

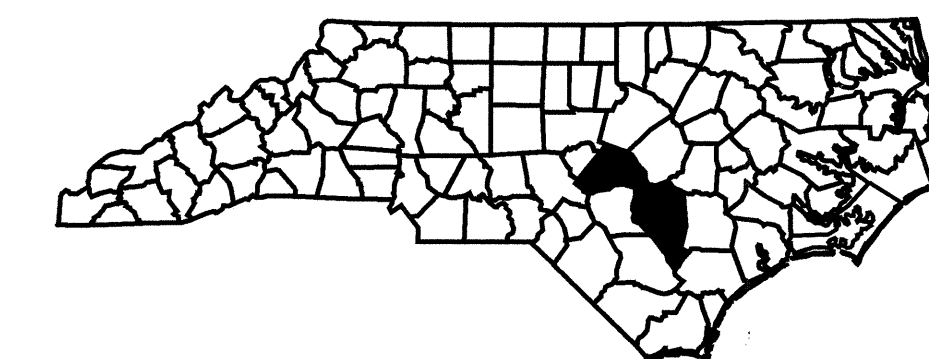
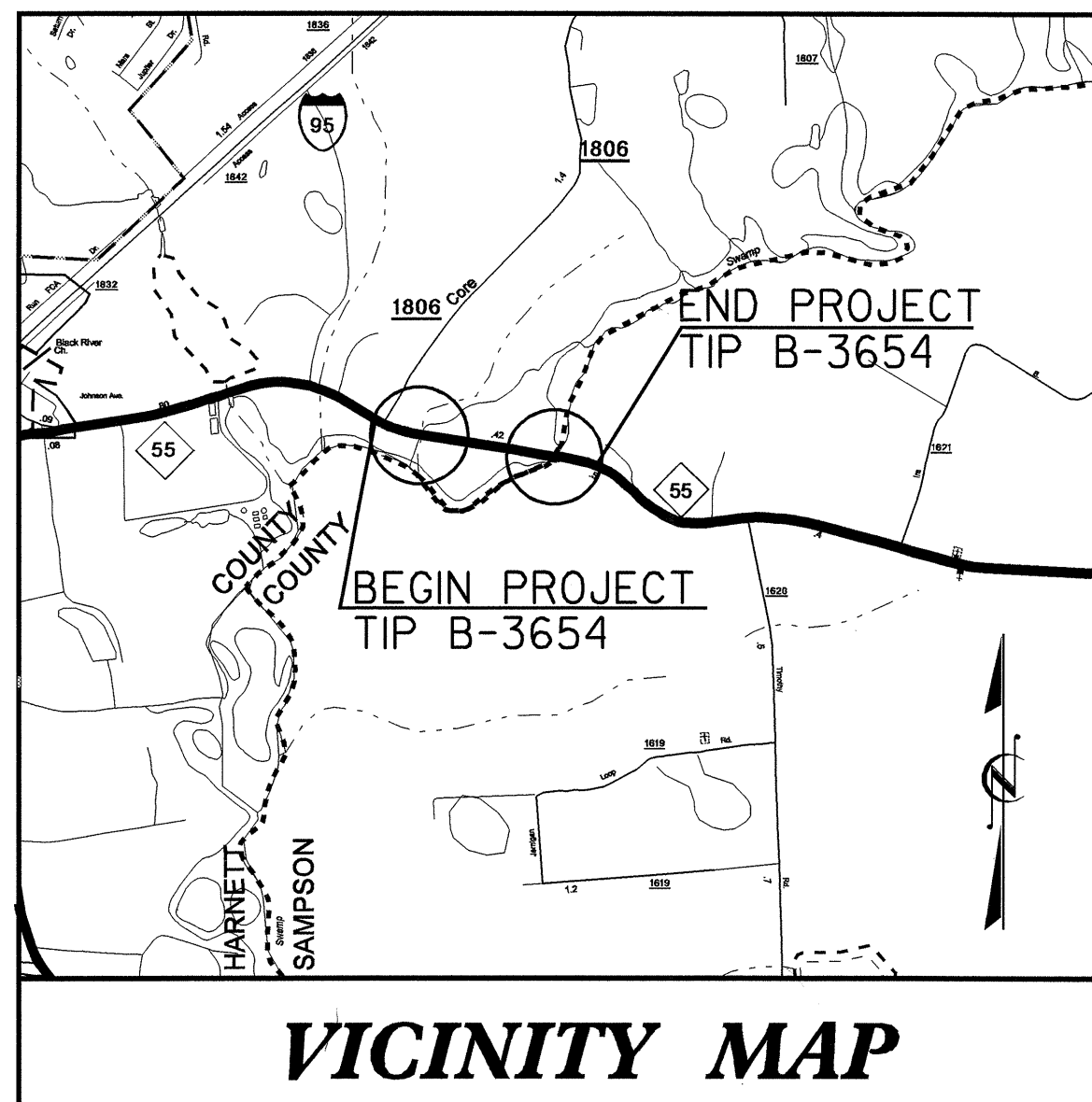
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HARNETT & SAMPSON COUNTIES

LOCATION: REPLACE BRIDGES 29 & 53 OVER MINGO SWAMP ON NC 55

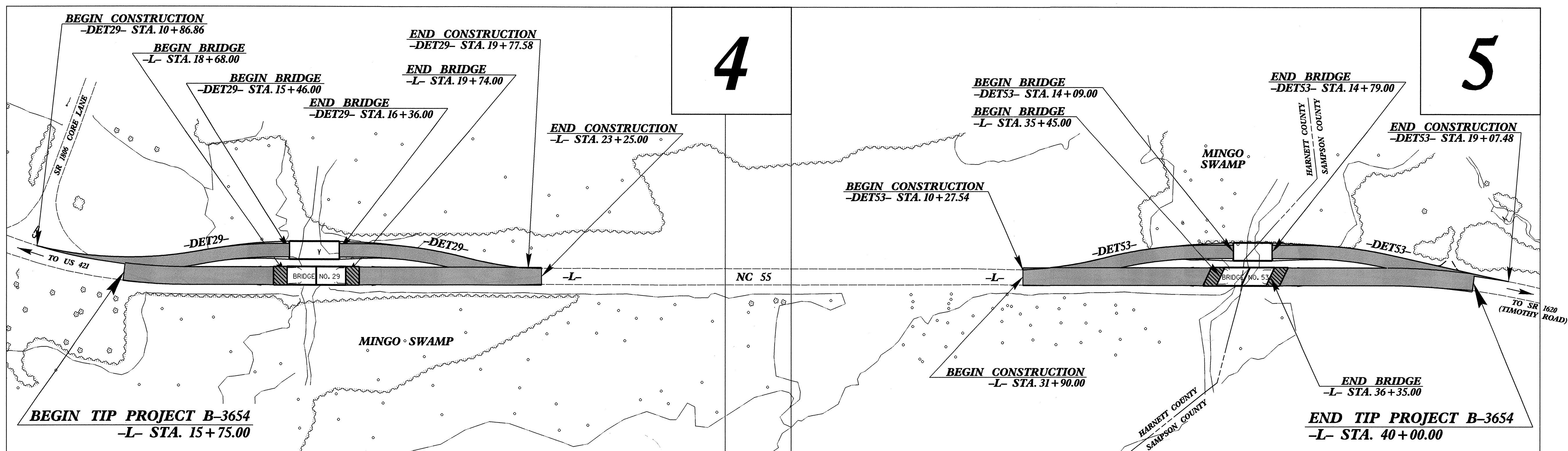
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3654	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33200.1.1	BRSTP-55(14)	P.E.	
33200.2.2	BRSTP-55(14)	R/W, UTIL.	
33200.3.1	BRSTP-55(14)	CONST.	



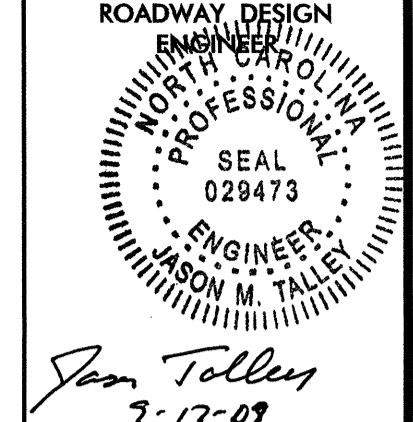
TIP PROJECT: B-3654

CONTRACT: C202260



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
**DESIGN EXCEPTION REQUIRED FOR THE MINIMUM HORIZONTAL CURVE RADIUS, SAG K-VALUE, HORIZONTAL & VERTICAL STOPPING SIGHT DISTANCE.

<p>GRAPHIC SCALES</p> <p>50 0 50 100 PLANS</p> <p>50 0 50 100 PROFILE (HORIZONTAL)</p> <p>10 0 10 20 PROFILE (VERTICAL)</p>	<p>DESIGN DATA</p> <p>ADT 2009 = 7,250 ADT 2030 = 11,800 DHV = 10 % D = 60 % T = 8 % * V = 60 MPH * TTST 4% DUAL 4% RURAL MAJOR COLLECTOR</p>	<p>PROJECT LENGTH</p> <p>LENGTH ROADWAY TIP PROJECT B-3654 = 0.258 MI. LENGTH STRUCTURE TIP PROJECT B-3654 = 0.037 MI. TOTAL LENGTH OF TIP PROJECT B-3654 = 0.295 MI.</p>	<p>Prepared In the Office of:</p> <p>DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610</p> <p>2006 STANDARD SPECIFICATIONS</p> <p>RIGHT OF WAY DATE: DECEMBER 19, 2008</p> <p>LETTING DATE: DECEMBER 15, 2009</p> <p>TONY HOUSER, PE PROJECT ENGINEER</p> <p>JASON TALLEY, PE PROJECT DESIGN ENGINEER</p>	<p>HYDRAULICS ENGINEER</p> <p>ROADWAY DESIGN ENGINEER</p> <p>Professional Engineer Seal: STEVEN M. BONDORP, 12786, 029473, dated 9-22-09.</p> <p>Professional Engineer Seal: JASON M. TALLEY, 029473, dated 9-17-09.</p>	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA</p> <p>Professional Engineer Seal: STATE OF NORTH CAROLINA, DEPARTMENT OF TRANSPORTATION.</p> <p>Signature: [Signature]</p> <p>STATE HIGHWAY DESIGN ENGINEER</p>
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EFF. 07-18-06
REV. 01-02-07

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, WEDGING DETAIL
2-A	DETAIL SHOWING DETOUR FOR BRIDGE 29
2-B	DETAIL SHOWING DETOUR FOR BRIDGE 53
2-C THRU 2-D	DETAIL SHOWING METHOD OF PIPE INSTALLATION
2-E	DETAIL SHOWING ANCHORAGE FOR FRAMES
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY.
3-B	SUMMARY OF EARTHWORK, PAVEMENT REMOVAL SUMMARY, SHOULDER BERM GUTTER SUMMARY, TEMPORARY GUARDRAIL SUMMARY
3-C	PARCEL INDEX
4 THRU 5	PLAN SHEETS
6 THRU 7	PROFILE SHEETS
TCP-1 THRU TCP-4	TRAFFIC CONTROL PLANS
PM-1 THRU PM-3	PAVEMENT MARKING PLANS
EC-1 THRU EC-9	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-5	SIGNING PLANS
UC-1 THRU UC-4	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-3	UTILITY BY OTHERS PLANS
X-0	CROSS-SECTION SUMMARY
X-1 THRU X-16	CROSS-SECTIONS
S-1 THRU S- 37	STRUCTURE PLANS

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 11.

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.

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

END BENTS:
THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE
Water - Sampson County
Telephone - Embarq
Electric - Progress Energy

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
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 Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
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
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

8/17/99

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Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Property Corner	⊕
Property Monument	□
Parcel/Sequence Number	(123)
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 UG 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	---JS---
Buffer Zone 1	---BZ 1---
Buffer Zone 2	---BZ 2---
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	---WLB---
Proposed Lateral, Tail, Head Ditch	---FLOW---
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 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	---T---
Proposed Guardrail	---T---
Existing Cable Guiderail	---T---
Proposed Cable Guiderail	---T---
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	⌋ 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	⊕
UG Power Cable Hand Hole	⊕
H-Frame Pole	●
Recorded UG Power Line	---P---
Designated UG Power Line (S.U.E.*)	---P---

TELEPHONE:

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

WATER:

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

TV:

TV Satellite Dish	⊕
TV Pedestal	⊕
TV Tower	⊕
UG TV Cable Hand Hole	⊕
Recorded UG TV Cable	---TV---
Designated UG TV Cable (S.U.E.*)	---TV---
Recorded UG Fiber Optic Cable	---TV FO---
Designated UG Fiber Optic Cable (S.U.E.*)	---TV FO---

GAS:

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

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
UG 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 UG Line	---ZUTL---
UG Tank; Water, Gas, Oil	▭
A/G Tank; Water, Gas, Oil	▭
UG Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

SURVEY CONTROL SHEET B-3654

PROJECT REFERENCE NO.	SHEET NO.
B-3654	1-C
Location and Surveys	



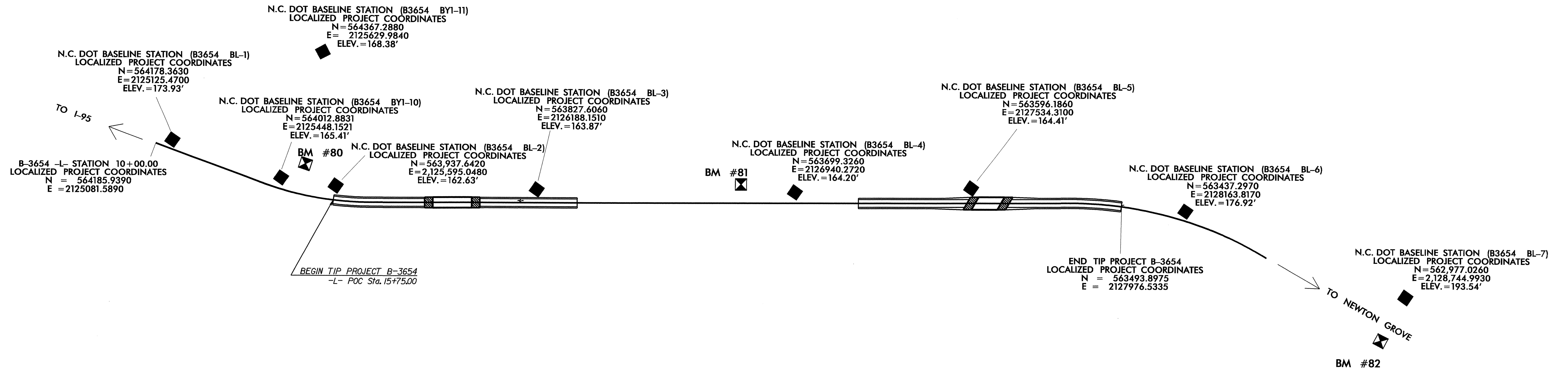
BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B3654 -BL1-	564178.3630	2125125.4700	173.93	10+41.68	15.67 LT
10	B3654 -BY1-10	564012.8831	2125448.1521	165.41	14+06.22	33.71 LT
2	B3654 -BL2-	563937.6420	2125595.0480	162.63	15+74.96	17.27 LT
3	B3654 -BL3-	563827.6060	2126188.1510	163.87	21+80.47	16.08 LT
4	B3654 -BL4-	563699.3260	2126940.2720	164.20	29+43.45	16.82 LT
5	B3654 -BL5-	563596.1860	2127534.3100	164.41	35+46.38	15.62 LT
6	B3654 -BL6-	563437.2970	2128163.8170	176.92	41+93.40	18.78 LT
7	B3654 -BL7-	562977.0260	2128744.9930	193.54	OUTSIDE PROJECT LIMITS	

BY1 POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
11	B3654 -BY1-11	564367.2880	2125629.9840	168.38	OUTSIDE PROJECT LIMITS	
10	B3654 -BY1-10	564012.8831	2125448.1521	165.41	12+94.19	5.37 LT

.....
 80 ELEVATION = 165.01
 N 564043 E 2125523
 L STATION 14+66 92 LEFT
 R/R SPIKE IN BASE OF 20' GUM TREE

.....
 81 ELEVATION = 161.61
 N 563755 E 2126845
 L STATION 28+40 56 LEFT
 P.K. NAIL IN CORNER OF CONCRETE SLAB

.....
 82 ELEVATION = 195.43
 N 562938 E 2128739
 L STATION 49+32
 S 10° 11' 39.9" E DIST 27.01
 R/R SPIKE IN BASE OF 30' PINE TREE



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "DUNN 1949" WITH NAD 1983 STATE PLANE GRID COORDINATES OF NORTHING: 567261.5426(ft) EASTING: 2116090.0329(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999868800 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "DUNN 1949" TO -L- STATION 15+00.00 IS S 70° 37' 20.34" E 9,995.3261' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

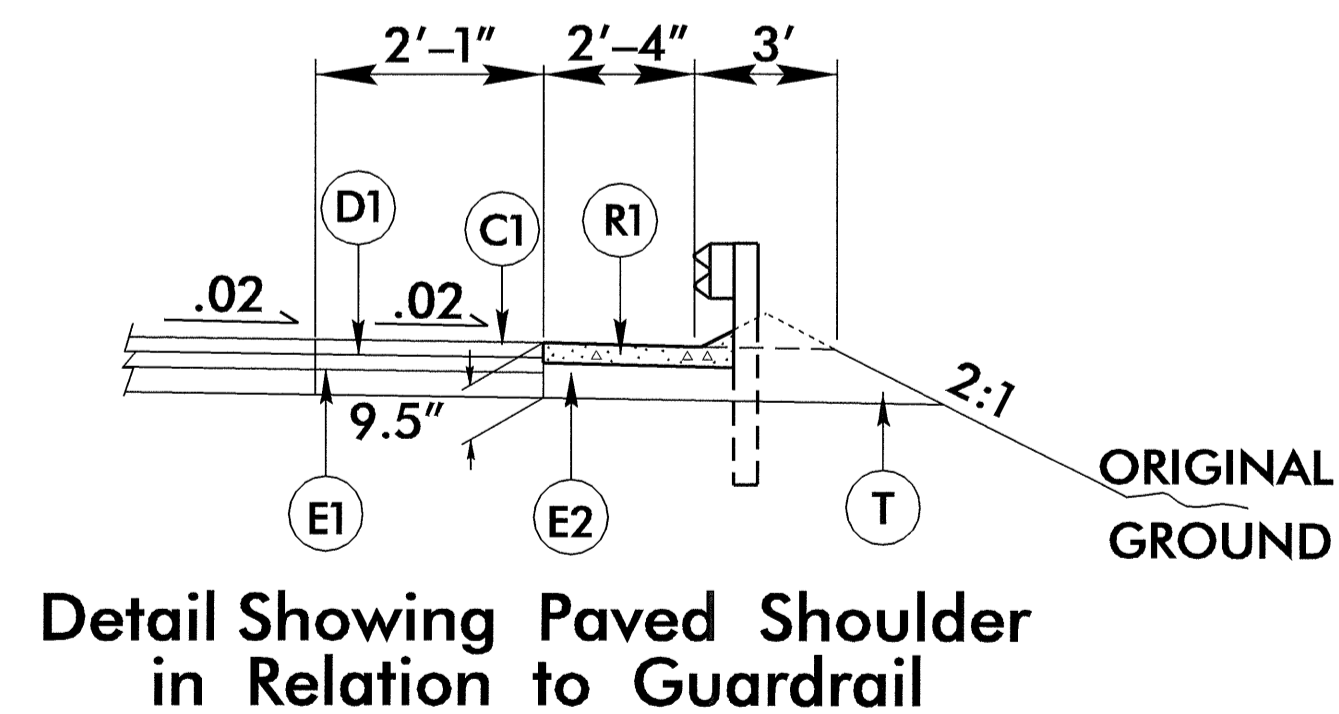
NOTES:

- 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:
 B3654_LS_CONTROL_080826.TXT
 SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

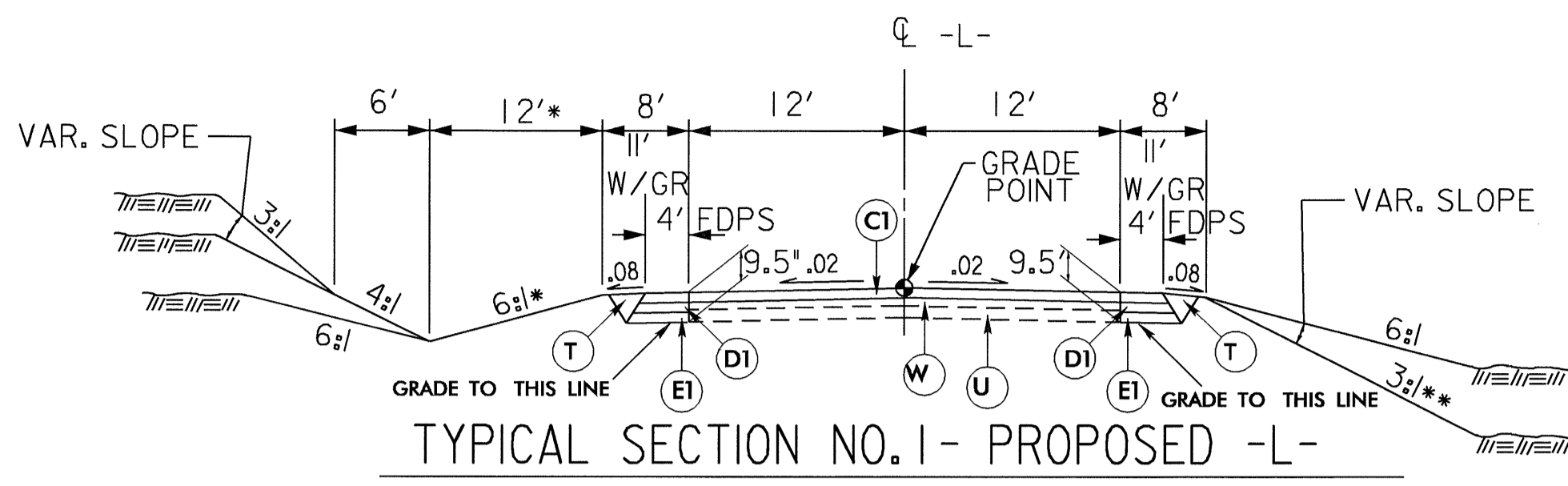
PAVEMENT SCHEDULE	
A1	CONCRETE WEARING SURFACE (STRUCTURE PAY ITEM)
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
P	PRIME COAT AT A RATE OF .35 GAL. PER SQ. YARD.
R1	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.



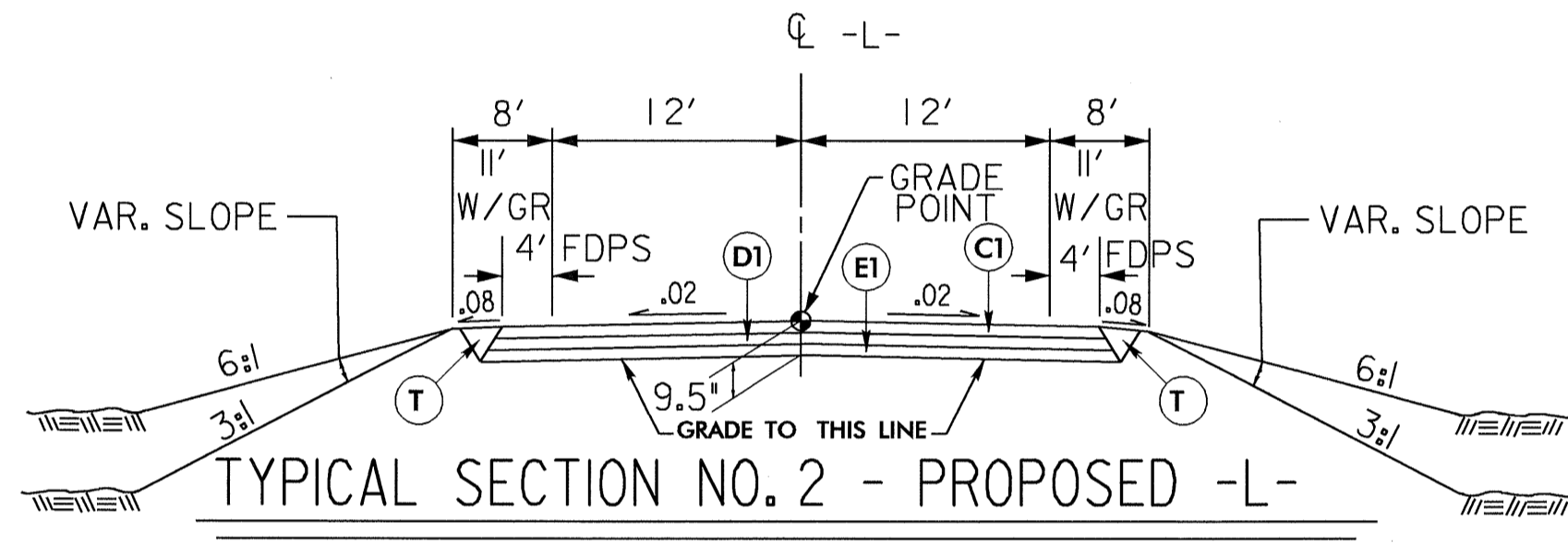
USE SHOULDER BERM GUTTER FOR THE FOLLOWING:

- L- STA 18+22.00 TO -L- STA 18+44.00 (RT. BRIDGE NO.29)
- L- STA 18+22.00 TO -L- STA 18+44.00 (LT. BRIDGE NO. 29)
- L- STA 19+98.00 (RT. BRIDGE NO. 29) TO -L- STA 20+20.00
- L- STA 19+98.00 (LT. BRIDGE NO. 29) TO -L- STA 20+20.00
- L- STA 34+97.00 TO -L- STA 35+13.44 (RT. BRIDGE NO.53)
- L- STA 34+97.00 TO -L- STA 35+28.76 (LT. BRIDGE NO. 53)
- L- STA 36+51.51 (RT. BRIDGE NO. 53) TO -L- STA 36+83.00
- L- STA 36+66.29 (LT. BRIDGE NO. 53) TO -L- STA 36+83.00

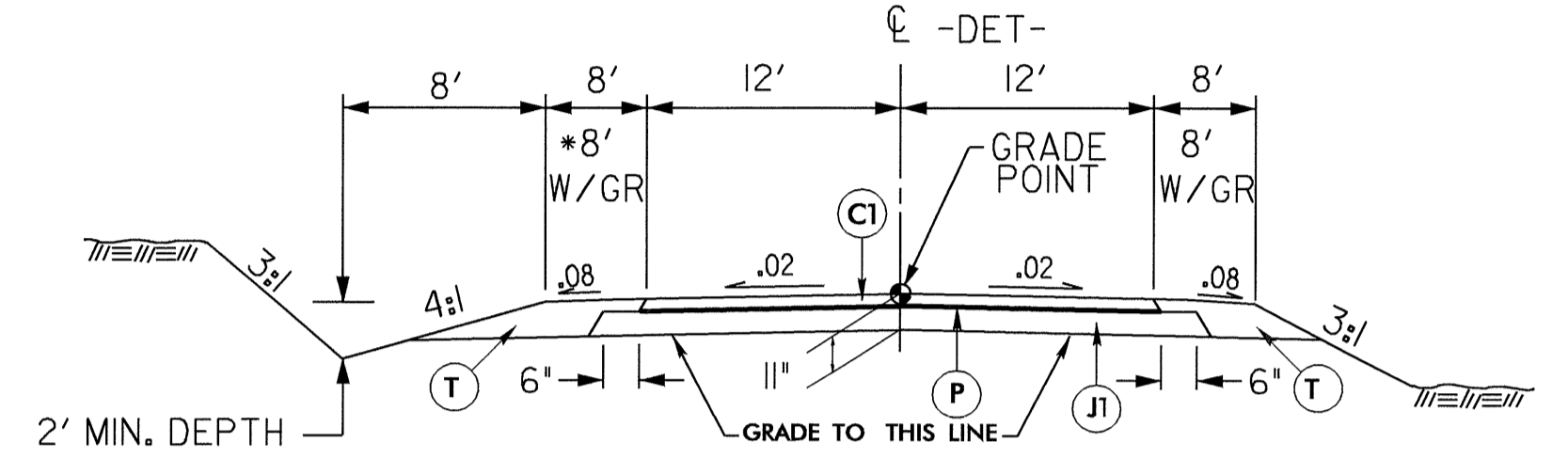


-L- STA. 15+75.00 TO -L- STA. 18+14.00
 -L- STA. 20+28.00 TO -L- STA. 23+25.00
 -L- STA. 31+90.00 TO -L- STA. 34+88.00
 -L- STA. 36+92.00 TO -L- STA. 40+00.00

*NOTE: USED 4:1 SLOPE AND 8' DITCH FROM -L- STA. 37+50.00 TO -L- STA. 40+00.00 RT.
 **NOTE: USED 2:1 FILL SLOPE FROM -L- STA. 36+90.00 TO -L- STA. 38+00.00 LT.

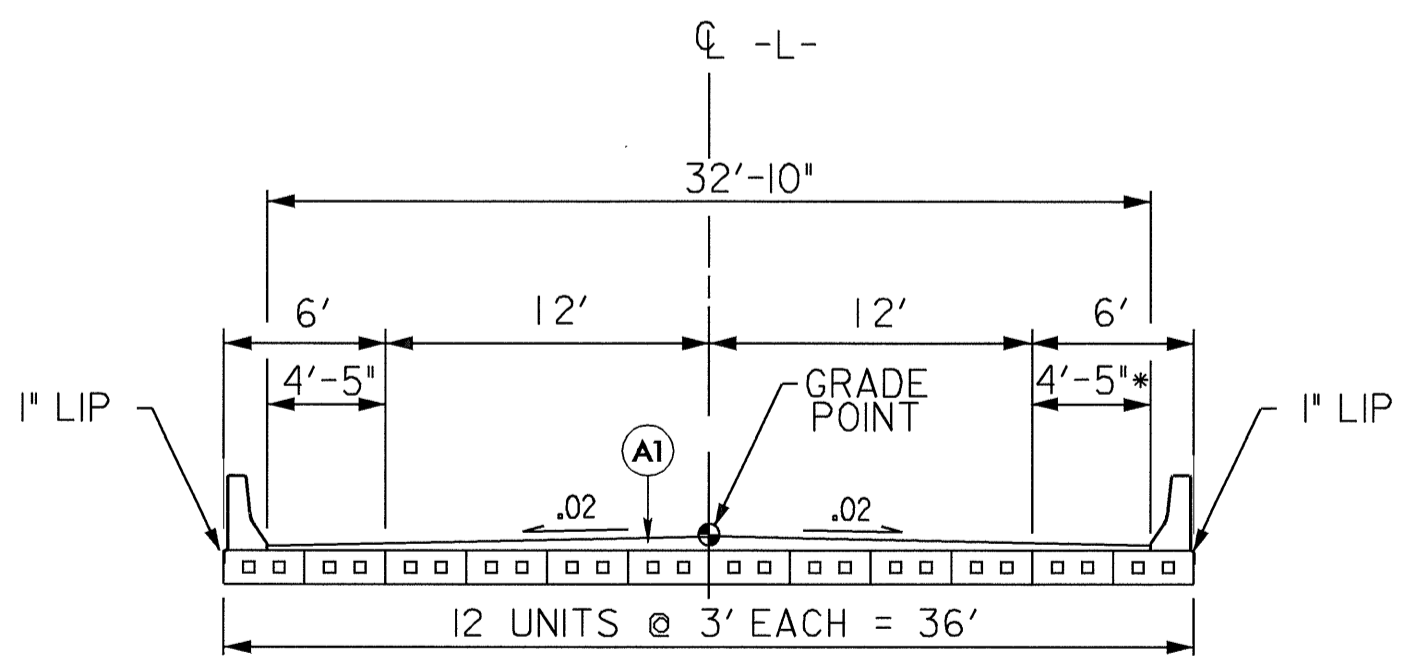


-L- STA. 18+14.00 TO -L- STA. 18+68.00 (BEGIN BRIDGE 29)
 -L- STA. 19+74.00 (END BRIDGE 29) TO -L- STA. 20+28.00
 -L- STA. 34+88.00 TO -L- STA. 35+45.00 (BEGIN BRIDGE 53)
 -L- STA. 36+35.00 (END BRIDGE 53) TO -L- STA. 36+92.00



TYPICAL SECTION NO. 4 - DETOUR

- DET29- STA. 12+44.60 TO -DET29- STA. 15+46.00 (BEGIN BRIDGE)
- DET29- STA. 16+36.00 (END BRIDGE) TO -DET29- STA. 18+90.95
- DET53- STA. 11+44.19 TO -DET53- STA. 14+09.00 (BEGIN BRIDGE)
- DET53- STA. 14+79.00 (END BRIDGE) TO -DET53- STA. 17+75.93
- *GUARDRAIL TO BE PLACED 6' OFF EDGE OF TRAVEL LANE

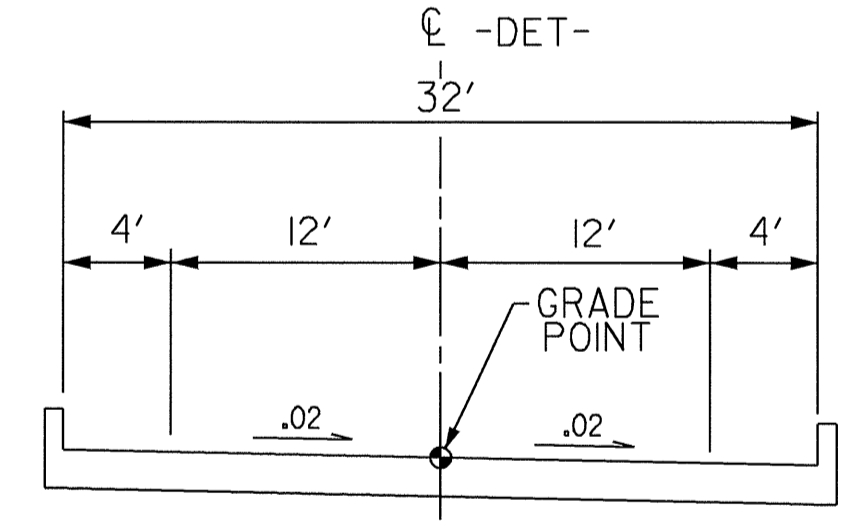


TYPICAL SECTION NO. 3 - PROPOSED -L-

BRIDGE NO. 29
 -L- STA. 18+68.00 TO -L- STA. 19+74.00

BRIDGE NO. 53
 -L- STA. 35+45.00 TO -L- STA. 36+35.00

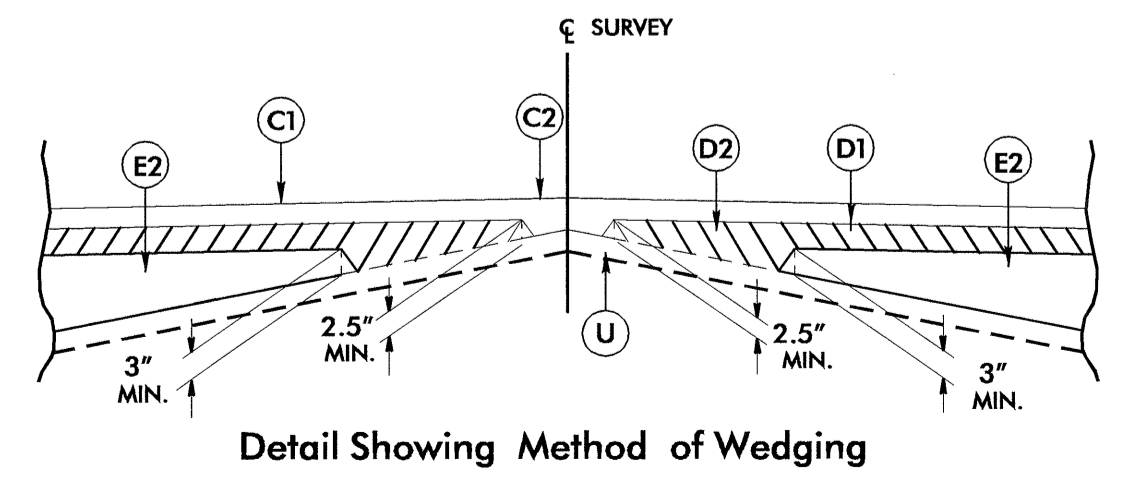
*OFFSET INCREASED TO ACCOMMODATE PROPOSED 4'-4.85' HYDRAULIC SPREAD.



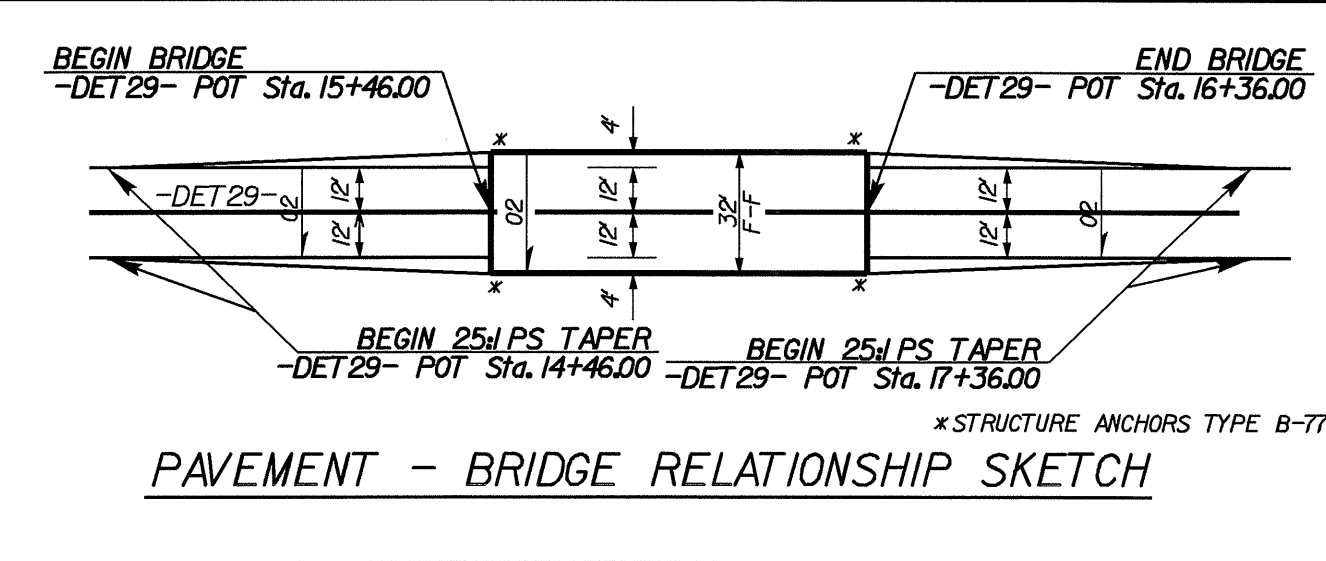
TYPICAL SECTION NO. 5 - DETOUR

BRIDGES NO. 29 & 53

- DET29- STA. 15+46.00 TO -DET29- STA. 16+36.00
- DET53- STA. 14+09.00 TO -DET53- STA. 14+79.00



PROJECT REFERENCE NO. B-3654	SHEET NO. 2-A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER JASON M. TALLEY SEAL 029473 7-17-09	HYDRAULICS ENGINEER STEVEN M. BONDOUR SEAL 12786 9-22-09

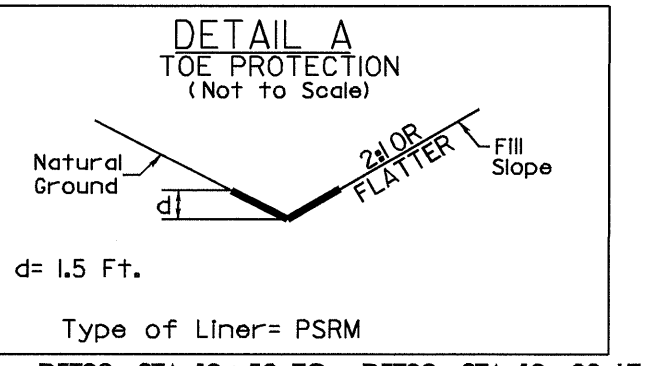


-DET29- CURVE DATA

PI Sta 11+99.36 Δ = 31° 09' 32.5" (LT) D = 8' 00' 48.2" L = 388.84' T = 199.36' R = 715.00' SE = 0.04 RO = 92' V = 45 MPH	PI Sta 14+54.54 Δ = 10° 30' 00.0" (RT) D = 8' 00' 48.2" L = 131.03' T = 65.70' R = 715.00' SE = 0.04 RO = 92' V = 45 MPH	PI Sta 17+66.84 Δ = 14° 30' 00.0" (RT) D = 8' 00' 48.2" L = 180.95' T = 90.96' R = 715.00' SE = 0.04 RO = 92' V = 45 MPH	PI Sta 19+47.78 Δ = 14° 30' 00.0" (LT) D = 8' 00' 48.2" L = 180.95' T = 90.96' R = 715.00' SE = 0.04 RO = 92' V = 45 MPH
---	--	--	--

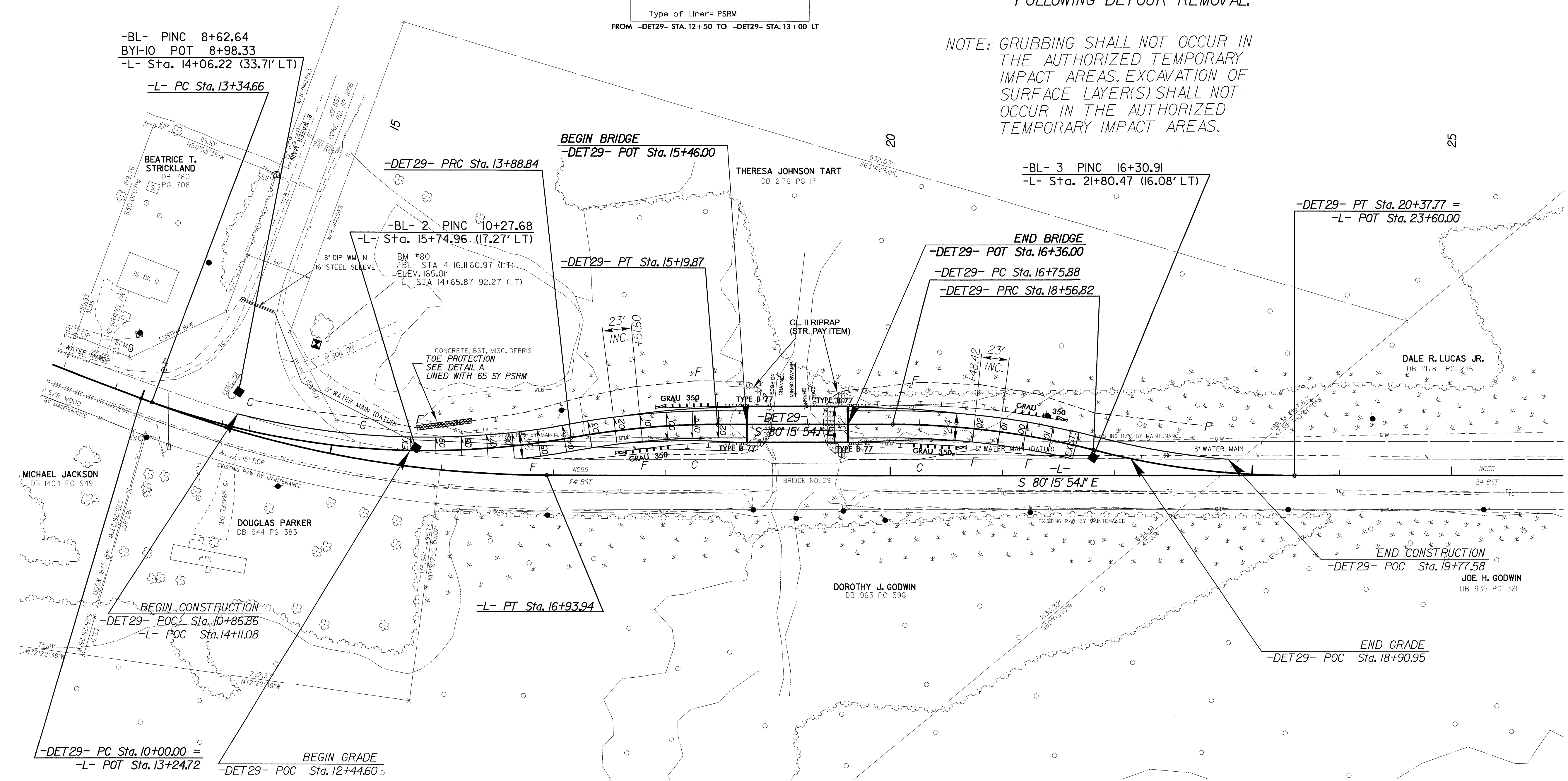
-L- CURVE DATA

PI Sta 15+16.27 Δ = 20° 39' 32.5" (LT) D = 5' 45' 00.0" L = 359.29' T = 181.62' R = 996.45' SE = 0.06 RO = 162' V = 54 MPH
--



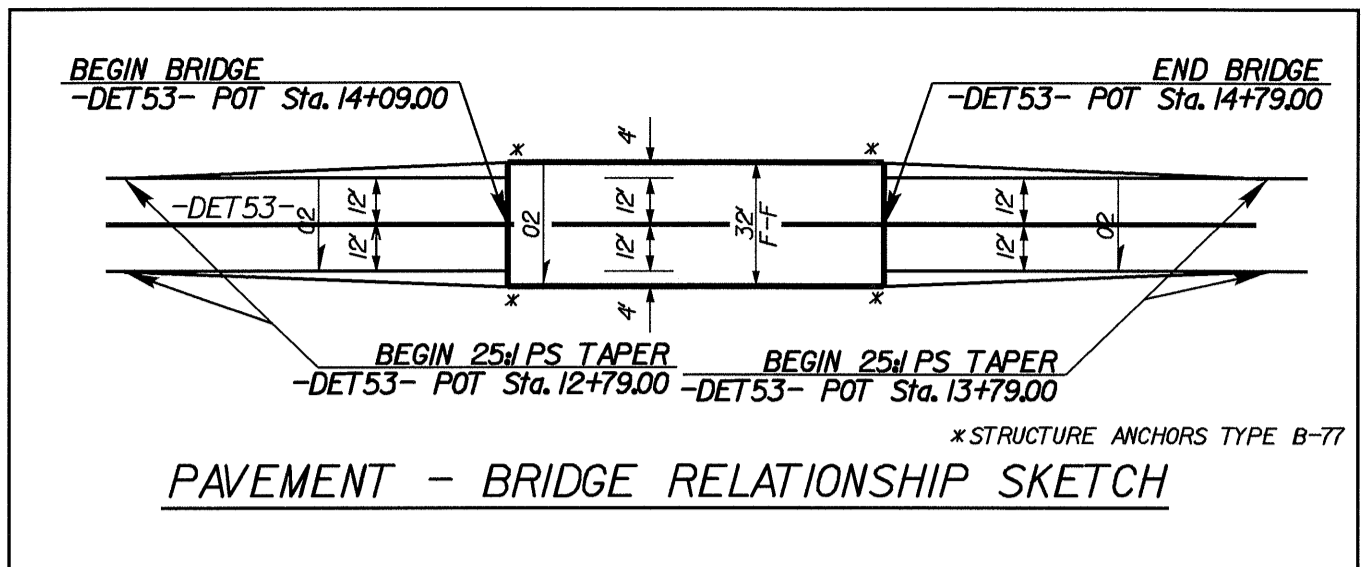
NOTE: ABC TO BE RETAINED BY DIVISION FOLLOWING DETOUR REMOVAL.

NOTE: GRUBBING SHALL NOT OCCUR IN THE AUTHORIZED TEMPORARY IMPACT AREAS. EXCAVATION OF SURFACE LAYER(S) SHALL NOT OCCUR IN THE AUTHORIZED TEMPORARY IMPACT AREAS.



SEE SHEET 6 FOR -L- & -DET29- PROFILES

08-SEP-2009 11:31 R:\Roadway\PROJECTS\B3654_rdy.dtl.2a.dgn

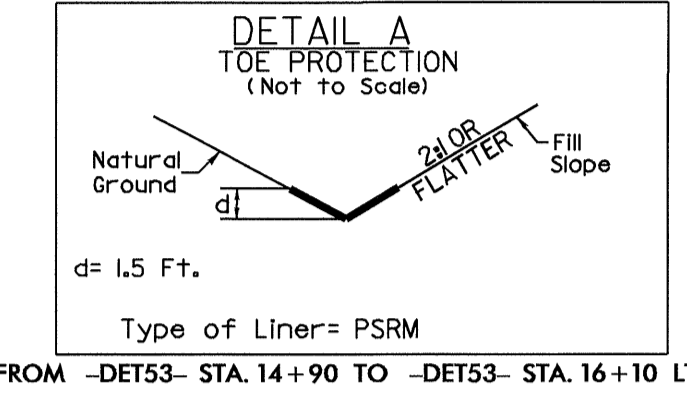


-DET53- CURVE DATA

PI Sta	Δ	D	L	T	R	SE	RO	V
10+89.90	14° 20' 00.0" (LT)	8° 00' 48.2"	178.87'	89.90'	715.00'	0.04	92'	45 MPH
12+68.77	14° 20' 00.0" (RT)	8° 00' 48.2"	178.87'	89.90'	715.00'	0.04	92'	45 MPH
16+11.04	12° 30' 00.0" (RT)	8° 30' 48.2"	155.99'	78.31'	715.00'	0.04	92'	45 MPH

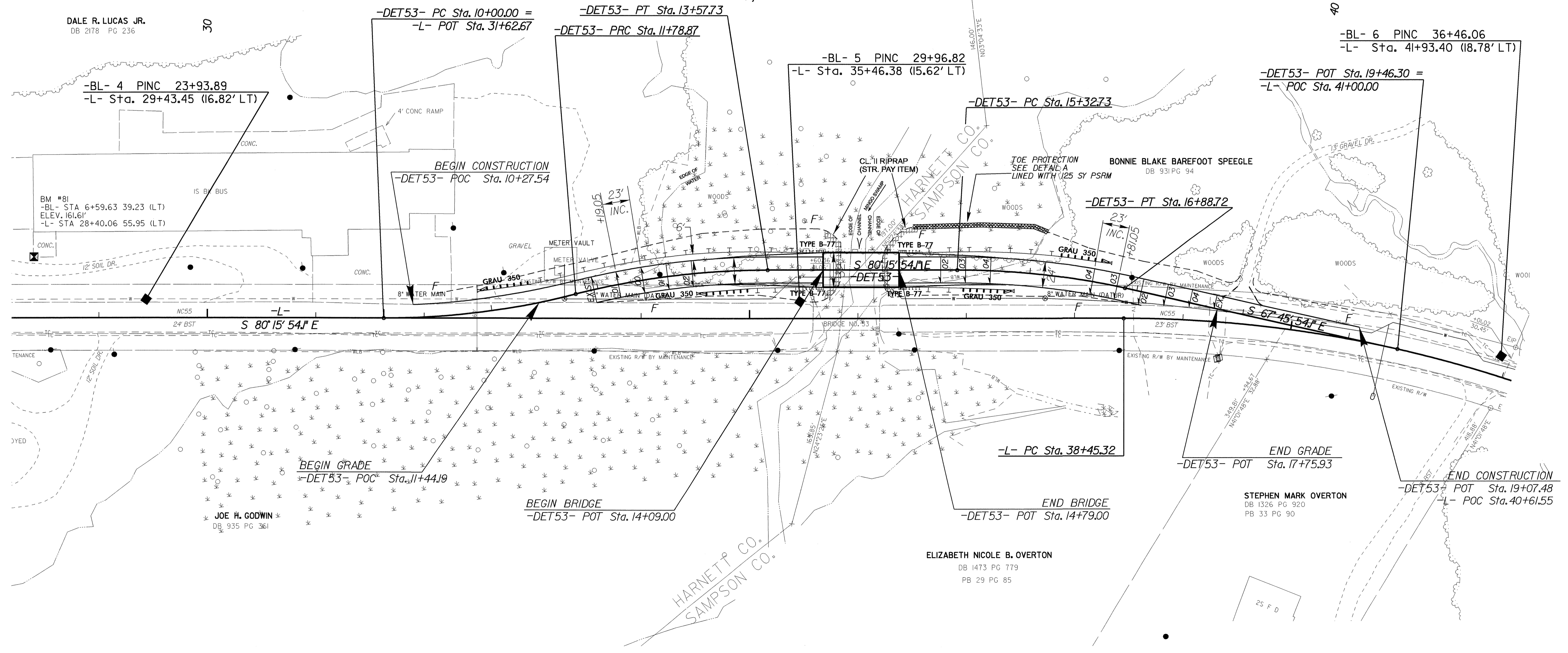
-L- CURVE DATA

PI Sta	Δ	D	L	T	R	SE	RO	V
41+69.69	31° 36' 34.5" (RT)	5° 00' 00.0"	632.19'	324.37'	1,145.92'	0.06	162'	57 MPH



NOTE: ABC TO BE RETAINED BY DIVISION FOLLOWING DETOUR REMOVAL.

NOTE: GRUBBING SHALL NOT OCCUR IN THE AUTHORIZED TEMPORARY IMPACT AREAS. EXCAVATION OF SURFACE LAYER(S) SHALL NOT OCCUR IN THE AUTHORIZED TEMPORARY IMPACT AREAS.



SEE SHEET 7 FOR -L- & -DET53- PROFILES

8/17/09
 REVISIONS
 08-SEP-2009 11:31
 R:\Roadway\Projects\B3654_rdy-dt1-2b.dgn
 JOE H. CODWIN DB 935 PG 361
 ELIZABETH NICOLE B. OVERTON DB 1473 PG 779 PB 29 PG 85
 STEPHEN MARK OVERTON DB 1326 PG 920 PB 33 PG 90

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 FLEXIBLE PIPE

SHEET 1 OF 3
300D01

NORMAL EARTH FOUNDATION

ROCK FOUNDATION PIPE IN TRENCH

UNSUITABLE MATERIAL FOUNDATION

NORMAL EARTH FOUNDATION

ROCK FOUNDATION PIPE ABOVE GROUND

UNSUITABLE MATERIAL FOUNDATION

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 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.

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 RIGID PIPE

SHEET 2 OF 3
300D01

NORMAL EARTH FOUNDATION

ROCK FOUNDATION PIPE IN TRENCH

UNSUITABLE MATERIAL FOUNDATION

NORMAL EARTH FOUNDATION

ROCK FOUNDATION PIPE ABOVE GROUND

UNSUITABLE MATERIAL FOUNDATION

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
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 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.

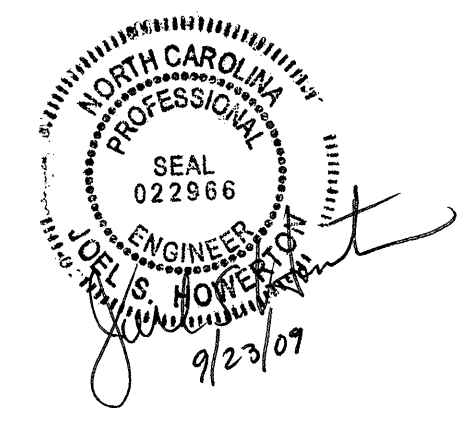
DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

----- 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.

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

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf	DATE: 5-15-09
MODIFIED BY: <i>[Signature]</i>	DATE: 7/29/09
CHECKED BY: <i>[Signature]</i>	DATE: 7/29/09
FILE SPEC: erward/stds/stdstodetails/300001/0300d01.dgn	



STATE OF
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 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

7-06

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	14	12	10	9
12	12	204	256				
15	12	162	204				
18	12	135	169	239			
21	12	115	145	204			
24	12	100	126	178			
30	12	79	100	142			
36	12	65	83	117	152		
42	12	55	70	100	130	160	
48	12	48	61	87	113	139	
54	12	54	77	100	123		
60	12		69		90	111	
66	12				81	100	
72	12				74	91	
78	12					81	
84	12					69	

- 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

RIGID PIPE

- 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

Round Corrugated Aluminum Pipe 2 2/3 x 1/2 corrugation **							
Diameter (Inches)	Minimum cover (Inches)	(Ga)	16	14	12	10	9
12	12	123	155	218	281	344	
15	12	98	123	174	224	275	
18	12	81	102	144	187	228	
21	12	69	87	123	160	195	
24	12	60	76	108	139	171	
27	12		67	95	123	151	
30	12		60	85	111	136	
36	12		50		71	92	113
42	12				60	78	96
48	12				52	68	84
54	12				46	50	74
60	12					50	62
66	12						51
72	12						41

** 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

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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7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

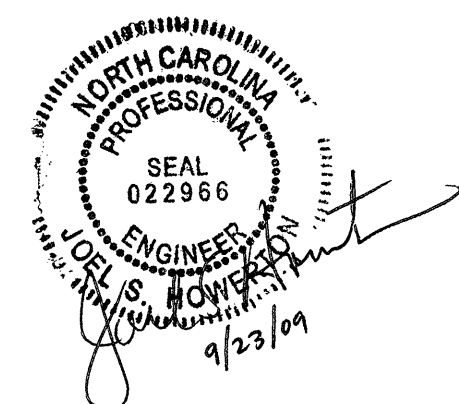
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

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

SEE PLATE FOR TITLE

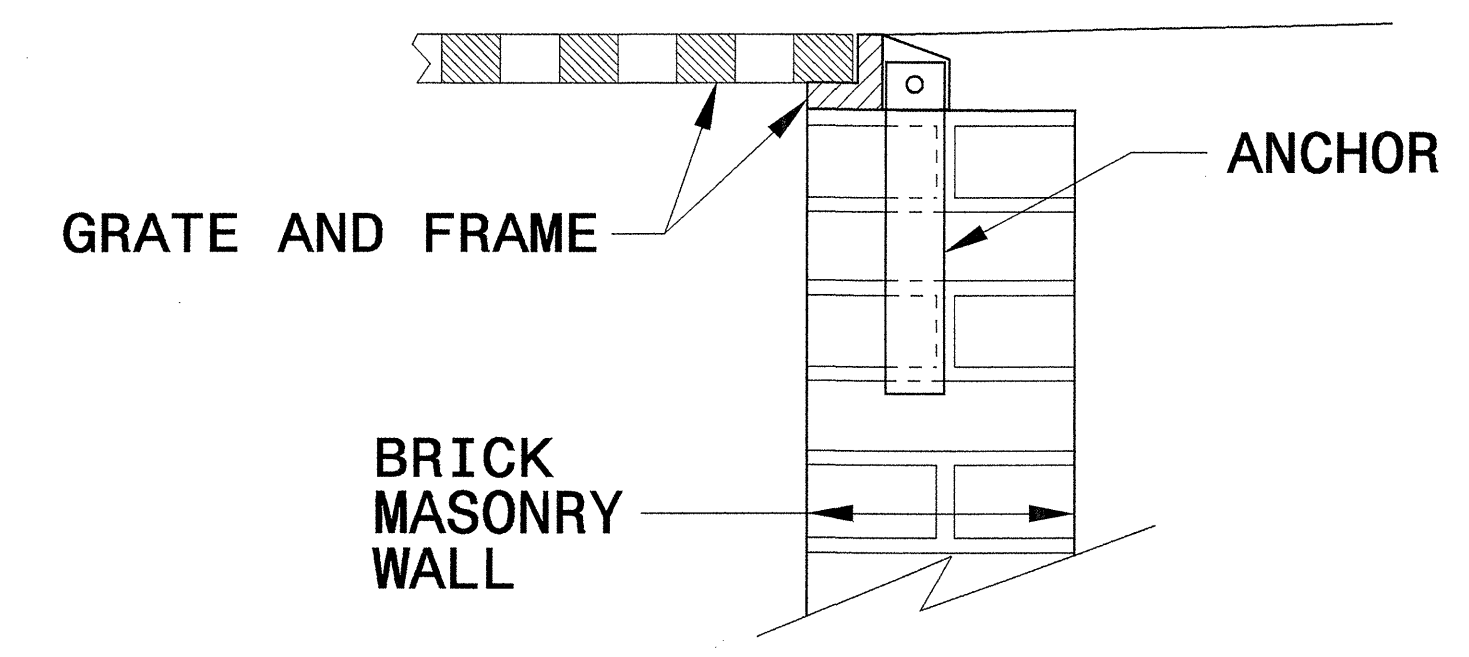
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 CHECKED BY: DATE: 7/30/09
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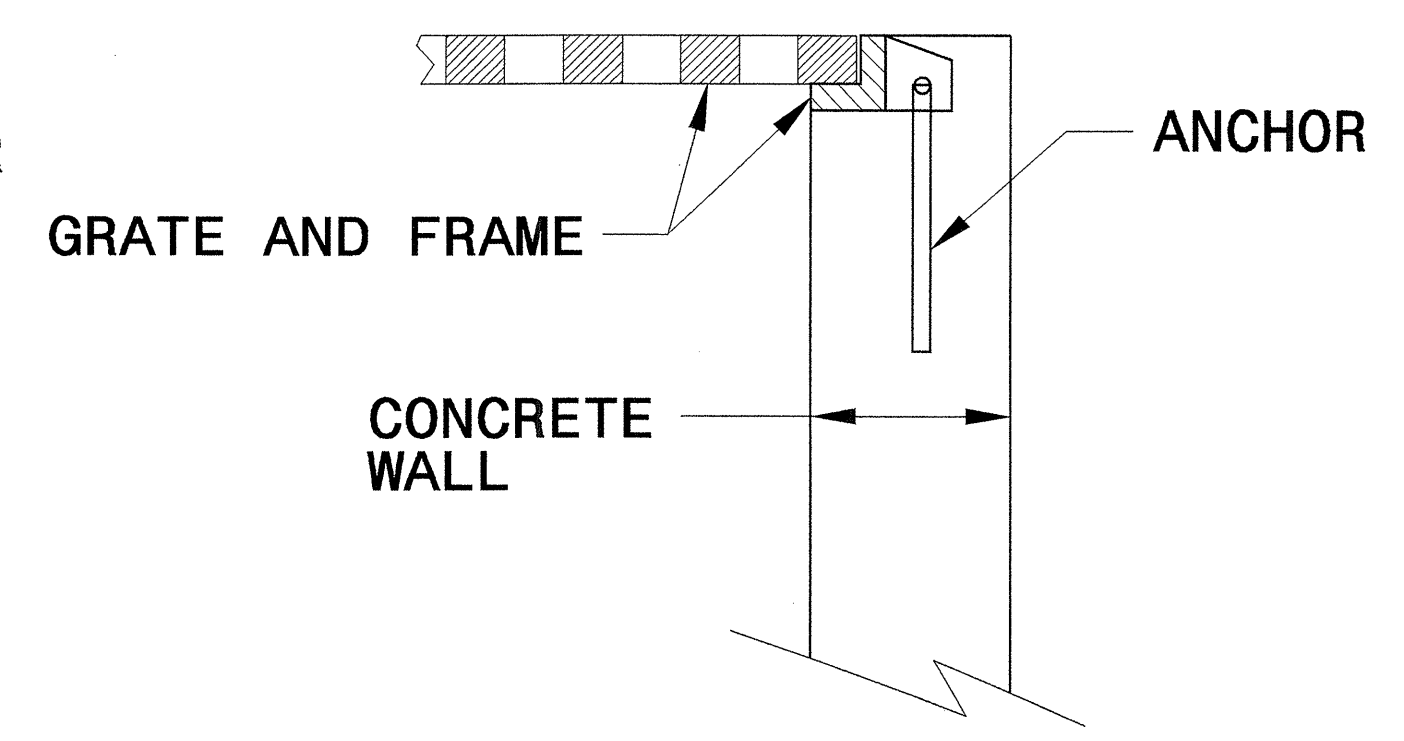
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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

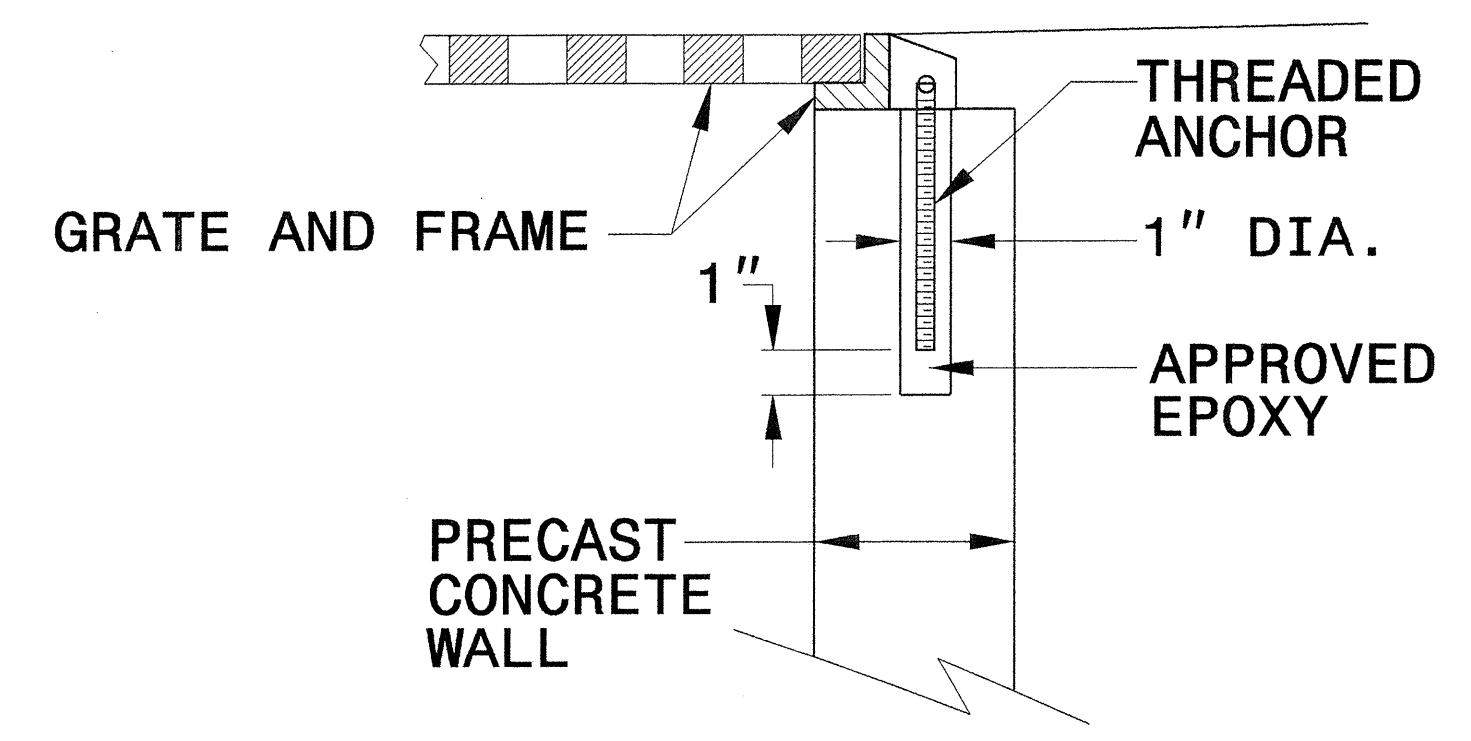
SHEET 1 OF 1
840D25



**BRICK MASONRY
CONSTRUCTION**



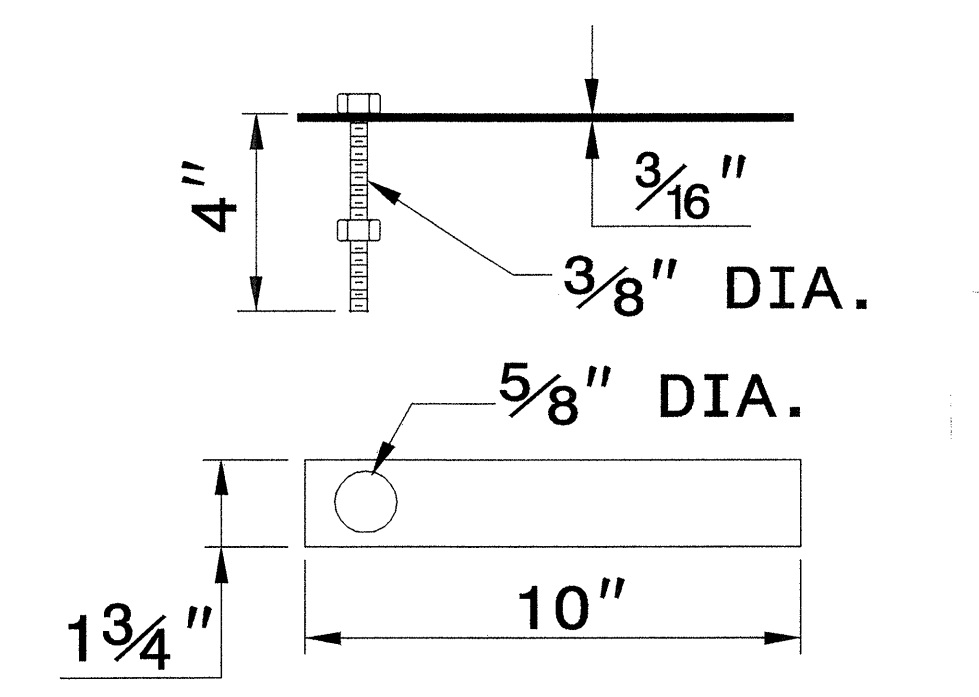
**CONCRETE
CONSTRUCTION**



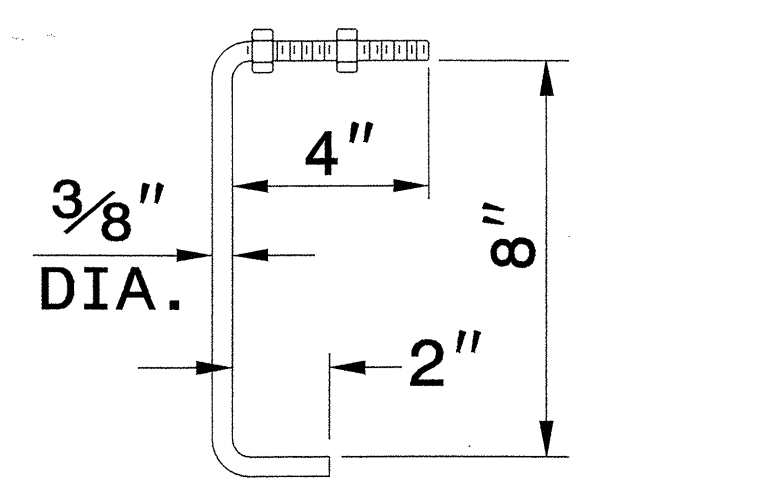
**PRECAST CONCRETE
CONSTRUCTION**

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

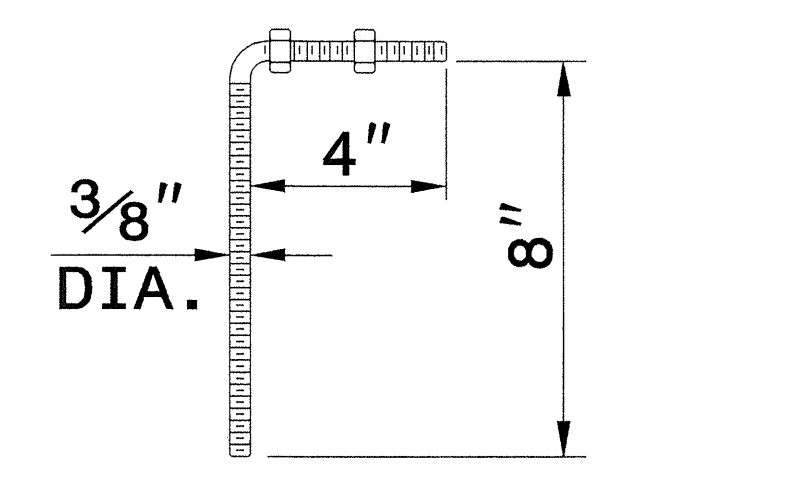
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL
OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



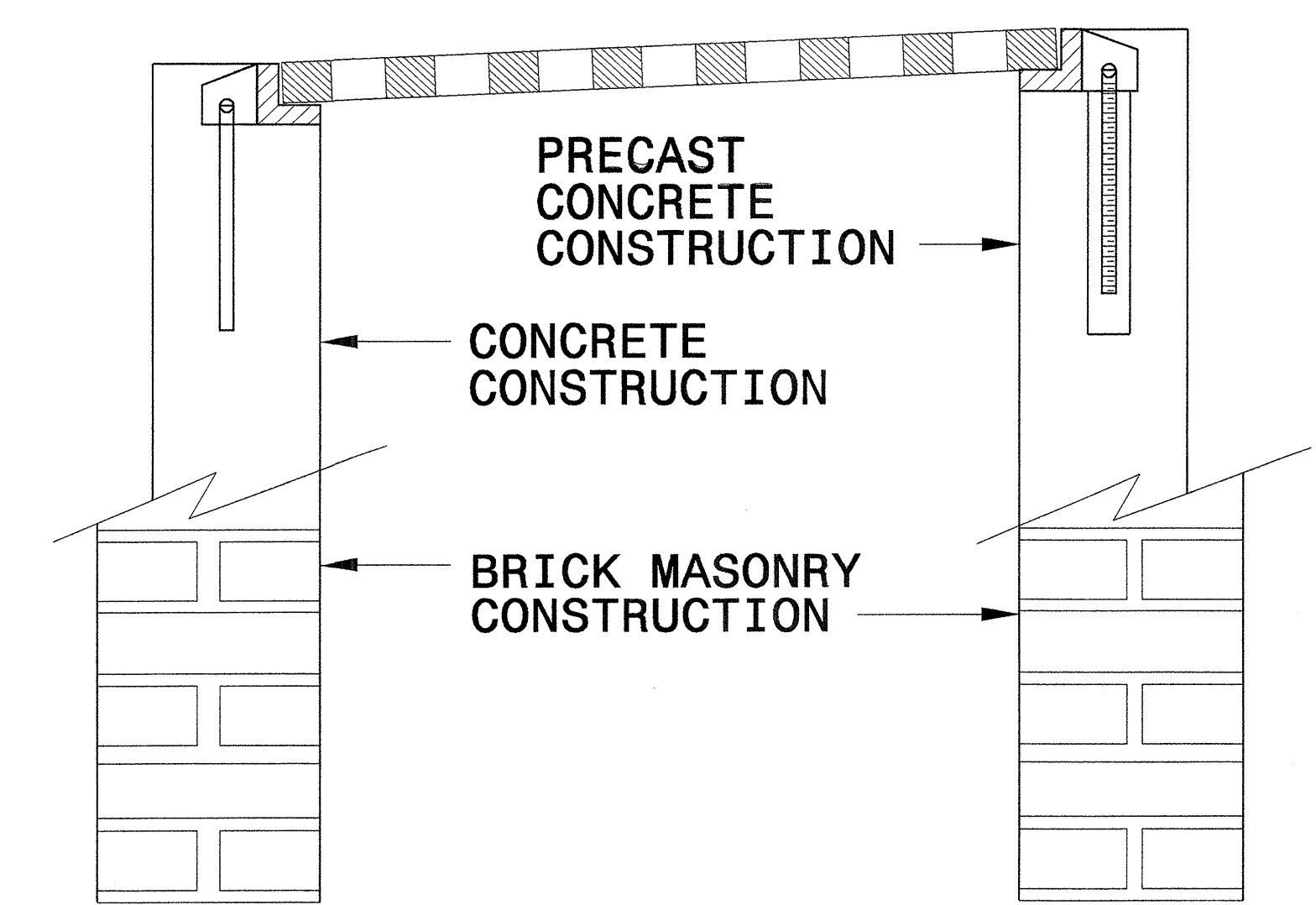
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



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



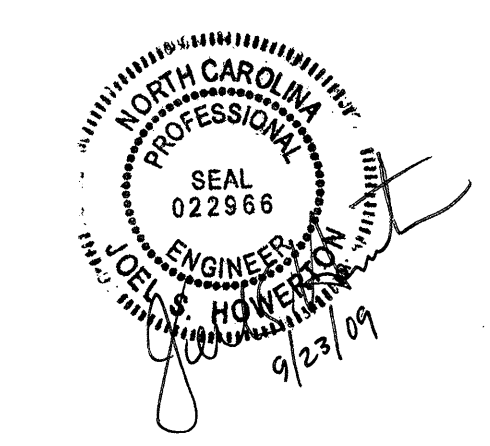
**FRAME AND GRATE INSTALLATION
FOR NORMAL CROWN AND
SUPERELEVATED SECTIONS**

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

PLACING \$\$\$\$\$\$
DRAWING \$\$\$\$\$\$
CONSTRUCTION \$\$\$\$\$\$
CUSTODIAN \$\$\$\$\$\$



**PROJECT SERVICES UNIT
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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: *Justus* DATE: 11/3/08
 FILE SPEC.: *Justus*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF QUANTITIES

ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202260

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION	443000000-N	1130	70	EA	DRUMS
000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING	443500000-N	1135	30	EA	CONES
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (19+21.00 -L-)	444500000-E	1145	70	LF	BARRICADES (TYPE III)
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (35+90.00 -L-)	445500000-N	1150	200	MD	FLAGGER
003600000-E	225	1,500	CY	UNDERCUT EXCAVATION	465000000-N	1251	180	EA	TEMPORARY RAISED PAVEMENT MARKERS
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB- BING	468500000-E	1205	3,158	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
006300000-N	SP	Lump Sum		GRADING	468600000-E	1205	3,091	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
010600000-E	230	14,450	CY	BORROW EXCAVATION	477000000-E	1205	784	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (II)
019400000-E	SP	1,500	CY	SELECT GRANULAR MATERIAL, CLASS III	481000000-E	1205	24,160	LF	PAINT PAVEMENT MARKING LINES (4")
019600000-E	270	5,000	SY	FABRIC FOR SOIL STABILIZATION	485000000-E	1205	2,800	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
031800000-E	300	70	TON	FOUNDATION CONDITIONING MATE- RIAL, MINOR STRS	488000000-E	1205	588	LF	CURING COMPOUND REMOVAL, LINES
032000000-E	SP	80	SY	FOUNDATION CONDITIONING FABRIC	490000000-N	1251	25	EA	PERMANENT RAISED PAVEMENT MARKERS
036600000-E	310	112	LF	15" RC PIPE CULVERTS, CLASS III	532580000-E	1510	1,233	LF	8" WATER LINE
070800000-E	310	106	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK	554600000-E	1515	3	EA	8" VALVE
080600000-E	310	8	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK	564800000-N	1515	1	EA	RELOCATE WATER METER
112100000-E	520	1,700	TON	AGGREGATE BASE COURSE	565621000-E	1515	1	EA	RELOCATE 2" RPZ BACK-FLOW PRE- VENTOR
122000000-E	545	50	TON	INCIDENTAL STONE BASE	580100000-E	1530	1,034	LF	ABANDON 8" UTILITY PIPE
127500000-E	600	1,190	GAL	PRIME COAT	587150000-E	1550	226	LF	TRENCHLESS INSTALLATION OF 8" IN SOIL
133000000-E	607	600	SY	INCIDENTAL MILLING	587151000-E	1550	226	LF	TRENCHLESS INSTALLATION OF 8" NOT IN SOIL
148900000-E	610	810	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	600000000-E	1605	8,000	LF	TEMPORARY SILT FENCE
149800000-E	610	630	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	600600000-E	1610	675	TON	STONE FOR EROSION CONTROL, CLASS A
151900000-E	610	1,330	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	600900000-E	1610	455	TON	STONE FOR EROSION CONTROL, CLASS B
156000000-E	620	145	TON	ASPHALT BINDER FOR PLANT MIX, GRADE FG 64-22	601200000-E	1610	550	TON	SEDIMENT CONTROL STONE
169300000-E	654	23	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	601500000-E	1615	11.5	ACR	TEMPORARY MULCHING
228600000-N	840	8	EA	MASONRY DRAINAGE STRUCTURES					
236700000-N	840	8	EA	FRAME WITH TWO GRATES, STD 840.29	601800000-E	1620	300	LB	SEED FOR TEMPORARY SEEDING
255600000-E	846	200	LF	SHOULDER BERM GUTTER	602100000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEED- ING
303000000-E	862	1,275	LF	STEEL BM GUARDRAIL	602400000-E	1622	1,300	LF	TEMPORARY SLOPE DRAINS
315000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS	602700000-N	1622	15	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
327000000-N	SP	8	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	602900000-E	SP	14,780	LF	SAFETY FENCE
331700000-N	862	8	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77	603000000-E	1630	485	CY	SILT EXCAVATION
338000000-E	862	750	LF	TEMPORARY STEEL BM GUARDRAIL	603600000-E	1631	14,000	SY	MATTING FOR EROSION CONTROL
338700000-N	862	8	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (B-77)	603700000-E	SP	400	SY	COIR FIBER MAT
338910000-N	SP	12	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY	603800000-E	SP	370	SY	PERMANENT SOIL REINFORCEMENT MAT
364900000-E	876	10	TON	RIP RAP, CLASS B	604200000-E	1632	1,835	LF	1/4" HARDWARE CLOTH
365600000-E	876	1,405	SY	FILTER FABRIC FOR DRAINAGE	607101000-E	SP	270	LF	WATTLE
407200000-E	903	133	LF	SUPPORTS, 3-LB STEEL U-CHANNEL	607102000-E	SP	68	LB	POLYACRYLAMIDE (PAM)
409600000-N	904	2	EA	SIGN ERECTION, TYPE D	607103000-E	SP	585	LF	COIR FIBER BAFFLES
410200000-N	904	3	EA	SIGN ERECTION, TYPE E	608400000-E	1660	10	ACR	SEEDING & MULCHING
410800000-N	904	1	EA	SIGN ERECTION, TYPE F	608700000-E	1660	5.5	ACR	MOWING
411610000-N	904	1	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)	609000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
415500000-N	907	16	EA	DISPOSAL OF SIGN SYSTEM, U- CHANNEL	609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
419200000-N	907	1	EA	DISPOSAL OF SUPPORT, U-CHANNEL	609600000-E	1662	225	LB	SEED FOR SUPPLEMENTAL SEEDING
440000000-E	1110	130	SF	WORK ZONE SIGNS (STATIONARY)	610800000-E	1665	6.5	TON	FERTILIZER TOPDRESSING
440500000-E	1110	150	SF	WORK ZONE SIGNS (PORTABLE)	611450000-N	SP	20	MHR	SPECIALIZED HAND MOWING
441000000-E	1110	75	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	611700000-N	SP	18	EA	RESPONSE FOR EROSION CONTROL
442000000-N	1120	2	EA	CHANGEABLE MESSAGE SIGN	612300000-E	1670	0.75	ACR	REFORESTATION

5/28/99

28-AUG-2009 09:27:36 B-3654_rdlj_sum.dgn

12/06/07

COMPUTED BY: JMT DATE: 1008
 CHECKED BY: RJD DATE: 809

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-3654
 SHEET NO. 3-B

TEMPORARY GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS			IMPACT ATTENUATOR TYPE 350	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TEMP TYPE B-77	TEMP GRAU 350	EA					
-DET29-	14+27.25	15+46.00 (BR.)	RT	118.75				15+46.00 (BR.)	4 TO 5	8	100		2		1	1						
-DET29-	14+64.75	15+46.00 (BR.)	LT	81.25				15+46.00 (BR.)	4 TO 4.25	8		62.5	1.25	1	1	1						
-DET29-	16+36.00 (BR.)	17+42.25	RT	106.25				16+36.00 (BR.)	4 TO 4.75	8		87.5	1.75	1	1	1						
-DET29-	16+36.00 (BR.)	18+29.75	LT	193.75				16+36.00 (BR.)	4 TO 6	8	150		3		1	1						
-DET53-	12+90.25	14+09.00 (BR.)	RT	118.75				14+09.00 (BR.)	4 TO 5	8	100		2		1	1						
-DET53-	10+90.25	14+09.00 (BR.)	LT	318.75				14+09.00 (BR.)	4 TO 6	8		150	3	1	1	1						GUARDRAIL EXTENDED TO PROTECT METER VAULT
-DET53-	14+79.00 (BR.)	15+85.25	RT	106.25				14+79.00 (BR.)	4 TO 4.75	8		87.5	1.75	1	1	1						
-DET53-	14+79.00 (BR.)	16+72.75	LT	193.75				14+79.00 (BR.)	4 TO 6	8	150		3		1	1						
			SUB-TOTAL	1237.50																		
			ANCHOR DEDUCTION	-550.00																		
			TOTAL	687.50																		
			SAY	750											8	8						

ANCHOR DEDUCTION
 TYPE B-77: 8 @ 18.75' = 150'
 TEMP TYPE 350: 8 @ 50' = 400'
 GRAND TOTAL = 550'

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
PHASE 1 DETOUR CONSTRUCTION					
-DET29- 11+81.74	-DET29- 15+46 (BR)	59	1959	1900	
-DET29- 16+36 (BR)	-DET29- 19+77.58	33	2515	2482	
-DET53- 10+27.54	-DET53- 14+09 (BR)	26	2125	2099	
-DET53- 14+79 (BR)	-DET53- 19+07.48	25	2355	2330	
PHASE 1 SUBTOTALS:		143	8954	8811	
PHASE 2 -L- CONSTRUCTION					
-L- 15+75.00	-L- 18+68.00 (BR)	20	1139	1119	
-L- 19+74.00 (BR)	-L- 23+25.00	11	1235	1224	
-L- 31+90.00	-L- 35+45.00 (BR)	9	1274	1265	
-L- 36+35.00 (BR)	-L- 40+00.00	71	556	485	
PHASE 2 SUBTOTALS:		111	4204	4093	
PHASE 3 DETOUR REMOVAL					
-L- 15+05.79	-L- 18+72.08 (BR)	1444	11		1433
-L- 19+62.08 (BR)	-L- 22+85.11	1572			1572
-L- 32+37.56	-L- 35+67.95 (BR)	1474			1474
-L- 36+37.95 (BR)	-L- 40+00.00	1882			1882
PHASE 3 SUBTOTALS:		6372	11		6361
PROJECT SUBTOTALS:		6626		12904	6361
LOSS DUE TO CLEARING & GRUB.		0		0	
SHOULDER MATERIAL (FOR DETOURS)			800	800	
PROJECT TOTALS:		6626		13704	6361
EST FOR REPLACE TOPSOIL ON BORROW				686	
GRAND TOTAL:		6626		14390	6361
SAY:		6675		14450	6400

UNDERCUT = 1500 CY AS A CONTINGENCY

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.

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".

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-, RT	18+22.00	18+44.00 (BR)	22.00
-L-, LT	18+22.00	18+44.00 (BR)	22.00
-L-, RT	19+98.00 (BR)	20+20.00	22.00
-L-, LT	19+98.00 (BR)	20+20.00	22.00
-L-, RT	34+97.00	35+13.71 (BR)	16.71
-L-, LT	34+97.00	35+28.49 (BR)	31.49
-L-, RT	36+51.51 (BR)	36+83.00	31.49
-L-, LT	36+66.29 (BR)	36+83.00	16.71
TOTAL:			184.40
SAY:			200

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD'
-DET29-	11+81.74	15+46.00 (BR)	CL	839.50
-DET29-	16+36.00 (BR)	19+77.58	CL	738.91
-DET53-	10+27.54	14+09.00 (BR)	CL	766.78
-DET53-	14+79.00 (BR)	19+07.48	CL	857.25
-L-	18+14.00	18+95.00 (BR)	CL	261.00
-L-	19+56.00 (BR)	20+28.00	CL	232.00
-L-	34+88.00	35+59.00 (BR)	CL	220.89
-L-	36+20.00 (BR)	36+92.00	CL	192.00
TOTAL:				4108.33
SAY:				4200

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COMPUTED BY: JMT	DATE: 10/08
CHECKED BY: RJD	DATE: 8/09

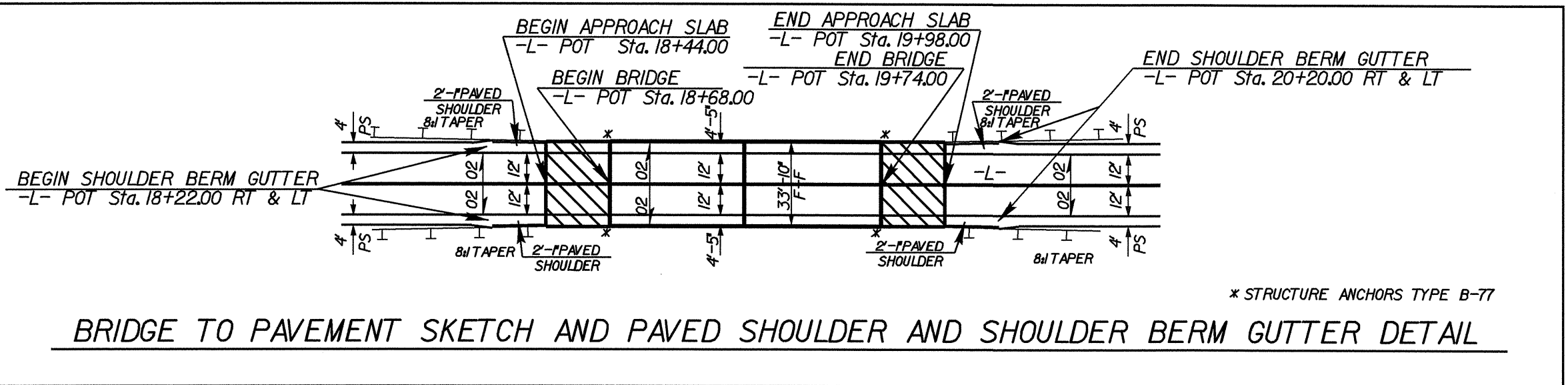
PROJECT REFERENCE NO.	SHEET NO.
B-3654	3-C

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

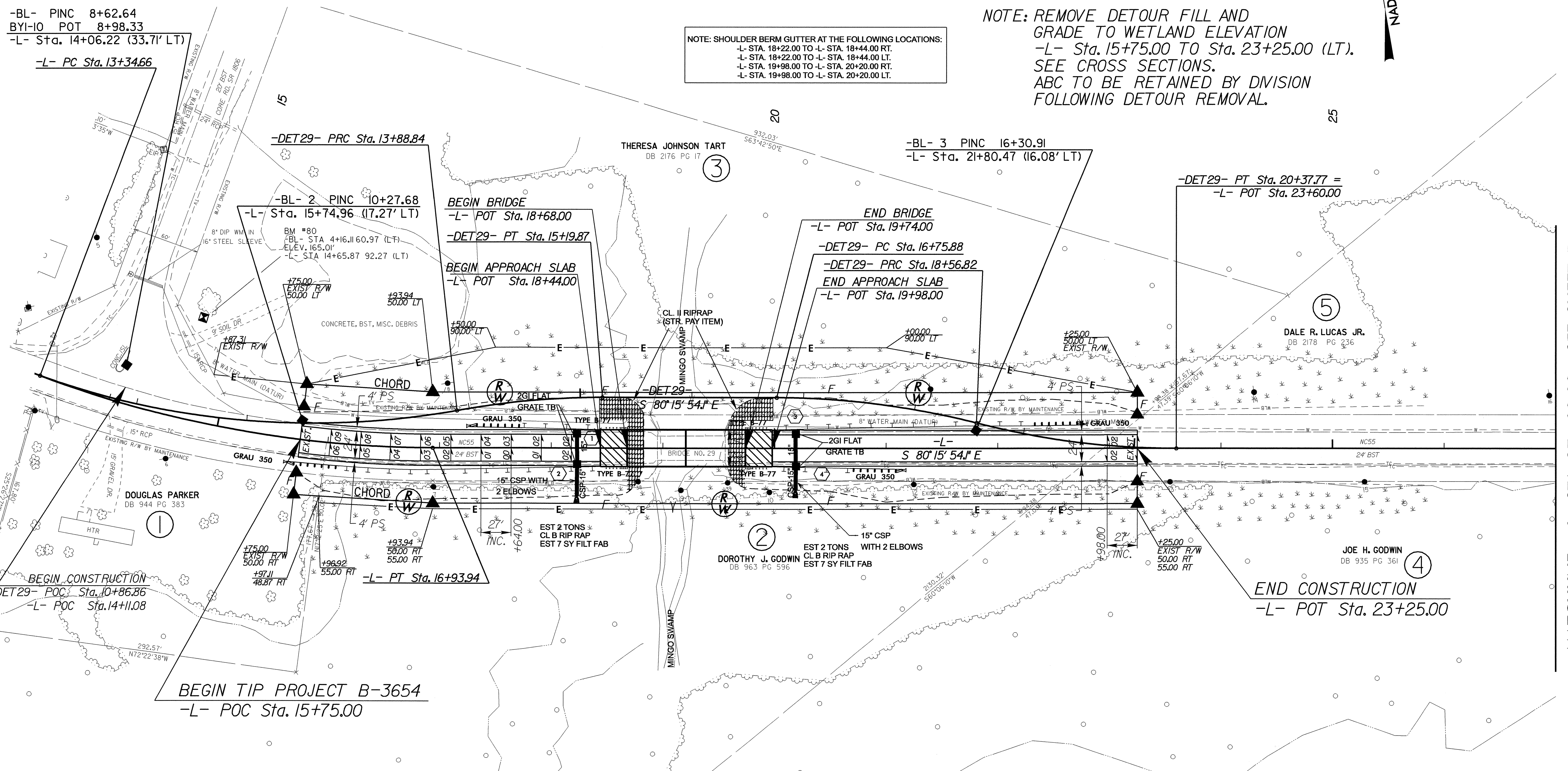
PARCEL INDEX

PARCEL NO.	PROPERTY OWNERS NAMES	PLAN SHEET
1	DOUGLAS PARKER	4
2	DOROTHY J. GODWIN	4
3	THERESA JOHNSON TART	4
4	JOE H. GODWIN	4,5
5	DALE R. LUCAS, JR.	4,5
6	ELIZABETH NICOLE B. OVERTON	5
7	BONNIE BLAKE BAREFOOT SPEEGLE	5

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-DET29- CURVE DATA				-L- CURVE DATA	
PI Sta 11+99.36	PI Sta 14+54.54	PI Sta 17+66.84	PI Sta 19+47.78	PI Sta 15+16.27	
$\Delta = 31^{\circ}09'32.5"$ (LT)	$\Delta = 10^{\circ}30'00.0"$ (RT)	$\Delta = 14^{\circ}30'00.0"$ (RT)	$\Delta = 14^{\circ}30'00.0"$ (RT)	$\Delta = 20^{\circ}39'32.5"$ (LT)	
D = 8'00'48.2"	D = 8'00'48.2"	D = 8'00'48.2"	D = 8'00'48.2"	D = 5'45'00.0"	
L = 388.84'	L = 131.03'	L = 180.95'	L = 180.95'	L = 359.29'	
T = 199.36'	T = 65.70'	T = 90.96'	T = 90.96'	T = 181.62'	
R = 715.00'	R = 715.00'	R = 715.00'	R = 715.00'	R = 996.45'	
SE = 0.04	SE = 0.04	SE = 0.04	SE = 0.04	SE = 0.06	
RO = 92'	RO = 92'	RO = 92'	RO = 92'	RO = 162'	
V = 45 MPH	V = 45 MPH	V = 45 MPH	V = 45 MPH	V = 54 MPH	



NOTE: SHOULDER BERM GUTTER AT THE FOLLOWING LOCATIONS:
 -L- STA. 18+22.00 TO -L- STA. 18+44.00 RT.
 -L- STA. 18+22.00 TO -L- STA. 18+44.00 LT.
 -L- STA. 19+98.00 TO -L- STA. 20+20.00 RT.
 -L- STA. 19+98.00 TO -L- STA. 20+20.00 LT.

NOTE: REMOVE DETOUR FILL AND GRADE TO WETLAND ELEVATION
 -L- Sta. 15+75.00 TO Sta. 23+25.00 (LT).
 SEE CROSS SECTIONS.
 ABC TO BE RETAINED BY DIVISION FOLLOWING DETOUR REMOVAL.

-BL- PINC 8+62.64
 BYI-10 POT 8+98.33
 -L- Sta. 14+06.22 (33.71' LT)

-L- PC Sta. 13+34.66

-DET29- PRC Sta. 13+88.84

-BL- 2 PINC 10+27.68
 -L- Sta. 15+74.96 (17.27' LT)

BEGIN BRIDGE
 -L- POT Sta. 18+68.00

-DET29- PT Sta. 15+19.87

BEGIN APPROACH SLAB
 -L- POT Sta. 18+44.00

-BL- 3 PINC 16+30.91
 -L- Sta. 21+80.47 (16.08' LT)

END BRIDGE
 -L- POT Sta. 19+74.00

-DET29- PC Sta. 16+75.88

-DET29- PRC Sta. 18+56.82
 END APPROACH SLAB
 -L- POT Sta. 19+98.00

-DET29- PT Sta. 20+37.77 =
 -L- POT Sta. 23+60.00

BEGIN CONSTRUCTION
 -DET29- POC Sta. 10+86.86
 -L- POC Sta. 14+11.08

BEGIN TIP PROJECT B-3654
 -L- POC Sta. 15+75.00

-L- PT Sta. 16+93.94

END CONSTRUCTION
 -L- POT Sta. 23+25.00

NOTE: GUARDRAIL TO BE PHASE CONSTRUCTED.
 SEE GUARDRAIL SUMMARY FOR LOCATION OF TEMPORARY ANCHOR UNITS.

NOTE: GRUBBING SHALL NOT OCCUR IN THE AUTHORIZED TEMPORARY IMPACT AREAS. EXCAVATION OF SURFACE LAYER(S) SHALL NOT OCCUR IN THE AUTHORIZED TEMPORARY IMPACT AREAS.

*DESIGN EXCEPTION REQUIRED FOR THE MINIMUM HORIZONTAL CURVE RADIUS AND HORIZONTAL STOPPING SIGHT DISTANCE LOCATED AT PI STA. 15+16.27.

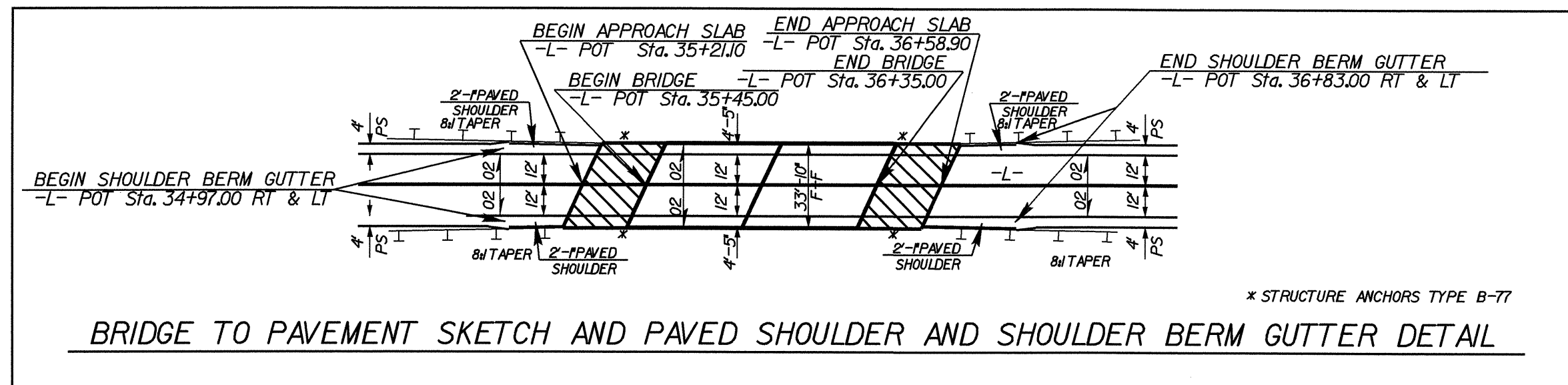
BRIDGE APPROACH SLAB
 SEE SHEET 6 FOR -L- PROFILE

FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-18

REVISIONS

MATCHLINE -L- STA. 27 + 00.00 SEE SHEET 5

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-DET53- CURVE DATA

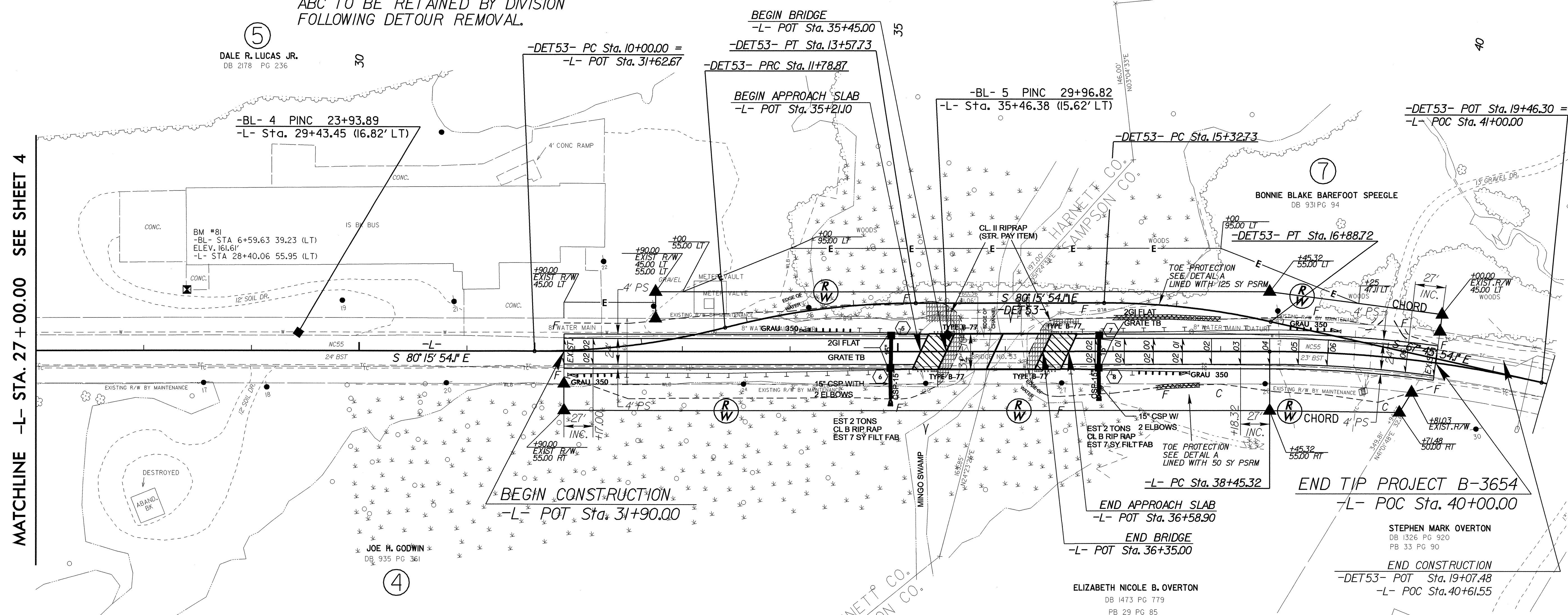
PI Sta 10+89.90 Δ = 14° 20' 00.0" (LT) D = 8' 00' 48.2" L = 178.87' T = 89.90' R = 715.00' SE = 0.04 RO = 92' V = 45 MPH	PI Sta 12+68.77 Δ = 14° 20' 00.0" (RT) D = 8' 00' 48.2" L = 178.87' T = 89.90' R = 715.00' SE = 0.04 RO = 92' V = 45 MPH	PI Sta 16+11.04 Δ = 12° 30' 00.0" (RT) D = 8' 00' 48.2" L = 155.99' T = 78.31' R = 715.00' SE = 0.04 RO = 92' V = 45 MPH
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-L- CURVE DATA

PI Sta 41+69.69 Δ = 31° 36' 34.5" (RT) D = 5' 00' 00.0" L = 632.19' T = 324.37' R = 1,145.92' SE = 0.06 RO = 162' V = 57 MPH
--

NOTE: REMOVE DETOUR FILL AND GRADE TO WETLAND ELEVATION
 -L- Sta. 33+25.00 TO Sta. 38+50.00 (LT).
 SEE CROSS SECTIONS.
 ABC TO BE RETAINED BY DIVISION FOLLOWING DETOUR REMOVAL.

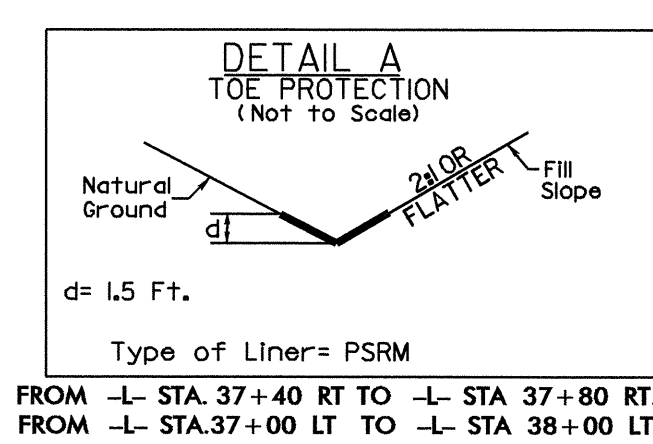
NOTE: SHOULDER BERM GUTTER AT THE FOLLOWING LOCATIONS:
 -L- STA. 34+97.00 TO -L- STA. 35+13.71 RT.
 -L- STA. 34+97.00 TO -L- STA. 35+28.49 LT.
 -L- STA. 36+51.51 TO -L- STA. 36+83.00 RT.
 -L- STA. 36+66.29 TO -L- STA. 36+83.00 LT.



NOTE: GUARDRAIL TO BE PHASE CONSTRUCTED. SEE GUARDRAIL SUMMARY FOR LOCATION OF TEMPORARY ANCHOR UNITS.

NOTE: GRUBBING SHALL NOT OCCUR IN THE AUTHORIZED TEMPORARY IMPACT AREAS. EXCAVATION OF SURFACE LAYER(S) SHALL NOT OCCUR IN THE AUTHORIZED TEMPORARY IMPACT AREAS.

***DESIGN EXCEPTION REQUIRED FOR THE SAG VERTICAL CURVE, K-VALUE, AND THE VERTICAL STOPPING SIGHT DISTANCE LOCATED AT VPI STA 38+40.**



BRIDGE APPROACH SLAB
SEE SHEET 7 FOR -L- PROFILE

FOR STRUCTURE PLANS, SEE SHEETS S-19 THRU S-37

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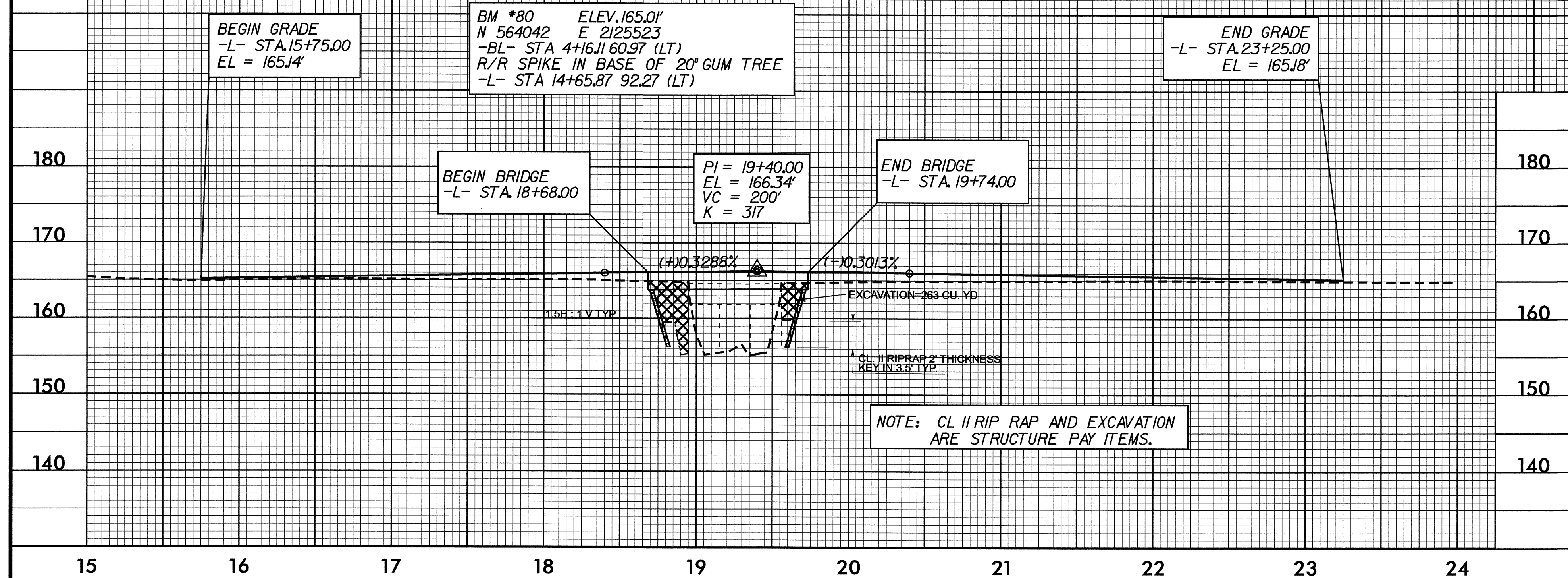
REVISIONS

MATCHLINE -L- STA. 27+00.00 SEE SHEET 4

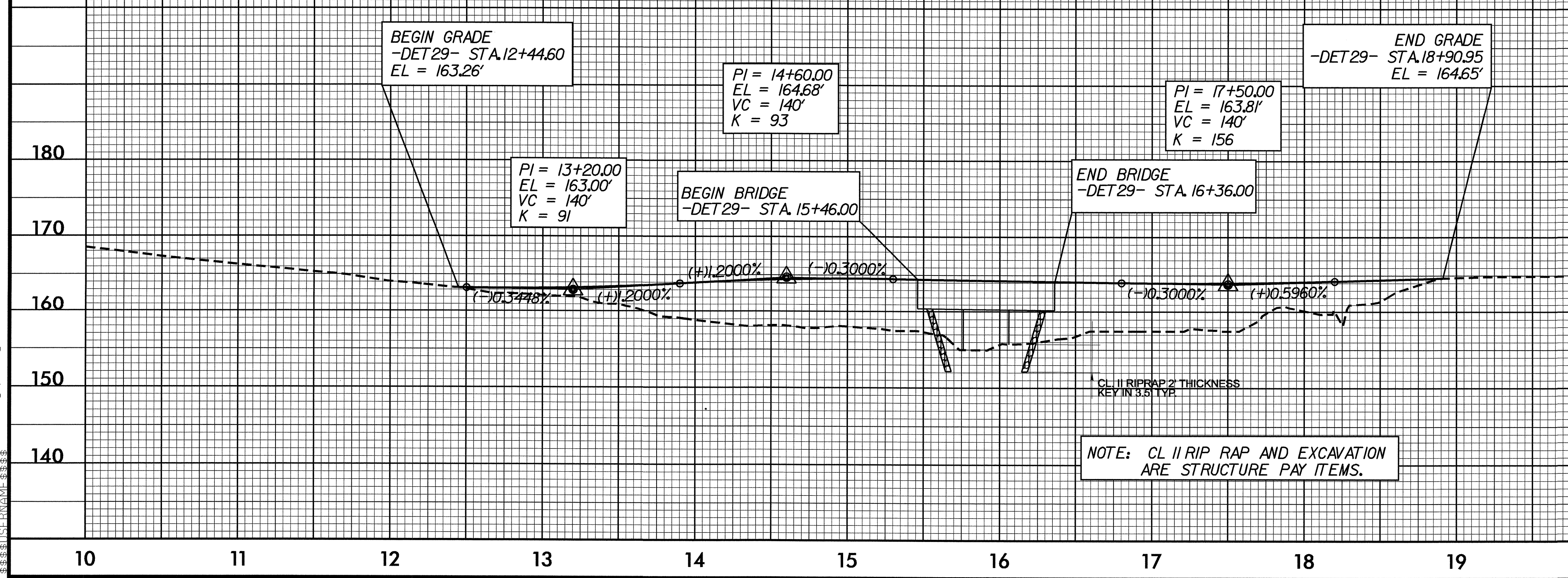
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PROJECT REFERENCE NO. B-3654	SHEET NO. 6
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 029473 JASON M. TALLEY	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 12786 STEVEN M. BONDOR
<i>Jason Talley</i> 9-17-07	<i>S. Bondor</i> 9-22-09

-L29PRO-



-DET29PRO-



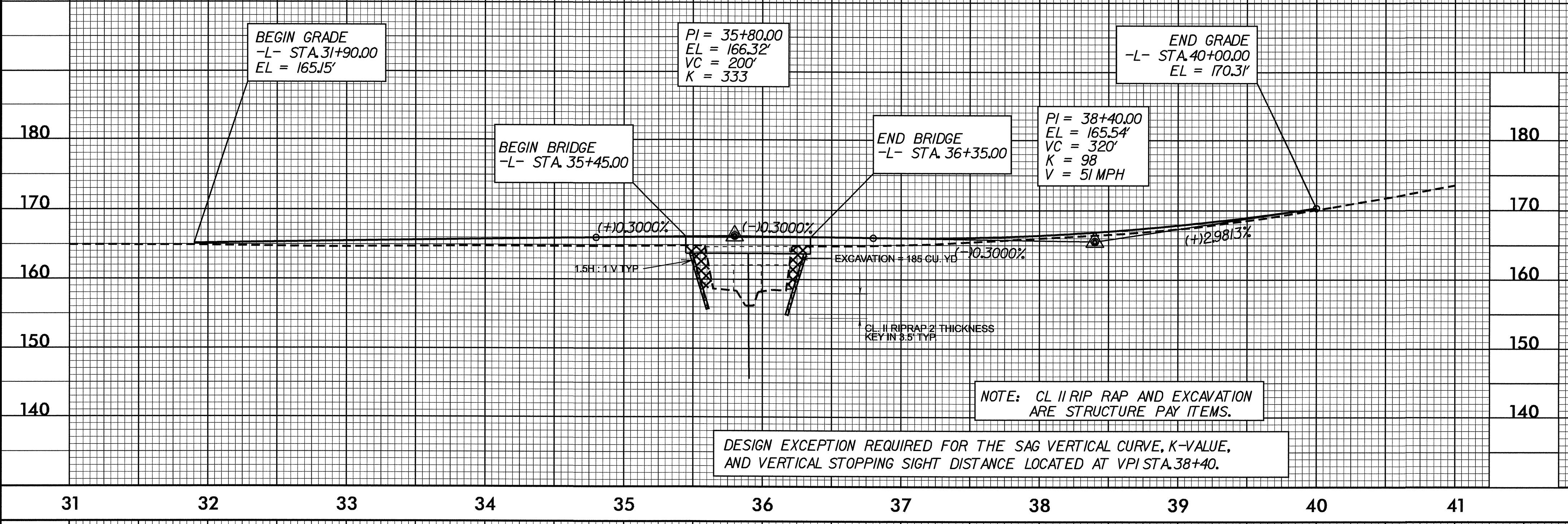
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5/28/09

PROJECT REFERENCE NO. B-3654	SHEET NO. 7
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 029473 JASON M. TALLEY 9-17-09	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 12786 SEVEN M. BONDUR 9-22-09

BM *81 ELEV. 161.61'
N 563755 E 2126844
-BL- STA 6+59.63 39.23 (LT)
P.K. NAIL IN CORNER OF CONCRETE SLAB
-L- STA 28+40.06 55.95 (LT)

-L53PRO-



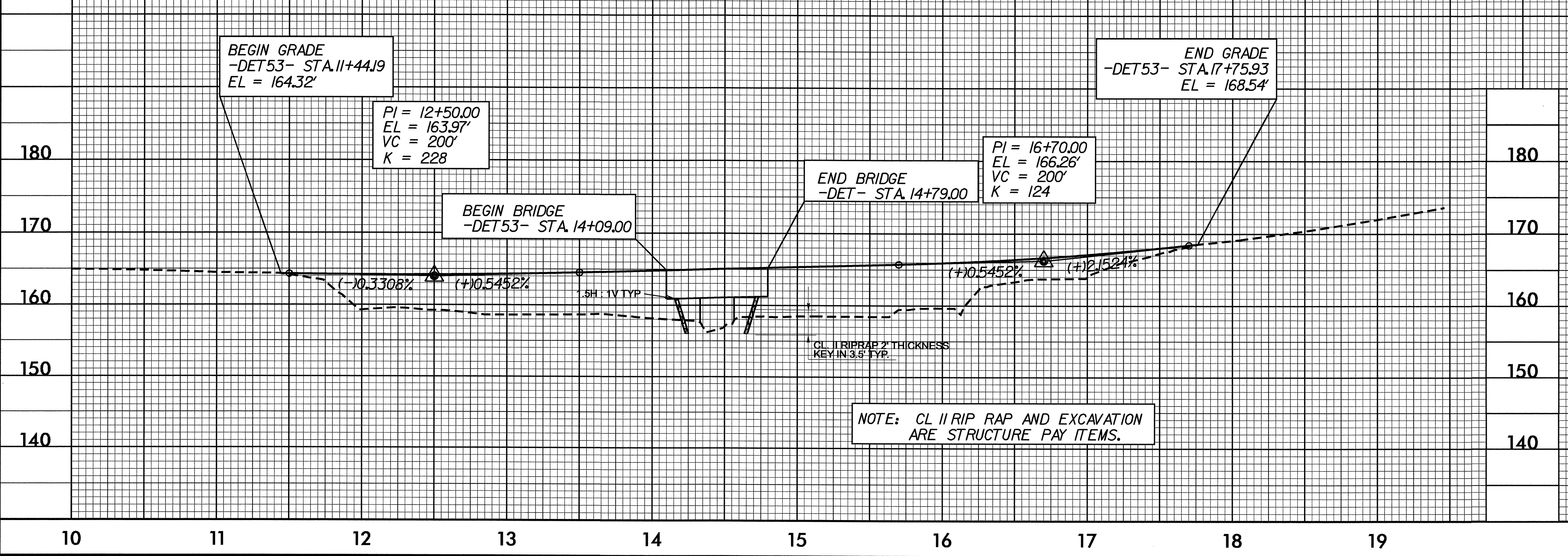
STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2010	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 161.3	FT
BASE DISCHARGE	= 3056	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 162.3	FT
OVERTOPPING DISCHARGE	= 7500	CFS
OVERTOPPING FREQUENCY	= 500±	YRS
OVERTOPPING ELEVATION	= 164.5	FT

SEE SHEET 5 FOR -L- ALIGNMENT

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-DET53PRO-



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 1060	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 160.3	FT
BASE DISCHARGE	=	CFS
BASE FREQUENCY	=	YRS
BASE HW ELEVATION	=	FT
OVERTOPPING DISCHARGE	=	CFS
OVERTOPPING FREQUENCY	=	YRS
OVERTOPPING ELEVATION	=	FT

SEE SHEET 2-B FOR -DET53- ALIGNMENT