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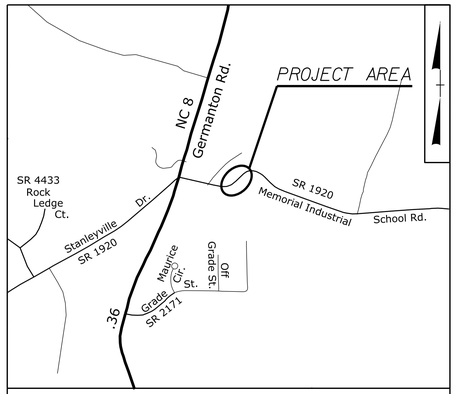
09/08/99

TIP PROJECT: 16009.1034011

CONTRACT: DI00238

See Sheet 1A For Index of Sheets



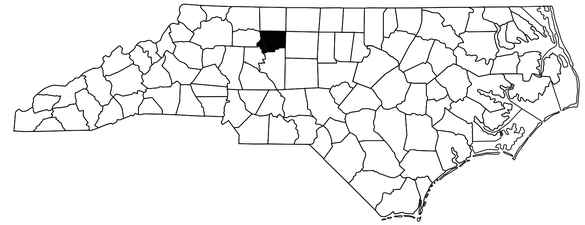
VICINITY MAP – NOT TO SCALE

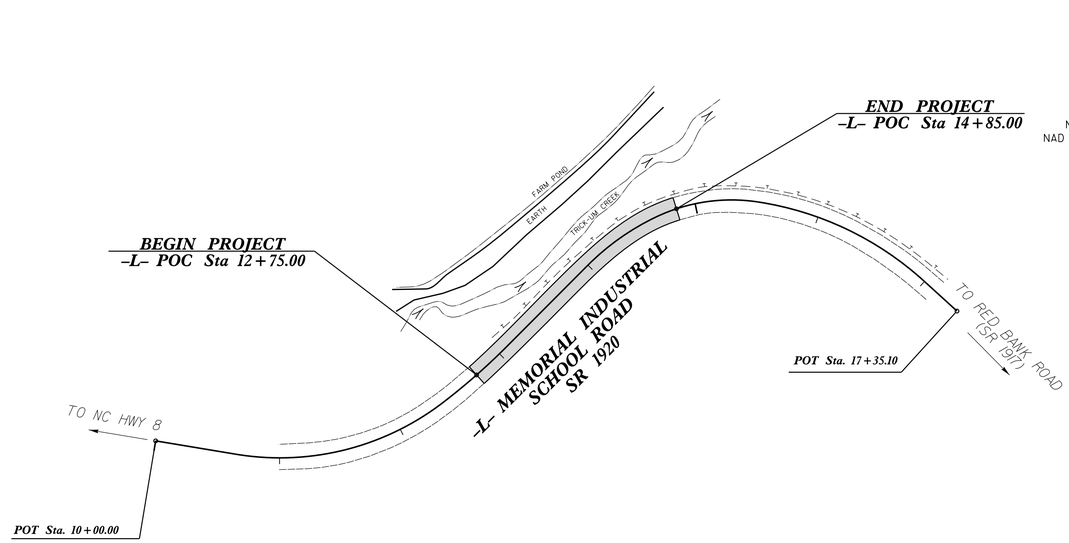
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

LOCATION: MEMORIAL INDUSTRIAL SCHOOL ROAD (SR 1920)
TYPE OF WORK: GRADING, PAVING AND DRAINAGE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	16009.1034011	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
16009.1034011	ER20(101)	PE / RW/ CONST.	





DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

50 25 0 50 100
PROFILE (VERTICAL)

DESIGN DATA

ADT 2017 = 470

DESIGN SPEED = 50 MPH

POSTED SPEED = 45 MPH

FUNC CLASS =

MINOR COLLECTOR

PROJECT LENGTH

TOTAL LENGTH ROADWAY TIP PROJECT 16009.1034011: 0.040 MILES

Prepared In the Office of:

DIVISION OF HIGHWAYS

NINTH DIVISION DESIGN\CONSTRUCT
375 SILAS CREEK PARKWAY WINSTON-SALEM, N.C. 27127

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 8, 2020

LETTING DATE:
APRIL 14, 2021

SCOTT A. JONES, PE
PROJECT ENGINEER

DANIEL ULRICH
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER WILLIAM G. CAIL

DocuSigned by: W. Galen Cail 0EF097D904114D5... 2/26/2021 *P.E.*

SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 045458 ENGINEER SCOTT A JONES

DocuSigned by: Scott Jones 707888B5D87F4AC... 2/26/2021 *P.E.*

SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I6009J0340II	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 045458 ENGINEER SCOTT A. JONES

DocuSigned by: Scott Jones 2/26/2021

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
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS, GUARDRAIL SUMMARY, SUMMARY OF ASPHALT PAVEMENT REMOVAL, SUMMARY OF EARTHWORK
2C-1	SPECIAL DETAIL FOR GUARDRAIL INSTALLATION
4	PLAN SHEET
EC-1 THRU EC-3	EROSION CONTROL PLANS
X-1 THRU X-4	CROSS-SECTION PLANS
W-1	RETAINING WALL PLANS
RW-1 THRU RW-4	R/W & CONTROL SHEETS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

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.

RIGHT-OF-WAY MARKERS:

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

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 Windstream, City of Winston Salem, Duke Energy
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF: 01-19-2018
REV:

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
16009J034011	1-B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
16009.1034011	2A-1

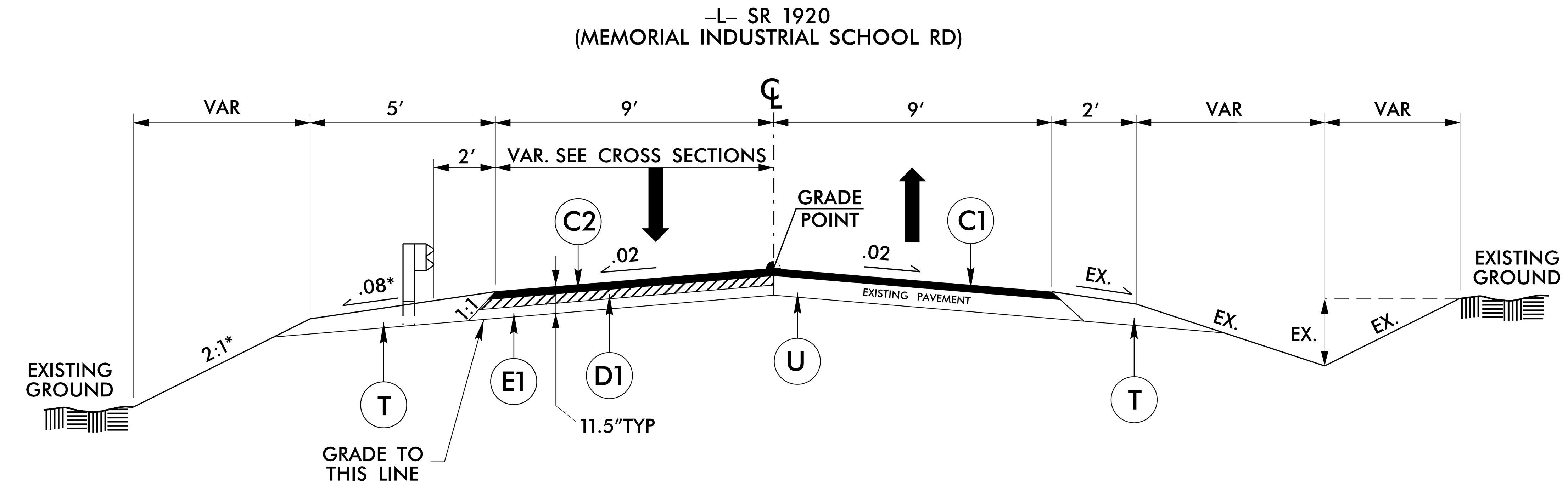
ROADWAY DESIGN ENGINEER — SEAL 045458, NORTH CAROLINA PROFESSIONAL ENGINEER, Scott A. Jones — DocuSigned by: Scott Jones 707888B5D87F4AC... 2/26/2021

PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO 1.5" LAYERS.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I9.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
T	EARTH MATERIAL
U	EXISTING PAVEMENT



TYPICAL SECTION #1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
FROM -L- STA. 12+75 TO -L- STA. 14+85

NOTES:
1) FULL DEPTH PATCH WILL ONLY BE USED FROM -L- STA. 13+08.50 TO -L- STA. 14+51.50
2) SLOPES MAY VARY- SEE XSC SHEETS FOR DETAILS
3) SEE PLAN SHEET FOR GUARDRAIL INSTALLATION LOCATIONS

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STATION	END STATION	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	ANCHORS (MASH APPROVED) GREU, TL-3	ANCHORS CAT-1	ANCHORS B-77	RELAP GUARDRAIL	REMOVE EXISTING GUARDRAIL	TEMPORARY GUARDRAIL	REMARKS
-L-	13+05	14+55		150		1				150		REMOVE & REPLACE TIE INTO EXISTING
			SUBTOTAL	150		1				150		
	ANCHOR DEDUCTIONS		GREU, TL-3 (1 x 50.0')	-50.00								
			CAT-1 (0 x 6.25')	0								
			B-77 (0 x 22.875')	0								
			TOTAL	100		1				150		
			SAY	100		1				150		

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT (+%)	BORROW	WASTE
-L- 13+08.50 TO 14+51.50	596.3				469.4
SUBTOTAL	596.3				469.4
ASSUME 10% CONTINGENCY					
GRAND TOTAL	656				516
SAY	660				520

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, CLEARING & GRUBBING AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR GRADING.

SUMMARY OF ASPHALT PAVEMENT REMOVAL

IN SQUARE YARDS

LINE	BEGIN STA.	END STA.	LOCATION	SQ. YDS.
-L-	13+08.50	14+51.50		179.4
			TOTAL	179.4
			SAY	180

6/2/99

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
16009J034011	2C-1

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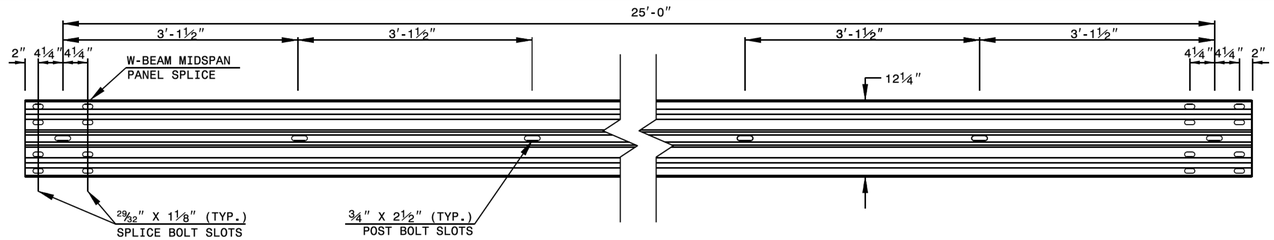
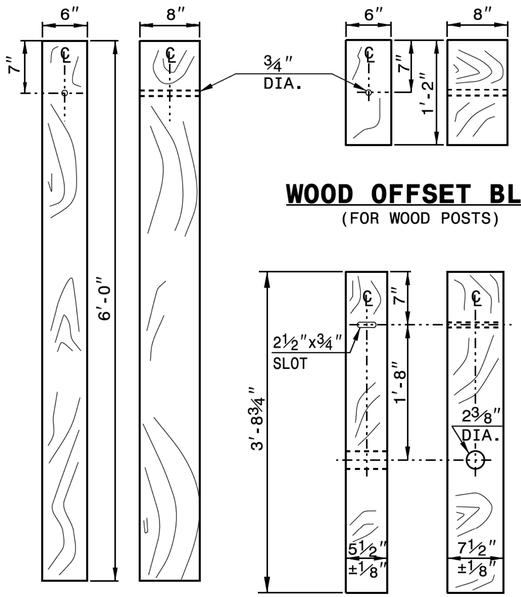
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



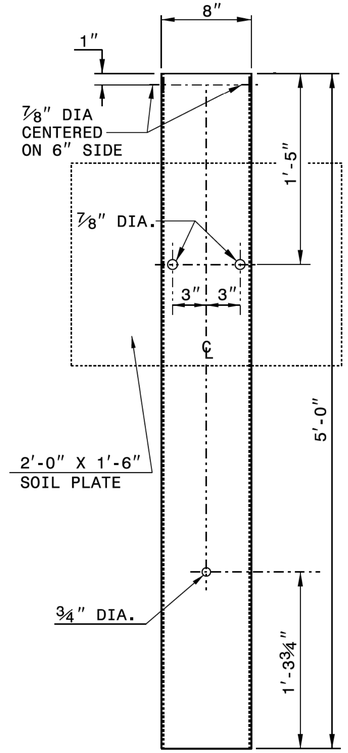
STANDARD W-BEAM GUARDRAIL



WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



STEEL TUBE
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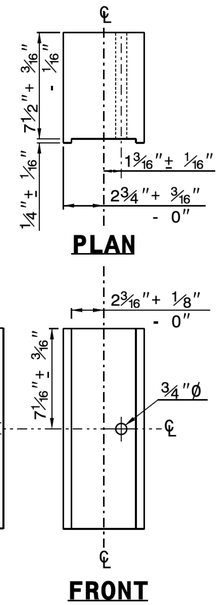
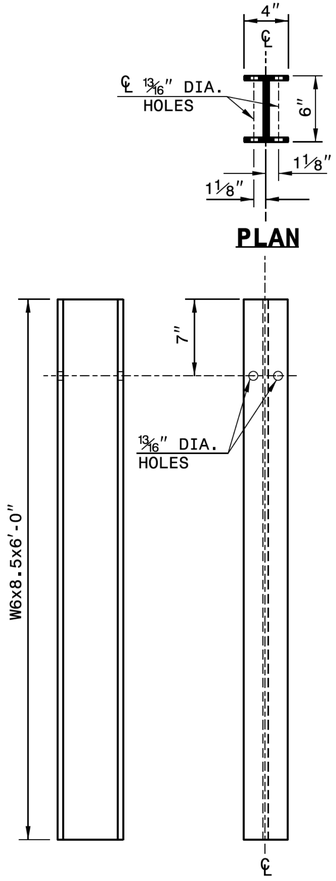


PLAN

SIDE

FRONT

ROUTED OFFSET BLOCK



PLAN

SIDE

FRONT

"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON

DocuSigned by: 2/24/2021
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CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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

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PROJECT REFERENCE NO.	SHEET NO.
16009.1034011	4
R/W SHEET NO.	

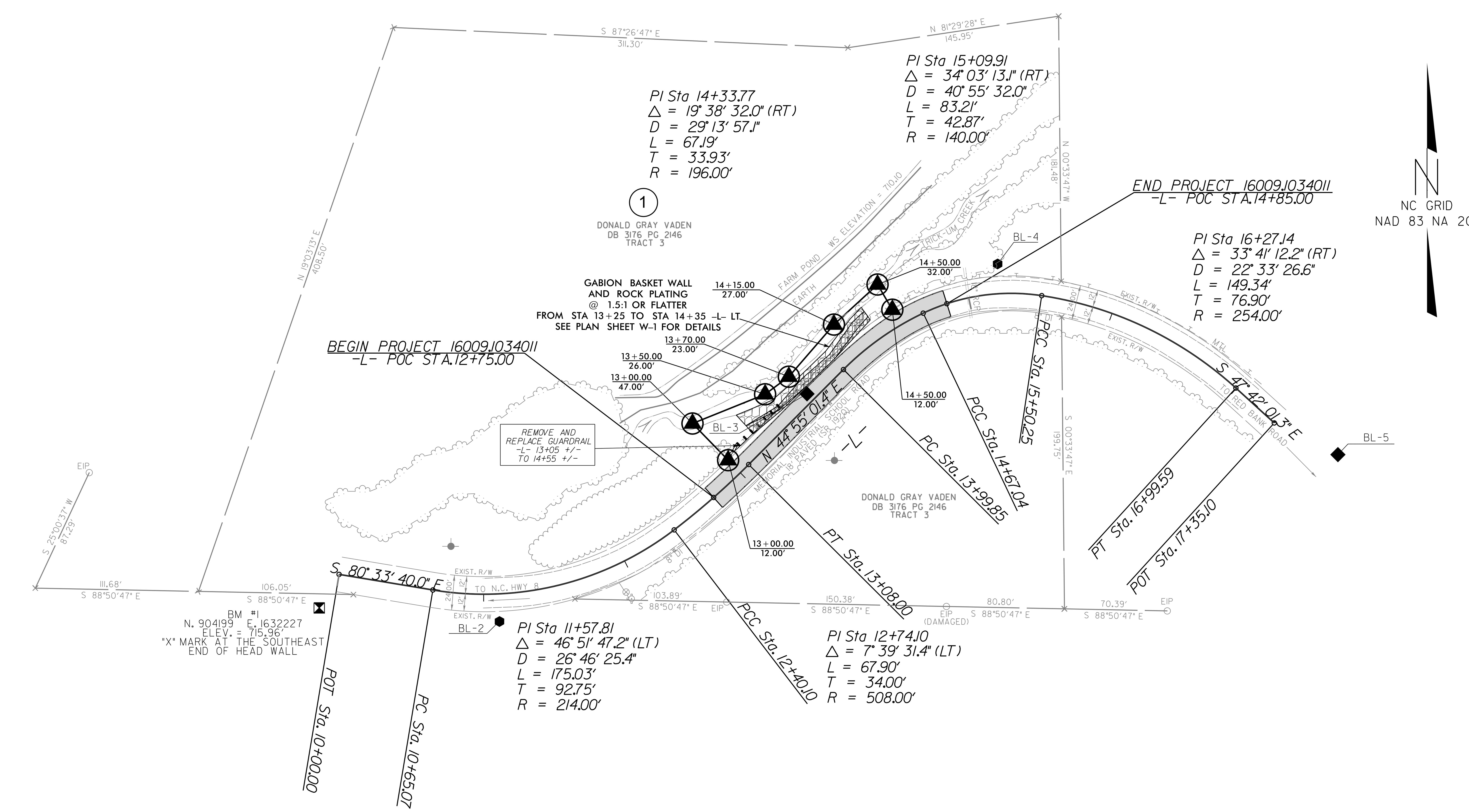
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 045458 ENGINEER Scott A. Jones	NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER WILLIAM G. CAIL
DocuSigned by: Scott Jones 2/26/2021	DocuSigned by: W. Galen Cail 2/26/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

2020-10-08 REVISED PROPOSED RIGHT-OF-WAY

8/17/99



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$$$$USERNAME$$$$

PROJECT: 16009.1034011

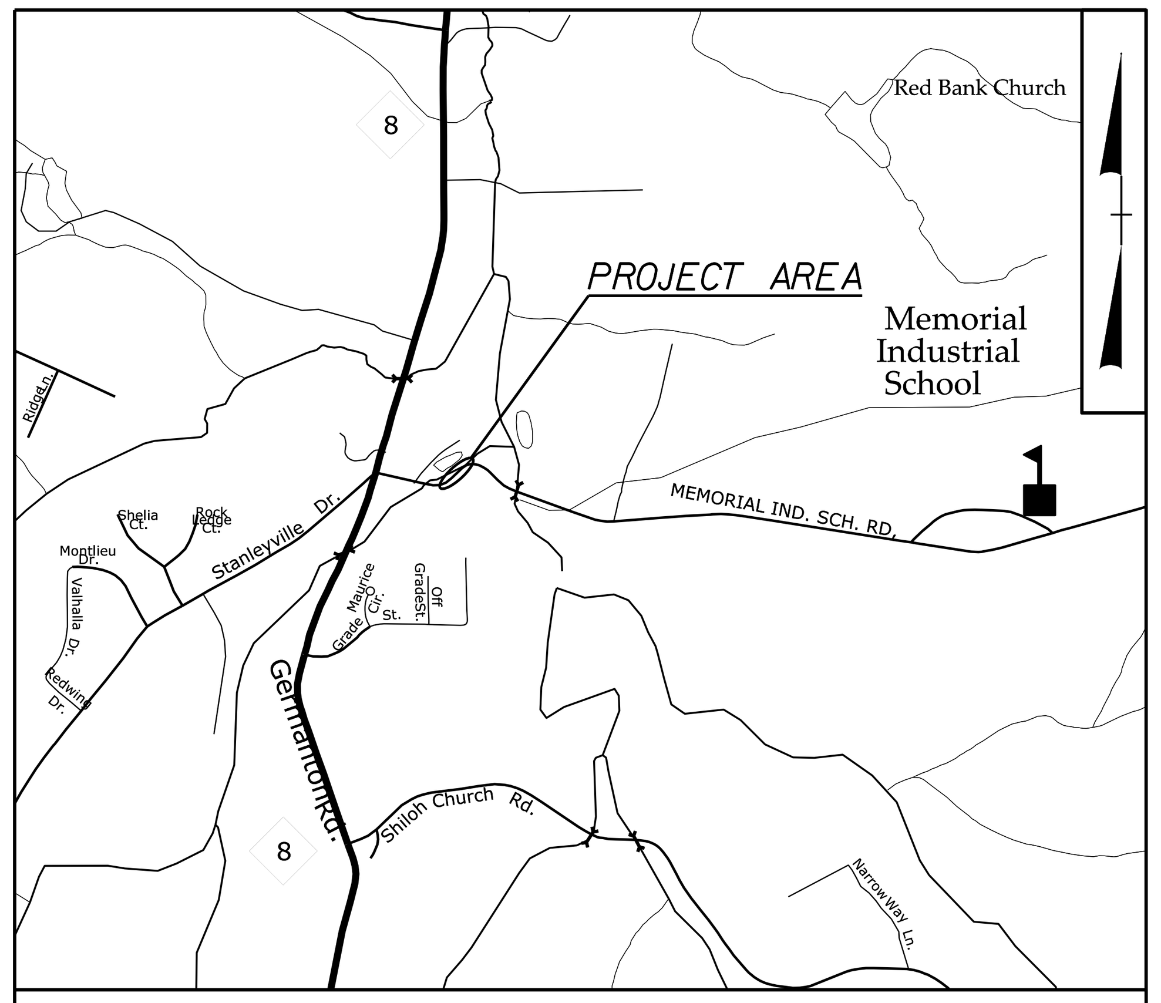
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	16009.1034011	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
16009.1034011	ER20(101)	PE, R/W & CONSTR

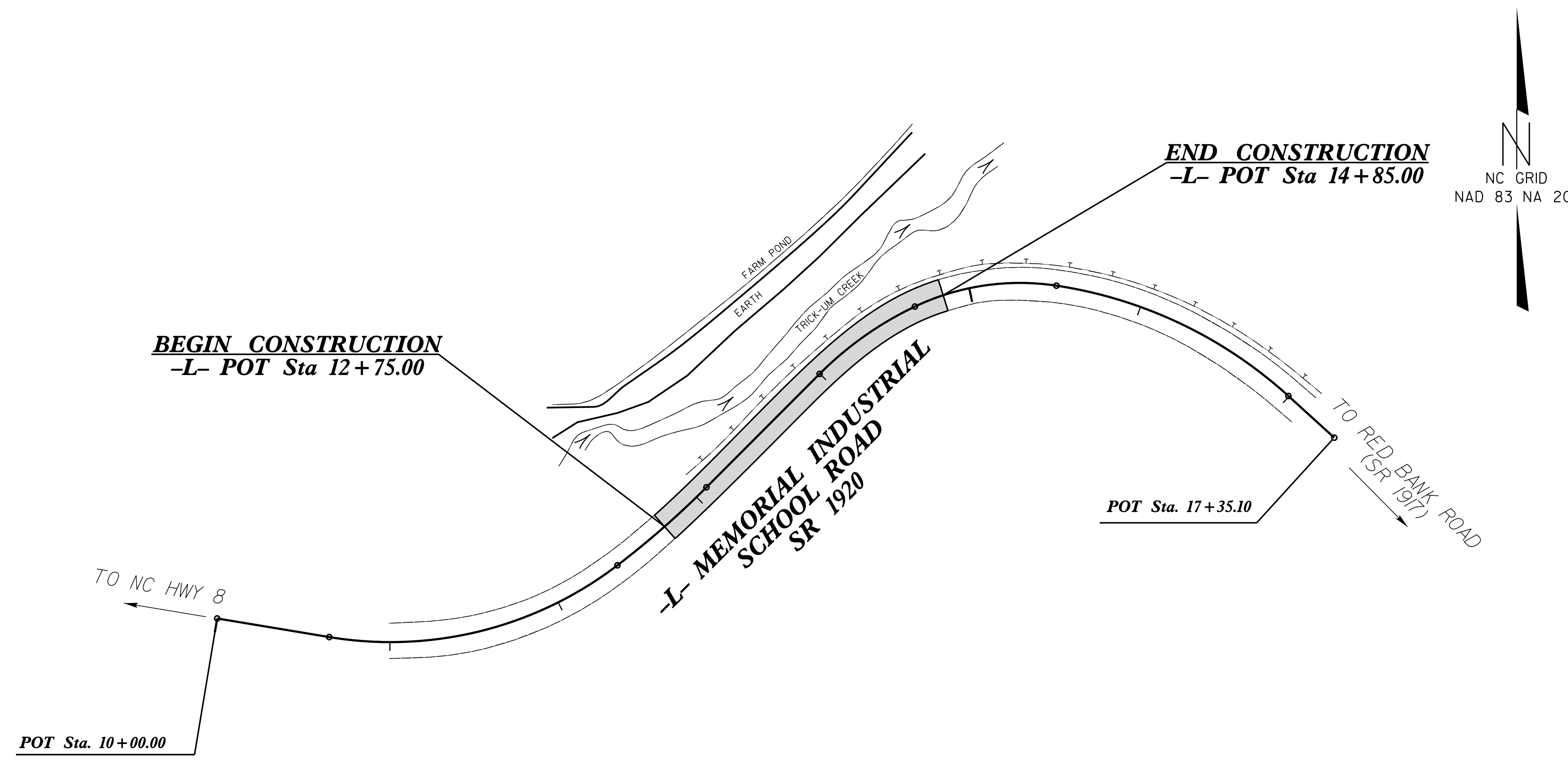
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

FORSYTH COUNTY



VICINITY MAP – NOT TO SCALE



EROSION AND SEDIMENT CONTROL MEASURES

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

GRAPHIC SCALE

25 0 50

PLANS

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 1, 2016 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:

DIVISION 9 DDC
375 Silas Creek Parkway
Winston-Salem, NC 27127

2018 STANDARD SPECIFICATIONS

Designed by:

SCOTT JONES — ***4058***
NAME — *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

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

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

PROJECT REFERENCE NO.	SHEET NO.
16009.103011	EC-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

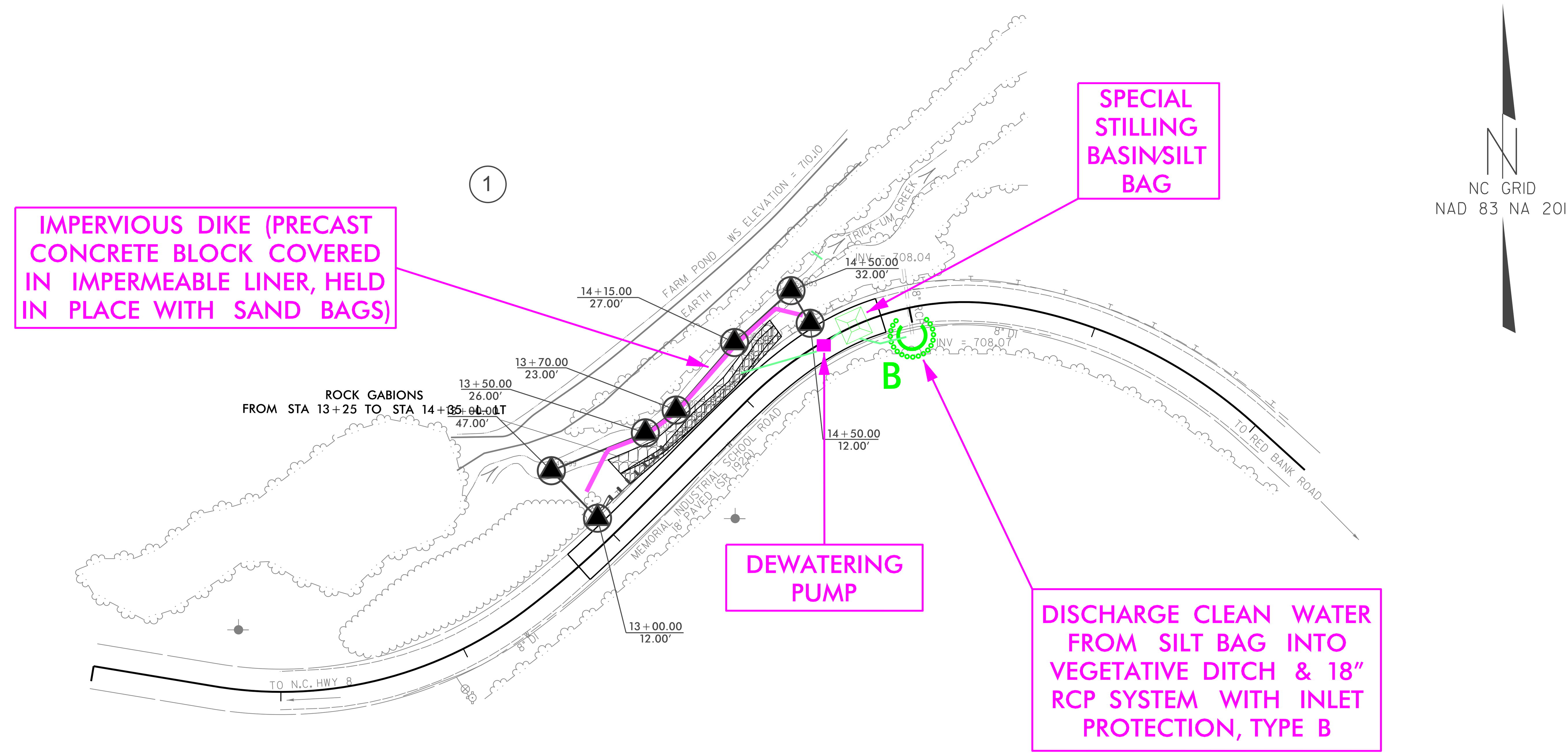
MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
PSH 4	-L-	13+15	13+25	LT	25
PSH 4	-L-	14+35	14+45	LT	25
			SUBTOTAL		
			ADD'L FOR 2:1 SLOPES		
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					50
				TOTAL	50

PROJECT REFERENCE NO.	SHEET NO.
16009J034011	EC-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NOTES

1. IMPERVIOUS DIKE IS TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.
2. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.
3. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES ALL WORK ASSOCIATED WITH THE IMPERVIOUS DIKE, DEWATERING PUMP & PIPING
4. PUMPS AND HOSES SHALL BE SUFFICIENT SIZE TO DEWATER THE WORK AREA.
5. THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO STREAM. FOR DEWATERING OF CULVERT SITES, THE CONTRACTOR SHALL FILTER SEDIMENT-LADEN WATER THROUGH STILLING BASIN AND/OR SPECIAL STILLING BASIN.
6. UTILIZE A STABILIZED OUTLET INSTEAD OF A SPECIAL STILLING BASIN IF PUMPING CLEAN WATER.
7. NO MORE THAN HALF THE STREAM CAN BE ISOLATED AT ONE TIME

CONSTRUCTION SEQUENCE

1. INSTALL SPECIAL STILLING BASIN/SILT BAG AT LOCATION SHOWN.
2. INSTALL DEWATERING PUMP FOR SPECIAL STILLING BASIN & ALL ASSOCIATED PIPING.
3. INSTALL IMPERVIOUS DIKE AS SHOWN.
4. PERFORM GABION BASKET WORK AS SHOWN.
5. PLACE SUITABLE FILL FOR VOID BETWEEN EXISTING AND PROPOSED STREAMBANK. MINIMUM 95% COMPACTION.
6. LINE & ARMOR STREAMBANKS WITH FILTER FABRIC & CLASS II RIP-RAP.
7. REMOVE IMPERVIOUS DIKE, PUMPS AND PIPING AND DIRECT WATER THROUGH NEW STREAM ALIGNMENT.
8. REMOVE SPECIAL STILLING BASIN/SILT BAG.
9. COMPLETE ROADWAY-RELATED WORK

REVISIONS

8/17/99

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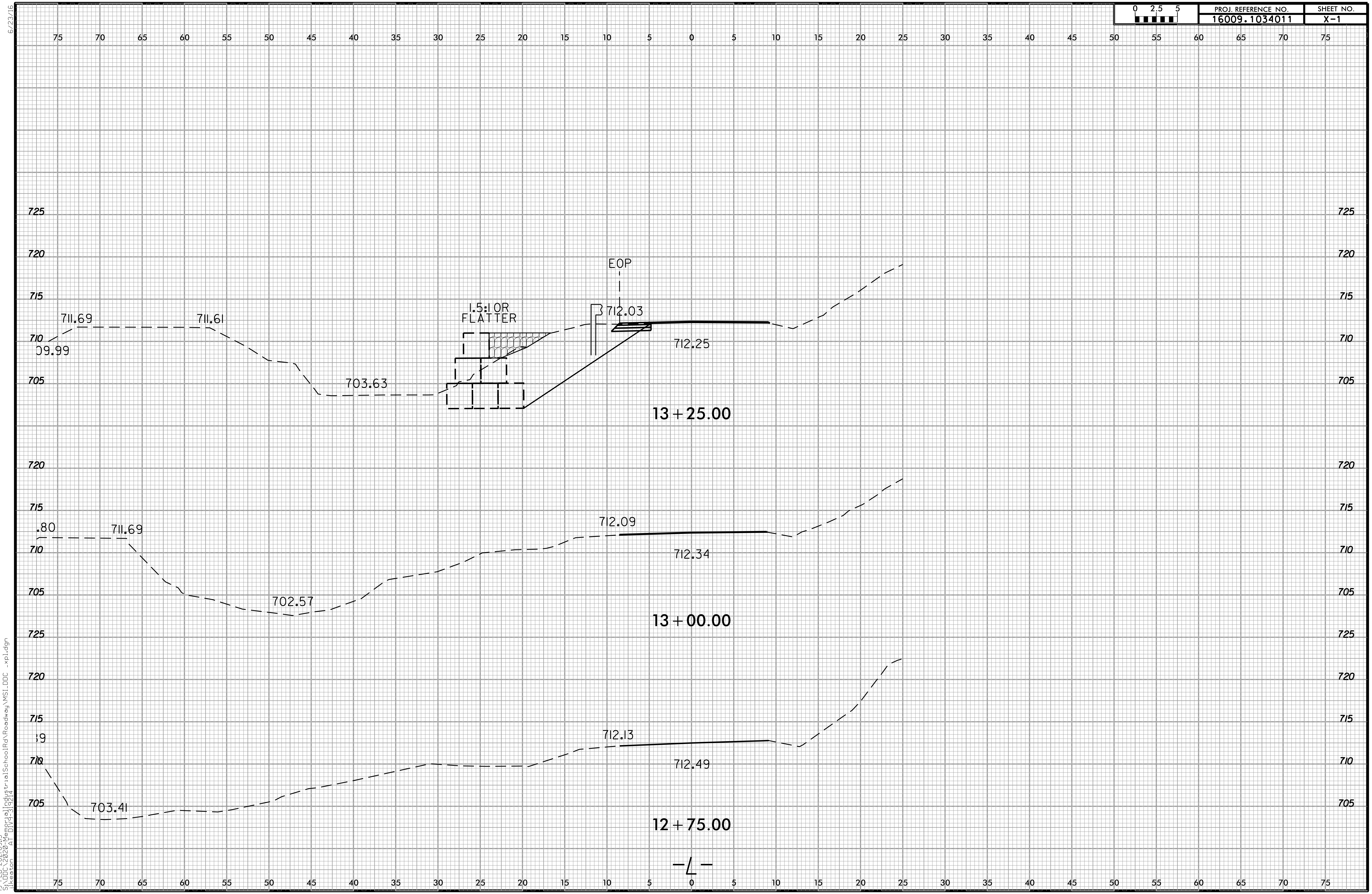

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PROJ. REFERENCE NO.
16009.1034011
SHEET NO.
X-1
6/23/16
EOP
1.5:1 OR
FLATTER
711.69
711.61
09.99
703.63
712.03
712.25
13+25.00
.80
711.69
702.57
712.09
712.34
13+00.00
703.41
712.13
712.49
12+75.00
-L-

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
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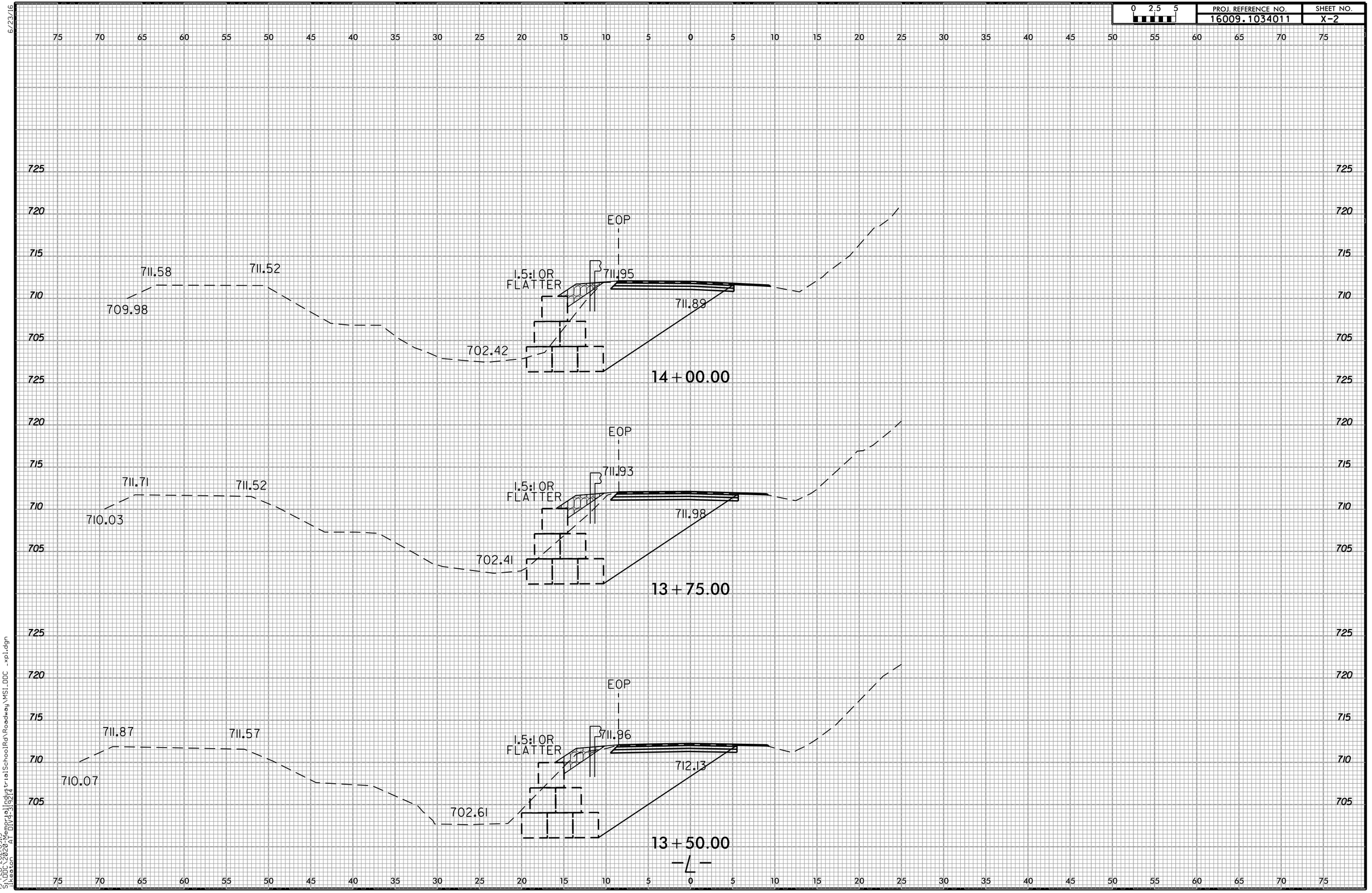

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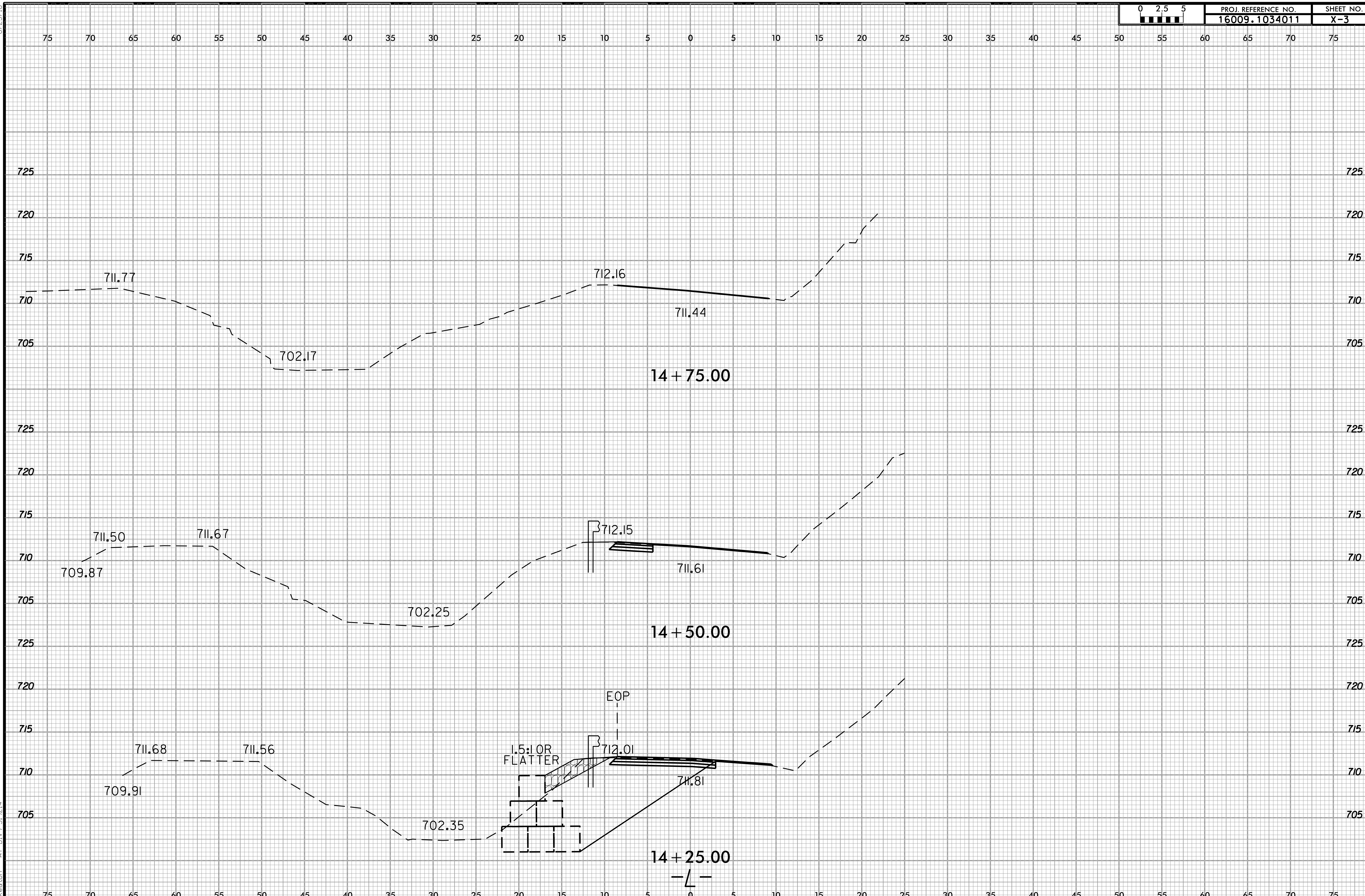

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jlkeaton AT DIV9-319214

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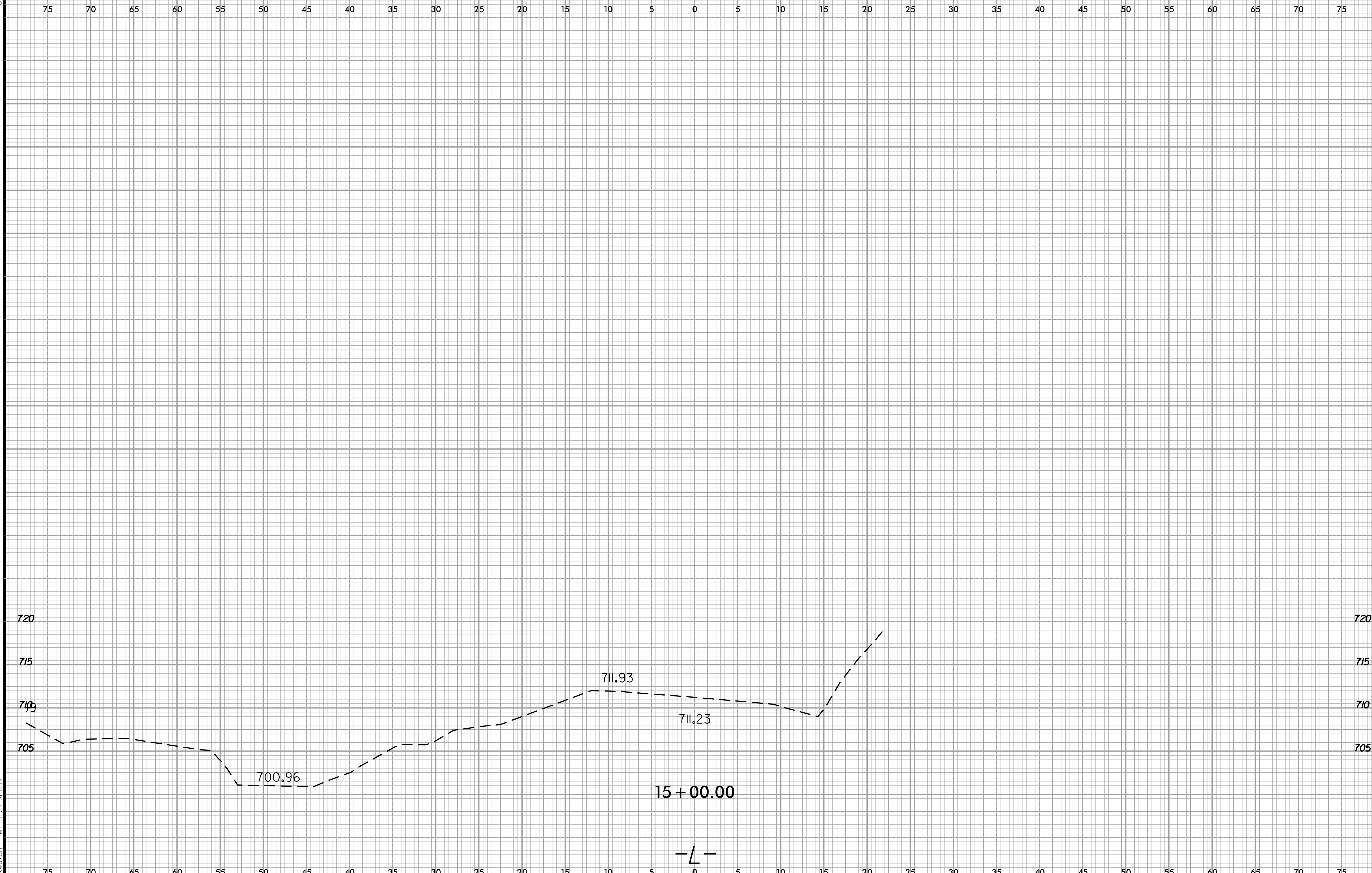

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jlkeaton AT DIV9-319214

PROJECT REFERENCE NO.	SHEET NO.
16009.1034011	W-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028893 ENGINEER MICHAEL H. STEPHENS

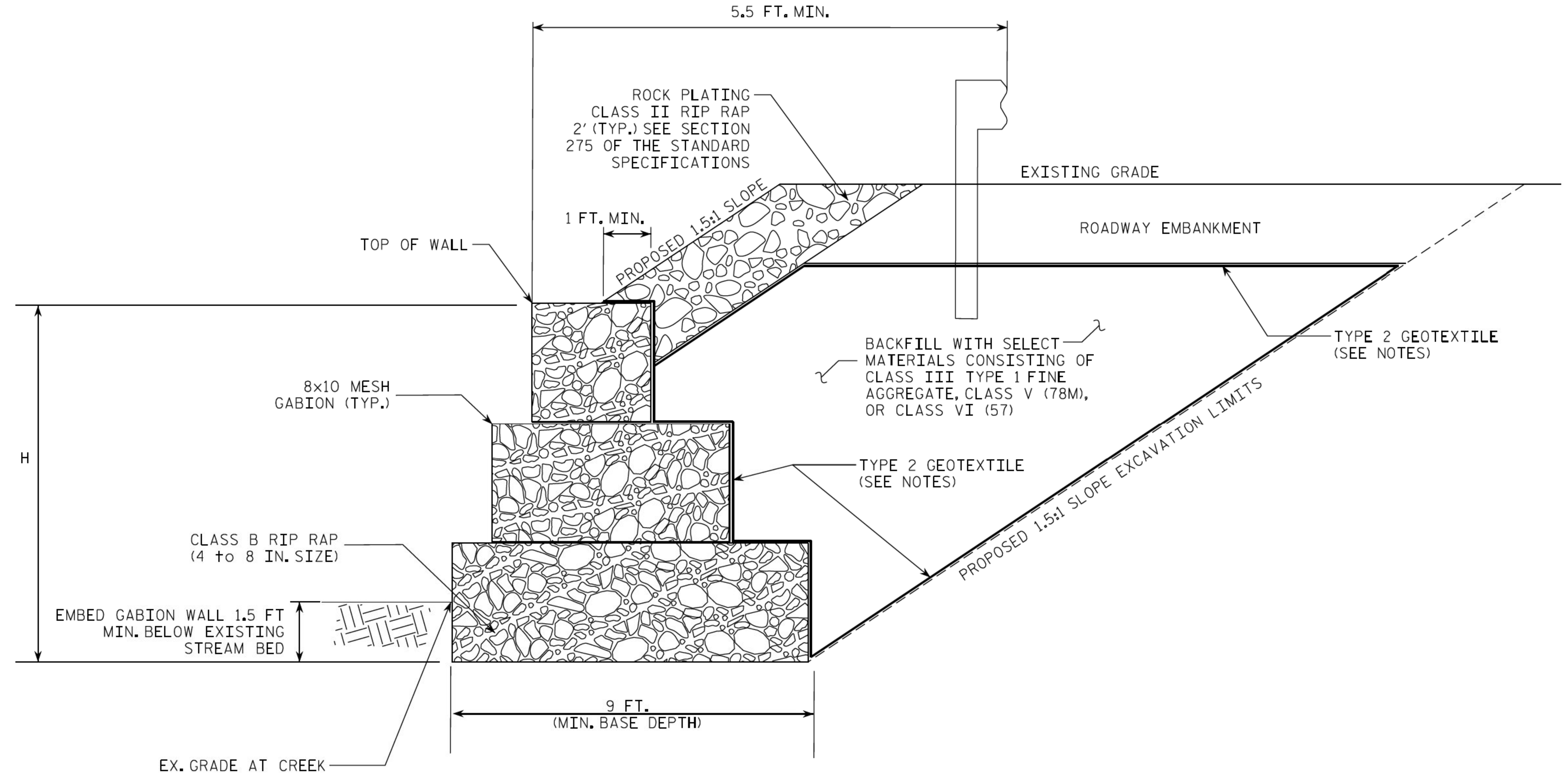
8/25/2020

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL GABION RETAINING WALL SECTION
STA. ± 13+25 -L- TO STA. ± 14+35 -L-

GABION BASKET WALL SCHEDULE			
STATION	OFFSET	BOTTOM OF WALL	TOP OF WALL
13+25 -L-	±28.9 ft	±702.0 ft	±711.0 ft
13+50 -L-	±20.0 ft	±701.0 ft	±710.0 ft
13+75 -L-	±19.4 ft	±701.1 ft	±710.1 ft
14+00 -L-	±19.4 ft	±701.3 ft	±710.3 ft
14+25 -L-	±22.0 ft	±701.0 ft	±710.0 ft
14+35 -L-	±24.5 ft	±701.0 ft	±710.0 ft

WALL OFFSETS AND ELEVATIONS ARE APPROXIMATE, SEE TYPICAL GABION WALL SECTION. SEE ROADWAY PLANS FOR LOCATION.

GABION BASKET WALL - ESTIMATED QUANTITIES
GABION BASKET RETAINING WALL QUANTITY = 990 SQ. FT.
ROCK PLATING QUANTITY = 57 SQ. YD.
BACKFILL SELECT MATERIAL QUANTITY = 410 TONS

NOTES

FOR GABION RETAINING WALL, SEE PROVISION.

ALL WORKMANSHIP TO BE IN ACCORDANCE WITH NCDOT AND GABION MANUFACTURER'S SPECIFICATIONS.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS. GUARDRAILS WITH 8 FT. POSTS ARE REQUIRED.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR GABION RETAINING WALL.

BEFORE BEGINNING MSE WALL DESIGN FOR GABION RETAINING WALL, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

DESIGN GABION RETAINING WALL FOR THE FOLLOWING:
1) H = DESIGN HEIGHT (INCLUDES EMBEDMENT)
2) DESIGN LIFE = 75 YEARS
3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,000 PSF
4) MINIMUM EMBEDMENT ELEVATION = 1.5 FT
6) GABION REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
CLASS B, RIP RAP	115	38	0

*SEE GABION RETAINING WALLS PROVISION FOR AGGREGATE MATERIAL REQUIREMENTS.

7) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
BACKFILL	110	34	0
FOUNDATION	115	29	0

THE MINIMUM EMBEDMENT ELEVATION FOR GABION RETAINING WALL INCLUDES EMBEDMENT FOR SCOUR.

DESIGN GABION RETAINING WALL FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT FOR GABION RETAINING WALL.

USE GALVANIZED & PVC COATED GABIONS WITH 8x10 MESH.

PLACE TYPE 2 GEOTEXTILE ON FOUNDATION SOILS AND ARRANGE EMPTY GABIONS AS SHOWN. FASTEN ADJACENT UNITS AND HAND PLACE CLASS B RIP RAP (4 TO 8 IN. NOMINAL SIZE) AGAINST THE FACING OF THE GABIONS. PLACE THE REMAINDER OF THE CLASS B RIP RAP IN SUCH A MANOR AS TO NOT DAMAGE THE GABIONS. PROVIDE GABION STIFFENERS WHERE REQUIRED. CLOSE LID AND FASTEN.

BACKFILL BEHIND GABIONS WITH SELECT MATERIALS CONSISTING OF CLASS III TYPE 1 FINE AGGREGATE, CLASS V (78M), OR CLASS VI (57). PRIOR TO BACKFILLING, COVER BACK OF GABION WITH TYPE 2 GEOTEXTILE AND OVERLAP FABRIC A MINIMUM OF 12 IN. ON GABION TOP. FABRIC SHALL COVER GABION SIDES AT ENDS OF EACH COURSE.

PLACE NEXT COURSE OF EMPTY GABIONS, FASTEN ADJACENT UNITS TOGETHER, HAND PLACE RIP RAP IN GABIONS, PROVIDE GABION STIFFENERS WHERE REQUIRED, CLOSE AND FASTEN LID, INSTALL FABRIC ON GABION BACK, AND BACKFILL BEHIND GABIONS. GABIONS SHOULD BE BENCHED INTO EXISTING GROUND BEYOND FAILED AREA AT EACH END. REPEAT UNTIL TOP COURSE OF GABIONS IS INSTALLED.

EXTEND FABRIC OVER TOP COURSE OF GABIONS BEYOND THE SLOPE TIE POINT AT THE TOP OF WALL.

GRADE ABOVE AND BEHIND GABIONS AT A SLOPE INCLINATION OF 1.5(H):1(V) OR FLATTER.

TOTAL STRUCTURE QUANTITY INCLUDES EMBEDMENT BELOW GRADE.

PREPARED BY: MHS	DATE: 8/24/20
REVIEWED BY: SCC	DATE: 8/24/20

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

GABION RETAINING WALL STA. 13+25 -L- TO 14+35 -L-

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

REVISIONS

8/17/99

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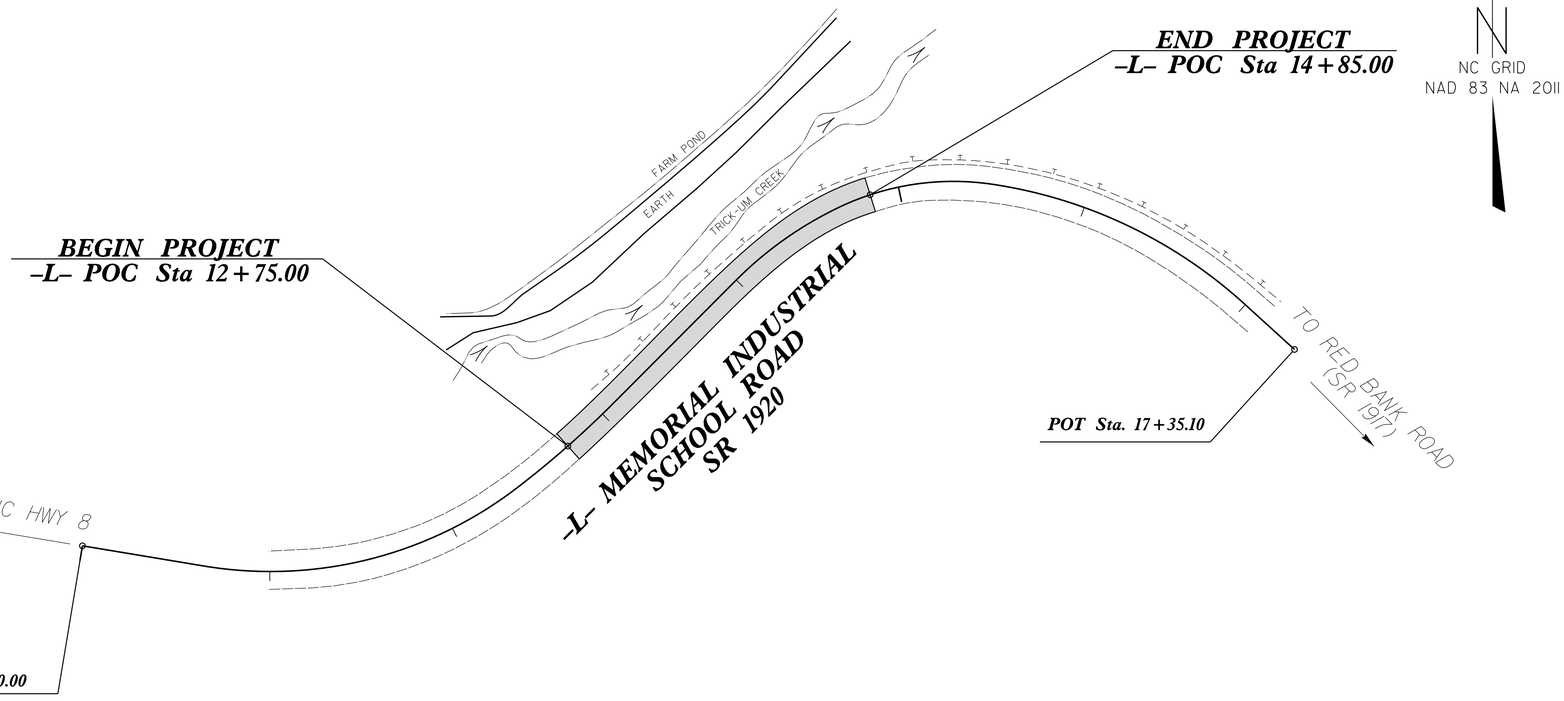
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	16009.1034011	RW-1	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

FORSYTH COUNTY

LOCATION: MEMORIAL INDUSTRIAL SCHOOL ROAD (SR 1920)



GRAPHIC SCALE

40 20 0 40 80
PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 904190.545 (ft) EASTING: 1632350.463 (ft) ELEVATION: 713.70(ft). THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99998875. THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO -L- STATION 10+00.00 IS N 73° 37' 24.4" W, 114.428' (ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES. VERTICAL DATUM USED IS NAVD 88.

Prepared in the Office of:
DIVISION OF HIGHWAYS
NINTH DIVISION DESIGN\CONSTRUCT
375 SILAS CREEK PARKWAY WINSTON-SALEM, N.C. 27127
2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
October 8, 2020

LETTING DATE:
April 14, 2021

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4487 LAND SURVEYOR JEREMY L. KEATON

DocuSigned by:
Jeremy Keaton
2/26/2021
SIGNATURE *DATE*

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

TIP PROJECT: 16009.1034011

09/08/99

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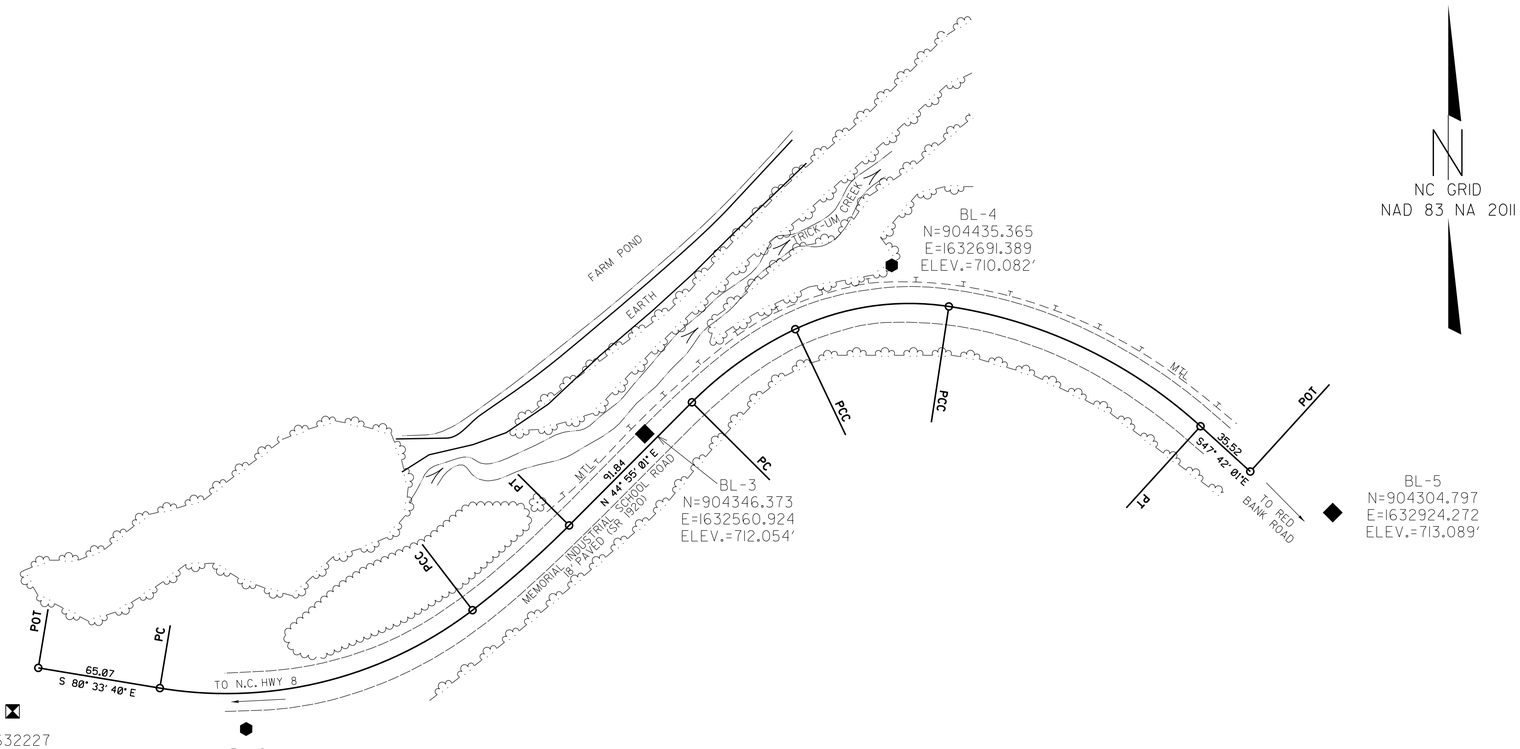
PROJECT REFERENCE NO.	SHEET NO.
16009.1034011	RW-2
Division 9 DDC	

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	904222.808	1632240.677							
LINE			S 80°33'40.0" E	65.07					
PC	904212.138	1632304.862							
CURVE			N 76°00'26.4" E	170.20	46°51'47.2"(LT)	26°46'25.4"	175.03	92.75	214.00
PCC	904253.291	1632470.007							
CURVE			N 48°44'47.1" E	67.85	07°39'31.4"(LT)	11°16'43.3"	67.90	34.00	508.00
PT	904298.033	1632521.019							
LINE			N 44°55'01.4" E	91.84					
PC	904363.069	1632585.867							
CURVE			N 54°44'17.4" E	66.86	19°38'32.0"(RT)	29°13'57.1"	67.19	33.93	196.00
PCC	904401.670	1632640.463							
CURVE			N 81°35'10.0" E	81.99	34°03'13.1"(RT)	40°55'32.0"	83.21	42.87	140.00
PCC	904413.667	1632721.570							
CURVE			S 64°32'37.4" E	147.20	33°41'12.2"(RT)	22°33'26.6"	149.34	76.90	254.00
PT	904350.399	1632854.476							
LINE			S 47°42'01.3" E	35.52					
POT	904326.496	1632880.745							

NOTES:

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

2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE DIVISION 9 DDC UNIT.

3. DRAWING NOT TO PROJECT SCALE

BL

POINT	DESC.	NORTH	EAST	ELEVATION
2	BL-2	904190.5450	1632350.4630	713.700
3	BL-3	904346.3730	1632560.9240	712.054
4	BL-4	904435.3650	1632691.3890	710.082
5	BL-5	904304.7970	1632924.2720	713.089

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
16009.1034011	RW-4

Division 9 DDC

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4487 LAND SURVEYOR JEREMY L. KEATON

2/26/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

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

I further certify that the property lines shown were compiled under my responsible charge from deeds and plats of record, and limited field surveys; that the existing property related markers as shown were field surveyed from existing survey control by others (see notes on control sheets); that the property lines compiled do not represent a boundary survey; that the parcels shown were compiled without the benefit of title reports and may be subject to or encumbered by easements, rights of way and other title matters not shown herein.

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

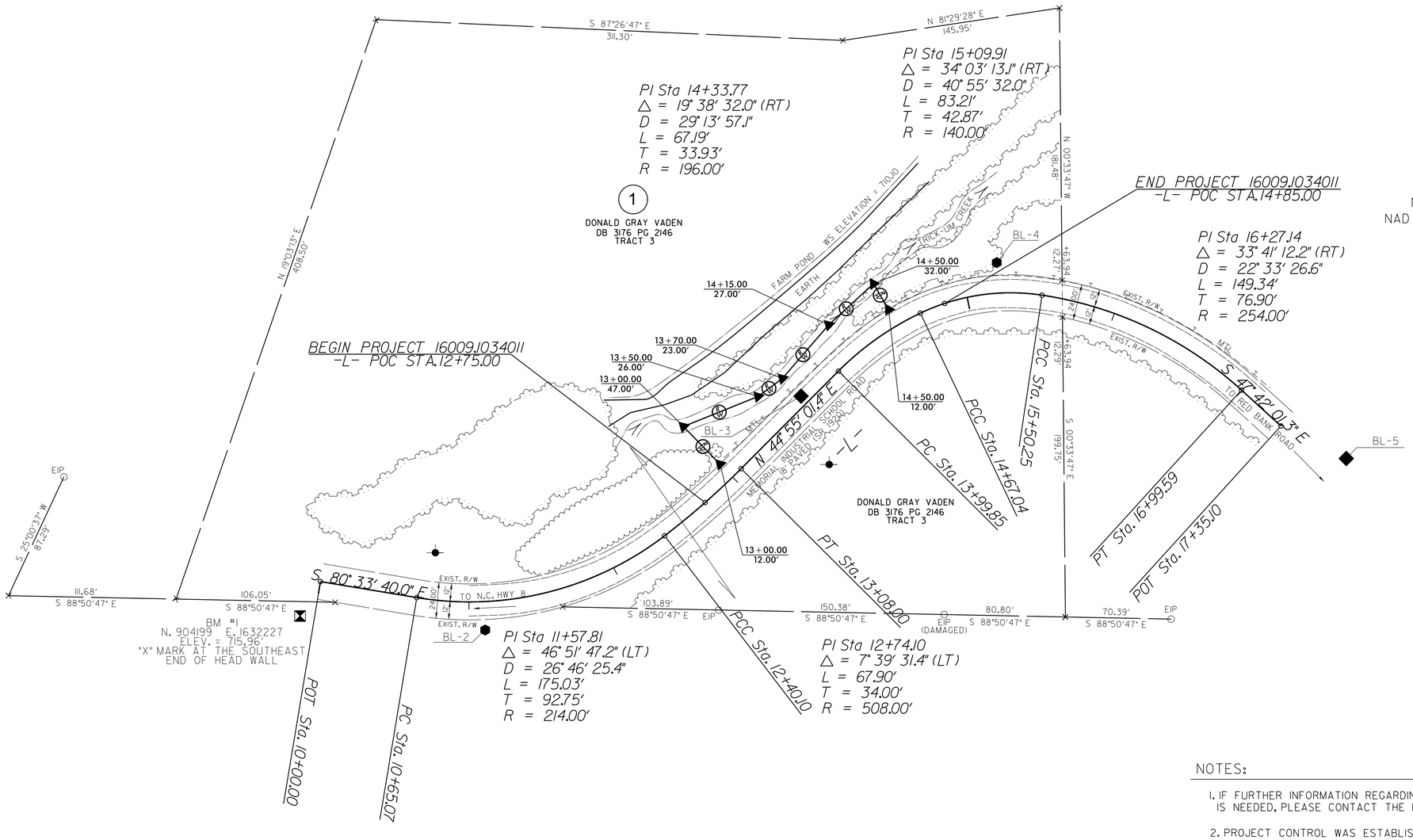
Witness my original signature, registration number and seal this 26th day of February, 2021.

DocuSigned by: Jeremy Keaton 717D7F9649A4499...

Professional Land Surveyor — L-4487 PLS # — Seal

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+00.00	-12.00	904301.0157	1632506.9605
L	13+00.00	-47.00	904326.1160	1632482.5684
L	13+50.00	-26.00	904346.1296	1632532.2606
L	13+70.00	-23.00	904358.1740	1632548.5066
L	14+15.00	-27.00	904393.8599	1632579.3815
L	14+50.00	-12.00	904404.0397	1632619.3380
L	14+50.00	-32.00	904421.2862	1632609.2109



NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE DIVISION 9 DDC UNIT.

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

Revised:

$$$$$USERNAME$$$$$