

09/08/09

See Sheet 1-A For Index of Sheets  
 See Sheet 1-B For Conventional Symbols  
 See Sheet 1-C For Survey Control Sheet

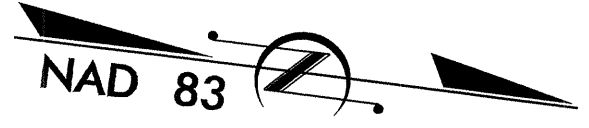
STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4201	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33548.1.1	BRSTP-3168(1)	PE	
33548.3.1	BRSTP-3168(1)	R/W & UTILITIES	
33548.2.1	BRSTP-3168(1)	CONST.	

**MECKLENBURG COUNTY**

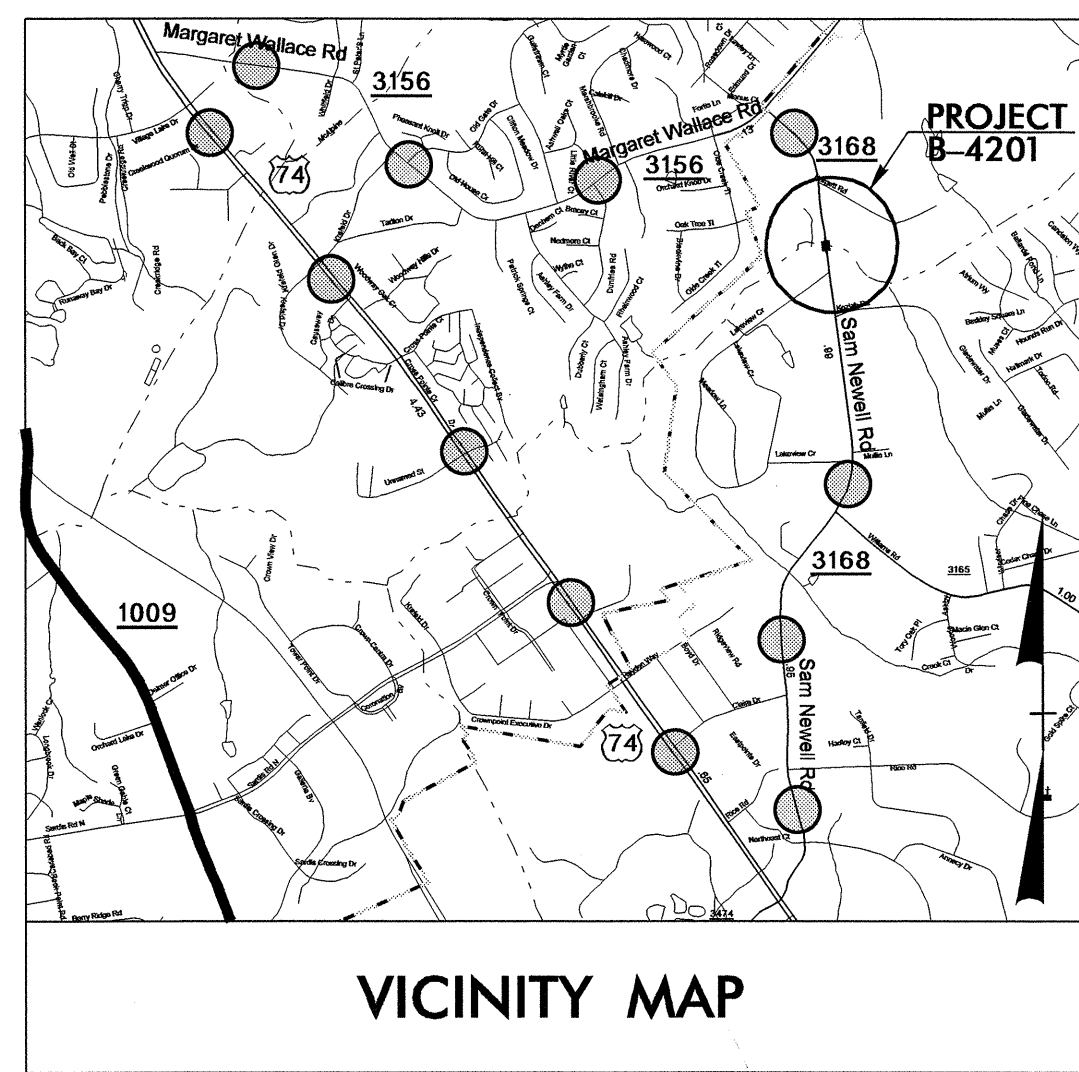
LOCATION: BRIDGE NO. 38 OVER IRVINS CREEK  
 ON SR 3168 (SAM NEWELL ROAD)

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



TIP PROJECT: B-4201

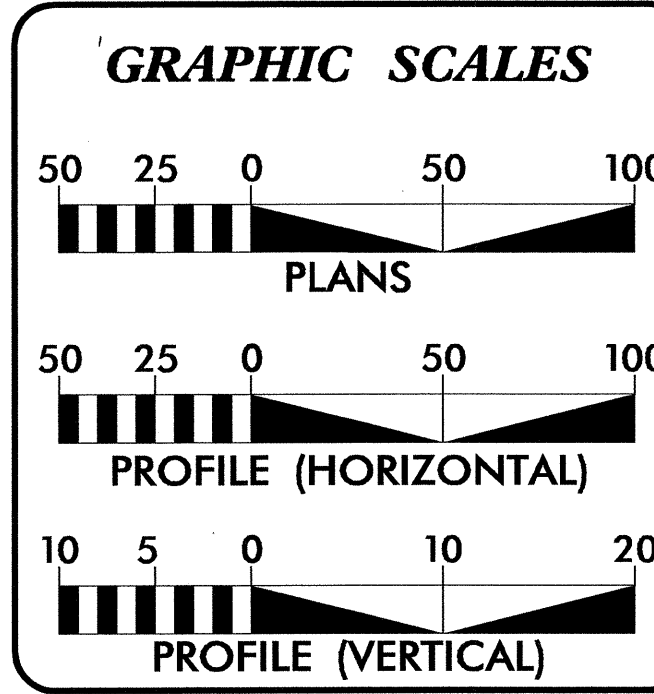
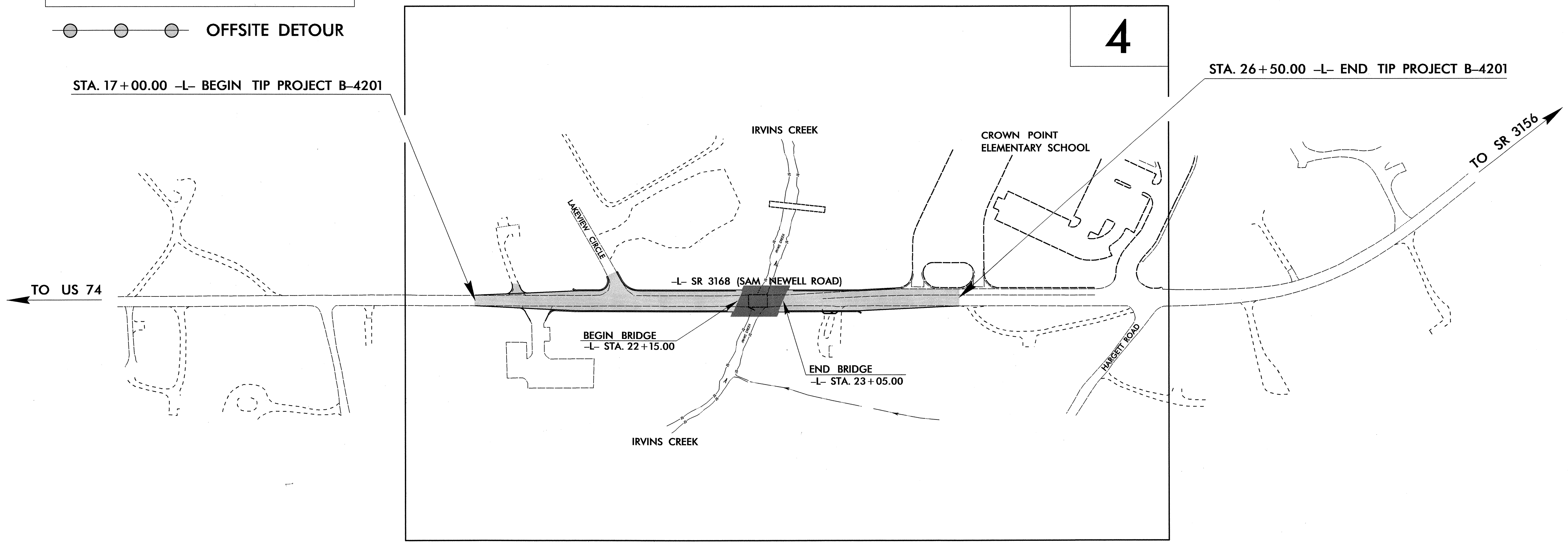
CONTRACT: C202777



VICINITY MAP

○ — ○ — ○ OFFSITE DETOUR

STA. 17+00.00 -L- BEGIN TIP PROJECT B-4201



**DESIGN DATA**

ADT 2012 = 12835  
 ADT 2035 = 20500

DHV = 12 %  
 D = 60 %  
 T = 4 % \*  
 V = 40 MPH

\* TTST 1% DUAL 3%  
 FUNC CLASS = URBAN COLLECTOR  
 "SUB-REGIONAL TIER"

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4201 = 0.163 MILES  
 LENGTH STRUCTURE TIP PROJECT B-4201 = 0.017 MILES  
 TOTAL LENGTH OF TIP PROJECT B-4201 = 0.180 MILES

Prepared In the Office of:  
**DIVISION OF HIGHWAYS**  
 1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 8, 2011

LETTING DATE: FEBRUARY 21, 2012

JAMES A. SPEER, PE  
 PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE  
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

*Brook Anderson*  
 SEAL 032581  
 BROOK E. ANDERSON  
 P.E.

ROADWAY DESIGN ENGINEER

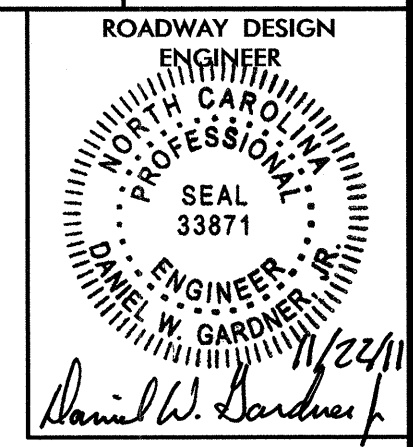
*Daniel W. Gardner Jr.*  
 SEAL 33871  
 DANIEL W. GARDNER, JR.  
 P.E.

11/22/11

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

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SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL PLAN SHEET SYMBOLS
1-C	SURVEY CONTROL SHEET
2 THRU 2-A	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAIL
3	SUMMARY OF QUANTITIES
3-A	DRAINAGE AND GUARDRAIL SUMMARY
3-B	EARTHWORK SUMMARY, ASPHALT PAVEMENT REMOVAL SUMMARY, AND SHOULDER BERM GUTTER SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-5	TRANSPORTATION MANAGEMENT PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UC-1 THRU UC-6	UTILITY CONSTRUCTION PLANS
UD-1 THRU UD-2	UTILITIES BY OTHERS
X-1	CROSS SECTION SUMMARY
X-2 THRU X-11	CROSS SECTIONS
S-1 THRU S-25	STRUCTURE PLANS

GENERAL NOTES: 2012 SPECIFICATIONS  
EFFECTIVE: 01-17-12  
REVISED: 11/01/11

**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.

**DRIVEWAYS:**  
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

**STREET TURNOUT:**  
STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

**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  
Charlotte Mecklenburg Utilities - Water and Sewer, Duke Energy-Electric Power,  
Union Power Cooperative-Electric Power, WindStream Communications-Telephone,  
AT&T-Telephone, Time Warner Cable, and Piedmont Gas-Gas Pipeline  
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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

**Curb Ramps:**  
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS IN ACCORDANCE WITH STD 848.05 and 848.06.

2012 ROADWAY ENGLISH STANDARD DRAWINGS  
The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
848.06	Curb Ramp - Existing Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

**Note: Not to Scale**

\*S.U.E. = *Subsurface Utility Engineering*

**BOUNDARIES AND PROPERTY:**

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	⑩ 23
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-
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	?? ??

**BUILDINGS AND OTHER CULTURE:**

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	⚡
Foundation	□
Area Outline	□
Cemetery	⊕
Building	□
School	□
Church	⊕
Dam	▬

**HYDROLOGY:**

Stream or Body of Water	-----
Hydro, Pool or Reservoir	□
Jurisdictional Stream	-JS-
Buffer Zone 1	-BZ 1-
Buffer Zone 2	-BZ 2-
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	⚡
Proposed Lateral, Tail, Head Ditch	▬
False Sump	◇

**RAILROADS:**

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

**RIGHT OF WAY:**

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

**ROADS AND RELATED FEATURES:**

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

**VEGETATION:**

Single Tree	○
Single Shrub	○
Hedge	-----
Woods Line	-----

Orchard	○
Vineyard	□ Vineyard

**EXISTING STRUCTURES:**

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ S
Storm Sewer	-S-

**UTILITIES:**

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○ P
Power Line Tower	□
Power Transformer	□
U/G Power Cable Hand Hole	○
H-Frame Pole	●
Recorded U/G Power Line	-P-
Designated U/G Power Line (S.U.E.*)	-P-

**TELEPHONE:**

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○ T
Telephone Booth	□
Telephone Pedestal	□
Telephone Cell Tower	⚡
U/G Telephone Cable Hand Hole	○ PH
Recorded U/G Telephone Cable	-T-
Designated U/G Telephone Cable (S.U.E.*)	-T-
Recorded U/G Telephone Conduit	-TC-
Designated U/G Telephone Conduit (S.U.E.*)	-TC-
Recorded U/G Fiber Optics Cable	-T FO-
Designated U/G Fiber Optics Cable (S.U.E.*)	-T FO-

**WATER:**

Water Manhole	○ W
Water Meter	○
Water Valve	○
Water Hydrant	○
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	-A/G Water-

**TV:**

TV Satellite Dish	⚡
TV Pedestal	□
TV Tower	⊕
U/G TV Cable Hand Hole	○ PH
Recorded U/G TV Cable	-TV-
Designated U/G TV Cable (S.U.E.*)	-TV-
Recorded U/G Fiber Optic Cable	-TV FO-
Designated U/G Fiber Optic Cable (S.U.E.*)	-TV FO-

**GAS:**

Gas Valve	◇
Gas Meter	○
Recorded U/G Gas Line	-G-
Designated U/G Gas Line (S.U.E.*)	-G-
Above Ground Gas Line	-A/G Gas-

**SANITARY SEWER:**

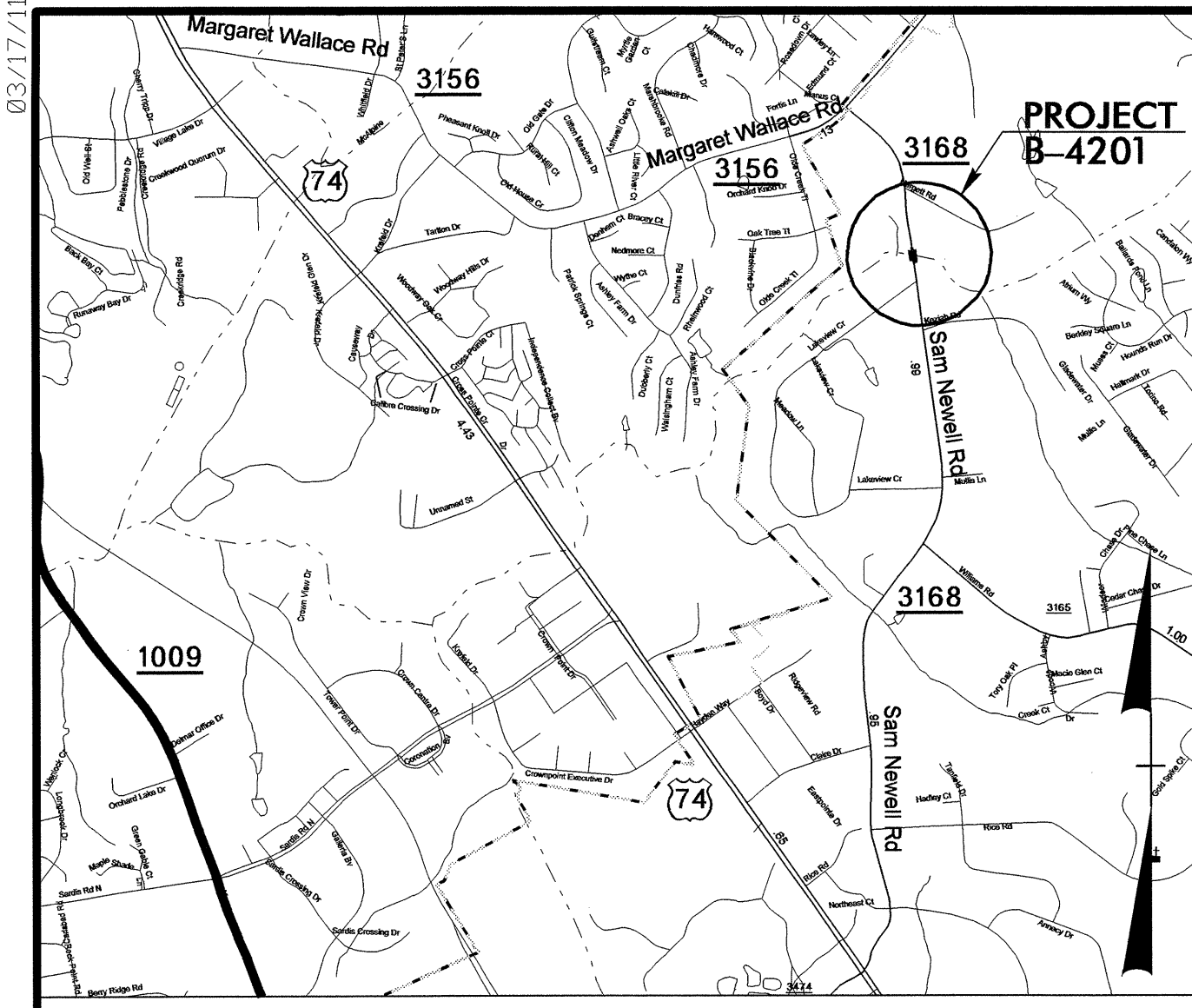
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-SS-
Above Ground Sanitary Sewer	-A/G Sanitary Sewer-
Recorded SS Forced Main Line	-FSS-
Designated SS Forced Main Line (S.U.E.*)	-FSS-

**MISCELLANEOUS:**

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



# SURVEY CONTROL SHEET



**VICINITY MAP**

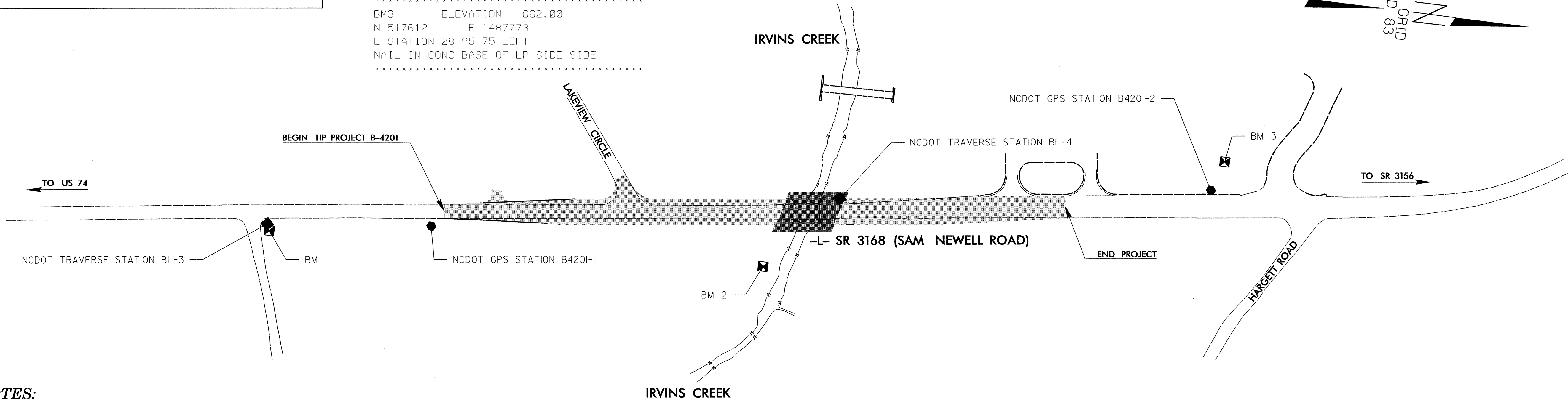
BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3		BL-3	516170.3210	1488052.9060	650.64	14+28.92	19.04 RT
1		B4201-1	516419.5060	1488024.1980	639.46	16+79.89	22.12 RT
4		BL-4	517034.5740	1487902.7010	628.08	23+05.37	20.56 LT
2		B4201-2	517596.3070	1487819.1010	654.95	28+73.17	32.07 LT

\*\*\*\*\*  
 BM1 ELEVATION = 651.05  
 N 516175 E 1488063  
 L STATION 14+32 29 RIGHT  
 RR SPIKE IN 24" PINE  
 \*\*\*\*\*  
 BM2 ELEVATION = 620.86  
 N 516931 E 1488021  
 L STATION 21+87 83 RIGHT  
 RR SPIKE IN 10" OAK  
 \*\*\*\*\*  
 BM3 ELEVATION = 662.00  
 N 517612 E 1487773  
 L STATION 28+95 75 LEFT  
 NAIL IN CONC BASE OF LP SIDE SIDE  
 \*\*\*\*\*

TYPE	STATION	NORTH	EAST
POT	10+00.00	515742.6880	1488091.1480
PC	14+34.30	516173.1176	1488033.3155
PT	15+15.00	516253.1463	1488022.8914
PC	18+18.48	516554.2335	1487984.9086
PT	18+97.63	516632.7558	1487974.9238
PC	31+23.40	517848.5757	1487819.1003
PT	35+83.48	518251.1102	1487615.2641
POT	37+24.47	518348.3210	1487513.1460

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4201-2"  
 WITH NAD 83 STATE PLANE GRID COORDINATES OF  
 NORTHING: 517596.307(FT) EASTING: 1487819.101(FT)  
 ELEVATION: 654.949(FT)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998475  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4201-2" TO -L- STATION 17+00.00 IS  
 S 08°51'14.1" E 1173.60  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88



**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:  
 B4201\_LS\_CONTROL.TXT  
 B4201\_LS\_LOCAL.TXT
2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
3. PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM. NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS) MONUMENTS USED OR SET FOR PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT:

- INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL
- INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
- ▣ INDICATES BENCHMARKS FOR VERTICAL CONTROL

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	17+00.00	-30.00	516432.9344	1487969.9730
L	17+00.00	-40.00	516431.6828	1487960.0516
L	17+00.00	40.00	516441.6956	1488039.4225
L	17+00.00	30.00	516440.4440	1488029.5012
L	18+18.48	40.00	516559.2399	1488024.5940
L	18+18.48	-40.00	516549.2271	1487945.2231
L	18+97.63	40.00	516637.8407	1488014.5993
L	18+97.63	-40.00	516627.6708	1487935.2484
L	19+20.00	-40.00	516649.8589	1487932.4047
L	19+33.00	-60.12	516660.1962	1487910.7991
L	19+95.00	-72.06	516720.1748	1487891.0707
L	20+35.00	-40.00	516763.9259	1487917.7855
L	26+50.00	30.00	517382.0350	1487909.0366
L	26+50.00	-30.00	517375.2075	1487849.5234
L	26+50.00	-40.00	517373.9363	1487839.6045
L	26+50.00	40.00	517384.1062	1487918.9555

ROW MARKER PERMANENT EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	17+85.00	50.00	516527.2788	1488038.7052
L	17+85.00	40.00	516526.0272	1488028.7839
L	18+75.00	65.00	516618.5346	1488042.2717
L	21+90.00	-75.00	516913.2190	1487863.3653
L	21+90.00	-40.00	516917.6683	1487898.0813
L	22+10.00	65.00	516950.8540	1487999.6870
L	22+75.00	85.00	517017.8692	1488011.2617
L	23+35.00	85.00	517077.3824	1488003.6343
L	23+35.00	40.00	517071.6618	1487958.9994
L	23+40.00	-75.00	517062.0020	1487844.2968
L	23+40.00	-40.00	517066.4514	1487879.0128
L	24+45.00	40.00	517180.7694	1487945.0158
L	24+45.00	45.00	517181.4050	1487949.9752
L	24+85.00	40.00	517220.4448	1487939.9308
L	24+85.00	45.00	517221.0805	1487944.8903

NOTE: DRAWING NOT TO SCALE

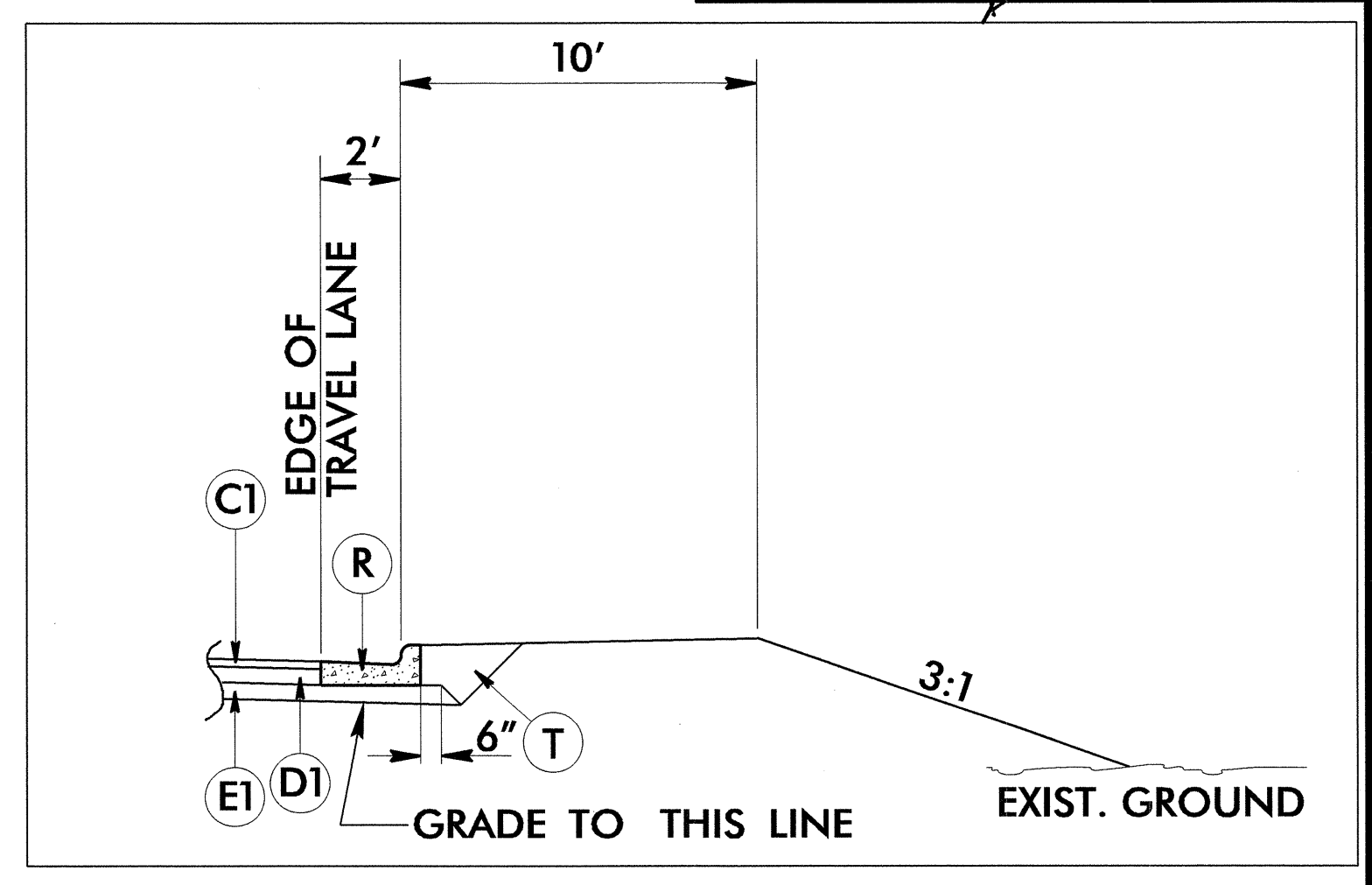
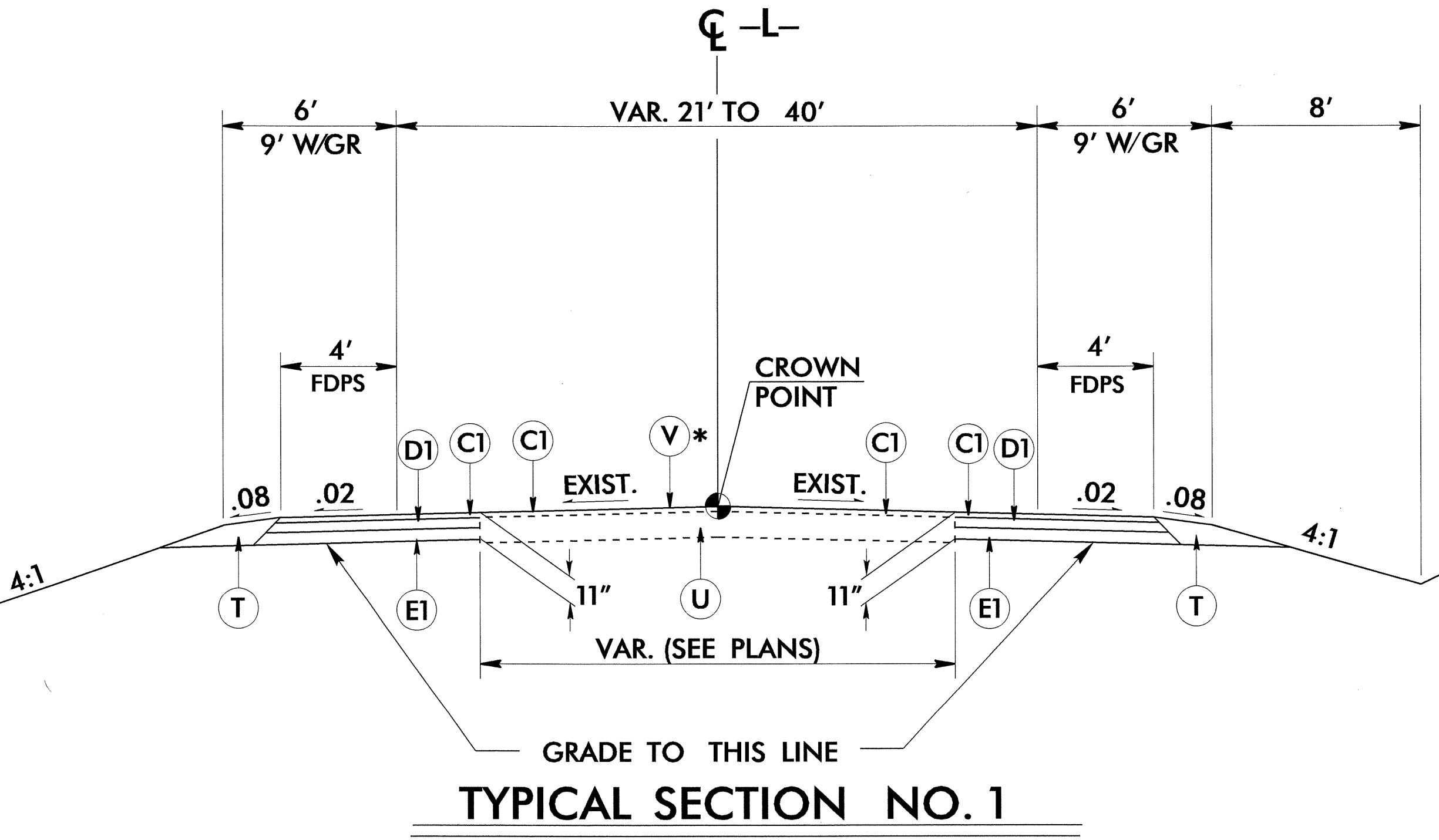
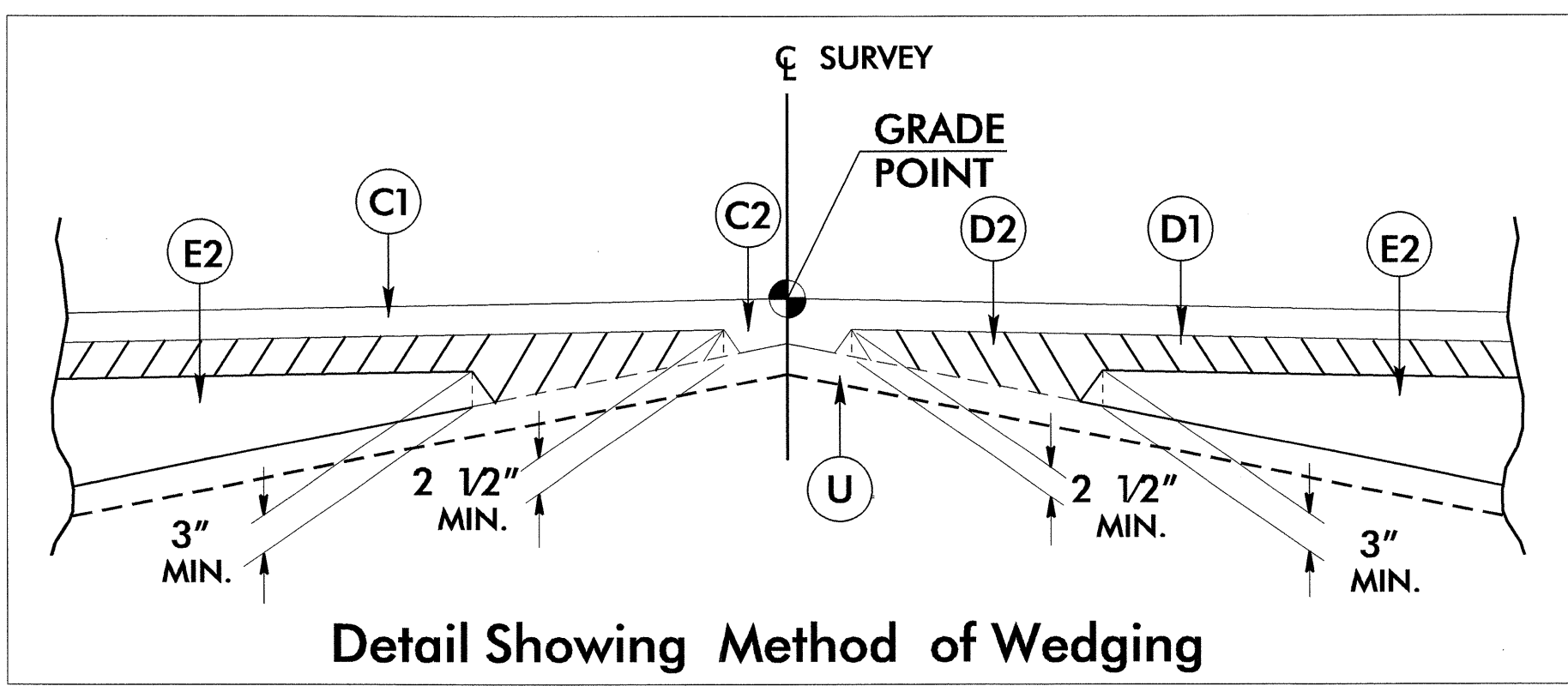
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PROJECT REFERENCE NO. B-4201	SHEET NO. 2
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 33871 DANIEL W. GARDNER	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22898 CLARK S. MORRISON

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
R	2'-6" CONCRETE CURB AND GUTTER
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING ASPHALT PAVEMENT, 0" TO 3" DEPTH
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

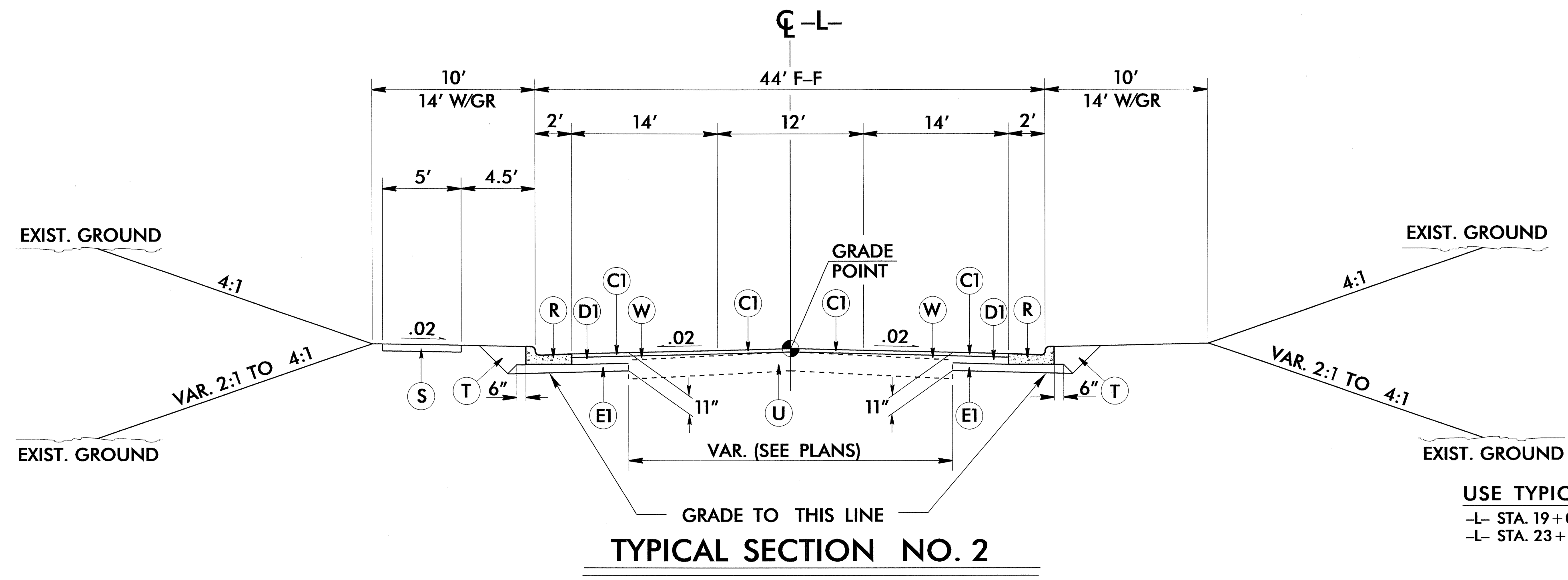
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



USE INSET A WITH TYPICAL SECTION NO. 1  
-L- STA. 18+43.88 TO STA. 19+00.00 RT.

USE TYPICAL SECTION NO. 1 AS FOLLOWS  
-L- STA. 17+00.00 TO STA. 19+00.00

\*NOTE: MILL EXISTING PAVEMENT FOR TIE-IN  
-L- STA. 17+00.00 TO STA. 18+50.00

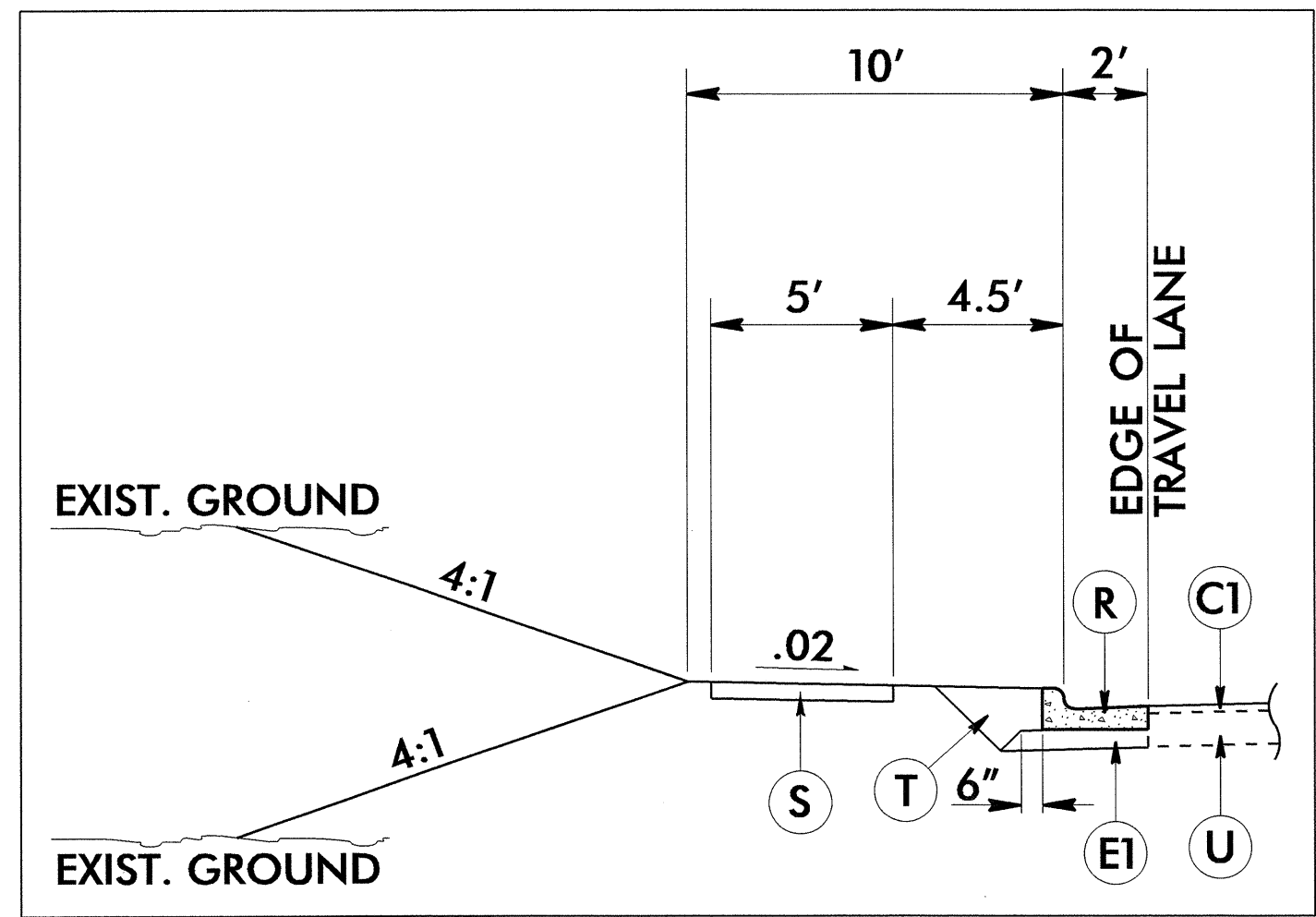


USE TYPICAL SECTION NO. 2 AS FOLLOWS  
-L- STA. 19+00.00 TO STA. 22+15.00 (BEGIN BRIDGE)  
-L- STA. 23+05.00 (END BRIDGE) TO STA. 24+50.00

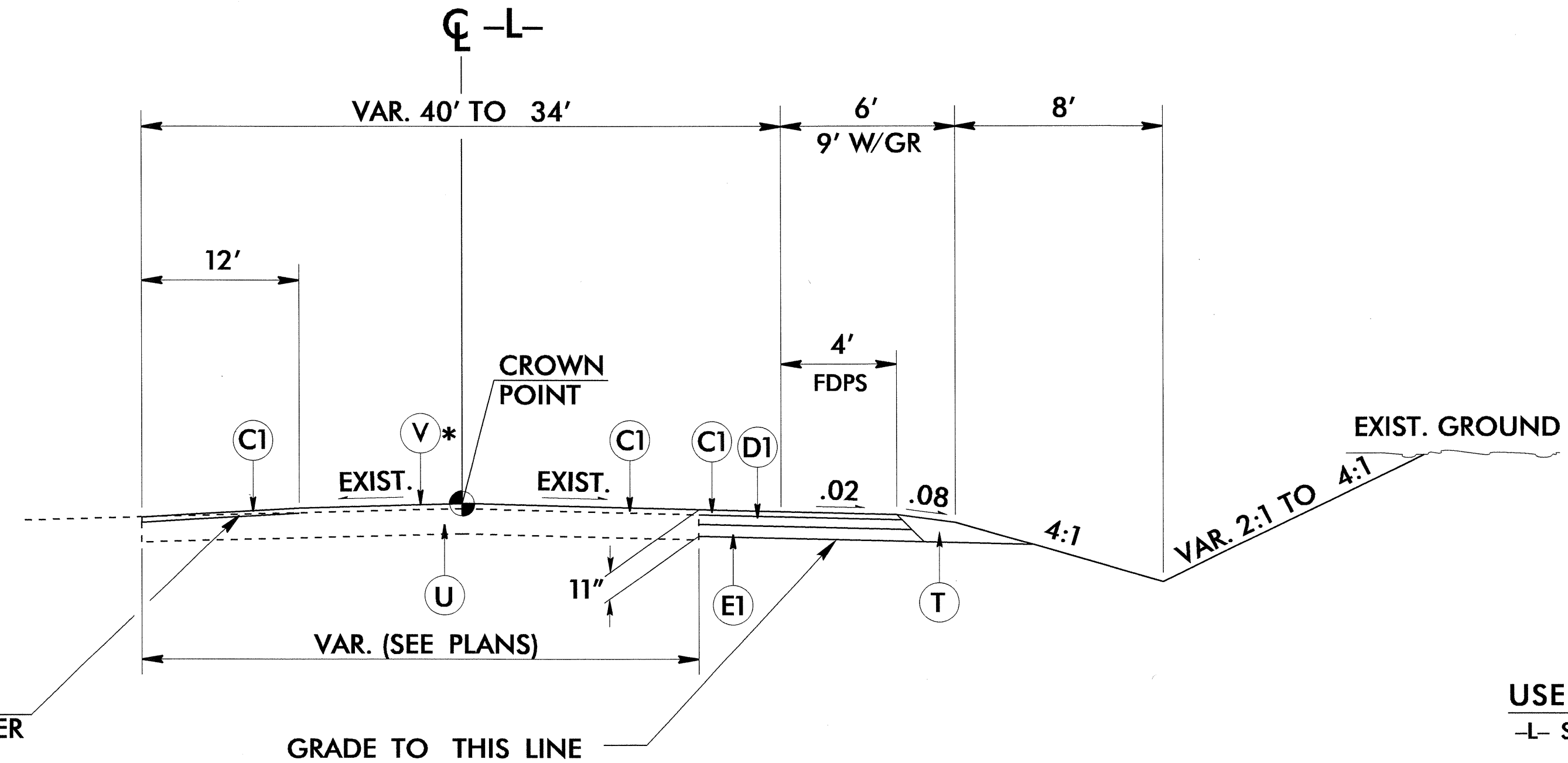
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PROJECT REFERENCE NO. B-4201	SHEET NO. 2-A
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 33871 DANIEL W. GARDNER	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22896 CLARK S. MORRISON
PAVEMENT SCHEDULE	
C1	3" S9.5B
C2	VAR. DEPTH S9.5B
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B
R	2'-6" CONCRETE CURB AND GUTTER
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING, 0" TO 3" DEPTH
W	VAR. DEPTH WEDGING



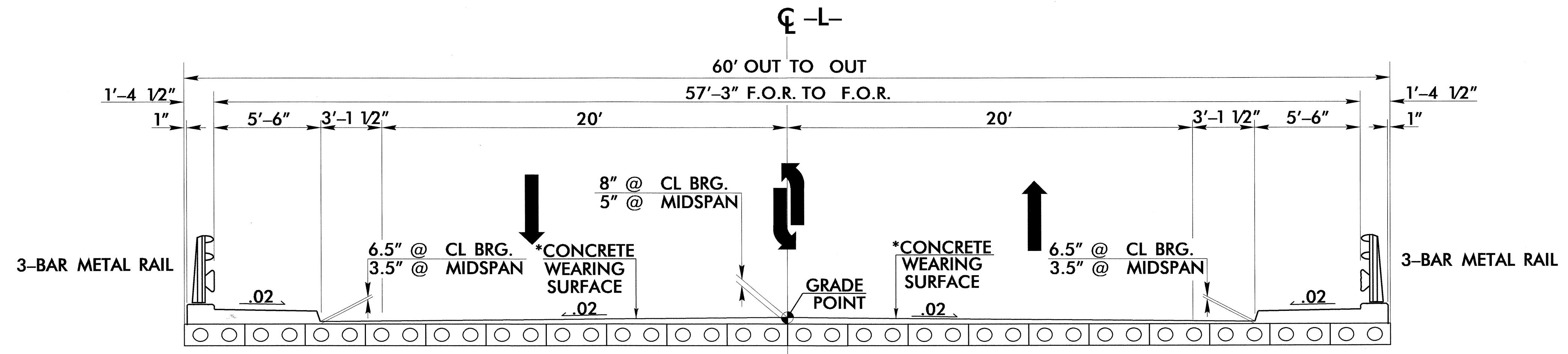
USE INSET B WITH TYPICAL SECTION NO. 3  
-L- STA. 24+50.00 TO STA. 25+30.00 LT.



**TYPICAL SECTION NO. 3**

USE TYPICAL SECTION NO. 3 AS FOLLOWS  
-L- STA. 24+50.00 TO STA. 26+50.00

\*NOTE: MILL EXISTING PAVEMENT FOR TIE-IN  
-L- STA. 25+00.00 TO STA. 26+50.00



\*STRUCTURE PAY ITEM  
F.O.R. - FACE OF RAIL  
**TYPICAL SECTION NO. 4**

USE TYPICAL SECTION NO. 4 AS FOLLOWS  
-L- STA. 22+15.00 TO STA. 23+05.00

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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202777				
ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
003000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (22+60.00)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
005700000-E	226	500	CY	UNDERCUT EXCAVATION
013400000-E	240	60	CY	DRAINAGE DITCH EXCAVATION
019500000-E	265	500	CY	SELECT GRANULAR MATERIAL
019600000-E	270	800	SY	GEOTEXTILE FOR SOIL STABILIZATION
031800000-E	300	261	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
032000000-E	300	455	SY	FOUNDATION CONDITIONING GEOTEXTILE
034400000-E	310	84	LF	18" SIDE DRAIN PIPE
044820000-E	310	340	LF	15" RC PIPE CULVERTS, CLASS IV
044840000-E	310	328	LF	24" RC PIPE CULVERTS, CLASS IV
058200000-E	310	32	LF	15" CS PIPE CULVERTS, 0.064" THICK
059400000-E	310	32	LF	24" CS PIPE CULVERTS, 0.064" THICK
099500000-E	340	208	LF	PIPE REMOVAL
109950000-E	505	70	CY	SHALLOW UNDERCUT
109970000-E	505	380	TON	CLASS IV SUBGRADE STABILIZATION
122000000-E	545	200	TON	INCIDENTAL STONE BASE
130800000-E	607	930	SY	MILLING ASPHALT PAVEMENT, **** TO ***** (0" TO 3")
133000000-E	607	830	SY	INCIDENTAL MILLING
148900000-E	610	430	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
149800000-E	610	350	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
151900000-E	610	695	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
157500000-E	620	80	TON	ASPHALT BINDER FOR PLANT MIX
169300000-E	654	50	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
202200000-E	815	45	CY	SUBDRAIN EXCAVATION
203300000-E	815	34	CY	SUBDRAIN FINE AGGREGATE
204400000-E	815	200	LF	6" PERFORATED SUBDRAIN PIPE
207000000-N	815	1	EA	SUBDRAIN PIPE OUTLET
207700000-E	815	6	LF	6" OUTLET PIPE
228600000-N	840	10	EA	MASONRY DRAINAGE STRUCTURES
237400000-N	840	2	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
237400000-N	840	4	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
237400000-N	840	4	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
254900000-E	846	1,030	LF	2'-6" CONCRETE CURB & GUTTER
255600000-E	846	8	LF	SHOULDER BERM GUTTER
259100000-E	848	300	SY	4" CONCRETE SIDEWALK
260500000-N	848	3	EA	CONCRETE CURB RAMP
261200000-E	848	120	SY	6" CONCRETE DRIVEWAY
283000000-N	858	3	EA	ADJUSTMENT OF MANHOLES
284500000-N	858	1	EA	ADJUSTMENT OF METER BOXES OR VALVE BOXES
303000000-E	862	62.5	LF	STEEL BM GUARDRAIL
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
316500000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** (350 TL-2)
321500000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
336000000-E	863	230	LF	REMOVE EXISTING GUARDRAIL

ItemNumber	Sec #	Quantity	Unit	Description
356900000-E	867	60	LF	BARBED WIRE FENCE RESET
357200000-E	867	70	LF	CHAIN LINK FENCE RESET
363500000-E	876	31	TON	RIP RAP, CLASS II
364900000-E	876	10	TON	RIP RAP, CLASS B
365600000-E	876	502	SY	GEOTEXTILE FOR DRAINAGE
440000000-E	1110	456	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	155	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
443000000-N	1130	50	EA	DRUMS
443500000-N	1135	50	EA	CONES
444500000-E	1145	160	LF	BARRICADES (TYPE III)
445000000-N	1150	640	HR	FLAGGER
451000000-N	SP	200	HR	LAW ENFORCEMENT
451600000-N	1180	70	EA	SKINNY DRUM
465000000-N	1251	48	EA	TEMPORARY RAISED PAVEMENT MARKERS
481000000-E	1205	11,450	LF	PAINT PAVEMENT MARKING LINES (4")
483500000-E	1205	20	LF	PAINT PAVEMENT MARKING LINES (24")
484500000-N	1205	14	EA	PAINT PAVEMENT MARKING SYMBOL
532660000-E	1510	685	LF	16" WATER LINE
555860000-E	1515	3	EA	16" VALVE
558920000-E	1515	1	EA	2" AIR RELEASE VALVE
569200000-E	1520	120	LF	30" SANITARY GRAVITY SEWER
577600000-E	1525	1	EA	5' DIA UTILITY MANHOLE
577700000-E	1525	1	EA	6' DIA UTILITY MANHOLE
578200000-E	1525	7.2	LF	UTILITY MANHOLE WALL, 5' DIA
578300000-E	1525	8.5	LF	UTILITY MANHOLE WALL, 6' DIA
581000000-E	1530	681	LF	ABANDON 16" UTILITY PIPE

ItemNumber	Sec #	Quantity	Unit	Description
581400000-E	1530	128	LF	ABANDON 30" UTILITY PIPE
582800000-N	1530	2	EA	REMOVE UTILITY MANHOLE
583500000-E	1540	110	LF	*** ENCASEMENT PIPE (48")
583600000-E	1540	192	LF	24" ENCASEMENT PIPE
587190000-E	1550	96	LF	TRENCHLESS INSTALLATION OF 16" IN SOIL
587191000-E	1550	96	LF	TRENCHLESS INSTALLATION OF 16" NOT IN SOIL
600000000-E	1605	1,110	LF	TEMPORARY SILT FENCE
600600000-E	1610	250	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	140	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	125	TON	SEDIMENT CONTROL STONE
601500000-E	1615	3	ACR	TEMPORARY MULCHING
601800000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	1.5	TON	FERTILIZER FOR TEMPORARY SEEDING
602400000-E	1622	200	LF	TEMPORARY SLOPE DRAINS
602900000-E	SP	100	LF	SAFETY FENCE
603000000-E	1630	400	CY	SILT EXCAVATION
603600000-E	1631	4,000	SY	MATTING FOR EROSION CONTROL
603700000-E	SP	30	SY	COIR FIBER MAT
603800000-E	SP	2,907	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	455	LF	1/4" HARDWARE CLOTH
607103000-E	1640	165	LF	COIR FIBER BAFFLE
607105000-E	SP	3	EA	*** SKIMMER (1-1/2")
608400000-E	1660	3	ACR	SEEDING & MULCHING
608700000-E	1660	3	ACR	MOWING
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	75	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	2	TON	FERTILIZER TOPDRESSING
611450000-N	1667	10	MHR	SPECIALIZED HAND MOWING
611700000-N	SP	18	EA	RESPONSE FOR EROSION CONTROL

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DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

**SUMMARY OF EARTHWORK**

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
SUMMARY NO. 1					
-L- 17+00.00	-L- 22+15.00 (BB)	634	1703	1069	
SUMMARY NO. 1 TOTAL		634	1703	1069	
SUMMARY NO. 2					
-L- 23+05.00 (EB)	-L- 26+50.00	89	459	370	
SUMMARY NO. 2 TOTAL		89	459	370	
SUMMARY TOTALS		723	2162	1439	
LOSS DUE TO C & G		-140		140	
EST. SHOULDER MATERIAL			86	86	
PROJECT TOTALS		583	2248	1665	
5% TO REPLACE SOIL IN BORROW PIT				84	
GRAND TOTALS		583	2248	1749	
SAY		600		1800	
DDE = 60 CY					
EST. UNDERCUT CONTINGENCY = 500 CY					
EST. SHALLOW UNDERCUT CONTINGENCY = 70 CY					
CLASS IV SUBGRADE STABILIZATION = 380 TONS					
GEOTEXTILE FOR SOIL STABILIZATION = 800 SY					
SELECT GRANULAR MATERIAL = 500 CY					
UNDERDRAINS = 200 LF					

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.

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."

**SUMMARY OF REMOVAL  
 EXISTING ASPHALT PAVEMENT**

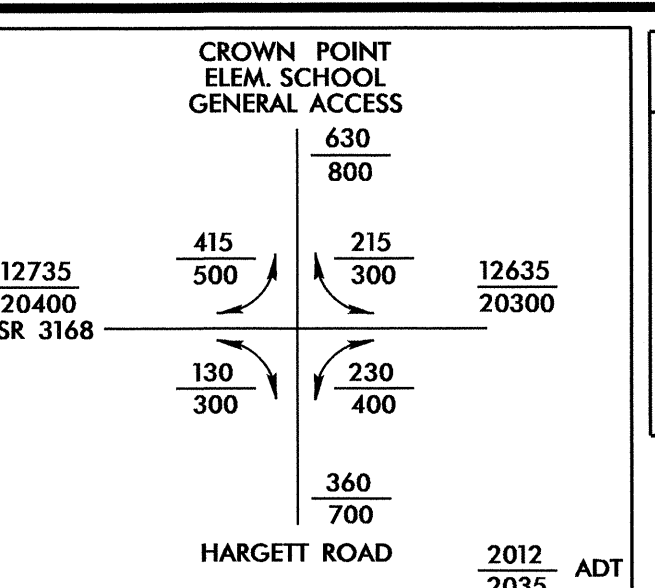
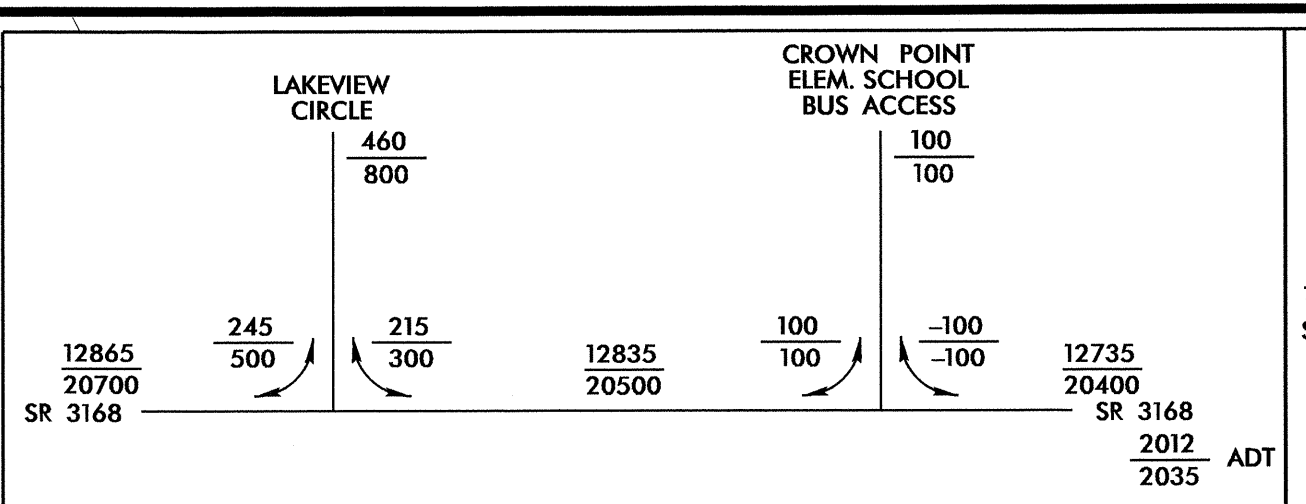
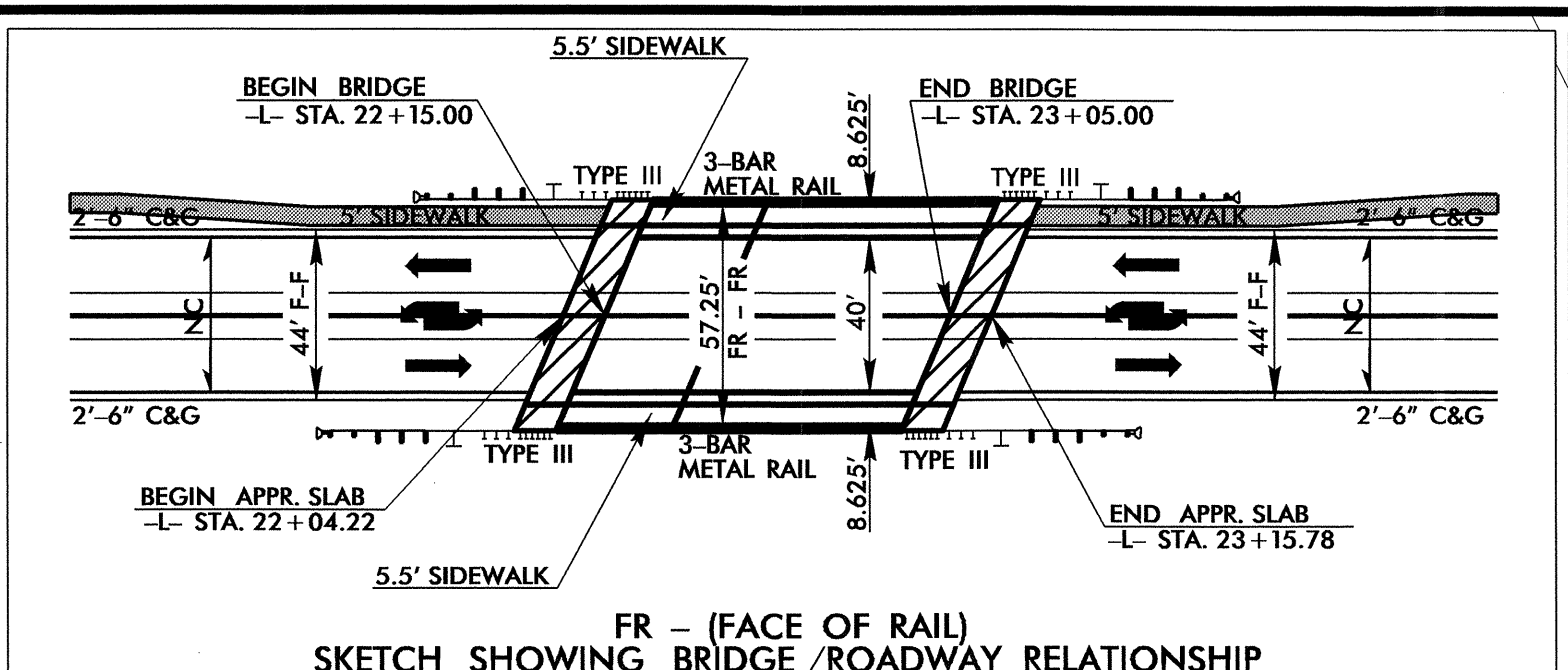
SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-L-	21+96.00	22+36.00	LT/RT	90.94
-L-	22+74.00	23+24.00	LT/RT	117.16
TOTAL:				208.09
SAY:				220

**SHOULDER BERM GUTTER SUMMARY**

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LINEAR FEET
-L-	22+15.23	22+16.82	LT	1.59
-L-	21+89.77	21+91.36	RT	1.59
-L-	23+28.65	23+30.24	LT	1.59
-L-	23+03.18	23+04.77	RT	1.59
TOTAL:				6.36
SAY:				8

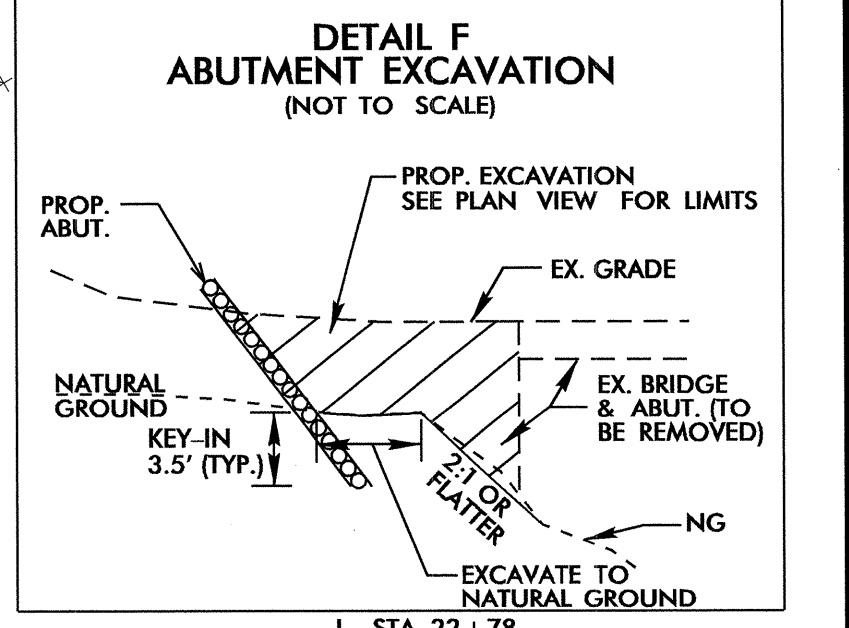
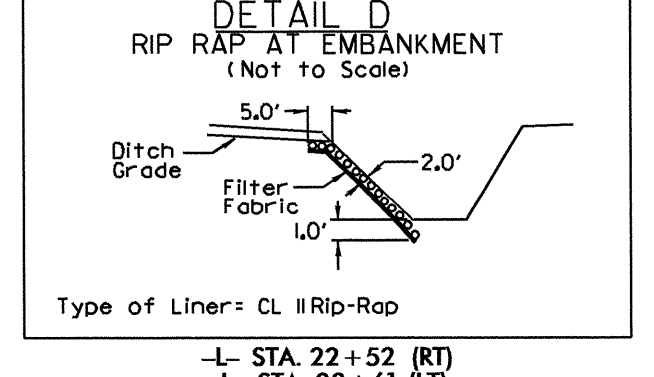
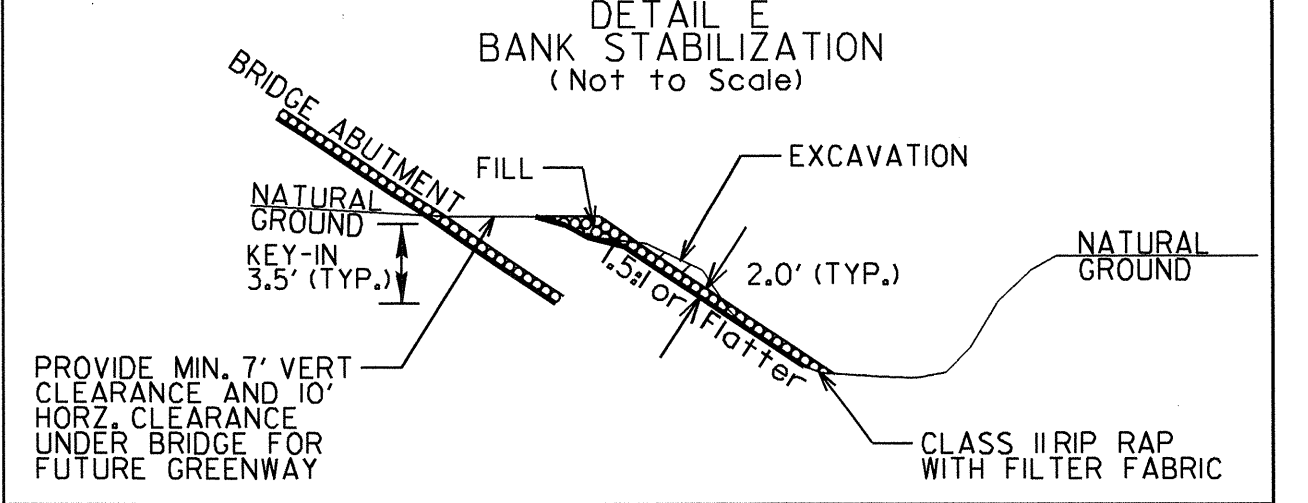
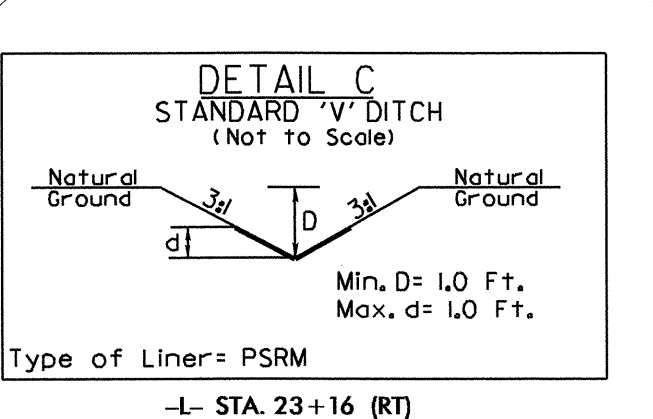
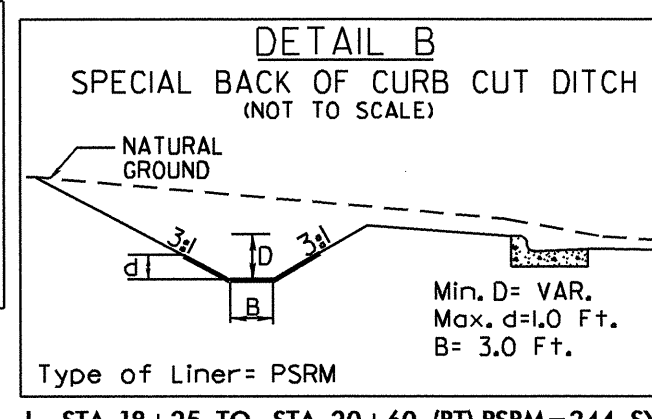
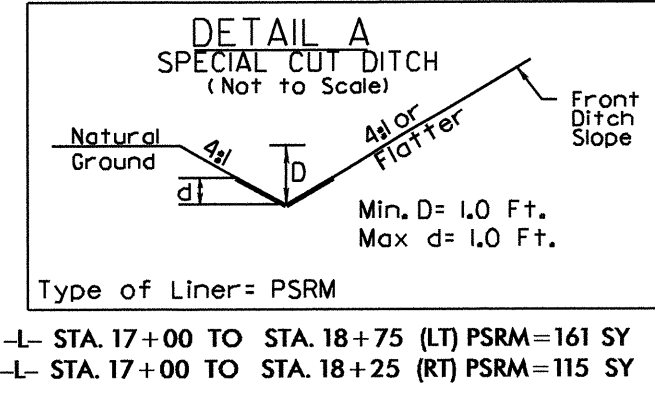
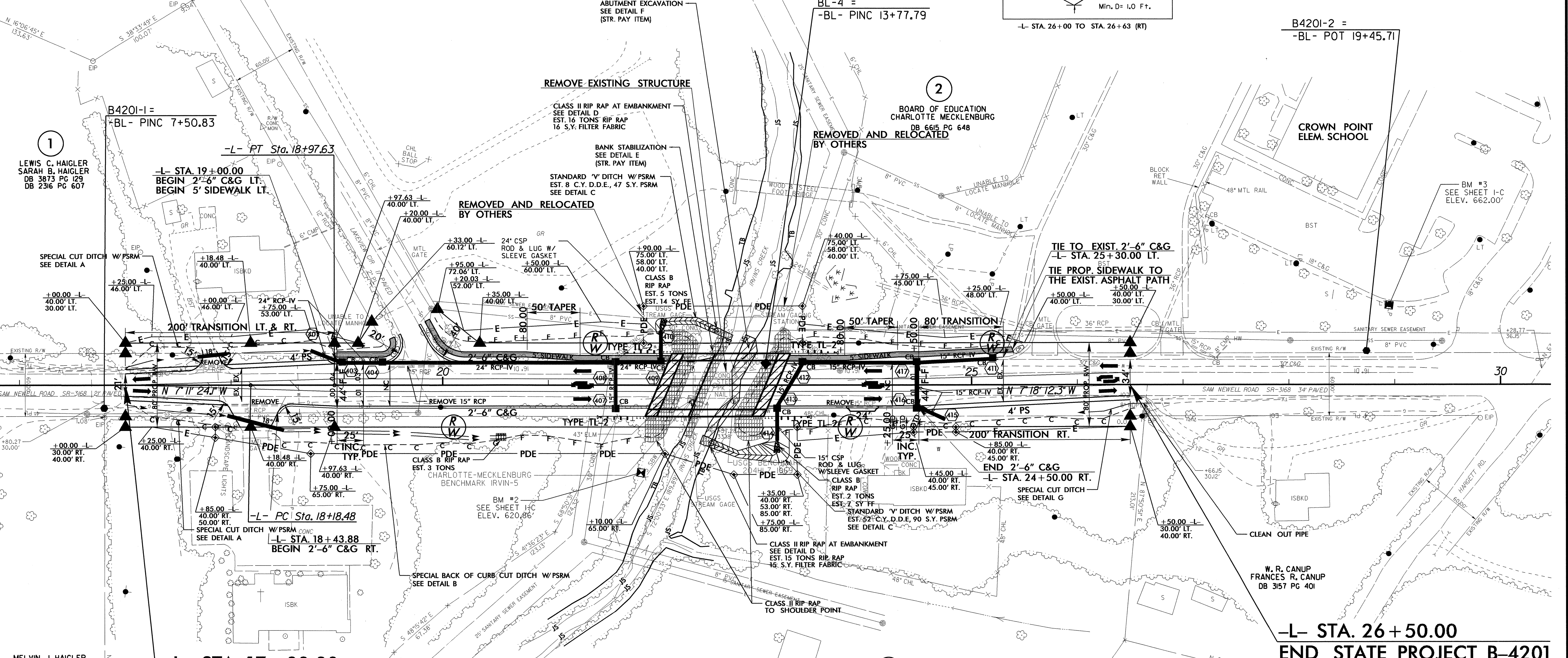
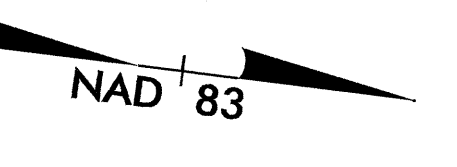
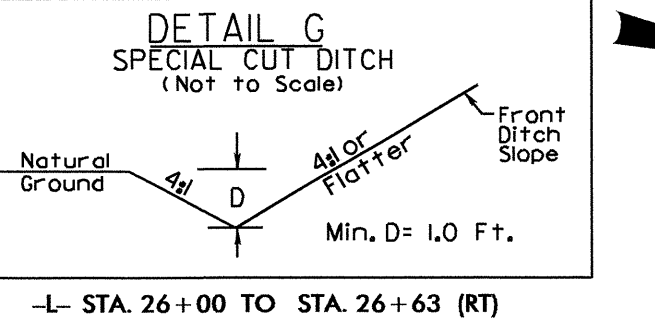
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-L-  
 $Pi Sta 18+58.05$   
 $\Delta = 0^{\circ} 06' 48.2" (LT)$   
 $D = 0^{\circ} 08' 35.7"$   
 $L = 79.15'$   
 $T = 39.58'$   
 $R = 40,000.00'$   
 $SE = SEE PLANS$

PROJECT REFERENCE NO. B-4201 SHEET NO. 4  
 RW SHEET NO.  
 ROADWAY DESIGN ENGINEER  
 NORTH CAROLINA PROFESSIONAL SEAL  
 33871  
 DANIEL W. HAIGLER  
 11/22/11  
 HYDRAULICS ENGINEER  
 NORTH CAROLINA PROFESSIONAL SEAL  
 00292  
 BROOK E. ANDERSON



NOTE: REMOVE AND RESET BARBED WIRE AND CHAIN LINK FENCE AS DIRECTED BY ENGINEER.

SEE SHEET 5 FOR -L- PROFILE  
SEE SHEETS S-1 THRU S-25 FOR STRUCTURE PLANS

REVISIONS

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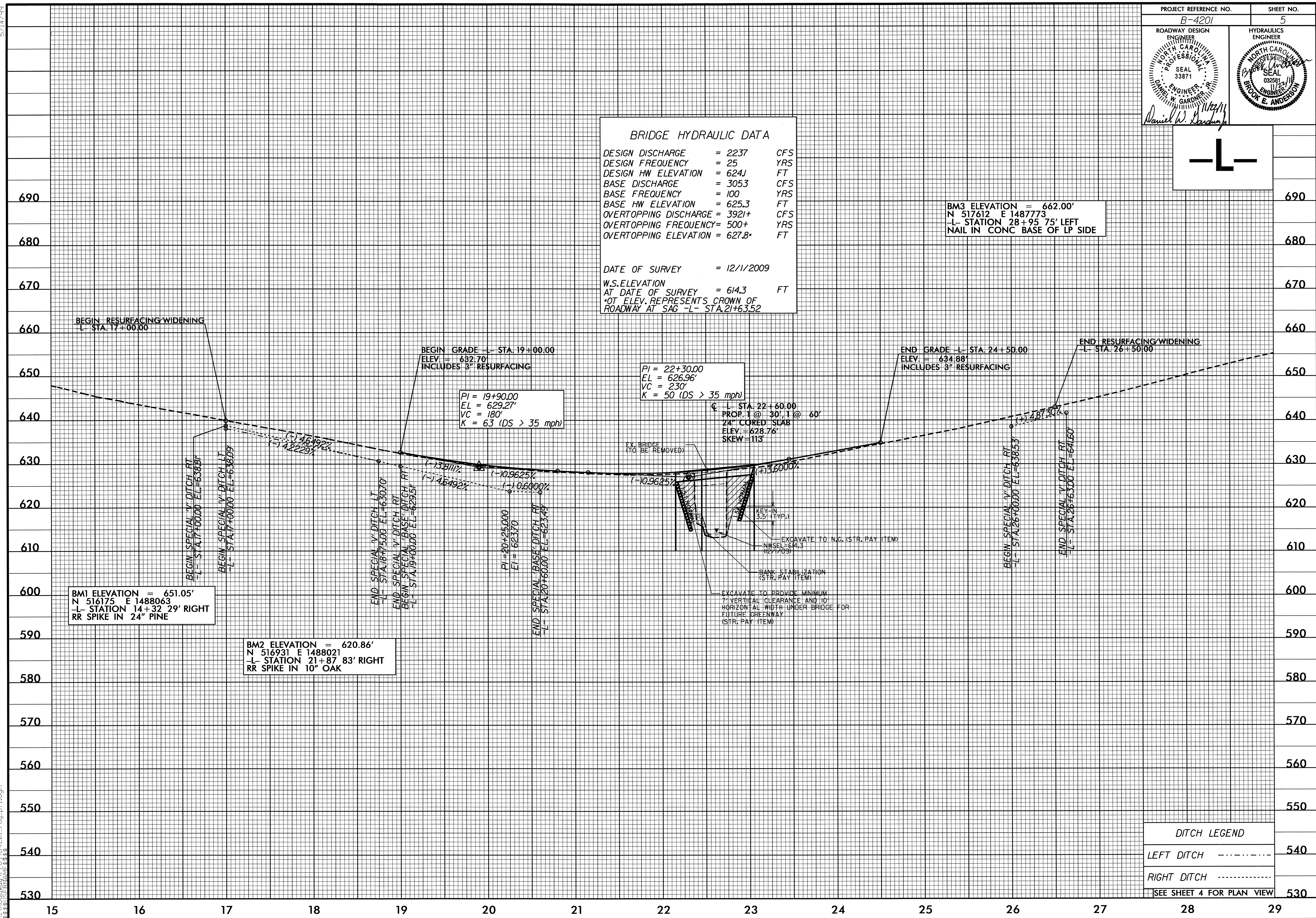
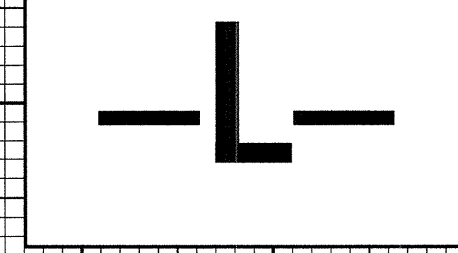
PROJECT REFERENCE NO. B-4201	SHEET NO. 5
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 33871 DANIEL W. GARDNER 11/22/11	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 03258 BROOK E. ANDERSON

**BRIDGE HYDRAULIC DATA**

DESIGN DISCHARGE = 2237 CFS  
 DESIGN FREQUENCY = 25 YRS  
 DESIGN HW ELEVATION = 624J FT  
 BASE DISCHARGE = 3053 CFS  
 BASE FREQUENCY = 100 YRS  
 BASE HW ELEVATION = 625.3 FT  
 OVERTOPPING DISCHARGE = 3921+ CFS  
 OVERTOPPING FREQUENCY = 500+ YRS  
 OVERTOPPING ELEVATION = 627.8+ FT

DATE OF SURVEY = 12/1/2009  
 W.S. ELEVATION AT DATE OF SURVEY = 614.3 FT  
 \*OT ELEV. REPRESENTS CROWN OF ROADWAY AT SAG -L- STA.21+63.52

BM3 ELEVATION = 662.00'  
 N 517612 E 1487773  
 -L- STATION 28+95.75' LEFT  
 NAIL IN CONC BASE OF LP SIDE



DITCH LEGEND	
LEFT DITCH	-----
RIGHT DITCH	-----
SEE SHEET 4 FOR PLAN VIEW	

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