

**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

See Sheet 1-B For Conventional Symbols

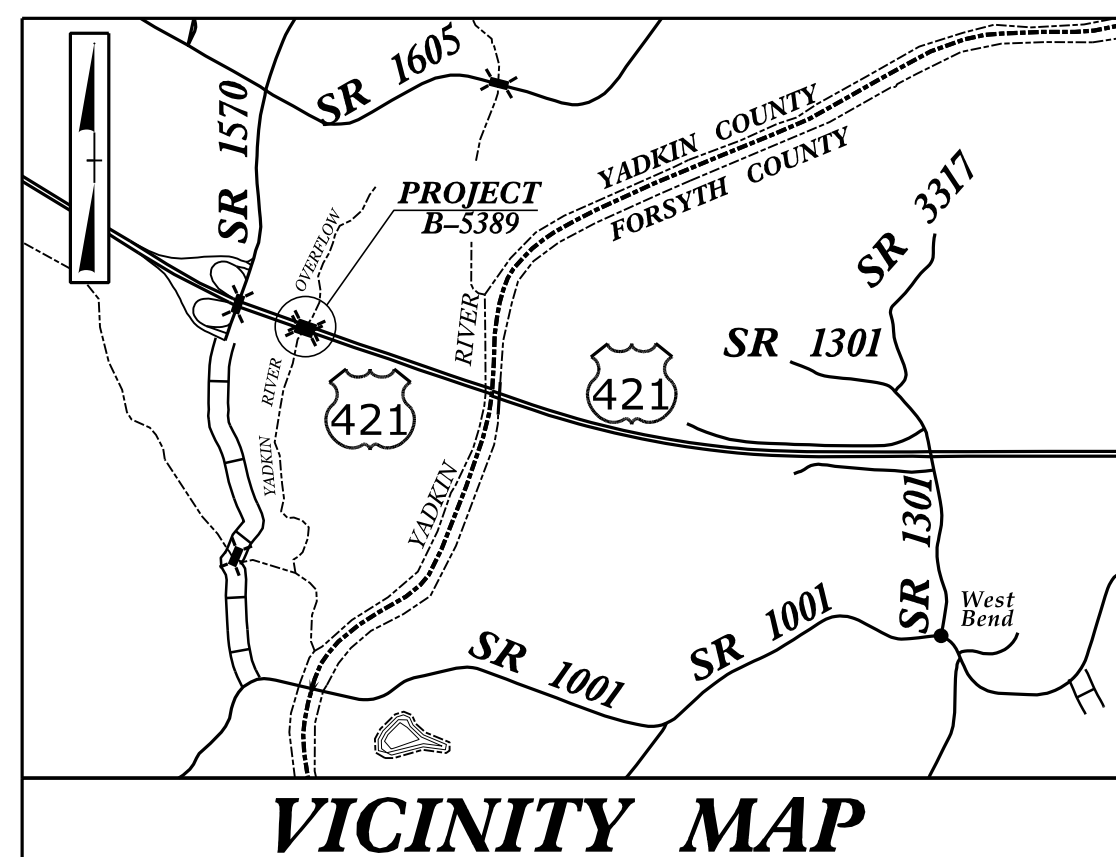
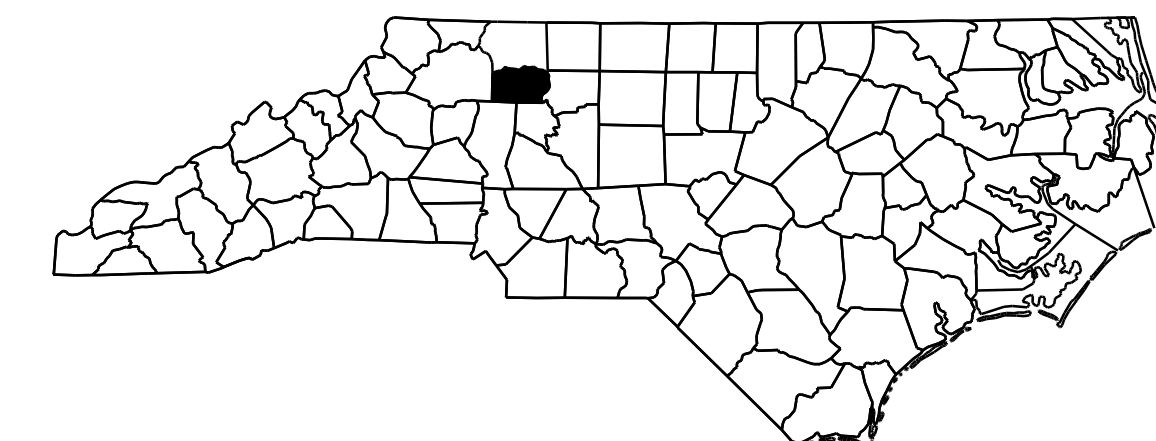
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

YADKIN COUNTY

**LOCATION: BRIDGE NO.105 OVER YADKIN RIVER OVERFLOW
ON US 421 NORTHBOUND LANES**

TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE

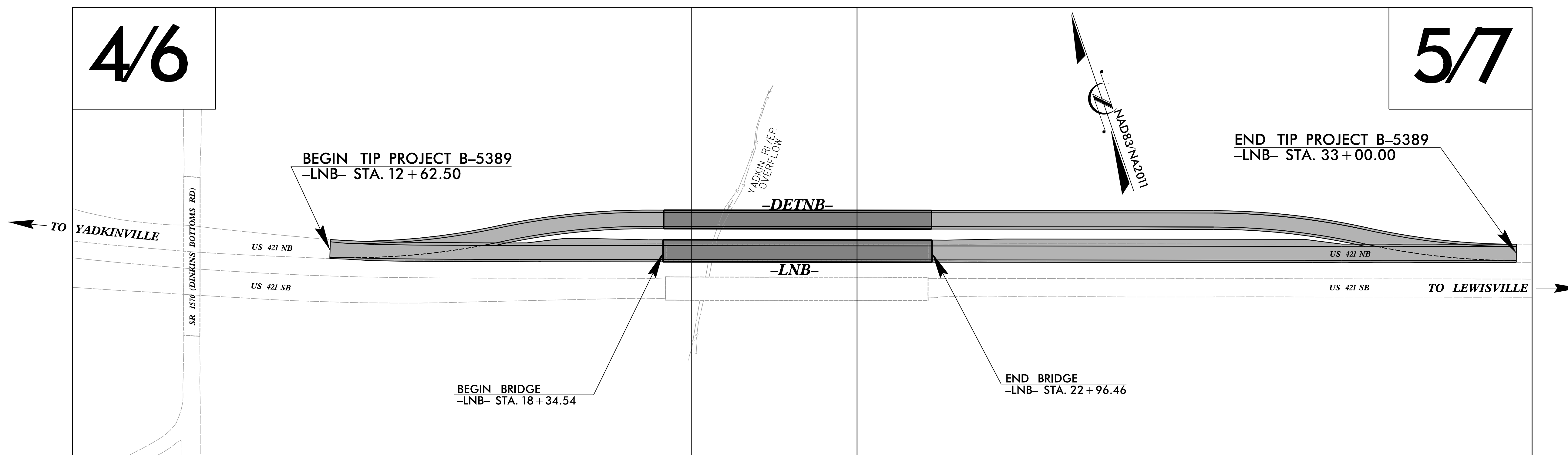
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5389	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46104.1.1	N/A	PE	
46104.2.1	N/A	RW & UTILITIES	
46104.3.1	N/A	CONSTRUCTION	



100% PLANS

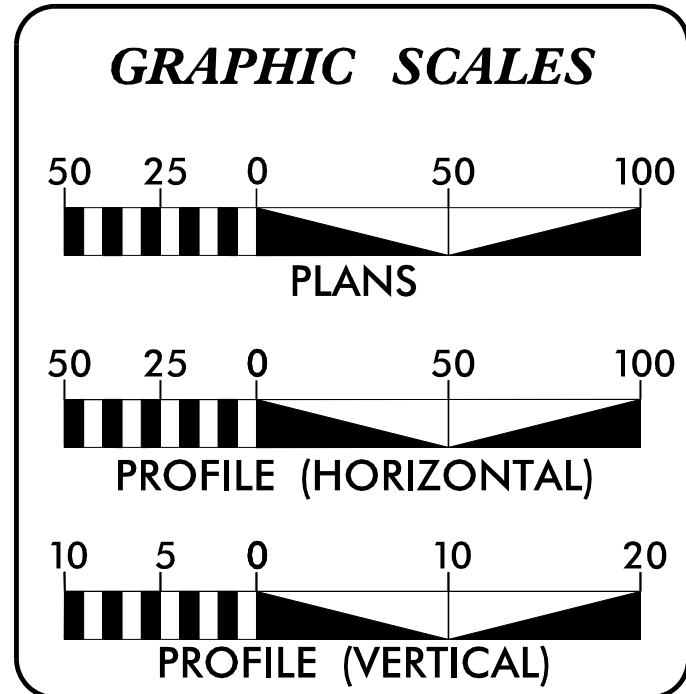
TIP PROJECT: B-5389

CONTRACT: C204220



THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2020 =	25,000
ADT 2040 =	30,300
K =	10 %
D =	65 %
T =	6 % *
V =	70 MPH
Vdet =	55 MPH
* (TTST = 3% + DUAL = 3%)	
FUNC CLASS =	RURAL FREEWAY
	REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5389 =	0.299 MI.
LENGTH STRUCTURE TIP PROJECT B-5389 =	0.087 MI.
TOTAL LENGTH TIP PROJECT B-5389 =	0.386 MI.

AMT
NCBELS LICENSE # F-1049

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 2, 2019

LETTING DATE: SEPTEMBER 17, 2019

Prepared for the North Carolina Department of Transportation in the Office of:
A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
6131 FALLS OF NEUSE ROAD, SUITE 106, RALEIGH, NC 27609
(919) 855-9809 FAX (919) 855-5887
EMAIL: AMT1@AMTENGINEERING.COM

NICK RAMIREZ, PE
PROJECT ENGINEER

JAMES CROUSE, PE
PROJECT DESIGN ENGINEER

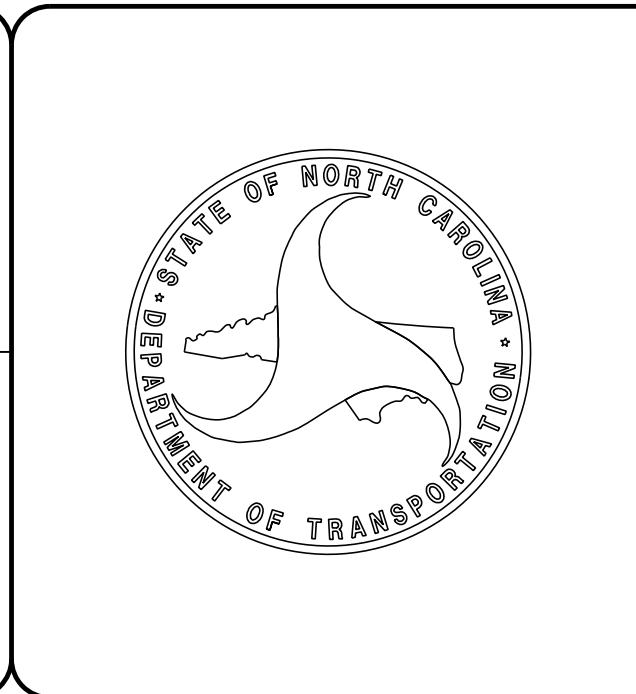
DAVID STUTTS, PE
NCDOT CONTACT

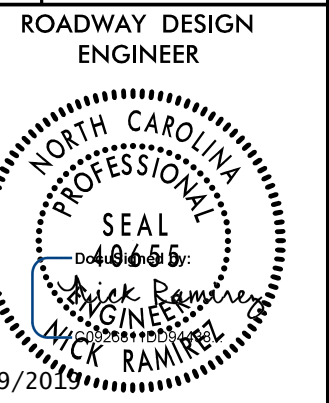
HYDRAULICS ENGINEER

DocuSigned by:
Julian G. De...
1089AD8C14994C3.
6/7/2019
P.E.

ROADWAY DESIGN ENGINEER

DocuSigned by:
Nick Ramirez
0322811D50443E
6/7/2019
P.E.





**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 SHEET
2A-1 THRU 2A-2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	GUARDRAIL DETAIL
2C-2	CONCRETE FLUME
2C-3	COAL MATERIAL
2G-1	TEMPORARY SHORING DETAIL
3B-1 THRU 3B-2	ROADWAY SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
RW-1 THRU RW-5	RIGHT OF WAY SHEETS
4 THRU 7	PLAN SHEETS
8 THRU 9	PROFILE SHEETS
TMP-1 THRU TMP-9	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-9	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-4	SIGNING PLANS
X-0 THRU X-13	CROSS-SECTIONS
S-1 THRU S-37	STRUCTURE PLANS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.02

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS 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.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

RIGHT-OF-WAY MARKERS:

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

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.05	Method of Obtaining Superelevation - Divided Highways
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.01	Bridge Approach Fills - Type I Standard Approach Fill
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	
665.01	Asphalt Shoulders - Milled Rumble Strips
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.22	Frames and Wide Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
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
866.02	Woven Wire Fence - with Wood Post
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

EFF. 01-16-2018
REV.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	①23
Existing Fence Line	-x-x-x-
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	--- WLB ---
Proposed Lateral, Tail, Head Ditch	--- FLOW ---
False Sump	▽

RAILROADS:

Standard Gauge	-----
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	○ R W
New Right of Way Line with Pin and Cap	○ R W ▲
New Right of Way Line with Concrete or Granite R/W Marker	▲ R W
New Control of Access Line with Concrete C/A Marker	△ C/A
Existing Control of Access	△ C/A
New Control of Access	△ C/A
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	--- T ---
Proposed Guardrail	--- T ---
Existing Cable Guiderail	--- T ---
Proposed Cable Guiderail	--- T ---
Equality Symbol	⊕
Pavement Removal	⊗

VEGETATION:

Single Tree	○
Single Shrub	○

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

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	□
TV Tower	⊗
U/G TV Cable Hand Hole	○
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 ---

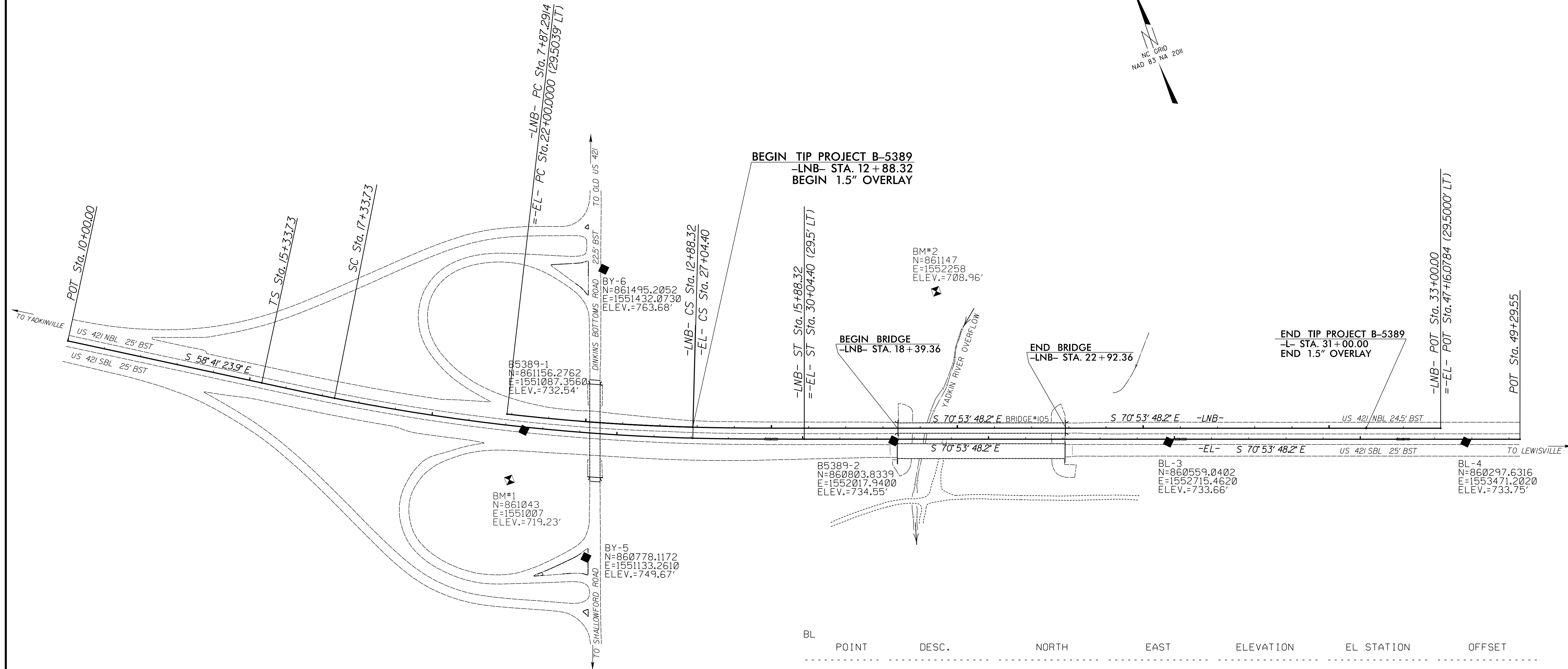
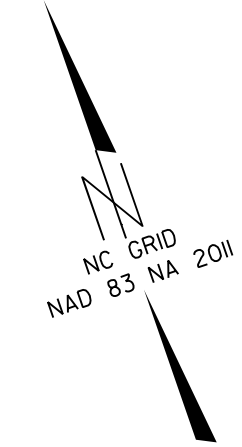
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line LOS B (S.U.E.*)	--- 7UTL ---
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.

6/2/2016 8:45:14 AM C:\Users\j147830\OneDrive\Documents\Projects\B5389\Roadway\Proj\B5389_Rdy_tsh.dgn

SURVEY CONTROL SHEET

B-5389



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5389-2"

WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
 NORTHING: 860803.8339(±) EASTING: 1552017.9400(±)
 ELEVATION: 734.55(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99995370

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5389-2" TO -LNB- STATION 12+62.50 IS
 N 67° 05' 20.58" W 567.39'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

.....
 BM#1 ELEVATION = 719.23'
 N 861043 E 1551007
 EL STATION 22+26.00 146' RIGHT
 RR SPIKE SET IN 13' TREE

 BM#2 ELEVATION = 708.96'
 N 861147 E 1552258
 EL STATION 33+59.00 398' LEFT
 RR SPIKE SET IN 18" SYCAMORE

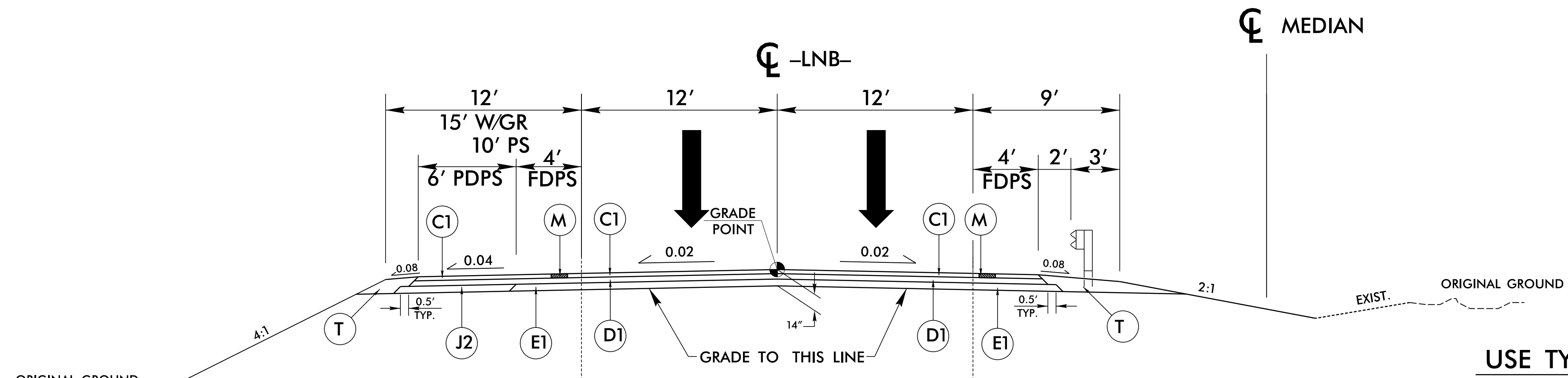
BL	POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
1	B5389-1		861156.2762	1551087.3560	732.54	22+49.88	8.90 RT
2	B5389-2		860803.8339	1552017.9400	734.55	32+44.75	4.81 RT
3	BL-3		860559.0402	1552715.4620	733.66	39+83.97	7.84 RT
4	BL-4		860297.6316	1553471.2020	733.75	47+83.65	7.52 RT
BY1	POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
5	BY-5		860778.1172	1551133.2610	749.67	24+41.00	335.07 RT
6	BY-6		861495.2052	1551432.0730	763.68	24+31.95	441.73 LT

NOTES:

- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
- THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

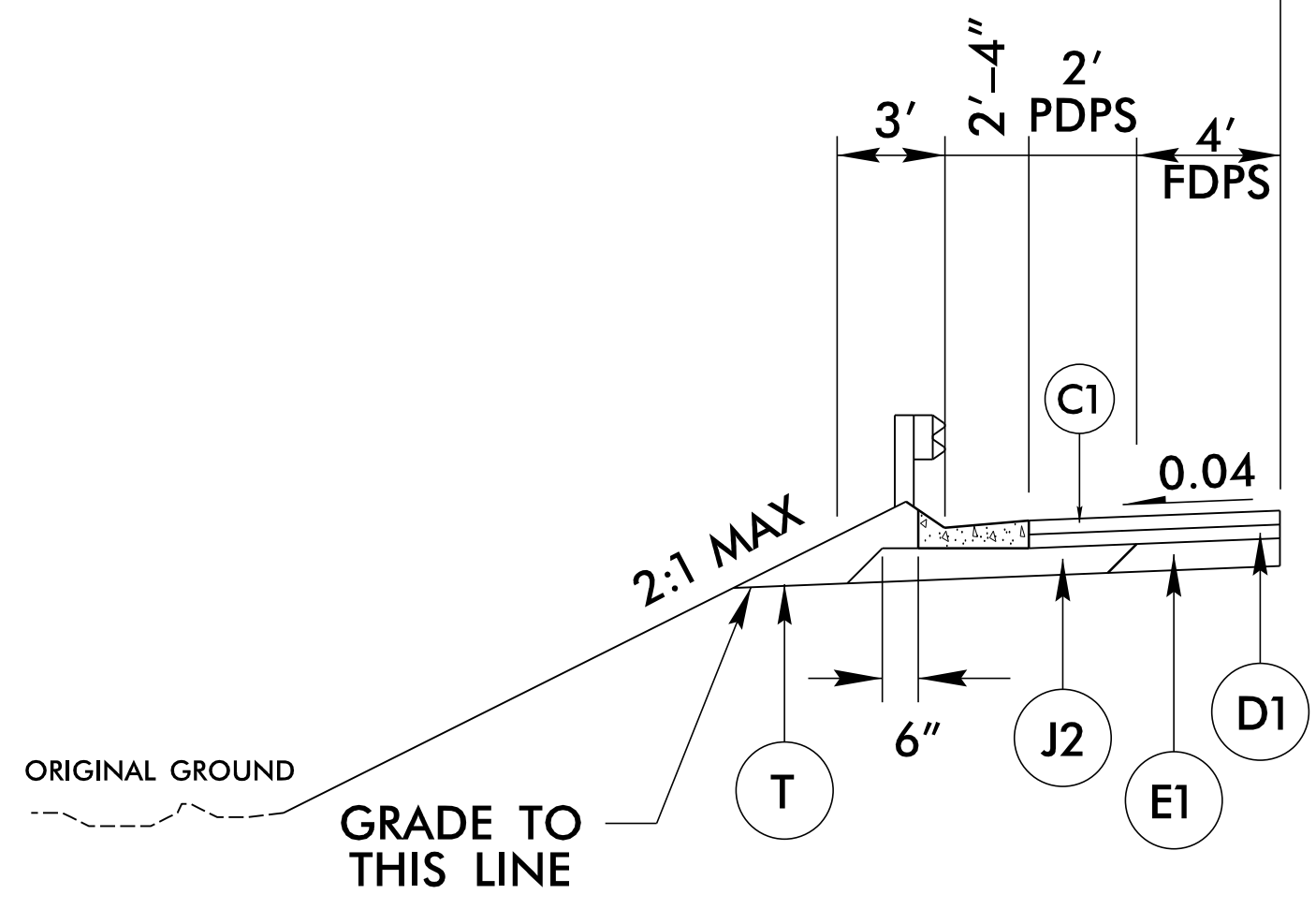
6/2/2019 8:45:14 AM C:\Users\jph\OneDrive\Documents\Projects\B5389\Roadway\Proj\B5389_Rdy_psh_1c-1.dgn
 6/2/2019 8:45:14 AM C:\Users\jph\OneDrive\Documents\Projects\B5389\Roadway\Proj\B5389_Rdy_psh_1c-1.dgn

6/2/2019 8:45 AM C:\Users\j14-783C - NCDOT Bridge Group 0 B-5389\05-CAD\B5389\Roadway\Proj\B5389_Rdy_Typ.dgn
 8/16/2019 8:45 AM C:\Users\j14-783C - NCDOT Bridge Group 0 B-5389\05-CAD\B5389\Roadway\Proj\B5389_Rdy_Typ.dgn

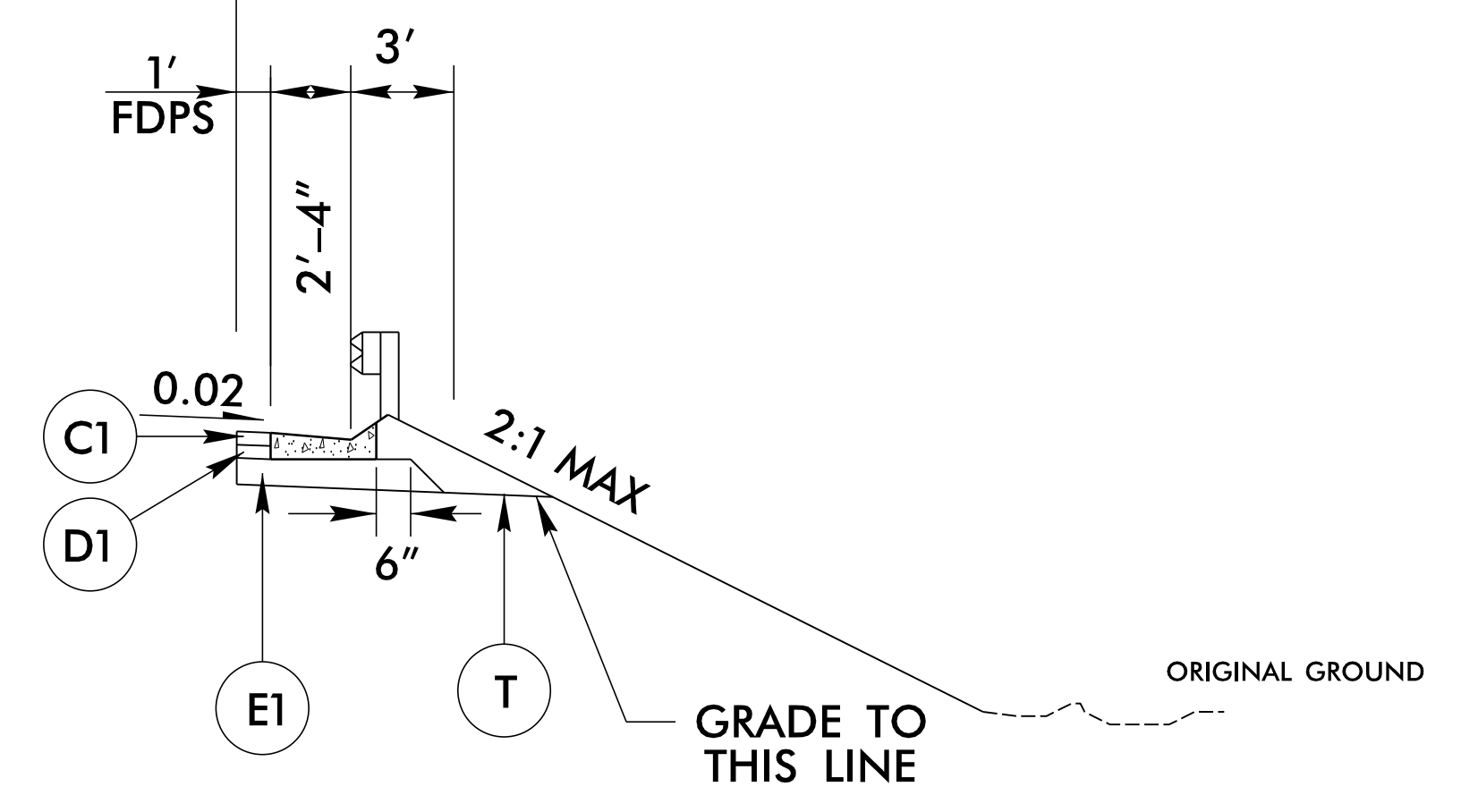


TYPICAL SECTION NO. 3

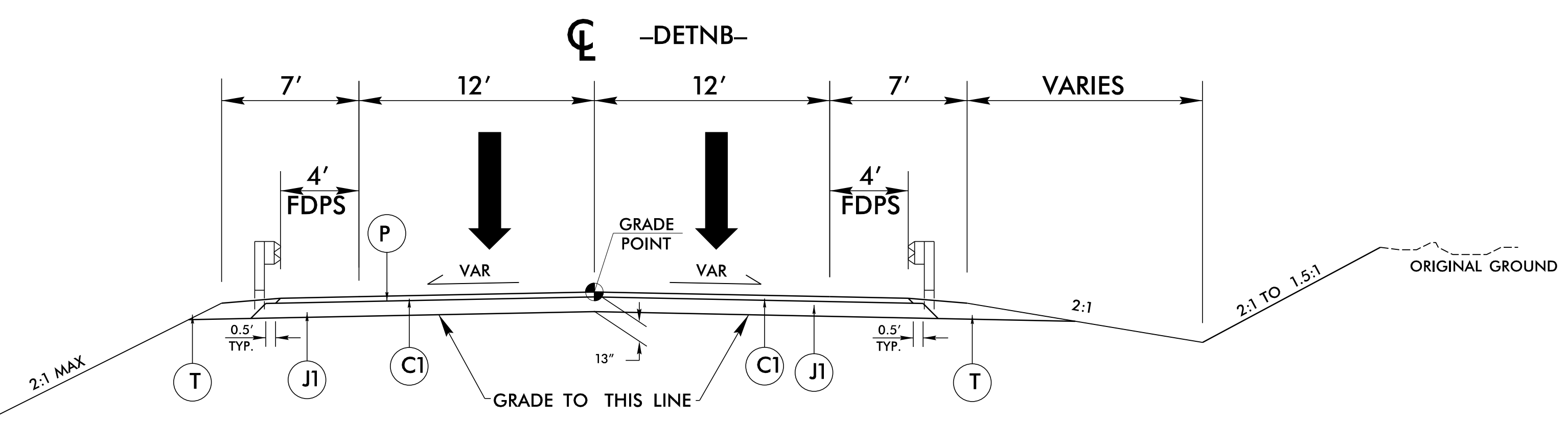
USE TYPICAL SECTION NO. 3
 -LNB- STA. 17+94.00 TO STA. 18+34.54 (BEG. BRIDGE)
 -LNB- STA. 22+96.46 (END BRIDGE) TO STA. 27+00.00



TYPICAL SECTION NO. 3A
 SHOULDER BERM GUTTER SECTION
 -LNB- STA. 17+94.00 TO -LNB- STA. 18+10.54 (BEGIN APPROACH SLAB)



TYPICAL SECTION NO. 3B
 SHOULDER BERM GUTTER SECTION
 -LNB- STA. 17+94.00 TO -LNB- STA. 18+10.54 (BEGIN APPROACH SLAB)



TYPICAL SECTION NO. 4

-DETNB- STA. 11+86.96 TO STA. 15+50.58 (BEG. TEMP. BRIDGE)
 -DETNB- STA. 20+10.58 (END TEMP. BRIDGE) TO STA. 28+76.22

PROJECT REFERENCE NO. B-5389	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 40666 by: Nick Ramirez 8/8/2019	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 44590 by: Andrew D. Ward 8/8/2019
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
A. MORTON THOMAS AND ASSOCIATES, INC. CONSULTING ENGINEERS 6111 FALLS OF NEUSE ROAD, SUITE 106, RALEIGH, NC 27609 P: 919.450.8800 F: 919.450.8500 EMAIL: AMT@AMTENGINEERING.COM NCBELS LICENSE # F-1049	

FINAL PAVEMENT DESIGN SCHEDULE	
C1	3" S9.5C
C2	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	7" B25.0C
E2	VAR. B25.0C
J1	10" ABC
J2	7" ABC
P	PRIME COAT
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. WEDGE

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

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

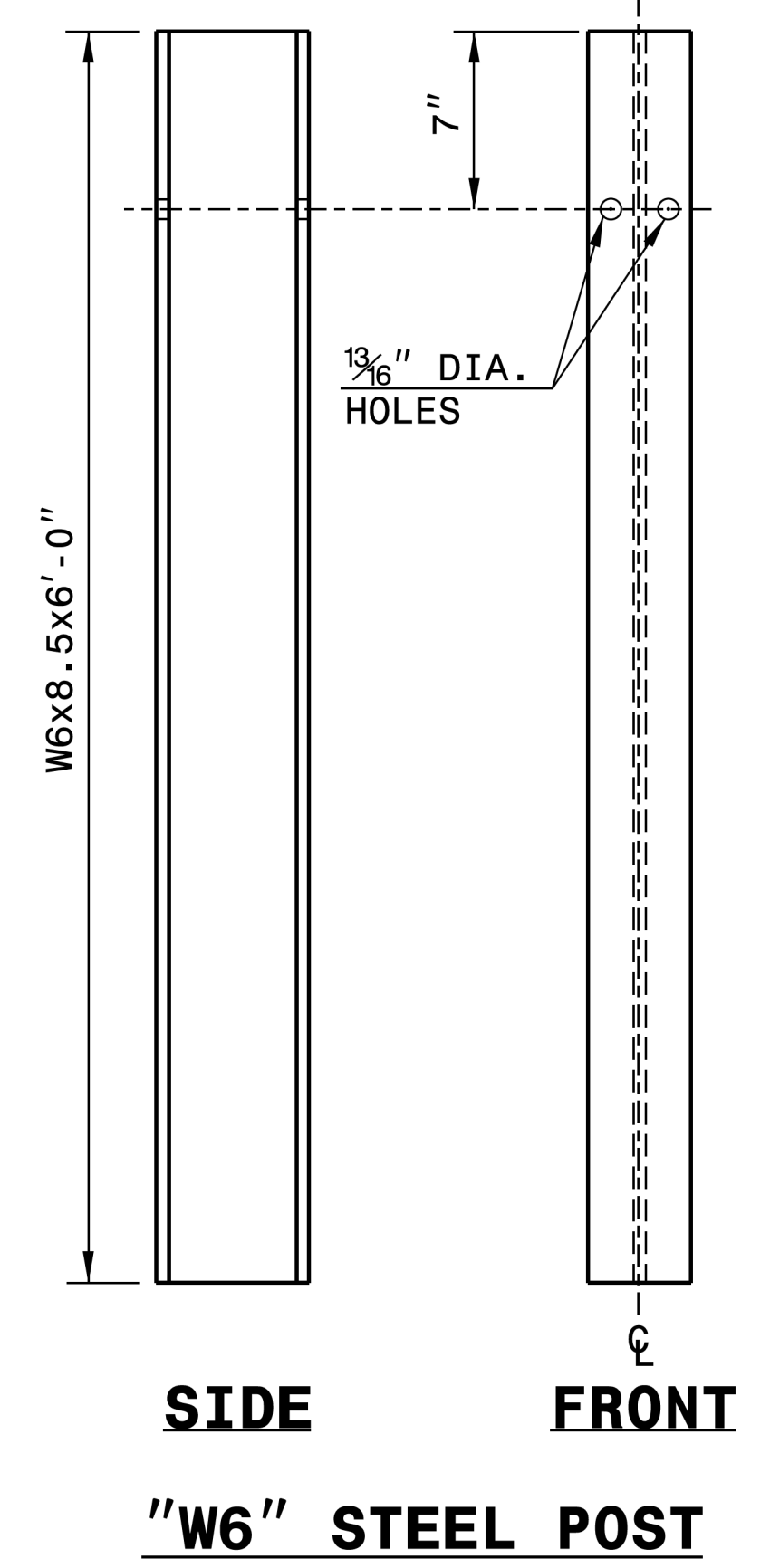
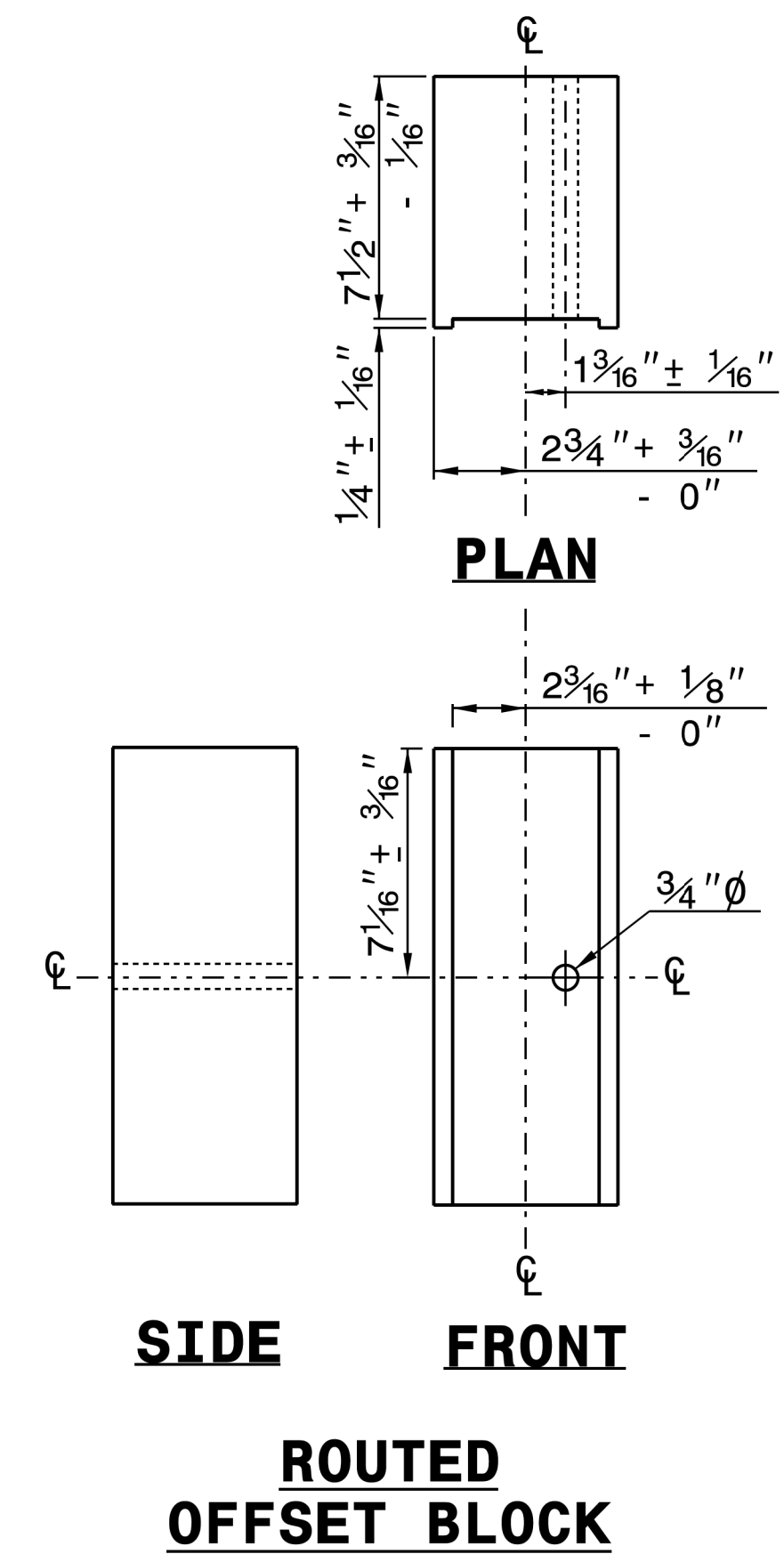
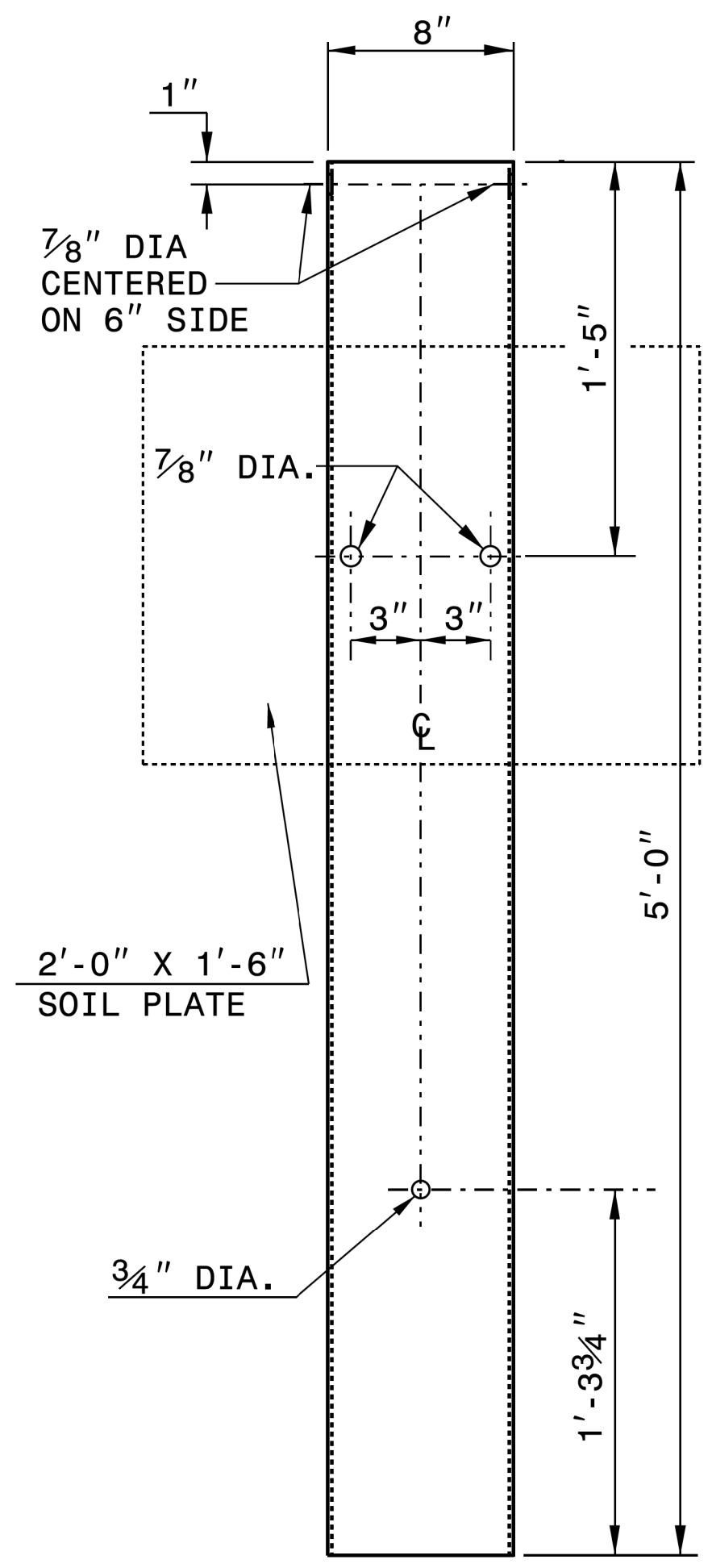
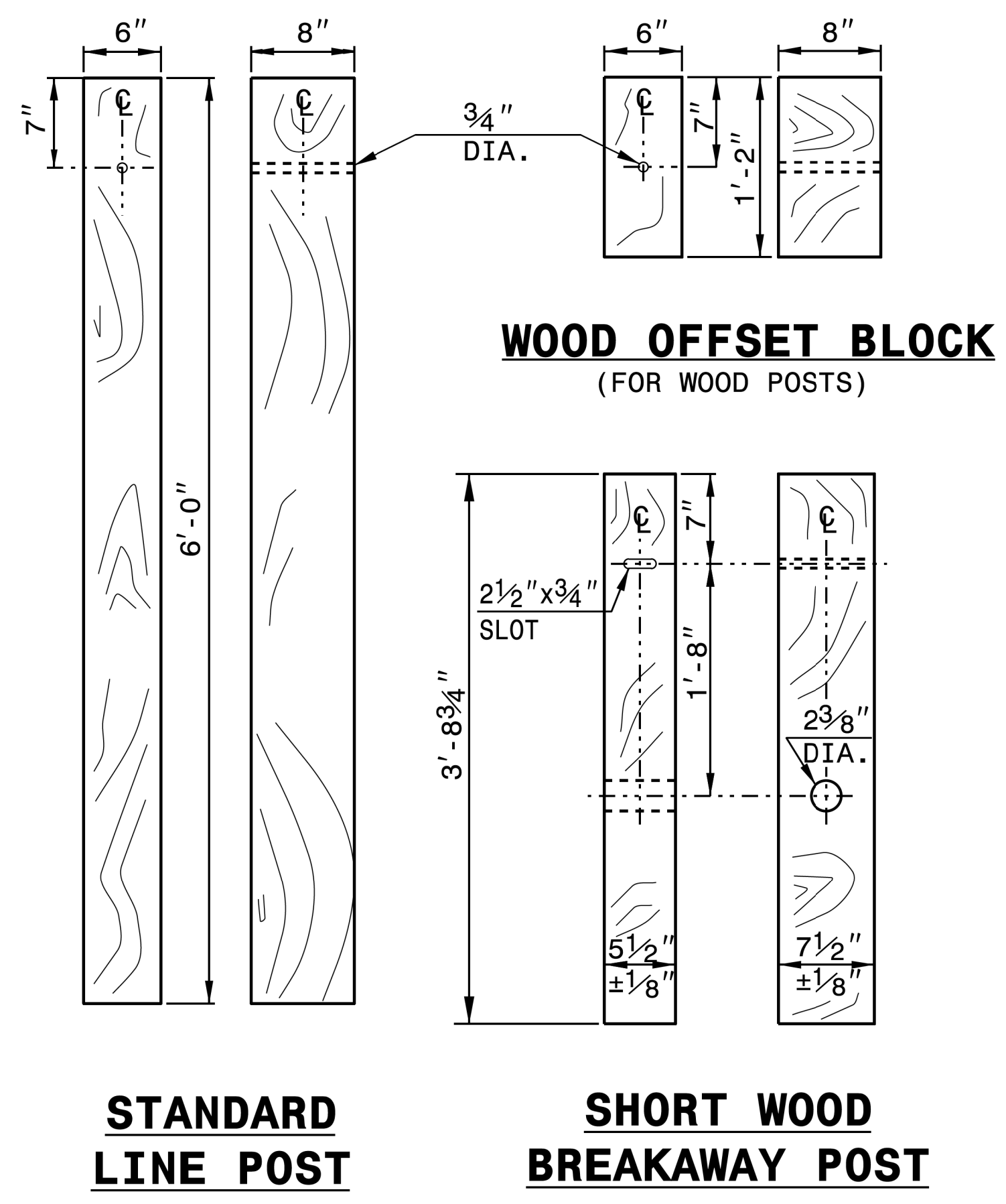
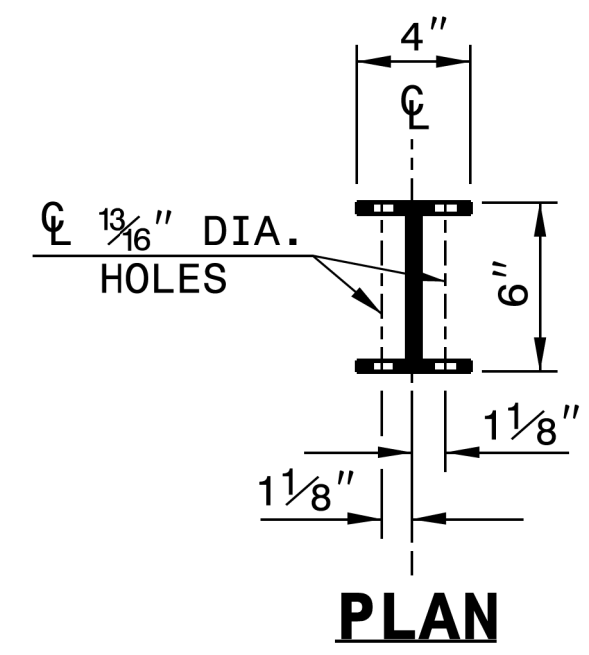
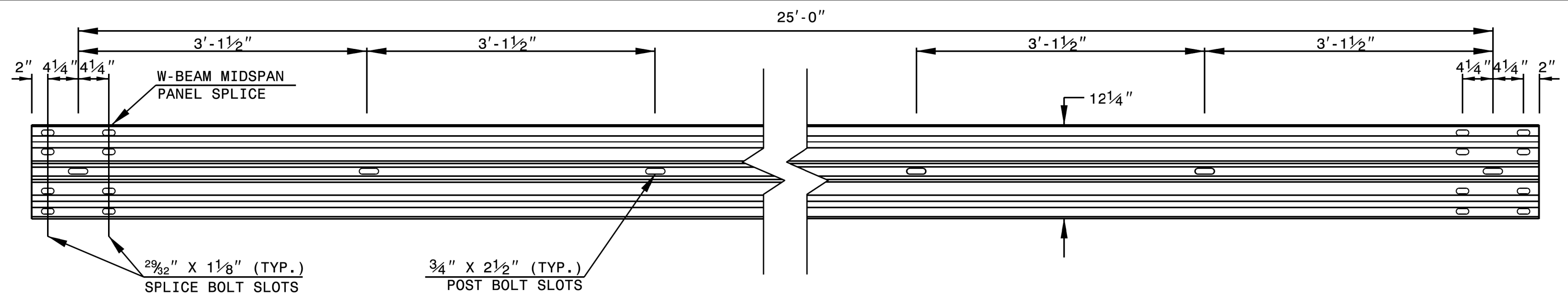
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



SYSTEM PARTS



**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.:	

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

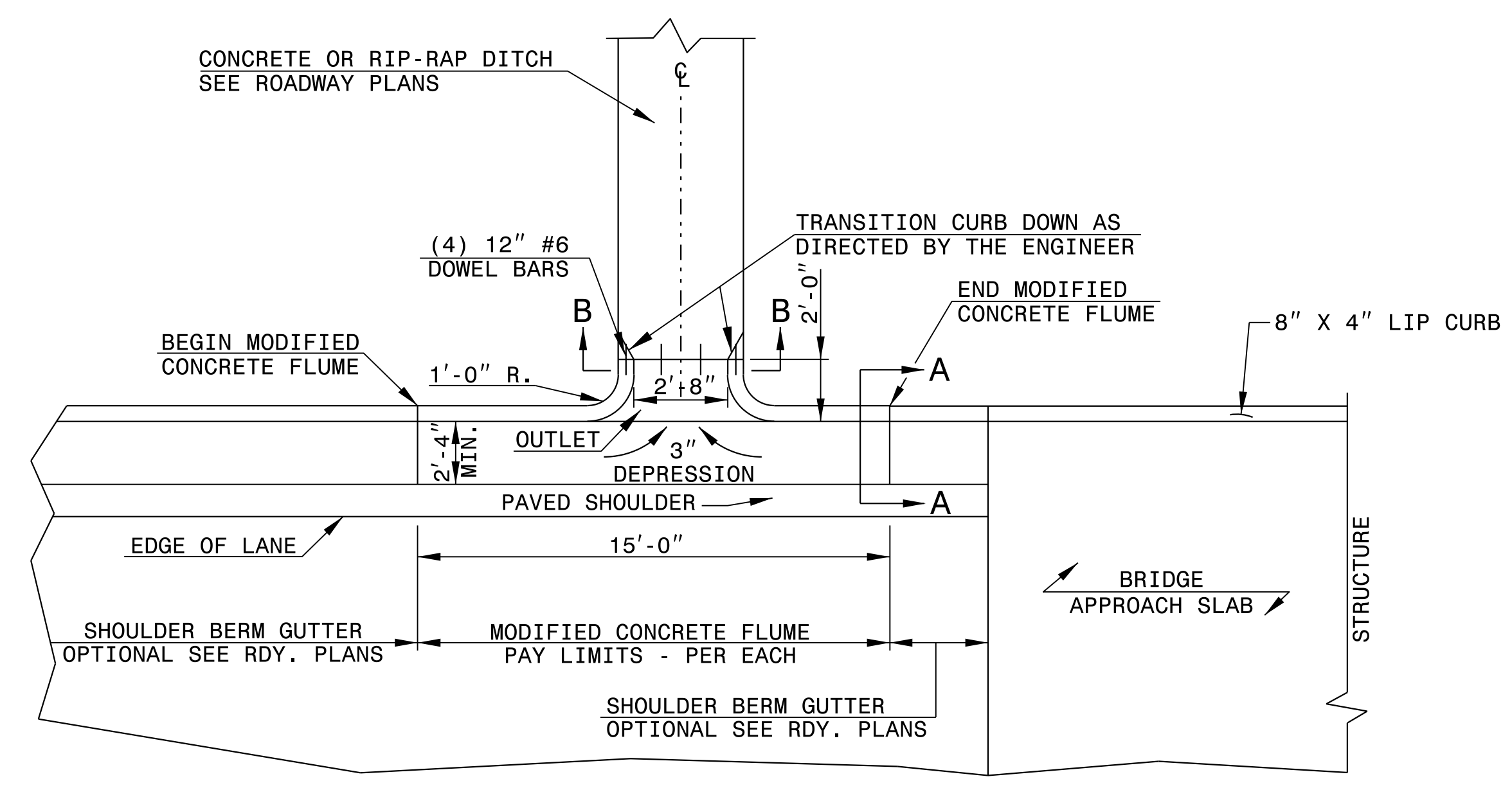
ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

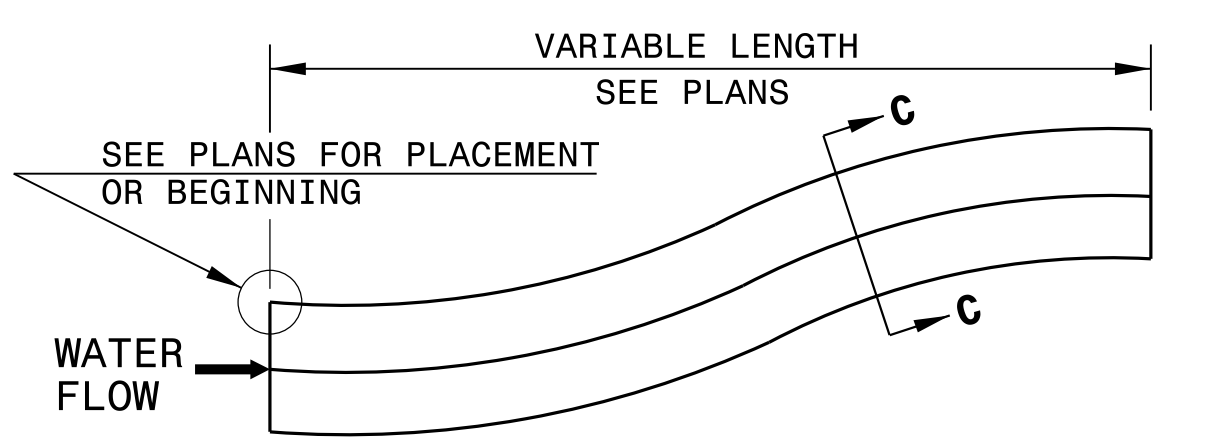
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

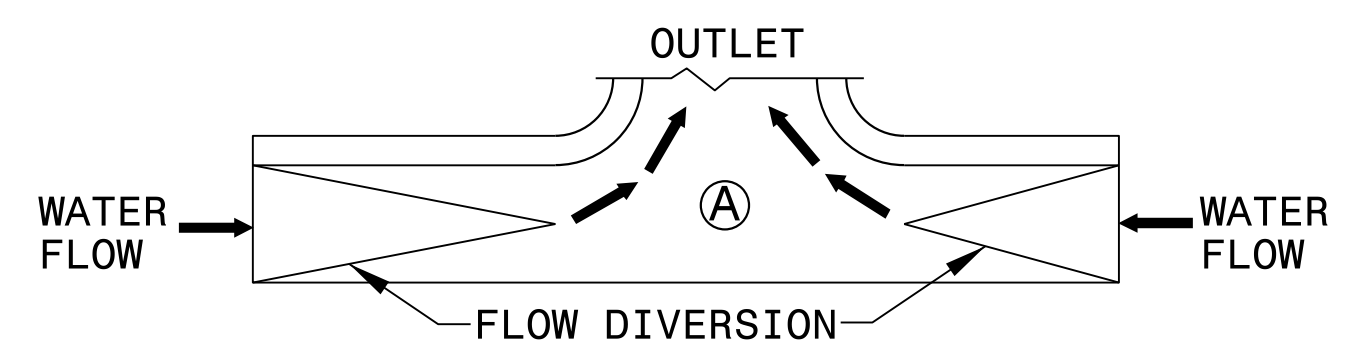
SHEET 1 OF 1
MODFLMDTCH



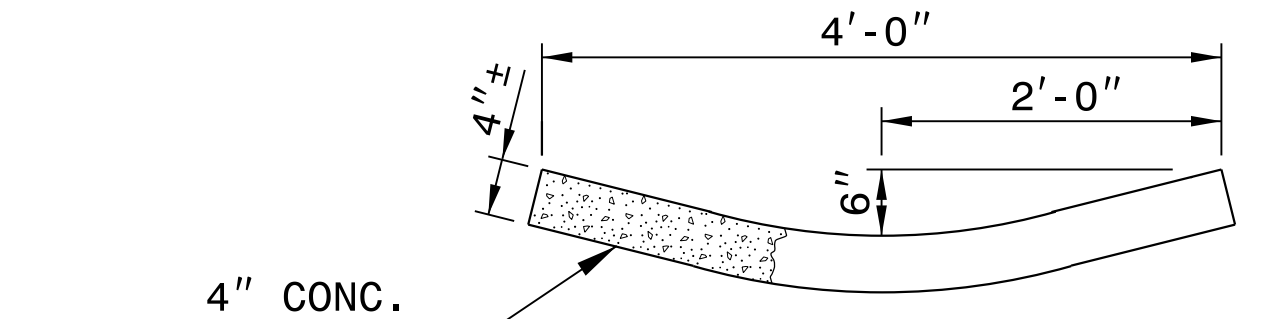
PLAN VIEW



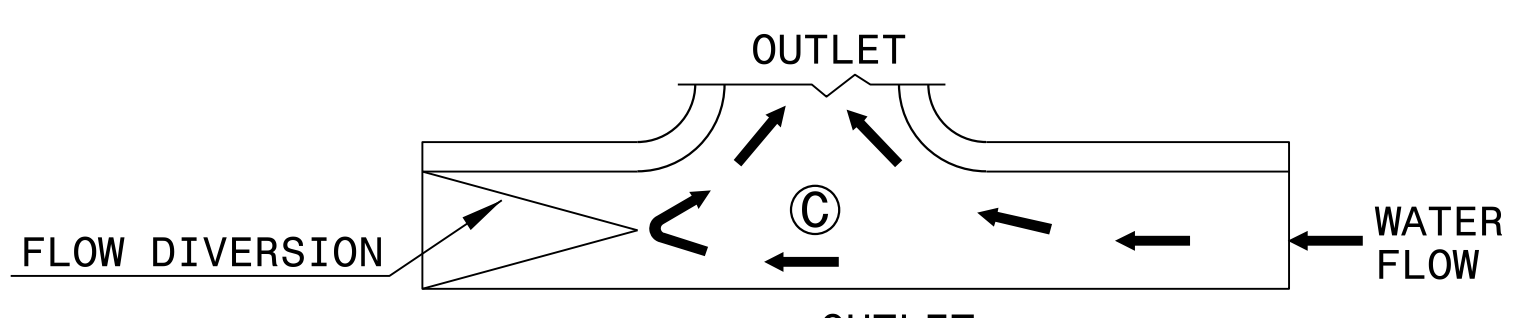
DOWNGRADE OR SAG



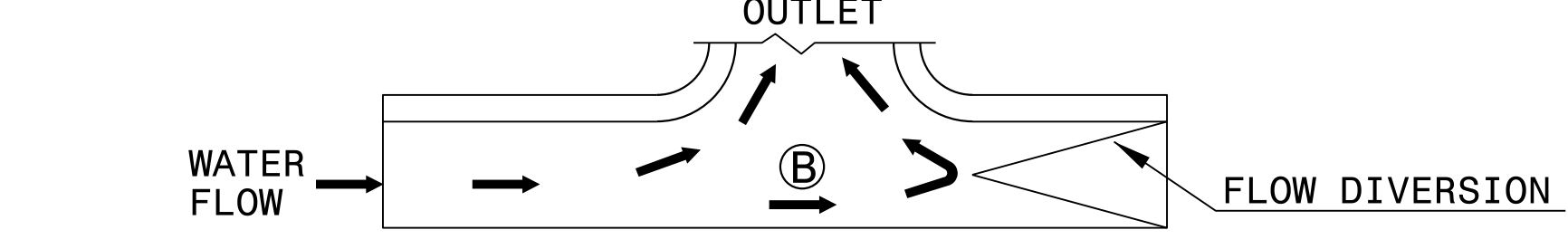
SAG



SECTION C-C

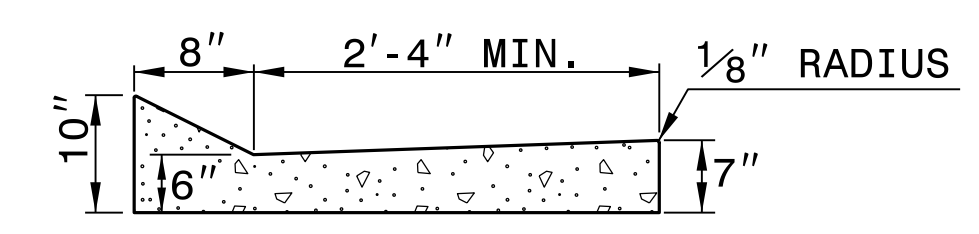


SECTION B-B

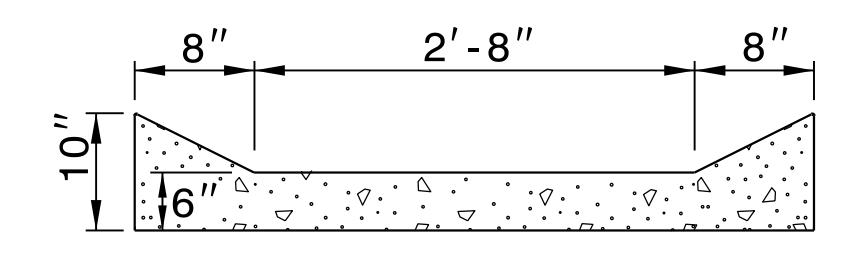


DOWN GRADE

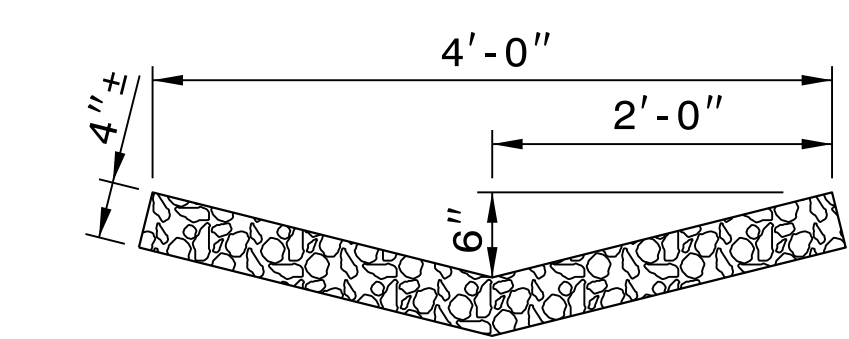
FLOW DIVERSION EXAMPLES



SECTION A-A



SECTION B-B



RIP-RAP LINED DITCH

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

18-QCT-2017 1417
S:\Contracts\Contract\Stand\stand\modiflume.dgn
J:\work\ton AH CS0-2\2019



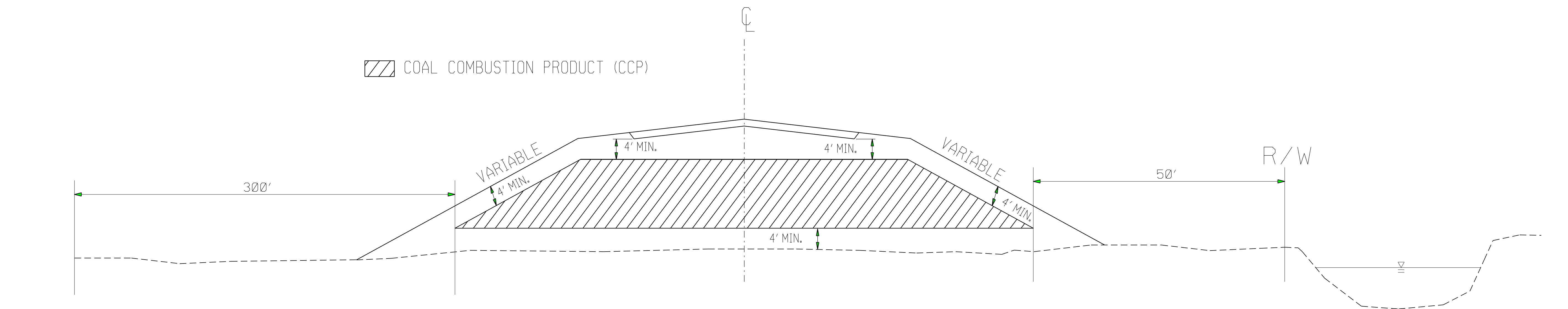
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
 MODIFIED BY: J.S. Howerton DATE: October 2017
 CHECKED BY: DATE:
 FILE SPEC.: w:\details\stand\modiflume.dgn

COAL COMBUSTION PRODUCT PLACEMENT



PRIVATE DWELLING OR WELL

PERENNIAL STREAM, OTHER SURFACE WATER BODY OR *WETLAND

*(OBTAIN PERMISSION FROM ARMY CORPS OF ENGINEERS)

PLACE CCP IN HATCHED AREA IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS

PLACE CCP A MINIMUM OF 5' ABOVE SEASONAL HIGH GROUND WATER

PLACE AT LOCATIONS AS APPROVED BY THE ENGINEER

PLACE SOIL BORROW MATERIAL ON THE OUTSIDE OF CCP AS EACH LIFT OF CCP IS PLACED

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
COAL COMBUSTION PRODUCT PLACEMENT DETAIL	
ORIGINAL BY: J.S.H.	DATE: 3/16/15
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: joel/coal combustion material detail.dgn	

07-SEP-2017 08:21 S:\Contracts\Projects\Special Details\Jhoverton\Coal Combustion Product Detail.dgn Jhoverton AT USD-232595

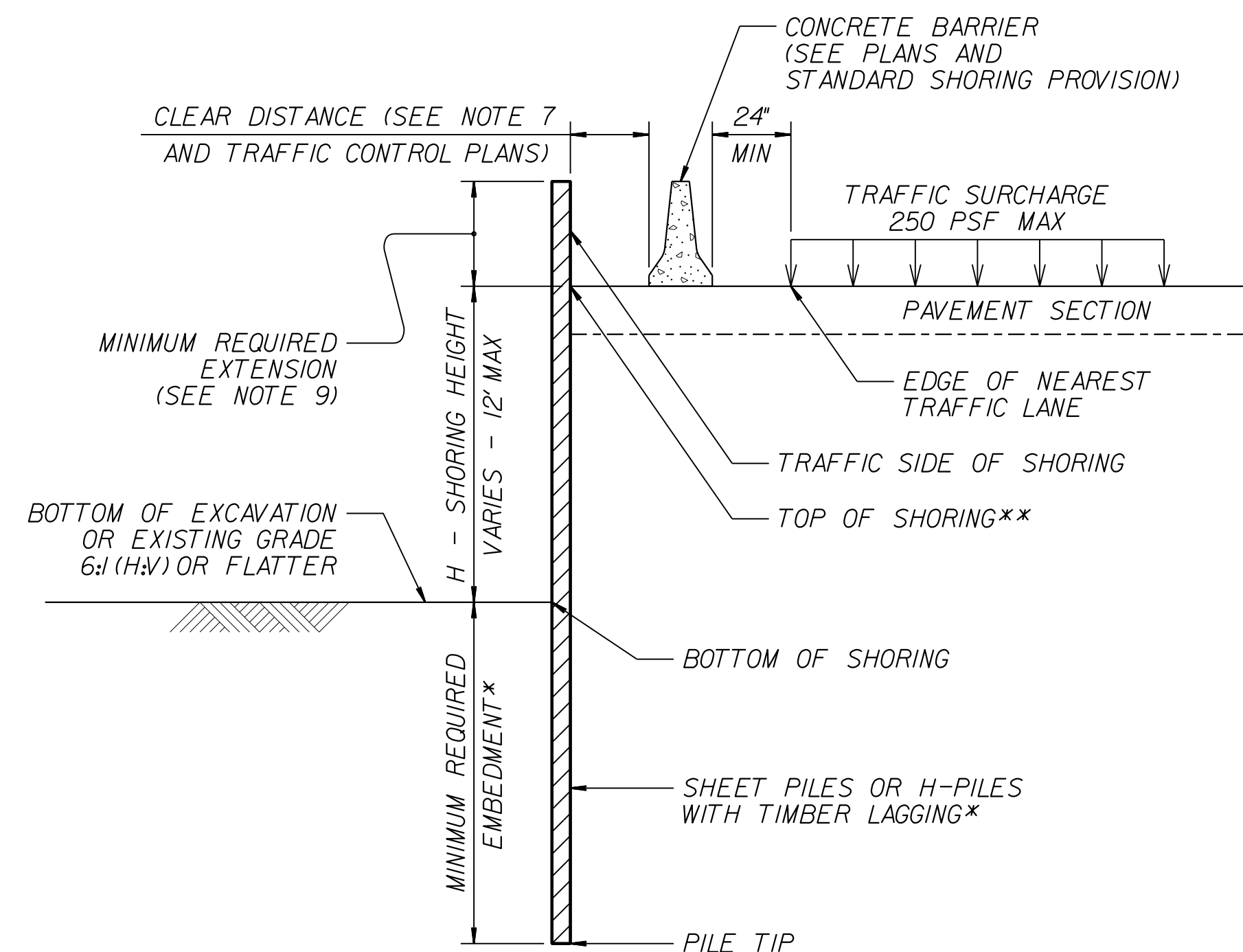
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
			HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73	
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5	
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5	

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

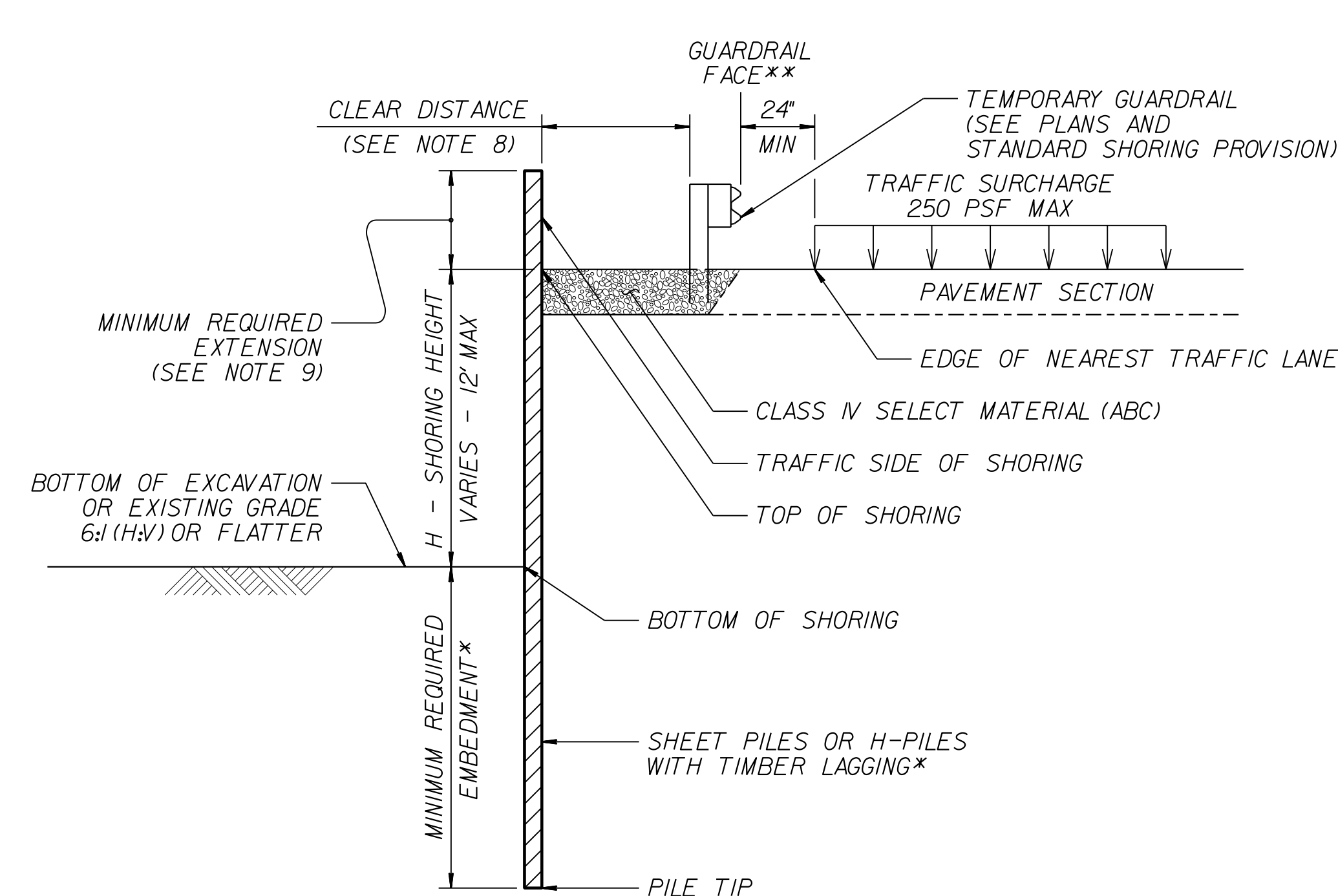
*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

NOTES:

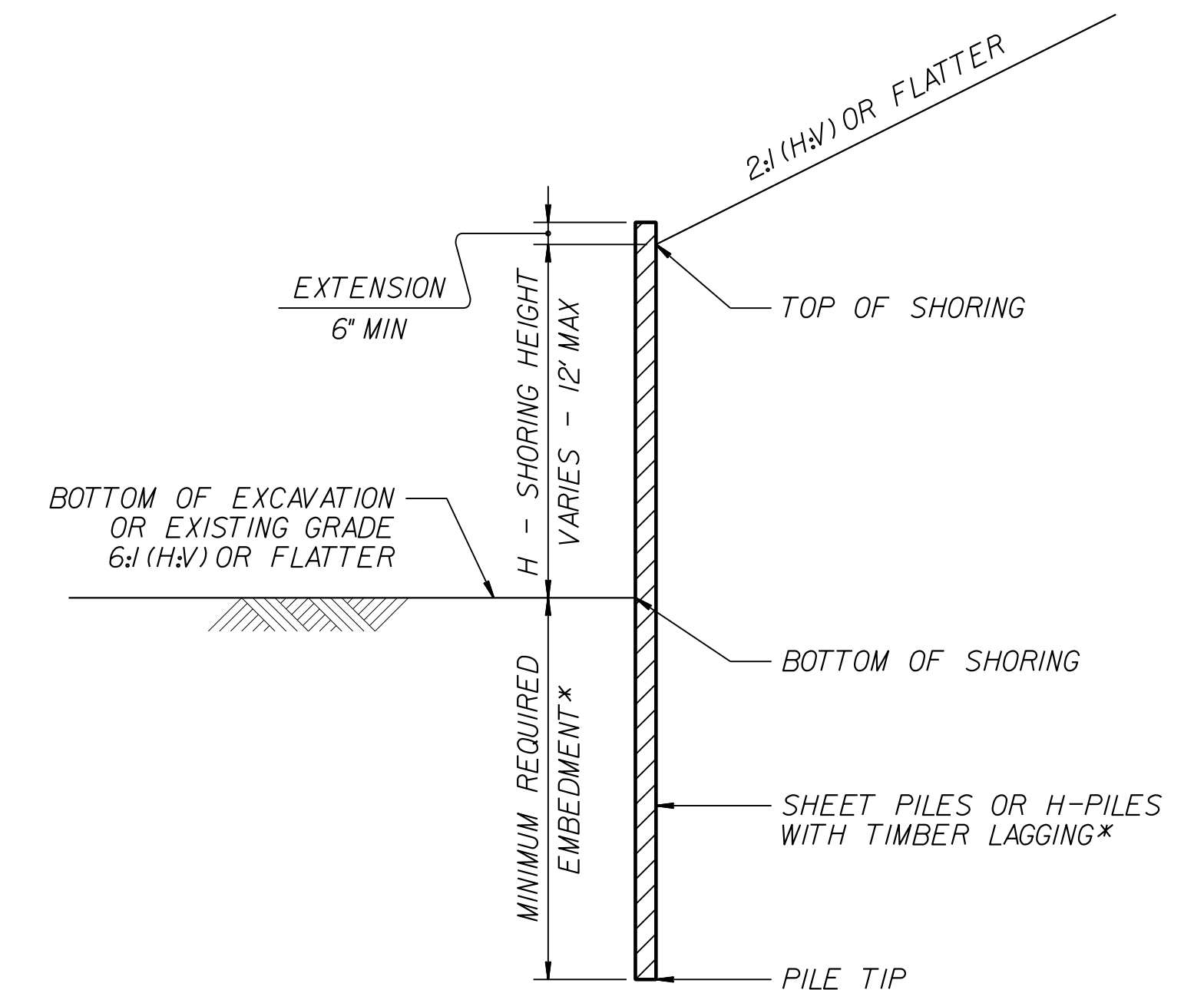
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES
COHESION, $c = 0$ PSF
- DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
- SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:
connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
- CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



CONCRETE BARRIER
**TOP OF SHORING =
EDGE OF PAVEMENT

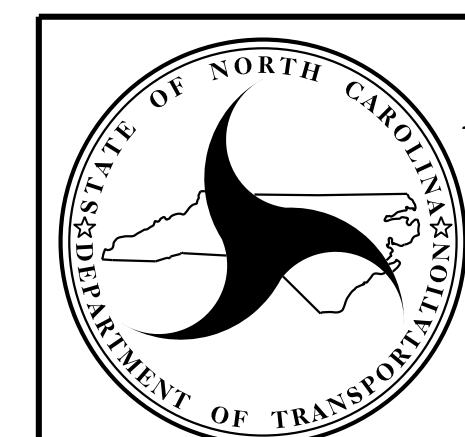


TEMPORARY GUARDRAIL
**GUARDRAIL FACE =
EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING
(SLOPE CASE)
*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING
(SURCHARGE CASE)
*SEE TABLE ABOVE.



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**GEOTECHNICAL
ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.01

STANDARD
TEMPORARY SHORING

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

*UD = Underdrain
 *BD = Blind Drain
 *SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU		100	200	300		
					TOTAL CY/TONS/SY:	100	200	300*	0

ASU = Aggregate Subgrade, AST = Aggregate Stabilization
 *Total square yards of Geotextile for Soil Stabilization is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

PARCEL INDEX

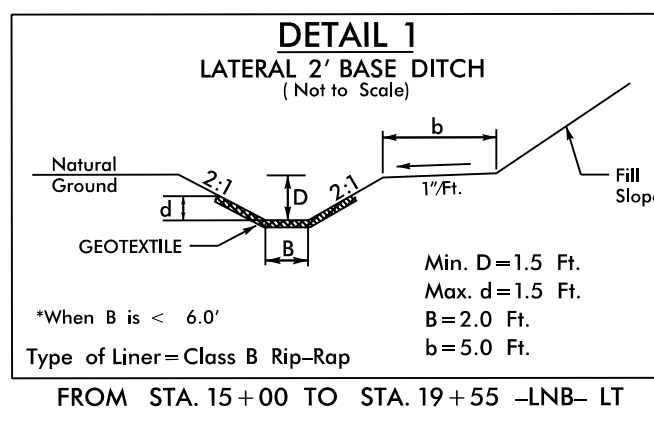
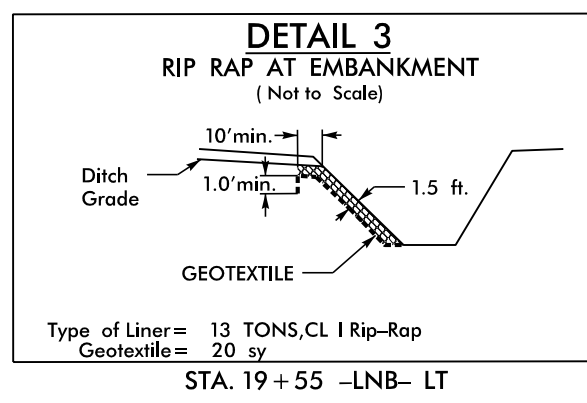
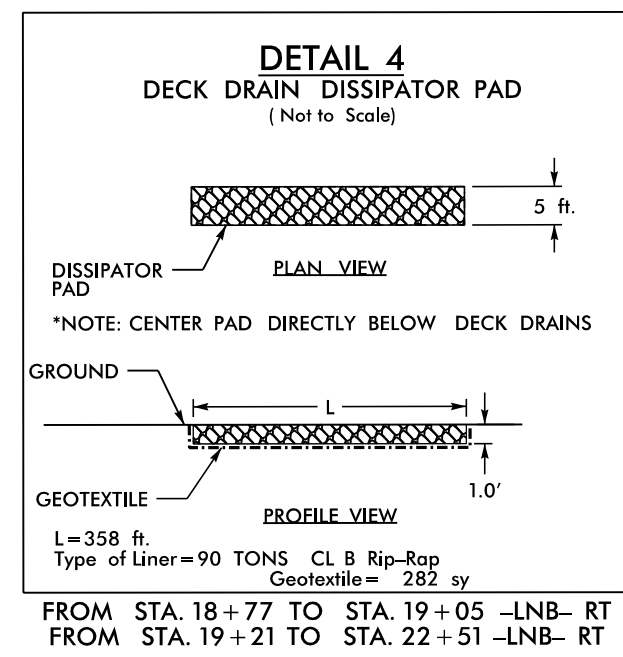
PARCEL NO.	PROPERTY OWNERS NAMES	TYPE	AREA (SQ. FT.)	AREA (ACRES)
1	WILLIAM STEVEN CLODFELTER DB 291 PG 341	CONTROL OF ACCESS	21779	0.50
1	WILLIAM STEVEN CLODFELTER DB 291 PG 341	EASEMENT	6292	0.14
2	JEFFREY W. DOUB DB 891 PG 129	CONTROL OF ACCESS	33828	0.78
2	JEFFREY W. DOUB DB 891 PG 129	EASEMENT	58077	1.33
2	JEFFREY W. DOUB DB 891 PG 129	DRAINAGE EASEMENT	600	0.01

6/21/2020
 6/16/2018
 X:\GIS\Tech\114-783C - NCDOT Bridge Group 0 B-5389\05-CAD\B5389\Roadway\Proj\B5389_Rdy_psh_3P_1.dgn
 lbeauchamp

PROJECT REFERENCE NO. B-5389		SHEET NO. 4	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

-LNB-
 PI Sta 10+37.97 PIs Sta 13+88.33
 $\Delta = 5'02'' 10.8'' (LT)$ $\Theta_s = 1'30'' 28.0''$
 $D = 1'00'' 18.7''$ $Ls = 300.00'$
 $L = 501.03'$ $LT = 200.01'$
 $T = 250.68'$ $ST = 100.01'$
 $R = 5,700.00'$
 SE = SEE PLANS

SEE SHEETS S-1 THRU S-37
FOR STRUCTURE PLANS

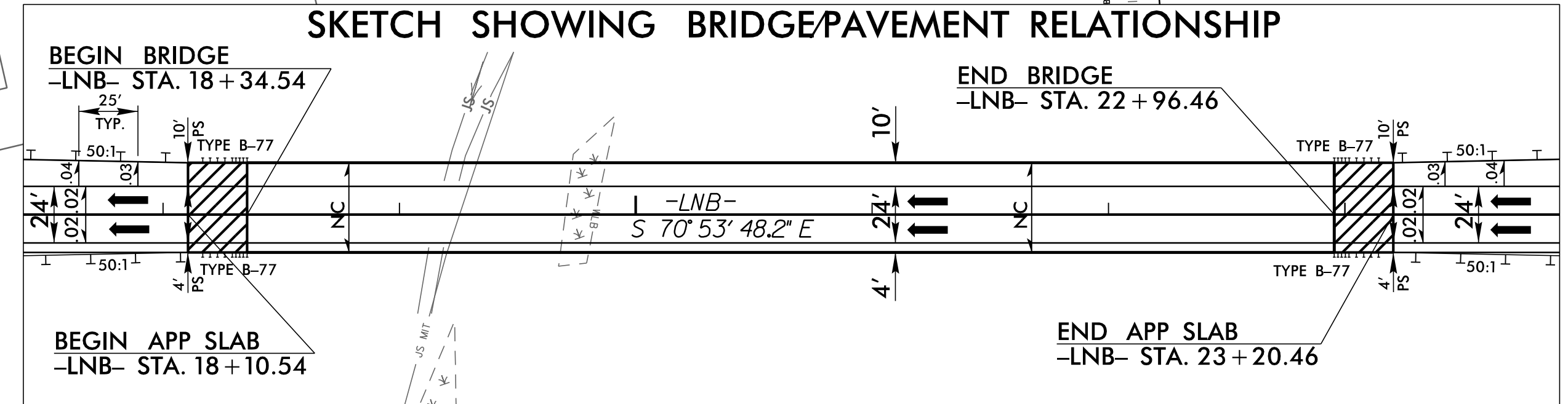
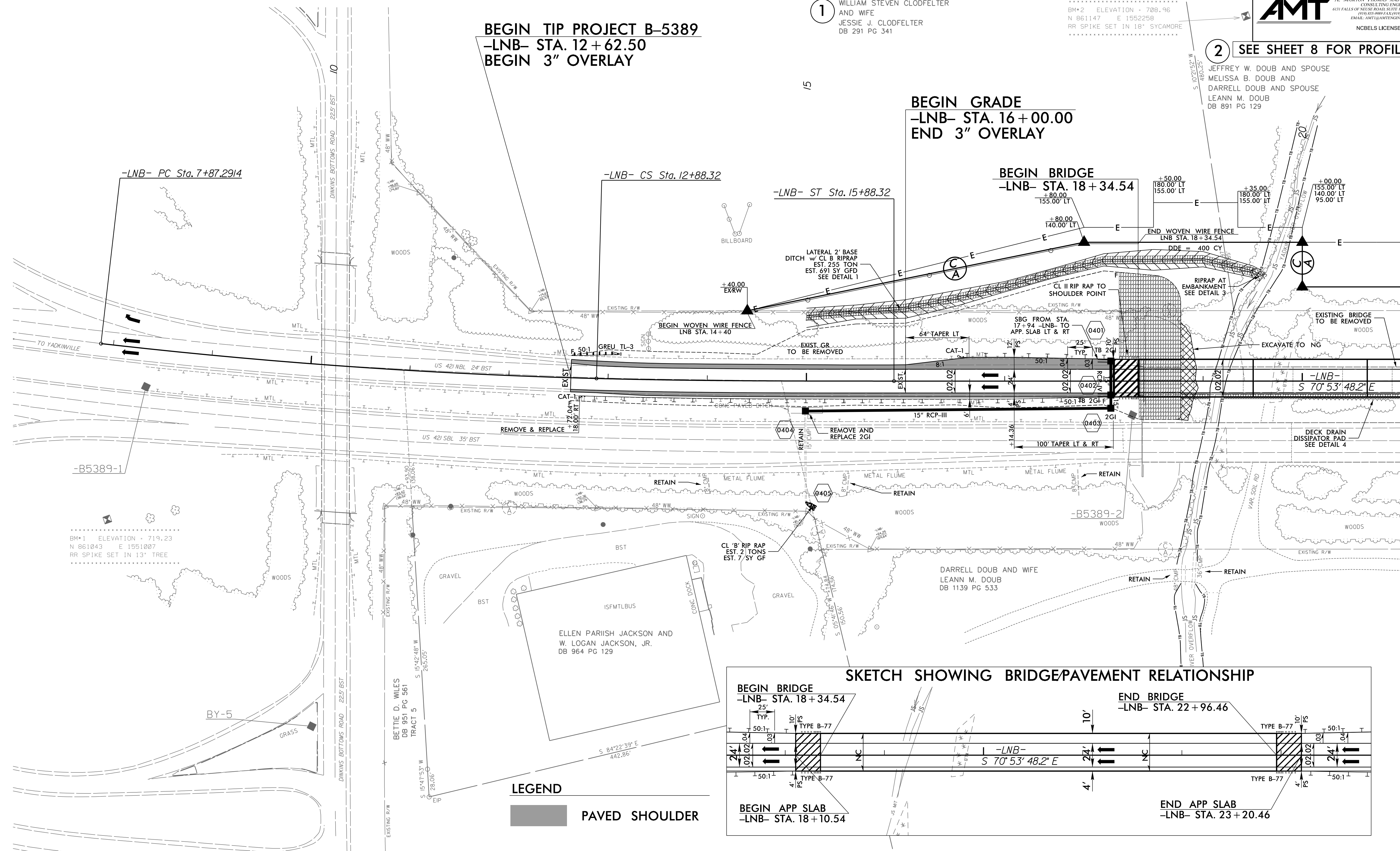


1 WILLIAM STEVEN CLODFELTER
AND WIFE
JESSIE J. CLODFELTER
DB 291 PG 341

BM+2 ELEVATION = 708.96
N 861147 E 1552258
RR SPIKE SET IN 18' SYCAMORE

2 SEE SHEET 8 FOR PROFILE VIEW

JEFFREY W. DOUB AND SPOUSE
MELISSA B. DOUB AND
DARRELL DOUB AND SPOUSE
LEANN M. DOUB
DB 891 PG 129




LEGEND
 PAVED SHOULDER

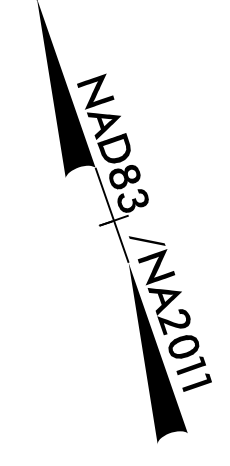
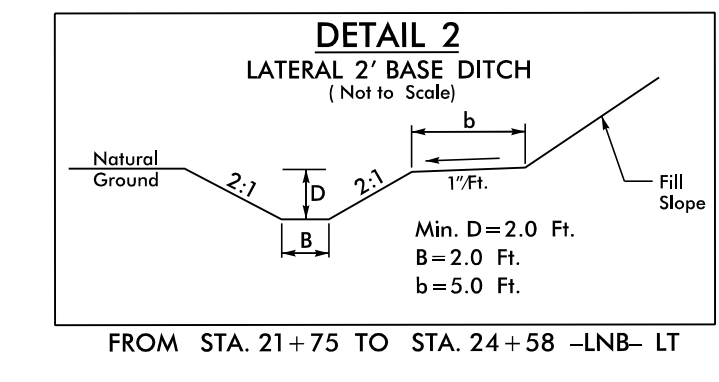
MATCHLINE SEE SHEET 5 -LNB- 21+00.00

7/22/2019 X:\Projects\14-783C - NCDOT Bridge Group 0 B-5389\05-CAD\B5389\Roadway\Proj\B5389_Rdy.psh_4.dgn

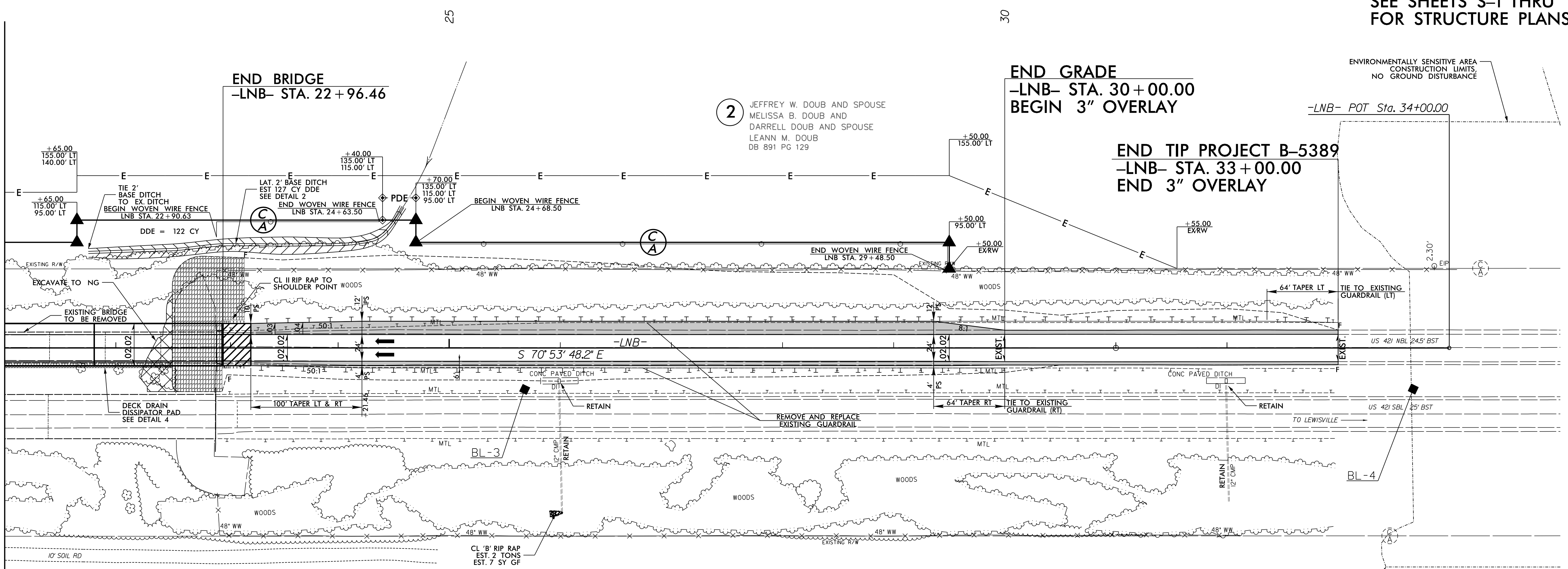
8/17/99

PROJECT REFERENCE NO. B-5389	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER MORTON THOMAS AND ASSOCIATES, INC. SEAL 40655 WICK RAMIREZ 9/12/2010	HYDRAULICS ENGINEER MORTON THOMAS AND ASSOCIATES, INC. SEAL 26971 JOSHUA C. BARNES 9/12/2010
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 AMT A. MORTON THOMAS AND ASSOCIATES, INC. CONSULTING ENGINEERS 6311 FALLS OF NEUSE ROAD, SUITE 106, RALEIGH, NC 27609 (919) 853-9999 / FAX (919) 853-5667 EMAIL: AMT@AMTENGINEERING.COM NCBELS LICENSE # F-1049	

SEE SHEET 8 FOR PROFILE VIEW
SEE SHEETS S-1 THRU S-37 FOR STRUCTURE PLANS



MATCHLINE SEE SHEET 4 -LNB- 21+00.00

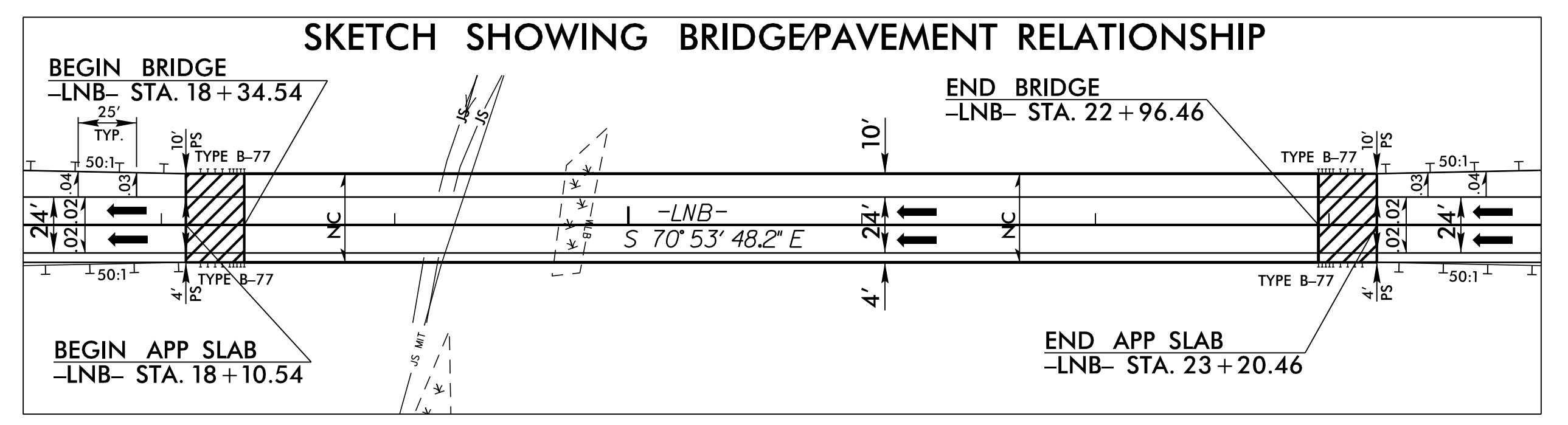


2 JEFFREY W. DOUB AND SPOUSE
MELISSA B. DOUB AND
DARRELL DOUB AND SPOUSE
LEANN M. DOUB
DB 891 PG 129

DARRELL DOUB AND WIFE
LEANN M. DOUB
DB 1139 PG 533

LEGEND

- PAVED SHOULDER
- ENVIRONMENTALLY SENSITIVE AREA CONSTRUCTION LIMITS, NO GROUND DISTURBANCE



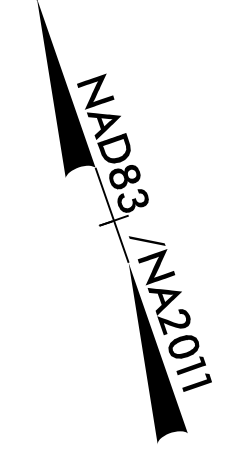
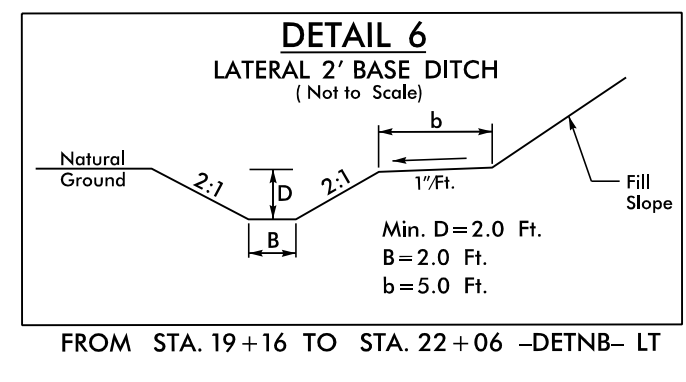
REVISIONS

9/12/2010
X:\Projects\114-783C - NCDOT Bridge Group 0 B-5389\05-CAD\CAD\B5389\Proj\B5389_Rdy.psh_5.dgn
nc-amt-ez

8/17/99

-DETNB-	
PI Sta 26+52.76	PI Sta 29+14.74
$\Delta = 12^\circ 30' 43.8" (RT)$	$\Delta = 12^\circ 30' 43.6" (LT)$
$D = 4' 46" 33.7"$	$D = 4' 46" 33.7"$
$L = 261.98'$	$L = 261.98'$
$T = 131.55'$	$T = 131.55'$
$R = 1,200.00'$	$R = 1,200.00'$
$SE = 0.04$	$SE = 0.04$
$ROFF = 154'$	$ROFF = 154'$
$DS = 55 \text{ MPH}$	$DS = 55 \text{ MPH}$

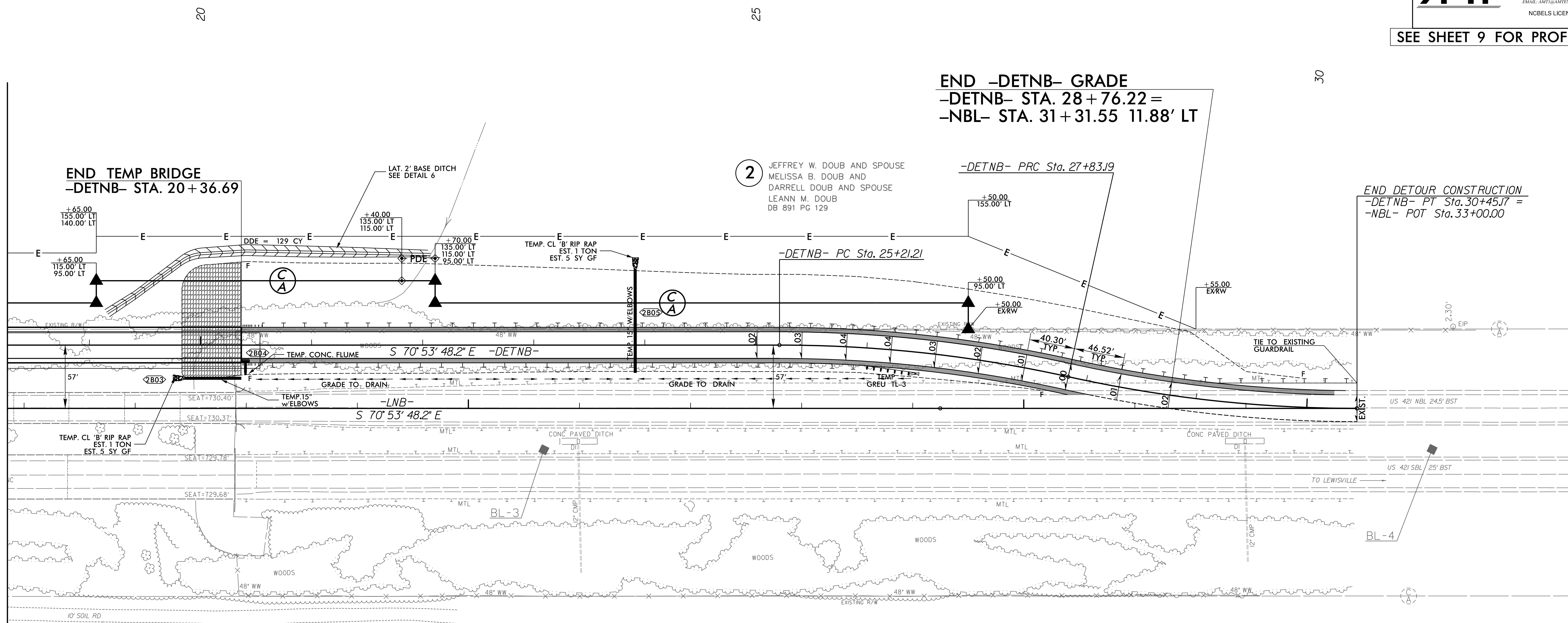
DETOUR -DETNB-
DESIGN SPEED 55 MPH



PROJECT REFERENCE NO. B-5389	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 40655 JEFFREY W. DOUB	HYDRAULICS ENGINEER SEAL 26971 LEANN M. DOUB
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p>AMT A. MORTON THOMAS AND ASSOCIATES, INC. CONSULTING ENGINEERS 611 FALLS OF NEUSE ROAD, SUITE 106, RALEIGH, NC 27609 (919) 853-9999 FAX (919) 853-9881 EMAIL: AMT@AMTENGINEERING.COM NCBELS LICENSE # F-1049</p>	

SEE SHEET 9 FOR PROFILE VIEW

MATCHLINE SEE SHEET 6 -DETNB- 18 + 00.00

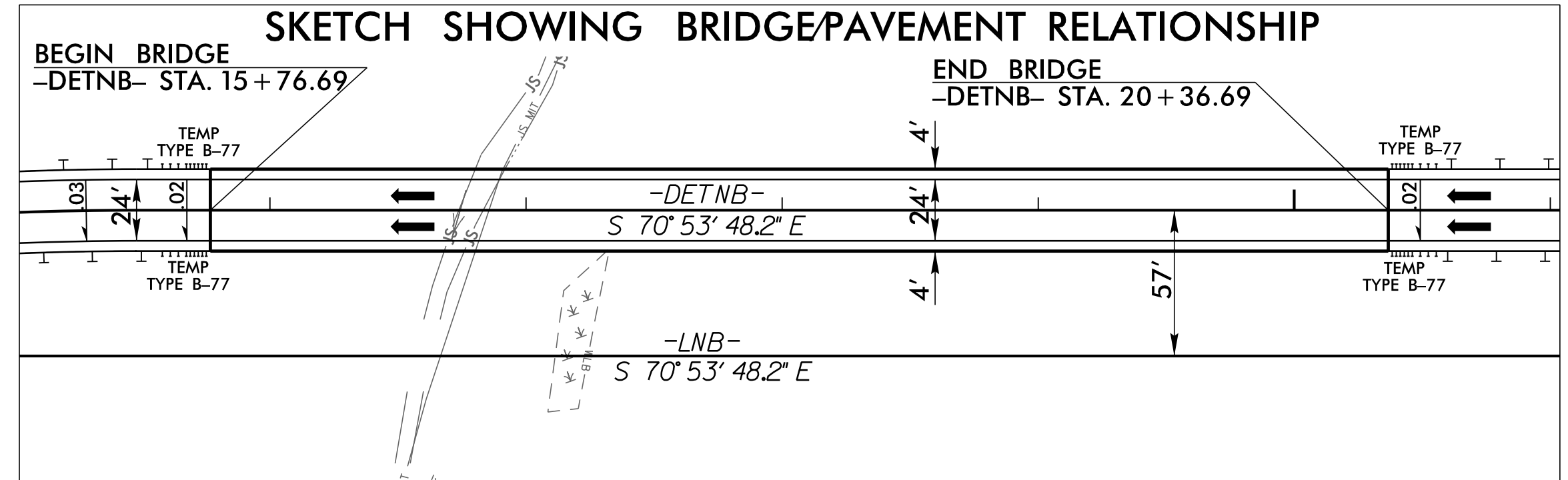


2 JEFFREY W. DOUB AND SPOUSE
MELISSA B. DOUB AND
DARRELL DOUB AND SPOUSE
LEANN M. DOUB
DB 891 PG 129

DARRELL DOUB AND WIFE
LEANN M. DOUB
DB 1139 PG 533

LEGEND

PAVED SHOULDER

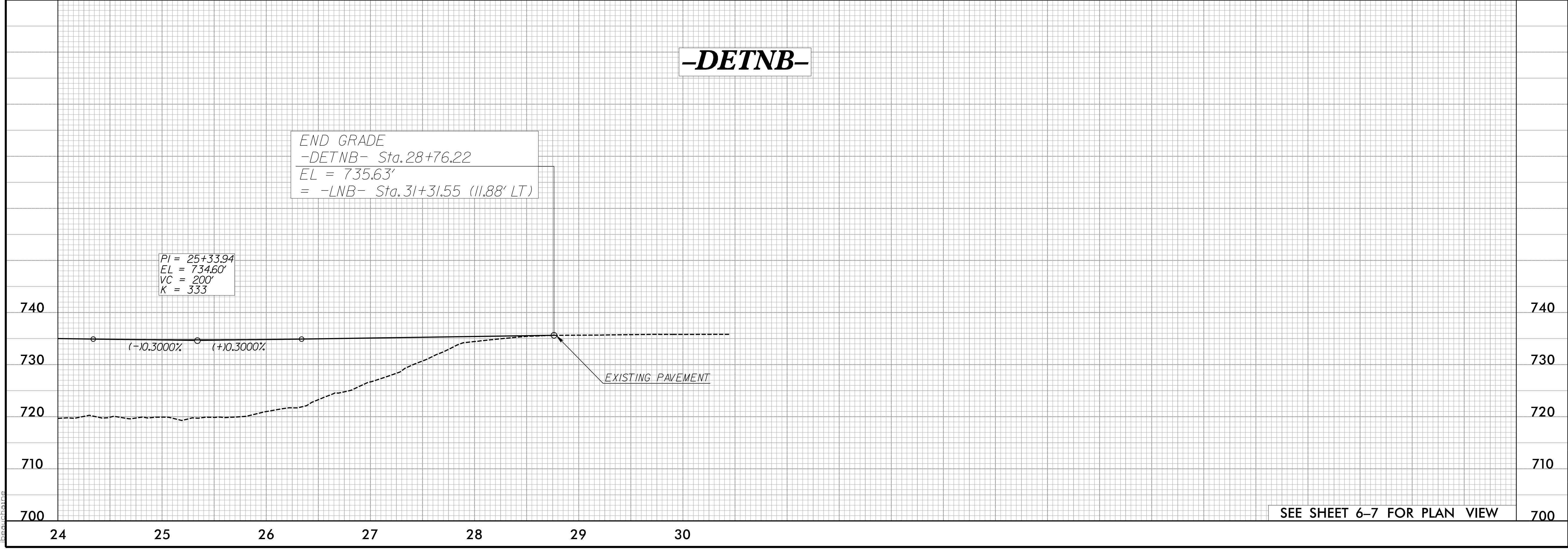
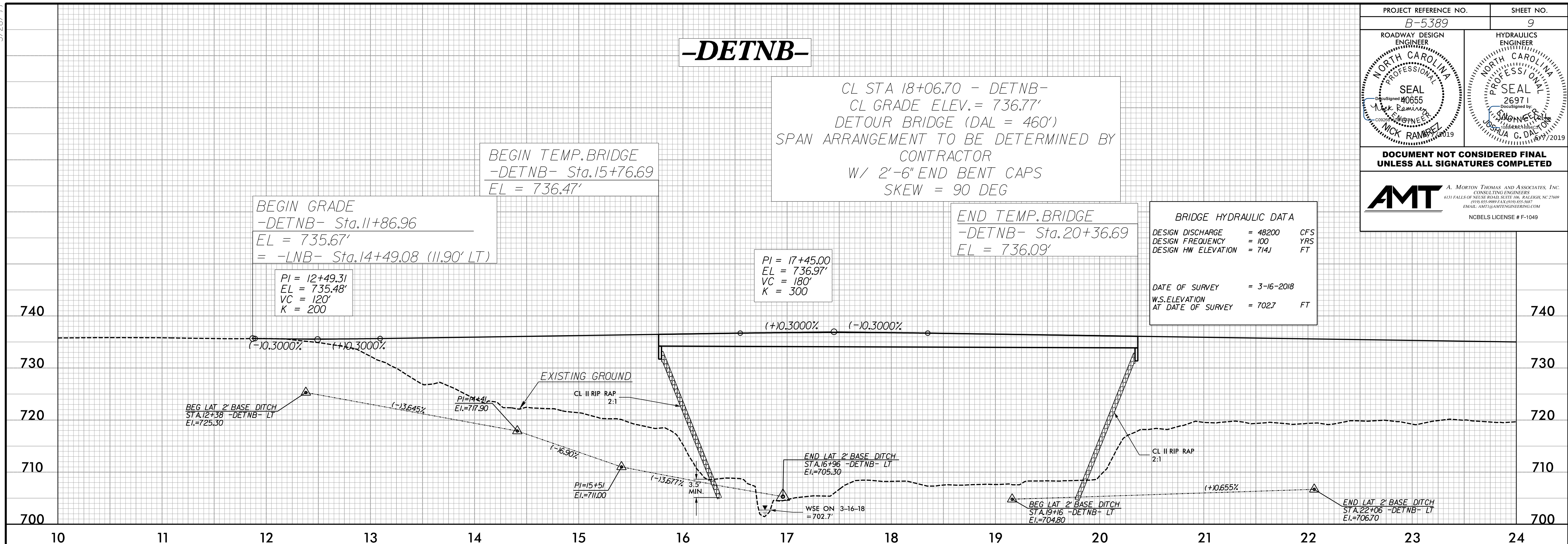


REVISIONS

6/16/2018
 X:\Projects\14-783C - NCDOT Bridge Group 0 B-5389\05-CAD\B5389_Rdy.psh_7.dgn
 beauchamp

5/28/2019

PROJECT REFERENCE NO. B-5389	SHEET NO. 9
ROADWAY DESIGN ENGINEER SEAL #0655 WICK RAMBREL	HYDRAULICS ENGINEER SEAL 26971 OSHA G. D.
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
AMT A. MORTON THOMAS AND ASSOCIATES, INC. CONSULTING ENGINEERS 6131 FALES OF NEST ROAD, SUITE 106, RALEIGH, NC 27609 PHONE: 919.880.7400 FAX: 919.880.7401 EMAIL: AMT@AMTENGINEERING.COM NCBELS LICENSE # F-1049	



SEE SHEET 6-7 FOR PLAN VIEW

5/16/2019 8:45:25 AM C:\Users\jrambrel\OneDrive\Documents\Projects\B-5389\Roadway\Proj\B5389_Rdy_psh_9.dgn