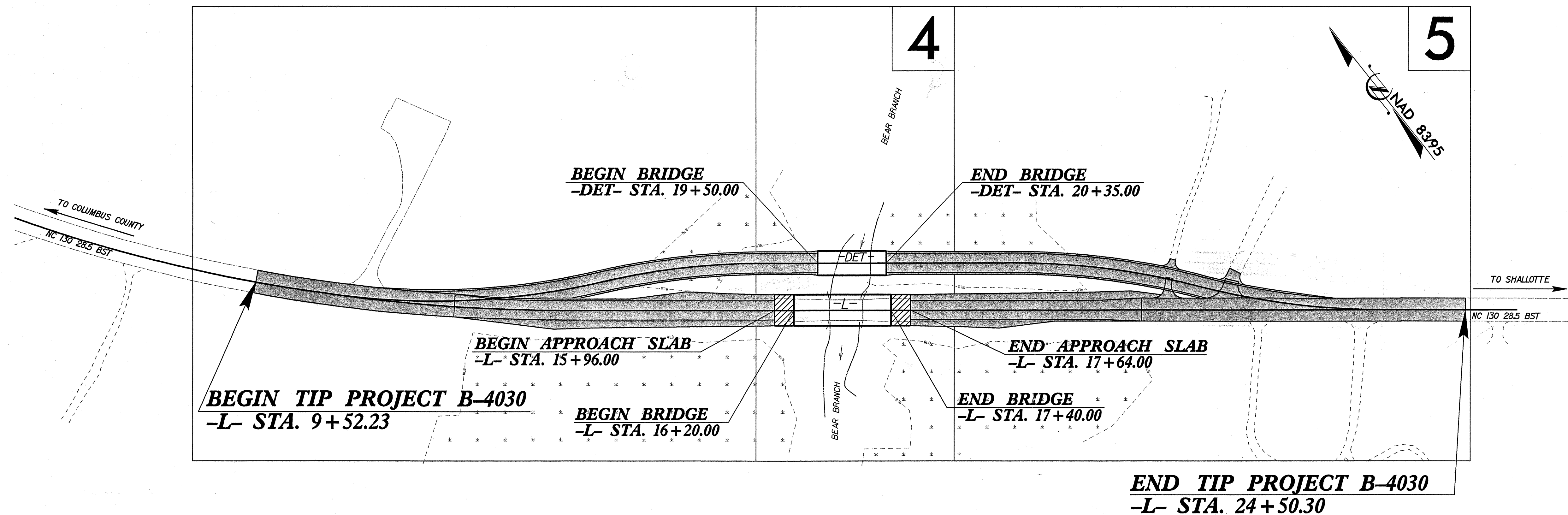
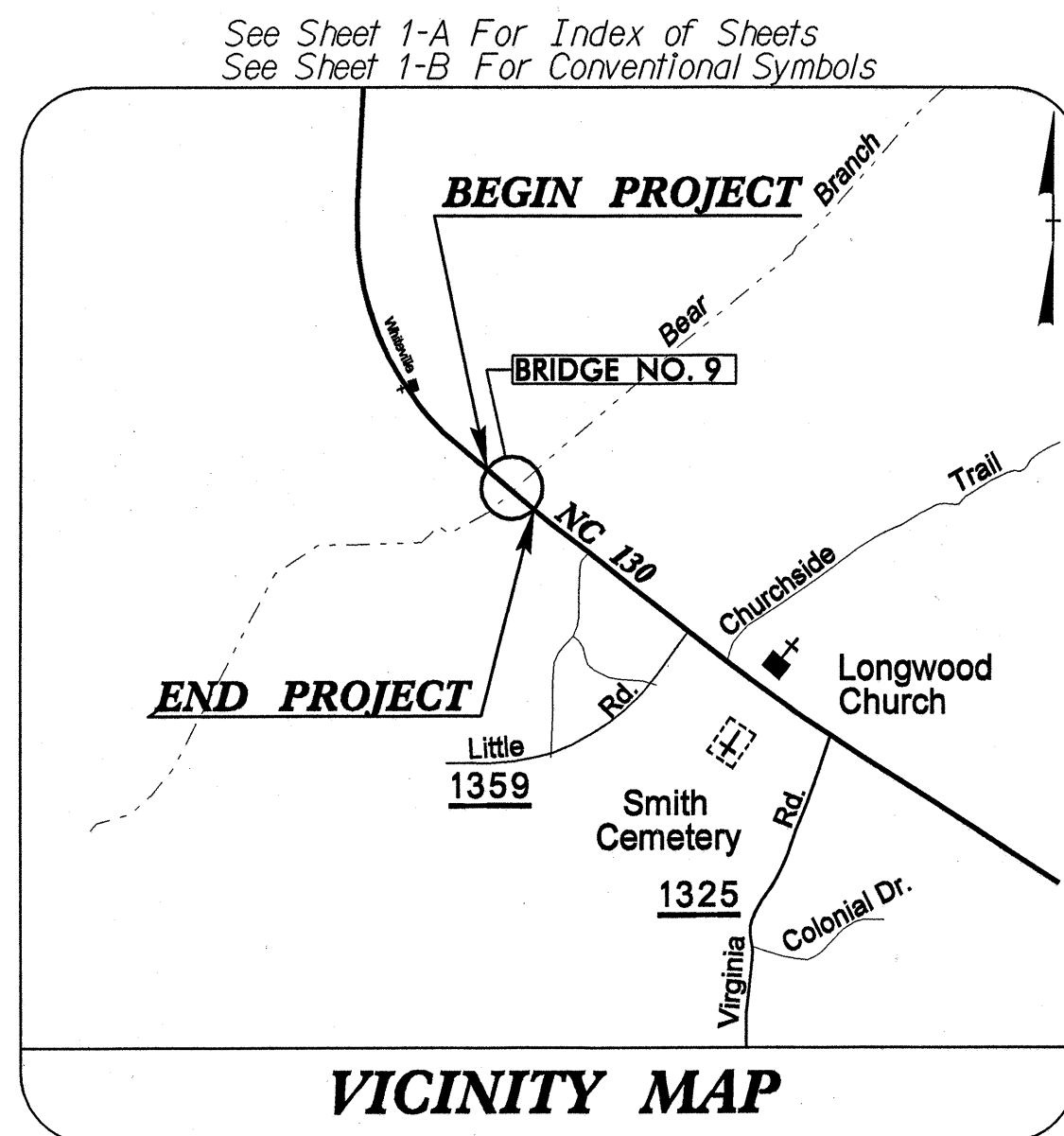


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4030	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33397.1.1	BRSTP-130 (3)	PE	
33397.2.1	BRSTP-130 (3)	RW + UTIL.	
33397.3.1	BRSTP-130 (3)	CONST.	

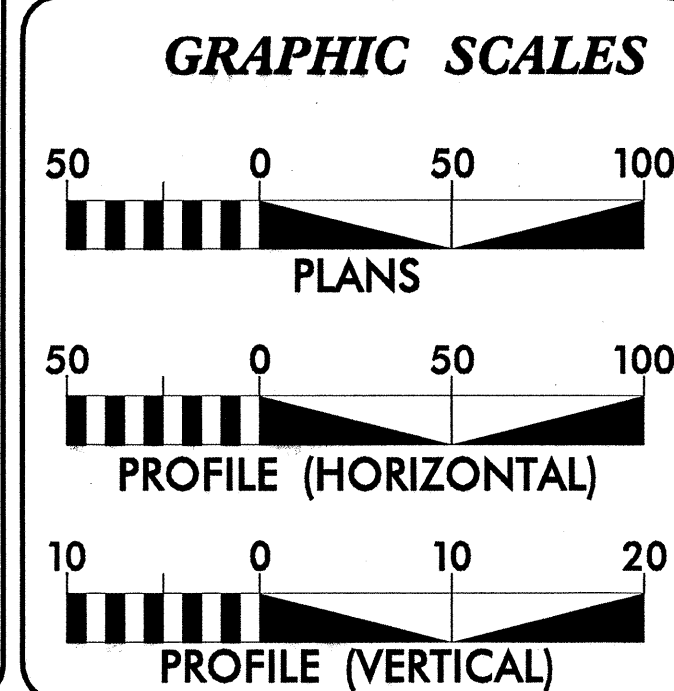
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

LOCATION: BRIDGE NO.9 OVER BEAR BRANCH ON NC 130
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



NCDOT CONTACT : DOUG TAYLOR, P.E.
ROADWAY DESIGN-ENGINEERING COORDINATION



DESIGN DATA

ADT 2009 =	4950
ADT 2029 =	7900
DHV =	9 %
D =	55%
T =	7 % *
V =	60 MPH
* TTST	4% DUAL 3%
FUNC. CLASS =	RURAL MINOR ARTERIAL

PROJECT LENGTH

Length Roadway Tip Project B-4030 =	0.261 Miles
Length Structure Tip Project B-4030 =	0.023 Miles
Total Length Tip Project B-4030 =	0.284 Miles

Prepared in the Office of:
THE LPA GROUP
TRANSPORTATION CONSULTANTS
2006 STANDARD SPECIFICATIONS

THE LPA GROUP of North Carolina, p.a.
5000 Falls of Neuse Rd., Suite 304
Raleigh, North Carolina 27609

RIGHT OF WAY DATE:
JANUARY 18, 2008

LETTING DATE:
AUGUST 18, 2009

Jeanne K. Richter, P.E.
PROJECT ENGINEER

Jody L. Cole
PROJECT DESIGN ENGINEER

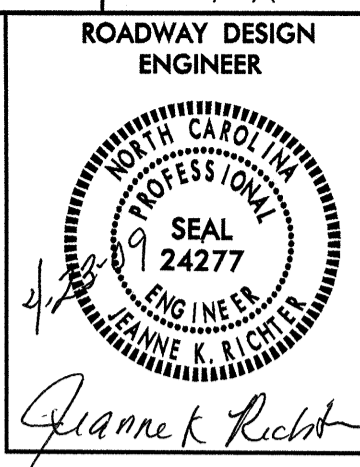
HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

09/08/09
 20-MAR-2009 12:19
 Y:\Projects\NCDOT\Bridges\Group 46 FinalDesign\B4030\Roadway\Proj\B4030_rdy_tsh.dgn
 jcole ALPA20625
CONTRACT: C202102
TIP PROJECT: B-4030



EFF. 07-18-06
REV. 01-02-07

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2 THRU 2A	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2B THRU 2C	DETOUR PLAN AND PROFILE SHEET
2D	ANCHORAGE FOR FRAMES (DETAIL)
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF EARTHWORK, PARCEL INDEX, AND SUMMARY OF ASPHALT PAVEMENT REMOVAL
3B	SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY, AND TEMPORARY GUARDRAIL SUMMARY
4 THRU 5	PLAN AND PROFILE SHEETS
TCP-1 THRU TCP-6	TRAFFIC CONTROL PLANS
EC-1 THRU EC-8	EROSION CONTROL PLANS
RF-1	REFORESTATION PLAN
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS SECTION SUMMARY SHEET
X-1 THRU X-10	CROSS-SECTIONS
S-1 THRU S-22	STRUCTURE PLANS

GENERAL NOTES: 2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 09-12-08

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. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

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

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

UNDERDRAINS:
UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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

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.

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE ATMC
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

2006 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 July 18, 2006 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
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Super-elevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Super-elevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
816.01	Concrete Pads - for Shoulder Drain Installation
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.45	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
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

8/17/99

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Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

Table listing symbols for boundaries and property: State Line, County Line, Township Line, City Line, Reservation Line, Property Line, Existing Iron Pin, Property Corner, Property Monument, Parcel/Sequence Number, Existing Fence Line, Proposed Woven Wire Fence, Proposed Chain Link Fence, Proposed Barbed Wire Fence, Existing Wetland Boundary, Proposed Wetland Boundary, Existing Endangered Animal Boundary, Existing Endangered Plant Boundary.

BUILDINGS AND OTHER CULTURE:

Table listing symbols for buildings and other culture: Gas Pump Vent or U/G Tank Cap, Sign, Well, Small Mine, Foundation, Area Outline, Cemetery, Building, School, Church, Dam.

HYDROLOGY:

Table listing symbols for hydrology: Stream or Body of Water, Hydro, Pool or Reservoir, Jurisdictional Stream, Buffer Zone 1, Buffer Zone 2, Flow Arrow, Disappearing Stream, Spring, Wetland, Proposed Lateral, Tail, Head Ditch, False Sump.

RAILROADS:

Table listing symbols for railroads: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

Table listing symbols for right of way: Baseline Control Point, Existing Right of Way Marker, Existing Right of Way Line, Proposed Right of Way Line, Proposed Right of Way Line with Iron Pin and Cap Marker, Proposed Right of Way Line with Concrete or Granite Marker, Existing Control of Access, Proposed Control of Access, Existing Easement Line, Proposed Temporary Construction Easement, Proposed Temporary Drainage Easement, Proposed Permanent Drainage Easement, Proposed Permanent Utility Easement, Proposed Permanent Easement with Iron Pin and Cap Marker.

ROADS AND RELATED FEATURES:

Table listing symbols for roads and related features: Existing Edge of Pavement, Existing Curb, Proposed Slope Stakes Cut, Proposed Slope Stakes Fill, Proposed Wheel Chair Ramp, Existing Metal Guardrail, Proposed Guardrail, Existing Cable Guiderail, Proposed Cable Guiderail, Equality Symbol, Pavement Removal.

VEGETATION:

Table listing symbols for vegetation: Single Tree, Single Shrub, Hedge, Woods Line, Orchard, Vineyard.

EXISTING STRUCTURES:

Table listing symbols for existing structures: MAJOR: Bridge, Tunnel or Box Culvert, Bridge Wing Wall, Head Wall and End Wall; MINOR: Head and End Wall, Pipe Culvert, Footbridge, Drainage Box: Catch Basin, DI or JB, Paved Ditch Gutter, Storm Sewer Manhole, Storm Sewer.

UTILITIES:

Table listing symbols for utilities: POWER: Existing Power Pole, Proposed Power Pole, Existing Joint Use Pole, Proposed Joint Use Pole, Power Manhole, Power Line Tower, Power Transformer, U/G Power Cable Hand Hole, H-Frame Pole, Recorded U/G Power Line, Designated U/G Power Line (S.U.E.*).

TELEPHONE:

Table listing symbols for telephone: Existing Telephone Pole, Proposed Telephone Pole, Telephone Manhole, Telephone Booth, Telephone Pedestal, Telephone Cell Tower, U/G Telephone Cable Hand Hole, Recorded U/G Telephone Cable, Designated U/G Telephone Cable (S.U.E.*), Recorded U/G Telephone Conduit, Designated U/G Telephone Conduit (S.U.E.*), Recorded U/G Fiber Optics Cable, Designated U/G Fiber Optics Cable (S.U.E.*).

WATER:

Table listing symbols for water: Water Manhole, Water Meter, Water Valve, Water Hydrant, Recorded U/G Water Line, Designated U/G Water Line (S.U.E.*), Above Ground Water Line.

TV:

Table listing symbols for TV: TV Satellite Dish, TV Pedestal, TV Tower, U/G TV Cable Hand Hole, Recorded U/G TV Cable, Designated U/G TV Cable (S.U.E.*), Recorded U/G Fiber Optic Cable, Designated U/G Fiber Optic Cable (S.U.E.*).

GAS:

Table listing symbols for gas: Gas Valve, Gas Meter, Recorded U/G Gas Line, Designated U/G Gas Line (S.U.E.*), Above Ground Gas Line.

SANITARY SEWER:

Table listing symbols for sanitary sewer: Sanitary Sewer Manhole, Sanitary Sewer Cleanout, U/G Sanitary Sewer Line, Above Ground Sanitary Sewer, Recorded SS Forced Main Line, Designated SS Forced Main Line (S.U.E.*).

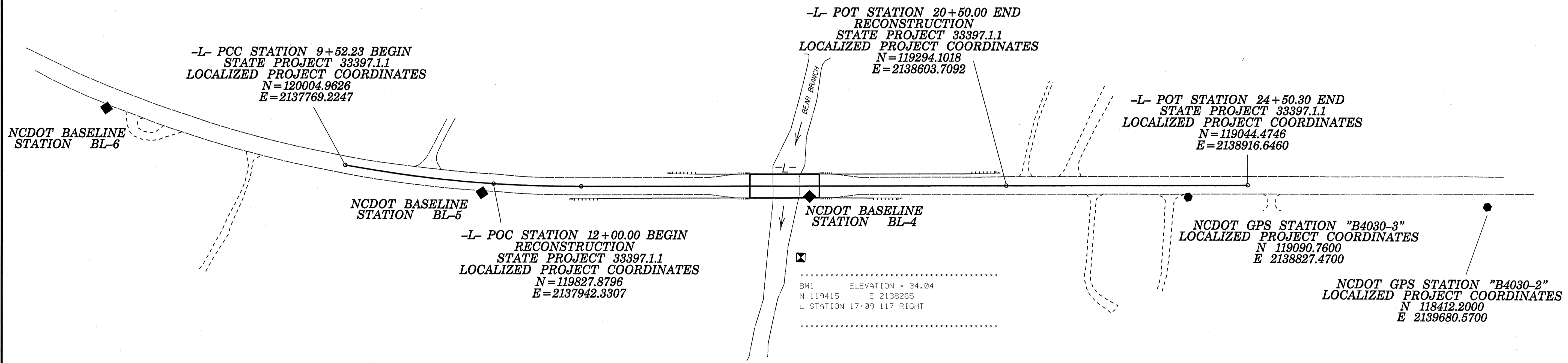
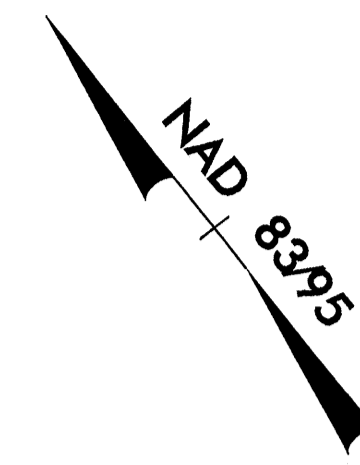
MISCELLANEOUS:

Table listing symbols for miscellaneous: Utility Pole, Utility Pole with Base, Utility Located Object, Utility Traffic Signal Box, Utility Unknown U/G Line, U/G Tank; Water, Gas, Oil, A/G Tank; Water, Gas, Oil, U/G Test Hole (S.U.E.*), Abandoned According to Utility Records, End of Information.

SURVEY CONTROL SHEET B-4030

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4030-3" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 119090.7600(ft) EASTING: 2138827.4700(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.000084320 THE N.G. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4030-3" TO "L- STATION POC 9+52.23" IS N 49°10'36" W 1,398.45' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88



.....
 BM1 ELEVATION = 34.04
 N 119415 E 2138265
 L STATION 17+09 117 RIGHT

CONTROL DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
6	BL-6		120325.7355	2137519.2222	40.76	OUTSIDE PROJECT LIMITS	
5	BL-7		119827.9929	2137917.8325	34.40	11+81.97	16.51 RT
4	BL-4		119483.8894	2138337.9732	32.87	17+23.91	17.35 RT
3	B4030-3		119090.7600	2138827.4700	34.23	23+51.73	19.43 RT
2	B4030-2		118412.2000	2139680.5700	45.95	OUTSIDE PROJECT LIMITS	

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
 TIP B4030_LS_CONTROL_060811.TXT

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

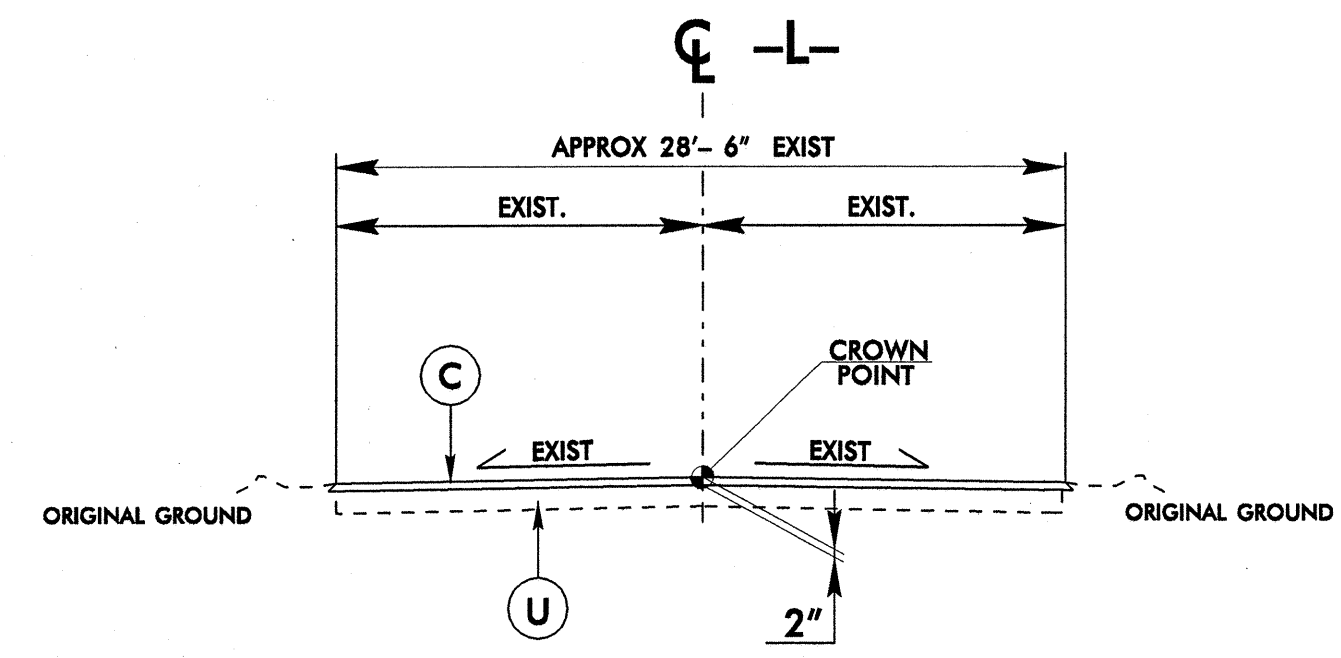
⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

6/2/99

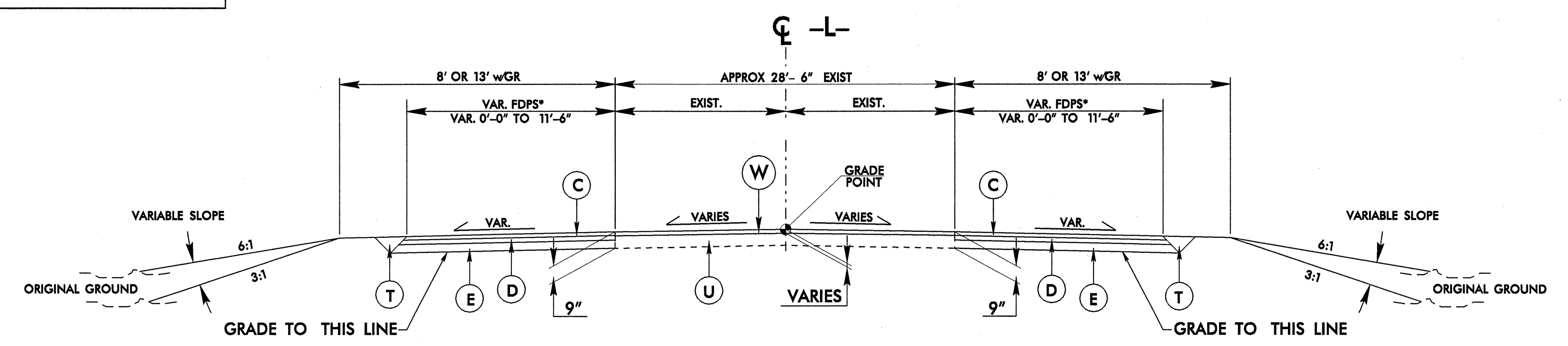
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 Title AT 1/2/2009

PAVEMENT SCHEDULE					
A	5 1/2" PORTLAND CEMENT CONCRETE PAVEMENT.	E	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	T	EARTH MATERIAL.
C	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	E1	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.	U	EXISTING PAVEMENT.
C1	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	J	PROP. 8" AGGREGATE BASE COURSE.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET 2A)
D	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.	NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.	
D1	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R	SHOULDER BERM GUTTER.		



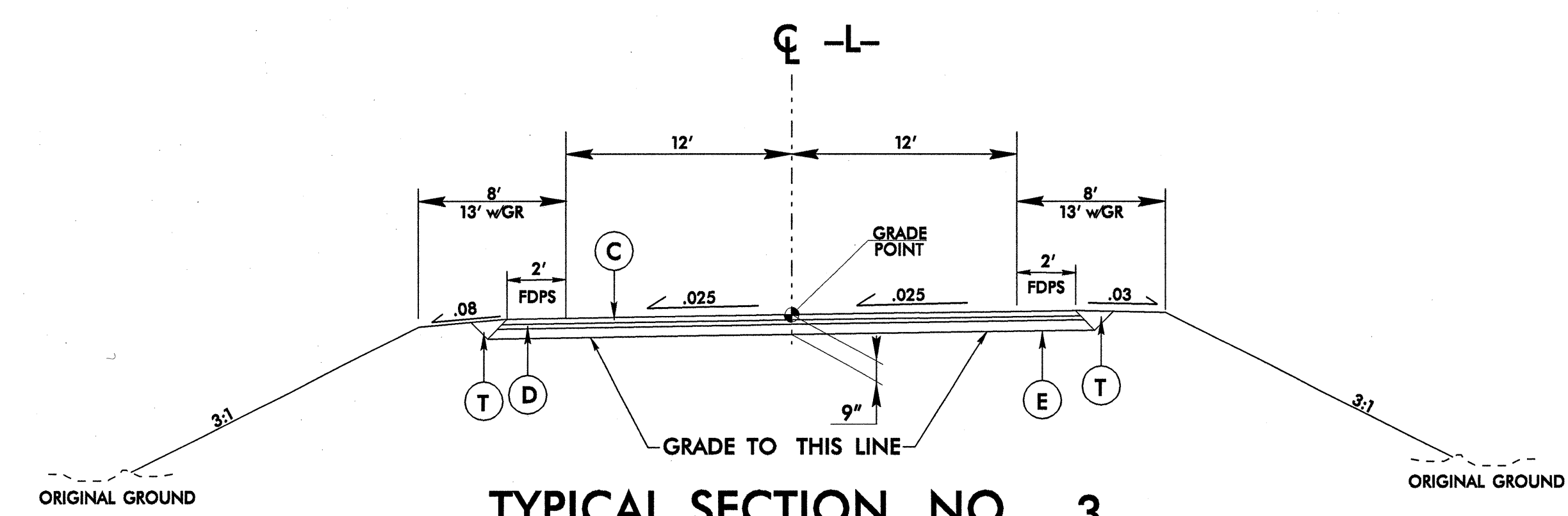
TYPICAL SECTION NO. 1

- L- STA. 9+52.23 TO STA. 12+00.00
- L- STA. 20+50.00 TO STA. 24+50.30



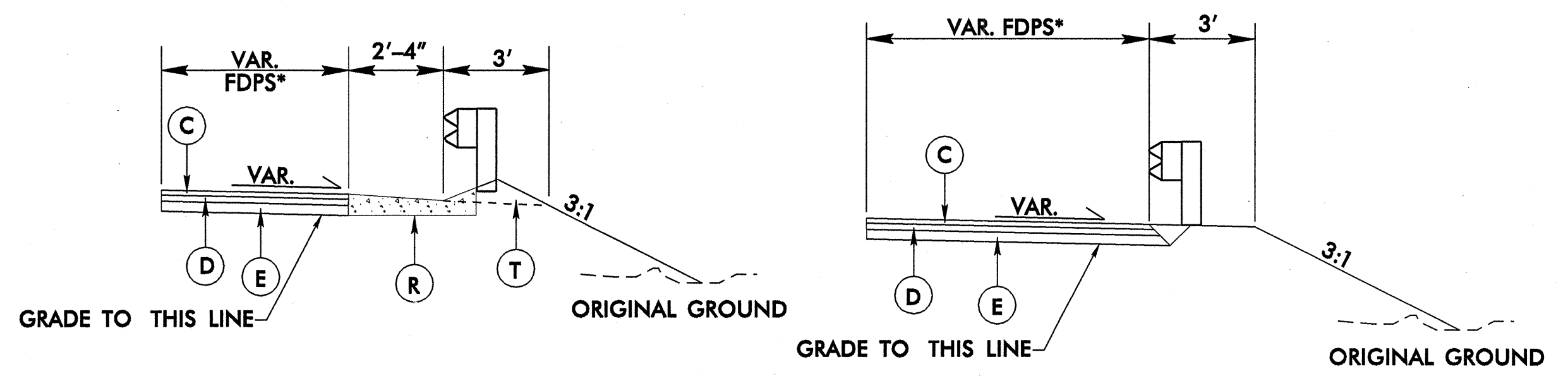
TYPICAL SECTION NO. 2

- L- STA. 12+00.00 TO STA. 15+20.00
- L- STA. 18+40.00 TO STA. 20+50.00
- *SEE PLANS FOR LIMITS OF VARIABLE FDPS



TYPICAL SECTION NO. 3

- L- STA. 15+20.00 TO STA. 16+20.00 (BEGIN BRIDGE)
- L- STA. 17+40.00 (END BRIDGE) TO STA. 18+40.00



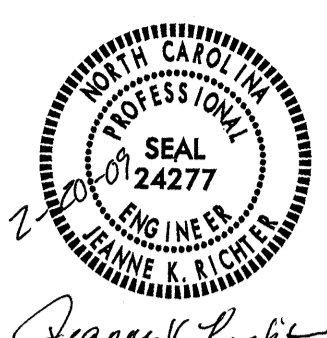
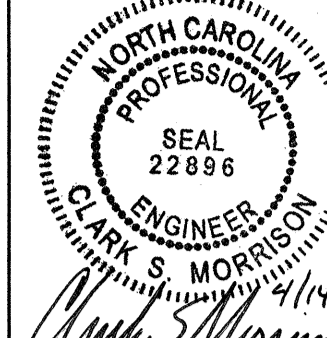
USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 2&3

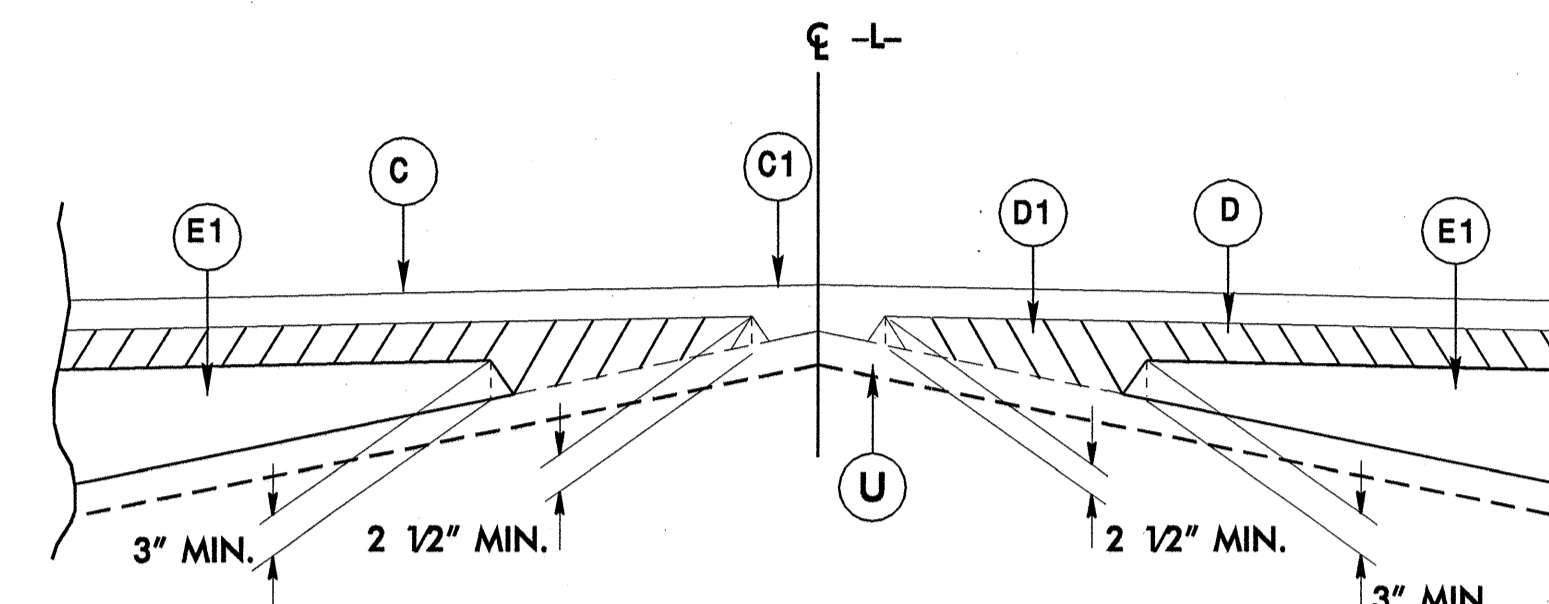
- (SEE PLANS FOR LOCATIONS)
- *SEE PLAN FOR LIMITS OF FDPS

PAVEMENT SCHEDULE	
A	5½" PORTLAND CEMENT CONCRETE PAVEMENT.
C	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C1	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D1	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E1	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J	PROP. 8" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL BELOW)

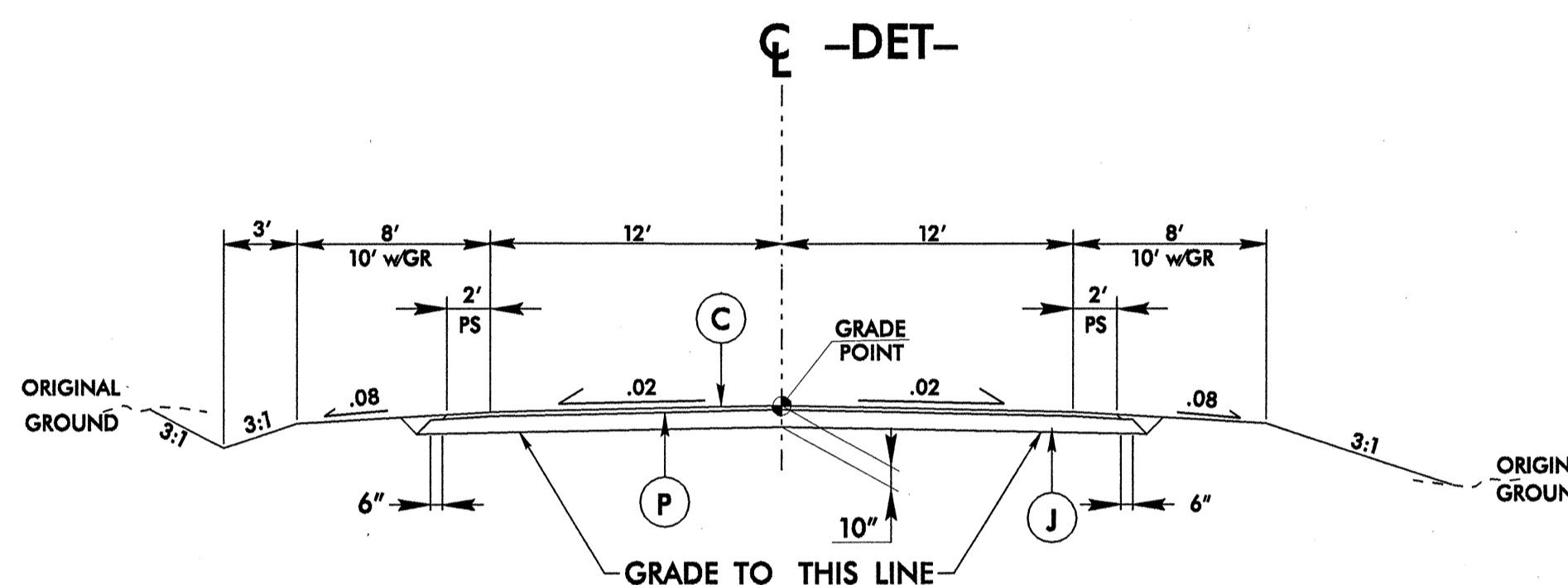
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

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PROJECT REFERENCE NO. B-4030	SHEET NO. 2A
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 

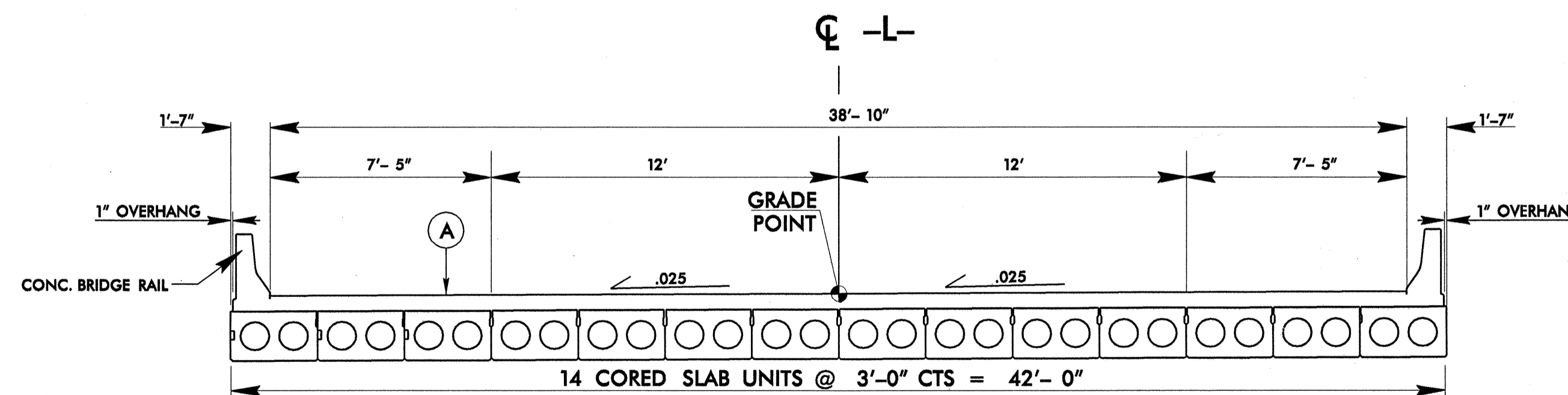


Detail Showing Method of Wedging



TYPICAL SECTION NO. 4

-DET- STA. 15+72.89 TO STA. 19+50.00 (BEGIN BRIDGE)
 -DET- STA. 20+35.00 (END BRIDGE) TO STA. 24+93.10



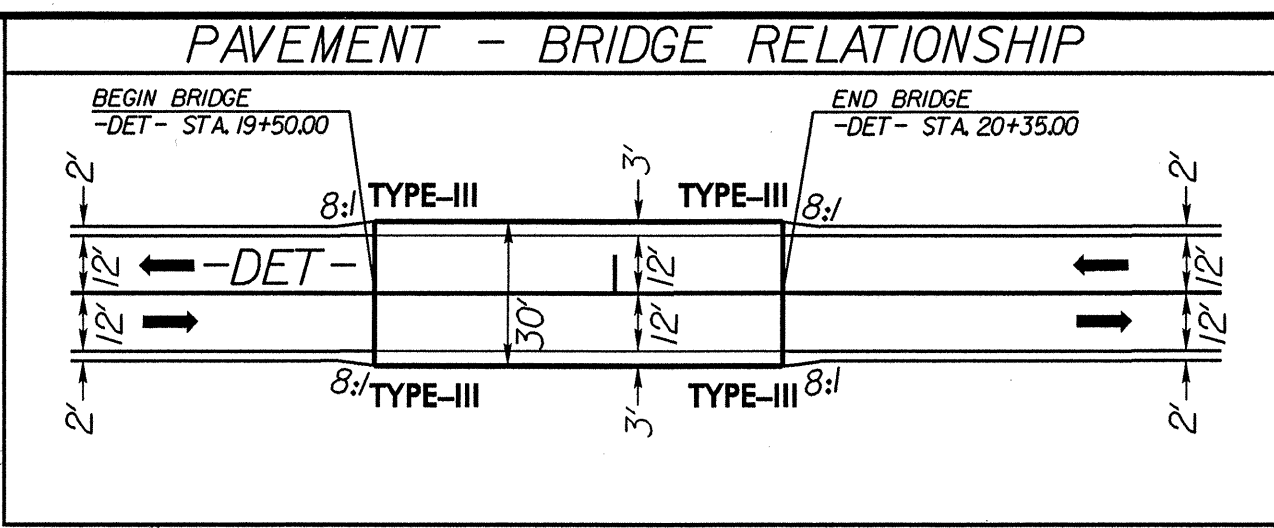
TYPICAL BRIDGE SECTION NO.5

-L- STA. 16+20.00 (BEGIN BRIDGE) TO STA. 17+40.00 (END BRIDGE)

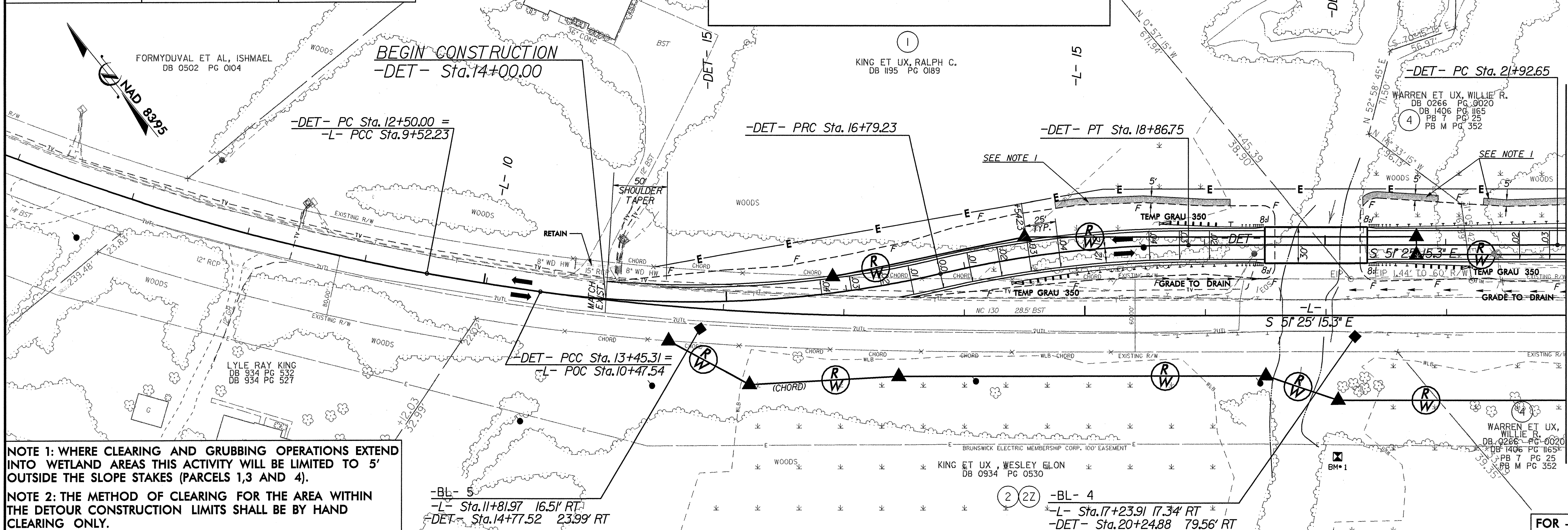
8/17/99

REVISIONS

-DET-		
PI Sta 12+97.66 Δ = 2° 30' 06.9" (LT) D = 2' 37' 30.3" L = 95.31' T = 47.66' R = 2,182.62' e(max) = EXISTING Ds = 50 MPH	PI Sta 15+14.10 Δ = 20° 39' 41.5" (LT) D = 6' 11' 14.8" L = 333.93' T = 168.80' R = 926.00' e(max) = EXISTING Ds = 50 MPH	PI Sta 17+83.43 Δ = 12° 50' 23.2" (RT) D = 6' 11' 14.8" L = 207.51' T = 104.19' R = 926.00' e(max) = .04 Ds = 50 MPH



PROJECT REFERENCE NO. B-4030	SHEET NO. 2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 24277 ENGINEER JANNE K. RICHER	HYDRAULICS ENGINEER SEAL 9334 ENGINEER HENRY WELLS



NOTE 1: WHERE CLEARING AND GRUBBING OPERATIONS EXTEND INTO WETLAND AREAS THIS ACTIVITY WILL BE LIMITED TO 5' OUTSIDE THE SLOPE STAKES (PARCELS 1,3 AND 4).

NOTE 2: THE METHOD OF CLEARING FOR THE AREA WITHIN THE DETOUR CONSTRUCTION LIMITS SHALL BE BY HAND CLEARING ONLY.

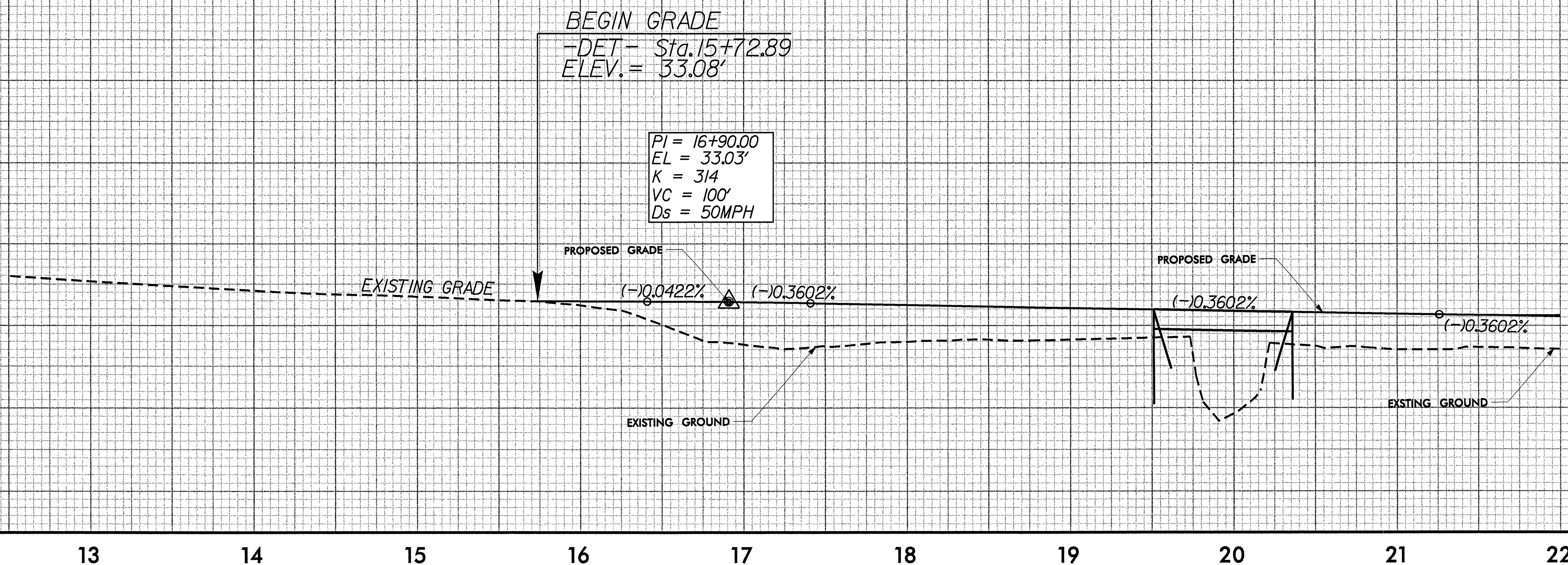
MATCH LINE -DET- STA. 22 + 00 SEE SHEET 2C

FOR -L- PLAN AND PROFILE, SEE SHEETS 4-5

-DET-

BM* 1 ELEV. 34.04'
N 119415.4337 E 2138265.9027
-L- STA 17+09.41 116.79' RT.
-DET- STA 20+10.11 174.79' RT.

STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 400 CFS
DESIGN FREQUENCY	= 5 YRS
DESIGN HW ELEVATION	= 28.9 FT
BASE DISCHARGE	= N/A CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= N/A FT
OVERTOPPING DISCHARGE	= N/A CFS
OVERTOPPING FREQUENCY	= N/A YRS
OVERTOPPING ELEVATION	= N/A FT



14-MAY-2009 17:27 I:\Projects\B4030\Roadway\Proj\B4030_rdw_psh_02B.dgn

8/17/99

NOTE 1: WHERE CLEARING AND GRUBBING OPERATIONS EXTEND INTO WETLAND AREAS THIS ACTIVITY WILL BE LIMITED TO 5' OUTSIDE THE SLOPE STAKES (PARCELS 1,3 AND 4).

NOTE 2: THE METHOD OF CLEARING FOR THE AREA WITHIN THE DETOUR CONSTRUCTION LIMITS SHALL BE BY HAND CLEARING ONLY.

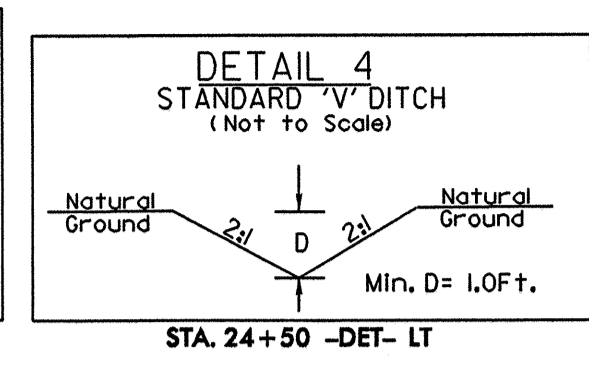
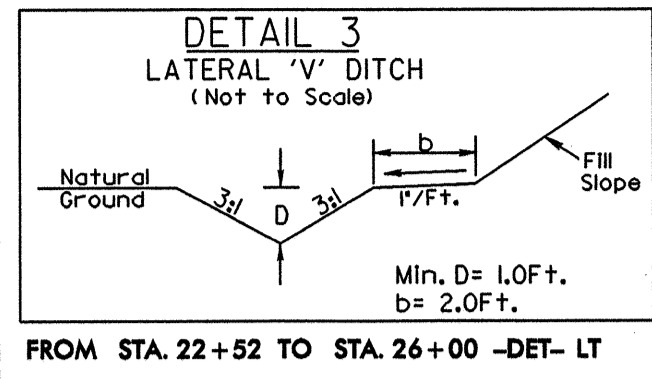
PROJECT REFERENCE NO. B-4030	SHEET NO. 20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-DET-

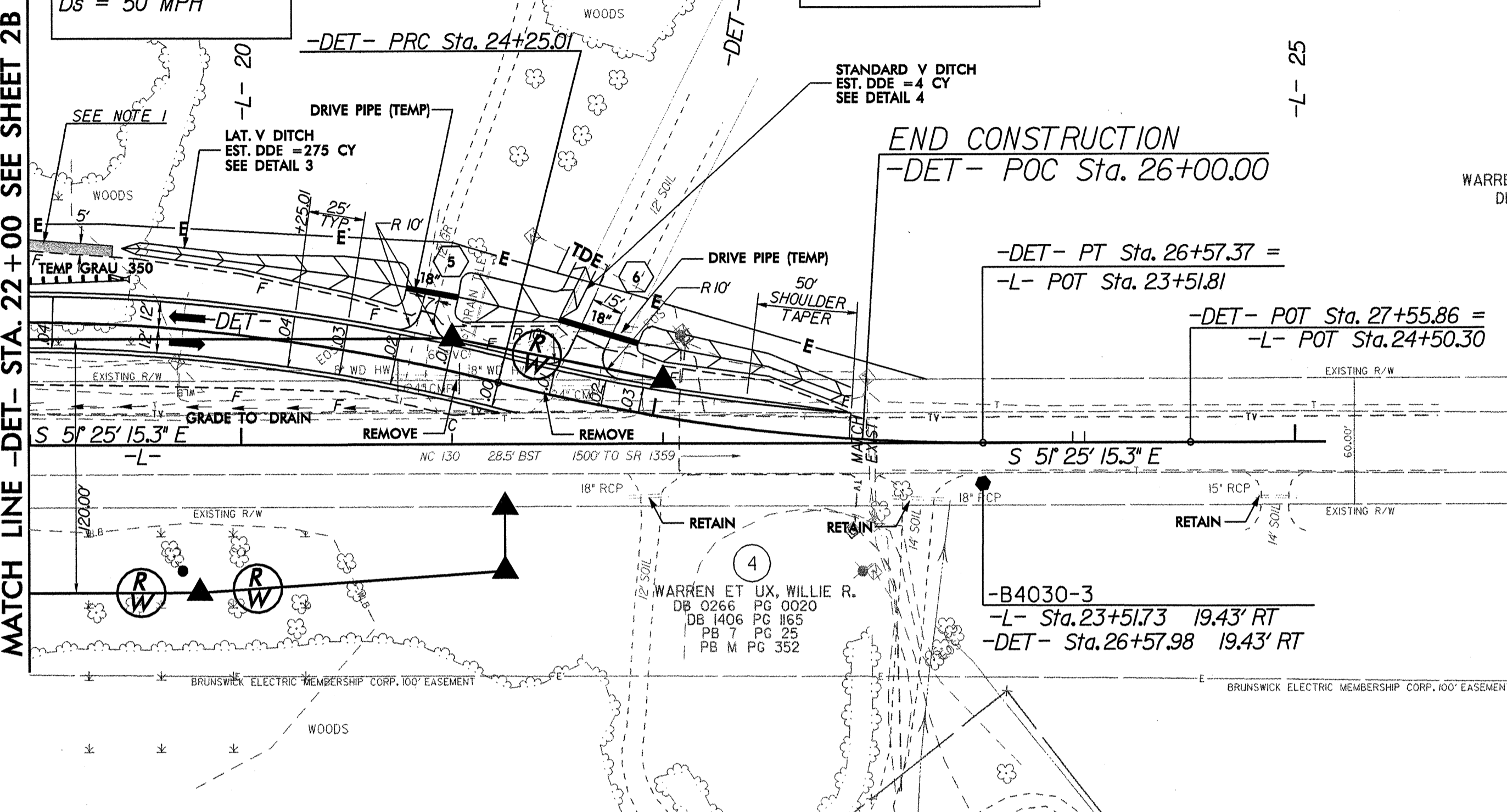
PI Sta 23+09.45
 $\Delta = 14' 22' 37.5"$ (RT)
 $D = 6' 11' 14.8"$
 $L = 232.36'$
 $T = 116.79'$
 $R = 926.00'$
 $e(max) = .04$
 $Ds = 50$ MPH

-DET-

PI Sta 25+41.81
 $\Delta = 14' 22' 37.5"$ (LT)
 $D = 6' 11' 14.8"$
 $L = 232.36'$
 $T = 116.79'$
 $R = 926.00'$
 $e(max) = .04$
 $Ds = 50$ MPH



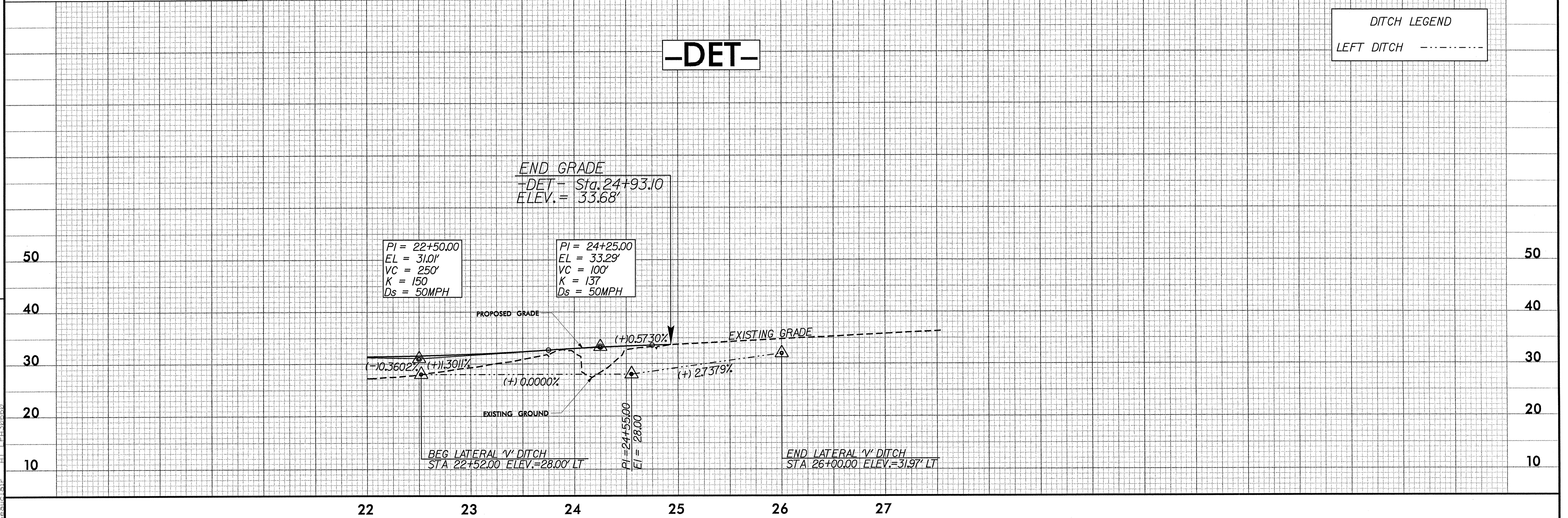
MATCH LINE -DET- STA. 22+00 SEE SHEET 2B



FOR -L- PLAN AND PROFILE, SEE SHEETS 4-5

-DET-

DITCH LEGEND
 LEFT DITCH - - - - -



REVISIONS

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

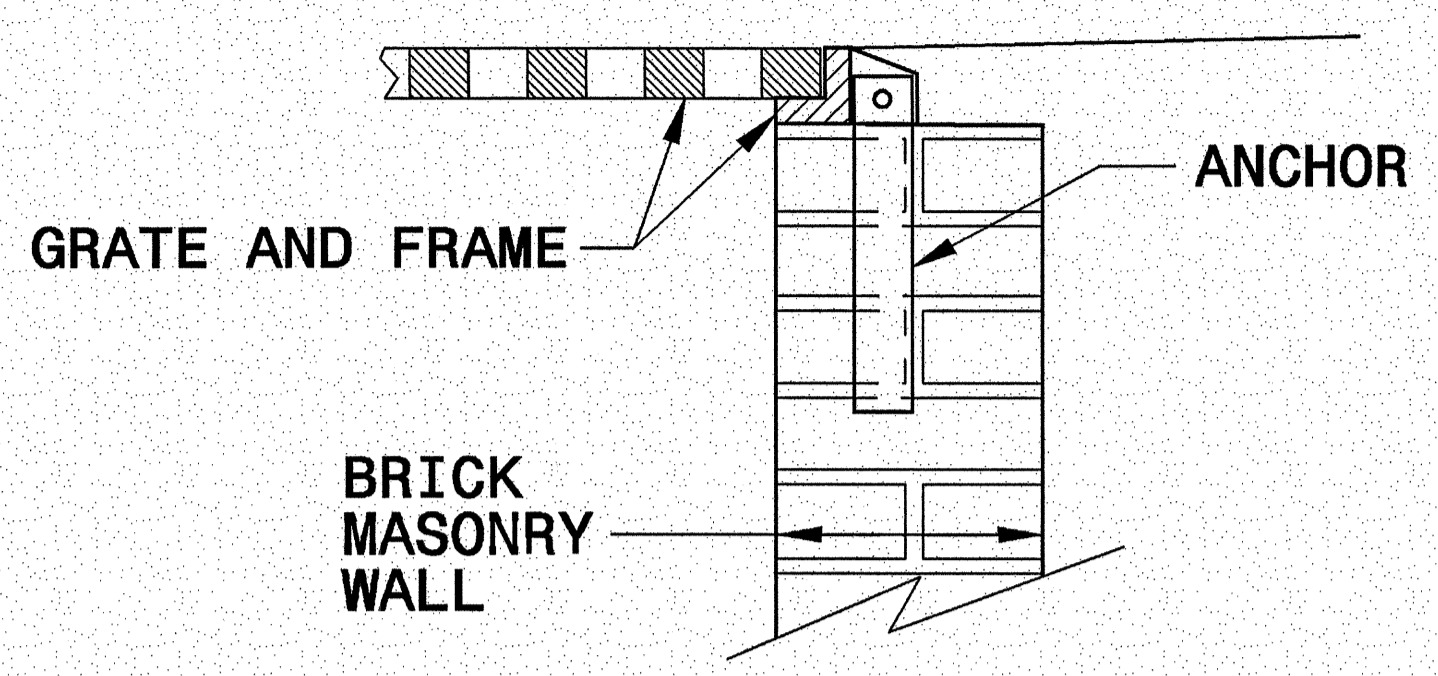
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

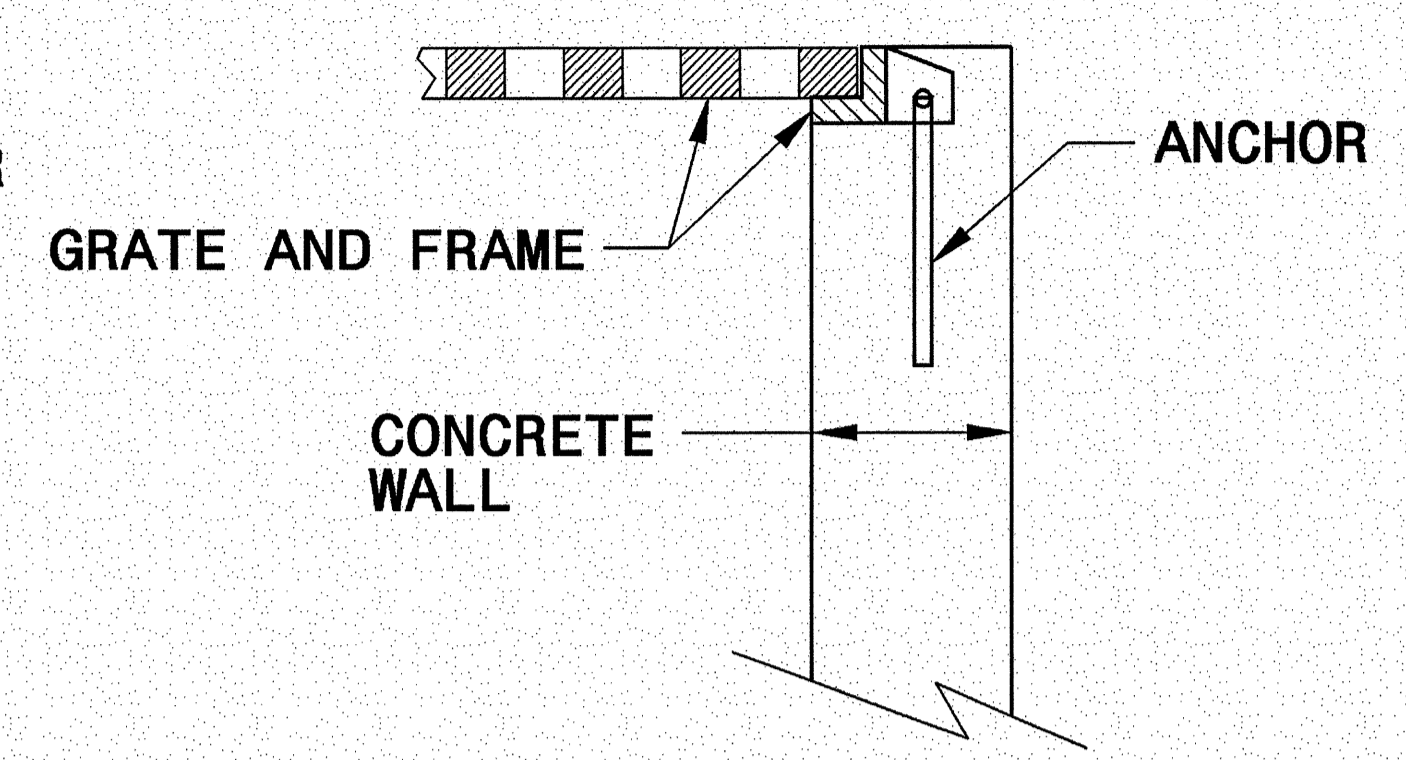
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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

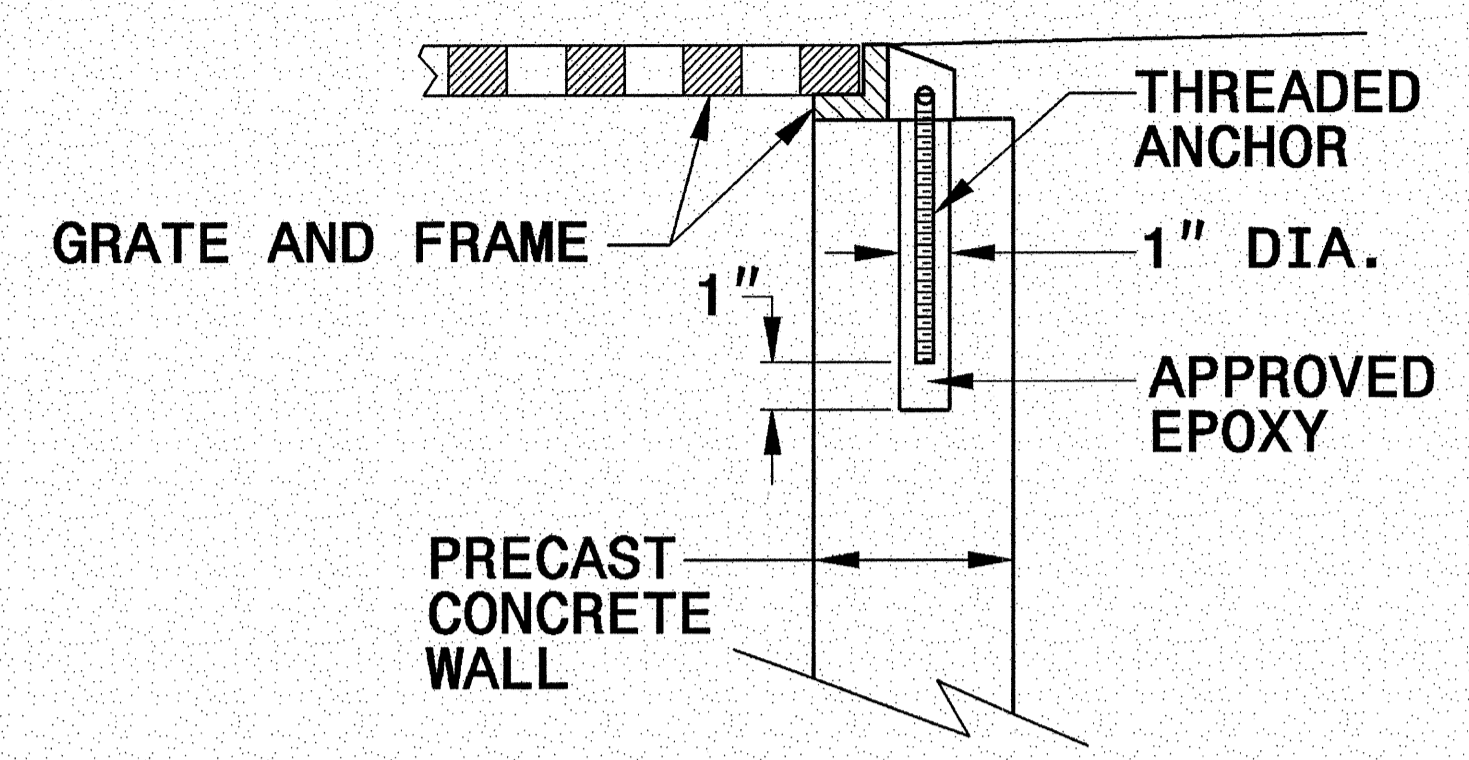
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



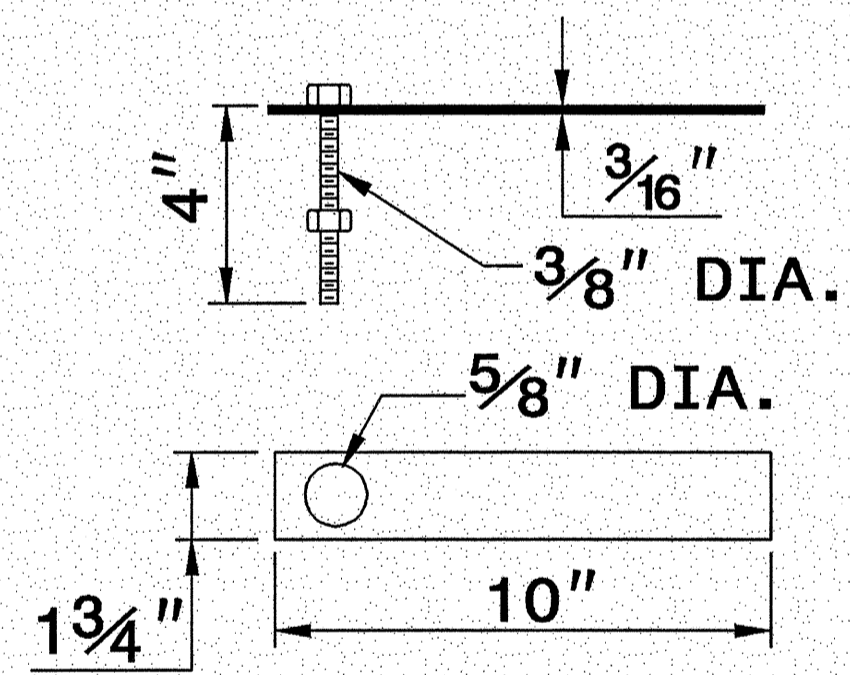
CONCRETE CONSTRUCTION



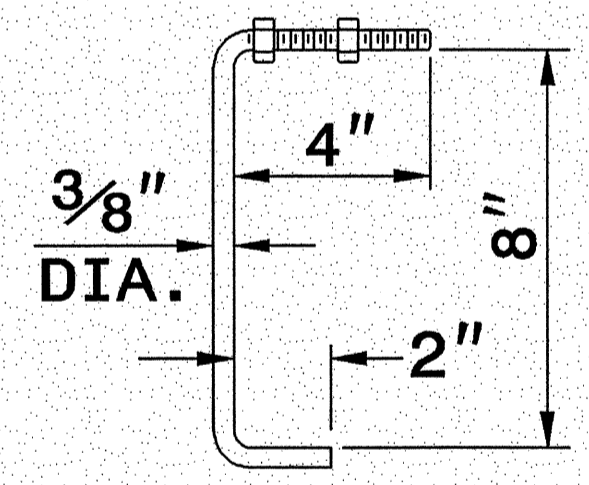
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

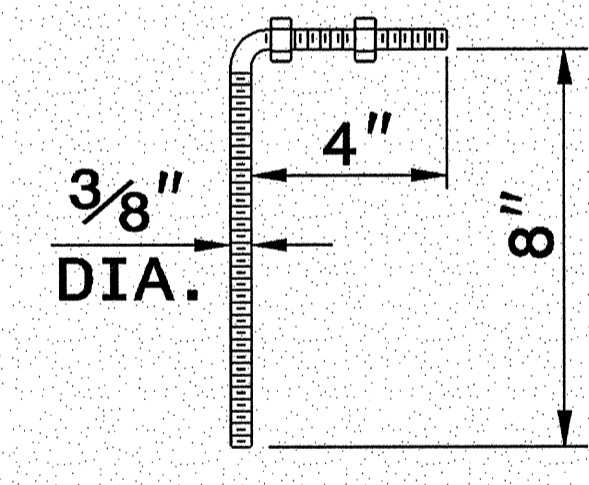
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



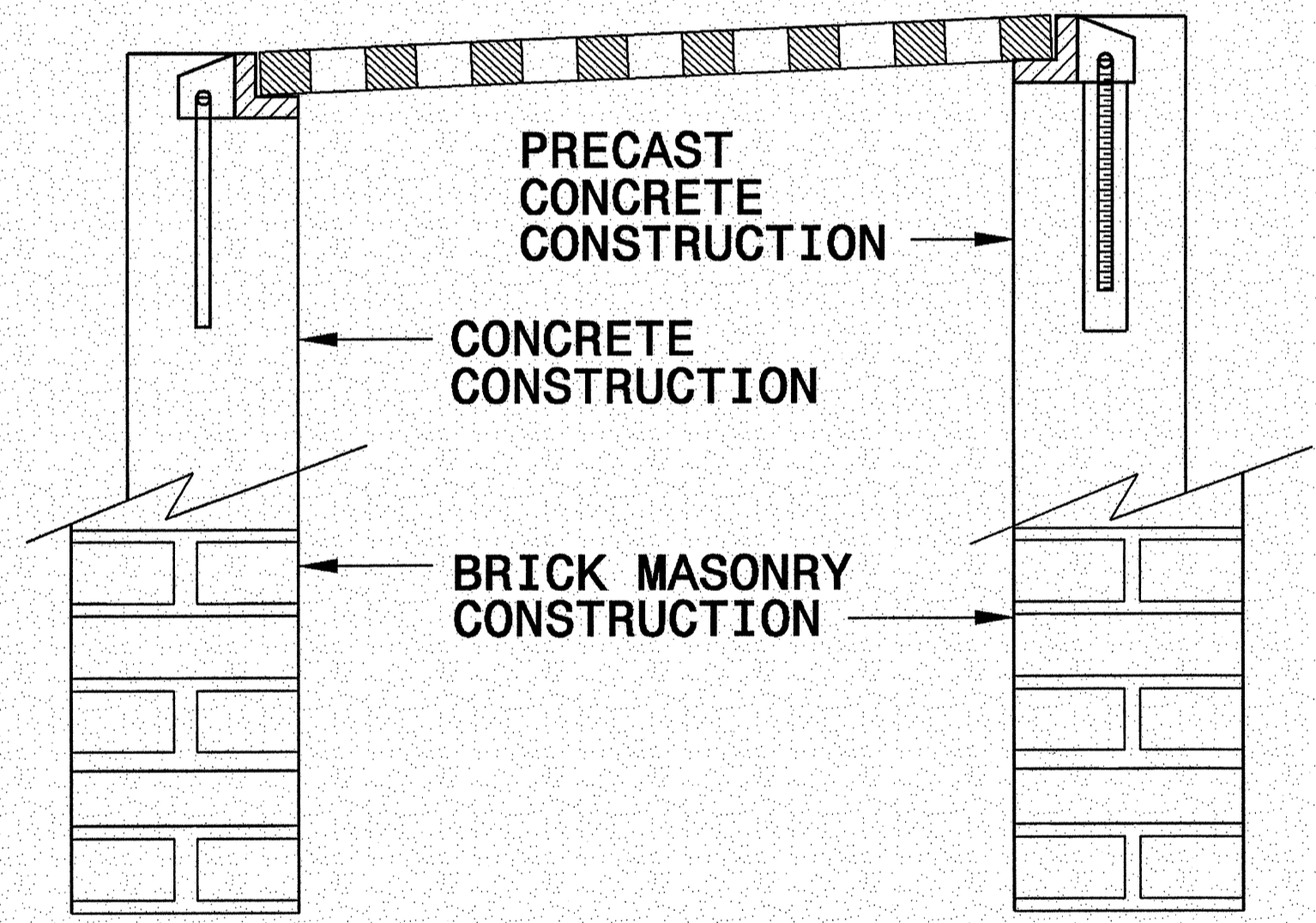
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR

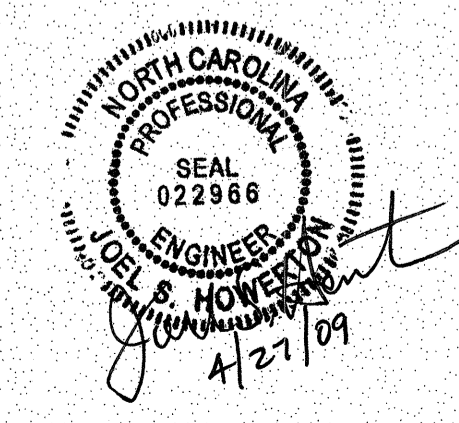


PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

C:\SERV-2006\08459\Projects\Special Details\ereward\stds\840D25 Anchorage for Frames\0840d25.dgn



**PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN**
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: DATE:
FILE SPEC.:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202102

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (16+80.00)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	300	CY	UNDERCUT EXCAVATION
0134000000-E	240	450	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	200	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	9,400	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	30	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0344000000-E	310	68	LF	18" SIDE DRAIN PIPE
0345000000-E	310	44	LF	24" SIDE DRAIN PIPE
0378000000-E	310	76	LF	24" RC PIPE CULVERTS, CLASS III
0660000000-E	310	36	LF	***BIT COAT CS PIPE CULVERTS, TYPE A ***** THICK (15", 0.064")
0680000000-E	310	2	EA	*** BIT COAT CS PIPE ELBOWS, TYPE A ***** THICK (15", 0.064")
0995000000-E	340	128	LF	PIPE REMOVAL
1121000000-E	520	1,380	TON	AGGREGATE BASE COURSE
1220000000-E	545	50	TON	INCIDENTAL STONE BASE
1275000000-E	600	1,005	GAL	PRIME COAT
1489000000-E	610	420	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	390	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE 119.0B
1519000000-E	610	920	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	95	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
2022000000-E	815	23	CY	SUBDRAIN EXCAVATION
2033000000-E	815	17	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	3	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
2286000000-N	840	1	EA	MASONRY DRAINAGE STRUCTURES
2367000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	290	LF	SHOULDER BERM GUTTER
3030000000-E	862	600	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3360000000-E	863	435	LF	REMOVE EXISTING GUARDRAIL
3380000000-E	862	325	LF	TEMPORARY STEEL BM GUARDRAIL
3387000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (III)
3389100000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY
3628000000-E	876	20	TON	RIP RAP, CLASS I
3649000000-E	876	1	TON	RIP RAP, CLASS B
3656000000-E	876	405	SY	FILTER FABRIC FOR DRAINAGE
4400000000-E	1110	128	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	36	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	36	EA	DRUMS
4435000000-N	1135	25	EA	CONES
4445000000-E	1145	48	LF	BARRICADES (TYPE III)

ItemNumber	Sec #	Quantity	Unit	Description
4450000000-N	1150	2,912	HR	FLAGGER
4516000000-N	1180	25	EA	SKINNY DRUM
4650000000-N	1251	98	EA	TEMPORARY RAISED PAVEMENT MARKERS
4685000000-E	1205	2,660	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	2,660	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4770000000-E	1205	672	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (I)
4770000000-E	1205	672	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)
4810000000-E	1205	20,240	LF	PAINT PAVEMENT MARKING LINES (4")
4850000000-E	1205	718	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4900000000-N	1251	3	EA	PERMANENT RAISED PAVEMENT MARKERS
4905000000-N	1253	17	EA	SNOWPLOWABLE PAVEMENT MARKERS
6000000000-E	1605	3,080	LF	TEMPORARY SILT FENCE
6006000000-E	1610	160	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	280	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	640	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	6.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.5	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	100	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	4	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	350	LF	SAFETY FENCE
6030000000-E	1630	430	CY	SILT EXCAVATION
6036000000-E	1631	500	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	50	SY	COIR FIBER MAT
6042000000-E	1632	1,600	LF	1/4" HARDWARE CLOTH
6048000000-E	SP	140	SY	FLOATING TURBIDITY CURTAIN
6071030000-E	SP	550	LF	COIR FIBER BAFFLES
6084000000-E	1660	5	ACR	SEEDING & MULCHING
6087000000-E	1660	45	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	125	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	3.25	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	5	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	27	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.75	ACR	REFORESTATION

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 Title AT LEADERS

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
PHASE I					
-DET- 14+00.00 TO 19+50.00 (BEGIN BRIDGE)	31		2,871	2,840	
-DET- 20+35.00 (END BRIDGE) TO 26+00.00	26		2,586	2,560	
SUBTOTAL	57		5,457	5,400	
PHASE II					
-L- 12+00.00 TO 16+20.00 (BEGIN BRIDGE)	65		1,254	1,189	
-L- 17+40.00 (END BRIDGE) TO 21+00.00	233		1,094	861	
SUBTOTAL	298		2,348	2,050	
PHASE III (-L- /W-DET- REMOVAL)					
-L- 11+50.00 TO 16+49.30 (BEGIN BRIDGE)	2,125				2,125
-L- 17+34.30 (END BRIDGE) TO 22+50.00	1,834				1,834
SUBTOTAL	3,959				3,959
TOTALS	4,314		7,805	7,450	3,959
PROJECT TOTALS	4,314		7,805	7,450	3,959
EST. 5% FOR REPLACING TOPSOIL ON ON BORROW PIT				373	
GRAND TOTALS	4,314		7,805	7,823	3,959
SAY	4,400			7,900	

EST. DDE = 450 C.Y.
EST. UNDERCUT EXCAVATION = 300 C.Y.
EST. SELECT GRANULAR MATERIAL = 200 C.Y.

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

SUMMARY OF PAVEMENT REMOVAL

IN SQUARE YARDS

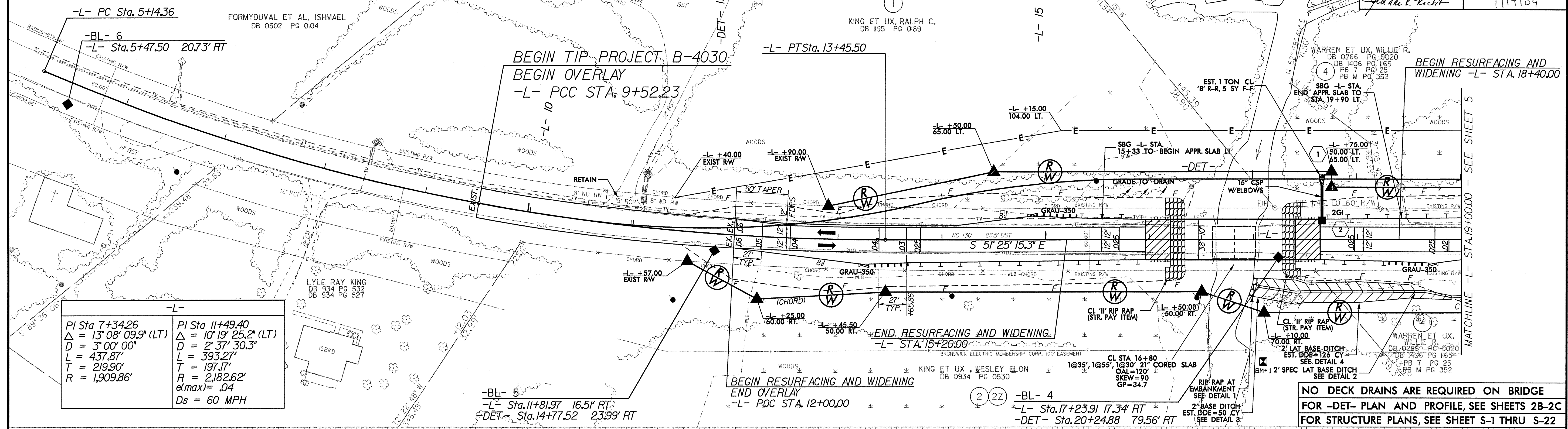
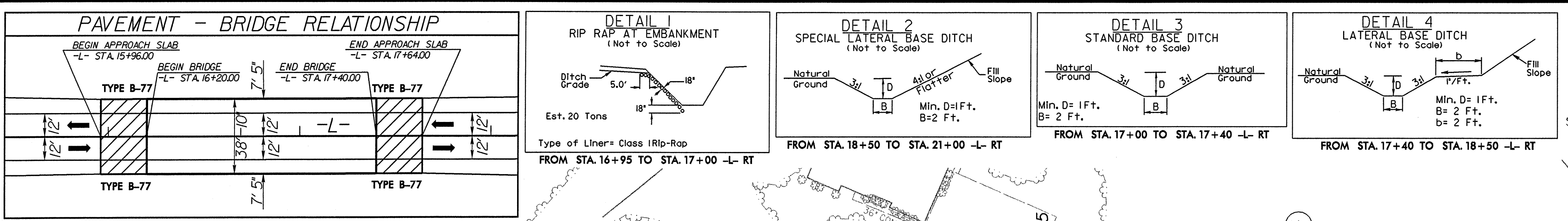
LOCATION	ASPHALT REMOVAL
-L- 15+20.00 TO 16+60.46	432.30
-L- 17+01.95 TO 18+40.00	427.96
-DET- 14+00.00 TO 16+51.74	282.36
-DET- 16+51.74 TO 19+42.06	903.22
-DET- 19+42.06 TO 19+50.00	25.58
-DET- 20+35.00 TO 20+42.94	25.58
-DET- 20+42.94 TO 24+29.01	1201.11
-DET- 24+29.01 TO 25+93.81	220.32
TOTAL	3,518.43
SAY	3,520

PARCEL INDEX

PARCEL NO.	PROPERTY OWNER	SHEET NO.
1	RALPH C. KING, ET UX	4
2	WESLEY ELON KING, ET UX	4
3	JOSEPH CLYMER SMITH, ET AL	4
4	WILLIE R. WARREN, ET UX	4+5

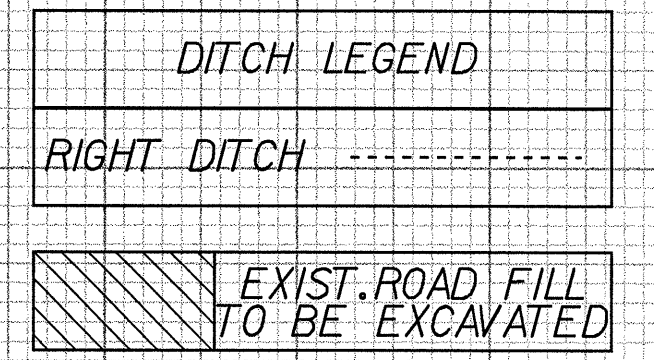
NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

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09-APP-2009 13:50
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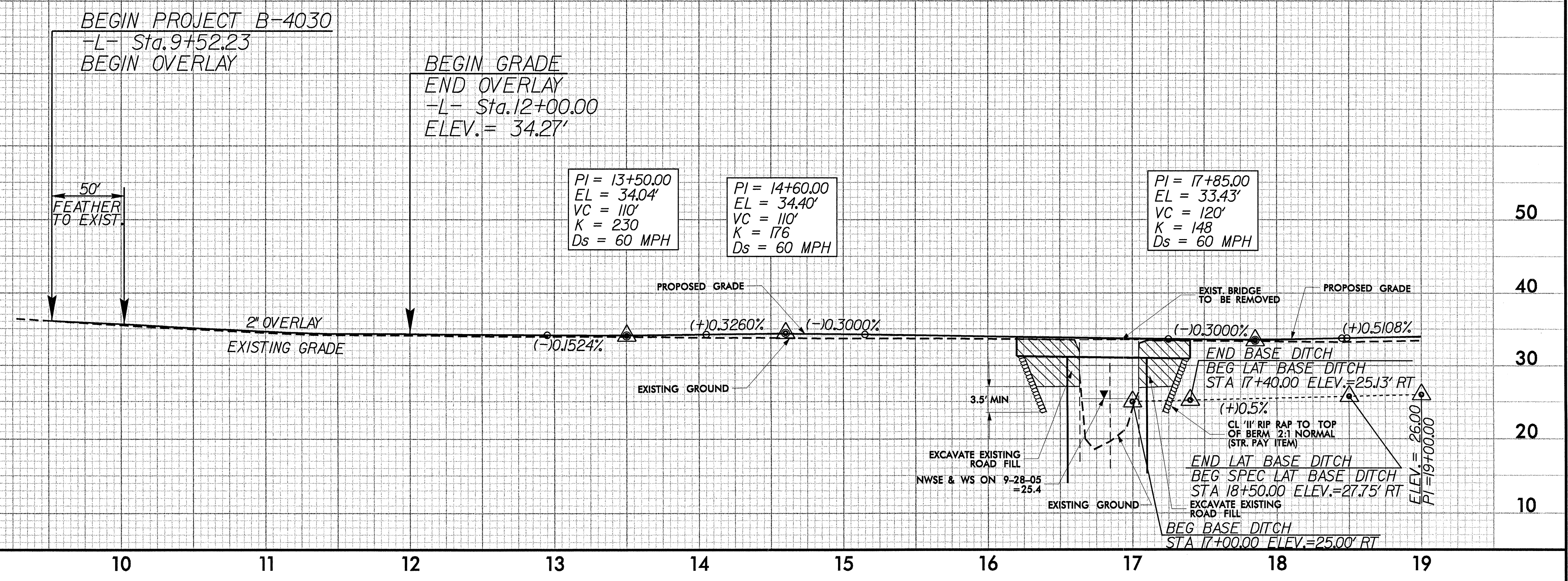
-L-

PI Sta 7+34.26	PI Sta 11+49.40
$\Delta = 13^{\circ} 08' 09.9" (LT)$	$\Delta = 10^{\circ} 19' 25.2" (LT)$
$D = 3^{\circ} 00' 00"$	$D = 2^{\circ} 37' 30.3"$
$L = 437.87'$	$L = 393.27'$
$T = 219.90'$	$T = 197.17'$
$R = 1,909.86'$	$R = 2,182.62'$
	$e(max) = .04$
	$Ds = 60 \text{ MPH}$

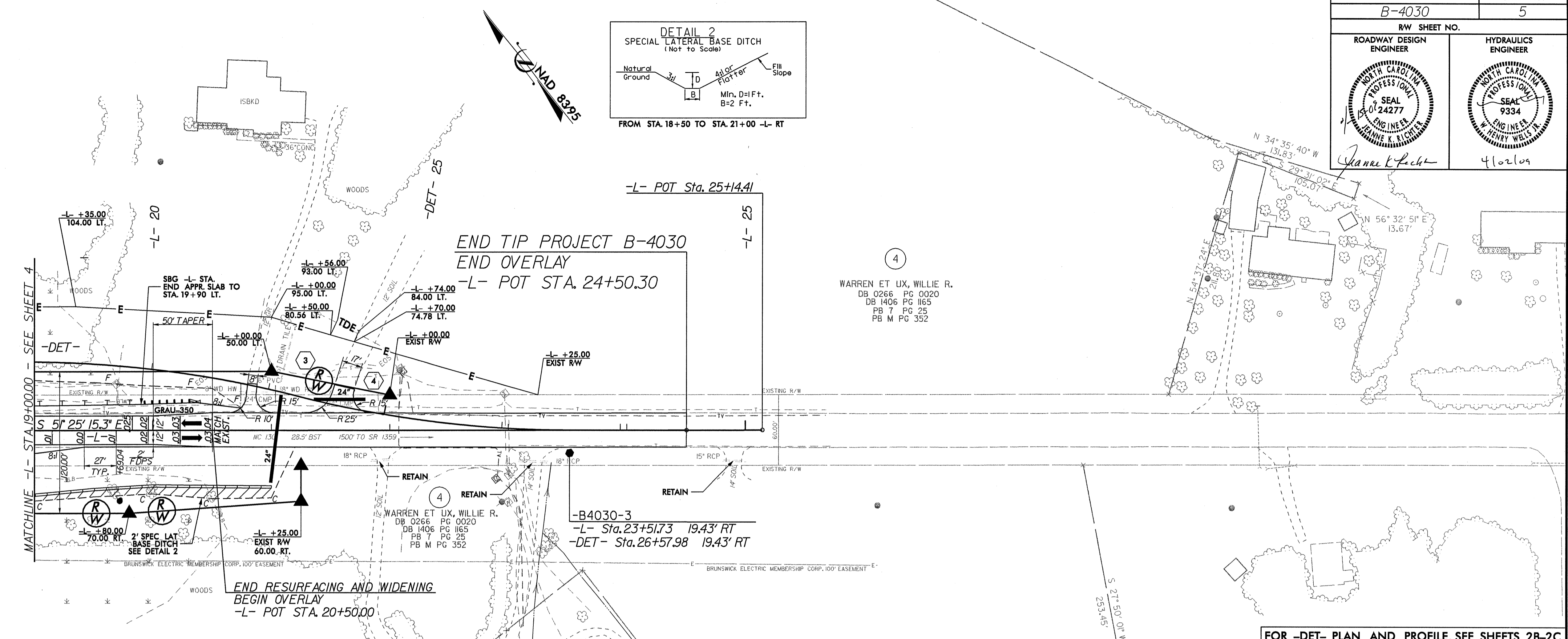
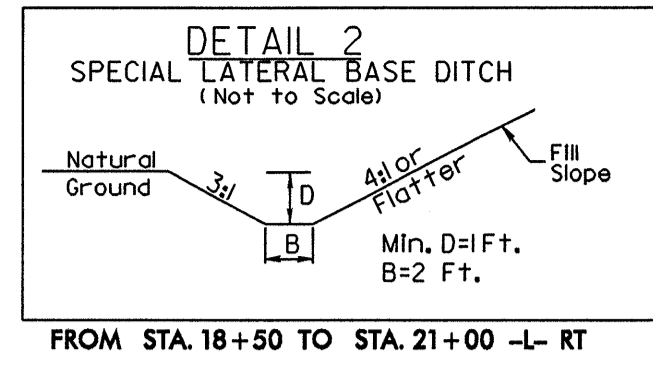


STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	1000 CFS
DESIGN FREQUENCY	=	50 YRS
DESIGN HW ELEVATION	=	29.5 FT
BASE DISCHARGE	=	1210 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	29.8 FT
OVERTOPPING DISCHARGE	=	2000+ CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	33.5 FT



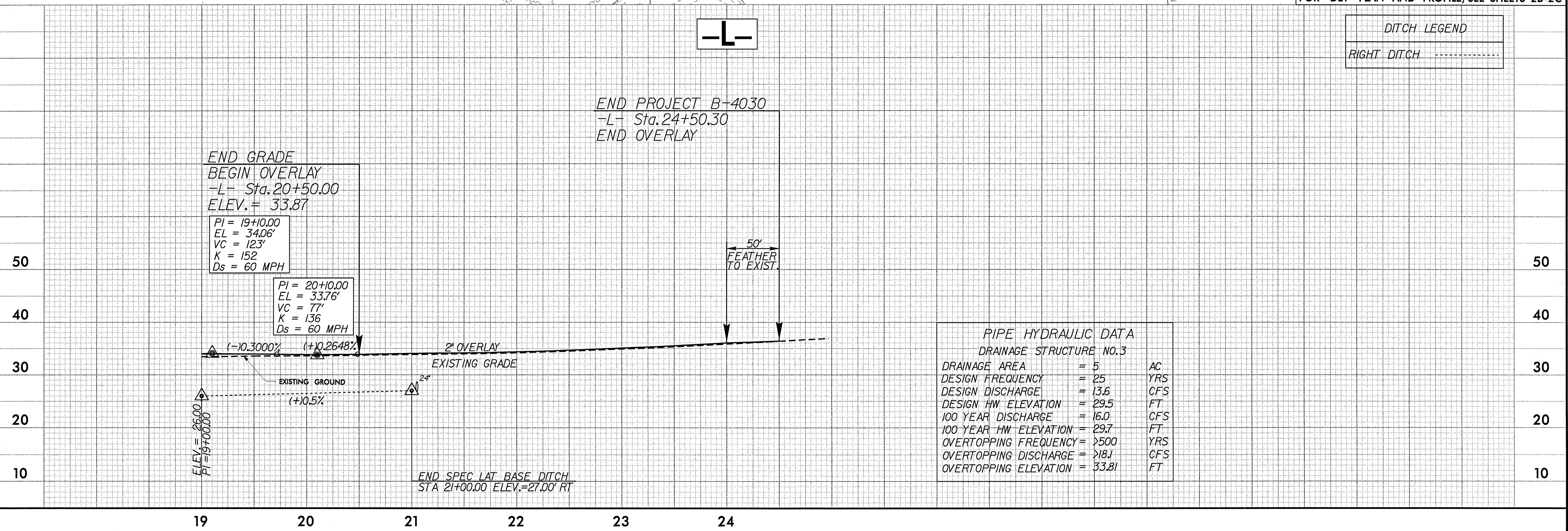
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FOR -DET- PLAN AND PROFILE, SEE SHEETS 2B-2C

DITCH LEGEND

RIGHT DITCH	-----
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PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.3

DRAINAGE AREA	= 5	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 13.6	CFS
DESIGN HW ELEVATION	= 29.5	FT
100 YEAR DISCHARGE	= 16.0	CFS
100 YEAR HW ELEVATION	= 29.7	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >18.1	CFS
OVERTOPPING ELEVATION	= 33.81	FT

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 Scale 1/4" = 1'-0"