STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4012	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33380.1.1	BRZ-1118(3)	PE
33380.2.1	BRZ-1118(3)	R/W & UTIL.
33380.3.1	BRZ-1118(3)	CONST

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASHE COUNTY

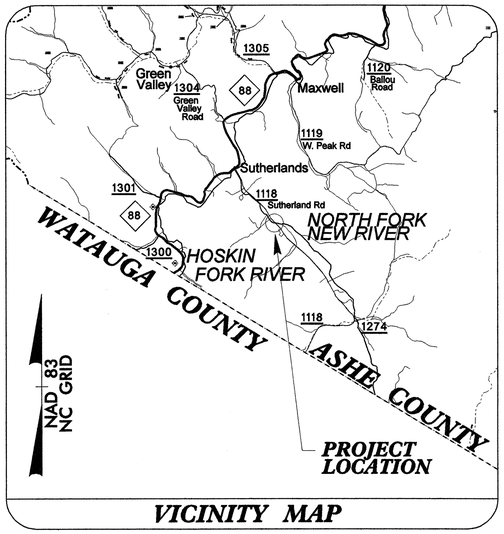
LOCATION: BRIDGE NO. 117 OVER NORTH FORK NEW RIVER ON SR 1118 (SUTHERLAND ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, & SIGNALS

TIP PROJECT: B-4012

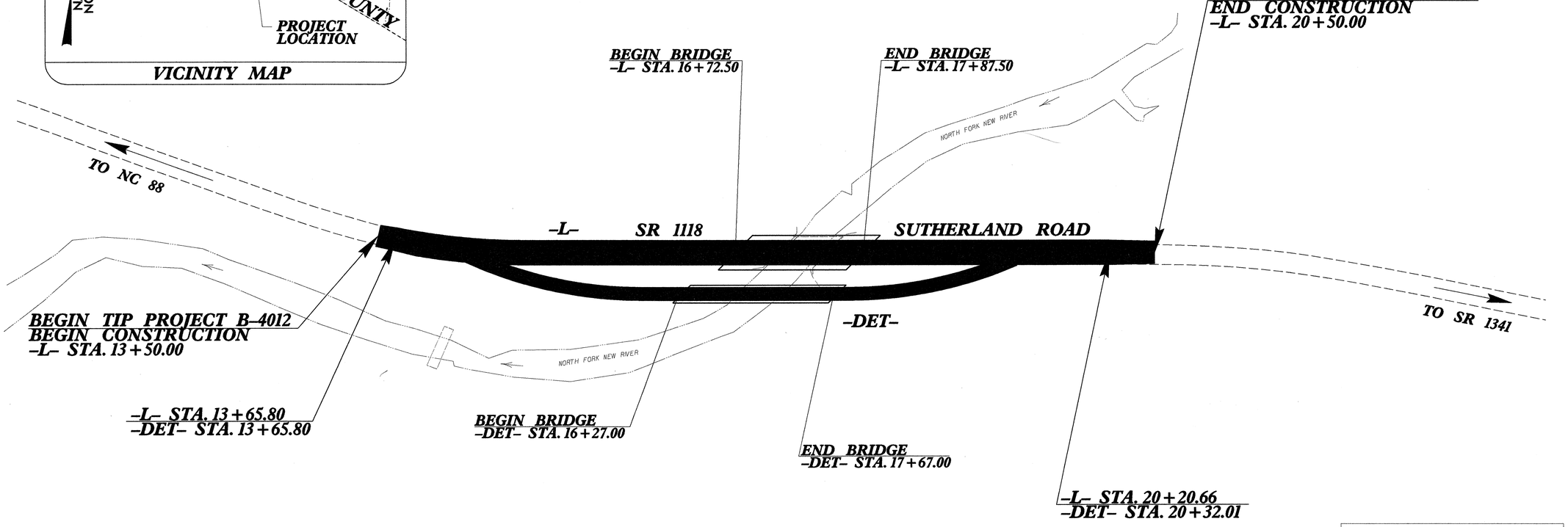
CONTRACT: C201767

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Plan Sheet Symbols



VICINITY MAP

NCGRID NAD 83



SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008 = 590
ADT 2025 = 800
DHV = 12 %
D = 60 %
T = 3 % *
V = 50 MPH
FUNC. CLASS. = LOCAL
* TTST 1% DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4012 = 0.111 MILES
LENGTH STRUCTURE TIP PROJECT B-4012 = 0.022 MILES
TOTAL LENGTH TIP PROJECT B-4012 = 0.133 MILES

Prepared for the North Carolina Department of Transportation in the Office of:
WETHERILL ENGINEERING
559 JONES FRANKLIN ROAD
SUITE 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 17, 2006

LETTING DATE: DEC. 16, 2008

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

BOB A. MAY, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT

DOUG TAYLOR, PE
ROADWAY DESIGN
STATE ENGINEERING COORD.
SECTION ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 09334 ENGINEER W. HENRY WELLS JR.

SIGNATURE: 7/21/08 P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

SIGNATURE: 7/31/08 P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4012	1-A

ETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
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Bus: 919 851 8077
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 12716 ENGINEER BOB A MAY

11-27-07

INDEX OF SHEETS

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.

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

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

TEMPORARY SHORING:
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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
BLUE RIDGE EMC
SKYLINE COMMUNICATIONS
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

2006 ROADWAY 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	
815.03	Pipe Underdrain and Blind Drain
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
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.02	Woven Wire Fence - with Wood Post
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

8:13:50 AM
P:\B-4012\Roadway\Proj\b4012_RDY_tsh.dgn
11/27/2007

PROJECT REFERENCE NO.	SHEET NO.
B-4012	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 High Quality Wetland Boundary — HQ 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
- River Basin Buffer — RBB
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Guage — 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
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equaility Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- 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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4012	1C
Location and Surveys	

SURVEY CONTROL SHEET B-4012

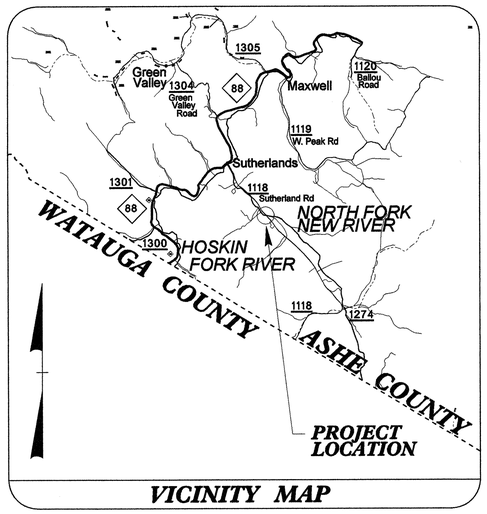
BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL3	(BL-3)	971051.6951	1209433.3550	3116.15′	OUTSIDE PROJECT LIMITS	
BL4	(BL-4)	970573.8255	1209652.3844	3115.92′	13+85.21	14.90 RT
BL5	(BL-5)	970299.5822	1209957.0233	3119.86′	17+92.60	13.78 LT
BL6	(BL-6)	969853.6120	1210337.8760	3128.05′	23+78.56	12.66 LT
B40121	(GPS B4012-1)	969449.7480	1210672.0410	3140.55′	OUTSIDE PROJECT LIMITS	

BM#1 ELEVATION = 3122.13′
N 971018 E 1209486
OUTSIDE PROJECT LIMITS
8" SPIKE IN THE ROOT OF 10" FORKED LOCUST ON THE NORTH SIDE OF SR 1118 SUTHERLAND RD.

BM#2 ELEVATION = 3114.46′
N 970326 E 1209801
L STATION 16+64 77′ RIGHT
8" SPIKE IN THE ROOT OF 36" HEMLOCK ON THE SOUTH SIDE OF THE CREEK

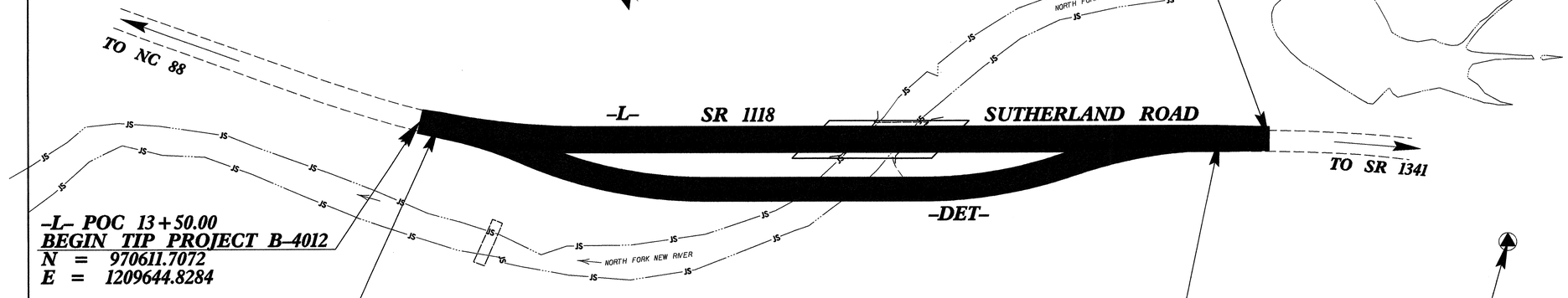
BM#3 ELEVATION = 3140.55′
N 969450 E 1210672
OUTSIDE PROJECT LIMITS
GPS B4012-1 IRON AND CAP



VICINITY MAP

-L- POC 20+50.00
END TIP PROJECT B-4012
N = 970108.3249
E = 1210129.8465

NC DOT GPS STATION B4012-2
LOCALIZED PROJECT COORDINATES
N = 968478.227
E = 1211773.611



-L- POC 13+50.00
BEGIN TIP PROJECT B-4012
N = 970611.7072
E = 1209644.8284

-L- STA. 13+65.80 =
-DET- STA. 13+65.80

-L- STA. 20+20.66 LA =
-DET- STA. 20+32.01 LB

NC DOT GPS STATION B4012-1
LOCALIZED PROJECT COORDINATES
N = 969449.748
E = 1210672.041

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS B4012-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 969449.7480(ft) EASTING: 1210672.0410(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99992164 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS B4012-1" TO -L- STATION 13+50.00 IS N 41° 28′ 40" W 1550.91′ ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

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

   THE FILES TO BE FOUND ARE AS FOLLOWS: TIP B4012_LS_CONTROL_051013.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.

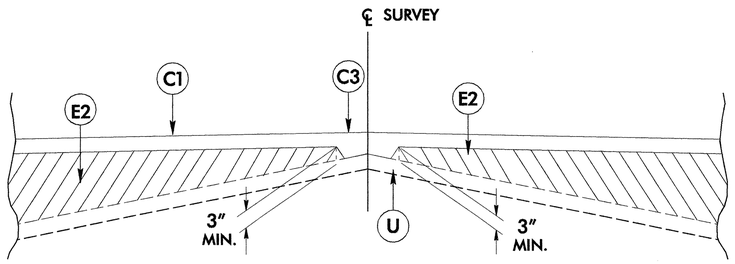
12:27:03 PM
P:\B-4012\LocationSurveys\SURVEY CONTROL\b4012_ls_lc_051013.dgn
10/27/2005

6/2/99

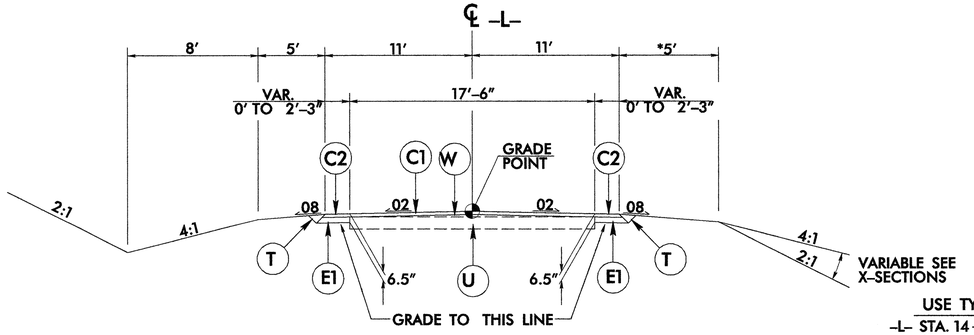
PAVEMENT SCHEDULE

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. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	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. 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 5½" IN DEPTH.
J1	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

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



Detail Showing Method of Wedging

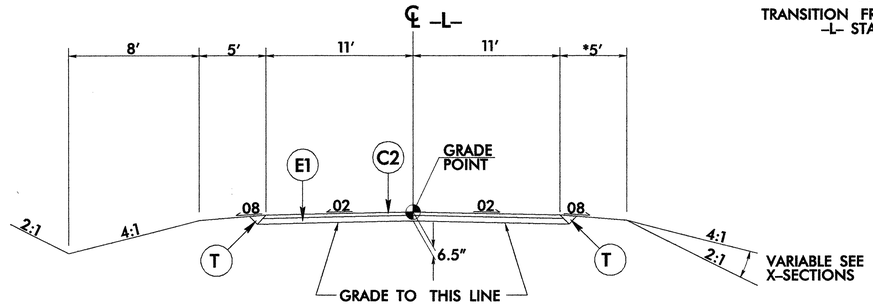


TYPICAL SECTION NO. 1
*NOTE: ADD 3′ FOR GUARDRAIL

USE TYPICAL SECTION NO. 1
–L– STA. 14+00.00 TO –L– STA. 16+20.00
–L– STA. 18+40.00 TO –L– STA. 20+00.00

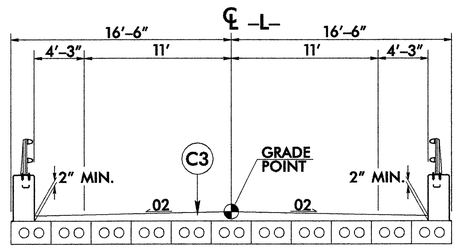
TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
–L– STA. 13+50.00 TO –L– STA. 14+00.00

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

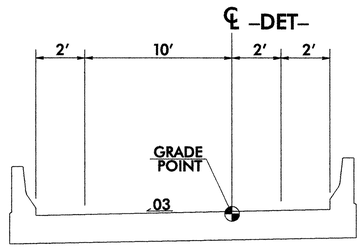


TYPICAL SECTION NO. 2
*NOTE: ADD 3′ FOR GUARDRAIL

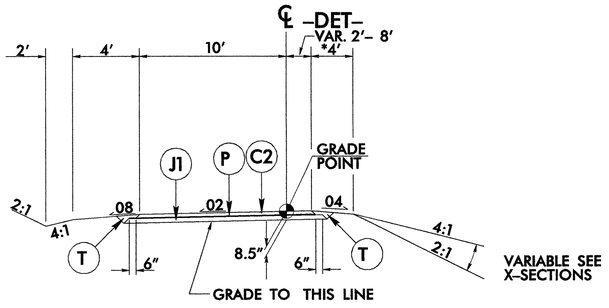
USE TYPICAL SECTION NO. 2
–L– STA. 16+20.00 TO –L– STA. 16+72.50 (BEGIN BRIDGE)
–L– STA. 17+87.50 (END BRIDGE) TO –L– STA. 18+40.00



TYPICAL SECTION NO. 3
USE TYPICAL SECTION NO. 3
–L– STA. 16+72.50 TO –L– STA. 17+87.50



TYPICAL SECTION NO. 5
USE TYPICAL SECTION NO. 5
–DET– STA. 16+27.00 TO –DET– STA. 17+67.00



TYPICAL SECTION NO. 4
*NOTE: ADD 2′ FOR GUARDRAIL

USE TYPICAL SECTION NO. 2
–DET– STA. 13+65.80 TO –DET– STA. 16+27.00 (BEGIN BRIDGE)
–DET– STA. 17+67.00 (END BRIDGE) TO –DET– STA. 20+32.01

PROJECT REFERENCE NO.	SHEET NO.
B-4012	2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL A21116 ENGINEER ROB A. MAY
11/27/07

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER DAVID CHI CHEN
11/28/07

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

8:12:32 AM
P:\B-4012\Roadway\Proj\B4012_RDY_typ.dgn
11/27/2007

8/17/99

REVISIONS

-DET-

PI Sta 14+04.34	PI Sta 15+19.89	PI Sta 18+44.51	PI Sta 19+69.89
Δ = 11° 35' 01.9" (RT)	Δ = 22° 59' 05.0" (LT)	Δ = 18° 54' 20.8" (LT)	Δ = 18° 54' 20.8" (RT)
D = 15° 04' 40.2"	D = 15° 04' 40.2"	D = 15° 04' 40.2"	D = 15° 04' 40.2"
L = 76.83'	L = 152.44'	L = 125.39'	L = 125.39'
T = 38.54'	T = 77.26'	T = 63.27'	T = 63.27'
R = 380.00'	R = 380.00'	R = 380.00'	R = 380.00'
SE = SEE PLANS	SE = 0.06	SE = 0.03	SE = SEE PLANS
RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS
V_{DES} = 35 MPH	V_{DES} = 35 MPH	V_{DES} = 35 MPH	V_{DES} = 35 MPH

NCGRID NAD 83

WETHERILL ENGINEERING
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Fax: 919 851 8107

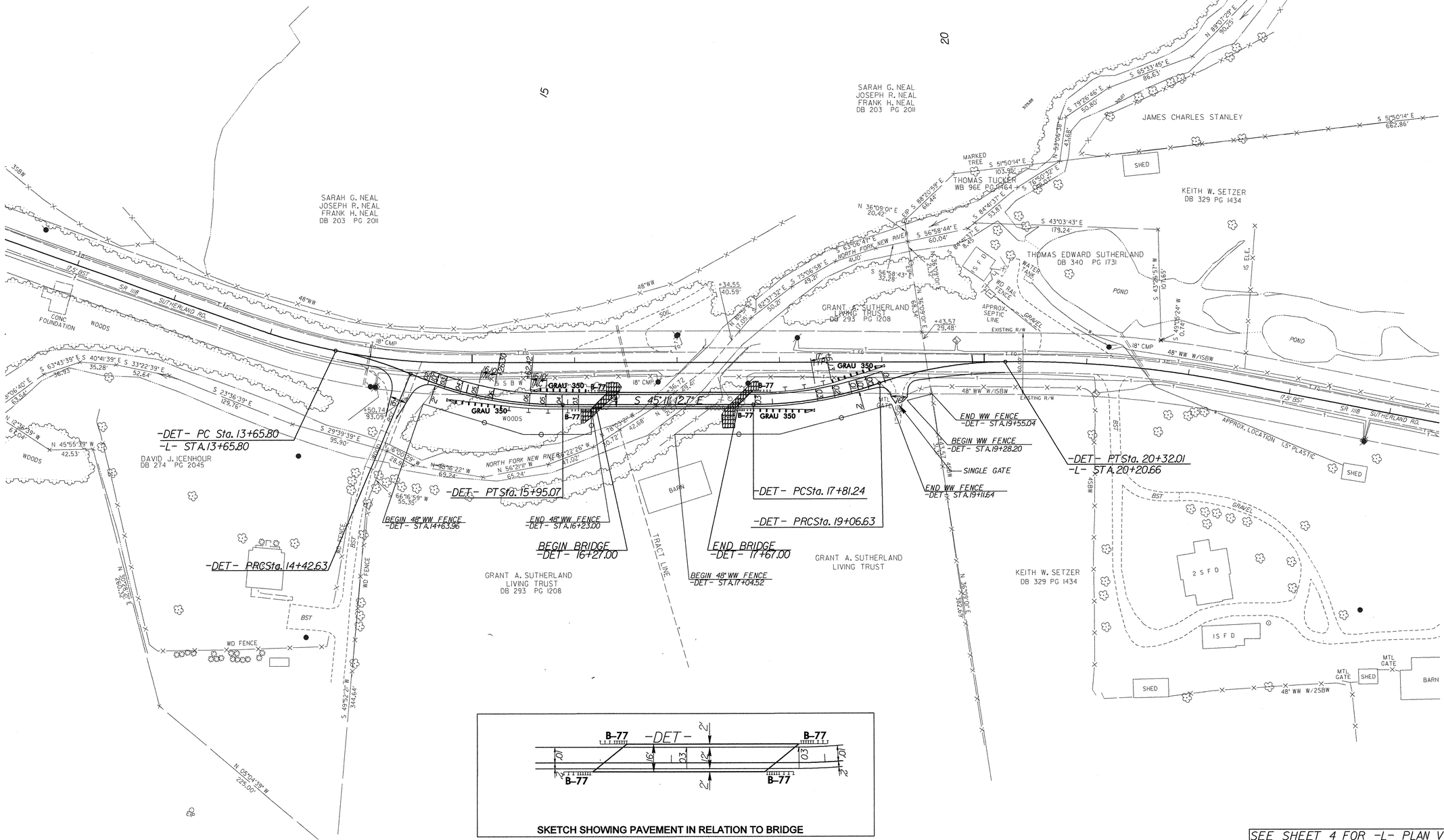
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258

PROJECT REFERENCE NO.	SHEET NO.
B-4012	2-A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21176 ENGINEER ROB A. MAY
11-27-07

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 09334 ENGINEER W. HENRY WELLS JR.
11/27/07



SKETCH SHOWING PAVEMENT IN RELATION TO BRIDGE

SEE SHEET 4 FOR -L- PLAN VIEW
SEE SHEET 5 FOR DETOUR PROFILE

2:40:06 PM
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10/22/2007

PROJECT REFERENCE NO.	SHEET NO.
B-4012	2-B

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

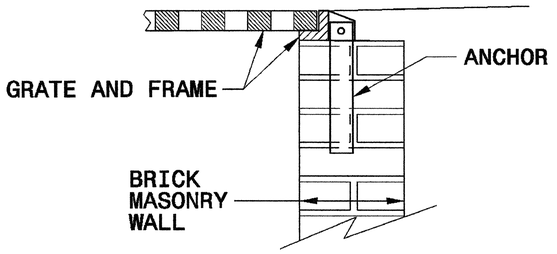
ENGLISH DETAIL DRAWING FOR

ANCHORAGE FOR FRAMES

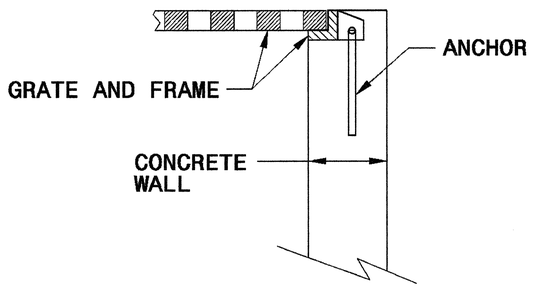
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1

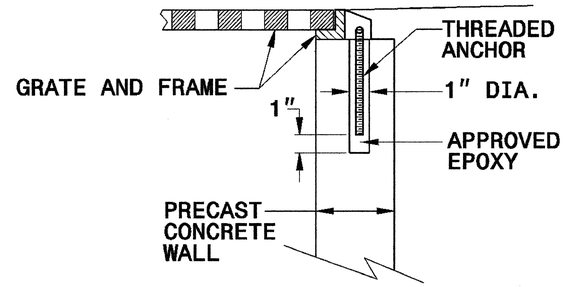
840D25



BRICK MASONRY CONSTRUCTION



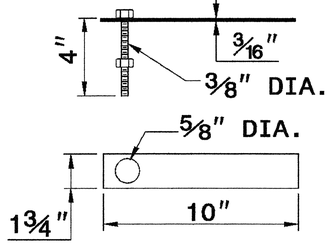
CONCRETE CONSTRUCTION



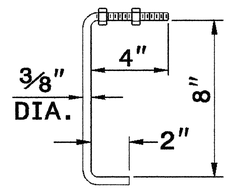
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

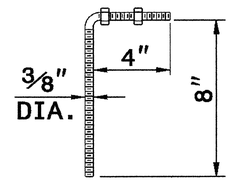
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



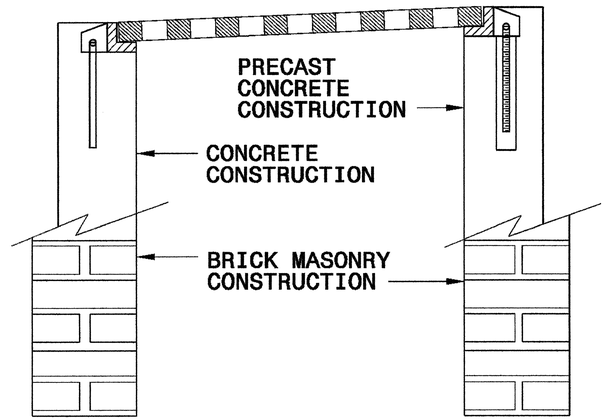
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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

ENGLISH DETAIL DRAWING FOR

ANCHORAGE FOR FRAMES

BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1

840D25

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOHN S. HOUSTON
11/30/07

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.:			

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S:\Contracts\PDSTD\Special Details\ericward\stds\06' Stds to Special Details\840425 Anchorage for Frames\0840d25.dgn
,ericward All PDSTD253

6/4/99

COMPUTED BY: ABP DATE: 5/9/05
CHECKED BY: _____ DATE: _____

PROJECT REFERENCE NO.	SHEET NO.
B-4012	3

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201767

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (17+30.00)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	500	CY	UNDERCUT EXCAVATION
0080000000-E	SP	600	TON	CLASS IV SUBGRADE STABILIZATION
0134000000-E	240	83	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	500	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	20	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0343000000-E	310	44	LF	15" SIDE DRAIN PIPE
0366000000-E	310	116	LF	15" RC PIPE CULVERTS, CLASS III
0708000000-E	310	16	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0995000000-E	340	55	LF	PIPE REMOVAL
1121000000-E	520	260	TON	AGGREGATE BASE COURSE
1220000000-E	545	50	TON	INCIDENTAL STONE BASE
1275000000-E	600	270	GAL	PRIME COAT
1489000000-E	610	140	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	350	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	29	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	8	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2022000000-E	815	67	CY	SUBDRAIN EXCAVATION
2033000000-E	815	50	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	300	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)
2286000000-N	840	3	EA	MASONRY DRAINAGE STRUCTURES
2355000000-N	840	3	EA	FRAME WITH GRATE, STD 840.29
3030000000-E	862	275	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3210000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3380000000-E	862	150	LF	TEMPORARY STEEL BM GUARDRAIL
3387000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ********** TEMPORARY (B-77)
3389100000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY
3503000000-E	866	440	LF	WOVEN WIRE FENCE, 47" FABRIC
3509000000-E	866	20	EA	4" TIMBER FENCE POSTS, 7'-6" LONG
3515000000-E	866	30	EA	5" TIMBER FENCE POSTS, 8'-0" LONG
3564000000-E	866	1	EA	SINGLE GATES, **' HIGH, **' WIDE, **' OPENING (47" HIGH, 19' WIDE, 19' OPENING)
3574000000-E	867	355	LF	GENERIC FENCING ITEM WOVEN WIRE FENCE RESET (INCLUDE GATE RESET)
3649000000-E	876	11	TON	RIP RAP, CLASS B
3656000000-E	876	540	SY	FILTER FABRIC FOR DRAINAGE
4400000000-E	1110	196	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	32	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	23	EA	DRUMS
4435000000-N	1135	23	EA	CONES
4445000000-E	1145	32	LF	BARRICADES (TYPE III)
4450000000-N	1150	960	HR	FLAGGER
4480000000-N	1165	1	EA	TMIA
4810000000-E	1205	15,134	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	18	LF	PAINT PAVEMENT MARKING LINES (24")
4850000000-E	1205	646	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
6000000000-E	1605	650	LF	TEMPORARY SILT FENCE
6006000000-E	1610	90	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	140	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	235	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	1.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6029000000-E	SP	350	LF	SAFETY FENCE
6030000000-E	1630	430	CY	SILT EXCAVATION
6036000000-E	1631	550	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	25	SY	COIR FIBER MAT
6042000000-E	1632	60	LF	1/4" HARDWARE CLOTH
6070000000-N	SP	8	EA	SPECIAL STILLING BASINS
6071030000-E	SP	95	LF	COIR FIBER BAFFLES
6071050000-E	SP	4	EA	*** SKIMMER (1-1/2")
6084000000-E	1660	2	ACR	SEEDING & MULCHING
6087000000-E	1660	1	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	1.25	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	2	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.3	ACR	REFORESTATION
7060000000-E	1705	1,260	LF	SIGNAL CABLE
7120000000-E	1705	8	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
7264000000-E	1710	610	LF	MESSENGER CABLE (3/8")
7360000000-N	1720	6	EA	WOOD POLE
7372000000-N	1721	6	EA	GUY ASSEMBLY
7408000000-E	1722	1	EA	1" RISER WITH WEATHERHEAD
7420000000-E	1722	3	EA	2" RISER WITH WEATHERHEAD
7444000000-E	1725	375	LF	INDUCTIVE LOOP SAWCUT
7456000000-E	1726	1,610	LF	LEAD-IN CABLE (**********) (14-2)
7636000000-N	1745	6	EA	SIGN FOR SIGNALS
7768000000-N	1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070L, POLE MOUNTED)
7780000000-N	1751	2	EA	DETECTOR CARD (TYPE 2070L)

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10/27/2005

6/4/99

COMPUTED BY: ABP DATE: 8/10/07
CHECKED BY: BAM DATE: 8/11/07

PROJECT REFERENCE NO.	SHEET NO.
B-4012	3-A

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
SUMMARY NO.1					
–DET– STA. 13+65.80 TO –DET– STA. 16+27.00(BEG BRIDGE)	6		728	722	
–DET– STA. 17+67.00(END BRIDGE) TO –DET– STA. 20+32.01	16		495	479	
TOTAL SUMMRY NO.1	22		1223	1201	
SUMMARY NO.2					
–L– STA. 13+50.00 TO –L– STA. 16+71.00(END BRIDGE)	74		148	74	
–L– STA. 17+86.00(END BRIDGE) TO –L– STA. 20+50.00	12		135	123	
TOTAL SUMMARY NO. 2	86		283	197	
SUMMARY NO.3 –DET– REMOVAL					
–DET– STA. 13+65.80 TO –DET– STA. 16+27.00(BEG BRIDGE)	599				599
–DET– STA. 17+67.00(END BRIDGE) TO –DET– STA. 20+32.01	393				393
TOTAL SUMMARY NO. 3	992				992
PROJECT SUBTOTAL	1100		1506	1398	992
LOSS DUE TO CLEARING & GRUBBING	–75			75	
EST. SHOULDER MATERIAL			14	14	
5% TO REPLACE TOPSOIL ON BORROW PITS				74	
PROJECT TOTAL	1025			1561	992
SAY	1050			1590	
CONTINGENCY UNDERCUT = 500 CY					

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

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

LOCATION	REMOVAL OF EXIST. ASPHALT PAVEMENT	BREAKING OF EXIST. ASPHALT PAVEMENT
–L– 16+40.00 TO EXISTING BRIDGE	141.01	
–L– EXISTING BRIDGE TO 18+16.00	116.83	
–DET– 13+73.74 TO 16+27.00 (BEG BRIDGE)	363.19	
–DET– 17+67.00 (END BRIDGE) TO 20+32.01	297.71	
PROJECT SUBTOTAL	918.77	
SAY	920	

WOVEN WIRE FENCE

IN LINEAR FEET

LINE	STATION TO STATION	LOCATION	LENGTH
–DET–	14+63.96 TO 16+23.00	RT	193.63
–DET–	17+04.52 TO 19+11.64	RT	215.63
–DET–	19+28.20 TO 19+55.04	RT	25.14
	TOTAL		434.40
	SAY		440

WOVEN WIRE FENCE RESET

IN LINEAR FEET

LINE	STATION TO STATION	LOCATION	LENGTH
–L–	14+61.21 TO 16+57.00	RT	195.79
–L–	17+70.58 TO 19+07.74	RT	135.74
–L–	19+26.76 TO 19+48.97	RT	22.21
	TOTAL		353.74
	SAY		355.00

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11/27/2007

6/21/00

COMPUTED BY: ABP	DATE: 8/10/07	PROJECT REFERENCE NO.	SHEET NO.
CHECKED BY: BAM	DATE: 8/11/07	B-4012	3-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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)								BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE)								CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D							
SIZE								12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"
THICKNESS OR GAUGE																.064	.064	.064	.064	.079	.079	.109	.109								
-L- 16+66.89	LT	1		3119.0	3116.2																										
	LT	1	2		3116.2	3115.9			32																						
-L- 16+40.00	RT	2		3118.7	3115.9																										
	RT	2	3		3115.9	3115.0			84																						
-L- 15+53.24	RT	3		3117.7	3115.0																										
	RT	3	4		3115.0	3114.0											16														
-L- 16+58.11	LT	5			3112.9	3112.7																									
PROJECT TOTAL									116								16														

STATION	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 PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') 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			D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32		TBDI, STD. 840.35	G.D.I. (N.S.) FRAME WITH TWO FLAT GRATES STD. 840.29				CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
-L- 16+66.89						1																				1	1							55	REMOVE EX. PIPE
-L- 16+40.00						1																				1	1								
-L- 15+53.24						1																				1	1								
-L- 16+58.11	44																																		
PROJECT TOTAL	44					3																				3	3							55	

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			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	XI MOD	XI	GRAU 350	M-350	TYPE III	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	14+57.00	16+57.00	RT	200.00			16+57.00		4.42	8.00	50.00		1.00				1		1											
-L-	16+60.00	16+85.00	LT	25.00				16+85.00	4.42	8.00									1	1										
-L-	17+99.26	19+99.26	LT	200.00			17+99.26		4.42	8.00	50.00		1.00				1		1											
-L-	17+72.00	18+47.00	RT	75.00				17+72.00	4.42	8.00		50.00		1.00			1		1											
PROJECT SUBTOTAL				500.00													3		4	1										
															GUARDAIL ANCHOR DEDUCTIONS															
LESS GUARDRAIL ANCHOR UNITS				(-) 231.25													CAT-1= 1@6.25' = 6.25'													
																	GRAU 350= 3@50' = 150'													
PROJECT TOTAL				268.75													TYPE III = 4@18.75' = 75'													
SAY				275.00			ADDITIONAL GUARDRAIL POSTS = 5 EA.														231.25'									

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	XI MOD	XI	GRAU 350	M-350	B-77	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-DET-	14+85.50	16+23.00	RT	137.50			16+23.00		2	6	43.75		0.875				1		1											
-DET-	15+64.00	16+39.00	LT	75.00				16+39.00	2	6		50.00		1.00			1		1											
-DET-	17+79.00	19+16.50	LT	137.50			17+79.00		2	6	43.75		0.875				1		1											
-DET-	17+63.00	18+38.00	RT	75.00				17+63.00	2	6		50.00		1.00			1		1											
PROJECT SUBTOTAL				425.00													4		4											
															GUARDAIL ANCHOR DEDUCTIONS															
LESS GUARDRAIL ANCHOR UNITS				(-) 275																										
																	GRAU 350= 4@50' = 200'													
PROJECT TOTAL				150.00													B-77 = 4@18.75' = 75'													
SAY				150.00																	275.00'									

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11/27/2007

8/17/99

REVISIONS

-L-	
PI Sta 13+82.15	PI Sta 21+36.41
Δ = 19° 52' 50.3" (LT)	Δ = 11° 03' 59.9" (RT)
D = 9° 32' 57.5"	D = 5° 30' 33.2"
L = 208.19'	L = 200.88'
T = 105.15'	T = 100.75'
R = 600.00'	R = 1,040.00'
SE = SEE PLANS	SE = SEE PLANS
RO = SEE PLANS	RO = SEE PLANS
V_{DES} = 40MPH	V_{DES} = 50MPH

NCGRID NAD 83

ETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258

PROJECT REFERENCE NO.	SHEET NO.
B-4012	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21176 ENGINEER BOB A. MAY — 11-27-07

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 09334 ENGINEER W. HENRY WELLS JR. — 11/27/07

10 15 20

BEGIN TIP PROJECT B-4012
BEGIN CONSTRUCTION
-L- STA.13+50.00

-L- PCSta. 12+77.00

-L- PTSta. 14+85.19

BEGIN BRIDGE
-L- STA.16+72.50

END BRIDGE
-L- STA.17+87.50

-L- PCSta. 20+35.66

-L- PTSta. 22+36.53

S 25°18'22.4" E
S 25°18'22.4" E

S 51°50'14" E
662.86'

S 34°07'12.7" E

S 45°11'12.7" E

-BL-4 10+25.67 PINC
-L- STA. 13+85.21
OFF 14.8995'

-BL-5 14+35.57 PINC
-L- STA. 17+92.60
OFF -13.7755'

-BL-6 20+22.03 PINC
-L- STA. 23+78.56
OFF -12.6598'

END TIP PROJECT B-4012
END CONSTRUCTION
-L- STA.20+50.00

SARAH G. NEAL
JOSEPH R. NEAL
FRANK H. NEAL
DB 203 PG 2011

FRANK H. NEAL
DB 203 PG 2011

JAMES CHARLES STANLEY
DB 122 PG 1120

THOMAS TUCKER
WB 966 PG 1964

KEITH W. SETZER
DB 329 PG 1434

THOMAS EDWARD SUTHERLAND
DB 340 PG 1731

GRANT A. SUTHERLAND
LIVING TRUST
DB 293 PG 1208

DAVID J. ICENHOUR
DB 274 PG 2045

EXISTING BRIDGE TO BE REMOVED (STRUCTURE PAY ITEM)

CLASS 'B' RIP RAP EST 10 TONS SEE DETAIL #3

V-DITCH EST DDE=83 CY SEE DETAIL #2

SPECIAL LAT 'V' DITCH SEE DETAIL #1

TBDI W/ FLAT GRATE

CLASS II RIP RAP TO TOP OF BERM (STRUCTURE PAY ITEM)

CL 'B' RIPRAP EST 1 TON EST 5 SY FF

BM#2
-BL- STA 13+02.21
84.57' RIGHT
ELEV.314.46

BEGIN WW FENCE RESET
-L- STA.14+61.21

END WW FENCE RESET
-L- STA.16+57.00

BEGIN WW FENCE RESET
-L- STA.17+72.00

END WW FENCE RESET
-L- STA.19+01.74

BEGIN WW FENCE RESET
-L- STA.19+26.76

END WW FENCE RESET
-L- STA.19+48.97

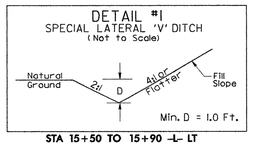
SINGLE GATE

REMOVE

GRAU 350

TYPE-III

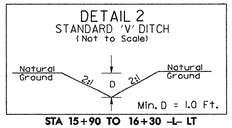
DETAIL #1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.

STA 15+50 TO 15+90 -L- LT

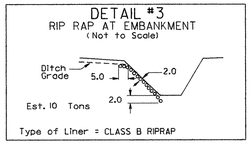
DETAIL 2
STANDARD 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.

STA 15+90 TO 16+30 -L- LT

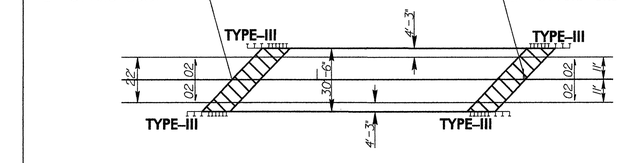
DETAIL #3
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = CLASS B RIPRAP

BEGIN APPROACH SLAB
-L- STA.16+58.91

END APPROACH SLAB
-L- STA.18+01.09



SKETCH SHOWING PAVEMENT IN RELATION TO BRIDGE

SEE SHEET 2-A FOR DETOUR
SEE SHEET 5 FOR -L- PROFILE
SEE SHEET S-1 THRU S-27 FOR STRUCTURE PLANS

8:04:10 AM
P:\B-4012\Roadway\Proj\b4012_RDY_psh.dgn
11/27/2007

5/28/99

BM#2 N 970326 E 1209801
EL = 3114.46
BL STA.13+02 85' RIGHT
8" SPIKE IN THE ROOT OF 36" HEMLOCK ON THE SOUTH SIDE OF THE CREEK
-L- STA.16+63.56 OFF 77.25' RT.

-L-

BEGIN GRADE
-L- STA.14+00.00
EL = 3116.34
(INCLUDES 1.25" RESURF.)

PI = 15+00.00
EL = 3116.70'
VC = 130'
K = 103

PI = 16+45.00
EL = 3119.05'
VC = 50'
K = 153

C STA 17+30 -L-
1@30', 1@58', 1@27" 21" CORED SLAB BRIDGE
SKEW=135
GRADE POINT=3120.15

BEGIN BRIDGE
-L- STA.16+72.50

END BRIDGE
-L- STA.17+87.50

END GRADE
-L- STA.20+00.00
EL = 3123.65'
(INCLUDES 1.25" RESURF.)

(+)1.6207%
(+)1.2946%
(+)0.3580%
(-) 1.9400%
(-) 0.5000%

3' MIN
3' MIN

FEATHER FROM EXISTING

FEATHER TO EXISTING

BEGIN DITCH GRADE LT
-L- STA.15+00
EL = 3114.07

PI =15+50.000
EL = 3113.10

END DITCH GRADE LT
-L- STA.15+90
EL = 3112.90

EXCAVATE TO NG
EST 80 CY

EXCAVATE TO NG
EST 80 CY

1.5:1 NORMAL
2.12:1 SKEWED
CLASS II RIPRAP
TO TOP OF BERM

NWSE AND WSE DATE OF SURVEY (12/9/04)=3113.0

STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 1800 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 3120.4FT
BASE DISCHARGE	= 3310 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 3122.5FT
OVERTOPPING DISCHARGE	= -1800CFS
OVERTOPPING FREQUENCY	= -25 YRS
OVERTOPPING ELEVATION	= 3119.1 FT

SEE SHEET 4 FOR -L- PLAN VIEW

-DET-

BEGIN GRADE
-DET- STA.14+30.50
EL = 3116.42'

PI = 14+62.00
EL = 3,116.76'
VC = 60'
K = 1349

BEGIN BRIDGE
-DET- STA.16+27.00

END BRIDGE
-DET- STA.17+67.00

END GRADE
-DET- STA.19+46.30
EL = 3122.48'

PI = 19+12.00
EL = 3,121.85'
VC = 65'
K = 91

(+)1.0857%
(+)1.1302%
(+)1.1302%
(+)1.8485%

STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 1705 CFS
DESIGN FREQUENCY	= 5 YRS
DESIGN HW ELEVATION	= 3117.6 FT
BASE DISCHARGE	= 3310 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 3121.3 FT
OVERTOPPING DISCHARGE	= -1800CFS
OVERTOPPING FREQUENCY	= -25 YRS
OVERTOPPING ELEVATION	= 3119.1 FT

SEE SHEET 2-A FOR -DETOUR- PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
B-4012	5

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 11116 ENGINEER BOB A. MAY
11-27-07

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 09334 ENGINEER W. WENRY WELLS JR.
11/27/07

J:\4\53 PM
P:\B-4012\Roadway\Proj\b4012_RDY_pf1.dgn
10/22/2007