

09/08/09

See Sheet 1-A For Index of Sheets

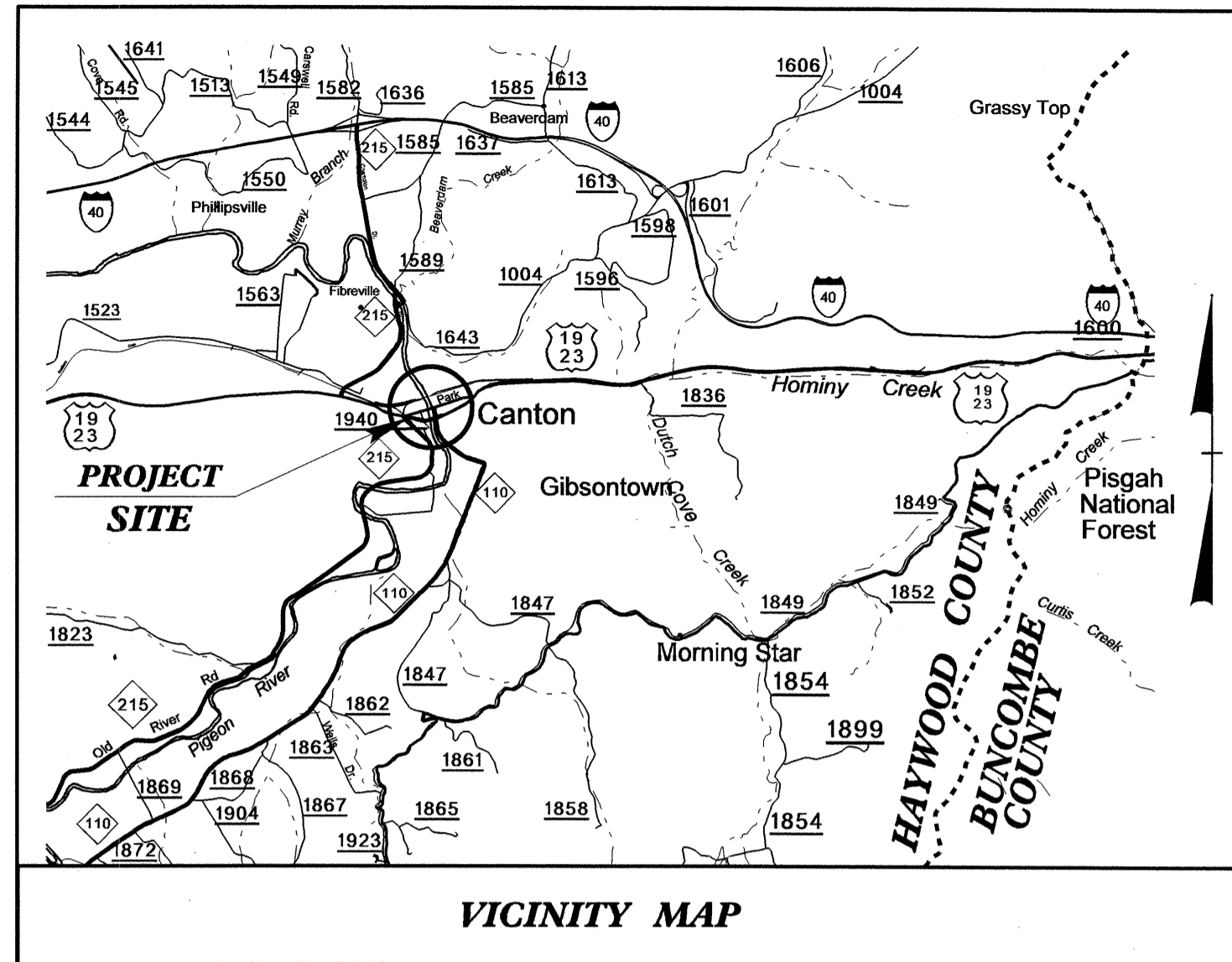
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

LOCATION: BRIDGE 419 ON US 19-23 OVER PIGEON RIVER
IN CANTON

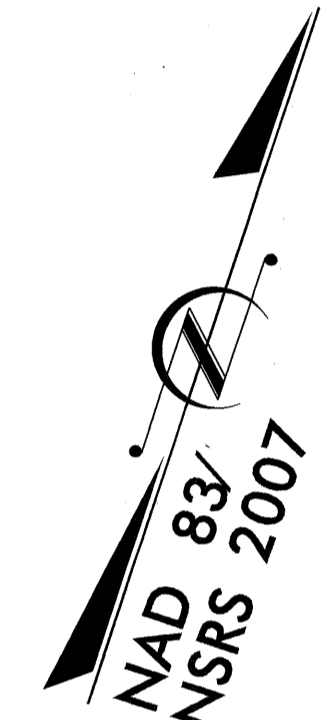
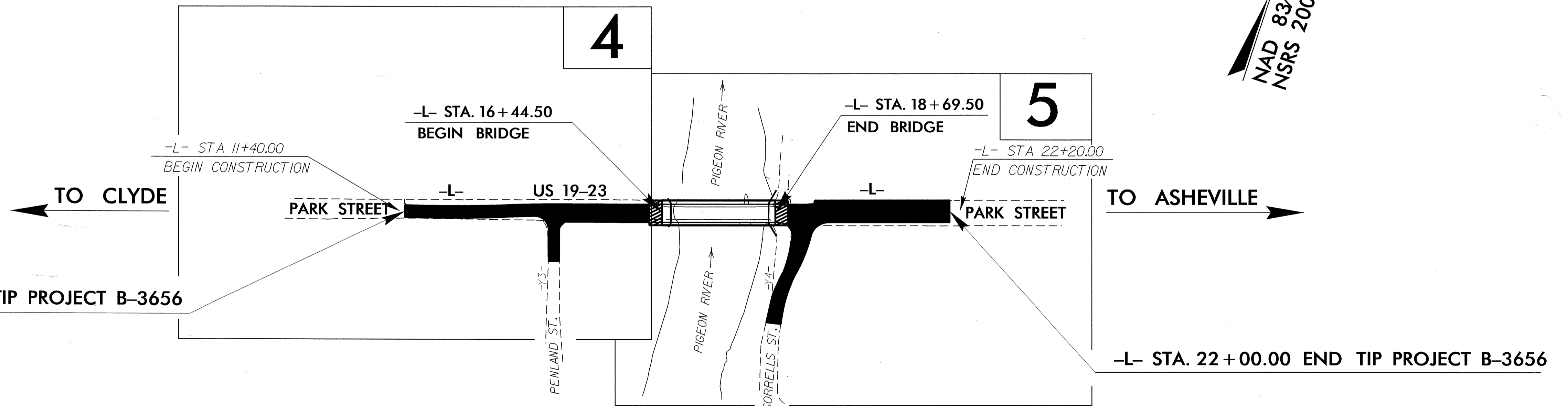
TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE, RETAINING
WALL AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3656	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33202.1.2	BRSTP-0019(28)	PE	
33202.2.1	BRSTP-0019(28)	RW & UTIL	
33202.3.1	BRSTP-0019(36)	CONST.	

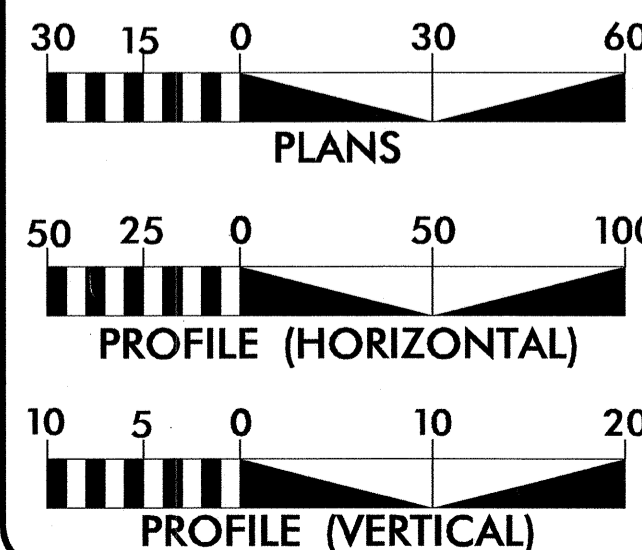


TIP PROJECT: B-3656

CONTRACT: C202566



GRAPHIC SCALES



DESIGN DATA

ADT 2010 = 12,100
 ADT 2030 = 19,800
 DHV = 12 %
 D = 100 %
 T = 4 % *
 V = 30 MPH
 * TTST 3% DUAL 1%
 FUNC CLASS = ARTERIAL
 STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3656 = 0.157 MILES
 LENGTH STRUCTURE TIP PROJECT B-3656 = 0.042 MILES
 TOTAL LENGTH TIP PROJECT B-3656 = 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:
 NOVEMBER 30, 2009

LETTING DATE:
 JULY 19, 2011

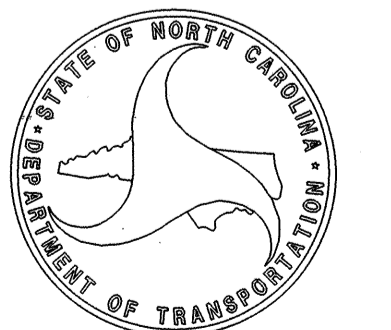
G.E. BREW, P.E.
 PROJECT ENGINEER

I.T. YOUNIS
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

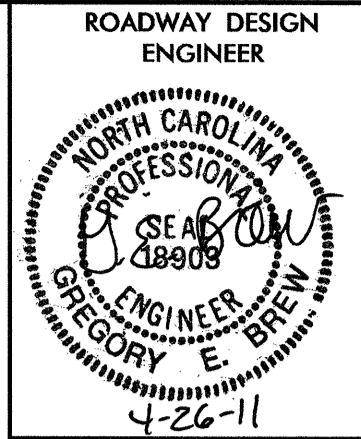
[Signature]
 SIGNATURE: FERRY M. SWEED 4/2/11
 ROADWAY DESIGN ENGINEER
 4-26-11
[Signature]
 SIGNATURE: GREGORY E. BREW

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA



STATE HIGHWAY DESIGN ENGINEER
 P.E.

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 \$\$\$USERNAME\$\$\$



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 THRU 2-A	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-B	DETAIL OF TYPE III SHOP CURVED STRUCTURE ANCHOR UNIT
2-C	DETAIL OF ANCHORAGE FOR FRAMES-BRICK/CONCRETE/PRECAST CONCRETE
2-D THRU 2-E	DETAIL OF METHOD FOR PIPE INSTALLATION
2-F THRU 2-G	DETAIL OF WHEELCHAIR RAMP - CURB CUT
2-H	INTERSECTION DETAIL
2-I	DETAIL OF TEMPORARY CONTAINMENT OF PETROLEUM CONTAMINATED SOIL
3	SUMMARY OF QUANTITIES
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3-B	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
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4 THRU 6	PLAN SHEET
7 THRU 8	PROFILE SHEET
TMP-1 THRU TMP-9	TRANSPORTATION MANAGEMENT PLANS
EC-1 THRU EC-8	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-4	SIGNING PLANS
PMP-1 THRU PMP-3	PAVEMENT MARKING PLANS
SIG-1 THRU SIG-17	SIGNAL PLANS
UC-1 THRU UC-6	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-5	UTILITIES BY OTHERS PLANS
X-1A THRU X-8	CROSS-SECTIONS
S-1 THRU S-30	STRUCTURE PLANS
W-1	RETAINING WALL PLANS

GENERAL NOTES

GENERAL NOTES: 2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-30-08

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

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

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.

DRIVEWAYS:
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3" RADIUS OR RADIUS 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 RADIUS 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.

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 PROGRESS ENERGY, PSNC AT&T, TOWN OF CANTON, CHARTER COMMUNICATIONS
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.

LIST OF STANDARD DRAWINGS

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
200.02	Method of Clearing - Method II
225.04	Method of Obtaining Superelevation - Two Lane Pavement
422.10	Reinforced Bridge Approach Fills
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
654.01	Pavement Repairs
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
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
862.01	Guardrail Placement
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets

8/17/09

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Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	⊙
Property Corner	⊕
Property Monument	⊞
Parcel/Sequence Number	Ⓜ
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	-o-o-o-
Proposed Chain Link Fence	-□-□-□-
Proposed Barbed Wire Fence	-◇-◇-◇-
Existing Wetland Boundary	-w.l.b.-
Proposed Wetland Boundary	-w.l.b.-
Existing Endangered Animal Boundary	-e.a.b.-
Existing Endangered Plant Boundary	-e.p.b.-

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	-j.s.-
Buffer Zone 1	-b.z.1-
Buffer Zone 2	-b.z.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	-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 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 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	-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	⊞
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	⊞
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	⊞
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	▭
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-3656

PROJECT REFERENCE NO.	SHEET NO.
B-3656	1-C
Location and Surveys	

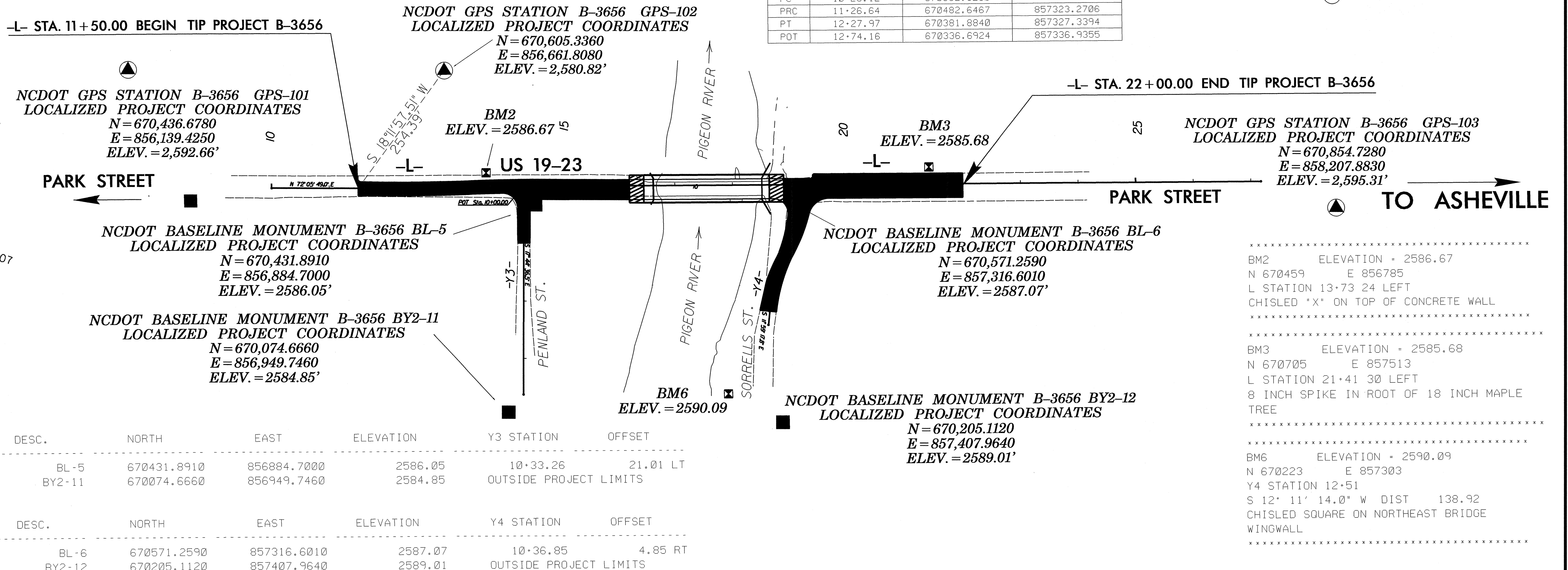
BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	670380.2840	855787.3280	2606.72	OUTSIDE PROJECT LIMITS	
2	BL-2	670303.9740	856094.7070	2597.45	OUTSIDE PROJECT LIMITS	
3	BL-3	670252.7430	856312.3670	2590.84	OUTSIDE PROJECT LIMITS	
4	BL-4	670377.7180	856531.2280	2584.61	11+05.67	29.08 LT
5	BL-5	670431.8910	856884.7000	2586.05	14+58.59	33.49 RT
6	BL-6	670571.2590	857316.6010	2587.07	19+12.34	35.87 RT
7	BL-7	670781.3390	857753.5720	2585.10	23+93.18	26.34 LT
8	BL-8	670877.0410	858040.4110	2591.04	26+95.56	27.11 LT

TYPE	STATION	NORTH	EAST
POT	10+00.00	670317.5615	856439.6197
PC	12+16.09	670383.9878	856645.2418
PRC	13+44.55	670426.0827	856766.6008
PT	14+73.01	670468.1777	856887.9598
POT	15+99.67	670507.1142	857008.4875
POT	27+17.37	670858.1539	858069.6254

Y3			
TYPE	STATION	NORTH	EAST
POT	10+00.00	670457.1697	856854.5552
POT	13+61.84	670112.5414	856964.8284

Y4			
TYPE	STATION	NORTH	EAST
POT	10+00.00	670608.1857	857314.0109
PC	10+26.12	670582.6250	857319.3672
PRC	11+26.64	670482.6467	857323.2706
PT	12+27.97	670381.8840	857327.3394
POT	12+74.16	670336.6924	857336.9355

**NCDOT GPS STATION B-3656 GPS-104
LOCALIZED PROJECT COORDINATES**
N = 671,204.1960
E = 858,088.2620
ELEV. = 2,594.62'



BY3 POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
105	BL-5	670431.8910	856884.7000	2586.05	10+33.26	21.01 LT
111	BY2-11	670074.6660	856949.7460	2584.85	OUTSIDE PROJECT LIMITS	

BY4 POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
106	BL-6	670571.2590	857316.6010	2587.07	10+36.85	4.85 RT
112	BY2-12	670205.1120	857407.9640	2589.01	OUTSIDE PROJECT LIMITS	

ROW MARKER IRON PIN AND CAP-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	22+00.00	-40.00	670733.6396	857565.8759
L	22+00.00	-23.36	670717.8446	857571.1011
L	18+60.00	-47.00	670633.5000	857240.8819
L	19+85.00	36.39	670593.5878	857385.7478
L	19+00.00	-40.00	670639.4160	857281.0568
L	15+90.00	-47.00	670548.8656	856984.8371
L	15+90.00	-24.01	670526.9863	856991.9052
L	18+55.71	55.00	670535.3123	857268.8436
L	16+30.00	55.00	670464.4230	857054.5563
L	16+30.00	35.97	670482.4900	857048.5795
L	11+50.00	33.07	670332.2057	856592.5217
L	11+50.00	-26.93	670389.3014	856574.0770
L	14+00.00	-23.79	670467.3407	856810.9847
L	22+00.00	36.64	670660.8765	857589.9470
L	14+22.11	36.55	670417.5411	856851.4863
L	14+52.49	36.73	670426.9305	856879.9802

ROW MARKER IRON PIN AND CAP-E				
ALIGN	STATION	OFFSET	NORTH	EAST
Y3	11+10.00	15.00	670347.8310	856873.7919
Y3	11+10.00	-15.00	670356.9737	856902.3648

ROW MARKER IRON PIN AND CAP-E				
ALIGN	STATION	OFFSET	NORTH	EAST
Y4	10+65.00	-30.00	670546.4641	857354.7682
Y4	12+27.97	-21.07	670386.2605	857347.9499

ROW MARKER PERMANENT EASEMENT-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	18+50.00	-78.00	670659.7894	857221.6520
L	18+35.00	-64.00	670641.7867	857211.8081
L	18+51.00	-47.00	670630.6721	857232.3378
L	18+85.00	-42.63	670637.2018	857265.9698
L	21+20.00	54.00	670619.2684	857519.4476
L	18+37.00	55.00	670529.4365	857251.0818
L	21+20.00	36.54	670635.8424	857513.9647
L	19+62.76	54.00	670569.8833	857370.1622

ROW MARKER PERMANENT EASEMENT-E				
ALIGN	STATION	OFFSET	NORTH	EAST
Y4	11+95.00	28.60	670411.6047	857293.8133
Y4	11+61.50	44.00	670448.4346	857276.8226
Y4	12+74.00	-19.29	670340.9612	857305.7739
Y4	12+74.00	-40.00	670345.1822	857376.0299
Y4	12+54.00	-40.00	670364.7260	857371.8747
Y4	12+54.00	-19.47	670360.4622	857351.7947

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:
B3656_LS_CONTROL.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 "GPS-102" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 670605.336(±) EASTING: 856661.808(±) ELEVATION: 2580.82(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99976517

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-102" TO L- STATION 11+50.00 IS
 S 18° 11' 57.51" W 254.39'

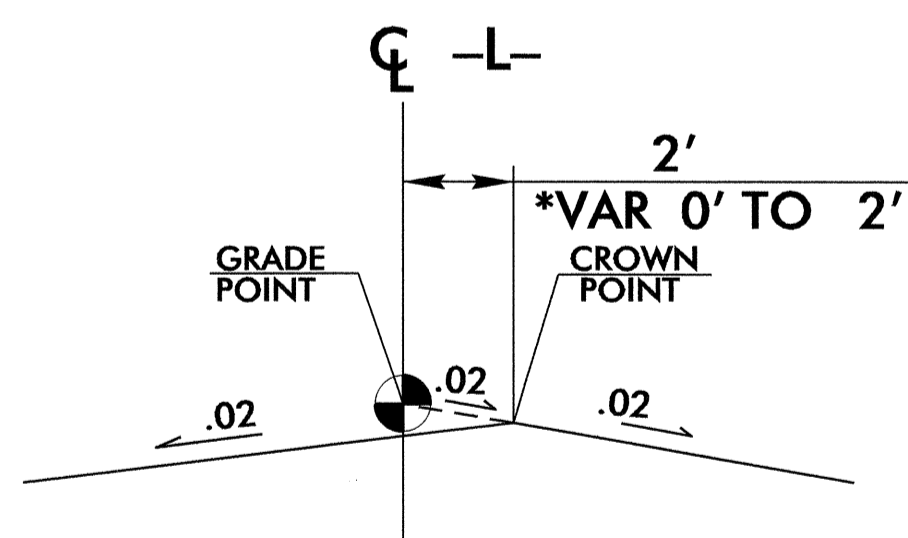
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

NOTE: GEOID MODEL = GEOID03 NOTE: DRAWING NOT TO SCALE

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FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, 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 I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J	10" AGGREGATE BASE COURSE
P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YARD
R1	2'-6" CONCRETE CURB AND GUTTER.
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

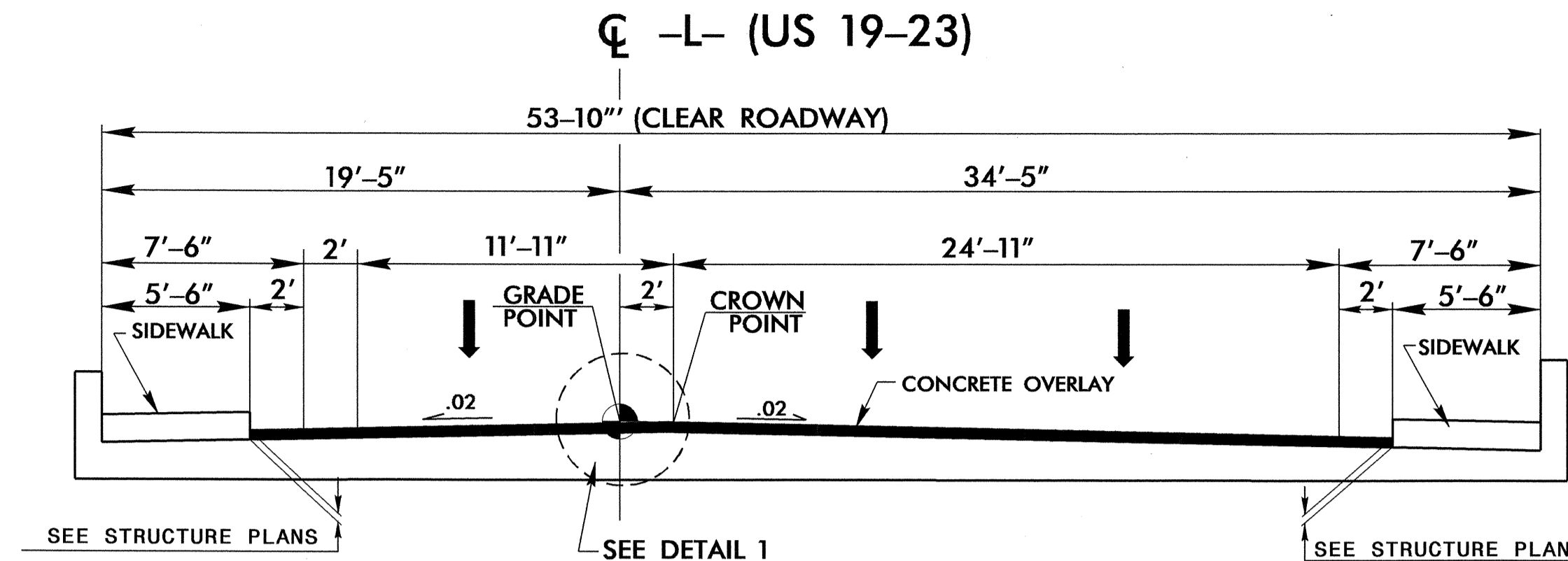
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



DETAIL 1
DETAIL FOR RELATIONSHIP BETWEEN GRADE POINT & CROWN POINT

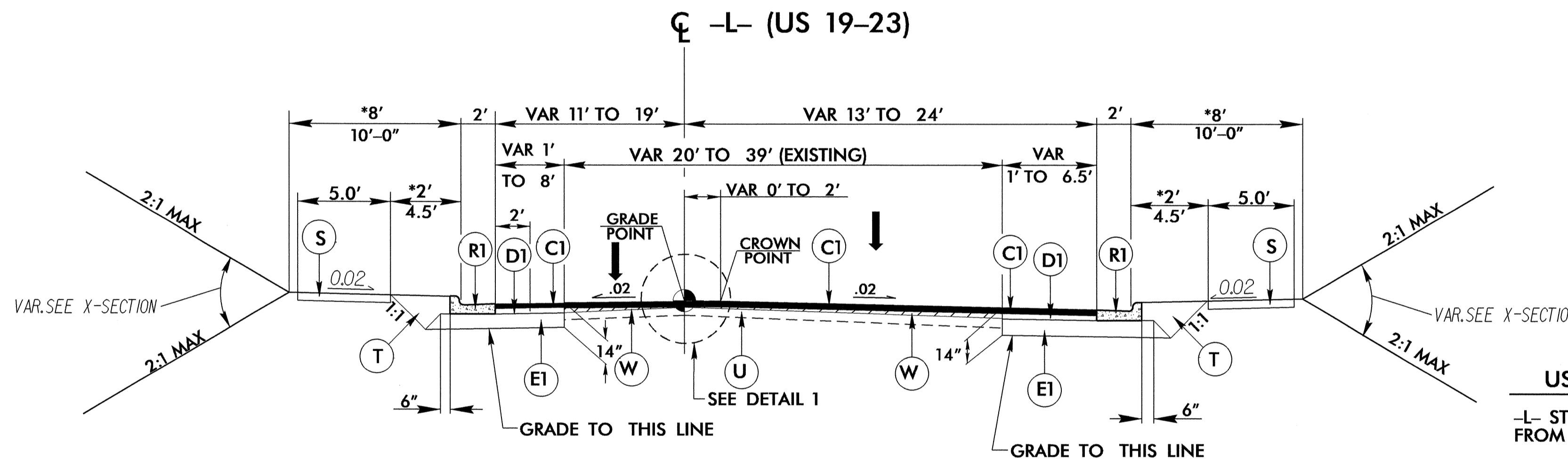
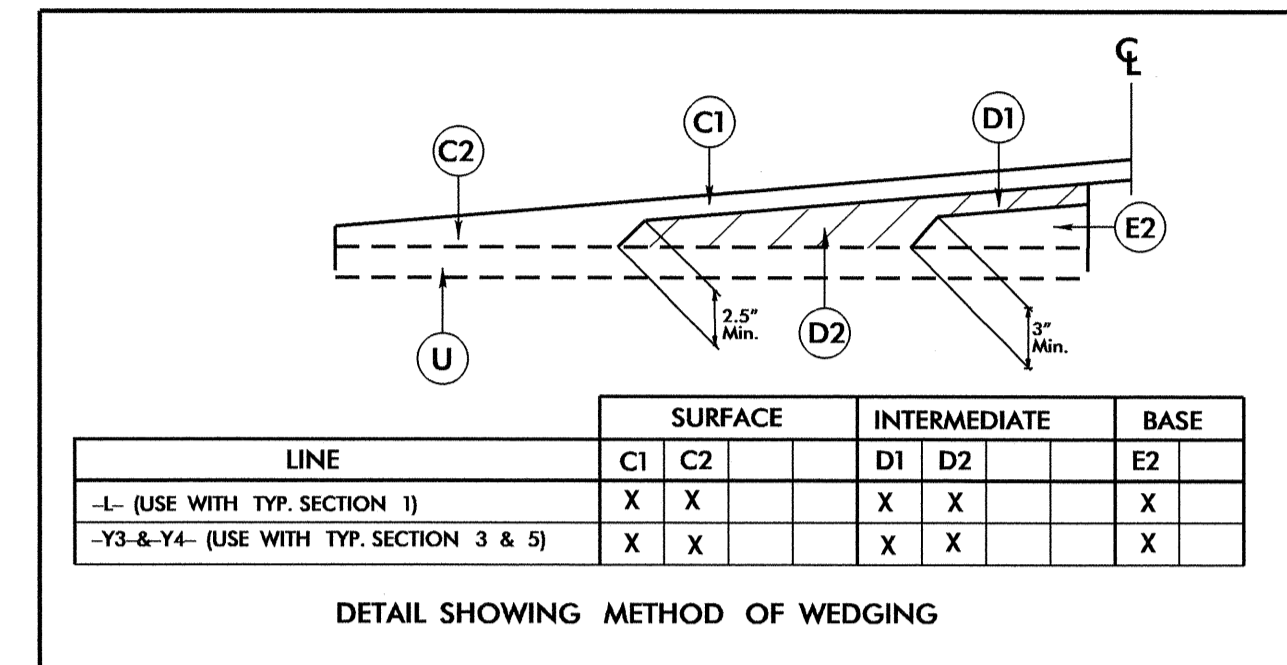
- *L- STA 11+50.00 TO 12+00.00
- L- STA 12+00.00 TO 21+50.00
- *L- STA 21+50.00 TO 22+00.00

PROJECT REFERENCE NO. B-3656	SHEET NO. 2
ROADWAY DESIGN ENGINEER GREGORY E. BRUM SEAL 18903 10-4-10	PAVEMENT DESIGN ENGINEER CHI CHEN SEAL 13368 9/23/10



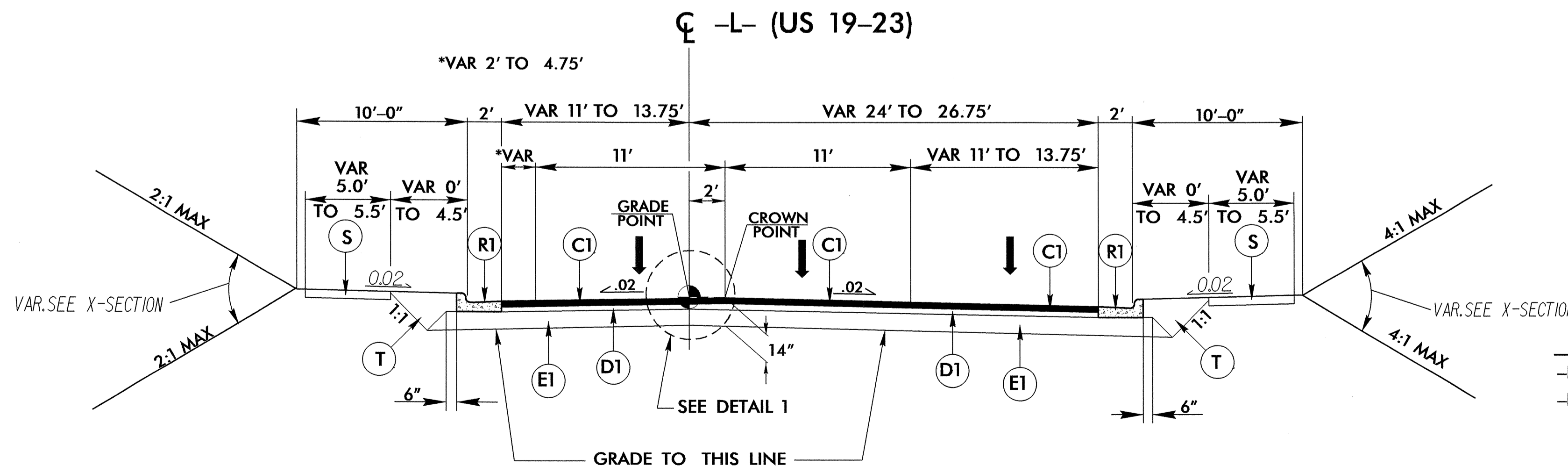
TYPICAL SECTION ON STRUCTURE

-L- STA. 16+44.50 TO 18+69.50



TYPICAL SECTION NO. 1

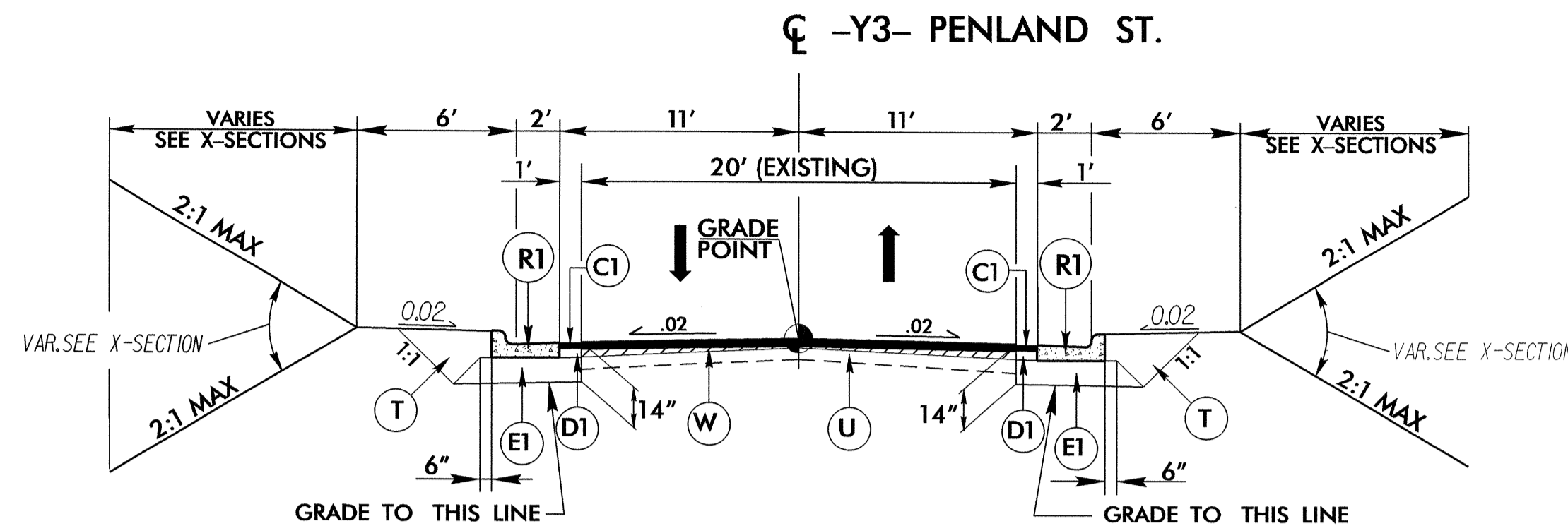
- USE TYPICAL SECTION NO. 1**
- L- STA 11+50.00 TO 12+00.00, TRANSITION FROM EXIST TO T.S.1
 - L- STA 12+00.00 TO 14+00.00
 - *L- STA 14+00.00 TO 15+00.00
 - L- STA 15+00.00 TO 15+96.00
 - L- STA 19+20.00 TO 22+00.00



TYPICAL SECTION NO. 2

- USE TYPICAL SECTION NO. 2**
- L- STA 15+96.00 TO 16+44.50 (BEGIN BRIDGE)
 - L- STA 18+69.50 (END BRIDGE) TO 19+20.00

PROJECT REFERENCE NO. B-3656	SHEET NO. 2-A
ROADWAY DESIGN ENGINEER GREGORY E. BREW	PAVEMENT DESIGN ENGINEER DAN-CHI CHEN

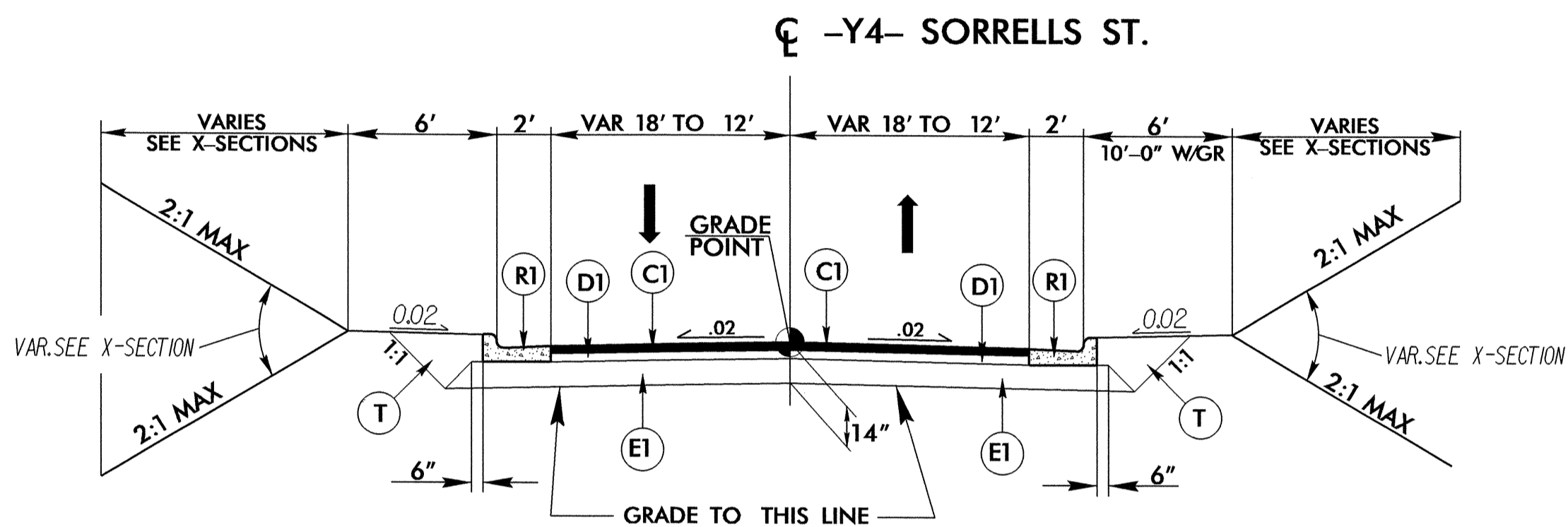


TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-Y3- STA 10+36.75 TO 10+80.00
 -Y3- STA 10+80.00 TO 11+00.00, TRANSITION FROM T.S. 3 TO EXISTING

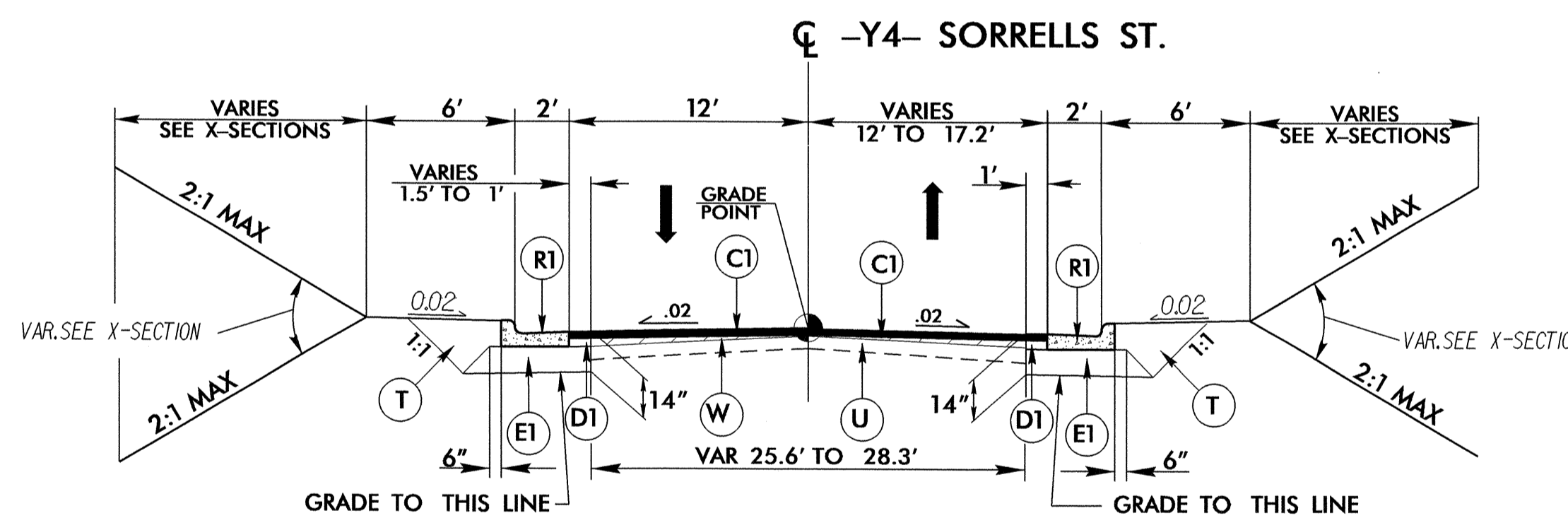
C1	3" S9.5C
D1	4" I19.0C
E1	7" B25.0C
J	10" ABC
P	PRIME COAT
R1	2'-6" CURB AND GUTTER
T	EARTH MATERIAL
U	EXISTING PAV'T.
W	WEDGING



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

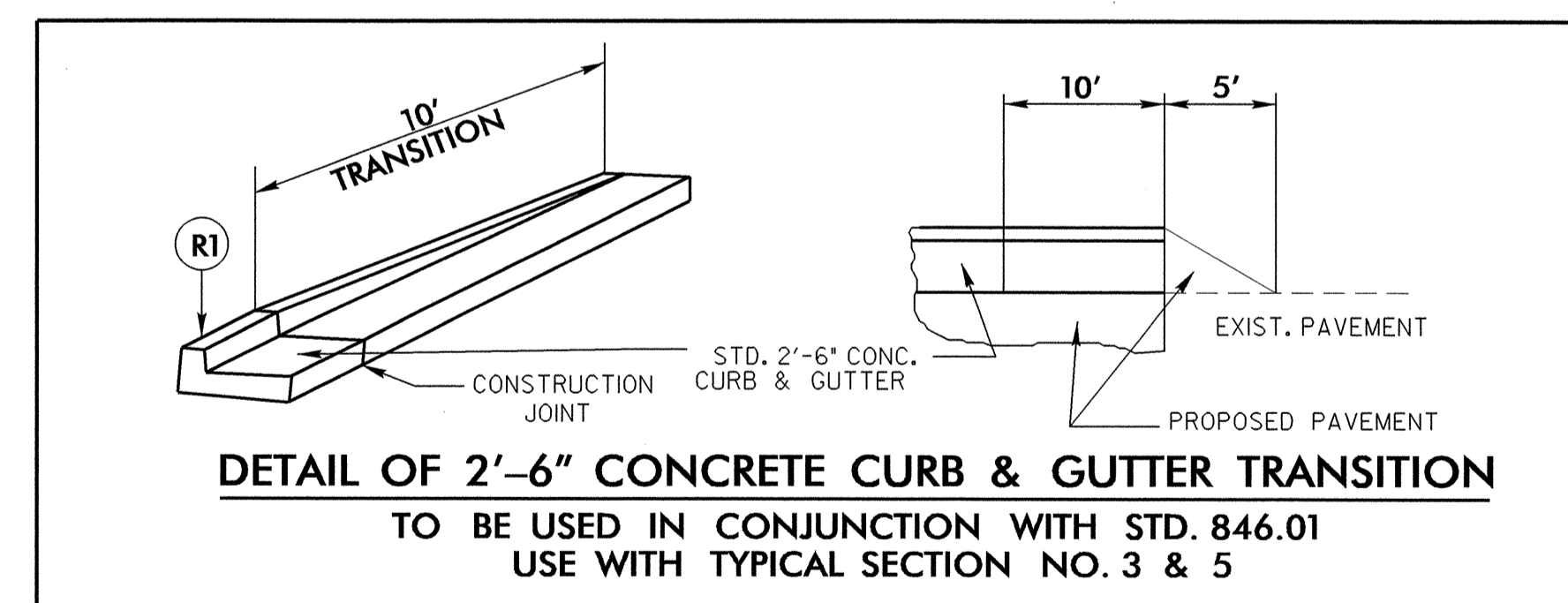
-Y4- STA 10+48.77 TO 11+26.64



TYPICAL SECTION NO. 5

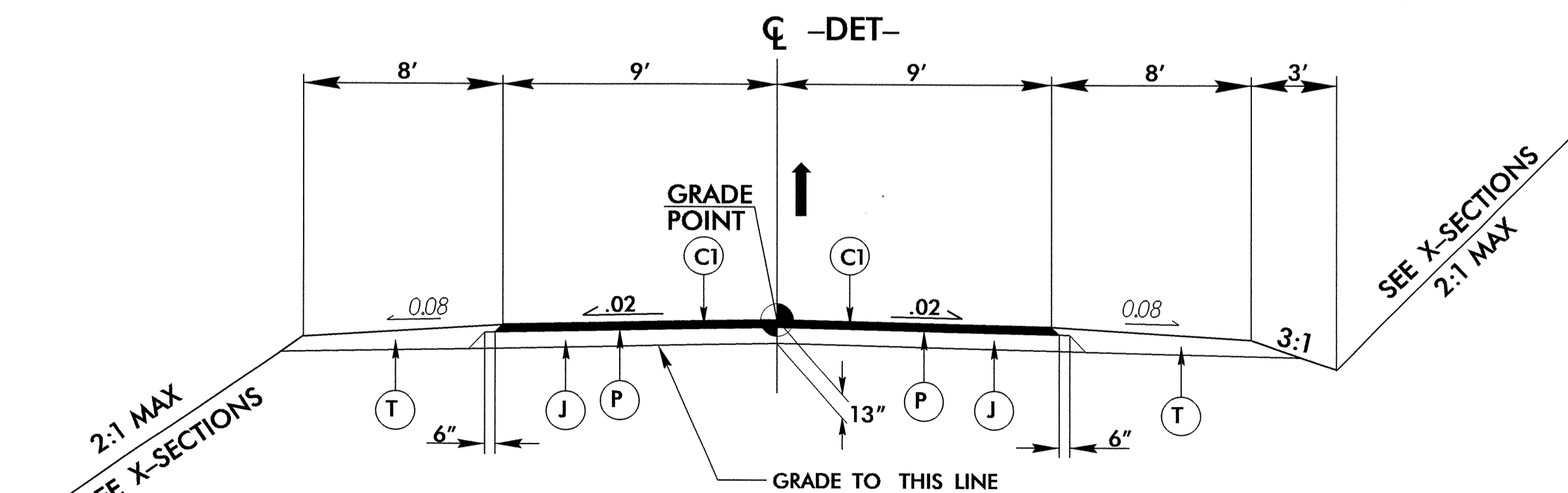
USE TYPICAL SECTION NO. 5

-Y4- STA 11+26.64 TO 12+27.97



USE TYPICAL SECTION NO. 6

-DET- STA 10+35.98 TO 13+26.65
 -DET- STA 13+26.65 TO 14+00, TRANSITION FROM T.S. 6 TO EXISTING



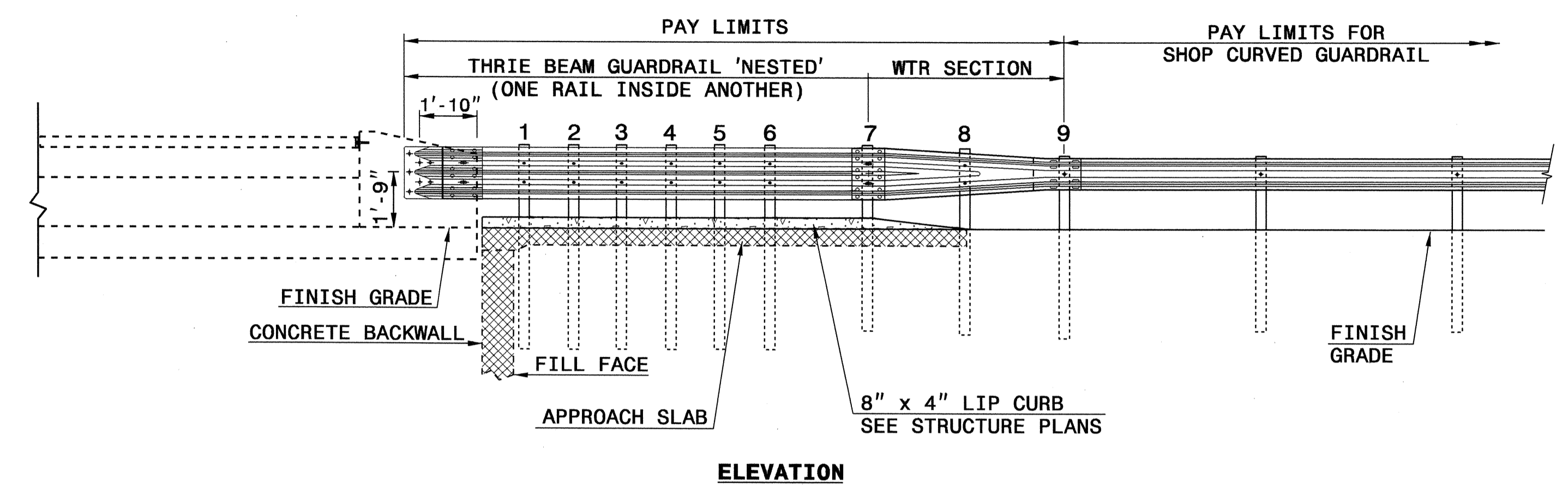
TYPICAL SECTION NO. 6

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ENGLISH DETAIL DRAWING FOR
**TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT**

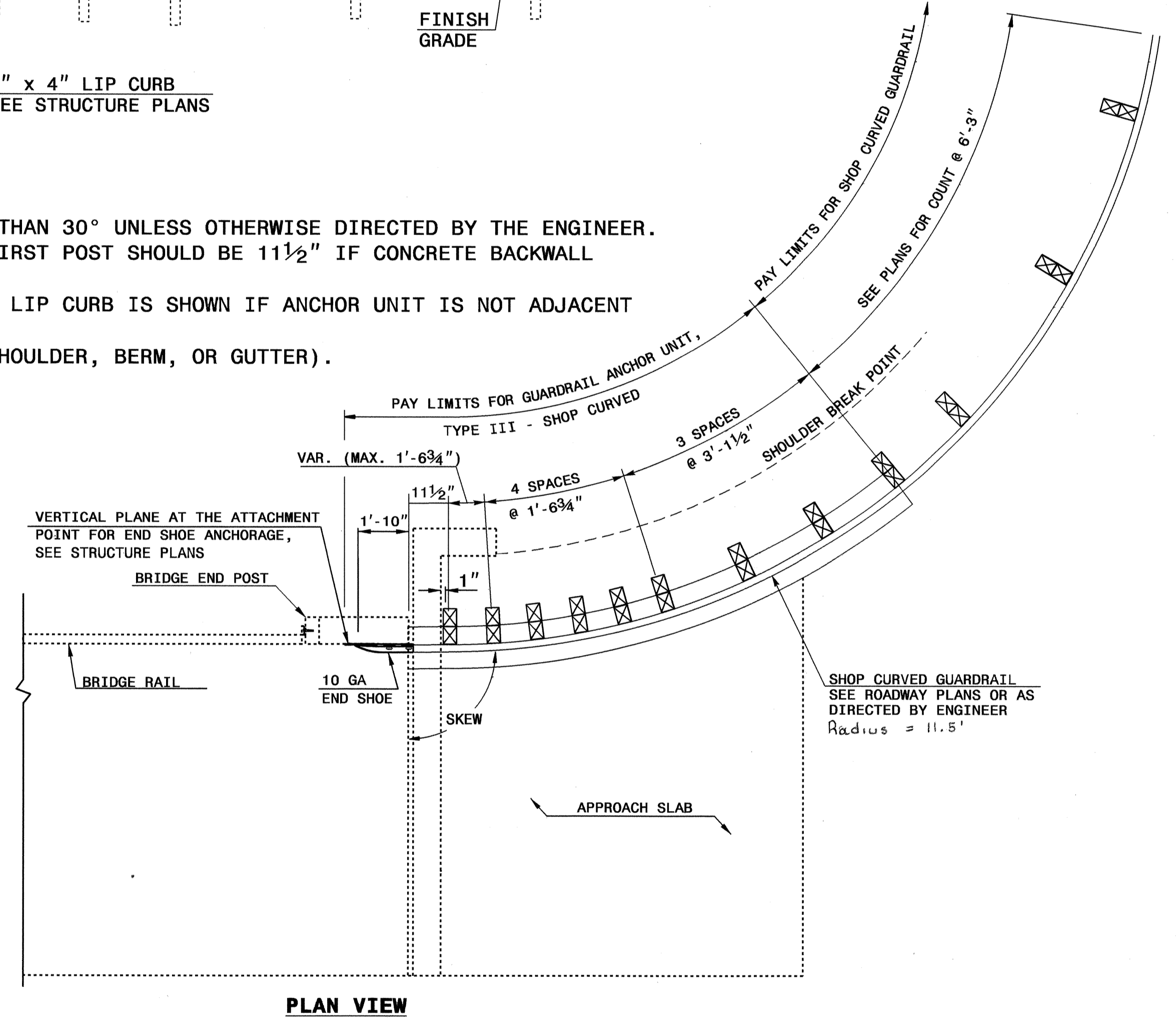
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ENGLISH DETAIL DRAWING FOR
**TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT**



SEE ROADWAY PLANS FOR END TREATMENT

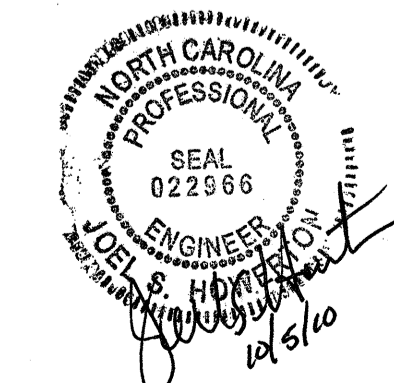
- NOTE:
- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 - *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
 - SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
 - MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
 - USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
 - LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 - SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



**GUARDRAIL ANCHOR UNIT, TYPE III - SHOP CURVED
FOR ATTACHMENT TO RAIL ON BRIDGE**

SHEET 1 OF 1
TYPE III SC

SHEET 1 OF 1
TYPE III SC



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SEE PLATE FOR TITLE

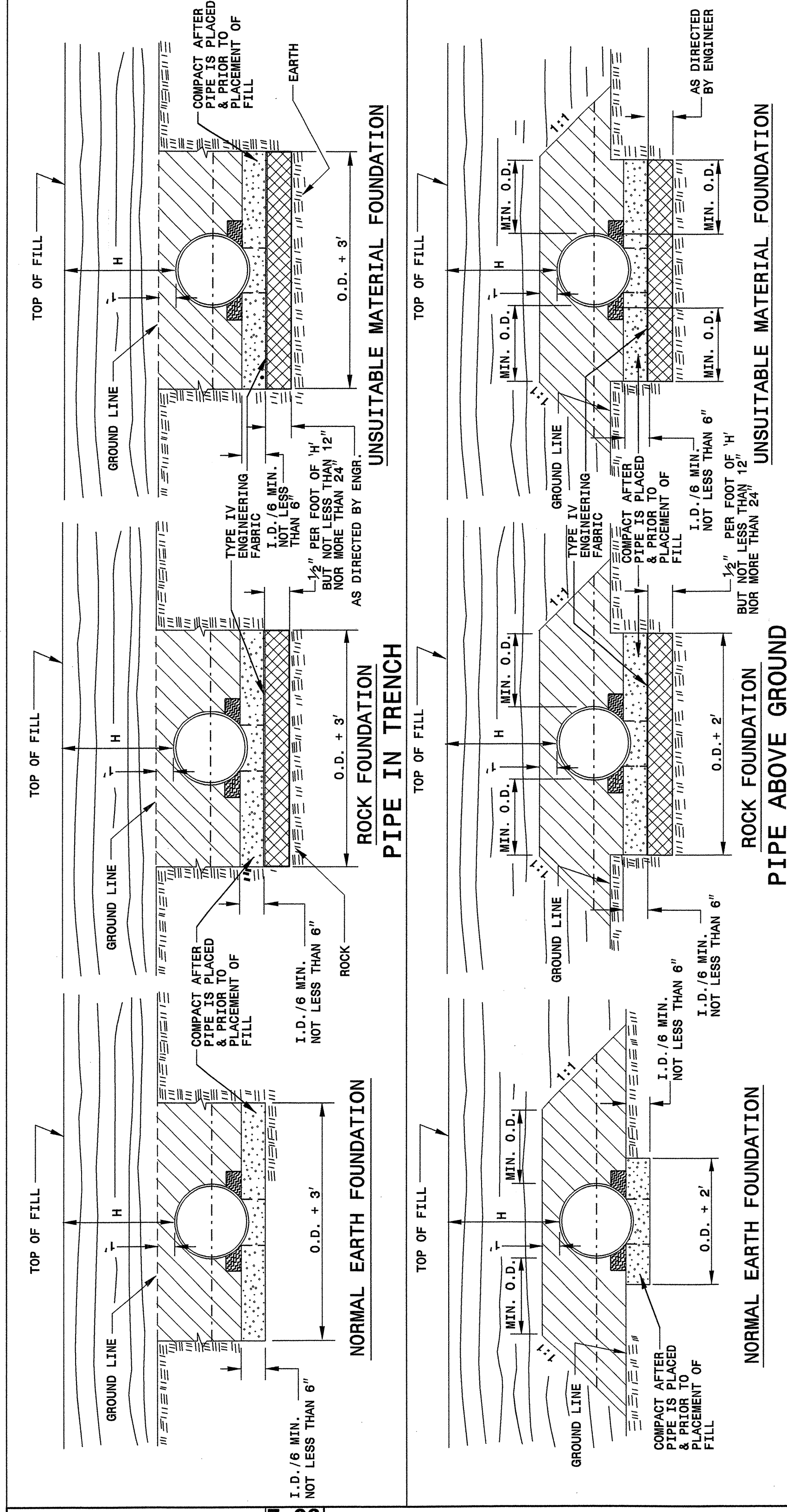
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 MODIFIED BY: *Joel S. Howard* DATE: *8/2/10*
 CHECKED BY: *Joel S. Howard* DATE: *8/2/10*
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STATE OF NORTH CAROLINA
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ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION
 FLEXIBLE PIPE

ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION
 FLEXIBLE PIPE

SHEET 1 OF 3
 300D01

SHEET 1 OF 3
 300D01

GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
 TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 BEING IN THE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

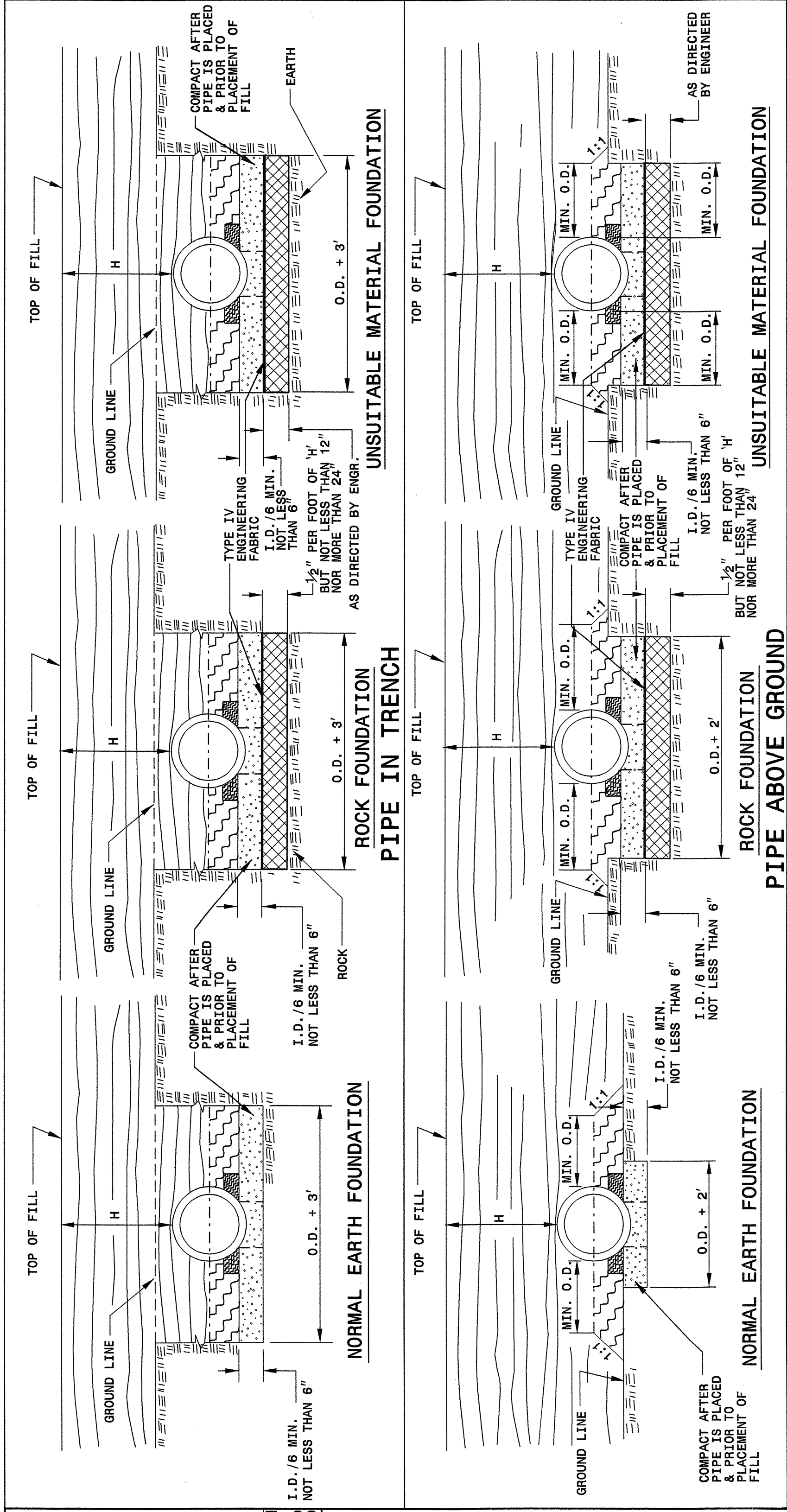
APPROVED SUITABLE LOCAL MATERIAL.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

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 RALEIGH, N.C.

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 DIVISION OF HIGHWAYS
 RALEIGH, N.C.



ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION
 RIGID PIPE

ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION
 RIGID PIPE

SHEET 2 OF 3
 300D01

SHEET 2 OF 3
 300D01

GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
 TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

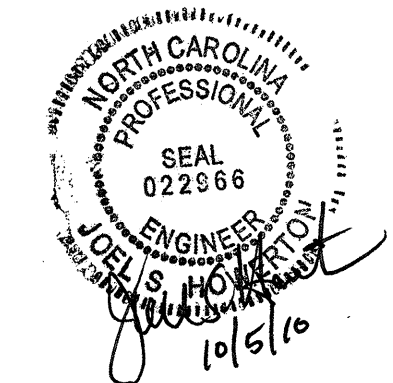
UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

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 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

FLEXIBLE PIPE

Round Corrugated Steel Pipe 2 2/3 x 1/2 corrugation **			
Diameter (inches)	Minimum cover (inches)	(Ga) 16	Maximum Height of Cover (feet)
			12
12	12	204	256
15	12	162	204
18	12	135	169
21	12	115	145
24	12	100	126
30	12	79	100
36	12	65	83
42	12	55	70
48	12	48	61
54	12	44	54
60	12	40	49
66	12	37	45
72	12	34	41
78	12	32	38
84	12	30	35

Round Corrugated Aluminum Pipe 2 2/3 x 1/2 corrugation **			
Diameter (inches)	Minimum cover (inches)	(Ga) 16	Maximum Height of Cover (feet)
			12
12	12	123	155
15	12	98	123
18	12	81	102
21	12	69	87
24	12	60	76
27	12	54	67
30	12	50	60
36	12	42	50
42	12	36	42
48	12	32	36
54	12	29	32
60	12	26	29
66	12	24	26
72	12	22	24

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- CSP - AASHTO M36
- CAAP - AASHTO M196
- HDPE - AASHTO M294
- PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

- HDPE - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 60"
- * (Maximum fill) 20' for pipe diameters ≤ 24"
- 17' for pipe diameters ≥ 30" and ≤ 60"
- PVC - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 36"
- * (Maximum fill) 30' for pipe diameters ≥ 12" and ≤ 36"

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

- RCP - * (Minimum fill) 1' for Class IV & CLASS V
- 2' for Class III & Class II
- * (Maximum fill) 10' - Class II pipe
- 20' - Class III pipe
- 30' - Class IV pipe
- 40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

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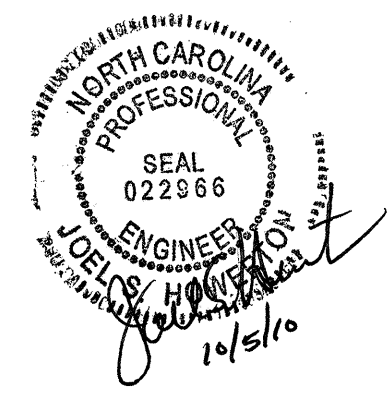
ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

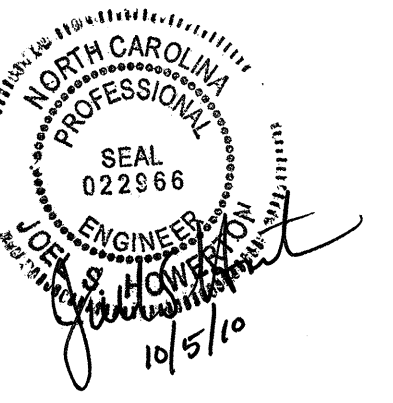
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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP PROPOSED CURB AND GUTTER	SHEET 3 OF 3 848D05
<p>NOTES:</p> <ol style="list-style-type: none"> CONSTRUCT THE WALKING SURFACE WITH SLIP RESISTANTANCE AND A 70% CONTRASTING COLOR TO THE SIDEWALK. CROSSWALK WIDTHS AND CONFIGURATION VARY BUT MUST CONFORM TO TRAFFIC DESIGN STANDARDS. NORTH CAROLINA GENERAL STATUTE 136-44.14 REQUIRES THAT ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, CORRECTION OF UTILITIES OR ALTERED FOR ANY REASON AFTER SEPTEMBER 1, 1973 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY DISABLED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTER AND SIDEWALKS ARE PROVIDED AND AT OTHER POINTS OF PEDESTRIAN FLOW. <p>IN ADDITION, SECTION 228 OF THE 1973 FEDERAL AID HIGHWAY SAFETY ACT REQUIRES PROVISION OF CURB RAMPS ON ANY CURB CONSTRUCTION AFTER JULY 1, 1976 WHETHER A SIDEWALK IS PROPOSED INITIALLY OR IS PLANNED FOR A FUTURE DATE.</p> <p>THE AMERICANS WITH DISABILITIES ACT (ADA) OF 1990 EXTENDS TO INDIVIDUALS WITH DISABILITIES. COMPREHENSIVE CIVIL RIGHTS PROTECTIONS SIMILAR TO THOSE PROVIDED TO PERSONS ON THE BASIS OF RACE, SEX, NATIONAL ORIGIN AND RELIGION UNDER THE CIVIL RIGHTS ACT OF 1964. THESE CURB RAMPS HAVE BEEN DESIGNED TO COMPLY WITH THE CURRENT ADA STANDARDS.</p> <ol style="list-style-type: none"> PROVIDE WHEELCHAIR RAMPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOCATE WHEELCHAIR RAMPS AS DIRECTED BY THE ENGINEER WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT. WHERE TWO RAMPS ARE INSTALLED PLACE NOT LESS THAN 2 FEET OF FULL HEIGHT CURB BETWEEN THE RAMPS. PLACE DUAL RAMPS AS NEAR PERPENDICULAR TO THE TRAVEL LANE BEING CROSSED AS POSSIBLE. DO NOT EXCEED 0.08 (12:1) SLOPE ON THE WHEELCHAIR RAMP IN RELATIONSHIP TO THE GRADE OF THE STREET. CONSTRUCT WHEELCHAIR RAMPS 40" (3'-4") OR GREATER FOR DUAL RAMPS. USE CLASS "B" CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NON-SKID TYPE SURFACE. PLACE A 1/2" EXPANSION JOINT WHERE THE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AND AS SHOWN ON STD. DWG. 848.01. PLACE THE INSIDE PEDESTRIAN CROSSWALK LINES NO CLOSER IN THE INTERSECTION BY BISECTING THE INTERSECTION RADIUS, WITH ALLOWANCE OF A 4' CLEAR ZONE IN THE VEHICULAR TRAVELWAY WHEN ONE RAMP IS INSTALLED. (SEE NOTE 17) COORDINATE THE CURB CUT AND THE PEDESTRIAN CROSSWALK LINES SO THE FLOOR OF THE WHEELCHAIR RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES. PLACE DIAGONAL RAMPS WITH FLARED SIDES SO 24" OF FULL HEIGHT CURB FALLS WITHIN THE CROSSWALK MARKINGS ON EACH SIDE OF THE FLARES. CONSTRUCT THE PEDESTRIAN CROSSWALK A MINIMUM OF 6 FEET. A CROSSWALK WIDTH OF 10 FEET OR GREATER IS DESIRABLE. USE STOP LINES, NORMALLY PERPENDICULAR TO THE LANE LINES, WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN OR OTHER LEGAL REQUIREMENT. AN UNUSUAL APPROACH SKEW MAY REQUIRE THE PLACEMENT OF THE STOP LINE TO BE PARALLEL TO THE INTERSECTING ROADWAY. TERMINATE PARKING A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK. PLACE ALL PAVEMENT MARKINGS IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD. 		
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP PROPOSED CURB AND GUTTER	SHEET 3 OF 3 848D05



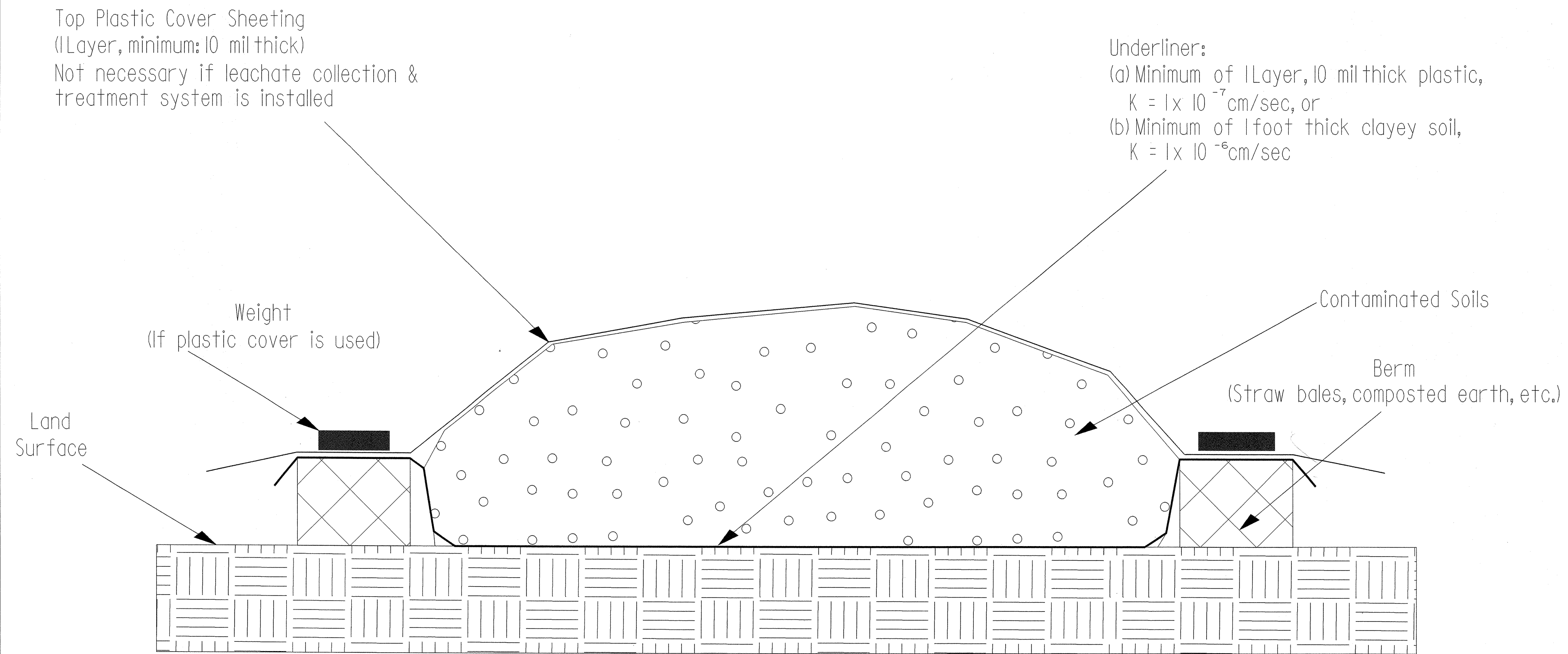
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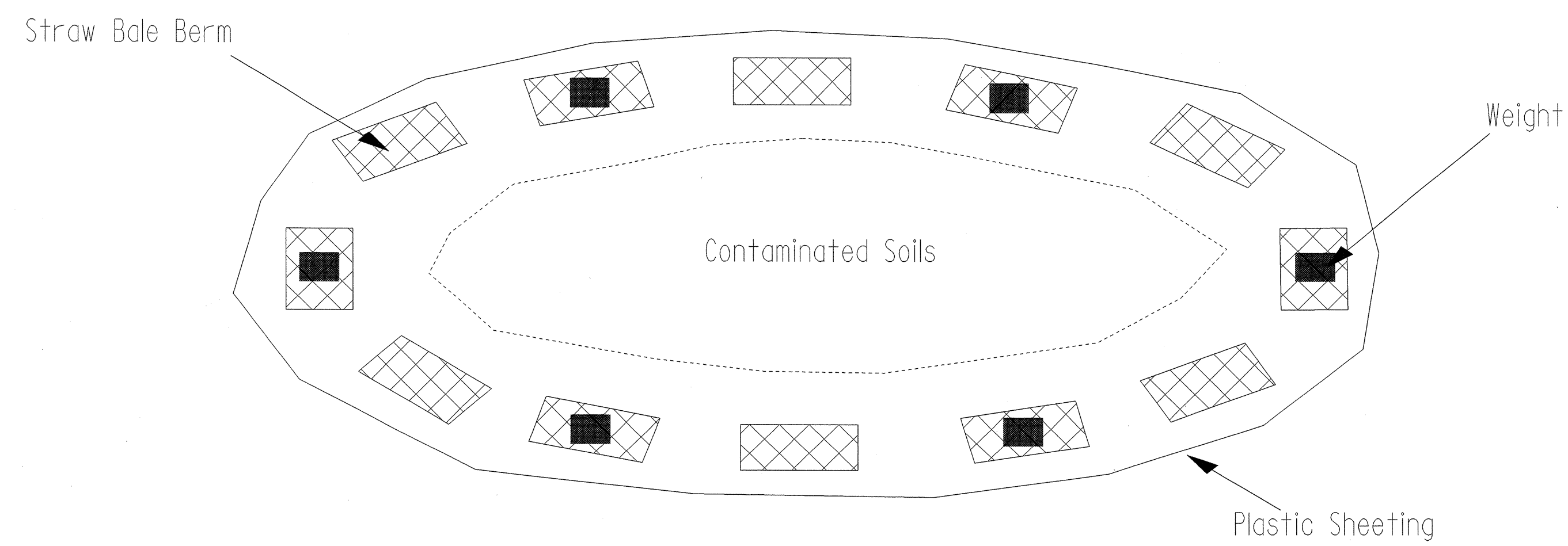
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MODIFIED BY: *Eric Ward* DATE: *4/22/10*
CHECKED BY: *Eric Ward* DATE: *4/22/10*
FILE SPEC.: SpecialDetails/EricWard/STDs/848d05.dgn

Detail for Temporary Containment of Petroleum Contaminated Soil

Cross-Section View



Map View



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202566

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	4102000000-N	904	20	EA	SIGN ERECTION, TYPE E	6027000000-N	1622	4	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (17+57.00)	4108000000-N	904	4	EA	SIGN ERECTION, TYPE F	6029000000-E	SP	850	LF	SAFETY FENCE
0038000000-E	SP	20	CY	SHALLOW UNDERCUT	4155000000-N	907	15	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	6030000000-E	1630	220	CY	SILT EXCAVATION
0043000000-N	226	Lump Sum		GRADING	4400000000-E	1110	760	SF	WORK ZONE SIGNS (STATIONARY)	6036000000-E	1631	7,000	SY	MATTING FOR EROSION CONTROL
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	4405000000-E	1110	723	SF	WORK ZONE SIGNS (PORTABLE)	6042000000-E	1632	1,000	LF	1/4" HARDWARE CLOTH
0080000000-E	SP	40	TON	CLASS IV SUBGRADE STABILIZATION	4410000000-E	1110	266	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	6070000000-N	SP	12	EA	SPECIAL STILLING BASINS
0195000000-E	SP	20	CY	SELECT GRANULAR MATERIAL	4415000000-N	1115	2	EA	FLASHING ARROW PANELS, TYPE C	6071010000-E	SP	130	LF	WATTLE
0196000000-E	270	45	SY	FABRIC FOR SOIL STABILIZATION	4420000000-N	1120	2	EA	CHANGEABLE MESSAGE SIGN	6071020000-E	SP	35	LB	POLYACRYLAMIDE (PAM)
0255000000-E	SP	100	TON	GENERIC GRADING ITEM EXCAVATE AND STOCKPILE CONTAMINATED SOIL	4430000000-N	1130	142	EA	DRUMS	6084000000-E	1660	1	ACR	SEEDING & MULCHING
0318000000-E	SP	55	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	4435000000-N	1135	50	EA	CONES	6087000000-E	1660	1	ACR	MOWING
0320000000-E	SP	170	SY	FOUNDATION CONDITIONING FABRIC	4445000000-E	1145	314	LF	BARRICADES (TYPE III)	6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
0342000000-E	SP	68	LF	*** SIDE DRAIN PIPE (18")	4450000000-N	1150	2,160	HR	FLAGGER	6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
0342000000-E	SP	64	LF	*** SIDE DRAIN PIPE (30")	4480000000-N	1165	3	EA	TMA	6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
0366000000-E	SP	60	LF	15" RC PIPE CULVERTS, CLASS III	4510000000-N	SP	64	HR	LAW ENFORCEMENT	6108000000-E	1665	1.25	TON	FERTILIZER TOPDRESSING
0384000000-E	SP	172	LF	30" RC PIPE CULVERTS, CLASS III	4516000000-N	1180	100	EA	SKINNY DRUM	6114500000-N	SP	10	MHR	SPECIALIZED HAND MOWING
0448200000-E	SP	112	LF	15" RC PIPE CULVERTS, CLASS IV	4520000000-N	1266	36	EA	TUBULAR MARKERS (FIXED)	6117000000-N	SP	18	EA	RESPONSE FOR EROSION CONTROL
0588000000-E	SP	12	LF	18" CS PIPE CULVERTS, 0.064" THICK	4650000000-N	1251	125	EA	TEMPORARY RAISED PAVEMENT MARKERS	6123000000-E	1670	0.1	ACR	REFORESTATION
0995000000-E	340	272	LF	PIPE REMOVAL	4810000000-E	1205	24,438	LF	PAINT PAVEMENT MARKING LINES (4")	7120000000-E	1705	2	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
1121000000-E	520	500	TON	AGGREGATE BASE COURSE	4820000000-E	1205	1,344	LF	PAINT PAVEMENT MARKING LINES (8")	7252000000-E	1710	1,175	LF	MESSENGER CABLE (1/4")
1220000000-E	545	175	TON	INCIDENTAL STONE BASE	4835000000-E	1205	1,150	LF	PAINT PAVEMENT MARKING LINES (24")	7279000000-E	1715	350	LF	TRACER WIRE
1275000000-E	600	270	GAL	PRIME COAT	4835000000-E	1205	1,150	LF	PAINT PAVEMENT MARKING LINES (24")	7300000000-E	1715	80	LF	UNPAVED TRENCHING (***** (1, 2"))
1308000000-E	607	2,500	SY	MILLING ASPHALT PAVEMENT, **** TO ***** DEPTH (1-1/2" TO 3")	4840000000-N	1205	48	EA	PAINT PAVEMENT MARKING CHARACTER	7301000000-E	1715	350	LF	DIRECTIONAL DRILL (***** (1, 2"))
1491000000-E	610	740	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C	4845000000-N	1205	121	EA	PAINT PAVEMENT MARKING SYMBOL	7324000000-N	1716	1	EA	JUNCTION BOX (STANDARD SIZE)
1503000000-E	610	275	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE 119.0C	4850000000-E	1205	4,240	LF	REMOVAL OF PAVEMENT MARKING LINES (4")	7348000000-N	1716	4	EA	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)
1523000000-E	610	820	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	4860000000-E	1205	50	LF	REMOVAL OF PAVEMENT MARKING LINES (8")	7372000000-N	1721	6	EA	GUY ASSEMBLY
1560000000-E	620	45	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	4870000000-E	1205	244	LF	REMOVAL OF PAVEMENT MARKING LINES (24")	7420000000-E	1722	1	EA	2" RISER WITH WEATHERHEAD
1565000000-E	620	50	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-22	4875000000-N	1205	47	EA	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS	7432000000-E	1722	2	EA	2" RISER WITH HEAT SHRINK TUBING
1693000000-E	654	247	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	4905000000-N	1253	75	EA	SNOWPLOWABLE PAVEMENT MARKERS	7444000000-E	1725	110	LF	INDUCTIVE LOOP SAWCUT
2253000000-E	840	1	CY	PIPE COLLARS	5326200000-E	1510	347.4	LF	12" WATER LINE	7456000000-E	1726	130	LF	LEAD-IN CABLE (***** (14-2))
2264000000-E	840	1	CY	PIPE PLUGS	5546000000-E	1515	3	EA	8" VALVE	7552000000-N	1731	2	EA	INTERCONNECT CENTER
2275000000-E	SP	10	CY	FLOWABLE FILL	5552000000-E	1515	4	EA	10" VALVE	7566000000-N	1733	2	EA	DELNEATOR MARKER
2286000000-N	840	11	EA	MASONRY DRAINAGE STRUCTURES	5709500000-E	1520	351.4	LF	10" FORCE MAIN SEWER	7575180000-N	1735	2	EA	CABLE TRANSFER
2308000000-E	840	23	LF	MASONRY DRAINAGE STRUCTURES	5773000000-N	SP	1	EA	UTILITY VAULT	7636000000-N	1745	13	EA	SIGN FOR SIGNALS
2374000000-N	840	4	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	5775000000-E	1525	1	EA	4" DIA UTILITY MANHOLE					
2374000000-N	840	4	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	5801000000-E	1530	390	LF	ABANDON 8" UTILITY PIPE					
2549000000-E	846	1,700	LF	2'-6" CONCRETE CURB & GUTTER	5802000000-E	1530	269	LF	ABANDON 10" UTILITY PIPE					
2591000000-E	848	690	SY	4" CONCRETE SIDEWALK	5871600000-E	1550	182.5	LF	TRENCHLESS INSTALLATION OF 10" IN SOIL					
2605000000-N	848	11	EA	CONCRETE WHEELCHAIR RAMPS	5871700000-E	1550	174	LF	TRENCHLESS INSTALLATION OF 12" IN SOIL					
2612000000-E	848	380	SY	6" CONCRETE DRIVEWAY	5871710000-E	1550	174	LF	TRENCHLESS INSTALLATION OF 12" NOT IN SOIL					
2800000000-N	858	2	EA	ADJUSTMENT OF CATCH BASINS	5888000000-E	SP	52.1	LF	GENERIC UTILITY ITEM 10" DI RESTRAINED JOINT WATER PIPE, PC 350					
2830000000-N	858	10	EA	ADJUSTMENT OF MANHOLES	5888000000-E	SP	174.1	LF	GENERIC UTILITY ITEM 8" DI RESTRAINED JOINT FORCE MAIN SEWER PIPE					
2845000000-N	858	12	EA	ADJUSTMENT OF METER BOXES OR VALVE BOXES	6000000000-E	1605	3,100	LF	TEMPORARY SILT FENCE					
3180000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** (III, SHOP CURVED)	6006000000-E	1610	365	TON	STONE FOR EROSION CONTROL, CLASS A					
3270000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	6009000000-E	1610	100	TON	STONE FOR EROSION CONTROL, CLASS B					
3649000000-E	876	5	TON	RIP RAP, CLASS B	6012000000-E	1610	500	TON	SEDIMENT CONTROL STONE					
3656000000-E	876	1,516	SY	FILTER FABRIC FOR DRAINAGE	6015000000-E	1615	1	ACR	TEMPORARY MULCHING					
4072000000-E	903	370	LF	SUPPORTS, 3-LB STEEL U-CHANNEL	6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING					
					6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING					
					6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS					

5/28/99

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COMPUTED BY: CJT DATE: 1-29-2010
 CHECKED BY: JBT/iy DATE: 7/27/2010

PROJECT NO. B-3656 SHEET NO. 3-B

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

Station to Station	CUBIC YARDS			
	Uncl. Exc. C.Y.	Embank. +% C.Y.	Borrow C.Y.	Waste C.Y.
SUMMARY 1				
-DET- 10+40 TO 14+00	637			637
SUMMARY 1 TOTALS	637			637
SUMMARY 2				
-L- 11+50.00 TO 16+44.50	449	182		267
-L- 18+69.50 TO 22+00.00	272	202		70
-Y3- 10+50.00 TO 11+25.00	30	8		22
-Y4- 10+50.00 TO 12+27.97	151	35		117
SUMMARY 2 TOTALS	902	427		476
SUMMARY 3				
DETOUR REMOVAL				
-DET- 10+40 TO 14+00		733	733	
SUMMARY 3 TOTALS		733	733	
PROJECT SUB TOTAL	1,539	1,160	733	1,113
Waste In Lieu of Borrow			-733	-733
<small>Est 5% To Replace Topsoil at Borrow Pit</small>				
GRAND TOTALS	1,539			380
SAY	1,600			
<small>ESTIMATED CLASS IV SUBGRADE STABILIZATION = 40 TONS</small>				
<small>ESTIMATED SHALLOW UNDERCUT = 20 CY</small>				
<small>ESTIMATED SELECT GRANULAR MATERIAL = 20 CY</small>				

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

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

SUMMARY OF ASPHALT PAVEMENT REMOVAL

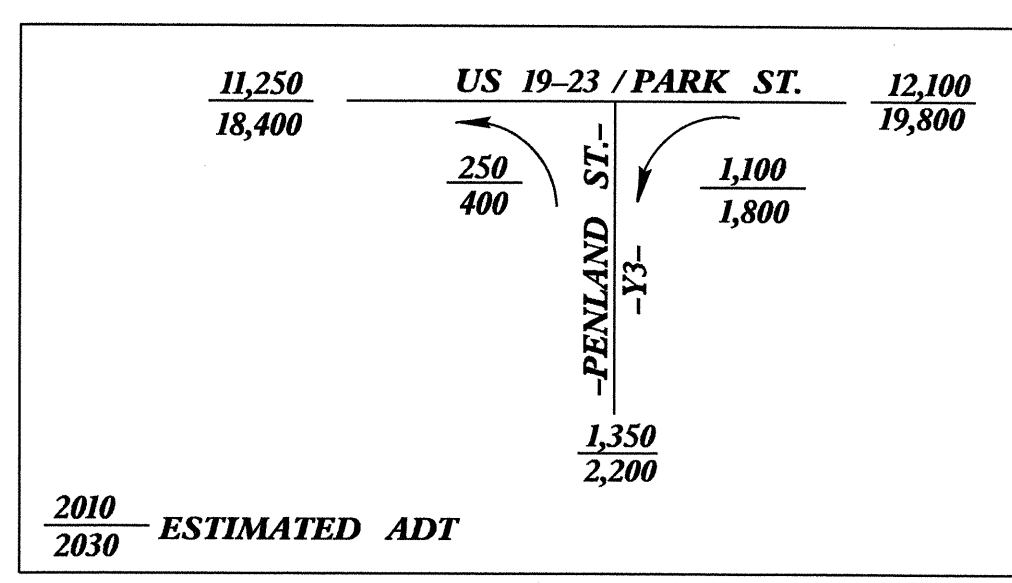
LINE	Station to Station	LOC LT/RT/CL	Asphalt Removal SQ. YDS.
-L-	15+96.00 16+62.14	CL	187.13
-L-	18+59.67 18+97.80	LT	92.92
-L-	18+51.55 19+46.17	CL	428.32
-L-	19+46.17 21+52.84	RT	159.91
-Y4-	10+33.34 11+73.20	RT	295.89
-DET-	10+15.77 13+93.33	CL	706.10
PROJECT TOTAL			1870.27
Say			1880

GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL
 G = GATING IMPACT ATTENUATOR TYPE 350
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

LINE	BEG. STA.	END STA.	LOC.	LENGTH (FT.)			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLARE LENGTH		W		GRAU 350	TYPE B-77	ANCHORS		IMP. ATTEN. TYPE 350			REMOVE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END			TYPE III SHOP CURVED	EA	G	NG			
-L- /-Y4-	18+69.50	11+09.11	RT				18+69.55								1		1						STRUCTURE WARRANT (SEE DETAIL SHT 2-B FOR TYPE - III SHOP CURVED STRUCTURE ANCHOR UNIT)
PROJECT TOTAL															1		1						PROJECT TOTAL

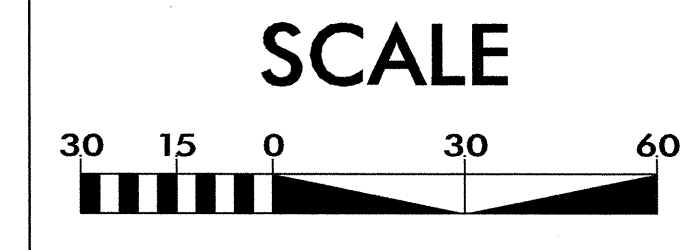
8/17/99



APPROXIMATE LOCATION OF POSSIBLE USTS TO BE REMOVED BY NCDOT PRIOR TO CONSTRUCTION

SEE SHEET 2-H FOR INTERSECTION DETAIL

4" CONC. SIDEWALK



PROJECT REFERENCE NO. B-3656	SHEET NO. 4
ROADWAY DESIGN ENGINEER GREGORY E. BREW	HYDRAULICS ENGINEER TERRY M. SWEED
FOR PROFILE OF -L- & -Y3- SEE SHEET 7	

PI Sta 12+80.33 $\Delta = 2^\circ 27' 12.4''$ (LT) $D = 1^\circ 54' 35.5''$ $L = 128.46'$ $T = 64.24'$ $R = 3,000.00'$ $e = NC$	PI Sta 14+08.79 $\Delta = 2^\circ 27' 12.4''$ (RT) $D = 1^\circ 54' 35.5''$ $L = 128.46'$ $T = 64.24'$ $R = 3,000.00'$ $e = NC$
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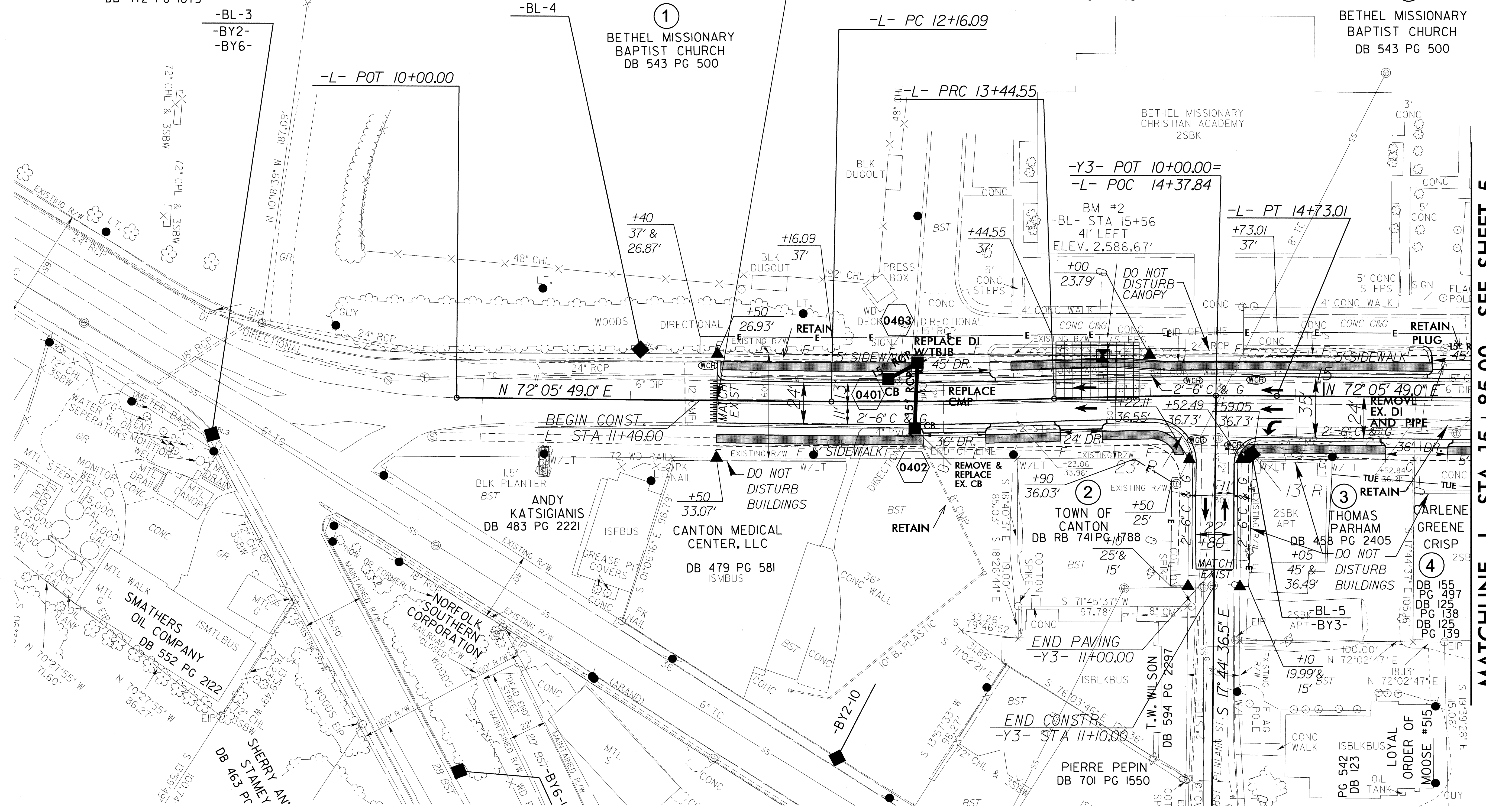
BLUE RIDGE PAPER PRODUCTS, INC.
DB 472 PG 1073

-L- POT STA 11+50.00
BEGIN TIP PROJECT B-3656

1
BETHEL MISSIONARY BAPTIST CHURCH
DB 543 PG 500

1
BETHEL MISSIONARY BAPTIST CHURCH
DB 543 PG 500

REVISIONS

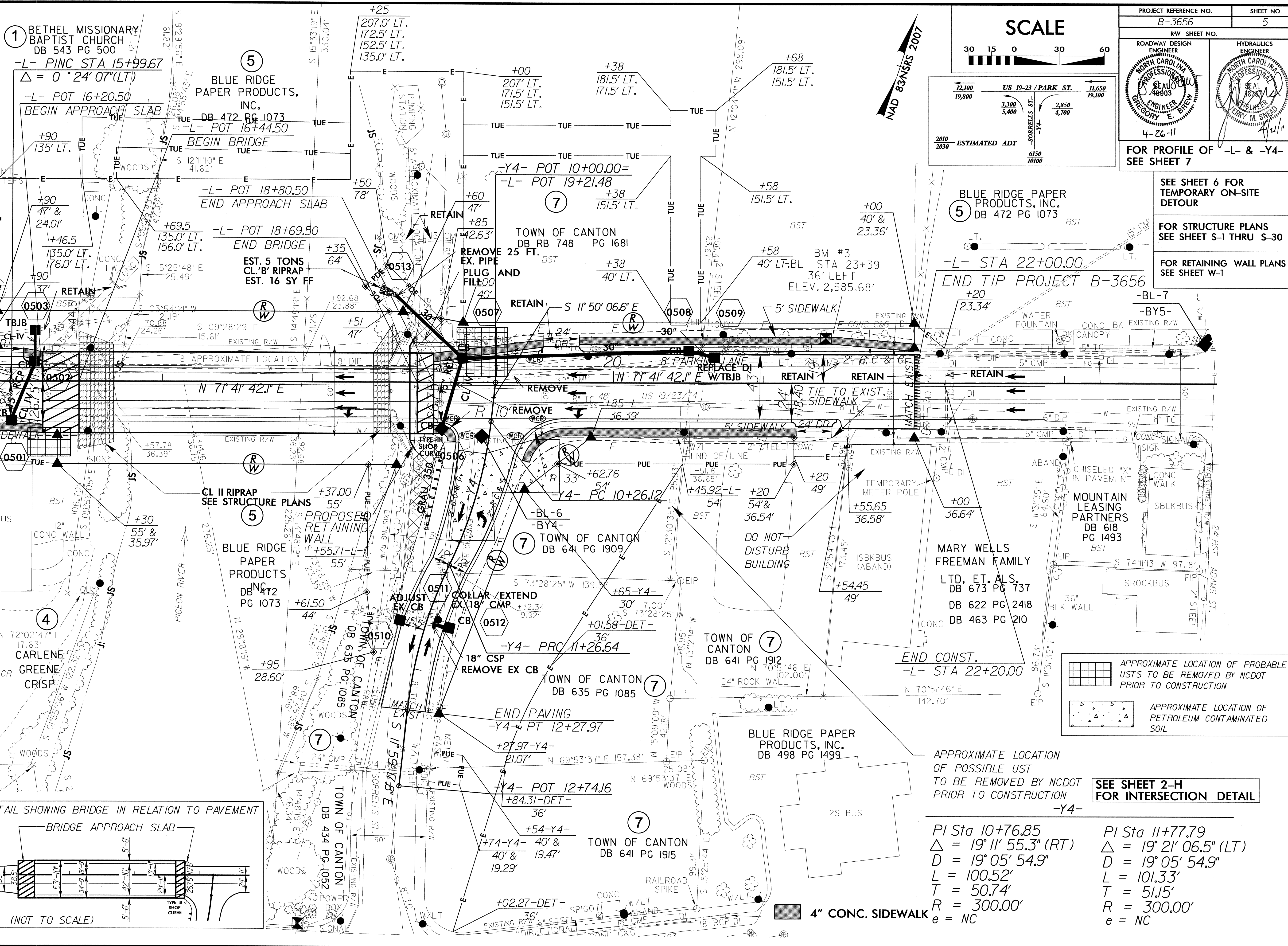


MATCHLINE -L- STA. 15 + 85.00 SEE SHEET 5

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1L-APR-2011 16:07
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MATCHLINE -L- STA. 15+85.00 SEE SHEET 4



SCALE



PROJECT REFERENCE NO.	B-3656	SHEET NO.	5
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER	NORTH CAROLINA PROFESSIONAL SEAL 48903 GREGORY E. BREW		
HYDRAULICS ENGINEER	NORTH CAROLINA PROFESSIONAL SEAL 48903 JERRY M. SWIND		
4-26-11			

FOR PROFILE OF -L- & -Y4- SEE SHEET 7

SEE SHEET 6 FOR TEMPORARY ON-SITE DETOUR

FOR STRUCTURE PLANS SEE SHEET S-1 THRU S-30

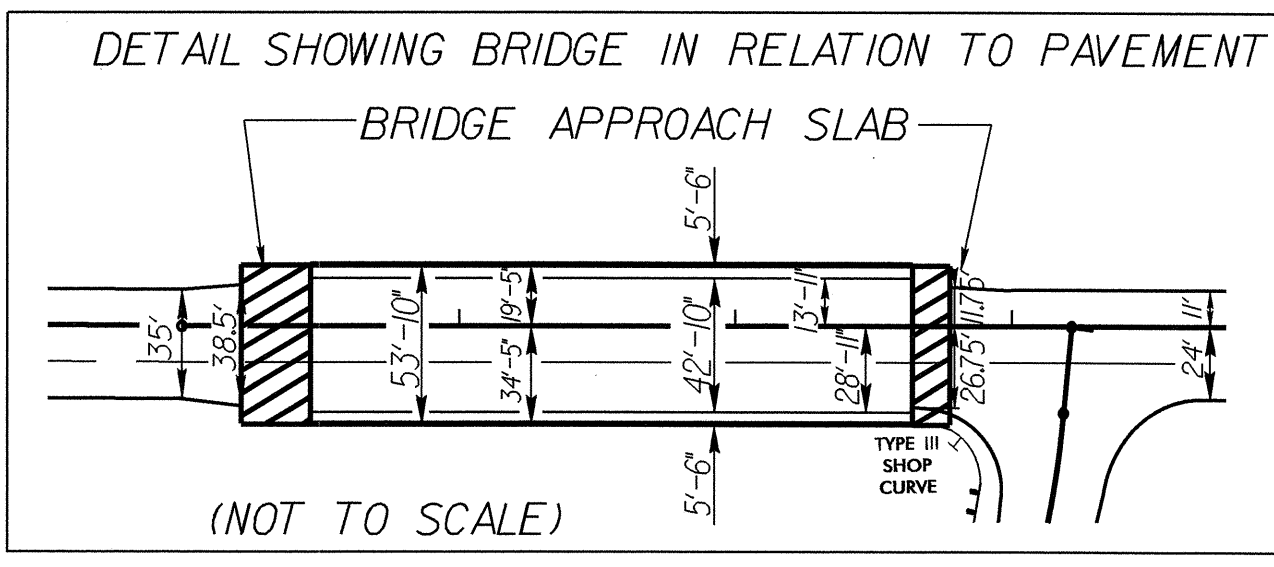
FOR RETAINING WALL PLANS SEE SHEET W-1

APPROXIMATE LOCATION OF PROBABLE USTS TO BE REMOVED BY NCDOT PRIOR TO CONSTRUCTION

APPROXIMATE LOCATION OF PETROLEUM CONTAMINATED SOIL

APPROXIMATE LOCATION OF POSSIBLE UST TO BE REMOVED BY NCDOT PRIOR TO CONSTRUCTION

SEE SHEET 2-H FOR INTERSECTION DETAIL

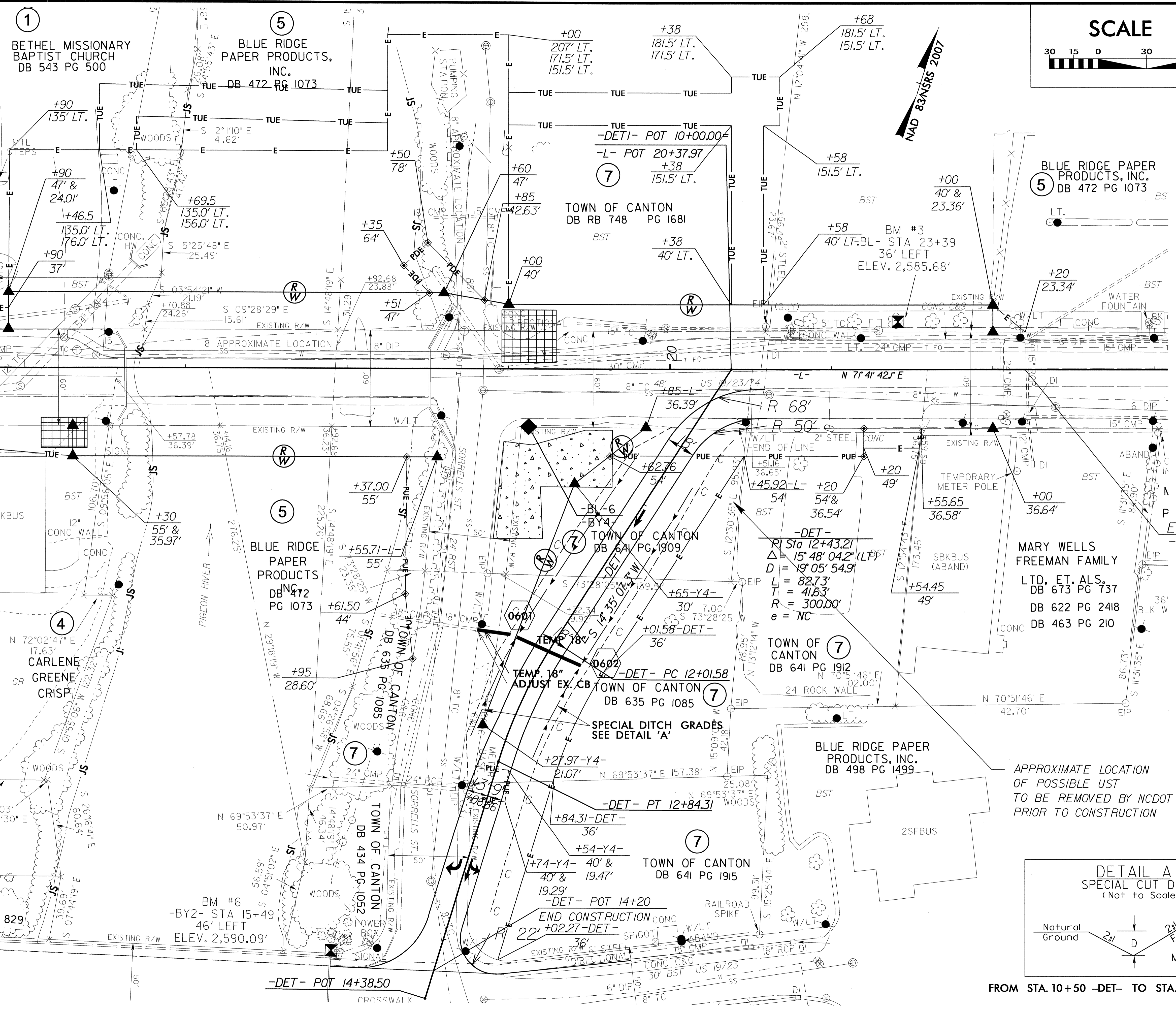
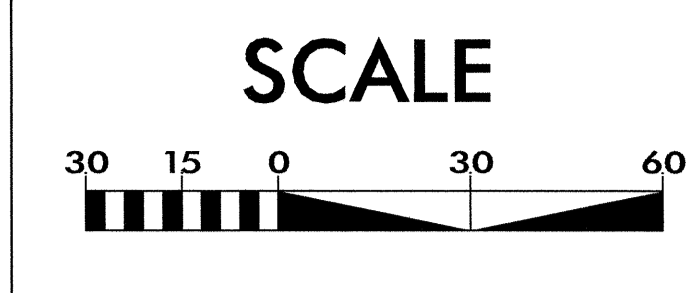


PI Sta 10+76.85	PI Sta 11+77.79
$\Delta = 19^\circ 11' 55.3'' (RT)$	$\Delta = 19^\circ 21' 06.5'' (LT)$
$D = 19^\circ 05' 54.9''$	$D = 19^\circ 05' 54.9''$
$L = 100.52'$	$L = 101.33'$
$T = 50.74'$	$T = 51.15'$
$R = 300.00'$	$R = 300.00'$
$e = NC$	$e = NC$

4" CONC. SIDEWALK

8/17/09

PROJECT REFERENCE NO. B-3656	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 18993 GREGORY E. BREW 10-4-10	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 18257 JERRY M. SWEED 9/30/10



FOR PROFILE OF -DET-
SEE SHEET 8

SEE SHEET 5 FOR -L- PLAN

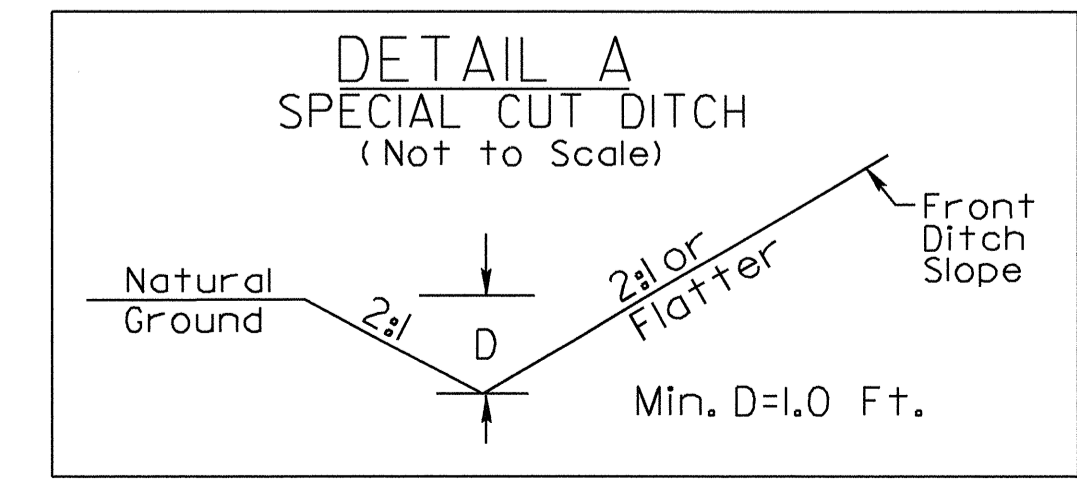
USE THIS SHEET FOR TEMPORARY
DETOUR CONSTRUCTION ONLY

END CONST.
-L- STA 22+20.00

APPROXIMATE LOCATION
OF PROBABLE USTS
TO BE REMOVED BY NCDOT
PRIOR TO CONSTRUCTION

APPROXIMATE LOCATION
OF PETROLEUM
CONTAMINATED
SOIL

APPROXIMATE LOCATION
OF POSSIBLE UST
TO BE REMOVED BY NCDOT
PRIOR TO CONSTRUCTION

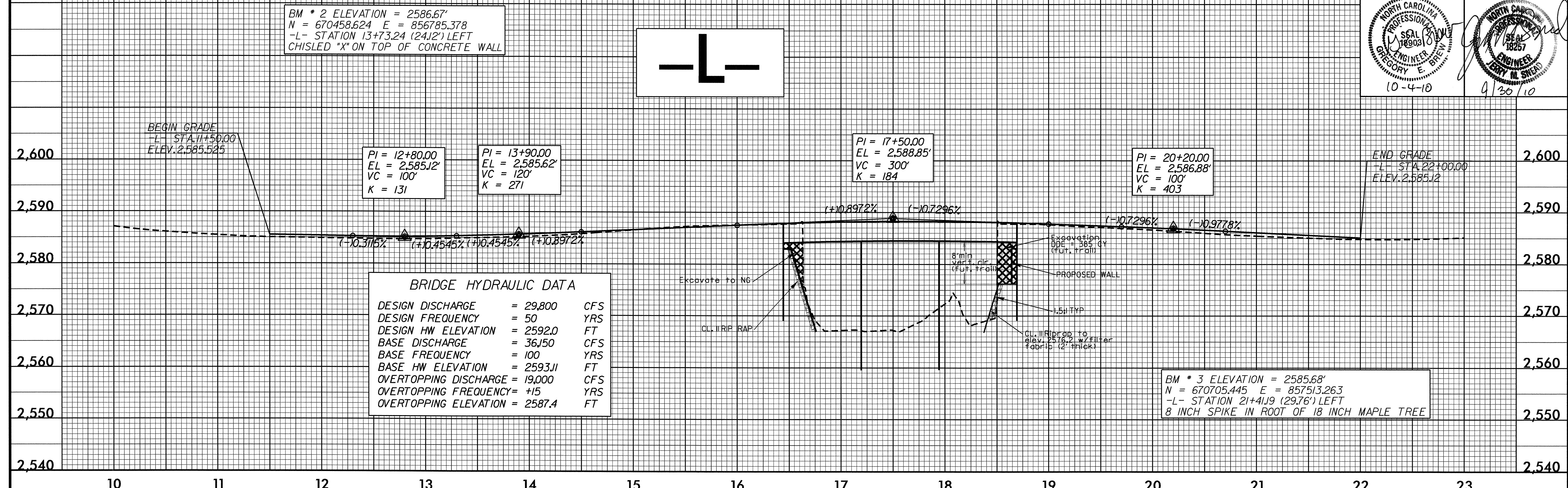


FROM STA. 10+50 -DET- TO STA. 13+75 -DET- (LT & RT)

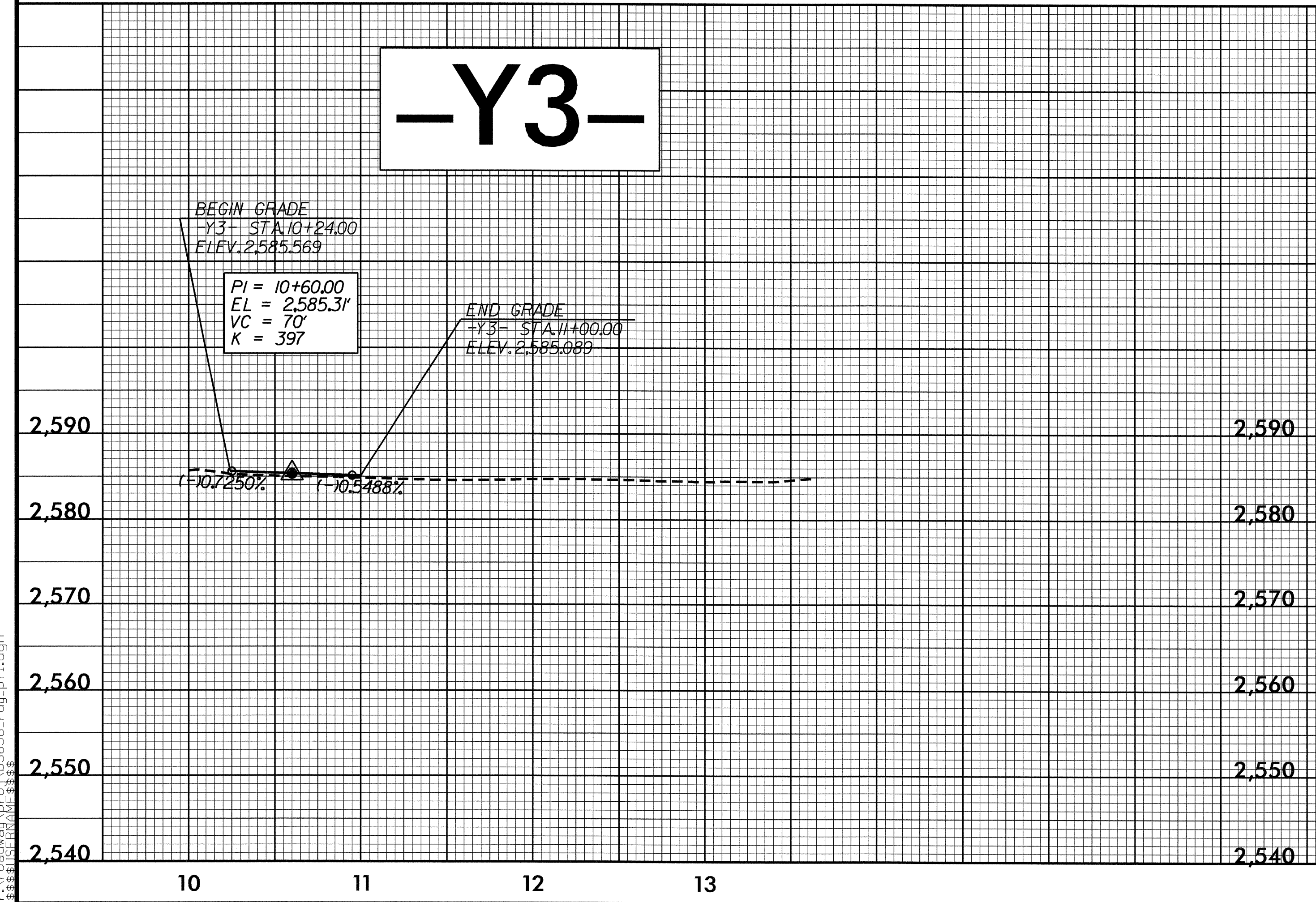
REVISIONS

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GREGORY E. BREW

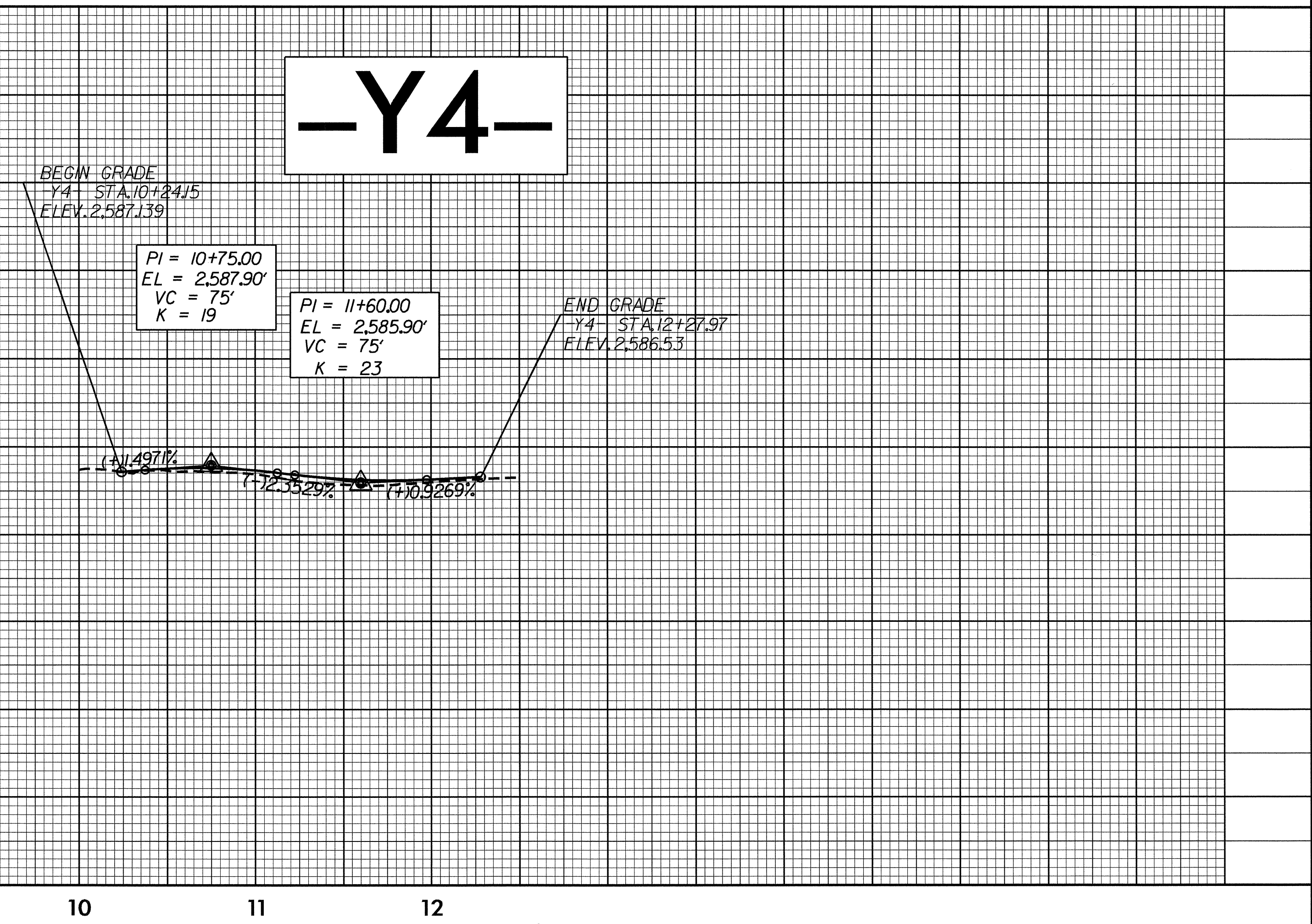
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-Y3-



-Y4-



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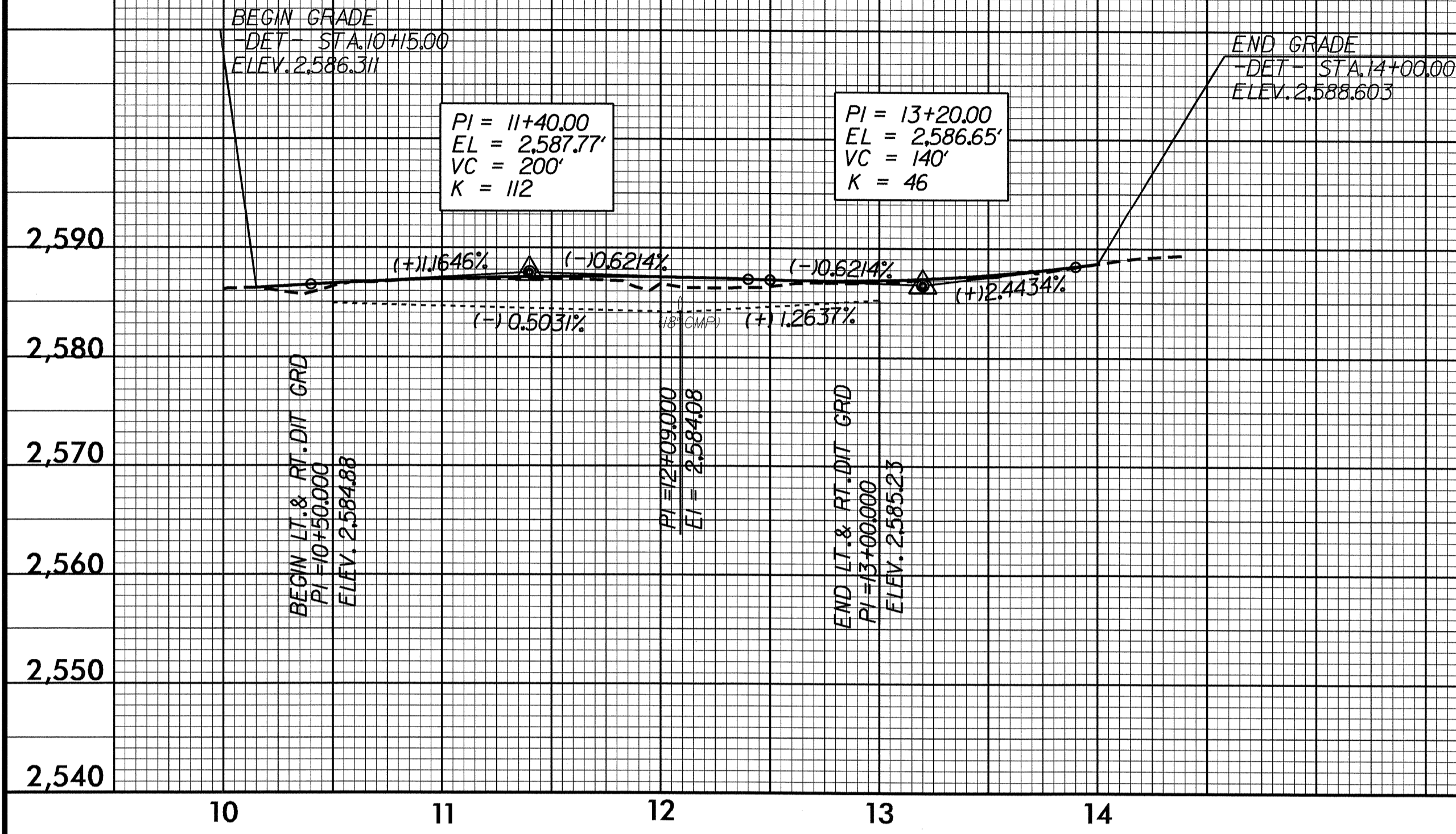
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DITCH LEGEND
LEFT DITCH - - - - -
RIGHT DITCH - - - - -

-DET-

BM * 3 ELEVATION = 2585.68'
 N = 670705.445 E = 857513.263
 -L- STATION 21+41.9 (29.76') LEFT
 8 INCH SPIKE IN ROOT OF 18 INCH MAPLE TREE

PROJECT REFERENCE NO. B-3656	SHEET NO. 8
ROADWAY DESIGN ENGINEER GREGORY E. BREW NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18903	HYDRAULICS ENGINEER JERRY M. SWEED NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18257
10-4-10	9/30/10



07-SEP-2010 11:44
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