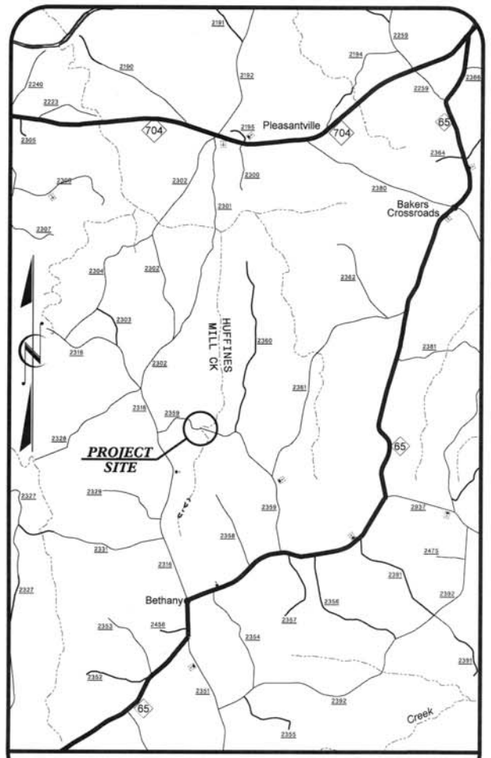
09/08/99

TIP PROJECT: 17BP.7.R.64

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

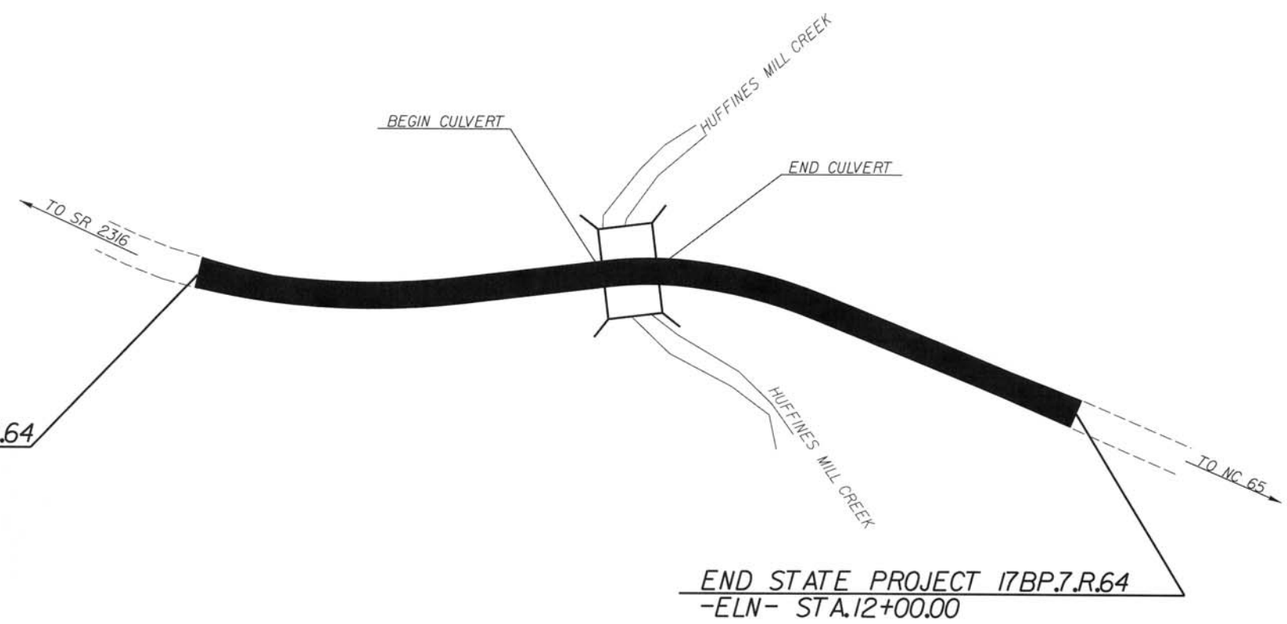
ROCKINGHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.7.R.64		

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
		PE, UTIL
		R/W & CONST.

LOCATION: BRIDGE NO. 33 OVER HUFFINES MILL CREEK ON SR 2359 (HUFFINES MILL RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



NAD 83

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 2006 = 220
ADT 2026 = 275
DHV = 60 %
D = 10 %
T = 3 % *
V = 25 MPH

* TTST 1% DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY PROJECT MA07309B	=	0.060 MILES
LENGTH STRUCTURE PROJECT MA07309B	=	0.006 MILES
TOTAL LENGTH STATE PROJECT MA07309B	=	0.066 MILES

WETHERILL ENGINEERING

Prepared for the North Carolina Department of Transportation in the Office of:

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

NCDOT CONTACT:

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

PROJECT DESIGN ENGINEER

ROADWAY DESIGN: ENGINEERING COORDINATION SECTION ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

1/26/2016
8:26:02 AM
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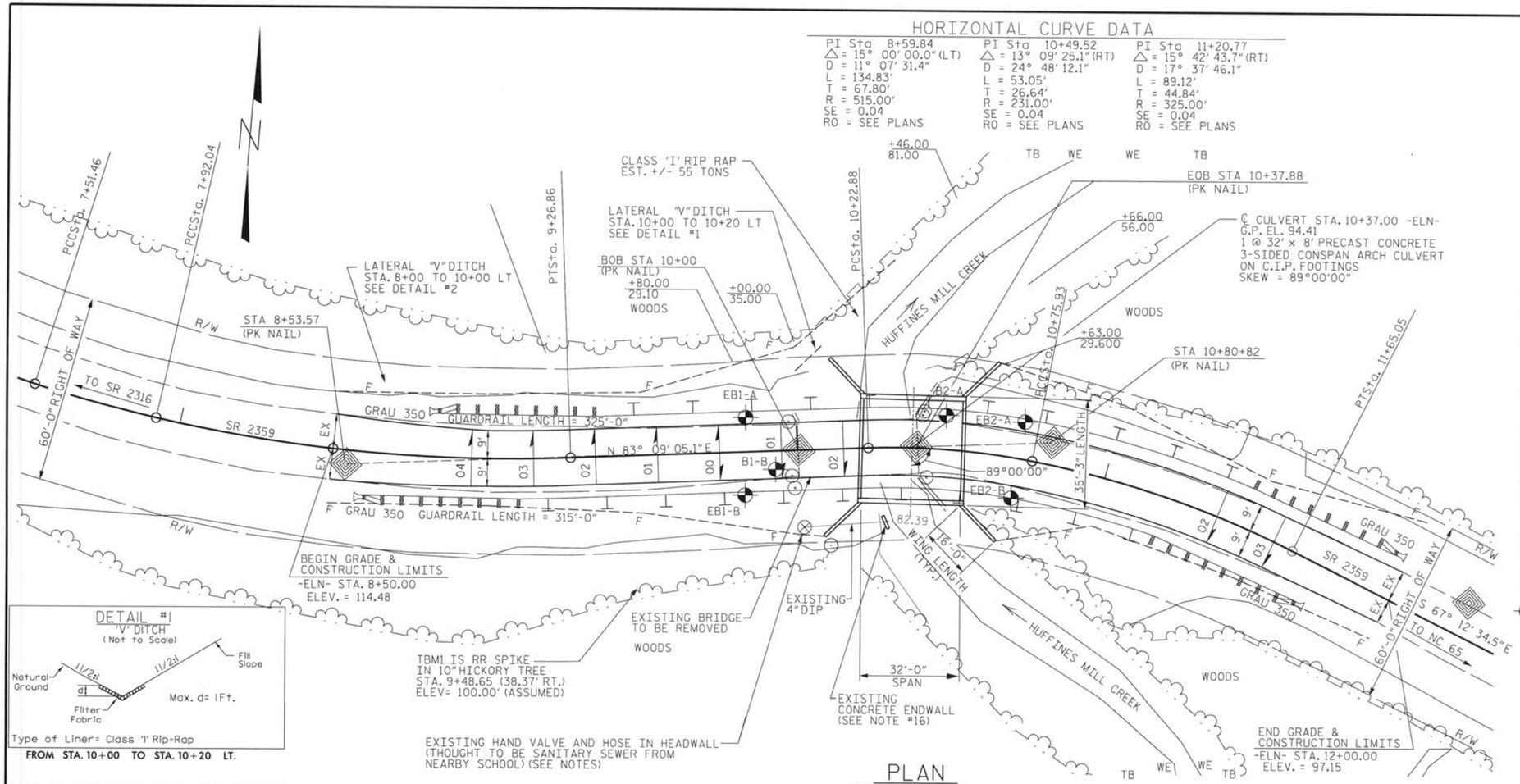
MA07309B

#33 ROCKINGHAM

HORIZONTAL CURVE DATA

PI Sta 8+59.84	PI Sta 10+49.52	PI Sta 11+20.77
△ = 15° 00′ 00.0″ (LT)	△ = 13° 09′ 25.1″ (RT)	△ = 15° 42′ 43.7″ (RT)
D = 11° 07′ 31.4″	D = 24° 48′ 12.1″	D = 17° 37′ 46.1″
L = 134.83′	L = 53.05′	L = 89.12′
T = 67.80′	T = 26.64′	T = 44.84′
R = 515.00′	R = 231.00′	R = 325.00′
SE = 0.04	SE = 0.04	SE = 0.04
RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS



PLAN

SCALE : 1″ = 20′-0″

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

DESIGN FILL = VARIES 3.6 FT. AT MID SPAN OF ARCH TO 8.0 FT. MAX. ABOVE WALL.

ALL REINFORCING STEEL SHALL BE GRADE 60.

THE ENGINEER SHALL CHECK THE LENGTH OF THE CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

THE SPREAD FOOTINGS ARE DESIGNED FOR A FACTORED RESISTANCE OF 5 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 12 TSF JUST BEFORE PLACING CONCRETE.

TO PROVIDE PROTECTION FROM POSSIBLE SCOUR, DO NOT CONSTRUCT THE FOOTING AT AN ELEVATION HIGHER THAN SHOWN ON THE PLANS.

THE EXISTING BRIDGE CONSISTING OF 1 SPAN @ 18′-7½″ AND 1 SPAN @ 19′-11½″ WITH A TIMBER DECK ON TIMBER JOISTS AND A CLEAR ROADWAY WIDTH OF 17.2′ ON CONCRETE ABUTMENTS AND A MASS CONCRETE PIER SHALL BE REMOVED. THE EXISTING BRIDGE IS CURRENTLY POSTED FOR LOAD LIMIT.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURE, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

REMOVAL OF THE EXISITNG BRIDGE SHALL BE PREFORMED SO AS NOT TO ALLOW ANY DEBRIS TO FALL INTO THE WATER.

THE SCOUR CRITICAL ELEVATIONS ARE THE BOTTOM OF FOOTING ELEVATIONS. BRIDGE MAINTENANCE FORCES USE THE SCOUR CRITICAL ELEVATIONS TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT, SEE SPECIAL PROVISIONS. HEADWALLS AND WINGS MAY BE PRECAST OR CAST IN PLACE REINFORCED CONCRETE. FOOTINGS AND SUBFOOTING (IF NECESSARY), SHALL BE CAST IN PLACE REINFORCED CONCRETE.

FOR ADJUSTMENT OF SANITARY SEWER VALVE CONTROL AND OUTLET PIPING, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

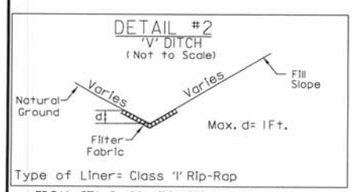
✦ DENOTES GEO-TECH BORING HOLE LOCATIONS.

DETAIL #1
'V' DITCH
(Not to Scale)

Type of Liner= Class 'I' Rip-Rap

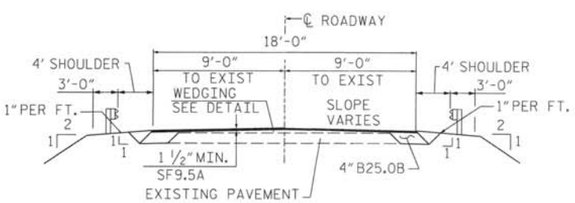
FROM STA. 10+00 TO STA. 10+20 LT.

DETAIL #2
'V' DITCH
(Not to Scale)



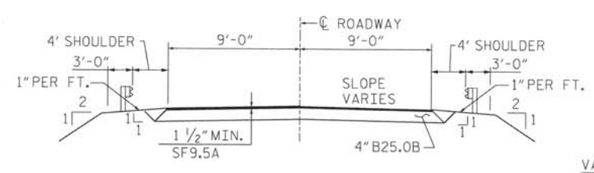
Type of Liner= Class 'I' Rip-Rap

FROM STA. 8+00 TO STA. 10+00 LT.



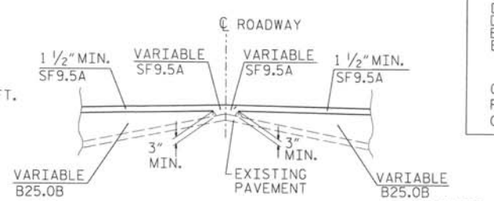
TYPICAL ROADWAY SECTION

WITHIN CONSTRUCTION LIMITS
NOT TO SCALE
-ELN- STA. 8+50.00 TO -ELN- STA. 9+55.00
-ELN- STA. 10+74.00 TO -ELN-STA. 12+00.00
NOTE: UTILIZE 1 1/2:1 FILL SLOPE FROM STATION 10+00 TO 11+00 LT & RT



TYPICAL ROADWAY SECTION

WITHIN CONSTRUCTION LIMITS
NOT TO SCALE
-ELN- STA 9+55.00 TO -ELN- STA. 10+74.00



DETAIL SHOWING METHOD OF WEDGING

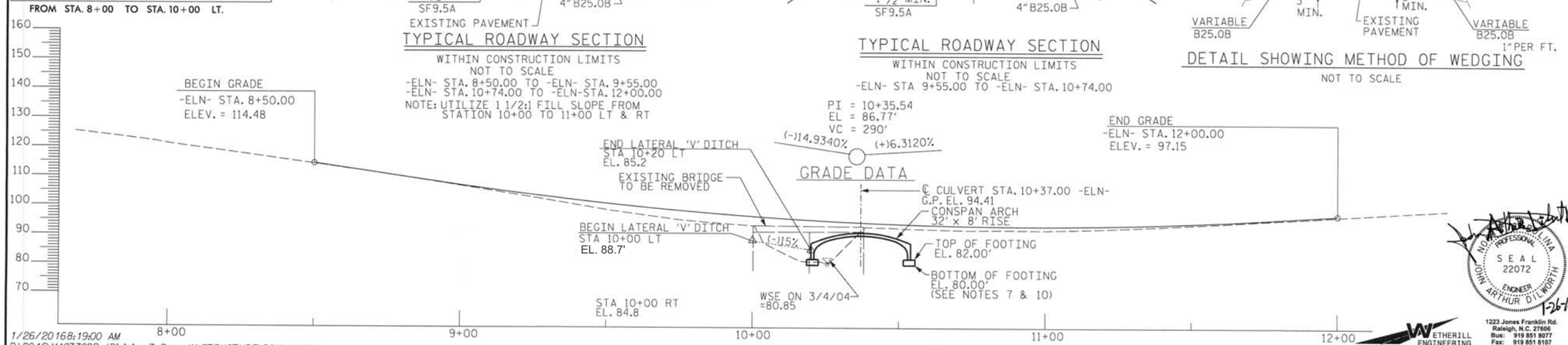
NOT TO SCALE

HYDRAULIC DATA

DESIGN DISCHARGE	= 650 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YR.
DESIGN HIGH WATER ELEVATION	= 85.90
DRAINAGE AREA	= 1.6 SQ. MI.
BASIC DISCHARGE (Q100)	= 1000 CFS
BASIC HIGH WATER ELEVATION	= 86.91

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1500 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500 YR.
OVERTOPPING FLOOD ELEVATION	= 93.20



PROFILE ALONG ℄ SURVEY

SCALE : 1″ = 20′-0″

WBS NO. 17BP.7.R.64

ROCKINGHAM COUNTY

STATION: 10+37.00 -ELN-

REPLACES BRIDGE NO. 33

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE #33 ON SR 2359
OVER HUFFINES MILL CREEK

NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH
7-26-16

ETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	1
1			3			TOTAL SHEETS
2			4			9

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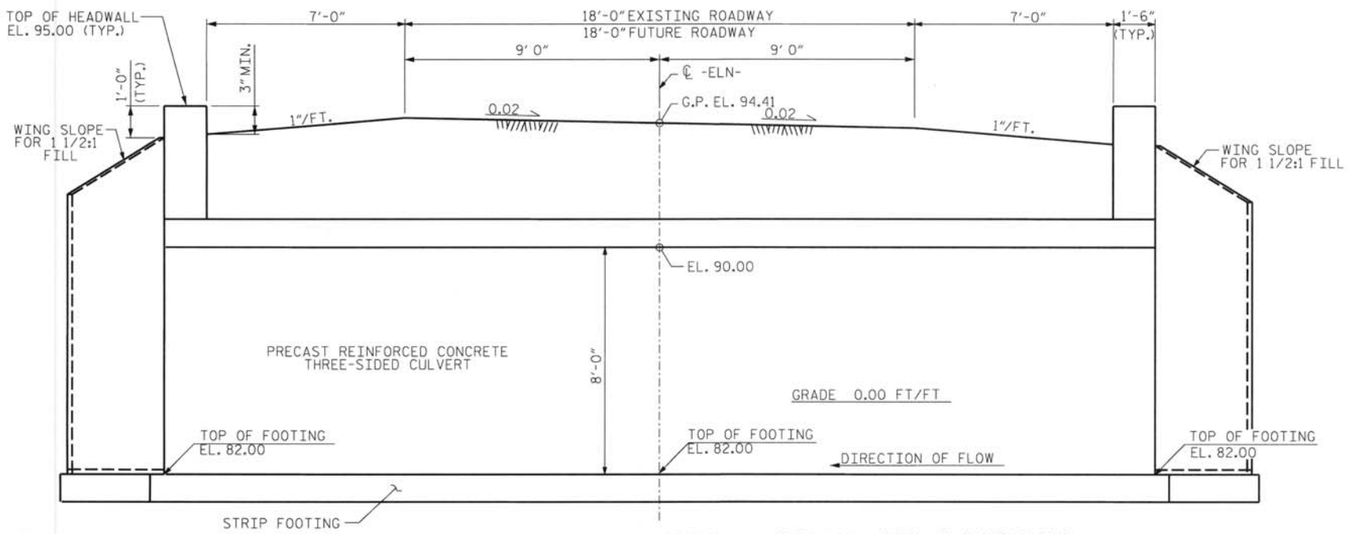
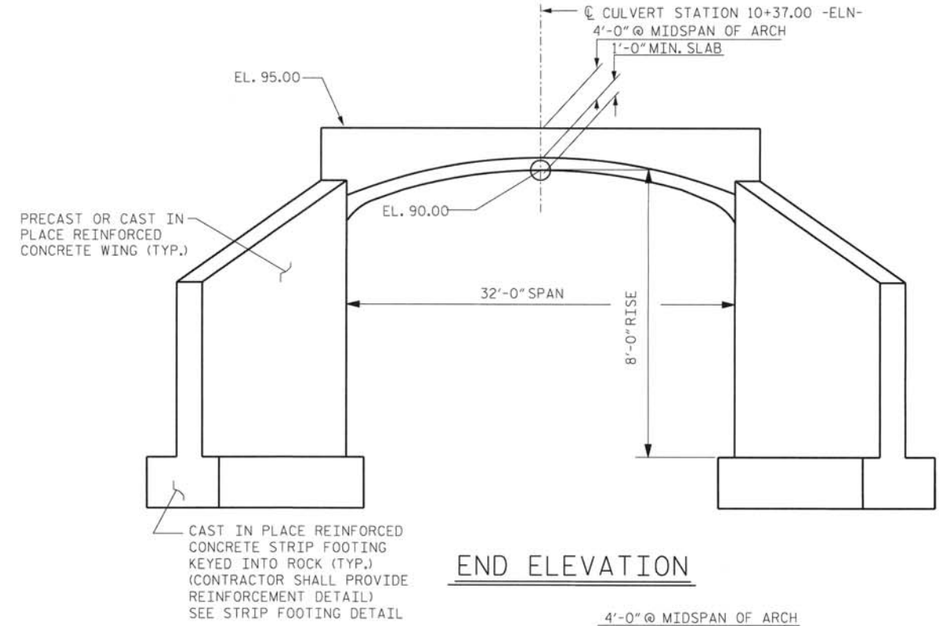
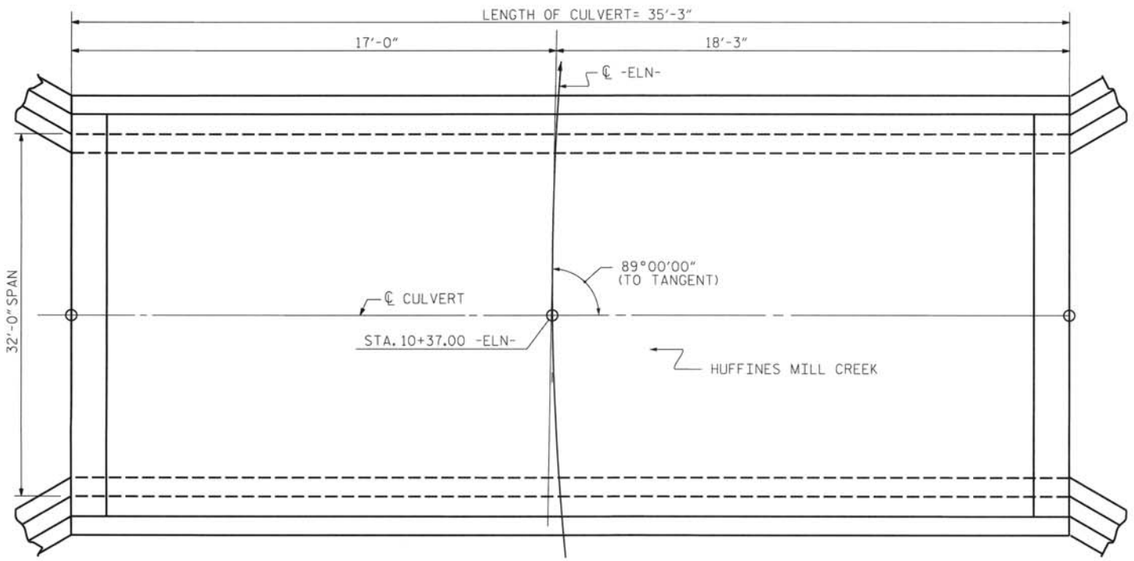
DRAWN BY : J. PENDERGRAFT DATE : 1-16
CHECKED BY : J. DILWORTH DATE : 1-16



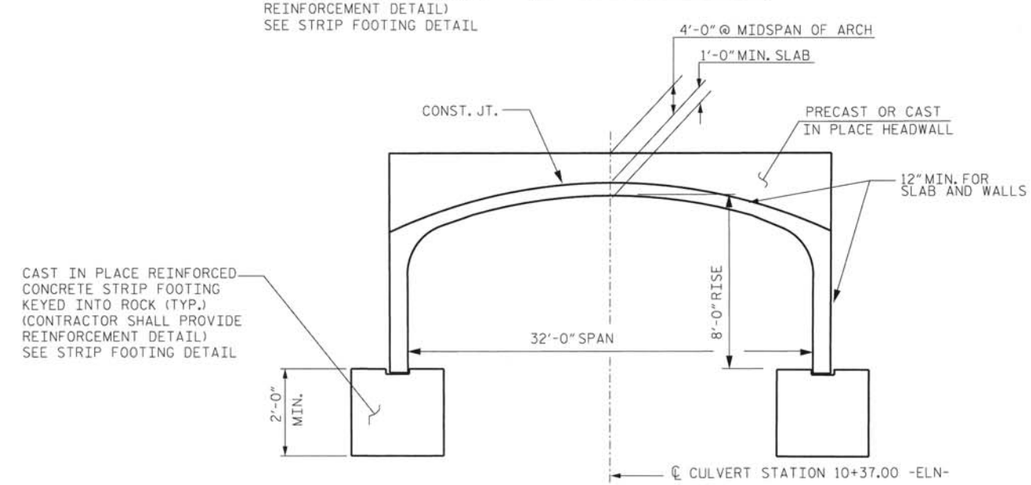
PRECAST CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION



PLAN



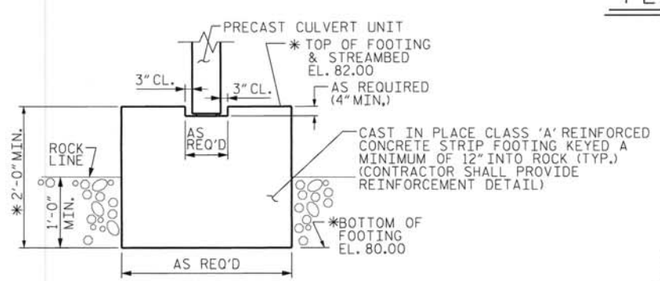
RIGHT ANGLE SECTION OF PRECAST CONCRETE THREE-SIDED CULVERT

WBS NO. 17BP.7.R.64

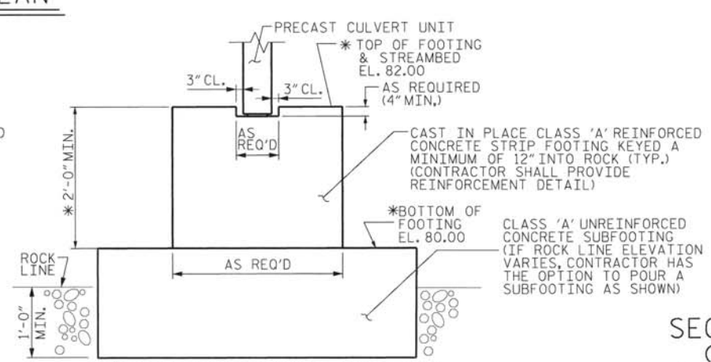
ROCKINGHAM COUNTY

STATION: 10+37.00 -ELN-

REPLACES BRIDGE NO. 33

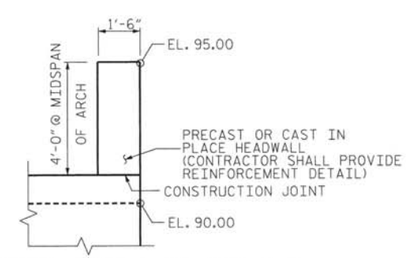


STRIP FOOTING DETAIL



STRIP FOOTING DETAIL

(IF SUBFOOTING IS NECESSARY)



SECTION THRU HEADWALL @ MIDSPAN OF ARCH

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

32' X 8'
PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT

NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH
1-26-16

ETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			9

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CHECKED BY : J. DILWORTH DATE : 1-16

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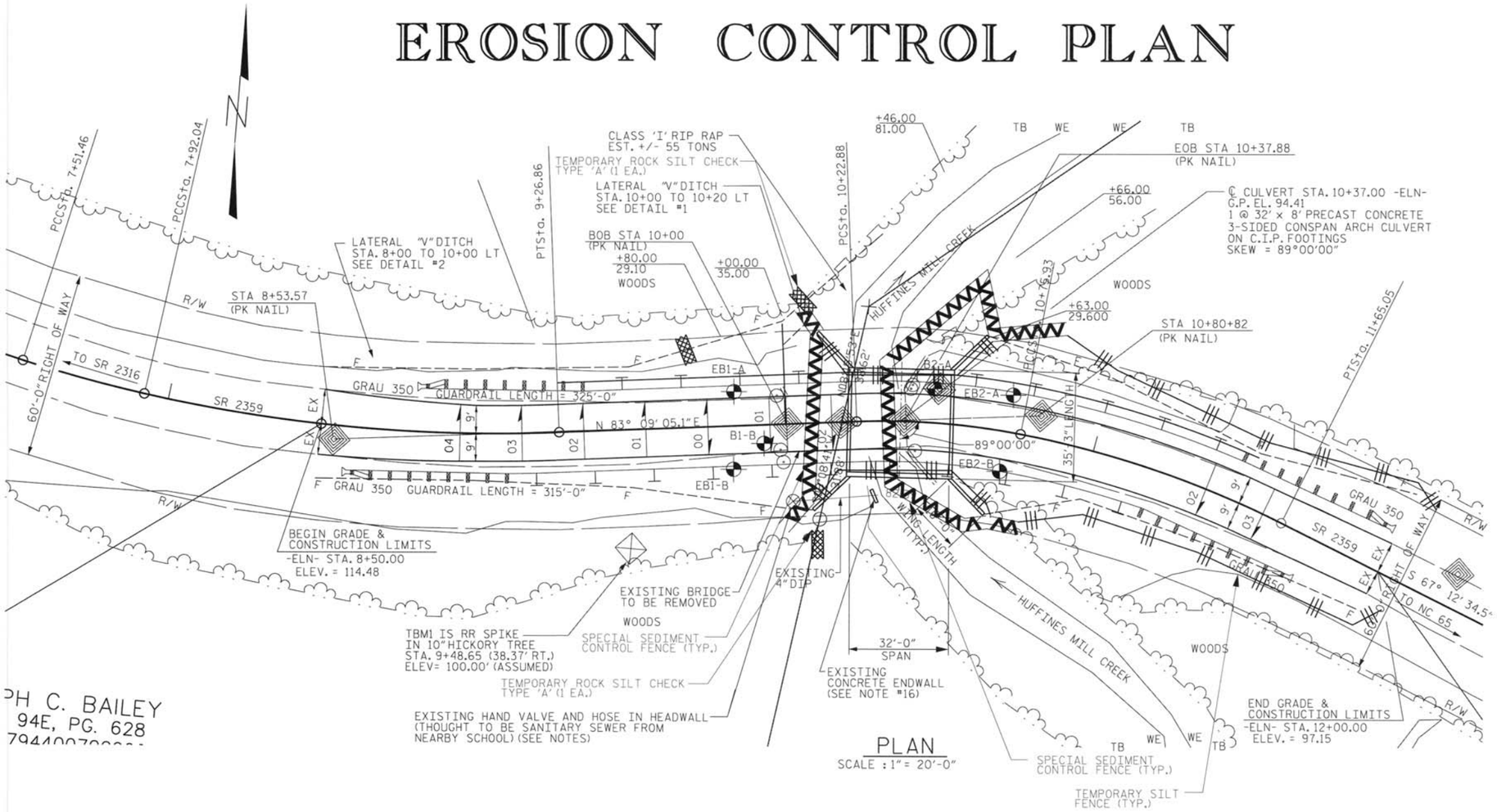
EROSION CONTROL PLAN



PLAN
SCALE : 1" = 20'-0"

EROSION CONTROL SEQUENCE

1. ACCESS AND MOBILIZATION: STABILIZE BARE AREAS IMMEDIATELY WITH TEMPORARY VEGETATION AND/OR GRAVEL AS CONSTRUCTION TAKES PLACE.
2. INSTALL PERIMETER SILT FENCE AND SPECIAL SEDIMENT CONTROL FENCE. SPECIAL SEDIMENT CONTROL FENCE SHALL BE INSTALLED BELOW THE EXISTING BRIDGE ABUTMENTS TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE AND/OR ENTERING LITTLE MARSH CREEK.
3. INSTALL TEMPORARY ROCK SILT CHECK TYPE A'S IN DITCHLINES.
4. PROCEED WITH CONSTRUCTION OF THE NEW CULVERT. ADDITIONAL GRAVEL STABILIZATION OR SILT FENCE MAY BE REQUIRED BEHIND THE OLD ABUTMENTS WHEN THE OLD BRIDGE IS REMOVED AND BEFORE THE NEW CULVERT IS INSTALLED.
5. INSTALL SILT FENCE ON BOTH SIDES OVER CULVERT FACE.
6. MAINTENANCE INSPECTIONS SHALL BE PERFORMED WEEKLY AND AFTER PERIODS OF RAINFALL. REPAIRS SHALL BE MADE IMMEDIATELY.
7. ONCE THE SITE IS STABILIZED, REMOVE SILT FENCE.

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 8+75 to Sta. 12+25 LT
Sta. 9+25 to Sta. 10+75 RT

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

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

Level III-A: Designer of Erosion and Sediment Control Plans

Anne D. Gamber, P.E., CFM
Date Issued: December 3, 2014
Date Expires: December 31, 2017
Certification Number: 3022

Std. #	Description		Symbol
1605.01	Temporary Silt Fence	400 LF	
1606.01	Special Sediment Control Fence	235 LF	
1633.01	Temporary Rock Silt Check Type-A	3	

WBS NO. 17BP.7.R.64
ROCKINGHAM COUNTY
STATION: 10+37.00 -ELN-
REPLACES BRIDGE NO. 33

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE #33 ON SR 2359
OVER HUFFINES MILL CREEK

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 5107
LICENSE NO. F-0377
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		3
1			3				TOTAL SHEETS
2			4				9

DRAWN BY : J. PENDERGRAFT DATE : 1-16
CHECKED BY : J. DILWORTH DATE : 1-16

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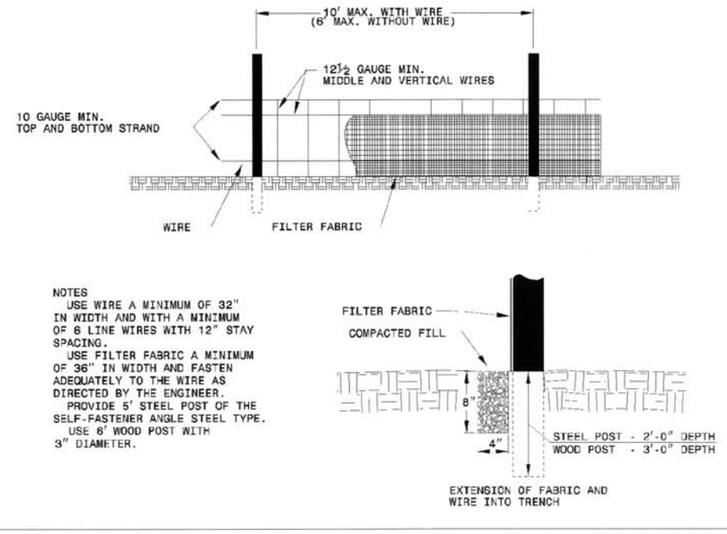
EROSION CONTROL PLAN

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

1-02

ENGLISH STANDARD DRAWING FOR
TEMPORARY SILT FENCE



NOTES
USE WIRE A MINIMUM OF 32" IN WIDTH AND WITH A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
USE FILTER FABRIC A MINIMUM OF 36" IN WIDTH AND FASTEN ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER.
PROVIDE 5' STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE.
USE 8' WOOD POST WITH 3" DIAMETER.

SHEET 1 OF 1
1605.01

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

1-02

ENGLISH STANDARD DRAWING FOR
SPECIAL SEDIMENT CONTROL FENCE

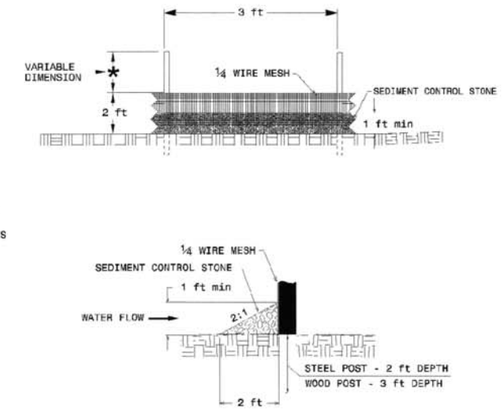
GENERAL NOTES:
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL AND PAY FOR AT THE CONTRACT UNIT PRICE PER TON SEDIMENT CONTROL STONE.

USE HARDWARE CLOTH 24 GAUGE WIRE MESH WITH ¼ INCH MESH OPENINGS.

INSTALL 5 FT. SELF FASTENER ANGLE STEEL POST 2 FT. DEEP MINIMUM.

INSTALL 6 FT. LONG, 3 IN. DIA. WOOD POSTS 3 FT. DEEP MININUM.

SPACE POSTS A MAXIMUM OF 3 FT.

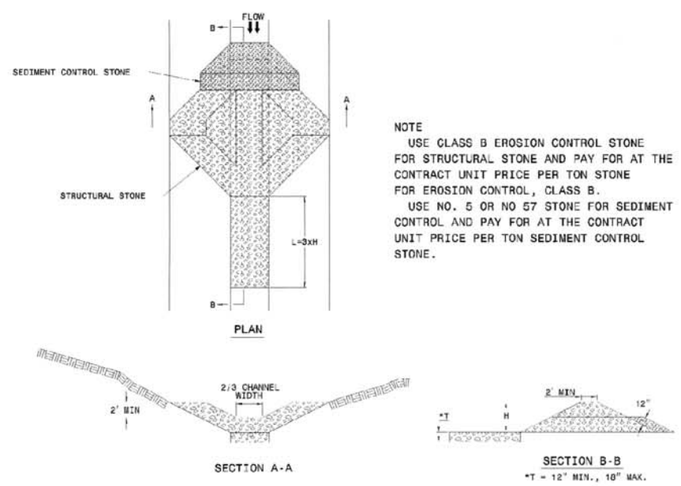


SHEET 1 OF 1
1606.01

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

1-02

ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE 'A'



NOTE
USE CLASS B EROSION CONTROL STONE FOR STRUCTURAL STONE AND PAY FOR AT THE CONTRACT UNIT PRICE PER TON STONE FOR EROSION CONTROL, CLASS B.
USE NO. 5 OR NO 57 STONE FOR SEDIMENT CONTROL AND PAY FOR AT THE CONTRACT UNIT PRICE PER TON SEDIMENT CONTROL STONE.

SHEET 1 OF 1
1633.01

WBS NO. 17BP.7.R.64
ROCKINGHAM COUNTY
STATION: 10+37.00 -ELN-
REPLACES BRIDGE NO. 33

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE #33 ON SR 2359
OVER HUFFINES MILL CREEK

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REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			4
1			3					TOTAL SHEETS
2			4					9

DRAWN BY : J. PENDERGRAFT DATE : 1-16
CHECKED BY : J. DILWORTH DATE : 1-16

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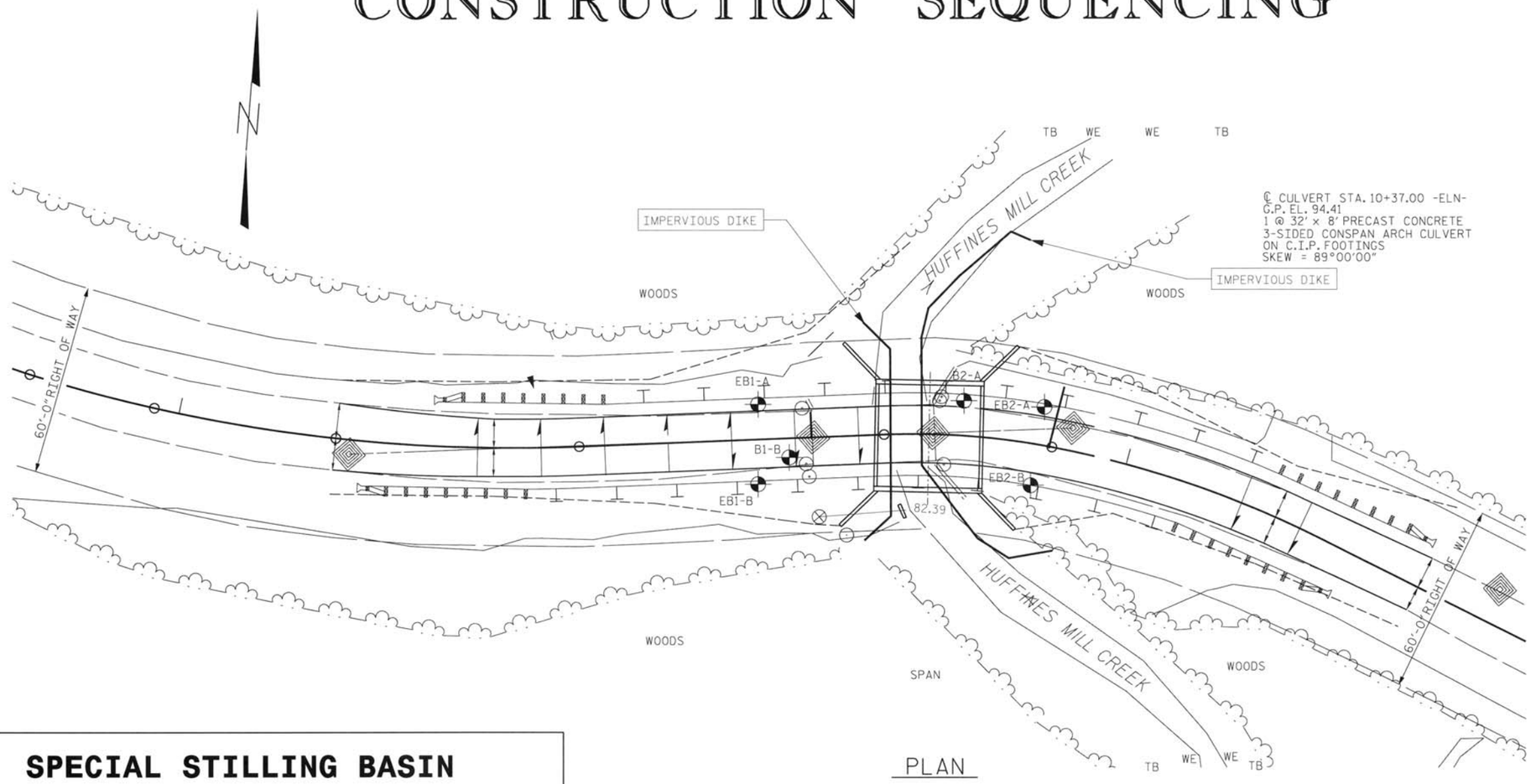
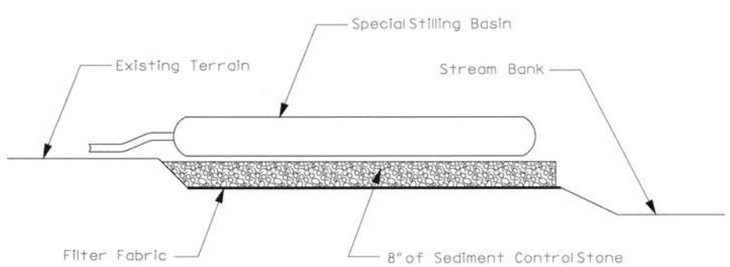
FOOTINGS FOR CONSPAN CONSTRUCTION SEQUENCING



PLAN

SPECIAL STILLING BASIN WITH ROCK PAD



Not to Scale

Note: Provide Stabilized Outlet to Streambank

1.) UTILIZE SPECIAL STILLING BASINS AS NEEDED THROUGHOUT FOOTING CONSTRUCTION SEQUENCE.
2.) CONSTRUCT IMPERVIOUS DIKES.
3.) CONSTRUCT FOOTINGS FOR CONSPAN.
4.) REMOVE IMPERVIOUS DIKES AND SPECIAL SEDIMENT CONTROL FENCE UNDER ROADWAY.
5.) COMPLETE ROADWAY

WBS NO. 17BP.7.R.64

ROCKINGHAM COUNTY

STATION: 10+37.00 -ELN-

REPLACES BRIDGE NO. 33

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE #33 ON SR 2359
OVER HUFFINES MILL CREEK

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1223 Jones Franklin Rd.
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
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REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			5
1			3					TOTAL SHEETS
2			4					9

DRAWN BY : J. PENDERGRAFT DATE : 1-16
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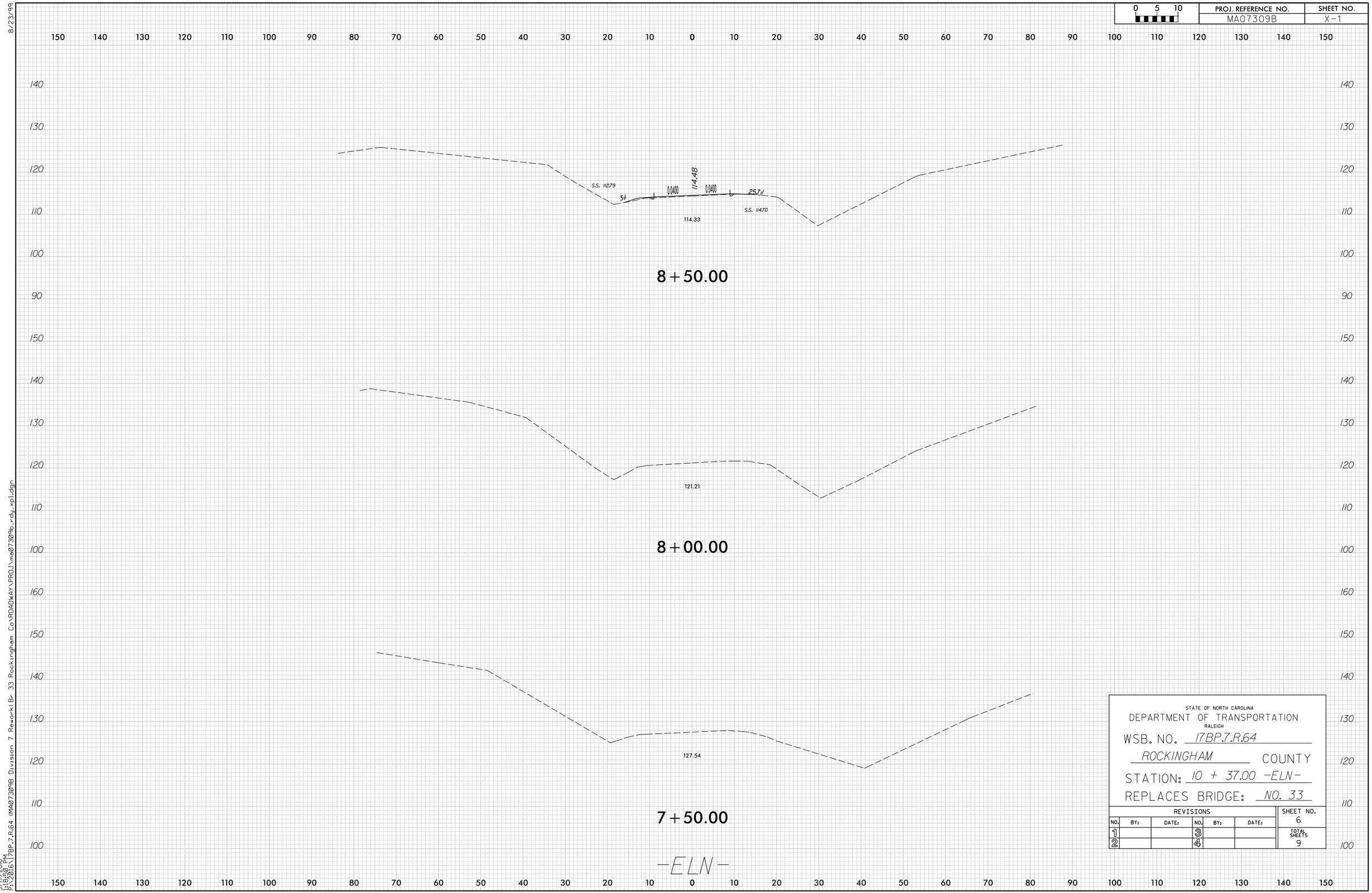
PROJ. REFERENCE NO.	SHEET NO.
MA07309B	X-1



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WSB. NO. 17BP.7.R.64

ROCKINGHAM COUNTY

STATION: 10 + 37.00 -ELN-

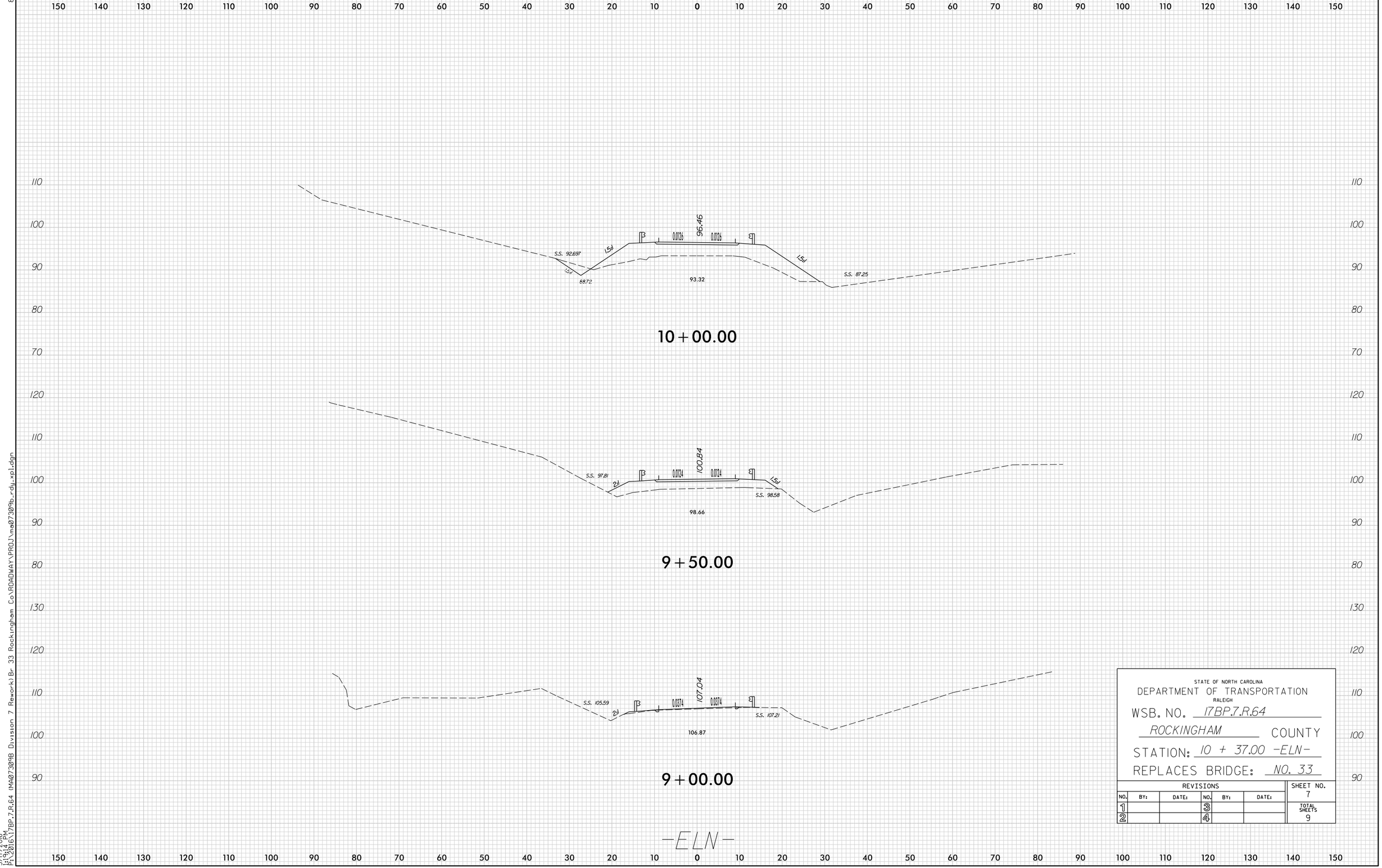
REPLACES BRIDGE: NO. 33

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	6
1			3			TOTAL SHEETS
2			4			9

8/23/99

3/17/2016
1:18:50 PM
P:\2016\17BP.7.R.64 (MA07309B Division 7 Rework) Br 33 Rockingham Co\ROADWAY\PROJ\ma07309b_rdy_xpl.dgn

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	MA07309B	X-2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WSB. NO. 17BP.7.R.64

ROCKINGHAM COUNTY

STATION: 10 + 37.00 -ELN-

REPLACES BRIDGE: NO. 33

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	7
1			3			TOTAL SHEETS
2			4			9

8/23/99

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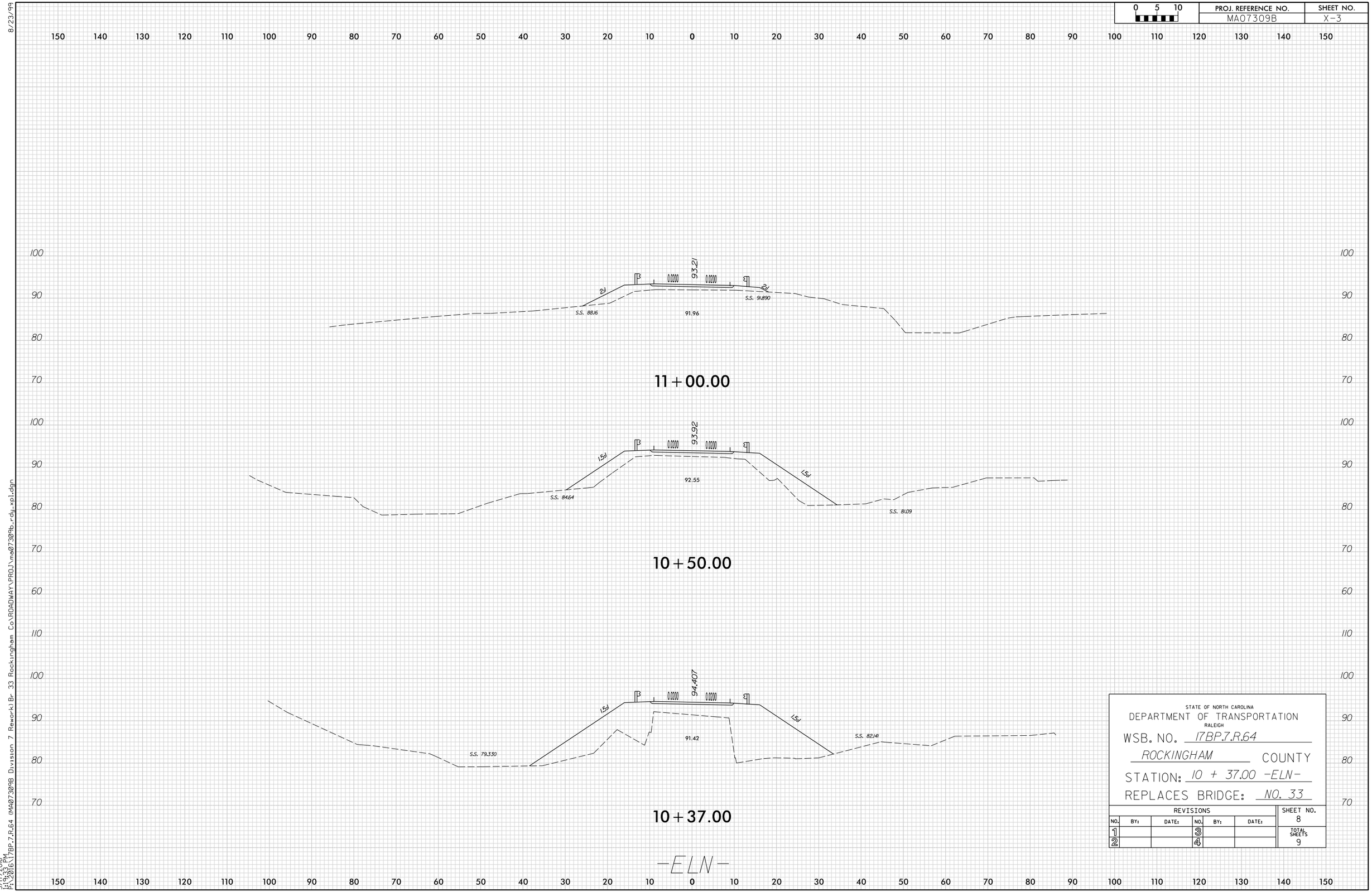

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WSB. NO. 17BP.7.R.64

ROCKINGHAM COUNTY

STATION: 10 + 37.00 -ELN-

REPLACES BRIDGE: NO. 33

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	8
1			3			TOTAL SHEETS
2			4			9

8/23/99

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8/23/99

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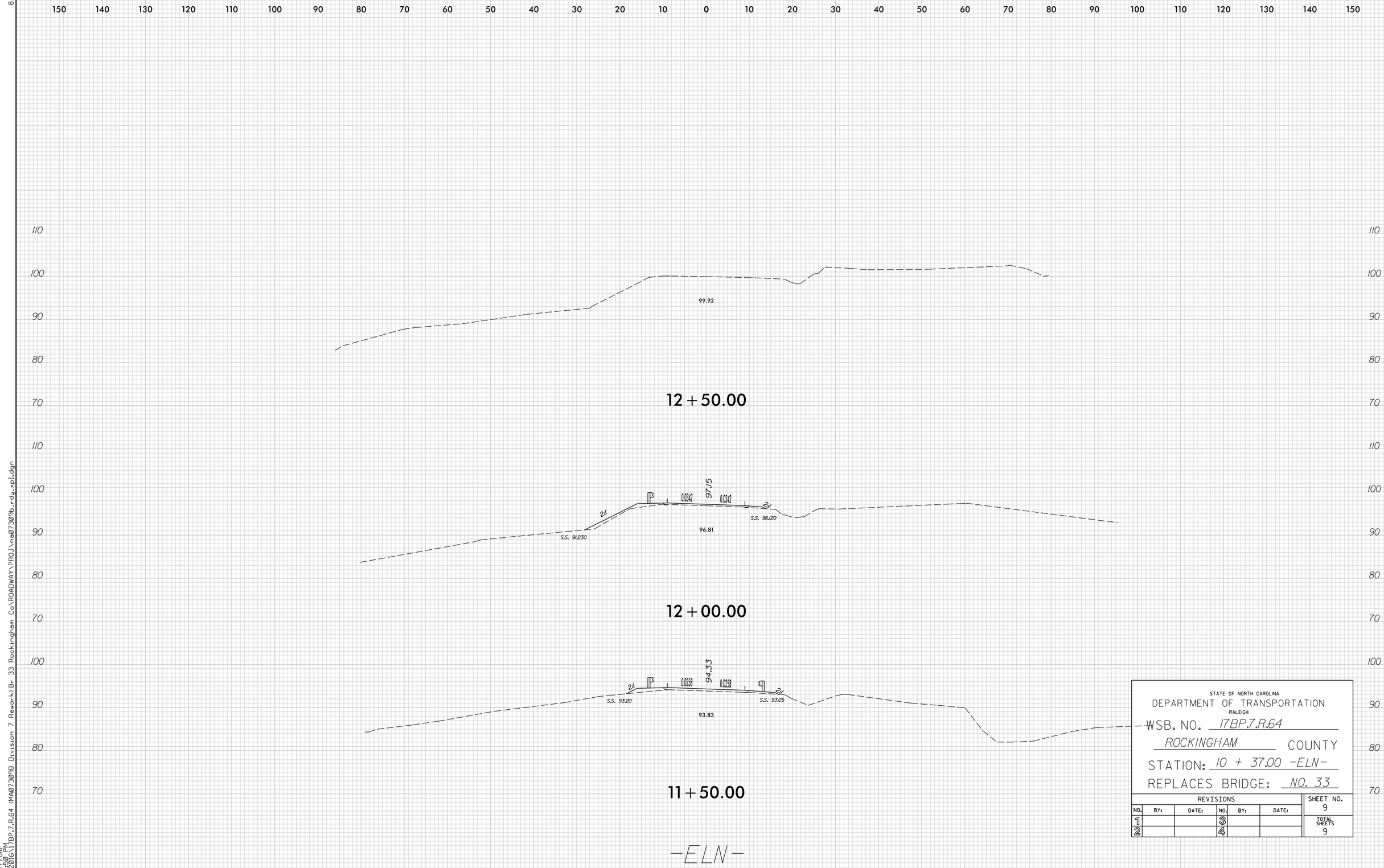

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WSB. NO. 17BP.7.R.64

ROCKINGHAM COUNTY

STATION: 10 + 37.00 -ELN-

REPLACES BRIDGE: NO. 33

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	9
1			3			TOTAL SHEETS
2			4			9

3/17/2016
1:19:50 PM
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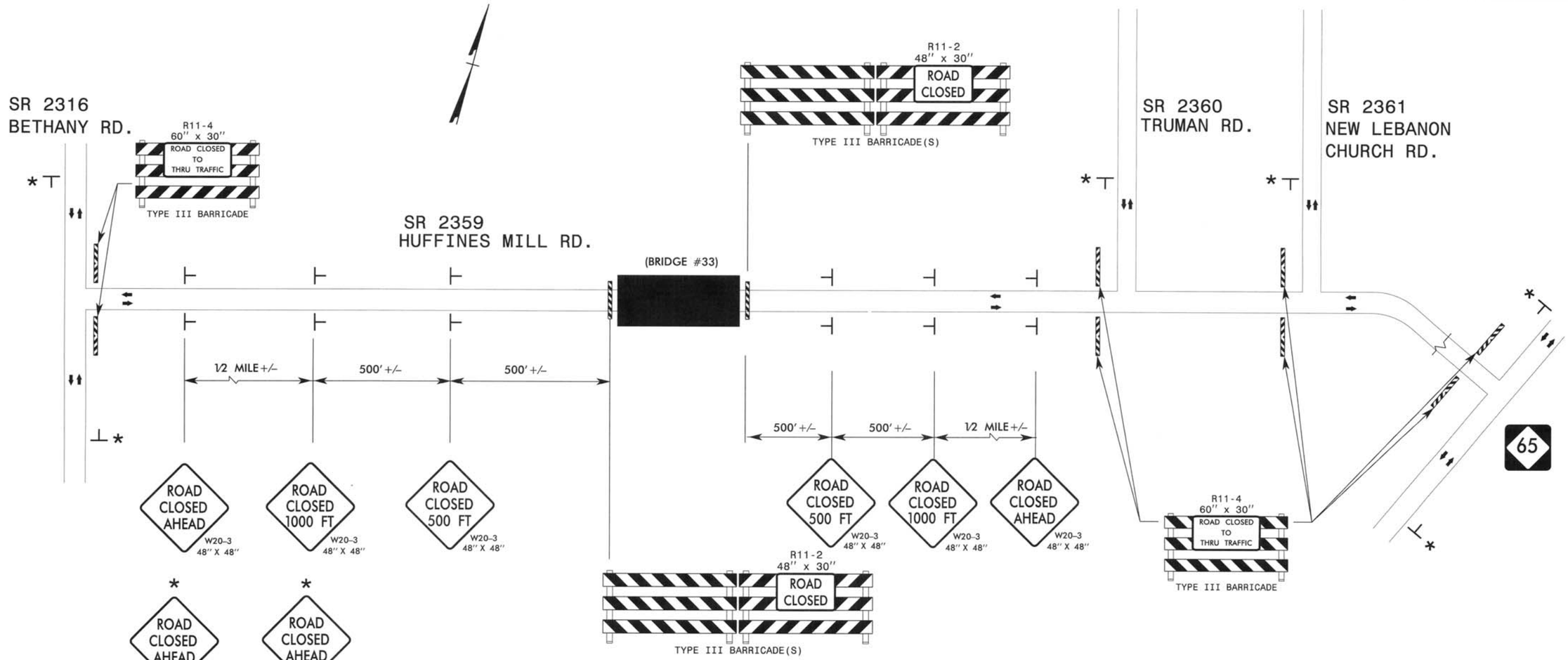
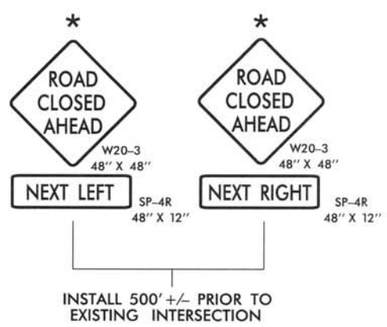
PROJ. REFERENCE NO.	SHEET NO.
17BP.7.R.64	TMP-1





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
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1135.01	CONES
1145.01	BARRICADES
904.10	ORIENTATION OF GROUND MOUNTED SIGNS

GENERAL NOTES

1. INSTALLATION OF TEMPORARY ROUTE MARKERS, DESTINATION SIGNS, AND ANY NECESSARY MODIFICATIONS TO EXISTING OR PROPOSED REGULATORY OR WARNING SIGNS WILL BE MADE BY OTHERS (STATE OR CITY FORCES) UNLESS OTHERWISE DESIGNATED IN PLANS. PROVIDE A MINIMUM 21 CALENDAR DAY NOTICE TO STATE FORCES BEFORE A ROADWAY IS CLOSED TO TRAFFIC SUCH THAT THE NECESSARY PROVISIONS CAN BE MADE TO INFORM LOCAL EMERGENCY AND LAW ENFORCEMENT PERSONNEL, SCHOOLS OR ANY OTHER PARTIES AFFECTED BY THE ROAD CLOSURE.
2. INSTALL SIGNS BEFORE THE BARRICADES WHEN CLOSING THE ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING THE ROADWAY TO TRAFFIC. INSTALL/REMOVE SIGNS AND BARRICADES WITHIN THE SAME CALENDAR DAY.
3. POSITION WING BARRICADES ON THE SHOULDERS AND SLOPE THE STRIPES DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING.
4. USE ADDITIONAL TYPE III BARRICADES IN STAGGERED LOCATIONS SUPPLEMENTED WITH SIGN R11-4 "ROAD CLOSED TO THRU TRAFFIC" IN THE EVENT THAT TRAFFIC MUST BE MAINTAINED BEYOND THE DETOUR POINT.
5. SEE STANDARD SPECIFICATION 1089-1 FOR WORK ZONE SIGNS.
6. SEE STANDARD SPECIFICATION 1089-2 FOR WORK ZONE SIGN SUPPORTS.

LEGEND

- DIRECTION OF TRAFFIC FLOW
- BARRICADE (TYPE III)
- STATIONARY MOUNTED SIGN

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: DATE: 2/9/16

SEAL

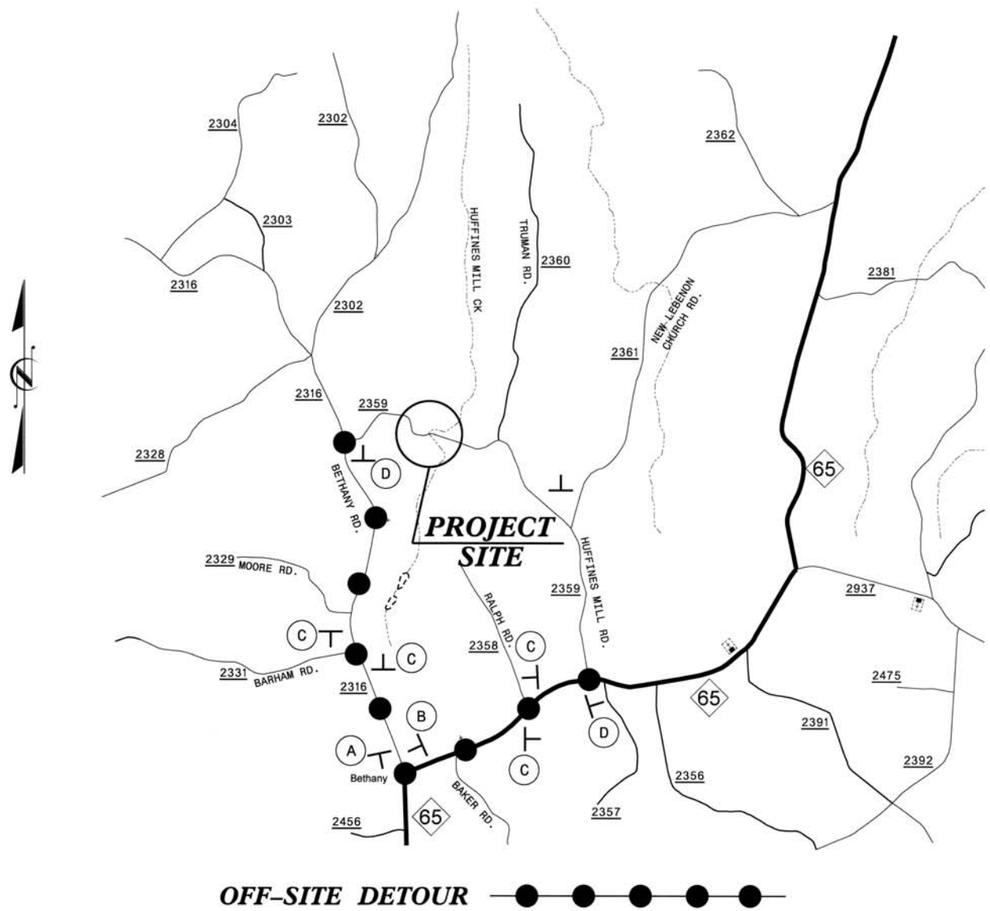
NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

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

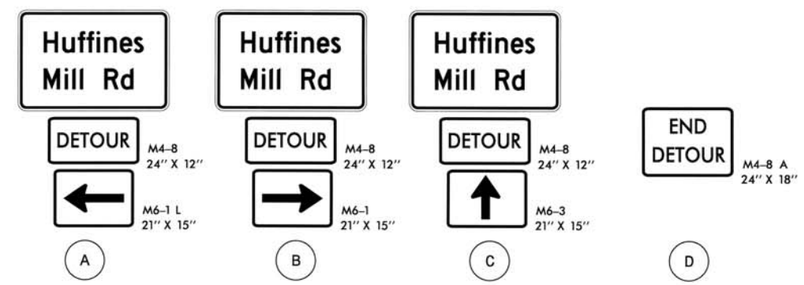
ROAD CLOSURE
SR 2359
HUFFINES MILL RD.

2/9/2016
7:39:48 AM
P:\2016\17BP.7.R.64 (MA07309B Division 7 Rework) Br 33 Rockingham Co\STRUCTURE\DGN\TCP.dgn

PROJ. REFERENCE NO.	SHEET NO.
17BP.7.R.64	TMP-2



TRAILBLAZE/DETOUR SIGNING



SIGN NUMBER: name
TYPE: STATIONARY
QUANTITY: SEE PLANS

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

BORDER TYPE: INSET
RECESS: 0.63"
WIDTH: 0.47"
RADII: 1.50"

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

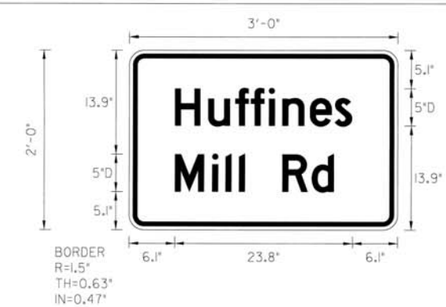
SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

USE NOTES: 1,2

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

DESIGN BY: SLK
PROJECT ID: 17BP.7.R.64
CHECKED BY: BAM
DIV: DIV 7
DATE: Feb 8, 2016



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

											Series/Size Text Length
	H	u	f	f	i	n	e	s			D 2000
6.1	4.5	3.6	2.1	2.4	1.8	3.7	3.4	2.4	6.1		23.8
	M	i	l	l		R	d				D 2000
6.1	5	1.8	1.8	0.8	5	3.9	3	8.6			21.4

FILENAME: Guidesign6

NORTH CAROLINA D.O.T. SIGN DETAIL

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: DATE: 2/9/16

SEAL

DETOUR
SR 2359
HUFFINES MILL RD.

2/9/2016
2:56:27 PM
P:\2016\17BP.7.R.64 (MA07309B Division 7 Rework) Br 33 Rockingham Co\STRUCTURE\DGN\TCP.dgn

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.04; Released November 2015)

WBS Element:	**TIP No.:**	17BP.7.R.64	**County(ies):**	Rockingham	**Page**	1	**of** 1

General Project Information

WBS Element:		**TIP Number:**	17BP.7.R.64	**Project Type:** Bridge Replacement	**Date:** 3/21/2016
NCDOT Contact:	Galen Cail, PE	**Contractor / Designer:**	Sungate Design Group		
Address:	Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590	**Address:**	915 Jones Franklin Road Raleigh, NC 27606		
Phone:	(919) 707-6711	**Phone:**	(919) 859-2243		
Email:	gcail@ncdot.gov	**Email:**	belam@sungatedesign.com		
City/Town:	New Bethel	**County(ies):**	Rockingham		
River Basin(s):	Roanoke	**CAMA County?**	No		
Wetlands within Project Limits?	No				

Project Description

Project Length (lin. miles or feet):	0.066 Miles	**Surrounding Land Use:**	Rural

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	0.2 ac.	0.2 ac.
Typical Cross Section Description:	Paved 9' lanes with 3' grassed shoulder section	Paved 9' lanes with 7' grassed shoulder section and guardrail
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 275 Year: 2026	Existing: 220 Year: 2006

General Project Narrative: (Description of Minimization of Water Quality Impacts)

SF-78003 is a bridge replacement project that involves removing Rockingham County bridge #33, on SR 2359 (Huffines Mill Rd.) over Huffines Mill Creek, and replacing with a bottomless 32'x8' Conspan. The existing bridge is 1 @ 19.3', 1@18.5', timber beam with timber caps on concrete bent with vertical concrete abutments. The bottomless three sided culvert, as opposed to a four sided culvert, will reduce permanent impacts to the stream and help maintain natural stream conditions through the structure. Additional measures, such as the use of 2:1 fill slopes and rip rap ditches, have been taken to reduce or eliminate impacts to surrounding properties and jurisdictional waters located within the project limts.

Waterbody Information

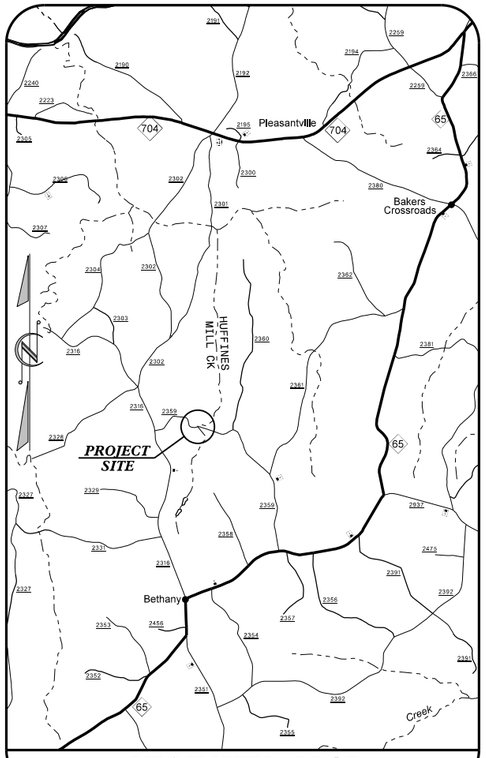
Surface Water Body (1):	Huffines Mill Creek	**NCDWR Stream Index No.:**	22-32-2-1		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:			
Other Stream Classification:					
Impairments:	None				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:				**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

09/08/99

TIP PROJECT: MA07309B

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.7.R.64	1	

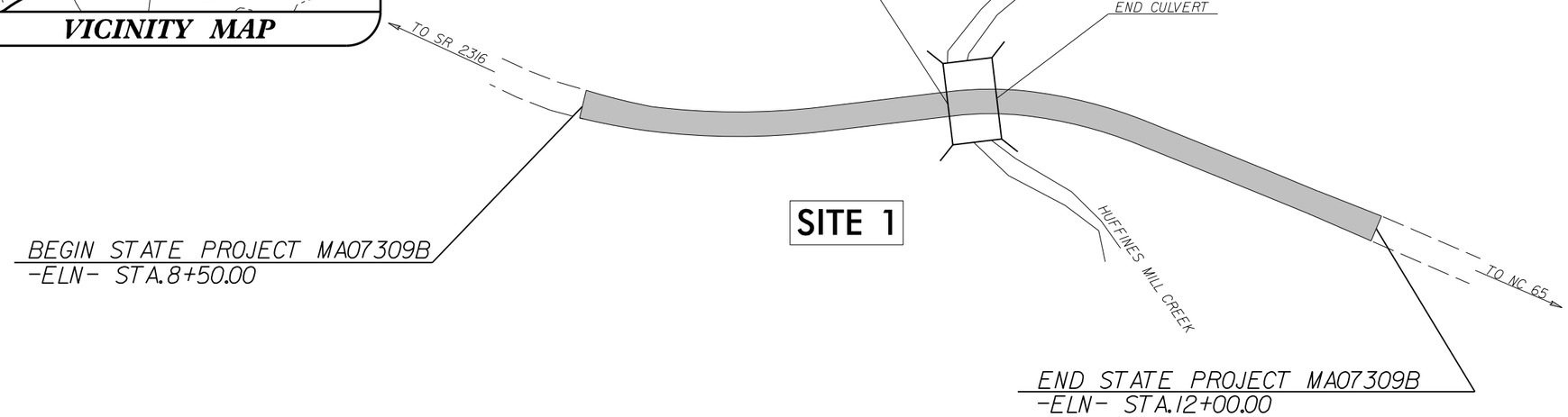
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
		PE, UTIL
		R/W & CONST.

PERMIT DRAWING
SHEET 1 OF 4

LOCATION: BRIDGE NO. 33 OVER HUFFINES MILL CREEK ON SR 2359 (HUFFINES MILL RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

WETLAND AND SURFACE WATER IMPACTS PERMIT



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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 2006 = 220
ADT 2026 = 275
DHV = 60 %
D = 10 %
T = 3 % *
V = 25 MPH

* TTST 1% DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY PROJECT MA07309B	=	0.060 MILES
LENGTH STRUCTURE PROJECT MA07309B	=	0.006 MILES
TOTAL LENGTH STATE PROJECT MA07309B	=	0.066 MILES

Prepared for the North Carolina Department of Transportation in the Office of:
WETHERILL ENGINEERING
559 JONES FRANKLIN ROAD
SUITE 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

NCDOT CONTACT:

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

PROJECT DESIGN ENGINEER

ROADWAY DESIGN: ENGINEERING COORDINATION SECTION ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

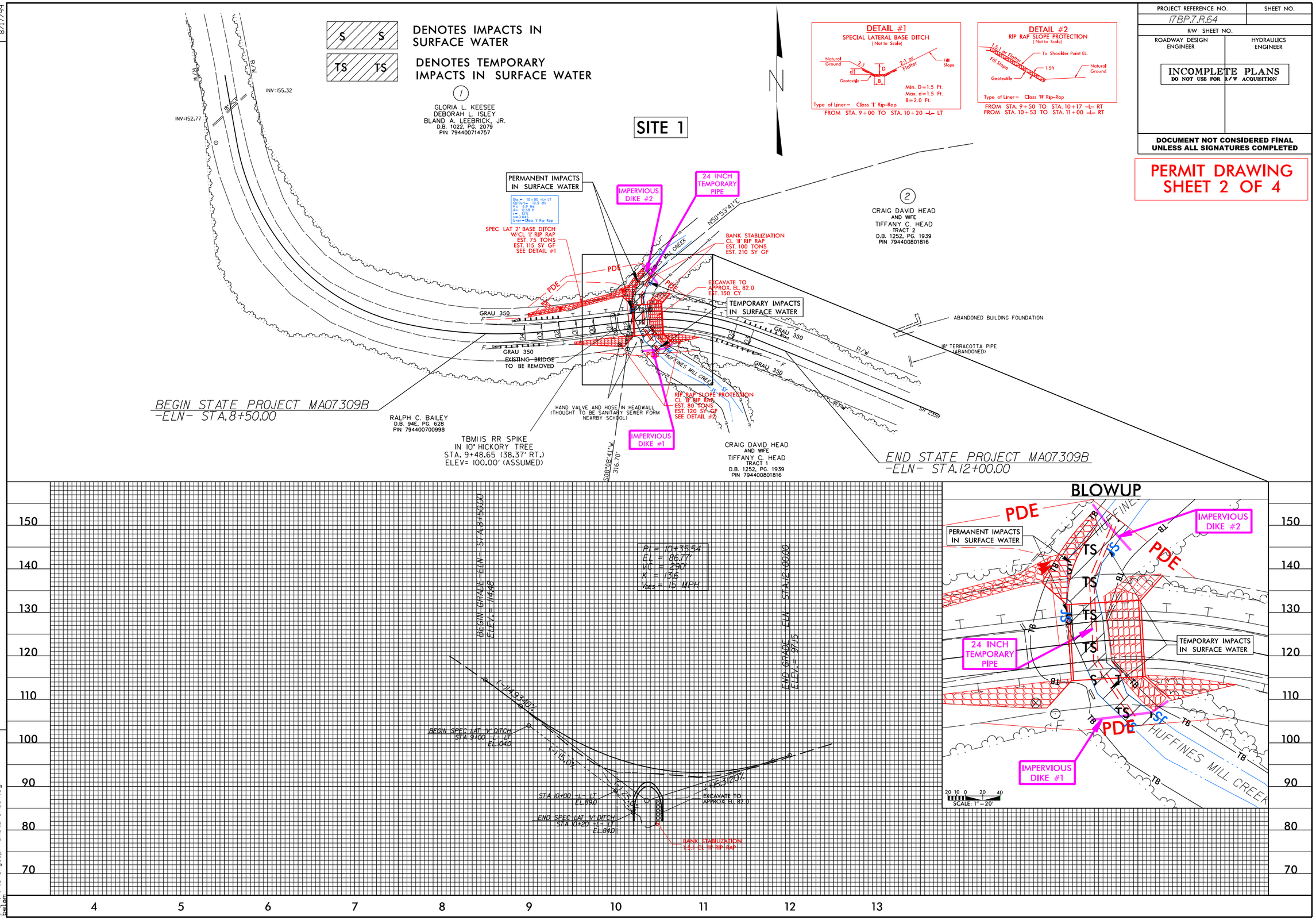
ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

4/21/2016
17BP.7.R.64_Hyd_prm_wet_PSH_01.dgn
belam



PROJECT REFERENCE NO.
17BP.7.R.64
SHEET NO.
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
PERMIT DRAWING
SHEET 2 OF 4
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
SITE 1
DETAIL #1
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Geotextile
Fill Slope
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2.0 Ft.
Type of Liner= Class 'I' Rip-Rap
FROM STA. 9+00 TO STA. 10+20 -L- LT
DETAIL #2
RIP RAP SLOPE PROTECTION
(Not to Scale)
To Shoulder Point EL.
1.5ft
Natural Ground
Geotextile
Type of Liner= Class 'II' Rip-Rap
FROM STA. 9+50 TO STA. 10+17 -L- RT
FROM STA. 10+53 TO STA. 11+00 -L- RT
GLORIA L. KEESEE
DEBORAH L. ISLEY
BLAND A. LEEBRICK, JR.
D.B. 1022, PG. 2079
PIN 794400714757
CRAIG DAVID HEAD
AND WIFE
TIFFANY C. HEAD
TRACT 2
D.B. 1252, PG. 1939
PIN 794400801816
PERMANENT IMPACTS IN SURFACE WATER
IMPERVIOUS DIKE #2
24 INCH TEMPORARY PIPE
SPEC LAT 2' BASE DITCH W/CL 'I' RIP RAP
EST. 75 TONS
EST. 115 SY GF
SEE DETAIL #1
BANK STABLIZIATION CL 'II' RIP RAP
EST. 100 TONS
EST. 210 SY GF
EXCAVATE TO APPROX. EL. 82.0
EST. 150 CY
TEMPORARY IMPACTS IN SURFACE WATER
ABANDONED BUILDING FOUNDATION
18" TERRACOTTA PIPE (ABANDONED)
GRAU 350
EXISTING BRIDGE TO BE REMOVED
HUFFINES MILL CREEK
RIP RAP SLOPE PROTECTION CL 'II' RIP RAP
EST. 80 TONS
EST. 120 SY GF
SEE DETAIL #2
IMPERVIOUS DIKE #1
BEGIN STATE PROJECT MA07309B
-ELN- STA.8+50.00
RALPH C. BAILEY
D.B. 94E, PG. 628
PIN 794400700998
HAND VALVE AND HOSE IN HEADWALL (THOUGHT TO BE SANITARY SEWER FORM NEARBY SCHOOL)
TBMIIS RR SPIKE
IN 10" HICKORY TREE
STA. 9+48.65 (38.37' RT.)
ELEV= 100.00' (ASSUMED)
CRAIG DAVID HEAD
AND WIFE
TIFFANY C. HEAD
TRACT 1
D.B. 1252, PG. 1939
PIN 794400801816
END STATE PROJECT MA07309B
-ELN- STA.12+00.00
INV=155.32
INV=152.77
BEGIN GRADE -ELN- STA.8+50.00
ELEV.= 114.48
END GRADE -ELN- STA.12+00.00
ELEV.= 97.15
PI = 10+35.54
EL = 86.77'
VC = 290'
K = 13.6
VDES = 15 MPH
BEGIN SPEC LAT 'V' DITCH STA 9+00 -L- LT EL.104.0
STA 10+00 -L- LT EL.89.0
END SPEC LAT 'V' DITCH STA 10+20 -L- LT EL.84.0
EXCAVATE TO APPROX. EL. 82.0
BANK STABILIZATION 1.5:1 CL 'II' RIP RAP
BLOWUP
PERMANENT IMPACTS IN SURFACE WATER
IMPERVIOUS DIKE #2
24 INCH TEMPORARY PIPE
TEMPORARY IMPACTS IN SURFACE WATER
IMPERVIOUS DIKE #1
HUFFINES MILL CREEK
SCALE: 1"=20'
REVISIONS
8/17/99
5/24/2016
17BP.7.R.64_Hyd_prm_wet_PSH_04.dgn

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.R.64	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

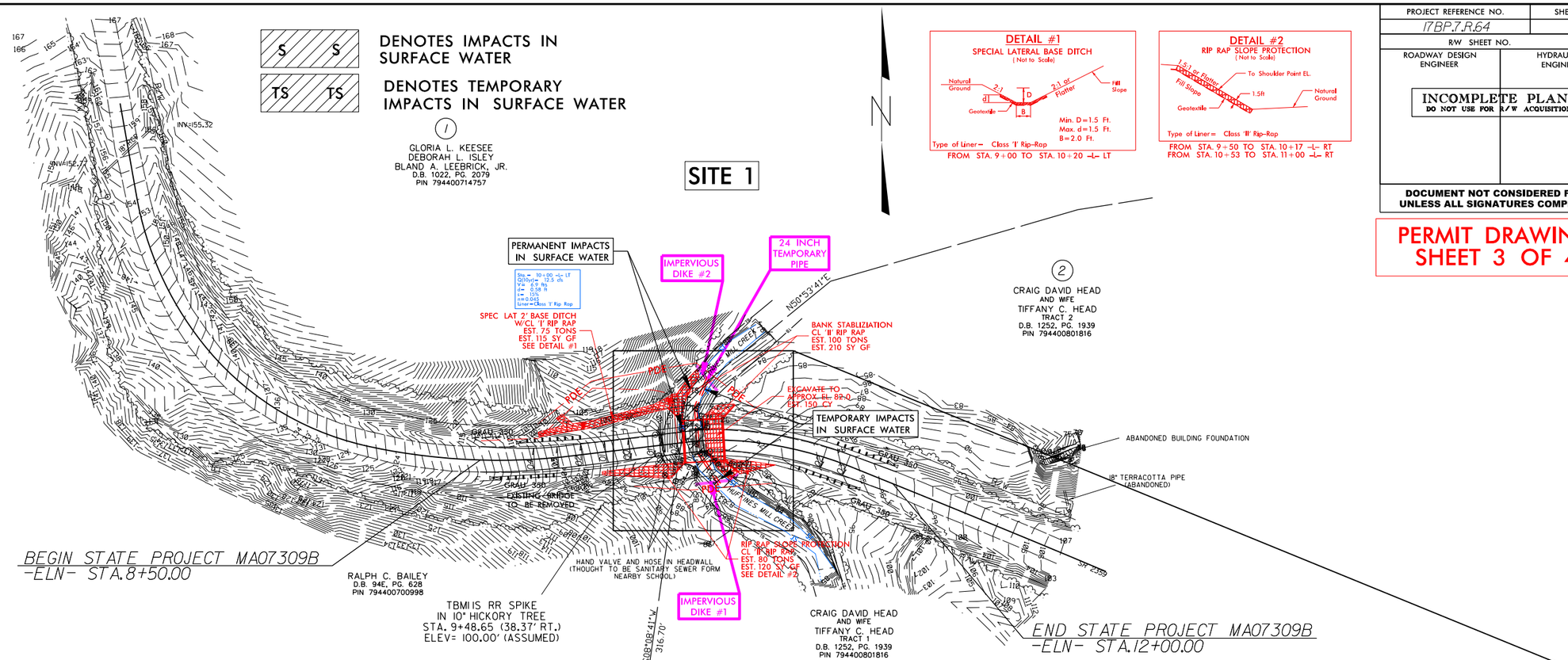
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

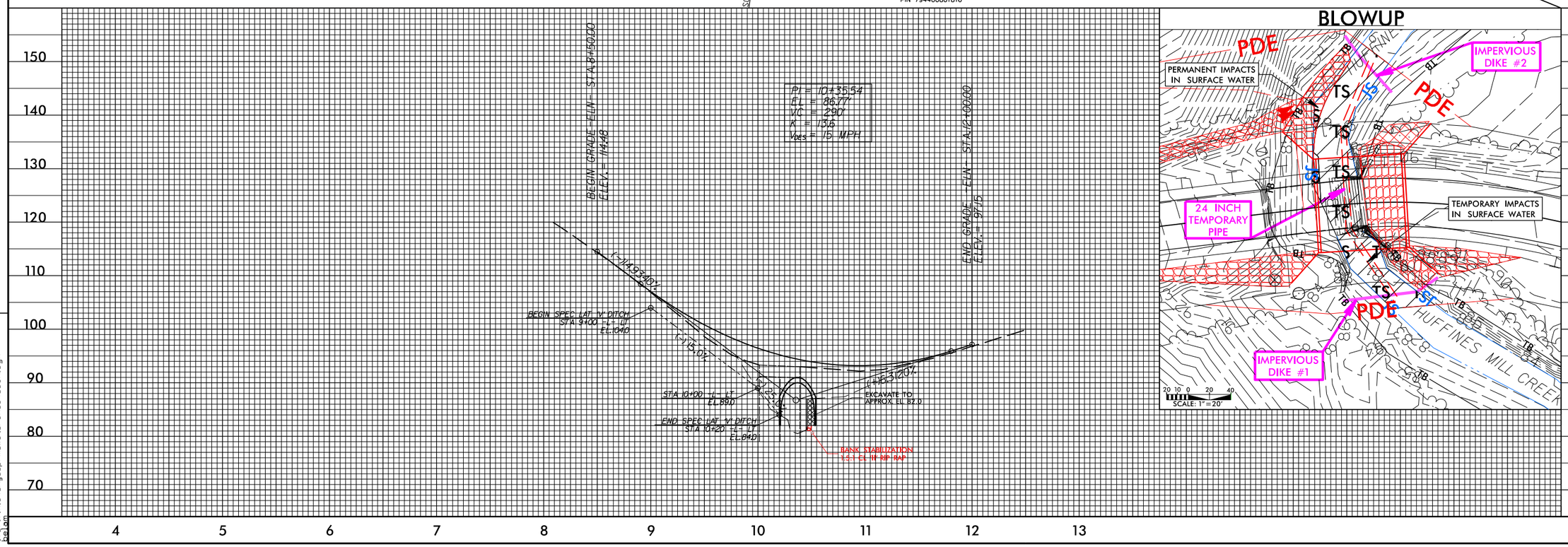
PERMIT DRAWING SHEET 3 OF 4

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 1





REVISIONS

8/17/99

5/24/2016
17BP.7.R.64_Hyd_prm_wet_PSH_04_con.dgn
Design

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	10+22/ 10+68 -L-	Temporary Dewatered Area							0.03		53	
	10+20 / 10+36 -L- LT	Bank Stabilization						< 0.01		36		
	10+19 / 10+22 -L- LT	Proposed Concrete Footing						< 0.01		19		
TOTALS*:								< 0.01	0.03	55	53	0

*Rounded totals are sum of actual impacts

NOTES:
Temporary Impacts within the Permanent footprint

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
5-24-16
ROCKINGHAM
17BP.7.R.64

Revised 2013 10 24