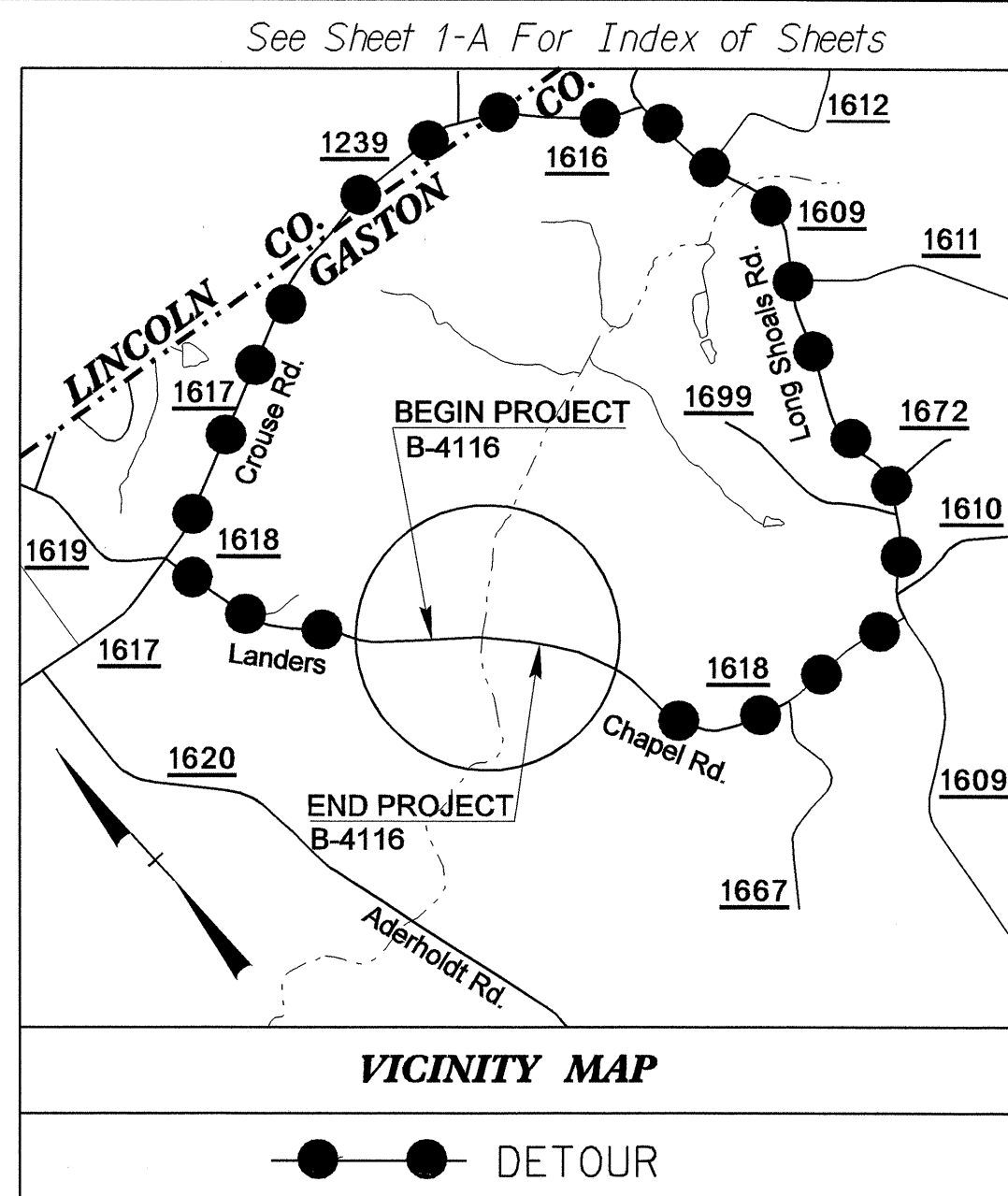


09/08/09

TIP PROJECT: B-4116

CONTRACT: C201894



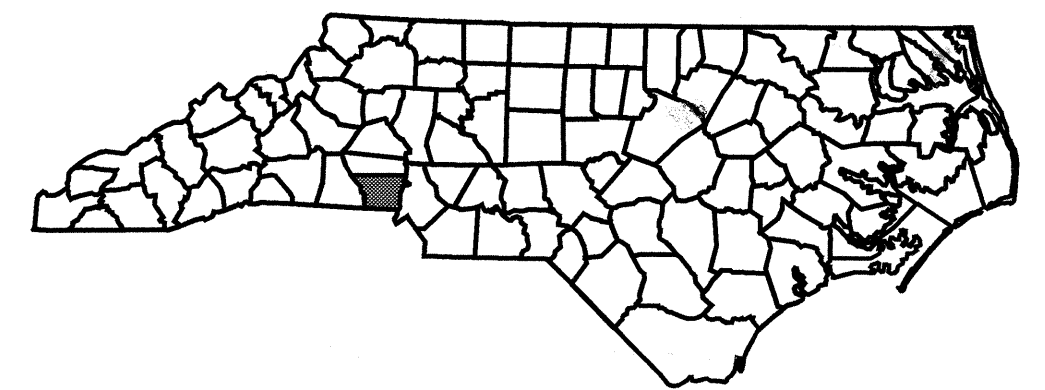
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GASTON COUNTY

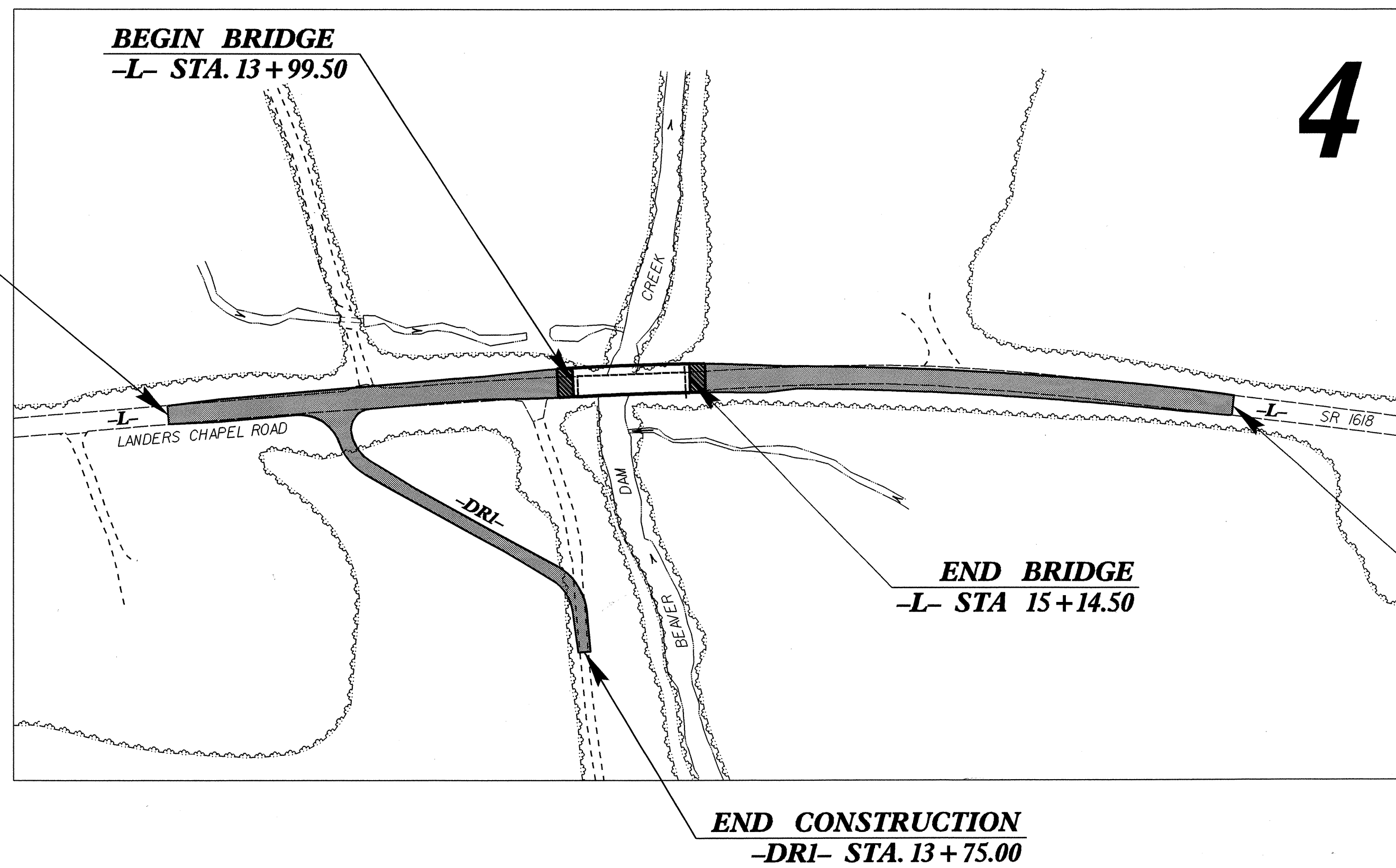
LOCATION: BRIDGE No. 148 OVER BEAVER DAM CREEK ON SR 1618

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

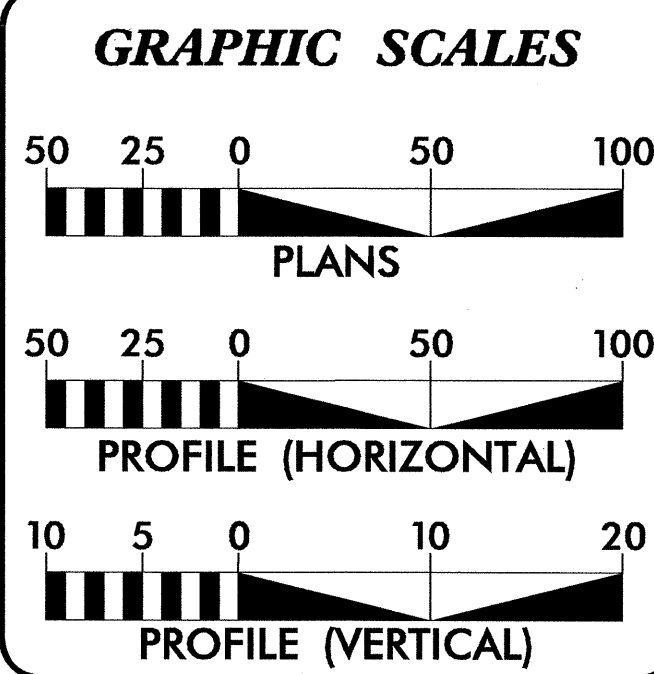
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4116	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33471.1.1	BRZ-1618(1)	PE	
33471.2.1	BRZ-1618(1)	RW, UTIL.	
33471.3.1	BRZ-1618(1)	CONST.	



END TIP PROJECT B-4116
-L- STA. 10 + 00.00



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
** DESIGN EXCEPTION REQUIRED FOR THE SAG VERTICAL K-VALUE, MAXIMUM GRADE, VERTICAL CURVE SSD, AND SHOULDER WIDTH.



DESIGN DATA

ADT 2008	= 1235
ADT 2030	= 2225
DHV	= 10 %
D	= 60 %
T	= 3 % *
** V	= 60 MPH
* TTST 1%	DUAL 2%
FUNC CLASS	= LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4116	= 0.177 MILES
LENGTH STRUCTURE TIP PROJECT B-4116	= 0.022 MILES
TOTAL LENGTH OF TIP PROJECT B-4116	= 0.199 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 1, 2007

LETTING DATE:
AUGUST 19, 2008

TONY HOUSER, PE
PROJECT ENGINEER

JASON TALLEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

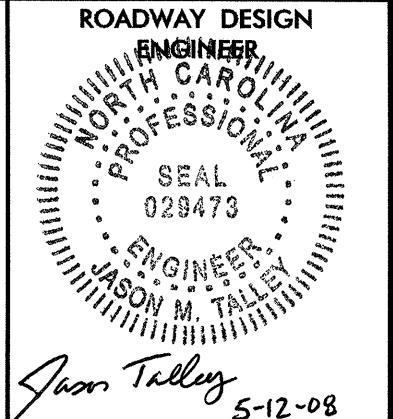
5-20-08

5-12-08

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

30-APR-2008 14:55
L:\Roadway\p\go\164116_rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$



SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	LOCATION AND SURVEYS
1-D	LOCATION AND SURVEYS
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, DETAIL SHOWING METHOD OF WEDGING AND DETAIL SHOWING RELATIONSHIP OF PAVED SHOULDER AND SHOULDER BERM GUTTER TO GUARDRAIL
2-A	DITCH DETAILS
2-B	DETAIL SHOWING ANCHORAGE FOR FRAMES
2-C	DETAIL SHOWING PROPOSED ELECTRIC FENCE
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY, SUMMARY OF EARTHWORK, SUMMARY OF PAVEMENT REMOVAL, SUMMARY OF PAVEMENT BREAKING AND PARCEL INDEX
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITY BY OTHERS
X-0	CROSS SECTION SUMMARY
X-1 THRU X-10	CROSS SECTIONS
S-1 THRU S-24	STRUCTURE PLANS

GENERAL NOTES: 2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-18-06

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.

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.

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 AT&T OF NORTH CAROLINA AND RUTHERFORD EMC.
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

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'
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 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
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
866.04	Barbed Wire Fence with Wood Posts (2 - 7 Strands)
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

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	○
Property Corner	✕
Property Monument	□
Parcel/Sequence Number	②③
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:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	+
Building	□
School	□
Church	□
Dam	□

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:

Standard Gauge	-----
RR Signal Milepost	○
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	-----
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	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Wheel Chair Ramp	-----
Proposed Wheel Chair Ramp Curb Cut	-----
Curb Cut for Future Wheel Chair Ramp	-----
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	-----

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:

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:

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:

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:

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:

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

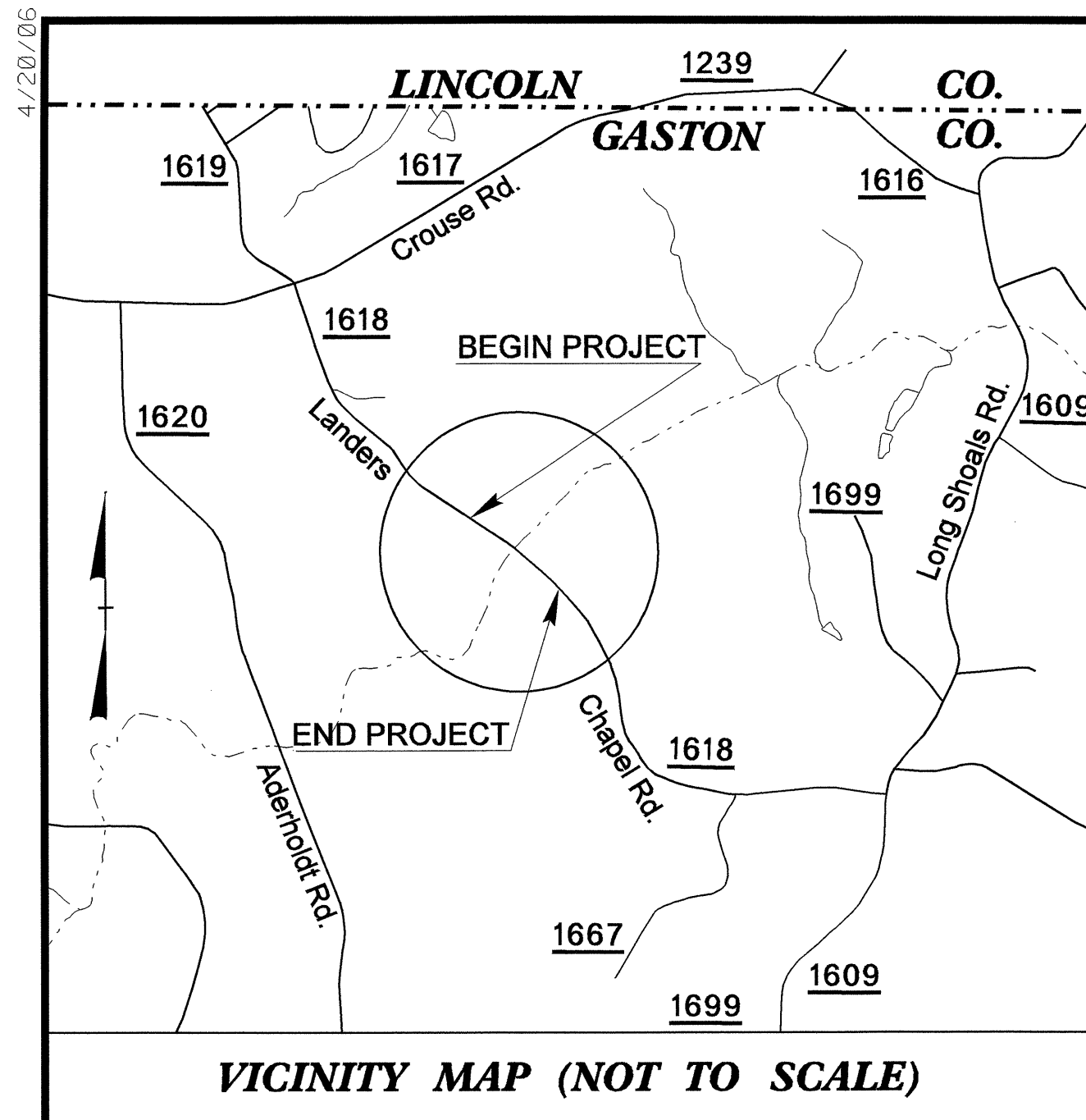
SANITARY SEWER:

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.*)	-----

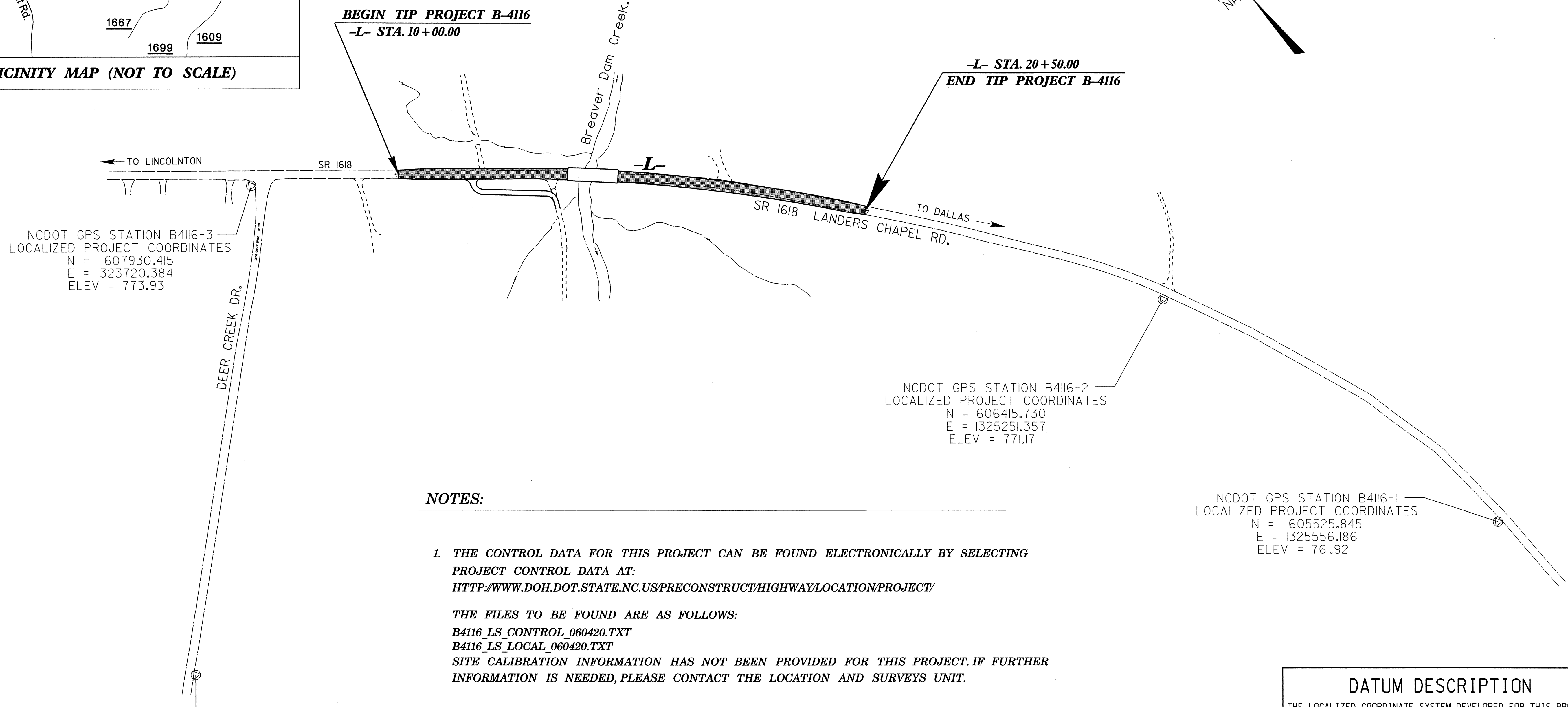
MISCELLANEOUS:

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	AATUR
End of Information	E.O.I.

SURVEY CONTROL SHEET B-4116



VICINITY MAP (NOT TO SCALE)



NCDOT GPS STATION B4116-3
LOCALIZED PROJECT COORDINATES
N = 607930.415
E = 1323720.384
ELEV = 773.93

NCDOT GPS STATION B4116-2
LOCALIZED PROJECT COORDINATES
N = 606415.730
E = 1325251.357
ELEV = 771.17

NCDOT GPS STATION B4116-1
LOCALIZED PROJECT COORDINATES
N = 605525.845
E = 1325556.186
ELEV = 761.92

NCDOT GPS STATION B4116-4
LOCALIZED PROJECT COORDINATES
N = 607099.003
E = 1322916.591
ELEV = 823.39

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:

B4116_LS_CONTROL_060420.TXT
B4116_LS_LOCAL_060420.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 NGS ONLINE POSITIONING SERVICE (OPUS)

DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4116-3" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 607930.415(±ft) EASTING: 1323720.384(±ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999843900 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4116-3" TO -L- STATION 10+00.00 IS S 56°50'42.1" E 346.334' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

09-MAY-2008 14:36 r:\roadwork\proj\loc\loc_b4116_1s_1c_060420.dgn

SURVEY CONTROL SHEET B-4116

PROJECT REFERENCE NO.	SHEET NO.
33471	1 D
Location and Surveys	

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
5	BL-5	608092.1270	1323527.8736	784.62	OUTSIDE PROJECT LIMITS	
3	B4116-3	607930.4150	1323720.3840	773.93	OUTSIDE PROJECT LIMITS	
6	BL-6	607728.0888	1324050.2184	756.80	10+39.58	13.82 LT
7	BL-7	607505.8163	1324332.1967	743.22	13+98.27	9.50 LT
8	BL-8	607113.7658	1324751.5508	759.52	19+71.08	14.11 LT
9	BL-9	606905.5691	1324930.9299	777.11	OUTSIDE PROJECT LIMITS	
10	BL-10	606580.5761	1325187.6764	773.44	OUTSIDE PROJECT LIMITS	
2	B4116-2	606415.7300	1325251.3570	771.17	OUTSIDE PROJECT LIMITS	
1	B4116-1	605525.8450	1325556.1860	761.92	OUTSIDE PROJECT LIMITS	

BY POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
15	B4116-3	607930.4150	1323720.3840	773.93	OUTSIDE PROJECT LIMITS	
11	BY-1	607764.9351	1323577.3376	781.78	OUTSIDE PROJECT LIMITS	
4	B4116-4	607099.0030	1322916.5910	823.39	OUTSIDE PROJECT LIMITS	

TØ POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
12	T-12	607667.0581	1324592.4576	738.07	14+90.78	300.15 LT
14	BL-7	607505.8163	1324332.1967	743.22	13+98.27	9.50 LT
13	T-13	607228.4024	1324198.0811	739.18	14+75.51	289.53 RT

```

.....
BM1      ELEVATION = 778.58
N 608068      E 1323621
L STATION 8+06 906 LEFT
RR SPIKE IN 24 INCH OAK
.....
BM2      ELEVATION = 739.05
N 607515      E 1324490
L STATION 6+67 75 LEFT
RR SPIKE IN 18 INCH OAK
.....
BM3      ELEVATION = 773.88
N 606630      E 1325257
L STATION 8+06 1273 RIGHT
RR SPIKE IN TWIN 12 INCH POPLAR
.....
    
```

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 B4116_LS_CONTROL_060420.TXT
 B4116_LS_LOCAL_060420.TXT
 SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

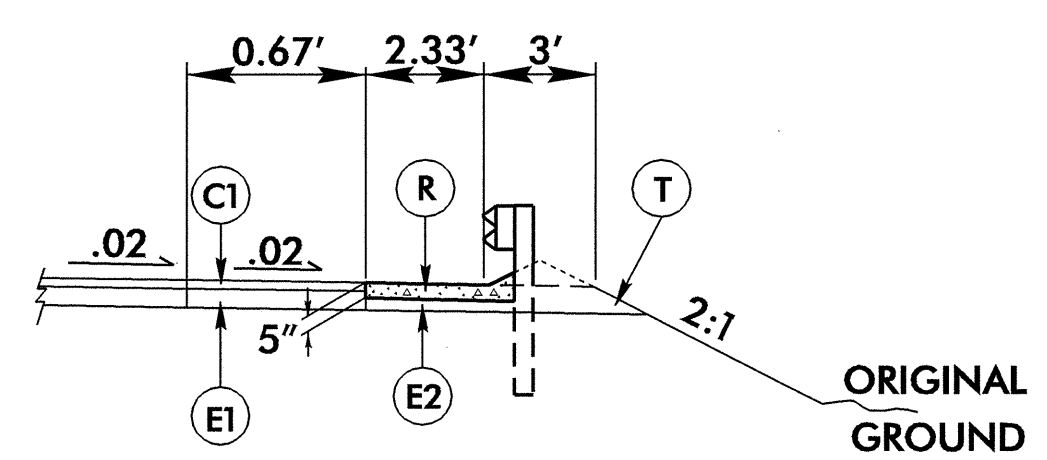
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4116-3"
 WITH NAD 83 STATE PLANE GRID COORDINATES OF
 NORTHING: 607930.415(±) EASTING: 1323720.384(±)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999843900
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4116-3" TO -L- STATION 10+00.00 IS
 S 56°50'42.1" E 346.334'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE SURFACE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627.0 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 NO LESS THAN 3" IN DEPTH OR NO GREATER THAN 5.5" IN DEPTH.
J	PROPOSED 8" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YARD
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

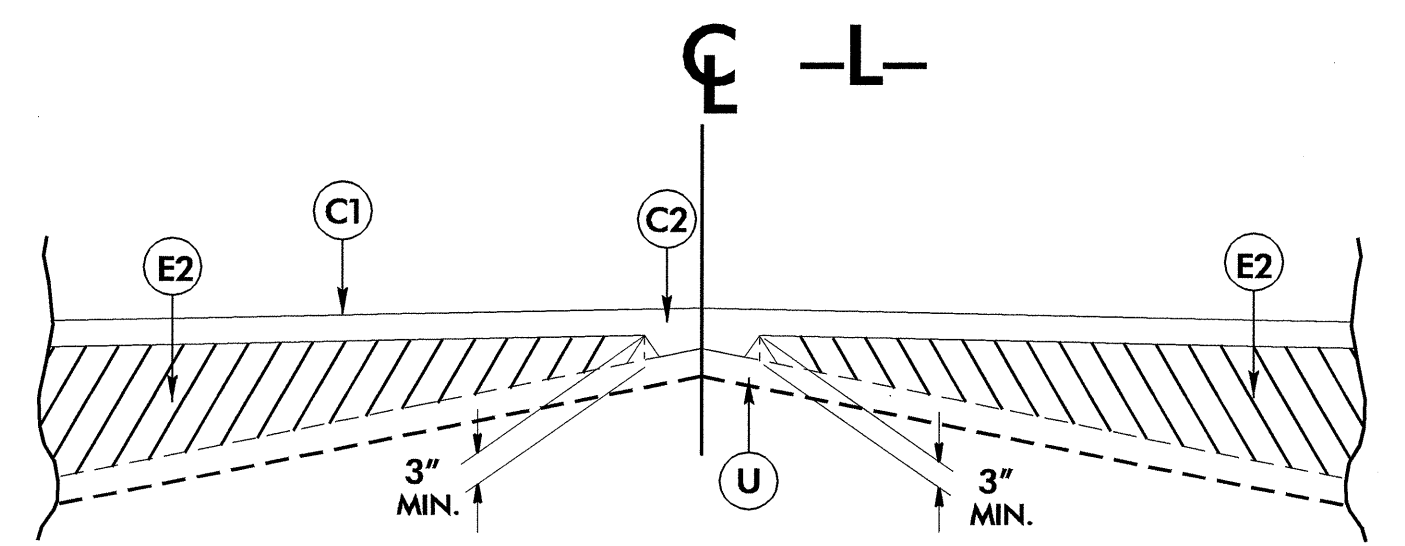
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



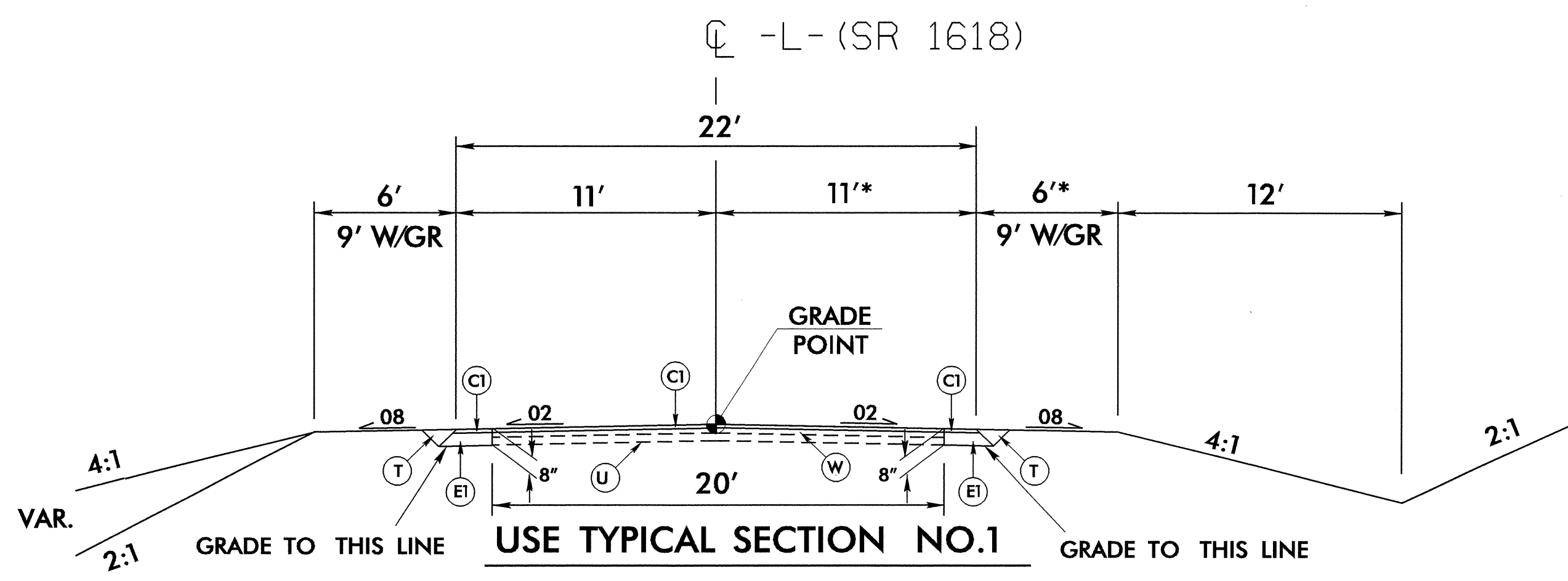
Detail Showing Paved Shoulder in Relation to Guardrail

USE SHOULDER BERM GUTTER FOR THE FOLLOWING:

-L- STA 15+28.67 TO -L- STA 15+88.00 (RT.)



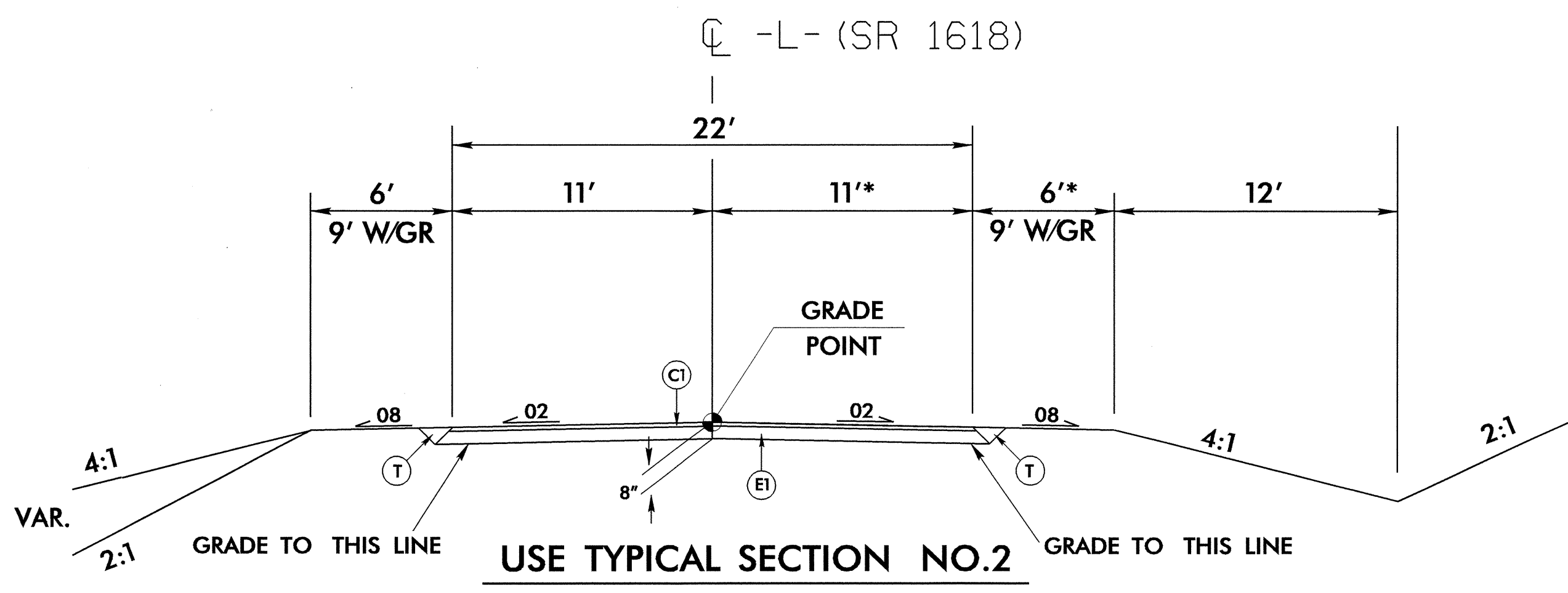
Detail Showing Method of Wedging



USE TYPICAL SECTION NO.1 FOR:

-L- STA.10+00.00 TO 12+00.00
-L- STA.18+50.00 TO 20+50.00

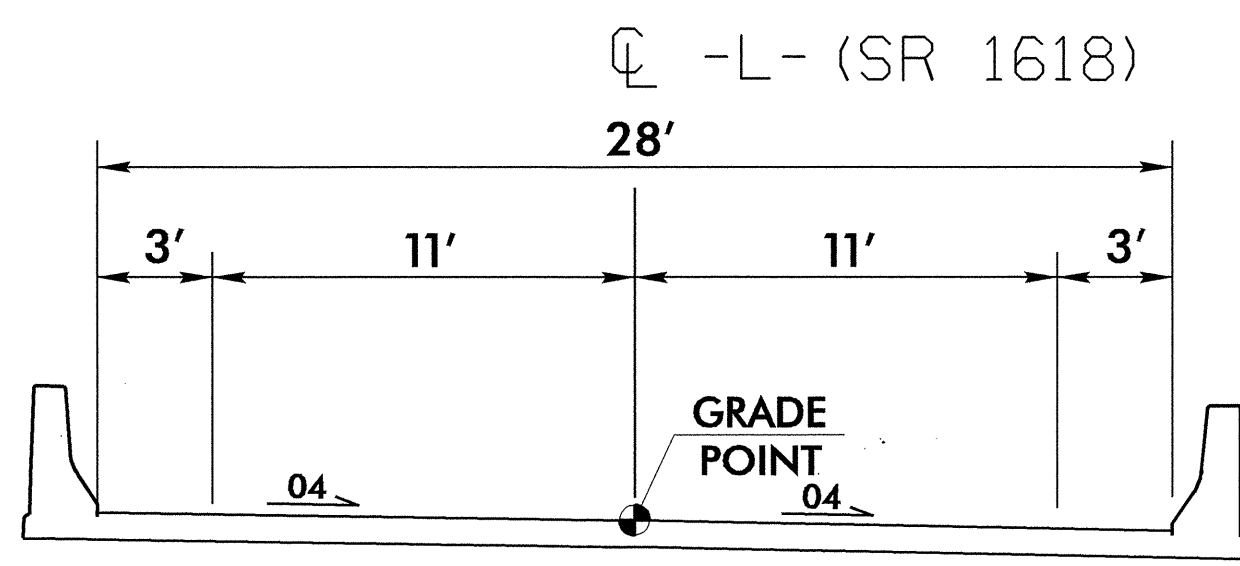
*USED 11 FOOT LANES AND 6 FOOT SHOULDERS TO MINIMIZE PARALLEL STREAM IMPACT



USE TYPICAL SECTION NO.2 FOR:

-L- STA.12+00.00 TO 13+99.50 (BEGIN BRIDGE)
-L- STA.15+14.50 (END BRIDGE) TO 18+50.00

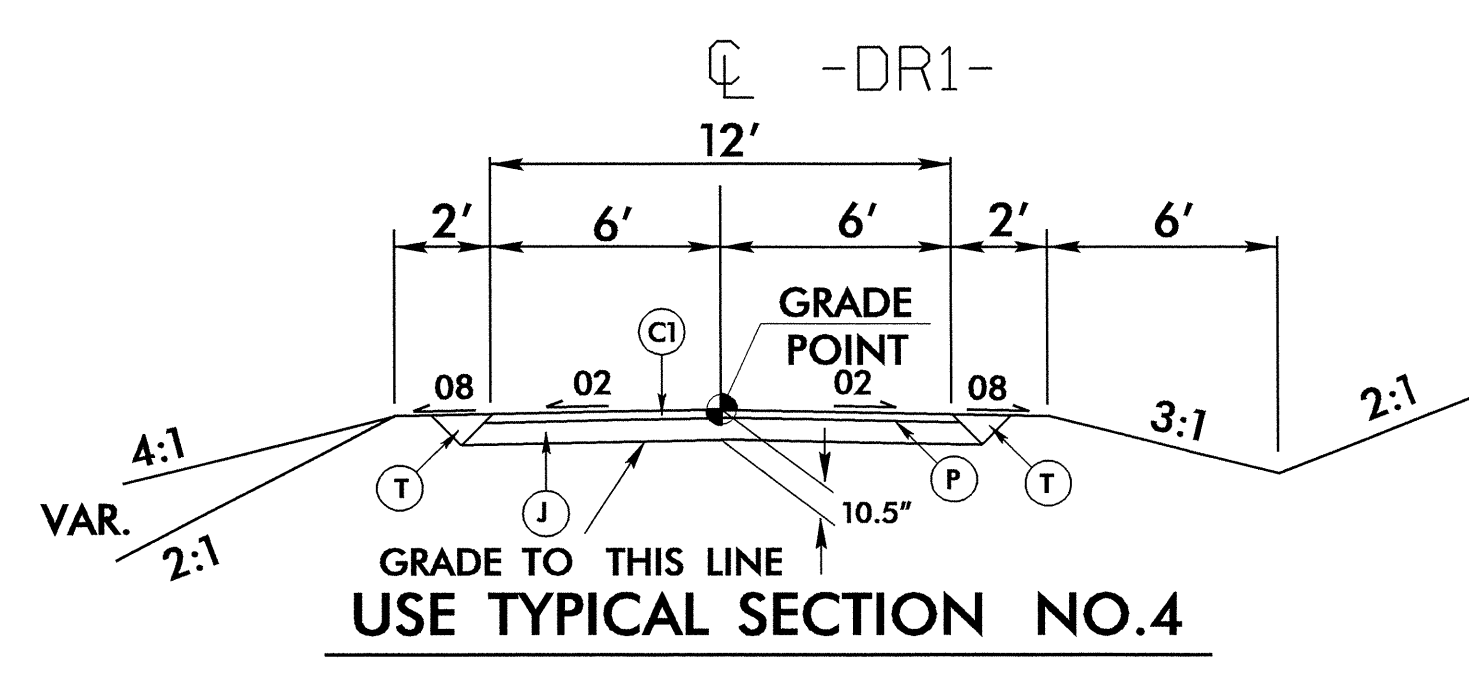
*USED 11 FOOT LANES AND 6 FOOT SHOULDERS TO MINIMIZE PARALLEL STREAM IMPACT



USE TYPICAL SECTION NO.3

USE TYPICAL SECTION NO.3 FOR:

-L- STA.13+99.50 TO 15+14.50

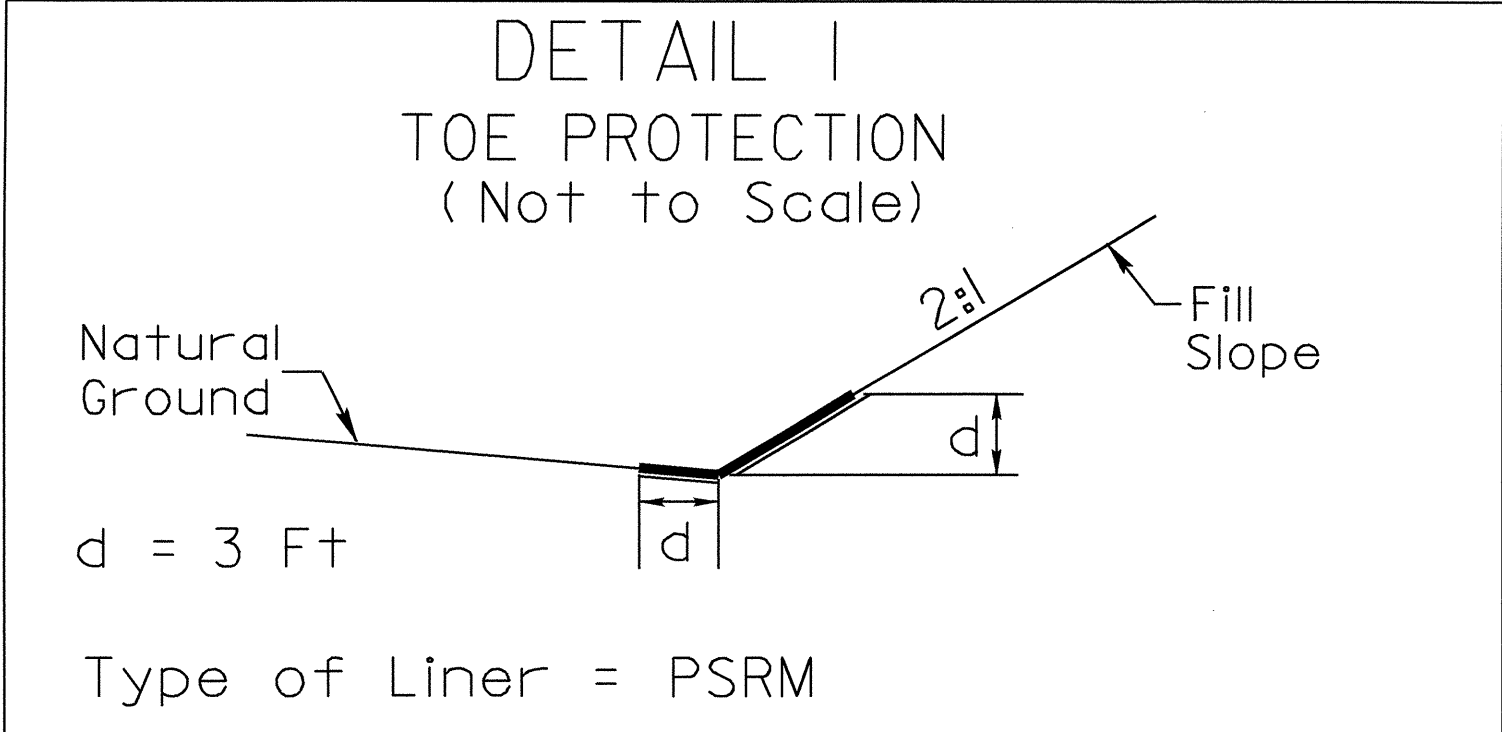


USE TYPICAL SECTION NO.4

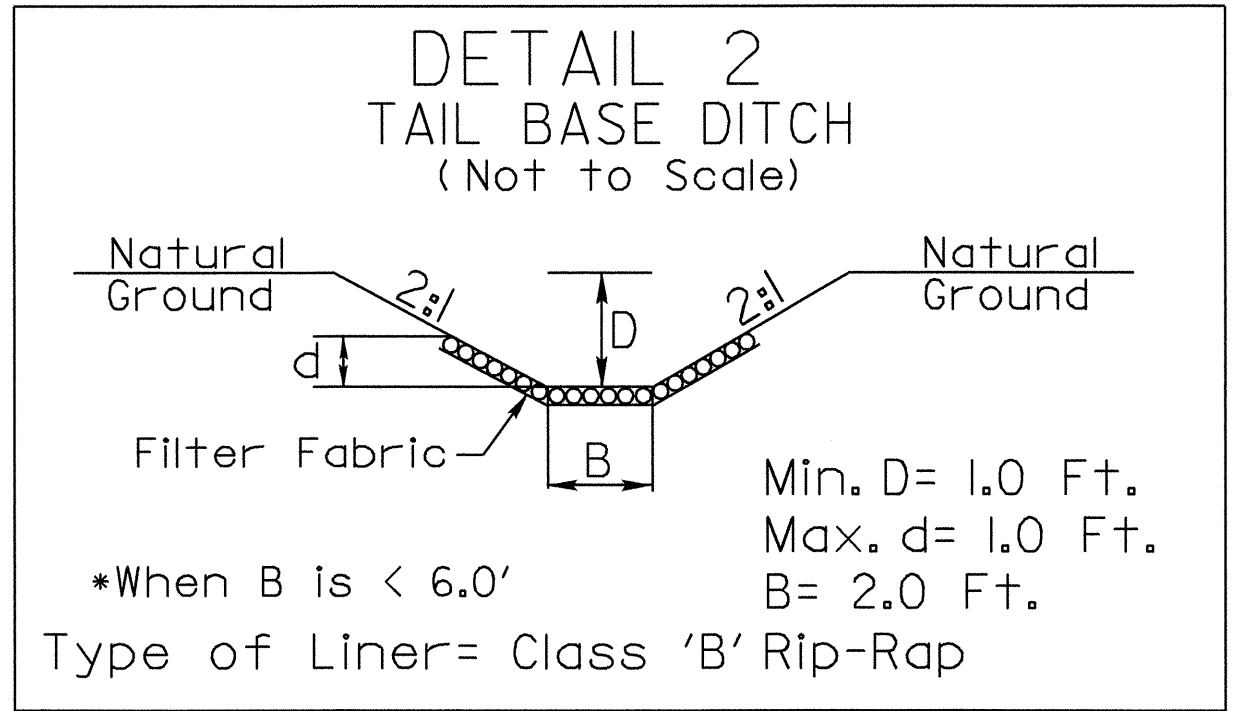
USE TYPICAL SECTION NO.4 FOR:

-DRI- STA.10+11.00 TO 13+75.00

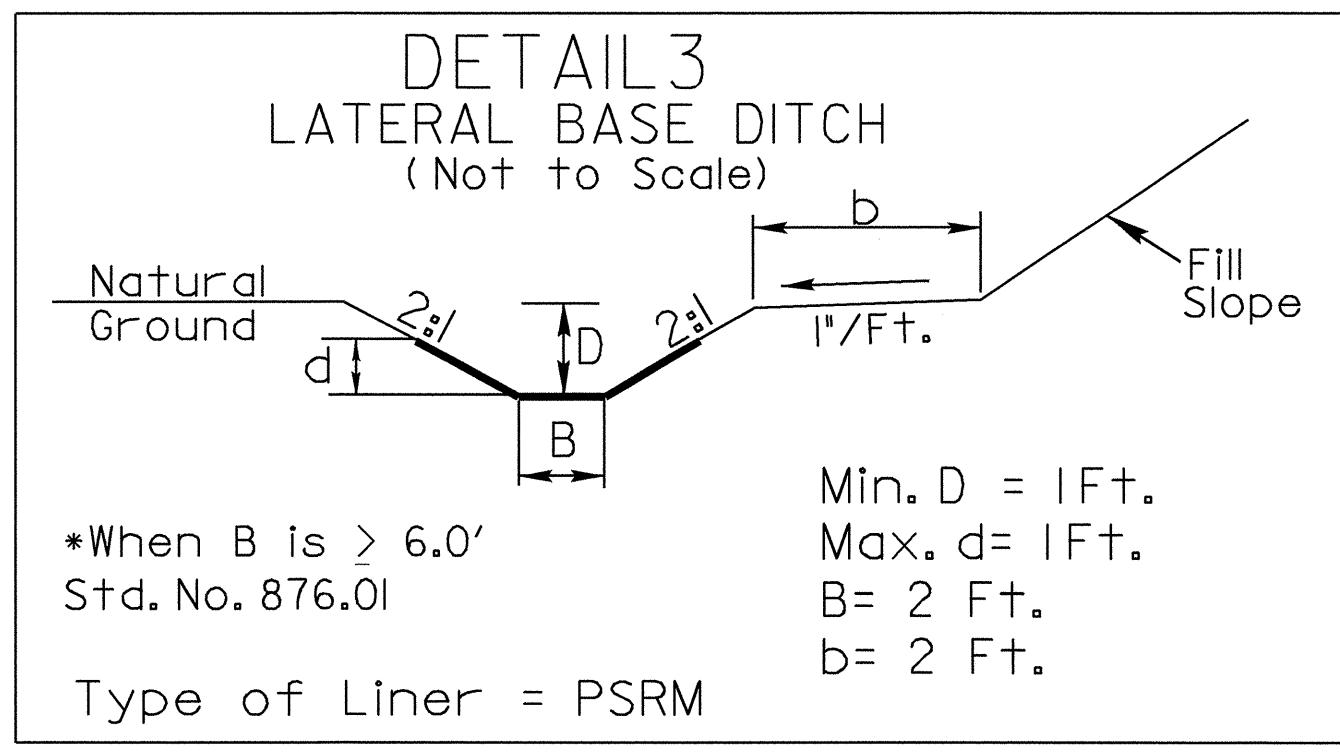
6/2/08
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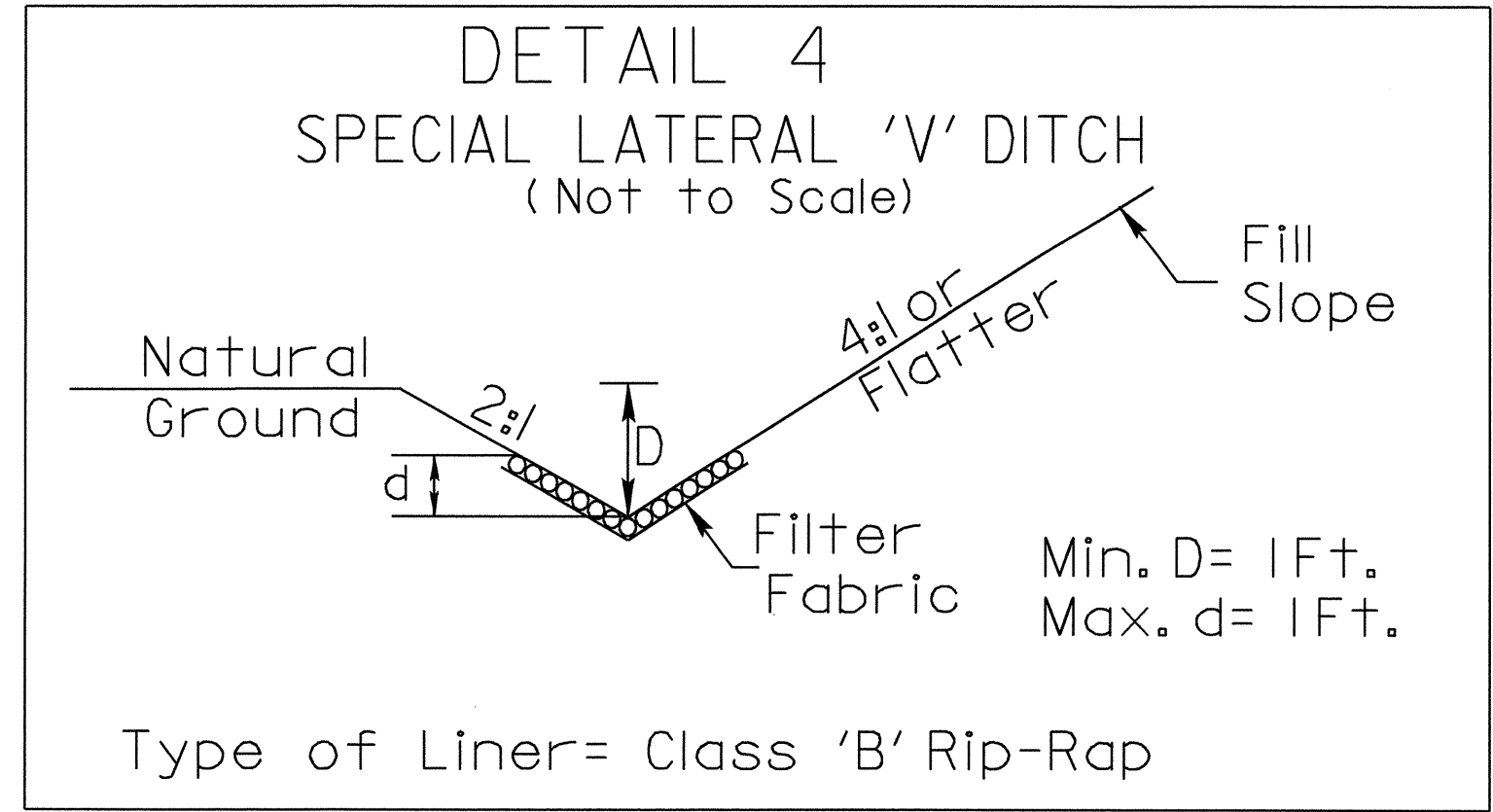
-L- STA 10+75 TO STA 11+00 (LT)



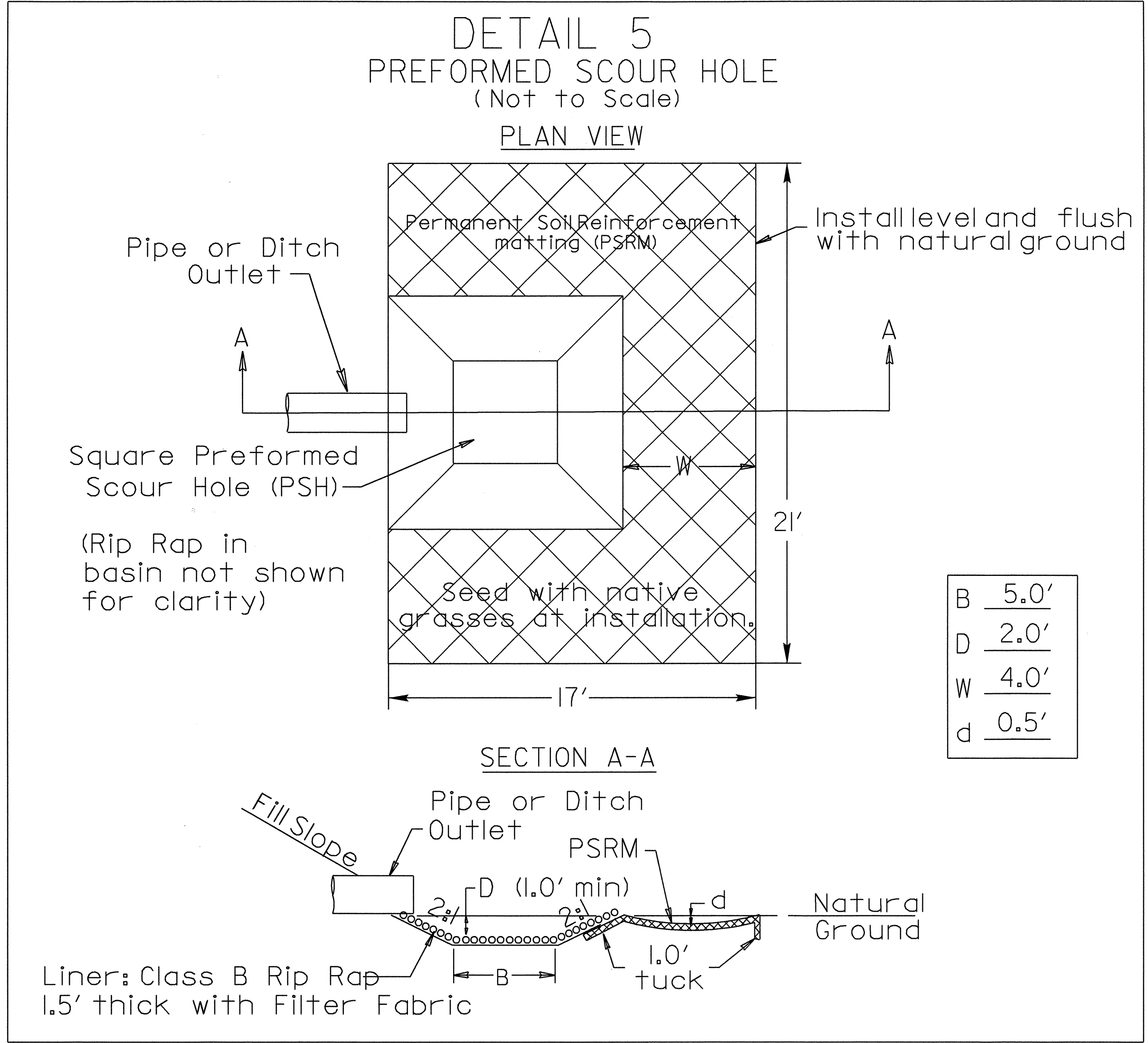
-L- STA 11+71 TO STA 11+75 (LT)



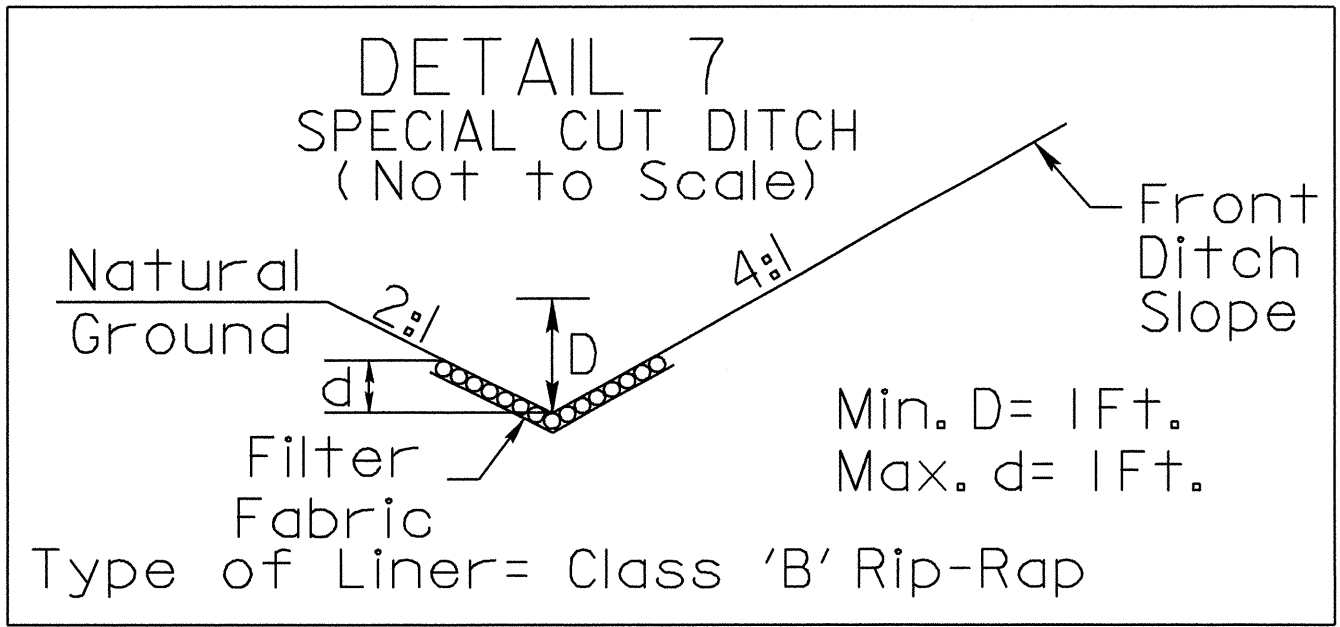
-L- STA 16+16 TO STA 18+00 (RT)



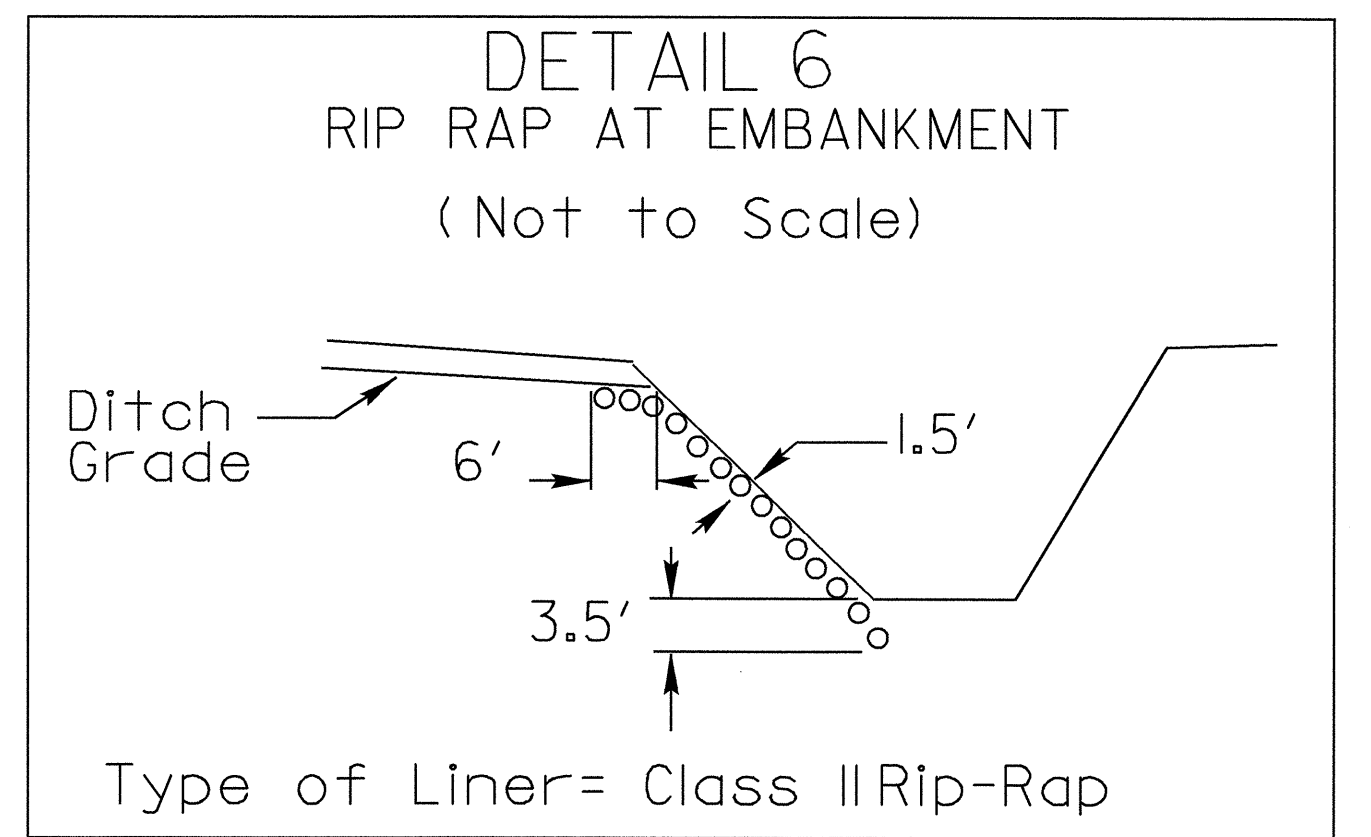
-L- STA 18+00 TO STA 18+50 (RT)



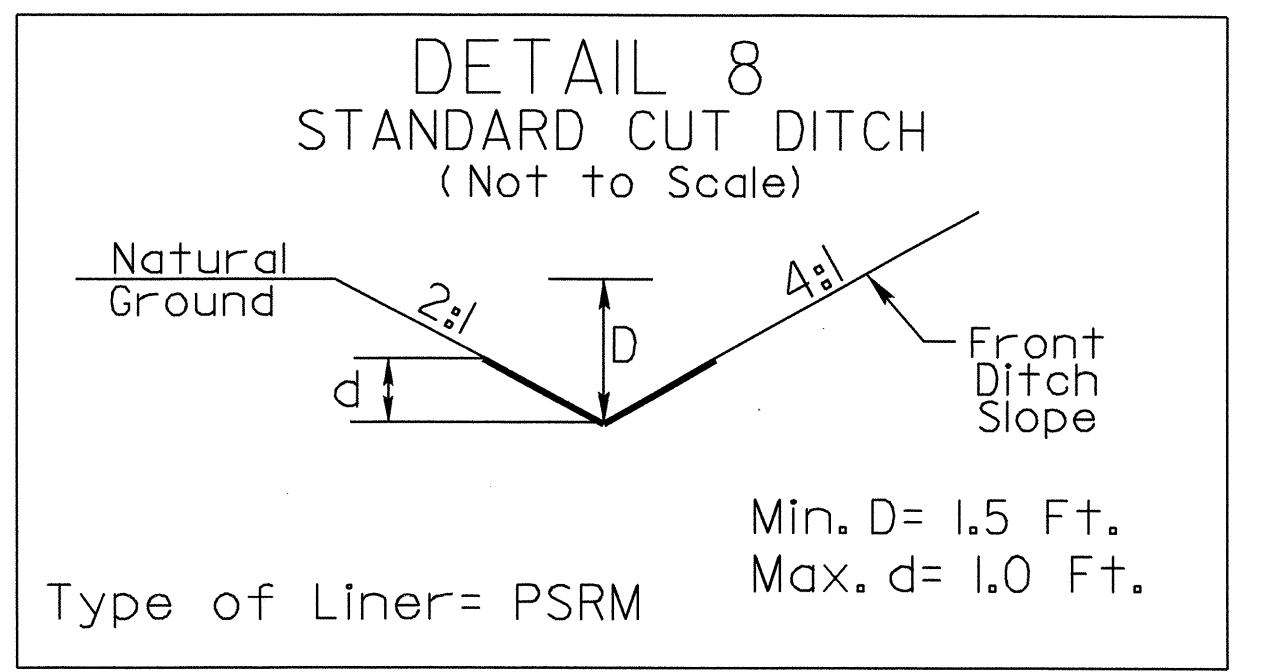
-L- STA 15+88 (LT)



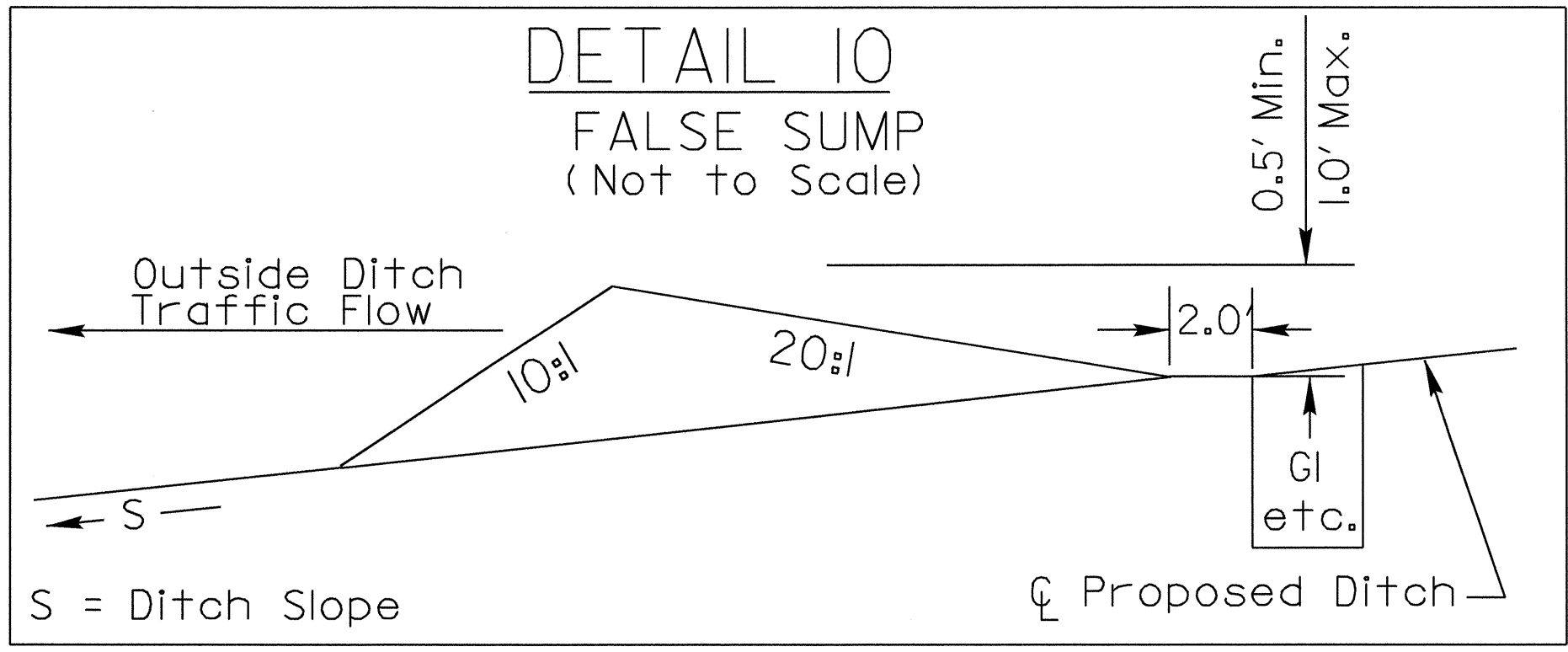
-L- STA 18+00 TO 18+50 (LT)



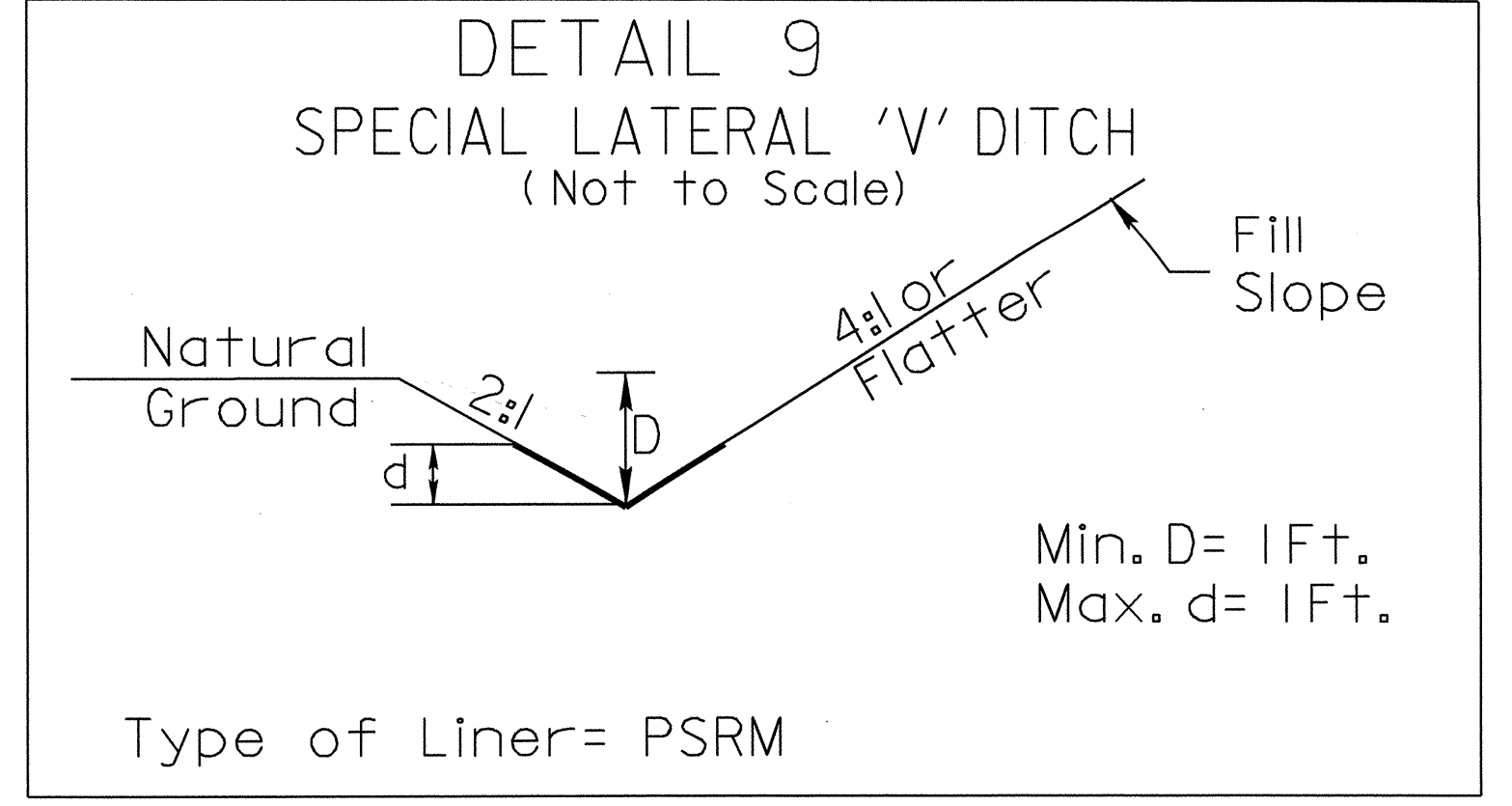
-L- STA 14+12 (RT)
-L- STA 16+14 (RT)



-L- STA 10+00 TO STA 10+75 (LT)
-L- STA 10+00 TO STA 11+62 (RT)
-L- STA 18+50 TO STA 20+50 (RT)
-L- STA 18+50 TO STA 20+50 (LT)



-DRI- STA 10+38 (RT)

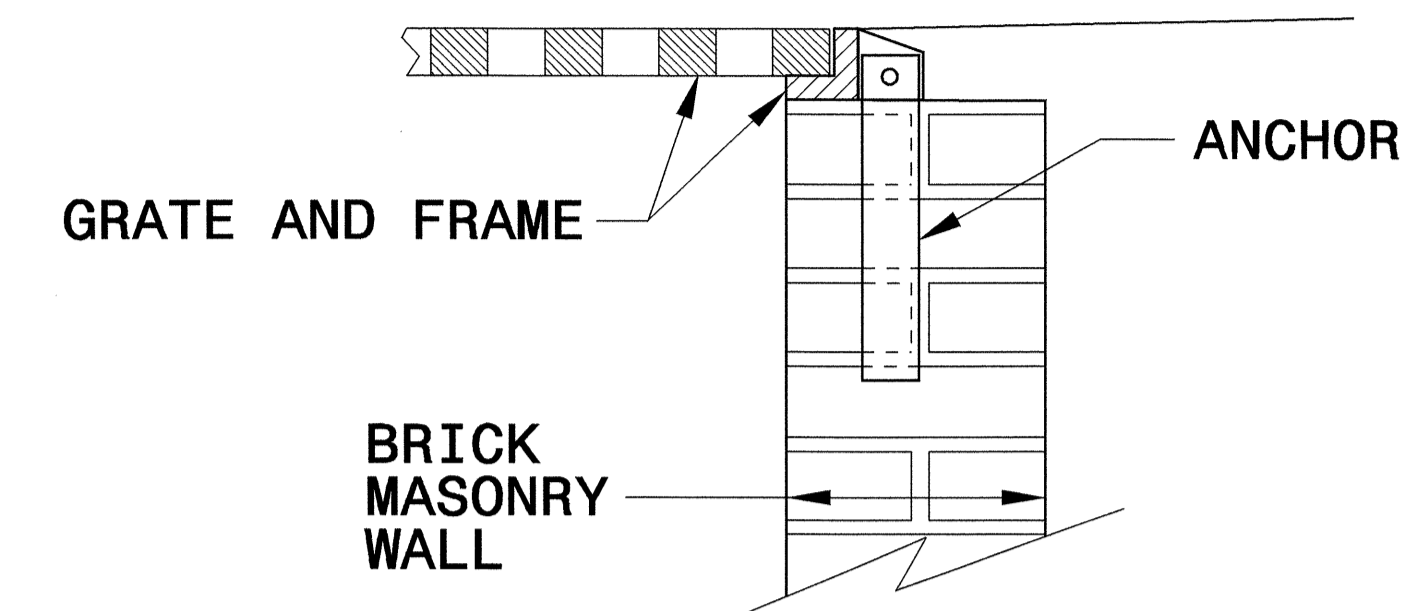


-L- STA 12+00 TO STA 14+12 (RT)

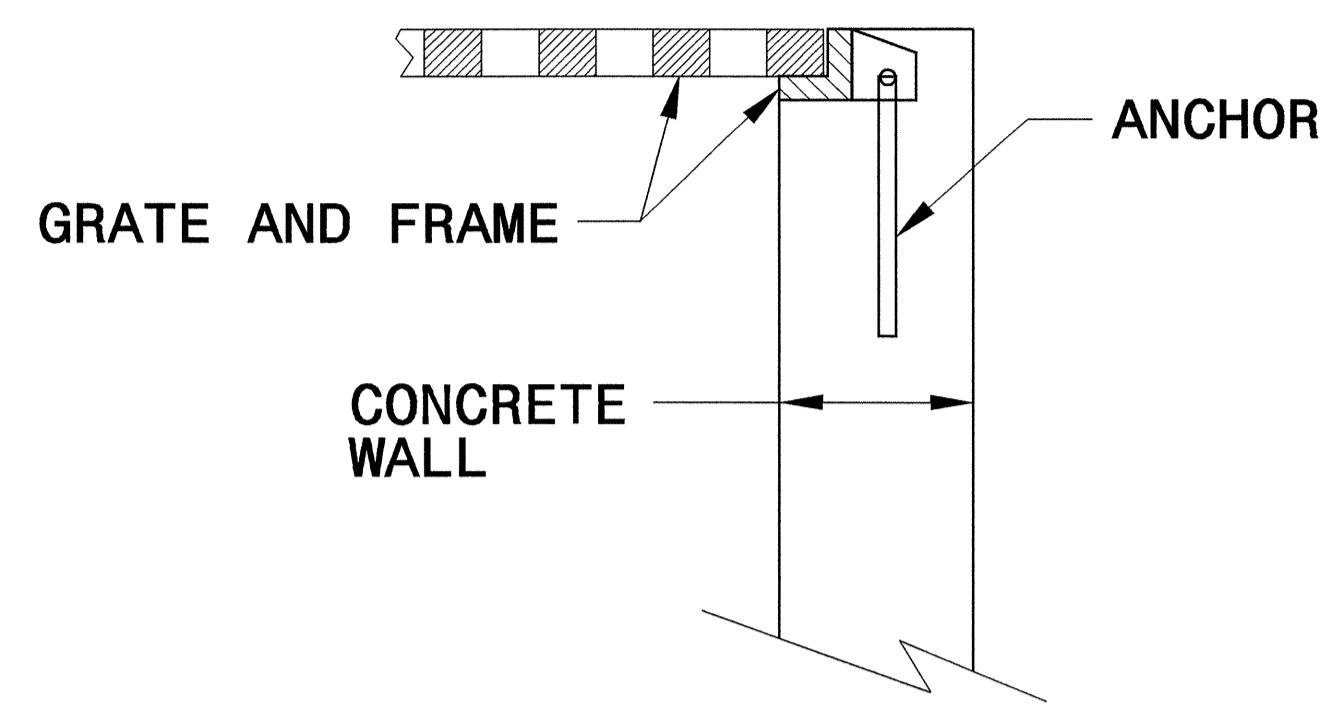
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

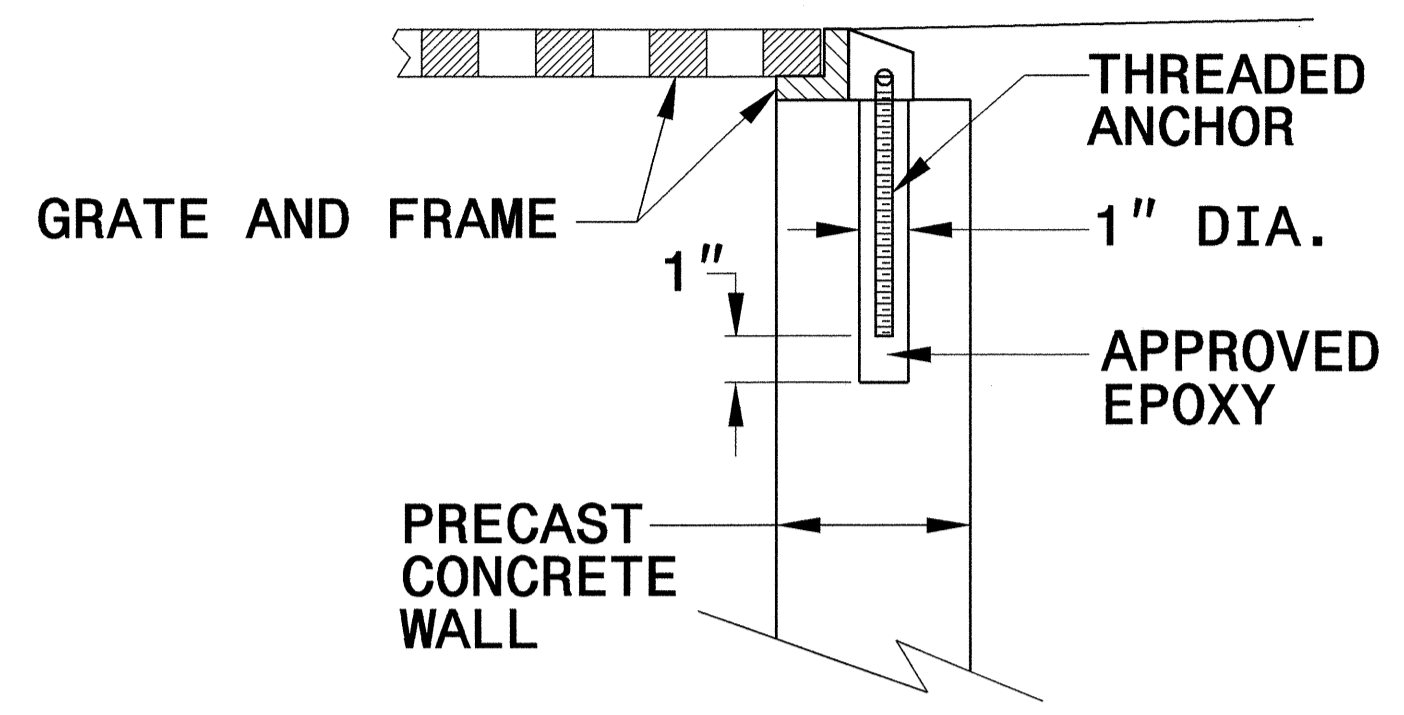
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



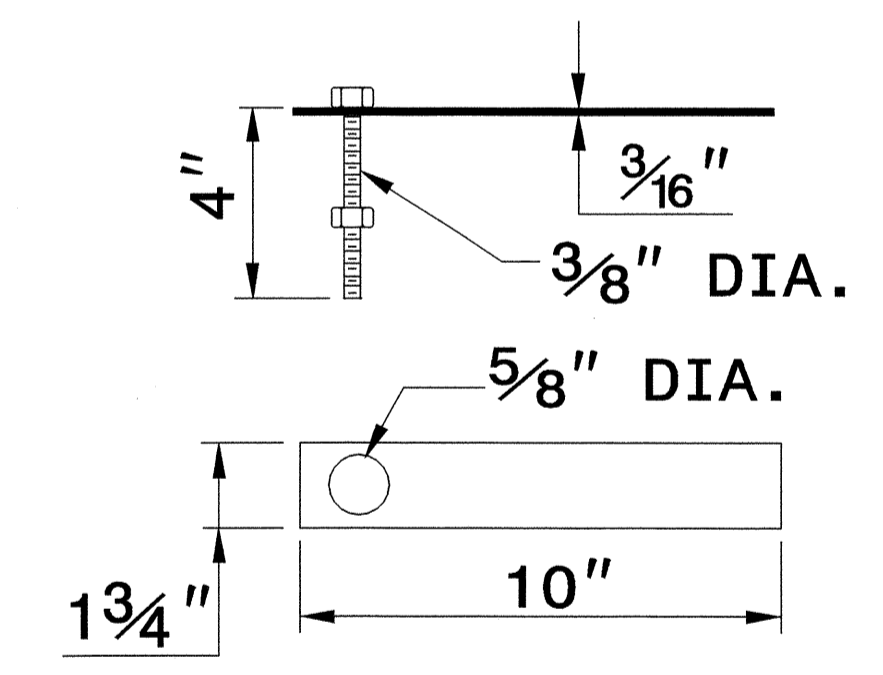
CONCRETE CONSTRUCTION



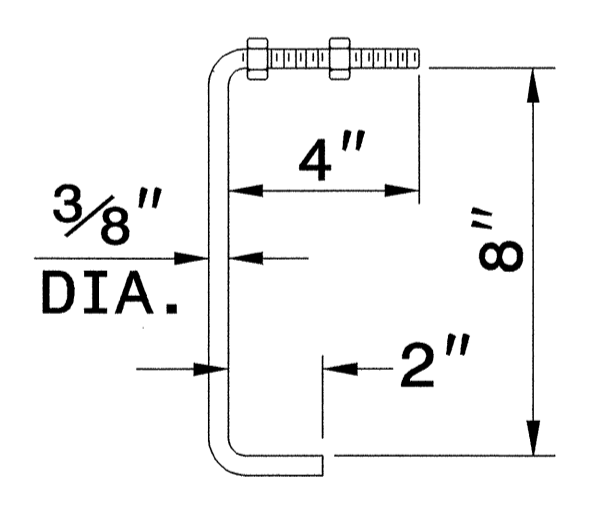
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

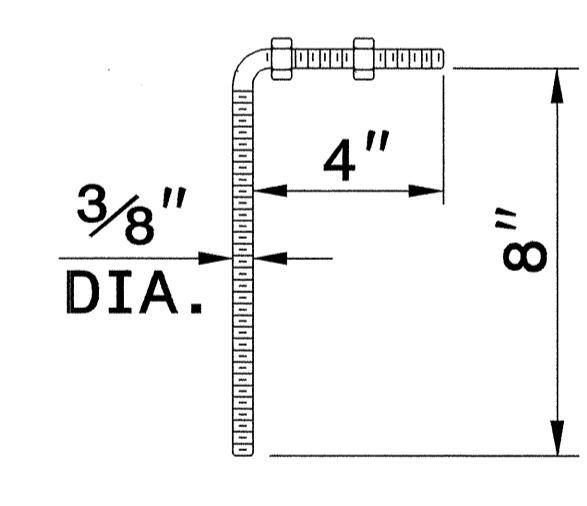
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



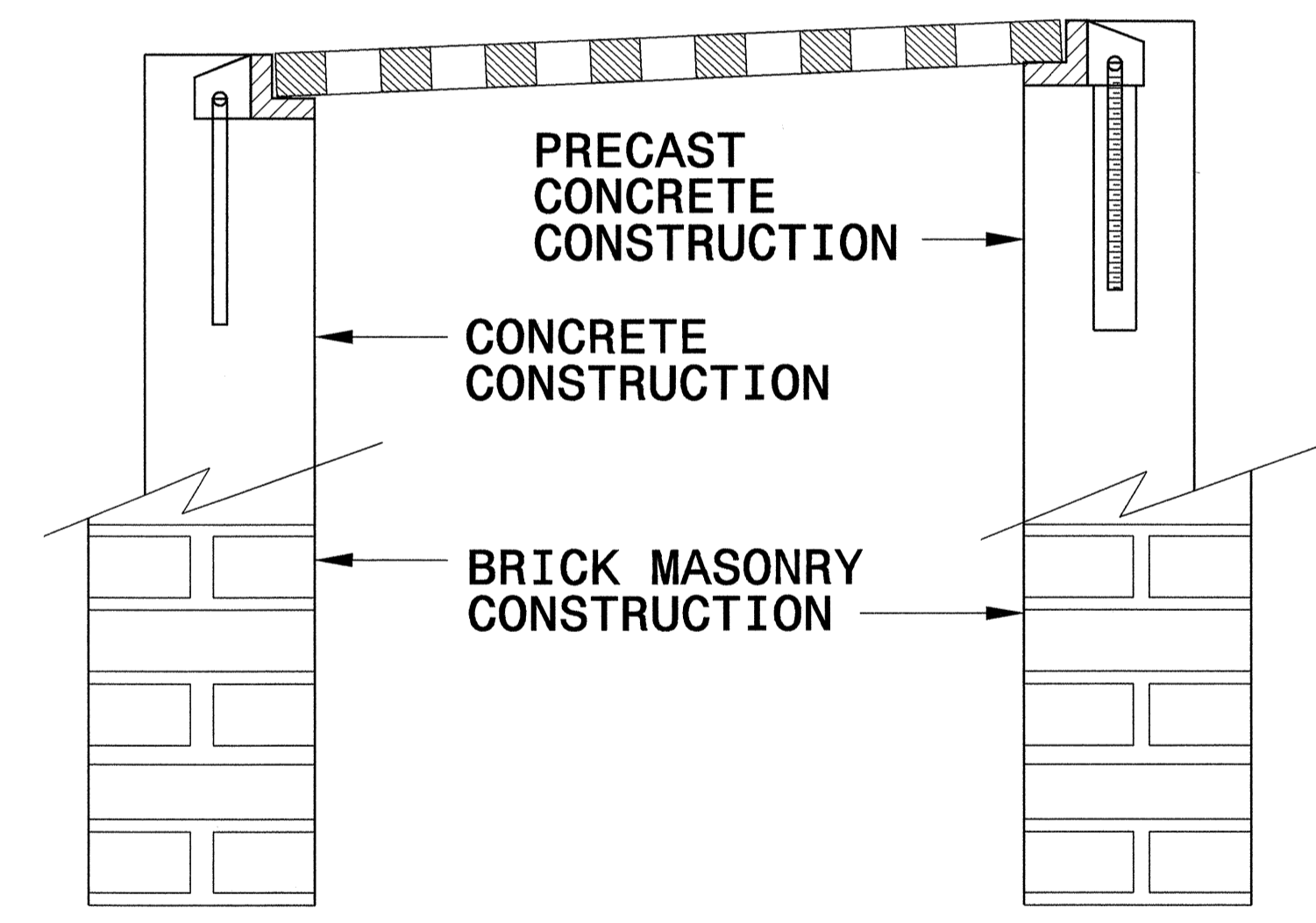
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



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

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

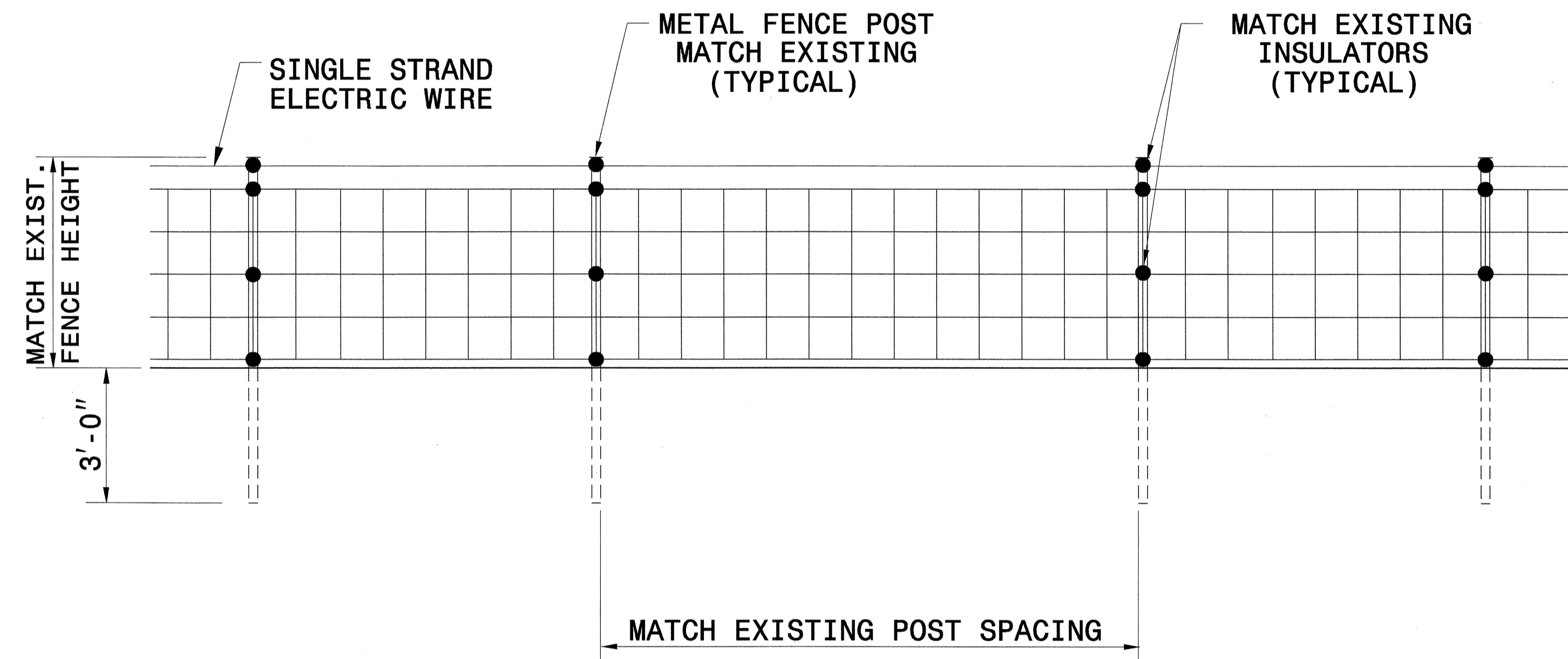


PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

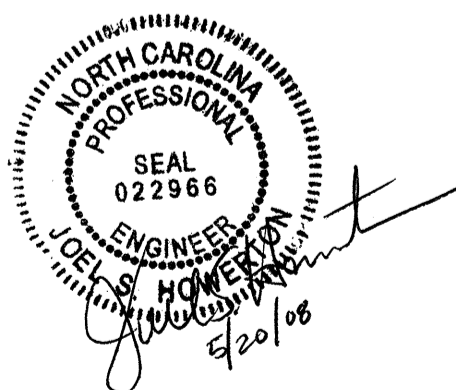
ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: J.E. WARD DATE: 4/22/08
FILE SPEC: .

SYSTEMS CONNECTIONS CONSULTANTS



ELECTRIC FENCE

NOTE: SUBSTITUTION MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.



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

**DETAIL OF
PROPOSED ELECTRIC FENCE**

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: rnbritt DATE: 04-21-08
 CHECKED BY: [Signature] DATE: 4/22/08
 FILE SPEC.: c:\p11s\rbritt/english/bridge/b4116electricfence.dgn

SYSTEMS
 USER NAME

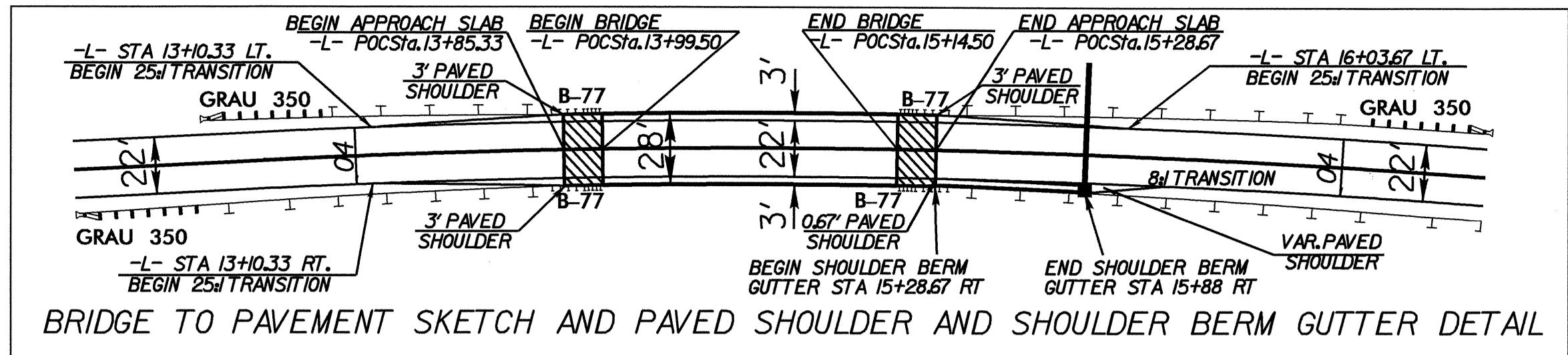
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201894

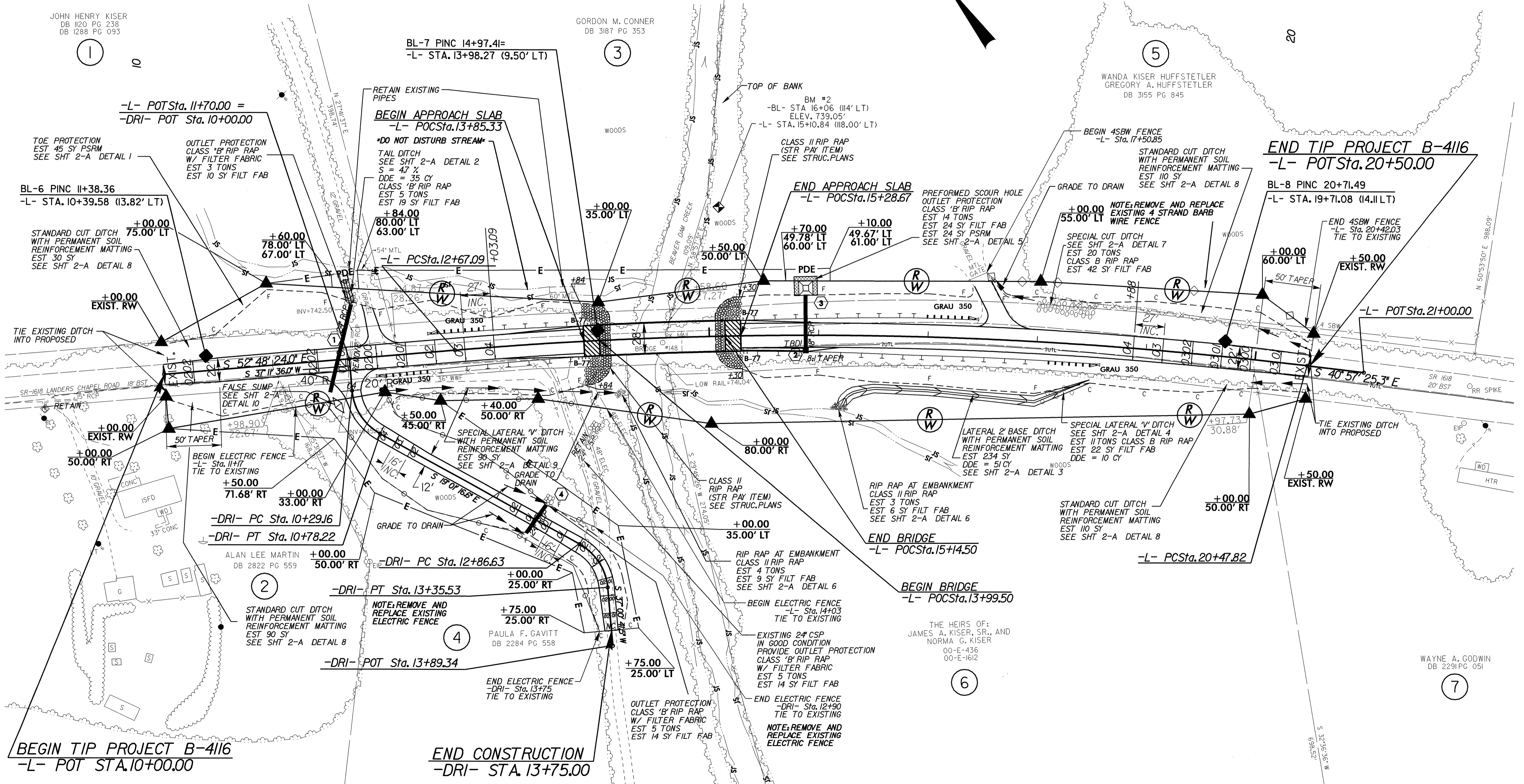
ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (14+57.00)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
005700000-E	226	700	CY	UNDERCUT EXCAVATION
013400000-E	240	100	CY	DRAINAGE DITCH EXCAVATION
019500000-E	265	750	CY	SELECT GRANULAR MATERIAL
019600000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION
031800000-E	300	20	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
037200000-E	310	48	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	310	116	LF	24" RC PIPE CULVERTS, CLASS III
099500000-E	340	48	LF	PIPE REMOVAL
112100000-E	520	400	TON	AGGREGATE BASE COURSE
122000000-E	545	100	TON	INCIDENTAL STONE BASE
127500000-E	600	220	GAL	PRIME COAT
148900000-E	610	600	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
152500000-E	610	450	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
156000000-E	620	56	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
169300000-E	654	25	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
228600000-N	840	1	EA	MASONRY DRAINAGE STRUCTURES
236700000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.29
255600000-E	846	60	LF	SHOULDER BERM GUTTER
303000000-E	862	675	LF	STEEL BM GUARDRAIL
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS

ItemNumber	Sec #	Quantity	Unit	Description
327000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
331700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
355900000-E	866	305	LF	** STRAND BARBED WIRE FENCE WITH POSTS (4)
357500000-E	SP	815	LF	GENERIC FENCING ITEM ELECTRIC FENCE WITH POST
363500000-E	876	10	TON	RIP RAP, CLASS II
364900000-E	876	60	TON	RIP RAP, CLASS B
365600000-E	876	290	SY	FILTER FABRIC FOR DRAINAGE
365900000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
440000000-E	1110	330	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	50	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
443500000-N	1135	15	EA	CONES
444500000-E	1145	64	LF	BARRICADES (TYPE III)
445000000-N	1150	80	HR	FLAGGER
481000000-E	1205	8,800	LF	PAINT PAVEMENT MARKING LINES (4")
600000000-E	1605	1,820	LF	TEMPORARY SILT FENCE
600600000-E	1610	120	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	470	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	145	TON	SEDIMENT CONTROL STONE
601500000-E	1615	2	ACR	TEMPORARY MULCHING
601800000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	0.5	TON	FERTILIZER FOR TEMPORARY SEEDING
602400000-E	1622	130	LF	TEMPORARY SLOPE DRAINS
602700000-N	1622	3	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS

ItemNumber	Sec #	Quantity	Unit	Description
602900000-E	SP	600	LF	SAFETY FENCE
603000000-E	1630	1,360	CY	SILT EXCAVATION
603600000-E	1631	640	SY	MATTING FOR EROSION CONTROL
603800000-E	SP	1,930	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	20	LF	1/4" HARDWARE CLOTH
607103000-E	SP	460	LF	COIR FIBER BAFFLES
608400000-E	1660	2	ACR	SEEDING & MULCHING
608700000-E	1660	1.5	ACR	MOWING
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	1.5	TON	FERTILIZER TOPDRESSING
611400000-N	SP	2	HR	SPECIALIZED HAND MOWING
611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL



*BEGIN SHOULDER BERM GUTTER STA 15+28.67 RT END SHOULDER BERM GUTTER STA 15+88.00 RT
 *TIE IN EXISTING GRAVEL DRIVE AT -L- STA 11+95 LT WITH 8" ABC
 *TIE IN EXISTING GRAVEL DRIVE AT -L- STA 17+63 LT WITH 8" ABC



REVISIONS

-L-	-DRI-	-DRI-
PI Sta 16+58.85	PI Sta 10+55.86	PI Sta 13+13.24
Δ = 1° 50' 58.7" (RT)	Δ = 56° 12' 52.6" (LT)	Δ = 56° 01' 58.1" (RT)
D = 1° 31' 04.0"	D = 114° 35' 29.6"	D = 114° 35' 29.6"
L = 780.73'	L = 49.06'	L = 48.90'
T = 391.76'	T = 26.67'	T = 26.60'
R = 3,775.00'	R = 50.00'	R = 50.00'
SE = .04	SE = .04	SE = .02
INC = 27'	INC = 16.00'	INC = 16.00'
RO = 108'	RO = 32'	RO = 32'

FOR -L- & -DRI- PROFILES, SEE SHEET NO. 5
 [Hatched Box] BRIDGE APPROACH SLAB
 FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-24

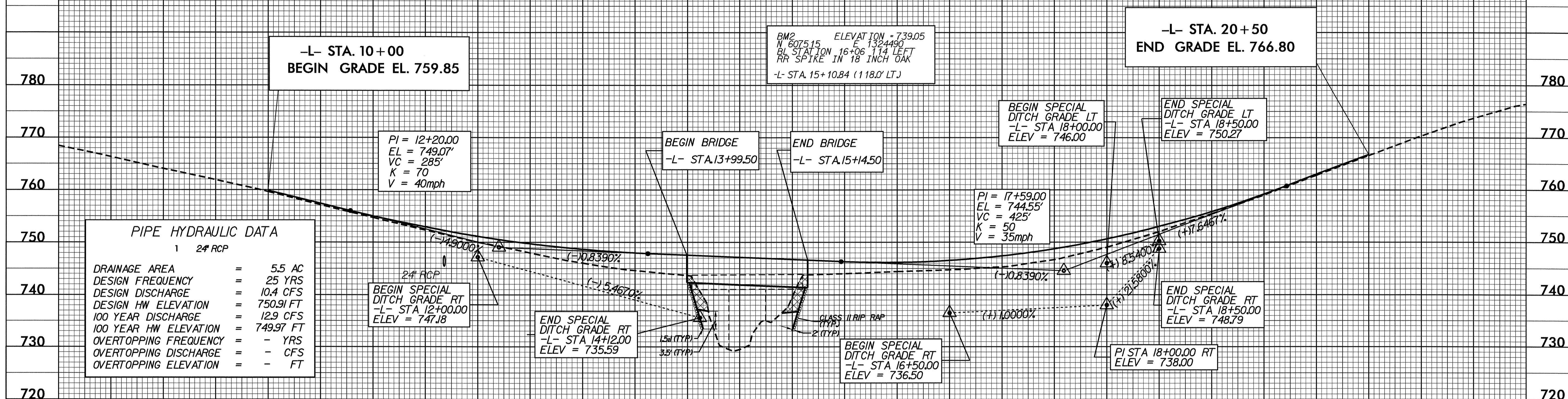
09-MAY-2008 14:23
 r:\roadway\proj\4116_rdy_pst-4.dgn
 \$\$\$SYTIME\$\$\$

5/14/99

*DESIGN EXCEPTION REQUIRED FOR THE VERTICAL SAG K VALUE AND MAXIMUM GRADE
SAG VERTICAL K-VALUE, MAX GRADE, AND VERTICAL CURVE SSD

PROJECT REFERENCE NO. B-4116	SHEET NO. 5
ROADWAY DESIGN NORTH CAROLINA PROFESSIONAL SEAL 029473 ENGINEER JASON M. TALLEY	HYDRAULICS ENGINEER SEAL 026480 ENGINEER LAWRENCE D. ROBINSON
Jason M. Talley 5-12-08	5-20-08

-L-



PIPE HYDRAULIC DATA
1 24" RCP

DRAINAGE AREA	=	5.5 AC
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	10.4 CFS
DESIGN HW ELEVATION	=	750.91 FT
100 YEAR DISCHARGE	=	12.9 CFS
100 YEAR HW ELEVATION	=	749.97 FT
OVERTOPPING FREQUENCY	=	- YRS
OVERTOPPING DISCHARGE	=	- CFS
OVERTOPPING ELEVATION	=	- FT

PIPE HYDRAULIC DATA
4 24" RCP

DRAINAGE AREA	=	0.9 AC
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	1.7 CFS
DESIGN HW ELEVATION	=	736.54 FT
100 YEAR DISCHARGE	=	2.2 CFS
100 YEAR HW ELEVATION	=	736.64 FT
OVERTOPPING FREQUENCY	=	- YRS
OVERTOPPING DISCHARGE	=	- CFS
OVERTOPPING ELEVATION	=	- FT

CL II RIP RAP AND EXCAVATION ARE STRUCTURE PAY ITEMS.

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	3400	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	741J	FT
BASE DISCHARGE	=	5000	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	743.6	FT
OVERTOPPING DISCHARGE	=	7300	CFS
OVERTOPPING FREQUENCY	=	500	YRS
OVERTOPPING ELEVATION	=	747.0	FT

LEFT DITCH - - - - -
RIGHT DITCH - - - - -

SEE SHEET 4 FOR -L- & -DRI- ALIGNMENT

-DRI-

-DRI- STA. 10+11.00
BEGIN GRADE EL. 751.91

-DRI- STA. 13+75.00
END GRADE EL. 737.52

PI = 10+70.00
EL = 750.73'
VC = 100'
K = 21

PI = 12+50.00
EL = 738.56'
VC = 150'
K = 25

08-MAY-2008 14:53:41 4116_rdu.pfl.dgn