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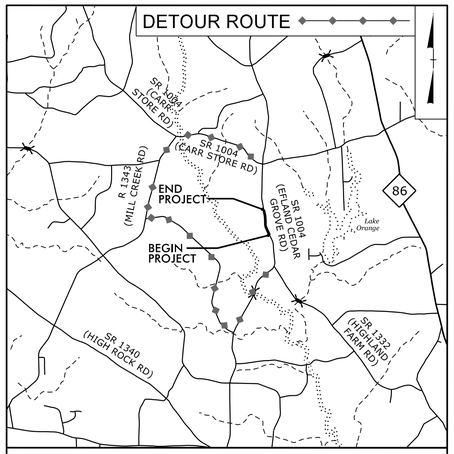
TIP PROJECT: W-5143

CONTRACT: DG00321

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



VICINITY MAP

Final Plans

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ORANGE COUNTY

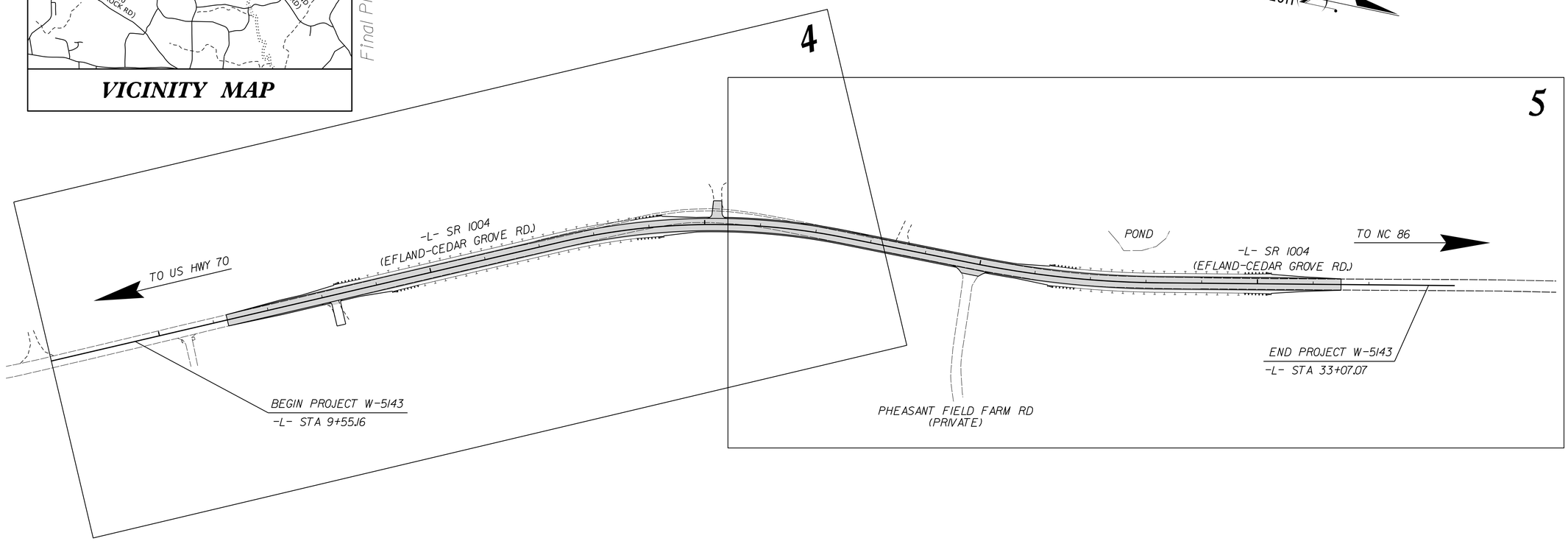
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.		1	44

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45267.1.1	STP-1004(42)	PE
45267.2.2	STP-1004(42)	R/W & UTIL.
45267.3.3	STP-1004(42)	CONST.

LOCATION: SR 1004 (EFLAND-CEDAR GROVE RD.) NORTH OF INTERSECTION WITH SR 1332 (HIGHLAND FARM RD.)

TYPE OF WORK: GRADING, DRAINAGE, & PAVING

NAD83 /2011



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2011 = 3,100
ADT 2014 = 3,338

T = 6 % *
V = 60 MPH

FUNC CLASS = MAJOR COLLECTOR REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT W-5143 = 0.445 MILES
TOTAL LENGTH OF PROJECT W-5143 = 0.445 MILES

NCDOT CONTACT: CHRIS SMITHERMAN, PE
DIVISION DESIGN CONSTRUCTION ENGINEER

Prepared in the Office of:
ATKINS
1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 8, 2016

LETTING DATE:
SEPTEMBER 21, 2017

DEAN GOODISON, PE
PROJECT ENGINEER

BRYAN LAMBETH, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
DocuSigned by: Dean Goodison
8/9/2017
P.E.
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 041957 ENGINEER DEAN ROBERT GOODISON

ROADWAY DESIGN ENGINEER
DocuSigned by: Bryan Lambeth
8/9/2017
P.E.
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 038648 ENGINEER BRYAN S. LAMBETH

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5143	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038648 ENGINEER BRYAN S. LAMBERTH

Bryan Lamberth 4/20/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEETS
1D-1	CENTERLINE COORDINATE LIST
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	SHOULDER WEDGE DETAIL
2D-1	DRAINAGE DETAILS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
4 THRU 5	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-4	PAVEMENT MARKING AND SIGNING PLANS
X-1A THRU X-1B	CROSS-SECTION INDEX AND SUMMARY SHEETS
X-1 THRU X-8	CROSS-SECTIONS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 07-30-2012

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04
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.

BERM DITCHES:

BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

GUARDRAIL:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

DUKE ENERGY

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

EFF. 01-17-2012
REV. 10-30-2012

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 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
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	
806.01	Concrete Right-of-Way Marker
838.21	Reinforced Concrete Endwall - for Single 54" Pipe 90 Skew
838.27	Reinforced Concrete Endwall - for Single 60" Pipe 90 Skew
862.01	Guardrail Placement
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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PROJECT REFERENCE NO.	SHEET NO.
W-5143	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

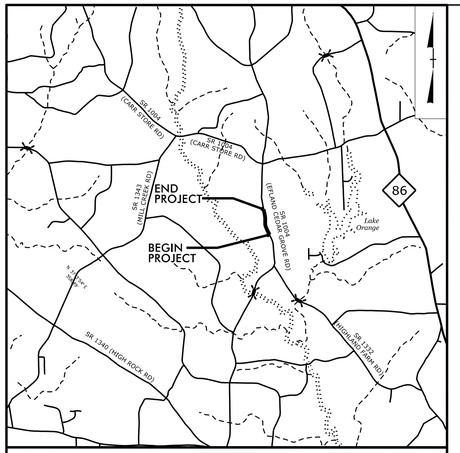
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

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

SURVEY CONTROL SHEET W–5143

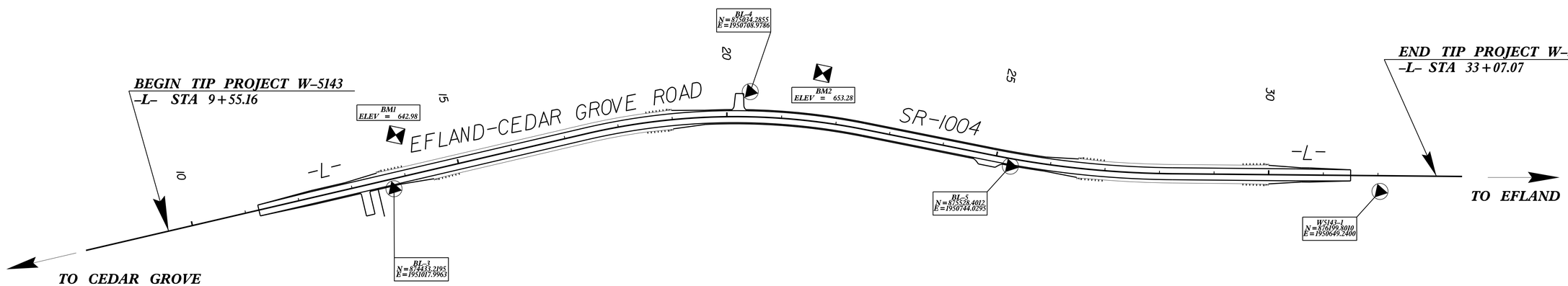
	SHEET NO.
W–5143	1C–1
LOCATION AND SURVEYS	



VICINITY MAP

NAD 83 NA 2011 NC GRID

L			
TYPE	STATION	NORTH	EAST
POT	8+00.00	873905.1445	1951245.1762
PC	17+39.69	874756.2037	1950846.7741
PT	22+51.46	875251.3407	1950733.6631
PC	24+92.59	875492.4587	1950730.9249
PT	28+23.66	875821.2173	1950696.1944
POT	33+54.04	876341.1108	1950591.2689



BEGIN TIP PROJECT W–5143
–L– STA 9+55.16

END TIP PROJECT W–5143
–L– STA 33+07.07

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "W5143-1"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 876199.8010(ft) EASTING: 1950649.2400(ft)
ELEVATION: 660.59'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999706302
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "W5143-1" TO -L- 8+00.00 STATION IS S 14° 33' 31" E 2370.78(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BASELINE DATA

3 (BL-3) N 874433.2195 E 1951017.9963 ELEV 647.10 STA 5+00.00
Course from 3 to 4 N 27°12'30.33" W Dist 675.85
4 (BL-4) N 875034.2855 E 1950708.9786 ELEV 655.48 STA 11+75.85
Course from 4 to 5 N 04°03'27.26" E Dist 495.36
5 (BL-5) N 875528.4012 E 1950744.0295 ELEV 647.47 STA 16+71.21
Course from 5 to 1 N 08°02'9.66" W Dist 678.06
1(W5143-1) N 876199.8010 E 1950649.2400 ELEV 660.59 STA 23+49.26

BENCHMARK DATA

BM1 ELEVATION = 642.98'
N 874416' E 1950921'
EL STATION 10+01.00 77' LEFT
RR SPIKE IN ROOT OF 28" POPLAR

BM2 ELEVATION = 653.28'
N 875157' E 1950649'
EL STATION 17+63.00 86' LEFT
RR SPIKE IN ROOT OF 24" POPLAR

NOTE: DRAWING NOT TO SCALE

NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
HTTP://WWW.NCDOT.GOV/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
TIP W5601BL_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.

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PROJECT REFERENCE NO.	SHEET NO.
W-5143	ID-1

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

POINT #	CHAIN	STATION	NORTHING (Y)	EASTING (X)
1	-L-	8+00.00	873,905.14	1,951,245.18
2	-L-	8+50.00	873,950.43	1,951,223.98
3	-L-	9+00.00	873,995.71	1,951,202.78
4	-L-	9+50.00	874,041.00	1,951,181.58
5	-L-	10+00.00	874,086.28	1,951,160.38
6	-L-	10+50.00	874,131.56	1,951,139.18
7	-L-	11+00.00	874,176.85	1,951,117.99
8	-L-	11+50.00	874,222.13	1,951,096.79
9	-L-	12+00.00	874,267.42	1,951,075.59
10	-L-	12+50.00	874,312.70	1,951,054.39
11	-L-	13+00.00	874,357.98	1,951,033.19
12	-L-	13+50.00	874,403.27	1,951,011.99
13	-L-	14+00.00	874,448.55	1,950,990.79
14	-L-	14+50.00	874,493.83	1,950,969.60
15	-L-	15+00.00	874,539.12	1,950,948.40
16	-L-	15+50.00	874,584.40	1,950,927.20
17	-L-	16+00.00	874,629.69	1,950,906.00
18	-L-	16+50.00	874,674.97	1,950,884.80
19	-L-	17+00.00	874,720.25	1,950,863.60
20	-L-	17+50.00	874,765.56	1,950,842.45
21	-L-	18+00.00	874,811.44	1,950,822.59
22	-L-	18+50.00	874,858.11	1,950,804.66
23	-L-	19+00.00	874,905.49	1,950,788.69
24	-L-	19+50.00	874,953.49	1,950,774.71
25	-L-	20+00.00	875,002.03	1,950,762.75
26	-L-	20+50.00	875,051.03	1,950,752.81
27	-L-	21+00.00	875,100.40	1,950,744.92
28	-L-	21+50.00	875,150.06	1,950,739.10
29	-L-	22+00.00	875,199.92	1,950,735.35
30	-L-	22+50.00	875,249.88	1,950,733.68
31	-L-	23+00.00	875,299.88	1,950,733.11
32	-L-	23+50.00	875,349.88	1,950,732.54
33	-L-	24+00.00	875,399.87	1,950,731.98
34	-L-	24+50.00	875,449.87	1,950,731.41
35	-L-	25+00.00	875,499.87	1,950,730.83
36	-L-	25+50.00	875,549.84	1,950,729.34
37	-L-	26+00.00	875,599.76	1,950,726.44
38	-L-	26+50.00	875,649.57	1,950,722.12
39	-L-	27+00.00	875,699.24	1,950,716.39
40	-L-	27+50.00	875,748.73	1,950,709.26
41	-L-	28+00.00	875,797.99	1,950,700.72
42	-L-	28+50.00	875,847.03	1,950,690.98
43	-L-	29+00.00	875,896.04	1,950,681.09
44	-L-	29+50.00	875,945.06	1,950,671.20
45	-L-	30+00.00	875,994.07	1,950,661.31
46	-L-	30+50.00	876,043.08	1,950,651.42
47	-L-	31+00.00	876,092.09	1,950,641.53
48	-L-	31+50.00	876,141.10	1,950,631.63
49	-L-	32+00.00	876,190.12	1,950,621.74
50	-L-	32+50.00	876,239.13	1,950,611.85
51	-L-	33+00.00	876,288.14	1,950,601.96
52	-L-	33+50.00	876,337.15	1,950,592.07

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PROJECT REFERENCE NO.	SHEET NO.
W-5143	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038648 ENGINEER BRYAN S. LAMBETH

DocuSigned by: Bryan Lambeth 6/20/2017

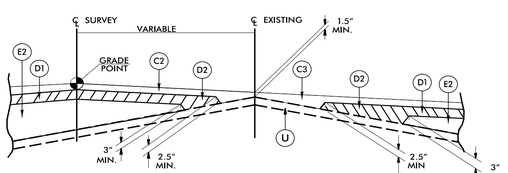
ATKINS
1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

PAVEMENT SCHEDULE

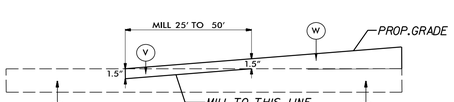
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, IN TWO LAYERS OF 1½" EACH, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE 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. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 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.
V	MILLING BITUMINOUS PAVEMENT. 1½" DEPTH.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED

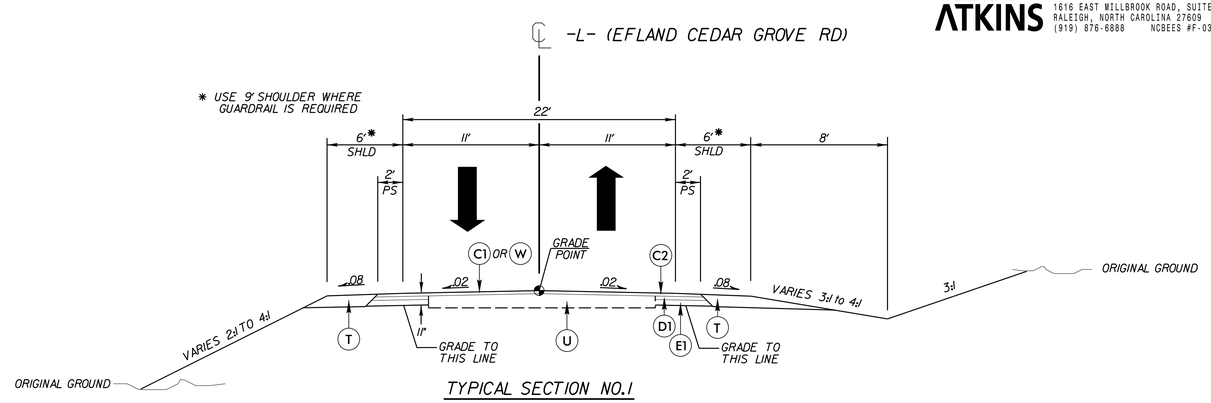
NOTE: PRELIMINARY PAVEMENT DESIGN SUBJECT TO CHANGE BASED ON NCDOT RECOMMENDATION



Detail Showing Method Of Wedging



Detail for Incidental Milling



TYPICAL SECTION NO.1

USE TYPICAL SECTION NO.1 AS FOLLOWS

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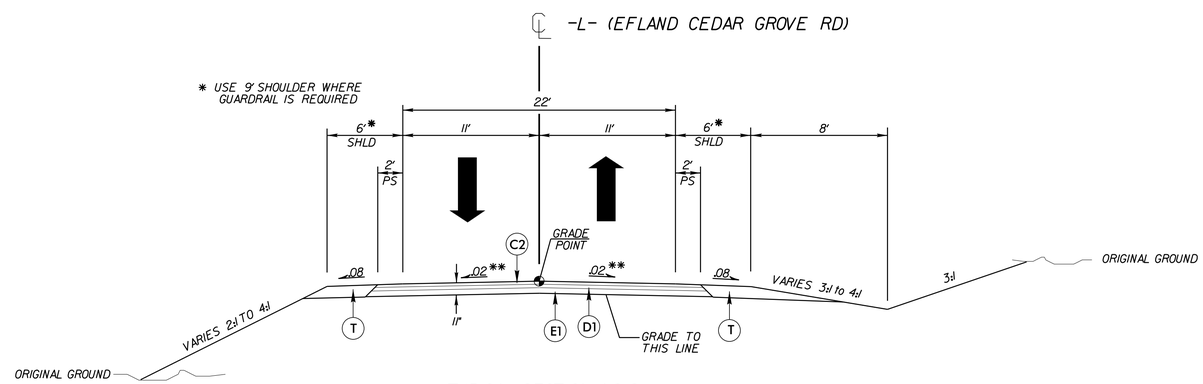
-L- Sta.30+50.00 THRU Sta.31+50.00



TYPICAL SECTION NO.2

** SEE PLANSHEETS FOR SUPERELEVATIONS

USE TYPICAL SECTION NO.2 AS FOLLOWS

-L- Sta.12+00.00 THRU Sta.30+50.00

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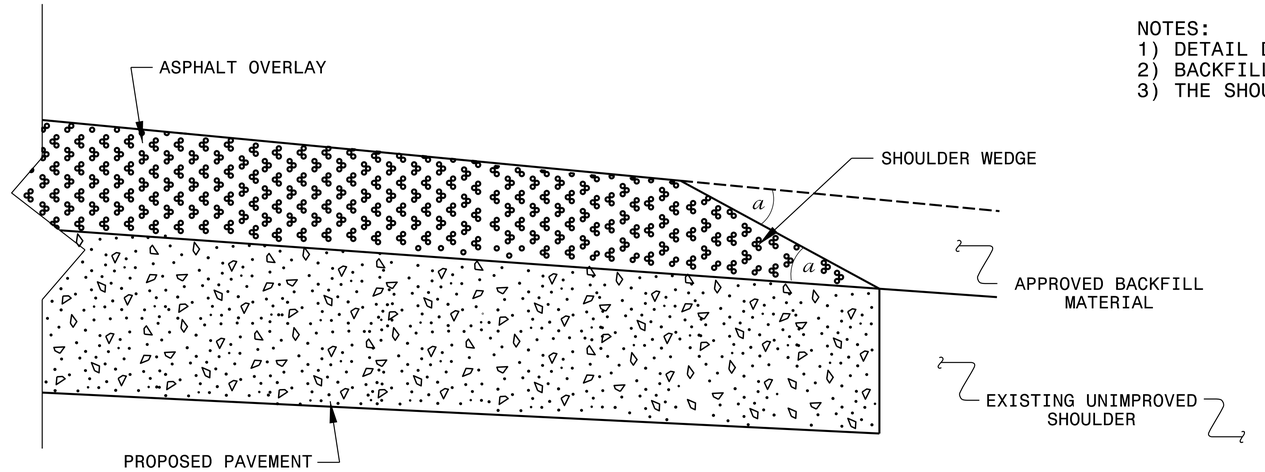
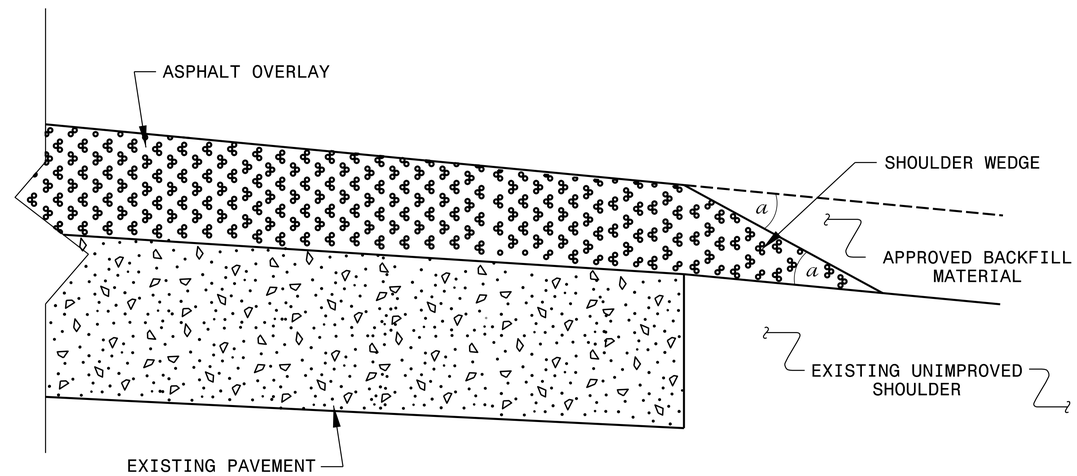
PROJECT REFERENCE NO.	SHEET NO.
W-5143	2B-1

NOTES:
1) DETAIL DOES NOT APPLY TO OGAFC AND ULTRA-THIN BONDED WEARING COURSE.
2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



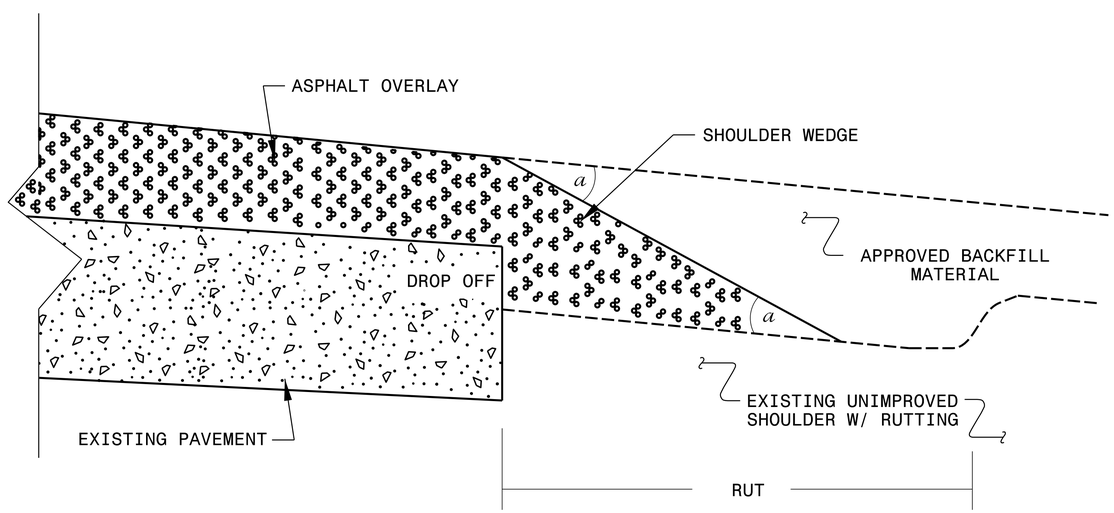
SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ Widening or with Existing Paved Shoulder having no dropoffs)



SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ NO Widening)



SHOULDER WEDGE DETAIL

(Resurfacing Adjacent to Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

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

SHOULDER WEDGE DETAILS

ORIGINAL BY: T.SPELL DATE: 7-19-11
MODIFIED BY: DATE: 10/16/12
CHECKED BY: DATE:
FILE SPEC.: s:usr/details/stand/shoulderwedgedetail.dgn

8/17/99

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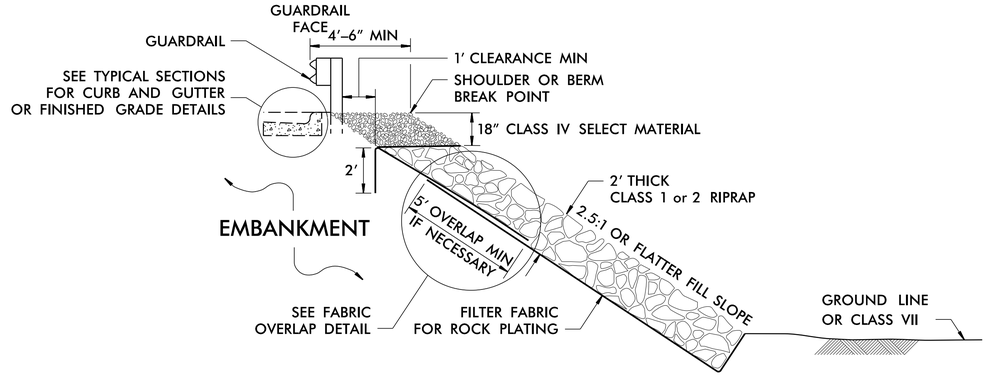
PROJECT REFERENCE NO.	SHEET NO.
W-5143	2D-1

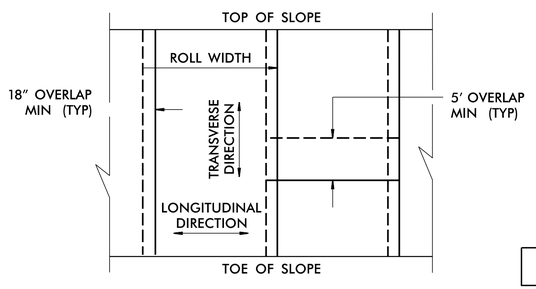
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041957 ENGINEER ROBERT GOODTSON
DocuSign Envelope ID: 697FB43A-D7F5-4E78-8432-414CE436CEDF
4/20/2017

ATKINS
1616 EAST WILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326



ROCK PLATING DETAIL N.T.S

FROM STA. 14+23 TO STA. 18+00 -L-, LT
FROM STA. 15+50 TO STA. 18+25 -L-, RT
FROM STA. 27+10 TO STA. 28+85 -L-, LT
FROM STA. 27+20 TO STA. 29+00 -L-, RT



FABRIC OVERLAP DETAIL

(PLAN VIEW)

CONSTRUCT ROCK PLATING ABOVE ROCK EMBANKMENT TO 1.5 FT. BELOW THE SHOULDER POINT AND ACCORDING TO THE ROCK PLATING SPECIAL PROVISION.

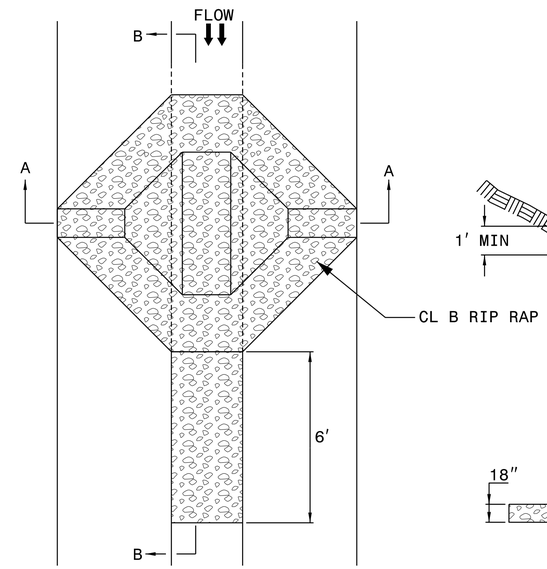
EXTEND ROCK PLATING TO 2.5:1 (H:V) SLOPE.

SEE ROCK PLATING SPECIAL PROVISION.

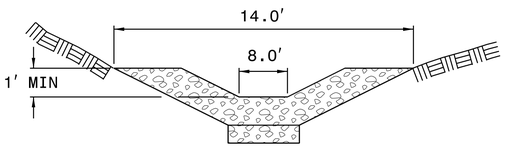
EST. ROCK PLATING QUANTITY (CL. I RIP RAP) = 2,000 TONS

ROCK CHECK DAM DETAIL N.T.S

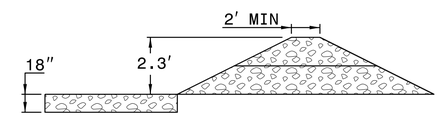
STA. 15+00 RT



PLAN



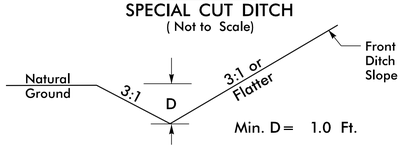
SECTION A-A



SECTION B-B

DETAIL A

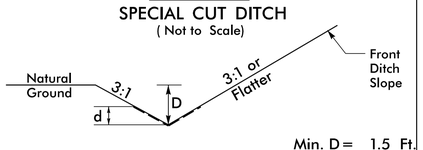
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 18+50 TO STA. 21+50 LT
FROM STA. 30+50 TO STA. 31+50 LT
FROM STA. 18+50 TO STA. 21+50 RT
FROM STA. 25+00 TO STA. 26+50 RT

DETAIL B

SPECIAL CUT DITCH
(Not to Scale)

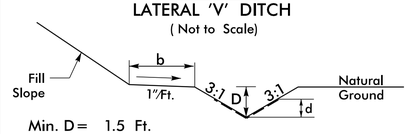


Type of Liner = PSRM

FROM STA. 11+25 TO STA. 13+00 LT
FROM STA. 23+50 TO STA. 26+70 LT
FROM STA. 11+25 TO STA. 12+22 RT
FROM STA. 22+00 TO STA. 24+65 RT
FROM STA. 30+50 TO STA. 31+50 RT

DETAIL C

LATERAL 'V' DITCH
(Not to Scale)



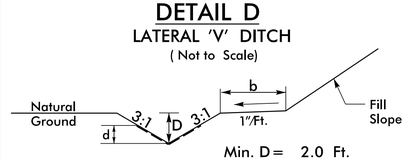
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
b = 4.0 Ft.

Type of Liner = PSRM

FROM STA. 12+22 TO STA. 12+50 RT

DETAIL D

LATERAL 'V' DITCH
(Not to Scale)



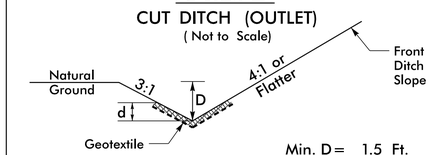
Min. D = 2.0 Ft.
Max. d = 1.75 Ft.
b = 4.0 Ft.

Type of Liner = PSRM

FROM STA. 13+50 TO STA. 16+68 RT

DETAIL E

CUT DITCH (OUTLET)
(Not to Scale)



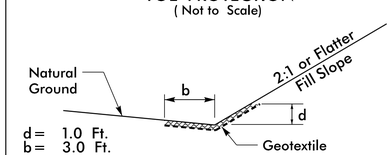
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.

Type of Liner = CLASS B Rip-Rap

FROM STA. 13+00 TO STA. 13+25 LT
FROM STA. 18+00 TO STA. 18+25 LT
FROM STA. 26+70 TO STA. 27+15 LT
FROM STA. 26+44 TO STA. 27+25 RT
FROM STA. 30+00 TO STA. 30+50 LT

DETAIL F

TOE PROTECTION
(Not to Scale)



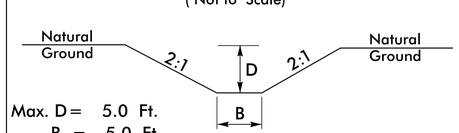
d = 1.0 Ft.
b = 3.0 Ft.

Type of Liner = CLASS B Rip-Rap

FROM STA. 17+70 TO STA. 18+00 LT
FROM STA. 18+38 TO STA. 18+62 RT
FROM STA. 27+25 TO STA. 27+54 RT
FROM STA. 27+15 TO STA. 27+25 LT
FROM STA. 29+50 TO STA. 30+00 LT
FROM STA. 29+50 TO STA. 30+00 RT

DETAIL G

STANDARD BASE TAIL DITCH
(Not to Scale)

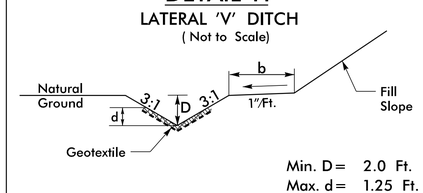


Max. D = 5.0 Ft.
B = 5.0 Ft.

STA. 16+70 LT
STA. 27+67 LT

DETAIL H

LATERAL 'V' DITCH
(Not to Scale)



Min. D = 2.0 Ft.
Max. d = 1.25 Ft.
b = 4.0 Ft.

Type of Liner = CL B Rip-Rap

FROM STA. 12+50 TO STA. 13+08 RT
FROM STA. 13+36 TO STA. 13+50 RT

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$$$$PLOTDATE$$$$

COMPUTED BY: IWB	DATE: 07-17-15
CHECKED BY: BSL	DATE: 07-17-15

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
W-5143	3B-1

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +20%	BORROW	WASTE
-L- STA. 11+25.00	-L- STA. 23+72.00	3,798	8,714	5,666	750
-L- STA. 23+72.00	-L- STA. 31+50.00	674	4,094	4,170	750
PROJECT TOTALS:		4,472	12,809	9,837	1,500
LOSS DUE TO C&G				600	
USE SUIT. WASTE TO REPLACE BORROW				0	
SHOULDER BORROW			1180	1180	
REPLACE TOP SOIL ON BORROW PIT (5%)				581	
GRAND TOTALS:		4,472	13,988	12,197	1,500
SAY:		4,480		12,200	1,500

DDE = 306 CY

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering.

PARCEL INDEX

PARCEL NO.	SHEET NO.	PROPERTY OWNERS NAMES
1	4	JOAN H. BRAY, SANDRA H. BENTON
2	4	EDNA C. CARUTHERS
3	4	KATHY C. SHAMBLEY
4	4	TOWN OF HILLSBOROUGH
5	4	TOWN OF HILLSBOROUGH
6	4	TOWN OF HILLSBOROUGH
7	4	TOWN OF HILLSBOROUGH
8	4,5	JOHNNY E. SHAMBLEY & WIFE KATHRYN
9	4,5	O. WILLIAM FASION & WIFE LINDY C.
10	5	WADE G. CARUTHERS JR & WIFE EDNA C.
11	5	TOWN OF HILLSBOROUGH
12	5	TOWN OF HILLSBOROUGH
13	5	SUSAN C. GENTRY, SARA C. DYSON

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	12+00	12+72	CL	165
-L-	19+80	26+09	CL	1,664
-L-	30+08	30+50	CL	96
			TOTAL:	1,923
			SAY:	1,930

SUMMARY OF BREAKING EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	12+72	19+80	CL	1,726
-L-	26+09	30+08	CL	902
			TOTAL:	2,628
			SAY:	2,630

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	13+25	19+25	LT	600'			14+50	18+00	6'	9'	50'	50'	1'	1'			2													
-L-	14+25	19+25	RT	500'			15+50	18+00	6'	9'	50'	50'	1'	1'			2													
-L-	26+25	30+25	LT	400'			27+50	29+00	6'	9'	50'	50'	1'	1'			2													
-L-	26+25	30+25	RT	400'			27+50	29+00	6'	9'	50'	50'	1'	1'			2													
			SUBTOTAL	1,900'																										
		LESS 8 GRAU-350 @ 50' EACH		400'																										
			PROJECT TOTALS	1500'													8													
			SAY	1525'													8													ADDITIONAL GUARDRAIL POSTS = 5

12/06/07
17-APR-2017 13:29
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$$$$USERNAME$$$$

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

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

STATION	LOCATION (LT,RT, OR CL)	15" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	PIPE REMOVAL LIN.FT.	REMARKS
13+23	RT		28	21	
20+23	LT	32		20	
24+86	RT	44		40	
SHEET TOTALS		76	28	81	

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

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

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

STATION	LOCATION (LT,RT, OR CL)	INVERT ELEVATION	INVERT ELEVATION	CLASS III R.C. PIPE 54"	CLASS III R.C. PIPE 60"	REINFORCED ENDWALLS WITH R.C. – C.Y.	WATER-TIGHT JOINTS	PIPE REMOVAL LIN.FT.	REMARKS
16+71	CL	638.50	637.00	88		10.0	X	40	REMOVE 40 LF OF 24" CONC. PIPE
27+66	CL	640.00	638.50		80	10.0	X	40	REMOVE 40 LF OF 30" C.M. PIPE
SHEET TOTALS				88	80	20.0		80	

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

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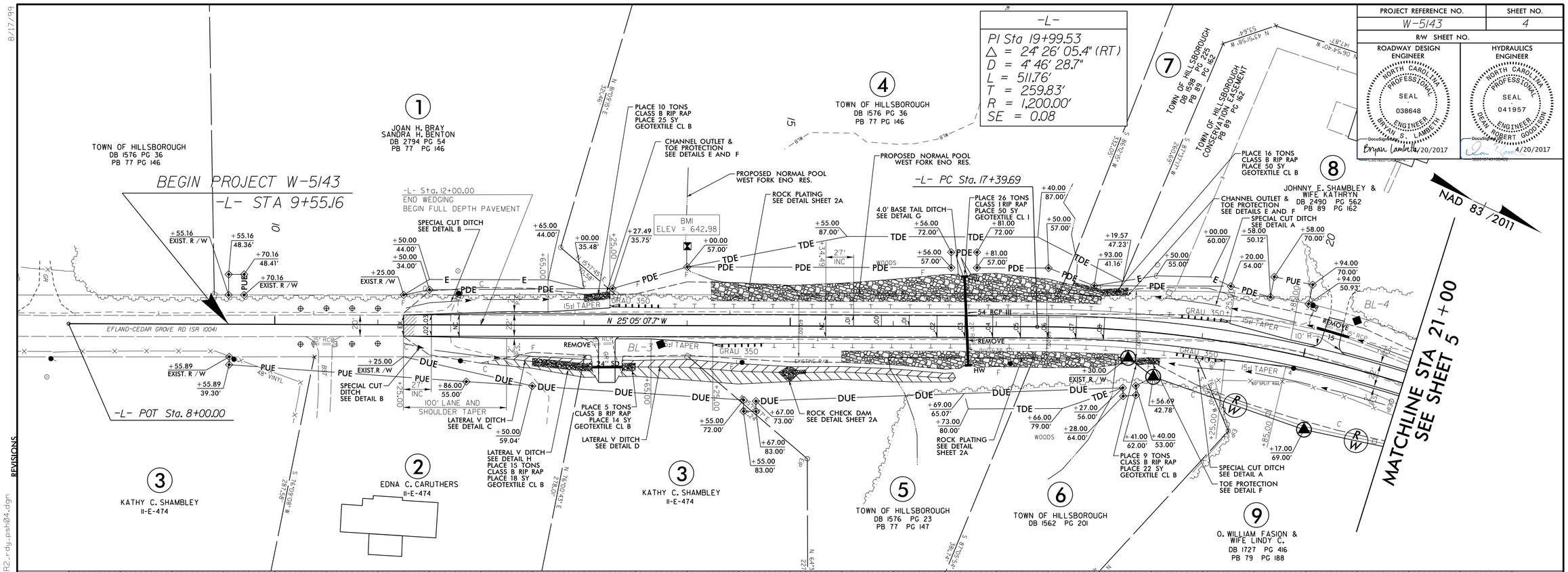
PROJECT REFERENCE NO.	SHEET NO.
W-5143	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 038648 ENGINEER BRYAN S. LAMBETH — Bryan Lambeth 4/20/2017

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 041957 ENGINEER ALAN ROBERT GOODSON — 4/20/2017

-L-
PI Sta 19+99.53
Δ = 24° 26' 05.4" (RT)
D = 4° 46' 28.7"
L = 511.76'
T = 259.83'
R = 1,200.00'
SE = 0.08



REVISIONS

8/17/99

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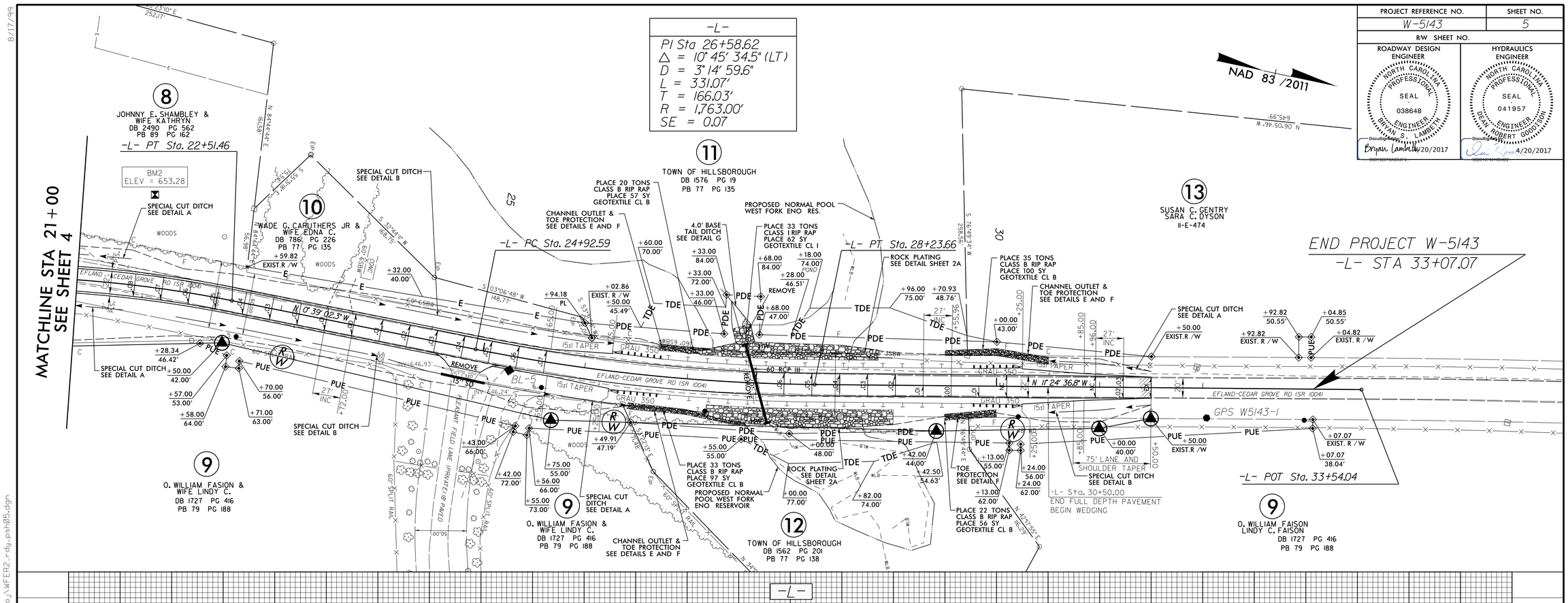
PROJECT REFERENCE NO.	SHEET NO.
W-5143	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 038648 ENGINEER BRYAN S. LAMBETH
Bryan Lambeth 4/20/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041957 ENGINEER DEW ROBERT GOODSON
4/20/2017



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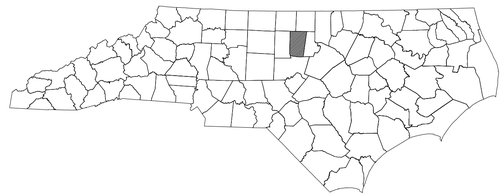
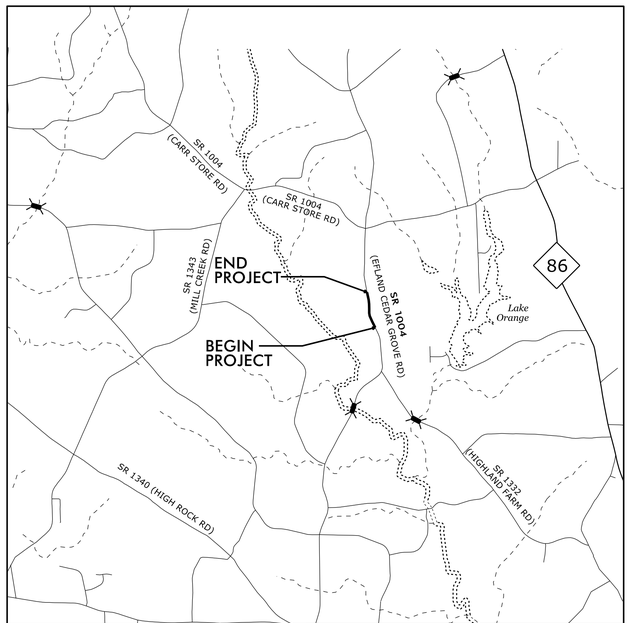
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ORANGE 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
TMP-1B - 1D	TRANSPORTATION OPERATIONS PLAN (MANAGEMENT STRATEGIES AND GENERAL NOTES)
TMP-2	TEMPORARY TRAFFIC CONTROL PHASING
TMP-3	TEMPORARY TRAFFIC CONTROL PHASE I DETAIL
TMP-4	OFFSITE DETOUR DETAIL

SHEET NO.
TMP-1

CONTRACT: DG00321

TIP PROJECT: W-5143

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

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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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

DAVID BISSETTE, P.E. TRAFFIC CONTROL PROJECT ENGINEER

_____ TRAFFIC CONTROL PROJECT DESIGN ENGINEER

_____ TRAFFIC CONTROL DESIGN ENGINEER

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

J. TODD BROOKS, P.E.
TRAFFIC CONTROL
PROJECT ENGINEER

J. ABRAHAM WILES
TRAFFIC CONTROL
DESIGN ENGINEER

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PROJ. REFERENCE NO.	SHEET NO.
W-5143	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS

LEGEND

GENERAL

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

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- FLAGGER
- CHANGEABLE MESSAGE SIGN

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- YELLOW/YELLOW

TEMPORARY PAVEMENT MARKING

		PAINT
PA	WHITE EDGE LINE	(4")
PI	YELLOW DOUBLE CENTER LINE	(4")

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ROADWAY STANDARD DRAWINGS & LEGEND

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PROJ. REFERENCE NO.	SHEET NO.
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MANAGEMENT STRATEGIES

THE PROJECT WILL CONSTRUCT IMPROVEMENTS TO THE ROADWAY AND DRAINAGE ON EFLAND-CEDAR GROVE ROAD TO IMPROVE SAFETY FOR MOTORISTS. ROADWAY IMPROVEMENTS INCLUDE BOTH HORIZONTAL AND VERTICAL ALIGNMENT CHANGES AND DRAINAGE IMPROVEMENTS INCLUDE CONSTRUCTION OF TWO LARGE DIAMETER CROSS PIPES BENEATH EFLAND-CEDAR GROVE ROAD. THE PROFILE OF THE EFLAND-CEDAR GROVE ROAD WILL BE RAISED SIGNIFICANTLY IN TWO LOCATIONS IN THE VICINITY OF THE PROPOSED CROSS PIPES BY OVERBUILDING ON TOP OF THE EXISTING ROADWAY. TO EXPEDITE THIS CONSTRUCTION AND THEREBY MINIMIZE INCONVENIENCE TO BOTH FRONTING PROPERTY OWNERS AND THROUGH MOTORISTS, EFLAND-CEDAR GROVE ROAD WILL BE CLOSED TEMPORARILY WITH THROUGH TRAFFIC DETOURED OFF-SITE.

TO FACILITATE MAINTENANCE OF DRIVEWAY ACCESS WITHIN THE PROJECT LIMITS WHILE THE ROAD IS CLOSED, THE PROJECT HAS BEEN SUBDIVIDED INTO TWO CONSECUTIVE SEGMENTS, EACH OF WHICH IS CENTERED ON THE PROPOSED CROSS-PIPES AND THEIR CORRSPONDING ELEVATIONS OF THE ROAD PROFILE.

* SEGMENT 1 - FROM -L- STA 11+25 TO -L- STA 23+75 +/-
* SEGMENT 2 - FROM -L- STA 23+75 +/- TO -L- STA 31+50

CONSTRUCTION WILL BE STAGED TO FIRST CONSTRUCT CUT AND FILL AND CONSTRUCT DRAINAGE AS MUCH AS POSSIBLE AWAY FROM TRAFFIC IN BOTH SEGMENTS WHILE MAINTAINING TRAFFIC IN EXISTING TWO-LANE, TWO-WAY PATTERN ON EFLAND-CEDAR GROVE ROAD. THE OBJECTIVE IS TO PERFORM AS MUCH WORK AS POSSIBLE PRIOR TO CLOSING EFLAND-CEDAR GROVE ROAD TO TRAFFIC IN ORDER MINIMIZE THE DURATION OF THE ROAD CLOSURE AND OFF-SITE DETOUR AND THE INCONVENIENCE TO MOTORISTS AND PROPERTY OWNERS/RESIDENTS.

THE CONTRACTOR WILL THEN CLOSE EFLAND-CEDAR GROVE ROAD TO RECONSTRUCT THE ROADWAY AND CONSTRUCT THE CROSS-PIPES IN TWO CONSECUTIVE SEGMENTS. THE CONTRACTOR MAY CONSTRUCT SEGMENT 1 AND SEGMENT 2 IN ANY ORDER PROVIDED THAT THEY ARE CONSTRUCTED INDEPENDENTLY AND SEQUENTIALLY. CONCURRENT CONSTRUCTION OF SEGMENT 1 AND SEGMENT 2 IS PROHIBITED EXCEPT FOR PLACEMENT OF FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS. FOLLOWING COMPLETION OF ONE SEGMENT, THE CONTRACTOR WILL SHIFT THE ROAD CLOSURE TO THE NEXT SEGMENT AND REOPEN THE PREVIOUSLY CLOSED SEGMENT TO TRAFFIC. ONCE BOTH SEGMENTS ARE COMPLETED UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE, EFLAND-CEDAR GROVE ROAD WILL BE REOPENED TO THROUGH TRAFFIC AND THE DETOUR DISCONTINUED. THE CONTRACTOR WILL PLACE THE FINAL LAYER OF SURFACE COURSE AND INSTALL FINAL PAVEMENT MARKINGS AND SIGNS USING LANE CLOSURES AFTER EFLAND-CEDAR GROVE ROAD IS REOPENED TO TRAFFIC.

GENERAL NOTES

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

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

TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
SR 1004 (EFLAND-CEDAR GROVE ROAD)	MONDAY THROUGH FRIDAY FROM - 6:00 AM TO 9:00 AM SUNDAY - ANYTIME

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

SR 1004 (EFLAND-CEDAR GROVE ROAD)

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.

2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 AM DECEMBER 31ST TO 9:00 AM JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 6:00 AM THURSDAY AND 9:00 AM MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 AM FRIDAY TO 9:00 AM TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 AM THE DAY BEFORE INDEPENDENCE DAY AND 9:00 AM THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 AM THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 AM THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 AM FRIDAY AND 9:00 AM TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 AM TUESDAY TO 9:00 AM MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 AM THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 AM THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

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GENERAL NOTES AND PHASING

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GENERAL NOTES (CONTINUED)

TIME RESTRICTIONS - CONT.

C) DO NOT CONDUCT SINGLE VEHICLE HAULING AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
SR 1004 (EFLAND-CEDAR GROVE ROAD)	ANY DAY FROM 7:00 PM TO 9:00 AM

D) DO NOT CONDUCT MULTI-VEHICLE HAULING AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
SR 1004 (EFLAND-CEDAR GROVE ROAD)	ANY DAY FROM 7:00 PM TO 9:00 AM

LANE AND SHOULDER CLOSED REQUIREMENTS

E) 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.

F) 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.

G) 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.

H) 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.

I) 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

J) 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.

K) 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

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

SIGNING

M) 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.

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

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

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

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

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

TRAFFIC CONTROL DEVICES

Q) 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.

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

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
SR 1004 (EFLAND-CEDAR GROVE ROAD)	PAINT	NONE

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TRANSPORTATION OPERATIONS PLAN

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GENERAL NOTES (CONTINUED)

PAVEMENT MARKINGS AND MARKERS - CONT.

T) 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.

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

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

W) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1004 (EFLAND-CEDAR GROVE ROAD)	THERMOPLASTIC	NONE

MISCELLANEOUS

X) CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS DURING CONSTRUCTION.

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GENERAL NOTES AND PHASING

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PROJ. REFERENCE NO.	SHEET NO.
W-5143	TMP-2

PHASING

PHASE I

USING RSD 1101.01, INSTALL ADVANCE WORK ZONE WARNING SIGNS ON EFLAND-CEDAR GROVE ROAD.

THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING DRIVEWAYS AS DIRECTED BY THE ENGINEER.

STEP 1: WHILE MAINTAINING TWO-LANE, TWO-WAY TRAFFIC ON EXISTING EFLAND-CEDAR GROVE ROAD, BEGIN CONSTRUCTING THE FOLLOWING AS MUCH AS POSSIBLE AWAY FROM TRAFFIC FROM STA 11+25 TO STA 31+50:

- PROPOSED CUT AND FILL
- PROPOSED DITCHES
- PROPOSED CROSS-PIPES UNDER DRIVEWAYS

INSTALL AND COVER ALL ROAD CLOSURE AND DETOUR SIGNING IN PREPARATION FOR UPCOMING CLOSURE OF EFLAND-CEDAR GROVE ROAD. (SEE TMP-3 AND TMP-4)

ONE WEEK PRIOR TO ROAD CLOSURE IN PHASE I, STEP 2A, INSTALL CHANGEABLE MESSAGE SIGNS (CMS) 1 AND 2 ON NORTHBOUND AND SOUTHBOUND EFLAND-CEDAR GROVE ROAD OUTSIDE OF PROJECT LIMITS TO NOTIFY MOTORISTS OF UPCOMING CLOSURE OF EFLAND-CEDAR GROVE ROAD. (SEE TMP-4)

THE CONSTRACTOR MAY CONSTRUCT SEGMENT 2 (STA 23+75 +/- TO STA 31+50) AS DESCRIBED IN PHASE I,STEPS 3A THRU 3C PRIOR TO CONSTRUCTING SEGMENT 1 (STA 11+25 TO STA 23+75 +/-) AS DESCRIBED IN PHASE I, STEPS 2A THRU 2C, SUBJECT TO THE ENGINEER'S APPROVAL. HOWEVER, CONCURRENT CONSTRUCTION OF SEGMENT 1 AND SEGMENT 2 IS PROHIBITED EXCEPT FOR PLACEMENT OF FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS.

STEP 2A: USING DETAILS ON TMP-3 AND TMP-4 AND RSD 1101.03, UNCOVER ROAD CLOSURE AND DETOUR SIGNING AND PLACE BARRICADES TO CLOSE SEGMENT 1 OF EFLAND-CEDAR GROVE ROAD TO TRAFFIC BETWEEN STA 11+25 +/- TO STA 24+50 +/-. MAINTAIN TWO-LANE, TWO-WAY TRAFFIC ON SEGMENT 2 OF EFLAND-CEDAR GROVE ROAD FROM STA 23+75 +/- TO STA 31+50 +/-.

STEP 2B: BEHIND ROAD CLOSURE,CONSTRUCT PROPOSED 54″ CROSS-PIPE AND SEGMENT 1 OF EFLAND-CEDAR GROVE ROAD UP TO BUT NOT INCLUDING THE FINAL LAYER FROM STA 11+25 +/-TO STA 23+75 +/-. (SEE TMP-3)

STEP 2C: PRIOR TO REOPENING ROAD, INSTALL TEMPORARY PAVEMENT MARKINGS IN THE FINAL TRAFFIC PATTERN ON SEGMENT 1 OF EFLAND-CEDAR GROVE ROAD FROM STA 11+25 +/-TO STA. 23+75 +/- . (SEE PAVEMENT MARKING AND SIGNING PLAN)

REMOVE BARRICADES AND REOPEN SEGMENT 1 OF EFLAND-CEDAR GROVE ROAD TO TWO-LANE, TWO-WAY TRAFFIC FROM STA 11+25 TO STA 23+75+/-.

STEP 3A: USING DETAILS ON TMP-3 AND TMP-4 AND RSD 1101.03, UNCOVER ROAD CLOSURE AND DETOUR SIGNING AND PLACE BARRICADES TO CLOSE SEGMENT 2 OF EFLAND-CEDAR GROVE ROAD TO TRAFFIC BETWEEN STA. 23+50 +/- AND STA. 31+50 +/- MAINTAIN TWO-LANE, TWO-WAY TRAFFIC ON SEGMENT 2 OF EFLAND-CEDAR GROVE ROAD FROM STA 23+75 +/- TO STA 31+50 +/-.

STEP 3B: BEHIND ROAD CLOSURE, CONSTRUCT PROPOSED 60″ CROSS-PIPE AND SEGMENT 2 OF EFLAND-CEDAR GROVE ROAD UP TO BUT NOT INCLUDING THE FINAL LAYER FROM STA 23+75 +/- TO STA 31+50. (SEE TMP-3)

STEP 3C: PRIOR TO REOPENING ROAD, INSTALL TEMPORARY PAVEMENT MARKINGS IN THE FINAL TRAFFIC PATTERN ON SEGMENT 2 OF EFLAND-CEDAR GROVE ROAD FROM STA 23+75 TO STA. 31+50 (SEE PAVEMENT MARKING AND SIGNING PLAN).

REMOVE BARRICADES AND REOPEN SEGMENT 2 OF EFLAND-CEDAR GROVE ROAD TO TWO-LANE, TWO-WAY TRAFFIC FROM STA 23+75 +/- TO STA 31+50.

STEP 4: REMOVE ALL DETOUR SIGNING AND TRAFFIC CONTROL DEVICES FOR ROAD CLOSURE AND OFFSITE DETOUR.

STEP 5: USING RSD 1101.02, SHEET 1 PLACE FINAL LAYER OF SURFACE COURSE AND INSTALL FINAL PAVEMENT MARKINGS. (SEE PAVEMENT MARKING AND SIGNING PLAN)

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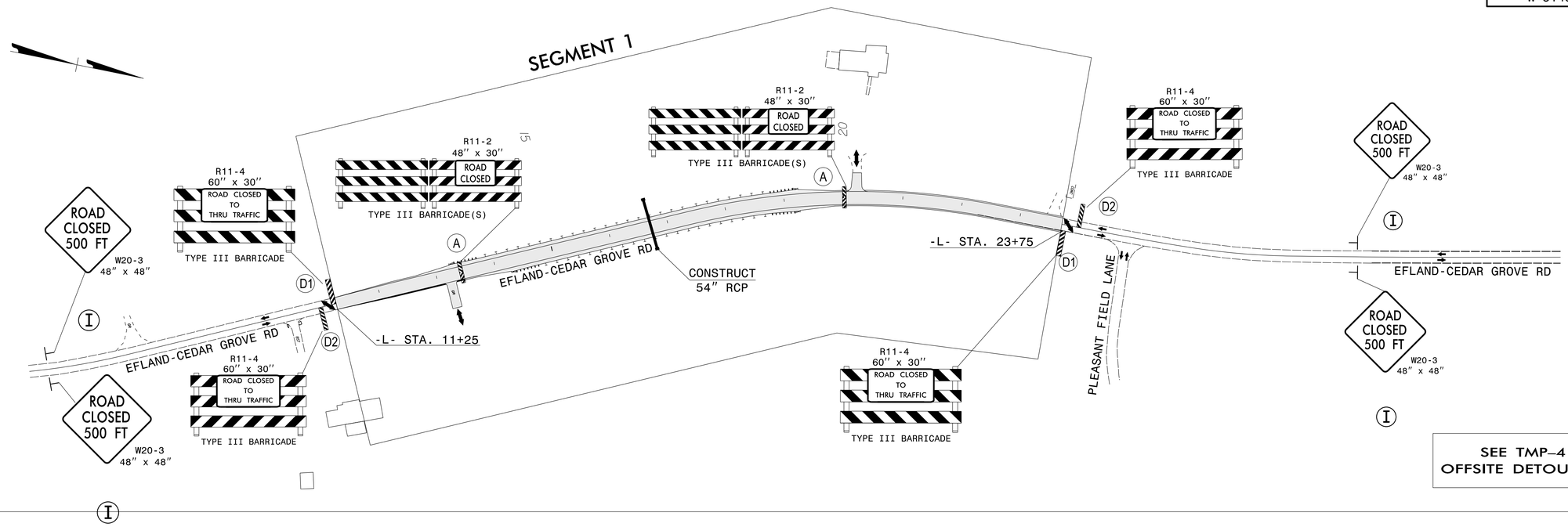
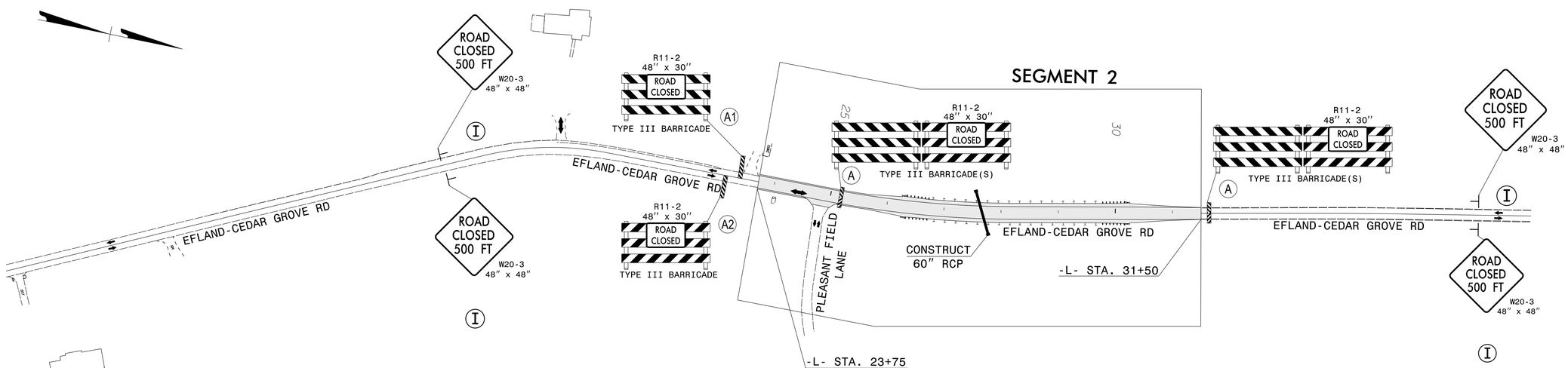
W-5143	TMP-3



SEE TMP–4 FOR OFFSITE DETOUR DETAILS



SEE TMP–4 FOR OFFSITE DETOUR DETAILS

APPROVED: DocuSigned by: 8E5B7B60A2A2466...

DATE: 8/2/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TEMPORARY TRAFFIC CONTROL PHASE I DETAIL

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

02-AUG-2016 10:02 02-AUG-2016 10:10
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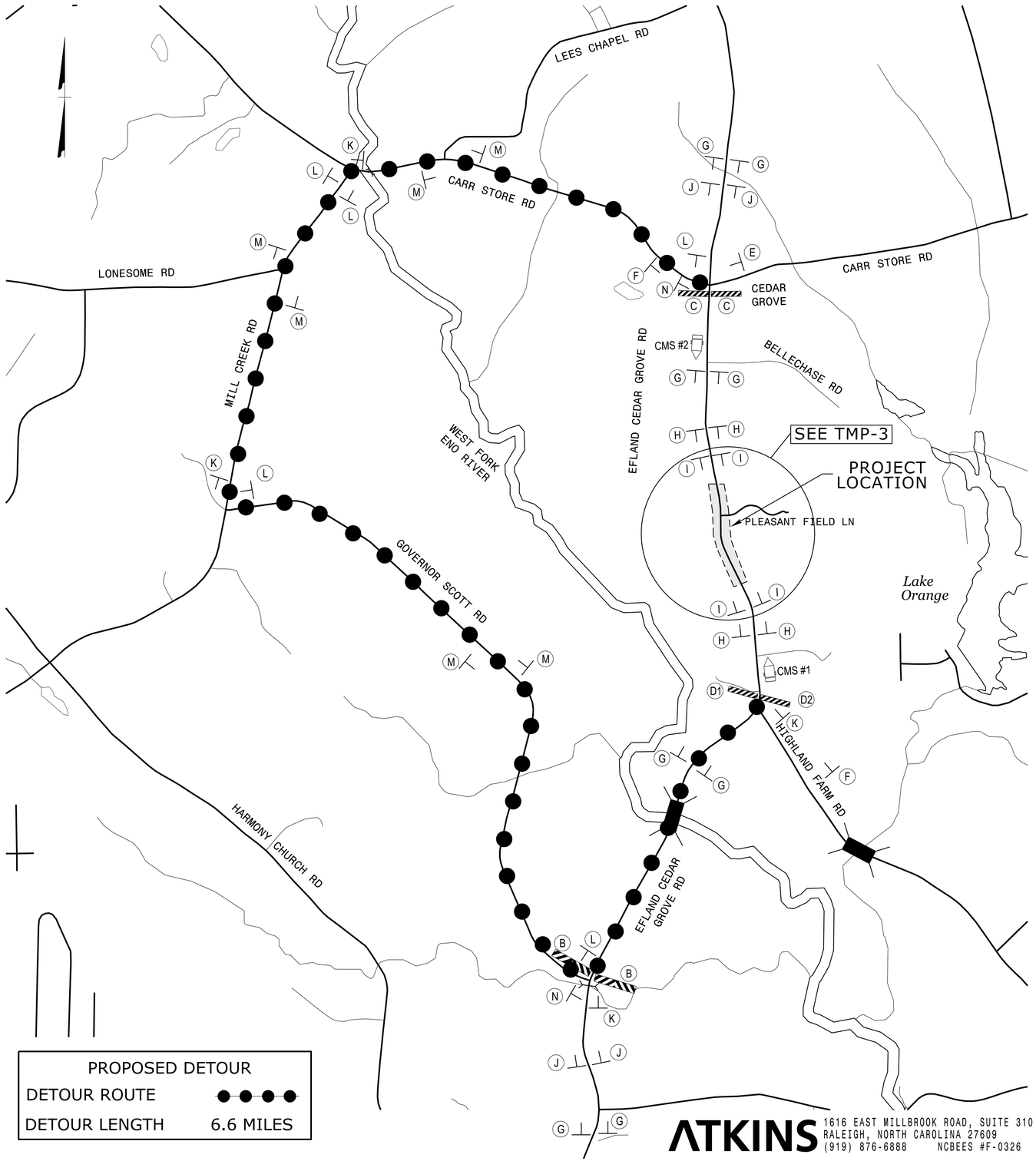
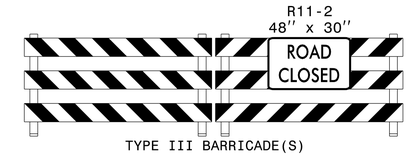
PROJ. REFERENCE NO.	SHEET NO.
W-5143	TMP-4



PROPOSED DETOUR

DETOUR ROUTE ●●●●

DETOUR LENGTH 6.6 MILES



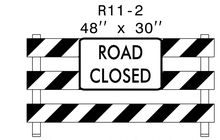
A

MESSAGE NO. 1	MESSAGE NO. 2
EFLAND CEDAR GROVE RD	CLOSING DAY mmm dd

CHANGEABLE MESSAGE SIGN

CMS #1 & CMS #2

A1



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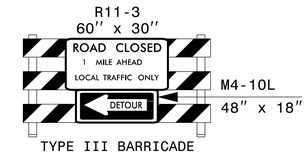

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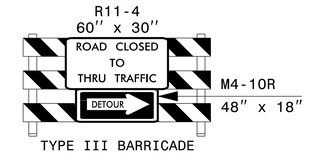

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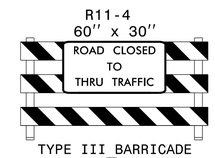

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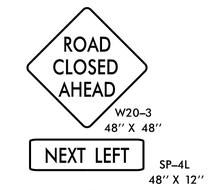

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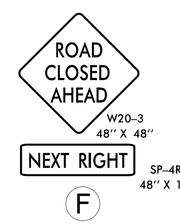

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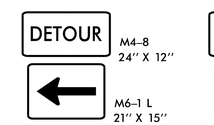

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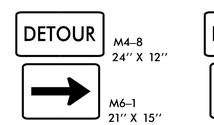

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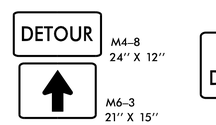

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N

APPROVED: DocuSigned by: BE5B7B60A2A2466...

DATE: 8/2/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DETOUR SIGNING

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

02-AUG-2016 10:10
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TIP NO.	SHEET NO.
W-5143	SIGN-1

APPROVED: DocuSigned by: Melissa B. Toth D86DCF8E04D04AF...

DATE: 8/2/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

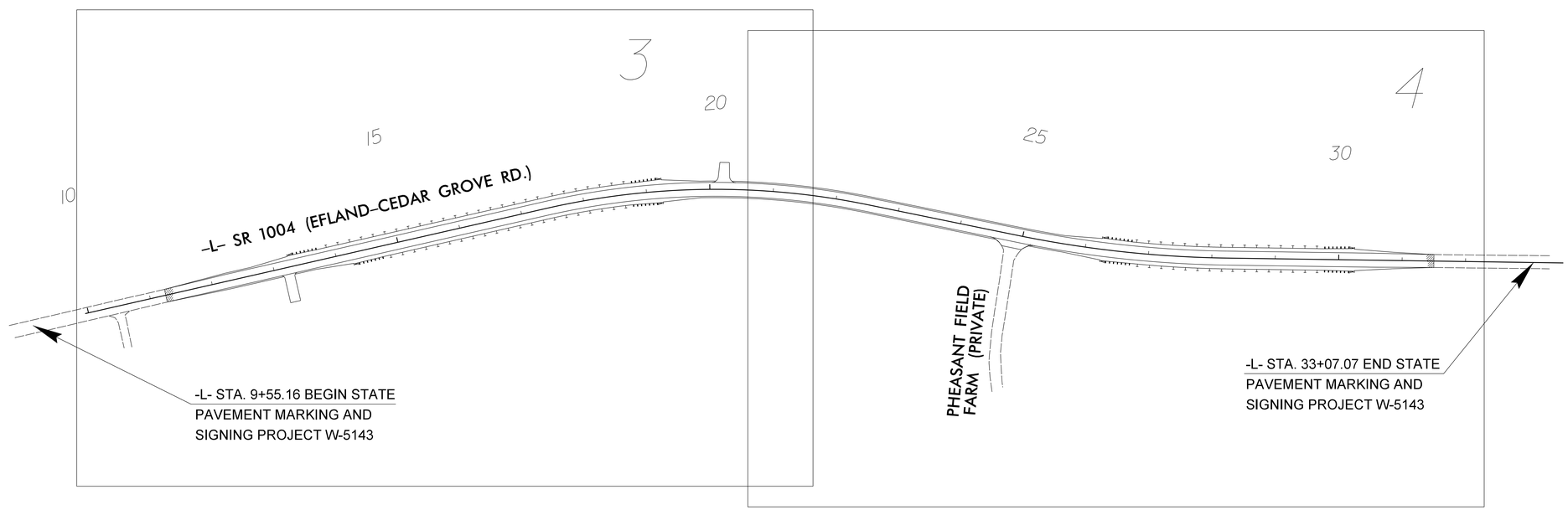
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING AND SIGNING PLAN

ORANGE COUNTY

LOCATION: SR 1004 (EFLAND-CEDAR GROVE RD.) NORTH OF INTERSECTION WITH SR 1332 (HIGHLAND FARM RD.)

NAD 83



100% – PAVEMENT MARKING AND SIGNING PLAN
AUGUST 1, 2016

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	PAVEMENT MARKING AND SIGNING PLAN TITLE AND INDEX
SIGN-2	ROADWAY STANDARD DRAWINGS, NOTES, QUANTITIES AND TYPE 'E' SIGN
SIGN-3 - 4	PAVEMENT MARKING AND SIGNING PLAN SHEETS

PLAN REVIEWED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

RENEE ROACH, PE — SIGNING & DELINEATION STANDARDS ENGINEER

ASHLEY KIDD — SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PLAN PREPARED BY: ATKINS

MELISSA B. TOTH, PE — PROJECT ENGINEER

ABRAHAM WILES — PROJECT DESIGN ENGINEER

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

CONTRACT: DG00321 T.I.P.: W-5143

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TIP NO.	SHEET NO.
W-5143	SIGN-2

APPROVED: DocuSigned by: Melissa B. Toth D86DCF8E04D04AF...

DATE: 8/2/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 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
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

TYPE 'E' SIGN

401 QUANTITY REQ'D 1

ONE "U" POST PER SIGN

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	
TA	WHITE EDGELINE	THERMOPLASTIC (4", 90 MILS)
TI	YELLOW DOUBLE CENTER	THERMOPLASTIC (4", 120 MILS)

GENERAL NOTES

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

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1004 (EFLAND-CEDAR GROVE RD.)	THERMOPLASTIC	NONE

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

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

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

E) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

F) SIGNS FURNISHED BY STATE.

G) CONFIRM IN WRITING AT LEAST 4 MONTHS IN ADVANCE, THE ACTUAL DATE THE DEPARTMENT FURNISHED SIGNS WILL BE REQUIRED.

H) 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.

I) WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER.

J) ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.

K) WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.

L) THE BACKGROUND FOR TYPE 'E' SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.

M) SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4072000000	903	SUPPORTS, 3-LB STEEL U-CHANNEL	15	LF
4102000000	904	SIGN ERECTION, TYPE E	1	EA
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	9	EA
4685000000	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	4,050	LF
4686000000	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	4,050	LF

PAY ITEM NOTES

1. DISPOSAL OF SIGN SYSTEM, U CHANNEL
2. SIGN ERECTION, TYPE E

100% – PAVEMENT MARKING AND SIGNING PLAN
AUGUST 1, 2016

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

PAVEMENT MARKING AND SIGNING NOTES

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TIP NO.	SHEET NO.
W-5143	SIGN-3

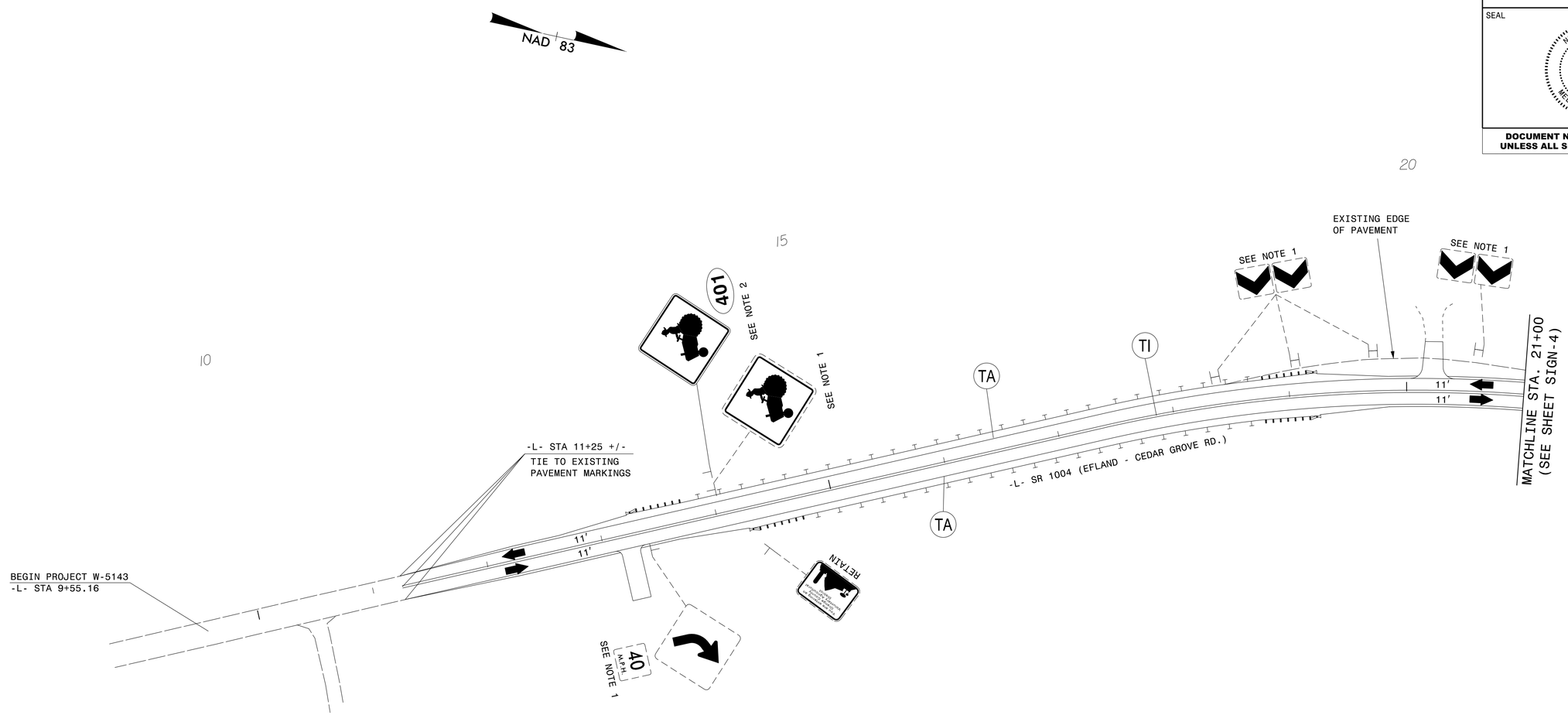
APPROVED: DocuSigned by: Melissa B. Toth D86DCF8E04D04AF...

DATE: 8/2/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



100% – PAVEMENT MARKING AND SIGNING PLAN
AUGUST 1, 2016

PAY ITEM NOTES

1. DISPOSAL OF SIGN SYSTEM, U CHANNEL
2. SIGN ERECTION, TYPE 'E'

SCALE 0 50

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

PAVEMENT MARKING AND SIGNING

-L- SR 1004 (EFLAND - CEDAR GROVE RD.)
STA. 9+55.16 TO STA. 21+00

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TIP NO.	SHEET NO.
W-5143	SIGN-4

APPROVED: DocuSigned by: Melissa B. Toth D86DCF8E04D04AF...

DATE: 8/2/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

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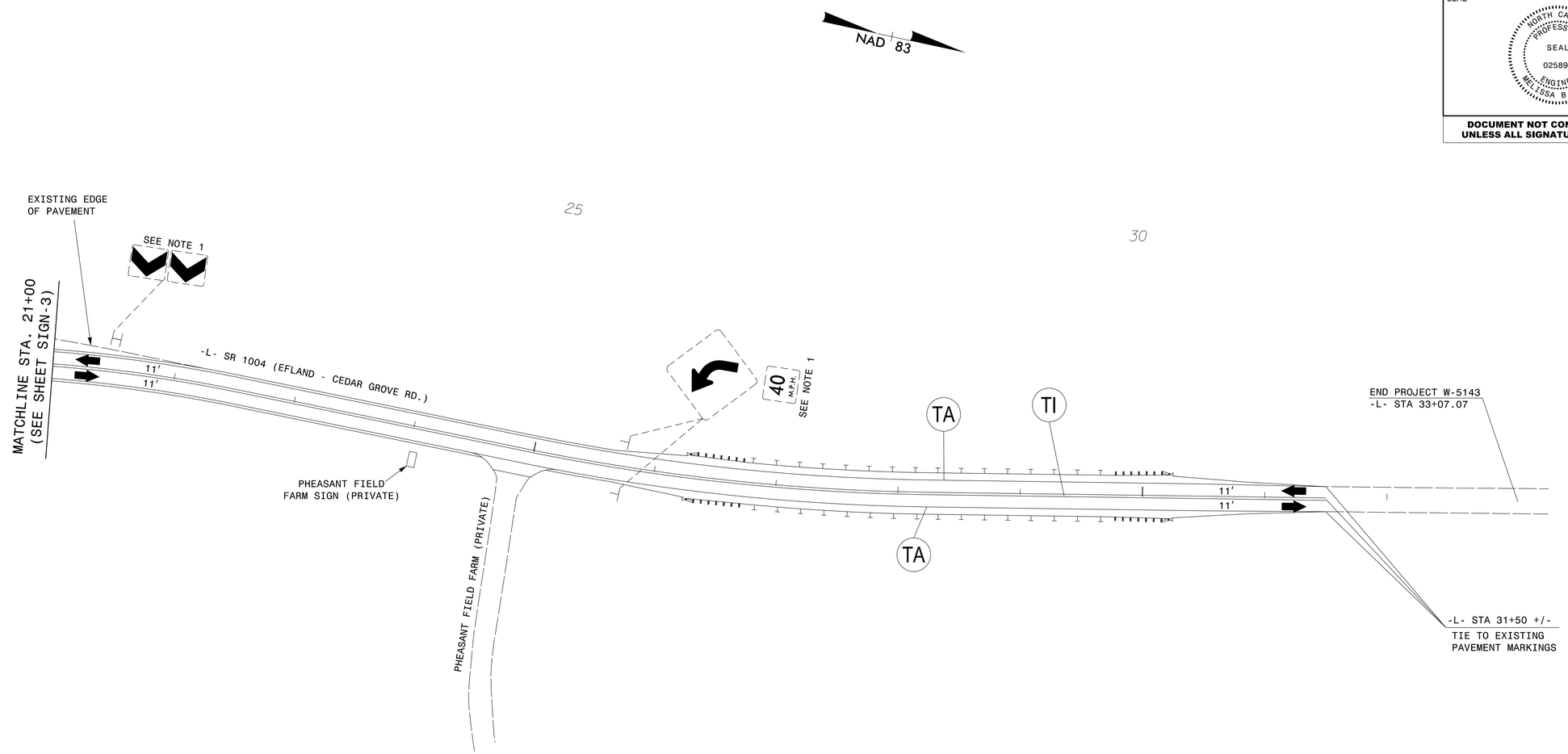

100% – PAVEMENT MARKING AND SIGNING PLAN
AUGUST 1, 2016

PAY ITEM NOTES

1. DISPOSAL OF SIGN SYSTEM, U CHANNEL

SCALE 0 50

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

PAVEMENT MARKING AND SIGNING
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STA. 21+00 TO STA. 33+07.07

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TIP PROJECT: W-5143

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5143	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
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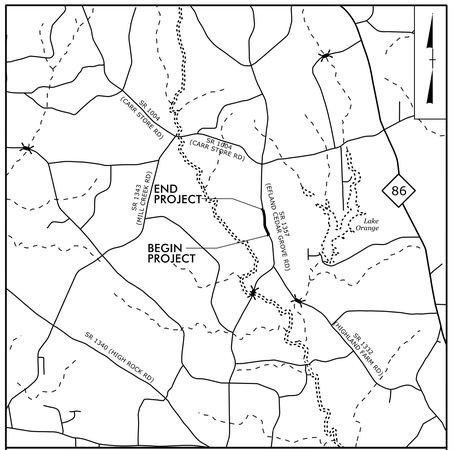
45267.2.2	STP-1004(42)	R/W & UTIL.
45267.3.3	STP-1004(42)	CONST.



VICINITY MAP

STATE OF NORTH CAROLINA

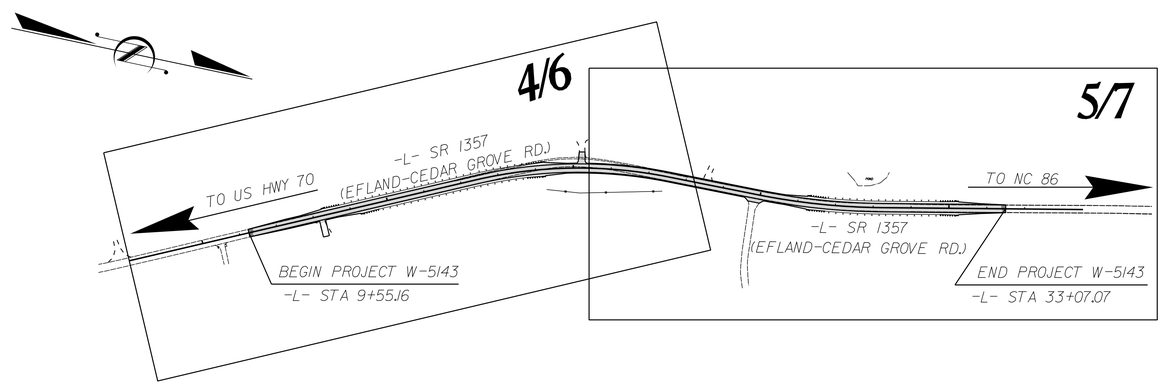
DIVISION OF HIGHWAYS

ORANGE COUNTY

PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

TYPE OF WORK: GRADING, DRAINAGE, & PAVING

LOCATION: SR 1357 (EFLAND–CEDAR GROVE RD.) NORTH OF INTERSECTION WITH SR 1332 (HIGHLAND FARM RD.)



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.

EROSION AND SEDIMENT CONTROL MEASURES

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

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

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT

High Quality Water Zone(s) Exist
From Sta. 11+25
to Sta. 31+50
Refer To E. C. Special Provisions for Special Considerations.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

GRAPHIC SCALE

25 12.5 0 25 50
PLANS

25 12.5 0 25 50
PROFILE (HORIZONTAL)

5 2.5 0 10
PROFILE (VERTICAL)

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

Prepared in the Office of:

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Designed by:

NAME	LEVEL III CERTIFICATION NO.
DEAN GOODISON, PE	3864
NADIA MATA, PE	3863

Reviewed in the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

JENNIFER S. PARISH

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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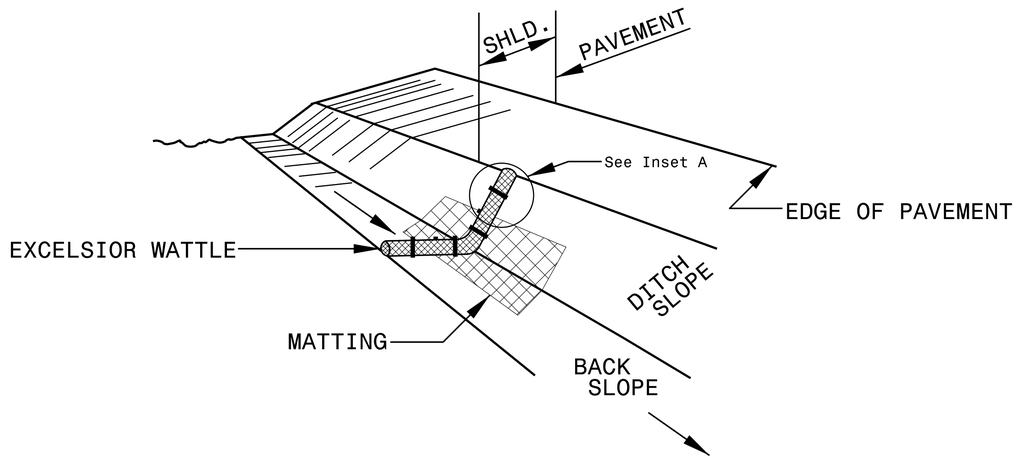
PROJECT REFERENCE NO.	SHEET NO.
W-5143	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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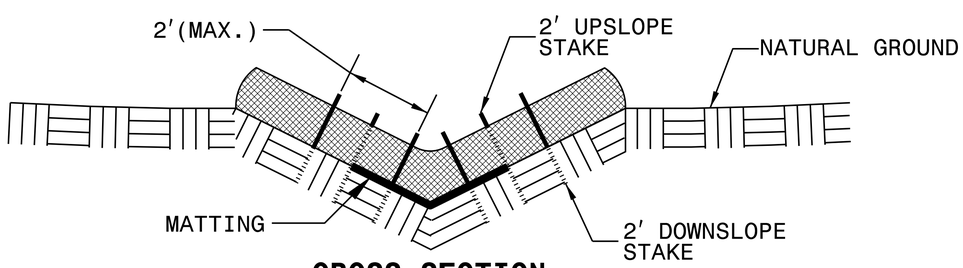
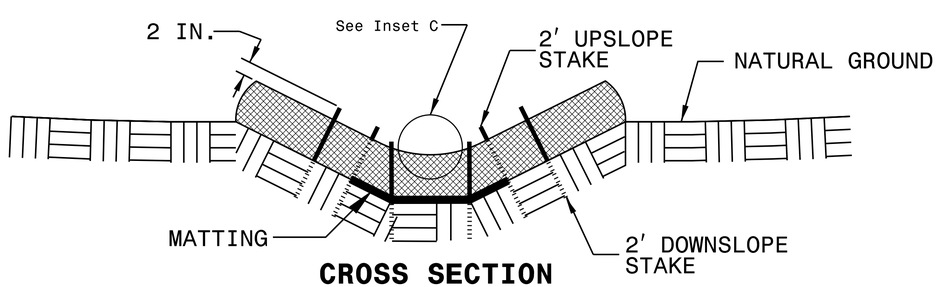


CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

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

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

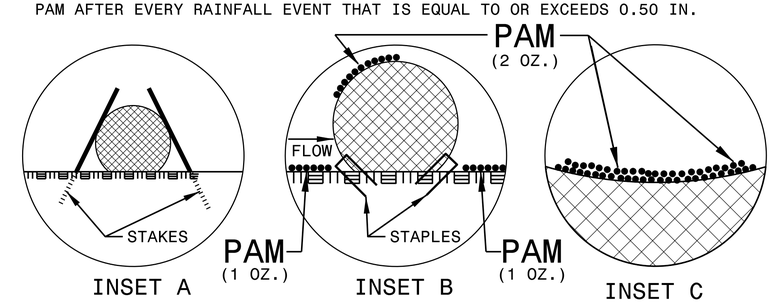
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

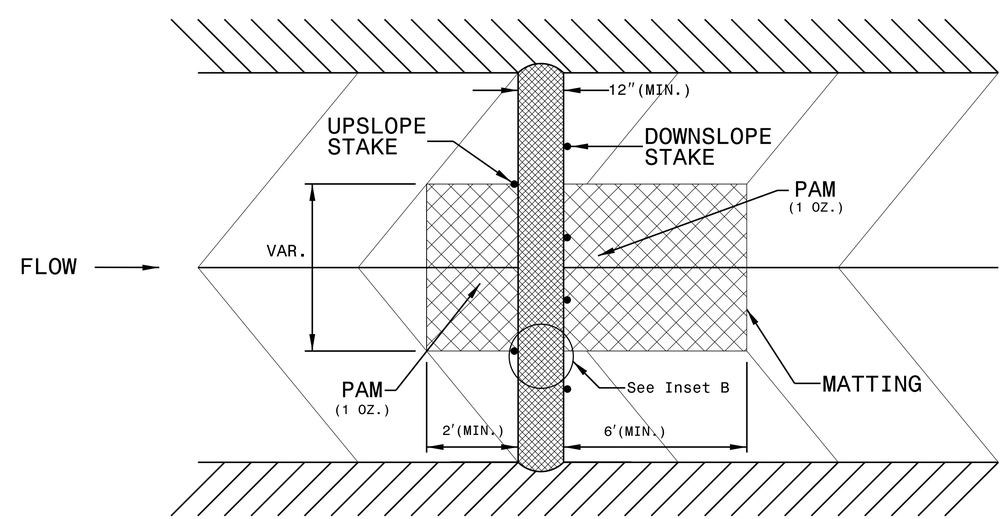
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

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

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

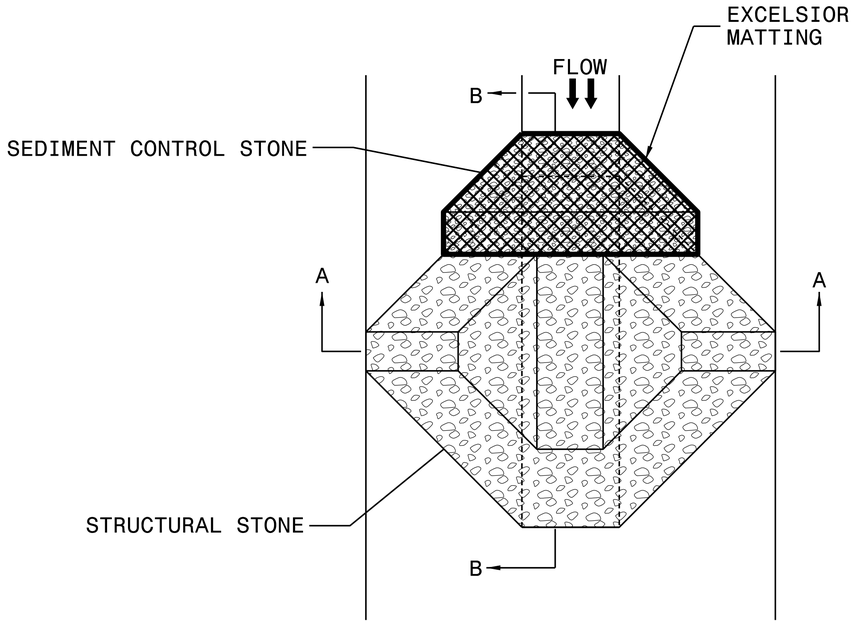




TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
W-5143	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN

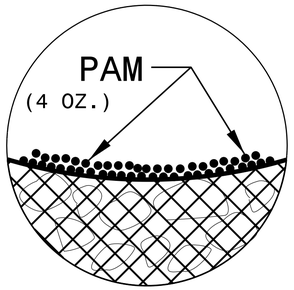
NOTES:

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

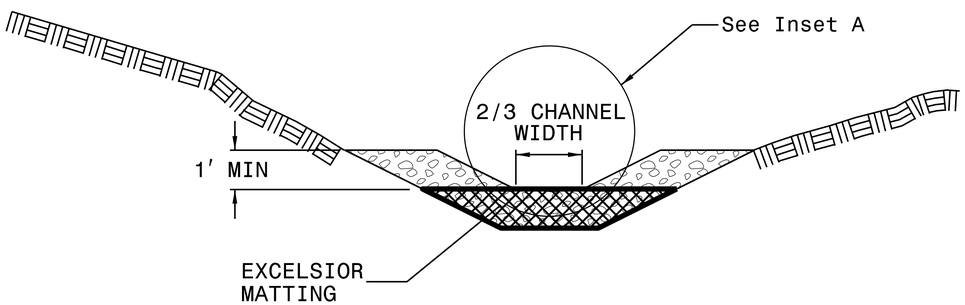
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

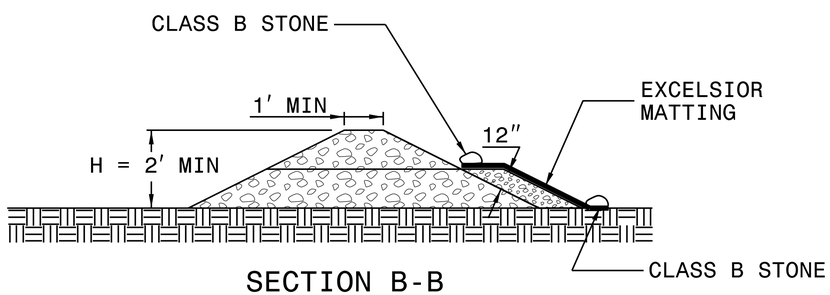
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A

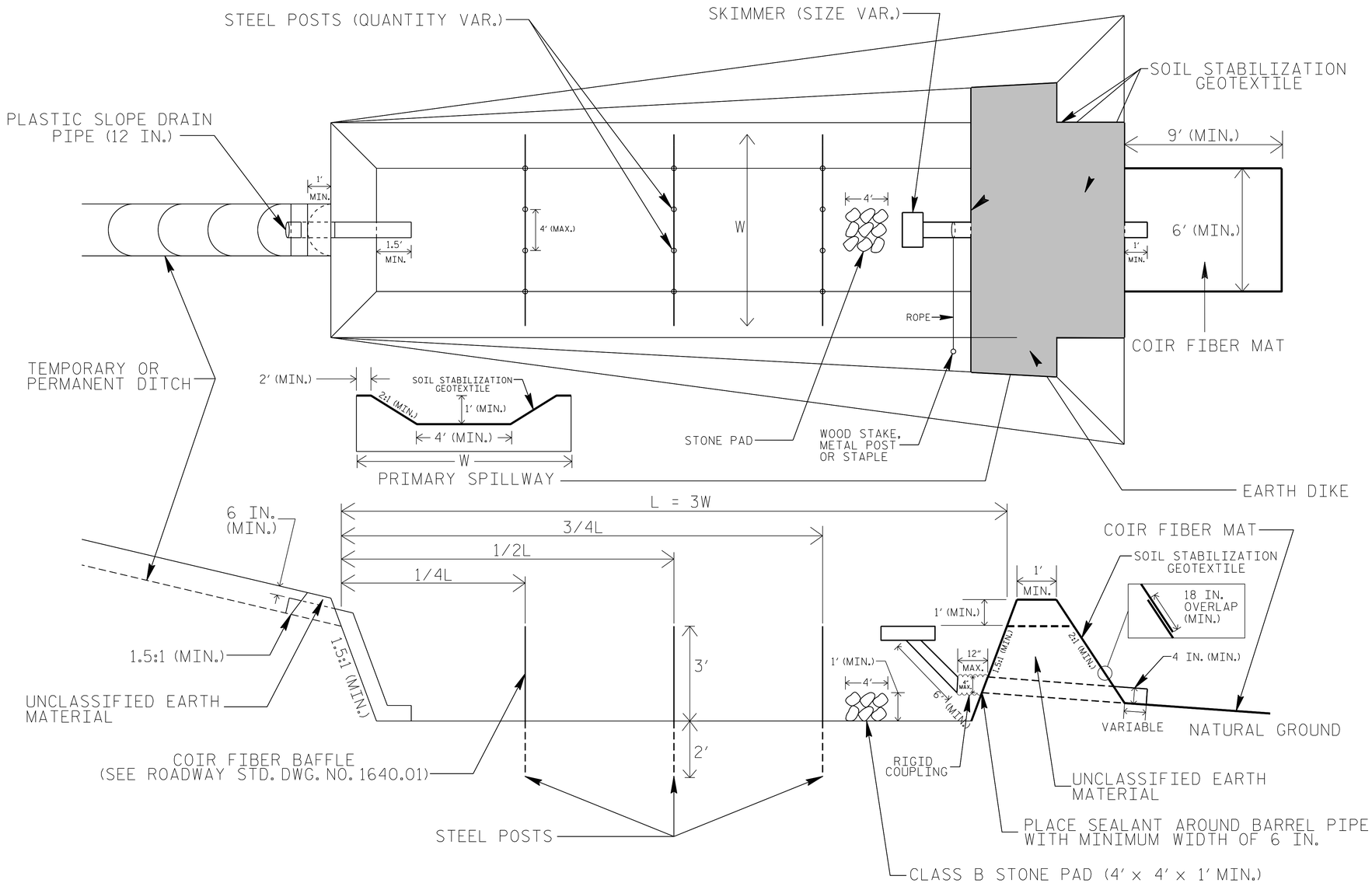


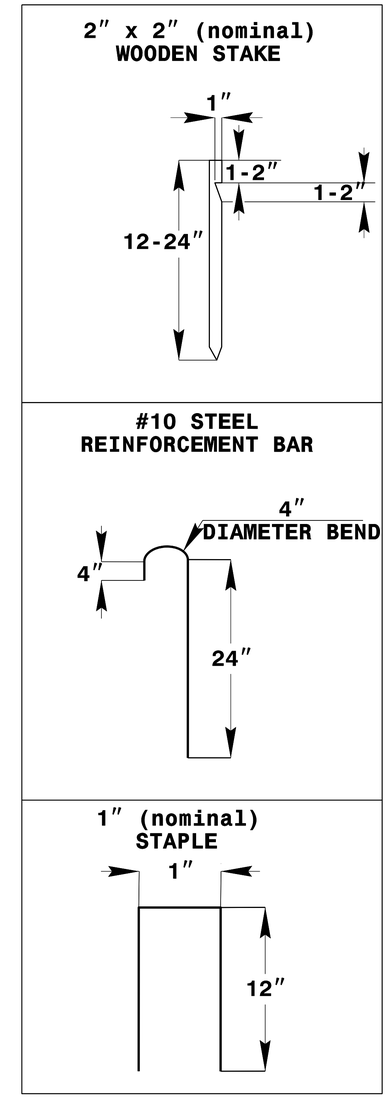
SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
W-5143	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL





COIR FIBER MAT ANCHOR OPTIONS

NOTES

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

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
W-5143	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	12+00	13+00	LT	85
4	L	18+50	21+00	LT	205
4	L	18+50	21+50	RT	245
5	L	22+00	24+00	RT	245
5	L	25+00	26+50	RT	245
5	L	23+50	26+50	LT	245
5	L	30+00	30+50	RT	45
5	L	30+50	31+50	LT	85
				SUBTOTAL	1400
MISC. MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					15600
				TOTAL	17000
				SAY	17000

PERMANENT SOIL REINFORCEMENT MATTING

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	11+25	12+00	LT	65
4	L	11+25	12+50	RT	110
4	L	13+50	16+68	RT	455
5	L	24+00	24+65	RT	80
5	L	30+50	31+50	RT	85
				SUBTOTAL	795
MISC. PSRM TO BE INSTALLED AS DIRECTED BY THE ENGINEER					100
				TOTAL	895
				SAY	1000

0353DEL_P15

DCN

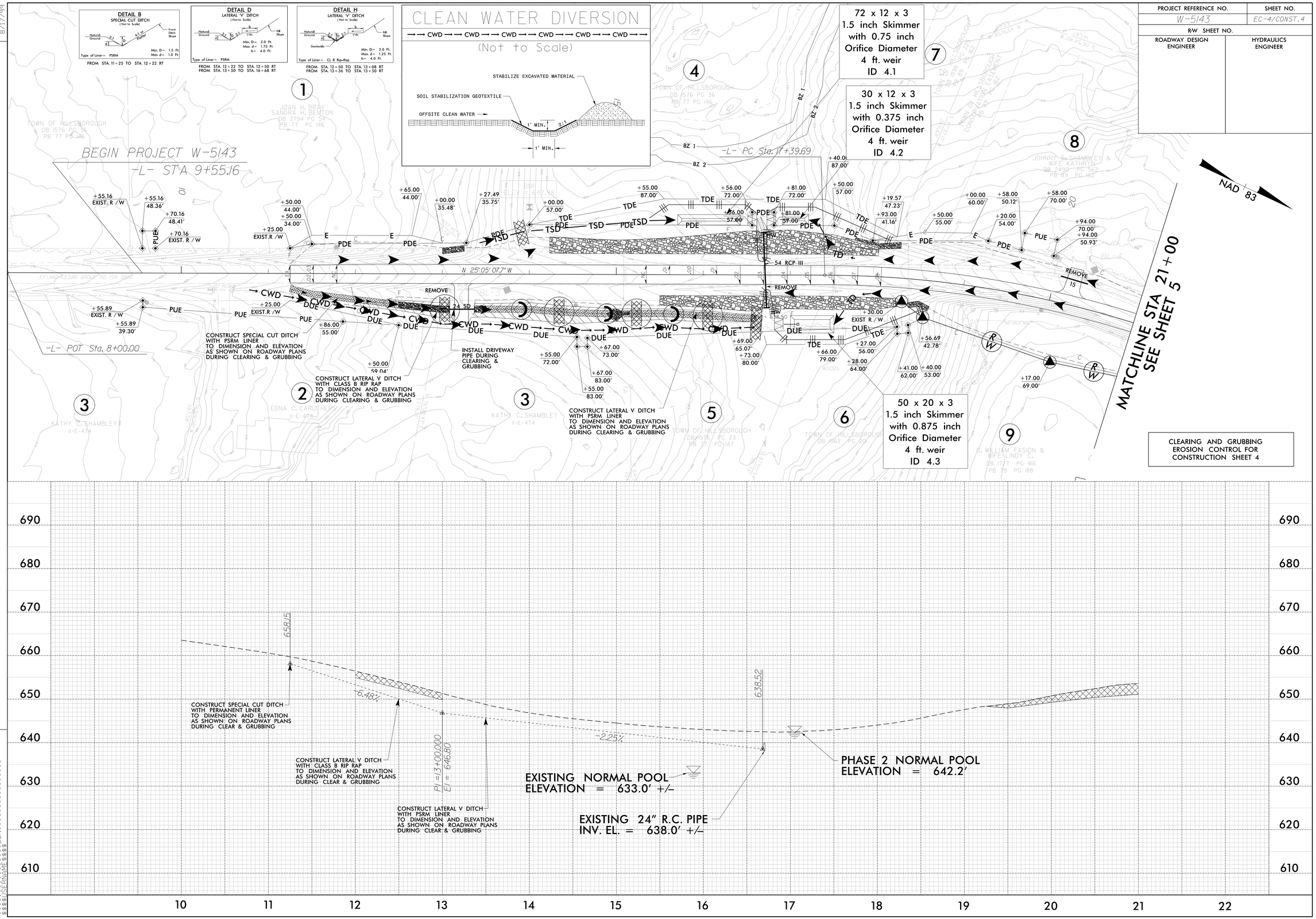
PROJECT REFERENCE NO.	SHEET NO.
W-5143	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

PROJECT REFERENCE NO.	SHEET NO.
W-5143	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

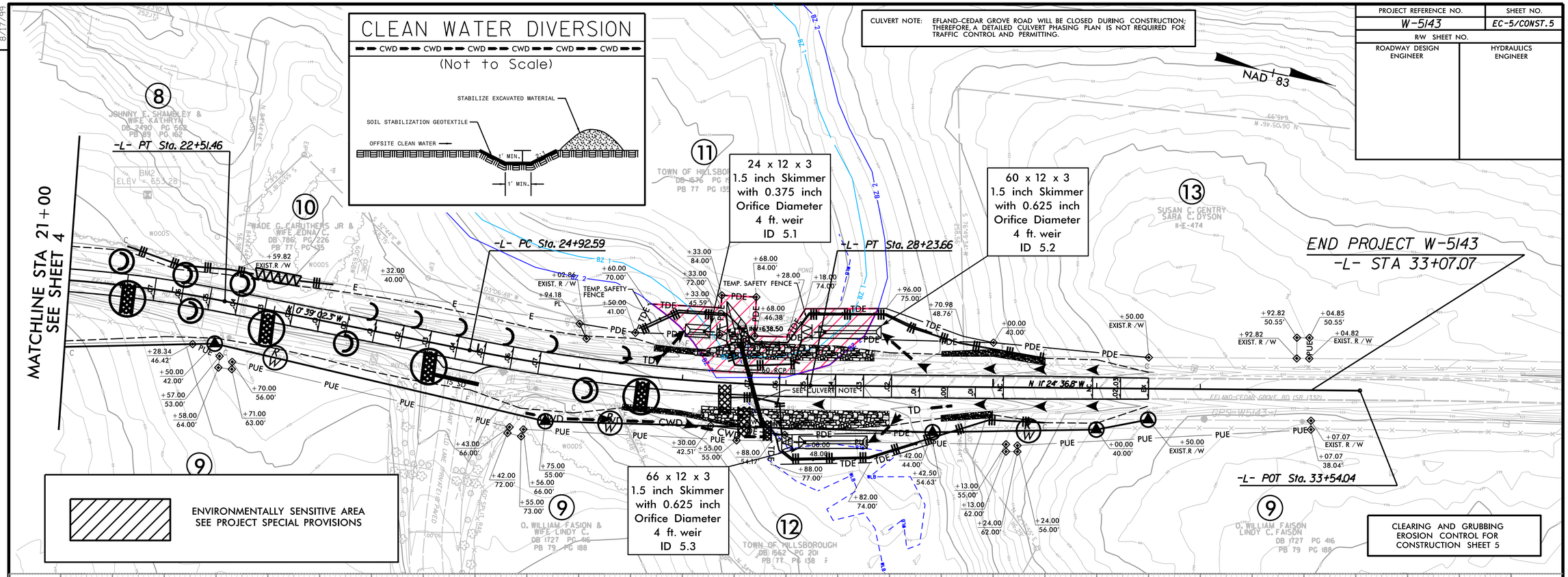


REVISIONS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5143	EC-5/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT NOTE: EFLAND-CEDAR GROVE ROAD WILL BE CLOSED DURING CONSTRUCTION; THEREFORE, A DETAILED CULVERT PHASING PLAN IS NOT REQUIRED FOR TRAFFIC CONTROL AND PERMITTING.



REVISIONS

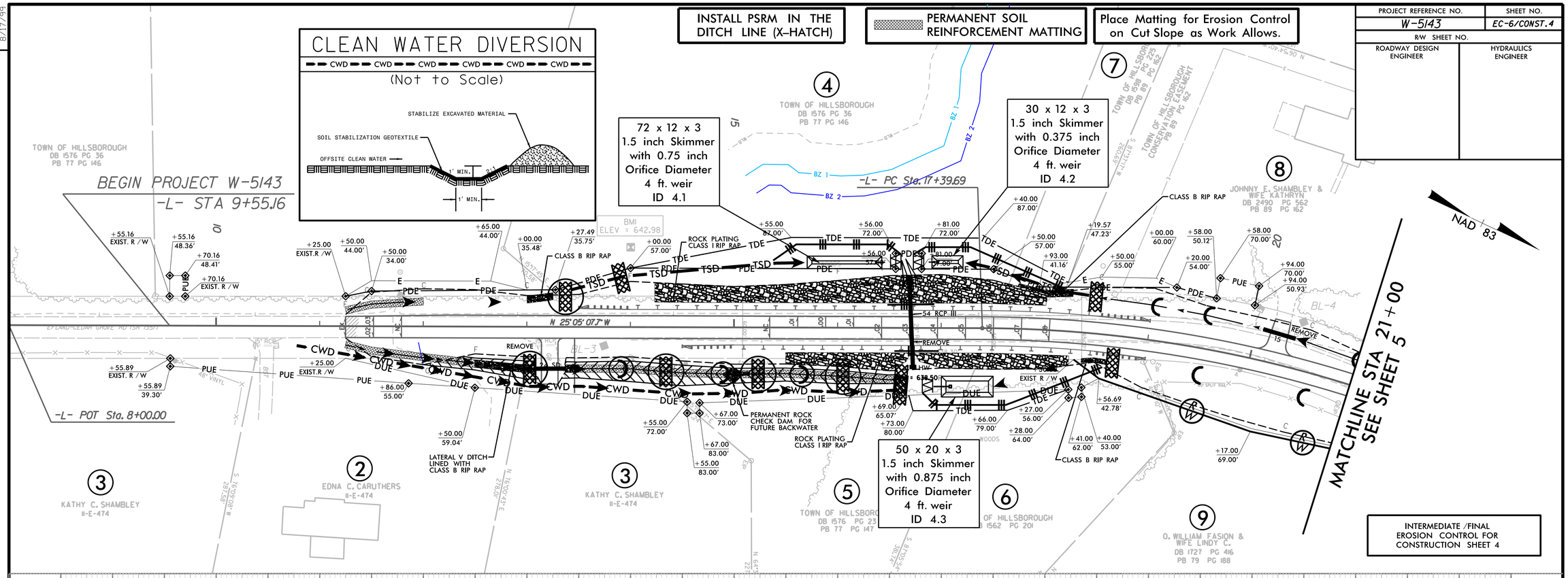
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5143	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

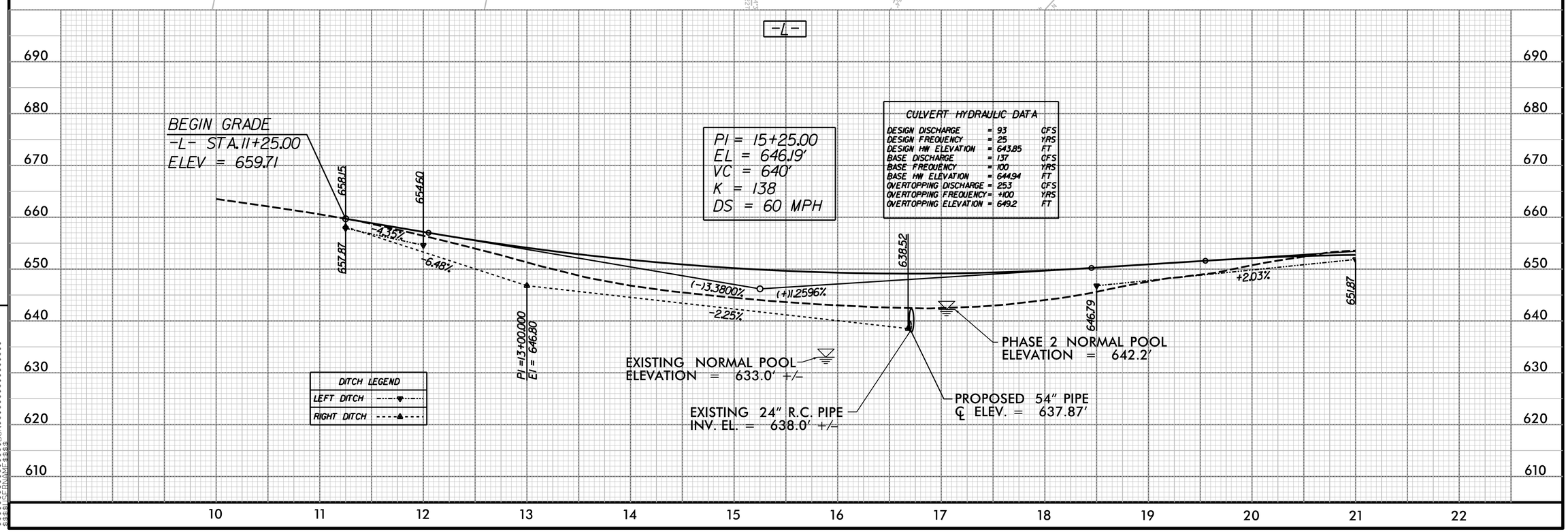
INSTALL PSRM IN THE DITCH LINE (X-HATCH)

PERMANENT SOIL REINFORCEMENT MATTING

Place Matting for Erosion Control on Cut Slope as Work Allows.



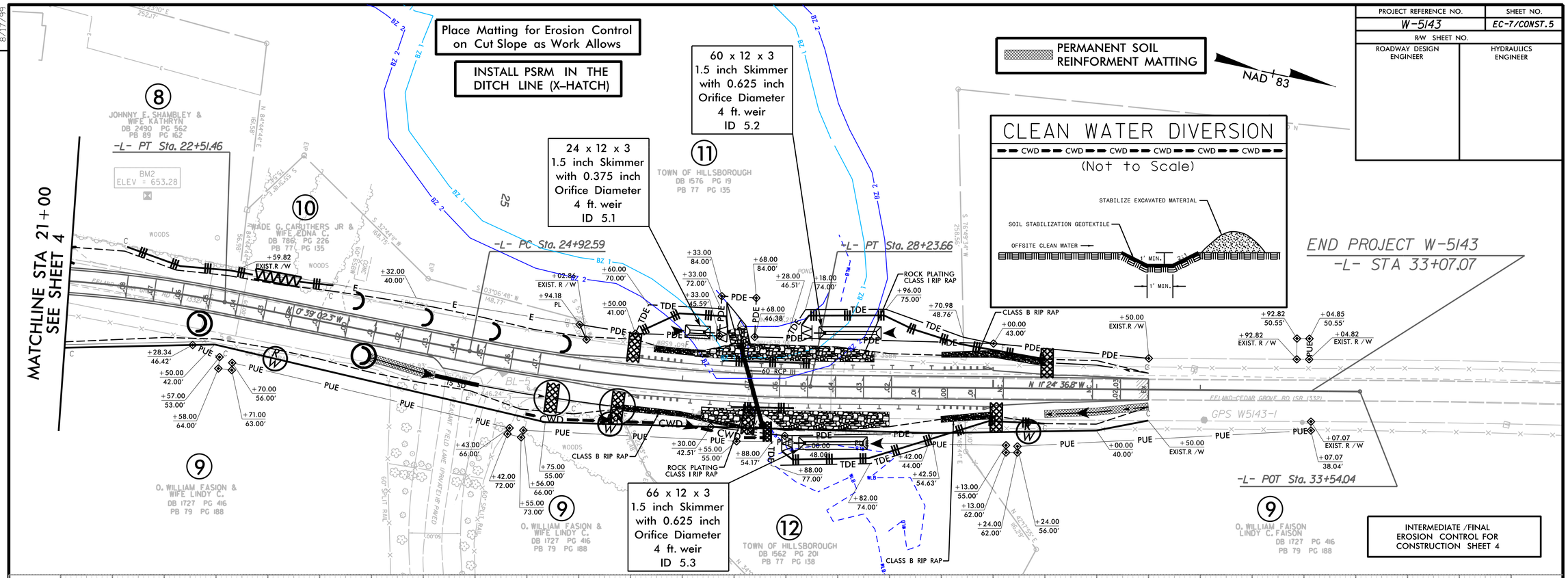
INTERMEDIATE /FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 4

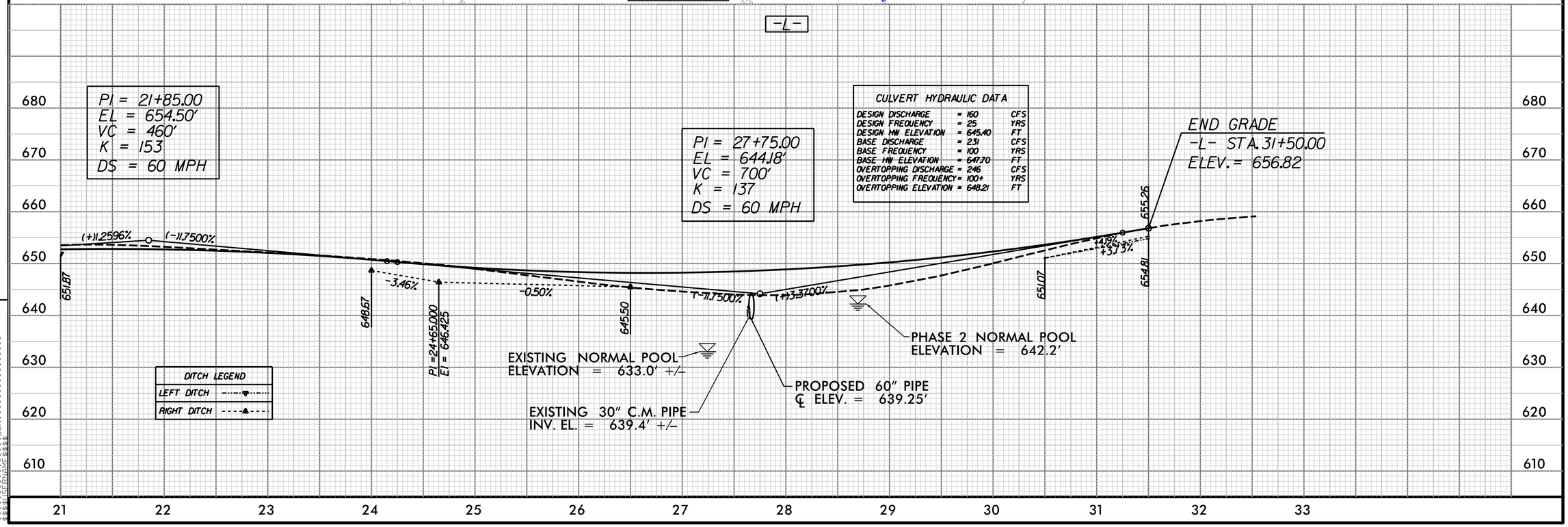


REVISIONS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5143	EC-7/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER





REVISIONS

8/17/99

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PROJ. REFERENCE NO.	SHEET NO.
W-5143	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS SECTON INDEX SHEET

Chain	Beg Sta	End Sta	LOC	Sheet No.	Comments / Log File
-L-	11+00.00	31+50		X-1 TO X-8	

Chain	Beg Sta	End Sta	LOC	Sheet No.	Comments / Log File

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PROJ. REFERENCE NO.	SHEET NO.
W-5143	X-1B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: Embankment does not include backfill for undercut.

CROSS-SECTION SUMMARY

Station -L-	Uncl. Exc. (cu. yd.)	Undercut (cu. yd.)	Embt (cu. yd.)	Station	Uncl. Exc. (cu. yd.)	Undercut (cu. yd.)	Embt (cu. yd.)	Station	Uncl. Exc. (cu. yd.)	Undercut (cu. yd.)	Embt (cu. yd.)	Station	Uncl. Exc. (cu. yd.)	Undercut (cu. yd.)	Embt (cu. yd.)
11+00.00	0	0	0												
11+50.00	17	0	1												
12+00.00	79	42	13												
12+50.00	70	99	59												
13+00.00	31	57	144												
13+50.00	3	0	132												
14+00.00	0	0	403												
14+50.00	0	0	484												
15+00.00	0	0	523												
15+50.00	0	0	578												
16+00.00	0	0	652												
16+50.00	0	0	781												
17+00.00	0	0	876												
17+50.00	0	0	831												
18+00.00	0	0	678												
18+50.00	10	0	485												
19+00.00	123	0	290												
19+50.00	345	30	127												
20+00.00	554	51	32												
20+50.00	681	29	1												
21+00.00	661	17	0												
21+50.00	504	24	0												
22+00.00	306	28	2												
22+50.00	159	30	7												
23+00.00	95	61	15												
23+50.00	100	99	12												
24+00.00	79	81	3												
24+50.00	138	126	10												
25+00.00	101	120	13												
25+50.00	86	127	35												
26+00.00	97	91	83												
26+50.00	70	60	162												
27+00.00	21	24	259												
27+50.00	0	0	407												
28+00.00	0	0	552												
28+50.00	0	0	576												
29+00.00	0	0	506												
29+50.00	0	0	384												
30+00.00	0	0	258												
30+50.00	15	0	129												
31+00.00	41	0	32												
31+50.00	26	0	3												

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

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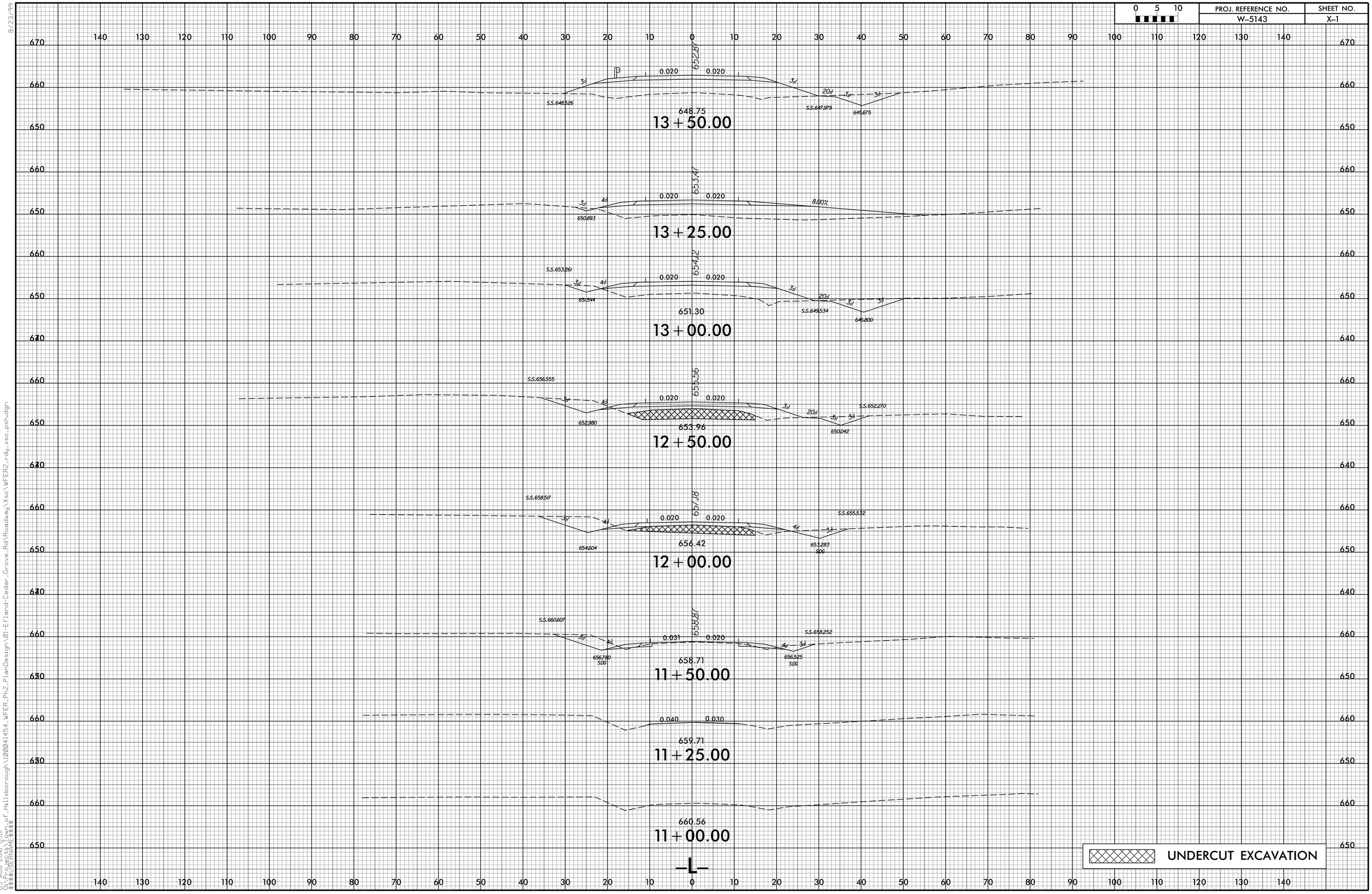
W-5143	X-1



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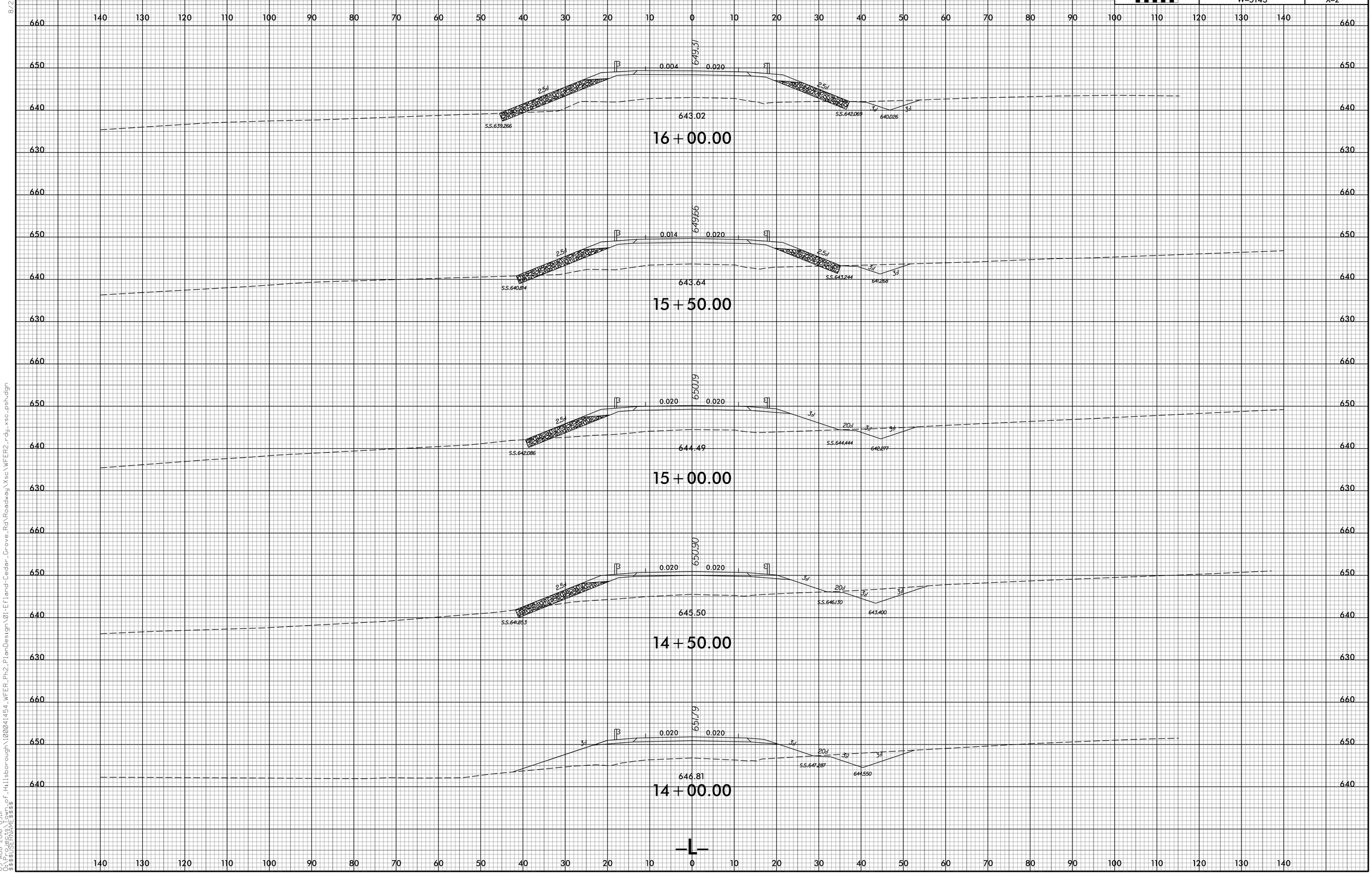

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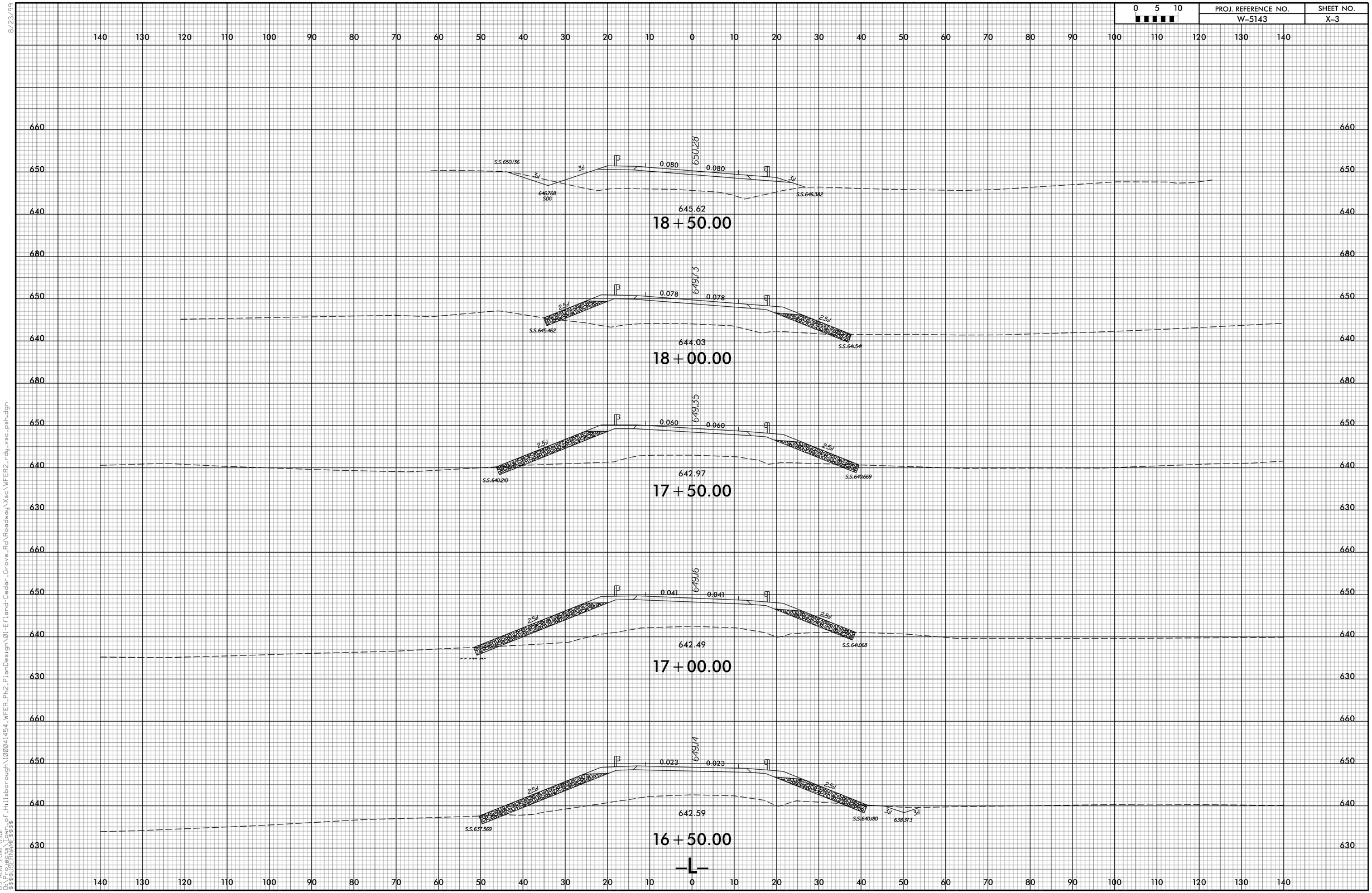

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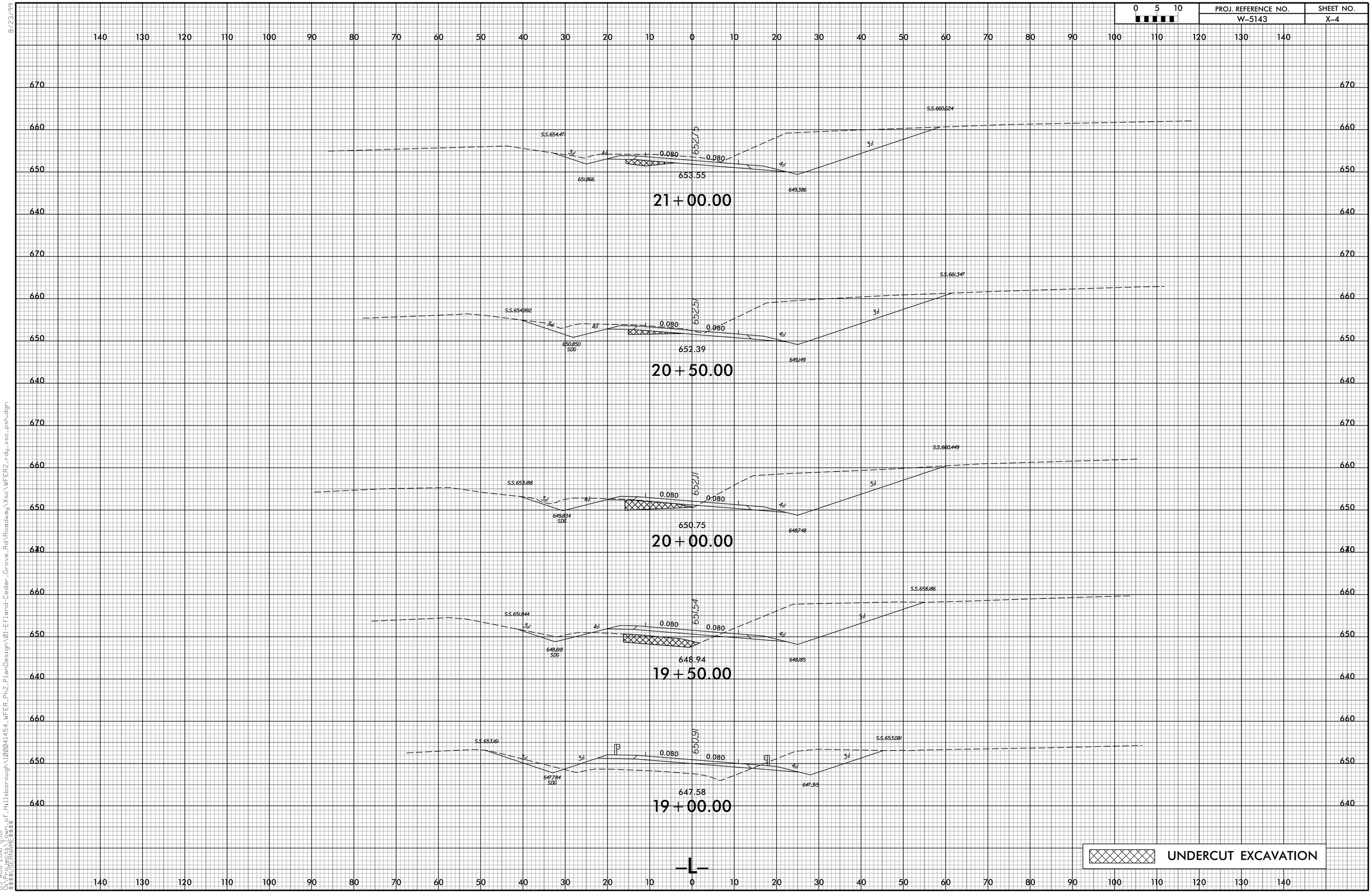

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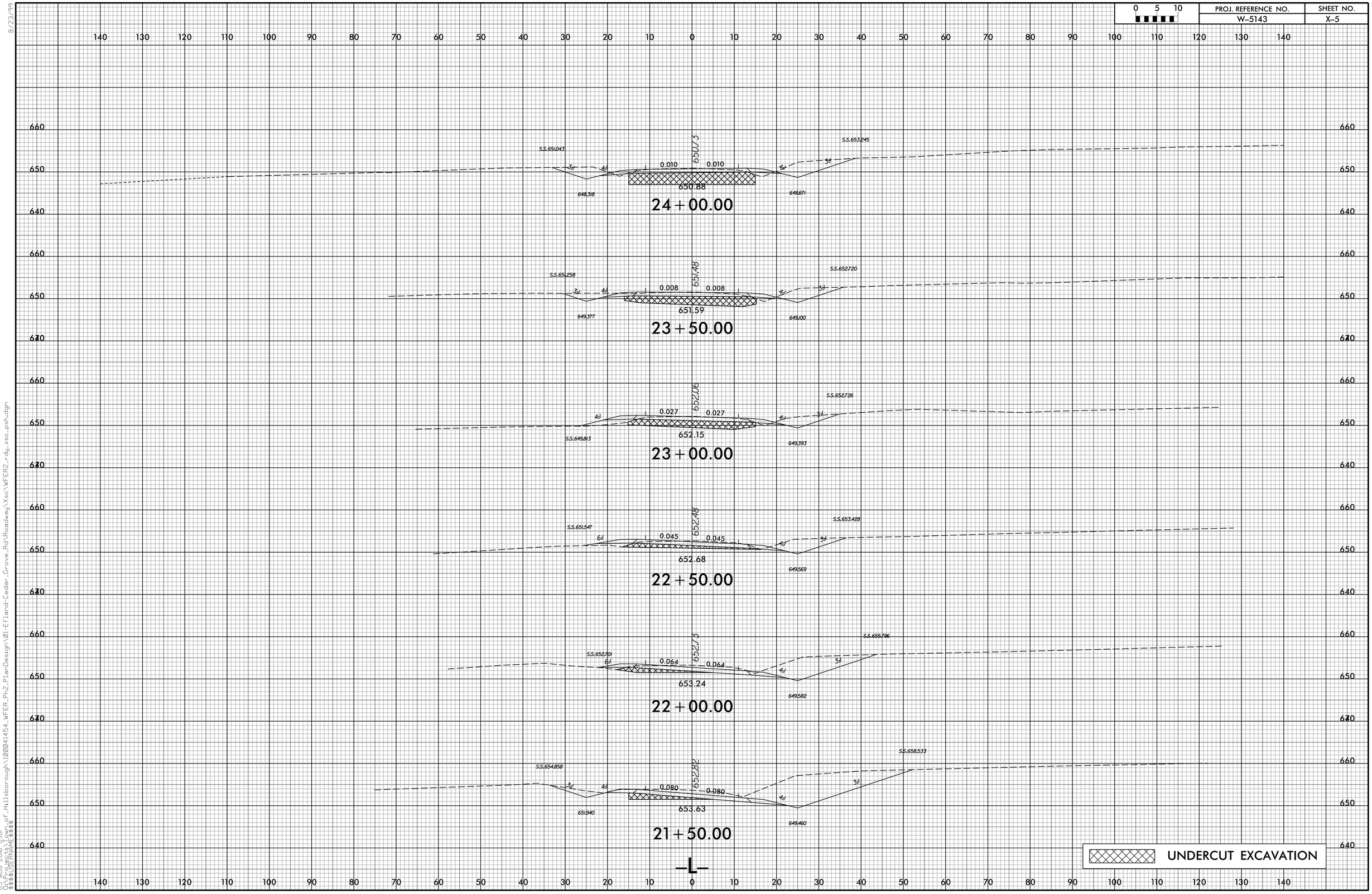

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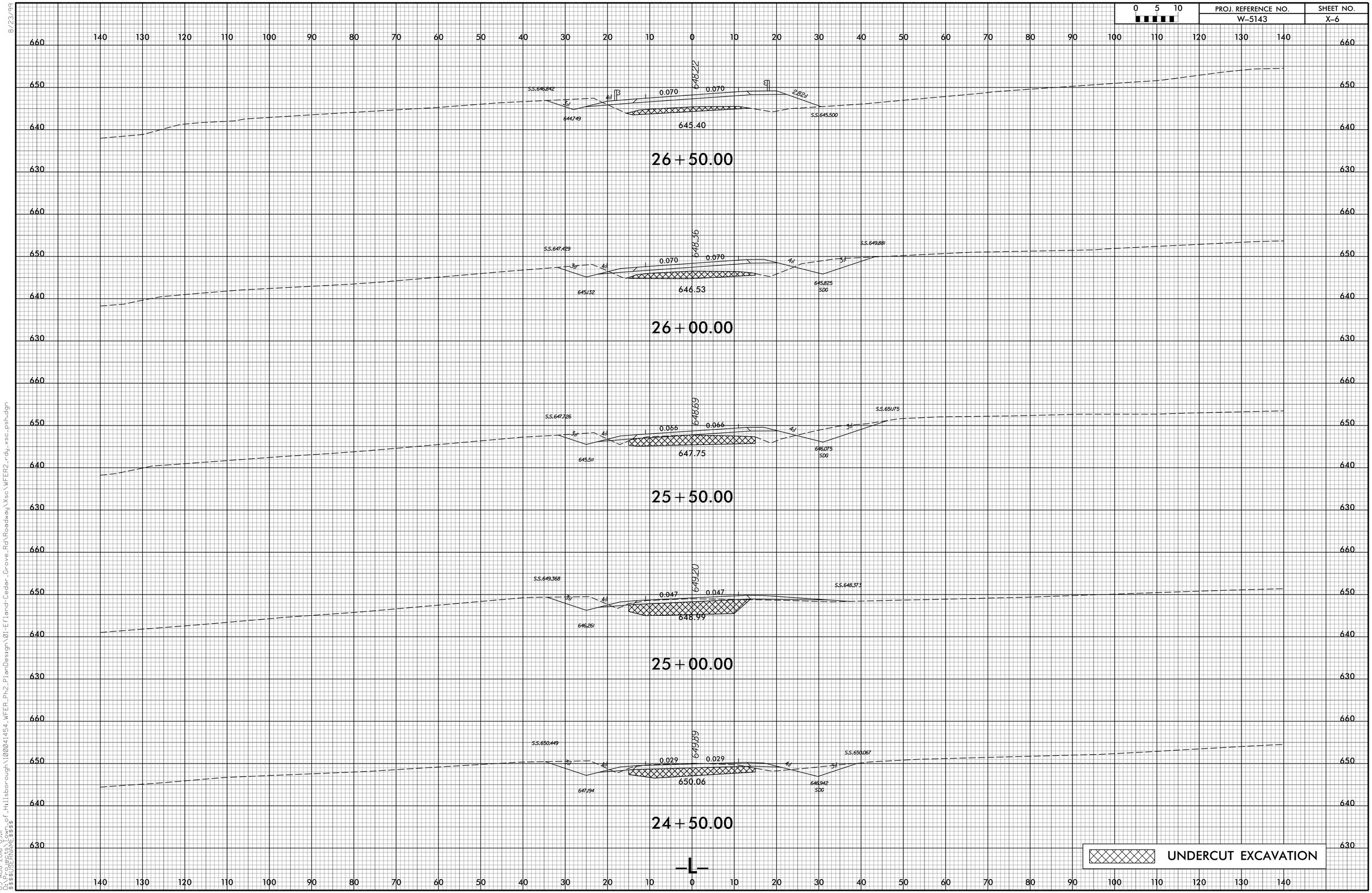

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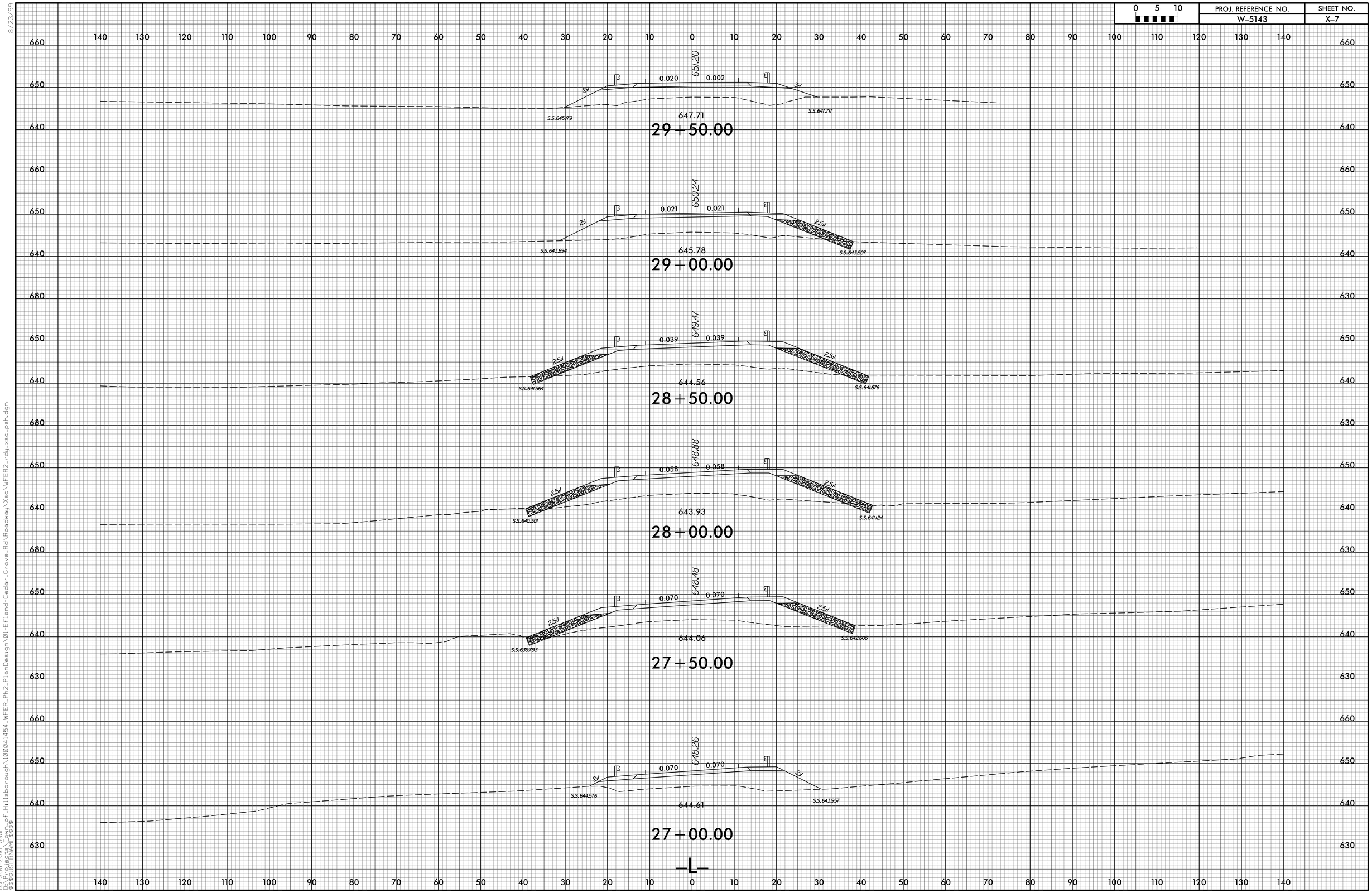

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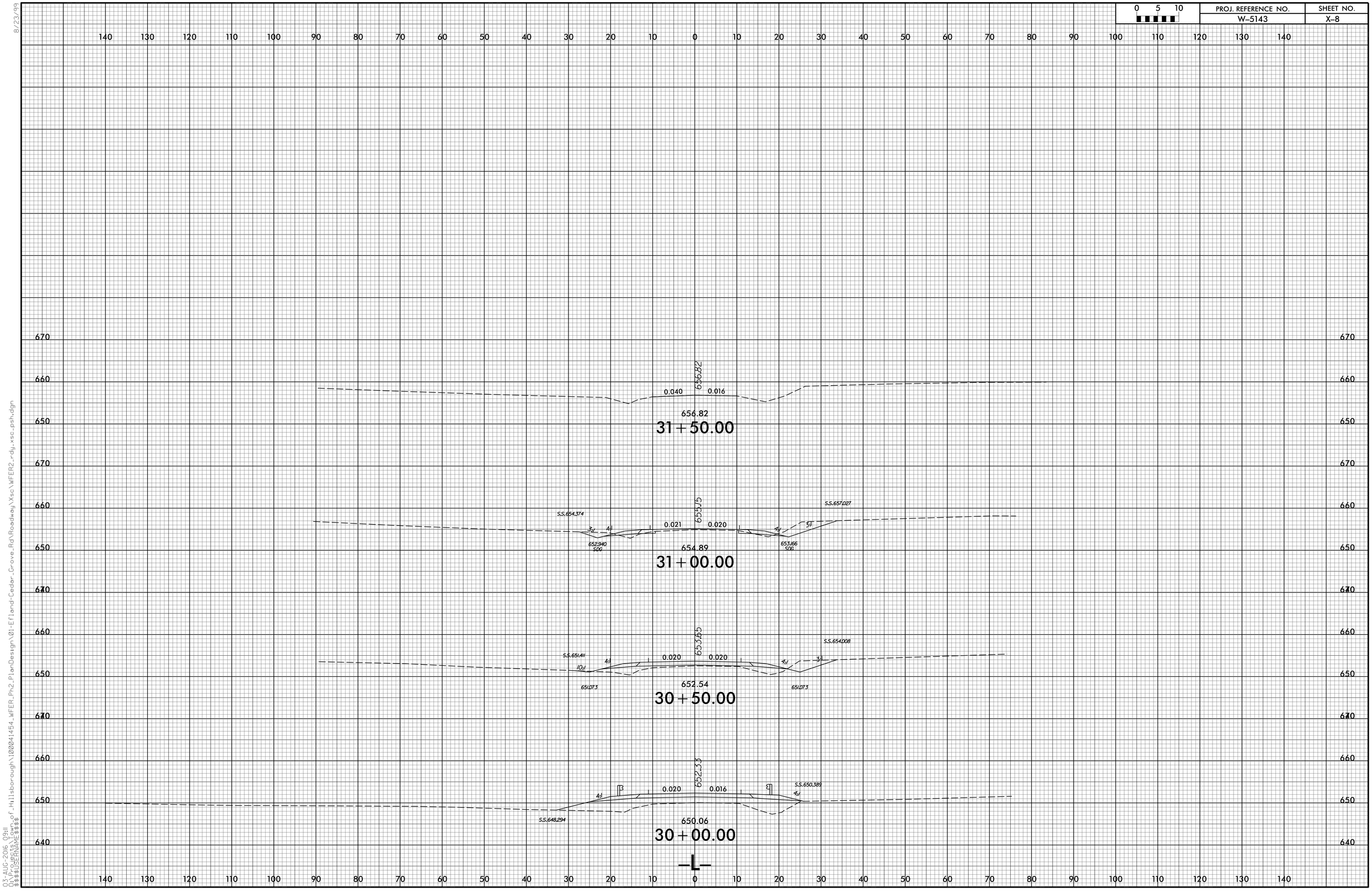
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