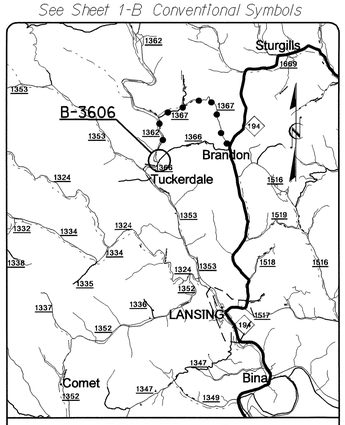
09/08/99

TIP PROJECT: B-3606

CONTRACT: C 201765

13-NOV-2007 08:24
r:\roadway\proj\b3606_rdy_tsh.dgn
$$$$USERNAME$$$$

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASHE COUNTY

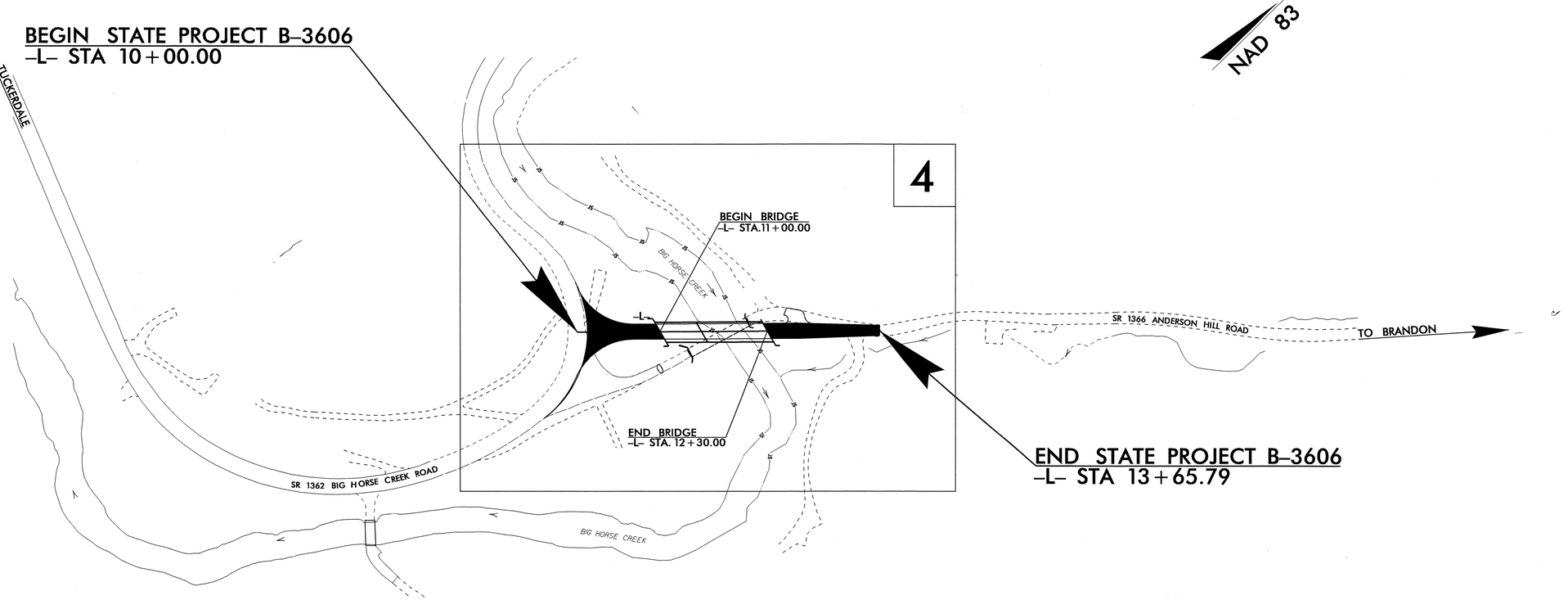
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3606	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33159.1.1	BRZ-1366(1)	PE
33159.2.1	BRZ-1366(1)	R/W, UTIL.
33159.3.1	BRZ-1366(1)	CONST.

LOCATION: BRIDGE 70 OVER BIG HORSE CREEK ON SR 1366 (ANDERSON HILL ROAD)

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

NAD 83



GRAPHIC SCALES

PLANS: 25 0 20 40

PROFILE (HORIZONTAL): 25 0 20 40

PROFILE (VERTICAL): 5 0 5 10

DESIGN DATA

ADT 2007	=	224
ADT 2030	=	400
DHV	=	12 %
D	=	60 %
T	=	3 % *
V	=	30 MPH
FUNC CLASS	=	RURAL LOCAL
* TTST 1		DUAL 2

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-3606	=	0.044 mi
LENGTH OF STRUCTURE TIP PROJECT B-3606	=	0.025 mi
TOTAL LENGTH OF TIP PROJECT B-3606	=	0.069 mi

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 15, 2006

LETTING DATE: FEBRUARY 19, 2008

JIMMY GOODNIGHT, P.E.
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL ATKINSON JR.
SIGNATURE:

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 14493 ENGINEER JAMES D. GOODNIGHT JR.
SIGNATURE: 11-22-07

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

PROJECT REFERENCE NO.	SHEET NO.
B-3606	1-A

ROADWAY DESIGN ENGINEER

SEAL 14493
JAMES STAFFORD GOODNIGHT, JR.
11-26-07

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS, LIST OF STANDARDS, GENERAL NOTES

INDEX OF SHEETS

SHEET NUMBERS	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTION NO. 1 AND 2
2A	DETAIL OF ANCHORAGE OF FRAMES
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF EARTHWORK, ASPHALT PAVEMENT REMOVAL SUMMARY, DRAINAGE SUMMARY, GUARDRAIL SUMMARY
4	PLAN SHEETS
5	PROFILE SHEETS
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
SD-1	SPECIAL SIGN DESIGN PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS SECTIONS SUMMARY
X-2 THRU X-11	CROSS SECTIONS
S-1 THRU S-24	STRUCTURE PLANS

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
DIVISION 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	
806.01	Concrete Right-of-Way Marker
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
840.66	Drainage Structure Steps
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
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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.

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 ELECTRIC MEMBERSHIP COORPORATION

SKYLINE TELEPHONE MEMBERSHIP COORPORATION

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS AND BY CONTRACT IN ACCORDANCE WITH DESIGNATED SYMBOLS.

PROJECT REFERENCE NO.	SHEET NO.
B-3606	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 — 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-3606	1C
Location and Surveys	

SURVEY CONTROL SHEET B-3606

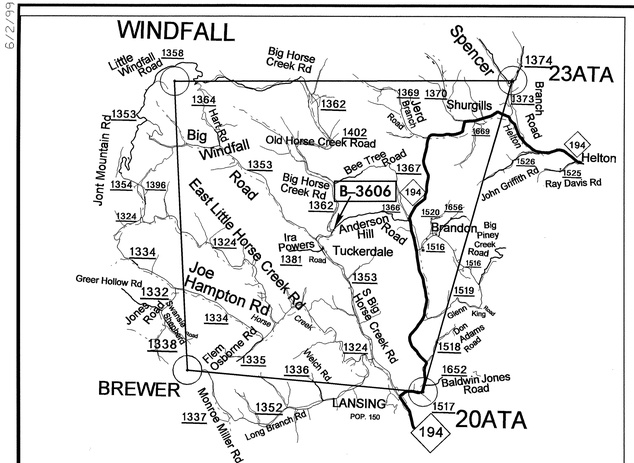
BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
B36061	GPS B3606-1	1021946.5620	1256519.3250	2718.92′	10+16.47	11.02′ RT
B36062	GPS B3606-2	1022443.4260	1256960.8970	2732.01′	OUTSIDE PROJECT LIMITS	

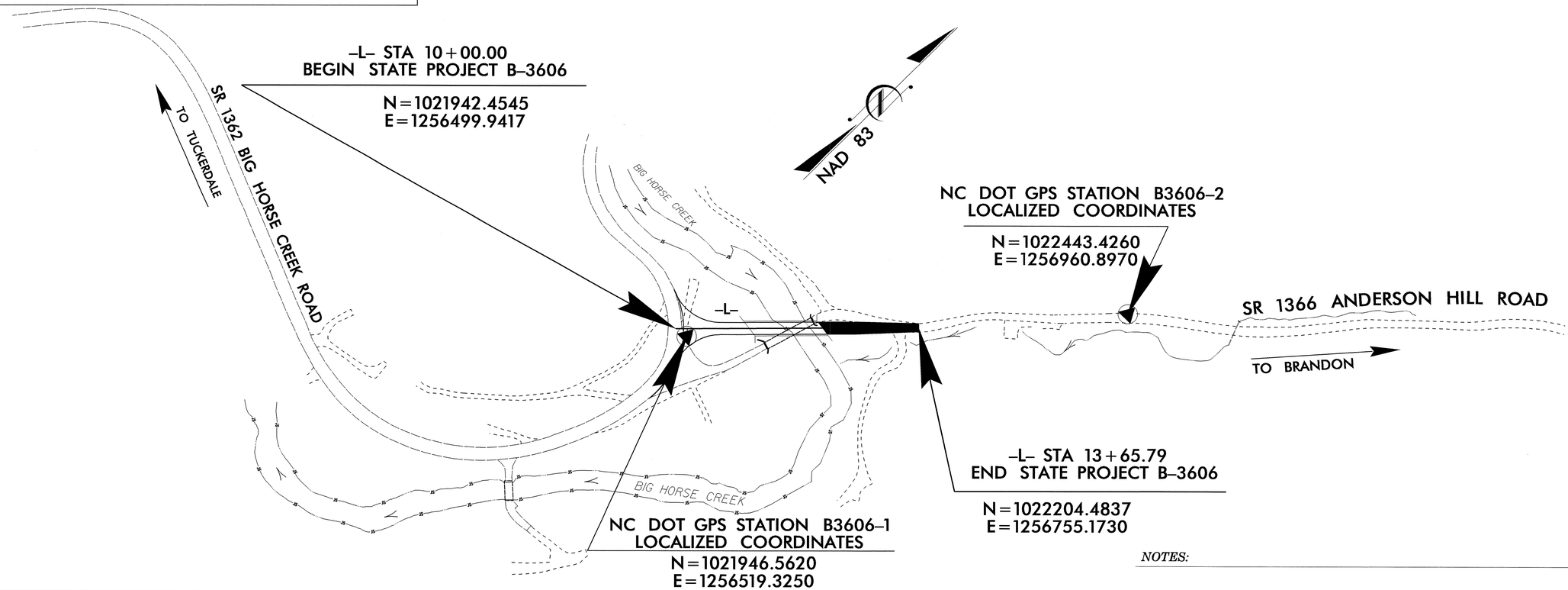
BY

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BY1103	BY1-103	1022002.8419	1256236.8359	2724.65′	OUTSIDE PROJECT LIMITS	
BY1102	BY1-102	1021999.7350	1256403.7830	2726.64′	OUTSIDE PROJECT LIMITS	
BY1104	GPS B3606-1	1021946.5620	1256519.3250	2718.92′	10+16.47	11.02′ RT
BY1101	BY1-101	1021728.0082	1256525.2092	2712.28′	OUTSIDE PROJECT LIMITS	

****
BM #1 ELEVATION = 2713.76′
N 1022075. E 1256763.
-L- STATION 12+79 96′ RIGHT
8" SPIKE IN 36" RED OAK
****



GPS NETWORK CONTROL



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3606-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 1021946.5620(ft) EASTING: 1256519.3250(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99999712 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3606-1" TO -L- STATION 10+00 IS S 78°02′07" W 19.81′ ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

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: B3606_LS_CONTROL_051101.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 NCGS MONUMENTATION

05-NOV-2007 11:54
R:\roadway\projects\b3606_ls_1c.dgn
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3606	2
RW. SHEET NO.	

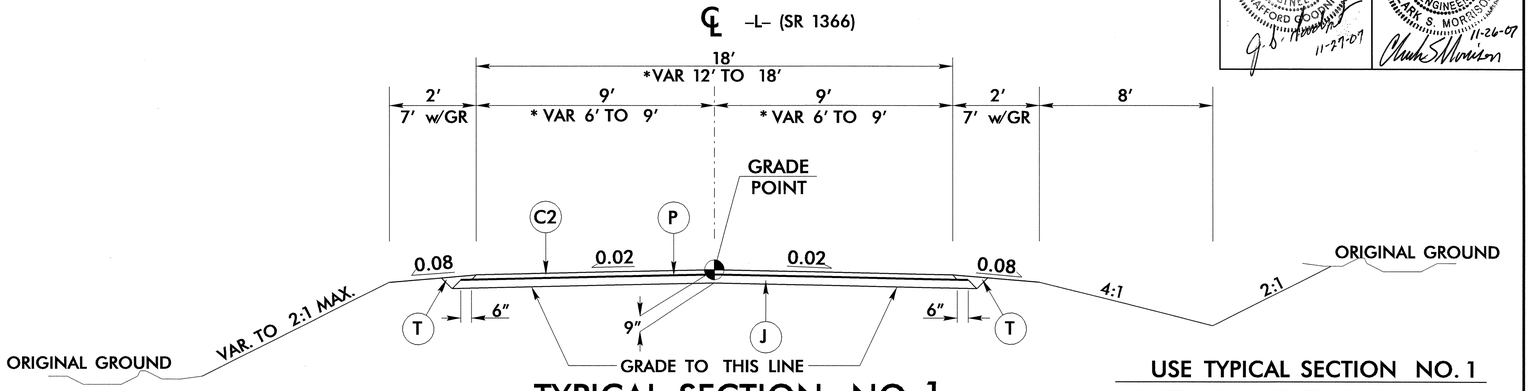
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 14493 ENGINEER JAMES STAFFORD COPNIGHT, JR. — 11-27-07

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON — 11-26-07

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165.0 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.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
J	PROP. 6" AGGREGATE BASE COURSE.
P	PRIME COAT
T	EARTH MATERIAL.

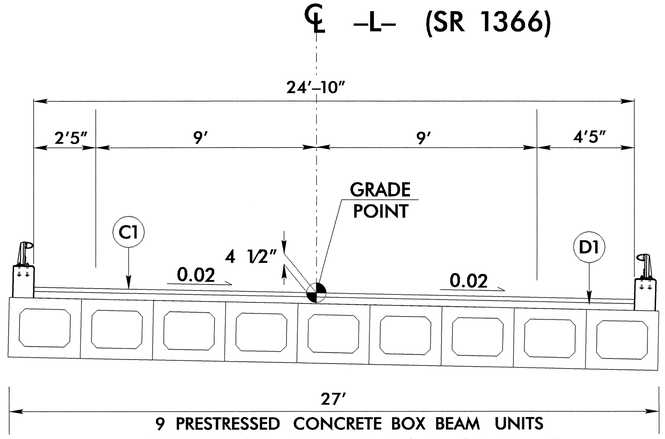
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

–L– STA. 10+00.00 TO 11+00.00
–L– 12+30.00 TO –L– STA. 12+65.79
* –L– STA. 12+65.79 TO –L– STA. 13+65.79



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

–L– STA. 11+00.00 TO –L– STA. 12+30.00

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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-3606	2-A

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

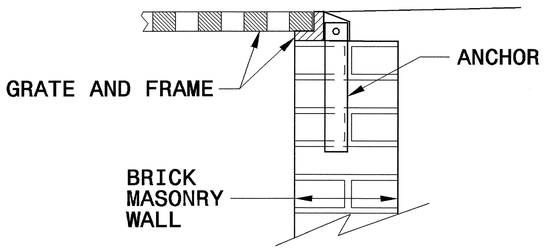
ENGLISH DETAIL DRAWING FOR

ANCHORAGE FOR FRAMES

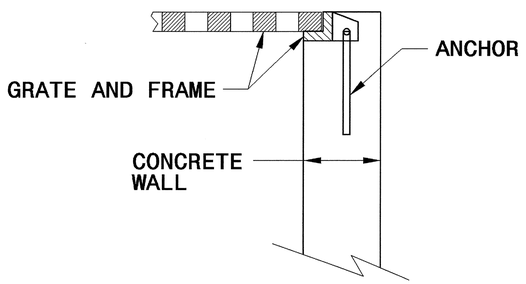
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1

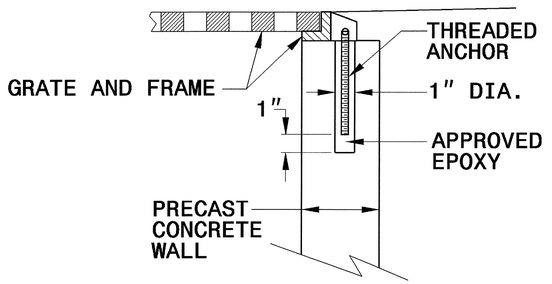
840D25



BRICK MASONRY CONSTRUCTION



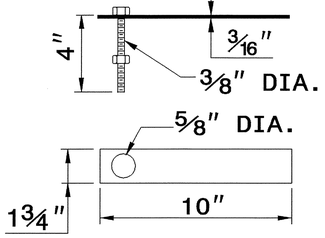
CONCRETE CONSTRUCTION



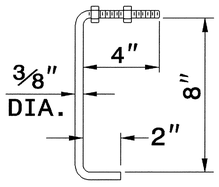
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

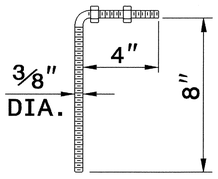
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



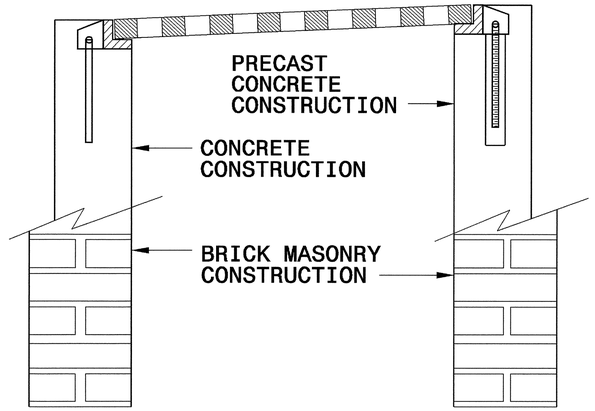
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



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 JOEL S. HOWERTON
11/29/07

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.:

27-SEP-2006 08:59
S:\Contracts\Contracts\Special Details\Ericward\stds\06' Stds to Special Details\840d25 Anchorage for Frames\0840d25.dgn
Ericward AT PS222293

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-3606	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201765

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0015000000-N	205	1	EA	SEALING ABANDONED WELLS
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (11+65.00)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	200	CY	UNDERCUT EXCAVATION
0080000000-E	SP	350	TON	CLASS IV SUBGRADE STABILIZATION
0195000000-E	265	300	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	300	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	12	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0372000000-E	310	36	LF	18" RC PIPE CULVERTS, CLASS III
0714000000-E	310	16	LF	18" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0726000000-E	310	48	LF	30" BIT COAT CS PIPE CULVERTS, TYPE B 0.079" THICK
0807000000-E	310	2	EA	18" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0809000000-E	310	1	EA	30" BIT COAT CS PIPE ELBOWS, TYPE B 0.079" THICK
0995000000-E	340	48	LF	PIPE REMOVAL
1121000000-E	520	180	TON	AGGREGATE BASE COURSE
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
1275000000-E	600	185	GAL	PRIME COAT
1498000000-E	610	80	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1525000000-E	610	120	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	12	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
2000000000-N	806	5	EA	RIGHT OF WAY MARKERS
2022000000-E	815	45	CY	SUBDRAIN EXCAVATION
2033000000-E	815	34	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	200	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	6	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	1	EA	MASONRY DRAINAGE STRUCTURES
2367000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	27	LF	SHOULDER BERM GUTTER
3030000000-E	862	25	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3165000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE ********** (TL-2)
3215000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3635000000-E	876	25	TON	RIP RAP, CLASS II
3649000000-E	876	13	TON	RIP RAP, CLASS B
3656000000-E	876	430	SY	FILTER FABRIC FOR DRAINAGE
4400000000-E	1110	223	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	69	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	96	LF	BARRICADES (TYPE III)
4810000000-E	1205	3,000	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	32	LF	PAINT PAVEMENT MARKING LINES (24")
6000000000-E	1605	440	LF	TEMPORARY SILT FENCE
6006000000-E	1610	75	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	135	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	135	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	1	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	40	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	1	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	410	LF	SAFETY FENCE
6030000000-E	1630	225	CY	SILT EXCAVATION
6036000000-E	1631	500	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	10	SY	COIR FIBER MAT
6042000000-E	1632	20	LF	1/4" HARDWARE CLOTH
6070000000-N	SP	4	EA	SPECIAL STILLING BASINS
6071030000-E	SP	25	LF	COIR FIBER BAFFLES
6071050000-E	SP	1	EA	** SKIMMER (1-1/2")
6084000000-E	1660	1	ACR	SEEDING & MULCHING
6087000000-E	1660	0.5	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	0.75	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	2	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.15	ACR	REFORESTATION

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COMPUTED BY: J. Loughry	DATE: 11/07
CHECKED BY: M. Hussey	DATE: 11/07

PROJECT REFERENCE NO.	SHEET NO.
B-3606	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION / SIZE / THICKNESS OR GAUGE	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 OTHRWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	CLASS III R.C. PIPE OR C.S. PIPE OR TYPE IR ALUMINIZED OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"
12+75	LT	1	2		2715.0	2714.2				36																					
12+71	RT	2		2717.2																											
12+71	RT	2	3		2714.2	2710.3												16													
12+90	RT	4	5		2706.3	2703.6														48											
TOTAL										36								16		48											
SAY										36								16		48											

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES 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	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	M.D.I. TYPE "A" STD. 840.17 OR 840.26	T.B.G.D.I. STD. 840.35	M.D.I. TYPE "D" STD. 840.19 OR 840.28	M.D.I. FRAME WITH GRATE STD. 840.22	M.D.I. FRAME WITH TWO GRATES STD. 840.22	M.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	J.B. STD. 840.31 OR 840.32		CORR. STEEL ELBOWS NO. & SIZE	TEMPORARY 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
12+75																													
12+71						1										1					1								
12+71																								2@18"					
12+90																									1@30"			48	TEMPORARY PIPE
TOTAL						1										1					1			2–18"	1–30"				
SAY						1										1					1			2–18"	1–30"				

* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	MEDIAN DROP INLET
G.D.I. (N.S.)	MEDIAN DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.G.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUCTION 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	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPROACH END	TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	TRAILING END	W APPROACH END	TRAILING END	ANCHORS XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	III	TL-2	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	10+63.65	10+93.65	LT					10+93.65	2.417	7													1							
-L-	10+77.51	11+07.51	RT				11+07.51		4.417	7													1							
-L-	12+23.65	12+53.65	LT				12+23.65		2.417	7													1							
-L-	12+37.51	13+21.26	RT	81.25'				12+37.51	4.417	7		50		1			1					1								
	SUBTOTAL			81.25'													1					1	3							
	ANCHOR DEDUCTIONS																													
	GRAU-350 1@50' =			50'																										
	TYPE III 1@18.75' =			18.75'																										
	TOTAL DEDUCTION =			68.75'																										
	TOTAL			12.5'													1					1	3							
	SAY			25'	ADDITIONAL G/R POSTS = 5 EA.												1					1	3							

SUMMARY OF ASPHALT REMOVAL

LINE	STATION - STATION	LOCATION	AREA
-L-	10+00.50- 10+67.00	RT	146 SY
-L-	10+99.53- 11+36.70	RT	39 SY
		TOTAL	185 SY
		SAY	205 SY

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
-L- 10+10.00 TO 11+16.00	5		1598	1593	
-L- 12+00.00 TO 13+65.79	18		828	810	
SUBTOTAL	23		2426	2403	
LOSS DUE TO CLEARING & GRUBBING	-50			50	
PROJ. TOTAL	0			2453	
EST. 5% TO REPLACE TOPSOIL IN BORROW PIT				123	
GRAND TOTAL	0			2576	
SAY	25			2850	
GEOTECH REC's OF OCTOBER 2, 2006					
EST FABRIC FOR SOIL STABILIZATION		300 SY			
EST ADDITIONAL UNDERCUT		200 CY			
EST UNDERDRAINS		200 FT			
EST SELECT GRANULAR MATERIAL CL. II OR III		300 CY			
EST SUBGRADE STABILIZATION MATERIAL CLASS IV		350 T			

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

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

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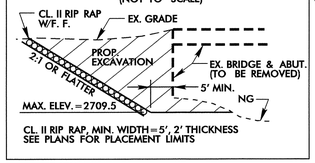

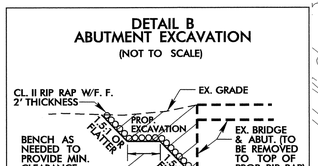

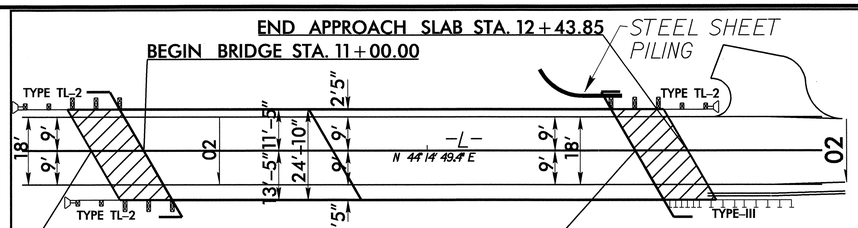

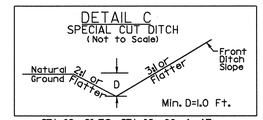

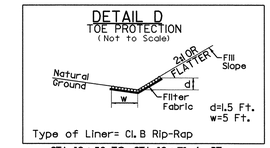

PROJECT REFERENCE NO.	SHEET NO.
B-3606	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 14493 JAMES STAFFORD GOODNIGHT, JR. J. S. Goodnight 11-26-07	SEAL 19660 PAUL ATKINSON Paul Atkinson 11/26/07

▨ PAVEMENT REMOVAL

SEE SHEET 5 FOR -L- PROFILE

SEE SHEET S1 THRU S-24 FOR STRUCTURE PLANS

REVISIONS

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-3606	5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 14493 ENGINEER JAMES STAFFORD KNIGHT JR.

11-26-07

HYDRAULICS ENGINEER

SEAL 19660 ENGINEER PAUL ATKINSON

11/27/07

BEGIN GRADE STA 10+10.00
EL 2719.84

END GRADE STA 13+65.79
EL 2718.75

STRUCTURE HYDRAULIC DATA

DRAINAGE STRUCTURE NO. 1

DRAINAGE AREA	= 0.4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 0.5	CFS
DESIGN HW ELEVATION	= <2716.5FT	
100 YEAR DISCHARGE	= 0.6	CFS
100 YEAR HW ELEVATION	= <2716.5FT	
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 0.8	CFS
OVERTOPPING ELEVATION	= 2717.9	FT

PI = 13+10.00
EL = 2,717.40'
VC = 110'
K = 34
V = 29

18" RCP
STA 12+74.50
INV EL 2714.5

(-)0.81.39%

(+)12.42.56%

4.66.42%

BEGIN DITCH LT
STA 12+81
EL 2715.00'

END DITCH LT
STA 13+00.00
EL 2715.7'

BM1 ELEVATION = 2714.98
N 1022075 E 1256763
–BL– STATION 7+58 97' RIGHT
8" SPIKE IN 36" RED OAK

SEE SHEET 4 FOR –L– ALIGNMENT

2,720
2,716
2,712
2,708
2,704
2,700

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