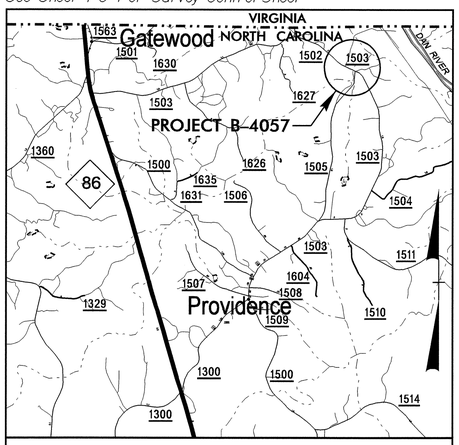
09/08/99

TIP PROJECT:B-4057

CONTRACT: C201566 TIP

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4057	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33421.1.1	BRZ-1503(5)	PE
33421.2.1	BRZ-1503(5)	R/W & UTILITIES
33421.3.1	BRZ-1503(9)	CONST.

CASWELL COUNTY

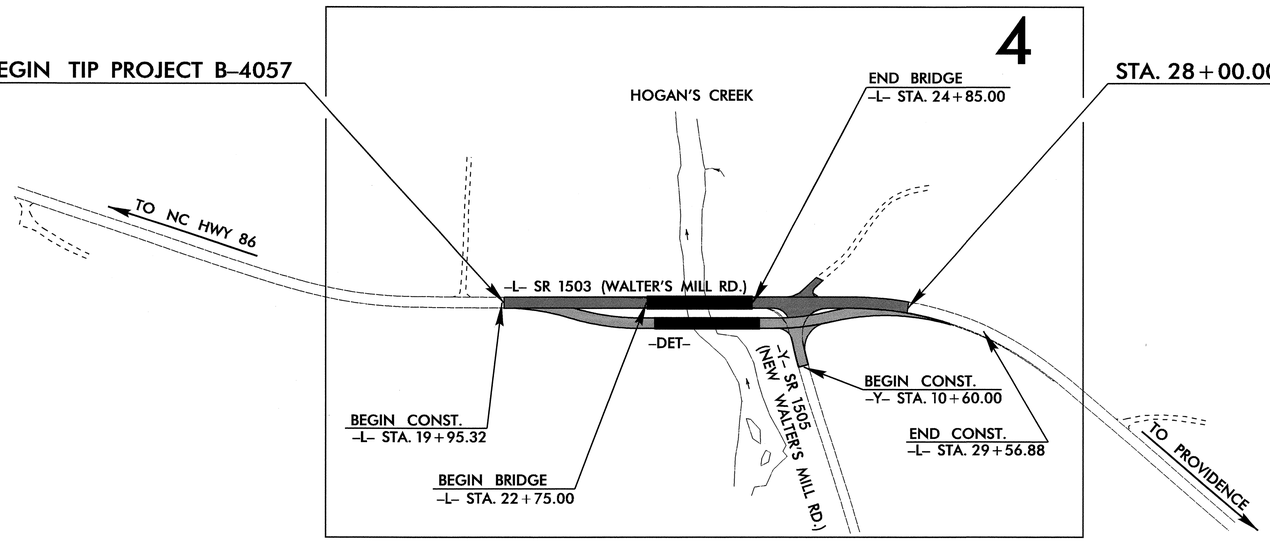
LOCATION: BRIDGE NO. 39 OVER HOGAN'S CREEK ON SR 1503 (WALTER'S MILL ROAD)

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

NAD 83

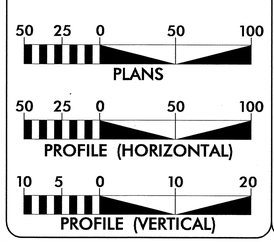
STA. 20+00.00 –L– BEGIN TIP PROJECT B-4057

STA. 28+00.00 –L– END TIP PROJECT B-4057



** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVES, SHOULDER WIDTH, AND STOPPING SIGHT DISTANCES.

GRAPHIC SCALES



DESIGN DATA

ADT 2008	=	920
ADT 2025	=	1200
DHV	=	10 %
D	=	60 %
T	=	3 % *
V	=	50 MPH
V_{DETOUR}	=	40 MPH

* TTST 1% DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4057	=	0.112 Miles
LENGTH STRUCTURE TIP PROJECT B-4057	=	0.040 Miles
TOTAL LENGTH OF TIP PROJECT B-4057	=	0.152 Miles

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 29, 2005

LETTING DATE:
JUNE 17, 2008

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
3/14/08
SEAL 16533 ENGINEER
SIGNATURE:

ROADWAY DESIGN ENGINEER
SEAL 23807 ENGINEER DANIEL W. GARDNER
3/14/08
P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
P.E.
STATE HIGHWAY DESIGN ENGINEER

12-MAR-2008 10:36
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$$$$USERNAME$$$$

RD238350 3/12/2008 b4057_rdy_tsh dwgardner RD-Oce34

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER DANIEL W. GARDNER 04/21/08

INDEX OF SHEETS

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL PLAN SHEET SYMBOLS
1-C	SURVEY CONTROL SHEET
2 THRU 2-B	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAIL
2-C	ANCHORAGE FOR FRAMES DETAIL
2-D	STANDARD TEMPORARY SHORING DETAIL
3	SUMMARY OF QUANTITIES
3-A	DRAINAGE SUMMARY, GUARDRAIL SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
3-B	EARTHWORK SUMMARY
4	PLAN SHEET
5	DETOUR PLAN SHEET
6	PROFILE SHEET
TCP-1 THRU TCP-7	TRAFFIC CONTROL PLANS
EC-1 THRU EC-6	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS
X-1	CROSS-SECTION SUMMARY
X-2 THRU X-16	CROSS-SECTIONS
S-1 THRU S-39	STRUCTURE PLANS

GENERAL NOTES:

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

STREET TURNOUT:

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

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING" OR "TEMPORARY SHORING-BARRIER SUPPORTED" DEPENDING UPON THE LOCATION OF THE SHORING.

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 MEBTEL

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

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

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	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
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 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.04	Street Turnout
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
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
B-4057	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- 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

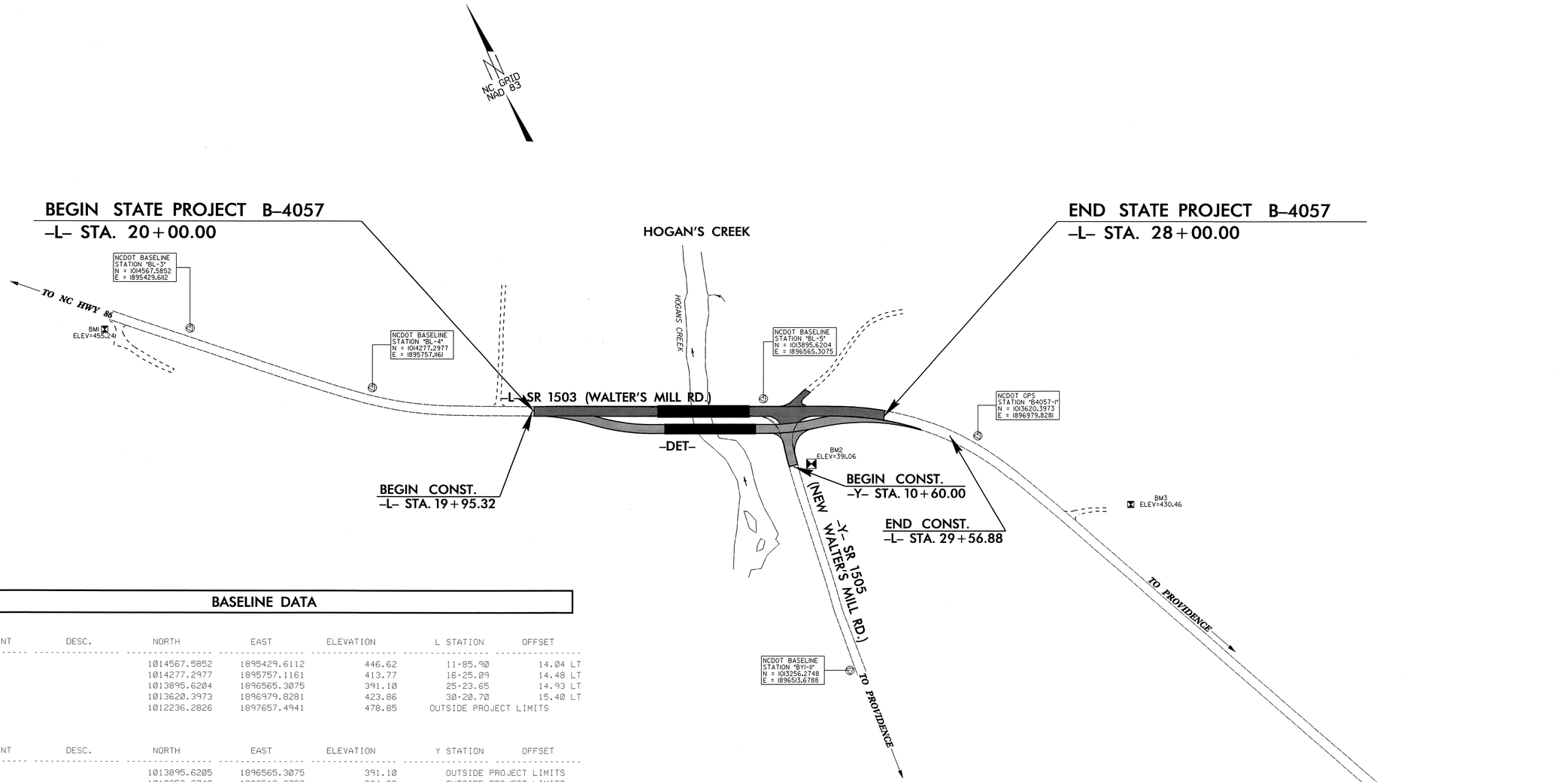
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- 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.

12/01/2005

PROJECT REFERENCE NO.	SHEET NO.
B–4057	1–C
Location and Surveys	

B–4057 SURVEY CONTROL SHEET



BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3		1014567.5852	1895429.6112	446.62	11+85.90	14.04 LT
4		1014277.2977	1895757.1161	413.77	16+25.09	14.48 LT
5		1013895.6204	1896565.3075	391.10	25+23.65	14.93 LT
1		1013620.3973	1896979.8281	423.86	30+20.70	15.40 LT
2		1012236.2826	1897657.4941	478.85	OUTSIDE PROJECT LIMITS	

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
12		1013895.6205	1896565.3075	391.10	OUTSIDE PROJECT LIMITS	
11		1013256.2748	1896513.6788	384.93	OUTSIDE PROJECT LIMITS	

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-4057-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 1013620.3973(ft) EASTING: 1896979.8281(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.000108090 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4057-1" TO –L– STATION 20+00.00 IS N 62° 18′ 45″ 1,016.30 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

NOTES

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAYLOCATION/PROJECT/*

THE FILES TO BE FOUND ARE AS FOLLOWS:
b4057_ls_control_060921.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)

BENCHMARK DATA

```
**************************************
BM1       ELEVATION = 455.25
N 1014659      E 1895257
L STATION 10+00
S 47° 50' 57.0" W  DIST     35.12
R/R SPIKE IN BASE OF 10" WHITE OAK
**************************************
**************************************
BM2       ELEVATION = 391.06
N 1013727      E 1896611
L STATION 26+34 121 RIGHT
R/R SPIKE IN BASE OF 24" WHITE OAK
**************************************
**************************************
BM3       ELEVATION = 430.46
N 1013349      E 1897242
L STATION 33+77 122 LEFT
R/R SPIKE IN BASE OF 12" HICKORY
**************************************
```

NOTE: DRAWING NOT TO SCALE

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RD238350 2/29/2008 b4057_ls_1c_070809 dwgardner RD-Oce34

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4057	2
R/W SHEET NO.	

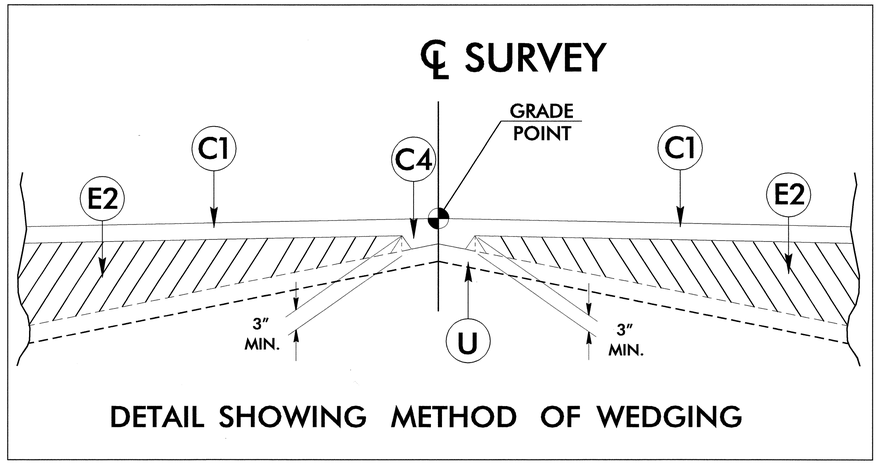
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER JR.
3/11/08
Daniel W. Gardner

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON
3/11/08
Clark S. Morrison

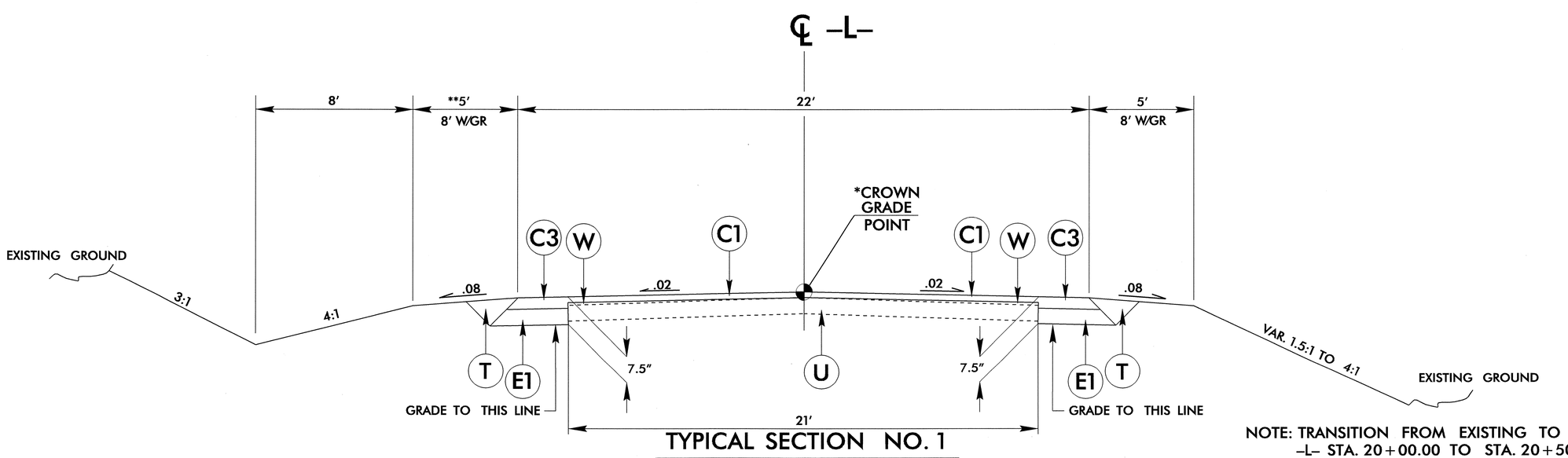
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 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 5½" IN DEPTH.
J	PROP. 6" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

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



DETAIL SHOWING METHOD OF WEDGING



TYPICAL SECTION NO. 1

**NOTE: USE 5' SHOULDER WIDTH WITH GUARDRAIL PLACED AT 3' FROM EDGE OF TRAVELWAY FROM –L– STA. 22+25.00 LT. TO BEGIN BRIDGE STATION

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
–L– STA. 20+00.00 TO STA. 20+50.00

USE TYPICAL SECTION NO. 1

*–L– STA. 20+50.00 TO STA. 21+00.00
–L– STA. 21+00.00 TO STA. 22+75.00 (BEGIN BRIDGE)
–L– STA. 26+75.00 TO STA. 27+50.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING
–L– STA. 27+50.00 TO STA. 28+00.00

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RD238350 2/29/2008 b4057_rdy_typ2 dwgardner RD-Oce34

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4057	2-A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER

3/14/08

Daniel W. Gardner

PAVEMENT DESIGN ENGINEER

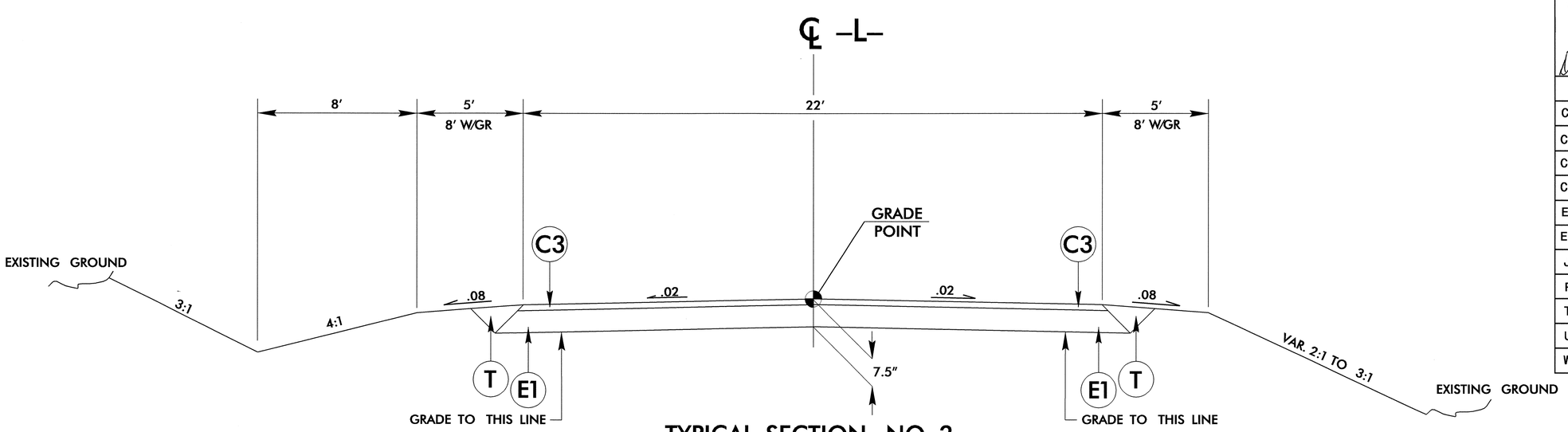
NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON

3/14/08

Clark S. Morrison

PAVEMENT SCHEDULE

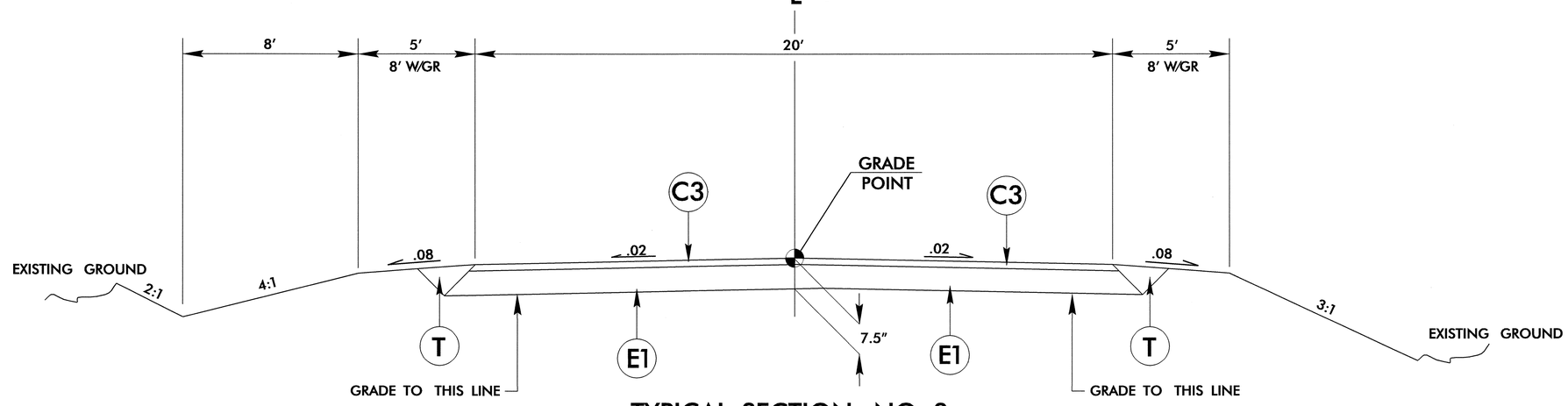
C1	1¼" TYPE SF9.5A
C2	2" TYPE SF9.5A
C3	2½" TYPE SF9.5A
C4	VAR. DEPTH TYPE SF9.5A
E1	5" TYPE B25.0B
E2	VAR. DEPTH TYPE B25.0B
J	PROP. 6" AGGREGATE BASE COURSE.
P	PRIME COAT
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

–L– STA. 24+85.00 (END BRIDGE) TO STA. 26+75.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

–Y– STA. 10+60.00 TO STA. 11+13.38

29-FEB-2008 10:26
R:\pro\b4057_rdy_typ.dgn
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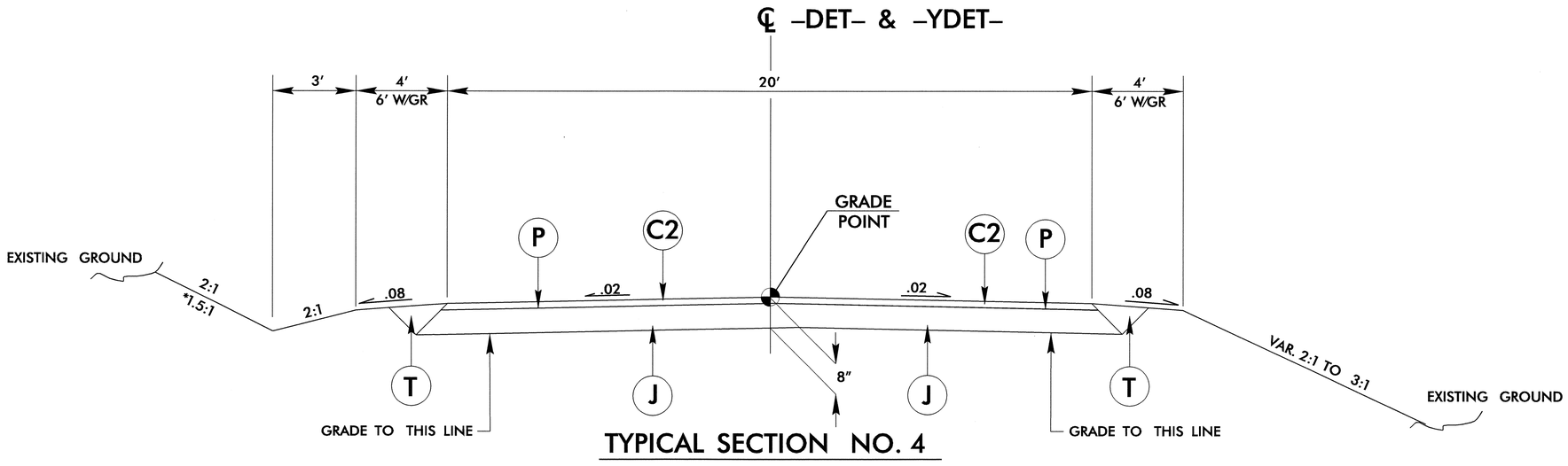
8/17/99



TYPICAL SECTION NO. 4

PROJECT REFERENCE NO.	SHEET NO.
B-4057	2-B
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR.
3/14/08

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON
3/14/08

PAVEMENT SCHEDULE

C1	1¼" TYPE SF9.5A
C2	2" TYPE SF9.5A
C3	2½" TYPE SF9.5A
C4	VAR. DEPTH TYPE SF9.5A
E1	5" TYPE B25.0B
E2	VAR. DEPTH TYPE B25.0B
J	PROP. 6" AGGREGATE BASE COURSE.
P	PRIME COAT
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 4
–DET– STA 10+00.00 TO STA. 11+41.38

USE TYPICAL SECTION NO. 4

–DET– STA. 11+41.38 TO STA. 13+14.50 (BEGIN BRIDGE)
–DET– STA. 15+09.50 (END BRIDGE) TO STA. 16+89.58
–YDET– STA. 10+60.00 TO STA. 10+81.73

NOTE: TRANSITION FROM TYPICAL SECTION NO. 4 TO EXISTING
–DET– STA. 16+89.58 TO STA. 19+65.32

*NOTE: –DET– STA. 18+00.00 TO STA. 18+25.00 RT.

10-MAR-2008 08:26
i:\proj\4057\rdy\b4057_rdy_typ.dgn
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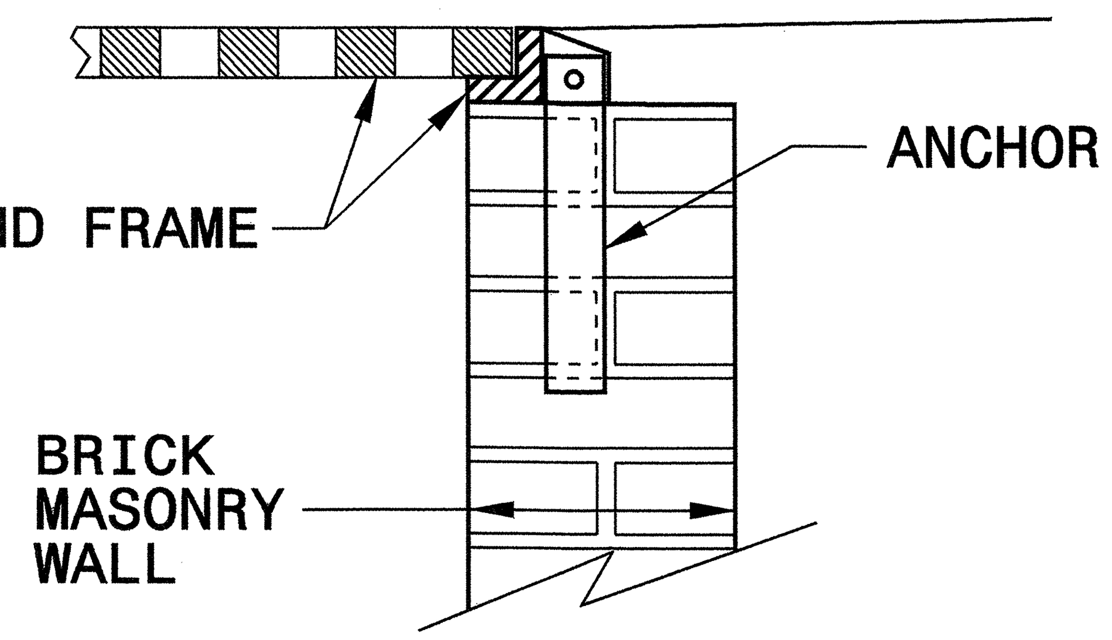
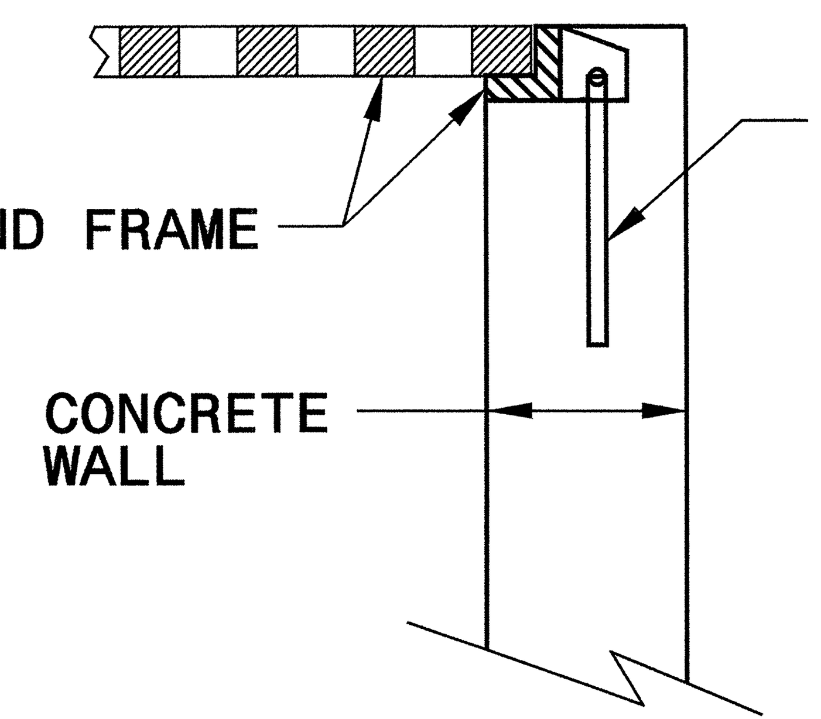
RD238350 3/10/2008 b4057_rdy_typ2B dwgardner RD-Oce34

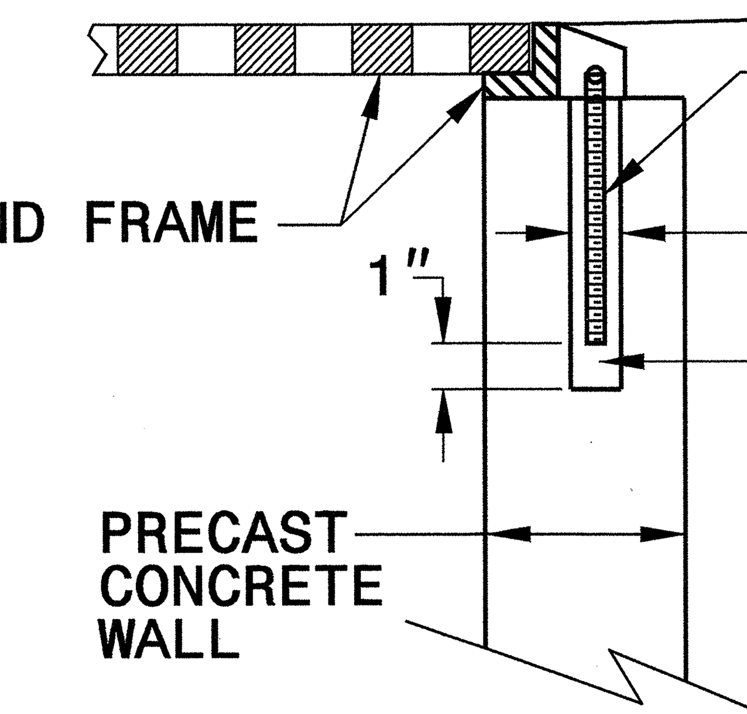
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.



BRICK MASONRY CONSTRUCTION



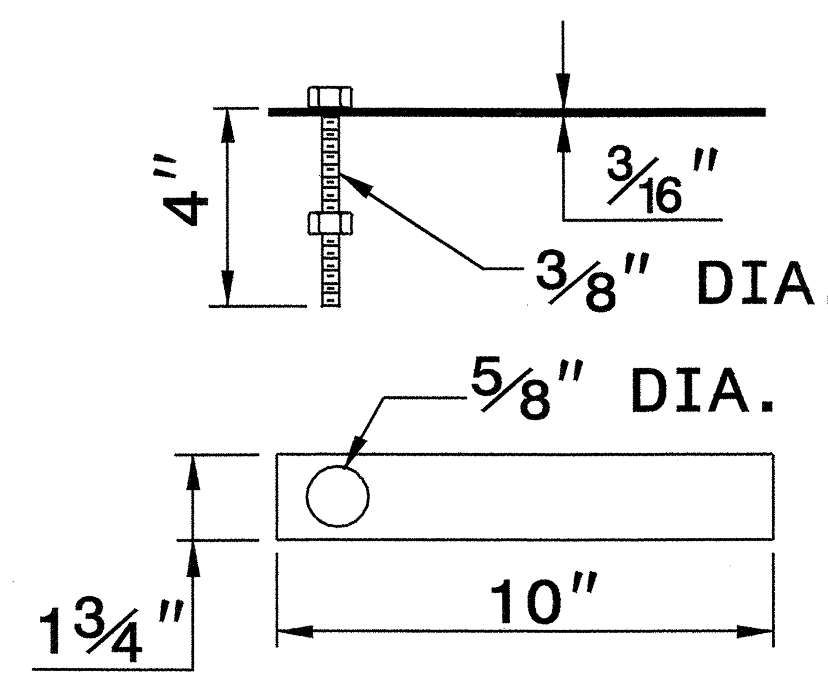
CONCRETE CONSTRUCTION



PRECAST CONCRETE CONSTRUCTION

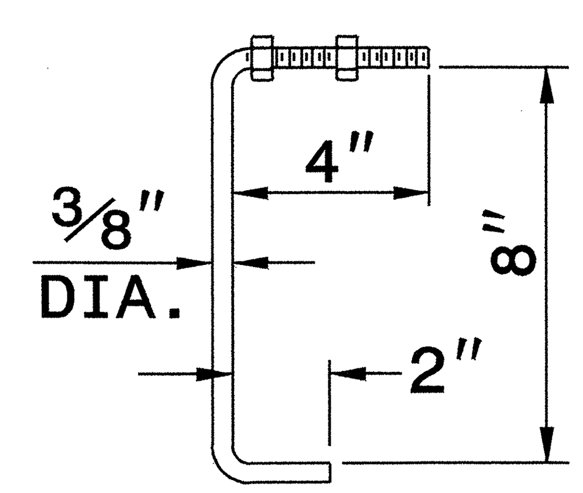
DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

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



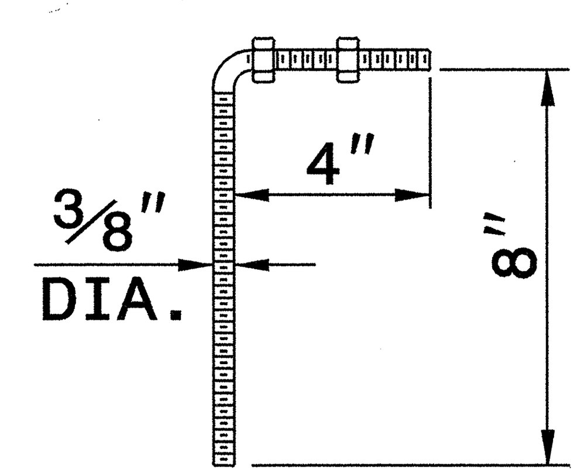
MASONRY ANCHOR

3⁄8" DIA. BOLT WITH PLATE



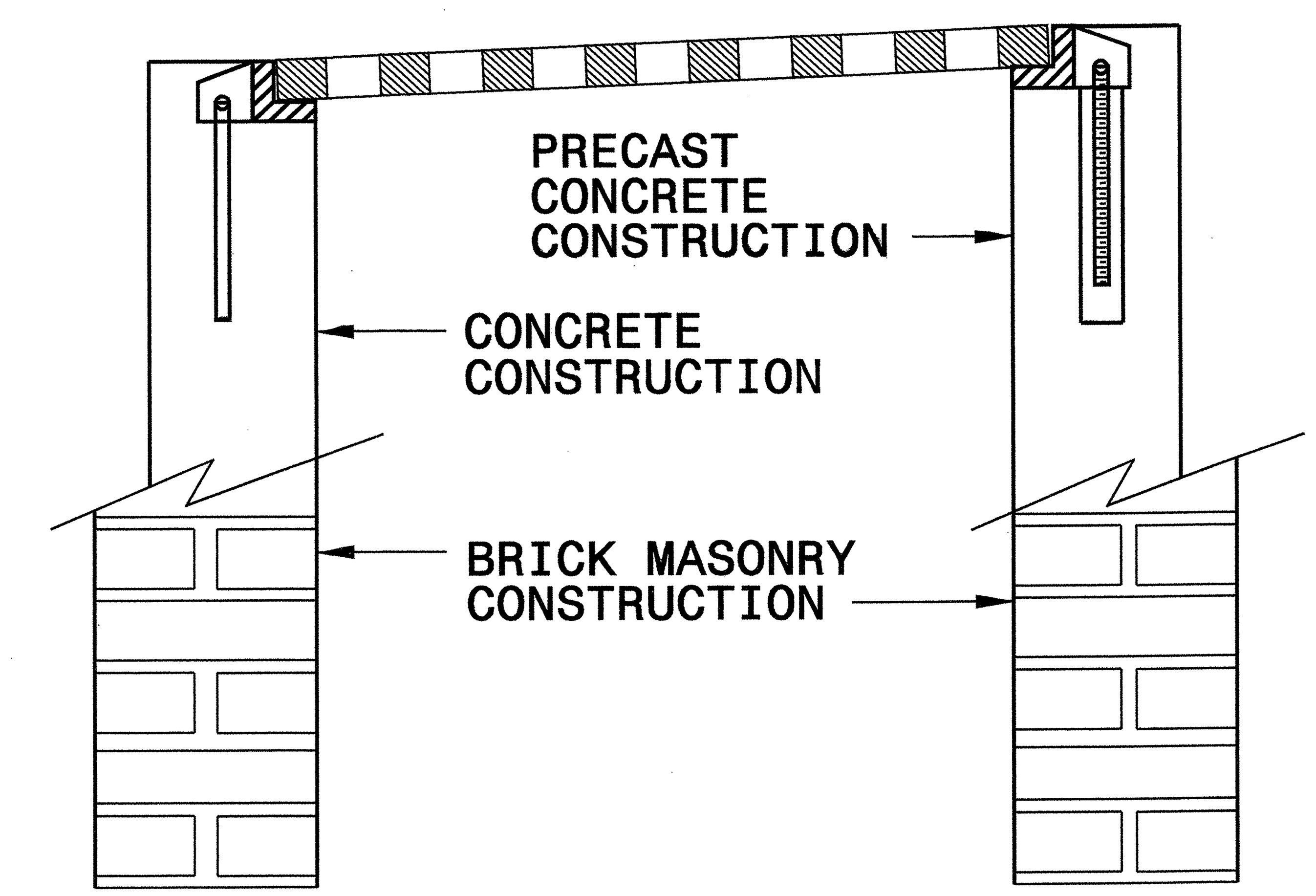
CONCRETE ANCHOR

3⁄8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR

3⁄8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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

SHEET 1 OF 1
840D25

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 JOEL S. HOWERTON 3/7/08

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

SEE PLATE FOR TITLE

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

01-MAR-2007 09:04
s:\contracts\contracts\special details\ericward\stds\06 stds to special details\84025 anchorage for frames\0840d25.dgn
jhowerton AT PS21226D

GEOTECHNICAL ENGINEER

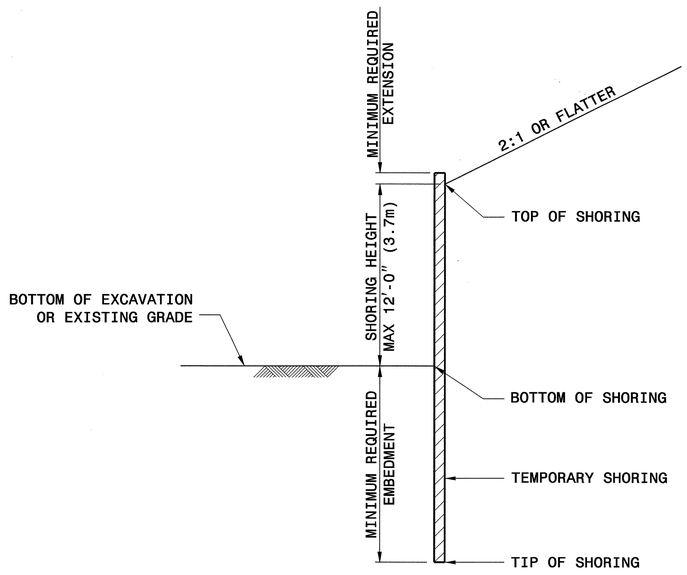
NORTH CAROLINA PROFESSIONAL SEAL 30943 ENGINEER THEIN TUN TAN

4/22/08

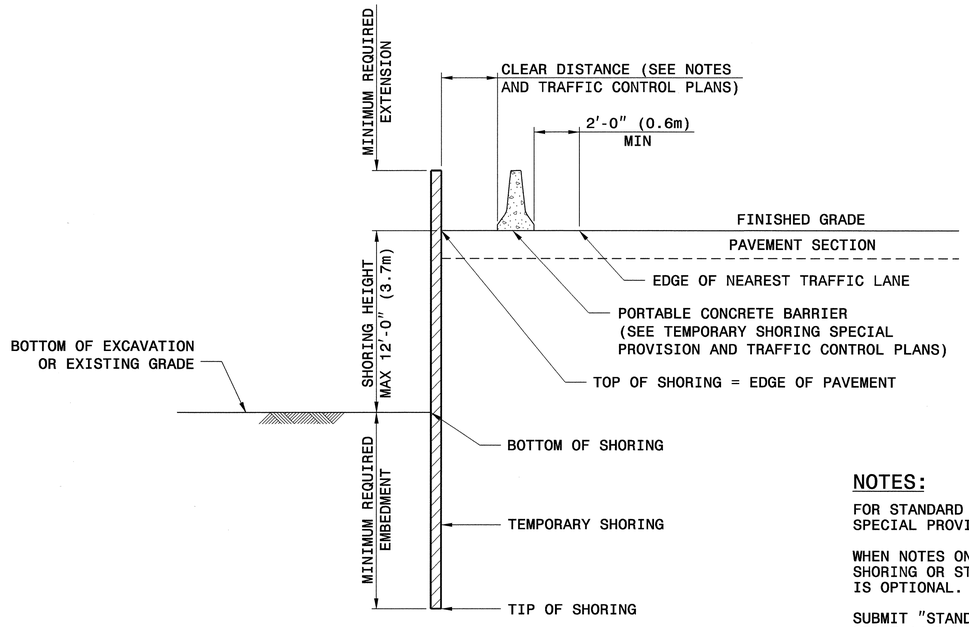
SIGNATURE DATE

ENGINEER

SIGNATURE DATE



SLOPE CASE



SURCHARGE CASE

GROUNDWATER CONDITION	SHORING HEIGHT FT (m)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H PILES WITH TIMBER LAGGING			SHEET PILES		H PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN^3/FT (cm^3/m)	MINIMUM REQUIRED EMBEDMENT FT (m)			MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN^3/FT (cm^3/m)	MINIMUM REQUIRED EMBEDMENT FT (m)		
				HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)			HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)
GROUNDWATER ELEVATION BELOW TIP OF SHORING	< 6 (1.8)	7.5 (2.3)	3.0 (161)	8.0 (2.4)	8.0 (2.4)	8.0 (2.4)	11.0 (3.4)	10.0 (538)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)
	7 (2.1)	8.5 (2.6)	4.5 (242)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)	12.0 (3.7)	12.0 (645)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)
	8 (2.4)	10.0 (3.0)	6.5 (349)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)	12.5 (3.8)	14.0 (753)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)
	9 (2.7)	11.0 (3.4)	9.5 (511)	--	12.0 (3.7)	12.0 (3.7)	13.5 (4.1)	16.5 (887)	--	12.5 (3.8)	12.5 (3.8)
	10 (3.0)	12.5 (3.8)	13.0 (699)	--	--	13.5 (4.1)	14.0 (4.3)	19.5 (1048)	--	13.5 (4.1)	13.5 (4.1)
	11 (3.4)	13.5 (4.1)	17.0 (914)	--	--	14.5 (4.4)	15.0 (4.6)	22.5 (1210)	--	--	14.5 (4.4)
	12 (3.7)	15.0 (4.6)	21.5 (1156)	--	--	16.0 (4.9)	16.0 (4.9)	25.5 (1371)	--	--	15.5 (4.7)
GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND TIP OF SHORING	< 6 (1.8)	11.5 (3.5)	4.5 (242)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)	16.0 (4.9)	12.0 (645)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)
	7 (2.1)	13.0 (4.0)	7.0 (376)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)	17.0 (5.2)	14.5 (780)	14.5 (4.4)	14.5 (4.4)	14.5 (4.4)
	8 (2.4)	15.0 (4.6)	10.0 (538)	--	15.0 (4.6)	15.0 (4.6)	18.0 (5.5)	17.0 (914)	--	15.5 (4.7)	15.5 (4.7)
	9 (2.7)	17.0 (5.2)	14.0 (753)	--	17.0 (5.2)	17.0 (5.2)	19.0 (5.8)	20.0 (1075)	--	17.0 (5.2)	17.0 (5.2)
	10 (3.0)	18.5 (5.6)	19.5 (1048)	--	--	18.5 (5.6)	20.0 (6.1)	23.5 (1263)	--	--	18.5 (5.6)
	11 (3.4)	20.5 (6.3)	26.0 (1398)	--	--	--	21.0 (6.4)	28.0 (1505)	--	--	20.0 (6.1)
	12 (3.7)	22.5 (6.9)	33.0 (1774)	--	--	--	22.0 (6.7)	33.0 (1774)	--	--	21.5 (6.6)

NOTE: MINIMUM REQUIRED EXTENSION IS 6" (150mm) FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" (800 mm) FOR "SURCHARGE CASE WITH TRAFFFIC IMPACT".

NOTES:

FOR STANDARD TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN NOTES ON PLANS DO NOT PROHIBIT STANDARD TEMPORARY SHORING OR STANDARD SHORING, STANDARD TEMPORARY SHORING IS OPTIONAL.

SUBMIT "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 14 DAYS BEFORE BEGINNING SHORING CONSTRUCTION. UP TO THREE LOCATIONS MAY BE INCLUDED ON EACH SELECTION FORM.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING CONDITIONS:
1) MAXIMUM SHORING HEIGHT IS 12'-0" (3.7m).
2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
3) BOTTOM OF EXCAVATION OR EXISTING GRADE IN FRONT OF SHORING IS 6:1 (H:V) SLOPE OR FLATTER.
4) H PILE SPACING IS 6'-0" (1.8m).
5) H PILE EMBEDMENT DEPTHS ARE FOR DRIVEN PILES.
6) TIMBER LAGGING IS A MINIMUM OF 3" (75mm) THICK.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/M^3)
FRICTION ANGLE = 30 DEGREES
COHESION = 0 PSF (0 KPA)
GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT WITHIN THE EMBEDMENT DEPTH.

VERIFY GROUNDWATER ELEVATION BEFORE BEGINNING SHORING CONSTRUCTION.

IF THE CLEAR DISTANCE AVAILABLE IS LESS THAN THE MINIMUM REQUIRED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS, SET THE BARRIER AGAINST THE TRAFFIC SIDE OF THE SHORING AND USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT".

AT THE CONTRACTOR'S OPTION, H PILE EMBEDMENT DEPTHS FOR PILES SET IN DRILLED HOLES MAY BE REDUCED BY 25%. FOR PILE EXCAVATION, SEE TEMPORARY SHORING SPECIAL PROVISION.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF THE SHORING. COLLECT AND DIRECT RUNOFF AWAY FROM SHORING.

CONTACT THE ENGINEER IF MINIMUM REQUIRED EMBEDMENT IS NOT ACHIEVED.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 2-20-07

5/28/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201566

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ************ (23+80.00 -L-)
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	250	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0106000000-E	230	2,330	CY	BORROW EXCAVATION
0195000000-E	265	200	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	200	SY	FABRIC FOR SOIL STABILIZATION
0199000000-E	SP	180	SF	TEMPORARY SHORING
0318000000-E	300	25	TON	FOUNDATION CONDITIONING MATE-RIAL, MINOR STRS
0366000000-E	310	48	LF	15" RC PIPE CULVERTS, CLASS III
0378000000-E	310	8	LF	24" RC PIPE CULVERTS, CLASS III
0582000000-E	310	44	LF	15" CS PIPE CULVERTS, 0.064" THICK
0636000000-E	310	2	EA	**" CS PIPE ELBOWS, *****" THICK (15", 0.064")
0708000000-E	310	56	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0720000000-E	310	64	LF	24" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0806000000-E	310	4	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0995000000-E	340	80	LF	PIPE REMOVAL
0996000000-N	350	1	EA	PIPE CLEAN-OUT
1121000000-E	520	545	TON	AGGREGATE BASE COURSE
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
1275000000-E	600	480	GAL	PRIME COAT
1489000000-E	610	300	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	370	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	37	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	9	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2000000000-N	806	21	EA	RIGHT OF WAY MARKERS
2022000000-E	815	60	CY	SUBDRAIN EXCAVATION
2033000000-E	815	50	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	250	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	9	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
2253000000-E	840	1	CY	PIPE COLLARS
2286000000-N	840	5	EA	MASONRY DRAINAGE STRUCTURES
2355000000-N	840	5	EA	FRAME WITH GRATE, STD 840.29
2556000000-E	846	270	LF	SHOULDER BERM GUTTER
3030000000-E	862	375	LF	STEEL BM GUARDRAIL
3045000000-E	862	100	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	30	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3270000000-N	SP	2	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3380000000-E	862	125	LF	TEMPORARY STEEL BM GUARDRAIL
3382000000-E	862	50	LF	TEMPORARY STEEL BM GUARDRAIL (SHOP CURVED)
3387000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE ********** TEMPORARY (AT-1)
3387000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ********** TEMPORARY (B-77)
3389000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE ********** TEMPORARY (TL-2)
3389100000-N	SP	2	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY
3649000000-E	876	237	TON	RIP RAP, CLASS B
3656000000-E	876	923	SY	FILTER FABRIC FOR DRAINAGE
4400000000-E	1110	128	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	56	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	60	EA	DRUMS
4435000000-N	1135	30	EA	CONES
4445000000-E	1145	64	LF	BARRICADES (TYPE III)
4450000000-N	1150	640	HR	FLAGGER
4465000000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
4650000000-N	1251	137	EA	TEMPORARY RAISED PAVEMENT MARKERS
4810000000-E	1205	19,220	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	135	LF	PAINT PAVEMENT MARKING LINES (24")
4900000000-N	1251	18	EA	PERMANENT RAISED PAVEMENT MARKERS
6000000000-E	1605	1,420	LF	TEMPORARY SILT FENCE
6006000000-E	1610	170	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	330	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	150	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	2.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.5	TON	FERTILIZER FOR TEMPORARY SEED-ING
6024000000-E	1622	50	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	2	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	300	LF	SAFETY FENCE
6030000000-E	1630	1,150	CY	SILT EXCAVATION
6036000000-E	1631	610	SY	MATTING FOR EROSION CONTROL
6038000000-E	SP	60	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	100	LF	1/4" HARDWARE CLOTH
6071030000-E	SP	390	LF	COIR FIBER BAFFLES
6084000000-E	1660	2.5	ACR	SEEDING & MULCHING
6087000000-E	1660	1.5	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	75	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	1.75	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	2	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	27	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.6	ACR	REFORESTATION

COMPUTED BY: AHJ DATE: 7/25/07
CHECKED BY: JBG DATE: 01/17/08

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4057	3-A

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	T.B.D.I. STD. 840.35	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	15" PLAIN CS PIPE CULVERT, 0.064" THICK	PIPE CLEANOUT	CONC. PIPE COLLARS, STD. 840.72	CORR. STEEL ELBOWS NO. & SIZE	BIT. COAT. CORR. STEEL ELBOWS NO. & SIZE	PIPE REMOVAL LIN.FT.	REMARKS
-L- STA. 22+45.00	LT.	1		392.88																																	1							1	1							
-L- STA. 22+45.00	RT.	2		392.88																																	1							1	1							
-L- STA. 22+45.00	LT.	1	2		390.13	389.32			24																																											
-L- STA. 22+45.00	RT.	2	OUT		389.32	385.00											24																																	2@15"		
-L- STA. 25+32.00	RT.	3		392.18																																	1							1	1							
-L- STA. 25+34.00	LT.	4		392.19																																	1							1	1							
-L- STA. 25+32.00	RT.	3	4		389.43	388.63			24																																											
-L- STA. 25+34.00	LT.	4	OUT		388.63	379.00											32																																	2@15"		
-L- STA. 26+14.00	LT.	5			389.00	381.00													64																																36	REMOVE 24" CONC
-Y- STA. 10+92.00	RT.	6			385.80	381.00					8																																				1	0.5526				
-DET- STA. 12+93	LT.	7		391.11																																	1							1	1							TEMPORARY DETOUR DRAINAGE
-DET- STA. 12+93	LT.	7	OUT		388.36	382.70																																								44			2@15"		44	TEMPORARY DETOUR DRAINAGE
PROJECT TOTAL									48		8						56		64																		5							5	5	44	1	0.5526	2@15"	4@15"	80	
SAY																																																1.0				

ABBREVIATIONS

C.B. CATCH BASIN
N.D.I. NARROW DROP INLET
D.I. DROP INLET
G.D.I. GRATED DROP INLET
G.D.I. (N.S.) GRATED DROP INLET (NARROW SLOT)
J.B. JUNCTION BOX
M.H. MANHOLE
T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX

"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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS GRAU 350	TYPE B-77	AT-1	TEMP. GRAU 350	TEMP. TYPE B-77	TEMP. AT-1	TEMP. 350, TL-2	IMPACT ATTENUATOR TYPE 350 EA	G	NG	REMARKS
-L-	20+62.50	22+75.00	RT	212.50			22+75.00		5	8	100		2		1	1									
-L-	24+85.00	-Y- 11+30.00	RT	50.00	56.25			24+85.00	5	8						1	1								
-L-	20+87.50	22+75.00	LT	187.50				22+00.00	5	8		87.50		1.75	1	1									
-L-	24+85.00	26+00.00	LT	75.00	56.25		24+85.00		5	8						1	1								
			SUB-TOTAL	525.00	112.5										2	4	2								
		LESS DEDUCTIONS FOR ANCHORS																							
		GRAU-350 2@50 =		-100																					
		TYPE B-77 4@18.75 =		-75																					
		AT-1 2@6.25 =			-12.5																				
ADDITIONAL GUARDRAIL POSTS = 10 EA.			PROJECT TOTAL	350.00	100.00																				
			SAY	375.00	100.00										2	4	2								
TEMPORARY GUARDRAIL																									
-DET-	11+77.00	13+14.50	RT	137.50			13+14.50		4	6								1	1						TEMPORARY GUARDRAIL
-DET-	15+09.50	-YDET- 11+05.00	RT	50.00	50.00			15+09.50	4	6									1	1					TEMPORARY GUARDRAIL
-DET-	12+39.50	13+14.50	LT	75.00				13+14.50	4	6								1	1						TEMPORARY GUARDRAIL
-DET-	15+09.50	15+59.50	LT	50.00			15+09.50		4	6									1		1				TEMPORARY GUARDRAIL
			SUB-TOTAL	312.50	50.00													2	4	1	1				
LESS DEDUCTIONS FOR ANCHORS			350, TL-2 1@25 =	-25																					
			GRAU-350 2@50 =	-100																					
			TYPE B-77 4@18.75 =	-75																					
			AT-1 1@6.25 =		-6.25																				
*ADDITIONAL GUARDRAIL POSTS = 20 EA.			PROJECT TOTAL	112.50	43.75																				
			SAY	125.00	50.00																				

*NOTE: INCLUDES 15 ADDITIONAL POST FOR 3'-1 1/2" POST SPACING FOR -DET- STA. 12+39.50 TO STA. 13+14.50 LT.

SUMMARY OF ASPHALT PAVEMENT REMOVAL

LINE	STATION TO STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-L-	22+57.00 TO 22+88.64	LT/RT	31.64	19.13	67.25
-L-	24+89.13 TO 26+75.00	LT/RT	185.87	21.00	433.70
-Y-	10+60.00 TO 11+13.38	LT/RT	53.38	20.00	118.62
-Y-	11+13.38 TO 11+75.63	LT/RT	2159.00		239.89
-DET-	10+25.54 TO 11+41.38	LT/RT	870.00		96.67
-DET-	11+41.38 TO 13+14.50	LT/RT	173.12	20.00	384.71
-DET-	15+09.50 TO 16+89.58	LT/RT	180.08	20.00	400.18
-DET-	16+89.58 TO 18+98.30	LT/RT	1760.00		195.56
-YDET-	10+60.00 TO 10+81.73	LT/RT	21.73	20.00	48.29
-YDET-	10+81.73 TO 11+37.96	LT/RT	1854.00		206.00
	TOTAL				2182.72
	SAY				2200

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COMPUTED BY: AHJ	DATE: 7/25/07
CHECKED BY: DWG	DATE: 2/12/08

PROJECT REFERENCE NO.	SHEET NO.
B-4057	3-B

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCL. EXCAVATION	EMBT+%	BORROW	WASTE
PHASE I (DETOUR)				
-DET- 10+00.00 TO 13+14.50 (BB)	13	1665	1652	
-DET- 15+09.50 (EB) TO 19+65.32	258	653	395	
-YDET- 10+60.00 TO 11+37.96	5	171	166	
PHASE I TOTALS	276	2489	2213	
PHASE II (-L-)				
-L- STA 20+00.00 TO 22+75.00 (BB)	129	136	7	
-L- STA 24+85.00 (EB) TO 28+00.00	134	220	86	
-Y- STA 10+60.00 TO 11+75.63	323	10		313
PHASE II TOTALS	586	366	93	313
PHASE III (DETOUR REMOVAL)				
-DET- STA 10+00.00 TO 13+14.50 (BB)	1273	27		1246
-DET- STA 15+09.50 (EB) TO 19+65.32	548	282		266
PHASE III TOTALS	1821	309		1512
PHASE TOTALS	2683	3164	2306	1825
LOSS DUE TO CLEARING & GRUBBING	-200		200	
WASTE IN LIEU OF BORROW			-313	-313
PROJECT TOTALS	2483	3164	2193	1512
5% TO REPLACE TOPSOIL ON BORROW PIT			110	
PROJECT GRAND TOTALS	2483		2303	1512
SAY	2500		2330	
ESTIMATED UNDERCUT=250 CY	SELECT GRANULAR MATERIAL=200 CY			
FABRIC FOR SOIL STABILIZATION=200 SY				

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.

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

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PROJECT REFERENCE NO.	SHEET NO.
B-4057	4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33871 DANIEL W. GARDNER, JR. 3/14/08

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 3/14/08

-L-

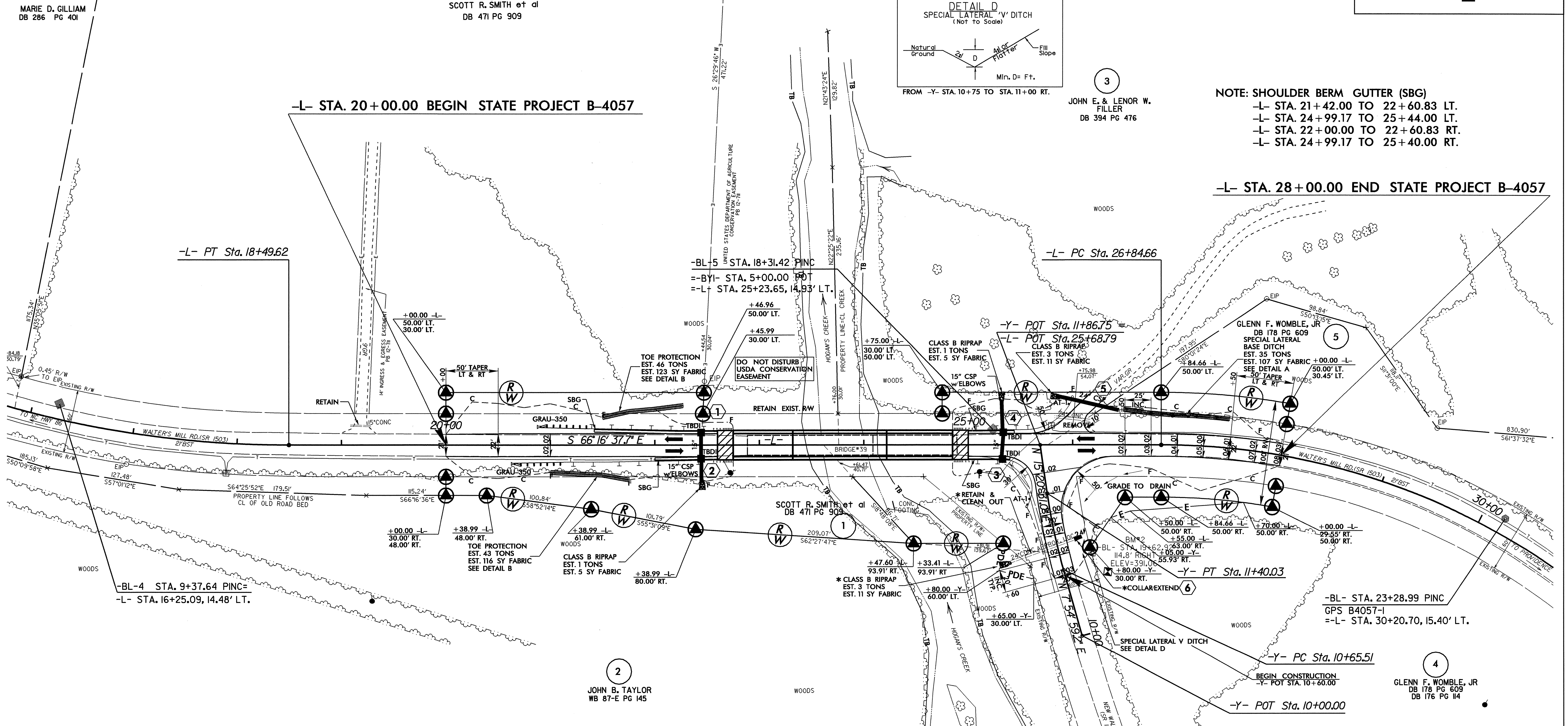
-L-		-Y-
PI Sta 16+89.48	PI Sta 29+30.50	PI Sta 11+02.82
Δ = 18° 30' 50.4" (LT)	Δ = 40° 51' 28.7" (RT)	Δ = 7° 25' 31.8" (RT)
D = 5° 43' 46.5"	D = 8° 40' 52.2"	D = 9° 57' 52.1"
L = 323.13'	L = 470.65'	L = 74.52'
T = 162.99'	T = 245.83'	T = 37.31'
R = 1,000.00'	R = 660.00'	R = 575.00'
	SE = SEE PLANS	SE = SEE PLANS

DETAIL A — SPECIAL LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 4:1 or Flatter; Fill Slope; Filter Fabric; B
Min. D = 1.0 ft. Max. d = 0.5 ft. B = 2.0 ft.
Type of Liner = Class B Rip-Rap
FROM -L- STA. 26+45 TO STA. 27+50 LT

DETAIL B — TOE PROTECTION (Not to Scale)
2:1 OR FLATTER; Fill Slope; d; Filter Fabric
d = 2.0 ft.
Type of Liner = Class B Rip-Rap
-L- STA. 21+00 TO STA. 21+75 RT
-L- STA. 21+50 TO STA. 22+30 LT

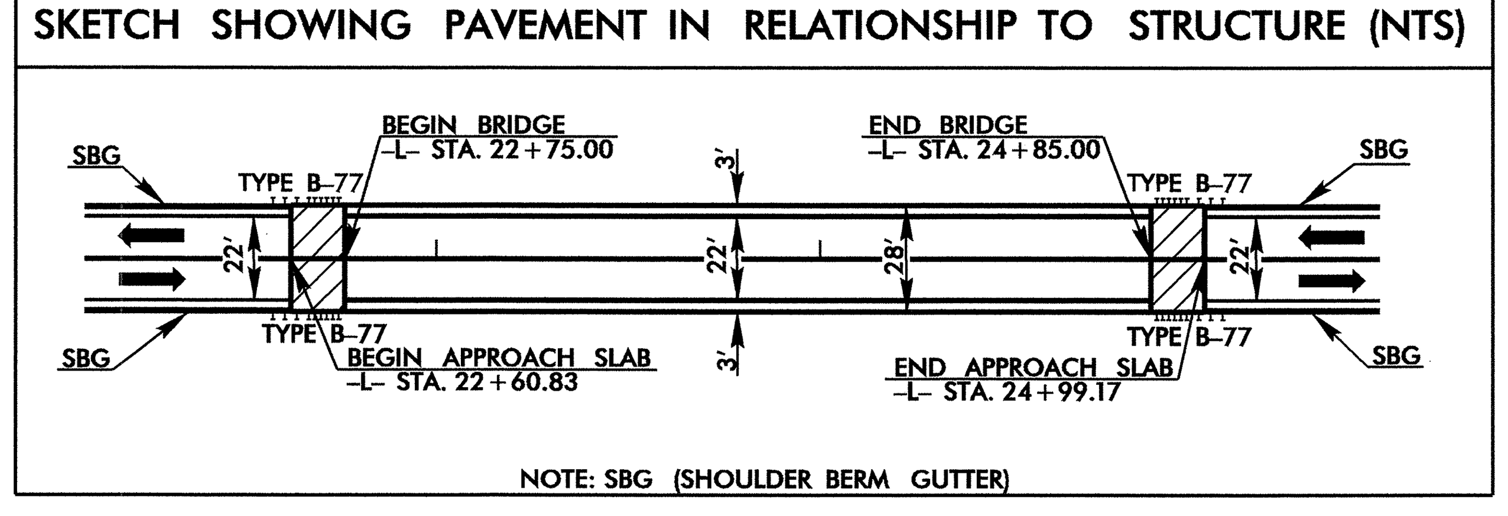
DETAIL D — SPECIAL LATERAL 'V' DITCH (Not to Scale)
Natural Ground; 2:1; D; 4:1 or Flatter; Fill Slope
Min. D = Ft.
FROM -Y- STA. 10+75 TO STA. 11+00 RT.

NOTE: SHOULDER BERM GUTTER (SBG)
-L- STA. 21+42.00 TO 22+60.83 LT.
-L- STA. 24+99.17 TO 25+44.00 LT.
-L- STA. 22+00.00 TO 22+60.83 RT.
-L- STA. 24+99.17 TO 25+40.00 RT.

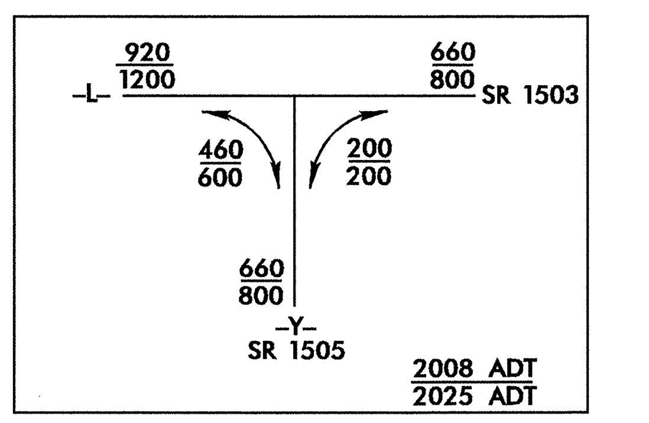


NAD 83
-L- STA. 20+00.00 BEGIN STATE PROJECT B-4057
-L- STA. 28+00.00 END STATE PROJECT B-4057
MARIE D. GILLIAM
DB 286 PG 401
1
SCOTT R. SMITH et al
DB 471 PG 909
3
JOHN E. & LENOR W. FILLER
DB 394 PG 476
-L- PT Sta. 18+49.62
-BL-5 STA. 18+31.42 PINC
=-BYI- STA. 5+00.00 POT
=-L- STA. 25+23.65, 14.93' LT.
-L- PC Sta. 26+84.66
-Y- POT Sta. 11+86.75 =
-L- POT Sta. 25+68.79
GLENN F. WOMBLE, JR
DB 178 PG 609
SPECIAL LATERAL BASE DITCH
EST. 35 TONS
EST. 107 SY FABRIC
SEE DETAIL A
TOE PROTECTION
EST. 46 TONS
EST. 123 SY FABRIC
SEE DETAIL B
DO NOT DISTURB USDA CONSERVATION EASEMENT
RETAIN EXIST. R/W
WALTER'S MILL RD. (SR 1503)
S 66° 16' 37.7" E
BRIDGE *39
HOGAN'S CREEK
WOODS
-BL-4 STA. 9+37.64 PINC=
-L- STA. 16+25.09, 14.48' LT.
TOE PROTECTION
EST. 43 TONS
EST. 116 SY FABRIC
SEE DETAIL B
CLASS B RIPRAP
EST. 1 TONS
EST. 5 SY FABRIC
* CLASS B RIPRAP
EST. 3 TONS
EST. 11 SY FABRIC
2
JOHN B. TAYLOR
WB 87-E PG 145
BM 12
ELEV=391.06
-Y- PT Sta. 11+40.03
*COLLAR EXTEND
SPECIAL LATERAL V DITCH
SEE DETAIL D
-Y- PC Sta. 10+65.51
BEGIN CONSTRUCTION
-Y- POT STA. 10+60.00
-Y- POT Sta. 10+00.00
-BL- STA. 23+28.99 PINC
GPS B4057-1
=-L- STA. 30+20.70, 15.40' LT.
4
GLENN F. WOMBLE, JR
DB 178 PG 609
DB 176 PG 114
OLD MILL RUINS
ROCK WALL
CONC. DAM RUINS
TO WALTER'S MILL RD.

SKETCH SHOWING PAVEMENT IN RELATIONSHIP TO STRUCTURE (NTS)



NOTE: SBG (SHOULDER BERM GUTTER)



*** BUILT DURING DETOUR CONSTRUCTION SEE SHEET 5**

NOTE: DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVES, SHOULDER WIDTH, AND STOPPING SIGHT DISTANCES.

NOTE: SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 6 FOR -Y- PROFILE
SEE SHEETS S-1 THRU S-39 FOR STRUCTURE PLANS

REVISIONS

8/17/99

06-MAR-2008 10:30

PROJECT REFERENCE NO.	SHEET NO.
B-4057	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR. 04/21/08

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 16533 ENGINEER 04/21/08

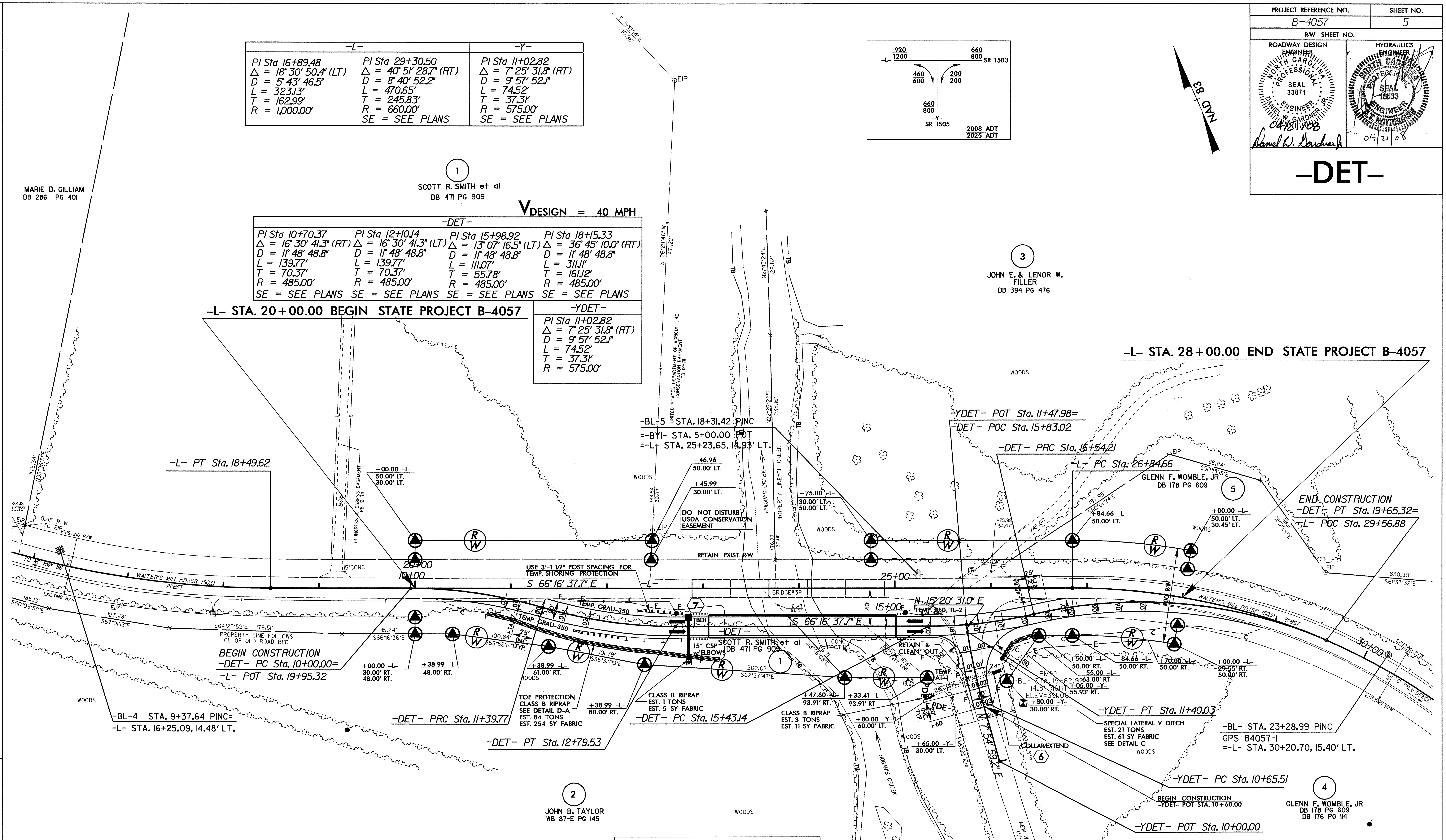
-DET-

-L-		-Y-
PI Sta 16+89.48	PI Sta 29+30.50	PI Sta 11+02.82
Δ = 18° 30' 50.4" (LT)	Δ = 40° 51' 28.7" (RT)	Δ = 7° 25' 31.8" (RT)
D = 5° 43' 46.5"	D = 8° 40' 52.2"	D = 9° 57' 52.1"
L = 323.13'	L = 470.65'	L = 74.52'
T = 162.99'	T = 245.83'	T = 37.31'
R = 1,000.00'	R = 660.00'	R = 575.00'
	SE = SEE PLANS	SE = SEE PLANS

V_{DESIGN} = 40 MPH

-DET-			
PI Sta 10+70.37	PI Sta 12+10.14	PI Sta 15+98.92	PI Sta 18+15.33
Δ = 16° 30' 41.3" (RT)	Δ = 16° 30' 41.3" (LT)	Δ = 13° 07' 16.5" (LT)	Δ = 36° 45' 10.0" (RT)
D = 11° 48' 48.8"	D = 11° 48' 48.8"	D = 11° 48' 48.8"	D = 11° 48' 48.8"
L = 139.77'	L = 139.77'	L = 111.07'	L = 311.11'
T = 70.37'	T = 70.37'	T = 55.78'	T = 161.12'
R = 485.00'	R = 485.00'	R = 485.00'	R = 485.00'
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS

-YDET-
PI Sta 11+02.82
Δ = 7° 25' 31.8" (RT)
D = 9° 57' 52.1"
L = 74.52'
T = 37.31'
R = 575.00'



SKETCH SHOWING PAVEMENT IN RELATIONSHIP TO STRUCTURE (NTS)

DETAIL D-A TOE PROTECTION (Not to Scale)

2:1 OR FLATTER — Fill Slope — Filter Fabric

d= 1.0 ft.

Type of Liner= Class B Rip-Rap

FROM -DET- STA. 10+83 TO STA. 13+25 RT

DETAIL C SPECIAL LATERAL 'V' DITCH (Not to Scale)

Natural Ground — 3:1 or Flatter — Fill Slope — Filter Fabric

Min. D= 2.0 Ft. Max. d= 1.0 Ft.

Type of Liner= CLASS B Rip-Rap

FROM -DET- STA. 16+34 TO STA. 16+59 RT
FROM -YDET- STA. 10+92 TO STA. 11+25 RT

NOTE: SEE SHEET 6 FOR -DET- PROFILE
SEE SHEET 6 FOR -YDET- PROFILE

REVISIONS

8/17/99

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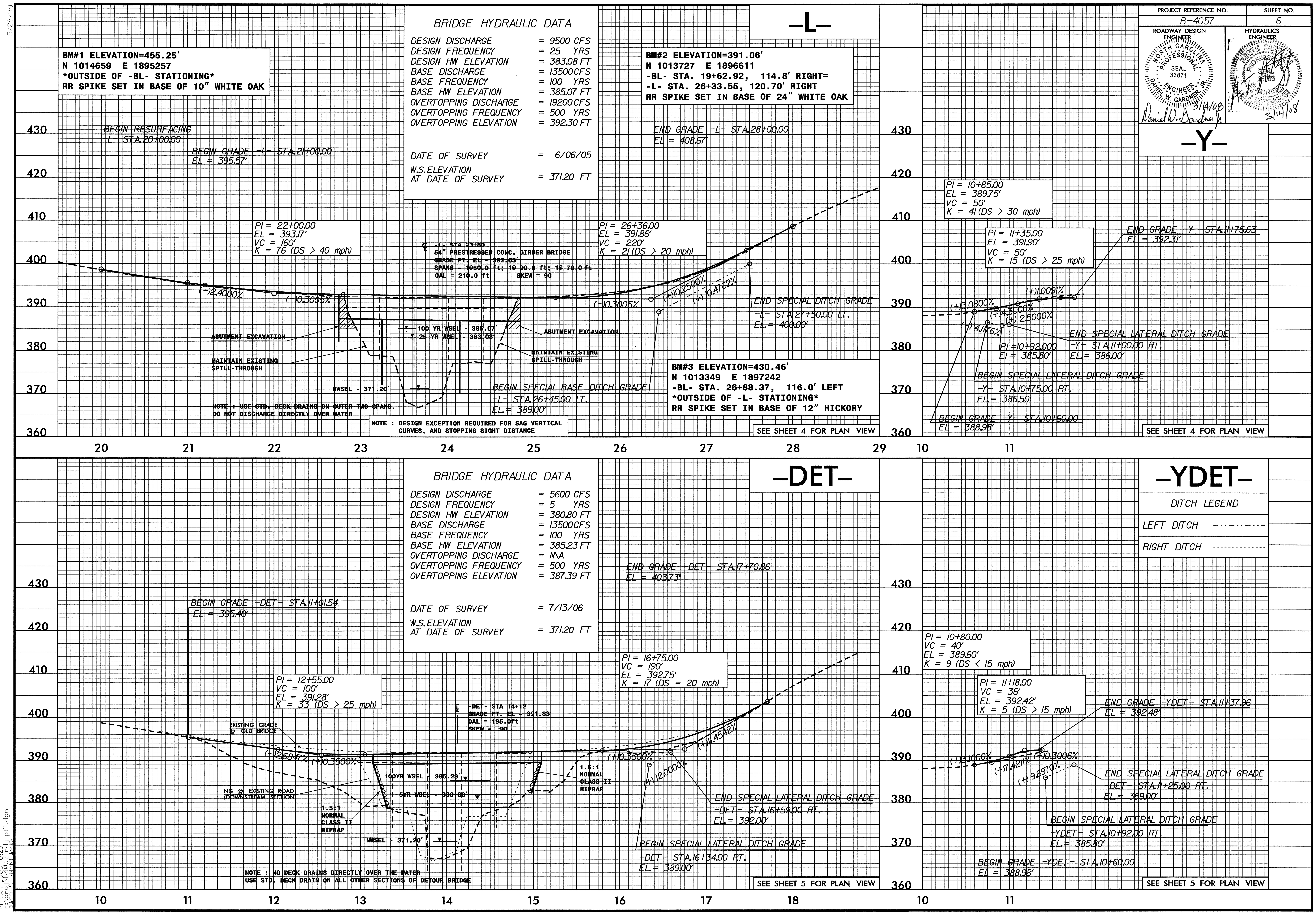

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