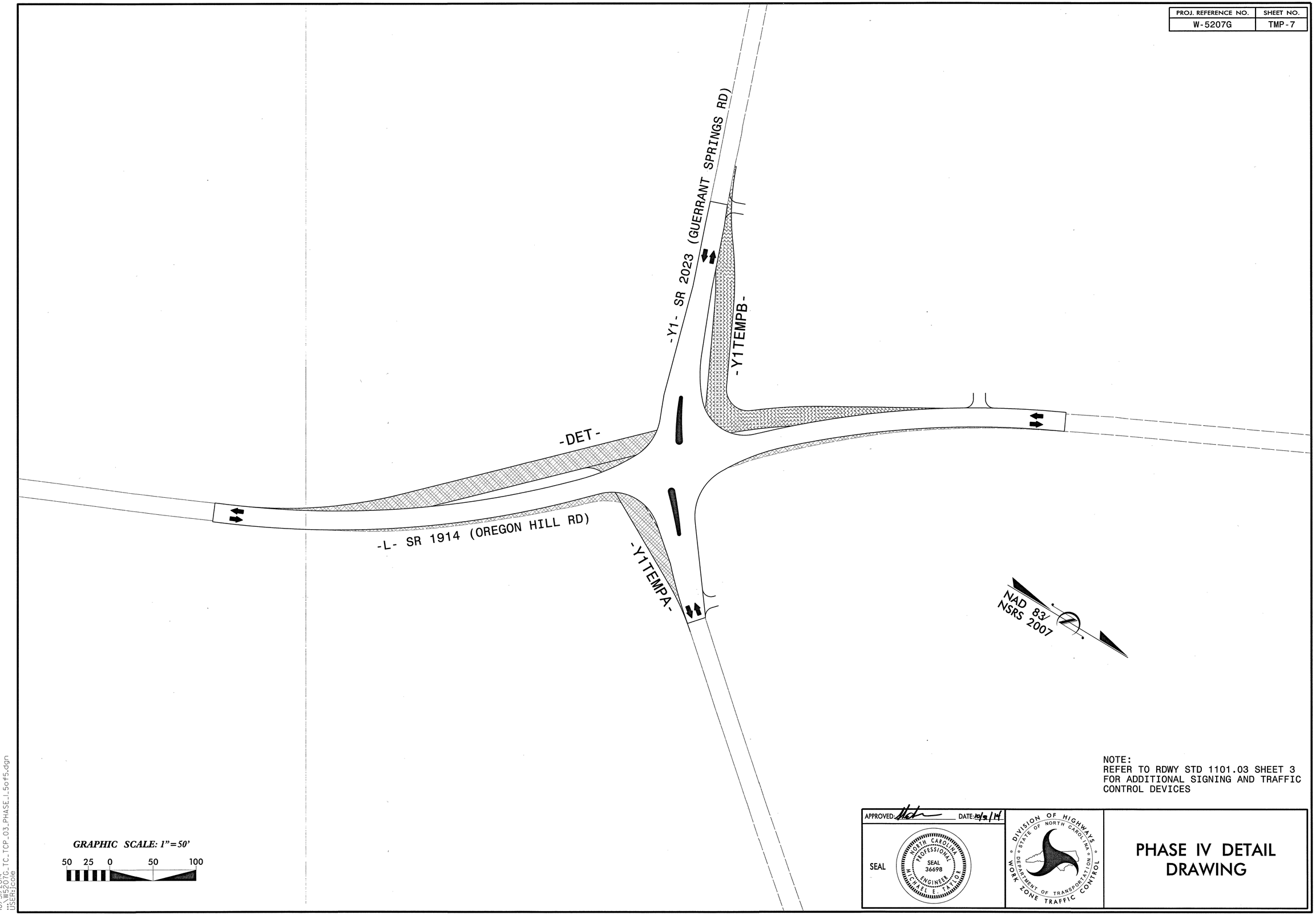
USER:tjcole

PROJ. REFERENCE NO.	SHEET NO.
W-5207G	TMP-7



NOTE:
REFER TO RDWY STD 1101.03 SHEET 3
FOR ADDITIONAL SIGNING AND TRAFFIC
CONTROL DEVICES

APPROVED: DATE: 10/3/14

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STATE OF NORTH CAROLINA
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PHASE IV DETAIL DRAWING

10/3/2014
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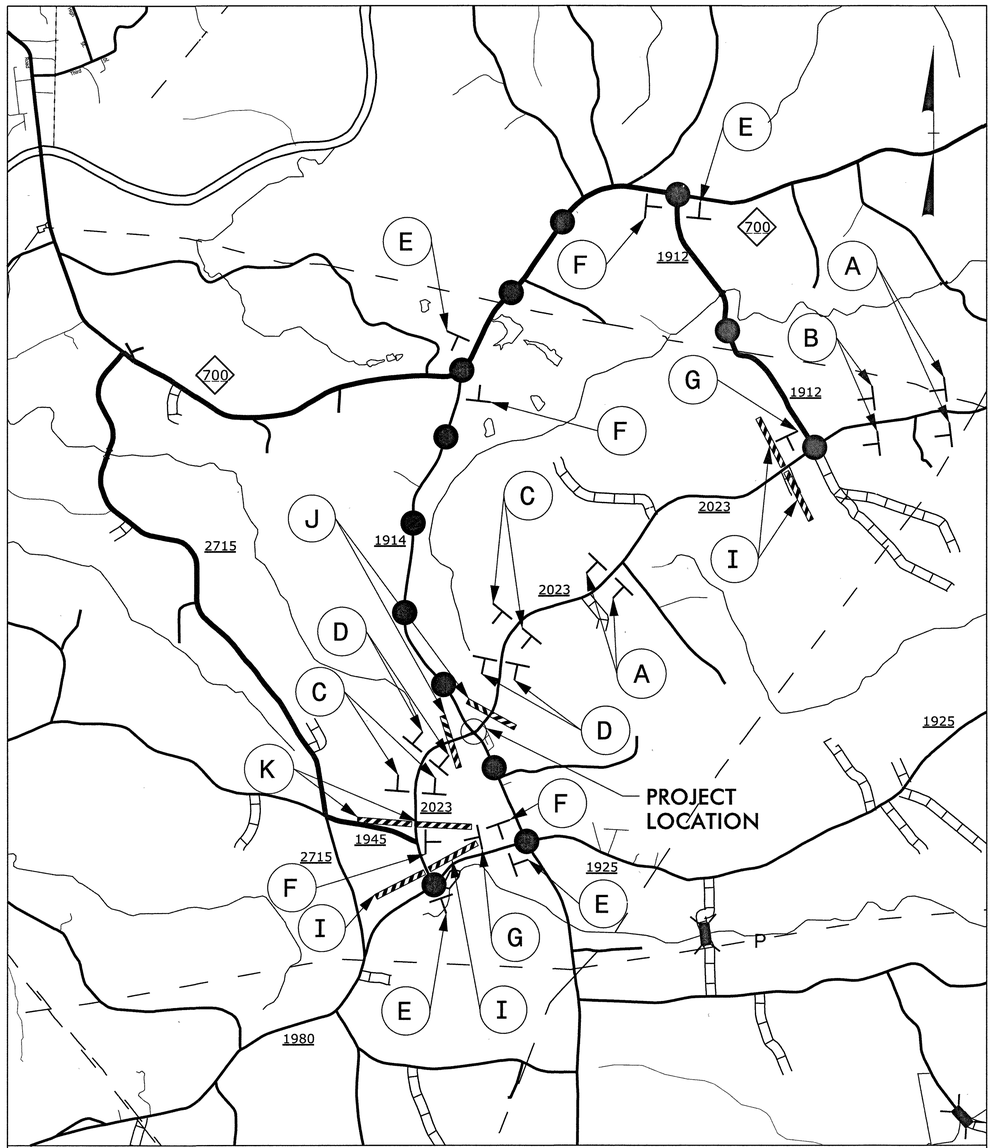
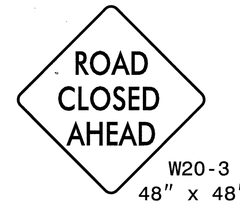
PROJ. REFERENCE NO.	SHEET NO.
W-5207G	TMP-8

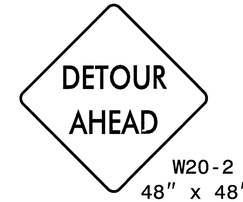


VICINITY MAP



W20-3
48" x 48"

A

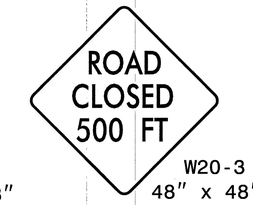


W20-2
48" x 48"

B

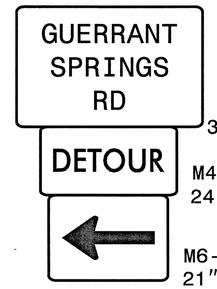
W20-3
48" x 48"

C



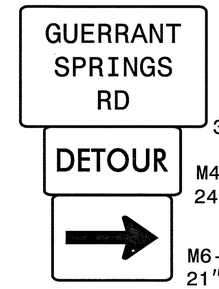
W20-3
48" x 48"

D



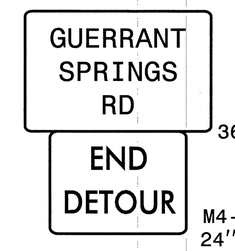
36" x 24"
M4-8
24" x 12"
M6-1
21" x 15"

E



36" x 24"
M4-8
24" x 12"
M6-1
21" x 15"

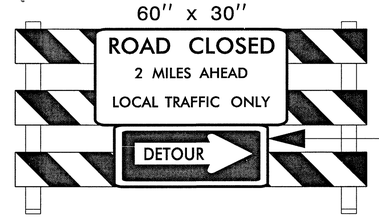
F



36" x 24"
M4-8 A
24" X 18"

G

R11-3
60" x 30"

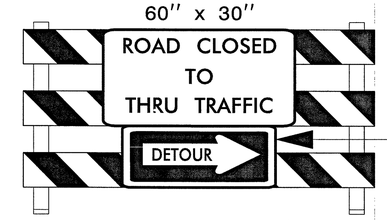


M4-10R
48" x 18"

TYPE III BARRICADE

H

R11-4
60" x 30"

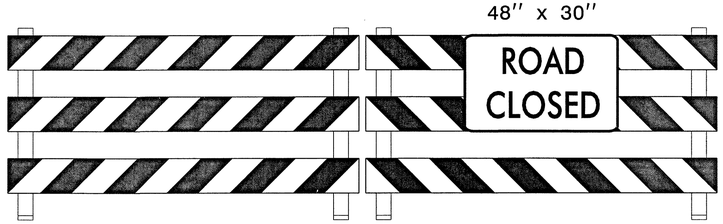


M4-10R
48" x 18"

TYPE III BARRICADE

I

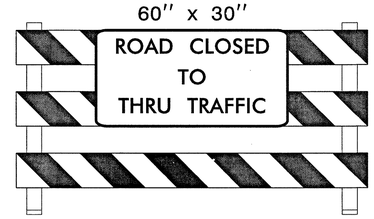
R11-2
48" x 30"



TYPE III BARRICADE(S)

J

R11-4
60" x 30"



TYPE III BARRICADE

K

NOTE:
REFER TO RDWY STD 1101.03 SHEET 3
FOR ADDITIONAL SIGNING AND TRAFFIC
CONTROL DEVICES

APPROVED: DATE: 11/20/2014

SEAL

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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
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WORK ZONE TRAFFIC CONTROL

OFF SITE DETOUR

11/20/2014
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USER:jcole

PROJ. REFERENCE NO.	SHEET NO.
W-5207G	TMP-9

SIGN NUMBER: TMP-8
TYPE: D
QUANTITY: 6

SIGN WIDTH: 3'-0"
HEIGHT: 2'-0"
TOTAL AREA: 6.0 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

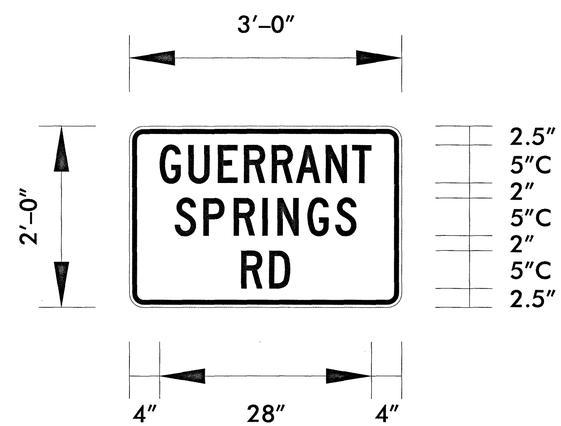
SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM
OR
0.079" (2.0 mm) COMPOSITE

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be VII, VIII, or IX (Prismatic) fluorescent orange retroreflective sheeting.

DESIGN BY: MSB
PROJECT ID: W-5207G
CHECKED BY:
DIV: 7
DATE: Oct 15, 2013



BORDER
R=1.5"
TH=0.63"
IN=0.38"

Panel Style: Traffic Control.ssi
M.U.T.C.D.: 2009 Edition

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner

									Series/Size Text Length
	G	U	E	R	R	A	N	T	C 2000
	4	7.8	11.7	15.1	18.8	22	25.9	29.5	28
	S	P	R	I	N	G	S		C 2000
	6	9.8	13.8	17.6	19.6	23.5	27.2		24
	R	D							C 2000
	14.8	18.5							6.5

FILENAME: W5207G_TC_TCP_09_SSD

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED: DATE: 10/31/14

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 36698 ENGINEER MICHAEL E. TAYLOR

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

SPECIAL SIGN DESIGN
GUERRANT SPRINGS RD

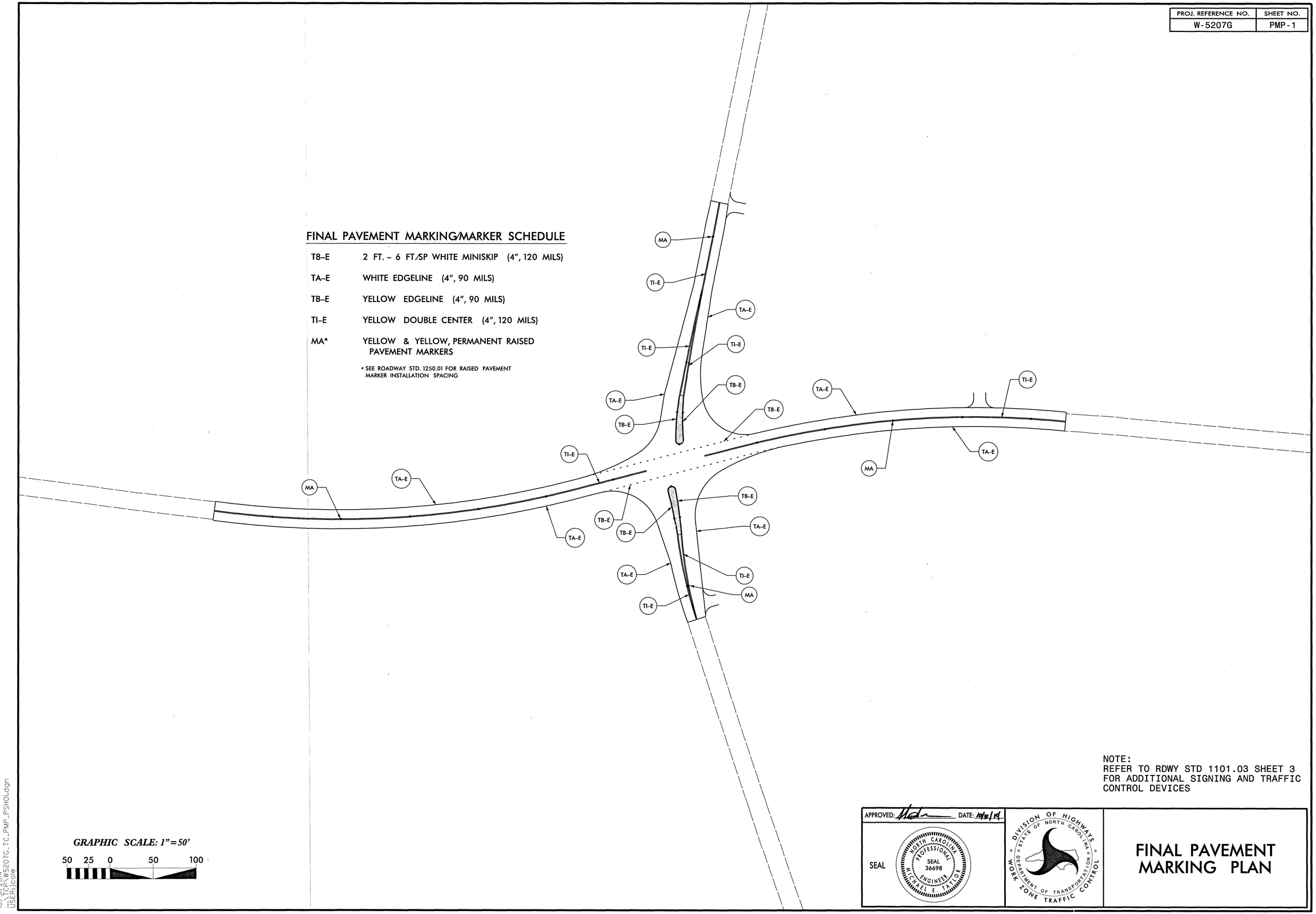
10/31/2014
TCP_NW52076_TC_TCP_09_SSD.dgn
USER:jcole

PROJ. REFERENCE NO.	SHEET NO.
W-5207G	PMP-1

FINAL PAVEMENT MARKING/MARKER SCHEDULE

T8–E	2 FT. – 6 FT./SP WHITE MINISKIP (4", 120 MILS)
TA–E	WHITE EDGELINE (4", 90 MILS)
TB–E	YELLOW EDGELINE (4", 90 MILS)
TI–E	YELLOW DOUBLE CENTER (4", 120 MILS)
MA*	YELLOW & YELLOW, PERMANENT RAISED PAVEMENT MARKERS

* SEE ROADWAY STD. 1250.01 FOR RAISED PAVEMENT MARKER INSTALLATION SPACING



NOTE:
REFER TO RDWY STD 1101.03 SHEET 3 FOR ADDITIONAL SIGNING AND TRAFFIC CONTROL DEVICES

GRAPHIC SCALE: 1"=50'

50 25 0 50 100

APPROVED: DATE: 10/31/14

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36698 MICHAEL E. TAYLOR

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

FINAL PAVEMENT MARKING PLAN

10/31/2014
W-5207G_TC_PMP_PSH01.dgn
USER:jcole

PROJECT: W-5207G

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	SW 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	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

LOCATION: ***SR 1914 (OREGON HILL ROAD) AT SR 2023 (GUERRANT SPRINGS ROAD)***

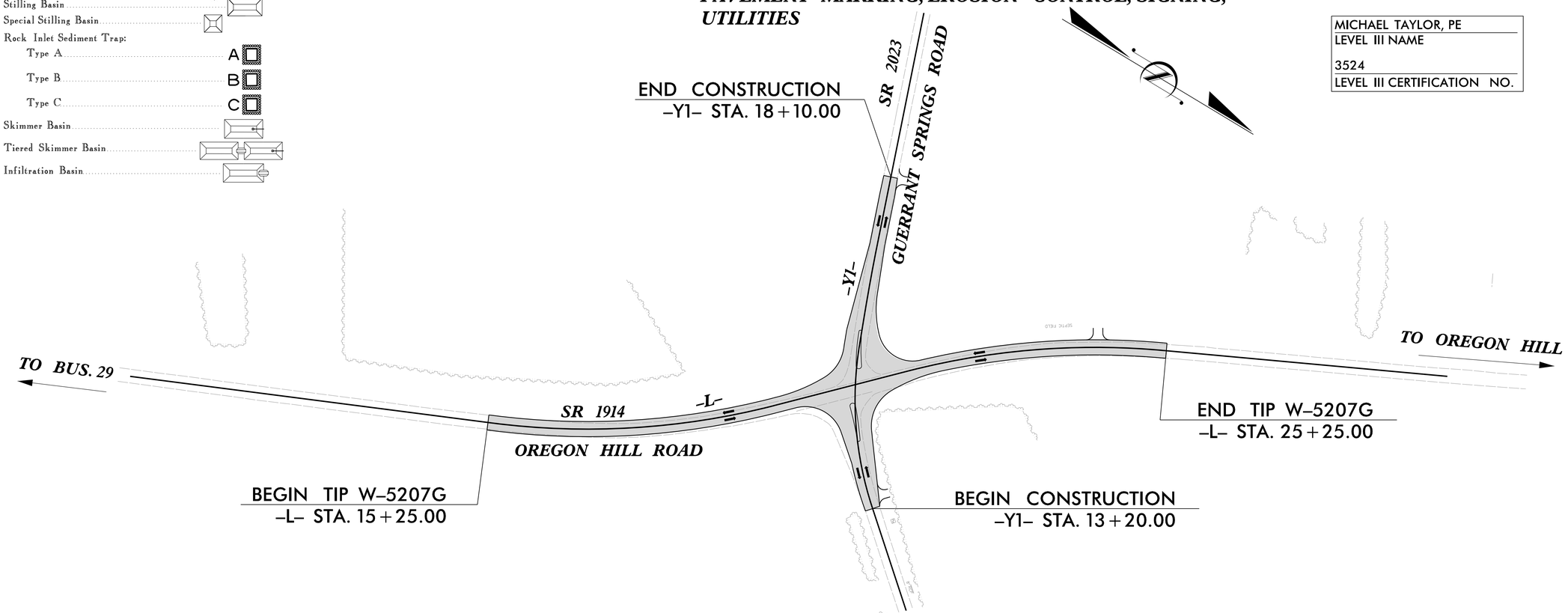
TYPE OF WORK: ***GRADING, PAVING, DRAINAGE, TRAFFIC CONTROL, PAVEMENT MARKING, EROSION CONTROL, SIGNING, UTILITIES***

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5207G	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45337.1.7	HSIP-1914(3)	PE
45337.2.7	HSIP-1914(3)	R/W AND UTILITY
45337.3.FD7	HSIP-1914(3)	CONSTRUCTION

STEWART
421 FAYETTEVILLE ST, STE 400
RALEIGH, NC 27601
T 919.380.8750
Firm License #: C-1051
www.stewartinc.com
PROJECT #:B11001

MICHAEL TAYLOR, PE
LEVEL III NAME
3524
LEVEL III CERTIFICATION NO.



GRAPHIC SCALE

50 0 100
PLANS

50 0 100
PROFILE (HORIZONTAL)

10 0 20
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

Prepared in the Office of:

STEWART, INC.

FOR

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

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		

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12/9/2014
mtaylor

MICHAEL TAYLOR, PE	PROJECT REFERENCE NO.	SHEET NO.
LEVEL III NAME	W-5207G	EC-2
3524	R/W SHEET NO.	
LEVEL III CERTIFICATION NO.	STEWART	

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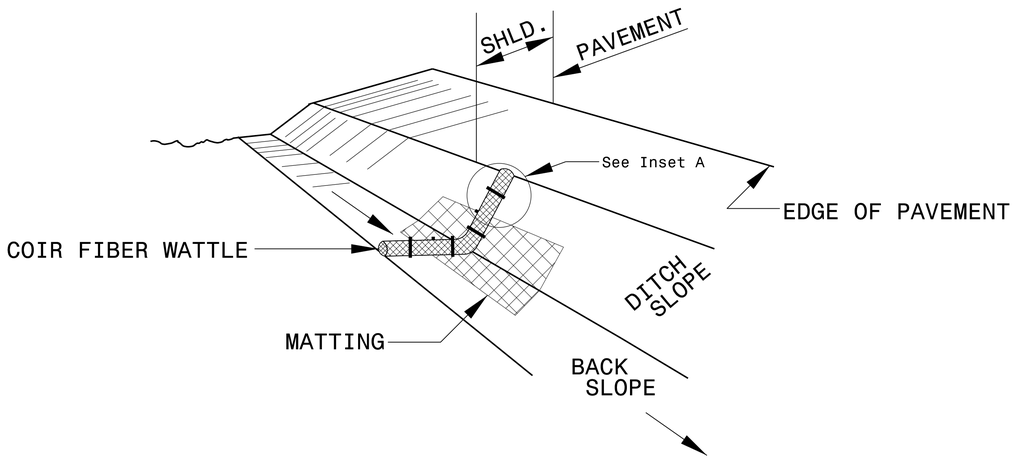
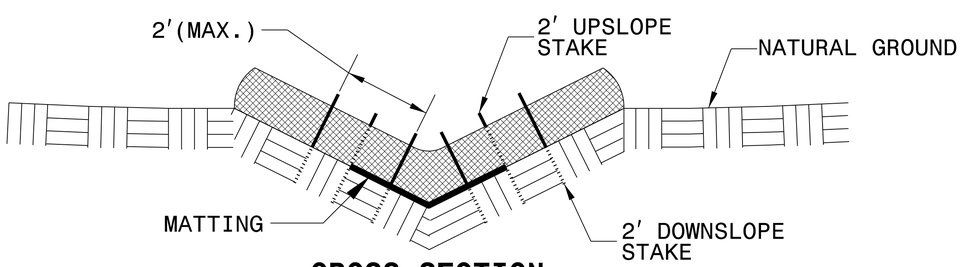
421 Fayetteville St.
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

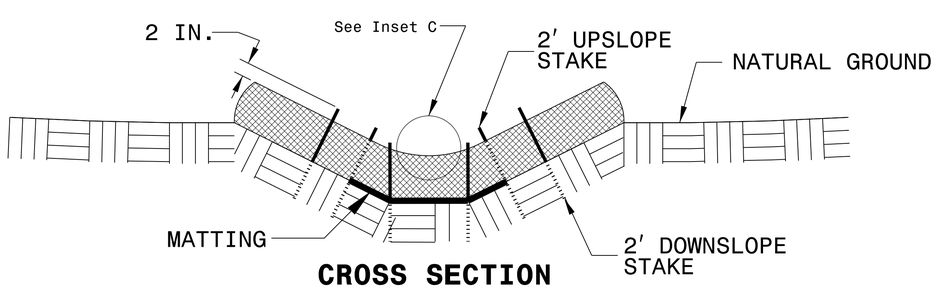
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

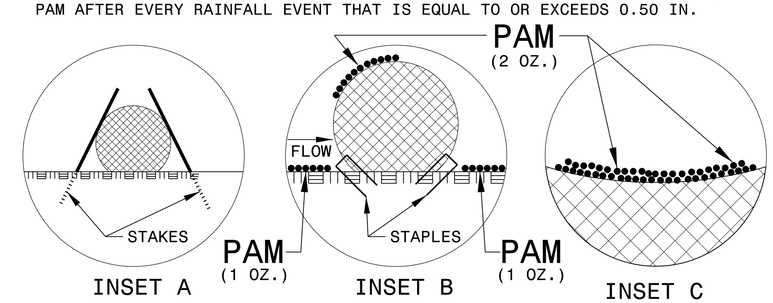
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

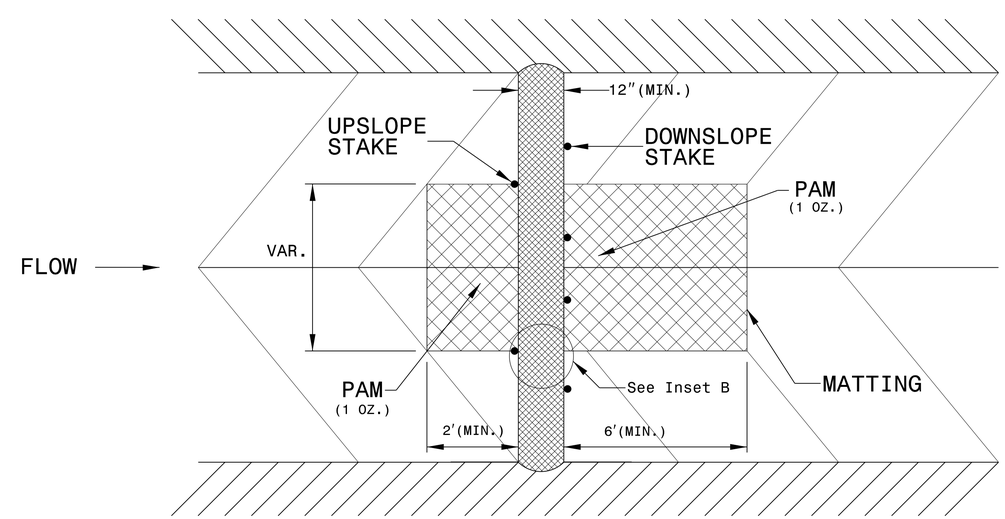
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

REVISIONS

8/17/99

12/3/2014
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mtaylor

MICHAEL TAYLOR, PE
LEVEL III NAME
3524
LEVEL III CERTIFICATION NO.

PROJECT REFERENCE NO.	SHEET NO.
W-5207G	EC-2A
R/W SHEET NO.	

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421 Fayetteville St.
Suite 400
Raleigh, NC 27601
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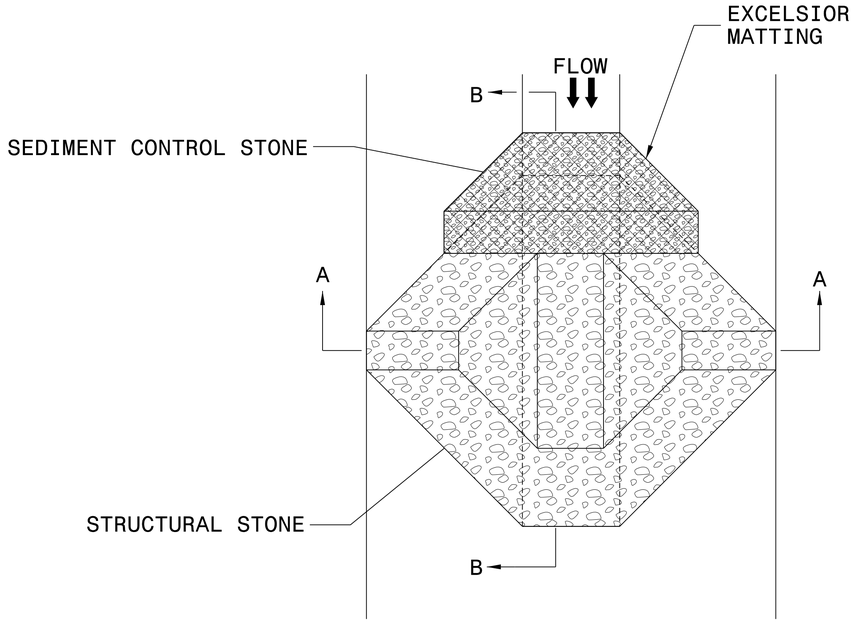
www.stewartinc.com

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



PLAN

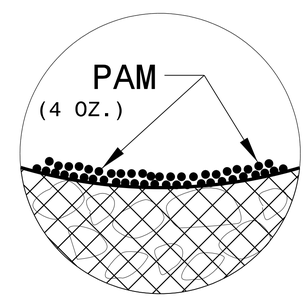
NOTES:

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

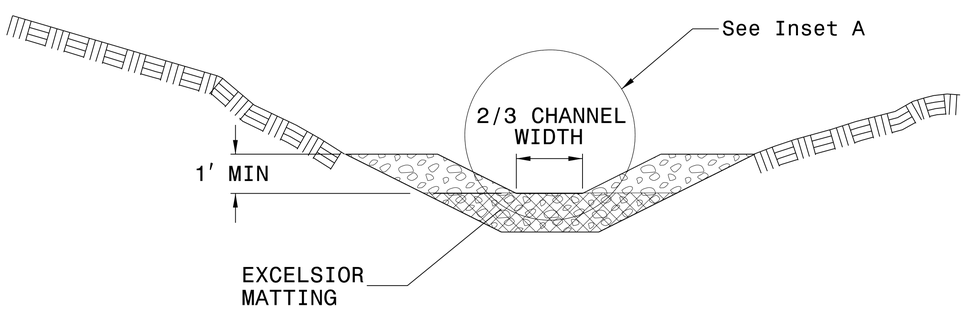
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

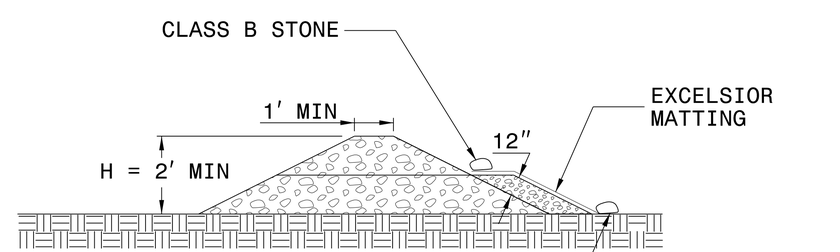
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

REVISIONS

8/17/99

12/3/2014
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REVISIONS

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

MICHAEL TAYLOR, PE
LEVEL III NAME
3524
LEVEL III CERTIFICATION NO.

PROJECT REFERENCE NO.	SHEET NO.
W-5207G	EC-2B
R/W SHEET NO.	

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Raleigh, NC 27601
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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.

MICHAEL TAYLOR, PE
LEVEL III NAME
3524
LEVEL III CERTIFICATION NO.

PROJECT REFERENCE NO.	SHEET NO.
W-5207G	EC-2C
R/W SHEET NO.	

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Suite 400
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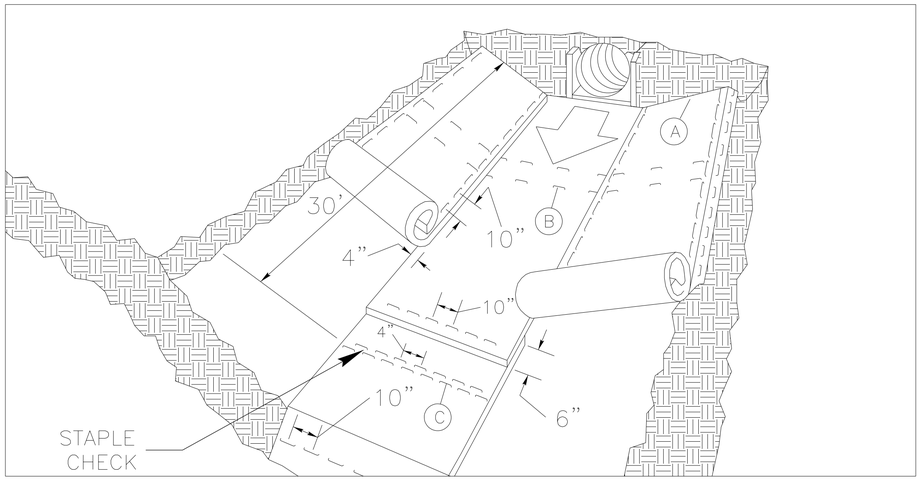
MATTING INSTALLATION DETAIL



MATTING IN DITCHES

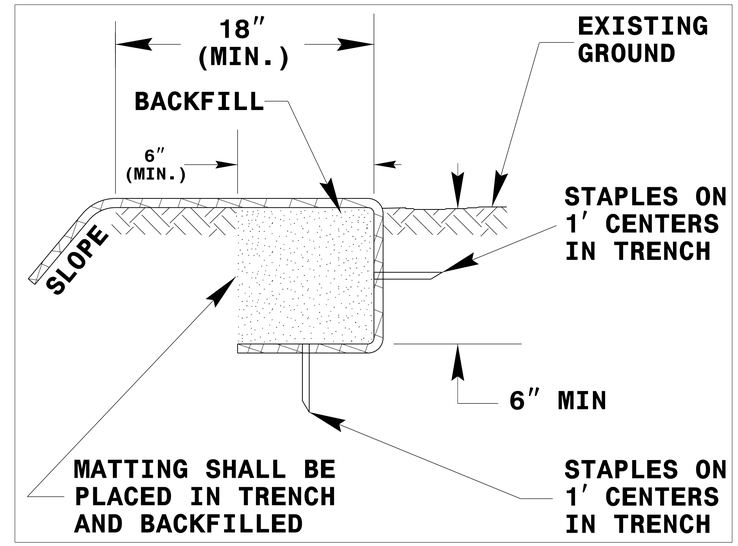
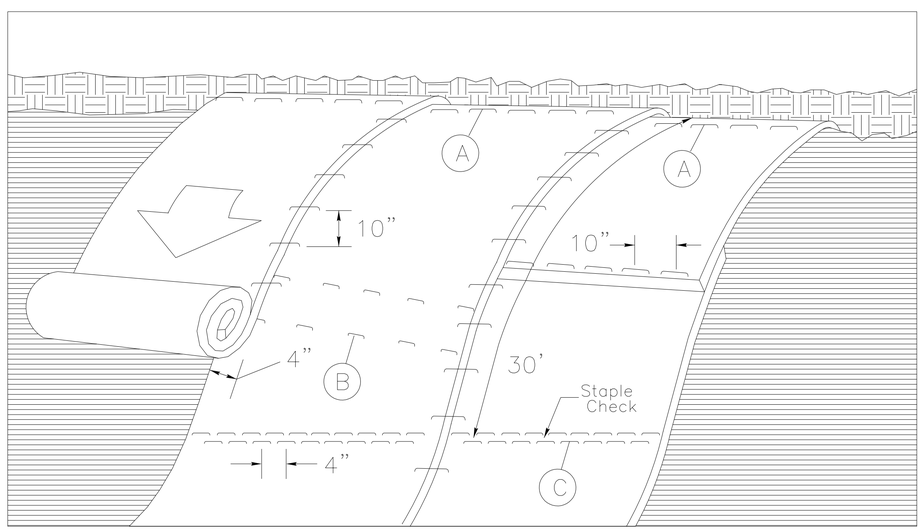


DIAGRAM A



MATTING ON SLOPES

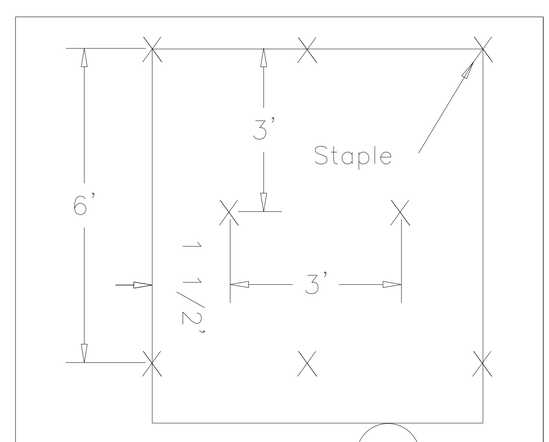


DIAGRAM B

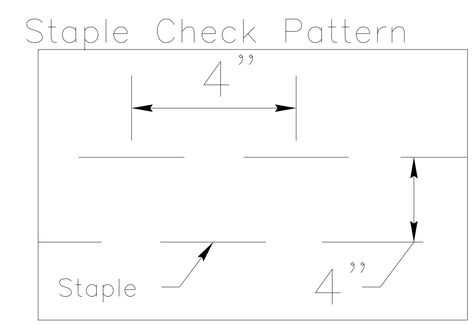


DIAGRAM C

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.

STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

NOT TO SCALE

REVISIONS

8/17/99

12/3/2014
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mtaylor

MICHAEL TAYLOR, PE
LEVEL III NAME
3524
LEVEL III CERTIFICATION NO.

PROJECT REFERENCE NO.	SHEET NO.
W-5207G	EC-3
R/W SHEET NO.	

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Suite 400
Raleigh, NC 27601
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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)
EC-4	-DET-	15+50	18+00	LT	125
EC-4	-DET-	21+50	25+00	LT	245
EC-4	-DET-	18+50	19+50	RT	50
EC-4	-Y1TEMPA-	10+40	11+50	LT	80
EC-5	-L-	19+50	20+00	RT	85
EC-5	-Y1-	13+50	14+60	LT	180
EC-5	-L-	21+00	23+00	RT	225
EC-5	-L-	21+50	25+00	LT	565
EC-5	-Y1-	13+50	14+50	RT	165
EC-5	-Y1-	15+50	17+00	LT	245
EC-5	-Y1-	16+00	17+00	RT	165
				SUBTOTAL	2130
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					200
				TOTAL	2330
				SAY	2350

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
EC-4	DET	18+00	20+50	LT	175
				SUBTOTAL	175
		ADDITIONAL PSRM TO BE INSTALLED			20
				TOTAL	195
				SAY	200

REVISIONS

8/17/99

12/3/2014
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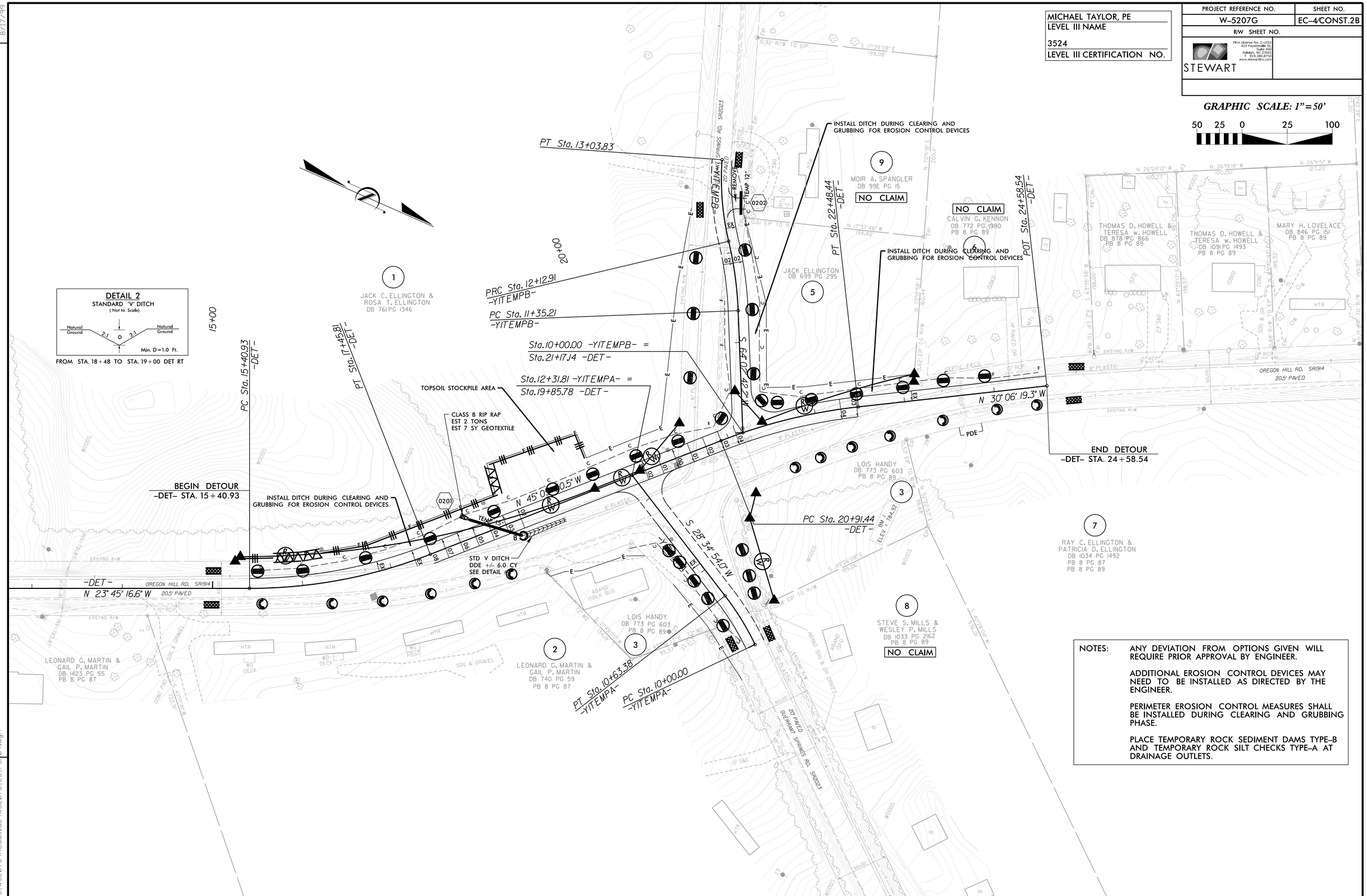
MICHAEL TAYLOR, PE	PROJECT REFERENCE NO.	SHEET NO.
LEVEL III NAME	W-5207G	EC-4/CONST.2B
3524	R/W SHEET NO.	
LEVEL III CERTIFICATION NO.	STEWART — Firm License No. C-1051, 421 Fayetteville St., Suite 400, Raleigh, NC 27601, T 919.380.8750, www.stewartinc.com	

GRAPHIC SCALE: 1" = 50'

50 25 0 25 100



NOTES:

ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE-B AND TEMPORARY ROCK SILT CHECKS TYPE-A AT DRAINAGE OUTLETS.

DETOUR EROSION CONTROL PLAN

REVISIONS

8/17/99

12/3/2014
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mtaylor

MICHAEL TAYLOR, PE LEVEL III NAME
3524 LEVEL III CERTIFICATION NO.

PROJECT REFERENCE NO.	SHEET NO.
W-5207G	EC-5/CONST. 4
R/W SHEET NO.	

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Suite 400
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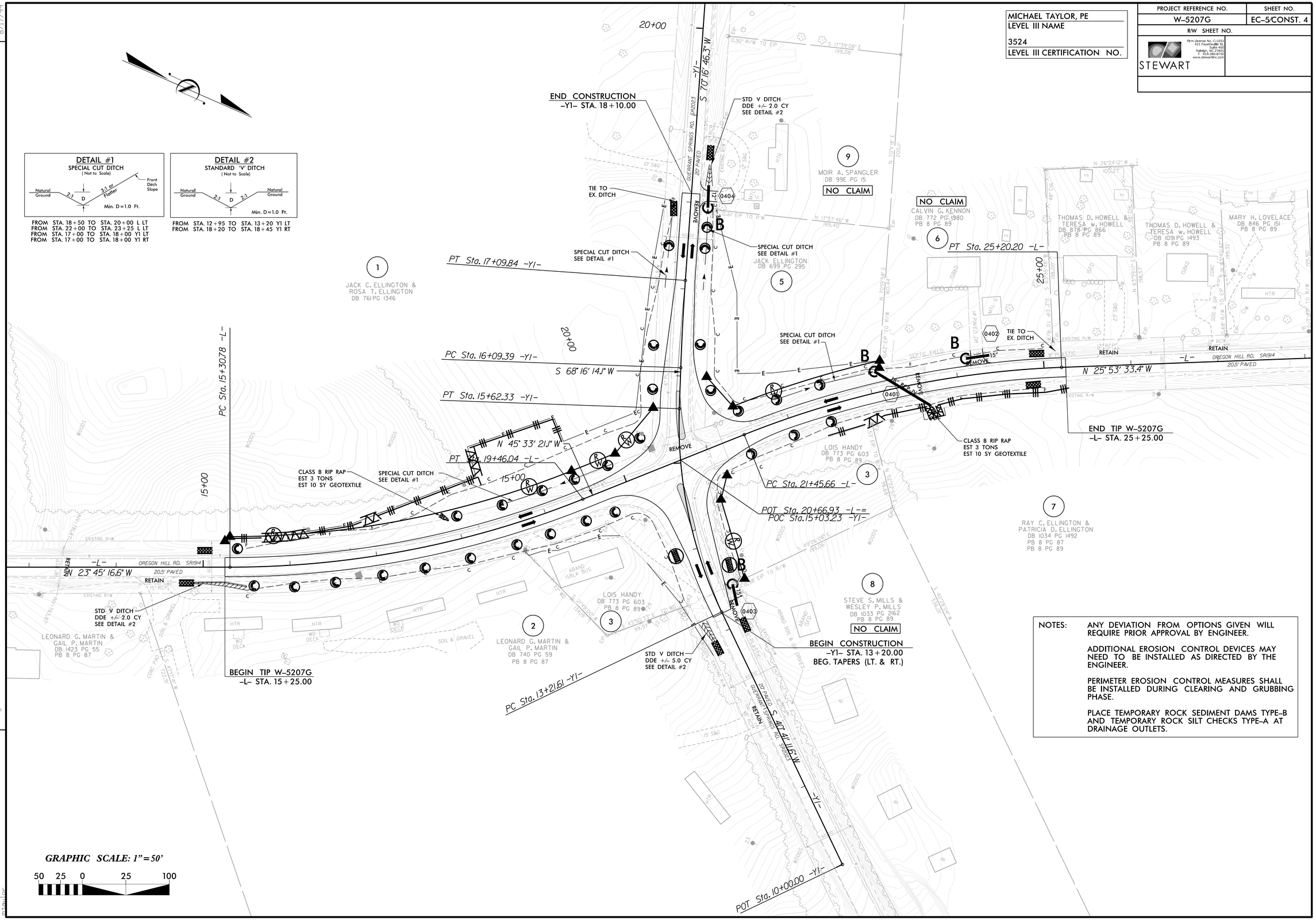
REVISIONS

8/17/99



NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE-B AND TEMPORARY ROCK SILT CHECKS TYPE-A AT DRAINAGE OUTLETS.

12/3/2014
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mtaylor

T.I.P.: W-5207G

CONTRACT:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
ROCKINGHAM COUNTY

TIP NO.	SHEET NO.
W-5207G	SIGN-1

APPROVED: [signature]

DATE: 4/20/2014

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 026453 ENGINEER NEIL J. DEAN

Firm License No. C-1051
421 Fayetteville St.
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com
STEWART

SIGNING GENERAL NOTES

- SIGNS FURNISHED BY CONTRACTOR
- ALL EXISTING SIGNS AND SIGN SYSTEMS WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED IN THE PLANS.
- IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- SIGNING PLANS DO NOT INCLUDE TEMPORARY CONSTRUCTION SIGNING. SEE TRAFFIC CONTROL PLANS
- WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 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

SUMMARY OF SIGNING QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4025000000	901	CONTRACTOR FURNISHED, TYPE E SIGN	66.50	SF
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	105	LF
4102000000	904	SIGN ERECTION, TYPE E	10	EA
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	4	EA
4360000000	SP	72"x3" U-POST MOUNTED RETROREFLECTIVE PANELS	4	EA

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET
SIGN-2	EXISTING AND PROPOSED SIGNS

TYPE "E" SIGNS

(401) QUANTITY REQUIRED 2

STOP 36" x 36" R1-1

ONE 'U' POST PER SIGN
MOUNT 72"x3" RETROREFLECTIVE PANELS ON U-CHANNEL POST

(402) QUANTITY REQUIRED 2

STOP 30" x 30" R1-1

ONE 'U' POST PER SIGN
MOUNT 72"x3" RETROREFLECTIVE PANELS ON U-CHANNEL POST

(403) QUANTITY REQ'D 1

SPEED LIMIT 55 24" X 36" R2-1

ONE "U" POSTS PER SIGN

(404) QUANTITY REQ'D 1

SPEED LIMIT 45 24" X 36" R2-1

ONE "U" POST PER SIGN

(405) QUANTITY REQUIRED 2

R4-7 24" X 30"

ONE 'U' POST PER SIGN

(406) QUANTITY REQUIRED 2

R4-7 24" X 30"

MOUNT ON REVERSE OF SIGN (402)

PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

PLAN PREPARED BY

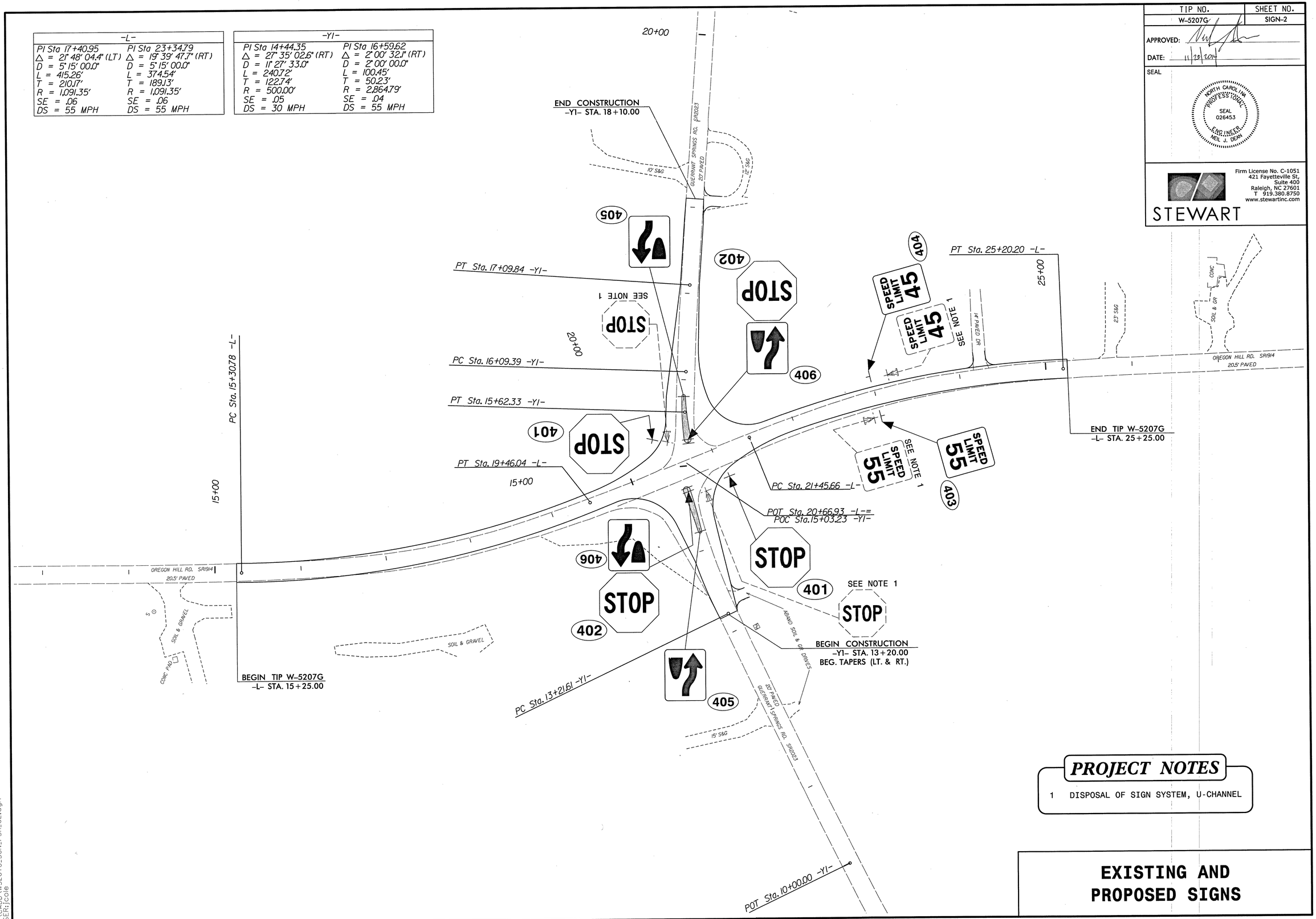
Michael Taylor, P.E. STEWART PROJECT ENGINEER
Neil J. Dean, P.E. SIGNING ENGINEER

Firm License No. C-1051
421 Fayetteville St.
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com
STEWART

4/20/2014
...:\CADD\W5207G_SGN_PSH_01.dgn
USER:jcole

-L-	
PI Sta 17+40.95	PI Sta 23+34.79
△ = 21° 48' 04.4" (LT)	△ = 19° 39' 47.7" (RT)
D = 5° 15' 00.0"	D = 5° 15' 00.0"
L = 415.26'	L = 374.54'
T = 210.17'	T = 189.13'
R = 1,091.35'	R = 1,091.35'
SE = .06	SE = .06
DS = 55 MPH	DS = 55 MPH

-Y1-	
PI Sta 14+44.35	PI Sta 16+59.62
△ = 27° 35' 02.6" (RT)	△ = 2° 00' 32.1" (RT)
D = 11° 27' 33.0"	D = 2° 00' 00.0"
L = 240.72'	L = 100.45'
T = 122.74'	T = 50.23'
R = 500.00'	R = 2,864.79'
SE = .05	SE = .04
DS = 30 MPH	DS = 55 MPH



TIP NO.	SHEET NO.
W-5207G	SIGN-2

APPROVED:

DATE: 11/20/2014

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 026453 ENGINEER NEIL J. DEAN

Firm License No. C-1051
421 Fayetteville St,
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com
STEWART

PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

EXISTING AND PROPOSED SIGNS

11/20/2014
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USER:jcole

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5207G	UC-1	5

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45337.1.7	HSIP-1914(3)	PE
45337.2.7	HSIP-1914(3)	R/W AND UTILITY
45337.3.7	HSIP-1914(3)	CONSTRUCTION

STEWART
421 FAYETTEVILLE ST, STE 400
RALEIGH, NC 27601
T 919.380.8750
Firm License #: C-1051
www.stewartinc.com
PROJECT #:B11001

ECOLOGICAL ENGINEERING
1151 SE Cary Parkway, Suite 101 • Cary NC 27518

TIP PROJECT: W-5207G

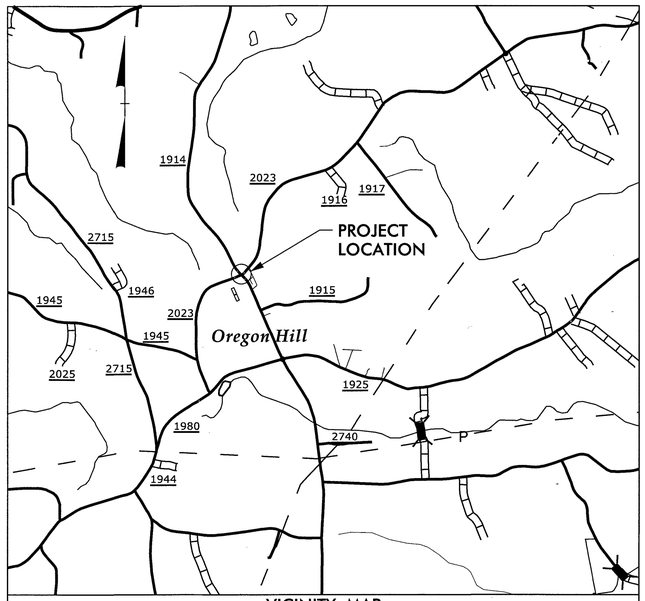
CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

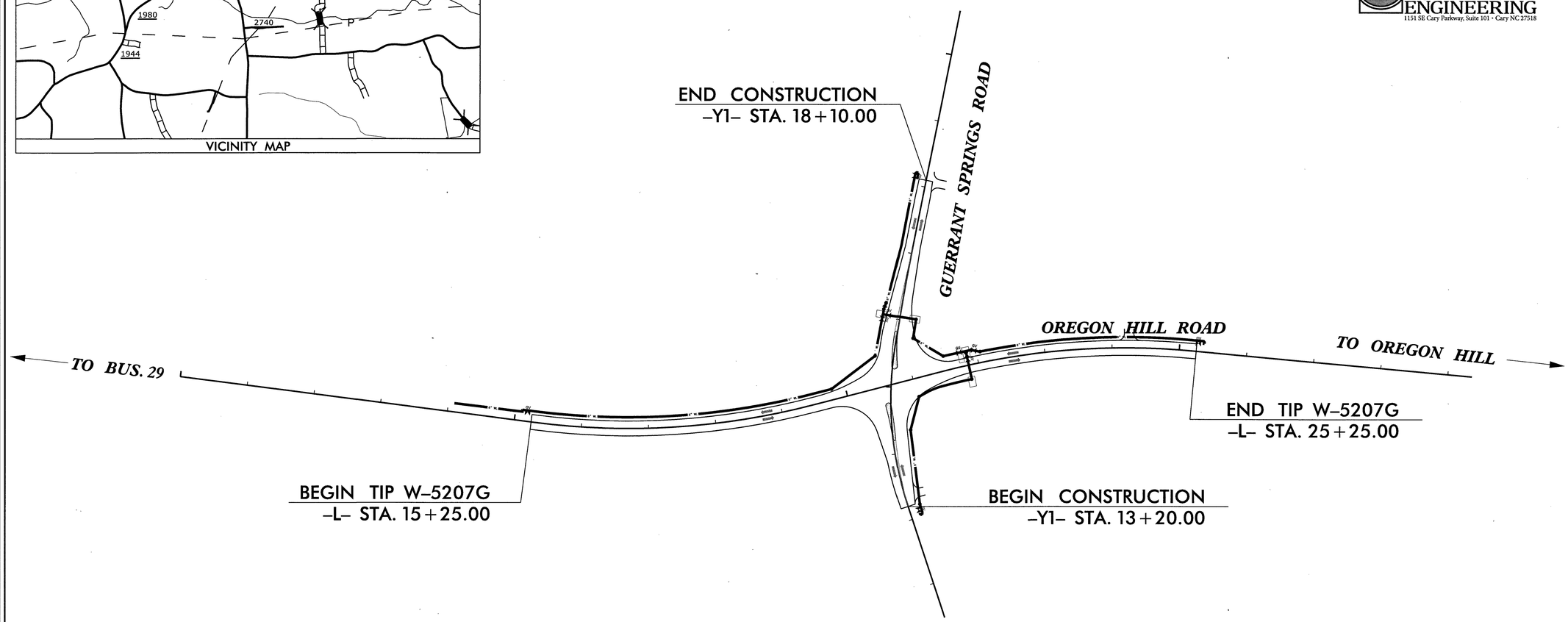
ROCKINGHAM COUNTY

LOCATION: SR 1914 (OREGON HILL ROAD) AT SR 2023 (GUERRANT SPRINGS ROAD)

TYPE OF WORK: PERMANENT WATERLINE RELOCATION



VICINITY MAP



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-01	TITLE SHEET
UC-02	WATER PLAN & PROFILE -L-
UC-03	WATER PLAN & PROFILE -Y1-
UC-03	DETAIL SHEET
UC-04	DETAIL SHEET

UTILITY OWNER

1. ROCKINGHAM COUNTY

Prepared in the Office of:
STEWART
For
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
07 /23 /2014

LETTING DATE:

MICHAEL TAYLOR, PE
PROJECT ENGINEER

RYAN HAMBLETON, PE
PROJECT DESIGN ENGINEER

UTILITY ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 039317 RYAN A. HAMBLETON

SIGNATURE: 11/21/14 *P.E.*

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

11/20/2014
...\Water\msb\W5207G_uti_psh01.dgn
USER:mburns

8" PVC WATERLINE PLAN VIEW

WATER NOTES:

1. AS INDICATED, ALL WATERLINES SHALL BE PVC MEETING THE REQUIREMENTS OF ANSI-AWWA C900, CLASS 200.

2. ALL WATERLINES SHALL HAVE A MINIMUM OF 3.0' FEET OF COVER.

3. TESTING NOTES:
PRESSURE:
LEAKAGE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE LEAKAGE SPECIFIED IN AWWA C 600. MINIMUM TEST PRESSURE SHALL BE 200 PSI FOR FIRE PROTECTION.
BACTERIOLOGICAL:
TWO SAMPLES FOR BACTERIOLOGICAL SAMPLING SHALL BE COLLECTED AT LEAST 24 HOURS APART. IF CONTAMINATION IS INDICATED, THEN THE DISINFECTION PROCEDURE AND TESTING SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.

4. THE CHLORINE IN HEAVILY CHLORINATED WATER FLUSHED FROM MAINS NEEDS TO BE NEUTRALIZED BEFORE DISCHARGE. CONTRACTORS SHALL NEUTRALIZE HEAVILY CHLORINATED WATER FLUSHED FROM MAINS PRIOR TO DISCHARGE OR TRANSPORT ALL HEAVILY CHLORINATED WATER OFFSITE FOR PROPER DISPOSAL.

5. PAINT VALVE COVERS, FIRE HYDRANTS AND OTHER WATER APPARATUS TO MEET THE LOCAL JURISDICTIONAL REQUIREMENTS.

6. ALL WATER MAINS AND SERVICES WILL BE TESTED AND CHLORINATED.

7. INSTALL PROPOSED WATER LINE, COMPLETE ALL TESTING, FLUSHING, AND CHLORINATION PRIOR TO CONNECTION.

8. COORDINATE WITH LOCAL JURISDICTION FOR WATER MAIN SHUT DOWN.

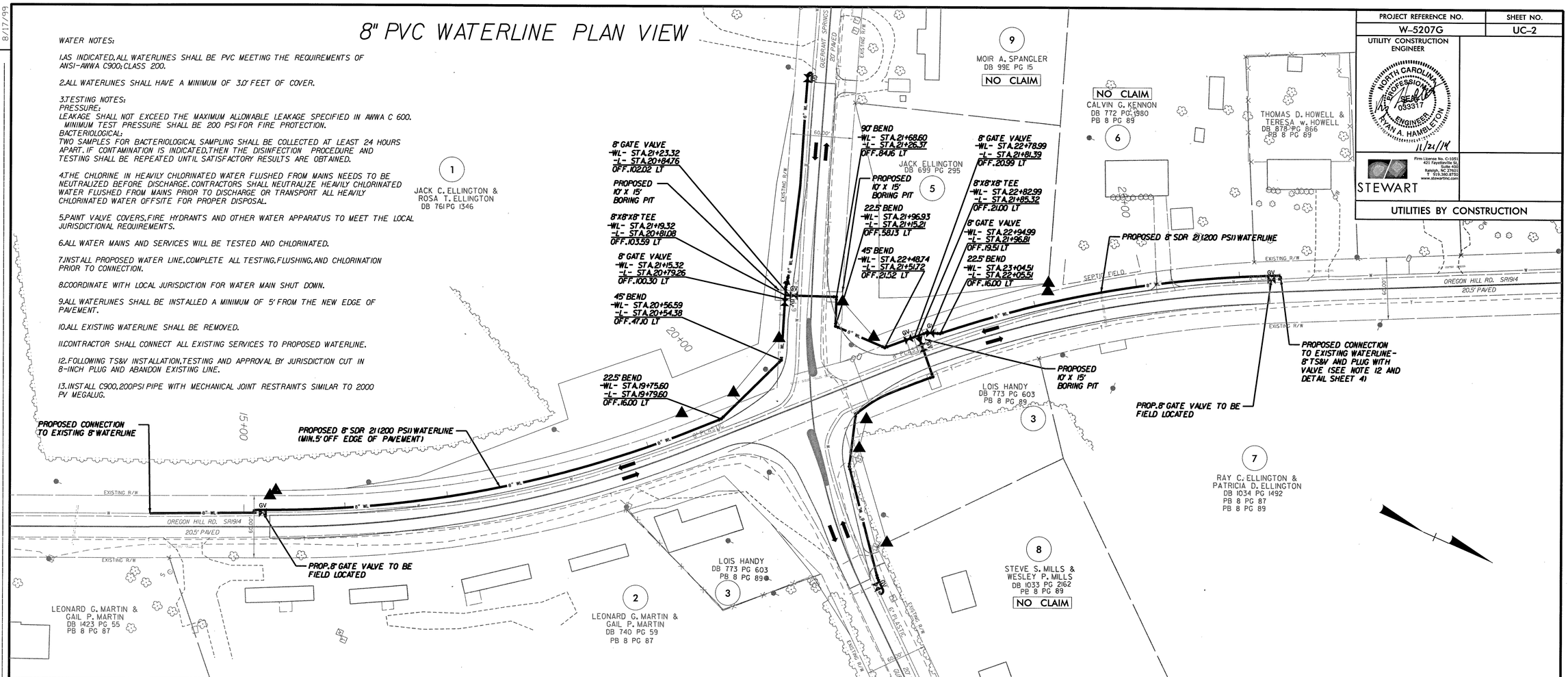
9. ALL WATERLINES SHALL BE INSTALLED A MINIMUM OF 5' FROM THE NEW EDGE OF PAVEMENT.

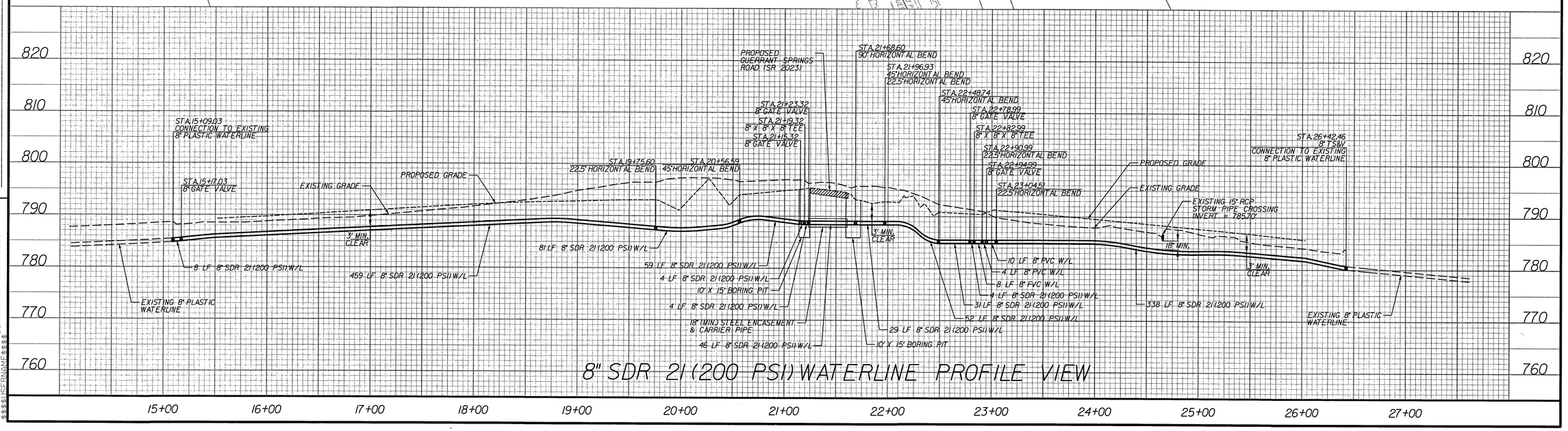
10. ALL EXISTING WATERLINE SHALL BE REMOVED.

11. CONTRACTOR SHALL CONNECT ALL EXISTING SERVICES TO PROPOSED WATERLINE.

12. FOLLOWING TS&V INSTALLATION, TESTING AND APPROVAL BY JURISDICTION CUT IN 8-INCH PLUG AND ABANDON EXISTING LINE.

13. INSTALL C900, 200PSI PIPE WITH MECHANICAL JOINT RESTRAINTS SIMILAR TO 2000 PV MEGALUG.





8" SDR 21 (200 PSI) WATERLINE PROFILE VIEW

PROJECT REFERENCE NO.	SHEET NO.
W-5207G	UC-2

UTILITY CONSTRUCTION ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033317 ENGINEER RYAN A. HAMBLETON 11/21/14

STEWART
Firm License No. C-1051
421 Fayetteville St.
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

UTILITIES BY CONSTRUCTION

REVISIONS

8/17/99

$$$$SYSTIME$$$$
$$$$LIFENAME$$$$

6" PVC WATERLINE PLAN VIEW

WATER NOTES:

1. AS INDICATED, ALL WATERLINES SHALL BE PVC MEETING THE REQUIREMENTS OF ANSI-AWWA C900; CLASS 200.

2. ALL WATERLINES SHALL HAVE A MINIMUM OF 3.0' FEET OF COVER.

3. TESTING NOTES:
PRESSURE:
LEAKAGE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE LEAKAGE SPECIFIED IN AWWA C 600. MINIMUM TEST PRESSURE SHALL BE 200 PSI FOR FIRE PROTECTION.
BACTERIOLOGICAL:
TWO SAMPLES FOR BACTERIOLOGICAL SAMPLING SHALL BE COLLECTED AT LEAST 24 HOURS APART. IF CONTAMINATION IS INDICATED, THEN THE DISINFECTION PROCEDURE AND TESTING SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.

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5. PAINT VALVE COVERS, FIRE HYDRANTS AND OTHER WATER APPARATUS TO MEET THE LOCAL JURISDICTIONAL REQUIREMENTS.

6. ALL WATER MAINS AND SERVICES WILL BE TESTED AND CHLORINATED.

7. INSTALL PROPOSED WATER LINE, COMPLETE ALL TESTING, FLUSHING, AND CHLORINATION PRIOR TO CONNECTION.

8. COORDINATE WITH LOCAL JURISDICTION FOR WATER MAIN SHUT DOWN.

9. ALL WATERLINES SHALL BE INSTALLED A MINIMUM OF 5' FROM THE NEW EDGE OF PAVEMENT.

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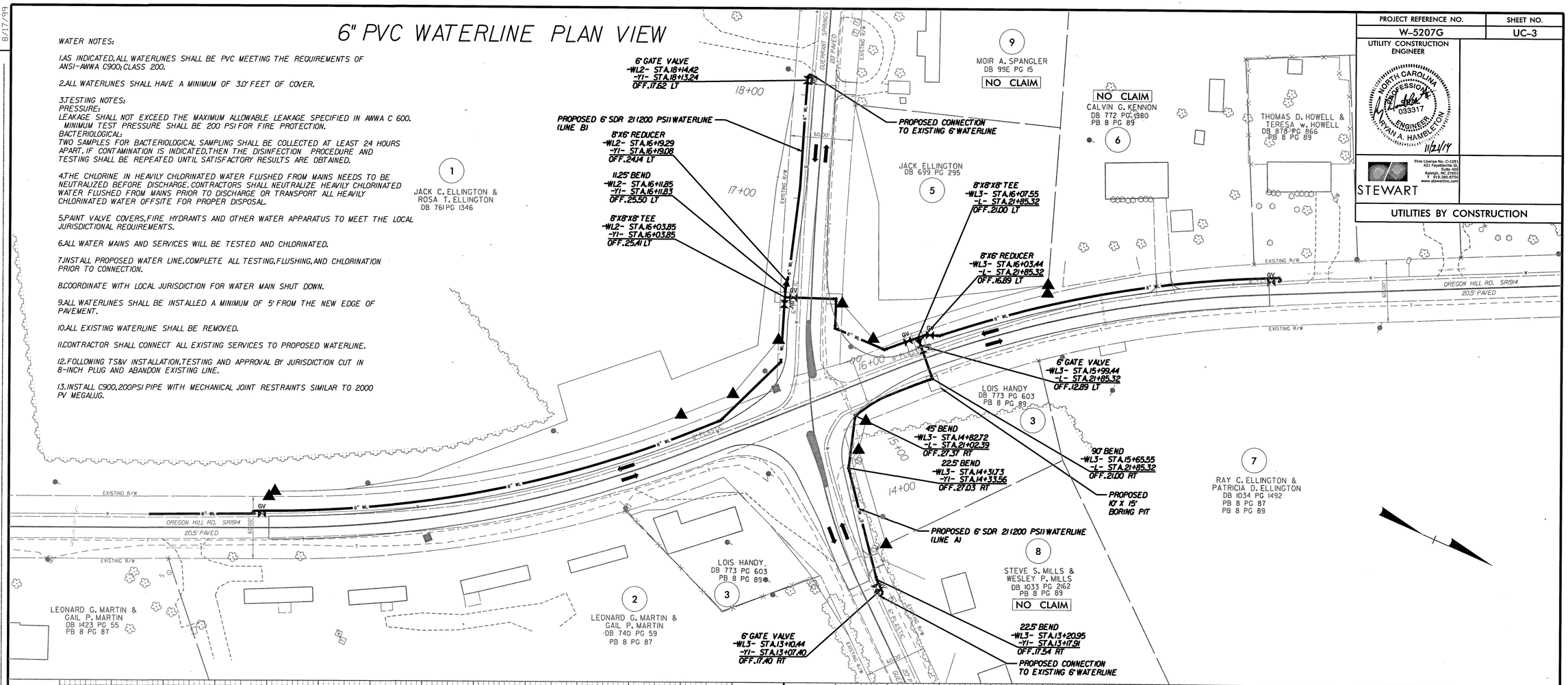
13. INSTALL C900, 200PSI PIPE WITH MECHANICAL JOINT RESTRAINTS SIMILAR TO 2000 PV MEGALUG.



PROJECT REFERENCE NO.	SHEET NO.
W-5207G	UC-3

UTILITY CONSTRUCTION ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033317 RYAN A. HAMBLETON

11/21/14

STEWART
Firm License No. C-1051
421 Fayetteville St.
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

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REVISIONS

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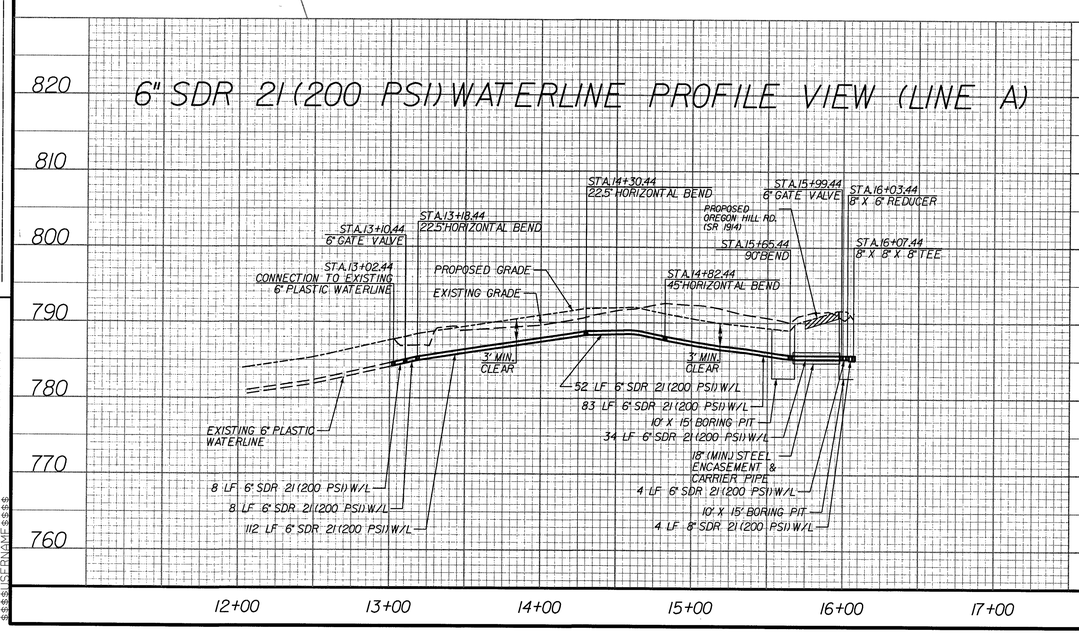
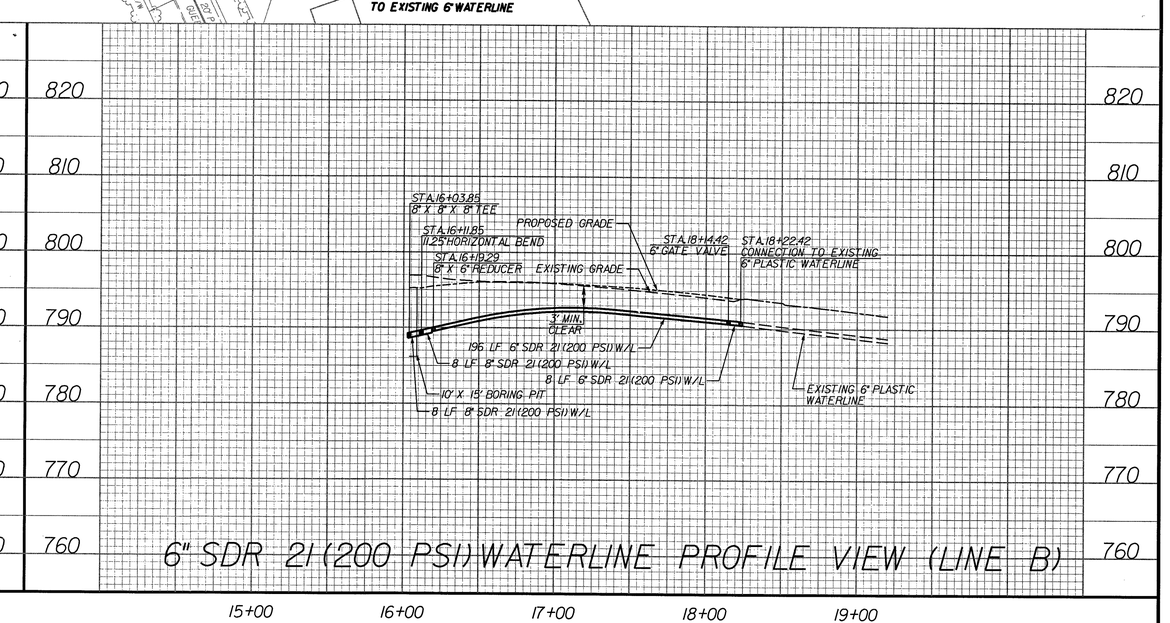




$$$$SYSTIME$$$$
$$$$JOBNAME$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5207G	UC-4

UTILITY CONSTRUCTION ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 083517 ENGINEER RYAN A. HAMBLETON

10/31/14

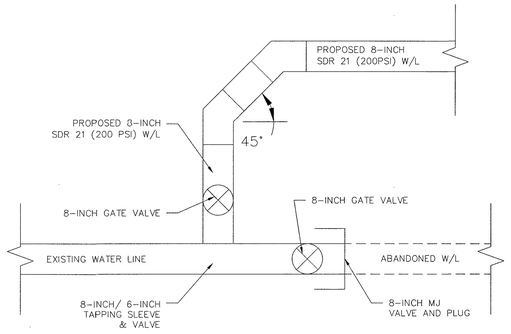
Firm License No. C-1051
421 Fayetteville St.
Suite 1400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

STEWART

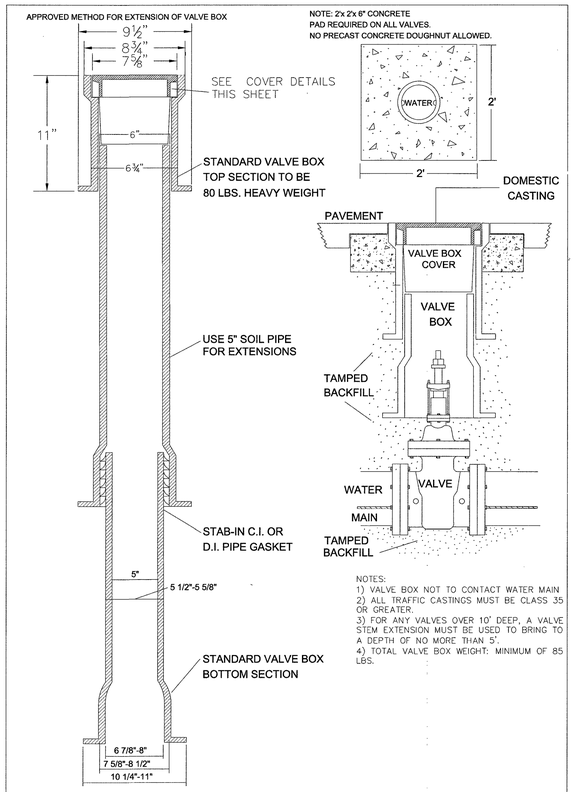
UTILITIES BY CONSTRUCTION

REVISIONS

8/17/99

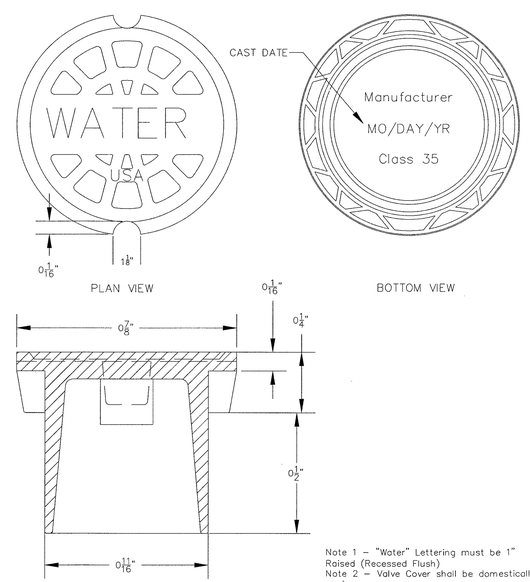


8" TS&V AND PLUG DETAIL



NOTES:
1) VALVE BOX NOT TO CONTACT WATER MAIN.
2) ALL TRAFFIC CASTINGS MUST BE CLASS 35 OR GREATER.
3) FOR ANY VALVES OVER 10' DEEP, A VALVE STEM EXTENSION MUST BE USED TO BRING TO A DEPTH OF NO MORE THAN 5'.
4) TOTAL VALVE BOX WEIGHT: MINIMUM OF 85 LBS.

VALVE BOX INSTALLATION AND EXTENSION



Note 1 – "Water" Lettering must be 1" Raised (Recessed Flush)
Note 2 – Valve Cover shall be domestically cast.
Note 3 – Cover must have a minimum weight of 25 pounds.
Note 4 – Cover must be class 35 or greater.
Note 5 – Cover must meet or exceed AASHTO H-20 load requirements.

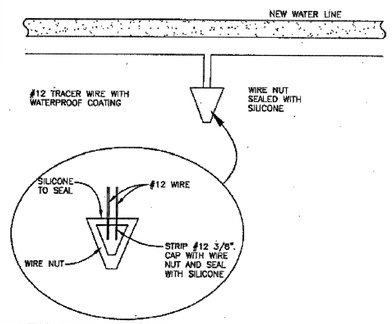
5-1/4" VALVE BOX DROP LID W/ 4" SKIRT

Revised: 08/10/2010
Dan River Water, Inc.
Water Line Extension Policy

LOCATOR WIRE TYPE: #12 TRACER WIRE WATERPROOF COATING.

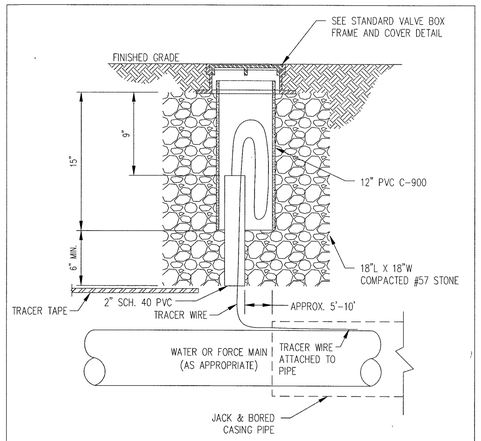
METHOD OF INSTALLATION: TRACER WIRE SHALL BE INSTALLED DIRECTLY IN THE PIPE DITCH WITH A SEPARATION OF LESS THEAN SIX INCHES AWAY FROM THE PIPE. A CONTINUOUS INSULATED WIRE SHALL BE MAINTAINED AT ALL TIMES OVER THE LENTH OF THE PROJECT. THE TRACER WIRE SHALL BE LAID WITH ALL TAPS AND LOOPED IN THE METER BOXES, CUT OFF VALVES, AND AT FIRE HYDRANTS. THIS WIRE SHALL BE NOTED ON THE PROJECT "AS BUILT" DRAWINGS SHOWING THE LOOPED LOCATOR POINTS. THIS WILL ENABLE OUR CREW TO HAVE A RECORD OF LOCATE POINTS FOR FUTURE LOCATES.

METHOD OF SPLICING:



DAN RIVER WATER, INC.
[illegible]
SEDALIA, NORTH CAROLINA 27342
(336) 623-2328

TRACER WIRE INSTALLATION
N.T.S.



NOTES:

1. WIRE SHALL BE LOOPED THROUGH THE TRACER WIRE BOX AND EXTENDED 12 INCHES ABOVE FINISHED GRADE AND COILED BACK INTO THE TRACER WIRE BOX.
2. USE TRACER WIRE IN DEEP EXCAVATION OR BORE AND JACK SITUATION.
3. USE TRACER TAPE FOR TYPICAL OPEN CUT INSTALLATION.

TRACER WIRE & TAPE INSTALLATION

10/31/2014
jts:\Water\msb\W5207G_utl_psh04.dgn

PROJECT REFERENCE NO.	SHEET NO.
W-5207G	UC-5

UTILITY CONSTRUCTION ENGINEER

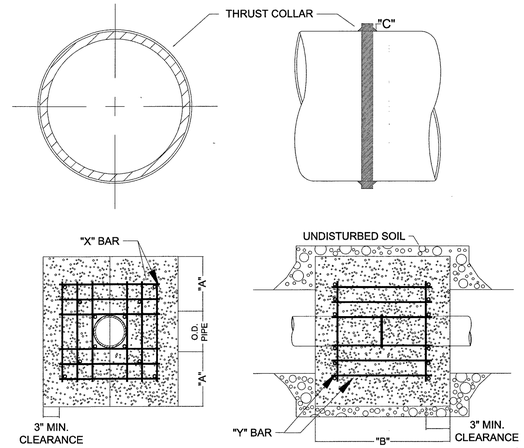
NORTH CAROLINA PROFESSIONAL SEAL 033317 ENGINEER JOHN A. HAMBLETON

10/31/14

Firm License No. C-1051
421 Fayetteville St.
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

STEWART

UTILITIES BY CONSTRUCTION



REINFORCING REQUIREMENTS

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

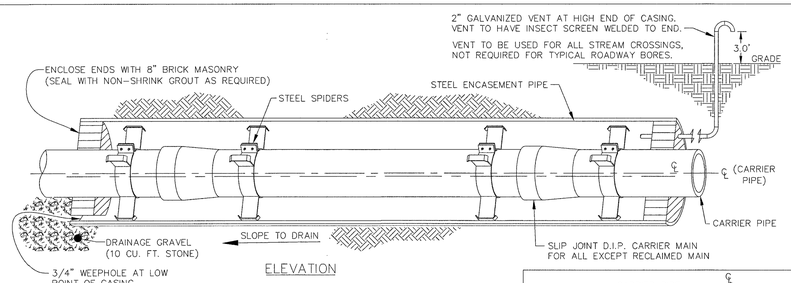
THRUST COLLAR, AND THRUST SCHEDULE

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

NOTES:

1. SEE STANDARD THRUST BLOCKING VIEWS DETAIL FOR THRUST BLOCK LOCATIONS.
2. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD TRENCH DETAIL.
5. BACKFILL TAMPED IN 6" LIFTS PER STANDARD TRENCH DETAIL.
6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

THRUST BLOCKING DESIGN DATA

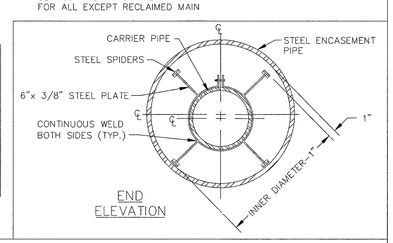


ELEVATION

NOTES:

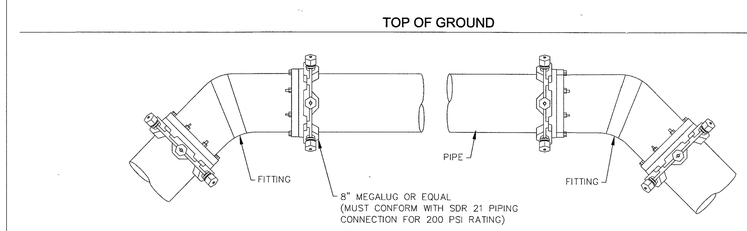
1. CASING SHALL BE UNCOATED SPIRAL WELDED STEEL MEETING ASTM A-139, GRADE B WITH A YIELD STRENGTH OF 35,000 PSI.
2. CROSSINGS ON NCDOT MAINTAINED ROADS TO BE IN ACCORDANCE WITH CURRENT NCDOT STANDARDS AND APPROVED ENCROACHMENT AGREEMENT.
3. RESTRAINED JOINT PIPE ONLY. MEGE-LUGS ARE NOT PERMITTED
4. STEEL "SPIDERS" SHALL BE USED FOR SUPPORT OF THE CARRIER PIPE WITHIN THE CASING PIPE.
5. A MINIMUM SPACING OF 2 SPIDERS PER JOINT OF CARRIER PIPE SHALL BE REQUIRED.
6. THE SPIDERS SHALL BE SPACED EVENLY ALONG THE CARRIER PIPE SUCH THAT EACH SPIDER SUPPORTS THE SAME UNIT WEIGHT OF THE CARRIER MAIN.

WATER DIAMETER (IN.)		WALL THICKNESS (IN.)
PIPE	CASING	
6-8	18	0.150
10-12	24	0.188
16-18	36	0.250
20-24	42	0.312
30-36	48	0.432



END ELEVATION

STEEL ENCASEMENT & CARRIER PIPE



STANDARD FITTING CONNECTION

REVISIONS

8/17/99

10/31/2014
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USER:msb

PROJ. REFERENCE NO.	SHEET NO.
W-5207G	X-A

SR 1914 (OREGON HILL ROAD) AT SR 2023 (GUERRANT SPRINGS ROAD) ROCKINGHAM COUNTY

CROSS-SECTION INDEX

LINE	STATION	TO STATION	SHEET NO.
-L-	15+00.00	26+00.00	X-1 THRU X-11
-Y1-	13+00.00	18+50.00	X-12 THRU X-15
-Y1TEMPA- (-Y1- STATIONING)	13+00.00	15+50.00	X-16 THRU X-17
-Y1TEMPB- (-Y1- STATIONING)	16+00.00	18+50.00	X-18 THRU X-20

STEWART
421 FAYETTEVILLE ST, STE 400
RALEIGH, NC 27601
T 919.380.8750
Firm License #: C-1051
www.stewartinc.com
PROJECT #:B11001

8/23/99
11/20/2014
T:\2013\H13005_W5207G\Roadway\XSC\W5207G_RDY_XPL_XA_INDEX.dgn
jcole

PROJ. REFERENCE NO.	SHEET NO.
W-5207G	X-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station Det	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
15+50.00	0	0
16+00.01	1	2
16+50.01	4	5
17+00.01	8	4
17+50.00	18	1
17+99.56	39	1
18+48.56	57	2
18+97.19	69	1
19+45.80	87	0
19+95.80	105	0
20+45.80	79	11
20+95.80	23	23
21+46.02	17	19
21+97.57	20	18
22+49.09	6	21
23+00.20	7	15
23+50.71	7	9
24+00.83	6	4

Station -Y1- (Y1TEMP A&B)	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+20.00	0	0
13+50.00	6	0
14+00.00	21	0
16+00.00	72	0
16+50.00	48	1
17+00.00	70	1
17+50.00	73	0
18+00.00	45	0
18+10.00	7	0
18+50.00	15	0

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
15+25.00	0	0
15+50.00	7	3
16+00.00	23	22
16+50.00	19	34
17+00.00	25	31
17+50.00	45	22
18+00.00	102	12
18+50.00	204	2
19+00.00	363	0
19+50.00	529	0
20+00.00	594	0
20+50.00	464	0
21+00.00	252	0
21+50.00	159	2
22+00.00	117	9
22+50.00	67	18
23+00.00	46	19

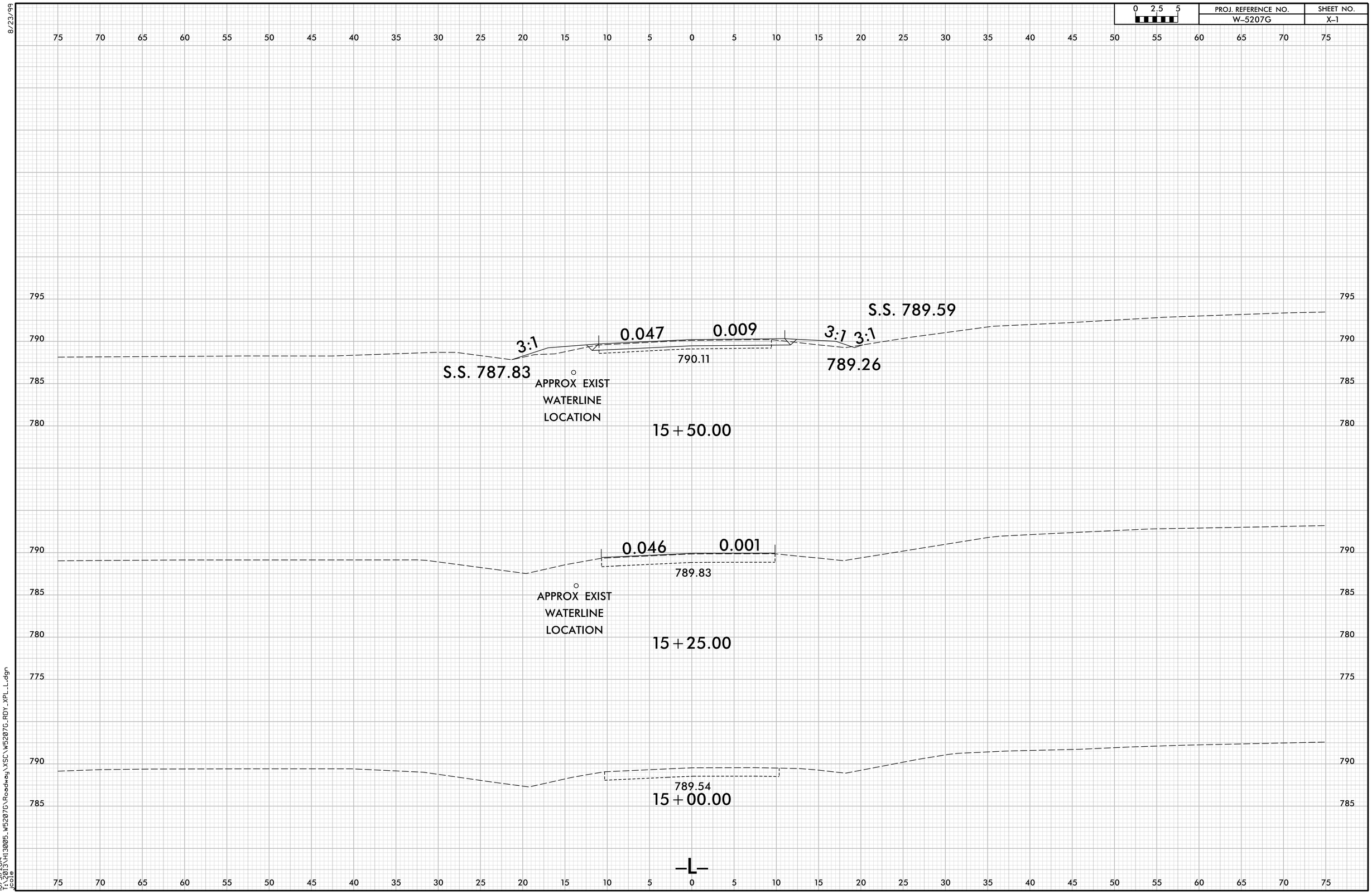
Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
23+50.00	35	20
24+00.00	29	19
24+50.00	30	17
25+00.00	30	14
25+25.00	7	2

Station Y1	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+20.00	0	0
13+50.00	27	4
14+00.00	69	17
14+50.00	106	12
15+50.00	589	6
16+00.00	386	0
16+50.00	293	0
17+00.00	178	0
17+50.00	93	0
18+00.00	60	0
18+10.00	5	0

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

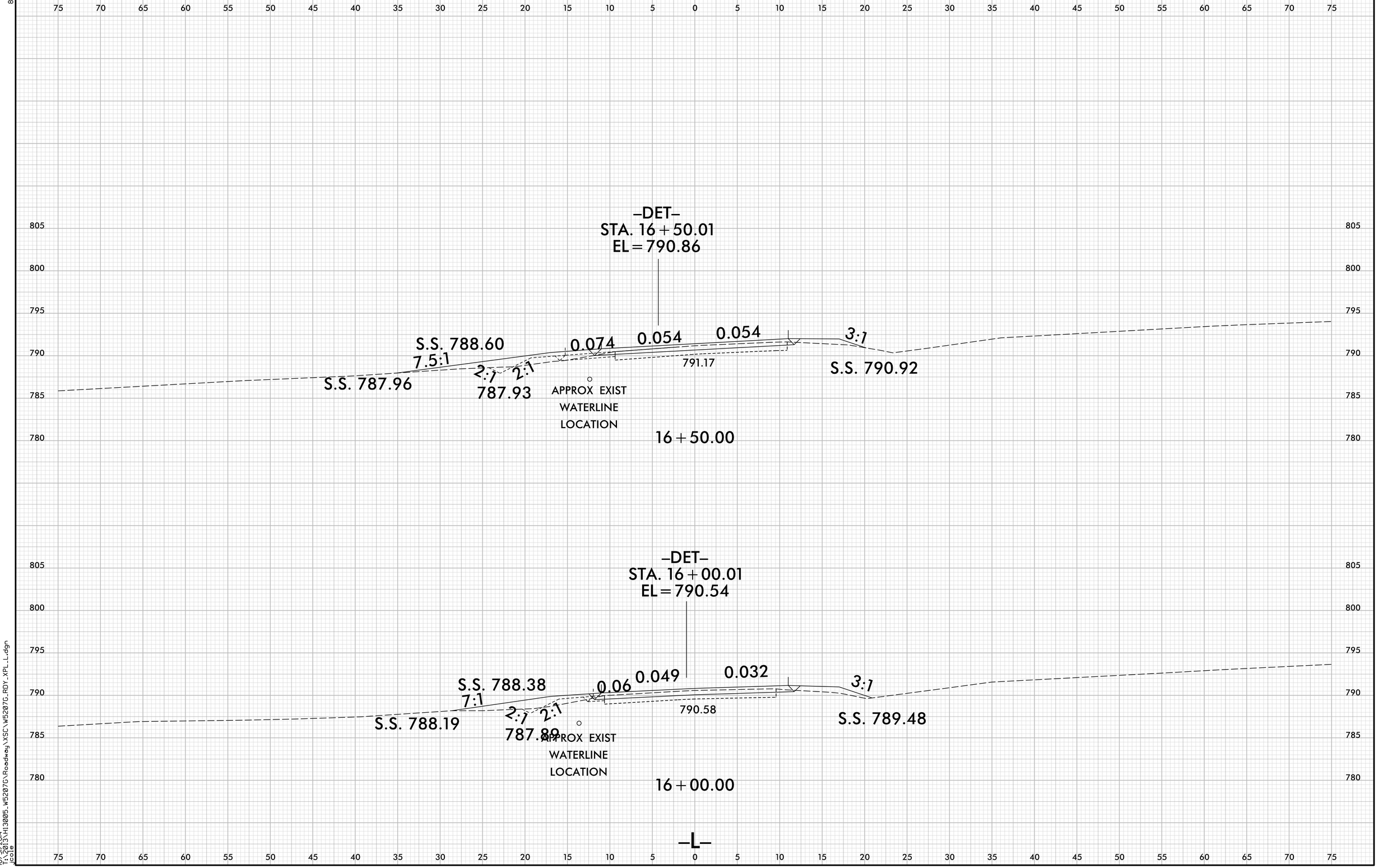
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-1



10/31/2014
TX2013\H13005_W5207G\Roadway\XSC\W5207G_RDY_XPL_L.dgn
jcole

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-2



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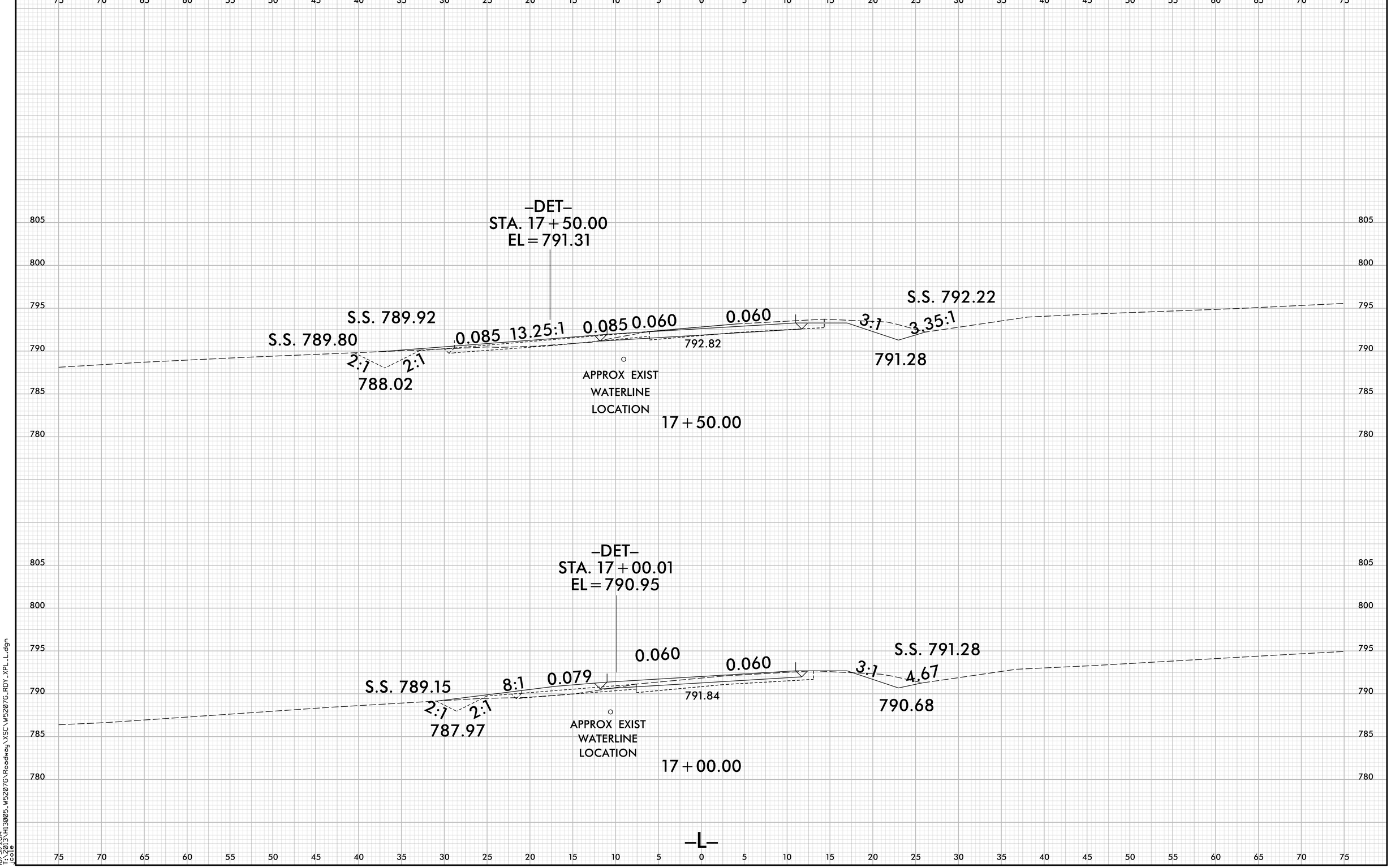
jcole

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-3



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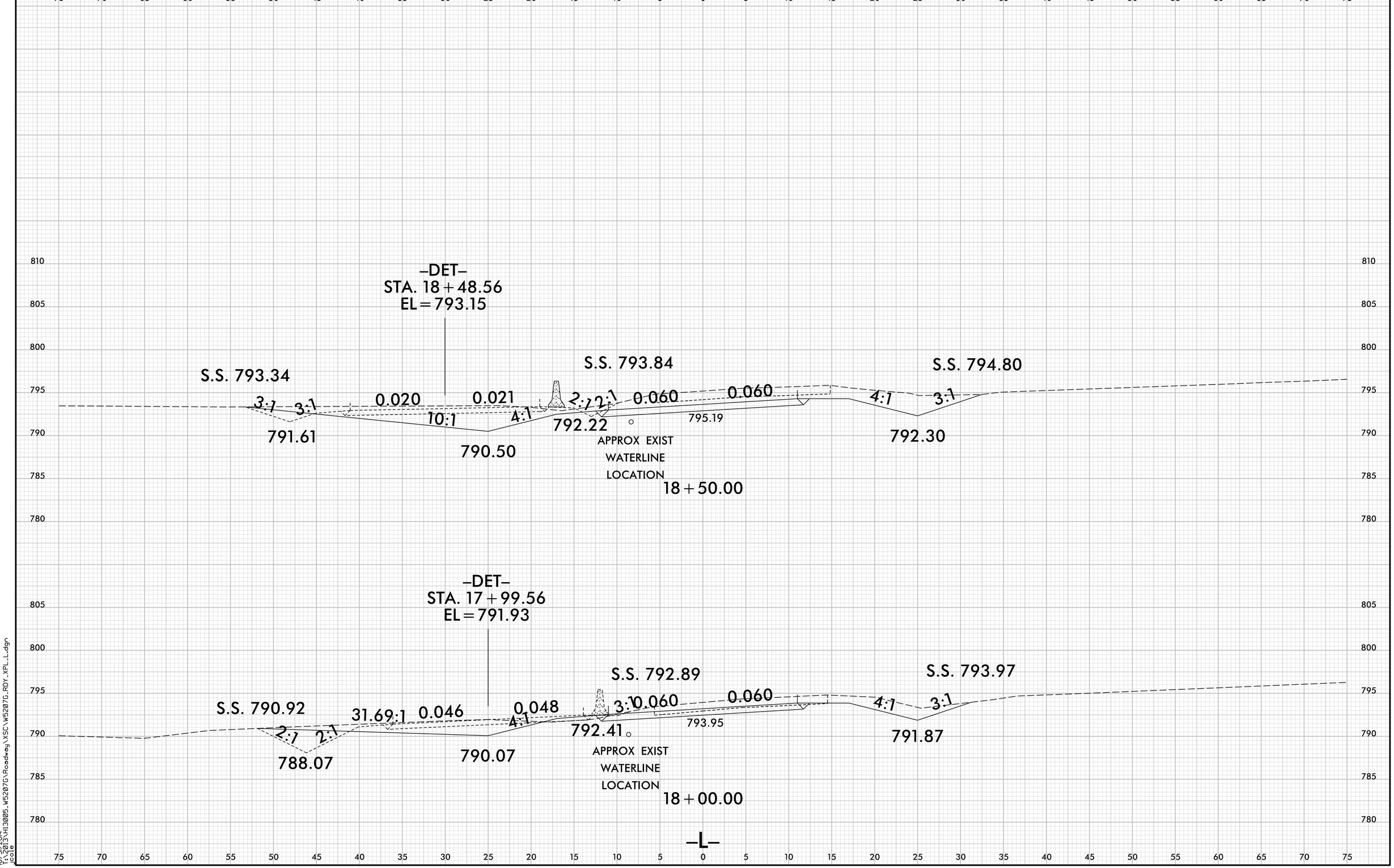
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-4



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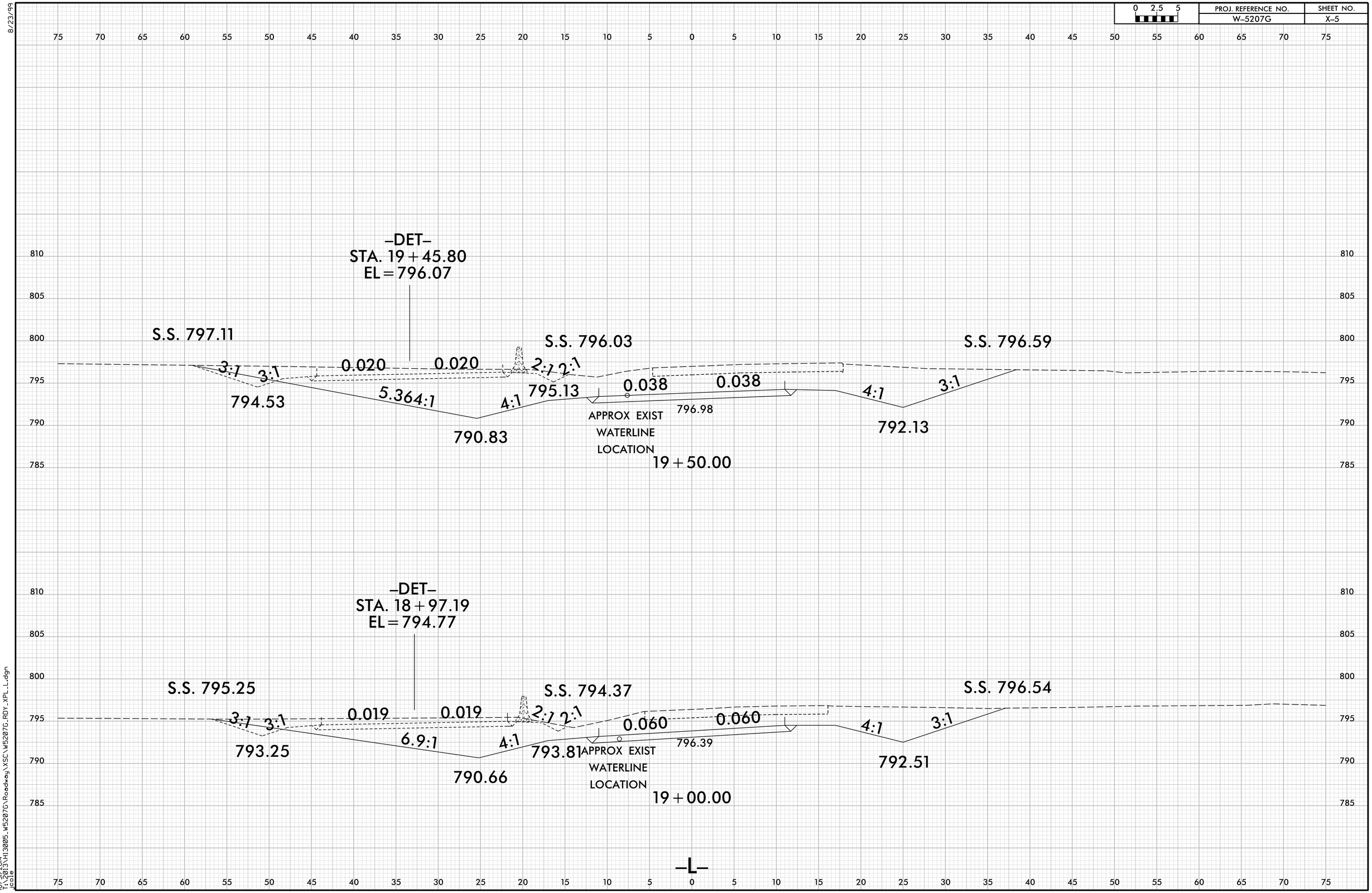
Jcole

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-5



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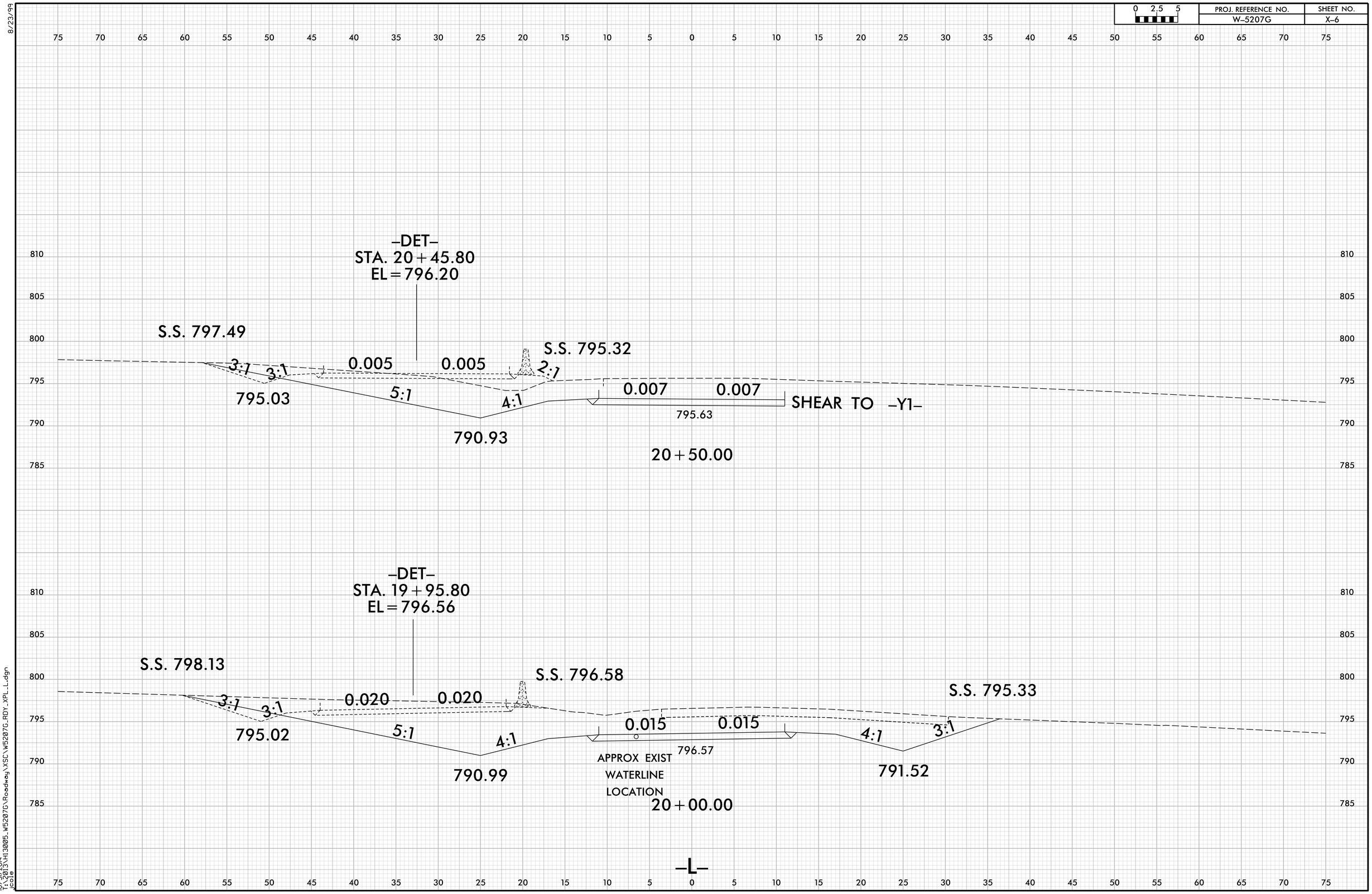
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-6



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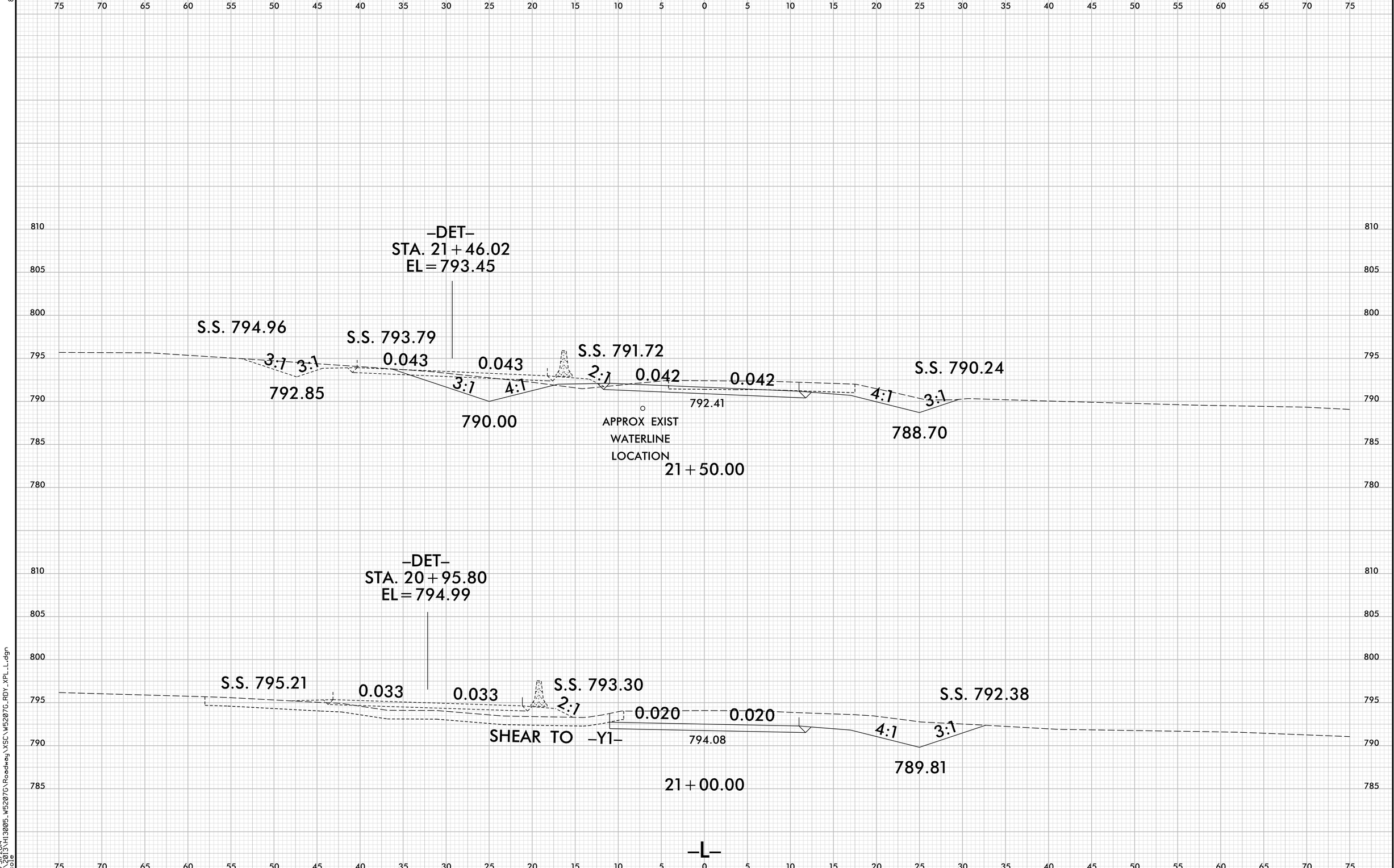
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-7



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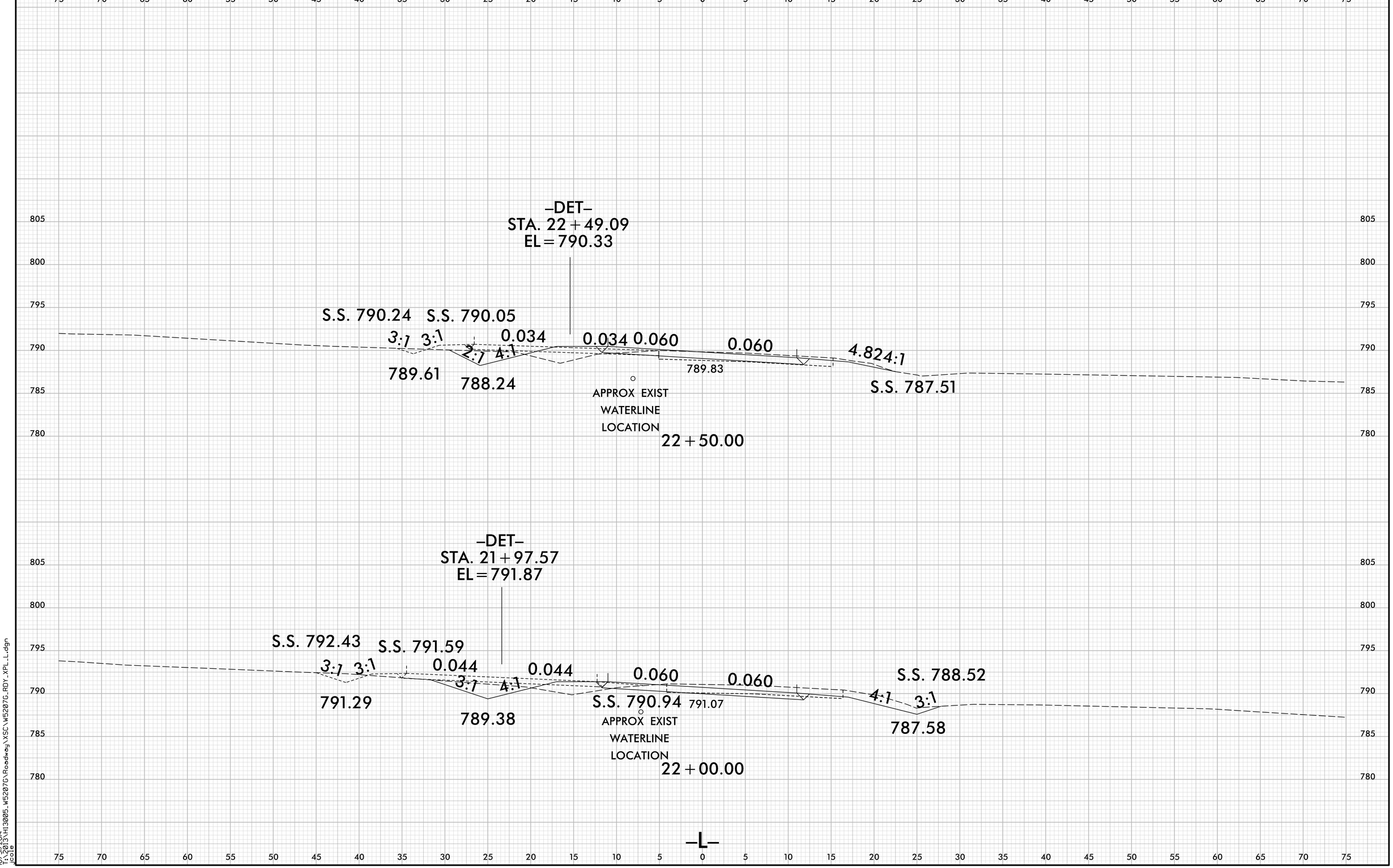
jcole

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-8



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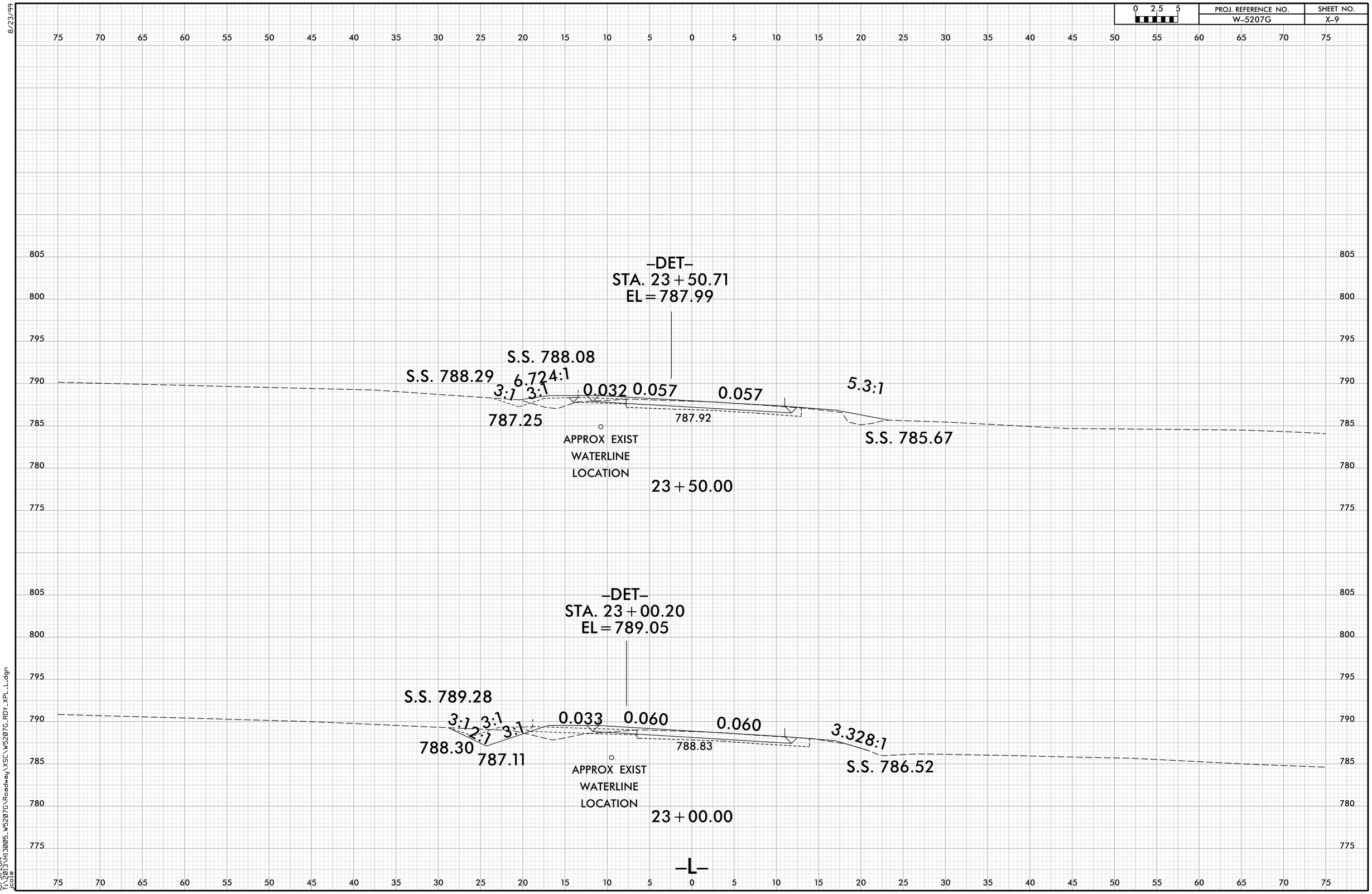
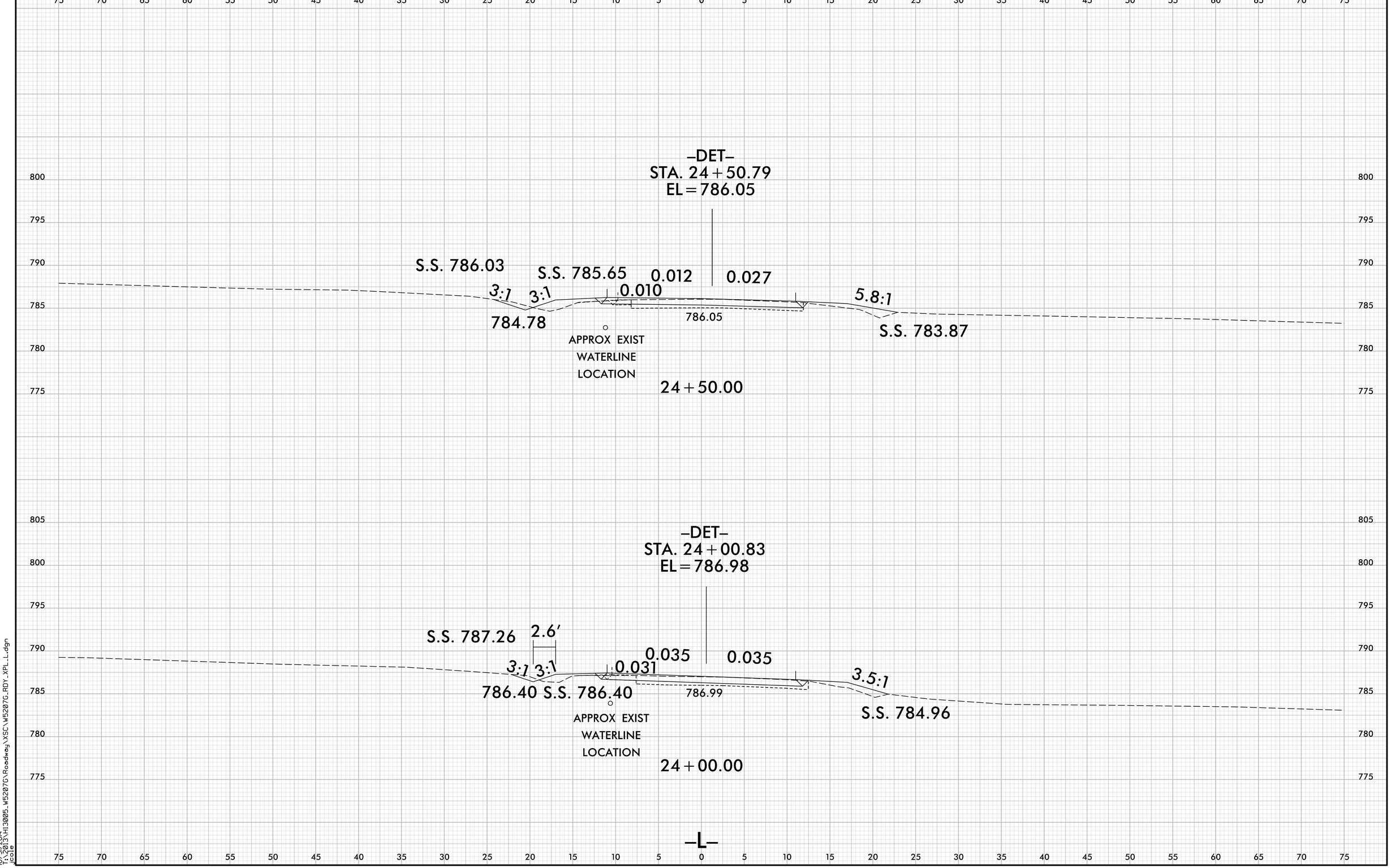
jcole


0 2.5 5
PROJ. REFERENCE NO.
W-5207G
SHEET NO.
X-9
8/23/99
-DET-
STA. 23+50.71
EL=787.99
S.S. 788.08
S.S. 788.29
6.724:1
3:1
3:1
0.032
0.057
0.057
5.3:1
787.25
787.92
S.S. 785.67
APPROX EXIST
WATERLINE
LOCATION
23+50.00
-DET-
STA. 23+00.20
EL=789.05
S.S. 789.28
3:1
3:1
2:1
3:1
0.033
0.060
0.060
3.328:1
788.30
787.11
788.83
S.S. 786.52
APPROX EXIST
WATERLINE
LOCATION
23+00.00
-L-
10/31/2014
TX2013\H13005_W5207G\Roadway\XSC\W5207G_RDY_XPL_L.dgn
jcole

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-10



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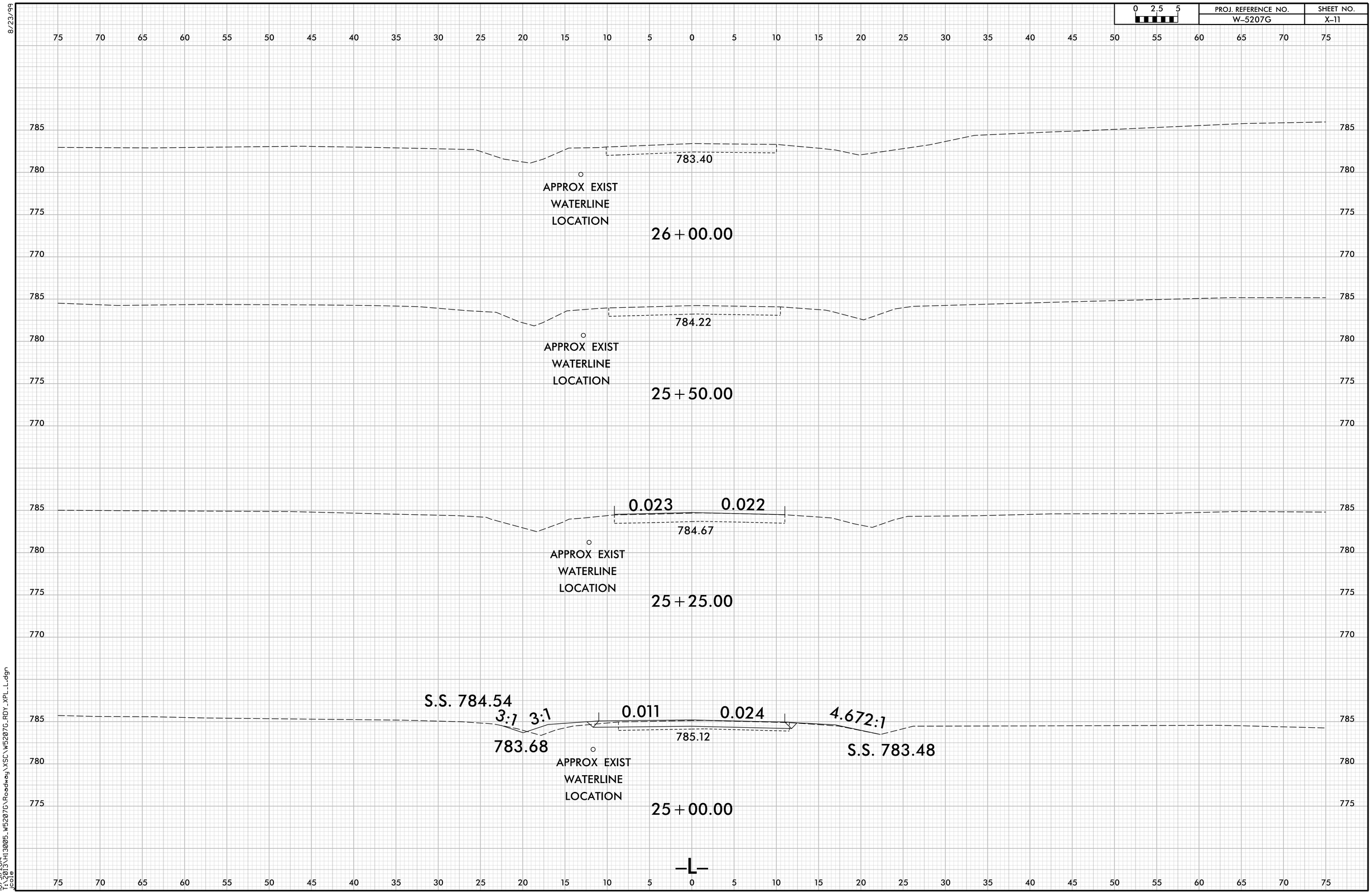
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-11



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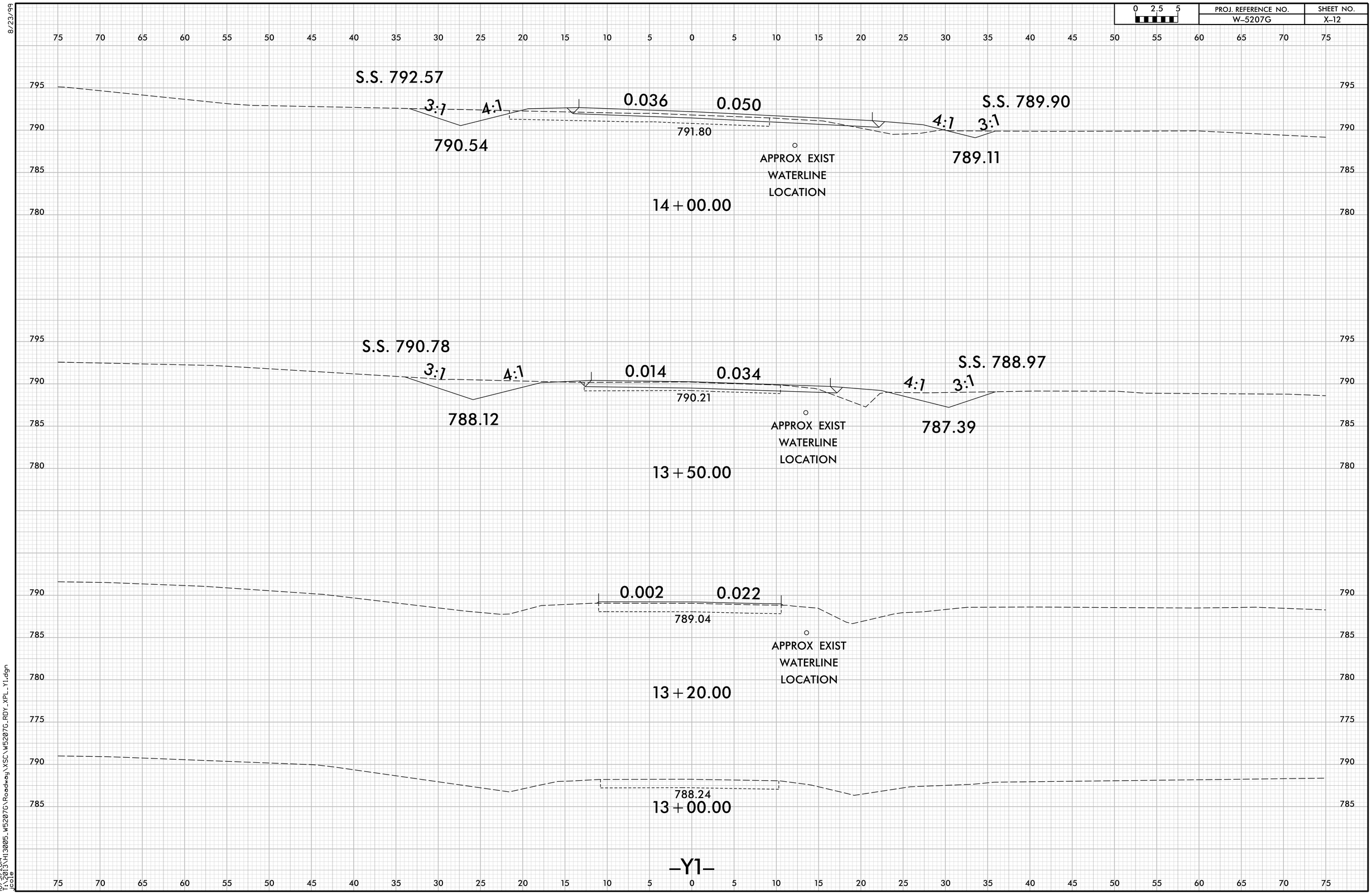
TX2013\H13005_W5207G\Roadway\XSC\W5207G_RDY_XPL_L.dgn
jcole

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-12



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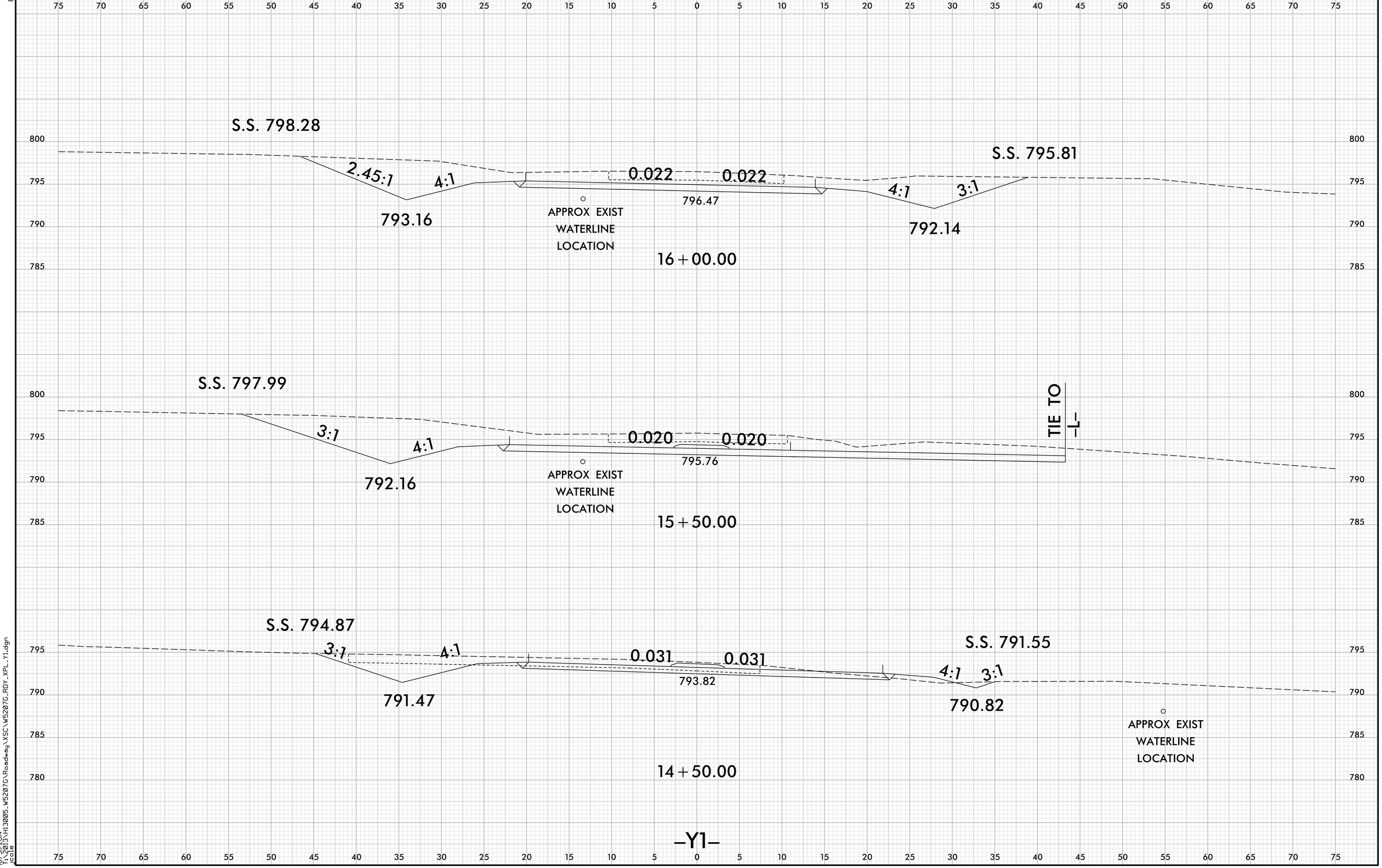
jcole

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-13



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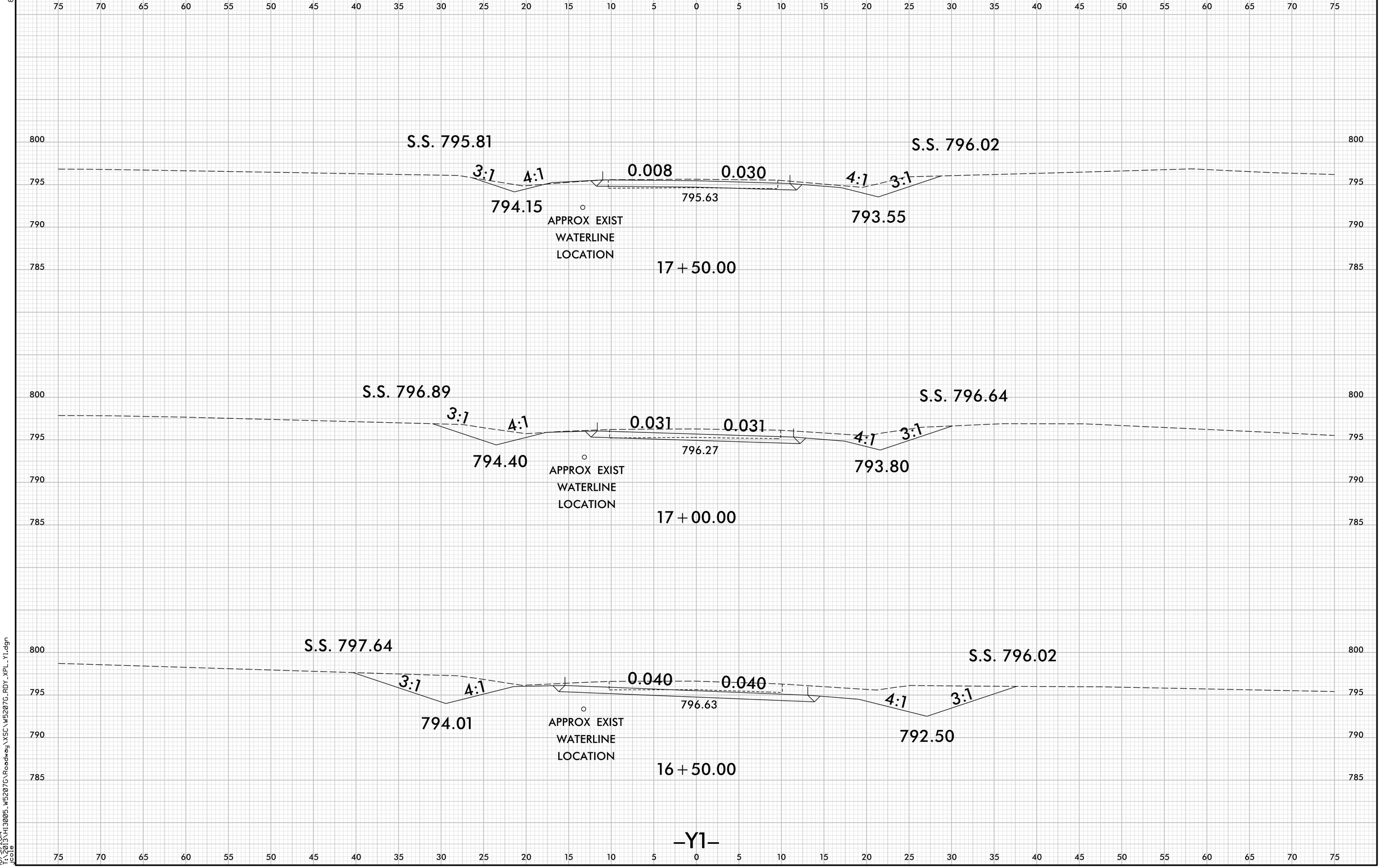
jcole

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-14



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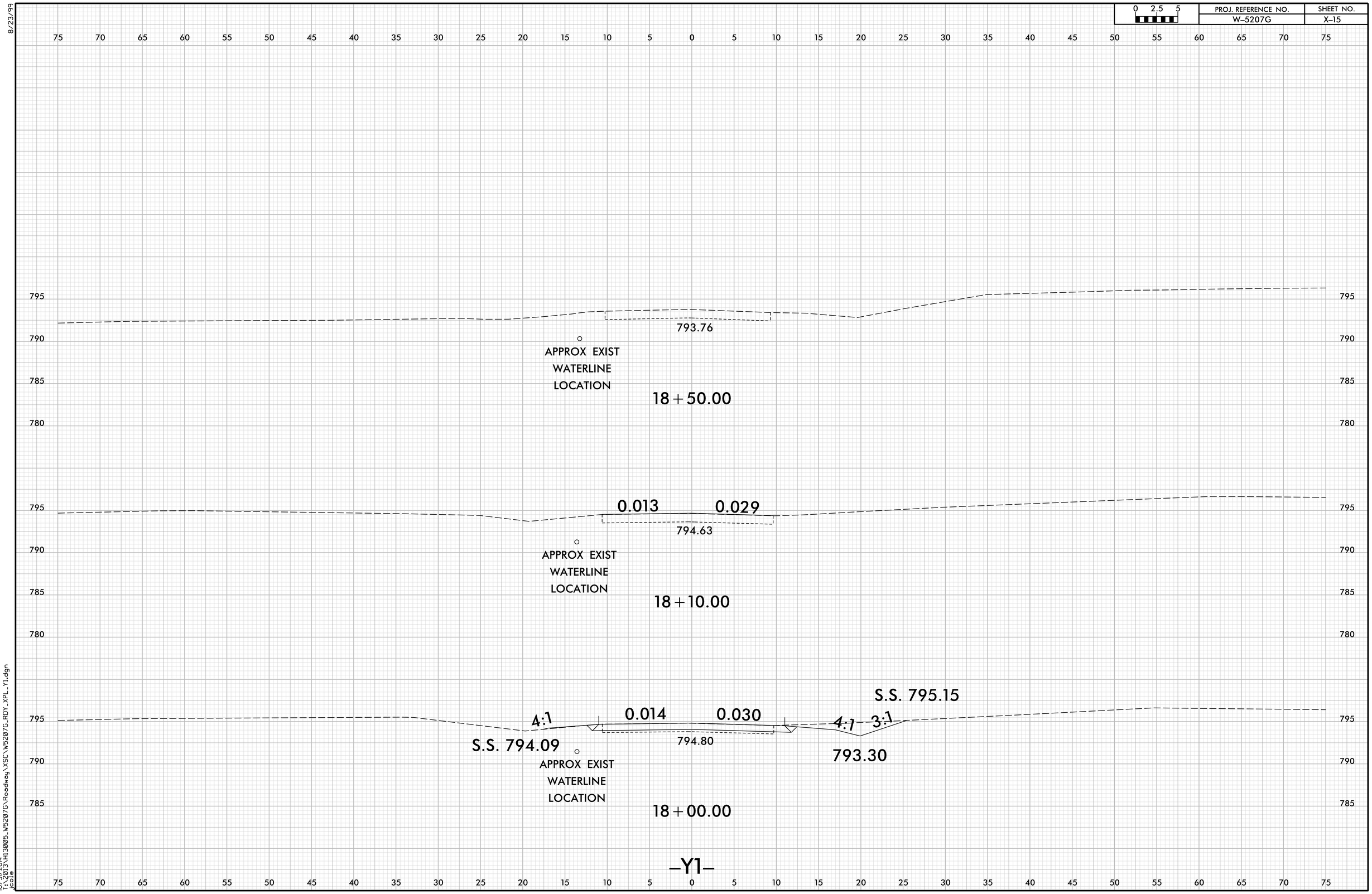
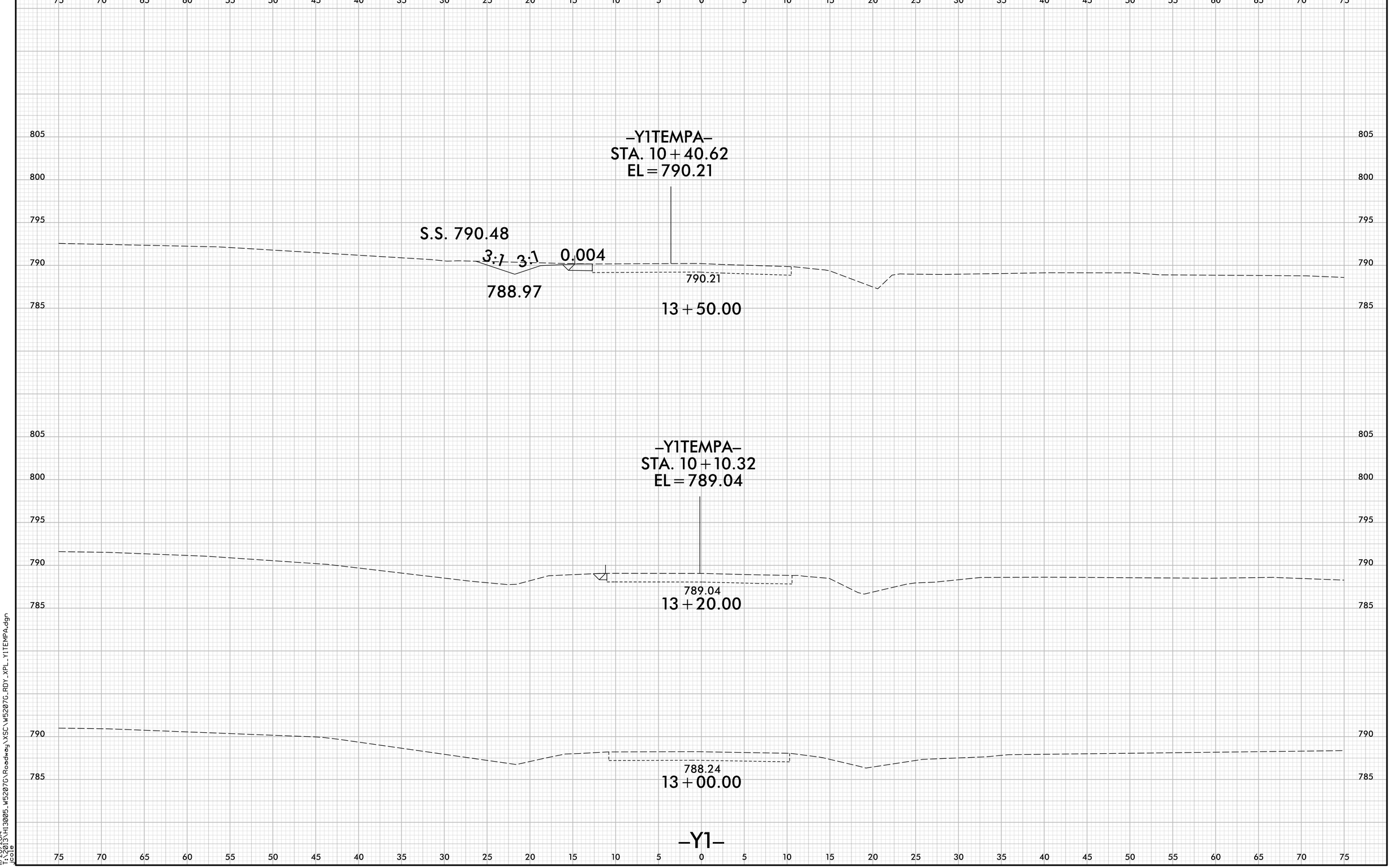
jcole


0 2.5 5
PROJ. REFERENCE NO.
W-5207G
SHEET NO.
X-15
8/23/99
795
790
785
780
793.76
APPROX EXIST
WATERLINE
LOCATION
18+50.00
0.013
0.029
794.63
APPROX EXIST
WATERLINE
LOCATION
18+10.00
S.S. 795.15
4:1
0.014
0.030
4:1
3:1
S.S. 794.09
794.80
793.30
APPROX EXIST
WATERLINE
LOCATION
18+00.00
-Y1-
10/31/2014
TX:2013\H13005_W5207G\Roadway\XSC\W5207G_RDY_XPL_Y1.dgn
jcole

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-16



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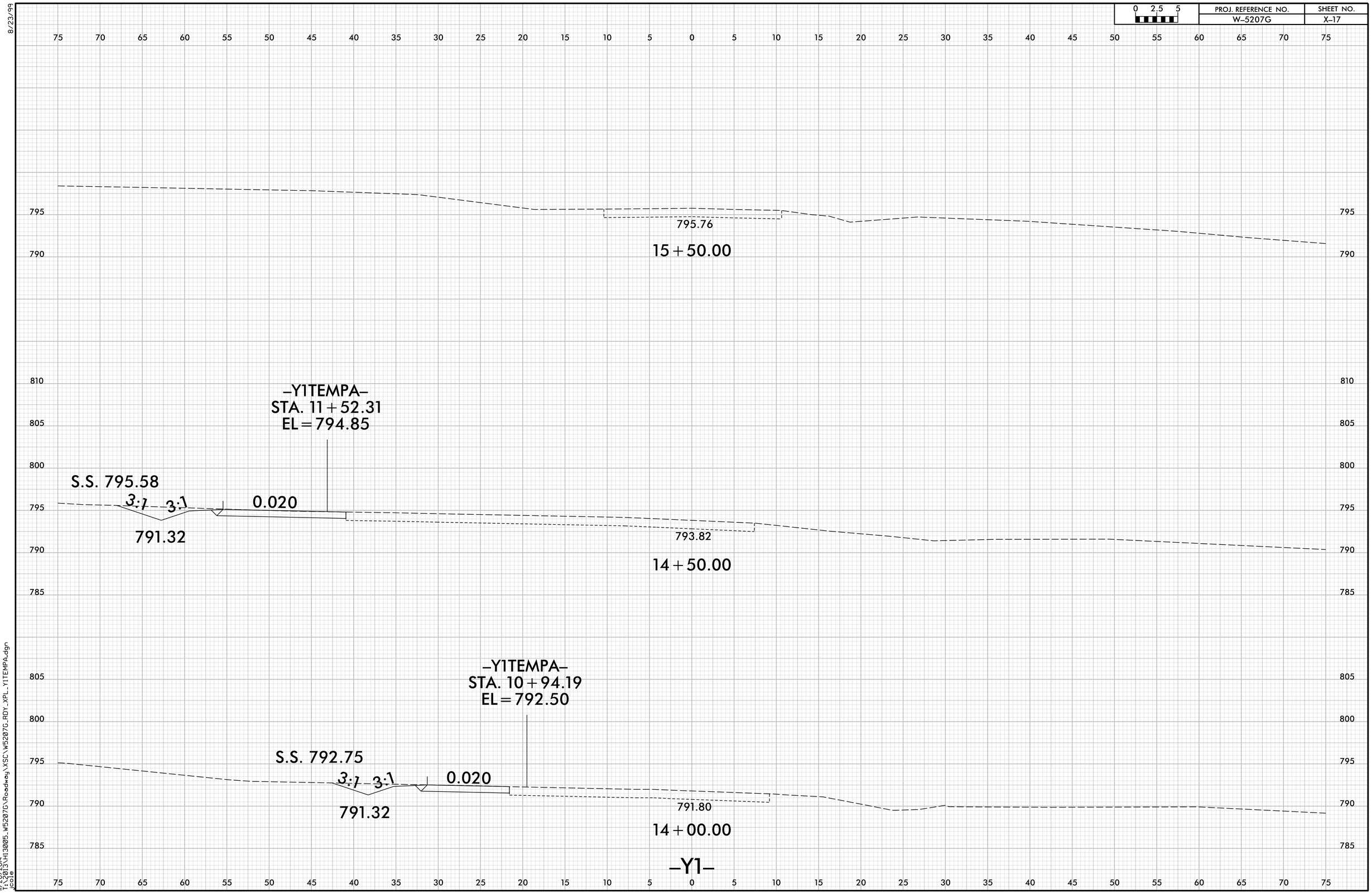
jcole

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-17



11/20/2014
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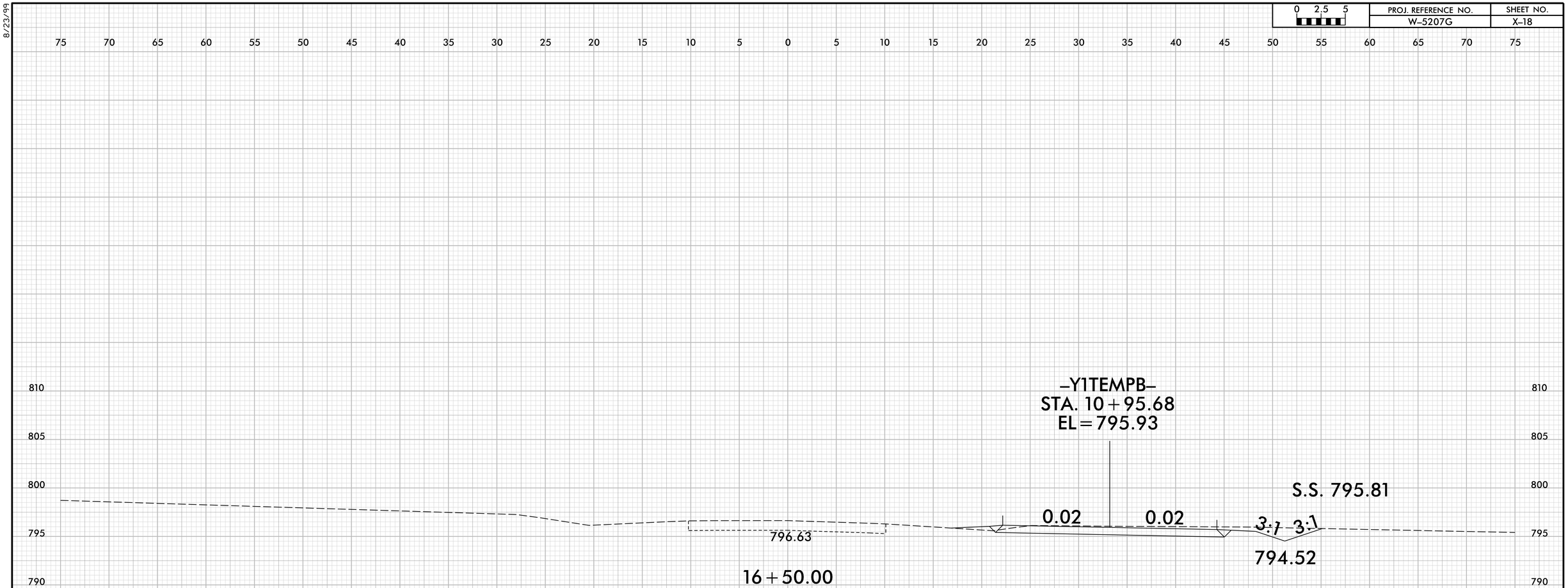
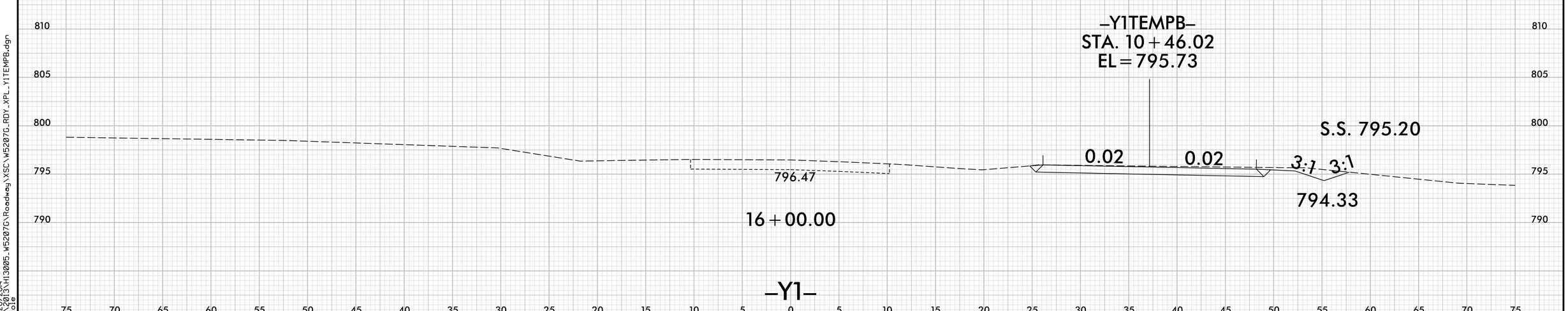
jcole

8/23/99

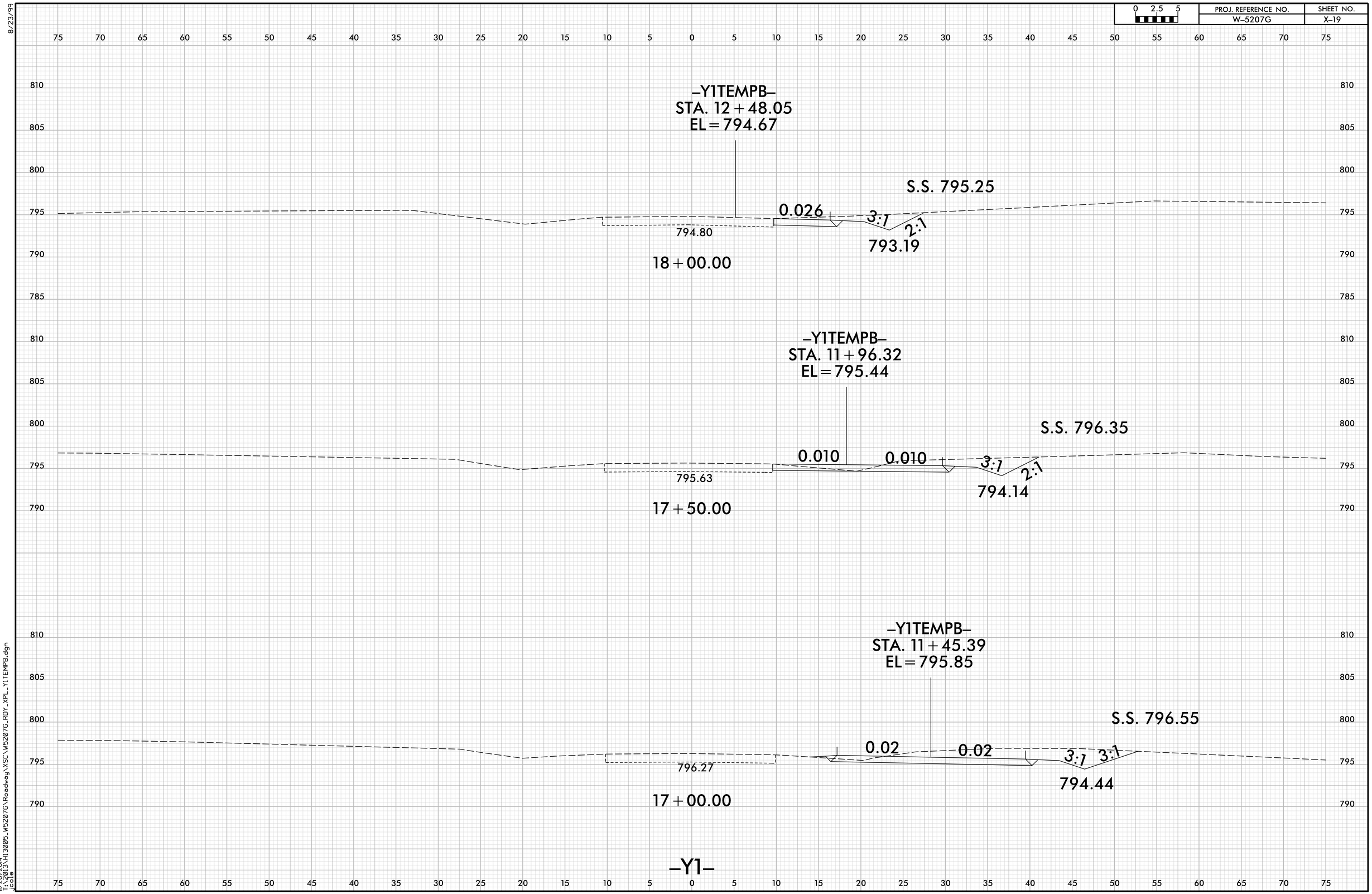
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-18





11/20/2014
T:\2013\H13005_W5207G\Roadway\XSC\W5207G_RDY_XPL_Y1TEMPB.dgn
Jcole

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-19



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11/20/2014
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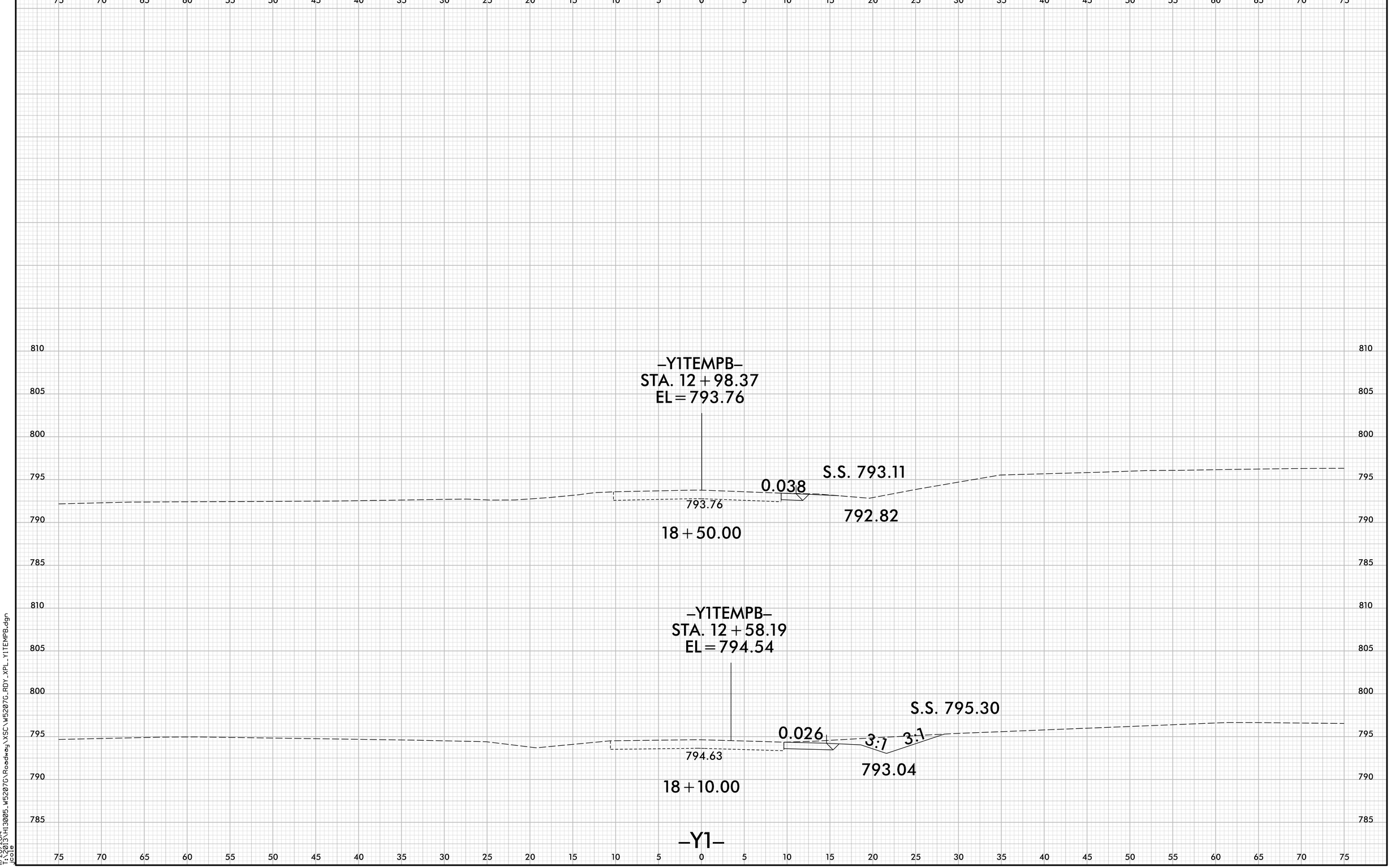
jcole

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5207G	X-20



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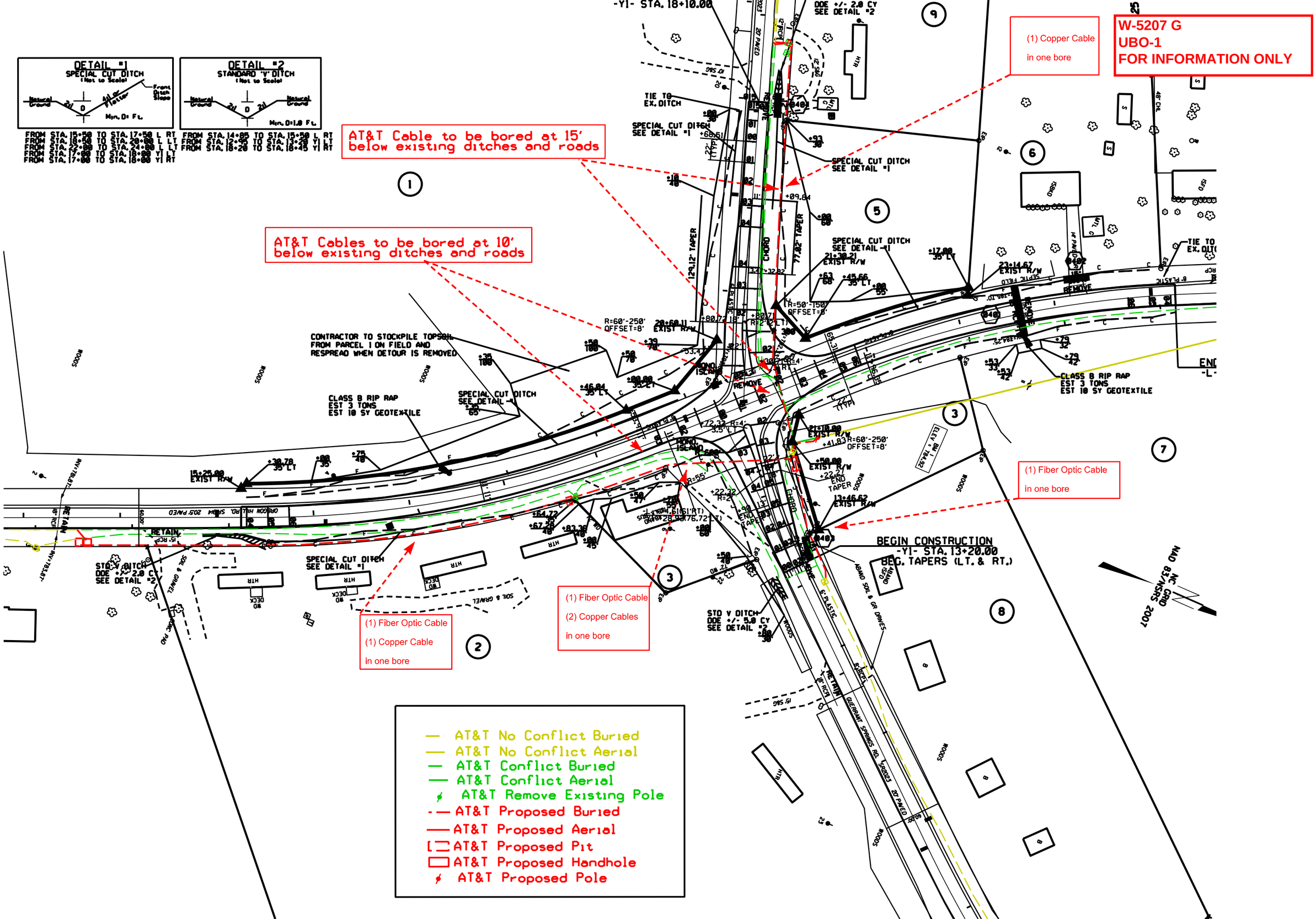
jcole


W-5207 G
UBO-1
FOR INFORMATION ONLY
(1) Copper Cable
in one bore
DETAIL #1
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
2:1
0
4:1 or Flatter
Front Ditch Slope
Min. D= Ft.
FROM STA. 15+50 TO STA. 17+50 L RT
FROM STA. 18+50 TO STA. 20+00 L LT
FROM STA. 22+00 TO STA. 24+00 L LT
FROM STA. 17+00 TO STA. 18+00 Y1 LT
FROM STA. 17+00 TO STA. 18+00 Y1 RT
DETAIL #2
STANDARD 'V' DITCH
(Not to Scale)
Natural Ground
2:1
0
2:1
Natural Ground
Min. D=1.0 Ft.
FROM STA. 14+85 TO STA. 15+50 L RT
FROM STA. 12+95 TO STA. 13+20 Y1 LT
FROM STA. 18+20 TO STA. 18+45 Y1 RT
AT&T Cable to be bored at 15' below existing ditches and roads
AT&T Cables to be bored at 10' below existing ditches and roads
-Y1- STA. 18+10.00
DDE +/- 2.0 CY
SEE DETAIL #2
TIE TO EX. DITCH
SPECIAL CUT DITCH
SEE DETAIL #1
SPECIAL CUT DITCH
SEE DETAIL #1
SPECIAL CUT DITCH
SEE DETAIL #1
129.12' TAPER
77.02' TAPER
CHORD
21+30.21
EXIST R/W
R=50'-150'
OFFSET=8'
R=60'-250'
OFFSET=8'
20+60.11
EXIST R/W
CONTRACTOR TO STOCKPILE TOPSOIL
FROM PARCEL 1 ON FIELD AND
RESPREAD WHEN DETOUR IS REMOVED
CLASS B RIP RAP
EST 3 TONS
EST 10 SY GEOTEXTILE
SPECIAL CUT DITCH
SEE DETAIL #1
MOND. ISLAND
REMOVE
15+25.00
EXIST R/W
21+10.00
EXIST R/W
R=60'-250'
OFFSET=8'
END TAPER
13+46.62
EXIST R/W
23+14.67
EXIST R/W
SEPTIC FIELD
REMOVE
CLASS B RIP RAP
EST 3 TONS
EST 10 SY GEOTEXTILE
(1) Fiber Optic Cable
in one bore
BEGIN CONSTRUCTION
-Y1- STA. 13+20.00
BEG. TAPERS (LT. & RT.)
STD V DITCH
DDE +/- 2.0 CY
SEE DETAIL #2
SPECIAL CUT DITCH
SEE DETAIL #1
(1) Fiber Optic Cable
(1) Copper Cable
in one bore
(1) Fiber Optic Cable
(2) Copper Cables
in one bore
STD V DITCH
DDE +/- 5.0 CY
SEE DETAIL #2
RETAIN
GUERNSEY SPRINGS RD. SR2023
20' PAVED
ORDGON HILL RD. SR4114 20.5' PAVED
SOIL & GRAVEL
WOODS
HTR
NO DECK
ISLAND
ABAND SOIL & GR DRIVES
NAD 83/NSRS 2007
NC GRID
1
2
3
5
6
7
8
9
AT&T No Conflict Buried
AT&T No Conflict Aerial
AT&T Conflict Buried
AT&T Conflict Aerial
AT&T Remove Existing Pole
AT&T Proposed Buried
AT&T Proposed Aerial
AT&T Proposed Pit
AT&T Proposed Handhole
AT&T Proposed Pole