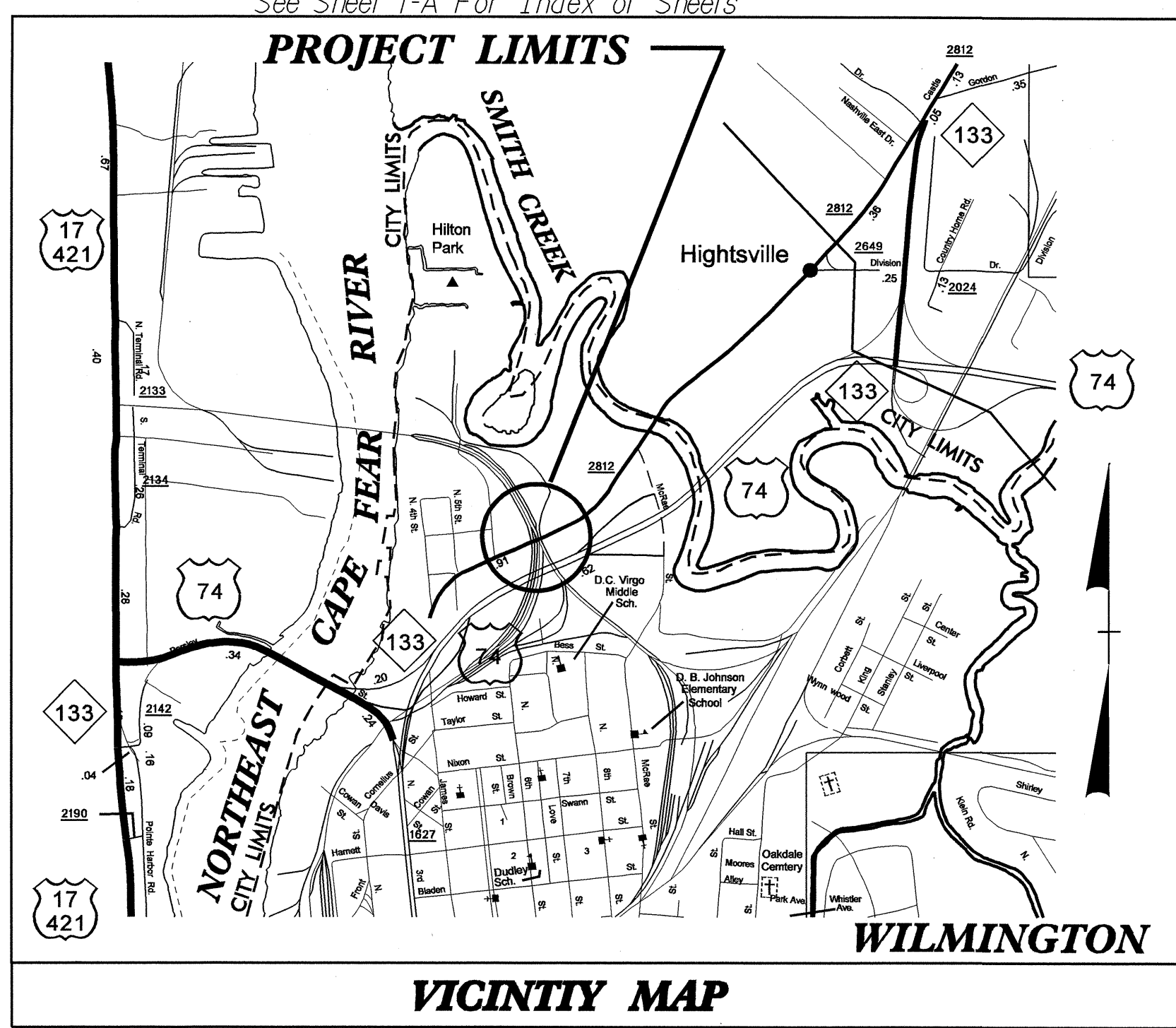


TIP PROJECT: B-3881

CONTRACT: C201921

See Sheet 1-A For Index of Sheets



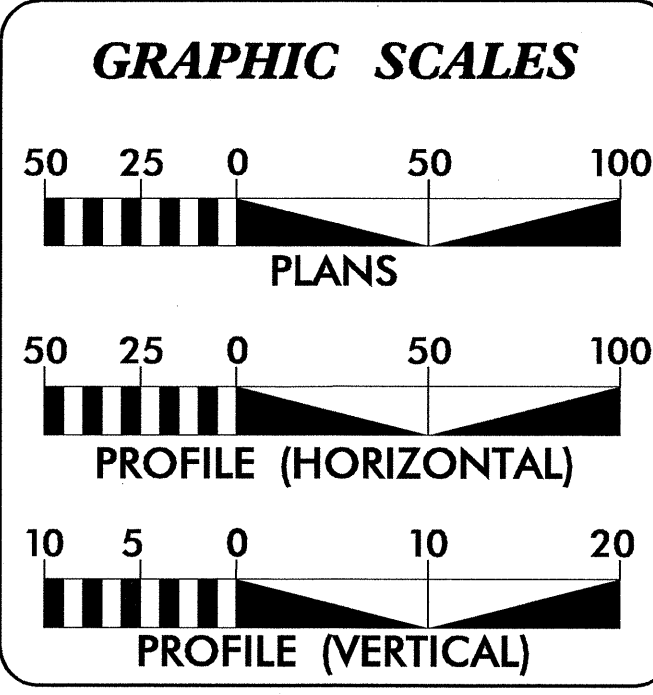
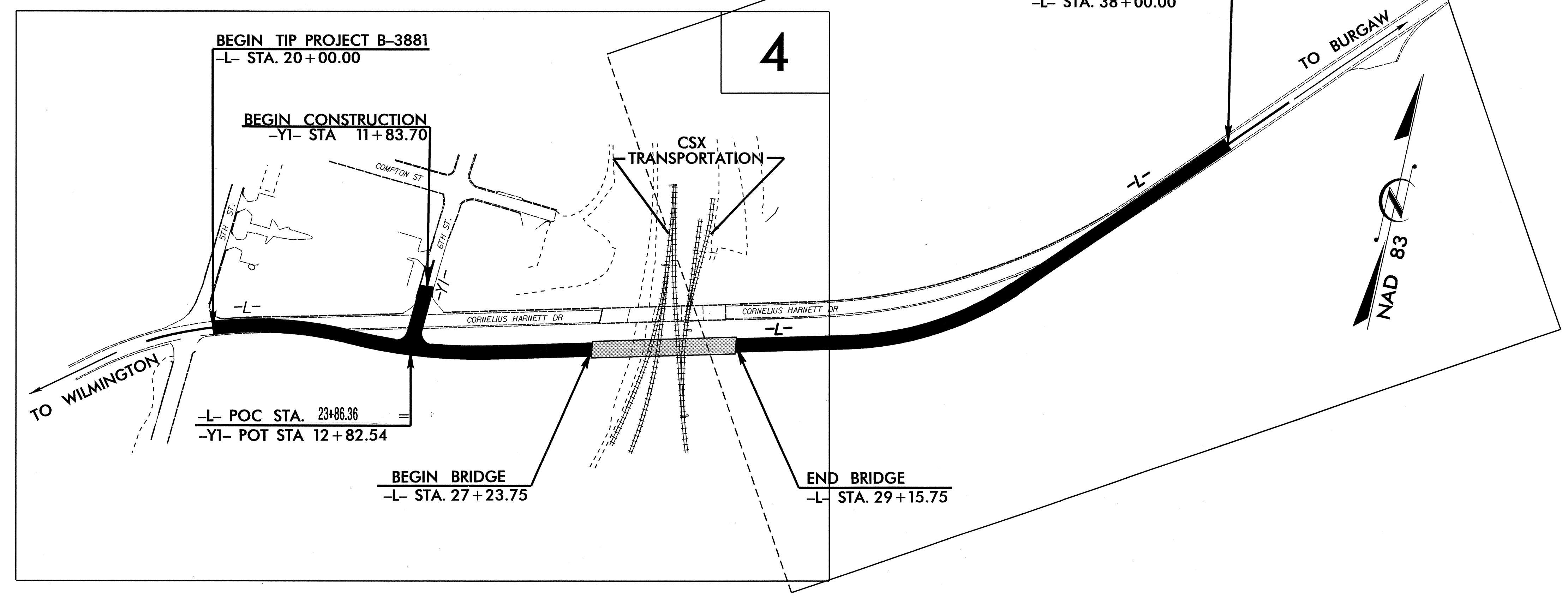
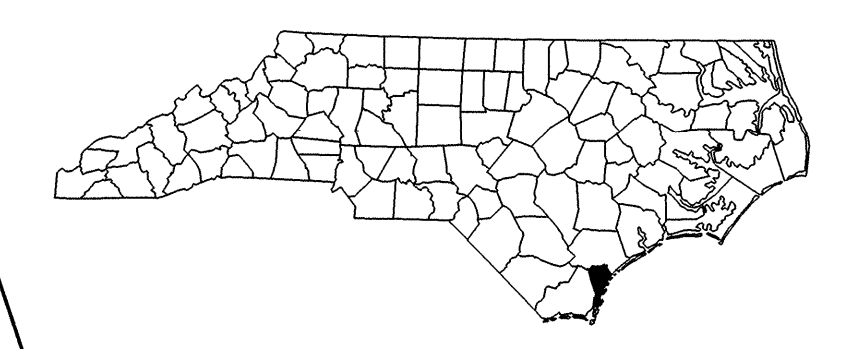
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**NEW HANOVER COUNTY**

**LOCATION: BRIDGE 26 OVER CSX TRANSPORTATION TRACKS ON CORNELIUS HARNETT DRIVE (OLD NC 133)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE, SIGNING, AND PAVEMENT MARKINGS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3881	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33323.1.1	BRSTP-117(9)	PE	
33323.2.2	BRSTP-117(9)	R/W, UTIL	
33323.3.1	BRSTP-117(14)	CONST.	



**DESIGN DATA**

ADT 2003 = 20600  
ADT 2025 = 800  
DHV = 30 %  
D = 60 %  
T = 5 % \*  
V = 40 MPH  
\* TTST 3% DUAL 2%

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-3881 = 0.305 MILES  
LENGTH STRUCTURE TIP PROJECT B-3881 = 0.036 MILES  
TOTAL LENGTH OF TIP PROJECT B-3881 = 0.341 MILES

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

2006 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
DECEMBER 16, 2005

**LETTING DATE:**  
OCTOBER 21, 2008

**JASON MOORE, PE**  
PROJECT ENGINEER

**BRYAN KEY, PE**  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

SEAL 20870  
7-10-08  
SIGNATURE: [Signature]

**ROADWAY DESIGN ENGINEER**

SEAL 26964  
7-11-08  
SIGNATURE: [Signature]

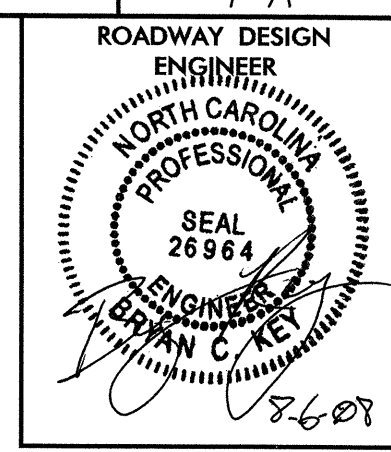
**DIVISION OF HIGHWAYS**  
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER  
**DEPARTMENT OF TRANSPORTATION**  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED  
DIVISION ADMINISTRATOR

DATE

10-JUL-2008 12:05  
RAYC:\D\W\G\PROJ\B3881-Rdy\_tsh.dgn  
\$\$\$USERNAME\$\$\$



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**INDEX OF SHEETS**

INDEX OF SHEETS

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	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A	DETAIL OF ANCHORAGE FOR FRAMES
2-B	EMBANKMENT MONITORING DETAIL
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4,5	PLAN SHEETS
6	PROFILE SHEET
TCP-1 THRU TCP-6	TRAFFIC CONTROL PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UC-1 THRU UC-6	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-3	UTILITIES BY OTHERS PLANS
X-0	CROSS-SECTION SUMMARY
X-1 THRU X-11	CROSS-SECTIONS
S-1 THRU S-24	STRUCTURE PLANS
W-1 THRU W-3	RETAINING WALL PLANS

GENERAL NOTES:

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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. THE WORK WILL BE PAID FOR A THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 815.03 AT LOCATIONS AS 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.

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 CITY OF WILMINGTON (WATER & SEWER), PROGRESS ENERGY (POWER), AT&T (TELEPHONE), PIEDMONT NATURAL GAS (GAS) AND EMBARQ (TELEPHONE).

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 CONTRACT.

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 Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
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	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
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
840.24	Frames and Narrow Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb and Gutter 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
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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\$\$\$\$\$SYSTRAN\$\$\$\$\$

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	○ EIP
Property Corner	✕
Property Monument	□ EDM
Parcel/Sequence Number	⑩23
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-----

## BUILDINGS AND OTHER CULTURE:

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

## HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	□
Jurisdictional Stream	JS-----
Buffer Zone 1	BZ 1-----
Buffer Zone 2	BZ 2-----
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	WLB-----
Proposed Lateral, Tail, Head Ditch	-----
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	-----
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	E-----
Proposed Temporary Construction Easement	E-----
Proposed Temporary Drainage Easement	TDE-----
Proposed Permanent Drainage Easement	PDE-----
Proposed Permanent Utility Easement	PUE-----

## ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	C-----
Proposed Slope Stakes Fill	F-----
Proposed Wheel Chair Ramp	WCR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	XXXX

## 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	⊕
Storm Sewer	S-----

## 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	PH
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	⊕
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	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	W-----
Designated U/G Water Line (S.U.E.*)	W-----
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:

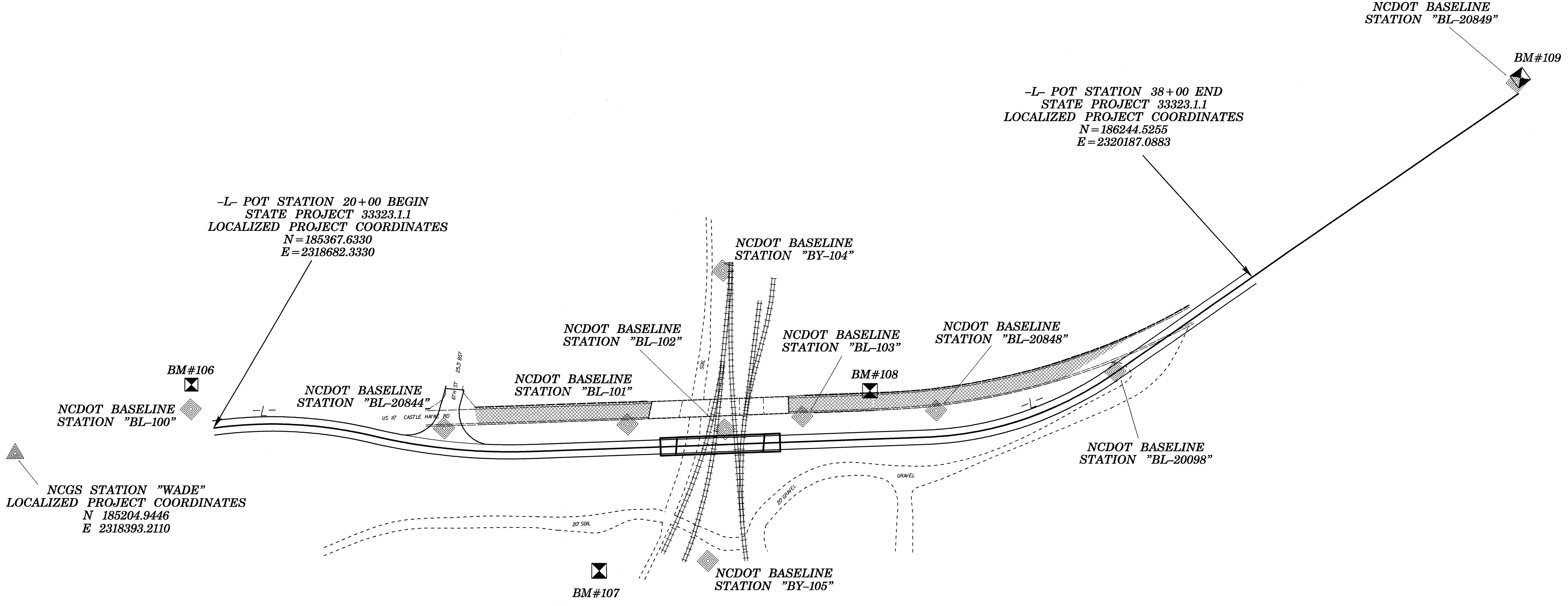
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	UTIL-----
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

3/15/06

6/2/09  
 22-MAY-2008 08:21  
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# SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-3881	1-C
Location and Surveys	



**NCGS STATION "WADE"**  
 LOCALIZED PROJECT COORDINATES  
 N 185204.9446  
 E 2318393.2110

-L- POT STATION 20+00 BEGIN  
 STATE PROJECT 33323.1.1  
 LOCALIZED PROJECT COORDINATES  
 N=185367.6330  
 E=2318682.3330

-L- POT STATION 38+00 END  
 STATE PROJECT 33323.1.1  
 LOCALIZED PROJECT COORDINATES  
 N=186244.5255  
 E=2320187.0883

**CONTROL DATA**

POINT	DESC.	NORTH	EAST	ELEVATION	L- STATION	OFFSET
20883	NCGS "WADE"	185204.9446	2318393.2110	36.87	16+21.64	75.07 LT
100	BL-100	185382.7636	2318635.7791	36.08	19+00.00	35.77 LT
20844	BL-20844	185510.5878	2319037.1527	34.87	23+14.03	33.37 LT
101	BL-101	185630.8398	2319317.1890	44.76	26+24.34	39.48 LT
102	BL-102	185683.4388	2319469.5391	20.99	27+84.90	25.48 LT
103	BL-103	185751.2812	2319581.1091	45.49	29+14.43	42.01 LT
20848	BL-20848	185843.4472	2319783.1761	37.87	31+38.07	43.56 LT
20098	BL-20098	186016.2618	2320034.4578	23.57	34+57.07	2.42 LT
20849	BL-20849	186711.1522	2320471.3630	12.62		OUTSIDE PROJECT LIMITS

**BENCHMARK DATA**

POINT	DESC.	NORTH	EAST	ELEVATION	L- STATION	OFFSET
104	BY-104	185926.8908	2319367.9246	20.07	27+91.23	289.21 LT
105	BY-105	185471.0717	2319525.0753	20.59	27+49.14	191.09 RT

**NOTES:**

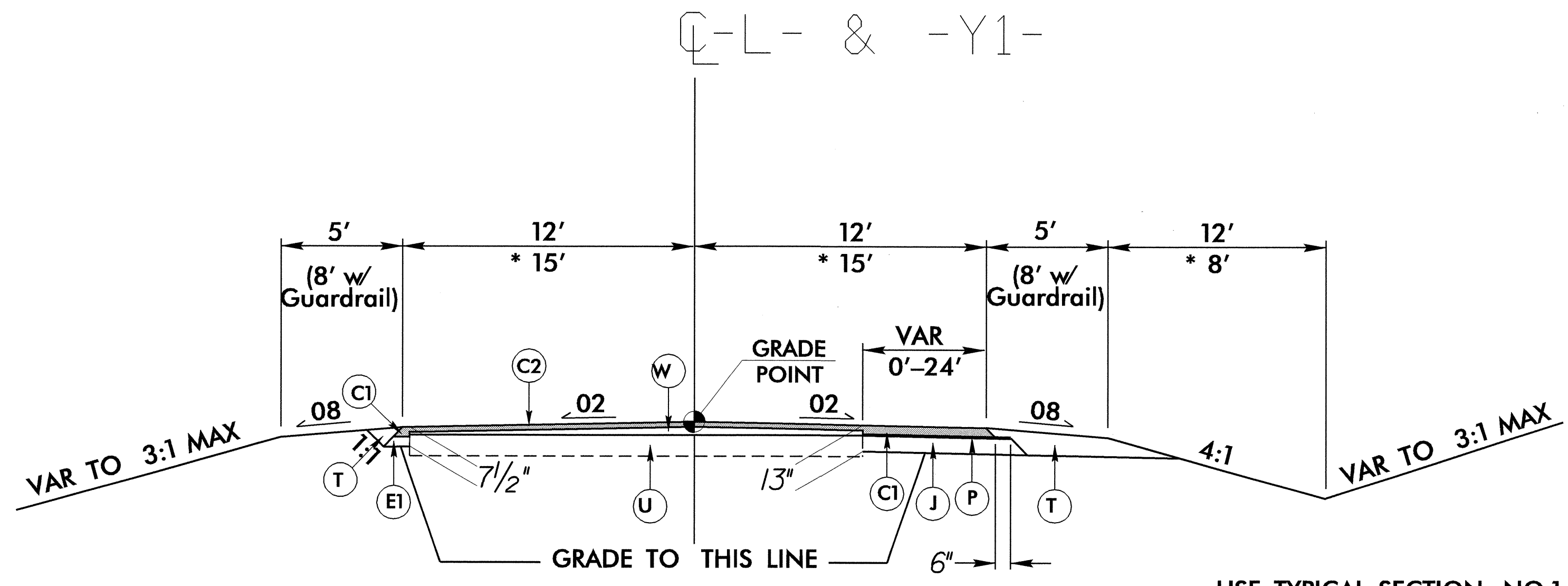
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[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/SITE CALIBRATION](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/site-calibration) INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION 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 FROM PROJECT : U-0092  
 NO GPS WAS USED ON THIS PROJECT.

BM106	ELEVATION = 37.42	BM108	ELEVATION = 42.70
N 185422	E 2318621	N 185833	E 2319669
L STATION 19+08 76 LEFT	R/R SPIKE SET IN 36" LIVE OAK	L STATION 30+28 81 LEFT	R/R SPIKE SET IN 18" MAGNOLIA
BM107	ELEVATION = 45.35	BM109	ELEVATION = 14.42
N 185389	E 2319364	N 186720	E 2320474
L STATION 25+68 201 RIGHT	SQUARE CUT IN CONC. BRIDGE BENT (US92A PROJECT)	L STATION 42+70	L STATION 42+70
		N 16° 56' 58.6" W DIST 26.49	R/R SPIKE SET IN 48" LIVE OAK

NOTE: DRAWING NOT TO SCALE

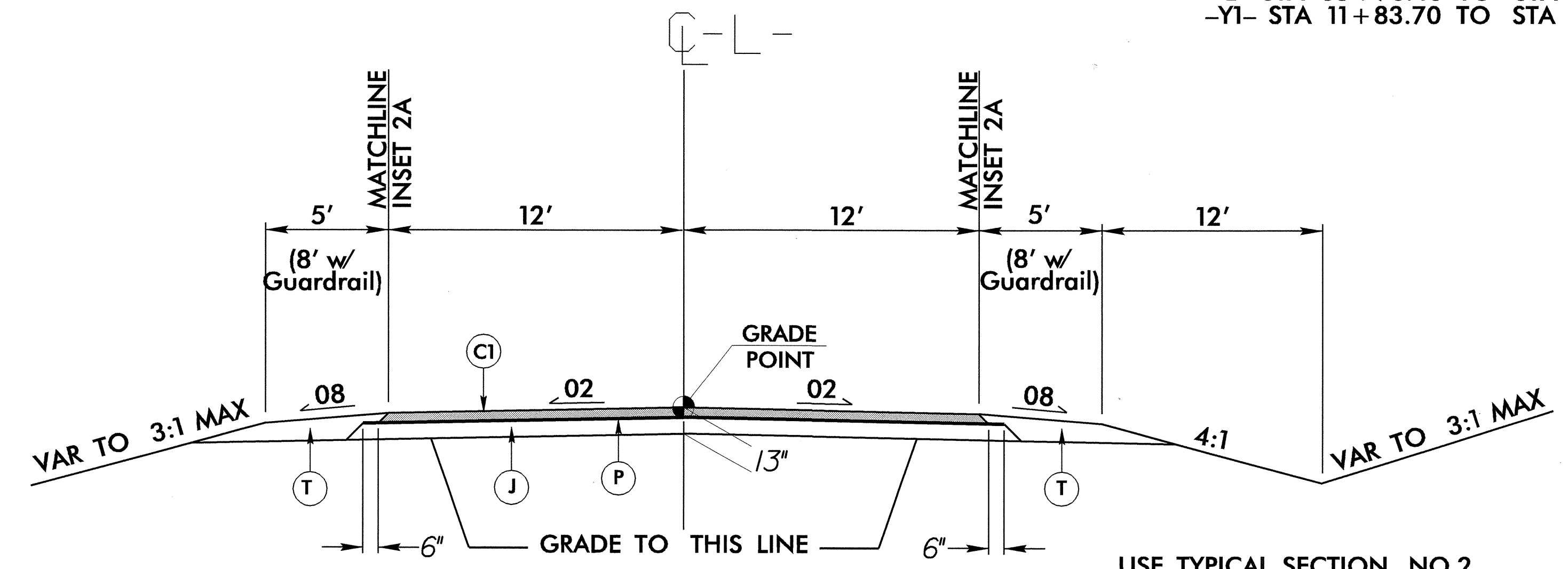
6/2/09

PROJECT REFERENCE NO. B-3881	SHEET NO. 2
ROADWAY DESIGN ENGINEER BRYAN C. KEL	PAVEMENT DESIGN ENGINEER CHI CHEN



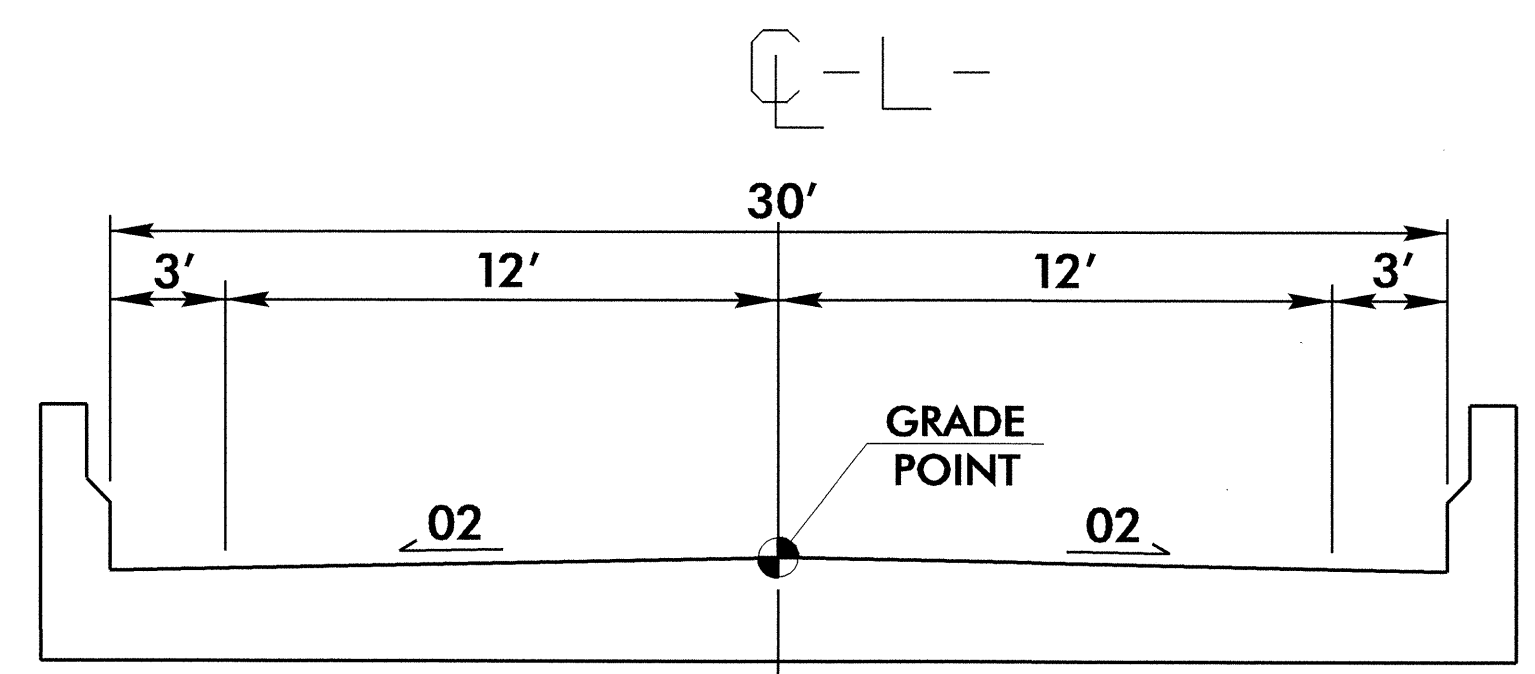
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO.1  
 -L- STA 20+00 TO STA 22+51.81  
 -L- STA 35+70.46 TO STA 38+00  
 -Y1- STA 11+83.70 TO STA 12+70.92



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO.2  
 -L- STA 22+51.81 TO STA 27+23.75 (BEGIN BRIDGE)  
 -L- STA 29+15.75 (END BRIDGE) TO STA 35+70.46  
 USE INSET 2A IN GUARDRAIL LOCATIONS

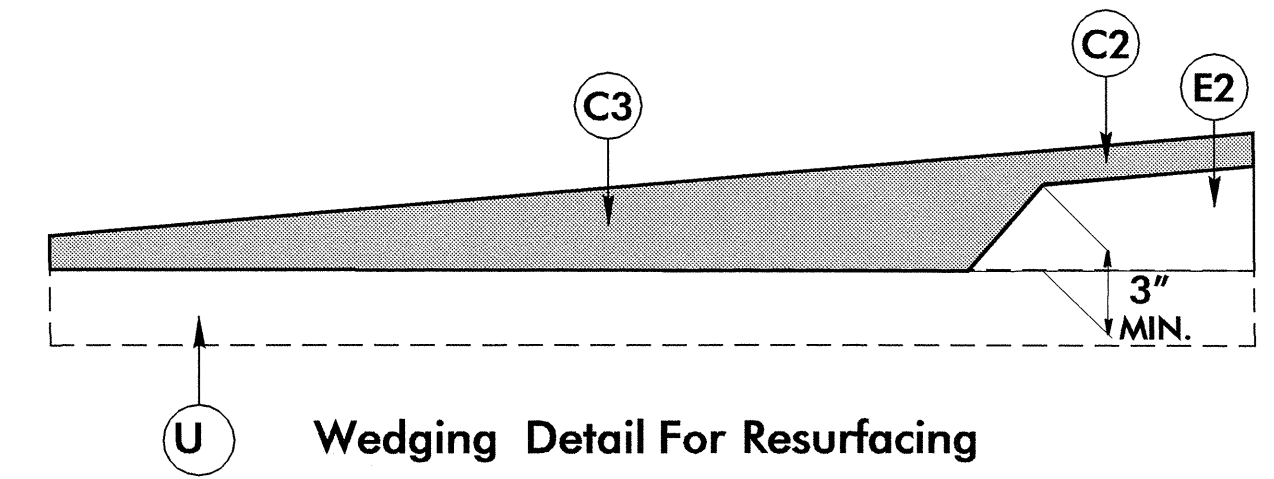
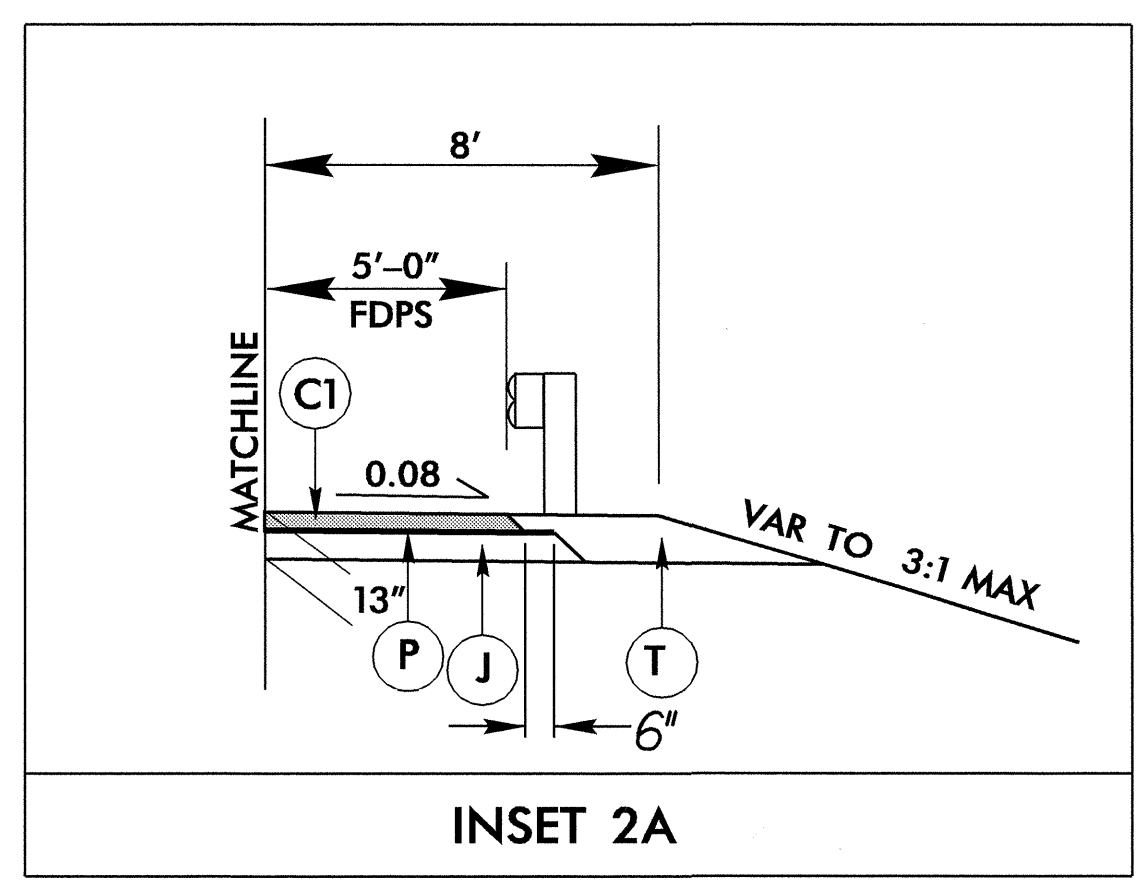


TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO.3  
 -L- STA 27+23.75 TO STA 29+15.75

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. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	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.
E1	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AN AVERAGE RATE OF 513 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.
J	PROP. 10" ABC
P	PRIME COAT
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.

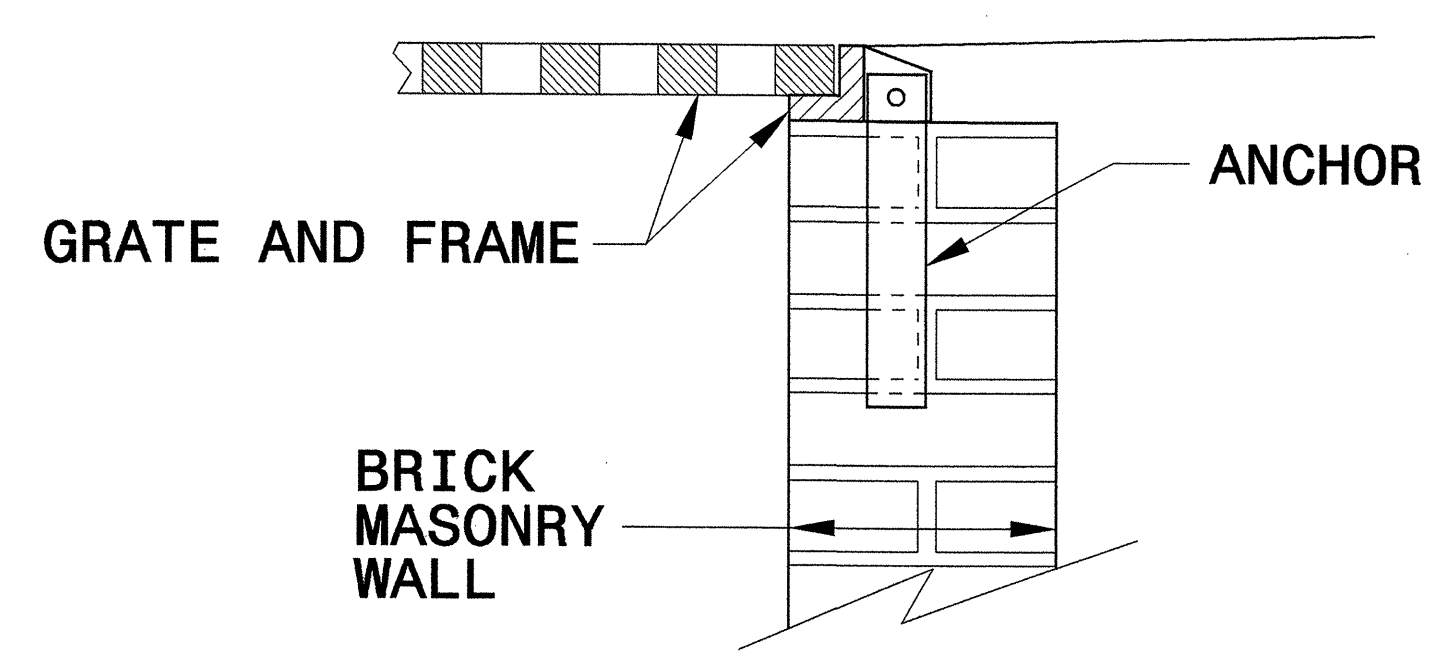


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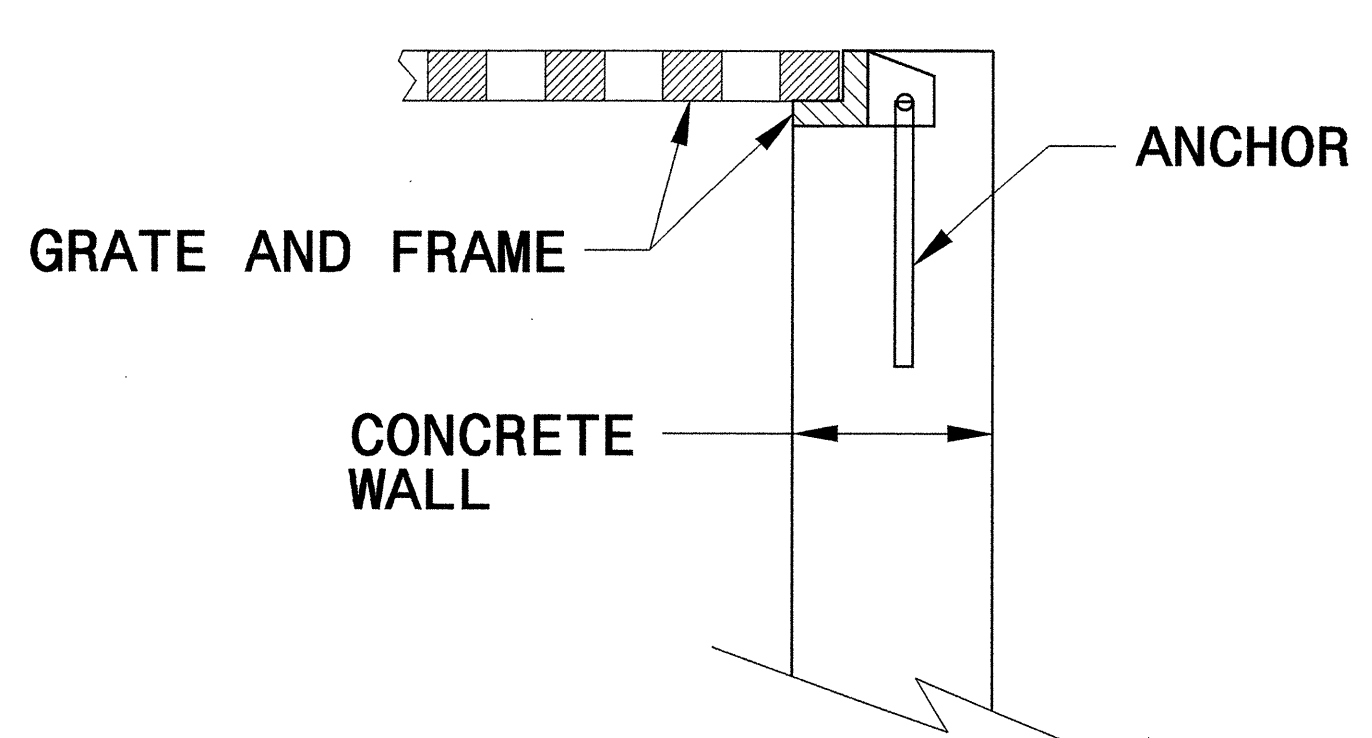
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

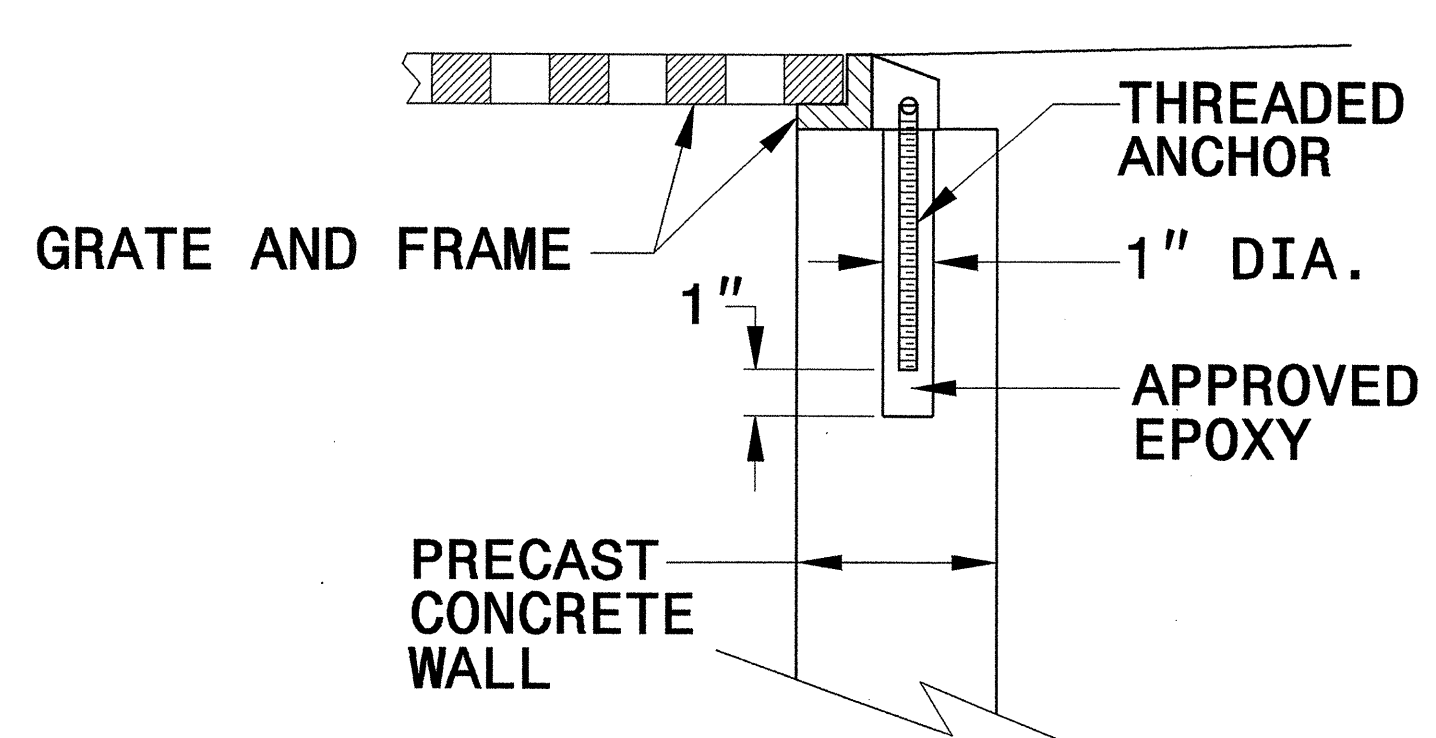
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



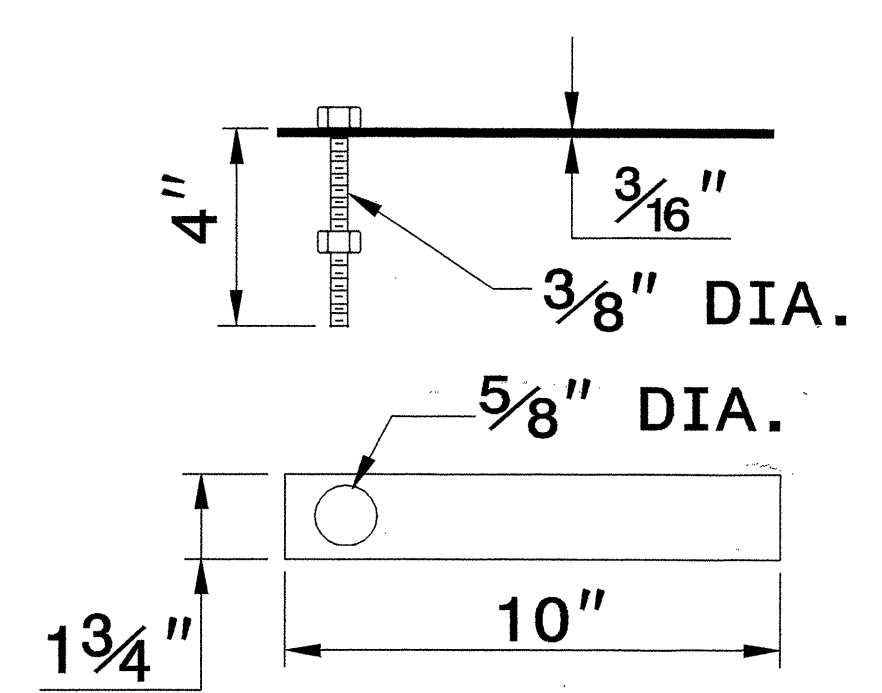
**CONCRETE CONSTRUCTION**



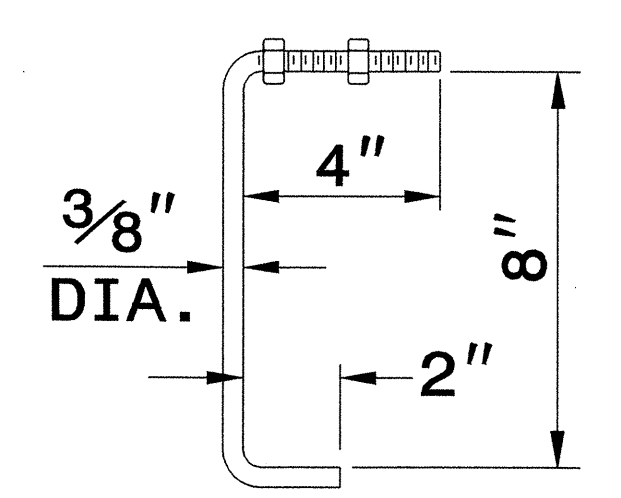
**PRECAST CONCRETE CONSTRUCTION**

**DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET**

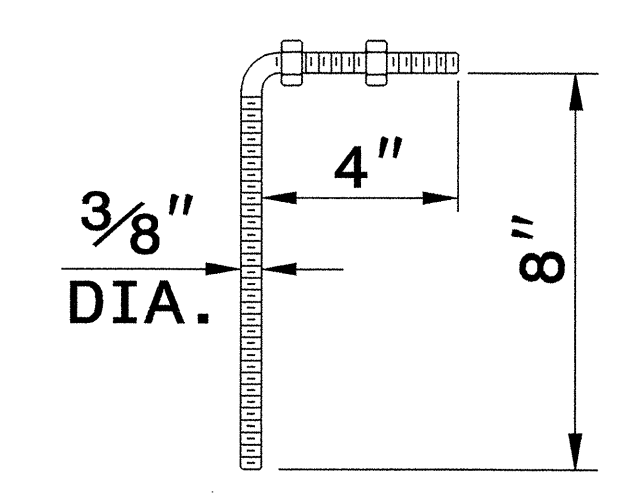
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



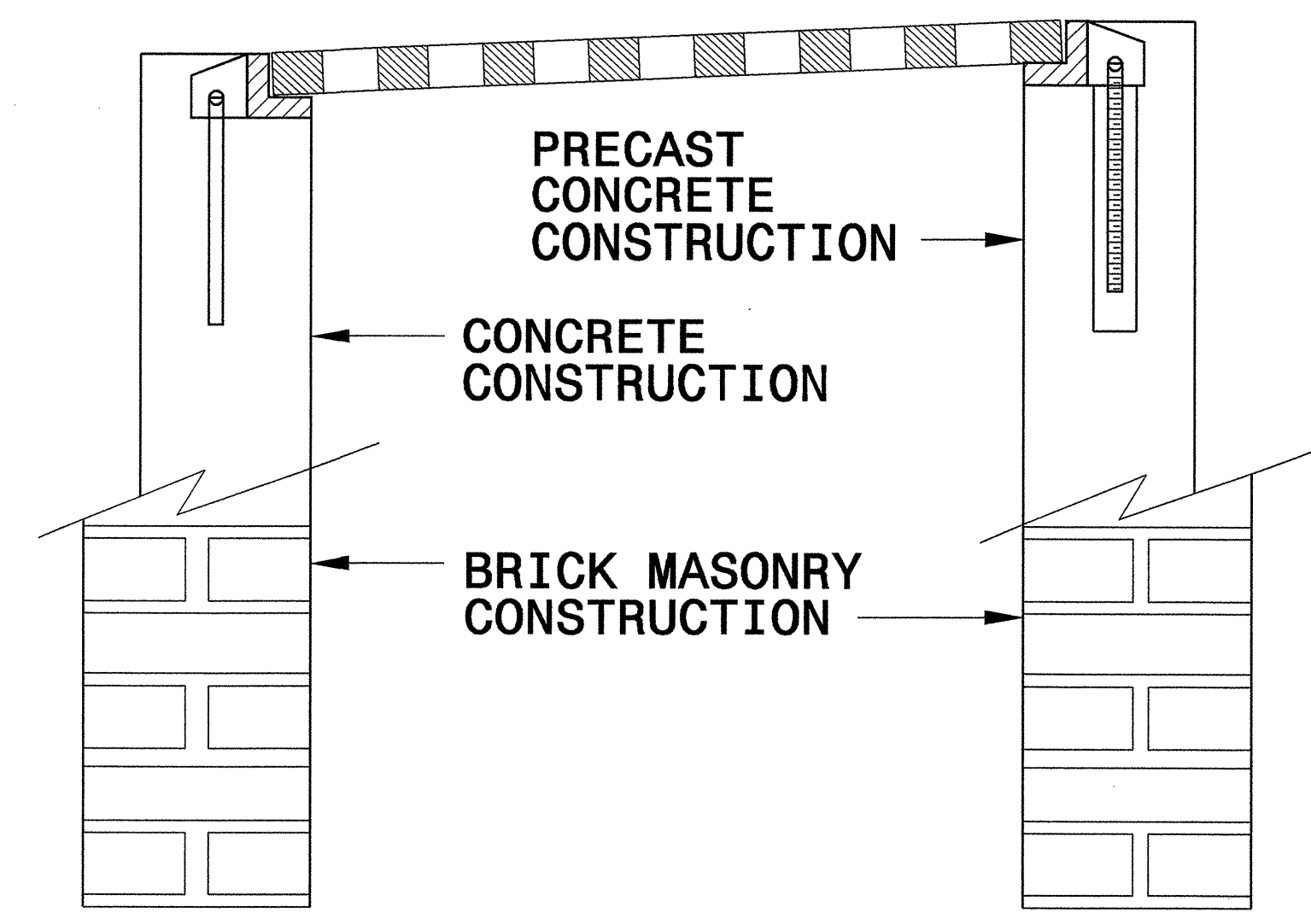
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



**CONCRETE ANCHOR**  
3/8" DIA. BENT BAR



**PRECAST CONCRETE ANCHOR**  
3/8" DIA. BENT BAR

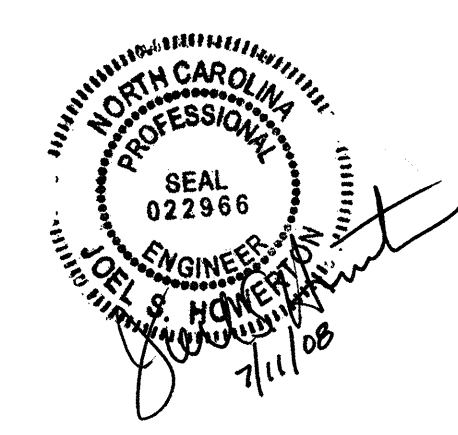


**FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS**

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: DATE:  
FILE SPEC.:

SYSTEMS...  
COND...  
USER...  
NAME...

GEOTECHNICAL ENGINEER

ENGINEER

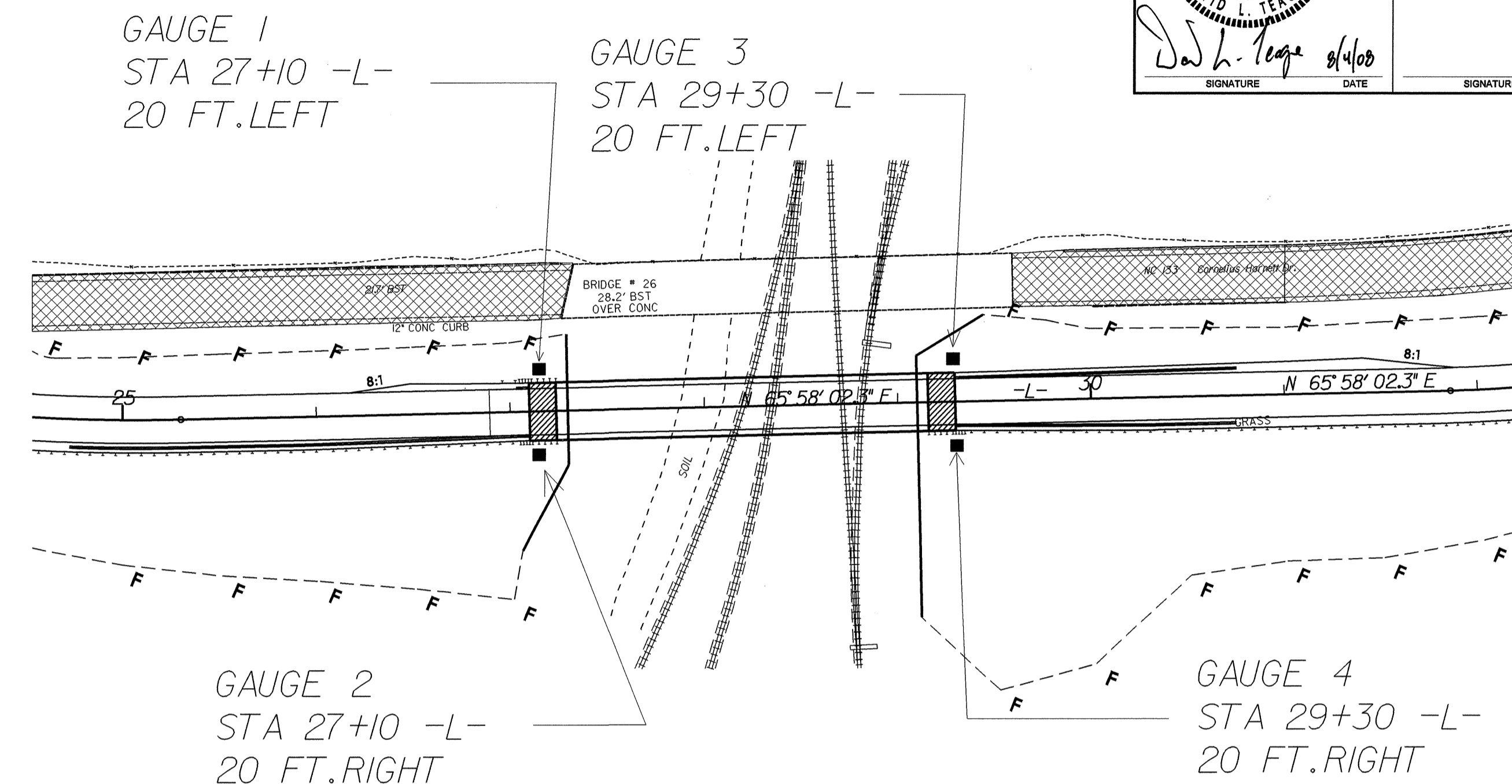


David L. Teague 8/4/08

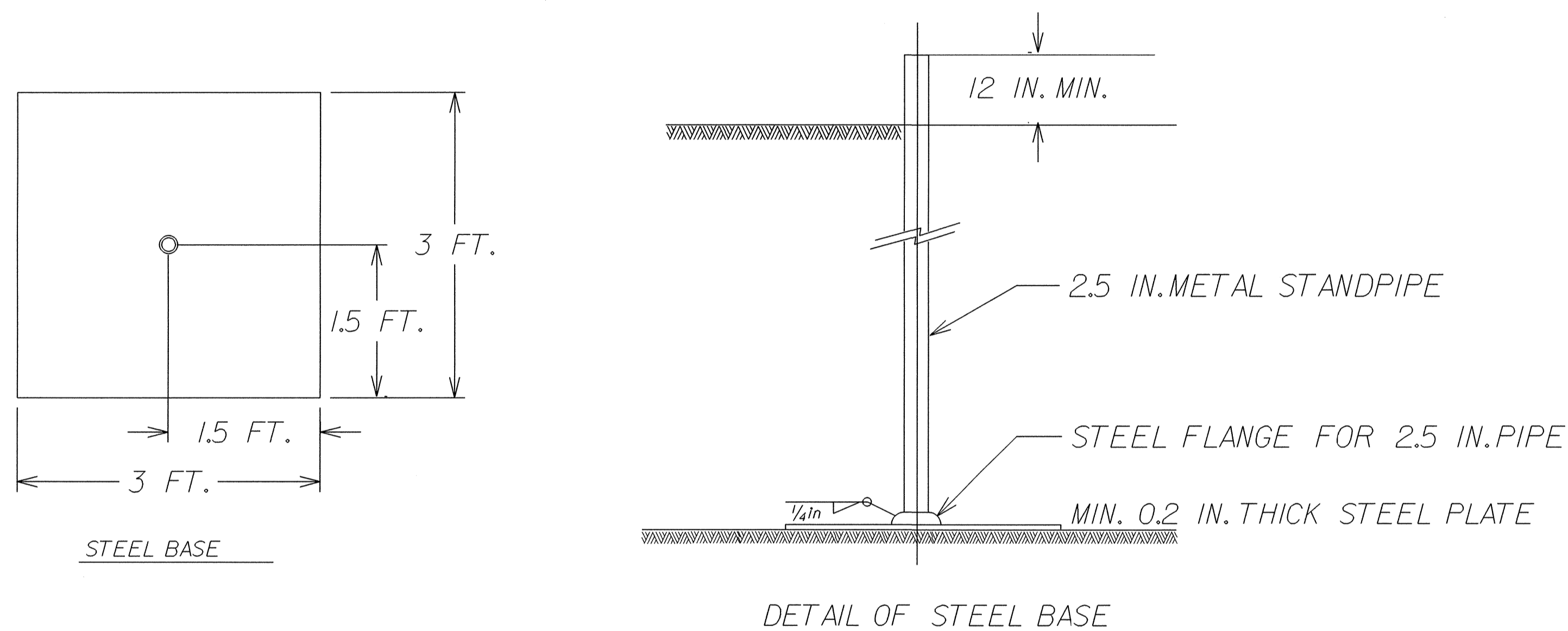
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# PLAN VIEW

N.T.S.



# SETTLEMENT GAUGE DETAIL



QUANTITIES	
EMBANKMENT SETTLEMENT GAUGES.....	4 EACH

## NOTES

1. SETTLEMENT GAUGES SHALL BE INSTALLED BEFORE ANY FILL IS PLACED.
2. SETTLEMENT GAUGE ELEVATIONS ARE TO BE DETERMINED AND RECORDED WEEKLY BY THE RESIDENT ENGINEER. THE INITIAL ELEVATION OF THE SETTLEMENT GAUGE PLATE (AT TOP OF PLATE) SHALL BE DETERMINED AT THE TIME OF INSTALLATION ALONG WITH THE EMBANKMENT ELEVATION. WHEN NEW SECTIONS OF THE PIPE ARE ADDED, ELEVATIONS SHALL BE RECORDED AT THE TOP OF EXISTING PIPE AND AT THE TOP OF THE NEW PIPE. THIS IS TO TAKE INTO ACCOUNT INTERIM SETTLEMENT, VARIABLE PIPE LENGTHS, AND THREAD LENGTHS IN COUPLING. RESULTS OF SETTLEMENT GAUGE READINGS SHALL BE FORWARDED TO MR. K.J. KIM, EASTERN REGIONAL GEOTECHNICAL MANAGER, WITHIN THREE DAYS.

PREPARED BY: D. TEAGUE DATE: 8-08  
 REVIEWED BY: M. MULLA DATE: 8-08

**GEOTECHNICAL ENGINEERING UNIT**

EASTERN REGIONAL OFFICE  
 WESTERN REGIONAL OFFICE  
 CONTRACT OFFICE

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

EMBANKMENT MONITORING  
 DETAIL

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201921

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	300	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0106000000-E	230	55,400	CY	BORROW EXCAVATION
0127000000-N	SP	4	EA	EMBANKMENT SETTLEMENT GAUGES
0134000000-E	240	120	CY	DRAINAGE DITCH EXCAVATION
0196000000-E	270	100	SY	FABRIC FOR SOIL STABILIZATION
0234000000-E	SP	100	CY	GENERIC GRADING ITEM SELECT GRANULAR MATERIAL
0318000000-E	300	212	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0366000000-E	310	420	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E	310	60	LF	18" RC PIPE CULVERTS, CLASS III
0660000000-E	310	132	LF	***BIT COAT CS PIPE CULVERTS, TYPE A ***** THICK (15", 0.064")
0680000000-E	310	4	EA	*** BIT COAT CS PIPE ELBOWS, TYPE A ***** THICK (15", 0.064")
1110000000-E	510	10	TON	STABILIZER AGGREGATE
1121000000-E	520	2,476	TON	AGGREGATE BASE COURSE
1220000000-E	545	30	TON	INCIDENTAL STONE BASE
1275000000-E	600	1,473	GAL	PRIME COAT
1489000000-E	610	110	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1519000000-E	610	880	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	58	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	22	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2000000000-N	806	5	EA	RIGHT OF WAY MARKERS
2022000000-E	815	30	CY	SUBDRAIN EXCAVATION
2033000000-E	815	20	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	8	EA	MASONRY DRAINAGE STRUCTURES
2366000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.24
2367000000-N	840	6	EA	FRAME WITH TWO GRATES, STD 840.29
2549000000-E	846	25	LF	2'-6" CONCRETE CURB & GUTTER
2556000000-E	846	550	LF	SHOULDER BERM GUTTER
3030000000-E	862	825	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
3649000000-E	876	38	TON	RIP RAP, CLASS B
3656000000-E	876	483	SY	FILTER FABRIC FOR DRAINAGE
3659000000-N	SP	3	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4400000000-E	1110	104	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	176	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	70	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	130	EA	DRUMS
4435000000-N	1135	10	EA	CONES
4445000000-E	1145	56	LF	BARRICADES (TYPE III)
4455000000-N	1150	75	MD	FLAGGER
4650000000-N	1251	25	EA	TEMPORARY RAISED PAVEMENT MARKERS

ItemNumber	Sec #	Quantity	Unit	Description
4810000000-E	1205	33,120	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	160	LF	PAINT PAVEMENT MARKING LINES (24")
4850000000-E	1205	300	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4900000000-N	1251	25	EA	PERMANENT RAISED PAVEMENT MARKERS
5326200000-E	1510	887	LF	12" WATER LINE
5328000000-E	1510	225	LF	30" WATER LINE
5540000000-E	1515	4	EA	6" VALVE
5558000000-E	1515	4	EA	12" VALVE
5560000000-E	1515	2	EA	30" VALVE
5648000000-N	1515	2	EA	RELOCATE WATER METER
5666000000-E	1515	2	EA	FIRE HYDRANT
5691300000-E	1520	230	LF	8" SANITARY GRAVITY SEWER
5768000000-N	1520	5	EA	SANITARY SEWER CLEAN-OUT
5775000000-E	1525	4	EA	4' DIA UTILITY MANHOLE
5781000000-E	1525	6	LF	UTILITY MANHOLE WALL, 4' DIA
5801000000-E	1530	337	LF	ABANDON 8" UTILITY PIPE
5804000000-E	1530	1,397	LF	ABANDON 12" UTILITY PIPE
5814000000-E	1530	273	LF	ABANDON 30" UTILITY PIPE
5816000000-N	1530	2	EA	ABANDON UTILITY MANHOLE
5835600000-E	1540	165	LF	12" ENCASMENT PIPE
5871500000-E	1550	65	LF	TRENCHLESS INSTALLATION OF 8" IN SOIL
5871510000-E	1550	65	LF	TRENCHLESS INSTALLATION OF 8" NOT IN SOIL
5871700000-E	1550	83	LF	TRENCHLESS INSTALLATION OF 12" IN SOIL
5871710000-E	1550	83	LF	TRENCHLESS INSTALLATION OF 12" NOT IN SOIL
5872300000-E	1550	60	LF	TRENCHLESS INSTALLATION OF 30" IN SOIL

ItemNumber	Sec #	Quantity	Unit	Description
5872310000-E	1550	60	LF	TRENCHLESS INSTALLATION OF 30" NOT IN SOIL
5882000000-N	SP	2	EA	GENERIC UTILITY ITEM 1" AIR VACUUM VALVE AND VAULT
5882000000-N	SP	1	EA	GENERIC UTILITY ITEM CLASS B CONCRETE ENCASMENT BLOCK
5883000000-E	SP	1,415	LF	GENERIC UTILITY ITEM 6" DUCTILE IRON FORCE MAIN SEWER PIPE, PC 350
6000000000-E	1605	2,800	LF	TEMPORARY SILT FENCE
6006000000-E	1610	100	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	250	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	125	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	4.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.75	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	400	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	7	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	300	LF	SAFETY FENCE
6030000000-E	1630	5,755	CY	SILT EXCAVATION
6036000000-E	1631	1,050	SY	MATting FOR EROSION CONTROL
6037000000-E	SP	30	SY	COIR FIBER MAT
6038000000-E	SP	2,020	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	200	LF	1/4" HARDWARE CLOTH
6071030000-E	SP	250	LF	COIR FIBER BAFFLES
6084000000-E	1660	8	ACR	SEEDING & MULCHING
6087000000-E	1660	5	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	200	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	6	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	2.5	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.5	ACR	REFORESTATION

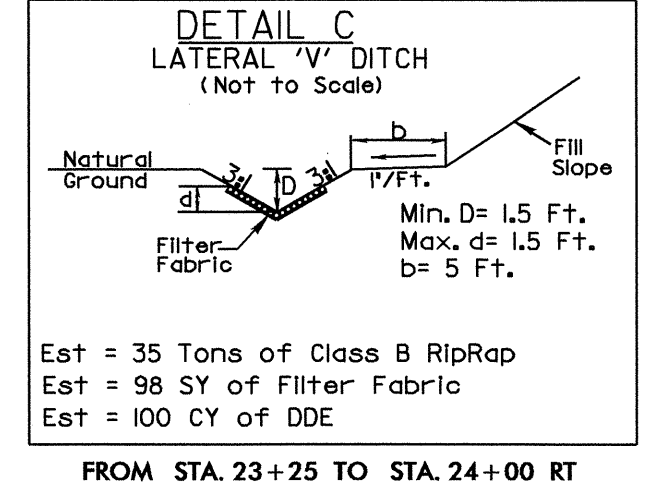
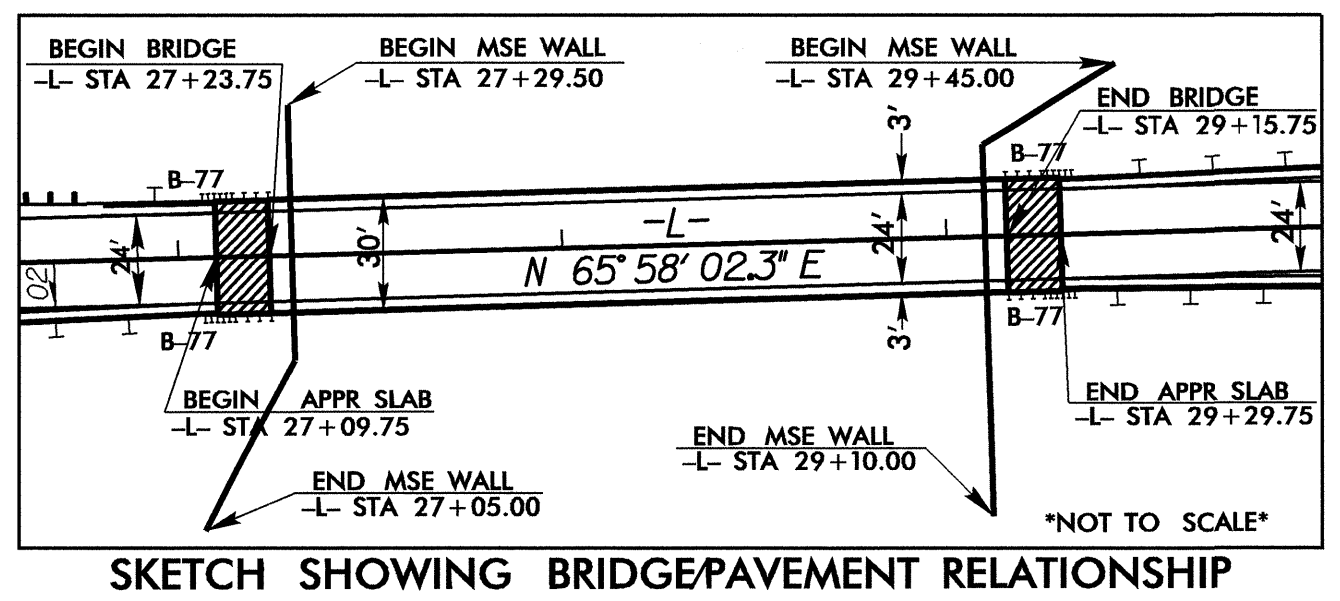
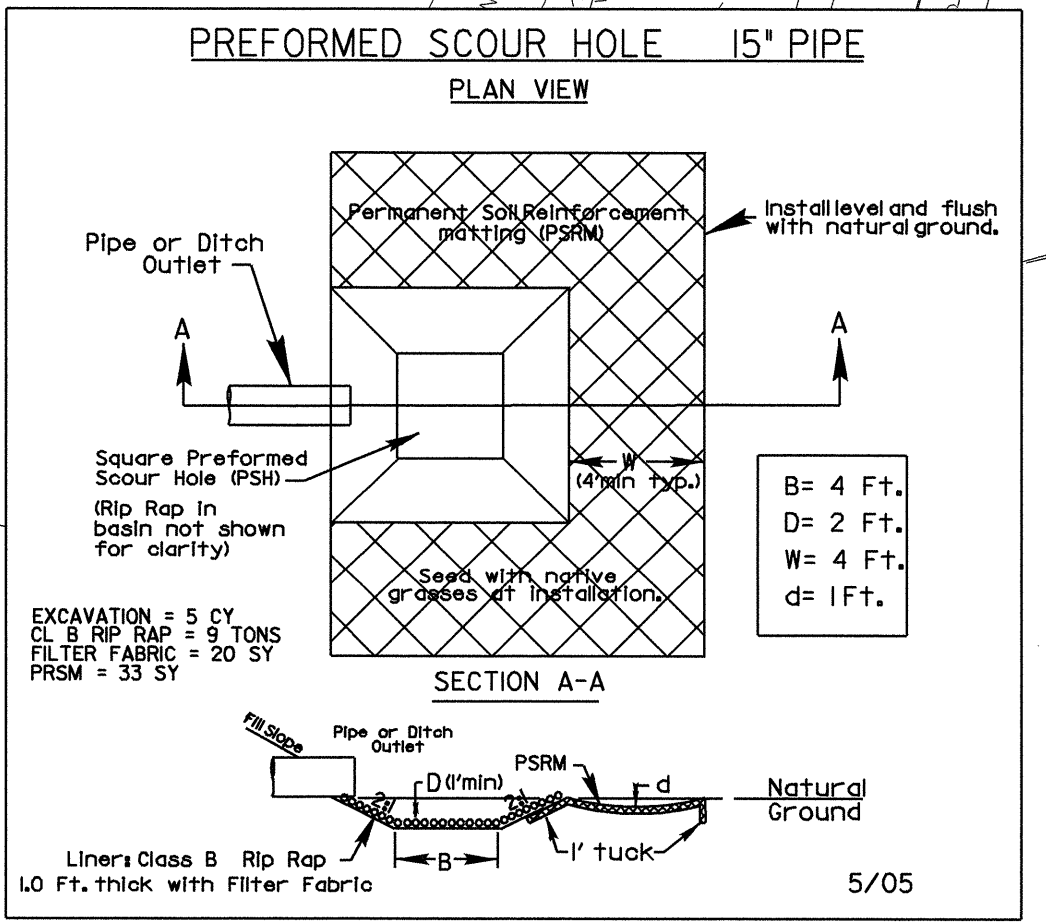
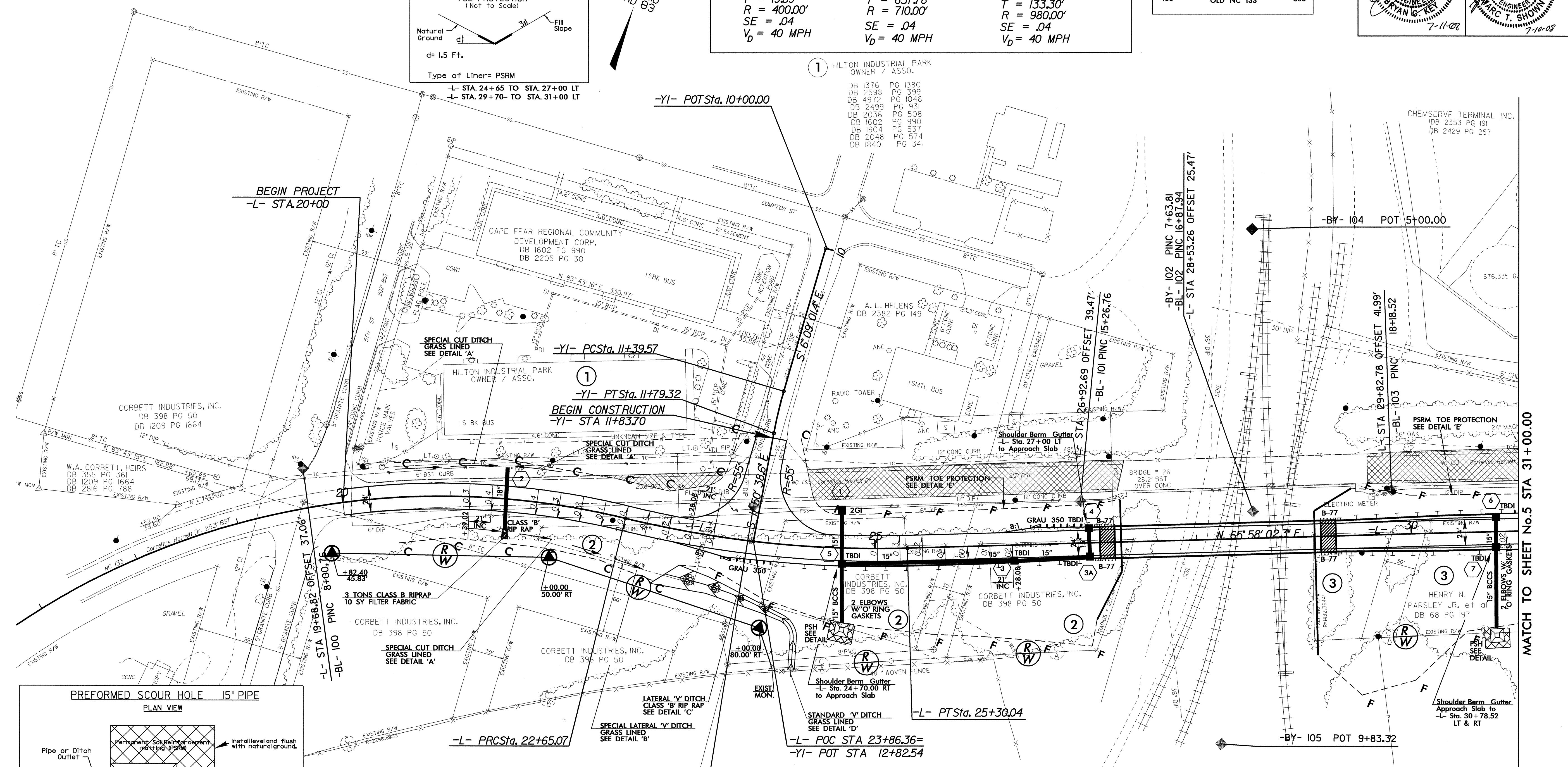
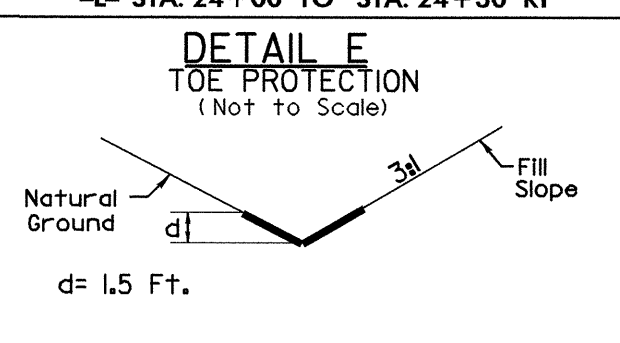
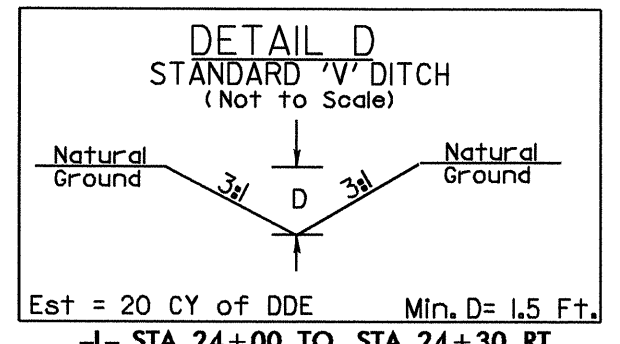
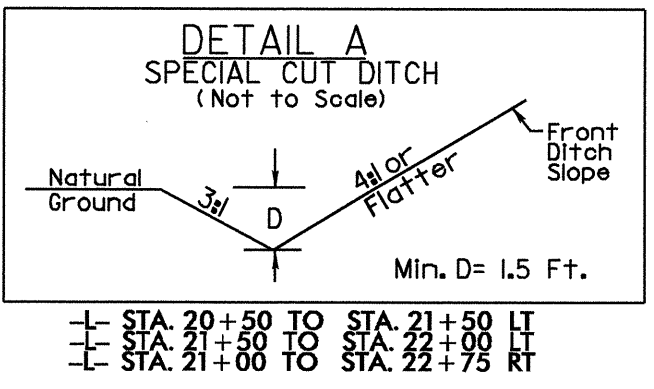
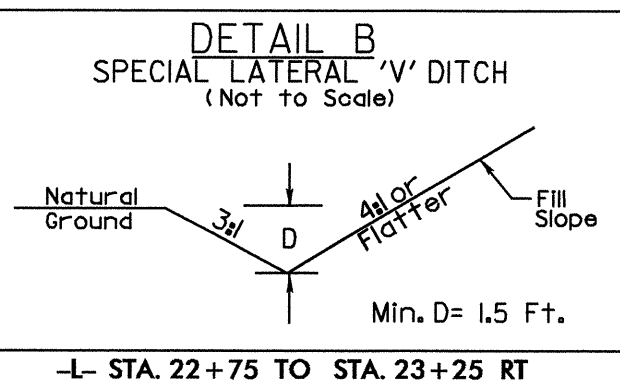
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ADT 2005  
2025  
19000 CORNELIUS HARNETT DRIVE 19000  
400 OLD NC 133 800

-YI-	L	L
PI Sta 11+59.46	PI Sta 18+63.60	PI Sta 23+98.37
$\Delta = 5' 41" 37.2" (LT)$	$\Delta = 8' 51" 57.0" (RT)$	$\Delta = 15' 29" 28.9" (LT)$
$D = 14' 19" 26.2"$	$D = 8' 04" 11.4"$	$D = 5' 50" 47.4"$
$L = 39.75'$	$L = 1,039.25'$	$L = 264.97'$
$T = 19.89'$	$T = 637.78'$	$T = 133.30'$
$R = 400.00'$	$R = 710.00'$	$R = 980.00'$
$SE = .04$	$SE = .04$	$SE = .04$
$V_D = 40 MPH$	$V_D = 40 MPH$	$V_D = 40 MPH$



DECK DRAINAGE:  
STANDARD DECK DRAINS:  
BEGIN BRIDGE TO STA. 27+80  
NO DECK DRAINS:  
STA. 27+80 TO END BRIDGE

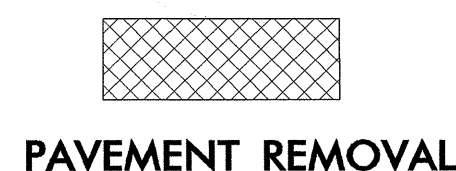
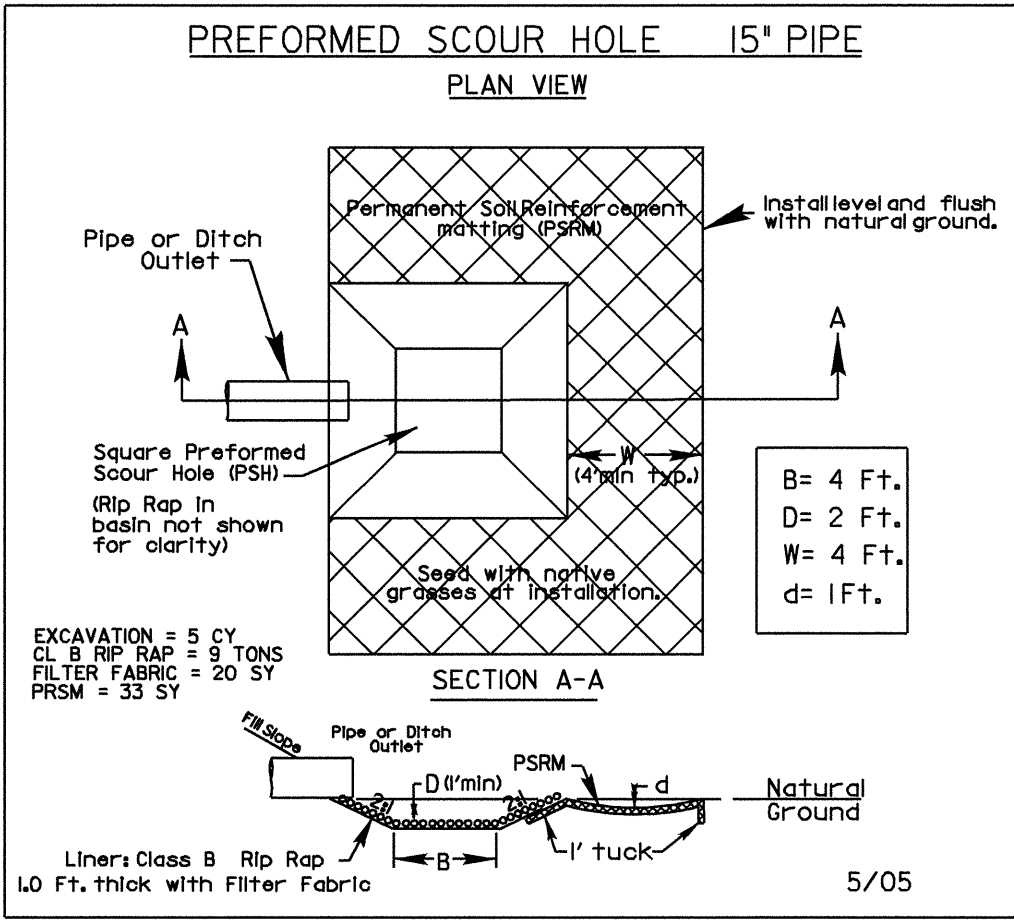
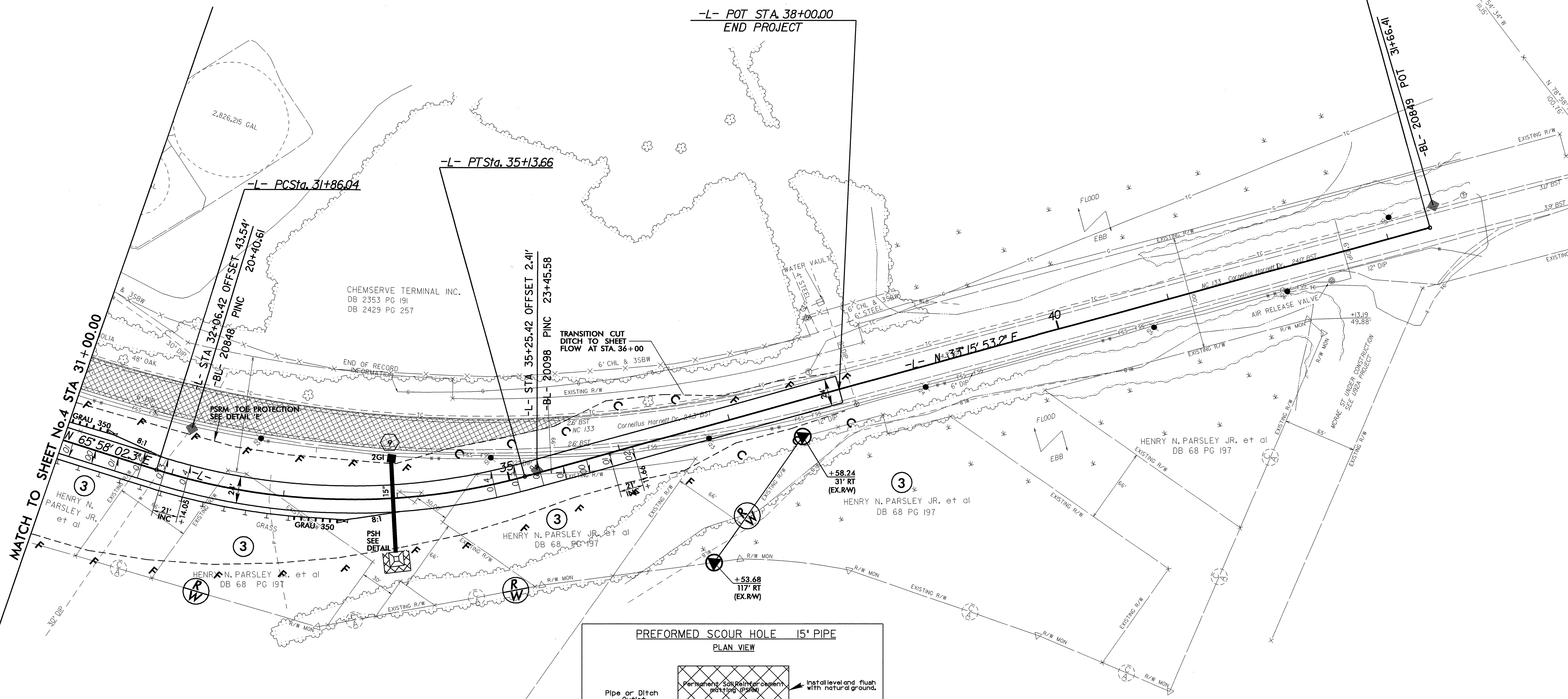
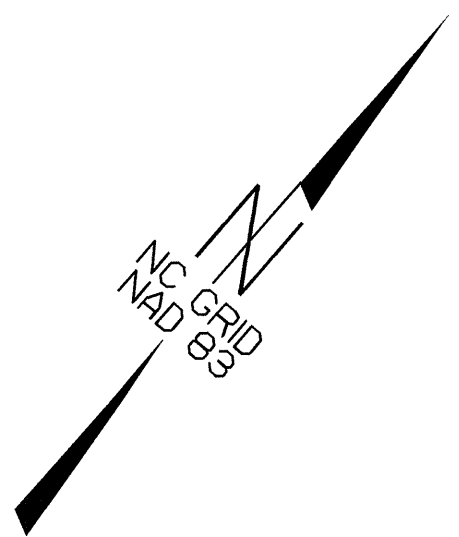
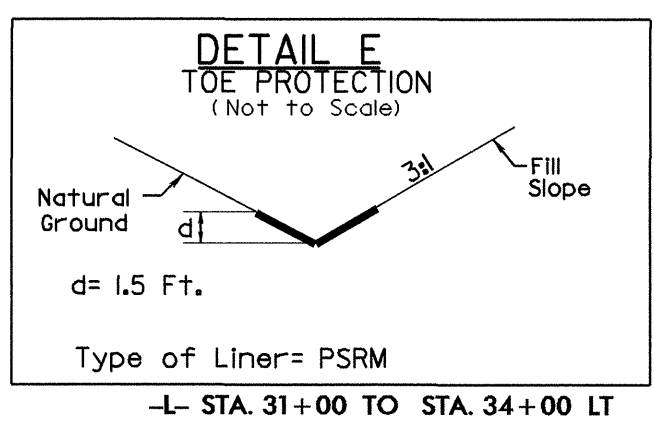
PAVEMENT REMOVAL

FOR STRUCTURE & RET. WALL PLANS,  
SEE SHEETS S-1 THRU S-26 & W-1 THRU W-3  
FOR -L- PROFILE SEE SHEET 6  
FOR -YI- PROFILE SEE SHEET 6

MATCH TO SHEET No.5 STA 31+00.00

8/17/99  
REVISIONS  
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\$\$\$BUSINESS PLAN\$\$\$

L  
 PI Sta. 33+54.45  
 $\Delta = 32^{\circ} 42' 09.1''$  (LT)  
 $D = 9' 58" 54.6"$   
 $L = 327.62'$   
 $T = 168.41'$   
 $R = 574.00'$   
 $SE = .04$   
 $V_D = 40$  MPH



FOR -L- PROFILE SEE SHEET 6

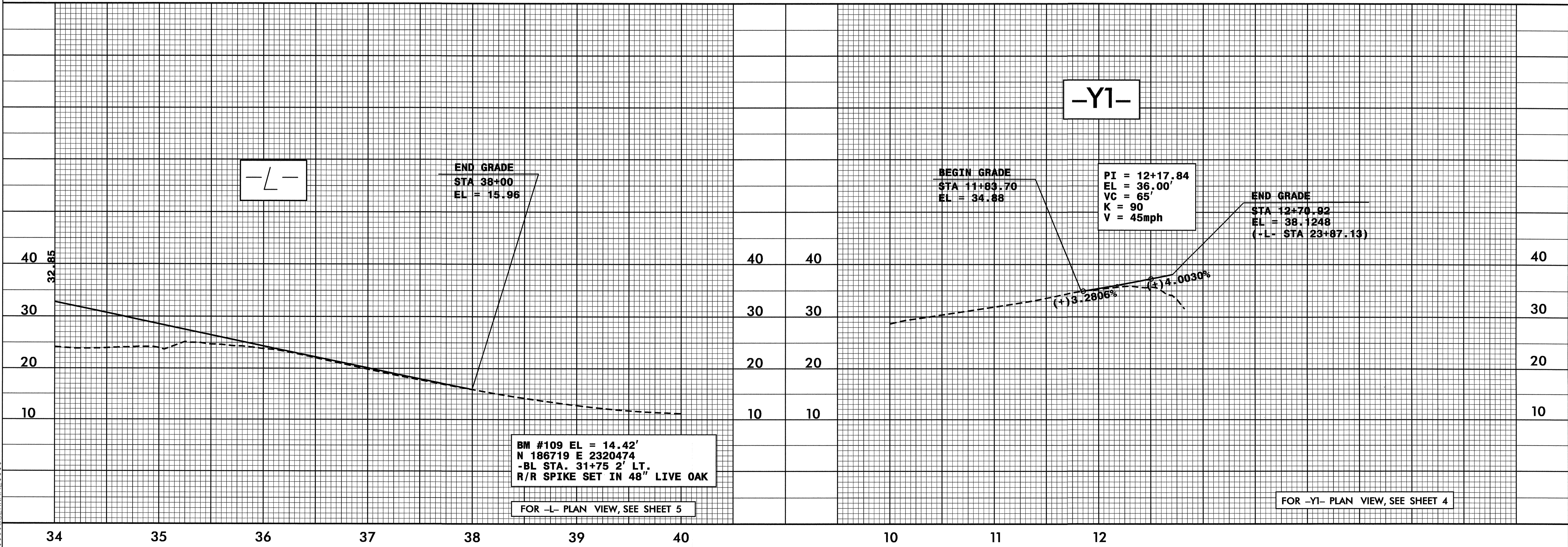
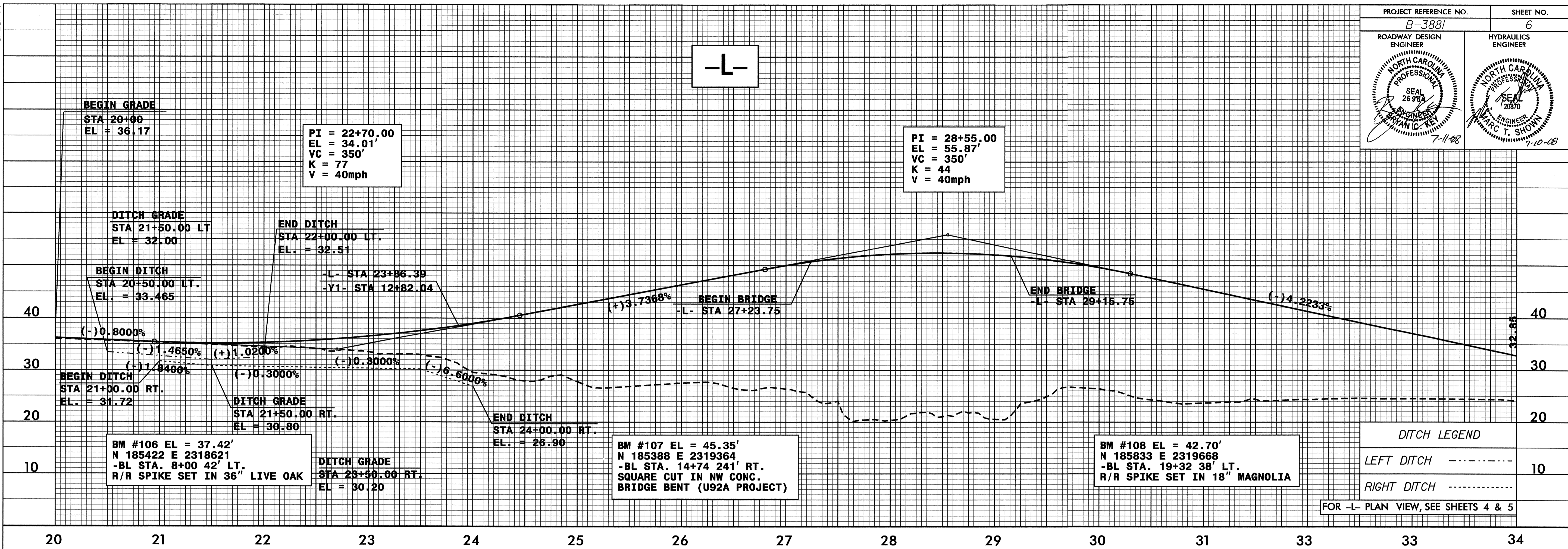
REVISIONS

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PROJECT REFERENCE NO. B-3881	SHEET NO. 6
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 2696 7-11-08	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 26870 1-10-08



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